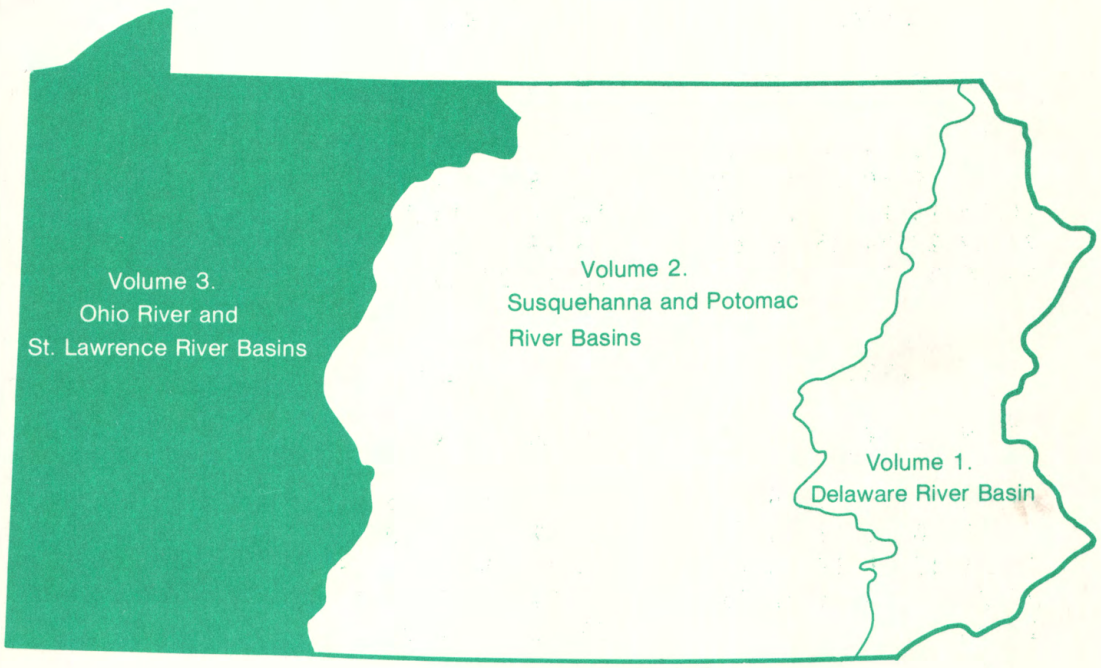
Water Resources Data Pennsylvania Water Year 1990

Volume 3. Ohio River and St. Lawrence River Basins



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT PA-90-3
Prepared in cooperation with the Pennsylvania Department of Environmental Resources, the U.S. Army Corps of Engineers, Pittsburgh District, and with other State, municipal and Federal agencies

CALENDAR FOR WATER YEAR 1990

1989

OCTOBER

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1990

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AUGUST

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SEPTEMBER

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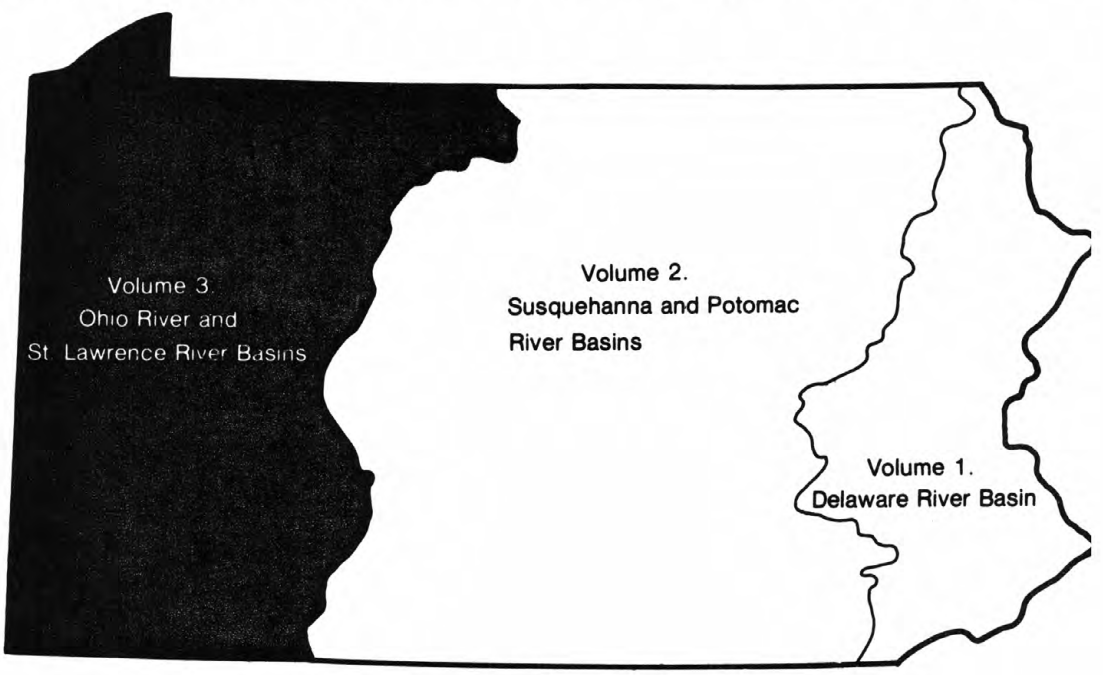
Water Resources Data Pennsylvania Water Year 1990

Volume 3. Ohio River and St. Lawrence River Basins

by Joseph B. Lescinsky, Martin B. Coll, Jr., Raymond W. Siwicki



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT PA-90-3
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U.S. DEPARTMENT OF THE INTERIOR

MANUEL LUJAN JR., Secretary

U.S. GEOLOGICAL SURVEY

Dallas L. Peck, Director

For additional information write to
District Chief, Water Resources Division
U.S. Geological Survey
P.O. Box 1107
Harrisburg, Pennsylvania 17108

1991

PREFACE

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

Volume 1. Delaware River Basin
Volume 2. Susquehanna and Potomac River Basins
Volume 3. Ohio River and St. Lawrence River Basins

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. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines, the following individuals contributed significantly to the collection, processing, and tabulation of the data:

Donald R. Williams	Thomas M. Noonan	Michael D. Lichte
Theodore F. Buckwalter	Emitt C. Witt III	Michael Janiszewski
James I. Sams III	Walter K. Schachner	Curtis L. Schreffler
Gregory M. Wehner	Lonnie J. Fekula	Thomas Sinwell
		Mark D. Schuster

This report was prepared in cooperation with the State of Pennsylvania and with other agencies under the general supervision of David E. Click, District Chief.

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15. Supplementary Notes

Prepared in cooperation with the State of Pennsylvania and with other agencies.

16. Abstract (Limit: 200 words)

Water resources data for the 1990 water year for Pennsylvania consist of records of discharge and water quality of stream; contents and elevations of lakes and reservoirs; and water levels of ground-water wells. This report, Volume 3, includes records from the Ohio and St. Lawrence River basins. Specifically, it contains: (1) discharge records for 81 continuous record streamflow-gaging stations and 41 partial-record stations; (2) elevation and contents records for 3 lakes and reservoirs; (3) water-quality records for 6 streamflow-gaging stations, for 11 ungaged streamsites, and (4) water-level records for 20 network observation wells. Locations of these sites are shown on figures 4-5. Additional water data were collected at various sites not involved in the systematic data-collection program and are published as miscellaneous measurements and analyses. These data, together with the data in Volume 1 and 2, represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State, Local, and Federal agencies in Pennsylvania.

17. Document Analysis a. Descriptors

*Pennsylvania, *Hydrologic date, *Ground water, *Surface water, *Water Quality, Gaging Stations, Streamflow, Flow rates, Lakes, Reservoirs, Chemical analysis, Sediments, Water Temperature, Water analysis, Water levels, Water wells, Data collection, Sites.

b. Identifiers/Open-Ended Terms

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Department of Commerce

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GAGING STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

(Letter after station name designates type of data: (d) discharge, (c) chemical, (b) biological, (t) water temperature, (s) sediment, (r) radiochemical)

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

GROUND-WATER LEVELS

WATER RESOURCES DATA - PENNSYLVANIA, 1990

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with State and Federal agencies, obtains a large amount of data pertaining to the water resources of Pennsylvania 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 - Pennsylvania, Volume 1, 2, and 3."

This report, Volume 3, includes records on both surface and ground water in the Ohio and St. Lawrence River Basins. Specifically, it contains: (1) Discharge records for 81 streamflow-gaging stations, for 41 partial-record or miscellaneous streamflow stations, and for 3 crest-stage, partial-record streamflow stations; (2) elevation and content records for 3 lakes and reservoirs; (3) water-quality records for 6 streamflow-gaging stations, and for 11 ungaged streamsites; and (4) water-level records for 20 observation wells.

This series of annual reports for Pennsylvania began with the 1961 water year 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 the introduction of this series and for several years concurrent with it, water-resources data for Pennsylvania 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," which was released in numbered parts as determined by natural drainage basins. For the 1961 through 1970 water years, the data were published in two 5-year reports. Data prior to 1961 are included in two reports: "Compilation of Records of Surface Waters of the United States through 1950," and "Compilation of Records of Surface Waters of the United States, October 1950 to September 1960." Data for Pennsylvania are published in Parts 1, 3, 4. 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 Distribution Branch, Text Products Section, U.S. Geological Survey, 604 South Pickett Street, Alexandria, VA 22304.

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 PA-90-3." 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 title page or by contacting the Hydrologic Information Specialist, telephone (717) 782-3851.

COOPERATION

The U.S. Geological Survey and organizations of the Commonwealth of Pennsylvania have had cooperative agreements for the systematic collection of surface-water records during the periods 1919-21 and 1931 to date, water-quality records from 1944 to date, and ground-water records from 1925 to date. Organizations that provided data are acknowledged in station descriptions. Organizations that assisted in collecting data through cooperative agreement with the Survey are:

The Pennsylvania State Department of Environmental Resources, Arthur A. Davis, Secretary through the following:

Office of Resources Management, James R. Grace, Deputy Secretary;
  Bureau of Water Resources Management, John E. McSparran, Director;
  Bureau of Topographic and Geologic Survey, Donald M. Hoskins, Director;
Office of Environmental Protection, Mark M. McClellan, Deputy Secretary;
  Bureau of Water Quality Management, Daniel B. Drawbaugh, Director;
  Bureau of Mining and Reclamation, Ernest F. Giovannitti, Director.

New York State Department of Environmental Conservation, Thomas C. Jorling, commissioner.

Assistance in the form of funds or services was given by: Corps of Engineers, U.S. Army, in collecting records for 60 gaging stations. Assistance was also furnished by the National Weather Service, NOAA, U.S. Department of Commerce.

The following organizations aided in collecting records:

Allegheny Power Service Corp.; Greater Johnstown Water Authority: Latrobe Municipal Authority: Manufactures Water Co.; Municipal Authority of Westmoreland County; and Pennsylvania Electric Co.

SUMMARY OF HYDROLOGIC CONDITIONS

Streamflow

Streamflow in western Pennsylvania in the Upper Ohio and St. Lawrence River basins was normal. At the index station for the Ohio River basin--Oil Creek at Rouseville--the mean discharge for the 1990 water year was 116 percent of the median discharge during the 1951-80 reference period. The monthly mean streamflow was in the normal range in October November, April through June, and August, whereas the monthly mean streamflow was excessive in January, February, July, and September. The monthly mean streamflow in December and March was deficient.

A comparison of the monthly and yearly mean discharge during the 1990 water year with that of the 1951-80 reference period for Oil Creek at Rouseville is shown in figure 1.

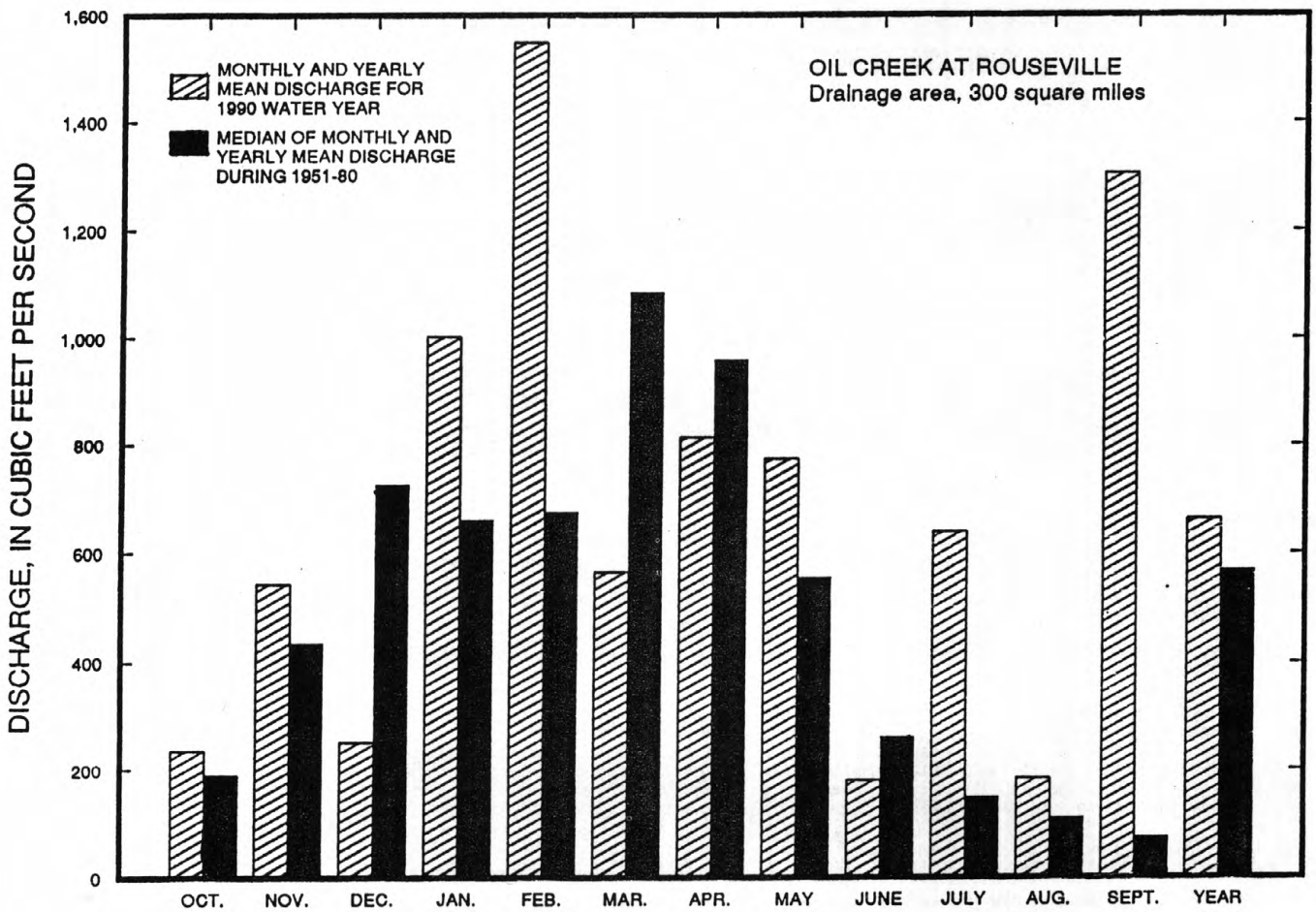

Figure 1.--Comparison of discharge at Oil Creek at Rouseville during 1990 water year with median discharge for period 1951-80.

Ground Water

During the 1990 water year, ground-water levels reached annual highs at most observation wells during February. Water levels were normal, above normal, or much above normal in most of the upper Ohio River basin in Pennsylvania. At most observation wells, ground-water levels reached annual lows during October 1989. Most wells in the observation-well network tap bedrock, which consists mostly of sandstone and shale.

Figure 2 shows the seasonal distribution of normal, below-normal, much below-normal, above-normal and much above-normal water levels. These maps are based on water-level fluctuations in 15 key wells. The water levels of the 1990 water year are averaged by season and compared to the long-term means for these seasons. Water levels during the fall and winter seasons were normal to above normal. During the spring, the same general conditions prevailed, with the exception of Somerset County, which was much below normal. In the summer, water levels were above normal or much above normal at 12 of the 15 wells in the basin.

Water Quality

The highest dissolved-solids concentrations generally occurred during periods of low flow at all three NASQAN (National Stream Quality Accounting Network) sites. The ratios of dissolved solids to specific conductance for the Allegheny River at New Kensington, the Monongahela River at Braddock, and the Beaver River at Beaver Falls averaged 0.62, 0.60, and 0.59, respectively. The dissolved-oxygen saturation levels generally were the highest on the Allegheny River at New Kensington, with a range of 93 to 108 percent of saturation and an average of 102 percent of saturation. The dissolved-oxygen saturation levels were lowest on the Beaver River at Beaver Falls, with a range of 84 to 100 percent of saturation and an average of 94 percent of saturation. The saturation levels on the Monongahela River at Braddock ranged from 84 to 105 percent of saturation, with an average of 96 percent of saturation.

Trace-element analyses of samples collected at the three NASQAN sites indicate that all concentrations of arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver were considerably less than U.S. Environmental Protection Agency maximum contaminant levels for domestic water supply. Dissolved-manganese concentrations exceeded the recommended of 50 micrograms per liter in most of the samples collected at all three sites.

The following table gives the range and median pH values and the range and mean values for specific conductance and dissolved-solids concentrations at the three NASQAN sites.

	pH			Specific conductance (microsiemens per centimeter at 25° C)			Dissolved solids (milligrams per liter)		
Site	Max	Min	Median	Max	Min	Mean	Max	Min	Mean
Allegheny River at New Kensington	7.4	7.1	7.4	351	186	252	232	123	178
Monongahela River at Braddock	7.3	7.0	7.2	422	235	346	262	141	209
Beaver River at Beaver Falls	8.5	7.6	7.9	490	360	435	285	232	260

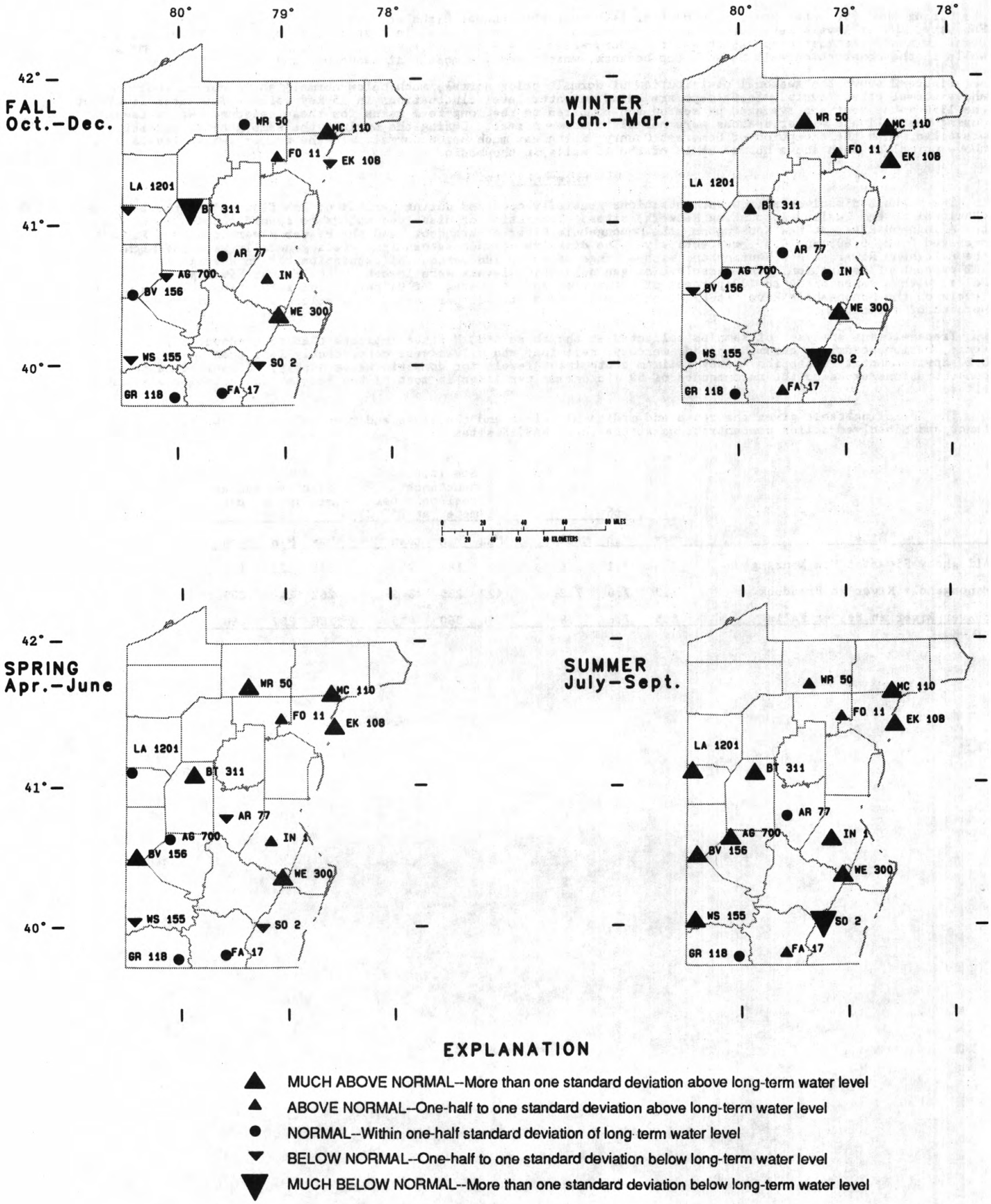

Figure 2.--Relation between mean 1990 seasonal water levels and long-term water levels.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Bench-Mark Network is a network of 55 sites in small drainage basins throughout the country that provides consistent data on hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide. This network also provides analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by human activities.

National Stream-Quality Accounting Network (NASQAN) is a data-collection network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Most of the 500 or so sites in NASQAN are located at the downstream ends of hydrologic accounting units designed by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Federal 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 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 location of these stations and wells are shown in figures 4, 5. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

Each data station in this report, whether streamsite or well, 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 Pennsylvania, for some miscellaneous surface-water sites where only random water-quality samples or discharge 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 main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary on which a station is situated with respect to the stream to which it is immediately tributary is indicated by an indention in a list of stations in the front of the report. Each indention represents one rank. This downstream-order system of indention shows which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

The station-identification number is assigned in 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. A station number can be from 8 to 15 digits in length and normally appears to the left of the station name. For example, an 8-digit number for a station such as 01570500, includes a 2-digit part number "01" plus a 6-digit downstream-order number "570500." The part number designates major river basins; for example, part "01" is the North Atlantic Slope basin.

Latitude-Longitude System

The identification numbers for wells and miscellaneous surface-water sites are assigned based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote the degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the wells or other sites within a 1-second grid. See figure 3 below.

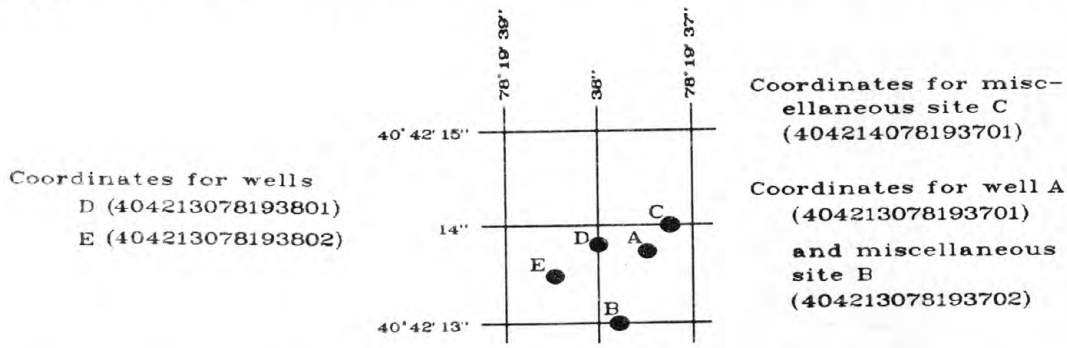

Figure 3.--System for numbering wells and miscellaneous sites (latitude and longitude).

A local well number is also assigned to the wells and consists of a 2-letter abbreviation of the county in which the well is located and a sequential number assigned at the time the well was scheduled.

Records of Stage and Water Discharge

Records of stage and water discharge may be continuous or partial. Continuous records of discharge are those obtained using a continuous stage-recording device through which either instantaneous water discharges may be computed for any time, or mean discharges may be computed for any period of time, during the period of record. Because daily mean discharges or, for reservoirs end-of-day contents, commonly are published for such stations, they are referred to as "daily stations" or "continuous-record 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-record stations," or "Low-flow partial-record stations." 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 continuous-record and partial-record stations for which data are given in this report are shown in figures 4, 5.

Data Collection and Computation

The data obtained at a continuous-record gaging station on a stream 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.

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage, with digital recorders that punch stage values on paper tapes at selected time intervals, or with Data Collection Platforms (DCP's) that electronically record and then transmit the data via satellite to ground receiving stations. 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 each recorded stage value (gage height) 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 to compute discharge.

When computing records of lake or reservoir contents, it is necessary to have available from surveys, curves or tables defining the relation between 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 relation changes because of deposition of sediment in the lake or reservoir, periodic surveys may be necessary to redefine the relation. Even when this is done, the contents computed may increase in error as the time elapsed since the last survey increases. Discharges over lake or reservoir spillways are computed from stage-discharge relation much as other stream discharges are computed.

For some gaging stations, there are periods when no gage-height data are collected or when the recorded gage height is so imprecise or incorrect that it cannot be used to compute daily mean discharge or end-of-day 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 and reservoir 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 RECORD.--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 Definition of Terms), and a condensed history of the types, locations, and datums of previous gages are given under this heading.

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

COOPERATION.--Records provided by a cooperating organization or obtained for the U.S. 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.

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

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

EXTREMES FOR CURRENT YEAR.--Extremes given here are similar to those for the period of record, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and equal to or greater than a selected base discharge are presented under this heading. These peaks, 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.

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 ommitted 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

Beginning with the 1988 annual State data report, estimated daily discharge values published in the water-discharge tables are identified either by flagging individual daily values with the letter symbol "e" and printing a table footnote, "e Estimated," or by listing the dates of the estimated record in the "REMARKS." paragraph of the station description.

Accuracy of the Records

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

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

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

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

Other Records Available

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

Information on the availability of unpublished data or statistical analyses may be obtained from the Scientific Publications and Information Section (telephone (717) 782-3851).

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

During the collection of water-quality data, assurance that the data obtained represent the in-situ quality of the water is a major concern. Certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are collected. To assure that measurements made in the laboratory also represent the in-situ water, carefully prescribed procedures need to be followed when collecting the samples, when treating the samples to prevent changes in quality pending analysis, and when 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, Chapter D2; Book 3, Chapter C2; Book 5, Chapters A1, A3, and A4. All of these references are listed on a following page in this report. Also, detailed information on collecting, treating, and shipping samples may be obtained from the U.S. Geological Survey 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 collected for the National Stream Quality Accounting Network (see definitions) are obtained from several verticals. Whether samples are obtained from the centroid of flow or from several verticals, depends on flow conditions and other factors that 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 determined from data that are recorded at 15-, 30-, or 60-minute intervals by digital recorders that punch each value on a paper tape, or with Data Collection Platforms (DCP's). More detailed records (hourly values) may be obtained from the U.S. Geological Survey 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. At stations where recording instruments are used, maximum, minimum, and mean temperatures for each day are published. In addition, water temperatures are measured at the time of discharge measurements for water-discharge stations and are on file in the District office. For stations where water temperature is measured manually once or twice daily, it is usually measured at about the same time each day. Large streams have a small diurnal temperature change; temperatures in 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 heated waste-water discharges.

Sediment

Suspended-sediment concentrations are determined from samples collected by hand or by pump samplers. Samples are collected by hand using depth-integrating samplers at single or multiple verticals in the cross section. Samples are collected by pump samplers using an intake set to a fixed location in the cross section. The intake is located at a site that best represents the entire cross section on the basis of simultaneous samples collected at various stages by the pumping sampler and by hand. During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, every 15 minutes). 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. The remaining samples are analyzed in the U.S. Geological Survey laboratory in Arvada, Colorado. If other laboratories are used, they are identified in the "REMARKS." or "COOPERATION." paragraph of each water-quality station description. Methods used in analyzing sediment samples and computing sediment records are given in Techniques of Water Resources Investigations, Book 5, Chapter C1. Methods used by the Geological Survey laboratory are given in Techniques of Water Resources Investigations, Book 1, Chapter D2, Book 3, Chapter C2; Book 5, Chapters A1, A3, and A4. Methods used by other laboratories are approved by the U.S. Geological Survey, Water Resources Division.

In March 1989 a bias was discovered in the turbidimetric method for sulfate analysis for those samples analazed by the U. S. Geological Survey National Water-Quality Laboratory 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 constituents 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 streamflow-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 often 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 recorder, 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 constituents measured daily or more frequently. None are given for constituents measured less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

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

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

Remark Codes

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

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

Records of Ground-Water Levels

Ground-water level data from a basic network of observation wells and from ground-water projects are published herein. Locations of observation wells in the basic network are shown in figure 4.

Data Collection and Computation

Water levels are measured 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 above the station description. The secondary identification number is the local well number, an alphanumeric number, derived from the county location of the well.

Water-level records are obtained from direct measurements with a steel tape, from the graph or punched tape of a water-stage recorder, or with Data Collection Platforms (DCP's). 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 each day.

Water levels are reported to as many significant figures as can be justified by the local conditions. Accordingly, most measurements are reported to a hundredth of a foot, but some are given to a tenth of a foot or a larger unit.

Data Presentation

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

LOCATION.--This paragraph follows the well-identification number and reports the latitude and longitude (given in degrees, minutes, and seconds); the hydrologic-unit number; 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 U.S. 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. Wells equipped with recording gages have water levels reported for each day. Missing records are indicated by dashes in place of the water level.

Records of Ground-Water Quality

Records of ground-water quality are obtained at wells and springs included in ground-water projects. Records of ground-water quality in this report may involve a variety of types of data and measurement frequencies.

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 collected by trained personnel.

A variety of sampling techniques is used for collecting ground-water samples for chemical analyses. Techniques for sampling springs are the same as those used for sampling surface water. An appropriate well-sampling technique is selected at each site so that the chemical samples are representative of the water in the aquifer. Wells are pumped, when possible, until a constant water temperature, specific conductance, and pH are obtained before collecting water samples. Pumping rate, length of pumping, and sampling depth depend on the characteristics of the well and aquifer being sampled. Samples are collected either by a submersible pump or a bailer.

Data Presentation

Ground-water-quality data are published with ground-water-level data at stations where level data are collected. Data collected at partial-record stations and miscellaneous sites follow the information for continuous ground-water record stations. Data for each section 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 "REMARKS." codes listed for surface-water-quality records are also applicable to ground-water-quality records.

ACCESS TO WATSTORE DATA

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

* Station Header File - Contains descriptive information on over 440,000 sites throughout the United States and its territories where the U.S. Geological Survey collects or has collected data.

* Daily Values File - Contains over 220 million daily values of stream flows, stages, reservoir contents, water temperatures, specific conductances, sediment concentrations, sediment discharges, and ground-water levels.

* Peak Flow File - Contains approximately 500,000 maximum (peak) streamflow and gage-height values at surface-water sites.

* Water Quality File - Contains approximately 2 million analyses of water samples that describe the chemical, physical, biological, and radiochemical characteristics of both surface and ground water.

* Ground-Water Site Inventory Data Base - Contains inventory data for over 900,000 wells, springs, and other sources of ground water. The data includes site location, geohydrologic characteristics, well-construction history, and one-time field measurements such as water temperature.

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

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

In addition to providing direct access to WATSTORE, data can be provided in various machine-readable formats on magnetic tape or 5-1/4 and 3-1/2 inch floppy disk. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the Water Resources Division's District offices. (See address on the back of the title page.)

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. See also the table for converting Inch-pound 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.

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

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

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

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

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

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, 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.

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warmblooded 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 ± 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

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

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

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

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

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

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

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

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

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

Bottom material: See Bed material.

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

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

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.

Continuous record station is a station where streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses. Data may be collected continuously or periodically.

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)[1] is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute.

Cubic feet per second per square mile [$(ft^3/s)/mi^2$][1] 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.

Data Collection Platform (DCP) is an electronic instrument which collects, processes, stores, and transmits data from various sensors to an earth-orbiting Geostationary Operational Environmental Satellite (GOES) and/or through landline telemetry.

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.

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

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

Dissolved refers to that material in a representative water sample which passes through a 0.45 μm 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 specific 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 noncontribution areas, within the area unless otherwise noted.

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

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

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

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

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[1] Until appropriate changes can be made to the WATSTORE and PRIME computer systems, the unit abbreviations "CFS" and "CFSM" will appear on some computer-generated table headings and summaries.

Hydrologic Bench-Mark Network is a network of 55 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 8-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 development process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

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

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

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

Miscellaneous record site is a site where limited streamflow and/or water-quality data are collected on a random basis for use in hydrologic analyses.

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

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

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

Organism is any living entity.

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

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

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

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 recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

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

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material 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 ($1x10^{-12}$) 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 algal 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 of volume per unit time [mg C/(m^2•time)] for periphyton and macrophytes and [mg C/(m^3•time)] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

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

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

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 only readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Recurrence interval 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 return period.

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 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 (Q7,10) is the discharge at the 10-year recurrence interval taken from a frequency curve of annual values of the lowest mean discharge for 7 consecutive days (the 7-day low flow).

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

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

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

Surface area of a lake is that area outlined on the latest USGS 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 that 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 µm 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 µm membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

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

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

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

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

Kingdom	Animal
Phylum	Arthropoda
Class	Insecta
Order	Ephemeroptera
Family	Ephemeridae
Genus	Hexagenia
Species	Hexagenia limbata

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 an instrument that records temperature whether on a chart, a tape, or any other medium.

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

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

Tons per day (T/day) is the quantity of 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 determines 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 would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

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

Water year as used in Geological Survey reports, 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, 1980, is called the "1980 water year."

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

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

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

PUBLICATION OF TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

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

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

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

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

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

2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F. P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 pages.

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

2-F1. *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and Warren E. Teasdale: USGS--TWRI Book 2, Chapter F1. 1989. 97 pages.

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

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

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

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

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

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

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

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

3-A9. *Measurement of time of travel in streams by dye tracing*, by F. A. Kilpatrick and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1989. 27 pages.

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

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

3-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.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

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.

3-B6. *The principle of superposition and its application in ground-water hydraulics*, by T. E. Reilly, O. L. Franke, and G. D. Bennett: USGS--TWRI Book 3, Chapter B6. 1987. 28 pages.

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

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

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

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

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

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

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

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

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

5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M. J. Fishman and L. C. Friedman: USGS--TWRI Book 5, Chapter A1. 1989. 545 pages.

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5-A3. *Methods for the determination of organic substances in water and fluvial sediments*, edited by R. L. Wershaw, M. J. Fishman, R. R. Grabbe, and L. E. Lowe: USGS--TWRI Book 5, Chapter A3. 1987. 80 pages.

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.

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

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.

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

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

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

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

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

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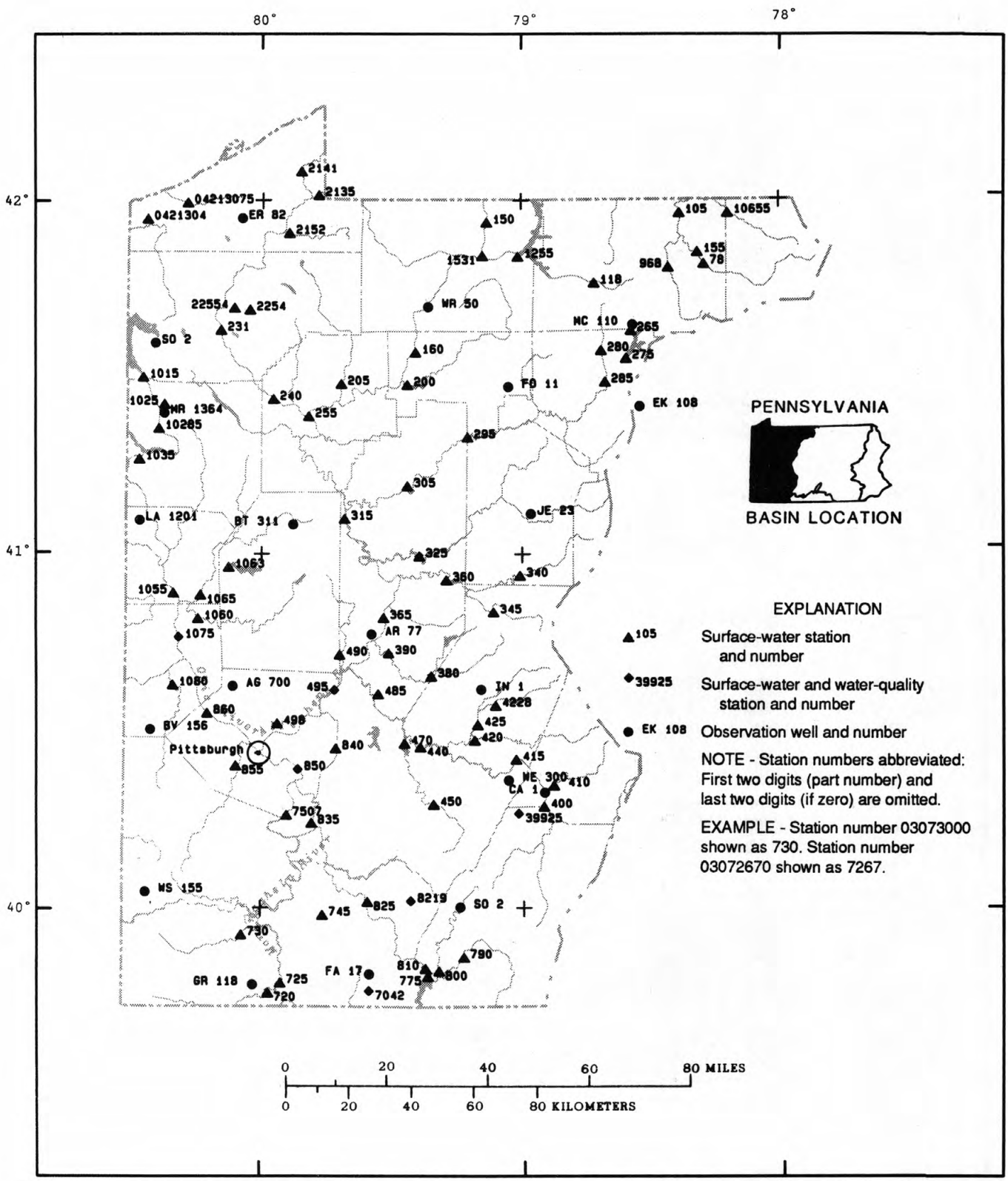

Figure 4.--Location of data-collection stations and observation wells.

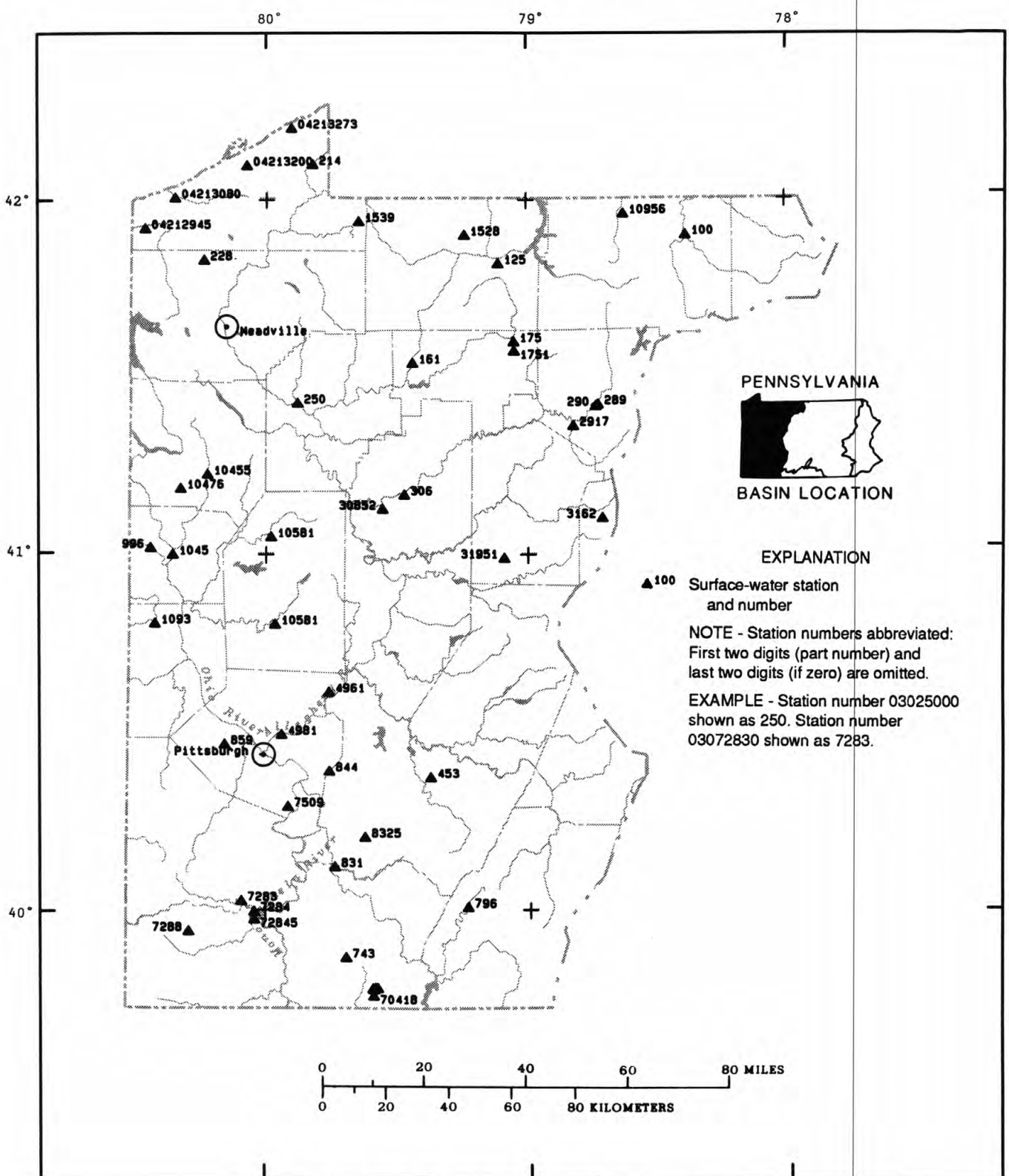

Figure 5.--Location of partial-record data-collection stations.

CONTINUOUS SURFACE-WATER AND WATER-QUALITY STATION RECORDS

OHIO RIVER MAIN STEM

03007800 ALLEGHENY RIVER AT PORT ALLEGANY, PA

LOCATION.--Lat 41°49'07", long 78°17'35", McKean County, Hydrologic Unit 05010001, on right bank 40 ft upstream from bridge on U.S. Highway 6 at Port Allegany, 1.1 mi upstream from Twomile Creek, 1.4 mi downstream from Allegheny Portage Creek, and at mile 285.5.

DRAINAGE AREA.--248 mi^2.

PERIOD OF RECORD.--October 1974 to current year. Discharge measurements obtained by U.S. Army Corps of Engineers March 1971 to October 1974.

GAGE.--Water-stage recorder. Datum of gage is 1,454.88 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--16 years, 460 ft^3/s, 25.19 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,060 ft^3/s, June 21, 1989, gage height, 13.59 ft; minimum, 13 ft^3/s, Aug. 23, 1988, gage height, 1.35 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 23, 1972, reached a stage of at least 17.5 ft, discharge, 21,700 ft^3/s, from U.S. Army Corps of Engineers discharge measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 17	0400	3,320	8.96	July 12	1700	2,520	7.86
Apr. 11	2030	*4,290	*10.09				

Minimum discharge, 45 ft^3/s, Oct. 10, 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	61	233	365	e160	487	361	333	239	233	114	140	255
2	75	186	338	163	1060	336	388	222	213	104	120	213
3	79	180	303	149	1460	335	419	205	213	88	109	179
4	63	180	284	271	1660	284	496	209	206	77	99	150
5	56	170	e250	311	1370	265	573	317	188	70	189	164
6	53	171	e230	278	1140	250	700	257	170	63	227	160
7	52	174	e220	265	975	209	684	240	161	62	167	278
8	51	219	e200	251	837	214	664	230	150	57	138	221
9	49	363	e190	247	815	226	635	219	153	209	119	271
10	48	459	214	243	1320	261	922	241	140	165	110	413
11	75	474	207	236	1380	428	3910	253	129	130	106	323
12	69	461	187	207	1260	e540	3400	224	115	1670	94	287
13	58	412	176	195	1030	e500	1990	298	105	1620	109	245
14	52	389	160	197	907	504	1400	422	99	1130	132	250
15	50	368	142	197	1140	506	1110	394	95	862	95	799
16	47	752	e140	291	2720	492	860	543	89	790	83	659
17	157	785	e130	785	3100	e940	719	922	83	569	77	693
18	158	712	e125	1230	2240	e860	597	1250	176	467	73	592
19	270	636	e120	1120	1610	831	504	1220	176	387	67	727
20	458	609	e120	1130	1140	805	449	1030	116	344	67	885
21	455	584	e115	1040	866	711	483	985	102	322	66	730
22	402	471	e110	833	731	687	425	777	92	261	66	822
23	332	421	e110	762	714	665	387	645	92	407	220	659
24	285	368	e110	778	645	625	361	553	90	312	234	575
25	223	338	e110	861	518	605	347	469	93	252	160	490
26	204	387	e105	799	428	564	331	407	82	222	137	436
27	184	356	e100	775	443	499	307	360	72	199	124	367
28	172	396	e100	710	386	442	284	308	65	180	196	306
29	158	378	e100	657	---	398	264	321	117	165	733	263
30	158	367	e100	544	---	380	253	384	208	153	401	278
31	158	---	e130	527	---	355	---	269	---	158	321	---
TOTAL	4712	11999	5291	16212	32382	15078	24195	14413	4023	11609	4979	12690
MEAN	152	400	171	523	1156	486	806	465	134	374	161	423
MAX	458	785	365	1230	3100	940	3910	1250	233	1670	733	885
MIN	47	170	100	149	386	209	253	205	65	57	66	150
CFSM	.61	1.61	.69	2.11	4.66	1.96	3.25	1.87	.54	1.51	.65	1.71
IN.	.71	1.80	.79	2.43	4.86	2.26	3.63	2.16	.60	1.74	.75	1.90

CAL YR 1989 TOTAL 162487 MEAN 445 MAX 8440 MIN 22 CFSM 1.80 IN. 24.37
WTR YR 1990 TOTAL 157583 MEAN 432 MAX 3910 MIN 47 CFSM 1.74 IN. 23.64

e Estimated

POTATO CREEK BASIN

03009680 POTATO CREEK AT SMETHPORT, PA

LOCATION.--Lat 41°48'35", long 78°25'50", McKean County, Hydrologic Unit 05010001, on left bank 30 ft upstream from U.S. Highway 6 at east borough limits of Smethport, and 500 ft downstream from Marvin Creek.

DRAINAGE AREA.--160 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 1,454.84 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year. Landline and U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--16 years, 305 ft^3/s, 25.89 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,420 ft^3/s, June 21, 1989, gage height, 12.74 ft; minimum daily, 12 ft^3/s, Aug. 22, 1988.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 22, 1972, reached a stage of 15.54 ft, discharge, 12,800 ft^3/s, on basis of contracted-opening measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 16	0245	*3,140	*9.23	Apr. 11	0645	3,120	9.21

Minimum discharge, 22 ft^3/s, July 8, 9, gage height, 1.94 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	25	186	223	e440	322	274	227	152	148	53	62	223
2	31	125	e200	343	1090	264	419	138	129	42	52	188
3	46	117	e185	280	1070	227	435	126	126	35	47	156
4	34	121	e170	349	1280	199	463	137	129	31	43	131
5	27	110	e165	606	964	180	519	278	112	27	188	133
6	25	115	e160	411	795	162	610	192	96	25	246	151
7	24	122	e150	332	681	144	511	164	90	25	124	364
8	24	220	e140	278	602	159	451	152	83	23	87	249
9	24	354	e135	236	655	175	411	142	89	63	68	390
10	24	364	e130	236	1070	266	665	179	77	60	60	723
11	56	344	e125	221	826	430	2500	203	69	42	55	415
12	48	314	e120	216	698	349	1430	168	60	1230	50	330
13	35	260	e140	188	594	330	993	373	54	589	97	270
14	30	242	e135	192	557	317	749	548	50	281	127	243
15	28	263	e125	168	1430	298	666	406	47	270	64	999
16	26	818	e115	215	2840	295	517	563	44	354	51	608
17	163	620	e110	475	2030	998	450	898	41	211	47	575
18	149	497	e100	1130	1240	668	387	909	87	163	43	444
19	279	421	e98	886	924	633	324	740	85	134	41	628
20	399	363	e96	718	659	556	285	616	51	131	41	823
21	283	437	e90	850	519	497	344	688	45	146	41	539
22	240	321	e88	685	493	467	284	501	40	115	42	647
23	182	278	e86	534	528	421	250	407	41	335	298	511
24	147	246	e82	551	453	362	233	343	56	199	262	443
25	130	229	e80	577	329	330	225	287	72	143	178	367
26	116	286	e78	640	310	302	211	252	53	114	125	319
27	104	251	e76	503	320	267	193	231	39	97	105	277
28	95	291	e74	467	284	243	179	202	34	85	176	238
29	87	260	e72	439	---	226	167	210	72	75	1010	213
30	80	231	e70	408	---	240	162	274	109	67	372	282
31	84	---	e68	341	---	235	---	180	---	65	272	---
TOTAL	3045	8806	3686	13915	23563	10514	15260	10659	2228	5230	4474	11879
MEAN	98.2	294	119	449	842	339	509	344	74.3	169	144	396
MAX	399	818	223	1130	2840	998	2500	909	148	1230	1010	999
MIN	24	110	68	168	284	144	162	126	34	23	41	131
CFSM	.61	1.83	.74	2.81	5.26	2.12	3.18	2.15	.46	1.05	.90	2.47
IN.	.71	2.05	.86	3.24	5.48	2.44	3.55	2.48	.52	1.22	1.04	2.76

CAL YR 1989 TOTAL 120357 MEAN 330 MAX 5720 MIN 14 CFSM 2.06 IN. 27.98
WTR YR 1990 TOTAL 113259 MEAN 310 MAX 2840 MIN 23 CFSM 1.94 IN. 26.33

e Estimated

OHIO RIVER MAIN STEM

03010500 ALLEGHENY RIVER AT ELDRED, PA

LOCATION.--Lat 41°57'48", long 78°23'11", McKean County, Hydrologic Unit 05010001, on right bank at site of former highway bridge, 600 ft upstream from bridge on State Highway 346, 1,000 ft upstream from Knapp Creek, 0.5 mi north of Eldred, and at mile 267.8.

DRAINAGE AREA.--550 mi^2.

PERIOD OF RECORD.--July 1939 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,416.53 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--51 years, 948 ft^3/s, 23.41 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,400 ft^3/s, June 23, 1972, gage height, 29.05 ft from floodmark, from rating curve extended above 21,000 ft^3/s on basis of slope-area measurement at gage height 27.6 ft; minimum, 22 ft^3/s, Sept. 29, 30, 1959, gage height, 1.27 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 18	0300	*5,880	*13,89	Apr. 13	0300	5,340	13.35

Minimum discharge, 104 ft^3/s, Oct. 10, gage height, 2.04 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	130	455	786	e450	1090	868	753	526	562	299	285	647
2	128	478	724	846	1730	852	882	491	493	215	243	543
3	160	397	e660	683	3230	854	1210	452	458	184	217	466
4	158	402	e620	666	3350	740	1210	441	461	156	199	401
5	130	382	e580	1430	3370	686	1470	761	428	140	235	381
6	118	367	e540	1470	2850	638	1810	716	382	127	656	444
7	113	381	e500	1200	2300	547	1690	599	351	118	408	665
8	110	539	e480	1040	1940	507	1570	552	330	114	335	840
9	107	643	e460	e880	1840	557	1440	520	333	309	261	881
10	105	1050	e520	e800	2440	618	1510	533	312	457	232	1650
11	120	1010	e580	e720	2870	1090	3330	660	287	263	215	1190
12	191	975	e500	e680	2560	1270	4650	596	258	1420	202	917
13	153	861	e450	e680	2140	1200	5060	747	235	3080	218	764
14	127	774	e380	e620	1890	1180	3930	1340	216	2120	453	659
15	116	758	e350	e580	1930	1130	2630	1140	205	1510	289	1700
16	110	1240	e300	e640	3930	1070	1890	1380	194	1560	213	1830
17	114	1950	e280	e1000	5260	1650	1550	2150	179	1140	187	1970
18	431	1540	e270	2470	5710	2440	1360	2840	418	868	170	1540
19	391	1350	e260	2830	4680	1960	1130	2680	472	709	157	1420
20	869	1200	e260	2370	3380	1960	981	2220	293	608	154	2250
21	1040	1250	e250	2350	2080	1670	1020	2720	230	620	152	1760
22	789	1080	e240	2310	1640	1570	995	2140	204	529	148	1740
23	703	918	e240	1840	1660	1440	862	1670	187	694	167	1670
24	571	815	e230	1700	1640	1320	792	1380	206	785	695	1410
25	499	740	e230	1840	1370	1220	747	1140	211	552	430	1210
26	449	799	e220	1940	955	1140	723	958	221	465	339	1050
27	407	876	e220	1770	1040	1040	668	844	175	409	282	930
28	372	852	e210	1630	1040	919	621	733	151	365	300	793
29	340	933	e210	1490	---	837	580	693	149	328	1470	692
30	314	807	e220	1440	---	796	550	910	414	296	1200	730
31	300	---	e220	1220	---	790	---	699	---	288	793	---
TOTAL	9665	25822	11990	41585	69915	34559	47614	35231	9015	20728	11305	33143
MEAN	312	861	387	1341	2497	1115	1587	1136	300	669	365	1105
MAX	1040	1950	786	2830	5710	2440	5060	2840	562	3080	1470	2250
MIN	105	367	210	450	955	507	550	441	149	114	148	381
CFSM	.57	1.56	.70	2.44	4.54	2.03	2.89	2.07	.55	1.22	.66	2.01
IN.	.65	1.75	.81	2.81	4.73	2.34	3.22	2.38	.61	1.40	.76	2.24

CAL YR 1989 TOTAL 365433 MEAN 1001 MAX 13500 MIN 64 CFSM 1.82 IN. 24.72
WTR YR 1990 TOTAL 350572 MEAN 960 MAX 5710 MIN 105 CFSM 1.75 IN. 23.71

e Estimated

OSWAYO CREEK BASIN

03010655 OSWAYO CREEK AT SHINGLEHOUSE, PA

LOCATION.--Lat 41°57'42", long 78°11'54", Potter County, Hydrologic Unit 05010001, on right bank 200 ft upstream from bridge on State Highway 44 at Shinglehouse and 0.7 mi upstream from Honeoye Creek.

DRAINAGE AREA.--98.7 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 1,460.34 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.--Records good except for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year. Landline and U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--16 years, 159 ft^3/s, 21.88 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,580 ft^3/s, June 21, 1989, gage height, 11.45 ft; maximum gage height, 11.82 ft, Jan. 20, 1986 (backwater from ice); minimum daily discharge, 3.2 ft^3/s, Sept. 13, 1989.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 17	0300	1,170	7.83	Apr. 11	1700	*1,900	*9.10

Minimum discharge, 5.0 ft^3/s, Oct. 10, 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	7.9	46	101	e76	196	e100	103	77	87	31	38	26
2	9.9	36	96	e66	397	e90	110	70	78	31	32	24
3	10	35	e94	e52	547	e78	113	63	73	26	30	21
4	8.0	36	e88	e80	604	e72	142	64	70	24	28	20
5	6.8	33	e84	e120	497	e68	167	106	63	21	31	25
6	6.4	33	e80	e190	427	e64	217	88	56	19	41	29
7	6.2	34	e76	e160	371	e60	233	87	52	19	31	36
8	6.0	48	e72	e140	320	e56	243	87	47	17	27	43
9	5.9	87	e74	e125	314	e54	245	84	47	76	24	39
10	5.6	116	e76	e110	459	e60	342	89	44	49	22	59
11	8.7	124	e72	e96	490	e90	1650	91	42	38	21	49
12	8.9	121	e66	e86	454	e150	1310	79	40	429	20	45
13	8.2	107	e58	e82	383	e130	728	101	38	564	23	41
14	7.2	99	e56	e80	333	e110	518	122	34	431	36	39
15	6.8	98	e50	e76	395	e105	421	123	33	324	23	103
16	6.6	189	e60	e72	906	e98	335	242	31	293	20	98
17	9.8	206	e58	e110	1060	e200	285	389	30	213	18	144
18	22	203	e52	e350	751	e390	231	578	53	165	17	115
19	32	183	e50	540	562	e350	185	568	46	129	17	113
20	73	171	e48	445	423	292	158	483	34	111	17	155
21	76	166	e46	452	329	259	170	603	30	103	17	121
22	69	134	e45	376	281	241	144	491	29	83	17	129
23	57	122	e43	319	276	222	129	421	28	93	25	117
24	50	111	e41	316	236	212	119	343	30	78	27	110
25	44	103	e39	308	192	200	116	270	29	64	23	97
26	40	109	e38	338	e170	186	108	215	25	57	20	90
27	36	98	e37	324	e135	161	100	173	23	50	18	80
28	33	112	e36	311	e115	138	93	138	20	45	28	70
29	30	104	e35	284	---	122	86	134	32	41	63	63
30	28	100	e38	258	---	118	82	146	51	38	37	69
31	29	---	e45	217	---	108	---	102	---	39	30	---
TOTAL	747.9	3164	1854	6559	11623	4584	8883	6627	1295	3701	821	2170
MEAN	24.1	105	59.8	212	415	148	296	214	43.2	119	26.5	72.3
MAX	76	206	101	540	1060	390	1650	603	87	564	63	155
MIN	5.6	33	35	52	115	54	82	63	20	17	17	20
CFSM	.24	1.07	.61	2.14	4.21	1.50	3.00	2.17	.44	1.21	.27	.73
IN.	.28	1.19	.70	2.47	4.38	1.73	3.35	2.50	.49	1.39	.31	.82

CAL YR 1989 TOTAL 60494.1 MEAN 166 MAX 3270 MIN 3.2 CFSM 1.68 IN 22.80
WTR YR 1990 TOTAL 52028.9 MEAN 143 MAX 1650 MIN 5.6 CFSM 1.44 IN 19.61

e Estimated

OHIO RIVER MAIN STEM

03011020 ALLEGHENY RIVER AT SALAMANCA, NY

LOCATION.--Lat 42°09'23", long 78°42'56", Cattaraugus County, Hydrologic Unit 05010001, on left bank 230 ft upstream from Main Street bridge in Salamanca, 1.3 mi downstream from Great Valley Creek, and 1.6 mi upstream from Little Valley Creek.

DRAINAGE AREA.--1,608 mi^2.

PERIOD OF RECORD.--September 1903 to current year. Monthly discharge only for some periods, published in WSP 1305. Prior to October 1964, published as "at Red House."

REVISED RECORDS.-WSP 1385: 1907, 1909-12, 1913(M), 1914-15, 1916-17(M), 1925, 1927. WSP 1907: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,358.00 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Sept. 3, 1917, nonrecording gage and Sept. 4, 1917 to Sept. 30, 1964, water-stage recorder at site 7.5 mi downstream at different datum. Oct. 1, 1964 to Sept. 30, 1967, at present site at datum 0.04 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are fair. U.S. Army Corps of Engineers telephone gage-height telemeter and satellite gage-height and precipitation telemeter at station. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--87 years, 2,779 ft^3/s, 23.47 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 73,000 ft^3/s, June 23, 1972, gage height, 24.01 ft, from floodmarks; minimum daily, 79 ft^3/s Sept. 10, 11, 1971.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 17,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 16	2300	*19,800	*10.86	No other peak greater than base discharge.			

Minimum daily discharge, 310 ft^3/s, Oct. 16.

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	428	1690	2280	e1200	3180	e2400	2090	1520	1920	811	668	1130
2	428	1840	2010	e2000	6590	e2400	2350	1410	1630	653	622	940
3	470	1530	2010	e1800	10800	e2200	3020	1300	1480	535	560	805
4	445	1350	1600	e1700	10200	e2000	3230	1270	1420	482	509	696
5	420	1230	1430	5080	9460	e1800	3920	4100	1360	435	596	690
6	377	1160	e1200	4940	7640	e1500	4920	4030	1210	396	1130	785
7	352	1370	e1100	3930	6420	e1300	4720	2960	1080	374	1120	1350
8	337	2160	e1000	3150	5550	e1200	4330	2390	1000	355	769	1980
9	324	2510	e940	e2400	5760	e1300	4250	2050	990	899	642	3040
10	312	3210	e880	e2000	9230	e1500	5400	2040	941	1470	546	5740
11	322	3410	e840	e1800	9100	3450	12400	2690	903	945	499	3860
12	347	3140	e800	e1600	7300	4480	12000	2410	831	1260	467	2520
13	388	2680	e760	e1500	6000	4260	10800	4170	757	5280	463	1920
14	361	2300	e740	e1500	5490	3830	8940	6800	699	4660	911	1570
15	330	2110	e720	e1400	6230	3420	7110	5260	661	3320	825	3150
16	310	3270	e700	e1600	17600	3090	5390	6340	625	3790	577	4820
17	365	5440	e700	e2000	17900	4440	4460	10200	594	3020	487	6000
18	417	4370	e680	11800	13900	6790	3960	12200	1530	2130	430	4330
19	871	3670	e660	11000	10900	5660	3340	10200	2750	1660	408	3350
20	2060	3490	e660	7710	8190	5490	2900	7700	1380	1420	392	4100
21	3160	4270	e640	7010	5700	4710	3490	9440	947	1400	386	3840
22	2660	3680	e640	6650	4710	4280	3480	8360	773	1260	377	3310
23	2190	2930	e640	5410	5260	3850	2990	6250	709	2520	379	3650
24	1710	2510	e620	4970	5150	3480	2650	4960	735	2970	533	3900
25	1410	2230	e620	6040	e3700	3150	2480	4010	751	1970	916	3270
26	1210	2410	e600	6940	e3000	2890	2320	3280	685	1410	648	2690
27	1060	2710	e600	5960	e2800	2610	2110	2760	615	1120	539	2330
28	947	2710	e580	5090	e2600	2320	1910	2380	543	942	633	1980
29	860	2830	e580	4470	---	2140	1740	2160	515	830	1960	1710
30	794	2490	e580	4120	---	2060	1610	3070	642	744	2510	2200
31	783	---	e600	3520	---	2100	---	2540	---	704	1500	---
TOTAL	26448	80700	28410	130290	210360	96100	134310	140250	30676	49765	23002	81656
MEAN	853	2690	916	4203	7513	3100	4477	4524	1023	1605	742	2722
MAX	3160	5440	2280	11800	17900	6790	12400	12200	2750	5280	2510	6000
MIN	310	1160	580	1200	2600	1200	1610	1270	515	355	377	690
CFSM	.53	1.67	.57	2.61	4.67	1.93	2.78	2.81	.64	1.00	.46	1.69
IN.	.61	1.87	.66	3.01	4.87	2.22	3.11	3.24	.71	1.15	.53	1.89

CAL YR 1989 TOTAL 1048176 MEAN 2872 MAX 31700 MIN 200 CFSM 1.79 IN. 24.25
WTR YR 1990 TOTAL 1031967 MEAN 2827 MAX 17900 MIN 310 CFSM 1.76 IN. 23.87

e Estimated

KINZUA CREEK BASIN

03011800 KINZUA CREEK NEAR GUFFEY, PA

LOCATION.--Lat 41°45'59", long 78°43'08", McKean County, Hydrologic Unit 05010001, in Allegheny National Forest, on right bank 130 ft upstream from bridge on U.S. Highway 219, 0.2 mi upstream from Wintergreen Run, 1.0 mi downstream from Pine Run, and 1.5 mi west of Guffey.

DRAINAGE AREA.--46.4 mi^2.

PERIOD OF RECORD.--Occasional low-flow measurements, published as "at Tallyho," water years 1959-65. October 1965 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,540 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--25 years, 78.3 ft^3/s, 22.92 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 5,220 ft^3/s, June 22, 1972, gage height, 8.99 ft, from rating curve extended above 1,300 ft^3/s on basis of slope-area measurement at gage height 8.33 ft; minimum, 2.0 ft^3/s, July 29, 1978, minimum gage height, 1.82 ft, Sept. 11, 12, 13, 14, 1982, Sept. 6, 7, 1989.

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

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 18	0800	509	4.30	Apr. 11	0200	896	5.06
Feb. 2	1830	501	4.28	July 12	0900	*1,060	*5.32
Feb. 16	0230	877	5.03	Sept. 9	2100	741	4.79

Minimum daily discharge, 9.4 ft^3/s, Oct. 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	11	50	57	e205	78	78	63	40	44	26	19	53
2	13	34	58	182	305	64	107	37	39	18	16	46
3	14	30	51	136	269	61	107	34	36	15	15	40
4	13	29	e48	150	305	57	99	38	34	13	14	35
5	12	28	e44	268	221	50	107	72	32	12	52	46
6	11	29	e40	182	180	45	125	53	29	11	51	53
7	e10	36	e38	136	158	45	111	42	28	11	31	179
8	e9.8	67	e35	102	136	57	100	38	26	10	22	96
9	e9.4	75	e33	82	145	42	93	35	27	21	18	310
10	e10	77	e52	66	239	63	194	47	25	20	16	376
11	17	74	e45	59	181	119	587	54	24	17	15	201
12	16	70	e36	57	150	97	307	48	21	503	14	146
13	14	58	e35	60	127	87	217	142	20	186	46	111
14	13	53	e33	61	127	80	170	146	19	92	60	106
15	12	62	e31	49	230	74	168	98	18	91	29	347
16	12	211	e29	56	738	71	125	134	17	122	22	203
17	22	157	e28	155	471	219	110	233	16	68	19	193
18	22	110	e26	439	276	171	101	220	15	51	17	138
19	48	95	e25	252	204	143	87	176	16	42	17	219
20	76	92	e24	188	151	131	76	147	15	40	16	267
21	59	107	e23	195	116	113	104	204	15	45	17	166
22	45	80	e22	159	105	110	82	139	14	36	18	205
23	39	69	e22	122	136	94	69	108	14	72	58	156
24	32	62	e21	121	120	82	64	92	23	51	57	135
25	28	58	e20	139	94	74	62	79	25	35	49	110
26	25	77	e20	160	87	67	57	70	19	29	35	95
27	24	71	e20	117	87	61	52	63	15	27	31	83
28	21	76	e19	107	75	55	48	55	13	23	50	72
29	20	70	e19	99	---	52	45	61	21	21	271	64
30	20	60	e18	92	---	58	43	81	40	20	92	101
31	24	---	e40	82	---	59	---	54	---	19	64	---
TOTAL	702.2	2167	1012	4278	5511	2579	3680	2840	700	1747	1251	4352
MEAN	22.7	72.2	32.6	138	197	83.2	123	91.6	23.3	56.4	40.4	145
MAX	76	211	58	439	738	219	587	233	44	503	271	376
MIN	9.4	28	18	49	75	42	43	34	13	10	14	35
CFSM	.49	1.56	.70	2.97	4.24	1.79	2.64	1.97	.50	1.21	.87	3.13
IN.	.56	1.74	.81	3.43	4.42	2.07	2.95	2.28	.56	1.40	1.00	3.49

CAL YR 1989 TOTAL 31467.9 MEAN 86.2 MAX 1350 MIN 6.9 CFSM 1.86 IN. 25.23
WTR YR 1990 TOTAL 30819.2 MEAN 84.4 MAX 738 MIN 9.4 CFSM 1.82 IN. 24.71

e Estimated

OHIO RIVER MAIN STEM

03012550 ALLEGHENY RIVER AT KINZUA DAM, PA

LOCATION.--Lat 41°50'29", long 79°00'44", Warren County, Hydrologic Unit 05010001, in Allegheny National Forest, on left bank 0.5 mi downstream from Kinzua Dam, 2.5 mi east of Hemlock, and at mile 197.6.

DRAINAGE AREA.--2,180 mi^2.

PERIOD OF RECORD.--October 1935 to current year. Published as "near Kinzua" (station 03012500) prior to October 1968 and as "at Warren" (station 03012600) October 1968 to September 1972.

REVISED RECORDS.--WSP 1275: 1936-37. WDR PA-73-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,192.55 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Nov. 1, 1964, water-stage recorder at site 1.0 mi upstream at different datum. Nov. 1, 1964, to Aug. 4, 1966, nonrecording gage, and Aug. 5, 1966, to Sept. 30, 1972, water-stage recorder at site 6.4 mi downstream at different datum.

REMARKS.--No estimated daily discharge. Records good. Flow regulated since October 1965 by Allegheny Reservoir 0.5 mi upstream. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--55 years, 3,833 ft^3/s, 23.88 in/yr, adjusted for storage since October 1965.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 60,500 ft^3/s, Mar. 8, 1956, gage height, 19.95 ft, site and datum then in use; minimum not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 19,800 ft^3/s, May 21, gage height, 13.36 ft; minimum daily, 667 ft^3/s, Mar. 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	1950	1770	2570	1310	7960	11800	727	1490	3100	1320	1530	1470
2	1920	2630	6590	1300	6440	9010	740	1390	2220	1200	1520	1460
3	1920	2630	8130	1790	3960	7210	747	1490	1760	1200	1520	1480
4	1900	2600	8030	2410	2560	5340	753	1510	1220	1050	1520	1540
5	1890	2580	8010	2700	4230	4560	737	1530	969	805	1520	1890
6	1870	2640	7990	3650	7730	4560	739	1540	860	1250	1370	2120
7	2000	2630	8040	5190	8230	4480	748	2520	989	1470	1250	2170
8	2030	2620	7880	6320	8260	4590	740	3670	1000	1640	1240	2120
9	2010	2660	7820	5650	8350	3090	1470	3640	989	1760	1240	2150
10	2020	2650	7750	4890	8400	1230	2070	3680	975	1770	1400	2890
11	2000	2630	7770	4070	9060	667	2090	3480	1000	1760	1350	3630
12	2000	1490	7680	3480	12800	669	4510	3550	986	1430	1240	3680
13	1990	1770	7580	3060	16400	685	10200	3570	993	1220	1230	3650
14	2010	2630	6020	3060	17400	678	13000	5150	991	1230	1230	3590
15	1990	1780	3760	3040	11500	682	13000	7970	986	2290	1230	3610
16	2010	3860	2190	3130	4690	678	13100	6610	961	4510	1220	3670
17	2000	5570	1320	3100	6240	692	10400	4000	972	6930	1220	3640
18	1650	5670	1310	3170	11600	1870	6960	6390	964	8520	1230	3660
19	1990	5600	1300	4240	17100	3870	5550	11700	838	6200	1220	3690
20	2030	4840	1310	5420	18200	4590	4430	13900	824	2600	1210	3790
21	1990	4650	1320	5360	18000	4740	3550	16800	1180	1800	1210	4440
22	1990	6740	1330	6740	13200	4920	3440	19300	1240	1800	1220	6600
23	2280	9400	1320	8980	10800	4860	3530	19300	1240	1470	1230	8230
24	2640	9370	1290	9000	13500	4920	3600	19000	1240	2050	1220	8860
25	2640	9350	1300	6110	14600	4330	3700	14500	1430	1930	1200	7320
26	2430	6300	1300	5380	16300	3810	3650	7230	1130	834	1200	3820
27	2630	3330	1310	7620	17200	2910	3570	4640	805	1590	1350	3220
28	2640	2780	1310	8500	15100	2280	3450	4270	1260	2140	1460	3670
29	2620	1730	1320	8200	---	1680	3440	3770	1490	2140	1470	3590
30	2640	681	1300	8010	---	1000	2730	3450	1480	2130	1470	3560
31	1480	---	1300	7920	---	731	---	3440	---	1770	1470	---
TOTAL	65160	115581	127450	152800	309810	107132	127371	204480	36092	69809	40990	109210
MEAN	2102	3853	4111	4929	11060	3456	4246	6596	1203	2252	1322	3640
MAX	2640	9400	8130	9000	18200	11800	13100	19300	3100	8520	1530	8860
MIN	1480	681	1290	1300	2560	667	727	1390	805	805	1200	1460
†	-947	+329	-2420	+1470	+353	+890	+2060	+55.3	+57.1	+21.1	+299	+432
MEAN‡	1155	4182	1691	6399	11410	4346	6306	6651	1260	2273	1621	4072
CFSM‡	.53	1.92	.78	2.94	5.23	1.99	2.89	3.05	.58	1.04	.74	1.87
IN.‡	.61	2.14	.90	3.39	5.45	2.29	3.22	3.52	.65	.1.20	.85	2.09

CAL YR 1989 TOTAL 1621712 MEAN 4443 MAX 20600 MIN 681 ADJ -153 MEAN‡ 4295 CFSM‡ 1.97 IN.‡ 26.72
WTR YR 1990 TOTAL 1465885 MEAN 4016 MAX 19300 MIN 667 ADJ +159 MEAN‡ 4175 CFSM‡ 1.92 IN.‡ 26.31

† Change in contents, equivalent in cubic feet per second, in Allegheny Reservoir.
‡ Adjusted for change in reservoir contents.

CONEWANGO CREEK BASIN

03015000 CONEWANGO CREEK AT RUSSELL, PA

LOCATION.---Lat 41°56'17", long 79°08'00", Warren County, Hydrologic Unit 05010002, on left bank at highway bridge at Russell, 0.5 mi upstream from Akeley Run, and 8.0 mi upstream fron mouth.

DRAINAGE AREA.--816 mi^2.

PERIOD OF RECORD.--Octoter 1939 to current year. Monthly discharge only for October, November 1939, published in WSP 1305.

REVISED RECORD.--WSP 1083: 1936 (M).

GAGE.--Water-stage recorder. Datum of gage is 1,221.77 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 10, 1941, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Flow regulated by Chautauqua Lake. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--51 years, 1,526 ft^3/s, 25.39 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,400 ft^3/s, Apr. 7, 1947, gage height, 10.69 ft; mininum not determined; minimum daily, 57 ft^3/s, Oct. 17, 1960.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1936 reached a stage of 10.9 ft from floodmark, discharge, 14,600 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,630 ft^3/s, Feb. 19, gage height, 7.86 ft; minimum daily, 188 ft^3/s, Oct. 16.

