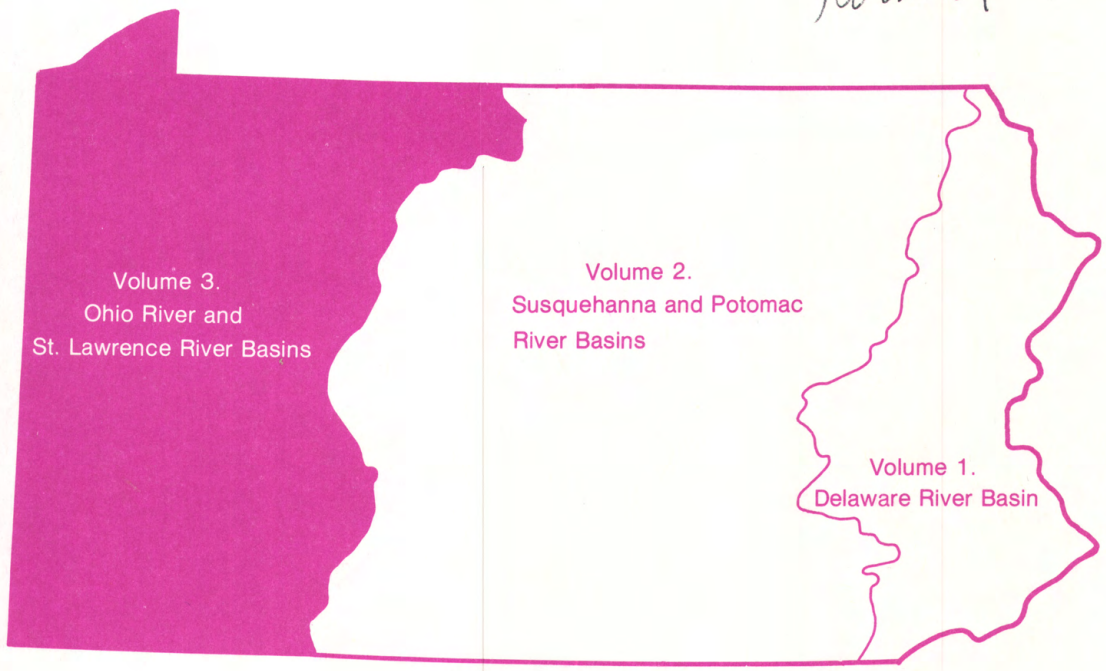
Water Resources Data Pennsylvania Water Year 1989

Volume 3. Ohio River and St. Lawrence River Basins



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT PA-89-3
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 1989

1988

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1989

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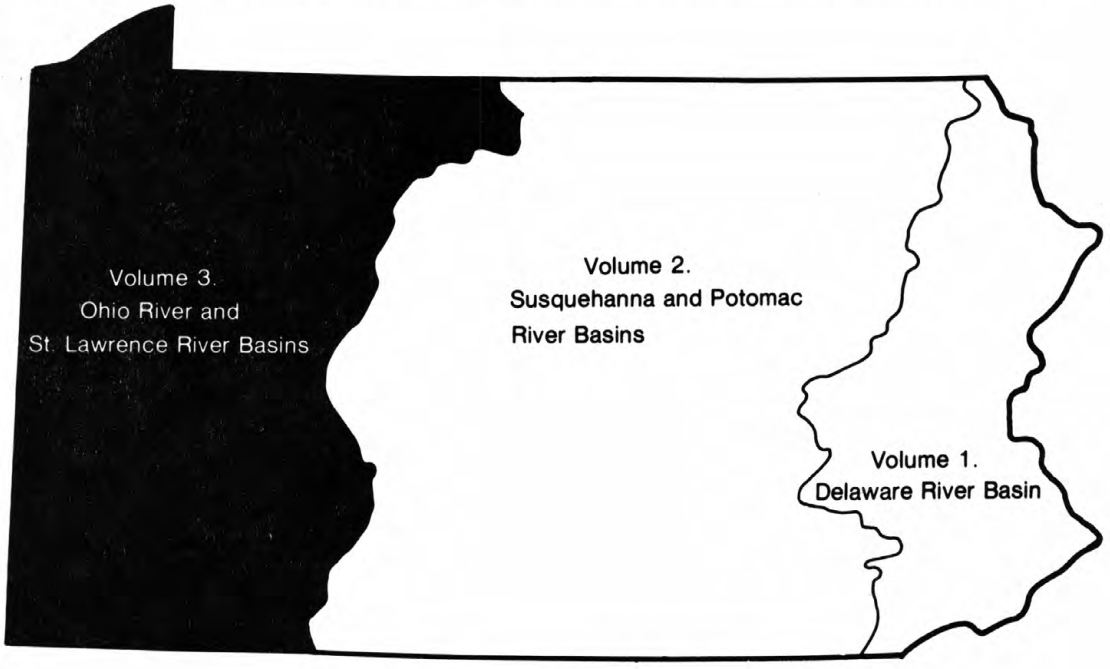
Water Resources Data Pennsylvania Water Year 1989

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-89-3
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

UNITED STATES DEPARTMENT OF THE INTERIOR

MANUEL LUJAN JR., Secretary

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

1990

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	Laurence R. Etchison	Curtis L. Schreffler
Gregory M. Wehner	Lonnie J. Fekula	Thomas Sinwell

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.

50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO. USGS/WRD/HD-90-311	2.	3. Recipient's Accession No.
4. Title and Subtitle Water Resources Data for Pennsylvania, Water Year 1989 Volume 3, Ohio River and St. Lawrence River Basins			5. Report Date August 1990 6.
7. Author(s) Joseph B. Lescinsky, Martin B. Coll, Jr., and Raymond W. Siwicki			8. Performing Organization Rept. No. USGS-WDR-PA-89-3
9. Performing Organization Name and Address U.S. Geological Survey Water Resources Division P.O. Box 1107 Harrisburg, Pennsylvania 17108			10. Project/Task/Work Unit No. 11. Contract(C) or Grant(G) No. (C) (G)
12. Sponsoring Organization Name and Address U.S. Geological Survey Water Resources Division P.O. Box 1107 Harrisburg, Pennsylvania 17108			13. Type of Report & Period Covered Annual Oct. 1, 1988 to Sept. 30, 1989 14.

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 1989 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

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages
No restriction on distribution. This report may be purchased from: National Technical Information Service, Springfield, VA 22161	UNCLASSIFIED	178
	20. Security Class (This Page) UNCLASSIFIED	22. Price

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OPTIONAL FORM 272 (4-77)
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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, 1989

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-89-3." 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 1989 water year was 112 percent of the median discharge during the 1951-80 reference period. The monthly mean streamflow was in the normal range in October through Feburary, April, and August, whereas the monthly mean streamflow was excessive in May through July and September. The monthly mean streamflow in March was deficient.

A comparison of the monthly and yearly mean discharge during the 1989 water year with that of the 1951-80 reference period for Oil Creek at Rouseville is shown in figure 1.

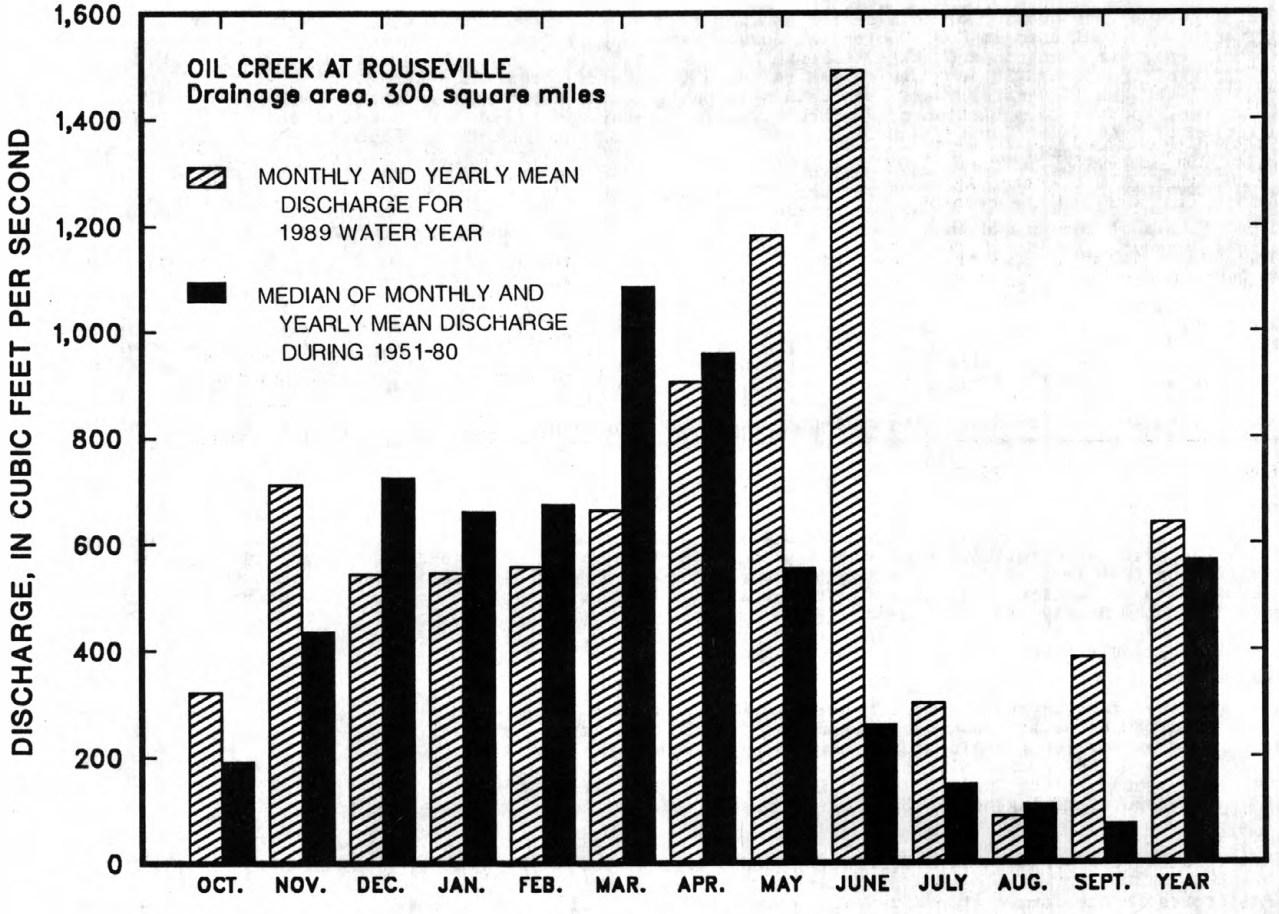

Figure 1.--Comparison of discharge at Oil Creek at Rouseville during 1989 water year with median discharge for period 1951-80.

Ground Water

During the 1989 water year, ground-water levels reached annual highs at most observation wells during April and May. Water levels were at or above normal levels over most of the upper Ohio River basin in Pennsylvania. At most observation wells, ground-water levels reached annual lows during September 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, and above-normal water levels. These maps are based on water-level fluctuations in 15 key wells. The water levels of the 1989 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, except for the southwestern part of the Ohio River Basin, which was below normal. During the spring, the same genereal conditions prevailed, with the exception of Somerset County, which was much below normal. In the summer, water levels declined to normal or above-normal range at 14 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 0.66, 0.61, and 0.60, respectively. The dissolved-oxygen saturation levels generally were the highest on the Allegheny River at New Kensington, with a range of 103 to 114 percent of saturation and an average of 108 percent of saturation. The dissolved-oxygen saturation levels were lowest on the Beaver River at Beaver Falls,with a range of 72 to 98 percent of saturation and an average of 88 percent of saturation. The saturation levels on the Monongahela River at Braddock ranged from 64 to 122 percent of saturation, with an average of 93 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	7.6	7.0	7.3	264	170	238	232	111	157
Monongahela River at Braddock	7.5	7.0	7.2	305	230	262	177	152	161
Beaver River at Beaver Falls	8.1	7.7	7.8	510	330	412	288	214	248

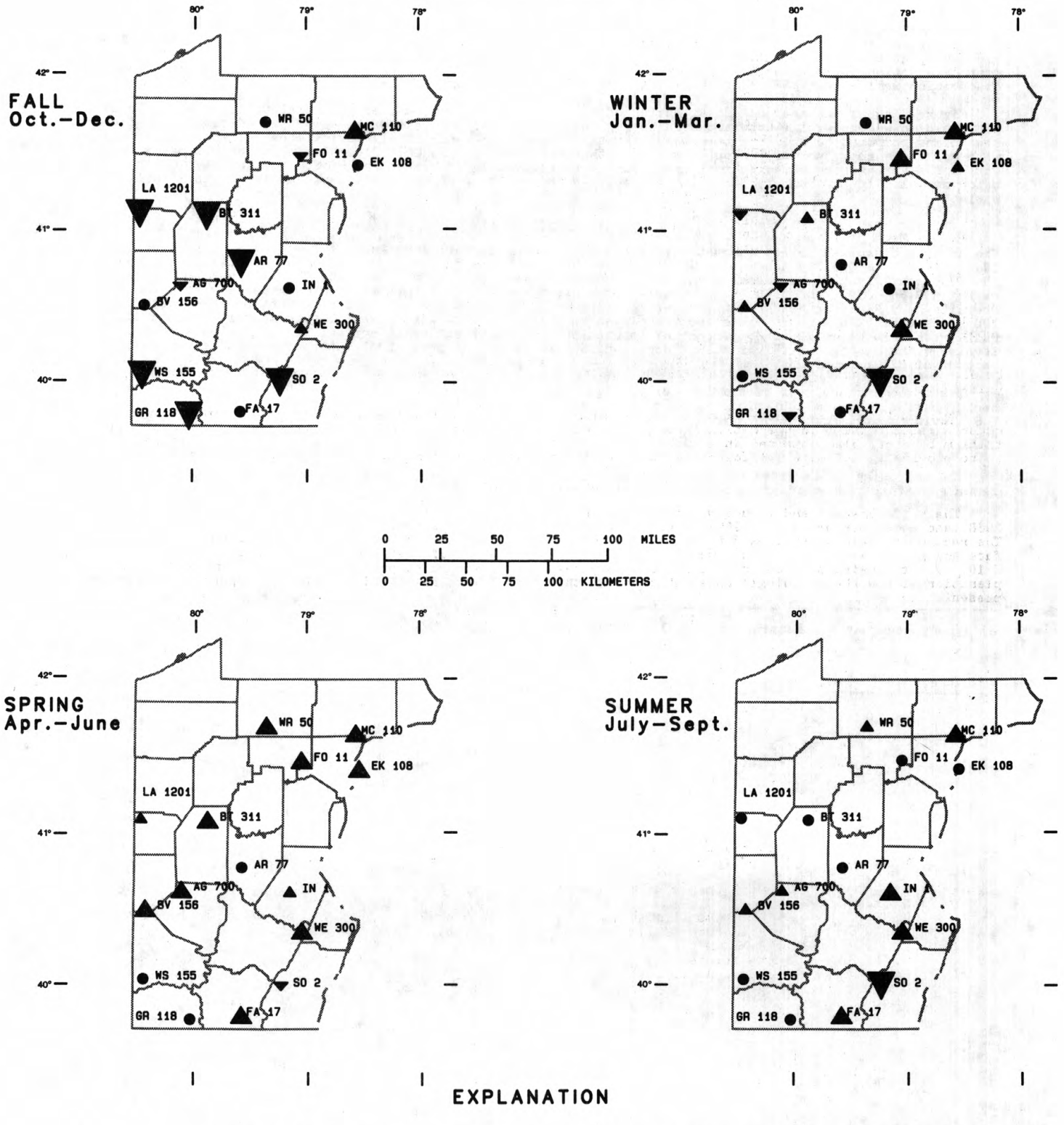

Figure 2.--Relation between mean 1989 seasonal water levels and long-term water levels.

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 1989 water year that began October 1, 1988, and ended September 30, 1989. 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 7-10. 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.

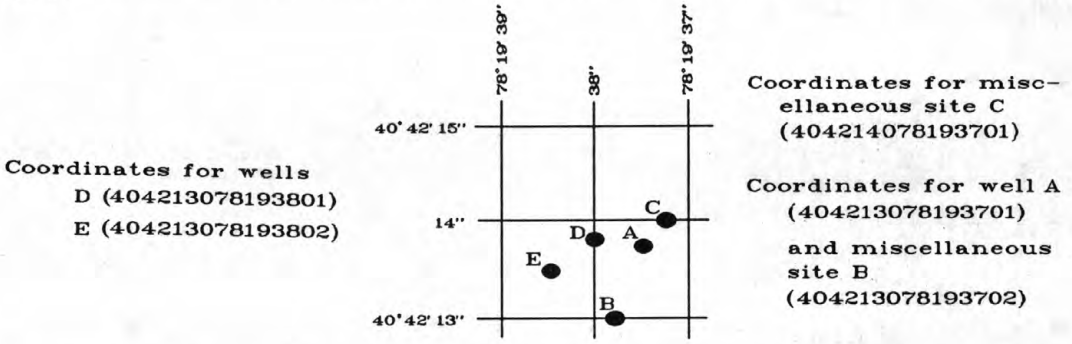

Figure 3.--System for numbering wells and miscellaneous sites (latitude and longitude).

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 figure 4.

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 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 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 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 REMARK 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 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 hour 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 (CaCO3).

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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 repre-ents 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.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

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

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

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

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

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

2-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.

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-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.

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

5-A3. *Methods for 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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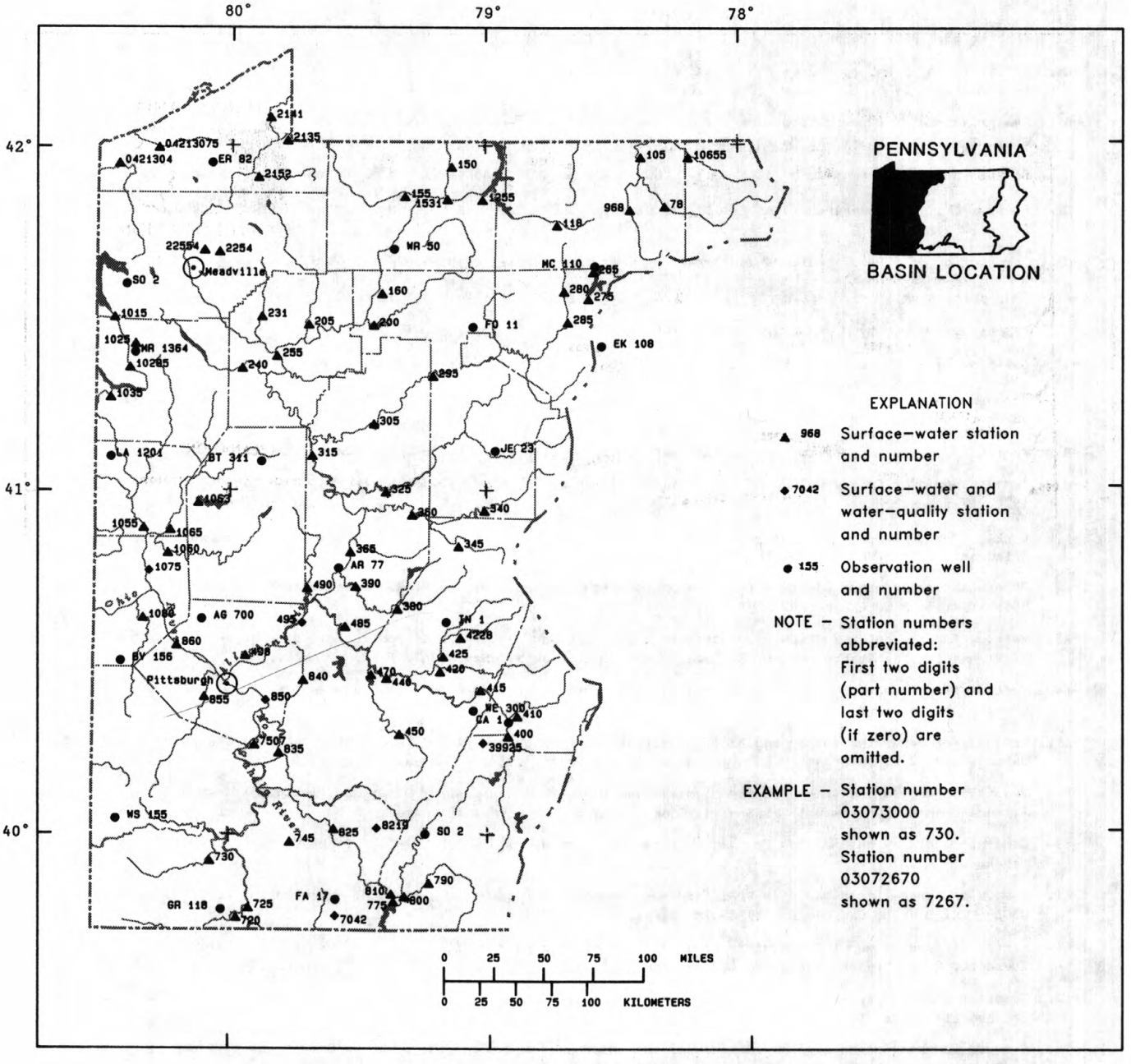

Figure 4.--Location of data-collection stations and observation wells.

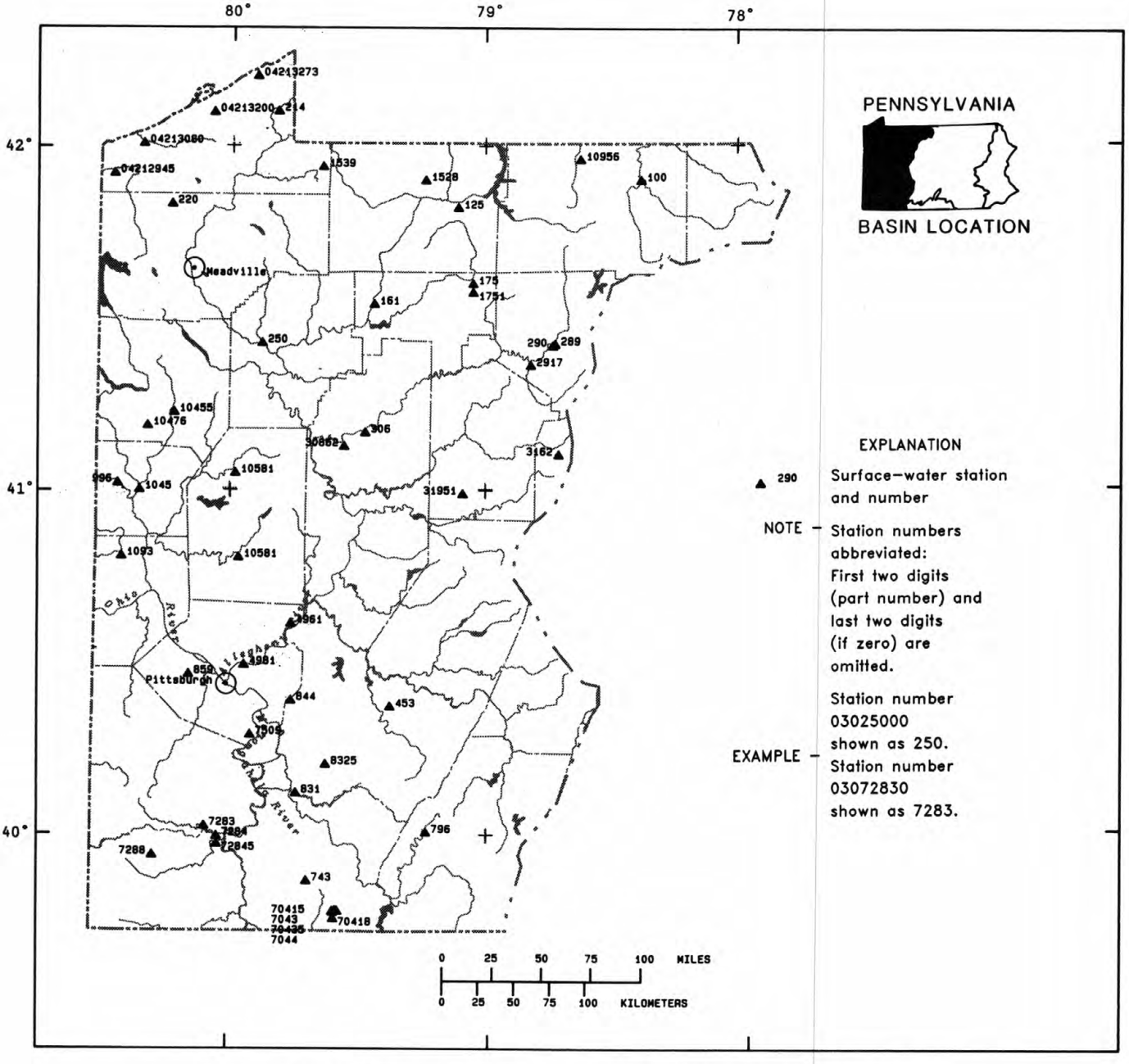

Figure 5.--Location of partial-record data-collection stations.

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.--15 years, 462 ft^3/s, 25.30 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)
Mar. 31	1900	4,370	9.97	June 16	0100	3,930	9.70
May 11	2100	2,970	8.53	June 21	0600	*9,060	*13.59

Minimum discharge, 20 ft^3/s, Oct. 1, 2 , 5, 6, 7, 8, gage height, 1.47 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	60	180	479	358	296	3450	210	241	321	79	32
2	20	59	165	424	377	244	2240	685	350	263	75	43
3	21	57	150	375	421	241	1810	627	277	228	70	35
4	21	59	144	307	386	225	1620	604	458	211	62	29
5	20	112	133	294	401	318	1690	570	369	230	131	27
6	20	290	129	322	e350	371	1530	652	416	193	83	25
7	20	199	124	281	e310	235	1310	1490	353	167	74	24
8	20	182	119	384	e280	224	1040	1590	316	152	65	24
9	21	184	108	350	e250	216	860	1460	313	134	59	25
10	22	182	97	301	e220	196	699	2050	377	125	55	25
11	36	202	91	279	e200	189	578	2800	291	116	51	24
12	48	179	81	e250	e190	190	496	2660	267	104	50	24
13	39	218	e80	e220	e180	165	471	1980	513	100	49	22
14	32	270	e74	e210	e210	172	430	1470	890	90	46	36
15	27	234	e68	e190	e250	221	381	1270	2430	83	42	138
16	25	219	e64	e180	e310	252	353	1240	3730	108	43	136
17	22	215	e60	e170	e280	229	320	1100	2910	92	43	160
18	73	191	e56	e160	e250	343	320	974	1910	78	38	93
19	100	170	e54	e150	e230	373	300	843	1370	76	36	71
20	62	254	e58	e140	e210	342	277	715	3550	202	47	60
21	49	443	e130	e135	e500	351	266	648	8440	351	65	54
22	76	368	152	e130	905	320	253	518	5710	176	67	61
23	130	333	139	e125	726	297	239	463	2980	150	80	216
24	114	305	252	e120	585	400	227	468	1780	122	62	172
25	113	274	508	e115	517	667	219	384	1240	104	47	121
26	92	251	437	e210	467	721	215	407	893	95	40	103
27	80	233	422	498	407	738	202	349	706	165	36	87
28	79	232	638	338	342	951	190	298	606	123	34	76
29	85	211	665	315	---	1450	183	261	464	100	34	70
30	72	189	589	334	---	2540	177	261	375	88	39	65
31	64	---	550	349	---	4150	---	249	---	82	35	---
TOTAL	1623	6375	6517	8135	10112	17627	22346	29296	44525	4629	1737	2078
MEAN	52.4	212	210	262	361	569	745	945	1484	149	56.0	69.3
MAX	130	443	665	498	905	4150	3450	2800	8440	351	131	216
MIN	20	57	54	115	180	165	177	210	241	76	34	22
CFSM	.21	.86	.85	1.06	1.46	2.29	3.00	3.81	5.98	.60	.23	.28
IN.	.24	.96	.98	1.22	1.52	2.64	3.35	4.39	6.68	.69	.26	.31

CAL YR 1988 TOTAL 98662 MEAN 270 MAX 3870 MIN 13 CFSM 1.09 IN. 14.80
WTR YR 1989 TOTAL 155000 MEAN 425 MAX 8440 MIN 20 CFSM 1.71 IN. 23.25

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.--15 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)
Mar. 30	2330	3,670	9.84	June 21	0315	*7,420	*12.74
June 16	0130	3,680	9.85				

Minimum discharge, 13 ft^3/s, Sept. 7, 14, gage height, 1.83 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	50	155	372	347	228	2400	141	279	221	33	18
2	25	49	140	323	342	210	1430	712	288	188	34	26
3	25	46	129	282	381	199	1320	434	238	160	31	23
4	25	67	123	242	321	186	1280	382	381	187	29	17
5	25	218	113	e200	e280	285	1260	360	260	426	107	15
6	25	478	107	e260	e250	271	982	468	277	221	50	14
7	25	219	104	e370	e220	232	806	1180	228	173	39	14
8	25	187	99	e500	e200	183	643	1000	194	151	32	18
9	25	202	87	348	e190	175	539	883	207	127	29	20
10	26	187	81	258	e180	150	449	1520	284	115	27	17
11	44	221	e76	e220	e170	140	378	2060	196	104	25	16
12	41	168	e72	e190	e160	142	322	1640	180	88	25	15
13	36	234	e66	e180	e160	124	316	1170	516	84	24	14
14	33	291	e62	e170	e230	129	297	951	874	72	24	16
15	29	214	e58	e160	e360	195	257	827	2390	65	22	103
16	28	189	e56	e150	e490	179	237	1620	2740	63	23	87
17	27	183	e54	e140	331	155	215	1090	1820	72	21	111
18	127	156	e52	e135	e240	294	224	859	1110	56	19	51
19	120	139	e50	e130	e220	268	209	657	771	57	19	36
20	61	270	e70	e120	e200	229	185	544	2810	114	24	29
21	46	509	e140	e115	e400	240	173	572	5720	117	39	25
22	66	343	172	e110	766	222	163	420	3040	76	35	29
23	93	283	172	e105	540	215	151	403	2100	72	36	216
24	92	253	408	e105	446	356	143	504	1190	55	25	148
25	103	227	582	e100	406	558	137	386	823	47	20	73
26	73	210	399	e270	355	492	140	499	595	42	18	52
27	59	196	353	576	306	475	133	423	503	50	16	41
28	65	211	709	346	258	696	122	348	510	48	16	35
29	82	187	626	315	---	1130	119	302	339	38	17	31
30	62	165	490	352	---	2100	116	309	265	34	22	29
31	53	---	489	350	---	3310	---	278	---	31	19	---
TOTAL	1590	6352	6294	7494	8749	13768	15146	22942	31128	3354	900	1339
MEAN	51.3	212	203	242	312	444	505	740	1038	108	29.0	44.6
MAX	127	509	709	576	766	3310	2400	2060	5720	426	107	216
MIN	24	46	50	100	160	124	116	141	180	31	16	14
CFSM	.32	1.32	1.27	1.51	1.95	2.78	3.16	4.63	6.48	.68	.18	.28
IN.	.37	1.48	1.46	1.74	2.03	3.20	3.52	5.33	7.24	.78	.21	.31

CAL YR 1988 TOTAL 70848 MEAN 194 MAX 1840 MIN 12 CFSM 1.21 IN. 16.47
WTR YR 1989 TOTAL 119056 MEAN 326 MAX 5720 MIN 14 CFSM 2.04 IN. 27.68

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.--50 years, 947 ft^3/s, 23.38 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,400 ft^3/s, June 23, 1972, gage height, 29.05 ft from flood-mark, 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)
Apr. 1	1700	7,340	15.26	June 17	1200	6,440	14.43
May 12	2100	5,580	13.59	June 22	0800	*13,900	*19.49

Minimum daily discharge, 45 ft^3/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e45	150	458	e1000	941	737	7130	417	752	803	156	81
2	e47	144	432	e860	976	571	6710	1440	1150	668	154	87
3	e49	140	400	e760	976	615	5210	1580	1020	577	147	99
4	e49	154	379	e660	911	559	4250	1390	1480	513	137	85
5	e47	261	348	e660	e860	634	3880	1250	1280	846	187	74
6	e47	922	332	e860	e780	954	3560	1340	1120	706	246	69
7	e47	687	319	e1100	e700	567	3000	2670	1000	518	185	66
8	e48	505	308	e1300	e600	646	2320	3280	817	463	148	68
9	e52	487	287	1650	e500	528	1870	3190	743	403	130	72
10	e70	470	254	966	e450	502	1580	3430	1030	363	121	75
11	e96	541	225	e800	e460	472	1330	4380	816	337	112	73
12	e140	497	e210	e700	e470	462	1140	5380	670	298	106	71
13	122	459	e190	e620	e480	415	1040	5220	1320	273	106	66
14	104	702	e160	e540	e490	422	1050	4260	1610	253	111	64
15	89	614	e170	e480	e540	506	909	3220	3530	230	104	151
16	80	530	e160	e440	e760	639	841	2980	4730	214	98	274
17	74	503	e150	e400	e680	551	762	2990	6310	259	99	415
18	101	473	e145	e380	e540	712	748	2460	5770	217	92	273
19	312	418	e140	e360	e520	1010	721	1980	4320	198	85	182
20	231	458	e150	e340	e500	813	665	1670	4060	308	88	142
21	153	1120	e360	e330	e800	812	623	1580	8500	655	106	122
22	136	1070	738	e320	e2440	769	595	1320	13500	417	143	114
23	227	841	553	e300	1800	720	557	1120	11000	339	155	381
24	267	743	679	e290	1370	778	529	1280	7600	282	149	540
25	266	666	1470	e280	1200	1450	504	1110	4950	233	112	348
26	245	604	1220	e380	1140	1500	492	1100	2820	208	92	246
27	200	561	1040	1930	983	1500	489	1180	1740	221	83	205
28	178	546	1330	1400	822	1890	451	939	1630	255	79	172
29	204	550	1940	984	---	2900	433	814	1250	209	78	152
30	206	489	1470	875	---	3640	421	753	947	179	81	139
31	169	---	e1250	957	---	5010	---	772	---	163	87	---
TOTAL	4101	16305	17267	22922	23689	33284	53810	66495	97465	11608	3777	4906
MEAN	132	543	557	739	846	1074	1794	2145	3249	374	122	164
MAX	312	1120	1940	1930	2440	5010	7130	5380	13500	846	246	540
MIN	45	140	140	280	450	415	421	417	670	163	78	64
CFSM	.24	.99	1.01	1.34	1.54	1.95	3.26	3.90	5.91	.68	.22	.30
IN.	.28	1.10	1.17	1.55	1.60	2.25	3.64	4.50	6.59	.79	.26	.33

CAL YR 1988 TOTAL 217160 MEAN 593 MAX 4610 MIN 25 CFSM 1.08 IN. 14.69
WTR YR 1989 TOTAL 355629 MEAN 974 MAX 13500 MIN 45 CFSM 1.77 IN. 24.05

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

AVERAGE DISCHARGE.--86 years, 2,778 ft^3/s, 23.46 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 Sept. 10, 11, 1971.

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

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 1	0900	17,100	9.98	June 23	0700	*35,800	*15.44
May 12	0100	17,900	10.24				

Minimum daily discharge, 171 ft^3/s, Oct. 3, 4, 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e185	624	1230	3640	3590	e1700	16800	1020	2290	2840	479	250
2	e178	581	1160	3080	3720	e1500	15600	2430	3210	2290	460	304
3	e171	551	1070	2590	3340	e1400	14300	4240	3290	1900	449	268
4	e171	685	1020	2000	2760	e1350	13500	3640	4460	1620	478	254
5	e171	1160	965	e1350	2500	e1700	12200	3230	4600	1780	832	236
6	e172	3790	909	e1200	e2200	e2700	10300	3190	3720	2110	728	216
7	172	3130	881	e1400	e1800	e1800	8430	5600	3230	1580	660	204
8	172	2070	852	e2300	e1400	e1400	6820	8010	2610	1280	533	211
9	172	1870	804	3480	e1100	e1400	5550	8580	2230	1120	464	211
10	183	1740	744	2610	e1100	1380	4700	10100	3540	1000	415	204
11	677	1990	e630	2030	e1150	1320	3980	16200	3120	918	386	209
12	1120	1960	e600	1940	e1200	1310	3440	16900	2330	841	361	210
13	900	1780	e640	1840	e1200	1170	3070	14000	3750	779	345	200
14	651	1990	e640	1390	e1250	1180	3030	11100	4780	733	357	212
15	516	1970	e680	1520	e1400	2180	2720	9000	8930	689	346	797
16	436	1610	e700	1610	e1600	3020	2430	9170	12200	643	330	841
17	382	1450	e680	1360	e1500	2470	2210	8420	14900	627	320	1580
18	627	1320	e660	1240	e1400	4250	2180	7030	14700	660	295	1320
19	987	1160	e640	1220	e1300	5340	2100	5720	10800	644	278	816
20	957	1200	e680	1190	e1300	3890	1890	4750	11500	1260	271	596
21	861	3050	e2400	842	e2250	3290	1710	4410	23400	1690	311	485
22	786	3620	3020	904	6530	2870	1590	3900	24500	1440	325	434
23	970	2740	2440	1000	5460	2530	1470	3270	31700	1200	377	1680
24	1110	2210	2570	1040	3850	2620	1370	3730	23800	959	380	1960
25	1250	1860	4650	971	3000	4090	1290	3390	14700	808	349	1330
26	1070	1620	4290	2510	e2800	4680	1250	3150	8750	681	294	900
27	872	1470	3360	6610	e2500	4610	1230	3320	5760	610	259	712
28	779	1450	4790	4710	e2100	5680	1150	2760	6580	590	239	593
29	813	1450	7100	3590	---	9680	1070	2280	5070	592	232	520
30	758	1340	5270	3350	---	11700	1040	2110	3610	537	233	470
31	699	---	4080	3510	---	16700	---	2090	---	500	231	---
TOTAL	18968	53441	60155	68027	65300	110910	148420	186740	268060	34921	12017	18223
MEAN	612	1781	1940	2194	2332	3578	4947	6024	8935	1126	388	607
MAX	1250	3790	7100	6610	6530	16700	16800	16900	31700	2840	832	1960
MIN	171	551	600	842	1100	1170	1040	1020	2230	500	231	200
CFSM	.38	1.11	1.21	1.36	1.45	2.22	3.08	3.75	5.56	.70	.24	.38
IN.	.44	1.24	1.39	1.57	1.51	2.57	3.43	4.32	6.80	.81	.28	.42

CAL YR	1989	TOTAL	679218	MEAN	1856	MAX	12600	MIN	142	CFSM	1.15	IN. 15.71
WTR YR	1990	TOTAL	1045182	MEAN	2864	MAX	31700	MIN	171	CFSM	1.78	IN. 24.18

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 telemeter at station.

AVERAGE DISCHARGE.--15 years, 160 ft^3/s, 22.01 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)
Mar. 31	1945	1,760	8.88	June 16	0030	1,510	8.46
May 11	2230	1,400	8.28	June 21	0700	*3,580	*11.45

Minimum daily discharge, 3.2 ft^3/s, Sept. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e7.2	e13	34	e130	e140	100	1440	65	81	128	25	7.5
2	e7.2	e13	32	e115	e135	90	873	e370	196	108	24	10
3	e7.2	e12	29	e100	e145	77	668	e320	200	e100	22	8.5
4	e7.4	e11	e27	e92	e140	73	600	292	405	e150	20	6.9
5	e7.4	20	e24	e120	e125	100	629	261	e400	e220	28	6.2
6	e7.4	49	e22	e110	e110	103	573	e620	338	e120	22	6.0
7	e7.2	31	e20	e100	e100	91	494	e560	267	66	21	5.9
8	e7.2	27	e19	e140	e94	91	401	523	217	65	19	6.1
9	e7.0	27	e17	123	e92	89	330	514	199	53	17	e9.0
10	e7.2	27	e16	107	e90	62	270	698	232	48	16	e7.0
11	e13	36	e15	e94	e86	60	223	1250	177	45	14	5.9
12	e11	31	e14	e80	e84	60	190	1240	160	42	14	3.5
13	e9.8	41	e13	e74	e80	54	180	831	280	40	14	3.2
14	e8.6	47	e12	e64	e90	54	165	590	366	37	14	4.7
15	e8.2	40	e12	e58	e130	e110	145	486	943	34	13	35
16	e8.0	37	e11	e54	e200	79	136	491	1440	34	12	27
17	e7.8	38	e11	e50	e150	77	126	430	1090	33	12	33
18	e33	33	e11	e48	e140	e160	129	383	681	29	11	17
19	e31	28	e13	e43	e130	e145	120	325	493	28	10	12
20	e20	42	e17	e40	e120	135	112	274	1140	70	e19	9.5
21	e13	90	e40	e39	e210	143	107	239	3270	110	15	8.0
22	e16	76	36	e38	e220	132	102	194	2280	61	13	8.1
23	e22	69	36	e36	199	121	95	172	1150	50	14	37
24	20	62	61	e36	190	141	88	156	654	41	13	29
25	e22	54	129	e35	220	197	83	128	469	36	12	20
26	17	48	134	e90	147	223	80	126	344	32	10	17
27	15	46	128	e220	132	242	73	107	279	35	9.2	13
28	e18	46	179	e130	113	340	66	88	256	33	8.5	11
29	e23	41	199	e130	---	555	62	75	195	29	8.2	10
30	e19	37	e170	e135	---	913	58	85	154	27	8.7	8.9
31	e16	---	e150	e140	---	1600	---	79	---	26	7.7	---
TOTAL	423.8	1172	1631	2771	3812	6417	8618	11972	18356	1930	466.3	385.9
MEAN	13.7	39.1	52.6	89.4	136	207	287	386	612	62.3	15.0	12.9
MAX	33	90	199	220	220	1600	1440	1250	3270	220	28	37
MIN	7.0	11	11	35	80	54	58	65	81	26	7.7	3.2
CFSM	.14	.40	.53	.91	1.38	2.10	2.91	3.91	6.20	.63	.15	.13

CAL YR 1988 TOTAL 36116.9 MEAN 98.7 MAX 1190 MIN 7.0 CFSM 1.00
WTR YR 1989 TOTAL 57955.0 MEAN 159 MAX 3270 MIN 3.2 CFSM 1.61

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.--24 years, 78.0 ft^3/s, 22.83 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.

