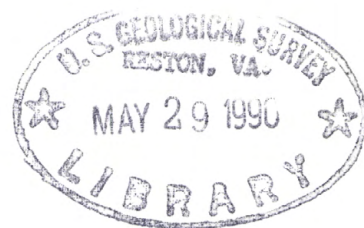


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Water Resources Data West Virginia Water Year 1988



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT WV-88-1
Prepared in cooperation with the State of West Virginia
and with other agencies

CALENDAR FOR WATER YEAR 1988

1987

OCTOBER							NOVEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
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1988

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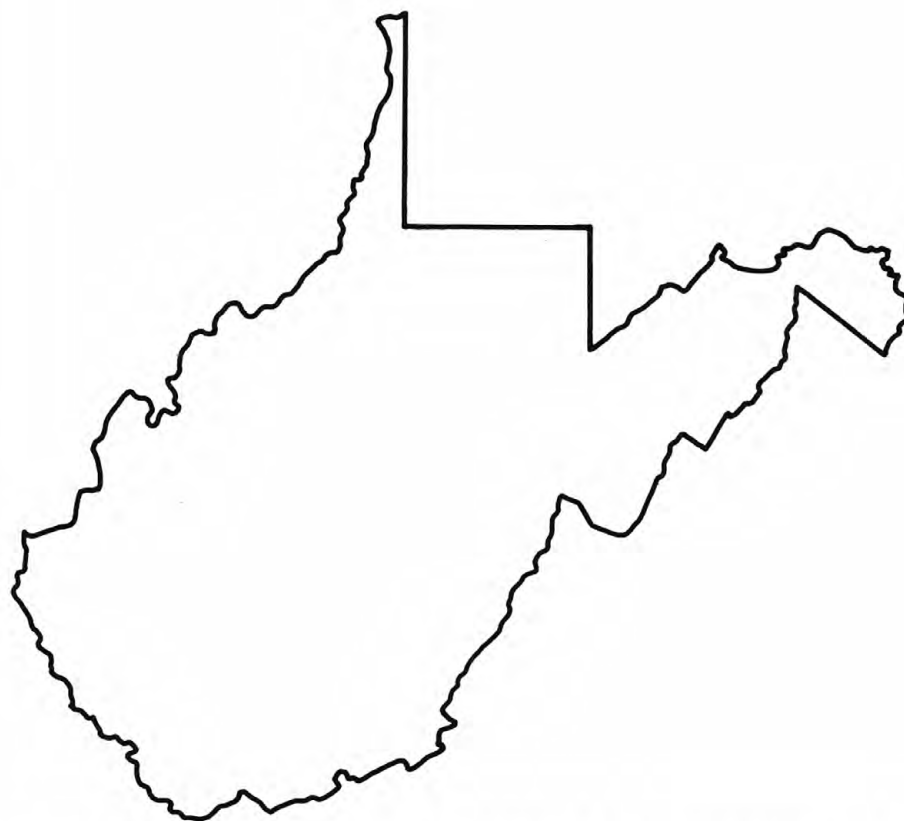
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31																				



Water Resources Data West Virginia Water Year 1988

by S.M. Ward, J.A. Macy, F.M. Taylor, and G.M. Ferrell



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT WV-88-1
Prepared in cooperation with the State of West Virginia
and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

MANUEL LUJAN, JR. Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For information on the water program in West Virginia write to
District Chief, Water Resources Division
U.S. Geological Survey
603 Morris Street
Charleston, West Virginia 25301

1990

PREFACE

This volume of the annual hydrologic data report for West Virginia is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each State, Puerto Rico, and 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.

This report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. The authors had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines. The following individuals contributed significantly to the collection, processing, and tabulation of the data:

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This report was prepared in cooperation with the State of West Virginia and with other agencies under the general supervision of D. H. Appel, District Chief.

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16. Abstract (Limit: 200 words) Water-resources data for the 1988 water year for West Virginia consist of records of stage, discharge, and water quality of streams; contents of reservoirs; and water levels of observation wells. This report contains discharge records for 79 streamflow-gaging stations; stage only records for 7 gaging stations, and 2 crest-stage partial-record stations; (2) change in contents for 1 reservoir; (3) water-quality records for 15 streamflow-gaging stations; and (4) water-level records for 30 observation wells. Locations of these sites are shown on figures 4 and 5. Additional water data were collected at various sites, not involved in the systematic data collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in West Virginia.			
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SURFACE-WATER STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

Letter after station name designates type of data: (d) discharge, (e) gage-height, (c) chemical, (sK) conductance, (t) temperature, (U) turbidity, (s) sediment, (l) elevation and content.

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* Records furnished by Mid-Atlantic District, U. S. Geological Survey.

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* Records furnished by Mid-Atlantic District, U.S. Geological Survey.

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

<u>County</u>	<u>Well number</u>	<u>Local number</u>	<u>Location</u>	<u>Page</u>
BERKELEY	392725077582401	20-5-7	Martinsburg	157
BRAXTON	384003080462601	34-2-15	Gassaway	157
BROOKE	401216080362703	P-1	Bethany	157
FAYETTE	380154080571301		Clifftop	158
GILMER	385604080495901	33-3-1	Glenville	158
GRANT	391652079181401		Mount Storm	159
GREENBRIER	374804080174001	45-8-2	White Sulphur Springs	159
HAMPSHIRE	391257078404601	23-6-46	Augusta	159
HARDY	385714078441301	25-4-5	Trout Pond Recreation Area	160
LEWIS	390008080283401	SJ4	Brownsville	160
	390553080280802	16-1-9	Jackson's Mill	160
MARION	393101080150501		Farmington	160
MASON	385451082062001	38-3-54	Point Pleasant (north)	161
MERCER	372149081055001	48-5-1	Princeton	161
MINERAL	392114079081101	22-5-23	Sulphur City	161
MINGO	373554081493401		Justice	162
MONONGALIA	392923079571801	9-7-33	Halleck	162
	394006080194801	9-1-47	Wadestown	162
MORGAN	393043078174001	19-5-14	Berkeley Springs	163
NICHOLAS	381513081094201	T-2	Belva	163
POCAHONTAS	380653080155301		Droop Mountain State Park	164
PRESTON	393306079474501	11-3-8	Masontown	164
RANDOLPH	385100079522901	H-63	Beverly	164
	385341079575401	18-3-110	Coalton	165
RITCHIE	391226081024901	28-3-3	Harrisville	165
TUCKER	390135079275601	15-6-17	Canaan Valley State Park	165
TYLER	393211081021201	B028	Sistersville	166
WAYNE	375827082211501	50-6-5	Cabwaylingo State Forest	166
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WATER RESOURCES DATA - WEST VIRGINIA, 1988

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 West 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 - West Virginia."

This report includes records on both surface and ground water in the State. Specifically, it contains: (1) Discharge records for 79 streamflow-gaging stations; stage only records for 7 gaging stations, and 2 crest-stage partial-record stations; (2) change in contents for 1 reservoir; (3) water-quality records for 15 streamflow-gaging stations; and (4) water-level records for 30 observation wells. Locations of these sites are shown on figures 4 and 5. Additional water data were collected at various sites, not involved in the systematic data collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in West Virginia.

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

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

Publications similar to this report are published annually by the Geological Survey for all States. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report WV-88-1." For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the District Chief at the address given on the back of the title page or by telephone (304) 347-5130.

COOPERATION

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

West Virginia Department of Energy, K. R. Faerber, Commissioner.

West Virginia Department of Natural Resources, R. R. Potesta, Director through Division of Waters, D. W. Robinson, Chief.

West Virginia Geological and Economic Survey, R. B. Erwin, Director.

West Virginia Department of Highways, W. S. Ritchie, Commissioner.

Jefferson County Commission, G. H. Moore, Jr., President.

Morgantown Utility Board, T. E. Urquhart, General Manager.

Washington Public Service District, C. I. Parsons, Manager.

Assistance with funds or services was given by the U.S. Army Corps of Engineers, U.S. Soil Conservation Service, National Park Service, and Federal Power Commission.

Assistance was also furnished by the National Weather Service of the U.S. Department of Commerce.

The following organizations aided in collecting records: Appalachian Power Company and the Monongahela Power Company.

Organizations that provided data are acknowledged in station descriptions.

SUMMARY OF HYDROLOGIC CONDITIONS

Streamflow during the 1988 water year was below normal throughout the State. Figures 1 and 2 show the median of mean monthly and yearly discharges for water years 1951-80 compared to the monthly and yearly mean discharges during the 1988 water year at four sites in different parts of the State. Precipitation data were obtained from "Monthly Reports of River and Flood Conditions," October 1987 to September 1988, National Weather Service, Charleston, West Virginia.

Streamflow in October and November was below normal throughout the State except in the eastern and southeastern parts of the State, where it was above normal. Precipitation during October was below normal throughout the State and below normal for November except in the southeastern and eastern parts of the State.

Streamflow in December and January was below normal except in the eastern part of the State, where it was above normal. Precipitation during December was below normal throughout the State except in the southern part of the State where it was near normal. Precipitation was below normal in January throughout the State.

Streamflow and precipitation in February and March were below normal throughout the State. Snowfall accumulations during the winter months were below normal.

Streamflow and precipitation from April through July were below normal throughout the State. A drought condition prevailed in the State during this period. Near-normal precipitation in August reduced the drought condition to moderate. Levels of several reservoirs in the State were allowed to drop below normal summer pool levels to augment low flow. The mean monthly and daily discharge for June at Greenbrier River at Alderson (monthly National Summary site) set a record low for the period 1895 to current year. The mean discharge for the 1988 water year at this site was 57 percent of the median for the period of record.

Streamflow and precipitation in September were above normal throughout the State.

Water-quality data were collected periodically at five NASQAN and five project sites during the year. The amount of data was insufficient to provide a summary statement.

Ground-water levels were generally below average throughout the State for most of the 1988 water year. In October, the water levels declined and were below average throughout the State. Although water levels rose from November through March, the monthly averages for this period were below average, except during January and February, when they were above average. In April, water levels remained stable but continued to be below average throughout the State. Water levels generally declined and were below average throughout the State from May through August. In September, water levels rose throughout most of the State and many levels were above average.

The index well in Gilmer County, near the center of the State, recorded water levels below average all year except during January through April and September, when they were above average. No record low or high water level was measured at the index well in the 1988 water year for which 34 years of record are available.

The 1988 drought was reflected in below-normal water levels in wells in the north-central and eastern counties of the State. Record low water levels occurred at several observation wells either at the beginning or at the end of the water year. A near record low was measured in July 1988 at a well in Tucker County (18 years of water-level data). A record low was measured late in the water year at a well in Webster County (9 years of water-level data), and at a well in Monongalia County (35 years of water-level data).

Water-level fluctuations for three observation wells are shown in figure 6. The hydrograph for the well in Preston County shows how the water level was affected by an underground coal mine until about July 1984. The rise of about 25 feet in the water level at this time probably occurred when the well caved in and partly sealed the well at about 330 feet below land surface. The water level is now more representative of the head in the rock above the cave-in than it was before the cave-in.

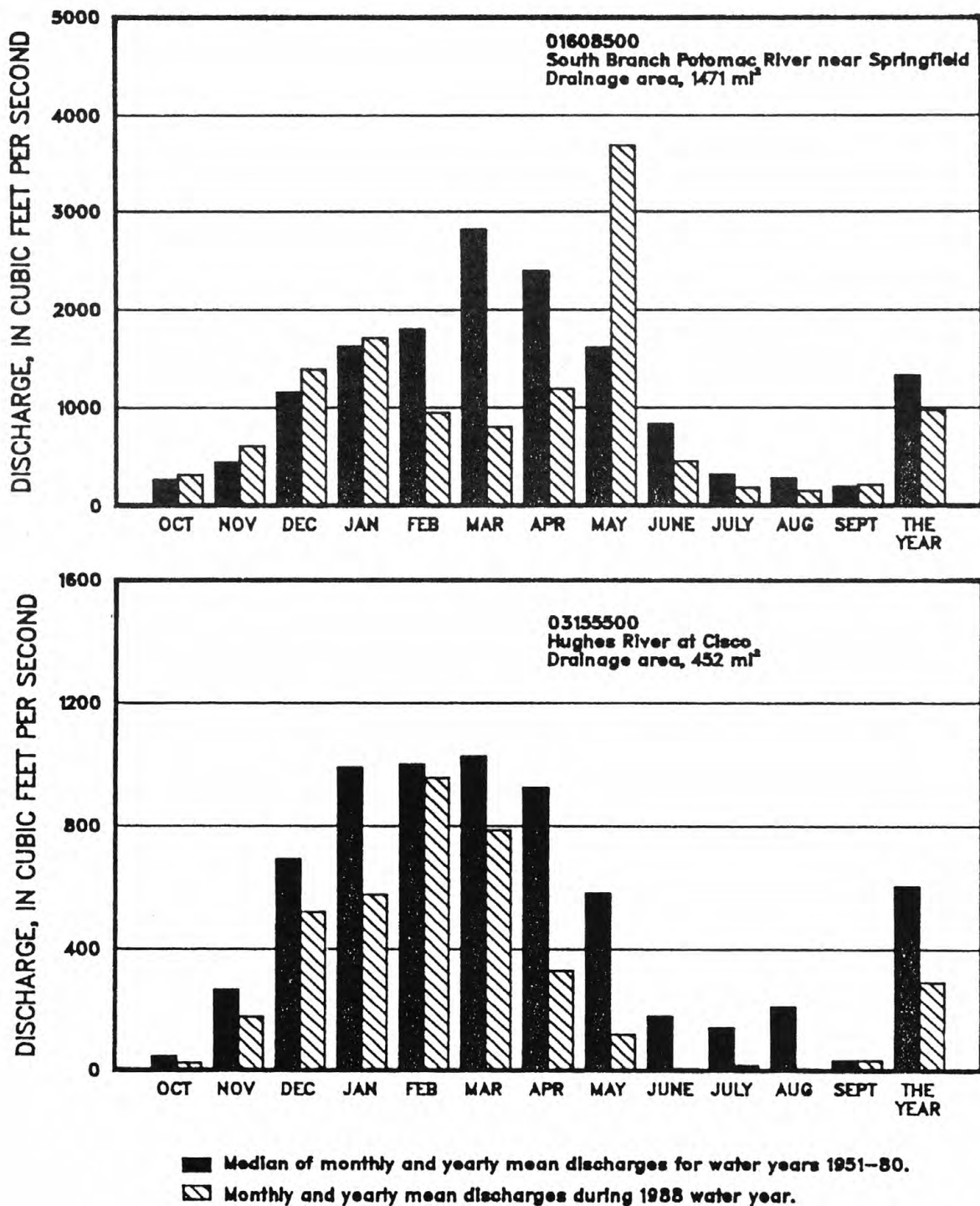


Figure 1.--Discharge at the South Branch Potomac River and the Hughes River index gaging stations during the 1988 water year compared to median discharge for the period 1951-80.

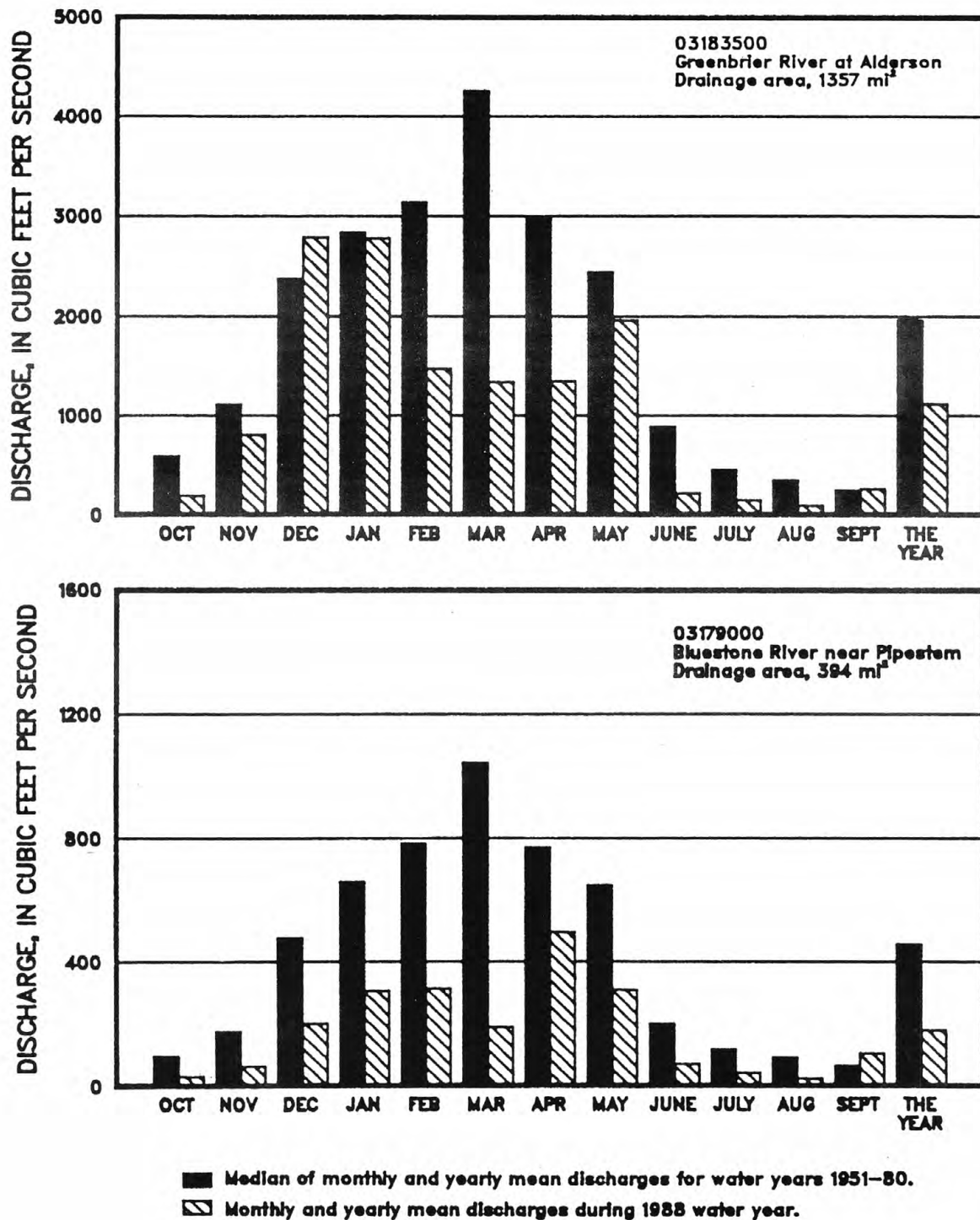


Figure 2.--Discharge at the Greenbrier River and the Bluestone River index gaging stations during the 1988 water year compared to median discharge for the period 1951-80.

SPECIAL NETWORKS AND PROGRAMS

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

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

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

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

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

EXPLANATION OF THE RECORDS

The surface-water and ground-water records published in this report are for the 1988 water year that began October 1, 1987, and ended September 30, 1988. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, water-quality data for surface and ground water, and ground-water-level data. The locations of the stations and wells where the data were collected are shown in figures 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, whether streamsite or well, in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations and for ground-water well sites differ, but both are based on geographic location. The "downstream order" system is used for regular surface-water stations and the "latitude-longitude" system is used for wells and, in West Virginia, for surface-water stations where only miscellaneous measurements are made.

Downstream Order System

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a mainstream station are listed before that station. A station on a tributary that enters between two mainstream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary with respect to the stream to which it is immediately tributary is indicated by an 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 03198000, which appears just to the left of the station name, includes the two-digit Part number "03" plus the six-digit downstream-order number "198000." The Part number designates the major river basin; for example, Part "03" is the Kanawha River basin.

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Latitude-Longitude System

The identification numbers for wells and miscellaneous surface-water sites are assigned according to the grid system of latitude and longitude. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the wells or other sites within a 1-second grid. This site-identification number, once assigned, is a pure number and has no locational significance. In the rare instance where the initial determination of latitude and longitude are found to be in error, the station will retain its initial identification number; however, its true latitude and longitude will be listed in the LOCATION paragraph of the station description. (See figure 3 below.)

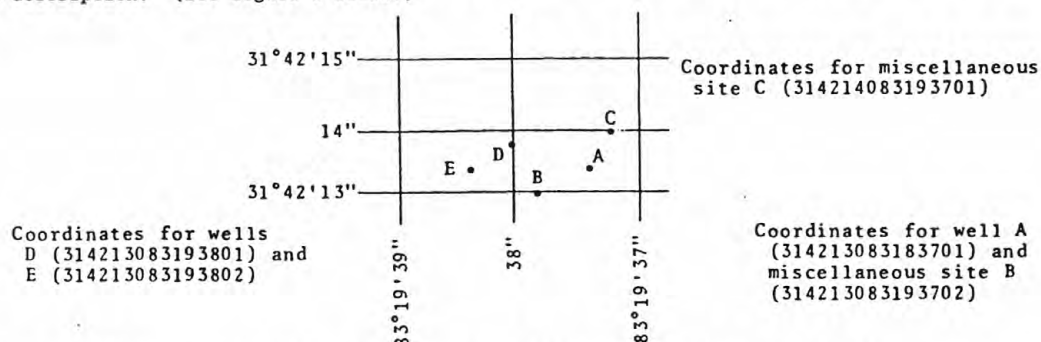


Figure 3. System for numbering wells and miscellaneous sites (latitude and longitude).

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

Records of Stage and Water Discharge

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

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "Crest-stage partial records," or "Low-flow partial records." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this report. Location of all complete-record and crest-stage partial-record stations for which data are given in this report are shown in figure 4.

Data Collection and Computation

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

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

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

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

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

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

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

Data Presentation

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

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

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

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

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

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

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

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

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

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

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

EXTREMES FOR CURRENT YEAR.--Extremes given here are similar to those for the period of record, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and greater than a selected base discharge are presented under this heading. The peaks 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 to determine if the published records were ever revised after the station was discontinued. Of course, if the data were obtained by computer retrieval, the data would be current and there would be no need to check because any published revision of data is always accompanied by revision of the corresponding data in computer storage.

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

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

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

Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables of annual State data reports are identified either by flagging individual daily values with the letter symbol "e" and printing a table foot-note, "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 ft³/s; to the nearest tenth between 1.0 and 10 ft³/s; to whole numbers between 10 and 1,000 ft³/s; and to 3 significant figures for more than 1,000 ft³/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 West 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 District office.

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 4.

Arrangement of Records

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

On-site Measurements and Sample Collection

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

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.

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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 West 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 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 West Virginia District Office.

Sediment

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

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

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

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

Laboratory Measurements

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

Data Presentation

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available, instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radiochemical data, and so forth, obtained at a frequency less than daily are presented first. Tables of "daily values" of specific conductance, pH, water temperature, dissolved oxygen, and suspended sediment then follow in sequence.

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

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

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

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

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

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

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

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

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

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

Remark Codes

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

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

Records of Ground-Water Levels

Only water-level data from a national network of observation wells are given in this report. These data are intended to provide a sampling and historical record of water-level changes in the Nation's most important aquifers. Locations of the observation wells in this network in West Virginia are shown in figure 5.

Data Collection and Computation

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

Tables of water-level data are presented by counties arranged in alphabetical order. The prime identification number for a given well is the 15-digit number that appears in the upper left corner of the table. The secondary identification number is the local well number, an alphanumeric number, derived from the township-range location of the well.

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

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

Data Presentation

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

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

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

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

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

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

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

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

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

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

Records of Ground-Water Quality

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

Data Collection and Computation

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

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

Data Presentation

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

ACCESS TO WATSTORE DATA

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

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

General inquiries about WATSTORE may be directed to:

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

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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 equal 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 multicelled plants, containing chlorophyll and lacking roots, stems, and leaves.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Bottom material: See Bed material.

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

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

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

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

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

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

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

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

Cubic foot per second day (ft^3/d) is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons, or 2,445 cubic meters.

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.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Micrograms per gram ($\mu\text{g/g}$) 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.

Microsiemens per centimeter ($\mu\text{S/CM}$) at 25°C are the units of measure for specific conductance. The microsiemen is numerically the same as the micromho.

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

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

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

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

Nephelometric turbidity units (NTU) are the unit of measure of turbidity. It is based on use of a standard suspension of Formazin.

Organism is any living entity.

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

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

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

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

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

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

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

<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 (1×10^{-12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} 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/(m²-time)] for periphyton and macrophytes and [mg C/(m³-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.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

7-day 10-year low flow (7 Q10) 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.

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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 planimeted. All areas shown are those for the stage when the planimeted 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 μ 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 μ 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.

WATER RESOURCES DATA - WEST VIRGINIA, 1988

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.

Turbidity is a measurement of the intensity of light scattered by a water sample. Suspended particulate matter in the sample causes scattering of light passing through the sample. Turbidity is measured by comparison of the light scattering intensity of a water sample to that of a standard reference suspension. The greater the intensity of the scattered light, the greater the turbidity. Turbidity is expressed in nephelometric turbidity units (NTU).

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, 1988, is called the "1988 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.

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

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

- 1-D1. Water temperature--influential factors, field measurement, and data presentation, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.
- 1-D2. Guidelines for collection and field analysis of ground-water samples for selected unstable constituents, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.
- 2-D1. Application of surface geophysics to ground-water investigations, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.
- 2-E1. Application of borehole geophysics to water-resources investigations, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.
- 3-A1. General field and office procedures for indirect discharge measurements, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.
- 3-A2. Measurement of peak discharge by the slope-area method, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.
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- 3-A5. Measurement of peak discharge at dams by indirect methods, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.
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- 3-A7. Stage measurements at gaging stations, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.
- 3-A8. Discharge measurements at gaging stations, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.
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- 3-A10. Discharge ratings at gaging stations, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.
- 3-A11. Measurement of discharge by moving-boat method, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.
- 3-A12. Fluorometric procedures for dye tracing, by J. F. Wilson, Jr., E. D. Cobb, and F. A. Kilpatrick: USGS--TWRI Book 3, Chapter A12. 1986. 41 pages.
- 3-A13. Computation of continuous records of streamflow, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 pages.
- 3-A14. Use of flumes in measuring discharge, by F. A. Kilpatrick and V. R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 pages.
- 3-A15. Computation of water-surface profiles in open channels, by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 pages.
- 3-A16. Measurement of discharge using tracers, by F. A. Kilpatrick and E. D. Cobb: USGS--TWRI Book 3, Chapter A16. 1985. 52 pages.
- 3-A17. Acoustic velocity meter systems, by Antonius Laenen: USGS--TWRI Book 3, Chapter A17. 1985. 38 pages.
- 3-B1. Aquifer-test design, observation, and data analysis, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.

- 3-B2. Introduction to ground-water hydraulics, a programed test for self-instruction, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.
- 3-B3. Type curves for selected problems of flow to wells in confined aquifers, by J. E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.
- 3-B5. Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems--An introduction, by O. L. Franke, T. E. Reilly, and G. D. Bennett: USGS--TWRI Book 3, Chapter B5. 1987. 15 pages.
- 3-B6. The principle of superposition and its application in ground-water hydraulics, by T. E. Reilly, O. L. Franke, and G. D. Bennett: USGS--TWRI Book 3, Chapter B6. 1987. 28 pages.
- 3-C1. Fluvial sediment concepts, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.
- 3-C2. Field methods for measurement of fluvial sediment, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.
- 3-C3. Computation of fluvial-sediment discharge, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.
- 4-A1. Some statistical tools in hydrology, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.
- 4-A2. Frequency curves, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.
- 4-B1. Low-flow investigations, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.
- 4-B2. Storage analyses for water supply, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.
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- 4-D1. Computation of rate and volume of stream depletion by wells, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.
- 5-A1. Methods for determination of inorganic substances in water and fluvial sediments, by M. W. Skougstad and others, editors: USGS--TWRI Book 5, Chapter A1. 1979. 626 pages.
- 5-A2. Determination of minor elements in water by emission spectroscopy, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.
- 5-A3. Methods for analysis of organic substances in water, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages.
- 5-A4. Methods for collection and analysis of aquatic biological and microbiological samples, edited by P. E. Greeson, T. A. Ehlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages.
- 5-A5. Methods for determination of radioactive substances in water and fluvial sediments, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.
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- 6-A1. A modular three-dimensional finite-difference ground-water flow model, by M. G. McDonald and A. W. Harbaugh: USGS--TWRI Book 6, Chapter A1. 1988. 586 pages.
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- 7-C2. Computer model of two-dimensional solute transport and dispersion in ground water, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.
- 7-C3. A model for simulation of flow in singular and interconnected channels, by R. W. Schaffranek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.
- 8-A1. Methods of measuring water levels in deep wells, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.
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- 8-B2. Calibration and maintenance of vertical-axis type current meters, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.

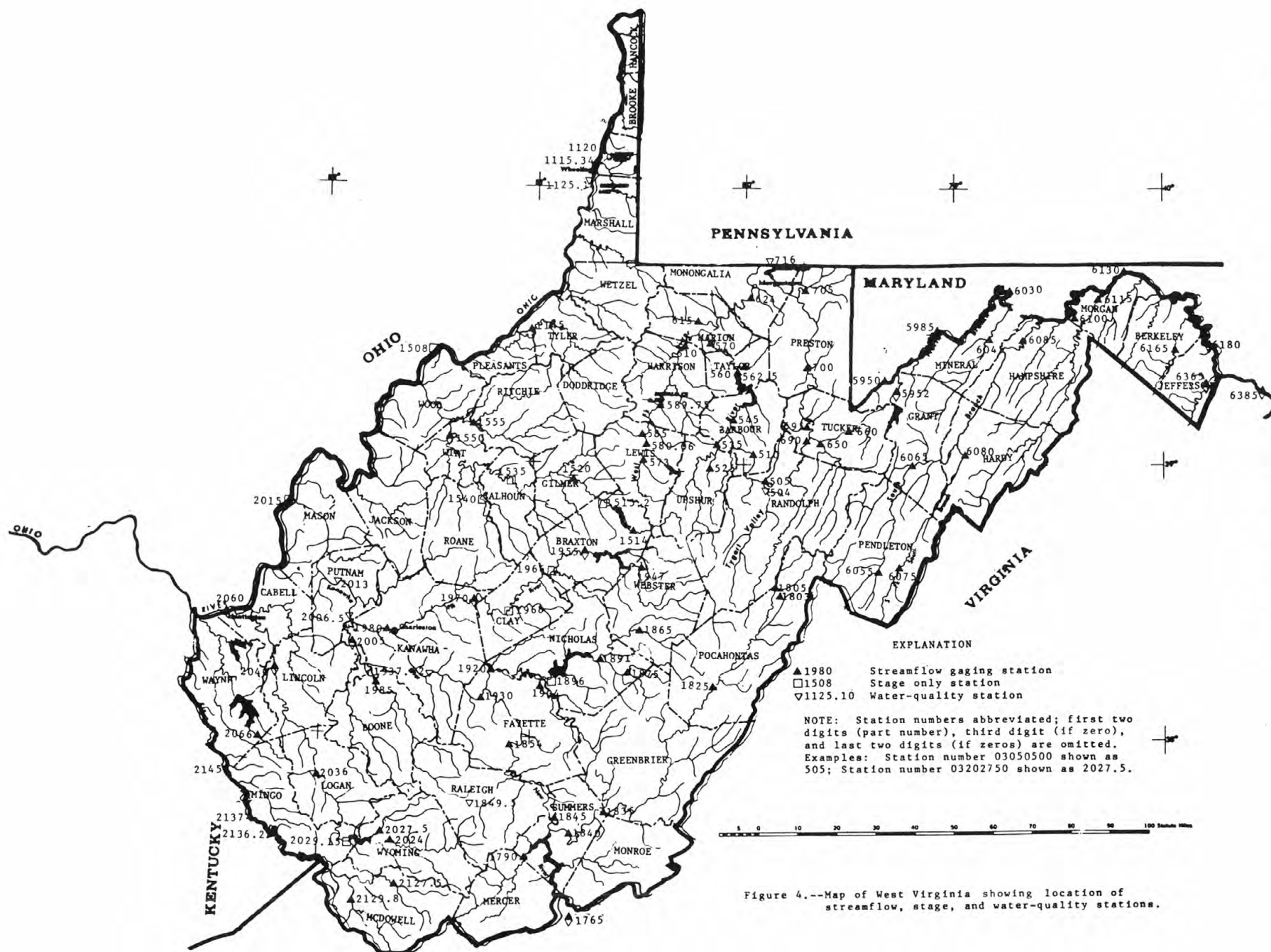


Figure 4.--Map of West Virginia showing location of streamflow, stage, and water-quality stations.

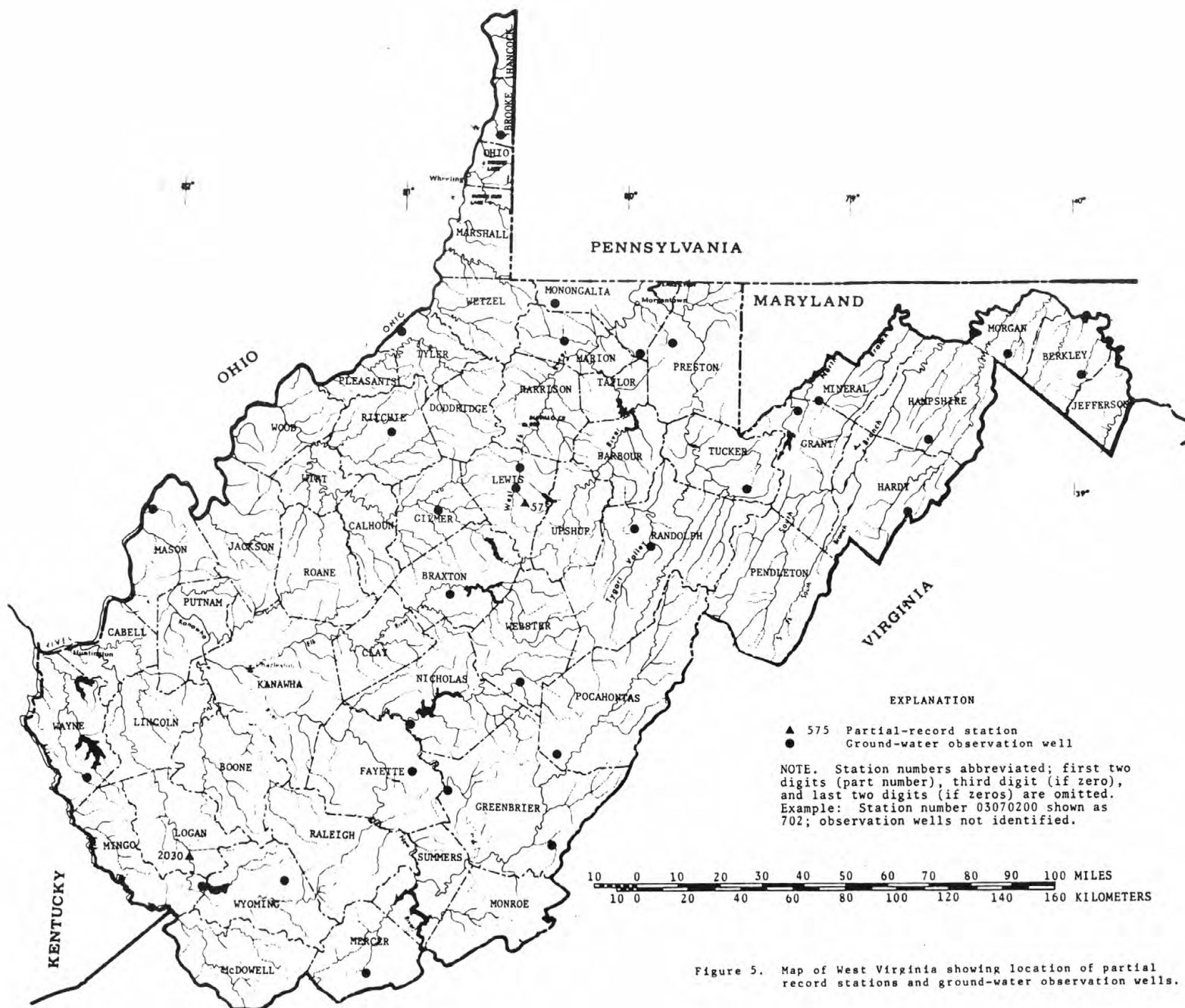


Figure 5. Map of West Virginia showing location of partial record stations and ground-water observation wells.

SURFACE-WATER RECORDS

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

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

POTOMAC RIVER BASIN

01595000 NORTH BRANCH POTOMAC RIVER AT STEYER, MD

LOCATION.--Lat 39°18'07", long 79°18'26", Garrett County, Hydrologic Unit 02070002, on left bank 0.3 mi southeast of Steyer, 0.4 mi downstream from Steyer Run, 2.0 mi northeast of Gorman, and at mile 81.8.

DRAINAGE AREA.--73.0 mi².

PERIOD OF RECORD.--July 1956 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,276.01 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, 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.

AVERAGE DISCHARGE.--32 years, 173 ft³/s, 32.18 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,500 ft³/s, Nov. 5, 1985, gage height, 13.14 ft, from rating curve extended above 3,000 ft³/s on basis of slope-area measurement at gage height 10.30 ft; minimum discharge 2.9 ft³/s, Sept. 10, 1965, gage height, 2.03 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 15, 1954, reached a stage of 13.0 ft, from floodmarks; discharge, 11,300 ft³/s, from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 20	0300	*2,440	*6.47	No other peak greater than base discharge.			

Minimum discharge, 10 ft³/s, Sept. 12, gage height, 1.80 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	88	32	192	495	225	102	138	283	113	28	16	14
2	71	29	175	335	292	101	117	230	122	26	22	13
3	103	33	152	262	322	127	108	202	119	23	23	12
4	76	39	175	227	471	404	124	205	96	23	19	33
5	62	32	152	208	354	417	110	755	83	25	17	43
6	61	27	130	e180	253	269	106	1730	72	25	16	30
7	72	27	123	e160	244	223	374	794	69	24	e15	24
8	90	26	132	e140	212	192	539	443	65	24	e14	22
9	94	25	233	e120	186	170	351	330	201	20	e15	17
10	68	171	373	e110	152	171	264	293	126	16	e15	15
11	62	193	263	e94	140	142	219	262	87	16	e15	11
12	61	114	219	e84	119	123	192	218	66	39	e17	12
13	59	108	176	e92	e110	177	168	189	54	32	14	40
14	53	141	147	e86	e100	164	144	163	53	28	12	121
15	51	140	253	e80	e100	150	132	145	52	24	11	36
16	48	129	209	e80	e98	137	113	147	50	21	15	26
17	42	128	172	e95	e98	128	102	143	45	16	17	31
18	38	121	151	.432	e100	124	140	408	44	16	16	37
19	35	100	135	388	108	116	179	1190	36	23	30	26
20	36	96	439	1090	211	108	131	578	35	27	34	24
21	45	90	313	430	175	103	118	397	36	36	30	21
22	46	102	237	289	158	102	108	292	35	39	16	21
23	41	101	212	232	170	184	102	239	34	27	17	21
24	39	122	184	192	167	333	106	270	34	23	33	76
25	33	118	334	170	150	267	91	464	30	23	22	200
26	31	100	498	150	137	313	94	292	26	24	19	128
27	34	86	353	e140	120	272	89	238	23	24	16	61
28	54	84	298	e130	111	218	92	195	25	19	13	46
29	48	269	292	e120	104	194	217	164	28	22	17	39
30	45	253	230	e120	---	169	339	139	28	24	25	30
31	41	---	237	e150	---	148	---	125	---	19	17	---
TOTAL	1727	3036	7189	6881	5187	5848	5107	11523	1887	756	578	1230
MEAN	55.7	101	232	222	179	189	170	372	62.9	24.4	18.6	41.0
MAX	103	269	498	1090	471	417	539	1730	201	39	34	200
MIN	31	25	123	80	98	101	89	125	23	16	11	11
CFSM	.76	1.39	3.18	3.04	2.45	2.58	2.33	5.09	.86	.33	.26	.56
IN.	.88	1.55	3.66	3.51	2.64	2.98	2.60	5.87	.96	.39	.29	.63

CAL YR 1987 TOTAL 53537 MEAN 147 MAX 1050 MIN 12 CFSM 2.01 IN. 27.28
WTR YR 1988 TOTAL 50949 MEAN 139 MAX 1730 MIN 11 CFSM 1.91 IN. 25.96

e Estimated

POTOMAC RIVER BASIN

01595200 STONY RIVER NEAR MOUNT STORM, WV

LOCATION.--Lat 39°16'10", long 79°15'45", Grant County, Hydrologic Unit 02070002, on left bank 100 ft downstream from highway bridge on U.S. Highway 50, 1.0 mi west of Mount Storm, and at mile 6.4.

DRAINAGE AREA.--48.8 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,554.54 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 11 to Nov. 29, Jan. 6-17, Feb. 5-7. Water-discharge records fair, except those for periods of estimated daily discharges, which are poor. Prior to June 1987, flow regulated by Stony River Reservoir, 14.0 mi upstream from station. Regulation since 1963 by Virginia Electric and Power Company dam (Mount Storm Lake) 4.0 mi upstream from station.

AVERAGE DISCHARGE.--27 years, 99.7 ft³/s, 27.74 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,000 ft³/s, Nov. 5, 1985, gage height, 16.41 ft, from floodmarks, from rating curve extended above 7,500 ft³/s, on basis of slope-area measurement of peak flow; minimum daily discharge, 1.3 ft³/s, Aug. 28, 1988; minimum gage height, 1.73 ft, Sept. 25, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,150 ft³/s, May 6, gage height, 8.40 ft; minimum daily discharge, 1.3 ft³/s, Aug. 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	e5.8	231	184	169	28	31	122	25	5.7	4.5	1.9
2	10	e5.0	193	147	192	27	29	103	53	5.4	11	2.0
3	12	e5.6	115	315	196	29	65	93	157	5.1	11	1.7
4	7.2	e6.2	52	54	466	97	154	96	70	5.0	11	6.7
5	6.2	e5.6	58	98	e100	120	26	314	27	4.8	11	4.4
6	6.7	e5.0	61	e84	e70	107	28	1990	15	4.7	8.6	2.6
7	8.8	e4.4	61	e74	e46	257	166	595	15	4.8	4.4	2.6
8	16	e4.3	70	e66	44	303	335	436	14	4.6	3.9	2.9
9	16	e8.0	108	e60	42	203	272	179	39	3.3	4.7	2.8
10	11	e36	145	e54	42	47	186	374	27	3.1	3.5	2.0
11	e10	e40	143	e48	41	34	195	133	18	3.0	4.0	1.7
12	e9.6	e30	128	e44	32	30	168	293	14	3.5	3.8	1.6
13	e9.0	e22	113	e41	46	105	140	51	13	3.1	3.9	4.2
14	e8.5	e25	102	e38	40	67	113	40	14	3.2	3.3	4.1
15	e8.2	e25	135	e36	31	43	31	35	14	3.6	2.8	2.7
16	e7.8	e24	125	e34	32	43	25	37	17	3.3	2.2	2.5
17	e7.0	e22	109	e33	32	95	21	98	17	3.5	1.6	2.4
18	e6.4	e20	98	85	28	32	26	303	13	3.6	1.6	2.3
19	e5.8	e19	93	97	41	75	32	1270	9.1	4.1	2.4	2.0
20	e5.4	e18	203	706	67	24	26	367	8.6	5.8	2.4	2.0
21	e6.6	e17	179	566	70	26	24	451	12	14	2.2	2.1
22	e6.6	e19	156	462	68	27	23	362	10	11	1.4	2.6
23	e6.4	e18	293	263	147	48	20	66	8.4	6.1	1.8	4.8
24	e6.0	e21	236	52	147	92	20	58	13	5.5	2.1	12
25	e5.5	e20	189	52	128	214	19	137	7.6	4.8	2.1	25
26	e5.2	e18	134	82	113	302	20	147	6.1	6.1	2.1	18
27	e6.0	e17	121	79	76	263	19	125	7.6	9.2	1.8	10
28	e8.8	e50	121	71	27	222	22	49	12	8.3	1.3	8.5
29	e8.0	e120	117	68	27	118	41	29	7.3	9.0	1.6	7.6
30	e7.4	293	94	65	---	34	144	26	6.1	8.3	1.8	7.1
31	e6.4	---	96	74	---	33	---	24	---	4.5	1.8	---
TOTAL	256.5	923.9	4079	4132	2560	3145	2421	8403	669.8	170.0	121.6	152.8
MEAN	8.27	30.8	132	133	88.3	101	80.7	271	22.3	5.48	3.92	5.09
MAX	16	293	293	706	466	303	335	1990	157	14	11	25
MIN	5.2	4.3	52	33	27	24	19	24	6.1	3.0	1.3	1.6

CAL YR 1987 TOTAL 33386.7 MEAN 91.5 MAX 1160 MIN 4.3
WTR YR 1988 TOTAL 27034.6 MEAN 73.9 MAX 1990 MIN 1.3

e Estimated

POTOMAC RIVER BASIN

01595200 STONY RIVER NEAR MOUNT STORM, WV--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1962 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: December 1961 to March 1974, September 1974 to current year.

INSTRUMENTATION.--Temperature recorder (continuous ethyl alcohol - actuated thermograph) since December 1961.

REMARKS.--Upstream reservoir regulation stopped June 1987.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum, 27.5°C, Aug. 14, 1984; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum, 25.0°C, July 17, Aug. 17; minimum, 0.0°C on many days during January and February.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	7.5	9.0	5.0	7.0	2.5	10.5	12.5	18.5	15.0	23.0	18.0
2	---	8.5	9.0	4.0	8.0	2.5	10.5	12.5	18.0	17.0	22.5	17.0
3	---	8.5	8.5	8.5	7.0	3.0	12.5	12.0	16.5	18.5	23.5	17.5
4	---	9.0	6.0	4.5	9.0	3.0	14.5	12.0	16.5	19.5	23.5	17.0
5	---	8.5	3.5	1.0	5.0	3.0	13.0	12.5	16.0	21.0	23.5	16.5
6	---	6.0	2.5	.5	3.0	5.5	11.5	14.5	18.0	21.0	23.0	16.0
7	---	4.0	3.0	.5	1.5	9.0	10.5	16.0	19.0	21.5	23.0	14.0
8	8.0	5.0	4.5	.5	.0	10.5	11.5	17.0	19.0	21.0	23.0	---
9	8.0	6.5	5.5	.0	.0	10.0	12.5	16.0	18.5	21.5	22.5	---
10	9.0	6.5	7.0	.0	1.0	8.0	14.0	17.0	14.5	21.5	23.0	---
11	9.0	4.5	7.0	.0	1.5	5.0	14.0	15.0	15.0	21.5	22.5	---
12	8.5	3.0	7.0	.0	1.0	4.5	13.0	17.0	16.0	20.5	23.0	---
13	7.5	2.5	7.0	.0	1.0	8.0	14.0	16.0	18.0	21.5	23.0	---
14	6.0	3.0	7.0	.0	.5	7.0	13.0	15.0	19.0	22.0	24.0	---
15	6.0	3.0	7.0	.0	.0	3.0	12.0	15.5	20.0	22.5	24.5	---
16	6.5	4.5	6.0	.0	.0	2.0	9.5	17.0	20.0	24.0	24.5	---
17	7.5	7.0	5.0	.0	.0	5.5	10.0	16.0	19.0	25.0	25.0	---
18	8.5	7.0	5.0	1.0	1.5	5.0	9.0	16.0	18.0	24.0	23.5	---
19	8.5	6.0	5.0	2.0	1.0	7.0	8.5	17.0	20.0	23.0	22.0	---
20	9.0	5.0	5.0	7.0	1.5	4.0	9.5	16.0	21.0	22.0	20.5	---
21	9.0	3.0	5.0	7.5	1.0	3.0	10.5	16.5	22.5	21.5	20.5	---
22	6.5	2.0	6.0	8.0	1.5	2.5	9.0	18.5	23.0	21.5	21.0	---
23	5.5	1.0	7.0	8.0	5.0	5.0	10.5	18.0	22.5	21.0	18.0	---
24	7.0	2.5	8.0	4.0	5.0	7.0	10.5	16.0	20.0	22.0	19.5	---
25	7.0	4.5	9.0	2.5	4.5	13.0	10.5	14.5	22.5	22.0	19.0	---
26	6.0	6.0	8.0	1.5	4.0	12.5	12.0	15.5	22.5	20.5	19.0	---
27	5.0	6.0	7.0	1.0	4.0	11.5	11.5	17.0	19.0	21.0	20.0	---
28	5.0	5.0	7.0	1.0	3.0	11.5	10.0	17.0	18.0	22.5	20.0	---
29	5.0	5.0	6.5	1.5	2.0	12.0	8.5	17.0	17.5	23.5	19.0	---
30	5.0	9.0	5.0	2.5	---	10.0	11.0	17.0	16.5	23.5	19.5	---
31	7.0	---	5.0	3.0	---	10.5	---	18.5	---	23.5	18.0	---
MAX	---	9.0	9.0	8.5	9.0	13.0	14.5	18.5	23.0	25.0	25.0	---

WTR YR 1988 MAX 25.0

POTOMAC RIVER BASIN

01595200 STONY RIVER NEAR MOUNT STORM, WV--Continued

WATER-QUALITY RECORDS

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MINIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	5.5	9.0	4.0	3.0	1.0	9.0	9.5	15.5	12.0	19.5	13.5
2	---	7.0	8.5	3.5	7.0	1.0	9.0	10.5	15.0	12.0	20.0	13.0
3	---	7.5	6.0	3.5	7.0	2.0	9.5	11.0	15.0	13.0	21.0	13.5
4	---	8.0	3.5	1.0	5.0	2.5	12.5	11.5	15.0	14.5	21.0	16.0
5	---	6.5	2.5	.5	3.0	1.0	9.5	11.0	13.5	15.5	21.0	14.0
6	---	3.5	2.5	.5	1.5	3.0	10.0	11.0	13.5	16.0	21.0	13.0
7	---	3.0	2.0	.5	.0	5.0	9.0	12.0	16.0	17.0	20.0	13.0
8	8.0	3.5	3.0	.0	.0	9.0	9.0	14.5	16.0	17.5	18.5	---
9	6.0	5.0	4.5	.0	.0	8.5	11.0	12.5	14.5	18.5	18.5	---
10	7.0	4.5	5.5	.0	.0	5.0	10.0	15.0	11.5	17.5	19.0	---
11	8.5	3.0	7.0	.0	1.0	3.0	11.5	12.5	11.0	18.0	19.5	---
12	7.5	2.0	7.0	.0	1.0	3.0	12.0	14.0	12.5	19.0	19.5	---
13	6.0	2.0	7.0	.0	.5	5.0	12.0	13.0	13.5	17.5	20.5	---
14	5.0	2.5	7.0	.0	.0	3.0	11.0	13.0	14.5	18.5	20.5	---
15	5.0	3.0	6.0	.0	.0	1.5	9.0	13.0	15.5	19.5	21.0	---
16	5.5	3.0	5.0	.0	.0	1.0	7.5	13.5	16.5	19.0	20.0	---
17	6.0	4.5	5.0	.0	.0	1.0	6.0	15.5	17.0	21.5	19.5	---
18	7.5	6.0	4.5	.0	.0	3.0	8.0	13.5	15.5	20.0	21.0	---
19	7.0	5.0	4.5	1.0	.5	3.0	7.0	13.0	15.5	21.0	20.5	---
20	8.0	3.0	4.5	1.5	1.0	2.0	6.5	13.0	17.0	20.5	20.0	---
21	6.5	2.0	5.0	7.0	.5	1.0	7.5	16.0	18.0	20.5	17.5	---
22	5.0	1.0	5.0	7.5	.5	.5	7.5	16.0	19.5	19.5	15.5	---
23	5.0	1.0	6.0	4.0	1.5	1.5	8.0	15.0	19.5	19.5	16.5	---
24	5.0	1.0	7.0	2.5	4.5	3.5	8.0	14.5	16.5	19.0	16.5	---
25	6.0	2.5	8.0	1.5	4.0	7.5	6.5	13.0	17.0	18.5	16.0	---
26	3.5	4.5	6.5	1.0	3.0	11.5	7.5	13.0	19.0	19.0	16.0	---
27	4.5	5.0	6.5	.5	2.5	10.0	8.5	13.5	16.0	18.5	16.0	---
28	5.0	5.0	6.5	.5	1.0	9.5	8.0	14.0	14.5	19.0	17.0	---
29	4.5	5.0	5.0	.5	1.0	10.5	6.5	13.5	16.0	19.0	17.5	---
30	4.0	5.0	3.5	1.5	---	8.0	7.0	14.0	13.5	20.0	16.0	---
31	5.0	---	3.5	2.5	---	8.0	---	15.0	---	20.5	15.0	---
MIN	---	1.0	2.0	.0	.0	.5	6.0	9.5	11.0	12.0	15.0	---

WTR YR 1988 MIN .0

POTOMAC RIVER BASIN

01598500 NORTH BRANCH POTOMAC RIVER AT LUKE, MD

LOCATION.--Lat 39°28'45", long 79°03'55", Mineral County, W. Va., Hydrologic Unit 02070002, on right bank 0.2 mi downstream from Savage River, 0.5 mi northwest of Luke, and at mile 53.3.

DRAINAGE AREA.--404 mi².

PERIOD OF RECORD.--June 1899 to July 1906 (published as "at Piedmont, W. Va."), October 1949 to current year.

REVISED RECORDS.--WSP 192: 1899-1904. WSP 1432: 1905-6, drainage area at former site.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 944.22 ft above National Geodetic Vertical Datum of 1929. June 27, 1899, to July 15, 1906, nonrecording gage at bridge 1.1 mi downstream at datum about 35 ft lower.

REMARKS.--No estimated daily discharges. Records good. Flow regulated prior to July 1981 by Stony River Reservoir, 45 mi upstream from station, since December 1950 by Savage River Reservoir, 5 mi upstream from station (see station 01597500), and since July 1981 by Jennings Randolph Lake, 9 mi upstream from station. Some regulation at low flow by West Virginia Pulp and Paper Company at site used 1899-1906. U.S. Army Corps of Engineers satellite telemeter at station. Upper Potomac River Commission gage height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--45 years (water years 1900-05, 1950-88), 714 ft³/s, 24.00 in/yr, adjusted for storage since October 1949.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,400 ft³/s, Oct. 15, 1954, gage height, 17.15 ft, from rating curve extended above 25,000 ft³/s on basis of slope-area measurement of peak flow; minimum daily discharge, 6 ft³/s, Sept. 4, 1904.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,100 ft³/s, May 6, gage height, 9.76 ft; minimum discharge, 117 ft³/s, June 28, gage height, 1.39 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	296	300	522	1040	705	513	444	526	650	206	222	326
2	296	298	338	817	640	515	444	617	597	191	222	334
3	295	298	335	678	642	517	444	597	529	191	222	348
4	294	298	333	676	756	560	446	571	481	190	222	485
5	295	296	331	614	1570	566	434	1130	472	191	222	526
6	295	295	327	540	2210	555	418	7780	467	191	219	428
7	294	295	326	500	2190	550	577	8510	432	190	217	347
8	294	295	326	498	1420	545	881	6820	368	189	217	342
9	293	295	403	493	759	544	1060	3120	486	189	216	344
10	296	310	469	491	760	516	1070	822	458	189	216	342
11	295	301	479	438	812	486	1010	1140	406	193	216	342
12	295	298	491	387	757	483	928	595	406	219	219	341
13	295	303	489	399	749	484	867	1330	402	223	219	343
14	294	314	489	432	744	458	836	1180	401	221	217	327
15	292	314	511	430	743	433	684	1180	397	220	216	337
16	292	336	507	430	739	421	549	1060	364	220	215	653
17	755	316	502	429	733	391	544	717	330	220	213	1380
18	633	302	487	445	612	391	519	1260	329	220	213	1370
19	312	324	501	457	511	390	477	4590	328	220	233	790
20	310	302	555	1140	523	390	460	5890	624	226	236	329
21	308	302	537	1760	520	409	456	4370	715	236	221	327
22	308	301	529	1380	516	427	415	3600	681	238	218	332
23	304	301	634	846	519	426	379	2710	496	227	246	327
24	304	301	721	829	517	411	380	1690	602	225	286	341
25	303	301	746	823	514	413	362	1600	712	222	321	365
26	303	301	774	810	513	441	348	1490	562	222	314	343
27	306	301	759	799	513	441	318	1180	225	222	312	332
28	303	301	947	791	511	440	314	909	192	222	311	330
29	301	378	1070	785	509	440	347	849	215	222	329	327
30	301	532	1050	783	---	456	356	824	214	222	330	327
31	301	---	1040	788	---	477	---	733	---	222	327	---
TOTAL	10063	9409	17528	21728	23207	14489	16767	69390	13541	6579	7607	13385
MEAN	325	314	565	701	800	467	559	2238	451	212	245	446
MAX	755	532	1070	1760	2210	566	1070	8510	715	238	330	1380
MIN	292	295	326	387	509	390	314	526	192	189	213	326

CAL YR 1987 TOTAL 197285 MEAN 541 MAX 5480 MIN 232 CFSM 1.34 IN. 18.17
WTR YR 1988 TOTAL 223693 MEAN 611 MAX 8510 MIN 189 CFSM 1.51 IN. 20.60

POTOMAC RIVER BASIN

33

01603000 NORTH BRANCH POTOMAC RIVER NEAR CUMBERLAND, MD

LOCATION.--Lat 39°37'16", long 78°46'24", Allegany County, Hydrologic Unit 02070002, on left bank at downstream side of Wiley Ford Bridge, 2.0 mi south of Cumberland, 2.1 mi downstream from Wills Creek, and at mile 19.6.

DRAINAGE AREA.--875 mi².

PERIOD OF RECORD.--May 1929 to current year. Gage-height records collected at various sites about 2.0 mi upstream from September 1901 to December 1932 and thereafter at present site, are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 726: Drainage area. WSP 781: 1932(M).

GAGE.--Water-stage recorder. Datum of gage is 585.22 ft above National Geodetic Vertical Datum of 1929. Prior to June 18, 1929, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Prior to July 1981 some regulation at low flow by Stony River Reservoir, 79 mi upstream from station. Low-flow regulation since December 1950 by Savage River Reservoir, 39 mi upstream from station (see station 01597500). Flow regulated by Jennings Randolph Lake, 43 mi upstream from station since July 1981. Prior to July 1957, small amount of inflow from industrial wastes and sewage from city of Cumberland from water diverted from Evitts Creek, mouth of which is downstream from station. Diversion to Chesapeake and Ohio Canal prior to 1935. National Weather Service gage height telemeter at station. U.S. Army Corps of Engineers satellite telemeter at gage. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--59 years, 1,272 ft³/s, 19.74 in/yr, adjusted for storage since October 1981.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 88,200 ft³/s, Mar. 17, 1936, gage height, 29.1 ft, from rating curve extended above 33,000 ft³/s on basis of slope-area measurement of peak flow; minimum discharge (river only), 12 ft³/s, Sept. 22, 1932, gage height, 2.38 ft; minimum daily discharge (including flow in canal), 38 ft³/s, Sept. 24, 1932.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 29.2 ft June 1, 1889, discharge, about 89,000 ft³/s.

Flood of Mar. 29, 1924, reached a stage of 28.4 ft, discharge, about 82,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,000 ft³/s, May 7, gage height, 13.06 ft; minimum discharge, 240 ft³/s, Aug. 17, 18, gage height, 2.39 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	415	385	1430	1880	1490	944	913	803	1110	289	276	384
2	395	384	884	1850	1490	923	865	1060	1100	282	273	372
3	396	382	725	1390	1800	927	845	1070	1040	272	269	379
4	392	380	692	1380	2140	1310	856	1040	972	268	266	625
5	383	377	649	1170	2590	3040	875	1650	847	265	264	827
6	378	369	599	967	3300	2490	855	11100	789	264	261	661
7	388	368	564	940	3340	1910	3710	13000	748	261	260	472
8	380	371	548	e800	3220	1600	5570	9460	664	260	253	425
9	377	375	548	e780	1680	1440	4130	6170	976	260	250	410
10	376	430	756	e760	1470	1370	3210	2330	1030	255	251	405
11	375	479	806	e740	1400	1220	2670	2320	776	252	249	395
12	373	449	833	e710	1400	1130	2230	1570	697	266	248	388
13	370	445	810	677	1270	1100	1960	1670	656	298	258	428
14	366	485	777	670	1190	1060	1750	1800	629	285	268	418
15	357	557	889	645	1260	970	1640	1670	613	280	260	398
16	363	534	1040	642	1240	909	1260	1610	597	272	255	390
17	385	557	973	656	1180	855	1170	1340	542	281	247	1150
18	1270	541	923	719	1160	796	1130	2210	522	268	244	1460
19	432	499	873	899	936	795	1050	8020	502	279	291	1360
20	387	507	1510	4340	1090	782	945	11600	488	298	512	491
21	381	471	1920	4120	1300	765	898	8630	676	380	584	408
22	383	454	1560	3770	1110	761	862	6670	722	369	331	391
23	381	442	1340	2270	1180	770	771	5020	650	340	323	394
24	379	449	1410	1910	1140	772	874	4140	532	315	1070	427
25	376	469	1490	1770	1080	760	799	3460	629	300	558	643
26	376	469	1860	1650	1030	816	727	2960	712	289	444	700
27	389	468	1860	1420	1040	912	711	2420	612	285	402	548
28	415	476	1850	1370	1010	924	647	1850	318	303	381	481
29	398	909	2160	1340	971	911	705	1580	280	298	430	446
30	390	1520	1900	1330	---	904	772	1430	292	286	453	425
31	388	---	1730	1380	---	917	---	1300	---	281	407	---
TOTAL	12814	15001	35909	44945	44507	34783	45400	120953	20721	8901	10838	16701
MEAN	413	500	1158	1450	1535	1122	1513	3902	691	287	350	557
MAX	1270	1520	2160	4340	3340	3040	5570	13000	1110	380	1070	1460
MIN	357	368	548	642	936	760	647	803	280	252	244	372

CAL YR 1987 TOTAL 401950 MEAN 1101 MAX 8780 MIN 269 CFSM 1.26 IN. 17.09
WTR YR 1988 TOTAL 411473 MEAN 1124 MAX 13000 MIN 244 CFSM 1.28 IN. 17.49

e Estimated

POTOMAC RIVER BASIN

01604500 PATTERSON CREEK NEAR HEADSVILLE, WV

LOCATION.--Lat 39°26'35", long 78°49'20", Mineral County, Hydrologic Unit 02070002, on right bank 100 ft downstream from Hazel Run, 1.0 mi downstream from Cabin Run, 4.0 mi northeast of Headsville, 8.0 mi east of Keyser, and at mile 12.5.

DRAINAGE AREA.--219 mi².

PERIOD OF RECORD.--August 1938 to current year.

REVISED RECORDS.--WSP 951: 1939-40.

GAGE.--Water-stage recorder. Datum of gage is 624.90 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 11, 1946, nonrecording gage on bridge 1.0 mi upstream at datum 6.14 ft higher. Oct. 11-23, 1946, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Oct. 1-28, Jan. 4, 5, 11-18. Records fair except those for periods of estimated daily discharges, which are poor. The flow from 115 mi² upstream from station is partially controlled, but not diverted, by several floodwater detention reservoirs with a total combined detention capacity of 19,887 acre-ft.

AVERAGE DISCHARGE.--50 years, 169 ft³/s, 10.48 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,000 ft³/s, Aug. 19, 1955, gage height, 12.20 ft, from rating curve extended above 4,900 ft³/s, on basis of contracted-opening measurement at gage height 11.53 ft; minimum daily discharge, 1.2 ft³/s, Aug. 18, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,340 ft³/s, May 19, gage height, 9.48 ft; minimum daily discharge, 1.2 ft³/s, Aug. 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e20	17	210	168	188	78	51	49	303	16	9.5	21
2	e30	19	148	143	210	71	50	47	268	16	8.5	15
3	e28	23	110	129	235	68	49	45	236	15	6.4	12
4	e26	20	91	e60	235	97	50	45	209	14	5.6	124
5	e23	19	71	e45	212	214	48	95	170	13	4.9	227
6	e21	20	59	60	183	208	56	1720	131	11	4.0	130
7	e20	22	49	55	182	188	862	1650	107	10	4.6	73
8	e19	25	44	54	139	162	1280	1070	91	8.9	4.0	45
9	e18	17	41	55	137	147	823	714	131	8.5	3.5	31
10	e17	22	39	50	112	136	607	608	148	7.8	3.2	24
11	e16	50	37	e29	103	119	496	538	120	7.2	3.0	18
12	e15	57	36	e27	99	106	412	465	98	8.5	2.5	15
13	e15	66	33	e26	85	98	343	406	81	14	3.0	14
14	e14	90	31	e24	109	90	285	349	72	11	3.0	14
15	e14	82	48	e23	76	81	235	303	69	9.7	2.6	12
16	e14	66	83	e22	71	73	190	294	58	8.2	2.0	11
17	e14	55	83	e22	67	67	155	256	53	7.7	1.5	11
18	e13	52	72	e24	62	62	132	1010	51	6.7	1.2	13
19	e13	47	63	66	67	60	115	2390	49	7.0	4.0	12
20	e13	42	183	1680	117	58	99	1870	45	9.3	13	11
21	e12	38	250	912	155	56	86	1650	41	21	22	11
22	e12	33	208	658	146	53	74	1030	37	38	17	9.4
23	e12	30	168	547	144	50	70	1070	33	38	18	8.5
24	e12	30	132	464	133	48	71	1490	30	39	77	8.0
25	e12	29	114	410	117	46	64	1110	28	33	34	19
26	e13	29	175	357	105	54	58	833	26	27	23	60
27	e13	31	231	340	99	59	55	671	24	22	16	70
28	e13	35	224	284	94	57	52	577	22	23	12	51
29	19	147	277	230	86	55	50	500	20	17	24	38
30	29	286	243	157	---	54	49	424	18	14	42	28
31	24	---	197	152	---	52	---	359	---	12	29	---
TOTAL	534	1499	3750	7273	3768	2767	6967	23638	2769	493.5	404.0	1135.9
MEAN	17.2	50.0	121	235	130	89.3	232	763	92.3	15.9	13.0	37.9
MAX	30	286	277	1680	235	214	1280	2390	303	39	77	227
MIN	12	17	31	22	62	46	48	45	18	6.7	1.2	8.0
CFSM	.08	.23	.55	1.07	.59	.41	1.06	3.48	.42	.07	.06	.17
IN.	.09	.25	.64	1.24	.64	.47	1.18	4.02	.47	.08	.07	.19

CAL YR 1987 TOTAL 55123.0 MEAN 151 MAX 2270 MIN 3.8 CFSM .69 IN. 9.36
WTR YR 1988 TOTAL 54998.4 MEAN 150 MAX 2390 MIN 1.2 CFSM .69 IN. 9.34

e Estimated

POTOMAC RIVER BASIN

01605500 SOUTH BRANCH POTOMAC RIVER AT FRANKLIN, WV

LOCATION.--Lat 38°38'14", long 79°20'14", Pendleton County, Hydrologic Unit 02070001, on left bank 0.5 mi southwest of Franklin, 2 mi upstream from Friends Run, 2.5 mi downstream from Thorn Creek, and at mile 109.5.

DRAINAGE AREA.--182 mi².

PERIOD OF RECORD.--April 1940 to September 1969, October 1976 to current year.

GAGE.--Water-stage recorder and improved natural control. Datum of gage is 1,692.5 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.--Estimated daily discharges: Jan. 5-17, 27-30. Records good except those for period of estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--41 years, 171 ft³/s, 12.76 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 44,000 ft³/s, Nov. 4, 1985, gage height, 22.58 ft, from floodmarks, from rating curve extended above 15,000 ft³/s, on basis of slope-area measurement of peak flow; minimum, 13 ft³/s, Jan. 17, 1966; minimum gage height, 1.31 ft, Sept. 25-29, 1959.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 1936 reached a stage of about 13 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,700 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 19	2400	*2,160	*4.70	No other peak greater than base discharge.			

Minimum discharge, 22 ft³/s, Aug. 17-19, gage height, 1.46 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	35	315	229	133	70	76	70	63	33	28	27
2	50	35	221	197	133	68	74	67	65	32	27	25
3	50	35	172	175	184	68	73	66	85	31	27	25
4	47	35	150	160	181	77	80	70	81	30	27	39
5	45	34	128	e130	176	112	78	149	66	30	28	59
6	44	32	110	e120	151	98	75	709	59	29	30	37
7	45	32	97	e110	144	95	103	758	55	29	36	31
8	44	33	90	e95	138	90	127	485	52	28	28	29
9	42	33	87	e85	127	90	133	355	57	28	26	28
10	41	53	85	e80	119	94	129	299	68	32	25	28
11	40	93	82	e75	110	89	121	240	55	39	25	27
12	40	61	80	e70	109	85	114	198	50	46	28	26
13	39	59	75	e65	91	91	108	172	47	49	25	26
14	38	60	70	e60	100	88	98	158	45	38	25	26
15	38	58	190	e55	95	85	91	161	43	33	25	24
16	37	55	197	e55	112	81	84	172	42	31	24	24
17	37	55	163	e90	92	78	79	158	42	30	23	25
18	37	99	138	190	87	76	80	190	44	29	23	27
19	36	91	126	257	87	78	86	191	95	30	25	26
20	36	82	157	982	105	76	77	173	99	32	30	26
21	38	75	163	548	100	74	72	156	58	33	35	26
22	36	64	152	360	87	69	70	144	48	41	28	24
23	35	63	141	283	90	68	71	131	44	34	27	24
24	35	61	126	237	86	69	108	121	42	39	32	27
25	34	58	121	208	82	69	94	116	40	33	29	53
26	34	55	194	178	77	81	87	104	38	34	26	52
27	37	71	214	e150	79	86	82	91	36	35	25	35
28	44	113	350	e140	76	80	79	83	35	42	24	31
29	40	569	444	e130	73	76	80	77	34	33	32	29
30	37	513	310	e140	---	75	76	71	34	30	36	28
31	36	---	265	126	---	74	---	67	---	29	30	---
TOTAL	1249	2712	5213	5780	3224	2510	2705	6002	1622	1042	859	914
MEAN	40.3	90.4	168	186	111	81.0	90.2	194	54.1	33.6	27.7	30.5
MAX	57	569	444	982	184	112	133	758	99	49	36	59
MIN	34	32	70	55	73	68	70	66	34	28	23	24
CFSM	.22	.50	.92	1.02	.61	.44	.50	1.06	.30	.18	.15	.17
IN.	.26	.55	1.07	1.18	.66	.51	.55	1.23	.33	.21	.18	.19

CAL YR 1987 TOTAL 71624 MEAN 196 MAX 4250 MIN 27 CFSM 1.08 IN. 14.64
WTR YR 1988 TOTAL 33832 MEAN 92.4 MAX 982 MIN 23 CFSM .51 IN. 6.92

e Estimated

POTOMAC RIVER BASIN

01606500 SOUTH BRANCH POTOMAC RIVER NEAR PETERSBURG, WV

LOCATION (REVISED).--Lat 38°59'28", long 79°10'34", Grant County, Hydrologic Unit 02070001, on right bank 1.1 mi downstream from North Fork South Branch Potomac River, 2.6 mi west of Petersburg, and at mile 72.7.

DRAINAGE AREA.--642 mi².

PERIOD OF RECORD.--June 1928 to current year.

REVISED RECORDS.--WSP 951: 1939-41. WSP 1141: 1932, 1933(M), 1936-38.

GAGE.--Water-stage recorder. Datum of gage is 968.34 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 4, 1928, nonrecording gage at site 700 ft downstream and at different datum. June 1928 to Nov. 5, 1985, water-stage recorder at site 700 ft downstream at datum 6.34 ft lower.

REMARKS.--Estimated daily discharges: Jan. 7-18. Records good except those for periods of estimated daily discharges, which are poor. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--60 years, 718 ft³/s, 15.19 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 130,000 ft³/s, Nov. 5, 1985, gage height, 21.80 ft, from floodmarks, from rating curve extended above 63,000 ft³/s, on basis of slope-area measurement of peak flow; minimum, 42 ft³/s, Sept. 28, 29, 1959, Sept. 11, 12, 1966; minimum gage height, 0.45 ft, part or all of each day Aug. 11-20, 1988.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1877 reached a stage of 21.2 ft, from floodmarks at previous site and datum.

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

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 6	1800	*5,540	*6.63	No peak greater than base discharge.			

Minimum discharge, 70 ft³/s, Aug. 11-20, gage height, 0.45 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	406	129	1810	1410	547	327	498	522	366	108	98	86
2	319	126	1260	1410	612	310	476	544	351	105	96	81
3	273	123	878	1200	878	302	446	512	445	103	89	78
4	251	119	716	1020	1030	333	431	472	487	101	84	103
5	233	116	592	783	1120	1020	433	1280	411	97	80	125
6	213	111	502	562	889	951	409	4520	358	94	79	163
7	205	110	439	e490	743	817	500	4180	324	92	81	123
8	201	108	405	e450	792	694	894	2760	293	91	89	102
9	201	108	452	e400	678	619	1170	2100	289	90	80	92
10	196	133	656	e350	599	607	999	1780	311	86	73	87
11	186	295	606	e330	529	564	843	1450	298	89	71	83
12	177	329	541	e300	493	506	736	1150	254	105	70	80
13	171	266	482	e280	428	507	646	923	230	121	80	84
14	164	258	423	e260	373	530	568	801	213	137	78	193
15	157	285	501	e240	431	499	504	724	199	119	70	130
16	152	291	965	e230	426	468	455	780	184	103	70	99
17	147	287	906	e240	405	440	415	729	181	96	70	94
18	143	319	754	e400	372	420	393	1250	179	91	70	97
19	138	407	637	645	363	415	435	2650	175	97	76	96
20	135	381	799	3450	388	404	413	2250	270	108	77	92
21	131	364	1210	2980	448	393	373	1980	235	131	83	88
22	130	323	1050	2210	396	368	359	1630	184	134	81	85
23	130	290	907	1760	420	363	356	1290	160	131	79	83
24	128	284	751	1390	417	605	377	1100	147	124	94	99
25	124	321	658	1120	395	822	397	910	138	116	92	185
26	121	327	827	906	371	872	372	773	132	107	90	294
27	122	316	1270	660	363	954	353	644	124	102	82	229
28	130	417	1380	588	360	815	345	545	118	115	77	165
29	140	1320	2230	527	341	692	368	490	114	111	84	132
30	143	2580	1860	546	---	592	448	440	110	100	91	115
31	135	---	1500	526	---	533	---	399	---	93	92	---
TOTAL	5502	10843	27967	27663	15607	17742	15412	41578	7280	3297	2526	3563
MEAN	177	361	902	892	538	572	514	1341	243	106	81.5	119
MAX	406	2580	2230	3450	1120	1020	1170	4520	487	137	98	294
MIN	121	108	405	230	341	302	345	399	110	86	70	78
CFSM	.28	.56	1.41	1.39	.84	.89	.80	2.09	.38	.17	.13	.18
IN.	.32	.63	1.62	1.60	.90	1.03	.89	2.41	.42	.19	.15	.21

CAL YR 1987 TOTAL 285882 MEAN 783 MAX 7750 MIN 72 CFSM 1.22 IN. 16.57
WTR YR 1988 TOTAL 178980 MEAN 489 MAX 4520 MIN 70 CFSM .76 IN. 10.37

e Estimated

POTOMAC RIVER BASIN

01607500 SOUTH FORK SOUTH BRANCH POTOMAC RIVER AT BRANDYWINE, WV

LOCATION.--Lat 38°37'53", long 79°14'38", Pendleton County, Hydrologic Unit 02070001, on left bank 50 ft upstream from bridge on U.S. Highway 33, 0.1 mi upstream from Hawes Run, 0.4 mi north of Brandywine, 0.9 mi downstream from Broad Run, and at mile 42.9.

DRAINAGE AREA.--102 mi².

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

REVISED RECORDS.--WSP 1141: 1945(M), 1947(M). WRD WV-84-1: 1983. WRD WV-88-1: 1987.

GAGE.--Water-stage recorder. Datum of gage is 1,558.35 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 24, 1956, nonrecording gage at highway bridge 50 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 5-18, 26-29. Records good except those for periods of estimated daily discharges, which are poor. The flow from 41.3 mi² upstream from station is partially controlled, but not diverted, by several floodwater detention reservoirs with a total combined detention capacity of 8,882 acre-ft.

AVERAGE DISCHARGE.--45 years, 101 ft³/s, 13.45 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,200 ft³/s, June 17, 1949, gage height, 14.6 ft, from floodmarks, from rating curve extended above 5,300 ft³/s on basis of slope-area measurement of peak flow; maximum gage height, 18.42 ft, Nov. 4, 1985, from floodmarks; minimum, 0.3 ft³/s, Dec. 1, 10, 1958, result of freezeup; minimum gage height, 0.59 ft, Sept. 25, 26, 1986.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,510 ft³/s, May 6, gage height, 4.17 ft; minimum discharge, 4.0 ft³/s, July 10, gage height, 0.73 ft.

REVISIONS.--Revised daily discharges for the 1987 water year are given below. The figures for the period April through September 1987 supersede those published in the 1987 report.