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	248	734	1990	2240	2250	2340	1060	685	844	302	300	292
2	248	802	1600	2480	3820	2120	1570	762	730	288	278	246
3	263	768	1430	2270	4750	2170	2110	789	653	270	254	214
4	263	781	1250	2360	5010	2070	2210	677	618	252	235	195
5	261	744	1270	3600	5130	1870	2330	2320	594	239	231	193
6	248	700	1130	3410	4930	1710	2650	2820	570	224	264	225
7	228	710	1250	3120	4560	1540	2750	2610	531	210	265	1190
8	220	1300	1300	2850	4050	1430	2620	2080	500	198	266	1260
9	216	1490	1140	2430	3600	1450	2320	1600	499	634	247	2590
10	211	1520	1170	2200	4000	1820	2350	1410	480	874	231	3770
11	212	1620	1150	2090	4110	2830	4280	1370	458	611	214	2510
12	223	1510	1110	1960	4130	3200	4350	1370	443	589	196	1830
13	226	1310	1060	1680	4000	3230	4450	2280	422	660	327	1350
14	226	1130	989	1490	3590	3060	4500	3830	390	505	660	752
15	211	1010	967	1520	3820	2640	4610	3620	363	892	480	993
16	188	1390	895	1840	5470	2190	4240	4060	344	2170	373	1990
17	199	1980	979	3150	5960	2480	3720	4760	326	1570	294	2980
18	408	1810	1170	4330	6460	2840	3080	5020	546	1180	247	2550
19	549	1580	1110	4570	6550	2620	2500	4920	1160	967	234	2130
20	853	1630	994	4880	6110	2490	2050	4610	1000	515	221	1950
21	963	2450	1180	5350	5540	2260	2210	4510	830	382	220	1290
22	974	2510	1040	5560	5030	2020	2510	4120	676	358	221	1320
23	1000	2190	891	5350	4730	1830	2310	3560	494	1670	225	1950
24	778	1750	999	5060	4510	1690	1670	2830	454	2000	220	2970
25	617	1430	1300	4800	4350	1570	1340	2230	557	1570	213	2940
26	531	1530	1220	4530	4000	1480	1120	1770	545	1110	203	2580
27	472	1960	1250	4310	3410	1350	954	1480	419	595	190	1980
28	398	2230	992	4110	2810	1130	859	1000	345	398	211	1470
29	376	2410	820	3730	---	1070	835	764	311	329	358	1390
30	354	2300	804	3170	---	904	826	957	312	290	421	1540
31	362	---	990	2620	---	979	---	1010	---	283	370	---
TOTAL	12526	45279	35440	103060	126680	62383	74384	75824	16414	22135	8669	48640
MEAN	404	1509	1143	3325	4524	2012	2479	2446	547	714	280	1621
MAX	1000	2510	1990	5560	6550	3230	4610	5020	1160	2170	660	3770
MIN	188	700	804	1490	2250	904	826	677	311	198	190	193
†	8.7	69.7	-115	+246	+98.7	-257	+162	0	-38.1	-6.5	-10.9	+69.7
MEAN‡	413	1579	1028	3571	4623	1755	2641	2446	509	708	269	1691
CFSM‡	.51	1.94	1.26	4.38	5.66	2.15	3.24	3.00	.62	.87	.33	2.07
IN.‡	.59	2.16	1.45	5.05	5.89	2.48	3.61	3.46	.69	1.00	.38	2.31

CAL YR 1989 TOTAL 530258 MEAN 1453 MAX 6330 MIN 172 ADJ -12.6 MEAN‡ 1440 CFSM‡ 1.76 IN.‡ 23.98
WTR YR 1990 TOTAL 631434 MEAN 1730 MAX 6550 MIN 188 ADJ +17.7 MEAN‡ 1748 CFSM‡ 2.14 IN.‡ 29.08

† Change in contents, equivalent in cubic feet per second, in Chautauqua Lake.
‡ Adjusted for change in reservoir contents.

e Estimated

OHIO RIVER MAIN STEM

03015310 ALLEGHENY RIVER AT WARREN, PA

LOCATION.--Lat 41°50'38", long 79°09'00", Warren County, Hydrologic Unit 05010001, on right bank at downstream end of municipal parking lot at Warren, 1,400 feet downstream from confluence with Conewango Creek, and at mile 188.7.

DRAINAGE AREA.--3,131 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 1,169.04 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated by Allegheny Reservoir 8.7 mi upstream since October 1965 and since 1949 by Chautauqua Lake. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,000 ft^3/s, Feb. 19, 1990, gage height, 9.92 ft; minimum daily, 1,160 ft^3/s, July 5, 1990.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 1865, reached a stage of at least 19.4 ft, estimated discharge, 90,000 ft^3/s, from National Weather Service data. Maximum discharge since construction of Kinzua Dam, 33,600 ft^3/s, June 1972, gage height, 11.5 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 30,000 ft^3/s, Feb. 19, gage height, 9.92 ft; minimum daily, 1,160 ft^3/s, July 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	2490	2830	4640	4030	11400	19900	1830	2400	4210	1770	1700	1910
2	2550	4110	9060	4150	13500	12400	2530	2040	3130	1600	1660	1890
3	2500	4010	11000	4340	11100	10500	3140	2290	2620	1590	1630	1850
4	2440	3990	10600	5570	9870	8350	3300	2300	2030	1450	1600	1810
5	2410	3930	10400	7570	10500	7040	3420	3820	1630	1160	1590	2010
6	2360	3920	10400	8190	14500	6790	3740	4760	1520	1500	1560	2320
7	2470	3960	10600	9310	14700	6520	3800	5160	1590	1780	1450	3630
8	2540	4750	10400	10600	14100	6470	3610	6390	1580	1900	1410	3530
9	2490	5310	10100	9410	13600	5130	3840	5840	1570	2450	1380	5620
10	2500	5250	10000	8300	14800	3340	5040	5590	1540	2750	1380	7660
11	2510	5250	10100	7140	15100	3890	8300	5250	1520	2520	1450	6890
12	2510	4070	9910	6180	19300	4150	9820	5290	1500	2430	1360	6010
13	2500	3200	e8600	5310	23200	4120	16400	6450	1500	2050	1590	5360
14	2510	4470	e7100	5070	24000	3920	20500	10200	1460	1870	1940	4620
15	2470	3400	e5300	5080	20500	3500	20900	13000	1430	3240	1780	4790
16	2480	5950	e3500	5630	14500	2950	20400	13100	1420	7260	1680	5220
17	2560	9350	e2700	7880	14400	3790	16900	11300	1400	8880	1620	7380
18	2260	9080	e2900	10200	20700	5010	11600	13700	1480	10200	1580	7030
19	3180	8710	e2800	10700	27500	7410	9420	19300	1950	7990	1570	6650
20	3530	8120	e2800	12600	28400	8110	7540	21700	1810	3610	1550	6780
21	3560	8200	e2900	13500	27300	7980	6580	24600	1940	2350	1540	6020
22	3520	9190	e2800	14700	21900	7870	6810	27000	1940	2270	1530	8130
23	3770	12200	e2600	16700	17700	7460	6650	26100	1810	3860	1540	10300
24	4010	11600	e2700	16600	20700	7300	5940	24700	1780	4290	1530	12700
25	3830	11100	e3000	13000	21700	6620	5590	19600	2010	4080	1530	11800
26	3460	8920	e2900	11200	22400	5800	5200	10300	1850	2060	1520	7390
27	3610	5330	e2900	13400	23300	4560	4900	6810	1340	1750	1520	5600
28	3540	5780	e2700	14200	22600	3590	4610	5750	1650	2320	1630	5500
29	3480	5360	e2500	13500	---	2820	4540	5000	1940	2260	1780	5310
30	3460	3560	e2500	12500	---	2040	3930	4730	1940	2220	1890	5650
31	2560	---	2630	11800	---	1730	---	4750	---	2040	1920	---
TOTAL	90060	184900	183040	298360	513270	191060	230780	319220	55090	97500	49410	171360
MEAN	2905	6163	5905	9625	18330	6163	7693	10300	1836	3145	1594	5712
MAX	4010	12200	11000	16700	28400	19900	20900	27000	4210	10200	1940	12700
MIN	2260	2830	2500	4030	9870	1730	1830	2040	1340	1160	1360	1810
†	-938	+399	-2540	+1720	+452	+633	+2220	+55.3	+19.0	+14.6	+288	+502
MEAN‡	1967	6562	3365	11340	18780	6796	9913	10360	1855	3160	1882	6214
CFSM‡	.63	2.10	1.07	3.62	6.00	2.17	3.17	3.31	.59	1.01	.60	1.98
IN.‡	.73	2.34	1.23	4.17	6.25	2.50	3.54	3.82	.66	1.16	.69	2.21

CAL YR 1989 TOTAL 2490100 MEAN 6822 MAX 29000 MIN 1240 ADJ -166 MEAN‡ 6656 CFSM‡ 2.13 IN.‡ 28.87
WTR YR 1990 TOTAL 2384050 MEAN 6532 MAX 28400 MIN 1160 ADJ +177 MEAN‡ 6709 CFSM‡ 2.14 IN.‡ 29.30

† Change in contents, equivalent in cubic feet per second, in Allegheny Reservoir and Chautauqua Lake.
‡ Adjusted for change in reservoir contents.

e Estimated

BROKENSTRAW CREEK BASIN

03015500 BROKENSTRAW CREEK AT YOUNGSVILLE, PA

LOCATION.--Lat 41°51'09", long 79°19'03", Warren County, Hydrologic Unit 05010001, on right bank 150 ft downstream from bridge on Main Street at Youngsville, 500 ft upstream from Matthews Run, and 3.7 mi upstream from mouth. Records include flow of Matthews Run.

DRAINAGE AREA.--321 mi^2, including that of Matthews Run.

PERIOD OF RECORD.--October 1909 to current year. Monthly discharge only for some periods, published in WSP 1305. Flow of Matthews Run included in records since October 1938.

REVISED RECORDS.--WSP 743: Drainage area. WSP 1083: 1913 (M). WSP 1275: 1920, 1932, 1936. WSP 1305: 1910-15, 1928-29.

GAGE.--Water-stage recorder. Datum of gage is 1,186.92 ft above National Geodetic Vertical Datum, adjustment of 1907. Prior to Sept. 30, 1933, nonrecording gage at site 150 ft upstream at datum 2.00 ft higher. Oct. 1, 1933, to June 15, 1939, nonrecording gage at site 150 ft upstream, and June 16, 1939, to Sept. 30, 1961, water-stage recorder at present site, both at datum 1.00 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--81 years, 590 ft^3/s, 24.96 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 18,000 ft^3/s, Mar. 25, 1913, gage height, 14.2 ft, present datum; minimum observed, 19 ft^3/s, Oct. 14, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 19	0030	4,820	7.42	Feb. 16	0100	*7,470	*9.11
Feb. 2	1900	4,780	7 39				

Minimum discharge, 65 ft^3/s, July 8, 9, gage height, 1.59 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	496	575	1510	586	497	478	285	283	102	154	105
2	192	437	489	1360	3130	503	1010	262	249	95	132	90
3	244	353	470	1180	3870	547	1260	240	236	87	119	79
4	192	342	413	1210	3870	482	1010	298	235	81	108	71
5	158	322	e380	2030	2440	412	942	1710	224	76	122	78
6	142	314	e350	1680	1610	375	922	1540	206	72	177	134
7	134	390	e330	1400	1160	319	794	873	192	70	151	1270
8	130	812	e310	913	991	309	606	546	204	68	149	1330
9	125	939	e300	685	989	360	503	430	221	128	127	2860
10	125	906	e280	756	1880	643	1010	401	195	226	109	3090
11	196	903	e270	773	1770	1240	3190	436	178	154	99	2270
12	212	772	e250	665	1190	1280	2620	429	167	286	89	1010
13	175	586	e250	500	819	914	1450	1950	154	278	211	487
14	151	464	e240	512	743	696	1070	2310	151	185	540	368
15	137	420	e230	526	2670	572	1510	1740	146	1540	342	860
16	136	1030	e220	730	6110	491	1190	2010	133	1580	203	1150
17	392	1380	e210	2210	5050	1090	866	3080	126	906	152	1450
18	372	1040	e200	4470	2620	1230	717	3430	132	392	123	1070
19	611	721	e200	4210	1410	882	595	2460	145	246	111	955
20	876	703	e190	2270	925	811	521	1600	133	209	119	1290
21	713	1150	e190	2270	693	661	829	1820	123	184	114	837
22	599	1110	e180	1950	790	571	975	1510	116	230	103	950
23	532	673	e180	1390	1380	510	688	996	113	1570	99	1040
24	403	513	e170	1280	1370	451	550	690	138	894	96	1810
25	332	453	e170	1520	910	408	498	544	193	533	93	1680
26	279	622	e170	1590	645	373	482	460	160	352	87	1220
27	245	879	e160	1290	644	344	416	401	127	239	79	641
28	224	922	e160	948	579	319	368	356	112	190	118	479
29	209	951	e150	801	---	307	329	370	111	161	271	402
30	189	711	e150	680	---	321	303	424	108	144	214	802
31	218	---	e250	563	---	386	---	342	---	150	138	---
TOTAL	8772	21314	8087	43872	50844	18304	27702	33943	5011	11428	4749	29878
MEAN	283	710	261	1415	1816	590	923	1095	167	369	153	996
MAX	876	1380	575	4470	6110	1280	3190	3430	283	1580	540	3090
MIN	125	314	150	500	579	307	303	240	108	68	79	71
CFSM	.88	2.21	.81	4.41	5.66	1.84	2.88	3.41	.52	1.15	.48	3.10
IN.	1.02	2.47	.94	5.08	5.89	2.12	3.21	3.93	.58	1.32	.55	3.46

CAL YR 1989 TOTAL 234955 MEAN 644 MAX 4950 MIN 75 CFSM 2.01 IN. 27.23
WTR YR 1990 TOTAL 263904 MEAN 723 MAX 6110 MIN 68 CFSM 2.25 IN. 30.58

e Estimated

OHIO RIVER MAIN STEM

03016000 ALLEGHENY RIVER AT WEST HICKORY, PA

LOCATION.--Lat 41°34'15", long 79°24'29", Forest County, Hydrologic Unit 05010003, on right bank at downstream side of bridge on State Highway 127 at West Hickory, 0.6 mi upstream from Siggins Run, 0.8 mi downstream from East Hickory Creek, and at mile 158.9.

DRAINAGE AREA.--3,660 mi^2.

PERIOD OF RECORD.--October 1941 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,059.90 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 12, 1941, nonrecording gage at same site and datum.

REMARKS.--Records good, except for estimated daily discharges, which are fair. Flow regulated by Allegheny Reservoir 39 mi upstream since October 1965 and since 1949 by Chautauqua Lake. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--49 years, 6,666 ft^3/s, 24.73 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 101,000 ft^3/s, Mar. 8, 1956, gage height, 17.20 ft; maximum gage height, 17.83 ft, Jan. 25, 1964 (backwater from ice); minimum discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 30,000 ft^3/s, Feb. 16, gage height, 9.44 ft; minimum daily, 1,240 ft^3/s, July 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	2570	2540	4280	e6800	11300	16200	2380	3520	5060	2180	2310	2190
2	2720	4310	8080	e8800	16600	12400	3330	2600	3990	1880	2220	2090
3	2820	4270	10600	e8600	17200	10800	4790	2830	3490	1790	2190	2030
4	2660	4210	10200	e8000	15800	9200	4830	2880	2840	1770	2140	1980
5	2540	4130	10000	e16000	12800	7530	4770	5330	2170	1490	2250	2020
6	2490	4100	10100	12400	15500	7060	4860	7130	2030	1240	2270	2610
7	2440	4140	10200	11200	15400	6740	4960	6440	1850	1870	1990	4780
8	2610	5300	10100	11400	14500	6550	4610	7400	1950	1930	1920	5570
9	2550	6370	9720	10300	13900	6440	4240	6700	2010	2350	1850	7260
10	2520	6370	9630	9190	15800	4380	5550	6400	1920	3160	1800	12300
11	2670	6270	9700	8410	15900	5050	12600	6220	1830	3000	2010	10600
12	2680	5800	9590	7310	17600	5800	11500	6100	1790	3820	1770	8120
13	2630	3590	9420	6080	21000	5510	15300	8650	1760	3100	1880	6410
14	2570	4910	9000	5510	22300	5060	19300	12700	1720	2480	2590	5540
15	2560	4470	6170	5620	24200	4570	21000	14800	1700	3140	2540	6050
16	2510	5450	4530	5800	25400	4020	19900	16100	1650	8770	2150	7110
17	2810	10600	2990	9080	19100	4970	18000	15900	1610	9260	1980	9620
18	2880	10100	2780	15500	20600	6220	12200	17000	1640	10500	1860	8900
19	3290	9280	2790	14800	25000	8190	10200	20600	2080	9540	1820	8240
20	4400	8800	e2700	14700	25800	8950	8640	22700	2130	5030	1780	9490
21	4500	8690	e2650	15200	24600	8840	7380	23700	2000	3020	1780	7750
22	4180	9300	e2600	15200	22900	8400	7920	26600	2280	2670	1730	9220
23	4160	11900	e2600	16400	16600	8080	7530	25200	2160	5510	1730	11100
24	4320	11200	e2600	17400	19600	7720	6880	23700	2110	5560	1750	14200
25	4140	10700	e2650	15700	20400	7270	6240	21300	2240	5720	1720	14300
26	3830	10200	e2800	12200	20100	6380	6000	12200	2520	3330	1700	10300
27	3590	6180	e2700	13800	21500	5270	5570	8000	1770	2350	1680	6700
28	3650	6520	e2600	14400	19800	4370	5270	6620	1480	3120	2050	6460
29	3560	6860	e2500	13800	---	3610	5060	6000	2220	3050	2450	6050
30	3480	4760	e2500	12700	---	2940	4950	5440	2330	2960	2450	6500
31	3420	---	e2800	11700	---	2220	---	5300	---	2910	2320	---
TOTAL	97750	201320	181580	354000	531200	210740	255760	356060	66330	118500	62680	215490
MEAN	3153	6711	5857	11420	18970	6798	8525	11490	2211	3823	2022	7183
MAX	4500	11900	10600	17400	25800	16200	21000	26600	5060	10500	2590	14300
MIN	2440	2540	2500	5510	11300	2220	2380	2600	1480	1240	1680	1980
†	-938	+399	-2540	+1720	+452	+633	+2220	+55.3	+19.0	+14.6	+288	+502
MEAN‡	2215	7110	3317	13140	19422	7431	10745	11545	2230	3838	2310	7685
CFSM‡	.61	1.94	.91	3.59	5.31	2.03	2.93	3.15	.61	1.05	.63	2.10
IN.‡	.70	2.16	1.05	4.14	5.53	2.34	3.27	3.63	.68	1.21	.73	2.34

CAL YR 1989 TOTAL 2655190 MEAN 7274 MAX 30000 MIN 1430 ADJ -166 MEAN‡ 7108 CFSM‡ 1.94 IN.‡ 26.38
WTR YR 1990 TOTAL 2651410 MEAN 7264 MAX 26600 MIN 1240 ADJ +177 MEAN‡ 7441 CFSM‡ 2.03 IN.‡ 27.78

† Change in contents, equivalent in cubic feet per second, in Allegheny Reservoir and Chautauqua Lake.
‡ Adjusted for change in reservoir contents.

e Estimated

TIONESTA CREEK BASIN

03020000 TIONESTA CREEK AT TIONESTA DAM, PA

LOCATION.--Lat 41°28'44", long 79°26'26", Forest County, Hydrologic Unit 05010003, on left bank 100 ft downstream from outlet tunnel at Tionesta Dam, 1.5 mi southeast of Tionesta, and 1.2 mi upstream from mouth.

DRAINAGE AREA.--479 mi^2.

PERIOD OF RECORD.--June 1940 to current year. Prior to October 1970, publisbed as "at Tionesta Creek Dam."

GAGE.--Water-stage recorder. Datum of gage is 1,043.43 ft above National Geodetic Vertical Datum of 1929, unadjusted. July 1, 1954, to Dec. 6, 1960, water-stage recorder at present site and at datum 1.5 ft higher. See WSP 1305 or 1725 for history of changes prior to July 1, 1954.

REMARKS.--No estimated daily discharge. Records good. Flow completely regulated since 1941 by Tionesta Lake 0.2 mi upstream. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--50 years, 892 ft^3/s, 25.29 in/yr, adjusted for storage since January 1941.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 13,500 ft^3/s, Mar. 12, 1964; maximum gage height, 11.31 ft, Mar. 13, 1964 (backwater from Allegheny River); minimum daily discharge, 0.4 ft^3/s, Feb. 28, 29, May 22 to June 16, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,140 ft^3/s, May 19, gage height, 6.63 ft; minimum daily, 60 ft^3/s, Oct. 7-20.

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	391	315	739	284	971	1060	595	594	929	173	225	439
2	383	514	654	766	880	672	700	594	750	222	227	207
3	313	562	589	1230	977	766	856	507	635	250	227	141
4	272	562	484	1080	1060	844	1090	369	442	198	227	141
5	268	561	207	876	2030	670	1390	319	317	166	229	141
6	149	477	180	1110	3830	584	1510	421	276	133	368	141
7	60	430	534	1470	4360	581	1500	736	317	114	447	143
8	60	430	589	1580	4210	398	1480	892	317	115	445	251
9	60	436	497	1560	3970	312	1130	714	317	115	440	320
10	60	692	374	1520	3810	316	858	604	317	200	326	1370
11	60	1270	302	1290	3680	501	945	604	317	254	230	2410
12	60	1540	470	1160	2870	1150	2050	614	317	263	230	2430
13	60	1310	489	1130	1970	1500	3310	626	279	315	231	1920
14	60	965	354	780	1600	1280	3350	1340	236	340	350	1070
15	60	660	302	554	1110	958	3260	1920	222	1340	523	1360
16	60	560	223	475	1080	844	3140	1910	190	2090	442	2130
17	60	900	172	522	2100	859	2230	1960	168	1550	311	2820
18	60	1250	173	800	4040	1450	1010	3020	188	899	296	2560
19	60	1250	207	1470	4610	1940	1400	4530	212	455	248	1810
20	60	1230	229	2080	4510	2280	1500	4650	212	290	219	2000
21	333	1220	230	2100	4380	2450	1330	2190	212	292	216	2070
22	589	1210	230	2520	3110	1870	1170	1010	184	387	217	1700
23	589	1070	230	2740	2870	1280	1170	1270	159	756	217	1560
24	584	855	230	2660	3280	1150	1020	1280	151	2250	170	1540
25	489	686	230	1470	2710	973	865	1520	141	2440	141	1350
26	352	580	230	1640	2450	694	865	1900	271	1730	141	951
27	243	676	230	2460	1680	589	865	1180	350	976	142	785
28	202	739	230	2510	1050	589	863	614	219	480	142	784
29	201	745	230	2030	---	589	697	639	136	427	245	680
30	200	749	230	1590	---	589	594	666	148	345	455	547
31	200	---	230	1270	---	590	---	683	---	252	566	---
TOTAL	6598	24444	10298	44727	75198	30328	42743	39876	8929	19817	8893	35771
MEAN	213	815	332	1443	2686	978	1425	1286	298	639	287	1192
MAX	589	1540	739	2740	4610	2450	3350	4650	929	2440	566	2820
MIN	60	315	172	284	880	312	594	319	136	114	141	141
†	+49.8	+5.0	+4.9	-6.5	+5.4	+1.6	-6.7	+24.4	-23.5	-6.5	+8.1	0
MEAN‡	263	820	337	1436	2691	980	1418	1310	274	632	295	1192
CFSM‡	.55	1.71	.70	3.00	5.62	2.05	2.96	2.73	.57	1.32	.62	2.49
IN.‡	.63	1.91	.81	3.46	5.85	2.36	3.30	3.15	.64	1.52	.71	2.78

CAL YR 1989 TOTAL 374912 MEAN 1027 MAX 7440 MIN 60 ADJ +6.5 MEAN‡ 1034 CFSM‡ 2.16 IN.‡ 29.30
WTR YR 1990 TOTAL 347622 MEAN 952 MAX 4650 MIN 60 ADJ +4.8 MEAN‡ 957 CFSM‡ 2.00 IN.‡ 27.12

† Change in contents, equivalent in cubic feet per second, in Tionesta Lake.
‡ Adjusted for change in reservoir contents.

OIL CREEK BASIN

03020500 OIL CREEK AT ROUSEVILLE, PA

LOCATION.--Lat 41°28'54", long 79°41'44", Venango County, Hydrologic Unit 05010003, on right bank 100 ft downstream from bridge on State Highway 8, about 300 ft upstream from Cherrytree Run, and 1 mi north of Rouseville. Records include flow of Cherrytree Run.

DRAINAGE AREA.--300 mi^2, including that of Cherrytree Run.

PERIOD OF RECORD.--June 1932 to current year.

REVISED RECORDS.--WSP 743: Drainage area. WSP 1053: 1936-37(M), 1943(M).

GAGE.--Water-stage recorder. Datum of gage is 1,028.32 ft above National Geodetic Vertical Datum of 1929. Prior to June 9, 1941, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--58 years, 540 ft^3/s, 24.45 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,000 ft^3/s, Jan. 22, 1959, gage height, 11.97 ft; minimum observed, 22 ft^3/s, July 29, Sept. 5, 7, 1934; minimum gage height, 1.48 ft, Aug. 20, 1971.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 2	2000	5,070	7.16	July 15	1100	*10,700	*9.85
Feb. 16	0100	8,600	9.00	Sept. 9	1900	6,500	7.95

Minimum discharge, 73 ft^3/s, July 7, 8, 9, gage height, 1.79 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	105	482	480	e360	485	443	384	261	302	223	178	155
2	240	363	432	e280	3050	479	1080	242	263	169	156	130
3	385	284	422	e250	3640	530	1140	224	272	119	139	115
4	270	261	339	e240	2920	438	835	234	269	102	128	104
5	185	229	394	e1650	2090	400	878	1060	238	91	173	570
6	151	215	401	1510	1270	378	757	957	212	84	175	878
7	137	247	443	982	1080	319	650	488	200	77	145	3260
8	124	569	466	852	932	319	528	360	232	73	135	3280
9	117	601	e380	713	848	386	462	301	293	133	122	3520
10	117	573	e300	761	1470	645	774	300	220	115	111	4990
11	204	836	e270	739	1100	1350	3640	335	186	109	104	1640
12	251	631	e240	631	806	973	1770	334	170	1040	98	752
13	182	484	e230	485	673	713	1020	1390	158	695	159	515
14	153	404	e220	540	632	587	842	1890	147	317	334	424
15	137	380	e210	487	2910	509	1550	932	144	5940	175	1640
16	124	983	e200	584	6990	460	990	1240	134	2430	125	1610
17	143	1260	e190	1720	2920	1130	775	2770	127	860	113	1920
18	307	727	e180	3500	1430	1140	671	2010	121	520	106	896
19	396	551	e170	2200	1120	814	535	1380	125	358	102	922
20	700	482	e170	1210	837	816	466	922	117	286	209	2410
21	484	730	e160	2020	651	640	823	1310	114	338	157	1110
22	403	554	e160	1600	705	565	785	970	106	244	140	1350
23	357	451	e150	1080	1290	511	544	659	101	2380	122	1190
24	285	394	e150	1120	1020	460	460	523	135	1070	114	1620
25	250	366	e145	1230	728	413	420	450	251	532	107	1240
26	222	549	e140	1120	562	384	397	411	183	365	99	708
27	217	718	e140	815	614	347	342	369	126	281	92	558
28	178	686	e140	703	546	327	315	327	104	237	149	460
29	166	729	e135	620	---	319	291	387	107	207	1040	401
30	156	543	e130	572	---	344	272	552	232	186	441	745
31	159	---	e200	487	---	351	---	381	---	188	216	---
TOTAL	7305	16282	7787	31061	43319	17490	24396	23969	5389	19769	5664	39113
MEAN	236	543	251	1002	1547	564	813	773	180	638	183	1304
MAX	700	1260	480	3500	6990	1350	3640	2770	302	5940	1040	4990
MIN	105	215	130	240	485	319	272	224	101	73	92	104
CFSM	.79	1.81	.84	3.34	5.16	1.88	2.71	2.58	.60	2.13	.61	4.35
IN.	.91	2.02	.97	3.85	5.37	2.17	3.03	2.97	.67	2.45	.70	4.85

CAL YR 1989 TOTAL 216716 MEAN 594 MAX 5300 MIN 46 CFSM 1.98 IN. 26.87
WTR YR 1990 TOTAL 241544 MEAN 662 MAX 6990 MIN 73 CFSM 2.21 IN. 29.95

e Estimated

FRENCH CREEK BASIN

03021350 FRENCH CREEK NEAR WATTSBURG, PA

LOCATION.--Lat 42°00'55", long 79°46'58", Erie County, Hydrologic Unit 05010004, on right bank at downstream side of bridge on Tanner Road, 1,200 ft east of State Highway 74, 1.1 mi west of Pennsylvania-New York border, 1.5 mi northwest of Wattsburg, and 2.4 mi above confluence with West Branch French Creek.

DRAINAGE AREA.--92.0 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 1,304.84 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.--Records good except for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--16 years, 226 ft^3/s, 33.36 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,350 ft^3/s, Sept. 14, 1979, gage height, 11.95 ft; minimum, 4.4 ft^3/s, Aug. 21, 22, 23, 1988, gage height, 3.35 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 18	0800	3,610	9.12	Feb. 16	0900	*3,910	*9.45

Minimum discharge, 13 ft^3/s, Aug. 11, 12, gage height, 3.38 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	19	159	184	e1060	197	153	237	56	38	22	19	22
2	26	96	161	976	1590	158	707	51	33	20	16	19
3	31	74	142	556	1260	193	436	48	30	18	15	17
4	25	82	e130	509	838	144	351	148	33	17	14	16
5	21	84	e115	1060	489	119	405	1000	33	16	16	e28
6	21	139	e105	629	326	103	506	368	28	16	17	e50
7	20	139	e98	353	323	90	295	167	25	16	19	e90
8	20	308	e92	254	307	87	195	108	25	15	17	e160
9	20	330	e88	199	503	150	155	81	27	84	15	e290
10	20	252	e82	245	1120	487	640	77	24	80	14	e470
11	37	300	e76	239	452	917	1930	124	22	45	14	e250
12	40	213	e72	164	269	480	543	116	20	41	16	e150
13	30	144	e70	137	213	309	316	851	18	44	79	e110
14	26	110	e66	176	249	222	275	809	17	34	84	e76
15	24	105	e62	174	1160	169	432	271	17	457	47	e100
16	22	401	e60	372	3320	140	249	646	15	561	31	e150
17	188	467	e58	1530	1220	258	189	961	14	125	24	e230
18	218	272	e56	3120	412	276	161	700	22	57	20	e180
19	162	217	e54	1040	332	192	128	375	39	38	20	e150
20	261	439	e54	465	206	188	125	281	27	31	21	e200
21	162	860	e52	782	165	148	665	709	27	30	22	e160
22	187	306	e50	525	465	133	350	319	23	27	19	e180
23	139	184	e49	342	889	124	197	168	25	30	18	e200
24	85	146	e48	599	445	114	146	99	55	32	17	e260
25	64	137	e48	783	227	99	122	74	73	26	17	e310
26	53	513	e47	746	219	90	104	62	44	22	17	e160
27	45	480	e46	367	201	78	88	53	31	20	16	e120
28	40	524	e46	317	176	71	75	45	26	18	32	e110
29	37	384	e43	244	---	69	65	50	23	17	72	e98
30	35	226	e42	204	---	120	60	65	23	16	41	e90
31	53	---	e220	171	---	179	---	48	---	20	27	---
TOTAL	2131	8091	2516	18338	17573	6060	10147	8930	857	1995	816	4446
MEAN	68.7	270	81.2	592	628	195	338	288	28.6	64.4	26.3	148
MAX	261	860	220	3120	3320	917	1930	1000	73	561	84	470
MIN	19	74	42	137	165	69	60	45	14	15	14	16
CFSM	.75	2.93	.88	6.43	6.82	2.12	3.68	3.13	.31	.70	.29	1.61
IN.	.86	3.27	1.02	7.41	7.11	2.45	4.10	3.61	.35	.81	.33	1.80

CAL YR 1989 TOTAL 66653 MEAN 183 MAX 1780 MIN 14 CFSM 1.98 IN. 26.95
WTR YR 1990 TOTAL 81900 MEAN 224 MAX 3320 MIN 14 CFSM 2.44 IN. 33.12

e Estimated

FRENCH CREEK BASIN

03021410 WEST BRANCH FRENCH CREEK NEAR LOWVILLE, PA

LOCATION.--Lat 42°04'54", long 79°51'02", Erie County, Hydrologic Unit 05010004, on left bank on upstream side of highway bridge on Knoyle Road, 1,000 ft downstream from Townley Run, 2.5 mi southwest of Hornby, and 4.2 mi northwest of Lowville.

DRAINAGE AREA.--52.3 mi^2.

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

GAGE.--Water-stage recorder. Elevation of gage is 1,300 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--16 years, 132 ft^3/s, 34.28 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,300 ft^3/s, Oct. 18, 1989, gage height, 11.21 ft; minimum, 2.3 ft^3/s, July 11, 14, 15, 1988, gage height, 3.25 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 18	0700	2,100	10.21	Apr. 11	0400	1,500	9.98
Feb. 16	0130	*2,530	*10.34	Sept. 7	0915	1,930	10.15

Minimum discharge, 3.0 ft^3/s, Aug. 4, 5, gage height, 3.30 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	9.1	138	113	e720	106	e90	156	39	24	12	5.9	12
2	16	75	105	451	869	e86	312	36	19	11	4.6	8.5
3	17	67	e96	417	653	e110	216	34	22	8.8	3.9	6.5
4	14	78	e88	415	310	e86	193	107	35	7.6	3.4	5.7
5	12	84	e80	822	205	e70	253	584	31	7.4	5.0	11
6	11	141	e72	436	152	e58	286	233	24	7.8	7.6	28
7	10	135	e66	254	166	e52	180	92	20	6.7	21	929
8	9.4	225	e64	165	164	e49	117	56	17	5.7	15	363
9	8.8	254	e60	118	244	e100	87	46	18	34	8.5	206
10	11	196	e56	163	513	284	432	40	16	33	5.7	192
11	37	183	e54	151	250	453	1260	61	16	17	5.7	68
12	33	122	e52	e105	133	251	431	59	14	17	4.6	46
13	21	82	e50	e72	108	155	202	668	12	22	30	32
14	17	67	e48	e82	126	108	165	624	11	17	39	25
15	14	60	e46	e96	749	77	227	190	11	56	24	260
16	36	238	e45	e150	2120	54	138	436	10	78	15	463
17	316	263	e44	975	715	128	98	722	8.6	32	9.8	388
18	227	e150	e43	1750	239	120	80	522	41	18	7.0	133
19	186	e110	e41	648	181	84	57	208	34	12	8.4	106
20	193	286	e40	254	122	89	59	131	16	13	7.2	210
21	124	404	e39	323	102	66	511	242	11	17	6.8	86
22	203	168	e38	268	331	57	260	153	9.7	12	5.7	79
23	128	90	e38	186	567	59	108	94	12	19	5.1	295
24	86	76	e37	326	284	58	74	52	71	15	4.8	1080
25	68	76	e36	370	190	48	61	37	108	9.8	4.3	383
26	56	328	e35	327	e150	44	51	31	38	7.6	4.1	116
27	48	283	e35	196	e120	38	45	26	22	7.1	3.9	53
28	42	247	e35	168	e100	35	46	24	15	6.3	13	42
29	36	218	e35	127	---	35	44	28	13	4.9	112	37
30	34	142	e34	106	---	75	41	45	12	4.2	42	128
31	61	---	e60	89	---	94	---	27	---	6.2	20	---
TOTAL	2084.3	4986	1685	10730	9969	3113	6190	5647	711.3	525.1	453.0	5791.7
MEAN	67.2	166	54.4	346	356	100	206	182	23.7	16.9	14.6	193
MAX	316	404	113	1750	2120	453	1260	722	108	78	112	1080
MIN	8.8	60	34	72	100	35	41	24	8.6	4.2	3.4	5.7
CFSM	1.29	3.18	1.04	6.62	6.81	1.92	3.95	3.48	.45	.32	.28	3.69
IN.	1.48	3.55	1.20	7.63	7.09	2.21	4.40	4.02	.51	.37	.32	4.12

CAL YR 1989 TOTAL 40090.2 MEAN 110 MAX 1260 MIN 4.7 CFSM 2.10 IN. 28.52
WTR YR 1990 TOTAL 51885.4 MEAN 142 MAX 2120 MIN 3.4 CFSM 2.72 IN. 36.91

e Estimated

FRENCH CREEK BASIN

03021520 FRENCH CREEK NEAR UNION CITY, PA

LOCATION.--Lat 41°54'28", long 79°53'49", Erie County, Hydrologic Unit 05010004, on left bank at upstream side of bridge on State Highway 97, 0.4 mi upstream from South Branch French Creek, 0.9 mi downstream from Union City Dam, and 3.2 mi west of Union City.

DRAINAGE AREA.--221 mi^2.

PERIOD OF RECORD.--October 1909 to current year. Published as North Branch French Creek at Kimmeytown May 1910 to September 1914, as "at Kimmeytown" October 1915 to September 1932, and as "at Carters Corners" (station 03021500) October 1932 to September 1971. Monthly discharge only for some periods published in WSP 1305.

REVISED RECORDS.--WSP 743: Drainage area. WSP 1275: 1934, 1936-37 (M), 1939 (M), 1942 (M). WSP 1305: 1910-11, 1913, 1914 (M), 1915-16, 1925, 1928. WDR PA-79-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,191.16 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Dec. 22, 1948, nonrecording gage at site 4.5 mi upstream at datum 43.4 ft higher. Dec. 22, 1948, to Sept. 30, 1971, water-stage recorder at site 4.6 mi upstream at datum 43.4 ft higher. Oct. 1, 1971 to Oct. 10, 1974, at present site at different datum. Oct. 11, 1974 to Nov. 4, 1977 at site 0.7 mi upstream at different datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flood flow regulated since October 1971 by Union City Reservoir 0.9 mi upstream, serving as a retarding basin. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--81 years, 442 ft^3/s, 27.16 in/yr, adjusted for storage since 1971.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,000 ft^3/s, Apr. 5, 1947, gage height, 13.50 ft, site and datum then in use, by slope-area measurement of peak flow; maximum gage height observed, 16.0 ft, Feb. 20, 1918 (backwater from ice), site and datum then in use; minimum discharge observed, 3.9 ft^3/s, Aug. 15, 18-21, 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,380 ft^3/s, Feb. 17, gage height, 6.37 ft, maximum gage height, 6.80 ft, Jan. 3, (backwater from ice), minimum daily, 41 ft^3/s, Aug. 27.

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	66	304	791	e840	1170	1200	426	153	146	54	e49	63
2	68	325	665	e960	1290	1130	716	140	127	50	e49	59
3	76	225	507	e1000	1400	e1150	866	127	115	47	e46	58
4	70	231	418	e1200	1520	e1100	872	149	119	e46	e43	57
5	66	238	e370	1140	1540	e1000	868	733	132	e45	e47	215
6	e64	265	e390	1140	1430	845	877	954	117	e44	e50	171
7	e61	329	e400	1140	1320	634	882	924	103	e43	e56	935
8	e59	469	e390	1100	1270	381	837	817	93	e42	e60	1030
9	e56	580	e330	1060	1260	340	749	613	96	80	e52	1140
10	e60	700	e320	1030	1290	591	676	355	90	180	e46	1140
11	77	685	e300	890	1320	912	1030	257	84	109	e45	1030
12	117	625	e290	831	1290	1010	1180	305	78	90	e60	963
13	93	505	e270	733	1250	997	1190	541	70	103	117	873
14	74	360	e270	622	1210	951	1170	946	63	87	187	735
15	67	254	e220	501	1300	875	1150	981	60	165	122	585
16	66	424	e190	521	1770	753	1120	1020	58	553	79	665
17	181	756	e220	820	2330	599	1080	1090	57	468	60	816
18	533	789	e250	1190	2260	660	1010	1160	57	222	53	866
19	541	734	e260	1500	2020	599	944	1150	119	93	e52	817
20	560	690	e250	1550	1800	539	844	1110	89	72	e50	767
21	551	933	e220	1590	1570	473	818	1090	67	66	e48	714
22	482	995	e200	1540	1440	377	910	1060	56	65	e47	602
23	478	932	e230	1440	1490	322	900	1120	57	64	e47	647
24	355	825	e230	1370	1510	309	817	1130	96	71	e46	930
25	224	657	e230	1450	1440	280	698	1040	223	64	e45	1040
26	178	623	e240	1500	1360	253	501	940	186	56	e43	1040
27	149	829	e220	1470	1310	224	318	812	101	e52	e41	989
28	131	884	e230	1360	1270	199	224	605	75	e49	e50	906
29	120	908	e230	1290	---	188	186	322	61	e46	191	788
30	107	873	e230	1250	---	229	167	199	57	e44	192	641
31	117	---	e350	1210	---	384	---	185	---	e49	94	---
TOTAL	5847	17947	9711	35238	41430	19504	24026	22028	2852	3219	2167	21282
MEAN	189	598	313	1137	1480	629	801	711	95.1	104	69.9	709
MAX	560	995	791	1590	2330	1200	1190	1160	223	553	192	1140
MIN	56	225	190	501	1170	188	167	127	56	42	41	57
†	+0.9	+31.6	-20.5	+132	-0.7	-138	-3.7	+0.2	-0.6	-0.1	+0.1	+13.9
MEAN‡	190	630	292	1269	1479	491	797	711	94.5	104	70.0	723
CFSM‡	.86	2.85	1.32	5.74	6.69	2.22	3.61	3.22	.43	.47	.32	3.27
IN.‡	.99	3.18	1.52	6.62	6.97	2.56	4.03	3.71	.48	.54	.37	3.65

CAL YR 1989 TOTAL 164443 MEAN 451 MAX 2040 MIN 47 ADJ -5.1 MEAN‡ 446 CFSM‡ 2.02 IN.‡ 27.37
WTR YR 1990 TOTAL 205251 MEAN 562 MAX 2330 MIN 41 ADJ +1.2 MEAN‡ 563 CFSM‡ 2.55 IN.‡ 34.62

† Change in contents, equivalent in cubic feet per second, in Union City Reservoir.
‡ Adjusted for change in reservoir contents.

e Estimated

FRENCH CREEK BASIN

03022540 WOODCOCK CREEK AT BLOOMING VALLEY, PA

LOCATION.--Lat 41°41'26", long 80°02'54", Crawford County, Hydrologic Unit 05010004, on left bank at upstream side of bridge, 0.7 mi northeast of Blooming Valley, and 3.4 mi upstream from Woodcock Creek Dam.

DRAINAGE AREA.--31.1 mi^2.

PERIOD OF RECORD.--October 1974 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.--Records good except for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--16 years, 57.1 ft^3/s, 24.93 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,980 ft^3/s, Feb. 17, 1976, gage height, 11.48 ft, from rating curve extended above 600 ft^3/s on basis of slope-area measurement of peak flow; maximum gage height, 12.27 ft, Feb. 25, 1977 (backwater from ice); minimum discharge, 2.3 ft^3/s, Aug. 21, 22, 23, 1988, gage height, 5.64 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 15	2315	*1,370	*9.24	No other peak greater than base discharge.			

Minimum discharge, 6.8 ft^3/s, Oct. 1, Aug. 13, 27, gage height, 5.82 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	7.5	30	42	e100	66	e42	82	22	25	22	13	14
2	28	22	38	e70	565	e40	205	25	22	16	11	12
3	27	20	36	e48	288	e50	97	21	21	12	9.5	10
4	17	19	e35	e110	266	41	84	36	21	11	9.0	9.3
5	13	17	e32	e250	142	39	82	142	20	9.6	16	9.8
6	11	17	e31	112	95	38	67	62	18	8.8	14	14
7	9.9	17	e30	67	91	37	53	43	17	8.7	12	141
8	9.2	51	e29	57	75	36	46	35	19	8.1	11	50
9	9.7	49	e28	48	72	64	40	31	21	17	9.4	309
10	12	61	e27	111	143	118	170	31	18	20	8.7	217
11	38	63	e27	77	77	160	410	36	17	14	8.1	56
12	23	44	e25	e60	61	83	120	32	15	75	7.6	37
13	17	32	e24	e52	55	61	83	165	14	45	15	28
14	14	25	e24	e46	52	51	87	115	13	24	24	31
15	13	40	e24	e41	513	44	123	59	16	69	13	135
16	13	187	e23	e110	684	41	76	235	12	45	9.5	173
17	28	102	e22	278	196	85	67	250	11	25	9.0	128
18	23	63	e21	439	103	74	58	138	11	21	8.2	54
19	79	43	e21	175	88	58	50	77	10	16	8.3	127
20	73	58	e20	116	64	56	45	62	10	15	8.6	143
21	46	69	e20	262	53	45	99	78	11	14	9.6	60
22	50	49	e19	134	101	41	66	55	10	16	10	119
23	33	42	e19	92	125	38	51	43	13	151	9.3	87
24	25	38	e19	122	87	35	44	38	22	46	8.6	94
25	22	36	e18	99	65	32	40	32	29	25	8.5	54
26	19	92	e19	92	e58	30	36	31	16	19	7.9	40
27	17	65	e20	65	e48	27	33	29	12	15	7.6	35
28	16	92	e21	59	e45	27	30	26	11	12	37	31
29	14	67	e24	52	---	27	27	42	30	11	229	28
30	15	48	e30	49	---	32	22	48	26	10	37	108
31	24	---	e125	45	---	31	---	31	---	16	19	---
TOTAL	746.3	1558	893	3438	4278	1583	2493	2070	511	817.2	608.4	2354.1
MEAN	24.1	51.9	28.8	111	153	51.1	83.1	66.8	17.0	26.4	19.6	78.5
MAX	79	187	125	439	684	160	410	250	30	151	229	309
MIN	7.5	17	18	41	45	27	22	21	10	8.1	7.6	9.3
CFSM	.77	1.67	.93	3.57	4.91	1.64	2.67	2.15	.55	.85	.63	2.52
IN.	.89	1.86	1.07	4.11	5.12	1.89	2.98	2.48	.61	.98	.73	2.82

CAL YR 1989 TOTAL 18988.6 MEAN 52.0 MAX 430 MIN 3.7 CFSM 1.67 IN. 22.71
WTR YR 1990 TOTAL 21350.0 MEAN 58.5 MAX 684 MIN 7.5 CFSM 1.88 IN. 25.54

e Estimated

FRENCH CREEK BASIN

03022554 WOODCOCK CREEK AT WOODCOCK CREEK DAM, PA

LOCATION.--Lat 41°41'45", long 80°06'30", Crawford County, Hydrologic Unit 05010004, on left bank 0.5 mi downstream from Woodcock Creek Dam, 2.6 mi southeast of Saegertown, and 3.0 mi upstream from mouth.

DRAINAGE AREA.--45.6 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 1,126.92 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Nov. 4, 1976, water-stage recorder at site 0.5 mi downstream at datum 10.08 ft lower.

REMARKS.--No estimated daily discharges. Records good. Flow completely regulated by Woodcock Creek Lake 0.5 mi upstream. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--16 years, 88.9 ft^3/s, 26.48 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,040 ft^3/s, June 17, 1986, gage height, 5.41 ft; minimum daily, 4.2 ft^3/s, Apr. 21, 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 451 ft^3/s, Feb. 19, gage height, 4.11 ft, minimum daily, 7.2 ft^3/s, Aug. 9-12.

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	64	64	159	32	110	165	13	18	48	30	10	141
2	65	62	133	89	89	124	13	18	30	30	8.1	115
3	64	62	131	135	60	101	13	18	30	29	7.4	64
4	64	62	130	97	64	90	37	19	23	28	7.4	21
5	64	62	129	145	139	90	81	21	14	17	7.7	15
6	64	62	127	143	366	89	97	19	10	10	7.7	15
7	64	63	115	238	434	78	96	68	10	10	7.7	18
8	64	62	99	284	424	71	68	104	10	10	7.7	16
9	63	62	92	279	414	72	26	104	10	11	7.2	35
10	44	87	81	276	408	74	16	92	10	21	7.2	123
11	35	103	60	270	398	76	15	69	10	28	7.2	180
12	35	103	52	266	384	101	80	60	10	29	7.2	180
13	35	101	52	222	228	121	193	63	10	28	7.6	201
14	35	94	44	192	93	93	223	89	10	28	7.7	203
15	35	85	32	188	96	62	219	128	10	31	7.7	208
16	35	89	28	149	65	52	218	134	10	101	7.7	209
17	37	110	28	187	64	54	216	112	10	148	7.7	206
18	37	134	28	286	155	54	140	224	10	96	7.7	204
19	39	114	28	303	352	55	79	337	10	31	7.7	206
20	38	103	28	302	440	79	78	332	10	9.3	7.7	204
21	84	104	28	305	429	95	79	328	10	7.8	7.7	202
22	108	104	28	304	265	84	78	267	10	7.8	7.7	203
23	108	104	28	300	240	63	106	176	11	7.8	7.7	202
24	96	103	28	298	369	53	134	85	11	65	11	200
25	89	103	28	210	408	38	113	29	22	107	13	156
26	72	103	28	225	348	20	71	20	28	76	13	111
27	64	120	28	292	303	14	55	20	28	30	13	99
28	63	126	28	285	247	14	55	20	28	10	18	99
29	62	177	27	235	---	12	38	25	29	10	46	87
30	62	203	27	157	---	11	22	62	30	10	119	84
31	64	---	33	119	---	11	---	81	---	10	158	---
TOTAL	1853	2931	1887	6813	7392	2116	2672	3142	502	1066.7	568.1	4007
MEAN	59.8	97.7	60.9	220	264	68.3	89.1	101	16.7	34.4	18.3	134
MAX	108	203	159	305	440	165	223	337	48	148	158	209
MIN	35	62	27	32	60	11	13	18	10	7.8	7.2	15
†	-16.4	-5.5	-10.1	-8.6	+7.6	+12.0	+29.4	+1.5	+1.7	-2.8	+9.1	-10.2
MEAN‡	43.4	92.2	50.8	211	272	80.3	118	102	18.4	31.6	27.4	124
CFSM‡	.95	2.02	1.11	4.63	5.96	1.76	2.59	2.24	.40	.69	.60	2.72
IN‡	1.10	2.25	1.28	5.34	6.21	2.03	2.89	2.58	.45	.80	.69	3.03

CAL YR 1989 TOTAL 30717.5 MEAN 84.2 MAX 584 MIN 8.1 ADJ -0.5 MEAN‡ 83.7 CFSM‡ 1.84 IN‡ 24.87
WTR YR 1990 TOTAL 34949.8 MEAN 95.8 MAX 440 MIN 7.2 ADM +0.5 MEAN‡ 96.3 CSFM‡ 2.11 IN‡ 28.65

† Change in contents, equivalent in cubic feet per second, in Woodcock Creek Lake.
‡ Adjusted for change in reservoir contents.

e Estimated

FRENCH CREEK BASIN

03023100 FRENCH CREEK AT MEADVILLE, PA

LOCATION.--Lat 41°37'57", long 80°09'35", Crawford County, Hydrologic Unit 05010004, on left bank 30 ft upstream from bridge on Mecer Street at Meadville, 300 ft downstream from Mill Run, 2,600 ft downstream from Cussaewago Creek, and at mile 30.5.

DRAINAGE AREA.--788 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 1,058.83 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to October 27, 1989, water-stage recorder at site 2,300 ft upstream at different datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated beginning October 1971 by Union City Reservoir 43 mi upstream, serving as a retarding basin, and Woodcock Creek Lake 9.0 mi upstream. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,100 ft^3/s, Apr. 4, 1989, gage height, 10.93 ft, maximum gage height, 13.55 ft, Jan. 5, 1990 (backwater from ice), site and datum then in use; minimum daily, 100 ft^3/s, Sept. 13, 1989.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge 25,800 ft^3/s April 1947, gage height, 17.05 ft; maximum gage height 17.60 ft, January 1959 (backwater from ice), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,090 ft^3/s, Feb. 17, gage height, 13.06 ft, maximum gage height, 13.55 ft, Jan. 5, 1990 (backwater from ice); minimum daily, 138 ft^3/s, July 8.

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	253	615	2180	e1700	2300	2340	1020	598	748	393	178	1200
2	299	884	1890	e3500	4120	2210	2040	550	603	372	182	602
3	404	819	1660	e3200	6400	2290	3090	510	552	283	166	405
4	439	696	1350	e3700	6510	2200	2590	528	515	238	148	270
5	359	691	e1150	e4000	5570	1940	2650	2220	488	205	149	222
6	301	677	e1050	e3800	4510	1740	2640	2960	473	166	154	377
7	271	735	e1000	e3300	3800	1530	2420	2330	436	148	170	1430
8	248	1200	e920	e3000	3360	1280	2080	1850	413	138	180	4480
9	238	1690	e880	e2800	3120	1190	1680	1490	412	184	186	5260
10	230	1910	e820	e2400	3700	2030	2060	1200	403	249	186	6190
11	284	2450	e780	e2200	4000	3370	4980	995	376	405	172	5580
12	384	2220	e740	e2000	3440	3380	5080	951	e350	489	154	3350
13	424	1780	e700	e1900	2980	3050	3940	1980	e320	531	284	2460
14	363	1360	e660	e1800	2490	2540	3190	3740	e300	490	868	2010
15	302	1110	e640	e1600	3080	2050	3180	3140	e280	662	745	2700
16	263	1930	e600	e1800	7090	1750	2950	3900	e260	1360	455	3340
17	289	3070	e560	e2500	7910	1710	2510	5570	e240	1500	318	3870
18	758	2700	e540	e4000	6700	2070	2250	5540	e230	1040	257	3180
19	1180	2310	e540	e6500	5230	1880	1950	5010	e220	614	231	3090
20	1700	2120	e520	5710	4170	1680	1760	3970	e240	367	221	3860
21	1690	2860	e500	5540	3370	1540	2320	3720	e260	290	210	3090
22	1530	2760	e490	5330	3030	1340	2600	3470	e240	268	204	3010
23	1390	2460	e480	4450	3870	1150	2300	2770	e220	320	201	3330
24	1190	2100	e470	4050	4100	1030	2000	2270	e290	571	198	4270
25	938	1800	e470	4060	3750	951	1690	1910	e450	488	196	4060
26	727	2110	e450	3920	3230	857	1420	1710	718	371	196	3140
27	642	2610	e440	3760	2820	772	1150	1540	579	273	194	2560
28	574	2800	e430	3260	2660	707	920	1350	420	217	235	2090
29	519	2920	e430	2930	---	662	768	1210	377	192	1470	1810
30	476	2580	e420	2640	---	672	665	1080	381	174	1860	2340
31	468	---	e600	2420	---	782	---	924	---	172	1560	---
TOTAL	19133	55967	24360	103770	117310	52693	69893	70986	11794	13170	11928	83576
MEAN	617	1866	786	3347	4190	1700	2330	2290	393	425	385	2786
MAX	1700	3070	2180	6500	7910	3380	5080	5570	748	1500	1860	6190
MIN	230	615	420	1600	2300	662	665	510	220	138	148	222
†	-15.5	+26.1	-30.6	+123	+6.9	-126	+25.7	+1.6	+1.0	-2.9	+9.2	+3.7
MEAN‡	602	1892	755	3470	4197	1574	2356	2292	394	422	394	2790
CFSM‡	.76	2.40	.96	4.40	5.33	2.00	2.99	2.91	.50	.54	.50	3.54
IN.‡	.88	2.68	1.11	5.07	5.55	2.31	3.34	3.35	.56	.62	.58	3.95

CAL YR 1989 TOTAL 531465 MEAN 1456 MAX 9420 MIN 100 ADJ -5.6 MEAN‡ 1450 CFSM‡ 1.84 IN.‡ 24.99
WTR YR 1990 TOTAL 634580 MEAN 1739 MAX 7910 MIN 138 ADJ +1.7 MEAN‡ 1741 CFSM‡ 2.21 IN.‡ 30.00

† Change in contents, equivalent in cubic feet per second, in Union City Reservoir and Woodcock Creek Lake.
‡ Adjusted for change in reservoir contents.

e Estimated

FRENCH CREEK BASIN

03024000 FRENCH CREEK AT UTICA, PA

LOCATION.--Lat 41°26'15", long 79°57'22", Venango County, Hydrologic Unit 05010004, on right bank at upstream side of bridge on SR 3017 at Utica and 2,000 ft upstream from Mill Creek.

DRAINAGE AREA.--1,028 mi^2.

PERIOD OF RECORD.--August 1932 to current year.

REVISED RECORDS.--WSP 743; Drainage area. WSP 823: 1936 (M). WSP 1275: 1933, 1936.

GAGE.--Water-stage recorder. Datum of gage is 1,019.44 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 27, 1933, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated since 1971 by Union City Reservoir 50 mi upstream, serving as a retarding basin, and since January 1974 by Woodcock Creek Lake, 25 mi upstream. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--58 years, 1,846 ft^3/s, 24.39 in/yr, adjusted for storage since 1971.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,800 ft^3/s, Mar. 7, 1964, gage height, 13.2 ft, from floodmark in gage well; minimum, 43 ft^3/s, July 30, 1934, gage height, 1.03 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1912, 15.7 ft in March 1913, discharge 35,600 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,900 ft^3/s, Feb. 17, gage height, 9.32 ft; minimum daily, 212 ft^3/s, July 8.

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	364	675	2670	e3000	2700	2800	1180	843	1040	433	308	1350
2	502	879	2280	4430	6280	2640	2370	772	855	441	305	839
3	579	976	2030	4550	8660	2740	3540	709	773	382	282	532
4	585	844	1700	4920	9550	2600	3100	690	720	328	252	387
5	510	785	1610	5770	8120	2310	3050	1780	657	293	330	314
6	433	794	e1450	4910	6220	2100	3080	3400	628	254	293	543
7	381	797	e1350	5130	5050	1870	2860	2780	595	226	284	3240
8	346	1160	e1200	5130	4320	1620	2480	2210	573	212	288	4750
9	327	1740	e1100	4540	3880	1590	2080	1790	588	332	275	6650
10	321	1930	e1000	4500	4460	2460	2240	1510	555	357	264	7660
11	407	2530	e960	4210	4780	3850	5890	1250	517	396	241	7060
12	468	2550	e880	3630	4120	3990	6460	1120	469	1240	217	4500
13	519	2080	e820	2970	3580	3620	5250	1840	436	932	279	3190
14	470	1660	e760	2710	3040	3110	4250	3950	410	723	711	2530
15	398	1380	e720	2590	5560	2550	4040	3690	399	923	906	3420
16	344	2270	e700	2770	10800	2170	3800	3920	361	1250	626	4070
17	470	3520	e680	4460	11600	2240	3250	6290	330	1720	359	4740
18	717	3260	e660	7310	10500	2500	2900	6850	312	1370	306	3960
19	1420	2820	e640	8770	7610	2340	2500	6220	289	980	306	3590
20	2060	2490	e620	8030	5560	2080	2210	5020	286	667	275	4470
21	2030	3040	e620	7230	4320	1910	2620	4440	338	559	258	3930
22	1880	3260	e600	6980	3830	1700	3070	4230	308	485	254	3550
23	1690	2910	e600	5820	4620	1510	2820	3440	290	1090	243	3740
24	1500	2560	e580	5080	4890	1340	2470	2820	330	852	235	4570
25	1230	2170	e560	4880	4430	1240	2120	2330	483	839	229	4740
26	990	2320	e560	4650	3810	1130	1830	2070	706	672	223	3790
27	825	2930	e540	4420	3400	1020	1530	1860	717	542	217	3120
28	726	3150	e540	3860	3160	940	1280	1670	552	434	225	2520
29	653	3370	e780	3460	---	881	1070	1550	445	359	1400	2150
30	599	3090	e1300	3130	---	868	935	1460	416	315	2210	2350
31	571	---	e2000	2830	---	925	---	1230	---	317	1620	---
TOTAL	24315	63940	32510	146670	158850	64644	86275	83734	15378	19923	14221	102255
MEAN	784	2131	1049	4731	5673	2085	2876	2701	513	643	459	3408
MAX	2060	3520	2670	8770	11600	3990	6460	6850	1040	1720	2210	7660
MIN	321	675	540	2590	2700	868	935	690	286	212	217	314
†	-15.5	+26.1	-30.6	+123	+6.9	-126	+25.7	+1.6	+1.0	-2.9	+9.2	+3.7
MEAN‡	768	2157	1018	4854	5680	1959	2902	2703	514	640	468	3412
CFSM‡	.75	2.10	.99	4.72	5.53	1.91	2.82	2.63	.50	.62	.46	3.32
IN.‡	.86	2.34	1.14	5.44	5.76	2.20	3.15	3.03	.56	.71	.53	3.70

CAL YR 1989 TOTAL 679743 MEAN 1862 MAX 11700 MIN 133 ADJ -5.6 MEAN‡ 1856 CFSM‡ 1.81 IN.‡ 24.52
WTR YR 1990 TOTAL 812715 MEAN 2227 MAX 11600 MIN 212 ADJ +1.7 MEAN‡ 2229 CFSM‡ 2.17 IN.‡ 29.42

† Change in contents, equivalent in cubic feet per second, in Union City Reservoir and Woodcock Creek Lake.
‡ Adjusted for change in reservoir contents.

e Estimated

OHIO RIVER MAIN STEM

03025500 ALLEGHENY RIVER AT FRANKLIN, PA

LOCATION.--Lat 41°23'22", long 79°49'14", Venango County, Hydrologic Unit 05010003, on right bank at upstream side of Eighth Street bridge on U.S. Highway 322 at Franklin, 1,000 ft downstream from French Creek, and at mile 124.4.

DRAINAGE AREA.--5,982 mi^2.

PERIOD OF RECORD.--October 1914 to current year. Monthly discharge only for some periods, published in WSP 1305. Gage-height records collected at same site since April 1905 are contained in reports of U.S. Weather Bureau.

REVISED RECORDS.--WSP 743: Drainage area. WSP 783: 1913 (M). WSP 1003: 1920 (M). WSP 1305: 1926 (M) 1928-29 (M). WSP 1385: 1920, 1932.

GAGE.--Water-stage recorder. Datum of gage is 955.84 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 16, 1932, nonrecording gage, and Sept. 16-30, 1932, water-stage recorder, at present site at datum 2.00 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated by Allegheny Reservoir 74 mi upstream since 1965, by Chautauqua Lake since 1949, by Tionesta Lake since 1940, by Union City Reservoir since 1971, and by Woodcock Creek Lake since January 1974. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--76 years, 10,560 ft^3/s, 23.97 in/yr, adjusted for storage 1940-75.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 138,000 ft^3/s, Mar. 13, 1920; maximum gage height observed, 26.0 ft, Feb. 27, 1917 (backwater from ice) and Feb. 26, 1926 (backwater from ice); minimum discharge, 334 ft^3/s, July 30, 1934, gage height, 1.63 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 17, 1865, reached a stage of 25.0 ft, and that of Mar. 26, 1913, a stage of 24.6 ft, from graph based on gage readings, discharge, 196,000 ft^3/s and 191,000 ft^3/s, respectively, from rating curve extended above 120,000 ft^3/s. Maximum discharge since at least 1864 is that of Mar. 17, 1865.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 68,700 ft^3/s, Feb. 16, gage height, 14.17 ft; minimum, 1,860 ft^3/s, July 7, gage height, 2.69 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	3760	4750	8840	e7000	16300	22000	5290	6770	8230	3660	3940	4870
2	4100	5530	8500	14100	26500	18100	8100	5370	7170	3300	3480	3950
3	4650	6510	12700	14100	36600	16200	11500	4970	6000	2980	3340	3290
4	4240	6250	13000	e13000	33800	14300	11300	5040	5450	2810	3210	3030
5	3890	6060	12300	e16000	29000	12100	11400	7180	4440	2590	3630	3450
6	3670	5950	12300	24200	27500	11200	11400	12600	3840	2190	3750	4510
7	3300	5910	12900	21400	27500	10400	11200	11300	3630	2120	3530	11500
8	3280	7500	12800	19700	25400	9840	10400	11100	3650	2640	3270	14300
9	3320	9450	12200	18300	23700	9790	9290	10700	3910	3390	3160	16200
10	3260	10100	11700	16900	25900	9570	9860	9600	3730	4080	3040	25400
11	3470	11200	11800	16000	26700	11300	25100	9340	3510	4380	2840	21700
12	3700	11400	11600	14300	25500	12800	24100	8910	3360	8100	2860	17000
13	3650	8920	11300	12600	26500	12600	25000	11500	3250	7780	2980	13300
14	3520	7390	11000	10300	27600	11400	27600	20100	3100	5320	4300	10900
15	3400	7860	8860	10300	36200	9940	30700	21200	3010	12800	4770	13500
16	3270	8820	6480	10100	58900	8730	29000	22900	2910	13800	4170	15400
17	3650	15200	5140	14200	39800	10000	26600	29300	2750	13900	3530	19600
18	4190	15800	4290	21700	37300	12700	19600	30000	2650	13300	3160	17700
19	4970	14200	4460	e20000	38500	13500	16400	31900	2790	12200	.2970	15200
20	7460	13200	4450	e19000	37800	14800	14200	33500	3280	8790	3000	18800
21	7740	13400	4220	e20000	34500	14800	13700	31600	3250	6360	2870	16400
22	7670	14300	4170	e20000	32500	13700	14000	32000	3320	4820	2800	15500
23	7210	14800	3840	e20500	26800	12500	13300	30500	3270	10300	2710	17400
24	7020	15000	e3600	25700	29000	11600	12300	28200	3310	11300	2690	20700
25	6670	13900	e3600	25800	29000	11100	11000	26400	3680	10900	2560	22200
26	5940	13500	e4500	21100	26700	9770	10500	19600	3870	8290	2510	17900
27	5240	13100	e4100	e23000	27000	8690	9580	13500	3920	5790	2450	12900
28	5170	11400	e3600	e24000	25700	7490	8910	10400	3000	4740	2760	11000
29	4970	12200	e4200	21000	---	6530	8270	9690	2880	4830	6110	10200
30	4780	10600	e3900	19200	---	5920	7770	9440	3570	4560	6210	10300
31	4760	---	e4500	17400	---	5270	---	8500	---	4360	5380	---
TOTAL	145920	314200	240850	550900	858200	358640	447370	523110	114730	206380	107980	408100
MEAN	4707	10470	7769	17770	30650	11570	14910	16870	3824	6657	3483	13600
MAX	7740	15800	13000	25800	58900	22000	30700	33500	8230	13900	6210	25400
MIN	3260	4750	3600	7000	16300	5270	5290	4970	2650	2120	2450	3030

CAL YR 1989 TOTAL 4203130 MEAN 11520 MAX 53600 MIN 2050
WTR YR 1990 TOTAL 4276380 MEAN 11720 MAX 58900 MIN 2120

e Estimated

CLARION RIVER BASIN

03026500 SEVENMILE RUN NEAR RASSELAS, PA

LOCATION.--Lat 41°37'52", long 78°34'37", McKean County, Hydrologic Unit 05010005, on right bank 300 ft upstream from highway bridge, 600 ft upstream from Fivemile Run, and 3.2 mi northeast of Rasselas.

DRAINAGE AREA.--7.84 mi^2.

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

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,690.73 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--39 years, 14.6 ft^3/s, 25.29 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,300 ft^3/s, Sept. 13, 1987, gage height, 5.30 ft, from rating curve extended above 600 ft^3/s on basis of slope-area measurement at gage height 4.60 ft; minimum, 0.07 ft^3/s, Sept. 21, 1955.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 15	2300	217	3.81	Apr. 11	0100	*255	*3.98

Minimum discharge, 0.77 ft^3/s, Oct. 10, gage height, 1.72 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	.95	13	13	e22	15	11	9.7	7.0	7.7	2.1	4.1	4.8
2	1.4	8.1	12	e17	42	7.8	23	6.5	6.7	1.8	3.3	4.2
3	1.7	7.6	11	e13	45	9.3	23	5.4	6.2	1.6	3.1	3.7
4	1.1	7.3	e10	e10	57	8.9	21	5.8	5.8	1.4	2.9	3.3
5	.92	7.0	e9.0	e27	44	7.5	22	12	5.3	1.3	11	3.4
6	.85	7.5	e8.0	e18	36	6.7	26	8.8	4.8	1.2	8.3	4.4
7	.85	8.7	e7.4	e15	30	9.1	24	7.5	4.4	1.1	5.3	35
8	.84	15	e7.0	e13	27	8.3	21	6.8	4.3	1.1	4.2	21
9	.81	24	e6.4	e12	31	5.6	19	6.3	4.4	2.5	3.6	39
10	.80	23	e6.0	e10	52	9.5	37	10	4.0	2.1	3.3	56
11	4.2	21	e5.6	e9.2	39	26	129	12	3.5	2.0	2.9	31
12	1.7	19	e5.4	e8.4	31	20	57	10	3.1	45	2.7	23
13	1.4	16	e5.2	e7.8	26	18	40	27	2.9	25	4.2	18
14	1.3	15	e4.9	e7.4	26	16	32	31	2.7	15	4.9	17
15	1.2	16	e4.6	e7.0	68	15	31	24	2.5	14	3.0	61
16	1.2	49	e4.5	e6.8	154	14	24	33	2.3	15	2.5	38
17	9.8	39	e4.3	e18	94	60	21	52	2.2	9.6	2.3	32
18	7.8	30	e4.2	76	61	44	19	47	4.3	7.0	1.9	25
19	19	24	e4.1	52	44	34	17	36	3.1	5.5	1.9	36
20	25	23	e4.0	42	30	27	15	30	2.5	5.0	1.9	42
21	18	24	e4.0	38	24	25	18	33	2.3	5.3	1.9	30
22	15	19	e3.9	32	21	25	15	25	2.1	4.7	1.9	39
23	12	16	e3.9	26	23	22	14	20	2.0	40	3.8	30
24	10	14	e3.9	24	21	18	13	18	2.5	20	3.6	27
25	8.7	13	e4.0	27	18	16	12	15	4.6	14	2.6	23
26	7.4	16	e3.8	32	30	15	11	14	2.7	11	2.0	20
27	6.6	15	e3.7	27	16	13	9.8	12	2.1	8.3	1.8	17
28	5.8	17	e3.7	21	9.3	12	8.7	10	1.8	6.8	3.1	15
29	5.4	16	e3.7	20	---	11	7.8	11	2.0	5.7	24	13
30	4.9	14	e3.6	17	---	11	7.5	14	3.1	4.8	9.0	21
31	5.6	---	e6.0	16	---	10	---	9.5	---	4.5	6.0	---
TOTAL	182.22	537.2	180.8	671.6	1114.3	535.7	727.5	559.6	107.9	284.4	137.0	732.8
MEAN	5.88	17.9	5.83	21.7	39.8	17.3	24.2	18.1	3.60	9.17	4.42	24.4
MAX	25	49	13	76	154	60	129	52	7.7	45	24	61
MIN	.80	7.0	3.6	6.8	9.3	5.6	7.5	5.4	1.8	1.1	1.8	3.3
CFSM	.75	2.28	.74	2.76	5.08	2.20	3.09	2.30	.46	1.17	.56	3.12
IN.	.86	2.55	.86	3.19	5.29	2.54	3.45	2.66	.51	1.35	.65	3.48

CAL YR 1989 TOTAL 6585.35 MEAN 18.0 MAX 465 MIN .62 CFSM 2.30 IN. 31.25
WTR YR 1990 TOTAL 5771.02 MEAN 15.8 MAX 154 MIN .80 CFSM 2.02 IN. 27.38

e Estimated

CLARION RIVER RASIN

03027500 EAST BRANCH CLARION RIVER AT EAST BRANCH CLARION RIVER DAM, PA

LOCATION.--Lat 41°33'11", long 78°35'47", Elk County, Hydrologic Unit 05010005, on left bank 700 ft upstream from Middle Fork, 0.5 mi downstream from East Branch Clarion River Dam, and 1.2 mi northeast of Glen Hazel.

DRAINAGE AREA.--73.2 mi^2.

PERIOD OF RECORD.--October 1948 to current year.

REVISED RECORDS.--WSP 1235: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,517.58 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.--No estimated daily discharge. Records good. Flow completely regulated since June 1952 by East Branch Clarion River Lake 0.5 mi upstream. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--42 years, 138 ft^3/s, 25.60 in/yr, adjusted for storage since 1952.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,590 ft^3/s, May 10, 1957, gage height, 7.25 ft; minimum, 0.20 ft^3/s, July 25, 1969, gage height, 1.06 ft; minimum daily, 0.40 ft^3/s, July 24-27, 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 28, 1946 reached a stage of 8.3 ft, from graph based on gage readings at site 1,000 ft downstream and at different datum, discharge, 4,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 823 ft^3/s, Feb. 18, gage height, 4.43 ft; minimum daily, 39 ft^3/s, Mar. 7-29, 31, Apr. 1-26.

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	132	173	133	54	215	66	39	41	67	164	151	145
2	132	202	108	53	248	66	39	40	67	164	164	168
3	132	205	107	53	248	65	39	40	68	164	163	168
4	131	204	91	54	248	65	39	47	75	164	162	156
5	132	203	80	55	337	65	39	46	80	164	162	148
6	117	203	80	55	489	50	39	41	94	164	162	149
7	107	204	80	55	526	39	39	40	104	174	163	150
8	107	204	79	55	520	39	39	40	104	180	162	172
9	107	203	79	54	519	39	39	40	104	192	162	187
10	107	203	79	55	519	39	39	41	104	188	174	215
11	107	203	79	54	587	39	39	41	117	181	180	227
12	107	203	79	54	621	39	39	41	125	180	180	226
13	89	203	80	54	554	39	39	41	138	118	183	226
14	77	203	80	54	514	39	39	41	145	88	172	228
15	77	203	80	54	334	39	39	41	156	89	161	230
16	78	203	80	44	126	39	39	41	164	88	171	230
17	77	230	80	42	228	39	39	41	164	86	176	233
18	77	244	64	41	649	39	39	148	165	86	176	232
19	77	242	52	41	807	39	39	428	142	110	175	233
20	76	241	52	41	795	39	39	525	128	124	172	234
21	112	240	52	41	520	39	39	538	137	125	172	232
22	134	238	52	41	147	39	39	532	143	126	172	234
23	134	236	52	41	70	39	39	529	143	105	171	233
24	132	235	52	41	69	39	39	383	143	90	170	232
25	132	235	52	41	67	39	39	209	122	89	170	230
26	131	235	51	41	67	39	39	164	128	88	170	231
27	130	233	51	41	67	39	162	147	142	87	169	230
28	130	233	51	41	67	39	204	135	155	86	159	229
29	130	233	51	41	---	39	42	96	166	114	128	228
30	128	194	51	82	---	40	41	69	165	128	116	230
31	130	---	53	158	---	39	---	68	---	128	89	---
TOTAL	3469	6491	2210	1631	10158	1353	1463	4674	3755	4034	5057	6266
MEAN	112	216	71.3	52.6	363	43.6	48.8	151	125	130	163	209
MAX	134	244	133	158	807	66	204	538	166	192	183	234
MIN	76	173	51	41	67	39	39	40	67	86	89	145
†	-73.2	-63.9	-22.8	+141	+5.4	+119	+178	+39.0	-85.7	-45.5	-119	-20.2
MEAN‡	38.8	152	48.5	194	368	163	227	190	39.3	84.5	44.0	189
CFSM‡	.53	2.08	.66	2.65	5.03	2.22	3.10	2.60	.51	1.15	.60	2.58
IN.‡	.61	2.32	.76	3.06	5.24	2.56	3.46	3.00	.57	1.33	.69	2.88

CAL YR 1989 TOTAL 56010 MEAN 153 MAX 1080 MIN 27 ADJ -3.0 MEAN‡ 150 CFSM‡ 2.05 IN.‡ 27.85
WTR YR 1990 TOTAL 50561 MEAN 139 MAX 807 MIN 39 ADJ +4.4 MEAN‡ 143 CFSM‡ 1.95 IN.‡ 26.48

† Change in contents, equivalent in cubic feet per second, in East Branch Clarion River Lake.
‡ Adjusted for change in reservoir contents.

CLARION RIVER BASIN

03028000 WEST BRANCH CLARION RIVER AT WILCOX, PA

LOCATION.--Lat 41°34'31", long 78°41'33", Elk County, Hydrologic Unit 05010005, on right bank 20 ft downstream from highway bridge at Wilcox, 100 ft downstream from Wilson Run, and 0.1 mi upstream from Penn Central Railroad bridge.