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)
Mar. 30	2000	1,390	5.76	June 15	1600	1,070	5.33
May 10	2200	620	4.55	June 20	2000	*3,400	*7.76
June 14	1800	720	4.75	June 23	0200	751	4.81

Minimum discharge, 6.7 ft^3/s, Sept 6, 7, gage height, 1.82 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	19	42	113	90	62	521	43	78	59	12	8.5
2	12	18	38	e88	92	73	335	136	85	51	12	9.8
3	13	17	35	e70	93	55	345	81	73	44	12	8.3
4	11	31	35	e54	82	51	332	67	119	64	12	7.3
5	13	96	32	e44	e68	83	353	64	76	150	18	7.1
6	15	118	31	e44	e60	74	247	96	68	76	13	6.9
7	15	63	30	e47	e54	66	193	256	58	55	12	7.5
8	14	54	e28	e100	e48	72	155	228	51	47	12	12
9	14	63	e27	95	e45	56	128	211	66	41	10	9.6
10	15	56	e26	101	e42	59	109	445	98	37	9.6	8.7
11	28	55	e25	81	e41	40	92	569	63	34	9.3	9.3
12	23	43	e23	67	e40	40	81	413	65	31	9.3	8.6
13	22	64	e22	e60	e38	39	79	272	171	29	9.1	8.2
14	19	70	e22	e56	e50	38	76	223	330	26	12	8.0
15	18	51	e21	e52	e70	61	66	224	717	24	9.3	14
16	19	45	e20	e50	121	55	60	396	595	23	10	21
17	20	43	e19	e48	88	46	53	229	450	23	9.6	30
18	42	39	e18	e46	e74	87	58	170	269	21	8.6	21
19	32	36	e18	e45	e66	78	51	141	184	25	8.2	14
20	22	74	e22	e44	e60	62	45	122	1350	36	8.3	11
21	18	115	e122	e43	e210	61	42	137	1130	28	11	9.9
22	25	88	87	e40	198	59	39	97	514	24	10	15
23	31	68	60	e40	134	58	36	112	498	22	13	91
24	30	59	e108	e39	106	78	35	153	276	19	11	50
25	28	53	159	e42	94	110	33	106	189	17	9.0	26
26	24	50	120	e88	91	96	34	166	140	15	8.2	19
27	20	48	107	127	80	92	32	127	138	15	7.8	17
28	27	54	216	84	78	160	30	103	142	15	7.8	14
29	32	51	181	77	---	299	29	89	99	14	8.1	13
30	25	44	152	86	---	725	28	85	71	13	9.0	12
31	20	---	147	89	---	852	---	79	---	12	7.8	---
TOTAL	659	1685	1993	2060	2313	3787	3717	5640	8163	1090	319.0	497.7
MEAN	21.3	56.2	64.3	66.5	82.6	122	124	182	272	35.2	10.3	16.6
MAX	42	118	216	127	210	852	521	569	1350	150	18	91
MIN	11	17	18	39	38	38	28	43	51	12	7.8	6.9
CFSM	.46	1.21	1.39	1.43	1.78	2.63	2.67	3.92	5.86	.76	.22	.36
IN.	.53	1.35	1.60	1.65	1.85	3.04	2.98	4.52	6.54	.87	.26	.40

CAL YR 1988 TOTAL 19198.5 MEAN 52.5 MAX 439 MIN 4.3 CFSM 1.13 IN. 15.39
WTR YR 1989 TOTAL 31923.7 MEAN 87.5 MAX 1350 MIN 6.9 CFSM 1.88 IN. 25.59

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.--54 years, 3,827 ft^3/s, 23.84 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, 21,600 ft^3/s, June 26, gage height, 13.71 ft; minimum daily, 678 ft^3/s, Dec. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1540	1420	2100	10200	8170	2820	2960	1190	3820	20100	2370	1220
2	1460	1410	2910	10000	8190	2820	7240	2000	3830	20000	2360	1190
3	1290	1420	3400	7600	6980	2810	6810	4140	3800	19700	2030	1210
4	1150	1410	3390	4830	4130	2790	5610	5290	3860	19500	1810	1180
5	1280	1420	3880	3010	2100	2820	9560	5000	5080	16500	1810	1340
6	1390	1420	4120	1370	974	3230	14300	4590	6070	12500	1810	1550
7	1390	2140	4100	1380	709	3540	16400	4620	6080	9940	1790	1630
8	1390	3270	4130	1390	709	3080	16400	7050	5920	7830	1650	1620
9	1380	3560	3720	2670	724	2400	16400	10200	4770	5090	1540	1500
10	1390	3520	2660	4090	1130	1710	16200	8980	3730	2920	1540	1370
11	1400	3510	1300	3340	1410	1420	18200	7460	4250	1970	1380	1460
12	1410	3530	678	2750	1420	1420	19300	9690	4000	1460	1270	1550
13	1400	3550	682	2760	1420	1430	15800	13900	5040	1160	1280	1570
14	983	2350	687	2750	1430	1430	11100	18000	6030	1040	1430	1540
15	683	709	688	2740	1450	1010	7530	19200	4190	1040	1520	1560
16	683	963	680	2740	1450	712	6350	19300	3270	1030	1520	1530
17	688	2930	687	2090	2600	723	6450	19200	6680	1530	1510	1540
18	695	4750	679	965	3570	725	6430	19100	9320	1900	1500	1560
19	691	5040	682	689	3490	723	6650	19200	12200	1900	1510	1580
20	692	5020	681	706	3500	731	6390	16900	10800	1900	1320	1590
21	697	5450	694	695	3610	732	5810	13100	5000	2240	1240	1580
22	693	7120	1430	691	5340	735	5510	9720	3120	2500	1260	1330
23	688	8230	1240	691	7610	733	4970	7790	11900	2490	1240	860
24	1110	7390	690	693	8190	729	3650	6420	20600	2480	1220	1280
25	1410	6830	1520	688	8240	739	2210	6330	20600	2470	1220	1830
26	1410	6830	3580	701	6430	740	1510	4780	20500	2450	1200	1990
27	1410	4500	5000	1790	4620	739	1390	3800	20500	2440	1190	1970
28	1410	2110	4910	2790	3380	1220	1400	3750	20500	2440	1230	1970
29	1420	2100	6460	2790	---	1520	1400	3800	20100	2430	1220	1970
30	1410	2110	9060	4500	---	1080	1400	3820	20100	2410	1220	1950
31	1410	---	10100	7030	---	785	---	3870	---	2380	1190	---
TOTAL	36053	106012	86538	91129	102976	48096	245330	282190	275660	175740	46380	46020
MEAN	1163	3534	2792	2940	3678	1551	8178	9103	9189	5669	1496	1534
MAX	1540	8230	10100	10200	8240	3540	19300	19300	20600	20100	2370	1990
MIN	683	709	678	688	709	712	1390	1190	3120	1030	1190	860
†	-104	-608	+255	+377	-158	+3770	-911	-34.2	+3300	-3710	-914	-422
MEAN‡	1059	2926	3047	3317	3520	5321	7267	9069	12490	1959	582	1112
CFSM‡	.48	1.34	1.40	1.52	1.61	2.44	3.33	4.16	5.73	.90	.27	.51
IN.‡	.55	1.50	1.61	1.75	1.68	2.81	3.72	4.80	6.39	1.04	.31	.57

CAL YR 1988 TOTAL 951163 MEAN 2599 MAX 10700 MIN 602 ADJ +89.5 MEAN‡ 2688 CFSM‡ 1.23 IN.‡ 16.76
WTR YR 1989 TOTAL 1542124 MEAN 4225 MAX 20600 MIN 678 ADJ +69.2 MEAN‡ 4294 CFSM‡ 1.97 IN.‡ 26.73

† 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.--Records good except for estimated daily discharges, which are fair. 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.--50 years, 1,522 ft^3/s, 25.33 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, 6,370 ft^3/s, Apr. 6, gage height, 7.74 ft; minimum daily, 170 ft^3/s, Oct. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	193	1570	1390	2380	2670	1210	4970	505	1650	750	308	201
2	184	1390	1280	2000	2480	1090	5050	1040	1970	603	254	216
3	179	1300	1200	1690	2280	1040	5530	1650	1870	512	238	210
4	175	1380	1240	1420	1930	1110	5930	1560	2830	462	238	194
5	170	1740	1190	1220	1480	1970	6240	1170	2360	642	337	188
6	172	2490	1100	1170	e1150	2450	6330	958	1910	663	364	183
7	186	2360	990	1090	e960	2070	6090	1600	1510	497	300	177
8	200	2220	912	1740	e820	1570	5640	2890	1170	417	264	176
9	202	2190	861	2360	e740	1350	5070	3830	1080	367	245	172
10	213	2170	e840	2100	e840	1200	4350	4550	1570	342	215	176
11	806	2410	e780	1810	e1000	1120	3550	5590	1580	320	190	181
12	1910	2430	e740	1580	e900	1120	2760	5890	1300	310	183	183
13	1750	2530	e720	e1450	e820	1080	2240	5970	1760	305	183	180
14	1240	2590	e720	e1300	e920	1000	1980	5820	2040	291	189	204
15	836	2300	e700	e1150	e1400	1350	1770	5600	2630	277	218	937
16	594	1990	e680	e1050	2000	1880	1660	5620	2240	263	229	717
17	462	1740	e660	e960	1820	1700	1570	5190	3370	273	219	1000
18	721	1550	e660	e900	1500	2040	1540	4570	3270	281	215	808
19	2360	1380	e780	e860	1310	2880	1560	3800	2690	270	193	544
20	2780	1390	e900	e840	1210	2930	1320	2920	3550	311	174	400
21	2750	2200	2570	e800	1920	2660	1000	2320	4850	748	185	320
22	2380	2550	3000	e780	3150	2240	883	1980	4470	833	216	285
23	2350	2370	3120	e800	2920	1960	810	1750	4400	737	222	654
24	2530	2040	3360	e860	2450	1870	753	2090	3960	543	226	796
25	2560	1690	3450	e940	1870	2100	603	2050	3340	406	218	668
26	2280	1450	3240	e1700	1570	2030	536	2170	2530	353	216	509
27	1980	1320	2840	3760	1410	1780	531	2350	1980	313	218	394
28	1840	1310	3110	3510	1280	2310	513	2130	2130	314	218	329
29	1960	1450	3460	3360	---	3840	482	1800	1570	323	218	289
30	1960	1460	3180	3070	---	4130	481	1560	1020	326	216	267
31	1800	---	2820	2830	---	4790	---	1550	---	321	208	---
TOTAL	39723	56960	52493	51480	44800	61870	81742	92473	72600	13373	7117	11558
MEAN	1281	1899	1693	1661	1600	1996	2725	2983	2420	431	230	385
MAX	2780	2590	3460	3760	3150	4790	6330	5970	4850	833	364	1000
MIN	170	1300	660	780	740	1000	481	505	1020	263	174	172
†	+144	-110	+52.2	-15.2	-101	+241	-18.0	+4.4	-71.9	-43.6	-76.1	-42.7
MEAN‡	1425	1789	1745	1646	1499	2237	2707	2987	2348	387	154	342
CFSM‡	1.75	2.19	2.14	2.02	1.84	2.74	3.32	3.66	2.88	.47	.19	.42
IN.‡	2.02	2.44	2.47	2.33	1.92	3.16	3.70	4.22	3.21	.54	.22	.47

CAL YR 1988 TOTAL 458804 MEAN 1254 MAX 4230 MIN 84 ADJ +4.1 MEAN‡ 1258 CFSM‡ 1.54 IN.‡ 20.98
WTR YR 1989 TOTAL 586189 MEAN 1606 MAX 6330 MIN 170 ADJ -1.7 MEAN‡ 1604 CFSM‡ 1.97 IN.‡ 26.70

† 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

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 1, 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, 29,600 ft^3/s, May 16, 1989, gage height, 9.93 ft; minimum daily, 1,170 ft^3/s, Oct. 17, 1989.

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 feet.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 29,600 ft^3/s, May. 16, gage height, 9.93 ft; minimum daily, 1,170 ft^3/s, Oct. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1810	3230	3750	14600	12800	4320	9380	1890	6280	22500	3090	1480
2	1700	3000	4280	13800	12500	4150	14800	3100	6660	22400	3010	1430
3	1520	2870	4960	11000	11100	4100	16600	6200	6800	22000	2640	1420
4	1320	3250	4990	7140	7110	4200	14700	7830	8200	21700	2360	1380
5	1430	3820	5380	5240	4180	5380	19400	7130	8540	20100	2420	1500
6	1590	4760	5660	3980	2840	6380	24200	6310	9600	15100	2480	1790
7	1590	5010	5520	3700	2290	6310	26400	7770	9080	12000	2350	1950
8	1600	6190	5430	3630	1900	5210	25600	11000	8330	9470	2130	1950
9	1590	6570	4990	5460	2000	4120	25000	17100	7000	6600	1890	1800
10	1640	6500	3920	6950	3450	3270	23800	18800	6110	3860	1860	1580
11	2210	6760	2480	5890	3700	2780	24800	18100	6290	2690	1660	1690
12	3680	6720	1490	4760	2980	2760	25200	19300	6090	1900	1450	1830
13	3550	6980	1490	4790	2780	2700	20800	23300	6960	1520	1470	1860
14	2560	5860	1570	4630	2780	2640	15300	27300	9380	1300	1620	1960
15	1650	3490	1540	4680	3390	2820	11000	28400	9180	1270	1810	2860
16	1350	3270	1570	4600	4000	2930	9260	29000	6080	1240	1890	2680
17	1170	4710	1590	3780	4600	2760	9200	27900	12000	1820	1810	3200
18	1620	6920	1570	2480	5600	3200	9160	26700	15000	2510	1780	2800
19	3390	7140	1520	2040	5290	4120	9260	25700	17300	2490	1780	2440
20	3880	7270	1620	1900	5150	4150	8820	22400	19500	2700	1570	2240
21	3880	8820	3780	1700	6660	3940	7770	17700	14700	3370	1450	2090
22	3550	11100	4760	1650	10100	3450	7180	13300	8520	4050	1640	2000
23	3550	12300	5150	e1650	12400	3090	6470	10800	17900	3820	1610	2480
24	4060	11000	4760	e1650	12500	3040	4880	9740	28000	3570	1470	2480
25	4480	9690	5660	e1650	11700	3410	3180	9900	27100	3370	1450	2940
26	4080	9340	7500	e3000	9420	3330	2270	8770	25900	3270	1420	2990
27	3650	6820	9090	6660	6920	3040	2080	7470	25000	3220	1410	2770
28	3510	3780	10000	7440	5290	4380	2060	7040	25200	3220	1440	2660
29	3610	3850	11700	7180	---	7270	2010	6620	24000	3180	1460	2610
30	3610	3850	14200	8270	---	7530	2010	6300	23200	3180	1460	2520
31	3450	---	15100	11300	---	7870	---	6250	---	3130	1400	---
TOTAL	82280	184870	157020	167200	175430	128650	382590	439120	403900	212550	57280	65380
MEAN	2654	6162	5065	5394	6265	4150	12750	14170	13460	6856	1848	2179
MAX	4480	12300	15100	14600	12800	7870	26400	29000	28000	22500	3090	3200
MIN	1170	2870	1490	1650	1900	2640	2010	1890	6080	1240	1400	1380
†	+40.0	-718	+307	+362	-259	+4010	-929	-29.8	+3230	-3750	-990	-456
MEAN‡	2694	5444	5372	5756	6006	8160	11820	14140	16690	3106	858	1714
CFSM‡	.86	1.74	1.72	1.84	1.92	2.61	3.78	4.52	5.33	.99	.27	.55
IN.‡	.99	1.94	1.98	2.12	2.00	3.01	4.22	5.21	5.95	1.14	.31	.61

WTR YR 1989 TOTAL 2456270 MEAN 6730 MAX 29000 MIN 1170 ADJ +67.5 MEAN‡ 6798 CFSM‡ 2.17 IN.‡ 29.48

† 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.--80 years, 588 ft^3/s, 24.88 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)
Apr. 3	1800	4,800	7.20	June 20	1800	*7,240	*8.98
May 10	2300	5,550	7.93				

Minimum daily discharge, 62 ft^3/s, Oct. 4, Dec. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	282	224	410	862	357	2930	301	634	279	99	121
2	68	262	205	333	801	296	2100	782	712	247	97	160
3	65	254	183	275	681	321	3680	794	834	225	91	133
4	62	654	183	253	494	393	4420	550	2390	301	113	105
5	70	1170	184	e500	e420	1100	4060	453	1530	1360	206	90
6	103	1650	159	e410	e360	1120	2510	467	914	733	140	83
7	117	1330	e140	e290	e320	648	1480	881	636	429	118	81
8	115	1030	e125	e600	e290	488	1030	1500	497	314	100	79
9	102	1180	e110	1230	e260	392	822	2100	592	253	95	82
10	110	1080	e94	751	e250	342	689	4100	969	224	89	80
11	315	1090	e82	602	e240	327	606	4950	782	202	84	82
12	807	1050	e78	e480	e220	333	557	4040	576	183	82	80
13	888	1140	e74	e420	e210	312	530	2320	1230	175	82	75
14	695	1270	e72	e380	e250	309	524	1490	1420	163	114	174
15	512	909	e70	e370	e450	558	483	1320	2010	150	102	483
16	378	686	e66	e350	e900	643	451	2420	1670	142	116	468
17	283	616	e64	e340	768	495	418	1910	2350	139	118	986
18	674	523	e64	e330	567	781	416	1190	1690	130	93	513
19	996	440	e62	e320	450	1240	416	802	1050	123	93	305
20	792	579	e130	e310	399	853	372	646	3570	136	88	219
21	511	1260	e700	e300	1500	643	331	707	3670	424	114	170
22	482	1380	e1250	e300	2400	555	303	595	2090	271	166	209
23	583	516	1130	e290	1780	514	279	683	1390	192	342	896
24	645	359	1060	e290	863	589	259	1140	1100	175	258	709
25	569	274	1160	e280	562	736	245	921	705	146	169	429
26	461	231	843	e1000	526	716	249	1660	531	127	130	288
27	379	205	507	3210	453	668	256	1830	444	130	107	216
28	386	240	1260	2620	395	1410	241	1320	452	125	95	178
29	471	292	1530	1450	---	2980	230	705	401	114	100	155
30	397	250	1010	934	---	3410	255	602	326	104	113	140
31	317	---	610	951	---	3500	---	601	---	99	98	---
TOTAL	12427	22202	13429	20579	17671	27029	31142	43780	37165	7815	3812	7789
MEAN	401	740	433	664	631	872	1038	1412	1239	252	123	260
MAX	996	1650	1530	3210	2400	3500	4420	4950	3670	1360	342	986
MIN	62	205	62	253	210	296	230	301	326	99	82	75
CFSM	1.25	2.31	1.35	2.07	1.97	2.72	3.23	4.40	3.86	.79	.38	.81
IN.	1.44	2.57	1.56	2.38	2.05	3.13	3.61	5.07	4.31	.91	.44	.90

CAL YR 1988 TOTAL 176389 MEAN 482 MAX 3710 MIN 29 CFSM 1.50 IN. 20.44
WTR YR 1989 TOTAL 244840 MEAN 671 MAX 4950 MIN 62 CFSM 2.09 IN. 28.37

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.--No estimated daily discharge. Records good. 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.--48 years, 6,650 ft^3/s, 24.67 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, 37,800 ft^3/s, June 20, gage height, 10.55 ft; minimum daily, 1,430 ft^3/s, Sept. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1940	3570	4260	14000	12200	4610	12000	2330	6640	20600	2990	1540
2	1950	3360	4240	13300	12100	4330	14700	2950	7170	20300	2940	1660
3	1850	3180	5150	12000	11300	4300	20700	5510	7070	20000	2850	1550
4	1610	3750	5120	7950	8580	4290	18700	8000	11400	19600	2270	1500
5	1530	4780	5210	5960	5210	5470	22400	7530	10200	21200	2610	1430
6	1770	7170	5750	3560	3720	7020	24100	6660	10300	15300	2490	1640
7	1790	6270	5600	3170	2960	6630	25800	8100	9410	12000	2420	1870
8	1810	7020	5470	3980	2830	5830	24400	12300	8660	9710	2270	1930
9	1790	7840	5340	5960	2060	4720	23300	17700	8430	7770	1950	1900
10	1810	7610	4650	7870	2610	3890	22300	22900	8280	4670	1890	1700
11	2100	7740	3410	7020	7330	3200	21800	25400	7670	3430	1850	1640
12	3750	7760	2080	5270	3500	3120	23000	23100	7360	2450	1590	1770
13	4610	8010	1930	5270	3630	3020	21100	23100	8370	2060	1520	1790
14	3950	8520	2020	5090	3260	2960	15400	26300	11500	1740	1540	1850
15	2630	5090	2000	5100	3730	3290	11200	27500	14300	1650	1790	2890
16	2060	4230	1990	5030	5080	3450	9140	30000	9590	1620	1900	3270
17	1750	4370	2180	4680	4810	3410	8910	28300	16000	1590	1880	4160
18	2220	6840	1970	3420	6020	3520	8860	26400	17000	2350	1800	3680
19	3660	7350	1970	2650	5560	5050	8850	24800	17600	2470	1780	2930
20	4630	7440	1930	2570	5300	5080	8690	22600	23800	2550	1810	2550
21	4430	9310	4130	2310	7080	4740	8020	18700	26900	3250	1570	2320
22	4200	11100	6210	2380	11600	4170	6880	14000	12300	4030	1550	2220
23	4030	12500	7290	2570	13000	3720	6600	11400	15300	3990	2050	3680
24	4290	11400	6530	2330	12300	3640	5570	10800	26600	3650	1830	3390
25	4970	9850	7510	2310	11000	4120	4040	10200	25700	3410	1650	3370
26	4680	9390	8180	3860	10200	4210	2800	10900	24300	3250	1560	3370
27	4210	8780	9690	10000	7370	4010	2420	9570	23300	3190	1510	3060
28	3910	4480	11300	10100	6030	5030	2360	8690	23200	3140	1490	2840
29	3950	4410	12900	8870	---	10700	2320	7300	22300	3070	1560	2730
30	4030	4370	14300	8130	---	12300	2290	6680	21300	3060	1550	2650
31	3820	---	14900	10700	---	13000	---	6610	---	3040	1520	---
TOTAL	95730	207490	175210	187410	190370	156830	388650	466330	441950	210140	59980	72880
MEAN	3088	6916	5652	6045	6799	5059	12950	15040	14730	6779	1935	2429
MAX	4970	12500	14900	14000	13000	13000	25800	30000	26900	21200	2990	4160
MIN	1530	3180	1930	2310	2060	2960	2290	2330	6640	1590	1490	1430
†	+40.0	-718	+307	+362	-259	+4010	-929	-29.8	+3230	-3750	-990	-465
MEAN‡	3128	6198	5959	6407	6540	9069	12020	15010	17960	3029	945	1964
CFSM‡	.85	1.69	1.63	1.75	1.79	2.48	3.28	4.10	4.91	.83	.26	.54
IN.‡	.98	1.88	1.88	2.02	1.86	2.86	3.66	4.73	5.48	.96	.30	.60

CAL YR 1988 TOTAL 1762883 MEAN 4817 MAX 22400 MIN 928 ADJ +93.6 MEAN‡ 4911 CFSM‡ 1.34 IN.‡ 18.26
WTR YR 1989 TOTAL 2652970 MEAN 7268 MAX 30000 MIN 1430 ADJ +67.5 MEAN‡ 7336 CFSM‡ 2.00 IN.‡ 27.21

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

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.--49 years, 890 ft^3/s, 25.23 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, 8,580 ft^3/s, June 23, gage height, 8.33 ft; minimum daily, 60 ft^3/s, Sept. 9-11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	120	235	529	1770	1100	773	2770	361	1420	1800	164	66
2	120	214	531	1410	1020	636	4500	669	1380	790	143	66
3	257	250	532	1070	989	508	3610	1090	1230	456	143	66
4	325	273	454	836	892	455	2290	1010	1230	314	136	66
5	282	417	373	433	622	457	3620	848	1410	502	131	76
6	378	694	373	382	635	774	4750	848	1300	1010	131	98
7	364	1340	373	641	489	969	4920	851	932	1250	160	111
8	308	1760	373	742	223	627	4870	1380	748	984	145	79
9	302	1670	373	1170	171	450	4780	2240	644	675	124	60
10	213	1590	272	1060	156	564	4710	2570	1280	498	137	60
11	120	937	206	669	160	592	4560	2870	2330	433	123	60
12	143	809	172	708	166	592	4440	4010	2130	335	96	64
13	200	1040	119	917	198	512	4210	5080	1850	185	85	64
14	227	1350	101	910	281	459	3010	4980	1870	261	103	64
15	227	1550	245	761	328	460	1590	4800	1480	311	123	64
16	227	897	373	958	677	580	1320	4620	2060	308	123	62
17	224	693	373	912	1080	644	1290	4410	4310	308	123	97
18	222	693	368	734	867	523	1020	3510	5650	265	123	167
19	360	693	273	660	615	448	856	2450	5950	237	123	248
20	541	569	212	613	615	612	688	1550	4650	218	123	281
21	551	1110	212	610	799	861	725	1220	2140	318	116	281
22	449	1620	498	310	1770	949	732	1360	3270	452	86	281
23	385	1580	755	263	3010	760	602	1160	7000	523	110	281
24	386	1230	616	466	2770	639	481	1290	7440	450	111	371
25	456	1020	910	525	2190	823	428	1520	6870	280	111	475
26	501	899	1800	529	1740	1140	342	1170	6660	254	111	575
27	431	763	2220	1340	1020	1260	287	1620	6450	226	95	561
28	314	601	1790	2130	532	1260	287	2020	6130	205	85	554
29	267	525	2370	1730	---	1310	287	1510	5680	205	73	542
30	267	525	2440	1470	---	1230	287	1030	4000	205	66	426
31	267	---	1850	1340	---	1270	---	1130	---	205	66	---
TOTAL	9434	27347	22086	28069	25115	23137	68262	65177	99494	14463	3589	6266
MEAN	304	912	712	905	897	746	2275	2102	3316	467	116	209
MAX	551	1760	2440	2130	3010	1310	4920	5080	7440	1800	164	575
MIN	120	214	101	263	156	448	287	361	644	185	66	60
†	-82.8	-2.5	+11.9	-25.9	+101	+595	-610	+17.9	+20.2	-35.8	-1.6	-54.8
MEAN‡	221	910	724	879	998	1341	1655	2120	3336	431	114	1.54
CFSM‡	.46	1.90	1.51	1.84	2.08	2.80	3.48	4.43	6.96	.90	.24	.32
IN.‡	.53	2.12	1.74	2.12	2.17	3.23	3.88	5.11	7.76	1.04	.28	.36

CAL YR 1988 TOTAL 235787 MEAN 644 MAX 3420 MIN 33 ADJ -5.5 MEAN‡ 638 CFSM‡ 1.33 IN.‡ 18.15
WTR YR 1989 TOTAL 392439 MEAN 1075 MAX 7440 MIN 60 ADJ -4.8 MEAN‡ 1070 CFSM‡ 2.23 IN.‡ 30.34

† 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.--57 years, 538 ft^3/s, 24.36 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)
June 20	2300	*9,080	*9.23	No other peak greater than base discharge.			

Minimum discharge, 36 ft^3/s, Sept. 14, gage height, 1.59 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	225	395	734	641	344	2130	271	1340	338	100	97
2	74	214	370	531	567	291	1520	856	1000	310	100	157
3	72	223	342	452	e420	344	3250	724	762	291	96	102
4	70	796	356	356	e360	330	4160	486	2870	292	95	75
5	72	1300	344	311	e320	930	3090	407	1580	1850	160	61
6	118	1980	314	e310	e290	876	1700	463	961	1010	159	57
7	121	1040	301	e300	e270	449	1260	949	702	528	124	55
8	97	870	291	e600	e250	386	987	1460	560	428	102	63
9	90	920	264	1130	e230	342	797	2060	676	331	97	61
10	88	765	e230	649	e220	304	715	3040	1420	293	87	63
11	127	831	e200	e500	e210	294	644	3820	825	265	82	65
12	224	651	e170	e450	e200	290	578	2570	596	238	81	77
13	371	876	e160	e380	e190	258	548	1720	1440	227	78	48
14	397	1140	e145	e350	e220	276	546	1390	1950	200	81	46
15	426	720	e140	e330	e500	426	477	1230	3120	180	99	1260
16	384	555	e130	e320	e1120	470	438	1510	2130	167	87	929
17	287	502	e130	e310	669	359	398	1120	2480	200	97	3180
18	725	424	e125	e300	493	636	435	827	1670	177	78	1300
19	1010	358	e120	e290	415	791	442	655	1130	155	68	519
20	762	462	e250	e290	382	548	377	569	3660	179	67	296
21	467	1360	e1070	e280	1450	502	332	718	5300	289	72	154
22	524	1200	999	e280	2480	438	305	628	2220	223	74	111
23	527	745	814	e270	1080	416	285	588	1770	171	82	797
24	485	574	1150	e260	697	477	270	1060	1150	151	78	825
25	498	472	1260	e260	554	593	259	750	809	135	65	382
26	389	412	855	e700	547	535	253	1900	640	126	58	252
27	317	376	628	e2550	443	494	266	1690	553	119	54	191
28	293	418	1560	1140	395	798	243	876	574	126	52	148
29	341	494	1860	848	---	2320	234	638	472	119	71	129
30	288	414	963	728	---	2200	249	619	382	105	99	115
31	246	---	915	723	---	2880	---	1020	---	100	75	---
TOTAL	9966	21317	16851	16932	15613	20597	27188	36614	44742	9323	2718	11615
MEAN	321	711	544	546	558	664	906	1181	1491	301	87.7	387
MAX	1010	1980	1860	2550	2480	2880	4160	3820	5300	1850	160	3180
MIN	70	214	120	260	190	258	234	271	382	100	52	46
CFSM	1.07	2.37	1.81	1.82	1.86	2.21	3.02	3.94	4.97	1.00	.29	1.29
IN.	1.24	2.64	2.09	2.10	1.94	2.55	3.37	4.54	5.55	1.16	.34	1.44

CAL YR 1988 TOTAL 154591 MEAN 422 MAX 3420 MIN 47 CFSM 1.41 IN. 19.17
WTR YR 1989 TOTAL 233476 MEAN 640 MAX 5300 MIN 46 CFSM 2.13 IN. 28.95

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.--15 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 YRAR.--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)
Oct. 18	2200	*3,060	*8.50	No other peak greater than base discharge.			

Minimum discharge, 11 ft^3/s, Oct. 1,2,3,4, gage height, 3.55 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	131	143	177	303	76	574	66	321	48	21	20
2	11	122	135	147	244	83	550	277	260	42	20	25
3	11	118	130	125	165	70	1730	187	193	39	19	21
4	12	434	166	88	120	204	1780	108	854	40	23	18
5	19	440	135	e78	e94	758	991	78	310	43	56	16
6	47	590	117	e68	e80	358	443	70	184	42	33	15
7	31	313	e115	e68	e74	149	311	165	122	35	24	14
8	25	366	e105	e420	e70	107	250	1070	88	31	23	14
9	27	437	e98	382	e66	86	199	1270	160	28	22	14
10	135	437	e96	177	e62	77	164	1400	588	26	20	14
11	780	736	e90	145	e60	83	147	1680	306	25	18	16
12	964	354	e88	e125	e56	97	141	866	163	24	18	16
13	442	424	e86	e110	e54	72	138	438	356	23	17	15
14	222	377	e84	e98	e140	98	144	287	279	22	17	15
15	144	226	e82	e94	e370	268	122	241	351	21	19	26
16	95	179	e80	e88	371	212	116	739	266	20	23	37
17	67	184	e80	e84	179	143	101	349	365	20	20	60
18	1450	151	e78	e84	120	843	133	202	269	19	17	41
19	1440	125	e76	e82	104	590	120	146	161	19	15	30
20	429	196	e76	e78	80	257	96	116	564	140	15	24
21	250	764	e1100	e76	557	207	77	127	1010	300	16	20
22	348	409	561	e76	817	186	65	99	348	135	53	22
23	480	227	541	e74	271	181	57	145	279	135	91	123
24	291	174	572	e78	158	219	52	367	175	59	45	121
25	225	143	501	e84	113	227	49	185	127	39	29	60
26	199	129	272	e520	108	196	50	719	95	32	22	40
27	219	118	201	e1350	93	171	52	467	76	29	21	30
28	556	207	785	349	93	573	47	188	91	29	18	25
29	496	191	546	e330	---	876	46	121	70	25	18	22
30	220	155	267	e330	---	1060	48	165	55	23	18	20
31	159	---	203	e330	---	976	---	202	---	21	17	---
TOTAL	9806	8857	7609	6315	5022	9503	8793	12540	8486	1534	788	934
MEAN	316	295	245	204	179	307	293	405	283	49.5	25.4	31.1
MAX	1450	764	1100	1350	817	1060	1780	1680	1010	300	91	123
MIN	11	118	76	68	54	70	46	66	55	19	15	14
CFSM	3.44	3.21	2.67	2.21	1.95	3.33	3.19	4.40	3.07	.54	.28	.34
IN.	3.97	3.58	3.08	2.55	2.03	3.84	3.56	5.07	3.43	.62	.32	.38

CAL YR 1988 TOTAL 69949.0 MEAN 191 MAX 1920 MIN 4.6 CFSM 2.08 IN. 28.28
WTR YR 1989 TOTAL 80187 MEAN 220 MAX 1780 MIN 11 CFSM 2.39 IN. 32.42

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.--15 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)
Oct. 18	0800	*10,300	*11.21	Apr. 4	1030	1,600	10.02
Apr. 3	1500	1,570	10.01	June 20	1600	1,770	10.09

Minimum discharge, 4.5 ft^3/s, Sept. 10, 11, 14, gage height, 3.35 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	98	73	98	133	67	275	29	180	26	8.4	11
2	28	90	75	87	101	91	266	113	131	21	7.4	21
3	29	85	76	e72	77	51	1100	91	89	19	6.7	12
4	27	213	106	e60	e66	139	1260	58	373	22	10	8.2
5	72	226	76	e50	e56	346	664	47	198	29	29	7.3
6	115	306	e70	e45	e48	223	255	46	115	23	14	6.5
7	74	184	e64	e39	e43	123	203	101	72	18	9.6	5.5
8	59	187	e60	e300	e40	89	139	950	50	16	10	5.3
9	97	206	e56	294	e36	65	112	886	43	14	10	5.0
10	307	192	e54	211	e34	53	97	667	89	13	8.5	4.7
11	569	296	e120	e150	e32	50	92	956	82	11	7.4	5.4
12	794	192	e100	e110	e31	56	89	779	57	11	8.9	5.3
13	419	241	e76	e80	e30	52	84	336	129	11	10	5.0
14	194	224	e64	e62	e180	57	87	166	102	9.8	16	5.6
15	136	141	e60	e56	271	167	72	116	133	8.8	12	12
16	96	110	e56	e52	226	126	58	329	118	8.2	15	18
17	97	104	e54	e50	140	82	53	202	160	8.2	11	31
18	3290	79	e52	e49	93	583	72	98	133	7.9	8.3	23
19	1630	63	e49	e47	69	400	63	75	76	7.8	6.6	16
20	379	150	e66	e45	56	148	52	70	648	14	5.9	12
21	215	493	e580	e44	235	121	45	70	811	38	6.1	9.0
22	241	241	327	e43	365	110	39	58	259	24	20	13
23	289	115	252	e42	168	103	34	72	133	33	55	143
24	187	83	257	e41	120	121	31	156	78	17	26	74
25	135	70	235	e44	107	117	30	92	57	13	14	35
26	152	64	150	e300	72	91	30	333	46	11	10	22
27	198	60	113	878	65	71	32	272	38	11	8.1	16
28	636	132	390	235	62	255	28	85	60	19	7.1	13
29	567	107	315	148	---	485	26	58	43	17	9.1	11
30	238	80	185	181	---	561	26	68	30	11	9.2	8.5
31	122	---	131	166	---	443	---	75	---	9.6	7.0	---
TOTAL	11428	4832	4342	4079	2956	5446	5414	7454	4533	502.3	386.3	564.3
MEAN	369	161	140	132	106	176	180	240	151	16.2	12.5	18.8
MAX	3290	493	580	878	365	583	1260	956	811	38	55	143
MIN	27	60	49	39	30	50	26	29	30	7.8	5.9	4.7
CFSM	7.05	3.08	2.68	2.52	2.02	3.36	3.45	4.60	2.89	.31	.24	.36
IN.	8.13	3.44	3.09	2.90	2.10	3.87	3.85	5.30	3.22	.36	.27	.40

CAL YR 1988 TOTAL 47043.0 MEAN 129 MAX 3290 MIN 2.5 CFSM 2.46 IN. 33.46
WTR YR 1989 TOTAL 51936.9 MEAN 142 MAX 3290 MIN 4.7 CFSM 2.72 IN. 36.94

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.--80 years, 440 ft^3/s, 27.04 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, 2,080 ft^3/s, Apr. 5, gage height, 5.99 ft, minimum daily, 47 ft^3/s, Sept. 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	1000	379	1050	1080	266	1250	142	494	132	e56	e60
2	69	854	346	963	1050	e210	1240	329	611	118	e54	72
3	66	616	320	843	977	245	1340	432	559	107	e54	73
4	66	568	376	636	859	263	1710	376	776	116	e52	e66
5	67	806	388	391	686	652	2040	269	881	127	e70	e60
6	146	931	324	336	452	839	1940	216	838	132	99	e54
7	168	972	309	281	284	835	1740	246	742	106	76	e52
8	124	947	317	453	e230	651	1540	608	528	91	e66	e50
9	107	954	302	795	e220	445	1380	988	347	82	e64	e48
10	212	957	255	791	e220	283	1260	1140	479	75	e62	e47
11	568	1010	e200	673	e230	250	1190	1280	587	71	e60	e48
12	911	1050	e200	524	e230	255	1120	1420	492	e66	e56	e49
13	1050	1050	e210	e550	e220	236	1020	1450	467	e64	e54	e48
14	1080	1040	e220	e600	e240	237	977	1370	536	e62	e52	e50
15	1030	1010	e240	461	e550	353	922	1250	620	e60	e54	71
16	923	930	e250	415	689	470	857	1200	634	e58	78	84
17	721	831	e240	326	619	454	773	1270	620	e56	71	134
18	701	665	e220	289	510	573	663	1280	664	e54	e60	118
19	1220	479	e200	281	352	933	490	1230	569	e54	e56	90
20	1340	356	e300	298	250	971	347	1180	581	78	e52	73
21	1350	715	877	e290	392	929	242	1110	950	293	e52	e66
22	1330	930	1110	e270	824	871	205	1040	1050	232	e58	e68
23	1310	932	1130	e260	874	760	181	954	1050	208	251	189
24	1300	844	1140	e270	816	639	163	893	985	140	179	384
25	1260	671	1150	253	683	571	145	838	899	89	97	221
26	1210	480	1150	564	475	538	141	859	759	73	73	122
27	1160	339	1120	1100	329	481	151	947	504	70	e66	87
28	1120	364	1120	1180	278	630	137	932	271	e66	e60	70
29	1130	485	1160	1150	---	968	128	845	216	e64	e60	67
30	1140	458	1150	1120	---	1130	129	710	161	e60	e60	67
31	1090	---	1120	1100	---	1220	---	541	---	e60	e58	---
TOTAL	24039	23244	17823	18513	14619	18158	25421	27345	18870	3064	2260	2688
MEAN	775	775	575	597	522	586	847	882	629	98.8	72.9	89.6
MAX	1350	1050	1160	1180	1080	1220	2040	1450	1050	293	251	384
MIN	66	339	200	253	220	210	128	142	161	54	52	47
†	+52.5	-49.4	+66.2	+18.5	-96.7	+129	-135	+9.8	-10.1	-0.5	0	0
MEAN‡	827	726	641	616	425	715	712	892	619	98.3	72.9	89.6
CFSM‡	3.74	3.28	2.90	2.79	1.92	3.24	3.22	4.04	2.80	.44	.33	.41
IN.‡	4.31	3.66	3.34	3.22	2.00	3.74	3.59	4.66	3.12	.51	.38	.46

CAL YR 1988 TOTAL 170315 MEAN 465 MAX 1350 MIN 36 ADJ +5.2 MEAN‡ 470 CFSM‡ 2.13 IN.‡ 28.98
WTR YR 1989 TOTAL 196044 MEAN 537 MAX 2040 MIN 47 ADJ 0 MEAN‡ 537 CFSM‡ 2.43 IN.‡ 32.99

† 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.--15 years, 57.0 ft^3/s, 24.89 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)
June 4	0300	*653	*8.08				

Minimum daily discharge, 3.7 ft^3/s, Aug. 13, 14, 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.9	20	52	e52	53	54	147	32	183	24	8.1	8.4
2	4.0	20	48	e45	46	90	139	89	164	20	7.4	12
3	4.0	20	44	e37	41	57	430	51	140	19	7.0	6.9
4	4.0	162	51	e31	e35	71	412	37	347	18	6.7	5.4
5	5.5	149	42	e25	e30	131	222	32	118	18	6.6	4.9
6	10	172	e37	e21	e27	75	129	33	87	18	6.9	4.6
7	8.0	95	e31	e18	e23	91	99	56	64	17	6.9	4.7
8	7.2	107	e27	e140	e21	128	81	195	52	16	5.3	4.9
9	6.4	96	e25	77	e19	75	68	135	56	14	4.0	5.7
10	6.6	90	e22	e54	e17	35	62	206	76	13	4.0	4.9
11	12	86	e20	e46	e16	28	58	236	59	12	3.9	6.0
12	30	64	e19	e40	e15	29	52	175	53	11	3.8	6.0
13	41	128	e18	e37	e14	25	54	117	120	11	3.7	5.2
14	37	108	e17	e32	e50	28	53	103	166	11	3.7	46
15	28	66	e17	e31	e180	53	46	79	247	9.8	3.7	42
16	19	53	e16	e29	100	44	42	75	143	9.1	7.3	38
17	14	48	e15	e28	79	35	37	60	127	8.4	13	36
18	102	39	e15	e27	e64	94	49	48	106	8.1	17	18
19	112	34	e14	e26	e44	71	43	40	70	7.9	5.7	12
20	101	92	e48	e23	e30	50	36	35	120	28	5.7	8.4
21	48	197	147	e23	e210	51	32	47	166	23	5.4	6.9
22	64	117	69	e21	191	47	30	36	154	17	5.4	14
23	52	72	108	e20	80	44	27	52	200	15	9.5	140
24	46	58	108	e23	97	51	25	70	88	13	6.8	114
25	43	47	112	e25	174	51	23	51	61	11	5.3	47
26	32	43	67	e190	149	46	22	269	47	13	4.8	22
27	25	40	53	198	95	41	21	119	40	19	4.6	16
28	29	69	199	79	72	61	19	67	50	17	4.4	12
29	31	62	132	65	---	225	20	49	32	15	6.7	9.9
30	23	53	e80	67	---	208	23	53	27	13	7.5	8.2
31	20	---	e66	61	---	171	---	132	---	9.8	5.4	---
TOTAL	968.6	2407	1719	1591	1972	2260	2501	2779	3363	459.1	196.2	670.0
MEAN	31.2	80.2	55.5	51.3	70.4	72.9	83.4	89.6	112	14.8	6.33	22.3
MAX	112	197	199	198	210	225	430	269	347	28	17	140
MIN	3.9	20	14	18	14	25	19	32	27	7.9	3.7	4.6
CFSM	1.00	2.58	1.78	1.65	2.26	2.34	2.68	2.88	3.60	.48	.20	.72
IN.	1.16	2.88	2.06	1.90	2.36	2.70	2.99	3.32	4.02	.55	.23	.80

CAL YR 1988 TOTAL 13992.7 MEAN 38.2 MAX 355 MIN 2.4 CFSM 1.23 IN. 16.74
WTR YR 1989 TOTAL 20885.9 MEAN 57.2 MAX 430 MIN 3.7 CFSM 1.84 IN. 24.98

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.--Records good except for estimated daily discharges, which are fair. 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.--15 years, 88.4 ft^3/s, 26.33 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, 678 ft^3/s, June 4, 23, gage height, 4.71 ft, maximum gage height, 4.88 ft, Dec. 1 (backwater from beaver dam); minimum daily, 8.0 ft^3/s, Oct. 1, 2, 3, 4, 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e8.0	48	136	285	102	46	153	29	190	18	8.8	10
2	e8.0	36	135	235	92	46	254	108	317	12	8.8	10
3	e8.0	29	133	160	76	46	266	165	398	10	8.8	9.9
4	e8.0	32	132	93	58	46	273	111	538	10	8.9	9.6
5	e8.0	33	131	57	46	48	412	49	445	12	9.0	9.6
6	e18	47	110	63	46	81	520	31	240	11	8.8	9.6
7	36	118	70	73	46	102	385	31	153	10	8.8	9.6
8	36	246	52	77	33	69	312	95	84	10	8.8	9.6
9	36	297	51	140	23	47	308	231	61	10	8.8	9.6
10	36	293	51	157	23	46	201	301	74	10	8.5	9.6
11	37	289	51	131	23	46	83	305	82	10	8.1	9.6
12	57	282	50	128	23	46	69	364	84	10	8.1	9.6
13	73	247	36	146	23	36	82	390	115	10	8.1	15
14	e74	222	26	108	37	28	82	384	133	10	15	20
15	e74	218	25	96	48	29	65	272	91	10	19	45
16	73	213	39	117	49	29	55	142	83	10	20	61
17	72	171	49	80	83	29	55	90	206	10	19	61
18	78	121	49	49	107	31	61	69	293	10	19	61
19	131	105	49	49	106	30	65	49	289	10	19	60
20	163	106	51	49	102	30	65	43	190	13	19	60
21	158	161	52	48	109	30	65	43	94	23	20	60
22	157	215	96	47	256	30	65	43	161	28	20	61
23	155	176	87	46	425	30	65	38	462	28	20	63
24	155	146	56	46	243	30	42	77	584	29	16	90
25	153	142	84	46	99	30	23	101	240	16	18	106
26	126	128	121	91	75	30	21	82	55	8.8	13	105
27	110	109	134	205	68	30	21	97	46	8.8	9.6	93
28	94	104	142	272	55	31	21	184	50	8.8	9.6	86
29	85	124	241	266	---	85	21	209	44	8.8	9.7	72
30	84	135	300	220	---	71	26	165	28	8.8	9.6	63
31	71	---	293	150	---	36	---	144	---	8.8	9.6	---
TOTAL	2382.0	4593	3032	3730	2476	1344	4136	4442	5830	392.8	397.4	1298.3
MEAN	76.8	153	97.8	120	88.4	43.4	138	143	194	12.7	12.8	43.3
MAX	163	297	300	285	425	102	520	390	584	29	20	106
MIN	8.0	29	25	46	23	28	21	29	28	8.8	8.1	9.6
†	-25.9	-15.8	+3.9	-16.4	-1.6	+56.4	+2.2	+9.4	-16.6	+6.2	-5.7	-8.4
MEAN‡	50.9	137	102	104	86.8	99.8	140	152	177	18.9	7.1	34.9
CFSM‡	1.12	3.00	2.24	2.28	1.90	2.19	3.07	3.33	3.88	.41	.16	.77
IN.‡	1.29	3.35	2.58	2.63	1.98	2.52	3.43	3.84	4.33	.47	.18	.86

CAL YR 1988 TOTAL 23469.7 MEAN 64.1 MAX 327 MIN 6.4 ADJ +2.0 MEAN‡ 66.1 CFSM‡ 1.45 IN.‡ 19.53
WTR YR 1989 TOTAL 34053.5 MEAN 93.3 MAX 584 MIN 8.0 ADJ -0.9 MEAN‡ 92.4 CFSM‡ 2.03 IN.‡ 27.46

† 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°30'15", long 80°09'42", Crawford County, Hydrologic Unit 05010004, on left bank 100 ft downstreams from bridge on Mead Street at Meadville, 300 ft downstream from Cussewago Creek, 1,300 ft upstream from Mill Run, and at mile 30.7.

DRAINAGE AREA.--788 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 1,061.35 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 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, 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).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,100 ft^3/s, Apr. 4, gage height, 10.93 ft; minimum daily, 100 ft^3/s, Sept. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e190	1580	1480	2390	2340	936	5500	406	2780	734	e190	e180
2	e175	1400	1380	2090	2090	827	4740	816	2940	605	e180	e190
3	e170	1240	1280	1800	1910	804	6710	1280	2970	541	e170	203
4	e165	1610	1320	1500	1680	914	9420	1160	4380	495	e165	e190
5	e160	2360	1390	1190	1480	2130	9410	933	4980	533	e190	e160
6	205	3080	1280	1090	1320	2790	7460	772	3250	925	229	e155
7	315	2930	1150	995	1080	2040	5560	693	2460	670	229	e145
8	369	2890	e1000	1570	e840	1710	4190	1830	1710	523	203	e150
9	321	2950	e880	2640	e720	1340	3340	4100	1640	443	e170	e130
10	309	2900	e740	2200	e600	1060	2850	4280	2090	386	e165	e120
11	562	3080	e680	1950	e580	870	2510	5650	1960	351	e160	e115
12	1320	2900	e640	1590	e560	827	2280	5870	1650	320	e150	e110
13	1980	2960	e580	e1350	e560	793	2170	5200	2170	299	e140	e100
14	2240	3390	e540	e1150	e540	739	2100	4240	2420	283	e135	e105
15	2200	2800	e520	e1050	e1840	887	2040	3830	2840	264	e130	268
16	1880	2350	e500	e980	2480	1200	1950	3110	2870	243	e140	431
17	1510	2090	e480	e920	2280	1180	1830	2790	2330	230	e155	540
18	2020	1830	e470	e860	1760	1490	1740	2450	2400	225	e155	587
19	3200	1500	e460	e840	1340	2300	1660	2120	2160	213	e150	441
20	3340	1480	e450	e840	1110	2130	1490	1910	2150	247	e145	346
21	3220	2950	e1300	e800	1800	1950	1250	1880	4230	403	e140	303
22	3040	3670	3600	e780	3870	1800	886	1830	4100	635	e140	256
23	2860	3010	3270	e760	3460	1640	633	1750	4830	518	e170	615
24	2560	2570	3650	e740	2440	1540	555	2320	4410	431	296	1550
25	2320	2000	3470	e740	1720	1480	485	2430	2800	365	356	1340
26	2040	1610	2980	e2120	1520	1390	442	3510	1800	278	259	871
27	1870	1360	2400	5930	1250	1280	441	5100	1490	244	200	617
28	1830	1380	3230	5580	1050	1630	433	3790	1700	235	e160	464
29	1950	1610	4500	3890	---	4000	376	2880	1330	225	e170	379
30	1890	1590	3410	3030	---	5010	370	2110	943	209	e180	312
31	1740	---	2890	2640	---	5990	---	2230	---	201	e160	---
TOTAL	47951	69070	51920	56005	44220	54677	84821	83270	79783	12274	5582	11373
MEAN	1547	2302	1675	1807	1579	1764	2827	2686	2659	396	180	379
MAX	3340	3670	4500	5930	3870	5990	9420	5870	4980	925	356	1550
MIN	160	1240	450	740	540	739	370	406	943	201	130	100
†	+26.3	-65.2	+70.1	+2.1	-98.3	+185	-133	+19.2	-26.7	+5.7	-5.8	-8.4
MEAN‡	1573	2237	1745	1809	1481	1949	2694	2705	2632	402	174	371
CFSM‡	2.00	2.84	2.21	2.30	1.88	2.47	3.42	3.43	3.34	.51	.22	.47
IN.‡	2.31	3.17	2.55	2.65	1.96	2.85	3.82	3.95	3.73	.59	.25	.52

WTR YR 1989 TOTAL 600946 MEAN 1646 MAX 9420 MIN 100 ADJ -0.9 MEAN‡v 1645 CFSM‡ 2.09 IN.‡ 28.35

† 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°21'15", 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.

