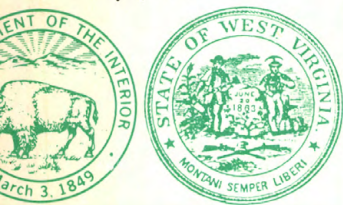


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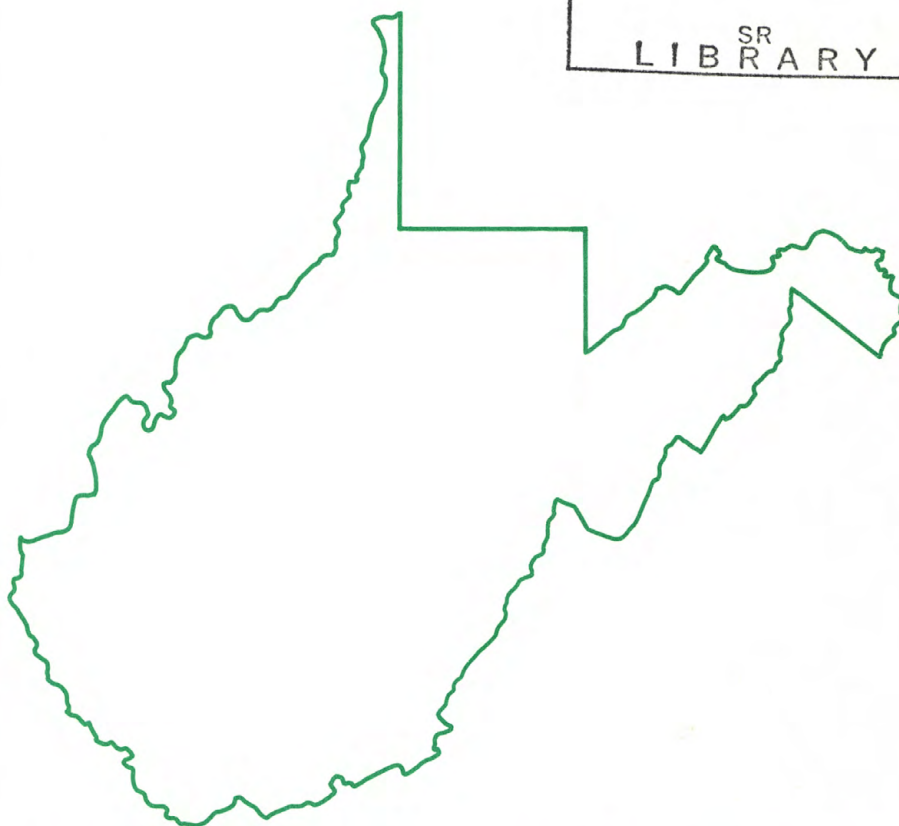


Water Resources Data West Virginia Water Year 1990

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Prepared in cooperation with the State of West Virginia
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CALENDAR FOR WATER YEAR 1990

1989

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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15	16	17	18	19	20	21	12	13	14	15	16	17	18	10	11	12	13	14	15	16
22	23	24	25	26	27	28	19	20	21	22	23	24	25	17	18	19	20	21	22	23
29	30	31					26	27	28	29	30			24	25	26	27	28	29	30
														31						

1990

JANUARY							FEBRUARY							MARCH						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
	1	2	3	4	5	6					1	2	3					1	2	3
7	8	9	10	11	12	13	4	5	6	7	8	9	10	4	5	6	7	8	9	10
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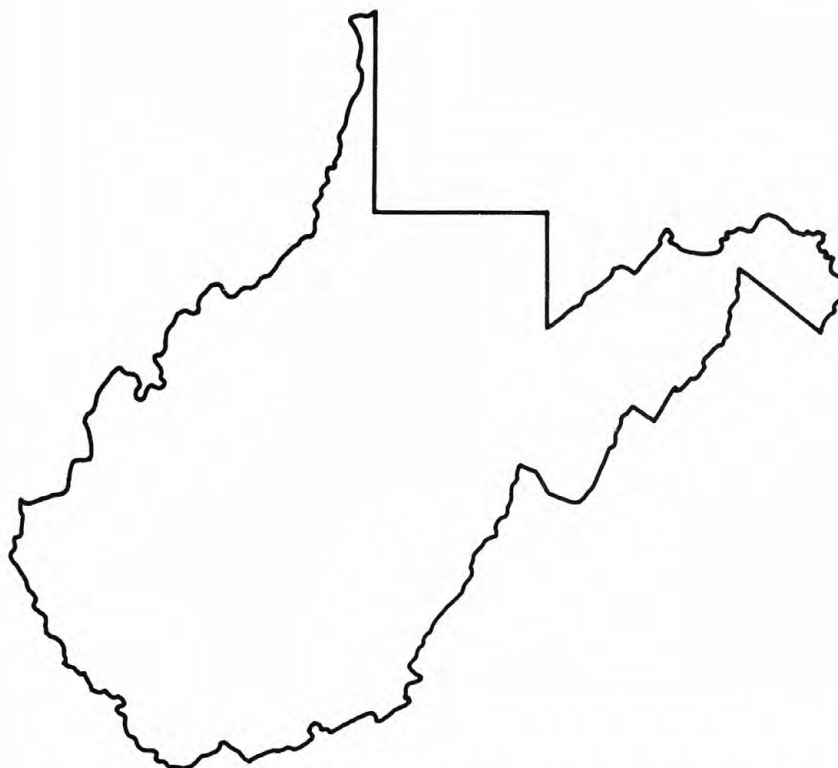
APRIL							MAY							JUNE						
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22	23	24	25	26	27	28	20	21	22	23	24	25	26	17	18	19	20	21	22	23
29	30						27	28	29	30	31			24	25	26	27	28	29	30

JULY							AUGUST							SEPTEMBER						
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8	9	10	11	12	13	14	5	6	7	8	9	10	11	2	3	4	5	6	7	8
15	16	17	18	19	20	21	12	13	14	15	16	17	18	9	10	11	12	13	14	15
22	23	24	25	26	27	28	19	20	21	22	23	24	25	16	17	18	19	20	21	22
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Water Resources Data West Virginia Water Year 1990

by S.M. Ward, W.A. Hobba, Jr., F.M. Taylor, and M.C. Waldron



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT WV-90-1
Prepared in cooperation with the State of West Virginia
and with other agencies

U.S. DEPARTMENT OF THE INTERIOR

MANUEL LUJAN, JR., Secretary

U.S. 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

1991

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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D. P. Brown, GW Specialist
M. C. Waldron, QW Specialist

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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. P. Brown, District Chief.

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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, (t) temperature, (U) turbidity, (s) sediment, (l) elevation and content.

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* Records furnished by Virginia 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	165
BRAXTON	384003080462601	34-2-15	Gassaway	165
BROOKE	401216080362703		Bethany	165
FAYETTE	380154080571301		Clifftop	166
GILMER	385604080495901	33-3-1	Glenville	166
GRANT	391652079181401		Mount Storm	167
GREENBRIER	374804080174001	45-8-2	White Sulphur Springs	167
HAMPSHIRE	391257078404601	23-6-46	Augusta	167
HARDY	385714078441301	25-4-5	Trout Pond Recreation Area	168
JEFFERSON	391142077551701		Rippon	168
	392104077554801		Leetown	168
LEWIS	390553080280802	16-1-9	Jackson's Mill	169
MARION	393101080150501		Farmington	169
MERCER	372149081055001	48-5-1	Princeton	169
MINERAL	392114079081101	22-5-23	Sulphur City	170
MINGO	373554081493401		Justice	170
MONONGALIA	392923079571801	9-7-33	Halleck	170
	394006080194801	9-1-47	Wadestown	171
MORGAN	393043078174001	19-5-14	Berkeley Springs	171
NICHOLAS	381513081094201		Belva	171
POCAHONTAS	380653080155301		Droop Mountain State Park	172
PRESTON	393306079474501	11-3-8	Masontown	172
RANDOLPH	385100079522901		Beverly	172
	385341079575401	18-3-110	Coalton	173
RITCHIE	391226081024901	28-3-3	Harrisville	173
TUCKER	390135079275601	15-6-17	Canaan Valley State Park	173
TYLER	393211081021201		Sistersville	174
WAYNE	375827082211501	50-6-5	Cabwaylingo State Forest	174
WEBSTER	382008080292801		Dyer	175
WYOMING	373839081255201	54-2-12	Twin Falls State Park	175

WATER RESOURCES DATA - WEST VIRGINIA, 1990

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: Discharge records for 81 streamflow-gaging stations; stage only records for 7 gaging stations; annual maximum discharge at 2 crest-stage partial-record stations; change in contents for 1 reservoir; water-quality records for 13 streamflow-gaging stations; and 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-90-1." 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 Division of Natural Resources, J. Edward Hamrick III, Director through
Water Resources Section, L. Eli McCoy, Chief.

West Virginia Geological and Economic Survey, Larry D. Woodfork, Director.

West Virginia Department of Highways, Fred VanKirk, Acting Commissioner.

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

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

Region VII Planning and Development Council, Arnett Baughman, Chairman.

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 and precipitation in October and November were near to above normal (1951-80) throughout the State. The remnants of Hurricane Jerry caused minor flooding in the Tug Fork and Guyandotte River basins in mid-October. Streamflow and precipitation in December were below normal throughout the State. Record cold temperatures for the month and heavy rainfall on December 30 and 31 caused ice jams and bankfull river stages across the State, which continued through January 1. Minor flooding occurred in the West Fork River basin. Streamflow and precipitation in January and February were near to above normal throughout the State. Minor flooding occurred on February 9 and 10 in the West Fork River basin. Streamflow and precipitation in March and April were below normal throughout the State.

Streamflow and precipitation in May were well above normal throughout the State. Heavy rains for the period May 25-29 caused flooding in the Cheat, Tygart, and West Fork River basins, and the West Fork exceeded flood stage by 4 feet. Streamflow and precipitation in June and July were near to above normal throughout the State. Minor flooding occurred in the Elk River basin on June 10. Severe flooding in several northwestern counties occurred June 15 as the result of a disastrous storm that also devastated the town of Shadyside, Ohio. Flash flooding associated with intense thunderstorms occurred in July in the central mountains. Streamflow was above normal in August and September throughout the State, whereas precipitation was near to below normal. Scattered flash flooding occurred during these months.

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

Ground-water levels were generally above average (for the period of record for each observation well) throughout most of the State for the 1990 water year. (Periods of record for the observed wells range from 3 to 50 years.) However, from January through June, water levels were generally below average in the eastern panhandle and in other eastern counties. At the start of the water year in October and November, water levels rose and were above average throughout the State. Most water levels declined in December to below-average levels. Water levels generally rose again in January to above-average levels. Water levels generally were above average from February through September except for most eastern counties where they were below average.

The index well in Gilmer County, near the center of the State, recorded above-average water levels in water year 1990. The index well, for which 36 years of record are available, had record high water levels every month, except January and February in the 1990 water year. Modification of the well's construction from open-hole, dug well to gravel-pack construction in July 1988 could have affected the degree of water-level fluctuation at this well. Water-level fluctuations for three observation wells are shown in figure 6. Gaps in the hydrographs indicate periods of missing record.

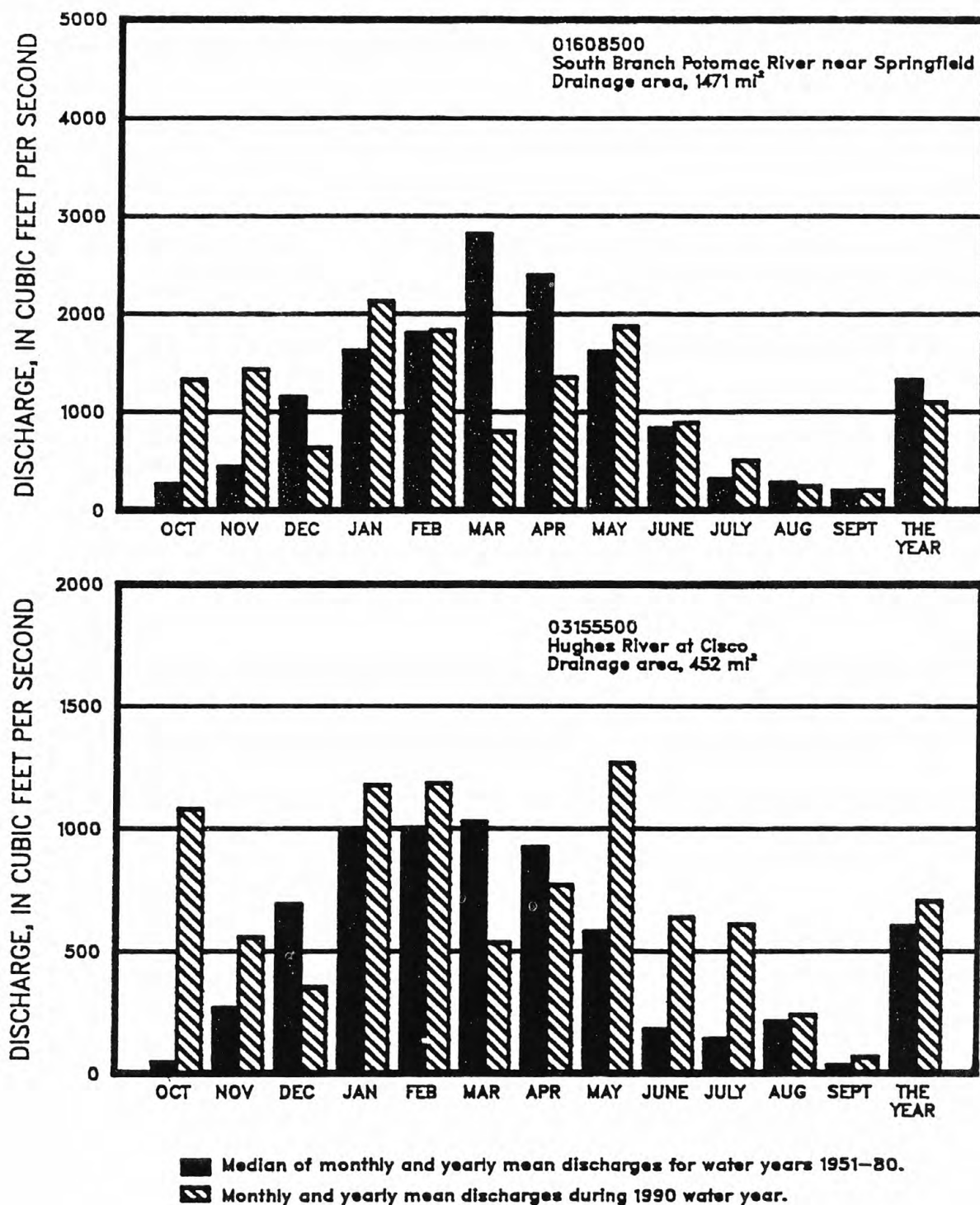


Figure 1.--Discharge at the South Branch Potomac River and the Hughes River index gaging stations during the 1990 water year compared to median discharge for the period 1951-80.

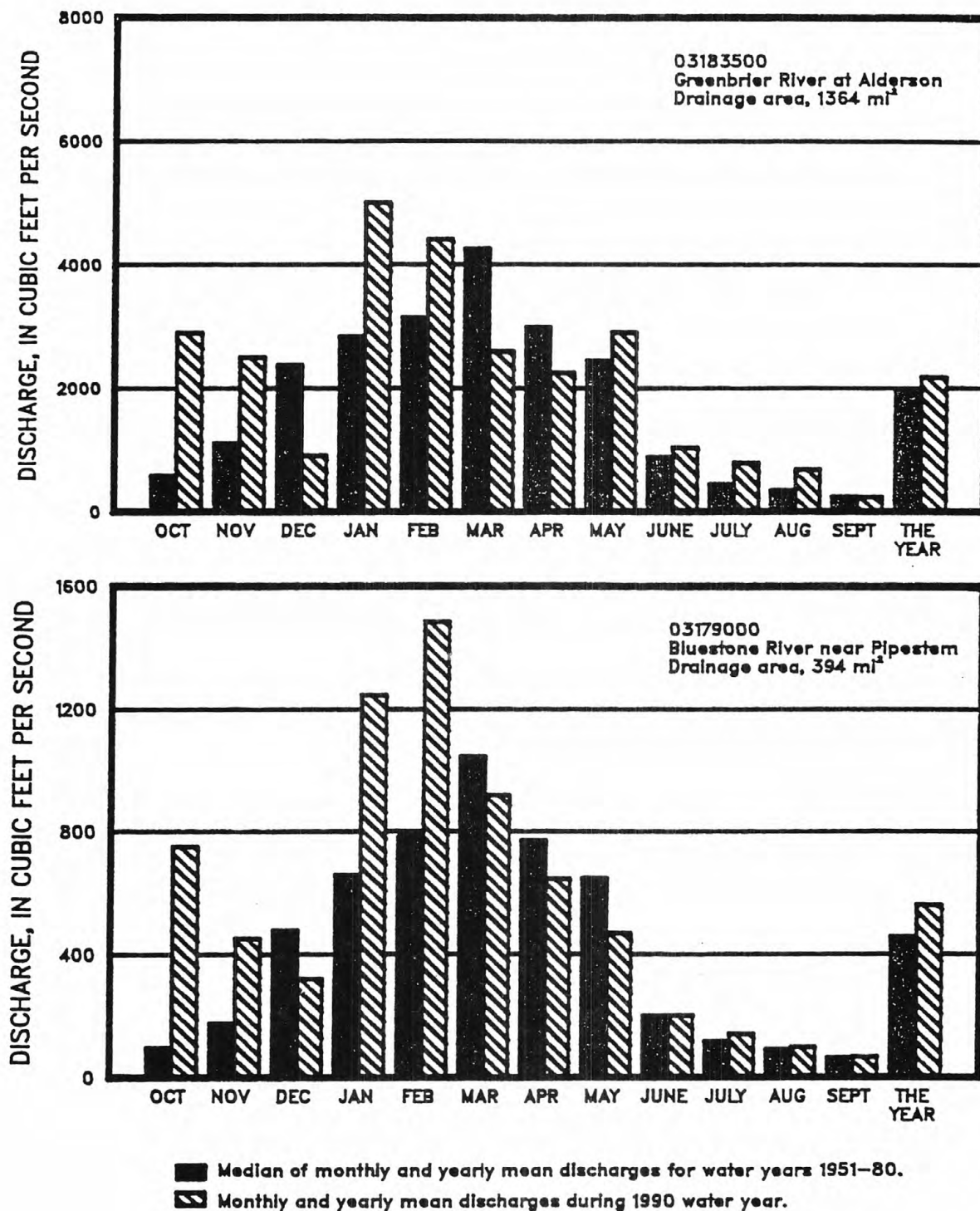


Figure 2.--Discharge at the Greenbrier River and the Bluestone River index gaging stations during the 1990 water year compared to median discharge for the period 1951-80.

WATER RESOURCES DATA - WEST VIRGINIA, 1990

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 1990 water year that began October 1, 1989, and ended September 30, 1990. 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.)

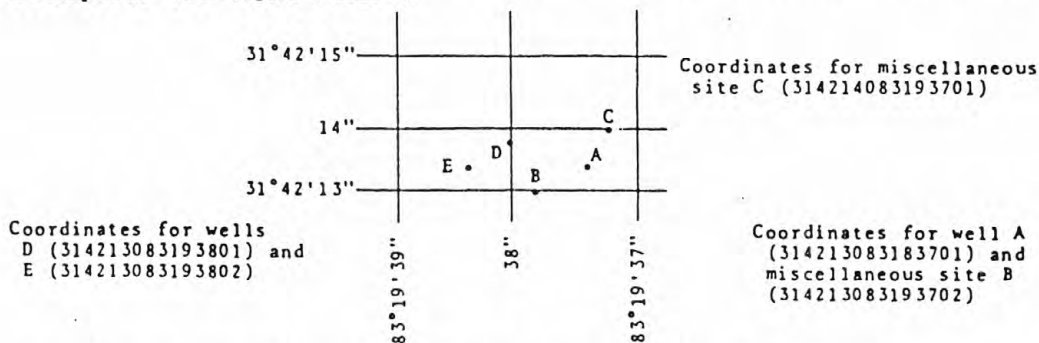


Figure 3. System for numbering wells and miscellaneous sites (latitude and longitude).

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 figures 4 and 5.

Data Collection and Computation

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

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

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.

In March 1989 the National Water-Quality Laboratory discovered a bias in the turbidimetric method for sulfate analysis, indicating that values below 75 mg/L have a median positive bias of 2 mg/L above the true value for the period between 1982 and 1989. Sulfate values in this report have not been corrected for this bias.

Data Presentation

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

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

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

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

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

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

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

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

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

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

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

Remark Codes

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

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

Records of Ground-Water Levels

Only water-level data from a national network of observation wells are given in this report. These data are intended to provide a sampling and historical record of water-level changes in the Nation's most important aquifers. Locations of the observation wells in this network in 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 mile (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 [$\text{mg C}/(\text{m}^2\text{-time})$] for periphyton and macrophytes and [$\text{mg C}/(\text{m}^3\text{-time})$] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

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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.

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

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

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

Substrate is the physical surface upon which an organism lives.

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

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

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

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

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

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 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.

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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, 1990, is called the "1990 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.

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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."

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- 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.
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- 2-F1. *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and Warren E. Teasdale: USGS--TWRI Book 2, Chapter F1. 1989. 97 pages.
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- 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-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.
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- 3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.
- 3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.
- 3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 63 pages.
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- 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-A18. *Determination of stream reaeration coefficients by use of tracers*, by F. A. Kilpatrick, R. E. Rathbun, N. Yotsukura, G. W. Parker, and L. L. DeLong: USGS--TWRI Book 3, Chapter A18. 1989. 52 pages.
- 3-A19. *Levels of streamflow gaging stations*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A19. 1990. 27 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 programmed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.
- 3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J. E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.
- 3-B4. *Regression modeling of ground-water flow*, by Richard L. Cooley and Richard L. Naff: USGS--TWRI Book 3, Chapter B4. 1990. 232 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.
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- 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.
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- 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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- 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.
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- 5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, by L. J. Britton and P. E. Greeson, editors: USGS--TWRI Book 5, Chapter A4. 1989. 363 pages.
- 5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.
- 5-A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments*, by L. C. Friedman and D. E. Erdmann: USGS--TWRI Book 5, Chapter A6. 1982. 181 pages.
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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.
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- 8-A2. *Installation and service manual for U.S. Geological Survey manometers*, by J. D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 pages.
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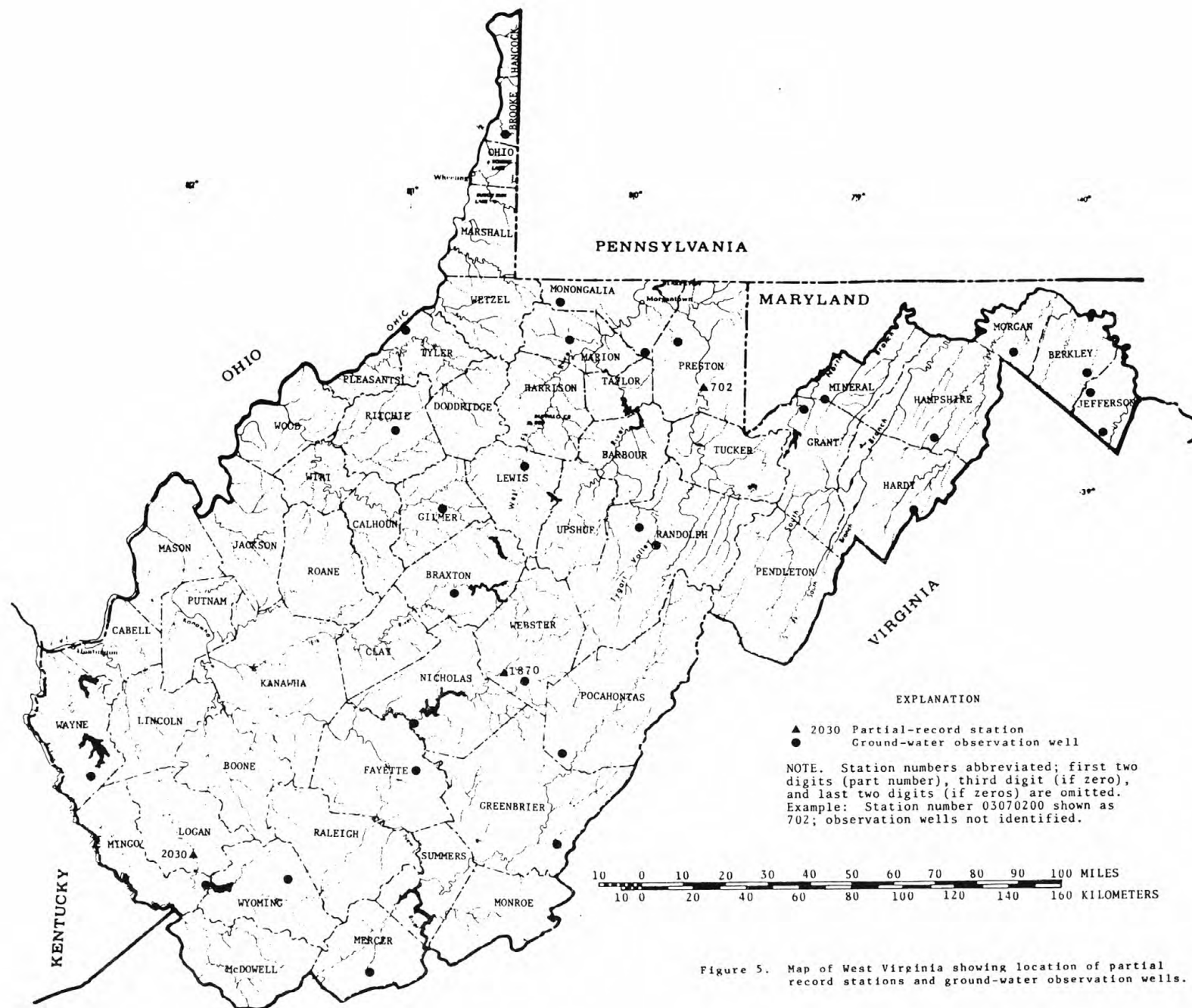


Figure 5. Map of West Virginia showing location of partial record stations and ground-water observation wells.

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SURFACE-WATER RECORDS

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

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

NOTE: In March 1989 the National Water-Quality Laboratory discovered a bias in the turbidimetric method for sulfate analysis, indicating that values below 75 mg/L have a median positive bias of 2 mg/L above the true value for the period between 1982 and 1989. Sulfate values in this report have not been corrected for this bias.

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 Oct. 8 to Nov. 15, June 9-11, Aug. 27 to Sept. 6 (dead battery), Dec. 9-31 (ice effect), and July 15-22 (nitrogen tank empty), 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.--34 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)
May 26	1315	*3,630	*7.62	No other peak greater than base discharge.			

Minimum discharge, 24 ft³/s, Aug. 13, gage height, 2.09 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100	e110	195	932	308	161	142	95	272	563	57	e28
2	148	e90	182	377	267	154	182	104	227	325	53	e30
3	107	e80	164	272	281	177	169	131	213	202	52	e29
4	89	e75	175	347	382	170	163	224	239	159	52	e28
5	80	e73	167	512	325	150	180	618	202	208	40	e30
6	103	e71	166	337	271	152	203	368	167	284	48	e34
7	264	e70	285	255	248	138	195	272	150	185	54	47
8	e205	e120	204	218	222	128	193	230	148	143	45	44
9	e180	e260	e190	200	249	138	229	198	e1200	111	44	29
10	e160	e210	e175	220	586	123	258	236	e600	130	41	34
11	e145	e170	e155	201	361	111	458	216	e350	176	37	37
12	e138	e145	e140	197	301	111	322	179	242	196	33	32
13	e130	e130	128	162	272	107	258	181	197	655	25	45
14	e120	e125	e120	210	255	99	223	189	167	417	43	43
15	e114	e130	e118	150	221	97	211	164	153	e350	36	104
16	e105	466	e112	261	218	95	189	160	128	e280	37	49
17	e150	332	e110	315	206	96	180	242	103	e230	40	62
18	e270	248	e108	411	182	91	175	201	90	e200	39	50
19	e520	206	e105	309	163	67	146	168	114	e180	32	51
20	e350	198	e103	350	153	78	130	151	101	e170	26	93
21	e290	175	e100	452	141	81	271	143	92	e190	40	71
22	e240	155	e99	327	135	94	297	147	87	e160	94	84
23	e210	153	e98	261	117	93	222	138	106	147	273	112
24	e180	136	e96	227	121	84	198	112	82	123	147	84
25	e150	139	e94	209	107	84	173	104	81	112	90	71
26	e130	251	e92	232	119	81	156	1640	69	95	56	60
27	e120	266	e92	191	170	100	136	1110	65	79	e36	55
28	e110	317	e90	179	194	94	112	548	64	66	e33	51
29	e95	267	e90	351	---	99	110	556	75	54	e31	48
30	e95	222	e160	647	---	93	115	479	271	47	e30	34
31	e100	---	e580	380	---	111	---	337	---	54	e28	---
TOTAL	5198	5390	4693	9692	6575	3457	5996	9641	6055	6291	1692	1569
MEAN	168	180	151	313	235	112	200	311	202	203	54.6	52.3
MAX	520	466	580	932	586	177	458	1640	1200	655	273	112
MIN	80	70	90	150	107	67	110	95	64	47	25	28
CFSM	2.30	2.46	2.07	4.28	3.22	1.53	2.74	4.26	2.76	2.78	.75	.72
IN.	2.65	2.75	2.39	4.94	3.35	1.76	3.06	4.91	3.09	3.21	.86	.80

CAL YR 1989 TOTAL 74462 MEAN 204 MAX 1660 MIN 40 CFSM 2.79 IN. 37.95
WTR YR 1990 TOTAL 66249 MEAN 182 MAX 1640 MIN 25 CFSM 2.49 IN. 33.76

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: Dec. 21-30. Water-discharge records good, 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.--29 years, 99.3 ft³/s, 27.63 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, 1,580 ft³/s, May 29, gage height, 6.48 ft; minimum daily discharge, 8.9 ft³/s, Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108	30	169	492	216	36	26	66	118	212	24	13
2	137	27	107	335	312	35	36	64	52	132	16	11
3	119	27	49	73	328	41	39	78	160	102	15	12
4	97	23	51	71	298	38	45	124	227	85	15	10
5	75	22	53	176	377	41	49	227	149	91	14	11
6	55	23	56	172	116	49	111	175	95	52	14	16
7	39	24	77	179	61	113	148	160	74	21	15	15
8	33	29	64	235	59	223	129	140	35	18	15	12
9	40	52	59	260	72	35	128	119	174	18	14	11
10	44	44	54	241	355	27	127	122	277	15	14	12
11	50	38	53	178	70	24	165	106	182	30	13	11
12	49	36	54	50	70	25	144	96	154	31	11	11
13	48	36	53	37	85	25	131	95	125	541	11	14
14	46	37	50	34	111	26	121	98	78	246	14	12
15	46	39	50	34	335	27	118	83	27	155	13	18
16	69	126	48	76	191	27	109	32	22	164	13	11
17	132	141	56	100	44	91	82	36	18	146	13	14
18	218	532	70	355	37	48	37	32	20	285	13	13
19	332	47	60	442	36	24	33	26	25	239	14	14
20	284	50	54	401	32	28	29	20	23	30	12	17
21	261	55	e45	129	31	27	52	21	20	28	25	14
22	234	52	e45	189	32	48	59	24	20	26	40	15
23	193	47	e40	333	32	50	78	26	19	23	114	16
24	62	41	e35	173	33	48	85	25	15	21	48	14
25	34	41	e35	58	30	50	85	25	12	18	27	14
26	33	76	e32	66	31	102	81	762	13	16	21	13
27	30	85	e30	59	41	47	78	981	11	18	20	12
28	27	103	e30	56	43	27	70	226	11	15	19	11
29	24	99	e30	110	---	25	67	867	12	13	18	10
30	24	145	e40	219	---	21	77	346	35	11	16	8.9
31	28	---	342	201	---	26	---	301	---	17	16	---
TOTAL	2971	2127	1991	5534	3478	1454	2539	5503	2203	2819	647	385.9
MEAN	95.8	70.9	64.2	179	124	46.9	84.6	178	73.4	90.9	20.9	12.9
MAX	332	532	342	492	377	223	165	981	277	541	114	18
MIN	24	22	30	34	30	21	26	20	11	11	11	8.9

CAL YR 1989 TOTAL 38724 MEAN 106 MAX 1080 MIN 15
WTR YR 1990 TOTAL 31651.9 MEAN 86.7 MAX 981 MIN 8.9

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. Temperature recorder stopped June 19-25 and Sept. 17-30.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum, 27.5°C, Aug. 14, 1984, July 19, 1990; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum, 27.5°C, July 19; minimum, 1.0°C, Dec. 25-30.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	13.0	7.5	6.0	7.5	3.0	10.5	16.5	17.0	19.0	21.5	21.0
2	17.5	11.5	7.5	6.0	9.0	3.0	10.0	16.0	16.0	22.0	21.0	22.5
3	17.5	10.0	5.5	6.0	9.0	5.0	9.0	15.5	19.0	24.0	22.0	22.5
4	16.5	10.0	3.0	3.5	9.0	4.0	6.0	15.0	18.5	24.5	22.5	22.0
5	14.5	9.0	3.0	5.5	8.0	4.0	8.5	14.5	18.0	24.5	21.5	21.0
6	14.0	10.0	5.0	6.0	8.0	4.5	9.0	15.0	19.0	23.0	22.0	23.5
7	14.0	10.0	5.0	6.5	5.0	8.5	10.5	16.5	19.0	21.5	21.5	22.5
8	11.5	11.0	4.0	7.5	5.0	11.5	11.5	18.5	19.0	22.5	20.5	21.0
9	10.0	11.0	3.0	8.0	5.5	10.0	12.5	18.0	18.5	24.0	20.0	21.5
10	9.0	10.0	3.0	8.0	9.5	10.0	12.0	18.0	17.5	24.0	22.5	22.0
11	10.5	9.5	3.0	7.5	6.0	9.0	12.0	16.5	19.0	23.5	21.5	22.0
12	12.5	9.0	3.0	5.0	3.5	11.0	9.5	15.5	18.5	21.5	22.5	21.5
13	14.0	9.5	4.0	2.0	4.5	14.5	12.0	16.0	20.0	24.5	22.5	21.5
14	15.0	11.5	3.5	1.5	7.5	12.5	12.5	17.5	20.5	24.5	23.5	22.0
15	15.5	12.0	3.0	1.5	11.5	13.0	13.0	18.0	20.5	19.5	23.5	21.0
16	17.5	11.5	2.0	2.0	11.5	12.5	14.0	17.5	21.0	22.5	22.5	18.5
17	17.5	9.0	2.0	3.0	9.0	14.0	13.5	16.5	22.0	24.5	23.5	---
18	18.0	16.0	2.0	8.0	4.0	13.5	10.0	14.5	21.0	27.0	22.0	---
19	18.0	9.5	2.0	8.0	5.0	10.0	9.5	14.5	---	27.5	23.5	---
20	16.0	6.5	2.0	8.5	4.0	7.5	10.0	14.5	---	25.5	24.0	---
21	16.0	6.5	2.0	8.5	3.5	7.0	10.0	14.5	---	22.5	22.0	---
22	16.0	4.5	2.0	7.0	5.0	9.5	13.0	14.0	---	23.0	20.0	---
23	16.0	4.0	2.0	8.5	6.5	10.5	15.0	13.0	---	22.0	19.0	---
24	16.0	4.0	1.5	8.5	5.5	9.5	17.0	13.0	---	21.0	19.0	---
25	13.0	3.5	1.0	5.5	2.0	8.0	17.0	13.0	---	21.0	21.5	---
26	11.0	5.0	1.0	5.5	2.0	10.5	18.5	17.0	21.5	22.5	22.5	---
27	11.0	6.0	1.0	2.0	1.5	10.0	17.5	18.0	21.0	22.0	23.0	---
28	10.5	8.0	1.0	3.0	2.0	8.0	18.5	18.0	22.5	23.0	24.0	---
29	11.0	7.5	1.0	3.0	---	7.5	17.0	18.5	22.5	22.0	23.5	---
30	11.0	7.0	1.0	4.5	---	6.5	17.5	17.5	21.0	23.0	22.5	---
31	13.0	---	5.0	6.0	---	9.0	---	19.0	---	21.5	21.5	---
MAX	18.0	16.0	7.5	8.5	11.5	14.5	18.5	19.0	---	27.5	24.0	---

WTR YR 1990 MAX 27.5

POTOMAC RIVER BASIN

01595200 STONY RIVER NEAR MOUNT STORM, WV--Continued

WATER-QUALITY RECORDS

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MINIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.5	11.5	7.0	5.0	5.5	1.5	8.5	15.0	15.0	17.5	18.5	18.0
2	16.5	10.0	5.5	6.0	7.5	2.0	8.5	14.5	14.0	19.0	17.5	20.0
3	16.5	9.5	3.0	3.0	9.0	3.0	6.0	15.0	15.0	19.5	18.0	20.0
4	14.0	9.0	2.0	3.0	8.0	2.0	5.0	14.5	16.5	22.0	19.0	18.5
5	13.5	8.5	2.0	3.5	8.0	2.0	5.5	14.0	16.0	22.5	21.0	18.5
6	14.0	8.5	3.0	5.5	5.0	3.5	7.0	13.5	16.0	21.5	20.0	20.5
7	11.5	10.0	4.0	6.0	4.5	3.5	9.5	14.5	17.0	18.0	19.5	21.0
8	10.0	10.0	3.0	6.0	4.5	8.5	9.5	15.0	15.5	18.5	18.0	19.5
9	9.0	10.0	3.0	7.5	4.5	8.0	9.5	16.0	15.0	19.5	18.5	19.5
10	8.5	9.0	3.0	7.0	5.5	7.0	10.5	16.0	15.0	21.5	19.5	20.0
11	9.0	8.5	3.0	5.0	3.5	8.0	9.5	14.0	17.0	21.0	19.5	19.0
12	10.5	8.5	3.0	2.0	3.0	8.5	9.0	14.0	16.0	20.0	18.5	20.0
13	12.5	9.0	3.0	1.5	3.0	10.5	9.0	14.5	17.0	20.0	19.5	20.0
14	14.0	9.5	3.0	1.0	4.5	11.0	10.5	14.5	18.0	19.5	20.0	20.0
15	14.5	11.5	2.0	1.0	7.5	11.0	12.5	15.5	18.0	19.5	19.5	18.5
16	15.0	8.0	2.0	1.5	9.0	12.0	11.5	15.5	17.5	19.5	19.5	17.5
17	17.5	7.0	2.0	2.0	4.0	12.0	9.5	14.5	17.5	21.5	19.0	---
18	17.5	9.0	2.0	3.0	2.5	10.0	7.0	12.0	18.5	22.5	19.5	---
19	15.0	6.0	2.0	7.5	3.5	7.5	6.5	12.0	---	25.5	21.0	---
20	16.0	6.0	2.0	8.0	2.5	5.5	9.0	13.5	---	22.0	22.0	---
21	16.0	4.5	2.0	4.5	1.5	4.5	10.0	14.0	---	21.0	20.0	---
22	15.5	4.0	2.0	4.5	3.0	5.0	9.0	12.0	---	21.0	19.0	---
23	15.5	4.0	1.5	6.0	5.5	9.5	10.0	11.0	---	21.0	18.5	---
24	13.0	3.0	1.0	5.5	2.0	6.5	13.0	11.5	---	19.0	18.5	---
25	11.0	3.0	1.0	5.0	2.0	7.0	14.5	11.5	---	18.5	19.0	---
26	10.0	3.5	1.0	2.0	1.5	7.5	15.0	12.5	19.5	18.0	19.5	---
27	10.5	5.0	1.0	2.0	1.5	7.5	15.5	17.0	17.0	18.0	20.0	---
28	10.0	6.0	1.0	2.0	1.5	5.5	16.0	12.5	17.0	18.5	22.0	---
29	10.5	5.0	1.0	2.0	---	6.0	16.0	13.0	18.0	18.0	21.5	---
30	10.5	4.5	1.0	2.5	---	6.0	15.0	13.0	18.0	18.5	20.0	---
31	11.0	---	1.0	4.5	---	6.0	---	15.5	---	20.0	18.0	---
MIN	8.5	3.0	1.0	1.0	1.5	1.5	5.0	11.0	---	17.5	17.5	---

WTR YR 1990 MIN 1.0

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.--47 years (water years 1900-05, 1950-90), 720 ft³/s, 24.20 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, 8,540 ft³/s, July 13, gage height, 8.89 ft; minimum discharge, 222 ft³/s, Aug. 26, gage height, 1.84 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	512	583	598	906	1330	635	386	418	1590	1090	342	402
2	536	576	596	936	1670	630	388	407	1400	1130	314	400
3	509	574	596	1010	1980	630	387	382	1390	675	286	399
4	503	571	592	1060	2010	627	378	501	1030	614	332	398
5	499	569	590	1150	2080	624	354	1050	671	710	405	366
6	500	569	591	1130	2120	624	357	1430	586	671	391	336
7	500	566	591	1110	2090	620	359	1110	582	962	296	355
8	500	577	590	1150	1650	601	357	1070	578	847	294	395
9	497	594	585	1360	1320	582	360	1070	561	445	294	406
10	498	587	584	1520	1400	581	363	1080	969	371	294	395
11	496	585	584	1510	1360	579	371	959	1220	578	294	365
12	495	581	609	1510	1490	578	368	699	999	734	292	396
13	494	574	635	1490	1570	577	365	699	669	6300	292	453
14	495	564	631	1480	1560	575	366	561	824	5950	292	431
15	492	579	630	1470	1540	574	368	475	571	2610	290	783
16	457	649	627	1290	1530	573	367	733	664	2450	311	900
17	461	615	624	1140	1510	575	369	925	521	2350	328	411
18	541	606	621	1160	1500	572	364	618	475	1580	328	358
19	906	892	619	1140	1490	571	363	753	394	1390	330	388
20	963	922	580	1300	1300	556	361	858	372	1120	332	428
21	951	756	545	1620	1110	453	362	759	370	1110	347	418
22	851	701	542	1600	1070	387	360	396	375	1110	355	436
23	726	648	540	1580	856	373	359	393	378	1090	797	429
24	587	644	540	1770	651	378	356	388	373	949	925	420
25	584	641	540	1740	639	377	359	385	370	565	663	417
26	573	652	539	1510	636	377	360	1310	367	508	577	426
27	574	626	536	1260	641	377	372	4550	364	495	621	440
28	574	606	494	1260	640	376	399	4670	347	465	505	435
29	574	600	458	1300	---	376	480	4680	319	444	409	430
30	574	598	459	1370	---	377	456	3760	352	420	406	430
31	583	---	500	1340	---	390	---	2220	---	372	403	---
TOTAL	18005	18805	17766	41172	38743	16125	11214	39309	19681	40105	12345	13046
MEAN	581	627	573	1328	1384	520	374	1268	656	1294	398	435
MAX	963	922	635	1770	2120	635	480	4680	1590	6300	925	900
MIN	457	564	458	906	636	373	354	382	319	371	286	336

CAL YR 1989 TOTAL 315428 MEAN 864 MAX 6110 MIN 335 CFSM 2.14 IN. 29.04
WTR YR 1990 TOTAL 286316 MEAN 784 MAX 6300 MIN 286 CFSM 1.94 IN. 26.36

POTOMAC RIVER BASIN

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 Dec. 13-28 (ice effect) and July 25 to Sept. 30 (backwater from construction), 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.--61 years, 1,277 ft³/s, 19.82 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, 9,600 ft³/s, July 14, gage height, 9.71 ft; minimum daily discharge, 350 ft³/s, Aug. 15, 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	678	1120	957	1440	2640	975	846	687	3150	930	e470	e520
2	1340	1010	941	1550	2800	964	1240	638	2440	1610	e440	e500
3	1000	966	940	1600	3790	971	1510	605	2350	939	e380	e480
4	859	942	881	1740	4110	941	1340	694	2080	689	e360	e450
5	794	923	922	2790	3800	920	1160	1930	1340	694	e400	e440
6	758	920	900	2900	3590	900	1010	2740	1110	767	e600	e400
7	744	909	896	2460	3370	870	958	2140	1020	880	e420	e430
8	710	926	858	2190	3060	850	895	1840	968	919	e390	e500
9	693	1080	805	2110	2290	852	830	1680	961	875	e370	e560
10	676	1060	785	2380	3060	854	810	1750	940	516	e370	e680
11	679	1030	853	2310	2760	838	870	1730	1550	695	e380	e600
12	660	997	833	2270	2680	829	826	1260	1280	953	e370	e540
13	643	971	e800	2130	2690	813	776	1180	1070	5340	e360	e880
14	632	971	e780	1990	2570	798	748	1120	767	7880	e360	e700
15	624	995	e760	2010	2430	791	751	913	963	4450	e350	e1000
16	616	1750	e750	2050	2380	788	742	867	858	4160	e350	e1300
17	673	1790	e730	1950	2300	815	728	1380	759	3380	e360	e920
18	858	1550	e720	2190	2150	809	720	1050	690	2400	e370	e700
19	2240	1400	e710	2140	2110	779	668	925	615	1780	e380	e680
20	2610	1770	e700	2110	2000	828	649	1010	543	1480	e420	e760
21	2180	1380	e690	2920	1660	776	661	1280	526	1390	e450	e690
22	1850	1260	e680	3080	1560	635	668	756	511	1390	e760	e830
23	1430	1130	e670	2860	1550	601	637	647	539	1370	e2100	e840
24	1180	1050	e660	2670	1160	613	618	614	511	1270	e2400	e760
25	1060	1000	e650	2780	1060	634	602	589	502	e720	e1400	e700
26	986	1040	e640	2480	943	656	595	2340	485	e680	e1100	e660
27	925	1070	e630	1930	997	646	585	5630	470	e640	e930	e700
28	886	1060	e620	1830	1030	639	595	6490	461	e620	e800	e640
29	854	1020	603	2070	---	643	654	8430	426	e580	e640	e600
30	853	970	622	3140	---	656	772	7510	453	e560	e600	e570
31	935	---	770	2760	---	770	---	4620	---	e500	e560	---
TOTAL	31626	34060	23756	70830	66540	24454	24464	65045	30338	51057	19640	20030
MEAN	1020	1135	766	2285	2376	789	815	2098	1011	1647	634	668
MAX	2610	1790	957	3140	4110	975	1510	8430	3150	7880	2400	1300
MIN	616	909	603	1440	943	601	585	589	426	500	350	400

CAL YR 1989 TOTAL 583405 MEAN 1598 MAX 11300 MIN 528 CFSM 1.83 IN. 24.80
WTR YR 1990 TOTAL 461840 MEAN 1265 MAX 8430 MIN 350 CFSM 1.45 IN. 19.63

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: Dec. 11-30. Records 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.--52 years, 168 ft³/s, 10.42 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.

EXTREMES₃ FOR CURRENT YEAR.--Maximum discharge, 1,270 ft³/s, May 29, gage height, 6.63 ft; minimum daily discharge, 13 ft³/s, Aug. 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	77	116	179	529	85	70	60	535	152	27	24
2	171	66	109	210	457	80	74	56	472	178	25	21
3	200	59	103	216	410	80	77	52	475	134	23	20
4	151	54	97	226	463	75	77	58	387	104	21	18
5	113	50	88	449	447	70	75	283	317	83	21	18
6	87	47	87	588	394	67	73	297	258	69	23	17
7	69	45	80	370	354	64	85	253	213	53	25	17
8	57	47	75	316	313	61	86	219	174	43	24	17
9	50	86	69	270	289	60	84	184	143	36	21	17
10	45	119	65	270	455	60	84	184	127	33	20	18
11	42	110	e60	336	448	58	93	175	117	37	19	17
12	40	98	e55	341	379	57	93	143	101	47	20	17
13	36	83	e52	286	320	55	87	128	85	186	18	172
14	32	74	e50	240	282	52	81	116	72	234	17	81
15	29	70	e45	215	248	50	77	98	63	357	15	59
16	27	347	e42	207	228	50	74	89	56	568	14	43
17	39	381	e40	196	202	54	71	84	52	352	14	37
18	61	288	e40	191	173	54	68	74	47	271	13	29
19	435	231	e40	177	154	51	63	63	48	220	14	28
20	450	196	e45	169	139	57	58	57	45	174	16	27
21	330	162	e40	184	123	53	58	57	42	135	18	24
22	252	136	e35	179	115	49	61	53	39	111	37	24
23	196	119	e30	165	113	47	60	61	43	100	99	22
24	154	104	e27	155	110	47	56	62	41	79	212	20
25	123	92	e25	155	99	50	52	53	36	64	156	18
26	100	93	e25	161	86	52	49	199	33	53	106	18
27	83	101	e25	149	82	53	47	493	30	45	72	17
28	72	124	e25	140	86	51	45	493	28	40	51	16
29	63	130	e25	245	---	51	46	1170	26	36	40	16
30	59	125	e25	974	---	52	52	1050	25	33	33	22
31	61	---	73	654	---	63	---	693	---	30	28	---
TOTAL	3675	3714	1713	8613	7498	1808	2076	7057	4130	4057	1242	894
MEAN	119	124	55.3	278	268	58.3	69.2	228	138	131	40.1	29.8
MAX	450	381	116	974	529	85	93	1170	535	568	212	172
MIN	27	45	25	140	82	47	45	52	25	30	13	16
CFSM	.54	.57	.25	1.27	1.22	.27	.32	1.04	.63	.60	.18	.14
IN.	.62	.63	.29	1.46	1.27	.31	.35	1.20	.70	.69	.21	.15

CAL YR 1989 TOTAL 76393 MEAN 209 MAX 2040 MIN 20 CFSM .96 IN. 12.98
WTR YR 1990 TOTAL 46477 MEAN 127 MAX 1170 MIN 13 CFSM .58 IN. 7.89

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: Dec. 11-30, and Jan. 3 to Feb. 15. Records good except those for periods of estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--43 years, 170 ft³/s, 12.68 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)
Nov. 16	0930	1,720	4.37	Dec. 31	1530	*2,550	*4.98

Minimum discharge, 28 ft³/s, Sept. 30, gage height, 1.54 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	239	116	122	1090	e420	147	170	100	360	51	33	35
2	533	106	118	573	e350	146	174	94	284	56	32	34
3	473	102	116	e500	e300	149	174	90	259	47	32	33
4	359	95	104	e450	e350	140	165	88	221	44	31	32
5	292	91	111	e500	e450	131	157	94	185	43	32	31
6	244	88	108	e420	e400	124	156	88	161	43	57	31
7	211	86	102	e350	e350	116	174	83	144	41	52	31
8	185	93	98	e300	e270	111	174	78	132	40	38	33
9	169	121	92	e270	e250	111	260	74	122	39	35	32
10	151	102	88	e250	e350	109	355	116	115	38	34	32
11	140	90	e85	e240	e450	105	388	123	102	38	33	30
12	126	85	e80	e220	e400	101	346	101	92	77	33	37
13	117	81	e75	e190	e350	94	297	119	85	71	32	40
14	107	80	e70	e180	e300	91	258	143	80	61	46	87
15	100	80	e65	e170	e270	88	246	128	93	107	38	53
16	94	929	e65	e200	253	93	214	124	86	91	34	41
17	155	663	e65	e250	229	148	191	120	74	65	32	37
18	168	434	e60	e350	194	148	174	108	69	55	31	33
19	581	327	e60	e400	185	130	156	98	68	50	33	33
20	494	276	e60	e350	173	134	146	92	64	48	32	34
21	361	234	e65	e340	160	129	153	92	61	46	31	32
22	282	201	e60	e270	157	129	153	99	60	44	35	36
23	231	187	e55	e200	165	124	134	105	70	50	73	37
24	200	167	e55	e180	164	128	125	87	58	44	80	33
25	181	154	e50	e170	144	135	118	81	55	41	135	31
26	165	161	e50	e180	128	150	113	330	52	39	73	30
27	152	156	e50	e210	132	162	109	714	50	37	55	30
28	141	147	e50	e200	154	155	105	536	48	36	47	29
29	131	136	e50	e250	---	157	115	833	46	35	43	29
30	124	127	e70	e450	---	156	109	718	46	34	40	29
31	121	---	860	e500	---	178	---	491	---	35	37	---
TOTAL	7027	5715	3159	10203	7498	4019	5609	6147	3342	1546	1369	1065
MEAN	227	190	102	329	268	130	187	198	111	49.9	44.2	35.5
MAX	581	929	860	1090	450	178	388	833	360	107	135	87
MIN	94	80	50	170	128	88	105	74	46	34	31	29
CFSM	1.25	1.05	.56	1.81	1.47	.71	1.03	1.09	.61	.27	.24	.20
IN.	1.44	1.17	.65	2.09	1.53	.82	1.15	1.26	.68	.32	.28	.22

CAL YR 1989 TOTAL 66391 MEAN 182 MAX 964 MIN 39 CFSM 1.00 IN. 13.57
WTR YR 1990 TOTAL 56699 MEAN 155 MAX 1090 MIN 29 CFSM .85 IN. 11.59

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: Dec. 11-30. Records fair except those for period of estimated daily discharges, which are poor. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--62 years, 719 ft³/s, 15.21 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)
Dec. 31	2400	8,420	6.47	May 29	1900	6,650	5.77
May 26	2000	*8,730	*6.59				

Minimum discharge, 91 ft³/s, Aug. 21, gage height, 0.58 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	589	437	673	6030	1860	544	784	437	2250	208	114	118
2	1510	412	619	3450	1550	544	784	407	1630	265	109	109
3	2000	388	575	2260	1300	559	826	392	1290	234	104	105
4	1510	374	515	1820	1440	580	850	385	1080	190	101	103
5	1110	353	503	2150	1840	577	833	406	855	164	99	98
6	876	340	495	1990	1730	548	799	411	703	157	104	96
7	753	330	510	1670	1540	519	831	396	587	161	128	96
8	634	341	513	1400	1290	493	826	376	518	157	141	96
9	570	441	486	1170	1080	480	1010	354	481	142	112	98
10	506	515	436	1070	1380	480	1490	366	469	133	103	103
11	477	475	e420	1040	2100	480	2030	552	413	128	99	99
12	445	439	e400	998	1850	491	2100	522	372	182	95	95
13	408	414	e390	910	1550	492	1750	500	337	350	93	157
14	382	395	e370	773	1350	458	1410	740	312	360	93	225
15	359	385	e350	744	1170	441	1170	786	453	387	104	256
16	339	2520	e330	757	1070	424	1010	712	514	551	113	193
17	358	3760	e310	1020	981	469	863	688	378	407	101	168
18	714	2470	e300	1420	849	578	783	615	316	317	93	152
19	2030	1760	e290	1870	783	590	675	524	284	266	94	134
20	2810	1370	e280	1540	731	580	603	471	267	356	92	130
21	2070	1130	e280	1620	660	563	578	443	249	292	92	130
22	1520	915	e270	1480	607	544	726	444	236	248	98	134
23	1090	821	e270	1190	594	544	687	558	271	223	155	142
24	876	710	e260	965	594	547	627	515	281	215	336	168
25	760	619	e260	883	552	567	575	471	236	190	373	168
26	666	639	e250	998	443	568	542	3110	214	168	363	155
27	594	919	e250	1040	469	588	503	6510	196	151	244	141
28	539	882	e250	953	520	614	478	4030	184	140	190	130
29	498	823	e250	945	---	614	451	5360	173	132	158	120
30	468	724	e250	2260	---	628	472	5240	165	125	141	112
31	443	---	1920	2260	---	716	---	3410	---	119	128	---
TOTAL	27904	26101	13275	48676	31883	16820	27066	40131	15714	7118	4370	4031
MEAN	900	870	428	1570	1139	543	902	1295	524	230	141	134
MAX	2810	3760	1920	6030	2100	716	2100	6510	2250	551	373	256
MIN	339	330	250	744	443	424	451	354	165	119	92	95
CFSM	1.40	1.36	.67	2.45	1.77	.85	1.41	2.02	.82	.36	.22	.21
IN.	1.62	1.51	.77	2.82	1.85	.97	1.57	2.33	.91	.41	.25	.23

CAL YR 1989 TOTAL 341174 MEAN 935 MAX 6480 MIN 182 CFSM 1.46 IN. 19.77
WTR YR 1990 TOTAL 263089 MEAN 721 MAX 6510 MIN 92 CFSM 1.12 IN. 15.24

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: Dec. 12-30, May 26 to June 10, and Aug 26 to Sept. 13. 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.--47 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, 1,930 ft³/s, Nov. 16, gage height, 4.27 ft; minimum daily discharge, 7.4 ft³/s, Aug. 4, 17, 18, 20, 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	142	71	62	954	202	81	122	53	e190	14	7.8	e16
2	226	65	59	397	169	78	129	50	e170	14	7.7	e14
3	281	59	58	261	150	78	126	47	e160	13	7.5	e13
4	231	53	52	213	209	72	123	46	e140	11	7.4	e12
5	192	48	54	192	266	65	109	54	e130	11	7.6	e11
6	162	44	52	172	233	61	110	55	e100	11	10	e11
7	132	43	49	154	201	56	129	52	e95	11	10	e11
8	111	48	48	146	169	51	140	48	e90	11	7.8	e10
9	94	68	47	137	148	50	245	45	e80	10	8.0	e10
10	79	61	44	141	263	50	318	59	e70	9.6	8.1	e10
11	70	58	43	144	370	50	307	71	61	9.7	7.9	e9.6
12	61	56	e42	145	289	47	266	63	48	17	8.0	e11
13	54	53	e40	130	227	45	216	66	41	19	7.7	e19
14	49	51	e40	112	190	44	185	74	32	18	8.3	24
15	45	50	e36	108	162	43	173	68	30	21	7.7	19
16	41	1120	e34	99	146	43	154	64	30	22	7.9	14
17	58	792	e32	92	129	59	136	62	25	18	7.4	12
18	104	311	e30	89	106	68	117	55	22	13	7.4	11
19	554	217	e28	85	96	69	98	47	21	9.4	7.6	11
20	507	176	e26	82	87	74	85	45	21	9.2	7.4	10
21	310	149	e26	84	78	68	83	46	19	8.8	7.4	9.9
22	238	126	e26	82	76	69	84	47	19	9.8	7.6	11
23	186	116	e25	77	84	59	74	53	22	12	15	11
24	153	98	e25	74	92	61	67	46	19	9.3	22	10
25	130	87	e24	68	98	69	63	40	18	9.3	320	9.0
26	115	83	e24	82	88	80	59	e150	16	9.5	e81	8.8
27	103	80	e23	87	88	111	56	e250	15	9.5	e51	8.5
28	89	75	e23	86	87	120	54	e430	14	8.9	e32	8.5
29	76	71	e23	104	---	116	58	e660	13	8.5	e26	8.4
30	69	66	e30	321	---	110	59	e350	13	8.0	e20	8.6
31	67	---	577	268	---	120	---	e240	---	7.7	e18	---
TOTAL	4729	4395	1702	5186	4503	2167	3945	3436	1724	373.2	759.2	352.3
MEAN	153	146	54.9	167	161	69.9	131	111	57.5	12.0	24.5	11.7
MAX	554	1120	577	954	370	120	318	660	190	22	320	24
MIN	41	43	23	68	76	43	54	40	13	7.7	7.4	8.4
CFSM	1.50	1.44	.54	1.64	1.58	.69	1.29	1.09	.56	.12	.24	.12
IN.	1.72	1.60	.62	1.89	1.64	.79	1.44	1.25	.63	.14	.28	.13