DRAINAGE AREA.--63.0 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 1,502.02 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 18, 1953, nonrecording gage at site 20 ft upstream at same datum. Nov. 18 to Dec. 8, 1953, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--37 years, 126 ft^3/s, 27.16 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,490 ft^3/s, Sept. 28, 1967, gage height, 10.01 ft, from rating curve extended above 3,000 ft^3/s; maximum gage height, 10.11 ft June 20, 1989, minimum discharge, 4.2 ft^3/s, Sept. 21, 1955.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 15	2400	*1,420	*5.22	Apr. 11	0200	1,380	5.15

Minimum discharge, 13 ft^3/s, Oct. 10, gage height, 1.44 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	16	88	104	e135	136	e80	95	69	66	31	45	36
2	23	57	97	140	397	e86	224	63	60	27	38	33
3	24	58	89	124	427	e94	212	57	57	24	34	30
4	19	57	e80	102	567	85	234	69	56	22	32	26
5	16	54	e72	208	463	77	244	111	50	21	117	28
6	16	56	e64	172	388	72	266	78	45	20	69	29
7	16	68	e60	162	333	66	243	71	44	19	46	177
8	15	109	e54	140	288	72	215	68	45	18	38	78
9	15	154	e50	131	288	75	189	66	45	30	34	242
10	14	157	e56	118	416	104	325	97	40	25	32	352
11	28	161	e62	105	353	245	889	94	35	30	29	209
12	21	145	e52	97	316	204	570	81	32	396	27	156
13	18	125	e48	82	276	204	439	240	30	219	44	122
14	16	114	e45	81	261	190	344	266	29	148	43	122
15	16	128	e42	77	533	172	315	240	27	142	28	472
16	15	379	e41	83	1110	160	239	319	26	134	25	303
17	101	313	e40	179	815	468	208	448	25	94	24	260
18	56	265	e39	522	545	396	177	449	68	77	23	201
19	146	212	e38	446	426	361	150	379	36	65	23	285
20	157	196	e36	369	326	305	135	318	30	64	23	309
21	117	195	e35	381	252	256	165	304	28	67	23	234
22	102	147	e34	301	218	231	132	220	25	61	22	326
23	80	129	e34	241	232	199	119	180	25	358	36	248
24	69	114	e34	244	196	172	110	153	33	174	31	237
25	61	104	e33	251	144	155	108	130	58	143	27	190
26	54	128	e33	276	e115	139	99	114	32	115	22	179
27	48	120	e32	224	e130	122	89	100	26	91	21	149
28	44	136	e32	207	e110	108	82	85	24	75	33	124
29	40	115	e32	193	---	100	78	105	40	64	156	112
30	37	107	e31	173	---	106	75	111	48	69	52	178
31	48	---	e60	145	---	99	---	75	---	62	41	---
TOTAL	1448	4191	1559	6109	10061	5203	6770	5160	1185	2885	1238	5447
MEAN	46.7	140	50.3	197	359	168	226	166	39.5	93.1	39.9	182
MAX	157	379	104	522	1110	468	889	449	68	396	156	472
MIN	14	54	31	77	110	66	75	57	24	18	21	26
CFSM	.74	2.22	.80	3.13	5.70	2.66	3.58	2.64	.63	1.48	.63	2.88
IN.	.86	2.47	.92	3.61	5.94	3.07	4.00	3.05	.70	1.70	.73	3.22

CAL YR 1989 TOTAL 48677.2 MEAN 133 MAX 1920 MIN 8.8 CFSM 2.12 IN. 28.74
WTR YR 1990 TOTAL 51256 MEAN 140 MAX 1110 MIN 14 CFSM 2.23 IN. 30.27

e Estimated

CLARION RIVER BASIN

03028500 CLARION RIVER AT JOHNSONBURG, PA

LOCATION.--Lat 41°29'10", long 78°40'43", Elk County, Hydrologic Unit 05010005, on left bank at downstream side of highway bridge at Johnsonburg, 0.1 mi downstream from Johnson Run, and 0.4 mi downstream from confluence of East and West Branches.

DRAINAGE AREA.--204 mi^2.

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WSP 1235: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,423.03 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 8, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated since June 1952 by East Branch Clarion River Lake 7.9 mi upstream and at low flow by industrial plants above station. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--45 years, 384 ft^3/s, 25.56 in/yr, adjusted for storage since 1952.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,700 ft^3/s, May 28, 1946, gage height, 9.2 ft, from graph based on gage readings; maximum gage height, 9.94 ft, June 22, 1972; minimum discharge, 6 ft^3/s, Sept. 18, 1952, gage height, 0.68 ft, result of regulation above station; minimum daily, 20 ft^3/s, Oct. 5, 1948, Nov. 6, 1951.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1942 reached a stage of 16.7 ft, from floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,340 ft^3/s, Feb. 15, gage height, 6.23 ft; minimum daily, 76 ft^3/s, Dec. 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	156	385	340	299	469	238	196	156	181	222	215	182
2	175	335	294	228	954	240	456	140	166	208	220	210
3	178	333	279	201	1040	239	442	127	175	207	210	204
4	161	330	238	245	1380	206	465	151	169	204	205	190
5	155	318	227	435	1200	196	486	280	162	191	367	179
6	142	319	262	359	1160	176	522	191	161	187	316	207
7	125	334	250	336	1080	130	471	169	174	198	245	379
8	126	454	194	309	997	131	427	152	179	202	225	282
9	126	570	163	287	987	155	379	140	197	224	211	465
10	126	564	197	290	1210	212	601	197	175	228	214	750
11	148	567	200	265	1150	500	1750	205	170	225	221	522
12	137	529	186	253	1120	421	1060	175	171	842	216	460
13	116	480	165	213	1000	412	799	483	175	572	235	419
14	91	465	e150	207	934	387	629	639	186	370	251	399
15	90	1070	e140	204	1410	348	589	566	189	340	197	924
16	88	878	e130	207	2280	322	464	695	197	345	196	692
17	232	805	e120	361	1540	786	415	958	193	263	206	651
18	192	740	e110	999	1460	679	356	1020	246	225	200	560
19	365	628	e105	880	1450	621	304	1090	204	216	201	644
20	432	602	e100	723	1280	557	277	1060	166	231	204	737
21	401	572	e96	799	974	480	335	1080	164	279	202	598
22	391	510	e90	659	549	452	277	946	169	244	202	718
23	339	473	e88	534	461	396	250	878	171	721	220	619
24	303	444	e84	527	417	342	233	715	184	446	221	597
25	283	427	e82	542	328	308	236	480	236	372	209	538
26	263	457	e82	569	262	282	217	389	166	309	198	550
27	250	435	e80	480	283	250	288	344	172	262	193	507
28	234	478	e78	448	275	219	408	293	181	224	210	465
29	222	452	e78	422	---	204	179	302	236	217	383	441
30	216	385	e76	412	---	221	172	300	267	225	191	522
31	241	---	e92	433	---	207	---	211	---	233	145	---
TOTAL	6504	15339	4776	13126	27650	10317	13683	14532	5582	9232	6929	14611
MEAN	210	511	154	423	987	333	456	469	186	298	224	487
MAX	432	1070	340	999	2280	786	1750	1090	267	842	383	924
MIN	88	318	76	201	262	130	172	127	161	187	145	179
†	-73.2	-63.9	-22.8	+141	+5.4	+119	+178	+39.0	-85.7	-45.5	-119	-20.2
MEAN‡	137	447	131	564	992	452	634	508	100	252	105	467
CFSM‡	.67	2.19	.64	2.67	4.86	2.22	3.11	2.49	.49	1.24	.51	2.29
IN.‡	.77	2.44	.74	3.19	5.06	2.55	3.47	2.87	.55	1.43	.59	2.55

CAL YR 1989 TOTAL 155199 MEAN 425 MAX 5060 MIN 76 ADJ -3.0 MEAN‡ 422 CFSM‡ 2.07 IN.‡ 28.08
WTR YR 1990 TOTAL 142281 MEAN 390 MAX 2280 MIN 76 ADJ +4.4 MEAN‡ 394 CFSM‡ 1.93 IN.‡ 26.21

† Change in contents, equivalent in cubic feet per second, in East Branch Clarion River Lake.
‡ Adjusted for change in reservoir contents.

e Estimated

CLARION RIVER BASIN

03029500 CLARION RIVER AT COOKSBURG, PA

LOCATION.--Lat 41°19'50", long 79°12'33", Jefferson County, Hydrologic Unit 05010005, on left bank at downstream side of bridge on State Highway 36 at Cooksburg, 300 ft downstream from Toms Run, and 2.7 mi upstream from Cathers Run.

DRAINAGE AREA.--807 mi^2.

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for October, November 1938, published in WSP 1305.

REVISED RECORDS.--WSP 1305: 1939 (M). WDR PA-85-3: 1979 (M).

GAGE.--Water-stage recorder. Datum of gage is 1,147.00 ft above National Geodetic Vertical Datum of 1929. Prior to May 17, 1939, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated by East Branch Clarion River Lake since June 1952 and at low flow by industrial plants above station. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--52 years, 1,459 ft^3/s, 24.55 in/yr, adjusted for storage since 1952.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,300 ft^3/s, June 23, 1972, gage height, 18.84 ft; minimum, 41 ft^3/s, Aug. 30, 1939, gage height, 1.22 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1935, 19 ft, Mar. 17, 1936, from floodmarks, discharge, about 56,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 10,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 16	1100	*14,800	*10.54	Apr. 11	1200	12,900	9.91

Minimum daily discharge, 200 ft^3/s, Dec. 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	313	798	1170	e1560	1750	e980	1080	905	963	741	897	518
2	315	963	1060	2880	2780	e920	1770	839	837	602	751	482
3	350	794	1000	2230	6190	e860	2720	780	778	508	678	497
4	360	768	906	2030	7060	e840	2340	735	803	468	621	470
5	323	733	859	2740	7410	e800	2420	1080	744	442	761	446
6	306	700	897	2650	5010	e780	2480	1310	675	415	1410	434
7	300	702	984	2170	4160	e740	2280	1010	677	392	1360	625
8	279	1020	990	1850	3510	e700	2080	919	764	386	1220	964
9	276	1300	780	1590	3150	e720	1830	842	1270	415	863	758
10	281	2010	e660	1460	3680	e900	1870	850	2000	573	741	2230
11	288	1980	e600	1440	3790	1360	9650	1260	1290	536	676	1630
12	308	1790	e520	1290	3230	1870	6200	1040	1040	1740	637	1160
13	313	1500	e480	1100	2900	1670	4290	1210	893	4590	609	975
14	287	1320	e440	946	2640	1570	3320	3040	800	2120	733	877
15	255	1290	e400	1000	3490	1470	3140	2430	722	1520	695	2300
16	242	2190	e380	991	12300	1370	2650	2520	749	1520	549	2410
17	267	3800	e360	1490	7730	2080	2230	4390	670	1240	510	2500
18	899	2630	e330	4170	5160	3750	1960	5500	647	953	497	1840
19	805	2180	e320	4730	4400	2760	1640	4320	727	804	481	1560
20	1530	1880	e300	3410	3690	2790	1470	3570	642	726	510	2330
21	1400	1950	e280	3820	3100	2380	1620	3500	543	2680	520	1900
22	1080	1700	e270	4270	2440	2230	1710	3040	512	3830	522	1700
23	967	1440	e260	3260	2160	2010	1420	2510	495	7030	524	1900
24	820	1290	e250	2870	2060	1760	1260	2210	529	4610	588	1680
25	730	1180	e240	2950	1780	1550	1190	1770	784	2900	580	1560
26	667	1190	e230	2870	1290	1400	1280	1440	899	2090	513	1390
27	616	1270	e220	2510	e1150	1270	1120	1290	591	1580	469	1670
28	573	1250	e220	2210	e1050	1150	1140	1120	520	1240	479	1360
29	543	1490	e210	2020	---	1060	1140	1070	486	1040	997	1190
30	512	1270	e200	2050	---	1050	943	1610	643	909	1140	1260
31	506	---	e500	1850	---	1120	---	1260	---	888	655	---
TOTAL	16711	44378	16316	72407	109060	45910	70243	59370	23693	49488	22186	40616
MEAN	539	1479	526	2336	3895	1481	2341	1915	790	1596	716	1354
MAX	1530	3800	1170	4730	12300	3750	9650	5500	2000	7030	1410	2500
MIN	242	700	200	946	1050	700	943	735	486	386	469	434
†	-73.2	-63.9	-22.8	+141	+5.4	+119	+178	+39.0	-85.7	-45.5	-119	-20.2
MEAN‡	466	1415	503	2477	3900	1600	2519	1954	704	1550	597	1334
CFSM‡	.58	1.75	.62	3.07	4.83	1.98	3.12	2.42	.87	1.92	.74	1.65
IN.‡	.67	1.95	.71	3.54	5.03	2.28	3.48	2.79	.97	2.21	.85	1.84

CAL YR 1989 TOTAL 587998 MEAN 1611 MAX 29000 MIN 140 ADJ -3.0 MEAN‡ 1608 CFSM‡ 1.99 IN.‡ 27.01
WTR YR 1990 TOTAL 570378 MEAN 1563 MAX 12300 MIN 200 ADJ +4.4 MEAN‡ 1567 CFSM‡ 1.94 IN.‡ 26.32

† Change in contents, equivalent in cubic feet per second, in East Branch Clarion River Lake.
‡ Adjusted for change in reservoir contents.

e Estimated

CLARION RIVER BASIN

03030500 CLARION RIVER NEAR PINEY, PA

LOCATION.--Lat 41°11'33", long 79°26'25", Clarion County, Hydrologic Unit 05010005, on left bank 0.2 mi downstream from hydroelectric plant of Pennsylvania Electric Co., 2.3 mi northeast of Piney, 2.4 mi upstream from Piney Creek, and 3 mi southwest of Clarion.

DRAINAGE AREA.--951 mi^2.

PERIOD OF RECORD.--October 1944 to current year (monthly discharge only October 1944 to September 1947).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,002.06 ft above National Geodetic Vertical Datum of 1929 (Pennsylvania Electric Co. bench mark). Prior to Dec. 23, 1947, records from hydroelectric plant 0.2 mi upstream.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Flow regulated by East Branch Clarion River Lake since June 1952 and by hydroelectric plant at Piney Dam 0.2 mi upstream since 1924, combined capacity of reservoirs, 113,200 acre-ft. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--46 years, 1,782 ft^3/s, 25.45 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 74,500 ft^3/s, June 23, 1972, gage height, 28.24 ft, from floodmark, from rating curve extended above 17,000 ft^3/s on basis of slope-area measurement at gage height 20.70 ft, in gage well, 21.8 ft, from outside high-water profile; minimum not determined.

EXTREMES OUTSIDE PERIOD OF RECORD.--The flood of Mar. 18, 1936 reached a discharge of 50,000 ft^3/s, as determined by Pennsylvania Electric Co., elevation, 1,028.5 ft, at lower pool of dam.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,800 ft^3/s, Feb. 16, gage height, 13.92 ft; minimum daily, 23 ft^3/s, Oct. 14, 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	30	639	1620	e1540	2460	1210	401	675	1570	848	1030	560
2	29	1330	965	e2210	3260	1230	2590	704	927	1380	1040	409
3	251	652	26	e2240	6330	1210	3170	736	552	740	915	40
4	237	26	1670	e1980	8470	858	3170	1770	1100	57	359	1070
5	457	27	1270	e1860	8920	1590	2910	374	742	777	927	391
6	e1310	1300	327	e2730	6240	1840	3090	737	729	e836	1580	809
7	24	e815	1040	e2740	5300	1470	2390	1460	1260	43	1660	1630
8	24	638	639	e2430	4460	1090	1250	1800	1220	41	1710	1420
9	e801	1330	328	e1950	4440	1640	2150	1070	2060	e1020	848	1370
10	e564	2560	27	e1960	3960	143	2560	704	2800	623	867	3280
11	e529	e1950	963	2090	4850	1440	9900	2590	1500	e582	718	1780
12	e286	1510	e1560	1270	3260	2070	7740	704	1550	2660	194	2120
13	e246	1640	e1630	1070	3950	2440	5270	36	1230	5220	958	1410
14	23	1340	320	401	2880	2440	4390	3510	732	2660	723	739
15	23	e1800	672	1920	4200	2860	4330	3430	918	1370	711	3040
16	e330	e3120	31	1750	15200	1690	3100	3070	909	1870	715	2630
17	e561	e4240	27	1420	9550	1840	2790	4880	538	1830	910	2870
18	247	2850	e630	3720	6380	e4160	2670	6350	1090	791	370	1890
19	e1830	1520	e413	5790	5680	e3620	2640	5420	556	1110	367	2010
20	e2120	e2330	e272	4640	4590	e3230	2560	4310	e1060	960	1060	2840
21	e1300	e1940	e1570	4570	4690	e2780	748	4900	905	2580	366	2320
22	e812	e3130	e1240	5180	3200	e2780	1250	3950	e843	4680	691	1790
23	e1060	832	e60	4420	2820	3260	2150	2480	36	7500	656	1670
24	e1060	1290	e63	3050	2190	1250	1810	2280	389	6010	593	1830
25	e1080	1300	e62	4410	2010	1430	1790	1750	1280	4270	356	1680
26	e1190	810	e786	3400	2360	2100	1480	2050	1210	2200	38	1810
27	e1510	1650	e940	2970	1990	1410	2540	1060	758	2040	e1360	1790
28	27	1630	e906	2220	1980	1780	46	1050	565	1410	540	2130
29	27	1920	e1170	2650	---	1820	394	1250	754	887	901	1580
30	e1550	1150	e85	2360	---	1840	2510	2150	40	1400	1380	889
31	e779	---	e80	1910	---	56	---	1540	---	866	897	---
TOTAL	20317	47269	21392	82851	135620	58577	83789	68790	29823	59261	25440	49797
MEAN	655	1576	690	2673	4844	1890	2793	2219	994	1912	821	1660
MAX	2120	4240	1670	5790	15200	4160	9900	6350	2800	7500	1710	3280
MIN	23	26	26	401	1980	56	46	36	36	41	38	40
†	-95.8	-56.6	-59.4	+116	-24.4	+145	+158	+76.5	-74.7	-54.9	-130	-24.5
MEAN‡	559	1519	631	2789	4820	2035	2951	2295	919	1857	691	1636
CFSM‡	.59	1.60	.66	2.93	5.07	2.14	3.10	2.41	.97	1.95	.73	1.72
IN.‡	.68	1.79	.76	3.38	5.28	2.46	3.46	2.78	1.08	2.25	.84	1.92

CAL YR 1989 TOTAL 717751 MEAN 1966 MAX 33400 MIN 23 ADJ -1.4 MEAN‡ 1973 CFSM‡ 2.07 IN.‡ 28.07
WTR YR 1990 TOTAL 680160 MEAN 1863 MAX 15200 MIN 23 ADJ +4.4 MEAN‡ 1875 CFSM‡ 1.97 IN.‡ 22.68

† Change in contents, equivalent in cubic feet per second, in East Branch Clarion River Lake and Piney Reservoir. Records of contents in Piney Reservoir furnished by Pennsylvania Electric Co.
‡ Adjusted for change in reservoir contents.

e Estimated

OHIO RIVER MAIN STEM

03031500 ALLEGHENY RIVER AT PARKER, PA

LOCATION.--Lat 41°06'02", long 79°40'53", Armstrong County, Hydrologic Unit 05010006, on right bank 500 ft downstream from bridge on State Highway 368 at Parker, 1.1 mi downstream from Clarion River, and at mile 83.4.

DRAINAGE AREA.--7,671 mi^2.

PERIOD OF RECORD.--October 1932 to current year. Prior to October 1963, published as "at Parkers Landing." Gage-height records collected at same site since 1885 are contained in reports of U.S. Weather Bureau.

GAGE.--Water-stage recorder. Datum of gage is 845.14 ft above National Geodetic Vertical Datum, adjustment of 1907. Prior to Oct. 1, 1932, U.S. Weather Bureau gages at different datums. Oct. 1-28, 1932, nonrecording gage at datum 27.00 ft lower.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated since 1965 by Allegheny Reservoir, since 1949 by Chautauqua Lake, since 1941 by Tionesta Lake, since 1971 by Union City Reservoir, since 1974 by Woodcock Creek Lake, since 1952 by East Branch Clarion River Lake, and since 1924 by Piney Reservoir. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--58 years, 13,620 ft^3/s, 24.11 in/yr, adjusted for storage from October 1940 to September 1975.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 175,000 ft^3/s, Jan. 22, 1959; maximum gage height, 29.60 ft, Jan. 21, 1959 (backwater from ice); minimum discharge, 409 ft^3/s, July 30, 1934, gage height, 0.67 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 17, 1865, reached a stage of 29.4 ft, present datum, discharge, 250,000 ft^3/s, from rating curve extended above 137,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 92,200 ft^3/s, Feb. 16, gage height, 15.90 ft; minimum discharge, 2,380 ft^3/s, July 7, gage height, 1.67 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	4390	6350	11600	e12500	21000	26900	6170	10100	10800	4570	6120	6420
2	4300	6200	11100	18900	30100	22600	11100	7460	10100	5190	5060	5510
3	5180	8310	14100	18500	52300	19400	16800	6410	7840	4460	5130	4310
4	5180	7000	15200	e17000	50500	17600	17200	7300	7950	3920	4510	4410
5	4770	6620	15300	e25000	49300	16000	16900	7740	6540	3470	4680	4130
6	5250	7050	14300	27000	38800	14300	16400	13200	5580	3410	7150	5740
7	4540	7520	14700	24700	37800	13100	15800	14200	6680	3040	6260	16500
8	3650	7850	14600	24200	34100	12400	13900	13500	6230	2740	5650	19900
9	4040	10600	14100	23100	31700	11900	13300	13700	8790	3610	4730	21600
10	4440	13600	12800	21300	32500	12100	13800	12000	9990	6130	5000	38200
11	4250	13100	13400	21100	36400	12500	42000	12200	7690	5560	3960	31100
12	4390	14700	13700	18800	32200	16100	39700	11600	6240	11800	4000	25200
13	4350	13000	13800	15200	33400	16700	34600	11400	5660	19600	4040	19100
14	4120	10300	13000	13000	32800	15500	35300	22600	5200	11000	6330	14600
15	3810	10200	11200	12800	42100	14400	39500	27300	4870	18300	6020	21000
16	3780	11100	8550	13300	85500	12500	36600	28600	4380	22900	5970	22600
17	4050	19400	6160	16300	60800	12600	33900	38900	4370	19400	5430	28200
18	4960	21400	5130	31000	49400	19800	27600	41900	4140	17000	4940	24800
19	5890	18700	5660	40100	47300	19100	22200	41300	3960	15700	4080	21300
20	9330	17000	5270	36300	45800	20600	19700	41300	4180	12800	4890	24800
21	10300	16500	e5000	36600	42600	20600	19100	40200	5070	11500	4820	23300
22	9470	18500	e4900	38300	39000	19000	18500	38900	4070	13000	3950	19700
23	8940	18200	e4800	35500	34600	17600	18100	36200	4350	27600	4180	21600
24	8830	17800	e4600	33500	33300	15200	17100	33300	3780	24600	4040	24300
25	8240	17200	e4500	34600	33900	13600	15000	31100	5900	18400	3620	27100
26	7920	16100	e5200	29200	31400	13500	13600	26100	5420	14300	3470	24000
27	7770	16500	e5800	27300	31100	12200	13400	18500	5530	10300	3560	18500
28	5900	14000	e4500	27700	30100	10700	11500	13300	4580	7270	3930	14600
29	5460	15300	e5800	26600	---	10100	9980	13000	3910	7260	7060	13400
30	5780	14900	e5200	25400	---	9090	10700	14300	4080	6960	9120	12800
31	6070	---	e4400	22800	---	7330	---	11800	---	6270	7820	---
TOTAL	179350	395000	288370	767600	1119800	475020	619450	659410	177880	342060	159520	558720
MEAN	5785	13170	9302	24760	39990	15320	20650	21270	5929	11030	5146	18620
MAX	10300	21400	15300	40100	85500	26900	42000	41900	10800	27600	9120	38200
MIN	3650	6200	4400	12500	21000	7330	6170	6410	3780	2740	3470	4130

CAL YR 1989 TOTAL 5528770 MEAN 15150 MAX 93100 MIN 2570
WTR YR 1990 TOTAL 5742180 MEAN 15730 MAX 85500 MIN 2740

e Estimated

REDBANK CREEK BASIN

03032500 REDBANK CREEK AT ST. CHARLES, PA

LOCATION.--Lat 40°59'40", long 79°23'40", Armstrong County, Hydrologic Unit 05010006, on left bank 400 ft downstream from highway bridge on SR 1005 at St. Charles, 0.3 mi downstream from Leatherwood Creek, and 3 mi west of New Bethlehem.

DRAINAGE AREA.--528 mi^2.

PERIOD OF RECORD.--Annual maximums, water years 1910-18. October 1918 to current year. Monthly discharge only for some periods, published in WSP 1305. Figures of daily discharge for November 1920 to June 1921, published in WSP 523, are unreliable and should not be used.

REVISED RECORDS.--WSP 743: Drainage area. WSP 1385: 1919, 1936-39 WDR PA-72-1: 1923 (M), 1926 (M), 1928 (M), 1936, 1937 (M), 1938 (M), 1943, 1945 (P), 1952 (M), 1953 (M), 1955 (M), 1956 (P), 1958 (M), 1959 (M), 1964, 1966 (M). See also PERIOD OF RECORD.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 973.14 ft above National Geodetic Vertical Datum of 1912. Prior to July 10, 1940, nonrecording gage at site 500 ft upstream at datum 3.10 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--72 years, 873 ft^3/s, 22.45 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft^3/s, Mar. 18, 1936, gage height, 18.60 ft, from floodmarks, site and datum then in use; minimum observed, 19 ft^3/s, Oct. 1, 1918.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 16	--	e9,000	--	July 12	2200	*11,300	*11.89

Minimum daily discharge, 100 ft^3/s, Oct. 16.

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	112	280	542	e700	e1300	e640	710	598	599	983	607	537
2	126	332	412	e2200	e2000	e600	1460	548	506	779	491	469
3	143	291	445	e1800	e4000	e540	1770	499	458	501	413	419
4	141	248	393	e1600	e4400	e520	1470	488	431	386	371	378
5	126	222	318	e2200	e4700	e500	1420	748	412	335	919	383
6	115	204	e340	e2100	e3500	e480	1360	866	379	305	2250	425
7	108	192	e370	e1700	e2400	e460	1260	679	1360	274	3010	2610
8	102	211	e370	e1500	2890	e440	1170	585	1120	275	1710	1700
9	102	536	e300	e1300	2570	e460	1050	531	2160	620	1120	1510
10	102	1040	e330	e1100	2990	e540	1140	522	2940	860	844	2560
11	121	970	e380	e1000	2940	e800	4720	568	2050	779	692	2020
12	124	778	e350	e900	2490	e1200	3710	531	1370	5960	590	1390
13	120	617	e320	e780	2220	e1000	2600	549	1020	6190	564	1040
14	113	514	e290	e700	2080	e940	2000	928	807	3870	846	849
15	106	480	e270	e700	e4000	e1000	1790	815	1420	2350	735	1020
16	100	1280	e250	e700	e7800	e1200	1510	1330	1240	2040	538	1110
17	115	1940	e230	e1100	e5400	e1500	1290	3140	926	1460	457	1040
18	128	1270	e220	e2100	e4000	e3200	1150	3060	669	1090	416	886
19	423	935	e210	e3000	e3000	e2300	986	2190	581	870	417	752
20	715	770	e190	e2200	e2200	e1800	888	1590	508	743	944	877
21	575	721	e180	e2500	e1700	e1500	1540	1350	447	1250	719	859
22	459	639	e170	e2700	e1500	e1400	1610	1200	395	2150	610	848
23	355	538	e160	e2100	e1300	e1200	1270	952	359	2960	540	914
24	287	469	e160	e1800	e1100	e1000	1100	801	353	2680	528	893
25	243	428	e150	e1900	e960	e920	980	697	618	1890	507	841
26	216	457	e140	e1800	e860	841	890	702	681	1320	454	774
27	194	483	e140	e1600	e800	766	813	706	462	1030	414	815
28	179	574	e140	e1400	e700	696	733	595	358	848	388	730
29	167	735	e130	e1300	---	664	670	636	328	752	1100	620
30	158	624	e130	e1250	---	647	619	903	369	659	1050	618
31	159	---	e250	e1150	---	711	---	789	---	634	698	---
TOTAL	6234	18778	8280	48880	75800	30465	43679	30096	25326	46843	24942	29887
MEAN	201	626	267	1577	2707	983	1456	971	844	1511	805	996
MAX	715	1940	542	3000	7800	3200	4720	3140	2940	6190	3010	2610
MIN	100	192	130	700	700	440	619	488	328	274	371	378
CFSM	.38	1.19	.51	2.99	5.13	1.86	2.76	1.84	1.60	2.86	1.52	1.89
IN.	.44	1.32	.58	3.44	5.34	2.15	3.08	2.12	1.78	3.30	1.76	2.11

CAL YR 1989 TOTAL 341141 MEAN 935 MAX 8480 MIN 73 CFSM 1.77 IN. 24.03
WTR YR 1990 TOTAL 389210 MEAN 1066 MAX 7800 MIN 100 CFSM 2.02 IN. 27.42

e Estimated

MAHONING CREEK BASIN

03034000 MAHONING CREEK AT PUNXSUTAWNEY, PA

LOCATION.--Lat 40°56'21", long 79°00'31", Jefferson County, Hydrologic Unit 05010006, on right bank 75 ft downstream from Williams Run, 1.9 mi downstream from Sawmill Run, and 2 mi west of Punxsutawney.

DRAINAGE AREA.--158 mi^2.

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

REVISED RECORDS.--WDR PA-87-3: 1977-86 (P).

GAGE.--Water-stage recorder. Datum of gage is 1,206.14 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Oct. 1, 1946, at site 2.9 mi upstream at datum 13.30 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are fair. Diurnal fluctuations at low flow by mine pumpage into stream above station. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--52 years, 276 ft^3/s, 23.72 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,300 ft^3/s, June 23, 1972, gage height, 15.94 ft, from floodmark in gage well, from rating curve extended above 4,300 ft^3/s on basis of slope-area measurement at gage height 13.01 ft; maximum gage height, 16.22 ft, July 20, 1977; minimum discharge, 2.6 ft^3/s, Sept. 26, 1939.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936, reached a stage of 15.6 ft, from floodmark at former site and datum, discharge, 12,500 ft^3/s, from rating curve extended above 4,300 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 4	1630	2,560	5.95	July 12	2200	*7,870	*10.77
June 15	0930	4,230	7.74				

Minimum daily discharge, 29 ft^3/s, Dec. 29, 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	30	76	113	e550	537	215	214	191	199	831	157	90
2	55	63	106	437	850	217	379	177	177	419	135	83
3	53	54	105	285	1190	225	409	161	168	306	123	77
4	38	51	85	274	1830	206	397	175	184	242	115	72
5	34	47	104	722	1640	194	408	374	158	242	255	70
6	33	46	98	509	1060	189	410	270	140	216	386	76
7	33	48	142	389	755	167	386	224	516	175	219	600
8	31	48	143	318	584	163	365	203	395	152	171	330
9	31	71	119	263	500	183	325	186	818	202	143	313
10	33	109	103	263	614	253	425	213	939	558	129	686
11	41	105	e90	249	523	261	1570	240	604	629	119	441
12	41	96	e74	243	459	247	1040	187	438	3580	114	307
13	36	83	e62	207	410	236	721	212	348	4200	130	244
14	33	75	e54	183	392	224	565	294	285	1600	180	209
15	32	74	e50	188	572	212	508	244	2650	1190	122	347
16	31	323	e46	215	1190	204	426	677	1300	1210	104	266
17	35	354	e45	360	1050	287	384	1010	642	753	97	289
18	38	221	e43	643	761	297	332	825	475	542	91	221
19	97	171	e42	572	623	295	282	607	402	423	89	213
20	114	150	e40	529	497	396	255	480	318	356	142	260
21	95	144	e39	1380	414	344	542	428	267	410	115	209
22	75	120	e37	1240	384	329	481	368	232	372	110	243
23	62	108	e35	855	373	299	415	318	231	457	105	225
24	54	98	e34	724	364	266	371	275	212	432	105	208
25	50	93	e34	617	301	245	327	243	357	322	96	185
26	46	100	e33	548	244	229	292	281	241	260	88	176
27	43	102	e31	454	250	207	260	247	192	226	83	181
28	42	120	e30	427	239	192	235	212	169	200	80	154
29	41	145	e29	426	---	182	216	244	172	183	198	140
30	40	117	e29	712	---	219	209	314	216	166	137	134
31	43	---	e35	591	---	222	---	236	---	182	102	---
TOTAL	1460	3412	2030	15373	18606	7405	13149	10116	13445	21036	4240	7049
MEAN	47.1	114	65.5	496	664	239	438	326	448	679	137	235
MAX	114	354	143	1380	1830	396	1570	1010	2650	4200	386	686
MIN	30	46	29	183	239	163	209	161	140	152	80	70
CFSM	.30	.72	.41	3.14	4.21	1.51	2.77	2.07	2.84	4.29	.87	1.49
IN.	.34	.80	.48	3.62	4.38	1.74	3.10	2.38	3.17	4.95	1.00	1.66

CAL YR 1989 TOTAL 101824 MEAN 279 MAX 2980 MIN 27 CFSM 1.77 IN. 23.97
WTR YR 1990 TOTAL 117321 MEAN 321 MAX 4200 MIN 29 CFSM 2.03 IN. 27.62

e Estimated

MAHONING CREEK BASIN

03034500 LITTLE MAHONING CREEK AT McCORMICK, PA

LOCATION.--Lat 40°50'10", long 79°06'37", Indiana County, Hydrologic Unit 05010006, on left bank 200 ft upstream from highway bridge at McCormick, 1 mi west of Georgeville, 1.7 mi upstream from Ross Run, and 4 mi southeast of Smicksburg.

DRAINAGE AREA.--87.4 mi^2.

PERIOD OF RECORD.--October 1939 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,164.88 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to May 10, 1940, nonrecording gage at site 200 ft upstream at same datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--51 years, 152 ft^3/s, 23.62 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,200 ft^3/s, June 23, 1972, maximum gage helght, 14.03 ft, Feb. 25, 1977 (backwater from ice); minimum discharge, 0.3 ft^3/s, Sept. 28, 1959.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 31	--	--	ice jam	July 13	0200	*3,490	*10.36

Minimum daily discharge, 11 ft^3/s, Oct. 1, 17.

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	55	89	e820	329	e98	95	62	72	82	35	17
2	32	41	77	585	587	107	310	55	63	54	28	16
3	29	32	70	403	758	92	315	50	57	37	25	15
4	19	31	69	443	1110	79	267	56	58	30	23	14
5	15	27	84	716	834	76	268	250	52	29	39	13
6	14	26	66	410	530	71	271	162	45	60	66	14
7	14	26	e56	293	373	57	236	119	82	37	37	168
8	14	25	e48	219	277	57	216	96	81	28	28	66
9	14	49	e44	172	231	67	182	81	338	226	24	57
10	14	84	e38	182	412	125	231	148	325	813	23	97
11	14	63	e34	180	328	119	960	219	190	806	21	53
12	17	56	e33	163	267	109	540	126	126	1650	20	40
13	16	48	e31	116	220	99	366	119	94	2000	21	33
14	13	43	e29	116	200	91	273	113	75	743	38	31
15	12	41	e28	117	304	84	241	231	158	596	25	144
16	12	413	e27	140	582	79	192	1440	101	516	20	126
17	11	348	e26	224	461	126	160	1000	71	315	18	248
18	15	178	e25	411	329	143	134	627	59	210	16	104
19	97	118	e24	341	271	133	105	405	51	149	18	81
20	97	104	e24	393	208	215	93	293	48	119	23	105
21	81	95	e23	1080	160	169	267	239	44	160	23	73
22	62	75	e22	726	146	152	221	181	39	110	22	151
23	42	65	e22	478	141	133	173	135	39	102	20	121
24	33	57	e21	395	136	110	143	106	39	85	18	91
25	29	61	e20	316	e100	95	124	88	71	65	17	71
26	26	61	e20	279	e82	85	106	120	61	53	16	61
27	24	73	e19	218	e92	73	92	99	56	46	15	60
28	21	139	e19	210	e90	68	81	77	32	40	15	50
29	21	141	e18	222	---	64	73	95	33	36	54	43
30	25	98	e30	547	---	69	68	142	49	33	33	41
31	21	---	e120	380	---	83	---	90	---	37	21	---
TOTAL	865	2673	1256	11295	9558	3128	6803	7024	2609	9267	802	2204
MEAN	27.9	89.1	40.5	364	341	101	227	227	87.0	299	25.9	73.5
MAX	97	413	120	1080	1110	215	960	1440	338	2000	66	248
MIN	11	25	18	116	82	57	68	50	32	28	15	13
CFSM	.32	1.02	.46	4.17	3.91	1.15	2.59	2.59	1.00	3.42	.30	.84
IN.	.37	1.14	.53	4.81	4.07	1.33	2.90	2.99	1.11	3.94	.34	.94

CAL YR 1989 TOTAL 56361.4 MEAN 154 MAX 1770 MIN 7.1 CFSM 1.77 IN. 23.99
WTR YR 1990 TOTAL 57484 MEAN 157 MAX 2000 MIN 11 CFSM 1.80 IN. 24.47

e Estimated

MAHONING CREEK BASIN

03036000 MAHONING CREEK AT MAHONING CREEK DAM, PA

LOCATION.--Lat 40°55'39", long 79°17'29", Armstrong County, Hydrologic Unit 05010006, on left bank at downstream side of highway bridge at McCrea Furnace, 700 ft downstream from Camp Run, 0.9 mi downstream from Mahoning Creek Dam, 1 mi southwest of Eddyville, and 2.1 upstream from Pine Run.

DRAINAGE AREA.--344 mi^2.

PERIOD OF RECORD.--August 1938 to current year. Monthly discharge only for August 1938, published in WSP 1305.

REVISED RECORDS.--WSP 1305: 1941 (adjusted monthly runoff).

GAGE.--Water-stage recorder. Datum of gage is 1,003.39 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Feb. 1, 1940, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow completely regulated since 1941 by Mahoning Creek Lake 0.9 mi upstream. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--52 years, 599 ft^3/s, 23.65 in/yr, adjusted for storage since June 1941.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,400 ft^3/s, Mar. 8, 1942, gage height, 8.10 ft; minimum daily, 4.6 ft^3/s, July 26, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,100 ft^3/s, July 17, gage height, 6.91 ft; minimum daily, 39 ft^3/s, Oct. 8, 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	60	184	355	231	1870	476	372	283	502	324	283	245
2	94	204	351	571	1440	404	457	284	322	597	267	147
3	114	204	317	824	877	430	675	284	272	816	197	102
4	114	201	199	829	965	475	971	240	272	573	176	102
5	115	201	141	1280	1900	404	1130	211	272	275	193	105
6	100	201	222	1690	3230	360	972	258	272	290	258	106
7	65	201	283	1670	3380	356	876	427	278	352	451	171
8	39	201	283	1330	2870	291	873	540	288	230	542	366
9	39	213	207	906	2210	294	865	455	333	251	386	610
10	51	212	210	754	1930	316	746	334	768	592	282	1000
11	61	303	264	598	1880	440	740	286	1680	2130	236	1400
12	75	369	264	644	1430	482	1630	289	2020	2840	173	1100
13	87	366	264	660	1100	482	2570	295	1420	1610	152	670
14	86	320	192	457	936	420	1950	450	699	1220	182	466
15	86	287	138	427	882	438	1200	580	1100	2950	204	342
16	86	306	110	473	960	476	1190	647	2270	4350	204	296
17	87	617	101	480	1700	500	1020	702	2220	4640	204	431
18	87	914	123	659	2910	631	770	1640	1410	4910	204	637
19	143	653	121	1220	2240	695	588	2770	775	4130	151	690
20	175	460	151	1280	1340	715	531	2700	588	3040	108	600
21	319	300	e150	974	858	772	541	2290	447	2110	105	464
22	420	240	e150	1230	723	771	778	1420	392	1750	104	345
23	347	288	e150	1920	723	764	930	829	324	1250	104	442
24	250	285	e150	2110	722	678	923	738	277	922	130	542
25	218	283	e140	1530	713	544	912	544	346	702	148	412
26	216	281	129	1580	439	490	758	401	469	469	148	296
27	216	280	e130	2030	505	486	577	478	442	400	147	296
28	213	250	127	1670	431	414	445	527	286	336	147	296
29	172	253	124	1440	---	365	392	449	203	294	224	296
30	153	304	115	1440	---	366	327	396	256	301	284	299
31	154	---	136	1730	---	367	---	557	---	254	282	---
TOTAL	4442	9381	5797	34637	41164	15102	26709	22304	21203	44908	6676	13274
MEAN	143	313	187	1117	1470	487	890	719	707	1449	215	442
MAX	420	914	355	2110	3380	772	2570	2770	2270	4910	542	1400
MIN	39	184	101	231	431	291	327	211	203	230	104	102
†	-28.6	-38.6	-11.4	+42.8	-44.5	+2.1	+30.6	+47.2	-3.4	-1.6	+3.2	-5.0
MEAN‡	114	274	176	1160	1426	489	921	766	704	1447	218	437
CFSM‡	.33	.80	.51	3.37	4.15	1.42	2.68	2.23	2.05	4.21	.63	1.27
IN.‡	.38	.89	.59	3.89	4.32	1.64	2.99	2.57	2.29	4.85	.73	1.42

CAL YR 1989 TOTAL 230066 MEAN 630 MAX 3970 MIN 26 ADJ -0.3 MEAN‡ 630 CFSM‡ 1.83 IN.‡ 24.87
WTR YR 1990 TOTAL 245597 MEAN 673 MAX 4910 MIN 39 ADJ -0.1 MEAN‡ 673 CFSM‡ 1.96 IN.‡ 26.56

† Change in contents, equivalent in cubic feet per second, in Mahoning Creek Lake.
‡ Adjusted for change in reservoir contents.

e Estimated

OHIO RIVER MAIN STEM

03036500 ALLEGHENY RIVER AT KITTANNING, PA

LOCATION.--Lat 40°49'13", long 79°31'54", Armstrong County, Hydrologic Unit 05010006, on right bank 600 ft upstream from dam at lock 7 at Kittanning, 5.7 mi upstream from Crooked Creek, 9.7 mi downstream from Mahoning Creek, and at mile 45.8.

DRAINAGE AREA.--8,973 mi^2.

PERIOD OF RECORD.--August 1904 to September 1928, October 1934 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 873: Drainage Area. WSP 1305: 1906 (M), 1914, 1925. WSP 1435: 1936-37, 1939.

GAGE.--Water-stage recorder and concrete dam control. Datum of gage is 771.32 ft above National Geodetic Vertical Datum, adjustment of 1912. Prior to Sept. 30, 1928, nonrecording gage at site 4,000 ft downstream at different datum. Oct. 1, 1934, to Apr. 19, 1939, nonrecording gage at present site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated since 1965 by Allegheny Reservoir, since 1949 by Chautauqua Lake, since 1941 by Tionesta Lake, since 1971 by Union City Reservoir, since 1974 by Woodcock Creek Lake, since 1942 by East Branch Clarion River Lake, since 1924 by Piney Reservoir, and since 1941 by Mahoning Creek Lake. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--80 years (1904-28, 1934-90), 15,840 ft^3/s, 23.97 in/yr, adjusted for storage 1940-75.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 269,000 ft^3/s, Mar. 26, 1913, gage height, 30.7 ft, from floodmark, site and datum then in use; minimum observed, 570 ft^3/s, Sept. 15-17, 1913.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 103,000 ft^3/s, Feb. 16, gage height, 20.07 ft; minimum daily, 3,350 ft^3/s, July 8.

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	4690	6580	13600	e12000	26200	29000	7860	12500	13300	5800	8420	8180
2	4610	6710	12400	23900	31900	25100	11400	9470	12300	6820	6650	7000
3	4950	8260	14300	22600	59400	21200	18900	7850	10100	7070	6570	5720
4	5600	8300	15500	23200	59600	19100	21000	7750	8730	5650	5890	4550
5	5150	7260	16400	33300	63500	17500	20500	9570	8490	4400	6260	5460
6	4980	7100	15700	37600	49000	16200	20300	12200	6970	4520	9110	5510
7	5510	8270	15600	30900	46200	14700	19100	16000	9120	4150	10700	16500
8	3980	7930	17500	29500	41700	13600	17900	14900	9140	3350	9410	24700
9	3750	10400	16500	28000	37700	12900	16100	15600	11200	8000	8090	23300
10	4200	13900	15400	25400	36800	14100	15700	13700	16800	12300	6230	40000
11	4520	15300	14800	25000	42200	13200	44400	12800	13800	11000	5890	37500
12	4560	15700	15100	22500	37100	17600	51300	13800	11100	27400	5200	30600
13	4530	14800	15200	21800	36600	18200	41900	12400	9830	40000	4690	23600
14	4470	11800	14700	18800	36200	19200	40200	20100	7880	23400	6730	18300
15	6820	11300	e13000	15800	41600	15900	42700	29200	8280	18800	7520	20100
16	3870	12400	e10000	17700	93000	15100	41100	33300	9150	33900	7310	25400
17	4120	19800	e8000	18500	73200	15100	37900	44300	8760	27900	6500	28700
18	4750	24100	e6000	30300	57700	22500	32900	49200	7120	25600	5560	27900
19	5820	21600	e6600	46200	53300	22800	25500	47600	6320	22800	4820	24200
20	9130	18800	e6400	42200	50400	24100	22600	46900	5450	19700	5090	25500
21	11500	18100	e6000	43500	46200	24400	23300	45000	6090	15300	6190	26500
22	11000	18300	e5600	46200	41500	23700	22100	42700	5920	18400	4990	22100
23	10000	19400	e5600	42600	38500	20800	21500	41700	5480	28200	4900	23200
24	9590	19100	e5400	39500	34500	19000	20300	36100	4860	32200	4830	24900
25	9250	18400	e5600	40400	33400	16300	18500	33700	5870	23100	4680	28700
26	8690	17500	e6000	35400	32100	16200	16500	29900	7420	18600	4230	27100
27	8150	17700	e6600	31800	30100	14500	15400	22600	7090	13400	3710	21900
28	7590	15600	e5400	32100	31000	11600	14900	16300	6330	9750	4840	17000
29	5920	16300	e7000	30900	---	11500	11500	14800	4950	8350	6500	16000
30	5730	16800	e6000	31200	---	10700	11100	16400	5200	7800	10700	14700
31	6920	---	e5400	28600	---	10100	---	14600	---	8290	9850	---
TOTAL	194350	427510	327300	927400	1260600	545900	724360	742940	253050	495950	202060	624820
MEAN	6269	14250	10560	29920	45020	17610	24150	23970	8435	16000	6518	20830
MAX	11500	24100	17500	46200	93000	29000	51300	49200	16800	40000	10700	40000
MIN	3750	6580	5400	12000	26200	10100	7860	7750	4860	3350	3710	4550

CAL YR 1989 TOTAL 6282570 MEAN 17210 MAX 102000 MIN 2320
WTR YR 1990 TOTAL 6726240 MEAN 18430 MAX 93000 MIN 3350

e Estimated

CROOKED CREEK BASIN

03038000 CROOKED CREEK AT IDAHO, PA

LOCATION.--Lat 40°39'17", long 79°20'56", Armstrong County, Hydrologic Unit 05010006, on right bank at downstream end of old bridge abutment at Idaho, 0.4 mi downstream from Keystone Generation Station, 1.5 mi downstream from Plum Creek, and 2.4 mi west of Shelocta.

DRAINAGE AREA.--191 mi^2.

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for some periods published in WSP 1305.

REVISED RECORDS.--WSP 1385: 1938, 1945.

GAGE.--Water-stage recorder and concrete weir control. Datum of gage is 961.04 ft above National Geodetic Vertical Datum of 1929 (Baltimore and Ohio Railroad bench mark).

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated to some extent since March 1968 by Keystone Lake 7 mi upstream, usable capacity, 22,010 acre-ft. Evaporation from operation of steam-electric plant 0.4 mi upstream, which began during July 1967, can amount to as much as 30 ft^3/s. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--53 years, 293 ft^3/s, 20.83 in/yr, adjusted for storage since March 1968.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,200 ft^3/s, June 23, 1972, gage height, 15.93 ft; minimum daily, 1.0 ft^3/s, Oct. 22, 1966, result of abnormal regulation.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1936 reached a stage of 18.6 ft, from floodmark, discharge, 19,400 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 1	0600	3,260	7.21	July 13	0500	*3,920	*8.11
Feb. 4	1700	3,090	7.00				

Minimum daily discharge, 25 ft^3/s, Dec. 29, 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	43	128	119	e2300	727	174	168	119	186	457	72	43
2	204	90	109	969	1110	177	461	107	145	149	57	46
3	109	80	107	596	1230	186	493	92	134	95	53	36
4	74	72	75	694	2230	155	469	112	125	66	51	35
5	61	64	97	1190	1910	150	502	365	101	57	97	33
6	55	53	95	745	1070	140	429	276	79	73	147	35
7	56	45	165	524	712	117	400	215	156	47	79	184
8	49	52	113	388	517	113	387	165	213	42	62	74
9	45	124	87	298	435	136	350	137	667	117	56	55
10	41	168	e80	319	799	159	422	213	562	907	53	82
11	58	133	e66	303	659	147	1930	244	348	679	49	39
12	46	122	e58	257	561	144	1150	164	227	1870	51	38
13	36	102	e52	197	451	136	733	175	167	3200	50	64
14	46	84	e47	155	411	131	561	157	132	1310	69	43
15	39	89	e42	193	565	128	481	124	284	1110	46	186
16	35	569	e41	223	1060	122	377	1040	167	1260	38	102
17	44	514	e39	228	1020	246	326	1370	121	631	35	166
18	54	322	e37	356	705	291	267	897	101	400	38	86
19	314	217	e35	343	573	319	215	580	99	272	46	76
20	341	178	e33	738	424	537	180	421	75	208	38	101
21	271	155	e31	2200	331	438	581	542	70	240	50	64
22	207	122	e30	1410	298	361	474	354	69	195	46	155
23	154	107	e29	879	283	310	384	251	87	169	42	138
24	124	90	e28	650	272	248	303	195	77	142	53	106
25	103	79	e28	500	226	212	240	156	134	107	46	88
26	88	92	e27	440	161	188	205	258	84	85	44	100
27	77	97	e26	347	187	155	171	193	57	76	38	96
28	69	137	e26	335	197	138	157	156	44	80	43	62
29	62	150	e25	447	---	129	137	283	39	64	149	48
30	51	128	e25	1240	---	140	130	359	133	60	81	45
31	55	---	e220	872	---	153	---	243	---	73	59	---
TOTAL	3011	4363	1992	20336	19124	6180	13083	9963	4883	14241	1838	2426
MEAN	97.1	145	64.3	656	683	199	436	321	163	459	59.3	80.9
MAX	341	569	220	2300	2230	537	1930	1370	667	3200	149	186
MIN	35	45	25	155	161	113	130	92	39	42	35	33

CAL YR 1989 TOTAL 115750 MEAN 317 MAX 4390 MIN 25
WTR YR 1990 TOTAL 101440 MEAN 278 MAX 3200 MIN 25

e Estimated

CROOKED CREEK BASIN

03039000 CROOKED CREEK AT CROOKED CREEK DAM, PA

LOCATION.--Lat 40°43'13", long 79°30'42", Armstrong County, Hydrologic Unit 05010006, on right bank 0.4 mi downstream from Crooked Creek Dam, 3.5 mi south of Ford City, and 6.7 mi upstream from mouth.

DRAINAGE AREA.--278 mi^2.

PERIOD OF RECORD.--October 1909 to current year. Published as "at Hileman's Farm" 1910-29 and as "near Ford City" 1930-39. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 743: Drainage area. WSP 1305: 1910-12, 1915-16, 1917 (M), 1918, 1922-27, 1928 (M), 1930 (M). WSP 1435: 1919-21, 1932-33, 1935.

GAGE.--Water-stage recorder. Datum of gage is 799.51 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Aug. 1, 1933, nonrecording gage at site 2 mi downstream at different datum. July 31, 1933, to Dec. 5, 1939, nonrecording gage at site 1.5 mi downstream at different datum.

REMARKS.--No estimated daily discharge. Records good. Flow completely regulated since 1940 by Crooked Creek Lake 0.4 mi upstream and since 1968 by Keystone Lake, combined Capacity, 115,910 acre-ft. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers Satellite telemeter at station.

AVERAGE DISCHARGE.--81 years, 421 ft^3/s, 20.57 in/yr, adjusted for storage from May 1940 to September 1968.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,000 ft^3/s, Mar. 18, 1936, gage height, 17.86 ft, from floodmark, site and datum then in use, from rating curve extended above 8,000 ft^3/s on basis of contracted-opening measurement of peak flow; minimum observed, 0.1 ft^3/s, Sept. 8, 11, 20, 25, 26, 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,420 ft^3/s, Feb. 6, gage height, 5.62 ft; minimum daily, 26 ft^3/s, Dec. 19.

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	88	80	203	e190	1670	293	218	210	465	259	113	173
2	89	80	203	e560	1240	333	289	210	330	426	112	90
3	91	111	203	e970	706	333	401	211	261	345	112	82
4	149	131	161	e1100	747	330	580	204	168	159	80	66
5	184	129	102	1650	1300	229	834	204	120	93	62	45
6	183	128	100	1920	2220	149	831	226	142	70	163	40
7	100	126	131	1880	2350	172	647	371	159	71	296	47
8	27	97	182	1800	2120	198	641	451	163	72	206	133
9	28	78	207	1410	1640	198	454	381	174	74	98	215
10	68	106	184	874	1120	198	322	268	412	343	103	216
11	94	242	168	526	1210	198	348	224	623	651	89	214
12	104	333	168	573	1080	217	1050	226	681	671	81	158
13	110	216	142	583	735	228	1790	288	751	739	77	93
14	110	110	127	355	635	226	1730	296	601	772	78	75
15	80	98	111	224	641	225	1570	350	609	1420	78	106
16	62	103	59	297	667	225	960	358	712	1990	75	126
17	62	284	27	344	991	234	463	385	390	1980	74	150
18	62	676	27	346	1370	346	392	1070	163	2040	74	194
19	62	672	26	523	1430	504	363	1790	193	1950	74	213
20	63	460	e45	658	1100	618	250	1710	210	1270	70	214
21	374	422	e70	707	630	826	213	1350	195	690	72	177
22	656	283	e80	960	418	820	467	734	120	474	72	136
23	509	159	e80	1660	420	506	664	425	72	213	72	171
24	282	142	e80	1820	420	418	659	423	88	175	53	201
25	154	142	e80	1210	358	357	547	290	105	201	33	201
26	132	142	e80	1030	228	256	434	211	177	150	33	201
27	133	142	e80	1220	149	216	431	215	216	124	94	201
28	132	142	e80	873	198	216	296	297	148	112	56	201
29	131	142	e80	591	---	216	210	408	73	83	154	127
30	131	180	e80	890	---	216	210	536	59	71	213	51
31	100	---	e80	1520	---	216	---	650	---	94	213	---
TOTAL	4550	6156	3446	29264	27793	9717	18264	14972	8580	17782	3180	4317
MEAN	147	205	111	944	993	313	609	483	286	574	103	144
MAX	656	676	207	1920	2350	826	1790	1790	751	2040	296	216
MIN	27	78	26	190	149	149	210	204	59	70	33	40

CAL YR 1989 TOTAL 161832 MEAN 443 MAX 2840 MIN 18
WTR YR 1990 TOTAL 148021 MEAN 406 MAX 2350 MIN 26

e Estimated

KISKIMINETAS RIVER BASIN

03039925 NORTH FORK BENS CREEK AT NORTH FORK RESERVOIR, PA

LOCATION.--Lat 40°15'58", long 79°01'01", Somerset County, Hydrologic Unit 05010007, at abandoned concrete bridge, 1,800 feet upstream from North Fork Reservoir, 3.2 mi north on SR 4029 from Forwardstown.

DRAINAGE AREA.--3.45 mi^2.

PERIOD OF RECORD.--October 1984 to September 1985, October 1987 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 1,600 ft above National Geodetic Vertical datum of 1929, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 92 ft^3/s, Mar. 31, 1985, gage height, 4.26 ft; minimum daily, 0.57 ft^3/s, Sept. 18, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 60 ft^3/s and maximum(*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
July 12	1830	*67	*3.94	No other peak greater than base discharge.			

Minimum daily discharge, 1.4 ft^3/s, Aug. 18, 19.

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	1.7	4.6	5.7	e11	10	4.9	8.1	5.2	15	6.1	2.9	1.7
2	2.6	4.0	e5.0	e8.0	20	5.0	10	4.8	13	3.1	2.5	1.7
3	2.0	4.0	e4.1	e6.2	32	5.0	11	4.4	12	1.9	2.4	1.8
4	1.7	4.0	e3.5	e7.0	39	5.0	11	5.9	11	1.9	2.4	1.8
5	1.7	4.0	e3.0	e8.5	32	5.0	15	13	8.7	4.2	2.8	1.8
6	1.8	3.9	e2.6	e10	23	5.0	23	16	6.8	2.6	2.6	1.8
7	1.9	3.8	e3.2	e9.0	18	4.5	19	15	6.5	2.1	2.2	4.9
8	1.8	3.9	e2.8	e8.0	15	4.6	16	13	12	1.9	2.0	3.0
9	1.9	5.9	e2.7	e7.0	13	4.8	14	11	17	4.0	1.9	5.8
10	1.9	5.4	e2.5	e6.2	16	5.9	14	13	15	4.9	1.9	7.1
11	2.4	5.4	e2.4	e5.8	15	5.7	18	11	13	5.1	1.8	6.2
12	2.1	5.3	e2.3	e5.4	14	5.8	18	10	12	28	1.8	6.0
13	2.2	4.8	e2.3	e5.0	13	5.9	16	13	9.6	53	1.8	5.6
14	2.2	4.8	e2.2	e4.5	14	5.9	14	15	9.3	39	1.9	5.6
15	2.1	4.8	e2.2	6.1	17	5.3	12	12	9.3	29	1.7	13
16	2.1	9.2	e2.5	7.7	18	5.1	10	14	6.8	22	1.6	12
17	3.6	8.2	e3.0	13	17	5.0	9.4	17	5.7	17	1.6	17
18	3.9	7.9	e2.6	26	15	4.7	8.4	14	5.6	15	1.4	15
19	8.9	7.0	e2.3	20	14	4.7	7.4	13	5.6	12	1.4	15
20	7.9	6.9	e2.3	25	11	5.1	6.9	11	5.0	12	2.0	14
21	8.0	6.3	e2.6	47	9.6	4.6	8.1	10	5.0	11	1.8	13
22	7.6	5.6	e2.4	34	8.8	4.6	7.8	8.4	4.0	9.6	2.6	14
23	6.6	5.5	e2.2	23	8.3	4.6	7.6	7.4	e3.3	7.7	2.5	12
24	5.9	5.1	e2.2	18	7.7	4.7	7.6	6.7	e3.5	7.1	1.9	14
25	5.4	4.8	e2.2	15	6.5	4.8	7.5	6.1	e3.7	5.2	1.8	14
26	4.7	7.0	e4.0	12	e5.4	5.0	7.4	10	e3.8	4.0	1.6	13
27	4.3	6.7	e3.5	10	e4.8	5.0	6.8	8.9	e3.0	3.5	1.5	12
28	4.1	6.8	e2.9	9.0	e4.7	4.8	6.3	9.4	e2.8	3.4	1.9	11
29	3.9	6.6	e2.8	10	---	4.8	6.2	13	e2.6	3.2	3.0	9.7
30	3.7	6.8	e3.3	13	---	4.7	5.8	17	2.6	3.0	2.0	9.1
31	4.5	---	e4.5	11	---	4.7	---	17	---	3.2	1.9	---
TOTAL	115.1	169.0	91.8	401.4	421.8	155.2	332.3	345.2	233.2	325.7	63.1	262.6
MEAN	3.71	5.63	2.96	12.9	15.1	5.01	11.1	11.1	7.77	10.5	2.04	8.75
MAX	8.9	9.2	5.7	47	39	5.9	23	17	17	53	3.0	17
MIN	1.7	3.8	2.2	4.5	4.7	4.5	5.8	4.4	2.6	1.9	1.4	1.7
CFSM	1.08	1.63	.86	3.75	4.37	1.45	3.21	3.23	2.25	3.05	.59	2.54
IN.	1.24	1.82	.99	4.33	4.55	1.67	3.58	3.72	2.51	3.51	.68	2.83

CAL YR 1989 TOTAL 2918.0 MEAN 7.99 MAX 56 MIN 1.3 CFSM 2.32 IN. 31.46
WTR YR 1990 TOTAL 2916.4 MEAN 7.99 MAX 53 MIN 1.4 CFSM 2.32 IN. 31.45

e Estimated

KISKIMINETAS RIVER BASIN

03039925 NORTH FORK BENS CREEK AT NORTH FORK RESERVOIR, PA--Continued

PERIOD OF RECORD.--Water years 1984-1985, October 1986 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	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 GRAN PLOT FIELD UEQ/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)
OCT 1989											
26...	1050	4.8	42	6.5	8.5	3.9	0.97	3.0	0.75	88	9.1
NOV											
30...	1000	6.0	45	6.4	2.5	3.6	1.0	2.2	0.64	46	--
DEC											
29...	1145	3.5	53	6.4	0.5	3.8	1.0	2.8	0.67	60	8.3
JAN 1990											
24...	1300	18	47	5.6	6.5	3.5	1.0	2.2	0.71	46	9.1
FEB											
28...	1030	5.2	49	6.1	2.0	3.5	1.0	2.7	0.71	56	9.9
MAR											
28...	1045	4.8	47	6.4	2.5	3.6	1.0	2.5	0.68	50	9.7
MAY											
09...	1145	11	46	6.0	11.0	3.5	1.0	2.4	0.69	48	8.7
JUN											
27...	1100	2.7	46	6.3	14.0	3.7	1.0	3.7	0.62	40	8.6
JUL											
25...	1100	4.2	48	6.2	13.5	3.5	0.96	3.0	0.61	20	8.9
AUG											
28...	1115	2.3	49	6.6	17.0	3.2	0.86	2.8	0.50	38	8.6
SEP											
28...	1100	3.8	48	6.3	11.0	--	--	--	--	22	--

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	BROMIDE DIS-SOLVED (MG/L AS BR)	SILICA, DIS-SOLVED (MG/L AS SIO2)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)
OCT 1989											
26...	6.1	0.05	<0.010	4.2	0.007	<0.001	30	8	8	0.9	0.400
NOV											
30...	--	0.09	<0.010	4.0	0.011	0.026	30	4	17	1.2	--
DEC											
29...	5.1	0.06	<0.010	3.7	0.014	0.001	20	12	8	1.0	0.500
JAN 1990											
24...	3.4	0.06	<0.010	4.0	0.030	<0.001	100	14	42	1.3	--
FEB											
28...	5.5	0.04	<0.010	3.8	0.039	0.250	60	8	21	0.7	0.420
MAR											
28...	9.1	0.07	0.010	3.9	0.021	0.540	40	11	13	0.8	0.430
MAY											
09...	4.4	0.06	0.010	4.0	0.028	0.001	50	13	25	0.8	0.530
JUN											
27...	6.9	0.07	<0.010	4.3	0.016	0.006	30	8	8	4.2	0.460
JUL											
25...	6.0	0.06	<0.010	4.2	0.009	0.004	40	8	15	0.7	0.420
AUG											
28...	6.0	0.08	<0.010	3.9	0.008	0.001	20	13	6	0.9	0.370
SEP											
28...	--	--	--	--	--	--	--	--	--	--	--

KISIMINETAS RIVER BASIN

03040000 STONYCREEK RIVER AT FERNDALE, PA

LOCATION.--Lat 40°17'08", long 78°55'15", Cambria County, Hydrologic unit 05010007, on right bank 50 ft upstream from highway bridge at Ferndale, 0.4 mi downstream from Bens Creek, 1.2 mi upstream from Johnstown city limits, and 5.2 mi upstream from confluence with Little Conemaugh River.

DRAINAGE AREA.--451 mi^2.

PERIOD OF RECORD.--October 1913 to March 1936, October 1938 to current year. Monthly discharge only for some periods, published in WSP 1305. Monthly figures adjusted for storage and diversion for October 1918 to September 1921, published in WSP 503, 523, have been found in error and should not be used. Published as "at Johnstown" 1914-36, and as "Stony Creek at Ferndale" 1938-79. Gage-height records collected in this vicinity since 1885 are contained in reports of U.S. Weather Bureau.

REVISED RECORDS.--WSP 743: Drainage area. WSP 1305: 1915, 1918, 1923-26. WSP 1435: 1920-21, 1932, 1941 (M), 1943 (M), 1945-46 (M). WDR PA-78-3: 1977 (M). See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 1,184.06 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 19, 1936, nonrecording gage at site 3.5 mi downstream at different datum. Dec. 8, 1938, to Jan. 30, 1940, nonrecording gage at site 50 ft downstream at present datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Regulation by mine pumpage and reservoirs and diversion above station; the four largest reservoirs have a combined capacity of 42,360 acre-ft. Figures of daily discharge do not include diversion from Stonycreek River and Quemahoning Creek Reservoir to plants of Bethlehem Steel Co., and from Mill Creek, Dalton Run, and North Fork Bens Creek Reservoirs for water supply of city of Johnstown. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--52 years, 765 ft^3/s, 23.03 in/yr, adjusted for storage and diversion 1938-81.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 59,000 ft^3/s, Mar. 18, 1936, gage height, 30.26 ft, from highwater mark, site and datum then in use, from rating curve extended above 13,000 ft^3/s on the basis of slope-area and contracted-opening measurements of peak flow; minimum observed, 5 ft^3/s, Sept. 8, 1929.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,480 ft^3/s, Jan. 21, gage height, 6.82 ft; minimum, 86 ft^3/s Aug. 18, 19, gage height, 2.37 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	122	530	419	e930	1110	473	484	319	1060	330	149	135
2	225	447	393	e1050	1800	468	1390	287	859	234	138	128
3	239	372	369	900	3570	493	1120	264	804	175	132	120
4	172	332	305	931	3630	512	941	349	778	151	121	113
5	145	299	347	2810	2920	461	1060	2080	669	207	151	106
6	144	287	334	1950	2010	422	1360	1810	544	193	162	106
7	158	265	e320	1250	1560	369	1260	1250	507	152	138	317
8	154	271	e290	992	1270	340	1080	956	825	138	127	127
9	159	467	e260	819	1140	354	953	782	1270	272	122	122
10	160	568	e240	802	2560	430	868	842	1000	451	117	1040
11	197	467	e220	769	2110	453	1260	881	727	318	109	649
12	195	402	e200	740	1550	440	1180	681	577	1080	108	388
13	168	360	e190	595	1290	398	1020	710	476	2070	106	685
14	154	329	e190	523	1400	369	902	748	400	1370	108	615
15	142	316	e180	553	1630	347	843	603	374	1050	100	1360
16	135	861	e180	853	1550	335	753	729	329	1110	92	1130
17	391	1080	e170	1420	1400	352	667	890	298	704	89	1070
18	873	759	e170	1640	1150	361	617	707	271	516	86	719
19	1980	614	e160	1410	1040	319	535	544	241	408	86	604
20	2030	579	e160	1600	900	355	488	497	231	378	212	723
21	1410	549	e160	3840	776	339	567	508	223	374	153	603
22	1040	482	e150	2810	730	334	601	451	209	373	248	575
23	811	440	e150	1850	715	324	527	394	213	327	455	663
24	652	405	e150	1420	690	290	471	348	205	274	398	579
25	558	368	e140	1190	591	300	425	313	207	231	284	453
26	490	492	e140	1110	472	316	376	1020	186	207	202	402
27	433	660	e140	934	502	306	338	1260	169	190	168	407
28	389	623	e140	843	514	280	315	983	161	174	169	343
29	347	548	e140	902	---	273	297	1400	153	162	226	291
30	320	470	e135	1460	---	269	339	2030	181	155	170	270
31	328	---	e200	1260	---	294	---	1400	---	150	151	---
TOTAL	14721	14642	6742	40156	40580	11376	23037	26036	14147	13924	5077	14843
MEAN	475	488	217	1295	1449	367	768	840	472	449	164	495
MAX	2030	1080	419	3840	3630	512	1390	2080	1270	2070	455	1360
MIN	122	265	135	523	472	269	297	264	153	138	86	106

CAL YR 1989 TOTAL 286366 MEAN 785 MAX 4340 MIN 100
WTR YR 1990 TOTAL 225281 MEAN 617 MAX 3840 MIN 86

e Estimated

KISKIMINETAS RIVER BASIN

03041000 LITTLE CONEMAUGH RIVER AT EAST CONEMAUGH, PA

LOCATION.--Lat 40°20'45", long 78°52'58", Cambria County, Hydrologic Unit 05010007, on right bank 1000 ft upstream from bridge on State Highway 271 at East Conemaugh, 300 ft downstream from Clapboard Run, and 2.7 mi upstream from confluence with Stonycreek River.

DRAINAGE AREA.--183 mi^2.

PERIOD OF RECORD.--April 1939 to current year.

REVISED RECORDS.--WSP 1305: 1939-50 (adjusted monthly runoff). WDR PA-78-3: 1977 (M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,211.29 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 1, 1940, July 21, 1977 to Dec. 13, 1979, and Feb. 7, 1984 to Sept. 30, 1984, nonrecording gage at site 1000 ft downstream at datum 3.0 ft lower. Feb. 2, 1940 to July 20, 1977, Dec. 14, 1979 to Feb. 6, 1984 and Oct. 1, 1984 to Oct. 4, 1989, water-stage recorder 1,100 ft downstream at same datum.

REMARKS.--Records fair. Flow regulated by reservoirs and diversion above station; the two most effective reservoirs have a combined capacity of 5,640 acre-ft. Figures of daily discharge do not include diversion at South Fork intake to Cambria plant of Bethlehem Steel Co., from Saltlick Run Reservior to city of Johnstown, and from Wilmore Reservior, capacity 3,145 acre-ft, to Franklin plant of Bethlehem Steel Co. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--51 years, 327 ft^3/s, 24.27 in/yr, adjusted for storage and diversion 1940-81.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,000 ft^3/s, July 20, 1977, gage height, 18.85 ft, from highwater mark, from rating curve extended above 5,200 ft^3/s on basis of slope-area measurements of peak flow and at gage height 8.86 ft; minimum, 3.4 ft^3/s, Sept. 28, Oct. 8, 9, 11, 1963, gage height, 1.08 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 17, 18, 1936, reached a discharge of 28,800 ft^3/s, by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,490 ft^3/s, Jan. 21, gage height, 11.64 ft; minimum daily, 56 ft^3/s, Oct. 16.

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	71	e230	169	e430	415	232	205	259	440	166	108	113
2	90	e200	155	e490	670	226	326	239	374	145	99	110
3	88	e170	153	534	1180	233	373	219	347	127	96	108
4	74	e140	144	335	1480	232	333	229	331	124	96	106
5	e66	e130	156	901	1120	225	419	700	292	127	107	108
6	e60	e120	153	544	804	220	691	574	262	135	144	105
7	e62	e115	e140	409	652	192	589	467	252	119	118	244
8	e64	e110	e130	346	545	185	526	393	327	115	103	169
9	e64	e200	e120	301	487	196	467	348	587	104	102	190
10	e66	e230	e110	300	990	233	448	415	407	159	98	557
11	e80	e200	e96	303	700	246	756	451	311	151	100	289
12	e84	e180	e88	296	598	256	623	361	266	526	116	232
13	e72	e150	e86	256	520	243	555	354	254	1110	103	188
14	e68	e140	e82	225	550	231	502	402	245	518	97	190
15	e62	e130	e80	229	710	222	485	313	359	411	91	709
16	e56	e350	e76	354	778	213	439	381	292	442	90	369
17	e110	e440	e74	585	677	214	396	458	236	314	86	398
18	e300	e350	e70	945	544	219	370	371	208	254	85	301
19	e820	e270	e68	655	501	205	329	317	199	216	81	306
20	e840	e240	e66	682	420	232	305	288	197	195	115	336
21	e600	e230	e64	1910	354	219	454	466	186	190	95	284
22	e450	e200	e62	1230	344	215	415	408	172	189	135	295
23	e350	e180	e62	792	341	210	351	348	183	177	183	311
24	e280	e170	e62	632	330	204	327	328	177	169	155	276
25	e230	e160	e60	534	290	203	315	293	167	144	131	245
26	e200	e200	e60	500	262	202	309	534	160	126	119	254
27	e180	e270	e60	395	262	191	285	415	144	118	118	278
28	e160	e270	e58	371	253	181	252	349	138	112	118	248
29	e150	e230	e58	380	---	177	236	482	136	108	154	233
30	e130	e200	e70	578	---	177	264	712	138	110	125	211
31	e140	---	e200	451	---	178	---	525	---	108	121	---
TOTAL	6067	6205	3032	16893	16777	6612	12345	12399	7787	7009	3489	7763
MEAN	196	207	97.8	545	599	213	411	400	260	226	113	259
MAX	840	440	200	1910	1480	256	756	712	587	1110	183	709
MIN	56	110	58	225	253	177	205	219	136	104	81	105

CAL YR 1989 TOTAL 143434 MEAN 393 MAX 5000 MIN 44
WTR YR 1990 TOTAL 106378 MEAN 291 MAX 1910 MIN 56

e Estimated

KISKIMINETAS RIVER BASIN

03041500 CONEMAUGH RIVER AT SEWARD, PA

LOCATION.--Lat 40°25'09", long 79°01'35", Westmoreland County, Hydrologic Unit 05010007, on left bank at upstream side of bridge on State Highway 56 at Seward, 2.0 mi downstream from Findley Run, and 9 mi northwest of Johnstown.

DRAINAGE AREA.--715 mi^2.

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

REVISED RECORDS.--WDR PA-78-3: 1936 (M), 1977 (M).

GAGE.--Water-stage recorder. Datum of gage is 1,076.01 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated by steel mills and reservoirs above station; the eight most effective reservoirs have a combined capacity of 51,850 acre-ft. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--52 years, 1,281 ft^2/s, 24.33 in/yr, adjusted for storage 1938-75.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 115,000 ft^2/s, July 20, 1977, gage height, 27.06 ft, from highwater mark, from slope-area measurement of peak flow; minimum not determined; minimum daily, 105 ft^3/s, Dec. 28, 29, 31, 1938.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936 reached a stage of 26.4 ft, from floodmarks, discharge, 75,000 ft^3/s, by contracted-opening measurement at site 6.7 mi downstream, adjusted for inflow.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,210 ft^3/s, Jan. 21, gage height, 6.50 ft; maximum gage height, 6.99 ft, Jan. 1 (backwater from ice), minimum daily discharge, 220 ft^3/s, Dec. 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	285	885	758	e1700	2160	923	856	799	2090	747	386	388
2	437	752	696	1890	2820	914	2150	730	1700	536	357	334
3	473	620	688	1450	5430	942	2010	669	1560	418	346	341
4	382	564	574	1420	5680	955	1730	778	1500	367	331	335
5	328	515	641	4300	4980	890	2060	3120	1280	441	376	330
6	335	514	617	3250	3630	831	2830	3080	1080	508	481	327
7	360	488	e580	2220	2950	740	2580	2380	1010	372	392	901
8	352	489	e540	1730	2460	695	2210	1880	1400	336	352	858
9	367	859	e500	1420	2170	741	1940	1550	2700	407	338	956
10	364	1070	e470	1410	3850	863	1800	1700	2030	957	326	2420
11	421	849	e440	1350	3520	914	2680	1860	1480	706	314	1490
12	420	720	e410	1300	2830	918	2450	1440	1180	2030	311	1010
13	374	639	e370	1070	2400	854	2130	1430	1010	4420	315	1090
14	347	608	e350	872	2490	802	1880	1610	891	2790	330	1190
15	336	581	e320	954	2990	758	1780	1270	949	2140	302	2600
16	340	1190	e310	1350	3050	739	1590	1440	833	2270	289	2000
17	582	2060	e300	2460	2820	765	1440	1910	677	1540	282	2040
18	1390	1440	e290	3170	2330	772	1320	1540	640	1140	258	1410
19	2930	1160	e280	2770	2090	742	1140	1230	649	919	238	1250
20	3110	1040	e270	2790	1810	832	1050	1080	605	828	707	1440
21	2380	1020	e260	6120	1530	777	1400	1460	566	852	418	1230
22	1750	876	e260	4950	1420	758	1410	1310	526	791	591	1200
23	1360	787	e250	3470	1390	756	1220	1120	559	762	935	1310
24	1110	729	e250	2790	1330	692	1110	1010	537	666	832	1200
25	945	640	e240	2360	1200	695	1040	897	541	570	631	961
26	816	825	e240	2200	943	718	946	1940	487	506	473	950
27	718	1130	e240	1830	1010	680	868	2280	440	462	430	978
28	645	1080	e230	1650	999	629	788	1820	431	414	442	844
29	578	963	e230	1720	---	613	742	2350	417	366	680	735
30	547	847	e220	2810	---	614	830	3480	467	387	493	636
31	571	---	e400	2440	---	636	---	2650	---	398	441	---
TOTAL	25353	25940	12224	71216	72282	24158	47980	51813	30235	30046	13397	32754
MEAN	818	865	394	2297	2581	779	1599	1671	1008	969	432	1092
MAX	3110	2060	758	6120	5680	955	2830	3480	2700	4420	935	2600
MIN	285	488	220	872	943	613	742	669	417	336	238	327

CAL YR 1989 TOTAL 512332 MEAN 1404 MAX 7500 MIN 220
WTR YR 1990 TOTAL 437398 MEAN 1198 MAX 6120 MIN 220

e Estimated

KISKIMINETAS RIVER BASIN

03042000 BLACKLICK CREEK AT JOSEPHINE, PA

LOCATION.--Lat 40°28'24", long 79°11'01", Indiana County, Hydrologic Unit 05010007, on right bank on upstream side of old concrete dam at Josephine, 0.9 mi upstream from Two Lick Creek, and 5 mi northeast of Blairsville.