EXTREMES FOR 1987 WATER YEAR.--Maximum discharge, 3,490 ft³/s, Apr. 17, gage height, 5.49 ft; minimum daily discharge, 5.9 ft³/s, Sept 1.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.2	7.6	17	71	59	929	484	135	75	17	12	5.9
2	7.1	9.9	29	68	96	1240	228	118	96	17	12	6.0
3	6.7	9.3	179	59	262	620	135	129	76	16	11	5.9
4	6.5	8.8	119	53	244	358	111	365	78	16	11	6.1
5	6.4	14	72	51	190	199	89	342	109	17	12	6.8
6	6.5	19	55	49	127	125	124	253	92	17	12	15
7	6.7	17	47	50	99	100	468	202	75	17	11	25
8	6.1	18	41	48	86	126	1160	168	62	15	11	632
9	6.2	15	38	44	73	250	1060	142	56	14	11	429
10	6.2	12	40	46	62	323	555	125	55	13	11	189
11	6.1	18	42	48	61	173	340	112	40	13	11	138
12	6.4	22	65	46	62	107	227	104	39	12	10	112
13	6.7	18	65	43	63	83	159	98	38	14	9.6	96
14	7.8	14	54	39	63	80	112	88	35	13	8.9	94
15	7.9	12	49	35	61	78	448	83	27	13	9.0	71
16	7.5	11	45	38	60	76	2130	74	26	12	9.3	56
17	6.9	10	40	37	60	70	2580	65	24	12	8.6	47
18	6.8	10	37	39	59	68	1580	61	21	11	8.8	45
19	6.8	10	33	731	57	64	1110	233	19	11	e8.4	38
20	6.8	11	30	951	54	59	861	640	18	11	e8.0	70
21	7.0	16	27	338	54	58	658	263	19	10	e7.8	231
22	6.8	19	24	194	55	55	411	179	19	10	e10	153
23	6.8	16	24	111	57	53	211	140	17	10	19	104
24	6.8	14	441	63	57	53	193	117	17	11	12	79
25	7.5	12	1120	e54	58	53	642	150	17	11	e8.4	62
26	8.0	15	648	e50	59	54	469	257	19	11	e6.8	49
27	7.8	29	292	e47	61	52	321	167	18	12	6.8	41
28	8.0	28	171	e45	65	54	254	136	17	11	6.8	34
29	7.7	24	124	e44	---	53	206	111	17	11	7.0	27
30	7.7	20	98	e46	---	54	170	95	16	11	6.4	32
31	7.5	---	80	e50	---	293	---	81	---	11	6.4	---
TOTAL	216.9	459.6	4146	3588	2364	5960	17496	5233	1237	400	303.0	2899.7
MEAN	7.00	15.3	134	116	84.4	192	583	168	41.2	12.9	9.77	96.7
MAX	8.0	29	1120	951	262	1240	2580	640	109	17	19	632
MIN	6.1	7.6	17	35	54	52	89	61	16	10	6.4	5.9
CFM	.07	.15	1.31	1.13	.83	1.88	5.72	1.65	.40	.13	.10	.95
IN.	.08	.17	1.51	1.31	.86	2.17	6.38	1.91	.45	.15	.11	1.06

CAL YR 1986 TOTAL 22099.5 MEAN 60.5 MAX 2310 MIN 6.0 CFM .59 IN. 8.06
WTR YR 1987 TOTAL 44303.2 MEAN 121 MAX 2580 MIN 5.9 CFM 1.19 IN. 16.16

e Estimated

POTOMAC RIVER BASIN

01607500 SOUTH FORK SOUTH BRANCH POTOMAC RIVER AT BRANDYWINE, WV.--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	9.3	244	142	76	25	43	30	37	7.0	6.6	6.7
2	23	9.1	158	112	87	24	42	27	35	7.0	6.2	6.2
3	19	9.1	115	91	139	24	41	26	45	7.0	5.9	6.2
4	18	9.3	93	81	161	30	44	27	44	7.0	5.9	8.5
5	16	9.5	77	e65	148	44	41	49	33	6.9	5.8	16
6	15	9.7	64	e55	121	40	40	908	28	6.6	6.5	10
7	15	9.5	55	e50	110	38	65	1170	23	6.2	17	8.2
8	14	9.2	48	e45	100	35	158	604	20	5.7	9.6	7.4
9	13	9.3	43	e40	85	33	215	249	21	6.0	7.4	6.9
10	12	18	40	e38	76	35	169	175	26	5.5	6.7	6.8
11	11	54	37	e36	67	33	132	134	20	6.3	6.5	6.6
12	11	43	34	e34	63	31	106	107	17	7.8	8.1	6.5
13	10	43	30	e32	53	33	89	88	16	9.3	6.7	6.5
14	9.9	45	28	e30	57	32	76	78	15	7.6	6.4	6.5
15	9.5	49	64	e28	51	31	66	113	13	6.9	6.0	6.2
16	9.1	52	138	e26	52	28	58	134	12	6.6	5.5	6.1
17	8.8	55	112	e28	44	27	52	113	12	6.4	5.2	6.5
18	8.8	77	92	e35	40	26	48	301	12	6.2	5.1	6.7
19	8.7	87	80	45	39	25	47	500	13	6.4	5.6	6.8
20	8.6	84	83	743	41	25	41	346	12	6.5	7.3	6.5
21	9.1	73	82	423	39	23	37	232	11	7.0	7.7	6.4
22	9.7	59	77	251	33	22	33	179	10	8.0	6.8	6.3
23	9.6	51	73	184	37	21	33	142	9.4	7.3	6.7	6.2
24	9.2	43	66	146	34	20	63	115	9.1	7.6	7.1	7.1
25	9.4	38	62	125	31	19	73	106	8.7	6.7	7.0	15
26	9.7	33	107	e100	28	23	59	90	7.9	6.6	6.6	16
27	10	38	186	e80	30	32	49	74	7.7	6.9	6.3	11
28	13	51	285	e75	29	37	43	63	7.3	8.2	6.1	8.9
29	12	479	445	e70	27	41	39	55	7.2	7.0	7.1	8.0
30	10	558	250	67	---	43	34	48	7.2	6.6	8.0	7.7
31	9.5	---	178	67	---	43	---	42	---	6.5	8.0	---
TOTAL	381.6	2114.0	3446	3344	1898	943	2036	6325	539.5	213.3	217.4	240.4
MEAN	12.3	70.5	111	108	65.4	30.4	67.9	204	18.0	6.88	7.01	8.01
MAX	30	558	445	743	161	44	215	1170	45	9.3	17	16
MIN	8.6	9.1	28	26	27	19	33	26	7.2	5.5	5.1	6.1
CFSM	.12	.69	1.09	1.06	.64	.30	.67	2.00	.18	.07	.07	.08
IN.	.14	.77	1.26	1.22	.69	.34	.74	2.31	.20	.08	.08	.09

CAL YR 1987 TOTAL 45422.3 MEAN 124 MAX 2580 MIN 5.9 CFSM 1.22 IN. 16.57
WTR YR 1988 TOTAL 21698.2 MEAN 59.3 MAX 1170 MIN 5.1 CFSM .58 IN. 7.91

e Estimated

POTOMAC RIVER BASIN

01608000 SOUTH FORK SOUTH BRANCH POTOMAC RIVER NEAR MOOREFIELD, WV

LOCATION.--Lat 39°00'44", long 78°57'23", Hardy County, Hydrologic Unit 02070001, on right bank 0.2 mi downstream from Stony Creek, 3.5 mi south of Moorefield, and at mile 6.0.

DRAINAGE AREA.--283 mi².

PERIOD OF RECORD.--June 1928 to September 1935, August 1938 to current year.

REVISED RECORDS.--WSP 1141: 1933(M), 1940, 1942-43, 1945, 1948(M). WSP 1302: 1931(M), 1935(M).

GAGE.--Water-stage recorder. Datum of gage is 861.51 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers datum). Prior to Mar. 11, 1940, nonrecording gage at Harness Ford Bridge 2.0 mi upstream at datum about 31 ft higher.

REMARKS.--Estimated daily discharges: Jan. 6-19. Records good except those for period of estimated daily discharges, which are poor. The flow from 92.7 mi² upstream from station is partially controlled, but not diverted, by several floodwater detention reservoirs with a total combined detention capacity of 19,870 acre-ft.

AVERAGE DISCHARGE.--57 years, 226 ft³/s, 10.84 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 110,000 ft³/s, Nov. 5, 1985, gage height, 19.99 ft, from floodmarks, from rating curve extended above 39,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 4.4 ft³/s, Sept. 10, 11, 1965, Sept. 9-11, 1966; minimum gage height, 0.38 ft, Aug. 21, 22, 1987, Aug. 2-6, 17-20, Sept. 22-24, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,900 ft³/s, May 6, gage height, 6.88 ft; minimum daily discharge, 15 ft³/s, many days during August and September.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94	39	824	378	163	72	93	83	136	26	16	18
2	84	36	477	301	191	69	92	77	129	24	15	18
3	76	35	324	243	330	68	91	73	134	23	15	18
4	67	35	256	209	475	72	92	74	129	22	15	19
5	60	37	206	183	435	95	92	134	118	21	15	22
6	56	35	168	e150	348	124	92	4640	104	20	15	21
7	54	33	142	e130	320	133	249	5380	94	19	18	23
8	51	32	126	e120	259	130	593	2330	84	17	18	22
9	47	33	114	e110	224	123	776	1130	84	17	20	22
10	45	49	105	e100	196	120	577	631	82	18	22	20
11	43	73	99	e95	172	113	416	450	80	18	21	19
12	40	93	96	e90	157	107	322	346	73	19	20	18
13	38	98	91	e85	142	105	265	279	67	21	19	18
14	37	129	84	e80	121	102	218	236	62	22	18	18
15	36	137	93	e75	123	100	190	213	58	22	17	18
16	35	122	141	e70	121	96	163	267	55	20	16	16
17	34	115	218	e75	112	92	143	273	54	18	15	15
18	34	120	191	e80	102	86	135	1340	54	18	15	15
19	32	133	168	e90	98	83	135	4290	57	17	15	15
20	32	143	177	1120	98	82	125	2020	66	25	15	15
21	32	143	207	1280	97	80	117	1190	68	25	16	15
22	32	127	210	777	91	75	102	816	54	20	16	15
23	32	112	200	524	85	71	97	606	50	19	15	15
24	32	101	180	393	86	67	99	521	46	19	19	17
25	33	94	162	322	83	65	109	439	42	19	18	21
26	33	86	178	282	80	69	118	375	39	19	18	22
27	37	84	289	251	78	75	106	312	35	19	18	23
28	43	87	416	223	76	77	98	260	32	20	18	26
29	40	488	951	187	74	81	95	216	29	17	18	23
30	40	1680	732	164	---	86	89	184	28	16	18	21
31	41	---	491	153	---	90	---	155	---	19	18	---
TOTAL	1390	4529	8116	8340	4937	2808	5889	29340	2143	619	532	568
MEAN	44.8	151	262	269	170	90.6	196	946	71.4	20.0	17.2	18.9
MAX	94	1680	951	1280	475	133	776	5380	136	26	22	26
MIN	32	32	84	70	74	65	89	73	28	16	15	15
CFSM	.16	.53	.93	.95	.60	.32	.69	3.34	.25	.07	.06	.07
IN.	.18	.60	1.07	1.10	.65	.37	.77	3.86	.28	.08	.07	.07

CAL YR 1987 TOTAL 122506 MEAN 336 MAX 11700 MIN 15 CFSM 1.19 IN. 16.10
WTR YR 1988 TOTAL 69211 MEAN 189 MAX 5380 MIN 15 CFSM .67 IN. 9.10

e Estimated

POTOMAC RIVER BASIN

01608500 SOUTH BRANCH POTOMAC RIVER NEAR SPRINGFIELD, WV

LOCATION.--Lat 39°26'49", long 78°39'16", Hampshire County, Hydrologic Unit 02070001, on left bank at highway bridge, 2.0 mi east of Springfield, and at mile 13.4.

DRAINAGE AREA.--1,471 mi².

PERIOD OF RECORD.--June 1894 to February 1896 (fragmentary), June 1899 to February 1902, August 1903 to July 1906, August 1928 to current year.

REVISED RECORDS.--WSP 1552: 1903-06, 1929-30(M), 1932-33(M), 1935(M), 1937-40(M), 1942-43(M), 1945(M).

GAGE.--Water-stage recorder. Datum of gage is 562.02 ft above National Geodetic Vertical Datum of 1929. June 1894 to February 1896, nonrecording gage at Baltimore & Ohio Railroad bridge 11.2 mi upstream at different datum. June 26, 1899, to Feb. 2, 1902, nonrecording gage at bridge 10.0 mi upstream at different datum. Aug. 28, 1903, to July 14, 1906, nonrecording gage at present site at different datum. Aug. 8 to Sept. 24, 1928, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Jan. 5-19. Records good except those for period of estimated daily discharges, which are poor. National Weather Service gage-height telemeter at station. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--64 years (water years 1900-01, 1904-05, 1929-88), 1,319 ft³/s, 12.18 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 240,000 ft³/s, Nov. 5, 1985, gage height, 44.22 ft, from floodmarks, from rating curve extended above 145,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 29 ft³/s, Jan. 28, 1956, result of freezeup, July 30, 1966, result of temporary dam; minimum gage height, 0.39 ft, July 30, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in November 1877 reached a stage of about 34 ft, from floodmarks, discharge, 140,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 10,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 20	2400	12,400	10.94	May 19	1400	20,600	14.21
May 7	0400	*22,000	*14.67				

Minimum discharge, 104 ft³/s, Aug. 18, 19, gage height, 1.75 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	765	228	3860	1940	1090	564	763	654	782	188	170	173
2	720	219	2350	1800	1130	544	737	712	727	182	160	158
3	585	212	1670	1610	1270	521	707	711	725	177	149	145
4	495	207	1320	1430	1750	544	681	684	834	172	146	225
5	432	201	1120	e1180	1870	827	661	756	825	168	136	453
6	394	193	963	e820	1660	1350	679	11400	719	161	133	348
7	377	186	838	e580	1330	1260	3260	18500	633	151	143	262
8	353	182	746	e600	1290	1130	4450	8840	570	145	130	252
9	329	182	686	e760	1230	1010	3650	5060	563	140	128	213
10	322	205	698	e740	1090	950	2580	3320	595	138	127	184
11	312	322	845	e640	996	917	1980	2560	553	141	132	166
12	298	515	809	e580	920	853	1600	2040	530	156	127	154
13	283	654	750	e640	839	798	1370	1670	472	159	126	149
14	269	684	689	e620	737	785	1190	1430	418	167	116	149
15	260	741	666	e780	681	782	1050	1270	383	181	112	144
16	250	681	801	e840	750	749	942	1170	352	194	126	230
17	242	614	1180	e720	728	707	848	1250	330	179	110	203
18	237	577	1160	e600	686	669	783	3380	317	166	105	174
19	230	570	1020	e640	644	642	763	14000	325	161	119	162
20	225	663	1080	7460	713	628	769	9630	310	174	169	158
21	221	648	1470	8950	763	613	721	6240	341	230	195	154
22	212	617	1570	4740	762	595	659	4160	405	287	175	145
23	204	570	1400	3130	714	561	623	2890	327	270	161	138
24	203	512	1240	2330	713	545	626	2400	286	250	196	135
25	205	489	1090	1880	690	716	631	2120	264	230	194	152
26	199	495	1090	1680	650	924	644	1830	245	204	180	263
27	202	511	1560	1320	619	1040	622	1490	229	197	159	430
28	219	513	1850	1130	608	1050	591	1260	217	206	159	395
29	230	807	2910	1040	594	957	562	1100	207	195	196	305
30	230	5080	3320	989	---	870	572	979	198	195	253	247
31	232	---	2380	988	---	806	---	873	---	186	204	---
TOTAL	9735	18278	43131	53157	27517	24907	35714	114379	13682	5750	4736	6466
MEAN	314	609	1391	1715	949	803	1190	3690	456	185	153	216
MAX	765	5080	3860	8950	1870	1350	4450	18500	834	287	253	453
MIN	199	182	666	580	594	521	562	654	198	138	105	135
CFSM	.21	.41	.95	1.17	.65	.55	.81	2.51	.31	.13	.10	.15
IN.	.25	.46	1.09	1.34	.70	.63	.90	2.89	.35	.15	.12	.16

CAL YR 1987 TOTAL 532757 MEAN 1460 MAX 33700 MIN 99 CFSM .99 IN. 13.47
WTR YR 1988 TOTAL 357452 MEAN 977 MAX 18500 MIN 105 CFSM .66 IN. 9.04

POTOMAC RIVER BASIN

41

01610000 POTOMAC RIVER AT PAW PAW, WV

LOCATION.--Lat 39°32'13", long 78°27'28", Allegany County, Md., Hydrologic Unit 02070003, on left bank 250 ft upstream from bridge on Maryland State Highway 51 at Paw Paw, 3.3 mi downstream from Little Cacapon River, and at mile 277.

DRAINAGE AREA.--3,109 mi².

PERIOD OF RECORD.--October 1938 to current year.

GAGE.--Water-stage recorder. Datum of gage is 487.88 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 25, 1939, nonrecording gage at bridge 250 ft downstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Low flow affected by Stony River Reservoir prior to July 1981, 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. U.S. Army Corps of Engineers satellite telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--50 years, 3,294 ft³/s, 14.39 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 235,000 ft³/s, Nov. 5, 1985, gage height, 53.58 ft, from rating curve extended above 85,000 ft³/s on basis of slope-area measurement of peak flow at site 5.0 mi upstream at Okonoko, W. Va.; minimum discharge, 164 ft³/s, Sept. 10, 11, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 54.0 ft on Mar. 18, 1936, discharge, 240,000 ft³/s, from rating curve extended above 85,000 ft³/s on basis of slope-area measurement of peak flow at site 5.0 mi upstream at Okonoko, W. Va.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 20,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 20	1845	26,100	17.71	May 19	1915	36,100	20.98
May 7	0715	*41,500	*22.66				

Minimum discharge, 464 ft³/s, Aug. 19, gage height, 3.42 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1150	681	7060	4560	3700	2140	2340	1850	3170	639	573	872
2	1340	669	4710	4390	3970	2040	2230	2100	2860	626	556	764
3	1170	657	3340	3650	4660	1990	2160	2280	2780	605	547	702
4	1040	644	2690	3450	5640	2300	2120	2250	2760	587	532	1510
5	952	630	2310	2980	6450	5850	2150	2380	2570	578	524	2560
6	893	609	2030	2360	6380	5450	2080	18600	2260	566	531	1860
7	874	597	1800	1810	5770	4780	12000	38400	1990	551	567	1360
8	843	592	1650	1780	5590	4140	17200	23700	1780	542	532	1070
9	806	596	1540	e1750	4350	3720	12600	15200	1950	531	513	968
10	786	652	1560	e1700	3680	3490	8810	8790	2530	524	499	887
11	774	819	1820	e1650	3410	3210	6940	6750	2010	513	485	828
12	754	1030	1860	e1600	3260	2940	5750	5730	1710	510	481	780
13	736	1200	1800	e1550	2980	2790	4980	4750	1550	553	481	796
14	719	1410	1700	e1500	2530	2670	4390	4670	1420	578	481	817
15	700	1680	1680	e1450	2710	2560	3970	4190	1320	577	479	760
16	687	1630	2000	1390	2690	2390	3430	3940	1250	579	475	752
17	673	1470	2420	1430	2610	2260	3020	3820	1180	591	473	980
18	1040	1410	2490	1530	2510	2100	2810	7540	1090	565	470	1830
19	1140	1340	2240	1740	2310	2030	2700	28900	1060	570	466	1770
20	690	1320	2750	16200	2500	1990	2510	31400	1020	572	892	1340
21	669	1330	4450	18700	3190	1940	2360	24400	1230	722	1190	764
22	648	1310	4300	11800	2910	1870	2200	16800	1430	820	828	712
23	640	1230	3710	8030	2880	1810	2040	11600	1380	820	704	688
24	632	1140	3310	6260	2750	1770	2090	12200	1140	833	2570	683
25	624	1120	3180	5400	2620	1830	2110	9780	1150	732	1450	897
26	625	1100	3680	5010	2460	2260	1960	8100	1210	682	990	1210
27	637	1140	4440	4240	2370	2680	1900	6460	1070	631	817	1310
28	706	1150	4620	3660	2320	2830	1820	5310	829	625	763	1250
29	721	1540	5440	3490	2230	2650	1720	4520	693	643	1210	1090
30	723	7770	6510	3290	---	2500	1760	3960	638	617	1590	947
31	703	---	5220	3280	---	2400	---	3540	---	595	1080	---
TOTAL	25095	38466	98310	131630	101430	85380	124150	323910	49030	19077	23749	32757
MEAN	810	1282	3171	4246	3498	2754	4138	10450	1634	615	766	1092
MAX	1340	7770	7060	18700	6450	5850	17200	38400	3170	833	2570	2560
MIN	624	592	1540	1390	2230	1770	1720	1850	638	510	466	683
CFSM	.26	.41	1.02	1.37	1.12	.89	1.33	3.36	.53	.20	.25	.35
IN.	.30	.46	1.18	1.57	1.21	1.02	1.49	3.88	.59	.23	.28	.39

CAL YR 1987 TOTAL 1105252 MEAN 3028 MAX 43400 MIN 403 CFSM .97 IN. 13.22
WTR YR 1988 TOTAL 1052984 MEAN 2877 MAX 38400 MIN 466 CFSM .93 IN. 12.60

e Estimated

POTOMAC RIVER BASIN

01611500 CACAPON RIVER NEAR GREAT CACAPON, WV

LOCATION.--Lat $39^{\circ}34'43''$, long $78^{\circ}18'34''$, Morgan County, Hydrologic Unit 02070003, on left bank at Rock Ford, 3.0 mi southwest of Great Cacapon, and at mile 6.5.

DRAINAGE AREA.--677 mi².

PERIOD OF RECORD.--December 1922 to current year.

REVISED RECORDS.--WSP 800: 1924(M). WSP 921: Drainage area. WSP 951: 1936-37, WSP 1552: 1925-26(M), 1928, 1929(M), 1932.

GAGE.--Water-stage recorder. Datum of gage is 456.78 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Nov. 10, 1933, nonrecording gage at same site and datum. National Weather Service gage-height telemeter at the station.

REMARKS.--Estimated daily discharges: Jan. 6-18. Records good except those for period of estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--65 years (water years 1924-88), 589 ft³/s, 11.81 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 87,600 ft³/s, Mar. 18, 1936, gage height, 30.1 ft, from rating curve extended above 52,000 ft³/s; minimum, 26 ft³/s, Sept. 11-13, 1966; minimum gage height, 0.35 ft, Sept. 21, 22, 1932, Sept. 11-13, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1889 reached a stage of 24.7 ft, from floodmarks, discharge, 57,500 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,900 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 20	2400	7,880	9.55	May 19	2400	11,500	11.50
Apr. 8	0700	7,390	9.24	May 21	0800	5,500	7.99
May 7	0200	*19,100	*14.64	May 24	1400	5,360	7.89

Minimum discharge, 65 ft³/s, Sept. 23, 24; minimum gage height, 0.88 ft, Aug. 18, Sept. 23, 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	145	86	1900	617	581	257	284	284	613	95	93	98
2	159	81	1120	564	805	241	281	272	533	93	85	95
3	191	77	767	467	897	237	275	256	499	92	99	91
4	154	75	583	400	1260	252	275	242	490	92	92	112
5	134	74	477	327	1190	391	270	272	475	89	84	164
6	123	72	402	e270	942	743	265	4490	398	87	80	139
7	119	70	332	e260	638	674	2560	14200	337	85	79	137
8	110	70	289	e240	617	612	6680	5220	304	82	100	125
9	102	69	258	e220	620	548	4400	2550	315	83	107	102
10	96	74	241	e200	571	506	2540	1830	313	86	87	91
11	94	84	228	e190	510	485	1790	1500	310	94	94	85
12	89	168	220	e180	457	438	1370	1250	287	112	86	80
13	85	265	208	e170	389	389	1120	1050	245	95	78	78
14	82	246	196	e160	299	361	926	870	216	93	75	76
15	79	273	198	e150	356	349	784	762	195	87	71	73
16	77	376	206	e150	370	325	690	708	177	83	71	71
17	76	358	311	e160	367	303	609	667	163	79	70	71
18	75	299	326	e190	334	281	548	1230	153	79	72	72
19	73	262	295	278	311	272	538	8490	147	81	74	71
20	73	268	300	2340	323	260	569	6880	144	82	88	70
21	74	243	383	4680	370	256	487	4620	140	103	97	68
22	71	219	577	2080	382	248	412	3000	135	99	102	68
23	69	194	536	1420	328	238	370	2070	128	100	105	67
24	67	164	485	1080	317	227	356	3360	125	102	243	67
25	68	150	421	874	316	217	366	2830	117	100	126	71
26	67	138	398	785	290	224	360	2400	113	93	96	74
27	68	130	565	637	269	247	328	1680	109	90	87	74
28	72	127	735	469	262	318	312	1310	105	107	84	75
29	76	163	732	440	268	333	305	1060	102	108	108	75
30	93	1750	903	479	---	302	295	864	99	95	127	76
31	98	---	715	487	---	288	---	721	---	102	105	---
TOTAL	2959	6625	15307	20964	14639	10822	30365	76938	7487	2868	2965	2616
MEAN	95.5	221	494	676	505	349	1012	2482	250	92.5	95.6	87.2
MAX	191	1750	1900	4680	1260	743	6680	14200	613	112	243	164
MIN	67	69	196	150	262	217	265	242	99	79	70	67
CFSM	.14	.33	.73	1.00	.75	.52	1.50	3.67	.37	.14	.14	.13
IN.	.16	.36	.84	1.15	.80	.59	1.67	4.23	.41	.16	.16	.14

CAL YR 1987 TOTAL 229082 MEAN 628 MAX 12100 MIN 53 CFSM .93 IN. 12.59
WTR YR 1988 TOTAL 194555 MEAN 532 MAX 14200 MIN 67 CFSM .79 IN. 10.69

e Estimated

01613000 POTOMAC RIVER AT HANCOCK, MD

LOCATION.--Lat 39°41'49", long 78°10'39", Washington County, Hydrologic Unit 02070004, on left bank, 0.2 mi downstream from Little Tonoloway Creek, 0.5 mi downstream from bridge on U.S. Highway 522 at Hancock, 1.1 mi upstream from Tonoloway Creek (formerly called Great or Big Tonoloway Creek), and at mile 239.

DRAINAGE AREA.--4,073 mi².

PERIOD OF RECORD.--October 1932 to current year. Gage-height records collected at same site since June 1925 are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 781: 1933(M). WSP 801: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 383.68 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1932, to Jan. 5, 1935, Mar. 18, 1936, to Jan. 20, 1937, nonrecording gage, on former highway bridge just upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Slight regulation at low flow from power plants upstream. Low flow affected slightly by Stony River Reservoir prior to July 1981, 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. U.S. Army Corps of Engineers satellite telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--56 years, 4,154 ft³/s, 13.85 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 340,000 ft³/s, Mar. 18, 1936, gage height, 47.6 ft, from rating curve extended above 120,000 ft³/s on basis of slope-area measurement of peak flow; minimum discharge observed, 180 ft³/s, Oct. 4, 1932, gage height, 2.01 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known prior to 1932, about 40 ft in May 1889, discharge, about 220,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 23,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 21	0315	30,900	15.42	May 7	1115	*55,800	*21.25
Apr. 8	0715	25,400	13.86	May 20	0330	49,100	19.86

Minimum discharge, 497 ft³/s, Aug. 17, gage height, 2.58 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1140	1010	11600	5860	3860	2440	2610	2030	3800	730	695	1140
2	1470	980	7640	5440	4670	2330	2530	2110	3350	727	654	959
3	1650	964	5260	5000	5120	2240	2430	2380	3180	717	625	867
4	1440	957	4120	4350	6340	2340	2370	2400	3090	699	618	1000
5	1280	946	3510	3930	7930	5060	2380	2470	3040	672	592	2600
6	1180	920	3080	3520	7390	6890	2350	10500	2740	654	585	2570
7	1140	897	2700	e2800	6790	5990	8600	50300	2420	637	607	1840
8	1100	884	2410	e2500	6150	5120	24200	31700	2160	621	622	1430
9	1070	894	2200	e2300	5770	4490	19000	19200	2150	603	617	1150
10	1030	950	2080	e2300	4390	4130	12600	12700	2640	597	577	1040
11	1000	1040	2160	e2200	3970	3850	9360	8580	2650	601	551	952
12	983	1190	2410	e2150	3700	3500	7490	7440	2170	690	549	896
13	960	1680	2380	e2100	3440	3260	6290	5940	1910	614	540	876
14	936	2020	2250	e2000	3040	3090	5450	5410	1720	624	527	868
15	916	2480	2190	e1900	2900	2950	4800	4980	1590	650	522	873
16	895	2880	2260	e1850	2980	2780	4310	4640	1490	638	519	822
17	882	2780	2760	e2000	2960	2610	3680	4610	1420	631	500	820
18	869	2650	3190	e2100	2830	2460	3380	8100	1340	639	514	1160
19	1350	2450	3100	e2300	2730	2320	3240	36400	1270	709	544	1790
20	1260	2250	3130	e11000	2680	2260	3090	43600	1250	649	582	1730
21	903	2220	4900	26200	3250	2200	2860	35300	1210	739	1020	1230
22	866	2130	5640	15600	3580	2120	2650	22200	1400	829	1180	830
23	853	2000	5080	10800	3290	2050	2480	15300	1570	889	918	779
24	841	1870	4420	7950	3200	2000	2390	15900	1480	912	1490	766
25	830	1740	4180	6620	3020	1950	2470	14200	1240	896	2390	814
26	827	1690	4480	5920	2830	2120	2390	11500	1260	816	1350	1020
27	842	1670	5460	5070	2680	2660	2240	8830	1290	763	1020	1280
28	900	1700	6000	4210	2620	3050	2160	7110	1140	716	887	1350
29	965	1920	6170	3940	2530	3030	2060	5840	925	725	960	1260
30	1000	7320	7640	3910	---	2840	1990	4970	792	732	1800	1100
31	1040	---	7020	3650	---	2700	---	4330	---	725	1570	---
TOTAL	32418	55082	131420	161470	116640	96830	153850	410970	57687	21844	26125	35812
MEAN	1046	1836	4239	5209	4022	3124	5128	13260	1923	705	843	1194
MAX	1650	7320	11600	26200	7930	6890	24200	50300	3800	912	2390	2600
MIN	827	884	2080	1850	2530	1950	1990	2030	792	597	500	766
CFSM	.26	.45	1.04	1.28	.99	.77	1.26	3.25	.47	.17	.21	.29
IN.	.30	.50	1.20	1.47	1.07	.88	1.41	3.75	.53	.20	.24	.33

CAL YR 1987 TOTAL 1474782 MEAN 4040 MAX 59500 MIN 454 CFSM .99 IN. 13.47
WTR YR 1988 TOTAL 1300148 MEAN 3552 MAX 50300 MIN 500 CFSM .87 IN. 11.87

e Estimated

POTOMAC RIVER BASIN

01616500 OPEQUON CREEK NEAR MARTINSBURG, WV

LOCATION.--Lat 39°25'25", long 77°56'20", Berkeley County, Hydrologic Unit 02070004, on right bank 300 ft upstream from Evans Run, 2.3 mi upstream from Tuscarora Creek, 3.0 mi southeast of Martinsburg, and at mile 11.1.

DRAINAGE AREA.--272 mi².

PERIOD OF RECORD.--May 1905 to July 1906, July 1947 to current year.

REVISED RECORDS.--WSP 1702: 1959.

GAGE.--Water-stage recorder. Datum of gage is 354.89 ft above National Geodetic Vertical Datum of 1929. Prior to July 1906, nonrecording gage at approximately the same site at different datum. July 23, 1947 to July 22, 1948, nonrecording gage at present site and datum. National Weather Service gage-height telemeter at the station.

REMARKS.--Estimated daily discharges: Jan. 7-18. Records good except those for period of estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--41 years (water years 1947-88), 232 ft³/s, 11.58 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,000 ft³/s, June 22, 1972, gage height, 17.45 ft, from rating curve extended above 7,100 ft³/s; minimum observed, 25 ft³/s, Oct. 25, 1947; minimum gage height, 1.24 ft, Jan. 8, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1936 reached a stage of about 17.5 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,900 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Nov. 30	0300	1,960	8.34	May 19	1100	*15,500	*16.29
Jan. 20	1800	2,090	8.72	May 21	0900	5,450	12.16
May 7	0300	3,870	11.15	May 24	2300	2,000	8.47

Minimum discharge, 64 ft³/s, Nov. 7, gage height, 1.88 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109	77	419	209	293	134	112	104	367	141	100	98
2	94	75	275	194	297	129	110	101	350	138	98	91
3	92	72	212	168	545	129	108	97	341	135	94	90
4	89	71	190	158	463	162	107	97	329	131	89	100
5	86	70	171	147	342	486	104	121	305	129	88	122
6	86	67	151	130	262	337	102	1960	282	124	139	107
7	92	66	143	e125	217	263	276	2210	267	122	157	90
8	88	67	128	e120	213	222	598	636	256	118	105	85
9	82	67	124	e115	201	203	459	414	271	116	95	83
10	81	86	123	e110	192	196	293	347	274	113	89	82
11	81	204	119	e105	185	178	230	326	245	112	86	80
12	80	171	115	e100	192	166	198	280	234	125	84	77
13	78	164	109	e100	182	162	180	247	225	126	82	78
14	78	164	103	e95	155	155	165	223	215	116	80	77
15	77	136	138	e95	166	147	157	213	210	112	79	75
16	77	113	255	e95	186	141	146	212	205	108	79	73
17	78	104	184	e95	178	136	138	361	209	108	77	75
18	75	108	150	e120	171	132	140	948	203	102	82	77
19	75	109	135	167	173	130	159	8730	196	115	94	75
20	75	98	170	1380	202	127	141	2390	189	121	126	73
21	79	91	232	847	199	126	129	4380	184	154	145	83
22	78	85	190	462	173	121	122	1250	177	136	109	76
23	74	81	171	341	171	117	118	815	169	122	98	73
24	73	80	152	281	168	116	124	1520	167	125	162	73
25	72	80	147	259	157	113	117	1840	164	114	113	90
26	70	78	234	304	149	137	112	1250	161	112	94	91
27	78	76	359	244	147	155	110	774	155	187	88	80
28	145	88	266	215	145	131	123	616	152	139	85	75
29	121	488	355	201	138	121	113	520	149	112	121	72
30	90	1240	294	192	---	117	108	448	145	105	160	72
31	81	---	229	210	---	115	---	397	---	110	112	---
TOTAL	2634	4476	6043	7384	6262	5104	5099	33827	6796	3828	3210	2493
MEAN	85.0	149	195	238	216	165	170	1091	227	123	104	83.1
MAX	145	1240	419	1380	545	486	598	8730	367	187	162	122
MIN	70	66	103	95	138	113	102	97	145	102	77	72
CFSM	.31	.55	.72	.88	.79	.61	.62	4.01	.83	.45	.38	.31
IN.	.36	.61	.83	1.01	.86	.70	.70	4.63	.93	.52	.44	.34

CAL YR 1987 TOTAL 86823 MEAN 238 MAX 3980 MIN 58 CFMS .87 IN. 11.87
WTR YR 1988 TOTAL 87156 MEAN 238 MAX 8730 MIN 66 CFMS .88 IN. 11.92

e Estimated

POTOMAC RIVER BASIN

01618000 POTOMAC RIVER AT SHEPHERDSTOWN, WV

LOCATION.--Lat 39°26'04", long 77°48'07", Jefferson County, Hydrologic Unit 02070004, on right bank, 0.1 mi downstream from Rumsey Bridge at Shepherdstown, 3.3 mi upstream from Antietam Creek, and at mile 184.

DRAINAGE AREA.--5,936 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to September 1953. Annual maximums, water years 1954-64. July 1964 to current year. Gage-height record and estimated discharges October 1953 to June 1964 available in files of the Mid-Atlantic district office.

REVISED RECORDS.--WSP 756: Drainage area. WSP 781: 1929(M).

GAGE.--Water-stage recorder. Datum of gage is 281.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those for estimated daily discharges, which are fair. Some regulation at low flow by power plants upstream from station, 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.

AVERAGE DISCHARGE.--49 years (water years 1929-53, 1965-88), 6,129 ft³/s, 14.02 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 335,000 ft³/s, Mar. 19, 1936, gage height, 42.1 ft, from floodmarks, from rating curve extended above 200,000 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 170 ft³/s, Aug. 1, 1966; minimum daily discharge, 185 ft³/s, July 31, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in June 1889 and May 1924 reached stages of 39.2 ft and 29.8 ft respectively, from floodmarks, discharges, about 290,000 ft³/s and 168,000 ft³/s respectively, from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 23,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 21	0900	42,500	12.98	May 19	2130	*72,300	*18.19
Apr. 8	1830	34,600	11.38	May 25	0430	31,600	10.76
May 7	1830	68,800	17.63				

Minimum discharge, 744 ft³/s, Aug. 18, gage height, 1.68 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1800	1620	15500	8130	5160	3560	3640	2970	6970	e1650	1150	2830
2	1770	1570	13100	7180	6330	3460	3530	2920	6420	e1500	1500	2110
3	2050	1530	8980	6530	7720	3330	3450	2990	6060	e1400	1410	1930
4	2280	1460	6650	5700	9370	3440	3360	3190	5420	e1300	1440	2050
5	1890	1510	5440	4820	12000	5140	3280	3380	4960	e1300	1250	2650
6	1860	1420	4750	3650	12100	10400	3270	7240	5010	e1250	1370	4400
7	1860	1470	4090	e3200	10100	9740	3760	53100	4510	e1200	1630	4100
8	1750	1380	3700	e2800	9030	8330	25800	50500	4030	e1200	1590	3020
9	1780	1320	3390	e2750	8480	7150	30300	30300	4300	e1200	1330	2390
10	1760	1500	3160	e2700	7180	6430	20800	20900	4590	e1200	1200	2340
11	1690	2070	3070	e2650	5780	5900	14700	14000	4480	e1200	1360	2210
12	1540	2550	3020	e2600	5270	5400	11400	11000	3950	e1250	1270	2320
13	1460	2590	3230	e2550	4930	5010	9330	9300	3400	e1400	1230	2160
14	1520	2680	3140	e2500	4110	4750	7940	7620	3300	e1300	1230	1910
15	1510	3120	3160	e2400	4050	4460	6960	7050	2960	e1250	1230	1550
16	1470	3610	3220	e2350	4240	4250	6200	6470	2780	e1200	1230	1810
17	1360	3880	3510	e2300	4310	4120	5540	6650	2640	e1250	1160	1460
18	1400	3600	3820	2310	4080	3840	4980	9520	2700	e1300	852	1350
19	1350	3830	4100	2640	4010	3610	4770	50500	2850	e1250	1020	1700
20	1560	3790	4130	6210	4120	3400	4600	67300	e2600	e1400	1230	2820
21	1960	3370	4850	38600	4730	3440	4340	61600	e2400	e1500	1490	2620
22	1380	3080	6990	27300	5280	3230	3960	43100	e2300	1400	1540	2060
23	1350	2950	6960	17900	5070	3070	3680	28800	e2100	1410	2080	1480
24	1320	2690	6070	12900	4830	3050	3570	25000	e2400	1540	2650	1350
25	1330	2640	5330	10300	4600	2970	3480	28900	e2400	1450	2870	1570
26	1210	2490	5510	9020	4350	3040	3520	21900	e2100	1380	3280	1510
27	1260	2390	6740	8000	4070	3300	3370	16700	e2100	1300	2490	1540
28	1590	2310	7790	6510	3920	3840	3260	13200	e2000	1260	2020	2100
29	1730	2950	8180	5410	3760	4150	3150	10800	e1850	1140	2090	2370
30	1770	7270	8600	5330	---	4030	3060	9160	e1700	1140	2250	2010
31	1700	---	9530	5270	---	3780	---	7840	---	1150	3020	---
TOTAL	50260	78640	179710	222510	172980	143620	213000	633900	105280	40670	51462	65720
MEAN	1621	2621	5797	7178	5965	4633	7100	20450	3509	1312	1660	2191
MAX	2280	7270	15500	38600	12100	10400	30300	67300	6970	1650	3280	4400
MIN	1210	1320	3020	2300	3760	2970	3060	2920	1700	1140	852	1350
CFSM	.27	.44	.98	1.21	1.00	.78	1.20	3.44	.59	.22	.28	.37
IN.	.31	.49	1.13	1.39	1.08	.90	1.33	3.97	.66	.25	.32	.41

CAL YR 1987 TOTAL 2158255 MEAN 5913 MAX 80700 MIN 731 CFSM 1.00 IN. 13.53
WTR YR 1988 TOTAL 1957752 MEAN 5349 MAX 67300 MIN 852 CFSM .90 IN. 12.27

e Estimated

POTOMAC RIVER BASIN

01618000 POTOMAC RIVER AT SHEPHERDSTOWN, WV--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1979 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1980 to September 1981.

WATER TEMPERATURE: October 1980 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum 670 microsiemens, Aug. 6, 10, 15, 30, Sept. 3, 1981; minimum, 160 microsiemens, Apr. 14-15, 1981.

WATER TEMPERATURE: Maximum, 30.0°C, July 17, 21, 25, 1981; minimum, 1.0°C, Feb. 13, 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)
NOV 09...	1115	1140	430	7.96	13.0	1.4	761	10.7	102	1000	100	180
JAN 05...	1030	5100	228	7.41	0.0	2.8	770	14.2	96	36	59	89
FEB 29...	1145	3500	286	7.83	4.0	2.9	758	13.7	105	E12	E7	110
MAY 05...	1230	3200	300	7.70	14.0	0.90	753	8.9	87	340	840	120
JUL 05...	1110	1650	408	7.97	27.0	1.0	766	10.1	126	240	47	180
SEP 01...	1105	2780	366	7.66	24.0	2.5	766	7.6	90	290	97	160
DATE	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C
												DIS- SOLVED (MG/L)
NOV 09...	79	56	10	16	3.2	127	104	74	25	0.20	0.33	251
JAN 05...	37	27	5.3	6.6	1.7	60	50	34	8.5	0.20	6.0	127
FEB 29...	49	34	6.8	8.4	1.6	78	64	40	13	0.20	4.6	160
MAY 05...	49	37	7.4	9.3	2.1	85	70	48	15	0.10	2.3	171
JUL 05...	61	53	11	12	2.5	139	113	54	21	0.20	3.2	241
SEP 01...	62	47	9.8	17	2.9	110	90	53	22	0.10	5.7	233

POTOMAC RIVER BASIN

01618000 POTOMAC RIVER AT SHEPHERDSTOWN, WV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)
NOV 09...	251	--	<0.010	0.830	0.030	0.030	0.27	0.30	0.040	0.040	0.020	<10
JAN 05...	126	--	<0.010	1.20	0.040	0.040	--	<0.20	0.030	0.020	<0.010	--
FEB 29...	153	--	<0.010	1.40	<0.010	<0.010	--	<0.20	0.030	0.030	0.010	20
MAY 05...	170	0.870	0.020	0.890	0.060	0.070	0.14	0.20	0.040	0.030	0.070	10
JUL 05...	234	1.49	0.010	1.50	<0.010	<0.010	--	0.30	0.040	0.010	0.010	--
SEP 01...	221	1.29	0.010	1.30	0.050	0.060	0.35	0.40	0.070	0.050	0.040	<10

DATE	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
NOV 09...	<1	51	<0.5	<1	<1	<3	2	21	<5	7	13
JAN 05...	--	--	--	--	--	--	--	--	--	--	--
FEB 29...	<1	36	<0.5	<1	<1	<3	1	22	<5	9	50
MAY 05...	<1	43	<0.5	<1	<1	<3	<1	26	<5	9	16
JUL 05...	--	--	--	--	--	--	--	--	--	--	--
SEP 01...	1	50	<0.5	1	<1	<3	2	16	<5	7	13

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 09...	0.3	<10	3	<1	<1.0	280	<6	6	9	28	60
JAN 05...	--	--	--	--	--	--	--	--	18	248	51
FEB 29...	<0.1	<10	1	<1	<1.0	160	<6	12	6	57	65
MAY 05...	<0.1	<10	3	<1	1.0	190	<6	7	4	35	84
JUL 05...	--	--	--	--	--	--	--	--	7	31	96
SEP 01...	<0.1	<10	<1	<1	<1.0	230	<6	15	6	45	91

POTOMAC RIVER BASIN

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

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

DRAINAGE AREA.--3,040 mi².

WATER-DISCHARGE RECORDS

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

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

GAGE.--Water-stage recorder. Datum of gage is 293.00 ft above National Geodetic Vertical Datum, adjustment of 1912. Apr. 15, 1895, to Mar. 31, 1909, nonrecording gage at site 0.8 mi downstream at datum 0.32 ft higher.

REMARKS.--No estimated daily discharges. Records good. Regulation by hydroelectric plants, particularly that of Potomac Light and Power Co., 0.5 mi upstream from station. U.S. Army Corps of Engineers satellite telemeter and National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--73 years (water years 1896-1908, 1929-88), 2,693 ft³/s, 12.03 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 230,000 ft³/s, Oct. 16, 1942, gage height, 32.4 ft, from floodmarks; minimum, about 59 ft³/s, Oct. 4, 1930, gage height, 0.39 ft; minimum daily, 194 ft³/s, July 24, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1870 reached practically same stage as flood of Mar. 18, 1936, 26.36 ft, discharge, 151,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 15,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 7	1845	*22,900	*10.42	May 20	1145	17,800	9.17

Minimum discharge, 261 ft³/s, Aug. 13, gage height, 0.98 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1410	912	7660	4120	2420	1510	1570	1210	2980	771	620	653
2	1310	831	6660	3550	2480	1480	1480	1190	2720	749	661	664
3	1330	793	4870	3140	3100	1410	1370	1150	2560	733	618	695
4	1240	785	3790	2780	3780	1520	1400	1070	2390	725	575	633
5	1180	775	3080	2510	3950	1770	1400	1160	2290	665	553	671
6	1060	737	2640	2230	3690	2250	1370	4200	2220	652	556	635
7	1130	729	2310	1910	3350	2070	1780	18700	2060	642	587	615
8	1080	740	2110	1480	3070	1940	4330	16800	1850	623	602	565
9	1010	732	1680	1540	2890	1800	4770	10100	1760	627	591	559
10	975	783	1740	1840	2730	1750	4150	7110	1720	647	560	574
11	980	924	1660	1830	2630	1690	3530	5610	1670	540	523	544
12	908	1070	1570	1650	2480	1610	3050	4650	1560	578	571	515
13	951	1070	1530	1700	2330	1590	2760	3890	1450	558	509	480
14	938	1350	1690	2060	2210	1550	2490	3270	1390	657	471	501
15	793	1290	1660	1840	2070	1480	2240	2760	1330	644	514	467
16	750	1150	1720	1690	2110	1460	2150	2480	1300	697	406	469
17	840	1190	2000	1660	2080	1430	1930	2440	1290	789	410	447
18	840	1160	2320	1850	1960	1380	1850	3940	1230	650	525	449
19	834	1210	2420	1810	2000	1340	1840	8850	1140	678	411	502
20	832	1160	2300	2240	1940	1330	1810	15200	1170	753	508	439
21	858	1210	2260	5510	1870	1310	1550	12400	1130	1570	614	557
22	871	1250	2180	7300	1830	1250	1570	9940	1060	767	687	447
23	820	1120	2080	5900	1810	1260	1500	9220	1080	766	508	508
24	810	1070	2090	4770	1790	1180	1460	12600	967	753	435	412
25	793	1050	1990	4120	1670	1160	1340	13100	875	887	569	525
26	763	1030	1850	3780	1640	1270	1370	9580	927	890	580	577
27	762	1000	2220	3420	1580	1340	1210	7130	796	999	532	544
28	886	1050	2330	3060	1580	1540	1470	5680	805	1010	497	516
29	969	1640	2830	2670	1500	1720	1100	4690	814	834	514	517
30	917	4450	4250	2400	---	1800	1220	4000	788	795	573	591
31	908	---	4980	2370	---	1640	---	3470	---	797	580	---
TOTAL	29748	34261	84470	88730	68540	47830	61060	207590	45322	23446	16860	16271
MEAN	960	1142	2725	2862	2363	1543	2035	6696	1511	756	544	542
MAX	1410	4450	7660	7300	3950	2250	4770	18700	2980	1570	687	695
MIN	750	729	1530	1480	1500	1160	1100	1070	788	540	406	412
CFSM	.32	.38	.90	.94	.78	.51	.67	2.20	.50	.25	.18	.18
IN.	.36	.42	1.03	1.09	.84	.59	.75	2.54	.55	.29	.21	.20

CAL YR 1987 TOTAL 1134085 MEAN 3107 MAX 61100 MIN 449 CFSM 1.02 IN. 13.88
WTR YR 1988 TOTAL 724128 MEAN 1978 MAX 18700 MIN 406 CFSM .65 IN. 8.86

POTOMAC RIVER BASIN

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

WATER-QUALITY RECORDS

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

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1980 to September 1983.

WATER TEMPERATURE: October 1980 to September 1983.

EXTREMES FOR PERIOD OF DAILY RECORD.--

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

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)
NOV												
09...	0840	742	447	8.47	13.5	1.5	760	10.3	99	7	150	200
JAN												
05...	0900	2590	320	8.15	0.0	26	768	14.0	95	9	17	120
FEB												
29...	0935	1500	383	8.72	5.0	1.3	757	14.1	111	E6	E8	160
MAY												
05...	1015	1120	368	7.91	16.0	0.80	752	8.2	84	40	140	150
JUL												
05...	0905	659	497	8.05	25.5	4.3	765	6.7	82	200	980	180
AUG												
03...	0900	624	485	8.40	29.5	--	759	5.8	77	--	--	170
SEP												
01...	0900	659	408	7.59	23.0	18	765	6.2	72	130	1000	160

DATE	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)
NOV												
09...	32	52	16	44	3.0	172	14	164	94	22	0.10	0.29
JAN												
05...	30	35	7.9	14	2.0	--	--	--	39	7.8	0.20	6.4
FEB												
29...	31	46	11	24	1.8	137	10	128	58	13	0.20	0.73
MAY												
05...	25	40	11	22	2.6	149	--	122	51	13	0.10	1.4
JUL												
05...	33	47	15	36	2.8	177	--	146	73	18	0.30	8.3
AUG												
03...	43	45	15	--	--	--	--	--	--	17	--	--
SEP												
01...	42	39	16	46	2.6	144	--	118	100	23	0.20	7.6

POTOMAC RIVER BASIN

01636500 SHENANDOAH RIVER AT MILLVILLE, WV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)
NOV 09...	326	334	--	<0.010	0.920	0.020	0.010	0.38	0.40	0.030	0.030	0.020
JAN 05...	176	173	--	<0.010	1.40	0.040	0.040	0.36	0.40	0.070	0.060	0.030
FEB 29...	244	239	--	<0.010	1.40	<0.010	<0.010	--	0.20	0.020	0.020	0.010
MAY 05...	219	217	0.710	0.010	0.720	0.040	0.070	0.36	0.40	0.030	0.060	0.060
JUL 05...	297	291	0.740	0.010	0.750	0.050	0.040	0.45	0.50	0.080	0.050	0.040
AUG 03...	--	--	0.560	0.020	0.580	--	0.040	--	--	--	--	0.030
SEP 01...	320	311	--	<0.010	0.550	0.070	0.090	0.63	0.70	0.150	0.080	0.070
DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
NOV 09...	<10	1	36	<0.5	<1	1	<3	1	12	<5	6	6
JAN 05...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 29...	<10	<1	35	<0.5	<1	<1	<3	1	12	<5	10	5
MAY 05...	<10	1	34	<0.5	<1	<1	<3	<1	24	<5	9	8
JUL 05...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 03...	--	--	--	--	--	--	--	--	--	--	--	--
SEP 01...	<10	2	46	<0.5	<1	<1	<3	1	22	<5	10	11
DATE	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	
NOV 09...	0.2	<10	2	<1	<1.0	170	<6	11	7	14	88	
JAN 05...	--	--	--	--	--	--	--	--	8	56	89	
FEB 29...	<0.1	<10	<1	<1	<1.0	140	<6	16	5	20	68	
MAY 05...	<0.1	<10	<1	<1	1.0	140	<6	16	6	18	94	
JUL 05...	--	--	--	--	--	--	--	--	14	25	93	
AUG 03...	--	--	--	--	--	--	--	--	--	--	--	
SEP 01...	<0.1	<10	<1	<1	<1.0	190	<6	6	33	59	96	

POTOMAC RIVER BASIN

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01638500 POTOMAC RIVER AT POINT OF ROCKS, MD

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

DRAINAGE AREA.--9,651 mi².

WATER-DISCHARGE RECORDS

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

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

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

REMARKS.--Water-discharge records good except those for estimated daily discharges 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.

AVERAGE DISCHARGE.--93 years, 9,395 ft³/s, 13.22 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 480,000 ft³/s, Mar. 19, 1936, gage height, 41.03 ft, from rating curve extended above 300,000 ft³/s, on the basis of adjustment of figure of peak flow at station near Washington for inflow and storage, and slope-area measurement of peak flow; minimum discharge, 530 ft³/s, Sept. 11, 12, 1966, gage height, 0.27 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 2, 1889, reached a stage of 40.2 ft, from floodmarks, discharge, about 460,000 ft³/s from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 35,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr. 9	0300	38,900	9.03	May 20	1400	*96,100	*17.01
May 8	0130	92,200	16.53	May 25	1130	48,100	10.48

Minimum discharge, 1,210 ft³/s, Aug. 14, 17, gage height, 0.69 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3360	2610	22000	13800	8650	5700	5710	4410	11100	2360	1880	3390
2	3210	2450	21800	12000	9470	5510	5490	4330	9940	2120	1980	2660
3	3290	2350	16400	10900	11700	5330	5310	4290	9050	2060	1920	2410
4	3520	2260	12200	9860	14000	5460	5080	4390	8470	2020	1720	2260
5	3300	2150	9870	e9000	16400	6760	5070	4820	8060	2010	1620	2390
6	3120	2000	8400	e7030	17300	12300	4970	8540	7790	1980	1580	3720
7	2970	2000	7310	e5260	14900	13400	6220	54900	7160	1930	1740	4670
8	2890	1960	6580	e4760	13400	11700	21200	78300	6480	1880	1740	3740
9	2780	1940	5660	e4650	12600	10200	37000	46600	6120	1830	1710	2990
10	2700	2140	5290	e4600	11500	9200	28700	32100	6210	1860	1760	2580
11	2660	2680	5060	e4550	9900	8540	21000	23300	6360	1800	1630	2260
12	2500	2870	4830	e4500	9230	8030	16400	17500	6280	1850	1530	2100
13	2420	3210	4880	e4450	8610	7420	13700	14700	5480	1990	1590	1910
14	2370	3690	5060	e4450	8010	6890	11700	12100	5050	2010	1340	1810
15	2320	4350	5300	e4400	7080	6590	10400	10700	4610	1890	1420	1820
16	2060	4850	5240	e4500	7450	6280	9310	9970	4350	1820	1430	1680
17	2140	5350	5740	e4600	7280	5980	8400	10300	4150	1900	1230	1720
18	2120	5330	6250	4790	7010	5690	7640	16000	4010	1880	1280	1780
19	2140	5180	6960	5030	6910	5420	7220	58500	3970	2050	1350	1760
20	2080	5400	6900	10300	6950	5090	6920	93400	3740	2150	1400	2300
21	2820	4840	7100	e28600	7330	5130	6510	84000	3520	3800	1720	2840
22	2430	4590	9420	31400	7960	4860	6050	63000	3390	2500	1740	2660
23	2080	4300	10100	27300	8020	4700	5670	43100	3320	3110	2070	2190
24	2020	3970	9350	20600	7590	4550	5460	41600	3390	2700	2530	1560
25	1970	3780	8420	16300	7200	4470	5220	45900	3320	2600	2370	1750
26	1930	3570	8210	14300	6740	4830	5170	36500	3200	2660	3610	1870
27	1970	3460	9400	12700	6370	4880	5010	27900	2890	2630	3150	1930
28	2650	3480	11000	10900	6150	5510	4980	22000	2760	2650	2300	2070
29	2650	7260	11900	9180	5950	6180	4730	17800	2820	2340	2120	2350
30	2720	10600	13200	8500	---	6410	4420	14800	2660	2040	2150	2370
31	2710	---	15800	8500	---	6050	---	12700	---	2240	2450	---
TOTAL	79900	114620	285630	321710	271660	209060	290660	918450	159650	68660	58060	71540
MEAN	2577	3821	9214	10380	9368	6744	9689	29630	5322	2215	1873	2385
MAX	3520	10600	22000	31400	17300	13400	37000	93400	11100	3800	3610	4670
MIN	1930	1940	4830	4400	5950	4470	4420	4290	2660	1800	1230	1560
CFSM	.27	.40	.95	1.08	.97	.70	1.00	3.07	.55	.23	.19	.25
IN.	.31	.44	1.10	1.24	1.05	.81	1.12	3.54	.62	.26	.22	.28

CAL YR 1987 TOTAL 3518580 MEAN 9640 MAX 136000 MIN 1290 CFSM 1.00 IN. 13.56
WTR YR 1988 TOTAL 2849600 MEAN 7786 MAX 93400 MIN 1230 CFSM .81 IN. 10.98

e Estimated

POTOMAC RIVER BASIN

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

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1960 to current year.

SUSPENDED-SEDIMENT DISCHARGE: October 1960 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

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

SEDIMENT CONCENTRATION: Maximum daily mean, 2,690 mg/L, Nov. 7, 1985; minimum daily mean, 1 mg/L, on many days most years.

SEDIMENT LOAD: Maximum daily, 1,930,000 tons, Nov. 7, 1985; minimum daily, 2.0 tons on many days during 1964, 1966-69.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum daily, 32.0°C, Aug. 13-15; minimum daily, 0.0°C, Jan. 6, 9, 10, 19, 20, 21, 29.

SEDIMENT CONCENTRATION: Maximum daily mean, 673 mg/L, May 20; minimum daily mean, 1 mg/L, Nov. 3.

SEDIMENT LOAD: Maximum daily, 170,000 tons, May 20; minimum daily, 6.3 tons, Nov. 3.

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. FALL DIAM. % FINER THAN .062 MM	SED. SUSP. FALL DIAM. % FINER THAN .125 MM	SED. SUSP. FALL DIAM. % FINER THAN .250 MM
MAY												
08...	1340	77600		706 148000	30	43	59	75	80	85	90	95

WATER TEMPERATURE, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
INSTANTANEOUS VALUES

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

POTOMAC RIVER BASIN

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

SEDIMENT, SUSPENDED CONCENTRATION (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	9	82	2	14	120	7360	10	373	11	257	9	139
2	8	69	2	13	75	4410	9	292	11	281	14	208
3	9	80	1	6.3	41	1820	12	353	12	379	7	101
4	9	86	2	12	27	889	21	559	15	567	8	118
5	9	80	2	12	15	400	21	510	19	841	7	128
6	8	67	4	22	12	272	18	342	29	1350	27	897
7	6	48	4	22	10	197	14	199	22	885	30	1090
8	5	39	3	16	12	213	10	129	16	579	30	948
9	4	30	3	16	14	214	6	75	12	408	21	578
10	5	36	2	12	10	143	5	62	10	310	17	422
11	7	50	2	14	7	96	5	61	9	241	15	346
12	13	88	2	15	14	183	4	49	15	374	21	455
13	9	59	2	17	21	277	4	48	21	488	29	581
14	5	32	2	20	17	232	4	48	19	411	22	409
15	3	19	4	47	10	143	3	36	14	268	8	142
16	3	17	5	65	6	85	3	36	13	261	7	119
17	4	23	4	58	5	77	2	25	12	236	8	129
18	6	34	3	43	5	84	4	52	14	265	20	307
19	5	29	4	56	5	94	11	149	16	299	17	249
20	3	17	4	58	5	93	198	5780	13	244	10	137
21	2	15	3	39	6	115	462	37500	10	198	5	69
22	2	13	2	25	8	203	410	34800	9	193	6	79
23	2	11	3	35	10	273	200	14700	9	195	8	102
24	3	16	3	32	11	278	62	3450	8	164	11	135
25	3	16	3	31	12	273	47	2070	6	117	10	121
26	3	16	3	29	11	244	31	1200	6	109	11	143
27	8	43	4	37	11	279	15	514	5	86	22	290
28	12	86	5	47	11	327	12	353	5	83	23	342
29	9	64	36	968	16	514	12	297	5	80	22	367
30	5	37	41	1270	13	463	13	298	---	---	30	519
31	4	29	---	---	15	640	12	275	---	---	28	457
TOTAL	---	1331	---	3051.3	---	20891	---	104635	---	10169	---	10127
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	25	385	17	202	31	929	11	70	15	76	14	128
2	23	341	19	222	29	778	11	63	14	75	10	72
3	23	330	20	232	28	684	11	61	13	67	7	46
4	23	315	20	237	23	526	11	60	17	79	9	55
5	20	274	21	273	18	392	11	60	26	114	13	84
6	17	228	37	853	17	358	9	48	33	141	22	221
7	34	571	602	117000	17	329	12	63	29	136	20	252
8	131	9380	631	139000	15	262	9	46	24	113	16	162
9	269	26900	230	28900	19	314	7	35	19	88	13	105
10	134	10400	120	10400	17	285	6	30	16	76	11	77
11	78	4420	80	5030	17	292	8	39	15	66	9	55
12	46	2040	44	2080	14	237	10	50	14	58	10	57
13	33	1220	33	1310	13	192	16	86	11	47	12	62
14	25	790	25	817	11	150	18	98	8	29	10	49
15	20	562	22	636	11	137	22	112	7	27	16	79
16	16	402	20	538	14	164	11	54	8	31	15	68
17	17	386	20	556	20	224	8	41	6	20	13	60
18	18	371	72	4150	15	162	9	46	7	24	8	38
19	14	273	638	116000	14	150	10	55	14	51	8	38
20	10	187	673	170000	12	121	12	70	21	79	21	130
21	10	176	464	105000	11	105	37	380	17	79	20	153
22	11	180	259	45200	10	92	14	94	15	70	12	86
23	10	153	138	16100	12	108	13	109	14	78	8	47
24	7	103	174	19500	15	137	14	102	13	89	8	34
25	6	85	208	25800	15	134	20	140	12	77	7	33
26	6	84	162	16000	14	121	24	172	23	224	8	40
27	8	108	115	8660	13	101	23	163	16	136	5	26
28	10	134	78	4630	15	112	22	157	10	62	5	28
29	12	153	50	2400	14	107	20	126	13	74	7	44
30	14	167	42	1680	11	79	29	160	29	168	16	102
31	---	---	36	1230	---	---	17	103	14	93	---	---
TOTAL	---	61118	---	844636	---	7782	---	2893	---	2547	---	2431

TOTAL LOAD FOR YEAR: 1071611.3 TONS.

MONONGAHELA RIVER BASIN

03050400 TYGART VALLEY RIVER AT ELKINS, WV

LOCATION.--Lat 38°55'00", long 79°50'43", Randolph County, Hydrologic Unit 05020001, at city water plant, at Elkins, 2.5 mi upstream from gaging station.

DRAINAGE AREA.--268 mi² upstream from water plant: 272 mi² upstream from gaging station.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: January 1947 to current year.

REMARKS.--No appreciable inflow between water plant and gaging station except during periods of heavy local rains. During flood periods part of the flow is diverted around the water plant in a flood by-pass channel. Values published are once-daily readings.

COOPERATION.--Temperature records were furnished by City of Elkins pump station.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum daily, 33.0°C, July 22, 1952; minimum daily, 0.0°C on many days during winter months most years.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum daily, 27.0°C, July 18, Aug. 19; minimum daily, 1.0°C, Jan. 7, 12, 13, 15, 27.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
ONCE-DAILY VALUES

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

MONONGAHELA RIVER BASIN

03050500 TYGART VALLEY RIVER NEAR ELKINS, WV

LOCATION.--Lat 38°55'30", long 79°52'45", Randolph County, Hydrologic Unit 05020001, on left bank 1.4 mi upstream from Leading Creek, 1.5 mi west of Elkins, and at mile 78.3.

DRAINAGE AREA.--272 mi².

PERIOD OF RECORD.--October 1944 to current year. Prior to October 1960, published as Tygart River near Elkins.

GAGE.--Water-stage recorder. Datum of gage is 1,893.95 ft above National Geodetic Vertical Datum, adjustment of 1912. Prior to Nov. 16, 1944, nonrecording gage and Nov. 16, 1944, to Sept. 30, 1951, water-stage recorder at site 200 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 7-17, 25-30, and Feb. 8-19. Records good except those for period of estimated daily discharges, which are poor. Slight regulation at times by flood-diversion dam upstream from station. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--44 years, 538 ft³/s, 26.86 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,500 ft³/s, Nov. 5, 1985, gage height, 22.81 ft, from floodmarks, from rating curve extended above 13,800 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 0.1 ft³/s, Sept. 20-29, 1959; minimum gage height, 0.97 ft, Aug. 12, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 21	0115	*4,520	*10.52	No peak greater than base discharge.			

Minimum discharge, 0.72 ft³/s, Sept. 3; minimum gage height, 0.98 ft, June 30, Aug. 5, 6, Sept. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	442	16	843	1310	457	237	433	674	153	5.9	10	3.8
2	264	51	539	1890	714	218	440	586	139	4.4	6.0	1.1
3	231	59	390	1070	1620	218	411	420	200	2.7	1.3	.77
4	215	76	509	715	1550	365	412	416	193	2.5	.99	247
5	176	11	515	471	1600	1850	419	523	157	2.5	.91	271
6	158	28	414	289	945	1200	399	3290	123	2.5	1.3	146
7	135	29	364	e220	543	756	744	3750	95	2.5	3.6	74
8	157	29	354	e200	e450	528	2010	1540	91	5.2	7.6	54
9	143	31	760	e185	e370	425	1700	836	95	8.3	9.3	47
10	156	148	1020	e175	e280	414	1010	709	104	7.1	5.6	34
11	132	870	697	e165	e230	355	668	613	86	2.5	1.9	21
12	116	498	496	e155	e190	307	488	530	68	2.0	2.6	13
13	100	344	376	e150	e160	416	380	409	54	3.0	3.6	11
14	85	312	294	e145	e140	564	310	346	38	5.7	3.7	13
15	77	303	350	e140	e150	522	265	297	29	4.6	4.1	17
16	69	259	775	e135	e160	440	227	279	32	3.2	8.7	20
17	62	216	574	e130	e180	380	196	267	31	4.0	6.1	107
18	56	195	412	417	e210	366	200	842	32	4.8	4.3	144
19	46	171	336	1100	e240	388	448	1510	31	6.7	3.6	90
20	42	158	536	3590	398	394	515	1540	28	13	4.1	70
21	41	151	998	3070	564	366	414	1150	24	233	4.3	31
22	45	129	710	1170	462	352	345	766	21	392	4.3	26
23	50	115	564	730	454	693	332	516	19	184	5.7	20
24	47	123	436	521	405	1600	346	468	15	78	131	137
25	45	215	477	e360	347	1220	330	991	13	41	51	2280
26	43	250	2030	e270	311	1270	292	990	11	23	32	1090
27	44	212	2360	e220	299	1360	267	590	9.4	21	47	367
28	46	198	1320	e190	281	929	250	407	5.6	21	31	206
29	50	1230	1830	e220	253	667	314	304	2.1	16	17	134
30	61	2160	1350	e270	---	510	568	234	2.6	14	7.5	90
31	73	---	859	355	---	411	---	187	---	12	5.7	---
TOTAL	3407	8587	23488	20028	13963	19721	15133	25980	1901.7	1128.1	425.80	5765.67
MEAN	110	286	758	646	481	636	504	838	63.4	36.4	13.7	192
MAX	442	2160	2360	3590	1620	1850	2010	3750	200	392	131	2280
MIN	41	11	294	130	140	218	196	187	2.1	2.0	.91	.77
CFSM	.40	1.05	2.79	2.38	1.77	2.34	1.85	3.08	.23	.13	.05	.71
IN.	.47	1.17	3.21	2.74	1.91	2.70	2.07	3.55	.26	.15	.06	.79

CAL YR 1987 TOTAL 158266.2 MEAN 434 MAX 4840 MIN 3.0 CFSM 1.59 IN. 21.65
WTR YR 1988 TOTAL 139528.27 MEAN 381 MAX 3750 MIN .77 CFSM 1.40 IN. 19.08

e Estimated

MONONGAHELA RIVER BASIN

03051000 TYGART VALLEY RIVER AT BELINGTON, WV

LOCATION.--Lat 39°01'45", long 79°56'10", Barbour County, Hydrologic Unit 05020001, on left bank opposite mouth of Mill Creek, 0.2 mi downstream from highway bridge at Belington, and mile 61.5.

DRAINAGE AREA.--408 mi², excluding that of Mill Creek.

PERIOD OF RECORD.--June 1907 to current year. Prior to October 1960, published as Tygart River at Belington.

REVISED RECORDS.--WSP 823: Drainage area. WSP 953: 1933(M), 1941(M). WSP 1335: 1912, 1914-15, 1916(M), 1921-22(M), 1925(M), 1928, 1933. WSP 1385: 1909(M), 1913-15(M), 1917-18, 1924(M), 1928(M), 1932, 1934, 1936, 1938-39, 1948-49.

GAGE.--Water-stage recorder. Datum of gage is 1,679.49 ft above National Geodetic Vertical Datum, adjustment of 1912. Prior to Apr. 25, 1939, nonrecording gage at site 0.2 mi upstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 5-19, 26-31, and Feb. 8-19. Records good except those for periods of estimated daily discharges, which are poor. National Weather Service gage-height telemeter at station. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--81 years, 814 ft³/s, 27.09 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,500 ft³/s, Nov. 5, 1985, gage height, 23.65 ft, from floodmarks, from rating curve extended above 18,700 ft³/s; minimum, 0.1 ft³/s, Sept. 13, 1930, gage height, 1.56 ft, site then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 1888, reached a stage of 21.7 ft, former site, from floodmarks, discharge, 21,200 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 20	2120	*6,400	*11.00	No other peaks greater than base discharge.			

Minimum discharge, 3.6 ft³/s, Aug. 10; minimum gage height, 1.91 ft, July 10, 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	643	88	1490	1870	799	415	837	960	238	12	23	17
2	431	42	940	2940	1420	383	825	872	205	9.3	19	14
3	339	63	685	1780	3230	378	737	692	289	8.1	17	10
4	340	84	947	1180	2760	630	725	562	303	12	14	50
5	285	82	1040	e600	2880	3030	734	741	245	9.8	8.0	529
6	232	31	803	e420	1720	2150	679	4220	186	7.6	6.3	245
7	213	36	672	e320	1030	1320	1090	5470	149	6.5	6.2	139
8	231	46	627	e300	e800	920	3170	2580	127	5.7	5.6	78
9	293	43	1030	e280	e650	723	2980	1420	140	4.8	4.4	70
10	232	118	1610	e270	e470	699	1780	1150	155	4.5	7.4	59
11	220	1460	1200	e260	e390	618	1160	1110	145	11	15	47
12	192	1100	837	e250	e320	526	845	944	126	16	12	37
13	167	672	626	e240	e280	689	652	754	105	12	6.8	48
14	140	571	473	e230	e240	978	523	603	87	8.7	12	435
15	119	553	456	e220	e270	922	436	504	72	6.6	10	164
16	108	481	908	e210	e300	775	372	442	57	6.1	9.2	80
17	97	395	838	e210	e340	668	321	393	49	9.9	6.6	324
18	88	350	622	e615	e380	632	319	889	50	8.8	12	506
19	80	310	499	e1650	e460	654	569	1960	49	9.9	13	259
20	71	266	775	5090	677	668	788	2360	48	19	16	169
21	69	254	1560	4770	977	626	652	1840	45	85	13	102
22	67	214	1180	1970	839	578	548	1240	42	527	8.9	71
23	70	186	937	1210	807	978	498	858	38	262	10	60
24	74	191	735	870	758	2370	528	751	35	164	145	61
25	69	228	842	696	640	1990	503	1610	33	65	167	2620
26	65	342	3190	e640	551	1930	445	1870	30	55	68	2120
27	61	299	3870	e480	523	2230	404	1080	26	39	50	750
28	62	275	2190	e330	492	1540	384	721	23	35	57	395
29	64	1530	2670	e370	442	1100	469	520	21	32	48	242
30	69	3560	2200	e430	---	846	804	391	17	28	40	163
31	77	---	1390	e520	---	683	---	303	---	26	25	---
TOTAL	5268	13870	37842	31221	25445	32649	24777	39810	3135	1506.3	855.4	9864
MEAN	170	462	1221	1007	877	1053	826	1284	104	48.6	27.6	329
MAX	643	3560	3870	5090	3230	3030	3170	5470	303	527	167	2620
MIN	61	31	456	210	240	378	319	303	17	4.5	4.4	10
CFSM	.42	1.13	2.99	2.47	2.15	2.58	2.02	3.15	.26	.12	.07	.81
IN.	.48	1.26	3.45	2.85	2.32	2.98	2.26	3.63	.29	.14	.08	.90

CAL YR 1987 TOTAL 236708.1 MEAN 649 MAX 6670 MIN 3.6 CFSM 1.59 IN. 21.58
WTR YR 1988 TOTAL 226242.7 MEAN 618 MAX 5470 MIN 4.4 CFSM 1.52 IN. 20.63

e Estimated

MONONGAHELA RIVER BASIN

03052500 SAND RUN NEAR BUCKHANNON, WV

LOCATION.--Lat 38°57'50", long 80°09'10", Upshur County, Hydrologic Unit 05020001, on right bank 300 ft downstream from Left Fork, 4.5 mi southeast of Buckhannon, and at mile 6.0.

DRAINAGE AREA.--14.5 mi².

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

REVISED RECORDS.--WSP 1725: 1955(M).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,530 ft, above National Geodetic Vertical Datum of 1929, from topographic map. Prior to May 4, 1983, at datum 1.00 ft higher.

REMARKS.--Estimated daily discharges: Jan. 6-17, 25-31, and Feb. 12-18. Records good except those for periods of estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--42 years, 26.9 ft³/s, 25.19 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,200 ft³/s, Nov. 4, 1985, gage height, 8.34 ft, from rating curve extended above 1,560 ft³/s; no flow for several days in 1951-56, 1964-66, and parts of July 19, 20, 1986.

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

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Dec. 26	1015	*365	*3.66	No peak greater than base discharge.			

Minimum discharge, 0.03 ft³/s, July 10, 11, Aug. 15, gage height, 0.77 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.4	2.2	36	64	28	15	19	12	4.1	.14	.18	.35
2	4.1	2.1	25	64	145	14	17	11	4.3	.12	.15	.30
3	5.1	2.1	24	43	176	14	16	11	7.5	.09	.12	.26
4	4.8	2.1	64	32	143	105	20	11	6.2	.08	.10	13
5	4.2	2.1	53	22	101	160	19	18	4.4	.07	.09	9.4
6	3.8	1.9	37	e17	53	67	20	146	3.3	.06	.17	5.0
7	5.6	1.7	29	e13	39	41	69	89	2.5	.05	.19	2.5
8	7.9	1.6	28	e12	27	27	198	45	1.9	.04	.20	1.5
9	8.3	2.0	32	e11	21	23	94	30	4.3	.04	.24	.97
10	6.9	63	26	e10	18	23	50	32	4.0	.04	.18	.68
11	6.3	58	20	e10	15	18	32	27	2.4	.03	.12	.55
12	6.3	27	16	e9.5	e13	18	23	22	1.7	.05	.08	.47
13	5.1	21	12	e9.2	e12	52	17	18	1.3	.22	.06	1.0
14	4.1	19	10	e9.0	e11	49	14	15	.97	.20	.05	5.9
15	3.6	15	13	e8.8	e13	38	12	12	.72	.11	.06	2.8
16	3.3	13	12	e8.6	e14	28	10	10	.55	.07	.11	1.4
17	3.1	11	11	e8.4	e15	24	9.2	8.7	.52	.05	.07	13
18	3.0	13	9.8	38	e16	25	15	8.4	.54	.04	.07	10
19	2.8	11	9.9	46	18	26	22	16	.53	.34	.11	5.5
20	2.7	10	28	189	24	29	18	31	.44	3.3	.32	3.7
21	2.9	9.3	34	81	24	26	16	34	.37	6.9	.44	2.4
22	3.0	7.5	26	45	22	26	14	21	.31	4.4	.28	1.7
23	2.7	6.9	25	31	23	39	14	15	.28	1.4	1.6	1.3
24	2.5	6.7	20	22	22	45	15	14	.25	.74	11	2.3
25	2.4	6.1	70	e18	19	34	13	22	.23	.46	2.7	26
26	2.2	5.7	279	e15	18	48	12	18	.23	.37	1.1	15
27	2.2	5.4	108	e13	18	43	11	14	.21	.34	.57	7.6
28	3.0	5.1	65	e12	17	31	11	11	.18	.28	.41	4.7
29	2.9	52	66	e15	16	23	14	8.4	.17	.23	.38	3.3
30	2.6	57	47	e17	---	19	13	6.5	.16	.20	.49	2.5
31	2.4	---	36	e22	---	16	---	5.1	---	.19	.40	---
TOTAL	125.2	440.5	1271.7	915.5	1081	1146	827.2	742.1	54.56	20.65	22.04	145.08
MEAN	4.04	14.7	41.0	29.5	37.3	37.0	27.6	23.9	1.82	.67	.71	4.84
MAX	8.3	63	279	189	176	160	198	146	7.5	6.9	11	26
MIN	2.2	1.6	9.8	8.4	11	14	9.2	5.1	.16	.03	.05	.26
CFSM	.28	1.01	2.83	2.04	2.57	2.55	1.90	1.65	.13	.05	.05	.33
IN.	.32	1.13	3.26	2.35	2.77	2.94	2.12	1.90	.14	.05	.06	.37

CAL YR 1987 TOTAL 8105.12 MEAN 22.2 MAX 398 MIN .01 CFSM 1.53 IN. 20.79
WTR YR 1988 TOTAL 6791.53 MEAN 18.6 MAX 279 MIN .03 CFSM 1.28 IN. 17.42

e Estimated

MONONGAHELA RIVER BASIN

03053500 BUCKHANNON RIVER AT HALL, WV

LOCATION.--Lat 39°03'05", Long 80°06'50", Barbour County, Hydrologic Unit 05020001, on right bank 0.2 mi upstream from highway bridge at Hall, 1.0 mi upstream from Pecks Run, and at mile 7.5.

DRAINAGE AREA.--277 mi².

PERIOD OF RECORD.--June 1907 to May 1909 (gage heights only), April 1915 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 783: 1918(M).

GAGE.--Water-stage recorder. Datum of gage is 1,369.15 ft Baltimore & Ohio RR datum. June 1907 to May 25, 1909, nonrecording gage at site 0.2 mi downstream at datum 4.12 ft lower. Apr. 15, 1915, to June 8, 1939, nonrecording gage at site 500 ft downstream at present datum.

REMARKS.--Estimated daily discharges: Oct. 1-7, Jan. 6-17, 26-29, and Feb. 12-18. Records good except those for periods of estimated discharge, which are poor. Some regulation at low flow from mine pumpage above station.

AVERAGE DISCHARGE.--73 years, 595 ft³/s, 29.17 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,000 ft³/s, Nov. 5, 1985, gage height, 16.88 ft, from floodmarks, from rating curve extended above 13,000 ft³/s on basis of slope-area measurement; minimum, 0.2 ft³/s, Oct. 23, 27, 1930, gage height, 1.30 ft, site then in use.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Dec. 26	2330	*3,780	*8.54	No peak greater than base discharge.			