CAL YR 1989 TOTAL 49021 MEAN 134 MAX 1210 MIN 15 CFSM 1.32 IN. 17.88
WTR YR 1990 TOTAL 33271.7 MEAN 91.2 MAX 1120 MIN 7.4 CFSM .89 IN. 12.13

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: Dec. 11-30, and May 27 to July 18. Records fair except those for periods 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.--59 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, 3,290 ft³/s, Nov. 16, gage height, 4.67 ft; minimum daily discharge, 19 ft³/s, Aug. 18 and Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	191	125	138	1650	505	130	185	116	e600	e150	31	61
2	237	115	135	1050	431	127	192	111	e400	e160	28	55
3	386	108	132	619	358	124	211	106	e350	e80	26	50
4	406	102	128	449	323	122	202	107	e300	e70	25	46
5	315	95	124	402	355	120	187	111	e250	e55	25	42
6	248	90	123	332	405	117	175	109	e230	e50	29	38
7	201	85	121	282	407	113	191	108	e200	e45	29	35
8	163	83	119	254	397	108	207	103	e170	e40	27	35
9	140	86	117	235	350	102	313	98	e150	e38	29	33
10	121	101	108	231	312	97	495	108	e130	e38	28	31
11	107	107	e100	249	525	94	594	149	e110	e38	24	28
12	95	101	e90	247	652	93	493	144	e100	e40	22	24
13	88	99	e85	235	537	91	383	135	e90	e80	20	28
14	79	95	e80	206	404	89	306	137	e80	e200	22	41
15	73	93	e75	184	329	86	266	137	e70	e280	21	46
16	67	1210	e70	177	281	84	237	135	e65	e390	20	48
17	67	2050	e65	168	249	84	204	143	e60	e300	20	47
18	95	980	e65	161	219	86	181	135	e55	e200	19	35
19	326	591	e60	157	188	91	160	123	e52	117	20	31
20	1690	425	e60	151	171	99	145	116	e50	110	21	31
21	1160	337	e58	150	159	102	142	116	e50	102	20	29
22	753	276	e56	148	148	98	152	115	e50	91	22	27
23	500	243	e55	143	141	93	146	114	e52	95	36	26
24	363	210	e55	137	140	95	138	111	e50	85	51	26
25	289	182	e52	134	141	104	132	105	e45	73	171	24
26	238	170	e52	136	141	114	128	245	e40	62	247	22
27	206	164	e50	149	136	126	124	e1000	e38	54	128	22
28	179	157	e50	158	133	158	120	e1200	e35	47	108	21
29	156	152	e50	161	---	169	118	e1400	e35	42	94	20
30	141	144	e70	302	---	169	120	e1700	e70	38	81	19
31	130	---	102	587	---	174	---	e1000	---	35	70	---
TOTAL	9210	8776	2645	9644	8537	3459	6647	9537	3977	3205	1514	1021
MEAN	297	293	85.3	311	305	112	222	308	133	103	48.8	34.0
MAX	1690	2050	138	1650	652	174	594	1700	600	390	247	61
MIN	67	83	50	134	133	84	118	98	35	35	19	19
CFSM	1.05	1.03	.30	1.10	1.08	.39	.78	1.09	.47	.37	.17	.12
IN.	1.21	1.15	.35	1.27	1.12	.45	.87	1.25	.52	.42	.20	.13

CAL YR 1989 TOTAL 104592 MEAN 287 MAX 3200 MIN 34 CFSM 1.01 IN. 13.75
WTR YR 1990 TOTAL 68172 MEAN 187 MAX 2050 MIN 19 CFSM .66 IN. 8.96

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: Dec. 12-31. 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.--66 years (water years 1900-01, 1904-05, 1929-90), 1,315 ft³/s, 12.14 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)
May 27	1100	10,100	9.78	May 30	0700	*10,700	*10.08

Minimum discharge, 151 ft³/s, Sept. 11, 12, gage height, 1.89 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	938	727	1250	2360	3050	907	1270	722	3670	730	202	220
2	1160	691	1170	4660	2510	883	1320	657	2620	779	191	202
3	2330	649	1080	3810	2200	863	1330	615	2200	474	183	188
4	2150	607	994	2710	2190	904	1390	605	1940	392	178	176
5	1690	579	914	2950	2470	917	1340	982	1670	331	174	170
6	1380	554	890	3050	2560	857	1300	972	1430	294	197	160
7	1160	528	850	2510	2350	788	1360	811	1230	262	201	157
8	1000	522	853	2150	2140	729	1450	700	1040	254	196	155
9	892	643	854	1940	1920	688	1470	638	912	252	203	157
10	811	770	765	1790	1960	669	1820	630	816	236	207	156
11	743	812	703	2040	2620	667	2290	803	774	237	188	154
12	690	751	e650	2110	2870	661	2530	1020	655	241	177	162
13	637	698	e600	1900	2490	679	2290	931	588	415	169	283
14	585	657	e550	1640	2170	657	1980	920	536	925	163	225
15	545	623	e500	1470	1980	632	1760	1190	485	1060	157	268
16	514	1900	e480	1440	1810	611	1630	1160	557	1550	156	317
17	511	6640	e470	1460	1700	606	1480	1090	705	1350	159	304
18	567	4640	e460	1650	1570	658	1340	1040	547	902	165	254
19	1740	3070	e450	1930	1420	802	1210	881	464	624	158	229
20	4950	2340	e440	1990	1330	855	1050	746	420	508	167	212
21	3670	1980	e430	1870	1250	838	968	678	397	553	164	196
22	2560	1750	e430	1910	1130	776	1050	639	374	502	190	190
23	1910	1580	e420	1750	1060	734	1200	652	378	444	233	186
24	1510	1450	e420	1580	1050	744	1060	802	387	396	347	181
25	1290	1300	e410	1470	1030	791	965	704	399	365	503	185
26	1120	1200	e400	1480	923	850	882	980	358	336	586	207
27	1000	1230	e400	1570	758	874	811	7530	323	299	648	210
28	912	1450	e390	1540	803	959	748	6270	297	270	435	198
29	834	1420	e390	1550	---	1030	708	7260	278	246	345	184
30	776	1340	e450	2550	---	1050	718	9570	264	229	287	176
31	739	---	e700	3190	---	1120	---	5840	---	216	246	---
TOTAL	41314	43101	19763	66020	51314	24799	40720	58038	26714	15672	7575	6062
MEAN	1333	1437	638	2130	1833	800	1357	1872	890	506	244	202
MAX	4950	6640	1250	4660	3050	1120	2530	9570	3670	1550	648	317
MIN	511	522	390	1440	758	606	708	605	264	216	156	154
CFSM	.91	.98	.43	1.45	1.25	.54	.92	1.27	.61	.34	.17	.14
IN.	1.04	1.09	.50	1.67	1.30	.63	1.03	1.47	.68	.40	.19	.15

CAL YR 1989 TOTAL 535285 MEAN 1467 MAX 10400 MIN 295 CFSM 1.00 IN. 13.54
WTR YR 1990 TOTAL 401092 MEAN 1099 MAX 9570 MIN 154 CFSM .75 IN. 10.14

e Estimated

POTOMAC RIVER BASIN

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 (ice effect), 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.--52 years, 3,296 ft³/s, 14.40 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)
May 30	0915	*22,300	*16.40	No other peak greater than base discharge.			
Minimum discharge, 574 ft ³ /s, Aug. 17, gage height, 3.72 ft.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1980	2150	2670	e2200	7850	2430	2580	1980	9210	1180	854	993
2	2760	2080	2550	e7000	6880	2400	3040	1800	6780	2980	769	929
3	4010	1920	2450	6370	7020	2370	3600	1680	6260	2260	717	880
4	3940	1830	2290	5390	7680	2360	3560	1670	5520	1660	667	835
5	3310	1740	2260	6080	7940	2330	3320	3130	4530	1410	681	805
6	2840	1690	2210	7510	7610	2260	3040	4870	3680	1430	769	778
7	2500	1640	2170	6420	7050	2170	2970	4250	3160	1280	917	766
8	2240	1620	2110	5610	6460	2070	3040	3590	2850	1500	723	790
9	2040	1820	2040	5070	5500	2010	2960	3210	2630	1390	692	841
10	1880	2180	1910	4990	6460	1990	3200	3200	2490	1060	699	1000
11	1780	2240	e1950	5470	7220	1980	3880	3740	2710	1080	688	1010
12	1680	2140	e1950	5540	7220	1960	4280	3290	2680	1440	689	943
13	1600	2010	e1950	5120	6600	1950	4040	2940	2330	3790	646	1500
14	1510	1920	e1910	4520	6040	1920	3590	2900	1930	9310	621	1640
15	1440	1870	e1750	4270	5570	1860	3280	2740	1930	6850	606	1320
16	1380	3680	e1500	4190	5210	1820	3070	2640	1600	6820	590	1880
17	1410	9690	e1260	4140	4950	1830	2850	2830	1960	5750	580	2010
18	1590	7910	e1220	4410	4560	1870	2630	2850	1670	4460	610	1330
19	3490	5720	e1200	4760	4250	1950	2410	2330	1490	3290	619	1130
20	8590	4880	e1200	4870	4030	2110	2210	2260	1310	2840	753	1180
21	7470	4260	e1200	5160	3630	2110	2110	2310	1210	2500	730	1170
22	5730	3680	e1200	5740	3340	1950	2140	2180	1160	2440	876	1210
23	4570	3330	e1200	5380	3260	1790	2280	1730	1150	2350	2260	1440
24	3780	3020	e1200	4910	3000	1750	2170	1780	1200	2140	4480	1230
25	3230	2760	e1200	4820	2740	1840	2030	1750	1190	1890	3130	1100
26	2890	2610	e1200	4690	2440	1910	1930	4120	1140	1420	2440	1070
27	2650	2650	e1200	4410	2330	1960	1850	12500	1050	1240	2250	1090
28	2450	2930	e1200	4150	2360	1970	1770	14800	989	1150	1900	1080
29	2290	2980	e1400	4310	---	2050	1750	18100	933	1070	1510	997
30	2160	2820	e1700	10200	---	2090	1950	21200	881	999	1210	943
31	2060	---	e1900	9480	---	2280	---	14200	---	952	1080	---
TOTAL	91250	91770	53150	167180	149200	63340	83530	152570	77623	79931	35756	33890
MEAN	2944	3059	1715	5393	5329	2043	2784	4922	2587	2578	1153	1130
MAX	8590	9690	2670	10200	7940	2430	4280	21200	9210	9310	4480	2010
MIN	1380	1620	1200	2200	2330	1750	1750	1670	881	952	580	766
CFSM	.95	.98	.55	1.73	1.71	.66	.90	1.58	.83	.83	.37	.36
IN.	1.09	1.10	.64	2.00	1.79	.76	1.00	1.83	.93	.96	.43	.41

CAL YR 1989 TOTAL 1476910 MEAN 4046 MAX 26100 MIN 1170 CFSM 1.30 IN. 17.67
WTR YR 1990 TOTAL 1079190 MEAN 2957 MAX 21200 MIN 580 CFSM .95 IN. 12.91

e Estimated

POTOMAC RIVER BASIN

01611500 CACAPON RIVER NEAR GREAT CACAPON, WV

LOCATION.--Lat 39°34'43", long 78°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: Dec. 11-31. Records good except those for period of estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--67 years (water years 1924-90), 584 ft³/s, 11.71 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)
Nov. 17	0500	*6,230	*8.48	May 30	0900	4,330	7.16

Minimum discharge, 63 ft³/s, Sept. 10, 11, gage height, 0.91 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	185	255	350	310	1540	302	510	315	1540	92	132	94
2	224	233	334	700	1230	296	576	309	1100	140	124	86
3	226	225	320	1350	1060	281	576	281	999	427	114	81
4	431	216	294	1070	1020	274	618	273	977	260	104	76
5	364	199	291	849	1090	264	586	365	780	190	107	71
6	298	188	276	1030	1020	251	543	592	633	147	130	68
7	259	180	296	891	924	237	531	527	517	131	160	75
8	228	180	279	761	865	223	613	446	426	113	150	72
9	201	216	268	616	788	215	679	383	360	102	130	69
10	181	254	235	607	782	210	711	371	328	94	118	65
11	168	317	e230	647	997	209	777	492	285	100	104	63
12	159	295	e210	804	1040	209	768	770	254	105	95	76
13	149	260	e200	795	954	205	679	653	223	125	91	174
14	144	239	e190	666	858	197	590	567	199	752	87	253
15	138	224	e180	551	799	192	532	499	178	767	83	258
16	132	564	e170	529	740	186	506	417	161	1750	78	266
17	135	4220	e160	492	693	188	485	362	150	1460	75	194
18	135	2040	e150	463	633	188	422	333	140	834	69	143
19	203	1320	e145	420	549	201	365	322	131	585	69	129
20	1740	975	e140	393	492	218	328	287	123	446	113	122
21	1640	801	e135	372	447	218	310	257	116	389	83	112
22	1090	678	e130	374	399	234	315	246	109	338	97	110
23	776	587	e130	381	377	235	347	231	106	350	122	102
24	577	515	e125	349	384	241	357	226	108	502	180	94
25	460	451	e120	340	453	248	320	231	108	446	280	87
26	385	399	e120	363	404	259	307	362	105	320	278	85
27	338	409	e115	482	298	275	296	998	105	256	208	81
28	308	443	e110	543	283	293	285	1930	96	204	163	78
29	285	417	e110	571	---	359	279	2100	88	171	136	75
30	264	384	e150	1680	---	364	298	3900	86	152	118	73
31	251	---	e200	2060	---	391	---	2420	---	143	104	---
TOTAL	12074	17684	6163	21459	21119	7663	14509	21465	10531	11891	3902	3332
MEAN	389	589	199	692	754	247	484	692	351	384	126	111
MAX	1740	4220	350	2060	1540	391	777	3900	1540	1750	280	266
MIN	132	180	110	310	283	186	279	226	86	92	69	63
CFSM	.58	.87	.29	1.02	1.11	.37	.71	1.02	.52	.57	.19	.16
IN.	.66	.97	.34	1.18	1.16	.42	.80	1.18	.58	.65	.21	.18

CAL YR 1989 TOTAL 197927 MEAN 542 MAX 6670 MIN 100 CFSM .80 IN. 10.88
WTR YR 1990 TOTAL 151792 MEAN 416 MAX 4220 MIN 63 CFSM .61 IN. 8.34

e Estimated

POTOMAC RIVER BASIN

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 (ice effect), 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.--58 years, 4,144 ft³/s, 13.82 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. 2	1200	Ice jam	*17.03	No other peak greater than base discharge.			
May 30	1345	*25,600	13.93				

Minimum discharge, 765 ft³/s, Aug. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2160	2380	3110	e2300	10200	2690	2900	2350	12100	1120	1150	1240
2	2290	2430	2970	e8000	8570	2710	3310	2300	8640	1800	1070	1140
3	3520	2250	2840	8230	7920	2680	4050	2110	7450	3210	1010	1080
4	4390	2130	2700	6660	8360	2650	4350	2030	6850	2290	967	1040
5	3910	2030	2580	6040	8960	2610	4130	2530	5870	1820	929	1000
6	3290	1940	2550	8200	8720	2560	3780	5180	4640	1590	968	985
7	2840	1890	2510	7690	8150	2470	3530	5320	3940	1600	1040	982
8	2520	1850	2460	6630	7530	2350	3550	4380	3480	1450	1160	970
9	2270	1910	2360	5810	6720	2270	3620	3830	3160	1620	990	989
10	2070	2220	2220	5450	6550	2230	3570	3630	2950	1510	950	1020
11	1930	2520	2140	5720	8200	2210	4160	4430	2750	1250	934	1140
12	1820	2540	2200	6280	8380	2190	4740	4470	3050	1320	918	1140
13	1720	2380	2180	6010	7770	2170	4740	3950	2770	1770	903	1340
14	1640	2230	2160	5300	7100	2160	4280	3650	2440	7770	861	1950
15	1560	2150	2110	4830	6520	2120	3870	3400	2050	8650	828	1860
16	1480	3110	1940	4620	6050	2070	3600	3240	2110	7790	805	1740
17	1470	11300	1410	4610	5650	2050	3420	3100	1880	7610	785	2240
18	1490	11400	e1400	4570	5250	2050	3160	3320	2100	5750	773	2040
19	2130	7790	e1400	4960	4790	2100	2940	2950	1800	4280	800	1520
20	8330	6030	e1400	5170	4500	2270	2700	2610	1640	3400	1080	1350
21	10300	5340	e1400	5180	4210	2360	2530	2550	1500	2960	1020	1380
22	7530	4490	e1400	5950	3800	2340	2480	2670	1400	2770	1080	1410
23	5850	4040	e1400	5960	3620	2160	2550	2240	1370	2670	1620	1500
24	4660	3620	e1400	5450	3560	2060	2660	1990	1360	2650	4270	1580
25	3920	3320	e1400	5140	3210	2070	2480	2070	1410	2520	4170	1390
26	3440	3070	e1400	5180	2990	2130	2350	2750	1380	2070	3130	1290
27	3120	3010	e1400	5120	2690	2220	2240	9120	1340	1680	2600	1260
28	2870	3150	e1500	4820	2620	2280	2150	17200	1250	1490	2340	1260
29	2670	3390	e1700	4860	---	2370	2100	17600	1180	1380	1950	1240
30	2510	3280	e1900	11100	---	2470	2160	24700	1140	1290	1590	1160
31	2390	---	e2100	12900	---	2580	---	19100	---	1220	1360	---
TOTAL	102090	109190	61640	188740	172590	71650	98100	170770	95000	90300	44051	40236
MEAN	3293	3640	1988	6088	6164	2311	3270	5508	3167	2913	1421	1341
MAX	10300	11400	3110	12900	10200	2710	4740	24700	12100	8650	4270	2240
MIN	1470	1850	1400	2300	2620	2050	2100	1990	1140	1120	773	970
CFSM	.81	.89	.49	1.49	1.51	.57	.80	1.35	.78	.72	.35	.33
IN.	.93	1.00	.56	1.72	1.58	.65	.90	1.56	.87	.82	.40	.37

CAL YR 1989 TOTAL 1707480 MEAN 4678 MAX 32100 MIN 1200 CFSM 1.15 IN. 15.59
WTR YR 1990 TOTAL 1244357 MEAN 3409 MAX 24700 MIN 773 CFSM .84 IN. 11.37

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: Dec. 15-30. Records good except those for period of estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--43 years (water years 1947-90), 228 ft³/s, 11.38 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)
Aug. 20	1000	*1,160	*6.07	No other peak greater than base discharge.			

Minimum discharge, 56 ft³/s, Dec. 10, gage height, 1.80 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	84	89	271	304	149	292	200	265	80	68	113
2	132	80	85	315	249	142	298	147	217	88	66	108
3	155	78	83	239	220	141	656	125	197	76	64	102
4	93	75	77	209	247	135	385	127	182	71	63	98
5	74	73	75	239	250	125	273	315	168	69	71	94
6	69	71	77	227	215	120	225	221	155	68	150	93
7	67	72	76	167	198	114	340	162	148	68	120	94
8	64	75	76	142	186	109	468	137	140	68	83	91
9	62	124	75	139	174	112	325	122	134	66	74	87
10	61	147	75	167	204	115	263	208	135	66	75	86
11	60	115	78	192	306	111	244	440	123	69	73	84
12	61	95	76	172	256	107	212	228	114	120	69	83
13	60	85	75	143	227	103	187	186	111	452	66	183
14	60	79	72	116	204	100	173	202	110	270	69	297
15	61	77	e70	112	188	97	177	165	107	276	65	160
16	59	177	e70	109	178	97	178	150	107	495	62	143
17	64	355	e70	103	170	106	162	146	101	203	61	117
18	108	190	e68	100	153	129	155	135	100	139	60	104
19	219	145	e68	95	145	112	143	115	98	115	59	97
20	594	124	e68	92	140	121	137	112	102	105	573	100
21	471	109	e66	98	136	141	141	119	96	114	206	93
22	208	96	e65	100	130	132	150	111	93	113	371	95
23	147	100	e64	95	135	119	137	108	97	152	573	98
24	120	96	e64	90	235	115	129	103	90	111	674	92
25	106	90	e64	95	220	119	122	95	86	94	399	85
26	97	94	e62	149	160	134	117	384	84	83	243	85
27	89	104	e62	219	150	144	110	384	80	80	191	86
28	84	105	e62	177	151	126	107	248	77	77	162	82
29	81	104	e62	199	---	117	113	648	73	76	142	81
30	104	95	e70	880	---	115	159	789	72	74	131	77
31	81	---	147	479	---	206	---	374	---	71	119	---
TOTAL	3776	3314	2291	5930	5531	3813	6578	7006	3662	4009	5202	3208
MEAN	122	110	73.9	191	198	123	219	226	122	129	168	107
MAX	594	355	147	880	306	206	656	789	265	495	674	297
MIN	59	71	62	90	130	97	107	95	72	66	59	77
CFSM	.45	.41	.27	.70	.73	.45	.81	.83	.45	.48	.62	.39
IN.	.52	.45	.31	.81	.76	.52	.90	.96	.50	.55	.71	.44

CAL YR 1989 TOTAL 65978 MEAN 181 MAX 1980 MIN 59 CFSM .66 IN. 9.02
WTR YR 1990 TOTAL 54320 MEAN 149 MAX 880 MIN 59 CFSM .55 IN. 7.43

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 Dec. 13-30 (ice effect) and Aug. 26-28 (missing record), 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.--51 years (water years 1929-53, 1965-90), 6,105 ft³/s, 13.97 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 335,000 ft³/s, Mar. 19, 1936, gage height, 42.1 ft, from flood-marks, 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. 31	0500	26,300	9.69	May 30	2400	*35,100	*11.49

Minimum discharge, 910 ft³/s, Aug. 13, gage height, 1.80 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2940	2790	4160	2690	18200	3640	3590	3340	20600	1840	1550	2120
2	3140	2970	3970	2970	14300	3630	4260	3430	14000	1830	1360	1910
3	3970	2900	3890	9190	12200	3620	6060	3340	10900	2130	1320	1830
4	4930	2740	3530	9190	11700	3560	7770	3160	10100	3470	1250	1670
5	5290	2600	3400	7820	12300	3500	7160	3440	8790	2620	1250	1550
6	4760	2400	3360	8270	12300	3420	6420	5200	7320	2260	1540	1480
7	4240	2250	3250	11100	11700	3300	5960	7620	6150	1920	1790	1510
8	3760	2350	3300	10000	10700	3180	5790	6780	5440	1890	1600	1520
9	3440	2360	3170	8490	9820	3070	5620	5650	4890	1740	1680	1510
10	3160	2650	2810	7160	8890	3050	5440	5180	4690	2050	1540	1530
11	3010	3050	2730	7040	10500	3000	5430	6760	4380	2080	1390	1520
12	2820	3200	2900	7560	11500	2960	6100	7980	4070	2190	1160	1650
13	2700	3180	e2850	7810	11100	2890	6420	6930	4150	2870	1360	1820
14	2610	2900	e2750	7120	10200	2850	6130	6310	3730	3290	1280	1940
15	2520	2760	e2600	6280	9230	2890	5620	5680	3360	10900	1380	2900
16	2410	2960	e2200	5780	8400	2780	5250	4960	2910	9860	1160	2700
17	2260	11700	e1950	5640	7800	2710	4830	4760	2950	10200	1180	2540
18	1920	17200	e1850	5570	7230	2680	4630	4420	2780	8280	1310	2810
19	2210	12500	e1750	5620	6700	2770	4250	4480	3050	6400	1210	2740
20	4660	8970	e1700	5810	6120	2850	3880	3920	2890	4790	2020	2220
21	14500	7370	e1700	6180	5810	2980	3660	3640	2650	4030	4100	2020
22	11800	6420	e1700	6560	5400	3200	3500	3590	2360	3900	3080	2490
23	8580	5530	e1700	7430	4990	3090	3440	3580	2240	3750	3700	2400
24	6680	5020	e1700	7150	5060	2960	3440	3090	2150	3360	5720	2180
25	5430	4530	e1700	6590	4980	2860	3520	2770	2120	3190	8620	2280
26	4620	4160	e1700	6680	4420	2810	3370	3080	2090	2960	e5200	2170
27	4120	3970	e1700	7490	3980	2880	3120	7460	2050	2490	e4400	1960
28	3730	3990	e1800	7400	3720	2970	3080	17900	1820	2100	e3900	1910
29	3400	4160	e2000	6920	---	3020	3060	20500	1590	1930	3320	1940
30	3180	4310	e2100	15800	---	3070	3090	31100	1690	1720	2810	1890
31	2950	---	2450	24700	---	3310	---	31700	---	1660	2450	---
TOTAL	135740	143890	78370	244010	249250	95500	143890	231750	147910	113700	75630	60710
MEAN	4379	4796	2528	7871	8902	3081	4796	7476	4930	3668	2440	2024
MAX	14500	17200	4160	24700	18200	3640	7770	31700	20600	10900	8620	2900
MIN	1920	2250	1700	2690	3720	2680	3060	2770	1590	1660	1160	1480
CFSM	.74	.81	.43	1.33	1.50	.52	.81	1.26	.83	.62	.41	.34
IN.	.85	.90	.49	1.53	1.56	.60	.90	1.45	.93	.71	.47	.38

CAL YR 1989 TOTAL 2466840 MEAN 6758 MAX 55300 MIN 1640 CFSM 1.14 IN. 15.46
WTR YR 1990 TOTAL 1720350 MEAN 4713 MAX 31700 MIN 1160 CFSM .79 IN. 10.78

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 (discontinued).

WATER TEMPERATURE: October 1980 to September 1981 (discontinued).

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 1989 TO SEPTEMBER 1990

DATE	TIME	Dis-charge, instantaneous (ft ³ /s)	Spe-cific con-duct-ance (US/CM)	Ph (stand-ard units)	Temper-ature, water (deg C)	Temper-ature, air (deg C)	Baro-metric pres-sure (mm of Hg)	Tur-bid-ity (ntu)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent SATur-ATION)
OCT 30...	1200	3130	282	7.31	13.0	22.0	762	2.9	10.7	102
JAN 29...	1205	6530	270	6.81	5.0	12.0	755	--	12.8	101
MAR 05...	1200	3530	273	6.98	5.0	11.0	766	4.4	13.2	103
APR 30...	1115	3000	280	6.97	19.0	17.5	755	2.3	7.3	80
JUN 25...	1210	1950	350	7.42	25.0	25.0	759	2.3	8.2	100
SEP 04...	1210	1560	310	7.10	25.0	24.0	767	1.4	8.6	104

DATE	Coli-form, fecal, 0.7 UM-MF (col/100 ML)	Strep-tococci, fecal, KF agar (cols. per 100 ML)	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, wat wh tot fet 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)
OCT 30...	K59	80	35	6.6	8.1	2.2	59	40	11	0.10	5.5
JAN 29...	K98	K77	--	--	--	--	51	--	--	--	--
MAR 05...	K7	K11	40	8.3	9.2	1.9	81	49	15	<0.10	3.9
APR 30...	75	170	36	6.9	9.0	2.1	78	37	8.2	0.10	1.3
JUN 25...	K23	260	45	8.6	10	2.3	101	54	11	0.20	2.8
SEP 04...	K8	K19	45	9.0	9.9	3.0	99	42	14	0.10	6.7

DATE	Solids, residue at 180 deg. C dis-solved (mg/L)	Solids, sum of consti-tuents, dis-solved (mg/L)	Nitro-gen, nitrate dis-solved (mg/L as N)	Nitro-gen, nitrite dis-solved (mg/L as N)	Nitro-gen, NO2+NO3 dis-solved (mg/L as N)	Nitro-gen, ammonia total (mg/L as N)	Nitro-gen, ammonia dis-solved (mg/L as N)	Nitro-gen, ammonia + 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)
OCT 30...	135	150	1.18	0.020	1.20	0.040	0.030	0.90	0.030	0.020	0.010
JAN 29...	--	--	--	--	--	--	--	--	--	--	--
MAR 05...	190	183	1.58	0.020	1.60	0.090	0.030	0.20	0.040	<0.010	<0.010
APR 30...	169	152	0.880	0.020	0.900	0.040	0.050	0.60	0.050	0.020	0.010
JUN 25...	200	200	1.19	0.010	1.20	0.010	0.020	0.60	0.040	<0.010	<0.010
SEP 04...	199	197	1.69	<0.010	1.70	<0.010	0.020	0.60	0.030	0.030	0.020

K: Results based on colony count outside the accepted range (non-ideal colony).

POTOMAC RIVER BASIN

01618000 POTOMAC RIVER AT SHEPHERDSTOWN, WV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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)
OCT 30...	20	<1	41	<0.5	<1	<1	<3	1	33	<1	6
JAN 29...	--	--	--	--	--	--	--	--	--	--	--
MAR 05...	30	<1	41	<0.5	<1	<5	<3	<10	41	<10	6
APR 30...	100	<1	46	<0.5	<1	<1	<3	1	14	<1	5
JUN 25...	--	--	--	--	--	--	--	--	--	--	--
SEP 04...	20	<1	51	<0.5	1	<1	<3	4	8	<1	13

DATE	Manga- nese, dis- solved (ug/L as Mn)	Mercury dis- solved (ug/L as Hg)	Molyb- denum, dis- solved (ug/L as Mo)	Nickel, dis- solved (ug/L as Ni)	Sele- nium, dis- solved (ug/L as SE)	Silver, dis- solved (ug/L as Ag)	Stron- tium, dis- solved (ug/L as Sr)	Vana- dium, dis- solved (ug/L as V)	Zinc, dis- solved (ug/L as Zn)	Hard- ness total (mg/L as CaCO3)
OCT 30...	27	<0.1	<10	2	<1	<1.0	180	<6	5	110
JAN 29...	--	--	--	--	--	--	--	--	--	--
MAR 05...	72	<0.1	<10	<10	<1	<1.0	190	<6	9	130
APR 30...	8	<0.1	<10	2	<1	<1.0	190	<6	<3	120
JUN 25...	--	--	--	--	--	--	--	--	--	150
SEP 04...	20	0.2	<10	2	<1	<1.0	250	<6	11	150

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	Dis- charge, instan- taneous (ft3/s)	Sedi- ment, sus- pended (mg/L)	Sedi- ment, dis- charge, sus- PENDED (T/DAY)	Sed. susp. sieve diam. % finer than .062 MM
OCT 30...	1200	3130	6	51	95
JAN 29...	1205	6530	7	123	94
MAR 05...	1200	3530	3	29	94
APR 30...	1115	3000	8	65	92
JUN 25...	1210	1950	9	47	99
SEP 04...	1210	1560	3	13	100

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.--Estimated daily discharges: Dec. 12-31, and Aug. 8-14. Records good except those for periods of estimated discharges, which are fair. 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.--75 years (water years 1896-1908, 1929-90), 2,682 ft³/s, 11.98 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)
Jan. 3	0115	*19,300	*9.56	May 31	0030	15,600	8.60

Minimum daily discharge, 533 ft³/s, July 11-14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2760	2120	1740	1750	5690	2850	3190	2090	8520	661	822	1060
2	2760	1970	1660	2950	4850	2740	3290	2020	6050	841	794	974
3	2720	2020	1630	9260	4340	2590	3630	1930	4740	894	781	771
4	7390	1890	1590	6140	3990	2510	3790	1810	3940	949	764	852
5	6000	1670	1540	5360	4290	2380	3880	1710	3320	885	607	755
6	4570	1750	1530	4740	5400	2270	3540	1750	2880	764	722	878
7	3710	1570	1470	3990	4840	2100	3560	1820	2540	727	1220	835
8	3070	1660	1480	3380	4360	2030	4320	1870	2260	668	e1100	755
9	2680	1560	1500	3080	4010	1880	5140	1700	2080	590	e850	680
10	2310	1630	1460	2910	3780	1900	5280	1690	1960	550	e750	645
11	2180	1650	1320	2910	4040	1820	5260	1750	1800	533	e850	634
12	1900	1640	e1300	2980	4650	1760	5100	2080	1680	533	e760	740
13	1880	1550	e1200	2830	4670	1720	4800	2670	1590	533	e700	792
14	1770	1490	e1150	2640	4320	1600	4300	2390	1480	533	e750	1120
15	1450	1480	e1100	2440	3940	1600	3950	2250	1340	1400	745	1820
16	1560	1450	e1100	2290	3640	1630	3750	2200	1290	2630	626	1510
17	1500	2210	e1080	2160	3410	1680	3630	2080	1270	3880	595	1590
18	1540	6510	e1060	2090	3200	1740	3270	2060	1210	3030	708	1160
19	3590	5810	e1030	2030	2950	1990	2940	1990	1230	2080	698	991
20	7850	4470	e1000	1960	2720	2960	2720	1840	1210	1690	936	999
21	11700	3670	e990	1900	2530	2790	2570	1680	1260	1540	731	998
22	7900	3060	e980	1860	2400	2700	2540	1590	1110	1830	751	856
23	5930	2720	e970	1770	2320	2670	2530	1530	1110	1610	865	727
24	4790	2450	e960	1750	2540	2650	2550	1580	1060	2020	955	777
25	3970	2270	e950	1740	3660	2660	2350	1610	1050	1840	1620	841
26	3430	2140	e950	1850	3840	2670	2210	1750	1090	1470	3260	773
27	2990	2020	e950	2100	3320	2740	2100	1920	1310	1170	2920	806
28	2730	1930	e950	2600	3000	2770	1990	2680	889	1020	2680	778
29	2450	1980	e950	2710	---	2740	1980	4990	942	1060	2040	704
30	2310	1880	e1000	3290	---	2730	2060	10300	901	740	1500	566
31	2170	---	e1500	5340	---	2900	---	13400	---	921	1390	---
TOTAL	113560	70220	38090	94800	106700	71770	102220	82730	63112	39592	34490	27387
MEAN	3663	2341	1229	3058	3811	2315	3407	2669	2104	1277	1113	913
MAX	11700	6510	1740	9260	5690	2960	5280	13400	8520	3880	3260	1820
MIN	1450	1450	950	1740	2320	1600	1980	1530	889	533	595	566
CFSM	1.21	.77	.40	1.01	1.25	.76	1.12	.88	.69	.42	.37	.30
IN.	1.39	.86	.47	1.16	1.31	.88	1.25	1.01	.77	.48	.42	.34

CAL YR 1989 TOTAL 977138 MEAN 2677 MAX 21600 MIN 601 CFSM .88 IN. 11.96
WTR YR 1990 TOTAL 844671 MEAN 2314 MAX 13400 MIN 533 CFSM .76 IN. 10.34

e Estimated

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 (discontinued).

WATER TEMPERATURES: October 1980 to September 1983 (discontinued).

EXTREMES FOR PERIOD OF DAILY RECORD.--

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

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	Dis-charge, instantaneous (ft ³ /s)	Spe-cific con-ductance (US/CM)	Ph (stand-ard units)	Temper-ature, water (deg C)	Temper-ature, air (deg C)	Baro-metric pres-sure (mm of Hg)	Tur-bid-ity (ntu)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent SATur-ATION)
OCT 30...	0905	2490	305	7.78	13.5	20.0	762	3.3	10.5	101
JAN 29...	0900	2700	320	8.08	6.0	15.0	757	6.7	11.8	95
MAR 05...	0900	2370	255	8.53	6.0	5.0	766	4.7	12.6	101
APR 30...	0900	2080	275	8.06	20.0	18.0	755	2.9	7.5	83
JUN 25...	0950	1040	338	7.68	24.0	24.0	757	--	6.7	80
SEP 04...	0915	1920	273	7.68	25.0	24.0	765	6.4	7.6	92

DATE	Coli-form, fecal, 0.7 UM-MF (col/100 ML)	Strep-tococci, fecal, KF agar (cols. per 100 ML)	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, wat wh tot fet 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)
OCT 30...	72	68	38	9.6	8.2	2.1	113	21	8.3	0.10	5.5
JAN 29...	100	K85	39	13	11	2.2	122	15	12	<0.10	4.3
MAR 05...	K2	K6	37	9.8	6.3	1.8	137	15	10	0.10	0.51
APR 30...	250	340	36	10	6.6	1.8	115	14	10	0.10	0.77
JUN 25...	K40	220	--	--	--	--	136	--	--	--	--
SEP 04...	K32	470	38	10	6.6	3.8	122	19	12	<0.10	8.0

DATE	Solids, residue at 180 deg. C dis-solved (mg/L)	Solids, sum of consti-tuents, dis-solved (mg/L)	Nitro-gen, nitrate dis-solved (mg/L as N)	Nitro-gen, nitrite dis-solved (mg/L as N)	Nitro-gen, NO2+NO3 dis-solved (mg/L as N)	Nitro-gen, ammonia total (mg/L as N)	Nitro-gen, ammonia dis-solved (mg/L as N)	Nitro-gen, ammonia + 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)
OCT 30...	147	167	1.39	<0.010	1.40	0.020	0.010	0.30	0.050	0.030	0.030
JAN 29...	180	174	0.890	0.010	0.900	0.080	0.080	0.40	0.120	0.080	0.080
MAR 05...	158	168	1.08	0.020	1.10	0.020	0.040	0.30	0.120	0.010	<0.010
APR 30...	162	152	0.690	0.010	0.700	0.030	0.050	0.60	0.080	0.040	0.030
JUN 25...	--	--	--	--	--	--	--	--	--	--	--
SEP 04...	153	177	1.29	<0.010	1.30	0.030	0.030	0.60	0.110	0.110	0.090

K: Results based on colony count outside the accepted range (non-ideal colony).

POTOMAC RIVER BASIN

01636500 SHENANDOAH RIVER AT MILLVILLE, WV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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)
OCT 30...	<10	<1	31	<0.5	<1	<1	<3	1	27	<1	<4
JAN 29...	--	--	--	--	--	--	--	--	--	--	--
MAR 05...	<10	<1	26	<0.5	<1	<5	<3	<10	28	<10	5
APR 30...	30	<1	30	<0.5	1	<1	<3	1	32	<1	5
JUN 25...	--	--	--	--	--	--	--	--	--	--	--
SEP 04...	20	2	37	<0.5	3	<1	<3	6	11	<1	8

DATE	Manga- nese, dis- solved (ug/L as Mn)	Mercury dis- solved (ug/L as Hg)	Molyb- denum, dis- solved (ug/L as Mo)	Nickel, dis- solved (ug/L as Ni)	Sele- nium, dis- solved (ug/L as SE)	Silver, dis- solved (ug/L as Ag)	Stron- tium, dis- solved (ug/L as Sr)	Vana- dium, dis- solved (ug/L as V)	Zinc, dis- solved (ug/L as Zn)	Hard- ness total (mg/L as CaCO3)
OCT 30...	29	<0.1	<10	1	<1	<1.0	130	<6	<3	130
JAN 29...	--	--	--	--	--	--	--	--	--	150
MAR 05...	16	<0.1	<10	<10	<1	<1.0	130	<6	<3	130
APR 30...	32	<0.1	<10	1	<1	<1.0	140	<6	6	130
JUN 25...	--	--	--	--	--	--	--	--	--	--
SEP 04...	17	0.2	<10	2	<1	<1.0	140	<6	15	140

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	Dis- charge, instan- taneous (ft ³ /s)	Sedi- ment, sus- pended (mg/L)	Sedi- ment, dis- charge, sus- PENDED (T/DAY)	Sed. susp. sieve diam. % finer than .062 MM
OCT 30...	0905	2490	11	74	94
JAN 29...	0900	2700	6	44	100
MAR 05...	0900	2370	8	51	100
APR 30...	0900	2080	11	62	80
JUN 25...	0950	1040	14	39	99
SEP 04...	0915	1920	17	88	97

POTOMAC RIVER BASIN

01638500 POTOMAC RIVER AT POINT OF ROCKS, MD

LOCATION.--Lat 39°16'25", long 77°32'35", Frederick County, Hydrologic Unit 02070008, on left bank at downstream side of bridge on U.S. Highway 15 at Point of Rocks, 0.3 mi downstream from 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 period of ice effect, Dec. 17 to Jan. 3, 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.--95 years, 9,365 ft³/s, 13.18 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)
May 31	2330	*39,800	*9.30	No other peak greater than base discharge.			

Minimum discharge, 1,700 ft³/s, Aug. 16, 17, gage height, 0.94 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5730	5060	5990	e4000	25400	6830	7000	5380	33100	2540	2490	3480
2	5720	4980	5700	e6500	20400	6720	8040	5540	23200	2450	2460	3070
3	5780	5010	5450	e16000	17300	6610	10600	5380	17200	2520	2120	2630
4	10300	4720	5140	16300	16100	6450	12200	5130	14800	4000	2280	2590
5	11500	4480	4890	13700	16400	6240	12100	5200	12800	3930	2110	2400
6	9390	4260	4820	12700	18000	6060	10900	5860	11000	3330	2700	2210
7	7740	4070	4750	14800	16900	5770	10400	9270	9230	2840	2820	2420
8	6540	4050	4600	14000	15600	5560	10500	9300	7970	2570	2800	2190
9	5760	4160	4640	12400	14300	5270	11300	7910	7210	2530	2690	2160
10	5150	4240	4400	10600	13400	5200	11400	7580	7020	2400	2610	2090
11	4730	4800	3990	10100	14100	5100	11200	8470	6350	2790	2230	2110
12	4320	4870	4180	10400	16200	5010	11600	10800	5790	3060	2180	2190
13	4150	4930	4320	10800	16300	4930	11800	10300	5770	3470	1940	2550
14	3910	4530	4140	10100	15000	4770	11100	9740	5410	5520	2070	2580
15	3650	4380	3940	9050	13800	4690	10300	8810	4940	11300	2290	4040
16	3520	4450	3540	8370	12600	4690	9550	7930	4440	13400	1870	4470
17	3460	9130	e2600	7920	11800	4950	8940	7490	4260	13700	1740	3920
18	3460	22800	e2400	7910	11000	4920	8340	7070	4010	12400	1780	3830
19	4780	20200	e2200	7730	10200	4860	7670	6900	4160	9240	1810	3720
20	10200	14800	e2200	7960	9340	6150	7050	6420	4190	7140	2100	3390
21	24200	11600	e2100	8190	8730	6320	6690	5850	3940	6000	3630	2850
22	21700	10100	e2100	8230	8230	6310	6430	5490	3510	5820	3710	2890
23	15900	8770	e2200	9140	7720	6270	6270	5350	3360	6090	3610	2730
24	12400	7740	e2200	9110	8120	6060	6270	5160	3100	5430	5770	2620
25	10000	7100	e2200	8660	8740	5910	6140	4680	3010	5420	9450	2890
26	8450	6530	e2200	9020	8740	5870	5890	5470	3010	4790	10100	2680
27	7370	6100	e2100	9850	7780	5930	5460	7340	3190	4150	8030	2620
28	6670	5960	e2300	10400	7100	5990	5230	17100	2960	3410	7050	2410
29	6110	6090	e2500	10200	---	6050	5170	25900	2590	3200	5700	2390
30	5650	6210	e2800	16100	---	6080	5200	30200	2740	2820	4680	2260
31	5280	---	e3200	e30000	---	6630	---	37700	---	2660	4090	---
TOTAL	243520	216120	109790	340240	369300	178200	260740	300720	224260	160920	110910	84380
MEAN	7855	7204	3542	10980	13190	5748	8691	9701	7475	5191	3578	2813
MAX	24200	22800	5990	30000	25400	6830	12200	37700	33100	13700	10100	4470
MIN	3460	4050	2100	4000	7100	4690	5170	4680	2590	2400	1740	2090
CFSM	.81	.75	.37	1.14	1.37	.60	.90	1.01	.77	.54	.37	.29
IN.	.94	.83	.42	1.31	1.42	.69	1.01	1.16	.86	.62	.43	.33

CAL YR 1989 TOTAL 3543630 MEAN 9709 MAX 71200 MIN 2100 CFSM 1.01 IN. 13.66
WTR YR 1990 TOTAL 2599100 MEAN 7121 MAX 37700 MIN 1740 CFSM .74 IN. 10.02

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, 1966-1969.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum daily, 28.5°C, July 9; minimum daily, 0.0°C, Dec. 13.

SEDIMENT CONCENTRATION: Maximum daily mean, 255 mg/L, May 31; minimum daily mean, 1 mg/L, Aug. 19.

SEDIMENT LOAD: Maximum daily, 26,000 tons, May 31; minimum daily, 4.9 tons, Aug. 19.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	15.0	2.0	---	6.0	---	9.5	18.0	15.5	25.0	26.5	---
2	18.0	12.0	4.0	10.0	6.0	---	10.0	19.0	---	---	27.0	---
3	---	11.0	5.0	---	7.0	---	12.0	19.0	---	---	27.0	---
4	17.0	10.0	---	---	6.0	---	10.0	16.5	19.0	---	---	---
5	---	---	---	---	6.0	8.0	10.0	18.0	18.5	---	---	---
6	17.0	10.0	4.0	---	7.0	8.0	8.5	17.0	21.0	25.5	---	---
7	15.0	15.0	3.0	---	7.0	6.0	9.0	16.0	22.0	26.0	---	---
8	---	11.0	---	---	7.0	9.0	9.0	16.5	21.0	27.0	---	---
9	13.0	11.0	---	---	7.5	9.0	9.5	20.0	22.5	28.5	---	23.0
10	---	15.0	---	---	7.0	11.0	10.0	17.0	24.0	28.0	---	23.0
11	12.0	14.0	---	---	6.0	11.0	10.0	17.0	21.5	28.0	---	24.0
12	17.0	11.0	---	---	6.0	14.0	---	17.0	24.0	26.0	---	---
13	---	9.0	.0	---	6.5	16.0	10.0	18.0	23.0	---	---	---
14	17.0	---	1.0	---	6.5	16.0	13.0	18.5	---	26.0	---	---
15	---	11.0	---	---	7.0	18.0	14.5	19.0	24.0	24.5	---	---
16	18.0	12.0	---	---	8.0	18.0	13.0	19.0	24.0	23.0	---	21.5
17	19.0	8.0	---	---	7.0	16.0	11.0	19.0	25.0	---	---	20.0
18	17.0	8.0	---	5.0	6.0	14.0	12.5	19.5	25.0	---	---	18.0
19	16.0	8.0	---	5.0	7.0	13.0	13.0	20.0	27.0	---	24.0	17.0
20	---	---	---	4.0	6.0	10.0	14.0	20.0	25.0	---	24.0	20.0
21	12.0	---	---	---	5.5	9.5	14.5	19.0	26.0	26.0	23.0	---
22	13.0	5.0	---	---	8.5	12.0	15.0	18.0	26.0	26.5	22.0	---
23	12.0	5.0	---	6.0	9.0	10.0	17.5	19.0	25.0	26.0	22.0	---
24	13.0	4.0	---	7.0	8.0	8.5	17.0	19.0	24.0	26.5	22.0	19.5
25	11.0	4.0	---	6.0	8.0	9.0	19.0	---	22.0	26.5	23.0	20.0
26	11.0	---	---	---	3.0	9.5	23.0	19.0	24.5	28.0	23.0	20.0
27	12.0	5.0	---	6.0	2.5	9.5	20.0	18.0	27.0	28.0	23.0	19.5
28	13.0	7.0	---	---	---	10.0	20.0	18.0	28.5	26.0	25.0	---
29	15.0	7.0	---	---	---	9.0	20.0	15.0	28.0	26.0	26.0	---
30	12.0	---	---	5.0	---	9.0	18.0	16.0	27.0	26.0	25.5	---
31	19.0	---	---	5.0	---	9.0	---	15.0	---	28.0	25.0	---

MONONGAHELA RIVER BASIN

03050000 TYGART VALLEY RIVER NEAR DAILEY, WV

LOCATION.--Lat 38°48'35", long 79°52'55", Randolph County, Hydrologic Unit 05020001, on right bank 50 ft downstream from highway bridge, 1,000 ft upstream from Stalnaker Run, 1.0 mi northeast of Dailey, 2.5 mi south of Beverly, and at mile 95.7.

DRAINAGE AREA.--187 mi².

PERIOD OF RECORD.--April 1915 to September 1975, October 1975 to October 1976 (gage heights only), July 1988 to current year. Prior to October 1960, published as Tygart River near Dailey.

REVISED RECORDS.--WSP 823: Drainage area. WSP 873: 1932(M), WSP 1053: 1918(M), 1928(M), 1932, 1934-38. WSP 1305: 1924(M).

GAGE.--Water-stage recorder. Datum of gage is 1,940.09 ft above National Geodetic Vertical Datum, adjustment of 1912. Prior to Sept. 27, 1928, nonrecording gage a few feet upstream at same datum. Sept. 27, 1928 to Dec. 16, 1941, nonrecording gage at site 50 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Dec. 15-30. 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.--62 years, (water years 1915-75, 1989-90), 353 ft³/s, 25.63 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,100 ft³/s, Feb. 4, 1932, gage height, 17.2 ft, from floodmarks; no flow Sept. 12 to Nov. 30, 1930, Sept. 29 to Nov. 5, 1953.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 5, 1985 reached a stage of 16.6 ft, from floodmarks, discharge, about 22,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 1	0400	*8,680	*12.17	May 27	0630	6,430	11.14

Minimum discharge, 18 ft³/s, Aug. 13, gage height, 0.79 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91	122	314	6330	643	582	374	205	502	1340	73	53
2	148	114	258	1480	487	522	369	194	338	1270	50	43
3	163	104	234	781	397	1010	881	179	319	456	38	37
4	123	98	192	682	483	823	730	168	354	251	30	37
5	101	91	175	1300	817	538	672	176	283	167	26	29
6	93	87	165	920	691	403	854	178	231	382	48	26
7	119	85	235	603	532	328	869	167	187	296	74	31
8	130	199	264	466	442	282	739	150	160	179	44	48
9	155	1000	248	379	373	268	958	136	160	127	30	48
10	153	1050	223	448	1570	270	1040	161	180	106	24	37
11	183	625	210	511	1760	287	1530	288	162	102	22	48
12	169	433	203	514	951	560	1500	249	123	604	20	89
13	144	312	194	442	631	491	940	273	98	1010	19	446
14	126	250	163	367	582	405	641	919	81	531	62	186
15	108	216	e130	352	520	331	531	625	287	919	106	112
16	95	1620	e110	409	498	272	446	444	253	920	52	80
17	370	1720	e100	688	516	439	388	465	151	459	33	81
18	786	870	e94	934	458	898	373	477	106	298	24	58
19	1630	550	e88	1130	402	603	312	370	88	221	44	47
20	1090	439	e82	890	301	480	276	298	73	197	123	74
21	579	409	e76	1330	229	390	1100	277	61	166	78	89
22	381	334	e70	1000	198	421	1700	429	64	241	123	338
23	270	296	e67	646	189	468	878	1010	160	298	146	510
24	215	234	e64	477	190	438	562	627	158	280	1270	309
25	184	195	e60	392	158	417	424	428	105	198	738	250
26	159	375	e58	451	115	373	345	1560	80	144	336	174
27	143	903	e56	461	184	428	302	5190	60	108	200	129
28	123	685	e54	443	508	417	266	1520	49	85	142	97
29	111	499	e52	558	---	391	246	974	40	68	108	76
30	103	388	e82	1510	---	360	237	1170	41	55	85	65
31	98	---	2720	1030	---	381	---	831	---	78	67	---
TOTAL	8343	14303	7041	27924	14825	14276	20483	20138	4954	11556	4235	3647
MEAN	269	477	227	901	529	461	683	650	165	373	137	122
MAX	1630	1720	2720	6330	1760	1010	1700	5190	502	1340	1270	510
MIN	91	85	52	352	115	268	237	136	40	55	19	26
CFSM	1.44	2.55	1.21	4.82	2.83	2.46	3.65	3.47	.88	1.99	.73	.65
IN.	1.66	2.85	1.40	5.55	2.95	2.84	4.07	4.01	.99	2.30	.84	.73

CAL YR 1989 TOTAL 193749 MEAN 531 MAX 7800 MIN 39 CFSM 2.84 IN. 38.54
WTR YR 1990 TOTAL 151725 MEAN 416 MAX 6330 MIN 19 CFSM 2.22 IN. 30.18

e Estimated

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, 25.0°C, June 21; minimum daily, 1.0°C, Dec. 16-19, 21-26.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

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

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: Dec. 16-30. 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.--46 years, 542 ft³/s, 27.06 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. 1	1615	*8,120	*14.10	May 27	0245	6,860	13.05

Minimum daily discharge, 22 ft³/s, Sept. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	139	180	436	7500	887	797	499	256	750	619	82	83
2	184	184	358	3670	641	700	472	233	484	1750	82	67
3	243	169	323	1130	509	1130	877	219	406	571	64	53
4	189	158	266	884	584	1080	893	240	453	308	32	38
5	151	144	265	1610	950	730	829	341	371	207	30	22
6	136	136	256	1250	860	528	1080	358	304	287	37	24
7	195	135	406	818	671	414	1150	321	246	400	63	31
8	221	193	453	610	546	350	967	265	216	189	92	59
9	240	1310	396	494	464	329	1250	223	287	131	68	71
10	250	1560	347	611	1940	331	1330	247	401	121	46	55
11	285	958	318	718	2740	334	1950	378	291	116	35	42
12	275	640	300	708	1350	654	2030	351	211	503	32	78
13	230	457	281	595	894	618	1260	336	166	1450	26	378
14	193	367	247	406	793	507	860	920	136	762	25	292
15	164	328	174	463	717	415	715	730	259	999	58	178
16	142	2010	e160	554	659	352	602	512	381	1370	77	126
17	727	2860	e150	910	673	448	535	550	227	628	51	92
18	1370	1290	e130	1320	590	986	556	554	162	394	42	101
19	2610	797	e120	1900	518	765	438	436	129	272	64	91
20	1950	592	e110	1300	420	610	399	336	116	197	137	73
21	912	537	e110	1880	337	492	1190	299	106	174	133	108
22	577	454	e100	1370	297	552	2970	454	95	226	157	223
23	406	402	e96	878	285	625	1310	1250	128	352	149	674
24	325	337	e92	622	293	584	810	771	217	307	1120	420
25	276	285	e88	503	259	543	565	499	149	239	914	334
26	239	428	e84	587	172	478	437	2690	120	189	443	247
27	210	1210	e81	590	285	561	351	6560	105	123	197	184
28	186	974	e78	572	699	550	298	3370	89	103	167	106
29	168	710	e76	714	---	508	275	1460	72	93	126	108
30	154	539	e120	2220	---	469	282	1840	71	64	107	91
31	148	---	2490	1430	---	502	---	1270	---	83	97	---
TOTAL	13495	20344	8911	38817	20033	17942	27180	28269	7148	13227	4753	4449
MEAN	435	678	287	1252	715	579	906	912	238	427	153	148
MAX	2610	2860	2490	7500	2740	1130	2970	6560	750	1750	1120	674
MIN	136	135	76	406	172	329	275	219	71	64	25	22
CFSM	1.60	2.49	1.06	4.60	2.63	2.13	3.33	3.35	.88	1.57	.56	.55
IN.	1.85	2.78	1.22	5.31	2.74	2.45	3.72	3.87	.98	1.81	.65	.61

CAL YR 1989 TOTAL 267726 MEAN 733 MAX 7940 MIN 67 CFSM 2.70 IN. 36.62
WTR YR 1990 TOTAL 204568 MEAN 560 MAX 7500 MIN 22 CFSM 2.06 IN. 27.98

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: Dec. 16-30. 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.--83 years, 819 ft³/s, 27.26 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. 1	1700	11,400	14.80	May 27	0400	*12,300	*15.38

Minimum discharge, 30 ft³/s, Aug. 15, gage height, 2.32 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	229	275	761	10700	1530	1410	804	416	1320	274	103	106
2	276	296	609	6060	1110	1230	799	378	858	2330	104	88
3	341	267	529	1900	900	1500	1040	364	664	953	95	74
4	292	254	437	1400	1000	1640	1300	488	708	467	75	61
5	227	230	417	2360	1500	1190	1320	1270	623	316	49	49
6	205	213	412	2000	1430	878	1710	1160	485	246	52	35
7	506	205	681	1320	1140	688	1920	871	394	542	57	44
8	650	271	851	1000	933	570	1590	646	343	336	93	64
9	580	1870	735	817	787	525	1890	504	409	153	98	111
10	553	2540	617	1010	2770	521	1950	505	782	157	75	98
11	521	1630	543	1280	4250	529	2760	682	544	144	60	77
12	482	1090	493	1220	2260	850	3070	670	393	495	51	65
13	401	778	452	1030	1490	949	2030	596	296	2270	46	268
14	332	608	397	724	1260	806	1370	983	234	1390	42	482
15	274	536	300	783	1150	678	1160	1080	528	1400	36	296
16	231	2560	e270	878	1080	572	998	761	806	2520	78	215
17	869	4460	e240	1310	1090	581	913	881	474	1180	76	192
18	2670	2130	e220	1760	975	1130	1070	953	315	653	57	133
19	4470	1300	e200	3070	868	1080	912	768	240	461	80	135
20	3730	957	e190	2210	720	902	780	589	199	329	155	139
21	1670	814	e180	3310	572	758	1660	498	178	245	228	157
22	1040	699	e170	2540	493	808	4880	713	196	344	290	229
23	723	610	e160	1580	462	935	2360	1720	332	535	257	853
24	560	522	e160	1100	515	905	1420	1300	374	661	1030	680
25	465	429	e150	879	466	857	997	830	303	434	1320	515
26	400	548	e140	1060	344	756	768	5020	215	307	667	376
27	348	1660	e130	1080	435	838	624	10700	172	248	349	272
28	305	1610	e130	1060	1230	885	516	5590	146	142	179	194
29	271	1280	e120	1250	---	812	450	2370	123	143	171	125
30	246	969	e180	3520	---	741	448	3190	148	115	134	126
31	233	---	2990	2490	---	773	---	2250	---	91	117	---
TOTAL	24100	31611	13864	62701	32760	27297	43509	48746	12802	19881	6224	6259
MEAN	777	1054	447	2023	1170	881	1450	1572	427	641	201	209
MAX	4470	4460	2990	10700	4250	1640	4880	10700	1320	2520	1320	853
MIN	205	205	120	724	344	521	448	364	123	91	36	35
CFSM	1.91	2.58	1.10	4.96	2.87	2.16	3.55	3.85	1.05	1.57	.49	.51
IN.	2.20	2.88	1.26	5.72	2.99	2.49	3.97	4.44	1.17	1.81	.57	.57

CAL YR 1989 TOTAL 427219 MEAN 1170 MAX 10200 MIN 102 CFSM 2.87 IN. 38.95
WTR YR 1990 TOTAL 329754 MEAN 903 MAX 10700 MIN 35 CFSM 2.21 IN. 30.07

e Estimated

MONONGAHELA RIVER BASIN

03052000 MIDDLE FORK RIVER AT AUDRA, WV

LOCATION.--Lat 39°02'25", long 80°04'10", Barbour County, Hydrologic Unit 05020001, on right bank at Audra, 600 ft upstream from highway bridge, and at mile 2.7.