DRAINAGE AREA.--192 mi^2.

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

REVISED RECORDS.--WSP 1385: 1952-54 (M). WDR PA-78-3: 1977 (M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 975.82 ft above National Geodetic Vertical Datum of 1912. Prior to Aug. 25, 1953, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Some regulation at low flow by mine pumpage above station. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--38 years, 369 ft^3/s, 26.10 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharges, 45,700 ft^3/s, July 20, 1977, gage height, 19.89 ft, from floodmark in gage well, from rating curve extended above 16,000 ft^3/s on basis of contracted-opening measurement at gage height 11.35 ft in gage well, 12.67 ft from outside floodmark and slope-area measurement at gage height 10.93 ft; minimum, 19 ft^3/s, Sept. 14, 1952, Nov. 4, 1953.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,700 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 31	--	ice jam	*6.30	Jan. 21	1400	*3,300	6.20
Jan. 5	--	--	ice jam				

Minimum discharge, 55 ft^3/s, Aug. 18, 19, gage height, 2.97 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	83	245	226	e300	662	253	278	265	396	225	124	73
2	131	197	213	e190	995	244	536	231	352	159	108	64
3	111	165	215	e130	1720	265	564	209	337	112	96	60
4	91	147	158	e350	1870	265	518	245	318	95	90	61
5	83	131	221	e1150	1480	253	591	669	265	93	118	61
6	85	124	208	870	972	211	960	620	218	103	255	63
7	91	125	e180	615	736	190	781	511	214	89	162	191
8	89	133	e160	509	585	187	650	430	270	77	119	181
9	92	213	e150	439	534	214	582	374	550	82	104	181
10	83	308	e140	463	1230	308	545	428	481	174	89	385
11	100	262	e130	463	832	338	1320	483	337	201	91	219
12	97	234	e125	435	645	317	917	372	264	679	87	149
13	90	205	e120	384	550	279	697	369	222	1600	79	216
14	84	186	e110	334	523	261	571	373	199	675	83	182
15	76	183	e105	370	629	250	549	311	234	538	77	334
16	71	568	e100	445	1110	233	482	418	213	779	73	295
17	95	646	e96	614	821	293	446	659	174	e300	69	273
18	165	406	e92	1040	617	316	420	536	151	e230	61	200
19	390	336	e90	861	541	298	360	448	138	e160	61	195
20	445	311	e88	1070	463	404	334	400	144	e140	90	316
21	365	309	e84	2800	385	352	558	1350	131	e270	83	252
22	287	271	e82	1790	385	325	547	814	125	e230	88	260
23	237	242	e80	1100	374	308	453	563	121	e190	108	277
24	201	215	e80	835	359	288	407	461	128	e180	112	228
25	179	193	e78	660	325	273	403	399	144	e150	89	194
26	159	256	e76	596	254	258	374	537	127	e125	79	174
27	144	317	e74	497	271	233	334	489	103	e120	72	182
28	132	288	e72	484	288	213	304	401	101	e130	76	355
29	122	274	e70	628	---	203	289	452	116	e120	164	174
30	114	247	e70	1200	---	206	308	626	128	e100	126	159
31	120	---	e105	794	---	215	---	468	---	e130	91	---
TOTAL	4612	7737	3798	22416	20156	8253	16078	14911	6701	8256	3124	5954
MEAN	149	258	123	723	720	266	536	481	223	266	101	198
MAX	445	646	226	2800	1870	404	1320	1350	550	1600	255	385
MIN	71	124	70	130	254	187	278	209	101	77	61	60
CFSM	.77	1.34	.64	3.77	3.75	1.39	2.79	2.51	1.16	1.39	.52	1.03
IN.	.89	1.50	.74	4.34	3.91	1.60	3.12	2.89	1.30	1.60	.61	1.15

CAL YR 1989 TOTAL 150456 MEAN 412 MAX 5550 MIN 57 CFSM 2.15 IN. 29.15
WTR YR 1990 TOTAL 121996 MEAN 334 MAX 2800 MIN 60 CFSM 1.74 IN. 23.64

e Estimated

KISKININETAS RIVER BASIN

03042260 YELLOW CREEK LAKE AT YELLOW CREEK STATE PARK, PA

LOCATION.--Lat 40°35'27", long 79°03'11", Indiana County, Hydrologic Unit 05010007, in gatehouse at right end of dam on Yellow Creek, at Yellow Creek State Park, 3 mi southwest of Penn Run.

DRAINAGE AREA.--52.5 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical datum of 1929 (Pennsylvania Department of Environmental Resources bench mark).

REMARKS.--Lake is formed by an earthfill dam with concrete spillway. Storage began July 11, 1971. Usable capacity, 13,800 acre-ft between elevation 1,245.5 ft, sill of 4-foot and 1.5 foot outlet gates, and 1,280.00 ft (spillway crest). No dead storage. Figures given herein represent usable contents. Lake is used for recreation. Dam built by Pennsylvania Department of Forests and Waters and now maintained by Pennsylvania Department of Environmental Resources.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 24,100 acre-ft, July 20, 1977, elevation, 1,290.29 ft; minimum (after first filling), 2,810 acre-ft, Apr. 14, 1975, elevation, 1,261.47 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 15,000 acre-ft, Jan. 21, elevation, 1,281.31 ft; minimum, 13,100 acre-ft, Sept. 6, elevation, 1,279.23 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in cfs)
	03042260 Yellow Creek Lake		
Sept. 30	1,279.40	13,300	-
Oct. 31	1,279.57	13,400	+ 1.63
Nov. 30	1,279.79	13,600	+ 3.36
Dec. 31	1,280.17	14,000	+ 6.51
CAL YR 1989	-	-	+ 0.28
Jan. 31	1,280.64	14,400	+ 6.51
Feb. 28	1,279.77	13,600	- 14.4
Mar. 31	e1,279.66	13,500	- 1.63
Apr. 30	1,279.77	13,600	+ 1.68
May 31	1,279.34	13,200	- 6.50
June 30	1,279.41	13,300	+ 1.68
July 31	1,279.37	13,200	- 1.63
Aug. 31	1,279.38	13,200	0.0
Sept. 30	1,279.57	13,400	+ 3.36
WTR YR 1990	-	-	+ 0.14

e Estimated

KISKIMINETAS RIVER BASIN

03042280 YELLOW CREEK NEAR HOMER CITY, PA

LOCATION.--Lat 40°34'18", long 79°06'13", Indiana County, Hydrologic Unit 05010007, on left bank 0.3 mi upstream from Central Indiana County Water Authority dam, 0.4 mi upstream from Ferrier Run, which has been diverted, and 3.5 mi northeast of Homer City.

DRAINAGE AREA.--57.4 mi^2, excludes that of Ferrier Run.

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

REVISED RECORDS.--WDR PA-76-3: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,140 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated since 1971 by Yellow Creek Lake (station 03042200) 4.2 mi upstream. Several measurements of water temperature were made during the year. Satellite telemeter at station.

AVERAGE DISCHARGE.--23 years, 106 ft^3/s, 25.08 in/yr, adjusted for storage beginning June 1971.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,000 ft^3/s, July 20, 1977, gage height 12.60 ft, from rating curve extended above 810 ft^3/s on basis of computation of peak flow over dam and flow over dam measurement at gage height 7.46 ft; minimum, 1.4 ft^3/s, July 19, 1969, gage height, 1.99 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 655 ft^3/s, Jan. 21, gage height, 3.87 ft; minimum daily, 17 ft^3/s, Sept. 5, 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	24	52	63	e120	248	70	64	73	87	28	24	25
2	30	54	59	318	270	66	113	65	71	27	23	22
3	29	54	57	238	357	65	153	59	66	24	21	20
4	26	53	53	208	409	65	170	70	55	22	20	19
5	22	48	51	303	423	64	184	131	54	20	49	17
6	21	44	49	288	325	61	220	159	42	20	82	17
7	e20	42	e48	225	255	56	232	184	40	19	78	32
8	e19	41	e45	179	203	51	219	189	47	18	66	35
9	e18	49	e41	148	179	51	204	162	104	19	56	36
10	e21	57	e37	137	215	60	205	156	147	31	48	43
11	e25	62	e33	128	234	65	403	156	115	61	40	45
12	e23	e56	e31	119	212	65	384	142	61	146	37	42
13	21	e50	e28	106	187	65	291	133	29	294	34	50
14	20	e46	e27	91	173	65	228	123	35	262	33	56
15	19	e41	e26	85	171	65	200	111	54	269	28	68
16	18	110	e25	90	253	64	176	199	52	398	26	72
17	18	142	e24	101	277	66	155	263	50	304	24	72
18	21	138	e23	117	238	70	140	256	41	167	23	68
19	58	123	e23	122	200	76	124	224	36	92	20	65
20	89	109	e22	183	173	97	108	201	33	72	24	75
21	100	103	e21	603	151	100	136	229	30	72	23	76
22	100	92	e21	550	133	100	157	227	28	74	24	76
23	94	81	e21	387	121	100	156	204	28	73	23	76
24	83	71	e20	291	111	96	144	149	27	66	21	74
25	73	63	e20	229	100	90	132	105	29	48	20	68
26	64	61	e19	196	87	82	117	107	29	33	20	64
27	55	66	e19	171	80	74	104	117	27	30	18	65
28	48	67	e19	156	77	67	94	107	25	29	19	61
29	42	67	e19	161	---	63	83	93	24	26	31	55
30	37	65	e18	268	---	60	81	115	25	25	30	50
31	38	---	e40	279	---	56	---	126	---	24	28	---
TOTAL	1276	2107	1002	6597	5862	2195	5177	4635	1491	2793	1013	1544
MEAN	41.2	70.2	32.3	213	209	70.8	173	150	49.7	90.1	32.7	51.5
MAX	100	142	63	603	423	100	403	263	147	398	82	76
MIN	18	41	18	85	77	51	64	59	24	18	18	17
MEAN‡	42.8	73.6	38.8	220	195	69.2	175	144	51.4	88.5	32.7	54.9
CFSM‡	.75	1.28	.68	3.83	3.40	1.21	3.05	2.51	.90	1.54	.57	.96
IN.‡	.86	1.43	.78	4.42	3.54	1.40	3.40	2.89	1.00	1.78	.66	1.07

CAL YR 1989 TOTAL 44561.8 MEAN 122 MAX 2230 MIN 9.9 MEAN‡ 122 CFSM‡ 2.13 IN.‡ 28.92
WTR YR 1990 TOTAL 35692 MEAN 97.8 MAX 603 MIN 17 MEAN‡ 97.9 CFSM‡ 1.71 IN.‡ 23.23

‡ Adjusted for change in contents in Yellow Creek Lake.

e Estimated

KISKIMINETAS RIVER BASIN

03042500 TWO LICK CREEK AT GRACETON, PA

LOCATION.--Lat 40°31'02", long 79°10'19", Indiana County, Hydrologic Unit 05010007, on right bank 0.8 mi upstream from highway bridge on road leading west from Graceton, 1.1 mi downstream from Tearing Run, 1.5 mi upstream from Cherry Run, and 8 mi northeast of Blairsville.

DRAINAGE AREA.--171 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 981.63 ft above National Geodetic Vertical Datum of 1929.

REVISED RECORDS.--WDR PA-78-3: 1977 (M).

REMARKS.--Records good except for estimated daily discharges, which are fair. Diurnal fluctuation caused by mine pumpage and by sewage-disposal plant above station. Flow regulated since December 1968 by Two Lick Creek Reservoir 10 mi upstream, capacity, 16,240 acre-ft and since July 1971 by Yellow Creek Lake (station 03042260) 11 mi upstream. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--39 years, 283 ft^3/s, 22.47 in/yr, adjusted for storage since December 1968.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,000 ft^3/s, July 20, 1977, gage height, 18.65 ft (backwater), from highwater mark, from rating curve extended above 4,500 ft^3/s on basis of slope-area measurement of peak flow and contracted-opening measurement at gage height 12.71 ft at site 1.6 mi above gage, adjusted to gage site; minimum, 2.0 ft^3/s, Sept. 14, 15, 1952, gage height, 1.27 ft; minimum daily, 8.7 ft^3/s, Sept. 14, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,450 ft^3/s, July 13, gage height, 6.53 ft; minimum daily, 45 ft^3/s, Sept. 5, 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	65	209	153	e700	546	183	185	190	240	213	85	53
2	135	248	175	681	663	135	382	180	168	146	76	51
3	84	209	162	583	983	133	425	158	177	71	59	49
4	75	159	128	579	1390	126	455	149	158	71	57	46
5	68	155	123	660	1390	123	451	498	142	101	164	45
6	69	151	e120	615	914	131	444	408	115	74	218	45
7	72	148	e110	550	796	145	449	347	120	67	145	179
8	66	147	e105	498	588	141	424	355	188	78	132	112
9	66	147	e100	464	422	154	400	290	514	117	89	90
10	63	142	e96	461	612	193	464	367	367	538	82	86
11	68	142	e92	447	586	229	1190	385	314	342	99	86
12	61	176	e88	417	551	171	963	299	218	923	105	82
13	58	159	e84	322	481	136	589	322	105	1540	76	91
14	56	125	e82	254	426	157	514	278	112	740	74	98
15	53	127	e80	276	449	154	485	246	500	567	67	177
16	53	330	e76	285	620	170	424	979	242	700	62	157
17	73	386	e74	312	630	256	379	1130	165	503	58	151
18	95	365	e72	392	570	233	318	788	156	308	56	127
19	183	339	e70	358	523	208	251	486	144	241	56	138
20	211	321	e68	607	453	275	235	453	130	177	58	162
21	237	311	e66	1300	377	288	467	616	119	231	58	139
22	286	289	e64	1450	339	275	570	508	83	225	60	141
23	234	274	e62	996	326	240	370	436	127	138	56	140
24	170	224	e62	813	297	196	282	329	98	122	55	153
25	145	141	e60	683	227	196	283	244	178	179	55	135
26	110	162	e58	583	204	209	274	317	115	88	52	140
27	100	192	e58	457	197	181	225	298	83	79	50	127
28	96	206	e56	365	194	149	212	275	84	78	57	108
29	96	208	e54	358	---	143	207	266	116	72	145	99
30	91	168	e54	626	---	143	202	313	129	72	68	96
31	124	---	e440	577	---	144	---	302	---	92	58	---
TOTAL	3363	6360	3092	17669	15754	5617	12519	12212	5407	8893	2532	3303
MEAN	108	212	99.7	570	563	181	417	394	180	287	81.7	110
MAX	286	386	440	1450	1390	288	1190	1130	514	1540	218	179
MIN	53	125	54	254	194	123	185	149	83	67	50	45
ADJ†	+12.2	-14.3	+11.4	+16.3	-36.0	+2.5	+26.1	-7.3	+2.5	-2.4	-1.6	+5.1
MEAN‡	120	198	111	586	527	184	443	387	182	285	80.1	115
CFSM‡	.70	1.16	.65	3.43	3.08	1.08	2.59	2.26	1.06	1.67	.47	.67
IN.‡	.81	1.29	.75	3.95	3.21	1.25	2.89	2.61	1.18	1.93	.54	.75

CAL YR 1989 TOTAL 124410 MEAN 341 MAX 5440 MIN 40 ADJ +0.9 MEAN‡ 342 CFSM‡ 2.00 IN.‡ 27.16
WTR YR 1990 TOTAL 96721 MEAN 265 MAX 1540 MIN 45 ADJ +1.4 MEAN‡ 266 CFSM‡ 1.56 IN.‡ 21.16

† Change in contents, equivalent in cubic feet per second, in Two Lick Creek Reservoir and Yellow Creek Lake. Records of contents in Two Lick Creek Reservoir furnished by Pennsylvania Electric Co.
‡ Adjusted for change in reservoir contents.

e Estimated

KISKIMINETAS RIVER BASIN

03044000 CONEMAUGH RIVER AT TUNNELTON, PA

LOCATION.--Lat 40°27'16", long 79°23'28", Indiana County, Hydrologic Unit 05010007, on right bank at downstream side of highway bridge at Tunnelton, 0.9 mi downstream from Boatyard Run, 2.0 mi downstream from Conemaugh River Dam, 3.8 mi southeast of Saltsburg, and 5.5 mi upstream from confluence with Loyalhanna Creek.

DRAINAGE AREA.--1,358 mi^2.

PERIOD OF RECORD.--October 1939 to current year.

GAGE.--Water-stage recorder. Datum of gage is 844.64 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1952, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated since 1971 by Yellow Creek Lake (station 03042260) since 1952 by Conemaugh River Lake 2 mi upstream and by reservoirs above station, the nine most effective of which have a combined capacity of 68,090 acre-ft. Evaporation from operation of Homer City and Conemaugh generating stations, which began during 1969 and 1970 respectively, can amount to as much as 45 ft^3/s. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--51 years, 2,379 ft^3/s, 23.79 in/yr, adjusted for storage 1952-75.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 59,200 ft^3/s, Mar. 7, 1945, gage height, 21.0 ft from graph based on gage readings; minimum, 1 ft^3/s, Sept. 10, 1954, gage height, 1.20 ft; minimum daily, 1 ft^3/s, Sept. 10, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,500 ft^3/s, Feb. 7, gage height, 7.75 ft; minimum daily, 513 ft^3/s, June 28.

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	675	1160	1330	e700	5870	1550	1160	1050	5540	717	673	1130
2	679	1170	1160	1710	4740	1550	1430	1010	4010	938	783	1140
3	673	1180	1170	2940	3160	1540	2110	1050	2670	938	784	753
4	906	1180	1160	3240	3330	1520	2770	1040	2330	700	787	528
5	1020	1180	1140	4110	4460	1520	3040	1050	2320	527	816	562
6	832	1150	1140	4770	7760	1540	3490	1420	2310	667	806	564
7	680	1120	1140	5490	9880	1530	4880	3340	1850	758	806	601
8	680	1120	1390	5950	10300	1530	5400	5010	1520	755	802	890
9	678	1120	1560	5860	9970	1530	5310	4900	1600	743	805	1180
10	688	1150	1540	5740	8410	1510	5280	4450	2420	967	806	1810
11	683	1380	1520	4890	7920	1510	5300	3860	3300	1380	659	2970
12	684	1580	1560	3830	8260	1520	5340	3620	3380	2220	555	3310
13	692	1600	1320	3400	7320	1530	5280	3540	3340	2340	548	2660
14	692	1600	1060	3030	6720	1540	5190	3110	2760	2310	551	1880
15	692	1620	944	2790	5110	1540	5070	2470	2700	3630	551	1590
16	685	1660	758	2510	2690	1490	4060	2280	2530	6010	546	2630
17	685	2380	672	2320	2680	1470	3230	2290	1820	6780	546	3270
18	693	3250	685	2310	3890	1210	2930	3020	1240	6630	546	3170
19	1000	3190	681	2740	4340	1120	2460	3650	1060	6420	546	2710
20	1200	2400	682	3210	5050	1430	1810	3580	1060	4640	549	2350
21	2160	1780	687	3350	4730	1880	1540	3590	1080	2700	546	2250
22	2600	2230	e680	3780	2980	2110	2050	3830	1080	2350	553	1900
23	3000	2010	e680	6180	3740	1910	2710	3520	1080	2300	552	1610
24	3120	1570	e680	7470	4150	1530	2930	2930	1040	1890	708	2030
25	3140	1560	e680	6070	4060	1520	2570	2010	926	1530	821	1690
26	3070	1540	e680	5500	3210	1510	2890	1550	1170	1230	822	1180
27	2620	1550	e680	5960	2460	1620	2540	1620	751	1060	820	1170
28	2300	1990	e680	5920	1830	1280	1910	1620	513	1050	814	1430
29	1560	2320	e680	5460	---	1070	1640	2500	752	742	1010	1620
30	1160	1850	e680	5440	---	1060	1310	4150	744	525	1120	1620
31	1080	---	e680	5910	---	1100	---	5890	---	528	1120	---
TOTAL	41027	50590	30099	132580	149020	46270	97630	88950	58896	65975	22351	52198
MEAN	1323	1686	971	4277	5322	1493	3254	2869	1963	2128	721	1740
MAX	3140	3250	1560	7470	10300	2110	5400	5890	5540	6780	1120	3310
MIN	673	1120	672	700	1830	1060	1160	1010	513	525	546	528

CAL YR 1989 TOTAL 959489 MEAN 2629 MAX 11500 MIN 515
WTR YR 1990 TOTAL 835586 MEAN 2289 MAX 10300 MIN 513

e Estimated

KISKIMINETAS RIVER BASIN

03045000 LOYALHANNA CREEK AT KINGSTON, PA

LOCATION.--Lat 40°17'33", long 79°20'27", Westmoreland County, Hydrologic Unit 05010008, on right bank 60 ft downstream from bridge on State Highway 217 at Kingston, 100 ft downstream from Miller Run, 1.9 mi upstream from Ninemile Run, and 3 mi southeast of Latrobe.
DRAINAGE AREA.--172 mi^2.
PERIOD OF RECORD.--October 1939 to current year. Monthly discharge only October to December 1939, published in WSP 1305.
REVISED RECORDS.--WSP 1335: Drainage area.
GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,013.16 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Oct. 1, 1969, at datum 1.00 ft higher.
REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated by Latrobe Reservoir, capacity, 3,670 acre-ft, and diversion works at Kingston. Figures of daily discharge do not include diversion from reservoir and at Kingston intake to borough of Latrobe. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.
AVERAGE DISCHARGE.--51 years, 305 ft^3/s, 24.08 in/yr, adjusted for storage and diversion.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,700 ft^3/s, Oct. 15, 1954, gage height, 15.8 ft, present datum, from floodmarks, from rating curve extended above 8,700 ft^3/s on basis of contracted-opening measurement of peak flow; minimum, 0.1 ft^3/s, Sept. 4, 1953; minimum daily, 0.2 ft^3/s, Oct. 23, 24, 1953.
EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1918, 15.8 ft, present datum, Oct. 15, 1954. Flood of Mar. 17 or 18, 1936 reached a stage of about 15.5 ft, present datum, from information by local residents, discharge, 21,000 ft^3/s, from rating curve extended above 8,700 ft^3/s.
EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 1	0230	4,060	7.24	July 12	2200	*5,530	*8.15

Minimum daily discharge, 25 ft^3/s, Aug. 19.

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	67	265	169	2360	529	e200	338	146	379	112	65	56
2	122	154	151	897	836	e210	545	134	305	73	54	50
3	97	142	145	591	1040	218	507	124	277	57	48	61
4	73	132	e125	711	1860	194	506	171	250	50	44	50
5	59	119	e120	989	1440	180	769	715	204	90	55	42
6	69	115	e110	644	939	167	1070	813	170	120	101	43
7	94	106	e105	481	676	144	810	570	189	77	57	775
8	81	104	e98	393	507	137	605	429	591	63	47	357
9	99	326	e96	329	494	155	484	349	817	136	41	564
10	80	329	e90	343	1310	180	472	455	504	297	38	1150
11	165	238	e86	302	887	164	962	384	358	161	36	440
12	121	193	e82	285	705	161	672	296	277	1720	35	289
13	101	159	e80	230	588	151	530	362	223	2220	35	233
14	87	147	e76	199	661	145	440	394	188	1050	43	184
15	78	142	e74	288	900	141	406	301	428	880	34	676
16	71	673	e72	393	929	141	337	432	218	883	29	426
17	440	553	e70	366	753	190	324	469	162	498	27	474
18	602	412	e68	410	550	184	298	381	135	346	32	321
19	1040	322	e68	349	459	193	252	307	121	259	25	327
20	741	300	e66	1180	365	304	235	272	109	217	76	391
21	538	263	e66	1970	306	253	311	291	101	230	54	281
22	420	206	e64	1240	284	244	298	234	88	209	222	336
23	313	188	e64	800	273	232	262	194	105	189	110	405
24	236	162	e62	592	283	221	242	167	88	154	73	305
25	188	145	e62	468	228	215	225	146	104	120	59	246
26	159	238	e60	407	e170	211	213	492	81	99	50	263
27	135	280	e60	337	e190	189	193	341	67	85	46	240
28	120	253	e58	327	e200	171	179	294	61	76	51	182
29	105	213	e58	526	---	161	168	489	61	68	226	152
30	95	185	e72	1060	---	157	161	700	56	64	99	136
31	105	---	e200	644	---	179	---	488	---	70	67	---
TOTAL	6701	7064	2777	20111	18362	5792	12814	11340	6717	10673	1979	9455
MEAN	216	235	89.6	649	656	187	427	366	224	344	63.8	315
MAX	1040	673	200	2360	1860	304	1070	813	817	2220	226	1150
MIN	59	104	58	199	170	137	161	124	56	50	25	42
†	+6.6	+5.2	+9.0	+14.9	+19.7	+6.1	+10.1	+12.1	+4.1	+8.5	+2.7	+8.4
MEAN‡	223	240	98.6	664	676	193	437	378	228	352	66.5	323
CFSM‡	1.30	1.40	.57	3.86	3.93	1.12	2.54	2.20	1.32	2.05	.39	1.88
IN.‡	1.50	1.56	.66	4.45	4.09	1.29	2.83	2.54	1.47	2.36	.45	2.10

CAL YR 1989 TOTAL 128419 MEAN 352 MAX 3220 MIN 21 ADJ +9.5 MEAN‡ 362 CFSM‡ 2.10 IN.‡ 28.55
WTR YR 1990 TOTAL 113785 MEAN 312 MAX 2360 MIN 25 ADJ +8.9 MEAN‡ 321 CFSM‡ 1.87 IN.‡ 25.30

† Diversion from and change in contents in Latrobe Reservoir and diversion from Kingston intake, equivalent in cubic feet per second, furnished by Latrobe Municiple Authority.
‡ Adjusted for diversion and change in reservoir contents.

e Estimated

KISKIMINETAS RIVER BASIN

03047000 LOYALHANNA CREEK AT LOYALHANNA DAM, PA

LOCATION.--Lat 40°27'53", long 79°27'05", Westmoreland County, Hydrologic Unit 05010008, on left bank at downstream side of highway bridge, 0.7 mi downstream from Loyalhanna Dam, 1.5 mi south of Saltsburg, and 4.0 mi upstream from confluence with Conemaugh River.

DRAINAGE AREA.--292 mi^2.

PERIOD OF RECORD.--October 1939 to current year. Prior to October 1970, published as "at Loyalhanna Creek Dam. " Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1435: 1941.

GAGE.--Water-stage recorder. Datum of gage is 861.15 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow completely regulated since 1942 by Loyalhanna Lake 0.7 mi upstream and Latrobe Reservoir, combined capacity, 99,000 acre-ft. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--51 years, 488 ft^3/s, 22.70 in/yr, adjusted for storage since June 1942.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,700 ft^3/s, June 5, 1941, gage height, 10.30 ft; from rating curve extended above 5,200 ft^3/s; no flow Aug. 9, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,340 ft^3/s, July 17, gage height, 4.65 ft; minimum daily, 36 ft^3/s, Oct. 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	69	194	353	214	1670	452	236	215	1200	111	157	157
2	97	221	288	963	1260	376	382	215	723	148	187	111
3	116	239	236	1790	786	267	673	215	313	173	129	111
4	187	238	212	1740	800	223	986	218	296	134	77	111
5	231	236	239	1750	1360	292	1110	221	294	110	68	111
6	230	201	239	1740	2180	341	1300	388	316	104	162	111
7	230	179	206	1700	2220	276	1420	842	276	100	224	119
8	123	179	214	1650	2050	227	1400	1120	233	100	138	512
9	36	181	230	1270	1740	226	1180	914	242	107	81	989
10	85	295	230	683	1300	227	765	596	552	241	81	1400
11	118	477	230	456	1460	296	480	649	998	350	82	1640
12	194	469	230	455	1680	340	1020	759	1100	362	81	1270
13	245	305	230	391	1650	267	1420	609	892	390	82	542
14	167	156	230	324	1450	221	1390	460	512	381	83	227
15	117	115	204	325	993	221	1180	1180	553	746	83	299
16	119	192	134	409	791	221	688	688	571	1640	79	427
17	121	361	e58	633	1160	221	452	474	313	2250	79	480
18	195	682	e58	568	1980	295	630	673	224	2290	79	655
19	247	801	58	461	2090	341	509	793	224	2250	79	766
20	344	604	93	474	1190	414	334	544	223	1910	81	583
21	890	481	114	517	438	636	338	338	197	1230	81	466
22	1120	329	e114	789	442	571	407	420	156	505	82	398
23	1100	234	115	1590	445	387	352	352	142	276	102	424
24	883	236	113	1780	446	338	224	272	141	300	179	653
25	577	234	113	1260	447	341	295	227	141	247	224	516
26	265	235	113	1220	307	339	341	230	192	170	224	283
27	115	309	e111	1490	220	273	341	234	156	170	222	239
28	190	357	111	1450	360	230	378	237	112	170	221	239
29	239	356	111	1220	---	230	551	538	111	133	222	239
30	210	353	109	1310	---	230	305	989	111	109	291	485
31	192	---	119	1600	---	230	---	1300	---	111	269	---
TOTAL	9052	9449	5215	32222	32915	9549	21087	16910	11514	17318	4229	14563
MEAN	292	315	168	1039	1176	308	703	545	384	559	136	485
MAX	1120	801	353	1790	2220	636	1420	1300	1200	2290	291	1640
MIN	36	115	58	214	220	221	224	215	111	100	68	111
†	-8.8	+2.6	+21.0	+27.5	-38.2	+1.7	-4.3	+29.0	-27.5	-0.5	-1.8	0
MEAN‡	283	318	189	1066	1138	310	699	574	356	558	134	485
CFSM‡	.97	1.09	.65	3.65	3.90	1.06	2.39	1.97	1.22	1.91	.46	1.66
IN.‡	1.12	1.22	.75	4.21	4.06	1.22	2.67	2.27	1.36	2.20	.53	1.85

CAL YR 1989 TOTAL 208322 MEAN 571 MAX 3590 MIN 36 ADJ +2.9 MEAN‡ 574 CFSM‡ 1.97 IN.‡ 26.68
WTR YR 1990 TOTAL 184023 MEAN 504 MAX 2290 MIN 36 ADJ +0.5 MEAN‡ 504 CFSM‡ 1.73 IN.‡ 23.46

† Change in contents, equivalent in cubic feet per second, in Latrobe Reservoir and Loyalhanna Lake. Records of contents in Latrobe Reservoir furnished by the Latrobe Municipal Authority.
‡ Adjusted for change in reservoir contents.

e Estimated

KISKIMINETAS RIVER BASIN

03048500 KISKIMINETAS RIVER AT VANDERGRIFT, PA

LOCATION.--Lat 40°36'16", long 79°33'08", Westmoreland County, Hydrologic Unit 05010008, on left bank 0.5 mi upstream from bridge on State Highway Alternate 66 at Vandergrift, and 2.2 mi upstream from Pine Run.

DRAINAGE AREA.--1,825 mi^2.

PERIOD OF RECORD.--August 1937 to current year. Monthly discharge only for some periods, published in WSP 1305. October 1920 to September 1932 (gage heights and discharge measurements only) in reports of Pennsylvania Department of Forest and Waters.

GAGE.--Water-stage recorder. Datum of gage is 769.40 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Oct. 1, 1920, to Sept. 30, 1930, nonrecording gage, Oct. 1, 1930, to Sept. 30, 1932, water-stage recorder, at site 0.6 mi downstream at different datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated since 1971 by Yellow Creek Lake (station 03042260), since 1952 by Conemaugh River Lake, 23 mi upstream, since 1942 by Loyalhanna Lake, 20 mi upstream, and by other reservoirs above station; the 11 most effective of which have a combined capacity of 105,700 acre-ft. Figures of daily discharge do not include diversion from Beaver Run Reservoir to plants and communities downstream, nor into the Monongahela River basin. Evaporation from operation of Homer City and Conemaugh generating stations, which began during 1969 and 1970, respectively, can amount to as much as 45 ft^3/s. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--53 years, 3,103 ft^3/s, 23.09 in/yr, adjusted for storage and diversion, 1938-75.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 71,900 ft^3/s, Mar. 31, 1940, gage height, 25.70 ft; minimum, 56 ft^3/s, Oct. 15, 16, 1952; minimum daily, 60 ft^3/s, Oct. 15, 1952.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 18, 1936, reached a stage of 41.64 ft, from floodmark at present site, discharge, 185,000 ft^3/s, by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,200 ft^3/s, Feb. 7, gage height, 11.09 ft; minimum daily, 535 ft^3/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	644	1220	1850	e1600	8130	2070	1370	1490	7490	692	602	1370
2	765	1280	1480	e1100	7820	2040	1600	1420	5960	1050	942	1280
3	739	1340	1370	e2200	4530	1910	2160	1400	3900	1150	939	1140
4	761	1330	1340	e3700	5210	1790	2990	1470	2950	1100	838	535
5	1190	1320	1330	e5200	5550	1780	3720	1670	2980	604	903	582
6	1160	1310	1340	6740	9860	1880	4420	1700	2960	603	963	601
7	868	1210	1350	7200	12400	1820	5660	3010	2840	836	1030	1010
8	830	1200	1320	7910	12900	1730	6900	6560	2080	824	1000	940
9	674	1260	1710	7510	12200	1760	6710	6340	2450	822	858	2380
10	646	1300	1710	6820	11100	1750	6360	5870	2610	945	850	2910
11	736	1560	1700	5810	9510	1750	6560	5120	4100	1440	858	4650
12	733	1960	1700	4650	10400	1850	6530	4930	4750	1980	607	4470
13	846	1930	1690	4070	9720	1830	6960	4830	4800	3790	587	3530
14	850	1730	1290	3590	8640	1740	7220	4420	4370	3180	586	2180
15	733	1640	1260	3260	7550	1730	7030	3530	3380	3860	567	1930
16	716	1830	977	3190	4480	1720	6330	3440	3720	6940	551	2450
17	725	2240	644	3020	3770	1800	4650	3990	2870	8400	549	3650
18	741	3800	e800	3190	5500	1640	4350	3960	1810	9090	544	3660
19	1110	4020	e800	3180	6560	1570	3990	5080	1410	8930	546	3620
20	1550	4020	e800	4280	6400	1840	3010	4950	1390	8110	570	2960
21	2110	3740	e800	5150	6050	2320	2550	5210	1400	5040	554	2640
22	3730	2550	e800	4680	3640	2780	2660	4950	1350	3480	584	2530
23	3950	2510	e800	7410	3890	2600	3300	4920	1350	2960	581	1950
24	4020	1830	e800	9770	4770	1940	3740	4140	1260	2710	654	2270
25	3660	1750	e800	8700	4640	1970	3510	3200	1300	2040	1090	2600
26	3430	1750	e800	6520	4120	1800	3470	2250	1260	1700	1040	1480
27	2880	1760	e800	7810	2920	1890	3630	2200	1370	1300	924	1390
28	2320	2010	e800	7730	2450	1720	2940	2170	609	1290	1050	1450
29	2190	2650	e800	7160	---	1330	2500	2780	637	1230	1360	1740
30	1330	2550	e800	7220	---	1260	2290	4990	1070	629	1520	1920
31	1260	---	e800	8150	---	1350	---	6780	---	585	1520	---
TOTAL	47897	60600	35261	168540	194710	56960	129110	118770	80426	87310	25767	65818
MEAN	1545	2020	1137	5437	6954	1837	4304	3831	2681	2816	831	2194
MAX	4020	4020	1850	9770	12900	2780	7220	6780	7490	9090	1520	4650
MIN	644	1200	644	1100	2450	1260	1370	1400	609	585	544	535

CAL YR 1989 TOTAL 1249766 MEAN 3424 MAX 16700 MIN 476
WTR YR 1990 TOTAL 1071169 MEAN 2935 MAX 12900 MIN 535

e Estimated

BUFFALO CREEK BASIN

03049000 BUFFALO CREEK NEAR FREEPORT, PA

LOCATION.--Lat 40°42'57", Long 79°41'59", Butler County, Hydrologic Unit 05010009, on right bank 0.6 mi upstream from Little Buffalo Creek and 3 mi north of Freeport.

DRAINAGE AREA.--137 mi^2.

PERIOD OF RECORD.--October 1940 to current year. Monthly discharge only for October 1940, published in WSP 1305.

GAGE.--Water-stage recorder. Elevation of gage is 792 ft, by barometer. Prior to July 19, 1962, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--50 years, 194 ft^3/s, 19.26 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,000 ft^3/s, Oct. 15, 1954, gage height, 13.60 ft, from floodmarks, from rating curve extended above 4,300 ft^3/s on basis of slope-area measurement of peak flow; minimum observed, 1.3 ft^3/s, Oct. 16-18, 1960; minimum gage height, 0.69 ft, Sept. 1, 1962.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 31	--	--	ice jam	July 9	2400	3,420	6.36
Feb. 16	0300	2,160	4.94	July 12	1930	*8,540	*10.46
May 17	1230	2,080	4.85	Sept. 7	0900	2,120	4.90
June 15	0300	2,020	4.78				

Minimum discharge, 24 ft^3/s, Oct. 16, 17, gage height, 1.14 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	43	44	99	1280	485	e145	137	107	119	254	98	93
2	67	46	92	613	863	170	194	98	105	112	82	76
3	60	39	89	396	905	143	203	88	100	80	70	64
4	43	40	74	449	1330	122	193	109	98	63	65	55
5	37	36	99	679	1050	115	197	274	88	54	270	51
6	35	35	81	479	736	108	182	183	76	52	261	70
7	33	34	e74	341	548	96	175	147	130	44	228	1140
8	30	34	e70	267	399	90	165	126	145	38	151	576
9	29	74	e64	218	327	110	147	113	439	403	115	563
10	30	84	e60	242	479	125	291	141	337	1390	95	559
11	46	71	e56	226	372	116	1360	148	221	669	84	384
12	39	62	e54	200	327	112	769	110	163	4120	81	281
13	31	54	e50	163	285	105	520	209	132	2900	91	218
14	27	50	e49	148	289	101	391	421	114	1030	153	178
15	26	54	e48	156	793	98	395	413	573	715	88	221
16	25	182	e45	160	1780	96	297	1390	186	550	71	187
17	26	253	e43	180	997	520	263	1620	123	376	62	214
18	55	170	e40	264	643	496	222	1070	103	283	56	149
19	192	130	e38	243	502	412	182	673	87	222	54	160
20	146	116	e36	400	359	412	168	470	75	201	51	206
21	110	110	e35	862	280	319	380	583	74	267	54	153
22	100	93	e33	719	260	278	293	382	63	241	58	228
23	78	79	e32	564	260	243	257	285	61	624	53	188
24	68	72	e31	483	234	201	228	229	58	376	49	161
25	63	62	e30	386	195	176	204	183	106	267	49	140
26	57	75	e29	361	156	155	182	239	66	199	45	144
27	51	74	e28	280	e120	135	158	184	48	161	38	141
28	46	115	e27	267	e150	122	141	150	43	135	36	115
29	43	132	e26	318	---	114	126	175	48	116	604	100
30	40	103	e36	721	---	129	118	204	97	103	207	166
31	38	---	e740	551	---	133	---	144	---	147	127	---
TOTAL	1714	2523	2308	12616	15124	5697	8538	10668	4078	16192	3546	6981
MEAN	55.3	84.1	74.5	407	540	184	285	344	136	522	114	233
MAX	192	253	740	1280	1780	520	1360	1620	573	4120	604	1140
MIN	25	34	26	148	120	90	118	88	43	38	36	51
CFSM	.40	.61	.54	2.97	3.94	1.34	2.08	2.51	.99	3.81	.83	1.70
IN.	.47	.69	.63	3.43	4.11	1.55	2.32	2.90	1.11	4.40	.96	1.90

CAL YR 1989 TOTAL 76404.2 MEAN 209 MAX 2020 MIN 9.6 CFSM 1.53 IN. 20.75
WTR YR 1990 TOTAL 89985 MEAN 247 MAX 4120 MIN 25 CFSM 1.80 IN. 24.43

e Estimated

OHIO RIVER MAIN STEM

03049500 ALLEGHENY RIVER AT NATRONA, PA

LOCATION.--Lat 40°36'55", long 79°43'07", Allegheny County, Hydrologic Unit 05010009, on right bank 520 ft upstream from dam at lock 4 at Natrona, 5.8 mi downstream from Kiskiminetas River, and at mile 24.3.

DRAINAGE AREA.--11,410 mi^2, approximately.

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

REVISED RECORDS.--WSP 1435: 1939.

GAGE.--Water-stage recorder and concrete dam control. Datum of gage is 737.11 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Apr. 14, 1940, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated by Allegheny Reservoir, Chautauqua and Tionesta Lakes, Union City Reservoir, Woodcock Creek, East Branch Clarion River, Mahoning Creek, Crooked Creek, Yellow Creek, Conemaugh River, and Loyalhanna Lakes and by 15 smaller reservoirs, combined capacity, excluding that of Chautauqua Lake, 2,069,000 acre-ft. Slight diversion since 1952 from Beaver Run Reservoir into the Monongahela River basin. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--52 years, 19,680 ft^3/s, 23.42 in/yr, adjusted for storage from 1940 to 1975.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 238,000 ft^3/s, Dec. 30, 1942, gage height, 27.46 ft; minimum, 895 ft^3/s, Oct. 22, 1963; minimum gage height, 8.82 ft, July 25, 26, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936, reached a stage of 32.06 ft, discharge, 365,000 ft^3/s, determined by U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 111,000 ft^3/s, Feb. 16, gage height, 18.19 ft; minimum daily, 4,220 ft^3/s, July 8.

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	5820	8160	16900	18800	36100	32700	10300	14200	22400	7050	8140	9600
2	5970	8430	15000	25800	39300	28400	13600	11900	18900	8350	8000	8820
3	6040	9820	15800	27200	60000	24900	21300	9820	14800	8600	7170	7160
4	6790	10500	17500	28600	64100	23100	25300	9420	11800	6980	6650	5900
5	6920	8730	18500	34500	69900	20700	25700	11800	11700	5180	7650	6020
6	6640	9440	17700	39400	60000	19500	26200	13000	10100	5250	10500	5720
7	6910	10200	17400	38000	58600	18100	26100	19100	11800	5000	12300	16200
8	5250	9660	18300	37200	55700	16900	26000	22500	12200	4220	11100	25800
9	4700	12100	17800	35600	50500	16100	23600	21600	14000	6210	9170	25400
10	5660	15700	16600	32200	48000	17000	23200	20000	20400	17600	7250	37900
11	5790	18000	16300	30100	50900	16100	45100	18200	19500	14400	6980	41800
12	5650	17900	17400	27600	48400	19800	58900	18800	17100	29100	6000	34800
13	5850	18400	17300	24200	45700	21300	50200	17400	15800	49300	5500	28500
14	5790	15200	16400	20300	44700	21100	47700	21700	12700	30900	7180	21400
15	5200	13700	14400	18500	47100	19500	48800	31500	14000	22500	8220	20500
16	4900	15300	11100	19600	93400	18400	47700	37700	14400	41500	7790	27200
17	5230	20900	9150	20600	82800	18500	41700	47400	12600	38100	8140	30100
18	5800	28500	e7600	28600	64300	24000	37700	52900	9640	36000	8000	31200
19	7600	27600	e8400	47200	60400	26300	29900	53300	8160	33000	5660	27900
20	10900	23200	e8000	46300	57400	27100	25800	51700	7220	29100	5720	26900
21	14500	21700	e7400	48600	52800	27900	26400	50700	7680	22000	6920	29100
22	16500	21700	e7000	50700	46200	27200	25400	47400	7550	21500	5950	25400
23	15100	22700	e6800	50700	43900	25300	25600	43900	6870	27800	5830	24400
24	14700	21300	e6600	50000	40000	22800	25000	40200	6380	35300	5420	25900
25	13900	20900	e6400	49600	41200	20000	22800	36200	7300	26300	6030	30100
26	13200	20200	e7000	42900	38600	18900	21400	32700	8930	21800	5300	28600
27	11900	19900	e8000	40200	35200	17800	19800	26200	8800	16400	4900	24200
28	10900	19000	e6200	40000	35200	15800	18900	20200	7390	12900	5780	19400
29	8900	19300	e7000	38200	---	14000	14800	18400	5860	10200	8570	17900
30	6960	20000	7570	39800	---	13400	14100	21200	6350	8940	12600	16800
31	9210	---	10600	38400	---	12100	---	22900	---	9100	12400	---
TOTAL	259180	508140	378120	1089400	1470400	644700	869000	863940	352330	610580	236820	680620
MEAN	8361	16940	12200	35140	52510	20800	28970	27870	11740	19700	7639	22690
MAX	16500	28500	18500	50700	93400	32700	58900	53300	22400	49300	12600	41800
MIN	4700	8160	6200	18500	35200	12100	10300	9420	5860	4220	4900	5720

CAL YR 1989 TOTAL 7823320 MEAN 21430 MAX 98400 MIN 2740
WTR YR 1990 TOTAL 7963230 MEAN 21820 MAX 93400 MIN 4220

e Estimated

OHIO RIVER MAIN STEM

03049625 ALLEGHENY RIVER AT NEW KENSINGTON,PA
(National stream quality accounting network, radiochemical program)

WATER-QUALITY RECORDS

LOCATION.--Lat 40°33'52", long 79°46'22", Allegheny County, Hydrologic Unit 05010009, at New Kensington highway brdige, 5.1 mi downstream from dam at lock 4 at Natrona, 5.3 mi downstream from gaging station at Natrona, and 19.0 mi from mouth.

DRAINAGE AREA.--11,500 mi^2.

PERIOND OF RECORD.--July 1972 to December 1973, October 1974 to current year.

REMARKS.--Composite samples taken as part of the National stream quality accounting network. Records of discharge are given for 03049500 Allegheny River at Natrona, PA. In March 1989 a bias was discovered in the turbidimetric method for sulfate analysis for those samples analyzed by the U.S. Geological Survey National Water-Quality Laboratory 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.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)
NOV											
14...	0830	15900	263	7.4	8.5	4.1	742	12.0	190	42	87
FEB											
14...	1030	45600	186	7.1	4.5	5.3	748	13.2	200	32	60
MAY											
16...	1000	36900	210	7.4	15.5	7.1	739	10.6	1600	580	74
SEP											
05...	0930	6380	351	7.3	25.0	4.0	752	7.6	540	130	130

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV										
14...	24	6.5	13	1.8	44	36	58	15	0.10	3.3
FEB										
14...	16	4.8	7.8	1.2	22	18	45	10	0.10	5.4
MAY										
16...	20	5.9	9.2	1.2	36	30	45	13	<0.10	3.1
SEP										
05...	34	9.9	16	2.1	37	30	90	18	<0.10	4.2

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)
NOV										
14...	150	0.440	0.060	0.40	0.030	<0.010	<0.010	20	<1	45
FEB										
14...	123	0.900	0.060	0.20	0.030	<0.010	<0.010	40	<1	59
MAY										
16...	122	0.600	0.030	0.60	0.030	<0.010	<0.010	30	<1	41
SEP										
05...	237	0.600	0.050	0.30	<0.010	<0.010	<0.010	20	<1	57

OHIO RIVER MAIN STEM

03049625 ALLEGHENY RIVER AT NEW KENSINGTON, PA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)
NOV 14...	<0.5	<1.0	1	<3	7	24	<1	8	260	<0.1
FEB 14...	<0.5	<1.0	<5	4	<10	120	<10	6	250	<0.1
MAY 16...	<0.5	<1.0	1	<3	1	36	<1	7	170	<0.1
SEP 05...	<0.5	1.0	<1	<3	2	6	1	13	220	<0.1

DATE	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 14...	<10	7	<1	<1.0	130	<6	18	13	558	83
FEB 14...	<10	<10	<1	<1.0	76	<6	28	19	2340	74
MAY 16...	<10	5	<1	<1.0	100	<6	8	25	2490	97
SEP 05...	<10	5	<1	<1.0	200	<6	8	6	103	94

PINE CREEK BASIN

03049800 LITTLE PINE CREEK NEAR ETNA, PA

LOCATION.--Lat 40°31'13", long 79°56'18", Allegheny County, Hydrologic Unit 05010009, on right bank at downstream side of highway bridge on Saxonburg Boulevard, 0.7 mi upstream from mouth, and 1.5 mi northeast of Etna.

DRAINAGE AREA.--5.78 mi^2.

PERIOD OF RECORD.--October 1962 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 775.26 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--28 years, 6.39 ft^3/s, 15.01 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,190 ft^3/s, May 30, 1986, gage height, 10.28 ft in gage well, 10.41 ft from floodmarks, from rating curve extended above 150 ft^3/s on basis of slope-area measurement of peak flow at site 0.6 mi downstream at datum then in use; no flow on many days.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 150 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
June 14	2215	129	5.02	July 12	--	e>150	--

Minimum daily discharge, 0.56 ft^3/s, Oct. 28.

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	2.2	2.3	e2.3	33	21	4.5	6.0	3.5	1.2	e18	e5.2	e5.2
2	4.6	1.5	e1.5	16	33	5.0	9.2	2.8	.89	e8.0	e4.5	e4.0
3	3.2	1.5	e1.7	9.5	26	4.5	7.2	2.5	1.1	e5.0	e4.0	e3.2
4	2.3	.90	e1.9	19	44	3.7	8.4	8.7	1.4	e3.6	e3.4	e2.7
5	2.0	.77	e1.5	17	32	3.1	12	12	2.1	e2.8	e13	e2.5
6	2.5	.98	e1.8	9.6	22	2.9	9.4	8.0	2.1	e2.7	e12	e2.2
7	3.2	1.0	e2.2	5.5	16	2.8	11	5.3	1.7	e2.6	e11	e10
8	2.7	1.2	e2.8	3.6	11	2.6	9.3	4.0	12	e2.4	e9.8	e56
9	2.5	6.2	e2.7	2.4	10	3.4	7.8	3.4	22	e10	e8.0	e24
10	3.0	4.6	e2.4	2.7	19	2.8	20	4.5	7.7	e100	e6.2	e21
11	3.4	4.2	e2.2	2.1	14	2.6	36	2.9	2.4	e40	e5.2	e19
12	2.7	3.8	e2.0	1.6	12	2.3	25	3.2	1.0	e240	e4.6	e16
13	2.5	3.7	e1.8	1.4	10	2.2	18	4.9	1.3	e100	e4.1	e13
14	2.4	3.7	e1.6	5.4	15	2.2	16	3.1	14	e50	e5.2	e11
15	2.7	4.0	e1.5	2.2	26	2.0	14	2.5	39	e27	e6.8	e8.2
16	2.8	12	e1.4	1.8	31	2.4	11	27	e20	e20	e4.5	e9.8
17	4.7	7.0	e1.3	1.9	23	26	9.7	43	e15	e16	e3.4	e8.8
18	5.0	4.5	e1.2	5.2	16	18	7.2	27	e13	e14	e2.8	e10
19	8.9	3.8	e1.2	2.9	13	18	5.8	13	e11	e12	e2.6	e8.4
20	1.6	5.0	e1.1	27	8.6	17	5.7	18	e8.6	e11	e2.5	e6.6
21	1.2	8.6	e1.0	38	6.6	12	30	23	e7.0	e16	e2.3	e8.8
22	1.1	7.2	e.98	25	6.4	9.7	19	8.0	e5.8	e14	e2.5	e7.6
23	1.0	6.6	e.92	16	5.9	7.6	17	2.8	e5.0	e31	e2.4	e10
24	1.0	5.9	e.88	12	5.1	5.6	15	1.1	e4.2	e20	e2.3	e9.0
25	.97	6.0	e.82	9.3	4.4	4.6	12	.93	e7.8	e12	e2.1	e7.6
26	.84	7.5	e.78	7.5	e4.0	3.4	9.7	7.1	e5.0	e9.2	e2.0	e6.6
27	.70	6.3	e.76	5.5	e3.2	2.6	7.9	1.1	e3.2	e8.0	e1.8	e5.6
28	.56	8.2	e.70	5.0	e3.5	2.3	6.3	.97	e2.8	e6.4	e1.7	e5.4
29	.63	5.9	e.66	18	---	2.1	5.3	13	e3.4	e5.6	e1.6	e5.2
30	.81	e3.3	e2.0	31	---	2.6	4.5	9.5	e8.0	e5.2	e26	e5.0
31	2.4	---	e10	23	---	3.2	---	2.8	---	e7.2	e9.0	---
TOTAL	76.11	138.15	55.60	360.1	441.7	183.7	375.4	269.60	229.69	819.7	172.5	312.4
MEAN	2.46	4.60	1.79	11.6	15.8	5.93	12.5	8.70	7.66	26.4	5.56	10.4
MAX	8.9	12	10	38	44	26	36	43	39	240	26	56
MIN	.56	.77	.66	1.4	3.2	2.0	4.5	.93	.89	2.4	1.6	2.2
CFSM	.42	.80	.31	2.01	2.73	1.03	2.16	1.50	1.32	4.57	.96	1.80
IN.	.49	.89	.36	2.32	2.84	1.18	2.42	1.74	1.48	5.28	1.11	2.01

CAL YR 1989 TOTAL 2402.31 MEAN 6.58 MAX 79 MIN .48 CFSM 1.14 IN. 15.46
WTR YR 1990 TOTAL 3434.65 MEAN 9.41 MAX 240 MIN .56 CFSM 1.63 IN. 22.11

e Estimated

MONONGAHELA RIVER BASIN

03070420 STONY FORK TRIBUTARY NEAR GIBBON GLADE, PA.

LOCATION.-- Lat 39°45'51", long 79°35'16", Fayette Conuty, Hydrologic Unit 05020004, on left bank 1.5 ml upstream from mouth, 1.7 ml north of Gibbon Glade, and 3.2 mi southwest of Farmington.

DRAINAGE AREA.--0.93 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1977 to current year.

GAGE.--Water-stage recorder and v-notch concrete weir. Elevation of gage is 1,750 ft above National Geodetic Vertical Datum of 1929, from topgraphic map.

REMARKS.--Records good, except for estimated periods which are fair.

AVERAGE DISCHARGE.--13 years, 1.72 ft^3/s, 25.11 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 126 ft^3/s, July 16, 1978, gage height, 3.61 ft; no flow at times during most years.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 40 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 31	1238	52	1.80	May 4	2205	51	1.79
Feb. 10	0137	48	1.77	June 30	2400	*62	*1.87

Minimum daily discharge, .13 ft^3/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	.90	.54	1.2	14	3.4	1.1	3.5	.54	1.6	11	.26	.21
2	.87	.48	1.1	5.4	6.3	1.1	4.2	.43	1.3	2.5	.22	.20
3	.53	.51	1.0	3.2	5.6	1.1	3.0	.50	1.1	1.3	.24	.18
4	.42	.47	.86	5.8	6.8	.95	2.7	5.7	1.4	.85	.22	.16
5	.37	.42	.79	6.0	4.5	.89	4.6	10	.76	3.3	.32	.16
6	1.0	.46	1.4	3.4	3.0	.83	4.1	5.6	.54	2.2	.36	.20
7	1.7	.42	1.6	2.3	2.5	.70	3.2	3.1	.63	1.3	.24	.57
8	1.2	.53	1.2	1.8	1.9	.68	2.5	2.1	.63	.91	.20	.26
9	.98	2.4	1.2	1.5	4.6	.86	2.0	1.6	5.7	.75	.19	2.9
10	1.2	2.5	1.0	1.4	18	.73	3.7	2.2	2.6	.63	.17	1.7
11	1.3	2.6	.91	1.3	6.2	.73	5.4	1.6	1.7	1.2	.17	.67
12	1.0	2.0	.81	1.2	3.7	.68	2.9	1.3	1.1	2.2	.16	1.3
13	.84	1.5	.73	.92	2.7	.62	2.2	1.8	.86	6.9	1.0	3.2
14	.71	1.3	.65	.83	2.2	.62	1.9	1.5	.71	4.9	.37	1.9
15	.59	1.4	.61	1.3	2.0	.58	1.8	1.2	.87	5.5	.21	2.5
16	.53	7.4	.58	2.2	2.2	.55	1.5	3.3	.53	4.1	.16	1.6
17	5.3	5.9	.50	1.9	1.8	.76	1.7	4.4	.43	2.3	.14	1.2
18	8.8	3.3	.47	2.4	1.5	.59	1.3	2.7	.40	1.5	.13	.86
19	13	2.3	.45	2.0	1.3	.82	1.2	1.8	.37	1.1	.14	2.6
20	5.0	1.9	.43	7.4	1.0	.91	1.2	1.5	.35	.90	.17	2.7
21	2.9	1.6	.41	5.9	.89	.86	1.3	1.2	.35	.84	.76	1.7
22	2.0	1.2	.49	3.6	.89	.88	1.1	1.0	.31	.92	.37	2.3
23	1.5	1.0	.38	2.4	.95	.83	.95	.80	.38	.72	3.6	2.9
24	1.2	.91	.30	1.8	.93	.86	.84	.64	.38	.53	1.0	1.8
25	.98	.77	.32	1.8	.62	.96	.79	.57	.29	.40	.58	1.3
26	.83	.88	.32	1.7	.73	.90	.73	11	.21	.34	.43	.96
27	.72	1.6	.29	1.6	.96	.81	.68	5.4	.20	.30	.35	.71
28	.63	1.7	.29	1.6	1.4	.79	.63	3.3	.21	.26	.28	.56
29	.56	1.6	.32	8.7	---	.76	.66	3.6	.19	.24	.47	.46
30	.52	1.4	2.1	8.9	---	.78	.58	3.1	2.6	.55	.35	.56
31	.69	---	21	4.6	---	.95	---	2.2	---	.43	.24	---
TOTAL	58.77	50.99	43.71	108.85	88.57	25.18	62.86	85.68	28.70	60.87	13.50	38.32
MEAN	1.90	1.70	1.41	3.51	3.16	.81	2.10	2.76	.96	1.96	.44	1.28
MAX	13	7.4	21	14	18	1.1	5.4	11	5.7	11	3.6	3.2
MIN	.37	.42	.29	.83	.62	.55	.58	.43	.19	.24	.13	.16
CFSM	2.04	1.83	1.52	3.78	3.40	.87	2.25	2.97	1.03	2.11	.47	1.37
IN.	2.35	2.04	1.75	4.35	3.54	1.01	2.51	3.43	1.15	2.43	.54	1.53

CAL YR 1989 TOTAL 806.70 MEAN 2.21 MAX 33 MIN .06 CFSM 2.38 IN. 32.27
WTR YR 1990 TOTAL 666.00 MEAN 1.82 MAX 21 MIN .13 CFSM 1.96 IN. 26.64

03070420 STONY FORK TRIBUTARY NEAR GIBBON GLADE, PA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1977 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1977 to current year.
pH: October 1977 to current year.
WATER TEMPERATURE: October 1977 to current year
SUSPENDED-SEDIMENT DISCHARGE: October 1977 to current year.

INSTRUMENTATION.--Water quality monitor and sediment pumping sampler since October 1977.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum 2380 microsiemans Sept. 8, 1988; minimum, 15 microsiemans Nov. 2, 1983.
pH: Maximum, 8.8 Aug. 21, 1987; minimum, 2.7 Sept. 2, 1988.
WATER TEMPERATURES: Maximum, 31 C Aug. 18 1987, Sept. 13, 1988; minimum, 0.0 C on many days during winter.
SEDIMENT CONCENTRATIONS: Maximum daily, 1,460 mg/l July 3, 1983; minimum daily, 1.0 mg/l on several days.
SEDIMENT DISCHARGES: Maximum daily, 110 tons Apr. 12, 1981; minimum daily, 0.0 ton on many days.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum 553 microsiemans Aug. 21; minimum, 49 microsiemans Jan. 31 and Feb. 2.
pH: Maximum, 7.6 Apr. 1; minimum, 4.5 May 4.
WATER TEMPERATURES: Maximum, 31.0 C July 5; minimum, 0.3 C on several days during winter.
SEDIMENT CONCENTRATIONS: Maximum daily, 435 mg/l May 4; minimum daily, 4.0 mg/l on Oct. 29 and Oct. 30.
SEDIMENT DISCHARGES: Maximum daily, 18 tons Feb. 10; minimum daily, 0.0 ton on many days.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (µS/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	ACIDITY TOTAL HEATED (MG/L AS CAC03)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
OCT												
30...	1700	0.49	160	6.3	13.5	0.0	19	4.3	2.0	1.9	20	53
NOV												
22...	1400	1.1	120	6.5	4.0	0.0	13	3.1	1.7	1.3	17	29
DEC												
29...	1235	0.26	270	6.4	2.0	0.0	30	6.9	7.9	1.2	20	91
JAN												
31...	1135	4.5	105	6.4	5.0	0.0	8.8	2.1	2.8	1.1	12	43
FEB												
21...	1420	1.0	136	6.5	6.0	12	15	3.7	2.5	0.95	14	37
MAR												
28...	1625	0.81	160	6.9	9.0	0.0	17	4.2	3.5	0.85	15	61
MAY												
02...	0900	0.43	200	6.2	10.0	0.0	21	4.9	2.6	1.0	20	67
JUN												
25...	1100	0.26	316	6.1	17.0	0.0	38	8.3	4.4	1.7	32	110
AUG												
15...	1300	0.23	380	6.5	19.0	0.0	45	9.6	4.1	2.3	38	140
SEP												
26...	1500	0.92	140	6.7	14.0	0.0	16	3.8	2.0	1.6	20	38

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, TOTAL (MG/L AS F)	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL)	ALUM-INUM, DIS-SOLVED (µG/L AS AL)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE)	IRON, DIS-SOLVED (µG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN)	MANGA-NESE, DIS-SOLVED (µG/L AS MN)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN)	ZINC, DIS-SOLVED (µG/L AS ZN)
OCT												
30...	4.0	<0.1	120	8	<130	<130	1500	1200	700	700	30	28
NOV												
22...	3.0	<0.1	60	<2	320	<130	1400	960	460	450	20	21
DEC												
29...	11	<0.1	138	18	810	<130	3800	900	1400	1700	50	38
JAN												
31...	6.0	<0.1	41	3	560	<130	1200	150	180	170	20	20
FEB												
21...	4.0	<0.1	60	38	520	<130	1500	1000	490	490	60	55
MAR												
28...	5.0	<0.1	74	8	300	<130	1700	1100	580	580	30	24
MAY												
02...	5.0	<0.1	110	16	420	180	2300	1600	780	780	40	35
JUN												
25...	7.0	<0.2	190	10	180	<130	3500	2100	1400	1400	50	50
AUG												
15...	7.0	0.1	298	12	220	160	3300	2800	1700	1600	20	24
SEP												
26...	5.0	<0.1	102	14	490	<130	1800	800	460	460	20	17

03070420 STONY FORK TRIBUTARY NEAR GIBBON GLADE, PA--Continued

SPECIFIC CONDUCTANCE, µS/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	219	139	202	182	171	175	169	161	165	92	79	84
2	178	171	174	184	177	179	168	160	163	96	80	85
3	183	172	176	181	167	176	184	159	170	116	84	93
4	188	178	182	186	172	179	185	177	181	154	83	116
5	200	183	189	193	173	185	216	182	195	104	79	97
6	198	165	183	195	177	187	263	202	223	91	61	86
7	178	129	142	194	181	191	210	164	179	98	86	93
8	140	126	132	202	161	186	168	153	162	99	89	96
9	138	132	135	171	109	134	188	162	169	119	95	107
10	156	130	136	135	104	114	177	157	166	210	116	160
11	147	125	131	104	90	94	178	164	171	255	159	190
12	127	122	124	100	94	97	185	175	179	197	146	161
13	133	126	128	108	94	101	191	184	187	184	158	165
14	141	132	136	---	---	---	211	189	194	184	170	178
15	154	140	145	135	113	120	205	168	185	379	170	233
16	166	153	157	137	85	98	183	166	173	265	210	238
17	183	102	124	85	75	83	208	180	189	219	177	194
18	117	84	92	93	78	86	209	178	195	274	175	212
19	102	67	82	91	82	89	204	168	187	182	152	160
20	83	76	80	96	83	89	238	167	185	227	123	154
21	97	80	89	104	85	98	213	200	205	136	113	122
22	100	95	97	142	104	118	232	213	225	132	108	111
23	107	100	104	187	137	156	241	229	234	115	97	105
24	114	107	111	216	167	180	---	---	---	130	101	109
25	123	114	118	192	177	184	307	210	237	164	109	129
26	132	122	126	268	177	210	225	204	212	292	134	178
27	140	129	133	206	163	176	242	225	235	173	144	157
28	174	136	139	175	151	163	---	---	---	152	131	141
29	---	---	---	162	148	153	431	249	294	232	67	132
30	---	---	---	172	155	160	497	272	383	67	50	55
31	195	142	168	---	---	---	328	83	178	53	49	51
MONTH	219	67	136	268	75	143	497	83	201	379	49	135
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	54	51	52	189	145	161	250	115	182	---	---	---
2	52	49	50	150	134	143	121	101	108	207	194	198
3	56	51	54	161	127	137	110	101	104	245	194	207
4	57	52	55	153	115	126	306	107	152	227	74	184
5	58	54	57	154	117	125	197	104	137	---	---	---
6	60	55	57	157	124	129	---	---	---	---	---	---
7	62	57	59	161	125	135	---	---	---	---	---	---
8	112	59	81	152	126	139	---	---	---	---	---	---
9	144	111	121	213	132	171	---	---	---	---	---	---
10	117	71	87	179	152	162	---	---	---	---	---	---
11	92	74	82	177	150	161	---	---	---	---	---	---
12	122	91	106	173	154	161	101	93	97	---	---	---
13	111	103	106	163	155	158	106	99	102	---	---	---
14	116	106	110	167	152	156	155	105	114	---	---	---
15	144	114	127	193	153	170	175	126	142	126	118	120
16	159	124	142	198	185	189	127	124	125	154	114	131
17	131	122	125	269	185	216	168	125	137	---	---	---
18	156	126	129	212	200	204	147	131	135	113	74	104
19	131	123	127	235	190	207	136	131	132	110	99	104
20	139	126	131	230	179	204	143	133	137	124	109	115
21	173	133	140	180	161	171	181	138	157	134	122	128
22	157	141	144	194	148	157	154	146	148	151	133	142
23	199	144	156	156	145	151	150	142	146	159	148	151
24	230	179	197	402	147	222	146	141	143	171	159	163
25	210	185	197	224	182	195	150	145	147	183	169	175
26	237	175	208	183	160	169	153	102	141	---	---	---
27	263	171	204	161	152	156	---	---	---	---	---	---
28	262	181	210	163	147	155	---	---	---	---	---	---
29	---	---	---	166	157	161	---	---	---	---	---	---
30	---	---	---	219	159	165	---	---	---	---	---	---
31	---	---	---	230	164	203	---	---	---	---	---	---
MONTH	263	49	118	402	115	166	306	93	134	245	74	148

MONONGAHELA RIVER BASIN

03070420 STONY FORK TRIBUTARY NEAR GIBBON GLADE, PA--Continued

SPECIFIC CONDUCTANCE, µS/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	142	109	133	399	331	351	422	360	381
2	---	---	---	118	109	111	418	355	382	427	374	399
3	---	---	---	135	117	125	394	346	364	470	402	423
4	---	---	---	157	134	144	410	368	383	505	429	464
5	---	---	---	183	60	155	410	252	352	519	437	477
6	191	169	176	127	120	123	379	248	326	---	---	---
7	205	149	188	143	127	133	427	373	386	---	---	---
8	235	158	200	165	141	150	465	398	421	---	---	---
9	250	112	140	225	163	179	491	431	451	407	123	240
10	118	108	111	217	198	207	498	458	480	160	134	147
11	125	116	120	243	155	197	513	492	501	188	161	172
12	139	125	131	221	152	188	518	495	509	257	156	188
13	154	137	144	---	---	---	551	366	518	154	124	129
14	174	153	159	---	---	---	361	283	302	---	---	---
15	186	156	174	---	---	---	464	334	383	---	---	---
16	213	184	194	---	---	---	505	440	459	152	124	132
17	237	204	215	---	---	---	---	---	---	142	136	138
18	251	215	230	141	122	130	---	---	---	154	141	146
19	261	239	248	163	141	151	543	450	520	177	128	147
20	276	250	261	190	162	170	543	328	462	127	107	112
21	304	245	269	222	172	192	553	175	370	---	---	---
22	303	253	288	228	192	204	344	245	301	---	---	---
23	330	212	287	230	208	218	329	127	178	---	---	---
24	333	193	302	270	228	246	181	154	168	---	---	---
25	---	---	---	306	261	274	---	---	---	---	---	---
26	---	---	---	334	289	305	---	---	---	---	---	---
27	399	331	365	372	304	328	274	233	245	---	---	---
28	389	330	349	392	328	355	312	251	274	---	---	---
29	417	351	375	412	346	375	425	180	280	---	---	---
30	421	113	360	415	167	357	334	239	281	---	---	---
31	---	---	---	334	227	291	392	317	339	---	---	---
MONTH	421	108	230	415	60	209	553	127	370	519	107	246
YEAR	553	49	185									

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	6.8	6.4	6.5	6.5	6.3	6.4	6.7	6.5	6.6	6.1	5.9	6.0
2	6.6	6.5	6.6	6.3	6.3	6.3	6.5	6.4	6.5	6.2	6.1	6.1
3	6.6	6.6	6.6	6.4	6.3	6.3	6.4	6.4	6.4	6.3	6.1	6.2
4	6.6	6.6	6.6	6.3	6.2	6.3	6.5	6.4	6.4	6.5	6.2	6.3
5	6.6	6.5	6.6	6.3	6.2	6.2	6.5	6.4	6.5	6.3	6.1	6.2
6	6.9	6.5	6.7	6.2	6.2	6.2	6.7	6.4	6.5	---	---	---
7	6.8	6.6	6.7	6.3	6.2	6.2	6.6	6.4	6.4	---	---	---
8	6.7	6.6	6.6	6.8	6.3	6.4	6.5	6.4	6.4	6.3	6.2	6.2
9	6.7	6.6	6.6	6.7	6.4	6.5	6.5	6.4	6.5	6.4	6.2	6.3
10	6.9	6.6	6.6	6.6	6.4	6.4	6.5	6.4	6.4	6.5	6.3	6.4
11	6.7	6.6	6.6	6.4	6.3	6.3	6.4	6.4	6.4	6.5	6.3	6.4
12	6.6	6.6	6.6	6.3	6.3	6.3	6.4	6.3	6.4	6.4	6.3	6.4
13	6.7	6.6	6.6	6.4	6.2	6.3	6.3	6.3	6.3	6.3	6.3	6.3
14	6.7	6.6	6.7	---	---	---	6.3	6.3	6.3	6.4	6.3	6.3
15	6.7	6.7	6.7	6.8	6.5	6.6	6.3	6.2	6.2	6.4	6.3	6.3
16	6.7	6.6	6.7	6.8	6.3	6.4	6.3	6.2	6.2	6.4	6.3	6.4
17	6.7	6.2	6.4	6.8	6.5	6.7	6.2	6.2	6.2	6.4	6.2	6.3
18	6.7	6.3	6.4	6.7	6.5	6.6	6.2	6.1	6.2	6.6	6.4	6.5
19	6.9	6.4	6.6	6.6	6.5	6.5	6.2	6.1	6.1	6.4	6.4	6.4
20	6.8	6.5	6.7	6.5	6.5	6.5	6.2	6.1	6.2	6.7	6.4	6.6
21	6.9	6.5	6.6	6.5	6.4	6.5	6.2	6.1	6.1	6.8	6.6	6.7
22	6.6	6.5	6.5	6.6	6.4	6.5	6.1	6.1	6.1	6.7	6.1	6.5
23	6.5	6.4	6.5	6.4	6.4	6.4	6.1	6.1	6.1	6.5	6.1	6.3
24	6.5	6.4	6.5	6.4	6.4	6.4	---	---	---	6.5	6.4	6.5
25	6.5	6.5	6.5	6.4	6.4	6.4	6.1	6.1	6.1	6.8	6.4	6.6
26	6.5	6.5	6.5	6.6	6.4	6.4	6.2	6.1	6.1	6.7	6.6	6.7
27	6.6	6.5	6.6	6.6	6.3	6.4	6.2	6.1	6.1	6.7	6.5	6.6
28	6.6	6.5	6.5	6.4	6.4	6.4	---	---	---	6.5	6.5	6.5
29	---	---	---	6.4	6.4	6.4	6.4	6.1	6.2	7.0	6.5	6.6
30	---	---	---	6.9	6.4	6.5	6.3	6.0	6.2	7.0	6.9	7.0
31	6.6	6.4	6.4	---	---	---	6.5	6.0	6.2	6.9	6.7	6.8
MONTH	6.9	6.2	6.6	6.9	6.2	6.4	6.7	6.0	6.3	7.0	5.9	6.4