Minimum discharge, 4.0 ft³/s, July 18; minimum gage height, 3.60 ft, Aug. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e460	73	882	1060	472	339	560	494	165	6.8	30	14
2	e330	68	669	1570	970	314	648	471	156	6.5	19	12
3	e240	63	526	1160	2780	303	583	412	167	6.4	15	11
4	e225	60	817	857	2290	647	575	363	135	6.6	13	14
5	e195	59	1070	640	2430	2460	614	418	162	6.2	12	175
6	e165	54	788	e450	1450	1640	540	1410	131	6.2	12	201
7	e120	51	611	e280	874	1040	745	2200	109	5.9	12	116
8	150	49	545	e260	747	748	2420	1380	93	5.4	15	64
9	192	50	647	e240	564	597	2350	920	91	4.8	14	50
10	182	202	887	e230	461	589	1410	794	103	4.6	12	36
11	157	1130	755	e220	395	527	957	732	106	4.3	16	27
12	146	779	576	e210	e320	448	703	594	94	4.6	14	22
13	140	502	453	e200	e290	704	542	488	80	5.6	11	21
14	121	415	353	e190	e250	995	432	406	69	6.2	8.9	58
15	102	359	331	e180	e270	844	359	343	60	5.9	7.5	76
16	95	303	393	e175	e290	694	304	295	51	5.2	6.8	49
17	87	261	356	e170	e310	591	261	268	43	4.8	6.2	48
18	78	273	317	444	e320	553	269	229	37	4.9	8.7	128
19	71	294	286	993	412	589	580	290	36	6.8	7.7	142
20	66	252	381	2380	587	601	622	469	36	19	7.7	97
21	64	233	701	2370	781	594	525	528	33	80	11	76
22	66	205	619	1280	680	526	453	462	29	363	20	54
23	94	170	574	851	628	572	423	381	24	248	16	43
24	88	166	502	633	619	926	410	332	21	119	57	41
25	78	187	774	517	511	1060	385	440	18	107	111	513
26	71	204	2900	e380	433	1050	337	804	17	75	79	1360
27	69	189	3050	e300	408	1130	307	614	14	55	45	587
28	71	176	1630	e255	395	912	288	456	13	41	28	328
29	77	342	1450	e280	363	720	325	344	9.7	31	22	213
30	85	1110	1220	356	---	584	439	264	7.7	26	19	129
31	81	---	907	404	---	481	---	204	---	35	17	---
TOTAL	4166	8279	25970	19535	21300	23778	19366	17805	2110.4	1306.7	673.5	4705
MEAN	134	276	838	630	734	767	646	574	70.3	42.2	21.7	157
MAX	460	1130	3050	2380	2780	2460	2420	2200	167	363	111	1360
MIN	64	49	286	170	250	303	261	204	7.7	4.3	6.2	11
CFSM	.49	1.00	3.02	2.27	2.65	2.77	2.33	2.07	.25	.15	.08	.57
IN.	.56	1.11	3.49	2.62	2.86	3.19	2.60	2.39	.28	.18	.09	.63

CAL YR 1987 TOTAL 162207.5 MEAN 444 MAX 4230 MIN 2.3 CFSM 1.60 IN. 21.78
WTR YR 1988 TOTAL 148994.6 MEAN 407 MAX 3050 MIN 4.3 CFSM 1.47 IN. 20.01

e Estimated

MONONGAHELA RIVER BASIN

03054500 TYGART VALLEY RIVER AT PHILIPPI, WV

LOCATION.--Lat 39°09'00", long 80°02'25", Barbour County, Hydrologic Unit 05020001, on right bank at Philippi, 0.2 mi downstream from Anglins Run, 5.0 mi downstream from Buckhannon River, and at mile 44.9.

DRAINAGE AREA.--916 mi².

PERIOD OF RECORD.--April 1940 to current year. Prior to October 1960, published as Tygart River at Philippi.

GAGE.--Water-stage recorder. Datum of gage is 1,280.55 ft above National Geodetic Vertical Datum of 1929. Prior to May 23, 1940, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 5-17, 28-30, Feb. 8-18, and Sept. 7-12. Records good except those for periods of estimated daily discharges, which are poor. National Weather Service gage-height telemeter at station. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--48 years, 1,865 ft³/s, 27.65 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 61,000 ft³/s, Nov. 5, 1985, gage height, 31.83 ft, from floodmarks, from rating curve extended above 41,000 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 4.9 ft³/s, Oct. 10-12, 21, 1953; minimum gage height, 0.92 ft Sept. 9, 10, 1957.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 25, 1912, reached a stage of 27.3 ft, read on National Weather Service gage 0.2 mi downstream, or about 26 ft, present site and datum, discharge, about 37,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 13,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 20	2100	*11,900	*11.74	No peak greater than base discharge.			
Minimum discharge, 7.5 ft ³ /s, July 12, gage height, 1.00 ft.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	758	197	3230	3330	1640	1040	1740	1750	509	24	61	50
2	796	168	2180	5680	2660	953	1930	1680	424	19	53	40
3	557	134	1680	3900	7680	912	1760	1450	492	14	40	34
4	578	157	2140	2700	6690	1500	1700	1180	560	12	32	42
5	531	187	2700	e1600	7090	6490	1770	1450	477	12	28	508
6	441	141	2140	e1100	4300	5020	1610	5930	391	14	27	619
7	396	110	1750	e900	2580	3110	2060	9650	312	13	25	e450
8	403	114	1590	e800	e1800	2240	6440	5280	259	11	23	e300
9	541	122	2010	e740	e1500	1790	6990	3080	259	10	17	e180
10	507	327	3090	e700	e1200	1710	4210	2480	278	9.5	15	e155
11	461	3100	2620	e640	e920	1570	2800	2380	273	8.8	13	e135
12	404	2450	1940	e600	e780	1350	2090	2020	245	8.2	15	e105
13	370	1620	1530	e560	e660	1720	1650	1700	204	9.6	25	e96
14	326	1390	1190	e540	e560	2460	1340	1400	171	15	21	319
15	280	1280	1070	e500	e680	2290	1120	1180	141	14	16	416
16	248	1100	1420	e490	e780	1960	919	997	121	12	17	210
17	226	909	1500	e480	e950	1690	769	894	101	10	15	180
18	207	846	1230	1110	e1050	1570	770	1080	90	9.2	12	854
19	189	812	1030	3590	1220	1610	1400	2280	88	15	11	596
20	175	707	1280	8670	1600	1640	1810	3120	85	21	17	367
21	171	658	2530	9500	2190	1600	1570	2810	83	50	31	267
22	164	567	2270	4420	2010	1460	1370	2170	77	778	28	184
23	187	474	1930	2740	1890	1760	1240	1650	69	732	30	141
24	201	453	1660	2040	1840	3720	1250	1380	61	359	40	131
25	187	480	1970	1670	1580	3860	1190	2090	55	252	317	3130
26	170	625	7340	1480	1360	3510	1050	3410	50	161	224	4770
27	165	616	9380	1130	1290	4090	924	2310	44	124	137	1950
28	165	554	5190	e800	1230	3120	857	1660	39	94	100	1080
29	168	1260	4980	e900	1120	2370	987	1240	35	78	95	647
30	179	5760	4420	e1050	---	1910	1430	909	29	67	82	416
31	182	---	3000	1330	---	1580	---	675	---	60	65	---
TOTAL	10333	27318	81990	65690	60850	71605	56746	71285	6022	3016.3	1632	18372
MEAN	333	911	2645	2119	2098	2310	1892	2300	201	97.3	52.6	612
MAX	796	5760	9380	9500	7680	6490	6990	9650	560	778	317	4770
MIN	164	110	1030	480	560	912	769	675	29	8.2	11	34
CFSM	.36	.99	2.89	2.31	2.29	2.52	2.06	2.51	.22	.11	.06	.67
IN.	.42	1.11	3.33	2.67	2.47	2.91	2.30	2.89	.24	.12	.07	.75

CAL YR 1987 TOTAL 499615.9 MEAN 1369 MAX 14400 MIN 8.9 CFSM 1.49 IN. 20.29
WTR YR 1988 TOTAL 474859.3 MEAN 1297 MAX 9650 MIN 8.2 CFSM 1.42 IN. 19.28

e Estimated

MONONGAHELA RIVER BASIN

03056000 TYGART VALLEY RIVER AT TYGART DAM NEAR GRAFTON, WV

LOCATION.--Lat 39°18'50", long 80°02'00", Taylor County, Hydrologic Unit 05020001, at Tygart Dam, 2.2 mi upstream from Threefork Creek, and 2.4 mi upstream from Grafton.

DRAINAGE AREA.--1,184 mi².

PERIOD OF RECORD.--June 1938 to September 1982, October 1986 to current year. Prior to October 1960, published as Tygart River at Tygart Dam near Grafton.

GAGE.--Water-stage recorder. Datum of gage is 960.55 ft above National Geodetic Vertical Datum, adjustment of 1912.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Tygart Dam, capacity 937,614,300,000 gal, of which 3,161,230,000 is controlled above minimum pool. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--46 years (water years 1939-1982, 1987-88), 2,347 ft³/s, 26.92 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,000 ft³/s, Feb. 2, 1939; no flow Aug. 2, 1938.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,500 ft³/s, Feb. 5; minimum daily, 254 ft³/s, June 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	874	329	3670	5920	1600	1170	2090	1030	925	343	346	307
2	768	329	4490	5820	1800	1350	1870	922	704	340	352	308
3	888	326	4310	5610	2270	1360	1870	745	636	338	350	306
4	1180	323	4320	4320	4900	2170	1930	595	639	337	340	314
5	1270	324	3470	3040	8840	3510	1950	579	632	337	338	324
6	1260	321	3430	1740	10100	6820	1940	1880	629	336	338	324
7	1250	319	4100	1220	9330	8450	2000	5260	510	336	337	318
8	1240	315	3380	1030	6320	5670	2260	9410	410	323	336	314
9	1230	319	2940	1040	4000	3140	4440	6030	427	311	335	311
10	1220	375	2950	1030	3820	2750	6590	2460	440	310	332	310
11	1210	490	3470	1120	2880	2330	4940	2490	420	308	332	309
12	1200	1320	3730	1200	1740	1830	2880	2760	412	315	332	331
13	1180	2170	3090	1070	1530	1930	2160	2180	408	318	331	559
14	1170	2170	2200	963	1510	2480	1860	1920	345	316	330	671
15	1150	1620	1560	949	1530	2670	1430	1430	289	311	329	574
16	1130	1300	1410	944	1570	3070	1240	1040	289	309	328	411
17	1110	1380	1550	943	1570	3000	1230	1040	274	307	326	340
18	908	1390	1550	1010	1740	2560	1330	1030	259	305	327	485
19	562	1380	1540	1600	1860	2280	1480	1120	254	312	328	517
20	479	1240	1670	2990	2020	2290	1390	2400	298	318	373	502
21	455	1140	2380	6090	2450	2300	1350	4080	335	341	350	502
22	382	1120	3260	9770	3310	2000	1330	4630	334	278	336	494
23	336	989	3410	9030	3080	1680	1320	4080	334	261	330	493
24	335	894	2720	7530	2710	1930	1340	2190	333	315	325	513
25	334	777	2500	4540	2660	2910	1320	1560	330	336	325	535
26	332	687	4180	2240	2130	3480	1310	3150	351	310	327	1420
27	334	688	7610	1660	1620	3540	1170	3470	359	308	324	2460
28	333	794	9790	1500	1490	3270	991	1910	334	306	320	1570
29	335	1230	8700	1200	1380	2780	1010	1680	342	328	323	1150
30	334	1970	7850	1300	---	2450	1050	1390	344	348	316	846
31	332	---	6760	1550	---	2400	---	1230	---	348	309	---
TOTAL	25121	28029	117990	89969	91760	89570	59071	75691	12596	9909	10325	17818
MEAN	810	934	3806	2902	3164	2889	1969	2442	420	320	333	594
MAX	1270	2170	9790	9770	10100	8450	6590	9410	925	348	373	2460
MIN	332	315	1410	943	1380	1170	991	579	254	261	309	306

CAL YR 1987 TOTAL 644250 MEAN 1765 MAX 13400 MIN 264
WTR YR 1988 TOTAL 627849 MEAN 1715 MAX 10100 MIN 254

MONONGAHELA RIVER BASIN

03056250 THREE FORK CREEK NEAR GRAFTON, WV

LOCATION.--Lat 39°20'13", long 79°59'36", Taylor County, Hydrologic Unit 05020001, on right bank 20 ft downstream from bridge on State Secondary Route 50/9, 1.4 mi east of Grafton, and at mile 1.8.

DRAINAGE AREA.--97.4 mi².

PERIOD OF RECORD.--October 1984 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,000.00 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Jan. 6-16, 25-31, and Feb. 12-19. Records good except those for periods of estimated daily discharges, which are poor. U.S. Army Corps of Engineers satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft³/s, Nov. 5, 1985, gage height 20.13 ft, from floodmarks, from rating curve extended above 10,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 0.44 ft³/s, Aug. 18, 19, 1988, gage height, 1.16 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft³/s and minimum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Mar. 4	2030	*2,610	*9.94	No other peaks greater than base discharge.			

Minimum discharge, 0.44 ft³/s, Aug. 18, 19, gage height, 1.16 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	11	151	300	187	119	164	167	27	2.7	2.4	2.4
2	12	12	107	296	392	117	152	140	26	2.4	2.3	1.9
3	26	8.1	84	215	681	128	137	118	29	2.2	4.7	1.4
4	32	7.8	338	176	1160	1150	153	108	28	2.2	1.8	3.3
5	20	7.5	273	104	728	1210	171	178	24	2.2	1.6	19
6	15	7.6	173	e88	389	497	154	798	21	1.6	1.4	15
7	14	7.1	129	e77	254	326	201	474	18	1.4	1.4	9.1
8	24	7.0	112	e71	212	231	447	306	16	1.4	1.4	6.2
9	23	8.0	161	e64	156	188	392	219	26	.96	1.1	4.6
10	17	62	188	e60	132	179	286	183	39	.92	.83	3.8
11	15	93	149	e56	113	143	215	141	22	.82	.69	3.2
12	15	54	119	e54	e99	124	172	111	17	2.3	.70	2.7
13	14	48	91	e52	e83	246	136	93	14	10	.68	58
14	12	70	71	e50	e74	254	111	82	12	8.2	.56	58
15	10	83	93	e50	e77	209	96	72	11	5.1	.50	23
16	9.6	69	121	e52	e82	166	83	64	9.8	3.8	.49	14
17	8.5	55	102	61	e85	140	73	57	14	2.7	.53	25
18	7.6	62	83	145	e90	128	156	56	15	1.9	.49	78
19	7.5	58	75	224	e130	134	369	156	11	2.7	.62	34
20	7.4	45	273	1100	354	145	242	294	8.5	10	18	22
21	7.6	41	313	566	351	146	184	241	7.4	32	21	22
22	9.0	28	204	329	252	142	141	165	6.5	34	9.9	17
23	9.1	27	166	228	227	162	123	119	6.1	16	5.7	14
24	8.0	30	127	171	216	221	145	124	6.0	10	4.9	39
25	7.8	26	455	e120	178	198	125	103	5.0	7.5	6.3	55
26	7.8	24	996	e95	149	332	108	80	4.4	5.9	5.5	39
27	8.1	23	567	e80	141	319	97	65	3.8	4.7	3.9	26
28	11	22	357	e72	123	228	93	53	3.4	4.2	3.0	19
29	15	309	357	e85	117	180	168	44	3.2	3.6	2.7	15
30	15	307	256	e100	---	149	201	37	3.0	3.1	2.8	12
31	12	---	199	e120	---	121	---	31	---	2.8	2.8	---
TOTAL	415.0	1612.1	6890	5261	7232	8032	5295	4879	437.1	189.30	110.69	642.6
MEAN	13.4	53.7	222	170	249	259	176	157	14.6	6.11	3.57	21.4
MAX	32	309	996	1100	1160	1210	447	798	39	34	21	78
MIN	7.4	7.0	71	50	74	117	73	31	3.0	.82	.49	1.4
CFSM	.14	.55	2.28	1.74	2.56	2.66	1.81	1.62	.15	.06	.04	.22
IN.	.16	.62	2.63	2.01	2.76	3.07	2.02	1.86	.17	.07	.04	.25

CAL YR 1987 TOTAL 39532.5 MEAN 108 MAX 1260 MIN 2.4 CFSM 1.11 IN. 15.10
WTR YR 1988 TOTAL 40995.79 MEAN 112 MAX 1210 MIN .49 CFSM 1.15 IN. 15.66

e Estimated

MONONGAHELA RIVER BASIN

03057000 TYGART VALLEY RIVER AT COLFAX, WV

LOCATION.--Lat 39°26'15", Long 80°07'55", Marion County, Hydrologic Unit 05020001 on right bank at highway bridge at Colfax, 300 ft upstream from Guysses Run, and at mile 6.0. Records include flow of Guysses Run.

DRAINAGE AREA.--1,366 mi², including that of Guysses Run.

PERIOD OF RECORD.--May 1939 to current year. Prior to October 1960, published as Tygart River at Colfax.

REVISED RECORDS.--WSP 1083: 1942(M), WSP 1335: 1941.

GAGE.--Water-stage recorder. Datum of gage is 856.27 ft above National Geodetic Vertical Datum of 1929, supplementary adjustment of 1944. Formerly published as 855.49 ft Baltimore & Ohio RR datum. Since Jan. 19, 1945, auxiliary water-stage recorder at Fairmont waterworks, 5.7 mi downstream from base gage, at datum 856.99 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 16 to Jan. 13, Jan. 15-16, and Feb. 15-17. Records good except those for periods of estimated daily discharges, which are poor. Flow regulated since June 1938, by Tygart Lake. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--49 years, 2,647 ft³/s, 26.31 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,700 ft³/s, Nov. 5, 1985, gage height, 18.89 ft; maximum gage height, 19.77 ft, Mar. 5, 1963, backwater from West Fork River; minimum discharge, 94 ft³/s, July 3, 1946; minimum daily, 129 ft³/s, May 5-7, 1941.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1888 reached a stage of 39.6 ft at site 1,100 ft downstream, present datum, from information by local resident. The stage on that day was probably affected by backwater from West Fork River.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,800 ft³/s, Feb. 5, gage height, 11.32 ft; minimum daily, 232 ft³/s, July 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	902	306	3340	e6000	1680	1230	2390	1110	1020	333	332	322
2	733	304	4600	e6000	1990	1410	2060	1030	763	332	335	321
3	786	305	4420	e5400	2900	1450	2050	846	633	332	370	321
4	1060	300	4560	e4800	5160	3090	2120	692	629	331	330	370
5	1210	295	4290	e3300	8910	4720	2150	623	619	330	331	353
6	1200	294	2950	e1800	10200	6660	2130	1840	612	328	327	344
7	1190	295	4230	e1200	9290	8640	2230	4370	572	327	325	332
8	1180	293	3640	e1050	7140	6530	2640	9390	405	323	322	327
9	1170	304	2990	e1100	4220	3550	4050	7080	436	306	321	323
10	1160	362	3000	e1050	4020	2960	6790	2950	441	304	318	321
11	1150	472	3360	e1140	3390	2680	5570	2340	416	301	317	320
12	1130	867	3800	e1200	1950	1990	3400	2990	402	320	316	323
13	1120	2180	3310	e1000	1600	2190	2310	2410	398	308	316	627
14	1100	2200	2390	952	1560	2570	2100	2020	384	310	313	788
15	1090	1870	1740	e930	e1580	2880	1610	1720	296	306	314	624
16	1070	1220	e1400	e920	e1600	3270	1290	1060	293	302	314	482
17	1050	1350	e1600	928	e1650	3200	1270	1050	290	298	310	363
18	978	1350	e1620	1020	1780	2890	1430	1060	267	300	309	463
19	586	1350	e1640	1460	2010	2470	1840	1190	258	320	321	540
20	446	1260	e1800	4190	2300	2480	1590	2320	267	334	426	517
21	432	1100	e2400	5360	2600	2490	1490	4180	329	389	384	500
22	389	1080	e3300	9820	3410	2180	1430	4990	331	344	331	491
23	315	1010	e3500	9030	3520	2070	1430	4590	333	232	337	481
24	309	859	e2800	7760	2990	1670	1460	2830	330	306	347	502
25	310	803	e2650	5380	2900	3080	1420	1660	326	307	337	544
26	308	647	e4000	2570	2510	3970	1380	2730	327	303	337	870
27	315	646	e9000	1830	1850	3940	1290	4100	350	301	336	2770
28	312	688	e10200	1550	1600	3540	1090	2020	338	299	343	1700
29	309	1170	e9500	1380	1540	3160	1090	1870	331	302	357	1290
30	311	1950	e8400	1200	---	2620	1150	1400	334	335	339	868
31	308	---	e7400	1610	---	2630	---	1300	---	335	324	---
TOTAL	23929	27130	123830	92930	97850	98210	64250	79761	12730	9798	10339	18398
MEAN	772	904	3995	2998	3374	3168	2142	2573	424	316	334	613
MAX	1210	2200	10200	9820	10200	8640	6790	9390	1020	389	426	2770
MIN	308	293	1400	920	1540	1230	1090	623	258	232	309	320

CAL YR 1987 TOTAL 685385 MEAN 1878 MAX 12800 MIN 262 CFSM 1.37 IN. 18.66
WTR YR 1988 TOTAL 659155 MEAN 1801 MAX 10200 MIN 232 CFSM 1.32 IN. 17.95

e Estimated

MONONGAHELA RIVER BASIN

03057300 WEST FORK RIVER AT WALKERSVILLE, WV

LOCATION.--Lat 38°52'07" (corrected), long 80°27'29", Lewis County, Hydrologic Unit 05020002, on left bank at downstream side of highway bridge on Secondary Route 44, in Walkersville, 100 ft downstream from Right Fork, and at mile 95.3.

DRAINAGE AREA.--28.9 mi².

PERIOD OF RECORD.--August 1984 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,070.64 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 8-10, 13-18, 27-29, Feb. 5-11, and June 11-25. Records fair. U.S. Army Corps of Engineers satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,390 ft³/s, Nov. 4, 1985, gage height, 17.87 ft; minimum, no flow several days in September and October 1985, August 1987, and July and August, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 770 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 4	2000	*826	*10.38	No other peak greater than base discharge.			

No flow many days in July and August.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	2.0	40	74	28	28	53	11	4.4	.00	3.9	.07
2	4.7	1.9	31	76	160	25	49	10	3.9	.00	3.2	.00
3	5.5	1.8	31	49	272	24	42	9.6	6.7	.00	2.3	.00
4	5.6	1.9	124	37	252	292	63	11	5.4	.00	1.6	10
5	6.3	1.7	83	22	e160	344	64	27	3.9	.00	1.0	11
6	5.8	1.5	45	16	e85	93	53	124	3.0	.00	3.5	3.7
7	6.9	1.4	33	13	e60	55	185	88	2.2	.00	7.1	1.8
8	8.5	1.6	31	e13	e44	39	423	50	2.8	.00	1.5	.88
9	7.5	1.5	30	e11	e35	34	145	34	4.2	.00	.43	.81
10	6.7	163	24	e10	e30	35	72	37	5.7	.00	.10	.82
11	5.6	103	19	9.1	e27	30	49	32	e3.0	.00	.0	.62
12	4.8	33	16	9.0	24	28	35	25	e1.8	.00	.00	.73
13	3.4	26	12	e9.6	19	81	27	21	e1.2	.00	.00	.85
14	2.8	20	9.8	e10	17	69	22	17	e.86	.00	.00	2.2
15	2.4	15	18	e9.0	23	51	18	14	e.65	.00	.00	2.4
16	2.2	12	26	e8.4	31	40	15	13	e.54	.00	.00	1.7
17	2.0	10	22	e8.1	31	36	13	11	e.44	.00	.00	4.4
18	1.8	24	17	e25	29	42	21	8.7	e.36	.00	.00	7.1
19	1.7	23	16	84	35	59	54	25	e.30	.00	.00	4.0
20	1.7	20	47	396	90	69	37	27	e.25	4.8	.00	2.4
21	1.9	16	55	41	71	61	30	23	e.20	6.1	.82	1.5
22	2.0	12	39	44	50	49	25	17	e.16	5.4	.09	.95
23	2.2	11	38	40	50	44	23	12	e.12	2.4	.17	.67
24	2.1	12	33	30	60	38	20	22	e.10	1.6	16	1.5
25	2.0	11	179	26	50	31	16	68	e.05	1.4	6.9	42
26	1.8	10	538	23	40	71	15	46	.00	1.9	2.2	22
27	1.5	9.2	92	e17	41	66	13	26	.00	2.5	.90	9.7
28	2.1	8.5	74	e15	37	48	13	17	.0	2.6	.36	5.5
29	2.2	72	102	e16	34	39	14	11	.00	2.6	.15	3.6
30	2.0	77	61	25	---	31	13	8.2	.0	2.8	.30	2.4
31	2.0	---	43	28	---	26	---	5.9	---	3.3	.25	---
TOTAL	118.7	703.0	1928.8	1194.2	1885	1978	1622	851.4	52.23	37.40	52.77	145.30
MEAN	3.83	23.4	62.2	38.5	65.0	63.8	54.1	27.5	1.74	1.21	1.70	4.84
MAX	11	163	538	396	272	344	423	124	6.7	6.1	16	42
MIN	1.5	1.4	9.8	8.1	17	24	13	5.9	.00	.00	.00	.00
CFSM	.13	.81	2.15	1.33	2.25	2.21	1.87	.95	.06	.04	.06	.17
IN.	.15	.90	2.48	1.54	2.43	2.55	2.09	1.10	.07	.05	.07	.19

CAL YR 1987 TOTAL 12043.98 MEAN 33.0 MAX 594 MIN .00 CFSM 1.14 IN. 15.50
WTR YR 1988 TOTAL 10568.80 MEAN 28.9 MAX 538 MIN .00 CFSM 1.00 IN. 13.60

e Estimated

MONONGAHELA RIVER BASIN

03058006 WEST FORK RIVER AT BEN DALE, WV
(Formerly published as 03058000 West Fork River at Brownsville)

LOCATION.--Lat 39°00'53", long 80°28'39", Lewis County, Hydrologic Unit 05020002, on downstream side of W. Va. Route 38/3 highway bridge at Ben Dale, 2.0 mi south of Weston, and at mile 69.6. Prior to Oct. 1, 1984, at site 1.4 mi upstream.

DRAINAGE AREA.--105 mi².

PERIOD OF RECORD.--August 1946 to current year. Prior to October 1984, published as "West Fork River at Brownsville."

REVISED RECORDS.--WRD WV-81-1: 1981 (P). WRD WV-83-1: Datum.

GAGE.--Water-stage recorder. Elevation of gage is 1,008.6 ft from topographic map. Prior to Nov. 8, 1982, at datum 0.80 ft higher. Prior to Aug. 15, 1949, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 7-17, 24-31. Records fair. Flows affected by construction of Stonewall Jackson Dam.

AVERAGE DISCHARGE.--42 years, 167 ft³/s, 21.60 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,500 ft³/s, Nov. 5, 1985, from rating curve extended above 3,400 ft³/s on basis of slope-area measurement at gage height 17.20 ft; maximum gage height, 17.20 ft, June 25, 1950; no flow for several days during 1952-54, Sept. 16, 1965, and for several days during 1987.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,520 ft³/s, Dec. 26, gage height, 8.88 ft; minimum daily, 0.59 ft³/s, July 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	13	116	163	84	81	131	27	244	.77	3.2	1.5
2	39	12	77	232	182	81	158	22	191	.77	2.5	1.5
3	33	11	64	166	369	81	131	16	224	.77	2.0	1.5
4	27	9.9	159	117	559	123	143	17	249	.77	1.8	2.1
5	23	8.6	269	83	658	195	150	17	243	.77	1.7	1.9
6	21	7.5	155	55	700	356	149	19	235	.77	3.4	1.7
7	18	6.8	93	e45	580	397	157	20	228	.77	2.6	1.7
8	20	6.2	72	e40	312	389	332	19	221	.76	2.0	1.7
9	26	8.0	62	e35	182	386	485	19	212	.76	2.0	2.2
10	27	76	57	e30	142	380	475	36	198	.72	2.0	2.0
11	27	334	51	e27	99	392	462	55	183	.67	2.0	2.0
12	24	142	44	e25	81	420	304	55	160	.66	2.0	2.0
13	21	72	39	e24	79	425	168	55	118	.65	2.2	2.3
14	20	58	33	e23	79	480	113	55	32	.65	2.2	2.7
15	19	48	32	e22	81	512	70	55	19	.64	2.7	2.3
16	19	41	48	e22	104	353	49	34	16	.64	2.4	2.2
17	18	39	59	e30	127	227	44	18	14	.64	1.5	2.4
18	15	46	51	125	127	150	50	19	11	.61	1.1	2.5
19	13	58	44	261	128	124	51	19	8.6	.59	1.0	2.5
20	12	58	68	789	162	163	48	18	7.4	.60	1.8	2.6
21	11	50	137	403	222	228	47	21	6.3	.63	1.5	2.6
22	8.8	43	108	118	253	256	46	17	4.9	.68	1.1	2.5
23	8.2	35	88	44	251	253	47	18	3.3	.72	1.3	2.5
24	7.8	31	80	e40	251	206	46	19	2.6	2.2	1.7	2.9
25	7.4	31	192	e35	247	139	46	19	2.5	5.2	1.7	3.3
26	7.6	31	1160	e33	213	133	46	20	2.1	5.5	1.5	2.9
27	7.8	28	976	e32	166	160	46	77	1.7	5.3	1.5	2.2
28	8.4	27	389	e32	99	221	35	173	1.5	4.5	1.6	2.2
29	9.5	48	272	e35	81	244	27	173	1.2	3.8	2.1	2.2
30	13	174	221	e40	---	203	27	173	.87	3.8	1.9	2.5
31	13	---	140	e50	---	145	---	216	---	3.5	1.6	---
TOTAL	559.5	1553.0	5356	3176	6618	7903	4083	1521	2840.97	49.81	59.6	67.1
MEAN	18.0	51.8	173	102	228	255	136	49.1	94.7	1.61	1.92	2.24
MAX	39	334	1160	789	700	512	485	216	249	5.5	3.4	3.3
MIN	7.4	6.2	32	22	79	81	27	16	.87	.59	1.0	1.5
CFSM	.17	.49	1.65	.98	2.17	2.43	1.30	.47	.90	.02	.02	.02
IN.	.20	.55	1.90	1.13	2.34	2.80	1.45	.54	1.01	.02	.02	.02

CAL YR 1987 TOTAL 37836.79 MEAN 104 MAX 1790 MIN .00 CFSM .99 IN. 13.41
WTR YR 1988 TOTAL 33786.98 MEAN 92.3 MAX 1160 MIN .59 CFSM .88 IN. 11.97

e Estimated

MONONGAHELA RIVER BASIN

03058500 WEST FORK RIVER AT BUTCHERVILLE, WV

LOCATION.--Lat 39°05'25", long 80°28'05", Lewis County, Hydrologic Unit 05020002, on right bank at Butcherville, 0.5 mi upstream from Freemans Creek, 3,500 ft downstream from abandoned bridge on Weston-Clarksburg interurban electric railway, 3.0 mi north of Weston, and at mile 62.0.

DRAINAGE AREA.--181 mi².

PERIOD OF RECORD.--April 1915 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1053: 1935. WSP 1335: 1918, 1923.

GAGE.--Water-stage recorder. Datum of gage is 993.0 ft Department of Highways datum. Prior to Feb. 17, 1937, nonrecording gage at interurban bridge 3,500 ft upstream. Feb. 17, 1937, to Apr. 7, 1939, nonrecording gage at site 2,500 ft upstream. Prior to Oct. 1, 1942, at datum 10.0 ft lower.

REMARKS.--Estimated daily discharges: Jan. 8-16, 25-31. Records good except those for period of estimated daily discharges, which are poor. Flow partially regulated since 1973 by Stonecoal Reservoir. Flows affected by construction of Stonewall Jackson Dam.

AVERAGE DISCHARGE.--73 years, 301 ft³/s, 22.58 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,000 ft³/s, June 25, 1950, gage height, 16.81 ft, from rating curve extended above 7,500 ft³/s on basis of slope-area measurement of peak flow; no flow at times during October 1919, September, October, and December 1922, caused by either diversion or pondage at small dam upstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1888 reached a stage of 17 ft at site 3,500 ft upstream, present datum, from information by local residents. The stage on that day may have been affected by backwater from a dam which has since been washed out.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,070 ft³/s, Dec. 26, gage height, 5.36 ft; minimum daily discharge, 7.0 ft³/s, July 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72	11	178	367	110	98	288	72	300	34	32	22
2	77	27	116	443	665	95	347	66	246	33	31	37
3	70	55	100	330	860	97	242	51	249	33	31	44
4	27	56	231	255	1030	579	352	57	292	43	32	70
5	20	55	391	200	920	745	338	81	281	44	31	35
6	17	53	231	150	830	547	302	116	272	32	33	13
7	18	53	136	138	670	507	442	134	264	35	27	9.7
8	20	53	104	e110	415	459	885	116	255	36	16	31
9	22	64	89	e100	218	447	868	103	252	37	14	44
10	22	198	80	e90	185	439	750	122	234	36	25	44
11	21	467	70	e80	129	431	674	135	215	35	31	44
12	19	220	61	e75	116	463	503	123	192	34	31	44
13	16	106	52	e70	106	622	303	114	148	32	38	55
14	15	79	42	e65	98	603	219	109	42	26	39	83
15	14	53	44	e60	125	609	152	106	14	26	42	31
16	44	44	55	e60	216	470	107	94	13	31	32	122
17	50	38	74	64	201	315	94	53	34	33	28	30
18	50	58	64	237	178	251	155	54	40	36	32	32
19	48	66	56	447	205	246	216	69	40	50	34	25
20	42	66	114	1560	346	290	153	55	40	25	58	14
21	33	55	208	665	338	350	132	49	40	26	41	12
22	12	41	165	231	330	363	119	43	41	17	31	11
23	9.2	33	134	87	344	344	117	38	43	10	31	16
24	40	27	114	70	359	297	121	45	44	8.4	30	30
25	47	25	348	e65	328	226	108	38	44	7.0	39	43
26	47	23	1660	e60	276	567	103	36	45	21	39	28
27	52	22	1230	e55	222	377	98	66	42	31	38	15
28	50	21	595	e60	141	355	94	222	33	42	43	9.8
29	40	66	519	e65	108	356	85	221	32	30	55	8.5
30	13	234	411	e70	---	299	77	217	34	30	30	8.5
31	10	---	288	e90	---	226	---	253	---	31	13	---
TOTAL	1037.2	2369	7960	6419	10069	12073	8444	3058	3821	944.4	1027	1011.5
MEAN	33.5	79.0	257	207	347	389	281	98.6	127	30.5	33.1	33.7
MAX	77	467	1660	1560	1030	745	885	253	300	50	58	122
MIN	9.2	11	42	55	98	95	77	36	13	7.0	13	8.5
CFSM	.18	.44	1.42	1.14	1.92	2.15	1.56	.55	.70	.17	.18	.19
IN.	.21	.49	1.64	1.32	2.07	2.48	1.74	.63	.79	.19	.21	.21

CAL YR 1987 TOTAL 63105.5 MEAN 173 MAX 2610 MIN 4.9 CFSM .96 IN. 12.97
WTR YR 1988 TOTAL 58233.1 MEAN 159 MAX 1660 MIN 7.0 CFSM .88 IN. 11.97

e Estimated

MONONGAHELA RIVER BASIN

03058975 WEST FORK RIVER NEAR MOUNT CLARE, WV

LOCATION.--Lat 39°14'19", long 80°21'34", Harrison County, Hydrologic Unit 05020002, on right bank 4 miles south of Clarksburg and 2 mi north of Mount Clare, .3 mi off County Route 25 on County Route 34, and at mile 37.5.

DRAINAGE AREA.--367 mi².

PERIOD OF RECORD.--April 1987 to current year.

GAGE.--Water-stage recorder. Datum of gage is 931.04 ft above National Geodetic Vertical Datum of 1929. U.S. Army Corps of Engineers satellite telemeter at the station.

REMARKS.--Estimated daily discharges: Nov. 18 to Mar. 2. Records good except those for period of estimated daily discharges, which are poor. Flow partially regulated by Stonecoal Reservoir. Flows affected by construction of Stonewall Jackson Dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,270 ft³/s, Mar. 5, 1988, gage height, 9.78 ft; minimum discharge, 7.5 ft³/s, Aug. 14, 15, 1987, gage height, 3.56 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,270 ft³/s, Mar. 5, gage height, 9.78 ft; minimum daily discharge, 12 ft³/s, July 27 and Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	48	e300	e700	e400	e400	512	170	307	27	45	33
2	78	35	e250	e850	e900	e240	550	149	318	30	46	19
3	84	31	e230	e700	e3500	227	486	136	249	30	42	24
4	81	72	e380	e500	e3000	985	528	124	320	31	45	65
5	50	108	e540	e400	e3500	3820	652	168	322	34	50	84
6	36	109	e500	e300	e1800	1320	555	215	301	39	54	72
7	32	108	e340	e250	e1300	947	658	344	286	31	54	42
8	32	115	e240	e200	e800	772	1690	284	274	28	52	26
9	32	137	e200	e170	e750	700	1640	234	292	27	36	18
10	34	233	e160	e150	e600	694	1150	250	281	29	28	40
11	39	582	e130	e140	e400	637	969	262	250	27	27	51
12	39	467	e110	e130	e350	630	847	238	223	27	44	50
13	36	223	e100	e125	e300	974	572	206	193	27	48	248
14	32	146	e90	e125	e250	1010	446	183	143	27	53	153
15	30	109	e100	e120	e220	926	348	168	67	24	56	121
16	28	84	e120	e140	e350	828	262	154	37	19	59	64
17	39	72	e110	e220	e600	601	220	131	27	24	41	60
18	70	e100	e100	e350	e500	541	277	97	31	28	35	79
19	73	e110	e160	e1200	e450	606	727	119	46	41	33	70
20	75	e120	e300	e3800	e700	610	501	137	44	55	44	58
21	72	e110	e440	e2600	e1500	648	386	106	31	57	57	47
22	63	e90	e350	e1200	e1200	635	325	94	31	51	54	34
23	48	e80	e250	e500	e1000	589	290	84	37	44	42	27
24	34	e70	e330	e400	e1200	547	311	99	35	38	42	27
25	33	e60	e800	e300	e1000	461	276	110	35	25	40	46
26	82	e55	e2300	e220	e800	1430	241	91	36	16	36	68
27	102	e50	e2700	e180	e650	1140	222	76	35	12	40	63
28	116	e50	e1800	e160	e580	773	213	135	35	32	43	48
29	115	e170	e1300	e170	e500	680	221	261	30	51	68	36
30	94	e350	e900	e200	---	599	196	252	27	46	74	12
31	75	---	e600	e280	---	485	---	242	---	41	54	---
TOTAL	1836	4094	16230	16780	29100	25455	16271	5319	4343	1018	1442	1785
MEAN	59.2	136	524	541	1003	821	542	172	145	32.8	46.5	59.5
MAX	116	582	2700	3800	3500	3820	1690	344	322	57	74	248
MIN	28	31	90	120	220	227	196	76	27	12	27	12
CFSM	.16	.37	1.43	1.47	2.73	2.24	1.48	.47	.39	.09	.13	.16
IN.	.19	.41	1.64	1.70	2.95	2.58	1.65	.54	.44	.10	.15	.18

WTR YR 1988 TOTAL 123673 MEAN 338 MAX 3820 MIN 12 CFSM .92 IN. 12.53

e Estimated

MONONGAHELA RIVER BASIN

03061000 WEST FORK RIVER AT ENTERPRISE, WV

LOCATION.--Lat 39°25'20", long 80°16'40", Harrison County, Hydrologic Unit 05020002, on left bank 150 ft downstream from old highway bridge and 0.3 mi above new highway bridge at Enterprise, 0.8 mi upstream from Bingamon Creek, and at mile 12.1.

DRAINAGE AREA.--759 mi².

PERIOD OF RECORD.--June 1907 to September 1916, October 1916 to September 1918 (gage heights only), October 1932 to September 1983, October 1983 to September 1984 (gage heights, discharge measurements, and annual maximum discharge only) October 1984 to current year.

REVISED RECORDS.--WSP 803: 1936. WSP 823: Drainage area. WSP 1113: 1936-38(M), 1939, WSP 1335: 1911-15, 1937. WSP 1625: 1915(M), 1935(M).

GAGE.--Water-stage recorder. Datum of gage is 869.45 ft above National Geodetic Vertical Datum, adjustment of 1912. June 1907 to Sept. 30, 1918, nonrecording gage at site 150 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 9-16, 26-31. Records good above 60 cfs and fair below. Flow partially regulated since 1973 by Stonewall Reservoir. Flows affected by construction of Stonewall Jackson Dam. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--63 years (water years 1908-1916, 1934-83, 1985-88), 1,140 ft³/s, 20.40 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,100 ft³/s, Nov. 5, 1985, gage height, 30.37 ft, from rating curve extended above 36,400 ft³/s; minimum, 3.4 ft³/s, July 27, 1934; minimum gage height, 0.6 ft, Sept. 10, 14, 25, 1908.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1888 reached a stage of about 33 ft, present site and datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,790 ft³/s, Mar. 5, gage height, 11.38 ft; minimum daily discharge, 22 ft³/s, Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	137	120	547	960	416	552	816	374	286	54	53	57
2	172	100	427	1240	1220	474	890	332	343	54	51	52
3	200	80	341	984	6180	450	865	308	343	54	92	50
4	182	72	583	776	5350	3220	876	292	325	53	65	114
5	157	68	932	521	5490	7750	1090	333	357	52	87	210
6	123	98	808	450	2640	3400	964	519	327	52	67	136
7	118	117	515	384	1700	2050	1080	829	304	53	56	98
8	125	111	350	315	1460	1510	2430	680	286	52	57	61
9	135	124	285	e290	979	1250	2960	514	365	51	53	51
10	115	262	260	e260	713	1210	2120	489	408	51	51	50
11	107	783	241	e230	620	1070	1660	492	313	51	50	50
12	122	751	225	e210	616	949	1380	438	270	53	48	52
13	113	453	206	e200	611	1450	1040	377	239	55	48	1000
14	101	324	185	e190	486	1970	760	336	208	53	49	683
15	88	268	186	e180	584	1610	624	307	164	52	49	290
16	76	218	198	e190	754	1410	499	286	106	51	50	164
17	66	177	206	208	910	1150	415	270	91	50	50	145
18	61	187	209	334	786	1010	490	249	64	50	50	213
19	102	199	209	1030	725	1200	1540	253	55	70	50	163
20	107	202	421	6880	1790	1300	1220	314	67	181	87	123
21	113	184	752	4720	2170	1290	831	357	67	290	174	102
22	105	164	623	1900	1440	1180	672	459	59	199	90	62
23	93	142	492	1010	1220	1070	605	293	60	122	65	51
24	86	131	412	654	1510	987	628	468	74	131	53	127
25	76	123	783	539	1490	865	584	393	65	82	52	98
26	82	116	3830	e470	1200	2380	482	302	58	54	52	125
27	77	115	4200	e390	994	2860	432	244	58	52	51	97
28	115	105	2210	e330	846	1730	403	202	51	51	51	63
29	138	219	1830	e350	678	1300	442	256	54	51	177	35
30	139	600	1380	e370	---	1090	427	302	55	54	140	22
31	134	---	927	e390	---	900	---	287	---	64	86	---
TOTAL	3565	6613	24773	26955	45578	50637	29225	11555	5522	2342	2154	4544
MEAN	115	220	799	870	1572	1633	974	373	184	75.5	69.5	151
MAX	200	783	4200	6880	6180	7750	2960	829	408	290	177	1000
MIN	61	68	185	180	416	450	403	202	51	50	48	22
CFSM	.15	.29	1.05	1.15	2.07	2.15	1.28	.49	.24	.10	.09	.20
IN.	.17	.32	1.21	1.32	2.23	2.48	1.43	.57	.27	.11	.11	.22

CAL YR 1987 TOTAL 236597 MEAN 648 MAX 9110 MIN 20 CFSM .85 IN. 11.60
WTR YR 1988 TOTAL 213463 MEAN 583 MAX 7750 MIN 22 CFSM .77 IN. 10.46

e Estimated

MONONGAHELA RIVER BASIN

03061500 BUFFALO CREEK AT BARRACKVILLE, WV

LOCATION.--Lat 39°30'15", long 80°10'20", Marion County, Hydrologic Unit 05020003, near center of span on downstream side of highway bridge at Barrackville, 1,700 ft upstream from Finchs Run, and at mile 4.0.

DRAINAGE AREA.--115 mi².

PERIOD OF RECORD.--June 1907 to December 1908, May 1915 to June 1924, August 1932 to current year.

REVISED RECORDS.--WSP 783: 1917(M). WSP 1335: 1916(M), 1918-20(M), 1921, 1922(M), 1924(M), 1933(M), 1940.

GAGE.--Water-stage recorder. Datum of gage is 884.4 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 6, 1940, nonrecording gage at same site.

REMARKS.--Estimated daily discharges: Jan. 3-17, 26-31, and Feb. 6-14. Records good except those for periods of estimated daily discharges, which are poor. Flow from 5.20 mi² is partially controlled, but not diverted, by three floodwater-detention reservoirs. Some additional regulation at low flow from mine pumpage above station.

AVERAGE DISCHARGE.--65 years (water years 1908, 1916-23, 1933-88), 166 ft³/s, 19.60 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 9,490 ft³/s, Jan. 22, 1917, gage height, 16.2 ft, present datum; no flow during greater part of period September to November 1908.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1912 reached a stage of about 18 ft, present site and datum, discharge, 11,600 ft³/s.

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

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 20	0800	3,610	10.05	Mar. 4	1600	*5,330	*11.96

Minimum daily discharge, 0.72 ft³/s, Aug. 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	11	69	218	63	88	106	100	22	2.9	6.7	7.9
2	14	8.9	48	263	1020	78	118	89	22	2.7	5.3	5.5
3	17	8.5	38	e150	1240	83	104	81	23	2.5	3.8	4.2
4	16	7.7	121	e110	947	3220	155	75	19	2.3	2.9	7.9
5	15	6.8	153	e80	642	1470	219	77	17	2.3	2.8	14
6	13	6.5	88	e55	e450	539	175	218	14	2.3	2.7	14
7	13	6.5	55	e45	e300	332	207	175	13	2.2	2.7	10
8	13	9.3	45	e40	e200	233	234	128	13	2.2	2.7	7.3
9	11	10	40	e35	e150	190	211	106	21	2.2	2.2	5.4
10	11	21	39	e30	e100	164	170	162	26	2.0	1.9	4.1
11	11	45	33	e26	e90	129	141	154	17	1.9	1.8	3.2
12	9.1	34	30	e24	e85	108	119	119	13	1.7	1.7	2.9
13	8.8	28	28	e23	e80	162	100	93	11	1.7	1.7	55
14	7.9	32	25	e22	e85	183	87	78	10	1.6	1.7	77
15	6.6	39	28	e23	104	161	74	64	11	1.6	1.5	28
16	6.0	36	34	e30	121	136	64	55	9.6	1.7	1.2	15
17	6.1	29	39	e50	118	122	57	46	7.9	1.9	.79	12
18	5.5	35	36	138	107	122	154	41	8.5	1.9	.72	13
19	5.2	54	32	144	125	142	484	71	9.1	5.5	.73	11
20	5.9	34	183	2220	466	153	249	125	9.0	40	7.5	11
21	6.2	26	217	634	352	157	172	93	8.6	74	15	11
22	6.4	19	114	304	255	155	130	66	8.2	61	6.9	9.7
23	7.4	16	83	200	206	152	110	51	8.0	21	4.6	9.4
24	8.8	14	60	142	215	155	111	292	7.7	16	9.3	22
25	11	13	155	121	191	146	90	174	7.3	13	13	36
26	10	12	975	e90	170	373	79	97	6.2	9.7	8.1	28
27	9.6	11	426	e70	139	341	70	69	5.1	8.1	5.6	20
28	11	11	225	e60	116	228	66	51	4.2	6.0	4.4	15
29	10	40	243	e50	99	175	99	40	3.6	5.5	16	12
30	10	152	169	e52	---	143	115	31	3.2	4.5	17	9.5
31	10	---	127	e58	---	116	---	26	---	5.1	11	---
TOTAL	308.5	776.2	3958	5507	8236	9956	4270	3047	358.2	307.0	163.94	481.0
MEAN	9.95	25.9	128	178	284	321	142	98.3	11.9	9.90	5.29	16.0
MAX	17	152	975	2220	1240	3220	484	292	26	74	17	77
MIN	5.2	6.5	25	22	63	78	57	26	3.2	1.6	.72	2.9
CFSM	.09	.22	1.11	1.54	2.47	2.79	1.24	.85	.10	.09	.05	.14
IN.	.10	.25	1.28	1.78	2.66	3.22	1.38	.99	.12	.10	.05	.16
CAL YR 1987	TOTAL	35271.8	MEAN	96.6	MAX	1480	MIN	5.0	CFSM	.84	IN.	11.41
WTR YR 1988	TOTAL	37368.84	MEAN	102	MAX	3220	MIN	.72	CFSM	.89	IN.	12.09

e Estimated

MONONGAHELA RIVER BASIN

03062400 COBUN CREEK AT MORGANTOWN, WV

LOCATION.--Lat 39°36'30", long 79°57'20", Monongalia County, Hydrologic Unit 05020003, on left bank at Morgantown, 30 ft upstream from concrete box culvert on Greenbag Road, and at mile 1.4.

DRAINAGE AREA.--10.9 mi².

PERIOD OF RECORD.--April 1965 to current year.

GAGE.--Water-stage recorder and concrete and metal control. Elevation of gage is 890 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Jan. 5-18, 25-31, Feb. 10-16. Records good except those for periods of estimated daily discharges, which are fair.

AVERAGE DISCHARGE.--23 years, 16.4 ft³/s, 20.43 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,100 ft³/s, Aug. 18, 1980, gage height, 19.94 ft, from floodmarks, from rating curve extended above 800 ft³/s on basis of culvert rating computation and flow-over-road measurement of peak flow; no flow for many days.

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

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 4	1545	*437	*6.12	No other peak greater than base discharge.			

No flow many days during summer period.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.80	.82	14	24	14	12	24	13	3.0	.00	.03	.25
2	1.4	.71	11	19	66	12	27	12	3.3	.00	.03	.13
3	5.0	.66	10	18	71	15	20	11	4.2	.00	.00	.06
4	2.8	.65	26	15	114	220	32	11	3.5	.00	.00	4.1
5	1.7	.62	21	e13	66	106	26	22	2.8	.00	.00	2.9
6	1.2	.55	16	e10	41	52	22	46	2.1	.00	.00	1.4
7	1.9	.54	13	e9.0	30	34	29	34	1.7	.00	.00	.69
8	1.6	.54	13	e8.0	21	24	42	24	1.4	.00	.00	.39
9	1.2	1.7	19	e7.0	18	22	34	19	4.5	.00	.00	.24
10	.96	10	17	e6.5	e12	22	26	17	3.0	.00	.00	.18
11	1.4	9.4	13	e6.2	e11	18	21	14	1.9	.00	.00	.13
12	1.5	7.4	11	e6.0	e10	17	18	12	1.5	.00	.00	.08
13	1.2	7.9	9.0	e6.0	e9.0	25	15	10	1.2	.00	.00	7.1
14	.92	11	7.3	e5.8	e8.0	21	13	9.1	.89	.00	.00	3.2
15	.81	13	9.6	e5.6	e9.0	19	12	7.9	.74	.00	.00	1.3
16	.72	10	10	e5.4	e10	17	10	6.8	.62	.00	.00	.71
17	.58	8.2	8.9	e5.4	17	15	8.9	5.8	.56	.00	.00	1.4
18	.57	8.1	7.7	e6.5	16	15	19	7.0	.47	.0	.00	2.4
19	.60	6.4	7.2	23	23	14	22	38	.40	.91	.00	1.5
20	.63	5.7	23	114	40	14	18	45	.29	3.0	1.0	3.4
21	.65	4.7	22	50	30	13	16	34	.24	4.9	.03	1.3
22	.62	3.8	17	31	24	13	14	22	.18	2.2	.00	.89
23	.66	3.3	14	23	28	14	15	22	.14	.86	2.6	8.6
24	.61	3.3	12	18	26	18	21	25	.09	1.1	1.3	13
25	.60	3.3	42	e15	21	18	16	16	.05	.39	.54	9.2
26	.60	3.2	105	e12	18	65	14	12	.03	.21	.18	5.5
27	1.1	3.1	49	e10	16	42	12	9.4	.01	.15	.06	3.4
28	1.3	2.9	37	e9.0	14	28	12	7.4	.0	.09	.18	2.3
29	1.3	23	34	e8.5	13	22	16	5.8	.00	.05	4.5	1.5
30	.92	22	23	e8.5	---	18	15	4.3	.00	.03	1.5	1.1
31	.79	---	20	e10	---	16	---	3.5	---	.04	.58	---
TOTAL	36.64	176.49	641.7	508.4	796.0	961	589.9	526.0	38.81	13.93	12.53	78.35
MEAN	1.18	5.88	20.7	16.4	27.4	31.0	19.7	17.0	1.29	.45	.40	2.61
MAX	5.0	23	105	114	114	220	42	46	4.5	4.9	4.5	13
MIN	.57	.54	7.2	5.4	8.0	12	8.9	3.5	.00	.00	.00	.06
CFSM	.11	.54	1.90	1.50	2.52	2.84	1.80	1.56	.12	.04	.04	.24
IN.	.13	.60	2.19	1.74	2.72	3.28	2.01	1.80	.13	.05	.04	.27

CAL YR 1987 TOTAL 4128.93 MEAN 11.3 MAX 150 MIN .00 CFSM 1.04 IN. 14.09
WTR YR 1988 TOTAL 4379.75 MEAN 12.0 MAX 220 MIN .00 CFSM 1.10 IN. 14.95

e Estimated

MONONGAHELA RIVER BASIN

03065000 DRY FORK AT HENDRICKS, WV

LOCATION.--Lat 39°04'20", long 79°37'20", Tucker County, Hydrologic Unit 05020004, on right bank at Hendricks, 0.4 mi upstream from confluence with Blackwater River.

DRAINAGE AREA.--345 mi².

PERIOD OF RECORD.--October 1940 to current year. Published as Dry Fork River, 1949-52.

GAGE.--Water-stage recorder. Datum of gage is 1,698.76 ft above National Geodetic Vertical Datum, adjustment of 1912. Prior to Dec. 21, 1941, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 5 to Mar. 7, May 5-19. Records good except those for periods of estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--48 years, 768 ft³/s, 30.23 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 100,000 ft³/s, Nov. 5, 1985, gage height, 20.74 ft, from floodmarks, from rating curve extended above 47,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 5.5 ft³/s, Sept. 10, 11, 1965, gage height, 0.99 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 20	0800	*8,380	a*7.10	No other peak above base discharge.			

a Maximum gage height observed.

Minimum discharge, 16 ft³/s, July 11, 12, Aug. 14, gage height, 2.17 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	972	136	1140	1860	e780	e325	637	1440	285	27	72	56
2	654	122	829	1730	e1400	e295	569	1470	264	27	54	43
3	684	115	625	1190	e1700	e330	507	1080	513	26	44	33
4	557	111	574	911	e2100	e1200	542	876	515	25	38	957
5	446	107	501	e540	e1500	e2100	560	e2100	348	24	32	748
6	372	98	428	e410	e1200	e1600	506	e4000	273	22	31	342
7	359	90	354	e380	e840	e1200	1300	e3900	229	21	30	207
8	472	84	408	e350	e650	870	2450	e2500	191	20	30	136
9	515	83	787	e340	e550	788	1980	e860	214	19	28	99
10	458	262	1990	e320	e490	849	1320	e1000	307	18	25	80
11	394	739	1370	e310	e390	675	960	e890	236	17	24	66
12	356	543	966	e290	e330	562	758	e710	176	17	20	56
13	310	460	724	e280	e280	766	637	e590	148	18	18	1600
14	272	498	557	e270	e270	780	524	e510	127	23	17	2370
15	241	567	714	e260	e300	653	470	e407	111	27	30	580
16	214	543	907	e250	e320	581	425	e389	97	26	30	313
17	189	498	715	e250	e330	533	372	e389	85	23	25	410
18	174	519	586	e900	e320	495	425	e770	78	20	23	395
19	157	485	497	e3000	e340	482	626	e4000	77	21	20	277
20	148	439	1190	e7400	e660	456	497	2900	73	82	22	220
21	165	423	1530	e3300	e670	414	452	2550	66	441	42	171
22	185	327	1010	e1800	e570	356	407	1520	59	575	46	142
23	159	325	810	e1200	e630	570	416	1030	55	209	42	121
24	141	421	638	e850	e590	2290	479	867	47	127	549	530
25	122	559	923	e720	e530	2450	452	1180	45	86	233	3590
26	114	491	1990	e520	e460	2450	407	1010	42	67	116	1710
27	112	445	1910	e410	e450	1970	364	772	40	144	72	798
28	196	505	1540	e360	e370	1370	348	618	36	175	52	492
29	228	1160	2040	e340	e350	1020	515	500	33	123	43	348
30	183	1740	1390	e440	---	816	876	406	30	81	63	274
31	152	---	1010	e560	---	692	---	338	---	61	82	---
TOTAL	9701	12895	30653	31741	19370	29938	20781	41572	4800	2592	1953	17164
MEAN	313	430	989	1024	668	966	693	1341	160	83.6	63.0	572
MAX	972	1740	2040	7400	2100	2450	2450	4000	515	575	549	3590
MIN	112	83	354	250	270	295	348	338	30	17	17	33
CFSM	.91	1.25	2.87	2.97	1.94	2.80	2.01	3.89	.46	.24	.18	1.66
IN.	1.05	1.39	3.31	3.42	2.09	3.23	2.24	4.48	.52	.28	.21	1.85

CAL YR 1987 TOTAL 211736.9 MEAN 580 MAX 4390 MIN 5.8 CFSM 1.68 IN. 22.83
WTR YR 1988 TOTAL 223160 MEAN 610 MAX 7400 MIN 17 CFSM 1.77 IN. 24.06

e Estimated

MONONGAHELA RIVER BASIN

03066000 BLACKWATER RIVER AT DAVIS, WV

LOCATION.--Lat 39°07'35", long 79°28'10", Tucker County, Hydrologic Unit 05020004, on right bank 0.4 mi southwest of Davis, 0.5 mi downstream from Beaver Creek, and at mile 10.6.

DRAINAGE AREA.--86.2 mi².

PERIOD OF RECORD.--April 1921 to current year.

REVISED RECORDS.--WSP 583: 1921-23. WSP 803: Drainage area. WSP 1173: 1931-34(M,m). WSP 1305: 1928(M), 1932-37(M), 1939-41(M), 1944-48(M).

GAGE.--Water-stage recorder. Datum of gage is 3,058.87 ft above National Geodetic Vertical Datum of 1929 (levels by West Virginia Power and Transmission Co.). Prior to Dec. 18, 1952, nonrecording gage at site 60 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 5-21, 24-30, and Feb. 7-19. Records good except those for periods of estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--67 years, 200 ft³/s, 31.51 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,500 ft³/s, Nov. 5, 1985, gage height, 17.67 ft; minimum, 1.5 ft³/s, Sept. 11, 12, 1959, gage height, 0.90 ft, caused by filling of small water-supply pool about 1.0 mi upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 20	1800	a 1,700	6.68	May 6	2100	*2,970	*8.38

a Ice jam.

Minimum discharge, 3.3 ft³/s, Aug. 17, gage height, 1.07 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	202	35	203	596	304	103	165	474	72	9.2	8.3	9.6
2	129	32	168	403	399	117	145	392	88	9.0	7.2	8.0
3	144	31	149	260	496	142	130	287	159	8.9	6.6	7.1
4	116	29	146	205	487	436	150	245	144	8.4	5.8	156
5	83	28	125	e130	412	666	152	713	94	7.8	5.4	299
6	67	26	142	e110	241	376	124	2210	69	7.3	5.6	177
7	78	25	130	e94	e180	252	478	1910	56	6.7	5.6	73
8	137	24	124	e100	e150	203	743	749	48	6.3	5.2	43
9	162	25	292	e110	e125	191	503	389	121	6.2	4.7	29
10	112	103	598	e92	e110	228	307	387	134	5.9	4.3	23
11	88	165	367	e84	e94	181	225	401	72	5.9	4.0	20
12	83	105	244	e89	e78	147	183	259	52	6.2	4.2	16
13	70	89	190	e94	e68	200	163	194	43	7.2	4.4	116
14	59	125	158	e88	e63	196	137	158	38	7.1	6.8	466
15	53	134	259	e79	e72	153	121	140	31	6.5	4.9	322
16	49	124	231	e73	e81	147	103	151	27	5.8	4.0	130
17	45	108	161	e68	e86	143	94	132	25	5.0	3.4	103
18	42	117	207	e280	e90	148	117	446	27	4.6	4.1	125
19	39	100	175	e550	e97	119	177	1300	25	5.7	7.8	85
20	38	90	509	e1300	248	110	119	919	22	11	21	62
21	44	95	520	e820	231	106	92	571	19	51	24	47
22	44	157	281	466	232	108	78	376	17	108	13	39
23	40	88	215	282	199	205	81	255	15	53	11	42
24	36	151	187	e180	183	574	94	240	15	24	61	210
25	33	169	326	e135	147	534	84	365	14	15	67	572
26	31	123	579	e110	150	537	71	266	13	12	31	534
27	33	103	466	e97	133	487	62	178	12	12	16	270
28	64	103	339	e88	115	321	66	141	11	16	11	146
29	58	248	350	e99	137	237	120	118	10	14	11	102
30	47	342	241	e120	---	189	333	99	9.8	12	13	80
31	40	---	248	171	---	165	---	85	---	9.3	12	---
TOTAL	2266	3094	8330	7373	5408	7721	5417	14550	1482.8	467.0	393.3	4311.7
MEAN	73.1	103	269	238	186	249	181	469	49.4	15.1	12.7	144
MAX	202	342	598	1300	496	666	743	2210	159	108	67	572
MIN	31	24	124	68	63	103	62	85	9.8	4.6	3.4	7.1
CFSM	.85	1.20	3.12	2.76	2.16	2.89	2.09	5.44	.57	.17	.15	1.67
IN.	.98	1.34	3.59	3.18	2.33	3.33	2.34	6.28	.64	.20	.17	1.86

CAL YR 1987 TOTAL 62660.1 MEAN 172 MAX 2220 MIN 4.5 CFSM 1.99 IN. 27.04
WTR YR 1988 TOTAL 60813.8 MEAN 166 MAX 2210 MIN 3.4 CFSM 1.93 IN. 26.24

e Estimated

MONONGAHELA RIVER BASIN

03069000 SHAVERS FORK AT PARSONS, WV

LOCATION.--Lat 39°05'45", long 79°40'40", Tucker County, Hydrologic Unit 05020004, on right bank at Parsons, 0.7 mi upstream from confluence with Black Fork.

DRAINAGE AREA.--214 mi².

PERIOD OF RECORD.--October 1910 to September 1926, October 1940 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 583: 1922. WSP 923: Drainage area. WSP 1335: 1911-12, 1915-17, 1918(M), 1921-22(M), 1926(M). WSP 1705: 1955.

GAGE.--Water-stage recorder. Datum of gage is 1,634.87 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 25, 1923, nonrecording gage on old highway bridge 800 ft downstream and Aug. 25, 1923, to Sept. 30, 1926, nonrecording gage on railroad bridge 760 ft downstream at datum 3.0 ft lower. Oct. 4, 1940, to Apr. 4, 1942, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Jan. 5-19, 25-30, Feb. 7-19. Records good except those for periods of estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--64 years, 553 ft³/s, 35.09 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 43,000 ft³/s, Nov. 5, 1985, gage height, 19.86 ft, from floodmarks, from rating curve extended above 11,000 ft³/s on basis of slope-area measurement of peak flow; minimum daily discharge, 3.0 ft³/s, Oct. 7, 1914.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 10, 1888, and July 17, 1907, reached a stage of approximately 12.5 ft at site and datum of former gage, discharge, 25,000 ft³/s, from rating curve extended above 8,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 20	1515	*4,620	*5.82	No peak greater than base discharge.			
Minimum discharge, 11 ft ³ /s, Aug. 17, gage height, 0.39 ft.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	773	99	923	1390	436	221	464	556	214	19	36	27
2	448	91	651	1600	907	211	524	614	200	18	30	28
3	455	86	500	919	1830	218	427	545	259	16	26	26
4	452	83	494	689	1490	433	410	443	281	16	23	216
5	367	79	457	e465	1450	2470	493	712	232	15	21	526
6	309	74	382	e305	814	1100	440	3170	194	14	21	322
7	284	70	338	e235	e480	739	772	2200	161	14	21	198
8	299	67	335	e265	e400	574	1700	1190	134	13	21	139
9	332	66	535	e275	e340	504	1320	817	146	13	17	93
10	303	198	1260	e250	e280	588	851	701	156	12	17	69
11	269	987	1010	e210	e240	552	621	702	186	12	17	55
12	248	562	696	e220	e200	429	486	541	136	12	15	45
13	225	388	535	e255	e175	594	404	441	104	12	15	365
14	201	374	426	e230	e165	817	349	375	88	13	13	319
15	179	383	441	e210	e200	579	309	331	75	13	12	191
16	162	350	897	e190	e210	444	277	304	65	13	12	128
17	148	314	602	e180	e220	385	249	292	58	17	18	294
18	134	303	426	e350	e230	361	248	407	55	29	22	280
19	122	349	384	e600	e240	344	484	1490	53	56	18	209
20	114	299	627	3110	365	325	471	1640	51	201	20	147
21	115	274	1100	2110	487	289	354	1180	46	279	22	105
22	137	219	779	1070	379	271	311	797	41	577	41	82
23	139	213	581	708	368	423	308	579	40	280	87	73
24	117	239	467	523	357	1160	328	524	37	149	195	101
25	100	314	623	e360	311	1470	346	998	32	91	129	1640
26	93	366	1980	e280	273	1940	299	870	28	66	103	1380
27	90	321	1630	e245	269	1630	265	564	28	76	65	572
28	97	326	1080	e225	251	981	258	421	24	88	47	343
29	130	1590	1630	e240	229	704	371	341	22	74	38	253
30	143	1950	1060	e280	---	553	496	286	21	53	33	202
31	115	---	731	346	---	465	---	245	---	44	28	---
TOTAL	7100	11034	23580	18335	13596	21774	14635	24276	3167	2305	1183	8428
MEAN	229	368	761	591	469	702	488	783	106	74.4	38.2	281
MAX	773	1950	1980	3110	1830	2470	1700	3170	281	577	195	1640
MIN	90	66	335	180	165	211	248	245	21	12	12	26
CFSM	1.07	1.72	3.55	2.76	2.19	3.28	2.28	3.66	.49	.35	.18	1.31
IN.	1.23	1.92	4.10	3.19	2.36	3.79	2.54	4.22	.55	.40	.21	1.47

CAL YR 1987 TOTAL 167706 MEAN 459 MAX 3560 MIN 11 CFSM 2.15 IN. 29.15
WTR YR 1988 TOTAL 149413 MEAN 408 MAX 3170 MIN 12 CFSM 1.91 IN. 25.97

e Estimated

MONONGAHELA RIVER BASIN

03069500 CHEAT RIVER NEAR PARSONS, WV

LOCATION.--Lat 39°07'20", long 79°40'50", Tucker County, Hydrologic Unit 05020004, on left bank 2.0 mi north of Parsons, 3.0 mi downstream from confluence of Black Fork and Shavers Fork, and at mile 74.8.

DRAINAGE AREA.--718 mi².

PERIOD OF RECORD.--January 1913 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 893: Drainage area. WSP 1305: 1917(M), 1924(M), 1932(M), 1936(M), 1938-39(M). WSP 1335: 1916. WSP 1385: 1918-19(M).

GAGE.--Water-stage recorder. Datum of gage is 1,589.66 ft above National Geodetic Vertical Datum, adjustment of 1912. Prior to Aug. 17, 1944, nonrecording gage on Moss Bridge about 1,600 ft upstream at datum 1.13 ft higher. Nov. 21, 1985 to Sept. 30, 1986, recording gage on Moss Bridge at datum 1.27 ft lower.

REMARKS.--Estimated daily discharges: Jan. 6-17, 24-30, and Feb. 8-19. Records good except those for periods of estimated daily discharges, which are poor. National Weather Service and Monongahela Power Company gage-height telemeter at station. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--75 years, 1,701 ft³/s, 32.17 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 170,000 ft³/s, Nov. 5, 1985, gage height, 24.30 ft, from floodmarks, from rating curve extended above 55,000 ft³/s; minimum observed, 9 ft³/s, Aug. 12, 1930, gage height, 1.28 ft, site and datum then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 10, 1888, reached a stage of 20.5 ft, discharge, 51,300 ft³/s, from floodmarks, at site and datum in use prior to Aug. 17, 1944; it was not exceeded until flood of Oct. 15, 1954, which reached a stage 0.3 ft higher at that site and datum.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 16,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 20	1100	*16,600	*9.90	May 6	1750	16,500	9.88

Minimum discharge, 38 ft³/s, July 11, 12, Aug. 14, 15, gage height, 1.62 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2440	288	2740	4650	1840	740	1500	3040	640	73	124	106
2	1490	268	2010	4650	3220	695	1470	3130	602	68	104	90
3	1540	254	1540	2910	5280	770	1250	2380	1050	64	87	79
4	1350	245	1480	2250	4980	2370	1280	1930	1090	61	77	1320
5	1030	238	1330	1570	4640	7170	1440	4380	760	59	70	1920
6	842	224	1150	e950	2770	3760	1230	14200	593	54	68	984
7	794	211	976	e820	2000	2610	2870	10300	487	51	69	539
8	1020	203	1030	e840	e1500	2010	5900	5160	409	47	67	351
9	1200	203	1880	e860	e1250	1790	4670	3200	525	44	59	251
10	990	610	4800	e720	e1000	2060	3050	2750	726	42	54	195
11	840	2250	3450	e630	e830	1710	2230	2550	554	40	51	160
12	767	1420	2390	e670	e700	1360	1730	1930	409	39	55	134
13	673	1050	1830	e690	e610	1870	1420	1530	330	44	48	2100
14	579	1120	1410	e630	e570	2190	1180	1280	282	50	42	4100
15	510	1260	1700	e580	e650	1670	1010	1100	243	56	48	1290
16	456	1170	2490	e540	e690	1370	875	1030	214	52	56	692
17	414	1050	1760	e520	e710	1240	780	965	192	51	49	933
18	379	1050	1430	1260	e720	1160	797	2100	183	51	57	960
19	350	1050	1250	2910	e740	1100	1540	7610	179	98	54	673
20	329	903	2720	12600	1440	1020	1300	6680	164	267	73	486
21	347	849	3920	8120	1740	918	1020	5100	149	808	111	374
22	390	676	2580	4090	1280	824	897	3260	132	1490	108	300
23	359	662	2000	2640	1460	1290	882	2260	123	646	159	263
24	316	861	1590	e1700	1380	4730	998	1980	116	338	786	812
25	283	1190	2410	e1300	1120	5440	992	3430	105	223	506	6960
26	262	1110	5660	e1000	978	5960	852	2760	98	167	291	4500
27	255	947	5000	e900	947	4990	759	1890	89	217	185	2010
28	356	1010	3600	e800	856	3250	740	1420	82	289	132	1140
29	422	3330	4900	e740	787	2410	1160	1120	76	227	111	790
30	385	4970	3330	e870	---	1900	2030	902	71	166	114	609
31	325	---	2420	1130	---	1580	---	758	---	132	137	---
TOTAL	21693	30672	76776	64540	46688	71967	47852	102125	10673	6014	3952	35121
MEAN	700	1022	2477	2082	1610	2322	1595	3294	356	194	127	1171
MAX	2440	4970	5660	12600	5280	7170	5900	14200	1090	1490	786	6960
MIN	255	203	976	520	570	685	740	758	71	39	42	79
CFSM	.97	1.42	3.45	2.90	2.24	3.23	2.22	4.59	.50	.27	.18	1.63
IN.	1.12	1.59	3.98	3.34	2.42	3.73	2.48	5.29	.55	.31	.20	1.82

CAL YR 1987 TOTAL 524591 MEAN 1437 MAX 9760 MIN 29 CFSM 2.00 IN. 27.18
WTR YR 1988 TOTAL 518073 MEAN 1415 MAX 14200 MIN 39 CFSM 1.97 IN. 26.84

e Estimated

MONONGAHELA RIVER BASIN

03070000 CHEAT RIVER AT ROWLESBURG, WV

LOCATION (REVISED).--Lat 39°20'48", long 79°39'56", Preston County, Hydrologic Unit 05020004, on right bank 800 ft upstream from Baltimore & Ohio Railroad bridge at Rowlesburg, 1,100 ft upstream from Saltlick Creek, and at mile 44.2. Prior to Nov. 5, 1985, at site 800 ft downstream.

DRAINAGE AREA.--937 mi², revised. Area at site used prior to Nov. 5, 1985, 972 mi².

PERIOD OF RECORD.--July 1912 to September 1923 (gage heights only), October 1923 to current year. Gage-height records collected at practically the same site since 1884 are contained in reports of National Weather Service. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 803: Drainage area. WSP 893: 1936-37. WSP 1173: 1924-34(M,m). WSP 1725: 1924(M), 1930(M), 1932(M), 1936(M), 1938-39(M), 1944(M), 1948-49(M).

GAGE.--Water-stage recorder. Datum of gage is 1,368.24 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 5, 1985, at site 800 ft downstream at datum 0.44 ft lower. Prior to Nov. 18, 1923, nonrecording gages at several sites within 500 ft of present site at various datums.

REMARKS.--Estimated daily discharges: Nov. 4-9, Jan. 6-15, 29-31, Feb. 8-15, May 20-25, June 30 to July 21, and Sept. 16-27. Records fair except those for periods of estimated daily discharges, which are poor. National Weather Service gage height telemeter at station. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--65 years, 2,296 ft³/s, 33.28 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 190,000 ft³/s, Nov. 5, 1985, gage height, 36.90 ft, from floodmarks, from rating curve extended above 60,000 ft³/s; minimum, 10 ft³/s, Oct. 15, 1930; minimum gage height observed, 0.50 ft Oct. 3, 1968.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 6, 1844, reached a stage of 16.7 ft, referred to present gage by relation curve, discharge, 89,000 ft³/s, from rating curve extended above 45,000 ft³/s. Flood of July 10, 1888, reached a stage of 16.2 ft, referred to present gage by relation curve, discharge, 84,000 ft³/s, from rating curve extended above 45,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 20,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 20	1500	*21,800	*13.33	May 6	2100	20,400	12.98

Minimum discharge, 43 ft³/s, Aug. 17, gage height, 1.77 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3710	352	4800	5030	2110	1050	1910	3730	927	e134	130	121
2	2350	312	3380	7670	3550	1040	1870	3810	811	e124	118	107
3	1970	288	2590	5390	7280	1050	1640	3110	912	e115	110	93
4	2110	e275	2340	3660	7000	2440	1550	2480	1430	e105	94	109
5	1630	e265	2330	2650	7600	9780	1790	3200	1350	e98	85	2120
6	1250	e250	2250	e2000	4440	5570	1670	16600	992	e92	85	1380
7	998	e240	1870	e1550	2890	3640	2430	14100	788	e85	83	736
8	1020	e230	1460	e1700	e2200	2760	7190	7080	668	e80	77	425
9	1540	e220	2350	e1600	e1800	2340	6760	4300	598	e75	71	289
10	1460	794	6600	e1500	e1550	2440	4270	3390	710	e68	68	216
11	1170	3240	6280	e1400	e1400	2350	3080	3180	764	e63	61	173
12	957	3900	3870	e1300	e1150	1890	2410	2580	751	e58	56	147
13	851	3080	3360	e1350	e1000	2080	1960	2100	633	e60	53	334
14	733	1670	2210	e1400	e920	2970	1610	1730	547	e66	55	4870
15	619	2400	2130	e1100	e1000	2490	1360	1480	465	e72	50	1910
16	544	1880	3790	866	1160	2040	1170	1330	405	e67	48	e870
17	490	1650	2840	840	1210	1750	1020	1280	362	e64	44	e1100
18	443	1390	2370	1320	1260	1580	1030	1410	340	e62	55	e1200
19	403	1380	2100	4360	1260	1510	1770	7850	307	e100	65	e740
20	376	1370	3010	15800	1580	1430	2110	e6700	278	e230	100	e550
21	370	1370	6410	11900	2500	1320	1560	e4600	257	e500	106	e450
22	391	1210	4520	6220	2540	1160	1330	e3000	234	1470	109	e350
23	418	875	3380	4010	2540	1460	1190	e2600	218	939	112	e290
24	393	840	2670	3220	2540	5120	1240	e2400	209	500	200	e2500
25	336	1640	4080	2210	2140	6740	1270	e3800	198	285	793	e7800
26	301	1940	8700	1900	1870	6420	1160	4620	181	200	369	e4500
27	281	1810	8180	1460	1330	6520	995	3060	167	161	238	e2700
28	279	1680	5430	1120	1180	4300	926	2260	158	190	165	1620
29	416	4140	6590	e1000	1110	3200	1850	1760	156	242	135	961
30	470	8460	5920	e1100	---	2560	3190	1390	e142	195	116	635
31	416	---	4020	e1300	---	2140	---	1130	---	155	106	---
TOTAL	28695	49151	121830	97926	70110	93140	63311	122060	15958	6655	3957	39296
MEAN	926	1638	3930	3159	2418	3005	2110	3937	532	215	128	1310
MAX	3710	8460	8700	15800	7600	9780	7190	16600	1430	1470	793	7800
MIN	279	220	1460	840	920	1040	926	1130	142	58	44	93
CFSM	.99	1.75	4.19	3.37	2.58	3.21	2.25	4.20	.57	.23	.14	1.40
IN.	1.14	1.95	4.84	3.89	2.78	3.70	2.51	4.85	.63	.26	.16	1.56

CAL YR 1987 TOTAL 757464 MEAN 2075 MAX 17600 MIN 69 CFSM 2.21 IN. 30.07
WTR YR 1988 TOTAL 712089 MEAN 1946 MAX 16600 MIN 44 CFSM 2.08 IN. 28.27

e Estimated

MONONGAHELA RIVER BASIN

03070500 BIG SANDY CREEK AT ROCKVILLE, WV

LOCATION.--Lat 39°37'15", long 79°42'20", Preston County, Hydrologic Unit 05020004, on right bank just downstream from highway bridge at Rockville, and at mile 5.0.

DRAINAGE AREA.--200 mi².

PERIOD OF RECORD.--May 1909 to March 1918, April 1921 to current year.

REVISED RECORDS.--WSP 583: 1912(M), 1922-23. WSP 643: Drainage area. WSP 923: 1939. WSP 1173: 1930-34(M,m). WSP 1335: 1910-18, 1921, 1922-24(M), 1928(M), 1930-43(M).

GAGE.--Water-stage recorder. Elevation of gage is 1,310 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Oct. 4, 1924, nonrecording gages at highway bridge at same datum.