DRAINAGE AREA.--149 mi².

PERIOD OF RECORD.--February 1942 to September 1979, October 1988 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,670 ft, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 14-27, and Dec. 16-30. Records good except those for periods of estimated daily discharges, which are poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--39 years, (water years 1943-79, 1989-90), 350 ft³/s, 31.90 in/yr.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 5, 1985, reached a stage of 15.8 ft, from floodmarks, discharge, about 15,000 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,500 ft³/s, June 23, 1972, gage height, 13.67 ft, from rating curve extended above 6,800 ft³/s, on basis of slope-area measurement of peak flow; minimum, 0.2 ft³/s, Oct. 11-27, 1953; minimum gage height, 1.07 ft Sept. 9, 1957.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 1	0445	5,070	8.90	May 26	1915	*6,400	*9.86

Minimum discharge, 17 ft³/s, Aug. 15, gage height, 1.69 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	138	326	3560	678	549	358	204	617	172	52	46
2	107	121	270	1290	526	530	343	190	420	355	48	33
3	93	108	246	753	434	710	343	186	351	204	39	34
4	73	107	182	611	461	660	360	208	363	140	34	28
5	61	97	192	885	549	532	418	439	308	101	38	24
6	61	92	166	689	491	434	662	513	237	87	37	23
7	187	89	265	507	451	362	756	453	186	124	76	29
8	213	130	307	410	404	309	648	373	167	78	68	49
9	270	727	301	351	361	292	688	312	192	57	46	92
10	266	882	273	399	1120	278	741	325	298	48	35	91
11	262	659	240	431	1220	275	1260	406	229	64	29	64
12	225	492	213	422	875	423	1210	335	175	325	20	60
13	175	366	190	362	645	390	839	316	140	1310	20	118
14	148	e300	161	266	602	364	622	348	113	967	20	143
15	126	e280	114	327	523	326	587	296	752	811	35	107
16	108	e800	e100	369	535	290	520	268	671	1080	94	86
17	449	e1400	e88	494	563	309	490	340	373	584	69	79
18	1070	e750	e80	766	496	369	608	370	243	354	39	98
19	1920	e480	e74	1400	444	324	525	303	184	226	39	75
20	1300	e350	e68	1050	370	341	456	257	146	166	212	77
21	778	e300	e64	1340	305	317	1010	230	119	155	152	117
22	527	e260	e60	1090	269	354	1950	359	118	144	200	119
23	376	e220	e56	755	247	371	1080	661	284	218	207	320
24	295	e190	e53	561	287	363	719	505	227	239	214	225
25	248	e170	e50	449	242	367	525	391	166	171	187	188
26	203	e200	e48	538	165	328	412	2640	124	133	140	153
27	167	e620	e46	482	252	350	337	3000	92	106	116	129
28	146	284	1340	71	85	87	109					
29	127	504	e42	621	---	352	246	947	59	66	71	91
30	114	400	e66	1250	---	334	248	1310	71	54	62	80
31	111	---	2210	947	---	366	---	958	---	54	55	---
TOTAL	10303	11831	6595	23876	14012	11922	19245	18783	7496	8678	2541	2887
MEAN	332	394	213	770	500	385	641	606	250	280	82.0	96.2
MAX	1920	1400	2210	3560	1220	710	1950	3000	752	1310	214	320
MIN	61	89	42	266	165	275	246	186	59	48	20	23
CFSM	2.23	2.65	1.43	5.17	3.36	2.58	4.31	4.07	1.68	1.88	.55	.65
IN.	2.57	2.95	1.65	5.96	3.50	2.98	4.80	4.69	1.87	2.17	.63	.72

CAL YR 1989 TOTAL 173826 MEAN 476 MAX 4330 MIN 33 CFSM 3.20 IN. 43.40
WTR YR 1990 TOTAL 138169 MEAN 379 MAX 3560 MIN 20 CFSM 2.54 IN. 34.50

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: Dec. 15-30. Records good except those for period of estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--44 years, 27.3 ft³/s, 25.57 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)
Oct. 19	0800	460	4.00	May 26	1500	1,380	6.07
Dec. 31	1515	752	4.78	July 13	2115	*1,770	*6.69

Minimum discharge, 0.77 ft³/s, Aug. 18, 19, gage height, 0.97 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.8	12	26	316	43	51	24	13	37	28	3.7	1.6
2	8.8	8.9	21	80	33	42	24	12	24	25	3.1	1.4
3	6.2	8.4	19	49	31	35	26	12	21	11	2.7	1.3
4	5.0	8.1	17	52	45	28	30	36	25	7.2	2.3	1.2
5	4.4	7.6	15	55	58	23	46	88	16	5.2	2.1	1.1
6	6.7	7.5	15	41	46	20	57	78	12	5.6	3.1	1.0
7	43	7.3	18	31	38	17	65	51	9.8	4.2	3.1	3.8
8	33	38	18	28	30	15	59	33	8.7	3.4	2.2	11
9	39	169	19	28	30	17	49	24	19	2.8	1.9	15
10	28	97	18	47	244	15	43	27	20	2.3	1.7	11
11	22	49	17	46	114	18	65	21	13	4.5	1.6	12
12	16	33	16	37	67	19	53	17	9.6	54	1.5	24
13	14	24	15	27	52	18	38	16	7.5	400	1.4	23
14	11	20	13	27	41	18	30	14	6.2	298	1.3	37
15	8.9	20	e9.4	25	33	17	34	12	97	92	1.3	16
16	7.7	198	e8.0	30	37	15	29	11	41	67	1.0	10
17	115	113	e7.0	29	42	27	43	16	21	32	.86	9.6
18	153	54	e6.4	49	36	30	61	13	14	19	.78	6.3
19	293	35	e6.0	66	31	29	47	9.9	11	13	29	5.8
20	97	28	e5.6	98	24	29	36	8.6	8.4	10	11	7.4
21	52	22	e5.2	174	19	27	137	8.4	7.2	13	27	6.2
22	34	18	e4.8	85	18	29	156	47	23	12	23	11
23	25	16	e4.5	50	17	28	65	44	26	30	16	14
24	20	14	e4.2	35	18	26	42	27	15	27	9.8	12
25	16	12	e4.0	30	14	25	30	19	11	16	6.3	8.4
26	14	23	e3.8	37	22	23	23	582	7.3	11	4.4	6.5
27	12	30	e3.6	33	34	27	19	283	5.5	7.8	3.3	5.2
28	11	41	e3.5	39	70	27	16	90	4.7	6.0	2.9	4.2
29	9.4	42	e3.4	70	---	24	16	78	4.3	4.9	2.4	3.5
30	9.0	34	e20	129	---	22	17	139	10	4.2	2.3	3.3
31	9.7	---	429	66	---	27	---	65	---	4.0	2.0	---
TOTAL	1131.6	1189.8	775.4	1909	1287	768	1380	1894.9	535.2	1220.1	175.04	273.8
MEAN	36.5	39.7	25.0	61.6	46.0	24.8	46.0	61.1	17.8	39.4	5.65	9.13
MAX	293	198	429	316	244	51	156	582	97	400	29	37
MIN	4.4	7.3	3.4	25	14	15	16	8.4	4.3	2.3	.78	1.0
CFSM	2.52	2.74	1.73	4.25	3.17	1.71	3.17	4.22	1.23	2.71	.39	.63
IN.	2.90	3.05	1.99	4.90	3.30	1.97	3.54	4.86	1.37	3.13	.45	.70

CAL YR 1989 TOTAL 15797.7 MEAN 43.3 MAX 554 MIN 1.8 CFSM 2.98 IN. 40.53
WTR YR 1990 TOTAL 12539.84 MEAN 34.4 MAX 582 MIN .78 CFSM 2.37 IN. 32.17

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: Dec. 15-30. Records good except those for period of estimated discharge, which are poor. Some regulation at low flow from mine pumpage above station.

AVERAGE DISCHARGE.--75 years, 599 ft³/s, 29.37 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)
Jan. 1	1000	*8,190	*11.81	July 14	0015	4,990	9.44
May 26	2345	8,070	11.72				

Minimum discharge, 30 ft³/s, Sept. 5, 6, gage height, 3.99 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	245	274	641	7580	1140	970	604	293	1050	219	82	68
2	261	269	519	3590	854	839	569	258	675	733	85	55
3	233	227	449	1490	689	1010	571	255	509	410	70	45
4	187	214	387	1120	727	1050	604	293	553	262	57	37
5	157	200	347	1450	986	845	714	619	470	188	49	31
6	148	183	330	1270	890	669	907	678	368	151	47	31
7	422	177	352	943	779	549	1220	587	296	315	81	36
8	539	264	438	752	695	460	1170	471	251	214	97	60
9	583	1690	437	722	604	423	1030	387	311	158	68	160
10	604	1980	425	820	2360	423	999	383	598	124	51	165
11	547	1270	398	937	3010	404	1560	489	435	122	44	113
12	487	883	371	831	1750	608	1880	410	308	566	39	122
13	399	660	351	701	1230	610	1320	365	237	2620	36	148
14	337	530	320	526	993	554	961	415	185	3760	48	227
15	288	478	e260	537	827	489	870	406	752	1980	56	219
16	248	1680	e210	563	784	427	817	344	863	1850	86	152
17	653	2820	e180	600	1020	465	756	415	740	1130	61	132
18	2000	1590	e160	773	918	714	1030	547	451	655	45	126
19	3500	1020	e150	1880	773	655	914	451	334	424	126	104
20	2840	770	e140	1670	619	668	748	364	268	302	262	105
21	1500	651	e130	2370	486	633	1300	312	208	275	253	145
22	998	548	e120	2010	412	618	3350	438	180	260	299	163
23	719	479	e115	1290	376	603	1940	937	267	349	496	570
24	564	419	e110	914	390	572	1170	756	316	477	330	460
25	460	356	e100	700	380	576	827	549	308	361	281	350
26	387	385	e96	730	279	551	624	3070	249	269	201	266
27	334	848	e92	725	334	552	484	6850	191	204	149	201
28	292	1030	e90	723	926	569	407	2950	150	158	118	159
29	259	1060	e88	912	---	545	351	1590	122	128	97	130
30	234	813	e120	2030	---	512	337	2170	132	105	87	108
31	218	---	2950	1700	---	567	---	1780	---	91	80	---
TOTAL	20643	23768	10876	42859	25231	19130	30034	29832	11777	18860	3881	4688
MEAN	666	792	351	1383	901	617	1001	962	393	608	125	156
MAX	3500	2820	2950	7580	3010	1050	3350	6850	1050	3760	496	570
MIN	148	177	88	526	279	404	337	255	122	91	36	31
CFSM	2.40	2.86	1.27	4.99	3.25	2.23	3.61	3.47	1.42	2.20	.45	.56
IN.	2.77	3.19	1.46	5.76	3.39	2.57	4.03	4.01	1.58	2.53	.52	.63

CAL YR 1989 TOTAL 318014 MEAN 871 MAX 7250 MIN 73 CFMS 3.15 IN. 42.71
WTR YR 1990 TOTAL 241579 MEAN 662 MAX 7580 MIN 31 CFMS 2.39 IN. 32.44

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: Dec. 17-30. 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.--50 years, 1,885 ft³/s, 27.95 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. 1	0900	24,400	18.51	May 26	2300	*28,400	*20.39

Minimum discharge, 89 ft³/s, Sept. 7, gage height, 1.71 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	667	747	1970	22800	3750	3110	1890	990	3410	518	224	218
2	704	802	1600	13600	2740	2760	1860	883	2200	3130	227	188
3	728	724	1390	4920	2210	3120	1960	862	1640	1920	218	160
4	661	685	1180	3400	2330	3510	2430	982	1700	1020	186	135
5	533	641	1090	4680	3160	2760	2570	2390	1560	715	156	115
6	476	591	1040	4390	3090	2140	3290	2670	1220	559	136	100
7	1060	564	1280	3090	2580	1720	4140	2170	976	858	140	104
8	1670	678	1700	2400	2230	1450	3740	1680	831	750	209	141
9	1590	4090	1630	2130	1920	1330	3680	1360	988	487	222	302
10	1640	6120	1480	2280	6130	1310	3790	1290	1970	355	179	411
11	1500	4190	1350	2890	9890	1280	5400	1620	1460	437	141	292
12	1370	2810	1230	2660	5620	1760	6690	1540	1040	1240	127	222
13	1140	2080	1140	2320	3770	2040	4620	1370	790	7300	112	300
14	946	1640	1020	1710	3050	1820	3220	1570	634	8160	129	851
15	803	1470	837	1750	2680	1590	2750	1940	3050	4580	113	764
16	692	4330	632	1870	2480	1390	2500	1470	3330	6060	130	519
17	1530	9990	e580	2350	2750	1380	2270	1580	1930	3490	188	453
18	5800	5440	e520	3090	2530	2090	2860	1920	1210	1920	145	374
19	10500	3340	e480	6570	2220	2200	2600	1630	892	1290	161	334
20	9710	2440	e450	5240	1860	2020	2150	1320	727	894	547	337
21	4750	2070	e420	7410	1500	1840	3710	1110	600	748	686	381
22	2970	1780	e390	6430	1290	1820	11300	1260	517	746	789	487
23	2110	1560	e370	4120	1180	1980	6340	3110	939	1020	995	1450
24	1630	1390	e350	2850	1250	1940	3730	2790	1130	1470	1160	1530
25	1370	1160	e330	2210	1220	1900	2590	1910	891	1090	2020	1150
26	1160	1180	e320	2350	900	1760	1980	9440	666	801	1170	869
27	991	2820	e300	2440	982	1780	1580	23200	513	622	714	656
28	870	3500	e290	2390	2510	1910	1330	12200	414	464	422	502
29	772	3200	e280	2850	---	1800	1140	5440	347	358	356	359
30	703	2470	e410	7020	---	1680	1100	7000	381	318	294	316
31	662	---	7810	5920	---	1770	---	5720	---	266	247	---
TOTAL	61708	74502	33869	140130	77822	60960	99210	104417	37956	53586	12543	14020
MEAN	1991	2483	1093	4520	2779	1966	3307	3368	1265	1729	405	467
MAX	10500	9990	7810	22800	9890	3510	11300	23200	3410	8160	2020	1530
MIN	476	564	280	1710	900	1280	1100	862	347	266	112	100
CFSM	2.17	2.71	1.19	4.93	3.03	2.15	3.61	3.68	1.38	1.89	.44	.51
IN.	2.51	3.03	1.38	5.69	3.16	2.48	4.03	4.24	1.54	2.18	.51	.57

CAL YR 1989 TOTAL 1000605 MEAN 2741 MAX 21900 MIN 242 CFSM 2.99 IN. 40.64
WTR YR 1990 TOTAL 770723 MEAN 2112 MAX 23200 MIN 100 CFSM 2.31 IN. 31.30

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.--48 years (water years 1939-1982, 1987-90), 2,373 ft³/s, 27.22 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, 14,500 ft³/s, May 30, gage height, 15.78 ft; minimum daily, 390 ft³/s, Aug. 2, 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1330	1030	3780	2550	4740	2250	985	1040	13600	670	453	596
2	1080	1010	3270	2740	4010	3920	1180	1060	13100	1760	390	594
3	1080	1010	2720	8460	3970	4270	1270	962	9470	3090	440	593
4	1070	1010	2090	11200	2990	4210	1300	993	4420	2510	478	734
5	1060	1000	2050	7040	4740	4150	1420	1410	3110	1840	487	848
6	1070	997	2010	5310	4660	4050	1500	1350	3060	900	451	848
7	1270	993	1770	5230	5550	3900	1530	3010	2160	687	400	848
8	1740	990	1590	5140	7040	3700	1540	3240	1280	556	393	904
9	2240	1640	1820	5040	6120	2540	2300	3900	1280	573	390	881
10	2210	4460	1990	4360	4830	1790	3650	3910	1860	631	410	868
11	2220	6450	1540	2870	7660	1770	4300	2770	2170	1010	424	671
12	2200	6210	1410	1460	8900	1560	5140	2150	2630	922	422	639
13	1890	4440	1540	629	4720	1640	5690	1510	1240	1940	421	638
14	1670	2260	1520	556	4610	2330	4380	1030	829	2140	424	568
15	1520	2400	1300	597	4520	2320	2940	1330	2110	4490	428	525
16	1210	3270	922	3110	4260	1740	2930	1590	3990	9070	421	522
17	1290	4150	740	5020	4420	1680	2130	2060	3670	10200	428	592
18	1410	6230	737	3620	4360	1620	2450	2570	2360	8880	439	592
19	1980	6640	757	3920	5040	1760	3030	2870	1450	6040	457	638
20	4200	6380	768	6050	5010	1900	3000	2880	1060	3730	507	754
21	9910	4720	772	8530	3130	1920	3100	1930	877	2380	466	679
22	9850	3590	768	6090	1950	1930	4760	1400	734	1530	457	703
23	6560	3520	761	8100	3130	1950	8090	2120	674	1410	477	752
24	5700	2770	752	6200	3570	1970	8440	3880	714	1260	494	1170
25	5500	2240	741	3040	3480	1970	6000	2940	1010	1240	469	1660
26	5280	2230	740	5670	3350	2000	3370	2600	1170	1230	473	1770
27	4390	1740	738	7410	3290	2020	1990	2620	880	1220	479	1570
28	3070	2900	732	6800	3130	2030	1370	3180	652	1060	546	1280
29	2500	4630	726	3960	---	2030	1210	8650	582	776	602	1080
30	1750	4500	741	5810	---	1400	1220	14400	713	652	602	942
31	1100	---	2240	7000	---	930	---	14000	---	585	601	---
TOTAL	89350	95410	44035	153512	127180	73250	92215	99355	82855	74982	14329	25459
MEAN	2882	3180	1420	4952	4542	2363	3074	3205	2762	2419	462	849
MAX	9910	6640	3780	11200	8900	4270	8440	14400	13600	10200	602	1770
MIN	1060	990	726	556	1950	930	985	962	582	556	390	522
CFSM	2.43	2.69	1.20	4.18	3.84	2.00	2.60	2.71	2.33	2.04	.39	.72
IN.	2.81	3.00	1.38	4.82	4.00	2.30	2.90	3.12	2.60	2.36	.45	.80

CAL YR 1989 TOTAL 1264479 MEAN 3464 MAX 14900 MIN 327 CFSM 2.93 IN. 39.73
WTR YR 1990 TOTAL 971932 MEAN 2663 MAX 14400 MIN 390 CFSM 2.25 IN. 30.54

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: Dec. 16-30. 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.--6 years, 172 ft³/s, 23.98 in/yr.

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 maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Jan. 1	0030	3,870	11.43	May 26	1530	3,200	10.50
Feb. 10	0900	*3,950	*11.53				

Minimum discharge, 5.8 ft³/s, Sept. 6, gage height, 1.64 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	71	175	2090	346	184	182	82	195	189	24	12
2	35	59	140	603	270	168	255	74	138	241	20	10
3	35	55	123	363	240	148	235	72	135	111	17	8.6
4	27	57	98	311	300	119	237	107	160	69	16	7.4
5	22	53	95	376	397	102	349	604	127	75	15	7.0
6	34	53	87	299	318	93	387	507	97	172	19	6.4
7	202	50	94	225	276	82	364	375	82	84	20	16
8	87	53	83	186	241	72	323	265	96	58	15	39
9	95	250	70	156	389	76	265	189	513	44	13	28
10	62	319	82	147	2450	84	236	204	738	37	11	187
11	88	220	83	129	805	77	356	195	316	490	10	76
12	79	170	81	120	480	74	303	150	180	371	9.6	44
13	74	130	72	106	347	70	223	145	120	1020	9.3	46
14	76	115	56	72	274	67	181	147	89	674	16	43
15	78	202	44	112	216	66	190	118	359	454	19	56
16	63	1300	e40	120	210	64	174	142	179	504	13	52
17	356	691	e37	125	216	77	191	230	106	269	10	125
18	529	362	e34	132	184	89	291	226	78	153	9.0	65
19	1160	234	e32	124	167	82	237	161	68	103	14	77
20	595	189	e30	264	134	116	194	128	59	79	86	186
21	317	148	e29	629	112	122	355	107	51	78	36	114
22	201	114	e27	439	105	128	495	114	45	76	27	133
23	138	103	e26	305	103	121	332	111	50	115	51	139
24	113	87	e25	228	104	116	235	87	42	74	63	89
25	96	75	e24	181	80	108	178	73	45	57	36	28
26	80	94	e23	181	53	118	144	1470	35	45	25	12
27	66	130	e22	149	98	130	117	1200	28	37	19	19
28	56	296	e21	166	201	130	102	522	24	31	16	14
29	57	326	e21	445	---	120	97	379	22	27	14	15
30	56	232	e60	1270	---	108	98	414	242	24	14	15
31	54	---	1940	537	---	135	---	299	---	25	16	---
TOTAL	4952	6238	3774	10590	9116	3246	7326	8897	4419	5786	682.9	1669.4
MEAN	160	208	122	342	326	105	244	287	147	187	22.0	55.6
MAX	1160	1300	1940	2090	2450	184	495	1470	738	1020	86	187
MIN	21	50	21	72	53	64	97	72	22	24	9.0	6.4
CFSM	1.64	2.13	1.25	3.51	3.34	1.08	2.51	2.95	1.51	1.92	.23	.57
IN.	1.89	2.38	1.44	4.04	3.48	1.24	2.80	3.40	1.69	2.21	.26	.64

CAL YR 1989 TOTAL 81552.7 MEAN 223 MAX 3410 MIN 9.7 CFSM 2.29 IN. 31.15
WTR YR 1990 TOTAL 66696.3 MEAN 183 MAX 2450 MIN 6.4 CFSM 1.88 IN. 25.47

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 Guyses Run, and at mile 6.0. Records include flow of Guyses Run.

DRAINAGE AREA.--1,366 mi², including that of Guyses 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. 17-30. Records good except those for period of estimated discharges, which are poor. Flow regulated since June 1938, by Tygart Lake. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--51 years, 2,671 ft³/s, 26.55 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, 15,600 ft³/s, May 30, gage height, 13.37 ft; minimum daily, 426 ft³/s, Aug. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1610	1130	4380	6790	5110	2630	1210	1230	13900	806	558	661
2	1190	1120	3620	3120	4400	3880	1440	1290	13200	1400	430	657
3	1180	1110	3240	7290	4350	4620	1610	1130	10500	3250	437	650
4	1160	1100	2390	11700	3410	4520	1630	1220	5210	2680	517	719
5	1140	1090	2350	7880	5180	4460	1770	2010	3340	2500	521	944
6	1190	1090	2300	5730	5010	4340	1900	1920	3260	1130	533	959
7	1610	1090	2140	5600	5420	4180	1950	2820	2670	916	440	1020
8	1760	1100	1860	5490	7330	3960	1930	3900	1620	660	429	1040
9	2480	1510	1990	5360	6920	3120	2360	3920	1590	636	426	1070
10	2420	4130	2250	4910	8330	2020	3750	4520	2510	742	429	1180
11	2440	6660	1970	3360	7750	2000	4750	3180	2520	1270	462	838
12	2400	6460	1550	2090	10600	1860	5320	2540	2950	1250	461	745
13	2190	5350	1790	832	5170	1760	6010	1990	1630	2280	469	768
14	1830	2630	1760	681	5000	2350	5160	1270	1070	2800	467	719
15	1720	2690	1610	737	4880	2710	3220	1400	3500	4140	470	713
16	1420	4720	1220	2180	4630	1970	3200	1880	4270	8920	463	660
17	1520	4800	e850	5720	4760	1960	2720	2200	4220	10100	460	771
18	1920	6550	e800	3850	4670	1860	2550	2880	2820	9010	478	700
19	3050	7010	e820	4140	4920	1960	3370	3010	1820	6650	542	786
20	3760	6710	e820	5310	5430	2180	3300	3200	1310	4220	636	988
21	9540	5480	e840	9830	4180	2220	3660	2360	1080	2900	552	882
22	10300	3920	e840	6060	1960	2230	5030	1720	926	1720	536	850
23	6950	3830	e840	8270	3190	2220	7860	1980	829	1680	624	964
24	5950	3290	e820	6880	3860	2240	8720	3840	810	1430	615	1150
25	5760	2520	e820	3350	3730	2240	6690	3740	1030	1390	547	1810
26	5550	2520	e800	5350	3580	2290	4050	3990	1320	1370	526	1980
27	4850	2240	e800	7520	3560	2300	2440	4840	1150	1350	537	1840
28	3490	2780	e780	7170	3610	2300	1710	3620	750	1250	560	1500
29	2670	5230	e780	4890	---	2290	1430	7580	717	961	669	1250
30	2190	5000	e900	6340	---	1910	1420	15400	857	740	668	1100
31	1280	---	4960	8300	---	1150	---	14600	---	704	666	---
TOTAL	96520	104860	52890	166730	140920	81730	102160	111180	93379	80855	16128	29914
MEAN	3114	3495	1706	5378	5033	2636	3405	3586	3113	2608	520	997
MAX	10300	7010	4960	11700	10600	4620	8720	15400	13900	10100	669	1980
MIN	1140	1090	780	681	1960	1150	1210	1130	717	636	426	650
CFSM	2.28	2.56	1.25	3.94	3.68	1.93	2.49	2.63	2.28	1.91	.38	.73
IN.	2.63	2.86	1.44	4.54	3.84	2.23	2.78	3.03	2.54	2.20	.44	.81

CAL YR 1989 TOTAL 1382777 MEAN 3788 MAX 16200 MIN 345 CFSM 2.77 IN. 37.66
WTR YR 1990 TOTAL 1077266 MEAN 2951 MAX 15400 MIN 426 CFSM 2.16 IN. 29.34

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: Dec. 20 to Jan. 17, many days April through September due to backwater. Records poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--6 years, 50.85 ft³/s, 23.89 in/yr.

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, maximum unknown:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 18	1015	782	10.16	May 26	1645	772	10.11
Jan. 1	----	Unknown	Unknown				

Minimum daily discharge (estimated), 0.87 ft³/s, Aug. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	20	45	e750	65	80	50	e17	e70	54	e1.0	e3.1
2	15	14	35	e140	50	64	46	e14	e44	40	e.93	e2.7
3	10	13	30	e100	41	60	45	e13	e41	31	e.87	e2.5
4	7.0	12	23	e110	62	47	55	41	e48	e18	e2.0	e2.4
5	5.9	11	23	e110	86	38	90	118	e42	e12	e4.5	e2.3
6	6.1	12	22	e73	65	31	94	93	e22	e9.0	e8.8	e3.0
7	49	12	21	e60	59	25	156	e75	e19	e7.8	e4.7	5.2
8	42	104	20	e55	52	22	125	e50	e18	e6.8	e3.7	8.9
9	69	506	22	e61	49	23	92	e38	165	e6.0	e3.1	e17
10	44	171	22	e93	339	21	79	e46	e180	e5.4	e2.6	e9.0
11	41	76	23	e80	144	55	105	e45	e100	e12	e2.3	e5.8
12	29	50	23	e62	127	83	90	e37	e60	e46	e2.0	e7.2
13	21	35	23	e52	97	56	75	e32	e49	198	e1.8	e9.6
14	16	28	22	e44	71	44	64	e27	e42	244	e2.0	e12
15	12	29	20	e42	54	35	76	e22	53	234	e2.7	e10
16	10	241	22	e39	90	29	68	e25	103	e100	e2.0	e7.6
17	149	181	18	e38	116	111	99	e31	e50	e49	e1.6	e5.6
18	539	86	16	222	74	108	143	e25	e24	e31	e1.5	e5.2
19	531	53	15	205	56	72	96	e20	e18	e23	e5.0	e5.8
20	146	44	e14	174	40	83	76	e17	e15	e17	23	e4.5
21	80	34	e13	273	31	92	280	36	e18	e12	22	e6.0
22	50	25	e12	130	28	78	213	112	e23	e14	57	e20
23	35	23	e12	76	27	58	124	94	e29	e36	77	e47
24	28	18	e11	54	28	47	e80	e54	e24	e25	22	e37
25	22	16	e10	42	22	47	e55	e37	e16	e15	13	e25
26	18	42	e9.9	39	16	64	e42	326	e13	e8.5	8.6	e17
27	15	67	e9.5	34	69	76	e34	348	e11	e4.7	e6.2	e12
28	12	99	e9.1	39	147	60	e29	188	e10	e3.0	e5.0	e7.5
29	11	87	e8.8	113	---	48	e27	211	e9.4	e2.2	e4.2	e5.1
30	9.8	61	e8.7	247	---	39	e23	294	e25	e1.6	e4.0	e3.5
31	10	---	e500	100	---	55	---	e120	---	e1.2	e4.8	---
TOTAL	2043.8	2170	1063.0	3657	2105	1751	2631	2606	1341.4	1267.2	299.90	309.5
MEAN	65.9	72.3	34.3	118	75.2	56.5	87.7	84.1	44.7	40.9	9.67	10.3
MAX	539	506	500	750	339	111	280	348	180	244	77	47
MIN	5.9	11	8.7	34	16	21	23	13	9.4	1.2	.87	2.3
CFSM	2.28	2.50	1.19	4.08	2.60	1.95	3.03	2.91	1.55	1.41	.33	.36
IN.	2.63	2.79	1.37	4.71	2.71	2.25	3.39	3.35	1.73	1.63	.39	.40

CAL YR 1989 TOTAL 27530.5 MEAN 75.4 MAX 1000 MIN 1.9 CFSM 2.61 IN. 35.44
WTR YR 1990 TOTAL 21244.80 MEAN 58.2 MAX 750 MIN .87 CFSM 2.01 IN. 27.35

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 (discontinued). 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.--No estimated daily discharges. Records fair except October, November, and December, which are poor. Flow regulated since January 1990 by Stonewall Jackson Lake.

AVERAGE DISCHARGE.--44 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, 1,070 ft³/s, May 31, gage height, 8.32 ft; minimum daily, 15 ft³/s, Nov. 1, 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	289	15	171	117	66	67	29	84	964	76	98	96
2	290	15	55	50	64	66	29	52	888	58	113	96
3	279	27	38	45	64	66	28	25	877	46	125	94
4	282	65	38	46	71	66	27	33	505	61	125	97
5	225	67	38	47	71	66	27	43	113	86	126	99
6	182	63	38	44	66	66	28	31	39	96	125	98
7	194	63	38	42	66	66	38	114	18	97	125	99
8	189	69	38	42	63	66	36	192	19	97	126	97
9	190	146	38	42	110	66	123	190	71	97	126	96
10	188	430	38	46	212	66	187	189	127	97	125	80
11	186	652	38	44	317	69	191	184	220	114	125	69
12	180	640	38	43	635	49	234	184	247	91	125	85
13	131	499	36	42	797	33	261	184	247	98	125	95
14	96	389	36	40	856	31	261	140	203	63	117	98
15	58	393	36	23	474	33	262	58	218	64	123	81
16	47	596	36	45	99	37	216	22	241	153	123	69
17	49	762	36	55	208	41	142	25	242	240	123	69
18	65	874	36	59	433	33	202	23	158	237	123	69
19	150	727	36	60	613	33	265	23	117	237	124	70
20	263	483	34	73	680	36	256	21	55	171	123	69
21	697	380	31	82	487	35	277	22	21	124	123	67
22	672	277	29	68	178	33	320	30	22	124	133	69
23	593	61	29	63	62	32	461	104	23	125	91	68
24	484	35	29	61	62	32	545	172	23	96	68	67
25	405	34	29	61	61	31	420	152	27	75	69	68
26	414	43	29	61	61	31	248	264	31	74	69	67
27	409	84	29	62	69	29	194	183	36	86	69	67
28	317	242	29	63	72	29	194	150	50	100	82	67
29	247	471	29	84	---	29	149	426	76	100	97	67
30	154	370	41	85	---	29	99	839	75	100	97	67
31	29	---	164	68	---	32	---	1000	---	99	97	---
TOTAL	7854	8972	1360	1763	7017	1398	5749	5159	5953	3382	3440	2400
MEAN	257	299	43.9	56.9	251	45.1	192	166	198	109	111	80.0
MAX	697	874	171	117	856	69	545	1000	964	240	133	99
MIN	29	15	29	23	61	29	27	21	18	46	68	67
CFSM	2.44	2.85	.42	.54	2.39	.43	1.83	1.58	1.89	1.04	1.06	.76
IN.	2.82	3.18	.48	.62	2.49	.50	2.04	1.83	2.11	1.20	1.22	.85

CAL YR 1989 TOTAL 91440 MEAN 251 MAX 1450 MIN 15 CFSM 2.39 IN. 32.40
WTR YR 1990 TOTAL 54547 MEAN 149 MAX 1000 MIN 15 CFSM 1.42 IN. 19.33

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: Dec. 19-29. Records good except those for period of estimated daily discharges, which are poor. Flow partially regulated since 1973 by Stonecoal Reservoir. Flow regulated since January 1990 by Stonewall Jackson Lake. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--75 years, 302 ft³/s, 22.66 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, 4,950 ft³/s, May 26, gage height, 8.55 ft; minimum daily discharge, 46 ft³/s, June 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	488	134	319	1030	238	251	115	118	1080	115	102	96
2	493	122	210	354	216	229	112	99	946	76	108	97
3	467	133	177	237	209	214	108	75	945	53	125	96
4	456	177	160	253	302	194	107	112	677	56	124	98
5	393	180	146	257	321	181	104	320	197	80	127	135
6	342	178	146	205	249	174	110	190	104	99	126	143
7	546	179	145	172	262	152	171	198	66	97	125	157
8	442	229	139	169	242	118	152	269	79	97	124	151
9	477	653	138	183	330	124	187	252	552	99	123	163
10	414	679	137	229	2190	118	235	296	611	98	122	114
11	406	851	133	211	714	165	372	270	369	255	126	78
12	370	806	132	194	909	145	351	245	340	576	124	85
13	306	680	129	172	980	100	355	242	315	883	125	100
14	244	563	123	156	1020	89	340	195	266	416	122	102
15	203	657	114	158	722	83	355	113	503	659	123	95
16	116	1890	112	150	296	82	295	78	376	507	120	78
17	237	1130	107	162	377	162	243	152	331	404	120	82
18	500	1050	104	294	584	162	293	106	246	339	146	74
19	1360	896	e100	286	741	147	359	77	177	309	167	82
20	613	679	e95	365	802	197	346	67	111	241	132	87
21	919	555	e82	592	651	188	805	64	46	168	131	80
22	857	446	e67	338	339	149	738	95	74	189	255	93
23	746	200	e63	243	177	118	677	140	84	217	313	91
24	656	157	e61	206	186	111	704	220	76	161	104	82
25	563	151	e60	190	173	112	562	196	72	106	82	79
26	551	188	e60	197	159	121	362	2240	74	97	75	77
27	496	239	e60	185	253	109	264	2180	71	112	72	81
28	407	554	e61	185	352	97	250	607	50	131	79	104
29	373	747	e66	468	---	89	213	710	76	130	98	104
30	293	602	209	646	---	85	145	1180	107	131	100	103
31	147	---	1770	313	---	133	---	1160	---	125	98	---
TOTAL	14881	15705	5425	8800	13994	4399	9480	12266	9021	7026	3918	3007
MEAN	480	523	175	284	500	142	316	396	301	227	126	100
MAX	1360	1890	1770	1030	2190	251	805	2240	1080	883	313	163
MIN	116	122	60	150	159	82	104	64	46	53	72	74
CFSM	2.65	2.89	.97	1.57	2.76	.78	1.75	2.19	1.66	1.25	.70	.55
IN.	3.06	3.23	1.11	1.81	2.88	.90	1.95	2.52	1.85	1.44	.81	.62

CAL YR 1989 TOTAL 165953 MEAN 455 MAX 4140 MIN 18 CFSM 2.51 IN. 34.11
WTR YR 1990 TOTAL 107922 MEAN 296 MAX 2240 MIN 46 CFSM 1.63 IN. 22.18

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, 0.3 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: Dec. 19-29. Records good except those for period of estimated daily discharges, which are poor. Flow partially regulated since 1973 by Stonecoal Reservoir. Flow regulated since January 1990 by Stonewall Jackson Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,300 ft³/s, Mar. 7, 1989, gage height, 18.22 ft; minimum daily discharge, 7.4 ft³/s, Oct. 2, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,500 ft³/s, May 27, gage height, 17.20 ft; minimum daily discharge, 95 ft³/s, June 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	500	250	648	5300	705	622	562	254	1300	241	144	131
2	593	222	472	1380	589	525	544	227	1040	266	124	126
3	541	202	388	755	523	498	552	190	1020	151	131	122
4	496	219	340	643	633	435	489	221	1040	112	141	123
5	473	247	309	752	941	383	460	730	528	109	142	137
6	432	247	304	604	706	354	426	679	294	135	145	180
7	997	240	327	491	683	326	552	473	202	145	142	209
8	773	252	303	427	729	274	581	473	180	137	138	215
9	669	866	293	441	710	260	475	435	843	132	136	259
10	597	1160	288	491	5800	270	531	469	2470	143	136	264
11	620	1020	277	518	2830	394	943	540	870	206	135	177
12	556	916	268	465	1550	523	783	419	612	1100	138	132
13	493	831	260	406	1390	398	681	403	509	1230	146	232
14	394	663	243	329	1320	320	608	394	452	1370	162	214
15	351	815	218	418	1150	279	617	275	560	1430	147	489
16	257	3660	209	451	748	250	584	244	626	1550	141	238
17	601	2900	197	430	852	369	497	530	474	735	136	198
18	1200	1480	182	488	856	676	596	569	438	527	135	158
19	3650	1170	e170	892	931	486	616	326	334	437	236	156
20	1900	930	e150	757	965	649	583	233	253	387	247	218
21	1140	728	e140	1870	909	676	1660	203	169	267	183	197
22	1100	671	e120	1170	656	564	2350	232	122	286	298	181
23	865	454	e120	735	428	452	1160	322	183	369	1650	192
24	794	326	e120	573	402	381	1010	335	173	338	587	174
25	653	278	e120	485	373	384	885	335	156	209	253	149
26	626	316	e120	487	303	420	666	2350	135	157	170	133
27	567	442	e120	455	350	389	492	8850	124	143	139	122
28	533	772	e120	444	762	336	442	2080	113	153	122	121
29	424	1210	e130	836	---	297	416	1020	95	160	124	132
30	431	977	184	2490	---	269	331	1800	188	155	158	134
31	281	---	3550	1060	---	474	---	1470	---	155	146	---
TOTAL	23507	24464	10690	27043	28794	12933	21092	27081	15503	12935	6832	5513
MEAN	758	815	345	872	1028	417	703	874	517	417	220	184
MAX	3650	3660	3550	5300	5800	676	2350	8850	2470	1550	1650	489
MIN	257	202	120	329	303	250	331	190	95	109	122	121
CFSM	2.07	2.22	.94	2.38	2.80	1.14	1.92	2.38	1.41	1.14	.60	.50
IN.	2.38	2.48	1.08	2.74	2.92	1.31	2.14	2.74	1.57	1.31	.69	.56

CAL YR 1989 TOTAL 287965 MEAN 789 MAX 8640 MIN 27 CFSM 2.15 IN. 29.18
WTR YR 1990 TOTAL 216387 MEAN 593 MAX 8850 MIN 95 CFSM 1.61 IN. 21.93

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: Dec. 20-30. Records good above 60 cfs and fair below. Flow partially regulated since 1973 by Stonecoal Reservoir. Flow regulated since January 1990 by Stonewall Jackson Lake. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--65 years (water years 1908-1916, 1934-83, 1985-90), 1,149 ft³/s, 20.56 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, 17,300 ft³/s, May 27, gage height, 17.16 ft; minimum daily discharge, 184 ft³/s, Aug. 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	638	485	1380	13600	1910	1560	1290	546	2320	613	269	230
2	852	449	944	4380	1480	1220	1610	478	1860	636	229	208
3	808	393	766	2060	1370	1110	1450	458	1770	421	207	199
4	679	376	657	1590	1660	940	1250	540	1950	281	209	196
5	614	388	599	1830	2550	802	1180	2010	1380	240	213	205
6	694	386	582	1450	1930	733	1060	2070	743	304	222	271
7	2620	379	649	1120	1800	674	1240	1380	571	272	218	300
8	2050	385	612	917	2020	610	1360	999	516	242	209	390
9	1350	1060	562	884	2120	575	1100	865	1880	225	201	653
10	1160	2530	547	940	12600	598	998	961	5040	312	197	1380
11	1400	1830	533	1010	8580	630	2040	1230	2280	484	196	513
12	1140	1580	510	913	3770	973	1960	875	1210	1360	207	330
13	878	1330	486	796	3020	813	1450	804	892	1990	206	1200
14	706	1110	463	637	2620	683	1210	936	745	3100	236	837
15	572	1220	405	722	2310	608	1190	728	1420	3230	219	2200
16	491	5920	426	877	2020	552	1150	796	1560	3800	199	1110
17	1690	6820	433	816	2120	806	1020	1470	848	1550	191	1040
18	3190	3010	379	831	1870	1510	1360	1670	693	894	184	600
19	7170	2200	355	1450	1820	1150	1240	965	663	664	1320	611
20	5440	1740	e330	1810	1750	1440	1130	660	528	568	834	1240
21	2450	1350	e290	4210	1600	1530	2340	563	446	491	430	804
22	2090	1090	e250	3310	1320	1310	5660	632	354	417	722	871
23	1610	919	e240	1930	1000	1050	2880	839	421	712	6710	768
24	1330	653	e230	1370	862	876	2070	667	437	564	2380	577
25	1110	545	e230	1080	821	854	1700	619	366	442	774	451
26	946	594	e230	1030	653	908	1310	4610	320	325	465	370
27	865	815	e230	949	774	887	984	15800	269	268	346	308
28	771	1450	e240	893	1720	779	810	6390	250	243	273	259
29	668	2490	e240	2310	---	704	748	2610	233	249	235	242
30	598	1930	e280	6560	---	646	675	3640	345	243	306	250
31	553	---	5740	3250	---	881	---	2990	---	321	281	---
TOTAL	47133	45427	19818	65525	68070	28412	45465	59801	32310	25461	18888	18613
MEAN	1520	1514	639	2114	2431	917	1515	1929	1077	821	609	620
MAX	7170	6820	5740	13600	12600	1560	5660	15800	5040	3800	6710	2200
MIN	491	376	230	637	653	552	675	458	233	225	184	196
CFSM	2.00	2.00	.84	2.78	3.20	1.21	2.00	2.54	1.42	1.08	.80	.82
IN.	2.31	2.23	.97	3.21	3.34	1.39	2.23	2.93	1.58	1.25	.93	.91

CAL YR 1989 TOTAL 634354 MEAN 1738 MAX 20500 MIN 146 CFSM 2.29 IN. 31.09
WTR YR 1990 TOTAL 474923 MEAN 1301 MAX 15800 MIN 184 CFSM 1.71 IN. 23.28

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: Nov. 2-7, and Dec. 9-30. Records good except for 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.--67 years (water years 1908, 1916-23, 1933-90), 168 ft³/s, 19.84 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)
Feb. 10	0900	*3,460	*9.89	No peaks greater than base discharge.			
Minimum discharge, 7.2 ft ³ /s, Aug. 18, gage height, 1.82 ft.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	64	120	1560	323	110	106	73	170	103	40	19
2	73	e62	105	519	291	108	338	69	120	104	24	16
3	68	e59	99	329	349	107	253	66	113	59	18	14
4	57	e58	97	290	698	99	199	121	142	40	16	12
5	48	e56	84	315	743	87	180	1230	109	40	16	24
6	46	e54	72	229	408	79	156	523	86	87	24	71
7	96	e53	75	174	351	75	143	301	73	54	24	114
8	127	50	66	144	320	69	125	199	81	37	17	124
9	117	100	e64	127	417	68	112	149	823	28	14	392
10	112	161	e60	129	2430	74	109	200	586	24	12	664
11	225	133	e57	125	836	69	417	196	231	59	12	199
12	180	117	e54	118	497	67	321	141	136	99	12	105
13	133	98	e51	107	355	65	211	204	103	119	13	1300
14	102	89	e48	99	270	63	167	480	82	192	12	394
15	81	91	e45	99	215	62	158	262	1300	992	11	408
16	71	994	e43	104	314	61	136	251	371	593	10	290
17	815	505	e42	108	384	107	132	637	176	194	8.4	418
18	1310	294	e40	122	276	239	142	403	118	110	7.3	196
19	1850	200	e38	134	220	180	128	213	97	77	253	287
20	763	170	e36	428	176	193	124	151	76	59	154	689
21	427	136	e34	753	142	170	154	121	67	59	70	303
22	300	116	e32	473	128	148	287	109	60	71	52	1030
23	218	102	e31	300	124	129	227	94	58	93	864	578
24	170	87	e29	220	121	121	181	74	52	79	335	304
25	138	73	e28	178	108	113	143	63	47	58	129	181
26	119	88	e27	152	105	113	124	699	39	45	74	124
27	103	103	e27	127	105	109	111	905	33	35	51	95
28	87	163	e26	115	107	103	101	393	28	28	37	75
29	76	162	e26	949	---	99	92	291	34	23	30	64
30	71	137	e44	1420	---	93	82	467	78	20	27	59
31	67	---	258	510	---	99	---	275	---	30	24	---
TOTAL	8108	4575	1858	10457	10813	3279	5159	9360	5489	3611	2390.7	8549
MEAN	262	152	59.9	337	386	106	172	302	183	116	77.1	285
MAX	1850	994	258	1560	2430	239	417	1230	1300	992	864	1300
MIN	46	50	26	99	105	61	82	63	28	20	7.3	12
CFSM	2.27	1.33	.52	2.93	3.36	.92	1.50	2.63	1.59	1.01	.67	2.48
IN.	2.62	1.48	.60	3.38	3.50	1.06	1.67	3.03	1.78	1.17	.77	2.77

CAL YR 1989 TOTAL 98408 MEAN 270 MAX 4010 MIN 13 CFSM 2.34 IN. 31.83
WTR YR 1990 TOTAL 73648.7 MEAN 202 MAX 2430 MIN 7.3 CFSM 1.75 IN. 23.82

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: Dec. 15-30. Records good except those for period of estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--25 years, 16.7 ft³/s, 20.81 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)
Dec. 31	1415	359	5.49	Feb. 10	0600	*374	*5.62

Minimum discharge, 0.20 ft³/s, Aug. 18, gage height, 0.46 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.1	8.9	12	124	33	10	15	8.0	19	14	1.4	.73
2	6.8	8.1	11	52	32	10	21	7.0	14	8.3	1.0	.77
3	4.7	8.1	10	33	32	10	21	7.6	13	4.0	.79	.78
4	3.7	6.9	9.9	28	50	9.2	24	32	17	2.9	.78	.76
5	3.3	6.5	9.0	25	45	8.4	30	63	12	3.1	.88	.63
6	4.1	5.5	8.7	21	33	7.9	32	51	9.4	3.3	1.0	1.3
7	10	4.8	8.7	17	33	6.9	27	38	8.3	2.4	.81	6.0
8	8.9	5.8	7.7	15	27	6.5	22	26	14	1.8	.71	4.0
9	9.9	16	8.5	13	46	7.6	18	20	42	1.4	.62	8.6
10	10	18	7.7	13	221	8.0	21	24	35	1.2	.50	11
11	12	16	7.0	11	77	7.4	34	18	21	5.6	.40	3.9
12	10	14	6.5	11	53	7.0	26	14	14	8.4	.35	19
13	8.4	12	6.2	9.1	40	6.9	20	15	11	23	.29	37
14	7.1	11	6.2	9.7	33	6.8	18	14	11	15	.37	12
15	6.1	13	e5.8	9.4	28	6.5	19	11	48	17	.52	17
16	5.3	75	e5.5	9.5	29	6.5	16	21	19	19	.38	13
17	74	54	e5.2	9.5	23	10	21	34	12	11	.27	16
18	81	35	e5.0	10	19	9.8	22	23	11	6.6	.72	9.6
19	136	24	e4.7	9.3	17	12	20	17	10	4.4	2.9	19
20	61	21	e4.4	34	14	15	18	13	7.9	7.7	2.1	26
21	39	17	e4.3	49	12	14	24	11	6.7	5.1	.92	16
22	27	14	e4.1	37	12	15	26	13	5.3	14	.91	74
23	20	13	e3.9	26	12	14	22	10	4.8	11	3.4	40
24	16	11	e3.8	20	12	14	19	8.1	3.7	7.0	2.1	22
25	14	9.5	e3.6	18	9.5	14	16	6.8	3.7	4.2	1.1	14
26	12	12	e3.5	18	10	15	14	115	3.0	3.2	.78	10
27	11	13	e3.4	15	10	14	12	87	2.4	2.5	.73	7.7
28	9.9	15	e3.3	15	11	13	10	47	1.9	2.0	.72	5.7
29	9.0	14	e3.2	86	---	12	10	41	2.0	1.6	1.7	4.0
30	8.7	13	e5.4	104	---	11	9.3	42	3.9	1.3	.88	3.8
31	8.6	---	180	49	---	12	---	27	---	1.7	.73	---
TOTAL	642.6	495.1	368.2	900.5	973.5	320.4	607.3	864.5	386.0	213.7	30.76	404.27
MEAN	20.7	16.5	11.9	29.0	34.8	10.3	20.2	27.9	12.9	6.89	.99	13.5
MAX	136	75	180	124	221	15	34	115	48	23	3.4	74
MIN	3.3	4.8	3.2	9.1	9.5	6.5	9.3	6.8	1.9	1.2	.27	.63
CFSM	1.90	1.51	1.09	2.66	3.19	.95	1.86	2.56	1.18	.63	.09	1.24
IN.	2.19	1.69	1.26	3.07	3.32	1.09	2.07	2.95	1.32	.73	.10	1.38

CAL YR 1989 TOTAL 9052.38 MEAN 24.8 MAX 366 MIN .90 CFSM 2.28 IN. 30.89
WTR YR 1990 TOTAL 6206.83 MEAN 17.0 MAX 221 MIN .27 CFSM 1.56 IN. 21.18

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: Dec. 12-31. Records fair. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--50 years, 772 ft³/s, 30.39 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. 1	0130	10,500	7.84	May 26	1900	*21,500	*10.79

Minimum discharge, 60 ft³/s, Aug. 18, 19, gage height, 2.13 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	394	435	841	10400	1260	478	813	364	1230	542	103	96
2	729	409	710	5200	1020	505	778	338	894	763	96	87
3	739	351	651	1640	946	713	1020	328	1150	384	88	78
4	549	332	555	1250	1130	823	1010	410	1080	237	81	72
5	470	310	558	2190	1310	691	926	774	830	173	79	67
6	425	293	547	1740	1090	585	1080	804	629	217	87	65
7	741	282	947	1330	962	529	1090	641	507	206	128	73
8	617	334	862	1030	888	494	948	518	465	160	109	102
9	597	1320	724	842	731	508	1080	459	568	122	88	94
10	564	1390	648	804	2140	572	1530	472	717	110	78	95
11	665	1080	575	716	2150	572	3290	647	564	114	92	84
12	618	907	e500	715	1470	823	2520	529	467	452	80	118
13	533	752	e400	624	1080	719	1590	556	372	1570	69	102
14	478	646	e350	515	1130	623	1190	994	307	913	82	155
15	429	598	e320	518	1000	533	1050	856	372	1010	82	224
16	385	2640	e290	611	922	496	882	706	499	1270	84	224
17	978	2550	e260	1380	897	541	738	867	323	726	73	333
18	1420	1630	e240	3400	741	660	694	820	251	490	64	274
19	2580	1160	e220	3940	671	581	557	610	224	379	68	198
20	2170	994	e200	2670	556	564	515	517	200	354	127	246
21	1420	962	e190	3370	494	521	1170	492	178	364	285	302
22	1040	791	e180	2330	462	537	2070	572	161	548	319	420
23	821	717	e170	1490	442	666	1380	946	274	503	349	583
24	681	621	e160	1120	437	605	1020	729	286	477	624	527
25	595	537	e155	976	366	573	778	584	219	342	512	493
26	535	1160	e150	1190	279	521	621	8580	182	262	385	375
27	485	1820	e150	962	390	514	520	7810	140	212	251	293
28	437	1600	e150	896	498	510	466	3000	118	173	194	236
29	397	1290	e150	1100	---	510	419	2730	107	145	146	192
30	369	1000	e500	2870	---	517	418	2890	202	125	125	165
31	350	---	e4000	1830	---	730	---	2000	---	110	122	---
TOTAL	23211	28911	16353	59649	25462	18214	32163	42543	13516	13453	5070	6373
MEAN	749	964	528	1924	909	588	1072	1372	451	434	164	212
MAX	2580	2640	4000	10400	2150	823	3290	8580	1230	1570	624	583
MIN	350	282	150	515	279	478	418	328	107	110	64	65
CFSM	2.17	2.79	1.53	5.58	2.64	1.70	3.11	3.98	1.31	1.26	.47	.62
IN.	2.50	3.12	1.76	6.43	2.75	1.96	3.47	4.59	1.46	1.45	.55	.69

CAL YR 1989 TOTAL 371299 MEAN 1017 MAX 10600 MIN 150 CFSM 2.95 IN. 40.04
WTR YR 1990 TOTAL 284918 MEAN 781 MAX 10400 MIN 64 CFSM 2.26 IN. 30.72

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: Dec. 1-30, and Jan. 12-14. Records good except for estimated daily discharges, which are poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--69 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)
May 26	2200	*2,430	*7.59	No other peak greater than base discharge.			

Minimum discharge, 13 ft³/s, Sept. 7, gage height, 1.33 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	129	124	e190	780	314	150	171	97	274	479	45	17
2	254	98	e170	775	278	132	180	99	208	375	38	16
3	193	87	e150	558	333	222	197	119	209	132	34	17
4	133	83	e140	418	493	199	169	216	267	72	32	19
5	108	79	e130	703	438	138	183	674	216	137	32	15
6	135	73	e170	491	285	124	241	412	143	300	41	15
7	332	69	e240	303	246	112	236	262	112	131	48	19
8	227	96	e200	235	242	97	203	188	112	78	37	30
9	206	349	e180	212	239	119	263	153	217	59	29	31
10	164	279	e150	220	701	151	318	199	626	68	25	34
11	212	190	e130	200	493	169	598	219	209	104	23	26
12	167	159	e110	e160	328	195	484	153	125	228	21	26
13	134	133	e100	e140	281	145	325	169	96	672	19	118
14	117	117	e95	e150	311	119	247	194	82	416	21	92
15	105	125	e85	169	243	105	247	133	81	435	20	103
16	95	596	e70	307	229	100	224	119	73	567	17	81
17	441	536	e65	527	216	130	184	229	60	275	15	107
18	504	295	e60	822	171	138	195	194	52	169	14	71
19	639	214	e55	837	154	102	155	120	49	125	15	53
20	473	233	e52	714	128	104	132	102	48	123	17	111
21	320	226	e50	886	113	107	385	114	47	147	52	96
22	264	172	e48	631	109	135	540	133	48	226	157	112
23	207	156	e46	386	110	117	284	163	60	239	217	170
24	175	148	e45	282	118	102	200	111	58	188	187	128
25	153	168	e44	263	113	106	166	89	60	120	117	85
26	134	387	e43	325	156	104	145	1190	44	92	59	63
27	120	460	e42	243	88	112	125	1860	35	75	40	53
28	108	412	e41	240	122	97	112	1030	31	64	30	47
29	99	307	e40	471	---	92	106	774	35	56	25	40
30	93	227	e150	925	---	92	119	691	149	50	24	38
31	97	---	651	503	---	128	---	425	---	46	20	---
TOTAL	6538	6598	3742	13876	7052	3943	7134	10631	3826	6248	1471	1833
MEAN	211	220	121	448	252	127	238	343	128	202	47.5	61.1
MAX	639	596	651	925	701	222	598	1860	626	672	217	170
MIN	93	69	40	140	88	92	106	89	31	46	14	15
CFSM	2.45	2.55	1.40	5.19	2.92	1.48	2.76	3.98	1.48	2.34	.55	.71
IN.	2.82	2.85	1.61	5.99	3.04	1.70	3.08	4.59	1.65	2.70	.63	.79

CAL YR 1989 TOTAL 90813 MEAN 249 MAX 1750 MIN 37 CFSM 2.89 IN. 39.19
WTR YR 1990 TOTAL 72892 MEAN 200 MAX 1860 MIN 14 CFSM 2.32 IN. 31.46

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: Dec. 12-30. Records fair except for periods with ice effect, which are poor.