AVERAGE DISCHARGE.--57 years, 1,839 ft^3/s, 24.29 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, Apr. 5, gage height, 9.32 ft; minimum daily, 133 ft^3/s, Sept. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	246	1810	1820	3320	3030	1320	6990	793	4030	1130	243	232
2	228	1640	1690	2870	2720	1130	6090	1300	3740	954	232	282
3	221	1480	1580	2470	2480	1080	7840	1880	3780	841	222	237
4	216	2000	1560	2100	2160	1180	10400	1750	4870	776	216	232
5	212	2800	1630	1630	1880	2320	11700	1460	5550	848	250	216
6	250	3640	1550	e1400	1720	3480	10600	1230	4120	1080	284	193
7	290	3600	1380	e1050	1460	2640	7920	1220	3190	981	277	175
8	406	3490	e1200	e2100	1080	2380	5730	2500	2390	764	259	190
9	399	3570	e1050	3300	905	1800	4540	4870	2100	649	230	175
10	368	3490	e920	e2700	e780	1460	3860	5630	2650	576	217	150
11	443	3670	e820	e2100	e760	1230	3330	7100	2570	519	206	152
12	1040	3490	e780	e1900	e740	1130	2980	7360	2100	472	197	141
13	1800	3570	e740	e1600	e720	1080	2840	6370	2920	445	186	133
14	2250	3980	e680	e1450	e880	1020	2760	5460	4310	414	177	140
15	2300	3550	e660	e1350	e850	1200	2610	4620	5040	385	171	537
16	2080	3000	e640	e1250	3150	1450	2370	3820	4450	354	199	529
17	1700	2630	e620	e1200	3080	1510	2180	3470	3630	331	206	700
18	2000	2310	e620	e1150	2460	1780	2130	3080	3450	311	203	680
19	3120	1930	e600	e1100	1880	2710	2050	2690	3100	301	201	555
20	3570	1840	e600	e1100	1550	2710	1790	2400	3580	348	190	451
21	3510	3110	e2170	e1050	2560	2530	1540	2380	5270	446	185	378
22	3370	4240	4150	e1050	4770	2370	1300	2290	5290	649	180	355
23	3280	3680	3870	e1050	4610	2130	1130	2230	5530	638	250	729
24	2990	3210	4290	e1000	3550	1990	1030	2920	5300	507	279	1590
25	2760	2630	4280	e1000	2550	1910	917	3030	3790	466	384	1530
26	2460	2100	3850	e2200	2130	1810	855	4200	2590	372	323	1080
27	2180	1770	3170	6430	1780	1680	818	5930	2100	357	252	773
28	2090	1720	4050	6580	1510	1870	809	4830	2260	324	211	593
29	2170	1910	5400	4960	---	4460	772	3780	2050	296	232	498
30	2140	1940	4550	4000	---	5600	769	3010	1460	274	236	414
31	1980	---	3930	3430	---	7070	---	3640	---	257	207	---
TOTAL	52069	83800	64850	69890	57745	68030	110650	107243	107210	17065	7105	14040
MEAN	1680	2793	2092	2255	2062	2195	3688	3459	3574	550	229	468
MAX	3570	4240	5400	6580	4770	7070	11700	7360	5550	1130	384	1590
MIN	212	1480	600	1000	720	1020	769	793	1460	257	171	133
†	+26.3	-65.2	+70.1	+2.1	-98.3	+185	-133	+19.2	-26.7	+5.7	-5.8	-8.4
MEAN‡	1706	2728	2162	2257	1964	2380	3555	3478	3547	556	223	460
CFSM‡	1.66	2.65	2.10	2.20	1.91	2.32	3.46	3.38	3.45	.54	.22	.45
IN.‡	1.91	2.96	2.42	2.54	1.99	2.67	3.86	3.90	3.85	.62	.25	.50

CAL YR 1988 TOTAL 590212 MEAN 1613 MAX 6810 MIN 91 ADJ +7.2 MEAN‡ 1620 CFSM‡ 1.58 IN.‡ 21.44
WTR YR 1989 TOTAL 759697 MEAN 2081 MAX 11700 MIN 133 ADJ -0.9 MEAN‡ 2080 CFSM‡ 2.02 IN.‡ 27.47

† 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.--75 years, 10,550 ft^3/s, 23.95 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, 66,700 ft^3/s, June 21, gage height, 13.96 ft; minimum, 2,000 ft^3/s, Sept 6, gage height, 2.76 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2590	6290	7790	20400	17300	8590	27500	4360	16400	23900	4030	2180
2	2530	5830	7460	18900	16800	7340	27600	6430	14900	22000	3910	2520
3	2480	5490	7920	17200	16300	7170	37100	9120	14300	21100	3790	2310
4	2570	6710	8180	13100	13500	7110	41100	11500	20100	20600	3470	2160
5	2310	9700	8130	9720	10100	9390	43500	11200	20400	23900	3440	2080
6	2440	14600	8430	7830	7880	12700	42300	10500	18000	20200	3580	2050
7	2830	13100	8300	6390	6450	11700	41300	11400	15300	16100	3490	2320
8	2770	13400	8050	8350	5110	10500	36900	15900	13200	13100	3240	2560
9	2780	14200	7840	12200	3880	8540	33800	25900	12700	10700	2970	2560
10	2740	14000	7200	12600	3840	7380	31400	34900	16100	7730	2660	2400
11	2820	13900	5910	12100	4410	6390	29500	44900	14400	5670	2620	2220
12	3970	13000	4350	10300	5800	5890	30200	39900	13500	4600	2470	2180
13	6860	13800	3520	10400	5420	5670	29100	38400	15000	3680	2190	2320
14	7210	15600	e3500	9420	5490	5480	23600	38400	21700	3220	2150	2370
15	6330	12900	e3400	9770	7160	5850	17800	38900	30600	3000	2290	3340
16	5270	10100	e3400	9630	11300	6680	14000	40100	23700	2880	2570	4460
17	4450	8830	e3800	9250	11100	6820	13100	38000	27500	2850	2670	5590
18	5050	9990	e3500	7610	10900	7310	13000	34300	29900	3080	2540	5700
19	7560	10800	e3300	6340	9940	9520	12600	30700	28200	3620	2470	4560
20	9770	11000	e3200	5850	9130	10000	12200	28200	36500	3690	2520	3920
21	9380	14400	e6500	5700	12600	9760	11300	24300	53600	4350	2410	3530
22	9080	18100	e10700	5060	22000	9150	10200	19800	28100	5640	2210	3420
23	8620	18600	13000	4750	22800	8290	9530	16900	29400	5870	2550	5390
24	8400	17400	13800	5150	20500	7790	8570	17100	39300	5480	2790	7060
25	8840	14600	14800	5130	17300	8290	6980	16300	37500	4970	2570	6180
26	8620	13300	14800	7020	16100	8720	5560	19400	33900	4650	2390	5690
27	7770	12500	15700	20500	12700	8570	4670	20400	32000	4590	2220	5140
28	7110	9550	18900	20700	9820	9300	4380	17700	31700	4400	2100	4600
29	7010	8060	24000	17700	---	19600	4310	14500	29900	4280	2290	4290
30	7050	8040	22800	15000	---	24800	4270	12700	26900	4180	2310	4070
31	6730	---	21800	16000	---	29600	---	16000	---	4120	2150	---
TOTAL	173940	357790	293980	340070	315630	303900	627370	708110	744700	268150	85060	109170
MEAN	5611	11930	9483	10970	11270	9803	20910	22840	24820	8650	2744	3639
MAX	9770	18600	24000	20700	22800	29600	43500	44900	53600	23900	4030	7060
MIN	2310	5490	3200	4750	3840	5480	4270	4360	12700	2850	2100	205

CAL YR 1988 TOTAL 2917970 MEAN 7973 MAX 30700 MIN 1510
WTR YR 1989 TOTAL 4327870 MEAN 11860 MAX 53600 MIN 2050

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.--38 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)
Mar. 30	1600	306	4.17	June 20	1900	*1,750	*5.15
June 15	1700	500	4.50	June 23	0200	630	4.62

Minimum daily discharge, 0.62 ft^3/s, Aug. 27, 28, Sept. 5,6,13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.77	3.8	8.2	e16	20	11	93	5.4	22	11	1.1	.75
2	.80	3.6	7.3	e12	20	16	61	26	19	9.0	1.1	.88
3	.82	3.3	6.7	e9.4	20	9.0	67	17	16	7.5	1.0	.72
4	.81	6.1	6.3	e7.4	18	8.6	71	15	20	11	1.1	.65
5	.78	17	5.8	e5.4	e15	14	68	14	15	30	4.8	.62
6	.82	22	5.4	e5.6	e13	14	49	19	14	15	1.4	.62
7	.82	13	5.1	e5.8	e11	19	38	47	12	12	1.2	.64
8	.82	12	4.8	e13	e10	13	30	44	11	11	1.1	1.1
9	.81	13	4.4	15	e9.6	9.5	25	42	11	8.3	1.0	.80
10	.80	12	4.4	e14	e9.0	7.7	21	65	15	7.0	.93	.69
11	1.3	12	e3.8	e12	e8.4	7.6	18	78	11	6.1	.93	.67
12	1.6	10	e3.6	e10	e7.8	7.7	16	62	9.4	5.0	.93	.63
13	1.8	15	e3.3	e9.0	e7.4	7.3	14	45	22	4.4	.87	.62
14	1.7	17	e3.1	e8.2	e7.0	6.8	14	40	45	3.6	.85	.84
15	1.3	13	e2.9	e7.6	e6.8	9.9	12	38	207	3.1	.83	1.4
16	1.1	12	e2.7	e7.0	e11	9.7	11	49	198	3.4	.81	3.1
17	.94	11	e2.5	e6.8	e14	8.2	10	36	133	3.1	.80	2.3
18	10	9.7	e2.4	e6.6	e12	15	9.9	30	73	2.4	.77	1.4
19	8.0	8.7	e2.3	e6.4	e10	14	9.5	25	48	2.5	.73	1.0
20	4.4	15	e2.5	e6.2	e9.2	12	8.4	22	465	3.4	.74	.87
21	3.4	21	e7.0	e6.0	e23	12	7.7	28	271	3.0	.84	.79
22	5.9	17	9.5	e5.8	39	12	7.0	21	102	2.5	.78	.93
23	7.5	14	11	e5.8	27	11	6.3	22	245	2.1	.80	11
24	8.5	13	27	e5.6	23	18	5.8	35	81	1.8	.76	4.0
25	8.3	11	34	e5.4	25	26	5.4	28	47	1.6	.71	2.1
26	6.2	10	23	e12	16	24	5.0	37	32	1.5	.67	1.6
27	5.0	9.9	20	29	14	22	4.7	31	25	1.5	.62	1.3
28	5.7	10	38	20	12	30	4.2	26	23	1.4	.62	1.2
29	6.9	9.5	35	17	---	55	4.1	22	16	1.2	.85	1.1
30	4.9	8.6	27	19	---	158	3.9	21	13	1.2	.88	1.0
31	4.1	---	22	20	---	164	---	20	---	1.1	.69	---
TOTAL	106.59	353.2	341.0	329.0	418.2	752.0	699.9	1010.4	2221.4	177.7	31.21	45.32
MEAN	3.44	11.8	11.0	10.6	14.9	24.3	23.3	32.6	74.0	5.73	1.01	1.51
MAX	10	22	38	29	39	164	93	78	465	30	4.8	11
MIN	.77	3.3	2.3	5.4	6.8	6.8	3.9	5.4	9.4	1.1	.62	.62
CFSM	.44	1.50	1.40	1.35	1.91	3.09	2.98	4.16	9.44	.73	.13	.19
IN.	.51	1.68	1.62	1.56	1.98	3.57	3.32	4.79	10.54	.84	.15	.22

CAL YR 1988 TOTAL 3308.69 MEAN 9.04 MAX 103 MIN .62 CFSM 1.15 IN. 15.70
WTR YR 1989 TOTAL 6485.92 MEAN 17.8 MAX 465 MIN .62 CFSM 2.27 IN. 30.78

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.--41 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, 1,110 ft^3/s, June 23, gage height, 5.00 ft; minimum daily, 27 ft^3/s, Mar. 31, Apr. 1-11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	127	66	46	157	51	51	27	43	176	245	158	149
2	127	59	45	155	51	51	27	44	208	243	158	148
3	125	59	45	154	52	52	27	45	208	316	158	146
4	122	59	45	153	51	50	27	64	209	113	161	146
5	113	60	39	124	50	50	27	74	164	198	160	146
6	108	62	38	105	50	51	27	74	135	324	160	142
7	107	52	39	104	50	51	27	74	134	245	160	139
8	107	44	39	104	50	51	27	196	115	205	160	138
9	107	44	39	104	49	50	27	323	83	158	160	137
10	108	45	39	106	50	50	27	323	70	126	160	137
11	108	45	39	82	50	49	27	323	70	115	160	137
12	108	44	39	66	49	49	88	495	70	115	160	137
13	108	45	39	66	48	49	171	587	70	115	160	138
14	99	45	39	65	49	49	198	582	135	115	160	139
15	93	45	39	66	50	50	197	578	126	115	160	139
16	93	45	39	66	50	50	152	580	141	115	160	138
17	93	44	39	54	50	50	123	576	318	115	160	137
18	94	45	39	46	51	51	122	574	517	115	160	135
19	93	46	37	46	51	52	122	570	566	116	159	134
20	93	45	38	46	48	45	121	568	560	125	158	134
21	93	45	40	46	48	41	99	566	218	121	158	134
22	93	46	40	47	49	40	84	476	422	124	157	100
23	93	47	40	46	49	40	84	379	935	123	156	37
24	82	47	43	46	50	41	57	352	1080	123	155	95
25	70	47	44	47	51	41	40	350	1070	123	154	134
26	68	46	43	49	52	41	40	303	1070	123	153	134
27	68	46	44	50	52	41	39	277	1060	123	153	133
28	74	46	77	51	52	41	180	275	1050	144	151	132
29	77	46	96	51	---	41	238	274	798	158	151	132
30	77	46	135	52	---	33	43	192	408	158	151	132
31	78	---	135	51	---	27	---	135	---	158	149	---
TOTAL	3006	1461	1538	2405	1403	1428	2495	10272	12186	4812	4880	3959
MEAN	97.0	48.7	49.6	77.6	50.1	46.1	83.2	331	406	155	157	132
MAX	127	66	135	157	52	52	238	587	1080	324	161	149
MIN	68	44	37	46	48	27	27	43	70	113	149	37
†	-84.6	+47.1	+43.9	+45.5	+113	+161	+136	+11.4	+30.2	-92.7	-145	-124
MEAN‡	12.4	95.8	93.5	123	163	207	219	342	436	62.3	12.0	8.0
CFSM‡	.17	1.31	1.28	1.68	2.23	2.83	2.99	4.67	5.97	.85	.16	.11
IN.‡	.20	1.46	1.48	1.94	2.32	3.26	3.33	5.38	6.65	.98	.18	.12

CAL YR 1988 TOTAL 33158 MEAN 90.6 MAX 286 MIN 37 ADJ -1.2 MEAN‡ 89.4 CFSM‡ 1.22 IN.‡ 16.61
WTR YR 1989 TOTAL 49845 MEAN 137 MAX 1080 MIN 27 ADJ +10.9 MEAN‡ 148 CFSM‡ 2.02 IN.‡ 27.32

† 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.--36 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, maximum gage height, 10.11 ft June 20, 1989, from rating curve extended above 3,000 ft^3/s; minimum discharge, 4.2 ft^3/s, Sept. 21, 1955, gage height, 1.27 ft.

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)
Mar. 31	0500	1,730	5.85	June 20	2400	*5,450	*10.11
June 14	2400	1,540	5.47	June 23	0400	1,230	4.85
June 15	1900	2,120	6.48				

Minimum discharge, 8.5 ft^3/s, Oct. 1, 5, 6, 7, 8, 9, 10, gage height, 1.25 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.6	23	67	e130	166	102	897	55	169	120	18	12
2	9.0	23	60	e100	161	88	592	210	143	113	18	15
3	9.0	22	55	e80	166	89	530	142	126	53	16	10
4	9.0	43	53	e68	141	80	548	136	149	73	20	9.0
5	8.9	106	49	e52	e115	119	592	134	121	169	40	8.8
6	9.3	218	46	e54	e98	120	464	154	113	83	21	8.8
7	8.7	122	44	e58	e88	83	365	299	99	70	18	9.7
8	8.5	107	42	e100	e80	87	285	322	87	63	16	25
9	8.5	113	e37	141	e72	88	234	335	86	53	15	16
10	8.6	104	e31	121	e68	72	192	498	130	50	14	12
11	12	110	e26	e105	e64	69	161	657	87	46	14	12
12	15	88	e24	e92	e62	68	140	574	77	42	14	10
13	17	116	e26	e82	e58	60	132	420	173	40	13	9.4
14	15	146	e31	e72	e60	61	121	343	285	35	13	12
15	12	117	e28	e68	e80	86	108	302	1110	32	12	26
16	11	107	e25	e64	e120	78	98	393	1240	34	13	43
17	10	100	e23	e62	109	66	89	304	821	33	13	39
18	65	86	e21	e62	e88	110	91	259	517	28	10	24
19	58	75	e22	e60	e80	108	83	216	357	33	10	17
20	32	113	e23	e58	e72	94	74	187	666	44	11	14
21	25	167	e35	e58	e200	102	69	210	1920	37	13	13
22	30	131	72	e56	344	94	65	159	942	39	14	15
23	38	121	78	e54	257	92	60	162	833	32	17	131
24	43	112	154	e54	201	132	57	224	522	27	11	49
25	42	100	249	e52	173	205	54	182	387	23	9.9	32
26	33	92	187	e130	166	198	53	274	293	22	9.3	27
27	28	86	165	269	145	197	49	251	276	23	9.0	22
28	31	89	249	182	118	257	46	221	257	22	9.3	20
29	37	81	279	170	---	428	45	190	180	19	15	18
30	28	71	228	174	---	720	43	183	142	18	15	17
31	24	---	e170	170	---	1330	---	183	---	18	10	---
TOTAL	694.1	2989	2599	2998	3552	5483	6337	8179	12308	1494	451.5	676.7
MEAN	22.4	99.6	83.8	96.7	127	177	211	264	410	48.2	14.6	22.6
MAX	65	218	279	269	344	1330	897	657	1920	169	40	131
MIN	8.5	22	21	52	58	60	43	55	77	18	9.0	8.8
CFSM	.36	1.58	1.33	1.54	2.01	2.81	3.35	4.19	6.51	.76	.23	.36
IN.	.41	1.76	1.53	1.77	2.10	3.24	3.74	4.83	7.27	.88	.27	.40

CAL YR 1988 TOTAL 28535.7 MEAN 78.0 MAX 678 MIN 7.2 CFSM 1.24 IN. 16.85
WTR YR 1989 TOTAL 47761.3 MEAN 131 MAX 1920 MIN 8.5 CFSM 2.08 IN. 28.20

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.--44 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, 11,400 ft/s, June 20, gage height, 9.86 ft; minimum daily, 55 ft^3/s, Dec. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	140	101	174	463	373	253	1750	150	515	460	191	156
2	142	82	160	426	362	204	1210	549	494	428	188	159
3	139	80	150	392	382	213	1100	379	457	332	179	148
4	135	149	144	340	330	207	1060	370	504	254	177	143
5	130	329	132	281	318	299	1080	369	416	481	215	143
6	121	455	123	e240	304	276	911	442	392	440	174	142
7	118	288	119	e190	265	200	761	807	336	394	170	141
8	117	254	113	e280	216	181	611	925	289	337	165	158
9	115	258	98	379	e190	189	507	1030	253	268	164	150
10	119	264	89	303	e170	183	422	1390	304	225	159	145
11	127	282	68	301	e160	179	357	1540	226	198	161	142
12	129	228	55	287	e150	175	340	1490	206	187	160	143
13	128	279	76	289	e140	164	403	1380	483	184	158	144
14	121	312	96	223	e190	158	421	1270	697	174	157	158
15	106	246	97	316	e300	203	396	1230	2230	169	152	220
16	102	228	76	e200	398	187	345	1430	2100	168	150	228
17	96	217	e66	e180	291	167	286	1250	1640	173	150	223
18	176	189	e58	e170	269	307	293	1150	1410	162	148	185
19	176	171	e60	e160	278	280	275	1060	1230	161	146	165
20	142	311	e78	e150	262	243	251	990	3980	260	148	159
21	132	433	e110	e150	684	247	229	1030	5060	290	152	151
22	139	336	160	e145	722	228	198	862	2000	434	166	139
23	152	301	190	e145	574	223	188	751	2150	329	178	230
24	162	275	379	e140	459	381	166	761	1860	252	154	193
25	144	248	511	e145	388	497	138	744	1630	212	150	200
26	121	229	418	e300	382	479	135	940	1480	194	145	183
27	109	216	382	524	340	466	131	815	1390	185	143	175
28	122	222	570	399	286	568	199	754	1370	192	144	166
29	140	201	568	379	---	890	342	686	1060	199	150	162
30	121	181	512	391	---	2090	122	629	703	194	159	158
31	112	---	503	383	---	3060	---	532	---	188	146	---
TOTAL	4033	7365	6335	8671	9183	13397	14627	27705	36865	8124	4999	5009
MEAN	130	245	204	280	328	432	488	894	1229	262	161	167
MAX	176	455	570	524	722	3060	1750	1540	5060	481	215	230
MIN	96	80	55	140	140	158	122	150	206	161	143	139
†	-84.6	+47.1	+43.9	+45.5	+113	+161	+136	+11.4	+30.2	-92.7	-145	-124
MEAN‡	45.4	292	248	326	441	593	624	905	1259	169	16.0	43.0
CFSM‡	.22	1.43	1.22	1.60	2.16	2.91	3.06	4.44	6.17	.83	.08	.21
IN.‡	.25	1.60	1.41	1.84	2.25	3.35	3.41	5.12	6.88	.96	.09	.23

CAL YR 1988 TOTAL 86192 MEAN 235 MAX 1350 MIN 55 ADJ -1.2 MEAN‡ 234 CFSM‡ 1.15 IN.‡ 15.63
WTR YR 1989 TOTAL 146313 MEAN 401 MAX 5060 MIN 55 ADJ +10.9 MEAN‡ 412 CFSM‡ 2.02 IN.‡ 27.39

† 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.--51 years, 1,457 ft^3/s, 24.52 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)
Mar. 31	0800	17,800	11.37	June 21	0800	*35,100	*15.16
June 16	0200	14,700	10.50				

Minimum daily discharge, 140 ft^3/s, Sept. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	257	347	748	1770	1510	1240	11100	611	2260	1450	e430	292
2	256	335	708	1480	1450	1040	6720	2370	1840	e1050	e410	317
3	252	313	655	1330	1430	978	5200	2350	1550	e860	e380	333
4	258	371	618	1210	1450	951	5100	1850	1690	952	e360	e260
5	252	833	586	918	1240	1020	5220	1660	1660	1310	444	e210
6	253	2760	552	e800	1190	1540	4260	1830	1490	1630	515	e180
7	250	1760	528	e700	1100	1120	3610	2800	1320	1140	456	e140
8	246	1250	513	e1080	924	918	3020	3820	1090	1000	e390	e170
9	240	1200	e450	1940	e800	859	2560	3910	1010	862	e350	e220
10	237	1080	e350	1310	e660	841	2200	6280	1320	751	e330	288
11	250	1180	e250	1170	e700	800	1840	8600	1140	684	e300	e230
12	298	1060	e190	e1100	e800	784	1590	6510	921	615	e290	e220
13	308	981	e270	e1050	e1340	750	1470	5130	1340	573	e270	e240
14	286	1360	e360	e960	2810	712	1470	4370	1860	549	e260	270
15	269	1160	e330	e900	1760	754	1340	4170	7360	509	331	379
16	248	988	e290	e1400	e1500	892	1250	5560	11200	481	330	593
17	238	920	e250	1280	e1100	797	1120	4700	7060	e450	e260	680
18	250	860	e250	1140	e1050	960	1110	3880	5160	e440	e240	600
19	468	758	e250	e1000	e1000	2090	1120	3250	3960	e420	e220	e370
20	538	818	e250	e920	e1000	1530	1000	2820	8460	e400	e210	e300
21	453	2040	e320	e840	e2000	1450	922	2820	29000	e380	e260	e260
22	394	1720	e450	e740	5350	1430	860	2510	12200	e1000	349	e220
23	433	1360	e620	e680	3560	1300	804	2120	9940	2270	348	562
24	501	1190	e860	e640	2680	1510	753	2390	6490	1250	403	808
25	632	1070	2890	e600	2170	3660	713	2140	4740	879	325	552
26	552	970	2250	e620	1930	3030	674	2670	3820	717	e250	e420
27	446	902	1760	2470	1700	2770	676	3250	3240	e450	e200	e360
28	392	882	1810	1950	1410	2720	633	2470	3260	720	e180	e310
29	416	901	2870	1600	---	5500	660	2130	2820	650	e170	e270
30	451	807	2130	1530	---	8660	792	1950	2050	559	e160	e240
31	383	---	1950	1610	---	15900	---	2400	---	e480	e180	---
TOTAL	10707	32176	26308	36738	45614	68506	69787	103321	141251	25481	9601	10294
MEAN	345	1073	849	1185	1629	2210	2326	3333	4708	822	310	343
MAX	632	2760	2890	2470	5350	15900	11100	8600	29000	2270	515	808
MIN	237	313	190	600	660	712	633	611	921	380	160	140
†	-84.6	+47.1	+43.9	+45.5	+113	+161	+136	+11.4	+30.2	-92.7	-145	-124
MEAN‡	260	1120	893	1230	1742	2371	2462	3344	4738	729	165	219
CFSM‡	.32	1.39	1.11	1.52	2.16	2.94	3.05	4.14	5.87	.90	.20	.27
IN.‡	.37	1.55	1.28	1.75	2,25	3.39	3.40	4.77	6.55	1.04	.23	.30

CAL YR 1988 TOTAL 347837 MEAN 950 MAX 5180 MIN 190 ADJ -1.2 MEAN‡ 949 CFSM‡ 1.18 IN.‡ 16.02
WTR YR 1989 TOTAL 579784 MEAN 1588 MAX 29000 MIN 140 ADJ +10.9 MEAN‡ 1599 CFSM‡ 1.98 IN.‡ 26.88

† 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 (Pennsylvtnia Electric Co. bench mark). Prior to Dec. 23, 1947, records from hydroelectric plant 0.2 mi upstream.

REMARKS.--Records good except for estimated daily discharges, which are fair. 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.--45 years, 1,780 ft^3/s, 25.42 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, 39,100 ft^3/s, June 21, gage height, 19.42 ft; minimum daily, 25 ft^3/s, Oct. 8, Sept. 23, 24, 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	e651	1130	2060	1750	1730	13100	926	4120	1910	448	264
2	40	551	1130	1510	1790	1770	7950	3830	2320	1100	439	57
3	e317	380	65	1900	1870	1440	6330	2780	2280	1500	769	56
4	261	563	51	1460	1630	577	6330	1820	2960	890	945	57
5	256	1050	1070	1040	397	895	6330	2120	2400	1420	429	1160
6	258	2630	725	1240	1880	1810	5740	2530	e1870	2340	56	1970
7	243	1710	777	756	1820	1790	5530	3070	2000	1400	751	2610
8	25	1420	738	1130	997	1600	3290	3330	1640	1490	419	1570
9	27	1400	416	2910	849	930	3190	5400	1340	773	409	203
10	252	1520	43	1480	e1210	556	2810	6140	2160	1390	435	37
11	261	1700	44	1490	42	749	2080	10700	1540	937	785	450
12	363	560	1260	e1540	403	659	1970	8160	1440	600	59	187
13	e460	888	392	2440	1760	1460	1840	6590	1340	729	56	29
14	e424	2530	45	1130	753	e1140	2190	5730	2430	758	812	e395
15	67	1370	407	1120	1460	1100	1500	5720	8100	114	396	29
16	35	1250	402	2210	2990	748	979	5950	13700	303	429	30
17	541	360	44	2390	2450	762	1210	6170	9090	771	384	30
18	400	2190	244	1290	1840	783	1530	5750	6560	732	250	470
19	e337	377	939	1390	1600	2500	1820	4630	5210	728	57	671
20	740	39	413	1600	1950	1720	1290	3120	9050	570	57	465
21	e834	2600	416	581	3660	1500	1100	2650	33400	719	793	1350
22	32	2550	753	595	5550	2180	749	3670	13400	1830	331	492
23	34	1990	1280	1490	4870	1840	761	2600	12500	2330	437	25
24	746	765	1450	1100	4350	2550	1070	3040	7740	2390	364	25
25	374	1270	4040	715	1810	4370	258	2790	5920	1210	271	25
26	851	1110	1910	1100	2120	2730	970	2980	4370	947	57	26
27	e838	936	2250	3200	2190	3390	782	4530	4350	824	58	e224
28	e834	1510	2860	e1900	1500	3160	768	2780	4370	811	426	40
29	31	787	3350	1400	---	5920	1130	2520	2990	389	437	34
30	39	1490	2880	1680	---	11200	420	2470	2540	65	607	31
31	e868	---	929	3200	---	18500	---	3440	---	1280	431	---
TOTAL	10828	38147	32453	49047	55491	82059	85017	127936	173130	33250	12597	13012
MEAN	349	1272	1047	1582	1982	2647	2834	4127	5771	1073	406	434
MAX	868	2630	4040	3200	5550	18500	13100	10700	33400	2390	945	2610
MIN	25	39	43	581	42	556	258	926	1340	65	56	25
†	-57.0	+27.0	+50.8	+26.8	+141	+188	+129	-2.1	+23.0	-92.0	-153	-125
MEAN‡	292	1299	1098	1609	2123	2835	2963	4125	5794	981	253	309
CFSM‡	.31	1.36	1.15	1.69	2.23	2.98	3.12	4.34	6.09	1.03	.27	.32
IN.‡	.36	1.52	1.33	1.95	2.32	3.44	3.48	5.00	6.79	1.19	.31	.36

CAL YR 1988 TOTAL 414397 MEAN 1132 MAX 6310 MIN 25 ADJ +1.6 MEAN‡ 1134 CFSM‡ 1.19 IN.‡ 16.25
WTR YR 1989 TOTAL 712967 MEAN 1953 MAX 33400 MIN 25 ADJ +12.0 MEAN‡ 1965 CFSM‡ 2.07 IN.‡ 28.05

† 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 hank 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.--No estimated daily discharge. Records good. 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.--57 years, 13,580 ft^3/s, 24.04 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 PFRIOD 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, 106,000 ft^3/s, June 21, gage height, 17.57 ft; minimum discharge, 2,430 ft^3/s, Aug. 28, gage height, 1.69 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3110	7770	9850	24800	21000	11700	54800	5400	28200	28800	4890	2850
2	2890	7030	9480	23500	20500	10600	42500	9040	21500	26400	4630	2940
3	2910	6250	8660	21700	20400	9720	44000	13200	20000	24700	4450	2850
4	3040	7370	8700	18800	17900	8800	54500	14200	22300	24200	4920	2570
5	3080	10300	8890	13300	13800	9160	54700	15000	28200	25800	4010	2900
6	2920	19600	9830	10900	10600	14300	53900	14100	25300	26900	4370	3670
7	3200	17800	9770	8440	9510	15700	51400	14600	20500	20600	4220	4820
8	3280	16400	9360	8340	7100	14000	45900	19900	17700	17000	4300	5250
9	3120	17000	8780	14500	6210	12100	41800	30400	16700	13500	3920	3480
10	3220	16900	8310	15900	4850	9670	38800	41500	23800	11000	3660	3030
11	3380	17900	6910	15500	5030	7980	35900	61500	19500	8230	3510	2890
12	3780	15200	6320	13900	5540	7550	34800	57400	18000	6600	3460	2870
13	6300	15400	4760	13600	7540	7480	34200	50200	17900	5210	2780	2710
14	7950	19800	4020	13400	7280	7560	30800	48000	21600	4770	2810	2840
15	7320	17700	4480	12000	9340	7310	24500	48600	44500	4030	3070	3180
16	6140	13200	4760	13100	14600	8280	18500	49000	50700	3440	3140	4430
17	5420	10800	4620	12900	15800	8190	15900	48600	44000	3920	3300	6040
18	5470	10800	4250	12000	13600	7920	16100	44200	43700	3970	3240	6550
19	7550	12900	4500	9070	13500	10900	16400	40000	38900	4490	3080	6100
20	10000	12300	5550	8280	12400	14200	15500	35000	39500	4480	2830	5400
21	11300	17200	6630	7580	17000	12900	13600	31400	93100	4880	3360	4700
22	10100	21900	12400	6330	31900	12800	12300	27700	64200	6270	3030	4910
23	9580	22600	14800	6750	31800	12300	11300	23200	46600	8870	3070	5780
24	9370	20900	16400	7000	28700	11000	10600	22400	48800	8020	3660	7650
25	10100	17800	21800	6510	23400	14100	9560	22400	48300	6340	3320	7180
26	10000	15900	19400	6980	20500	13400	7430	23700	43100	5990	3110	6450
27	9480	14800	19500	22000	18100	13000	6330	30500	40500	5780	2660	5980
28	8590	13100	21500	25600	13800	13100	5900	25100	42300	5420	2610	5440
29	7930	10100	31300	22900	---	22100	5600	20900	37200	5330	2870	4890
30	7450	10000	28300	19600	---	43000	5810	17800	33700	4680	3230	4680
31	7630	---	26600	19800	---	62000	---	19600	---	5170	3050	---
TOTAL	195610	436720	360430	434980	421700	432820	813330	924540	1060300	334790	108560	135030
MEAN	6310	14560	11630	14030	15060	13960	27110	29820	35340	10800	3502	4501
MAX	11300	22600	31300	25600	31900	62000	54800	61500	93100	28800	4920	7650
MIN	2890	6250	4020	6330	4850	7310	5600	5400	16700	3440	2610	2570

CAL YR 1988 TOTAL 3763300 MEAN 10280 MAX 44200 MIN 2120
WTR YR 1989 TOTAL 5658810 MEAN 15500 MAX 93100 MIN 2570

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.--71 years, 870 ft^3/s, 22.38 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)
Mar. 30	2200	7,230	9.90	June 21	0500	*9,730	*11.20
May 10	2100	7,000	9.76	June 23	1100	8,510	10.61

Minimum discharge, 72 ft^3/s, Sept. 7, 8, 14, gage height, 2.44 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78	128	406	892	900	e860	5800	448	2400	780	177	82
2	75	124	380	803	859	e800	3960	1950	1740	669	170	89
3	75	119	345	718	863	e740	3160	1610	1390	587	160	90
4	75	159	323	609	876	e720	2810	1190	1760	625	150	87
5	75	547	302	417	800	e900	2990	1030	1700	752	158	79
6	80	1790	287	439	747	e1200	2520	1150	1560	936	167	75
7	80	1170	278	520	668	e1000	2060	2100	1360	731	172	73
8	78	797	272	754	493	e800	1700	2740	1090	882	156	81
9	78	715	250	1110	439	621	1480	2520	1130	630	158	82
10	77	623	e210	759	e400	619	1310	5030	1380	520	141	78
11	87	570	e170	701	e350	595	1100	5500	1020	490	126	95
12	91	546	e140	e680	e380	592	970	4050	822	416	120	82
13	104	521	e98	e640	e420	563	892	2980	2370	381	118	77
14	105	691	e130	e580	e450	533	834	2660	2760	353	120	97
15	96	636	e190	e940	e1200	572	764	2690	4890	325	113	198
16	88	524	e170	1430	e3170	643	711	3840	4890	301	107	325
17	83	493	e160	1150	2210	618	656	3020	4040	287	105	392
18	94	478	e140	994	1550	676	646	2340	2920	267	103	333
19	126	427	e145	e860	1300	1180	632	1800	2140	247	99	209
20	164	627	e150	e700	1120	976	568	1480	3720	240	102	151
21	146	1480	e190	e600	3310	1090	519	1350	8480	240	110	125
22	138	1130	e250	e500	4110	1240	491	1140	5970	255	109	121
23	142	824	e350	e430	2840	1120	456	1050	6000	621	131	491
24	190	677	e1030	e400	1830	1590	432	1190	3320	411	142	514
25	279	584	2880	e420	1440	3170	410	1060	2230	270	107	324
26	277	524	2040	e450	e1300	2570	398	1520	1620	213	94	233
27	204	479	1410	e1300	e1150	2030	394	1620	1290	194	86	177
28	165	472	1280	1180	e1000	1820	386	1190	1530	374	82	147
29	152	477	1570	956	---	2660	376	970	1300	318	83	127
30	147	443	1170	927	---	4730	359	885	955	230	88	119
31	138	---	953	926	---	7000	---	1270	---	192	83	---
TOTAL	3787	18775	17669	23785	36175	44228	39784	63373	77777	13737	3837	5153
MEAN	122	626	570	767	1292	1427	1326	2044	2593	443	124	172
MAX	279	1790	2880	1430	4110	7000	5800	5500	8480	936	177	514
MIN	75	119	98	400	350	533	359	448	822	192	82	73
CFSM	.23	1.19	1.08	1.45	2.45	2.70	2.51	3.87	4.91	.84	.23	.33
IN.	.27	1.32	1.24	1.68	2.55	3.12	2.80	4.46	5.48	.97	.27	.36

CAL YR 1988 TOTAL 197538 MEAN 540 MAX 5110 MIN 30 CFSM 1.02 IN. 13.92
WTR YR 1989 TOTAL 348080 MEAN 954 MAX 8480 MIN 73 CFSM 1.81 IN. 24.52

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.--51 years, 275 ft^3/s, 23.64 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)
Mar. 31	0800	2,810	6.24	June 21	1300	*3,240	*6.71

Minimum discharge, 26 ft^3/s, Oct. 1, 2, 3, gage height, 0.87 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	33	91	210	255	259	1780	133	429	342	64	33
2	26	33	84	192	237	206	1180	471	358	274	62	37
3	27	33	78	172	252	207	939	355	276	237	58	32
4	27	39	74	143	242	197	797	298	319	214	55	29
5	27	114	68	131	221	223	764	269	305	499	65	28
6	27	303	67	130	213	303	652	309	373	636	79	27
7	27	133	65	130	177	234	567	629	300	404	65	27
8	28	104	63	231	e150	194	491	803	253	466	57	27
9	28	101	58	306	e130	192	449	755	233	327	52	28
10	28	88	51	220	e120	200	388	1600	238	276	48	28
11	32	83	e45	201	e110	223	330	1910	197	248	46	38
12	33	70	e34	e180	e120	285	292	1350	169	201	45	35
13	31	95	e28	e170	e135	266	271	957	581	185	45	29
14	30	145	e28	e150	e130	269	249	785	744	175	43	44
15	29	102	e30	e390	e440	345	231	853	1150	151	41	69
16	28	88	e40	356	1090	332	214	1330	1260	135	40	63
17	28	104	e30	300	639	285	193	1010	1080	128	39	81
18	37	96	e28	262	479	337	204	739	793	116	37	50
19	45	83	e30	e240	405	371	198	576	593	107	36	39
20	39	211	e32	e210	340	316	173	478	1420	118	40	35
21	34	461	e39	e180	1220	462	161	428	2980	113	44	33
22	37	274	e48	e150	1340	455	150	352	1840	99	40	31
23	45	198	e100	e130	855	418	139	318	1280	101	43	63
24	67	165	e350	e125	580	718	132	308	828	91	45	87
25	75	136	781	e110	441	1060	126	264	598	81	36	52
26	51	118	468	e150	421	819	121	510	471	74	33	41
27	42	109	343	472	354	630	118	436	420	77	39	37
28	38	114	332	297	286	569	110	334	867	89	31	33
29	37	112	351	280	---	784	109	282	571	73	32	32
30	35	97	253	283	---	1810	104	269	417	64	33	31
31	34	---	253	275	---	2610	---	292	---	64	30	---
TOTAL	1098	3842	4342	6776	11382	15579	11632	19403	21343	6165	1423	1219
MEAN	35.4	128	140	219	406	503	388	626	711	199	45.9	40.6
MAX	75	461	781	472	1340	2610	1780	1910	2980	636	79	87
MIN	26	33	28	110	110	192	104	133	169	64	30	27
CFSM	.22	.81	.89	1.38	2.57	3.18	2.45	3.96	4.50	1.26	.29	.26
IN.	.26	.90	1.02	1.60	2.68	3.67	2.74	4.57	5.03	1.45	.34	.29

CAL YR 1988 TOTAL 61293 MEAN 167 MAX 2350 MIN 12 CFSM 1.06 IN. 14.43
WTR YR 1989 TOTAL 104204 MEAN 285 MAX 2980 MIN 26 CFSM 1.81 IN. 24.53

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.--50 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)
Mar. 30	1900	*2,260	*8.57	No other peak greater than base discharge.			