REMARKS.--Estimated daily discharges: Jan. 7-18, 29-31, Feb. 8-18. Records good except those for period of estimated daily discharges, which are fair. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--75 years (water years 1910-17, 1922-88), 421 ft³/s, 28.59 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 21,300 ft³/s, July 24, 1912, gage height, 18.0 ft, from rating curve extended above 10,000 ft³/s on basis of velocity-area studies; minimum, 0.1 ft³/s, Oct. 21-27, 1953.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 10, 1888, reached a stage of about 20 ft, discharge, about 30,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 20	0700	5,250	10.68	Mar. 4	1900	*6,430	*11.38

Minimum discharge, 4.6 ft³/s, Aug. 18, 19, gage height, 2.89 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100	35	722	825	561	289	315	687	111	7.8	7.2	49
2	86	34	526	733	1520	292	273	531	110	7.5	6.9	36
3	364	34	416	565	1950	401	245	427	116	7.1	6.4	27
4	246	33	630	492	2350	3980	338	370	95	6.8	6.2	122
5	162	33	577	310	1590	3110	337	510	82	6.5	7.2	231
6	124	31	468	241	888	1370	306	1030	70	6.4	21	160
7	116	29	399	e220	596	840	664	764	60	6.2	26	102
8	134	28	377	e260	e460	601	831	577	57	6.1	16	70
9	120	57	524	e240	e400	504	667	476	173	5.9	10	52
10	101	208	882	e210	e340	514	533	474	142	5.7	7.9	44
11	95	246	668	e190	e280	423	440	414	81	5.9	6.8	37
12	139	181	520	e200	e240	374	369	352	61	8.4	6.1	31
13	118	184	396	e205	e205	499	314	304	51	9.3	5.8	122
14	96	309	314	e185	e190	474	267	271	45	7.9	5.7	142
15	77	404	470	e175	e215	428	239	239	40	6.9	5.5	90
16	54	335	537	e160	e235	379	208	217	36	6.4	5.1	58
17	51	275	432	e150	e250	339	186	181	37	6.0	4.9	262
18	47	283	357	e170	e265	321	272	259	33	5.8	4.7	409
19	44	230	317	357	362	314	374	864	28	6.6	22	232
20	48	211	1010	3130	922	306	291	695	24	49	275	175
21	61	192	894	1420	774	282	261	541	21	96	165	181
22	56	153	637	812	571	262	228	418	19	83	60	131
23	53	142	524	575	537	345	223	338	17	40	77	128
24	49	158	433	459	486	639	487	615	16	43	300	211
25	35	153	1450	426	412	546	383	458	14	34	108	406
26	32	144	2610	355	360	976	319	347	13	20	59	461
27	34	135	1510	278	341	797	278	278	11	15	42	286
28	48	124	1020	237	302	577	264	226	9.7	12	33	198
29	49	1600	967	e220	283	467	666	187	8.9	9.7	145	148
30	41	1360	668	e240	---	396	894	159	8.2	8.5	159	115
31	38	---	545	e330	---	336	---	133	---	7.5	79	---
TOTAL	2818	7341	21800	14370	17885	21381	11472	13352	1589.8	546.9	1683.4	4716
MEAN	90.9	245	703	464	617	690	382	431	53.0	17.6	54.3	157
MAX	364	1600	2610	3130	2350	3980	894	1030	173	96	300	461
MIN	32	28	314	150	190	262	186	133	8.2	5.7	4.7	27
CFSM	.45	1.22	3.52	2.32	3.08	3.45	1.91	2.15	.26	.09	.27	.79
IN.	.52	1.37	4.05	2.67	3.33	3.98	2.13	2.48	.30	.10	.31	.88

CAL YR 1987 TOTAL 108179.9 MEAN 296 MAX 2660 MIN 5.1 CFSM 1.48 IN. 20.12
WTR YR 1988 TOTAL 118955.1 MEAN 325 MAX 3980 MIN 4.7 CFSM 1.63 IN. 22.13

e Estimated

MONONGAHELA RIVER BASIN

03071600 CHEAT RIVER AT LAKE LYNN, PA

LOCATION.--Lat 39°43'15", long 79°51'20", Fayette County, Hydrologic Unit 05020004, at the Lake Lynn hydro-electric plant of the West Penn Power Company at Lake Lynn, 3.0 mi upstream from mouth.

DRAINAGE AREA.--1,411 mi².

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: October 1948 to September 1957, October 1958 to current year (partial record).

REMARKS.--Values published are once-daily readings.

COOPERATION.--Records were furnished by the West Penn Power Company.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES (Water years 1949-57): Maximum, 29.5°C, July 30, 1949, July 28, 1952, and Aug. 6, 1955; minimum, 0.5°C several days during 1951, 1952, 1954, 1955, 1957.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
ONCE-DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	8.0	---	4.0	2.5	---	---	24.5	22.0	26.5	24.5
2	21.0	14.5	8.0	---	3.5	3.0	---	13.0	21.5	---	27.0	24.5
3	---	15.0	8.0	---	3.0	3.5	---	13.0	21.0	---	---	---
4	---	15.0	8.0	2.5	3.5	4.0	15.5	13.0	---	---	28.0	---
5	19.0	13.0	---	2.0	5.0	---	15.5	13.0	---	24.5	28.0	---
6	19.0	13.0	---	1.0	---	---	15.5	13.0	21.0	25.5	---	22.0
7	---	---	7.0	1.0	---	5.0	14.5	---	22.0	25.5	---	23.0
8	---	---	7.0	1.0	3.0	5.0	15.5	---	---	26.0	29.0	23.0
9	---	13.0	7.0	---	3.0	6.0	---	13.0	20.5	---	28.5	23.0
10	---	13.0	8.0	---	1.0	5.0	---	14.5	20.0	---	28.5	---
11	---	---	7.0	1.0	1.0	6.0	14.5	14.5	---	25.5	29.0	---
12	17.0	12.0	---	1.0	.5	---	11.5	17.0	---	25.5	28.0	23.0
13	16.0	12.0	---	.5	---	---	13.0	18.0	23.0	25.5	---	23.0
14	16.0	---	7.0	.5	---	6.0	13.0	---	21.5	26.5	---	22.0
15	16.0	---	7.0	1.0	---	5.5	13.0	---	24.0	---	29.0	22.0
16	16.0	12.0	6.0	---	1.5	5.5	---	19.0	25.5	---	28.0	22.0
17	---	13.0	6.0	---	2.0	6.0	---	19.0	23.0	---	27.0	---
18	---	12.0	6.0	1.5	2.0	5.5	13.0	18.0	---	29.0	28.5	---
19	15.0	11.0	---	1.5	2.5	---	13.0	18.0	---	26.5	28.0	21.5
20	---	10.0	5.0	2.0	---	---	13.0	19.0	24.5	26.5	---	21.5
21	15.0	---	5.0	.5	---	5.0	13.0	---	25.0	26.0	---	21.0
22	15.0	9.0	4.5	1.0	3.0	5.0	13.0	---	26.5	26.0	26.5	21.0
23	15.0	9.0	4.0	---	3.0	7.0	---	20.0	26.5	---	26.0	21.0
24	---	9.0	4.0	---	2.0	7.0	---	21.0	26.5	---	---	---
25	---	10.0	---	3.5	2.5	8.0	13.0	20.0	---	25.5	---	---
26	15.0	---	---	3.0	2.0	---	13.0	19.0	---	25.5	26.0	20.0
27	15.0	9.0	---	2.0	---	---	13.0	20.0	24.0	26.5	---	20.5
28	14.0	---	6.5	2.0	---	---	13.0	---	24.0	26.5	---	20.5
29	14.0	---	6.0	3.0	2.5	10.0	---	---	23.5	27.0	25.0	20.0
30	14.0	9.0	5.0	---	---	10.5	---	---	23.5	---	24.5	20.5
31	---	---	5.5	---	---	11.5	---	23.5	---	---	24.5	---

OHIO RIVER MAIN STEM

03111534 OHIO RIVER AT MARTINS FERRY, OH
(Formerly published as 03112500 Ohio River at Wheeling, WV)

LOCATION.--Lat 40°06'18", long 80°42'31", Belmont County, Ohio, Hydrologic Unit 05030106, on right bank at water plant at Martins Ferry, Ohio, 300 ft downstream from Old Lock 12, 0.9 mi downstream from Glenss Run (Ohio), 3.0 mi upstream from Wheeling Creek (Ohio), and at mile 87.5, measured downstream from Pittsburgh, Pa.

DRAINAGE AREA.--24,700 mi², approximately.

PERIOD OF RECORD.--January to March 1844, January 1905 to December 1906 (gage heights only), December 1906 to February 1907, March to April 1913, February to April 1936, December 1936 to February 1937 (published as "at Wheeling"), October 1978 to current year. Monthly discharge for some periods published in WSP 1305. Gage-height records collected in this vicinity since 1882 are in reports of the National Weather Service.

GAGE.--Water-stage recorder. Datum of gage is 610.80 ft above National Geodetic Vertical Datum of 1929. See WSP 1305 for history of gages prior to 1978. Auxiliary water-stage recorder 12.9 mi downstream from base gage at same datum.

REMARKS.--Estimated daily discharges: Feb. 6-12, and June 6 to Sept. 30. Records fair except those for periods of estimated daily discharges, which are poor. Flow regulated by Ohio River system of locks, dams, and reservoirs. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--10 years, 41,740 ft³/s, 22.95 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 466,000 ft³/s, Mar. 19, 1936, gage height 55.2 ft; minimum not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 171,000 ft³/s, Feb. 3 and 4; maximum gage height, 27.14 ft; minimum daily discharge, 4,000 ft³/s, July 17, estimated.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28600	21300	79200	46100	28400	31400	46300	27800	20600	e4400	e5600	e9000
2	28300	18500	71300	47700	96500	29500	44800	29000	21000	e4800	e6000	e8000
3	31500	18100	61300	48300	166000	30500	40000	30100	18800	e5200	e5600	e7200
4	29400	18500	53900	35900	157000	38100	57500	31500	17000	e5600	e5800	e8800
5	25800	19500	57000	34400	150000	97300	84700	26400	17400	e5300	e6000	e9800
6	27200	19500	52000	25900	e120000	92600	71600	37500	e16000	e5100	e6500	e12000
7	24300	18400	42300	20400	e90000	69300	69200	54300	e14000	e5000	e5600	e15000
8	24100	17100	46400	20300	e82000	64400	65200	50900	e13000	e5600	e5000	e10000
9	26300	16700	43100	18900	e72000	54200	71100	48400	e15000	e5400	e4300	e9500
10	29900	17300	43800	17800	e60000	50800	67800	38200	e13000	e5200	e4500	e8000
11	30300	19700	58400	17800	e52000	50500	65600	36000	e10000	e4500	e4800	e6000
12	25600	24500	56200	20300	e45000	52800	51700	34200	e9000	e4300	e4500	e5200
13	27500	26000	49400	20400	34800	50100	45900	36500	e8000	e4800	e4400	e6400
14	26800	24600	44600	19900	30000	57600	34200	29200	e9000	e5000	e4500	e13000
15	24300	21000	45300	19600	27300	58800	31400	25100	e7000	e5500	e4500	e10000
16	23600	21600	49800	17900	33200	45600	27000	24100	e6000	e4500	e4400	e9000
17	21400	22900	50900	18600	38100	41500	23200	31800	e8000	e4000	e4400	e9800
18	20100	23200	51700	19100	38800	40900	24200	34300	e8800	e4300	e4400	e9200
19	18300	25100	42400	26100	43800	41000	25500	40900	e6000	e4800	e4500	e10000
20	18200	26500	39800	50400	46500	38000	28700	66600	e5800	e5000	e5000	e12000
21	18400	23200	59200	101000	60500	31900	23500	63600	e5800	e21000	e4800	e10000
22	19500	23000	77500	82300	57200	35600	24200	65200	e5800	e16000	e4500	e9200
23	19200	21700	69400	78500	54200	34400	19800	55800	e5800	e14000	e5400	e10000
24	17100	21300	59400	63500	55300	34000	23600	61800	e5800	e13000	e8200	e9000
25	15400	22000	53000	57400	55000	36500	19600	60200	e5800	e12000	e6000	e14000
26	16000	22000	54800	45300	48700	54200	21500	51300	e5600	e11000	e6400	e19000
27	17300	24500	74100	36700	38900	70600	27800	52600	e5200	e8000	e6600	e18000
28	19600	23400	73100	27000	37400	72500	20900	41400	e4500	e7000	e8000	e15000
29	20200	30600	66000	26700	29600	62500	20300	31300	e4200	e6200	e6800	e14000
30	19900	66500	64900	23400	---	54800	20100	24500	e4500	e5800	e8000	e15000
31	19800	---	53300	23600	---	56000	---	22200	---	e5400	e12000	---
TOTAL	713900	698200	1743500	1111200	1848200	1577900	1196900	1262700	296400	217700	177000	321100
MEAN	23030	23270	56240	35850	63730	50900	39900	40730	9880	7023	5710	10700
MAX	31500	66500	79200	101000	166000	97300	84700	66600	21000	21000	12000	19000
MIN	15400	16700	39800	17800	27300	29500	19600	22200	4200	4000	4300	5200

CAL YR 1987 TOTAL 12729350 MEAN 34870 MAX 160000 MIN 6390
WTR YR 1988 TOTAL 11164700 MEAN 30500 MAX 166000 MIN 4000

e Estimated

WHEELING CREEK BASIN

03112000 WHEELING CREEK AT ELM GROVE, WV

LOCATION.--Lat 40°02'40", long 80°39'40", Ohio County, Hydrologic Unit 05030106, on right bank at highway bridge at Elm Grove, 500 ft downstream from Little Wheeling Creek, and at mile 7.7.

DRAINAGE AREA.--282 mi².

PERIOD OF RECORD.--October 1940 to current year. Monthly discharge only for October 1940, published in WSP 1907.

REVISED RECORDS.--WSP 1305: 1941(M).

GAGE.--Water-stage recorder. Datum of gage is 667.59 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 5-19, Jan. 28 to Feb. 1. Records good except those for period of estimated daily discharges, which are poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--48 years, 332 ft³/s, 15.99 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,100 ft³/s, Dec. 30, 1942, gage height, 13.67 ft, from rating curve extended above 15,000 ft³/s on basis of slope-area measurements at gage heights 13.2 ft and 13.67 ft; minimum, 0.1 ft³/s, Oct. 7, 1963, Sept. 26, 27, 1964; minimum gage height, 0.58 ft, Sept. 11, 1983.

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

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Feb. 2	1630	*9,200	*7.84	Mar. 4	1830	6,080	6.20

Minimum discharge, 0.22 ft³/s, July 17, 18, gage height, 0.69 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	32	399	523	e200	183	279	149	42	1.7	13	10
2	63	31	281	486	5730	166	260	139	39	1.5	12	9.2
3	56	32	225	370	4160	203	248	129	36	1.3	10	7.6
4	48	30	336	358	3190	3100	847	125	34	1.2	9.2	24
5	44	30	418	e160	1870	2610	808	127	32	1.0	8.8	31
6	40	28	312	e145	871	1240	590	131	28	.93	19	29
7	48	27	237	e135	626	823	595	141	25	.79	11	19
8	49	25	196	e125	581	609	625	119	23	.69	10	14
9	48	34	187	e115	444	530	523	117	64	.58	8.6	11
10	44	44	185	e105	388	532	445	142	71	.50	7.3	9.3
11	43	61	166	e98	336	442	385	129	46	.56	6.1	8.2
12	44	66	155	e90	326	398	327	122	32	.70	5.2	8.3
13	46	58	135	e94	244	605	280	112	27	.63	5.0	24
14	39	62	116	e96	223	582	246	110	23	.69	3.8	16
15	35	66	122	e87	286	495	219	98	19	.56	3.0	15
16	30	59	142	e76	258	421	194	88	17	.42	2.4	13
17	28	56	143	e69	215	371	177	79	16	.26	1.8	13
18	26	95	132	e120	208	342	197	82	14	2.8	1.7	15
19	24	140	124	e200	210	348	276	137	12	11	16	16
20	23	106	382	1690	346	338	220	205	10	338	8.8	22
21	21	89	550	1040	355	327	193	155	9.7	680	6.4	23
22	20	70	387	612	273	316	175	122	8.5	203	4.0	19
23	20	60	300	446	336	332	168	119	7.3	84	17	18
24	21	56	236	355	372	328	187	209	5.9	49	27	26
25	23	58	224	294	317	335	162	161	5.0	34	16	39
26	23	62	555	229	260	767	144	116	3.9	27	13	32
27	28	65	614	188	282	739	134	95	3.0	29	11	26
28	34	71	539	e170	232	546	137	79	2.6	28	9.2	21
29	33	627	834	e160	203	442	166	67	2.4	22	17	17
30	37	726	553	e150	---	373	164	57	2.0	19	17	16
31	34	---	430	e150	---	308	---	49	---	15	13	---
TOTAL	1140	2966	9615	8936	23342	19151	9371	3710	660.3	1555.81	313.3	551.6
MEAN	36.8	98.9	310	288	805	618	312	120	22.0	50.2	10.1	18.4
MAX	68	726	834	1690	5730	3100	847	209	71	680	27	39
MIN	20	25	116	69	200	166	134	49	2.0	.26	1.7	7.6
CFSM	.13	.35	1.10	1.02	2.85	2.19	1.11	.42	.08	.18	.04	.07
IN.	.15	.39	1.27	1.18	3.08	2.53	1.24	.49	.09	.21	.04	.07

CAL YR 1987 TOTAL 92956.4 MEAN 255 MAX 3630 MIN 2.0 CFSM .90 IN. 12.26
WTR YR 1988 TOTAL 81312.01 MEAN 222 MAX 5730 MIN .26 CFSM .79 IN. 10.73

e Estimated

OHIO RIVER MAIN STEM

03112510 OHIO RIVER AT BENWOOD NEAR WHEELING, WV
(National Stream-quality accounting network station)

LOCATION.--Lat 40°00'54", long 80°44'20", Marshall County, Hydrologic Unit 05030106, at Bellaire Toll Bridge, at Benwood, and at mile 94.3.

DRAINAGE AREA.--Approximately 25,070 mi².

PERIOD OF RECORD.--Water years 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED SATUR-ATION (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)
OCT 20...	0900	17900	318	7.80	13.5	3.2	740	9.8	97	480	76	110
JAN 06...	1230	26200	285	7.70	2.0	5.0	740	12.5	93	350	120	80
MAR 29...	0930	62300	338	7.30	9.0	17	743	10.3	91	1100	120	120
MAY 31...	1500	19200	250	7.50	22.0	3.2	744	8.6	101	2000	K21	88
JUL 20...	1330	16500	506	7.40	28.5	3.9	738	5.3	71	K29000	6600	170
SEP 07...	1030	17400	588	7.60	24.5	5.5	743	7.4	91	420	K12	180
DATE	HARD-NESS NONCARB WH TOT FLD MG/L AS CACO3 (00902)	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-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...	67	31	7.9	17	2.6	51	0	42	77	18	0.20	4.2
JAN 06...	50	22	6.0	13	2.1	29	0	24	60	15	0.20	5.1
MAR 29...	82	32	8.7	18	1.7	29	0	24	88	21	0.20	4.9
MAY 31...	63	24	6.7	12	1.6	23	0	19	61	13	0.30	4.7
JUL 20...	130	47	13	34	3.3	51	0	42	140	34	0.30	0.72
SEP 07...	130	48	14	41	3.7	61	0	50	160	41	0.40	1.9
DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHOROUS TOTAL (MG/L AS P) (00665)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)
OCT 20...	186	187	0.640	0.020	0.660	0.060	0.060	0.54	0.60	0.050	--	0.020
JAN 06...	150	146	0.900	0.020	0.920	0.140	0.140	0.26	0.40	0.030	0.020	<0.010
MAR 29...	204	199	--	<0.010	0.830	0.160	0.160	0.34	0.50	0.030	0.010	<0.010
MAY 31...	155	143	0.820	0.020	0.840	0.120	0.120	0.58	0.70	0.050	0.020	0.010
JUL 20...	308	306	1.11	0.090	1.20	0.220	0.180	0.28	0.50	0.050	0.020	0.010
SEP 07...	367	347	1.40	0.100	1.50	0.060	0.060	0.44	0.50	0.160	0.080	0.050

OHIO RIVER MAIN STEM

03112510 OHIO RIVER AT BENWOOD NEAR WHEELING, WV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	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)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)
OCT 20...	20	1	47	<0.5	<1	2	<3	3	22	6	7	100
JAN 06...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 29...	30	<1	49	<0.5	<1	<1	<3	2	48	<5	16	250
MAY 31...	30	1	49	<0.5	<1	2	<3	1	18	<5	9	110
JUL 20...	30	1	66	<0.5	<1	<1	<3	2	14	<5	15	6
SEP 07...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	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)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 20...	<0.1	<10	1	<1	<1.0	150	<6	39	7	338	46
JAN 06...	--	--	--	--	--	--	--	--	8	566	84
MAR 29...	<0.1	<10	1	<1	<1.0	160	<6	5	28	4710	76
MAY 31...	<0.1	<10	5	<1	<1.0	130	<6	54	11	570	71
JUL 20...	<0.1	<10	3	<1	<1.0	260	<6	160	11	490	71
SEP 07...	--	--	--	--	--	--	--	--	11	517	54

MIDDLE ISLAND CREEK BASIN

03114500 MIDDLE ISLAND CREEK AT LITTLE, WV

LOCATION.--Lat 39°28'30", long 80°59'50", Tyler County, Hydrologic Unit 05030201, on right bank at downstream side of highway bridge at Little, 0.1 mi upstream from Stewarts Run, 5.0 mi west of Middlebourne, and at mile 24.5.

DRAINAGE AREA.--458 mi².

PERIOD OF RECORD.--May 1915 to September 1916, October 1916 to September 1922 (gage heights only), October 1928 to current year.

GAGE.--Water-stage recorder. Datum of gage is 631.32 ft above National Geodetic Vertical Datum, adjustment of 1912. Prior to July 11, 1947, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 6-18. Records good except those for period of estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--61 years, (water years 1916, 1929-88), 632 ft³/s, 18.74 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,000 ft³/s, June 26, 1950, gage height, 28.0 ft, from flood-marks; no flow during parts of 1922 and Sept. 1 to Nov. 4, Nov. 7-10, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1875 reached a stage of about 33.5 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 9,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 20	1700	10,800	13.88	Mar. 4	2200	*11,900	*14.82

Minimum discharge, 0.37 ft³/s, July 17, 18, gage height, 1.61 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	11	323	748	163	231	294	155	39	2.9	11	.96
2	31	12	223	1070	3330	198	261	135	34	2.5	10	.80
3	23	12	271	573	6710	200	237	124	31	1.9	9.0	.86
4	17	12	992	395	4270	7230	1230	118	30	1.7	7.3	4.7
5	21	13	781	287	4100	8630	880	125	28	1.5	6.1	4.6
6	24	16	371	e230	1340	2110	588	147	26	1.4	5.4	3.4
7	26	14	232	e180	622	1160	549	160	25	1.2	9.5	4.3
8	45	12	172	e145	512	717	636	151	24	1.0	12	4.3
9	49	17	140	e125	365	498	771	137	24	.88	12	3.4
10	36	83	121	e110	305	442	538	208	27	.75	9.6	5.6
11	28	216	104	e98	249	375	412	220	29	.80	7.2	6.8
12	24	213	93	e90	237	308	337	176	25	.76	5.7	6.1
13	23	166	78	e82	266	539	273	148	23	.61	4.8	27
14	20	147	67	e76	295	805	224	129	22	.69	4.0	805
15	16	127	69	e71	276	585	195	115	22	.64	3.4	269
16	15	106	87	e68	280	434	172	96	21	.52	2.9	138
17	13	302	104	e66	269	369	148	83	20	.46	2.4	70
18	12	283	116	e120	252	378	485	74	15	1.5	2.1	41
19	10	176	110	489	252	570	1620	77	12	6.8	1.8	29
20	7.6	125	628	8830	1410	768	900	122	12	27	2.0	24
21	7.7	89	775	3650	1750	754	504	142	11	153	2.0	26
22	8.1	63	421	1170	922	597	367	107	9.1	376	1.7	30
23	7.9	50	293	624	642	477	296	91	8.0	133	1.7	27
24	8.1	43	234	418	825	415	294	314	7.7	113	2.1	26
25	7.8	38	630	322	835	374	275	206	5.7	172	1.8	23
26	8.0	35	4670	265	546	1430	233	220	5.0	78	1.6	20
27	8.0	34	2170	217	430	1730	199	146	4.6	43	1.3	20
28	7.7	225	1190	160	351	951	182	102	3.7	28	1.1	19
29	6.9	1820	1520	155	277	592	178	78	3.2	20	1.0	18
30	6.0	724	835	149	---	439	174	57	3.0	15	1.2	18
31	7.8	---	460	149	---	348	---	47	---	12	1.1	---
TOTAL	579.6	5184	18280	21132	32081	34654	13452	4210	550.0	1198.51	144.8	1675.82
MEAN	18.7	173	590	682	1106	1118	448	136	18.3	38.7	4.67	55.9
MAX	55	1820	4670	8830	6710	8630	1620	314	39	376	12	805
MIN	6.0	11	67	66	163	198	148	47	3.0	.46	1.0	.80
CFSM	.04	.38	1.29	1.49	2.42	2.44	.98	.30	.04	.08	.01	.12
IN.	.05	.42	1.48	1.72	2.61	2.81	1.09	.34	.04	.10	.01	.14

CAL YR 1987 TOTAL 129649.4 MEAN 355 MAX 7210 MIN 2.8 CFSM .78 IN. 10.53
WTR YR 1988 TOTAL 133141.73 MEAN 364 MAX 8830 MIN .46 CFSM .79 IN. 10.81

e Estimated

OHIO RIVER MAIN STEM

03150800 OHIO RIVER NEAR MARIETTA, OH

LOCATION.--Lat 39°23'21", long 81°29'03", Washington County, Hydrologic Unit 05030202, on right bank 1.5 mi southwest of Marietta, 2.0 mi downstream from Muskingum River, and at mile 174.3 measured downstream from Pittsburgh, Pa.

DRAINAGE AREA.--35,600 mi², approximately.

PERIOD OF RECORD.--October 1968 to current year (gage heights only).

GAGE.--Water-stage recorder. Datum of gage is 567.12 ft, Sandy Hook datum.

REMARKS.--U.S. Army Corps of Engineers satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 38.52 ft, Feb. 27, 1979; minimum, 10.83 ft, Oct. 6, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 28.43 ft, Feb. 3; minimum, 15.04 ft, Oct. 12.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.86	15.94	18.80	16.92	15.96	16.10	17.57	15.76	15.70	16.52	16.33	16.35
2	15.72	15.81	18.06	17.07	20.76	15.89	17.01	16.09	15.65	16.56	16.48	16.35
3	15.86	15.65	17.62	16.91	28.22	16.07	16.82	15.58	16.06	16.36	16.41	15.85
4	15.65	15.69	16.94	16.25	27.78	19.29	18.36	15.98	16.07	16.03	16.52	15.86
5	15.46	15.80	17.44	16.23	26.50	22.92	20.20	15.82	15.54	15.75	16.41	16.28
6	15.67	16.11	17.34	15.74	24.45	22.02	20.46	15.96	15.75	15.63	16.49	16.74
7	15.75	16.18	16.57	15.72	22.54	19.16	19.27	16.85	16.06	15.64	16.60	16.34
8	15.44	15.80	16.59	16.41	21.62	18.98	19.00	17.22	16.03	15.74	16.70	16.13
9	15.75	15.51	16.60	16.23	19.56	17.92	19.16	16.71	15.97	15.95	16.47	15.85
10	15.89	15.46	16.39	16.08	18.67	18.02	18.92	16.58	15.96	16.15	16.09	15.74
11	15.99	15.92	16.92	16.25	18.15	17.48	18.60	16.02	15.69	16.36	15.66	16.00
12	15.20	16.35	17.49	15.65	17.66	17.96	17.66	16.19	15.63	16.52	15.53	16.30
13	15.67	16.54	16.80	15.44	16.56	17.63	17.59	16.04	15.99	16.55	15.62	16.38
14	15.91	16.46	16.36	15.92	15.98	17.77	16.39	15.98	15.92	16.57	16.10	16.06
15	15.60	16.04	16.72	16.12	15.96	18.22	16.40	15.55	16.12	16.57	16.56	16.51
16	15.57	15.62	16.74	15.89	16.18	17.36	15.70	15.38	15.87	16.61	16.52	16.13
17	15.56	16.06	17.04	15.62	16.54	16.73	15.85	15.50	15.78	16.61	16.14	16.08
18	15.41	16.19	16.81	15.83	16.77	16.82	15.62	16.42	15.99	16.61	15.87	15.95
19	15.51	16.18	16.57	16.16	16.63	16.78	16.04	16.57	16.01	16.38	15.84	15.85
20	15.58	16.42	16.35	18.89	17.39	16.90	16.04	17.41	15.91	15.98	15.88	16.05
21	15.35	16.51	17.16	21.19	18.36	16.41	15.56	17.77	15.86	16.70	15.88	16.15
22	15.58	16.04	18.04	19.98	18.44	16.19	15.89	17.64	15.87	16.15	15.82	16.21
23	15.88	15.99	18.26	18.99	18.05	16.63	15.37	17.09	15.80	16.19	16.04	16.09
24	15.84	16.09	17.71	17.94	17.84	16.33	15.93	17.22	15.75	16.24	16.12	15.87
25	15.57	16.22	17.05	17.58	17.81	16.20	15.55	17.30	15.69	16.38	15.83	15.91
26	15.46	16.30	17.95	16.55	17.50	17.66	15.42	17.09	15.48	16.48	15.91	16.25
27	15.62	16.35	19.07	16.45	16.59	18.79	16.13	16.76	15.53	15.95	16.08	16.40
28	16.04	16.31	18.69	15.55	16.56	19.46	15.62	16.64	15.79	15.84	16.21	16.01
29	16.22	16.57	18.22	15.87	15.86	18.56	15.49	15.72	16.09	15.88	16.32	15.76
30	16.14	17.47	18.33	15.56	---	18.22	15.28	15.79	16.30	15.79	16.27	15.69
31	15.83	---	17.46	15.78	---	17.49	---	15.46	---	15.85	15.96	---
MEAN	15.70	16.12	17.36	16.67	19.00	17.81	16.96	16.39	15.86	16.21	16.15	16.10
MAX	16.22	17.47	19.07	21.19	28.22	22.92	20.46	17.77	16.30	16.70	16.74	16.74
MIN	15.20	15.46	16.35	15.44	15.86	15.89	15.28	15.38	15.48	15.63	15.53	15.69

WTR YR 1988 MEAN 16.69 MAX 28.22 MIN 15.20

LITTLE KANAWHA RIVER BASIN

03151400 LITTLE KANAWHA RIVER NEAR WILDCAT, WV

LOCATION.--Lat 38°44'35", long 80°31'36", Braxton County, Hydrologic Unit 05030203, on right bank on State Secondary Route 24/1, 200 ft upstream from footbridge at Gregory, 3.9 mi west of Wildcat, and at mile 138.6.

DRAINAGE AREA.--112 mi².

PERIOD OF RECORD.--December 1973 to September 1983, October 1985 to current year.

GAGE.--Water-stage recorder. Datum of gage is 850.00 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 6-19, 28-30, Feb. 12-14, 23-29. Records good except for periods with ice effect, which are poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--12 years (water years 1975-83, 1986-88), 224 ft³/s, 27.16 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,500 ft³/s, Nov. 5, 1985, gage height, 14.81 ft; minimum discharge, 0.11 ft³/s, Aug. 17, 1987; minimum gage height, 3.33, Oct. 1, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Dec. 26	1330	*2,280	*8.42	No other peak greater than base discharge.			

Minimum discharge, 0.16 ft³/s, July 17, 18, gage height, 3.43 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	11	249	325	176	120	391	187	59	1.1	1.3	2.2
2	32	10	193	402	500	112	383	160	48	.94	1.1	1.8
3	26	9.4	151	314	1030	112	302	139	64	.82	.87	1.4
4	25	9.0	341	244	1050	354	301	131	56	.75	.72	12
5	22	9.3	351	178	868	892	279	184	42	.66	.82	60
6	20	8.8	251	e150	470	524	256	704	32	.55	2.6	27
7	20	9.0	201	e130	312	336	540	711	25	.48	2.1	16
8	26	8.6	198	e110	238	241	1450	418	20	.45	12	10
9	29	9.4	255	e100	187	203	834	288	21	.39	6.9	6.4
10	26	210	234	e90	158	192	480	259	26	.34	4.1	4.9
11	22	377	180	e85	136	156	318	214	21	.25	2.8	3.8
12	22	184	143	e80	e120	138	234	193	16	.26	2.1	3.0
13	21	130	112	e75	e100	250	183	164	13	.28	1.5	3.0
14	18	108	90	e70	e90	298	147	140	11	.26	1.1	3.3
15	15	92	94	e66	127	261	124	118	8.9	.23	.94	3.0
16	14	77	95	e64	161	216	105	103	7.8	.21	1.0	3.3
17	12	67	86	e60	175	185	82	88	16	.19	.87	6.8
18	10	84	76	e150	178	177	112	78	16	.18	.75	15
19	9.2	80	73	e300	179	190	293	210	12	1.1	1.1	16
20	8.4	76	113	1140	243	201	263	254	8.8	5.3	1.7	11
21	9.6	75	169	675	269	195	223	263	7.0	13	2.2	8.3
22	11	60	167	380	242	187	198	218	5.9	42	3.0	6.2
23	14	54	171	263	e215	225	177	168	5.0	22	3.9	5.1
24	12	56	147	203	e190	295	166	211	4.2	14	32	5.0
25	10	59	289	175	e165	258	147	625	3.4	8.3	23	120
26	8.9	57	1740	151	e145	324	136	532	2.8	5.8	11	137
27	7.7	55	894	124	e135	348	124	304	2.2	4.4	6.1	62
28	7.6	49	479	e115	e130	278	119	201	1.7	3.3	4.0	34
29	11	159	473	e110	e125	227	167	140	1.5	2.4	3.4	21
30	13	333	369	e105	---	189	200	103	1.3	2.0	3.2	15
31	11	---	283	143	---	167	---	76	---	1.6	2.8	---
TOTAL	539.4	2526.5	8667	6577	8114	7851	8744	7584	558.5	133.54	140.97	623.5
MEAN	17.4	84.2	280	212	280	253	291	245	18.6	4.31	4.55	20.8
MAX	46	377	1740	1140	1050	892	1450	711	64	42	32	137
MIN	7.6	8.6	73	60	90	112	92	76	1.3	.18	.72	1.4
CFSM	.16	.75	2.50	1.89	2.50	2.26	2.60	2.18	.17	.04	.04	.19
IN.	.18	.84	2.88	2.18	2.70	2.61	2.90	2.52	.19	.04	.05	.21

CAL YR 1987 TOTAL 56911.66 MEAN 156 MAX 2060 MIN .11 CFSM 1.39 IN. 18.90
WTR YR 1988 TOTAL 52059.41 MEAN 142 MAX 1740 MIN .18 CFSM 1.27 IN. 17.29

e Estimated

LITTLE KANAWHA RIVER BASIN

03151520 LITTLE KANAWHA RIVER BELOW BURNSVILLE DAM, WV

LOCATION.--Lat 38°50'41", long 80°37'45", Braxton County, Hydrologic Unit 05030203, on right bank 2600 ft downstream from Burnsville Dam, 1.6 mi southeast of Burnsville, and at mile 123.7.

DRAINAGE AREA.--163 mi².

PERIOD OF RECORD.--July 1976 to September 1982, October 1986 to current year. October 1982 to September 1986 (gage height, discharge measurements, and annual maximum discharge only).

GAGE.--Water-stage recorder. Datum of gage is 750.00 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers Bench Mark). Prior to Oct. 1, 1983, at datum 50.0 ft lower.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1979 by Burnsville Lake. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--8 years (water years 1977-1982, 1987-1988), 281 ft³/s, 23.41 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,530 ft³/s, Oct. 9, 1976, gage height, 58.81 ft, datum then in use; maximum gage height, 11.78 ft, Nov. 4, 1985, (backwater from downstream tributaries); minimum discharge, 3.6 ft³/s, May 26, 1977; minimum gage height, 4.27 ft, Sept. 28, 1984.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,960 ft³/s, Dec. 28, gage height, 7.75 ft; minimum daily, 17 ft³/s, Sept. 15, 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	100	377	275	205	149	23	243	68	19	19	19
2	46	88	371	495	518	141	22	224	68	19	19	19
3	96	94	216	561	1050	141	22	198	68	19	19	19
4	98	96	284	357	1080	248	69	166	68	19	19	20
5	98	97	415	265	1110	633	192	183	63	19	19	19
6	98	96	421	138	1080	998	286	422	48	19	19	19
7	98	96	301	78	918	886	441	650	33	19	19	19
8	98	95	217	83	436	567	1020	802	22	19	19	19
9	124	94	212	92	236	369	1370	606	19	19	19	19
10	162	167	251	93	206	265	1270	361	18	19	19	19
11	162	409	261	99	162	220	711	327	18	19	19	19
12	170	477	212	99	182	177	319	239	18	19	19	19
13	178	286	143	93	164	228	214	167	18	19	19	19
14	178	204	94	105	104	322	214	168	18	19	19	19
15	177	195	80	113	109	382	163	168	18	19	19	17
16	120	249	75	101	176	176	113	145	18	19	19	17
17	88	216	80	91	220	35	113	108	18	19	18	18
18	59	157	90	165	220	38	113	88	18	19	18	18
19	69	150	90	405	213	40	232	173	18	19	20	19
20	87	145	90	892	333	40	295	260	18	19	20	19
21	96	141	172	1080	424	39	296	285	18	19	19	19
22	98	152	240	1030	329	39	295	285	19	19	19	19
23	98	153	235	620	249	40	304	242	19	19	20	20
24	97	148	214	240	328	40	299	222	19	19	19	20
25	96	144	211	192	243	39	212	379	19	19	19	20
26	96	144	254	210	211	152	113	541	19	19	19	21
27	96	143	874	173	231	383	113	535	19	19	19	19
28	96	141	1810	124	186	392	114	288	19	19	19	18
29	95	148	1020	110	166	143	151	166	19	19	20	18
30	94	290	894	111	---	24	196	106	19	19	19	18
31	109	---	604	129	---	31	---	68	---	19	19	---
TOTAL	3295	5115	10808	8619	11089	7377	9295	8815	844	589	591	567
MEAN	106	170	349	278	382	238	310	284	28.1	19.0	19.1	18.9
MAX	178	477	1810	1080	1110	998	1370	802	68	19	20	21
MIN	18	88	75	78	104	24	22	68	18	19	18	17

CAL YR 1987 TOTAL 69978 MEAN 192 MAX 1900 MIN 18 CFSM 1.18 IN. 15.97
WTR YR 1988 TOTAL 67004 MEAN 183 MAX 1810 MIN 17 CFSM 1.12 IN. 15.29

LITTLE KANAWHA RIVER BASIN

03152000 LITTLE KANAWHA RIVER AT GLENVILLE, WV

LOCATION.--Lat 38°55'58", long 80°50'19", Gilmer County, Hydrologic Unit 05030203, on right bank at abandoned bridge on Conrad Court Street at Glenville, 1,400 ft upstream from Sycamore Run, and at mile 103.5. Prior to July 1, 1986, at bridge 400 ft downstream.

DRAINAGE AREA.--386 mi².

PERIOD OF RECORD.--June 1915 to September 1922 (gage heights only), October 1928 to September 1983, October 1983 to September 1984 (gage heights, occasional discharge measurements, and annual maximum discharge only), October 1984 to current year. Monthly discharge only October to December 1928, published in WSP 1305.

REVISED RECORDS.--WSP 783: Drainage area. WSP 1305: 1930, 1932(M). WSP 1435: 1954. WSP 1555: 1947(M). WRD WV-82-1: 1979.

GAGE.--Water-stage recorder. Datum of gage is 697.79 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 14, 1934, nonrecording gage at same site and datum. Prior to July 1, 1986 at site 400 ft downstream and at the same datum. May 25, 1971 to September 1983, and October 1984 to June 21, 1988, auxiliary water-stage recorder 2.7 mi downstream from base gage at datum 700.23 ft above National Geodetic Vertical Datum of 1929. Prior to May 25, 1971, auxiliary nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Flow partially regulated since 1968 by five floodwater detention reservoirs affecting 49.5 mi², and since March 1979 by Burnsville Lake. National Weather Service gage-height telemeter and U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--59 years (water years 1929-83, 1985-88), 599 ft³/s, 21.07 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,900 ft³/s, Nov. 5, 1985, gage height, 36.46 ft, from floodmark, from rating curve extended above 18,000 ft³/s; minimum, no flow at times in 1930-33. Minimum daily discharge since regulation, 13 ft³/s, Sept. 17, 1985.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 16, 1926, reached a stage of 33.6 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,850 ft³/s, Mar. 5, gage height, 17.47 ft; minimum daily, 15 ft³/s, Aug. 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	123	484	553	246	278	400	314	83	18	18	22
2	31	102	456	701	1570	239	362	317	82	18	18	19
3	55	93	394	858	3860	234	283	280	86	18	18	18
4	110	103	386	595	3080	1640	394	242	88	18	17	34
5	110	103	730	391	2580	3950	537	385	88	18	19	59
6	108	102	600	264	1640	1890	530	662	77	18	26	43
7	110	101	478	163	1350	1500	952	1050	60	18	42	29
8	115	101	310	131	906	1040	2100	1140	46	18	30	23
9	114	105	258	142	416	699	2180	979	33	17	22	21
10	158	262	276	146	340	480	1810	600	29	17	19	20
11	171	728	315	137	305	417	1340	491	27	17	18	19
12	169	660	284	138	289	322	637	403	26	17	17	18
13	182	487	208	134	318	771	383	275	25	18	17	20
14	182	257	153	147	228	774	346	239	24	18	16	21
15	179	232	116	158	221	695	315	224	23	18	16	19
16	173	231	124	153	480	580	216	214	22	17	16	17
17	105	301	115	140	461	249	194	183	21	17	16	20
18	89	214	123	385	425	256	234	139	21	32	15	23
19	59	195	122	804	448	385	525	164	20	85	16	21
20	73	183	141	4000	1090	425	543	289	20	45	24	21
21	93	173	216	2140	995	365	477	327	19	121	29	24
22	104	165	322	1510	696	293	455	334	19	108	22	21
23	106	174	318	1150	561	248	462	314	19	57	19	21
24	106	170	298	484	757	217	500	289	20	41	35	24
25	105	165	534	303	688	197	413	354	20	27	32	44
26	104	162	2750	314	427	1580	262	646	20	23	22	82
27	106	160	1470	281	438	1080	225	619	19	22	19	58
28	106	158	2170	210	384	918	216	502	18	21	17	41
29	104	242	1800	176	306	542	237	192	18	19	28	30
30	104	370	1240	184	---	268	275	179	19	19	39	25
31	104	---	1070	193	---	215	---	100	---	18	30	---
TOTAL	3467	6622	18261	17085	25505	22747	17803	12446	1092	938	692	857
MEAN	112	221	589	551	879	734	593	401	36.4	30.3	22.3	28.6
MAX	182	728	2750	4000	3860	3950	2180	1140	88	121	42	82
MIN	31	93	115	131	221	197	194	100	18	17	15	17

CAL YR 1987 TOTAL 138515 MEAN 379 MAX 4050 MIN 18 CFSM .98 IN. 13.35
WTR YR 1988 TOTAL 127515 MEAN 348 MAX 4000 MIN 15 CFSM .90 IN. 12.29

LITTLE KANAWHA RIVER BASIN

03153500 LITTLE KANAWHA RIVER AT GRANTSVILLE, WV

LOCATION.--Lat 38°55'20", long 81°05'50", Calhoun County, Hydrologic Unit 05030203, on left bank 1,000 ft downstream from bridge on State Highway 16 at Grantsville, 1,200 ft downstream from Philip Run, and at mile 80.0.

DRAINAGE AREA.--913 mi².

PERIOD OF RECORD.--October 1928 to September 1978. Monthly discharge only October to December 1928, published in WSP 1305. October 1978 to current year (gage heights, discharge measurements, and annual maximum discharge only).

REVISED RECORDS.--WSP 1275: 1929(M), 1932-36.

GAGE.--Water-stage recorder. Datum of gage is 652.83 ft above National Geodetic Vertical Datum, adjustment of 1912. Prior to Nov. 21, 1934, nonrecording gage at same site and datum.

REMARKS.--Records for winter periods not adjusted for ice effect. U.S. Army Corps of Engineers satellite telemeter and National Weather Service Hydrologger at station. Flow partially regulated since 1968 by five floodwater detention reservoirs affecting 49.5 mi² and since 1979 by Burnsville Lake.

AVERAGE DISCHARGE.--50 years (water years 1929-1978), 1,328 ft³/s, 19.75 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,100 ft³/s, Mar. 7, 1967, gage height, 43.9 ft, from floodmarks; no flow Sept. 10 to Nov. 16, 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,500 ft³/s, Mar. 5, gage height, 25.19 ft; minimum gage height, 6.28 ft, Aug. 17-18.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.53	6.87	8.96	10.45	8.00	8.58	9.10	8.37	7.04	6.32	6.37	6.54
2	6.55	6.96	8.78	10.58	12.06	8.35	9.60	8.40	6.93	6.32	6.35	6.48
3	6.60	6.89	8.65	10.34	21.43	8.23	9.10	8.30	6.92	6.32	6.34	6.42
4	6.67	6.83	8.77	9.88	17.94	11.90	9.56	8.19	6.93	6.31	6.33	6.57
5	6.98	6.85	10.16	8.99	18.23	23.28	10.65	9.25	6.93	6.32	6.33	6.61
6	7.00	6.85	9.69	8.38	13.30	15.17	10.10	9.92	6.92	6.31	6.33	6.87
7	7.05	6.85	9.10	8.56	11.55	12.60	10.56	10.82	6.87	6.32	6.35	6.88
8	7.12	6.85	8.48	8.33	10.99	11.32	14.44	10.69	6.78	6.31	6.49	6.69
9	7.11	6.87	8.10	7.97	9.53	10.31	14.57	10.45	6.70	6.31	6.51	6.57
10	7.10	7.28	7.98	7.81	8.96	9.76	13.07	9.84	6.61	6.31	6.42	6.49
11	7.27	10.28	8.02	7.65	8.67	9.31	11.97	9.36	6.55	6.30	6.38	6.45
12	7.30	9.56	8.03	7.51	8.62	8.92	10.33	9.12	6.53	6.31	6.36	6.41
13	7.28	9.05	7.84	7.49	8.75	10.41	9.34	8.60	6.50	6.31	6.34	6.42
14	7.32	8.32	7.57	7.58	8.50	11.38	8.84	8.22	6.48	6.31	6.33	6.48
15	7.30	7.90	7.39	7.67	8.53	10.53	8.62	8.05	6.47	6.31	6.33	6.52
16	7.25	7.74	7.31	7.62	9.23	10.08	8.33	7.93	6.46	6.31	6.34	6.49
17	7.17	7.81	7.43	7.53	9.73	9.21	8.02	7.80	6.51	6.30	6.30	6.47
18	6.87	8.35	7.39	8.14	9.37	8.87	8.06	7.63	6.52	6.30	6.29	6.53
19	6.78	8.04	7.36	11.02	9.31	9.59	10.19	7.61	6.50	6.66	6.30	6.57
20	6.68	7.81	7.40	20.25	12.54	10.16	10.23	7.82	6.43	7.01	6.38	6.54
21	6.64	7.64	7.94	16.76	12.42	9.90	9.62	8.10	6.39	7.30	6.38	6.52
22	6.74	7.49	8.32	12.41	10.81	9.38	9.37	8.16	6.38	8.02	6.43	6.52
23	6.82	7.40	8.38	11.29	10.14	8.99	9.31	8.12	6.36	7.25	6.44	6.52
24	6.84	7.39	8.29	9.83	11.01	8.74	9.49	8.09	6.35	6.95	6.41	6.57
25	6.85	7.35	9.14	8.92	10.94	8.51	9.22	8.50	6.34	6.91	6.40	6.64
26	6.83	7.31	18.40	8.59	9.89	12.82	8.82	8.77	6.35	6.68	6.52	7.17
27	6.84	7.28	15.93	8.41	9.55	13.91	8.40	8.98	6.34	6.56	6.47	7.20
28	6.85	7.26	12.46	8.11	9.26	11.73	8.23	8.84	6.33	6.49	6.41	6.93
29	6.87	8.38	13.01	7.98	8.84	10.51	8.25	8.08	6.33	6.44	6.41	6.76
30	6.87	9.45	11.20	7.86	---	9.48	8.37	7.50	6.32	6.41	6.40	6.64
31	6.87	---	10.64	7.94	---	8.85	---	7.38	---	6.40	6.48	---
MEAN	6.93	7.70	9.29	9.41	10.97	10.67	9.79	8.61	6.57	6.54	6.38	6.62
MAX	7.32	10.28	18.40	20.25	21.43	23.28	14.57	10.82	7.04	8.02	6.52	7.20
MIN	6.53	6.83	7.31	7.49	8.00	8.23	8.02	7.38	6.32	6.30	6.29	6.41

WTR YR 1988 MEAN 8.28 MAX 23.28 MIN 6.29

LITTLE KANAWHA RIVER BASIN

03154000 WEST FORK LITTLE KANAWHA RIVER AT ROCKSDALE, WV

LOCATION.--Lat 38°50'48", long 81°13'26", Calhoun County, Hydrologic Unit 05030203, on right bank on State Route 11, 850 ft downstream from Henry Fork at Rocksedale, 9.0 mi southwest of Grantsville, and at mile 14.1.

DRAINAGE AREA.--205 mi².

PERIOD OF RECORD.--October 1928 to September 1931, October 1937 to September 1975 (monthly discharge only for some periods, published in WSP 1305), October 1975 to current year (gage heights, occasional discharge measurements, and annual maximum discharge only).

REVISED RECORDS.--WSP 953: 1929-31, 1938(M), 1939. WSP 1275: 1950.

GAGE.--Water-stage recorder. Datum of gage is 657.85 ft above National Geodetic Vertical Datum, adjustment of 1912. Prior to June 16, 1966, nonrecording gage, crest-stage gage Nov. 4, 1946, to June 15, 1966, on bridge 800 ft upstream at same datum.

REMARKS.--Records for winter periods not adjusted for ice effect. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--41 years (water years 1929-31, 1938-75), 258 ft³/s, 17.09 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,200 ft³/s, Apr. 16, 1939, gage height, 30.3 ft, from floodmarks, site then in use, from rating curve extended above 13,000 ft³/s; no flow at times during 1930, 1931, 1954, 1957, 1959, 1960.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,200 ft³/s, Mar. 5, gage height, 16.02 ft; minimum gage height, 2.68 ft, July 17-18.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.26	3.26	4.40	5.64	4.08	4.59	5.25	4.42	3.36	2.79	3.07	2.88
2	3.24	3.27	4.14	5.70	6.57	4.45	5.24	4.33	3.33	2.77	3.01	2.85
3	3.23	3.28	4.12	5.10	9.98	4.40	5.05	4.26	3.33	2.76	2.94	2.83
4	3.24	3.32	4.68	4.82	9.89	8.41	5.80	4.27	3.31	2.75	2.90	3.63
5	3.23	3.28	5.29	4.54	8.27	11.85	6.09	5.44	3.30	2.74	2.87	3.66
6	3.23	3.27	4.68	4.50	6.17	7.24	5.63	5.39	3.29	2.73	3.00	3.46
7	3.40	3.26	4.30	4.23	5.41	6.10	5.89	5.13	3.26	2.73	3.07	3.31
8	3.32	3.26	4.13	4.06	5.25	5.53	8.13	4.88	3.23	2.72	2.97	3.24
9	3.25	3.27	4.07	4.06	4.90	5.29	6.95	4.71	3.25	2.71	2.91	3.16
10	3.20	3.91	4.02	3.95	4.70	5.22	6.05	5.06	3.21	2.71	2.87	3.09
11	3.24	5.18	3.93	3.85	4.56	4.96	5.59	4.97	3.19	2.70	2.85	3.04
12	3.20	4.24	3.85	3.80	4.66	4.80	5.25	4.74	3.18	2.70	2.86	2.99
13	3.16	3.89	3.77	3.88	4.57	6.33	4.97	4.51	3.20	2.70	2.86	3.02
14	3.16	3.72	3.70	3.95	4.47	6.12	4.75	4.34	3.20	2.70	2.83	3.11
15	3.22	3.60	3.74	3.82	4.68	5.62	4.58	4.20	3.14	2.70	2.82	3.05
16	3.18	3.50	3.77	3.76	5.10	5.28	4.41	4.07	3.10	2.69	2.81	3.00
17	3.15	3.53	3.74	3.79	5.14	5.06	4.30	3.97	3.10	2.69	2.80	2.97
18	3.18	4.79	3.72	4.57	4.97	5.01	4.60	3.88	3.07	2.70	2.78	2.99
19	3.24	4.39	3.66	6.02	5.25	5.40	6.71	3.90	3.02	2.81	2.77	2.99
20	3.22	3.99	3.74	11.24	7.25	5.51	5.75	3.91	3.01	2.96	2.85	3.05
21	3.20	3.81	3.87	7.06	6.29	5.26	5.33	3.84	2.98	3.36	2.87	3.22
22	3.20	3.68	3.89	5.72	5.58	5.02	5.13	4.15	2.95	3.52	2.87	3.19
23	3.20	3.58	3.88	5.18	5.48	4.88	5.04	4.14	2.91	3.34	2.86	3.20
24	3.20	3.52	3.87	4.86	6.04	4.76	4.92	3.95	2.87	3.54	2.85	3.56
25	3.21	3.49	5.06	4.66	5.72	4.66	4.70	3.93	2.85	3.41	2.78	4.00
26	3.23	3.48	13.18	4.47	5.34	6.49	4.58	3.84	2.85	3.25	2.76	4.43
27	3.25	3.45	7.60	4.26	5.20	6.96	4.49	3.70	2.83	3.19	2.75	3.88
28	3.28	3.42	5.73	4.19	4.95	6.08	4.43	3.61	2.81	3.10	2.75	3.60
29	3.28	4.93	5.48	4.13	4.75	5.60	4.61	3.53	2.81	3.04	2.82	3.44
30	3.27	5.15	5.05	4.11	---	5.30	4.57	3.47	2.81	3.00	2.89	3.33
31	3.26	---	4.71	4.09	---	5.02	---	3.41	---	3.07	2.91	---
MEAN	3.23	3.76	4.64	4.77	5.70	5.72	5.29	4.26	3.09	2.92	2.87	3.27
MAX	3.40	5.18	13.18	11.24	9.98	11.85	8.13	5.44	3.36	3.54	3.07	4.43
MIN	3.15	3.26	3.66	3.76	4.08	4.40	4.30	3.41	2.81	2.69	2.75	2.83

WTR YR 1988 MEAN 4.12 MAX 13.18 MIN 2.69

LITTLE KANAWHA RIVER BASIN

03155000 LITTLE KANAWHA RIVER AT PALESTINE, WV
(National stream-quality accounting network station)

LOCATION.--Lat 39°03'35", long 81°23'25", Wirt County, Hydrologic Unit 05030203, on left bank at end of Washington Street in Elizabeth, 1.0 mi upstream from Tucker Creek, 2.3 mi northeast of Palestine, 2.4 mi upstream from old lock 3, and at mile 27.9.

DRAINAGE AREA.--1,515 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1915 to September 1922 (gage heights only), July to September 1939 (fragmentary), October 1939 to current year. Monthly discharge only October 1939 to September 1941, published in WSP 1305.

REVISED RECORDS.--WSP 953: 1940(M).

GAGE.--Water-stage recorder. Datum of gage is 585.51 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 17, 1950, water-stage recorders or nonrecording gages at old locks 3 and 4 at various datums. Auxiliary water-stage recorder 3.0 mi upstream from base gage at old lock 4 at datum 596.08 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 9, 27, 28, Feb. 13-15. Water discharge records good except for periods with ice effect, which are fair. Flow partially regulated since 1968 by five floodwater-detention reservoirs affecting 49.5 mi², and since March 1979 by Burnsville Lake. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--49 years, 2,089 ft³/s, 18.73 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,700 ft³/s, Mar. 7, 1967, gage height, 39.14 ft, backwater, from rating curve extended above 39,000 ft³/s; minimum, 0.6 ft³/s, July 14, 1959 (filling pool above old lock 3). Minimum daily discharge since regulation, 15 ft³/s, Aug. 21, 1987.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 17, 1939, reached a stage of 32.25 ft, from floodmarks at old lock 4, discharge about 53,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,100 ft³/s, Mar. 5, gage height, 23.33 ft; minimum daily, 16 ft³/s, July 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	123	123	1320	2420	666	1100	1170	843	274	20	46	32
2	141	117	1030	2640	4490	953	1400	815	238	20	36	27
3	120	115	924	2130	13900	865	1550	802	187	19	33	27
4	105	124	989	1830	14400	3180	1480	765	153	19	30	58
5	102	138	1470	1480	12800	16000	2180	866	136	19	27	81
6	106	134	1770	917	7400	12100	2250	1550	132	19	39	136
7	170	123	1370	652	3770	5350	2080	1790	131	17	42	112
8	285	124	1080	529	2770	3430	3830	2060	127	17	34	100
9	299	135	868	e480	2210	2480	6260	1920	124	17	31	119
10	260	199	713	468	1520	1980	4950	2050	110	17	26	104
11	244	529	619	418	1250	1640	3620	1700	95	18	24	83
12	233	1610	583	397	1100	1400	2740	1370	81	18	31	65
13	248	1250	576	389	e1020	1730	1780	1180	72	19	35	62
14	257	1000	531	380	e980	3030	1340	940	63	19	30	59
15	248	778	480	368	e960	2720	1090	754	54	18	27	57
16	250	541	482	366	1040	2120	949	645	50	17	24	56
17	249	442	432	380	1370	1790	825	559	49	16	20	55
18	240	476	375	552	1530	1450	741	489	48	20	18	54
19	229	896	358	1250	1430	1500	1280	437	48	141	19	52
20	198	744	389	10400	2760	1950	2330	405	48	342	22	51
21	161	575	478	12300	4520	2050	1890	416	54	655	22	50
22	141	454	525	5630	3180	1740	1540	550	50	461	20	54
23	118	371	707	3100	2260	1450	1430	630	44	444	20	57
24	105	319	759	2310	2420	1250	1390	641	36	412	22	60
25	108	290	1030	1540	2840	1110	1400	593	29	266	24	67
26	110	275	9140	1170	2370	1360	1240	651	26	185	26	91
27	109	263	12400	e920	1740	5430	1030	753	25	157	27	156
28	106	250	4950	e780	1530	4090	859	868	23	121	26	207
29	108	307	3610	686	1330	2720	813	808	22	90	28	217
30	110	1200	3300	671	---	1960	835	635	21	70	37	166
31	120	---	2150	650	---	1460	---	365	---	56	37	---
TOTAL	5403	13902	55408	58203	99556	91388	56272	28850	2550	3729	883	2515
MEAN	174	463	1787	1878	3433	2948	1876	931	85.0	120	28.5	83.8
MAX	299	1610	12400	12300	14400	16000	6260	2060	274	655	46	217
MIN	102	115	358	366	666	865	741	365	21	16	18	27

CAL YR 1987 TOTAL 454703 MEAN 1246 MAX 19700 MIN 15 CFSM .82 IN. 11.16
WTR YR 1988 TOTAL 418659 MEAN 1144 MAX 16000 MIN 16 CFSM .76 IN. 10.28

e Estimated

LITTLE KANAWHA RIVER BASIN

03155000 LITTLE KANAWHA RIVER AT PALESTINE, WV--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960-61, 1965-67, 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)
OCT 22...	1530	136	170	7.80	11.5	1.9	748	9.0	84	K8	28	57
JAN 05...	1200	1470	155	6.90	1.0	9.3	740	12.0	87	330	190	46
MAR 30...	1500	1900	116	7.60	11.0	17	746	10.2	94	100	94	42
MAY 13...	1400	1160	111	7.30	19.0	14	742	8.1	90	50	57	42
AUG 04...	1330	30	152	8.70	28.0	2.7	743	7.7	101	73	400	46
SEP 06...	1230	140	196	7.20	22.0	6.8	740	4.8	57	34	23	57

DATE	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	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- 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 22...	22	16	4.0	10	2.3	30	0	25	23	14	0.10	1.2
JAN 05...	23	13	3.4	6.3	1.6	--	--	--	23	8.5	0.20	5.4
MAR 30...	20	12	3.0	4.9	1.2	22	0	18	24	6.4	0.10	5.9
MAY 13...	16	12	3.0	4.8	1.0	33	0	27	20	5.7	0.30	4.4
AUG 04...	14	12	3.8	9.9	2.2	--	--	--	26	10	0.20	3.8
SEP 06...	26	14	5.2	14	2.3	32	0	26	33	18	0.10	2.0

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, 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 TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)
OCT 22...	93	92	<0.010	<0.100	<0.010	<0.010	--	0.40	0.010	<0.010	<0.010	10
JAN 05...	78	78	<0.010	0.440	0.030	0.020	0.27	0.30	0.020	0.010	<0.010	--
MAR 30...	69	72	<0.010	0.190	0.020	0.020	--	<0.20	0.020	<0.010	<0.010	40
MAY 13...	64	68	<0.010	0.100	<0.010	0.040	--	0.30	0.010	0.010	<0.010	60
AUG 04...	85	87	<0.010	<0.100	<0.010	0.020	--	0.60	0.030	0.020	<0.010	--
SEP 06...	113	108	<0.010	<0.100	0.030	0.010	0.37	0.40	0.070	<0.010	0.020	<10

LITTLE KANAWHA RIVER BASIN

03155000 LITTLE KANAWHA RIVER AT PALESTINE, WV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	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)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)
OCT 22...	<1	66	<0.5	<1	<1	<3	1	20	<5	<4	75
JAN 05...	--	--	--	--	--	--	--	--	--	--	--
MAR 30...	<1	45	<0.5	<1	<1	<3	<1	56	<5	<4	14
MAY 13...	1	50	<0.5	<1	<1	<3	<1	54	<5	<4	22
AUG 04...	--	--	--	--	--	--	--	--	--	--	--
SEP 06...	1	74	<0.5	1	<1	<3	<1	13	<5	<4	330

DATE	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	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)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 22...	<0.1	<10	<1	<1	<1.0	110	<6	<3	7	2.6	100
JAN 05...	--	--	--	--	--	--	--	--	20	79	57
MAR 30...	<0.1	<10	<1	<1	<1.0	69	<6	18	24	123	90
MAY 13...	<0.1	<10	<1	<1	<1.0	71	<6	<3	20	63	85
AUG 04...	--	--	--	--	--	--	--	--	--	--	--
SEP 06...	<0.1	<10	1	<1	1.0	120	<6	21	14	5.3	73

LITTLE KANAWHA RIVER BASIN

03155500 HUGHES RIVER AT CISCO, WV

LOCATION.--Lat 39°07'10", long 81°16'40", Ritchie County, Hydrologic Unit 05030203, on right bank 100 ft downstream from confluence of North and South Forks, 1.0 mi upstream from Cisco, 5.0 mi south of Petroleum, and at mile 14.0.

DRAINAGE AREA.--452 mi².

PERIOD OF RECORD.--May 1915 to September 1922 (gage heights only), October 1928 to September 1931, October 1938 to current year. Monthly discharge only for some periods, published in WSP 1305. Prior to October 1965, published as "at Cisco."

REVISED RECORDS.--WSP 893: 1939. WSP 1113: 1947.

GAGE.--Water-stage recorder. Datum of gage is 607.92 ft above National Geodetic Vertical Datum, adjustment of 1912. Prior to Sept. 30, 1931, nonrecording gage at site 0.9 mi downstream and Mar. 5, 1939, to Sept. 30, 1945, nonrecording gage at site 1.0 mi downstream, both at datum 2.56 ft lower. Oct. 1, 1945, to June 30, 1946, nonrecording gage at bridge across mouth of North Fork at present datum.

REMARKS.--Estimated daily discharges: Jan. 6-12, 14-17, 27-29, Feb. 12-17. Records good except for periods with ice effect, which are poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--53 years, 568 ft³/s, 17.07 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,700 ft³/s, June 26, 1950, gage height, 32.69 ft; no flow July 26, Aug. 2-6, Sept. 4 to Dec. 5, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 9,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 20	1530	*8,890	*17.30	No peak greater than base discharge.			

Minimum discharge, 0.53 ft³/s, July 7-9, gage height, 1.41 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	10	446	673	211	245	298	157	20	.96	4.4	3.1
2	42	8.9	280	920	2700	209	292	136	17	.89	3.7	3.2
3	39	10	229	509	5770	205	270	122	16	.87	3.3	3.4
4	31	9.9	380	390	4340	2640	432	118	14	.79	3.2	4.1
5	26	8.6	731	293	3150	5980	620	158	13	.74	2.9	7.0
6	23	7.2	461	e210	1030	1740	480	224	11	.69	5.4	14
7	37	7.0	289	e180	526	912	468	223	10	.60	14	18
8	71	7.1	207	e150	496	606	567	186	8.9	.58	6.9	17
9	77	8.4	168	e130	392	483	563	159	9.0	.59	4.1	14
10	62	113	151	e115	319	447	455	181	8.1	.75	2.7	12
11	50	401	137	e100	263	386	380	225	7.7	1.2	2.0	10
12	41	306	124	e90	e240	327	320	180	6.9	1.2	2.0	8.3
13	32	214	110	80	e220	582	265	138	6.6	1.3	1.5	246
14	25	190	94	e76	e210	699	223	112	6.1	1.2	1.2	324
15	21	164	113	e73	e200	521	190	95	5.5	1.2	1.1	80
16	17	126	191	e70	e205	426	163	80	5.0	1.1	1.3	37
17	14	108	217	e80	e215	373	141	67	4.5	1.0	.99	21
18	9.2	328	174	271	227	369	179	57	4.0	1.1	.78	14
19	7.4	380	135	910	287	532	644	62	3.5	2.2	1.2	11
20	8.6	208	232	6860	1390	639	527	70	3.1	15	1.8	9.5
21	8.7	132	546	2390	1240	585	371	130	2.9	77	11	8.4
22	7.3	92	402	836	647	480	316	111	2.7	138	46	7.1
23	6.9	70	298	521	538	407	285	77	2.4	86	20	7.7
24	5.6	56	235	398	697	360	282	114	2.1	44	12	11
25	4.9	49	640	325	662	321	261	148	1.8	58	7.7	15
26	5.4	43	4380	280	487	915	222	102	1.7	32	5.8	22
27	5.9	39	2160	e200	429	1090	194	70	1.5	18	4.4	17
28	6.3	35	773	e180	366	660	175	52	1.2	12	3.4	13
29	6.8	950	812	e160	289	487	177	39	1.1	8.9	3.0	11
30	9.8	1300	604	181	---	407	180	31	1.1	6.7	2.8	11
31	8.4	---	406	202	---	339	---	25	---	5.4	3.0	---
TOTAL	749.2	5381.1	16125	17853	27746	24372	9940	3649	198.4	519.96	183.57	979.8
MEAN	24.2	179	520	576	957	786	331	118	6.61	16.8	5.92	32.7
MAX	77	1300	4380	6860	5770	5980	644	225	20	138	46	324
MIN	4.9	7.0	94	70	200	205	141	25	1.1	.58	.78	3.1
CFSM	.05	.40	1.15	1.27	2.12	1.74	.73	.26	.01	.04	.01	.07
IN.	.06	.44	1.33	1.47	2.28	2.01	.82	.30	.02	.04	.02	.08

CAL YR 1987 TOTAL 107922.9 MEAN 296 MAX 5600 MIN 3.0 CFSM .65 IN. 8.88
WTR YR 1988 TOTAL 107697.03 MEAN 294 MAX 6860 MIN .58 CFSM .65 IN. 8.86

e Estimated

KANAWHA RIVER BASIN

03176500 NEW RIVER AT GLEN LYN, VA
(National stream-quality accounting network station)

LOCATION.--Lat 37°22'22", long 80°51'39", Giles County, Hydrologic Unit 05050002, on right bank 90 ft upstream from bridge on U.S. Highway 460 at Glen Lyn, 0.3 mi upstream from East River, and 6.3 mi downstream from Wolf Creek.

DRAINAGE AREA.--3,768 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1927 to current year.

REVISED RECORDS.--WSP 758: Drainage area. WSP 1305: 1928(M), 1930(M).

GAGE.--Water-stage recorder. Datum of gage is 1,490.11 ft above National Geodetic Vertical Datum of 1929. Aug. 11, 1927, to Oct. 16, 1934, on left bank opposite present site at same datum, and Oct. 17, 1934, to June 16, 1939, on left bank at site 200 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1939 by Claytor Reservoir (station 03169000) 55 mi upstream from station. U.S. Army Corps of Engineers satellite gage-height telemeter at station.

AVERAGE DISCHARGE.--61 years, 4,965 ft³/s, 17.89 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 226,000 ft³/s, Aug. 14, 1940, gage height, 27.50 ft, from rating curve extended above 89,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 697 ft³/s, July 5, 1988; minimum daily, 787 ft³/s, July 8, 1988; minimum gage height, 2.10 ft, Sept. 8, 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,900 ft³/s, Jan. 20, gage height, 6.47 ft; minimum, 697 ft³/s, July 5, gage height, 2.20 ft; minimum daily, 787 ft³/s, July 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1340	1400	6920	5100	2280	2870	3190	2050	2580	1210	1060	1560
2	1760	1370	5750	2360	4360	3370	3210	1980	1980	1160	1220	1480
3	1850	1350	4840	2200	6180	2310	1810	2750	2580	1110	1180	1490
4	1260	1400	2930	2970	4910	2900	1740	2900	2400	1010	1130	1540
5	1220	1350	2700	4000	10000	2570	3800	2960	1620	826	1070	1670
6	1300	1390	1550	4340	10200	1690	5030	3370	1420	870	1110	1650
7	1380	1470	1460	3370	7450	1620	6470	3650	1530	901	1380	1620
8	1620	1380	2710	2890	3840	2260	5540	3900	1510	787	1150	2680
9	1530	1310	2300	2150	5090	2530	5170	2150	1920	803	1270	2790
10	2500	1390	2860	1710	5240	2880	2590	3210	1700	858	1630	2760
11	1320	1780	2560	1680	5020	2930	2330	3150	1750	814	1650	1390
12	1380	1870	3540	1730	4430	2710	4470	3090	1650	974	2250	1150
13	4870	1710	1840	3530	4510	1860	5010	2920	1450	1120	1910	1350
14	3990	1580	1590	2890	3270	1670	4470	2880	2870	1370	1210	1210
15	3430	1530	2810	3100	1840	2670	2730	1880	1590	1370	1070	1250
16	3930	1430	5240	2190	3050	3180	3040	2100	1480	1090	1310	1060
17	3130	2190	4390	1540	4350	3060	1990	4190	1330	1120	1250	1230
18	1740	5200	3590	1980	4390	2430	1920	4200	1400	958	1340	2530
19	1760	2980	2900	4280	3010	2350	3560	6410	1330	1290	1480	2670
20	1820	4000	1640	11500	2800	1640	4550	5120	1310	1190	1550	2140
21	4170	5350	1560	10500	1790	1610	4640	3790	1900	1230	1510	2670
22	1570	1640	2410	10500	1770	2380	4520	2320	2090	1340	1300	2030
23	1590	1400	2660	8210	2840	2250	6560	2100	2580	4060	1190	1490
24	1450	2630	2570	6280	2950	2230	4590	3220	2300	2800	1130	1390
25	1410	2640	2570	4900	3160	2340	3560	2870	1460	1890	1020	1660
26	1300	3200	4300	4290	2910	2450	5220	3210	1510	1430	1120	1610
27	1450	1600	6470	4250	2390	1810	4660	2950	1290	2210	1090	1870
28	1360	1480	6740	4260	1580	1720	4860	2660	1290	2050	1130	1850
29	1730	1770	6320	2780	1620	2490	3810	1730	1240	1910	1190	1600
30	2110	6430	7320	2590	---	2770	3070	1660	1170	1880	1430	1240
31	2020	---	6480	1900	---	3060	---	1660	---	1470	1780	---
TOTAL	63290	66220	113520	125970	117230	74610	118110	93030	52230	43101	41110	52630
MEAN	2042	2207	3662	4064	4042	2407	3937	3001	1741	1390	1326	1754
MAX	4870	6430	7320	11500	10200	3370	6560	6410	2870	4060	2250	2790
MIN	1220	1310	1460	1540	1580	1610	1740	1660	1170	787	1020	1060
(*)	-327	+287	-93	+132	-37	-2	+15	+47	-39	+54	-67	-49
MEAN{	1715	2494	3569	4196	4005	2405	3952	3048	1702	1444	1259	1705
CFSM{	.46	.66	.95	1.11	1.06	.64	1.05	.81	.45	.38	.33	.45
IN.{	.52	.74	1.09	1.28	1.15	.74	1.17	.93	.50	.44	.39	.51
CAL YR 1987	TOTAL 2251980	MEAN 6170	MAX 79800	MIN 1210	MEAN{ 6165	CFSM{ 1.64	IN.{ 22.21					
WTR YR 1988	TOTAL 961051	MEAN 2626	MAX 11500	MIN 787	MEAN{ 2619	CFSM{ .70	IN.{ 9.46					

* Change in contents, equivalent in cubic feet per second, in Claytor Reservoir; provided by Appalachian Power Company.

{ Adjusted for change in contents.

KANAWHA RIVER BASIN

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 current year.

WATER TEMPERATURE: October 1964 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 350 microsiemens, Nov. 6, 1968; minimum, 70 microsiemens, Mar. 26, 27, 1979.

WATER TEMPERATURE: Maximum, 30.5°C, June 24, 1983; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 245 microsiemens, Sept. 29; minimum daily, 100 microsiemens, Feb. 8.

WATER TEMPERATURE: Maximum daily, 30.0°C, July 17; minimum, 1.0°C, Jan. 14.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	TUR- BID- ITY (FTU)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
DEC 02...	1100	6460	138	7.50	6.0	722	3.3	10.4	88	560	530
JAN 20...	1030	11400	140	7.10	2.5	718	4.4	12.8	100	210	640
MAR 08...	1045	2520	150	7.60	8.0	730	1.2	11.2	99	K2	K16
MAY 10...	1100	3370	135	7.60	16.0	722	1.1	8.9	95	57	K7
JUN 28...	0930	1270	180	7.50	23.5	725	1.1	7.0	87	33	720
AUG 18...	0900	1240	200	7.50	26.5	724	0.60	6.0	79	18	52

DATE	HARD- NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)
DEC 02...	55	13	5.4	5.4	2.1	45	14	5.6	0.10	6.0	83
JAN 20...	56	14	5.0	5.2	1.8	44	14	7.2	0.10	6.9	88
MAR 08...	75	19	6.7	4.1	1.6	55	19	6.1	0.10	4.1	103
MAY 10...	61	15	5.6	3.7	1.3	52	13	4.5	0.10	2.4	79
JUN 28...	78	16	9.3	4.8	2.2	54	26	4.6	0.30	7.3	105
AUG 18...	96	22	10	6.2	1.8	64	28	5.6	0.10	7.0	131

KANAWHA RIVER BASIN

03176500 NEW RIVER AT GLEN LYN, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)
DEC 02...	82	<0.010	0.620	0.070	0.070	0.40	0.030	0.020	0.010	<10	<1
JAN 20...	84	0.010	0.790	0.030	0.040	1.1	0.150	0.080	0.050	--	--
MAR 08...	102	0.020	1.90	0.030	0.030	0.40	0.090	0.080	0.030	10	1
MAY 10...	79	<0.010	0.350	0.040	0.060	0.30	0.050	0.040	0.030	<10	1
JUN 28...	107	0.020	0.940	0.030	0.060	0.30	0.120	0.090	0.070	--	--
AUG 18...	128	0.030	1.90	0.020	0.050	0.40	0.120	0.120	0.070	10	1

DATE	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
DEC 02...	21	<0.5	1	<1	<3	9	34	<5	<4	4
JAN 20...	--	--	--	--	--	--	--	--	--	--
MAR 08...	31	<0.5	2	<1	<3	3	25	<5	<4	6
MAY 10...	24	<0.5	<1	<1	<3	3	35	<5	<4	10
JUN 28...	--	--	--	--	--	--	--	--	--	--
AUG 18...	36	<0.5	<1	<1	<3	2	10	<5	<4	11

DATE	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
DEC 02...	<0.1	<10	5	<1	<1.0	63	<6	19	13	88
JAN 20...	--	--	--	--	--	--	--	--	41	81
MAR 08...	0.1	<10	3	<1	<1.0	82	<6	60	6	--
MAY 10...	<0.1	<10	7	<1	1.0	63	<6	60	5	83
JUN 28...	--	--	--	--	--	--	--	--	2	84
AUG 18...	<0.1	<10	<1	<1	<1.0	110	<6	5	2	90

KANAWHA RIVER BASIN

03176500 NEW RIVER AT GLEN LYN, VA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS/CM AT 25 DEG. C, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	220	195	130	142	185	198	125	145	190	210	190	---
2	221	210	140	145	180	---	140	160	140	210	200	210
3	210	200	142	150	130	150	150	---	140	210	200	210
4	200	230	145	155	130	150	160	180	160	220	205	210
5	---	237	198	165	125	170	160	160	160	---	205	210
6	---	215	198	138	118	160	150	160	180	230	205	210
7	220	220	192	140	---	170	119	---	180	220	210	220
8	---	220	200	155	100	162	130	160	190	220	200	172
9	225	215	220	160	131	179	125	160	198	---	---	172
10	170	210	180	168	138	170	120	140	174	215	210	190
11	200	215	180	179	121	159	135	160	174	220	185	195
12	200	210	162	190	135	150	160	150	170	230	185	200
13	170	225	172	195	140	154	130	160	---	240	185	---
14	139	225	172	---	129	162	130	---	199	225	185	210
15	150	---	170	150	165	166	---	152	178	220	200	200
16	155	204	139	165	155	---	120	165	185	215	205	220
17	155	200	140	165	168	154	160	130	185	220	210	230
18	---	181	156	180	145	150	160	130	185	200	225	220
19	180	160	160	180	130	150	150	130	190	210	220	---
20	---	180	170	145	168	165	---	142	190	200	---	190
21	---	155	158	120	159	180	140	140	196	200	---	190
22	---	155	180	120	175	175	115	140	185	200	200	180
23	180	170	190	120	190	185	120	144	178	160	209	170
24	210	172	162	125	175	160	130	155	160	160	220	190
25	210	172	160	130	165	140	128	160	---	150	215	190
26	---	168	168	140	165	170	---	140	---	180	220	200
27	---	180	---	146	165	---	120	155	170	180	220	230
28	---	180	130	135	130	170	110	150	180	185	220	235
29	240	179	---	150	179	---	---	160	200	180	222	245
30	220	---	160	155	---	176	130	---	215	180	220	240
31	210	---	135	165	---	165	---	170	---	---	---	---
MEAN	195	196	166	152	150	164	135	152	180	203	206	205
WTR YR 1988		MEAN	175	MAX	245	MIN	100					

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	14.0	9.5	6.5	6.0	8.0	14.0	13.0	27.0	25.0	26.5	22.0
2	18.0	15.0	9.0	6.0	9.0	5.0	13.0	14.0	28.0	23.5	28.0	25.0
3	18.0	16.0	8.0	5.0	7.0	6.0	14.0	12.5	28.5	23.5	29.0	25.0
4	16.0	16.0	8.0	5.0	7.0	7.5	15.0	17.0	27.5	23.5	29.0	24.0
5	14.5	16.0	6.0	3.0	5.0	9.0	15.0	16.0	26.0	25.5	28.0	23.0
6	15.0	12.0	5.5	2.0	4.0	8.0	15.0	14.5	28.0	25.0	28.0	21.0
7	16.0	11.0	6.0	3.0	---	7.5	11.0	15.0	28.0	27.0	27.0	25.0
8	14.0	11.5	7.0	2.0	5.0	10.0	10.0	16.5	29.0	27.0	27.0	21.0
9	13.0	12.0	8.0	2.0	4.0	12.0	10.5	17.0	29.0	25.5	28.5	21.5
10	9.5	14.0	10.0	2.0	6.0	11.0	12.5	17.0	20.0	27.0	28.5	22.5
11	16.0	11.0	9.0	2.0	6.0	10.0	12.0	18.0	20.0	28.0	28.0	24.0
12	16.0	8.0	9.0	3.0	6.0	10.5	13.0	17.0	20.0	28.0	28.5	24.0
13	14.0	8.0	8.0	4.0	4.5	11.0	11.0	18.5	19.5	26.0	29.5	24.5
14	15.0	7.0	8.0	1.0	3.5	10.0	11.0	18.0	26.0	27.0	29.0	25.0
15	15.0	7.0	8.0	3.0	5.0	7.0	10.0	19.0	29.0	27.5	29.0	22.0
16	15.0	10.0	6.0	4.5	6.0	9.0	12.0	20.0	25.0	28.5	29.0	23.0
17	16.0	13.0	5.0	5.0	5.0	5.0	12.0	14.0	26.0	30.0	28.0	23.0
18	15.5	14.0	5.0	6.0	5.0	6.0	13.0	15.5	26.0	29.0	28.0	22.0
19	16.0	12.0	6.0	6.0	7.0	8.0	13.0	16.5	26.0	28.0	28.0	22.0
20	15.5	11.0	9.0	5.0	7.0	7.0	10.5	17.5	26.0	29.0	29.5	22.5
21	16.0	9.5	10.0	7.0	5.0	8.0	15.5	18.0	27.0	29.0	26.5	23.0
22	13.5	7.0	9.0	7.0	4.0	9.0	16.0	18.5	27.0	28.0	25.0	23.5
23	12.0	7.0	8.0	5.0	6.0	11.0	15.0	21.0	27.0	25.0	26.0	22.0
24	12.5	9.0	8.0	5.0	5.0	13.0	15.0	21.0	27.0	25.0	27.0	22.0
25	14.0	11.0	10.0	6.0	5.0	13.0	14.0	20.0	23.5	25.0	26.5	22.5
26	13.5	11.0	11.0	4.0	5.5	12.5	12.5	19.0	27.5	25.0	26.5	21.0
27	13.0	12.0	10.0	2.0	5.0	11.0	15.0	19.0	25.0	26.0	27.0	20.0
28	11.5	11.0	9.0	2.5	7.0	12.0	14.0	20.0	25.0	26.5	27.0	20.0
29	13.0	11.0	10.0	3.5	6.0	11.0	10.0	21.0	25.5	26.5	26.0	20.5
30	13.0	11.0	10.5	3.5	---	14.0	13.0	23.5	24.0	27.0	25.0	20.0
31	14.0	---	6.0	5.0	---	14.0	---	27.0	---	25.5	22.0	---
MEAN	14.5	11.5	8.0	4.0	5.5	9.5	13.0	18.0	26.0	26.5	27.5	22.5
WTR YR 1988		MEAN	15.5	MAX	30.0	MIN	1.0					

KANAWHA RIVER BASIN

03179000 BLUESTONE RIVER NEAR PIPESTEM, WV

LOCATION.--Lat 37°32'38", long 81°00'38", Summers County, Hydrologic Unit 05050002, on left bank 1.2 mi downstream from Mountain Creek, 2.5 mi west of Pipestem, and at mile 10.6.