MONONGAHELA RIVER BASIN

03070420 STONY FORK TRIBUTARY NEAR GIBBON GLADE, PA--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	6.7	6.6	6.7	6.5	6.5	6.5	7.6	6.7	7.0	---	---	---
2	6.7	6.5	6.6	6.6	6.5	6.5	7.0	6.4	6.6	6.2	5.9	6.1
3	6.5	6.4	6.5	6.5	6.5	6.5	6.6	6.2	6.3	5.2	4.6	4.9
4	6.5	6.4	6.4	6.5	6.4	6.4	6.6	6.2	6.4	5.1	4.5	4.8
5	6.5	6.4	6.4	6.4	6.4	6.4	6.7	6.2	6.5	---	---	---
6	6.4	6.3	6.4	6.4	6.4	6.4	---	---	---	---	---	---
7	6.3	6.2	6.2	6.4	6.4	6.4	---	---	---	---	---	---
8	6.4	6.1	6.3	6.4	6.4	6.4	---	---	---	---	---	---
9	6.8	6.4	6.5	6.6	6.4	6.4	---	---	---	---	---	---
10	6.5	6.3	6.4	6.5	6.3	6.4	---	---	---	---	---	---
11	6.4	6.3	6.4	6.4	6.4	6.4	---	---	---	---	---	---
12	6.5	6.3	6.4	6.5	6.3	6.4	6.4	6.3	6.4	---	---	---
13	6.5	6.3	6.4	6.4	6.3	6.4	6.4	6.4	6.4	---	---	---
14	6.4	6.4	6.4	6.5	6.3	6.4	6.4	6.3	6.4	---	---	---
15	6.4	6.4	6.4	6.8	6.2	6.5	6.4	6.3	6.4	6.2	5.9	6.1
16	6.5	6.4	6.4	7.0	6.7	6.9	6.4	6.3	6.4	6.7	5.7	6.0
17	6.5	6.4	6.5	6.9	6.6	6.7	6.6	6.4	6.4	---	---	---
18	6.5	6.4	6.5	6.6	6.4	6.5	6.7	6.4	6.4	6.2	5.5	5.9
19	6.5	6.4	6.4	6.8	6.4	6.5	6.4	6.3	6.4	6.1	5.3	5.7
20	6.4	6.4	6.4	6.6	6.5	6.6	6.4	6.3	6.3	5.9	5.5	5.7
21	6.5	6.2	6.4	6.8	6.4	6.6	6.5	6.3	6.4	5.8	5.4	5.6
22	6.5	6.0	6.3	---	---	---	6.4	6.3	6.3	5.9	5.2	5.5
23	6.6	6.4	6.4	---	---	---	6.4	6.3	6.3	5.9	5.1	5.5
24	6.7	6.6	6.6	---	---	---	6.3	6.2	6.3	6.0	5.1	5.6
25	6.6	6.5	6.5	---	---	---	6.3	6.2	6.3	6.0	5.2	5.6
26	6.5	6.4	6.4	---	---	---	6.9	6.2	6.4	---	---	---
27	6.5	6.4	6.4	---	---	---	---	---	---	---	---	---
28	6.7	6.5	6.5	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	6.8	6.0	6.4	7.0	6.2	6.5	7.6	6.2	6.4	6.7	4.5	5.6
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	6.6	5.5	6.4	6.2	5.5	5.9	6.2	6.0	6.1
2	---	---	---	5.9	5.5	5.7	6.3	5.8	6.0	6.1	6.0	6.1
3	---	---	---	6.0	5.6	5.8	6.3	6.1	6.2	6.1	5.9	6.0
4	---	---	---	6.1	5.8	5.9	6.3	6.1	6.2	6.1	5.9	6.0
5	---	---	---	6.4	5.6	6.0	6.4	6.2	6.2	6.1	5.9	5.9
6	---	---	---	5.9	5.7	5.8	6.4	6.2	6.3	6.3	5.9	6.0
7	6.3	6.0	6.1	5.9	5.6	5.7	6.2	6.1	6.2	---	---	---
8	6.4	5.9	6.1	6.1	5.7	5.9	6.2	6.0	6.1	---	---	---
9	6.7	6.1	6.2	6.2	5.9	6.0	6.2	6.0	6.1	6.4	6.1	6.2
10	6.2	6.0	6.1	6.1	5.9	6.0	6.2	6.0	6.1	6.3	6.1	6.2
11	6.2	5.9	6.1	6.2	5.9	6.0	6.2	6.0	6.0	6.3	6.1	6.2
12	6.3	5.8	6.0	---	---	---	6.2	5.9	6.0	6.6	6.0	6.2
13	6.4	5.9	6.2	---	---	---	6.3	5.9	6.1	6.3	6.1	6.2
14	6.4	6.0	6.2	---	---	---	6.2	6.0	6.1	6.7	6.2	6.3
15	6.4	6.2	6.3	---	---	---	6.2	5.4	6.0	6.5	6.3	6.3
16	6.4	6.1	6.2	---	---	---	6.2	6.1	6.1	6.6	6.3	6.4
17	6.4	6.1	6.3	---	---	---	---	---	---	6.6	6.5	6.5
18	6.4	6.2	6.3	---	---	---	---	---	---	---	---	---
19	6.2	6.1	6.2	5.8	5.6	5.7	6.1	5.9	6.0	---	---	---
20	6.2	6.0	6.1	5.9	5.6	5.7	6.2	5.9	6.0	---	---	---
21	6.3	6.1	6.2	5.9	5.6	5.7	6.3	5.8	6.1	---	---	---
22	6.2	6.0	6.1	6.0	5.6	5.8	6.1	6.0	6.0	---	---	---
23	6.3	6.1	6.2	5.8	5.6	5.7	6.3	6.0	6.1	---	---	---
24	6.3	6.1	6.1	6.2	5.5	5.7	6.2	6.1	6.1	---	---	---
25	6.4	5.2	6.2	5.8	5.5	5.7	---	---	---	---	---	---
26	6.4	6.0	6.2	5.8	5.5	5.7	---	---	---	---	---	---
27	6.4	5.9	6.1	5.8	5.5	5.7	6.2	6.1	6.1	---	---	---
28	6.3	6.0	6.2	5.8	5.5	5.7	6.2	6.1	6.2	---	---	---
29	6.3	6.0	6.2	5.8	5.5	5.7	6.6	5.8	6.1	---	---	---
30	6.5	6.1	6.2	6.1	5.6	5.7	6.3	6.1	6.2	---	---	---
31	---	---	---	5.9	5.6	5.7	6.3	6.0	6.2	---	---	---
MONTH	6.7	5.2	6.2	6.6	5.5	5.8	6.6	5.4	6.1	6.7	5.9	6.2
YEAR	7.6	4.5	6.3									

MONONGAHELA RIVER BASIN

03070420 STONY FORK TRIBUTARY NEAR GIBBON GLADE, PA--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	15.1	13.6	14.4	11.3	7.5	9.6	6.0	2.6	4.0	4.4	3.9	4.1
2	17.4	15.1	16.1	10.0	6.0	7.9	5.8	1.7	3.3	4.9	2.7	3.9
3	16.6	13.7	15.8	7.9	5.4	7.2	2.7	.7	1.2	4.8	2.7	3.8
4	14.0	11.6	12.7	8.7	3.5	5.9	2.0	.8	1.4	5.1	4.2	4.7
5	14.5	10.2	12.2	9.7	4.1	6.9	3.9	2.0	3.2	7.0	4.7	5.9
6	14.6	12.5	13.7	12.5	8.3	10.0	4.8	3.2	4.0	5.8	4.5	4.9
7	14.4	12.9	13.8	11.0	6.6	8.9	4.8	2.4	3.9	4.3	2.8	3.4
8	12.9	11.3	12.2	12.4	10.2	11.2	2.4	.9	2.0	4.9	2.4	3.6
9	14.0	10.5	11.8	11.4	8.0	10.5	2.0	.7	1.1	5.6	3.7	4.5
10	13.4	9.6	11.7	8.4	7.1	7.9	2.6	.8	1.7	4.5	2.2	3.1
11	16.7	13.1	14.4	9.9	6.5	8.3	2.7	.9	1.9	4.9	1.7	2.9
12	18.6	12.0	15.0	10.7	7.1	9.1	3.6	2.1	2.8	2.3	.4	1.4
13	20.4	15.0	17.4	12.3	6.3	8.7	3.2	1.0	1.9	1.4	.3	.6
14	22.6	16.9	19.3	---	---	---	1.9	.6	1.1	1.3	.3	.8
15	24.9	19.2	21.7	12.8	11.0	11.7	.9	.5	.6	3.4	.7	2.2
16	27.0	20.6	23.6	11.1	7.8	9.4	.7	.5	.6	5.5	3.0	4.3
17	27.4	13.8	20.5	9.9	6.4	8.8	1.0	.5	.7	6.9	3.5	5.3
18	13.8	10.8	12.1	8.3	5.2	7.3	1.0	.4	.6	7.3	4.9	6.6
19	20.0	10.5	13.3	6.6	3.3	5.0	.9	.5	.7	4.5	2.8	3.8
20	14.9	9.9	11.6	10.8	6.4	8.1	1.2	.7	1.0	9.7	3.7	6.8
21	17.3	8.0	10.4	6.5	3.2	4.6	1.0	.5	.8	9.4	7.4	9.0
22	12.0	8.3	9.7	5.0	2.8	3.6	.7	.4	.6	9.7	4.8	7.7
23	12.2	6.4	8.9	3.7	2.2	2.8	1.0	.5	.7	9.5	4.2	5.4
24	13.3	7.6	10.0	4.4	1.7	2.7	---	---	---	7.6	5.2	6.0
25	13.6	8.1	10.3	6.4	1.6	3.8	1.1	.7	.9	8.4	5.4	6.6
26	13.7	7.7	10.2	7.1	4.5	6.1	1.3	.7	1.1	5.1	1.5	3.3
27	13.3	7.0	9.6	7.6	4.2	5.8	1.3	.5	.9	5.3	1.0	2.8
28	13.3	6.9	9.5	8.7	5.8	7.5	---	---	---	4.5	2.5	3.8
29	---	---	---	5.7	2.4	4.3	2.3	1.4	1.8	5.7	1.0	2.9
30	---	---	---	4.4	2.3	3.1	2.6	1.3	1.8	11.2	5.8	8.3
31	14.3	10.0	11.7	---	---	---	3.9	1.7	2.9	13.9	7.1	10.2
MONTH	27.4	6.4	13.6	12.8	1.6	7.1	6.0	.4	1.7	13.9	.3	4.6
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	13.2	8.4	10.7	5.8	.4	2.2	12.8	7.9	9.5	---	---	---
2	16.4	13.2	14.4	4.3	.8	2.5	9.9	7.0	8.2	---	9.2	15.2
3	16.4	14.7	15.3	7.7	1.1	3.7	7.0	4.8	6.2	12.3	9.7	10.8
4	15.4	11.7	14.6	5.8	.4	2.1	6.2	3.1	4.4	17.2	9.9	12.1
5	11.4	8.3	10.0	6.8	.8	3.1	12.4	5.2	8.1	---	---	---
6	15.3	8.8	11.7	5.1	1.3	3.3	---	---	---	---	---	---
7	14.3	12.9	13.2	6.4	.4	2.2	---	---	---	---	---	---
8	16.7	4.5	10.8	6.3	.4	3.0	---	---	---	---	---	---
9	6.9	4.1	5.7	6.2	3.7	5.0	---	---	---	---	---	---
10	6.8	4.8	6.1	13.6	4.9	8.3	---	---	---	---	---	---
11	5.9	4.6	5.1	10.3	6.8	8.3	---	---	---	---	---	---
12	5.5	3.8	4.6	15.8	7.1	10.7	7.6	4.2	5.6	---	---	---
13	7.6	3.3	5.3	17.7	9.6	12.5	11.7	2.9	6.4	---	---	---
14	7.2	6.2	6.6	16.1	7.9	11.5	12.0	4.5	7.6	---	---	---
15	8.2	5.9	7.0	17.7	8.6	12.2	12.2	7.4	9.1	---	13.7	19.7
16	10.4	7.6	8.9	14.4	10.6	12.3	15.0	5.4	9.3	17.8	12.7	14.7
17	7.2	2.9	5.2	11.8	8.1	10.4	8.3	4.9	7.1	---	---	---
18	5.8	1.6	3.7	10.8	4.8	7.7	12.9	3.5	7.0	---	11.2	13.3
19	8.1	3.0	5.2	6.5	4.2	5.1	12.6	3.3	7.6	15.9	10.2	12.9
20	5.9	1.1	2.8	6.0	2.2	4.1	11.6	7.8	9.2	15.2	12.1	13.5
21	6.6	.7	3.0	10.5	1.3	4.8	12.5	8.8	10.3	13.6	11.5	12.9
22	9.2	2.3	5.6	12.9	2.3	6.9	18.7	6.3	11.4	14.5	10.7	11.9
23	7.8	4.2	6.9	11.5	5.1	7.9	19.5	6.6	12.1	15.6	9.5	12.2
24	4.5	.4	2.9	4.9	2.0	3.6	20.5	7.8	13.1	17.0	9.8	13.1
25	.9	.3	.5	8.8	1.6	4.4	19.7	9.5	13.7	17.5	9.9	13.2
26	1.3	.3	.6	8.7	2.3	4.8	23.1	11.0	17.1	---	---	---
27	1.3	.5	.8	10.0	.8	4.3	---	---	---	---	---	---
28	3.9	1.1	2.2	10.0	.7	4.8	---	---	---	---	---	---
29	---	---	---	7.5	4.2	5.8	---	---	---	---	---	---
30	---	---	---	13.8	5.1	8.1	---	---	---	---	---	---
31	---	---	---	10.2	7.1	8.5	---	---	---	---	---	---
MONTH	16.7	.3	6.8	17.7	.4	6.3	23.1	2.9	9.1	17.8	9.2	13.5

03070420 STONY FORK TRIBUTARY NEAR GIBBON GLADE, PA--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	---	---	---	20.0	15.6	17.3	18.6	14.9	16.8
2	21.1	13.7	17.4	---	---	---	20.3	13.8	16.8	19.3	16.2	17.7
3	20.8	16.6	18.5	19.5	13.6	16.3	21.8	15.5	18.5	18.6	15.7	17.2
4	19.6	13.6	15.7	21.7	15.3	18.0	21.2	17.2	19.1	18.1	14.1	16.1
5	17.4	11.3	13.9	31.0	17.6	19.7	19.7	18.6	19.2	18.2	14.9	16.5
6	20.0	11.0	15.1	19.0	15.6	17.2	21.2	18.5	19.6	19.5	16.8	18.0
7	18.7	14.5	16.1	18.4	14.1	16.2	---	---	---	---	---	---
8	20.1	13.5	16.2	20.9	15.3	17.7	---	---	---	---	---	---
9	16.9	15.1	16.1	22.2	16.8	18.8	20.0	16.5	18.2	19.6	17.1	18.4
10	16.1	13.8	14.8	21.4	17.5	19.1	20.7	16.4	18.5	19.5	16.8	18.0
11	16.8	13.0	14.6	19.1	17.9	18.5	19.3	17.2	18.3	19.6	15.3	17.4
12	17.7	10.9	14.2	18.7	17.3	17.9	21.4	17.0	18.9	19.6	17.3	18.2
13	20.1	13.3	16.1	---	---	---	21.5	17.2	19.1	19.0	17.4	18.2
14	20.9	14.0	17.2	---	---	---	21.7	18.6	19.8	19.5	16.7	17.9
15	21.4	16.2	18.2	---	---	---	20.0	16.8	18.5	18.4	15.8	17.3
16	22.4	15.2	18.4	---	---	---	19.2	15.6	17.2	16.4	14.9	15.7
17	23.7	15.7	19.2	---	---	---	---	---	---	14.6	12.2	13.7
18	21.9	17.0	19.1	19.6	14.7	16.9	---	---	---	14.8	10.5	12.5
19	17.9	15.7	16.8	19.9	15.6	17.4	19.9	17.3	18.5	15.7	12.7	14.2
20	19.5	14.2	16.3	20.8	15.8	17.9	19.3	17.9	18.6	16.4	14.7	15.5
21	21.0	15.9	17.7	19.3	16.9	17.9	18.3	16.4	17.3	---	---	---
22	19.1	13.8	16.6	20.4	17.3	18.4	17.7	16.7	17.1	---	---	---
23	19.4	15.6	17.2	18.2	16.5	17.8	18.0	17.0	17.4	---	---	---
24	16.6	14.5	15.4	20.1	15.6	17.4	18.9	17.1	17.8	---	---	---
25	19.6	13.7	16.2	20.5	14.8	17.3	20.3	17.0	18.3	---	---	---
26	21.4	13.2	16.9	20.7	14.3	17.3	20.5	17.1	18.6	---	---	---
27	20.9	14.0	17.1	20.9	14.3	17.4	21.2	17.7	19.1	---	---	---
28	21.4	15.3	18.2	20.7	15.2	17.8	21.6	18.0	19.6	---	---	---
29	22.5	16.4	19.2	20.5	15.0	17.7	19.6	17.4	18.5	---	---	---
30	21.1	17.8	19.2	20.5	15.6	17.9	19.5	16.3	17.7	---	---	---
31	---	---	---	18.7	16.7	18.1	18.7	14.3	16.6	---	---	---
MONTH	23.7	10.9	16.8	31.0	13.6	17.8	21.8	13.8	18.3	19.6	10.5	16.6
YEAR	31.0	.3	10.5									

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	.90	36	.25	.54	8	.01	1.2	13	.04
2	.87	14	.03	.48	8	.01	1.1	13	.04
3	.53	15	.02	.51	8	.01	1.0	13	.04
4	.42	16	.02	.47	8	.01	.86	12	.03
5	.37	16	.02	.42	8	.01	.79	12	.03
6	1.0	25	.08	.46	7	.01	1.4	11	.04
7	1.7	33	.17	.42	7	.01	1.6	11	.05
8	1.2	25	.08	.53	46	.09	1.2	10	.03
9	.98	23	.06	2.4	77	.37	1.2	10	.03
10	1.2	27	.09	2.5	39	.27	1.0	9	.02
11	1.3	16	.06	2.6	10	.07	.91	9	.02
12	1.0	14	.04	2.0	10	.05	.81	8	.02
13	.84	13	.03	1.5	10	.04	.73	8	.02
14	.71	11	.02	1.3	10	.04	.65	5	.01
15	.59	8	.01	1.4	15	.06	.61	5	.01
16	.53	8	.01	7.4	199	2.1	.58	5	.01
17	5.3	189	4.4	5.9	48	.76	.50	5	.01
18	8.8	101	4.5	3.3	34	.30	.47	5	.01
19	13	102	5.5	2.3	13	.08	.45	5	.01
20	5.0	100	1.4	1.9	14	.07	.43	5	.01
21	2.9	25	.20	1.6	16	.07	.41	5	.01
22	2.0	16	.09	1.2	16	.05	.49	5	.01
23	1.5	15	.06	1.0	17	.05	.38	5	.01
24	1.2	14	.05	.91	17	.04	.30	5	.00
25	.98	8	.02	.77	17	.04	.32	5	.00
26	.83	8	.02	.88	20	.05	.32	5	.00
27	.72	6	.01	1.6	17	.07	.29	5	.00
28	.63	6	.01	1.7	21	.10	.29	5	.00
29	.56	4	.01	1.6	20	.09	.32	5	.00
30	.52	4	.01	1.4	18	.07	2.1	10	.06
31	.69	12	.03	---	---	---	21	10	.57
TOTAL	58.77	---	17.30	50.99	---	5.00	43.71	---	1.14

MONONGAHELA RIVER BASIN

03070420 STONY FORK TRIBUTARY NEAR GIBBON GLADE, PA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	14	8	.30	3.4	20	.18	1.1	25	.07
2	5.4	8	.12	6.3	133	2.8	1.1	13	.04
3	3.2	8	.07	5.6	40	.60	1.1	15	.04
4	5.8	8	.13	6.8	40	.73	.95	15	.04
5	6.0	8	.13	4.5	40	.49	.89	17	.04
6	3.4	8	.07	3.0	40	.32	.83	17	.04
7	2.3	8	.05	2.5	32	.22	.70	16	.03
8	1.8	8	.04	1.9	15	.08	.68	16	.03
9	1.5	8	.03	4.6	211	3.6	.86	16	.04
10	1.4	8	.03	18	272	18	.73	17	.03
11	1.3	8	.03	6.2	53	.89	.73	17	.03
12	1.2	10	.03	3.7	35	.35	.68	19	.03
13	.92	10	.02	2.7	22	.16	.62	20	.03
14	.83	48	.11	2.2	22	.13	.62	23	.04
15	1.3	37	.13	2.0	22	.12	.58	37	.06
16	2.2	40	.24	2.2	21	.12	.55	33	.05
17	1.9	40	.21	1.8	21	.10	.76	30	.06
18	2.4	40	.26	1.5	20	.08	.59	27	.04
19	2.0	40	.22	1.3	20	.07	.82	40	.09
20	7.4	137	3.1	1.0	19	.05	.91	20	.05
21	5.9	60	.96	.89	16	.04	.86	23	.05
22	3.6	36	.35	.89	13	.03	.88	39	.09
23	2.4	18	.12	.95	8	.02	.83	25	.06
24	1.8	16	.08	.93	8	.02	.86	20	.05
25	1.8	16	.08	.62	8	.01	.96	60	.16
26	1.7	16	.07	.73	13	.02	.90	40	.10
27	1.6	17	.07	.96	10	.03	.81	38	.08
28	1.6	17	.07	1.4	39	.15	.79	34	.07
29	8.7	175	7.7	---	---	---	.76	28	.06
30	8.9	150	3.6	---	---	---	.78	25	.05
31	4.6	17	.21	---	---	---	.95	20	.05
TOTAL	108.85	---	18.63	88.57	---	29.41	25.18	---	1.70

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	3.5	314	4.8	.54	20	.03	1.6	24	.10
2	4.2	65	.74	.43	18	.02	1.3	19	.07
3	3.0	60	.49	.50	15	.02	1.1	15	.04
4	2.7	59	.43	5.7	435	17	1.4	77	.32
5	4.6	50	.62	10	86	3.4	.76	11	.02
6	4.1	42	.46	5.6	38	.57	.54	11	.02
7	3.2	31	.27	3.1	33	.28	.63	32	.06
8	2.5	35	.24	2.1	29	.16	.63	56	.16
9	2.0	44	.24	1.6	25	.11	5.7	187	3.7
10	3.7	185	7.7	2.2	63	.49	2.6	40	.28
11	5.4	101	2.6	1.6	40	.17	1.7	15	.07
12	2.9	40	.31	1.3	33	.12	1.1	13	.04
13	2.2	30	.18	1.8	29	.14	.86	13	.03
14	1.9	21	.11	1.5	26	.11	.71	13	.02
15	1.8	20	.10	1.2	24	.08	.87	45	.13
16	1.5	18	.07	3.3	223	6.3	.53	40	.06
17	1.7	19	.09	4.4	60	.71	.43	15	.02
18	1.3	19	.07	2.7	40	.29	.40	11	.01
19	1.2	20	.06	1.8	38	.18	.37	14	.01
20	1.2	20	.06	1.5	28	.11	.35	15	.01
21	1.3	20	.07	1.2	21	.07	.35	15	.01
22	1.1	21	.06	1.0	18	.05	.31	20	.02
23	.95	25	.06	.80	15	.03	.38	19	.02
24	.84	30	.07	.64	13	.02	.38	50	.09
25	.79	30	.06	.57	11	.02	.29	12	.01
26	.73	30	.06	11	254	10	.21	10	.01
27	.68	27	.05	5.4	39	.57	.20	12	.01
28	.63	25	.04	3.3	39	.35	.21	15	.01
29	.66	24	.04	3.6	101	.98	.19	15	.01
30	.58	23	.04	3.1	30	.25	2.6	218	14
31	---	---	---	2.2	28	.17	---	---	---
TOTAL	62.86	---	20.19	85.68	---	42.80	28.70	---	19.36

MONONGAHELA RIVER BASIN

03070420 STONY FORK TRIBUTARY NEAR GIBBON GLADE, PA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	11	223	16	.26	27	.02	.21	12	.01
2	2.5	31	.21	.22	27	.02	.20	12	.01
3	1.3	32	.11	.24	27	.02	.18	13	.01
4	.85	34	.08	.22	28	.02	.16	14	.01
5	3.3	205	10	.32	31	.02	.16	16	.01
6	2.2	30	.18	.36	40	.04	.20	25	.01
7	1.3	27	.09	.24	33	.02	.57	41	.09
8	.91	23	.06	.20	31	.02	.26	27	.02
9	.75	16	.03	.19	31	.02	2.9	149	1.2
10	.63	12	.02	.17	20	.01	1.7	25	.11
11	1.2	28	.09	.17	14	.01	.67	25	.05
12	2.2	93	.63	.16	14	.01	1.3	50	.45
13	6.9	129	3.5	1.0	109	.30	3.2	35	.43
14	4.9	60	.79	.37	16	.02	1.9	129	1.7
15	5.5	125	3.3	.21	12	.01	2.5	80	.98
16	4.1	30	.33	.16	12	.01	1.6	16	.07
17	2.3	21	.13	.14	15	.01	1.2	16	.05
18	1.5	18	.07	.13	17	.01	.86	16	.04
19	1.1	16	.05	.14	18	.01	2.6	69	.16
20	.90	16	.04	.17	28	.01	2.7	25	.18
21	.84	20	.06	.76	86	.34	1.7	25	.11
22	.92	22	.06	.37	40	.04	2.3	25	.09
23	.72	35	.07	3.6	160	1.6	2.9	25	.03
24	.53	10	.01	1.0	15	.04	1.8	55	.27
25	.40	11	.01	.58	12	.02	1.3	45	.16
26	.34	12	.01	.43	10	.01	.96	40	.10
27	.30	14	.01	.35	10	.01	.71	36	.07
28	.26	15	.01	.28	10	.01	.56	33	.05
29	.24	13	.01	.47	69	.20	.46	28	.03
30	.55	112	.28	.35	12	.01	.56	18	.03
31	.43	40	.05	.24	12	.01	---	---	---
TOTAL	60.87	---	36.29	13.50	---	2.90	38.32	---	6.53
YEAR	666.00		201.25						

MONONGAHELA RIVER BASIN

03072000 DUNKARD CREEK AT SHANNOPIN, PA

LOCATION.--Lat 39°45'33", long 79°58'15", Greene County, Hydrologic Unit 05020005, on left bank 1,300 ft upstream from highway bridge at mine buildings at Shannopin, 1.2 mi north of Dunkard, 3.5 mi upstream from mouth, and 4 mi southwest of Greensboro.

DRAINAGE AREA.--229 mi^2.

PERIOD OF RECORD.--October 1940 to current year. Prior to December 1940 monthly discharge only, published in WSP 1305.

REVISED RECORDS.--WSP 1505: 1955.

GAGE.--Water-stage recorder. Datum of gage is 806.25 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Records good except for estimated daily discharges, which are fair. Some regulation at low flow by mine pumpage above station. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--50 years, 276 ft^3/s, 16.37 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,600 ft^3/s, Aug. 18, 1980, gage height, 14.27 ft; minimum, 0.4 ft^3/s, Aug. 28, 1944, gage height, 0.75 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft^3/s and maximum (*).

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 10	1900	*3,370	*7.95				

Minimum discharge, 14 ft^3/s, Aug. 18, gage height, 1.26 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	43	84	139	2520	618	234	183	135	418	39	36	46
2	44	92	126	1020	504	220	488	123	291	60	35	35
3	48	79	119	573	656	211	469	110	234	45	27	28
4	58	71	105	449	901	192	396	150	223	40	24	24
5	46	68	e100	461	1550	165	372	1260	198	36	20	26
6	42	64	e94	392	842	157	335	1070	152	62	21	30
7	44	67	e90	317	611	143	317	661	127	80	31	99
8	55	66	e82	264	519	130	283	463	133	44	39	261
9	68	73	e78	239	474	129	246	345	338	33	28	260
10	66	132	e74	217	2230	138	238	376	743	32	20	680
11	77	155	e68	222	1740	132	430	443	375	42	18	403
12	113	140	e64	200	993	127	487	307	235	85	16	223
13	97	124	e60	176	700	128	384	304	169	193	15	802
14	79	114	e58	134	543	119	321	551	135	193	17	723
15	66	108	e56	162	448	115	305	430	420	266	23	793
16	56	481	e54	232	523	110	281	386	318	506	23	576
17	215	946	e52	217	845	136	257	675	174	236	18	545
18	936	452	e50	225	594	354	271	675	119	129	15	382
19	1470	314	e49	230	481	307	235	430	101	83	76	276
20	1050	253	e48	500	394	377	219	319	90	60	440	564
21	479	228	e46	1120	321	353	226	260	80	147	203	517
22	335	179	e45	881	289	310	297	224	69	240	339	372
23	240	154	e44	547	275	266	279	183	65	217	342	435
24	190	139	e43	405	253	234	261	153	60	222	482	445
25	155	124	e42	339	224	220	235	120	57	141	247	314
26	131	117	e41	302	159	210	206	376	54	89	142	231
27	115	124	e40	255	184	194	181	1170	46	64	91	179
28	101	134	e39	229	232	178	160	657	38	48	69	141
29	87	155	e38	574	---	161	143	512	34	39	57	113
30	81	150	e40	2540	---	151	135	1040	30	33	50	94
31	83	---	e190	1030	---	150	---	700	---	33	42	---
TOTAL	6670	5387	2174	16972	18103	6051	8640	14608	5526	3537	3006	9617
MEAN	215	180	70.1	547	647	195	288	471	184	114	97.0	321
MAX	1470	946	190	2540	2230	377	488	1260	743	506	482	802
MIN	42	64	38	134	159	110	135	110	30	32	15	24
CFSM	.94	.78	.31	2.39	2.82	.85	1.26	2.06	.80	.50	.42	1.40
IN.	1.08	.88	.35	2.76	2.94	.98	1.40	2.37	.90	.57	.49	1.56

CAL YR 1989 TOTAL 133084 MEAN 365 MAX 4920 MIN 14 CFSM 1.59 IN. 21.62
WTR YR 1990 TOTAL 100291 MEAN 275 MAX 2540 MIN 15 CFSM 1.20 IN. 16.29

e Estimated

MONONGAHELA RIVER BASIN

03072500 MONONGAHELA RIVER AT GREENSBORO, PA

LOCATION.--Lat 39°47'15", long 79°55'26", Greene County, Hydrologic Unit 05020005, on left bank on land guide wall, 950 ft upstream from dam at lock 7 at Greensboro, 0.4 mi upstream from Georges Creek, 2.0 mi downstream from Dunkard Creek, 4.3 mi downstream from Cheat River, and at mile 85.2.

DRAINAGE AREA.--4,407 mi^2.

PERIOD OF RECORD.--October 1938 to current year. Prior to January 1939 monthly discharge only, published in WSP 1305.

REVISED RECORDS.--WSP 1113: 1939 (M), 1941 (M). WSP 1435: 1939. WSP 1907: 1936 (M), 1955 (M).

GAGE.--Water-stage recorder and concrete dam control. Datum of gage is 767.55 ft above National Geodetic Vertical Datum, adjustment of 1912.

REMARKS.--No estimated daily discharge. Records good above 5,000 ft^3/s and fair below, except those below 1,000 ft^3/s, which are poor. Flow regulated since 1938 by Tygart Lake 66 mi upstream and since 1926 by Lake Lynn 8 mi upstream combined capacity, 357,300 acre-ft. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--52 years, 8,277 ft^3/s, 25.51 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 220,000 ft^3/s, Nov. 5, 1985, gage height, 39.39 ft. from floodmarks; minimum daily, 177 ft^3/s, Sept. 11, 1988; minimum gage height, 10.23 ft, Apr. 29, 1941.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 1888 reached a stage of about 36 ft, from high-water profile by U.S. Army Corps of Engineers. Flood of Mar. 18, 1936, reached a stage of 28.4 ft, discharge, 130,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 85,800 ft^3/s, Jan. 1, gage height, 21.35 ft, minimum daily, 602 ft^3/s, Sept. 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	2650	4480	12700	70900	18800	7990	4080	3720	26400	4920	1930	2170
2	4730	3680	7620	28400	16500	8680	10000	3810	21400	9400	1020	1250
3	3470	4400	4840	21800	16100	8820	10300	3270	19800	8460	1500	602
4	4400	3280	5550	27600	15300	9920	9300	5410	12800	6920	854	2120
5	2710	1880	5570	21500	20200	9720	8130	19300	9090	4780	1020	1610
6	3830	3310	5570	19600	17300	8840	10400	14600	7890	3610	2020	1800
7	5810	3270	6370	15300	16100	8720	10700	11000	5620	3200	1180	2760
8	8470	3770	6640	12000	17100	7360	8700	12300	4790	3120	827	2090
9	6210	6840	6380	11100	16000	7000	10200	8530	9360	2220	1950	2770
10	6960	14900	6720	10300	43000	3910	11800	11100	16200	2550	879	7420
11	6670	11700	4490	8980	40900	2830	16200	8780	11700	4370	651	2340
12	6850	12900	3460	7350	32400	6550	20100	7480	8820	4830	749	2920
13	5800	10700	4240	4400	20300	6390	17800	6390	5250	19300	2320	8970
14	4450	6750	3420	3980	18400	6870	13300	7530	3670	19000	1250	3830
15	2660	6920	2650	3860	16400	8020	9350	6110	13900	15300	939	7070
16	3620	19000	1940	5510	13800	5570	9070	7230	9100	26500	911	6060
17	9610	28900	1440	11500	13700	4020	10100	9750	8680	20600	630	5400
18	16900	22000	1910	10700	12500	4200	8150	11200	5930	16100	1910	4140
19	31400	17400	2740	15400	11600	7550	9120	9220	3880	12000	2590	3850
20	27000	13200	2910	18900	11800	6970	8760	7320	3370	7700	3380	7360
21	22900	14000	3280	30400	7830	7690	11900	6070	2170	5660	2680	4960
22	20900	9210	1970	23700	5700	7140	23200	4860	3090	5300	2160	8660
23	14000	6430	1270	21000	6210	5930	19000	5690	1920	6160	10900	7820
24	11400	7210	1410	17600	7400	4690	18100	7850	1960	4900	8040	5290
25	10600	5660	1290	13400	5240	5360	15200	8010	2910	4620	5500	7560
26	8300	7220	1940	12800	5920	6800	9480	20100	3130	3230	3910	4370
27	9540	7310	2770	14000	7390	7590	6140	67000	2550	2450	2500	4990
28	6080	8690	2040	12800	8750	6330	4350	32100	2190	2720	2180	3610
29	4070	14800	2410	16300	---	6760	3700	22400	1560	2200	1850	1990
30	4990	12600	2190	34000	---	7040	4720	34400	2250	2250	1720	3170
31	3380	---	19000	29400	---	2400	---	32500	---	1570	1700	---
TOTAL	280360	292410	136730	554480	442640	207660	331350	415030	231380	235940	71650	128952
MEAN	9044	9747	4411	17890	15810	6699	11040	13390	7713	7611	2311	4298
MAX	31400	28900	19000	70900	43000	9920	23200	67000	26400	26500	10900	8970
MIN	2650	1880	1270	3860	5240	2400	3700	3270	1560	1570	630	602
ADJ†	-386	-244	+68.3	+693	-954	-55.3	+1270	+1080	-1090	-69.9	-22.7	-214
MEAN‡	8658	9503	4479	18580	14860	6644	12310	14470	6623	7541	2288	4084
CFSM‡	1.96	2.16	1.02	4.22	3.37	1.51	2.79	3.28	1.50	1.71	.52	.93
IN.‡	2.26	2.41	1.18	4.87	3.51	1.74	3.11	3.78	1.67	1.97	.60	1.04

CAL YR 1989 TOTAL 4347816 MEAN 11910 MAX 79200 MIN 854 ADJ +26.2 MEAN‡ 11940 CFSM‡ 2.71 IN.‡ 36.76
WTR YR 1990 TOTAL 3328582 MEAN 9119 MAX 70900 MIN 602 ADJ +14.5 MEAN‡ 9134 CFSM‡ 2.07 IN.‡ 28.14

† Change in contents, equivalent in cubic feet per second, in Tygart Lake and Lake Lynn. Records of contents in Lake Lynn furnished by Allegheny Power Service Corp.
‡ Adjusted for change in reservoir contents.

03073000 SOUTH FORK TENMILE CREEK AT JEFFERSON, PA

LOCATION.--Lat 39°55'23", long 80°04'22", Greene County, Hydrologic Unit 05020005, on right bank at downstream side of bridge on State Highway 188, 1 mi southwest of Jefferson, and 3.1 mi downstream from Ruff Creek.

DRAINAGE AREA.--180 mi^2.

PERIOD OF RECORD.--October 1931 to current year. Monthly discharge only for October 1931, published in WSP 1305.

REVISED RECORDS.--WSP 1305: 1949. WSP 1435: 1932-34, 1935 (M).

GAGE.--Water-stage recorder and masonry control. Datum of gage is 852.54 ft above National Geodetic Vertical Datum, adjustment of 1907. Prior to Oct. 21, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Slight diversion into basin during winter months from Monongahela River for Waynesburg water supply. Some regulation from reservoirs and pumpage above station. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--59 years, 200 ft^3/s, 15.09 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,200 ft^3/s, Nov. 27, 1985, gage height, 18.63 ft, from rating curve extended above 7,600 ft^3/s on basis of slope-area measurement at gage height 18.45 ft, from floodmark in gage house; minimum observed, 0.05 ft^3/s, Sept. 3, 1938, gage height, 0.36 ft.

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

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 29	2400	*2,850	*7.06				

Minimum discharge, 3.9 ft^3/s, Aug. 19, gage height, 0.90 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	17	56	e43	e1450	429	e120	130	73	326	32	23	21
2	21	54	e39	509	412	124	213	68	230	45	18	16
3	24	44	e36	315	513	124	221	61	211	25	14	13
4	20	41	e33	266	1060	111	218	83	174	19	12	11
5	16	36	e31	294	956	99	230	855	131	16	16	29
6	15	34	e29	231	576	93	231	667	104	18	60	94
7	18	30	e26	179	455	82	231	447	101	18	33	563
8	25	29	e24	151	371	74	207	299	139	17	20	473
9	27	45	e23	126	454	78	178	220	550	15	15	402
10	24	87	e21	119	1860	84	171	210	485	15	12	432
11	31	72	e20	110	943	79	390	195	251	16	8.6	229
12	40	57	e19	100	659	80	331	140	163	42	7.9	145
13	32	46	e18	87	476	73	265	142	120	351	8.3	185
14	27	40	e17	73	378	69	228	164	93	193	7.7	116
15	23	39	e16	87	338	66	228	125	444	268	9.8	548
16	21	261	e15	97	591	63	195	147	221	270	11	296
17	50	346	e15	101	521	200	179	390	135	133	8.2	265
18	131	197	e14	107	374	336	177	329	97	79	5.5	166
19	472	136	e14	102	322	250	146	216	95	52	4.3	130
20	338	108	e13	482	254	328	137	169	70	41	28	176
21	189	91	e13	925	210	283	143	142	60	67	48	138
22	134	74	e12	562	197	242	156	113	50	108	132	150
23	90	66	e12	361	192	209	131	94	124	97	65	232
24	69	61	e12	279	182	181	118	77	86	75	96	201
25	57	52	e12	222	147	168	111	65	65	54	61	138
26	48	51	e11	196	e110	154	103	583	46	38	37	98
27	41	52	e11	156	e96	131	94	556	37	28	26	80
28	37	53	e12	150	e100	116	87	340	32	22	18	63
29	34	56	e14	802	---	108	81	748	27	20	15	52
30	31	50	e23	1530	---	103	79	1100	24	20	34	48
31	29	---	e280	645	---	103	---	526	---	40	39	---
TOTAL	2131	2364	878	10814	13176	4331	5409	9344	4691	2234	893.3	5510
MEAN	68.7	78.8	28.3	349	471	140	180	301	156	72.1	28.8	184
MAX	472	346	280	1530	1860	336	390	1100	550	351	132	563
MIN	15	29	11	73	96	63	79	61	24	15	4.3	11
CFSM	.38	.44	.16	1.94	2.61	.78	1.00	1.67	.87	.40	.16	1.02
IN.	.44	.49	.18	2.23	2.72	.90	1.12	1.93	.97	.46	.18	1.14

CAL YR 1989 TOTAL 80433.8 MEAN 220 MAX 3590 MIN 3.7 CFSM 1.22 IN. 16.62
WTR YR 1990 TOTAL 61775.3 MEAN 169 MAX 1860 MIN 4.3 CFSM .94 IN. 12.77

e Estimated

03074500 REDSTONE CREEK AT WALTERSBURG, PA

LOCATION.--Lat 39°58'48", long 79°45'52", Fayette County, Hydrologic Unit 05020005, on right bank, 15 ft upstream from highway bridge at Waltersburg, 400 ft upstream from Bolden Run, and 0.9 mi upstream from Allen Run.

DRAINAGE AREA.--73.7 mi^2.

PERIOD OF RECORD.--October 1942 to current year. Monthly discharge only for October 1942, published in WSP 1305.

REVISED RECORDS.--WSP 1435: 1943-45 (M), 1946, 1947 (M), 1948 (P), 1949-50 (M), 1951 (P), 1952 (M).

GAGE.--Water-stage recorder. Datum of gage is 883.28 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 15, 1973, nonrecording gage 15 ft downstream at same datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Some regulation at low flow by mine pumpage into stream above station. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--48 years, 102 ft^3/s, 18.79 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,660 ft^3/s, June 23, 1972, gage height, 14.83 ft; minimum observed, 4.2 ft^3/s, Aug. 2, 1962.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 4	1430	1,060	4.11	June 15	0500	1,350	4.73
Feb. 10	0730	*1,880	*5.75	July 1	0400	1,080	4.15
May 5	0700	1,010	4.01	July 5	1900	1,830	5.65

Minimum daily discharge, 15ft^3/s, Aug 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	45	61	e58	506	167	78	225	64	108	637	49	e60
2	71	50	e56	224	243	81	263	61	94	200	e38	e40
3	49	53	51	158	256	81	184	60	92	120	e34	e25
4	42	49	49	139	639	77	188	112	96	91	e30	e18
5	40	46	50	138	394	75	194	524	80	524	e34	e35
6	59	45	51	116	260	72	185	311	74	536	48	74
7	73	44	57	105	223	68	171	218	98	199	38	143
8	61	44	48	93	178	65	158	164	90	137	e31	116
9	63	87	e43	86	247	71	129	130	231	108	e27	156
10	64	74	e38	87	1020	69	138	152	138	94	e25	170
11	76	64	e36	79	437	71	195	120	105	97	e23	125
12	59	60	e35	74	303	69	152	101	89	262	e21	110
13	53	54	e33	66	226	65	135	108	81	291	27	167
14	49	52	e31	60	189	64	125	95	79	231	37	140
15	46	53	e30	73	171	61	129	85	440	247	42	261
16	44	173	e40	65	196	61	110	111	124	252	46	168
17	186	126	49	62	207	112	118	102	89	171	e30	157
18	234	104	59	65	161	92	103	85	79	132	e22	127
19	416	87	68	61	149	110	92	78	67	107	e19	132
20	222	82	76	210	130	135	90	77	60	115	e15	141
21	163	74	84	302	116	115	99	77	57	141	e30	115
22	130	66	89	218	110	110	91	72	52	362	e70	128
23	106	64	63	166	108	105	87	65	52	159	149	146
24	91	59	35	139	107	105	83	61	51	117	e58	118
25	80	56	41	124	89	99	81	58	47	91	e80	e90
26	72	64	40	118	79	94	79	217	41	74	e56	e70
27	65	e84	44	102	94	88	76	138	37	61	e38	e54
28	60	e76	32	100	89	84	74	114	35	54	e27	e45
29	55	e70	32	272	---	81	72	148	36	48	e50	e35
30	53	e64	60	354	---	79	69	167	51	50	118	e30
31	58	---	409	205	---	80	---	128	---	80	85	---
TOTAL	2885	2085	1887	4567	6588	2617	3895	4003	2773	5788	1397	3196
MEAN	93.1	69.5	60.9	147	235	84.4	130	129	92.4	187	45.1	107
MAX	416	173	409	506	1020	135	263	524	440	637	149	261
MIN	40	44	30	60	79	61	69	58	35	48	15	18
CFSM	1.26	.94	.83	2.00	3.19	1.15	1.76	1.75	1.25	2.53	.61	1.45
IN.	1.46	1.05	.95	2.31	3.33	1.32	1.97	2.02	1.40	2.92	.71	1.61

CAL YR 1989 TOTAL 46867 MEAN 128 MAX 1460 MIN 19 CFSM 1.74 IN. 23.66
WTR YR 1990 TOTAL 41681 MEAN 114 MAX 1020 MIN 15 CFSM 1.55 IN. 21.04

e Estimated

MONONGAHELA RIVER BASIN

03075070 MONONGAHELA RIVER AT ELIZABETH, PA

LOCATION.--Lat 40°15'44", long 79°54'05", Allegheny County, Hydrologic Unit 05020005, on right bank 30 ft landward from upstream end of guide wall, 1,050 ft upstream from dam at lock 3 at Elizabeth, 0.4 mi downstream from Lobbs Creek, and at mile 24.0.

DRAINAGE AREA.--5,340 mi^2.

PERIOD OF RECORD.--October 1933 to current year. Published as "at Charleroi" (station 03075000) October 1933 to September 1976. Monthly discharge prior to 1940, adjusted for reservoir contents, published in WSP 1305. Records for March 1886 to March 1905 (high-water periods, only), published in WSP 169, are unreliable and should not be used (peak discharge of July 11, 1888, as published in WSP 183, is still considered reliable).

REVISED RECORDS.--WSP 758: Drainage area. WSP 783: 1888 (M). WSP 1435: 1934, 1936. See also "PERIOD OF RECORD."

GAGE.--Water-stage recorder and concrete dam control. Datum of gage is 725.50 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). From Oct. 1, 1967, to Sept. 30, 1976, at site 17.5 mi upstream at datum 8.10 ft higher. Prior to Oct. 1, 1967, water-stage recorder at site 17.9 mi upstream at datum 9.83 ft higher. Oct. 1, 1965, to Sept. 30, 1967, auxiliary staff gage and Apr. 14, 1966, to Sept. 30, 1967, auxiliary water-stage recorder at present site.

REMARKS.--No estimated daily discharge. Records good except those below 1,000 ft^3/s, which are fair. Flow regulated by locks above station, since 1938 by Tygart Lake, and since 1926 by Lake Lynn, combined capacity, 357,000 acre-ft. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--57 years, 9,160 ft^3/s, 23.29 in/yr, adjusted for storage 1940-75.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 178,000 ft^3/s, Nov. 6, 1985, gage height, 23.60 ft; minimum not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 72,700 ft^3/s, Jan. 1, gage height, 11.09 ft; minimum daily, 768 ft^3/s, Aug. 12.

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	3630	4200	12600	60300	22000	9040	4140	4720	28700	5640	2700	1630
2	4810	3880	9070	45200	18800	9300	9890	3400	22200	9660	2580	1860
3	3770	4970	5620	21300	18000	8700	11200	4590	21300	9220	1130	1110
4	4620	3620	5490	27800	19500	9910	11700	5330	14600	7330	1000	1870
5	3370	3240	5840	24100	23200	11300	9490	19300	11000	6510	1990	1760
6	4190	2980	6150	20800	21500	9320	11300	18300	8310	5860	1690	2560
7	5590	3500	6280	17500	18500	9210	11400	12500	7200	3770	2180	4870
8	9220	4550	6620	15200	18000	7630	10100	14300	6010	4190	1500	4090
9	6130	4870	6670	16100	17400	8540	10300	9570	8730	3250	1930	3480
10	6940	14500	8610	13100	38800	5530	12400	11500	17600	3080	1300	9330
11	6620	12400	4330	11400	48300	3660	16800	10600	13400	4600	1010	4320
12	8080	12200	4190	9250	36200	5860	21300	8440	9770	8070	768	3460
13	6490	12000	3430	6780	24200	6770	19900	7880	7210	19100	1930	8650
14	4520	6340	4450	5890	20800	7240	13800	8270	4620	23900	2440	6070
15	3670	7250	3450	4480	19300	7890	11200	6800	15500	16600	807	7940
16	4130	13700	2300	2520	17600	8030	10400	8110	10400	27600	1690	9450
17	7980	30800	1870	2480	16200	5330	10500	10300	10100	23300	802	5740
18	16400	23200	2290	15900	14400	5330	9590	11500	7370	17400	2560	5040
19	27200	18700	3060	13800	13600	7310	10700	10700	5030	13800	2150	4870
20	33900	13000	2960	19500	13600	8140	8960	8580	4100	9910	3850	6790
21	22200	14600	3400	30700	10200	9050	9850	6920	3280	7170	3970	7200
22	21500	10800	3120	27700	6450	8840	22100	5690	3280	6690	2350	7160
23	16000	7730	1720	23500	8270	6520	19500	6570	2970	6830	8650	9930
24	11900	6790	1500	18500	7550	6720	18300	7310	2940	6730	9710	6800
25	11700	6210	1720	16400	7120	5300	16900	9030	2500	5120	6160	7460
26	9050	6220	2150	13600	6150	7430	11200	12900	3940	4480	4140	5130
27	9580	9110	3280	14700	7600	8290	7350	56500	2930	3040	3250	5900
28	7130	7390	2130	13800	9000	7240	5300	41800	2830	3070	2380	4150
29	4660	14500	2580	15800	---	7360	4330	23300	2350	2990	2290	2870
30	4990	12700	3050	38000	---	7820	5490	34200	2360	2900	2250	2550
31	4050	---	10600	32800	---	4530	---	34700	---	2060	2500	---
TOTAL	294020	295950	140530	598900	502240	233140	355390	433610	262530	273870	83657	154040
MEAN	9485	9865	4533	19320	17940	7521	11850	13990	8751	8835	2699	5135
MAX	33900	30800	12600	60300	48300	11300	22100	56500	28700	27600	9710	9930
MIN	3370	2980	1500	2480	6150	3660	4140	3400	2350	2060	768	1110

CAL YR 1989 TOTAL 4591565 MEAN 12580 MAX 95800 MIN 955
WTR YR 1990 TOTAL 3627877 MEAN 9939 MAX 60300 MIN 768

MONONGAHELA RIVER BASIN

03076500 YOUGHIOGHENY RIVER AT FRIENDSVILLE, MD

LOCATION.--Lat 39°39'13", long 79°24'31", Garrett County, Hydrologic Unit 05020006, on left bank 0.7 mi upstream from bridge on State Highway 42 at Friendsville, and 1.5 mi upstream from Bear Creek.

DRAINAGE AREA.--295 mi^2.

PERIOD OF RECORD.--August 1898 to December 1904 and October 1940 to current year. Annual maximum, water years 1905, 1923-31, 1940, published in WSP 1675. October, November 1940 monthly discharge only, published in WSP 1305. September 1922 to September 1926 (gage heights only) in reports of Pennsylvania Department of Forests and Waters.

REVISED RECORDS.--WSP 1385: Drainage area at former site, 1898-1905, 1941(M), 1942, 1944-45, 1948-49, 1951(M).

GAGE.--Water-stage recorder. Datum of gage is 1,487.33 ft above National Geodetic Vertical Datum of 1929. Aug. 17, 1898, to Dec. 31, 1904, and Sept. 1, 1922, to Sept. 30, 1926, nonrecording gages at bridge 0.7 mi downstream at datum 16.24 ft and 16.29 ft lower, respectively.

REMARKS.--Records good except those for Dec. 16-22, 28-31 (ice effect) and Dec. 23-27 (frozen well), which are fair. Low and medium flow regulated since July 1925 by Deep Creek Reservoir, 12 mi upstream from station (see station 03076000). U.S. Army Corps of Engineers satellite telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--56 years (water years 1899-1904, 1941-90), 646 ft^3/s, 29.74 in/yr, adjusted for storage since October 1940.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,600 ft^3/s, Mar. 29, 1924, gage height, 14.2 ft, from floodmarks, site and datum then in use or 10.2 ft, present site and datum, from rating curve extended above 5,800 ft^3/s on basis of slope-area measurement of peak flow; minimum daily discharge, 8.2 ft^3/s, Sept. 11, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,490 ft^3/s, July 13, gage height, 7.05 ft; minimum discharge, 58 ft^3/s, Aug. 18, 19, 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	211	337	623	5340	1180	410	400	268	861	2670	240	87
2	602	299	530	2360	1230	384	514	241	582	2110	224	84
3	555	261	485	1330	1340	400	554	247	514	804	210	172
4	501	248	565	1160	1670	418	521	362	617	527	199	128
5	475	232	416	2190	1690	371	550	1040	529	504	105	142
6	476	224	396	1460	1500	351	775	1080	418	760	216	210
7	611	216	801	1070	1120	314	715	855	383	541	236	432
8	578	218	607	1160	1040	282	620	636	397	300	189	366
9	748	624	509	843	975	304	754	521	800	429	183	211
10	721	739	476	822	2600	376	757	553	1850	834	178	378
11	718	645	444	812	1910	331	1290	784	957	1470	170	212
12	768	525	382	894	1630	312	1100	505	573	1640	76	164
13	674	453	355	662	1290	292	831	473	461	6300	166	478
14	502	400	377	566	1320	273	659	563	390	5660	133	378
15	483	437	355	573	1120	250	638	409	392	3070	144	440
16	338	1770	e270	632	1060	240	558	396	349	2330	81	351
17	818	1800	e250	965	746	245	492	545	244	1700	103	547
18	1190	1110	e250	1140	511	259	501	638	275	1380	136	422
19	2300	804	e230	1040	564	228	427	446	257	1180	62	430
20	2100	676	e230	1030	613	232	435	390	251	1060	144	741
21	1170	603	e270	2100	509	242	416	418	217	905	140	590
22	899	496	e300	1700	454	236	679	354	216	909	146	872
23	879	440	e240	1120	461	224	526	333	232	913	670	963
24	670	395	e210	918	394	218	442	279	217	838	747	864
25	536	355	e200	726	326	222	387	288	278	673	344	849
26	490	481	e190	771	387	227	347	1210	225	424	256	801
27	446	774	e190	601	326	245	311	3190	204	421	357	530
28	313	955	e180	491	419	236	284	1710	203	332	398	436
29	287	1000	e180	740	---	227	268	1520	217	180	347	339
30	341	816	e250	2460	---	227	311	1570	258	247	295	241
31	285	---	e1600	1510	---	268	---	1140	---	270	238	---
TOTAL	21685	18333	12361	39186	28385	8844	17062	22964	13367	41381	7133	12858
MEAN	700	611	399	1264	1014	285	569	741	446	1335	230	429
MAX	2300	1800	1600	5340	2600	418	1290	3190	1850	6300	747	963
MIN	211	216	180	491	326	218	268	241	203	180	62	84
†	-153	+114	+53.4	+112	0	+40.6	+90.8	+107	-11.7	-42.3	-83.2	+5.0
MEAN‡	547	725	452	1376	1014	326	660	848	434	1293	147	434
CFSM‡	1.85	2.46	1.53	4.66	3.44	1.11	2.24	2.87	1.47	4.38	0.50	1.47
IN.‡	2.13	2.74	1.76	5.37	3.58	1.28	2.50	3.31	1.68	5.05	0.58	1.64

CAL YR 1989 TOTAL 287907 MEAN 789 MAX 4410 MIN 129 MEAN‡ 781 CFSM‡ 2.65 IN.‡ 35.95
WTR YR 1990 TOTAL 243559 MEAN 667 MAX 6300 MIN 62 MEAN‡ 686 CFSM‡ 2.33 IN.‡ 31.60

† Change in contents, equivalent in cubic feet per second, in Deep Creek Reservoir, provided by Pennsylvania Electric Co.
‡ Adjusted for change in contents.

MONOGAHELA RIVER BASIN

03077500 YOUGHIOGHENY RIVER AT YOUGHIOGHENY RIVER DAM, PA

LOCATION.--Lat 39°48'19", long 79°21'52", Somerset County, Hydrologic Unit 05020006, on right bank 800 ft upstream from bridge on State Highway 281, 0.2 mi downstream from Youghiogheny River Dam, 0.2 mi south of Confluence, 0.7 mi upstream from Casselman River, and at mile 73.7.

DRAINAGE AREA.--436 mi^2.

PERIOD OF RECORD.--September 1904 to September 1913 (gage heights only), October 1939 to current year. Monthly discharge only for October 1939 to April 1940, published in WSP 1305. Figures of daily discharge prior to January 1911, published in WSP 169, 205, 243, 263, and 283 are unreliable and should not be used. September 1904 to September 1922 (gage heights only) in reports of Water Supply Commission of Pennsylvania or Pennsylvania Department of Forests and Waters. Published as "at Confluence" 1904-22.

REVISED RECORDS.--WSP 893: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,310.17 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated since 1925 by Deep Creek Reservoir and since 1943 by Youghiogheny River Lake 0.2 mi upstream. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--51 years (1939-90), 882 ft^3/s, 27.47 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,700 ft^3/s, Mar. 5, 1948, gage height, 11.28 ft; maximum gage height, 19.08 ft, Oct. 15, 1954 (backwater from Casselman River); practically no flow at times during May and June 1950 when reservoir gates were closed.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,130 ft^3/s, July 20, gage height, 6.94 ft; maximum gage height, 7.54 ft, Nov. 22, minimum daily discharge, 41 ft^3/s, Apr. 16, 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	649	149	2310	557	2590	280	165	330	3370	558	1010	936
2	645	115	2290	911	1960	281	168	330	3090	1100	907	929
3	599	207	2260	1520	1200	277	168	330	2860	1600	1020	919
4	646	208	2360	1630	1010	261	168	339	1880	1590	999	908
5	644	207	2480	2050	2000	267	93	e330	1130	1350	970	906
6	646	207	2500	2440	3260	270	54	351	938	1090	979	922
7	652	174	2500	2550	3400	261	44	896	765	1010	983	941
8	651	204	2520	2520	2900	259	42	1560	650	1020	976	915
9	650	208	2510	2460	1840	261	80	1500	675	1030	980	922
10	651	210	2310	2250	2150	261	110	1100	673	1010	994	663
11	390	193	1970	1930	2750	261	197	1210	1030	891	979	479
12	218	212	1590	1730	3350	255	170	1130	1470	725	976	472
13	397	216	1140	1580	3390	254	42	1110	1230	662	978	361
14	710	117	1310	1570	3350	252	43	993	530	655	1010	e270
15	501	160	1160	1470	2230	251	42	919	672	1370	845	e270
16	217	192	1020	1530	1140	251	41	805	679	291	757	e270
17	225	182	1010	1180	1120	251	43	737	681	424	766	274
18	235	213	818	815	1120	251	41	737	598	4890	779	233
19	254	951	577	501	1110	251	51	737	539	4910	779	239
20	225	561	488	616	1010	200	79	737	490	4980	777	242
21	637	1690	480	567	943	172	109	673	555	5060	769	239
22	1770	3140	473	794	919	160	99	649	558	5060	724	235
23	2830	2970	471	1090	926	160	93	518	556	3960	770	249
24	3100	2930	472	1160	932	160	189	403	561	3570	769	251
25	2680	2920	467	438	728	160	290	340	553	2850	765	404
26	2520	2910	467	621	601	160	332	e430	553	2270	765	504
27	2160	2890	444	990	602	160	332	e430	555	1660	862	756
28	1600	2870	434	1720	404	160	334	e430	559	1210	935	927
29	1310	2880	467	1250	---	166	299	1010	561	1210	937	945
30	429	2490	487	1410	---	136	330	2350	536	1100	923	945
31	209	---	536	2330	---	142	---	3280	---	1020	899	---
TOTAL	29050	32576	40321	44180	48935	6891	4248	26694	29497	60126	27582	17526
MEAN	937	1086	1301	1425	1748	222	142	861	983	1940	890	584
MAX	3100	3140	2520	2550	3400	281	334	3280	3370	5060	1020	945
MIN	209	115	434	438	404	136	41	330	490	291	724	233
†	-255	-141	-744	+494	-90.0	+264	+839	-161	-336	-60.2	-636	+118
MEAN‡	682	945	557	1919	1658	486	981	700	647	1880	254	702
CFSM‡	1.56	2.17	1.28	4.40	3.80	1.11	2.25	1.61	1.48	4.31	.58	1.61
IN.‡	1.80	2.42	1.48	5.07	3.96	1.28	2.51	1.86	1.65	4.97	.67	1.80

CAL YR 1989 TOTAL 412924 MEAN 1131 MAX 3750 MIN 80 ADJ -35.2 MEAN‡ 1096 CFSM‡ 2.51 IN.‡ 34.15
WTR YR 1990 TOTAL 367626 MEAN 1007 MAX 5060 MIN 41 ADJ -15.8 MEAN‡ 991 CFSM‡ 2.27 IN.‡ 29.47

† Change in contents, equivalent in cubic feet per second, in Deep Creek Reservoir and Youghiogheny River Lake. Records for Deep Creek Reservoir furnished by Pennsylvania Electric Co.
‡ Adjusted for change in reservoir contents.

e Estimated

MONONGAHELA RIVER BASIN

03078000 CASSELMAN RIVER AT GRANTSVILLE, MD

LOCATION.--Lat 39°42'08", long 79°08'12", Garrett County, Hydrologic Unit 05020006, on left bank at downstream side of highway bridge, 0.3 mi upstream from Slaubaugh Run, 0.7 mi downstream from U.S. Highway 40, and 1.0 mi northeast of Grantsville.

DRAINAGE AREA.--62.5 mi^2.

PERIOD OF RECORD.--July 1947 to current year.

REVISED RECORDS.--WSP 1143: 1948.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 2,088.97 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. 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.--43 years, 119 ft^3/s, 25.86 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,400 ft^3/s, Oct. 15, 1954, gage height, 10.70 ft, from rating curve extended above 1,600 ft^3/s on basis of contracted-opening measurement at gage height 8.13 ft; no flow Aug. 31, 1962, result of regulation from unknown source.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 1	0300	1,090	3.84	July 13	1445	*1,660	*4.47
May 26	1145	1,140	3.90				

Minimum discharge, 6.7 ft^3/s, Aug. 19, gage height, 1.05 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	21	128	94	744	190	e92	97	55	160	319	32	16
2	68	80	84	306	398	e86	112	48	130	107	26	14
3	45	68	74	221	489	e80	106	50	115	42	22	14
4	33	63	74	305	418	e76	98	141	132	29	21	13
5	26	55	78	556	323	73	126	340	104	34	21	13
6	26	53	87	312	243	68	146	257	80	95	24	13
7	36	49	193	229	216	62	134	185	81	39	20	23
8	35	55	106	189	188	57	121	141	73	28	17	23
9	37	122	e88	163	228	62	125	117	113	24	16	46
10	34	110	e84	178	465	81	115	138	96	172	15	51
11	45	104	e78	159	285	70	173	137	67	390	14	27
12	38	86	e70	150	227	65	140	101	51	266	13	68
13	32	73	e67	119	200	57	119	109	44	1250	13	422
14	28	68	e64	125	192	52	106	124	40	564	14	145
15	26	92	e62	123	163	48	110	91	37	340	13	108
16	24	409	e61	249	155	46	100	91	35	258	11	90
17	151	238	e60	295	149	48	96	144	31	168	9.1	119
18	141	157	e58	336	120	47	96	108	27	123	8.0	73
19	396	125	e56	240	112	43	82	81	28	96	7.4	109
20	221	129	e54	355	95	45	75	72	26	82	13	189
21	154	119	e52	430	87	43	79	69	23	159	15	110
22	128	96	e50	279	e83	45	79	65	20	144	61	410
23	103	88	e49	216	e78	42	66	59	22	118	293	328
24	90	82	e48	183	e76	42	59	49	20	88	127	199
25	82	98	e47	163	74	43	53	45	24	66	55	142
26	74	169	e46	159	e74	45	49	651	19	51	35	141
27	67	162	e45	133	e100	51	46	425	14	43	26	132
28	62	163	e45	130	e100	46	45	272	12	38	23	96
29	57	133	e45	146	---	46	49	376	11	36	21	79
30	51	107	e70	268	---	45	78	301	13	33	27	68
31	62	---	e330	193	---	62	---	208	---	36	21	---
TOTAL	2393	3481	2419	7654	5528	1768	2880	5050	1648	5238	1033.5	3281
MEAN	77.2	116	78.0	247	197	57.0	96.0	163	54.9	169	33.3	109
MAX	396	409	330	744	489	92	173	651	160	1250	293	422
MIN	21	49	45	119	74	42	45	45	11	24	7.4	13
CFSM	1.24	1.86	1.25	3.95	3.16	.91	1.54	2.61	.88	2.70	.53	1.75
IN.	1.42	2.07	1.44	4.56	3.29	1.05	1.71	3.01	.98	3.12	.62	1.95

CAL YR 1989 TOTAL 50155.5 MEAN 137 MAX 1130 MIN 9.5 CFSM 2.20 IN. 29.85
WTR YR 1990 TOTAL 42373.5 MEAN 116 MAX 1250 MIN 7.4 CFSM 1.86 IN. 25.22

e Estimated

MONONGAHELA RIVER BASIN

03079000 CASSELMAN RIVER AT MARKLETON, PA

LOCATION.--Lat 39°51'35", long 79°13'40", Somerset County, Hydrologic Unit 05020006, on right bank at downstream side of highway bridge at Markleton, 2 mi southwest of Casselman, and 7 mi downstream from Coxes Creek.

DRAINAGE AREA.--382 mi^2.

PERIOD OF RECORD.--August to September 1913 (gage heights and discharge measurement only), October 1920 to current year. Monthly discharge only for some periods, published in WSP 1305. October 1913 to September 1920 (gage heights and discharge measurements only) in reports of Water Supply Commission of Pennsylvania.

REVISED RECORDS.--WSP 743: Drainage area. WSP 1305: 1923-31. WSP 1435: 1932-34, 1935 (M), 1936-38. WSP 1625: 1924 (M).

GAGE.--Water-stage recorder. Datum of gage is 1,655.29 ft above National Geodetic Vertical Datum, adjustment of 1907. Prior to Nov. 19, 1940, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Slight diversion above station to city of Frostburg, MD, in the Potomac River basin. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--70 years (1920-90), 659 ft^3/s, 23.43 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft^3/s, estimated, Oct. 15, 1954, gage height, 14.06 ft, on basis of summation of peak flows at nearby stations; minimum, 10 ft^3/s, Sept. 9, 1957; minimum gage height, 0.81 ft, Sept. 30, Oct. 1, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 8,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 31	--	--	a*6.66	May 26	1300	*4,820	5.52

(a) Ice jam

Minimum discharge, 39 ft^3/s, Aug. 18, 19, gage height, 1.20 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	606	447	e3380	976	e370	733	296	1010	868	121	91
2	386	444	410	1720	2200	e400	1320	257	803	573	105	96
3	343	371	385	1110	3110	436	930	243	692	259	90	116
4	262	335	309	1430	2540	435	779	436	690	175	80	79
5	227	308	402	3340	1980	383	876	2410	567	144	84	67
6	247	294	e270	1880	1440	353	931	1430	461	161	102	63
7	270	281	e240	1300	1190	305	815	987	467	187	118	898
8	243	283	e230	1020	1010	287	718	762	459	127	90	505
9	237	491	e220	851	994	313	635	625	721	113	73	929
10	229	515	e210	859	2990	360	608	683	635	254	66	1650
11	317	486	e190	785	1770	358	953	700	442	369	63	572
12	277	412	e180	761	1370	365	793	526	352	672	60	401
13	241	361	e180	570	1140	331	689	503	302	1780	63	1690
14	223	340	e170	494	1080	303	601	523	268	1680	77	907
15	210	330	e170	573	930	289	600	429	246	1030	67	1830
16	200	1550	e165	1010	888	276	550	419	223	983	53	921
17	590	1390	e160	1390	838	281	507	507	193	561	46	788
18	1270	896	e155	1490	675	281	480	450	177	410	40	553
19	2590	690	e150	1210	623	265	416	358	174	330	40	512
20	1730	646	e150	1590	543	278	391	323	173	301	69	859
21	1220	614	e145	2830	478	263	397	363	159	398	79	614
22	927	510	e140	1790	482	265	395	339	154	530	194	808
23	722	466	e140	1290	493	253	359	297	154	387	700	1140
24	599	421	e135	1050	479	244	325	261	142	317	656	767
25	526	384	e135	899	381	249	308	242	141	255	297	562
26	476	520	e135	851	323	270	286	3000	130	204	197	561
27	427	713	e130	705	e310	264	268	2490	109	174	145	647
28	388	622	e130	661	e340	254	258	1560	95	151	121	461
29	360	563	e130	720	---	246	255	2190	90	135	174	383
30	333	480	e130	1440	---	244	298	2050	118	125	152	340
31	359	---	e350	1070	---	288	---	1360	---	121	116	---
TOTAL	16614	16322	6493	40069	31573	9509	17474	27019	10347	13774	4338	19810
MEAN	536	544	209	1293	1128	307	582	872	345	444	140	660
MAX	2590	1550	447	3380	3110	436	1320	3000	1010	1780	700	1830
MIN	185	281	130	494	310	244	255	242	90	113	40	63
CFSM	1.40	1.42	.55	3.38	2.95	.80	1.52	2.28	.90	1.16	.37	1.73
IN.	1.62	1.59	.63	3.90	3.07	.93	1.70	2.63	1.01	1.34	.42	1.93

CAL YR 1989 TOTAL 254202 MEAN 696 MAX 4240 MIN 102 CFSM 1.82 IN. 24.75
WTR YR 1990 TOTAL 213342 MEAN 584 MAX 3380 MIN 40 CFSM 1.53 IN. 20.78

e Estimated

MONONGAHELA RIVER BASIN

03080000 LAUREL HILL CREEK AT URSINA, PA

LOCATION.--Lat 39°49'13", long 79°19'18", Somerset County, Hydrologic Unit 05020006, on right bank 500 ft downstream from bridge on State Highway 281 at Ursina, and 2.7 mi upstream from mouth.

DRAINAGE AREA.--121 mi^2.

PERIOD OF RECORD.--August to September 1913 (gage heights and discharge measurement only), October 1918 to current year. Monthly discharge only for some periods, published in WSP 1305. October 1913 to September 1918 (gage heights and discharge measurements only) in reports of Water Supply Commission of Pennsylvania.

REVISED RECORDS.--WSP 743: Drainage area. WSP 893: 1919-21, 1932-34. WSP 1305: 1922-31. WSP 1435: 1919-20. WSP 1625: 1932 (M).

GAGE.--Water-stage recorder and masonry control. Datum of gage is 1,335.26 ft above National Geodetic Vertical Datum of 1929, unadjusted. Prior to July 18, 1939, nonrecording gage at bridge 0.5 mi downstream at datum 6.20 ft lower.

REMARKS.--Records good except for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--72 years (1918-90), 266 ft^3/s, 29.85 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,900 ft^3/s, Oct. 15, 1954, gage height, 10.63 ft, from rating curve extended above 6,100 ft^3/s on basis of slope-area measurement of peak flow; minimum, 2.2 ft^3/s, Sept. 26, 1932.

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

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 31	--	--	a*5.88	Feb. 2	2400	*1,810	3.31

(a) Ice jam.

Minimum discharge, 11 ft^3/s, Aug. 18, 19, gage height, 0.94 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	82	271	203	1310	477	e160	438	102	450	681	48	22
2	163	181	184	769	979	e175	1110	94	352	261	38	18
3	132	151	183	527	1560	157	718	87	308	142	33	194
4	99	128	163	525	1270	177	572	141	311	100	e26	82
5	86	116	e150	1320	1010	e150	596	1330	233	90	e27	44
6	105	114	e140	840	694	e130	820	1050	180	114	47	34
7	146	107	e130	562	551	120	676	645	189	77	70	514
8	129	112	e120	446	454	114	548	470	195	56	42	e180
9	127	344	e110	368	429	114	477	372	431	49	31	528
10	118	383	e105	366	1380	138	447	374	415	162	e26	1120
11	161	321	e98	344	941	154	756	392	286	156	e24	538
12	150	270	e92	317	647	174	620	284	211	186	e23	e170
13	130	228	e88	261	510	168	514	276	168	527	e24	e540
14	118	194	e86	231	489	165	444	270	142	621	e30	248
15	111	185	e82	225	441	168	424	209	127	528	e16	732
16	103	592	e80	304	444	158	368	216	105	601	14	536
17	218	597	e76	513	451	164	333	274	89	438	12	429
18	545	425	e74	776	386	165	313	235	77	347	12	309
19	1070	345	e94	642	364	142	258	180	73	286	11	285
20	813	314	e110	781	322	185	232	165	75	250	21	446
21	544	283	e80	1370	276	160	234	184	79	323	19	331
22	426	229	e58	961	259	173	229	162	77	393	69	345
23	333	204	e56	640	257	172	192	133	77	242	160	448
24	270	180	e70	496	267	169	171	115	74	173	111	371
25	229	183	e82	415	220	170	153	102	82	129	50	291
26	196	219	e100	402	e130	176	143	1020	70	100	31	273
27	171	301	e82	322	e140	163	129	858	55	81	25	279
28	147	279	e70	305	e150	144	120	620	49	65	22	206
29	131	255	e60	375	---	136	113	745	50	55	38	167
30	121	221	e150	722	---	131	115	804	81	51	55	146
31	153	---	e460	551	---	146	---	590	---	53	32	---
TOTAL	7327	7732	3636	17986	15498	4818	12263	12499	5111	7337	1187	9826
MEAN	236	258	117	580	553	155	409	403	170	237	38.3	328
MAX	1070	597	460	1370	1560	185	1110	1330	450	681	160	1120
MIN	82	107	56	225	130	114	113	87	49	49	11	18
CFSM	1.95	2.13	.97	4.79	4.57	1.28	3.38	3.33	1.41	1.96	.32	2.71
IN.	2.25	2.38	1.12	5.53	4.76	1.48	3.77	3.84	1.57	2.26	.36	3.02

CAL YR 1989 TOTAL 110558 MEAN 303 MAX 2220 MIN 31 CFSM 2.50 IN. 33.99
WTR YR 1990 TOTAL 105220 MEAN 288 MAX 1560 MIN 11 CFSM 2.38 IN. 32.35

e Estimated

MONONGAHELA RIVER BASIN

03081000 YOUGHIOGHENY RIVER BELOW CONFLUENCE, PA

LOCATION.--Lat 39°49'39", long 79°22'22", Fayette County, Hydrologic Unit 05020006, on left bank 1.0 mi downstream from Casselman River, 1.5 mi northwest of Confluence, and at mile 72.0.

DRAINAGE AREA.--1,029 mi^2.

PERIOD OF RECORD.--June 1940 to current year. Monthly discharge only for June 1940, published in WSP 1305.

GAGE.--Water-stage recorder. Datum of gage is 1,302.77 ft above National Geodetic Vertical Datum of 1929, unadjusted.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1925 by Deep Creek Reservoir and since 1943 by Youghiogheny River Lake 1.7 mi upstream. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--50 years, 2,008 ft^3/s, 26.50 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 69,500 ft^3/s, Oct. 15, 1954, gage height, 19.92 ft, from rating curve extended above 25,000 ft^3/s on basis of slope-area measurement of peak flow; minimum, 40 ft^3/s, Oct. 14, 1943, gage height, 0.31 ft; minimum daily, 121 ft^3/s, Sept. 27, 1943.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 17, or 18, 1936, reached a stage of 21.6 ft, from floodmarks, discharge, 85,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,220 ft^3/s, Jan. 1, gage height, 7.34 ft; minimum daily, 521 ft^3/s, Oct. 16.

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	1010	1260	3190	6860	4260	996	1220	832	4910	2370	1210	1100
2	1250	935	3110	4280	5100	991	2840	771	4310	2230	1030	1060
3	1250	888	3060	3670	6670	1000	2100	726	3910	2120	1180	1230
4	1150	804	2970	3830	5450	1000	1780	919	3020	1930	1160	1140
5	1060	742	3200	7720	5520	931	1820	4280	2140	1690	1140	1070
6	1090	713	3250	5860	5660	876	2070	3330	1740	1450	1200	1060
7	1230	640	3840	4920	5300	796	1830	2900	1550	1360	1220	2020
8	1170	697	3590	4400	4580	745	1600	3060	1430	1270	1200	2180
9	1150	1150	3280	3970	3460	776	1440	2710	1890	1220	1170	2080
10	1120	1350	3060	3740	6970	871	1370	2430	2000	1400	1150	3760
11	994	1200	2790	3330	6020	910	2130	2580	1920	1410	1130	1790
12	728	1080	2390	3090	5680	941	1870	2200	2150	1660	1130	1260
13	818	959	1870	2700	5230	888	1530	2110	1820	3160	1110	2220
14	1190	770	1970	2510	5110	842	1340	2000	1030	3570	1180	1630
15	946	774	1660	2540	3910	821	1310	1770	1150	3140	1010	2760
16	521	2520	1450	2970	2750	791	1200	1610	1110	4760	838	1930
17	1070	2760	1510	3410	2670	801	1100	1710	1050	5080	830	1590
18	2360	1920	1320	3320	2410	810	1040	1620	918	5240	852	1200
19	4630	2410	1020	2680	2300	755	890	1460	818	5060	854	1050
20	3640	1850	937	3030	2080	751	821	1390	756	4960	871	1600
21	2900	2940	909	5460	1880	651	851	1370	770	5270	917	1320
22	3690	4150	864	4150	1830	643	854	1330	760	5510	940	1270
23	4500	3840	830	3420	1840	631	736	1140	769	4310	1460	2020
24	4520	3720	813	3120	1840	616	760	894	749	3870	1850	1570
25	3960	3610	777	2110	1520	617	845	809	749	3140	1240	1390
26	3690	3780	821	2160	1160	656	882	4540	719	2560	1070	1390
27	3190	4160	793	2300	1320	638	840	4880	685	1950	1110	1820
28	2510	4000	838	2920	1270	606	805	3150	664	1480	1160	1740
29	2080	3930	821	2590	---	603	751	4090	652	1450	1200	1620
30	1060	3430	894	3840	---	551	828	5550	673	1320	1210	1550
31	813	---	2110	4260	---	613	---	5390	---	1220	1100	---
TOTAL	61290	62982	59937	115160	103790	24117	39453	73551	46812	87160	34722	49420
MEAN	1977	2099	1933	3715	3707	778	1315	2373	1560	2812	1120	1647
MAX	4630	4160	3840	7720	6970	1000	2840	5550	4910	5510	1850	3760
MIN	521	640	777	2110	1160	551	736	726	652	1220	830	1050
†	-255	-141	-744	+494	-90.0	+264	+839	-161	-336	-60.2	-636	+118
MEAN‡	1722	1958	1189	4209	3617	1042	2154	2212	1224	2752	484	1765
CFSM‡	1.67	1.90	1.16	4.09	3.52	1.01	2.09	2.15	1.19	2.67	.47	1.72
IN.‡	1.93	2.12	1.34	4.72	3.67	1.16	2.33	2.48	1.33	3.08	.54	1.92

CAL YR 1989 TOTAL 902171 MEAN 2472 MAX 8700 MIN 450 ADJ -35.2 MEAN‡ 2437 CFSM‡ 2.37 IN.‡ 32.14
WTR YR 1990 TOTAL 758394 MEAN 2078 MAX 7720 MIN 521 ADJ -15.8 MEAN‡ 2062 CFSM‡ 2.00 IN.‡ 26.62

† Change in contents, equivalent in cubic feet per second, in Deep Creek Reservoir and Youghiogheny River Lake. Records of contents in Deep Creek Reservoir furnished by Pennsylvania Electric Co.
‡ Adjusted for change in reservoir contents.

e Estimated

MONONGAHELA RIVER BASIN

03082190 POPLAR RUN NEAR NORMALVILLE, PA.

LOCATION.--Lat 40°01'09", long 79°25'39", Fayette County, Hydrologic Unit 05020006, on right bank about 0.2 mi upstream from bridge on State Highway 711 and 381, 0.9 mi upstream from mouth, 2.0 mi northeast of Normalville, and 6.9 mi southeast of Donegal.