AVERAGE DISCHARGE.--66 years, 556 ft³/s, 35.28 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. 1	0400	7,180	7.51	May 26	2300	*11,100	*9.61

Minimum discharge, 99 ft³/s, Sept. 7, gage height, 0.96 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	292	283	476	4960	816	438	642	349	928	1420	164	192
2	402	298	409	1620	655	412	581	307	667	1400	167	179
3	547	267	376	948	616	580	819	302	621	592	148	160
4	396	249	312	782	860	731	771	416	733	358	131	143
5	329	235	274	1410	1330	560	690	861	582	284	123	137
6	308	224	328	1160	876	448	929	681	459	342	137	108
7	460	219	482	839	689	425	891	563	379	535	162	122
8	507	247	519	677	616	415	716	432	338	296	180	149
9	476	1070	405	565	574	401	767	356	375	240	143	178
10	445	1310	358	594	2020	541	888	359	526	206	116	155
11	466	790	328	568	1900	598	2410	567	432	207	136	133
12	455	587	e300	520	1080	930	1860	494	337	640	184	163
13	382	475	e250	426	795	691	1120	415	281	1590	180	294
14	336	407	e220	323	803	557	877	849	245	887	158	356
15	303	382	e200	361	831	472	855	645	248	2350	276	283
16	278	1930	e180	415	745	419	809	496	449	1870	213	218
17	782	1900	e170	631	847	632	683	615	320	893	163	226
18	1550	996	e160	1550	670	1080	676	624	248	571	130	199
19	2740	709	e150	2780	559	691	594	482	220	416	134	187
20	1730	579	e140	1590	476	590	519	401	197	394	248	199
21	999	580	e135	2240	404	512	1270	379	188	391	313	279
22	728	526	e130	1630	364	521	2250	490	184	432	297	335
23	570	445	e125	1010	356	625	1180	976	236	527	327	897
24	470	391	e120	749	365	673	814	675	356	531	2320	590
25	406	339	e120	643	326	578	624	517	246	364	1280	607
26	361	458	e115	1010	230	484	510	4270	198	284	675	417
27	326	1110	e115	836	315	454	430	5160	184	240	426	330
28	297	878	e115	677	453	437	375	1880	164	209	328	280
29	275	745	e115	785	---	428	347	1410	152	194	273	244
30	256	595	e650	1880	---	440	375	2280	186	182	238	222
31	249	---	2720	1180	---	543	---	1470	---	169	209	---
TOTAL	18121	19224	10497	35359	20571	17306	26272	29721	10679	19014	9979	7982
MEAN	585	641	339	1141	735	558	876	959	356	613	322	266
MAX	2740	1930	2720	4960	2020	1080	2410	5160	928	2350	2320	897
MIN	249	219	115	323	230	401	347	302	152	169	116	108
CFSM	2.73	2.99	1.58	5.33	3.43	2.61	4.09	4.48	1.66	2.87	1.50	1.24
IN.	3.15	3.34	1.82	6.15	3.58	3.01	4.57	5.17	1.86	3.31	1.73	1.39

CAL YR 1989 TOTAL 265151 MEAN 726 MAX 6670 MIN 115 CFSM 3.39 IN. 46.09
WTR YR 1990 TOTAL 224725 MEAN 616 MAX 5160 MIN 108 CFSM 2.88 IN. 39.06

e Estimated

MONONGAHELA RIVER BASIN

03070000 CHEAT RIVER AT ROWLESBURG, WV

LOCATION.--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: Dec. 15 to Jan. 3, May 27, 28. 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.--67 years, 2,307 ft³/s, 33.44 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 (at datum 1,370.24), 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 (at datum 1,370.24), 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. 1	----	Unknown	Unknown	May 27	----	*47,300	*18.72

Minimum discharge, 190 ft³/s, Sept. 7, gage height, 2.21 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	774	758	2110	e24000	4600	2470	2990	1470	4500	2270	360	342
2	942	872	1700	e15000	3620	2290	3370	1270	3240	5660	335	291
3	1640	758	1440	e8000	3290	2390	3610	1220	2850	2730	310	255
4	1180	675	1120	4140	4010	3080	3820	1390	3240	1490	269	224
5	872	612	1040	6500	5540	2800	3430	4900	2950	1070	245	205
6	789	574	1060	6090	4460	2300	4280	5140	2270	1810	259	208
7	2430	533	1730	4490	3520	2020	4470	3830	1810	1930	269	201
8	2400	578	2290	3530	3110	1840	3790	2820	1530	1230	355	257
9	1880	3400	1820	2930	2860	1740	3950	2200	2180	823	319	342
10	1650	4850	1470	2870	8170	2060	4580	2020	4650	699	247	363
11	1580	3210	1310	3070	8630	2240	8480	2710	2980	858	215	330
12	1590	2390	1100	2840	5480	2880	8290	2680	2000	1340	236	268
13	1290	1850	999	2420	4020	2910	5590	2250	1470	11800	266	402
14	1060	1490	823	1830	3710	2460	4220	2720	1160	6430	288	1210
15	892	1360	e700	1940	3690	2140	3740	3010	1090	5130	254	1560
16	768	5770	e600	2120	3300	1880	3570	2430	1640	7370	405	1330
17	2040	8550	e540	3780	3240	1810	3070	2700	1440	4170	300	1080
18	5130	4440	e500	6110	2630	2790	3030	3420	979	2640	223	1100
19	9550	2940	e450	10800	2520	2500	2810	2700	786	1870	200	778
20	7350	2320	e420	7190	2210	2210	2460	2120	668	1420	220	853
21	4030	2180	e400	10200	1870	2030	4040	1860	582	1520	480	1260
22	2820	1870	e370	8150	1650	1990	9330	1790	508	1720	1120	1230
23	2140	1550	e350	5380	1590	2280	5850	2670	584	1980	1220	2580
24	1690	1330	e340	3940	1590	2450	4080	2660	964	2310	3370	2420
25	1400	1100	e320	3200	1480	2310	3120	2090	952	1630	3430	2030
26	1190	1290	e310	3630	976	2060	2540	12300	715	1150	2130	1590
27	1020	4290	e300	3630	1260	1950	2130	e33000	523	876	1260	1170
28	882	4100	e300	3130	2330	1970	1830	e10000	409	694	861	912
29	773	3730	e300	3810	---	1910	1600	6920	366	565	637	718
30	701	2760	e350	10400	---	1800	1540	8830	906	467	507	598
31	656	---	e10000	6790	---	2070	---	6670	---	410	415	---
TOTAL	63109	72130	36562	181910	95616	69730	119610	141790	49942	76062	21005	26107
MEAN	2036	2404	1179	5868	3415	2249	3987	4574	1665	2454	678	870
MAX	9550	8550	10000	24000	8630	3080	9330	33000	4650	11800	3430	2580
MIN	656	533	300	1830	976	1740	1540	1220	366	410	200	201
CFSM	2.17	2.57	1.26	6.26	3.64	2.40	4.26	4.88	1.78	2.62	.72	.93
IN.	2.51	2.86	1.45	7.22	3.80	2.77	4.75	5.63	1.98	3.02	.83	1.04

CAL YR 1989 TOTAL 1012130 MEAN 2773 MAX 30400 MIN 211 CFSM 2.96 IN. 40.18
WTR YR 1990 TOTAL 953573 MEAN 2613 MAX 33000 MIN 200 CFSM 2.79 IN. 37.86

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: Dec. 16 to Jan. 3. Records good except for periods with ice effect, which are poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--77 years (water years 1910-17, 1922-90), 422 ft³/s, 28.65 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)
Feb. 10	0900	*5,650	*10.93	No other peaks greater than base discharge.			

Minimum discharge, 23 ft³/s, Aug. 18, gage height, 3.48 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72	231	315	e2500	839	336	387	167	516	2050	89	54
2	174	180	277	e1000	1070	324	763	153	391	917	65	48
3	138	167	254	e600	1460	312	656	146	324	461	53	52
4	103	158	216	621	1390	279	592	402	360	302	47	42
5	84	144	227	1080	1240	245	771	2470	270	252	49	37
6	89	140	215	690	842	228	1070	1650	207	650	69	35
7	264	132	395	638	687	197	860	982	197	365	61	90
8	245	141	347	511	567	183	653	647	194	255	45	112
9	228	456	284	422	736	206	525	487	483	205	38	243
10	196	565	284	406	4040	237	487	505	556	252	34	609
11	271	512	261	358	1860	212	944	486	374	478	30	272
12	226	414	241	350	1110	209	737	377	275	667	28	177
13	187	336	211	292	766	197	568	375	214	2470	32	669
14	161	293	177	231	637	190	472	382	178	1620	101	428
15	137	305	130	305	544	184	479	311	226	1210	58	577
16	119	1480	e115	402	528	177	413	337	276	1200	38	467
17	646	1190	e110	473	469	202	403	660	176	692	29	519
18	1070	715	e100	510	402	221	451	492	140	470	24	345
19	2190	511	e95	481	380	202	392	377	124	344	28	480
20	1270	444	e90	1100	321	268	370	316	112	275	44	885
21	728	380	e86	1550	273	253	389	285	103	278	70	567
22	524	312	e83	1090	262	285	401	255	91	376	194	1170
23	390	283	e80	739	262	289	351	219	97	357	571	1080
24	321	249	e77	569	284	284	317	181	91	258	401	710
25	269	215	e75	480	211	271	282	158	105	192	211	494
26	230	282	e73	488	158	285	253	1460	81	152	145	374
27	200	362	e71	408	241	275	223	1480	61	121	110	300
28	181	439	e70	442	370	252	202	883	53	103	91	225
29	164	402	e70	828	---	239	192	813	48	89	77	184
30	150	354	e350	2200	---	225	188	1010	44	79	101	165
31	151	---	e3400	1150	---	244	---	719	---	97	77	---
TOTAL	11178	11792	8779	22914	21949	7511	14791	19185	6367	17237	3010	11410
MEAN	361	393	283	739	784	242	493	619	212	556	97.1	380
MAX	2190	1480	3400	2500	4040	336	1070	2470	556	2470	571	1170
MIN	72	132	70	231	158	177	188	146	44	79	24	35
CFSM	1.80	1.97	1.42	3.70	3.92	1.21	2.47	3.09	1.06	2.78	.49	1.90
IN.	2.08	2.19	1.63	4.26	4.08	1.40	2.75	3.57	1.18	3.21	.56	2.12

CAL YR 1989 TOTAL 183249 MEAN 502 MAX 5150 MIN 20 CFSM 2.51 IN. 34.08
WTR YR 1990 TOTAL 156123 MEAN 428 MAX 4040 MIN 24 CFSM 2.14 IN. 29.04

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 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	13.5	4.5	.5	4.5	6.0	---	18.0	14.0	---	23.5	---
2	19.5	11.0	---	.5	4.5	5.5	11.0	18.0	---	24.0	23.5	---
3	19.0	11.0	---	.5	---	---	9.5	18.0	---	24.0	23.5	---
4	18.5	---	4.5	1.0	---	---	9.0	---	16.5	---	---	26.5
5	18.5	---	4.5	1.0	4.0	5.5	9.0	---	18.0	25.0	---	25.5
6	18.0	11.0	4.0	---	6.5	5.5	10.0	---	18.5	25.0	24.5	25.0
7	---	11.0	4.5	---	6.5	5.5	---	16.5	19.0	---	24.5	24.5
8	---	11.0	4.0	2.0	6.5	4.0	---	16.5	20.0	---	24.5	---
9	16.5	10.5	---	3.5	---	5.0	9.0	18.0	20.5	25.5	24.5	---
10	16.5	10.5	---	3.5	---	---	9.0	16.5	21.0	26.5	24.5	24.5
11	16.0	---	2.0	3.5	---	---	8.5	15.5	21.0	26.0	---	24.0
12	16.5	---	2.0	3.5	6.0	8.0	---	---	20.5	25.5	---	24.5
13	18.0	10.5	2.0	---	6.5	9.0	---	---	20.5	25.5	24.5	24.5
14	---	11.0	1.0	---	5.5	10.0	---	14.5	21.0	24.0	24.0	24.5
15	---	11.0	1.0	3.5	5.0	13.5	---	16.5	21.0	---	24.5	---
16	18.0	10.0	---	2.0	6.5	14.5	9.5	18.0	---	22.0	25.5	---
17	18.5	9.0	---	2.0	---	---	9.5	18.0	---	23.0	26.5	22.0
18	16.5	---	1.0	3.5	---	---	9.0	17.0	26.0	24.5	---	22.0
19	15.5	---	.5	2.0	---	13.5	10.0	---	25.5	28.0	---	21.5
20	14.5	8.5	.5	---	7.0	11.5	10.5	---	24.5	25.5	25.5	21.5
21	---	7.0	1.0	---	6.5	12.0	---	18.0	24.5	---	24.5	21.0
22	---	6.5	.5	5.0	8.0	12.0	---	16.5	24.5	---	23.5	---
23	11.0	---	---	---	8.0	12.0	12.0	16.5	24.5	24.5	23.5	---
24	11.0	5.0	---	6.5	---	---	11.5	17.0	---	24.5	23.5	20.0
25	12.0	---	---	6.5	---	10.0	11.0	18.0	23.5	24.5	---	19.5
26	12.0	---	.5	6.0	5.5	10.0	12.0	---	25.5	25.5	---	19.5
27	10.0	5.0	.5	---	5.5	10.0	16.5	---	26.0	26.5	24.5	19.0
28	---	---	.5	---	5.0	11.0	---	13.5	26.0	---	26.0	19.0
29	---	4.0	.5	5.5	---	11.0	---	13.0	26.5	24.5	25.5	---
30	12.0	4.0	---	6.0	---	10.0	18.0	12.0	26.0	25.5	25.5	---
31	13.5	---	---	4.0	---	---	---	---	---	24.5	24.5	---

WHEELING CREEK BASIN

79

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: Dec. 10, 12-30, and Aug. 10-12. Records good except for periods with ice effect, which are poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--50 years, 333 ft³/s, 16.04 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)
June 14	2300	*8,210	*7.32	No other peak greater than base discharge.			
Minimum daily discharge, 10 ft ³ /s, July 10.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	114	90	2220	766	256	248	137	585	40	53	66
2	67	122	87	963	710	252	417	125	430	32	45	49
3	63	114	81	651	843	246	445	116	398	26	38	54
4	53	105	72	551	1730	222	435	150	311	18	34	41
5	43	96	84	558	1740	202	439	999	250	18	40	44
6	42	90	80	481	1080	189	426	1000	208	23	41	59
7	46	84	82	400	825	172	409	675	201	17	54	559
8	60	90	78	343	680	158	373	477	300	14	46	1040
9	62	100	81	297	630	164	326	361	1160	11	41	856
10	69	110	e82	247	1830	167	343	312	1070	10	e33	1040
11	79	117	76	198	1460	159	859	288	555	16	e27	691
12	94	105	e70	179	1030	158	748	226	370	498	e22	497
13	82	93	e65	156	792	145	570	236	276	1330	17	393
14	70	84	e60	118	766	134	497	272	766	593	22	374
15	60	90	e55	157	896	127	492	215	2620	1290	27	1000
16	51	375	e50	156	1740	123	414	326	846	929	21	725
17	103	642	e45	157	1440	457	362	891	489	556	17	594
18	174	390	e42	173	958	722	339	718	472	374	18	472
19	649	275	e39	171	762	540	287	452	339	250	1230	428
20	696	216	e36	674	587	581	266	343	203	203	1020	419
21	422	182	e35	1620	448	516	281	286	156	321	619	367
22	310	154	e33	1040	405	451	283	234	121	420	802	351
23	227	137	e31	671	387	395	248	195	406	351	649	407
24	183	123	e30	522	370	338	225	166	302	256	607	402
25	155	111	e29	422	295	303	208	143	200	176	390	329
26	132	108	e29	375	236	273	194	781	129	133	253	258
27	121	106	e29	304	273	242	179	870	92	95	159	200
28	107	107	e29	286	280	216	167	575	67	76	103	153
29	96	105	e30	1030	---	199	155	1250	52	60	78	116
30	88	96	e150	2400	---	188	147	1720	49	53	162	197
31	98	---	2440	1140	---	196	---	916	---	57	124	---
TOTAL	4558	4641	4220	18660	23959	8491	10782	15455	13423	8246	6792	12181
MEAN	147	155	136	602	856	274	359	499	447	266	219	406
MAX	696	642	2440	2400	1830	722	859	1720	2620	1330	1230	1040
MIN	42	84	29	118	236	123	147	116	49	10	17	41
CFSM	.52	.55	.48	2.13	3.03	.97	1.27	1.77	1.59	.94	.78	1.44
IN.	.60	.61	.56	2.46	3.16	1.12	1.42	2.04	1.77	1.09	.90	1.61

CAL YR 1989 TOTAL 143017 MEAN 392 MAX 4410 MIN 12 CFMS 1.39 IN. 18.87
WTR YR 1990 TOTAL 131408 MEAN 360 MAX 2620 MIN 10 CFMS 1.28 IN. 17.33

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 1989 TO SEPTEMBER 1990

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)
NOV												
14...	1200	31200	378	7.6	13.0	3.4	739	10.2	100	200	K15	120
DEC												
12...	1200	24700	297	7.3	2.5	3.5	738	13.3	101	630	87	96
FEB												
14...	1130	92500	262	7.3	4.5	30	727	12.0	97	1900	480	93
APR												
18...	1330	63600	250	7.4	10.0	17	751	11.5	103	290	--	87
JUN												
12...	1400	38400	330	7.3	21.0	8.5	744	8.6	99	K190	K7	120
AUG												
07...	1330	25400	359	7.6	26.0	10	742	7.1	90	260	K12	130

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE WATER DIS IT FIELD HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD CO3 (00452)	ALKA- LINITY WAT DIS TOT IT FIELD 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)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
NOV												
14...	34	8.9	21	2.6	48	0	39	94	20	0.20	3.5	219
DEC												
12...	27	6.9	17	1.9	34	0	28	68	21	0.10	4.7	218
FEB												
14...	26	6.7	11	1.6	30	0	25	63	14	0.10	5.8	169
APR												
18...	24	6.6	11	1.4	26	0	21	57	9.3	0.40	5.1	144
JUN												
12...	34	8.6	16	2.0	55	0	45	89	14	0.30	5.4	200
AUG												
07...	37	10	18	2.8	54	0	44	92	21	0.10	5.6	222

DATE	SOLIDS, SUM OF CONSTITUENTS, 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- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)
NOV												
14...	212	0.670	0.030	0.700	0.160	0.160	0.54	0.70	0.070	0.030	0.020	20
DEC												
12...	167	0.780	0.010	0.790	0.220	0.210	0.18	0.40	0.060	0.030	0.030	--
FEB												
14...	148	0.980	0.020	1.00	0.090	0.100	0.41	0.50	0.070	<0.010	<0.010	30
APR												
18...	131	0.690	0.010	0.700	0.060	<0.010	0.24	0.30	0.060	<0.010	<0.010	30
JUN												
12...	201	1.07	0.030	1.10	0.090	0.100	0.41	0.50	0.070	<0.010	<0.010	--
AUG												
07...	218	0.979	0.021	1.00	0.100	0.090	0.40	0.50	0.041	0.030	<0.010	40

K: Results based on colony count outside the acceptance range (non-ideal colony count).

OHIO RIVER MAIN STEM

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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)
NOV 14...	<1	50	<0.5	<1.0	1	<3	3	33	<1	10	120
DEC 12...	--	--	--	--	--	--	--	--	--	--	--
FEB 14...	<1	47	<0.5	<1.0	<5	<3	<10	40	<10	<4	170
APR 18...	<1	46	<0.5	<1.0	<1	<3	5	47	1	5	150
JUN 12...	--	--	--	--	--	--	--	--	--	--	--
AUG 07...	1	50	<0.5	<1.0	<1	<3	6	8	1	8	9

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)
NOV 14...	<0.1	<10	5	<1	<1.0	210	<6	310	8	674	100
DEC 12...	--	--	--	--	--	--	--	--	1	67	100
FEB 14...	<0.1	<10	<10	<1	<1.0	130	<6	14	47	11700	93
APR 18...	<0.1	<10	6	<1	<1.0	130	<6	25	25	4000	93
JUN 12...	--	--	--	--	--	--	--	--	10	1040	100
AUG 07...	--	<10	2	<1	<1.0	190	<6	9	20	1370	98

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: Dec. 11-30. Records good except for periods with ice effect, which are poor.

AVERAGE DISCHARGE.--63 years, (water years 1916, 1929-90), 641 ft³/s, 19.01 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. 1	0500	11,900	14.84	Feb. 10	1800	12,200	15.10
Jan. 30	0300	9,870	13.14	May 27	0700	*12,900	*15.69

Minimum discharge, 12 ft³/s, Aug. 17, 18, gage height, 2.02 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	151	319	487	9470	1180	842	883	340	764	93	50	44
2	198	378	378	2460	923	666	1670	319	466	203	57	39
3	277	287	318	1210	1250	560	1300	280	416	178	48	36
4	221	251	278	1020	2390	467	1030	400	531	110	40	33
5	166	225	244	1320	2630	387	883	3680	528	76	33	28
6	146	203	233	991	1410	335	749	2120	367	64	32	25
7	2320	185	229	666	1080	300	629	1390	297	57	32	22
8	2060	176	253	479	1520	268	544	909	286	53	26	20
9	1150	176	240	393	1480	257	477	604	3280	43	30	33
10	873	666	230	354	9980	271	434	482	4240	39	43	569
11	1680	652	e210	343	5300	285	1200	576	1370	50	29	338
12	1320	443	e200	313	2010	487	1450	509	582	72	24	170
13	719	353	e180	280	1500	608	939	843	357	108	20	160
14	442	290	e160	225	1140	472	697	1810	299	361	17	797
15	325	272	e140	211	894	411	640	912	3140	1500	14	1340
16	273	2930	e130	229	2170	370	639	947	836	1960	13	983
17	3570	4680	e120	253	2140	1860	566	2630	385	606	12	847
18	5590	1510	e110	275	1350	2760	752	2270	333	250	12	438
19	6620	873	e98	322	1010	1360	773	1120	299	160	94	324
20	4660	584	e90	1180	771	1210	644	679	304	114	120	1210
21	1780	465	e82	3590	553	1100	752	482	243	91	107	807
22	1190	366	e76	2250	461	878	3240	403	202	154	80	1350
23	767	305	e72	1210	429	681	1620	498	178	1020	2790	1030
24	509	269	e68	770	408	526	1040	499	169	433	3910	472
25	395	231	e66	543	380	482	773	381	238	213	487	279
26	323	213	e64	464	302	455	618	3360	184	137	211	194
27	275	276	e64	390	287	457	503	11200	153	95	135	148
28	239	532	e66	344	667	403	406	2640	137	73	94	113
29	213	1160	e80	3120	---	359	367	2650	123	55	71	92
30	191	753	e100	7640	---	338	356	3030	114	49	68	79
31	179	---	5800	2300	---	390	---	1400	---	40	62	---
TOTAL	38822	20023	10866	44615	45615	20245	26574	49363	20821	8457	8761	12020
MEAN	1252	667	351	1439	1629	653	886	1592	694	273	283	401
MAX	6620	4680	5800	9470	9980	2760	3240	11200	4240	1960	3910	1350
MIN	146	176	64	211	287	257	356	280	114	39	12	20
CFSM	2.73	1.46	.77	3.14	3.56	1.43	1.93	3.48	1.52	.60	.62	.87
IN.	3.15	1.63	.88	3.62	3.70	1.64	2.16	4.01	1.69	.69	.71	.98

CAL YR 1989 TOTAL 400557 MEAN 1097 MAX 14700 MIN 23 CFSM 2.40 IN. 32.53
WTR YR 1990 TOTAL 306182 MEAN 839 MAX 11200 MIN 12 CFSM 1.83 IN. 24.87

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, 28.06 ft, Feb. 17; minimum, 14.76 ft, Oct. 4.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.53	16.00	16.37	22.62	20.48	18.18	15.50	15.86	20.10	16.05	15.53	15.45
2	15.37	15.58	16.06	24.24	19.62	17.51	16.29	15.58	18.79	16.08	15.32	15.28
3	15.71	15.78	15.71	20.54	21.12	17.12	16.94	15.51	18.09	15.49	15.37	15.71
4	15.12	15.68	15.59	18.84	23.69	16.83	16.96	15.91	17.23	15.29	15.40	15.59
5	15.59	15.86	15.79	19.29	25.65	16.75	17.33	17.24	16.50	15.13	15.65	15.49
6	15.90	15.49	15.93	19.85	24.82	16.45	16.88	17.88	16.29	15.33	15.84	15.73
7	15.68	15.72	15.75	19.87	22.88	16.28	16.90	17.42	15.92	15.52	16.04	16.65
8	15.55	16.00	15.80	18.50	22.36	15.92	16.82	16.70	16.37	15.48	15.99	17.69
9	15.44	16.18	15.93	18.07	21.82	15.96	16.73	17.07	18.75	15.57	15.67	16.45
10	15.38	16.68	15.69	17.99	23.87	16.10	16.32	16.46	20.55	15.78	15.84	17.42
11	16.01	16.69	15.82	17.43	25.22	15.89	18.92	16.70	19.38	16.04	16.07	18.49
12	15.47	16.04	15.43	17.38	24.41	16.01	22.21	16.08	17.41	16.16	15.50	17.55
13	15.87	16.28	15.49	16.92	22.32	16.42	22.75	16.45	17.24	17.36	15.88	16.92
14	15.69	16.16	15.53	16.15	20.91	16.04	20.54	16.22	16.81	19.19	16.31	16.84
15	15.37	15.33	15.64	16.11	20.66	16.25	19.64	17.08	20.04	20.07	15.88	16.66
16	15.17	16.68	15.46	15.93	23.65	15.93	19.52	17.60	18.26	20.83	15.47	16.81
17	16.05	18.28	15.45	15.91	27.57	16.82	18.85	20.59	16.77	21.33	15.57	17.01
18	16.66	18.58	15.38	16.26	25.47	17.09	18.13	21.81	16.53	20.05	15.69	16.84
19	17.83	17.75	15.45	17.59	22.43	16.85	17.60	20.67	15.86	19.10	15.75	16.64
20	18.41	17.19	15.42	19.24	21.57	16.87	16.74	19.99	15.57	18.44	15.83	16.61
21	17.42	16.72	15.43	21.39	21.07	17.19	17.33	19.66	15.52	17.79	15.45	16.56
22	16.69	16.47	15.68	22.45	20.38	16.74	18.56	19.19	15.65	17.81	15.71	16.69
23	16.65	16.42	15.65	21.63	19.72	16.79	18.79	18.15	15.63	18.05	15.54	16.65
24	16.01	16.11	15.57	20.53	19.44	16.28	17.97	18.06	15.78	18.53	16.27	16.65
25	15.92	16.21	15.43	19.94	18.67	16.03	17.73	17.39	15.32	18.83	15.47	16.55
26	15.92	15.76	15.70	19.36	18.42	15.72	17.03	18.87	15.48	17.18	15.57	16.53
27	15.46	16.15	15.56	18.14	17.71	16.22	16.56	21.11	15.85	16.83	15.09	16.23
28	15.87	16.26	15.68	18.15	17.86	15.73	16.12	22.52	15.48	15.93	15.45	15.97
29	15.51	16.39	15.92	19.21	---	15.88	16.15	21.85	15.93	15.80	15.20	15.46
30	15.75	16.79	15.93	23.35	---	15.50	15.67	21.36	15.88	15.38	15.40	16.06
31	15.72	---	18.22	22.14	---	15.80	---	20.54	---	15.68	15.59	---
MEAN	15.96	16.37	15.76	19.19	21.92	16.42	17.78	18.31	16.97	17.16	15.66	16.51
MAX	18.41	18.58	18.22	24.24	27.57	18.18	22.75	22.52	20.55	21.33	16.31	18.49
MIN	15.12	15.33	15.38	15.91	17.71	15.50	15.50	15.51	15.32	15.13	15.09	15.28

WTR YR 1990 MEAN 17.30 MAX 27.57 MIN 15.09

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: Dec. 14-29. Records good except for period with ice effect, which is poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--14 years (water years 1975-83, 1986-90), 229 ft³/s, 27.77 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)
Oct. 19	0800	2,320	8.47	July 12	2400	2,390	8.54
Jan. 1	0300	*3,330	*9.53				

Minimum discharge, 4.4 ft³/s, Aug. 18, gage height, 3.73 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	100	187	2250	362	445	205	94	297	91	18	15
2	61	85	159	771	280	387	191	83	197	101	15	12
3	51	80	144	451	228	424	187	75	194	62	13	9.0
4	38	76	123	385	241	351	200	73	187	42	10	7.0
5	29	69	116	423	296	270	272	123	155	30	9.6	5.9
6	29	66	110	350	287	218	392	132	125	345	16	6.2
7	82	65	113	270	268	176	533	125	100	135	24	11
8	103	98	115	233	230	149	462	114	92	70	17	14
9	190	612	118	216	208	141	403	102	249	43	12	58
10	175	608	120	301	1310	130	368	115	397	30	8.8	36
11	158	383	118	341	978	184	531	132	268	27	7.5	24
12	122	280	117	312	661	306	526	112	176	621	6.2	28
13	100	212	113	244	498	279	377	107	124	1330	5.6	50
14	83	176	e100	193	401	239	294	108	92	1070	5.7	38
15	68	158	e90	195	334	203	308	88	976	904	6.7	30
16	57	1120	e80	189	377	176	281	79	881	868	6.7	22
17	528	943	e72	189	404	265	301	131	364	377	5.4	23
18	1230	505	e65	415	348	373	418	160	213	204	4.7	25
19	1690	326	e60	800	288	325	359	126	154	128	8.2	18
20	815	257	e56	582	222	298	299	99	111	91	54	19
21	482	208	e50	771	177	265	1140	93	89	72	43	25
22	319	166	e45	661	154	264	1120	228	106	82	212	94
23	229	151	e40	421	146	251	546	354	202	141	218	159
24	182	127	e37	306	149	232	344	239	150	133	117	102
25	147	112	e35	244	125	222	250	162	119	92	71	70
26	125	156	e33	264	110	212	195	835	88	64	45	51
27	108	276	e32	242	140	264	157	1480	67	47	30	37
28	95	299	e31	265	504	269	133	657	52	34	22	27
29	85	254	e58	359	---	253	121	533	40	27	18	21
30	76	218	238	730	---	228	113	877	32	21	15	18
31	75	---	2030	528	---	229	---	528	---	19	19	---
TOTAL	7589	8186	4805	13901	9726	8028	11026	8164	6297	7301	1064.1	1055.1
MEAN	245	273	155	448	347	259	368	263	210	236	34.3	35.2
MAX	1690	1120	2030	2250	1310	445	1140	1480	976	1330	218	159
MIN	29	65	31	189	110	130	113	73	32	19	4.7	5.9
CFSM	2.19	2.44	1.38	4.00	3.10	2.31	3.28	2.35	1.87	2.10	.31	.31
IN.	2.52	2.72	1.60	4.62	3.23	2.67	3.66	2.71	2.09	2.42	.35	.35

CAL YR 1989 TOTAL 113282 MEAN 310 MAX 4890 MIN 11 CFSM 2.77 IN. 37.63
 WTR YR 1990 TOTAL 87142.2 MEAN 239 MAX 2250 MIN 4.7 CFSM 2.13 IN. 28.94

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 March 1979 by Burnsville Lake. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--10 years (water years 1977-1982, 1987-1990), 294 ft³/s, 24.49 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, 2,470 ft³/s, Feb. 12, gage height, 8.14 ft; minimum daily, 19 ft³/s, Aug. 12, 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	140	194	251	865	564	598	103	120	344	33	20	20
2	127	219	171	1080	375	746	103	86	216	54	20	20
3	121	213	139	1080	313	501	101	86	266	66	20	20
4	152	199	183	1060	288	414	93	91	326	66	20	20
5	150	167	185	1030	361	323	93	174	270	66	20	20
6	122	132	115	1000	393	265	95	232	159	111	20	20
7	129	141	90	963	301	223	98	247	125	227	20	20
8	260	214	126	920	303	194	99	209	98	248	20	20
9	379	716	147	870	305	158	128	154	367	147	20	20
10	319	1040	147	830	129	141	220	131	527	57	20	20
11	297	806	147	673	904	195	321	119	515	33	20	20
12	239	515	147	522	2100	316	500	128	397	196	19	20
13	212	455	147	415	1790	428	510	138	180	1220	20	20
14	202	298	147	237	721	400	421	159	110	1670	20	20
15	174	270	116	210	358	313	359	166	542	1200	19	20
16	150	593	101	234	385	259	340	143	1030	1350	20	40
17	259	1130	100	245	490	256	303	112	859	707	20	79
18	518	1100	99	279	506	359	434	113	460	230	20	67
19	553	887	91	684	440	466	518	126	242	138	20	20
20	1070	523	90	946	337	450	480	134	142	102	20	21
21	1130	538	90	946	161	354	453	155	96	57	20	21
22	1110	419	87	989	167	356	1060	338	69	57	61	21
23	1080	263	66	866	199	256	1520	501	110	108	302	128
24	1040	262	43	602	182	221	1030	397	233	144	316	210
25	1000	214	41	310	154	305	652	217	243	144	45	109
26	961	228	45	282	122	208	304	488	95	97	44	55
27	641	409	55	312	149	100	166	1740	69	45	44	55
28	252	513	67	310	402	96	165	1750	68	45	29	55
29	142	423	77	426	---	97	166	1000	45	29	20	55
30	128	280	124	907	---	98	166	932	33	20	20	33
31	147	---	419	854	---	100	---	751	---	20	20	---
TOTAL	13204	13361	3853	20947	12899	9196	11001	11137	8236	8687	1319	1269
MEAN	426	445	124	676	461	297	367	359	275	280	42.5	42.3
MAX	1130	1130	419	1080	2100	746	1520	1750	1030	1670	316	210
MIN	121	132	41	210	122	96	93	86	33	20	19	20

CAL YR 1989 TOTAL 153374 MEAN 420 MAX 2200 MIN 18 CFSM 2.58 IN. 35.00
WTR YR 1990 TOTAL 115109 MEAN 315 MAX 2100 MIN 19 CFSM 1.93 IN. 26.27

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.--Estimated daily discharges: Dec. 17-18. Records good. Flow partially regulated since 1968 by five floodwater detention reservoirs affecting 49.5 mi². Flow regulated 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.--61 years (water years 1929-83, 1985-90), 605 ft³/s, 21.28 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, 8,430 ft³/s, Feb. 10, gage height, 22.36 ft; minimum daily, 25 ft³/s, Sept. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	202	266	489	5660	1090	1100	411	289	655	890	41	31
2	301	321	433	2160	788	1160	377	203	416	220	35	29
3	205	320	296	1680	587	945	374	192	426	146	33	27
4	214	289	310	1680	691	681	369	234	596	111	31	26
5	218	254	314	1740	837	589	428	816	500	99	30	25
6	201	212	309	1500	770	452	430	658	319	103	30	26
7	353	194	224	1330	719	401	702	493	226	200	30	32
8	391	258	212	1250	632	333	617	463	195	272	28	54
9	843	2470	257	1200	689	322	468	318	2750	253	26	48
10	690	2290	255	1470	6300	277	476	423	3800	114	26	70
11	617	1570	254	1320	2600	437	767	362	1140	72	29	64
12	496	1010	256	920	2800	746	852	291	767	759	28	44
13	379	682	257	751	2610	701	859	274	400	3500	31	38
14	328	584	254	445	1540	701	709	268	246	2880	82	42
15	299	522	240	390	752	532	642	260	1280	4880	44	44
16	254	4110	214	397	829	467	596	258	1450	2750	33	36
17	573	3380	e200	412	1220	872	584	338	1210	1640	29	49
18	2770	1830	e190	714	1000	1020	869	268	697	556	26	85
19	5410	1470	175	1350	838	851	899	215	426	254	31	72
20	2790	1020	168	1870	649	1090	820	211	240	208	38	38
21	1860	730	163	2820	458	976	2190	210	180	140	40	33
22	1600	772	141	1880	317	828	2510	721	141	121	151	37
23	1460	440	123	1480	381	690	2130	1170	161	155	2090	47
24	1340	388	100	1080	380	433	1710	726	257	219	570	225
25	1260	347	86	691	321	581	960	436	334	196	239	219
26	1190	330	95	502	268	662	710	1920	201	180	95	87
27	1060	551	107	551	350	449	360	6400	116	108	76	66
28	442	1350	120	532	1210	385	329	2690	96	70	66	63
29	256	1210	129	1360	---	342	322	1770	91	65	50	61
30	209	743	314	3170	---	309	337	1370	165	56	36	60
31	214	---	4870	1790	---	438	---	1290	---	52	33	---
TOTAL	28425	29913	11555	44095	31626	19770	23807	25537	19481	21269	4127	1778
MEAN	917	997	373	1422	1129	638	794	824	649	686	133	59.3
MAX	5410	4110	4870	5660	6300	1160	2510	6400	3800	4880	2090	225
MIN	201	194	86	390	268	277	322	192	91	52	26	25

CAL YR 1989 TOTAL 356237 MEAN 976 MAX 9130 MIN 28 CFSM 2.53 IN. 34.33
WTR YR 1990 TOTAL 261383 MEAN 716 MAX 6400 MIN 25 CFSM 1.86 IN. 25.19

e Estimated

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. Flow regulated since March 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, 18,600 ft³/s, Feb. 10, gage height, 30.19 ft; minimum gage height, 6.55 ft, Sept. 6, 7.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.04	8.44	10.07	27.98	12.24	11.73	10.20	8.56	10.26	15.05	6.91	6.77
2	9.25	8.66	9.59	17.19	11.16	11.20	9.77	8.27	9.13	10.28	6.82	6.71
3	9.00	8.51	9.22	13.39	10.28	11.13	9.82	8.05	8.82	8.37	6.79	6.66
4	8.36	8.39	8.91	12.97	10.53	10.25	9.75	8.03	9.62	7.79	6.74	6.62
5	8.14	8.24	8.75	13.80	11.61	9.78	9.95	10.77	9.45	7.50	6.69	6.59
6	8.03	8.12	8.70	12.62	11.10	9.32	9.97	11.12	8.81	7.40	6.67	6.56
7	9.09	7.96	8.59	11.73	10.76	9.01	10.63	10.00	8.26	7.32	6.65	6.61
8	10.00	7.96	8.38	11.28	10.73	8.75	11.20	9.43	7.96	7.64	6.63	6.69
9	10.14	14.39	8.39	11.06	10.70	8.61	10.40	8.93	14.73	7.78	6.61	6.76
10	10.30	16.02	8.44	11.58	24.54	8.56	9.88	8.75	24.17	7.61	6.59	6.97
11	10.33	12.91	8.42	11.88	22.80	9.87	11.42	9.45	13.67	7.20	6.66	7.08
12	9.99	11.29	8.40	10.98	15.57	12.00	11.53	8.70	10.61	12.09	6.72	7.00
13	9.28	10.12	8.38	10.29	15.30	10.78	10.97	8.45	9.42	18.13	6.71	6.89
14	8.83	9.75	8.34	9.49	13.58	10.36	10.45	8.42	8.56	18.73	7.04	6.89
15	8.53	9.91	8.25	9.12	11.09	9.86	10.22	8.24	16.54	19.91	7.12	6.85
16	8.30	19.81	8.13	9.08	11.24	9.45	10.04	8.16	13.23	19.01	6.85	6.80
17	9.77	21.61	8.23	9.12	13.38	12.18	9.82	9.57	11.21	12.63	6.72	6.73
18	16.83	14.05	8.27	9.50	12.20	14.21	11.04	9.80	10.21	10.22	6.66	6.74
19	24.32	12.27	8.12	13.30	11.28	11.63	11.08	8.72	9.24	8.70	7.59	6.95
20	20.95	11.25	7.97	13.52	10.49	11.74	10.67	8.24	8.44	8.07	7.89	6.91
21	14.21	10.19	8.10	18.04	9.74	11.80	15.64	8.10	7.97	7.91	7.43	6.75
22	12.64	9.99	8.46	15.33	9.14	11.21	18.97	9.90	7.80	7.97	8.48	6.72
23	11.71	9.41	8.16	12.92	9.02	10.61	14.62	12.80	8.37	8.71	15.76	6.83
24	11.21	8.89	7.97	11.61	9.08	9.85	13.26	10.52	8.42	8.56	12.39	6.91
25	10.85	8.71	7.76	10.67	8.94	9.79	11.22	9.39	8.25	8.14	9.14	7.55
26	10.58	8.70	7.64	9.87	8.50	10.22	10.63	11.91	8.12	7.81	7.95	7.42
27	10.36	9.55	7.70	9.69	8.43	10.02	9.41	26.22	7.59	7.60	7.45	6.96
28	9.25	11.73	7.78	9.60	11.62	9.55	8.93	18.68	7.29	7.27	7.23	6.82
29	8.48	13.17	7.80	11.75	---	9.24	8.75	13.97	7.16	7.07	7.09	6.78
30	8.07	11.12	8.27	20.47	---	8.99	8.74	12.33	7.15	6.99	6.96	6.74
31	7.95	---	20.41	14.97	---	9.58	---	11.84	---	6.96	6.84	---
MEAN	10.74	11.04	8.76	12.74	11.97	10.36	10.97	10.49	10.02	9.88	7.54	6.84
MAX	24.32	21.61	20.41	27.98	24.54	14.21	18.97	26.22	24.17	19.91	15.76	7.55
MIN	7.95	7.96	7.64	9.08	8.43	8.56	8.74	8.03	7.15	6.96	6.59	6.56

WTR YR 1990 MEAN 10.10 MAX 27.98 MIN 6.56

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 Rocksdales, 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, 6,540 ft³/s, June 10, gage height, 20.57 ft; minimum gage height, 3.27 ft, Aug. 10.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.42	4.68	5.48	12.95	6.29	5.76	5.35	4.71	5.24	4.10	3.46	3.67
2	4.81	4.52	5.27	7.67	5.93	5.59	5.31	4.60	4.94	4.06	3.42	3.59
3	4.66	4.41	5.15	6.60	5.67	5.51	5.39	4.53	5.05	3.78	3.40	3.53
4	4.40	4.39	4.97	6.96	5.98	5.27	5.59	4.57	5.14	3.66	3.40	3.49
5	4.23	4.31	4.92	6.98	6.11	5.09	5.97	6.06	4.84	3.62	3.38	3.45
6	4.17	4.28	4.88	6.24	5.79	4.98	5.88	5.60	4.59	3.64	3.36	3.42
7	4.76	4.27	4.77	5.77	5.72	4.85	6.78	5.17	4.41	3.57	3.35	3.50
8	4.86	4.33	4.64	5.56	5.67	4.75	6.42	4.93	4.34	3.51	3.32	3.66
9	5.41	8.07	4.63	5.46	5.81	4.77	5.93	4.75	11.07	3.51	3.29	3.66
10	5.38	7.42	4.60	6.28	17.40	4.73	5.72	4.93	15.58	3.46	3.28	3.90
11	5.71	6.16	4.59	6.18	9.29	5.25	6.15	5.22	6.97	3.45	3.48	4.00
12	5.35	5.68	4.58	5.83	7.74	5.38	5.84	4.83	5.61	4.11	3.52	3.81
13	4.98	5.31	4.57	5.42	6.88	5.08	5.55	4.74	5.09	5.94	3.55	4.18
14	4.71	5.12	4.52	5.08	6.29	4.95	5.40	4.72	4.79	5.66	3.96	4.26
15	4.52	5.47	4.50	5.13	5.92	4.85	5.45	4.49	5.04	6.57	3.87	3.95
16	4.36	13.94	4.52	5.00	7.08	4.78	5.28	4.54	5.75	5.60	3.62	3.80
17	5.63	9.33	4.51	4.94	7.65	7.93	5.35	5.46	4.99	4.78	3.50	3.70
18	11.46	6.85	4.34	5.44	6.58	7.56	6.06	5.09	4.95	4.32	3.47	3.64
19	15.97	6.04	4.28	6.72	6.12	6.29	5.71	4.69	4.56	4.07	7.58	3.59
20	8.94	5.73	4.37	7.54	5.69	6.20	5.53	4.47	4.34	3.92	5.15	3.58
21	7.00	5.46	4.32	9.66	5.40	5.96	9.48	4.52	4.23	3.94	5.05	3.58
22	6.06	5.16	4.20	7.41	5.27	5.76	8.82	7.17	4.34	4.34	5.82	3.62
23	5.58	5.05	4.06	6.33	5.22	5.53	6.85	7.28	4.68	4.62	6.13	3.95
24	5.30	4.86	4.04	5.87	5.13	5.37	6.10	5.74	4.33	4.24	5.03	4.04
25	5.04	4.73	4.10	5.58	4.99	5.42	5.70	5.13	4.11	3.98	4.50	3.85
26	4.86	4.96	4.30	5.42	4.64	5.62	5.41	9.15	3.97	3.81	4.20	3.71
27	4.72	5.42	4.46	5.18	4.84	5.52	5.22	11.80	3.87	3.71	4.01	3.60
28	4.59	6.38	4.46	5.06	6.04	5.39	5.05	7.62	3.79	3.62	3.87	3.53
29	4.51	6.19	4.40	7.81	---	5.26	5.01	7.40	3.73	3.56	3.79	3.47
30	4.42	5.76	5.93	11.44	---	5.14	4.87	6.63	3.68	3.50	3.71	3.40
31	4.40	---	15.72	7.29	---	5.41	---	5.78	---	3.49	3.66	---
MEAN	5.65	5.81	4.97	6.61	6.47	5.48	5.91	5.69	5.27	4.13	4.04	3.70
MAX	15.97	13.94	15.72	12.95	17.40	7.93	9.48	11.80	15.58	6.57	7.58	4.26
MIN	4.17	4.27	4.04	4.94	4.64	4.73	4.87	4.47	3.68	3.45	3.28	3.40

WTR YR 1990 MEAN 5.30 MAX 17.40 MIN 3.28

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: Dec. 24 to Jan. 3. Water discharge records good except for estimated daily discharges, which are fair. Flow partially regulated since 1968 by five floodwater-detention reservoirs affecting 49.5 mi². Flow regulated since March 1979 by Burnsville Lake. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--51 years, 2,120 ft³/s, 19.00 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, 28,600 ft³/s, Jan. 1, gage height, 27.89 ft; minimum daily, 90 ft³/s, Aug. 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	838	755	2130	e26400	5270	3170	1880	1080	2770	1420	233	231
2	1010	850	1600	e17800	3350	2720	1920	980	1770	4190	192	194
3	1270	921	1410	e6520	2630	2500	1790	854	1330	1450	167	169
4	1110	861	1180	4780	2690	2230	1840	803	1260	797	144	150
5	832	803	1070	5620	3640	1740	2010	1500	1470	527	132	137
6	684	735	1060	4800	3290	1510	2050	2940	1310	381	120	122
7	906	672	1020	3530	2820	1290	2070	2260	1040	313	108	111
8	1340	613	886	2840	2740	1150	2800	1650	814	278	101	103
9	1620	939	864	2510	2740	1050	2540	1360	3010	267	96	103
10	2000	7400	848	2390	14900	986	2020	1160	17700	347	90	116
11	2550	5410	862	3070	23800	1510	3020	1110	12400	376	125	142
12	2120	3270	846	2840	10900	2910	3540	1310	3510	526	122	194
13	1650	2260	828	2150	7220	2850	2820	1110	1860	8910	125	222
14	1270	1650	806	1720	5910	2120	2370	1070	1310	13800	116	217
15	1040	1500	767	1390	3960	1850	2200	921	5070	9740	112	220
16	886	7780	620	1250	3570	1560	2090	997	7660	11900	172	201
17	2320	17300	532	1220	5050	3560	1890	2700	3220	6490	195	177
18	5430	9110	507	1400	4830	6990	2280	2270	2310	2860	152	155
19	17300	4330	594	2780	3420	4680	2780	1590	1760	1670	2410	142
20	19900	3060	566	5370	2660	3280	2480	1110	1220	1080	1700	137
21	8900	2350	525	10000	2030	3280	7850	857	874	786	917	160
22	4640	1750	453	9650	1640	2990	13500	770	686	999	2300	180
23	3250	1610	412	5620	1390	2490	8410	3100	1390	1810	3020	161
24	2580	1320	e350	3730	1320	2070	5190	3120	1120	1380	6380	141
25	2210	1080	e290	2760	1270	1710	3750	1820	887	1010	2650	159
26	1940	1020	e250	2160	1140	1750	2440	2160	736	746	1380	196
27	1760	1170	e270	1700	969	1960	2000	15600	658	560	892	313
28	1610	2590	e290	1570	1280	1720	1420	16800	497	433	564	294
29	1200	4570	e324	4070	---	1490	1220	8750	351	342	404	215
30	876	3280	e400	14300	---	1340	1130	5510	281	272	330	173
31	708	---	e11600	10500	---	1350	---	3640	---	298	276	---
TOTAL	95750	90959	34160	166440	126429	71806	93300	90902	80274	75958	25725	5235
MEAN	3089	3032	1102	5369	4515	2316	3110	2932	2676	2450	830	174
MAX	19900	17300	11600	26400	23800	6990	13500	16800	17700	13800	6380	313
MIN	684	613	250	1220	969	986	1130	770	281	267	90	103

CAL YR 1989 TOTAL 1304637 MEAN 3574 MAX 33700 MIN 158 CFSM 2.36 IN. 32.03
WTR YR 1990 TOTAL 956938 MEAN 2622 MAX 26400 MIN 90 CFSM 1.73 IN. 23.50

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 1989 TO SEPTEMBER 1990

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- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	
NOV													
15...	1400	1460	113	7.4	13.0	6.1	732	9.0	89	130	K23	42	
DEC													
13...	1410	828	157	7.4	1.5	2.6	739	13.1	96	K30	K5	53	
FEB													
15...	1300	3920	94	7.2	10.5	20	732	11.2	105	8400	120	35	
APR													
19...	1430	2950	126	7.6	12.5	14	750	9.5	91	130	K13	45	
JUN													
13...	1400	1800	104	7.3	20.5	17	744	7.1	81	610	120	39	
AUG													
08...	1500	97	164	7.6	24.5	9.1	745	6.9	85	K12	K5	61	
DATE		CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	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)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
NOV													
15...	12	2.9	4.2	1.4	24	0	20	17	4.4	0.10	6.4	67	
DEC													
13...	15	3.8	6.5	1.2	39	0	32	24	7.5	0.10	5.4	93	
FEB													
15...	9.7	2.5	3.2	1.1	21	0	17	17	2.9	0.10	6.1	64	
APR													
19...	12	3.5	5.0	1.1	16	0	13	19	5.6	0.10	4.5	78	
JUN													
13...	11	2.7	3.4	1.4	30	0	25	17	3.8	<0.10	7.2	66	
AUG													
08...	17	4.4	7.4	2.1	55	0	45	21	6.9	<0.10	4.3	91	
DATE		SOLIDS, SUM OF CONSTITUENTS, 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- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)
NOV													
15...	61	--	<0.010	0.200	0.020	0.010	--	<0.20	0.020	<0.010	<0.010	40	
DEC													
13...	84	--	<0.010	0.190	0.020	0.020	--	<0.20	0.020	<0.010	<0.010	--	
FEB													
15...	55	0.380	0.020	0.400	<0.010	0.010	--	<0.20	0.020	<0.010	<0.010	70	
APR													
19...	59	--	<0.010	<0.100	<0.010	<0.010	--	<0.20	0.020	<0.010	<0.010	50	
JUN													
13...	63	--	<0.010	0.300	0.040	0.030	0.26	0.30	0.040	<0.010	<0.010	--	
AUG													
08...	91	--	<0.010	<0.100	0.010	<0.010	0.29	0.30	0.021	<0.010	<0.010	<10	

K: Results based on colony count outside the acceptance range (non-ideal colony count).

LITTLE KANAWHA RIVER BASIN
 03155000 LITTLE KANAWHA RIVER AT PALESTINE, WV--Continued
 WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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)
NOV 15...	<1	45	<0.5	<1.0	1	<3	1	80	<1	<4	18
DEC 13...	--	--	--	--	--	--	--	--	--	--	--
FEB 15...	<1	40	<0.5	<1.0	<5	<3	<10	54	<10	<4	12
APR 19...	<1	50	<0.5	<1.0	<1	<3	2	70	<1	<4	13
JUN 13...	--	--	--	--	--	--	--	--	--	--	--
AUG 08...	<1	57	<0.5	<1.0	<1	<3	3	41	<1	<4	2

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)
NOV 15...	<0.1	<10	<1	<1	<1.0	71	<6	10	2	7.9	100
DEC 13...	--	--	--	--	--	--	--	--	0	0.0	--
FEB 15...	<0.1	<10	<10	<1	<1.0	58	<6	<3	34	360	100
APR 19...	<0.1	<10	<1	<1	<1.0	82	<6	<3	14	112	100
JUN 13...	--	--	--	--	--	--	--	--	35	170	100
AUG 08...	<0.1	<10	<1	<1	<1.0	110	<6	330	10	2.6	100

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: Dec. 15-24, 27-28. Records good except for periods with ice effect, which are fair. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--55 years, 575 ft³/s, 17.28 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. 1	0230	10,500	19.10	May 27	0900	*16,000	*24.62
Feb. 10	1630	10,600	19.19				

Minimum discharge, 13 ft³/s, Sept. 7, 8, gage height, 1.90 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	256	241	484	7230	899	426	837	237	565	1670	164	41
2	982	308	391	1870	697	374	969	213	407	669	110	32
3	640	233	341	916	683	359	770	193	345	280	73	25
4	359	211	292	809	1150	324	673	259	349	171	54	23
5	244	193	262	1160	1830	277	639	1740	335	169	46	19
6	212	173	260	800	994	251	560	1160	255	133	46	17
7	2230	162	326	597	829	229	505	751	198	109	46	14
8	1420	157	360	491	1040	207	462	516	177	85	39	17
9	870	239	331	424	1120	202	404	393	3140	69	34	25
10	791	616	315	382	7830	213	384	348	2780	63	28	29
11	1770	473	289	357	3710	453	973	335	800	58	47	44
12	990	369	268	322	1850	890	932	275	411	479	55	55
13	571	305	243	292	1200	596	616	354	283	2610	37	65
14	401	256	230	233	832	471	501	732	225	2990	33	168
15	311	252	e210	243	616	398	513	450	3230	2190	27	108
16	247	2710	e190	307	1300	351	512	449	2040	1720	23	156
17	2890	2920	e160	313	1740	1770	475	2440	520	552	20	104
18	3950	984	e150	356	955	2370	596	1660	337	299	19	83
19	5990	608	e130	553	700	940	543	640	476	193	285	73
20	3480	467	e110	1270	548	799	469	423	324	145	532	99
21	1370	394	e100	2960	442	692	3360	334	224	306	187	150
22	844	324	e90	1600	390	567	3270	298	186	451	1930	105
23	572	281	e80	858	374	480	1180	343	487	1760	2110	143
24	444	247	e75	620	351	411	717	291	381	664	663	129
25	370	213	71	515	321	402	547	220	220	341	286	92
26	310	218	69	467	253	399	448	3250	153	216	170	69
27	261	311	e72	404	232	389	378	13500	115	148	111	51
28	223	921	e85	363	353	346	330	2420	91	110	81	39
29	195	1290	114	2180	---	317	292	1830	73	87	63	32
30	168	665	296	5890	---	297	261	2280	64	76	72	27
31	165	---	4590	1780	---	431	---	1010	---	124	58	---
TOTAL	33526	16741	10984	36562	33239	16631	23116	39344	19191	18937	7449	2034
MEAN	1081	558	354	1179	1187	536	771	1269	640	611	240	67.8
MAX	5990	2920	4590	7230	7830	2370	3360	13500	3230	2990	2110	168
MIN	165	157	69	233	232	202	261	193	64	58	19	14
CFSM	2.39	1.23	.78	2.61	2.63	1.19	1.70	2.81	1.42	1.35	.53	.15
IN.	2.76	1.38	.90	3.01	2.74	1.37	1.90	3.24	1.58	1.56	.61	.17

CAL YR 1989 TOTAL 339395 MEAN 930 MAX 12400 MIN 35 CFSM 2.06 IN. 27.93
WTR YR 1990 TOTAL 257754 MEAN 706 MAX 13500 MIN 14 CFSM 1.56 IN. 21.21

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.--Records good except for period of no gage-height record, Aug. 13-23, which is fair. Flow regulated since 1939 by Claytor Reservoir (station 03169000) 55 mi upstream from station. U.S. Army Corps of Engineers satellite gage-height telemeter at station.