DRAINAGE AREA.--394 mi².

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

REVISED RECORDS.--WSP 1705: 1959. WDR WV-82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,527.35 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.--Estimated daily discharges: Jan. 7-20, 26-31, Feb. 7-9, 12-14, for ice effect and Apr. 8 for backwater. Records good except for estimated periods, which are poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--38 years, 465 ft³/s, 16.03 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,300 ft³/s, Apr. 5, 1977, gage height, 15.82 ft; minimum, 7.0 ft³/s, Sept. 21-23, 30, 1955, gage height, 1.60 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 20	---	1,630	a *7.23	No peak greater than base discharge.			

(a) Ice jam.

Minimum discharge, 12 ft³/s, Aug. 18, 19, gage height, 1.62 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	27	81	372	178	132	708	263	102	33	24	36
2	41	26	68	549	197	126	782	233	110	29	24	35
3	38	26	60	470	452	125	600	212	201	27	25	25
4	32	26	60	345	1030	132	489	211	158	26	20	39
5	30	26	70	237	1500	196	410	236	126	24	20	99
6	33	25	79	115	885	218	347	311	101	23	22	127
7	34	24	69	e110	e460	205	376	471	86	22	20	65
8	34	24	63	e100	e400	189	e500	459	76	21	21	45
9	39	24	64	e95	e320	182	624	389	77	20	23	37
10	36	44	67	e90	291	184	549	401	105	20	28	30
11	29	140	71	e100	255	172	449	388	105	20	21	27
12	29	140	69	e110	e220	154	384	334	81	31	19	30
13	29	84	65	e105	e185	199	396	289	66	44	24	26
14	33	65	63	e95	e160	273	361	254	59	50	35	29
15	35	54	74	e90	207	264	318	229	54	53	24	45
16	30	47	87	e100	203	241	287	212	49	48	20	40
17	27	56	81	e110	190	213	253	253	47	37	17	52
18	25	160	67	e160	177	199	251	718	44	56	14	292
19	24	185	59	e700	173	200	349	664	44	90	14	188
20	24	109	57	e1560	184	198	394	488	41	66	16	100
21	25	81	54	1100	182	188	382	379	38	51	19	67
22	23	68	51	653	155	169	518	305	37	70	42	50
23	29	59	52	451	158	156	647	255	36	81	51	42
24	37	54	48	342	169	149	1310	264	33	66	34	60
25	31	51	245	286	166	143	927	283	32	49	25	411
26	28	50	1260	e230	145	170	668	275	32	39	23	506
27	27	47	835	e170	146	218	519	217	30	40	27	294
28	30	46	656	e140	145	220	427	176	54	59	20	156
29	28	59	743	e150	139	206	356	150	54	38	20	103
30	30	79	508	e165	---	196	304	131	39	30	21	77
31	30	---	346	e175	---	196	---	116	---	28	25	---
TOTAL	949	1906	6172	9475	9072	5813	14885	9566	2117	1291	738	3133
MEAN	30.6	63.5	199	306	313	188	496	309	70.6	41.6	23.8	104
MAX	41	185	1260	1560	1500	273	1310	718	201	90	51	506
MIN	23	24	48	90	139	125	251	116	30	20	14	25
CFSM	.08	.16	.51	.78	.79	.48	1.26	.78	.18	.11	.06	.27
IN.	.09	.18	.58	.89	.86	.55	1.41	.90	.20	.12	.07	.30

CAL YR 1987 TOTAL 210166 MEAN 576 MAX 12300 MIN 19 CFSM 1.46 IN. 19.84
WTR YR 1988 TOTAL 65117 MEAN 178 MAX 1560 MIN 14 CFSM .45 IN. 6.15

e Estimated

KANAWHA RIVER BASIN

03180300 EAST FORK GREENBRIER RIVER AT FRANK, WV

LOCATION.--Lat 38°32'34", long 79°48'24", Pocahontas County, Hydrologic Unit 05050003, on right bank at Frank, 2,400 ft downstream from Johns Run, 1.0 mi east of Durbin, and at mile 1.5.

DRAINAGE AREA.--67.1 mi².

PERIOD OF RECORD.--December 1987 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,750 ft above National Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 9, Jan. 5 to Feb. 23, Feb. 25 to Mar. 2, 8-24. Records good except for estimated daily discharges, which are poor. Natural flow of stream affected by diversion for industrial use just upstream from station.

EXTREMES FOR CURRENT YEAR.--December 1987 to September 1988: Maximum discharge, 1,920 ft³/s, Jan. 20, gage height, 4.09; minimum daily discharge, 0.79 ft³/s, Aug. 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	303	e85	e35	125	108	24	3.3	3.1	3.1
2	---	---	---	313	e100	e33	106	117	27	3.1	2.4	2.7
3	---	---	---	237	e170	41	95	116	40	3.3	2.4	2.3
4	---	---	---	189	e290	188	101	115	28	3.1	1.9	12
5	---	---	---	e140	e230	446	89	173	23	2.7	1.6	21
6	---	---	---	e100	e180	322	86	575	21	2.4	1.6	9.4
7	---	---	---	e80	e150	223	122	649	19	2.1	1.6	5.7
8	---	---	---	e64	e130	e160	135	398	17	2.1	1.1	4.0
9	---	---	e110	e58	e110	e140	142	252	20	2.6	1.3	3.2
10	---	---	166	e54	e90	e120	142	199	25	2.5	1.2	3.2
11	---	---	163	e52	e75	e110	131	165	18	2.4	1.1	2.8
12	---	---	149	e49	e65	e100	113	142	15	3.2	1.0	2.4
13	---	---	118	e47	e55	e120	96	122	13	5.9	.97	2.3
14	---	---	95	e45	e50	e110	80	104	11	5.6	1.5	4.6
15	---	---	249	e43	e65	e100	69	91	10	4.0	1.2	4.1
16	---	---	312	e41	e75	e90	56	96	9.0	3.4	1.8	3.0
17	---	---	239	e40	e85	e80	49	106	8.5	3.0	1.5	3.0
18	---	---	176	e200	e65	e70	63	113	9.3	2.1	.79	4.2
19	---	---	150	e370	e55	e55	85	114	9.0	3.6	1.1	4.3
20	---	---	218	e1200	e85	e60	67	105	10	8.2	3.9	3.6
21	---	---	252	e600	e80	e55	69	93	7.9	7.0	6.7	3.3
22	---	---	208	e360	e85	e60	71	79	6.6	12	4.7	3.0
23	---	---	174	e250	e90	e80	68	68	5.9	8.0	3.5	2.8
24	---	---	144	e180	71	e165	70	61	5.5	5.5	7.7	4.4
25	---	---	149	e140	e56	211	58	59	5.5	4.0	7.8	43
26	---	---	247	e100	e47	343	53	45	5.1	3.8	4.8	25
27	---	---	280	e85	e42	358	50	38	4.0	3.5	3.6	12
28	---	---	365	e75	e39	258	51	35	3.7	3.6	2.9	8.0
29	---	---	507	e70	e37	187	63	32	3.5	4.1	2.6	6.0
30	---	---	320	e65	---	153	89	29	3.4	4.7	3.1	5.2
31	---	---	216	e70	---	131	---	27	---	4.5	3.2	---
TOTAL	---	---	---	5620	2757	4614	2594	4426	407.9	129.3	83.66	213.6
MEAN	---	---	---	181	95.1	149	86.5	143	13.6	4.17	2.70	7.12
MAX	---	---	---	1200	290	446	142	649	40	12	7.8	43
MIN	---	---	---	40	37	33	49	27	3.4	2.1	.79	2.3

e Estimated

KANAWHA RIVER BASIN

03180500 GREENBRIER RIVER AT DURBIN, WV

LOCATION.--Lat 38°32'37", long 79°50'00", Pocahontas County, Hydrologic Unit 05050003, on left bank at Durbin, 500 ft downstream from confluence of East and West Forks, and at mile 153.4.

DRAINAGE AREA.--133 mi².

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

REVISED RECORDS.--WDR WV-82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,699.71 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 6-18, 29, 30, Feb. 8-16, 26-29, June 26 To July 11, July 16-18, 26, 31, Aug. 1-20, 27-31, Sept. 1-3, 9-13, 21-23. Records good except for estimated daily discharges, which are poor. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--45 years, 260 ft³/s, 26.55 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,100 ft³/s, Nov. 4, 1985, gage height, 15.82 ft, from floodmarks, from rating curve extended above 5,000 ft³/s on basis of slope-area measurement of peak flow; no flow part of each day, Oct. 2, 3, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 20	0600	*3,790	*5.66	No other peak greater than base discharge.			
Minimum daily discharge, 1.9 ft ³ /s, Aug. 18.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	128	20	598	661	188	102	263	287	63	e7.3	e7.1	e6.5
2	92	18	407	663	286	97	220	292	70	e6.8	e6.3	e6.3
3	85	18	292	519	466	109	202	262	121	e6.4	e5.5	e5.9
4	71	18	250	407	557	424	223	251	79	e6.0	e4.9	30
5	58	17	200	270	545	906	201	363	62	e5.7	e4.3	60
6	51	16	167	e200	412	639	196	973	54	e5.4	e3.5	26
7	61	16	143	e160	352	468	281	1070	48	e5.2	e3.2	15
8	58	16	135	e140	e270	356	337	685	44	e5.0	e2.8	11
9	57	16	205	e135	e220	318	361	477	53	e5.4	e2.8	e8.8
10	51	148	457	e130	e180	305	328	405	69	e5.7	e2.7	e8.2
11	48	250	433	e120	e150	265	280	315	46	e6.0	e2.5	e7.9
12	46	177	361	e115	e130	241	234	266	38	e7.0	e2.4	e7.5
13	41	146	277	e110	e115	306	196	227	33	10	e2.3	e7.1
14	37	138	222	e105	e105	287	164	199	29	13	e2.2	17
15	34	126	532	e100	e130	270	147	176	26	10	e2.1	14
16	32	115	633	e98	e150	241	126	182	23	e8.8	e2.1	10
17	29	123	496	e95	166	208	113	190	22	e8.1	e2.0	9.5
18	27	219	368	e200	144	184	146	203	22	e7.2	e1.9	14
19	26	196	293	826	133	174	234	216	22	13	e5.2	14
20	25	188	439	2480	204	160	196	217	21	28	e8.2	11
21	28	160	508	1410	196	141	189	218	18	20	13	e8.7
22	28	160	444	781	210	131	181	205	16	37	11	e7.4
23	24	165	361	522	198	207	164	181	14	21	8.7	e7.2
24	22	136	282	383	168	481	172	168	13	14	17	14
25	20	157	315	306	144	565	147	167	12	10	17	168
26	19	146	532	222	e130	680	137	136	e11	e9.1	9.5	86
27	20	193	589	178	e120	652	131	120	e10	15	e7.7	37
28	30	229	710	159	e115	504	133	108	e9.0	14	e7.5	22
29	30	1140	882	e145	e110	393	157	97	e8.1	11	e7.2	15
30	24	1050	617	e135	---	316	219	83	e7.6	10	e7.2	12
31	22	---	460	161	---	262	---	71	---	e8.3	e6.8	---
TOTAL	1324	5517	12608	11936	6294	10392	6078	8810	1063.7	339.4	186.6	667.0
MEAN	42.7	184	407	385	217	335	203	284	35.5	10.9	6.02	22.2
MAX	128	1140	882	2480	557	906	361	1070	121	37	17	168
MIN	19	16	135	95	105	97	113	71	7.6	5.0	1.9	5.9
CFSM	.32	1.38	3.06	2.89	1.63	2.52	1.52	2.14	.27	.08	.05	.17
IN.	.37	1.54	3.53	3.34	1.76	2.91	1.70	2.46	.30	.09	.05	.19

CAL YR 1987 TOTAL 83438.0 MEAN 229 MAX 2290 MIN 2.5 CFSM 1.72 IN. 23.34
WTR YR 1988 TOTAL 65215.7 MEAN 178 MAX 2480 MIN 1.9 CFSM 1.34 IN. 18.24

e Estimated

KANAWHA RIVER BASIN

03182500 GREENBRIER RIVER AT BUCKEYE, WV

LOCATION.--Lat 38°11'09", long 80°07'51", Pocahontas County, Hydrologic Unit 05050003, on right bank at upstream side of highway bridge at Buckeye, 1,000 ft upstream from Swago Creek, 3.5 mi downstream from Knapp Creek, and at mile 105.1 (corrected). Records include flow of Swago Creek.

DRAINAGE AREA.--540 mi², includes that of Swago Creek.

PERIOD OF RECORD.--September 1929 to current year.

REVISED RECORDS.--WSP 758: 1933. WSP 953: 1930-32, 1934-35(M), 1936, 1937(M), 1938-39, 1940(M). WSP 1275: 1936.

GAGE.--Water-stage recorder. Datum of gage is 2,085.89 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 27, 1939, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 8-17, 28-31, Feb. 8-15, 27, 28. Records good except for periods with ice effect, which are poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--59 years, 876 ft³/s, 22.03 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 82,000 ft³/s, Nov. 5, 1985, gage height, 23.20 ft, from floodmarks, from rating curve extended above 33,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 3.8 ft³/s, Aug. 13, 1930, gage height, 1.19 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 11,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 20	0900	*14,100	*10.96	No other peak greater than base discharge.			

Minimum discharge, 18 ft³/s, Aug. 15, gage height, 1.68 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	257	89	1930	1760	525	333	687	708	193	27	44	31
2	244	83	1230	2020	638	304	651	716	173	25	39	28
3	198	80	865	1570	1160	297	594	663	187	23	34	27
4	175	77	710	1250	1440	354	641	622	261	22	30	53
5	159	76	597	925	1630	1500	677	964	196	21	31	157
6	142	75	493	657	1270	1410	640	4830	158	20	29	168
7	144	71	427	555	939	1100	799	4110	135	20	29	103
8	151	71	404	e480	e800	865	881	2370	119	21	25	68
9	157	71	455	e450	e680	753	881	1570	111	20	23	50
10	150	144	758	e430	e560	792	828	1270	118	20	22	41
11	139	833	897	e410	e470	728	740	1060	143	21	21	36
12	130	657	794	e380	e400	645	647	881	117	26	21	33
13	123	463	662	e350	e350	748	569	747	96	37	20	32
14	115	373	551	e330	e300	840	496	653	84	59	20	30
15	108	324	2700	e320	e400	779	438	580	74	51	20	30
16	101	287	2890	e310	537	698	388	578	67	42	20	33
17	96	274	1750	e350	506	623	337	579	64	39	20	33
18	89	574	1180	569	451	561	338	598	60	39	21	41
19	84	737	912	1320	454	544	499	668	59	68	20	39
20	85	591	922	10200	592	520	522	647	56	60	26	37
21	90	528	1310	5390	770	484	475	618	60	51	31	35
22	87	396	1160	2830	640	442	478	696	52	55	52	38
23	85	359	1000	1780	683	463	500	613	48	153	47	35
24	88	377	795	1260	608	692	799	545	44	130	63	47
25	84	491	934	1020	507	974	804	508	40	83	51	279
26	78	486	3410	832	448	1160	672	460	38	64	42	625
27	79	446	2800	608	e400	1400	586	371	35	54	38	299
28	83	587	2790	e540	e380	1190	529	319	32	87	36	154
29	88	3310	4400	e480	366	964	535	284	31	79	34	101
30	94	4010	2420	e460	---	810	616	251	29	57	34	76
31	100	---	1610	e450	---	700	---	221	---	54	31	---
TOTAL	3803	16940	43756	40286	18904	23673	18247	29700	2880	1528	974	2759
MEAN	123	565	1411	1300	652	764	608	958	96.0	49.3	31.4	92.0
MAX	257	4010	4400	10200	1630	1500	881	4830	261	153	63	625
MIN	78	71	404	310	300	297	337	221	29	20	20	27
CFSM	.23	1.05	2.61	2.41	1.21	1.41	1.13	1.77	.18	.09	.06	.17
IN.	.26	1.17	3.01	2.78	1.30	1.63	1.26	2.05	.20	.11	.07	.19

CAL YR 1987 TOTAL 312646 MEAN 857 MAX 13000 MIN 14 CFSM 1.59 IN. 21.54
WTR YR 1988 TOTAL 203450 MEAN 556 MAX 10200 MIN 20 CFSM 1.03 IN. 14.02

e Estimated

KANAWHA RIVER BASIN

03183500 GREENBRIER RIVER AT ALDERSON, WV

LOCATION.--Lat 37°43'27", long 80°38'30", Monroe County, Hydrologic Unit 05050003, on left bank 400 ft upstream from highway bridge at Alderson, 0.5 mi upstream from Muddy Creek, and at mile 29.2.

DRAINAGE AREA.--1,364 mi².

PERIOD OF RECORD.--July 1895 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 536: 1907-9. WSP 803: 1918(M). WSP 953: 1930-41. WSP 1275: 1897, 1905, 1910, 1914(M), 1915-16, 1917(M), 1919-20(M), 1924-25(M), 1927(M), 1929, 1949, WDR WV-82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,529.42 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 15, 1929, nonrecording gage at bridge 400 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 9-17, 29-31, Feb. 1, 9-14. Records good except for periods with ice effect, which are poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--93 years, 1,992 ft³/s, 19.83 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 90,600 ft³/s, Nov. 5, 1985, gage height, 23.95 ft, from floodmarks, from rating curve extended above 37,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 24 ft³/s, Aug. 12, Oct. 1, 2, 1930; minimum gage height, 1.63 ft, Sept. 20, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 19,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 20	2200	*25,900	*11.78	No other peak greater than base discharge.			

Minimum discharge, 37 ft³/s, Aug. 19, 20, gage height, 1.81 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	152	140	4980	3210	e950	787	1360	1240	464	74	220	94
2	195	142	3110	3890	1180	718	1510	1280	408	68	179	84
3	317	149	2210	3720	1520	672	1440	1250	387	63	151	76
4	337	146	1630	2970	2820	659	1340	1170	394	58	134	93
5	281	138	1340	2340	3960	751	1430	1280	382	57	116	144
6	251	129	1150	1970	3500	1990	1450	4100	417	52	107	192
7	254	127	973	1300	2560	2040	1540	9150	345	51	97	183
8	232	122	823	864	2140	1710	2000	5890	294	47	87	276
9	222	118	755	e770	e1800	1440	2030	3930	265	46	84	217
10	220	146	856	e710	e1500	1340	1860	3050	262	49	82	168
11	227	326	1240	e660	e1200	1380	1680	2620	249	49	75	139
12	229	1230	1480	e630	e1050	1290	1490	2180	226	48	69	117
13	217	1260	1340	e600	e900	1240	1330	1840	224	70	65	103
14	199	845	1180	e580	e740	1460	1170	1580	225	88	62	94
15	185	646	1120	e560	758	1620	1020	1390	192	87	53	84
16	175	532	5310	e540	820	1490	885	1250	170	73	53	78
17	167	486	4270	e530	1060	1340	778	1240	155	63	52	85
18	160	503	2910	847	1020	1200	715	1270	150	83	45	91
19	150	856	2100	2020	961	1130	793	1610	149	123	42	87
20	149	1300	1680	14800	1030	1090	1020	1890	136	190	50	85
21	155	1050	1540	16500	1440	1040	1110	1730	128	194	69	92
22	151	875	1960	7580	1630	981	1090	1520	118	189	72	89
23	145	700	1790	4720	1470	909	1320	1430	112	219	67	94
24	146	541	1570	3350	1460	938	1400	1280	106	361	83	139
25	142	588	1410	2570	1290	1240	1710	1150	107	574	94	811
26	136	752	5040	2130	1070	1630	1740	1040	99	390	105	1220
27	138	828	8200	1670	957	2020	1490	897	92	290	112	1200
28	143	758	5210	1300	943	2240	1310	765	86	234	109	796
29	141	1310	8190	e1050	891	1950	1160	658	80	274	103	507
30	139	7440	6830	e930	---	1670	1140	584	78	222	98	357
31	138	---	4260	e900	---	1460	---	519	---	231	98	---
TOTAL	5893	24183	86457	86211	42620	41425	40311	60783	6500	4617	2833	7795
MEAN	190	806	2789	2781	1470	1336	1344	1961	217	149	91.4	260
MAX	337	7440	8200	16500	3960	2240	2030	9150	464	574	220	1220
MIN	136	118	755	530	740	659	715	519	78	46	42	76
CFSM	.14	.59	2.04	2.04	1.08	.98	.99	1.44	.16	.11	.07	.19
IN.	.16	.66	2.36	2.35	1.16	1.13	1.10	1.66	.18	.13	.08	.21

CAL YR 1987 TOTAL 734220 MEAN 2012 MAX 27600 MIN 35 CFSM 1.47 IN. 20.02
WTR YR 1988 TOTAL 409628 MEAN 1119 MAX 16500 MIN 42 CFSM .82 IN. 11.17

e Estimated

KANAWHA RIVER BASIN

03184000 GREENBRIER RIVER AT HILLDALE, WV

LOCATION.--Lat 37°38'24", long 80°48'19", Summers County, Hydrologic Unit 05050003, on left bank 100 ft downstream from State Highway 3 bridge at Hilldale, 0.1 mi upstream from Howard Creek, 0.9 mi upstream from Powley Creek, 5.0 mi southeast of Hinton, and at mile 5.5. Records include flow of Howard Creek.

DRAINAGE AREA.--1,619 mi², includes that of Howard Creek.

PERIOD OF RECORD.--June 1936 to current year.

REVISED RECORDS.--WSP 1435: 1955. WDR WV-82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,388.66 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Estimated daily discharges: Jan. 8-18. Records good except for period with ice effect, which is poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--52 years, 2,255 ft³/s, 18.91 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 83,800 ft³/s, Nov. 6, 1985, gage height, 25.68 ft, from floodmarks, from rating curve extended above 57,000 ft³/s; minimum discharge, 39 ft³/s, Sept. 18-20, 1946, Sept. 16, 1964; minimum gage height, 0.32 ft, Sept. 16, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936, reached a stage of 21.85 ft from data furnished by U.S. Army Corps of Engineers, discharge, 60,800 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 24,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 21	0400	*27,900	*14.16	No other peak greater than base discharge.			

Minimum discharge, 44 ft³/s, July 10, 11, gage height, 0.40 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	172	124	5980	3730	1140	927	1500	1340	552	79	240	105
2	161	123	3400	4100	1230	841	1730	1410	486	74	218	98
3	212	123	2240	4390	1510	778	1760	1390	432	67	176	92
4	350	128	1610	3460	2950	762	1600	1330	420	62	154	111
5	319	130	1270	2690	4720	801	1610	1330	427	59	137	128
6	277	118	1080	1950	4390	1610	1650	2930	440	56	114	160
7	260	112	902	1230	3120	2340	1670	10500	422	53	105	208
8	254	109	763	e1050	2480	1920	2140	7330	355	50	88	212
9	232	106	689	e950	2150	1620	2350	4880	322	47	79	273
10	225	131	686	e870	1900	1450	2130	3730	306	44	73	221
11	225	171	1000	e820	1590	1450	1920	3210	295	46	71	180
12	239	580	1380	e780	1360	1420	1710	2710	275	57	63	157
13	231	1340	1300	e740	1190	1320	1520	2250	253	63	62	137
14	217	878	1140	e720	956	1460	1340	1920	257	58	66	125
15	195	659	1020	e700	850	1750	1170	1670	243	79	65	104
16	183	543	4690	e670	846	1660	1020	1460	210	79	62	88
17	173	482	5100	e650	1120	1500	912	1410	190	68	55	91
18	166	466	3250	e1300	1090	1330	841	1480	174	59	54	101
19	159	548	2240	3830	1060	1240	841	1700	171	70	56	98
20	152	1090	1700	12100	1080	1200	1040	2160	168	134	67	92
21	153	1040	1450	22000	1440	1150	1210	2060	156	213	74	85
22	148	857	1810	10000	1810	1090	1320	1790	144	210	63	85
23	146	727	1810	6100	1620	1020	1730	1620	131	248	79	83
24	135	578	1590	4240	1590	982	1870	1530	123	301	90	155
25	135	500	1460	3190	1500	1150	2030	1350	115	510	86	894
26	131	618	4170	2610	1260	1620	2200	1220	114	494	99	1680
27	128	744	9660	2040	1080	1950	1850	1070	108	369	102	1530
28	127	721	6310	1640	1050	2470	1580	927	96	310	122	1120
29	130	798	8370	1240	1010	2200	1380	786	91	242	125	676
30	129	6000	8370	1120	---	1860	1280	694	84	284	116	447
31	124	---	5150	1070	---	1630	---	620	---	255	107	---
TOTAL	5888	20544	91590	101980	49092	44501	46904	69817	7560	4740	3068	9536
MEAN	190	685	2955	3290	1693	1436	1563	2252	252	153	99.0	318
MAX	350	6000	9660	22000	4720	2470	2350	10500	552	510	240	1680
MIN	124	106	686	650	846	762	841	620	84	44	54	83
CFSM	.12	.42	1.82	2.03	1.05	.89	.97	1.39	.16	.09	.06	.20
IN.	.14	.47	2.10	2.34	1.13	1.02	1.08	1.60	.17	.11	.07	.22

CAL YR 1987 TOTAL 882359 MEAN 2417 MAX 34300 MIN 46 CFSM 1.49 IN. 20.27
WTR YR 1988 TOTAL 455220 MEAN 1244 MAX 22000 MIN 44 CFSM .77 IN. 10.46

e Estimated

KANAWHA RIVER BASIN

03184500 NEW RIVER AT HINTON, WV

LOCATION.--Lat 37°40'13", long 80°53'45", Summers County, Hydrologic Unit 05050004, on right bank at Hinton, 0.2 mi upstream from Madam Creek, 1.5 mi downstream from Greenbrier River, at New River mile 62.0 and Kanawha River mile 160.0.

DRAINAGE AREA.--6,256 mi².

PERIOD OF RECORD.--June 1936 to current year.

REVISED RECORDS.--WDR WV-82-1: Drainage area. WDR WV-85-1: 1984(m).

GAGE.--Water-stage recorder. Datum of gage is 1,355.18 ft above National Geodetic Vertical Datum of 1929. Prior to June 5, 1949, water-stage recorder at site 400 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1939 by Claytor Lake and since 1949 by Bluestone Lake. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--52 years, 7,857 ft³/s, 17.06 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 246,000 ft³/s, Aug. 15, 1940, gage height, 18.97 ft, from rating curve extended above 80,000 ft³/s on basis of slope-area measurement at station at Bluestone Dam, and gaged inflow from Greenbrier River; minimum, 238 ft³/s, Aug. 21, 1962, gage height, 1.03 ft; minimum daily, 620 ft³/s, Nov. 3, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 45,600 ft³/s, Jan. 21, gage height, 7.38 ft; minimum daily, 813 ft³/s, July 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1510	1590	13600	9340	3680	3550	3670	4260	2870	1090	1430	1260
2	1500	1590	9000	7100	5000	3890	4460	3820	2500	1020	1260	1380
3	1560	1590	6330	6550	7370	3480	4870	4000	2510	1000	1280	1480
4	1700	1570	5320	6750	8580	3760	4410	4230	2830	992	1250	1720
5	1690	1560	3890	6590	15000	3580	4800	4600	2650	987	1250	1750
6	1650	1540	2760	5820	17400	3830	6550	5970	2290	907	1230	1650
7	1620	1530	2470	4910	12000	4550	8580	14500	2150	840	1200	1940
8	1610	1510	5660	3870	8010	4150	8300	11200	1930	840	1430	2400
9	1610	1500	4280	3360	6980	3930	7860	8230	1810	824	1560	3090
10	1870	1520	3500	3140	7460	4170	6190	6830	1980	813	1540	2870
11	1920	1540	3650	2510	7100	4590	5050	6600	2070	816	1540	2470
12	1640	1820	4390	3300	6080	4390	5870	6120	2060	831	1730	2120
13	3660	2940	3870	3680	5610	3850	6460	5450	2020	840	2080	1480
14	4180	2720	3290	4150	4810	3730	6540	5000	2120	835	1900	1410
15	3780	2200	3540	3890	3810	4310	4860	4150	2570	1050	1280	1390
16	3730	1920	8660	3060	3550	4510	3940	3570	1900	1210	1170	1380
17	3460	2380	9480	2520	5560	4810	3830	4330	1640	1070	1400	1400
18	2450	4600	6810	3090	5680	4790	3290	6700	1340	1290	1390	1990
19	1920	3950	5390	5610	4400	3920	4300	8220	1190	1550	1390	2920
20	1820	4670	3780	24200	3600	3480	5520	7230	1330	1580	1430	2710
21	2910	5920	3230	36300	3660	3370	6650	6470	1660	1460	1420	2310
22	2240	3580	3860	21800	4000	3310	7210	5170	1890	1560	1390	2260
23	1700	2240	4300	15000	4140	3320	8250	4240	2160	2990	1400	2190
24	1620	2400	4070	11400	4320	3310	8630	4150	2340	3860	1410	1930
25	1530	2640	4460	8770	4390	3450	7910	4210	2040	2640	1300	2390
26	1520	3170	8900	7010	4530	3900	8330	4170	1670	1910	1180	3580
27	1510	2950	16900	6250	3870	4180	7600	4190	1540	2400	1190	3950
28	1500	2220	13100	5910	3440	4290	7070	3590	1320	2630	1210	3140
29	1500	2480	15600	4560	3120	4290	5150	2650	1210	2310	1220	2610
30	1530	11000	15900	3530	---	4560	4210	2170	1200	2070	1250	2150
31	1570	---	12600	3360	---	4910	---	2110	---	1930	1250	---
TOTAL	64010	82840	212590	237330	177150	124160	180360	168130	58790	46145	42960	65320
MEAN	2065	2761	6858	7656	6109	4005	6012	5424	1960	1489	1386	2177
MAX	4180	11000	16900	36300	17400	4910	8630	14500	2870	3860	2080	3950
MIN	1500	1500	2470	2510	3120	3310	3290	2110	1190	813	1170	1260

CAL YR 1987 TOTAL 3450170 MEAN 9453 MAX 62800 MIN 1310 CFSM 1.51 IN. 20.52
WTR YR 1988 TOTAL 1459785 MEAN 3988 MAX 36300 MIN 813 CFSM .64 IN. 8.68

KANAWHA RIVER BASIN

03184950 SOAK CREEK AT SOPHIA, WV

LOCATION.--Lat 37°42'26", long 81°14'33", Raleigh County, Hydrologic Unit 05050004, on left bank, 50 ft downstream from bridge on State Highway 29/6, 1.1 mi upstream from Laurel Branch, and 2.3 mi upstream from Piney Creek.

DRAINAGE AREA.--3.20 mi².

PERIOD OF RECORD.--October 1976 to September 1988 (discontinued).

REVISED RECORDS.--WDR WV-83-1: Drainage area.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)
OCT									
15...	1315	0.0	--	--	--	--	--	--	--
NOV									
18...	1345	0.0	--	--	--	--	--	--	--
DEC									
03...	1350	0.03	850	7.40	4.0	700	10.8	--	--
JAN									
19...	1430	12	--	--	--	--	--	656	21
19...	1500	17	--	--	--	--	--	587	27
19...	1530	23	--	--	--	--	--	616	38
19...	1600	30	--	--	--	--	--	781	63
19...	1630	37	--	--	--	--	--	649	65
19...	1700	39	--	--	--	--	--	474	50
19...	1730	30	--	--	--	--	--	359	29
19...	1800	24	--	--	--	--	--	269	17
19...	1830	20	--	--	--	--	--	210	11
19...	1900	18	--	--	--	--	--	177	8.6
19...	1930	18	--	--	--	--	--	151	7.3
19...	2000	18	--	--	--	--	--	130	6.3
19...	2030	18	--	--	--	--	--	143	6.9
19...	2100	17	--	--	--	--	--	106	4.9
19...	2130	17	--	--	--	--	--	101	4.6
19...	2200	16	--	--	--	--	--	72	3.1
19...	2230	16	--	--	--	--	--	77	3.3
19...	2300	16	--	--	--	--	--	66	2.9
19...	2330	17	--	--	--	--	--	67	3.1
19...	2400	17	--	--	--	--	--	62	2.8
20...	0030	19	--	--	--	--	--	72	3.7
20...	0100	20	--	--	--	--	--	71	3.8
20...	0130	20	--	--	--	--	--	78	4.2
20...	1700	12	142	7.20	7.0	688	9.2	22	0.71
MAR									
07...	1300	0.98	215	9.40	14.0	699	11.8	1	0.00
31...	1830	40	--	--	--	--	--	1540	166
31...	1900	30	--	--	--	--	--	814	66
APR									
04...	1700	4.2	--	--	--	--	--	10	0.11
19...	1300	2.6	168	7.70	17.0	688	8.4	4	0.03
22...	0600	15	--	--	--	--	--	574	23
22...	0630	28	--	--	--	--	--	565	43
22...	0700	34	--	--	--	--	--	434	40
22...	0730	32	--	--	--	--	--	310	27
22...	0800	28	--	--	--	--	--	252	19
22...	0830	24	--	--	--	--	--	188	12
22...	0900	20	--	--	--	--	--	158	8.5
22...	0930	18	--	--	--	--	--	156	7.6
22...	1000	16	--	--	--	--	--	130	5.6
22...	1030	15	--	--	--	--	--	108	4.4
22...	1100	15	--	--	--	--	--	98	4.0
22...	1130	14	--	--	--	--	--	82	3.1
22...	1200	14	--	--	--	--	--	66	2.5
22...	1230	14	--	--	--	--	--	61	2.3
22...	1300	14	--	--	--	--	--	52	2.0
22...	1330	14	--	--	--	--	--	48	1.8
22...	1400	14	--	--	--	--	--	43	1.6
22...	1430	14	--	--	--	--	--	45	1.7
22...	1500	14	--	--	--	--	--	50	1.9
22...	1530	14	--	--	--	--	--	65	2.5
22...	1600	14	--	--	--	--	--	58	2.2
JUN									
02...	1430	0.39	215	8.90	27.5	694	8.1	6	0.01
AUG									
10...	1230	0.0	--	--	--	--	--	--	--
SEP									
19...	1605	0.0	--	--	--	--	--	--	--

KANAWHA RIVER BASIN

03185400 NEW RIVER AT THURMOND, WV

LOCATION.--Lat 37°57'18", long 81°04'36", Fayette County, Hydrologic Unit 05050004, on right bank at Thurmond, at Chessie System pump house, 0.1 mi upstream from Dunloup Creek, 0.3 mi upstream from railroad/highway bridge, at New River mile 25.8 and Kanawha River mile 122.4.

DRAINAGE AREA.--6,687 mi², excluding that of Dunloup Creek.

PERIOD OF RECORD.--February 1981 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,030.71 (corrected) ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Claytor Lake and Bluestone Lake. National Park Service gage-height telemeter at station.

AVERAGE DISCHARGE.--7 years, 8,336 ft³/s, 16.93 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 89,400 ft³/s, Nov. 6, 1985, gage height, 18.95 ft, from rating curve extended above 59,000 ft³/s; minimum daily, 808 ft³/s, July 11, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 52,200 ft³/s, Jan. 21, gage height, 15.47 ft; minimum daily, 808 ft³/s, July 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1630	1600	16300	12400	3620	3160	5880	4480	2230	1170	1870	1170
2	1600	1610	11200	9620	4560	3950	4400	4320	3290	1040	1280	1180
3	1620	1600	6900	7740	7400	3890	6150	3790	2110	989	1290	1340
4	1710	1590	6090	7310	10300	3410	5310	4440	2890	986	1260	1560
5	1850	1570	4730	7440	14800	4150	5090	4640	2870	977	1240	2050
6	1800	1550	3150	6210	19700	3440	6330	6280	2580	967	1250	1670
7	1770	1540	2530	6100	15400	4700	9350	14200	2240	877	1280	1620
8	1720	1540	3840	4540	10500	4440	10400	14400	2170	816	1210	2150
9	1710	1530	5510	3690	6910	4160	9500	10300	1890	814	1510	2460
10	1710	1630	4090	3350	8490	4080	8470	8450	1900	809	1550	3400
11	2130	1720	3260	2570	8060	4560	5960	8060	2100	808	1540	2410
12	1890	1660	3990	3070	7260	4750	6030	7370	2090	870	1540	2470
13	2030	2400	4390	3270	5970	4310	6900	6480	2070	976	1860	1790
14	4840	3100	3300	4060	5600	3800	7140	5650	2020	884	2200	1460
15	3900	2730	3410	4120	4430	4090	6270	5090	2490	860	1720	1360
16	3850	2110	5960	3660	3760	4710	4160	3930	2320	1100	1120	1320
17	3790	2060	11700	2540	4500	4780	4050	3960	1690	1210	1180	1350
18	3280	3500	8070	2750	6610	5140	3850	6130	1610	1070	1350	1400
19	2050	5460	5970	4810	5360	4720	3640	8700	1240	1620	1360	2510
20	1990	3720	4730	20600	4020	3690	5450	8860	1370	1740	1440	2910
21	2040	6010	3080	44500	3650	3600	6690	7020	1340	1740	1480	2410
22	3360	5700	3360	25500	3990	3470	9160	6310	1830	1580	1380	2280
23	1650	2290	4150	18400	4210	3460	9720	4650	1910	2020	1370	2200
24	1830	2430	4220	13500	4570	3440	10900	4420	2340	4090	1420	2570
25	1580	2660	4540	11100	4550	3460	10100	4860	2340	3790	1380	3630
26	1540	2950	9620	8220	4550	3960	9230	4570	1900	1820	1230	4140
27	1530	3470	18400	6850	4580	4450	9080	4590	1550	2300	1150	3970
28	1530	2620	16000	6320	3570	4690	7990	4270	1500	2530	1160	4060
29	1520	2280	16700	5550	3420	4430	6910	3200	1230	2750	1200	2590
30	1520	6670	18600	4010	---	4740	4510	2470	1200	2130	1190	2710
31	1560	---	14900	3530	---	5130	---	2220	---	2150	1180	---
TOTAL	66530	81300	232690	267330	194340	128760	208620	188110	60310	47483	43190	68140
MEAN	2146	2710	7506	8624	6701	4154	6954	6068	2010	1532	1393	2271
MAX	4840	6670	18600	44500	19700	5140	10900	14400	3290	4090	2200	4140
MIN	1520	1530	2530	2540	3420	3160	3640	2220	1200	808	1120	1170

CAL YR 1987 TOTAL 3883060 MEAN 10640 MAX 74900 MIN 1220 CFSM 1.59 IN. 21.60
WTR YR 1988 TOTAL 1586803 MEAN 4336 MAX 44500 MIN 808 CFSM .65 IN. 8.83

KANAWHA RIVER BASIN

03186500 WILLIAMS RIVER AT DYER, WV

LOCATION.--Lat 38°22'44", long 80°29'03", Webster County, Hydrologic Unit 05050005, on left bank at Dyer, 0.2 mi downstream from Craig Run, 7.0 mi southwest of Webster Springs, and at mile 2.3.

DRAINAGE AREA.--128 mi².

PERIOD OF RECORD.--September 1929 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1275: 1930.

GAGE.--Water-stage recorder. Datum of gage is 2,193.46 ft above National Geodetic Vertical Datum, adjustment of 1912. Prior to June 11, 1930, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 6-19, 28-31, Feb. 8-18, 23-28. Records good except for periods with ice effect, which are poor.

AVERAGE DISCHARGE.--59 years, 332 ft³/s, 35.22 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft³/s, July 4, 1932, gage height, 18.45 ft, from floodmarks, from rating curve extended above 7,000 ft³/s on basis of slope-area measurements at gage heights 12.33 ft and 18.45 ft; minimum daily, 0.5 ft³/s, Oct. 13-16, 21, 1953; minimum gage height, 0.44 ft, Oct. 5, 6, 1953.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,600 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Nov. 29	1300	*3,660	*6.76	No peak greater than base discharge.			

Minimum discharge, 2.1 ft³/s, July 11, 12, gage height, 0.60 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	112	40	540	1610	258	119	422	549	84	5.1	9.9	15
2	78	38	404	1090	452	112	408	529	69	4.7	7.8	11
3	80	37	309	711	788	122	347	392	75	4.3	7.7	8.3
4	115	36	306	524	778	444	335	352	74	4.0	6.4	218
5	98	35	258	347	713	963	306	775	60	3.6	5.6	294
6	85	32	225	e300	463	581	279	1770	50	3.4	5.8	131
7	106	30	206	e250	354	448	571	1160	40	3.0	7.7	86
8	165	28	248	e240	e270	357	743	725	33	2.7	6.1	51
9	175	30	683	e210	e220	339	633	517	30	2.5	5.3	35
10	153	324	1100	e180	e180	381	467	489	36	2.4	4.8	26
11	131	570	714	e165	e150	289	358	414	33	2.2	6.2	22
12	112	304	511	e160	e130	244	284	332	25	3.0	6.8	18
13	96	228	371	e155	e120	547	233	271	21	3.7	5.1	17
14	84	201	298	e140	e110	468	196	228	17	5.0	5.0	67
15	74	173	1080	e135	e105	365	169	196	15	7.6	3.7	45
16	66	149	939	e125	e140	299	143	175	13	6.0	3.3	27
17	60	142	594	e180	e130	254	126	155	12	4.9	3.9	20
18	55	212	425	e500	e120	226	190	168	11	5.0	3.8	19
19	51	181	332	e1200	157	211	535	272	15	7.3	4.2	19
20	49	162	459	1740	303	186	348	235	111	8.1	15	17
21	62	149	544	1070	336	167	284	216	41	25	83	16
22	68	122	405	656	258	163	268	238	23	76	34	14
23	57	123	344	464	e225	290	270	200	16	36	30	12
24	51	172	283	342	e195	703	279	225	13	22	77	15
25	47	241	995	292	e170	719	245	400	10	20	55	510
26	43	196	2060	220	e150	909	216	367	9.0	15	25	427
27	43	169	1150	179	e135	758	191	270	7.9	11	16	171
28	51	171	1060	e150	e130	569	180	208	7.0	10	11	105
29	54	1460	1220	e145	127	443	253	162	6.2	21	9.0	76
30	47	891	768	e140	---	354	417	127	5.8	13	14	59
31	43	---	590	e160	---	307	---	102	---	10	22	---
TOTAL	2511	6646	19421	13780	7667	12337	9696	12219	962.9	347.5	500.1	2551.3
MEAN	81.0	222	626	445	264	398	323	394	32.1	11.2	16.1	85.0
MAX	175	1460	2060	1740	788	963	743	1770	111	76	83	510
MIN	43	28	206	125	105	112	126	102	5.8	2.2	3.3	8.3
CFSM	.63	1.73	4.89	3.47	2.07	3.11	2.52	3.08	.25	.09	.13	.66
IN.	.73	1.93	5.64	4.00	2.23	3.59	2.82	3.55	.28	.10	.15	.74

CAL YR 1987 TOTAL 110291.3 MEAN 302 MAX 3360 MIN 1.5 CFSM 2.36 IN. 32.05
WTR YR 1988 TOTAL 88638.8 MEAN 242 MAX 2060 MIN 2.2 CFSM 1.89 IN. 25.76

e Estimated

KANAWHA RIVER BASIN

03187500 CRANBERRY RIVER NEAR RICHWOOD, WV

LOCATION.--Lat 38°17'43", long 80°31'36", Nicholas County, Hydrologic Unit 05050005, Monongahela National Forest, on left bank 30 ft downstream from U.S. Forest Service highway bridge, 0.6 mi upstream from Barrenshe Run, 5.0 mi north of Richwood, and at mile 5.6.

DRAINAGE AREA.--80.4 mi².

PERIOD OF RECORD.--October 1944 to December 1951, June 1964 to September 1982, March 1984 to current year.

REVISED RECORDS.--WDR WV-82-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 2,100 ft above National Geodetic Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Jan. 8-16, 25-31, Feb. 7-12, 14-18, 23-29. Records good except for periods with ice effect, which are poor. Gage-height data for water years 1972-79 provided by U.S. Forest Service.

AVERAGE DISCHARGE.--29 years (water years 1945-51, 1965-82, 1985-88), 237 ft³/s, 40.03 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,500 ft³/s, Nov. 4, 1985, gage height, 11.41 ft, from rating curve extended above 9,000 ft³/s on basis of slope-area measurement at gage height 11.00 ft, from floodmarks; minimum, 0.14 ft³/s, Aug. 22, 1987, gage height, 1.26 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 19, 1954, reached a stage of 12.22 ft, discharge, 18,000 ft³/s, from floodmarks, present site and datum.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,900 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Sept. 25	1515	*2,030	*5.80	No peak greater than base discharge.			

Minimum discharge, 0.45 ft³/s, July 11, gage height, 1.36 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	95	30	356	1120	169	76	319	373	53	3.6	8.8	6.6
2	66	29	267	746	284	73	276	363	44	3.0	7.4	5.6
3	67	28	206	467	499	79	238	273	40	2.4	6.0	4.7
4	82	27	198	344	487	217	229	250	39	2.1	6.0	136
5	76	26	166	251	455	558	207	512	34	1.9	4.6	236
6	67	24	143	181	312	359	191	1280	29	1.6	4.2	107
7	78	22	131	141	e240	288	422	818	24	1.5	3.8	68
8	111	22	153	e135	e200	241	540	513	20	1.2	3.6	41
9	118	23	378	e130	e170	229	455	364	18	.94	3.4	28
10	101	168	613	e120	e140	266	339	354	18	.74	3.0	22
11	87	339	418	e105	e125	205	264	293	18	.65	2.4	18
12	76	195	312	e100	e105	175	213	235	15	1.5	2.0	14
13	68	151	240	e95	91	356	176	192	13	1.9	1.8	16
14	60	133	197	e90	e80	307	144	162	11	4.8	2.0	22
15	53	116	792	e80	e95	248	122	137	9.3	e5.8	3.1	24
16	47	101	636	e75	e105	207	102	127	8.0	e4.0	2.5	16
17	42	97	392	120	e100	177	88	115	7.0	3.0	2.0	13
18	38	178	291	266	e95	156	128	128	6.3	2.5	1.8	12
19	35	136	234	540	105	140	352	226	13	60	1.5	13
20	34	119	275	1090	212	125	241	211	160	e66	7.4	12
21	45	111	325	701	231	111	197	189	40	43	16	10
22	52	94	256	424	183	106	183	184	22	78	18	9.4
23	43	91	221	305	e160	171	179	150	15	e44	12	8.7
24	38	129	185	234	e140	406	181	156	11	e36	63	11
25	35	199	879	e180	e115	445	156	235	8.4	e28	40	795
26	32	158	1650	e145	e100	558	134	215	7.1	25	21	533
27	32	133	828	e115	e90	506	119	167	6.0	20	12	213
28	38	138	700	e100	e85	385	115	130	5.2	16	8.8	127
29	40	910	792	e90	e80	305	157	102	4.4	14	7.1	87
30	36	604	505	e85	---	250	260	79	4.0	12	6.8	67
31	33	---	377	e110	---	221	---	65	---	10	6.2	---
TOTAL	1825	4531	13116	8685	5253	7946	6727	8598	702.7	495.13	288.2	2676.0
MEAN	58.9	151	423	280	181	256	224	277	23.4	16.0	9.30	89.2
MAX	118	910	1650	1120	499	558	540	1280	160	78	63	795
MIN	32	22	131	75	80	73	88	65	4.0	.65	1.5	4.7
CFSM	.73	1.88	5.26	3.48	2.25	3.19	2.79	3.45	.29	.20	.12	1.11
IN.	.84	2.10	6.07	4.02	2.43	3.68	3.11	3.98	.33	.23	.13	1.24

CAL YR 1987 TOTAL 73081.80 MEAN 200 MAX 1900 MIN .16 CFSM 2.49 IN. 33.81
WTR YR 1988 TOTAL 60843.03 MEAN 166 MAX 1650 MIN .65 CFSM 2.07 IN. 28.15

e Estimated

KANAWHA RIVER BASIN

03189100 GAULEY RIVER NEAR CRAIGSVILLE, WV

LOCATION.--Lat 38°17'27", long 80°38'57", Nicholas County, Hydrologic Unit 05050005, on right bank at downstream side of highway bridge on State Highway 20, 200 ft downstream from Cherry River, 1.8 mi downstream from Cranberry River, 2.7 mi south of Craigsville, and at mile 61.5.

DRAINAGE AREA.--529 mi².

PERIOD OF RECORD.--October 1964 to September 1982, October 1982 to September 1983 (gage heights, discharge measurements, and annual maximum discharge only), October 1985 to current year.

REVISED RECORDS.--WDR WV-82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,870.00 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 7-14, 18, 19, 28-30, Feb. 7-15, 26-28. Records good except for periods with ice effect, which are fair. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--21 years (water years 1965-82, 1986-88), 1,440 ft³/s, 36.97 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 61,800 ft³/s Nov. 4, 1985, gage height, 25.72 ft, from rating curve extended above 35,000 ft³/s; minimum discharge, 7.6 ft³/s, Aug. 22, 1987, gage height, 8.27 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 12,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Dec. 26	1000	*10,500	*15.08	No peak greater than base discharges.			

Minimum discharge, 11 ft³/s, July 11, gage height, 8.32 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	406	159	1890	5010	1050	541	2190	2200	379	22	49	46
2	317	147	1450	4550	1630	513	2000	2010	324	20	44	44
3	283	139	1110	2940	3260	532	1690	1570	308	19	40	35
4	335	133	1160	2150	3150	957	1530	1370	326	18	33	236
5	354	129	1060	1520	3160	3760	1440	2360	284	18	28	1190
6	310	120	908	984	2180	2500	1260	7640	243	16	25	537
7	314	110	819	e820	e1450	1910	2420	5420	206	14	26	393
8	430	103	912	e800	e1200	1510	3570	3260	167	13	25	268
9	526	104	2000	e760	e1000	1320	3150	2290	147	13	23	192
10	466	408	3650	e600	e900	1390	2330	2090	156	12	22	141
11	416	1990	2570	e530	807	1130	1760	1780	158	11	21	109
12	367	1090	1870	e520	e680	955	1370	1440	130	15	18	85
13	328	805	1410	e510	e540	1820	1110	1190	100	29	16	76
14	290	706	1120	e460	e490	1920	906	1000	81	35	18	177
15	265	631	3500	417	e600	1570	767	853	67	26	22	266
16	243	551	3640	404	845	1290	650	748	57	22	24	175
17	221	519	2350	428	784	1100	559	673	50	18	21	123
18	203	801	1700	e750	773	996	640	697	46	45	18	98
19	185	722	1340	e1700	757	974	1870	1230	54	277	16	91
20	174	622	1440	5920	1290	871	1480	1250	467	248	26	84
21	196	592	1850	4520	1630	787	1230	1090	284	259	186	72
22	247	461	1480	2780	1240	759	1120	1060	158	517	228	62
23	235	464	1320	1970	1230	1160	1100	908	93	320	124	55
24	204	585	1090	1480	1040	2310	1190	945	65	257	277	69
25	183	963	3660	1240	844	2530	1090	1570	50	182	309	2880
26	166	834	9210	992	e690	2980	950	1700	42	136	170	2540
27	163	692	5290	746	e630	3020	837	1240	35	105	94	1010
28	173	640	3930	e620	e590	2390	769	940	31	78	63	598
29	194	2960	5000	e580	575	1900	1140	718	27	60	54	421
30	190	3130	3320	e560	---	1530	1870	562	25	52	45	332
31	171	---	2420	767	---	1320	---	453	---	54	41	---
TOTAL	8555	21310	74469	48028	35015	48245	43988	52257	4560	2911	2106	12405
MEAN	276	710	2402	1549	1207	1556	1466	1686	152	93.9	67.9	413
MAX	526	3130	9210	5920	3260	3760	3570	7640	467	517	309	2880
MIN	163	103	819	404	490	513	559	453	25	11	16	35
CFSM	.52	1.34	4.54	2.93	2.28	2.94	2.77	3.19	.29	.18	.13	.78
IN.	.60	1.50	5.24	3.38	2.46	3.39	3.09	3.67	.32	.20	.15	.87

CAL YR 1987 TOTAL 430137.1 MEAN 1178 MAX 9210 MIN 8.5 CFSM 2.23 IN. 30.25
WTR YR 1988 TOTAL 353849 MEAN 967 MAX 9210 MIN 11 CFSM 1.83 IN. 24.88

e Estimated

KANAWHA RIVER BASIN

03189600 GAULEY RIVER BELOW SUMMERSVILLE DAM, WV

LOCATION.--Lat 38°12'54", long 80°53'18", Nicholas County, Hydrologic Unit 05050005, on right bank 0.4 mi downstream from Summersville Dam, 5.0 mi southwest of Summersville, and at mile 35.3.

DRAINAGE AREA.--806 mi².

PERIOD OF RECORD.--March 1966 to September 1982, October 1986 to current year. October 1982 to September 1986 gage heights, discharge measurements, and annual maximum discharge only.

REVISED RECORDS.--WDR WV-67: 1966. WDR WV-82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,350.00 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Estimated daily discharges: Apr. 6-13. Records good except for period of estimated record, which is fair. The minimum daily discharge on Nov. 5 was due to the Corps of Engineers closing gates. Flow regulated since May 1965 by Summersville Lake. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--18 years (water years 1967-82, 1987-1988), 2,096 ft³/s, 35.31 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,800 ft³/s, Mar. 26, 1966, gage height, 19.30 ft; minimum, 1.9 ft³/s, Feb. 16, 17, 1967, gage height, 3.67 ft; minimum daily, 2.4 ft³/s, Feb. 10, 13-16, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,200 ft³/s, May 6, gage height, 17.25 ft; minimum daily, 48 ft³/s, Nov. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	863	237	3070	3330	1290	984	255	2700	496	1120	966	496
2	1170	237	1860	5870	2230	698	257	2710	496	1120	1090	495
3	1170	179	1460	5970	4380	597	258	1960	497	1120	1140	495
4	1070	81	1130	3830	4110	1140	259	1810	497	1120	1140	706
5	1040	48	1400	2400	4460	3530	157	2490	438	1120	1140	899
6	864	305	1520	1410	3800	4110	e103	8260	375	1120	1130	899
7	861	530	1100	884	2180	2790	e103	9180	298	1110	1130	665
8	876	529	938	787	1990	2300	e203	5110	217	1110	1130	238
9	1050	460	1880	982	1870	2040	e246	3170	217	1110	1130	238
10	1050	491	4230	849	1450	1650	e246	2620	217	1110	1120	164
11	1060	601	3370	573	1240	1550	e246	2470	217	1110	1120	119
12	1040	1530	2200	806	1040	1290	e246	2000	218	1100	804	385
13	234	2400	1610	1040	899	1720	e246	1750	219	1100	545	1030
14	240	2500	1410	869	623	2720	245	1480	239	1100	549	1060
15	240	2490	2790	569	462	2480	246	1130	450	1100	549	1110
16	239	2470	4460	526	1040	1750	246	1130	865	1090	466	907
17	239	2460	3300	458	1390	1430	247	997	1080	1090	392	1050
18	239	2240	2640	439	1150	1430	248	933	1020	1090	391	1080
19	238	2060	1990	1580	1350	1430	249	1540	1040	1090	391	241
20	238	2050	1650	7130	1630	1430	250	2000	1070	834	392	384
21	238	2040	1810	7070	2020	1310	250	1510	842	913	457	430
22	238	1920	1930	3790	1910	1120	252	1290	533	997	559	235
23	238	1680	1800	3010	1720	1220	252	1360	459	469	610	235
24	238	1510	1390	2330	1590	2330	253	1360	461	133	726	508
25	237	1700	3280	1460	1250	1440	254	2440	573	467	932	912
26	237	1920	9990	1240	1070	208	534	2940	926	981	1030	244
27	237	1910	9810	1120	986	249	794	2110	1130	792	813	234
28	237	1900	7310	951	986	250	940	1610	1130	299	564	235
29	237	2320	7340	878	986	250	1660	1240	1130	298	563	235
30	237	3850	6110	876	---	252	2170	802	1120	669	525	235
31	237	---	3720	944	---	254	---	496	---	870	496	---
TOTAL	16632	44648	98498	63971	51102	45952	11915	72598	18470	28752	23990	16164
MEAN	537	1488	3177	2064	1762	1482	397	2342	616	927	774	539
MAX	1170	3850	9990	7130	4460	4110	2170	9180	1130	1120	1140	1110
MIN	234	48	938	439	462	208	103	496	217	133	391	119

CAL YR 1987 TOTAL 577744 MEAN 1583 MAX 11500 MIN 48 CFSM 1.96 IN. 26.67
WTR YR 1988 TOTAL 492692 MEAN 1346 MAX 9990 MIN 48 CFSM 1.67 IN. 22.74

e Estimated

KANAWHA RIVER BASIN

03190400 MEADOW RIVER NEAR MOUNT LOOKOUT, WV

LOCATION.--Lat 38°11'23", long 80°56'49", Nicholas County, Hydrologic Unit 05050005, on right bank 1,000 ft upstream from mouth, and 2.5 mi northwest of Mount Lookout.

DRAINAGE AREA.--365 mi².

PERIOD OF RECORD.--September 1966 to September 1983, October 1985 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,200 ft, above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Jan. 6-14, 16, 17, 26-30, Feb. 8-14, 23-25, 27, 28. Records fair except for periods of ice effect, which are poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--20 years, (water years 1967-83, 1986-88), 741 ft³/s, 27.57 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,500 ft³/s, Mar. 7, 1967, gage height, 13.44 ft; minimum discharge, 3.0 ft³/s, Aug. 22, 1987; minimum gage height, 2.51 ft, Sept. 12, 13, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 26	1000	*6,190	*9.14	No other peak greater than base discharge.			

Minimum discharge, 9.2 ft³/s, July 11, gage height, 2.60 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	24	366	1620	515	361	1420	586	189	19	43	14
2	33	20	286	2090	648	337	1440	531	164	18	47	13
3	37	16	226	1610	1180	329	1210	469	157	17	37	12
4	43	16	217	1210	1480	391	1020	450	165	15	32	27
5	58	17	219	859	1780	688	825	644	153	14	26	58
6	53	17	189	e450	1360	748	707	2800	127	13	22	177
7	50	16	183	e400	889	677	971	2840	110	12	19	106
8	43	16	198	e350	e730	583	1700	1890	95	11	18	72
9	37	17	289	e300	e600	525	1580	1340	87	11	20	51
10	32	34	607	e280	e530	501	1200	1200	89	10	18	39
11	29	120	634	e260	e470	449	931	1110	89	9.9	15	32
12	26	175	461	e240	e400	392	751	929	81	14	13	26
13	25	118	352	e230	e320	508	616	774	69	13	12	27
14	23	89	278	e210	e260	635	516	648	61	15	11	26
15	19	78	576	200	392	630	439	542	53	14	12	22
16	19	71	1060	e190	456	570	376	457	48	14	12	19
17	18	67	800	e180	476	507	329	400	44	16	12	17
18	16	82	584	240	504	486	342	390	42	17	12	16
19	16	151	424	546	485	524	557	526	39	23	12	16
20	15	137	380	2670	585	522	584	579	37	42	21	15
21	17	115	393	3350	745	522	520	518	34	95	54	16
22	17	90	362	2400	664	508	542	506	35	78	44	17
23	20	87	334	1620	e610	544	647	462	36	67	59	15
24	20	89	296	1120	e530	680	703	398	31	112	46	50
25	21	128	1100	828	e480	729	689	643	27	109	34	593
26	20	195	5330	e600	416	784	632	655	26	79	34	820
27	21	162	3600	e420	e400	1030	551	523	24	56	30	409
28	19	132	2490	e360	e390	1050	476	421	20	49	25	287
29	19	121	2730	e340	378	901	492	340	20	40	21	221
30	19	363	2100	e330	---	760	553	272	20	38	21	142
31	19	---	1530	426	---	710	---	221	---	34	17	---
TOTAL	829	2763	28594	25929	18673	18581	23319	24064	2172	1074.9	799	3355
MEAN	26.7	92.1	922	836	644	599	777	776	72.4	34.7	25.8	112
MAX	58	363	5330	3350	1780	1050	1700	2840	189	112	59	820
MIN	15	16	183	180	260	329	329	221	20	9.9	11	12
CFSM	.07	.25	2.53	2.29	1.76	1.64	2.13	2.13	.20	.09	.07	.31
IN.	.08	.28	2.91	2.64	1.90	1.89	2.38	2.45	.22	.11	.08	.34

CAL YR 1987 TOTAL 231744.9 MEAN 635 MAX 7560 MIN 4.1 CFSM 1.74 IN. 23.62
WTR YR 1988 TOTAL 150152.9 MEAN 410 MAX 5330 MIN 9.9 CFSM 1.12 IN. 15.30

e Estimated

KANAWHA RIVER BASIN

03192000 GAULEY RIVER ABOVE BELVA, WV

LOCATION.--Lat $38^{\circ}14'00''$, long $81^{\circ}10'52''$, Nicholas County, Hydrologic Unit 05050005, on right bank 0.5 mi upstream from Belva, 1.0 mi upstream from Twentymile Creek, and at mile 6.3.

DRAINAGE AREA.--1,317 mi².

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 873: 1938. WSP 1275: 1929-30, WDR WV-82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 669.00 ft above National Geodetic Vertical Datum, adjustment of 1912.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since May 1965 by Summersville Lake. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--60 years, 2,722 ft³/s, 28.07 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 105,000 ft³/s, July 5, 1932, gage height, 28.60 ft, from rating curve extended above 65,000 ft³/s on basis of velocity-area studies and inflow and storage adjustment to record for Kanawha River at Kanawha Falls; minimum, 3.2 ft³/s, Oct. 21, 1953, gage height, 0.10 ft. Minimum daily discharge since regulation, 11 ft³/s, Sept. 10, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,200 ft³/s, Dec. 26, gage height, 10.41 ft; minimum daily, 71 ft³/s, Nov. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	889	255	4020	4680	1670	1440	1700	3130	742	1090	886	517
2	1010	260	2340	7330	2580	1360	2030	3400	703	1090	1050	511
3	1300	253	1970	7930	5130	906	1760	2730	695	1090	1130	511
4	1240	198	1430	5340	6420	1280	1560	2230	695	1080	1120	611
5	1060	143	1520	3770	6280	3710	1330	2950	681	1080	1120	950
6	1030	71	1920	2300	5910	5480	1030	9730	555	1080	1110	1010
7	947	341	1510	1440	3670	3950	1210	13600	514	1080	1110	985
8	935	593	1200	1230	2880	3120	2450	7710	364	1070	1100	468
9	1010	598	1670	1300	2990	2990	2440	5050	302	1070	1100	282
10	1100	572	4230	1540	2280	2360	1880	3970	298	1070	1090	265
11	1160	824	4630	883	1920	2160	1490	3840	294	1070	1090	195
12	1040	1170	2910	1010	1700	1970	1270	3230	288	1100	1050	135
13	560	2530	2320	1280	1370	2030	1080	2670	278	1070	568	677
14	250	2670	1660	1350	1180	3230	933	2450	267	1070	565	1010
15	252	2640	2640	891	963	3500	830	1740	285	1070	563	1070
16	248	2610	5790	786	1180	2730	747	1630	623	1060	565	1070
17	247	2600	4330	780	2150	2100	678	1510	1080	1060	426	1040
18	247	2510	3520	760	1770	2070	678	1330	1070	1060	399	1080
19	247	2260	2690	1320	1820	2150	856	1650	991	1120	403	548
20	248	2270	2180	8480	2280	2160	974	2710	1060	1110	468	244
21	256	2230	2190	11700	2740	2130	908	2230	1040	1040	485	471
22	248	2150	2400	6580	2840	1780	890	1780	658	1340	555	365
23	251	1920	2340	4920	2490	1760	977	1850	517	943	659	240
24	254	1650	1890	3840	2450	2550	1040	1800	502	376	674	299
25	255	1730	2670	2710	2010	3240	1050	2770	495	276	836	1440
26	254	2180	16000	2050	1670	1110	1050	4070	692	832	1010	1380
27	259	2160	14500	1810	1510	1310	1400	3000	1100	1070	998	788
28	260	2100	10100	1450	1510	1430	1390	2220	1100	573	617	578
29	255	2220	10200	1300	1470	1330	1830	1790	1100	282	588	504
30	255	3890	8790	1330	---	1190	2740	1300	1100	396	585	421
31	255	---	5720	1390	---	1070	---	836	---	861	526	---
TOTAL	17822	47598	131280	93480	74833	69596	40201	100906	20089	29579	24446	19665
MEAN	575	1587	4235	3015	2580	2245	1340	3255	670	954	789	655
MAX	1300	3890	16000	11700	6420	5480	2740	13600	1100	1340	1130	1440
MIN	247	71	1200	760	963	906	678	836	267	276	399	135

CAL YR 1987 TOTAL 874762 MEAN 2397 MAX 17700 MIN 71 CFSM 1.82 IN. 24.71
WTR YR 1988 TOTAL 669495 MEAN 1829 MAX 16000 MIN 71 CFSM 1.39 IN. 18.91

KANAWHA RIVER BASIN

03193000 KANAWHA RIVER AT KANAWHA FALLS, WV

LOCATION.--Lat 38°08'17", long 81°12'52", Fayette County, Hydrologic Unit 05050006, on right bank 150 ft downstream from bridge, 0.8 mi downstream from village of Kanawha Falls, 2.0 mi downstream from Gauley Bridge, 2.0 mi downstream from confluence of New River and Gauley River, and at mile 94.3.

DRAINAGE AREA.--8,371 mi².

PERIOD OF RECORD.--March 1877 to current year. October 1916 to September 1918 and October 1927 to October 1928, published as "at Lock 2, Montgomery".

REVISED RECORDS.--WSP 923: 1878, 1886, 1897, 1899, 1901-3. WSP 1305: 1902(M), 1940. WSP 1335: 1931. WDR WV-82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 621.20 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 27, 1928, nonrecording gages at several sites within 9.0 mi of present site at various datums. Oct. 27, 1928, to Sept. 30, 1964, water-stage recorder at present site at datum 2.00 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1939 by Claytor Lake, since 1949 by Bluestone Lake, and since 1965 by Summersville Lake. U.S. Army Corps of Engineers satellite telemeter and Appalachian Power Co. remote sender at station.

AVERAGE DISCHARGE.--111 years, 12,510 ft³/s, 20.29 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 320,000 ft³/s, Sept. 14, 1878, gage height, 37.8 ft, site and datum then in use, from gage-height relation and rating curve extended above 150,000 ft³/s; minimum, 640 ft³/s, Aug. 15, 1930, gage height, -0.95 ft datum then in use; minimum daily, 690 ft³/s, Oct. 29, 1921.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 63,800 ft³/s, Jan. 21, gage height, 13.26 ft; minimum daily, 1,630 ft³/s, Aug. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2510	1930	14200	20200	6310	5640	8800	8020	3230	2400	3060	1800
2	2590	1960	14900	19500	7140	6050	8510	8420	4220	2320	2640	1780
3	2980	1980	11100	18800	10300	5750	9390	7110	3400	2200	2540	1880
4	2930	1970	9020	15400	16100	5480	8920	7150	3710	2210	2580	2330
5	2970	1940	7630	13400	19400	7790	8140	7990	3910	2230	2510	3060
6	3020	1900	6610	10800	27100	10500	8250	16000	3570	2160	2530	2980
7	2920	1860	5540	8770	24500	9860	10200	29000	3110	2160	2570	2800
8	2920	2080	5010	7040	16600	9120	13800	25500	2860	2000	2490	2710
9	2870	2230	6480	6050	12600	8440	14700	17300	2550	2020	2620	2860
10	3020	2310	7690	5500	12100	7670	13400	13800	2370	2010	2800	3850
11	3160	2660	8860	4480	11300	7770	10400	12700	2570	2020	2820	3100
12	3410	2860	7950	4000	10700	7840	9160	11600	2620	2110	2740	2800
13	3190	3760	7680	5010	8770	7470	9710	10100	2550	2230	2550	2770
14	3690	5090	6820	5780	8130	8050	9720	8890	2460	2110	2860	2850
15	4710	5500	6450	5640	6920	8790	9180	7670	2760	2090	2590	2650
16	4460	5510	8560	5220	6160	8690	7270	6360	3200	2130	2060	2570
17	4260	5340	13300	4300	6790	8040	6550	5890	3060	2430	1630	2480
18	4170	5400	13800	3890	8690	8240	6270	7290	2870	2330	1880	2630
19	3340	6860	11200	5140	8370	8280	6070	10200	2530	2680	1890	3060
20	2680	6880	9130	12200	7490	7360	7450	12400	2500	3080	2160	3430
21	2410	7170	7340	53400	7240	7010	8420	9550	2590	3040	2180	3200
22	2880	7880	6740	39600	7620	6690	9960	9040	2500	3430	2040	2910
23	3030	5570	6980	29700	7550	6460	11600	7240	2590	2830	2130	2590
24	2340	4590	7220	21900	7650	6750	13000	6830	2860	4680	2240	3040
25	2270	4720	7040	17900	7660	8120	12800	8590	3040	4620	2340	5670
26	2130	5200	18500	13000	7240	6630	11500	10100	2810	3210	2430	6460
27	2080	5770	32300	11100	7240	7010	11400	8470	2840	3310	2280	5350
28	1980	5690	31500	9760	6360	7490	10500	7310	2740	3430	1990	5330
29	1940	4980	29700	9000	6000	7380	9540	5910	2540	3320	1890	3710
30	1930	5990	32100	7220	---	7280	7890	4530	2450	2750	1900	3390
31	1920	---	25600	6470	---	7420	---	3550	---	3160	1840	---
TOTAL	90710	127580	386950	400170	300030	235070	292500	314510	87010	82700	72780	96040
MEAN	2926	4253	12480	12910	10350	7583	9750	10150	2900	2668	2348	3201
MAX	4710	7880	32300	53400	27100	10500	14700	29000	4220	4680	3060	6460
MIN	1920	1860	5010	3890	6000	5480	6070	3550	2370	2000	1630	1780

CAL YR 1987 TOTAL 5015810 MEAN 13740 MAX 94500 MIN 1860 CFSM 1.64 IN. 22.29
WTR YR 1988 TOTAL 2486050 MEAN 6792 MAX 53400 MIN 1630 CFSM .81 IN. 11.05

KANAWHA RIVER BASIN

03193742 KANAWHA RIVER AT GLASGOW, WV

LOCATION.--Lat 38°12'23", long 81°25'30", Kanawha County, Hydrologic Unit 05050006, on right bank at Glasgow Power Plant, at Glasgow, 0.6 mi upstream from Kellys Creek, and at mile 78.4.

DRAINAGE AREA.--8,631 mi².

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: July 1977 to current year.

REMARKS.--Values published are once-daily readings.

COOPERATION.--Records were furnished by Appalachian Power Company.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum daily, 30.0°C, Aug. 21, 1978, Aug. 3, 1981, July 22, Aug. 21, 1983, July 12, 1984, July 25, 1986, July 25-27, 1987; minimum daily, -1.0°C, Jan. 10, 12, 1988.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum daily, 28.5°C, Aug. 4-5, 23-24; minimum daily, -1.0°C, Jan. 10, 12.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
ONCE-DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.5	---	8.5	---	---	2.0	13.0	13.0	20.0	---	26.5	27.0
2	19.0	---	6.0	---	3.5	3.0	13.5	12.5	---	---	27.0	26.5
3	---	---	5.5	---	5.0	---	13.5	12.5	21.5	---	28.0	26.5
4	---	13.0	---	---	---	4.5	13.5	13.0	---	---	28.5	---
5	---	13.5	---	---	5.0	5.0	14.0	15.0	---	23.0	28.5	---
6	---	13.0	---	---	4.0	5.0	14.5	---	21.5	24.0	25.0	---
7	16.0	---	5.0	---	4.0	5.0	15.0	---	21.5	25.0	---	---
8	---	15.5	5.0	.0	3.5	5.0	14.0	---	23.0	25.0	27.0	---
9	15.5	---	5.5	.0	3.0	6.0	---	14.0	22.5	24.0	27.0	21.0
10	---	---	4.5	-1.0	3.0	---	---	15.0	22.5	---	27.0	21.0
11	---	10.5	5.5	1.0	---	7.0	---	15.0	22.5	25.0	---	21.5
12	---	9.5	6.0	-1.0	---	8.5	13.5	15.5	---	25.0	---	---
13	---	9.5	5.5	1.5	3.0	---	---	---	21.5	23.5	---	21.5
14	---	8.0	5.5	---	3.0	8.5	13.0	---	23.0	---	---	21.5
15	---	8.5	5.5	1.5	3.0	6.5	---	---	24.0	25.0	---	---
16	12.5	9.0	5.0	.5	3.5	5.5	---	18.0	---	25.0	---	25.0
17	13.5	9.0	---	1.0	2.5	5.0	---	19.0	24.0	26.0	---	25.0
18	13.0	9.5	---	2.0	3.5	5.5	13.5	---	---	---	---	24.5
19	13.0	9.5	---	1.5	3.5	---	12.0	18.5	---	---	---	25.0
20	14.0	9.0	4.0	2.0	4.0	---	13.0	19.0	---	---	---	25.0
21	12.5	8.0	4.0	3.0	4.0	6.0	13.0	19.5	---	26.0	---	24.0
22	---	7.5	---	3.0	---	5.5	12.5	19.0	---	25.5	28.0	---
23	13.5	5.5	---	4.0	4.0	5.5	---	20.0	---	25.5	28.5	---
24	13.0	6.0	---	---	4.0	7.0	---	21.0	24.0	---	28.5	---
25	14.5	6.0	---	---	3.5	8.0	---	21.5	25.0	24.5	---	---
26	12.5	---	---	---	3.5	---	---	19.0	26.0	22.5	27.5	23.0
27	13.5	---	---	---	3.5	---	---	17.0	25.5	23.0	28.0	21.5
28	13.0	---	---	---	3.0	---	14.0	16.0	25.5	23.5	---	22.0
29	13.0	---	6.0	---	3.5	---	13.0	---	---	26.0	28.0	21.5
30	13.0	9.0	5.0	---	---	---	13.0	18.5	25.5	---	26.5	21.0
31	---	---	---	---	---	11.5	---	19.5	---	26.5	27.0	---

KANAWHA RIVER BASIN

03194700 ELK RIVER BELOW WEBSTER SPRINGS, WV

LOCATION.--Lat 38°35'50", long 80°29'26", Webster County, Hydrologic Unit 05050007, on right bank 200 ft upstream from bridge on County Highway 7, 6.5 mi upstream from town of Centralia, 8.9 mi southwest of Salisbury Station, 8.9 mi northwest of Webster Springs, and at mile 125.2.

DRAINAGE AREA.--266 mi².

PERIOD OF RECORD.--October 1959 to September 1983, October 1985 to current year.