DRAINAGE AREA.--8.83 mi^2.

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--October 1985 to current year. Records for September 1961 to September 1978 at site 0.2 mi downstream published under station number 03082200 are not equivalent because of difference in drainage areas.

GAGE.--Water-stage recorder. Elevation of gage is 1,420 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for estimated daily discharges which are fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 785 ft^3/s, Nov. 26, 1985, gage height, 6.35 ft; minimum, 0.10 ft^3/s, June 27, 1986, gage height, 2.63 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft^3/s and maximum (*).

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 31	2245	*314	*4.68	No other peak greater than base discharge.			

Minimum discharge, 2.4 ft^3/s, Sept. 4, gage height 2.64 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	3.8	18	11	110	31	12	37	6.9	18	74	4.4	3.1
2	8.0	10	9.5	45	65	13	40	6.4	14	18	3.7	2.9
3	4.5	9.5	9.5	31	54	13	30	6.2	15	11	3.1	2.7
4	3.5	8.7	8.3	40	97	12	28	17	14	8.2	2.9	2.4
5	3.2	8.4	8.6	49	60	10	55	105	10	14	6.3	2.7
6	5.6	7.9	8.1	31	39	9.7	75	66	8.6	18	16	e10
7	9.7	7.2	20	23	30	8.5	47	36	12	9.9	20	e48
8	7.7	7.4	15	19	23	8.2	35	25	11	7.8	8.3	e11
9	8.3	28	11	16	38	9.4	29	19	19	29	6.1	e25
10	7.7	25	e10	17	112	8.8	32	27	14	35	5.0	e82
11	11	17	e8.0	15	53	8.9	52	20	11	25	4.2	e30
12	7.9	14	e7.0	15	37	8.8	34	16	8.6	113	4.0	e14
13	6.5	12	e6.2	12	33	8.1	26	15	7.3	95	3.4	e32
14	5.7	11	e5.6	11	30	7.7	23	13	6.3	56	3.5	e24
15	5.3	11	e5.2	15	28	7.2	23	11	7.7	53	3.5	e29
16	4.9	53	e4.9	23	32	7.2	19	14	5.5	43	3.0	e21
17	55	44	e4.6	19	26	11	21	16	4.7	20	2.7	e15
18	68	27	e4.5	19	21	9.9	20	13	4.3	19	2.8	e12
19	78	19	e4.2	16	19	13	17	10	4.0	14	3.1	27
20	40	18	e4.0	53	16	16	16	9.4	3.9	46	7.5	32
21	26	16	e3.8	70	14	17	18	13	4.1	40	8.2	22
22	18	13	e4.5	43	13	19	16	9.9	3.5	21	11	26
23	14	12	e6.2	29	13	16	14	8.1	3.8	18	10	41
24	11	11	e3.1	23	14	14	12	7.0	6.0	14	8.5	25
25	9.7	9.5	e3.1	19	11	14	11	6.1	8.1	11	6.1	19
26	8.4	13	e3.2	17	e7.8	13	10	76	4.1	8.3	4.9	19
27	7.6	16	e3.0	16	e9.0	11	9.3	41	3.3	6.9	4.1	15
28	6.8	15	e2.9	17	e10	10	8.5	28	3.0	6.1	5.0	12
29	6.2	13	e5.0	43	---	9.2	8.2	34	3.3	5.1	5.9	10
30	5.8	11	e15	61	---	8.8	7.5	36	5.4	4.5	4.4	9.2
31	9.5	---	e56	37	---	9.6	---	24	---	5.5	3.6	---
TOTAL	467.3	485.6	271.0	954	935.8	344.0	773.5	735.0	243.5	849.3	185.2	624.0
MEAN	15.1	16.2	8.74	30.8	33.4	11.1	25.8	23.7	8.12	27.4	5.97	20.8
MAX	78	53	56	110	112	19	75	105	19	113	20	82
MIN	3.2	7.2	2.9	11	7.8	7.2	7.5	6.1	3.0	4.5	2.7	2.4
CFSM	1.71	1.83	.99	3.49	3.78	1.26	2.92	2.69	.92	3.10	.68	2.36
IN.	1.97	2.05	1.14	4.02	3.94	1.45	3.26	3.10	1.03	3.58	.78	2.63

CAL YR 1989 TOTAL 7241.8 MEAN 19.8 MAX 200 MIN 1.7 CFSM 2.25 IN. 30.51
WTR YR 1990 TOTAL 6868.2 MEAN 18.8 MAX 113 MIN 2.4 CFSM 2.13 IN. 28.94

e Estimated

MONONGAHELA RIVER BASIN

03082190 POPLAR RUN NR NORMALVILLE, PA--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	ACIDITY TOTAL HEATED (MG/L AS CAC03)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
OCT 30...	1210	5.8	455	6.0	12.0	4.0	44	20	6.9	1.7	10	88
NOV 22...	0920	13	340	6.7	2.0	0.0	30	13	9.9	1.4	18	120
DEC 29...	1015	5.0	--	--	0.0	14	48	23	8.4	1.2	7.0	240
JAN 31...	1040	36	235	5.8	2.0	2.0	21	8.4	2.5	0.92	8.0	100
MAR 28...	0915	9.8	329	6.8	1.5	2.0	29	13	8.7	0.93	13	130
MAY 02...	1430	6.2	490	7.1	14.0	0.0	40	18	19	1.4	24	220
JUN 25...	0945	8.7	408	6.5	14.0	4.0	38	17	8.5	2.0	10	190
AUG 15...	1000	4.5	844	7.0	16.0	0.0	64	25	24	2.2	22	330
SEP 26...	0915	17	287	5.8	16.0	18	28	11	5.5	1.5	16	120

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, TOTAL (MG/L AS F)	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 30...	3.0	0.2	328	14	1100	<130	780	480	3400	3300	180	180
NOV 22...	3.0	0.2	214	<2	1500	<130	1100	130	2200	2100	130	54
DEC 29...	4.0	0.3	344	<2	1600	570	1100	840	4000	4000	210	210
JAN 31...	4.0	<0.1	118	4	480	<130	410	290	1100	1100	110	95
MAR 28...	3.0	0.1	164	14	2100	170	1200	390	2200	2100	130	100
MAY 02...	3.0	0.2	354	32	2400	280	1200	190	2900	2600	190	36
JUN 25...	4.0	<0.2	292	6	500	<130	610	98	3200	3200	130	130
AUG 15...	4.0	0.2	512	8	300	200	290	140	2000	1800	70	65
SEP 26...	2.0	<0.1	224	12	440	400	420	330	1200	1200	60	62

MONONGAHELA RIVER BASIN

03082500 YOUGHIOGHENY RIVER AT CONNELLSVILLE, PA

LOCATION.--Lat 40°01'03", long 79°35'38", Fayette County, Hydrologic Unit 05020006, on left bank at downstream side of Crawford Avenue bridge at Connellsville, 1.2 mi upstream from Mounts Creek, and at mile 44.0.

DRAINAGE AREA.--1,326 mi^2.

PERIOD OF RECORD.--July 1908 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 743: Drainage area. WSP 1305: 1912 (M), 1914 (M), 1916-17 (M), 1918, 1922-25, WSP 1435: 1919-20. WSP 1725: 1916, 1932 (monthly, yearly summaries).

GAGE.--Water-stage recorder. Datum of gage is 860.13 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 15, 1928, nonrecording gage, and Aug. 15, 1928, to July 7, 1958, water-stage recorder at same site and datum. July 8, 1958, to Sept. 8, 1959, nonrecording gage at site 0.4 mi downstream at different datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated since 1925 by Deep Creek Reservoir, since 1943 by Youghiogheny River Lake 29.4 mi upstream, and by several smaller reservoirs above station. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--82 years, 2,589 ft^3/s, 26.51 in/yr, adjusted for storage since August 1925.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 103,000 ft^3/s, Oct. 16, 1954, gage height, 21.96 ft, from rating curve extended above 55,000 ft^3/s; minimum, 11 ft^3/s, Sept. 23, 26, 27, 1908, Oct. 18, 1910, gage height, 0.11 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,000 ft^3/s, Jan. 1, gage height, 8.37 ft; maximum gage height, 8.81 ft, Jan. 1 (backwater from ice); minimum daily, 886 ft^3/s, Nov. 8.

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	1210	1510	3740	e10000	5720	e1300	1740	1230	6100	5190	1590	1290
2	1440	1290	3640	6850	6580	e1350	4600	1180	5200	3790	1430	1270
3	1660	1160	3590	5350	9630	1440	3840	1100	4800	3120	1420	1480
4	1360	1080	3380	4960	8580	1420	3230	1260	4150	2630	1450	1430
5	1300	994	3640	9400	8060	1340	3300	6440	2910	2930	1460	1300
6	1320	951	3720	7800	7620	1250	4050	6470	2420	3550	1630	1280
7	1630	902	4370	6350	6850	1150	3660	4630	2180	2370	1690	2720
8	1620	886	4350	5560	6150	1050	3050	4470	2030	2010	1550	3550
9	1590	1460	3890	4960	4820	1070	2640	3930	2650	1840	1430	2900
10	1520	2100	3660	4700	10500	1160	2460	3480	3180	2020	1360	5720
11	1610	1850	3430	4300	8870	1220	3690	3820	2560	2070	1330	3170
12	1190	1610	3070	3960	7730	1300	3490	3140	2720	2720	1320	2090
13	1050	1440	2440	3470	6780	1250	2840	2920	2680	4410	1310	2740
14	1390	1270	2150	3130	6460	1180	2440	2850	1590	5680	1360	2690
15	1470	1090	2060	3200	5630	1140	2330	2490	1530	4220	1350	4260
16	902	2950	1690	3570	4000	1110	2140	2330	1520	6290	1040	3480
17	1320	4640	1730	4340	3950	1200	1940	2470	1420	6160	998	2720
18	3630	3080	1830	4150	3530	1250	1910	2360	1320	6260	6260	2080
19	6480	3010	1500	3720	3280	1190	1660	2090	1150	5880	1010	1750
20	6170	2860	1210	4130	3010	1380	1520	1930	1130	5680	1150	2340
21	4270	2790	e1100	7860	2630	1200	1540	1910	1090	6160	1150	2240
22	4450	4790	e1050	6410	2470	1230	1590	1840	1080	6700	1240	1910
23	4990	4430	e980	4960	2470	1200	1410	1670	1080	5590	1680	2840
24	5450	4270	e940	4690	2510	1150	1330	1390	1100	4730	2410	2560
25	4780	4130	e920	3190	2240	1120	1350	1130	1090	4180	1710	2050
26	4320	4250	e920	3040	1530	1140	1430	4490	1040	3200	1410	1990
27	3900	4740	e920	2990	e1300	1110	1350	7160	968	2810	1300	2240
28	3160	4620	e930	3760	e1300	1040	1280	4700	929	1920	1410	2330
29	2760	4530	e940	3840	---	1000	1210	4910	936	1850	1410	2130
30	1650	4150	e1050	5950	---	949	1220	6830	1080	1780	1510	2010
31	1020	---	e2000	5740	---	970	---	6600	---	1640	1340	---
TOTAL	80612	78833	70840	156330	144200	36859	70240	103220	63633	119380	48708	72560
MEAN	2600	2628	2285	5043	5150	1189	2341	3330	2121	3851	1571	2419
MAX	6480	4790	4370	10000	10500	1440	4600	7160	6100	6700	6260	5720
MIN	902	886	920	2990	1300	949	1210	1100	929	1640	998	1270
†	-255	-144	-744	+494	-90.0	+264	+839	-161	-336	-60.2	-636	+118
MEAN‡	2345	2487	1541	5537	5060	1453	3180	3169	1785	3791	935	2537
CFSM‡	1.77	1.88	1.16	4.18	3.82	1.10	2.40	2.39	1.35	2.86	.71	1.91
IN.‡	2.04	2.10	1.34	4.82	3.98	1.27	2.68	2.76	1.51	3.30	.82	2.13

CAL YR 1989 TOTAL 1203269 MEAN 3297 MAX 14400 MIN 620 ADJ -35.2 MEAN‡ 3262 CFSM‡ 2.46 IN.‡ 33.42
WTR YR 1990 TOTAL 1045415 MEAN 2864 MAX 10500 MIN 886 ADJ -15.8 MEAN‡ 2848 CFSM‡ 2.15 IN.‡ 28.75

e Estimated

MONONGAHELA RIVER BASIN

03083500 YOUGHIOGHENY RIVER AT SUTERSVILLE, PA

LOCATION.--Lat 40°14'24", long 79°48'24", Allegheny County, Hydrologic Unit 05020006, on left bank 500 ft upstream from highway bridge at Sutersville, 2.1 mi downstream from Sewickley Creek, and at mile 15.2.

DRAINAGE AREA.--1,715 mi^2.

PERIOD OF RECORD.--October 1920 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORD.--WSP 743: Drainage area. WSP 1305: 1924, 1926 (M), 1931 (M). WSP 1435: 1935-36.

GAGE.--Water-stage recorder. Datum of gage is 733.36 ft above National Geodetic Vertical Datum of 1929. Prior to June 1, 1939, nonrecording gage at site 500 ft downstream at same datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated since 1925 by Deep Creek Reservoir, since 1943 by Youghiogheny River Lake 58 mi upstream, and by several smaller reservoirs above station. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--70 years, 3,052 ft^3/s, 24.17 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 108,000 ft^3/s, Oct. 16, 1954, gage height, 32.5 ft, from floodmark; minimum observed, 57 ft^3/s, Sept. 29, 30, 1922.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,700 ft^3/s, Feb. 10, gage height, 10.60 ft; maximum gage height, 14.17 ft, Jan. 1 (backwater from ice); minimum daily, 926 ft^3/s, June 28.

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	1220	1470	3760	e14000	6570	e1700	1580	1320	6600	6190	1640	1240
2	1510	1780	3660	9380	6700	1750	4210	1290	5530	4840	1550	1210
3	1690	1420	3590	6350	10300	1770	4670	1200	5130	3500	1320	1240
4	1480	1360	3440	5530	10900	1730	3860	1290	4640	2880	1440	1470
5	1330	1230	3500	8700	10500	1660	3900	5410	3330	2800	1470	1290
6	1290	1150	3690	8740	8940	1550	4630	8020	2650	4480	2000	1210
7	1570	1100	4070	6890	7800	1450	4570	5450	2420	2840	1750	3830
8	1670	1040	4450	5970	7010	1320	3820	4910	2300	2280	1620	4890
9	1600	1420	3930	5360	5720	1300	3240	4350	3030	2040	1490	3490
10	1540	2490	3720	4960	11300	1380	2920	4070	3760	2420	1410	7080
11	1620	2250	3530	4720	11300	1430	4400	4090	2920	2320	1370	4790
12	1450	1970	3190	4160	9240	1490	4490	3470	2850	4960	1350	2820
13	1140	1730	2710	3750	7780	1490	3650	3170	2880	8680	1340	2860
14	1180	1560	2280	3370	7370	1410	3060	3280	2210	7930	1360	3430
15	1450	1380	2270	3370	7360	1350	2820	2810	1710	6320	1410	4920
16	1220	2320	1920	3570	5950	1320	2630	2700	1700	8080	1210	4870
17	1370	5580	e1600	4430	5280	1540	2370	2880	1550	7110	1020	3590
18	3860	3770	e1450	4180	4490	1690	2320	2760	1430	6920	1000	2760
19	7560	3070	e1400	4270	4020	1590	2050	2390	1290	6370	1010	2270
20	8150	3480	e1300	4500	3670	2160	1820	2140	1160	6120	1130	2510
21	5110	2610	e1250	9460	3180	1910	1820	2150	1090	6590	1170	2590
22	4500	4290	e1200	8460	2950	1750	1920	2030	1080	7060	1370	3000
23	5000	4620	e1150	6180	2900	1700	1730	1870	1140	6680	1440	3260
24	5580	4300	e1100	5440	2940	1610	1560	1580	1130	5080	2310	3260
25	4950	4140	e1100	4120	2750	1560	1520	1310	1110	4750	2050	2540
26	4340	4150	e1050	3520	2030	1510	1550	2470	1060	3550	1500	2290
27	4130	4670	e1100	3460	e1600	1460	1520	8220	986	3230	1290	2310
28	3330	4680	e1150	3710	e1650	1370	1440	5420	926	2270	1330	2590
29	2940	4530	e1150	4470	---	1290	1350	4720	936	1950	1510	2370
30	2310	4320	e1200	7430	---	1250	1300	7220	1110	1910	1520	2200
31	1400	---	e3000	6880	---	1210	---	7090	---	1810	1400	---
TOTAL	87490	83880	73910	179330	172200	47700	82720	111080	69658	143960	44780	88180
MEAN	2822	2796	2384	5785	6150	1539	2757	3583	2322	4644	1445	2939
MAX	8150	5580	4450	14000	11300	2160	4670	8220	6600	8680	2310	7080
MIN	1140	1040	1050	3370	1600	1210	1300	1200	926	1810	1000	1210
†	-255	-141	-744	+494	-90.0	+264	+839	-161	-336	-60.2	-636	+118
MEAN‡	2567	2655	1640	6279	6060	1803	3596	3422	1986	4584	809	3057
CFSM‡	1.50	1.55	.96	3.66	3.53	1.05	2.10	2.00	1.16	2.67	.47	1.78
IN.‡	1.73	1.73	1.11	4.22	3.68	1.21	2.34	2.31	1.29	3.08	.54	1.99

CAL YR 1989 TOTAL 1384476 MEAN 3793 MAX 21400 MIN 720 ADJ -35.2 MEAN‡ 3758 CFSM‡ 2.19 IN.‡ 29.76
WTR YR 1990 TOTAL 1184888 MEAN 3246 MAX 14000 MIN 926 ADJ -15.8 MEAN‡ 3230 CFSM‡ 1.88 IN.‡ 25.23

† Change in contents, equivalent in cubic feet per second, in Deep Creek Reservoir and Youghiogheny River Lake. Records of contents in Deep Creek Reservoir furnished by Pennsylvania Electric Co.
‡ Adjusted for change in contents.

e Estimated

MONONGAHELA RIVER BASIN

03084000 ABERS CREEK NEAR MURRYSVILLE, PA

LOCATION.--Lat 40°27'01", long 79°42'50", Allegheny County, Hydrologic Unit 05020005, on right bank at downstream side of highway bridge, 30 ft upstream from small tributary, 2 mi northwest of Murrysville, and 5 mi northwest of Export.

DRAINAGE AREA.--4.39 mi^2.

PERIOD OF RECORD.--October 1948 to current year.

GAGE.--Water-stage recorder and log control. Datum of gage is 936.73 ft above National Geodetic Vertical Datum of 1929 (Pennsylvania Department of Transportation bench mark). Prior to Oct. 1, 1950, water-stage recorder at site 800 ft upstream at different datum. Oct. 1, 1950 to Apr. 26, 1984, water-stage recorder at present site and datum. Apr. 27, 1984 to Sept. 30, 1985, nonrecording gage at site 800 ft upstream at same datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--42 years, 5.33 ft^3/s, 16.49 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,600 ft^3/s, July 5, 1950, gage height, 7.72 ft, from floodmarks, from rating curve extended above 910 ft^3/s on basis of contracted-opening measurement of peak flow; maximum gage height, 11.65 ft, Mar. 29, 1985; at site and datum then in use; no flow at times during some years.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 31	1915	*371	*4.35	Sept. 6	1830	365	4.31
May 20	2100	340	4.20	Sept. 7	0345	329	4.15
July 12	1600	320	4.11				

Minimum daily discharge, 0.58 ft^3/s, Dec. 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	4.9	2.6	1.8	25	14	e4.2	19	2.4	4.8	2.9	1.3	1.3
2	3.3	2.4	e1.5	10	22	3.3	11	2.2	4.1	1.6	1.1	1.3
3	1.5	4.1	e1.3	7.4	15	2.9	12	2.6	3.5	1.4	1.4	1.2
4	1.2	2.4	e1.1	12	39	2.9	11	9.2	3.5	1.3	1.1	1.1
5	1.1	2.3	e1.2	9.2	19	2.4	8.8	7.1	2.4	1.2	3.8	1.6
6	2.4	2.4	e1.5	6.1	12	2.3	12	4.6	3.3	1.2	1.4	12
7	2.1	2.3	e1.8	4.3	8.9	2.2	8.9	3.1	5.0	1.0	1.2	42
8	2.1	3.1	e2.1	3.3	6.8	2.2	7.0	2.5	19	1.0	1.1	5.1
9	1.3	9.3	e2.0	2.8	10	4.0	28	2.4	19	4.7	1.0	6.2
10	4.0	2.7	e1.8	5.5	25	2.4	13	4.8	7.4	1.5	1.1	2.9
11	2.0	1.8	e1.5	3.5	12	2.3	8.8	2.4	4.7	5.6	7.2	2.0
12	1.4	1.6	e1.4	3.2	11	2.0	6.8	3.2	3.3	48	2.0	2.1
13	1.3	1.4	e1.3	4.8	9.2	1.9	7.7	4.7	2.6	12	4.1	1.5
14	1.2	1.4	e1.2	9.7	13	1.9	5.6	2.6	3.3	5.6	1.9	9.4
15	1.2	2.4	e1.1	7.5	18	1.8	5.4	2.6	3.2	14	1.5	5.9
16	1.2	17	e1.1	5.4	19	10	4.4	18	2.0	6.6	1.3	4.0
17	2.1	4.4	e1.0	4.8	11	11	3.6	15	1.8	3.9	1.2	2.3
18	3.6	3.2	e.96	9.2	8.2	6.5	3.4	6.5	2.2	2.9	1.3	1.7
19	15	2.3	e.92	5.2	6.9	16	12	4.6	1.6	2.4	4.5	9.0
20	4.1	2.5	e.88	35	5.4	7.9	6.4	20	2.1	9.5	4.3	3.9
21	3.8	3.2	e.84	28	5.0	6.0	5.2	18	1.7	9.0	2.1	2.5
22	2.5	2.5	e.80	13	4.9	5.3	4.5	8.3	1.4	4.8	16	7.0
23	2.0	2.5	e.78	8.9	5.6	4.4	3.9	5.8	2.6	5.2	16	3.1
24	1.7	2.3	e.74	7.0	5.2	3.8	3.4	4.3	2.1	3.1	5.5	2.2
25	1.6	2.3	e.70	6.0	5.4	3.3	3.2	3.5	2.5	2.3	3.0	1.8
26	1.5	4.5	e.68	6.1	e3.6	2.8	3.2	14	1.3	2.0	2.2	4.2
27	1.5	2.6	e.66	6.5	e2.9	2.6	3.2	5.2	1.3	1.8	1.7	2.3
28	1.5	5.1	e.62	4.8	e3.2	2.5	3.0	5.6	7.1	1.6	1.6	1.9
29	1.4	2.2	e.60	22	---	3.3	2.8	20	2.7	1.5	2.2	1.7
30	1.4	1.9	e.58	25	---	4.9	2.5	10	5.6	1.4	1.4	5.2
31	3.1	---	e35	14	---	29	---	6.4	---	1.7	1.3	---
TOTAL	79.0	100.7	69.46	315.2	321.2	158.0	229.7	221.6	127.1	162.7	96.8	148.4
MEAN	2.55	3.36	2.24	10.2	11.5	5.10	7.66	7.15	4.24	5.25	3.12	4.95
MAX	15	17	35	35	39	29	28	20	19	48	16	42
MIN	1.1	1.4	.58	2.8	2.9	1.8	2.5	2.2	1.3	1.0	1.0	1.1
CFSM	.58	.76	.51	2.32	2.61	1.16	1.74	1.63	.97	1.20	.71	1.13
IN.	.67	.85	.59	2.67	2.72	1.34	1.95	1.88	1.08	1.38	.82	1.26

CAL YR 1989 TOTAL 1908.31 MEAN 5.23 MAX 57 MIN .50 CFSM 1.19 IN. 16.17
WTR YR 1990 TOTAL 2029.86 MEAN 5.56 MAX 48 MIN .58 CFSM 1.27 IN. 17.20

e Estimated

MONONGAHELA RIVER BASIN

03085000 MONONGAHELA RIVER AT BRADDOCK, PA
(National stream quality accounting network)

LOCATION.--Lat 40°23'28", long 79°51'30", Allegheny County, Hydrologic Unit 05020005, near right bank on river guide wall 300 ft upstream from dam at lock 2 at Braddock, 1,700 ft downstream from Turtle Creek, and 11.2 mi upstream from confluence with Allegheny River. Water-quality sampling site at Rankin bridge, 1.7 mi downstream.

DRAINAGE AREA.--7,337 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1305.

GAGE.--Water-stage recorder and fixed-crest concrete dam control with streamward lock chamber usable as floodway during high flow since 1951. Datum of gage is 707.16 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 13, 1951, at site 700 ft upstream at same datum.

REMARKS.--Records good, except for estimated daily discharges, which are fair. Flow regulated by locks and hydroelectric plants, since 1938 by Tygart Lake, since 1926 by Lake Lynn, since 1925 by Deep Creek Reservoir, and since 1943 by Youghiogheny River Lake, combined capacity, 704,300 acre-ft. Figures of daily discharge include slight diversion from Beaver Run Reservoir in the Kiskiminetas River basin to the borough of Jeannette in the Monongahela River basin. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--52 years, 12,500 ft^3/s, 23.14 in/yr, adjusted for storage and diversion 1938-75.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 201,000 ft^3/s, June 5, 1941, gage height, 31.20 ft; maximum gage height, 31.39 ft, June 24, 1972 (backwater from Allegheny River); minimum discharge, 559 ft^3/s, Sept. 20, 22, 23, 1946; minimum daily, 703 ft^3/s, Sept. 3, 4, 22, 1946; minimum gage height, 12.01 ft, Oct. 7-13, 1943.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936, reached a stage of 38.8 ft from floodmarks, discharge, 210,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 85,000 ft^3/s, Jan. 1, gage height, 21.21 ft; minimum daily, 2,130 ft^3/s, Aug. 17.

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	5860	5470	16000	65700	29100	11700	5590	6290	33700	9880	4170	2660
2	6140	6210	13100	61600	25100	10600	12700	4900	27100	14700	4350	3490
3	6180	6420	9890	27100	27100	10800	16100	5970	25300	12600	2690	2480
4	6700	5500	8920	30000	29300	11400	15700	6520	19600	10300	2480	2950
5	5680	4900	9240	29800	33800	12700	13600	20600	14600	8740	3330	3420
6	5450	4040	9910	28700	30500	11000	15500	26300	11200	10500	3560	3880
7	7220	4800	10100	23600	25900	10400	16300	18400	10200	6950	4220	9250
8	11400	5700	11000	20000	24500	9400	14300	18400	8790	6350	3210	9830
9	8310	6220	11100	20300	23100	9660	13700	14200	11200	5770	3190	6980
10	8960	15500	12500	17800	42500	7320	15000	15000	20200	5450	3070	14500
11	8860	15000	7900	15800	59800	5750	20500	14900	16800	6660	2600	10900
12	9890	13800	7710	13500	44400	6240	25100	12300	12500	13200	2360	6660
13	8440	14000	6350	11100	32300	8450	23300	11200	10600	27700	2840	9740
14	6160	9580	7170	9180	27600	8650	16800	11300	8550	31400	4290	10600
15	5990	9010	5890	8190	26600	9060	14600	10100	15800	22600	2400	12000
16	5610	13700	4510	6330	24600	9750	13000	10900	12800	33100	2940	14900
17	8280	33600	3250	5690	21500	7620	12800	13100	11400	30000	2130	9350
18	18700	26900	3380	15300	19300	7400	12400	14000	9090	23700	2990	8370
19	31300	21400	4530	17300	17700	8690	12500	13300	7000	20100	3190	7330
20	42200	16500	4400	22500	17000	10800	11200	10900	5450	15800	4830	8890
21	27600	16700	4590	36300	14100	11000	11200	9760	4830	14000	5080	10500
22	25500	14900	4510	37000	9720	10900	22000	7960	3940	13900	4310	9380
23	21400	12900	3050	29500	11600	8650	20800	8390	4840	14000	8410	13000
24	17500	11000	2550	23600	10900	8710	19400	8720	3910	11900	12700	10500
25	17000	10800	2700	21200	10300	6960	17900	10500	4040	9950	8620	9800
26	14100	10200	2910	16800	8320	8950	13300	12800	4850	8800	6000	8110
27	13800	13700	4200	17400	9210	9540	9650	58600	4120	6240	4040	8010
28	e14400	12200	3610	16900	11300	9050	7210	48600	4050	5550	3860	6960
29	e10300	17800	3530	18800	---	8430	6090	27700	3570	4980	3760	5710
30	e9440	17200	4580	41000	---	9080	6730	37800	3250	4500	3920	4470
31	6420	---	10200	39000	---	6780	---	40200	---	4150	3870	---
TOTAL	394790	375650	213280	746990	667150	285440	434970	529610	333280	413470	129410	244620
MEAN	12740	12520	6880	24100	23830	9208	14500	17080	11110	13340	4175	8154
MAX	42200	33600	16000	65700	59800	12700	25100	58600	33700	33100	12700	14900
MIN	5450	4040	2550	5690	8320	5750	5590	4900	3250	4150	2130	2480

CAL YR 1989 TOTAL 5892340 MEAN 16140 MAX 110000 MIN 2030
WTR YR 1990 TOTAL 4768660 MEAN 13060 MAX 65700 MIN 2130

e Estimated

03085000 MONONGAHELA RIVER AT BRADDOCK, PA--Continued

WATER-QUALITY RECORDS

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

REMARKS.--In March 1989 a bias was discovered in the turbidimetric method for sulfate analysis for those samples analyzed by the U.S. Geological Survey National Water-Quality Laboratory 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.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)
NOV											
16...	0900	9670	415	7.3	12.0	4.5	730	10.1	1300	250	130
FEB											
13...	0930	35600	235	7.0	6.5	55	741	12.0	400	500	67
MAY											
17...	1000	12300	310	7.2	18.0	5.8	732	9.6	900	1000	110
SEP											
05...	1315	3230	422	7.1	25.5	5.6	752	6.9	580	K8	140

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV										
16...	37	8.9	23	2.0	40	33	130	9.9	0.10	5.3
FEB										
13...	17	5.8	8.3	1.2	28	23	60	7.6	0.10	5.6
MAY										
17...	31	8.4	17	1.5	19	16	96	10	<0.10	5.3
SEP										
05...	38	9.7	27	2.2	37	30	130	18	0.20	4.3

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)
NOV										
16...	240	.650	.160	.30	.050	<.010	.010	20	<1	42
FEB										
13...	141	1.00	.100	.50	.110	<.010	<.010	40	<1	59
MAY										
17...	192	1.00	.080	.30	.030	<.010	<.010	30	<1	39
SEP										
05...	262	9.70	.090	.30	.020	<.010	<.010	30	<1	48

DATE	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)
NOV										
16...	<0.5	<1.0	1	<3	1	11	<1	11	210	<0.1
FEB										
13...	<0.5	<1.0	<5	<3	<10	25	<10	5	170	<0.1
MAY										
17...	<0.5	<1.0	1	<3	<1	14	<1	10	140	<0.1
SEP										
05...	<0.5	1.0	1	<3	2	15	1	11	74	<0.1

DATE	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV										
16...	<10	5	<1	<1.0	240	<6	18	10	261	87
FEB										
13...	<10	<10	<1	<1.0	120	<6	28	124	11900	99
MAY										
17...	<10	4	<1	<1.0	190	<6	5	22	731	98
SEP										
05...	<10	2	<1	<1.0	250	<6	12	10	87	100

CHARTIERS CREEK BASIN

03085500 CHARTIERS CREEK AT CARNEGIE, PA

LOCATION.--Lat 40°24'02", long 80°05'48", Allegheny County, Hydrologic Unit 05030101, on left bank 100 ft downstream from Hammond Street bridge, 0.3 mi downstream from Robinson Run, 0.8 mi upstream from Campbells Run, and 8.9 mi upstream from mouth.

DRAINAGE AREA.--257 mi^2.

PERIOD OF RECORD.--October 1919 to September 1933, October 1940 to current year. Published as "at Crafton" October 1971 to September 1975. Monthly discharge only for some periods, published in WSP 1305. June 1915 to September 1919 (gage heights and discharge measurements only) in reports of Water Supply Commission of Pennsylvania.

GAGE.--Water-stage recorder and concrete weir control. Datum of gage is 755.45 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 15, 1931, nonrecording gage at site 0.5 mi downstream at different datum. Jan. 8, 1932, to Sept. 30, 1933, nonrecording gage at site 1.0 mi downstream at different datum. Nov. 20, 1940, to Aug. 18, 1967, water-stage recorder at site 400 ft upstream at datum 1.00 ft higher. Oct. 1, 1971, to Sept. 30, 1975, nonrecording gage at site 4.6 mi downstream, at datum 725.99 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for estimated daily discharges, which are fair. Some regulations at low flow by mine drainage, reservoirs, and industrial usage above station. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--64 years (1919-33, 1940-90), 292 ft^3/s, 15.43 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,500 ft^3/s, Aug. 6, 1956, gage height, 16.37 ft, site and datum then in use; minimum observed, 16 ft^3/s, Aug. 9, 1926, and at times in September 1932.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 2, 1912 reached a discharge of 20,000 ft^3/s, from U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 31	2300	2,510	4.71	Sept. 7	1400	8,930	9.93
July 12	1800	*11,200	*11.53				

Minimum daily discharge, 52 ft^3/s, Dec. 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	100	134	100	1320	586	e290	322	197	407	245	184	83
2	141	105	97	475	706	287	530	189	343	144	163	81
3	107	109	96	338	640	278	358	182	368	123	154	80
4	89	111	89	350	1420	247	341	256	326	110	151	78
5	87	98	e80	412	1080	240	342	370	266	119	295	280
6	95	94	e68	308	707	229	338	324	244	334	247	211
7	106	93	e70	252	586	213	320	239	297	165	162	5460
8	95	101	e86	228	506	204	300	204	415	126	146	882
9	98	154	e82	208	502	215	268	185	882	492	138	562
10	105	135	e80	204	909	218	395	213	567	259	133	920
11	136	108	e76	193	687	204	983	190	351	280	127	417
12	99	101	e72	172	593	197	557	174	280	3770	125	686
13	92	99	e70	156	529	183	447	252	249	3410	137	446
14	88	90	e68	138	688	179	418	261	249	812	148	412
15	85	105	e64	184	1150	172	438	187	606	1040	124	1150
16	80	339	e62	182	1420	171	365	405	268	691	111	473
17	88	274	e60	168	939	548	349	728	224	476	105	365
18	129	178	e58	206	688	411	319	403	216	384	102	291
19	432	147	e56	175	603	349	285	278	200	325	145	414
20	256	135	e54	900	514	389	274	284	183	324	131	376
21	175	119	e52	1310	461	322	428	517	179	765	146	282
22	154	114	e54	679	442	294	370	303	166	473	211	430
23	127	110	e58	473	442	275	301	251	267	762	188	334
24	117	104	e62	408	425	258	279	220	183	409	146	269
25	110	104	e66	368	358	251	262	203	170	317	126	237
26	107	111	e70	354	e300	234	246	640	150	264	114	220
27	101	111	e76	301	e260	218	233	406	137	236	103	206
28	100	124	e82	283	e230	204	224	326	215	218	98	190
29	97	114	e90	737	---	200	213	922	257	203	95	178
30	88	102	e350	1460	---	201	206	933	251	197	90	280
31	122	---	e1200	726	---	215	---	522	---	222	87	---
TOTAL	3806	3823	3648	13668	18371	7896	10711	10764	8916	17695	4432	16293
MEAN	123	127	118	441	656	255	357	347	297	571	143	543
MAX	432	339	1200	1460	1420	548	983	933	882	3770	295	5460
MIN	80	90	52	138	230	171	206	174	137	110	87	78
CFSM	.48	.50	.46	1.72	2.55	.99	1.39	1.35	1.16	2.22	.56	2.11
IN.	.55	.55	.53	1.98	2.66	1.14	1.55	1.56	1.29	2.56	.64	2.36

CAL YR 1989 TOTAL 122833 MEAN 337 MAX 3220 MIN 52 CFSM 1.31 IN. 17.78
WTR YR 1990 TOTAL 120023 MEAN 329 MAX 5460 MIN 52 CFSM 1.28 IN. 17.37

e Estimated

OHIO RIVER MAIN STEM

03086000 OHIO RIVER AT SEWICKLEY, PA

LOCATION.--Lat 40°32'57", long 80°12'21", Allegheny County, Hydrologic Unit 05030101, near left bank 50 ft upstream from Dashields Dam, 1.0 mi downstream from Narrows Run, 1.0 mi northwest of Sewickley, and 13.3 mi downstream from confluence of Allegheny and Monongahela Rivers.

DRAINAGE AREA.--19,500 mi^2, approximately.

PERIOD OF RECORD.--October 1933 to current year.

REVISED RECORDS.--WSP 1305: 1938-40 (adjusted monthly runoff). WSP 1435: 1934.

GAGE.--Nonrecording gage, Oct. 1 to July 12, water-stage recorder thereafter and fixed-crest concrete dam control. Datum of gage is 690.41 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 22, 1933, nonrecording gage, Nov. 22, 1933 to May 4, 1981, water-stage recorder at site 1.5 mi upstream, at same datum, nonrecording gage Nov. 14, 1988 to July 12, 1990, at same site and datum.

COOPERATION.--Gage readings provided by the U.S. Army Corps of Engineers.

REMARKS.--Records good except for estimated daily discharge, which is fair. Some regulation by locks, and by many reservoirs above station. Combined capacity of reservoirs and lakes, excluding that of Chautauqua Lake, but including Lake Lynn, Deep Creek Reservoir, and 15 smaller reservoirs, 2,773,000 acre-ft. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--57 years, 33,180 ft^3/s, 23.10 in/yr, adjusted for storage May 1938 to September 1975.

EXTREMES FOR PERIOD OF RECORD.--Maxmium discharge, 574,000 ft^3/s, Mar. 18, 1936, gage height, 34.75 ft, from floodmark in gage house; minimum, 1,800 ft^3/s, Sept. 4, 1957, gage height, 2.60 ft.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 128,000 ft^3/s, Feb. 17, minimum daily, 4,960 ft^3/s, Dec. 26.

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	12300	15600	37200	89400	74200	52000	18800	24200	64200	18800	11700	12200
2	12000	16300	32800	99300	71400	45000	29400	20600	54400	26800	12800	12800
3	13700	15700	29100	68500	93500	40900	40900	23600	46600	23800	9500	9620
4	14300	18400	29300	86400	107000	38900	47000	17000	37800	20800	9220	8780
5	14200	15300	31100	67800	119000	37900	45000	35000	31100	16200	8480	9320
6	10600	12000	30500	64400	105000	37900	47000	45200	24700	19600	15000	9990
7	16500	15600	30400	63900	95700	32200	49000	39900	25800	13400	16300	30400
8	17100	16800	31500	57200	90700	29400	47000	45400	26600	12600	15400	41600
9	14300	19100	32000	63900	83000	29400	43000	41100	29600	12900	11700	34900
10	15000	33500	33100	57200	96200	27700	45000	39300	45200	26200	13000	49200
11	17800	36800	26800	51000	123000	25800	67000	40100	43200	23600	8380	59000
12	16300	34600	27700	47400	108000	25800	97900	34300	34800	44800	7800	47500
13	15400	36600	27500	40900	88000	35000	81600	33100	31600	86300	7170	40400
14	13900	29600	26200	33000	81900	35000	73900	35000	24200	70300	10600	38000
15	12300	24400	23800	30500	83200	33100	71400	47000	38100	49200	9150	33600
16	11000	30400	17400	28600	118000	33100	69000	53500	33000	73200	9640	45000
17	12600	57200	12400	27800	128000	31300	61900	68700	27500	73900	9170	40200
18	25500	61000	7840	46000	98200	34100	57400	75500	23600	64700	7240	44600
19	42600	54400	10400	68500	86900	40900	49000	75000	18400	57700	8280	39500
20	59800	45200	8730	78000	84300	43000	43000	70400	15800	49600	11100	37600
21	46600	42800	9770	95400	76700	45000	43000	71900	13900	41400	10000	43300
22	46800	40900	9650	99000	63900	45000	43000	63000	13900	38200	11500	38400
23	40700	40900	9180	89600	61900	40900	53100	59200	14000	41300	10900	39900
24	36000	36200	8730	84000	57000	37000	51000	55400	12300	51900	22400	39100
25	35200	36800	6690	80300	58500	e34200	47000	53500	12000	40800	13800	41300
26	30400	34100	4960	65600	53100	31300	40900	52200	14800	36300	12200	41200
27	28400	37800	6790	63200	48800	31300	35000	89900	15700	24800	8760	35900
28	27500	35800	9650	62800	52200	33100	29400	82700	13300	20900	7790	29900
29	20100	39900	8730	64600	---	29400	25800	54100	12400	15300	9490	25900
30	15700	41700	10500	91000	---	25800	22200	63000	12400	14900	15100	21700
31	17100	---	23300	88000	---	25800	---	71200	---	14200	17500	---
TOTAL	711700	975400	613720	2053200	2407300	1087200	1474600	1580000	810900	1124400	351070	1000810
MEAN	22960	32510	19800	66230	85970	35070	49150	50970	27030	36270	11320	33360
MAX	59800	61000	37200	99300	128000	52000	97900	89900	64200	86300	22400	59000
MIN	10600	12000	4960	27800	48800	25800	18800	17000	12000	12600	7170	8780

CAL YR 1989 TOTAL 15240980 MEAN 41760 MAX 161000 MIN 4960
WTR YR 1990 TOTAL 14190300 MEAN 38880 MAX 128000 MIN 4960

e Estimated

BEAVER RIVER BASIN

03101500 SHENANGO RIVER AT PYMATUNING DAM, PA

LOCATION.--Lat 41°29'53", long 80°27'37", Crawford County, Hydrologic Unit 05030102, on left bank 500 ft downstream from Sugar Run, 900 ft downstream from Pymatuning Dam, 1.5 mi northwest of Jamestown, and at mile 84.9.

DRAINAGE AREA.--167 mi^2.

PERIOD OF RECORD.--June 1934 to current year.

REVISED RECORDS.--WSP 823: 1934-36. WSP 1083: 1936 (M), 1937, 1940 (M), 1941-45. WSP 1335: 1940.

GAGE.--Water-stage recorder and concrete dam control. Datum of gage is 970.00 ft above National Geodetic Vertical Datum, adjustment of 1907.

REMARKS.--No estimated daily discharge. Records good. Flow regulated since 1933 by Pymatuning Reservoir (station 03100500). Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--56 years, 209 ft^3/s, 17.00 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,540 ft^3/s, Sept. 4, 1937, gage height, 9.2 ft; minimum, 0.1 ft^3/s, June 30 to July 3, 1934.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 876 ft^3/s, Feb. 15, gage height, 6.79 ft; minimum daily, 19 ft^3/s, June 12.

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	107	110	754	310	599	589	82	70	120	116	70	92
2	118	110	751	238	491	592	111	70	120	114	70	92
3	113	110	749	228	88	596	92	70	119	113	70	92
4	110	110	747	268	112	586	88	71	119	113	70	92
5	109	110	747	269	62	585	86	82	87	113	74	92
6	107	110	745	230	204	583	82	76	69	124	74	105
7	107	110	748	224	518	583	79	72	38	134	73	179
8	107	113	741	223	596	584	78	71	21	134	71	105
9	107	116	736	222	593	589	76	70	22	113	71	263
10	107	115	735	228	614	595	120	66	21	71	71	133
11	107	114	734	228	597	595	176	64	20	71	71	107
12	107	113	732	224	593	590	96	64	19	119	71	171
13	107	113	729	220	591	587	88	81	44	90	71	409
14	107	113	729	219	591	585	87	76	57	77	71	527
15	107	113	729	221	601	390	94	70	57	328	71	574
16	105	180	729	227	395	281	85	501	57	98	70	562
17	123	134	729	296	621	287	83	794	56	78	70	552
18	112	122	528	342	607	288	81	781	55	76	70	536
19	130	117	268	469	605	286	78	757	55	72	70	534
20	128	117	268	591	601	284	77	748	55	71	70	537
21	114	116	268	627	591	281	101	752	55	71	68	530
22	113	203	268	605	593	198	86	747	90	71	68	532
23	109	259	268	599	607	152	81	743	111	87	68	533
24	107	259	268	599	600	152	78	417	122	75	79	533
25	107	261	268	596	590	152	76	116	119	70	90	529
26	155	282	268	595	591	152	75	116	116	70	90	528
27	157	270	264	592	591	102	75	116	116	70	90	528
28	110	264	233	591	591	75	136	116	116	70	90	525
29	110	476	211	591	---	75	73	135	116	70	92	522
30	110	757	213	591	---	75	72	138	116	70	92	546
31	110	---	289	589	---	75	---	122	---	70	92	---
TOTAL	3527	5497	16446	12052	14433	11544	2692	8172	2288	3019	2338	11060
MEAN	114	183	531	389	515	372	89.7	264	76.3	97.4	75.4	369
MAX	157	757	754	627	621	596	176	794	122	328	92	574
MIN	105	110	211	219	62	75	72	64	19	70	68	92

CAL YR 1989 TOTAL 94556 MEAN 259 MAX 778 MIN 19
WTR YR 1990 TOTAL 93068 MEAN 255 MAX 794 MIN 19

BEAVER RIVER BASIN

03102500 LITTLE SHENANGO RIVER AT GREENVILLE, PA

LOCATION.--Lat 41°25'19", long 80°22'35", Mercer County, Hydrologic Unit 05030102, on left bank 1,700 ft downstream from Williamson Crossing bridge, 1 mi northeast of Greenville, and 2.0 mi upstream from mouth.

DRAINAGE AREA.--104 mi^2.

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

REVISED RECORDS.--WSP 743: Drainage area. WSP 1305: 1914, 1922-23, 1926-29. WSP 1335: 1923 (m).

GAGE.--Water-stage recorder. Datum of gage is 953.46 ft above National Geodetic Vertical Datum, adjustment of 1912. Prior to Nov. 4, 1915, nonrecording gage; Nov. 4, 1915, to Sept. 30, 1918, water-stage recorder; Nov. 7, 1919, to Aug. 31, 1923, and Nov. 19, 1925, to June 20, 1934, nonrecording gage at site 1 mi downstream at datum 8.96 ft lower.

REMARKS.--Records good except for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--77 years, 143 ft^3/s, 18.67 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,540 ft^3/s, Jan. 22, 1959, gage height, 14.30 ft, from rating curve extended above 3,200 ft^3/s on basis of slope-area measurement at gage height 12.26 ft; minimum, 2.9 ft^3/s, July 31, 1934, gage height, 0.58 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 1	--	--	ice jam	Feb. 16	0700	*2,880	*8.47
Feb. 3	0415	1,780	6.56				

Minimum daily discharge, 22 ft^3/s, Oct. 1, 9, 16.

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	22	50	107	e770	116	e115	90	63	93	36	52	34
2	54	50	98	777	934	e130	272	57	78	33	46	32
3	69	45	94	385	1450	188	255	54	72	32	42	30
4	44	41	85	316	898	141	204	60	70	30	39	29
5	32	39	e84	656	811	119	187	151	68	29	70	29
6	27	38	e78	394	399	112	152	118	62	28	94	40
7	24	40	e74	228	324	98	130	95	58	32	67	664
8	23	67	e70	175	268	93	114	76	61	29	53	537
9	22	110	e66	145	219	124	98	66	84	35	45	360
10	23	91	e64	191	287	235	184	61	80	53	40	883
11	29	85	e62	236	262	224	1090	57	67	42	37	320
12	31	76	e58	199	202	192	678	53	59	274	36	167
13	27	62	e56	143	176	154	319	130	52	345	67	121
14	24	56	e54	142	159	131	236	193	48	133	142	103
15	23	55	e52	121	657	115	312	118	45	662	71	322
16	22	335	e50	161	2370	102	240	265	41	507	50	328
17	95	409	e49	205	1110	140	191	580	39	211	48	367
18	90	205	e48	239	470	213	173	504	37	131	42	222
19	111	139	e46	230	325	145	137	316	35	88	40	163
20	198	115	e45	174	235	137	116	200	34	72	41	226
21	119	117	e43	314	176	116	215	192	36	79	52	163
22	113	111	e42	331	190	102	233	147	56	89	48	172
23	87	105	e41	251	286	91	159	113	46	511	44	164
24	70	103	e40	242	264	85	127	94	52	418	41	198
25	58	97	e38	214	189	78	109	82	95	102	39	163
26	51	161	e37	184	147	72	97	91	72	90	37	137
27	46	191	e36	145	e130	67	86	90	49	70	35	e125
28	42	168	e35	135	e100	65	78	101	41	59	34	e92
29	40	175	e35	120	---	63	69	159	40	52	51	e110
30	39	127	e34	120	---	66	65	272	38	48	53	e200
31	38	---	e40	109	---	69	---	142	---	53	39	---
TOTAL	1693	3463	1761	8052	13154	3782	6416	4700	1708	4373	1595	6501
MEAN	54.6	115	56.8	260	470	122	214	152	56.9	141	51.5	217
MAX	198	409	107	777	2370	235	1090	580	95	662	142	883
MIN	22	38	34	109	100	63	65	53	34	28	34	29
CFSM	.53	1.11	.55	2.50	4.52	1.17	2.06	1.46	.55	1.36	.49	2.08
IN.	.61	1.24	.63	2.88	4.71	1.35	2.29	1.68	.61	1.56	.57	2.33

CAL YR 1989 TOTAL 54779 MEAN 150 MAX 2000 MIN 13 CFSM 1.44 IN. 19.59
WTR YR 1990 TOTAL 57198 MEAN 157 MAX 2370 MIN 22 CFSM 1.51 IN. 20.46

e Estimated

BEAVER RIVER BASIN

03102850 SHENANGO RIVER NEAR TRANSFER, PA

LOCATION.--Lat 41°21'13", long 80°23'53", Mercer County, Hydrologic Unit 05030102, on left bank at downstream side of covered wooden bridge, 200 ft downstream from highway bridge, 0.6 mi downstream from Big Run, 2.5 mi northeast of Transfer, and at mile 71.8.

DRAINAGE AREA.--337 mi^2.

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

REVISED RECORDS.--WDR PA-71-1: 1966, 1967.

GAGE.--Water-stage recorder. Datum of gage is 913.94 ft above National Geodetic Vertical Datum of 1929 (Pennsylvania Department of Transportation bench mark).

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated since 1933 by Pymatuning Reservoir (station 03100500) 13 mi upstream and by mills above station. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--25 years, 480 ft^3/s, 19.34 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,390 ft^3/s, Nov. 5, 1985, gage height, 10.47 ft; minimum, 33 ft^3/s, July 20, 21, 22, 1968, gage height, 1.71 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,900 ft^3/s, Feb. 15, gage height, 9.50 ft; minimum daily, 102 ft^3/s, June 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	127	236	955	1910	813	823	236	126	270	166	156	140
2	333	233	940	1180	3190	843	745	115	242	164	142	136
3	302	219	907	735	2250	923	576	107	231	161	132	133
4	216	209	908	875	1770	822	467	136	226	157	127	131
5	174	200	916	1400	1180	791	427	348	205	155	227	132
6	156	200	925	817	708	782	352	251	159	153	227	175
7	146	212	1010	551	952	752	299	191	147	172	188	1510
8	142	308	926	470	981	745	260	152	129	171	154	851
9	138	416	907	429	901	834	223	129	177	209	136	1310
10	146	367	878	568	1110	1010	557	121	148	159	128	1530
11	166	359	863	584	967	954	2250	109	126	142	122	601
12	168	325	857	515	865	889	1070	106	110	796	119	360
13	155	283	839	426	829	834	610	331	102	695	254	531
14	148	263	839	389	812	800	491	392	125	326	318	709
15	144	291	822	398	2500	687	634	243	120	3150	183	1250
16	145	1150	821	497	4000	483	477	925	119	1050	146	1110
17	436	841	821	590	2250	588	405	1950	115	490	138	1130
18	378	476	795	743	1310	643	366	1720	112	337	131	832
19	504	360	407	733	1120	550	299	1290	108	241	130	770
20	622	325	348	874	962	535	263	1100	107	204	131	863
21	439	337	e320	1270	869	501	536	1100	108	254	147	751
22	414	351	e280	1130	950	431	463	998	143	291	141	787
23	349	483	e250	984	1120	305	339	937	182	1490	133	767
24	304	479	e210	975	1050	291	277	775	225	691	132	823
25	270	474	e190	899	904	276	238	254	289	337	149	743
26	251	660	e180	858	856	263	209	292	229	236	144	687
27	379	624	e170	796	865	222	185	271	189	193	140	666
28	224	602	e160	779	859	154	251	271	176	171	147	647
29	212	621	e150	767	---	148	148	507	174	158	195	635
30	207	985	e160	765	---	161	137	614	171	150	171	732
31	208	---	e430	746	---	166	---	363	---	162	148	---
TOTAL	8003	12889	19184	24653	36943	18206	13790	16224	4964	13231	4936	21442
MEAN	258	430	619	795	1319	587	460	523	165	427	159	715
MAX	622	1150	1010	1910	4000	1010	2250	1950	289	3150	318	1530
MIN	127	200	150	389	708	148	137	106	102	142	119	131

CAL YR 1989 TOTAL 181381 MEAN 497 MAX 3250 MIN 78
WTR YR 1990 TOTAL 194465 MEAN 533 MAX 4000 MIN 102

e Estimated

BEAVER RIVER BASIN

03103500 SHENANGO RIVER AT SHARPSVILLE, PA

LOCATION.--Lat 41°15'58", long 80°28'22", Mercer County, Hydrologic Unit 05030102, on left bank 800 ft upstream from double highway bridge at Sharpsville, 0.7 mi downstream from Shenango River Dam, 1.8 mi upstream from McCullough Run, and at mile 55.1.

DRAINAGE AREA.--584 mi^2.

PERIOD OF RECORD.--March 1938 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 2107: 1970 Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 861.57 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharge. Records good. Flow regulated by Pymatuning Reservoir (station 03100500) since 1933 and by Shenango River Lake 0.7 mi upstream, since 1967. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--52 years, 764 ft^3/s, 17.77 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,700 ft^3/s, Jan. 22, 1959, gage height, 15.97 ft; minimum daily, 43 ft^3/s, Sept. 3, 1941.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 26, 1913, reached a stage of 19.3 ft, from Pymatuning survey profile map (discharge not determined).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,870 ft^3/s, Feb. 27, gage height, 6.62 ft; minimum daily, 137 ft^3/s, Nov. 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	401	527	1480	384	1300	3630	197	302	1090	255	251	251
2	399	524	1550	658	1060	3520	199	262	919	255	251	251
3	401	524	1540	1090	673	3400	202	234	579	255	251	251
4	404	519	1520	1270	522	3270	205	234	343	255	251	249
5	404	435	1360	1440	863	2990	209	234	288	253	255	248
6	399	296	1270	1850	1550	2130	211	234	288	251	255	248
7	399	137	1270	2040	1960	1660	212	351	279	251	255	251
8	399	256	1330	2010	1960	1400	215	429	268	251	255	550
9	399	387	1360	1980	1960	1230	215	427	270	251	255	828
10	399	387	1360	1950	1960	1230	217	427	269	248	255	1170
11	398	461	1280	1920	1950	1230	225	346	270	249	252	1760
12	394	511	1100	1880	2120	1240	546	292	273	252	251	2050
13	393	508	1020	1840	2200	1240	1250	292	275	252	254	2090
14	393	504	1020	1530	2180	1230	1660	268	270	256	255	2060
15	392	506	949	1330	1830	1010	1650	351	276	208	255	2050
16	389	514	898	1180	1020	647	1640	433	278	270	257	2050
17	393	715	898	1080	664	529	1460	486	278	961	258	2040
18	393	923	898	1090	1450	534	1190	1060	253	1760	255	2030
19	398	923	896	1100	2260	540	930	1590	243	2150	255	1710
20	399	923	619	1100	2570	483	678	1790	239	2180	255	1310
21	402	918	444	1120	3110	312	580	2010	247	2130	255	1220
22	404	910	444	1240	2810	202	580	2220	247	2090	255	1140
23	486	905	391	1670	2460	190	580	2250	247	1890	255	1080
24	542	898	355	1850	3370	192	580	2220	247	1760	255	1080
25	542	895	355	1330	3570	194	580	1840	249	1740	255	1080
26	542	890	355	1440	3670	195	580	1280	252	1340	255	1020
27	537	890	355	1840	3800	197	580	623	255	731	255	884
28	530	890	355	1810	3750	197	580	273	255	321	256	818
29	530	890	355	1630	---	197	413	440	255	252	256	759
30	530	1150	355	1510	---	197	302	627	255	252	251	722
31	527	---	361	1380	---	197	---	989	---	254	251	---
TOTAL	13518	19716	27743	45542	58592	35413	18666	24814	9757	23823	7880	33250
MEAN	436	657	895	1469	2093	1142	622	800	325	768	254	1108
MAX	542	1150	1550	2040	3800	3630	1660	2250	1090	2180	258	2090
MIN	389	137	355	384	522	190	197	234	239	208	251	248

CAL YR 1989 TOTAL 319546 MEAN 875 MAX 3300 MIN 133
WTR YR 1990 TOTAL 318714 MEAN 873 MAX 3800 MIN 137

BEAVER RIVER BASIN

03105500 BEAVER RIVER AT WAMPUM, PA

LOCATION.--Lat 40°53'19", long 80°20'14", Lawrence County, Hydrologic Unit 05030104, on right bank at downstream side of bridge on State Highway 288 at Wampum, 2.9 mi upstream from Connoquenessing Creek, and at mile 15.4.

DRAINAGE AREA.--2,235 mi^2.

PERIOD OF RECORD.--July 1914 to September 1918, August 1932 to current year. Monthly discharge only for some periods, published in WSP 1305. Published as "at Newport" 1914-18.

REVISED RECORDS.--WSP 728: Drainage area. WSP 1385: 1933-40, 1946, 1951-52. WSP 1725: 1960 (adjusted runoff). WDR PA-85-3: 1984 (M).

GAGE.--Water-stage recorder. Datum of gage is 736.24 ft above National Geodetic Vertical Datum of 1929 (Penn Central Railroad bench mark). Prior to Sept. 20, 1914, nonrecording gage at site 500 ft downstream at datum 0.76 ft lower. Oct. 1, 1914, to Sept. 30, 1918, nonrecording gage at site 1 mi upstream at datum 0.84 ft higher. Aug. 26, 1932, to Nov. 16, 1938, nonrecording gage at present site and datum. Since 1932, auxiliary gage 10 mi downstream at Beaver Falls (station 03107500) which is used during periods of backwater from Connoquenessing Creek.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1942 by Berlin Lake, since 1916 by Milton Reservoir, since 1966 by Michael J. Kirwan Reservoir, since 1943 by Mosquito Creek Lake, since 1929 by Meander Creek Reservoir, since 1933 by Pymatuning Reservoir, and since 1967 by Shenango River Lake 40 mi upstream. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--62 years (1914-18, 1932-90), 2,503 ft^3/s, 15.21 in/yr, adjusted for storage from 1932-75.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,100 ft^3/s, May 28, 1946, from slope-rating curve extended above 28,000 ft^3/s on basis of contracted-opening measurement at gage height 21.44 ft; maximum gage height, 24.86 ft, Jan. 22, 1959 (backwater from Connoquenessing Creek); minimum discharge observed, 74 ft^3/s, July 30, 1933, gage height, 1.70 ft; minimum daily, 97 ft^3/s, July 22, Aug. 23, 1933.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1912, 29.9 ft, Mar. 26, 1913, from floodmark, discharge, about 87,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 23,100 ft^3/s, Feb. 16, gage height, 14.54 ft; minimum daily, 766 ft^3/s, Dec. 25.

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	1010	1350	2520	6880	3030	6590	975	1110	2800	1180	4840	1160
2	1280	1490	2670	4640	8280	5920	2600	1080	2330	981	2680	1100
3	1810	1560	2590	3800	12100	5540	3020	985	1960	894	1820	1070
4	1520	1580	2520	3570	11900	5150	2460	972	1510	863	1630	1050
5	1310	1550	2490	4530	9290	4750	2230	1780	1160	865	3860	1120
6	1210	1400	2250	4630	6430	4270	1860	1780	1100	851	5590	1160
7	1170	1270	2430	4360	6170	3210	1520	1390	4100	840	4760	7020
8	1140	1330	2400	3850	6360	2840	1320	1250	3440	847	3070	5650
9	1120	1750	2390	3590	6300	2560	1170	1180	5350	872	2780	7220
10	1120	1870	2310	3640	7120	2960	1800	1140	6200	995	2380	8670
11	1190	1710	2270	3900	7010	3060	9760	1150	3610	1270	2060	6550
12	1120	1690	2110	3840	6350	2900	6800	1000	2350	5000	1870	5470
13	1090	1610	1800	3550	6120	2710	4580	1370	2310	5470	2810	5540
14	1080	1530	1760	3260	6020	2470	4050	1810	2430	3170	4660	5500
15	1070	1460	1680	2850	10400	2320	4370	1740	2220	14200	3180	8820
16	1060	3940	1430	2880	21700	1870	4020	2340	1770	11700	2410	7870
17	1170	4330	1400	2980	14600	2310	3630	5030	1250	5060	2110	7260
18	1370	3520	1420	3340	7140	2480	3140	5040	1190	4730	1770	6240
19	1670	3120	1400	3610	5760	2000	2620	4240	1120	5270	1760	5780
20	2160	2840	1350	3320	6170	1930	2200	3600	992	5280	1730	5520
21	2070	2740	980	4630	6130	1500	5060	3680	983	6340	1720	4960
22	1800	2500	838	4660	6700	1170	4850	3750	924	5950	1730	5470
23	1590	2200	873	4400	6470	1040	3460	3670	899	18800	1660	4920
24	1520	2150	812	4510	6390	972	2570	3500	987	13600	1720	4660
25	1340	2140	766	4210	6970	944	2180	3340	1450	7140	1650	4530
26	1210	2200	797	3180	6680	916	1960	3140	1240	5650	1460	4320
27	1190	2280	785	3470	6750	877	1830	2630	1050	4830	1400	3960
28	1160	2280	817	3410	6870	840	1970	1730	1040	4020	1370	3520
29	1140	2310	836	3350	---	822	1830	2060	1130	3580	1430	3190
30	1130	2260	968	3310	---	859	1550	3980	1190	3500	1440	3470
31	1130	---	2640	3210	---	905	---	3640	---	5670	1300	---
TOTAL	40950	63960	52302	119360	221210	78685	91385	75107	60085	149418	74650	142770
MEAN	1321	2132	1687	3850	7900	2538	3046	2423	2003	4820	2408	4759
MAX	2160	4330	2670	6880	21700	6590	9760	5040	6200	18800	5590	8820
MIN	1010	1270	766	2850	3030	822	975	972	899	840	1300	1050

CAL YR 1989 TOTAL 1056286 MEAN 2894 MAX 18700 MIN 390
WTR YR 1990 TOTAL 1169882 MEAN 3205 MAX 21700 MIN 766

03106000 CONNOQUENESSING CREEK NEAR ZELIENOPLE, PA

LOCATION.--Lat 40°49'01", long 80°14'33", Beaver County, Hydrologic Unit 05030105, on right bank at downstream side of highway bridge at Hazen, 0.3 mi upstream from Brush Creek, 4 mi southeast of Ellwood City, and 6.0 mi west of Zelienople.

DRAINAGE AREA.--356 mi^2.

PERIOD OF RECORD.--October 1919 to current year. Monthly discharge only for some periods, published in WSP 1305. June 1915 to September 1919 (gage heights and discharge measurements only) in reports of Water Supply Commission of Pennsylvania. Published as "at Hazen" 1915-16, 1929-63, and as "near Hazen" 1917-28.

REVISED RECORDS.--WSP 743: Drainage area. WSP 893: 1937-38, 1939 (M). WSP 1305: 1922-26, 1928. WSP 1335: 1920-21, 1924 (M). WSP 1385: 1952.

GAGE.--Water-stage recorder. Datum of gage is 852.31 ft above National Geodetic Vertical Datum, adjustment of 1912. Prior to June 23, 1941, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Some regulation by mills above station. Several measurements of water temperature were made during the year. Satellite telemeter at station.

AVERAGE DISCHARGE.--71 years, 465 ft^3/s, 17.74 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,000 ft^3/s, June 29, 1924, gage height, 16.66 ft; minimum observed, 6.0 ft^3/s, July 21-23, 1936; minimum gage height, 0.76 ft, Aug. 8, Sept. 16, 17, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 31	--	--	ice jam	July 13	0100	*9,920	*12.25
Feb. 16	0630	5,170	8.47	July 15	1400	5,240	8.54
Apr. 11	0530	5,070	8.37				

Minimum discharge, 54 ft^3/s, Oct. 15, 16, 17, gage height, 1.38 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	81	146	144	e2500	1040	333	306	258	387	184	245	74
2	85	153	132	1320	1810	322	404	230	320	142	187	66
3	118	105	126	846	2090	329	498	207	316	96	154	61
4	94	103	97	759	2760	288	445	225	294	83	136	57
5	74	95	133	1120	2510	264	508	648	249	78	482	59
6	67	89	123	857	1540	247	473	493	205	79	601	70
7	64	88	e120	673	1130	221	435	372	300	71	521	1030
8	62	89	e115	546	888	195	420	297	474	62	340	812
9	59	97	e110	445	758	223	366	274	938	65	235	477
10	57	137	e105	441	1080	301	712	242	774	764	184	572
11	62	123	e98	489	958	272	4030	318	549	660	159	354
12	76	112	e94	422	851	257	2070	231	392	5620	148	258
13	65	103	e90	334	768	240	1240	489	306	7630	154	214
14	58	96	e88	248	729	229	966	839	256	2580	309	174
15	55	99	e84	311	1640	210	1200	608	434	3640	169	229
16	55	156	e82	296	4560	213	905	1910	302	2320	126	240
17	57	498	e78	307	2640	847	813	2810	213	1270	109	272
18	69	285	e76	417	1420	1050	703	2060	172	860	101	200
19	132	230	e74	466	1090	812	577	1210	155	642	96	186
20	318	180	e72	509	844	853	514	872	143	765	95	300
21	164	174	e70	1580	683	686	1220	1220	141	1190	92	222
22	143	151	e68	1320	624	603	965	857	125	1090	93	273
23	129	125	e66	1050	638	543	792	652	109	2740	99	271
24	116	111	e64	901	594	465	684	523	111	1490	105	206
25	137	104	e68	759	502	402	594	416	171	930	90	171
26	92	104	e72	732	349	354	518	582	152	659	82	153
27	85	116	e76	605	404	313	439	485	103	472	75	182
28	84	133	e80	582	375	278	376	364	92	358	72	148
29	82	245	e94	589	---	256	327	566	126	293	72	129
30	80	163	e110	1530	---	259	288	732	130	248	136	298
31	78	---	e400	1190	---	291	---	497	---	290	92	---
TOTAL	2898	4410	3209	24144	35275	12156	23788	21487	8439	37371	5559	7758
MEAN	93.5	147	104	779	1260	392	793	693	281	1206	179	259
MAX	318	498	400	2500	4560	1050	4030	2810	938	7630	601	1030
MIN	55	88	64	248	349	195	288	207	92	62	72	57
CFSM	.26	.41	.29	2.19	3.54	1.10	2.23	1.95	.79	3.39	.50	.73
IN.	.30	.46	.34	2.52	3.69	1.27	2.49	2.25	.88	3.91	.58	.81

CAL YR 1989 TOTAL 178544 MEAN 489 MAX 5290 MIN 33 CFSM 1.37 IN. 18.66
WTR YR 1990 TOTAL 186494 MEAN 511 MAX 7630 MIN 55 CFSM 1.44 IN. 19.49

e Estimated

BEAVER RIVER BASIN

03106300 MUDDY CREEK NEAR PORTERSVILLE, PA

LOCATION.--Lat 40°57'47", long 80°07'31", Butler County, Hydrologic Unit 05030105, on left bank 1,000 ft downstream from Lake Arthur Dam, 0.2 mi north of U.S. Highway 422, and 3 mi north of Portersville.

DRAINAGE AREA.--51.2 mi^2.

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

REVISED RECORDS.--WDR PA-79-3: 1978.

GAGE.--Water-stage recorder. Datum of gage is 1,160.91 ft above National Geodetic Vertical Datum of 1929 (Pennsylvania Department of Environmental Resources bench mark). Prior to Apr. 8, 1963 nonrecording gage at site 2,000 ft downstream at different datum. Apr. 8 to May 1, 1963, nonrecording gage and May 2, 1963 to Sept. 30, 1980, water-stage recorder at site 1,000 ft dowwstream at datum 5.71 ft lower.

REMARKS.--No estimated daily discharge. Records fair. Some regulation from October 1966 to May 1969 and completely regulated thereafter by Lake Arthur (station 03106280) 1,000 ft upstream. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--27 years, 73.8 ft^3/s, 19.57 in/yr, adjusted for storage since May 1969.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,640 ft^3/s, Mar. 10, 1964, gage height, 8.18 ft, from rating curve extended above 820 ft^3/s on basis of slope-area measurement of peak flow; minimum, 0.4 ft^3/s, Sept. 17, 1966; minimum gage height, 1.09 ft, Sept. 26, 1972.

EXTREMES FOR CURRRENT YEAR.--Maximum discharge, 352 ft^3/s, July 16, gage height, 5.06 ft; minimum daily, 6.1 ft^3/s, May 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	22	9.7	56	51	162	318	40	16	53	37	102	15
2	21	10	56	49	178	325	50	10	51	36	90	13
3	19	9.3	56	65	186	324	57	10	48	34	79	12
4	16	9.8	71	75	190	324	73	9.5	46	30	69	11
5	15	9.5	97	89	193	265	83	6.4	44	27	94	12
6	14	7.8	124	97	195	98	91	6.3	41	24	88	16
7	12	8.6	123	97	194	24	77	6.1	49	22	80	59
8	11	9.4	123	96	192	12	77	6.3	63	19	71	74
9	10	8.4	122	96	188	12	89	6.6	76	22	64	89
10	11	9.1	121	97	190	12	119	8.8	77	35	55	101
11	11	9.9	98	96	189	12	185	12	75	45	49	98
12	10	9.2	67	97	187	12	277	13	72	138	44	92
13	10	19	47	97	185	12	305	12	66	235	42	85
14	9.8	25	41	97	185	12	313	8.0	60	256	41	78
15	9.4	25	41	97	196	12	313	8.5	55	313	37	73
16	9.4	26	41	97	241	12	312	11	50	348	34	73
17	9.9	27	41	96	264	13	312	12	46	332	31	70
18	10	25	41	96	267	12	275	11	39	302	28	64
19	13	24	41	96	250	13	149	16	34	266	26	62
20	11	31	39	93	237	18	106	22	32	239	26	61
21	11	38	38	92	249	19	130	34	28	243	24	57
22	11	50	37	105	253	28	155	37	27	227	23	58
23	11	60	37	115	252	33	164	38	24	241	19	52
24	11	59	37	115	259	37	154	38	24	236	17	48
25	10	58	37	132	257	40	88	38	29	215	16	46
26	9.8	58	35	143	257	40	57	44	27	192	15	41
27	9.5	57	35	143	276	40	57	43	24	169	15	39
28	9.1	57	41	143	301	39	57	45	25	153	15	37
29	8.7	56	45	144	---	39	58	52	26	135	20	35
30	8.7	56	48	144	---	39	39	55	28	122	18	41
31	9.1	---	51	155	---	40	---	55	---	115	16	---
TOTAL	363.4	861.7	1887	3205	6173	2236	4262	690.5	1339	4808	1348	1612
MEAN	11.7	28.7	60.9	103	220	72.1	142	22.3	44.6	155	43.5	53.7
MAX	22	60	124	155	301	325	313	55	77	348	102	101
MIN	8.7	7.8	35	49	162	12	39	6.1	24	19	15	11

CAL YR 1989 TOTAL 27947.3 MEAN 76.6 MAX 799 MIN 2.3
WTR YR 1990 TOTAL 28785.6 MEAN 78.9 MAX 348 MIN 6.1

BEAVER RIVER BASIN

03106500 SLIPPERY ROCK CREEK AT WURTEMBURG, PA

LOCATION.--Lat 40°53'02", long 80°14'02", Lawrence County, Hydrologic Unit 05030105, on left bank at downstream side of highway bridge at Camp Allegheny, 2 mi north of Wurtemburg, and 2.8 mi upstream from mouth.

DRAINAGE AREA.--398 mi^2.

PERIOD OF RECORD.--October 1911 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 743: Drainage area. WSP 1305: 1914-18, 1920-22, 1923-24 (M), 1925-28, 1930. WSP 1385: 1932, 1935, 1936 (M), 1937-39. WSP 1625: 1955.

GAGE.--Water-stage recorder. Datum of gage is 832.06 ft above National Geodetic Vertical Datum of 1929. Jan. 1, 1912, to Sept. 30, 1922, nonrecording gage at site 1.5 mi downstream at datum 13.77 ft lower and Oct. 1, 1922, to Sept. 30, 1940, nonrecording gage at site 2 mi downstream at datum 18.92 ft lower.

REMARKS.--Records good except for estimated daily discharges, which are fair. Some regulation since May 1969 by Lake Arthur (station 03106280) 13 mi upstream. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--79 years, 571 ft^3/s, 19.48 in/yr, adjusted for storage since May 1969.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,000 ft^3/s, Jan. 25, 1937, gage height, 12.05 ft, from floodmark, site and datum then in use, from rating curve extended above 14,000 ft^3/s; minimum observed, 16 ft^3/s, Sept. 13, 1932.