AVERAGE DISCHARGE.--63 years, 4,982 ft³/s, 17.96 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, 44,300 ft³/s, Nov. 17, gage height, 11.38 ft; minimum, 1,120 ft³/s, Sept. 4, gage height, 2.53 ft; minimum daily, 1,250 ft³/s, Sept. 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18800	6060	5880	26400	10500	7230	8880	7000	11800	1590	2820	2450
2	38200	5730	4670	22500	10300	8550	3900	5800	9790	1530	2060	1580
3	27900	5720	4870	15100	8010	8380	8040	8270	7620	2630	1780	1460
4	17500	4510	4110	12900	10800	7480	7640	6260	5590	2530	2150	1250
5	14300	2990	2380	10600	10600	8790	6600	10600	5850	2370	1450	1700
6	11900	2040	2350	9160	10700	8640	6340	11100	5740	3430	1670	1910
7	9410	5240	2790	7780	9920	8530	8470	8600	5610	2500	3710	1770
8	8090	4890	4000	7920	9000	7740	8710	8570	5690	1880	3700	1830
9	7560	4970	4670	12700	9020	7220	4940	6530	5290	1480	5260	1450
10	7090	4960	3620	12500	9790	7130	7160	8670	2600	2060	2350	1320
11	8190	5060	2700	10100	16200	5950	6060	7040	2300	2230	1740	2130
12	3660	4170	6110	9060	14500	3340	6360	7090	4370	2470	1580	2400
13	7240	2400	5500	8780	11800	7370	6430	5220	4510	2930	e1650	2690
14	6060	5930	6630	7290	11000	6460	6270	3950	3800	3450	e2300	3080
15	4530	5670	5560	5050	9200	5820	5970	5840	4060	10500	e2900	3790
16	2730	20100	5540	6150	9970	6890	4520	4610	3720	10800	e3200	3140
17	10500	30600	1960	6250	15600	14900	6010	5460	3680	6350	e2900	1730
18	8380	15400	2120	6260	14700	17600	6030	5980	1930	3920	e2050	1930
19	12800	12400	4590	6270	12000	15100	5830	5920	3350	4450	e1550	2230
20	11800	11800	4080	5310	9780	13200	5390	3800	3130	3940	e1550	2040
21	9230	11400	4260	2610	9410	11300	5340	2460	4340	3140	e2100	1890
22	7910	9760	4830	3370	13100	9780	4300	7180	3180	2090	e3100	2030
23	7210	7480	4260	6220	9950	8500	2580	12600	3150	1770	e3000	1480
24	7130	6940	3630	5250	9690	7990	6040	8530	1950	3090	4350	1410
25	6980	6880	2580	9970	7800	8870	5970	6820	1780	3800	6210	1930
26	6690	6630	2030	6870	9250	7800	5110	6780	2460	3630	3540	2280
27	6600	6440	4790	6620	8570	9670	4510	6280	2940	2810	1760	2090
28	5690	6790	3830	3170	8260	8500	4910	5690	3130	2230	2680	2190
29	3780	6720	4060	3390	---	8590	4420	21400	2820	1650	3310	1790
30	2640	6080	4410	12000	---	10200	5750	19900	2470	1480	2980	1340
31	5830	---	6530	11400	---	7730	---	13400	---	2470	2690	---
TOTAL	306330	235760	129340	278950	299420	275250	178480	247350	128650	101200	84090	60310
MEAN	9882	7859	4172	8998	10690	8879	5949	7979	4288	3265	2713	2010
MAX	38200	30600	6630	26400	16200	17600	8880	21400	11800	10800	6210	3790
MIN	2640	2040	1960	2610	7800	3340	2580	2460	1780	1480	1450	1250
(*)	+54	-318	+236	+102	-41	-102	+71	+137	-77	-31	-7	+29
MEAN Ψ	9936	7541	4408	9100	10650	8777	6020	816	4211	3234	2706	2039
CFSM Ψ	2.64	2.00	1.17	2.42	2.83	2.33	1.60	2.15	1.12	.86	.72	.54
IN. Ψ	3.04	2.23	1.35	2.79	2.94	2.69	1.78	2.48	1.25	.99	.83	.60

CAL YR 1989 TOTAL 2190640 MEAN 6002 MAX 74800 MIN 1400 MEAN Ψ 5992 CFSM Ψ 1.59 IN. Ψ 21.59
WTR YR 1990 TOTAL 2325130 MEAN 6370 MAX 38200 MIN 1250 MEAN Ψ 6376 CFSM Ψ 1.69 IN. Ψ 22.98

* Change in contents, equivalent in cubic feet per second, in Claytor Reservoir; provided by Appalachian Power Company.

Ψ Adjusted for change in contents.

e Estimated.

KANAWHA RIVER BASIN

03176500 NEW RIVER AT GLEN LYN, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1931, 1950, 1952, 1955-56, 1965 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1968 to September 1988 (discontinued).

WATER TEMPERATURE: October 1964 to September 1988 (discontinued).

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)	TUR- BID- ITY (NTU) (00076)	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)
NOV 28...	0930	6690	130	7.2	7.0	719	16	11.6	101	150	77
JAN 09...	1015	13700	125	7.6	3.0	723	17	12.2	96	610	1100
MAR 07...	0930	8330	135	7.7	7.0	738	5.0	11.3	96	63	K18
MAY 16...	1045	4860	121	8.1	19.5	722	0.50	8.8	101	45	K8
JUL 25...	1045	5430	168	7.3	24.0	729	3.2	7.5	93	69	130
AUG 28...	1030	2940	170	7.5	25.0	725	1.5	7.4	94	360	130

DATE	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)
NOV 28...	54	13	5.2	3.0	1.8	46	45	55	10	4.1	0.30
JAN 09...	54	14	4.7	3.8	1.4	45	43	53	9.0	5.0	<0.10
MAR 07...	61	15	5.7	3.5	1.2	49	46	56	9.3	4.1	<0.10
MAY 16...	51	12	5.2	3.3	1.1	46	47	57	8.1	4.4	<0.10
JUL 25...	63	13	7.5	4.9	1.7	61	56	68	15	6.1	<0.10
AUG 28...	64	13	7.6	4.7	1.8	60	55	67	16	6.1	<0.10

< 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).

KANAWHA RIVER BASIN

03176500 NEW RIVER AT GLEN LYN, VA--Continued

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
NOV 28...	7.1	71	49	<0.010	0.660	0.030	0.040	0.30	0.060	0.030	0.020
JAN 09...	7.8	77	75	<0.010	0.750	0.060	0.050	0.50	0.050	0.040	0.020
MAR 07...	7.8	80	78	0.030	0.840	0.020	0.020	0.20	0.440	0.020	0.010
MAY 16...	5.1	60	69	0.010	0.400	0.020	0.020	0.30	0.030	0.020	0.020
JUL 25...	7.4	101	92	0.010	0.700	0.050	0.030	0.80	0.060	0.060	0.040
AUG 28...	7.4	100	93	<0.010	0.800	0.020	0.010	0.40	0.060	0.050	0.020

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)
NOV 28...	50	<1	30	<0.5	<1.0	<1	4	10	89	<1	<4
JAN 09...	--	--	--	--	--	--	--	--	--	--	--
MAR 07...	10	<1	28	<0.5	<1.0	<5*	<3	<10*	42	<10*	<4
MAY 16...	10	<1	24	<0.5	<1.0	<1	<3	2	26	1	<4
JUL 25...	--	--	--	--	--	--	--	--	--	--	--
AUG 28...	20	<1	33	<0.5	<1.0	<1	<3	2	18	1	<4

DATE	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)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	SEDI- MENT, SUS- PEN- DED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 28...	4	<0.1	<10	2	<1	<1.0	56	<6	10	21	78
JAN 09...	--	--	--	--	--	--	--	--	--	59	56
MAR 07...	5	<0.1	<10	<10*	<1	<1.0	58	<6	4	10	71
MAY 16...	4	<0.1	<10	1	<1	<1.0	52	<6	49	5	60
JUL 25...	--	--	--	--	--	--	--	--	--	13	88
AUG 28...	6	<0.1	<10	1	<3	<1.0	76	<6	20	6	84

* An alternate analytical method resulted in a change of the minimum reporting level for these constituents.
 < Actual value is known to be less than the value shown.

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: Dec. 18-29. Records good except for period with ice effect, which is poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--40 years, 468 ft³/s, 16.13 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. 1	0630	*9,340	*11.54	Feb. 10	1730	5,600	9.81

Minimum discharge, 32 ft³/s, Sept. 6, 7, gage height, 1.97 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1760	218	422	7630	1150	1040	531	314	696	99	46	48
2	2860	204	374	3350	874	954	516	296	512	131	44	43
3	1580	190	345	1590	1230	1270	491	294	434	99	38	40
4	878	177	313	1200	3760	1210	455	273	397	79	37	36
5	588	167	304	1390	3060	957	452	320	324	66	41	35
6	443	159	288	1230	1760	774	625	365	270	65	72	33
7	362	153	264	978	1230	638	2170	361	231	70	189	33
8	305	191	255	1290	941	539	1690	336	223	63	108	44
9	259	529	245	2630	773	505	1100	297	202	56	72	49
10	221	861	226	1830	3770	467	852	321	184	54	64	65
11	199	618	234	1250	4210	411	845	359	173	54	86	60
12	184	458	252	972	2280	372	766	293	156	56	64	56
13	164	367	269	771	1600	342	670	269	137	91	51	98
14	148	313	249	621	1260	316	602	251	127	489	46	136
15	139	291	226	557	1010	299	587	221	130	1010	45	149
16	130	643	203	498	1570	400	551	202	154	487	43	102
17	1370	1170	184	449	2130	1400	495	197	147	257	39	71
18	2120	922	e170	423	1510	2410	488	202	121	170	37	56
19	2260	685	e160	395	1200	1380	441	176	108	131	38	51
20	2060	556	e150	365	967	973	404	159	99	110	53	54
21	1250	484	e140	374	782	760	442	224	122	95	45	73
22	839	415	e130	348	698	644	724	491	170	101	247	69
23	603	397	e120	314	676	569	654	922	199	89	322	130
24	477	375	e115	295	647	706	546	744	178	76	424	132
25	407	318	e110	347	573	2260	466	500	123	69	252	90
26	353	380	e105	706	462	2380	409	384	103	61	172	69
27	313	625	e100	902	497	1430	368	487	90	55	119	56
28	281	655	e100	836	957	1000	338	690	81	50	88	50
29	255	572	e120	966	---	796	346	1820	74	49	71	44
30	235	475	346	2360	---	665	343	1690	70	47	59	41
31	225	---	3430	1790	---	586	---	1040	---	45	53	---
TOTAL	23268	13568	9949	38657	41577	28453	19367	14498	6035	4374	3065	2013
MEAN	751	452	321	1247	1485	918	646	468	201	141	98.9	67.1
MAX	2860	1170	3430	7630	4210	2410	2170	1820	696	1010	424	149
MIN	130	153	100	295	462	299	338	159	70	45	37	33
CFSM	1.91	1.15	.81	3.16	3.77	2.33	1.64	1.19	.51	.36	.25	.17
IN.	2.20	1.28	.94	3.65	3.93	2.69	1.83	1.37	.57	.41	.29	.19

CAL YR 1989 TOTAL 206501 MEAN 566 MAX 6060 MIN 55 CFMS 1.44 IN. 19.50
WTR YR 1990 TOTAL 204824 MEAN 561 MAX 7630 MIN 33 CFMS 1.42 IN. 19.34

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: Nov. 25, Dec. 3 to Jan. 16, Feb. 25 to Mar. 16, Apr. 24-26, and June 27. Records fair. Natural flow of stream affected by diversion for industrial use just upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,080 ft³/s, Mar. 6, 1989, gage height, 4.69 ft; minimum daily discharge, 0.79 ft³/s, Aug. 18, 1988.

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)
Dec. 31	----	*2,550	*4.45	May 27	----	2,110	4.20

Minimum daily discharge, 4.1 ft³/s, Aug. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	47	104	e1000	255	e80	158	87	248	50	9.9	9.0
2	105	38	92	e350	202	e100	191	83	176	32	7.1	8.2
3	116	35	e86	e250	178	e130	194	79	149	19	6.0	8.2
4	109	33	e80	e220	317	e140	180	79	114	14	5.6	6.8
5	90	31	e75	e260	454	e130	170	83	91	11	5.8	6.4
6	76	30	70	e300	335	e125	163	76	75	23	14	6.3
7	70	30	e65	e250	250	e120	150	66	63	16	12	6.6
8	55	36	e60	e200	188	e115	190	60	55	12	7.2	11
9	52	99	e54	e180	158	e110	290	55	49	10	5.6	9.5
10	44	123	e47	e150	465	e120	450	152	46	9.6	5.0	9.7
11	49	123	e43	e130	529	e130	457	228	39	9.9	4.8	8.0
12	41	113	e40	e120	359	e135	328	205	34	34	4.3	19
13	39	95	e37	e110	241	e120	239	268	29	51	4.1	68
14	38	86	e34	e115	213	e115	211	401	27	56	14	34
15	37	79	e30	e110	179	e110	164	318	37	269	11	25
16	34	966	e28	e130	187	e140	138	234	35	137	6.4	19
17	138	682	e26	173	165	406	117	206	25	68	4.9	17
18	221	347	e24	361	149	363	99	156	21	42	4.3	13
19	462	216	e22	512	143	262	91	132	20	31	4.7	12
20	424	180	e20	395	120	201	133	115	18	30	7.2	16
21	262	135	e20	369	99	165	164	115	16	23	5.9	13
22	181	107	e19	320	93	167	171	130	16	21	7.0	26
23	124	98	e19	238	91	170	161	153	27	19	85	25
24	103	81	e19	191	82	159	e150	151	18	17	55	25
25	86	e70	e18	189	e70	136	e135	136	15	14	48	22
26	75	107	e18	233	e85	131	e120	1060	12	13	28	19
27	63	133	e18	225	e95	126	100	1490	e10	11	21	17
28	55	154	e18	205	e85	126	89	608	9.2	10	17	15
29	49	140	e19	223	---	125	99	476	8.2	8.9	14	13
30	45	128	e100	428	---	142	93	466	10	8.1	12	12
31	44	---	e1330	354	---	143	---	370	---	13	11	---
TOTAL	3350	4542	2635	8291	5787	4742	5395	8238	1492.4	1082.5	447.8	499.7
MEAN	108	151	85.0	267	207	153	180	266	49.7	34.9	14.4	16.7
MAX	462	966	1330	1000	529	406	457	1490	248	269	85	68
MIN	34	30	18	110	70	80	89	55	8.2	8.1	4.1	6.3
CFSM	1.61	2.26	1.27	3.99	3.08	2.28	2.68	3.96	.74	.52	.22	.25
IN.	1.86	2.52	1.46	4.60	3.21	2.63	2.99	4.57	.83	.60	.25	.28

CAL YR 1989 TOTAL 52161.9 MEAN 143 MAX 1890 MIN 9.9 CFSM 2.13 IN. 28.92
WTR YR 1990 TOTAL 46502.4 MEAN 127 MAX 1490 MIN 4.1 CFSM 1.90 IN. 25.78

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: Dec. 7-30. Records good except for estimated daily discharges, which are poor. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--47 years, 261 ft³/s, 26.65 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. 1	0030	*4,100	*5.82	May 26	1630	3,500	5.50

Minimum discharge, 16 ft³/s, Aug. 18, 19, gage height, 0.74 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	128	106	232	2360	506	166	318	188	505	342	39	32
2	205	86	199	1010	400	192	346	179	360	221	29	28
3	207	81	172	617	355	284	421	169	327	109	24	27
4	188	76	171	505	574	329	422	166	263	69	23	23
5	165	69	175	665	754	298	385	170	214	51	23	20
6	145	66	145	722	612	275	401	165	173	162	50	20
7	143	66	e140	596	485	257	390	145	148	96	42	22
8	119	101	e130	489	368	237	360	130	132	66	26	41
9	121	307	e120	377	326	243	421	121	126	51	21	33
10	106	375	e110	327	933	234	575	264	119	43	19	36
11	123	320	e95	276	1000	269	898	359	97	39	27	28
12	109	265	e85	260	674	285	868	323	80	139	23	35
13	102	216	e78	235	484	276	632	444	68	222	20	137
14	101	188	e70	249	426	259	493	680	59	231	52	82
15	97	174	e65	245	373	234	416	555	89	817	41	60
16	93	1400	e60	233	379	275	336	461	105	495	25	47
17	258	1100	e55	403	339	594	295	426	67	297	19	50
18	404	629	e52	982	305	677	255	359	55	198	17	39
19	913	428	e48	1220	292	536	214	310	50	146	19	36
20	770	348	e45	840	254	429	203	264	45	158	56	55
21	507	286	e42	832	215	342	416	262	41	136	36	49
22	351	237	e40	682	200	332	620	323	40	126	43	146
23	258	216	e38	512	195	331	516	421	98	120	278	162
24	211	181	e37	401	184	327	406	392	60	107	294	157
25	179	163	e37	401	136	306	327	324	44	84	221	125
26	157	248	e36	497	198	275	275	1900	36	66	136	96
27	138	345	e36	450	216	268	233	2480	30	53	92	77
28	123	366	e36	404	192	262	202	1150	27	45	69	61
29	113	316	e40	447	---	277	224	905	24	39	54	52
30	103	269	e300	790	---	274	213	981	30	34	46	45
31	100	---	1350	669	---	316	---	741	---	58	38	---
TOTAL	6737	9028	4239	18696	11375	9659	12081	15757	3512	4820	1902	1821
MEAN	217	301	137	603	406	312	403	508	117	155	61.4	60.7
MAX	913	1400	1350	2360	1000	677	898	2480	505	817	294	162
MIN	93	66	36	233	136	166	202	121	24	34	17	20
CFSM	1.63	2.26	1.03	4.53	3.05	2.34	3.03	3.82	.88	1.17	.46	.46
IN.	1.88	2.53	1.19	5.23	3.18	2.70	3.38	4.41	.98	1.35	.53	.51

CAL YR 1989 TOTAL 111832 MEAN 306 MAX 3860 MIN 25 CFSM 2.30 IN. 31.28
WTR YR 1990 TOTAL 99627 MEAN 273 MAX 2480 MIN 17 CFSM 2.05 IN. 27.87

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: Dec. 11-29. Records good except for period with ice effect, which is poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--61 years, 879 ft³/s, 22.11 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)
Nov. 16	1500	11,400	10.08	May 27	0300	13,800	10.88
Dec. 31	2400	*14,100	*10.96				

Minimum discharge, 64 ft³/s, Aug. 19-21, gage height, 1.88 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	632	338	741	10600	1840	610	961	580	1620	526	87	142
2	1740	319	646	4020	1410	668	947	539	1150	862	100	119
3	1600	279	596	2170	1270	854	1110	508	1170	464	81	105
4	1090	259	527	1690	4050	990	1130	481	1360	277	72	93
5	820	243	520	2440	4280	927	1070	801	1010	196	73	86
6	652	228	499	2800	2470	813	1000	667	788	159	159	76
7	541	218	460	2130	1800	720	1130	553	629	261	215	71
8	468	225	475	1650	1380	640	1150	468	532	202	147	76
9	401	358	431	1270	1100	614	1560	409	462	149	104	75
10	360	769	391	1090	3540	609	1820	702	513	123	83	86
11	325	760	e350	961	4160	568	2140	1570	417	110	196	84
12	314	663	e310	931	2550	629	2270	1220	330	151	107	76
13	277	568	e260	814	1730	597	1820	1140	274	496	83	104
14	253	503	e230	678	1400	573	1420	1860	238	647	87	239
15	237	479	e210	700	1190	543	1200	1630	222	3000	93	209
16	222	6540	e190	684	1180	556	1000	1240	238	2140	112	137
17	1220	4990	e170	879	1250	2020	834	1060	256	1070	89	108
18	2730	2410	e160	1500	1120	2870	728	885	201	655	72	92
19	4520	1530	e150	2490	1050	1840	605	706	181	457	68	88
20	3320	1180	e140	1850	930	1430	540	603	157	359	64	84
21	1940	996	e130	1990	763	1130	555	562	148	334	69	87
22	1300	820	e120	1780	677	1080	967	714	137	282	153	119
23	956	732	e115	1390	679	1080	996	1140	136	273	1160	230
24	772	625	e115	1120	632	1040	850	1010	155	245	4130	267
25	653	530	e110	1080	548	1030	721	838	167	212	1440	254
26	565	571	e105	1790	402	1020	624	2900	126	174	798	207
27	501	928	e100	1730	457	1130	557	9850	107	145	495	157
28	446	1010	e100	1440	552	1100	506	4060	95	124	341	128
29	402	953	e120	1600	---	1030	527	4360	87	109	257	107
30	368	828	550	4380	---	977	600	3790	80	99	204	91
31	345	---	4810	2750	---	979	---	2440	---	94	170	---
TOTAL	29970	30852	13831	62397	44410	30667	31338	49286	12986	14395	11309	3797
MEAN	967	1028	446	2013	1586	989	1045	1590	433	464	365	127
MAX	4520	6540	4810	10600	4280	2870	2270	9850	1620	3000	4130	267
MIN	222	218	100	678	402	543	506	409	80	94	64	71
CFSM	1.79	1.90	.83	3.73	2.94	1.83	1.93	2.94	.80	.86	.68	.23
IN.	2.06	2.13	.95	4.30	3.06	2.11	2.16	3.40	.89	.99	.78	.26

CAL YR 1989 TOTAL 414562 MEAN 1136 MAX 18500 MIN 100 CFSM 2.10 IN. 28.56
WTR YR 1990 TOTAL 335238 MEAN 918 MAX 10600 MIN 64 CFSM 1.70 IN. 23.09

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: Dec. 18-29. Records good except for period with ice effect, which is poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--95 years, 1,996 ft³/s, 19.87 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)
Nov. 17	0400	21,500	10.52	Jan. 1	1000	*32,200	*13.58

Minimum discharge, 153 ft³/s, Aug. 4, gage height, 2.14 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2060	831	1910	28600	5170	1740	2250	1210	3970	235	204	351
2	6630	804	1710	13800	3840	1890	2130	1180	2760	218	187	302
3	6480	743	1540	6850	3420	2430	2100	1120	2090	953	175	264
4	4030	696	1370	4740	10200	2970	2260	1080	2110	711	161	230
5	2620	639	1190	4680	14100	2780	2230	1990	2070	498	180	207
6	1870	593	1130	6240	7880	2400	2180	2490	1590	395	221	191
7	1440	569	1170	5690	5300	2070	4030	1840	1270	340	247	178
8	1180	559	1090	4630	3980	1800	4090	1460	1080	289	327	177
9	1010	666	1050	4460	3140	1640	3510	1230	936	324	345	190
10	868	1110	944	3740	5330	1550	3600	1190	1720	303	279	222
11	782	1680	844	3440	11500	1450	3760	2760	1920	248	341	194
12	714	1620	805	3160	7320	1350	3900	3190	1170	226	914	181
13	649	1430	894	2800	5020	1310	3670	2420	865	278	590	182
14	611	1260	816	2240	3830	1280	3050	2340	703	595	389	193
15	558	1150	622	2000	3210	1210	2610	2920	622	2000	285	198
16	521	9030	543	1910	3210	1300	2280	2460	602	5590	237	324
17	2330	16100	426	1830	3870	2860	1960	1970	548	3120	210	321
18	11400	7370	e400	2150	3490	7070	1720	1700	517	1710	200	251
19	10600	4510	e370	3280	3100	5430	1490	1390	535	1070	223	212
20	10800	3350	e350	3840	2750	3920	1300	1190	499	778	208	199
21	6030	2740	e330	3360	2320	3140	1220	1100	465	678	209	198
22	3830	2260	e310	3480	2000	2760	1370	1230	448	824	293	209
23	2660	1940	e300	3060	1900	2680	1680	2830	475	586	476	200
24	1990	1680	e290	2550	1920	2650	1720	2920	453	513	3340	264
25	1600	1450	e280	2290	1780	3230	1530	2180	374	468	5020	344
26	1380	1390	e270	3080	1470	3410	1360	1730	339	410	2310	382
27	1240	1830	e260	4310	1250	3260	1230	7160	344	353	1330	352
28	1110	2430	e260	3740	1410	3190	1120	7940	294	303	860	312
29	1000	2410	e300	3290	---	2860	1150	9470	256	264	634	258
30	909	2150	834	8250	---	2560	1190	10200	227	232	504	227
31	853	---	5840	7890	---	2370	---	6100	---	222	426	---
TOTAL	89755	74990	28448	155380	123710	80560	67690	89990	31252	24734	21325	7313
MEAN	2895	2500	918	5012	4418	2599	2256	2903	1042	798	688	244
MAX	11400	16100	5840	28600	14100	7070	4090	10200	3970	5590	5020	382
MIN	521	559	260	1830	1250	1210	1120	1080	227	218	161	177
CFSM	2.12	1.83	.67	3.67	3.24	1.91	1.65	2.13	.76	.58	.50	.18
IN.	2.45	2.05	.78	4.24	3.37	2.20	1.85	2.45	.85	.67	.58	.20

CAL YR 1989 TOTAL 934757 MEAN 2561 MAX 30100 MIN 217 CFSM 1.88 IN. 25.49
WTR YR 1990 TOTAL 795147 MEAN 2178 MAX 28600 MIN 161 CFSM 1.60 IN. 21.69

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 discharge: Dec. 18-29. Records good except for period with ice effect, which is poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--54 years, 2,266 ft³/s, 19.01 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. 1	1500	*36,300	*16.45	No other peak greater than base discharge.			

Minimum discharge, 174 ft³/s, Aug. 4, 5, gage height, 0.85 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2360	879	2220	31700	6600	2080	2660	1360	5080	296	231	398
2	6650	850	1950	19200	4880	2300	2520	1360	3540	294	210	349
3	7550	787	1750	9060	4630	2940	2460	1280	2670	629	195	310
4	4880	737	1560	6160	12100	3730	2570	1250	2360	942	183	274
5	3190	676	1380	5550	17400	3530	2620	1600	2650	628	182	242
6	2350	629	1220	7070	10500	3050	2620	3110	2040	466	245	221
7	1870	595	1260	7000	6900	2580	4880	2340	1660	386	262	204
8	1460	587	1220	5880	5170	2190	5450	1830	1380	350	295	197
9	1200	655	1150	6020	4060	1950	4470	1500	1180	304	355	204
10	1020	981	1060	4970	6350	1830	4260	1360	1290	367	345	230
11	887	1580	982	4400	14000	1710	4390	2260	2240	311	438	240
12	806	1700	925	4010	9650	1580	4500	3760	1880	269	744	218
13	728	1470	972	3550	6670	1470	4390	2990	1320	310	887	203
14	665	1280	946	2950	5060	1470	3710	2580	1040	738	510	201
15	607	1150	798	2410	4160	1380	3130	3110	861	1550	364	213
16	554	7040	612	2260	4260	1470	2760	2970	725	5170	299	217
17	2060	19200	490	2110	5240	3370	2360	2450	677	3830	258	354
18	13300	9560	e440	2220	4660	7950	2040	2020	593	2180	232	308
19	12300	5830	e410	3130	4030	7190	1790	1720	570	1410	253	264
20	13300	4160	e380	4390	3530	5090	1540	1440	587	985	273	229
21	7610	3320	e360	3770	2950	3980	1460	1300	535	760	260	215
22	4780	2750	e350	3900	2490	3350	1680	1320	514	886	372	230
23	3340	2290	e330	3530	2270	3150	1820	2520	553	736	536	233
24	2540	1930	e320	2960	2250	3210	2070	3590	543	556	1470	226
25	2050	1660	e310	2640	2140	4330	1850	2840	464	495	5930	295
26	1710	1490	e300	3200	1790	4430	1640	2210	395	447	2800	381
27	1440	1890	e300	4960	1510	4100	1460	3880	379	390	1740	360
28	1260	2760	e300	4590	1610	3890	1340	10500	360	347	1130	351
29	1110	2850	e350	4030	---	3480	1320	8940	314	306	785	307
30	1000	2550	1900	8470	---	3080	1370	12600	281	273	590	267
31	921	---	5770	10200	---	2830	---	7980	---	247	472	---
TOTAL	105498	83836	32315	186290	156860	98690	81130	99970	38681	26858	22846	7941
MEAN	3403	2795	1042	6009	5602	3184	2704	3225	1289	866	737	265
MAX	13300	19200	5770	31700	17400	7950	5450	12600	5080	5170	5930	398
MIN	554	587	300	2110	1510	1380	1320	1250	281	247	182	197
CFSM	2.10	1.73	.64	3.71	3.46	1.97	1.67	1.99	.80	.54	.46	.16
IN.	2.42	1.93	.74	4.28	3.60	2.27	1.86	2.30	.89	.62	.52	.18

CAL YR 1989 TOTAL 1077978 MEAN 2953 MAX 31900 MIN 234 CFSM 1.82 IN. 24.77
WTR YR 1990 TOTAL 940915 MEAN 2578 MAX 31700 MIN 182 CFSM 1.59 IN. 21.62

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.--54 years, 7,889 ft³/s, 17.12 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, 63,800 ft³/s, Jan. 1, gage height, 8.91 ft; minimum daily, 1,540 ft³/s, Sept. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19300	7520	8480	50300	20200	10700	12000	8940	18400	2280	2470	2460
2	35100	6610	6860	47700	17200	10500	8530	7490	13600	2250	2470	2260
3	40500	6190	6990	41300	14600	11600	10200	8920	11100	2760	2290	1890
4	34900	5460	6100	30500	28600	11600	10500	8220	7760	3420	2400	1680
5	24300	3910	4730	22300	36800	12800	9470	8940	8410	3140	1790	1550
6	15900	3960	3880	18900	25700	11400	8570	16800	7580	2990	1820	1540
7	11500	5190	4030	18100	19000	12600	14200	12400	6830	3090	2640	1840
8	9830	5870	4850	15000	16000	13900	17400	9720	6240	2670	3840	1860
9	9170	5800	5970	23300	13300	10100	12600	8680	6270	2120	4810	1660
10	8080	6560	5310	21500	21400	9370	11600	9400	4940	2250	3470	1900
11	9360	7140	4420	19200	34900	7940	10900	9370	5180	2210	2600	1890
12	3310	6470	6020	15100	30900	6190	13900	10700	5130	2400	2500	2150
13	7630	4740	6600	13700	24200	8310	9950	8320	5290	2960	2390	2540
14	6980	6170	7410	11600	19400	7480	10700	6580	5060	5120	2240	3080
15	4920	7180	7200	8530	15800	8360	9950	8200	4630	10000	2550	3330
16	3960	19600	5970	8860	16400	8040	8830	7590	4340	16200	2860	3340
17	13600	49300	3780	8070	22000	18900	7470	7130	4270	10700	2840	2670
18	28900	36200	2650	8570	23500	29800	9460	7440	3500	6300	2400	2170
19	28300	22000	4260	9610	20600	28100	7910	7050	3710	5420	2060	2140
20	31700	17300	5520	9830	16300	22700	7500	5000	3900	4960	1660	2140
21	19200	15300	5170	7170	13600	17500	7240	4540	3890	3830	1570	1910
22	14000	14600	4800	6840	15100	14700	6880	6660	4190	3230	3270	1820
23	11100	9960	4430	8720	15300	13400	6460	15300	3970	2700	3880	1850
24	10100	8450	3460	8340	12300	12600	8000	14100	3520	2710	5860	1820
25	8780	8620	2850	11300	11000	16500	8670	9760	2800	3670	11100	1860
26	7960	8410	2850	11900	11600	17000	7540	8710	2600	3950	5880	2160
27	7870	8060	2850	12100	9970	16300	6570	10600	2960	3350	4070	2320
28	6930	10800	4130	9690	11200	14900	6250	16300	3330	2510	3150	2310
29	5330	11400	5130	7800	---	12800	6420	28800	3180	1990	3330	2140
30	4250	10200	5090	19200	---	14400	7090	38400	2750	1940	3520	1900
31	5920	---	12800	28000	---	11300	---	25900	---	2250	2830	---
TOTAL	448680	338970	164590	533030	536870	421790	282760	355960	169330	125370	100560	64180
MEAN	14470	11300	5309	17190	19170	13610	9425	11480	5644	4044	3244	2139
MAX	40500	49300	12800	50300	36800	29800	17400	38400	18400	16200	11100	3340
MIN	3310	3910	2650	6840	9970	6190	6250	4540	2600	1940	1570	1540

CAL YR 1989 TOTAL 3536610 MEAN 9689 MAX 52200 MIN 1930 CFSM 1.55 IN. 21.03
WTR YR 1990 TOTAL 3542090 MEAN 9704 MAX 50300 MIN 1540 CFSM 1.55 IN. 21.06

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.--Estimated daily discharges: Feb. 24 to Mar. 1, May 28-29, and June 11-13. Records good. Flow regulated by Claytor Lake and Bluestone Lake. National Park Service gage-height telemeter at station.

AVERAGE DISCHARGE.--9 years, 8,656 ft³/s, 17.58 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, 79,600 ft³/s, Jan. 1, gage height, 18.13 ft; minimum daily, 1,700 ft³/s, Sept. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17800	8010	10300	62400	21700	e13500	12000	9960	20300	2790	2530	2690
2	35100	8150	8260	54300	18700	12700	11200	8950	15600	2450	2560	2650
3	44000	6490	7340	46700	16800	14200	10300	9110	13300	2410	2510	2290
4	38700	6410	7410	32700	31300	14000	12300	10400	10200	3460	2580	2060
5	27900	4920	5620	23200	42400	14800	11100	9100	8590	3430	2150	1750
6	19000	3460	4400	20000	30400	14300	10400	16600	9210	3210	2170	1700
7	13800	3930	3980	19300	21700	10800	15000	14700	7600	3130	2120	1720
8	10900	6490	4650	16500	18300	17700	19700	11800	7050	3180	3520	2200
9	11100	6300	5770	22200	15500	11900	16100	10500	6690	2460	4690	1880
10	9530	6730	6300	23400	22600	10900	13000	10200	6130	2090	5100	2020
11	9980	7740	4830	20400	37400	10200	13700	11000	e5400	2400	2970	2120
12	6320	7610	5090	17200	35200	6850	15000	11800	e5000	2290	2870	2140
13	5820	5890	7400	15000	27600	8370	12000	11100	e5600	2700	2700	2600
14	8840	5100	7280	13700	21500	8650	12200	7950	5350	4640	2470	3150
15	6000	7870	8100	10500	18700	9660	12200	8280	5150	10100	2410	3680
16	4690	13200	6630	9400	17900	6800	10200	9750	4630	16900	3140	3700
17	15700	52600	5360	9820	23200	17000	8740	8100	4460	14200	3110	3530
18	35200	42300	2700	9260	25000	28700	10400	8550	4220	8110	3020	2430
19	30800	24300	3500	10600	22500	29900	9830	8510	3220	5940	2450	2360
20	39000	19100	5550	11600	18800	24100	8220	7020	4200	5710	2210	2330
21	23200	16500	5630	9110	15300	19000	8980	4850	3960	4780	1810	2270
22	17600	15800	4920	7260	15600	16700	9900	7370	4200	3530	2920	2020
23	13600	13000	4770	8660	17400	14900	8730	14700	4510	3120	6670	2040
24	12300	9010	3600	9990	e15000	14000	8570	18000	3880	2720	6160	2020
25	11100	9670	2920	10600	e12000	16500	10300	12700	3330	3250	12300	1990
26	9270	9530	2980	14300	e13000	19600	9420	10800	2580	4130	8900	2050
27	9160	9470	3550	13000	e11000	16900	7820	10400	2770	3970	4930	2490
28	8460	10900	4750	12700	e12500	16500	7120	e15000	3270	3100	4070	2470
29	6790	13100	6750	10000	---	15100	7050	e24000	3460	2210	3290	2440
30	4760	12000	5670	19100	---	14700	7310	40900	3110	2050	3950	2170
31	5290	---	14800	30700	---	14300	---	30400	---	2070	3650	---
TOTAL	511710	365580	180810	593600	599000	463230	328790	392500	186970	136530	115930	70960
MEAN	16510	12190	5833	19150	21390	14940	10960	12660	6232	4404	3740	2365
MAX	44000	52600	14800	62400	42400	29900	19700	40900	20300	16900	12300	3700
MIN	4690	3460	2700	7260	11000	6800	7050	4850	2580	2050	1810	1700

CAL YR 1989 TOTAL 3969770 MEAN 10880 MAX 62100 MIN 2030 CFSM 1.63 IN. 22.08
WTR YR 1990 TOTAL 3945610 MEAN 10810 MAX 62400 MIN 1700 CFSM 1.62 IN. 21.95

e Estimated

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: Dec. 15-30, Feb. 26, and Sept. 17-30. Records good except for periods with ice effect, Dec. 15-30, Feb. 26, which are poor, and period of no gage-height record, Sept. 17-30, which is fair.

AVERAGE DISCHARGE.--61 years, 334 ft³/s, 35.44 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)
Dec. 31	1830	*6,340	*8.80	No other peak greater than base discharge.			

Minimum discharge, 11 ft³/s, July 11, gage height, 0.92 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	211	138	256	2910	467	228	287	233	422	36	25	85
2	528	114	217	1020	375	297	305	209	309	71	23	93
3	379	104	192	627	357	672	465	185	454	40	22	96
4	262	97	158	726	972	536	400	170	488	25	22	59
5	208	89	163	1220	913	397	389	180	389	19	22	37
6	173	84	147	803	597	321	609	187	290	25	22	31
7	160	80	191	581	481	283	587	176	226	22	51	29
8	141	152	176	457	433	241	466	153	193	18	29	32
9	143	549	159	359	357	248	484	136	186	14	22	36
10	128	583	148	353	1190	273	625	357	508	12	21	53
11	156	400	131	305	946	260	1600	459	310	14	528	45
12	136	311	136	288	646	279	1020	316	214	32	185	82
13	119	250	123	222	481	227	679	483	157	46	97	400
14	108	215	107	211	513	203	545	793	122	118	272	216
15	100	220	e100	206	447	181	536	502	113	462	199	143
16	93	2250	e90	213	608	209	441	370	119	233	112	102
17	923	1160	e80	340	604	1050	375	303	89	118	79	e86
18	1040	693	e76	650	455	858	349	239	71	75	61	e70
19	1350	483	e68	695	371	554	282	183	68	55	120	e64
20	887	415	e62	610	288	439	260	152	57	92	124	e110
21	616	430	e58	802	232	349	528	218	50	61	98	e100
22	466	335	e54	549	203	360	1020	652	48	66	156	e350
23	356	291	e50	404	194	400	626	929	134	151	443	e380
24	290	234	e48	324	188	353	449	551	80	163	1620	e280
25	242	199	e46	349	141	309	342	376	62	102	718	e230
26	209	565	e45	584	e110	261	274	711	51	72	415	e170
27	181	720	e43	422	148	249	226	1780	39	55	338	e140
28	158	519	e42	375	233	243	192	828	32	44	284	e110
29	141	405	e50	477	---	251	244	794	27	36	252	e90
30	127	312	e200	1060	---	242	325	889	23	30	197	e80
31	121	---	2700	636	---	293	---	614	---	26	98	---
TOTAL	10152	12397	6116	18778	12950	11066	14930	14128	5331	2333	6655	3799
MEAN	327	413	197	606	462	357	498	456	178	75.3	215	127
MAX	1350	2250	2700	2910	1190	1050	1600	1780	508	462	1620	400
MIN	93	80	42	206	110	181	192	136	23	12	21	29
CFSM	2.56	3.23	1.54	4.73	3.61	2.79	3.89	3.56	1.39	.59	1.68	.99
IN.	2.95	3.60	1.78	5.46	3.76	3.22	4.34	4.11	1.55	.68	1.93	1.10

CAL YR 1989 TOTAL 164787 MEAN 451 MAX 5950 MIN 42 CFSM 3.53 IN. 47.89
WTR YR 1990 TOTAL 118635 MEAN 325 MAX 2910 MIN 12 CFSM 2.54 IN. 34.48

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: Dec. 15 to Jan 1, and Feb. 26. 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.--31 years (water years 1945-51, 1965-82, 1985-90), 238 ft³/s, 40.20 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,200 ft³/s, Aug. 21, 1989, gage height, 11.93 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)
Jan. 1	----	*e3,600	Unknown	No other peak greater than base discharge.			

Minimum discharge, 9.2 ft³/s, July 5, gage height, 1.88 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	144	95	183	e2000	346	148	177	141	296	15	24	48
2	331	80	155	681	272	198	173	131	222	16	19	37
3	242	72	137	443	263	466	261	118	288	17	14	32
4	170	67	120	481	690	388	232	111	334	13	12	29
5	138	62	115	811	667	287	234	115	273	10	11	22
6	118	58	104	576	430	230	383	118	206	23	40	20
7	108	56	122	426	348	204	391	116	165	40	82	20
8	96	74	117	338	302	176	315	102	153	20	35	47
9	97	228	107	269	244	182	315	90	168	14	22	42
10	87	289	100	258	707	204	393	201	486	11	23	32
11	102	214	89	219	614	187	1160	302	305	11	580	27
12	92	177	91	202	431	193	740	204	205	11	231	43
13	80	149	84	162	329	158	484	287	149	16	119	276
14	74	130	74	146	338	141	392	462	115	88	166	143
15	68	134	e65	147	292	126	380	315	103	395	135	100
16	64	1490	e58	142	396	148	313	233	96	210	88	73
17	736	792	e52	201	401	705	264	198	78	99	66	62
18	810	472	e48	409	306	615	242	166	57	63	50	49
19	806	336	e45	517	248	395	198	127	49	44	135	44
20	582	281	e41	428	197	308	184	107	41	36	132	78
21	407	287	e38	571	162	240	346	138	37	32	103	71
22	318	227	e35	405	142	237	603	370	37	49	168	249
23	242	200	e33	293	134	255	409	577	75	94	316	270
24	199	165	e32	232	130	228	301	372	50	111	539	218
25	167	142	e31	250	99	206	230	259	39	70	402	175
26	143	396	e29	394	e76	176	187	472	31	51	221	127
27	124	530	e28	278	105	163	154	1270	25	37	150	100
28	108	378	e28	244	151	156	130	595	20	28	110	80
29	95	290	e35	362	---	161	156	535	17	22	82	66
30	86	221	e200	817	---	159	180	579	14	19	68	57
31	82	---	e1300	471	---	186	---	423	---	19	62	---
TOTAL	6916	8092	3696	13173	8820	7626	9927	9234	4134	1684	4205	2637
MEAN	223	270	119	425	315	246	331	298	138	54.3	136	87.9
MAX	810	1490	1300	2000	707	705	1160	1270	486	395	580	276
MIN	64	56	28	142	76	126	130	90	14	10	11	20
CFSM	2.77	3.35	1.48	5.29	3.92	3.06	4.12	3.70	1.71	.68	1.69	1.09
IN.	3.20	3.74	1.71	6.09	4.08	3.53	4.59	4.27	1.91	.78	1.95	1.22

CAL YR 1989 TOTAL 111424 MEAN 305 MAX 3860 MIN 28 CFSM 3.80 IN. 51.55
WTR YR 1990 TOTAL 80144 MEAN 220 MAX 2000 MIN 10 CFSM 2.73 IN. 37.08

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: Dec. 16-29. Records good except for period with ice effect, which is poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--23 years (water years 1965-82, 1986-90), 1,451 ft³/s, 37.25 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)
Nov. 16	1400	12,000	15.58	Jan. 1	0100	*20,000	*17.94

Minimum discharge, 64 ft³/s, Aug. 5, gage height, 8.87 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	804	546	1210	13000	2370	1470	1200	907	1860	176	159	270
2	1450	498	1020	4790	1860	1550	1200	818	1360	381	120	219
3	1330	444	907	2940	1690	2970	2040	743	1540	287	93	183
4	952	416	734	2750	3500	2620	1900	681	2060	194	76	159
5	752	389	743	4660	4040	1990	1860	707	1670	132	69	130
6	635	368	668	3460	2800	1570	2890	702	1280	247	175	107
7	587	350	737	2580	2220	1320	3120	715	1020	248	291	103
8	540	588	779	2060	1930	1110	2500	635	899	169	197	155
9	536	2060	712	1690	1610	1040	2450	567	1030	113	137	191
10	506	2570	677	1690	4630	1100	2650	887	5260	86	219	189
11	550	1790	632	1600	4550	1010	5710	1730	2450	74	1290	201
12	545	1380	617	1520	3110	1070	4640	1220	1480	92	891	287
13	475	1100	599	1240	2300	911	3180	1340	993	186	455	1080
14	436	934	512	997	2230	815	2510	2720	720	606	479	756
15	408	891	463	1060	2000	734	2380	1950	642	1770	651	508
16	380	6890	e420	1020	2500	746	2070	1460	619	1370	400	370
17	3740	5220	e380	1380	2810	2970	1780	1220	491	701	298	313
18	5230	3160	e350	2170	2190	3600	1700	1030	390	445	240	296
19	5330	2230	e320	2870	1790	2460	1400	758	385	327	516	261
20	4030	1830	e290	2250	1400	2000	1250	629	322	277	582	363
21	2800	1780	e270	3010	1100	1590	1910	740	289	304	463	413
22	2090	1480	e240	2350	944	1590	4150	2310	266	338	587	911
23	1600	1310	e220	1800	879	1710	2860	4160	555	552	968	1680
24	1290	1070	e200	1460	863	1610	2090	2580	499	707	3280	1070
25	1070	912	e190	1390	697	1500	1590	1770	361	492	2030	873
26	908	1760	e185	2210	512	1250	1260	2140	295	352	1130	636
27	774	3270	e180	1810	679	1210	1030	6320	242	283	728	495
28	674	2440	e180	1680	1350	1180	865	3500	198	232	522	403
29	600	1910	e270	2340	---	1180	916	3000	159	191	405	337
30	541	1490	893	4970	---	1150	1110	3320	131	155	345	296
31	513	---	8730	3250	---	1210	---	2600	---	145	321	---
TOTAL	42076	51076	24328	81997	58554	48236	66211	53859	29466	11632	18117	13255
MEAN	1357	1703	785	2645	2091	1556	2207	1737	982	375	584	442
MAX	5330	6890	8730	13000	4630	3600	5710	6320	5260	1770	3280	1680
MIN	380	350	180	997	512	734	865	567	131	74	69	103
CFSM	2.57	3.22	1.48	5.00	3.95	2.94	4.17	3.28	1.86	.71	1.10	.84
IN.	2.96	3.59	1.71	5.77	4.12	3.39	4.66	3.79	2.07	.82	1.27	.93

CAL YR 1989 TOTAL 681512 MEAN 1867 MAX 15100 MIN 180 CFSM 3.53 IN. 47.92
WTR YR 1990 TOTAL 498807 MEAN 1367 MAX 13000 MIN 69 CFSM 2.58 IN. 35.08

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.--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.--20 years (water years 1967-82, 1987-1990), 2,098 ft³/s, 35.35 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,200 ft³/s, Aug. 24, 1989, gage height, 19.39 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, 15,200 ft³/s, June 10, gage height, 18.41 ft; minimum daily, 96 ft³/s, Aug. 3, 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2730	4410	1870	4240	3730	2550	128	1650	2650	239	120	382
2	2960	4370	1420	10700	2790	2680	130	1120	1930	335	97	686
3	3130	3680	1250	13600	2520	3390	130	986	1790	390	96	854
4	3210	2330	1120	9960	3510	3780	132	797	2610	391	96	854
5	3260	1490	912	8900	4960	2930	132	962	2450	393	709	852
6	3380	1180	1180	6540	4310	2240	135	978	1730	393	706	848
7	3390	1180	921	3500	3300	1670	137	843	1570	393	154	1320
8	3390	1520	768	2920	2540	1510	137	840	1410	393	190	1130
9	2300	3660	944	2520	2400	1500	137	806	2070	317	180	1130
10	576	4270	1080	2460	5090	1500	137	1250	13300	205	502	1140
11	576	3670	990	2620	6500	1340	139	1950	6320	165	1100	185
12	576	3010	876	2320	4590	1170	140	1710	2340	166	720	184
13	575	2480	876	2020	3840	1400	141	1630	1200	174	366	185
14	2260	2110	876	1520	3540	1310	141	2880	1460	575	211	1150
15	1940	2320	800	1430	3010	1070	254	2660	1830	2320	604	1140
16	311	7680	688	1690	3230	944	429	1980	1850	2590	640	1130
17	448	10600	505	1830	3800	2310	684	1670	974	1310	444	1150
18	549	5770	346	2270	2880	4120	1720	1390	760	586	388	174
19	580	3450	346	3180	2130	3430	2030	919	762	419	910	175
20	4020	2530	460	3040	2450	2860	1780	742	731	522	1220	174
21	9670	2640	589	3310	2110	2130	2190	834	430	523	821	1440
22	9710	2500	660	3140	1460	2010	5050	3250	341	683	604	1770
23	7240	2070	660	2520	1340	2360	5570	5810	1420	1020	1410	1620
24	1600	2350	660	2090	1180	2120	3060	3720	1040	1340	3590	1620
25	592	2400	660	1790	1180	1980	2360	2310	622	973	2570	1450
26	593	2590	548	2340	828	1120	1680	2780	367	574	1320	1790
27	594	3760	448	2490	840	167	1550	8260	367	348	708	2110
28	595	4490	581	2250	1860	127	1310	5510	368	349	709	2600
29	596	3770	612	2550	---	128	1170	4100	368	266	631	2600
30	2450	2820	613	5430	---	128	1420	4290	300	370	425	2370
31	4430	---	1080	5780	---	128	---	3640	---	340	382	---
TOTAL	78231	101100	25339	120950	81918	56102	34153	72267	55360	19062	22623	34213
MEAN	2524	3370	817	3902	2926	1810	1138	2331	1845	615	730	1140
MAX	9710	10600	1870	13600	6500	4120	5570	8260	13300	2590	3590	2600
MIN	311	1180	346	1430	828	127	128	742	300	165	96	174

CAL YR 1989 TOTAL 931443 MEAN 2552 MAX 18000 MIN 136 CFSM 3.17 IN. 42.99
WTR YR 1990 TOTAL 701318 MEAN 1921 MAX 13600 MIN 96 CFSM 2.38 IN. 32.37

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: Dec. 16 to Jan. 1. Records good except for period of ice effect, which is poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--22 years, (water years 1967-83, 1986-90), 743 ft³/s, 27.64 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)
Oct. 17	2000	7,050	9.55	June 10	0600	6,320	9.20
Jan. 1	----	Unknown	Unknown				

Minimum discharge, 35 ft³/s, Aug. 5, gage height, 2.96 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	466	290	688	e6000	1850	1080	616	441	1070	74	55	120
2	1000	277	585	3200	1440	1110	577	403	784	68	58	100
3	1290	253	524	1850	1180	1420	692	382	674	68	45	86
4	1120	236	423	1180	2930	1450	768	367	731	68	39	74
5	919	217	433	1180	3950	1210	967	367	672	67	37	66
6	722	203	398	1280	2950	989	1460	379	550	75	51	66
7	526	192	383	1110	2060	786	2130	379	466	69	105	61
8	388	203	385	910	1490	636	2070	353	436	74	97	82
9	340	330	367	870	1120	563	1880	322	451	64	71	117
10	311	575	355	925	2080	518	1640	341	4880	49	66	118
11	289	613	345	1000	2840	464	1840	547	2770	44	358	94
12	276	567	342	1190	2280	420	2150	549	1560	47	385	80
13	241	489	340	1020	1840	380	1770	511	866	51	214	90
14	219	422	298	779	1520	351	1370	544	579	115	171	100
15	204	395	251	805	1250	326	1200	480	494	804	201	118
16	188	1140	e230	722	1500	312	1030	411	471	630	148	113
17	2510	2360	e210	771	1900	561	907	372	367	375	104	102
18	4860	1890	e190	884	1600	1510	925	342	291	240	80	82
19	4520	1450	e170	1030	1330	1350	823	280	262	165	226	78
20	3560	1140	e150	960	1040	1150	731	238	230	125	515	100
21	2430	900	e140	1000	801	927	761	255	197	115	376	99
22	1710	690	e125	937	658	843	1220	629	196	107	593	145
23	1250	580	e115	831	588	796	1140	1230	274	144	1280	187
24	941	489	e110	729	560	752	940	1020	200	196	1390	191
25	717	422	e100	670	501	831	767	767	171	150	1030	159
26	566	483	e98	889	359	830	644	635	146	116	660	145
27	469	915	e95	980	417	900	551	812	124	88	482	118
28	403	1010	e95	994	757	888	474	752	102	71	320	95
29	361	929	e130	1170	---	810	475	854	88	61	216	79
30	328	805	e400	3170	---	727	487	1470	78	51	172	69
31	302	---	e2500	2500	---	672	---	1430	---	49	144	---
TOTAL	33426	20465	10975	41536	42791	25562	33005	17862	20180	4420	9689	3134
MEAN	1078	682	354	1340	1528	825	1100	576	673	143	313	104
MAX	4860	2360	2500	6000	3950	1510	2150	1470	4880	804	1390	191
MIN	188	192	95	670	359	312	474	238	78	44	37	61
CFSM	2.95	1.87	.97	3.67	4.19	2.26	3.01	1.58	1.84	.39	.86	.29
IN.	3.41	2.09	1.12	4.23	4.36	2.61	3.36	1.82	2.06	.45	.99	.32

CAL YR 1989 TOTAL 327340 MEAN 897 MAX 6390 MIN 48 CFSM 2.46 IN. 33.36
WTR YR 1990 TOTAL 263045 MEAN 721 MAX 6000 MIN 37 CFSM 1.97 IN. 26.81

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.--Estimated daily discharges: Dec. 17-19, 21-22, 25-28. Records good except for periods of ice effect, which are poor. Flow regulated since May 1965 by Summersville Lake. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--62 years, 2,735 ft³/s, 28.20 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, 30,100 ft³/s, June 10, gage height, 14.23 ft; minimum daily, 134 ft³/s, Aug. 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3300	4870	3020	11600	6400	3770	949	2310	4100	387	328	562
2	3640	4810	2300	14500	4550	4060	873	1860	3090	347	193	579
3	4450	4480	1920	17700	4120	4790	912	1330	2600	484	150	987
4	4390	2920	1820	13100	6090	5540	1050	1510	3230	498	134	973
5	4270	2070	1460	10700	9400	4790	1240	1170	3640	498	137	962
6	4180	1430	1550	9520	8070	3600	1740	1560	2450	538	1170	964
7	4030	1410	1670	5710	6030	2840	3040	1310	2250	519	419	1560
8	3890	1920	1190	4480	4440	2330	3000	1270	2080	502	279	1240
9	3660	4350	1320	4100	3790	2230	2560	1220	2130	507	285	1280
10	1060	5880	1520	3890	7060	2170	2210	1330	23200	373	257	1280
11	917	4740	1520	4280	11000	2070	2190	2370	11000	261	1180	600
12	898	4160	1330	4010	7870	1730	2680	2540	5090	225	1520	299
13	867	3340	1330	3490	6240	1770	2310	1980	2460	253	786	304
14	1710	2830	1300	2680	5620	1890	1890	3180	2180	341	554	981
15	3000	2670	1240	2460	4720	1600	1660	3530	2290	2490	498	1310
16	771	7890	1070	2500	4910	1360	1720	2680	2790	3890	1050	1290
17	2090	14800	e800	2740	6280	2050	1610	2100	1750	2170	645	1270
18	6450	8870	e650	3110	5320	5680	2540	2020	1200	1180	539	579
19	6270	5610	e550	4200	3790	5230	3230	1380	1160	630	809	275
20	6670	4050	726	4420	3650	4200	2740	1070	1110	687	1950	294
21	12800	3670	e900	4430	3510	3650	3110	1060	913	696	1690	960
22	11600	3620	e1000	4550	2350	2800	6210	3450	611	865	1570	2050
23	9740	2850	945	3750	2230	3370	7890	7820	1370	1360	3870	2010
24	3770	2880	660	3180	1900	3200	4450	5630	1660	1620	4660	1890
25	1510	3090	e560	2790	1820	3010	3820	3490	1130	1420	4200	1430
26	1310	2970	e500	3020	1590	2770	2580	3080	656	1050	2620	1950
27	1190	4550	e450	3880	1120	1380	2430	9430	574	581	1380	1970
28	1110	5600	e700	3330	2410	1300	1960	7240	544	488	1170	2750
29	1050	5300	1070	3870	---	1210	1890	5710	521	466	1040	2730
30	1640	4020	1090	8570	---	1100	1740	6020	505	324	777	2650
31	4910	---	4060	9530	---	1020	---	5700	---	561	598	---
TOTAL	117143	131650	40221	180090	136280	88510	76224	96350	88284	26211	36458	37979
MEAN	3779	4388	1297	5809	4867	2855	2541	3108	2943	846	1176	1266
MAX	12800	14800	4060	17700	11000	5680	7890	9430	23200	3890	4660	2750
MIN	771	1410	450	2460	1120	1020	873	1060	505	225	134	275

CAL YR 1989 TOTAL 1382203 MEAN 3787 MAX 23600 MIN 294 CFSM 2.88 IN. 39.04
WTR YR 1990 TOTAL 1055400 MEAN 2892 MAX 23200 MIN 134 CFSM 2.20 IN. 29.81

e Estimated

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.--113 years, 12,530 ft³/s, 20.33 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, 98,400 ft³/s, Jan. 1, gage height, 17.10 ft; minimum daily, 2,570 ft³/s, July 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19500	13300	14500	72200	32300	18800	12700	11400	27100	3590	2880	3660
2	37700	14000	11600	71800	26000	17600	14600	11900	21000	3240	2950	3360
3	49000	11800	9780	69700	23400	20200	10100	9970	16900	3120	2860	3540
4	45400	10300	10200	51700	37700	21200	14000	12400	15100	3840	2700	3190
5	36200	7960	8040	38800	55400	20900	13500	9670	12500	4320	2700	2930
6	25900	5600	6750	33300	44400	19200	13000	16200	12500	4170	3360	2760
7	19000	5410	6380	27600	31900	14300	18800	17300	10400	3920	2860	3200
8	16100	8920	6320	23600	25700	21800	25500	13600	9970	4000	3540	3490
9	15700	11800	7450	26900	21700	14200	22000	11500	8800	3390	5000	3460
10	11000	14200	8610	30500	30500	13900	16100	10800	32800	2730	5850	3310
11	10400	13600	7130	27600	52000	13200	17600	13500	19200	2800	4880	3140
12	9980	13000	6660	24400	48200	9780	16600	13400	11700	2720	4880	2580
13	5370	10500	9330	20400	38600	9670	18100	13700	8870	3070	3820	3000
14	11000	8030	8730	18100	30900	11700	14600	11100	8100	4720	3400	3910
15	10000	11200	10100	14600	26600	10900	14900	11400	8110	10700	3080	5220
16	6350	18300	8510	12200	25000	9520	13000	12800	8190	20900	4170	5290
17	14000	66500	7410	13900	32500	16300	11800	10100	6920	18600	4020	5220
18	45800	56500	4250	12700	33800	35000	12200	10400	6180	10500	3870	3700
19	40400	35100	4230	15200	29700	38400	14300	9820	4960	7010	3380	2850
20	49300	26200	6490	17000	25400	31400	11500	8470	5700	6850	4710	2820
21	40800	22100	7050	15500	20900	25500	12600	5980	5320	6050	3930	3130
22	32600	21100	6570	13100	18800	21400	18000	11000	5190	4880	4170	4380
23	26000	18400	6150	12700	21400	19600	19200	22000	6240	5080	12600	4440
24	17800	12500	4880	14300	17000	18200	13700	26100	6220	4750	10800	4170
25	13300	13100	4100	12800	16100	19900	15300	17000	5140	4830	15800	3680
26	11000	13100	3980	18800	13700	24700	12900	13400	3880	5520	13600	4130
27	11100	14800	4600	17500	14600	19500	10900	20900	3560	5080	7080	4540
28	10300	16900	5720	18100	14600	19700	9600	26300	3950	4060	5860	5430
29	8620	19900	7490	14700	---	17700	9360	28700	4320	3150	4680	5440
30	6790	17200	6960	27400	---	15900	9340	48500	4040	2570	5070	5160
31	10400	---	16000	45000	---	17200	---	41000	---	2660	4740	---
TOTAL	666810	531320	235970	832100	808800	587270	435800	500310	302860	172820	163240	115130
MEAN	21510	17710	7612	26840	28890	18940	14530	16140	10100	5575	5266	3838
MAX	49300	66500	16000	72200	55400	38400	25500	48500	32800	20900	15800	5440
MIN	5370	5410	3980	12200	13700	9520	9340	5980	3560	2570	2700	2580