Minimum daily discharge, 5.3 ft^3/s, Oct. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.5	14	54	104	119	104	875	56	151	230	21	11
2	5.3	14	49	88	105	86	545	283	108	152	20	13
3	5.8	14	45	79	112	82	445	181	88	118	18	11
4	6.3	18	43	67	115	80	381	142	119	97	16	8.6
5	6.9	83	39	e54	101	108	371	122	96	449	18	7.7
6	7.2	189	37	e52	93	208	307	176	118	719	31	7.3
7	6.8	66	36	e50	74	165	258	377	90	334	29	7.3
8	7.1	56	34	e110	e58	183	213	454	73	583	22	7.1
9	7.2	53	31	228	e54	119	190	372	65	301	18	13
10	7.2	44	29	138	e50	109	156	957	87	220	16	10
11	10	42	e20	124	e46	137	123	985	67	161	15	79
12	17	36	e15	e94	e43	242	106	675	55	117	15	25
13	15	51	e12	e80	e42	228	100	464	115	125	16	16
14	11	89	e15	e70	e70	241	90	392	630	121	15	15
15	9.0	57	e21	e280	e390	342	84	377	631	77	14	29
16	8.7	48	e20	260	950	285	80	571	559	59	13	33
17	8.7	53	e18	197	455	216	71	418	549	54	13	52
18	9.7	51	e16	155	296	208	72	308	377	45	12	29
19	13	41	e15	131	222	201	76	231	258	43	13	22
20	18	169	e18	116	178	159	67	185	493	51	14	18
21	20	412	e23	87	840	365	61	167	1120	47	15	15
22	18	199	e30	e78	764	312	57	125	713	37	14	15
23	24	127	e90	e70	445	251	53	119	590	32	16	36
24	56	95	e340	e64	289	492	50	133	336	29	26	75
25	55	76	471	e58	203	632	48	109	219	23	18	34
26	30	65	236	e80	186	416	46	428	158	22	13	26
27	22	67	161	341	148	304	45	334	166	23	9.3	22
28	20	69	157	195	113	269	43	212	1160	29	8.8	18
29	18	72	178	153	---	695	43	156	571	24	9.1	16
30	17	58	112	151	---	1550	43	150	331	21	12	15
31	15	---	117	138	---	1770	---	155	---	21	9.2	---
TOTAL	480.4	2428	2482	3892	6561	10559	5099	9814	10093	4364	499.4	686.0
MEAN	15.5	80.9	80.1	126	234	341	170	317	336	141	16.1	22.9
MAX	56	412	471	341	950	1770	875	985	1160	719	31	79
MIN	5.3	14	12	50	42	80	43	56	55	21	8.8	7.1
CFSM	.18	.93	.92	1.44	2.68	3.90	1.94	3.62	3.85	1.61	.18	.26
IN.	.20	1.03	1.06	1.66	2.79	4.49	2.17	4.18	4.30	1.86	.21	.29

CAL YR 1988 TOTAL 30878.9 MEAN 84.4 MAX 1770 MIN 2.5 CFSM .97 IN. 13.14
WTR YR 1989 TOTAL 56957.8 MEAN 156 MAX 1770 MIN 5.3 CFSM 1.79 IN. 24.24

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.--No estimated daily discharge. Records good. 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.--51 years, 588 ft^3/s, 23.61 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, 4,140 ft^3/s, Apr. 2, gage height, 6.43 ft; minimum daily, 26 ft^3/s, Sept. 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	33	343	541	644	517	2420	106	751	706	96	59
2	31	34	378	491	502	515	3970	341	826	592	84	58
3	31	34	374	421	504	442	3390	705	872	472	84	58
4	31	35	368	373	504	394	2180	592	710	336	84	58
5	31	41	362	202	504	399	2160	446	596	494	85	59
6	31	141	295	160	501	603	2140	450	677	1080	97	58
7	31	336	204	242	496	738	2110	466	730	1250	142	29
8	31	424	170	272	328	603	2070	1050	645	1400	164	26
9	31	422	170	662	210	445	2010	1720	475	1180	134	30
10	31	417	98	689	194	470	1500	1890	394	776	96	31
11	31	413	58	427	225	521	1180	1950	393	586	84	57
12	31	408	65	463	318	729	684	2920	394	506	85	127
13	31	336	65	878	361	868	84	3950	622	376	71	160
14	31	284	103	929	314	867	204	3520	787	323	61	100
15	31	300	129	944	317	867	384	2570	711	324	61	57
16	31	311	104	1060	717	1000	674	2330	1020	326	61	61
17	42	265	86	906	1870	793	826	2330	2470	316	60	119
18	53	232	86	706	2520	529	812	1990	2790	288	59	170
19	52	232	86	630	1940	875	795	1610	2720	250	59	169
20	52	243	86	528	1260	959	628	1130	2190	233	59	168
21	70	402	87	490	961	881	518	797	1410	221	58	137
22	82	719	132	312	2190	1170	438	738	1770	211	58	117
23	182	823	175	232	2870	1200	385	740	2960	188	58	133
24	84	654	258	321	1980	1120	317	738	3580	172	72	128
25	82	394	657	323	1630	1800	271	657	3470	139	82	182
26	128	292	1360	368	1300	2320	216	627	2960	116	82	227
27	161	290	1630	518	955	1830	179	1010	2130	115	82	173
28	131	290	1280	844	658	1380	179	1260	2250	114	68	121
29	108	289	1000	952	---	1310	179	1030	2180	113	59	71
30	108	289	603	710	---	1190	128	806	1330	113	58	60
31	66	---	495	677	---	1110	---	751	---	113	58	---
TOTAL	1897	9383	11307	17271	26773	28445	33031	41220	44813	13429	2461	3003
MEAN	61.2	313	365	557	956	918	1101	1330	1494	433	79.4	100
MAX	182	823	1630	1060	2870	2320	3970	3950	3580	1400	164	227
MIN	31	33	58	160	194	394	84	106	393	113	58	26
†	-7.8	-23.4	-43.7	+4.7	-3.2	+302	-296	+63.9	-13.8	+6.8	+1.6	-1.7
MEAN‡	53.4	290	321	562	953	1220	805	1394	1480	440	81.0	98.3
CFSM‡	.16	.84	.93	1.63	2.77	3.55	2.34	4.05	4.30	1.28	.24	.29
IN.‡	.18	.94	1.07	1.88	2.88	4.09	2.61	4.67	4.80	1.48	.28	.32

CAL YR 1988 TOTAL 135717 MEAN 371 MAX 3980 MIN 30 ADJ +.4 MEAN‡ 371 CFSM‡ 1.08 IN.‡ 14.65
WTR YR 1989 TOTAL 233033 MEAN 638 MAX 3970 MIN 26 ADJ 0 MEAN‡ 638 CFSM‡ 1.85 IN.‡ 25.20

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

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.--79 years (1904-28, 1934-89), 15,810 ft^3/s, 23.93 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, 118,000 ft^3/s, June 21, gage height, 21.05 ft; minimum daily, 2,320 ft^3/s, Sept. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3700	8900	11000	26600	23100	14100	65100	6300	32200	36000	5400	2810
2	3450	8300	10400	25300	22600	12500	52500	11300	25500	29300	4670	2780
3	3400	7600	9990	23000	22100	11400	51200	15600	23300	25900	4570	2700
4	3500	9000	9530	20500	20700	10700	59200	16900	24800	25700	4350	2530
5	3600	13000	9600	14800	17100	10600	59500	17300	31500	25100	4570	2320
6	3400	19800	10500	11900	12400	15800	58500	17100	27400	29800	4250	3190
7	3500	18500	10500	10400	11600	18100	55300	17900	23900	24700	3990	4110
8	3800	17300	9990	9730	9280	16200	50000	23400	20700	20800	4780	5600
9	3500	18000	9590	15700	6730	14200	45500	32900	18600	17800	e4200	4590
10	3500	18000	8970	18100	4810	11600	41800	49300	26300	13700	e4000	3190
11	3950	19200	7710	16700	5350	10200	38300	71600	22500	10800	e3900	2800
12	3600	16800	5640	16500	5360	9700	36600	65500	19800	8490	e3500	2950
13	5400	16300	5080	16500	6930	9500	35200	58700	21600	6840	e3000	2770
14	8400	19400	3830	16900	9010	9770	32400	54900	26400	5740	e3200	2730
15	8400	20200	4720	15600	10600	9580	26700	54500	50000	5280	e3300	3270
16	7100	15300	4190	16700	19100	10400	20900	55500	61200	4250	e3500	4070
17	6250	12700	4410	16200	22400	10500	18000	55100	53100	4300	3650	6250
18	6150	10900	4220	14900	19300	10200	17900	49800	51300	4730	3340	7090
19	7700	14200	4040	11800	18700	12700	17800	44100	44700	4250	3140	6840
20	10000	13500	5200	10600	16400	16900	17400	38400	44800	5000	3000	5870
21	12000	17400	6810	9940	20800	16300	15800	34500	102000	4890	3000	5190
22	11300	23000	10600	8040	38400	16400	14400	30600	e70000	5400	3650	5500
23	10600	24300	15600	7080	39600	16000	12700	26200	e52000	7880	3000	6230
24	10200	23500	19500	8160	34500	15200	12100	25000	e54000	9120	3300	8120
25	10900	19900	25300	8210	28300	20300	11100	25100	e56000	7810	3570	8470
26	10800	17500	24200	8030	24200	20300	8680	27600	e48000	6400	3200	7450
27	10600	16200	22800	18300	22300	18400	7810	34600	e47000	6100	2670	6720
28	9500	15100	23700	28900	17500	17600	6830	29200	47300	5630	2440	6070
29	8700	12000	33800	26600	---	25900	6570	24600	43900	5340	2710	5340
30	8600	10600	30200	22400	---	48800	6790	21000	37000	4840	3010	4950
31	8800	---	28700	20900	---	73100	---	21400	---	4670	3100	---
TOTAL	214300	476400	390320	494990	509170	532950	902580	1055900	1206800	376560	111960	142500
MEAN	6913	15880	12590	15970	18180	17190	30090	34060	40230	12150	3612	4750
MAX	12000	24300	33800	28900	39600	73100	65100	71600	102000	36000	5400	8470
MIN	3400	7600	3830	7080	4810	9500	6570	6300	18600	4250	2440	2320

CAL YR 1988 TOTAL 4247540 MEAN 11610 MAX 49400 MIN 2400
WTR YR 1989 TOTAL 6414430 MEAN 17570 MAX 102000 MIN 2320

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 atove Nationa] Geodetic Vertical Datum of 1929 (Baltimore and Ohio Raildroad 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.--52 years, 294 ft^3/s, 20.90 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)
Feb. 16	0300	3,240	7.18	May 10	2300	3,310	7.27
Feb. 21	1600	2,640	6.44	June 21	1200	3,310	7.27
Mar. 31	0400	*4,810	*9.38				

Minimum discharge, 14 ft^3/s, Oct. 11, gage height, 2.12 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	19	44	134	171	196	2310	110	346	362	42	36
2	21	20	38	121	148	143	1250	672	247	266	32	40
3	22	20	31	107	193	142	940	485	193	211	30	32
4	25	20	30	81	212	139	750	383	238	173	29	35
5	22	83	29	e48	188	220	791	324	191	251	52	34
6	21	211	25	e64	165	554	656	393	213	460	68	32
7	21	77	32	e60	134	430	548	769	155	274	157	31
8	21	56	35	e150	95	325	442	796	123	1240	47	269
9	21	38	31	333	e84	293	378	668	156	523	46	78
10	19	29	27	220	e70	298	298	2230	253	341	35	41
11	19	26	26	185	e66	423	241	2590	162	238	30	99
12	28	22	23	e170	e60	654	209	1510	128	176	38	44
13	23	40	23	e150	e56	592	191	1020	338	465	35	35
14	20	92	25	e200	e90	563	168	877	567	483	34	49
15	20	48	29	e300	e800	608	148	879	959	288	30	118
16	20	34	20	473	2480	491	139	1330	998	205	31	190
17	22	44	18	354	994	378	120	901	893	158	33	221
18	26	45	17	275	597	364	125	624	653	120	30	127
19	21	39	17	227	427	327	134	466	456	97	29	85
20	24	294	19	197	326	296	114	371	926	92	45	63
21	20	563	34	160	1770	892	102	337	2920	72	32	49
22	22	282	39	121	1570	712	101	256	1730	62	35	53
23	21	177	90	e105	816	571	88	283	1070	53	39	269
24	51	122	429	e92	521	923	73	375	587	41	41	279
25	43	90	675	e88	353	1120	60	344	670	34	35	150
26	26	67	348	e100	325	761	58	1230	294	27	30	104
27	19	56	233	e340	270	581	56	1060	270	39	31	74
28	23	67	222	269	212	630	52	639	1790	39	36	57
29	18	64	255	229	---	1930	60	451	917	36	36	45
30	23	49	174	227	---	3760	58	341	526	42	33	51
31	20	---	163	202	---	4390	---	409	---	41	31	---
TOTAL	724	2794	3201	5782	13193	23706	10660	23123	18969	6909	1252	2790
MEAN	23.4	93.1	103	187	471	765	355	746	632	223	40.4	93.0
MAX	51	563	675	473	2480	4390	2310	2590	2920	1240	157	279
MIN	18	19	17	48	56	139	52	110	123	27	29	31

CAL YR 1988 TOTAL 61518 MEAN 168 MAX 4550 MIN 17
WTR YR 1989 TOTAL 113103 MEAN 310 MAX 4390 MIN 17

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.--80 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, 3,000 ft^3/s, Apr. 2, gage height, 6.43 ft; minimum daily, 12 ft^3/s, Nov. 13, Dec. 20, 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	30	72	193	313	309	1790	95	594	618	35	45
2	28	24	72	193	244	309	2840	513	511	419	29	45
3	28	24	72	146	200	240	2490	976	347	241	29	45
4	28	24	49	116	200	200	1660	811	278	203	23	45
5	28	26	28	71	257	200	1650	496	296	203	19	45
6	28	25	24	71	317	466	1990	416	318	426	41	35
7	20	149	24	94	199	636	2150	428	276	454	146	30
8	15	223	24	96	118	629	2090	808	165	598	205	31
9	15	183	32	393	106	492	2020	1090	96	986	111	255
10	15	122	37	449	78	404	2100	1130	295	571	32	440
11	16	90	37	236	66	539	1900	1240	371	270	18	228
12	16	50	37	197	85	635	1090	1780	225	209	18	42
13	16	12	37	477	98	771	435	2290	266	132	24	31
14	16	19	37	658	98	850	307	2230	348	308	31	31
15	16	69	37	658	107	852	234	2170	715	444	36	32
16	16	98	37	776	504	965	187	2100	1100	440	44	33
17	24	99	37	719	1460	852	187	2060	1040	306	46	147
18	30	75	37	503	2030	489	188	2000	1340	194	48	296
19	30	54	24	359	1940	411	192	1430	1300	157	48	341
20	30	50	12	244	1820	489	193	673	940	133	48	331
21	44	218	12	196	1150	608	193	414	689	115	46	174
22	53	542	27	195	1450	1000	152	413	1360	102	46	30
23	53	574	37	148	2150	1120	125	354	1980	102	45	31
24	54	287	142	118	1570	1020	125	507	1930	73	45	167
25	56	150	491	118	1060	1180	124	570	1850	49	45	404
26	56	91	915	119	798	1520	123	529	1450	45	45	399
27	54	73	797	176	501	1240	111	680	782	45	45	281
28	55	74	432	490	349	692	97	1170	1050	45	45	188
29	39	74	308	509	---	652	78	1300	1720	43	45	123
30	31	73	307	354	---	742	83	856	1130	43	45	90
31	34	---	238	313	---	832	---	528	---	43	45	---
TOTAL	972	3602	4472	9385	19268	21344	26904	32057	24762	8017	1528	4415
MEAN	31.4	120	144	303	688	689	897	1034	825	259	49.3	147
MAX	56	574	915	776	2150	1520	2840	2290	1980	986	205	440
MIN	15	12	12	71	66	200	78	95	96	43	18	30

CAL YR 1988 TOTAL 85660 MEAN 234 MAX 2680 MIN 12
WTR YR 1989 TOTAL 156726 MEAN 429 MAX 2840 MIN 12

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.

WATER-DISCHARGE RECORDS

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)
Mar. 30	0500	*63	*3.82	No other peak greater than base discharge.			

Minimum daily discharge, 1.3 ft^3/s, Sept. 4, 5, 6, 7, 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	2.8	5.3	5.9	6.8	7.3	36	4.9	6.1	5.7	5.0	e4.6
2	4.1	2.8	4.9	5.6	6.0	6.3	25	8.3	5.4	5.2	4.1	1.6
3	3.9	2.8	4.8	5.2	5.9	6.0	21	18	5.2	4.6	3.7	1.4
4	3.6	2.8	4.5	4.9	5.3	5.9	18	17	8.5	4.3	3.6	1.3
5	3.3	5.1	4.2	4.5	5.2	11	16	17	6.4	13	3.2	1.3
6	3.1	5.4	4.1	4.2	5.0	19	13	20	6.6	11	2.8	1.3
7	3.0	5.0	4.0	4.0	4.4	17	11	24	6.3	9.4	2.7	1.3
8	2.9	5.0	3.9	4.7	4.3	13	9.6	25	6.0	8.0	2.5	2.0
9	2.8	4.8	3.7	4.6	4.0	11	8.7	22	5.8	6.6	2.3	1.6
10	e2.7	4.6	3.4	4.3	4.5	9.9	7.5	35	5.7	5.8	2.2	1.4
11	e3.0	4.6	3.2	4.3	5.1	9.1	6.3	40	4.8	5.2	2.2	1.7
12	e3.9	4.3	3.1	12	4.6	9.2	5.9	40	4.3	4.4	2.2	1.4
13	e3.3	5.2	3.7	21	3.5	8.7	5.6	30	4.3	4.3	2.2	1.4
14	e2.6	5.3	3.9	16	4.2	9.5	5.4	22	4.3	4.0	2.0	1.3
15	e2.3	5.0	3.2	17	30	14	5.2	19	4.3	3.6	2.0	1.4
16	e2.2	5.0	2.6	16	42	17	4.9	19	4.4	3.4	1.9	1.9
17	e2.2	4.9	2.5	14	24	15	4.4	20	8.3	3.3	1.8	e1.8
18	e2.3	4.5	2.5	12	18	16	4.9	18	7.5	3.0	1.7	e1.8
19	e3.9	4.3	2.5	10	14	13	5.6	16	7.1	2.8	1.8	e1.8
20	e3.0	23	2.6	9.1	11	11	5.2	13	25	2.8	2.3	e1.8
21	e2.5	33	3.5	7.3	20	19	5.2	11	41	2.6	e12	e1.7
22	e2.3	22	3.7	6.4	22	16	5.2	9.3	29	2.8	e11	e1.7
23	e2.5	17	4.2	5.8	18	14	5.2	8.9	21	2.4	e8.5	1.8
24	e5.0	14	13	5.6	15	22	5.2	8.2	17	2.3	e5.6	1.7
25	e4.8	11	18	5.4	11	22	5.2	7.2	13	2.0	e20	1.6
26	e4.7	8.9	13	5.7	10	23	5.0	9.5	10	4.1	e17	1.6
27	3.4	8.2	11	9.7	9.4	20	4.6	9.0	8.8	2.4	e13	1.6
28	3.4	7.4	10	8.2	8.3	18	4.4	8.9	11	2.4	e6.2	1.6
29	3.1	6.2	8.6	8.0	---	26	5.1	8.5	7.3	2.2	e3.6	1.6
30	3.1	5.6	7.3	8.0	---	56	4.7	8.0	6.2	2.1	e2.8	1.6
31	2.8	---	6.5	7.4	---	53	---	6.9	---	12	e2.5	---
TOTAL	100.0	240.5	171.4	256.8	321.5	517.9	269.0	523.6	300.6	147.7	154.4	50.6
MEAN	3.23	8.02	5.53	8.28	11.5	16.7	8.97	16.9	10.0	4.76	4.98	1.69
MAX	5.0	33	18	21	42	56	36	40	41	13	20	4.6
MIN	2.2	2.8	2.5	4.0	3.5	5.9	4.4	4.9	4.3	2.0	1.7	1.3
CFSM	.94	2.32	1.60	2.40	3.33	4.84	2.60	4.90	2.90	1.38	1.44	.49
IN.	1.08	2.59	1.85	2.77	3.47	5.58	2.90	5.65	3.24	1.59	1.66	.55

CAL YR 1988 TOTAL 2600.7 MEAN 7.11 MAX 39 MIN 1.0 CFSM 2.06 IN. 28.04
WTR YR 1989 TOTAL 3054.0 MEAN 8.37 MAX 56 MIN 1.3 CFSM 2.43 IN. 32.93

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 1988 TO SEPTEMBER 1989

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 FIELD GRAN PLOT µEQ/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)
OCT 1988											
26...	1110	3.5	48	6.11	7.5	3.3	0.93	1.9	0.70	56	10
NOV											
30...	1015	5.6	47	6.00	4.0	3.0	0.85	2.2	0.59	36	9.8
DEC											
20...	1015	2.4	48	6.10	1.0	3.2	0.88	2.4	0.56	44	9.0
JAN 1989											
24...	1015	6.1	48	6.00	2.5	3.4	1.0	2.3	0.64	30	9.4
FEB											
27...	1030	8.9	49	5.96	2.0	2.9	0.97	2.2	0.72	22	7.8
MAR											
21...	1015	21	44	5.22	3.5	2.4	0.77	1.6	0.66	11	11
APR											
24...	1200	4.9	42	5.56	6.0	3.2	1.2	2.4	0.62	32	9.0
MAY											
30...	1100	8.0	42	6.12	12.0	3.3	1.2	2.5	0.62	44	9.7
JUN											
29...	1100	7.1	47	5.79	12.5	3.2	0.99	2.5	0.60	36	9.1
JUL											
25...	1330	1.9	45	6.70	19.5	3.4	1.0	3.3	0.65	36	8.5
AUG											
29...	1130	1.4	51	6.55	16.0	3.5	0.98	3.5	0.53	92	8.4
SEP											
26...	1000	1.6	51	6.47	11.0	3.4	1.0	3.2	0.55	106	8.5

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-PHOROUS 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 1988											
26...	4.2	0.07	<0.010	3.8	0.006	<0.001	40	4	18	1.0	0.340
NOV											
30...	5.1	0.07	<0.010	3.5	0.008	<0.001	50	<2	15	0.7	0.500
DEC											
20...	5.2	0.08	<0.010	3.3	0.009	0.003	20	4	6	0.6	0.580
JAN 1989											
24...	4.8	0.06	--	3.7	0.034	0.018	60	<2	18	0.7	0.460
FEB											
27...	5.0	0.02	--	3.4	0.050	0.010	100	10	30	1.1	0.620
MAR											
21...	3.5	0.05	--	2.3	0.050	0.010	120	10	40	0.8	0.410
APR											
24...	6.8	0.04	--	3.4	0.120	0.010	40	40	10	0.8	0.440
MAY											
30...	5.3	0.03	--	3.7	0.050	0.010	20	70	20	--	0.440
JUN											
29...	5.4	0.02	--	3.9	0.050	0.010	80	10	20	0.7	0.350
JUL											
25...	7.1	0.01	--	4.1	0.050	0.010	30	40	10	0.5	0.380
AUG											
29...	7.0	0.04	--	4.0	0.050	0.100	40	30	30	1.1	0.700
SEP											
26...	7.9	0.04	--	3.8	0.050	0.010	50	20	10	1.0	0.440

KISKIMINETAS 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.--51 years, 768 ft^3/s, 23.12 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, 5,230 ft^3/s, June 21, gage height, 7.23 ft; minimum daily, 100 ft^3/s Sept. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	189	117	e350	e440	635	630	2840	374	452	533	932	148
2	176	116	e320	e410	572	527	2140	640	398	459	630	147
3	164	121	e300	e380	615	498	2000	908	358	406	487	124
4	145	120	e290	e360	673	491	1810	841	520	368	398	109
5	121	452	e280	e320	578	922	1580	837	452	1720	333	103
6	122	904	e270	e300	529	3100	1340	2020	488	1810	313	109
7	122	533	e254	e290	446	2360	1160	2400	448	1690	286	100
8	120	399	e230	e500	393	1540	1030	1920	360	2450	244	199
9	114	344	e210	e700	296	1190	992	1510	324	1300	223	210
10	118	317	e190	e840	e250	1050	899	3900	359	997	205	175
11	129	298	e180	e604	e230	1090	773	4340	298	779	194	172
12	127	280	e160	e1450	e300	1470	682	3520	254	652	220	146
13	127	379	e240	2670	e190	1320	627	2570	280	922	208	133
14	121	457	e240	1680	e270	1410	589	2150	328	919	191	131
15	115	379	e200	2320	e1670	2180	552	1940	425	665	192	232
16	111	e350	e170	2090	4010	2100	542	2730	672	840	176	343
17	103	e320	e160	1410	2160	1540	488	3590	1060	1190	166	384
18	113	e300	e140	1120	1400	1390	476	2430	839	861	152	249
19	117	e270	e140	981	1120	1330	563	1820	586	631	145	197
20	113	e310	e150	889	961	1170	533	1450	1210	702	151	170
21	115	e400	e200	730	2100	1990	464	1270	4270	620	154	153
22	131	e1650	e250	624	2680	1910	425	1060	2700	776	152	141
23	153	e1160	e320	593	1740	1550	390	985	1940	639	139	184
24	164	e900	e580	541	1240	2670	367	1040	1350	472	150	230
25	173	e750	e1400	514	982	3370	345	893	1020	380	144	186
26	161	e640	e1000	532	938	2490	340	927	803	402	130	155
27	145	e560	e840	928	832	1880	327	853	673	613	120	153
28	137	e480	e640	881	693	1560	310	708	1230	603	115	141
29	131	e430	e580	711	---	1710	342	620	888	492	115	131
30	127	e395	e520	691	---	2910	382	579	658	381	143	123
31	122	---	e450	739	---	3850	---	520	---	1210	158	---
TOTAL	4126	14131	11254	27238	28503	53198	25308	51345	25643	26482	7366	5178
MEAN	133	471	363	879	1018	1716	844	1656	855	854	238	173
MAX	189	1650	1400	2670	4010	3850	2840	4340	4270	2450	932	384
MIN	103	116	140	290	190	491	310	374	254	368	115	100

CAL YR 1988 TOTAL 219977 MEAN 601 MAX 5470 MIN 68
WTR YR 1989 TOTAL 279772 MEAN 766 MAX 4340 MIN 100

e Estimated

KISKIMINETAS RIVER BASIN

03041000 LITTLE CONEMAUGH RIVER AT EAST CONEMAUGH, PA

LOCATION.--Lat 40°20'37", long 78°53'07", Cambria County, Hydrologic Unit 05010007, on right bank 100 ft downstream from bridge on State Highway 271 at East Conemaugh, 0.3 mi downstream from Clapboard Run, and 2.5 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 100 ft upstream 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 current year, water-stage recorder at same site and 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.--50 years, 328 ft^3/s, 24.34 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 daily discharge, 5,000 ft^3/s, May 11; minimum daily, 44 ft^3/s, Sept. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e120	e80	218	e180	255	e340	1490	e500	e140	e350	239	e68
2	e110	e82	199	e170	242	e300	1120	e700	e125	e300	184	e64
3	e100	e90	185	e150	260	e260	1000	e900	e115	e250	164	e54
4	e90	e190	175	e145	263	e320	848	e800	e300	e220	e150	e47
5	e86	e350	159	e140	244	e500	714	e1300	e260	e450	e140	e44
6	e74	e520	158	e130	240	e1500	582	e2000	e280	e1200	e130	e54
7	e74	e350	153	e125	218	e1100	514	e1500	e230	e1050	e125	e70
8	e74	e270	145	e120	198	e880	474	e1200	e190	1260	e115	106
9	e74	e230	136	e140	161	e680	461	e820	e170	528	e110	105
10	e74	e180	120	e200	e130	e580	428	e1800	e190	e400	e105	93
11	e72	e150	111	e150	e115	e600	e380	e5000	e160	e350	e100	e70
12	e70	e140	e100	e320	e105	e860	e340	3450	e140	e310	e110	e60
13	e76	e230	e160	895	e96	e700	e310	e1600	e155	e440	e110	e54
14	e74	e400	e140	458	e150	e760	e280	e1200	e180	e420	e105	e54
15	e72	e370	e90	823	e540	e860	e260	e940	e260	e300	e90	103
16	e64	e270	e80	616	1520	e700	e250	1690	e400	e420	e82	154
17	e66	e240	e76	474	814	e600	e240	e1400	e580	e560	e78	147
18	e70	e220	e68	392	634	e520	e230	e1200	e430	e450	e74	109
19	e74	e190	e70	363	549	e470	e250	e660	e680	e330	e76	e90
20	e66	1120	e80	329	492	e640	e290	e560	1450	e310	e78	e76
21	e62	1520	e110	266	1310	e900	e280	e480	2590	e230	e80	e68
22	e86	858	e100	231	1400	e640	e250	e430	e1800	e220	e80	e60
23	e94	625	e170	229	978	e900	e220	e400	e1300	e200	e68	e78
24	e100	477	e490	221	773	e1200	e210	e430	e1000	e190	e74	102
25	e110	395	943	216	636	e1700	e190	e350	e760	e160	e66	90
26	e105	356	478	224	e540	e1100	e180	e300	e580	e190	e60	e70
27	e96	345	356	346	e450	e640	e170	e250	e450	e240	e56	e66
28	e90	300	e280	278	e380	e760	e160	e230	e800	e200	e50	e60
29	e84	260	e250	267	---	e1100	e200	e200	e600	e160	e56	e58
30	e82	235	e220	267	---	e1500	e300	e170	e420	135	e66	e54
31	e84	---	e200	282	---	e2000	---	e150	---	470	e72	---
TOTAL	2573	11043	6220	9147	13693	25610	12621	32610	16735	12293	3093	2328
MEAN	83.0	368	201	295	489	826	421	1052	558	397	99.8	77.6
MAX	120	1520	943	895	1520	2000	1490	5000	2590	1260	239	154
MIN	62	80	68	120	96	260	160	150	115	135	50	44

CAL YR 1988 TOTAL 99170 MEAN 271 MAX 1660 MIN 43
WTR YR 1989 TOTAL 147966 MEAN 405 MAX 5000 MIN 44

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---51 years, 1,283 ft^2/s, 24.37 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, 8,060 ft^3/s, Mar. 31, gage height, 6.92 ft; minimum, 224 ft^3/s, Sept. 7, 8, gage height, 2.26 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e360	318	847	1070	1250	1310	5410	644	911	902	1560	380
2	e330	329	766	e940	1140	1100	4080	1110	771	744	1060	366
3	e300	328	692	e840	1190	1060	3710	1580	673	658	790	281
4	e270	341	647	e760	1290	1010	3330	1510	1050	595	662	247
5	e250	616	605	e700	1120	1580	2920	1510	862	2290	591	233
6	e240	2480	581	e640	1060	4390	2520	3240	861	2830	626	256
7	e230	1400	575	e580	924	3670	2190	4170	789	2410	527	229
8	e230	1070	543	e1020	795	2730	1910	3640	634	4000	483	462
9	e230	924	515	2050	610	2240	1820	2960	582	2300	451	404
10	e230	825	470	1480	e450	2020	1650	5820	766	1720	419	360
11	e240	798	445	1210	e360	2000	1420	6390	593	1360	401	410
12	e300	713	394	2630	e320	2580	1260	5500	513	1100	443	361
13	e350	728	585	4310	e400	2400	1170	4290	669	2570	427	332
14	e350	1100	557	3060	e700	2440	1100	3620	730	2720	395	316
15	e350	939	487	3760	3250	3440	1030	3340	858	1680	409	435
16	e310	817	401	3540	6110	3520	1000	4490	1330	1460	393	636
17	e340	764	367	2700	3680	2780	901	5690	2140	2060	362	780
18	e360	719	364	2200	2650	2670	907	4180	1740	1520	350	526
19	e330	614	381	1940	2180	2690	990	3240	1220	1210	370	432
20	e310	716	397	1770	1860	2280	927	2640	1840	1260	713	383
21	323	5380	553	1490	3450	3210	817	2290	5680	1120	431	335
22	358	4110	644	1220	4450	3160	739	1890	4130	1200	406	328
23	378	2770	818	1200	3210	2740	677	1730	3140	1070	357	415
24	526	2160	2280	1110	2460	4190	641	1810	2330	824	327	480
25	504	1750	4390	1050	1950	5290	603	1540	1740	723	324	419
26	427	1470	2790	1070	1880	4300	586	2140	1370	643	313	371
27	375	1280	2000	1740	1700	3390	559	1990	1140	926	299	349
28	366	1190	1760	1640	1420	2960	537	1480	2150	921	298	325
29	342	1110	1630	1360	---	3240	595	1230	1600	793	304	309
30	325	890	1310	1330	---	5870	632	1110	1130	633	330	296
31	322	---	1190	1410	---	7500	---	1020	---	2130	360	---
TOTAL	10156	38649	29984	51820	51859	93760	46631	87794	43942	46372	15181	11456
MEAN	328	1288	967	1672	1852	3025	1554	2832	1465	1496	490	382
MAX	526	5380	4390	4310	6110	7500	5410	6390	5680	4000	1560	780
MIN	230	318	364	580	320	1010	537	644	513	595	298	229

CAL YR 1988 TOTAL 432718 MEAN 1182 MAX 7400 MIN 210
WTR YR 1989 TOTAL 527604 MEAN 1445 MAX 7500 MIN 229

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.--37 years, 370 ft^3/s, 26.17 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)
Feb. 16	0200	3,730	6.41	July 8	0630	2,920	6.02
Mar. 30	1400	*7,260	*8.04	July 13	1200	5,390	7.20

Minimum daily discharge, 57 ft^3/s, Sept. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100	91	241	e220	351	330	2640	179	372	296	141	71
2	92	86	227	e200	316	266	1520	362	290	260	117	92
3	91	83	203	e190	334	266	1190	487	244	236	103	76
4	85	100	190	e170	339	268	e800	474	374	207	100	63
5	71	289	177	e160	297	372	e700	440	314	480	179	59
6	68	743	e160	e150	281	892	e600	987	290	797	186	57
7	67	425	e145	e140	250	621	e520	1110	253	440	163	58
8	66	351	e135	e260	235	500	e490	1160	213	1530	122	129
9	64	313	e120	437	164	443	e460	920	203	656	107	109
10	67	272	e110	321	e140	423	e400	1820	239	473	97	86
11	78	259	e98	294	e125	451	e350	2090	211	376	91	177
12	78	231	e86	498	e115	563	e300	1840	182	294	94	107
13	70	306	e110	986	e100	511	e280	1240	402	3300	91	83
14	64	466	e140	598	e220	519	e260	1000	408	2070	85	91
15	59	350	e120	966	e800	701	e250	928	478	929	81	244
16	63	304	e110	770	2600	697	e250	1420	562	607	77	248
17	62	287	e94	576	1090	544	e230	1590	957	493	74	280
18	69	251	e80	481	716	517	e210	1040	696	385	69	179
19	76	227	e70	424	578	530	e250	773	502	326	69	136
20	72	604	e74	390	490	453	e240	624	534	436	177	114
21	70	1470	e80	335	1260	866	e200	567	1770	316	117	100
22	73	726	e92	294	1440	712	e170	481	1030	260	92	92
23	84	537	e170	e270	857	588	e160	444	674	231	83	174
24	212	441	e500	e240	610	1310	e150	445	517	192	72	203
25	224	378	1250	e230	488	1600	e145	396	415	154	70	152
26	156	334	628	e212	477	1110	e145	930	345	138	66	117
27	127	302	480	e400	420	784	e140	797	310	149	63	106
28	117	317	e400	416	355	680	e135	528	678	136	63	95
29	111	287	e330	350	---	1250	176	437	520	122	63	86
30	103	248	e280	371	---	5550	179	380	359	117	69	81
31	96	---	e250	372	---	5450	---	346	---	142	62	---
TOTAL	2835	11078	7150	11721	15448	29767	13540	26235	14342	16548	3043	3665
MEAN	91.5	369	231	378	552	960	451	846	478	534	98.2	122
MAX	224	1470	1250	986	2600	5550	2640	2090	1770	3300	186	280
MIN	59	83	70	140	100	266	135	179	182	117	62	57
CFSM	.48	1.92	1.20	1.97	2.87	5.00	2.35	4.41	2.49	2.78	.51	.64
IN.	.55	2.15	1.39	2.27	2.99	5.77	2.62	5.08	2.78	3.21	.59	.71

CAL YR 1988 TOTAL 102452 MEAN 280 MAX 4950 MIN 32 CFSM 1.46 IN. 19.85
WTR YR 1989 TOTAL 155372 MEAN 426 MAX 5550 MIN 57 CFSM 2.22 IN. 30.10

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 gagehouse 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 REQORD.--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, 16,500 acre-ft, Mar. 31, elevation, 1,283.04 ft; minimum, 12,800 acre-ft, Oct. 17, elevation, 1,278.93 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in cfs)
	03042260 Yellow Creek Lake		
Sept. 30	1,279.23	13,100	-
Oct. 31	1,279.25	13,100	0
Nov. 30	1,279.76	13,600	+ 8.40
Dec. 31	1,279.96	13,800	+ 3.25
CAL YR 1988	-	-	0.0
Jan. 31	1,279.94	13,700	- 1.63
Feb. 29	1,280.04	13,800	+ 1.80
Mar. 31	1,282.24	15,800	+ 3.25
Apr. 30	1,279.47	13,300	- 4.20
May 31	1,279.89	13,700	+ 6.51
June 30	1,280.10	13,900	+ 3.36
July 31	1,279.36	13,200	- 11.4
Aug. 31	1,279.12	13,000	- 3.25
Sept. 30	1,279.40	13,300	+ 5.04
WTR YR 1989	-	-	+ 0.28

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.--22 years, 107 ft^3/s, 25.32 in/yr, adjusted for storage beginning June 1971.

EXTREMES FOR PERIOD OF RECORD.--Maximum discbarge, 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, 2,380 ft^3/s, Mar. 31, gage height, 6.19 ft; minimum daily, 8.8 ft^3/s, Oct. 22, 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	13	61	98	98	115	1340	31	93	113	24	11
2	13	13	54	87	93	96	691	49	83	93	22	11
3	12	13	48	78	93	86	440	72	73	79	20	11
4	10	14	43	71	92	79	337	81	73	68	20	11
5	9.9	29	39	62	86	87	270	117	74	102	21	10
6	10	69	35	55	79	157	220	112	73	191	27	9.9
7	10	71	31	51	70	179	176	155	68	240	30	9.9
8	10	68	29	82	65	175	156	208	58	808	30	15
9	10	59	26	122	54	163	135	226	54	580	27	14
10	10	51	24	124	50	149	117	387	54	406	24	18
11	10	46	22	117	45	143	98	582	48	311	22	28
12	10	40	e20	135	42	155	88	591	44	88	21	26
13	10	43	e19	197	37	164	79	441	51	388	21	24
14	10	65	e18	202	44	173	72	341	56	541	19	31
15	9.9	68	e17	279	203	203	64	322	65	441	16	69
16	9.5	65	e16	293	606	217	59	372	78	337	15	86
17	9.5	61	e15	240	477	201	53	377	128	214	15	96
18	10	53	e15	196	324	185	52	314	145	44	14	87
19	10	46	e14	169	234	172	52	248	139	18	14	74
20	10	105	e14	144	193	157	51	197	145	34	15	61
21	10	246	e13	123	352	167	47	171	243	43	15	51
22	8.8	243	e17	102	496	220	44	141	260	44	15	44
23	8.8	193	e28	89	385	226	39	137	212	44	14	45
24	13	160	e60	78	269	216	36	201	171	42	14	50
25	12	130	180	69	201	479	34	177	139	37	13	49
26	13	108	188	68	180	462	32	148	83	33	13	43
27	13	92	172	102	159	335	30	131	70	31	12	37
28	13	87	157	111	135	260	28	115	149	28	11	32
29	13	81	146	107	---	358	27	104	151	26	11	27
30	13	70	127	108	---	1170	26	86	138	25	11	25
31	13	---	111	104	---	2230	---	91	---	25	11	---
TOTAL	338.4	2402	1759	3863	5162	9179	4893	6725	3218	5474	557	1105.8
MEAN	10.9	80.1	56.7	125	184	296	163	217	107	177	18.0	36.9
MAX	14	246	188	293	606	2230	1340	591	260	808	30	96
MIN	8.8	13	13	51	37	79	26	31	44	18	11	9.9
MEAN‡	10.9	88.5	59.9	123	186	328	121	224	110	166	14.8	41.9
CFSM‡	.19	1.54	1.04	2.14	3.24	5.71	2.11	3.90	1.92	2.89	.26	.73
IN.‡	.22	1.72	1.20	2.47	3.37	6.58	2.35	4.50	2.14	3.33	.30	.81

CAL YR 1988 TOTAL 26348.3 MEAN 72.0 MAX 1320 MIN 8.8 MEAN‡ 72.0 CFSM‡ 1.25 IN.‡ 17.06
WTR YR 1989 TOTAL 44676.2 MEAN 122 MAX 2230 MIN 8.8 MEAN‡ 122 CFSM‡ 2.13 IN.‡ 28.99

‡ 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.--38 years, 284 ft^3/s, 22.55 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, 7,110 ft^3/s, Mar. 30, gage height, 10.29 ft; minimum daily, 39 ft^3/s, Oct. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	51	170	224	305	296	2320	128	246	234	59	72
2	45	54	121	210	224	212	1270	311	219	216	59	73
3	45	44	126	186	274	205	935	316	190	198	60	47
4	45	62	128	142	282	303	705	257	174	179	61	45
5	41	177	95	133	267	393	722	257	234	413	66	44
6	46	179	91	113	256	579	684	341	254	998	96	44
7	53	162	88	123	224	558	461	551	180	513	118	44
8	53	143	84	296	161	513	422	801	154	2280	104	226
9	52	125	82	356	113	443	383	644	132	1080	102	76
10	54	113	77	350	114	379	335	1270	171	651	72	102
11	58	103	75	379	111	355	291	1720	141	525	54	209
12	56	93	70	495	104	389	254	1460	109	328	62	96
13	56	155	88	565	146	378	270	990	224	1150	52	80
14	56	153	79	535	216	420	261	694	245	1200	50	155
15	55	136	71	694	877	766	225	852	271	726	47	297
16	56	123	63	682	1470	579	191	1000	366	546	45	364
17	58	131	e58	653	1240	541	183	742	545	421	43	316
18	63	108	e54	585	886	488	200	682	440	249	42	227
19	52	97	e50	449	632	398	191	549	390	147	41	159
20	53	436	e49	358	466	338	176	442	545	196	67	134
21	39	679	e46	280	1170	702	168	374	1060	166	47	124
22	42	679	e49	183	1520	645	133	339	793	154	42	628
23	49	573	e70	159	999	642	120	375	602	118	42	263
24	103	459	e250	147	520	901	121	437	467	94	40	145
25	63	341	676	152	319	1310	121	453	349	84	48	120
26	59	249	578	202	289	975	114	524	233	81	49	107
27	57	203	428	367	263	592	111	527	359	78	48	95
28	51	193	422	385	243	673	99	409	1120	76	48	78
29	50	205	381	317	---	1680	103	353	463	67	54	73
30	45	175	266	263	---	5440	99	321	426	65	50	66
31	46	---	243	269	---	4730	---	313	---	70	47	---
TOTAL	1647	6401	5128	10252	13691	26823	11668	18432	11102	13303	1815	4509
MEAN	53.1	213	165	331	489	865	389	595	370	429	58.5	150
MAX	103	679	676	694	1520	5440	2320	1720	1120	2280	118	628
MIN	39	44	46	113	104	205	99	128	109	65	40	44
†	-20.6	+47.4	+.8	+1.6	+25.2	+31.7	-41.2	+4.9	+4.2	-12.2	-7.4	-5.1
MEAN‡	32.5	260	166	333	514	897	348	600	374	417	-51.1	145
CFSM‡	.19	1.52	.97	1.95	3.01	5.25	2.04	3.51	2.19	2.44	.30	.85
IN.‡	.22	1.70	1.12	2.25	3.13	6.05	2.28	4.05	2.44	2.81	.35	.95

CAL YR 1988 TOTAL 77413 MEAN 212 MAX 4200 MIN 36 ADJ 0 MEAN‡ 212 CFSM‡ 1.24 IN.‡ 16.81
WTR YR 1989 TOTAL 124771 MEAN 342 MAX 5440 MIN 39 ADJ +2.3 MEAN‡ 344 CFSM‡ 2.01 IN.‡ 27.35

† 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 Pennslyvania 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 atove National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1952, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharge. Records good. 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.--50 years, 2,381 ft^3/s, 23.81 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, 11,500 ft^3/s, Apr. 3, gage height, 8.15 ft; minimum daily, 195 ft^3/s, Dec. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1260	595	1600	2620	2060	3000	4670	1190	1700	2560	1830	556
2	1190	442	1220	2530	2050	3180	8820	1730	1350	1750	1830	556
3	1080	463	1090	1910	2020	3330	11500	2650	1110	1090	1500	571
4	966	474	1100	1440	2080	3200	11500	3060	1730	946	1220	574
5	957	491	1090	1270	2040	3230	11400	3050	1510	969	1260	574
6	950	698	946	1530	1810	3960	11400	3070	1600	1960	1270	567
7	833	2120	852	1300	1640	5270	11300	3300	1570	3000	1270	544
8	753	3200	937	974	1510	6380	11400	5300	1590	4630	1270	551
9	643	2450	974	2350	1050	5470	10200	7000	1600	6430	1260	535
10	412	1680	882	3020	1020	4010	6470	5550	1570	5130	1200	536
11	539	1180	822	2210	963	3570	3030	3900	1580	3450	1250	770
12	753	976	292	2050	878	3610	2830	5960	1540	2780	1240	919
13	940	1270	195	3410	1010	4070	2480	10100	1580	2670	1240	919
14	1070	2000	197	5230	953	4260	2250	10900	1520	2420	1240	888
15	1050	1970	531	6110	1110	3990	1840	11000	1520	2610	1250	905
16	1020	1430	946	6770	1900	3750	2290	10900	1520	2320	1260	928
17	997	1410	929	6550	4600	3220	2620	10800	1610	1810	1220	1100
18	977	1130	899	5080	6770	3250	2990	10600	1660	1640	1090	1470
19	949	944	809	3410	5510	3430	3390	9980	2500	1650	960	1600
20	916	1000	750	2820	4640	4050	3650	6790	2610	1630	902	1560
21	886	2950	751	2470	3390	4960	3640	3760	1580	1650	964	1310
22	714	6700	902	2160	3010	5610	3360	2790	3180	1650	963	989
23	606	7290	1030	1670	6150	5530	3150	2520	6720	1650	964	1130
24	681	5750	1060	1780	8960	4650	1720	2580	7890	2840	953	1170
25	819	3190	2180	1800	9710	4320	943	2690	7710	3520	939	1170
26	863	2350	4630	1480	7590	5170	1100	2190	7170	2750	926	1170
27	777	2060	5860	1830	4410	6370	1100	2170	6990	2100	914	1020
28	655	1610	4340	2330	3460	6920	1130	3450	6940	1820	767	914
29	605	830	3340	2600	---	5330	1170	3820	5410	1810	585	765
30	605	1970	2960	2330	---	2610	1170	3240	3360	1800	521	673
31	602	---	2690	2050	---	1680	---	2170	---	1830	515	---
TOTAL	26068	60623	46804	85084	92294	131380	144513	158210	89920	74865	34573	26934
MEAN	841	2021	1510	2745	3296	4238	4817	5104	2997	2415	1115	898
MAX	1260	7290	5860	6770	9710	6920	11500	11000	7890	6430	1830	1600
MIN	412	442	195	974	878	1680	943	1190	1110	946	515	535

CAL YR 1988 TOTAL 708483 MEAN 1936 MAX 10700 MIN 195
WTR YR 1989 TOTAL 971268 MEAN 2661 MAX 11500 MIN 195

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.--50 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)
Nov. 20	2200	4,630	7.62	Mar. 30	0900	4,090	7.26
Feb. 15	2400	*5,340	*8.04				

Minimum daily discharge, 21 ft^3/s, Sept. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	53	179	e200	229	277	1810	194	181	310	100	43
2	63	55	162	e180	208	235	1150	666	152	232	71	58
3	63	62	146	e160	290	230	976	876	133	200	59	34
4	58	61	136	e150	302	315	785	667	240	168	53	27
5	52	249	127	e145	265	1010	673	563	180	724	49	24
6	48	379	119	e140	e220	2200	551	785	181	625	46	22
7	46	238	114	e130	e180	1260	487	1000	145	515	50	21
8	44	189	107	e470	e160	768	431	960	119	352	47	73
9	42	165	98	467	e140	571	402	738	116	273	43	77
10	40	150	86	353	e125	524	352	1580	177	226	38	42
11	45	142	77	305	e110	603	307	1750	118	184	35	93
12	47	118	57	795	e96	756	274	1780	97	148	40	59
13	40	220	71	1060	e88	604	243	1230	118	151	37	46
14	36	265	101	655	e150	548	230	860	148	139	33	39
15	34	201	107	1340	e1500	555	206	913	198	120	31	70
16	33	177	72	822	3220	516	201	1010	296	102	29	125
17	32	179	66	572	1340	445	178	940	814	99	28	118
18	35	152	e60	458	794	468	206	691	440	84	26	88
19	44	136	e56	389	559	462	335	535	322	74	25	83
20	37	1940	e60	342	453	424	287	452	956	96	35	69
21	33	1930	e80	286	1750	1770	268	396	1830	75	33	60
22	40	813	e140	236	1340	1070	254	317	1080	88	38	53
23	55	522	e250	221	822	739	232	333	759	62	62	211
24	161	407	1200	202	564	1100	214	344	497	55	172	219
25	136	328	1310	191	444	1030	198	318	380	49	61	131
26	89	277	641	198	419	769	192	453	298	46	42	118
27	71	243	466	409	363	598	173	404	268	72	35	97
28	63	255	e380	307	306	515	157	316	1260	63	31	80
29	61	218	e280	274	---	1030	202	273	571	63	29	69
30	56	190	e250	281	---	3000	204	250	393	53	33	80
31	54	---	e220	252	---	3190	---	215	---	194	32	---
TOTAL	1727	10314	7218	11990	16437	27582	12178	21809	12467	5642	1443	2329
MEAN	55.7	344	233	387	587	890	406	704	416	182	46.5	77.6
MAX	161	1940	1310	1340	3220	3190	1810	1780	1830	724	172	219
MIN	32	53	56	130	88	230	157	194	97	46	25	21
†	+1.3	+8.0	+6.9	+14.4	+18.9	+28.7	+7.4	+7.8	+8.3	-0.2	+2.8	+6.1
MEAN‡	57.0	352	240	401	606	919	413	712	424	182	49.3	83.7
CFSM‡	.33	2.05	1.40	2.33	3.52	5.34	2.40	4.14	2.47	1.06	.29	.49
IN.‡	.38	2.29	1.61	2.69	3.67	6.16	2.68	4.77	2.76	1.22	.33	.55