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

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 2	2230	3,570	5.13	Apr. 11	0500	4,990	6.00
Feb. 4	1530	3,770	5.27	July 15	1600	4,460	5.70
Feb. 16	1800	*6,740	*6.92	July 24	0100	4,880	5.94

Minimum discharge, 101 ft^3/s, Oct. 16, 17, gage height, 0.68 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	167	149	253	e1400	881	e740	401	367	365	641	452	191
2	173	181	240	1800	2270	850	1030	336	309	327	371	163
3	182	169	240	1340	3280	863	1200	318	289	245	327	148
4	156	149	231	945	3240	797	934	325	280	215	303	140
5	133	138	281	1410	3020	700	931	567	267	202	700	144
6	123	134	e220	1180	1980	509	885	591	249	192	653	200
7	119	132	e210	801	1560	382	683	454	2060	178	516	1890
8	115	155	e200	651	1300	327	591	403	2270	162	431	1950
9	110	224	e190	607	1120	361	532	349	2560	164	289	1290
10	109	230	e180	543	1420	545	990	319	2580	216	263	1890
11	124	207	e170	577	1370	562	4370	321	1610	292	248	1030
12	128	201	e160	538	1130	495	3010	308	986	1690	234	642
13	123	192	e160	489	994	432	1830	453	649	2050	238	483
14	115	192	e150	485	943	391	1510	644	516	1320	585	396
15	110	184	e145	452	2400	356	1720	520	435	2780	387	852
16	105	273	e140	458	6290	332	1370	885	376	3040	263	1020
17	105	552	e135	554	4170	589	1160	1530	331	1760	232	1050
18	111	388	e130	650	2080	969	1070	1420	322	1170	213	690
19	169	276	e125	767	1510	737	868	937	312	867	209	548
20	258	234	e120	634	1210	816	762	670	272	739	208	668
21	236	232	e115	1170	1030	711	1670	655	261	1610	204	555
22	211	227	e110	1200	1010	543	1740	610	245	1700	204	739
23	199	241	e125	1020	1130	495	1170	600	234	3550	199	626
24	179	228	e135	1030	1120	452	920	405	243	3600	191	471
25	161	221	e145	981	e900	407	692	320	431	1710	190	400
26	145	232	e160	895	e700	375	598	375	433	1100	178	340
27	135	279	e170	751	e580	345	535	425	303	753	162	327
28	128	291	e180	723	e660	324	494	350	247	614	154	299
29	122	314	e210	698	---	327	456	458	233	515	320	273
30	117	282	e230	938	---	351	416	756	294	455	549	422
31	118	---	e270	914	---	377	---	507	---	529	254	---
TOTAL	4486	6907	5530	26601	49298	16460	34538	17178	19962	34386	9727	19837
MEAN	145	230	178	858	1761	531	1151	554	665	1109	314	661
MAX	258	552	281	1800	6290	969	4370	1530	2580	3600	700	1950
MIN	105	132	110	452	580	324	401	308	233	162	154	140
MEAN‡	138	213	147	874	1756	515	1149	619	660	1127	286	673
CFSM‡	.35	.54	.37	2.20	4.41	1.29	2.89	1.56	1.66	2.83	.72	1.69
IN.‡	.40	.60	.43	2.54	4.59	1.49	3.22	1.80	1.85	3.27	.82	1.89

CAL YR 1989 TOTAL 220775 MEAN 605 MAX 6230 MIN 75 MEAN‡ 600 CFSM‡ 1.51 IN.‡ 20.82
WTR YR 1990 TOTAL 244910 MEAN 671 MAX 6290 MIN 105 MEAN‡ 671 CFSM‡ 1.69 IN.‡ 22.90

‡ Adjusted for change in reservoir contents.
e Estimated

BEAVER RIVER BASIN

03107500 BEAVER RIVER AT BEAVER FALLS, PA
(National stream quality accounting network)

LOCATION.--Lat 40°45'48", long 80°18'55", Beaver County, Hydrologic Unit 05030104, on left bank at Beaver Falls, 200 ft upstream from pumping plant of Beaver Falls Municipal Authority, 7.0 mi downstream from Connoquenessing Creek, and at mile 5.5. Water-quality sampling site 0.25 mi upstream.

DRAINAGE AREA.--3,106 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1935 to current year (fragmentary records only prior to October 1956). Gage-height records collected at same site since 1908 are contained in reports of U.S. Weather Bureau.

REVISED RECORDS.--WSP 1725: 1960 (adjusted runoff).

GAGE.--Water-stage recorder and concrete dam control. Datum of gage is 727.48 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Dec. 3, 1941, nonrecording gage at site 200 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records good above 2,000 ft^3/s and fair below, except those below 1,200 ft^3/s, which are poor. Pumpage from gage pool, averaging 3.4 ft^3/s in 1935 and 6.0 ft^3/s at present, for local water supply returns to river 2 mi downstream; information furnished by Beaver Falls Municipal Authority. Flow regulated since 1942 by Berlin Lake, since 1916 by Milton Reservoir, since 1966 by Michael J. Kirwan Reservoir, since 1943 by Mosquito Creek Lake, since 1929 by Meander Creek Reservoir, since 1933 by Pymatuning Reservoir, since 1967 by Shenango River Lake, all over 50 mi upstream, and since 1969 by Lake Arthur 29 mi upstream. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--34 years, (1956-90), 3,760 ft^3/s, 16.44 in/yr, adjusted for storage 1957-75.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 69,900 ft^3/s, Jan. 22, 1959, gage height, 14.42 ft; minimum not determined.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 27, 1913, reached a stage of 17.4 ft, discharge, 103,000 ft^3/s, from rating curve extended above 60,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 37,500 ft^3/s, Feb. 16, gage height, 9.98 ft; minimum daily, 957 ft^3/s, Dec. 25.

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	1130	1470	2640	14000	5350	8610	2230	2290	3870	2080	5460	1260
2	1290	1720	2770	8830	12800	7790	4060	2160	3180	1620	3290	1130
3	1900	1680	2760	6270	20400	7340	5210	1980	2750	1310	2390	1070
4	1710	1660	2630	5400	20300	6810	4280	1890	2400	1180	2150	1020
5	1440	1630	2690	7390	18200	6300	4060	3160	1990	1110	4270	1090
6	1310	1540	2540	7260	12100	5610	3690	3260	1810	1060	6530	1230
7	1230	1420	2710	6210	10100	4430	3170	2650	5930	1020	5630	8800
8	1190	1420	2770	5280	9590	3950	2870	2330	5870	991	3790	8620
9	1170	1840	2630	4840	9030	3630	2600	2190	8810	1010	3210	8200
10	1150	2060	2550	4820	10700	4240	3240	2040	11000	1540	2750	11400
11	1250	1910	2570	5250	10800	4430	20700	2100	6390	2070	2440	7680
12	1210	1840	2380	5090	9300	4180	15100	1930	3990	11000	2230	5780
13	1170	1770	2070	4640	8630	3860	9330	2360	3350	19200	2680	5640
14	1130	1690	2010	4110	8320	3600	7390	3510	3280	8900	5260	5450
15	1120	1610	1900	3870	14800	3430	8320	3090	3250	20400	3610	9120
16	1080	3230	1620	3840	35700	2970	7230	4700	2760	19700	2630	8740
17	1220	5190	1590	4040	25900	3820	6270	10200	2050	8930	2310	8120
18	1410	4080	1670	4460	13300	5280	5570	10400	1820	6650	2040	6580
19	1760	3480	1670	5180	9750	4150	4640	7320	1770	6450	1940	5870
20	2420	3090	1640	4650	9390	4180	4010	5660	1550	6340	1920	5870
21	2290	2930	1340	7820	8790	3600	8710	5790	1520	9160	1830	5170
22	1980	2760	1080	8220	9120	2980	9050	5560	1410	8810	1870	5730
23	1770	2460	1060	7130	9280	2680	6240	5140	1330	24300	1810	5270
24	1670	2370	1050	6860	8850	2500	4820	4630	1390	20700	1870	4760
25	1540	2340	957	6380	9360	2350	4050	4270	1950	10900	1780	4560
26	1380	2380	987	5130	8600	2240	3580	4250	1970	7590	1590	4300
27	1320	2490	985	5010	8740	2130	3220	3890	1580	5970	1490	3950
28	1280	2550	1030	4960	8940	2030	2950	2840	1400	4900	1410	3500
29	1260	2660	1070	4900	---	1990	2840	3040	1560	4270	1410	3090
30	1270	2550	1230	6260	---	2000	2530	5660	1660	4000	1920	3530
31	1260	---	3040	5900	---	2110	---	5020	---	5970	1510	---
TOTAL	44310	69820	59639	184000	346140	125220	171960	125310	93590	229131	85020	156530
MEAN	1429	2327	1924	5935	12360	4039	5732	4042	3120	7391	2743	5218
MAX	2420	5190	3040	14000	35700	8610	20700	10400	11000	24300	6530	11400
MIN	1080	1420	957	3840	5350	1990	2230	1890	1330	991	1410	1020

CAL YR 1989 TOTAL 1453852 MEAN 3983 MAX 24200 MIN 363
WTR YR 1990 TOTAL 1690670 MEAN 4632 MAX 35700 MIN 957

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1966, 1973, November 1975 to current year.

REMARKS.--In March 1989 a bias was discovered in the turbidimetric method for sulfate analysis for those samples analyzed by the U.S. Geological Survey National Water-Quality Laboratory 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.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)
NOV											
15...	1000	1560	469	7.8	12.0	3.1	734	8.7	K600	K40	160
FEB											
15...	1100	9200	366	7.6	5.0	12	740	11.6	K6000	3200	120
MAY											
15...	1000	2840	440	8.0	17.0	6.1	743	9.2	490	80	160
SEP											
04...	1200	815	505	8.5	25.5	5.5	756	8.2	120	33	180

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV										
15...	46	11	23	4.6	105	86	79	31	0.30	3.4
FEB										
15...	35	8.6	19	3.2	67	55	62	33	0.20	5.6
MAY										
15...	44	11	23	3.3	89	73	81	34	<0.10	4.4
SEP										
04...	52	12	27	5.1	107	92	82	41	0.10	3.7

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)
NOV										
15...	265	1.00	0.110	0.70	0.170	0.090	0.080	20	<1	30
FEB										
15...	232	1.50	0.130	0.70	0.100	0.030	0.030	40	<1	51
MAY										
15...	257	1.50	0.120	0.80	0.140	0.040	0.040	30	1	37
SEP										
04...	285	1.50	<0.010	0.70	0.120	0.060	0.050	50	1	37

DATE	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)
NOV										
15...	<0.5	<1.0	2	<3	2	21	<1	7	100	<0.1
FEB										
15...	<0.5	<1.0	<5	<3	<10	52	<10	4	95	0.1
MAY										
15...	<0.5	<1.0	1	<3	2	22	<1	8	60	<0.1
SEP										
04...	<0.5	1.0	<1	<3	3	12	<1	9	3	<0.1

DATE	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV										
15...	<10	4	<1	<1.0	150	<6	13	12	51	87
FEB										
15...	<10	<10	<1	<1.0	120	<6	25	25	621	98
MAY										
15...	<10	4	<1	<1.0	160	<6	9	15	115	95
SEP										
04...	20	3	<1	<1.0	170	<6	33	12	26	100

BEAVER RIVER BASIN

LAKES AND RESERVOIRS IN BEAVER RIVER BASIN

03100500 PYMATUNING RESERVOIR.--Lat 41°29'54", long 80°27'47", Crawford County, Hydrologic Unit 05030102, in gatehouse at Pymatuning Dam on Shenango River, 1.8 mi northwest of Jamestown, Pa., and at mile 85.1. DRAINAGE AREA, 158 mi^2. PERIOD OF RECORD, October 1932 to current year. Contents prior to October 1938 published in WSP 1305. GAGE, water-stage recorder. Datum of gage is National Geodetic Vertical Datum, adjustment of 1907. Prior to Nov. 20, 1934, nonrecording gage at same site and datum.

REMARKS.-- Reservoir is formed in two parts. The main dam is earthfill with stone facing, provided with regulating gates (outlet gate sill elevation at 975.3 ft), and a spillway with crest elevation at 1,008.0 ft. An auxiliary dam 15 mi upstream from the main dam with spillway elevation at 1,010 ft has a fixed crest weir section in the earthfill causeway. Storage began Jan. 23, 1934, when all regulating gates were closed. Capacity, 188,040 acre-ft between elevations, 975.3 ft and 1,008.0 ft was reached in March 1936. Dead storage 10,150 acre-ft (93 acre-ft behind main dam below elevation 975.3 ft and 10,060 acre-ft behind upstream dam below elevation 1,010 ft). Upstream pool was filled (all dead storage accumulated) on March 5, 1934. Figures given herein represent usable contents. Reservoir is used for flood control, and for recreation. Dam built by Pennsylvania Department of Forests and Waters and now maintained by Pennsylvania Department of Environmental Resources.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 210,680 acre-ft, June 26, 1972, elevation, 1,009.53 ft; minimum (after first filling), 110,570 acre-ft, Dec. 4, 1953, elevation, 1,002.17 ft.

EXTREMES FOR CURRENT YEAR. Maximum contents, 194,460 acre-ft, May 17, elevation, 1,008.44 ft; minimum, 154,040 acre-ft, Dec. 30, elevation, 1,005.57 ft.

03106280 LAKE ARTHUR.--Lat 40°57'45", long 80°07'17", Butler County, Hydrologic Unit 05030105, in gatehouse at left end of spillway of Lake Arthur Dam on Muddy Creek, at Moraine State Park, 3 mi northeast of Portersville, Pa. DRAINAGE AREA, 50.8 mi^2. PERIOD OF RECORD, May 1969 to current year. GAGE, water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Pennsylvania Department of Environmental Resources bench mark). Prior to Aug. 23, 1969, nonrecording gage at same site and datum.

REMARKS.--Lake is formed by an earthfill dam with concrete spillway. Storage began May 15, 1969. Usable capacity, 37,000 acre-ft between elevations 1,160 ft, sill of 6 ft outlet gate and 1,189.8 ft (spillway crest). No dead storage. Figures given herein represent usable contents. Lake is used for recreation. Dam built by Pennsylvania Department of Forests and Waters and now maintained by Pennsylvania Department of Environmental Resources.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 44,240 acre-ft, June 16, 1989, elevation, 1,192.01 ft; minimum (after first filling), 21,320 acre-ft, Nov. 30, 1975, elevation, 1,183.88 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 42,500 acre-ft, July 16, elevation, 1,191.50 ft; minimum, 32,800 acre-ft, Mar. 6, elevation, 1,188.36 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

Date	Elevation (feet)	Content (acre-feet)	Change in contents (equivalent in cfs)	Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in cfs)
	03100500 Pymatuning Reservoir			03106280 Lake Arthur		
Sept. 30	1,007.09	175,010	-	1 190.23	38,300	-
Oct. 31	1,007.09	175,010	0.0	1,190.09	37,900	- 6.50
Nov. 30	1,007.30	177,990	+ 50.1	1,189.76	36,900	- 16.8
Dec. 31	1,005.60	154,440	-383	1,189.13	35,000	- 30.9
CAL YR 1989	-	-	- 15.7	-	-	- 5.11
Jan. 31	1,006.25	163,300	+144	1,189.46	36,000	+ 16.3
Feb. 28	1,007.45	180,120	+303	1,189.36	35,700	- 5.40
Mar. 31	1,006.68	169,260	-177	1,189.04	34,700	- 16.3
Apr. 30	1,007.75	184,430	+255	1,189.06	34,800	+ 1.68
May 31	1,007.89	186,450	+ 32.8	1,190.37	38,800	+ 65.0
June 30	1,007.58	181,980	- 75.1	1,190.29	38,500	- 5.04
July 31	1,007.74	184,290	+ 37.6	1,190.63	39,600	+ 17.9
Aug. 31	1,007.40	179,410	- 79.4	1,190.10	37,900	- 27.6
Sept 30	1,007.67	183,280	+ 65.0	1,190.32	38,600	+ 11.8
WTR YR 1990	-	-	+ 11.4	-	-	+ 0.41

RACCOON CREEK BASIN

03108000 RACCOON CREEK AT MOFFATTS MILL, PA

LOCATION.--Lat 40°37'40", long 80°20'16", Beaver County, Hydrologic Unit 05030101, on left bank at downstream side of highway bridge at Moffatts Mill, 1.4 mi downstream from Gums Run, 4 mi south of Vanport, and 4.2 mi upstream from mouth.

DRAINAGE AREA.--178 mi^2.

PERIOD OF RECORD.--September 1941 to current year. May 1915 to July 1932 (gage heights and discharge measurements only) in reports of Water Supply Commission of Pennsylvania or Pennsylvania Department of Forests and Waters.

REVISED RECORDS.--WSP 1385: 1941-43.

GAGE.--Water-stage recorder. Datum of gage is 719.16 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). May 27, 1915 to July 31, 1932, and Sept. 2 to Dec. 3, 1941, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Normally no regulation from Raccoon Creek Lake. Diversion out of the basin from Cherry Valley and Service Creek Reservoirs upstream increased from an average of 4.0 ft^3/s at the close of 1957 to 6.8 ft^3/s for the present year; diversion began with 2.0 ft^3/s for September 1957. Published records do not include diversion. Records of diversion furnished by Western Pennsylvania Water Company and Ambridge Water Authority. Several measurements of water temperature were made during the year. Satellite telemeter at station.

AVERAGE DISCHARGE.--49 years, 192 ft^3/s, 14.65 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,590 ft^3/s, Jan. 27, 1952, gage height, 9.71 ft; minimum, 4.5 ft^3/s, Aug. 24, 25, 1965; minimum gage height, 1.28 ft, Aug. 26, 1962.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 15, 1922, reached a stage of 9.80 ft, discharge, 10,000 ft^3/s. Flood of Mar. 5, 1920, also reached a stage of 9.80 ft, backwater from ice.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,800 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 17	1430	1,850	4.54	July 15	1700	2,110	4,82
July 13	1300	*3,270	*5.92	Sept. 7	2130	2,070	4.77

Minimum daily discharge, 24 ft^3/s, Dec. 23.

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	38	38	37	1130	380	e105	101	187	233	101	104	27
2	42	41	35	424	546	e125	141	168	179	80	94	26
3	43	36	37	256	534	135	150	153	156	65	89	29
4	37	36	37	209	1020	118	144	173	132	56	86	27
5	33	35	e35	309	1080	116	157	351	112	53	105	37
6	33	35	e32	209	648	109	145	296	98	103	135	48
7	34	35	e37	154	470	97	141	227	119	74	100	1150
8	35	34	e40	131	357	92	134	181	167	57	90	588
9	33	51	e38	117	300	100	121	157	257	86	85	374
10	33	57	e36	113	450	105	201	154	182	193	80	425
11	39	49	e35	106	405	98	1220	145	128	148	75	181
12	42	43	e33	98	352	97	675	116	101	727	74	123
13	35	37	e32	88	301	90	430	186	88	2320	83	298
14	33	35	e31	75	326	87	353	206	85	764	117	106
15	31	36	e30	97	798	85	432	155	922	1480	74	166
16	30	75	e29	104	1080	85	335	732	491	946	61	115
17	33	124	e28	102	794	225	296	1410	257	476	51	103
18	39	81	e27	130	516	261	251	956	190	304	46	79
19	102	65	e26	143	413	193	209	526	155	221	52	106
20	116	58	e26	249	311	205	196	365	119	201	94	160
21	77	54	e25	1070	249	171	886	592	113	451	62	105
22	69	45	e25	551	233	156	800	374	95	635	92	120
23	57	41	e24	333	231	145	547	265	90	766	66	114
24	50	39	e25	260	223	130	407	201	88	530	66	95
25	45	39	e26	210	188	124	336	161	87	334	55	84
26	41	38	e28	196	138	114	290	409	76	229	48	77
27	41	43	e29	158	e105	103	265	312	78	173	44	71
28	39	49	e31	159	e90	97	246	229	55	145	39	64
29	37	49	e33	208	---	94	223	396	304	127	35	60
30	36	40	e35	855	---	93	206	518	120	114	33	66
31	37	---	e180	506	---	95	---	325	---	114	29	---
TOTAL	1390	1438	1122	8750	12538	3850	10038	10626	5277	12073	2264	5024
MEAN	44.8	47.9	36.2	282	448	124	335	343	176	389	73.0	167
MAX	116	124	180	1130	1080	261	1220	1410	922	2320	135	1150
MIN	30	34	24	75	90	85	101	116	55	53	29	26
CFSM	.25	.27	.20	1.59	2.52	.70	1.88	1.93	.99	2.19	.41	.94
IN.	.29	.30	.23	1.83	2.62	.80	2.10	2.22	1.10	2.52	.47	1.05

CAL YR 1989 TOTAL 82484 MEAN 226 MAX 2240 MIN 17 CFSM 1.27 IN. 17.24
WTR YR 1990 TOTAL 74390 MEAN 204 MAX 2320 MIN 24 CFSM 1.14 IN. 15.55

e Estimated

STREAMS TRIBUTARY TO LAKE ERIE

04213000 CONNEAUT CREEK AT CONNEAUT, OH

LOCATION.--Lat 41°55'37", long 80°36'15", Ashtabula County, Hydrologic Unit 04120101, on right bank at downstream side of Keefus Road bridge at Conneaut, and 6.4 mi upstream from mouth.

DRAINAGE AREA.--175 mi^2.

PERIOD OF RECORD.--July 1922 to December 1935, March 1950 to September 1961 (published as "at Amboy"), October 1961 to current year.

REVISED RECORDS.--WSP 714: 1926. WSP 784: 1933. WSP 1437: 1923-25(M), 1926-30, 1931-32(M), 1933, 1935(M). WSP 1912: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 610.30 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 17, 1924, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharge: Dec. 14-30, June 11-23, 29, July 3-13, 27-30, Aug. 2-6, 11-12, 19-27. Records good except for estimated records, which are poor. Water-quality data collected at this site 1965 to 1977. Sediment data collected 1970 to 1974.

AVERAGE DISCHARGE.--53 years, 272 ft^3/s, 21.11 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,000 ft^3/s Jan. 22, 1959, gage height, 11.70 ft; maximum gage height, 12.94 ft Mar. 4, 1934 (backwater from ice); minimum discharge, 0.2 ft^3/s July 31, Aug. 1, 1933, Aug. 1, 2, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,900 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 1	1100	*12,100	*10.83	Apr. 12	0200	3,190	6.18
Feb. 3	1500	3,630	6.56	Aug. 29	0300	3,670	6.59
Feb. 16	1900	6,340	8.33	Sept. 8	1500	3,410	6.37

Minimum daily discharge, 9.0 ft^3/s, July 8.

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	20	47	205	3200	239	238	171	70	107	46	37	146
2	34	48	172	1950	1530	268	410	61	76	39	29	92
3	23	57	163	1150	3190	358	784	55	59	32	23	63
4	68	53	146	1100	1220	373	669	74	56	24	20	44
5	47	50	154	2140	1070	270	897	628	58	18	17	41
6	35	51	167	1920	573	208	646	878	50	13	16	260
7	23	55	177	666	547	168	445	371	40	10	192	1690
8	20	92	192	440	537	165	290	208	37	9.0	86	2900
9	20	202	155	361	404	238	208	141	37	16	40	1140
10	21	307	145	533	672	933	365	109	37	26	37	1810
11	34	440	120	729	757	1440	2280	96	36	21	33	956
12	42	346	105	589	387	1080	2080	112	32	26	30	298
13	72	203	94	415	284	514	578	364	30	34	463	183
14	52	145	88	347	247	342	366	1400	28	106	275	162
15	38	128	80	358	801	258	394	583	25	115	140	802
16	30	422	72	496	4450	216	443	489	23	1010	71	1640
17	75	839	66	1550	3770	194	292	1900	21	489	41	1830
18	158	448	62	2090	802	248	225	1960	19	169	39	753
19	195	301	56	1560	500	238	186	887	17	86	32	449
20	330	366	54	653	378	202	160	392	16	56	28	1100
21	285	750	50	1340	262	190	395	734	15	38	25	630
22	224	540	46	1400	534	160	683	597	14	39	23	501
23	232	293	43	731	1390	145	357	313	13	44	21	1300
24	154	220	40	602	941	136	228	202	60	37	19	1090
25	112	195	38	589	545	125	174	151	140	41	18	538
26	92	424	36	448	316	112	144	123	137	38	16	275
27	78	732	34	378	362	100	124	104	67	31	15	182
28	67	450	32	299	320	92	106	91	39	27	90	142
29	59	538	31	274	---	88	93	93	33	24	2370	120
30	52	310	30	253	---	94	83	116	39	22	1690	123
31	49	---	563	244	---	125	---	150	---	70	305	---
TOTAL	2741	9052	3416	28805	27028	9318	14276	13452	1361	2756.0	6241	21260
MEAN	88.4	302	110	929	965	301	476	434	45.4	88.9	201	709
MAX	330	839	563	3200	4450	1440	2280	1960	140	1010	2370	2900
MIN	20	47	30	244	239	88	83	55	13	9.0	15	41
CFSM	.51	1.72	.63	5.31	5.52	1.72	2.72	2.48	.26	.51	1.15	4.05
IN.	.58	1.92	.73	6.12	5.75	1.98	3.03	2.86	.29	.59	1.33	4.52

CAL YR 1989 TOTAL 85759 MEAN 235 MAX 1300 MIN 10 CFSM 1.34 IN. 18.23
WTR YR 1990 TOTAL 139706.0 MEAN 383 MAX 4450 MIN 9.0 CFSM 2.19 IN. 29.70

STREAMS TRIBUTARY TO LAKE ERIE

04213040 RACCOON CREEK NEAR WEST SPRINGFIELD, PA

LOCATION.--Lat 41°56'42", long 80°26'51", Erie County, Hydrologic Unit 04120101, on right bank on upstream side of highway bridge on Sanford Road, 1.4 mi east of West Sprinffield, 4.4 mi upstream from mouth, and 7 mi southwest of Girard.

DRAINAGE AREA.--2.53 mi^2.

PERIOD OF RECORD.--Annual maximum, water years 1962-68. October 1968 to current year.

REVISED RECORD.--WDR PA-74-1: 1973.

GAGE.--Water-stage recorder, crest-stage gage, and concrete control installed Aug. 2, 1973. Elevation of gage is 715 ft above National Geodetic Vertical Datum of 1929, from topographic map. May 9, 1961, to Oct. 2, 1968, crest-stage gage at same site and datum.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--22 years, 3.54 ft^3/s, 19.00 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 408 ft^3/s, Dec. 28, 1968, gage height, 6.06 ft, from rating curve extended above 76 ft^3/s on basis of computation of flow through culvert at gage height 5.39 ft; no flow on many days.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 15	2130	101	3.50	Sept. 7	0615	131	3.91
Aug. 28	2245	*297	*5.77				

Minimum daily discharge, 0.24 ft^3/s, Aug. 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	.41	e1.0	2.7	e18	4.8	e2.0	3.9	.75	.82	e2.0	e.30	1.7
2	.88	e1.1	e2.5	7.8	38	e3.0	5.4	.60	.61	e1.5	e.54	1.3
3	e.76	e1.2	e2.3	6.3	10	e3.6	5.9	.50	.52	e1.1	e.45	1.0
4	e.64	e1.3	e2.1	25	8.5	e2.6	15	5.6	.48	e.90	e.35	.83
5	e.58	e1.2	e1.9	16	5.3	e2.1	8.9	20	.45	e.76	e.29	.75
6	e.50	e1.2	e1.8	6.5	5.3	e1.7	5.5	6.1	.42	e.64	e.24	1.9
7	e.47	e2.0	e1.7	4.8	6.4	e1.5	3.6	3.3	e.40	e.56	e1.0	50
8	e.45	e3.5	e1.6	4.1	4.7	e1.4	2.7	2.0	e.38	e.52	e3.7	7.7
9	e.50	e5.0	e1.5	4.1	4.5	e3.0	2.1	1.3	e.36	e.48	e2.0	33
10	e.70	e9.2	e1.5	12	6.9	9.0	8.3	1.0	e.34	e.46	e1.0	10
11	e1.3	e3.5	e1.4	7.8	3.8	8.3	45	1.1	e.33	e1.3	e1.2	4.4
12	e1.1	e2.4	e1.3	5.6	3.0	5.0	11	.98	e.32	e1.0	e1.4	2.8
13	e1.0	e1.8	e1.3	4.3	2.7	3.7	5.3	14	e.31	e.70	e7.0	2.2
14	e.92	e1.5	e1.2	3.7	2.8	3.1	3.9	7.5	e.30	e.72	e4.5	4.4
15	e.84	e1.4	e1.2	4.5	44	2.6	6.6	3.7	e.29	e.76	e3.2	11
16	e1.1	e20	e1.2	10	58	2.3	4.2	18	e.28	e.80	1.7	26
17	e11	e9.0	e1.1	17	13	3.3	3.4	28	e.27	e1.7	1.2	11
18	e5.0	e5.6	e1.1	17	6.5	2.7	2.9	16	e.50	e1.1	.95	4.5
19	e12	e4.3	e1.1	6.5	5.2	2.4	2.2	5.7	e1.0	e.80	.96	13
20	e7.0	e18	e1.1	9.0	3.5	2.2	1.9	3.6	e1.8	e.66	.87	9.8
21	e4.1	e7.0	e1.0	16	2.8	2.0	11	3.1	e1.2	e.60	.81	4.5
22	e6.4	e3.6	e1.0	8.0	25	1.8	5.0	2.3	e.80	e.84	.70	13
23	e5.0	3.0	e1.0	5.8	16	1.9	3.3	1.8	e.54	e.82	1.0	22
24	e2.5	2.7	e.98	6.0	8.8	1.6	2.5	1.4	e.33	e.60	.74	7.2
25	e1.7	3.3	e.98	4.2	6.1	1.4	2.0	1.1	e1.5	e1.2	.60	3.6
26	e1.4	13	e.96	3.6	e4.0	1.3	1.6	.99	e7.2	e.92	.49	2.5
27	e1.2	5.5	e.96	2.9	e3.0	1.2	1.4	.84	e4.5	e.70	.46	2.1
28	e1.1	6.6	e.94	2.6	e2.4	1.2	1.2	.70	e3.0	e.56	16	1.8
29	e.98	4.2	e.92	2.6	---	1.3	.98	2.3	e2.7	e.45	55	1.7
30	e.96	3.1	e.90	2.7	---	2.0	.87	2.1	e2.5	e.38	5.8	4.6
31	e.94	---	e1.9	2.6	---	2.0	---	1.2	---	e.32	2.8	---
TOTAL	73.43	146.2	43.14	247.0	305.0	83.2	177.55	157.56	34.45	25.85	117.25	260.28
MEAN	2.37	4.87	1.39	7.97	10.9	2.68	5.92	5.08	1.15	.83	3.78	8.68
MAX	12	20	2.7	25	58	9.0	45	28	7.2	2.0	55	50
MIN	.41	1.0	.90	2.6	2.4	1.2	.87	.50	.27	.32	.24	.75
CFSM	.94	1.93	.55	3.15	4.31	1.06	2.34	2.01	.45	.33	1.49	3.43
IN.	1.08	2.15	.63	3.63	4.48	1.22	2.61	2.32	.51	.38	1.72	3.83

CAL YR 1989 TOTAL 1159.02 MEAN 3.18 MAX 47 MIN .27 CFSM 1.26 IN. 17.04
WTR YR 1990 TOTAL 1670.91 MEAN 4.58 MAX 58 MIN .24 CFSM 1.81 IN. 24.57

e Estimated

STREAMS TRIBUTARY TO LAKE ERIE

04213075 BRANDY RUN NEAR GIRARD, PA

LOCATION.--Lat 41°59'31", long 80°17'29", Erie County, Hydrologic Unit 04120101, on left bank 100 ft upstream from highway bridge on Tannery Road, 0.5 mi upstream from mouth, and 1.8 mi southeast of Girard.

DRAINAGE AREA.--4.45 mi^2.

PERIOD OF RECORD.--May 14, 1986 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 800 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,220 ft^3/s, Aug. 2, 1987, maximum gage height, 4.55 ft, Dec. 19, 1989 (backwater from ice); minimum daily 0.19 ft^3/s, July 11, 1986.

EXTREMES FOR CURRENT YEAR.--Maximum discharge greater than base discharge of 200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 19	--	--	a*4.55	Aug. 28	2345	*836	3.79
Feb. 15	--	--	debris jam	Sept. 7	0900	224	1.97
Apr. 11	0215	243	2.02				

(a) Ice jam.

Minimum daily discharge, 0.48 ft^3/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	1.2	1.8	4.6	34	17	e3.5	6.8	2.5	e3.0	2.3	e1.5	1.1
2	1.3	1.8	4.4	17	112	e5.0	12	3.0	e1.8	2.2	e1.1	.83
3	1.1	1.9	e4.1	13	22	9.6	10	2.5	e2.8	e2.0	e.70	.76
4	1.1	2.2	e3.8	73	12	6.5	17	37	4.9	e1.8	e.55	.61
5	1.0	2.1	e3.5	42	7.0	3.9	14	28	e3.8	e1.6	e.48	.61
6	.95	2.1	e3.2	13	7.4	e3.5	9.2	9.0	e2.8	e1.6	e1.2	1.5
7	e.90	3.5	e2.9	8.7	8.5	e4.8	6.9	7.4	e2.1	e1.6	13	68
8	e.84	7.7	e2.7	8.1	6.4	e7.0	5.7	5.3	e1.6	e1.5	4.6	6.9
9	e.78	8.3	e2.6	8.3	6.0	e9.6	5.0	4.1	e1.5	4.4	2.9	10
10	1.2	8.8	e2.5	37	16	e15	48	4.8	e1.3	2.5	3.8	4.9
11	2.0	7.0	e2.3	23	5.9	14	74	3.5	e1.1	1.8	4.1	3.0
12	1.7	4.0	e2.2	14	4.0	9.3	23	7.5	e1.1	2.1	4.1	3.2
13	1.8	2.8	e2.2	11	3.7	8.8	14	28	e1.0	2.2	26	2.7
14	1.7	2.5	e2.1	e8.6	3.7	11	12	8.3	e.94	2.1	7.1	8.3
15	1.4	2.2	e2.0	e9.6	e130	10	19	7.4	e.90	6.0	2.8	25
16	1.7	20	e1.9	e15	e270	8.6	12	72	e.88	3.9	2.0	41
17	11	13	e1.9	e21	e60	11	9.4	47	2.0	2.4	e1.5	17
18	5.9	7.6	e1.8	35	e17	8.4	8.9	59	4.3	2.0	e1.1	5.6
19	11	6.2	e1.8	16	e12	7.4	8.2	14	3.1	e1.3	1.6	20
20	7.6	18	e1.8	21	e9.4	7.5	9.3	9.6	e2.5	1.8	e1.4	13
21	3.9	13	e1.7	37	e6.6	5.8	24	12	e1.5	1.8	e1.1	5.4
22	6.2	5.7	e1.7	23	81	5.5	8.0	9.0	e1.0	e1.3	e.90	15
23	3.5	4.6	e1.7	17	62	5.4	5.8	4.5	2.5	4.3	e.82	21
24	2.6	4.0	e1.6	22	8.8	5.3	3.7	e3.6	23	1.9	e.74	6.4
25	2.2	4.2	e1.6	13	5.4	4.8	3.6	e3.0	23	1.4	e.68	4.3
26	2.0	19	e1.6	9.5	e4.5	4.3	3.5	e2.5	7.7	e1.1	e.62	3.6
27	1.8	17	e1.5	7.0	e3.5	4.1	3.5	e2.3	5.9	e.90	e.56	3.3
28	1.6	12	e1.5	6.5	e2.6	4.4	3.8	e2.2	5.2	e.88	53	3.2
29	1.6	7.3	e1.5	7.4	---	4.2	3.0	e2.1	5.2	e.70	139	3.1
30	1.6	5.2	e1.6	7.9	---	5.7	2.8	7.7	3.9	e.62	5.6	11
31	1.5	---	e7.0	6.7	---	5.8	---	5.3	---	2.0	1.7	---
TOTAL	84.67	215.5	77.3	585.3	904.4	219.7	386.1	414.1	122.32	64.00	286.25	310.31
MEAN	2.73	7.18	2.49	18.9	32.3	7.09	12.9	13.4	4.08	2.06	9.23	10.3
MAX	11	20	7.0	73	270	15	74	72	23	6.0	139	68
MIN	.78	1.8	1.5	6.5	2.6	3.5	2.8	2.1	.88	.62	.48	.61
CFSM	.61	1.61	.56	4.24	7.26	1.59	2.89	3.00	.92	.46	2.08	2.32
IN.	.71	1.80	.65	4.89	7.56	1.84	3.23	3.46	1.02	.54	2.39	2.59

CAL YR 1989 TOTAL 2893.13 MEAN 7.93 MAX 216 MIN .58 CFSM 1.78 IN. 24.19
WTR YR 1990 TOTAL 3669.95 MEAN 10.1 MAX 270 MIN .48 CFSM 2.26 IN. 30.68

e Estimated

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 U.S. 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 useable 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 discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low flow and high flow are given in a third table.

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 the stream. The column headed "Period of record" shows the water years in which measurements were made at the same, or practically the same, site.

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

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Measurements Date	Measurements Discharge (ft^3/s)
		Allegheny River basin				
03010956	Tunungwant Creek at Bradford, Pa.	Lat 41°57'44", long 78°37'30", McKean County, at bridge on State Highway 346 and 1.5 miles downstream from confluence of East and West branch Tunungwant Creek.	138	1989-90	11-24-89 5- 1-90 9-19-90	174 132 224
		Clarion River basin				
03029170	Little Toby Creek at Portland Mills, Pa.	Lat 41°21'53", long 78°49'22", Elk County, at railroad bridge 0.1 mi above State Highway 949 and 0.8 mi south of Portland Mills.	126	1972-90	4-30-90 9-19-90	131 312
03030600	Piney Creek at Piney, Pa.	Lat 41°10'12", long 79°28'20", Clarion County, at bridge on State Highway 854 at Piney, 0.1 mile above mouth, and 4 miles northwest of Reidsburg.	72.2	1933 1970-90	4-30-90	66.8
		Kiskiminetas River basin				
03045300	McCune Run at Keystone State Park, Pa.	Lat 40°22'26", long 79°22'25", Westmoreland County, at culvert in Keystone State Park, 200 ft above head of Keystone Lake, and 3 miles southeast of New Alexandria.	1.73	1970-90	5- 2-90 9-18-90	.74 .95
		Pine Creek basin				
03049810	Pine Creek at Etna, Pa.	Lat 40°29'42", long 79°56'26", Allegheny County, at highway bridge on ramp leading to 62nd Street Bridge at Etna and 0.8 mile above mouth.	66.8	1950-52 1970-90	5- 3-90 9-18-90	37.0 38.2
		Monongahela River basin				
03072845	Tenmile Creek near Clarksville, Pa.	Lat 39°58'30", long 80°02'30", Washington County, at bridge on SR 1011 (Center Street) and 0.2 mi upstream from mouth.	135	1989-90	11- 7-89 11-16-89 12- 7-89 4- 9-90 5-17-90 9-19-90	48.6 214 61.5 303 487 165
		Monongahela River basin				
03083100	Jacobs Creek at Jacobs Creek, Pa.	Lat 40°07'23", long 79°44'14", Westmoreland County, 0.3 mile above highway bridge at Jacobs Creek, and 0.4 mile above mouth.	94.9	1950 1965-67 1970-90	5- 2-90 9-19-90	40.9 115
		Youghiogheny River basin				
03083250	Sewickley Creek at Hunker, Pa.	Lat 40°12'23", long 79°37'23", Westmoreland County, at bridge on SR 3014 at Hunker.	88.8	1989-90	10-25-89 11-13-89 12- 7-89 2-13-90 4- 9-90 5-17-90 9-19-90	70.2 65.2 69.8 198 158 137 86.7
		Monongahela River basin				
03084400	Turtle Creek at Trafford, Pa.	Lat 40°23'31", long 79°45'31", Allegheny County, on privately owned bridge to industrial park at Trafford and 0.9 mi downstream from Brush Creek.	55.5	1989-90	10-13-89 12- 7-89 2-13-90 9-17-90	18.2 24.8 97.1 40.1

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

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Measurements Date	Measurements Discharge (ft^3/s)
		Beaver River basin				
03099600	Mahoning River at Edinburg, Pa.	Lat 41°01'06", long 80°26'27", Lawrence County, at bridge on State Highway 224 and 0.4 mi northwest of Edinburg.	1,099	1989-90	11-15-89	776
					2-13-90	3,130
					4-27-90	593
					9-18-90	2,530
03104500	Shenango River at New Castle, Pa.	Lat 41°00'00", long 80°21'21", Lawrence County, at bridge on Grant Street in New Castle and 0.6 mi above confluence with Neshannock Creek.	792	1989-90	11-15-89	595
					2-13-90	2,650
					2-27-90	4,020
					4-27-90	799
					9-18-90	2,640
03105810	Connoquenessing Creek at Renfrew, Pa.	Lat 40°48'21", long 79°57'55", Butler County, at bridge on SR 3006 at Renfrew and 0.8 mi upstream from Thorn Creek.	137	1989-90	11-13-89	44.2
					1-26-90	350
					2-13-90	268
					5- 4-90	69.5
		Lake Erie basin				
04212945	Conneaut Creek near Cherry Hill, Pa.	Lat 41°55'04", long 80°28'09", Erie County, at bridge on Griffey Road and 1.2 mi northwest of Cherry Hill.	149	1989-90	10- 5-89	24.9
					11-14-89	109
					1-24-90	554
					3- 7-90	130
					3-20-90	151
					4- 5-90	14.9
					9-18-90	375
04213273	Twelvemile Creek at Moorheadville, Pa.	Lat 42°12'15", long 79°54'16", Erie County, at bridge on Malbert Place at Moorheadville and 0.5 mi upstream from mouth.	12.5	1989-90	10- 5-89	1.13
					11-14-89	5.50
					1-25-90	26.1
					3-20-90	15.8
					9-18-90	15.5

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Crest-stare partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the "Period of record" represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Gage height (feet)	Discharge (ft^3/s)
		Brokenstraw Creek basin					
03015390	Hare Creek near Corry, Pa.	Lat 41°56'29", long 79°38'41", Erie County, at concrete dam of Corry Water Co., 1.1 miles above Bear Creek, and 1.5 miles north of Corry.	12.3	1964-90	9-10-90	5.80	880
		Monongahela River basin					
03072880	Browns Creek near Nineveh, Pa.	Lat 39°56'27", long 80°17'21", Greene County, at highway bridge just below Patterson Run and 1.8 miles southeast of Nineveh. Datum of gage is 975.60 ft above National Geodetic Vertical Datum of 1929.	17.5	1963-90	--	--	<100
		Streams tributary to Lake Erie					
04213200	Mill Creek at Erie, Pa.	Lat 42°05'54", long 80°04'35", Erie County, at bridge on West 38th Street, 100 ft west of State Highway 505, at Erie.	9.16	1964-90	5-16-90	10.80	580

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 1990

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft^3/s)
		Ohio River basin				
Allegheny River	Ohio River	Lat 41°54'05", long 78°23'05", McKean County, at single-span steel highway bridge on U.S. Highway 6 at Larabee, 1.0 mi below mouth of Potato Creek and 3.5 ml south of Eldred.	530	1920-39† 1981, 1988-89	5- 1-90	500
		Allegheny River basin				
Browns Run	Allegheny River	Lat 41°49'21", long 79°06'33", Warren County, at site 300 ft below Morrison Run and 0.5 mi southeast of Warren borough.	24.1	1970-79 1981, 1988-89	7- 6-90	4.24
		Conewango Creek basin				
Jackson Run	Conewango Creek	Lat 41°54'10", long 79°14'18", Warren County, on right bank at downstream side of highway bridge on Creamery Road, 0.6 mi upstream from Mud Run and 5 mi northwest of North Warren.	12.8	1963-79† 1981, 1988-89	7- 5-90	2.39
		Allegheny River basin				
West Hickory Creek	Allegheny River	Lat 41°32'32", long 79°26'20", Forest County, at highway bridge 1.5 mi above mouth and 1.6 mi northwest of West Hickory.	18.0	1970-79 1981, 1988-89	7- 6-90	4.16
Tionesta Creek	Allegheny River	Lat 41°36'07", long 79°03'01", Forest County, in Allegheny National Forest, on left bank at downstream side of highway bridge at Lynch, 500 ft upstream from Bluejay Creek and 7 mi south of Sheffield.	233	1939-79† 1981, 1988-89	11- 3-89 12-13-89 2- 1-90 3-22-90 3-22-90 5- 3-90 6-28-90 8-23-90	292 145 426 607 588 224 75.8 109
Bluejay Creek	Tionesta Creek	Lat 41°34'35", long 79°02'56", Forest County, at highway bridge on SR 1003, 1.7 mi south of intersection of State Highway 666, and SR 1003, at Lynch.	---	1979-81 1988-89	7 -6-90	3.59
		French Creek basin				
West Branch French Creek	French Creek	Lat 42°06'08", long 79°49'20", Erie County, at bridge on State Highway 89, 2.4 mi southeast of Hornby and 10 mi above mouth.	43.7	1970-79 1981, 1988-89	7- 5-90	8.61
Cussewago Creek	French Creek	Lat 41°49'52", long 80°14'28", Crawford County, at highway bridge at Crossingville and 0.3 mi above West Branch.	12.6	1970-79 1981, 1988-89	7- 3-90	.368
Sugar Creek	French Creek	Lat 41°25'43", long 79°52'48", Venango County, on left bank at downstream side of highway bridge, 0.8 mi north of Sugarcreek, 0.9 mi upstream from mouth and 3 mi northwest of Franklin.	166	1934-79† 1981, 1988-89	10- 6-89 11-14-89 2-13-90 5- 4-90 9-18-90	69.7 138 360 120 672
		Clarion River basin				
Elk Creek	Clarion River	Lat 41°25'31", long 78°43'38", Elk County, at bridge on State Highway 120 at Ridgway and 0.6 mi above mouth.	61.2	1970-79 1981, 1988-89	5- 1-90	62.3
		Allegheny River basin				
Clarion River	Allegheny River	Lat 41°25'15", long 78°44'10", Elk County, at bridge on State Highway 948 in Ridgway, 50 ft downstream from Elk Creek.	303	1940-53† 1954, 1988-89	10-31-89 12-11-89 1-29-90 3-27-90 5-10-90 6-26-90 8-20-90	286 302 746 407 331 231 252

† Operated as a continuous record station.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 1990--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Allegheny River basin				
Clarion River	Allegheny River	Lat 41°07'47", long 79°33'18", Clarion County, at bridge on State Highway 58 at Callensburg and 0.3 mi above Licking Creek.	1,163	1970-72† 1979-89	10-30-89 12-20-89 2- 5-90 3-23-90 5-10-90 6-29-90 8-20-90	3,990 85.5 8,840 5,120 239 155 520
		Sandy Lick Creek basin				
Laborde Branch	Sandy Lick Creek	Lat 41°06'18", long 78°42'51", Clearfield County, at highway bridge, 0.6 mi downstream from Lutherburg Branch and 2 mi east of Maple Street Hospital in DuBois.	15.0	1971-79 1981, 1988-89	5- 1-90	16.5
Big Run	Little Sandy Creek	Lat 40°59'30", long 79°05'26", Jefferson County, on right bank at downstream side of highway bridge, 0.5 mi downstream from McCracken Run and 1.3 mi southeast of Sprankle Mills.	7.4	1963-81† 1988-89	7- 9-90	4.53
		Allegheny River basin				
Bull Creek	Allegheny River	Lat 40°36'54", long 79°45'36", Allegheny County, at bridge on dirt road, 0.3 mi above Little Bull Creek and 0.9 mi north of Tarentum.	36.8	1970-79† 1981, 1988-89	7- 9-90	5.32
		Tenmile Creek basin				
Daniels Run	Tenmile Creek	Lat 40°01'37", long 80°05'26", Washington County, at Penn Central Railroad Bridge, 0.2 mi above mouth and 0.5 mi northeast of Marianna.	17.3	1948-51 1970-79 1981, 1988-89	5- 2-90	6.17
		Monongahela River basin				
Tenmile Creek	Monongahela River	Lat 39°59'51", long 80°02'31", Greene County near center, on upstream side of single-span steel-truss bridge, 1.5 mi north of Clarksville and 2.3 mi upstream from South Fork Tenmile Creek.	133	1968-79† 1981, 1988-89	5- 2-90	49.5
		Redstone Creek basin				
Lick Run	Redstone Creek	Lat 39°52'04", long 79°41'40", Fayette County, on left bank of southeast edge of Hopwood, along road leading to Lick Hollow picnic area in Forbes State Forest, 0.4 mi upstream from road leading south from Hopwood to Fairchance and 1.5 mi upstream from Bennington Spring Run.	3.8	1966-78† 1981, 1988-89	5-16-90	6.17
		Monongahela River basin				
Peters Creek	Monongahela River	Lat 40°17'31", long 79°54'56", Allegheny County, at bridge on State Highway 51 at Large and 3 mi above mouth.	42.6	1966-67 1970-79 1981, 1988-89	5-15-90	29.3
		Casselman River basin				
Laurel Hill Creek	Casselman River	Lat 40°00'32", long 79°14'04", Somerset County, at bridge at head of Laurel Lake, 2.3 mi. southwest of Bakersville and 3.3 mi below Kooser Run.	38.2	1970-79 1988-89	5-16-90	56.0
		Ohio River basin				
Montour Run	Ohio River	Lat 40°28'00", long 80°09'23", Allegheny County, at highway bridge, 1.1 mi below Trout Run and 2.8 mi south of Coraopolis.	29.4	1944,1946, 1948-49 1951-53 1955,1981, 1988-89	5- 3-90	13.8

† Operated as a continuous record station.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 1990--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft^3/s)
		Neshannock Creek basin				
Otter Creek	Neshannock Creek	Lat 41°13'34", long 80°13'28", Mercer County, at bridge on SR 2014, 400 ft upstream from Cool Spring Creek and 0.8 mi east of Mercer.	48.7	1946, 1981, 1988-89	7- 3-90	2.16
		Little Neskannock Creek basin				
Harthegig Run	Little Neshannock Creek	Lat 41°11'10", long 80°19'38", Mercer County, on right bank at upstream end of wingwall of culvert on SR 3013, overpass of U.S. Interstate Highway 80, 1.3 mi upstream from mouth, 2 mi southeast of Greenfield and 6 mi southwest of Mercer.	2.3	1968-81† 1988-89	5-15-90	1.04
		Connoouenessing Creek basin				
Slippery Rock Creek	Connoquenessing Creek	Lat 41°03'05", long 79°58'50", Butler County, about 150 ft below Keisters Falls, about 500 ft below Bessimer Railroad Brldge, 0.5 mi upstream from Long Run and about 0.2 mi downstream from Keisters.	13.2	1946, 1981, 1988-89	5-15-90	107
		Little Beaver Creek basin				
North Fork Little Beaver Creek	Little Beaver Creek	Lat 40°48'22", long 80°25'22", Beaver County, at bridge on State Highway 551 at Darlington and 12 mi below Honey Creek.	88.7	1949-51 1970-79 1981, 1988-89	5- 3-90	43.5
		Lake Erie basin				
Elk Creek	Lake Erie	Lat 42°00'20", long 80°21'15", Erie County, at single-span steel-truss bridge on Elk Park Road, 0.8 mi southwest of North Girard and 15 mi southwest of Erie.	96.7	1951, 1981, 1988-89	7- 5-90	14.0
Mill Creek	Lake Erie	Lat 42°05'54", long 80°04'35", Erie County, at bridge on West 38th Street, 100 ft west of State Highway 505 at Erie.	9.16	1944-57 1964-80* 1988-89	7- 5-90	2.18

† Operated as a continuous record station.

* Also a crest-stage partial-record station.

ANALYSIS OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STONY FORK STUDY

WATER-QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	ACIDITY TOTAL HEATED (MG/L AS CAC03)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
03070415 STONY FORK NEAR FARMINGTON, PA (LAT 39 46 51N LONG 079 34 31W)												
DEC 1989												
29...	1430	--	170	--	0.5	16	13	5.3	1.6	1.0	6.0	63
MAR 1990												
28...	1245	3.0	136	5.0	8.0	12	11	4.6	1.6	0.90	6.0	52
JUN												
25...	1550	1.2	172	6.1	19.5	8.0	15	5.9	1.4	1.3	7.0	70
03070418 STONY FORK TRIB ABOVE STRIP MINE (LAT 39 45 32N LONG 079 35 28W)												
OCT 1989												
30...	1450	0.20	97	6.5	13.5	0.0	9.5	2.3	3.9	1.0	24	24
NOV												
22...	1225	0.30	80	6.5	3.0	0.0	7.4	2.1	3.0	0.88	19	<10
DEC												
29...	1430	--	1390	--	1.5	0.0	25	4.1	230	1.3	24	26
JAN 1990												
31...	1320	1.0	115	6.6	6.0	0.0	5.4	1.7	5.8	0.80	14	38
FEB												
21...	1035	0.18	100	6.6	2.0	8.0	8.2	2.5	5.3	0.75	16	15
MAR												
28...	1510	0.23	116	6.5	9.0	0.0	8.0	2.3	7.3	0.71	18	33
MAY												
02...	1215	0.09	100	7.0	12.0	0.0	8.0	2.1	4.7	0.88	22	24
JUN												
25...	1645	--	129	7.1	17.0	0.0	10	3.2	6.9	1.1	26	28
AUG												
15...	1230	--	237	6.9	19.0	0.0	19	3.5	8.1	2.2	54	21
SEP												
26...	1445	--	100	6.7	14.5	0.0	9.4	2.2	3.2	1.1	28	21
03070430 STONY FORK AT BETHEL CHAPEL, PA (44) (LAT 39 46 54N LONG 079 35 00W)												
DEC 1989												
29...	1440	--	220	--	0.5	2.0	20	6.2	2.4	1.0	13	78
MAR 1990												
28...	1325	4.7	164	6.3	7.0	2.0	15	4.6	2.9	0.82	11	63
JUN												
25...	1500	1.8	218	7.0	19.0	0.0	24	6.7	2.4	1.4	22	78
03070435 STONY FORK TRIB #4 (N OF DELTA SITE), PA (73) (LAT 39 46 48N LONG 079 35 38W)												
MAR 1990												
28...	1415	--	95	6.8	9.0	0.0	10	2.4	0.84	0.89	26	40
JUN												
25...	1445	0.03	104	6.8	21.0	0.0	14	3.2	1.2	1.1	40	26
03070455 STONY FORK NEAR ELLIOTTSVILLE, PA (51) (LAT 39 46 08N LONG 079 36 34W)												
OCT 1989												
30...	1420	5.1	230	5.9	12.0	6.0	23	8.1	1.8	1.6	8.0	36
NOV												
22...	1210	8.7	160	6.4	2.5	10	14	5.1	1.6	1.2	8.0	52
DEC												
29...	1400	--	283	--	0.0	8.0	27	10	2.3	1.0	8.0	110
JAN 1990												
31...	1405	36	115	--	4.0	0.0	11	3.4	2.0	1.1	8.0	51
FEB												
21...	1005	8.6	210	5.6	0.5	20	21	8.0	2.1	0.97	7.0	74
MAR												
28...	1445	7.5	190	5.9	6.5	0.0	17	6.0	2.2	0.83	9.0	72
MAY												
02...	1145	4.2	240	6.2	12.0	2.0	21	7.4	2.5	1.2	10	89
JUN												
25...	1400	2.6	243	6.5	18.0	0.0	27	8.6	2.7	1.4	18	92
AUG												
15...	1200	1.6	346	6.1	19.0	0.0	26	8.2	2.5	2.2	14	99
SEP												
26...	1400	8.3	177	6.5	13.5	1.8	17	5.9	1.9	1.5	10	60

ANALYSIS OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STONY FORK STUDY

WATER-QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, TOTAL (MG/L AS F)	RESIDUE AT 105 DEG. C, DISSOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)	ALUMINUM, DISSOLVED (UG/L AS AL)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
03070415 STONY FORK NEAR FARMINGTON, PA (LAT 39 46 51N LONG 079 34 31W)												
DEC 1989												
29...	4.0	<0.1	5	5	2000	1500	480	480	1500	1500	90	100
MAR 1990												
28...	2.0	<0.1	7	16	1900	1400	500	390	1300	1300	80	98
JUN												
25...	4.0	<0.2	7	18	2100	770	500	270	1800	1800	110	110
03070418 STONY FORK TRIB ABOVE STRIP MINE (LAT 39 45 32N LONG 079 35 28W)												
OCT 1989												
30...	6.0	<0.1	7	10	180	<130	560	330	130	130	10	12
NOV												
22...	5.0	<0.1	3	<2	180	<130	510	160	120	120	20	15
DEC												
29...	370	<0.1	64	<2	280	210	600	330	130	130	30	50
JAN 1990												
31...	15	<0.1	3	<2	<130	<130	170	49	35	35	30	27
FEB												
21...	10	<0.1	4	24	230	<130	470	160	70	67	20	22
MAR												
28...	14	<0.1	2	16	<130	<130	280	180	72	74	<10	<10
MAY												
02...	10	<0.1	5	14	380	<130	900	380	88	84	20	17
JUN												
25...	14	<0.2	7	16	280	<130	1100	680	230	210	30	15
AUG												
15...	15	0.1	10	16	520	360	1800	1200	180	180	10	14
SEP												
26...	6.0	<0.1	7	12	270	<130	670	210	130	120	20	15
03070430 STONY FORK AT BETHEL CHAPEL, PA (44) (LAT 39 46 54N LONG 079 35 00W)												
DEC 1989												
29...	4.0	<0.1	10	2	420	<130	500	420	1100	1100	60	54
MAR 1990												
28...	6.0	<0.1	7	24	870	<130	490	330	820	810	40	35
JUN												
25...	5.0	<0.2	16	<2	<130	<130	530	130	1100	940	50	37
03070435 STONY FORK TRIB #4 (N OF DELTA SITE), PA (73) (LAT 39 46 48N LONG 079 35 38W)												
MAR 1990												
28...	2.0	<0.1	1	36	740	740	2300	2300	330	330	<10	<10
JUN												
25...	3.0	<0.2	6	8	420	<130	3200	1700	1300	930	10	31
03070455 STONY FORK NEAR ELLIOTTSVILLE, PA (51) (LAT 39 46 08N LONG 079 36 34W)												
OCT 1989												
30...	3.0	<0.1	16	10	410	<130	670	380	2400	2400	120	120
NOV												
22...	3.0	<0.1	9	<2	500	<130	840	470	1400	1400	70	68
DEC												
29...	4.0	<0.1	14	14	<130	<130	1400	720	3000	2900	120	120
JAN 1990												
31...	4.0	<0.1	5	2	330	<130	410	190	740	700	70	100
FEB												
21...	4.0	0.1	11	34	960	160	920	490	2200	2200	120	120
MAR												
28...	4.0	<0.1	8	18	490	<130	690	400	1500	1500	70	67
MAY												
02...	4.0	<0.1	16	14	300	<130	700	320	2000	2000	130	78
JUN												
25...	5.0	<0.2	15	8	160	<130	430	140	1500	1500	60	27
AUG												
15...	6.0	<0.1	17	4	<130	<130	140	46	1600	1600	30	29
SEP												
26...	5.0	<0.1	11	12	190	<130	510	360	1500	1600	70	73

GROUND-WATER LEVELS

ALLEGHENY COUNTY

403734080063001. Local number, AG 700.

LOCATION.--Lat 40°37'34", long 80°06'30", Hydrologic Unit 05030101, at State Game Land Number 203, Bradford Woods.
Owner: U.S. Geological Survey.
AQUIFER.- Sandstone and shale of Glenshaw Formation of Late Pennsylvanian age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in, depth 100 ft, cased to 24 ft, open hole.
INSTRUMENTATION.--satellite telemeter -- 60-minute transmission.
DATUM.--Elevation of land-surface datum is 1,035 ft, from topograghic map. Measuring point: Top of casing, 3.45 ft above land-surface datum.
REMARKS.--Missing record Oct. 18-21.
PERIOD OF RECORD.--November 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.86 ft below land-surface datum, May 30, 1983; lowest, 8.94 ft below land-surface datum, Nov. 14, 1968.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.68	7.78	7.68	7.88	6.96	6.37	6.04	5.82	5.90	6.41	6.30	6.88
2	7.57	7.76	7.35	7.90	6.77	6.14	6.00	5.99	5.80	6.46	6.34	6.80
3	7.69	7.73	7.56	7.82	6.78	6.18	5.98	6.05	5.60	6.50	6.32	6.90
4	7.74	7.73	7.55	7.61	6.62	6.29	5.91	5.90	5.84	6.48	6.32	6.91
5	7.68	7.69	7.37	7.63	6.66	6.37	6.08	5.60	5.93	6.52	6.34	6.80
6	7.55	7.71	7.35	7.58	6.52	6.62	6.15	5.70	5.84	6.75	6.39	6.69
7	7.70	7.70	7.87	7.55	6.49	6.67	6.22	5.74	5.96	6.93	6.46	6.46
8	7.74	7.57	7.82	7.41	6.49	6.54	6.32	5.78	5.95	6.92	6.50	6.48
9	7.84	7.47	7.61	7.33	6.22	6.28	6.32	5.75	5.84	6.84	6.52	6.36
10	7.82	7.69	7.56	7.40	6.20	6.33	6.10	5.53	5.92	6.80	6.47	6.34
11	7.84	7.69	7.57	7.34	6.23	6.28	5.95	5.92	6.02	6.78	6.66	6.33
12	7.79	7.84	7.57	7.41	6.35	6.32	6.13	5.94	6.06	6.62	6.70	6.30
13	7.83	7.74	7.56	7.63	6.29	6.33	6.16	5.88	6.01	6.59	6.66	6.26
14	7.79	7.62	7.62	7.63	6.38	6.26	5.98	5.96	5.96	6.48	6.67	6.12
15	7.89	7.49	7.62	7.53	6.26	6.28	5.76	5.83	5.98	6.41	6.65	6.04
16	7.89	7.47	7.73	7.58	6.20	6.25	5.76	5.77	6.04	6.48	6.67	6.20
17	7.80	7.58	7.75	7.54	6.52	6.12	5.94	5.50	6.08	6.50	6.67	6.40
18	---	7.83	7.77	7.56	6.49	6.32	6.10	5.52	6.00	6.42	6.69	6.40
19	---	7.83	7.75	7.64	6.28	6.34	6.10	5.54	6.04	6.39	6.82	6.22
20	---	7.41	7.73	7.40	6.40	6.37	5.93	5.36	6.06	6.38	6.88	6.24
21	---	7.61	7.86	7.12	6.34	6.31	5.72	5.48	6.11	6.30	6.84	6.24
22	7.96	7.62	7.97	7.10	6.09	6.22	5.74	5.52	6.12	6.23	6.83	6.04
23	7.98	7.63	7.99	7.18	5.86	6.34	5.71	5.56	6.02	6.24	6.81	6.18
24	7.96	7.73	7.92	7.05	6.23	6.32	5.72	5.65	6.22	6.25	6.73	6.26
25	7.92	7.63	7.61	7.01	6.66	6.24	5.70	5.68	6.34	6.26	6.79	6.21
26	7.87	7.70	7.85	7.20	6.66	6.28	5.68	5.50	6.35	6.28	6.78	6.24
27	7.85	7.70	7.85	7.21	6.33	6.34	5.68	5.61	6.36	6.26	6.73	6.36
28	7.81	7.70	7.94	7.29	6.40	6.29	5.60	5.62	6.39	6.18	6.66	6.41
29	7.81	7.77	7.93	7.14	---	6.24	5.72	5.72	6.37	6.15	6.56	6.42
30	7.75	7.61	7.82	7.00	---	6.15	5.72	5.85	6.36	6.11	6.81	6.46
31	7.67	---	7.67	7.08	---	6.03	---	5.91	---	6.20	6.89	---
MEAN	7.79	7.67	7.70	7.41	6.42	6.30	5.93	5.72	6.05	6.46	6.63	6.40
MAX	7.98	7.84	7.99	7.90	6.96	6.67	6.32	6.05	6.39	6.93	6.89	6.91
MIN	7.55	7.41	7.35	7.00	5.86	6.03	5.60	5.36	5.60	6.11	6.30	6.04

WTR YR 1990 MEAN 6.71 HIGH 5.36 MAY 20 LOW 7.99 DEC 23

ARMSTRONG COUNTY

404626079344001. Local number, AR 77.

LOCATION.- Lat 40°46'26", long 79°34'40", Hydrologic Unit 05010006, at State Game Land Number 247.
Owner: U.S. Geological Survey.
AQUIFER.--Allegheny Group of Middle Pennsylvanian age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in, depth 242 ft cased to 43 ft, open hole.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 1,050 ft, from topographic map. Measuring point: Top of plywood cover, 1.05 ft above land-surface datum.
REMARKS.--Water levels affected by pumping.
PERIOD OF RECORD.--February 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 26.85 ft below land-surface datum, May 27, 1978; lowest, 52.20 ft below land-surface datum, May 1, 1979.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32.23	31.85	31.27	32.36	30.71	30.89	31.21	32.16	31.20	32.08	31.96	32.90
2	32.23	31.90	31.32	32.32	30.66	30.76	31.20	32.39	31.16	32.16	32.26	32.90
3	32.16	31.97	31.32	32.30	30.62	30.67	31.16	32.54	31.03	32.26	32.77	32.90
4	32.07	32.02	31.27	32.24	30.58	30.70	31.05	32.59	30.99	32.27	33.19	32.83
5	32.04	33.15	31.13	32.05	30.51	30.92	30.89	32.56	31.09	32.29	33.19	32.80
6	32.04	33.17	31.21	31.83	30.51	31.14	30.89	32.51	31.14	32.32	33.26	32.65
7	31.96	33.17	31.42	31.73	30.51	31.33	30.90	32.53	31.20	32.56	33.26	32.59
8	31.96	33.13	31.54	31.66	30.50	31.38	30.96	32.63	31.28	32.70	33.18	32.63
9	32.01	33.23	31.55	31.44	30.46	31.41	31.00	32.63	31.28	32.74	33.02	32.64
10	32.01	33.26	31.36	31.32	30.36	31.40	31.00	32.58	31.24	32.76	32.66	32.57
11	31.96	33.17	31.19	31.30	30.38	31.38	30.83	32.52	31.35	32.76	32.67	32.48
12	31.95	33.16	31.28	31.23	30.46	31.38	30.86	32.54	31.35	32.74	32.67	32.36
13	32.01	33.14	31.94	31.31	30.46	31.33	30.93	32.47	31.30	32.69	32.66	32.13
14	32.01	31.62	32.18	31.51	30.53	31.35	30.93	32.52	31.24	32.68	32.62	31.97
15	32.12	30.82	32.20	31.54	30.54	31.36	30.80	32.52	31.24	32.58	32.66	31.81
16	32.19	30.57	32.13	31.65	30.52	31.36	30.68	32.47	31.41	32.35	32.86	31.63
17	32.64	30.47	32.16	31.69	30.53	31.37	30.70	32.29	31.58	32.35	32.86	31.67
18	32.74	30.60	32.20	31.60	30.71	31.21	30.86	32.06	31.58	32.34	32.84	31.83
19	32.70	30.67	32.18	31.58	30.70	31.17	30.93	31.93	31.51	32.34	32.81	31.84
20	32.49	30.67	32.15	31.57	30.66	31.20	30.91	31.67	31.46	32.28	32.82	31.73
21	32.32	30.54	32.14	31.46	30.75	31.20	30.84	31.49	31.72	32.33	32.81	31.73
22	32.09	30.60	32.25	31.27	30.74	31.17	30.75	31.43	31.81	32.20	32.81	31.70
23	32.06	30.65	32.37	31.10	30.59	31.10	32.07	31.06	31.78	32.30	32.75	31.57
24	32.06	30.81	32.41	30.99	30.56	31.09	32.41	30.90	31.74	32.35	32.82	31.53
25	32.01	30.83	32.41	30.85	30.69	31.10	32.31	31.01	31.92	32.35	32.91	31.53
26	31.97	31.00	32.25	30.66	30.90	31.06	32.15	31.03	32.03	32.29	32.93	31.47
27	31.97	31.14	32.16	30.67	30.99	31.04	32.03	31.01	32.03	32.31	33.18	31.68
28	31.98	31.14	32.33	30.80	30.97	31.13	31.92	31.03	32.04	32.33	33.32	31.74
29	31.98	31.17	32.36	30.82	---	31.19	31.88	31.00	32.11	32.32	33.32	31.73
30	31.84	31.23	32.40	30.68	---	31.19	32.00	31.10	32.10	32.10	33.17	31.72
31	31.80	---	32.40	30.70	---	31.21	---	31.20	---	31.96	32.95	---
MEAN	32.12	31.70	31.89	31.43	30.61	31.17	31.24	31.95	31.50	32.39	32.88	32.11
MAX	32.74	33.26	32.41	32.36	30.99	31.41	32.41	32.63	32.11	32.76	33.32	32.90
MIN	31.80	30.47	31.13	30.66	30.36	30.67	30.68	30.90	30.99	31.96	31.96	31.47

WTR YR 1990 MEAN 31.76 HIGH 30.36 FEB 10 LOW 33.32 AUG 28, 29

BEAVER COUNTY

403006080252301. Local number, BV 156.

LOCATION.--Lat 40°30'06", long 80°25'23", Hydrologic Unit 05030101, at Raccoon State Park.
Owner: U.S. Geological Survey.
AQUIFER.--Shale of Glenshaw Formation of Late Pennsylvanian age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in, depth 101 ft, cased to 25 ft, open hole.
INSTRUMENTATION.--Digital water-level recorder -- 60-minute punch.
DATUM.--Elevation of land-surface datum is 930 ft, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
REMARKS.--Missing record Sept. 1-20, 24-30.
PERIOD OF RECORD.--November 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 7.50 ft below land-surface datum, June 16, 1989: lowest, 13.72 ft below land-surface datum, June 5, 1968.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.28	9.16	9.11	9.00	8.30	8.44	8.34	8.18	8.11	8.56	8.55	---
2	9.16	9.20	9.10	9.04	8.16	8.29	8.28	8.32	8.14	8.64	8.60	---
3	9.26	9.16	9.08	9.03	8.18	8.28	8.23	8.37	8.06	8.68	8.62	---
4	9.29	9.18	9.06	8.93	8.04	8.41	8.19	8.32	8.12	8.68	8.62	---
5	9.29	9.14	8.93	8.84	8.11	8.45	8.28	8.08	8.18	8.72	8.60	---
6	9.19	9.09	9.00	8.83	8.07	8.61	8.33	8.13	8.15	8.84	8.68	---
7	9.30	9.13	9.26	8.82	8.12	8.67	8.44	8.18	8.23	8.91	8.75	---
8	9.29	9.02	9.25	8.74	8.14	8.63	8.54	8.25	8.23	8.90	8.81	---
9	9.36	8.92	9.15	8.66	8.05	8.43	8.54	8.22	8.04	8.88	8.83	---
10	9.34	9.06	9.10	8.76	7.96	8.44	8.39	8.11	8.14	8.82	8.83	---
11	9.35	9.05	9.16	8.76	7.98	8.41	8.06	8.36	8.24	8.82	8.87	---
12	9.34	9.18	9.15	8.76	8.12	8.40	8.23	8.39	8.30	8.68	8.90	---
13	9.38	9.17	9.11	8.98	8.11	8.46	8.27	8.25	8.28	8.48	8.89	---
14	9.37	9.11	9.10	8.98	8.14	8.41	8.18	8.32	8.28	8.43	8.82	---
15	9.33	9.01	9.09	8.95	8.02	8.38	8.03	8.27	7.86	8.34	8.88	---
16	9.34	8.82	9.08	8.95	7.84	8.36	8.05	8.24	7.99	8.37	8.88	---
17	9.31	8.94	9.21	8.93	8.19	8.31	8.18	7.92	8.06	8.43	8.92	---
18	9.35	9.13	9.26	8.79	8.18	8.34	8.32	7.95	8.06	8.45	8.92	---
19	9.28	9.15	9.24	8.86	8.14	8.40	8.34	8.00	8.09	8.44	8.88	---
20	9.06	8.89	9.19	8.73	8.28	8.46	8.26	7.94	8.11	8.42	8.90	---
21	9.09	9.01	9.27	8.34	8.30	8.43	8.11	8.03	8.15	8.36	8.91	8.83
22	9.27	9.04	9.39	8.37	8.19	8.41	7.97	8.11	8.17	8.19	8.88	8.81
23	9.32	9.06	9.42	8.42	7.91	8.49	7.97	8.17	8.12	8.09	8.84	8.81
24	9.31	9.13	9.42	8.36	8.10	8.48	8.01	8.24	8.27	8.15	8.87	---
25	9.28	9.08	9.27	8.34	8.51	8.50	8.05	8.27	8.39	8.28	8.94	---
26	9.27	9.05	9.25	8.48	8.52	8.50	8.09	8.14	8.41	8.35	8.96	---
27	9.26	9.06	9.25	8.51	8.42	8.55	8.11	8.05	8.45	8.36	8.93	---
28	9.23	9.04	9.30	8.58	8.40	8.55	8.04	8.03	8.51	8.37	8.93	---
29	9.21	9.13	9.34	8.51	---	8.50	8.05	7.95	8.47	8.37	8.90	---
30	9.17	9.08	9.29	8.23	---	8.42	8.08	8.01	8.51	8.36	8.94	---
31	9.10	---	9.10	8.34	---	8.36	---	8.08	---	8.46	8.94	---
MEAN	9.27	9.07	9.19	8.70	8.16	8.44	8.20	8.16	8.20	8.51	8.83	8.88
MAX	9.38	9.20	9.42	9.04	8.52	8.67	8.54	8.39	8.51	8.91	8.96	8.83
MIN	9.06	8.82	8.93	8.23	7.84	8.28	7.97	7.92	7.86	8.09	8.55	8.81

WTR YR 1990 MEAN 8.63 HIGH 7.84 FEB 16 LOW 9.38 OCT 13

BUTLER COUNTY

410501079524401. Local number, BT 311.

LOCATION.--Lat 41°05'01", long 79°52'44", Hydrologic Unit 05030105, at State Game Land Number 95.
Owner: U. S. Geological Survey.
AQUIFER.--Kittanning Formation of Middle Pennsylvanian age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in, depth 89 ft, cased to 12 ft, open hole.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 1,465 ft, from topographic map. Measuring point: Top of casing, 2.30 ft above land-surface datum.
REMARKS.--Missing record Nov. 29 to Dec. 3, Apr. 11-20, and Sept. 29, 30.
PERIOD OF RECORD.--November 1970 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 2.90 ft below land-surface datum, June 16, 1989; lowest, 31.06 ft below land-surface datum, Oct. 16, 17, 18, 1983.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.00	25.10	---	9.35	4.46	3.92	4.15	3.74	4.12	4.31	3.83	14.25
2	24.35	24.50	---	9.07	4.01	3.80	3.53	3.89	4.18	4.40	3.94	15.22
3	25.27	24.53	---	8.10	3.95	3.95	3.52	3.94	4.21	4.49	4.04	15.25
4	25.41	26.23	24.16	7.85	3.86	4.05	3.51	3.93	4.34	4.55	4.06	16.22
5	25.45	26.54	24.64	6.88	3.90	4.12	3.72	3.53	4.42	4.71	3.49	16.82
6	25.50	26.45	25.20	6.67	3.92	4.23	3.75	3.70	4.46	4.89	3.70	16.55
7	25.67	26.55	21.95	6.70	3.93	4.29	3.83	3.81	3.42	5.04	3.89	14.97
8	25.76	25.22	19.92	6.80	3.93	4.22	3.88	3.92	3.43	5.13	4.04	5.23
9	25.85	22.20	19.82	6.82	3.85	4.11	3.81	3.94	3.21	5.20	4.13	5.15
10	25.84	22.07	21.31	6.92	3.69	4.03	3.42	3.86	3.29	4.80	4.25	3.98
11	25.90	23.22	23.30	6.75	3.77	4.02	---	4.24	3.43	3.97	4.40	4.14
12	26.00	24.19	26.12	6.80	3.91	4.07	---	4.22	3.50	3.71	4.54	4.29
13	26.07	24.26	27.10	6.93	3.86	4.10	---	3.93	3.55	3.34	4.49	4.34
14	26.04	23.11	27.67	6.85	3.95	4.12	---	3.96	3.59	3.35	4.64	4.29
15	26.07	22.16	27.88	6.75	3.70	4.18	---	4.02	3.70	3.33	4.85	3.45
16	26.06	21.80	27.80	6.72	3.58	4.18	---	3.82	3.80	3.29	5.09	3.43
17	26.00	17.30	27.71	6.27	3.74	4.03	---	3.31	3.79	3.37	5.35	3.70
18	26.22	16.65	27.85	5.92	3.71	3.84	---	3.45	3.76	3.42	5.57	3.75
19	26.04	17.97	27.85	5.85	3.70	3.85	---	3.53	3.85	3.49	5.91	3.70
20	25.75	18.03	27.98	5.65	3.81	3.84	---	3.54	3.85	3.31	6.26	3.74
21	24.04	20.95	28.09	4.83	3.81	3.90	3.43	3.71	3.88	3.10	6.63	3.74
22	22.05	22.02	28.41	4.82	3.70	3.90	3.17	3.80	3.89	3.11	7.08	3.65
23	22.05	24.70	28.46	4.93	3.58	4.03	3.31	3.85	3.87	3.01	7.63	3.62
24	23.95	26.66	28.44	4.64	3.83	4.05	3.41	3.96	3.88	3.17	8.35	3.74
25	25.96	26.62	28.32	4.63	4.03	4.07	3.43	3.98	3.82	3.36	9.90	3.80
26	26.22	25.45	28.27	4.85	4.04	4.18	3.47	3.92	3.90	3.48	11.48	3.92
27	26.32	25.45	28.27	4.87	3.90	4.22	3.51	3.90	4.06	3.55	12.35	4.03
28	26.71	22.00	28.30	4.90	3.95	4.26	3.54	3.95	4.11	3.61	13.07	4.08
29	26.80	---	28.24	4.75	---	4.26	3.60	3.78	4.11	3.66	11.87	---
30	26.80	---	28.03	4.51	---	4.17	3.62	3.80	4.09	3.69	10.80	---
31	26.78	---	11.70	4.60	---	4.13	---	4.03	---	3.67	12.75	---
MEAN	25.55	23.28	26.77	6.19	3.86	4.07	3.58	3.84	3.85	3.86	6.53	6.89
MAX	26.80	26.66	28.46	9.35	4.46	4.29	4.15	4.24	4.46	5.20	13.07	16.82
MIN	22.05	16.65	11.70	4.51	3.58	3.80	3.17	3.31	3.21	3.01	3.49	3.43