REVISED RECORDS.--WDR WV-82-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,020.1 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 7-17, 28-31, Feb. 12-18, 27-29. Records good except for periods of ice effect, which are fair. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--27 years (water years 1960-83, 1986-88), 691 ft³/s, 35.28 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,000 ft³/s, Nov. 4, 1985, gage height, 17.2 ft, from floodmarks, from rating curve extended above 24,000 ft³/s; minimum discharge, 6.5 ft³/s, Oct. 1, 1959, minimum gage height, 2.72 ft, Aug. 20, 21, 1987, and July 10-13, 1988.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1861, probably in September, reached a stage of 26.34 ft and flood of July 26, 1896, reached a stage of 25.87 ft, present datum, at site 0.2 mi upstream, from levels to floodmarks pointed out by a local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 8,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 20	1200	*4,760	*7.89	No peak greater than base discharge.			

Minimum discharge, 8.0 ft³/s, July 10-13, gage height, 2.72 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	276	70	1020	2000	521	307	952	1160	209	15	33	34
2	190	66	736	2110	740	292	883	1070	175	14	27	34
3	162	63	549	1370	1550	294	750	840	192	13	31	29
4	201	61	655	962	1640	549	696	693	201	12	29	45
5	188	60	602	682	1740	2190	691	931	174	11	20	400
6	164	57	497	464	1180	1410	619	3310	139	11	17	331
7	170	54	443	e400	828	1010	1060	2680	114	10	19	220
8	222	52	467	e380	718	769	1890	1640	95	9.5	17	136
9	282	52	1000	e350	571	647	1570	1140	87	8.8	24	92
10	270	167	1710	e300	480	661	1140	998	109	8.2	25	69
11	232	1140	1180	e250	408	568	847	857	113	8.2	20	55
12	204	693	837	e260	e350	480	663	723	88	8.3	16	47
13	175	486	620	e250	e300	773	540	602	71	8.1	20	47
14	146	400	488	e240	e240	909	443	512	60	8.8	15	73
15	127	345	952	e230	e270	775	381	436	53	9.0	13	207
16	112	294	1350	e215	e310	648	330	379	48	9.0	12	138
17	101	268	949	e210	e340	549	292	344	43	8.9	10	96
18	91	266	683	443	e360	484	298	326	49	11	10	80
19	84	275	543	1150	380	479	929	550	47	22	12	83
20	79	258	642	3260	603	446	832	594	41	92	20	73
21	81	250	984	2410	858	410	669	556	38	153	87	64
22	103	205	781	1460	700	397	581	538	52	434	165	58
23	98	192	670	1000	651	629	567	471	41	183	90	54
24	86	222	545	745	573	1480	624	424	34	127	123	77
25	79	435	1040	621	467	1480	627	804	30	85	184	1250
26	74	427	3510	521	395	1520	526	876	26	60	105	1070
27	71	360	2420	402	e350	1510	450	654	25	48	64	585
28	74	318	1660	e350	e300	1160	415	498	21	40	46	365
29	82	1130	2330	e320	e260	898	568	388	18	41	39	246
30	79	1650	1560	e320	---	720	938	312	17	57	34	184
31	74	---	1090	e330	---	618	---	257	---	43	33	---
TOTAL	4377	10316	32513	24005	18083	25062	21771	25563	2410	1568.8	1360	6242
MEAN	141	344	1049	774	624	808	726	825	80.3	50.6	43.9	208
MAX	282	1650	3510	3260	1740	2190	1890	3310	209	434	184	1250
MIN	71	52	443	210	240	292	292	257	17	8.1	10	29
CFSM	.53	1.29	3.94	2.91	2.34	3.04	2.73	3.10	.30	.19	.16	.78
IN.	.61	1.44	4.55	3.36	2.53	3.50	3.04	3.57	.34	.22	.19	.87

CAL YR 1987 TOTAL 196608.0 MEAN 539 MAX 4000 MIN 8.8 CFSM 2.03 IN. 27.50
WTR YR 1988 TOTAL 173270.8 MEAN 473 MAX 3510 MIN 8.1 CFSM 1.78 IN. 24.23

e Estimated

KANAWHA RIVER BASIN

03195500 ELK RIVER AT SUTTON, WV

LOCATION.--Lat 38°39'47", long 80°42'35", Braxton County, Hydrologic Unit 05050007, on left bank 150 ft upstream from highway bridge at Sutton, 0.5 mi upstream from Granny Creek, 0.9 mi downstream from Sutton Dam, 2.5 mi downstream from Wolf Creek, and at mile 102.1.

DRAINAGE AREA.--542 mi².

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only October 1938 to February 1939, published in WSP 1305.

REVISED RECORDS.--WSP 1305: 1942(M), 1948-50(M). WDR WV82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 800.00 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 5, 1940, nonrecording gage and Apr. 5, 1940, to Sept. 30, 1960, water-stage recorder at site 150 ft downstream at datum 8.03 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1960 by Sutton Lake. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--50 years, 1,140 ft³/s, 28.56 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,200 ft³/s, Jan. 29, 1957, gage height, 39.30 ft, present datum; minimum, 0.4 ft³/s, Oct. 25, 26, 28, 29, 1953; minimum gage height, 9.87 ft, Oct. 25, 1953, present datum. Minimum daily discharge since regulation, 11 ft³/s, Mar. 9, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 13, 1918, reached a stage of 45.2 ft, present datum, from floodmarks, discharge, about 49,000 ft³/s, from rating curve extended above 28,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,120 ft³/s, May 6, gage height, 19.61 ft; minimum daily, 78 ft³/s, July 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	274	1270	1670	591	550	264	1610	279	405	360	235
2	105	290	1470	2760	1110	550	264	1950	279	400	391	235
3	132	361	1460	3250	1810	537	264	1410	279	326	423	235
4	129	381	1450	1960	2490	744	251	914	279	279	423	270
5	128	280	1230	1200	3020	1760	208	1070	279	277	420	311
6	166	197	942	772	3020	2550	209	4100	230	275	420	312
7	234	196	750	516	1940	2510	222	6450	186	212	419	215
8	233	195	749	469	1370	2230	2060	3870	186	150	377	97
9	335	196	857	469	1360	1420	3730	2170	187	161	336	97
10	425	220	1500	469	1340	1050	3700	1900	175	140	336	203
11	424	894	1770	469	1320	920	3400	912	149	145	276	281
12	423	1750	1750	403	928	736	2940	961	122	150	218	312
13	423	1100	1210	356	469	917	2040	1060	94	150	215	362
14	423	658	825	356	406	1130	833	862	88	149	214	378
15	421	656	998	356	333	1140	622	673	134	152	201	408
16	419	654	1020	354	460	1140	588	671	285	149	190	410
17	419	654	782	355	596	1130	321	579	351	147	205	411
18	418	650	290	365	597	1120	617	448	307	149	224	263
19	415	649	481	1290	678	955	1340	468	319	205	232	99
20	411	647	1340	2470	867	842	1540	714	356	226	178	136
21	410	643	1750	3300	1170	838	1330	993	281	240	180	156
22	406	642	1730	3340	1350	833	935	597	177	322	226	91
23	404	569	1580	1910	1340	835	811	615	146	166	253	158
24	403	416	1000	1890	1220	871	814	1490	146	78	269	334
25	402	784	765	1850	950	557	811	1410	200	212	327	231
26	354	1080	3110	1470	820	231	791	2040	342	352	364	79
27	282	650	5410	772	732	232	619	1860	409	272	364	79
28	282	372	5390	763	674	837	621	1230	408	136	297	79
29	263	377	4810	735	587	1310	570	754	406	110	244	79
30	217	746	3520	644	---	1160	738	548	406	252	239	210
31	275	---	1910	591	---	675	---	282	---	362	236	---
TOTAL	9861	17181	53119	37574	33548	32310	33453	44611	7485	6749	9057	6766
MEAN	318	573	1714	1212	1157	1042	1115	1439	249	218	292	226
MAX	425	1750	5410	3340	3020	2550	3730	6450	409	405	423	411
MIN	80	195	290	354	333	231	208	282	88	78	178	79

CAL YR 1987 TOTAL 332383 MEAN 911 MAX 7530 MIN 78 CFSM 1.68 IN 22.81
WTR YR 1988 TOTAL 291714 MEAN 797 MAX 6450 MIN 78 CFSM 1.47 IN 20.02

KANAWHA RIVER BASIN

03196600 ELK RIVER NEAR FRAMETOWN, WV

LOCATION.--Lat 38°35'32", long 80°53'05", Braxton County, Hydrologic Unit 05050007, on right bank opposite mouth of Birch River, at village of Glendon, 2.2 mi upstream from Strange Creek, 3.2 mi southwest of Frametown, and at mile 82.6. Records include flow of Birch River.

DRAINAGE AREA.--751 mi², includes that of Birch River.

PERIOD OF RECORD.--October 1958 to September 1981, October 1981 to current year (gage heights and annual maximum discharge only).

REVISED RECORDS.--WDR WV-82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 775.51 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 25, 1959, nonrecording gage at same site and datum.

REMARKS.--Records for winter periods not adjusted for ice effect. Flow regulated since 1960 by Sutton Lake. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--23 years (water years 1958-81), 1,572 ft³/s, 28.39 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,600 ft³/s, Mar. 15, 1967, gage height, 16.05 ft; minimum discharge, 9.0 ft³/s, Sept. 28, 29, 1959; minimum gage height, 1.20 ft, July 23-24, 1987.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,340 ft³/s, May 7, gage height, 8.83 ft; minimum gage height, 1.28 ft, July 29-30.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.32	1.95	3.37	4.22	2.78	2.73	3.08	3.72	2.10	2.22	2.16	1.85
2	1.32	1.94	3.73	4.78	3.55	2.70	3.06	4.27	2.08	2.21	2.15	1.84
3	1.52	2.08	3.72	5.53	4.97	2.70	2.84	4.04	2.08	2.17	2.27	1.84
4	1.55	2.19	3.85	4.55	5.68	3.58	2.80	3.26	2.06	1.94	2.27	1.93
5	1.55	2.13	3.79	3.69	5.77	4.81	2.65	3.49	2.04	1.93	2.26	2.13
6	1.55	1.74	3.39	3.13	5.50	5.11	2.54	5.11	2.00	1.92	2.27	2.10
7	1.82	1.72	3.01	2.66	4.56	4.88	2.88	8.60	1.79	1.91	2.27	2.06
8	1.87	1.72	3.00	2.56	3.85	4.68	4.48	6.55	1.75	1.59	2.25	1.55
9	1.91	1.74	3.12	2.55	3.76	3.98	6.36	4.66	1.77	1.57	2.09	1.37
10	2.29	2.36	3.67	2.48	3.71	3.49	5.95	4.56	1.77	1.57	2.08	1.37
11	2.30	3.03	4.07	2.45	3.66	3.35	5.65	3.52	1.68	1.50	2.06	1.91
12	2.29	4.09	4.02	2.42	3.45	3.01	5.03	3.31	1.61	1.54	1.81	1.95
13	2.29	3.61	3.73	2.30	2.60	3.38	4.62	3.41	1.45	1.55	1.78	2.14
14	2.28	2.80	2.91	2.28	2.48	3.70	3.35	3.30	1.36	1.54	1.78	2.17
15	2.27	2.77	3.27	2.24	2.41	3.65	2.84	2.88	1.33	1.54	1.78	2.26
16	2.27	2.75	3.39	2.25	2.59	3.59	2.79	2.84	1.68	1.55	1.68	2.25
17	2.26	2.74	3.33	2.28	2.88	3.53	2.57	2.80	2.12	1.55	1.76	2.27
18	2.26	2.76	2.38	2.62	2.88	3.52	2.28	2.50	2.14	1.55	1.76	2.24
19	2.26	2.75	2.25	3.23	2.97	3.48	3.85	2.57	1.96	1.62	1.82	1.58
20	2.25	2.74	3.28	5.90	3.49	3.27	4.05	2.71	2.13	1.95	1.84	1.38
21	2.25	2.73	4.02	5.66	3.63	3.24	3.93	3.28	2.11	1.64	1.65	1.62
22	2.24	2.71	4.00	5.80	3.83	3.20	3.45	3.14	1.77	2.25	1.77	1.49
23	2.24	2.67	3.95	4.35	3.83	3.19	3.18	2.61	1.59	1.99	1.92	1.33
24	2.24	2.37	3.47	4.24	3.83	3.22	3.16	4.12	1.55	1.45	1.96	1.84
25	2.24	2.54	3.18	4.18	3.39	3.11	3.13	4.16	1.55	1.31	2.02	2.63
26	2.22	3.27	6.49	4.01	3.24	2.89	3.11	4.75	1.88	2.05	2.17	2.02
27	1.99	2.97	7.58	3.01	3.05	2.76	2.91	4.44	2.21	2.10	2.17	1.59
28	1.97	2.23	7.38	2.95	2.99	2.90	2.84	3.83	2.22	1.74	2.14	1.45
29	1.96	2.30	6.94	2.93	2.83	3.83	2.91	3.11	2.23	1.38	1.90	1.37
30	1.75	2.55	6.18	2.87	---	3.59	2.90	2.81	2.23	1.48	1.88	1.33
31	1.94	---	4.49	2.76	---	3.29	---	2.31	---	2.11	1.84	---
MEAN	2.02	2.53	4.03	3.45	3.59	3.50	3.51	3.76	1.87	1.76	1.99	1.83
MAX	2.30	4.09	7.58	5.90	5.77	5.11	6.36	8.60	2.23	2.25	2.27	2.63
MIN	1.32	1.72	2.25	2.24	2.41	2.70	2.28	2.31	1.33	1.31	1.65	1.33

WTR YR 1988 MEAN 2.82 MAX 8.60 MIN 1.31

KANAWHA RIVER BASIN

03196800 ELK RIVER AT CLAY, WV

LOCATION.--Lat 38°27'38", long 81°05'16", Clay County, Hydrologic Unit 05050007, on right bank at downstream side of pier of highway bridge at Clay, 0.9 mi downstream from Buffalo Creek, 2.1 mi downstream from Lower Two Run Creek, and at mile 53.7.

DRAINAGE AREA.--992 mi².

PERIOD OF RECORD.--October 1958 to September 1978, October 1978 to current year (gage heights, occasional discharge measurements, and annual maximum discharge only). Gage height records collected at same site since 1915 are contained in reports of National Weather Service.

REVISED RECORDS.--WDR WV-82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 677.46 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 27, 1959, nonrecording gage at same site and datum.

REMARKS.--Records for winter periods not adjusted for ice effect. Flow regulated since 1960 by Sutton Lake. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--20 years (water years 1959-78), 1,926 ft³/s, 26.31 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,000 ft³/s, Mar. 15, 1967, gage height, 22.80 ft; minimum, 1.5 ft³/s, Sept. 22, 1959, gage height, -0.13 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 14, 1918, reached a stage of 32.4 ft, from reports of National Weather Service.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,400 ft³/s, May 7, gage height, 9.98 ft; minimum gage height, 0.66 ft, July 26.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.75	1.19	2.60	4.84	2.70	2.86	3.86	3.72	1.64	1.45	1.39	1.07
2	.77	1.21	3.54	5.07	3.12	2.76	4.02	4.97	1.53	1.45	1.37	1.08
3	.79	1.21	3.63	6.47	6.66	2.77	3.61	4.80	1.53	1.44	1.40	1.07
4	.83	1.36	3.88	5.68	7.33	3.98	3.38	3.84	1.45	1.33	1.50	1.17
5	.84	1.45	4.22	4.20	7.65	6.78	3.27	4.14	1.42	1.16	1.50	1.29
6	.84	1.29	3.46	3.25	6.91	6.38	3.05	5.26	1.39	1.16	1.49	1.43
7	.85	.99	2.91	2.65	5.76	5.96	3.41	9.71	1.32	1.15	1.50	1.35
8	1.06	.98	2.69	2.67	4.45	5.60	5.51	8.35	1.13	1.11	1.47	1.26
9	1.10	1.00	2.76	2.79	4.15	4.84	8.00	6.04	1.13	.85	1.40	.84
10	1.23	1.44	3.16	2.78	4.04	4.06	7.39	5.64	1.17	.84	1.28	.70
11	1.53	2.90	4.15	2.51	3.94	3.67	6.93	4.36	1.12	.84	1.28	.71
12	1.54	3.60	4.11	2.43	3.90	3.29	6.13	3.61	1.02	.79	1.21	1.14
13	1.53	3.94	4.00	2.24	2.90	3.64	5.78	3.55	.96	.82	1.02	1.22
14	1.53	2.62	2.78	2.02	2.34	4.23	4.08	3.48	.85	.83	.99	1.43
15	1.53	2.26	3.04	1.92	2.45	4.22	3.02	2.92	.79	.82	.98	1.38
16	1.53	2.21	3.37	1.91	2.65	4.08	2.83	2.70	.72	.82	.98	1.47
17	1.51	2.19	3.27	1.95	2.96	3.93	2.67	2.71	1.10	.82	.89	1.51
18	1.49	2.26	2.52	2.44	3.08	3.89	2.32	2.33	1.44	.82	.96	1.52
19	1.49	2.25	1.71	2.97	3.15	4.05	4.10	2.29	1.36	.87	1.02	1.38
20	1.49	2.21	2.15	7.14	4.08	3.76	4.71	2.31	1.28	1.02	1.29	.87
21	1.50	2.20	3.93	6.90	4.16	3.66	4.65	2.89	1.40	1.26	1.13	.75
22	1.47	2.15	4.06	7.02	4.43	3.57	4.06	3.22	1.30	1.04	.91	.87
23	1.47	2.11	4.04	5.41	4.45	3.52	3.59	2.37	1.02	1.48	1.03	.83
24	1.47	1.96	3.68	4.80	4.60	3.50	3.45	4.28	.88	1.17	1.23	.75
25	1.47	1.67	3.12	4.67	4.07	3.53	3.40	5.50	.85	.79	1.21	1.61
26	1.46	2.57	7.46	4.58	3.73	3.69	3.39	6.03	.87	.70	1.30	2.10
27	1.42	2.92	8.69	3.35	3.40	3.51	3.28	5.27	1.23	1.34	1.40	1.18
28	1.23	1.92	8.40	2.75	3.28	3.08	3.04	4.42	1.46	1.27	1.39	.92
29	1.21	1.67	8.11	2.73	3.07	4.23	3.18	3.38	1.46	.96	1.34	.82
30	1.20	1.80	7.60	2.84	---	4.16	3.18	2.67	1.46	.74	1.16	.76
31	1.02	---	5.53	2.69	---	3.99	---	2.20	---	.88	1.11	---
MEAN	1.26	1.98	4.15	3.73	4.12	4.04	4.11	4.16	1.21	1.03	1.23	1.15
MAX	1.54	3.94	8.69	7.14	7.65	6.78	8.00	9.71	1.64	1.48	1.50	2.10
MIN	.75	.98	1.71	1.91	2.34	2.76	2.32	2.20	.72	.70	.89	.70

WTR YR 1988 MEAN 2.68 MAX 9.71 MIN .70

KANAWHA RIVER BASIN

03197000 ELK RIVER AT QUEEN SHOALS, WV

LOCATION.--Lat 38°28'15", long 81°17'03", Kanawha County, Hydrologic Unit 05050007, on right bank 50 ft upstream from Queen Shoals Creek, 100 ft downstream from highway bridge at Queen Shoals, 4.0 mi upstream from Big Sandy Creek, and at mile 26.2. Records include flow of Queen Shoals Creek.

DRAINAGE AREA.--1,145 mi², includes that of Queen Shoals Creek.

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only October, November 1928, published in WSP 1305.

REVISED RECORDS.--WSP 783: Drainage area. WSP 1335: 1929-32, 1935(M), 1936, 1939, 1943(M).

GAGE.--Water-stage recorder. Datum of gage is 604.09 ft above National Geodetic Vertical Datum of 1929. Prior to June 19, 1932, nonrecording gage and June 19, 1932, to Sept. 30, 1946, water-stage recorder, at bridge 100 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since Oct. 1960 by Sutton Lake. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--60 years, 2,036 ft³/s, 24.15 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 72,000 ft³/s, July 5, 1932, gage height, 29.2 ft, from rating curve extended above 40,000 ft³/s; minimum, 0.3 ft³/s, Nov. 4, 5, 1953. Minimum daily discharge since regulation, 48 ft³/s, Sept. 8, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,140 ft³/s, May 7, gage height, 9.71 ft; minimum daily, 114 ft³/s, Oct. 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	117	255	722	3130	963	1110	2070	1330	636	405	225	270
2	115	317	1490	3120	1100	999	2150	2410	480	402	397	257
3	115	318	1800	4220	4230	967	1880	2750	448	402	396	257
4	114	335	1890	4150	5620	1800	1620	2180	436	395	443	293
5	141	411	2230	2710	7140	5970	1580	1850	416	324	457	334
6	170	419	1860	1740	5560	4920	1360	2410	399	283	480	375
7	171	319	1410	1100	4380	4490	1510	7250	383	278	460	398
8	179	235	1080	892	3090	3950	3530	7740	331	278	453	365
9	271	237	1080	798	2380	3330	6310	4940	285	246	441	305
10	282	336	1230	699	2200	2490	6110	3640	292	165	393	172
11	394	1030	1960	652	2060	1910	5390	3040	288	158	362	120
12	470	1420	2220	653	2000	1630	4590	1820	265	158	356	121
13	465	2160	2150	724	1570	1660	4010	1650	228	142	302	290
14	457	1470	1600	566	854	2250	2760	1670	205	152	245	354
15	457	837	1100	521	858	2340	1560	1430	166	158	229	416
16	457	800	1520	519	953	2190	1130	1050	140	157	228	424
17	452	801	1520	552	1100	2030	1040	989	133	155	225	474
18	451	833	1330	642	1250	1950	935	928	322	156	191	477
19	446	835	669	1090	1260	2050	1560	764	399	168	227	471
20	449	809	560	4350	1820	1940	2690	777	344	202	350	357
21	456	798	1560	5690	2290	1750	2740	902	358	276	389	186
22	447	770	2150	5340	2310	1640	2400	1390	381	313	263	129
23	444	746	2140	4240	2440	1560	1870	1180	310	324	209	178
24	444	726	1980	2980	2580	1520	1640	1360	225	402	290	178
25	445	576	1540	2780	2330	1530	1560	3400	177	278	339	222
26	441	683	5390	2650	1840	2030	1480	3990	165	158	316	749
27	445	1230	8150	2070	1610	2000	1430	3530	180	150	373	556
28	390	971	7330	1130	1410	1530	1200	2830	349	375	403	289
29	330	548	7110	1080	1280	1860	1190	1950	406	310	424	201
30	324	585	6430	1080	---	2340	1260	1220	409	211	376	160
31	310	---	4440	1040	---	2050	---	936	---	152	294	---
TOTAL	10649	21810	77641	62908	68478	69786	70555	73306	9556	7733	10536	9378
MEAN	344	727	2505	2029	2361	2251	2352	2365	319	249	340	313
MAX	470	2160	8150	5690	7140	5970	6310	7740	636	405	480	749
MIN	114	235	560	519	854	967	935	764	133	142	191	120

CAL YR 1987 TOTAL 588698 MEAN 1613 MAX 13100 MIN 84 CFSM 1.41 IN 19.13
WTR YR 1988 TOTAL 492336 MEAN 1345 MAX 8150 MIN 114 CFSM 1.17 IN 16.00

KANAWHA RIVER BASIN

03198000 KANAWHA RIVER AT CHARLESTON, WV

LOCATION.--Lat 38°22'10", long 81°42'05", Kanawha County, Hydrologic Unit 05050008, on left bank at old lock 6, 1.0 mi upstream from Davis Creek, 1.5 mi downstream from Twomile Creek, 2.0 mi downstream from Patrick Street Bridge at Charleston, 3.5 mi downstream from Elk River, and at mile 54.3.

DRAINAGE AREA.--10,419 mi².

PERIOD OF RECORD.--June 1939 to current year. Monthly discharge only September 1939 to February 1940, published in WSP 1305.

REVISED RECORDS.--WSP 1335: 1943.

GAGE.--Water-stage recorder. Datum of gage is 548.00 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Auxiliary water-stage recorder 2.3 mi upstream from base gage at datum 547.00 ft, U.S. Army Corps of Engineers datum. Prior to Oct. 1, 1955, auxiliary gages at different sites and datum.

REMARKS.--Estimated daily discharges: Oct. 1-3, 7-9, 15-16, 18-19, 21, 24-25, 27-29, 31; Nov. 1-10, 12, 15-30; Dec. 1, 3-4, 6-8, 10-12, 14, 16, 18-24, 26, 29-31; Jan. 3, 6-8, 12, 14-16, 19-20, 24-25, 29-31; Feb. 1, 4, 14, 28; Mar. 1-3, 5, 8, 10, 12, 16-18, 21-25, 28-31; Apr. 1-7, 9-28, 30; May 1-4, 6-7, 10, 13-31; June 1-30; July 1-14, 16-31; Aug. 1-19, 21-22, 25, 27; Sept. 2-12, 17, 20-24. Records good except for estimated discharges, which are fair. Since 1939, flow regulated by increasing number of reservoirs upstream from station. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--49 years, 14,900 ft³/s, 19.42 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 216,000 ft³/s, Aug. 15, 1940; maximum gage height, 39.72 ft, Mar. 7, 1955; minimum discharge, less than 1,030 ft³/s, during period Oct. 1-5, 1953; minimum gage height, 16.79 ft, Aug. 7, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 29, 1861, reached a stage of about 54.3 ft.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 63,200 ft³/s, Jan. 21; minimum daily, 1,900 ft³/s, Aug. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2740	2360	15000	23200	7680	7410	11800	10300	4240	2910	3790	2190
2	2830	2460	15400	22400	9470	7650	11800	11700	5070	2830	3290	2090
3	3190	2480	13000	24900	17200	7280	12400	10600	4190	2710	3100	2180
4	3410	2490	11100	19600	24100	9330	11600	10100	4480	2700	3150	2690
5	3240	2530	9630	17300	30700	16000	10700	10200	4660	2640	3060	3500
6	3530	2490	8740	13100	35300	17800	10500	19800	4290	2520	3090	3610
7	3190	2340	7190	10200	29000	15300	12900	38400	3800	2510	3150	3400
8	3190	2470	6320	8410	19700	14500	19200	34600	3450	2350	3080	3210
9	3220	2610	7650	6930	15200	12100	25100	23200	3080	2330	3190	3270
10	3250	2900	9160	6280	14000	11300	22500	19100	2830	2240	3280	4110
11	3550	4520	11100	5040	13200	9880	18000	16400	3150	2240	3250	3290
12	3610	4710	10400	5000	13500	10300	15500	13700	3150	2330	3150	2990
13	3410	5710	9230	6610	10900	9650	15200	13000	3010	2440	2900	2900
14	4570	7320	8630	6680	9610	10900	13700	11700	2890	2380	3150	3610
15	5230	6510	7850	6430	7740	11700	11800	10100	3130	2370	2870	3370
16	4980	6470	10900	5990	7280	11900	9300	8280	3550	2410	2340	2960
17	4410	6290	17000	4830	8160	11000	8380	7660	3400	2700	1900	3090
18	4690	6510	15500	4750	10600	11000	8050	8940	3380	2580	2120	3580
19	3850	8050	12200	6680	9710	10200	8930	11700	3090	2930	2160	3950
20	2970	7960	9970	17600	10000	9500	11300	13900	3000	3400	2430	3930
21	2950	8200	9150	63200	10600	9590	12300	11200	3100	3530	2700	3520
22	3790	8850	9120	44200	10300	9110	14500	11100	3040	4050	2500	3150
23	3300	6490	9320	32800	10400	8760	18000	9000	3070	3480	2360	2860
24	2890	5470	9390	25800	11400	8970	18400	8730	3250	5310	2470	3320
25	2830	5440	8270	21400	10700	10300	16900	12600	3370	5060	2830	6430
26	2640	6020	29300	15600	9990	8840	14900	14700	3100	3500	2610	7110
27	2690	7130	44100	13500	9310	9600	14500	12700	3140	3570	2740	5790
28	2550	6790	37800	11400	8540	10100	13100	10700	3210	3910	2360	5570
29	2460	5650	40100	10500	7520	10200	11000	8380	3060	3730	2190	4080
30	2680	6700	41600	8690	---	10500	10200	6220	2970	3050	2490	4040
31	2410	---	31800	7910	---	10300	---	4920	---	4030	2250	---
TOTAL	104250	155920	485920	476930	391810	330970	412460	413630	103250	94740	85950	109790
MEAN	3363	5197	15670	15380	13510	10680	13750	13340	3442	3056	2773	3660
MAX	5230	8850	44100	63200	35300	17800	25100	38400	5070	5310	3790	7110
MIN	2410	2340	6320	4750	7280	7280	8050	4920	2890	2240	1900	2090

CAL YR 1987 TOTAL 5919160 MEAN 16220 MAX 116000 MIN 2340
WTR YR 1988 TOTAL 3165620 MEAN 8649 MAX 63200 MIN 1900

KANAWHA RIVER BASIN

03198500 BIG COAL RIVER AT ASHFORD, WV

LOCATION.--Lat 38°10'47", long 81°42'42", Boone County, Hydrologic Unit 05050009, on left bank at downstream side of highway bridge at Ashford, 300 ft upstream from Lick Creek, 1.0 mi downstream from Brush Creek, 1.8 mi upstream from Bull Creek, and at mile 30.2 upstream from Kanawha River.

DRAINAGE AREA.--391 mi².

PERIOD OF RECORD.--June 1908 to September 1916, May 1930 to current year. Published as Coal River at Brushton, June 1908 to September 1916 and as Coal River at Ashford, May 1930 to September 1960.

REVISED RECORDS.--WSP 1305: 1913-14(M). WSP 1335: 1912, 1916(M). WDR WV-82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 622.46 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 9, 1916, nonrecording gage at site 1.0 mi upstream at different datum. May 7, 1930, to Feb. 10, 1939, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: June 29 to July 11. Records good except for period of doubtful gage-height record, June 29 to July 11, which is fair.

AVERAGE DISCHARGE.--66 years, 515 ft³/s, 17.89 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 35,800 ft³/s, Aug. 9, 1916, gage height, 36.3 ft, from floodmark, site and datum then in use, or 35.66 ft, from floodmark, present site and datum, from rating curve extended above 25,000 ft³/s; no flow Sept. 18-21, 24, Oct. 6-12, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Dec. 26	1230	*4,060	*8.52	No peak greater than base discharge.			

Minimum discharge, 17 ft³/s, Aug. 18, 19, gage height, 1.40 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	61	63	727	215	261	475	371	150	e41	127	22
2	37	62	65	974	487	247	518	329	139	e38	78	20
3	37	61	59	879	865	235	516	295	137	e35	54	19
4	43	60	75	670	1450	285	513	311	136	e32	40	27
5	42	57	120	500	1300	428	470	473	131	e29	34	98
6	38	55	123	306	881	520	431	721	123	e26	47	111
7	37	49	111	250	668	590	582	1210	110	e23	62	80
8	35	34	103	252	547	566	1610	992	99	e22	65	50
9	34	30	108	243	444	481	1560	730	97	e21	45	38
10	32	116	117	222	370	450	1140	677	107	e20	33	32
11	31	225	111	183	327	392	847	625	106	e21	28	29
12	30	144	101	172	311	333	635	575	101	26	25	26
13	29	103	89	156	259	347	506	500	92	74	23	30
14	26	79	89	126	224	405	430	423	86	62	22	35
15	25	65	308	124	271	421	382	363	80	50	23	49
16	24	55	352	140	286	390	350	314	75	36	24	44
17	24	70	265	157	273	351	339	283	70	29	20	41
18	25	143	186	199	268	324	396	260	67	25	17	39
19	27	120	147	733	294	335	488	275	66	26	17	45
20	31	97	127	1260	322	349	481	271	65	78	28	51
21	34	86	112	795	311	348	456	245	66	129	115	40
22	35	73	97	580	290	334	1090	221	88	219	66	33
23	36	65	89	457	304	323	2170	198	75	115	47	28
24	37	61	80	376	349	316	1380	192	64	88	59	44
25	62	56	206	335	337	305	994	255	57	62	43	139
26	60	54	3200	273	317	329	757	272	57	50	35	244
27	62	54	1980	232	311	345	628	220	55	44	29	157
28	68	53	1090	204	305	349	547	198	53	37	24	93
29	66	52	1890	195	285	343	499	189	e49	33	25	66
30	61	54	1280	203	---	331	429	182	e45	31	25	50
31	60	---	802	205	---	319	---	169	---	117	24	---
TOTAL	1234	2294	13545	12128	12871	11352	21619	12339	2646	1639	1304	1780
MEAN	39.8	76.5	437	391	444	366	721	398	88.2	52.9	42.1	59.3
MAX	68	225	3200	1260	1450	590	2170	1210	150	219	127	244
MIN	24	30	59	124	215	235	339	169	45	20	17	19
CFSM	.10	.20	1.12	1.00	1.14	.94	1.84	1.02	.23	.14	.11	.15
IN.	.12	.22	1.29	1.15	1.22	1.08	2.06	1.17	.25	.16	.12	.17

CAL YR 1987 TOTAL 187070 MEAN 513 MAX 12400 MIN 14 CFSM 1.31 IN. 17.80
WTR YR 1988 TOTAL 94751 MEAN 259 MAX 3200 MIN 17 CFSM .66 IN. 9.01

e Estimated

KANAWHA RIVER BASIN

03200500 COAL RIVER AT TORNADO, WV

LOCATION.--Lat 38°20'20", long 81°50'30", Kanawha County, Hydrologic Unit 05050009, on downstream side of highway bridge at Tornado, 0.2 mi upstream from Falls Creek, and at mile 11.5.

DRAINAGE AREA.--862 mi², includes that of Falls Creek.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1908 to September 1911, October 1911 to June 1912 (gage heights only), November 1928 to September 1931, August 1961 to current year.

REVISED RECORDS.--WDR WV-82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 570.46 ft above National Geodetic Vertical Datum of 1929. Aug. 1, 1961 to Jan. 9, 1973, nonrecording gage at same site and datum. Prior to Aug. 1, 1961, nonrecording gage at same site at different datum.

REMARKS.--No estimated daily discharges. Water-discharge records good. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--32 years (water years 1909-11, 1930-31, 1962-88), 1,199 ft³/s, 18.89 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,500 ft³/s, Mar. 7, 1967, gage height, 31.98 ft; minimum (estimated), 2.0 ft³/s, Oct. 1-10, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 16,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Dec. 26	2000	*7,570	*14.15	No peak greater than base discharge.			

Minimum discharge, 38 ft³/s, Aug. 19, gage height, 9.95 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	106	169	120	1420	380	620	922	860	356	99	481	54
2	115	169	127	1820	555	563	1100	776	345	99	242	50
3	91	174	126	1790	1410	532	1070	710	324	101	157	45
4	92	172	139	1360	2210	1370	1040	686	313	91	117	66
5	106	170	200	995	3220	2080	960	970	311	82	92	104
6	103	162	250	560	2780	1840	843	1310	305	76	80	245
7	92	154	227	347	1840	1580	1130	2030	287	71	112	186
8	85	143	214	455	1440	1310	3440	2300	242	69	129	129
9	75	131	210	503	1170	1140	3900	1900	227	63	118	97
10	74	243	225	396	968	1050	2830	1610	248	58	83	79
11	73	579	227	331	838	917	2120	1530	273	58	62	69
12	71	410	209	324	765	798	1690	1340	248	61	53	64
13	70	262	196	367	714	999	1380	1170	223	69	49	64
14	65	202	195	315	591	1070	1150	1030	215	113	46	83
15	60	168	498	255	596	1010	980	914	197	132	45	172
16	57	149	768	237	669	945	845	818	196	117	45	171
17	58	143	549	257	679	849	743	735	194	105	47	127
18	64	259	379	322	660	781	799	682	173	88	43	113
19	64	339	296	420	673	810	1230	680	154	78	39	121
20	71	257	263	991	794	818	1130	720	144	114	49	134
21	81	216	239	2090	790	787	1060	696	144	202	122	127
22	88	187	214	1560	718	734	2000	663	146	288	184	102
23	93	161	193	1100	697	695	4270	548	161	305	130	88
24	101	147	180	867	849	658	3530	507	153	217	155	92
25	109	135	332	722	856	640	2400	530	142	150	147	238
26	148	129	5110	641	790	986	1840	612	122	123	108	526
27	159	122	4780	530	749	1080	1530	641	115	106	78	394
28	169	122	2370	430	728	1010	1290	542	110	97	62	241
29	175	119	3090	388	675	930	1140	493	110	94	56	178
30	176	117	2860	369	---	871	974	448	107	84	55	141
31	173	---	1680	375	---	803	---	409	---	682	55	---
TOTAL	3064	5910	26466	22537	29804	30276	49336	28860	6285	4092	3241	4300
MEAN	98.8	197	854	727	1028	977	1645	931	209	132	105	143
MAX	176	579	5110	2090	3220	2080	4270	2300	356	682	481	526
MIN	57	117	120	237	380	532	743	409	107	58	39	45
CFSM	.11	.23	.99	.84	1.19	1.13	1.91	1.08	.24	.15	.12	.17
IN.	.13	.26	1.14	.97	1.29	1.31	2.13	1.25	.27	.18	.14	.19

CAL YR 1987 TOTAL 386120 MEAN 1058 MAX 18500 MIN 41 CFSM 1.23 IN. 16.66
WTR YR 1988 TOTAL 214171 MEAN 585 MAX 5110 MIN 39 CFSM .68 IN. 9.24

KANAWHA RIVER BASIN

03200500 COAL RIVER AT TORNADO, WV--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1973 to September 1983.

TEMPERATURE: May to July 1975 (partial-record station), June to September 1976 (published as once-daily), October 1976 to September 1984.

TURBIDITY: October 1980 to current year.

SUSPENDED-SEDIMENT DISCHARGE; December 1972 to September 1984.

COOPERATION.--Once-daily observed turbidity records from October 1984 to current year were furnished by Washington Public Service District.

INSTRUMENTATION.--Temperature recorder November 1973 to September 1984. Turbidity recorder October 1981 to September 1982.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,020 microsiemens, Oct. 23, 24, 1973; minimum daily, 88 microsiemens, Dec. 9, 1978, June 22, 1979.

WATER TEMPERATURE: Maximum recorded, 31.5°C, July 8, 19, 20, 1977; minimum recorded, -0.5°C, Dec. 31, 1980, Jan. 1, 2, 1981.

TURBIDITY: Maximum, 1,500 NTU, May 30, 1982; minimum, 0.2 NTU, Nov. 15, 1982.

SEDIMENT CONCENTRATION; Maximum daily mean, 4,000 mg/L, Mar. 17, 1973; minimum daily mean, 0 mg/L, on several days in April 1978, Feb. 5, Mar. 21, 22, 1979, Jan. 17, Apr. 29, 1982.

SEDIMENT LOAD: Maximum daily, 263,000 tons, Jan. 26, 1978; minimum daily, 0 ton, on several days in April 1978, Feb. 5, Mar. 21, 22, 1979, Jan. 17, Apr. 29, 1982.

EXTREMES FOR CURRENT YEAR.--

TURBIDITY: Maximum daily, 650 NTU, Aug. 1; minimum daily, 5.0 NTU, Dec. 22.

TURBIDITY (NTU), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	25	14	38	38	13	18	9	18	19	650	17
2	20	33	12	29	27	12	15	16	18	18	400	16
3	15	19	15	25	74	10	12	18	16	18	120	16
4	10	14	15	19	80	15	17	18	14	16	80	16
5	14	10	15	15	60	100	16	28	12	14	40	19
6	12	8	14	10	42	50	15	35	12	18	32	23
7	10	8	16	8	40	40	18	40	10	14	28	20
8	9	11	14	8	15	35	65	28	9	16	26	18
9	8	15	19	11	13	30	210	18	9	19	25	18
10	14	15	17	9	14	28	100	19	10	14	74	17
11	15	30	15	9	12	15	28	25	12	16	22	19
12	10	47	14	12	12	12	25	24	10	20	22	10
13	8	45	14	13	16	45	20	17	11	21	25	17
14	8	25	16	14	16	18	18	14	10	20	21	13
15	10	15	14	17	14	13	15	16	10	25	20	15
16	12	18	45	19	11	13	14	18	10	22	21	18
17	15	20	34	18	10	11	12	20	12	20	21	19
18	20	30	34	14	9	11	15	20	15	20	21	18
19	18	25	28	65	8	14	20	18	30	22	16	20
20	20	25	12	80	17	12	18	22	15	19	60	19
21	15	15	6	60	15	14	16	20	16	18	40	19
22	14	12	5	70	15	14	19	20	12	16	34	18
23	13	15	8	40	15	13	210	18	35	28	26	17
24	15	12	8	20	12	16	180	20	30	22	20	17
25	16	10	9	6	9	12	27	24	29	24	73	23
26	19	10	410	11	8	480	17	24	22	24	27	30
27	18	14	600	11	8	210	15	20	18	24	25	25
28	20	16	140	11	10	180	15	20	15	22	22	24
29	38	18	35	11	9	95	12	20	16	22	21	22
30	34	18	33	10	---	50	10	20	18	19	18	23
31	33	---	28	10	---	35	---	18	---	28	20	---
MEAN	16	19	54	22	22	52	40	21	16	20	66	19

WTR YR 1988 MEAN 31

KANAWHA RIVER BASIN

03200650 KANAWHA RIVER AT POCA, WV

LOCATION.--Lat 38°28'29", long 81°49'09", Putnam County, Hydrologic Unit 05050008, on left bank at John Amos Power Plant, at Poca, 200 ft upstream from Pocatalico River, and at mile 39.2.

DRAINAGE AREA.--11,435 mi², excludes that of Pocatalico River.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1975 to current year.

REMARKS.--Values published are once-daily readings.

COOPERATION.--Records were furnished by Appalachian Power Company.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum daily, 37.0°C, July 27, 1982; minimum daily, 0.0°C, Jan. 18, 1977.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum daily, 30.0°C, several days in August; minimum daily, 1.5°C, Jan. 18.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
ONCE-DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	---	---	---	10.0	6.0	---	---	22.0	---	29.0	28.5
2	22.0	18.0	---	---	6.5	6.0	15.5	15.5	22.0	---	30.0	28.0
3	---	---	10.5	---	---	---	---	17.0	---	---	29.5	26.5
4	---	16.0	---	---	---	6.5	---	16.0	---	---	30.0	---
5	22.0	15.5	---	---	6.0	8.0	16.5	16.0	---	27.0	30.0	---
6	---	---	---	---	6.0	---	16.0	---	---	27.0	30.0	26.0
7	---	---	9.5	---	---	8.0	16.0	---	24.0	28.0	---	---
8	23.0	---	9.5	---	6.0	6.5	16.0	---	25.0	28.0	29.5	---
9	20.0	---	10.0	3.5	---	6.5	---	16.0	24.5	28.0	30.0	---
10	---	---	10.5	---	5.5	---	---	15.5	28.0	---	30.0	---
11	---	15.5	8.5	3.5	---	6.5	15.5	16.0	23.5	28.0	---	---
12	---	14.5	9.0	3.5	---	---	15.0	16.5	---	28.0	---	---
13	---	14.5	---	3.5	---	---	14.5	16.5	---	28.0	---	25.0
14	---	14.5	9.0	---	---	8.0	14.5	16.5	24.5	---	---	25.0
15	---	---	8.5	---	---	8.0	14.5	---	---	29.0	---	---
16	18.0	15.5	8.5	---	---	8.0	---	19.5	---	29.0	---	25.0
17	16.5	14.5	---	---	5.5	8.5	---	20.0	25.5	---	---	25.5
18	---	14.5	---	1.5	6.0	8.0	---	---	---	---	---	---
19	18.0	---	---	3.5	6.0	---	14.5	20.0	---	---	---	---
20	18.0	---	---	5.5	---	---	14.5	20.0	---	---	---	---
21	18.0	---	8.5	5.5	---	7.5	15.0	21.0	25.5	29.0	---	25.5
22	---	---	---	4.5	---	---	14.5	20.0	---	29.0	30.0	---
23	---	---	8.5	18.0	6.0	---	---	20.0	---	28.5	30.0	---
24	---	---	---	---	6.0	9.5	---	20.5	25.5	---	---	---
25	---	---	---	---	6.0	10.0	---	22.0	28.0	28.5	---	---
26	16.5	---	---	5.5	6.0	---	---	20.0	---	28.0	---	25.0
27	---	---	---	---	6.0	---	---	16.5	---	28.5	---	23.5
28	16.5	---	8.5	---	6.0	---	15.5	19.5	---	27.5	---	23.5
29	16.5	---	---	---	6.5	---	16.0	---	---	---	28.5	24.0
30	15.5	---	9.5	---	---	---	15.5	---	26.5	---	29.0	24.5
31	---	---	---	---	---	16.5	---	22.0	---	---	28.5	---

KANAWHA RIVER BASIN

03201300 KANAWHA RIVER AT WINFIELD DAM, AT WINFIELD, WV
(National stream-quality accounting network station)

LOCATION.--Lat 38°31'32", long 81°54'40", Putnam County, Hydrologic Unit 05050008, on left bank at intake line to Ohio River Valley Water Sanitation Commission (ORSANCO) monitor at Kanawha Valley Power Company raw water intake at Winfield Dam, 1.0 mi downstream from Winfield Bridge, and at mile 31.1.

DRAINAGE AREA.--11,809 mi².

PERIOD OF RECORD.--Water years 1957-70, 1974 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1957 to September 1970, January 1974 to September 1980.

pH: October 1974 to September 1980.

WATER TEMPERATURE: October 1956 to September 1970, January 1974 to September 1980.

DISSOLVED OXYGEN: October 1974 to September 1980.

REMARKS.--Discharges in water-quality tables are estimated.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,700 microsiemens, Apr. 21, 1961; minimum 76 microsiemens, Mar. 17, 1978.

pH: Maximum daily, 8.6 units, May 14, 1977; minimum daily, 5.3 units, July 16, 1979.

WATER TEMPERATURE: Maximum daily, 33.0°C, July 24, 1964; minimum daily, 0.0°C, Feb. 14, 1958, Mar. 12, 1960, Jan. 30, 1978.

DISSOLVED OXYGEN: Maximum daily, 16.0 mg/L, Feb. 19, 20, 1977; minimum daily, 3.1 mg/L, July 28, 1977.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCICI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	
DEC 29...	1300	40600	130	7.10	5.0	16	748	11.8	94	1500	600	
MAR 28...	1400	9930	190	7.50	11.5	11	747	10.9	102	460	38	
JUN 17...	1600	3710	230	7.40	24.0	2.8	743	6.0	73	44	23	
AUG 27...	1500	2400	244	7.40	28.5	2.9	741	4.0	53	K23	K18	
DATE		HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00900)	HARD-NESS WH WAT TOT FLD MG/L AS CACO3 (00902)	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 CO3 (00452)	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)
DEC 29...	44	21	11	4.1	5.7	0.50	28	0	23	24	6.9	
MAR 28...	61	29	15	5.6	11	1.5	30	0	25	37	11	
JUN 17...	67	28	16	6.6	20	2.0	43	0	35	47	14	
AUG 27...	66	28	15	6.8	20	2.1	52	0	43	47	14	
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 DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
DEC 29...	0.10	4.6	76	75	--	<0.010	0.910	0.040	0.070	0.36	0.40	
MAR 28...	0.10	3.5	109	107	--	<0.010	0.660	0.050	0.090	0.25	0.30	
JUN 17...	0.30	2.1	144	134	0.300	0.010	0.310	0.340	0.350	0.56	0.90	
AUG 27...	0.10	3.7	141	135	0.460	0.040	0.500	0.430	0.450	0.47	0.90	

KANAWHA RIVER BASIN

03201300 KANAWHA RIVER AT WINFIELD DAM, AT WINFIELD, WV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	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)
DEC 29...	0.080	0.010	<0.010	30	<1	40	<0.5	<1	<1	<3	2
MAR 28...	0.050	0.020	<0.010	40	<1	44	<0.5	<1	<1	<3	1
JUN 17...	0.050	0.030	0.020	20	1	48	<0.5	<1	2	<3	1
AUG 27...	0.070	0.040	0.020	<10	2	44	<0.5	<1	1	<3	2
DATE	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	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)
DEC 29...	42	<5	<4	17	<0.1	<10	2	<1	<1.0	77	<6
MAR 28...	40	<5	5	54	<0.1	<10	<1	<1	<1.0	120	<6
JUN 17...	6	<5	8	4	<0.1	<10	3	<1	<1.0	160	<6
AUG 27...	8	<5	6	14	<0.1	<10	2	<1	<1.0	140	<6
DATE	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90) (80060)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L) (09511)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
DEC 29...	<3	--	--	--	--	--	--	--	50	5480	70
MAR 28...	<3	<0.4	<0.4	1.8	0.4	1.5	0.4	0.06	9	241	89
JUN 17...	44	--	--	--	--	--	--	--	7	70	65
AUG 27...	21	<0.4	<0.4	2.6	0.4	2.0	<0.4	0.04	9	58	78

OHIO RIVER MAIN STEM

03201500 OHIO RIVER AT POINT PLEASANT, WV

LOCATION.--Lat 38°50'25", long 82°08'30", Mason County, Hydrologic Unit 05030202, on left bank at Point Pleasant, 1,200 ft upstream from Kanawha River, and at mile 265.4 measured downstream from Pittsburgh, Pa.

DRAINAGE AREA.--52,760 mi², approximately, includes that of Kanawha River.

PERIOD OF RECORD.--March 1940 to September 1977, (since October 1952, no low-flow records). October 1977 to current year (gage heights only). Records of gage heights collected in this vicinity since 1889 are in reports of National Weather Service.

GAGE.--Water-stage recorder. Datum of gage is 514.10 ft, Sandy Hook datum. Prior to Oct. 1, 1951, water-stage recorder at site 0.3 mi upstream at same datum.

REMARKS.--U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--12 years (water years 1941-52), 74,350 ft³/s, 19.14 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 55.00 ft, Apr. 16, 1948; minimum gage height recorded, 22.52 ft, Sept. 10, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1896, 62.8 ft, Mar. 30, 1913. Flood of Jan. 27, 1937, reached a stage of 62.7 ft.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 33.05 ft, Feb. 5; minimum, 24.07 ft, Apr. 26.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.91	25.00	25.33	25.27	24.82	24.72	25.22	24.87	25.06	24.85	25.17	25.27
2	25.02	24.98	25.61	25.26	25.75	24.57	24.84	24.73	24.91	24.97	25.57	25.42
3	25.02	24.79	25.28	25.26	30.07	24.66	25.14	24.54	24.86	25.34	25.74	25.14
4	25.13	24.85	25.07	24.97	31.92	25.42	25.15	24.66	24.84	25.59	25.71	25.33
5	25.00	24.95	24.93	24.85	32.95	28.99	26.18	24.72	24.96	25.67	25.62	25.37
6	25.12	25.00	25.01	25.07	31.93	30.01	26.36	24.78	24.99	25.54	25.57	25.50
7	25.14	25.19	24.82	25.17	28.56	28.27	25.99	25.30	25.06	25.23	25.50	25.52
8	25.03	25.23	24.61	25.40	26.86	25.73	26.25	25.66	25.04	25.01	25.47	25.41
9	25.15	25.07	24.70	25.28	25.90	25.53	26.18	25.06	24.95	25.06	25.44	25.01
10	25.10	25.15	24.63	25.00	25.55	25.30	26.18	24.91	24.86	25.16	25.61	25.01
11	24.98	25.32	24.67	25.08	25.34	25.16	25.82	24.66	24.90	25.18	25.59	25.26
12	24.59	25.28	24.82	25.08	25.16	25.08	25.39	24.76	25.05	25.22	25.03	25.35
13	24.75	25.21	24.88	25.07	24.77	25.26	24.99	24.63	25.16	25.27	24.82	25.46
14	24.94	25.47	24.83	25.23	24.54	25.04	25.00	24.63	25.02	25.25	24.90	25.34
15	24.98	25.32	24.72	25.25	24.61	25.52	24.89	24.59	25.15	25.25	25.00	25.52
16	24.99	25.03	24.94	25.22	24.70	25.30	24.54	24.73	25.19	25.37	25.49	25.08
17	25.01	25.13	24.93	25.02	24.76	24.88	24.71	24.58	25.27	25.42	25.35	25.16
18	24.67	25.26	24.99	25.03	24.93	24.92	24.60	24.76	25.14	25.47	25.04	25.65
19	24.96	25.22	24.81	25.18	24.74	24.93	24.72	24.82	25.16	25.63	24.90	25.55
20	24.83	25.38	24.65	25.94	25.02	25.07	24.58	25.03	25.18	25.53	24.96	25.44
21	24.66	25.42	24.87	28.45	25.27	24.80	24.54	25.12	25.25	25.60	25.05	25.54
22	24.80	25.52	25.07	28.08	25.41	24.69	24.73	25.12	25.26	25.34	24.97	25.42
23	25.08	25.03	25.25	26.44	25.35	24.77	24.68	24.95	25.31	25.49	24.99	25.26
24	25.11	24.77	24.96	25.85	25.33	24.81	24.73	24.91	25.39	25.67	25.42	25.18
25	25.03	25.04	25.00	25.39	25.22	24.62	24.65	25.03	25.42	25.63	25.46	25.35
26	25.11	25.27	26.11	24.95	25.24	24.96	24.37	25.26	25.36	25.21	25.29	25.61
27	25.01	25.29	27.31	24.78	24.76	25.41	24.86	24.92	25.28	24.95	25.10	25.70
28	25.08	25.28	26.82	24.49	24.77	25.71	24.68	24.87	25.06	25.03	25.12	25.30
29	25.26	25.01	26.11	24.66	24.52	25.67	24.58	24.51	24.98	25.13	25.15	25.07
30	25.21	24.81	26.28	24.52	---	25.33	24.69	24.87	24.91	25.11	25.42	25.03
31	25.18	---	25.64	24.95	---	25.16	---	25.03	---	25.01	25.17	---
MEAN	25.00	25.14	25.21	25.36	26.16	25.49	25.11	24.87	25.10	25.30	25.28	25.34
MAX	25.26	25.52	27.31	28.45	32.95	30.01	26.36	25.66	25.42	25.67	25.74	25.70
MIN	24.59	24.77	24.61	24.49	24.52	24.57	24.37	24.51	24.84	24.85	24.82	25.01

WTR YR 1988 MEAN 25.28 MAX 32.95 MIN 24.37

GUYANDOTTE RIVER BASIN

03202400 GUYANDOTTE RIVER NEAR BAILEYSVILLE, WV

LOCATION.--Lat 37°36'14", long 81°38'43", Wyoming County, Hydrologic Unit 05070101, on right bank 75 ft upstream from Doublecamp Branch, 3.1 mi east of Baileysville, and at mile 130.8.

DRAINAGE AREA.--306 mi².

PERIOD OF RECORD.--July 1968 to current year.

REVISED RECORDS.--WDR WV-82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,140.00 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 10, 1969, at site 25 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 8-11. Records good except for period with ice effect, which is poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--20 years, 422 ft³/s, 18.73 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,700 ft³/s, Apr. 5, 1977, gage height, 26.89 ft, from rating curve extended above 14,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 21 ft³/s, Oct. 14, 1970, gage height, 2.44 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Sept. 24	2400	*1,880	*6.07	No peak greater than base discharge.			

Minimum discharge, 33 ft³/s, Oct. 15-17 and Sept. 3, gage height, 2.63 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	39	43	259	124	123	579	266	173	65	56	39
2	46	36	45	484	142	118	612	244	165	58	53	35
3	40	35	45	379	323	114	545	233	206	55	50	34
4	40	35	48	280	583	121	482	238	194	56	51	74
5	39	37	57	202	886	167	411	288	159	54	48	153
6	41	38	53	106	600	170	365	309	143	54	49	91
7	44	36	49	92	364	170	503	415	131	52	60	59
8	42	35	46	e85	347	171	834	405	123	49	49	46
9	41	35	47	e80	275	169	821	360	127	49	46	41
10	37	43	50	e77	233	175	633	666	161	48	44	41
11	37	77	49	e80	206	155	512	1180	127	48	42	41
12	40	67	49	82	195	138	429	758	108	53	40	39
13	36	51	48	87	171	179	373	557	102	140	42	41
14	38	45	47	83	128	235	323	450	95	104	38	65
15	34	43	63	70	170	247	288	394	95	75	37	123
16	33	41	95	69	186	226	257	351	93	60	39	63
17	34	42	86	78	161	197	234	391	95	52	37	71
18	36	43	69	114	150	186	246	517	94	58	37	201
19	37	45	59	310	154	214	353	444	85	96	40	114
20	37	45	55	923	170	214	344	420	91	221	106	75
21	43	44	50	681	164	210	331	386	90	141	159	60
22	48	42	48	431	139	203	394	340	80	122	82	51
23	46	39	46	312	148	194	630	297	74	94	56	46
24	45	40	45	246	170	184	655	273	69	82	51	344
25	43	42	195	213	150	177	588	353	67	70	48	922
26	45	40	937	197	136	212	508	352	66	62	43	472
27	42	39	731	147	139	269	438	286	64	81	42	240
28	42	40	425	127	144	274	372	249	62	95	41	148
29	43	42	505	117	129	267	333	225	63	83	38	103
30	41	45	378	124	---	249	296	203	65	67	42	82
31	38	---	258	123	---	251	---	186	---	61	40	---
TOTAL	1268	1281	4721	6658	6887	5979	13689	12036	3267	2405	1606	3914
MEAN	40.9	42.7	152	215	237	193	456	388	109	77.6	51.8	130
MAX	60	77	937	923	886	274	834	1180	206	221	159	922
MIN	33	35	43	69	124	114	234	186	62	48	37	34
CFSM	.13	.14	.50	.70	.78	.63	1.49	1.27	.36	.25	.17	.43
IN.	.15	.16	.57	.81	.84	.73	1.66	1.46	.40	.29	.20	.48

CAL YR 1987 TOTAL 155640 MEAN 426 MAX 9060 MIN 33 CFSM 1.39 IN. 18.92
WTR YR 1988 TOTAL 63711 MEAN 174 MAX 1180 MIN 33 CFSM .57 IN. 7.75

e Estimated

GUYANDOTTE RIVER BASIN

03202750 CLEAR FORK AT CLEAR FORK, WV

LOCATION.--Lat 37°37'23", long 81°42'27", Wyoming County, Hydrologic Unit 05070101, on left bank 0.2 mi downstream from Walls Branch, 0.7 mi upstream from Spratt Branch, 1.4 mi southwest of Clear Fork, and at mile 2.6.

DRAINAGE AREA.--126 mi².

REVISED RECORDS.--WDR WV-81-1: Drainage area.

PERIOD OF RECORD.--June 1974 to current year. Prior to October 22, 1974, partial record station.

GAGE.--Water-stage recorder. Elevation of gage is 1,150 ft above National Geodetic Vertical Datum of 1929, from topographic map. June 28, 1974 to Oct. 22, 1974, nonrecording gage; Oct. 23, 1974 to Oct. 26, 1977, digital recorder at site 0.9 mi upstream at different datum; Oct. 27, 1977 to Dec. 31, 1980, digital recorder at site 0.2 mi upstream at different datum.

REMARKS.--Estimated daily discharges: Jan. 6-19, Jan. 28 to Feb. 2. Records fair except for periods of estimated daily discharges, which are poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--14 years, 190 ft³/s, 20.48 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,900 ft³/s, Apr. 5, 1977, gage height, 18.64 ft, site and datum then in use, from rating curve extended above 3,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 2.3 ft³/s, Aug. 17-19, 1988, gage height, 1.38 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Dec. 26	1800	*855	*4.57	No peak greater than base discharge.			

Minimum discharge, 2.3 ft³/s, Aug. 17-19, gage height, 1.38 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.5	7.5	18	208	e62	71	243	94	22	7.0	11	4.8
2	8.7	7.5	16	343	e72	63	255	82	20	6.9	9.8	4.2
3	8.3	7.8	15	239	158	60	213	74	55	6.6	8.0	3.7
4	8.0	7.9	17	168	330	64	197	84	41	6.3	6.5	48
5	8.4	7.4	22	113	488	80	173	219	30	5.9	5.8	165
6	9.0	6.2	22	e68	317	81	164	474	26	4.7	6.2	61
7	10	6.0	21	e50	210	81	268	572	22	4.1	7.5	30
8	11	5.8	20	e46	163	80	637	364	19	3.6	7.1	20
9	11	6.2	23	e43	127	77	516	254	20	3.6	5.9	14
10	9.6	14	26	e39	107	81	342	250	28	3.3	5.3	13
11	8.1	26	24	e40	97	77	258	231	24	3.1	4.4	12
12	7.1	26	21	e41	88	66	201	186	19	4.1	3.8	9.7
13	6.9	17	18	e42	80	94	158	154	16	24	3.3	9.2
14	6.5	13	20	e42	67	109	129	127	13	19	3.3	50
15	5.9	11	40	e38	80	113	113	106	12	14	3.3	61
16	5.3	10	59	e35	80	112	96	91	10	10	2.9	29
17	5.6	11	46	e40	80	102	83	83	9.6	7.4	2.5	36
18	5.4	17	33	e50	80	94	90	72	9.7	7.6	2.3	82
19	5.4	16	27	e150	83	104	138	67	11	13	2.8	52
20	5.9	14	23	579	94	106	138	63	32	33	33	32
21	9.3	14	21	445	91	108	136	60	27	32	43	27
22	9.7	12	19	263	81	109	265	56	15	45	23	21
23	8.0	12	17	183	85	107	484	49	12	29	14	16
24	7.9	11	16	139	98	103	413	44	10	19	12	50
25	7.8	10	153	119	94	98	320	54	9.3	15	10	266
26	9.5	9.1	685	103	90	114	252	44	8.2	11	8.2	217
27	9.5	9.4	438	84	87	127	198	36	7.8	9.8	7.5	97
28	8.9	9.7	269	e72	87	127	157	30	7.4	8.4	6.4	55
29	9.0	12	472	e64	80	126	132	28	7.0	7.8	5.4	38
30	8.2	15	275	e60	---	123	109	27	7.0	6.9	5.8	29
31	7.8	---	171	e64	---	120	---	25	---	5.8	5.8	---
TOTAL	250.2	351.5	3047	3970	3656	2977	6878	4100	550.0	376.9	275.8	1552.6
MEAN	8.07	11.7	98.3	128	126	98.0	229	132	18.3	12.2	8.90	51.8
MAX	11	26	685	579	488	127	637	572	55	45	43	266
MIN	5.3	5.8	15	35	62	60	83	25	7.0	3.1	2.3	3.7
CFSM	.06	.09	.78	1.02	1.00	.76	1.82	1.05	.15	.10	.07	.41
IN.	.07	.10	.90	1.17	1.08	.88	2.03	1.21	.16	.11	.08	.46

CAL YR 1987 TOTAL 58975.9 MEAN 162 MAX 3240 MIN 2.5 CFSM 1.28 IN. 17.41
WTR YR 1988 TOTAL 27985.0 MEAN 76.5 MAX 685 MIN 2.3 CFSM .61 IN. 8.26

e Estimated

GUYANDOTTE RIVER BASIN

03202915 GUYANDOTTE RIVER BELOW R. D. BAILEY DAM, WV

LOCATION.--Lat 37°35'53", long 81°49'46", Mingo County, Hydrologic Unit 05070101, on right bank, 500 ft upstream from Little Huff Creek, 2,500 ft downstream from R. D. Bailey Dam and 0.5 mi northeast of Justice, and at river mile 111.6.

DRAINAGE AREA.--535 mi².

PERIOD OF RECORD.--November 1978 to September 1982, October 1982 to September 1986 (gage heights, discharge measurements and annual maximum discharge only), October 1986 to current year.

GAGE.--Water-stage recorder. Datum of gage is 880.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since February 1980 by R. D. Bailey Lake at mile 112. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--5 years, (water years 1980-82, 1987-88), 710 ft³/s, 18.02 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,800 ft³/s, June 22, 1979, gage height, 13.90 ft; minimum discharge, 2.1 ft³/s, Dec. 18, 1978; minimum daily discharge, 34 ft³/s, Nov. 1, 1987; minimum gage height observed, 1.91 ft, Aug. 30, 1983 (gates closed) but may have been less Sept. 14, 30, 1983 (gates closed).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,840 ft³/s, Apr. 8, gage height, 7.26 ft; minimum daily, 34 ft³/s, Nov. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	200	34	51	431	189	174	364	419	233	58	101	52
2	228	52	51	1020	336	217	370	419	219	57	102	45
3	227	66	51	1010	432	284	565	419	212	57	56	45
4	251	59	53	512	912	280	774	422	211	57	41	117
5	280	51	54	395	1730	280	750	482	210	57	45	360
6	235	51	54	258	2040	280	707	895	208	57	45	225
7	212	51	54	122	859	280	812	1470	191	57	45	144
8	212	51	54	129	547	280	1740	1470	197	50	55	144
9	212	51	54	204	570	280	2090	970	160	47	74	130
10	212	55	54	197	375	302	1760	813	160	47	80	96
11	211	55	54	138	340	294	1210	1830	160	47	75	104
12	209	53	54	138	359	241	927	1620	140	47	53	104
13	210	53	54	138	312	317	732	1130	114	83	51	86
14	210	52	53	137	209	364	430	770	110	151	51	51
15	210	52	52	136	165	365	430	640	73	111	48	51
16	208	52	47	136	369	224	491	513	47	70	45	51
17	209	54	47	136	256	87	423	461	46	74	45	73
18	209	56	46	138	277	87	368	472	46	75	45	252
19	207	54	46	504	277	87	368	690	48	76	45	269
20	207	54	46	1270	278	87	520	804	73	150	55	168
21	207	54	46	1740	278	149	671	802	149	372	203	88
22	206	54	46	1390	413	319	672	675	123	204	184	88
23	249	53	46	702	427	328	1220	386	67	165	98	88
24	302	54	45	699	267	132	1620	386	47	133	75	176
25	300	54	82	511	287	193	1130	387	47	94	63	1150
26	247	54	402	407	357	176	938	388	72	82	55	1470
27	99	54	1390	251	266	177	939	387	76	75	55	236
28	52	54	1690	253	272	385	687	386	69	71	55	286
29	44	54	1660	259	251	515	385	353	63	89	55	244
30	38	53	1040	238	---	517	320	280	58	104	55	165
31	48	---	564	193	---	417	---	233	---	102	55	---
TOTAL	6151	1594	8040	13792	13650	8118	24413	21372	3629	2919	2110	6558
MEAN	198	53.1	259	445	471	262	814	689	121	94.2	68.1	219
MAX	302	66	1690	1740	2040	517	2090	1830	233	372	203	1470
MIN	38	34	45	122	165	87	320	233	46	47	41	45

CAL YR 1987 TOTAL 306798 MEAN 841 MAX 5740 MIN 34 CFSM 1.57 IN. 21.33
WTR YR 1988 TOTAL 112346 MEAN 307 MAX 2090 MIN 34 CFSM .57 IN. 7.81

GUYANDOTTE RIVER BASIN

03203600 GUYANDOTTE RIVER AT LOGAN, WV

LOCATION.--Lat 37°50'32", long 81°58'34", Logan County, Hydrologic Unit 05070101, on right bank 200 ft downstream from Middelburg Bridge at Logan, 0.8 mi downstream from Dingess Run, 1.1 mi upstream from Island Creek, and at mile 81.0.

DRAINAGE AREA.--833 mi².

PERIOD OF RECORD.--October 1960 to September 1962 (annual maximum only), October 1962 to current year. Gage-height records collected in this vicinity since November 1915 are contained in reports of National Weather Service.

REVISED RECORDS.--WDR WV-82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 640.00 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1962, at datum 1.32 ft lower.

REMARKS.--Estimated daily discharges: Jan. 6-15. Records good except for period with ice effect, which is fair. Flow regulated since February 1980 by R. D. Bailey Lake at mile 112. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--26 years, 1,155 ft³/s, 18.83 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,000 ft³/s, Mar. 12, 1963, gage height, 34.98 ft, from rating curve extended above 26,000 ft³/s on basis of slope-area measurements at gage heights 25.6 ft and 34.98 ft; minimum discharge, 33 ft³/s, Sept. 17, 1964; minimum gage height, 3.96 ft, Sept. 16, Oct. 2, 1983. Minimum daily discharge since regulation, 48 ft³/s, July 10 and Aug. 18, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,840 ft³/s, Apr. 8, gage height, 8.56 ft; minimum daily, 48 ft³/s, July 10, Aug. 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	221	72	86	837	306	346	614	574	310	68	146	67
2	242	66	89	1110	356	303	638	589	312	64	129	62
3	267	60	87	1510	750	379	690	570	330	63	129	56
4	261	89	112	908	1270	453	956	628	296	63	97	114
5	297	89	120	596	2020	477	947	811	286	61	59	355
6	309	74	111	e400	2430	465	927	1280	280	60	90	443
7	254	71	104	e300	1530	463	1160	1900	270	58	105	204
8	246	76	101	e270	755	455	2590	1900	258	59	79	175
9	241	81	106	e240	887	457	2760	1470	259	55	67	169
10	242	147	103	e320	701	460	2270	1240	249	48	85	153
11	243	165	101	e250	514	472	1700	1510	225	56	95	118
12	243	124	98	e230	566	424	1250	2000	219	80	93	126
13	235	103	93	e215	517	504	1100	1390	188	95	71	128
14	234	94	104	e205	407	638	845	1090	161	120	60	154
15	232	91	207	e200	360	634	561	832	153	181	59	94
16	234	89	193	198	383	624	664	785	120	132	55	73
17	235	121	146	210	580	319	640	617	78	82	50	104
18	236	176	122	256	382	283	599	627	80	86	48	215
19	233	139	111	393	450	305	669	682	77	89	54	388
20	242	116	105	1700	464	295	637	904	77	115	85	253
21	249	108	99	2020	448	287	878	890	95	285	174	200
22	240	98	92	1870	456	380	1100	864	180	480	262	115
23	237	94	90	1010	623	575	1320	589	150	251	215	114
24	304	90	87	921	604	450	1740	495	105	216	141	211
25	329	90	353	855	383	292	1550	609	68	161	102	658
26	324	88	1550	613	512	384	1180	524	66	132	87	1730
27	246	89	1620	548	519	385	1150	489	79	113	70	665
28	138	87	2120	327	388	381	1040	477	93	98	69	255
29	91	89	2340	416	449	684	755	467	78	86	70	331
30	73	90	1610	374	---	684	472	406	79	104	75	260
31	67	---	986	368	---	668	---	334	---	158	71	---
TOTAL	7245	2966	13246	19670	20010	13926	33402	27543	5221	3719	2992	7990
MEAN	234	98.9	427	635	690	449	1113	888	174	120	96.5	266
MAX	329	176	2340	2020	2430	684	2760	2000	330	480	262	1730
MIN	67	60	86	198	306	283	472	334	66	48	48	56

CAL YR 1987 TOTAL 417719 MEAN 1144 MAX 10800 MIN 60 CFSM 1.37 IN. 18.65
WTR YR 1988 TOTAL 157930 MEAN 432 MAX 2760 MIN 48 CFSM .52 IN. 7.05

e Estimated

GUYANDOTTE RIVER BASIN

03204000 GUYANDOTTE RIVER AT BRANCHLAND, WV
(National stream-quality accounting network station)

LOCATION.--Lat 38°13'15", long 82°12'10", Lincoln County, Hydrologic Unit 05070102, on right bank at upstream side of highway bridge at Branchland, opposite mouth of Fourmile Creek, and at mile 35.3. Records include flow of Fourmile Creek.

DRAINAGE AREA.--1,224 mi², includes that of Fourmile Creek.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1915 to September 1917, October 1917 to September 1922 (gage heights only), December 1928 to current year. Prior to October 1959, published as Guyandot River at Branchland. Monthly discharge only for July to September 1916, published in WSP 1305.

REVISED RECORDS.--WSP 853: 1918(M). WSP 1335: 1916-17, 1929-30, 1932-35. WDR WV-82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 547.91 ft above National Geodetic Vertical Datum of 1929. Prior to June 20, 1932, nonrecording gage and June 20, 1932, to Oct. 24, 1968, water-stage recorder at site 20 ft downstream at same datum. Oct. 1, 1942, to Jan. 23, 1969, auxiliary nonrecording gage and Jan. 24, 1969, to Dec. 12, 1986, auxiliary water-stage recorder 4.0 mi upstream from base gage at datum 4.99 ft higher.

REMARKS.--No estimated daily discharges. Water-discharge records good. Flow regulated since February 1980 by R. D. Bailey Lake at mile 112. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--61 years (water years 1916-17, 1930-88), 1,624 ft³/s, 18.02 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 44,500 ft³/s, Mar. 13, 1963, gage height, 43.83 ft; minimum, 3.6 ft³/s, Oct. 25, 1930, gage height, 2.66 ft. Minimum daily discharge since regulation, 77 ft³/s, Aug. 19, 1988.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood, probably in 1907, reached a stage of about 44 ft, from floodmark, discharge, 43,500 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,570 ft³/s, Apr. 9, gage height, 10.45 ft; minimum daily, 77 ft³/s, Aug. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	295	107	128	1470	502	640	946	754	402	108	231	96
2	269	101	126	1540	735	515	892	808	370	103	181	92
3	289	107	124	1780	1440	465	895	780	372	96	155	89
4	324	99	133	1740	2110	1730	977	805	386	94	144	128
5	316	95	169	1140	3130	1680	1170	1090	346	93	145	152
6	339	115	186	784	3230	1260	1140	1340	332	92	128	341
7	331	113	172	720	2860	1080	1330	2030	323	89	114	424
8	286	104	160	492	1810	960	2970	2490	311	88	149	248
9	266	107	154	414	1180	898	4300	2250	301	88	119	194
10	260	163	153	368	1160	882	3730	1830	327	88	99	186
11	261	365	153	387	944	825	2960	1590	299	85	94	181
12	262	283	147	404	805	801	2230	2160	268	99	107	146
13	261	209	141	379	787	927	1740	2020	258	118	111	144
14	251	171	145	341	701	977	1460	1550	240	138	105	153
15	250	150	368	319	626	1030	1150	1210	203	129	91	179
16	249	138	503	290	575	981	925	1010	196	195	86	149
17	250	139	357	284	596	910	952	917	195	186	83	111
18	250	199	257	349	703	641	995	775	142	127	79	120
19	254	272	212	531	570	607	1240	773	124	128	77	219
20	254	226	192	1480	681	596	1150	856	119	158	89	358
21	262	189	179	2760	674	556	1130	991	117	156	139	283
22	272	168	163	2600	631	521	3080	981	114	324	164	239
23	259	153	153	2070	695	615	3130	926	176	453	260	160
24	256	144	143	1300	908	760	2670	695	186	276	316	148
25	309	137	268	1180	847	653	2560	765	154	232	221	408
26	346	133	3310	1030	671	728	2000	793	112	205	141	995
27	345	130	3060	805	780	899	1640	647	98	178	121	1580
28	296	129	2490	699	748	832	1510	598	95	148	105	613
29	204	130	3260	497	614	822	1280	573	117	131	97	300
30	143	128	2880	569	---	1010	995	551	114	114	96	348
31	119	---	1850	521	---	982	---	479	---	333	98	---
TOTAL	8328	4704	21736	29243	31713	26783	53147	35037	6797	4852	4145	8784
MEAN	269	157	701	943	1094	864	1772	1130	227	157	134	293
MAX	346	365	3310	2760	3230	1730	4300	2490	402	453	316	1580
MIN	119	95	124	284	502	465	892	479	95	85	77	89

CAL YR 1987 TOTAL 582801 MEAN 1597 MAX 18100 MIN 92 CFSM 1.30 IN. 17.71
WTR YR 1988 TOTAL 235269 MEAN 643 MAX 4300 MIN 77 CFSM .53 IN. 7.15

GUYANDOTTE RIVER BASIN

03204000 GUYANDOTTE RIVER AT BRANCLAND, WV--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1961, 1965, 1975 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1975 to November 1976, February to September 1977.

WATER TEMPERATURE: March to December 1976, February to September 1977.

TURBIDITY: October 1975 to December 1976.

SUSPENDED SEDIMENT DISCHARGE: March 1976 to September 1977.

REMARKS.--Sediment analyses performed by West Virginia Department of Natural Resources.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 845 microsiemens, Aug. 27, 1976; minimum daily, 108 microsiemens, Feb. 11, 1977.

WATER TEMPERATURE: Maximum daily, 32.0°C, July 14, 1977; minimum daily, 1.0°C, several days in February 1977.

TURBIDITY: Maximum daily, 200 NTU, Mar. 21, Aug. 15, 1976, minimum daily, 1 NTU, on several days in 1976.

SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,250 mg/L, Dec. 9, 1976; minimum daily mean, 5 mg/L, Oct. 24, 1976, and July 17, 20, 1977.

SEDIMENT LOADS: Maximum daily, 205,000 tons, Apr. 5, 1977; minimum daily, 2.3 tons, July 20, 1977.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS. / 100 ML.) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)
OCT												
21...	1300	263	630	8.10	12.5	2.2	750	8.4	80	22	840	140
JAN												
12...	1500	433	491	7.60	0.0	1.7	745	12.6	88	32	130	140
MAR												
31...	1400	979	308	7.50	14.0	14	748	8.8	87	850	45	90
MAY												
12...	1800	2590	295	7.50	17.5	25	748	8.3	89	3400	1000	89
JUL												
18...	1530	116	660	7.90	29.0	0.50	741	6.1	82	K90	37	160
SEP												
03...	1930	91	795	8.00	23.5	6.0	740	6.7	82	K42	K75	160
DATE	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	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- 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												
21...	12	31	15	77	3.7	158	0	130	160	15	0.20	0.29
JAN												
12...	70	31	15	44	3.3	77	0	63	140	14	0.20	7.0
MAR												
31...	41	20	9.7	28	2.2	56	0	46	85	8.9	0.20	4.4
MAY												
12...	40	20	9.3	24	1.6	56	0	46	78	6.3	0.30	6.3
JUL												
18...	54	34	17	77	4.4	117	0	96	180	25	0.30	3.7
SEP												
03...	2	35	17	110	4.6	180	0	152	180	31	0.20	2.7

GUYANDOTTE RIVER BASIN

03204000 GUYANDOTTE RIVER AT BRANCHLAND, WV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, 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 TOTAL (MG/L) AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L) AS N) (00608)	NITRO- GEN, ORGANIC TOTAL (MG/L) AS N) (00605)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L) AS N) (00625)	PHOS- PHOROUS TOTAL (MG/L) AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L) AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L) AS P) (00671)	ALUM- INUM, DIS- SOLVED (UG/L) AS AL) (01106)
OCT 21...	375	380	<0.010	<0.100	<0.010	<0.010	--	0.50	0.010	<0.010	<0.010	30
JAN 12...	293	301	<0.010	0.890	0.130	0.140	0.27	0.40	0.010	<0.010	<0.010	10
MAR 31...	182	190	<0.010	0.430	0.030	0.020	0.27	0.30	0.020	<0.010	<0.010	--
MAY 12...	175	178	<0.010	0.460	<0.010	0.040	--	0.30	0.020	<0.010	<0.010	40
JUL 18...	405	406	<0.010	0.500	<0.010	<0.010	--	0.60	0.010	<0.010	<0.010	30
SEP 03...	480	476	<0.010	0.430	<0.010	0.010	--	0.70	0.020	0.010	0.010	--

DATE	ARSENIC DIS- SOLVED (UG/L) AS AS) (01000)	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)	LITHIUM DIS- SOLVED (UG/L) AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L) AS MN) (01056)
OCT 21...	<1	64	<0.5	<1	1	<3	2	65	<5	31	26
JAN 12...	<1	57	<0.5	<1	<1	<3	3	25	<5	19	160
MAR 31...	--	--	--	--	--	--	--	--	--	--	--
MAY 12...	1	48	<0.5	<1	<1	<3	1	15	6	14	4
JUL 18...	<1	89	<0.5	<1	<1	<3	2	20	<5	26	36
SEP 03...	--	--	--	--	--	--	--	--	--	--	--

DATE	MERCURY DIS- SOLVED (UG/L) AS HG) (71890)	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)	ZINC, DIS- SOLVED (UG/L) AS ZN) (01090)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 21...	<0.1	<10	<1	<1	1.0	540	<6	<3	7	5.0	59
JAN 12...	<0.1	<10	5	<1	1.0	450	<6	<3	2	2.3	100
MAR 31...	--	--	--	--	--	--	--	--	20	53	80
MAY 12...	<0.1	<10	5	<1	<1.0	290	<6	7	118	825	46
JUL 18...	<0.1	<10	1	<1	<1.0	700	<6	6	3	0.94	22
SEP 03...	--	--	--	--	--	--	--	--	10	2.5	73

OHIO RIVER MAIN STEM

03206000 OHIO RIVER AT HUNTINGTON, WV

LOCATION.--Lat 38°24'48", long 82°30'02", Lawrence County, Ohio, Hydrologic Unit 05090101, on right bank at lock 28 at Sybene, Ohio, 0.1 mi upstream from Fourpole Creek, 3.0 mi downstream from Symmes Creek, and at mile 311.6, measured downstream from Pittsburgh, Pa.