CAL YR 1989 TOTAL 5763710 MEAN 15790 MAX 86100 MIN 2720 CFSM 1.89 IN. 25.61
WTR YR 1990 TOTAL 5352430 MEAN 14660 MAX 72200 MIN 2570 CFSM 1.75 IN. 23.79

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.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.5	11.0	6.0	3.0	5.5	5.0	11.0	17.0	---	---	26.0	24.5
2	19.5	---	5.5	1.5	5.0	6.0	10.5	16.5	---	26.0	26.5	25.0
3	17.0	13.5	5.0	2.5	5.5	6.0	11.5	17.0	---	25.5	26.0	25.5
4	16.5	13.0	---	---	7.0	7.0	10.5	---	19.0	26.0	26.0	25.0
5	---	13.0	---	3.5	8.5	7.0	---	---	18.5	26.5	26.5	25.5
6	16.5	13.5	---	3.5	8.0	8.0	---	---	18.5	26.5	26.5	25.5
7	16.5	13.5	---	3.5	7.5	8.0	---	16.5	19.5	---	26.0	26.0
8	16.5	13.5	4.5	4.5	---	---	8.0	16.5	20.5	26.0	26.0	25.5
9	16.5	---	4.5	5.0	6.5	8.5	---	16.5	20.5	25.5	---	25.0
10	16.5	12.5	4.5	5.0	---	---	10.0	16.5	20.0	26.5	24.5	25.0
11	16.0	11.5	4.0	---	6.5	---	9.5	16.0	17.5	27.0	24.5	25.0
12	15.5	10.5	4.0	---	---	9.5	9.5	16.5	18.5	26.5	25.0	25.0
13	15.0	11.5	3.5	---	6.5	11.0	9.5	15.5	19.5	27.0	---	---
14	16.0	10.5	---	3.5	---	10.5	10.0	16.5	20.0	26.5	---	24.0
15	16.0	11.5	3.5	2.5	8.0	11.5	10.5	---	21.0	26.5	---	24.5
16	16.5	---	2.5	3.5	8.5	14.0	11.0	16.0	---	26.5	25.0	24.0
17	17.0	10.5	---	---	9.0	14.0	11.5	---	---	27.0	25.5	23.0
18	16.5	---	.5	4.5	8.0	13.5	11.0	---	23.0	25.0	25.5	23.0
19	16.0	---	1.0	4.0	---	11.5	11.0	18.5	24.0	---	25.5	21.5
20	14.0	---	3.5	4.5	7.5	9.5	10.5	18.5	---	24.5	25.5	---
21	13.0	8.0	1.0	4.5	7.5	8.5	11.5	18.5	24.5	25.5	26.0	---
22	---	8.0	.5	5.0	---	8.0	13.0	18.5	24.5	25.0	25.5	---
23	12.5	7.5	1.0	4.5	8.0	9.5	13.0	18.0	24.5	25.5	---	---
24	12.5	8.0	.5	5.0	---	10.0	14.0	16.0	24.5	25.5	23.5	19.5
25	12.5	5.0	1.0	5.0	---	---	12.5	17.0	24.0	25.0	---	18.5
26	13.0	6.0	---	5.0	5.0	9.0	---	17.0	23.5	25.5	---	---
27	13.0	---	.5	5.0	5.0	9.0	16.5	16.5	23.5	---	26.5	18.5
28	14.0	7.0	.5	5.5	5.0	8.5	17.0	15.0	---	---	24.5	---
29	14.0	7.0	.5	4.0	---	9.0	17.0	16.5	24.5	---	25.0	19.0
30	13.5	---	1.5	4.0	---	9.5	17.0	16.0	---	26.0	24.5	19.0
31	13.5	---	---	4.5	---	9.5	---	---	---	27.0	25.0	---

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 Salisburg 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: Dec. 16-29. Records good except for period of ice effect, which is poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--29 years (water years 1960-83, 1986-90), 699 ft³/s, 35.69 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. 1	0600	10,600	10.19	May 26	1700	*10,700	*10.24

Minimum discharge, 57 ft³/s, Sept. 7, gage height, 3.36 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	257	244	562	7650	1190	819	671	446	1050	240	149	132
2	274	247	466	2830	906	824	678	404	749	494	112	107
3	415	221	414	1650	740	1720	1490	374	1140	353	89	90
4	328	206	353	1290	1010	1530	1330	340	1470	232	75	79
5	270	189	329	2120	1600	1120	1250	338	1080	167	72	69
6	235	177	308	1770	1260	842	1790	344	810	153	111	61
7	312	171	348	1290	1010	695	1780	350	612	196	175	59
8	347	212	429	997	961	592	1360	318	514	142	117	85
9	397	1100	401	808	854	561	1330	290	642	112	92	88
10	399	1500	378	787	2620	611	1480	295	1920	94	74	98
11	407	1050	354	829	2640	621	2910	580	1190	118	96	123
12	374	764	340	766	1740	903	2590	507	747	346	135	140
13	330	582	325	678	1240	755	1740	475	526	717	145	311
14	290	479	293	531	1160	635	1300	1320	404	604	250	323
15	259	417	259	533	1040	542	1160	979	410	1120	316	224
16	230	2150	e240	505	1110	476	991	752	465	1330	202	162
17	717	2650	e230	742	1230	949	848	675	494	792	138	136
18	1710	1560	e200	1140	1010	1570	809	655	342	505	104	128
19	2280	1040	e170	1620	832	1130	672	501	271	347	119	114
20	1880	806	e150	1250	664	931	610	409	220	272	204	157
21	1230	772	e130	1630	532	739	1480	409	186	234	177	249
22	870	668	e120	1370	466	759	2730	936	169	395	306	734
23	642	590	e110	1040	427	809	1680	1740	403	525	323	1220
24	516	489	e100	806	433	772	1160	1170	433	607	2730	782
25	432	409	e95	673	387	732	846	800	310	441	1300	576
26	374	486	e90	896	288	623	664	3890	245	324	730	428
27	329	1500	e90	888	346	622	545	5370	194	245	454	329
28	294	1190	e100	807	659	622	460	2460	155	189	325	258
29	265	908	e120	873	---	626	429	1740	128	150	247	205
30	242	697	296	1910	---	615	488	1970	108	122	198	171
31	227	---	4750	1630	---	632	---	1510	---	111	162	---
TOTAL	17132	23474	12550	42309	28355	25377	37271	32347	17387	11677	9727	7638
MEAN	553	782	405	1365	1013	819	1242	1043	580	377	314	255
MAX	2280	2650	4750	7650	2640	1720	2910	5370	1920	1330	2730	1220
MIN	227	171	90	505	288	476	429	290	108	94	72	59
CFSM	2.08	2.94	1.52	5.13	3.81	3.08	4.67	3.92	2.18	1.42	1.18	.96
IN.	2.40	3.28	1.76	5.92	3.97	3.55	5.21	4.52	2.43	1.63	1.36	1.07

CAL YR 1989 TOTAL 330233 MEAN 905 MAX 15200 MIN 89 CFSM 3.40 IN. 46.18
WTR YR 1990 TOTAL 265244 MEAN 727 MAX 7650 MIN 59 CFSM 2.73 IN. 37.09

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 October 1960 by Sutton Lake. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--52 years, 1,149 ft³/s, 28.79 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, 7,970 ft³/s, May 28, gage height, 20.43 ft; minimum daily, 73 ft³/s, Sept. 15-20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	536	392	1120	5530	2910	1820	411	290	1670	153	82	180
2	505	469	846	7330	1600	1750	308	435	990	149	80	183
3	755	511	747	6000	1200	2130	95	597	917	290	80	183
4	796	507	745	4520	1460	2890	88	766	2240	461	393	174
5	679	506	698	4000	1760	2160	91	680	2060	511	603	141
6	535	376	564	3940	1940	1250	846	573	1460	794	284	149
7	537	296	492	3840	1680	993	2760	516	999	481	84	80
8	789	393	755	3090	1430	893	2630	432	758	254	84	81
9	1020	1330	816	1510	1290	893	1940	431	1970	169	84	312
10	1060	2710	646	1290	2570	782	2120	432	4190	168	198	475
11	914	2940	655	1410	4160	757	2960	431	3680	172	437	473
12	751	2890	655	1590	4440	1180	3650	600	1600	472	223	477
13	750	2090	626	1370	4120	1320	3730	807	862	1390	82	269
14	749	1290	581	832	2780	1080	3450	1530	620	1280	82	77
15	747	1180	455	671	1650	929	1930	1380	631	1630	81	73
16	743	1270	359	984	1540	795	1340	1010	930	2010	81	73
17	1110	2660	358	1220	1750	1120	1350	1020	1050	1690	81	73
18	3220	3730	357	1390	1750	2070	1360	1010	1120	875	341	73
19	4190	3390	356	1670	1740	1920	1350	799	737	612	514	73
20	4620	3310	358	1680	1330	1460	1350	622	429	489	247	73
21	3690	3010	358	1700	897	1180	3360	590	346	419	84	74
22	1880	1930	356	2350	808	1070	5440	1370	307	417	1010	283
23	1280	1280	356	2700	730	1250	4590	3050	304	658	1530	1960
24	1040	1280	273	1700	637	1360	2180	3070	429	912	2980	1790
25	912	989	201	1090	638	1240	1050	1480	801	1030	2920	1240
26	907	832	201	1200	522	721	1080	3440	940	604	1300	829
27	877	1710	246	1380	651	94	1200	6640	457	389	623	497
28	880	2470	349	1330	1340	83	1120	7860	372	302	335	497
29	956	2100	401	1360	---	87	939	6350	331	158	187	497
30	692	1630	421	2500	---	88	595	5680	214	158	151	498
31	391	---	2210	3490	---	199	---	4320	---	136	113	---
TOTAL	38511	49471	17561	74667	49323	35564	55313	58211	33414	19233	15374	11857
MEAN	1242	1649	566	2409	1762	1147	1844	1878	1114	620	496	395
MAX	4620	3730	2210	7330	4440	2890	5440	7860	4190	2010	2980	1960
MIN	391	296	201	671	522	83	88	290	214	136	80	73

CAL YR 1989 TOTAL 598822 MEAN 1641 MAX 8120 MIN 85 CFSM 3.03 IN. 41.10
WTR YR 1990 TOTAL 458499 MEAN 1256 MAX 7860 MIN 73 CFSM 2.32 IN. 31.47

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 October 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, 12,800 ft³/s, May 27, gage height, 11.49 ft; minimum gage height, 1.23 ft, Aug. 3, 4.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.65	2.47	3.76	8.91	5.58	4.45	2.71	2.37	4.45	2.12	1.44	1.57
2	2.47	2.45	3.27	9.06	4.38	4.48	2.79	2.46	3.62	1.93	1.27	1.68
3	2.81	2.60	3.06	7.97	3.66	4.60	2.29	2.75	3.64	1.80	1.24	1.68
4	2.92	2.58	3.01	6.68	4.08	5.13	2.34	3.01	4.69	2.26	1.36	1.66
5	2.89	2.56	2.99	6.23	4.31	4.75	2.74	3.07	4.68	2.45	2.53	1.61
6	2.56	2.49	2.82	6.04	4.53	3.85	3.46	2.82	4.14	2.65	2.42	1.54
7	2.67	2.18	2.62	5.85	4.40	3.46	5.67	2.76	3.42	2.72	1.51	1.46
8	2.78	2.41	2.73	5.58	4.05	3.27	5.48	2.54	3.15	2.09	1.32	1.33
9	3.36	3.93	3.13	4.11	3.96	3.25	4.73	2.51	6.49	1.74	1.28	1.44
10	3.42	5.38	2.86	4.05	6.46	3.19	4.74	2.57	8.61	1.66	1.27	2.32
11	3.39	5.31	2.84	4.02	6.96	3.08	5.36	2.55	6.63	1.66	2.69	2.33
12	3.01	5.11	2.86	4.18	6.81	3.51	5.93	2.65	4.39	2.17	2.34	2.35
13	2.96	4.72	2.85	3.99	6.43	3.79	5.93	3.04	3.39	3.39	1.53	2.33
14	2.93	3.80	2.75	3.37	5.50	3.55	5.70	3.80	2.87	3.66	1.42	1.61
15	2.91	3.57	2.68	3.02	4.31	3.28	4.62	3.93	3.30	4.20	1.47	1.40
16	2.89	5.29	2.35	3.15	4.28	3.17	3.97	3.40	3.69	4.49	1.38	1.33
17	3.35	5.34	2.31	3.59	4.50	3.51	4.04	3.42	3.58	4.19	1.33	1.31
18	5.40	6.25	2.32	3.69	4.39	4.57	4.11	3.36	3.50	3.27	1.39	1.30
19	7.85	5.64	2.32	4.13	4.30	4.56	4.02	3.14	3.25	2.69	2.73	1.30
20	7.28	5.46	2.34	4.19	3.96	4.22	3.97	2.78	2.54	2.58	2.90	1.31
21	6.42	5.24	2.29	4.39	3.37	3.89	6.01	2.77	2.43	2.34	2.02	1.33
22	4.74	4.59	2.30	4.65	3.17	3.69	8.08	4.89	2.30	2.33	5.11	1.83
23	3.76	3.70	2.29	5.00	3.12	3.79	7.05	6.16	2.55	2.59	5.92	3.70
24	3.57	3.64	2.21	4.46	2.95	4.03	4.91	5.75	2.37	2.99	4.70	4.12
25	3.23	3.47	1.94	3.57	2.90	3.88	3.65	4.27	2.67	3.20	5.42	3.54
26	3.19	3.19	1.95	3.63	2.78	3.67	3.56	6.01	3.29	2.93	3.82	3.12
27	3.15	3.66	1.93	3.86	2.85	2.68	3.65	9.61	2.56	2.24	2.85	2.38
28	3.01	4.82	2.13	3.87	4.05	2.51	3.60	9.46	2.27	2.21	2.43	2.30
29	3.25	4.68	2.40	4.20	---	2.43	3.34	8.61	2.22	1.75	1.83	2.29
30	3.07	4.17	2.75	5.78	---	2.34	3.07	7.66	2.00	1.62	1.76	2.30
31	2.44	---	6.12	6.08	---	2.37	---	6.87	---	1.62	1.55	---
MEAN	3.56	4.02	2.72	4.88	4.36	3.64	4.38	4.23	3.62	2.57	2.33	1.99
MAX	7.85	6.25	6.12	9.06	6.96	5.13	8.08	9.61	8.61	4.49	5.92	4.12
MIN	2.44	2.18	1.93	3.02	2.78	2.34	2.29	2.37	2.00	1.62	1.24	1.30

WTR YR 1990 MEAN 3.52 MAX 9.61 MIN 1.24

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 October 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, 30,600 ft³/s, June 10, gage height, 17.82 ft; minimum gage height, 0.64 ft, Aug. 4.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.33	2.09	4.39	11.07	6.86	5.04	2.62	2.44	5.65	1.34	.91	.87
2	2.42	2.06	3.46	10.21	5.50	5.30	2.89	1.96	4.04	1.40	.81	.91
3	2.34	2.21	3.19	9.25	4.29	5.19	2.46	2.20	3.79	1.17	.71	.97
4	2.66	2.27	3.07	7.97	4.66	5.82	2.29	2.56	4.97	1.19	.68	.93
5	2.63	2.20	2.97	7.47	5.09	5.97	2.73	3.00	5.33	1.61	1.02	.91
6	2.37	2.04	2.84	7.07	5.41	4.54	3.20	2.70	4.72	1.74	1.86	.87
7	2.43	1.82	2.54	6.75	5.29	3.70	6.32	2.53	3.69	2.22	1.44	.86
8	2.38	1.92	2.45	6.56	4.72	3.39	7.17	2.30	3.28	1.72	.85	.82
9	3.36	4.61	3.11	5.05	4.52	3.33	5.96	2.07	6.79	1.28	.75	.72
10	3.61	6.74	3.10	4.86	8.30	3.32	5.53	2.14	13.49	1.03	.68	.99
11	3.67	6.47	2.84	4.77	8.95	3.02	5.92	2.18	8.70	1.01	1.52	1.55
12	3.26	6.03	2.81	4.81	8.27	3.22	6.65	2.00	5.82	1.19	2.00	1.59
13	2.91	5.70	2.90	4.58	7.74	3.96	6.84	2.46	3.77	2.01	1.40	1.79
14	2.72	4.37	2.79	3.83	6.95	3.83	6.71	3.12	2.87	3.54	.93	1.50
15	2.67	3.81	2.76	3.09	5.22	3.40	6.04	4.37	3.39	4.03	.85	.95
16	2.65	7.12	2.58	2.94	5.23	3.14	4.39	3.35	4.48	4.91	.87	.81
17	3.44	7.29	2.59	3.62	5.56	3.25	4.35	3.29	3.81	4.40	.79	.77
18	6.14	7.51	2.32	3.75	5.26	4.89	4.71	3.20	3.57	3.40	.75	.74
19	9.97	6.80	2.38	4.27	5.02	5.47	4.52	3.07	3.32	2.35	1.62	.72
20	9.07	6.42	2.44	4.51	4.71	5.13	4.43	2.49	2.42	1.98	2.46	.75
21	8.00	6.15	2.27	5.03	3.72	4.65	5.37	2.34	1.99	1.76	2.00	.72
22	6.12	5.50	2.02	5.20	3.20	4.25	9.53	4.38	1.80	1.66	4.45	1.34
23	4.23	4.10	2.08	5.79	3.14	3.98	8.94	7.72	2.23	1.89	7.88	2.45
24	3.89	3.79	2.10	5.52	3.01	4.39	6.79	6.91	1.92	2.27	4.64	4.13
25	3.29	3.70	2.09	3.87	2.87	4.33	4.55	5.37	1.86	2.57	6.22	3.58
26	3.16	3.23	2.02	3.78	2.68	4.46	3.79	5.05	2.58	2.62	4.34	2.82
27	3.03	3.50	1.52	4.06	2.52	3.48	3.85	10.52	2.51	1.87	2.77	2.17
28	2.92	5.37	1.63	4.19	4.02	2.86	3.95	10.44	1.77	1.46	2.01	1.59
29	3.06	5.52	2.01	4.82	---	2.61	3.55	10.32	1.56	1.37	1.54	1.55
30	2.94	4.85	2.73	7.86	---	2.47	3.30	8.91	1.51	.97	1.12	1.55
31	2.38	---	7.54	7.54	---	2.50	---	8.25	---	.93	1.06	---
MEAN	3.74	4.51	2.76	5.62	5.10	4.03	4.98	4.31	3.92	2.03	1.97	1.40
MAX	9.97	7.51	7.54	11.07	8.95	5.97	9.53	10.52	13.49	4.91	7.88	4.13
MIN	2.33	1.82	1.52	2.94	2.52	2.47	2.29	1.96	1.51	.93	.68	.72

WTR YR 1990 MEAN 3.68 MAX 13.49 MIN .68

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.--Estimated daily discharges: Dec. 18-28. Records good except for period of ice effect, which is fair. Flow regulated since October 1960 by Sutton Lake. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--62 years, 2,051 ft³/s, 24.33 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, 24,500 ft³/s, June 10, gage height, 15.99 ft; minimum daily, 96 ft³/s, Aug. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	792	753	2590	12500	5630	3150	973	1340	4920	407	200	254
2	829	718	1890	10500	4320	3530	1110	800	2670	397	188	190
3	727	686	1490	9180	2960	3540	1180	743	1970	371	147	211
4	804	749	1270	7330	2980	3950	932	921	2850	298	108	223
5	893	728	1200	6510	3580	4360	1030	1190	3640	378	96	216
6	878	714	1160	5800	3750	3160	1430	1260	3070	535	395	210
7	802	688	1010	5330	3670	2180	3910	1020	2220	647	565	195
8	874	603	856	5050	3170	1760	5950	947	1590	715	305	233
9	1050	2130	980	3940	2780	1560	4760	787	3350	416	168	185
10	1490	4890	1200	3300	7490	1510	3920	773	18500	309	136	153
11	1520	4940	1010	3370	9280	1370	4100	821	8760	231	312	315
12	1400	4400	1010	3230	7590	1310	4820	769	4970	306	662	515
13	1060	3980	1020	3010	6740	1770	5200	807	2530	405	538	568
14	985	2970	1000	2400	5780	1920	5070	1310	1550	1420	311	569
15	935	2100	929	1710	4010	1610	4670	2200	1420	1800	194	371
16	898	4700	874	1390	3620	1380	3080	2010	2720	2920	165	218
17	1170	7290	579	1610	4050	1470	2630	1560	2190	2550	162	163
18	3410	6010	e500	1930	3730	2690	3010	1540	1860	1960	137	140
19	9600	5490	e450	2290	3440	3560	2890	1400	1630	1110	147	133
20	9440	4790	e400	2690	3110	3390	2730	1190	1240	700	751	137
21	7390	4490	e360	3190	2300	2930	3220	927	748	626	885	136
22	5160	3890	e340	3420	1690	2570	9180	1810	677	522	1830	293
23	3000	2700	e320	3920	1510	2320	8750	6760	724	593	6960	613
24	2170	1980	e310	3900	1440	2450	6260	5730	779	661	3180	1990
25	1750	1870	e300	2550	1230	2590	3630	4250	599	888	3910	1960
26	1410	1600	e290	2020	1060	2590	2290	2640	770	1020	3060	1340
27	1320	1610	e290	2110	1030	2240	2090	10000	1180	841	1560	967
28	1240	2820	e350	2280	1810	1460	2070	10600	669	461	826	549
29	1130	3650	506	2870	---	1250	1910	11400	518	413	586	464
30	1270	3110	731	7290	---	1100	1600	8700	475	329	365	456
31	1090	---	4830	6600	---	1020	---	7590	---	220	281	---
TOTAL	66487	87049	30045	133220	103750	71690	104395	93795	80789	24449	29130	13967
MEAN	2145	2902	969	4297	3705	2313	3480	3026	2693	789	940	466
MAX	9600	7290	4830	12500	9280	4360	9180	11400	18500	2920	6960	1990
MIN	727	603	290	1390	1030	1020	932	743	475	220	96	133

CAL YR 1989 TOTAL 1077024 MEAN 2951 MAX 17600 MIN 183 CFSM 2.58 IN. 34.99
WTR YR 1990 TOTAL 838766 MEAN 2298 MAX 18500 MIN 96 CFSM 2.01 IN. 27.25

e Estimated

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: Dec. 13 to Jan. 24, Feb. 24 to Mar. 21, June 20, 22, 26-29, July 2-3, 5, 24, 27, 30-31, Aug. 1-5, Sept. 4-7, 11-13, 18-23. Records good except for estimated discharges, which are fair. The rating is not well established at flows below 10,000 ft³/s. All flow is compared to the inflow, and when differences are 10% or greater, or record is missing, the inflow is used. Since 1939, flow regulated by increasing number of reservoirs upstream from station. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--51 years, 14,990 ft³/s, 19.54 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, 93,100 ft³/s, Jan 1; minimum daily, 2,840 ft³/s, July 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18600	13100	18800	e93100	41100	e23800	14800	13100	32800	3990	e3220	4250
2	33300	14900	15500	e87300	31600	e23000	17400	13300	24100	e4030	e3280	4020
3	46100	12600	12800	e82000	28700	e26100	12900	10800	19600	e3890	e3120	3960
4	44600	11300	12700	e61500	38100	e27900	16000	13200	18200	4210	e2920	e3520
5	36200	8480	10400	e47600	59400	e27600	15900	11800	15700	e4940	e2910	e3240
6	25800	6170	9130	e41100	52800	e24300	16500	16200	16000	5330	4510	e3060
7	19200	5670	8440	e34700	37300	e18100	24200	19800	12600	4610	4440	e3490
8	16500	9390	7850	e30200	29800	e25000	33100	15100	11800	4440	3730	3680
9	16600	14500	8880	e32600	26100	e17100	29900	12700	11600	4020	5100	4110
10	12300	20700	10600	e36300	40800	e16600	22100	11700	48600	3100	5680	3810
11	11000	19900	8980	e33800	66800	e15700	24000	15000	33300	2840	5750	e3590
12	12000	18500	8380	e30100	61600	e12100	22900	13800	18700	3190	5280	e3240
13	5950	15700	e11000	e25400	48500	e12300	26100	15300	11900	3740	4560	e3760
14	11200	11800	e10300	e22100	38700	e14500	21300	12900	9980	4730	3960	4860
15	10700	13400	e11600	e17700	32200	e13300	21900	13100	9850	11400	3810	6410
16	6870	24000	e9850	e14900	29800	e11700	18300	15400	11000	19500	4140	5830
17	12600	67400	e8350	e16700	37100	e19000	16300	12300	9750	21500	4100	5470
18	49600	69200	e5170	e15700	38300	e39400	16200	12500	8000	12500	3720	e3940
19	58200	44500	e5130	e18500	33800	e43600	18900	11100	6710	8160	3740	e3080
20	62200	31800	e7460	e20800	29200	e36400	15900	9770	e6700	7340	5440	e3080
21	51600	27200	e7880	e20200	25100	e29900	18200	6920	6560	6550	5220	e3400
22	39000	25900	e7290	e18000	21500	24100	30600	14400	e6000	5230	5720	e5020
23	29600	23200	e6790	e18000	23800	22600	31800	29300	6710	5720	17900	e5360
24	20900	15800	e5480	e19500	e19900	21500	23300	33400	7270	e5600	13000	6530
25	15500	15400	e4660	18000	e18600	22200	21300	22500	5840	5680	16900	6300
26	13500	15600	e4510	22700	e15800	27900	16500	17300	e4980	6230	17500	5890
27	11800	16600	e5110	20600	e16600	23300	14200	29000	e5030	e5300	9480	6110
28	11600	19400	e6330	22100	e17700	22700	12400	37000	e4900	4410	6710	6450
29	9710	24700	e8230	21200	---	20400	12200	39500	e5110	3900	5230	5960
30	7570	21700	e8290	38300	---	18000	11100	56400	4520	e3060	5150	6180
31	10800	---	e23800	54300	---	19500	---	51400	---	e3040	4690	---
TOTAL	731200	638510	289690	1035000	960700	699600	596200	605990	393810	192180	190910	137600
MEAN	23590	21280	9345	33390	34310	22570	19870	19550	13130	6199	6158	4587
MAX	62200	69200	23800	93100	66800	43600	33100	56400	48600	21500	17900	6530
MIN	5950	5670	4510	14900	15800	11700	11100	6920	4520	2840	2910	3060

CAL YR 1989 TOTAL 7200830 MEAN 19730 MAX 105000 MIN 3200
WTR YR 1990 TOTAL 6471390 MEAN 17730 MAX 93100 MIN 2840

e Estimated

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: Oct. 19 to Dec. 31. Records good except for estimated daily discharges, which are fair.

AVERAGE DISCHARGE.--68 years, 518 ft³/s, 17.99 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)
Oct. 19	----	a8,500	Unknown	No other peak greater than base discharge.			

a Maximum Daily

Minimum discharge, 31 ft³/s, Sept. 7, 18, 19, gage height, 1.54 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	339	e380	e470	4070	1400	988	512	458	560	96	43	47
2	668	e360	e450	2220	1090	970	471	413	435	219	41	43
3	612	e330	e430	1380	1200	1210	460	382	535	177	40	42
4	431	e280	e400	1130	2790	1240	535	368	642	114	39	38
5	321	e250	e380	1060	2740	1040	584	346	544	95	49	35
6	264	e230	e360	955	1800	861	824	349	439	161	173	35
7	281	e210	e340	843	1370	729	2070	338	374	116	190	34
8	259	e600	e320	798	1080	635	1840	298	320	92	111	65
9	235	e1300	e310	930	911	586	1370	263	323	78	77	55
10	212	e1100	e300	1200	2550	543	1100	291	606	68	73	51
11	178	e900	e300	1290	3340	491	1130	335	356	67	614	44
12	148	e740	e290	1150	2240	440	1260	298	258	75	341	43
13	134	e600	e300	946	1870	391	1150	296	209	96	162	52
14	125	e500	e290	787	1540	358	997	286	180	136	123	45
15	118	e400	e280	715	1240	357	945	237	183	288	106	44
16	115	e2000	e230	655	1450	329	832	208	191	414	81	42
17	2320	e2500	e170	610	1990	464	773	201	170	235	67	38
18	6580	e1500	e150	589	1550	638	751	193	150	144	59	34
19	e8500	e1000	e140	575	1240	645	681	166	132	108	56	37
20	e3500	e800	e130	565	993	643	642	149	129	90	100	47
21	e2000	e700	e125	673	820	596	1100	147	144	82	123	44
22	e1300	e600	e120	685	726	601	3100	833	136	90	208	78
23	e1000	e550	e115	630	679	604	1940	1870	217	173	254	92
24	e750	e500	e110	588	642	606	1350	1060	198	140	206	74
25	e620	e450	e105	561	560	674	1040	695	181	102	134	60
26	e560	e400	e105	589	450	704	849	579	135	81	102	49
27	e500	e430	e100	602	454	707	725	772	114	67	83	41
28	e450	e480	e100	585	747	673	639	849	101	59	67	36
29	e420	e540	e110	907	---	629	613	1020	91	55	58	33
30	e380	e500	e350	3700	---	579	532	896	85	53	56	35
31	e350	---	e2000	2220	---	554	---	720	---	48	51	---
TOTAL	33670	21130	9380	34208	39462	20485	30815	15316	8138	3819	3887	1413
MEAN	1086	704	303	1103	1409	661	1027	494	271	123	125	47.1
MAX	8500	2500	2000	4070	3340	1240	3100	1870	642	414	614	92
MIN	115	210	100	561	450	329	460	147	85	48	39	33
CFSM	2.78	1.80	.77	2.82	3.60	1.69	2.63	1.26	.69	.32	.32	.12
IN.	3.20	2.01	.89	3.25	3.75	1.95	2.93	1.46	.77	.36	.37	.13

CAL YR 1989 TOTAL 292036 MEAN 800 MAX 8500 MIN 83 CFSM 2.05 IN. 27.78
WTR YR 1990 TOTAL 221723 MEAN 607 MAX 8500 MIN 33 CFSM 1.55 IN. 21.09

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.--Estimated daily discharges: Dec. 18-29. Water-discharge records good except for period with ice effect, which is poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--34 years (water years 1909-11, 1930-31, 1962-90), 1,210 ft³/s, 19.06 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)
Oct. 19	1500	*15,500	*18.67	No peak greater than base discharge.			

Minimum discharge, 80 ft³/s, Sept. 30, gage height, 10.16 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	813	756	947	7930	3090	1720	1090	997	1280	224	137	130
2	1030	719	893	4700	2280	1760	1050	926	987	367	131	118
3	1090	668	854	2910	2200	2240	991	854	1030	376	106	107
4	854	548	790	2330	5050	2570	1090	828	1730	273	102	101
5	694	472	735	2190	5370	2200	1140	872	1420	231	104	92
6	598	450	705	1890	3930	1820	1320	835	1120	376	436	85
7	567	427	667	1640	2970	1540	3350	845	990	417	491	89
8	555	932	622	1480	2320	1340	3970	765	845	264	321	114
9	507	2580	614	1670	1910	1220	3060	682	741	224	222	167
10	457	2050	600	2370	4600	1130	2330	661	1390	210	198	132
11	430	1540	593	2640	8140	1030	2140	753	876	211	472	124
12	381	1220	592	2340	4820	942	2300	663	641	262	674	138
13	341	987	598	1870	4100	855	2240	639	514	311	338	185
14	320	854	578	1510	3410	786	1970	652	437	496	250	154
15	303	800	558	1340	2690	759	1870	556	437	1130	234	160
16	297	3310	438	1200	2930	719	1720	487	465	1160	199	117
17	1000	4870	337	1090	4000	1120	1570	465	437	665	164	101
18	9400	3270	e310	1030	3450	1600	1590	455	409	401	144	90
19	13100	2220	e280	995	2720	1520	1430	391	400	300	132	92
20	7380	1740	e270	1090	2160	1540	1340	363	340	249	185	119
21	3920	1480	e250	1410	1740	1380	1720	376	297	220	227	131
22	2690	1240	e240	1400	1510	1310	6810	1260	355	232	384	323
23	1940	1110	e230	1310	1400	1280	4680	3170	335	413	722	294
24	1540	967	e225	1200	1340	1240	3200	2160	469	392	591	236
25	1280	845	e220	1110	1200	1380	2340	1380	376	285	371	182
26	1140	818	e210	1090	976	1430	1870	1110	314	226	275	143
27	1000	861	e200	1040	911	1390	1570	1610	277	196	230	117
28	896	955	e200	976	1250	1330	1350	1810	262	177	201	102
29	814	1020	e220	1640	---	1250	1330	2560	254	165	174	90
30	757	984	561	6700	---	1160	1150	2190	232	156	155	83
31	704	---	2760	4780	---	1140	---	1700	---	148	143	---
TOTAL	56798	40693	17297	66871	82467	42701	63581	33015	19660	10757	8513	4116
MEAN	1832	1356	558	2157	2945	1377	2119	1065	655	347	275	137
MAX	13100	4870	2760	7930	8140	2570	6810	3170	1730	1160	722	323
MIN	297	427	200	976	911	719	991	363	232	148	102	83
CFSM	2.13	1.57	.65	2.50	3.42	1.60	2.46	1.24	.76	.40	.32	.16
IN.	2.45	1.76	.75	2.89	3.56	1.84	2.74	1.42	.85	.46	.37	.18

CAL YR 1989 TOTAL 643466 MEAN 1763 MAX 17900 MIN 182 CFSM 2.05 IN. 27.77
WTR YR 1990 TOTAL 446469 MEAN 1223 MAX 13100 MIN 83 CFSM 1.42 IN. 19.27

e Estimated

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 observed, 380 NTU, Apr. 22; minimum observed, 10 NTU, Oct. 10, 13, Dec. 22, Mar. 10, 24, 27.

TURBIDITY (NTU), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	16	18	150	24	32	13	14	19	18	16	17
2	26	14	16	51	18	18	13	17	16	11	14	15
3	20	18	19	22	19	22	16	14	20	22	16	17
4	20	16	17	25	120	48	14	13	85	18	15	18
5	20	14	19	29	50	30	16	38	32	13	14	18
6	24	16	16	26	32	20	16	24	30	22	14	16
7	22	16	17	21	30	20	68	12	32	80	25	14
8	15	17	14	17	19	12	42	14	80	38	160	15
9	18	47	16	16	15	12	36	15	38	27	36	12
10	10	35	19	36	210	10	16	14	180	17	28	11
11	11	29	17	48	180	14	17	14	29	16	27	11
12	11	26	15	43	42	14	27	16	15	16	19	12
13	10	22	16	40	33	12	24	17	18	32	61	17
14	12	22	18	28	22	14	18	16	15	28	30	36
15	11	17	19	26	19	16	26	16	15	60	43	32
16	11	100	22	28	30	14	14	15	22	86	23	26
17	94	74	19	11	60	82	17	16	16	40	23	23
18	270	60	17	14	28	48	14	18	15	25	20	21
19	200	45	16	12	16	18	14	17	15	18	23	22
20	110	18	18	19	14	16	16	16	17	16	26	22
21	90	15	11	26	11	19	19	20	26	14	27	20
22	48	14	10	23	12	16	380	75	26	12	29	28
23	32	16	12	15	14	12	37	155	22	85	56	60
24	32	17	12	14	15	10	26	34	19	55	48	42
25	22	18	12	18	14	12	24	26	19	48	52	31
26	19	16	14	17	11	11	18	20	17	16	39	20
27	18	17	18	15	12	10	18	180	14	14	32	20
28	15	18	19	14	17	12	15	65	16	16	20	17
29	14	20	20	12	---	12	16	64	17	18	17	15
30	13	18	22	180	---	14	14	33	16	14	15	12
31	14	---	42	54	---	18	---	35	---	13	21	---
MEAN	41	26	17	34	39	20	33	34	30	29	32	21

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.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	14.5	---	---	8.0	6.5	---	18.5	---	---	25.0	26.0
2	---	---	---	3.5	8.0	7.0	14.0	18.0	---	26.5	27.0	---
3	18.5	16.5	---	4.0	8.5	6.5	15.5	18.0	---	26.5	28.5	26.5
4	19.0	16.5	---	---	---	---	12.5	---	18.0	26.5	---	28.0
5	---	---	---	3.5	6.5	8.0	---	---	17.5	28.0	---	---
6	17.0	16.0	---	6.5	8.0	8.0	---	---	17.5	28.0	27.5	28.0
7	---	16.0	---	---	9.0	8.0	---	17.5	18.0	---	---	28.5
8	---	16.0	11.0	5.0	---	---	---	17.0	20.0	---	28.5	28.0
9	18.0	---	11.0	5.5	---	---	---	18.0	20.0	---	---	---
10	18.0	14.5	---	5.5	---	---	14.5	18.0	---	---	---	26.0
11	17.5	14.5	11.0	---	---	---	13.5	18.0	20.0	28.0	---	26.0
12	16.0	---	9.0	---	---	13.0	13.5	18.0	19.5	28.0	---	26.0
13	16.5	15.0	9.0	---	8.5	14.5	13.5	---	19.5	29.0	---	---
14	16.5	15.0	---	---	---	15.5	13.5	17.5	20.0	28.5	---	28.0
15	---	15.0	---	---	9.0	15.5	13.5	---	---	28.5	---	26.5
16	---	---	---	5.5	9.5	15.5	13.5	18.5	---	29.0	26.5	---
17	---	---	---	---	11.5	15.5	---	---	---	28.5	26.5	25.5
18	---	---	4.5	---	11.0	---	14.5	---	24.5	26.0	26.5	24.5
19	---	---	4.5	14.5	---	14.5	---	---	24.5	---	---	24.5
20	---	---	4.5	17.0	9.0	---	15.0	---	---	26.0	27.0	---
21	---	---	2.5	---	9.0	14.5	15.0	---	25.5	26.5	28.0	---
22	---	---	3.5	9.0	---	14.5	---	---	25.5	---	---	---
23	12.5	---	1.5	8.0	9.0	---	---	18.5	---	28.0	---	---
24	13.5	11.0	---	8.0	---	---	15.0	18.5	---	26.5	---	23.0
25	13.5	11.0	---	8.5	---	---	14.0	18.5	25.5	26.5	---	21.0
26	13.5	---	---	7.5	9.0	12.5	---	19.0	---	26.5	---	---
27	13.5	---	2.5	7.5	8.0	13.5	16.5	---	25.5	---	24.5	22.0
28	14.5	---	3.5	---	7.5	13.0	16.5	---	---	---	---	---
29	---	---	3.0	8.0	---	13.5	---	18.0	---	---	25.0	21.5
30	---	---	3.5	7.0	---	12.5	17.0	---	---	28.0	25.0	---
31	17.0	---	---	7.0	---	12.5	---	---	---	28.5	25.5	---

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. All prior daily records furnished by ORSANCO. NASQAN samples since January 1974 taken at Winfield Bridge.

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 1989 TO SEPTEMBER 1990

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 (PER- CENT SATUR- ATION) (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)
NOV											
02...	1300	E16000	188	7.4	13.0	5.1	743	9.0	88	1300	68
FEB											
21...	1500	E27900	150	7.5	9.5	7.2	753	11.4	101	690	93
JUL											
06...	1200	E5930	261	7.7	27.0	9.7	743	7.0	90	100	K62
AUG											
10...	1130	E6000	276	8.0	27.0	4.4	743	6.6	85	K15	K9

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)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)
NOV											
02...	67	17	6.0	7.6	1.6	55	0	45	29	6.8	0.10
FEB											
21...	55	14	4.9	6.0	1.2	30	0	25	23	5.4	0.10
JUL											
06...	70	15	7.9	19	2.1	61	0	50	51	16	0.40
AUG											
10...	76	17	8.0	22	2.5	68	0	56	56	17	0.30

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	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 DIS- SOLVED (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- PHORUS TOTAL (MG/L AS P) (00665)
NOV											
02...	7.1	110	106	--	<0.010	0.760	0.090	0.090	0.11	0.20	0.030
FEB											
21...	6.7	93	80	0.750	0.030	0.780	0.040	0.050	0.26	0.30	0.040
JUL											
06...	2.9	136	147	0.390	0.010	0.400	0.130	0.120	0.37	0.50	0.080
AUG											
10...	2.4	149	161	0.290	0.010	0.300	0.200	0.180	0.70	0.90	0.070

E: Estimated.

K: Results based on colony count outside the acceptance range (non-ideal colony count).

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

[illegible]

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, 34.65 ft, Jan. 2; minimum, 24.30 ft, Aug. 21, 22.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.13	25.16	25.13	30.67	28.86	25.66	24.65	24.64	28.23	24.91	24.49	24.80
2	25.17	25.15	24.97	34.16	27.11	25.68	24.67	24.71	26.82	24.92	24.62	24.74
3	25.09	25.07	24.72	33.55	26.94	25.34	24.84	24.72	25.94	24.80	24.68	24.84
4	24.91	24.80	24.92	28.11	27.79	25.42	24.98	24.77	25.43	24.78	24.63	24.95
5	24.73	24.98	24.50	27.56	29.96	25.19	25.11	24.87	25.05	24.76	24.71	24.94
6	24.70	24.77	24.66	27.24	32.11	25.19	25.14	25.18	24.87	24.84	24.54	24.79
7	24.68	24.90	24.51	27.20	30.84	25.04	25.15	25.40	24.79	24.75	24.95	24.89
8	24.66	25.13	24.62	26.36	28.44	24.81	25.40	25.18	24.69	24.63	24.82	24.79
9	24.46	24.92	24.68	25.90	27.87	24.86	25.52	24.94	24.84	24.79	24.85	24.71
10	24.50	25.13	24.55	26.11	28.67	24.89	25.12	24.90	25.87	24.86	24.82	24.80
11	24.69	25.38	24.58	25.86	31.80	24.80	25.21	24.81	27.10	24.78	24.99	25.43
12	24.55	24.99	24.42	25.60	34.07	24.88	26.07	24.75	26.16	24.90	24.89	25.64
13	24.48	24.76	24.87	25.38	32.21	24.82	27.11	24.88	25.00	25.39	24.72	24.69
14	24.77	24.77	24.81	25.03	28.76	24.88	27.23	24.92	24.95	26.89	24.86	24.78
15	24.58	24.82	24.56	24.93	27.27	24.86	26.64	24.78	24.83	26.97	24.60	24.81
16	24.56	25.30	24.64	24.84	27.61	24.86	26.19	24.96	25.58	27.19	24.58	24.77
17	24.62	26.49	25.10	24.87	29.51	24.88	25.98	25.44	25.09	27.60	25.02	24.78
18	25.34	27.89	25.09	24.65	32.05	25.33	25.80	26.40	24.77	26.59	24.81	24.73
19	26.74	27.00	25.19	25.24	30.31	25.65	25.63	26.74	24.57	25.53	24.83	24.69
20	28.27	25.87	25.17	25.74	27.79	25.69	25.21	26.30	24.54	25.35	24.67	24.69
21	27.79	25.27	25.30	26.72	27.21	25.50	25.26	25.81	24.52	24.98	24.39	24.54
22	25.88	25.06	25.11	27.56	26.91	25.41	25.89	25.79	24.51	24.85	24.61	24.70
23	25.60	25.03	25.68	27.70	26.41	25.21	26.44	25.97	24.65	25.27	25.01	24.72
24	25.04	24.88	25.30	27.10	26.37	25.15	26.22	25.88	24.87	25.35	24.71	24.49
25	24.83	24.87	25.40	26.57	25.90	25.00	25.63	25.71	24.76	25.75	24.65	24.69
26	24.85	24.86	25.36	26.42	25.58	24.99	25.34	25.35	24.72	25.07	24.58	24.68
27	24.70	24.78	25.57	26.06	25.44	24.85	25.02	26.36	24.87	24.83	24.52	24.72
28	24.74	24.95	25.55	25.63	25.33	24.83	24.85	27.67	24.85	24.69	24.64	24.53
29	24.85	25.04	25.75	25.87	---	24.78	24.70	28.95	24.76	24.60	24.87	24.60
30	24.79	25.14	25.60	27.92	---	24.68	24.64	29.42	24.94	24.50	24.93	24.58
31	24.91	---	26.13	30.09	---	24.60	---	29.26	---	24.48	24.85	---
MEAN	25.12	25.24	25.05	26.99	28.54	25.09	25.52	25.79	25.22	25.28	24.74	24.78
MAX	28.27	27.89	26.13	34.16	34.07	25.69	27.23	29.42	28.23	27.60	25.02	25.64
MIN	24.46	24.76	24.42	24.65	25.33	24.60	24.64	24.64	24.51	24.48	24.39	24.49

WTR YR 1990 MEAN 25.59 MAX 34.16 MIN 24.39

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: Dec. 18-22, 24-28. Records good except for periods with ice effect, which are fair. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--22 years, 425 ft³/s, 18.86 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)
Oct. 17	2000	*11,200	*15.51	Feb. 10	1730	4,880	9.70
Jan. 1	0330	5,590	10.46				

Minimum discharge, 45 ft³/s, Sept. 30, gage height, 2.75 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	414	270	375	4240	929	911	457	364	288	98	68	52
2	796	237	350	1800	752	885	431	341	256	139	63	50
3	567	224	329	1150	897	1320	455	321	275	110	60	51
4	391	206	301	918	3060	1230	444	307	304	97	60	49
5	297	196	292	891	2790	952	468	338	249	90	81	46
6	248	198	278	839	1610	767	712	314	222	103	177	46
7	223	191	259	719	1210	641	2050	300	203	108	141	47
8	204	201	252	810	937	559	1450	282	187	88	85	63
9	179	331	253	1290	791	533	1050	267	179	83	71	55
10	162	453	233	1180	2880	488	864	301	174	79	70	54
11	160	399	233	956	2790	443	916	316	160	77	115	51
12	147	348	237	828	1790	412	861	277	148	76	115	69
13	137	302	242	674	1420	384	792	268	137	76	81	73
14	125	275	221	564	1210	362	703	257	130	128	76	57
15	121	265	213	521	1020	343	689	231	181	476	69	54
16	117	699	200	475	1690	334	607	219	179	306	64	51
17	4690	1100	150	433	2060	542	553	213	139	170	61	49
18	3100	796	e140	409	1420	875	534	210	124	120	58	49
19	2040	597	e135	384	1160	750	468	183	119	99	57	52
20	1660	509	e125	371	922	639	447	180	112	91	58	61
21	1140	450	e115	388	759	546	512	204	175	89	63	57
22	815	388	e110	356	682	494	894	579	176	87	117	64
23	611	380	103	336	644	460	855	1080	194	85	194	84
24	502	321	e100	321	608	458	701	650	162	86	115	69
25	422	291	e95	341	529	695	591	444	134	82	93	57
26	373	312	e90	521	426	830	516	363	117	74	75	52
27	333	370	e88	587	459	772	467	409	107	70	67	50
28	304	421	e85	589	769	663	433	356	100	69	62	46
29	279	422	97	657	---	599	456	353	95	68	58	46
30	263	390	175	1680	---	531	399	361	96	65	55	45
31	259	---	2110	1310	---	500	---	329	---	71	55	---
TOTAL	21079	11542	7986	26538	36214	19918	20775	10617	5122	3460	2584	1649
MEAN	680	385	258	856	1293	643	692	342	171	112	83.4	55.0
MAX	4690	1100	2110	4240	3060	1320	2050	1080	304	476	194	84
MIN	117	191	85	321	426	334	399	180	95	65	55	45
CFSM	2.22	1.26	.84	2.80	4.23	2.10	2.26	1.12	.56	.36	.27	.18
IN.	2.56	1.40	.97	3.23	4.40	2.42	2.53	1.29	.62	.42	.31	.20

CAL YR 1989 TOTAL 186051 MEAN 510 MAX 6350 MIN 75 CFSM 1.67 IN. 22.62
WTR YR 1990 TOTAL 167484 MEAN 459 MAX 4690 MIN 45 CFSM 1.50 IN. 20.36

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: Dec. 17-29, 31. Records good except for periods of estimated daily discharges, which are poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--16 years, 191 ft³/s, 20.59 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)
Oct. 17	1900	*7,010	*13.01	Feb. 4	1100	2,250	7.13
Dec. 31	2000	2,950	8.14	Feb. 10	1700	2,230	7.11

Minimum discharge, 5.1 ft³/s, Sept. 18, 19, gage height, 1.45 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	234	84	164	1180	410	523	148	143	98	25	13	10
2	376	73	150	766	311	448	136	129	87	32	11	9.0
3	233	68	138	459	532	694	134	127	111	32	10	8.6
4	148	63	122	373	2070	567	138	115	124	24	9.6	7.8
5	107	58	113	386	1200	393	150	128	98	21	12	7.3
6	86	57	106	362	619	298	280	126	80	33	117	7.0
7	74	55	95	304	427	238	1130	121	68	28	70	6.9
8	63	56	91	328	320	201	674	108	62	23	35	7.0
9	56	97	91	504	263	187	434	99	54	19	25	9.0
10	48	152	87	481	1320	170	326	149	51	15	21	8.3
11	44	144	88	386	1140	150	362	180	48	14	24	8.1
12	39	126	91	330	720	134	359	160	40	12	39	7.8
13	35	108	91	274	558	119	333	150	35	18	25	7.6
14	32	93	86	226	445	112	292	130	33	47	21	6.9
15	31	92	82	210	349	107	274	107	40	146	18	6.3
16	32	443	72	187	953	103	238	93	50	131	16	6.0
17	3700	654	e60	170	1020	190	215	94	42	70	14	5.5
18	2090	401	e50	163	570	352	204	91	34	45	12	5.5
19	1150	277	e45	158	400	313	176	72	38	34	11	6.3
20	766	225	e40	163	298	263	165	65	31	31	11	9.3
21	466	191	e35	187	238	212	224	69	50	26	11	9.4
22	311	156	e32	181	207	190	619	336	43	25	30	13
23	228	145	e30	178	195	170	515	753	61	32	77	22
24	184	120	e28	176	184	163	366	409	57	27	51	20
25	156	105	e26	190	155	188	283	257	53	22	30	13
26	131	119	e26	232	121	198	232	195	39	18	22	10
27	115	163	e25	245	134	202	201	193	32	16	17	8.4
28	103	202	e25	259	452	195	181	150	28	14	14	7.5
29	95	198	e29	336	---	186	201	139	25	13	12	6.9
30	87	178	121	1090	---	170	163	131	23	14	12	6.2
31	82	---	e1400	646	---	163	---	113	---	16	11	---
TOTAL	11302	4903	3639	11130	15611	7599	9153	5132	1635	1023	801.6	266.6
MEAN	365	163	117	359	558	245	305	166	54.5	33.0	25.9	8.89
MAX	3700	654	1400	1180	2070	694	1130	753	124	146	117	22
MIN	31	55	25	158	121	103	134	65	23	12	9.6	5.5
CFSM	2.89	1.30	.93	2.85	4.42	1.95	2.42	1.31	.43	.26	.21	.07
IN.	3.34	1.45	1.07	3.29	4.61	2.24	2.70	1.52	.48	.30	.24	.08

CAL YR 1989 TOTAL 82705 MEAN 227 MAX 3700 MIN 16 CFSM 1.80 IN. 24.42
WTR YR 1990 TOTAL 72195.2 MEAN 198 MAX 3700 MIN 5.5 CFSM 1.57 IN. 21.31

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.--7 years, (water years 1980-82, 1987-90), 756 ft³/s, 19.19 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, 5,090 ft³/s, Oct. 19, gage height, 9.09 ft; minimum daily, 52 ft³/s, Sept. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	572	478	728	3900	2910	737	681	589	447	126	92	66
2	1390	545	611	4740	1760	1810	589	523	388	128	88	66
3	1230	416	562	4620	1480	2120	590	521	502	125	65	66
4	722	326	569	4140	3690	2640	814	520	509	125	65	66
5	651	316	522	2670	4900	2970	787	524	428	125	89	66
6	479	368	471	1530	4800	2900	1290	522	290	154	174	57
7	384	387	435	1410	3420	1840	2910	505	260	174	298	52
8	336	444	436	1260	1100	1010	3460	419	258	160	237	108
9	292	522	416	2110	1360	920	2700	420	257	127	134	78
10	452	797	386	2600	2870	744	1940	463	257	121	93	68
11	477	926	386	2140	4270	672	1720	619	246	97	96	68
12	352	919	386	1490	4880	692	1420	599	181	97	140	68
13	255	606	388	974	4770	654	1450	497	181	97	163	69
14	238	511	416	795	4750	514	1310	422	180	194	137	69
15	297	548	340	796	4690	323	1200	379	184	643	92	69
16	332	1370	287	792	4620	253	1070	368	223	608	92	71
17	1560	2600	248	788	4630	332	892	337	243	306	84	71
18	4060	2260	319	784	2760	261	881	336	233	156	67	71
19	5000	1470	379	780	1440	995	855	288	180	154	67	71
20	4940	1010	340	779	1460	1560	774	255	153	134	68	72
21	4880	963	229	607	1440	1190	836	257	222	93	135	71
22	4900	873	173	490	1950	819	1700	414	244	107	98	77
23	4880	701	171	540	1950	792	2010	1780	243	145	282	111
24	4310	696	172	517	1080	794	1520	1940	241	145	278	127
25	2240	691	172	545	870	958	1180	1530	240	118	91	112
26	1160	560	293	649	654	1290	899	672	183	92	90	74
27	1020	715	340	729	604	1390	803	693	144	92	90	74
28	817	833	245	732	516	1160	737	410	128	92	119	74
29	811	953	230	1160	---	1070	803	898	136	92	127	74
30	460	893	300	2540	---	928	770	588	125	92	91	74
31	268	---	1760	3270	---	860	---	501	---	92	75	---
TOTAL	49765	24697	12710	50877	75624	35198	38591	18789	7506	5011	3817	2260
MEAN	1605	823	410	1641	2701	1135	1286	606	250	162	123	75.3
MAX	5000	2600	1760	4740	4900	2970	3460	1940	509	643	298	127
MIN	238	316	171	490	516	253	589	255	125	92	65	52

CAL YR 1989 TOTAL 354742 MEAN 972 MAX 5120 MIN 65 CFSM 1.82 IN. 24.67
WTR YR 1990 TOTAL 324845 MEAN 890 MAX 5000 MIN 52 CFSM 1.66 IN. 22.59

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: Dec. 17, 21-30. Records good except for periods with ice effect, which are 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.--28 years, 1,162 ft³/s, 18.94 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, 23,700 ft³/s, Oct. 17, gage height, 21.53 ft; minimum daily, 85 ft³/s, Sept. 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	679	594	1060	5400	3510	1020	1100	1030	839	229	144	107
2	1480	758	1040	5410	2380	2120	915	889	690	251	135	89
3	1640	719	852	4880	2140	3150	909	885	892	217	131	88
4	1020	535	866	4540	5680	3170	1040	845	1010	201	103	85
5	819	478	840	3390	6430	3400	1100	873	856	194	180	86
6	759	499	760	1850	5530	3170	1430	851	656	298	327	87
7	539	564	695	1750	4690	2550	3990	835	522	288	314	91
8	510	590	702	1700	1850	1480	4280	732	483	263	417	131
9	403	736	704	2140	1500	1320	3540	679	460	228	277	193
10	421	881	651	2900	5680	1220	2310	769	458	202	219	152
11	635	1120	643	2620	5940	1010	2400	877	424	206	297	107
12	507	1090	647	1980	5930	1020	1900	909	374	178	196	107
13	382	975	641	1520	5470	994	1950	807	318	228	228	108
14	308	656	639	1200	5190	881	1760	723	310	325	250	104
15	299	770	641	1180	4980	734	1700	603	365	633	199	100
16	382	1770	495	1140	6230	562	1600	585	370	1010	135	97
17	8910	3300	e370	1110	6170	837	1470	581	385	652	124	93
18	5670	2870	471	1100	4460	1060	1350	533	377	316	116	88
19	8720	1970	630	1070	2130	1110	1350	497	404	252	93	102
20	6070	1510	571	1090	1930	1880	1220	425	298	243	90	126
21	5260	1270	e350	1110	1820	1690	1510	453	360	206	112	107
22	4950	1300	e280	742	1960	1330	2690	1310	437	159	454	136
23	4780	1050	e270	937	2360	1150	2950	2050	452	206	356	168
24	4520	972	e270	816	1590	1230	2180	2210	398	228	519	174
25	2700	948	e300	894	1270	1270	1740	1990	383	217	284	175
26	1390	938	e450	947	1080	1510	1480	1100	362	178	151	155
27	1320	880	e550	1030	951	1700	1250	1190	267	144	140	101
28	1050	1170	e370	1040	1360	1540	1220	709	235	142	131	99
29	1030	1230	e350	1620	---	1390	1200	1280	218	141	169	97
30	920	1320	e450	3860	---	1310	1220	1160	224	138	176	98
31	463	---	2520	4050	---	1190	---	923	---	152	124	---
TOTAL	68536	33463	20078	65016	100211	47998	54754	29303	13827	8325	6591	3451
MEAN	2211	1115	648	2097	3579	1548	1825	945	461	269	213	115
MAX	8910	3300	2520	5410	6430	3400	4280	2210	1010	1010	519	193
MIN	299	478	270	742	951	562	909	425	218	138	90	85

CAL YR 1989 TOTAL 526444 MEAN 1442 MAX 10200 MIN 120 CFSM 1.73 IN. 23.51
WTR YR 1990 TOTAL 451553 MEAN 1237 MAX 8910 MIN 85 CFSM 1.49 IN. 20.17

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.--Estimated daily discharges: Dec. 17-31. Water-discharge records good except for period of 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.--63 years (water years 1916-17, 1930-90), 1,631 ft³/s, 18.10 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, 16,900 ft³/s, Oct. 19, gage height, 24.31 ft; minimum daily, 114 ft³/s, Sept. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	795	701	1530	7560	5080	1750	1660	1540	1420	413	191	179
2	1110	782	1320	7280	4190	1820	1530	1350	1200	355	186	158
3	1880	896	1230	6320	3570	3590	1360	1230	1680	330	171	133
4	1690	822	1090	5820	6190	4220	1370	1200	2120	289	165	123
5	1140	657	1080	5240	8680	4220	1490	1200	1690	269	156	120
6	971	603	1030	3730	7600	4070	1620	1190	1350	340	637	114
7	883	617	945	2590	6550	3750	3730	1190	1070	411	532	117
8	675	1220	871	2340	4620	2660	5520	1120	885	359	394	133
9	621	2130	879	2380	2590	1910	5070	996	797	318	475	201
10	513	1710	861	3650	6690	1740	3940	992	1430	291	409	248
11	543	1560	816	4130	10200	1540	3300	1070	873	264	681	266
12	697	1550	811	3480	8400	1370	3050	1120	706	303	508	181
13	582	1420	811	2630	7480	1330	2670	1120	589	484	323	211
14	464	1180	799	1970	6640	1260	2570	1010	503	683	302	185
15	388	988	817	1690	6120	1130	2470	894	528	1650	310	157
16	371	3760	793	1590	6840	987	2310	786	568	1380	272	144
17	1800	5100	e640	1510	8440	1480	2160	772	520	1130	210	134
18	12100	4690	e500	1460	7370	1960	2070	762	511	777	181	126
19	14600	3570	e580	1440	4630	1860	1910	674	509	451	172	125
20	12700	2530	e750	1540	3160	2210	1850	638	534	352	156	139
21	7660	1950	e700	1900	2740	2550	2680	598	466	324	195	164
22	6180	1690	e420	1760	2500	2160	5720	1590	488	307	919	232
23	5620	1590	e370	1410	2840	1790	4970	2210	590	327	1080	227
24	5280	1320	e340	1450	2730	1660	4040	2770	580	314	615	220
25	4430	1220	e330	1330	1940	1750	3060	2520	514	302	622	202
26	2670	1210	e370	1340	1570	1840	2440	2130	476	277	389	206
27	1680	1170	e580	1310	1400	2070	2010	1610	441	251	244	196
28	1500	1270	e650	1340	1480	2130	1760	1720	351	208	214	161
29	1260	1480	e470	2140	---	1910	1770	2340	313	197	197	132
30	1200	1530	e430	5550	---	1770	1640	2510	297	189	203	126
31	1010	---	e2500	5960	---	1780	---	1840	---	202	229	---
TOTAL	93013	50916	25313	93840	142240	66267	81740	42692	23999	13747	11338	5060
MEAN	3000	1697	817	3027	5080	2138	2725	1377	800	443	366	169
MAX	14600	5100	2500	7560	10200	4220	5720	2770	2120	1650	1080	266
MIN	371	603	330	1310	1400	987	1360	598	297	189	156	114

CAL YR 1989 TOTAL 813920 MEAN 2230 MAX 16100 MIN 189 CFSM 1.82 IN. 24.74
WTR YR 1990 TOTAL 650165 MEAN 1781 MAX 14600 MIN 114 CFSM 1.46 IN. 19.76

e Estimated

GUYANDOTTE RIVER BASIN

03204000 GUYANDOTTE RIVER AT BRANCHLAND, 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.

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 1989 TO SEPTEMBER 1990

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- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)
NOV 03...	1330	883	435	7.6	11.0	9.6	746	9.6	89	1400	180	140
DEC 14...	1500	816	408	7.5	2.5	2.4	742	12.1	91	690	180	110
FEB 22...	1600	2490	270	7.5	10.0	11	732	10.1	93	1100	270	80
APR 20...	1400	1890	284	7.6	14.0	3.4	750	9.0	89	480	73	77
JUL 05...	1230	267	620	8.0	26.5	6.8	744	6.6	84	K75	K34	150
AUG 09...	1300	489	522	8.0	22.0	29	745	7.2	84	640	500	150
DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE WATER DIS IT FIELD HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD CO3 (00452)	ALKA- LITY WAT DIS TOT IT FIELD 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)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
NOV 03...	31	14	33	3.0	71	0	58	130	12	0.10	8.4	276
DEC 14...	24	11	32	2.4	62	0	51	110	13	0.10	6.0	244
FEB 22...	17	9.2	17	2.0	33	0	27	77	5.7	0.10	8.2	170
APR 20...	15	9.5	21	2.0	33	0	27	77	6.7	0.50	7.1	172
JUL 05...	35	16	60	3.5	113	0	93	160	31	0.20	3.1	360
AUG 09...	34	15	54	4.2	112	0	92	140	19	0.30	5.7	346

K: Results based on colony count outside the acceptance range (non-ideal colony count).