WTR YR 1990 MEAN 9.85 HIGH 3.01 JULY 23 LOW 28.46 DEC 23

CAMBRIA COUNTY

401935078550601. Local number, CA 1.

LOCATION .--Lat 40°19'35", long 78°55'06", Hydrologic Unit 05010007, at Locust and Park Place, Johnstown.
Owner: Johnstown Tribune Publishing Company.
AQUIFER.--Homewood Sandstone of Middle Pennsylvanian age.
WELL CHARACTERISTICS.--Drilled water-table well, diameter 12 in to 8 in, depth 180 ft, cased to 45 ft, open hole.
INSTRUMENTATION.--Weekly measurement with chalked tape by observer.
DATUM.--Elevation of land-surface datum is 1,165 ft, from topographic map. Measuring point: Top of casing, 10 ft below land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--March 1952 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.10 ft below land-surface datum, Sept. 3, 1975; lowest measured, 26.78 ft below land-surface datum, July 23, 1953.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	---
2	17.70	---	---	---	---	---	17.10	---	---	17.50	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	17.70	17.30	---	---	---	---	16.80	---	---	---
5	---	---	---	---	15.50	17.20	---	---	---	---	---	---
6	---	17.60	---	---	---	---	---	---	---	---	17.60	---
7	---	---	---	---	---	---	---	16.60	---	---	---	---
8	---	---	---	17.20	---	---	---	---	---	---	---	---
9	17.90	---	---	---	---	---	16.80	---	---	17.60	---	---
10	---	---	---	---	---	---	---	---	---	---	---	17.10
11	---	---	---	---	---	---	---	---	16.90	---	---	---
12	---	---	---	---	16.20	17.40	---	---	---	---	---	---
13	---	17.60	17.70	---	---	---	---	---	---	---	17.80	---
14	---	---	---	---	---	---	---	17.00	---	---	---	17.70
15	---	---	---	17.30	---	---	---	---	---	---	---	---
16	17.90	---	---	---	---	---	16.90	---	---	16.70	---	---
17	---	---	---	---	---	---	---	---	---	---	---	16.70
18	---	---	17.80	---	---	---	---	---	17.40	---	---	---
19	---	---	---	---	---	17.60	---	---	---	---	---	---
20	---	---	---	---	16.50	---	---	---	---	---	17.70	---
21	---	---	---	---	---	---	---	17.20	---	---	---	---
22	---	17.10	---	15.50	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	17.20	---	---	17.10	---	---
24	---	---	---	---	---	---	---	---	---	---	---	17.00
25	---	---	---	---	---	---	---	---	17.60	---	---	---
26	---	---	17.90	---	17.20	---	---	---	---	---	---	---
27	---	17.40	---	---	---	17.60	---	---	---	---	17.50	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	17.00	---	---	---	16.60	---	---	---	---
30	17.50	---	---	---	---	---	17.40	---	---	17.60	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MEAN	17.75	17.42	17.78	16.86	16.35	17.45	17.08	16.85	17.18	17.30	17.65	17.12
MAX	17.90	17.60	17.90	17.30	17.20	17.60	17.40	17.20	17.60	17.60	17.80	17.70
MIN	17.50	17.10	17.80	15.50	15.50	17.20	16.80	16.60	16.80	16.70	17.50	16.70

WTR YR 1990 MEAN 17.23 HIGH 15.50 JAN 22, FEB 5 LOW 17.90 OCT 9, DEC 26

CRAWFORD COUNTY

413542080245001. Local number, CW 413.

LOCATION.--Lat 41°35'42", long 80°24'50", Hydrologic Unit 05030102, at State Game Land Number 214 near Hartstown. Owner: U.S. Geological Survey.
AQUIFER.--Sandstone of Cussewago Formation of Early Mississipian plan age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in, depth 100 ft, cased to 19 ft, open hole.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 1,110 ft, from topographic map. Measuring point: Top of casing, 2.7 ft above land-surface datum.
REMARKS.--Since the June 9, 1981 well pumping and clean out, the monthly mean water levels have generally been from 12 to 24 feet lower. Missing record Oct. 1, 2, Oct. 22 to Nov. 28, and Apr. 24, 25.
PERIOD OF RECORD.--July 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 20.02 ft below land-surface datum, Feb. 23, 1975; lowest, 55.99 ft below land-surface datum, Oct. 30, 1983.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	49.01	49.39	46.73	45.03	46.90	46.51	47.14	49.27	49.91	51.07
2	---	---	48.88	49.30	46.73	44.83	46.80	46.80	47.10	49.30	50.01	51.13
3	51.55	---	48.73	48.96	46.60	45.09	46.75	46.97	47.07	49.34	50.01	51.22
4	51.52	---	48.66	48.63	46.07	45.19	46.59	46.96	47.40	49.44	49.99	51.19
5	51.45	---	48.50	48.59	46.04	45.28	46.67	46.91	47.41	49.51	50.08	51.11
6	51.36	---	48.77	48.17	45.76	45.54	46.53	47.08	47.42	49.60	50.10	51.08
7	51.49	---	48.93	48.02	45.60	45.53	46.63	47.09	47.74	49.62	50.18	51.20
8	51.41	---	48.90	47.80	45.58	45.49	46.70	47.18	47.70	49.54	50.22	51.19
9	51.50	---	48.55	47.63	45.30	45.46	46.63	47.23	47.81	49.61	50.22	51.01
10	51.40	---	48.49	47.68	45.35	45.45	46.42	47.17	48.02	49.72	50.21	50.95
11	51.57	---	48.63	47.57	45.35	45.32	46.45	47.67	48.15	49.73	50.23	50.80
12	51.46	---	48.61	47.66	45.52	45.27	46.26	47.64	48.22	49.80	50.22	50.55
13	51.49	---	48.57	47.85	45.50	45.42	46.14	47.80	48.25	49.72	50.30	50.34
14	51.38	---	48.58	47.79	45.63	45.52	45.80	47.78	48.29	49.52	50.40	50.07
15	51.42	---	48.58	47.63	45.35	45.50	45.58	47.60	48.48	49.47	50.42	49.79
16	51.48	---	48.68	47.66	45.10	45.51	45.59	47.48	48.53	49.43	50.50	49.61
17	51.52	---	48.70	47.52	45.31	45.53	45.70	47.22	48.40	49.26	50.53	49.58
18	51.45	---	48.83	47.39	45.14	45.86	45.80	47.00	48.29	49.16	50.60	49.52
19	51.33	---	48.80	47.38	44.80	46.00	45.81	46.92	48.52	48.90	50.61	49.16
20	51.20	---	48.82	46.99	44.90	46.01	45.62	46.48	48.52	48.72	50.73	49.22
21	51.05	---	49.05	46.93	44.82	46.01	45.65	46.50	48.73	48.63	50.86	49.21
22	---	---	49.18	46.80	44.60	45.94	45.71	46.40	48.70	49.80	50.23	48.64
23	---	---	49.18	46.82	44.47	46.25	45.72	46.32	48.72	49.84	50.80	48.50
24	---	---	49.10	46.60	44.84	46.27	---	46.33	48.93	49.78	50.85	48.45
25	---	---	48.83	46.36	45.21	46.31	---	46.36	49.05	49.83	50.91	48.14
26	---	---	49.21	46.64	45.23	46.54	45.85	46.30	49.02	49.86	50.91	47.92
27	---	---	49.17	46.64	44.98	46.62	45.80	46.42	49.11	49.79	50.89	47.98
28	---	---	49.37	46.78	45.04	46.70	45.90	46.58	49.20	49.76	51.01	47.89
29	---	49.32	49.32	46.62	---	46.70	46.15	46.75	49.10	49.70	50.96	47.80
30	---	49.00	49.39	46.62	---	46.71	46.25	46.93	49.12	49.70	51.06	47.73
31	---	---	49.17	46.85	---	46.79	---	47.06	---	49.92	51.11	---
MEAN	51.42	49.16	48.88	47.52	45.41	45.80	46.16	46.95	48.27	49.52	50.49	49.74
MAX	51.57	49.32	49.39	49.39	46.73	46.79	46.90	47.80	49.20	49.92	51.11	51.22
MIN	51.05	49.00	48.49	46.36	44.47	44.83	45.58	46.30	47.07	48.63	49.91	47.73

WTR YR 1990 MEAN 48.28 HIGH 44.47 FEB 23 LOW 51.57 OCT 11

ELK COUNTY

412458078324601. Local number, EK 108.

LOCATION.--Lat 41°24'58", long 78°32'46", Hydrologic Unit 05010005, at St. Marys.
Owner: St. Marys Municipal Joint Water Authority.
AQUIFER.--Pottsville Group of Middle Pennsylvanian age.
WELL CHARACTERISTICS.--Drilled artesian well, diameter 12 in, depth 340 ft, cased to 40 ft, open hole.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 1,740 ft, from topographic map. Measuring point: Top of casing, 2.3 ft above land-surface datum.
REMARKS.--Missing record Dec. 17-30, and Aug. 23, 24.
PERIOD OF RECORD.--October 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 2.30 ft below land-surface datum, Apr. 15, 1990; lowest, 6.62 ft below land-surface datum, Oct. 7, 8, 1980.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.86	4.18	3.80	4.29	3.63	3.10	2.69	2.68	2.60	2.87	2.68	2.81
2	4.72	4.17	3.77	4.32	3.40	2.89	2.62	2.88	2.55	2.93	2.77	2.77
3	4.72	4.15	3.60	4.28	3.38	2.95	2.43	2.97	2.34	2.94	2.75	2.89
4	4.72	4.15	3.61	4.05	3.26	3.10	2.31	2.87	2.52	2.88	2.73	2.96
5	4.68	4.12	3.55	4.08	3.21	3.18	2.52	2.50	2.63	2.99	2.69	2.89
6	4.59	4.06	3.71	4.01	3.15	3.39	2.61	2.61	2.53	3.13	2.64	2.79
7	4.70	4.02	4.02	3.94	3.19	3.43	2.67	2.63	2.68	3.15	2.59	2.70
8	4.70	3.96	4.01	3.83	3.20	3.31	2.82	2.70	2.66	3.08	2.57	2.87
9	4.75	3.77	3.79	3.85	2.94	3.03	2.83	2.72	2.53	3.07	2.55	2.88
10	4.74	3.93	3.67	3.90	2.89	3.10	2.67	2.50	2.41	3.08	2.51	2.80
11	4.73	3.90	3.75	3.88	2.92	2.99	2.41	2.92	2.58	3.08	2.47	2.84
12	4.72	4.08	3.76	4.05	3.15	2.94	2.56	2.95	2.61	2.82	2.57	2.83
13	4.73	4.02	3.75	4.17	3.13	2.90	2.61	2.79	2.55	2.86	2.57	2.83
14	4.73	3.83	3.82	4.20	3.18	2.88	2.50	2.83	2.47	2.72	2.59	2.79
15	4.66	3.73	3.83	4.11	3.07	2.88	2.30	2.70	2.57	2.85	2.63	2.57
16	4.69	3.67	3.83	4.10	2.68	2.85	2.34	2.61	2.68	2.81	2.66	2.64
17	4.65	3.70	---	4.00	3.12	2.67	2.51	2.41	2.68	2.78	2.70	2.85
18	4.60	3.90	---	3.85	3.11	2.88	2.73	2.36	2.54	2.85	2.68	2.89
19	4.56	3.90	---	3.95	2.81	2.88	2.82	2.39	2.70	2.80	2.68	2.80
20	4.23	3.36	---	3.69	3.02	2.86	2.66	2.32	2.70	2.57	2.81	2.71
21	4.18	3.73	---	3.40	3.05	2.85	2.48	2.40	2.79	2.56	2.82	2.72
22	4.43	3.77	---	3.51	2.94	2.84	2.52	2.31	2.79	2.53	2.80	2.45
23	4.46	3.72	---	3.60	2.57	2.91	2.51	2.33	2.65	2.37	---	2.52
24	4.39	3.82	---	3.52	2.77	2.95	2.54	2.42	2.86	2.41	---	2.60
25	4.35	3.79	---	3.53	3.35	2.89	2.56	2.47	2.88	2.52	2.81	2.59
26	4.32	3.79	---	3.58	3.37	2.91	2.56	2.34	2.99	2.63	2.81	2.63
27	4.28	3.82	---	3.66	3.15	3.00	2.57	2.36	2.93	2.60	2.81	2.72
28	4.27	3.74	---	3.70	3.09	3.00	2.52	2.40	2.97	2.58	2.75	2.74
29	4.24	3.80	---	3.66	---	3.01	2.62	2.35	2.91	2.56	2.66	2.75
30	4.19	3.66	---	3.47	---	2.93	2.60	2.49	2.82	2.51	2.57	2.62
31	4.08	---	4.09	3.63	---	2.74	---	2.57	---	2.58	2.80	---
MEAN	4.54	3.87	3.78	3.86	3.10	2.98	2.57	2.57	2.67	2.78	2.68	2.75
MAX	4.86	4.18	4.02	4.32	3.63	3.43	2.83	2.97	2.99	3.15	2.82	2.96
MIN	4.08	3.36	3.55	3.40	2.57	2.67	2.30	2.31	2.34	2.37	2.47	2.45

WTR YR 1990 MEAN 3.18 HIGH 2.30 APR 15 LOW 4.86 OCT 1

ERIE COUNTY

415607080044601. Local number, ER 82.

LOCATION.--Lat 41°56'07", long 80°04'46", Hydrologic Unit 05010004, near McLane.
Owner: U.S. Geological Survey.
AQUIFIER.--Shale of Riceville Formation of Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in, depth 82 ft, cased to 56 ft, open hole.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 1,419 ft, from topographic map. Measuring point: Top of plywood cover, 3.50 ft above land-surface datum.
REMARKS.--Missing record Nov. 23-30, Jan. 23-26, and Sept. 25-30.
PERIOD OF RECORD.--July 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 10.00 ft below land-surface datum, Mar. 17, 1973; lowest, 23.42 ft below land-surface datum, Sept. 1, 2, 1984.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.11	20.80	19.60	19.97	19.05	18.73	19.88	19.31	19.76	21.07	21.43	21.12
2	22.12	20.80	19.69	19.97	19.05	18.76	19.86	19.37	19.81	21.12	21.36	21.20
3	21.96	20.80	19.53	19.97	19.05	18.80	19.82	19.42	19.88	21.12	21.38	21.18
4	21.96	20.79	19.51	20.01	18.95	18.85	19.78	19.45	19.95	21.12	21.45	21.18
5	21.96	20.74	19.51	20.01	18.88	18.90	19.71	19.47	20.04	21.12	21.45	21.16
6	21.86	20.62	19.51	20.00	18.84	18.98	19.71	19.50	20.12	21.23	21.44	21.12
7	21.87	20.58	19.52	19.95	18.83	19.06	19.75	19.54	20.18	21.37	21.44	21.09
8	21.86	20.47	19.52	19.86	18.84	19.07	19.81	19.61	20.21	21.46	21.38	20.85
9	21.79	20.36	19.52	19.83	18.84	19.08	19.82	19.71	20.26	21.48	21.41	20.79
10	21.76	20.32	19.52	19.76	18.84	19.09	19.82	19.80	20.30	21.51	21.50	20.66
11	21.70	20.25	19.54	19.67	18.83	19.10	19.76	19.86	20.36	21.55	21.58	20.53
12	21.70	20.22	19.56	19.63	18.83	19.16	19.71	19.88	20.41	21.56	21.69	20.42
13	21.70	20.21	19.57	19.57	18.83	19.34	19.62	19.88	20.47	21.64	21.68	20.37
14	21.72	20.15	19.58	19.56	18.83	19.44	19.53	19.88	20.60	21.65	21.68	20.39
15	21.72	20.09	19.58	19.56	18.84	19.54	19.33	19.89	20.72	21.65	21.66	20.39
16	21.72	19.99	19.57	19.57	18.83	19.59	19.23	19.87	20.85	21.64	21.63	20.39
17	21.70	19.92	19.57	19.58	18.75	19.59	19.13	19.85	20.89	21.65	21.64	20.37
18	21.62	19.90	19.61	19.58	18.63	19.59	19.12	19.81	20.90	21.66	21.60	20.32
19	21.55	19.85	19.64	19.48	18.54	19.58	19.13	19.75	20.92	21.68	21.54	20.25
20	21.41	19.78	19.66	19.38	18.49	19.55	19.13	19.68	20.92	21.69	21.47	20.14
21	21.33	19.71	19.67	19.28	18.49	19.57	19.13	19.56	20.96	21.76	21.44	20.13
22	21.19	19.70	19.70	19.21	18.49	19.59	19.09	19.46	21.01	21.78	21.42	20.10
23	21.16	---	19.73	---	18.49	19.65	19.10	19.44	20.99	21.80	21.37	20.02
24	21.07	---	19.78	---	18.49	19.72	19.11	19.51	20.99	21.81	21.36	19.98
25	21.02	---	19.81	---	18.52	19.74	19.14	19.58	20.95	21.84	21.37	---
26	20.98	---	19.85	---	18.56	19.76	19.19	19.59	20.94	21.85	21.37	---
27	20.92	---	19.86	19.05	18.63	19.84	19.25	19.60	20.95	21.84	21.39	---
28	20.87	---	19.89	19.05	18.71	19.86	19.25	19.59	21.02	21.78	21.40	---
29	20.83	---	19.92	19.06	---	19.87	19.26	19.59	21.05	21.71	21.38	---
30	20.83	---	19.97	19.04	---	19.88	19.28	19.63	21.09	21.63	21.34	---
31	20.83	---	19.98	19.04	---	19.88	---	19.70	---	21.50	21.28	---
MEAN	21.51	20.28	19.66	19.58	18.75	19.39	19.45	19.64	20.58	21.56	21.47	20.59
MAX	22.12	20.80	19.98	20.01	19.05	19.88	19.88	19.89	21.09	21.85	21.69	21.20
MIN	20.83	19.70	19.51	19.04	18.49	18.73	19.09	19.31	19.76	21.07	21.28	19.98

WTR YR 1990 MEAN 20.20 HIGH 18.49 FEB 20-24 LOW 22.12 OCT 2

FAYETTE COUNTY

394843079351401. Local number, FA 17.

LOCATION.-Lat 39°48'43", long 79°35'14", Hydrologic unit 05020006, at Fort Necessity.
Owner: U.S. Geological Survey.
AQUIFER.--Shale and sandstone of Glenshaw Formation of Late Pennsylvanian age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in, depth 100 ft, cased to 19 ft, open hole.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 1,910 ft, from topographic map. Measuring point: Top of plywood cover 2.05 ft above land-surface datum.
REMARKS.--Missing record Oct. 28-31, Dec. 18-23, Feb. 23 to Mar. 2, May 25, and June 20 to July 25.
PERIOD OF RECORD.--November 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 19.71 ft below land-surface datum, Feb. 23, 1971; lowest, 40.00 ft below land-surface datum, Nov. 8, 1967.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.50	22.18	22.55	22.39	21.25	---	22.67	23.05	22.46	---	23.05	23.23
2	22.39	22.18	22.53	22.46	21.05	---	22.53	23.24	22.40	---	23.13	23.15
3	22.46	22.33	22.41	22.37	21.02	22.13	22.27	23.34	22.30	---	23.08	23.18
4	22.51	22.35	22.41	22.23	20.85	22.39	22.11	23.20	22.35	---	23.03	23.18
5	22.51	22.41	22.35	21.98	20.87	22.56	22.18	22.75	22.45	---	22.91	23.06
6	22.41	22.41	22.57	21.86	20.78	22.79	22.18	22.55	22.47	---	22.92	22.98
7	22.51	22.41	22.92	21.77	20.84	23.13	22.08	22.54	22.70	---	23.02	23.13
8	22.50	22.37	22.91	21.61	20.82	23.11	22.14	22.58	22.69	---	23.09	23.20
9	22.53	22.40	22.63	21.53	20.68	22.92	22.15	22.58	22.71	---	23.05	23.14
10	22.53	22.63	22.54	21.63	20.39	22.85	21.93	22.34	22.72	---	23.01	23.23
11	22.49	22.63	22.61	21.62	20.59	22.84	21.59	22.70	22.84	---	23.00	23.23
12	22.48	22.82	22.60	21.61	20.65	22.87	21.78	22.72	22.94	---	23.05	23.19
13	22.47	22.82	22.61	22.05	20.71	22.87	21.82	22.64	22.94	---	23.01	23.09
14	22.44	22.72	22.73	22.12	20.65	22.84	21.71	22.73	22.90	---	23.03	22.83
15	22.40	22.61	22.73	22.11	20.67	22.87	21.52	22.69	22.93	---	23.08	22.58
16	22.40	22.37	22.92	22.21	21.18	22.85	21.59	22.65	23.05	---	23.06	22.68
17	22.38	22.42	22.95	22.17	21.38	22.77	21.88	22.54	23.09	---	23.05	22.87
18	22.39	22.59	---	22.00	21.31	23.07	22.12	22.70	23.02	---	23.04	22.87
19	22.21	22.59	---	22.08	21.59	23.12	22.16	22.75	22.97	---	23.01	22.72
20	21.70	22.16	---	21.97	21.65	23.13	22.10	22.74	---	---	23.10	22.68
21	21.52	22.34	---	21.50	21.70	23.13	21.97	22.88	---	---	23.12	22.72
22	21.84	22.34	---	21.44	21.67	23.06	22.03	23.00	---	---	23.12	22.33
23	21.86	22.45	---	21.44	---	22.98	22.11	23.06	---	---	23.07	22.42
24	21.86	22.53	22.59	21.40	---	23.00	22.23	23.14	---	---	23.10	22.44
25	21.84	22.53	22.55	21.33	---	22.90	22.35	---	---	---	23.16	22.36
26	21.83	22.54	22.82	21.68	---	22.90	22.42	22.71	---	22.66	23.18	22.28
27	21.89	22.57	22.84	21.77	---	23.02	22.47	22.66	---	22.69	23.13	22.35
28	---	22.48	23.01	21.78	---	23.02	22.48	22.53	---	22.73	23.03	22.40
29	---	22.56	23.01	21.52	---	22.99	22.71	22.40	---	22.71	23.01	22.39
30	---	22.52	22.92	21.39	---	22.87	22.85	22.45	---	22.71	23.17	22.40
31	---	---	22.90	21.39	---	22.71	---	22.50	---	22.89	23.23	---
MEAN	22.25	22.48	22.70	21.82	21.01	22.88	22.14	22.74	22.73	22.73	23.07	22.81
MAX	22.53	22.82	23.01	22.46	21.70	23.13	22.85	23.34	23.09	22.89	23.23	23.23
MIN	21.52	22.16	22.35	21.33	20.39	22.13	21.52	22.34	22.30	22.66	22.91	22.28

WTR YR 1990 MEAN 22.45 HIGH 20.39 FEB 10 LOW 23.34 MAY 3

FOREST COUNTY

412823079030601. Local number, FO 11.

LOCATION.--Lat 41°28'23", long 79°03'06", Hydrologic Unit 05010005, at U.S. Forest Lands.
Owner: U.S. Geological Survey
AQUIFER.--Clarion Formation of Middle Pennsylvanian age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in, depth 110 ft, cased to 23 ft, open hole.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 1,780 ft, from topographic map. Measuring point: Top of casing, 1.4 ft above land-surface datum.
REMARKS.--Missing record Oct. 1-31, Jan. 14-16, 23-29, Apr. 22 to May 1, May 6-8, July 9-11, 15-20, and Aug. 21-28.
PERIOD OF RECORD.--August 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 7.50 ft below land-surface datum, Apr. 5, 1989; lowest, 12.07 ft below land-surface datum, Sept. 18, 19, 1982.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		9.38	8.74	9.08	8.48	8.57	8.53	---	8.58	10.01	9.35	10.03
2		9.36	8.74	9.10	8.48	8.56	8.45	8.60	8.62	10.05	9.40	10.07
3		9.31	8.70	9.08	8.47	8.56	8.45	8.61	8.65	10.08	9.40	10.15
4		9.26	8.71	9.05	8.45	8.58	8.45	8.61	8.70	10.13	9.35	10.20
5		9.25	8.72	8.89	8.45	8.63	8.46	8.50	8.78	10.17	9.40	10.22
6		9.17	8.73	8.87	8.42	8.75	8.46	---	8.78	10.22	9.51	10.22
7		9.15	8.86	8.85	8.39	8.80	8.47	---	8.83	10.26	9.52	10.14
8		8.96	8.91	8.82	8.34	8.79	8.48	---	8.86	10.30	9.57	10.08
9		8.95	8.89	8.80	8.30	8.71	8.50	8.40	8.85	---	9.60	10.00
10		8.84	8.90	8.72	8.32	8.71	8.45	8.35	8.86	---	9.62	9.86
11		8.79	8.90	8.72	8.30	8.68	8.45	8.32	8.90	---	9.66	9.76
12		8.83	8.90	8.69	8.33	8.69	8.36	8.26	8.92	10.14	9.68	9.68
13		8.83	8.91	8.76	8.39	8.67	8.36	8.16	8.93	9.92	9.73	9.60
14		8.83	8.91	---	8.42	8.67	8.33	8.15	8.94	9.80	9.77	9.55
15		8.80	8.93	---	8.41	8.64	8.33	8.16	9.00	---	9.81	9.38
16		8.67	8.93	---	8.33	8.59	8.29	8.16	9.10	---	9.88	9.21
17		8.53	8.99	8.78	8.31	8.46	8.28	8.09	9.16	---	9.90	9.14
18		8.60	9.03	8.68	8.30	8.38	8.40	8.06	9.17	---	9.96	9.11
19		8.61	9.04	8.68	8.33	8.41	8.40	8.05	9.26	---	10.00	9.02
20		8.56	9.06	8.66	8.32	8.39	8.40	7.95	9.44	---	10.03	8.95
21		8.58	9.07	8.50	8.34	8.43	8.35	8.02	9.55	9.42	---	8.90
22		8.64	9.08	8.43	8.32	8.43	---	8.14	9.63	9.41	---	8.85
23		8.67	9.09	---	8.35	8.41	---	8.21	9.69	9.22	---	8.78
24		8.72	9.13	---	8.54	8.44	---	8.32	9.75	9.02	---	8.73
25		8.70	9.12	---	8.57	8.43	---	8.40	9.78	9.05	---	8.70
26		8.70	9.06	---	8.59	8.43	---	8.43	9.82	9.08	---	8.65
27		8.73	9.10	---	8.57	8.43	---	8.48	9.85	9.12	---	8.67
28		8.71	9.13	---	8.57	8.55	---	8.51	9.88	9.13	---	8.67
29		8.73	9.18	---	---	8.55	---	8.54	9.92	9.17	10.02	8.68
30		8.72	9.20	8.44	---	8.57	---	8.57	9.95	9.20	9.92	8.67
31		---	9.17	8.47	---	8.57	---	8.58	---	9.25	9.93	---
MEAN		8.85	8.96	8.77	8.41	8.56	8.41	8.32	9.21	9.64	9.70	9.39
MAX		9.38	9.20	9.10	8.59	8.80	8.53	8.61	9.95	10.30	10.03	10.22
MIN		8.53	8.70	8.43	8.30	8.38	8.28	7.95	8.58	9.02	9.35	8.65

WTR YR 1990 MEAN 8.93 HIGH 7.95 MAY 20 LOW 10.30 JULY 8

GREENE COUNTY

394655080014301. Local number, GR 118.

LOCATION.--Lat 39°46'55", long 80°01'43", Hydrologic Unit 05020005, at State Game Land Number 223.
Owner: U.S. Geological Survey.
AQUIFER.--Shale and sandstone of lomer member of Waynesburg Formation of Late Pennsylvanian and Early Permian age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in, depth 104 ft, cased to 22 ft, open hole.
INSTRUMENTATION.--Digital water-level recorder -- 60-minute punch.
DATUM.--Elevation of land-surface datum is 1,000 ft, from topographic map. Measuring point: Top of casing, 1.40 ft above land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--June 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 29.70 ft below land-surface datum, Apr. 12, 1981; lowest, 48.18 ft below land-surface datum, Aug. 17, 1987.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37.23	34.42	34.33	34.41	31.67	32.05	32.87	33.61	31.71	34.87	36.80	37.98
2	37.18	34.45	34.33	34.25	31.72	32.05	31.83	33.78	31.84	35.09	37.04	38.26
3	37.26	34.61	34.51	34.09	31.59	32.25	31.60	33.86	32.02	35.27	37.15	38.55
4	37.32	34.68	34.51	33.94	31.49	32.35	31.72	33.84	32.20	35.57	37.34	38.56
5	37.38	34.74	34.62	33.74	31.07	32.47	31.88	31.85	32.29	35.65	37.42	38.50
6	37.40	34.87	34.78	33.59	31.19	32.66	31.92	31.48	32.44	35.58	37.45	38.37
7	37.38	34.95	34.92	33.59	31.31	32.73	32.08	31.70	32.60	35.67	37.58	38.31
8	37.36	35.03	34.96	33.68	31.31	32.76	32.21	31.90	32.61	35.97	37.79	38.23
9	37.36	35.05	35.00	33.72	31.33	32.84	32.24	32.00	32.60	36.11	37.99	38.23
10	37.36	35.05	35.12	33.89	30.85	32.92	32.24	32.00	32.23	36.23	38.17	37.86
11	37.29	35.01	35.23	33.87	30.84	32.99	32.15	32.11	32.41	36.25	38.24	37.74
12	37.19	35.02	35.31	34.00	31.05	33.05	32.10	32.15	32.55	36.22	38.31	37.75
13	37.14	35.00	35.44	34.15	31.14	33.09	32.12	32.16	32.71	36.05	38.47	37.05
14	37.11	35.01	35.58	34.15	31.23	33.11	32.16	32.11	32.85	35.89	38.56	35.62
15	37.08	35.00	35.68	34.13	31.25	33.17	32.26	32.11	32.71	35.89	38.34	34.94
16	37.11	34.91	35.79	34.13	31.27	33.18	32.34	32.10	32.88	35.59	38.06	34.25
17	37.05	33.83	35.86	34.03	31.10	33.14	32.54	31.36	32.98	35.69	38.03	34.30
18	35.71	33.53	35.96	33.99	31.10	33.06	32.60	31.51	33.05	35.78	38.08	34.36
19	34.48	33.53	36.00	34.01	31.28	33.03	32.63	31.62	33.23	35.92	38.12	34.36
20	32.92	33.42	36.10	33.88	31.36	32.86	32.67	31.77	33.29	36.04	38.15	34.27
21	33.19	33.64	36.29	32.35	31.40	32.53	32.68	32.00	33.51	36.11	38.18	34.06
22	33.41	33.65	36.40	32.30	31.39	32.42	32.66	32.18	33.55	35.93	38.07	34.05
23	33.49	33.81	36.51	32.38	31.51	32.53	32.65	32.38	33.74	35.68	38.08	34.03
24	33.57	33.90	36.67	32.55	31.76	32.54	32.75	32.58	33.95	35.79	37.78	33.99
25	33.68	33.93	36.72	32.65	31.99	32.58	32.83	32.67	34.03	35.85	37.85	34.11
26	33.79	34.08	36.80	32.87	31.99	32.64	32.95	32.64	34.20	36.01	37.96	34.35
27	33.91	34.09	36.91	32.92	32.03	32.67	33.04	31.50	34.33	36.13	37.99	34.53
28	33.99	34.18	37.07	33.03	32.01	32.73	33.20	31.55	34.49	36.24	37.95	34.67
29	34.08	34.23	37.16	32.95	---	32.78	33.32	31.57	34.62	36.43	37.93	34.79
30	34.14	34.24	37.15	31.14	---	32.80	33.43	31.35	34.81	36.52	37.91	35.14
31	34.26	---	36.89	31.45	---	32.87	---	31.53	---	36.69	37.94	---
MEAN	35.74	34.40	35.76	33.41	31.40	32.74	32.46	32.16	33.08	35.89	37.89	36.04
MAX	37.40	35.05	37.16	34.41	32.03	33.18	33.43	33.86	34.81	36.69	38.56	38.56
MIN	32.92	33.42	34.33	31.14	30.84	32.05	31.60	31.35	31.71	34.87	36.80	33.99

WTR YR 1990 MEAN 34.27 HIGH 30.84 FEB 11 LOW 38.56 AUG 14, SEPT 4

INDIANA COUNTY

403702079093301. Local number, IN 1.

LOCATION.--Lat 40°37'02", long 79°09'33", Hydrologic Unit 05010007, at Indiana University of Pennsylvania, Indiana.
Owner: Commonwealth of Pennsylvania.
AQUIFER.--Sandstone of Glenshaw Formation of Late Pennsylvanian age.
WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in, depth 198 ft, casing information not available.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 1,305 ft, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum.
REMARKS.--Missing record May 23 to June 10, and July 23-25.
PERIOD OF RECORD.--October 1944 to June 1947, September 1949 to January 1950, January 1951 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 72.50 ft below land-surface datum, Apr. 13, 1962; lowest, 87.03 ft below land-surface datum, Oct. 19, 1946.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75.18	75.05	75.88	76.51	75.42	76.20	75.40	74.75	---	74.53	75.11	75.02
2	75.03	75.05	75.87	76.51	75.38	76.01	75.15	74.90	---	74.17	75.17	75.00
3	75.05	75.22	75.80	76.22	75.40	76.21	75.10	75.01	---	74.72	75.15	75.16
4	75.16	75.24	75.80	76.02	75.33	76.37	74.95	74.88	---	74.72	75.15	75.18
5	75.21	75.30	75.73	76.07	75.43	76.51	75.06	74.13	---	74.78	75.12	75.04
6	75.18	75.36	75.86	76.01	75.31	76.78	75.06	74.29	---	74.94	74.90	74.97
7	75.33	75.36	76.16	75.96	75.51	76.83	75.05	74.38	---	75.00	75.05	74.87
8	75.41	75.34	76.16	75.92	75.54	76.72	75.12	74.47	---	74.99	75.10	74.66
9	75.52	75.34	75.88	75.93	75.40	76.47	75.09	74.48	---	74.99	75.10	74.63
10	75.53	75.60	75.81	75.99	75.20	76.59	74.78	74.25	---	74.81	75.08	74.63
11	75.60	75.58	75.93	75.80	75.20	76.57	74.55	74.53	74.05	74.71	75.10	74.70
12	75.62	75.75	75.95	76.06	75.58	76.60	74.71	74.55	74.15	74.47	74.80	74.74
13	75.70	75.72	76.03	76.43	75.52	76.65	74.75	74.40	74.13	74.13	74.75	74.75
14	75.65	75.61	76.12	76.44	75.77	76.60	74.52	74.50	74.10	74.20	74.83	74.70
15	75.66	75.58	76.13	76.14	75.63	76.68	74.38	74.45	74.00	74.32	74.86	74.35
16	75.66	75.25	76.28	76.11	75.46	76.60	74.51	74.36	73.75	74.45	74.93	74.44
17	75.60	75.41	76.43	76.08	75.82	76.53	74.79	73.78	73.82	74.46	74.96	74.68
18	75.67	75.70	76.44	76.07	75.77	76.76	74.93	73.90	73.77	74.48	74.97	74.69
19	75.52	75.70	76.45	76.14	75.77	76.74	74.92	73.98	73.94	74.51	75.03	74.60
20	75.02	75.26	76.35	75.81	75.95	76.62	74.76	73.90	74.00	74.46	75.10	74.44
21	75.01	75.62	76.57	75.32	75.91	76.61	74.57	73.78	74.25	74.49	75.08	74.44
22	75.26	75.67	76.70	75.35	75.77	76.40	74.28	73.82	74.25	74.57	74.96	74.18
23	75.24	75.72	76.73	75.48	75.66	76.54	74.29	---	74.13	---	74.92	74.30
24	75.20	75.84	76.66	75.55	75.99	76.50	74.37	---	74.36	---	75.00	74.41
25	75.20	75.82	76.46	75.53	76.71	76.33	74.45	---	74.36	---	75.06	74.42
26	75.20	75.75	76.66	75.88	76.73	76.24	74.47	---	74.36	75.00	75.09	74.34
27	75.20	75.79	76.56	75.91	76.26	76.25	74.61	---	74.46	74.99	75.06	74.43
28	75.15	75.77	76.82	75.93	76.18	76.15	74.44	---	74.56	74.96	75.00	74.46
29	75.12	75.89	76.81	75.79	---	76.03	74.64	---	74.54	74.95	74.94	74.47
30	75.07	75.74	76.73	75.42	---	75.86	74.64	---	74.52	74.90	74.90	74.54
31	75.00	---	76.51	75.56	---	75.56	---	---	---	75.02	75.01	---
MEAN	75.32	75.53	76.27	75.93	75.70	76.44	74.74	74.34	74.18	74.67	75.01	74.64
MAX	75.70	75.89	76.82	76.51	76.73	76.83	75.40	75.01	74.56	75.02	75.17	75.18
MIN	75.00	75.05	75.73	75.32	75.20	75.56	74.28	73.78	73.75	74.13	74.75	74.18

WTR YR 1990 MEAN 75.23 HIGH 73.75 JUNE 16 LOW 76.83 MAR 7

JEFFERSON COUNTY

410650078575801. Local number, JE 23.

LOCATION.--Lat 41°06'50", long 78°57'58", Hydrologic Unit 05010006, at State Game Land Number 244.
Owner: U.S. Geological Survey.
AQUIFER.--Sandstone and shale of Kittanning Formation of Middle Pennsylvanian age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in , depth 101 ft, cased to 37 ft, open hole.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 1,660 ft, from topographic map. Measuring point: Top of plywood cover, 2.05 ft above land-surface datum.
REMARKS.--Missing record Nov. 17-23, Dec. 22-25, and July 10-20.
PERIOD OF RECORD.--February 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 14.17 ft below land-surface datum, Apr. 13, 1970; lowest, 32.12 ft below land-surface datum, Aug. 25, 1974.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.01	29.27	28.24	28.46	27.16	26.99	27.09	26.86	27.63	28.52	27.57	28.40
2	28.94	29.10	28.34	28.54	27.25	26.55	26.94	27.03	27.62	28.49	27.58	28.38
3	29.15	29.11	28.21	28.43	27.30	26.73	26.84	27.13	27.44	28.49	27.55	28.50
4	29.12	29.20	28.30	28.29	27.56	26.80	26.77	27.10	27.52	28.65	27.58	28.50
5	29.07	29.12	28.22	28.32	27.59	26.91	26.96	27.01	27.61	28.65	27.56	28.27
6	29.03	29.23	28.08	28.32	27.45	27.07	26.99	27.10	27.51	28.62	27.63	28.20
7	29.10	29.23	28.17	28.29	27.25	27.12	27.01	27.24	27.67	28.55	27.55	28.25
8	29.10	29.20	28.46	28.07	27.21	27.13	27.08	27.14	27.61	28.60	27.59	28.30
9	29.20	29.42	28.29	27.92	26.93	27.11	27.06	27.27	27.53	28.55	27.46	28.30
10	29.22	29.52	28.11	27.81	26.92	27.10	26.90	27.13	27.66	---	27.39	28.27
11	29.31	29.37	27.96	27.75	27.02	26.97	26.71	27.49	27.68	---	27.50	28.19
12	29.34	29.35	27.98	27.75	27.06	26.94	26.85	27.52	27.62	---	27.58	28.10
13	29.38	29.18	27.97	27.96	26.90	27.13	26.91	27.71	27.63	---	27.53	28.15
14	29.31	29.11	27.99	27.99	27.01	27.25	26.74	27.80	27.57	---	27.55	28.07
15	29.43	29.05	28.10	27.84	26.79	27.41	26.57	27.78	27.66	---	27.61	28.10
16	29.32	28.93	28.07	27.92	26.62	27.43	26.62	27.67	27.70	---	27.77	28.22
17	29.38	---	28.33	27.89	26.81	27.37	26.70	27.62	27.70	---	27.78	28.40
18	29.37	---	28.40	27.69	26.80	27.50	26.84	27.63	27.53	---	27.81	28.44
19	29.20	---	28.40	27.74	26.91	27.59	26.90	27.61	27.66	---	27.88	28.28
20	29.15	---	28.32	27.51	26.89	27.62	26.72	27.48	27.61	---	28.07	28.43
21	29.25	---	28.23	27.96	27.07	27.70	26.62	27.42	27.87	27.98	28.10	28.40
22	29.36	---	---	28.07	26.98	27.72	26.67	27.40	27.90	28.01	28.19	28.23
23	29.35	---	---	28.10	27.05	27.73	26.66	27.43	28.05	28.03	28.18	28.40
24	29.55	28.40	---	27.91	27.31	28.03	26.69	27.48	28.40	27.99	28.34	28.43
25	29.53	28.41	---	27.82	27.58	27.90	26.72	27.49	28.42	27.93	28.40	28.34
26	29.53	28.33	28.00	27.82	27.60	27.83	26.64	27.36	28.42	27.93	28.45	28.42
27	29.41	28.47	28.08	27.84	27.43	27.88	26.74	27.40	28.45	27.82	28.43	28.40
28	29.37	28.50	28.26	27.74	27.20	27.76	26.70	27.42	28.40	27.72	28.42	28.36
29	29.37	28.43	28.28	27.51	---	27.57	26.79	27.42	28.44	27.60	28.39	28.40
30	29.25	28.47	28.19	27.38	---	27.40	26.80	27.61	28.40	27.50	28.42	28.46
31	29.12	---	28.18	27.40	---	27.14	---	27.67	---	27.55	28.43	---
MEAN	29.27	28.97	28.19	27.94	27.13	27.33	26.81	27.40	27.83	28.16	27.88	28.32
MAX	29.55	29.52	28.46	28.54	27.60	28.03	27.09	27.80	28.45	28.65	28.45	28.50
MIN	28.94	29.52	27.96	27.38	26.62	26.55	26.57	26.86	27.44	27.50	27.39	28.07

WTR YR 1990 MEAN 27.94 HIGH 26.55 MAR 2 LOW 29.55 OCT 24

LAWRENCE COUNTY

410538080280801. Local number, LA 1201.

LOCATION.---Lat 41°05'38", long 80°28'08", Hydrologic Unit 05030102, at State Game Land 150, near Pulaski.
Owner: U.S. Geological Survey.
AQUIFER.--Shale and sandstone of Connoquenessing Formation of Early Pennsylvanian age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in, depth 150 ft, cased to 30 ft, open hole.
INSTRUMENTATION.--Satellite telemeter -- 60-minute transmission.
DATUM.--Elevation of land-surface datum is 1,040 ft, from topographic map. Measuring point: Top of casing, 3.40 ft above land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--November 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 12.25 ft below land-surface datum, May 19, 1978; lowest, 22.94 ft below land-surface datum, Apr. 15, 1986.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.39	17.87	16.99	17.12	15.57	15.48	16.43	16.13	16.56	16.80	15.52	16.71
2	17.41	17.87	16.99	16.61	15.48	15.48	16.39	16.26	16.57	16.87	15.65	16.79
3	17.46	17.89	17.02	16.35	15.12	15.58	16.16	16.36	16.55	16.93	15.79	16.95
4	17.49	17.89	17.05	16.19	14.79	15.69	15.99	16.39	16.69	16.98	15.89	17.00
5	17.52	17.91	17.05	16.09	14.54	15.79	15.87	16.37	16.77	17.07	15.85	17.03
6	17.51	17.90	17.10	15.96	14.39	15.91	15.86	16.44	16.78	17.15	15.63	17.06
7	17.59	17.92	17.15	15.93	14.40	15.97	15.91	16.49	16.66	17.21	15.44	16.99
8	17.62	17.89	17.15	15.91	14.45	16.00	15.93	16.57	16.12	17.27	15.23	16.38
9	17.73	17.77	17.10	15.93	14.54	16.00	15.94	16.62	15.69	17.30	15.23	16.10
10	17.69	17.74	17.12	15.92	14.58	16.00	15.92	16.63	15.31	17.35	15.33	15.62
11	17.66	17.73	17.18	15.92	14.67	16.00	15.71	16.76	15.14	17.32	15.46	15.21
12	17.69	17.74	17.21	15.90	14.79	16.01	15.30	16.81	15.20	17.25	15.58	15.14
13	17.72	17.74	17.26	15.98	14.88	16.07	15.14	16.78	15.31	16.67	15.64	15.22
14	17.74	17.69	17.31	15.99	15.01	16.08	15.08	16.87	15.44	16.26	15.42	15.27
15	17.77	17.65	17.32	16.01	14.99	16.11	15.05	16.87	15.61	15.97	15.15	15.18
16	17.80	17.55	17.41	16.03	14.63	16.13	15.10	16.84	15.77	15.16	15.19	14.84
17	17.86	17.10	17.46	16.00	14.24	16.13	15.21	16.69	15.90	14.76	15.31	14.72
18	17.91	16.85	17.51	15.93	14.25	16.06	15.35	16.51	15.97	14.83	15.45	14.75
19	17.91	16.82	17.54	15.93	14.46	16.07	15.43	16.45	16.10	15.01	15.57	14.77
20	17.80	16.71	17.58	15.88	14.69	16.06	15.47	16.42	16.19	15.17	15.71	14.90
21	17.68	16.74	17.64	15.70	14.85	16.03	15.43	16.46	16.33	15.17	15.78	15.00
22	17.70	16.76	17.72	15.59	14.86	16.07	15.22	16.49	16.40	15.11	15.87	15.00
23	17.71	16.82	17.77	15.50	14.95	16.11	15.23	16.55	16.47	14.90	15.96	15.10
24	17.73	16.87	17.76	15.39	15.06	16.13	15.32	16.61	16.58	14.12	16.07	15.23
25	17.75	16.87	17.75	15.39	15.25	16.17	15.42	16.65	16.67	13.96	16.17	15.32
26	17.76	16.91	17.82	15.48	15.31	16.24	15.55	16.64	16.73	14.25	16.24	15.47
27	17.77	16.91	17.82	15.50	15.35	16.31	15.65	16.69	16.77	14.55	16.30	15.62
28	17.79	16.94	17.89	15.48	15.41	16.36	15.72	16.71	16.83	14.81	16.39	15.75
29	17.81	16.96	17.89	15.48	---	16.41	15.87	16.69	16.87	15.06	16.46	15.82
30	17.81	16.97	17.88	15.51	---	16.41	15.99	16.62	16.82	15.22	16.58	15.87
31	17.82	---	17.81	15.59	---	16.43	---	16.57	---	15.36	16.66	---
MEAN	17.70	17.37	17.43	15.88	14.84	16.04	15.62	16.58	16.23	15.87	15.76	15.69
MAX	17.91	17.92	17.89	17.12	15.57	16.43	16.43	16.87	16.87	17.35	16.66	17.06
MIN	17.39	16.71	16.99	15.39	14.24	15.48	15.05	16.13	15.14	13.96	15.15	14.72

WTR YR 1990 MEAN 16.26 HIGH 13.96 JULY 25 LOW 17.92 NOV 7

McKEAN COUNTY

413852078341401. Local number, MC 110.

LOCATION.--Lat 41°38'52", long 78°34'14", Hydrologic Unit 05010005, at State Forest Land.
Owner: U.S. Geological Survey.
AQUIFER.--Pottsville Formation of Middle Pennsylvanian age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in , depth 107 ft, cased to 28 ft, open hole.
INSTRUMENTATION.--continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 2,050 ft, from topographic map. Measuring point: Top of casing, 2.1 ft above land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--August 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 25.99 ft below land-surface datum, June 27, 1989; lowest, 30.09 ft below land-surface datum, Aug. 8, 1973.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.32	27.15	26.98	27.24	26.90	26.77	26.63	26.66	26.68	27.16	27.17	27.28
2	27.17	27.14	26.98	27.29	26.92	26.65	26.55	26.80	26.68	27.28	27.21	27.26
3	27.22	27.18	26.82	27.30	26.90	26.64	26.52	26.83	26.46	27.27	27.20	27.28
4	27.22	27.18	26.82	27.22	26.86	26.77	26.44	26.78	26.66	27.26	27.18	27.30
5	27.22	27.15	26.77	27.14	26.86	26.85	26.59	26.53	26.72	27.21	27.11	27.25
6	27.21	27.06	26.82	27.15	26.83	27.03	26.66	26.61	26.68	27.34	27.14	27.19
7	27.30	27.06	27.15	27.13	26.80	27.06	26.73	26.55	26.83	27.40	27.20	27.05
8	27.30	27.00	27.15	27.05	26.75	27.06	26.88	26.70	26.83	27.36	27.24	27.15
9	27.32	26.90	27.05	27.03	26.59	26.91	26.87	26.72	26.80	27.26	27.24	27.15
10	27.32	27.01	26.95	27.01	26.60	26.90	26.80	26.54	26.88	27.28	27.20	27.13
11	27.29	27.02	27.01	27.00	26.72	26.89	26.56	26.84	27.03	27.30	27.17	27.13
12	27.29	27.17	27.01	27.02	26.71	26.89	26.68	26.86	27.03	27.26	27.21	27.13
13	27.35	27.16	27.01	27.27	26.75	26.89	26.72	26.71	27.03	27.31	27.21	27.13
14	27.34	27.01	27.00	27.29	26.73	26.86	26.68	26.86	27.03	27.25	27.22	27.01
15	27.31	26.94	27.07	27.22	26.61	26.84	26.50	26.80	27.07	27.16	27.22	26.72
16	27.31	26.75	27.15	27.21	26.69	26.84	26.48	26.72	27.15	27.22	27.22	26.80
17	27.28	26.89	27.19	27.20	26.80	26.64	26.50	26.51	27.17	27.23	27.14	26.91
18	27.35	27.02	27.22	27.05	26.69	26.80	26.71	26.52	27.10	27.23	27.23	26.93
19	27.35	27.02	27.23	27.18	26.82	26.79	26.75	26.53	27.10	27.18	27.20	26.90
20	27.13	26.83	27.11	27.10	26.73	26.74	26.71	26.47	27.15	27.16	27.28	26.80
21	27.16	26.78	27.21	26.78	26.72	26.70	26.55	26.45	27.13	27.08	27.24	26.76
22	27.38	26.81	27.35	26.86	26.63	26.71	26.61	26.48	27.13	27.09	27.23	26.70
23	27.39	26.80	27.40	26.89	26.31	26.75	26.59	26.47	27.04	27.12	27.22	26.60
24	27.26	26.88	27.36	26.85	26.44	26.75	26.61	26.51	27.16	27.18	27.22	26.63
25	27.22	26.87	27.11	26.76	26.86	26.75	26.62	26.56	27.28	27.20	27.22	26.63
26	27.13	26.87	27.01	26.95	26.88	26.76	26.59	26.42	27.28	27.21	27.22	26.63
27	27.18	26.92	27.01	27.01	26.81	26.80	26.56	26.41	27.29	27.22	27.22	26.73
28	27.25	26.86	27.19	26.99	26.78	26.80	26.53	26.46	27.29	27.17	27.21	26.77
29	27.23	26.95	27.21	26.81	---	26.81	26.56	26.45	27.29	27.13	27.14	26.77
30	27.16	26.91	27.19	26.97	---	26.81	26.59	26.59	27.17	27.08	27.13	26.76
31	27.05	---	27.16	26.97	---	26.66	---	26.67	---	27.03	27.28	---
MEAN	27.26	26.98	27.09	27.06	26.74	26.81	26.63	26.61	27.00	27.21	27.20	26.95
MAX	27.39	27.18	27.40	27.30	26.92	27.06	26.88	26.86	27.29	27.40	27.28	27.30
MIN	27.05	26.75	26.77	26.76	26.31	26.64	26.44	26.41	26.46	27.03	27.11	26.60

WTR YR 1990 MEAN 26.96 HIGH 26.31 FEB 23 LOW 27.40 DEC 23, JULY 7

MERCER COUNTY

412350080223701. Local number, MR 1364.

LOCATION.--Lat 41°23'50", long 80°22'37", Hydrologic Unit 05030102, at Greenville.
Owner: Borough of Greenville.
AQUIFER.--Sandstone of Cussewago Formation of Early Mississippian age.
WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in, depth 235 ft, cased to 41 ft, open hole.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 965 ft, from topographic map. Measuring point: Top of plywood cover, 2.26 ft above land-surface datum.
REMARKS.--Missing record Dec. 17 to Jan. 28, and June 19-21.
PERIOD OF RECORD.--March 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 1.43 ft below land-surface datum, Dec. 25, 1968; lowest, 8.31 ft below land-surface datum, Feb. 12, 1967.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.20	4.12	3.79	---	4.12	3.61	4.24	4.55	4.38	4.63	3.90	4.61
2	4.02	4.11	3.79	---	3.75	3.53	4.17	4.54	4.50	4.44	3.78	4.53
3	3.94	4.15	4.28	---	3.23	3.82	4.05	4.50	4.48	4.67	3.77	4.70
4	4.33	4.11	4.13	---	2.93	3.96	4.05	4.32	4.82	4.85	3.66	4.99
5	4.07	4.05	3.93	---	3.07	3.95	4.15	4.63	4.70	4.41	3.84	4.50
6	4.08	4.26	4.32	---	3.29	4.15	4.33	4.49	4.41	4.20	3.95	4.40
7	4.15	4.22	4.07	---	3.42	4.08	4.37	4.51	4.48	4.15	3.88	4.32
8	4.20	4.00	4.07	---	3.35	4.01	4.50	4.54	4.67	4.10	4.20	4.17
9	4.34	4.01	4.04	---	3.33	3.88	4.42	4.32	4.60	4.14	4.35	3.96
10	4.25	4.21	3.99	---	3.43	3.92	4.19	4.50	4.66	3.81	4.31	3.71
11	4.33	4.17	4.02	---	3.71	3.89	3.68	4.53	4.90	3.76	4.48	3.95
12	4.17	4.43	4.21	---	3.62	3.78	3.91	4.59	3.69	3.50	4.27	4.00
13	4.21	4.44	4.20	---	3.59	3.96	3.82	4.61	3.70	3.31	4.03	4.24
14	4.17	4.11	4.18	---	3.91	4.01	3.71	4.58	3.83	3.45	3.75	4.17
15	4.35	4.10	4.15	---	3.76	4.04	3.87	4.45	3.84	2.89	3.76	3.91
16	4.35	3.85	4.33	---	2.80	4.03	3.76	4.18	4.20	3.24	3.57	4.11
17	4.05	3.57	---	---	3.10	3.94	4.02	4.21	3.82	3.11	3.59	4.14
18	4.52	3.76	---	---	3.02	4.13	4.10	4.17	4.00	3.23	3.75	4.25
19	4.15	3.84	---	---	3.21	4.23	4.00	4.06	---	3.45	3.85	3.89
20	3.83	3.81	---	---	3.36	4.23	4.08	4.20	---	3.52	3.99	3.92
21	3.96	3.61	---	---	3.33	4.13	4.11	4.48	---	3.48	4.07	3.98
22	4.14	3.74	---	---	3.28	4.03	4.20	4.24	3.89	3.54	4.01	4.13
23	4.11	3.77	---	---	3.34	4.36	4.13	4.52	3.69	3.45	4.15	4.18
24	4.26	3.73	---	---	3.65	4.24	4.25	4.43	3.71	3.28	4.24	4.18
25	4.04	3.86	---	---	3.89	4.25	4.30	4.29	3.70	3.36	4.51	4.08
26	4.13	4.03	---	---	3.92	4.29	4.51	4.55	4.13	3.55	4.36	4.07
27	3.97	3.73	---	---	3.73	4.33	4.30	4.22	4.37	3.58	4.43	4.41
28	4.11	3.74	---	---	3.74	4.29	4.36	4.31	4.38	3.65	4.52	4.62
29	4.10	3.76	---	3.97	---	4.27	4.46	4.36	4.21	3.69	4.41	3.95
30	4.10	3.65	---	4.12	---	4.13	4.55	4.24	4.11	3.72	4.37	3.88
31	4.01	---	---	4.32	---	4.24	---	4.37	---	3.91	4.42	---
MEAN	4.15	3.96	4.09	4.14	3.46	4.06	4.15	4.40	4.22	3.74	4.07	4.20
MAX	4.52	4.44	4.33	4.32	4.12	4.36	4.55	4.63	4.90	4.85	4.52	4.99
MIN	3.83	3.57	3.79	3.97	2.80	3.53	3.68	4.06	3.69	2.89	3.57	3.71

WTR YR 1990 MEAN 4.05 HIGH 2.80 FEB 16 LOW 4.99 SEPT 4

SOMERSET COUNTY

400008079142801. Local number, SO 2.

LOCATION.--Lat 40°00'08", long 79"14'28", Hydrologic Unit 05020006, at Laurel Hill State Park.
Owner: Commonwealth of Pennsylvania.
AQUIFER.--Shale and sandstone of Allegheny Group of Middle Pennsylvanian age.
WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in to 4 in, depth 450 ft, cased to 311 ft, open hole.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 2,040 ft, from topographic map. Measuring point: Top of casing, 1.43 ft above land-surface datum.
REMARKS.--Water levels affected by pumping.
PERIOD OF RECORD.--April 1937 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 27.42 ft below land-surface datum, Apr. 9, 1980; lowest, 50.33 ft below land-surface datum, May 31, 1987 (affected by pumping of nearby well).

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34.41	34.12	33.74	33.64	33.32	33.10	33.24	33.08	32.92	33.12	33.68	34.15
2	34.35	34.12	33.75	33.69	33.32	33.09	33.13	33.08	32.92	33.19	33.71	34.17
3	34.35	34.10	33.67	33.72	33.25	33.06	33.10	33.15	32.91	33.26	33.72	34.11
4	34.36	34.11	33.66	33.71	33.22	33.09	33.09	33.14	32.87	33.27	33.76	34.16
5	34.36	34.10	33.62	33.63	33.21	33.13	33.05	33.02	32.91	33.30	33.77	34.15
6	34.35	34.07	33.60	33.73	33.20	33.19	33.05	32.94	32.92	33.32	33.73	34.15
7	34.31	34.05	33.67	33.71	33.19	33.19	33.08	32.96	32.92	33.39	33.77	34.06
8	34.32	34.01	33.67	33.71	33.19	33.19	33.13	33.05	32.91	33.42	33.80	34.02
9	34.34	33.90	33.65	33.67	33.18	33.19	33.15	33.07	32.87	33.43	33.82	34.01
10	34.35	33.96	33.65	33.65	33.02	33.17	33.12	33.02	32.87	33.38	33.81	33.96
11	34.34	33.96	33.65	33.63	33.04	33.17	33.00	33.03	32.89	33.41	33.85	33.97
12	34.35	34.03	33.65	33.62	33.06	33.18	33.04	33.08	32.92	33.38	33.86	33.98
13	34.36	34.03	33.64	33.66	33.07	33.18	33.08	33.04	32.92	33.34	33.87	33.97
14	34.36	34.01	33.65	33.68	33.06	33.18	33.07	33.07	32.92	33.34	33.88	33.97
15	34.36	33.97	33.65	33.64	33.06	33.19	33.03	33.07	32.92	33.33	33.95	33.79
16	34.36	33.87	33.62	33.64	33.03	33.19	33.01	33.06	32.93	33.42	33.99	33.79
17	34.35	33.83	33.63	33.63	33.09	33.17	33.00	33.01	32.93	33.44	34.01	33.82
18	34.27	33.87	33.64	33.58	33.09	33.19	33.07	32.92	32.93	33.50	34.04	33.82
19	34.21	33.88	33.65	33.62	33.07	33.19	33.08	33.03	32.93	33.52	34.05	33.80
20	34.10	33.83	33.66	33.58	33.12	33.19	33.07	33.02	33.03	33.52	34.07	33.75
21	34.10	33.81	33.72	33.43	33.12	33.25	33.07	33.01	33.04	33.50	34.07	33.74
22	34.20	33.81	33.74	33.47	33.08	33.23	33.03	33.04	33.06	33.51	34.01	33.68
23	34.24	33.78	33.76	33.48	33.05	33.22	33.04	33.06	33.02	33.50	34.01	33.62
24	34.23	33.80	33.76	33.51	33.06	33.27	33.11	33.06	33.05	33.52	33.98	33.61
25	34.23	33.80	33.75	33.51	33.11	33.26	33.11	33.07	33.10	33.50	34.01	33.61
26	34.23	33.76	33.71	33.50	33.13	33.28	33.11	33.02	33.13	33.54	34.05	33.43
27	34.23	33.74	33.74	33.50	33.11	33.29	33.10	32.87	33.15	33.60	34.06	33.42
28	34.23	33.74	33.74	33.49	33.10	33.31	33.08	32.87	33.18	33.61	34.06	33.44
29	34.23	33.74	33.75	33.49	---	33.31	33.08	32.84	33.19	33.61	34.05	33.44
30	34.22	33.74	33.74	33.33	---	33.30	33.08	32.86	33.19	33.61	34.05	33.42
31	34.18	---	33.73	33.33	---	33.27	---	32.88	---	33.62	34.05	---
MEAN	34.29	33.92	33.69	33.59	33.13	33.20	33.08	33.01	32.98	33.43	33.92	33.83
MAX	34.41	34.12	33.76	33.73	33.32	33.31	33.24	33.15	33.19	33.62	34.07	34.17
MIN	34.10	33.74	33.60	33.33	33.02	33.06	33.00	32.84	32.87	33.12	33.68	33.42

WTR YR 1990 MEAN 33.51 HIGH 32.84 MAY 29 LOW 34.41 OCT 1

WARREN COUNTY

414159079213601. Local number, WR 50.

LOCATION.--Lat 41°41'59", long 79°21'36", Hydrologic Unit 05010003, at State Game Land Number 86.
Owner: U.S. Geological Survey.
AQUIFER.--Shale of Venango Formation of late Devonian age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in depth 105 ft , cased to 46 ft, open hole.
INSTRUMENTATION.--Satellite telemeter -- 60-minute transmission.
DATUM.--Elevation of land-surface datum is 1,170 ft, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--August 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 39.28 ft below land-surface datum. June 24, 1989; lowest, 45.42 ft below land-surface datum, Nov. 2, 1984.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43.82	43.75	42.88	43.01	41.60	41.01	40.61	40.36	40.24	41.93	42.23	42.75
2	43.81	43.76	42.89	43.11	41.53	40.93	40.56	40.56	40.29	42.01	42.29	42.76
3	43.70	43.69	42.68	43.11	41.41	40.76	40.48	40.69	40.29	42.06	42.30	42.86
4	43.73	43.71	42.70	43.05	41.32	40.92	40.40	40.69	40.42	42.05	42.30	42.90
5	43.74	43.68	42.63	42.90	41.25	41.06	40.33	40.49	40.60	42.10	42.25	42.87
6	43.70	43.64	42.62	42.88	41.25	41.24	40.69	40.53	40.66	42.21	42.26	42.80
7	43.76	43.64	42.88	42.83	41.19	41.33	41.10	40.64	40.84	42.29	42.34	42.67
8	43.78	43.54	42.89	42.69	41.15	41.32	41.30	40.75	40.87	42.29	42.40	42.69
9	43.86	43.37	42.86	42.59	41.09	41.16	41.34	40.81	40.91	42.23	42.41	42.70
10	43.88	43.36	42.79	42.48	40.92	41.03	41.26	40.77	41.03	42.24	42.40	42.55
11	43.83	43.36	42.79	42.48	40.91	41.02	40.87	40.94	41.20	42.28	42.39	42.57
12	43.84	43.49	42.75	42.35	41.04	40.98	40.91	41.09	41.31	42.28	42.44	42.59
13	43.88	43.49	42.75	42.65	41.05	40.90	40.97	41.05	41.33	42.15	42.44	42.61
14	43.88	43.41	42.76	42.71	41.13	40.88	40.95	41.08	41.32	42.15	42.40	42.58
15	43.82	43.33	42.77	42.71	41.13	40.83	40.72	41.06	41.36	42.10	42.41	42.35
16	43.82	43.10	42.77	42.72	40.87	40.81	40.58	41.01	41.47	42.11	42.48	42.32
17	43.80	43.06	42.83	42.72	41.06	40.73	40.48	40.82	41.52	42.16	42.54	42.41
18	43.83	43.15	42.89	42.55	41.10	40.68	40.68	40.63	41.52	42.19	42.57	42.44
19	43.84	43.19	42.92	42.58	41.00	40.76	40.73	40.62	41.49	42.18	42.57	42.41
20	43.69	43.06	42.86	42.34	41.08	40.76	40.71	40.57	41.56	42.16	42.63	42.18
21	43.58	42.96	42.86	41.96	41.09	40.75	40.56	40.42	41.63	42.12	42.63	42.17
22	43.74	42.96	42.92	41.72	41.06	40.73	40.52	40.43	41.66	42.12	42.57	42.03
23	43.80	42.95	43.02	41.69	40.67	40.71	40.50	40.38	41.61	42.01	42.49	41.90
24	43.82	42.99	43.17	41.65	40.53	40.75	40.45	40.30	41.68	42.02	42.48	41.89
25	43.83	42.99	43.17	41.65	41.00	40.73	40.43	40.31	41.88	42.09	42.53	41.88
26	43.84	42.89	42.97	41.66	41.15	40.70	40.39	39.83	41.92	42.16	42.56	41.79
27	43.84	42.91	42.99	41.73	41.14	40.76	40.38	39.60	41.93	42.17	42.58	41.86
28	43.84	42.83	43.15	41.69	41.01	40.78	40.31	39.65	41.97	42.17	42.55	41.89
29	43.83	42.88	43.17	41.69	---	40.81	40.25	39.69	41.97	42.13	42.46	41.88
30	43.83	42.88	43.17	41.46	---	40.77	40.30	39.91	41.90	42.09	42.60	41.81
31	43.79	---	42.90	41.60	---	40.68	---	40.11	---	42.11	42.71	---
MEAN	43.80	43.27	42.88	42.35	41.10	40.88	40.66	40.51	41.28	42.14	42.46	42.37
MAX	43.88	43.76	43.17	43.11	41.60	41.33	41.34	41.09	41.97	42.29	42.71	42.90
MIN	43.58	42.83	42.62	41.46	40.53	40.68	40.25	39.60	40.24	41.93	42.23	41.79

WTR YR 1990 MEAN 41.98 HIGH 39.60 MAY 27 LOW 43.88 OCT 10, 13, 14

WASHINGTON COUNTY

400233080261301. Local number, WS 155.

LOCATION.--Lat 40°02'33", long 80°26'13", Hydrologic Unit 05030106, at State Game Land Number 245, near Good Intent.
Owner: U.S. Geological Survey.
AQUIFER.--Washington Formation of Early Permian age.
WELL CHARACTERISTICS---Drilled observation artesian well, diameter 6 in, depth 160 ft, cased to 19 ft, open hole.
INSTRUMENTATION.--Digital water-level recorder -- 60-minute punch.
DATUM.--Elevation of land-surface datum is 1,110 ft, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
REMARKS.--Missing record Jan. 16-22, and Sept. 23-30.
PERIOD OF RECORD.--July 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 32.25 ft below land-surface datum, Jan. 14, 1974; lowest, 39.01 ft below land-surface datum, July 11, 1971.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35.97	35.90	35.93	35.58	34.66	35.75	35.78	35.96	35.39	35.94	36.02	36.19
2	35.93	35.90	35.93	35.21	34.67	35.67	35.70	36.07	35.37	36.00	36.05	36.19
3	35.99	35.93	35.92	35.04	34.68	35.73	35.61	36.10	35.38	36.03	36.07	36.25
4	36.01	35.95	35.92	35.07	34.64	35.81	35.53	36.04	35.59	36.04	36.04	36.25
5	36.01	35.95	35.83	35.09	34.50	35.87	35.61	35.77	35.66	36.07	36.03	36.21
6	35.95	35.95	35.94	35.22	34.43	36.01	35.63	35.48	35.71	36.14	36.03	36.14
7	36.02	35.95	36.08	35.23	34.55	36.03	35.73	35.41	35.83	36.16	36.05	35.95
8	36.02	35.93	36.08	35.26	34.64	36.00	35.74	35.48	35.83	36.15	36.07	35.46
9	36.04	35.90	36.03	35.35	34.71	35.93	35.75	35.52	35.77	36.15	36.06	35.38
10	36.03	36.02	35.99	35.44	34.71	35.99	35.65	35.52	35.40	36.17	36.05	35.20
11	36.03	36.02	36.03	35.40	34.64	35.98	35.46	35.75	35.48	36.16	36.08	35.12
12	36.01	36.09	36.03	35.69	34.64	35.99	35.18	35.77	35.56	36.08	36.10	35.26
13	36.02	36.09	36.04	35.72	34.68	36.01	35.22	35.80	35.62	35.73	36.08	35.35
14	36.01	36.03	36.08	35.73	34.82	35.99	35.20	35.84	35.65	35.26	36.11	35.36
15	36.02	36.01	36.09	35.77	34.82	36.02	35.24	35.87	35.59	35.21	36.11	35.22
16	36.02	35.83	36.14	---	34.65	36.00	35.31	35.83	35.63	35.00	36.13	35.13
17	36.01	35.76	36.16	---	34.67	35.91	35.49	35.62	35.70	35.18	36.14	35.32
18	35.86	35.66	36.17	---	34.67	35.70	35.62	35.62	35.69	35.31	36.15	35.36
19	35.73	35.69	36.17	---	34.80	35.58	35.64	35.67	35.77	35.43	36.12	35.36
20	35.27	35.59	36.16	---	35.02	35.55	35.62	35.63	35.79	35.49	36.09	35.49
21	35.31	35.66	36.22	---	35.07	35.51	35.59	35.74	35.87	35.56	36.08	35.51
22	35.49	35.66	36.30	---	35.07	35.51	35.64	35.81	35.88	35.58	35.99	35.60
23	35.55	35.72	36.30	34.78	35.23	35.67	35.66	35.86	35.75	35.71	35.96	---
24	35.62	35.78	36.30	34.88	35.46	35.67	35.71	35.94	35.65	35.78	35.99	---
25	35.67	35.78	36.17	35.01	35.71	35.70	35.75	35.96	35.72	35.86	36.03	---
26	35.73	35.79	36.19	35.19	35.82	35.78	35.77	35.86	35.74	35.90	36.04	---
27	35.78	35.81	36.19	35.25	35.67	35.83	35.78	35.51	35.81	35.92	36.04	---
28	35.80	35.85	36.22	35.39	35.73	35.83	35.78	35.46	35.89	35.94	36.06	---
29	35.81	35.90	36.22	35.37	---	35.83	35.83	35.39	35.85	35.94	36.04	---
30	35.82	35.90	36.17	34.92	---	35.81	35.87	35.18	35.88	35.94	36.11	---
31	35.82	---	36.10	34.68	---	35.76	---	35.20	---	35.98	36.15	---
MEAN	35.85	35.87	36.10	35.26	34.91	35.82	35.60	35.70	35.68	35.80	36.07	35.60
MAX	36.04	36.09	36.30	35.77	35.82	36.03	35.87	36.10	35.89	36.17	36.15	36.25
MIN	35.27	35.59	35.83	34.68	34.43	35.51	35.18	35.18	35.37	35.00	35.96	35.12

WTR YR 1990 MEAN 35.69 HIGH 34.43 FEB 6 LOW 36.30 DEC 23, 24

WESTMORELAND COUNTY

402138079031802. Local number, WE 300.

LOCATION.--Lat 40°21'38", long 79°03'18", Hydroloric Unit 05010007, at State Game Land Number 42.
Owner: U.S. Geological Survey.
AQUIFER.--Shale of Clarion Formation of Middle Pennsylvanian age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in, depth 110 ft, cased to 22 ft, open hole.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 1,270 ft, from topographic map. Measuring point: Top of plywood cover, 3.05 ft above land-surface datum.
REMARKS.--None.
PERIOD OF RECORD.--February 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 13.49 ft below land-surface datum, May 20, 1989; lowest, 29.22 ft below land-surface datum, July 3, 1968.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.38	15.89	15.57	16.53	15.05	14.70	14.43	14.32	14.28	15.78	14.96	16.59
2	16.33	15.88	15.55	16.58	14.87	14.40	14.39	14.60	14.20	15.91	15.07	15.52
3	16.46	15.75	15.43	16.47	14.90	14.41	14.29	14.71	13.96	15.95	15.16	16.62
4	16.49	15.80	15.43	16.24	14.76	14.59	14.18	14.59	14.22	15.91	15.20	16.63
5	16.47	15.71	15.31	16.09	14.84	14.68	14.26	14.26	14.31	15.93	15.35	16.53
6	16.41	15.56	15.47	15.94	14.71	14.99	14.32	14.35	14.28	16.09	15.55	16.48
7	16.54	15.56	16.03	15.94	14.66	15.07	14.34	14.37	14.51	16.13	15.76	16.48
8	16.56	15.46	16.04	15.70	14.67	14.94	14.44	14.36	14.51	16.07	15.85	16.53
9	16.64	15.41	15.81	15.58	14.42	14.63	14.46	14.31	14.49	15.94	15.88	16.40
10	16.57	15.64	15.62	15.62	14.36	14.74	14.22	14.00	14.47	15.91	15.87	16.32
11	16.60	15.64	15.71	15.62	14.37	14.71	13.95	14.40	14.60	15.86	16.02	16.25
12	16.53	15.82	15.73	15.52	14.59	14.72	14.20	14.42	14.65	15.64	16.08	16.10
13	16.55	15.82	15.74	15.93	14.51	14.76	14.28	14.26	14.57	15.60	16.08	16.01
14	16.45	15.60	15.74	15.98	14.51	14.70	14.18	14.35	14.50	15.34	16.14	15.84
15	16.45	15.49	15.86	15.86	14.45	14.73	13.91	14.27	14.56	15.09	16.18	15.57
16	16.44	15.28	16.01	15.90	14.30	14.67	13.93	14.20	14.66	15.11	16.23	15.66
17	16.45	15.50	16.08	15.86	14.74	14.57	14.03	14.01	14.71	15.05	16.27	15.87
18	16.52	15.68	16.16	15.70	14.70	14.89	14.34	14.15	14.64	14.86	16.28	15.87
19	16.29	15.71	16.17	15.84	14.42	14.93	14.40	14.19	14.72	14.71	16.29	15.58
20	16.06	15.34	16.10	15.62	14.60	14.94	14.28	14.08	14.77	14.56	16.40	15.45
21	15.99	15.35	16.27	15.17	14.59	14.90	14.07	14.16	14.93	14.46	16.39	15.43
22	16.26	15.39	16.49	15.14	14.30	14.84	14.04	14.18	14.94	14.42	16.38	15.10
23	16.28	15.40	16.55	15.22	13.88	14.83	14.00	14.18	14.93	14.46	16.43	15.14
24	16.14	15.52	16.48	15.08	14.34	14.84	13.92	14.26	15.27	14.50	16.47	15.22
25	16.05	15.50	16.20	14.98	14.97	14.75	14.02	14.28	15.54	14.55	16.51	15.15
26	15.99	15.45	16.24	15.26	15.01	14.73	13.98	14.05	15.57	14.58	16.52	15.12
27	15.97	15.48	16.27	15.31	14.73	14.80	14.00	14.06	15.61	14.55	16.49	15.21
28	15.91	15.40	16.47	15.35	14.70	14.76	13.91	14.05	15.66	14.52	16.51	15.25
29	15.88	15.56	16.50	15.15	---	14.71	14.09	14.00	15.65	14.50	16.49	15.18
30	15.83	15.46	16.48	15.05	---	14.62	14.15	14.21	15.65	14.46	16.56	15.15
31	15.72	---	16.42	15.18	---	14.46	---	14.28	---	14.73	16.62	---
MEAN	16.30	15.57	16.00	15.66	14.61	14.74	14.17	14.26	14.78	15.20	16.06	15.81
MAX	16.64	15.89	16.55	16.58	15.05	15.07	14.46	14.71	15.66	16.13	16.62	16.63
MIN	15.72	15.28	15.31	14.98	13.88	14.40	13.91	14.00	13.96	14.42	14.96	15.10

WTR YR 1990 MEAN 15.27 HIGH 13.88 FEB 23 LOW 16.64 OCT 9

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INDEX--Continued

October 1, 1978

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

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

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

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