DRAINAGE AREA.--55,900 mi², approximately.

PERIOD OF RECORD.--August 1934 to September 1986, October 1986 to current year (gage heights only). No low-flow records since October 1968. Gage-height records collected at same site since 1913 are in reports of National Weather Service.

REVISED RECORDS.--WSP 853: 1934, 1936. WSP 893: Drainage area. WSP 1305: 1935(M), 1939(M).

GAGE.--Water-stage recorder. Datum of gage is 490.263 ft, Sandy Hook datum. Prior to July 8, 1942, at datum 1.737 ft higher. Prior to September 30, 1986, auxiliary water-stage recorder 4.7 mi upstream from base gage at datum 490.102 ft (Sandy Hook datum).

REMARKS.--Flow regulated by Ohio River system of locks, dams, and reservoirs upstream. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--34 years (water years 1935-68), 75,240 ft³/s, 18.28 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 654,000 ft³/s, Jan. 28, 1937; maximum gage height, 69.45 ft, Jan. 27, 1937, present datum; minimum daily discharge determined, 3,200 ft³/s, Sept. 6, 13, Nov. 2, 1934, Oct. 3, 1935, Oct. 1, 1937.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 38.70 ft, Feb. 5; minimum, 24.45 ft, Oct. 27.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.68	25.91	26.83	26.91	25.45	25.26	26.41	25.51	25.15	25.30	25.81	25.84
2	25.74	25.64	27.43	26.76	26.86	25.70	26.23	25.83	25.15	25.32	26.09	25.95
3	25.74	25.40	27.13	27.04	33.98	25.36	26.03	25.68	25.11	25.46	26.11	25.91
4	25.80	25.28	26.44	26.64	37.35	26.77	26.25	25.79	25.03	25.80	26.05	25.90
5	25.43	25.72	26.46	25.80	38.60	32.92	28.05	25.80	25.26	26.26	25.74	26.11
6	25.54	25.92	26.59	25.78	37.55	33.60	28.93	25.60	25.12	26.39	25.43	26.10
7	25.66	25.86	26.13	25.44	34.03	31.25	28.70	26.71	25.05	26.06	25.44	26.04
8	25.53	26.09	25.93	26.03	30.88	28.54	28.74	27.60	25.38	25.74	25.65	25.77
9	25.61	26.02	25.99	26.10	28.85	27.65	29.33	26.90	25.64	25.61	25.85	25.54
10	25.53	25.84	25.90	25.84	27.86	27.11	29.08	26.35	25.76	25.79	26.06	25.46
11	25.75	25.95	26.02	25.75	27.19	26.88	28.40	25.87	25.72	26.05	26.09	25.58
12	25.28	26.24	25.99	26.01	26.75	26.51	27.50	25.94	25.02	26.10	25.82	25.74
13	25.54	26.38	26.19	25.91	26.11	26.87	26.56	25.62	25.27	26.21	25.36	26.11
14	25.67	26.47	25.61	26.02	25.60	27.00	26.17	25.79	25.58	26.20	25.33	26.03
15	25.42	26.20	25.55	26.01	25.42	27.13	25.72	25.13	25.87	26.26	25.46	25.98
16	25.22	25.88	25.94	26.13	25.53	27.09	25.40	25.38	25.61	26.25	25.81	25.91
17	25.39	25.66	26.02	25.82	25.61	26.46	25.34	25.27	25.49	26.27	26.09	25.75
18	25.19	25.81	26.19	25.78	26.08	26.16	25.24	25.38	25.43	26.20	25.58	26.15
19	25.24	25.92	25.74	26.11	26.11	26.15	25.79	25.82	25.28	26.15	25.43	26.20
20	25.11	26.22	25.36	27.70	26.23	26.22	25.90	26.08	25.36	26.28	25.78	25.93
21	25.20	26.31	25.77	31.60	26.86	26.11	25.65	26.73	25.55	26.66	26.10	25.69
22	25.27	26.09	26.21	32.94	27.20	25.72	25.72	26.36	25.77	25.99	25.94	25.58
23	25.20	25.58	26.66	29.81	26.99	25.54	25.67	26.48	26.05	26.00	25.70	25.52
24	25.26	24.99	26.30	28.42	27.12	25.81	25.68	25.88	26.27	26.25	25.76	25.56
25	25.18	25.35	26.18	27.23	26.97	25.76	25.62	26.40	26.24	26.21	26.13	25.80
26	25.20	25.88	28.13	26.43	26.74	26.07	25.14	26.34	26.10	25.86	26.23	26.14
27	24.70	25.86	30.97	25.83	26.15	27.07	25.56	25.83	25.89	25.63	26.04	26.25
28	25.18	25.93	30.44	25.41	25.95	27.75	25.34	25.88	25.69	25.78	25.75	25.98
29	25.63	25.76	29.05	25.06	25.67	27.78	25.20	25.31	25.52	26.22	25.53	25.80
30	25.67	26.20	28.77	25.38	---	27.01	25.59	25.00	25.34	25.80	25.59	25.48
31	25.88	---	28.19	25.05	---	26.79	---	25.19	---	25.53	25.77	---
MEAN	25.43	25.88	26.78	26.67	28.33	27.16	26.50	25.92	25.52	25.99	25.79	25.86
MAX	25.88	26.47	30.97	32.94	38.60	33.60	29.33	27.60	26.27	26.66	26.23	26.25
MIN	24.70	24.99	25.36	25.05	25.42	25.26	25.14	25.00	25.02	25.30	25.33	25.46

WTR YR 1988 MEAN 26.31 MAX 38.60 MIN 24.70

TWELVEPOLE CREEK BASIN

03206600 EAST FORK TWELVEPOLE CREEK NEAR DUNLOW, WV

LOCATION.--Lat 38°01'02", long 82°17'46", Wayne County, Hydrologic Unit 05090102, on left bank 0.2 mi upstream from Maynard Branch, 0.9 mi downstream from McComas Branch, 1.5 mi upstream from Devilstrace Branch, and 7.5 mi east of Dunlow, and at mile 60.2.

DRAINAGE AREA.--38.5 mi².

PERIOD OF RECORD.--October 1964 to current year.

REVISED RECORDS.--WDR WV-82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 710.00 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 22, 1964, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 6-16, 27, 28, Feb. 6, 7, 11, 12. Records good except for periods with ice effect, which are fair, and periods with large shifts of stage, Oct. 15 to Nov. 9, July 14 to Aug. 20, and Sept. 11-30, which are poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--24 years, 51.5 ft³/s, 18.17 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,040 ft³/s, Dec. 9, 1978, gage height, 15.84 ft, from rating curve extended above 1,300 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 0.01 ft³/s, July 2-13, 1966, Sept. 18-28, 1967, Sept. 8, 9, 1973; minimum gage height, 4.43 ft, July 8-10, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 840 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Dec. 26	0700	*561	*8.53	No peak greater than base discharge.			

Minimum discharge, 0.02 ft³/s, July 8-10, gage height, 4.43 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.2	1.5	1.6	90	13	17	33	20	2.5	.11	3.8	.19
2	4.2	1.3	1.6	83	56	16	29	17	4.9	.08	2.7	.14
3	3.2	1.2	1.4	55	112	17	26	15	15	.06	2.0	.17
4	2.9	1.2	2.7	41	170	94	26	23	5.1	.05	1.6	2.4
5	2.3	1.2	4.4	26	159	94	23	43	3.0	.05	3.0	3.4
6	1.6	1.2	3.8	e18	e80	68	24	60	2.3	.04	4.8	2.2
7	1.5	1.2	3.1	e15	e55	54	46	55	1.9	.03	3.5	1.5
8	1.1	1.2	2.9	e13	49	44	135	46	1.5	.03	2.9	1.2
9	1.2	1.8	2.8	e11	37	39	114	40	2.3	.03	2.5	1.0
10	1.8	16	2.7	e10	31	37	82	62	3.2	.03	1.9	1.1
11	1.8	19	2.5	e9.2	e25	29	63	45	2.1	.03	1.5	1.8
12	1.9	7.5	2.4	e8.4	e21	29	51	35	1.3	.04	1.2	2.4
13	1.8	4.3	2.1	e7.5	20	48	41	28	1.0	1.5	5.4	2.7
14	1.9	3.1	3.1	e6.5	17	42	33	23	.81	1.9	2.8	3.4
15	2.2	2.5	45	e6.0	21	38	27	19	.66	2.0	1.8	2.8
16	.86	2.1	25	e5.7	19	33	23	16	.56	1.6	1.2	2.3
17	.82	3.5	15	7.5	16	28	20	13	2.8	1.2	.76	2.4
18	1.1	9.2	10	19	15	27	35	11	1.5	1.4	.42	3.2
19	1.2	6.5	8.0	27	17	26	51	11	.86	2.9	.36	2.8
20	1.2	4.5	7.4	138	21	23	41	9.6	.61	6.9	1.2	2.7
21	1.3	3.6	6.0	92	19	20	39	8.1	.48	5.9	3.4	3.2
22	1.3	2.8	4.8	59	17	18	128	6.6	.41	4.4	1.3	3.0
23	1.4	2.4	4.3	44	22	17	105	5.6	.33	3.6	3.0	2.4
24	1.6	2.3	3.8	34	26	16	76	7.0	.24	3.1	7.2	6.9
25	1.9	2.1	45	29	25	17	58	29	.18	2.6	2.3	12
26	1.7	1.9	368	23	26	67	47	12	.18	2.7	1.2	4.0
27	1.9	1.8	110	e18	25	75	39	7.8	.13	2.7	.71	3.1
28	1.9	1.7	88	e16	22	62	32	5.7	.09	3.0	.50	2.5
29	1.5	1.6	93	15	20	52	27	4.4	.12	2.8	.39	2.1
30	1.3	1.6	52	15	---	44	23	3.6	.15	2.3	.40	1.9
31	1.2	---	39	14	---	37	---	2.9	---	4.5	.23	---
TOTAL	59.78	111.8	961.4	955.8	1156	1228	1497	684.3	56.21	57.58	65.97	80.90
MEAN	1.93	3.73	31.0	30.8	39.9	39.6	49.9	22.1	1.87	1.86	2.13	2.70
MAX	8.2	19	368	138	170	94	135	62	15	6.9	7.2	12
MIN	.82	1.2	1.4	5.7	13	16	20	2.9	.09	.03	.23	.14
CFSM	.05	.10	.81	.80	1.04	1.03	1.30	.57	.05	.05	.06	.07
IN.	.06	.11	.93	.92	1.12	1.19	1.45	.66	.05	.06	.06	.08

CAL YR 1987 TOTAL 14558.59 MEAN 39.9 MAX 996 MIN .04 CFSM 1.04 IN. 14.07
WTR YR 1988 TOTAL 6914.74 MEAN 18.9 MAX 368 MIN .03 CFSM .49 IN. 6.68

e Estimated

BIG SANDY RIVER BASIN

03212750 TUG FORK AT WELCH, WV

LOCATION.--Lat 37°26'28", long 81°36'00", McDowell County, Hydrologic Unit 05070201, on left bank at bridge in the Hemphill section of Welch, 20 ft downstream from Mod Branch at mile 131.5.

DRAINAGE AREA.--174 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 1,268.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. National Weather Service gage-height telemeter and U.S. Army Corps of Engineers satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,490 ft³/s, Apr. 24, 1987, gage height, 11.90 ft; minimum, 24 ft³/s, Sept. 4-5, 1987, gage height, 2.57 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 656 ft³/s, Dec. 25, gage height, 5.22 ft; minimum, 26 ft³/s, Sept. 2, gage height, 2.58 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	36	35	90	61	68	131	150	91	65	42	35
2	38	36	35	116	73	67	138	144	89	64	40	31
3	36	36	33	95	146	67	141	140	89	63	41	31
4	38	36	42	81	244	73	140	148	86	63	52	80
5	39	34	42	59	277	81	127	147	84	62	43	69
6	39	33	38	44	167	75	123	150	83	61	50	44
7	41	33	36	53	125	74	165	151	80	59	51	38
8	41	34	35	47	118	72	236	149	78	59	42	34
9	38	35	36	50	103	74	228	145	86	55	37	32
10	36	68	36	44	95	73	194	159	87	53	35	32
11	37	70	35	39	88	71	172	150	78	52	33	32
12	38	46	35	43	88	71	159	141	76	55	34	34
13	37	36	35	49	81	101	155	137	75	62	49	35
14	36	39	36	46	77	99	139	133	72	66	38	34
15	36	37	38	42	84	95	133	128	71	56	35	31
16	36	37	35	41	84	89	126	121	69	53	33	30
17	35	36	34	46	71	84	122	129	69	52	35	141
18	36	45	33	59	71	83	135	130	67	72	34	100
19	36	37	34	87	70	90	148	125	67	69	34	54
20	39	38	34	152	73	82	148	122	70	55	47	43
21	43	38	34	129	69	82	150	121	68	57	53	38
22	41	36	33	101	64	79	151	115	65	68	41	35
23	38	36	33	85	73	76	152	112	64	61	37	38
24	38	35	32	76	85	75	361	110	64	49	37	121
25	38	34	233	78	78	74	249	125	63	45	35	221
26	37	33	264	73	72	97	215	111	64	44	33	137
27	37	33	152	64	72	106	193	104	64	53	32	74
28	38	33	128	60	70	105	176	100	70	46	32	56
29	37	38	124	57	69	103	165	98	68	42	34	49
30	36	37	91	60	---	96	158	95	67	45	40	44
31	36	---	74	62	---	100	---	88	---	49	39	---
TOTAL	1176	1155	1915	2128	2848	2582	5030	3978	2224	1755	1218	1773
MEAN	37.9	38.5	61.8	68.6	98.2	83.3	168	128	74.1	56.6	39.3	59.1
MAX	45	70	264	152	277	106	361	159	91	72	53	221
MIN	35	33	32	39	61	67	122	88	63	42	32	30
CFSM	.22	.22	.36	.39	.56	.48	.96	.74	.43	.33	.23	.34
IN.	.25	.25	.41	.45	.61	.55	1.08	.85	.48	.38	.26	.38

CAL YR 1987 TOTAL 91910 MEAN 252 MAX 4300 MIN 29 CFSM 1.45 IN. 19.65
WTR YR 1988 TOTAL 27782 MEAN 75.9 MAX 361 MIN 30 CFSM .44 IN. 5.94

BIG SANDY RIVER BASIN

03212980 DRY FORK AT BEARTOWN, WV

LOCATION.--Lat 37°23'43", long 81°48'10", McDowell County, Hydrologic Unit 05070201, on left bank 20 ft upstream from bridge on State Highway 80/3, .4 mi upstream from Grapevine Branch, at mile 7.1.

DRAINAGE AREA.--209 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 1,056.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 5-13, 25-30, Feb. 7, 8, 12-14. Records good except for periods with ice effect, which are poor. National Weather Service gage-height telemeter and U.S. Army Corps of Engineers satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,210 ft³/s, Apr. 25, 1987, gage height, 9.49 ft; minimum discharge, 13 ft³/s, Oct. 30, 1987; minimum gage height, 2.23 ft, Sept. 3, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 702 ft³/s, Feb. 5, gage height, 4.43 ft; minimum discharge, 13 ft³/s, Oct. 30; minimum gage height, 2.23 ft, Sept. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	17	21	112	62	73	219	130	51	27	21	20
2	33	18	19	216	76	69	217	119	52	26	20	17
3	31	21	19	172	245	72	200	111	51	25	20	15
4	30	20	25	126	433	80	187	115	47	25	20	36
5	29	20	26	e80	578	85	167	125	45	24	25	61
6	29	19	21	e52	339	78	158	131	44	24	43	35
7	30	19	20	e48	e190	77	202	137	42	26	50	25
8	35	18	20	e48	e160	76	385	146	41	27	28	22
9	33	18	19	e47	140	74	459	141	46	26	24	20
10	32	32	19	e46	119	75	352	149	47	27	21	24
11	27	52	20	e45	105	76	279	134	40	24	20	21
12	26	39	22	e44	e95	77	231	120	38	24	19	21
13	27	29	23	e43	e82	100	203	110	35	34	20	21
14	24	30	25	43	e70	109	169	105	34	32	21	18
15	25	30	28	40	87	113	153	102	37	32	19	20
16	26	25	26	37	87	107	141	98	36	29	26	18
17	25	25	25	42	80	99	132	115	32	23	18	67
18	24	28	25	60	77	93	143	143	31	39	17	112
19	24	31	25	147	77	94	189	111	31	49	21	50
20	28	29	25	338	84	91	215	98	76	33	19	32
21	33	25	25	304	86	84	217	88	46	29	28	26
22	30	23	23	203	77	80	216	82	39	38	21	25
23	29	21	27	148	77	79	205	78	35	37	18	26
24	30	22	29	117	86	73	273	71	31	32	17	71
25	29	20	204	e100	83	70	258	80	30	25	17	183
26	28	23	417	e85	79	93	230	79	29	23	16	224
27	26	26	244	e70	81	138	201	70	30	21	19	86
28	22	27	201	e65	82	150	175	63	28	22	19	52
29	15	28	204	e62	79	141	155	59	27	25	21	39
30	16	24	143	e65	---	135	142	56	27	25	23	31
31	20	---	107	64	---	143	---	53	---	22	23	---
TOTAL	856	759	2077	3069	3916	2904	6473	3219	1178	875	694	1418
MEAN	27.6	25.3	67.0	99.0	135	93.7	216	104	39.3	28.2	22.4	47.3
MAX	40	52	417	338	578	150	459	149	76	49	50	224
MIN	15	17	19	37	62	69	132	53	27	21	16	15
CFSM	.13	.12	.32	.47	.65	.45	1.03	.50	.19	.14	.11	.23
IN.	.15	.14	.37	.55	.70	.52	1.15	.57	.21	.16	.12	.25

CAL YR 1987 TOTAL 106409 MEAN 292 MAX 5080 MIN 15 CFSM 1.39 IN. 18.94
WTR YR 1988 TOTAL 27438 MEAN 75.0 MAX 578 MIN 15 CFSM .36 IN. 4.88

e Estimated

BIG SANDY RIVER BASIN

03213620 TUG FORK AT VULCAN, W. VA.

LOCATION.--Lat 37°33'06", long 82°07'28", Mingo County, Hydrologic Unit 05070201, on right bank at highway bridge at Vulcan, and 5.8 mi downstream from Knox Creek (Kentucky), and 1.9 mi upstream from Peter Creek, and at mile 78.7.

DRAINAGE AREA.--778 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 695.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 8-17. Records good except for period with ice effect, which is poor. National Weather Service gage-height telemeter and U.S. Army Corps of Engineers satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,200 ft³/s, Apr. 9, 1987, gage height, 18.47 ft; minimum, 62 ft³/s, Aug. 18, 19, 1988, gage height, 0.92 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Dec. 26	1200	*2,560	*6.14	No peak greater than base discharge.			

Minimum discharge, 62, ft³/s, Aug. 18, 19, gage height, 0.92 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	140	82	94	511	234	279	721	502	180	96	80	81
2	134	85	91	711	250	258	960	451	174	95	78	76
3	112	82	88	771	618	253	901	415	181	92	72	69
4	103	82	93	578	1490	270	859	433	176	91	80	154
5	97	84	111	403	2270	389	759	678	164	90	82	338
6	95	82	115	270	1490	410	669	743	156	88	115	217
7	101	80	107	211	937	385	969	809	151	86	136	133
8	103	79	100	e200	778	355	2160	752	144	85	141	98
9	102	79	99	e190	597	339	2030	670	146	85	97	83
10	101	105	100	e185	482	343	1520	719	185	85	80	77
11	97	184	99	e180	410	322	1200	680	175	83	71	75
12	95	201	98	e175	383	297	984	586	147	84	68	77
13	91	149	95	e170	342	420	851	503	138	91	68	78
14	92	119	99	e170	278	523	709	446	132	104	65	79
15	91	102	121	e165	323	525	599	407	126	114	75	73
16	88	102	135	e160	345	478	517	374	124	98	68	69
17	88	116	122	e160	321	417	464	413	122	88	65	347
18	89	170	110	211	297	379	489	450	116	84	67	626
19	87	139	104	410	297	391	695	441	113	93	63	324
20	89	126	102	1520	318	381	740	389	111	178	105	177
21	102	116	101	1350	315	350	742	349	143	137	259	126
22	113	105	97	925	283	318	742	321	130	137	135	101
23	104	99	93	646	289	307	694	297	115	137	100	90
24	98	95	92	482	327	293	1100	278	108	122	95	440
25	96	92	562	408	336	284	1250	299	104	102	88	873
26	94	91	2260	373	314	325	1050	304	102	86	76	676
27	94	88	1400	309	322	440	898	262	98	79	77	424
28	96	91	1110	258	315	540	759	234	98	89	74	241
29	98	92	1490	246	296	538	648	216	97	87	72	171
30	90	93	905	241	---	505	559	204	98	83	87	134
31	83	---	568	238	---	454	---	195	---	84	84	---
TOTAL	3063	3210	10761	12827	15257	11768	27238	13820	4054	3053	2823	6527
MEAN	98.8	107	347	414	526	380	908	446	135	98.5	91.1	218
MAX	140	201	2260	1520	2270	540	2160	809	185	178	259	873
MIN	83	79	88	160	234	253	464	195	97	79	63	69
CFSM	.13	.14	.45	.53	.68	.49	1.17	.57	.17	.13	.12	.28
IN.	.15	.15	.51	.61	.73	.56	1.30	.66	.19	.15	.13	.31

CAL YR 1987 TOTAL 384729 MEAN 1054 MAX 17300 MIN 73 CFSM 1.35 IN. 18.40
WTR YR 1988 TOTAL 114401 MEAN 313 MAX 2270 MIN 63 CFSM .40 IN. 5.47

e Estimated

BIG SANDY RIVER BASIN

03213700 TUG FORK AT WILLIAMSON, WV

LOCATION.--Lat 37°40'23", long 82°16'49", Pike County, Ky., Hydrologic Unit 05070201, on left bank at Williamson, 100 ft upstream from bridge on U.S. Highway 119, 0.8 mi downstream from Pond Creek, and at mile 56.5.

DRAINAGE AREA.--936 mi².

PERIOD OF RECORD.--October 1967 to current year. Gage-height records collected in this vicinity since 1926 are contained in reports of National Weather Service.

GAGE.--Water-stage recorder. Datum of gage is 620.90 ft, Ohio River Datum (levels by U.S. Army Corps of Engineers). Prior to Jan. 21, 1969, at datum 0.92 ft lower.

REMARKS.--Estimated daily discharges: Jan. 6-16, Mar. 14, 15. Records good except for period with ice effect, Jan. 6-16, which is poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--21 years, 1,111 ft³/s, 16.12 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 94,000 ft³/s, Apr. 5, 1977, gage height, 52.56 ft, from floodmarks, from rating curve extended above 18,000 ft³/s; minimum discharge, 59 ft³/s, Oct. 18-20, 1969; minimum gage height, 1.29 ft, Aug. 19, 1988.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods of Jan. 30, 1957, Mar. 12, 1963, and Mar. 7, 1967, reached stages of 43.6 ft, 44.5 ft, and 40.7 ft respectively, from readings by National Weather Service.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 9,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Dec. 26	1800	*2,700	*7.75	No peak greater than base discharge.			

Minimum discharge, 60 ft³/s, Aug. 19, gage height, 1.29 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	131	76	95	657	310	365	595	552	214	110	91	91
2	161	78	96	762	355	340	924	506	199	106	85	88
3	140	78	93	853	625	327	895	467	208	103	81	79
4	120	73	98	709	1480	341	856	478	203	100	76	133
5	108	73	113	542	2480	418	787	684	196	97	91	354
6	103	75	127	e340	1850	489	699	783	183	92	111	295
7	105	74	125	e290	1130	474	895	865	176	88	140	201
8	110	74	114	e260	880	445	2250	817	169	88	159	136
9	106	80	105	e245	730	423	2330	734	172	91	134	106
10	106	142	104	e235	601	424	1780	749	194	93	106	92
11	103	181	104	e225	523	413	1360	726	212	112	91	84
12	99	214	102	e215	483	385	1090	644	186	140	82	85
13	90	198	100	e205	444	461	917	562	164	121	82	98
14	84	151	116	e195	379	e580	794	506	155	119	74	86
15	85	123	182	e190	377	e600	679	463	147	133	67	82
16	83	107	170	e185	417	572	599	425	141	127	77	74
17	80	143	160	191	406	516	544	422	142	119	67	227
18	81	197	138	235	375	468	558	449	135	107	65	726
19	80	188	124	384	367	469	708	503	131	126	67	483
20	80	152	117	1510	386	462	762	439	130	163	83	262
21	91	141	112	1660	391	432	769	401	129	224	275	177
22	102	126	108	1140	367	391	766	366	160	205	210	134
23	110	111	105	814	363	366	743	339	137	157	144	113
24	97	103	99	637	403	350	885	318	127	162	140	370
25	92	97	355	543	423	343	1270	364	122	129	115	1080
26	91	93	2300	496	410	369	1060	344	116	116	97	755
27	87	93	1790	427	403	455	907	319	112	93	86	588
28	91	91	1220	360	403	560	777	274	107	86	87	337
29	91	95	1730	337	385	579	679	254	108	98	84	230
30	94	94	1130	321	---	560	603	237	109	94	91	179
31	82	---	728	313	---	526	---	223	---	100	101	---
TOTAL	3083	3521	12060	15476	18146	13903	28481	15213	4684	3699	3259	7745
MEAN	99.5	117	389	499	626	448	949	491	156	119	105	258
MAX	161	214	2300	1660	2480	600	2330	865	214	224	275	1080
MIN	80	73	93	185	310	327	544	223	107	86	65	74
CFSM	.11	.13	.42	.53	.67	.48	1.01	.52	.17	.13	.11	.28
IN.	.12	.14	.48	.62	.72	.55	1.13	.60	.19	.15	.13	.31

CAL YR 1987 TOTAL 444166 MEAN 1217 MAX 17400 MIN 73 CFSM 1.30 IN. 17.65
WTR YR 1988 TOTAL 129270 MEAN 353 MAX 2480 MIN 65 CFSM .38 IN. 5.14

e Estimated

BIG SANDY RIVER BASIN

03214500 TUG FORK AT KERMIT, WV

LOCATION.--Lat 37°50'14", long 82°24'32", Mingo County, Hydrologic Unit 05070201, behind fire station, at Kermit, 0.8 mi downstream from Wolf Creek, and at mile 34.9.

DRAINAGE AREA.--1,280 mi².

PERIOD OF RECORD.--June 1915 to September 1917, October 1917 to December 1920 (gage heights only), January 1929 to September 1934. Records published as "near Kermit" at different site and datum July 1934 to September 1985. Present site, February 1985 to current year.

GAGE.--Water-stage recorder. Datum of gage is 574.74 (corrected) ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 7-12. Records fair. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--10 years (water years 1916-17, 1930-34, 1986-88), 1,353 ft³/s, 14.35 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,900 ft³/s, Apr. 9, 1987, gage height, 35.12 ft; minimum, 69 ft³/s, Aug. 19, 1988, gage height, 1.76 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 6, 1977, reached a stage of 53.7 ft; May 8, 1984 was about 49 ft and Mar. 13, 1963, was about 46 ft; Jan. 30, 1957 was about 45 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 11,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Dec. 26	2200	*3,980	*10.74	No peak greater than base discharge.			

Minimum discharge, 69 ft³/s, Aug. 19, gage height, 1.76 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	150	105	121	1050	430	489	665	702	249	122	125	110
2	165	100	120	1160	503	459	922	645	235	121	108	97
3	184	102	118	1180	1030	439	1040	590	236	118	102	94
4	159	99	129	1050	1790	507	1000	600	235	119	95	154
5	144	93	142	811	3300	623	948	840	228	116	95	299
6	133	92	148	584	2740	687	866	1100	219	113	129	396
7	132	93	156	e530	1710	669	1080	1220	204	112	194	274
8	132	93	149	e490	1320	636	2880	1180	192	108	167	192
9	130	96	138	e460	1100	596	3490	1050	196	106	182	142
10	127	229	132	e440	910	596	2660	1140	218	109	136	117
11	127	293	135	e420	758	577	2020	1050	226	121	108	105
12	123	241	138	e400	723	542	1620	914	220	191	90	105
13	118	245	135	378	645	606	1330	793	196	182	81	105
14	110	204	151	329	590	716	1150	702	177	154	82	117
15	107	166	327	311	552	768	945	632	166	147	80	101
16	108	144	297	296	565	747	829	571	158	163	77	94
17	104	160	250	306	548	692	740	540	157	166	82	158
18	101	265	224	360	516	639	786	527	158	164	74	677
19	102	252	193	465	496	649	1010	570	149	180	84	635
20	103	210	180	1680	532	632	1050	529	147	168	106	385
21	112	181	169	2340	522	593	1050	481	142	242	177	250
22	133	167	160	1630	498	549	1030	440	150	306	309	186
23	152	154	158	1190	500	518	999	411	161	216	203	150
24	138	141	155	933	563	500	964	383	142	179	248	358
25	129	131	498	786	572	488	1380	448	133	183	174	1160
26	119	124	3200	696	565	593	1290	433	133	158	131	961
27	117	124	2840	609	558	665	1110	387	129	143	108	723
28	111	123	1860	534	549	727	1000	339	124	114	97	486
29	111	121	2260	470	524	765	877	304	120	108	101	325
30	112	123	1770	447	---	751	768	285	122	116	105	245
31	114	---	1130	430	---	713	---	267	---	118	107	---
TOTAL	3907	4671	17583	22765	25609	19131	37499	20073	5322	4663	3957	9201
MEAN	126	156	567	734	883	617	1250	648	177	150	128	307
MAX	184	293	3200	2340	3300	768	3490	1220	249	306	309	1160
MIN	101	92	118	296	430	439	665	267	120	106	74	94
CFSM	.10	.12	.44	.57	.69	.48	.98	.51	.14	.12	.10	.24
IN.	.11	.14	.51	.66	.74	.56	1.09	.58	.15	.14	.12	.27

CAL YR 1987 TOTAL 585086 MEAN 1603 MAX 22700 MIN 92 CFSM 1.25 IN. 17.00
WTR YR 1988 TOTAL 174381 MEAN 476 MAX 3490 MIN 74 CFSM .37 IN. 5.07

e Estimated

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS
WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

01595200 - STONY RIVER NEAR MOUNT STORM, WV

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER- ATURE WATER (DEG C) (00010)
OCT			
08...	1430	17	--
DEC			
14...	1330	101	--
FEB			
08...	1330	43	--
MAR			
17...	0945	95	4.0
MAY			
11...	1355	91	13.0
JUN			
27...	1050	5.8	17.0
AUG			
16...	1100	2.8	20.0

01604500 - PATTERSON CREEK NEAR HEADSVILLE, WV

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)
OCT							
28...	0915	14	300	7.30	9.0	752	9.2
DEC							
10...	1235	39	298	7.50	6.5	739	10.9
FEB							
02...	1330	194	225	7.40	7.0	745	11.2
MAR							
15...	1430	83	235	7.80	4.0	738	11.4
MAY							
11...	1115	--	157	7.20	15.0	743	9.1
JUL							
06...	1430	11	300	7.60	26.0	749	7.5
AUG							
30...	1525	39	230	7.80	24.0	744	7.7

01607500 - SO FK SO BR POTOMAC R AT BRANDYWINE, WV

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)
OCT							
29...	1145	12	200	7.80	--	719	11.0
DEC							
11...	1115	35	138	7.00	7.0	709	10.7
FEB							
03...	1230	142	119	8.20	7.0	723	11.9
MAR							
16...	1430	30	146	7.80	7.0	740	11.4
MAY							
12...	0820	108	110	7.20	11.5	723	9.5
JUL							
07...	0950	6.4	192	7.50	22.0	722	8.4
SEP							
01...	0940	7.0	195	7.90	18.0	724	9.0

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS
 WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
 01608000 - SO FK SOUTH BRANCH POTOMAC R NR MOOREFIELD, WV

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)
OCT							
28...	1610	39	245	8.00	11.0	736	11.2
DEC							
11...	0905	101	168	7.20	7.5	729	10.0
FEB							
03...	1000	303	129	7.50	6.5	745	11.8
MAR							
16...	0930	97	170	7.50	3.5	737	11.3
MAY							
12...	1150	351	128	7.20	14.0	742	9.2
JUL							
07...	1200	19	155	7.40	22.0	--	8.1
AUG							
31...	1130	18	205	8.00	22.0	742	9.8

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Crest-stage partial-record stations

The following table contains annual maximum discharge for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained, but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1988

					Annual maximum		
Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Date	Gage height (feet)	Dis-charge (ft ³ /s)
Kanawha River basin							
03187000	Gauley River at Camden on Gauley, WV	Lat 38 ^o 21'57", long 80 ^o 36'04", Webster County, Hydrologic Unit 05050005, on right bank in town of Camden on Gauley, 0.2 mile downstream from Coon Creek, and 0.9 mile upstream from Strouds Creek, and at mile 69.6.	236	1909-16, 1930-75*, 1976-88a	12-26-87	8.95	4,500
Guyandotte River basin							
03203000	Guyandotte River at Man, WV	Lat 37 ^o 44'25", long 81 ^o 52'37", Logan County, Hydrologic Unit 05070101, on right bank at downstream side of highway bridge at Man, 500 feet upstream from Buffalo Creek, and 0.7 mile downstream from Huff Creek, and at mile 93.4.	758	1928-62*, 1963-88a	04-08-88	7.32	3,780

* Operated as a continuous-record gaging station.
a Gage-height records on file in district office.

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

3758480805700 - BABCOCK STATE PARK

The following pages list the water-quality analyses for weekly precipitation samples collected at a miscellaneous site in Fayette County. This site is part of the National Atmospheric Deposition Program which has operated nationwide since 1978.

LOCATION.--Lat 37°58'48", long 80°57'00", Fayette County, Hydrologic Unit 05050004, in Babcock State Park, 0.95 mi west of main park entrance, 2.1 mi southwest of Clifftop.

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

REMARKS.--Laboratory analyses were performed by the Central Analytical Laboratory of the Illinois State Water Survey in Champaign, Illinois.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	VOLUME ATM DEP WET (L)	SPEC. CONDUCT- TANCE FIELD ATM DEP WET TOT (US/CM)	SPEC. CONDUCT- TANCE LAB ATM DEP WET TOT (US/CM)	PH FIELD ATM DEP WET TOT (UNITS)	PH LAB ATM DEP WET TOT (UNITS)	CALCIUM ATM DEP WET DIS (MG/L)	MAG- NESIUM ATM DEP WET DIS (MG/L)	SODIUM ATM DEP WET DIS (MG/L)	POTAS- SIUM ATM DEP WET DIS (MG/L)
OCT									
06-13	0.519	35.0	33.3	4.23	4.22	0.460	0.060	0.099	0.043
OCT									
13-20	0.013	--	87.6	--	3.79	0.610	0.115	0.678	0.061
OCT									
20-27	0.883	37.5	34.0	4.17	4.13	0.090	0.022	0.056	0.039
OCT 27-									
NOV 03	0.325	37.0	35.2	--	4.15	0.100	0.017	0.072	0.076
NOV									
03-10	1.296	22.4	17.0	4.54	4.84	0.160	0.056	0.316	0.055
NOV									
10-17	1.231	19.5	17.5	4.56	4.49	0.090	0.027	0.129	0.043
NOV									
17-24	0.615	9.1	8.7	4.85	4.86	0.120	0.020	0.042	0.025
NOV 24-									
DEC 01	0.610	18.2	18.0	4.51	4.47	0.070	0.019	0.041	0.064
DEC									
01-08	0.002	28.5	28.5	4.49	4.25	0.140	0.021	0.061	0.016
DEC									
08-15	1.160	18.7	18.3	4.50	4.47	0.220	0.030	0.106	0.045
DEC									
15-22	0.119	27.0	27.0	4.28	4.27	0.220	0.033	0.147	0.028
DEC									
22-29	5.263	11.9	11.1	4.66	4.60	0.020	0.008	0.041	0.010
DEC 29 1987-									
JAN 05 1988	0.647	21.5	20.3	4.30	4.38	0.030	0.011	0.096	0.006
JAN									
05-12	0.094	6.6	6.3	5.00	5.09	0.200	0.019	0.119	0.015
JAN									
12-19	0.001	11.0	9.9	4.72	4.73	0.090	0.010	0.048	0.010
JAN									
19-26	--	--	--	--	--	--	--	--	--
JAN 26-									
FEB 02	0.054	--	18.8	--	4.60	0.300	0.048	0.312	0.012
FEB									
02-09	1.618	13.0	13.7	4.55	4.55	0.040	0.008	0.054	<0.003
FEB									
09-16	--	28.8	27.7	4.28	4.25	0.100	0.014	0.065	0.016
FEB									
16-23	0.534	44.6	44.8	4.02	4.07	0.300	0.045	0.109	0.045
FEB 23-									
MAR 01	0.001	14.6	14.4	4.56	4.59	0.200	0.020	0.041	<0.003
MAR									
01-08	0.866	20.0	16.4	4.43	4.53	0.100	0.012	0.053	0.008
MAR									
08-15	1.026	27.1	25.0	4.36	4.38	0.280	0.040	0.108	0.032
MAR									
15-22	0.619	55.0	54.9	3.97	3.96	0.240	0.033	0.082	0.014
MAR									
22-29	1.036	21.1	18.5	4.44	4.58	0.310	0.038	0.216	0.019
MAR 29-									
APR 05	0.002	24.0	22.4	4.36	4.39	0.110	0.027	0.140	0.019
APR									
05-12	1.709	25.0	22.4	4.33	4.33	0.130	0.050	0.028	0.028
APR									
12-19	0.906	26.9	23.9	4.30	4.32	0.070	0.011	0.018	0.015
APR									
19-26	0.001	14.5	13.6	4.72	4.78	0.360	0.036	0.050	0.048
APR 26-									
MAY 03	0.573	41.0	41.9	4.13	4.16	0.410	0.079	0.023	0.034
MAY									
03-10	3.203	45.7	46.0	4.06	4.02	0.080	0.013	0.027	0.030
MAY									
10-17	0.094	77.0	73.6	3.86	3.87	1.37	0.181	0.080	0.252
MAY									
17-24	1.508	58.7	60.0	3.95	3.93	0.460	0.094	0.122	0.162
MAY									
24-31	1.817	21.4	21.9	4.38	4.31	0.030	0.011	0.023	0.012
MAY 31-									
JUN 07	0.600	89.0	90.4	3.74	3.73	0.400	0.090	0.068	0.038

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

3758480805700 - BABCOCK STATE PARK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	SULFATE ATM DEP WET DIS AS SO ₄ (MG/L)	CHLO- RIDE ATM DEP WET DIS (MG/L)	NI- TROGEN NITRATE ATM DEP WET DIS AS NO ₃ (MG/L)	NI- TROGEN AMMON. ATM DEP WET DIS AS NH ₄ (MG/L)	PHOS- PHOROUS ORTHO ATM DEP WET DIS AS PO ₄ (MG/L)	VOLUME ATM DEP BULK (L)	SPEC. CONDUCT- TANCE FIELD ATM DEP BLK TOT (US/CM)	SPEC. CONDUCT- TANCE LAB ATM DEP BLK TOT (US/CM)	PH FIELD ATM DEP BLK TOT (UNITS)
OCT 06-13	3.52	0.19	2.53	0.330	<0.020	--	--	--	--
OCT 13-20	7.99	0.61	5.02	<0.120	<0.120	--	--	--	--
OCT 20-27	3.29	0.10	1.66	0.310	<0.020	--	--	--	--
OCT 27-NOV 03	3.77	0.22	1.82	0.340	<0.020	--	--	--	--
NOV 03-10	2.45	0.52	1.13	0.720	<0.020	--	--	--	--
NOV 10-17	1.43	0.29	1.22	0.150	<0.020	--	--	--	--
NOV 17-24	0.55	0.16	1.09	0.090	<0.020	--	--	--	--
NOV 24-DEC 01	1.40	0.13	1.31	0.140	<0.020	--	--	--	--
DEC 01-08	1.95	0.30	2.51	0.310	<0.020	--	--	--	--
DEC 08-15	1.81	0.22	1.21	0.180	<0.020	--	--	--	--
DEC 15-22	2.54	0.36	1.92	0.130	<0.020	--	--	--	--
DEC 22-29	0.95	0.09	0.56	0.060	<0.020	--	--	--	--
DEC 29 1987- JAN 05 1988	1.74	0.15	1.50	0.070	<0.020	--	--	--	--
JAN 05-12	0.47	0.12	<0.03	<0.020	0.060	--	--	--	--
JAN 12-19	0.94	0.09	0.48	<0.020	<0.020	--	--	--	--
JAN 19-26	--	--	--	--	--	1.540	19.0	18.1	4.41
JAN 26-FEB 02	1.15	0.48	2.55	<0.020	0.150	--	--	--	--
FEB 02-09	1.41	0.08	0.58	0.030	<0.020	--	--	--	--
FEB 09-16	2.24	0.14	2.19	0.260	<0.020	--	--	--	--
FEB 16-23	4.22	0.24	3.29	0.310	<0.020	--	--	--	--
FEB 23-MAR 01	1.10	0.11	1.32	0.050	0.030	--	--	--	--
MAR 01-08	1.74	0.09	0.99	0.120	<0.020	--	--	--	--
MAR 08-15	3.07	0.15	1.70	0.410	<0.020	--	--	--	--
MAR 15-22	4.42	0.39	4.97	0.600	<0.020	--	--	--	--
MAR 22-29	2.10	0.15	1.79	0.240	<0.020	--	--	--	--
MAR 29-APR 05	1.97	0.20	1.70	0.200	<0.020	--	--	--	--
APR 05-12	2.19	0.06	1.21	<0.020	0.030	--	--	--	--
APR 12-19	2.65	0.05	0.89	0.220	<0.020	--	--	--	--
APR 19-26	1.86	0.07	1.05	0.180	<0.020	--	--	--	--
APR 26-MAY 03	4.04	0.17	3.84	0.700	<0.020	--	--	--	--
MAY 03-10	3.92	0.13	2.91	0.310	<0.020	--	--	--	--
MAY 10-17	7.64	0.40	6.42	0.620	0.160	--	--	--	--
MAY 17-24	5.81	0.30	4.38	0.580	<0.020	--	--	--	--
MAY 24-31	1.95	0.05	0.79	<0.020	<0.020	--	--	--	--
MAY 31-JUN 07	8.40	0.38	6.00	0.520	0.050	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

3758480805700 - BABCOCK STATE PARK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	VOLUME ATM DEP WET (L)	SPEC. CONDUCT- TANCE FIELD ATM DEP WET TOT (US/CM)	SPEC. CONDUCT- TANCE LAB ATM DEP WET TOT (US/CM)	PH FIELD ATM DEP WET TOT (UNITS)	PH LAB ATM DEP WET TOT (UNITS)	CALCIUM ATM DEP WET DIS (MG/L)	MAG- NESIUM ATM DEP WET DIS (MG/L)
JUN 07-14	0.696	56.0	54.6	3.94	3.96	0.220	0.024
JUN 14-21	0.256	86.5	86.2	3.74	3.76	0.350	0.062
JUN 21-28	0.139	112.0	96.8	3.76	3.83	2.61	0.257
JUN 28- JUL 05	0.373	50.5	51.6	4.01	3.97	0.340	0.066
JUL 05-12	0.999	42.8	36.8	4.04	4.11	0.120	0.019
JUL 12-19	2.057	32.0	28.6	4.18	4.23	0.110	0.012
JUL 19-26	3.747	39.0	41.3	4.17	4.06	0.080	0.008
JUL 26- AUG 02	0.002	48.0	48.8	3.99	3.99	0.140	0.012
AUG 02-09	1.162	40.0	39.8	4.09	4.06	0.140	0.020
AUG 09-16	0.001	63.6	64.0	3.90	3.87	0.130	0.023
AUG 16-23	1.726	12.5	22.0	4.29	4.31	0.050	0.007
AUG 23-30	2.644	26.5	27.3	4.30	4.25	0.130	0.028
AUG 30- SEP 06	0.003	15.5	14.2	4.47	4.52	0.040	0.005
SEP 06-13	0.129	29.5	17.9	4.24	4.64	0.120	0.026
SEP 13-20	2.384	15.0	26.4	4.29	4.27	0.140	0.009
SEP 20-27	4.896	14.5	15.0	4.46	4.49	0.050	0.006
SEP 27- OCT 04	0.612	7.7	5.1	4.76	5.09	0.030	0.009

DATE	SODIUM ATM DEP WET DIS (MG/L)	POTAS- SIUM ATM DEP WET DIS (MG/L)	SULFATE ATM DEP WET DIS AS SO4 (MG/L)	CHLO- RIDE ATM DEP WET DIS (MG/L)	NI- TROGEN NITRATE ATM DEP WET DIS AS NO3 (MG/L)	NI- TROGEN AMMON. ATM DEP WET DIS AS NH4 (MG/L)	PHOS- PHOROUS ORTHO ATM DEP WET DIS AS PO4 (MG/L)
JUN 07-14	0.040	0.032	6.09	0.11	1.83	0.030	<0.020
JUN 14-21	0.113	0.152	9.18	0.41	4.06	0.500	0.040
JUN 21-28	0.264	0.181	13.3	0.58	7.92	0.700	<0.020
JUN 28- JUL 05	0.025	0.010	5.34	0.19	2.55	<0.020	<0.020
JUL 05-12	0.131	<0.003	3.52	0.15	2.07	<0.020	<0.020
JUL 12-19	0.077	<0.003	2.74	0.11	<0.03	<0.020	<0.020
JUL 19-26	0.040	0.003	4.26	0.07	1.50	0.050	<0.020
JUL 26- AUG 02	0.036	<0.003	5.25	0.10	1.90	0.150	<0.020
AUG 02-09	0.021	0.005	4.10	0.08	1.64	0.080	<0.020
AUG 09-16	0.035	<0.003	6.58	0.16	2.47	0.350	<0.020
AUG 16-23	0.021	<0.003	1.83	0.05	1.17	<0.020	<0.020
AUG 23-30	0.092	0.020	2.73	0.19	1.42	0.160	<0.020
AUG 30- SEP 06	0.030	0.010	1.44	0.05	0.59	0.090	<0.020
SEP 06-13	0.230	0.024	2.56	0.24	0.97	<0.020	0.150
SEP 13-20	0.046	<0.003	3.08	0.08	1.09	0.320	<0.020
SEP 20-27	0.029	0.003	1.36	0.07	0.80	<0.020	<0.020
SEP 27- OCT 04	0.075	0.007	0.61	0.08	0.09	<0.020	0.030

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 1987 TO SEPTEMBER 1988

395712080313701 - DUNKARD FORK OF WHEELING CREEK NR MAJORSVILLE

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	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)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT										
19...	1400	2.0	330	8.10	13.5	737	10.1	100	K60	K23
NOV										
24...	1100	13	300	8.00	5.0	748	12.6	101	K58	120
DEC										
22...	1115	89	235	8.00	2.0	735	12.9	97	K11	1700
JAN										
21...	0910	310	185	7.50	4.0	736	11.7	92	770	1700
FEB										
22...	1230	87	240	7.40	3.0	731	12.3	95	K100	K42
MAR										
30...	0840	99	206	7.20	9.0	738	10.5	94	63	K13
APR										
25...	1015	52	250	7.50	10.0	738	10.0	92	K10	3800
MAY										
31...	1715	10	262	8.10	26.0	736	7.5	96	140	91
JUN										
22...	1230	0.53	345	7.40	24.0	736	6.8	84	100	260
JUL										
20...	1000	7.6	285	7.70	23.5	735	6.2	76	5400	K17000
AUG										
23...	0940	0.57	310	7.60	20.0	737	7.2	82	67	810
SEP										
07...	0800	1.6	325	7.80	14.0	738	8.1	81	600	1200

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)	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 FIELD MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
OCT										
19...	140	45	7.1	6.9	2.6	134	0	110	41	7.3
NOV										
24...	130	40	6.4	6.3	2.0	109	0	90	39	7.3
DEC										
22...	100	32	5.0	4.5	1.7	73	0	60	36	6.3
JAN										
21...	73	23	3.8	3.0	1.7	32	0	26	34	4.0
FEB										
22...	89	28	4.6	3.7	1.5	57	0	47	38	4.3
MAR										
30...	92	29	4.7	3.8	1.1	63	0	52	39	3.7
APR										
25...	100	32	5.1	3.9	1.3	91	0	75	37	3.7
MAY										
31...	120	38	6.0	5.2	1.8	100	0	82	36	4.2
JUN										
22...	150	47	7.3	6.5	1.9	133	0	109	48	5.4
JUL										
20...	130	42	6.5	8.9	2.4	99	0	81	54	5.8
AUG										
23...	160	51	8.4	8.0	2.3	143	0	117	54	6.7
SEP										
07...	140	43	7.6	7.7	1.8	120	0	98	51	6.0

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

395712080313701 - DUNKARD FORK OF WHEELING CREEK NR MAJORSVILLE--Continued

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, 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)	PHOS- PHOROUS 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)
OCT 19...	0.10	1.9	177	<0.010	<0.100	0.010	<0.010	27	14
NOV 24...	0.10	3.8	169	<0.010	0.240	0.020	<0.010	22	6
DEC 22...	0.10	5.8	134	<0.010	0.540	<0.010	<0.010	14	13
JAN 21...	0.20	6.4	110	<0.010	1.10	0.030	<0.010	66	22
FEB 22...	0.20	6.2	117	<0.010	0.630	<0.010	0.010	28	10
MAR 30...	0.20	3.9	120	<0.010	0.170	<0.010	<0.010	16	12
APR 25...	0.20	3.1	129	<0.010	<0.100	0.030	<0.010	24	8
MAY 31...	0.30	1.1	155	<0.010	<0.100	0.010	<0.010	21	12
JUN 22...	0.40	2.6	193	<0.010	<0.100	0.040	<0.010	9	37
JUL 20...	0.10	5.4	173	0.020	0.800	0.030	<0.010	12	6
AUG 23...	0.10	2.0	206	<0.010	<0.100	<0.010	0.010	6	10
SEP 07...	0.10	3.0	187	<0.010	<0.100	<0.010	0.020	16	5

384748081325901 - RIGHT FK FROZENCAMP CREEK NR RIPLEY WV

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	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)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCOCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 23...	1030	0.04	230	7.30	8.0	749	5.0	43	K9	110
NOV 12...	1300	0.72	200	7.60	5.5	742	11.4	93	400	420
DEC 10...	1610	0.60	195	7.20	6.0	734	11.4	95	140	60
JAN 14...	1510	0.53	165	7.50	0.0	755	12.1	84	K17	900
FEB 03...	1200	22	98	7.20	6.0	745	10.4	85	K33	430
MAR 09...	1640	3.9	120	7.40	7.5	733	10.3	89	30	130
APR 13...	1505	2.1	138	7.60	11.5	739	10.1	96	24	120
MAY 18...	1235	0.50	175	7.50	15.5	743	7.5	77	560	480
JUN 22...	1350	<0.01	182	7.30	22.0	740	5.4	64	30	530
JUL 12...	0905	0.0	--	--	--	--	--	--	--	--
AUG 09...	1030	0.0	--	--	--	--	--	--	--	--
SEP 01...	1035	0.0	--	--	--	--	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

384806081375801 - ELK FORK NEAR MOUTH NR RIPLEY WV

		DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	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)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT										
23...	1630	0.11	200	7.30	9.0	751	6.3	55	K5	K22
NOV										
12...	1000	7.2	191	7.50	2.5	744	10.0	75	1100	K2700
DEC										
10...	0930	4.8	158	7.50	4.0	739	9.3	73	67	180
JAN										
14...	1010	4.7	190	7.40	0.0	756	12.4	86	K11	41
FEB										
03...	0930	180	91	7.10	5.0	745	10.6	85	K150	2500
MAR										
09...	0910	18	123	7.30	7.0	735	10.2	87	38	240
APR										
13...	1020	11	145	7.50	10.0	740	9.0	82	160	70
MAY										
18...	0900	2.2	177	7.50	18.5	742	6.4	70	650	360
JUN										
22...	1005	0.03	198	7.40	22.0	742	4.5	53	130	2200
JUL										
12...	1035	<0.01	188	7.10	22.5	743	4.6	55	55	950
AUG										
09...	0945	0.0	--	--	--	--	--	--	--	--
SEP										
01...	1130	0.0	--	--	--	--	--	--	--	--

[illegible]

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

384806081375801 - ELK FORK NEAR MOUTH NR RIPLEY WV--CONTINUED

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, 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)	PHOS- PHOROUS 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)
OCT 23...	0.10	4.0	125	<0.010	<0.100	<0.010	<0.010	110	84
NOV 12...	0.10	5.2	114	<0.010	0.390	0.030	<0.010	150	53
DEC 10...	0.20	4.6	108	<0.010	0.180	0.020	<0.010	120	46
JAN 14...	0.10	5.8	107	<0.010	0.400	0.050	<0.010	110	260
FEB 03...	0.20	6.7	66	<0.010	0.410	0.030	<0.010	130	83
MAR 09...	0.10	6.0	77	<0.010	0.280	0.030	<0.010	85	84
APR 13...	0.20	4.7	80	<0.010	<0.100	0.020	<0.010	23	93
MAY 18...	0.20	4.0	105	<0.010	<0.100	0.050	<0.010	53	190
JUN 22...	0.20	5.5	108	<0.010	<0.100	<0.010	<0.010	27	190
JUL 12...	0.20	4.3	104	<0.010	<0.100	<0.010	<0.010	71	990
AUG 09...	--	--	--	--	--	--	--	--	--
SEP 01...	--	--	--	--	--	--	--	--	--

384952081335201 - LITTLE CREEK NR RIPLEY WV

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	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)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 23...	1230	0.05	220	7.40	8.5	750	9.0	78	K7000	99
NOV 12...	1500	0.95	185	7.60	5.0	742	11.3	91	K160	340
DEC 10...	1250	0.72	155	7.90	6.0	735	12.6	105	380	920
JAN 14...	1700	0.72	163	7.40	0.0	755	13.5	93	K21	190
FEB 03...	1430	22	102	7.20	7.0	743	10.9	92	270	880
MAR 09...	1340	3.8	128	7.40	8.0	734	9.5	83	K2700	1500
APR 13...	1620	1.9	146	8.40	17.0	737	10.0	107	K56	390
MAY 18...	1610	0.34	178	7.70	16.5	741	7.9	83	520	1200
JUN 22...	1600	0.0	--	--	--	--	--	--	--	--
JUL 12...	0855	0.0	--	--	--	--	--	--	--	--
AUG 09...	0915	0.0	--	--	--	--	--	--	--	--
SEP 01...	1020	0.0	--	--	--	--	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

384952081335201 - LITTLE CREEK NR RIPLEY WV--Continued

[illegible][illegible]

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

385556082080101 - MUD RIVER AT MILTON WV

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	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)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT										
16...	1200	2.8	254	7.20	10.0	750	6.9	62	300	420
NOV										
13...	1130	56	312	7.60	4.0	740	9.6	75	1700	3900
DEC										
09...	1250	25	280	7.40	6.0	738	10.7	89	K110	130
JAN										
13...	1330	50	195	7.10	0.0	751	10.9	76	970	440
FEB										
02...	1150	118	272	7.60	8.0	749	10.2	88	K9800	K38000
MAR										
08...	1435	444	107	7.10	13.0	743	10.3	100	K630	K580
APR										
12...	1345	276	108	7.20	11.5	738	8.3	79	480	220
MAY										
17...	1235	82	117	7.40	19.0	740	6.8	76	230	180
JUN										
21...	1200	7.7	171	7.30	24.0	745	5.2	63	550	1400
JUL										
11...	1325	0.67	241	6.90	24.5	744	3.7	46	K23000	4700
AUG										
09...	1305	20	128	7.20	25.5	745	5.5	69	1100	920
SEP										
01...	1445	4.5	245	7.10	22.5	749	6.2	73	490	750

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)	BICAR- BONATE WATER WH IT FIELD MG/L AS HCO3 (00450)	CAR- BONATE WATER WH IT FIELD MG/L AS CO3 (00447)	ALKA- LITY WAT WH TOT IT FIELD MG/L AS CACO3 (00419)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
OCT										
16...	72	20	5.4	17	4.5	90	0	74	20	21
NOV										
13...	88	24	6.9	19	6.2	90	0	74	29	28
DEC										
09...	80	22	6.1	18	4.0	73	0	60	32	25
JAN										
13...	59	16	4.7	11	2.4	44	0	36	24	15
FEB										
02...	66	19	4.5	24	2.6	46	0	38	22	38
MAR										
08...	37	10	2.9	4.1	1.3	15	0	12	24	5.2
APR										
12...	38	9.8	3.2	4.2	1.6	13	0	11	23	5.3
MAY										
17...	43	11	3.7	5.1	1.9	21	0	17	19	6.4
JUN										
21...	55	14	4.8	10	3.2	59	0	48	14	13
JUL										
11...	79	22	5.8	15	2.8	67	0	55	20	18
AUG										
09...	41	11	3.3	5.7	3.2	43	0	35	18	8.7
SEP										
01...	73	20	5.7	16	4.2	56	0	46	31	24

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

385556082080101 - MUD RIVER AT MILTON WV--Continued

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, 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)	PHOS- PHOROUS 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)
OCT 16...	0.20	4.6	147	<0.010	0.180	0.320	<0.010	560	1100
NOV 13...	0.20	5.6	162	0.010	0.360	0.090	<0.010	340	920
DEC 09...	0.20	4.7	155	<0.010	0.330	0.050	<0.010	130	120
JAN 13...	0.20	7.1	107	<0.010	0.560	0.160	<0.010	180	220
FEB 02...	0.20	6.7	143	0.020	0.500	0.120	<0.010	200	150
MAR 08...	0.10	6.9	66	<0.010	0.420	0.040	<0.010	61	35
APR 12...	0.20	6.9	65	<0.010	0.200	0.020	<0.010	110	26
MAY 17...	0.20	6.7	73	<0.010	0.150	0.020	<0.010	100	99
JUN 21...	0.30	4.7	102	0.010	0.260	0.090	<0.010	36	330
JUL 11...	0.30	5.3	133	<0.010	0.220	0.160	<0.010	110	1600
AUG 09...	0.10	5.9	81	0.020	0.530	0.150	<0.010	99	290
SEP 01...	0.20	6.1	143	0.010	0.410	0.170	<0.010	43	1600

GROUND-WATER-QUALITY RECORDS

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

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

GROUND-WATER RECORDS GROUND-WATER LEVELS

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM

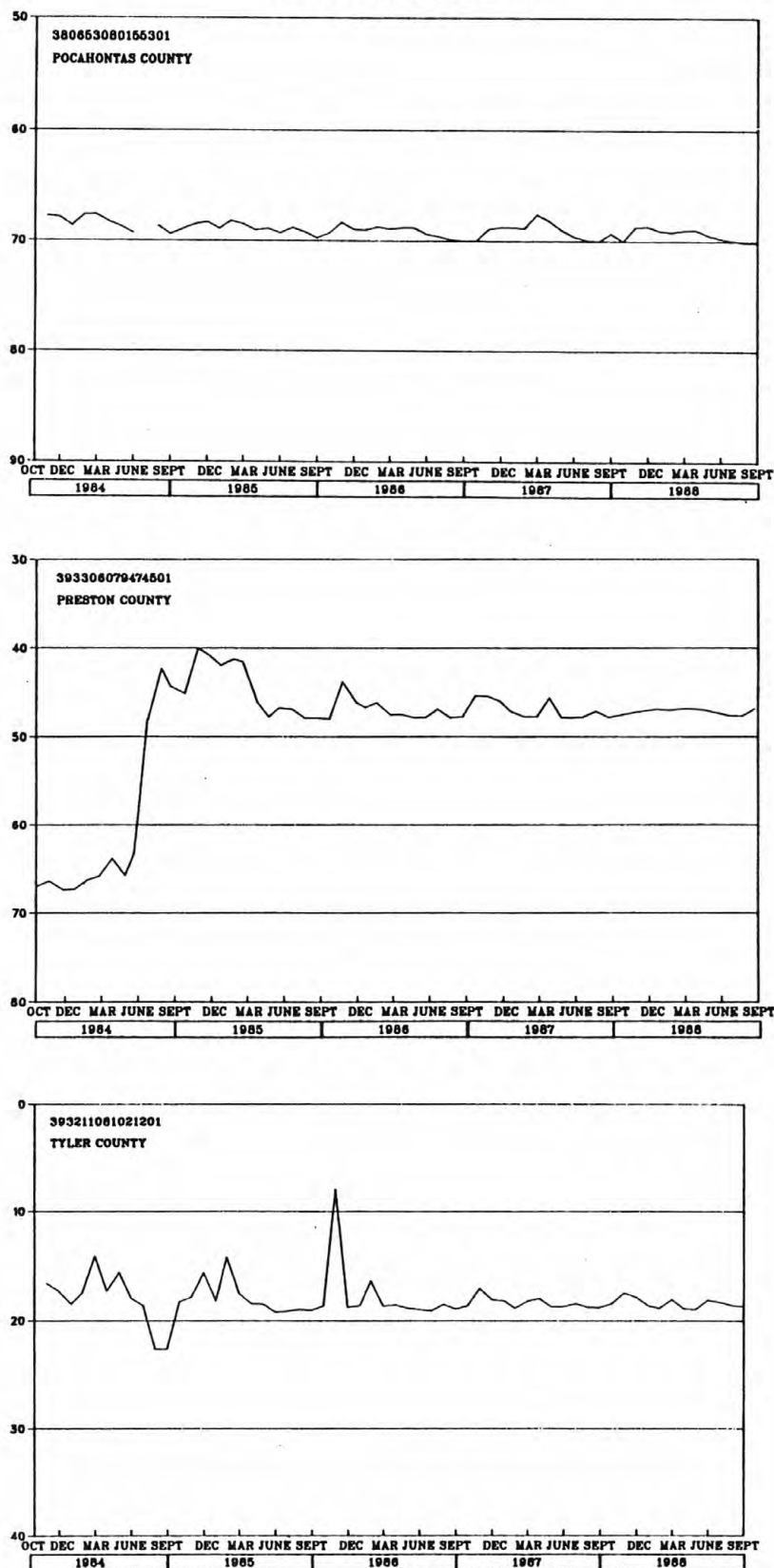


Figure 6.--End of month water levels for selected observation wells for water years 1984 to 1988.

GROUND-WATER RECORDS

GROUND-WATER LEVELS

BERKELEY COUNTY

392725077582401. Local number 20-5-7.

LOCATION.--Lat 39°27'25", long 77°58'24", Hydrologic Unit 02070004, at John Street and Porter Avenue, Martinsburg.
Owner: Martinsburg Mills, Inc.

AQUIFER.--Beekmantown Group of Lower Ordovician age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in., depth 250 ft, cased with steel to 10 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 445 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top edge of recorder shelter base, 3.30 ft above land-surface datum.

REMARKS.--No water-level record May 21-24, due to float hanging.

PERIOD OF RECORD.--November 1956 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 23.00 ft, estimated, below land-surface datum, June 24, 1972; lowest, 68.45 ft below land-surface datum, Dec. 7, 1969.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	56.09	56.81	55.00	55.71	52.41	53.97	56.11	55.92	42.22	47.90	51.99	49.36
10	56.25	56.62	56.01	56.20	53.09	54.03	52.53	50.59	41.99	48.93	51.79	51.44
15	56.34	55.67	56.07	56.42	53.77	54.74	53.95	51.40	43.30	47.87	53.53	53.53
20	56.70	56.31	55.87	52.74	53.64	55.40	54.52	43.13	44.51	49.12	53.42	54.40
25	56.90	56.70	56.04	52.28	54.31	55.94	55.18	38.72	45.71	48.15	48.45	54.22
ECM	56.34	52.83	54.95	53.07	54.92	55.83	55.80	40.71	46.80	50.30	48.96	55.27

WTR YR 1988 HIGH 38.72 MAY 25 LOW 56.99 OCT 27

BRAXTON COUNTY

384003080462601. Local number, 34-2-15.

LOCATION.--Lat 38°40'03", long 80°46'26", Hydrologic Unit 05050007, at Kanawha Street, Gassaway.
Owner: Claude Cunningham.

AQUIFER.--Conemaugh Group of Upper Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in., depth 100 ft, cased with steel.

INSTRUMENTATION.--Weekly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is about 1,100 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of casing, 1.92 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 72.28 ft below land-surface datum, Mar. 7, 1973; lowest measured, 74.88 ft below land-surface datum, Aug. 11, 1971.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07, 1987	73.82	JAN 06, 1988	73.70	APR 06, 1988	73.55	JUL 06, 1988	73.82
14	73.83	13	73.69	13	73.52	13	73.84
21	73.84	20	73.68	20	73.50	20	73.86
28	73.84	27	73.65	27	73.54	27	73.88
NOV 04	73.84	FEB 03	73.63	MAY 04	73.58	AUG 03	73.89
11	73.84	10	73.60	11	73.63	10	73.91
18	73.84	17	73.62	18	73.68	17	73.92
25	73.84	24	73.62	25	73.68	24	73.92
DEC 02	73.82	MAR 02	73.61	JUN 01	73.69	31	73.93
09	73.80	09	73.60	08	73.70	SEP 07	73.93
16	73.79	16	73.60	15	73.73	14	73.94
23	73.28	23	73.58	22	73.77	21	73.94
30	73.72	30	73.56	29	73.80	28	73.94

BROOKE COUNTY

401216080362703.

LOCATION.--Lat 40°12'16", long 80°36'27", Hydrologic Unit 05030106, about 2.5 mi west of Bethany on hilltop about 1,700 ft west of Buffalo Creek.

Owner: C. E. Reeves.

AQUIFER.--Waynesburg coal in the Monongahela Group of Upper Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 6 in., depth 50.5 ft, cased with steel to 46.5 ft.

INSTRUMENTATION.--Continuous strip-chart water-level recorder.

DATUM.--Elevation of land-surface datum is about 1,150 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of casing, 2.20 ft above land-surface datum.

REMARKS.--Aquifer test data available.

PERIOD OF RECORD.--July 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 34.87 ft below land-surface datum, Apr. 3, 1985; lowest, 42.09 ft below land-surface datum, Oct. 17, 18, 29, 1985 (42.83 ft on Sept. 22, 1982, result of recharge test).

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	40.49	41.15	39.37	38.48	36.89	38.35	37.61	40.21	40.72	41.42	41.42	41.57
10	40.68	41.28	39.03	39.31	37.71	37.33	37.61	40.37	40.80	41.46	41.47	41.70
15	40.80	41.38	39.08	39.86	38.28	37.61	38.43	40.29	40.96	41.49	41.50	41.70
20	40.86	41.19	39.15	39.50	38.60	37.97	39.17	40.43	41.07	41.41	41.49	41.61
25	41.12	41.15	38.57	38.32	38.64	38.17	39.74	40.45	41.18	41.38	41.52	41.68
ECM	41.20	40.26	38.12	39.00	38.88	37.70	40.08	40.53	41.26	41.35	41.65	41.79

WTR YR 1988 HIGH 36.89 FEB 5 LOW 41.79 SEP 30

GROUND-WATER LEVELS

FAYETTE COUNTY

380154080571301.

LOCATION.--Lat 38°01'54", long 80°57'13", Hydrologic Unit 05050005, 1.6 mi south of U.S. Route 60 on State Route 11, near Clifftop.

Owner: Nuttall heirs.

AQUIFER.--New River Formation of Lower Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in., depth 41.5 ft, cased with wrought iron.

INSTRUMENTATION.--Weekly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 2,280 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of casing cover, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--February 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.15 ft below land-surface datum, July 1, 1986; lowest measured, 12.00 ft below land-surface datum, July 12, 1988.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 06, 1987	8.52	JAN 12, 1988	9.12	APR 19, 1988	9.22	JUL 26, 1988	10.78
13	9.24	19	9.58	MAY 03	9.60	AUG 02	10.08
20	10.25	FEB 02	7.93	10	5.70	09	10.67
27	10.62	09	7.73	17	8.66	16	11.07
NOV 03	11.20	16	7.32	24	9.40	23	10.71
10	10.72	23	8.58	31	8.34	30	11.18
17	8.50	MAR 01	8.83	JUN 07	9.66	SEP 06	7.88
24	8.70	08	8.63	14	10.44	13	9.52
DEC 01	8.95	15	8.69	21	11.05	20	10.35
08	6.41	22	7.48	28	11.40	27	6.66
15	6.33	29	8.00	JUL 05	11.72		
22	8.49	APR 05	7.29	12	12.00		
JAN 04, 1988	7.59	12	7.54	19	11.86		

GILMER COUNTY

385604080495901. Local number, 33-3-1.

LOCATION.--Lat 38°56'04", long 80°49'59", Hydrologic Unit 05030203, at Glenville State College Campus, Glenville.

Owner: Glenville State College.

AQUIFER.--Conemaugh Formation of Upper Pennsylvanian age.

WELL CHARACTERISTICS.--Dug unused water-table well, diameter 3 ft, depth 25 ft, cased with concrete tile.

INSTRUMENTATION.--Weekly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is about 820 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of concrete cover at land-surface datum.

REMARKS.--West Virginia index well. On July 20, 1988 installed 4-in plastic casing and backfilled with sand to alleviate moisture problem in foundation of Administration Building.

PERIOD OF RECORD.--October 1953 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.58 ft below land-surface datum, Jan. 26, 1958; lowest measured, 18.75 ft below land-surface datum, Nov. 30, 1953.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 05, 1987	17.35	JAN 04, 1988	15.90	APR 18, 1988	15.98	JUL 22, 1988	15.12
12	17.32	11	16.36	22	15.83	AUG 01	16.92
19	17.45	18	15.96	MAY 02	16.39	08	17.26
23	17.57	25	16.07	09	16.47	15	17.46
26	17.66	FEB 01	16.47	16	16.60	22	17.60
NOV 02	17.78	08	15.34	23	16.84	29	17.59
09	17.94	15	15.90	30	17.00	SEP 05	17.43
16	17.53	22	15.82	JUN 06	17.15	12	17.40
23	17.47	29	15.84	13	17.30	19	17.39
30	17.21	MAR 14	15.65	20	17.48	23	17.25
DEC 07	16.91	21	15.83	27	17.66	26	17.26
14	16.97	28	15.69	JUL 04	17.83		
21	17.07	APR 04	15.84	11	17.77		
28	16.00	11	15.56	18	17.92		

GRANT COUNTY

391652079181401.

LOCATION.--Lat 39°16'52", long 79°18'14", Hydrologic Unit 02070002, about 200 ft north of U.S. Route 50, about 3.5 mi west of Mount Storm.

Owner: Buffalo Coal Company.

AQUIFER.--Thin bed of coal in the Conemaugh Group of Upper Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 6 in., depth 24 ft, cased with plastic to 23 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 2,890 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top edge of recorder shelter base, 1.50 ft above land-surface datum.

REMARKS.--Well is near reclaimed surface mine. No water-level record Oct. 1-8, due to recorder malfunction.

PERIOD OF RECORD.--June 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 6.33 ft below land-surface datum, Mar. 11-15, 1979; lowest, 21.24 ft below land-surface datum, Nov. 28, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	15.71	13.53	12.12	12.59	13.70	12.75	12.89	11.96	15.24	16.71	17.14
10	15.86	15.98	13.13	12.31	12.30	13.22	12.47	11.82	12.68	15.37	16.79	17.45
15	15.75	16.04	12.65	12.88	12.22	13.04	11.98	11.61	13.51	15.54	17.01	17.43
20	15.58	15.50	12.79	13.05	12.59	13.12	12.17	11.65	13.96	15.72	17.04	17.37
25	15.79	15.20	12.74	12.66	13.03	13.62	12.69	11.13	14.42	15.87	17.13	17.37
EOM	15.81	14.44	12.43	12.90	13.18	13.14	13.07	11.40	14.69	16.21	17.35	17.52

WTR YR 1988 HIGH 11.13 MAY 25 LOW 17.54 SEP 12

GREENBRIER COUNTY

374804080174001. Local number, 45-8-2.

LOCATION.--Lat 37°48'04", long 80°17'40", Hydrologic Unit 05050003, at Fish Culture Station, U.S. Fish and Wildlife Service Hatchery, White Sulphur Springs.

Owner: U.S. Government.

AQUIFER.--Marcellus Formation and Harrell Shale of Middle Devonian age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in., depth 61 ft, cased with steel.

INSTRUMENTATION.--Weekly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is about 1,875 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of casing, 0.90 ft above land-surface datum.

PERIOD OF RECORD.--November 1953 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.80 ft below land-surface datum, Mar. 16, 1955; lowest measured, 14.82 ft below land-surface datum, Aug. 29, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03, 1987	5.61	JAN 02, 1988	5.19	APR 02, 1988	5.70	JUL 02, 1988	9.70
10	5.95	09	5.35	09	5.53	09	12.27
17	5.92	16	5.60	16	5.65	16	12.30
24	5.87	23	5.25	23	5.63	23	5.55
31	5.85	30	5.58	30	5.58	30	5.75
NOV 07	5.83	FEB 06	5.20	MAY 07	5.15	AUG 06	6.80
14	5.55	13	5.55	14	5.55	13	8.15
21	5.40	20	5.59	21	5.39	20	6.28
28	5.40	27	5.57	28	5.75	27	6.15
DEC 05	5.39	MAR 05	5.50	JUN 04	5.82	SEP 03	6.15
12	5.38	12	5.62	11	6.80	10	6.10
19	5.35	19	5.60	18	6.55	17	6.30
26	4.77	26	5.65	25	6.72	24	6.15

HAMPSHIRE COUNTY

391257078404601. Local number, 23-6-46.

LOCATION.--Lat 39°12'57", long 78°40'46", Hydrologic Unit 02070003, about 4 mi south of Augusta on State Route 7.

Owner: Loring Hott.

AQUIFER.--Hampshire Formation of Upper Devonian age.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 6 in., depth 24 ft, cased with tile.

INSTRUMENTATION.--Continuous strip-chart water-level recorder.

DATUM.--Elevation of land-surface datum is about 1,400 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of casing at land-surface datum.

REMARKS.--No water-level record Nov. 29 to Dec. 2, Dec. 7, 8, Dec. 22 to Feb. 1, Feb. 5 to Mar. 14, Mar. 21 to May 9, May 11 to July 5, due to recorder malfunction.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.30 ft below land-surface datum, Sept. 25, 1975; lowest, 16.69 ft, estimated, below land-surface datum, July 15, 1973.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	12.41	13.47	7.87	---	---	---	---	---	---	---	13.65	13.34
10	12.83	12.87	11.05	---	---	---	---	2.45	---	13.58	13.73	13.59
15	13.12	7.03	11.65	---	---	10.50	---	---	---	13.70	13.87	13.99
20	13.29	9.92	8.50	---	---	11.19	---	---	---	13.89	13.89	14.01
25	13.60	11.89	---	---	---	---	---	---	---	13.79	13.74	14.10
EOM	13.49	---	---	---	---	---	---	---	---	13.50	13.75	14.10

WTR YR 1988 HIGH 1.91 FEB 4 LOW 14.10 SEP 25

GROUND-WATER LEVELS

HARDY COUNTY

385714078441301. Local number, 25-4-5.

LOCATION.--Lat 38°57'14", long 78°44'13", Hydrologic Unit 02070003, about 3 mi east of Lost River near entrance to Trout Pond Recreation Area.

Owner: U.S. Forest Service.

AQUIFER.--Helderberg Group of Early Devonian age and Tonoloway Formation of Late Silurian age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in., depth 460 ft, cased with steel to 190 ft.

INSTRUMENTATION.--Continuous strip-chart water-level recorder prior to November 1976, then periodic measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 1,920 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of well casing, 0.90 ft above land-surface datum.

PERIOD OF RECORD.--March 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 263.00 ft, estimated, below land-surface datum, July 15, 1972; lowest, 274.80 ft below land-surface datum, Oct. 1, 1985.

NOTE.--Water-level measurement Oct. 28, 1987, 274.20 ft below land-surface datum. Water-level measurement May 10, 1988, 268.20 ft below land-surface datum.

LEWIS COUNTY

390008080283401.

LOCATION.--Lat 39°00'08", long 80°28'34", Hydrologic Unit 05020002, about 75 ft northeast of County Route 30 bridge across West Fork River at Brownsville.

Owner: U.S. Geological Survey.

AQUIFER.--Monongahela Formation of the Upper Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in., depth 102 ft, cased with galvanized iron to 18 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch to Nov. 4, 1985; then periodic measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 1,026 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Three hacksaw marks on top of casing at land-surface datum.

REMARKS.--Well covered with water by Corps of Engineers January 1988, when Stonewall Jackson Dam completed.

PERIOD OF RECORD.--March 1982 to January 1988, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 3.30 ft below land-surface datum, Aug. 31, 1984; lowest, 12.64 ft below land-surface datum, Oct. 7, 8, 10, 1983.

NOTE.--Water-level measurement Oct. 15, 1987, 9.85 ft below land-surface datum.