GUYANDOTTE RIVER BASIN

03204000 GUYANDOTTE RIVER AT BRANCHLAND, WV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L) (00608)	NITRO- GEN, ORGANIC TOTAL (MG/L) (00605)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L) (00625)	PHOS- PHORUS TOTAL (MG/L) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L) (00671)	ALUM- INUM, DIS- SOLVED (UG/L) (01106)
NOV 03...	270	<0.010	0.620	0.030	0.020	--	<0.20	0.020	<0.010	<0.010	30
DEC 14...	231	<0.010	0.510	0.110	0.110	0.39	0.50	0.010	<0.010	<0.010	--
FEB 22...	156	0.020	0.600	0.020	0.030	0.38	0.40	0.020	<0.010	<0.010	30
APR 20...	158	<0.010	0.500	<0.010	<0.010	--	<0.20	0.020	<0.010	<0.010	30
JUL 05...	367	<0.010	0.500	<0.010	0.020	--	0.30	0.020	0.010	<0.010	--
AUG 09...	331	<0.010	0.700	0.030	0.021	0.27	0.30	0.021	<0.010	<0.010	30
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)
NOV 03...	<1	73	<0.5	<1.0	1	<3	<1	26	<1	18	58
DEC 14...	--	--	--	--	--	--	--	--	--	--	--
FEB 22...	<1	50	<0.5	<1.0	<5	<3	<10	13	<10	11	32
APR 20...	<1	45	<0.5	<1.0	<1	<3	1	21	<1	12	15
JUL 05...	--	--	--	--	--	--	--	--	--	--	--
AUG 09...	<1	60	<0.5	<1.0	<1	<3	3	18	<1	19	10
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)
NOV 03...	<0.1	<10	3	1	<1.0	470	<6	7	15	36	96
DEC 14...	--	--	--	--	--	--	--	--	3	6.6	0
FEB 22...	<0.1	<10	<10	<1	<1.0	300	<6	<3	75	504	26
APR 20...	<0.1	<10	2	<1	<1.0	310	<6	<3	13	66	100
JUL 05...	--	--	--	--	--	--	--	--	32	23	24
AUG 09...	<0.1	<10	2	<1	<1.0	550	<6	<3	52	69	96

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, 42.03 ft, Feb. 12; minimum, 24.73 ft, Oct. 16.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.52	25.64	26.62	34.43	34.85	27.56	25.82	25.57	32.90	25.77	25.36	e25.65
2	25.97	25.38	25.90	39.06	31.59	27.84	25.90	25.80	30.35	25.79	25.84	e25.60
3	26.69	25.47	25.92	39.48	30.61	27.32	26.42	25.23	28.86	25.50	26.08	25.55
4	26.73	25.29	25.45	34.80	32.99	27.64	26.78	25.73	28.04	25.52	25.83	25.90
5	25.83	25.32	25.75	32.23	37.34	27.14	26.72	26.84	26.84	25.48	26.11	25.94
6	25.59	25.19	25.87	31.30	39.28	27.17	26.85	27.89	26.06	25.64	26.27	25.90
7	25.60	25.07	25.52	30.91	37.68	26.63	27.04	28.12	25.87	25.70	26.44	26.33
8	25.34	25.42	25.65	29.63	34.10	26.06	27.93	26.98	25.78	25.44	26.28	26.61
9	25.44	25.91	25.59	28.40	32.44	25.98	27.99	26.43	26.80	25.44	26.13	26.39
10	25.01	26.20	25.67	28.69	35.20	25.91	26.88	26.29	30.17	25.86	26.00	26.27
11	25.55	26.88	25.55	28.79	39.90	25.91	27.60	26.18	31.92	25.63	26.26	27.13
12	25.29	26.57	25.55	27.80	41.77	26.05	30.40	26.01	28.77	25.74	25.94	27.50
13	24.93	25.92	25.34	27.55	39.81	25.83	32.02	25.98	26.30	27.17	25.87	26.03
14	25.58	26.29	25.61	26.62	35.61	26.35	31.06	26.20	26.27	30.85	26.07	26.34
15	25.39	25.41	25.43	25.96	32.27	25.62	29.74	26.15	26.90	30.76	26.23	26.18
16	25.08	26.88	25.59	26.05	32.58	25.69	29.02	26.80	28.79	31.07	25.89	26.05
17	25.50	30.54	25.23	25.88	36.51	26.35	28.66	28.32	26.71	31.51	26.23	26.46
18	28.87	33.37	25.46	25.99	39.04	28.14	28.14	30.83	26.00	30.37	26.05	25.93
19	32.86	31.22	25.45	26.82	37.31	28.71	27.82	30.31	25.69	28.03	26.09	26.05
20	36.01	28.47	25.67	28.16	33.10	28.38	26.94	29.04	25.39	27.42	26.40	26.07
21	34.41	27.54	25.75	30.70	31.39	27.79	27.59	28.19	25.40	26.88	25.68	26.16
22	30.12	26.66	25.70	32.00	30.31	27.42	30.57	28.41	25.29	26.70	26.20	26.20
23	28.70	26.50	25.58	31.89	29.47	27.00	31.12	28.85	25.42	27.60	26.99	26.29
24	27.21	26.10	25.92	30.63	29.12	26.67	29.75	28.60	25.25	27.77	26.28	25.96
25	26.05	25.91	25.41	29.51	28.48	26.22	28.17	28.19	25.26	28.22	26.67	25.88
26	25.95	25.96	25.54	28.97	27.88	26.35	27.51	27.36	25.00	26.93	26.30	25.88
27	25.58	25.81	25.83	28.37	27.31	26.73	26.55	31.21	25.35	26.37	25.73	26.04
28	25.36	26.40	25.70	27.60	27.13	26.29	26.04	33.75	25.28	25.62	25.63	25.62
29	25.52	26.49	25.83	28.82	---	25.95	25.74	36.78	25.32	26.01	25.41	25.59
30	25.05	26.59	25.86	34.82	---	26.00	25.74	36.36	25.77	25.38	25.50	25.67
31	25.33	---	27.68	36.88	---	26.11	---	35.09	---	25.83	25.73	---
MEAN	26.84	26.68	25.73	30.28	33.75	26.74	27.95	28.50	26.92	27.03	26.05	26.11
MAX	36.01	33.37	27.68	39.48	41.77	28.71	32.02	36.78	32.90	31.51	26.99	27.50
MIN	24.93	25.07	25.23	25.88	27.13	25.62	25.74	25.23	25.00	25.38	25.36	25.55

WTR YR 1990 MEAN 27.67 MAX 41.77 MIN 24.93

e Estimated

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: Dec. 15, 17-23, 25-28. Records good except for periods with ice effect, which are fair. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--26 years, 52.8 ft³/s, 18.62 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)
Oct. 19	0830	*1,410	*10.69	No other peak greater than base discharge.			

Minimum discharge, 0.59 ft³/s, Aug. 4, 5, gage height, 4.64 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	25	33	401	118	46	47	36	46	6.1	1.3	2.3
2	35	21	33	192	90	70	48	33	34	3.9	1.1	1.9
3	29	20	31	122	203	113	46	31	181	2.6	.84	1.6
4	24	19	28	119	349	103	49	29	124	2.1	.66	1.3
5	21	18	28	101	208	84	45	33	80	1.7	59	1.2
6	19	18	27	84	138	68	89	31	58	2.4	51	1.0
7	18	18	24	69	111	58	178	35	43	1.9	11	1.6
8	15	225	23	67	84	50	134	30	33	1.7	5.9	10
9	14	242	22	74	74	46	102	27	64	1.4	10	4.7
10	12	149	22	138	526	41	87	32	67	1.7	15	4.9
11	13	98	22	126	298	37	82	27	31	3.6	18	4.4
12	11	71	22	100	204	34	66	23	22	2.6	8.5	5.6
13	10	55	21	72	149	31	58	22	18	21	5.2	7.2
14	9.4	48	20	58	115	29	56	20	14	29	4.1	4.3
15	8.7	55	e19	51	91	28	63	17	20	31	3.4	3.7
16	8.7	455	18	46	235	27	56	15	16	15	2.8	3.1
17	425	252	e17	42	202	120	58	15	12	7.9	2.3	2.8
18	338	146	e16	44	142	107	56	13	9.9	5.1	2.1	2.4
19	967	95	e15	41	109	91	51	11	8.7	3.9	1.8	3.4
20	294	75	e14	66	80	79	50	10	8.3	3.2	1.8	4.4
21	149	59	e14	104	63	67	214	11	22	2.8	11	3.4
22	90	49	e13	89	57	60	267	39	9.2	4.6	35	9.0
23	63	44	e12	76	53	53	183	26	9.5	18	22	6.9
24	49	35	12	65	47	54	125	18	7.7	6.8	11	3.7
25	41	33	e12	59	38	54	90	14	5.4	3.9	7.2	2.8
26	35	34	e12	50	37	53	68	17	4.5	2.9	5.2	2.4
27	31	32	e11	41	38	52	56	30	3.9	2.3	4.1	2.0
28	28	38	e11	38	48	49	50	38	3.5	2.0	3.5	1.8
29	25	35	19	208	---	46	51	191	3.1	1.6	3.4	1.6
30	24	34	59	316	---	44	40	115	3.3	1.4	3.3	1.4
31	25	---	445	176	---	50	---	69	---	1.4	2.9	---
TOTAL	2871.8	2498	1075	3235	3907	1844	2565	1058	962.0	195.5	314.40	106.8
MEAN	92.6	83.3	34.7	104	140	59.5	85.5	34.1	32.1	6.31	10.1	3.56
MAX	967	455	445	401	526	120	267	191	181	31	59	10
MIN	8.7	18	11	38	37	27	40	10	3.1	1.4	.66	1.0
CFSM	2.41	2.16	.90	2.71	3.62	1.55	2.22	.89	.83	.16	.26	.09
IN.	2.77	2.41	1.04	3.13	3.78	1.78	2.48	1.02	.93	.19	.30	.10

CAL YR 1989 TOTAL 34817.7 MEAN 95.4 MAX 2100 MIN 5.9 CFSM 2.48 IN. 33.64
WTR YR 1990 TOTAL 20632.50 MEAN 56.5 MAX 967 MIN .66 CFSM 1.47 IN. 19.94

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.--Estimated daily discharges: Dec. 17-29, Aug. 28 to Sept. 11. Records good except for period of no gage-height record, Aug. 28 to Sept. 11, which is fair, and period with ice effect, Dec. 17-29, which is poor. National Weather Service gage-height telemeter and U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--5 years, 192 ft³/s, 14.98 in/yr.

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; minimum gage height, 2.57 ft, Sept. 4-5, 1987, Dec. 19, 1988.

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

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Feb. 10	1400	*2,900	*9.02	No other peak greater than base discharge.			

Minimum discharge, 41 ft³/s, Sept. 18, 28-30, gage height, 2.73 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	244	117	162	1470	422	410	358	263	269	110	90	e76
2	247	110	160	721	378	448	350	258	249	117	87	e72
3	166	107	158	516	510	595	335	242	249	101	85	e66
4	133	103	151	439	1220	552	333	255	239	104	85	e62
5	116	102	150	387	1100	482	330	273	222	102	92	e54
6	107	101	145	356	784	433	471	256	208	111	126	e48
7	103	100	137	323	644	394	963	256	194	103	100	e50
8	94	125	142	477	534	368	696	244	187	99	92	e54
9	89	259	137	683	469	355	578	239	180	91	87	e62
10	85	236	133	538	1880	335	530	250	176	97	90	e50
11	84	177	131	444	1380	318	531	232	166	105	94	e58
12	74	155	134	394	995	303	469	219	159	114	86	55
13	78	141	135	345	807	289	429	216	153	127	87	54
14	76	134	128	313	693	279	405	208	149	253	86	57
15	76	132	128	296	608	271	409	197	168	260	84	51
16	74	301	124	276	972	270	379	200	156	172	82	49
17	728	345	e115	258	952	570	371	206	147	128	81	46
18	468	261	e110	250	763	575	350	191	142	114	82	43
19	591	213	e105	237	680	450	329	180	139	108	82	54
20	434	198	e95	237	578	404	320	179	132	108	71	54
21	306	184	e85	236	512	369	346	206	164	104	79	46
22	226	172	e80	221	471	349	384	693	174	102	113	78
23	184	183	e75	211	450	335	354	567	198	97	87	67
24	163	160	e70	206	428	384	330	367	144	94	89	53
25	150	155	e65	224	376	726	314	291	137	92	84	55
26	139	164	e63	313	343	642	298	270	131	91	83	53
27	133	173	e62	303	350	544	288	300	127	90	84	52
28	126	183	e61	301	403	484	290	303	112	90	e78	44
29	122	174	e60	365	---	445	304	329	113	90	e74	41
30	119	166	133	712	---	406	276	332	110	92	e76	41
31	120	---	877	513	---	380	---	298	---	96	e80	---
TOTAL	5855	5131	4311	12565	19702	13165	12120	8520	5094	3562	2696	1645
MEAN	189	171	139	405	704	425	404	275	170	115	87.0	54.8
MAX	728	345	877	1470	1880	726	963	693	269	260	126	78
MIN	74	100	60	206	343	270	276	179	110	90	71	41
CFSM	1.09	.98	.80	2.33	4.04	2.44	2.32	1.58	.98	.66	.50	.32
IN.	1.25	1.10	.92	2.69	4.21	2.81	2.59	1.82	1.09	.76	.58	.35

CAL YR 1989 TOTAL 80934 MEAN 222 MAX 2510 MIN 60 CFSM 1.27 IN. 17.30
WTR YR 1990 TOTAL 94366 MEAN 259 MAX 1880 MIN 41 CFSM 1.49 IN. 20.17

e Estimated

BIG SANDY RIVER BASIN

03212980 DRY FORK AT BEARTOWN, WV

LOCATION.--Lat $37^{\circ}23'43''$, long $81^{\circ}48'10''$, 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: Dec. 18-29. 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.

AVERAGE DISCHARGE.--5 years, 223 ft³/s, 14.49 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,840 ft³/s, May 6, 1989, gage height, 9.90 ft; minimum discharge, 13 ft³/s, Oct. 30, 1987; minimum gage height, 2.23 ft, Sept. 3, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Feb. 10	1400	*5,530	*9.03	May 22	1800	3,100	7.16

Minimum discharge, 23 ft³/s, Sept. 5-7, gage height, 2.32 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	762	134	205	2250	556	363	326	239	336	94	45	31
2	797	116	191	1000	452	404	326	245	274	180	44	30
3	415	110	183	618	559	587	322	238	253	105	43	29
4	269	103	168	473	1560	600	319	250	229	86	41	27
5	209	101	164	389	1410	503	309	378	200	80	48	25
6	173	102	159	337	872	425	403	404	180	86	88	23
7	146	103	152	297	643	359	1430	354	168	79	66	26
8	118	129	157	549	495	321	949	309	160	70	47	29
9	103	316	166	1210	416	308	668	280	148	66	46	36
10	92	451	156	808	3210	283	553	290	167	64	47	32
11	88	320	146	571	1950	261	532	266	141	71	45	29
12	82	261	150	459	1050	240	464	232	124	71	44	65
13	77	224	159	362	748	223	421	217	116	72	42	80
14	74	204	149	301	605	216	382	196	110	137	43	54
15	69	186	150	278	513	211	394	181	133	379	42	59
16	68	389	149	253	1010	210	369	219	152	254	38	42
17	1310	644	139	234	1060	815	360	215	122	145	36	33
18	1010	491	e120	230	771	983	346	193	108	108	34	32
19	1460	363	e110	216	643	624	319	167	94	90	34	36
20	895	310	e100	208	523	483	309	155	89	81	34	42
21	553	273	e90	210	444	401	325	200	141	76	38	31
22	375	243	e80	197	407	358	346	1490	124	91	55	62
23	279	259	e75	183	386	329	331	1540	197	74	47	60
24	236	226	e70	176	362	335	310	709	141	66	41	44
25	207	211	e65	196	320	1160	288	455	115	60	51	36
26	183	219	e60	353	273	1030	272	349	98	57	41	33
27	163	223	e58	409	281	711	257	428	90	53	37	32
28	150	229	e57	391	327	549	247	515	85	51	31	27
29	138	224	e56	441	---	458	274	669	80	50	32	24
30	130	212	158	1120	---	397	248	587	78	48	33	31
31	133	---	905	792	---	356	---	441	---	46	33	---
TOTAL	10764	7376	4747	15511	21846	14503	12399	12411	4453	2990	1346	1140
MEAN	347	246	153	500	780	468	413	400	148	96.5	43.4	38.0
MAX	1460	644	905	2250	3210	1160	1430	1540	336	379	88	80
MIN	68	101	56	176	273	210	247	155	78	46	31	23
CFSM	1.66	1.18	.73	2.39	3.73	2.24	1.98	1.92	.71	.46	.21	.18
IN.	1.92	1.31	.84	2.76	3.89	2.58	2.21	2.21	.79	.53	.24	.20

CAL YR 1989 TOTAL 111023 MEAN 304 MAX 4150 MIN 42 CFSM 1.46 IN. 19.76
WTR YR 1990 TOTAL 109486 MEAN 300 MAX 3210 MIN 23 CFSM 1.44 IN. 19.49

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: Dec. 17-29, 31. 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.

AVERAGE DISCHARGE.--5 years, 837 ft³/s, 14.61 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,300 ft³/s, Oct. 17, 1989, gage height, 22.15 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)
Oct. 17	1600	*33,300	*22.15	Feb. 4	2300	7,760	10.74
Oct. 19	0600	9,930	12.14	Feb. 10	2000	17,600	16.13

Minimum discharge, 87 ft³/s, Sept. 7, gage height, 1.11 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1020	522	882	6540	1980	1690	1160	954	984	322	160	108
2	2250	451	805	3730	1630	1760	1090	912	829	355	151	104
3	1380	412	753	2340	2320	2550	1090	866	834	356	145	100
4	897	384	680	1830	6880	2590	1080	817	855	265	144	99
5	656	364	644	1570	5960	2070	1050	970	719	232	155	97
6	533	357	614	1350	3470	1700	1270	1100	627	300	206	95
7	471	354	564	1200	2550	1430	4470	1030	564	278	230	104
8	392	385	546	1320	1990	1260	3600	930	524	230	194	230
9	332	645	624	3260	1670	1200	2510	846	512	212	160	138
10	296	1280	594	2830	9220	1110	2020	917	475	200	167	139
11	278	1090	574	2090	8320	1020	2220	911	460	215	416	137
12	259	884	582	1750	4140	950	2130	783	404	207	218	104
13	234	740	596	1420	2940	880	1860	727	373	242	169	144
14	224	656	571	1190	2410	832	1650	676	355	288	155	176
15	217	612	543	1090	2030	799	1710	605	474	755	152	165
16	210	1400	530	994	3860	791	1610	589	518	763	141	150
17	14000	2650	e450	908	4690	1360	1550	645	433	476	135	119
18	6200	2010	e400	861	3130	3210	1470	626	366	325	127	103
19	7550	1460	e350	811	2530	2220	1300	520	338	261	124	110
20	4010	1200	e320	774	2050	1780	1230	487	310	230	124	151
21	2430	1050	e300	807	1700	1480	1290	551	508	216	132	138
22	1660	897	e280	756	1530	1340	1900	1440	482	212	192	232
23	1210	906	e260	701	1460	1250	1770	3670	532	251	349	294
24	975	803	e240	669	1380	1170	1520	1920	548	213	191	209
25	821	711	e230	691	1250	1870	1310	1260	421	192	149	145
26	713	734	e220	910	1030	2710	1160	1010	346	178	144	123
27	631	787	e210	1200	1040	2170	1060	1140	308	171	130	115
28	568	888	e205	1200	1390	1800	998	1110	284	171	121	109
29	521	971	e200	1270	---	1560	1140	1370	261	168	113	104
30	486	940	701	2780	---	1380	1030	1440	274	167	113	95
31	479	---	e2200	2720	---	1270	---	1210	---	174	112	---
TOTAL	51903	26543	16668	51562	84550	49202	49248	32032	14918	8625	5219	4137
MEAN	1674	885	538	1663	3020	1587	1642	1033	497	278	168	138
MAX	14000	2650	2200	6540	9220	3210	4470	3670	984	763	416	294
MIN	210	354	200	669	1030	791	998	487	261	167	112	95
CFSM	2.15	1.14	.69	2.14	3.88	2.04	2.11	1.33	.64	.36	.22	.18
IN.	2.48	1.27	.80	2.47	4.04	2.35	2.35	1.53	.71	.41	.25	.20

CAL YR 1989 TOTAL 415298 MEAN 1138 MAX 15900 MIN 153 CFSM 1.46 IN. 19.86
WTR YR 1990 TOTAL 394607 MEAN 1081 MAX 14000 MIN 95 CFSM 1.39 IN. 18.87

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: Dec. 18-29. Records fair except for period with ice effect, which is poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--23 years, 1,123 ft³/s, 16.29 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)
Oct. 17	2330	*20,700	*29.53	Feb. 11	0230	13,500	22.35
Oct. 19	1200	10,300	18.84				

Minimum discharge, 91 ft³/s, Sept. 7, gage height, 1.43 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1060	865	1260	6060	2690	2050	1380	1180	1300	488	184	124
2	2730	782	1140	4790	2270	2170	1270	1120	1080	393	168	118
3	2130	702	1040	3180	2530	2910	1250	1080	1180	470	158	112
4	1390	651	944	2560	6630	3140	1240	994	1190	360	157	105
5	967	650	876	2250	6610	2610	1210	1110	989	296	175	98
6	746	641	834	1960	4420	2170	1360	1270	836	396	233	98
7	651	627	765	1770	3360	1840	4040	1250	738	375	236	104
8	572	622	710	1780	2750	1600	4280	1130	668	306	243	364
9	476	821	808	3300	2380	1500	3040	1020	641	270	189	279
10	417	1650	798	3530	6310	1410	2470	1050	595	250	228	187
11	393	1710	760	2800	9910	1290	2510	1110	560	243	480	180
12	370	1370	755	2420	5060	1190	2520	952	512	250	329	152
13	349	1140	762	2070	3660	1100	2290	864	460	286	214	137
14	322	997	746	1740	3000	1030	2030	802	434	428	181	196
15	319	954	718	1540	2560	983	2050	722	575	619	167	211
16	306	2130	667	1400	3620	958	1980	665	629	1040	160	197
17	8420	3390	591	1260	5420	1420	1920	735	558	660	149	163
18	11100	2860	e520	1170	3880	3400	1870	731	463	428	139	129
19	8400	2250	e460	1110	3100	2750	1670	622	413	329	134	140
20	5530	1860	e420	1040	2590	2240	1560	569	383	283	132	186
21	3530	1610	e380	1100	2170	1860	1610	618	696	256	143	180
22	2610	1360	e360	1040	1930	1670	2250	1370	651	243	443	235
23	2040	1300	e330	953	1820	1540	2260	3630	590	284	494	418
24	1670	1210	e310	894	1720	1440	1970	2450	672	266	312	321
25	1410	1040	e290	884	1590	1700	1710	1660	587	226	210	217
26	1210	1010	e280	1030	1320	2910	1510	1300	452	203	181	165
27	1080	1090	e270	1490	1290	2500	1370	1380	400	193	167	142
28	1010	1210	e260	1550	1620	2100	1270	1410	363	187	147	130
29	956	1370	e250	1730	---	1840	1390	1620	338	188	138	122
30	862	1350	647	3080	---	1630	1290	1810	332	188	133	116
31	801	---	1640	3460	---	1500	---	1580	---	204	128	---
TOTAL	63827	39222	20591	64941	96210	58451	58570	37804	19285	10608	6552	5326
MEAN	2059	1307	664	2095	3436	1886	1952	1219	643	342	211	178
MAX	11100	3390	1640	6060	9910	3400	4280	3630	1300	1040	494	418
MIN	306	622	250	884	1290	958	1210	569	332	187	128	98
CFSM	2.20	1.40	.71	2.24	3.67	2.01	2.09	1.30	.69	.37	.23	.19
IN.	2.54	1.56	.82	2.58	3.82	2.32	2.33	1.50	.77	.42	.26	.21

CAL YR 1989 TOTAL 521408 MEAN 1429 MAX 12800 MIN 199 CFSM 1.53 IN. 20.72
WTR YR 1990 TOTAL 481387 MEAN 1319 MAX 11100 MIN 98 CFSM 1.41 IN. 19.13

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: Dec. 18-29, June 29 to July 1, 5, 8-13, July 20 to Aug. 5, 7-10, 13-20. Records good except for period with ice effect, which is poor. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--12 years (water years 1916-17, 1930-34, 1986-90), 1,415 ft³/s, 15.01 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)
Oct. 18	0900	*23,600	*33.82	Feb. 11	0900	16,900	27.10

Minimum discharge, 144 ft³/s, Sept. 6, 7, gage height, 2.14 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1280	925	1430	7580	3450	2380	1760	1480	1680	e450	e250	191
2	2670	849	1330	6890	2770	2700	1630	1380	1360	492	e240	183
3	2560	754	1220	4080	2940	3800	1580	1340	2110	483	e230	171
4	1740	689	1120	3140	8610	4150	1570	1230	2130	469	e220	164
5	1250	648	1040	2670	9490	3480	1540	1290	1590	e370	e230	153
6	977	622	986	2300	6030	2870	1730	1450	1250	633	648	147
7	836	595	918	2040	4230	2440	4280	1550	1060	509	e400	148
8	713	847	854	1990	3320	2140	5660	1390	937	e420	e340	324
9	594	1160	894	3110	2820	1960	3970	1250	848	e350	e280	389
10	513	1550	920	4230	7640	1830	3160	1220	834	e300	e260	577
11	482	1860	891	3430	15300	1690	3000	1320	731	e320	804	292
12	440	1540	873	2860	7990	1560	3060	1170	664	e300	590	273
13	411	1290	874	2400	4950	1420	2830	1050	602	e400	e310	267
14	384	1100	862	2000	3910	1330	2540	988	566	771	e260	242
15	372	1030	826	1770	3280	1250	2530	905	739	1430	e250	266
16	365	3460	760	1620	5190	1200	2470	826	782	1290	e230	263
17	7110	4560	608	1470	7860	1920	2380	904	720	931	e220	239
18	21000	3810	e560	1370	5450	3790	2360	902	616	634	e210	198
19	16600	2810	e500	1260	4130	3690	2160	789	567	491	e200	191
20	11400	2260	e440	1240	3370	3030	2020	698	520	e420	e200	239
21	5230	1930	e400	1380	2790	2530	2170	733	632	e380	318	235
22	3430	1660	e370	1350	2470	2260	3110	1410	810	e340	1140	262
23	2520	1530	e350	1270	2310	2080	3200	3350	727	e410	1360	404
24	2020	1400	e330	1200	2190	1940	2770	3050	733	e350	647	394
25	1680	1220	e310	1180	2010	1970	2390	1990	736	e310	415	299
26	1440	1180	e290	1200	1720	3000	2090	1510	571	e280	320	231
27	1240	1220	e280	1480	1610	3000	1850	1560	502	e270	286	198
28	1090	1330	e270	1620	1910	2570	1680	1630	459	e270	254	180
29	989	1470	e270	2100	---	2280	1790	2480	e430	e260	234	172
30	916	1490	1250	4270	---	2060	1670	2490	e410	e250	228	165
31	881	---	2590	4580	---	1950	---	2140	---	e260	207	---
TOTAL	93133	46789	24616	79080	129740	74270	74950	45475	26316	14843	11781	7457
MEAN	3004	1560	794	2551	4634	2396	2498	1467	877	479	380	249
MAX	21000	4560	2590	7580	15300	4150	5660	3350	2130	1430	1360	577
MIN	365	595	270	1180	1610	1200	1540	698	410	250	200	147
CFSM	2.35	1.22	.62	1.99	3.62	1.87	1.95	1.15	.69	.37	.30	.19
IN.	2.71	1.36	.72	2.30	3.77	2.16	2.18	1.32	.76	.43	.34	.22

CAL YR 1989 TOTAL 749155 MEAN 2052 MAX 21000 MIN 248 CFSM 1.60 IN. 21.77
WTR YR 1990 TOTAL 628450 MEAN 1722 MAX 21000 MIN 147 CFSM 1.35 IN. 18.26

e Estimated

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MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

01595200

- STONY RIVER NEAR MOUNT STORM, WV

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER- ATURE WATER (DEG C) (00010)
NOV			
15...	1215	38	--
MAR			
06...	1200	48	--
MAY			
10...	1240	132	--
JUN			
26...	1430	14	20.0
AUG			
27...	1400	18	22.0

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 (PER- CENT SATUR- ATION) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
NOV								
15...	1515	70	270	7.7	12.0	735	9.9	95
DEC								
20...	1545	49	320	7.4	0.0	747	12.5	87
JAN								
24...	1320	158	225	7.0	5.0	740	12.4	100
MAR								
21...	1525	52	280	7.8	9.5	750	11.9	106
MAY								
09...	0830	190	185	7.2	16.0	745	7.8	81
JUL								
17...	1715	326	215	7.5	23.0	748	7.5	89
SEP								
12...	1345	16	280	7.5	24.0	747	7.9	96

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 (PER- CENT SATUR- ATION) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
NOV								
17...	0940	966	80	7.0	8.0	717	10.4	93
JAN								
25...	1400	57	145	7.9	8.0	709	13.0	118
MAR								
23...	0835	54	146	7.1	9.0	721	10.3	94
JUL								
18...	1150	11	--	--	24.5	--	--	--
SEP								
13...	1545	22	190	8.1	23.5	720	8.4	105

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
NOV								
16...	1000	417	103	6.9	12.0	723	9.2	90
DEC								
21...	1050	52	235	7.5	0.5	739	13.5	97
JAN								
25...	0950	133	165	7.3	7.0	730	11.3	97
MAR								
22...	1230	99	165	7.2	10.5	740	10.8	100
MAY								
09...	1350	98	170	7.5	19.0	735	8.4	94
JUL								
18...	0850	143	155	7.0	22.5	743	8.3	98
SEP								
13...	0920	23	215	7.3	22.0	740	7.0	83

03056250 - THREE FORK CREEK NR GRAFTON, 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)
OCT					
03...	0910	36		4.8	17.0
19...	1000	1380		5.9	13.0
NOV					
06...	1210	53		4.4	9.0
27...	0930	129		4.5	5.0
DEC					
11...	1245	89		4.5	1.0
MAY					
02...	1045	77		3.6	14.5
15...	1115	118		5.2	16.0
JUN					
04...	1145	194		4.8	16.0
07...	0800	82		4.1	18.5
18...	1030	77		5.1	21.0
21...	0730	52		4.7	19.0
JUL					
02...	1000	244		5.0	17.5
05...	1000	50		4.5	22.5
09...	1040	43		4.4	23.0
13...	1030	1110		5.2	17.5
20...	1050	216		3.7	21.0
23...	0850	115		3.6	21.0
26...	0745	47		3.5	20.5
30...	1100	23		3.8	23.5
AUG					
14...	0915	16		4.6	22.0
SEP					
07...	1115	8.4		4.5	23.0
21...	0900	120		5.0	15.0

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS
 WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
 03058000 - WEST FORK R BL STONEWALL JACKSON DAM NR WESTON

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)
MAY								
02...	1245	31	128	6.6	9.0	737	10.1	90
15...	0900	92	100	6.3	12.0	734	12.7	122
JUN								
05...	1100	72	140	6.8	14.0	735	12.1	122
07...	1000	33	160	6.7	11.0	734	8.3	78
18...	1230	46	150	6.7	14.0	730	7.0	71
21...	0945	39	185	6.6	13.0	731	7.3	72
JUL								
02...	1245	58	130	6.5	17.0	735	8.9	96
05...	1145	101	134	6.4	15.5	735	8.5	88
09...	1230	101	135	6.4	16.0	733	9.5	100
13...	1200	123	145	6.4	15.0	731	8.5	88
20...	1250	126	137	6.4	16.0	733	8.8	93
23...	1045	128	135	6.3	16.0	--	--	--
26...	1250	78	130	6.4	16.5	737	8.3	88
31...	1030	100	134	6.5	17.0	731	8.0	86
AUG								
14...	1530	123	130	6.3	18.0	735	8.0	88
SEP								
07...	1330	103	130	6.2	19.5	727	7.2	82
20...	1410	80	130	6.3	20.0	732	7.5	86

03185400 - NEW RIVER AT THURMOND, 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)
AUG								
28...	1405	4070	162	7.8	26.0	729	7.2	93
SEP								
21...	1500	2330	192	8.3	21.0	733	8.8	103
25...	1100	1960	187	8.3	19.0	731	9.0	101

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.

Records collected at partial-record 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.

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 1990

					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°21'57", long 80°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*, 1976-90a	01-01-90	12.07	8,200
Guyandotte River basin							
03203000	Guyandotte River at Man, WV	Lat 37°44'25", long 81°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*, 1963-90a	10-17-89	16.15	22,200

* Operated as a continuous-record gaging station.
a Gage-height records on file in district office.

Low-flow partial-record stations

Measurements of streamflow in the area covered by this report made at low-flow partial-record stations are given in the following table. These measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of a nearby stream when continuous records are available, will give a picture of the low-flow potentiality of a stream. The column headed "Period of record" shows the water years in which measurements were made at the same, or practically the same, site.

Discharge measurements at low-flow partial-record stations during water year 1990

					Measurement	
Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Date	Discharge (ft ³ /s)
Monongahela River basin						
03070200	Salt Lick Creek at Rowlesburg, WV	Lat 39°21'00", long 79°39'50", Preston County, Hydrologic Unit 05020004, at timber railroad and highway bridge at Rowlesburg, and 0.2 mile upstream from mouth.	34.6	1942-69, 1973, 1975-76, 1978-84, 1989-90	02-06-90 04-06-90	138 173

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

375848080570001 - 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.

REVISIONS.--The volumes of atmospheric deposition for some water years have been revised, as shown in the following table. They supersede figures published in our 1987-88 books. (Sept. 1983 to Sept. 1987 was published in the 1987 book).

DATE	VOLUME ATM DEP WET (L)	DATE	VOLUME ATM DEP WET (L)
SEP 06-13, 1983	0.121	SEP 23-30, 1986	2.585
OCT 04-11, 1983	0.580	SEP 30-	
OCT 18-25, 1983	5.818	OCT 07, 1986	2.372
OCT 25-		NOV 04-10, 1986	3.764
NOV 01, 1983	0.003	NOV 18-25, 1986	1.518
NOV 01-08, 1983	0.554	DEC 09-16, 1986	1.336
DEC 13-20, 1983	0.034	DEC 16-23, 1986	0.420
DEC 20-27, 1983	0.623	DEC 30, 1986-	
JAN 24-31, 1984	0.774	JAN 06, 1987	0.462
FEB 07-14, 1984	2.622	FEB 10-17, 1987	1.617
APR 17-24, 1984	2.563	FEB 17-24, 1987	2.518
MAY 15-22, 1984	0.000	MAR 31-	
JUN 12-19, 1984	0.886	APR 07, 1987	3.901
SEP 18-25, 1984	0.007	APR 07-14, 1987	0.474
OCT 02-09, 1984	0.546	APR 14-21, 1987	3.131
OCT 09-16, 1984	0.224	APR 21-28, 1987	5.854
OCT 23-30, 1984	1.338	MAY 12-19, 1987	2.076
JAN 15-22, 1985	1.042	MAY 26-	
MAR 19-26, 1985	1.263	JUN 02, 1987	1.938
JUN 11-18, 1985	3.032	AUG 18-25, 1987	1.768
JUL 02-09, 1985	0.542	SEP 22-29, 1987	0.012
JUL 16-23, 1985	0.000	OCT 13-20, 1987	0.017
JUL 30-		DEC 01-08, 1987	1.700
AUG 06, 1985	3.083	JAN 12-19, 1988	0.952
AUG 06-13, 1985	1.905	JAN 19-26, 1988	1.540
SEP 10-17, 1985	0.057	FEB 09-16, 1988	0.759
NOV 19-26, 1985	1.552	FEB 23-	
NOV 26-		MAR 01, 1988	0.592
DEC 03, 1985	3.706	MAR 29-	
DEC 10-17, 1985	2.307	APR 05, 1988	1.504
DEC 17-24, 1985	0.000	APR 19-26, 1988	1.234
JAN 07-14, 1986	0.136	JUL 26	
APR 22-29, 1986	0.872	AUG 02, 1988	1.586
APR 29-		AUG 09-16, 1988	1.356
MAY 06, 1986	0.020	AUG 16-23, 1988	1.723
JUN 03-10, 1986	1.532	AUG 30-	
JUN 17-24, 1986	1.565	SEP 06, 1988	2.868
SEP 09-16, 1986	0.330		

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

375848080570001 - BABCOCK STATE PARK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	VOLUME ATM DEP WET (L) (83177)	SPEC. CONDUCT- TANCE FIELD ATM DEP WET TOT (US/CM) (83154)	SPEC. CONDUCT- TANCE LAB ATM DEP WET TOT (US/CM) (83156)	PH FIELD ATM DEP WET T (UNITS) (83106)	PH LAB ATM DEP WET T (UNITS) (83107)	CALCIUM ATM DEP WET DIS (MG/L) (82932)	MAG- NESIUM ATM DEP WET DIS (MG/L) (83002)
OCT								
03-10	1525	0.613	53.8	52.2	4.04	4.01	0.260	0.040
OCT								
10-17	1810	5.500	4.8	4.9	5.07	5.08	0.020	0.005
OCT								
17-24	1600	1.984	20.0	21.0	4.37	4.37	0.030	0.007
OCT								
24-31	1530	0.00	--	--	--	--	--	--
OCT 31-								
NOV 07	1540	0.176	36.5	34.9	4.24	4.24	0.200	0.046
NOV								
07-14	1615	1.552	18.5	18.1	4.46	4.47	0.130	0.012
NOV								
14-21	1600	2.087	8.1	8.9	4.85	4.80	0.030	0.008
NOV								
21-28	1700	1.369	29.0	29.0	4.26	4.25	0.090	0.021
NOV 28-								
DEC 05	1600	0.121	30.8	27.4	4.35	4.49	1.01	0.131
DEC								
05-12	1600	1.004	10.5	11.4	4.62	4.66	0.040	0.007
DEC								
12-19	1645	0.792	25.2	25.1	4.37	4.32	0.140	0.023
DEC								
19-26	1810	0.253	18.9	17.9	4.42	4.49	0.030	0.013
DEC 26 1989-								
JAN 02 1990	1645	2.301	13.1	13.7	4.50	4.58	0.040	0.006
JAN								
02-09	1530	1.196	6.3	5.7	4.95	5.09	0.070	0.009
JAN								
09-16	1515	0.886	25.5	24.9	4.44	4.43	0.220	0.037
JAN								
16-23	1530	0.530	19.5	18.3	4.36	4.45	0.060	0.020
JAN								
23-30	1615	2.855	11.1	11.3	4.67	4.71	0.090	0.016
JAN 30-								
FEB 06	1540	2.299	7.6	7.6	4.81	4.89	0.070	0.009
FEB								
06-13	1630	2.920	12.5	13.1	4.57	4.59	0.040	0.005
FEB								
13-20	1700	1.388	8.1	8.2	4.81	4.90	0.050	0.013
FEB								
20-27	1615	0.662	30.9	29.3	4.22	4.29	0.170	0.039
FEB 27-								
MAR 06	1720	1.606	25.2	24.1	--	4.34	0.080	0.010
MAR								
06-13	1600	0.286	22.0	20.7	4.35	4.43	0.150	0.034
MAR								
13-20	1530	2.255	13.5	15.3	4.45	4.50	0.050	0.009
MAR								
20-27	1615	1.092	26.6	26.4	4.25	4.31	0.120	0.014
MAR 27-								
APR 03	1600	0.771	42.0	40.6	4.08	4.09	0.180	0.028
APR								
03-10	1545	2.487	23.5	23.3	4.23	4.32	0.060	0.011
APR								
10-17	1430	1.849	38.0	38.6	4.10	4.13	0.120	0.022
APR								
17-24	1500	1.963	23.5	24.4	4.31	4.32	0.050	0.013
APR 24-								
MAY 01	1500	0.274	23.0	20.5	4.35	4.48	0.170	0.037
MAY								
01-08	1815	1.015	38.5	36.6	4.08	4.17	0.170	0.034
MAY								
08-15	1430	1.215	12.5	12.3	4.54	4.65	0.160	0.035
MAY								
15-22	1515	2.714	16.5	17.8	4.34	4.45	0.080	0.015
MAY								
22-29	1400	2.302	17.2	20.1	4.33	4.37	0.070	0.014
MAY 29-								
JUN 05	1400	2.663	19.8	21.5	5.12	4.38	0.080	0.018

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

375848080570001 - BABCOCK STATE PARK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SODIUM ATM DEP WET DIS (MG/L) (83138)	POTAS- SIUM ATM DEP WET DIS (MG/L) (83120)	SULFATE ATM DEP WET DIS AS SO4 (MG/L) (83160)	CHLO- RIDE ATM DEP WET DIS (MG/L) (82944)	NI- TROGEN NITRATE ATM DEP WET DIS AS NO3 (MG/L) (83071)	NI- TROGEN AMMON. ATM DEP WET DIS AS NH4 (MG/L) (83047)	PHOS- PHORUS ORTHO ATM DEP WET DIS AS PO4 (MG/L) (83111)
OCT							
03-10	0.011	0.053	4.61	0.24	4.50	0.900	<0.020
OCT							
10-17	0.028	0.004	0.38	0.09	0.26	0.090	<0.020
OCT							
17-24	0.025	0.005	1.80	0.06	0.97	0.090	<0.020
OCT							
24-31	--	--	--	--	--	--	--
OCT 31-							
NOV 07	0.168	0.073	3.19	0.39	2.63	0.590	<0.020
NOV							
07-14	0.051	0.023	1.64	0.09	1.32	0.290	<0.020
NOV							
14-21	0.040	0.015	0.71	0.06	0.58	0.060	<0.020
NOV							
21-28	0.099	0.023	2.40	0.25	1.81	0.240	<0.020
NOV 28-							
DEC 05	0.204	0.053	2.56	0.62	3.78	0.390	<0.020
DEC							
05-12	0.032	0.011	0.64	0.10	1.10	0.090	<0.020
DEC							
12-19	0.097	0.027	1.54	0.26	2.57	0.260	<0.020
DEC							
19-26	0.039	0.012	1.22	0.13	1.89	0.230	<0.020
DEC 26 1989-							
JAN 02 1990	0.027	0.020	1.11	0.08	0.89	0.110	<0.020
JAN							
02-09	0.086	0.034	0.62	0.09	0.39	0.040	<0.020
JAN							
09-16	0.039	0.012	2.36	0.28	2.67	0.720	<0.020
JAN							
16-23	0.114	0.021	1.53	0.24	1.02	0.090	<0.020
JAN							
23-30	0.069	0.015	0.89	0.11	0.75	0.070	<0.020
JAN 30-							
FEB 06	0.031	0.009	0.70	0.05	0.38	0.040	<0.020
FEB							
06-13	0.036	0.006	0.96	0.09	1.00	0.120	<0.020
FEB							
13-20	0.090	0.017	0.83	0.12	0.51	0.120	<0.020
FEB							
20-27	0.058	0.030	2.40	0.18	2.47	0.400	<0.020
FEB 27-							
MAR 06	0.035	0.023	1.98	0.10	1.59	0.290	<0.020
MAR							
06-13	0.187	0.028	1.94	0.31	1.46	0.120	<0.020
MAR							
13-20	0.030	0.012	0.93	0.09	1.27	0.080	<0.020
MAR							
20-27	0.031	0.011	2.35	0.12	1.90	0.420	<0.020
MAR 27-							
APR 03	0.061	0.020	3.32	0.23	3.09	0.460	<0.020
APR							
03-10	0.016	0.010	1.72	0.14	1.82	0.290	0.030
APR							
10-17	0.046	0.024	3.51	0.22	2.37	0.510	<0.020
APR							
17-24	0.067	0.007	2.29	0.16	1.05	0.170	<0.020
APR 24-							
MAY 01	0.118	0.072	2.45	0.28	1.46	0.320	<0.020
MAY							
01-08	0.065	0.080	3.76	0.18	2.14	0.320	<0.020
MAY							
08-15	0.066	0.090	1.24	0.13	0.83	0.140	<0.020
MAY							
15-22	0.041	0.025	1.49	0.11	1.07	0.100	<0.020
MAY							
22-29	0.061	0.054	1.76	0.12	1.24	0.390	<0.020
MAY 29-							
JUN 05	0.086	0.028	1.99	0.17	0.99	0.170	<0.020

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

375848080570001 - BABCOCK STATE PARK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	VOLUME	SPEC. CONDUCTANCE	SPEC. CONDUCTANCE	PH	PH	CALCIUM	MAGNESIUM
		ATM DEP WET (L) (83177)	FIELD ATM DEP WET TOT (US/CM) (83154)	LAB ATM DEP WET TOT (US/CM) (83156)	FIELD ATM DEP WET T (UNITS) (83106)	LAB ATM DEP WET T (UNITS) (83107)	ATM DEP WET DIS (MG/L) (82932)	ATM DEP WET DIS (MG/L) (83002)
JUN 05-12	1600	1.171	27.0	28.2	4.32	4.28	0.200	0.028
JUN 12-19	1530	0.885	26.0	26.6	4.23	4.31	0.110	0.018
JUN 19-26	1440	1.437	35.0	37.6	4.14	4.14	0.190	0.022
JUN 26- JUL 03	1415	1.025	46.0	47.4	4.02	4.07	0.340	0.039
JUL 03-10	1545	0.764	36.0	37.1	4.07	4.16	0.300	0.030
JUL 10-17	1415	5.416	8.5	10.0	4.62	4.66	0.030	0.005
JUL 17-24	1440	1.842	25.5	26.3	4.27	4.29	0.030	0.004
JUL 24-31	1450	0.276	133.0	123.3	3.53	3.62	0.680	0.093
JUL 31- AUG 07	1630	2.381	11.0	11.0	4.46	4.69	0.040	0.007
AUG 07-14	1515	4.176	33.8	36.9	4.11	4.15	0.100	0.009
AUG 14-21	1530	2.334	54.0	56.8	3.88	3.94	0.080	0.010
AUG 21-28	1700	4.170	13.5	14.7	4.49	4.50	0.010	0.003
AUG 28- SEP 04	1445	0.340	97.0	92.5	3.53	3.75	0.370	0.048
SEP 04-11	1530	0.443	87.0	89.9	--	3.77	0.550	0.049
SEP 11-18	1520	1.815	46.0	49.0	3.77	4.03	0.110	0.016
SEP 18-25	1500	1.372	26.8	28.5	4.18	4.28	0.050	0.012
SEP 25- OCT 02	1445	0.220	57.0	50.3	3.95	4.06	0.140	0.030

DATE	SODIUM	POTAS-	SULFATE	CHLO-	NI-	NI-	PHOS-
	ATM DEP WET DIS (MG/L) (83138)	SIUM ATM DEP WET DIS (MG/L) (83120)	ATM DEP WET DIS AS SO4 (MG/L) (83160)	RIDE ATM DEP WET DIS (MG/L) (82944)	NITRATE ATM DEP AS NO3 (MG/L) (83071)	TROGEN AMMON. ATM DEP AS NH4 (MG/L) (83047)	ORTHO ATM DEP AS PO4 (MG/L) (83111)
JUN 05-12	0.125	0.035	2.59	0.17	1.81	0.330	<0.020
JUN 12-19	0.044	0.043	2.63	0.13	1.28	0.410	<0.020
JUN 19-26	0.029	0.028	3.44	0.14	1.89	0.310	<0.020
JUN 26- JUL 03	0.042	0.032	4.81	0.17	2.40	0.590	<0.020
JUL 03-10	0.065	0.022	3.36	0.17	2.05	0.300	<0.020
JUL 10-17	0.020	0.004	0.75	0.08	0.47	0.050	<0.020
JUL 17-24	0.036	0.023	2.42	0.13	1.07	0.220	<0.020
JUL 24-31	0.158	0.107	14.2	0.31	4.60	0.890	<0.020
JUL 31- AUG 07	0.037	0.015	0.84	0.11	0.73	0.100	<0.020
AUG 07-14	0.016	0.032	3.73	0.11	1.22	0.350	<0.020
AUG 14-21	0.031	0.019	5.75	0.13	1.91	0.440	<0.020
AUG 21-28	0.018	0.004	1.17	0.05	0.68	0.130	<0.020
AUG 28- SEP 04	0.066	0.073	9.60	0.24	4.12	0.600	<0.020
SEP 04-11	0.063	0.058	8.96	0.23	4.60	0.680	<0.020
SEP 11-18	0.030	0.028	5.06	0.11	1.83	0.560	<0.020
SEP 18-25	0.020	0.015	2.75	0.09	1.36	0.340	<0.020
SEP 25- OCT 02	0.125	0.050	6.36	0.12	1.95	0.900	<0.020

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 1989 TO SEPTEMBER 1990

392612078583401 - NEW CREEK @ KEYSER, 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, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT 24...	1040	35	225	7.0	9.0	750	10.6	93	93	120	84	26
NOV 15...	1230	21	220	8.2	12.0	730	11.2	109	200	200	94	29
DEC 20...	1300	16	240	7.5	0.0	742	12.5	88	430	450	97	30
JAN 24...	1040	61	205	6.9	5.0	736	12.9	105	1000	K50	70	21
FEB 13...	1410	105	170	8.1	5.0	735	13.2	107	250	150	69	21
MAR 21...	1110	18	240	7.6	4.0	746	12.9	101	170	170	100	31
APR 23...	1400	27	190	8.2	16.0	740	10.7	112	150	760	81	25
MAY 08...	1535	59	155	7.9	18.0	740	8.9	97	600	400	60	18
JUN 25...	1040	8.2	270	8.0	18.0	739	8.1	88	580	890	130	40
JUL 25...	1430	24	230	8.3	21.0	742	11.7	135	870	580	100	32
AUG 15...	0930	3.3	295	7.5	19.5	741	9.0	101	K640	690	140	43
SEP 06...	0950	4.7	285	7.9	20.5	739	9.6	110	1100	360	130	40

DATE	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)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 24...	4.6	4.7	1.5	73	0	60	22	5.3	0.10	5.5	104	110
NOV 15...	5.3	4.7	1.4	85	0	70	23	4.8	0.10	5.0	111	117
DEC 20...	5.3	4.8	1.0	91	0	75	25	6.1	0.10	5.5	127	126
JAN 24...	4.2	5.4	1.3	49	0	40	20	8.6	<0.10	5.6	110	96
FEB 13...	4.0	4.9	1.3	49	0	40	20	6.7	0.10	5.7	111	94
MAR 21...	5.6	5.5	1.3	98	0	80	25	7.8	0.20	5.6	142	134
APR 23...	4.6	5.0	1.1	74	0	61	22	6.9	<0.10	3.8	105	108
MAY 08...	3.6	4.4	1.1	49	0	40	17	6.7	<0.10	6.1	88	86
JUN 25...	7.1	4.6	1.4	128	0	105	28	7.4	0.20	3.0	140	156
JUL 25...	5.6	5.1	1.5	91	0	75	26	8.3	<0.10	2.3	127	127
AUG 15...	7.6	5.0	1.6	116	0	95	34	8.9	0.10	3.0	158	161
SEP 06...	6.9	5.5	1.7	128	0	105	26	8.7	0.20	1.9	154	154

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

392612078583401 - NEW CREEK @ KEYSER, WV.--Continued

DATE	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- PHORUS 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)
OCT 24...	<0.010	1.00	<0.010	<0.010	--	--	--	--	--	--	--
NOV 15...	<0.010	0.480	<0.010	<0.010	--	--	--	--	--	--	--
DEC 20...	<0.010	0.700	0.020	0.010	10	<1	51	<0.5	<1.0	<5	<3
JAN 24...	<0.010	1.40	<0.010	<0.010	--	--	--	--	--	--	--
FEB 13...	<0.010	1.30	<0.010	<0.010	--	--	--	--	--	--	--
MAR 21...	<0.010	0.750	<0.010	<0.010	<10	<1	58	<0.5	<1.0	<5	<3
APR 23...	<0.010	0.800	<0.010	<0.010	--	--	--	--	--	--	--
MAY 08...	<0.010	1.20	0.010	<0.010	--	--	--	--	--	--	--
JUN 25...	<0.010	0.300	<0.010	<0.010	10	<1	70	<0.5	<1.0	<5	<3
JUL 25...	<0.010	0.400	<0.010	<0.010	--	--	--	--	--	--	--
AUG 15...	<0.010	0.200	<0.010	<0.010	--	--	--	--	--	--	--
SEP 06...	<0.010	<0.100	0.010	<0.010	50	<1	74	<0.5	<1.0	<5	<3

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)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
OCT 24...	--	31	--	--	3	--	--	--	--	--	--
NOV 15...	--	17	--	--	2	--	--	--	--	--	--
DEC 20...	<10	<3	<10	6	2	<10	<10	<1.0	270	<6	<3
JAN 24...	--	14	--	--	3	--	--	--	--	--	--
FEB 13...	--	13	--	--	1	--	--	--	--	--	--
MAR 21...	<10	10	<10	<4	3	<10	<10	2.0	290	<6	<3
APR 23...	--	14	--	--	2	--	--	--	--	--	--
MAY 08...	--	11	--	--	4	--	--	--	--	--	--
JUN 25...	<10	4	<10	6	1	<10	<10	<1.0	390	<6	5
JUL 25...	--	8	--	--	4	--	--	--	--	--	--
AUG 15...	--	4	--	--	6	--	--	--	--	--	--
SEP 06...	<10	8	<10	5	3	<10	<10	<1.0	430	<6	4