CAL YR 1988 TOTAL 99797.1 MEAN 273 MAX 3060 MIN 9.2 ADJ +5.9 MEAN‡ 279 CFSM‡ 1.62 IN.‡ 22.07
WTR YR 1989 TOTAL 131136 MEAN 359 MAX 3220 MIN 21 ADJ +8.9 MEAN‡ 368 CFSM‡ 2.14 IN.‡ 29.11

† 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.--50 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, 3,660 ft^3/s, Apr. 1, gage height, 6.01 ft; minimum daily, 50 ft^3/s, Oct. 11, 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	86	85	283	465	351	444	2100	230	311	719	281	77
2	181	90	237	461	351	383	3590	512	352	478	343	77
3	77	99	237	326	351	343	3540	951	351	342	171	77
4	77	106	237	307	351	343	3450	1240	e280	230	59	77
5	77	107	155	249	399	350	3350	1390	e300	307	60	77
6	77	187	102	284	453	634	3220	1390	e370	743	93	77
7	77	324	102	282	393	1110	2280	1400	e400	866	70	77
8	77	377	174	238	355	1800	1290	1560	247	647	58	67
9	77	374	221	844	249	1970	897	1640	205	398	81	62
10	64	290	149	876	180	1630	599	1310	209	351	88	62
11	50	208	102	412	180	1410	484	1140	230	278	88	83
12	67	187	102	456	283	1410	441	1920	201	231	87	113
13	78	188	102	898	351	1400	372	2690	291	236	86	123
14	78	293	102	1350	286	1380	358	2630	359	234	74	125
15	71	362	102	1470	256	1360	358	2290	285	231	88	124
16	57	362	174	1640	660	1170	358	2080	237	230	90	283
17	50	287	149	1280	2130	857	358	1770	243	208	92	248
18	52	237	102	870	3400	735	358	1300	249	179	92	186
19	60	237	89	746	3260	736	441	943	589	178	92	121
20	73	239	80	571	2600	736	493	724	809	177	92	121
21	78	748	80	461	1340	945	493	531	858	177	92	121
22	78	1820	153	320	1540	1690	489	492	1300	178	92	121
23	80	1950	227	227	2100	1850	339	466	1820	177	92	125
24	96	1530	234	299	1950	1500	308	466	1980	106	92	125
25	180	1020	588	347	1580	1580	351	466	1930	68	109	263
26	227	586	1210	347	1150	1670	351	466	1430	74	121	381
27	150	323	1440	413	834	1350	351	853	713	90	121	293
28	88	227	1310	457	549	1080	280	1090	932	102	94	167
29	77	302	994	457	---	975	234	786	1600	147	78	95
30	77	351	769	393	---	888	376	484	1380	177	77	78
31	77	---	582	351	---	985	---	337	---	181	77	---
TOTAL	2714	13496	10588	18097	27882	34714	31909	35547	20461	8740	3230	4026
MEAN	87.5	450	342	584	996	1120	1064	1147	682	282	104	134
MAX	227	1950	1440	1640	3400	1970	3590	2690	1980	866	343	381
MIN	50	85	80	227	180	343	234	230	201	68	58	62
†	-9.3	-3.0	+6.3	+2.0	+3.0	+352	-333	+2.6	+11.9	-18.3	- 13.0	+1.1
MEAN‡	78.2	447	348	586	999	1472	731	1150	694	264	91.0	135
CFSM‡	.27	1.53	1.19	2.01	3.42	5.04	2.50	3.94	2.38	.90	.31	.46
IN.‡	.31	1.71	1.37	2.32	3.56	5.81	2.79	4.54	2.66	1.04	.36	.51

CAL YR 1988 TOTAL 152175 MEAN 416 MAX 3060 MIN 20 ADJ -0.6 MEAN‡ 415 CFSM‡ 1.42 IN.‡ 19.41
WTR YR 1989 TOTAL 211404 MEAN 579 MAX 3590 MIN 50 ADJ +1.2 MEAN‡ 580 CFSM‡ 1.99 IN.‡ 26.98

† 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.--52 years, 3,106 ft^3/s, 23.11 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, 16,800 ft^3/s, Apr. 3, gage height, 12.46 ft; minimum daily, 224 ft^3/s, Dec. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1520	647	2120	3230	2490	3890	5610	1390	2130	3820	1980	548
2	1430	658	1550	3130	2470	3670	12900	2050	2070	2910	2110	530
3	1340	511	1290	2730	2520	3920	16700	3560	1550	1730	1940	529
4	1070	569	1300	1700	2530	3770	16600	4450	1980	1270	1240	533
5	1060	622	1270	1670	2530	3910	16500	4620	1920	1330	1180	535
6	1050	744	1090	1480	2500	4770	16200	4640	2060	1860	1280	538
7	1020	1660	893	e1350	2050	6240	15400	5000	2160	4000	1310	536
8	838	3870	939	e1150	2150	8840	14300	5450	1890	4310	1230	609
9	825	3400	1140	e1050	1410	8350	13000	9620	1940	7250	1240	578
10	573	2350	1080	4590	1180	6540	9420	9350	1970	6140	1210	507
11	462	1710	863	2880	1190	5300	4380	7130	1890	4170	1240	557
12	712	1200	e670	2790	1170	5520	3400	7080	1840	3130	1250	911
13	857	1360	224	3780	1320	5750	3090	13900	2050	3580	1230	928
14	1180	2070	314	6680	1370	6190	2910	14900	2120	2930	1210	934
15	1160	2840	293	7920	2010	5970	2230	14600	2220	2960	1220	1090
16	1120	1950	901	9150	3540	5450	2470	14400	2160	2780	1260	1050
17	1080	1890	1110	8690	5660	4700	3080	13900	2300	2230	1210	1270
18	1070	1660	948	7110	10800	4210	3320	13200	2240	1770	1170	1490
19	1040	1230	1010	4660	9900	4490	3860	12200	2690	1810	978	1620
20	1010	1550	821	3820	7740	4870	4360	9500	4030	1790	895	1580
21	992	2750	799	3090	7230	6530	4330	5310	3780	1760	959	1500
22	954	8000	825	2820	4380	7550	4160	3750	4120	1780	958	1180
23	678	10300	1250	2090	8210	8640	3720	3360	8800	1770	969	1200
24	703	8170	1420	1880	11300	7200	2900	3630	10800	2110	953	1330
25	885	5440	2240	2350	12200	6370	1060	3530	10600	3770	930	1260
26	1130	2940	5130	1880	10700	7090	1360	3680	9650	3010	936	1470
27	1100	2720	7790	2170	6220	8360	1360	3060	8710	2370	925	1410
28	837	2020	6640	2840	4370	9060	1330	4610	9150	1850	891	1050
29	673	1420	4620	3250	---	8650	1310	5120	8220	1850	645	911
30	653	2010	4050	3080	---	6450	1400	4350	5860	1900	519	660
31	648	---	3360	2500	---	4650	---	3270	---	1960	476	---
TOTAL	29670	78261	57950	107510	131140	186900	192660	214610	122900	85900	35544	28844
MEAN	957	2609	1869	3468	4684	6029	6422	6923	4097	2771	1147	961
MAX	1520	10300	7790	9150	12200	9060	16700	14900	10800	7250	2110	1620
MIN	462	511	224	1050	1170	3670	1060	1390	1550	1270	476	507

CAL YR 1988 TOTAL 935955 MEAN 2557 MAX 14100 MIN 224
WTR YR 1989 TOTAL 1271889 MEAN 3485 MAX 16700 MIN 224

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.--49 years, 193 ft^3/s, 19.13 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)
May 10	1915	2,740	5.61	June 17	0530	2,790	5.66
June 15	1630	*3,370	*6.31	June 21	1430	2,130	4.91

Minimum discharge, 6.7 ft^3/s, Oct. 1, 3, 4, gage height, 0.82 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.3	11	32	e86	114	141	1280	98	325	138	31	14
2	7.5	11	28	e80	102	109	827	440	248	117	29	14
3	7.6	12	26	e72	112	112	810	254	194	103	25	16
4	7.0	21	24	e66	99	111	712	195	648	94	23	12
5	8.6	92	22	e62	e90	157	786	178	426	108	23	9.9
6	8.9	153	24	e66	e80	230	642	189	305	93	39	9.7
7	9.1	56	25	e72	e76	164	514	311	216	79	42	9.6
8	9.0	44	22	e80	e72	139	391	292	165	103	31	315
9	9.0	39	19	e100	e70	145	322	265	150	70	24	101
10	8.3	33	16	e120	e68	166	254	1680	238	66	21	46
11	11	32	e14	e150	e64	231	207	1740	143	87	19	122
12	13	27	e12	e190	e62	315	179	1020	118	63	18	44
13	13	39	e11	352	e60	281	162	768	320	69	18	32
14	11	61	e10	218	e100	268	143	662	1160	66	17	38
15	10	40	e15	325	e260	316	131	717	2020	50	22	73
16	9.6	33	e20	254	e790	256	120	678	1650	43	17	84
17	9.4	30	e16	201	458	209	108	544	1960	42	16	491
18	12	26	e14	166	311	217	110	407	1030	38	14	178
19	15	22	e15	144	247	207	108	312	642	36	13	99
20	16	93	e16	130	201	195	94	262	816	52	14	68
21	12	183	e20	110	1090	530	86	262	1460	42	17	50
22	13	112	e29	e94	928	439	82	194	1090	36	18	49
23	17	80	e37	e84	588	353	75	206	726	31	17	416
24	16	63	e200	e74	372	461	70	231	487	27	15	319
25	18	51	401	e70	267	476	68	203	333	25	14	185
26	16	42	196	e75	254	384	67	819	247	48	12	130
27	13	39	137	245	199	319	64	692	219	46	11	91
28	11	40	156	161	159	322	59	445	439	77	11	68
29	9.8	40	196	145	---	667	64	315	225	54	13	57
30	10	34	127	142	---	1190	61	258	167	34	16	48
31	10	---	e94	128	---	1680	---	336	---	33	19	---
TOTAL	348.1	1559	1974	4262	7293	10790	8596	14973	18167	1970	619	3189.2
MEAN	11.2	52.0	63.7	137	260	348	287	483	606	63.5	20.0	106
MAX	18	183	401	352	1090	1680	1280	1740	2020	138	42	491
MIN	7.0	11	10	62	60	109	59	98	118	25	11	9.6
CFSM	.08	.38	.46	1.00	1.90	2.54	2.09	3.53	4.42	.46	.15	.78
IN.	.09	.42	.54	1.16	1.98	2.93	2.33	4.07	4.93	.53	.17	.87

CAL YR 1988 TOTAL 38055 MEAN 104 MAX 1600 MIN 5.6 CFSM .76 IN. 10.33
WTR YR 1989 TOTAL 73740.3 MEAN 202 MAX 2020 MIN 7.0 CFSM 1.47 IN. 20.02

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.--No estimated daily discharges. Records good. 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.--51 years, 19,640 ft^3/s, 23.38 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, 125,000 ft^3/s, June 21, gage height, 19.16 ft; minimum daily, 2,740 ft^3/s, Sept. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6370	8100	13600	30100	26200	19900	74600	7690	34500	37300	7980	3470
2	5460	7640	12800	28600	25700	17000	68300	13300	29900	32500	7140	3390
3	5500	6840	12100	26300	25200	16900	68100	21300	26300	28000	7010	2740
4	4210	6620	10400	23500	24500	15700	74300	22700	27300	27600	6040	3700
5	3480	9250	12100	18300	21200	15300	74900	22700	34500	26700	6330	2910
6	4100	17900	11800	13800	16600	20300	74600	22800	30900	31400	5920	3770
7	4400	22400	11400	13500	15000	24800	71000	24300	27800	29700	6030	4790
8	4890	22200	11400	11200	12700	25900	65400	28400	24600	25800	6360	7460
9	4970	21900	11100	16500	8930	24200	59800	40500	21800	26400	5840	6040
10	4330	21100	10300	23400	6310	19800	53200	58200	27800	21500	5390	4470
11	4630	20700	8570	21100	6870	17200	45600	80300	26700	16400	5070	4120
12	5110	20000	6660	20400	6780	17300	41100	75300	23300	12600	5100	4070
13	6360	17700	6060	21000	8440	16900	39300	72400	23600	11100	4580	3960
14	8940	20300	4000	24700	10600	17900	36700	70700	29900	9310	3980	4020
15	8450	23700	5100	23900	13400	17600	30600	70200	50200	8970	4420	4760
16	7650	18700	5150	26200	23800	17600	24900	70400	67000	7780	4410	5450
17	6070	15400	5610	25800	29400	17400	22200	69800	58900	7080	4590	8860
18	5860	13000	5250	23400	32400	16200	21700	64500	56800	6830	4600	9630
19	6530	15200	5060	18000	30600	17900	22000	57800	50000	6590	4270	9620
20	9020	15700	6210	15700	26900	22300	22900	49600	49200	7420	3880	8720
21	12100	18800	7670	14000	30000	24700	21200	41700	98400	7180	3890	7350
22	12000	29100	10800	11600	42700	25200	19600	36100	92800	7870	4550	6920
23	10400	34300	16900	9690	49900	26700	17300	30800	65300	10300	4040	8320
24	10100	31700	21000	10400	47600	24400	16200	29900	67000	12100	4330	9950
25	10800	26300	25600	10900	41800	27100	13200	29800	66200	12000	4700	11300
26	10900	21300	30100	11000	36500	29600	10800	32600	58800	10300	4250	10100
27	11200	19700	31800	17500	29800	28500	9760	38900	52500	8970	3780	8930
28	10000	18100	30400	31700	23900	27200	8070	36600	55000	8420	3450	7770
29	9130	13600	36100	30800	---	32700	7630	32700	52600	7870	3540	6520
30	7920	12600	35200	26700	---	53100	7790	27800	45000	7410	3540	6260
31	7770	---	32600	24000	---	78200	---	25400	---	6970	3670	---
TOTAL	228650	549850	452840	623690	673730	755500	1122750	1305190	1374600	480370	152680	189370
MEAN	7376	18330	14610	20120	24060	24370	37420	42100	45820	15500	4925	6312
MAX	12100	34300	36100	31700	49900	78200	74900	80300	98400	37300	7980	11300
MIN	3480	6620	4000	9690	6310	15300	7630	7690	21800	6590	3450	2740

CAL YR 1988 TOTAL 5219710 MEAN 14260 MAX 56700 MIN 2100
WTR YR 1989 TOTAL 7909220 MEAN 21670 MAX 98400 MIN 2740

OHIO RIVER MAIN STEM

03049625 ALLEGHENY RIVER AT NEW KENSINGTON,PA

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.

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

REMARKS.--Composite samples taken as part of the USGS-EPA surveillance 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 1988 TO SEPTEMBER 1989

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)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3
DEC												
08...	0930	10900	260	7.01	3.5	7.2	748	14.0	K63	K12	82	--
MAR												
24...	0930	23700	260	7.10	6.0	6.0	747	14.0	16	53	82	--
MAY												
25...	0830	30400	170	7.20	16.0	4.7	737	10.0	320	280	70	--
SEP												
05...	1200	3580	264	7.55	25.0	1.3	749	8.8	200	4	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)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)
DEC												
08...	23	6.0	10	1.5	41	34	50	14	<0.10	3.8	143	.650
MAR												
24...	22	6.6	11	1.5	24	20	60	14	0.10	4.9	142	.930
MAY												
25...	19	5.4	7.7	1.3	25	21	44	9.0	0.10	4.9	111	.550
SEP												
05...	38	10	23	2.3	40	32	110	24	0.20	3.5	232	.500

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)
DEC												
08...	.060	.30	.030	<.010	.010	20	<1	44	<0.5	2	<1	<3
MAR												
24...	.050	<.20	.010	<.010	<.010	30	<1	64	<0.5	<1	<1	3
MAY												
25...	.030	.20	.020	<.010	<.010	50	<1	68	<0.5	<1	<1	<3
SEP												
05...	.050	.30	.010	<.010	<.010	60	<1	76	<0.5	<1	1	<3

OHIO RIVER MAIN STEM

03049625 ALLEGHENY RIVER AT NEW KENSINGTON, PA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	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)	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)
DEC 08...	2	97	<5	<4	230	<.1	<10	4	<1	<1.0	97	<6
MAR 24...	2	160	6	4	360	<.1	<10	13	<1	<1.0	120	<6
MAY 25...	1	54	2	6	270	<.1	<10	5	<1	<1.0	87	<6
SEP 05...	4	8	<1	15	180	<.1	<10	<1	<1	<1.0	230	<6

DATE	ZINC, DIS-SOLVED (UG/L AS ZN)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
DEC 08...	20	--	--	--	--	--	--	--	--	15	443	100
MAR 24...	25	<.4	.4	2.0	.5	1.6	.5	.04	--	13	832	77
MAY 25...	16	--	--	--	--	--	--	--	--	50	4100	28
SEP... 05	29	--	--	--	--	--	--	--	--	6	58	87

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

AVERAGE DISCHARGE.--27 years, 6.28 ft^3/s, 14.75 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)
May 10	2100	*193	*3.71	June 22	2030	171	3.63
May 26	0745	176	3.65				

Minimum daily discharge, 0.05 ft^3/s, Oct. 3-7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.06	e.28	.65	.68	.90	3.6	35	12	3.7	8.4	2.8	e1.5
2	e.08	e.29	.60	e.62	.81	3.4	22	20	3.3	6.5	2.2	e.90
3	e.05	e.30	.56	e.56	e.74	3.2	22	15	5.6	5.5	1.7	e.74
4	e.05	1.1	.60	e.54	e.66	3.3	19	9.7	6.7	8.3	1.5	e.66
5	e.05	2.7	.67	e.50	e.62	10	28	7.9	5.7	12	1.6	e.60
6	e.05	.80	.71	e.48	e.60	14	19	7.7	4.1	9.1	2.2	e.58
7	e.05	.62	.70	e.80	e.56	10	14	7.9	3.3	7.3	2.8	e.54
8	e.06	.61	.68	e1.4	e.54	8.6	11	6.3	2.9	6.0	1.7	e.80
9	e.10	.58	.62	1.3	e.52	8.5	8.4	7.5	3.4	6.3	1.5	1.2
10	.17	.57	e.46	1.1	e.50	11	5.2	79	3.0	5.6	1.2	3.2
11	.42	.54	e.30	.86	e.49	17	4.1	64	2.8	5.1	1.1	3.1
12	.15	.53	e.19	2.8	e.48	19	3.2	32	4.2	4.7	1.2	1.3
13	.08	1.1	e.18	2.7	e.52	16	3.0	28	8.7	7.4	e1.1	.90
14	.10	.61	e.18	1.8	e1.1	14	2.6	24	10	5.0	e1.0	3.3
15	.14	.60	e.28	2.1	e5.2	15	2.6	24	32	4.0	e1.0	3.6
16	.13	.54	e.42	1.6	10	11	2.4	26	23	3.6	e1.2	7.4
17	.13	.53	e.33	1.3	4.3	8.2	2.3	20	21	3.4	e1.0	4.5
18	.36	.52	e.25	.98	2.6	8.5	2.4	17	13	3.0	e.88	2.5
19	.29	.50	e.27	.80	1.8	6.3	2.3	13	9.3	4.0	e.79	1.9
20	.16	3.1	e.40	.79	1.6	11	2.5	12	11	4.6	4.5	1.4
21	.33	1.6	e.62	.71	55	24	2.5	9.7	12	3.4	1.8	1.1
22	.40	.88	e.48	.78	29	16	2.3	7.5	25	2.7	.98	5.9
23	.30	.76	e1.2	.73	17	11	2.3	12	40	2.3	2.9	17
24	.81	.76	e2.6	.69	9.8	16	2.2	9.0	21	2.0	2.4	5.9
25	.54	.72	1.8	.66	9.3	15	2.1	8.1	14	1.8	1.0	4.1
26	.47	.68	.84	1.3	6.0	12	2.0	52	11	1.6	e.76	3.6
27	e.39	.68	.71	1.9	4.4	10	2.0	26	20	3.6	e.62	2.8
28	e.33	.74	1.7	1.3	4.6	11	2.0	15	32	3.7	e.62	2.4
29	e.30	.68	1.2	1.2	---	26	2.2	10	16	2.1	e.80	2.1
30	e.28	.65	.99	1.2	---	40	1.9	7.5	11	3.3	1.3	1.9
31	e.28	---	.80	.96	---	52	---	5.3	---	3.9	e3.0	---
TOTAL	7.11	24.57	21.99	35.14	169.64	434.6	232.5	595.1	378.7	150.2	49.15	87.42
MEAN	.23	.82	.71	1.13	6.06	14.0	7.75	19.2	12.6	4.85	1.59	2.91
MAX	.81	3.1	2.6	2.8	55	52	35	79	40	12	4.5	17
MIN	.05	.28	.18	.48	.48	3.2	1.9	5.3	2.8	1.6	.62	.54
CFSM	.04	.14	.12	.20	1.05	2.43	1.34	3.32	2.18	.84	.27	.50
IN.	.05	.16	.14	.23	1.09	2.80	1.50	3.83	2.44	.97	.32	.56

CAL YR 1988 TOTAL 834.45 MEAN 2.28 MAX 39 MIN .05 CFSM .39 IN. 5.37
WTR YR 1989 TOTAL 2186.12 MEAN 5.99 MAX 79 MIN .05 CFSM 1.04 IN. 14.07

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.--12 years, 1.66 ft^3/s, 24.27 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)
Mar. 6	0700	55	1.82	July 19	1915	41	1.72
Mar. 6	1045	*90	*2.03				

Minimum daily discharge, .06 ft^3/s Sept. 6-9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.75	.42	.56	1.7	1.9	.94	5.5	4.0	.35	.62	.39	.16
2	.66	.46	.50	1.9	1.7	.84	3.7	7.0	.34	.50	.32	.15
3	.45	.39	.47	1.9	4.0	1.2	3.6	4.3	.36	.45	.30	.11
4	.31	.48	.42	1.6	3.0	2.5	3.0	3.0	.56	.47	.26	.08
5	.27	8.5	.39	1.4	2.4	8.2	2.6	5.4	.70	.96	.25	.07
6	.23	7.1	.44	2.2	1.9	33	2.2	6.4	.56	.57	.26	.06
7	.23	3.3	.54	2.8	1.5	10	1.9	6.9	.40	.39	.22	.06
8	.22	2.0	.49	8.5	1.2	5.0	1.7	5.4	.31	.33	.24	.06
9	.20	1.5	.38	5.3	.96	3.5	1.7	6.8	.68	3.6	.25	.06
10	.19	1.2	.31	3.1	.81	3.5	1.4	17	1.0	1.6	.22	.61
11	.32	1.0	.29	2.2	.74	3.2	1.2	10	.47	1.0	.24	1.5
12	.18	.79	.26	17	.63	2.9	1.1	7.1	.57	.89	.23	.31
13	.11	2.5	.30	10	.81	2.5	1.1	5.3	.63	.96	.19	.23
14	.09	2.0	.33	8.3	2.8	2.4	.92	3.4	.62	.69	.19	.40
15	.08	1.5	.36	13	22	2.2	.91	4.7	2.8	.54	.17	.76
16	.08	1.4	.27	6.3	14	1.7	.80	3.8	3.7	.99	.15	1.4
17	.08	1.3	.28	3.5	6.1	1.5	.70	3.1	10	1.1	.14	.70
18	1.1	.98	.29	2.4	3.6	1.6	1.1	2.5	3.2	.80	.15	.46
19	.42	1.6	.29	1.8	2.5	1.2	2.6	2.1	2.1	4.9	.37	.36
20	.30	18	.44	1.5	2.2	3.4	1.9	1.7	2.7	5.1	.26	.31
21	.48	9.7	2.2	1.1	17	9.1	1.6	1.3	5.1	2.3	.23	.27
22	3.9	5.1	1.6	.94	7.6	4.2	1.3	1.1	2.7	1.4	.20	.28
23	3.2	3.1	4.5	.83	4.2	2.8	1.1	1.3	2.0	.97	1.1	3.9
24	4.6	2.2	14	.73	2.6	4.7	.96	.99	1.8	.69	.65	1.6
25	2.5	1.7	10	.72	2.1	3.4	.91	.94	1.4	.55	.27	.94
26	1.5	1.3	4.6	1.7	1.8	2.6	.80	.81	1.0	.80	.20	.74
27	1.0	1.2	2.9	2.7	1.4	2.1	.70	.63	1.2	.91	.15	.48
28	.82	1.1	2.7	1.8	1.2	1.7	.62	.51	1.7	.91	.14	.41
29	.62	.92	2.1	1.5	---	2.6	2.0	.46	1.1	.67	.13	.36
30	.51	.79	1.8	3.0	---	9.3	1.5	.43	.78	.83	.35	.32
31	.46	---	1.5	2.3	---	9.6	---	.40	---	.77	.13	---
TOTAL	25.86	83.53	55.51	113.72	112.65	143.38	51.12	118.77	50.83	37.26	8.35	17.15
MEAN	.83	2.78	1.79	3.67	4.02	4.63	1.70	3.83	1.69	1.20	.27	.57
MAX	4.6	18	14	17	22	33	5.5	17	10	5.1	1.1	3.9
MIN	.08	.39	.26	.72	.63	.84	.62	.40	.31	.33	.13	.06
CFSM	.90	2.99	1.93	3.94	4.33	4.97	1.83	4.12	1.82	1.29	.29	.61
IN.	1.03	3.34	2.22	4.55	4.51	5.74	2.04	4.75	2.03	1.49	.33	.69

CAL YR 1988 TOTAL 539.92 MEAN 1.48 MAX 24 MIN .00 CFSM 1.59 IN. 21.60
WTR YR 1989 TOTAL 818.13 MEAN 2.24 MAX 33 MIN .06 CFSM 2.41 IN. 32.73

MONONGAHELA RIVER BASIN

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 1510 microsiemans Oct. 2; minimum, 76 microsiemans Jan. 16.
pH: Maximum, 7.7 Jan. 26; minimum, 5.7 Mar. 27.
WATER TEMPERATURES: Maximum, 26.6 C June 8; minimum, 0.3 C Feb. 27.
SEDIMENT CONCENTRATIONS: Maximum daily, 431 mg/l Mar. 6; minimum daily, 1.0 mg/l on Oct. 10, Nov. 3.
SEDIMENT DISCHARGES: Maximum daily, 49.5 tons Mar. 6; minimum daily, 0.0 ton on many days.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 TOTAL RECOV-ERABLE (MG/L AS CA)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT												
27...	1400	1.0	90	6.33	8.5	2.0	--	9.5	--	2.2	--	3.2
NOV												
23...	1240	3.1	98	6.26	7.5	14	--	8.0	--	2.1	--	3.1
DEC												
15...	1635	0.33	160	6.65	2.0	0.0	--	12	--	3.0	--	5.8
JAN												
18...	1320	2.6	76	6.52	5.5	0.0	--	6.8	--	1.8	--	2.0
FEB												
28...	1615	1.2	74	6.44	3.5	6.0	--	10	--	2.6	--	3.1
MAR												
14...	0815	2.1	108	6.34	5.0	22	--	8.3	--	2.2	--	2.3
JUN												
27...	1215	0.92	149	7.10	19.5	8.0	--	17	--	3.8	--	1.9
JUL												
12...	1210	0.92	156	6.47	19.0	4.0	--	18	--	4.1	--	2.5
24...	1050	0.81	150	6.55	19.0	0.0	--	16	--	3.5	--	1.7
AUG												
31...	1240	0.15	434	6.53	19.0	0.0	--	55	--	11	--	3.7
SEP												
21...	1240	0.29	240	6.53	18.0	0.0	28	28	6.4	6.4	2.3	2.3

DATE	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET LAB MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	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)	ARSENIC TOTAL (µG/L AS AS)	ARSENIC DIS-SOLVED (µG/L AS AS)
OCT												
27...	--	1.7	16	18	5.0	<0.1	68	<2	<130	<130	--	--
NOV												
23...	--	1.3	14	28	4.0	<0.1	84	20	1200	<130	--	--
DEC												
15...	--	1.5	22	35	9.0	<0.1	82	16	<130	<130	--	--
JAN												
18...	--	1.2	12	21	4.0	<0.1	56	18	<130	<130	--	--
FEB												
28...	--	1.2	14	32	7.0	<0.1	52	28	490	<130	--	--
MAR												
14...	--	1.0	12	23	5.0	<0.1	62	<2	300	<130	--	--
JUN												
27...	--	1.4	22	46	4.0	<0.1	127	7	340	<130	--	--
JUL												
12...	--	1.5	22	49	5.0	<0.1	108	10	280	<130	--	--
24...	--	1.4	18	42	3.0	<0.1	118	8	300	<130	--	--
AUG												
31...	--	2.2	30	160	5.0	0.1	326	2	<130	<130	--	--
SEP												
21...	2.0	2.0	30	75	--	--	154	4	<130	<130	<4	<4

MONONGAHELA RIVER BASIN

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

WATER QUALITY DATA , WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	BORON, TOTAL RECOV-ERABLE (µG/L AS B)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR)	CHRO-MIUM, DIS-SOLVED (µG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO)	COBALT, DIS-SOLVED (µG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU)	COPPER, DIS-SOLVED (µG/L AS CU)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE)	IRON, DIS-SOLVED (µG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB)	LEAD, DIS-SOLVED (µG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN)
OCT 27...	--	--	--	--	--	--	--	270	160	--	--	130
NOV 23...	--	--	--	--	--	--	--	1200	250	--	--	140
DEC 15...	--	--	--	--	--	--	--	500	310	--	--	280
JAN 18...	--	--	--	--	--	--	--	340	180	--	--	120
FEB 28...	--	--	--	--	--	--	--	930	440	--	--	390
MAR 14...	--	--	--	--	--	--	--	560	320	--	--	250
JUN 27...	--	--	--	--	--	--	--	1500	770	--	--	770
JUL 12...	--	--	--	--	--	--	--	1600	970	--	--	800
24...	--	--	--	--	--	--	--	1300	630	--	--	620
AUG 31...	--	--	--	--	--	--	--	3000	2400	--	--	2500
SEP 21...	<250	<50	<10	<20	<20	<10	<10	1100	700	<50	<50	1200

DATE	MANGA-NESE, DIS-SOLVED (µG/L AS MN)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI)	NICKEL, DIS-SOLVED (µG/L AS NI)	STRON-TIUM, TOTAL RECOV-ERABLE (µG/L AS SR)	STRON-TIUM, DIS-SOLVED (µG/L AS SR)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN)	ZINC, DIS-SOLVED (µG/L AS ZN)	SELE-NIUM, TOTAL (µG/L AS SE)	SELE-NIUM, DIS-SOLVED (µG/L AS SE)	MERCURY TOTAL RECOV-ERABLE (µG/L AS HG)	MERCURY DIS-SOLVED (µG/L AS HG)
OCT 27...	110	--	--	--	--	30	28	--	--	--	--
NOV 23...	120	--	--	--	--	50	57	--	--	--	--
DEC 15...	270	--	--	--	--	30	22	--	--	--	--
JAN 18...	120	--	--	--	--	10	13	--	--	--	--
FEB 28...	380	--	--	--	--	50	47	--	--	--	--
MAR 14...	230	--	--	--	--	30	<10	--	--	--	--
JUN 27...	760	--	--	--	--	40	36	--	--	--	--
JUL 12...	840	--	--	--	--	210	27	--	--	--	--
24...	620	--	--	--	--	30	27	--	--	--	--
AUG 31...	2500	--	--	--	--	60	49	--	--	--	--
SEP 21...	1200	<25	<25	60	59	20	23	<6	<6	<1.0	<1.0

MONONGAHELA RIVER BASIN

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

SPECIFIC CONDUCTANCE, μS/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	1390	667	921	103	95	99	135	120	126	180	107	141
2	1510	663	1250	130	97	112	164	121	131	147	125	136
3	853	264	625	129	113	120	136	124	128	136	117	123
4	1270	440	825	155	119	129	156	129	138	141	129	135
5	1270	551	812	---	---	---	152	130	136	163	125	138
6	647	581	611	---	---	---	233	133	163	383	143	246
7	657	612	629	---	---	---	223	206	214	240	169	199
8	645	605	623	---	---	---	236	204	212	---	---	---
9	697	588	635	97	83	92	229	159	193	---	---	---
10	644	580	611	114	93	101	208	159	167	---	---	---
11	---	---	---	104	95	101	181	156	164	---	---	---
12	---	---	---	124	95	104	271	179	201	---	---	---
13	---	---	---	138	102	116	193	157	172	---	---	---
14	---	---	---	124	93	102	200	156	166	---	---	---
15	---	---	---	100	90	96	236	157	169	---	---	---
16	---	---	---	115	92	97	260	186	208	---	---	---
17	---	---	---	111	95	102	221	175	185	---	---	---
18	---	---	---	116	92	99	211	174	183	---	---	---
19	---	---	---	129	98	110	387	171	221	92	76	83
20	---	---	---	---	---	---	377	201	231	118	85	98
21	---	---	---	---	---	---	403	176	276	113	99	103
22	---	---	---	---	---	---	175	140	153	119	102	110
23	---	---	---	---	---	---	178	123	131	125	105	119
24	---	---	---	137	104	123	---	---	---	129	112	121
25	---	---	---	141	125	132	---	---	---	172	112	142
26	---	---	---	147	128	134	---	---	---	312	147	205
27	---	---	---	145	134	139	---	---	---	168	111	130
28	100	86	89	182	136	152	---	---	---	120	107	116
29	97	88	92	187	172	179	109	81	96	118	105	108
30	97	91	94	203	125	166	129	103	110	166	109	123
31	123	94	101	---	---	---	---	---	---	128	114	118
MONTH	1510	86	566	203	83	118	403	81	171	383	76	135

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	126	110	118	202	79	155	112	104	108	167	121	140
2	166	112	126	203	149	176	111	96	104	121	101	109
3	165	122	149	315	92	206	133	109	119	116	94	103
4	131	104	116	231	150	192	122	113	116	163	94	102
5	114	98	103	228	97	141	122	117	120	145	105	125
6	115	103	108	157	82	106	124	107	117	115	95	104
7	123	108	115	107	79	91	130	114	125	122	101	114
8	129	107	116	122	85	98	139	121	129	109	96	98
9	---	---	---	139	97	113	155	136	148	120	96	102
10	---	---	---	139	92	124	154	138	150	110	94	102
11	---	---	---	147	112	127	157	134	147	115	107	110
12	---	---	---	120	107	113	158	107	137	114	103	107
13	---	---	---	116	103	110	133	111	123	114	108	110
14	---	---	---	122	105	113	138	117	131	111	107	109
15	---	---	---	124	112	121	131	119	124	117	100	109
16	---	---	---	130	116	126	156	127	143	113	100	104
17	---	---	---	141	124	134	163	137	154	110	103	106
18	---	---	---	187	125	146	169	147	162	108	104	105
19	---	---	---	156	138	147	146	100	115	109	105	107
20	---	---	---	186	130	154	116	97	108	120	109	114
21	---	---	---	130	102	110	121	98	109	129	119	123
22	---	---	---	110	92	97	128	102	114	144	129	135
23	---	---	---	115	94	103	135	109	126	152	137	147
24	---	---	---	130	104	116	146	116	135	159	151	154
25	100	81	90	113	98	105	156	126	143	170	150	163
26	102	88	96	118	99	113	181	155	164	180	160	173
27	140	92	112	125	103	119	190	166	178	192	176	183
28	150	114	130	134	125	129	201	189	194	206	190	196
29	---	---	---	168	133	148	200	140	160	220	200	207
30	---	---	---	148	112	129	143	137	140	239	213	222
31	---	---	---	118	90	104	---	---	---	257	229	236
MONTH	166	81	115	315	79	128	201	96	135	257	94	133

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

SPECIFIC CONDUCTANCE, µS/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	277	243	254	194	169	176	258	226	234	558	299	460
2	---	---	---	213	183	193	261	239	251	519	381	440
3	---	---	---	237	192	215	285	245	260	589	475	523
4	---	---	---	237	199	228	311	270	283	640	477	577
5	---	---	---	215	179	201	322	276	291	708	526	597
6	---	---	---	241	208	219	342	243	296	730	577	644
7	---	---	---	268	227	243	363	313	337	793	599	691
8	336	278	312	296	246	266	371	288	333	989	634	727
9	336	155	276	290	122	204	316	280	295	819	641	741
10	231	167	202	135	125	130	340	295	315	812	182	630
11	244	209	224	148	133	139	347	270	317	259	183	228
12	250	152	233	163	146	156	340	267	304	301	260	279
13	231	189	222	172	158	165	369	319	338	341	301	312
14	238	180	225	191	162	169	393	343	362	357	184	322
15	234	136	202	203	172	186	418	385	399	245	201	230
16	135	114	123	201	147	183	441	386	410	245	172	195
17	160	100	121	171	153	160	447	404	427	189	174	181
18	102	93	97	169	152	159	466	380	437	208	188	195
19	108	90	99	177	83	150	436	190	355	217	201	206
20	148	107	119	104	85	91	428	241	351	235	214	219
21	137	104	119	100	88	93	429	264	372	260	232	239
22	102	91	99	116	100	107	450	360	404	259	238	251
23	109	100	103	136	115	124	460	153	383	252	125	153
24	135	109	117	157	132	142	295	208	256	127	123	124
25	132	123	127	176	156	163	353	294	316	137	125	129
26	146	131	137	193	134	167	420	348	368	150	129	140
27	159	130	148	163	149	156	462	404	423	166	149	155
28	164	152	158	169	151	161	514	446	475	182	163	169
29	161	159	159	180	163	168	564	467	514	195	178	184
30	175	156	162	185	147	176	550	194	359	217	192	202
31	---	---	---	234	155	191	529	448	480	---	---	---
MONTH	336	90	168	296	83	170	564	153	353	989	123	338
YEAR	1510	76	204									

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.21	6.68	6.87	6.62	6.49	6.56	6.67	6.53	6.60	6.61	6.42	6.50
2	7.18	6.90	7.06	6.60	6.52	6.57	6.74	6.63	6.68	6.50	6.42	6.46
3	6.95	6.72	6.84	6.62	6.52	6.56	6.83	6.66	6.75	6.57	6.44	6.51
4	7.21	6.66	6.96	6.72	6.55	6.62	6.73	6.63	6.67	6.61	6.44	6.53
5	7.25	6.41	6.83	---	---	---	6.82	6.69	6.75	6.69	6.58	6.63
6	6.41	6.33	6.36	---	---	---	6.96	6.71	6.80	6.67	6.51	6.58
7	6.35	6.31	6.33	---	---	---	6.98	6.85	6.93	6.79	6.48	6.57
8	6.34	6.29	6.32	---	---	---	6.93	6.85	6.88	---	---	---
9	6.34	6.27	6.31	6.46	6.32	6.39	7.00	6.78	6.88	---	---	---
10	6.32	6.28	6.30	6.52	6.43	6.47	6.88	6.79	6.84	---	---	---
11	---	---	---	6.57	6.46	6.49	6.84	6.78	6.81	---	---	---
12	---	---	---	6.62	6.49	6.55	6.85	6.71	6.78	---	---	---
13	---	---	---	6.81	6.45	6.56	6.85	6.75	6.83	---	---	---
14	---	---	---	6.56	6.46	6.50	6.92	6.78	6.85	---	---	---
15	---	---	---	6.59	6.49	6.53	6.80	6.47	6.71	---	---	---
16	---	---	---	6.66	6.49	6.55	6.77	6.63	6.70	---	---	---
17	---	---	---	6.63	6.49	6.57	6.75	6.66	6.71	---	---	---
18	---	---	---	6.64	6.52	6.56	6.75	6.63	6.70	---	---	---
19	---	---	---	6.82	6.57	6.66	6.84	6.70	6.75	6.88	6.71	6.80
20	---	---	---	---	---	---	6.83	6.72	6.77	6.99	6.85	6.93
21	---	---	---	---	---	---	6.86	6.44	6.61	7.03	6.95	6.98
22	---	---	---	---	---	---	6.56	6.45	6.51	7.04	6.97	7.00
23	---	---	---	---	---	---	6.71	6.27	6.44	7.11	7.01	7.06
24	---	---	---	6.50	6.41	6.44	---	---	---	7.16	7.10	7.13
25	---	---	---	6.57	6.45	6.51	---	---	---	7.27	7.13	7.21
26	---	---	---	6.57	6.46	6.51	---	---	---	7.67	7.24	7.39
27	---	---	---	6.56	6.44	6.51	---	---	---	7.32	7.12	7.20
28	6.38	6.32	6.35	6.68	6.51	6.59	---	---	---	7.17	7.10	7.12
29	6.53	6.38	6.42	6.79	6.68	6.73	6.61	6.00	6.23	7.19	7.12	7.15
30	6.55	6.45	6.49	6.78	6.52	6.69	6.44	6.26	6.35	7.46	7.14	7.20
31	6.64	6.52	6.57	---	---	---	---	---	---	7.19	7.05	7.13
MONTH	7.25	6.27	6.57	6.82	6.32	6.55	7.00	6.00	6.70	7.67	6.42	6.90

MONONGAHELA RIVER BASIN

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

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.13	7.03	7.06	6.48	6.37	6.42	5.92	5.86	5.89	6.97	5.93	6.26
2	7.29	7.01	7.09	6.47	6.38	6.43	5.95	5.85	5.87	6.73	6.32	6.44
3	7.37	7.03	7.18	6.60	6.40	6.48	6.08	5.84	5.91	6.54	6.47	6.51
4	7.14	7.03	7.08	6.64	6.37	6.46	5.98	5.83	5.88	6.55	6.47	6.51
5	7.23	7.14	7.18	6.82	6.32	6.41	5.93	5.87	5.89	6.84	6.51	6.60
6	7.18	7.12	7.15	6.59	6.07	6.38	5.91	5.86	5.88	6.68	6.50	6.56
7	7.22	7.16	7.19	6.31	6.18	6.26	5.92	5.86	5.88	6.71	6.56	6.64
8	7.24	7.12	7.18	6.43	6.30	6.35	6.05	5.86	5.90	6.59	6.48	6.54
9	---	---	---	6.58	6.35	6.42	6.09	5.93	5.99	6.78	6.52	6.58
10	---	---	---	6.66	6.37	6.46	5.94	5.85	5.91	6.64	6.44	6.50
11	---	---	---	6.53	6.36	6.42	5.92	5.81	5.88	6.54	6.50	6.53
12	---	---	---	6.41	6.30	6.33	6.38	5.76	6.04	6.54	6.49	6.52
13	---	---	---	6.34	6.27	6.31	6.40	6.32	6.36	6.51	6.48	6.49
14	---	---	---	6.35	6.29	6.32	6.43	6.21	6.33	6.51	6.43	6.48
15	---	---	---	6.35	6.30	6.33	6.35	6.31	6.33	6.50	6.25	6.39
16	---	---	---	6.35	6.29	6.32	6.36	6.23	6.30	6.40	6.33	6.37
17	---	---	---	6.34	6.24	6.29	6.37	6.19	6.28	6.39	6.28	6.34
18	---	---	---	6.76	6.25	6.36	6.65	6.24	6.35	6.39	5.95	6.29
19	---	---	---	6.34	6.25	6.31	6.67	6.29	6.47	6.30	6.04	6.17
20	---	---	---	6.72	6.27	6.36	6.52	6.42	6.47	6.33	6.02	6.18
21	---	---	---	6.37	5.77	6.12	6.51	6.45	6.48	6.35	6.02	6.31
22	---	---	---	5.83	5.77	5.79	6.51	6.43	6.48	6.34	6.08	6.27
23	---	---	---	5.83	5.77	5.80	6.53	6.41	6.49	6.43	6.29	6.36
24	---	---	---	6.10	5.80	5.92	6.53	6.37	6.47	6.37	6.31	6.34
25	6.42	6.32	6.36	5.82	5.78	5.80	6.50	5.86	6.19	6.47	6.32	6.38
26	6.44	6.39	6.41	5.82	5.77	5.79	6.10	6.05	6.07	6.60	6.38	6.48
27	6.49	6.42	6.45	5.80	5.74	5.77	6.09	5.96	6.02	6.52	6.46	6.49
28	6.47	6.36	6.42	5.81	5.74	5.77	6.05	5.98	6.00	6.48	6.40	6.44
29	---	---	---	6.19	5.77	5.94	6.46	5.95	6.13	6.48	6.40	6.43
30	---	---	---	6.10	5.79	5.92	6.07	5.97	6.03	6.46	6.36	6.40
31	---	---	---	5.94	5.82	5.87	---	---	---	6.38	6.32	6.35
MONTH	7.37	6.32	6.90	6.82	5.74	6.19	6.67	5.76	6.14	6.97	5.93	6.42

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	6.37	6.29	6.33	6.45	6.39	6.42	6.34	6.29	6.32	6.48	6.17	6.29
2	---	---	---	6.40	6.35	6.38	6.31	6.25	6.28	6.44	6.20	6.33
3	---	---	---	6.35	6.31	6.34	6.27	6.21	6.25	6.30	6.12	6.24
4	---	---	---	6.34	6.26	6.28	6.44	6.21	6.33	6.31	6.08	6.19
5	---	---	---	6.53	6.35	6.45	6.42	6.35	6.38	6.34	5.97	6.16
6	---	---	---	6.53	6.40	6.47	6.45	6.27	6.35	6.23	5.88	6.07
7	---	---	---	6.46	6.38	6.43	6.31	6.20	6.26	6.11	5.78	5.96
8	6.42	6.26	6.40	6.40	6.35	6.37	6.32	6.18	6.24	6.98	5.87	6.04
9	6.79	6.36	6.50	6.59	6.25	6.33	6.34	6.29	6.31	6.18	5.93	6.03
10	6.89	6.51	6.61	6.39	6.30	6.35	6.32	6.27	6.29	6.75	5.87	6.10
11	6.51	6.44	6.47	6.48	6.35	6.38	6.27	6.22	6.24	6.64	6.38	6.44
12	6.72	6.39	6.44	6.52	6.39	6.47	6.29	6.23	6.26	6.39	6.35	6.38
13	6.71	6.52	6.58	6.67	6.44	6.51	6.23	6.17	6.21	6.36	6.35	6.36
14	6.70	6.48	6.58	6.56	6.43	6.46	6.19	6.16	6.17	6.75	6.34	6.39
15	6.82	6.52	6.60	6.54	6.43	6.46	6.16	6.10	6.13	6.76	6.47	6.55
16	6.60	6.50	6.54	6.75	6.39	6.56	6.37	6.10	6.21	6.63	6.45	6.52
17	6.73	6.40	6.50	6.72	6.51	6.58	6.33	6.27	6.30	6.47	6.44	6.46
18	6.50	6.40	6.44	6.54	6.50	6.51	6.29	6.20	6.25	6.50	6.44	6.47
19	6.53	6.40	6.44	6.78	6.13	6.46	6.73	6.10	6.31	6.49	6.43	6.46
20	6.77	6.44	6.50	6.26	6.12	6.19	6.58	6.20	6.32	6.50	6.45	6.47
21	6.50	6.39	6.42	6.36	6.25	6.31	6.44	6.21	6.29	6.52	6.48	6.50
22	6.50	6.17	6.41	6.41	6.33	6.37	6.36	6.19	6.27	6.73	6.50	6.54
23	6.39	6.31	6.35	6.43	6.35	6.38	6.51	6.18	6.31	6.81	6.46	6.57
24	6.98	6.32	6.42	6.40	6.35	6.37	6.34	6.29	6.31	6.48	6.46	6.47
25	6.51	6.40	6.45	6.36	6.26	6.33	6.33	6.27	6.30	6.56	6.48	6.49
26	6.48	6.40	6.43	6.58	6.25	6.36	6.31	6.22	6.26	6.55	6.46	6.51
27	6.59	6.28	6.44	6.47	6.41	6.44	6.24	6.13	6.19	6.52	6.48	6.50
28	6.56	6.37	6.46	6.50	6.36	6.42	6.17	6.04	6.12	6.54	6.49	6.51
29	6.41	6.40	6.40	6.45	6.40	6.42	6.15	6.03	6.06	6.53	6.47	6.50
30	6.46	6.40	6.43	6.54	6.29	6.42	6.40	5.98	6.28	6.50	6.46	6.47
31	---	---	---	6.59	6.34	6.44	6.34	6.21	6.28	---	---	---
MONTH	6.98	6.17	6.46	6.78	6.12	6.41	6.73	5.98	6.26	6.98	5.78	6.37
YEAR	7.67	5.74	6.44									