390553080280802. Local number, 16-1-9.

LOCATION.--Lat 39°05'53", long 80°28'08", Hydrologic Unit 05020002, at Jackson's Mill State 4-H Camp, Jackson's Mill.

Owner: West Virginia University.

AQUIFER.--Conemaugh Group and Allegheny Formation of Upper and Middle Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in., depth 122 ft, cased.

INSTRUMENTATION.--Weekly measurement with chalked tape by observer prior to October 1977, then periodic measurement by USGS personnel.

DATUM.--Elevation of land-surface datum is about 1,020 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Drilled hole in steel plate covering casing at land-surface datum.

REMARKS.--Water level affected by stage of West Fork River.

PERIOD OF RECORD.--May 1961 to May 1976, October 1977 to current year. No measurements May 1976 to October 1977, observer resigned.

REVISED RECORDS.--WDR WV-85-1: Highest water level.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.00 ft below land-surface datum, Dec. 11, 1972; lowest measured, 24.80 ft below land-surface datum, Oct. 6, 1977.

NOTE.--Water-level measurement Oct. 15, 1987, 23.19 ft below land-surface datum. Water-level measurement May 16, 1988, 22.18 ft below land-surface datum.

MARION COUNTY

393101080150501.

LOCATION.--Lat 39°31'01", long 80°15'05", Hydrologic Unit 05020003, about 1,250 ft north of State Route 91 and 100 ft west of State Route 15 in Farmington.

Owner: State of West Virginia.

AQUIFER.--Open to a mine in Pittsburgh coal, Member of Monongahela Group of Upper Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in., depth 266 ft, cased with steel to 252 ft.

INSTRUMENTATION.--Daily water-level measurements by observer.

DATUM.--Elevation of land-surface datum is about 970 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of steel plate at land-surface datum.

REMARKS.--Well formerly used by U.S. Bureau of Mines to back fill abandoned mine with shale slurry. Water level affected by mine pumpage. No water-level record Dec. 25, Feb. 15, Mar. 5, 10, 20, Apr. 25, June 30, and July 20. Some unpublished daily values also missing.

PERIOD OF RECORD.--April 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 150.40 ft below land-surface datum, Sept. 4, 1988; lowest measured, 219.47 ft below land-surface datum, May 12, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	151.84	152.06	151.94	152.49	152.50	---	152.17	151.94	151.59	152.17	150.74	150.58
10	152.18	151.94	151.96	152.46	152.52	---	152.02	151.92	151.60	152.02	150.77	150.73
15	152.05	151.97	152.04	152.46	---	152.33	152.03	151.93	151.57	152.03	150.67	150.74
20	152.05	151.94	152.10	152.40	152.32	---	151.94	151.62	151.47	---	150.70	150.50
25	152.06	151.94	---	152.46	152.35	152.42	---	151.56	151.42	151.24	150.57	150.64
EOM	152.17	152.85	152.52	152.47	152.40	152.23	151.95	151.59	---	150.92	150.79	150.63

WTR YR 1988 HIGH 150.40 SEP 4 LOW 152.92 NOV 27

GROUND-WATER LEVELS

MASON COUNTY

385451082062001. Local number, 38-3-54.

LOCATION.--Lat 38°54'51", long 82°06'20", Hydrologic Unit 05030202, about 0.50 mi east of intersection of State Route 62 and Secondary State Route 13.

Owner: West Virginia University, Ohio Valley Agricultural Experiment Station.

AQUIFER.--Conemaugh Group of Upper Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 6 in., depth 131 ft, cased with steel to 60 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 615 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.00 ft above land-surface datum.

REMARKS.--No water-level record Nov. 29 to Dec. 1, and Mar. 1 to Sept. 30, due to recorder malfunction.

PERIOD OF RECORD.--November 1959 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 23.26 ft below land-surface datum, Aug. 22-25, 1980; lowest, 26.20 ft below land-surface datum, Jan. 1, 1966, (33.27 ft below land-surface datum, Oct. 29, 1984, due to pumping).

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	25.79	25.92	25.96	25.99	25.96	---	---	---	---	---	---	---
10	25.82	25.92	25.98	26.01	25.99	---	---	---	---	---	---	---
15	25.84	25.93	25.96	26.04	25.99	---	---	---	---	---	---	---
20	25.85	25.93	26.00	25.97	25.99	---	---	---	---	---	---	---
25	25.90	25.96	26.01	26.02	26.03	---	---	---	---	---	---	---
EQM	25.92	---	25.97	26.05	26.04	---	---	---	---	---	---	---

WTR YR 1988 HIGH 25.76 OCT 1 LOW 26.05 JAN 30

MERCER COUNTY

372149081055001. Local number, 48-5-1.

LOCATION.--Lat 37°21'49", long 81°05'50", Hydrologic Unit 05050002, at Princeton Water Service, Company No. 1 well, Princeton.

Owner: West Virginia Service Company.

AQUIFER.--Hinton Formation of Upper Mississippian age.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 6 in., depth 249 ft, cased. Measured depth 165 ft, Oct. 24, 1985.

INSTRUMENTATION.--Weekly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is about 2,387 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of casing extension, 5.50 ft above land-surface datum. Prior to September 1975 measuring point was top of casing at land-surface datum.

REMARKS.--Water level affected by nearby pumping.

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

REVISED RECORDS.--WDR WV-79-1: 1977-78 (water levels).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.14 ft above land-surface datum, Apr. 15, 1987, (flowing at land-surface datum, many days 1968 to 1985); lowest measured, 90.58 ft below land-surface datum, Dec. 10, 1969.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07, 1987	8.57	JAN 06, 1988	2.60	APR 06, 1988	.62	JUL 06, 1988	1.42
14	8.55	13	2.60	13	.54	13	1.52
21	8.97	20	1.73	20	.40	20	1.27
28	9.10	27	2.13	27	.20	27	1.20
NOV 04	7.67	FEB 03	1.66	MAY 04	.77	AUG 03	1.56
11	7.00	10	1.14	11	.66	10	1.70
18	5.30	17	1.58	18	.57	17	1.75
25	4.77	24	1.36	25	.56	24	1.64
DEC 02	4.16	MAR 02	1.35	JUN 01	0	31	2.06
09	4.10	09	1.18	08	.62	SEP 07	1.74
16	4.10	16	1.13	15	.90	14	1.85
23	4.06	23	1.21	22	1.10	21	1.52
30	2.97	30	1.13	29	1.10	28	1.13

MINERAL COUNTY

392114079081101. Local number, 22-5-23.

LOCATION.--Lat 39°21'14", long 79°08'11", Hydrologic Unit 02070002, 2.20 mi north of U.S. Route 50 on State Route 42 at Sulphur City near Elk Garden.

Owner: Gerald Whisner.

AQUIFER.--Conemaugh Group of Upper Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 6 in., depth 37 ft, cased with steel.

INSTRUMENTATION.--Weekly measurement with chalked tape by observer 1968 to 1976, periodic measurement with chalked tape by USGS personnel 1977 to current year.

DATUM.--Elevation of land-surface datum is about 2,480 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of casing extension, 0.70 ft above land-surface datum.

REMARKS.--Well flows at times. Water level affected by nearby pumpage at times. Well depth 6 ft, Oct. 24, 1980.

PERIOD OF RECORD.--August 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.69 ft above land-surface datum, many days since 1968; lowest measured, 10.81 ft below land-surface datum, Oct. 29, 1968.

NOTE.--Water-level measurement Oct. 8, 1987, 5.52 ft below land-surface datum. Water-level measurement May 11, 1988, 0.59 ft above land-surface datum. Water-level measurement July 7, 1988, 3.35 ft below land-surface datum.

GROUND-WATER LEVELS

MINGO COUNTY

373554081493401.

LOCATION.--Lat 37°35'54", long 81°49'34", Hydrologic Unit 05070101, downstream of toe of R. D. Bailey Dam northeast of Justice.

Owner: U.S. Army Corps of Engineers.

AQUIFER.--New River Formation of Lower Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in., depth 66 ft, cased with steel.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 920 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top edge of recorder shelter base, flush with top of casing, 1.00 ft above land-surface datum.

REMARKS.--At times, water level affected by Guyandotte River.

PERIOD OF RECORD.--March 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 29.05 ft below land-surface datum, Apr. 27, 28, 1987; lowest, 44.29 ft below land-surface datum, Oct. 6, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	35.34	36.19	36.34	35.13	33.17	35.13	34.64	35.72	36.10	36.08	36.25	35.09
10	35.56	36.18	36.31	35.58	35.09	35.17	33.09	35.03	36.07	36.14	36.00	35.86
15	35.63	36.25	36.24	35.73	35.64	35.00	35.68	35.14	36.21	35.67	36.15	36.14
20	35.64	36.24	36.28	33.64	35.22	35.74	35.90	34.80	36.25	35.67	36.18	35.60
25	35.45	36.27	36.23	34.81	35.25	37.01	35.16	35.76	36.27	35.98	36.05	34.37
EQM	36.24	36.27	34.59	35.72	35.07	35.92	36.35	36.05	36.09	35.88	36.07	36.72

WTR YR 1988 HIGH 32.60 APR 8 LOW 40.53 SEP 27

MONONGALIA COUNTY

392923079571801. Local number, 9-7-33.

LOCATION.--Lat 39°29'23", long 79°57'18", Hydrologic Unit 05020003, 1 mi northwest of Halleck on Secondary State Route 79.

Owner: Paul H. Price.

AQUIFER.--Buffalo Mahoning sandstone member of Conemaugh Group of Upper Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in., depth 141 ft, cased with steel to 21 ft.

INSTRUMENTATION.--Digital water-level recorder, 1961-62, 1978 to 1985; monthly measurement with chalked tape by USGS personnel, 1953 to 1961, 1962 to 1978, 1985 to current year.

DATUM.--Elevation of land-surface datum is about 1,850 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of casing, 0.35 ft above land-surface datum.

PERIOD OF RECORD.--March 1953 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 40.95 ft below land-surface datum, Jan. 4, 1960; lowest measured, 81.55 ft below land-surface datum, Sept. 21, 1988.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23, 1987	73.30	FEB 22, 1988	53.17	MAY 20, 1988	55.80	AUG 22, 1988	80.20
NOV 19	72.87	MAR 31	58.20	JUN 24	71.86	SEP 21	81.55
JAN 20, 1988	55.11	APR 27	58.05	JUL 21	76.49		

394006080194801. Local number, 9-1-47.

LOCATION.--Lat 39°40'06", long 80°19'48", Hydrologic Unit 05020005, 1 mi east of Wadestown on State Route 7.

Owner: Howard Shriver.

AQUIFER.--Dunkard Group of Upper Pennsylvanian and Permian age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in., depth 65 ft, cased with steel.

INSTRUMENTATION.--Weekly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is about 1,060 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of casing, 1.20 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.98 ft below land-surface datum, Apr. 7, 1987; lowest measured, 11.35 ft below land-surface datum, Aug. 6, 1971.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 06, 1987	7.33	JAN 05, 1988	5.27	APR 05, 1988	4.59	JUL 05, 1988	7.55
13	7.19	12	5.83	12	4.46	12	7.85
20	7.53	19	4.97	19	4.58	19	8.15
27	7.91	26	4.85	26	4.47	26	8.06
NOV 03	7.55	FEB 02	4.78	MAY 03	4.95	AUG 02	8.19
10	6.79	09	4.55	10	4.88	07	8.28
17	6.77	16	4.49	17	4.75	16	8.45
24	6.85	23	4.40	24	4.55	23	8.39
DEC 01	6.75	MAR 01	4.30	31	5.65	30	8.58
08	6.67	08	4.37	JUN 07	6.05	SEP 06	8.35
15	6.65	15	4.59	14	6.20	13	8.45
22	6.62	22	4.55	21	6.85	20	8.29
29	5.00	29	4.53	28	7.28	28	8.29

GROUND-WATER LEVELS

MORGAN COUNTY

393043078174001. Local number, 19-5-14.

LOCATION.--Lat 39°30'43", long 78°17'40", Hydrologic Unit 02070004, on Cacapon State Park south of Berkeley Springs on U.S. Route 522.

Owner: West Virginia Department of Natural Resources.

AQUIFER.--Tonoloway Formation of Upper Silurian age.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 8 in., reported depth 250 ft, cased with steel to 33 ft.

INSTRUMENTATION.--Weekly measurement with chalked tape by observer, 1971-75; monthly measurement with chalked tape by USGS personnel, 1976-77; digital water-level recorder--60-minute punch, 1977 to current year.

DATUM.--Elevation of land-surface datum is about 875 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top edge of recorder shelter base, 1.10 ft above land-surface datum. Prior to Aug. 16, 1977 measuring point was 1.20 ft above land-surface datum.

PERIOD OF RECORD.--July 1971 to July 1973, November 1974 to March 1975, July 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 29.14 ft below land-surface datum, May 21, 1980; lowest measured, 38.56 ft below land-surface datum, Sept. 25, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	35.47	34.60	33.65	33.59	32.57	32.63	33.77	33.55	33.50	35.50	35.57	32.79
10	35.40	36.60	33.74	33.72	32.97	33.02	33.05	33.11	33.46	35.00	35.83	33.39
15	35.60	33.11	32.92	33.80	33.53	33.68	33.56	33.25	33.80	35.37	36.55	33.81
20	35.13	33.87	32.00	31.51	32.29	33.59	33.61	32.66	33.77	34.39	31.26	33.83
25	36.31	35.43	32.95	32.70	33.29	33.78	33.76	32.66	34.77	34.77	32.84	33.61
EOM	35.63	32.78	33.04	32.95	33.55	33.84	33.78	33.38	35.26	34.85	33.42	34.71

WTR YR 1988 HIGH 30.54 MAY 6 LOW 36.86 OCT 27

NICHOLAS COUNTY

381513081094201.

LOCATION.--Lat 38°15'13", long 81°09'42", Hydrologic Unit 05050005, about 3 mi east of Belva and Route 16 on left of Secondary Route 20/21.

Owner: Burt Whiston.

AQUIFER.--Kanawha Formation of Lower Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in., depth 95 ft, cased with galvanized iron to 13 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 742.6 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.00 ft above land-surface datum.

PERIOD OF RECORD.--July 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level 2.52 ft below land-surface datum, Apr. 25, 1983; lowest, 12.71 ft below land-surface datum, Aug. 21, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	12.50	12.50	12.09	11.16	10.25	10.73	10.54	11.16	11.81	12.55	12.51	12.36
10	12.61	12.28	11.99	11.44	10.93	10.83	9.99	10.62	12.04	12.59	12.65	12.56
15	12.65	12.21	11.70	11.66	11.16	11.07	10.81	11.01	12.15	12.57	12.64	12.52
20	12.60	12.17	11.84	10.98	11.06	11.12	10.99	11.37	12.32	12.60	12.57	12.49
25	12.60	12.21	11.88	11.08	11.07	11.14	11.18	11.08	12.32	12.47	12.44	12.17
EOM	12.52	12.17	10.86	11.38	11.21	11.22	11.39	11.54	12.37	12.47	12.59	12.32

WTR YR 1988 HIGH 9.86 APR 9 LOW 12.70 OCT 13

GROUND-WATER LEVELS

POCAHONTAS COUNTY

380653080155301.

LOCATION.--Lat 38°06'53", long 80°15'53", Hydrologic Unit 05050003, on Droop Mountain State Park north of Droop on U.S. Route 219.

Owner: West Virginia Department of Natural Resources.

AQUIFER.--Mauch Chunk Group of Upper Mississippian age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in., depth 86 ft, cased with steel.

INSTRUMENTATION.--Weekly measurement with chalked tape by observer, 1970-76; periodic measurement by USGS personnel, 1978-80; digital water-level recorder--60-minute punch, 1980 to current year.

DATUM.--Elevation of land-surface datum is about 3,000 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top edge of recorder shelter base at land-surface datum. May 28, 1980 to July 7, 1983, measuring point 0.65 ft above land-surface datum. Prior to May 28, 1980 measuring point was top of casing at land-surface datum.

PERIOD OF RECORD.--December 1970 to January 1976, April 1978 to current year. Published as local well number "44-4-1", 1973-78.

REVISED RECORDS.--WDR WV-79-1: Well location, well characteristics, and water levels. WDR WV-83-1: Station identification number and lowest water level.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 62.86 ft below land-surface datum, May 30, 1982; lowest, 70.19 ft below land-surface datum, Sept. 15, 16, 1988. (73.39 ft below land-surface datum, Oct. 25, 1984, due to pumping.)

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	69.74	69.87	69.39	68.77	68.65	69.08	68.71	68.71	69.56	69.85	69.98	70.07
10	69.72	69.72	68.84	69.09	68.98	69.01	68.76	68.83	69.64	69.87	70.03	70.14
15	69.83	69.67	68.53	69.21	69.13	68.80	69.08	69.10	69.66	69.90	70.05	70.19
20	69.87	69.33	69.04	67.39	68.80	69.17	68.77	69.23	69.71	69.93	70.06	70.14
25	69.91	69.13	68.76	68.73	69.01	68.95	68.90	69.31	69.74	69.94	70.06	70.03
EOM	70.00	68.72	68.67	69.08	69.21	69.01	68.97	69.48	69.76	69.95	70.11	70.12

WTR YR 1988 HIGH 67.39 JAN 20 LOW 70.19 SEP 15

PRESTON COUNTY

393306079474501. Local number, 11-3-8.

LOCATION.--Lat 39°33'06", long 79°47'45", Hydrologic Unit 05020003, East Depot Street, Masontown.

Owner: G. E. Lemmons.

AQUIFER.--Pottsville Group of Lower Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled domestic artesian well, diameter 8 in., depth 785 ft, cased to 350 ft, perforated at or near Upper Freeport coal.

INSTRUMENTATION.--Weekly measurement with chalked tape by observer, 1941-46, and 1948-50; digital water-level recorder--60-minute punch, 1946-48; monthly measurement by USGS personnel, 1950 to current year.

DATUM.--Elevation of land-surface datum is about 1,770 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of extended casing, 3.53 ft above land-surface datum. Prior to July 1978 measuring point was 3.00 ft below land-surface datum.

PERIOD OF RECORD.--July 1941 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 7.15 ft below land-surface datum, Jan. 20, 1947; lowest measured, 108 ft below land-surface datum, Feb. 3, 1959.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23, 1987	47.51	FEB 22, 1988	46.99	MAY 20, 1988	46.98	AUG 22, 1988	47.67
NOV 19	47.27	MAR 31	46.80	JUN 24	47.34	SEP 21	46.83
JAN 20, 1988	46.85	APR 27	46.87	JUL 21	47.61		

RANDOLPH COUNTY

385100079522901.

LOCATION.--Lat 38°51'00", long 79°52'29", Hydrologic Unit 05020001, 1,800 ft west of U.S. Route 250 and 0.60 mi north of intersection of State Route 33 and U.S. Route 250, at Beverly.

Owner: Edsel Lucas.

AQUIFER.--Shale of Upper-Middle Devonian age.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 6 in., depth 98 ft, cased with plastic to 14 ft.

INSTRUMENTATION.--Periodic measurement with chalked tape by USGS personnel, 1978-79, and 1982 to current year; digital water-level recorder--60-minute punch, 1979-82.

DATUM.--Elevation of land-surface datum is about 1,940 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of casing 3.00 ft above land-surface datum.

REMARKS.--U.S. Geological Survey Test Well No. 2. Geologic log and aquifer test data available. At times, water level affected by stage of Tygart Valley River.

PERIOD OF RECORD.--November 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 3.00 ft above land-surface datum, Mar. 20, 1982; lowest, 3.60 ft below land surface datum, Oct. 16, 1985.

NOTE.--Water level measurement Oct. 6, 1987, 2.33 ft below land-surface datum. Water-level measurement May 17, 1988, 2.55 ft below land-surface datum.

GROUND-WATER LEVELS

RANDOLPH COUNTY

385341079575401. Local number, 18-3-110.

LOCATION.--Lat 38°53'41", long 79°57'54", Hydrologic Unit 05020001, 0.20 mi east of Coalton High School, Coalton. Owner: Presbyterian Church.

AQUIFER.--Homewood Sandstone Member of Kanawha Formation of Lower Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled exploratory water-table well, diameter 6 in., depth 155 ft, cased to 18 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel, 1966-67; digital water-level recorder--60-minute punch, 1968-77; periodic measurement with chalked tape by USGS personnel, 1977 to current year.

DATUM.--Elevation of land-surface datum is 2,171 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.60 ft above land-surface datum. Prior to Jan. 4, 1983, measuring point was 2.45 ft above land-surface datum.

REMARKS.--Water level affected by nearby pumping.

PERIOD OF RECORD.--December 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.85 ft below land-surface datum, Dec. 12, 1966; lowest, 23.35 ft below land-surface datum, Oct. 28, 1971.

NOTE.--Water-level measurement Oct. 6, 1987, 14.98 ft below land-surface datum. Water-level measurement May 17, 1988, 14.72 ft below land-surface datum.

RITCHIE COUNTY

391226081024901. Local number, 28-3-3.

LOCATION.--Lat 39°12'26", long 81°02'49", Hydrologic Unit 05030203, at Stout and East South Street, Harrisville. Owner: Terry Stonestreet.

AQUIFER.--Dunkard Group of Upper Pennsylvanian and Permian age.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 6 in., depth 118 ft, cased with steel.

INSTRUMENTATION.--Weekly measurements with chalked tape by observer, 1966; graphic water-level recorder, 1968-70; digital water-level recorder--60-minute punch, 1970-75; monthly measurements with chalked tape by USGS personnel, 1975-76; digital water-level recorder--60-minute punch, 1976 to current year.

DATUM.--Elevation of land-surface datum is about 840 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.20 ft above land-surface datum.

REMARKS.--Formerly public-supply well.

PERIOD OF RECORD.--August 1966 to October 1966, April 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 17.46 ft below land-surface datum, Jan. 25, 1978; lowest measured, 22.03 ft below land-surface datum, July 18, 1988.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	20.01	20.22	19.35	19.41	18.93	19.29	19.43	19.88	20.30	21.51	21.23	20.84
10	20.14	20.15	19.21	19.77	19.46	19.05	19.54	19.90	20.51	21.44	21.43	21.00
15	20.12	19.91	19.01	19.69	19.14	19.23	19.76	19.99	20.59	21.66	21.58	20.82
20	20.07	19.40	19.15	18.84	19.08	19.25	19.79	20.07	20.80	21.61	21.42	20.55
25	20.34	19.84	19.22	19.18	19.26	19.33	19.91	20.01	20.89	21.04	21.08	20.52
EQM	20.46	19.29	19.02	19.40	19.47	19.56	19.97	20.17	21.23	21.04	21.29	20.65

WTR YR 1988 HIGH 18.73 DEC 28 LOW 21.92 JUL 18

TUCKER COUNTY

390135079275601. Local number, 15-6-17.

LOCATION.--Lat 39°01'35", long 79°27'56", Hydrologic Unit 05020004, at Canaan Valley State Park off W. Va. State Route 32.

Owner: West Virginia Department of Natural Resources.

AQUIFER.--Pocono Group of Lower Mississippian age.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 8 in., depth 281 ft, cased with steel.

INSTRUMENTATION.--Weekly measurement with chalked tape by observer, 1971-75; periodic measurement by USGS personnel, 1978-80; digital water-level recorder--60-minute punch, 1980 to current year.

DATUM.--Elevation of land-surface datum is about 3,275 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of recorder shelter base, 1.60 ft above land-surface datum. Prior to May 29, 1980 measuring point was top of casing, 1.55 ft above land-surface datum.

PERIOD OF RECORD.--June 1971 to December 1975, April 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 5.48 ft below land-surface datum, Nov. 5, 1985; lowest measured, 11.79 ft below land-surface datum, Aug. 21, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	10.13	10.59	10.14	9.55	9.27	9.30	9.76	9.31	10.13	11.22	11.24	10.03
10	9.97	10.55	9.59	10.01	9.82	9.65	9.20	8.97	10.31	11.41	11.25	10.65
15	10.21	10.33	9.78	10.23	10.11	9.77	9.78	9.79	10.61	11.55	11.52	9.62
20	10.42	10.27	9.72	8.65	10.03	9.98	10.02	8.18	10.70	11.43	11.39	10.16
25	10.52	10.18	9.65	9.71	10.01	9.13	10.19	9.22	10.88	10.85	10.70	9.49
EQM	10.52	9.95	9.38	10.04	10.17	9.52	10.11	9.96	11.13	10.97	10.95	9.99

WTR YR 1988 HIGH 7.50 MAY 7 LOW 11.59 JUL 18

GROUND-WATER LEVELS

TYLER COUNTY

393211081021201.

LOCATION.--Lat 39°32'11", long 81°02'12", Hydrologic Unit 05030201, 2.50 mi southwest of Sistersville on Route 2, 15 ft northwest of gravel road, between railroad and river.

Owner: U.S. Geological Survey.

AQUIFER.--Monongahela Formation of the Upper Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in., depth 70 ft, cased with steel to 58 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 620 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of well casing, 3.90 ft above land-surface datum.

REMARKS.--Aquifer test data available.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 7.05 ft below land-surface datum, Nov. 29, 1985; lowest, 22.69 ft below land-surface datum, Oct. 3, 1984.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	19.02	18.30	17.68	18.45	13.39	16.55	17.17	18.83	19.13	18.37	18.40	17.98
10	18.83	18.84	18.50	18.15	17.64	17.71	17.30	18.25	18.41	18.28	17.99	18.52
15	19.19	18.79	18.37	18.15	18.82	17.50	18.47	18.86	18.14	18.12	18.34	18.17
20	19.03	18.51	18.51	17.14	18.12	18.17	18.66	17.66	18.62	18.18	18.67	18.24
25	18.72	18.88	18.17	17.76	18.12	18.58	18.95	18.11	18.68	18.10	17.95	18.01
ECM	18.40	17.43	17.86	18.64	18.87	18.04	18.91	18.99	18.10	18.31	18.60	18.71

WTR YR 1988 HIGH 12.77 FEB 4 LOW 19.19 OCT 15

WAYNE COUNTY

375827082211501. Local number, 50-6-5.

LOCATION.--Lat 37°58'27", long 82°21'15", Hydrologic Unit 05090102, on Cabwaylingo State Forest on Secondary State Route 35.

Owner: West Virginia Department of Natural Resources.

AQUIFER.--Kanawha Formation of Lower Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in., depth 119 ft, cased with steel to 10 ft.

INSTRUMENTATION.--Weekly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is about 740 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing cover, 1.33 ft above land-surface datum. Prior to Nov. 27, 1979 measuring point was top of casing, 1.30 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.07 ft below land-surface datum, Dec. 10, 1986; lowest measured, 32.17 ft below land-surface datum, July 21, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07, 1987	29.37	JAN 13, 1988	29.37	APR 13, 1988	29.07	JUL 13, 1988	29.97
14	29.57	20	29.47	20	28.77	20	29.37
21	29.77	FEB 03	29.27	MAY 04	29.17	27	29.57
NOV 04	29.37	10	29.27	11	29.07	AUG 03	29.77
11	29.37	17	29.25	18	28.97	10	30.17
18	29.32	24	29.22	24	29.07	17	30.07
24	29.27	MAR 02	29.27	JUN 01	29.07	24	29.77
DEC 01	29.37	09	29.27	08	29.37	31	29.17
08	29.37	16	29.22	15	29.47	SEP 07	29.67
15	29.27	23	29.07	22	29.57	14	29.57
22	29.32	30	29.07	29	29.57	21	29.07
JAN 06, 1988	29.47	APR 06	29.17	JUL 06	29.57	28	29.77

GROUND-WATER LEVELS

WEBSTER COUNTY

382008080292801.

LOCATION.--Lat 38°20'08", long 80°29'28", Hydrologic Unit 05050005, at Bishop Knob Campground about 0.50 mi from junction of U.S. Forest Service Roads 81 and 82 and about 4 mi from Dyer.

Owner: U.S. Forest Service.

AQUIFER.--Kanawha Formation of Lower Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in., depth 80 ft, cased with galvanized iron to 60 ft.

INSTRUMENTATION.--Periodic measurement with chalked tape by USGS personnel, 1980-82; digital water-level recorder--60-minute punch, 1982 to current year.

DATUM.--Elevation of land-surface datum is about 3,100 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of extended casing, 2.00 ft above land-surface datum.

REMARKS.--No water-level record Apr. 23 to June 1, and June 5 to Aug. 4, due to recorder malfunction.

PERIOD OF RECORD.--March 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 21.05 ft below land-surface datum, Jan. 7, 1985; lowest, 27.67 ft below land-surface datum, Aug. 22, 1988.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	24.82	24.85	23.07	22.07	23.01	23.52	22.87	---	---	---	27.09	26.82
10	24.50	25.00	22.96	22.51	22.86	23.09	22.66	---	---	---	27.28	26.24
15	24.25	24.27	22.54	23.23	23.03	23.09	22.70	---	---	---	27.47	26.12
20	24.39	23.47	22.49	23.29	23.07	23.19	23.08	---	---	---	27.58	26.06
25	24.67	23.46	22.58	22.89	23.09	23.37	---	---	---	---	27.34	26.10
EQM	24.92	23.07	22.19	23.23	23.34	23.07	---	---	---	---	27.15	25.33

WTR YR 1988 HIGH 21.99 JAN 4 LOW 27.67 AUG 22

WYOMING COUNTY

373839081255201. Local number, 54-2-12.

LOCATION.--Lat 37°38'39", long 81°25'52", Hydrologic Unit 05070101, at Twin Falls State Park.

Owner: U.S. Geological Survey.

AQUIFER.--New River Formation of Lower Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in., depth 80 ft, cased with steel to 28 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 2,015 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of recorder shelter floor, 2.62 ft above land-surface datum.

REMARKS.--Aquifer test data available. Water-level record affected by nearby pumping at times. No water-level record Jan. 11 to Mar. 2, due to recorder malfunction.

PERIOD OF RECORD.--December 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 19.19 ft below land-surface datum, Mar. 13, 1980; lowest, 52.40 ft below land-surface datum, Nov. 24, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	50.61	51.76	51.98	44.21	---	28.81	26.35	25.55	27.87	37.60	40.27	47.12
10	50.95	51.94	51.49	42.65	---	27.68	25.91	25.47	29.61	38.90	41.16	47.57
15	51.13	52.16	50.92	---	---	27.41	25.83	26.07	31.18	40.07	42.40	47.62
20	51.25	52.20	50.52	---	---	27.26	25.73	26.88	33.51	40.36	43.81	47.66
25	51.45	52.36	50.06	---	---	27.45	25.44	26.32	34.83	39.85	45.09	47.58
EQM	51.67	52.24	47.02	---	---	27.20	25.58	26.71	36.31	40.04	46.43	45.99

WTR YR 1988 HIGH 25.27 APR 18 LOW 52.38 NOV 24

SPECIAL STUDY AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

380935079590301 - MINNEHAHA SPRINGS

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM) (90095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	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 WH IT FIELD (MG/L AS HCO3) (00450)	CAR- BONATE WATER WH IT FIELD (MG/L AS CO3) (00447)
OCT 30...	0930	--	260	7.60	20.0	130	42	5.1	2.3	0.90	100	0
MAY 13...	0830	237	257	7.60	20.0	130	42	5.3	2.3	0.90	100	0
DATE	TIME	ALKA- LINITY WAT WH TOT IT FIELD MG/L AS CACO3 (00419)	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)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	IRON, SUS- PENDE RECOV- ERABLE (UG/L AS FE) (01044)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, SUS- PENDE RECOV. (UG/L AS MN) (01054)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	TRITIUM TOTAL (PCI/L) (07000)
OCT 30...	85	36	1.5	0.10	153	40	<40	3	10	7	3	--
MAY 13...	84	36	0.70	0.30	157	20	<20	<3	<10	<10	<1	<5.7

390745078282201 - CAPON SPRING

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM) (90095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	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 WH IT FIELD (MG/L AS HCO3) (00450)	CAR- BONATE WATER WH IT FIELD (MG/L AS CO3) (00447)
OCT 27...	1500	--	301	7.00	18.5	140	49	4.9	4.6	0.90	150	0
MAY 10...	1030	270	273	7.30	18.0	140	47	5.9	1.2	0.60	162	0
DATE	TIME	ALKA- LINITY WAT WH TOT IT FIELD MG/L AS CACO3 (00419)	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)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	IRON, SUS- PENDE RECOV- ERABLE (UG/L AS FE) (01044)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, SUS- PENDE RECOV. (UG/L AS MN) (01054)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	TRITIUM TOTAL (PCI/L) (07000)
OCT 27...	125	14	0.90	0.10	163	50	50	<3	<10	<4	6	--
MAY 10...	133	0.90	0.60	0.30	149	40	<40	<3	<10	<10	<1	8.0

393734078134601 - BERKLEY SPRINGS

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM) (90095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	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 WH IT FIELD (MG/L AS HCO3) (00450)	CAR- BONATE WATER WH IT FIELD (MG/L AS CO3) (00447)
OCT 27...	1150	--	276	6.80	22.0	140	47	5.7	1.2	0.70	150	0
MAY 09...	1315	290	298	6.70	22.0	140	49	4.9	4.8	1.0	152	0
DATE	TIME	ALKA- LINITY WAT WH TOT IT FIELD MG/L AS CACO3 (00419)	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)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	IRON, SUS- PENDE RECOV- ERABLE (UG/L AS FE) (01044)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, SUS- PENDE RECOV. (UG/L AS MN) (01054)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	TRITIUM TOTAL (PCI/L) (07000)
OCT 27...	123	7.4	1.0	0.10	162	60	60	<3	<10	<10	<1	<5.7
MAY 09...	125	17	2.2	0.30	170	130	--	<3	<10	--	5	<5.7

The following tables are a compilation of data resulting from the water-resources study of the Elk River basin. The data presented herein and used in preparation of an interpretive report were obtained during the period 1986-87 as part of the continuing investigation of the water resources of the State's major river basins by the U.S. Geological Survey. This study was conducted in cooperation with the West Virginia Geological and Economic Survey and the West Virginia Department of Natural Resources, Division of Water Resources.

The well-numbering system used in this report is based on the latitude and longitude of the wells within each county. The wells are numbered sequentially in order of increasing latitude in each county. Counties are listed alphabetically in the table. Well reference numbers are unique to this report.

Table 1 contains physical and chemical parameters of water quality obtained from ground-water samples. Locations of wells and springs are shown on figure 7.

Table 2 shows stream name and location, U.S. Geological Survey number, and site numbers. Locations of stream sites sampled are shown on figure 8.

Table 3 contains physical, chemical, and biological parameters of water quality obtained from surface-water samples.

The geology and hydrology of the basin will be described in greater detail in the companion report, Water Resources of the Elk River basin, West Virginia, to be published by the West Virginia Geological and Economic Survey.

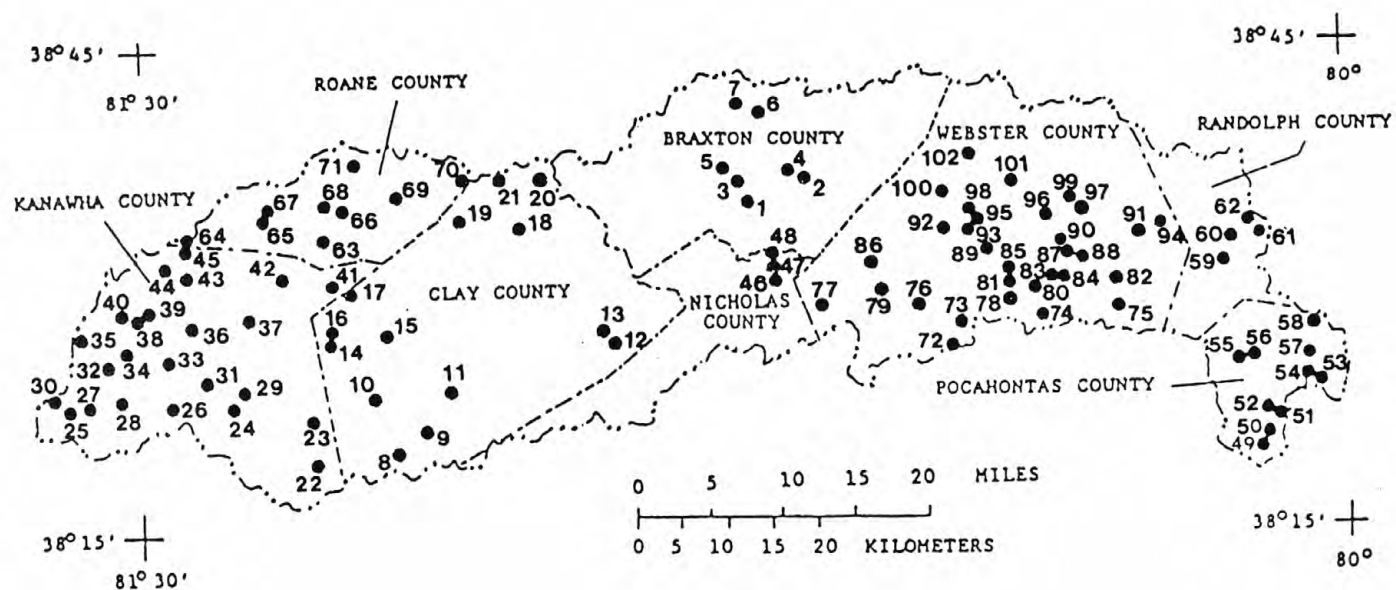


Figure 7.--Map showing location of wells in the Elk River basin.

TABLE 1.--QUALITY ANALYSES OF WATER FROM WELLS

REF NO.	STATION NUMBER	DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
BRAXTON COUNTY										
1	383442080441301	08-21-87	1230	262	7.00	14.0	71	0	20	5.2
2	383618080395601	08-20-87	1315	112	6.90	12.0	35	0	7.5	3.9
3	383618080450701	07-31-87	1245	215	7.20	14.0	81	0	24	5.2
4	383650080410801	08-20-87	1045	288	7.70	14.0	110	0	32	6.8
5	383707080460501	07-31-87	1030	365	7.60	13.5	120	0	37	5.6
6	384030080431801	08-21-87	1200	351	6.80	19.5	160	0	41	14
7	384102080445501	08-21-87	1030	430	7.70	16.0	83	0	23	6.1
CLAY COUNTY										
8	381953081104001	07-07-87	0945	162	6.80	13.5	35	0	8.7	3.3
9	382112081084601	07-06-87	1245	158	6.70	18.5	58	18	14	5.6
10	382303081121301	09-04-87	1015	138	6.70	16.0	34	0	8.6	3.1
11	382339081064901	06-30-87	1145	282	7.40	14.0	56	0	15	4.5
12	382624080544001	09-09-87	1230	218	8.00	13.0	52	0	13	4.7
13	382626080544101	09-09-87	1400	262	8.20	14.0	--	--	--	--
14	382638081154401	06-24-87	1115	129	6.60	14.0	31	0	7.5	3.1
15	382649081113401	09-04-87	1300	772	7.50	13.0	230	57	56	21
16	382722081153401	06-24-87	1415	110	5.80	16.0	33	25	8.6	2.9
17	382935081140301	06-25-87	1415	750	7.30	16.0	360	0	95	29
18	383329081012901	07-02-87	1230	425	7.40	14.0	42	0	13	2.3
19	383407081055301	07-24-87	1000	311	7.30	15.5	140	0	43	7.6
20	383624080593701	07-20-87	1515	378	8.00	14.0	--	--	--	--
21	383659081023201	07-20-87	1245	618	7.70	15.0	250	110	71	18
KANAWHA COUNTY										
22	381913081164601	08-06-87	1415	162	7.20	15.5	56	0	14	5.0
23	382152081170601	08-05-87	1515	615	8.00	13.0	38	0	11	2.5
24	382250081230601	06-23-87	1430	198	6.70	16.0	37	1	9.2	3.4
25	382250081354501	06-02-87	1100	480	7.30	14.0	84	0	24	5.8
26	382258081275301	08-03-87	1200	75	5.80	14.5	23	16	5.1	2.6
27	382258081340201	07-30-87	1115	410	7.60	14.5	83	0	24	5.5
28	382319081314601	07-17-87	1345	305	7.40	16.0	110	0	35	6.6
29	382351081221701	08-05-87	1200	270	6.70	13.5	120	27	33	9.3
30	382355081370001	06-02-87	1400	610	7.70	17.0	110	0	29	9.5
31	382430081250801	08-10-87	1245	730	7.30	14.0	81	0	22	6.4
32	382528081324501	06-04-87	0945	1460	7.60	14.0	95	0	27	6.7
33	382542081281001	06-18-87	1345	570	7.30	16.0	190	0	53	13
34	382614081311701	06-01-87	1115	510	7.40	14.5	79	0	21	6.4
35	382708081344701	06-03-87	1030	500	7.90	15.5	41	0	12	2.6
36	382753081262001	08-11-87	1145	105	6.40	15.0	26	0	6.8	2.2
37	382807081215301	08-10-87	1530	235	8.00	15.0	14	0	3.7	1.1
38	382822081301201	06-05-87	1100	600	7.90	14.5	59	0	18	3.5
39	382825081295501	06-05-87	1400	520	7.20	15.0	190	0	58	9.9
40	382830081313301	06-04-87	1400	655	7.90	15.0	47	0	14	2.9
41	383005081152901	06-19-87	1230	220	7.10	13.0	70	0	20	4.9
42	383033081190801	08-18-87	1515	492	7.70	17.5	64	0	17	5.2
43	383058081263301	06-10-87	1045	435	7.80	13.0	75	0	20	6.1
44	383130081282201	07-09-87	1430	432	8.00	14.0	14	0	4.0	0.87
45	383229081263701	06-10-87	1430	412	7.70	14.0	90	0	27	5.4
NICHOLAS COUNTY										
46	383003080422701	08-26-87	0930	956	8.20	15.0	18	0	4.4	1.6
47	383100080430401	08-26-87	1230	216	7.40	13.0	94	0	27	6.5
48	383152080423101	08-25-87	1500	260	7.50	13.5	110	0	32	6.5

Table 1.--Continued

REF NO.	DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CACO3) (00410)	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)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
BRAXTON COUNTY											
1	08-21-87	16	3.2	92	2.6	19	0.20	8.6	<0.100	8200	410
2	08-20-87	2.7	1.0	54	2.7	4.3	0.20	10	<0.100	6100	1400
3	07-31-87	7.2	1.6	86	4.0	7.8	0.20	11	<0.100	2700	200
4	08-20-87	15	2.4	120	15	2.4	0.10	17	0.120	40	10
5	07-31-87	32	2.6	190	2.4	3.8	0.30	9.6	<0.100	360	74
6	08-21-87	11	2.3	180	12	1.6	0.10	8.6	0.320	<3	4
7	08-21-87	66	2.2	270	1.0	3.1	0.40	8.5	<0.100	450	61
CLAY COUNTY											
8	07-07-87	6.7	1.7	58	3.2	12	0.10	12	<0.100	15000	340
9	07-06-87	5.3	2.0	40	21	4.9	<0.10	10	0.150	450	190
10	09-04-87	5.1	2.1	64	2.5	1.9	0.20	11	<0.100	6500	1100
11	06-30-87	36	1.9	120	0.30	12	0.30	14	<0.100	750	57
12	09-09-87	25	1.5	112	0.70	5.8	0.30	12	<0.100	260	260
13	09-09-87	--	--	--	--	--	--	--	--	--	--
14	06-24-87	8.8	2.5	50	9.0	0.90	<0.10	10	<0.100	4600	330
15	09-04-87	56	2.9	170	0.90	130	0.40	9.4	<0.100	1100	210
16	06-24-87	4.2	1.4	8	26	6.0	0.10	16	<0.100	440	260
17	06-25-87	21	3.8	380	20	7.2	0.20	11	<0.100	6	1
18	07-02-87	68	2.0	110	0.60	63	0.30	8.6	<0.100	2700	170
19	07-24-87	7.0	1.8	140	6.1	2.1	0.20	11	<0.100	2100	640
20	07-20-87	--	--	180	--	--	--	--	0.170	--	--
21	07-20-87	17	0.80	140	12	96	0.20	12	0.200	320	280
KANAWHA COUNTY											
22	08-06-87	7.5	1.6	70	5.4	0.80	0.20	19	<0.100	4400	400
23	08-05-87	110	1.9	140	0.30	100	0.70	10	<0.100	490	35
24	06-23-87	9.8	2.0	36	11	23	<0.10	11	<0.100	13	730
25	06-02-87	69	3.9	240	3.9	3.9	0.50	8.0	<0.100	43	89
26	08-03-87	1.6	1.8	7	17	1.3	0.10	12	0.130	230	190
27	07-30-87	42	4.8	180	14	1.4	0.20	11	<0.100	10	23
28	07-17-87	18	1.5	130	8.8	4.6	0.20	12	0.200	<3	45
29	08-05-87	5.0	2.8	94	28	2.1	0.20	12	<0.100	25	200
30	06-02-87	80	3.2	220	14	50	0.60	9.0	<0.100	<3	<1
31	08-10-87	110	2.4	120	0.80	140	0.30	15	<0.100	3100	140
32	06-04-87	240	3.8	220	1.6	310	0.70	7.6	<0.100	250	37
33	06-18-87	41	3.4	270	8.0	6.2	0.30	8.5	<0.100	1100	280
34	06-01-87	75	2.3	220	1.2	29	0.60	9.2	<0.100	810	110
35	06-03-87	96	2.5	260	2.0	3.9	0.80	7.8	0.130	8	10
36	08-11-87	4.1	1.3	37	2.0	8.7	0.10	14	<0.100	4000	3000
37	08-10-87	44	2.0	90	0.90	13	0.60	7.6	<0.100	98	26
38	06-05-87	110	2.7	290	2.1	15	0.70	7.7	0.140	30	10
39	06-05-87	35	3.8	260	7.6	2.4	0.30	8.5	<0.100	38	190
40	06-04-87	130	2.2	310	4.1	23	0.80	8.8	<0.100	20	18
41	06-19-87	16	1.8	100	8.9	0.40	0.20	10	<0.100	510	540
42	08-18-87	80	3.0	220	13	11	0.70	6.3	0.180	7	3
43	06-10-87	65	2.9	190	10	16	0.30	12	0.100	7	5
44	07-09-87	91	1.3	190	16	4.6	0.50	8.9	<0.100	10	10
45	06-10-87	52	2.4	220	2.3	2.8	0.50	11	<0.100	440	160
NICHOLAS COUNTY											
46	08-26-87	190	3.0	250	0.30	150	0.70	7.3	<0.100	41	7
47	08-26-87	1.7	4.8	100	2.2	1.4	0.10	8.4	<0.100	1100	95
48	08-25-87	4.6	5.4	120	1.8	0.40	0.10	6.9	<0.100	230	48

Table 1.--Continued

REF NO.	STATION	NUMBER	DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
POCAHONTAS COUNTY											
49	381929080055201	08-19-87	1600	369	6.70	16.5	86	9	24	6.3	
50	382012080052301	08-19-87	1800	245	7.80	15.5	110	7	34	6.7	
51	382127080040801	08-19-87	2000	368	8.80	15.5	3	0	1.0	0.18	
52	382144080055101	08-19-87	1430	550	7.40	15.5	170	5	48	11	
53	382322080014101	08-20-87	0830	360	8.40	11.5	86	0	20	8.7	
54	382336080020701	08-19-87	1200	305	7.50	11.5	100	0	32	5.7	
55	382453080073101	08-20-87	1530	245	7.70	11.5	120	8	29	11	
56	382500080063501	07-22-87	0930	339	7.40	9.5	160	11	58	3.8	
57	382504080021101	08-26-87	1000	244	7.60	11.5	87	6	30	3.0	
58	382706080015901	08-20-87	1730	500	7.60	14.0	210	54	66	11	
RANDOLPH COUNTY											
59	383057080083801	08-20-87	1100	311	7.00	19.0	140	0	48	3.8	
60	383221080075501	08-19-87	1330	246	9.10	15.0	26	0	6.3	2.4	
61	383243080060501	08-26-87	1100	164	8.00	11.5	76	9	26	2.8	
62	383332080062201	08-20-87	1500	725	7.20	17.0	230	63	70	14	
ROANE COUNTY											
63	383302081160801	06-30-87	1500	498	7.60	13.5	82	0	23	6.0	
64	383326081264301	07-15-87	1130	380	7.40	16.5	170	0	52	9.6	
65	383415081204201	06-11-87	1100	650	7.60	15.0	76	0	22	5.1	
66	383446081143601	08-17-87	1445	720	7.60	15.5	120	0	39	5.6	
67	383447081201701	08-04-87	1145	589	8.00	15.0	140	0	38	10	
68	383456081155801	06-22-87	1400	690	8.80	14.5	15	0	3.8	1.3	
69	383529081104501	06-22-87	1130	1480	7.20	16.0	150	0	49	6.4	
70	383629081053801	08-18-87	1200	430	7.30	14.5	140	0	44	7.9	
71	383745081134401	07-09-87	1045	300	8.10	13.0	46	0	14	2.6	
WEBSTER COUNTY											
72	382547080290901	07-21-87	1530	47	5.70	12.0	18	0	3.1	2.5	
73	382717080282301	07-21-87	1630	130	6.50	12.0	56	0	15	4.6	
74	382734080220301	08-25-87	1245	389	9.10	18.0	48	0	12	4.4	
75	382804080162001	07-22-87	1600	300	7.80	12.5	110	0	33	6.6	
76	382817080313301	07-21-87	1400	173	6.90	12.0	62	0	17	4.8	
77	382825080384701	08-24-87	1800	211	6.90	13.0	40	0	11	3.1	
78	382840080244501	08-26-87	1300	12000	7.80	15.0	--	--	--	--	
79	382919080341001	08-24-87	1900	163	6.40	16.5	58	0	15	5.1	
80	382921080224201	08-18-87	1330	322	7.90	15.0	140	8	40	9.3	
81	382934080243601	08-24-87	1800	62	5.20	14.5	16	16	4.2	1.3	
82	382952080163901	07-22-87	1400	123	6.40	12.5	42	0	13	2.3	
83	382952080211001	08-19-87	1900	485	6.00	16.0	130	97	33	12	
84	382957080210601	08-19-87	2000	253	5.80	20.0	75	59	19	6.7	
85	383029080243101	08-25-87	1730	204	6.50	17.0	97	4	28	6.5	
86	383104080350401	07-21-87	1130	375	7.80	12.5	39	0	11	2.9	
87	383125080194701	07-21-87	1800	285	6.20	12.0	91	60	20	10	
88	383126080193501	08-20-87	1800	32	6.00	14.0	13	0	2.5	1.6	
89	383142080262001	08-21-87	1800	145	6.10	13.5	55	1	13	5.5	
90	383220080201001	08-25-87	1500	36	5.40	15.0	12	0	3.3	0.88	
91	383238080145401	08-25-87	1100	283	4.80	14.5	36	36	7.6	4.1	
92	383306080293501	08-25-87	1500	38	5.80	14.0	7	5	1.0	1.1	
93	383309080271701	08-21-87	1630	138	6.50	14.5	52	2	15	3.6	
94	383328080122801	08-26-87	1200	17	5.80	11.0	--	--	--	--	
95	383330080270601	08-21-87	1530	200	6.40	14.0	44	0	13	2.9	
96	383344080215001	08-25-87	1730	276	7.80	12.0	36	0	10	2.6	
97	383407080190401	08-25-87	1300	541	7.60	15.0	--	--	--	--	
98	383413080273001	08-21-87	1400	158	6.40	15.0	45	0	12	3.7	
99	383438080200301	08-25-87	1630	96	6.60	12.0	34	0	8.5	3.1	
100	383507080293501	08-18-87	1530	83	6.40	17.0	12	0	2.6	1.3	
101	383544080240801	08-25-87	1830	115	6.80	15.0	55	1	16	3.6	
102	383735080273401	08-21-87	1130	160	6.80	12.5	36	0	8.6	3.5	

Table 1.--Continued

REF NO.	DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKALINITY, WAT WH TOT FET FIELD (MG/L AS CAC03) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUORIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SiO2) (00955)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGANESE, DIS-SOLVED (UG/L AS MN) (01056)
POCAHONTAS COUNTY											
49	08-19-87	16	0.40	77	8.8	25	0.20	9.8	<0.100	160	1800
50	08-19-87	4.7	0.60	106	13	2.7	0.10	10	<0.100	6	8
51	08-19-87	92	0.10	160	25	8.2	0.70	8.3	<0.100	29	<1
52	08-19-87	49	0.70	160	89	4.1	0.30	14	<0.100	460	170
53	08-20-87	47	0.40	160	21	6.4	0.30	10	<0.100	<3	<1
54	08-19-87	22	0.80	130	27	2.2	0.20	11	<0.100	11	130
55	08-20-87	3.9	0.60	110	15	5.2	0.10	5.8	0.230	<3	<1
56	07-22-87	7.5	1.7	150	11	14	0.10	5.0	0.940	<3	7
57	08-26-87	13	1.0	81	12	19	0.10	3.8	1.20	<3	<1
58	08-20-87	11	0.80	156	20	51	0.10	8.6	0.120	<3	7
RANDOLPH COUNTY											
59	08-20-87	1.6	0.80	150	0.90	0.90	0.10	4.1	0.300	390	120
60	08-19-87	50	0.50	120	7.2	1.1	0.30	7.7	<0.100	4	<1
61	08-26-87	1.6	0.30	68	7.4	0.50	0.10	6.2	0.320	<3	<1
62	08-20-87	40	1.1	170	13	94	0.10	12	0.640	6	5
ROANE COUNTY											
63	06-30-87	65	3.5	190	4.0	27	0.50	8.6	<0.100	2900	160
64	07-15-87	12	2.2	170	15	4.2	0.30	9.0	0.140	<3	14
65	06-11-87	120	3.2	330	17	5.4	0.30	9.4	<0.100	26	44
66	08-17-87	99	2.0	200	1.5	100	0.30	15	<0.100	1400	140
67	08-04-87	81	3.9	290	10	5.9	0.20	7.4	0.290	7	7
68	06-22-87	170	1.0	360	12	3.6	0.80	7.9	0.300	11	<1
69	06-22-87	250	2.7	190	7.0	360	0.40	18	<0.100	3	1300
70	08-18-87	37	2.0	210	11	2.5	0.20	12	<0.100	640	200
71	07-09-87	48	1.5	130	18	1.5	0.30	8.9	<0.100	68	100
WEBSTER COUNTY											
72	07-21-87	0.50	2.1	180	1.9	--	0.20	7.5	<0.100	660	530
73	07-21-87	2.1	0.70	64	4.6	1.1	0.20	12	<0.100	4800	240
74	08-25-87	72	1.0	190	8.5	8.8	0.70	14	<0.100	16	7
75	07-22-87	21	0.70	120	30	1.4	0.20	12	<0.100	16	45
76	07-21-87	10	1.0	75	3.9	6.6	0.20	7.3	<0.100	690	99
77	08-24-87	27	1.9	87	0.30	12	0.20	7.1	<0.100	1700	93
78	08-26-87	--	--	--	--	--	--	--	--	--	--
79	08-24-87	12	2.1	85	2.9	0.80	0.10	8.3	<0.100	150	1500
80	08-18-87	9.4	1.5	130	21	0.90	0.10	13	0.260	11	8
81	08-24-87	2.2	2.0	<1	12	3.3	0.10	5.1	1.80	39	100
82	07-22-87	5.9	0.70	59	6.6	2.1	0.10	9.3	<0.100	3300	420
83	08-19-87	25	3.8	35	34	95	0.10	7.5	0.870	14	650
84	08-19-87	11	2.4	16	9.0	59	0.10	8.0	<0.100	150	830
85	08-25-87	0.90	1.6	93	15	0.80	0.10	5.4	<0.100	1400	700
86	07-21-87	65	--	160	0.65	25	0.30	7.9	<0.100	69	13
87	07-21-87	12	1.1	31	3.2	61	0.10	6.6	0.900	100	85
88	08-20-87	0.30	0.40	14	1.3	0.40	0.10	6.1	<0.100	5	330
89	08-21-87	3.0	7.1	54	13	2.5	0.10	13	0.120	6	490
90	08-25-87	0.70	1.4	60	8.0	0.90	<0.10	4.3	0.500	580	66
91	08-25-87	31	1.4	<1	5.2	72	<0.10	5.0	0.580	1300	200
92	08-25-87	0.80	0.90	2	3.8	0.70	<0.10	6.1	0.520	9	31
93	08-21-87	2.8	1.2	50	7.3	3.2	0.10	9.6	<0.100	2300	480
94	08-26-87	--	--	--	--	--	--	--	--	--	--
95	08-21-87	2.8	1.4	54	4.4	25	0.10	8.8	<0.100	20000	490
96	08-25-87	57	1.2	150	0.50	0.70	0.40	11	<0.100	210	12
97	08-25-87	--	--	--	--	--	--	--	--	--	--
98	08-21-87	2.9	1.3	62	6.7	0.90	0.10	8.0	<0.100	11000	160
99	08-25-87	2.0	1.1	38	5.2	0.50	0.10	11	<0.100	7500	290
100	08-18-87	1.8	0.80	32	2.2	5.0	0.10	9.8	<0.100	15000	510
101	08-25-87	1.1	2.7	54	4.9	0.40	0.10	7.2	0.310	3	6
102	08-21-87	16	1.8	68	11	1.2	0.10	7.1	<0.100	1100	170

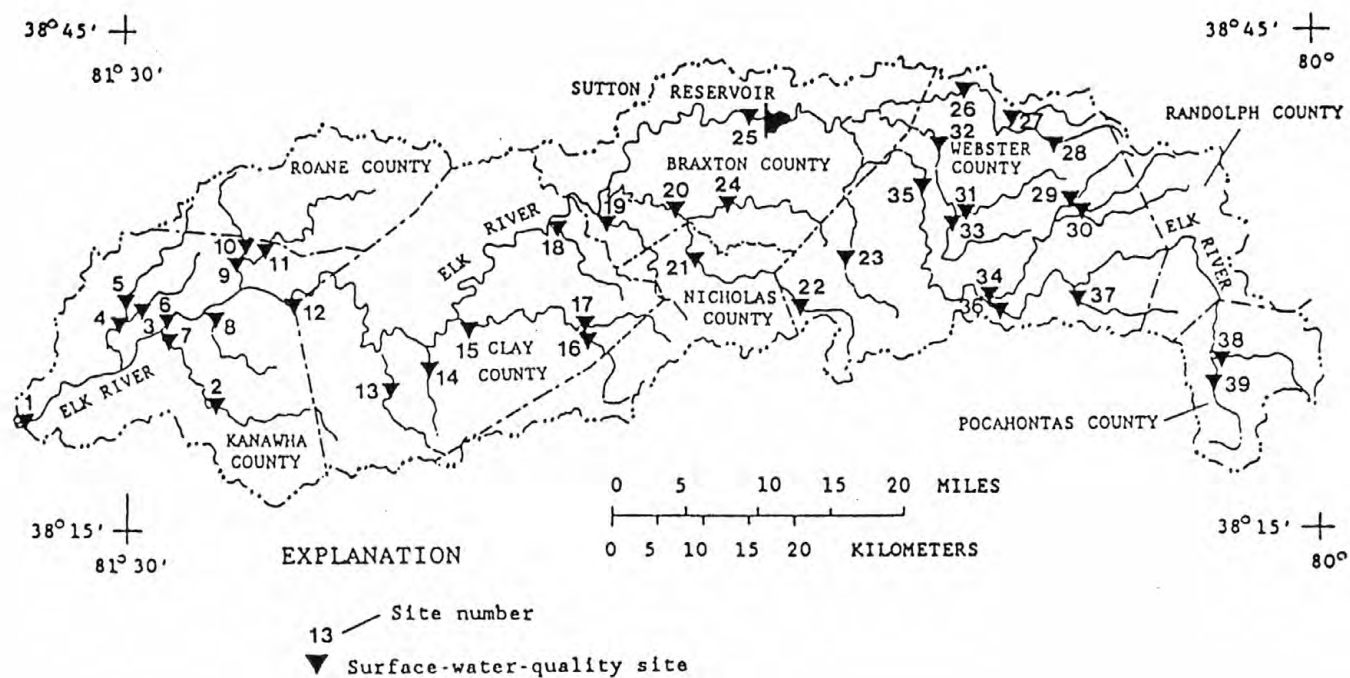


Figure 8.--Map showing location of stream-sampling sites in the Elk River basin.

TABLE 2.--SURFACE-WATER-QUALITY SAMPLING SITES

Site number	Stream name and location	USGS Site Number
1	Elk River at Charleston	03197950
2	Blue Creek near Quick	382245081233301
3	Wills Creek 1 mile above mouth	382757081290301
4	Little Sandy Creek near Elkview	03197790
5	Little Sandy Creek at Wills	382747081300039
6	Elk River at Blue Creek	03197680
7	Blue Creek near Blue Creek	382616081264139
8	Falling Rock Creek at Falling Rock	382737081232539
9	Big Sandy Creek near Clendenin	383051081212501
10	Left hand Creek near Clendenin	383150081202439
11	Big Sandy Creek below Little Blue Creek	383137081185539
12	Elk River at Queen Shoals	03197000
13	Sycamore Creek near Indore	382308081091939
14	Middle Creek upstream from Hartland	382417081064039
15	Buffalo Creek at Clay	03196750
16	Robinson Fork near Enoch	382650080552539
17	Buffalo Creek upstream from Robinson Fork	382700080552339
18	Groves Creek at Groves	383323080574039
19	Strange Creek near Strange Creek	383333080534039
20	Birch River at Herold	03196500
21	Birch River near Birch River	383101080465761
22	Birch River at Boggs	382811080383339
23	Laurel Creek at Erbacon	383108080351939
24	Little Birch River near Little Birch	383444080440439
25	Elk River at Sutton	03195500
26	Left Fork Holly River near Replete	03195250
27	Laurel Fork at Hacker Valley	383912080225339
28	Left Fork Holly River near Hacker Valley	383804080192239
29	Little Sugar Creek near Skelt	383412080182239
30	Sugar Creek near Skelt	383410080182039
31	Right Fork Holly River at Diana	383351080264261
32	Right Fork Holly River at Guardian	03195100
33	Grassy Creek at Diana	383336080270639
34	Back Fork Elk River at Webster Springs	03194200
35	Elk River below Webster Springs	03194700
36	Elk River near Webster Springs	03193900
37	Leatherwood Creek at Bergoo	382902080175939
38	Big Spring Fork at Slatyfork	382458080070939
39	Old Field Fork near Slatyfork	382322080074239

TABLE 3.--QUALITY ANALYSES OF WATER FROM STREAMS

STATION	NUMBER	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
03193900		10-29-86	1300	159	91	7.70	11.5	3.0	722	10.2	99
03194200		10-29-86	1415	46	61	7.10	12.0	3.0	722	10.0	98
03194700		05-08-86	1100	299	77	7.70	18.0	--	--	--	--
		10-30-86	0845	258	84	7.20	12.0	5.0	736	10.3	99
03195100		10-29-86	1530	11	79	7.10	13.5	4.0	731	--	--
		05-09-86	1030	46	48	7.20	16.0	--	--	--	--
03195250		05-12-86	1030	65	34	7.00	14.0	--	--	--	--
		10-30-86	1645	13	40	6.90	12.5	2.5	732	9.9	97
03195500		05-07-86	1230	450	64	7.50	18.0	--	--	--	--
		10-30-86	1845	492	74	6.90	15.5	--	744	9.3	96
03196500		05-07-86	0930	71	87	7.50	17.5	--	--	--	--
		10-28-86	0930	25	96	7.30	13.5	--	737	9.4	93
03196750		05-06-86	1230	41	124	5.70	18.0	--	--	--	--
		10-31-86	1430	13	213	5.60	13.5	--	748	10.2	100
03197000		05-01-86	1200	1510	74	7.30	17.0	--	--	--	--
		10-30-86	1430	390	91	7.50	15.5	--	747	9.8	100
03197680		05-06-86	0845	820	80	7.40	16.5	--	--	--	--
		10-29-86	1015	518	93	7.40	15.0	--	745	9.6	97
03197790		04-30-86	1015	10	540	7.80	17.5	--	--	--	--
		10-28-86	1615	1.2	1170	7.90	17.0	7.0	745	--	--
03197950		11-04-86	1130	E570	106	7.40	14.0	--	--	--	--
382245081233301		05-02-86	1000	21	153	6.80	13.0	--	--	--	--
		10-28-86	0900	3.3	358	6.90	14.0	--	744	8.9	89
382308081091939		11-03-86	1300	1.4	160	7.80	12.5	--	740	--	--
382322080074239		10-30-86	0800	3.8	60	7.90	6.5	--	690	10.5	94
382417081064039		11-03-86	1045	0.61	194	7.80	12.5	--	740	--	--
382458080070939		10-29-86	0915	4.3	142	7.80	10.5	--	692	9.8	97
382616081264139		10-29-86	1330	3.9	280	7.20	14.5	--	743	10.8	109
382650080552539		11-03-86	1545	2.9	161	7.10	12.0	--	734	10.8	104
382700080552339		11-03-86	1630	7.7	410	4.30	12.0	--	733	10.0	97
382737081232539		10-29-86	1500	1.0	110	7.40	15.0	--	743	10.2	104
382747081300039		10-29-86	0815	0.66	316	7.50	10.5	--	745	8.8	81
382757081290301		10-28-86	1330	0.32	3770	8.00	16.0	6.0	744	--	--
382811080383339		10-28-86	1400	5.7	89	7.30	14.0	--	730	8.8	89
382902080175939		10-29-86	1120	22	37	6.90	9.5	--	714	10.5	98
383051081212501		05-01-86	0900	36	140	7.60	16.5	--	--	--	--
		10-30-86	0745	5.8	235	7.60	12.5	5.0	747	8.3	79
383101080465761		10-28-86	1145	24	95	7.00	13.5	--	734	9.0	90
383108080351939		10-28-86	1715	13	211	7.60	13.0	--	720	9.9	100
383137081185539		10-30-86	1215	4.3	--	7.60	13.5	--	747	8.5	83

E: Estimated.

TABLE 3.--Continued

DATE	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	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 WH FET FIELD MG/L AS HCO3 (00440)	CAR- BONATE WATER WH FET FIELD MG/L AS CO3 (00445)	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 (00410)
10-29-86	--	--	40	6	13	1.9	1.9	0.80	41	0	34
10-29-86	--	--	22	13	5.4	2.1	0.80	1.2	11	0	9
05-08-86	K20	K5	30	9	8.8	1.9	1.9	0.80	26	0	21
10-30-86	K12	K8	37	10	11	2.2	1.9	1.1	33	0	27
10-29-86	K62	46	27	10	6.2	2.8	3.1	1.8	21	0	17
05-09-86	K62	K65	16	8	3.4	1.8	1.4	1.0	10	0	8
05-12-86	K44	K95	11	7	2.5	1.1	<1.0	0.70	5	0	4
10-30-86	K7	27	12	4	2.9	1.2	--	1.3	10	0	8
05-07-86	K10	<5	23	10	6.1	1.8	1.9	0.80	16	0	13
10-30-86	230	500	30	9	8.6	2.1	2.2	1.1	26	0	21
05-07-86	K28	K24	29	17	6.6	2.9	2.8	1.3	15	0	12
10-28-86	120	41	38	19	9.3	3.7	3.7	2.0	24	0	20
05-06-86	<5	<5	43	41	9.0	5.0	1.7	1.9	2	0	2
10-31-86	K2	K9	72	71	16	7.7	3.5	3.1	1	0	1
05-01-86	K15	K5	25	12	6.4	2.2	2.1	1.1	16	0	13
10-30-86	36	20	31	11	8.3	2.5	2.5	1.2	24	0	20
05-06-86	220	K45	27	13	7.0	2.3	2.7	1.1	17	0	14
10-29-86	370	130	32	12	8.5	2.5	3.3	1.2	24	0	20
04-30-86	420	K32	120	71	34	7.8	49	2.3	57	0	47
10-28-86	290	95	290	200	88	18	140	4.1	110	0	92
11-04-86	--	--	34	12	9.2	2.7	3.9	1.5	27	0	22
05-02-86	120	K20	51	46	11	5.7	3.8	2.1	6	0	5
10-28-86	42	270	120	110	27	12	15	4.7	13	0	11
11-03-86	--	--	48	15	12	4.4	9.2	3.0	40	0	33
10-30-86	--	--	24	7	7.7	1.2	1.3	0.50	21	0	17
11-03-86	--	--	61	19	16	5.2	8.3	3.2	51	0	42
10-29-86	--	--	58	7	20	1.9	3.2	0.80	62	0	51
10-29-86	--	--	85	71	19	9.2	11	3.7	17	0	14
11-03-86	--	--	58	51	10	8.0	1.7	2.4	9	0	7
11-03-86	--	--	140	140	32	14	4.1	3.9	0	0	0
10-29-86	--	--	27	3	6.2	2.7	8.1	2.7	29	0	24
10-29-86	--	--	93	23	27	6.2	21	3.2	85	0	70
10-28-86	--	--	770	630	230	48	420	0.80	180	0	145
10-28-86	--	--	29	13	6.5	3.0	3.7	1.7	20	0	16
10-29-86	--	--	13	7	3.3	1.2	0.60	0.70	7	0	6
05-01-86	400	K80	48	11	13	3.7	5.5	1.8	45	0	37
10-30-86	K18	40	73	8	20	5.6	12	3.0	79	0	65
10-28-86	--	--	38	19	9.0	3.8	3.5	1.8	23	0	19
10-28-86	--	--	76	31	16	8.7	11	2.4	55	0	45
10-30-86	--	--	66	6	18	5.1	9.9	2.8	73	0	60

K: Results based on colony count outside the accepted range (non-ideal colony count).

TABLE 3.--Continued

DATE	SULFATE DIS- SOLVED (MG/L AS SO ₄) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L SIO ₂) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	NITRO- GEN, NO ₂ +NO ₃ DIS- SOLVED (MG/L AS N) (00631)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	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)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)
10-29-86	10	1.9	<0.10	2.9	59	0.260	--	--	--	--	--
10-29-86	14	1.2	0.10	3.3	34	0.200	--	--	--	--	--
05-08-86	12	2.2	--	2.1	37	0.330	--	42	<0.5	<1	<3
10-30-86	13	2.2	<0.10	2.2	55	0.150	--	--	--	--	--
10-29-86	16	3.3	0.10	3.1	54	<0.100	--	--	--	--	--
05-09-86	10	1.9	--	3.3	31	0.280	--	37	<0.5	<1	<3
05-12-86	7.7	1.5	--	3.0	23	0.300	--	41	<0.5	<1	<3
10-30-86	8.0	2.0	<0.10	3.4	27	<0.100	--	--	--	--	--
05-07-86	11	2.0	--	2.9	35	0.420	--	40	<0.5	<1	<3
10-30-86	13	1.9	<0.10	3.4	45	0.340	--	--	--	--	--
05-07-86	21	2.8	--	3.5	45	0.140	--	62	<0.5	<1	<3
10-28-86	23	4.2	<0.10	3.3	61	<0.100	--	--	--	--	--
05-06-86	46	1.8	--	7.2	78	0.350	--	59	<0.5	<1	6
10-31-86	79	3.3	<0.10	9.7	129	0.430	--	--	--	--	--
05-01-86	15	2.5	--	3.0	41	0.310	--	44	<0.5	<1	<3
10-30-86	15	2.9	<0.10	2.7	51	0.280	--	--	--	--	--
05-06-86	15	3.9	--	2.7	45	0.300	--	49	<0.5	4	<3
10-29-86	15	4.9	<0.10	2.6	48	0.310	--	--	--	--	--
04-30-86	23	120	--	2.5	281	<0.100	--	270	<0.5	<1	<3
10-28-86	28	360	<0.10	2.9	769	<0.100	--	--	--	--	--
11-04-86	17	6.0	<0.10	2.6	60	0.240	--	--	--	--	--
05-02-86	53	3.7	--	7.2	91	0.150	--	69	<0.5	<1	4
10-28-86	110	26	<0.10	8.5	211	<0.100	--	--	--	--	--
11-03-86	21	13	<0.10	3.4	86	0.130	--	--	--	--	--
10-30-86	8.5	1.0	<0.10	3.8	39	0.470	--	--	--	--	--
11-03-86	29	9.8	<0.10	4.2	109	0.230	--	--	--	--	--
10-29-86	9.4	4.3	<0.10	3.8	82	0.560	--	--	--	--	--
10-29-86	75	16	<0.10	7.6	155	<0.100	--	--	--	--	--
11-03-86	57	1.2	<0.10	6.4	95	<0.100	--	--	--	--	--
11-03-86	170	2.9	<0.10	16	257	1.10	--	--	--	--	--
10-29-86	15	7.9	<0.10	5.4	71	<0.100	--	--	--	--	--
10-29-86	16	43	<0.10	2.8	160	0.100	--	--	--	--	--
10-28-86	68	1100	0.20	3.7	2010	<0.100	<10	--	--	--	--
10-28-86	18	3.2	<0.10	4.3	63	<0.100	--	--	--	--	--
10-29-86	9.6	0.70	<0.10	3.6	30	0.150	--	--	--	--	--
05-01-86	19	6.6	--	2.8	77	<0.100	--	48	<0.5	<1	<3
10-30-86	20	16	<0.10	3.5	124	<0.100	--	--	--	--	--
10-28-86	25	4.0	<0.10	3.9	65	<0.100	--	--	--	--	--
10-28-86	52	3.0	<0.10	3.7	126	0.160	--	--	--	--	--
10-30-86	19	13	<0.10	3.9	113	<0.100	--	--	--	--	--

TABLE 3.--Continued

DATE	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	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)	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)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)
10-29-86	--	14	--	--	<1	--	--	--	--	0	0.0
10-29-86	--	35	--	--	1	--	--	--	--	24	3.0
05-08-86	<10	17	<10	<4	8	<10	42	<6	<3	--	--
10-30-86	--	23	--	--	3	--	--	--	--	0	0.0
10-29-86	--	120	--	--	10	--	--	--	--	3	0.09
05-09-86	<10	53	<10	<4	12	<10	19	<6	4	--	--
05-12-86	<10	10	<10	<4	3	<10	14	<6	8	--	--
10-30-86	--	53	--	--	4	--	--	--	--	0	0.0
05-07-86	<10	17	<10	<4	3	<10	33	<6	<3	--	--
10-30-86	--	30	--	--	100	--	--	--	--	--	--
05-07-86	<10	40	<10	<4	10	<10	67	<6	6	--	--
10-28-86	--	160	--	--	10	--	--	--	--	--	--
05-06-86	<10	44	<10	28	230	<10	78	<6	23	--	--
10-31-86	--	78	--	--	560	--	--	--	--	--	--
05-01-86	<10	21	<10	<4	7	<10	38	<6	4	--	--
10-30-86	--	120	--	--	27	--	--	--	--	--	--
05-06-86	<10	39	<10	<4	18	<10	48	<6	3	--	--
10-29-86	--	130	--	--	25	--	--	--	--	--	--
04-30-86	<10	66	<10	8	96	<10	570	<6	7	--	--
10-28-86	--	190	--	--	250	--	--	--	--	6	0.02
11-04-86	--	110	--	--	23	--	--	--	--	--	--
05-02-86	<10	56	<10	8	190	<10	150	<6	16	--	--
10-28-86	--	42	--	--	310	--	--	--	--	--	--
11-03-86	--	50	--	--	8	--	--	--	--	--	--
10-30-86	--	8	--	--	<1	--	--	--	--	--	--
11-03-86	--	26	--	--	6	--	--	--	--	--	--
10-29-86	--	10	--	--	<1	--	--	--	--	--	--
10-29-86	--	61	--	--	23	--	--	--	--	--	--
11-03-86	--	28	--	--	21	--	--	--	--	--	--
11-03-86	--	230	--	--	1400	--	--	--	--	--	--
10-29-86	--	260	--	--	20	--	--	--	--	--	--
10-29-86	--	270	--	--	110	--	--	--	--	--	--
10-28-86	--	290	--	--	930	--	--	--	--	6	0.01
10-28-86	--	39	--	--	21	--	--	--	--	--	--
10-29-86	--	11	--	--	10	--	--	--	--	--	--
05-01-86	<10	70	<10	<4	27	<10	86	<6	4	--	--
10-30-86	--	270	--	--	47	--	--	--	--	3	0.05
10-28-86	--	160	--	--	31	--	--	--	--	--	--
10-28-86	--	210	--	--	37	--	--	--	--	--	--
10-30-86	--	320	--	--	55	--	--	--	--	--	--

TABLE 3.--Continued

STATION	NUMBER	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)
383150081202439		10-30-86	1030	1.1	241	7.60	13.5	747	6.5
383323080574039		10-31-86	1115	1.6	160	7.30	9.0	748	--
383333080534039		10-31-86	0915	4.5	105	7.20	9.0	747	11.5
383336080270639		10-29-86	1730	4.1	85	7.20	12.0	724	9.7
383351080264261		10-29-86	1630	8.2	60	7.30	11.5	725	10.6
383410080182039		10-30-86	1230	16	30	6.70	10.5	710	9.6
383412080182239		10-30-86	1200	5.1	25	6.90	11.0	710	10.0
383444080440439		10-28-86	1600	6.4	130	7.30	14.0	734	9.3
383804080192239		10-30-86	1530	5.9	28	6.80	11.5	715	9.8
383912080225339		10-30-86	1420	4.5	27	6.70	12.0	724	9.8
DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	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 WH FET FIELD MG/L AS HCO3 (00440)	CAR- BONATE WATER WH FET FIELD MG/L AS CO3 (00445)
10-30-86	64	75	0	22	4.9	13	3.2	94	0
10-31-86	--	46	30	11	4.5	8.2	2.5	20	0
10-31-86	101	35	19	8.6	3.3	3.3	2.1	20	0
10-29-86	95	33	16	7.4	3.6	3.2	1.8	21	0
10-29-86	102	18	3	4.3	1.8	2.0	1.8	18	0
10-30-86	92	10	6	2.3	1.1	0.30	0.80	5	0
10-30-86	97	8	4	1.8	0.90	0.50	0.90	5	0
10-28-86	94	47	19	12	4.2	5.1	2.4	34	0
10-30-86	96	8	4	1.9	0.90	0.50	1.0	5	0
10-30-86	96	8	5	1.9	0.70	0.70	1.1	4	0
DATE	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 (00410)	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)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)
10-30-86	77	17	14	<0.10	2.3	125	<0.100	250	180
10-31-86	16	39	7.3	<0.10	5.8	87	<0.100	62	10
10-31-86	16	26	2.4	<0.10	4.0	60	<0.100	47	11
10-29-86	17	21	3.1	<0.10	3.8	64	<0.100	68	7
10-29-86	15	9.8	2.2	<0.10	3.7	46	<0.100	100	4
10-30-86	4	7.0	0.50	<0.10	3.1	15	0.270	36	6
10-30-86	4	6.4	0.60	<0.10	3.3	21	0.180	41	4
10-28-86	28	25	6.0	<0.10	1.7	78	<0.100	260	43
10-30-86	4	6.6	0.60	<0.10	3.5	14	0.150	38	4
10-30-86	3	7.2	1.2	<0.10	3.8	23	<0.100	24	<1

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

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

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

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