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

393825078131001 - WARM SPRINGS RUN NR BERKELEY SPRINGS, 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-TOCOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS TOTAL (MG/L AS CaCO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS Ca) (00915)
OCT 25...	0915	3.5	270	7.4	13.5	756	8.3	80	220	410	140	46
NOV 14...	1145	3.5	330	7.7	14.0	745	11.0	109	830	K30	140	46
DEC 19...	1130	2.6	335	7.7	6.0	747	12.0	98	48	68	150	49
JAN 23...	1150	5.2	290	7.5	8.0	745	12.0	104	1700	K27	100	32
FEB 13...	1015	9.0	260	7.3	7.0	747	11.4	96	500	100	90	29
MAR 20...	0815	6.4	350	7.3	9.5	749	9.1	81	1100	1000	130	42
APR 24...	1245	3.2	280	8.2	19.0	748	11.6	128	K40	150	130	44
MAY 08...	0810	5.5	290	7.3	14.5	746	8.1	81	2100	2000	120	39
JUN 25...	1420	2.0	335	7.6	21.0	747	6.0	69	770	540	160	53
JUL 25...	1000	1.9	330	7.3	20.0	749	7.4	83	430	810	160	54
AUG 15...	1240	1.5	320	7.5	21.0	746	7.8	90	300	630	150	53
SEP 06...	1330	2.0	330	7.5	23.0	743	7.1	85	230	300	150	51

DATE	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)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 25...	5.6	11	1.0	146	0	120	21	12	0.10	8.3	179	179
NOV 14...	5.6	11	1.6	146	0	120	18	11	<0.10	8.1	170	174
DEC 19...	5.8	11	1.3	171	0	140	20	13	0.10	7.2	192	193
JAN 23...	4.9	13	1.6	85	0	70	20	22	<0.10	6.2	151	144
FEB 13...	4.2	11	1.5	73	0	60	20	15	0.10	7.2	148	127
MAR 20...	5.3	14	1.9	140	0	115	23	21	0.20	6.4	187	186
APR 24...	5.2	8.5	1.3	152	0	125	15	13	<0.10	5.2	149	167
MAY 08...	5.1	10	1.3	140	0	115	22	14	0.60	7.0	164	169
JUN 25...	6.2	7.0	1.2	171	0	140	16	7.1	0.20	9.2	174	185
JUL 25...	5.7	7.5	1.4	165	0	135	16	9.0	0.30	8.8	186	185
AUG 15...	5.4	6.5	1.2	152	0	125	16	6.5	0.10	9.4	184	173
SEP 06...	5.3	7.5	1.4	177	0	145	17	8.3	0.10	8.7	188	187

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

393825078131001 - WARM SPRINGS RUN NR BERKELEY SPRINGS, WV.--Continued

DATE	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- PHORUS 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)
OCT 25...	<0.010	0.450	0.010	0.030	--	--	--	--	--	--	--
NOV 14...	<0.010	0.190	0.010	0.020	--	--	--	--	--	--	--
DEC 19...	<0.010	0.190	0.020	0.010	20	<1	63	<0.5	<1.0	<5	<3
JAN 23...	<0.010	0.590	<0.010	0.010	--	--	--	--	--	--	--
FEB 13...	<0.010	0.650	<0.010	<0.010	--	--	--	--	--	--	--
MAR 20...	0.020	0.620	0.020	<0.010	<10	<1	67	<0.5	<1.0	<5	<3
APR 24...	<0.010	--	<0.010	<0.010	--	--	--	--	--	--	--
MAY 08...	<0.010	0.300	0.030	0.010	--	--	--	--	--	--	--
JUN 25...	<0.010	0.100	0.010	0.020	10	<1	68	<0.5	<1.0	<5	<3
JUL 25...	<0.010	0.200	0.020	0.020	--	--	--	--	--	--	--
AUG 15...	<0.010	0.100	0.020	0.030	--	--	--	--	--	--	--
SEP 06...	<0.010	0.100	0.021	0.021	20	<1	69	<0.5	<1.0	<5	<3

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)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
OCT 25...	--	54	--	--	32	--	--	--	--	--	--
NOV 14...	--	60	--	--	26	--	--	--	--	--	--
DEC 19...	<10	97	10	9	28	<10	<10	1.0	400	<6	<3
JAN 23...	--	29	--	--	20	--	--	--	--	--	--
FEB 13...	--	40	--	--	31	--	--	--	--	--	--
MAR 20...	<10	32	<10	<4	41	<10	<10	<1.0	310	<6	8
APR 24...	--	49	--	--	25	--	--	--	--	--	--
MAY 08...	--	34	--	--	34	--	--	--	--	--	--
JUN 25...	<10	18	10	9	22	<10	10	<1.0	460	<6	<3
JUL 25...	--	15	--	--	22	--	--	--	--	--	--
AUG 15...	--	16	--	--	20	--	--	--	--	--	--
SEP 06...	<10	28	<10	9	18	<10	<10	<1.0	430	<6	3

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

393125080195801 - BUFFALO CREEK @ MANNINGTON, 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 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)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
OCT 23...	1200	108	320	7.0	9.0	743	9.9	88	K6800	2200	65	18
NOV 13...	0950	68	500	6.7	7.0	738	10.3	88	1200	220	80	22
DEC 18...	1130	16	1000	7.4	0.0	742	11.8	83	2000	2500	110	30
JAN 22...	0945	E380	120	6.5	4.5	730	11.0	89	3200	990	43	12
FEB 14...	1030	167	195	6.8	7.0	735	10.8	92	4500	1700	50	14
MAR 19...	1045	58	155	6.8	8.0	737	10.7	93	4100	590	47	13
APR 23...	1000	173	175	6.6	11.5	738	9.1	86	1900	1900	54	15
MAY 14...	1000	472	290	6.5	12.5	739	8.7	84	1800	1300	24	8.2
JUN 25...	1045	14	405	7.8	18.5	734	7.7	85	1200	K100	92	26
JUL 26...	1000	17	320	6.8	21.0	740	6.3	73	4500	1100	85	25
AUG 14...	1200	4.5	625	6.9	22.5	737	6.0	72	11000	900	130	38
SEP 05...	0940	9.3	650	6.8	22.5	738	5.6	67	18000	K300	130	37
DATE	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)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)
OCT 23...	4.8	37	1.9	60	0	49	85	18	<0.10	7.5	190	203
NOV 13...	6.1	66	1.5	61	0	50	140	18	0.10	5.5	279	290
DEC 18...	9.5	130	1.6	110	0	90	240	51	<0.10	5.5	519	523
JAN 22...	3.1	6.1	1.1	24	0	20	28	3.6	<0.10	6.8	78	75
FEB 14...	3.6	14	1.2	30	0	25	47	5.0	<0.10	6.4	113	108
MAR 19...	3.4	7.7	1.2	29	0	24	29	4.7	<0.10	6.2	--	81
APR 23...	3.9	14	1.0	46	0	38	43	4.5	<0.10	5.7	98	111
MAY 14...	0.84	1.2	0.40	38	0	31	4.7	1.8	0.10	7.3	31	45
JUN 25...	6.5	40	1.7	85	0	70	89	14	0.20	2.9	207	223
JUL 26...	5.5	30	1.9	61	0	50	80	11	<0.10	4.5	192	189
AUG 14...	8.6	78	2.6	104	0	85	200	24	0.20	2.7	404	405
SEP 05...	8.6	81	2.7	104	0	85	160	24	0.20	3.5	405	369

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

393125080195801 - BUFFALO CREEK @ MANNINGTON, WV.--Continued

DATE	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- PHORUS 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)
OCT 23...	<0.010	0.330	0.021	<0.010	--	--	--	--	--	--	--
NOV 13...	<0.010	0.120	<0.010	<0.010	--	--	--	--	--	--	--
DEC 18...	<0.010	0.190	0.030	<0.010	20	<1	55	<0.5	<1.0	<5	<3
JAN 22...	<0.010	0.530	0.020	<0.010	--	--	--	--	--	--	--
FEB 14...	<0.010	0.420	0.010	<0.010	--	--	--	--	--	--	--
MAR 19...	<0.010	0.290	<0.010	<0.010	20	<1	41	<0.5	<1.0	<5	<3
APR 23...	<0.010	0.200	<0.010	<0.010	--	--	--	--	--	--	--
MAY 14...	<0.010	0.300	0.030	<0.010	--	--	--	--	--	--	--
JUN 25...	0.020	0.100	0.010	<0.010	20	<1	55	<0.5	<1.0	<5	<3
JUL 26...	<0.010	0.100	0.030	<0.010	--	--	--	--	--	--	--
AUG 14...	<0.010	<0.100	0.040	<0.010	--	--	--	--	--	--	--
SEP 05...	<0.010	<0.100	0.050	<0.010	20	<1	88	<0.5	<1.0	<5	<3

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)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
OCT 23...	--	74	--	--	85	--	--	--	--	--	--
NOV 13...	--	55	--	--	44	--	--	--	--	--	--
DEC 18...	<10	34	<10	8	110	<10	<10	<1.0	330	<6	4
JAN 22...	--	33	--	--	42	--	--	--	--	--	--
FEB 14...	--	41	--	--	41	--	--	--	--	--	--
MAR 19...	<10	41	<10	<4	35	<10	10	<1.0	69	<6	<3
APR 23...	--	76	--	--	52	--	--	--	--	--	--
MAY 14...	--	52	--	--	43	--	--	--	--	--	--
JUN 25...	<10	110	<10	<4	60	<10	<10	<1.0	180	<6	3
JUL 26...	--	94	--	--	82	--	--	--	--	--	--
AUG 14...	--	86	--	--	97	--	--	--	--	--	--
SEP 05...	<10	91	<10	<4	100	<10	<10	<1.0	220	<6	<3

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

390136079273301 - MILL RUN AT CANAAN VALLEY STATE PARK, 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 (MG/L) (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)
MAR 01...	0900	2.0	140	6.8	0.0	680	11.9	91	K3	K6	53
APR 04...	1330	6.1	106	7.3	1.5	660	11.8	97	K3	K3	37
MAY 14...	1615	2.9	102	8.2	22.0	677	10.9	141	K16	K7	42
JUN 25...	1600	0.50	148	8.2	24.5	676	9.4	128	110	K12	67
JUL 18...	1300	2.6	128	7.2	26.0	682	8.2	114	73	64	49
AUG 23...	1715	7.6	137	6.8	20.0	673	6.5	81	1200	1100	56
SEP 25...	1430	1.2	134	7.6	17.0	670	10.7	126	K43	K15	54

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	ALKA- LITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
MAR 01...	19	1.3	4.6	1.2	46	0	38	5.5	8.7	83
APR 04...	13	1.2	4.4	0.50	44	0	36	6.3	8.8	70
MAY 14...	15	1.1	3.8	0.40	39	0	32	4.8	6.7	59
JUN 25...	24	1.7	3.6	0.50	73	0	60	3.4	6.2	79
JUL 18...	17	1.5	3.5	0.30	57	0	47	5.2	5.5	77
AUG 23...	20	1.5	3.0	1.2	46	0	38	15	5.4	92
SEP 25...	19	1.5	4.0	0.80	48	0	39	13	7.1	89

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	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,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)
MAR 01...	64	0.290	0.080	0.060	0.30	0.300	0.010	0.010	<0.010	5.5
APR 04...	57	0.300	0.010	0.010	0.30	0.300	0.020	<0.010	<0.010	5.2
MAY 14...	52	0.200	0.020	0.020	0.20	0.200	0.030	0.010	0.010	4.3
JUN 25...	75	<0.100	0.050	0.050	0.60	<0.100	0.040	0.020	<0.010	6.9
JUL 18...	61	<0.100	0.040	0.050	0.70	<0.100	0.020	0.020	<0.010	7.4
AUG 23...	69	<0.100	0.040	0.050	0.70	<0.100	0.040	0.030	<0.010	9.6
SEP 25...	69	<0.100	0.020	0.020	0.50	<0.100	0.020	<0.010	<0.010	7.2

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

390059079283401 - CLUB RUN NEAR HEADWATERS

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-TOCOCCHI, KF AGAR (COLS. / 100 ML) (31673)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)
MAY 14...	1800	0.05	32	6.8	20.0	676	6.5	81	K2	<1	13
JUN 25...	1730	0.06	74	6.8	16.0	675	8.7	100	44	K23	25
JUL 18...	1615	0.14	51	6.5	21.0	681	7.1	89	K63	98	18
AUG 24...	0845	0.08	60	6.3	16.0	673	6.7	77	K200	290	22
SEP 25...	1630	0.06	60	7.1	15.5	667	8.2	94	K50	K23	21

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	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)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
MAY 14...	4.2	0.63	0.50	0.50	10	0	8	4.6	0.20	27
JUN 25...	8.6	0.79	2.9	0.40	16	0	13	4.2	8.5	33
JUL 18...	6.1	0.65	2.1	0.40	10	0	8	4.8	5.4	30
AUG 24...	7.3	0.84	1.8	0.60	15	0	12	4.9	5.4	38
SEP 25...	7.0	0.84	1.9	0.50	13	0	11	5.5	5.2	39

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	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, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)
MAY 14...	16	<0.100	0.020	0.030	0.60	<0.100	0.030	0.020	<0.010	4.2
JUN 25...	35	0.400	<0.010	0.020	<0.20	0.400	<0.010	<0.010	<0.010	2.2
JUL 18...	26	0.300	0.020	<0.010	0.30	0.200	<0.010	<0.010	<0.010	2.5
AUG 24...	29	0.200	0.010	0.020	0.40	0.200	0.020	0.010	<0.010	3.5
SEP 25...	28	0.200	0.010	0.010	0.20	0.200	<0.010	0.010	<0.010	2.6

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

390222079272001 - BLACKWATER RIVER AT CANAAN VALLEY STATE PARK, 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 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)
MAR 01...	1130	15	71	6.6	1.0	680	10.4	82	K3	K1	27
APR 06...	0845	36	58	7.0	4.0	670	9.7	84	K11	K13	21
MAY 16...	0915	10	59	6.6	16.0	673	5.8	67	73	21	25
JUN 27...	0845	3.0	79	6.7	18.5	676	5.5	66	200	K37	37
JUL 18...	1445	15	55	6.7	23.0	681	8.1	106	130	64	24
AUG 24...	1045	23	70	6.4	18.0	675	5.3	63	1000	600	26
SEP 26...	0830	8.8	57	6.6	12.0	668	6.8	72	K120	K30	23

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	ALKA- LITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
MAR 01...	9.3	0.92	1.9	0.50	22	0	18	4.6	3.1	48
APR 06...	7.2	0.81	2.0	0.40	17	0	14	5.3	3.6	41
MAY 16...	8.5	0.87	1.5	0.30	22	0	18	4.3	2.6	47
JUN 27...	13	1.1	1.7	0.30	34	0	28	3.6	2.9	54
JUL 18...	8.3	0.81	1.2	0.20	21	0	17	4.8	1.9	46
AUG 24...	9.0	0.90	2.0	0.50	17	0	14	11	2.8	50
SEP 26...	7.8	0.81	1.2	0.40	17	0	14	7.9	2.0	41

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	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,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)
MAR 01...	32	0.260	0.060	0.040	0.30	0.300	<0.010	<0.010	<0.010	--
APR 06...	29	0.200	0.020	0.010	0.20	0.300	0.020	0.030	<0.010	4.6
MAY 16...	29	<0.100	0.030	0.040	0.70	<0.100	0.030	<0.010	<0.010	5.8
JUN 27...	39	<0.100	0.050	0.060	0.60	<0.100	0.050	0.020	<0.010	7.0
JUL 18...	28	<0.100	0.020	0.050	0.50	<0.100	0.020	<0.010	<0.010	6.6
AUG 24...	35	<0.100	0.020	0.020	0.40	<0.100	0.020	0.020	<0.010	8.6
SEP 26...	28	<0.100	<0.010	<0.010	0.40	<0.100	0.030	<0.010	<0.010	5.0

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

390211079253601 - BLACKWATER RIVER ON TIMBERLINE ROAD

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)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)
APR 05...	1730	E42	75	7.5	8.0	666	11.4	110	K8	22	31
MAY 15...	1830	E20	78	7.5	19.0	677	8.5	103	120	K3	34
JUN 26...	1645	E5.9	115	8.0	24.0	678	8.7	117	K170	K18	53
JUL 19...	1500	E17	88	7.2	24.0	680	7.6	102	240	46	37
AUG 23...	1300	E35	81	6.9	17.0	674	7.0	82	1800	K2000	31
SEP 25...	1220	E18	90	7.6	12.0	672	9.6	101	K100	K40	37

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE WATER DIS IT FIELD HCO3 (00453)	CAR-BONATE WATER DIS IT FIELD CO3 (00452)	ALKA-LINITY WAT DIS TOT IT CACO3 (39086)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
APR 05...	11	0.95	2.0	0.40	27	0	22	5.5	3.4	53
MAY 15...	12	0.96	1.6	0.30	33	0	27	5.1	2.8	50
JUN 26...	19	1.3	1.9	0.40	54	0	44	4.6	3.4	76
JUL 19...	13	1.1	1.5	0.30	39	0	32	5.1	2.2	62
AUG 23...	11	0.94	1.8	0.60	24	0	20	10	2.8	50
SEP 25...	13	1.1	1.8	0.50	33	0	27	9.0	2.8	57

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	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, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)
APR 05...	38	0.300	0.020	0.010	0.30	0.300	0.020	0.010	<0.010	4.7
MAY 15...	40	0.200	0.020	0.020	0.30	0.200	0.020	<0.010	<0.010	4.8
JUN 26...	58	0.100	0.020	0.020	0.40	0.100	0.040	0.010	<0.010	5.8
JUL 19...	43	0.200	0.030	0.020	0.60	0.100	0.020	<0.010	<0.010	5.0
AUG 23...	39	<0.100	0.030	0.030	0.60	<0.100	0.050	0.030	<0.010	7.4
SEP 25...	44	<0.100	<0.010	<0.010	0.30	<0.100	0.020	<0.010	<0.010	6.1

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

390346079244801 - YOAKUM RUN AT MOUTH

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, UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCHI, FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS TOTAL (MG/L AS CaCO3) (00900)
MAY 15...	1615	2.9	48	7.2	19.0	678	8.0	97	K15	K8	20
JUN 26...	1445	0.63	53	7.4	24.0	679	7.4	99	K120	62	22
JUL 19...	1315	2.4	51	7.0	22.0	681	7.7	99	140	110	22
AUG 23...	1030	2.8	110	7.1	17.0	675	7.8	91	K3200	K3300	47
SEP 25...	1030	0.80	66	7.1	10.0	673	10.0	100	K100	K100	27

DATE	CALCIUM DIS-SOLVED (MG/L AS Ca) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) (00925)	SODIUM, DIS-SOLVED (MG/L AS Na) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	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)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
MAY 15...	6.4	0.87	1.0	0.50	15	0	12	5.7	1.3	24
JUN 26...	7.3	1.0	1.4	0.60	21	0	17	4.0	1.0	41
JUL 19...	7.1	0.95	1.0	0.50	18	0	15	4.9	1.1	33
AUG 23...	16	1.6	1.9	1.0	41	0	34	8.4	2.5	68
SEP 25...	8.6	1.3	1.6	0.60	26	0	21	6.6	1.8	45

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	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, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)
MAY 15...	23	<0.100	0.020	0.020	0.40	<0.100	0.020	0.010	<0.010	7.5
JUN 26...	27	0.300	0.020	0.040	0.40	0.300	0.030	0.020	<0.010	4.2
JUL 19...	26	0.300	0.030	0.040	0.30	0.300	0.030	0.010	<0.010	4.9
AUG 23...	52	0.200	0.040	0.040	0.60	0.200	0.040	0.020	<0.010	4.9
SEP 25...	34	0.200	<0.010	0.010	0.30	0.200	<0.010	<0.010	<0.010	4.5

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

390351079244901 - BLACKWATER RIVER AT CORTLAND, 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 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)
APR 05...	1530	48	67	7.6	9.0	667	11.0	109	<1	K6	27
MAY 15...	1500	23	69	7.8	19.5	678	8.4	103	K13	K1	28
JUN 26...	1345	6.5	99	8.0	23.5	679	8.8	117	K22	K8	45
JUL 19...	1200	20	74	7.8	22.0	682	8.9	114	120	190	34
AUG 23...	0900	37	80	7.0	17.0	675	7.7	90	K1400	1700	32
SEP 25...	0900	19	79	7.8	9.0	673	10.0	98	K50	K86	34

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE WATER DIS IT FIELD HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD CO3 (00452)	ALKA- LINITY WAT DIS TOT IT FIELD CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
APR 05...	9.4	0.93	1.7	0.40	24	0	20	5.7	2.8	51
MAY 15...	10	0.85	1.6	0.40	28	0	23	5.0	2.5	39
JUN 26...	16	1.2	1.7	0.40	46	0	38	4.6	3.0	69
JUL 19...	12	0.96	1.3	0.30	32	0	26	5.1	2.0	49
AUG 23...	11	1.1	2.0	0.70	26	0	21	8.9	2.8	55
SEP 25...	12	1.0	1.7	0.50	28	0	23	9.1	2.5	55

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	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,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHOR- DIS- SOLVED (MG/L AS P) (00671)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)
APR 05...	34	0.300	0.020	<0.010	0.30	0.300	0.010	<0.010	<0.010	--
MAY 15...	35	0.200	0.020	0.020	0.20	0.100	0.020	0.010	0.010	4.8
JUN 26...	50	0.100	0.020	0.030	0.40	0.100	0.020	0.010	<0.010	5.2
JUL 19...	38	0.200	0.030	<0.010	0.30	0.100	0.020	0.010	0.010	5.1
AUG 23...	39	<0.100	0.020	0.020	0.90	<0.100	0.030	0.020	<0.010	7.3
SEP 25...	41	<0.100	<0.010	0.010	0.30	<0.100	0.040	0.040	<0.010	6.6

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

390400079253301 - NORTH BRANCH AT CORTLAND, 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)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)
APR 05...	1215	13	127	7.5	6.5	667	11.4	106	K6	K5	47
MAY 15...	1200	10	100	7.3	16.0	680	10.1	115	53	K6	40
JUN 26...	1115	2.8	131	7.3	16.0	679	8.6	98	K740	76	57
JUL 18...	1745	13	92	7.1	21.5	681	8.7	111	360	100	37
AUG 23...	1500	12	108	7.0	18.0	674	8.0	96	1100	1200	43
SEP 24...	1700	12	104	7.4	13.5	673	8.7	95	K62	K57	45

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	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)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
APR 05...	16	1.6	5.5	0.50	43	0	35	7.0	11	72
MAY 15...	14	1.3	2.3	0.50	40	0	33	6.4	4.3	55
JUN 26...	20	1.7	2.6	0.50	59	0	48	6.5	4.4	66
JUL 18...	13	1.2	1.9	0.40	38	0	31	6.3	3.0	59
AUG 23...	15	1.4	2.5	0.60	37	0	30	12	3.8	60
SEP 24...	16	1.3	2.1	0.50	41	0	34	8.4	3.3	63

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	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, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)
APR 05...	65	0.400	0.020	0.020	<0.20	0.400	0.010	<0.010	<0.010	2.8
MAY 15...	50	0.300	0.010	0.020	0.40	0.300	0.020	0.030	<0.010	2.8
JUN 26...	66	0.300	0.030	0.040	0.30	0.300	0.020	<0.010	<0.010	2.8
JUL 18...	46	0.300	0.020	<0.010	0.30	0.300	0.010	<0.010	<0.010	3.2
AUG 23...	54	0.200	0.040	0.040	0.40	0.200	0.040	0.020	<0.010	4.8
SEP 24...	53	0.200	0.010	0.010	0.20	0.200	0.020	<0.010	<0.010	3.7

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

390824079251201 - BLACKWATER RIVER NR. DAVIS, 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 SATUR-ATION (PER-CENT) (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)
MAR 01...	1600	94	66	6.5	0.5	680	13.4	104	K3	K1	25
APR 05...	0915	122	61	7.1	3.0	667	11.3	96	K5	K4	25
MAY 15...	0930	87	56	7.1	15.5	680	8.0	90	K17	K5	24
JUN 26...	0930	26	81	7.3	17.5	679	8.0	94	86	K38	37
JUL 19...	0930	77	59	6.9	21.0	684	6.8	85	73	110	27
AUG 22...	1530	95	84	7.1	18.5	675	7.9	95	K2900	K3100	38
SEP 24...	1420	76	68	7.0	13.0	674	9.0	97	K150	K57	29

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	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)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
MAR 01...	8.5	0.85	1.7	0.50	22	0	18	5.0	1.9	43
APR 05...	8.5	0.95	1.3	0.40	21	0	17	5.3	1.9	44
MAY 15...	8.2	0.84	1.2	0.40	22	0	18	4.7	1.8	31
JUN 26...	13	1.2	1.3	0.40	39	0	32	3.9	1.9	52
JUL 19...	9.4	0.93	1.1	0.30	23	0	19	4.6	1.4	45
AUG 22...	13	1.3	1.4	0.80	32	0	26	6.4	2.5	53
SEP 24...	9.9	0.95	1.3	0.50	21	0	17	8.8	1.8	51

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	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, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)
MAR 01...	30	0.260	0.050	0.030	0.30	0.300	0.020	0.010	<0.010	--
APR 05...	30	0.200	0.020	0.020	0.30	0.300	0.020	<0.010	<0.010	4.3
MAY 15...	28	0.100	0.020	0.030	0.30	0.100	0.020	0.020	<0.010	5.9
JUN 26...	41	0.100	0.020	0.030	0.50	0.100	0.020	0.020	<0.010	4.8
JUL 19...	30	0.100	0.020	0.040	0.30	0.100	0.020	0.020	<0.010	6.2
AUG 22...	42	0.100	0.030	0.030	0.50	0.100	0.030	0.020	<0.010	5.0
SEP 24...	34	<0.100	0.010	0.010	0.40	<0.100	0.050	<0.010	<0.010	7.3

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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

NOTE: In March 1989 the National Water-Quality Laboratory discovered a bias in the turbidimetric method for sulfate analysis, indicating that values below 75 mg/L have a median positive bias of 2 mg/L above the true value for the period between 1982 and 1989. Sulfate values in this report have not been corrected for this bias.

GROUND-WATER RECORDS

GROUND-WATER LEVELS

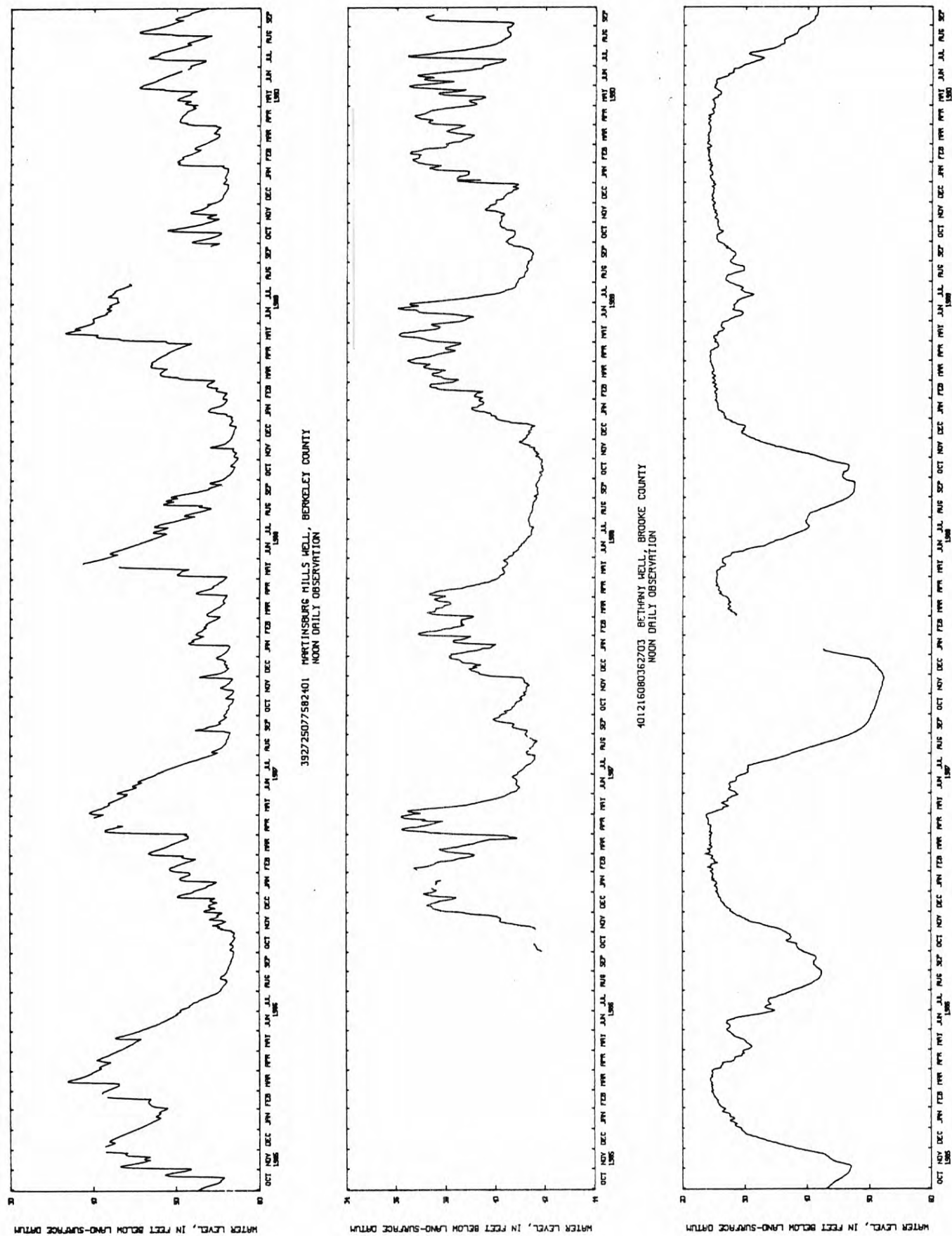


Figure 6.--Five-year hydrographs, Oct. 1, 1985 to Sept. 30, 1990.

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 June 26 and 27, due to recorder malfunction.

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 1989 TO SEPTEMBER 1990
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	52.51	54.51	55.05	55.88	50.16	53.61	51.19	51.17	46.41	52.26	51.84	49.18
10	54.29	53.71	55.56	55.81	50.83	54.39	50.55	51.69	47.60	53.53	52.02	50.33
15	55.32	54.88	55.69	56.03	51.64	55.07	50.71	50.63	48.52	47.66	53.34	49.98
20	49.53	52.19	55.95	56.22	52.62	54.67	51.16	51.85	49.59	47.90	49.76	51.41
25	50.63	53.48	56.20	56.15	52.18	54.80	51.62	52.51	50.67	48.65	45.49	52.33
EOB	53.32	54.13	56.18	50.35	52.65	54.85	52.05	45.50	51.77	50.45	47.70	53.67

WTR YR 1990 HIGH 45.49 AUG 25 LOW 56.26 JAN 24

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 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 04, 1989	73.58	JAN 03, 1990	73.53	APR 04, 1990	73.38	JUL 04, 1990	73.46
11	73.58	10	73.51	11	73.35	11	73.49
18	73.59	17	73.45	18	73.33	18	73.53
25	73.58	24	73.45	25	73.35	25	73.55
NOV 01	73.56	31	73.45	MAY 02	73.41	AUG 01	73.58
08	73.54	FEB 07	73.44	09	73.46	08	73.57
15	73.51	14	73.28	16	73.50	15	73.56
22	73.46	21	73.28	23	73.58	22	73.54
29	73.52	28	73.32	30	73.53	29	73.53
DEC 06	73.54	MAR 07	73.37	JUN 06	73.51	SEP 05	73.55
13	73.56	14	73.39	13	73.32	12	73.59
20	73.58	21	73.41	20	73.36	19	73.63
27	73.56	28	73.40	27	73.44	26	73.63

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 and set in bentonite clay seal.

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.--No water-level record Sept. 20-30, due to recorder malfunction. 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.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	40.52	40.25	40.03	38.41	36.68	38.24	37.28	39.18	37.52	39.91	40.04	40.70
10	40.72	40.21	40.31	38.48	36.93	38.73	37.46	38.90	37.36	40.36	40.26	38.23
15	40.78	40.31	40.46	38.89	36.81	39.08	36.73	39.57	37.39	37.28	40.50	37.16
20	40.61	39.60	40.69	38.77	36.84	38.37	37.18	37.68	37.34	37.06	40.58	---
25	40.23	39.75	40.77	37.33	37.74	38.17	37.57	38.73	38.81	38.24	40.46	---
EOB	40.14	40.00	40.71	37.12	38.06	38.68	38.52	36.50	39.48	39.43	40.56	---

WTR YR 1990 HIGH 36.44 JUL 17 LOW 40.92 DEC 24

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 along 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, 0.23 ft above land-surface datum, Oct. 17, 1989; lowest measured, 12.00 ft below land-surface datum, July 12, 1988.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03, 1989	6.30	JAN 02, 1990	4.44	APR 03, 1990	7.50	JUL 10, 1990	10.63
10	8.76	09	6.65	10	6.07	17	5.86
17	+2.23	16	5.51	17	7.16	24	7.68
24	7.09	23	6.65	24	6.68	31	9.13
31	8.83	30	3.74	MAY 01	8.78	AUG 07	9.55
NOV 07	9.64	FEB 06	5.40	08	9.65	14	7.58
14	7.96	13	4.75	15	10.19	21	7.85
21	6.89	20	7.06	22	5.23	28	7.59
28	6.15	27	8.85	JUN 05	6.49	SEP 04	9.11
DEC 05	8.95	MAR 06	7.11	12	6.01	11	9.78
12	9.35	13	8.88	19	8.57	18	9.03
19	9.88	20	7.50	26	9.52	25	6.78
26	6.42	27	6.14	JUL 03	10.16		

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. July 1988, installed 4-in plastic casing fitted with screened well point, and backfilled dug well with gravel and sand.

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.

PERIOD OF RECORD.--October 1953 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.49 ft below land-surface datum, July 30, 1990; lowest measured, 18.75 ft below land-surface datum, Nov. 30, 1953.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 02, 1989	14.93	JAN 15, 1990	15.33	APR 16, 1990	13.66	JUL 16, 1990	12.60
09	14.87	22	14.68	23	13.58	23	12.52
16	14.85	29	14.43	30	13.60	30	12.49
23	14.70	FEB 05	14.38	MAY 07	13.55	AUG 06	12.60
30	14.80	12	14.13	14	13.54	13	12.68
NOV 06	14.82	19	14.09	21	13.50	20	12.70
13	14.84	26	14.07	28	13.34	27	12.89
20	14.79	MAR 05	14.04	JUN 04	13.18	SEP 03	13.28
27	14.75	12	14.05	11	13.05	10	13.30
DEC 04	14.78	19	13.99	18	12.95	17	13.35
11	14.77	26	13.90	25	12.90	24	13.39
18	14.77	APR 02	13.89	JUL 02	12.79		
JAN 08, 1990	15.15	09	13.80	09	12.66		

GROUND-WATER LEVELS

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.

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, 29, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	13.63	13.33	12.60	13.11	11.23	12.78	13.03	11.99	11.93	13.70	14.92	16.78
10	13.51	13.02	12.86	12.13	10.55	13.11	12.56	11.91	12.24	13.47	15.57	16.83
15	13.86	13.30	13.27	12.30	10.97	13.21	12.11	12.60	12.86	12.73	16.09	16.58
20	12.78	12.48	13.91	11.76	11.81	13.48	12.65	12.72	13.52	12.83	16.42	16.99
25	13.17	13.19	13.95	11.33	12.41	13.80	12.51	13.45	14.28	13.41	16.12	17.08
EOB	12.89	12.61	14.09	11.61	12.58	13.52	13.00	11.54	14.55	14.14	16.71	17.12

WTR YR 1990 HIGH 10.55 FEB 10 LOW 17.25 SEP 28

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 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07, 1989	5.90	JAN 13, 1990	5.30	APR 14, 1990	5.30	JUL 14, 1990	6.32
14	5.97	20	5.48	21	5.57	21	6.50
21	5.45	27	5.22	28	5.60	28	6.80
NOV 04	5.69	FEB 03	4.92	MAY 05	5.50	AUG 04	6.85
11	5.54	10	4.60	12	5.55	11	6.60
18	5.30	17	5.06	19	5.70	18	6.85
25	5.72	24	5.25	26	5.50	25	5.91
DEC 02	5.67	MAR 03	5.10	JUN 02	5.48	SEP 01	6.50
09	5.75	10	5.45	09	5.75	08	6.55
16	5.76	17	4.88	16	5.70	15	6.43
23	5.85	24	5.25	23	5.62	22	6.50
30	5.12	31	5.40	30	5.55		
JAN 06, 1990	5.20	APR 07	4.90	JUL 07	6.00		

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 29.

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 Oct. 27, Dec. 23-25, Jan. 10, 11, Feb. 5-11, 26-28, May 26 to June 1, July 7-16, 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 1989 TO SEPTEMBER 1990
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.55	11.93	10.68	7.10	---	11.48	9.21	11.57	9.48	12.81	12.60	12.37
10	12.55	11.03	11.51	---	---	11.80	6.54	11.46	11.03	---	12.85	12.61
15	12.87	11.49	11.75	9.48	6.06	11.93	9.74	11.15	11.88	---	13.19	10.28
20	.55	5.37	12.28	8.13	10.00	12.02	11.02	11.47	12.48	11.52	13.29	11.17
25	9.65	10.37	---	9.78	10.72	11.44	11.17	11.93	12.89	10.96	7.99	11.89
EOB	11.32	9.37	12.80	.52	---	10.28	11.45	---	13.18	11.98	11.59	12.47

WTR YR 1990 HIGH .43 JAN 30 LOW 13.37 AUG 21

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 Apr. 24, 1990, 272.40 ft below land-surface datum. Water-level measurement Sept. 12, 1990, 270.50 ft below land-surface datum.

JEFFERSON COUNTY

391142077551701. Local number 037166.

LOCATION.--Lat 39°11'42", long 77°55'17", Hydrologic Unit 02070007, about 6 mi south of Charles Town adjacent to U.S. Route 340.

Owner: James Louthan.

AQUIFER.--Conococheague Formation of Upper Cambrian age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in., depth 153 ft, cased with steel.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 572 ft above National Geodetic Vertical Datum of 1929. Measuring

point: Top edge of recorder shelter base, at land-surface datum.

REMARKS.--Water-quality and well log data available.

PERIOD OF RECORD.--March 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 43.82 ft, below land-surface datum, May 30, 1988; lowest, 61.89 ft below land-surface datum, Sept. 28, 1988.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	53.24	52.91	53.41	54.03	52.59	51.70	51.64	50.55	50.72	51.52	52.59	53.01
10	53.47	52.88	53.54	53.75	52.04	51.76	51.03	50.68	50.60	51.69	52.71	53.10
15	53.43	52.98	53.71	53.84	51.86	51.85	50.51	51.06	50.75	51.84	52.90	53.00
20	53.42	53.07	53.81	53.77	51.77	51.99	50.54	51.28	51.02	52.03	52.92	53.15
25	53.00	53.29	53.84	53.70	51.68	52.12	50.49	51.30	51.09	52.14	52.95	53.28
EOM	52.77	53.35	53.98	53.30	51.64	51.98	50.51	51.04	51.32	52.34	52.98	53.39

WTR YR 1990 HIGH 50.41 APR 21 LOW 54.18 JAN 2

392104077554801. Local number 037166.

LOCATION.--Lat 39°21'04", long 77°55'48", Hydrologic Unit 02070007, at Leetown Fish Research Station, Leetown.

Owner: U.S. Government.

AQUIFER.--Beekmantown Group of Lower Ordovician age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in., depth 155 ft, cased with steel to 36.7 ft, screened from 36.7 to 155 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 480 ft above National Geodetic Vertical Datum of 1929. Measuring

point: Top edge of recorder shelter base, 2.40 ft above land-surface datum.

REMARKS.--Water-quality and well log data available.

PERIOD OF RECORD.--March 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 15.85 ft, below land-surface datum, May 21, 22, 1988; lowest, 24.41 ft below land-surface datum, Dec. 22, 23, 1989.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	23.69	23.94	24.02	23.97	22.00	22.93	22.67	23.28	22.55	24.01	22.19	18.08
10	23.91	23.85	24.08	23.94	20.68	23.44	22.45	23.46	23.08	23.75	20.82	18.16
15	24.03	23.99	24.21	24.06	21.25	23.87	22.76	23.16	23.39	21.34	20.62	18.21
20	22.70	23.78	24.38	24.20	20.65	23.54	23.18	22.94	23.57	23.05	19.66	18.50
25	23.43	23.87	24.31	23.31	20.97	23.51	23.30	23.71	23.73	23.53	18.79	18.96
EOM	23.78	23.94	24.30	22.23	21.34	24.23	23.20	21.60	23.87	23.89	18.17	19.53

WTR YR 1990 HIGH 18.06 SEP 7 LOW 24.41 DEC 23

GROUND-WATER LEVELS

LEWIS COUNTY

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.

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. 11, 1989, 20.57 ft below land-surface datum. Water-level measurement May 3, 1990, 22.06 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 possibly affected by mine pumpage. No water-level record Dec. 15, 25, and Aug. 20, 25. Some unpublished daily values also missing.

PERIOD OF RECORD.--April 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 126.73 ft below land-surface datum, Sept. 28, 1990; lowest measured, 219.47 ft below land-surface datum, May 12, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	139.82	138.62	137.50	136.36	135.32	133.14	131.64	130.79	129.74	128.54	127.62	127.17
10	139.66	138.58	137.42	136.36	134.73	132.79	131.27	130.72	129.44	128.50	127.55	127.19
15	139.46	138.36	---	136.09	134.28	132.55	131.34	130.52	129.24	128.49	127.52	126.95
20	139.30	137.78	136.84	135.86	134.33	132.42	131.41	130.18	128.91	128.14	---	127.01
25	139.19	137.94	---	135.31	134.14	132.19	131.13	131.30	128.96	127.98	---	126.84
EOM	138.68	137.66	136.36	135.60	133.56	131.80	130.92	130.22	128.57	127.79	127.31	126.81

WTR YR 1990 HIGH 126.73 SEP 28 LOW 139.88 OCT 3

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. Geophysical logs available. Casing extension installed Oct. 24, 1985.

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 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 04, 1989	+1.00	JAN 03, 1990	+4.3	APR 04, 1990	+8.2	JUL 04, 1990	.48
11	+1.18	10	+9.4	11	+4.1	11	.52
18	+1.00	17	+3.0	18	+4.5	18	.16
25	+4.1	24	+3.3	25	+5.3	25	.08
NOV 01	+3.0	31	+5.6	MAY 02	+2.6	AUG 01	.31
08	+2.8	FEB 07	+8.5	09	+6.2	08	.27
15	+6.4	14	+1.25	16	+2.1	15	.26
22	+2.0	21	+1.18	23	+1.7	22	.40
29	+3.2	28	+7.3	30	+7.4	29	+1.4
DEC 06	.15	MAR 07	+6.6	JUN 06	+4.8	SEP 05	4.30
13	+1.0	14	+6.5	13	+1.3	12	5.34
20	.20	21	+7.4	20	.10	19	2.42
27	.53	28	+1.16	27	.28	26	2.72

GROUND-WATER LEVELS

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 pumpage at times from a nearby dug well of 6 ft depth.

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 Nov. 15, 1989, 0.35 ft below land-surface datum. Water-level measurement May 10, 1990, 1.45 ft below land-surface datum.

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, 28.42 ft below land-surface datum, May 10, 1989; lowest, 44.29 ft below land-surface datum, Oct. 6, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	34.80	35.68	35.51	31.27	29.98	31.23	33.75	34.45	34.93	36.47	37.02	37.02
10	35.56	35.18	35.97	31.87	31.81	33.76	32.01	34.90	35.62	36.34	36.88	37.03
15	36.01	35.51	35.71	34.19	30.06	34.89	32.94	35.15	35.90	35.80	36.92	37.02
20	29.57	33.78	35.83	34.46	33.59	32.00	33.71	35.57	36.12	36.46	37.07	37.00
25	32.05	34.90	36.36	34.66	33.78	33.09	32.85	33.10	35.76	36.59	36.79	36.78
ECM	35.54	34.77	35.27	31.30	33.30	33.30	33.65	35.11	36.33	36.84	36.92	36.97

WTR YR 1990 HIGH 29.57 OCT 20 LOW 37.16 SEP 7

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, 83.08 ft below land-surface datum, Oct. 25, 1988.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25, 1989	61.34	JAN 24, 1990	51.13	APR 23, 1990	55.63	JUL 26, 1990	68.52
NOV 27	57.20	FEB 26	61.87	MAY 24	62.28	AUG 23	78.88
DEC 27	68.44	MAR 20	57.67	JUN 22	65.95	SEP 25	62.75

GROUND-WATER LEVELS

MONONGALIA COUNTY (Continued)

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, 3.60 ft below land-surface datum, May 16, 1989; lowest measured, 11.35 ft below land-surface datum, Aug. 6, 1971.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01, 1989	6.42	JAN 02, 1990	5.24	APR 03, 1990	4.93	JUL 03, 1990	5.95
08	6.35	09	4.45	10	5.04	10	5.60
15	4.85	16	4.54	17	5.28	17	5.10
22	4.66	23	4.26	24	5.53	24	5.50
31	5.45	30	4.19	MAY 01	5.37	31	6.35
NOV 07	5.34	FEB 06	4.15	08	5.83	AUG 07	6.43
14	5.27	13	4.05	15	5.45	14	6.69
21	4.50	20	4.37	22	5.73	21	5.31
28	4.70	28	4.39	29	4.93	28	5.30
DEC 05	5.26	MAR 06	5.05	JUN 05	5.80	SEP 04	5.49
12	5.60	13	5.55	12	5.70	11	5.13
19	5.55	20	5.77	19	5.92	18	5.09
26	5.29	27	4.97	26	6.42	24	5.27

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, 27.80 ft below land-surface datum, June 22, 1989; lowest measured, 38.56 ft below land-surface datum, Sept. 25, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	34.44	34.83	34.05	32.63	31.78	33.38	33.55	32.58	33.41	34.84	35.10	35.10
10	35.14	33.52	33.67	32.55	30.85	33.40	33.59	33.41	33.48	35.29	34.64	34.47
15	35.06	33.84	33.63	33.16	32.50	33.41	33.60	33.62	33.73	32.65	35.17	33.55
20	32.90	33.57	34.24	33.21	32.88	33.31	34.15	33.93	33.85	33.98	32.85	33.80
25	33.94	33.63	35.17	32.77	33.07	33.50	34.25	34.07	34.35	34.95	33.44	34.73
EOM	33.81	33.68	34.54	31.21	33.13	33.51	33.21	33.26	34.71	34.76	34.66	34.90

WTR YR 1990 HIGH 30.37 JAN 30 LOW 35.54 AUG 18

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.

REMARKS.--No water-level record Oct. 1 to Aug. 21, due to clock and recorder malfunction.

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 1989 TO SEPTEMBER 1990
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	---	---	---	---	---	---	11.94
10	---	---	---	---	---	---	---	---	---	---	---	11.92
15	---	---	---	---	---	---	---	---	---	---	---	11.82
20	---	---	---	---	---	---	---	---	---	---	---	11.98
25	---	---	---	---	---	---	---	---	---	---	11.47	11.64
EOM	---	---	---	---	---	---	---	---	---	---	11.79	11.93

WTR YR 1990 HIGH 11.47 AUG 22 LOW 12.02 SEP 18

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.

REMARKS.--No water-level record Sept. 1-7, due to recorder malfunction.

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, 70.20 ft below land-surface datum, Oct. 13, 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 1989 TO SEPTEMBER 1990
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	68.75	69.21	69.05	68.30	67.86	68.74	68.83	69.12	69.04	69.65	69.80	---
10	69.12	68.71	69.18	68.51	67.00	69.07	68.65	68.58	69.12	69.69	69.80	69.67
15	69.22	69.06	69.19	68.78	67.91	69.19	68.73	68.83	69.33	69.11	69.62	69.68
20	68.47	68.72	69.27	68.61	68.45	68.71	69.00	69.21	69.44	69.63	69.67	69.72
25	68.88	69.03	69.23	68.71	69.02	68.96	69.18	68.84	69.55	69.73	68.96	69.70
EOB	69.06	68.78	68.32	68.41	68.99	68.72	69.19	68.69	69.59	69.78	69.58	69.75

WTR YR 1990 HIGH 67.00 FEB 10 LOW 69.80 AUG 1

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. Measured depth approximately 330 ft, September 1984.

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 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25, 1989	43.97	JAN 24, 1990	43.46	APR 23, 1990	45.49	JUL 26, 1990	45.37
NOV 27	47.41	FEB 26	46.94	MAY 24	46.07	AUG 23	43.85
DEC 18	44.62	MAR 20	45.43	JUN 22	46.41	SEP 25	43.60

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. 11, 1989, 2.01 ft below land-surface datum. Water-level measurement Apr. 27, 1990, 1.52 ft below land-surface datum.

GROUND-WATER LEVELS

RANDOLPH COUNTY (Continued)

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. 11, 1989, 14.89 ft below land-surface datum. Water-level measurement Apr. 27, 1990, 14.76 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 1989 TO SEPTEMBER 1990
 NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	19.11	19.33	19.24	19.09	19.03	19.39	19.02	19.09	19.32	19.58	19.45	19.79
10	18.92	19.31	19.27	19.19	18.61	19.43	19.12	19.03	18.97	19.75	19.64	19.93
15	19.08	19.26	19.18	19.40	18.82	19.14	19.09	19.22	19.21	19.17	19.92	19.79
20	18.59	18.88	19.74	18.98	19.19	19.09	19.26	18.93	19.16	19.30	19.77	19.77
25	19.06	19.41	19.49	18.84	19.64	19.24	19.12	19.26	19.62	19.12	19.09	19.62
EOM	19.13	19.22	19.05	19.00	19.21	19.12	19.39	19.08	19.85	19.40	19.59	19.83

WTR YR 1990 HIGH 18.53 OCT 21 LOW 20.10 SEP 17

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 1989 TO SEPTEMBER 1990
 NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	10.15	10.41	9.92	9.03	9.33	10.00	9.92	9.94	9.65	10.73	10.69	11.05
10	10.04	9.97	9.95	9.69	9.18	9.98	9.54	10.09	10.00	10.66	10.77	10.79
15	10.15	10.08	10.18	10.00	9.42	10.08	9.39	10.18	10.44	9.81	10.81	10.65
20	9.25	9.67	10.36	8.82	9.84	10.18	9.86	10.23	10.76	10.12	10.78	10.53
25	9.82	9.98	10.49	9.34	10.11	10.18	9.75	10.20	10.69	9.99	10.39	10.43
EOM	10.25	9.51	9.94	9.14	10.20	10.17	10.12	8.92	10.84	10.49	10.80	10.69

WTR YR 1990 HIGH 7.76 MAY 27 LOW 11.05 SEP 5

GROUND-WATER LEVELS

TYLER COUNTY

393211081021201.

LOCATION.--Lat 39°32'11", long 81°02'12", Hydrologic Unit 05030201, 2.50 mi southwest of Sistersville along 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 1989 TO SEPTEMBER 1990
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	18.75	18.41	18.58	17.15	13.50	18.13	18.08	18.47	18.67	18.77	18.46	18.52
10	18.96	18.47	18.82	17.57	15.37	18.40	18.45	18.50	17.93	18.18	18.48	17.87
15	18.72	18.12	18.74	18.39	15.97	18.34	17.09	18.42	17.35	15.71	18.59	18.39
20	17.89	18.12	18.81	17.14	15.74	18.48	18.29	16.95	18.91	17.79	18.40	18.44
25	18.66	18.44	18.64	16.52	17.34	18.71	18.05	18.03	19.12	17.79	19.12	18.51
EOM	19.07	18.24	17.99	15.60	17.88	18.64	19.01	16.79	18.81	18.81	18.87	18.59

WTR YR 1990 HIGH 11.44 FEB 17 LOW 19.32 OCT 1

WAYNE COUNTY

375827082211501. Local number, 50-6-5.

LOCATION.--Lat 37°58'27", long 82°21'15", Hydrologic Unit 05090102, on Cabwaylingo State Forest along 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, 26.87 ft below land-surface datum, Oct. 18, 1989; lowest measured, 32.17 ft below land-surface datum, July 21, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 04, 1989	28.67	JAN 03, 1990	27.97	APR 04, 1990	28.67	JUL 04, 1990	31.37
11	29.17	10	28.67	11	28.27	11	31.27
18	26.87	17	28.87	18	28.57	18	31.37
25	28.57	24	30.97	25	29.87	25	29.87
NOV 01	28.77	31	29.87	MAY 02	28.87	AUG 01	31.77
08	28.77	FEB 08	28.27	09	28.87	08	31.87
15	30.77	14	27.97	16	31.57	15	31.77
22	30.77	21	28.37	23	31.57	29	29.17
29	31.27	28	29.17	30	28.57	SEP 05	28.97
DEC 06	29.47	MAR 07	28.47	JUN 06	28.57	12	28.77
13	29.47	14	31.07	13	28.77	19	29.37
20	31.67	21	28.37	20	29.17	26	29.67
27	31.47	28	28.57	27	28.97		

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 Dec. 23 to Jan. 3, May 8-15, July 2-11, and Aug. 28 to Sept. 6, 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, 27.51 ft below land-surface datum, Aug. 22, 1988.

REVISION.--The lowest water level for period of record reported in 1988 water year as 27.67 ft is in error.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	22.27	22.62	21.73	23.00	22.32	22.64	22.46	22.85	22.18	---	24.81	---
10	22.68	22.60	22.25	22.37	22.01	22.67	22.17	---	22.48	---	25.13	24.59
15	22.68	21.97	22.59	22.52	21.97	22.93	21.82	---	22.30	24.98	25.27	24.58
20	22.11	21.57	23.18	22.48	22.12	22.91	21.99	22.99	22.97	24.55	25.08	24.11
25	21.73	21.73	---	22.34	22.62	22.70	21.90	22.83	23.32	24.49	24.24	23.50
EOB	21.89	21.62	---	22.46	22.97	22.62	22.26	22.15	23.41	24.41	---	23.20

WTR YR 1990 HIGH 21.57 NOV 20 LOW 25.27 AUG 13

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.

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 1989 TO SEPTEMBER 1990
NOON VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	25.47	25.53	24.60	24.67	24.43	23.99	24.20	24.92	25.47	30.77	36.30	40.34
10	25.40	25.36	24.68	24.32	24.10	24.11	24.00	24.59	25.42	32.15	36.14	41.06
15	26.17	25.14	24.65	24.65	24.09	23.95	24.07	25.60	27.09	32.43	37.06	41.21
20	25.83	24.84	24.87	24.41	24.17	24.22	25.01	26.17	27.90	30.43	38.29	41.59
25	25.61	24.89	24.70	24.30	24.47	24.31	24.58	25.56	28.06	32.76	38.55	41.64
EOB	25.49	25.15	24.70	24.61	24.28	24.35	25.00	25.26	29.47	35.29	39.38	41.79

WTR YR 1990 HIGH 23.75 FEB 23 LOW 41.79 SEP 30

SPECIAL STUDY AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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)	PH LAB (STAND- ARD UNITS) (00403)	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)	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)
APR 25...	1545	250	253	7.4	7.8	20.5	701	3.2	39	120	40	4.9
SEP 14...	0915	255	256	7.3	8.0	20.5	697	3.5	43	130	42	5.1

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LITY 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)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	TRITIUM TOTAL (PCI/L) (07000)
APR 25...	2.2	0.70	90	35	0.80	0.10	148	50	7	10	<1	<5.7
SEP 14...	2.1	0.80	90	34	1.8	0.20	151	10	<3	10	1	<5.7

390745078282201 - 2307004/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)	PH LAB (STAND- ARD UNITS) (00403)	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)	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)
OCT 24...	1445	270	--	7.1	--	18.0	734	5.0	55	--	--	--
APR 24...	1000	260	295	6.8	7.2	18.0	727	5.7	63	140	49	4.8
SEP 12...	0900	270	271	6.8	7.5	18.0	729	5.2	58	140	47	5.7

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LITY 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)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	TRITIUM TOTAL (PCI/L) (07000)
OCT 24...	--	--	--	--	--	--	--	--	--	--	--	<5.7
APR 24...	4.8	0.80	135	13	1.6	<0.10	153	40	<3	<10	<1	8.0
SEP 12...	1.1	0.70	130	14	2.0	<0.10	145	30	<3	20	1	--

SPECIAL STUDY AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

393734078134601 - 1901001/BERKELEY SPRINGS

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE	SPE- CIFIC CON- DUCT- ANCE	PH (STAND- ARD	PH LAB (STAND- ARD	TEMPER- ATURE WATER	BARO- METRIC PRES- SURE	OXYGEN, DIS- SOLVED	OXYGEN, DIS- SOLVED	OXYGEN, DIS- SOLVED	HARD- NESS TOTAL	CALCIUM DIS- SOLVED	MAGNE- SIUM, DIS- SOLVED
		(US/CM) (00095)	(US/CM) (90095)	(UNITS) (00400)	(UNITS) (00403)	(DEG C) (00010)	(MM OF HG) (00025)	(MG/L) (00300)	(PER- CENT SATUR- ATION) (00301)	(MG/L AS CACO3) (00900)	(MG/L AS CA) (00915)	(MG/L AS MG) (00925)	
APR 24...	1415	285	271	6.6	7.4	22.0	746	4.0	47	140	46	5.6	
SEP 11...	1300	295	297	6.6	7.3	22.0	748	4.4	51	150	50	4.9	
DATE		SODIUM, DIS- SOLVED	POTAS- SIUM, DIS- SOLVED	ALKA- LITY WAT DIS TOT IT FIELD	SULFATE DIS- SOLVED	CHLO- RIDE, DIS- SOLVED	FLUO- RIDE, DIS- SOLVED	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED	IRON, TOTAL RECOV- ERABLE	IRON, DIS- SOLVED	MANGA- NESE, TOTAL RECOV- ERABLE	MANGA- NESE, DIS- SOLVED	TRITIUM TOTAL
		(MG/L AS NA) (00930)	(MG/L AS K) (00935)	(MG/L AS CACO3 (39086)	(MG/L AS SO4) (00945)	(MG/L AS CL) (00940)	(MG/L AS F) (00950)	(MG/L) (70300)	(UG/L AS FE) (01045)	(UG/L AS FE) (01046)	(UG/L AS MN) (01055)	(UG/L AS MN) (01056)	(PCI/L) (07000)
APR 24...	1.2	0.60	135	7.5	0.60	<0.10	133	40	<3	<10	<1	<5.7	
SEP 11...	4.6	0.90	130	20	3.3	0.30	164	20	<3	10	1	8.0	

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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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