MONONGAHELA RIVER BASIN

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

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	19.3	16.4	17.7	8.6	4.3	6.3	5.1	3.3	4.1	5.0	3.5	4.3
2	17.8	16.9	17.5	6.1	5.3	5.8	4.4	2.3	3.2	5.4	4.4	4.8
3	16.9	15.2	15.9	8.8	4.7	6.6	5.6	1.8	3.4	5.6	2.8	4.5
4	15.7	12.9	14.5	12.0	7.0	9.2	4.6	1.7	3.0	3.9	2.3	2.9
5	14.2	11.3	12.6	---	---	---	3.3	1.4	2.1	3.3	2.2	2.7
6	12.3	10.1	11.2	---	---	---	5.0	1.5	2.7	3.5	2.4	3.1
7	11.9	10.3	11.0	---	---	---	5.0	2.4	3.7	5.2	3.6	4.2
8	11.7	9.2	10.3	---	---	---	4.4	2.8	3.6	---	---	---
9	11.5	8.9	10.3	9.9	7.0	8.0	3.5	1.2	2.6	---	---	---
10	14.6	9.6	11.6	10.3	6.9	8.5	2.1	1.1	1.5	---	---	---
11	---	---	---	8.1	4.9	7.2	1.5	.8	1.1	---	---	---
12	---	---	---	7.4	3.1	5.2	1.2	.7	.9	---	---	---
13	---	---	---	8.8	6.0	7.3	1.4	.9	1.1	---	---	---
14	---	---	---	9.6	5.8	7.2	2.1	1.4	1.7	---	---	---
15	---	---	---	9.7	5.1	7.1	2.0	1.0	1.6	---	---	---
16	---	---	---	11.7	7.3	9.4	1.5	.8	1.1	---	---	---
17	---	---	---	10.3	5.2	7.7	1.5	1.0	1.2	---	---	---
18	---	---	---	7.8	3.9	5.5	1.5	1.0	1.2	---	---	---
19	---	---	---	7.2	5.2	6.3	3.2	1.4	2.1	6.7	3.7	5.0
20	---	---	---	---	---	---	4.2	1.7	2.5	5.0	1.7	3.6
21	---	---	---	---	---	---	4.8	3.7	4.2	3.2	.7	1.4
22	---	---	---	---	---	---	4.8	2.4	3.5	3.0	.6	1.4
23	---	---	---	---	---	---	6.6	3.4	4.9	4.8	.7	1.9
24	---	---	---	7.3	4.3	5.4	---	---	---	4.4	.8	2.3
25	---	---	---	7.4	3.8	5.2	---	---	---	6.3	3.3	4.5
26	---	---	---	8.4	4.4	6.3	---	---	---	6.2	4.1	5.1
27	---	---	---	10.4	6.9	8.9	---	---	---	5.9	3.0	4.2
28	9.3	6.2	7.6	8.5	4.6	6.4	---	---	---	5.9	2.3	3.7
29	8.5	4.7	6.3	6.0	3.5	4.7	6.0	4.0	4.9	5.7	3.0	4.5
30	8.3	4.2	6.1	5.9	3.2	4.5	5.7	3.1	4.2	6.2	4.6	5.5
31	7.3	2.4	4.7	---	---	---	---	---	---	8.5	4.3	5.5
MONTH	19.3	2.4	11.2	12.0	3.1	6.8	6.6	.7	2.6	8.5	.6	3.8

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	9.3	4.6	6.2	5.3	.6	2.0	6.8	4.7	5.8	12.3	10.6	11.7
2	9.1	5.8	7.2	3.4	.4	1.7	7.7	4.7	6.0	11.1	9.0	9.8
3	7.5	3.2	5.4	6.9	.6	2.8	11.7	6.2	8.2	10.4	8.2	9.1
4	3.9	2.2	3.0	6.7	2.8	4.2	11.2	7.7	9.4	16.1	4.0	10.5
5	4.1	2.4	3.1	5.2	3.7	4.4	10.3	7.4	8.8	12.3	10.1	10.8
6	3.7	1.8	2.9	4.1	3.2	3.7	9.5	5.7	7.3	12.1	8.4	10.1
7	4.0	.9	2.1	3.8	2.7	3.3	9.3	5.3	6.8	8.4	7.3	7.9
8	2.3	.6	1.2	5.4	2.3	3.2	7.5	4.2	5.8	9.8	7.4	8.3
9	---	---	---	6.2	1.6	3.2	10.8	4.5	6.8	10.0	7.5	8.7
10	---	---	---	6.6	1.5	3.5	9.7	3.8	5.8	9.3	8.9	9.4
11	---	---	---	8.4	2.6	4.7	10.3	1.7	5.4	8.9	8.2	8.7
12	---	---	---	4.8	2.9	4.0	12.7	2.1	6.3	8.6	7.9	8.3
13	---	---	---	7.7	2.3	4.6	11.7	4.4	6.9	9.4	8.1	8.8
14	---	---	---	10.0	3.3	6.1	14.4	2.3	7.4	11.2	8.2	9.7
15	---	---	---	11.6	5.2	7.7	8.6	7.3	7.9	10.6	8.9	9.7
16	---	---	---	10.3	4.0	6.1	15.0	4.7	9.2	10.1	9.4	9.7
17	---	---	---	12.1	2.7	6.6	15.3	4.7	9.8	15.5	9.4	11.6
18	---	---	---	9.3	3.9	7.2	11.6	8.9	10.4	16.6	9.9	12.9
19	---	---	---	7.5	2.5	4.1	14.2	7.0	9.5	17.1	10.9	13.8
20	---	---	---	4.8	2.2	3.4	15.4	5.1	9.2	13.9	12.5	13.3
21	---	---	---	5.4	3.4	4.5	13.9	6.2	9.3	19.2	12.4	14.9
22	---	---	---	7.9	2.3	4.4	15.4	5.2	9.3	16.5	11.0	13.5
23	---	---	---	8.5	2.6	4.9	15.6	4.0	8.8	14.8	12.8	13.5
24	---	---	---	6.2	4.3	5.1	16.4	4.0	9.3	17.7	12.2	14.1
25	3.4	.5	1.5	10.7	5.1	7.1	10.9	5.9	8.7	18.7	11.5	14.7
26	2.3	1.2	1.8	12.4	5.3	8.0	13.6	8.7	10.2	17.1	14.0	15.3
27	3.6	.3	1.9	14.8	5.4	9.4	17.2	8.9	12.3	18.1	12.6	15.2
28	3.6	.3	1.3	16.6	8.8	11.7	14.7	9.4	12.0	19.8	9.4	14.1
29	---	---	---	11.8	9.9	10.9	14.9	10.5	12.2	19.3	9.9	14.5
30	---	---	---	10.7	9.5	9.9	18.6	11.3	13.8	20.6	13.5	16.5
31	---	---	---	9.8	5.8	7.8	---	---	---	21.1	14.5	17.2
MONTH	9.3	.3	3.1	16.6	.4	5.5	18.6	1.7	8.6	21.1	4.0	11.8

MONONGAHELA RIVER BASIN

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

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	23.3	16.0	19.1	21.9	14.1	17.6	20.1	17.1	18.3	18.7	16.3	17.3
2	---	---	---	20.6	15.1	17.6	20.4	15.9	17.9	18.9	16.5	18.0
3	---	---	---	22.0	16.5	18.6	21.6	17.4	19.3	17.5	13.8	15.8
4	---	---	---	18.7	17.1	18.0	22.5	18.7	20.4	16.8	12.5	14.8
5	---	---	---	19.0	17.5	18.0	22.0	19.5	20.7	17.1	12.8	14.9
6	---	---	---	21.9	17.1	18.9	21.9	18.9	20.3	17.6	14.0	15.7
7	---	---	---	22.6	17.7	19.7	20.0	16.4	18.0	17.8	15.2	16.4
8	26.6	14.2	21.2	23.5	17.8	20.1	17.7	14.0	15.9	24.1	15.7	16.8
9	17.8	15.5	16.4	19.5	16.3	17.9	19.4	14.2	16.7	19.0	16.0	17.3
10	18.8	14.4	16.2	21.1	17.1	19.0	20.3	15.0	17.6	20.6	15.6	17.5
11	20.6	12.3	15.8	22.0	18.8	19.9	18.3	16.7	17.3	19.7	17.8	18.7
12	15.9	11.8	14.2	21.8	18.4	19.2	20.4	16.3	18.1	18.1	17.1	17.6
13	16.8	15.0	15.8	19.1	17.9	18.5	21.1	17.1	19.0	19.6	16.7	18.0
14	18.0	14.7	16.1	20.1	16.5	18.2	21.8	17.9	19.7	19.4	17.2	18.1
15	17.1	14.6	15.6	21.0	15.4	18.0	20.7	17.8	19.4	19.0	17.5	18.2
16	15.6	14.4	14.9	19.2	17.0	18.0	20.5	18.3	19.3	18.2	17.0	17.5
17	16.1	13.4	14.7	20.7	17.3	18.5	20.4	17.8	18.9	17.3	15.7	16.6
18	16.5	12.2	14.1	21.0	16.2	18.4	18.6	17.0	17.5	16.1	15.4	15.7
19	16.7	12.9	14.8	20.9	17.3	18.6	19.6	16.6	17.8	17.1	15.2	15.9
20	17.0	14.4	15.5	18.3	16.0	17.1	19.6	16.6	18.0	18.1	14.1	16.0
21	16.7	15.2	15.9	19.7	16.0	17.6	19.3	18.0	18.6	19.5	16.4	17.8
22	19.6	14.4	15.7	20.8	16.7	18.5	19.3	17.3	18.4	19.0	17.5	18.3
23	18.0	14.7	16.1	21.7	17.0	19.0	20.2	18.2	19.2	18.8	13.5	16.1
24	20.0	15.0	17.0	21.8	17.2	19.3	19.5	18.3	18.8	15.1	11.5	13.2
25	20.4	15.5	17.5	22.2	17.8	19.6	19.9	16.8	18.3	14.1	10.6	12.4
26	20.3	16.1	17.8	21.3	18.5	19.8	19.9	16.7	18.1	16.0	12.8	14.0
27	21.3	15.9	18.3	21.3	19.7	20.5	18.8	15.3	17.1	13.9	9.8	11.9
28	19.9	16.8	17.9	21.3	19.0	19.8	19.6	16.8	18.1	14.2	8.8	11.3
29	15.6	15.2	15.6	21.5	17.8	19.5	19.4	17.0	18.1	15.4	11.4	13.4
30	21.1	13.1	16.7	19.1	18.0	18.5	20.8	17.8	19.5	16.0	13.2	14.5
31	---	---	---	20.2	17.9	18.8	18.6	14.8	16.8	---	---	---
MONTH	26.6	11.8	16.4	23.5	14.1	18.7	22.5	14.0	18.4	24.1	8.8	16.0
YEAR	26.6	.3	11.0									

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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	.75	7	.01	.42	7	.01	.56	10	.02
2	.66	11	.02	.46	2	.00	.50	7	.01
3	.45	10	.01	.39	1	.00	.47	3	.00
4	.31	8	.01	.48	15	.02	.42	3	.00
5	.27	6	.00	8.5	168	5.8	.39	3	.00
6	.23	3	.00	7.1	17	.33	.44	6	.01
7	.23	2	.00	3.3	8	.07	.54	10	.01
8	.22	2	.00	2.0	6	.03	.49	13	.02
9	.20	2	.00	1.5	6	.02	.38	10	.01
10	.19	1	.00	1.2	6	.02	.31	7	.01
11	.32	25	.02	1.0	6	.02	.29	4	.00
12	.18	3	.00	.79	6	.01	.26	4	.00
13	.11	3	.00	2.5	47	.47	.30	5	.00
14	.09	3	.00	2.0	15	.08	.33	5	.00
15	.08	3	.00	1.5	13	.05	.36	7	.01
16	.08	2	.00	1.4	12	.05	.27	7	.01
17	.08	2	.00	1.3	10	.04	.28	8	.01
18	1.1	33	.10	.98	10	.03	.29	10	.01
19	.42	2	.00	1.6	10	.04	.29	8	.01
20	.30	2	.00	18	45	2.2	.44	7	.01
21	.48	2	.00	9.7	25	.65	2.2	68	.47
22	3.9	66	.86	5.1	23	.32	1.6	11	.05
23	3.2	12	.10	3.1	21	.18	4.5	101	2.2
24	4.6	11	.14	2.2	18	.11	14	140	5.3
25	2.5	10	.07	1.7	15	.07	10	22	.59
26	1.5	10	.04	1.3	14	.05	4.6	17	.21
27	1.0	8	.02	1.2	14	.05	2.9	15	.12
28	.82	8	.02	1.1	14	.04	2.7	15	.11
29	.62	8	.01	.92	14	.03	2.1	14	.08
30	.51	6	.01	.79	13	.03	1.8	13	.06
31	.46	4	.00	---	---	---	1.5	12	.05
TOTAL	25.86	---	1.44	83.53	---	10.82	55.51	---	9.39

MONONGAHELA RIVER BASIN

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

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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	1.7	10	.05	1.9	27	.14	.94	12	.03
2	1.9	8	.04	1.7	27	.12	.84	11	.02
3	1.9	8	.04	4.0	30	.32	1.2	11	.04
4	1.6	10	.04	3.0	30	.24	2.5	75	.51
5	1.4	21	.08	2.4	27	.17	8.2	200	5.9
6	2.2	30	.18	1.9	25	.13	33	431	49
7	2.8	30	.23	1.5	24	.10	10	100	2.7
8	8.5	75	1.9	1.2	24	.08	5.0	50	.68
9	5.3	50	.72	.96	27	.07	3.5	40	.38
10	3.1	41	.34	.81	30	.07	3.5	60	.57
11	2.2	14	.08	.74	20	.04	3.2	30	.26
12	17	175	10	.63	15	.03	2.9	25	.20
13	10	37	1.0	.81	20	.04	2.5	20	.14
14	8.3	92	3.2	2.8	50	.38	2.4	1	.01
15	13	30	1.1	22	180	11	2.2	15	.09
16	6.3	15	.26	14	120	4.5	1.7	15	.07
17	3.5	13	.12	6.1	25	.41	1.5	15	.06
18	2.4	11	.07	3.6	21	.20	1.6	15	.06
19	1.8	11	.05	2.5	18	.12	1.2	15	.05
20	1.5	11	.04	2.2	18	.11	3.4	125	1.7
21	1.1	12	.04	17	202	10	9.1	70	1.7
22	.94	15	.04	7.6	65	1.3	4.2	50	.57
23	.83	12	.03	4.2	49	.56	2.8	40	.30
24	.73	10	.02	2.6	35	.25	4.7	40	.51
25	.72	10	.02	2.1	22	.12	3.4	25	.23
26	1.7	15	.07	1.8	18	.09	2.6	25	.18
27	2.7	30	.22	1.4	15	.06	2.1	25	.14
28	1.8	25	.12	1.2	15	.05	1.7	23	.11
29	1.5	20	.08	---	---	---	2.6	60	.42
30	3.0	25	.20	---	---	---	9.3	152	4.4
31	2.3	25	.16	---	---	---	9.6	75	1.9
TOTAL	113.72	---	20.54	112.65	---	30.70	143.38	---	72.93

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	5.5	20	.30	4.0	136	3.6	.35	13	.01
2	3.7	18	.18	7.0	50	.95	.34	13	.01
3	3.6	15	.15	4.3	30	.35	.36	38	.07
4	3.0	15	.12	3.0	23	.19	.56	61	.12
5	2.6	12	.08	5.4	89	1.8	.70	70	.18
6	2.2	11	.07	6.4	80	1.4	.56	35	.05
7	1.9	11	.06	6.9	37	.69	.40	20	.02
8	1.7	12	.06	5.4	32	.47	.31	3	.00
9	1.7	12	.06	6.8	112	3.7	.68	133	.57
10	1.4	12	.05	17	150	6.9	1.0	98	.43
11	1.2	10	.03	10	70	1.9	.47	18	.02
12	1.1	9	.03	7.1	63	1.2	.57	55	.22
13	1.1	7	.02	5.3	45	.64	.63	18	.03
14	.92	7	.02	3.4	37	.34	.62	45	.08
15	.91	7	.02	4.7	80	1.4	2.8	121	1.4
16	.80	7	.02	3.8	30	.31	3.7	55	.55
17	.70	7	.01	3.1	25	.21	10	167	5.0
18	1.1	32	.17	2.5	19	.13	3.2	30	.26
19	2.6	50	.40	2.1	19	.11	2.1	28	.16
20	1.9	15	.08	1.7	18	.08	2.7	97	.82
21	1.6	13	.06	1.3	18	.06	5.1	25	.34
22	1.3	13	.05	1.1	18	.05	2.7	13	.09
23	1.1	13	.04	1.3	33	.12	2.0	13	.07
24	.96	13	.03	.99	14	.04	1.8	79	1.0
25	.91	10	.02	.94	42	.11	1.4	13	.05
26	.80	15	.03	.81	25	.05	1.0	13	.04
27	.70	15	.03	.63	20	.03	1.2	48	.38
28	.62	14	.02	.51	15	.02	1.7	20	.09
29	2.0	95	.85	.46	15	.02	1.1	15	.04
30	1.5	22	.09	.43	14	.02	.78	10	.02
31	---	---	---	.40	13	.01	---	---	---
TOTAL	51.12	---	3.15	118.77	---	26.90	50.83	---	12.12

MONONGAHELA RIVER BASIN

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

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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	.62	10	.02	.39	20	.02	.16	12	.01
2	.50	10	.01	.32	15	.01	.15	12	.00
3	.45	10	.01	.30	8	.01	.11	12	.00
4	.47	10	.01	.26	4	.00	.08	12	.00
5	.96	10	.03	.25	4	.00	.07	12	.00
6	.57	10	.02	.26	8	.01	.06	12	.00
7	.39	10	.01	.22	10	.01	.06	12	.00
8	.33	12	.01	.24	11	.01	.06	9	.00
9	3.6	136	5.9	.25	11	.01	.06	15	.00
10	1.6	26	.11	.22	11	.01	.61	69	.62
11	1.0	10	.03	.24	11	.01	1.5	43	.34
12	.89	10	.02	.23	12	.01	.31	9	.01
13	.96	10	.03	.19	12	.01	.23	13	.01
14	.69	12	.02	.19	12	.01	.40	31	.15
15	.54	12	.02	.17	12	.01	.76	27	.08
16	.99	35	.14	.15	21	.01	1.4	34	.15
17	1.1	30	.09	.14	18	.01	.70	27	.05
18	.80	10	.02	.15	15	.01	.46	27	.03
19	4.9	152	8.7	.37	36	.08	.36	27	.03
20	5.1	30	.41	.26	25	.02	.31	22	.02
21	2.3	22	.14	.23	30	.02	.27	18	.01
22	1.4	18	.07	.20	20	.01	.28	15	.01
23	.97	11	.03	1.1	74	.94	3.9	83	.91
24	.69	11	.02	.65	35	.08	1.6	11	.05
25	.55	11	.02	.27	12	.01	.94	11	.03
26	.80	35	.08	.20	12	.01	.74	11	.02
27	.91	25	.06	.15	12	.00	.48	15	.02
28	.91	20	.05	.14	12	.00	.41	15	.02
29	.67	15	.03	.13	12	.00	.36	14	.01
30	.83	35	.08	.35	30	.03	.32	14	.01
31	.77	35	.07	.13	20	.01	---	---	---
TOTAL	37.26	---	16.26	8.35	---	1.38	17.15	---	2.59
YEAR	818.13		208.22						

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.--49 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. 16	0500	6,370	9.78	May 10	1300	4,240	8.60
Mar. 6	2100	*8,070	*10.57	July 12	0100	5,620	9.40

Minimum discharge, 5.8 ft^3/s, Oct. 17, 18 gage height, 1.06 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	17	65	182	238	294	1580	563	120	260	124	59
2	14	18	59	e160	207	259	927	1820	100	164	107	42
3	12	18	50	e130	320	239	675	1220	88	120	80	36
4	10	16	42	e120	848	227	566	739	81	100	64	31
5	14	18	39	e105	539	333	465	560	75	542	54	26
6	16	61	e33	e130	406	4150	393	793	78	544	53	21
7	13	127	e29	645	333	3060	343	1660	77	283	72	20
8	12	89	e26	604	255	1050	303	1250	65	180	69	24
9	11	74	e22	635	165	756	300	880	55	195	55	19
10	8.7	56	e20	420	e140	664	283	3190	80	928	54	15
11	8.9	43	e18	313	e120	648	260	2200	46	594	44	14
12	7.9	37	e15	323	e110	631	236	1670	43	2230	40	14
13	16	37	e18	903	e105	542	212	1250	45	1500	33	17
14	12	48	e22	656	e160	467	189	953	55	642	29	24
15	9.4	79	e20	1760	e1680	399	167	728	67	366	28	21
16	7.4	76	e18	1220	4920	328	162	1210	94	250	32	28
17	6.2	62	e17	626	1800	271	146	869	247	192	31	93
18	9.0	59	e16	430	917	252	152	601	245	153	27	58
19	19	72	e15	339	593	278	508	458	136	189	32	54
20	29	422	e17	275	443	253	638	365	105	500	31	43
21	30	1600	e20	224	1550	1110	436	315	335	257	47	32
22	30	532	e22	166	2450	1190	346	259	359	161	51	30
23	28	273	e120	148	1160	651	283	232	213	123	53	172
24	35	172	e740	147	654	735	242	235	141	92	45	534
25	115	124	1930	136	444	900	218	196	101	79	41	215
26	88	99	653	135	405	607	274	229	88	90	35	131
27	57	82	357	188	360	468	291	355	331	88	29	94
28	39	73	272	268	305	399	261	257	1740	139	23	68
29	31	78	294	228	---	383	398	194	948	160	19	55
30	26	76	261	220	---	1810	724	160	416	102	35	47
31	20	---	211	256	---	2840	---	141	---	88	51	---
TOTAL	753.5	4538	5441	12092	21627	26194	11978	25552	6574	11311	1488	2037
MEAN	24.3	151	176	390	772	845	399	824	219	365	48.0	67.9
MAX	115	1600	1930	1760	4920	4150	1580	3190	1740	2230	124	534
MIN	6.2	16	15	105	105	227	146	141	43	79	19	14
CFSM	.11	.66	.77	1.70	3.37	3.69	1.74	3.60	.96	1.59	.21	.30
IN.	.12	.74	.88	1.96	3.51	4.26	1.95	4.15	1.07	1.84	.24	.33

CAL YR 1988 TOTAL 65644.0 MEAN 179 MAX 4150 MIN 4.1 CFSM .78 IN. 10.66
WTR YR 1989 TOTAL 129585.5 MEAN 355 MAX 4920 MIN 6.2 CFSM 1.55 IN. 21.05

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 end 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.--51 years, 8,261 ft^3/s, 25.46 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, 114,000 ft^3/s, Mar. 6, gage height, 25.15 ft, minimum daily, 516 ft^3/s, Oct. 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1410	1670	4410	3570	11700	7780	21100	21600	8520	7760	3280	9220
2	528	1960	4540	7980	10100	5510	19000	25900	6380	5690	2530	3940
3	2450	1840	2320	9180	15800	6830	16000	29200	5000	5580	2010	3770
4	1440	1640	1900	8970	25400	8650	12600	25500	3510	3680	2090	2780
5	1920	2650	3630	8000	18100	14700	10600	23400	4000	5710	932	2930
6	1590	8470	3150	9990	20000	65000	10500	26200	11100	7740	1700	2630
7	1800	6550	3100	17300	15100	79200	9180	36400	13400	7010	2400	2370
8	1080	5180	3560	18700	8870	45400	6610	26400	9750	5340	3140	1720
9	598	6060	3480	23400	7490	35700	5300	29100	11400	5260	2510	1150
10	516	5960	1490	21100	4840	28900	6300	45100	9270	10100	2090	1350
11	1900	3570	671	13500	2810	25800	9730	39700	9420	7750	2050	2340
12	1580	2370	2720	17400	2580	21900	9010	35300	10100	13600	1320	1960
13	1240	3080	1220	30600	4540	19500	13500	37400	9550	14100	854	2460
14	810	4230	1050	28700	10400	12000	4940	33000	8590	10600	1670	1880
15	794	4660	2090	38700	31400	9120	6370	28400	10800	10400	2480	2900
16	862	4580	1940	33600	71000	7190	2970	35400	19500	9770	1360	4760
17	886	4070	1040	27200	38800	3980	6540	32800	42100	13300	1080	4200
18	1950	3700	837	17000	31400	4480	6620	27100	37800	11500	2200	4970
19	1680	4250	2190	14400	26000	5430	10200	19800	28900	11400	1730	4370
20	1650	19900	1770	6280	22200	6630	7550	12800	22400	24200	1630	3010
21	1870	41000	4920	4760	34800	21600	6940	10100	23400	16900	4170	5980
22	1490	25200	9370	3910	30600	27200	5950	10200	17200	7890	7090	8560
23	3310	22700	12100	4650	25800	28900	3230	9500	21500	6470	12600	6820
24	5360	13700	18400	6040	21700	26000	7070	7730	18500	4050	27200	7090
25	3670	9100	35700	4760	14500	23200	4210	6830	13400	3630	26900	5400
26	3730	6370	24900	4490	14600	16700	12200	6740	9280	3660	20100	5260
27	3160	4420	23500	6340	14100	12500	19600	8690	10300	4000	17000	4610
28	2350	5700	18400	2980	11100	11300	17700	9820	15000	5150	14300	5300
29	2500	5310	14000	4720	---	12200	26000	9160	14600	5600	9060	5090
30	1800	5190	9120	8380	---	16100	25000	9870	13400	3780	12600	4270
31	2420	---	6250	14500	---	29100	---	10700	---	4870	12900	---
TOTAL	58344	235080	223768	421100	545730	638500	322520	689840	438070	256490	202976	123090
MEAN	1882	7836	7218	13580	19490	20600	10750	22250	14600	8274	6548	4103
MAX	5360	41000	35700	38700	71000	79200	26000	45100	42100	24200	27200	9220
MIN	516	1640	671	2980	2580	3980	2970	6740	3510	3630	854	1150
†	-366	-350	-161	+84.6	+162	+487	+933	-288	-3.4	-22.8	+75.1	-533
MEAN‡	1516	7486	7057	13660	19650	21090	11680	21960	14600	8251	6620	3570
CFSM‡	.34	1.70	1.60	3.10	4.46	4.79	2.65	4.98	3.31	1.87	1.50	.81
IN.‡	.39	1.90	1.84	3.57	4.64	5.52	2.96	5.74	3.69	2.16	1.73	.90

CAL YR 1988 TOTAL 2143238 MEAN 5856 MAX 41400 MIN 177 ADJ +9.5 MEAN‡ 5866 CFSM‡ 1.33 IN.‡ 18.10
WTR YR 1989 TOTAL 4155508 MEAN 11380 MAX 79200 MIN 516 ADJ -0.2 MEAN‡ 11380 CFSM‡ 2.58 IN.‡ 35.04

† 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.--58 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)
Feb. 16	0200	4,570	9.34	Mar. 30	1100	*4,950	*9.80
Mar. 6	1500	4,250	8.94				

Minimum discharge, 2.1 ft^3/s, Oct. 14, 15, gage height, 0.72 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	6.0	25	97	82	189	1370	251	77	138	23	17
2	3.2	5.7	23	e66	73	155	822	1070	62	95	19	13
3	7.4	5.5	20	e54	165	155	656	665	53	72	16	10
4	6.8	5.4	18	e47	338	165	519	450	48	59	14	9.7
5	4.6	6.4	17	e42	247	725	461	359	50	147	12	7.8
6	3.7	52	e13	e90	200	2720	373	469	73	122	12	6.4
7	3.0	43	e12	397	156	1240	324	729	51	78	28	5.8
8	3.0	26	e11	396	116	669	279	577	41	52	20	4.7
9	2.9	20	e9.6	343	e74	540	284	516	35	41	15	4.4
10	2.8	16	e8.6	218	e60	544	220	2210	48	92	11	4.0
11	2.3	14	e7.4	158	e54	544	191	1400	46	64	9.5	4.1
12	3.5	13	e6.6	243	e50	501	176	1050	33	44	7.9	3.8
13	3.9	14	e6.0	497	e46	400	165	880	39	113	6.7	3.9
14	2.6	17	e5.0	324	e70	339	146	680	58	100	5.8	3.7
15	2.2	19	e5.4	807	e1200	301	137	596	71	56	6.1	9.3
16	2.4	18	e6.2	527	2870	233	132	779	102	38	5.5	17
17	2.8	17	e6.6	329	962	192	113	575	146	29	4.3	83
18	3.2	16	e6.0	239	566	222	163	422	117	23	3.9	55
19	4.1	15	e5.6	186	388	258	402	317	72	20	5.4	27
20	5.4	406	e5.0	149	293	248	351	259	90	25	19	19
21	4.8	544	e7.0	114	1610	1210	279	229	395	24	18	15
22	5.6	180	e20	83	1340	770	230	180	273	19	35	12
23	8.8	96	e50	80	689	505	189	168	153	17	19	216
24	25	63	e500	73	417	816	161	165	99	15	14	275
25	22	45	765	74	292	787	140	141	69	12	11	102
26	21	34	287	69	265	541	143	279	88	14	8.6	58
27	13	29	172	115	234	399	124	288	536	62	7.1	38
28	10	29	140	118	186	320	109	187	1040	119	7.0	26
29	6.8	32	203	104	---	727	185	143	399	53	6.4	21
30	6.5	28	151	100	---	3590	201	115	219	29	33	18
31	6.3	---	120	91	---	2600	---	95	---	27	19	---
TOTAL	203.3	1815.0	2632.0	6230	13043	22605	9045	16244	4583	1799	422.2	1089.6
MEAN	6.56	60.5	84.9	201	466	729	301	524	153	58.0	13.6	36.3
MAX	25	544	765	807	2870	3590	1370	2210	1040	147	35	275
MIN	2.2	5.4	5.0	42	46	155	109	95	33	12	3.9	3.7
CFSM	.04	.34	.47	1.12	2.59	4.05	1.67	2.91	.85	.32	.08	.20
IN.	.04	.38	.54	1.29	2.70	4.67	1.87	3.36	.95	.37	.09	.23

CAL YR 1988 TOTAL 39756.26 MEAN 109 MAX 3800 MIN .77 CFSM .60 IN. 8.22
WTR YR 1989 TOTAL 79711.1 MEAN 218 MAX 3590 MIN 2.2 CFSM 1.21 IN. 16.47

e Estimated

MONONGAHELA RIVER BASIN

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.--47 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)
Nov. 31	1900	1,700	5.41	Mar. 6	1300	*2,440	*6.70
Feb. 15	2300	*2,440	*6.70	Mar. 30	0730	1,830	5.65
Feb. 21	1100	1,330	4.69				

Minimum daily discharge, 14 ft^3/s, Oct. 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	e37	72	90	73	123	510	188	59	102	39	e52
2	59	e34	65	85	72	111	332	393	55	87	37	e40
3	78	e31	61	79	179	106	285	278	53	77	35	e32
4	58	51	56	75	158	109	228	204	75	70	34	e26
5	e32	125	53	67	132	264	209	183	65	120	34	e25
6	e23	113	51	130	120	1460	177	238	61	78	34	e23
7	e19	85	50	139	105	581	163	299	53	67	37	e22
8	e18	69	51	142	91	339	143	248	49	59	33	e20
9	e18	61	49	123	77	280	144	246	56	54	32	e26
10	e18	59	44	107	e66	251	121	800	63	53	31	36
11	e15	54	39	96	e58	233	110	662	48	49	30	54
12	e20	47	e35	154	e56	220	105	466	46	52	33	e28
13	e26	91	e32	229	e54	194	102	371	57	55	31	e26
14	e20	80	e30	207	e120	176	94	275	55	49	30	e23
15	e14	65	e29	447	e590	161	93	269	86	45	29	e34
16	e17	60	e27	253	1240	150	87	238	121	49	28	74
17	e20	76	e25	181	426	131	79	214	340	58	30	130
18	e24	57	e23	153	273	136	100	181	158	44	32	62
19	e29	64	e21	130	205	118	138	159	115	68	49	48
20	e33	740	e20	115	173	138	106	154	151	84	62	42
21	e30	394	e37	96	805	443	101	128	180	51	62	39
22	e35	186	e30	84	472	277	94	111	119	46	57	38
23	e70	161	e80	79	299	206	86	119	149	42	44	255
24	150	159	e300	73	212	335	80	104	96	40	63	140
25	98	148	283	71	172	252	80	93	90	38	44	94
26	74	135	163	75	171	202	77	101	81	57	e30	75
27	61	133	136	96	150	173	73	90	85	48	e23	60
28	57	130	137	76	131	157	68	76	362	48	e21	52
29	51	85	124	71	---	486	120	70	184	39	e19	48
30	46	78	105	86	---	1200	109	68	126	41	257	45
31	41	---	94	76	---	1020	---	63	---	44	69	---
TOTAL	1308	3608	2322	3885	6680	10032	4214	7089	3238	1814	1389	1669
MEAN	42.2	120	74.9	125	239	324	140	229	108	58.5	44.8	55.6
MAX	150	740	300	447	1240	1460	510	800	362	120	257	255
MIN	14	31	20	67	54	106	68	63	46	38	19	20
CFSM	.57	1.63	1.02	1.70	3.24	4.39	1.91	3.10	1.46	.79	.61	.75
IN.	.66	1.82	1.17	1.96	3.37	5.06	2.13	3.58	1.63	.92	.70	.84

CAL YR 1988 TOTAL 37275 MEAN 102 MAX 1350 MIN 11 CFSM 1.38 IN. 18.81
WTR YR 1989 TOTAL 47248 MEAN 129 MAX 1460 MIN 14 CFSM 1.76 IN. 23.85

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 Lobhs 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.--56 years, 9,146 ft^3/s, 23.26 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, 109,000 ft^3/s, Mar. 7, gage height, 15.06 ft; minimum daily, 327 ft^3/s, Oct. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1080	1000	4480	4650	11600	9250	31200	21500	7110	8820	4810	10500
2	2640	2000	5040	7190	11900	7460	23400	28300	5280	4800	2800	4400
3	1470	1800	3320	9360	13000	7480	19600	32200	4300	5370	2900	4010
4	1700	1580	2280	8540	26100	8570	15800	28300	3170	2980	1910	3430
5	1910	2060	3550	8970	21300	15100	13600	25600	3870	6490	1900	3110
6	2510	6910	3250	8830	18700	44300	13900	26000	8660	7390	2140	2920
7	2580	6480	3840	17100	17400	95800	10500	37600	14800	6280	2330	2860
8	1540	4240	3450	19000	10300	55300	8940	30900	7990	4210	3350	2650
9	964	3680	3770	22400	8930	38100	7300	30100	10400	3610	3670	1300
10	639	5640	2530	22600	5770	32800	7720	44900	7650	10400	2490	955
11	577	3610	1130	15100	4310	29000	9450	48800	8730	5520	2390	2340
12	1650	1950	1810	15000	3390	25100	10900	40300	7310	13200	1940	2830
13	1360	2560	2080	29000	4890	21300	13100	40100	7680	13400	1290	1730
14	1190	3610	1380	30400	9040	15100	8080	37500	6480	9700	1620	2570
15	420	3780	1960	35800	25700	11500	6580	30900	9760	6470	2210	2730
16	467	4820	2220	37000	69800	8660	5170	36400	16500	6330	2340	5660
17	327	3740	1640	29600	52700	6730	6070	36400	33100	12900	1380	4710
18	1630	3680	1150	20100	33900	5060	7670	30800	42100	11300	2190	5420
19	963	2590	1780	15200	29200	7560	10100	22100	30600	10000	2900	5250
20	1130	9200	1830	7540	22900	6990	10600	16300	23200	21600	2180	3960
21	1970	41200	4340	6610	36600	2100	8750	10200	25200	19400	3330	5430
22	684	23700	8690	5250	39400	30500	7790	10100	20600	7950	7820	8580
23	1900	25100	11000	4670	30900	30300	4960	9410	20800	6860	10100	8540
24	4680	16100	15600	5120	24700	29300	6850	7260	19900	4990	23500	9830
25	3850	9390	36400	6030	18400	28200	5920	7310	15000	4510	27100	5560
26	3920	7090	27500	4720	15700	19400	8720	7600	8340	4010	20400	6210
27	3380	5780	24000	6450	16200	15600	20600	7810	9970	4370	16700	5050
28	2210	5320	18800	5660	13600	13600	17800	8830	15600	5890	15500	5750
29	1450	6280	15400	4790	---	14400	22400	7850	16300	5620	10300	5500
30	2080	5330	11200	6730	---	26600	28200	8380	14400	5400	12000	4720
31	2270	---	7080	15100	---	41400	---	9440	---	4740	13500	---
TOTAL	55141	220220	232500	434510	596330	702560	371670	739190	424800	244510	208990	138505
MEAN	1779	7341	7500	14020	21300	22660	12390	23840	14160	7887	6742	4617
MAX	4680	41200	36400	37000	69800	95800	31200	48800	42100	21600	27100	10500
MIN	327	1000	1130	4650	3390	2100	4960	7260	3170	2980	1290	955

CAL YR 1988 TOTAL 2322249 MEAN 6345 MAX 52400 MIN 327
WTR YR 1989 TOTAL 4368926 MEAN 11970 MAX 95800 MIN 327

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, 1804, 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.--No estimated daily discharges. Records good. 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.--55 years (water years 1899-1904, 1941-89), 645 ft^3/s, 29.69 in/yr, adjusted for storage since October 1940.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,600 ft^3/s, Mar. 28, 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, 5,350 ft^3/s, Mar. 6, gage height, 5.87 ft; minimum discharge, 73 ft^3/s, Oct. 17, gage height, 2.18 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	213	306	475	448	927	662	1110	616	630	360	387	424
2	202	290	431	479	815	569	906	1050	494	306	296	370
3	127	242	277	658	1060	579	1060	1050	257	317	292	309
4	111	300	244	646	1180	391	982	835	257	293	438	263
5	102	246	327	588	881	1110	816	883	365	367	395	469
6	88	701	354	467	860	4340	696	1520	1480	353	177	425
7	81	649	331	519	786	4260	647	1920	934	513	262	489
8	169	448	322	1140	620	2310	501	1630	656	319	236	458
9	167	442	327	2000	544	1390	517	1380	551	590	211	290
10	185	387	202	1160	617	1190	631	3220	545	1810	194	399
11	210	365	226	858	403	972	511	3030	426	933	188	423
12	226	257	584	1900	343	1070	477	2530	406	740	133	472
13	225	319	339	3740	442	998	442	1500	404	909	129	515
14	267	583	257	2030	692	953	417	1290	450	1350	262	483
15	161	478	297	2700	2200	971	351	1280	466	739	269	513
16	85	406	332	2170	4410	852	332	1820	1070	674	361	298
17	152	516	263	1510	2700	724	380	2070	1810	2020	344	356
18	308	396	153	1330	1430	583	323	1660	1260	1230	213	486
19	307	292	272	1120	977	695	557	1210	1050	880	159	474
20	276	2060	211	977	868	701	570	854	1470	2110	181	353
21	277	3220	436	858	1710	2020	457	703	2470	1470	339	465
22	295	1860	957	748	2380	1730	385	700	1970	933	513	499
23	582	1160	788	727	1580	1240	359	615	1690	859	854	321
24	603	783	1500	690	1290	1230	375	675	1050	682	963	327
25	568	668	2480	655	743	1160	335	556	719	744	564	571
26	427	483	1390	852	637	916	353	756	760	600	428	536
27	393	420	1010	1280	828	869	336	610	637	636	299	603
28	349	523	828	727	828	748	352	586	589	486	390	528
29	218	515	770	526	---	667	513	490	769	359	337	492
30	189	461	658	897	---	917	681	447	491	253	913	296
31	266	---	486	1150	---	1360	---	475	---	310	812	---
TOTAL	7829	19776	17527	35550	32751	38177	16372	37961	26126	24145	11539	12907
MEAN	253	659	565	1147	1170	1232	546	1225	871	779	372	430
MAX	603	3220	2480	3740	4410	4340	1110	3220	2470	2110	963	603
MIN	81	242	153	448	343	391	323	447	257	253	129	263
†	-74.6	+28.6	-4.9	+16.3	-5.4	+134	+25.2	+95.8	0	-42.3	-89.2	-242
MEAN‡	178	688	560	1163	1165	1366	571	1321	871	737	283	188
CFSM‡	0.60	2.33	1.90	3.94	3.95	4.63	1.94	4.48	2.95	2.50	0.96	0.64
IN.‡	0.69	2.60	2.19	4.54	4.26	5.34	2.16	5.16	3.29	2.88	1.11	0.71

CAL YR 1988 TOTAL 167215 MEAN 491 MAX 3220 MIN 31 MEAN‡ 493 CFSM‡ 1.67 IN‡ 22.74
WTR YR 1989 TOTAL 280660 MEAN 769 MAX 4410 MIN 81 MEAN‡ 756 CFSM‡ 2.56 IN‡ 34.78

† 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, 283, 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.--50 years (1939-89), 879 ft^3/s, 27.38 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, 3,760 ft^3/s, May 13, gage height, 7.57 ft; minimum daily, 60 ft^3/s, Dec. 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	698	e440	1270	170	2820	3000	1030	304	254	1210	242	546
2	688	e80	2140	171	2800	2970	1960	386	256	1100	235	570
3	686	e80	2130	173	2790	2950	1520	865	402	792	233	558
4	686	e80	2110	175	2770	2920	1110	1650	574	587	325	559
5	686	e80	1920	176	2740	2160	1930	2100	573	587	443	446
6	678	e80	1780	178	2600	764	2470	2110	879	492	371	542
7	674	e80	1130	172	2370	1600	2740	1520	1160	286	377	553
8	665	e80	183	175	1520	2930	2730	1300	1170	470	374	548
9	662	e80	134	175	279	3350	2300	1840	1070	483	405	554
10	662	e80	554	175	140	3340	1420	1500	930	991	388	558
11	662	e80	625	336	145	3320	419	1520	783	1390	459	571
12	660	e80	620	1260	147	3290	285	2160	632	1390	465	571
13	651	e510	620	2090	148	3260	284	3380	569	1210	465	571
14	651	1410	620	2570	150	2220	284	3750	568	1080	463	557
15	651	1370	510	2760	155	826	290	3740	566	1080	460	569
16	651	1360	436	3150	155	219	284	3730	571	1080	456	595
17	651	521	436	3120	155	167	273	3730	581	1440	458	619
18	648	77	436	580	155	142	276	3710	632	1920	454	594
19	639	77	376	157	150	80	279	3690	1000	1840	464	609
20	639	77	336	159	150	150	258	3670	1200	1770	471	617
21	639	80	182	209	159	154	285	3140	888	2040	470	639
22	644	286	60	1670	142	185	294	1950	960	2030	474	573
23	642	1550	63	2140	724	185	239	1130	2040	1700	474	405
24	620	1050	63	2460	2310	183	254	1080	2590	1300	460	479
25	642	539	67	2810	3370	179	271	782	2590	1090	458	640
26	e740	1810	69	2950	3110	173	284	543	2580	862	458	641
27	e940	2590	72	3180	2900	163	270	664	2560	814	458	642
28	e1210	2370	72	3320	2970	165	235	821	2530	1570	458	636
29	e1180	2210	117	3040	---	177	284	944	2520	1790	420	635
30	e1040	1300	170	2870	---	182	304	884	1990	1060	498	635
31	e890	---	170	2850	---	217	---	566	---	382	568	---
TOTAL	22475	20507	19471	45421	38024	41621	24862	59159	35618	35836	13204	17232
MEAN	725	684	628	1465	1358	1343	829	1908	1187	1156	426	574
MAX	1210	2590	2140	3320	3370	3350	2740	3750	2590	2040	568	642
MIN	620	77	60	157	140	80	235	304	254	286	233	405
†	-426	+410	+166	+213	+324	+707	+42.0	-12.0	+43.7	-107	-82.9	-385
MEAN‡	299	1094	794	1678	1682	2050	871	1896	1231	1049	343	189
CFSM‡	.69	2.51	1.82	3.85	3.86	4.70	2.00	4.35	2.82	2.41	.79	.43
IN.‡	.80	2.80	2.10	4.44	4.02	5.42	2.23	5.02	3.15	2.78	.91	.48

CAL YR 1988 TOTAL 244744 MEAN 669 MAX 3470 MIN 60 ADJ +57.9 MEAN‡ 729 CFSM‡ 1.67 IN.‡ 22.73
WTR YR 1989 TOTAL 373430 MEAN 1023 MAX 3750 MIN 60 ADJ +73.0 MEAN‡ 1098 CFSM‡ 2.51 IN.‡ 34.15

† 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 dischareges (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.--42 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)
Nov. 20	1615	1,260	4.04	May 10	0730	*1,340	*4.13
Mar. 6	1230	1,250	4.03	July 17	0145	1,030	3.77

Minimum discharge, 8.3 ft /s, Sept. 11, gage height, 1.08 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	53	90	99	138	102	236	150	45	47	64	21
2	44	54	78	93	120	89	206	348	41	43	47	20
3	44	57	70	88	152	84	226	276	38	39	41	16
4	40	55	66	79	144	90	211	198	43	48	37	13
5	35	345	61	e76	116	271	184	277	66	218	35	12
6	32	433	64	e74	105	875	158	544	257	175	33	12
7	30	217	51	73	99	429	140	438	110	255	28	11
8	28	163	48	232	94	264	127	347	77	108	27	12
9	26	136	46	243	76	199	146	344	72	168	25	12
10	25	117	e47	149	e70	187	140	1130	84	186	22	10
11	34	102	e40	121	e68	245	114	684	56	100	23	9.5
12	33	88	e39	411	73	272	101	458	47	114	33	42
13	27	169	e37	646	80	227	94	334	68	112	26	75
14	24	162	e41	305	189	239	87	276	73	97	21	35
15	22	118	e44	543	563	299	83	251	75	70	25	45
16	21	102	e40	376	640	245	79	257	139	225	28	58
17	20	103	e38	259	308	189	70	283	256	537	20	66
18	72	89	e35	208	221	193	78	211	138	208	17	41
19	83	114	e34	183	182	192	221	172	127	166	17	34
20	46	798	e34	164	158	171	142	149	526	430	17	28
21	44	636	194	139	345	489	110	135	559	264	44	23
22	270	320	302	135	298	292	96	113	297	177	55	22
23	385	235	135	126	208	221	86	135	220	130	36	34
24	223	190	377	115	166	337	77	157	198	104	52	38
25	154	158	440	106	143	332	73	113	138	95	34	27
26	115	137	222	133	141	254	73	100	106	108	24	37
27	92	125	165	252	121	204	70	95	87	113	18	37
28	81	120	157	159	110	175	62	77	97	86	15	26
29	71	106	147	132	---	174	208	65	77	71	14	22
30	63	94	122	181	---	268	208	58	58	63	53	21
31	55	---	105	173	---	283	---	51	---	79	37	---
TOTAL	2288	5596	3369	6073	5128	7891	3906	8226	4175	4636	968	859.5
MEAN	73.8	187	109	196	183	255	130	265	139	150	31.2	28.6
MAX	385	798	440	646	640	875	236	1130	559	537	64	75
MIN	20	53	34	73	68	84	62	51	38	39	14	9.5
CFSM	1.18	2.98	1.74	3.13	2.93	4.07	2.08	4.25	2.23	2.39	.50	.46
IN.	1.36	3.33	2.01	3.61	3.05	4.70	2.32	4.90	2.48	2.76	.58	.51

CAL YR 1988 TOTAL 41332.9 MEAN 113 MAX 908 MIN 2.4 CFSM 1.81 IN. 24.60
WTR YR 1989 TOTAL 53115.5 MEAN 146 MAX 1130 MIN 9.5 CFSM 2.33 IN. 31.61

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.--69 years (1920-89), 660 ft^3/s, 23.46 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; minumum, 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)
Mar. 6	1200	*5,440	*5.82				

Minimum discharge, 64 ft^3/s, Oct. 17, 18, gage height, 1.32 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	155	147	350	468	664	534	1250	509	301	332	412	178
2	136	148	316	e420	582	448	1100	1010	270	289	306	159
3	135	158	281	e370	673	453	940	1040	253	262	261	138
4	127	161	279	e330	713	474	812	819	323	246	233	121
5	116	512	244	e320	574	1070	1100	961	317	1190	215	110
6	100	1680	239	e300	e500	4100	940	2630	758	1170	200	105
7	90	776	e230	e290	e370	2470	812	2340	539	1470	197	102
8	87	529	e210	e900	e320	1460	722	1820	371	730	184	324
9	83	427	e190	1440	e280	1120	752	1500	318	555	173	333
10	80	357	e180	822	e250	1010	690	4240	427	702	157	182
11	91	312	e165	656	e230	1250	584	3370	320	473	149	248
12	106	282	e160	1900	e220	1740	522	2410	265	376	165	212
13	98	384	e150	3240	e210	1420	489	1780	304	385	165	206
14	86	617	e170	1700	e430	1540	457	1480	360	384	149	220
15	77	434	e200	3000	e2480	1890	438	1350	399	313	163	243
16	74	362	e185	2180	3300	1640	426	1690	576	570	173	329
17	68	338	e170	1490	1690	1230	381	2060	1230	1530	158	419
18	78	302	e150	1160	1220	1160	388	1530	831	707	137	302
19	142	284	e160	988	972	1160	602	1190	568	477	127	248
20	154	2360	e170	855	825	970	590	981	1740	800	128	221
21	132	3070	e340	699	2010	2610	463	854	3110	937	131	198
22	158	1500	526	563	1900	1840	420	698	1760	1120	177	189
23	726	1020	540	e540	1290	1380	384	700	1310	590	187	363
24	518	775	1810	e490	959	2090	356	846	1000	457	248	320
25	411	626	2660	e470	732	2240	337	640	744	582	204	248
26	276	531	1310	e490	755	1710	334	622	574	510	158	251
27	222	480	915	e1000	656	1340	319	566	479	716	134	254
28	200	450	787	850	543	1140	298	461	798	477	121	224
29	185	416	727	677	---	1090	391	395	562	392	113	202
30	168	367	568	766	---	1740	729	361	403	323	386	190
31	154	---	520	823	---	2080	---	339	---	535	251	---
TOTAL	5233	19805	14902	30197	25348	46399	18026	41192	21210	19600	5962	6839
MEAN	169	660	481	974	905	1497	601	1329	707	632	192	228
MAX	726	3070	2660	3240	3300	4100	1250	4240	3110	1530	412	419
MIN	68	147	150	290	210	448	298	339	253	246	113	102
CFSM	.44	1.73	1.26	2.55	2.37	3.92	1.57	3.48	1.85	1.66	.50	.60
IN.	.51	1.93	1.45	2.94	2.47	4.52	1.76	4.01	2.07	1.91	.58	.67

CAL YR 1988 TOTAL 195216 MEAN 533 MAX 4160 MIN 22 CFSM 1.40 IN. 19.01
WTR YR 1989 TOTAL 254713 MEAN 698 MAX 4240 MIN 68 CFSM 1.83 IN. 24.80

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.--71 years (1918-89), 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)
Feb. 15	--	--	a*5.06	June 20	2200	*2,590	4.07

(a) Ice jam.

Minimum discharge, 24 ft^3/s, Oct. 17, 18, gage height, 0.95 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	67	150	222	290	222	885	223	121	228	268	66
2	55	68	136	200	253	195	658	452	104	184	160	69
3	61	87	123	184	301	172	646	503	93	154	123	53
4	53	86	e115	e170	292	194	584	448	134	132	106	45
5	42	209	e105	e150	243	524	511	538	137	603	95	42
6	37	561	e96	e140	e210	1570	429	875	141	617	84	40
7	35	370	e90	e135	e180	994	365	791	111	587	90	37
8	33	269	e86	e200	e140	611	313	691	91	381	82	37
9	30	220	e80	481	e120	458	305	566	89	518	67	145
10	30	186	e76	332	e105	392	269	1210	109	438	59	74
11	38	167	e74	268	e92	415	213	1060	93	310	53	195
12	38	137	e70	949	e84	515	194	938	81	241	53	140
13	35	217	e90	1650	e78	437	185	728	95	208	53	98
14	29	346	e130	900	e150	455	173	588	142	180	46	85
15	27	247	e105	1390	e900	568	165	562	155	146	44	94
16	25	209	e90	996	e1780	555	154	623	293	173	44	134
17	24	197	e76	630	959	442	139	617	509	182	44	196
18	29	161	e70	477	612	424	156	509	398	123	44	147
19	35	150	e78	386	476	397	240	422	309	140	42	123
20	34	916	e70	328	388	359	222	359	1330	278	37	107
21	30	1190	e140	271	1010	947	189	314	2220	164	39	95
22	64	707	e270	246	1100	712	178	250	1330	190	40	85
23	186	486	322	e210	703	538	163	287	743	131	39	189
24	251	375	984	e180	515	676	150	393	508	94	78	241
25	259	302	1370	e150	420	744	138	293	365	78	65	173
26	168	248	700	e160	371	568	136	288	272	80	44	150
27	128	217	477	e500	311	472	122	267	225	262	36	126
28	107	206	411	410	273	414	112	208	546	168	34	107
29	95	185	382	329	---	499	183	179	443	128	31	96
30	82	155	298	364	---	952	280	161	287	101	205	86
31	74	---	251	349	---	1250	---	146	---	261	99	---
TOTAL	2197	8941	7515	13357	12356	17671	8457	15489	11474	7480	2304	3275
MEAN	70.9	298	242	431	441	570	282	500	382	241	74.3	109
MAX	259	1190	1370	1650	1780	1570	885	1210	2220	617	268	241
MIN	24	67	70	135	78	172	112	146	81	78	31	37
CFSM	.59	2.46	2.00	3.56	3.65	4.71	2.33	4.13	3.16	1.99	.61	.90
IN.	.68	2.75	2.31	4.11	3.80	5.43	2.60	4.76	3.53	2.30	.71	1.01

CAL YR 1988 TOTAL 79902.3 MEAN 218 MAX 2050 MIN 3.1 CFSM 1.80 IN. 24.56
WTR YR 1989 TOTAL 110516 MEAN 303 MAX 2220 MIN 24 CFSM 2.50 IN. 33.98

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.--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 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.--49 years, 2,007 ft^3/s, 26.49 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, 11,500 ft^3/s, Mar. 6, gage height, 8.24 ft; minimum daily, 310 ft^3/s, Nov. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	919	654	1760	1000	4190	4030	4320	1270	754	1970	1130	894
2	872	310	2610	954	4040	3850	4680	1970	696	1680	861	892
3	844	349	2540	907	4110	3810	4130	2840	784	1270	739	831
4	841	364	2500	856	4270	3820	3400	3340	1060	1010	757	788
5	810	685	2290	722	4050	4000	4060	4080	1090	2350	843	653
6	797	2850	2120	786	3780	8440	4300	6490	1830	2700	731	738
7	782	1570	1570	748	3300	6670	4350	5650	2060	2980	729	757
8	772	1100	639	1370	2290	5900	4160	4380	1770	1920	709	781
9	769	911	487	2730	748	5560	3720	4710	1570	2050	677	1240
10	761	796	841	1620	541	5260	2650	8670	1540	2550	661	930
11	772	726	863	1400	e500	5380	1360	7830	1260	2570	716	1060
12	781	641	802	5470	e480	6260	1100	6930	1020	2320	737	1060
13	776	1070	852	8700	e450	5670	1050	6910	984	2050	743	947
14	762	2400	928	6160	e600	4710	1020	6800	1090	1850	720	965
15	749	2060	885	8270	e4100	3890	990	6440	1160	1710	723	980
16	735	1920	741	7450	7620	2910	950	6790	1550	1970	729	1100
17	733	1250	709	6010	3900	2210	869	7240	2580	3770	724	1370
18	750	713	700	2670	2480	2040	894	6960	2260	3320	684	1190
19	772	675	681	1910	1940	2030	1160	6490	2400	2890	677	1100
20	846	3810	678	1700	1570	1770	1320	6070	5250	3290	678	1050
21	801	6240	802	1490	3580	4570	1050	5050	7990	3650	711	1030
22	881	3250	993	2590	4110	3850	1010	3320	5170	3900	752	936
23	1610	3300	1010	3190	3290	2780	879	2330	4960	2840	810	976
24	1590	2450	3140	3470	4340	3340	857	2610	4770	2110	912	1250
25	1480	1630	5820	3790	4980	3960	827	2000	4270	1880	864	1200
26	1180	2640	2950	3930	4730	2910	851	1590	3910	2000	753	1150
27	1290	3410	1970	5270	4370	2290	791	1680	3690	2230	700	1140
28	1520	3130	1620	4990	4120	1960	730	1650	4270	2710	673	1080
29	1460	2870	1500	4400	---	1970	884	1660	4100	2730	619	1030
30	1290	1950	1200	4300	---	3310	1550	1520	3010	1830	1110	1010
31	1120	---	1080	4440	---	4440	---	1150	---	1220	1100	---
TOTAL	30065	55724	47281	103293	88479	123590	59912	136420	78848	73320	23972	30128
MEAN	970	1857	1525	3332	3160	3987	1997	4401	2628	2365	773	1004
MAX	1610	6240	5820	8700	7620	8440	4680	8670	7990	3900	1130	1370
MIN	733	310	487	722	450	1770	730	1150	696	1010	619	653
†	-426	+410	+166	+213	+324	+707	+42.0	-12.0	+43.7	-107	-82.9	-385
MEAN‡	544	2267	1691	3545	3484	4694	2039	4389	2672	2258	690	619
CFSM‡	.53	2.20	1.64	3.44	3.39	4.56	1.98	4.27	2.60	2.19	.67	.60
IN.‡	.61	2.45	1.89	3.97	3.53	5.26	2.21	4.92	2.90	2.52	.77	.67

CAL YR 1988 TOTAL 600203 MEAN 1640 MAX 9240 MIN 310 ADJ +57.9 MEAN‡ 1698 CFSM‡ 1.65 IN.‡ 22.47
WTR YR 1989 TOTAL 851032 MEAN 2332 MAX 8700 MIN 310 ADJ +73.0 MEAN‡ 2405 CFSM‡ 2.34 IN.‡ 31.70

† 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)
Nov. 20	1130	306	4.65	June 21	2015	*400	*5.00
Nov. 20	1830	394	4.98	July 9	1115	301	4.63
Feb. 15	2045	375	4.91				

Minimum discharge, 1.4 ft^3/s, Sept. 7, gage height 2.59 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	3.4	9.0	14	12	13	62	23	5.6	19	4.8	2.7
2	3.6	5.0	8.0	14	11	11	44	47	4.9	14	3.7	2.7
3	3.8	7.9	7.4	13	25	13	44	49	4.4	11	3.1	2.2
4	2.6	7.5	7.7	11	20	29	35	32	5.8	9.9	2.9	2.0
5	2.3	36	6.5	10	17	68	28	31	6.3	21	2.6	2.0
6	2.4	31	6.3	11	15	126	23	48	6.1	30	2.8	1.9
7	2.0	19	5.9	12	12	57	19	59	4.6	25	5.7	1.7
8	1.7	15	5.4	59	e10	38	17	49	3.8	13	3.1	2.5
9	1.8	12	4.8	37	e7.7	30	17	38	4.1	67	2.7	2.6
10	1.7	12	4.2	24	e9.2	29	13	58	5.4	35	2.3	3.8
11	2.7	9.9	4.4	18	e9.2	34	12	74	3.9	20	2.2	3.3
12	2.6	8.0	4.9	61	8.3	36	10	69	3.6	15	2.7	2.3
13	2.1	21	e4.4	63	8.2	29	10	49	8.3	13	2.3	2.1
14	1.9	18	e4.4	44	48	25	9.2	37	8.4	11	2.1	1.9
15	1.7	13	e4.4	72	200	22	9.2	37	16	8.3	2.1	6.4
16	1.9	11	e4.0	42	140	18	8.4	35	23	8.1	2.0	7.2
17	1.8	12	4.9	29	58	15	7.4	35	93	7.5	2.0	12
18	2.8	9.2	5.4	22	39	16	16	26	29	6.1	2.0	6.2
19	2.8	8.9	4.3	18	28	14	27	21	18	6.1	2.3	4.4
20	2.5	163	5.1	16	22	19	18	18	27	7.3	3.1	3.5
21	2.2	91	18	12	120	91	15	16	79	5.3	2.4	3.0
22	6.0	43	15	12	68	42	13	13	85	4.3	2.3	2.7
23	8.6	28	29	11	43	31	11	16	42	3.8	2.5	51
24	39	20	92	10	30	49	9.9	14	26	3.4	5.2	20
25	16	15	61	11	24	38	9.7	12	18	3.2	2.6	11
26	8.7	12	33	15	21	27	8.7	13	15	3.3	2.2	8.3
27	6.2	11	23	28	17	22	7.7	12	35	3.5	2.0	6.1
28	6.0	14	27	18	15	19	7.3	9.2	135	3.4	1.9	4.9
29	5.0	11	24	16	---	57	17	8.2	51	3.0	1.8	4.2
30	4.5	9.7	18	16	---	123	12	7.4	29	3.4	13	3.6
31	3.7	---	16	14	---	109	---	6.2	---	11	3.1	---
TOTAL	153.7	677.5	467.4	753	1037.6	1250	540.5	962.0	796.2	394.9	95.5	188.2
MEAN	4.96	22.6	15.1	24.3	37.1	40.3	18.0	31.0	26.5	12.7	3.08	6.27
MAX	39	163	92	72	200	126	62	74	135	67	13	51
MIN	1.7	3.4	4.0	10	7.7	11	7.3	6.2	3.6	3.0	1.8	1.7
CFSM	.56	2.56	1.71	2.75	4.20	4.57	2.04	3.51	3.01	1.44	.35	.71
IN.	.65	2.85	1.97	3.17	4.37	5.27	2.28	4.05	3.35	1.66	.40	.79

CAL YR 1988 TOTAL 4442.04 MEAN 17.7 MAX 193 MIN .34 CFSM 2.00 IN. 18.71
WTR YR 1989 TOTAL 7316.5 MEAN 20.0 MAX 200 MIN 1.7 CFSM 2.27 IN. 30.82

e Estimated

MONONGAHELA RIVER BASIN

03082190 POPLAR RUN NR NORMALVILLE, PA--Continued

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1985 to current year.
pH: October 1985 to current year.
WATER TEMPERATURE: October 1985 to current year
SUSPENDED-SEDIMENT DISCHARGE: October 1985 to current year.

INSTRUMENTATION.--Water quality monitor and sediment pumping sampler since October 1985.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 1,580 microsiemens June 27, 1987; minimum, 61 microsiemens Nov. 26, 1985.
pH: Maximum, 7.82 May 29, 1989; minimum, 4.1 on Aug. 24, 1988.
WATER TEMPERATURES: Maximum, 25.1 C Aug. 14, 1986; Minimum, 0.0 C on many days during winter months.
SEDIMENT CONCENTRATIONS: Maximum daily, 997 mg/l Aug. 23, 1988; Minimum daily, 1 mg/l on several days.
SEDIMENT DISCHARGES: Maximum daily, 440 tons Nov. 26, 1986; minimum daily, 0.0 tons on several days.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: maximum, 1420 microsiemens Oct. 17; minimum, 102 microsiemens May 1.
pH: Maximum, 7.82 May 29; minimum, 4.31 April 9.
WATER TEMPERATURES: Maximum, 24.2 C on Aug. 5; minimum, 0.0 C on Feb. 26.
SEDIMENT CONCENTRATIONS: Maximum daily, 400 mg/L On Nov. 20; minimum daily, 1.0 mg/l on Oct. 21.
SEDIMENT DISCHARGES: Maximum daily, 242 tons on Nov. 20; minimum daily, .01 tons on Oct. 21.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 CACO3)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT												
26...	1515	8.2	512	6.32	7.0	10	--	51	--	25	--	7.1
NOV												
22...	1530	37	202	6.67	8.0	18	--	19	--	7.1	--	1.6
DEC												
16...	1420	8.7	556	5.30	0.0	20	--	45	--	27	--	7.1
JAN												
18...	1730	22	218	6.75	4.5	0.0	--	22	--	8.3	--	1.9
FEB												
28...	1225	24	414	6.92	0.0	8.0	--	36	--	17	--	9.4
MAR												
14...	1245	20	228	5.96	7.0	30	--	23	--	8.6	--	1.8
JUN												
27...	1300	14	385	7.10	19.5	14	--	37	--	15	--	9.0
JUL												
24...	1540	3.5	792	7.02	23.0	8.0	--	70	--	35	--	19
AUG												
31...	1300	2.8	473	6.50	19.5	0.0	--	49	--	19	--	8.8
SEP												
21...	1330	2.8	710	6.59	19.0	0.0	52	52	26	26	17	17

DATE	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET LAB MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	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)	ARSENIC TOTAL (µG/L AS AS)	ARSENIC DIS-SOLVED (µG/L AS AS)
OCT												
26...	--	2.1	8	240	4.0	0.2	366	2	1300	670	--	--
NOV												
22...	--	1.2	12	75	2.0	<0.1	118	16	530	<130	--	--
DEC												
16...	--	1.6	8	270	5.0	0.2	446	22	3600	2200	--	--
JAN												
18...	--	1.3	12	86	3.0	<0.1	134	18	680	<130	--	--
FEB												
28...	--	1.3	12	180	4.0	0.1	268	32	2700	310	--	--
MAR												
14...	--	1.1	8	96	3.0	<0.1	174	<2	1000	<130	--	--
JUN												
27...	--	1.8	18	170	3.0	0.1	298	4	<130	<130	--	--
JUL												
24...	--	2.2	16	420	3.0	0.1	658	8	380	<130	--	--
AUG												
31...	--	2.0	12	220	3.0	0.2	378	4	<130	<130	--	--
SEP												
21...	2.0	2.0	16	250	--	--	410	<2	<130	<130	<4	<4

MONONGAHELA RIVER BASIN

03082190 POPLAR RUN NR NORMALVILLE, PA--Continued

WATER-QUALITY RECORDS

DATE	BORON, TOTAL RECOVERABLE (µG/L AS B)	CHROMIUM, TOTAL RECOVERABLE (µG/L AS CR)	CHROMIUM, DISSOLVED (µG/L AS CR)	COBALT, TOTAL RECOVERABLE (µG/L AS CO)	COBALT, DISSOLVED (µG/L AS CO)	COPPER, TOTAL RECOVERABLE (µG/L AS CU)	COPPER, DISSOLVED (µG/L AS CU)	IRON, TOTAL RECOVERABLE (µG/L AS FE)	IRON, DISSOLVED (µG/L AS FE)	LEAD, TOTAL RECOVERABLE (µG/L AS PB)	LEAD, DISSOLVED (µG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (µG/L AS MN)
OCT 26...	--	--	--	--	--	--	--	1000	680	--	--	4700
NOV 22...	--	--	--	--	--	--	--	500	270	--	--	750
DEC 16...	--	--	--	--	--	--	--	1800	1200	--	--	4300
JAN 18...	--	--	--	--	--	--	--	530	490	--	--	960
FEB 28...	--	--	--	--	--	--	--	1300	480	--	--	2300
MAR 14...	--	--	--	--	--	--	--	600	290	--	--	1200
JUN 27...	--	--	--	--	--	--	--	190	110	--	--	1700
JUL 24...	--	--	--	--	--	--	--	410	44	--	--	5100
AUG 31...	--	--	--	--	--	--	--	240	90	--	--	2300
SEP 21...	<250	<50	<50	<20	<20	<10	<10	200	50	<50	<50	3000

DATE	MANGANESE, DISSOLVED (µG/L AS MN)	NICKEL, TOTAL RECOVERABLE (µG/L AS NI)	NICKEL, DISSOLVED (µG/L AS NI)	STRONTIUM, TOTAL RECOVERABLE (µG/L AS SR)	STRONTIUM, DISSOLVED (µG/L AS SR)	ZINC, TOTAL RECOVERABLE (µG/L AS ZN)	ZINC, DISSOLVED (µG/L AS ZN)	SELENIUM, TOTAL (µG/L AS SE)	SELENIUM, DISSOLVED (µG/L AS SE)	MERCURY TOTAL RECOVERABLE (µG/L AS HG)	MERCURY DISSOLVED (µG/L AS HG)
OCT 26...	4700	--	--	--	--	210	210	--	--	--	--
NOV 22...	750	--	--	--	--	70	72	--	--	--	--
DEC 16...	4800	--	--	--	--	240	240	--	--	--	--
JAN 18...	950	--	--	--	--	60	61	--	--	--	--
FEB 28...	2200	--	--	--	--	140	130	--	--	--	--
MAR 14...	1200	--	--	--	--	100	86	--	--	--	--
JUN 27...	1700	--	--	--	--	70	74	--	--	--	--
JUL 24...	5000	--	--	--	--	120	120	--	--	--	--
AUG 31...	2200	--	--	--	--	50	63	--	--	--	--
SEP 21...	3000	75	75	110	110	100	100	<6	<6	<1.0	<1.0

MONONGAHELA RIVER BASIN

03082190 POPLAR RUN NR NORMALVILLE, PA--Continued

SPECIFIC CONDUCTANCE, µS/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	503	426	470	546	421	502	618	293	379	694	276	315
2	648	582	599	624	459	541	646	308	426	642	246	325
3	1280	592	790	529	400	430	385	324	337	455	235	309
4	729	511	624	483	326	403	951	377	516	387	257	301
5	869	543	701	331	200	275	470	323	407	529	264	334
6	847	566	711	266	210	237	599	322	426	622	262	341
7	852	602	729	514	241	297	618	335	446	655	266	341
8	748	591	643	515	263	317	668	340	473	478	180	235
9	718	582	616	494	269	343	595	349	456	389	180	199
10	1210	722	986	596	275	358	459	360	382	422	210	241
11	851	787	849	495	292	349	912	460	568	505	231	267
12	1060	595	821	308	285	297	836	586	649	498	161	254
13	934	658	797	554	242	316	939	406	610	189	157	168
14	928	673	792	501	234	280	572	379	483	223	173	204
15	888	638	733	411	258	296	878	364	499	316	176	197
16	707	631	658	483	265	324	589	273	499	396	186	204
17	1420	637	1060	428	261	317	404	390	396	413	211	251
18	1020	699	823	500	261	358	1260	408	546	497	229	275
19	752	584	643	320	269	295	1270	412	676	378	307	317
20	1190	696	945	329	121	200	739	337	542	484	320	342
21	897	700	810	233	133	159	422	261	339	398	347	374
22	849	422	636	325	195	214	439	262	288	566	399	433
23	659	400	500	314	232	247	418	231	278	533	295	399
24	736	213	302	365	235	248	246	147	193	749	296	453
25	306	286	292	543	250	309	289	156	181	724	294	446
26	519	312	368	298	250	271	346	199	220	506	262	392
27	506	371	425	715	298	376	324	223	248	395	211	257
28	717	354	509	364	246	294	359	190	249	311	222	271
29	401	355	366	547	260	354	415	212	245	752	312	396
30	1120	337	539	547	272	345	304	226	250	377	254	304
31	929	456	594	---	---	---	276	227	255	575	259	353
MONTH	1420	213	656	715	121	318	1270	147	402	752	157	306

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	633	291	380	622	427	453	239	166	200	420	102	318
2	646	302	408	680	348	477	303	210	236	289	204	236
3	619	226	309	775	295	477	279	229	245	243	208	217
4	293	228	277	353	240	304	345	240	277	312	199	216
5	696	293	370	442	183	237	399	274	314	328	204	264
6	482	257	311	228	128	162	465	296	342	294	186	236
7	531	264	342	334	177	206	504	288	370	232	187	200
8	638	273	389	459	228	260	456	336	371	245	187	220
9	479	287	378	490	238	295	456	358	384	---	---	---
10	651	287	409	437	232	296	659	359	428	---	---	---
11	902	306	414	310	232	277	579	395	442	---	---	---
12	535	416	443	515	247	306	637	402	475	---	---	---
13	652	323	463	479	229	269	573	439	476	---	---	---
14	614	189	290	535	237	301	740	440	501	---	---	---
15	227	115	146	516	252	308	598	460	488	---	---	---
16	220	125	147	626	272	343	689	478	540	327	251	282
17	213	186	196	581	287	360	729	484	548	327	265	291
18	272	213	253	693	283	356	517	356	431	376	280	317
19	522	272	323	573	379	403	363	267	301	429	309	356
20	518	260	314	577	259	385	417	294	338	436	351	383
21	420	134	193	293	138	185	431	326	354	495	379	417
22	271	173	199	212	176	191	517	348	404	582	418	472
23	441	212	247	451	215	264	527	379	417	654	379	431
24	393	235	278	331	189	223	553	388	430	---	---	---
25	629	247	346	323	180	203	589	414	457	565	411	462
26	523	288	374	363	221	255	570	420	462	578	414	493
27	478	288	348	409	251	286	599	421	491	613	465	506
28	570	344	428	395	282	319	613	455	490	629	495	545
29	---	---	---	563	173	249	678	317	396	679	556	602
30	---	---	---	172	131	150	457	317	356	749	447	628
31	---	---	---	167	131	150	---	---	---	649	427	531
MONTH	902	115	321	775	128	289	740	166	399	749	102	375

MONONGAHELA RIVER BASIN

03082190 POPLAR RUN NR NORMALVILLE, PA--Continued

SPECIFIC CONDUCTANCE, µS/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	876	430	582	---	---	---	630	551	582	---	---	---
2	1040	456	591	---	---	---	694	630	668	---	---	---
3	685	445	504	---	---	---	715	557	624	---	---	---
4	763	563	644	---	---	---	832	638	777	---	---	---
5	774	215	517	---	---	---	811	784	800	---	---	---
6	843	585	690	---	---	---	812	593	783	---	---	---
7	1080	528	722	---	---	---	761	529	604	---	---	---
8	809	517	590	---	---	---	687	604	620	1070	968	1000
9	795	557	623	---	---	---	697	649	661	1050	702	783
10	543	506	527	---	---	---	700	665	680	854	374	740
11	901	545	638	---	---	---	700	598	650	763	374	628
12	1030	605	723	---	---	---	598	551	570	807	765	783
13	729	450	566	406	388	395	781	552	680	858	808	836
14	750	413	507	558	348	422	835	782	805	877	845	867
15	---	---	---	512	447	485	1020	831	899	947	485	566
16	---	---	---	555	511	531	1020	864	937	596	408	487
17	---	---	---	656	419	550	936	892	910	472	335	367
18	---	---	---	620	566	593	1120	891	1010	506	395	446
19	---	---	---	652	575	626	1160	1120	1140	575	468	524
20	---	---	---	618	509	563	1120	936	1000	635	530	584
21	---	---	---	680	618	665	1020	903	952	688	584	635
22	---	---	---	713	680	697	1020	809	898	701	117	507
23	---	---	---	760	693	737	834	661	800	229	125	168
24	---	---	---	802	743	777	970	574	699	321	231	269
25	---	---	---	875	794	836	822	751	712	469	320	368
26	---	---	---	898	830	872	---	---	---	487	373	407
27	---	---	---	904	703	754	---	---	---	853	386	487
28	---	---	---	768	563	673	---	---	---	661	380	461
29	---	---	---	857	770	818	---	---	---	692	438	531
30	---	---	---	875	712	849	---	---	---	626	481	564
31	---	---	---	683	405	504	---	---	---	---	---	---
MONTH	1080	215	602	904	348	650	1160	529	778	1070	117	566
YEAR	1420	102	454									

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	6.97	6.74	6.88	6.61	6.28	6.47	6.63	5.57	6.09	6.35	4.99	6.08
2	6.92	6.57	6.76	6.76	6.20	6.52	6.60	5.31	5.77	6.40	4.99	5.69
3	6.70	4.92	5.37	6.88	6.39	6.53	6.65	6.12	6.57	6.40	5.17	5.69
4	6.34	5.51	5.83	6.70	6.34	6.56	6.10	5.02	5.46	6.43	5.36	5.76
5	6.31	5.18	5.66	6.76	6.48	6.64	6.16	5.28	5.53	6.54	5.33	5.94
6	5.97	5.18	5.46	6.48	6.18	6.33	6.24	5.30	5.59	6.48	5.16	5.80
7	5.90	5.18	5.44	6.56	5.38	5.96	6.12	5.27	5.55	6.55	5.07	5.89
8	6.32	5.28	5.76	6.74	5.49	6.14	6.18	5.40	5.75	6.17	5.15	5.82
9	6.61	6.33	6.52	6.74	5.25	5.97	6.34	5.89	6.10	6.43	5.33	6.01
10	6.39	4.91	5.24	6.71	5.15	5.88	6.61	6.31	6.52	6.57	5.33	6.04
11	5.06	5.02	5.02	6.67	5.25	5.88	6.63	5.73	6.45	6.59	5.33	6.02
12	5.43	4.95	5.13	6.78	6.65	6.75	6.19	5.37	5.88	6.39	5.16	5.91
13	5.36	5.04	5.16	6.71	5.13	6.38	5.76	5.24	5.45	6.38	5.88	6.09
14	5.35	5.05	5.19	6.59	5.13	5.89	5.82	5.33	5.49	6.57	6.38	6.46
15	5.49	5.07	5.24	6.60	5.45	5.99	5.81	5.11	5.38	6.58	5.85	6.27
16	5.78	5.49	5.67	6.56	5.28	5.82	5.94	5.30	5.48	6.68	6.26	6.43
17	5.84	4.77	5.17	6.49	5.45	5.89	6.47	5.97	6.35	6.68	6.07	6.33
18	5.24	4.90	5.08	6.37	5.38	5.73	6.40	4.84	5.53	6.86	6.21	6.50
19	5.48	5.18	5.37	6.60	6.33	6.52	5.71	4.80	5.18	6.76	5.18	6.47
20	5.50	5.08	5.28	6.67	6.03	6.30	5.95	5.15	5.45	6.37	5.23	6.22
21	5.39	5.18	5.30	6.49	6.09	6.27	6.38	5.52	5.94	6.39	5.91	6.28
22	5.78	5.36	5.51	7.15	6.44	6.68	6.31	5.46	6.12	5.89	4.79	5.24
23	6.03	5.66	5.90	7.00	6.73	6.91	6.46	5.62	6.23	5.80	4.76	5.04
24	6.04	5.56	5.75	7.03	6.98	7.00	6.60	5.99	6.32	6.01	4.83	5.61
25	6.14	5.98	6.03	6.90	6.25	6.82	6.21	5.53	6.02	6.13	5.14	5.89
26	6.76	6.02	6.39	6.93	6.83	6.88	6.61	5.66	6.26	6.11	5.45	5.72
27	6.80	6.38	6.67	6.82	5.19	6.39	6.61	5.72	6.29	5.81	4.84	5.28
28	6.82	6.58	6.74	6.68	6.06	6.45	6.68	5.49	6.35	5.92	4.98	5.56
29	6.83	6.78	6.80	6.68	5.50	6.15	6.62	5.48	6.17	4.97	4.44	4.80
30	6.91	5.51	6.52	6.71	6.10	6.47	6.62	5.55	6.25	5.77	4.68	5.12
31	6.55	5.84	6.38	---	---	---	6.68	6.35	6.51	5.96	4.62	5.24
MONTH	6.97	4.77	5.78	7.15	5.13	6.34	6.68	4.80	5.94	6.86	4.44	5.85

MONONGAHELA RIVER BASIN

03082190 POPLAR RUN NR NORMALVILLE, PA--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	5.89	4.57	5.10	7.00	6.01	6.68	6.08	5.91	5.98	6.60	5.28	5.87
2	5.89	4.52	5.04	7.19	6.80	7.02	5.90	5.47	5.68	6.12	5.28	5.84
3	6.12	4.50	5.36	7.71	5.74	7.07	5.95	5.36	5.60	5.60	4.82	5.24
4	6.13	5.18	5.44	6.63	5.56	5.92	6.37	5.45	5.93	6.63	4.54	5.17
5	5.18	4.56	4.98	6.68	5.32	5.93	6.68	6.18	6.42	6.78	5.41	6.00
6	5.87	4.80	5.20	6.55	5.60	6.19	6.46	5.60	6.15	6.36	5.76	6.15
7	5.83	4.76	5.19	6.67	5.62	6.11	6.54	6.14	6.25	5.81	4.64	5.20
8	5.85	4.70	5.15	6.89	5.44	6.33	6.33	5.27	5.84	5.10	4.46	4.83
9	5.76	4.89	5.24	6.93	5.38	6.24	5.26	4.31	4.73	---	---	---
10	5.75	4.76	5.25	6.83	5.39	6.12	5.45	4.44	4.79	---	---	---
11	6.18	4.83	5.68	6.80	5.62	5.95	6.18	5.43	5.87	---	---	---
12	5.30	4.97	5.13	5.65	5.18	5.49	6.75	4.95	5.90	---	---	---
13	5.97	4.89	5.22	6.43	5.25	5.89	6.94	6.16	6.65	---	---	---
14	5.76	5.04	5.39	6.39	5.25	5.75	7.09	6.16	6.67	---	---	---
15	5.98	5.27	5.74	6.42	5.21	5.78	6.82	6.46	6.66	---	---	---
16	6.15	5.58	5.76	6.30	5.18	5.66	6.79	6.29	6.56	---	---	---
17	6.53	5.77	6.24	6.27	5.17	5.60	7.35	6.43	6.83	---	---	---
18	6.54	6.27	6.39	6.40	5.05	5.88	7.19	6.10	6.65	---	---	---
19	6.27	5.04	5.84	5.29	5.08	5.25	6.96	6.54	6.68	---	---	---
20	6.32	5.24	5.89	6.04	5.11	5.48	6.98	6.25	6.61	---	---	---
21	6.20	5.34	6.02	6.16	5.67	6.05	7.13	6.74	6.95	---	---	---
22	6.33	5.89	6.10	6.18	5.93	6.07	7.23	6.84	7.02	---	---	---
23	6.80	6.11	6.52	6.52	5.37	6.08	7.39	7.00	7.14	---	---	---
24	6.89	6.13	6.63	6.44	5.85	6.05	7.51	6.84	7.16	---	---	---
25	7.03	5.66	6.70	6.05	5.06	5.81	7.60	6.42	7.15	---	---	---
26	7.28	6.72	7.14	6.21	5.03	5.84	7.46	6.68	7.07	7.62	6.82	7.27
27	6.81	6.32	6.71	6.21	5.15	5.93	7.14	5.91	6.66	7.38	6.89	7.15
28	7.04	5.79	6.69	6.40	6.12	6.26	7.33	6.92	7.09	7.56	7.12	7.38
29	---	---	---	6.70	6.29	6.43	7.09	5.09	6.13	7.82	7.56	7.68
30	---	---	---	6.41	6.20	6.30	6.08	5.41	5.85	7.73	7.32	7.55
31	---	---	---	6.44	6.09	6.33	---	---	---	7.66	6.99	7.27
MONTH	7.28	4.50	5.78	7.71	5.03	6.05	7.60	4.31	6.36	7.82	4.46	6.33

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	6.99	5.27	6.25	---	---	---	5.65	5.14	5.30	---	---	---
2	7.21	5.68	6.77	---	---	---	5.53	4.88	5.19	---	---	---
3	7.04	6.22	6.83	---	---	---	6.26	4.94	5.69	---	---	---
4	6.71	5.23	6.08	---	---	---	6.80	6.26	6.57	---	---	---
5	6.82	5.27	6.03	---	---	---	6.76	6.59	6.67	---	---	---
6	6.78	6.52	6.65	---	---	---	6.84	6.63	6.77	---	---	---
7	7.00	6.61	6.82	---	---	---	7.05	6.70	6.84	---	---	---
8	6.85	4.84	6.07	---	---	---	6.77	6.49	6.64	7.21	7.01	7.07
9	5.84	4.69	5.28	---	---	---	6.51	6.34	6.45	7.20	6.87	6.97
10	5.00	4.75	4.88	---	---	---	6.40	6.27	6.35	7.10	6.60	6.99
11	4.92	4.58	4.78	---	---	---	6.70	6.27	6.48	7.22	7.09	7.15
12	4.95	4.55	4.77	---	---	---	6.78	6.71	6.76	7.15	7.03	7.11
13	4.95	4.58	4.76	6.78	6.61	6.71	6.80	6.73	6.77	7.13	6.96	7.06
14	5.08	4.56	4.74	6.77	6.68	6.72	6.76	6.72	6.75	7.07	6.89	6.98
15	---	---	---	7.23	6.75	7.07	6.77	6.71	6.73	7.11	6.53	6.71
16	---	---	---	7.32	7.02	7.22	6.83	6.72	6.75	7.07	6.68	6.83
17	---	---	---	7.34	7.14	7.24	6.86	6.71	6.78	6.97	6.77	6.84
18	---	---	---	7.19	7.13	7.16	6.85	6.73	6.79	6.90	6.56	6.76
19	---	---	---	7.15	7.08	7.12	6.83	6.66	6.76	6.77	6.52	6.65
20	---	---	---	7.05	7.00	7.01	6.78	6.62	6.69	6.85	6.52	6.66
21	---	---	---	7.01	6.94	6.97	6.75	6.61	6.67	6.75	6.49	6.63
22	---	---	---	6.93	6.86	6.92	6.75	6.61	6.67	6.73	6.51	6.62
23	---	---	---	6.92	6.86	6.90	6.78	6.52	6.67	6.43	6.28	6.32
24	---	---	---	6.94	6.91	6.93	6.78	6.48	6.57	6.47	6.35	6.41
25	---	---	---	6.98	6.74	6.91	6.83	6.35	6.61	6.67	6.42	6.57
26	---	---	---	7.18	6.77	7.04	---	---	---	6.64	6.43	6.58
27	---	---	---	6.75	5.71	6.17	---	---	---	6.69	6.23	6.55
28	---	---	---	6.66	5.69	6.39	---	---	---	6.75	6.55	6.66
29	---	---	---	6.80	6.66	6.75	---	---	---	6.71	6.59	6.67
30	---	---	---	6.86	6.70	6.79	---	---	---	6.77	6.55	6.66
31	---	---	---	7.00	5.66	6.49	---	---	---	---	---	---
MONTH	7.21	4.55	5.76	7.34	5.66	6.87	7.05	4.88	6.52	7.22	6.23	6.76
YEAR	7.82	4.31	6.17									

MONONGAHELA RIVER BASIN

03082190 POPLAR RUN NR NORMALVILLE, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	17.1	14.3	15.7	6.9	3.5	5.1	4.2	2.4	3.4	3.3	2.0	2.7
2	16.1	15.4	15.6	5.2	4.7	5.0	3.1	1.7	2.4	3.6	2.9	3.3
3	15.3	13.5	14.6	7.2	4.2	5.7	4.1	.8	2.4	2.9	.2	1.9
4	13.4	11.3	12.2	10.5	6.2	8.3	4.1	1.3	2.5	.2	.1	.2
5	11.6	9.1	10.2	11.4	9.6	10.4	1.8	.8	1.2	.4	.1	.2
6	9.4	7.9	8.8	9.5	6.8	8.4	3.3	.5	1.7	.8	.1	.3
7	9.0	7.6	8.3	6.7	5.8	6.2	4.9	2.0	3.4	3.1	.8	1.9
8	8.7	7.0	8.0	7.8	5.2	6.5	4.6	2.6	3.5	4.9	2.4	3.8
9	9.1	6.8	8.1	8.7	6.7	7.5	2.6	.2	1.6	3.3	1.6	2.5
10	9.9	7.8	8.9	9.8	6.7	8.3	.4	.2	.3	2.9	.5	1.8
11	8.5	8.2	8.5	8.5	5.1	7.0	.2	.2	.2	4.1	2.0	3.1
12	8.2	5.9	7.1	6.1	3.0	4.7	.3	.1	.2	6.3	3.6	5.0
13	5.9	4.5	5.1	8.1	5.5	6.7	.2	.1	.2	5.6	1.9	3.6
14	6.0	3.1	4.7	8.3	4.8	6.4	.3	.2	.2	3.8	.5	2.1
15	8.5	4.8	6.7	8.4	4.8	6.6	.3	.1	.2	5.0	3.8	4.6
16	10.4	7.3	8.9	11.0	7.6	9.3	.3	.1	.2	4.6	2.8	3.8
17	12.0	9.4	10.7	10.7	5.1	7.8	.2	.1	.1	4.1	2.1	3.0
18	12.1	10.1	11.5	6.1	3.5	4.8	.2	.1	.1	4.8	1.9	3.4
19	10.1	8.2	9.2	6.0	4.7	5.3	.4	.1	.2	5.3	3.2	4.5
20	9.0	7.5	8.2	10.3	6.0	8.2	.6	.2	.3	3.4	1.0	2.8
21	7.9	7.3	7.6	8.8	7.1	7.9	4.6	.5	2.9	.9	.1	.2
22	7.5	7.2	7.3	7.9	5.7	6.9	3.4	1.7	2.6	.3	.1	.2
23	8.7	6.9	7.8	6.6	4.1	5.3	5.4	2.4	3.9	1.2	.1	.5
24	8.7	7.4	8.1	5.8	3.2	4.4	6.7	3.3	5.0	2.7	.1	1.4
25	8.2	6.5	7.4	5.6	2.9	4.2	6.2	3.7	5.2	4.2	2.4	3.3
26	8.2	5.1	6.3	7.7	4.4	6.0	3.7	2.7	3.2	5.9	3.8	4.8
27	6.7	3.2	4.9	10.3	7.2	8.9	6.0	3.1	4.5	5.2	2.6	3.6
28	7.7	5.1	6.4	9.3	3.9	6.5	6.4	2.3	4.9	4.2	1.7	2.8
29	6.2	3.8	5.0	4.8	3.1	3.9	2.3	1.2	1.7	5.1	2.1	3.6
30	6.1	3.7	4.7	5.2	2.4	3.8	2.4	.2	1.4	6.3	4.6	5.6
31	5.0	1.8	3.5	---	---	---	3.1	1.3	2.2	6.7	3.8	5.1
MONTH	17.1	1.8	8.4	11.4	2.4	6.5	6.7	.1	2.0	6.7	.1	2.8

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	8.6	4.5	6.3	2.8	.1	1.1	6.2	5.0	5.6	14.0	3.8	11.4
2	8.9	6.2	7.4	1.5	.1	.6	7.8	4.5	6.1	10.5	8.8	9.7
3	8.2	1.9	5.3	4.9	.1	2.4	11.1	6.7	8.5	10.3	7.9	8.8
4	1.9	.1	1.1	7.3	2.8	4.7	11.7	8.3	10.0	14.5	6.2	10.3
5	1.5	.3	1.0	5.7	4.1	4.7	10.4	8.1	9.5	11.9	10.4	11.0
6	1.6	.1	1.1	4.3	1.1	2.6	8.4	6.2	7.4	11.4	8.6	10.3
7	.4	.1	.2	2.8	.9	1.8	8.6	5.6	6.7	8.6	6.8	7.4
8	.2	.1	.1	4.2	.9	2.1	6.7	4.2	5.5	9.1	6.8	8.1
9	.1	.1	.1	5.0	.5	2.4	9.0	5.0	6.6	---	---	---
10	.2	.1	.1	5.9	.6	3.0	7.8	3.7	5.5	---	---	---
11	.2	.1	.1	7.7	2.3	4.6	7.7	1.7	4.7	---	---	---
12	.2	.1	.1	5.0	3.1	4.1	9.8	2.2	5.9	---	---	---
13	.2	.1	.1	6.7	1.9	4.2	9.0	5.1	6.7	---	---	---
14	.2	.2	.2	9.1	3.2	6.1	11.5	2.8	7.1	---	---	---
15	4.3	.3	3.1	11.4	6.7	8.5	9.0	7.5	8.2	---	---	---
16	4.8	2.9	3.8	8.4	4.5	6.2	12.7	5.7	9.0	10.7	9.5	10.0
17	9.8	1.7	2.6	10.2	3.1	6.5	13.6	5.8	9.9	16.9	9.7	12.8
18	4.0	1.0	2.3	9.7	5.2	8.0	11.9	9.2	10.9	18.0	10.3	14.0
19	4.0	.9	2.4	5.5	2.7	3.9	12.5	7.1	9.4	18.4	11.8	15.1
20	5.7	2.7	4.1	3.4	1.6	2.4	13.3	5.6	9.2	15.1	13.6	14.2
21	6.5	4.5	5.5	4.7	2.9	3.8	11.7	7.2	9.2	18.6	13.3	15.4
22	5.5	3.1	4.3	6.1	1.2	3.4	12.9	5.8	9.1	16.0	11.8	13.9
23	3.2	1.1	2.3	7.1	1.8	4.3	12.4	4.6	8.3	14.7	13.6	14.1
24	2.0	.1	.8	5.7	4.1	4.9	13.1	4.5	8.7	---	---	---
25	1.0	.1	.3	9.8	4.7	6.9	11.0	6.5	9.0	17.3	12.0	14.7
26	1.3	.0	.9	11.6	6.0	8.6	13.9	8.9	10.9	17.5	15.2	16.3
27	2.6	.2	1.2	13.7	6.1	9.8	15.6	8.7	12.4	18.0	13.8	15.9
28	1.7	.1	.6	15.6	9.9	12.5	12.6	10.2	11.7	16.2	10.7	13.5
29	---	---	---	12.8	10.4	12.0	13.9	10.5	12.2	16.8	10.9	14.0
30	---	---	---	11.1	9.9	10.4	17.6	12.0	14.4	18.9	14.3	16.4
31	---	---	---	10.0	5.9	8.1	---	---	---	20.2	15.9	18.0
MONTH	9.8	.0	2.0	15.6	.1	5.3	17.6	1.7	8.6	20.2	3.8	12.8

MONONGAHELA RIVER BASIN

03082190 POPLAR RUN NR NORMALVILLE, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	21.9	17.9	19.9	---	---	---	20.3	17.8	18.8	---	---	---
2	20.8	18.3	19.3	---	---	---	20.9	16.9	18.9	---	---	---
3	19.7	16.0	18.0	---	---	---	22.0	17.7	20.0	---	---	---
4	18.3	16.1	17.8	---	---	---	23.9	19.8	21.8	---	---	---
5	19.0	14.7	15.8	---	---	---	24.2	21.3	22.7	---	---	---
6	16.8	15.0	15.8	---	---	---	23.5	20.5	22.0	---	---	---
7	18.5	15.1	16.7	---	---	---	21.0	16.7	18.8	---	---	---
8	19.7	14.3	16.8	---	---	---	16.6	14.3	15.3	19.2	17.2	18.1
9	17.5	16.6	17.1	---	---	---	17.8	12.8	15.3	21.5	18.0	19.7
10	16.5	15.0	15.9	---	---	---	18.5	13.7	16.3	21.2	18.5	19.9
11	17.6	13.1	15.3	---	---	---	17.0	15.6	16.3	19.7	18.5	19.3
12	15.1	12.7	14.2	---	---	---	19.2	15.7	17.3	18.9	17.4	18.3
13	16.2	15.1	15.7	18.9	17.8	18.4	20.4	16.4	18.4	20.4	17.8	19.0
14	17.7	15.5	16.4	19.1	16.4	17.7	20.5	16.8	18.7	20.0	18.3	19.2
15	---	---	---	19.2	14.7	17.0	20.1	17.2	18.8	19.6	17.6	18.5
16	---	---	---	18.0	16.6	17.2	21.0	17.9	19.3	17.9	16.8	17.3
17	---	---	---	19.6	16.7	17.9	20.3	17.8	19.1	17.2	15.4	16.3
18	---	---	---	20.0	16.0	18.0	18.8	17.5	18.0	15.9	15.1	15.5
19	---	---	---	19.7	17.5	18.5	20.4	17.5	18.8	17.6	15.0	16.0
20	---	---	---	21.5	17.5	19.3	21.1	17.6	19.4	18.7	14.4	16.5
21	---	---	---	22.2	18.7	20.3	21.9	19.6	20.7	20.1	17.0	18.6
22	---	---	---	23.6	19.2	21.2	22.0	20.0	21.1	20.4	18.9	19.5
23	---	---	---	24.0	19.5	21.6	23.0	20.5	21.5	14.7	12.6	13.4
24	---	---	---	23.9	19.4	21.7	21.8	19.9	20.7	13.2	10.9	12.0
25	---	---	---	24.2	19.8	21.8	21.8	17.8	19.9	13.1	10.0	11.7
26	---	---	---	22.1	20.7	21.3	---	---	---	15.2	12.5	13.5
27	---	---	---	21.4	19.9	20.6	---	---	---	12.7	9.7	11.3
28	---	---	---	21.5	19.4	20.3	---	---	---	12.7	8.2	10.5
29	---	---	---	20.9	16.7	18.9	---	---	---	14.2	10.5	12.3
30	---	---	---	18.1	16.2	17.2	---	---	---	15.5	12.3	13.8
31	---	---	---	18.9	17.4	18.1	---	---	---	---	---	---
MONTH	21.9	12.7	16.8	24.2	14.7	19.3	24.2	12.8	19.1	21.5	8.2	16.1
YEAR	24.2	.0	9.0									

MONONGAHELA RIVER BASIN

03082190 POPLAR RUN NR NORMALVILLE, PA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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	3.1	10	.08	3.4	14	.13	9.0	7	.17
2	3.6	15	.15	5.0	14	.19	8.0	7	.15
3	3.8	20	.21	7.9	10	.21	7.4	7	.14
4	2.6	26	.18	7.5	7	.14	7.7	10	.21
5	2.3	26	.16	36	152	19	6.5	8	.14
6	2.4	30	.19	31	25	2.1	6.3	6	.10
7	2.0	38	.21	19	15	.77	5.9	6	.10
8	1.7	30	.14	15	8	.32	5.4	11	.16
9	1.8	20	.10	12	8	.26	4.8	11	.14
10	1.7	7	.03	12	8	.26	4.2	11	.12
11	2.7	7	.05	9.9	6	.16	4.4	11	.13
12	2.6	7	.05	8.0	3	.06	4.9	11	.15
13	2.1	7	.04	21	32	2.3	4.4	12	.14
14	1.9	7	.04	18	7	.34	4.4	12	.14
15	1.7	7	.03	13	7	.25	4.4	12	.14
16	1.9	7	.04	11	7	.21	4.0	14	.15
17	1.8	7	.03	12	9	.29	4.9	14	.19
18	2.8	20	.15	9.2	9	.22	5.4	14	.20
19	2.8	15	.11	8.9	10	.24	4.3	10	.12
20	2.5	10	.07	163	400	242	5.1	10	.14
21	2.2	1	.01	91	55	14	18	34	2.0
22	6.0	3	.05	43	14	1.6	15	10	.41
23	8.6	8	.19	28	23	1.7	29	47	4.7
24	39	143	21	20	12	.65	92	126	42
25	16	25	1.1	15	4	.16	61	30	4.9
26	8.7	10	.23	12	4	.13	33	20	1.8
27	6.2	10	.17	11	4	.12	23	15	.93
28	6.0	10	.16	14	14	.53	27	20	1.5
29	5.0	13	.18	11	10	.30	24	15	.97
30	4.5	13	.16	9.7	8	.21	18	10	.49
31	3.7	13	.13	---	---	---	16	10	.43
TOTAL	153.7	---	25.44	677.5	---	288.85	467.4	---	63.06

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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	10	.38	12	7	.23	13	25	.88
2	14	10	.38	11	7	.21	11	28	.83
3	13	10	.35	25	25	1.7	13	24	.84
4	11	10	.30	20	20	1.1	29	30	2.3
5	10	15	.41	17	15	.69	68	92	23
6	11	10	.30	15	13	.53	126	94	38
7	12	7	.23	12	13	.42	57	25	3.8
8	59	63	12	10	13	.35	38	14	1.4
9	37	13	1.3	7.7	13	.27	30	13	1.1
10	24	11	.71	9.2	13	.32	29	12	.94
11	18	10	.49	9.2	13	.32	34	11	1.0
12	61	65	13	8.3	13	.29	36	10	.97
13	63	32	6.0	8.2	30	.66	29	10	.78
14	44	32	4.9	48	63	9.4	25	10	.68
15	72	36	8.0	200	371	238	22	10	.59
16	42	15	1.7	140	85	43	18	11	.53
17	29	12	.94	58	24	3.8	15	11	.45
18	22	10	.59	39	24	2.5	16	20	.86
19	18	10	.49	28	24	1.8	14	15	.57
20	16	10	.43	22	25	1.5	19	10	.51
21	12	11	.36	120	136	48	91	106	36
22	12	23	.75	68	23	4.2	42	18	2.0
23	11	21	.62	43	24	2.8	31	12	1.0
24	10	20	.54	30	23	1.9	49	35	4.6
25	11	19	.56	24	25	1.6	38	20	2.1
26	15	15	.61	21	22	1.2	27	14	1.0
27	28	23	1.7	17	22	1.0	22	14	.83
28	18	18	.87	15	31	1.3	19	16	.82
29	16	14	.60	---	---	---	57	91	19
30	16	14	.60	---	---	---	123	82	28
31	14	7	.26	---	---	---	109	35	10
TOTAL	753	---	60.37	1037.6	---	369.09	1250	---	185.38

MONONGAHELA RIVER BASIN

03082190 POPLAR RUN NR NORMALVILLE, PA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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	62	20	3.3	23	31	4.2	5.6	17	.26
2	44	18	2.1	47	45	6.3	4.9	16	.21
3	44	15	1.8	49	34	4.8	4.4	15	.18
4	35	15	1.4	32	18	1.6	5.8	14	.22
5	28	15	1.1	31	20	1.7	6.3	14	.24
6	23	15	.93	48	46	6.0	6.1	14	.23
7	19	15	.77	59	30	4.8	4.6	20	.25
8	17	15	.69	49	25	3.3	3.8	24	.25
9	17	15	.69	38	25	2.6	4.1	24	.27
10	13	15	.53	58	25	3.9	5.4	23	.34
11	12	15	.49	74	25	5.0	3.9	21	.22
12	10	15	.41	69	20	3.7	3.6	19	.18
13	10	20	.54	49	20	2.6	8.3	19	.43
14	9.2	24	.60	37	20	2.0	8.4	19	.43
15	9.2	24	.60	37	35	3.5	16	69	4.5
16	8.4	25	.57	35	26	2.5	23	41	2.8
17	7.4	25	.50	35	26	2.5	93	212	85
18	16	30	1.3	26	26	1.8	29	30	2.3
19	27	33	2.4	21	26	1.5	18	25	1.2
20	18	25	1.2	18	26	1.3	27	30	2.2
21	15	22	.89	16	31	1.3	79	161	114
22	13	19	.67	13	31	1.1	85	71	20
23	11	18	.53	16	31	1.3	42	35	4.0
24	9.9	18	.48	14	31	1.2	26	29	2.0
25	9.7	34	.89	12	35	1.1	18	23	1.1
26	8.7	22	.52	13	35	1.2	15	18	.73
27	7.7	18	.37	12	35	1.1	35	168	75
28	7.3	15	.30	9.2	42	1.0	135	141	64
29	17	57	3.2	8.2	40	.89	51	30	4.1
30	12	20	.65	7.4	35	.70	29	25	2.0
31	---	---	---	6.2	25	.42	---	---	---
TOTAL	540.5	---	30.42	962.0	---	76.91	796.2	---	388.64

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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	19	20	1.0	4.8	20	.26	2.7	19	.14
2	14	14	.53	3.7	13	.13	2.7	15	.11
3	11	16	.48	3.1	8	.07	2.2	13	.08
4	9.9	19	.51	2.9	6	.05	2.0	11	.06
5	21	19	1.1	2.6	4	.03	2.0	8	.04
6	30	84	23	2.8	10	.08	1.9	7	.04
7	25	26	2.1	5.7	25	.38	1.7	6	.03
8	13	25	.88	3.1	10	.08	2.5	12	.08
9	67	263	125	2.7	10	.07	2.6	4	.03
10	35	39	3.7	2.3	12	.07	3.8	25	.26
11	20	19	1.0	2.2	14	.08	3.3	15	.13
12	15	6	.24	2.7	14	.10	2.3	10	.06
13	13	6	.21	2.3	14	.09	2.1	10	.06
14	11	6	.18	2.1	14	.08	1.9	10	.05
15	8.3	6	.13	2.1	14	.08	6.4	25	.43
16	8.1	10	.22	2.0	14	.08	7.2	25	.49
17	7.5	13	.26	2.0	15	.08	12	25	.81
18	6.1	13	.21	2.0	16	.09	6.2	27	.45
19	6.1	13	.21	2.3	16	.10	4.4	20	.24
20	7.3	13	.26	3.1	16	.13	3.5	12	.11
21	5.3	11	.16	2.4	18	.12	3.0	10	.08
22	4.3	10	.12	2.3	23	.14	2.7	6	.04
23	3.8	9	.09	2.5	23	.16	51	145	25
24	3.4	8	.07	5.2	23	.32	20	20	1.1
25	3.2	8	.07	2.6	15	.11	11	13	.39
26	3.3	8	.07	2.2	10	.06	8.3	11	.25
27	3.5	10	.09	2.0	6	.03	6.1	10	.16
28	3.4	11	.10	1.9	6	.03	4.9	10	.13
29	3.0	10	.08	1.8	6	.03	4.2	10	.11
30	3.4	8	.07	13	113	7.7	3.6	10	.10
31	11	25	.74	3.1	23	.19	---	---	---
TOTAL	394.9	---	162.88	95.5	---	11.02	188.2	---	31.06
YEAR	7316.5		1693.12						

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 REfORD.--July 1908 to current year. Monthly discharge only for 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.--81 years, 2,585 ft^3/s, 26.47 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, 18,000 ft^3/s, Feb. 16, gage height, 9.60 ft; minimum daily, 421 ft^3/s, Nov. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1060	1190	1690	1640	5040	4770	6960	2010	1080	3130	1620	1130
2	1010	426	3200	1520	4790	4520	6840	3720	936	2480	1120	1080
3	1020	421	3090	1420	5010	4420	6340	4700	895	2120	936	979
4	993	447	3040	1370	5310	4560	4860	4670	1320	1540	853	889
5	940	654	2870	1080	4960	5670	5480	5250	1460	2730	954	841
6	908	3500	2530	1230	4710	12500	5440	8110	1810	3770	910	676
7	885	2670	2360	1220	4180	10400	5510	8260	2650	4030	846	800
8	861	1780	1120	2110	3650	7960	5190	6480	2210	2880	835	809
9	845	1410	639	4290	1480	7160	4860	6450	2010	3110	772	1240
10	834	1170	835	3030	e760	6600	4000	11500	2020	3600	735	1130
11	852	1050	1080	2320	e700	6580	2280	12000	1760	3560	719	1440
12	865	911	941	4530	e660	7740	1720	10200	1390	3090	799	1410
13	868	1020	962	11700	e620	7080	1610	9220	1240	2810	800	1170
14	847	3040	1050	8430	e900	6390	1530	8510	1410	2430	783	1100
15	824	2750	1170	11000	e5870	5180	1440	7720	1580	2230	751	1170
16	808	2470	928	9940	14400	4160	1410	8200	2350	2120	760	1330
17	797	2140	856	8110	7380	3330	1300	8730	4490	3980	750	1720
18	807	1050	839	4670	4690	2970	1320	7980	3950	3940	732	1620
19	855	951	844	2990	3590	2970	1830	7130	3110	3560	727	1430
20	910	4740	795	2530	2910	2610	2090	6540	6210	3640	774	1310
21	906	10300	1060	2170	5990	6190	1760	5920	11300	4200	738	1250
22	1000	5400	1510	2710	7500	6130	1620	4560	8550	4310	903	1210
23	2170	4350	1660	3810	5200	4350	1460	3180	6830	3630	935	1770
24	2710	3930	4130	4040	5370	4340	1300	3240	6240	2700	1210	2120
25	2370	2640	9110	4290	6220	5940	1220	3140	5420	2140	1100	1840
26	1800	2740	5050	4540	5920	4580	1240	2160	4800	2810	907	1640
27	1510	4100	3360	5890	5370	3720	1170	2310	4560	3030	799	1540
28	1910	3900	2810	6140	4960	3190	1050	2170	6990	3080	745	1420
29	1840	3550	2690	5400	---	3440	1190	2160	5740	3190	706	1330
30	1700	3090	2140	5120	---	5920	2120	2030	4600	2730	1530	1260
31	1390	---	1820	5360	---	8690	---	1810	---	1510	1590	---
TOTAL	37095	77790	66179	134600	128140	174060	86140	180060	108911	94080	28339	38654
MEAN	1197	2593	2135	4342	4576	5615	2871	5808	3630	3035	914	1288
MAX	2710	10300	9110	11700	14400	12500	6960	12000	11300	4310	1620	2120
MIN	797	421	639	1080	620	2610	1050	1810	895	1510	706	676
†	-426	+410	+166	+213	+324	+707	+42.0	-12.0	+43.7	-107	-82.9	-385
MEAN‡	771	3003	2301	4555	4900	6322	2913	5796	3674	2928	831	903
CFSM‡	.58	2.26	1.74	3.44	3.70	4.77	2.20	4.37	2.77	2.21	.63	.68
IN.‡	.67	2.52	2.01	3.97	3.85	5.50	2.45	5.04	3.09	2.55	.73	.76

CAL YR 1988 TOTAL 824756 MEAN 2253 MAX 15300 MIN 421 ADJ +57.9 MEAN‡ 2311 CFSM‡ 1.74 IN.‡ 23.74
WTR YR 1989 TOTAL 1154048 MEAN 3162 MAX 14400 MIN 421 ADJ +73.0 MEAN‡ 3235 CFSM‡ 2.44 IN.‡ 33.14

† 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

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.--69 years, 3,050 ft^3/s, 24.16 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, 24,600 ft^3/s, Feb. 16, gage height, 13.58 ft; minimum daily, 523 ft^3/s, Nov. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1130	1360	2150	2010	5150	5180	10800	2480	1730	3920	1780	e1200
2	1070	961	2760	1850	4840	4850	8700	4730	1270	2980	1440	e1150
3	1070	523	3150	1730	5160	4680	7970	5650	1140	2550	1120	e1050
4	1050	577	3060	1670	5760	4840	6400	5500	1310	1940	967	e980
5	996	706	2980	1380	5280	6530	6560	5860	1700	2260	941	e900
6	954	2610	2620	1460	4960	14300	6320	8480	1770	4100	1040	e720
7	930	3420	2550	1860	4450	15600	6340	10800	2630	3970	1020	e840
8	908	2180	1760	2160	4020	9730	5900	8360	2440	3370	925	e860
9	889	1680	1000	4510	2420	8330	5690	7510	2240	3040	872	e1350
10	877	1390	750	3800	e1250	7700	4720	12200	2320	4080	823	e1300
11	911	1220	1110	2810	e1000	7690	3300	15400	2080	3800	782	e1500
12	920	1080	1070	4020	e900	8750	2360	12600	1670	3300	825	e1500
13	901	1040	965	12600	e840	8150	2130	11200	1500	3050	861	e1300
14	896	2410	1130	10100	e1300	7560	2000	10000	1580	2670	842	e1200
15	870	3020	1230	11900	e6800	5980	1880	8880	1820	2420	808	e1300
16	850	2610	1270	11800	21400	5020	1830	9320	2380	2230	e800	e1500
17	836	2500	1030	9230	11200	4000	1710	9580	4340	3210	e800	e1700
18	859	1580	865	6330	6320	3510	1740	9020	4910	4140	e780	e1600
19	901	1120	936	3630	4620	3530	2220	7860	3380	3630	e780	1500
20	918	3370	917	3050	3710	3210	2580	7140	5080	3700	e820	1370
21	984	13600	988	2670	7630	7380	2320	6670	11600	4120	e780	1270
22	982	7260	1510	2430	10800	8450	2080	5440	10700	4210	e920	1220
23	1600	4690	1780	3830	6870	5690	1910	3790	7520	3900	e920	2160
24	2720	4610	3500	4040	5970	5730	1710	3650	6780	2870	e1300	3010
25	2690	3180	10800	4260	6730	7350	1620	3710	6030	2380	e1150	2210
26	2090	2510	6620	4560	6570	5890	1590	3160	5100	2300	e1000	1890
27	1650	3950	4100	5610	5980	4700	1520	2940	5070	3290	e880	1670
28	1740	4100	3280	6450	5430	3930	1410	2640	8010	2900	e800	1520
29	1900	3710	3260	5690	---	4450	1460	2480	7460	3190	e780	1390
30	1800	3480	2680	5150	---	11500	2040	2410	5500	2940	e1550	1290
31	1530	---	2950	5460	---	16300	---	2220	---	2110	e1600	---
TOTAL	38422	86447	74771	148050	157360	220510	108810	211680	121060	98570	30706	42450
MEAN	1239	2882	2412	4776	5620	7113	3627	6828	4035	3180	991	1415
MAX	2720	13600	10800	12600	21400	16300	10800	15400	11600	4210	1780	3010
MIN	836	523	750	1380	840	3210	1410	2220	1140	1940	780	720
†	-426	+410	+166	+213	+324	+707	+42.0	-12.0	+43.7	-107	-82.9	-385
MEAN‡	813	3292	2578	4989	5944	7820	3669	6816	4079	3073	908	1030
CFSM‡	.47	1.92	1.50	2.91	3.47	4.56	2.14	3.97	2.38	1.79	.53	.60
IN.‡	.54	2.14	1.73	3.35	3.61	5.26	2.39	4.58	2.66	2.06	.61	.67

CAL YR 1988 TOTAL 965358 MEAN 2638 MAX 21500 MIN 523 ADJ +57.9 MEAN‡ 2696 CFSM‡ 1.57 IN.‡ 21.39
WTR YR 1989 TOTAL 1338836 MEAN 3668 MAX 21400 MIN 523 ADJ +73.0 MEAN‡ 3741 CFSM‡ 2.18 IN.‡ 29.60

† 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.--41 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)
June 9	1700	*302	*4.03	Sept. 14	1800	268	3.87

Minimum discharge, 0.15 ft^3/s, Oct. 31, Nov. 1, 2, gage height, 1.88 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.34	.15	1.5	e.86	2.5	e2.6	19	23	2.1	1.9	1.4	1.3
2	.46	.31	1.2	e.70	2.6	e4.6	13	16	1.9	1.6	1.1	.83
3	.34	.47	e1.0	e.64	e2.0	e2.7	15	14	6.4	1.6	.99	.77
4	.32	2.5	e.90	e.56	e1.7	e2.8	15	8.0	3.2	1.7	.94	.74
5	.32	14	e.76	e.50	e1.5	e9.0	15	7.3	6.6	5.8	.90	.71
6	.32	3.8	e.64	e.90	e1.2	17	11	13	2.6	2.0	.87	.71
7	.31	2.8	e.54	e1.7	e1.0	9.6	8.4	12	2.0	1.6	.84	.70
8	.33	1.6	e.47	e2.8	e.90	8.0	7.9	8.5	1.6	1.4	.93	6.4
9	.35	1.2	e.42	e1.1	e.76	9.5	6.6	11	12	4.9	1.0	1.0
10	2.2	1.5	e.36	e1.6	e.68	9.4	5.4	49	4.0	1.8	.90	2.3
11	.83	1.3	e.32	e2.5	e.60	15	4.6	35	2.3	1.3	.93	1.3
12	.35	1.2	e.29	e4.6	e.50	15	4.1	21	7.3	1.2	.96	.90
13	.36	5.7	e.25	8.8	e1.5	12	4.2	19	15	14	.92	.88
14	.32	1.7	e.23	8.8	e4.0	11	3.4	15	11	2.3	.91	13
15	.32	1.3	e.20	9.2	e24	14	3.2	16	18	1.6	.90	3.4
16	.31	1.3	e.36	5.7	23	8.1	2.9	13	14	1.4	.90	7.7
17	.32	1.6	e.58	4.5	9.8	6.2	3.7	11	16	1.3	.86	14
18	4.0	1.1	e.47	3.7	6.5	7.3	4.4	7.5	6.8	1.2	.85	2.2
19	.56	1.2	e.36	3.2	5.3	5.0	3.1	6.2	4.7	1.4	5.1	1.5
20	.35	25	e.28	e2.5	5.6	13	2.6	5.8	11	1.2	2.0	1.3
21	1.4	5.5	e.22	e2.1	51	23	2.5	4.0	17	1.0	1.0	1.2
22	.85	2.6	e.18	e1.8	16	11	2.3	3.2	7.0	1.1	.93	4.4
23	.58	1.8	e1.2	e1.6	9.4	7.8	2.2	7.2	4.8	.93	1.5	22
24	5.5	1.5	e8.6	e1.5	e7.8	18	2.1	3.5	3.7	.90	.94	4.6
25	.56	1.3	5.9	e1.4	e5.6	11	2.2	6.3	2.9	.90	.86	2.5
26	.26	1.2	3.0	e4.0	e4.4	8.0	2.1	20	2.4	.92	.81	1.8
27	.20	1.9	2.4	4.4	e3.6	6.5	1.9	6.9	9.2	5.4	.83	1.4
28	.22	2.3	7.2	3.0	e3.1	6.5	2.1	4.6	7.5	1.3	.83	1.3
29	.21	1.4	3.8	3.1	---	26	4.0	3.5	3.0	.92	3.7	1.2
30	.17	1.3	e2.0	3.0	---	57	2.0	3.7	2.3	3.1	1.5	1.2
31	.16	---	e1.3	2.5	---	35	---	2.6	---	7.9	.84	---
TOTAL	23.12	90.53	46.93	93.26	196.54	391.6	175.9	376.8	208.3	75.57	37.94	103.24
MEAN	.75	3.02	1.51	3.01	7.02	12.6	5.86	12.2	6.94	2.44	1.22	3.44
MAX	5.5	25	8.6	9.2	51	57	19	49	18	14	5.1	22
MIN	.16	.15	.18	.50	.50	2.6	1.9	2.6	1.6	.90	.81	.70
CFSM	.17	.69	.34	.69	1.60	2.88	1.34	2.77	1.58	.56	.28	.78
IN.	.20	.77	.40	.79	1.67	3.32	1.49	3.19	1.77	.64	.32	.87

CAL YR 1988 TOTAL 1110.55 MEAN 3.03 MAX 58 MIN .15 CFSM .69 IN. 9.41
WTR YR 1989 TOTAL 1819.73 MEAN 4.99 MAX 57 MIN .15 CFSM 1.14 IN. 15.42

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 REOCRDS

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.--No estimated daily discharge. Records good. 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.--51 years, 12,490 ft^3/s, 23.17 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 heigt, 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, 120,000 ft^3/s, Mar. 7, gage height, 23.69 ft; minimum, 1,550 ft^3/s, Dec. 12, gage height, 12.16 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4000	3130	7410	7470	16500	14700	43100	22100	9590	13600	5930	8870
2	2510	3830	7200	8530	16400	12700	31500	30900	7140	8450	4300	5440
3	3590	2970	6910	10700	16600	12000	27200	35700	5940	8060	3810	4940
4	3320	2910	5140	10300	29500	12700	22800	32400	5080	5460	3200	3920
5	2920	3550	5850	10600	26700	19800	20500	29800	5170	7560	2570	3940
6	2970	9220	6000	10100	21900	49500	20000	31300	9130	11000	3680	3700
7	3150	11600	6260	17800	21600	110000	17200	44900	16600	10200	3510	3970
8	3010	8650	5520	20000	15000	66700	15400	39100	11100	8220	4570	3020
9	2390	6070	5150	25100	11800	44800	13600	34800	11800	6420	4140	2550
10	2030	8670	3810	25800	7500	39100	12600	51400	11000	13800	3310	3380
11	2070	6350	2440	18200	5920	34100	12800	63400	10500	9350	3390	4530
12	2590	4020	2470	16700	4630	32400	13500	51700	9400	15500	2670	3460
13	2650	4490	3440	36700	5620	28900	14300	48700	9790	16200	2030	4080
14	2790	6000	2700	39600	9420	23000	11500	46000	8230	12600	2900	4500
15	2050	7740	3060	42900	27200	17900	8240	38300	11900	9090	3480	6120
16	2170	8290	3370	47700	86900	14400	7730	43000	16700	8530	2630	8310
17	1950	6920	3120	37600	67500	11400	7060	43900	32400	15000	2340	7050
18	3070	6720	2140	27200	39000	8820	9980	38800	45800	14900	3570	7230
19	2840	5010	2460	19100	32300	11400	11500	29500	33000	13600	3700	5970
20	2920	13400	3160	11500	25600	10100	13400	24100	26900	24200	3050	6290
21	3590	52300	4620	9790	39700	25200	11000	17200	33700	21800	7380	6540
22	2790	33100	9490	7560	49500	37600	10500	15700	32400	11800	7090	9330
23	3630	28800	12300	7960	36600	34100	9440	13800	27000	10800	19100	12200
24	7930	21200	17100	8960	29600	33100	7750	11000	25900	7700	26700	14000
25	7750	12800	42800	10100	24200	33900	8040	11300	21200	6780	24500	8600
26	6410	9880	34800	9090	21200	25300	9130	12000	14400	6320	18700	8730
27	5890	9660	27200	11300	21600	20200	20800	11200	14200	7910	15900	7490
28	4680	9160	21800	12600	18700	17500	18400	11400	21400	8570	13300	7450
29	4050	10100	18700	9990	---	18600	28800	10400	24200	8920	10400	7780
30	4370	8600	14500	11300	---	36500	31900	10700	19900	7940	15200	6810
31	4300	---	10000	19300	---	56400	---	11800	---	7690	12900	---
TOTAL	110380	325140	300920	561550	728690	912820	489670	916300	531470	337970	239950	190200
MEAN	3561	10840	9707	18110	26020	29450	16320	29560	17720	10900	7740	6340
MAX	7930	52300	42800	47700	86900	110000	43100	63400	45800	24200	26700	14000
MIN	1950	2910	2140	7470	4630	8820	7060	10400	5080	5460	2030	2550

CAL YR 1988 TOTAL 3328870 MEAN 9095 MAX 72100 MIN 1530
WTR YR 1989 TOTAL 5645060 MEAN 15470 MAX 110000 MIN 1950

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 1988 TO SEPTEMBER 1989

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)
DEC 06...	0900	6050	275	7.0	6.5	3.7	743	11.6	7	2	81
MAR 22...	1000	38200	305	7.0	6.5	26	755	11.2	1300	350	110
MAY 23...	0900	12500	230	7.5	16.0	4.1	733	11.6	580	140	100
SEP 06...	1000	3920	238	7.3	24.0	9.0	748	5.4	1700	80	84

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
DEC 06...	--	23	5.8	13	1.9	25	21	70	12	.10	4.5
MAR 22...	--	30	8.2	13	1.5	29	24	91	10	.10	5.8
MAY 23...	--	28	7.6	12	1.4	31	25	78	8.1	.10	5.6
SEP 06...	--	24	5.8	15	1.9	25	21	74	10	.20	4.9

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)
DEC 06...	152	.900	.300	.60	.050	.010	.030	10	<1	35
MAR 22...	177	.860	.080	.30	.010	<.010	<.010	40	<1	65
MAY 23...	161	.700	.070	.20	.030	.010	<.010	50	<1	61
SEP 06...	153	.730	.090	.40	.041	<.010	.010	50	<1	55

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)
DEC 06...	<0.5	<1	<1	<3	2	26	<5	<4	230	<0.1
MAR 22...	<0.5	<1	<1	5	1	7	<5	7	320	<0.1
MAY 23...	<0.5	<1	<1	3	2	12	1	10	180	<0.1
SEP 06...	<0.5	<1	<1	<3	4	59	1	6	97	<0.1

DATE	MOLYB-DENUM, DIS-SOLVED (µG/L AS MO)	NICKEL, DIS-SOLVED (µG/L AS NI)	SELE-NIUM, DIS-SOLVED (µG/L AS SE)	SILVER, DIS-SOLVED (µG/L AS AG)	STRON-TIUM, DIS-SOLVED (µG/L AS SR)	VANA-DIUM, DIS-SOLVED (µG/L AS V)	ZINC, DIS-SOLVED (µG/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
DEC 06...	<10	2	<1	<1.0	120	<6	12	8	131	92
MAR 22...	<10	9	<1	<1.0	180	<6	23	85	8760	89
MAY 23...	<10	6	<1	<1.0	170	<6	13	--	--	--
SEP 06...	<10	3	<1	<1.0	150	<6	7	16	169	86

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, Octoter 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 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.--63 years (1919-33, 1940-89), 291 ft^3/s, 15.38 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)
Feb. 16	0200	3,050	5.05	Mar. 31	0500	*3,740	*5.74
Feb. 21	1400	3,610	5.61	May 10	1500	3,160	5.36

Minimum discharge, 60 ft^3/s, Oct. 1, 4, 5, 6, 7, 21, gage height, 1.03 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	66	84	140	122	291	1750	431	282	291	186	86
2	64	68	81	126	116	249	1090	1050	259	267	150	91
3	63	67	77	123	194	242	984	661	281	252	135	81
4	63	102	74	121	195	258	841	489	357	292	126	77
5	62	225	71	132	168	846	978	441	330	325	122	75
6	61	251	e68	194	153	1520	762	463	335	278	197	76
7	62	138	e66	289	136	787	659	480	233	224	313	78
8	65	115	e65	319	125	562	587	461	211	202	160	102
9	65	100	e64	249	115	551	596	435	216	214	131	79
10	67	91	e62	186	e110	640	488	2350	299	188	117	84
11	84	90	e62	161	e100	774	438	2300	215	177	105	116
12	69	82	e62	317	e96	799	404	1410	191	163	107	83
13	65	138	e64	424	e88	623	385	1140	364	604	106	78
14	64	137	e70	275	e130	554	347	960	307	219	107	327
15	63	110	e68	352	e1150	600	328	907	638	177	94	334
16	64	95	e74	282	2020	455	310	861	560	165	93	289
17	64	87	e86	229	710	401	284	702	823	156	88	299
18	93	82	e62	195	465	457	377	596	435	148	86	137
19	83	77	e62	182	373	412	440	525	332	179	203	105
20	66	662	e62	169	328	541	334	485	738	176	234	93
21	68	508	e62	153	2570	1790	293	472	1490	148	117	86
22	98	206	e62	130	1300	939	271	396	882	136	99	169
23	148	148	e70	129	711	678	248	429	616	129	91	979
24	191	126	e260	131	496	826	231	388	459	145	100	399
25	133	114	536	129	400	762	236	363	385	136	97	199
26	89	105	206	144	413	597	238	1130	340	193	88	153
27	78	95	154	191	376	513	214	614	476	327	84	126
28	74	100	220	154	313	530	206	438	871	257	84	113
29	68	96	276	139	---	1300	299	372	584	150	84	106
30	67	88	181	139	---	2250	242	344	336	198	98	100
31	63	---	157	132	---	3220	---	313	---	442	89	---
TOTAL	2426	4369	3568	6036	13473	24967	14860	22406	13845	6958	3891	5120
MEAN	78.3	146	115	195	481	805	495	723	461	224	126	171
MAX	191	662	536	424	2570	3220	1750	2350	1490	604	313	979
MIN	61	66	62	121	88	242	206	313	191	129	84	75
CFSM	.30	.57	.45	.76	1.87	3.13	1.93	2.81	1.80	.87	.49	.66
IN.	.35	.63	.52	.87	1.95	3.61	2.15	3.24	2.00	1.01	.56	.74

CAL YR 1988 TOTAL 71643 MEAN 196 MAX 5200 MIN 49 CFSM .76 IN. 10.37
WTR YR 1989 TOTAL 121919 MEAN 334 MAX 3220 MIN 61 CFSM 1.30 IN. 17.65

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 ARKA.--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 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.

COOPERATION.--Gage readings provided by the U.S. Army Corps of Engineers.

REMARKS.--Records good except for estimated daily discharges, which are 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.--56 years, 33,070 ft^3/s, 23.03 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, 161,000 ft^3/s, May 11, minimum daily, 4,840 ft^3/s, Oct. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8220	12400	23300	43400	46900	38900	141000	36800	46000	57200	17800	17900
2	e8100	12500	20400	40700	46000	34800	117000	49800	44000	46200	14600	13200
3	e9200	10400	21500	40900	44800	31500	107000	62100	35000	39900	13900	8060
4	7700	9880	16800	39100	58100	32000	109000	61900	36200	37800	10600	8730
5	6070	12700	17100	32800	54100	37600	112000	57600	42200	37800	9300	7950
6	5740	23900	21000	28200	42400	68700	106000	58700	43000	45800	9770	7000
7	5890	38100	18600	34500	42200	144000	101000	74700	49200	46000	11900	8840
8	6360	32600	18600	34300	32000	110000	93200	76500	40100	38500	10100	12400
9	5800	30000	18100	43200	24700	76500	82200	78000	36200	36600	12900	11200
10	5020	31600	16000	53100	15700	66600	74400	118000	40300	39100	9540	8170
11	4840	29400	12300	44400	13900	57600	65800	161000	43000	29400	8280	7950
12	5020	27000	9070	43000	11300	57200	60500	146000	36200	31600	9890	8280
13	6990	23600	9300	58700	12300	52000	59600	138000	37900	31500	7730	8500
14	9110	27800	6900	71400	21100	47500	56500	133000	40700	27000	5640	8280
15	12200	35600	6100	72400	40500	41900	44000	123000	65800	20800	7000	12700
16	9800	31800	6690	81400	114000	37800	40100	126000	95100	19400	8950	11700
17	8570	23800	6690	69200	113000	35600	31100	129000	102000	24000	7730	20600
18	8540	21300	6690	58700	79100	27700	35000	118000	115000	26600	7100	17600
19	9630	19600	6690	41900	70200	32400	37900	99300	94000	22200	8730	18600
20	10900	29300	8700	31800	58100	35800	41100	85300	83200	32400	10000	17300
21	14100	74200	10900	27800	78500	55900	36800	64900	130000	37600	7410	13300
22	17000	68000	18100	21300	99300	70400	33500	56800	153000	40900	7730	18400
23	14000	69000	31300	18300	95100	69000	28900	50800	104000	23300	14300	26600
24	18500	59600	40900	21300	86400	65400	25300	45600	105000	24000	12000	28600
25	19900	43600	71200	23800	72200	66800	26600	46000	98800	20400	30900	22200
26	18300	40500	72900	22700	63000	63700	22400	52800	84300	18400	31600	21300
27	18500	42800	63000	27000	58300	55200	34800	54400	73900	19100	25100	19300
28	18900	35800	59000	48300	48600	50000	31100	54400	84300	19400	23100	16800
29	16200	33100	57600	45200	---	56500	32600	48100	84800	18600	18100	15700
30	16100	22000	56500	43600	---	96500	42400	45000	71400	19100	15700	14800
31	13000	---	49200	46900	---	149000	---	40100	---	18100	21500	---
TOTAL	338200	971880	801130	1309300	1541800	1864500	1828800	2491600	2114600	948700	408900	431960
MEAN	10910	32400	25840	42240	55060	60150	60960	80370	70490	30600	13190	14400
MAX	19900	74200	72900	81400	114000	149000	141000	161000	153000	57200	31600	28600
MIN	4840	9880	6100	18300	11300	27700	22400	36800	35000	18100	5640	7000

CAL YR 1988 TOTAL 9114070 MEAN 24900 MAX 123000 MIN 3530
WTR YR 1989 TOTAL 15051370 MEAN 41240 MAX 161000 MIN 4840

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.--55 years, 208 ft^3/s, 16.91 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, 823 ft^3/s, June 22, gage height, 6.61 ft; minimum daily, 19 ft^3/s, Mar. 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	77	78	684	166	227	215	203	134	431	735	63	110
2	77	77	680	165	222	215	196	143	623	734	86	112
3	77	78	678	164	219	215	274	145	620	732	107	110
4	77	90	679	203	219	217	254	93	639	729	108	110
5	77	101	676	227	219	236	525	64	667	729	111	110
6	77	105	673	227	219	231	778	64	687	729	112	110
7	77	94	555	227	219	224	769	67	684	729	110	110
8	77	97	476	312	219	221	764	82	681	729	110	110
9	77	90	392	242	219	218	759	72	687	729	110	110
10	77	208	300	229	219	219	756	312	689	469	110	110
11	77	314	300	227	219	219	754	593	539	94	110	110
12	78	304	300	227	219	219	533	553	231	63	110	110
13	79	316	300	226	219	219	135	553	256	63	110	110
14	79	312	245	222	228	219	137	560	362	62	110	112
15	79	302	157	227	257	221	136	551	163	61	110	115
16	79	544	157	227	249	223	134	549	472	61	110	117
17	79	548	155	224	227	221	134	338	502	61	109	118
18	83	327	155	223	222	226	134	146	391	61	107	109
19	82	324	155	223	220	228	137	143	153	61	107	107
20	80	343	161	223	219	227	137	141	260	64	107	107
21	79	361	173	223	285	227	136	141	498	64	107	105
22	80	555	163	223	261	227	134	141	654	63	107	106
23	81	697	174	223	229	224	134	158	546	63	107	117
24	81	693	174	223	221	135	134	163	683	63	107	111
25	80	690	174	223	216	21	134	155	744	63	107	108
26	79	688	166	256	215	20	134	435	741	64	107	107
27	79	687	162	258	215	19	134	646	734	64	107	107
28	79	687	235	233	215	21	134	682	643	64	107	107
29	79	687	193	230	---	60	134	747	687	63	107	107
30	79	686	170	230	---	72	134	745	735	63	107	107
31	79	---	169	228	---	159	---	476	---	63	107	---
TOTAL	2440	11083	9831	6961	6337	5618	8991	9792	16402	8392	3294	3299
MEAN	78.7	369	317	225	226	181	300	316	547	271	106	110
MAX	83	697	684	312	285	236	778	747	744	735	112	118
MIN	77	77	155	164	215	19	134	64	153	61	63	105

CAL YR 1988 TOTAL 57017 MEAN 156 MAX 697 MIN 12
WTR YR 1989 TOTAL 92440 MEAN 253 MAX 778 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.--76 years, 142 ft^3/s, 18.54 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)
June 15	0630	*2,340	*7.56	No other peak greater than base discharge			

Minimum discharge, 13 ft^3/s, Aug. 28, 29, gage height, 0.94 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	50	118	172	158	98	703	78	737	89	23	21
2	19	49	109	151	132	86	528	234	309	75	21	30
3	20	60	97	129	121	86	1030	224	210	64	20	23
4	22	238	90	111	104	103	1380	176	350	59	19	19
5	22	340	80	e100	100	225	1020	131	252	58	25	17
6	21	559	76	e86	105	273	539	136	178	53	28	15
7	21	351	72	e80	93	149	372	148	133	45	23	15
8	24	335	68	e300	e80	117	281	241	109	41	21	17
9	32	294	61	508	e70	96	230	237	137	40	20	19
10	34	246	e56	242	e64	86	199	408	274	39	19	17
11	e40	315	e50	193	e60	85	181	739	163	36	18	17
12	e40	240	e47	148	e58	87	159	580	121	35	17	16
13	e42	295	e43	e130	e54	79	151	375	349	38	18	190
14	e47	355	e42	e115	e60	83	148	373	692	36	17	34
15	40	233	e56	e105	e100	154	129	315	2000	34	16	107
16	33	172	e45	e96	e240	158	118	300	1210	31	18	62
17	28	143	e40	e92	222	119	106	254	523	29	18	84
18	107	119	e37	e86	177	178	124	193	315	28	16	50
19	210	104	e33	e84	120	219	127	154	230	36	16	37
20	107	158	e43	e80	106	174	108	135	251	45	16	30
21	70	412	e64	e78	386	200	94	154	624	54	17	26
22	90	282	e100	e76	809	224	86	121	576	37	16	26
23	100	196	e170	e74	362	181	77	154	400	33	16	67
24	106	148	256	e72	215	e120	69	289	254	30	17	74
25	131	123	282	e70	165	152	65	242	181	29	15	44
26	103	110	203	e120	139	136	62	665	133	39	14	35
27	78	101	148	e300	112	120	62	697	e500	38	13	29
28	68	124	381	302	101	159	57	322	e340	37	13	26
29	75	142	653	226	---	e800	57	218	188	29	18	24
30	63	127	296	212	---	e780	72	166	112	25	25	23
31	54	---	243	193	---	e980	---	415	---	24	19	---
TOTAL	1867	6421	4059	4731	4513	6507	8334	8874	11851	1286	572	1194
MEAN	60.2	214	131	153	161	210	278	286	395	41.5	18.5	39.8
MAX	210	559	653	508	809	980	1380	739	2000	89	28	190
MIN	19	49	33	70	54	79	57	78	109	24	13	15
CFSM	.58	2.06	1.26	1.47	1.55	2.02	2.67	2.75	3.80	.40	.18	.38
IN.	.67	2.30	1.45	1.69	1.61	2.33	2.98	3.17	4.24	.46	.20	.43

CAL YR 1988 TOTAL 38774 MEAN 106 MAX 839 MIN 10 CFSM 1.02 IN. 13.87
WTR YR 1989 TOTAL 60209 MEAN 165 MAX 2000 MIN 13 CFSM 1.59 IN. 21.54

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.--24 years, 478 ft^3/s, 19.26 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, 4,950 ft^3/s, June 14, gage height, 9.60 ft; minimum daily, 78 ft^3/s, July 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113	144	895	390	444	335	1320	294	1340	902	79	147
2	112	140	874	366	399	301	1050	612	1090	867	82	164
3	108	150	851	328	385	305	2290	567	933	850	126	130
4	107	614	834	e330	354	354	2630	444	1310	841	139	118
5	110	821	820	e300	342	611	1920	304	1020	846	169	112
6	117	982	810	e270	337	630	1750	303	958	831	187	110
7	116	653	754	e250	316	412	1410	336	899	816	146	111
8	112	631	596	e1140	e270	349	1220	549	852	809	136	137
9	111	531	550	974	e250	328	1110	514	958	802	132	123
10	118	527	392	544	e230	314	1060	1070	1120	734	126	122
11	153	840	e300	443	e210	318	1030	1990	906	152	126	121
12	160	675	e340	435	e200	322	976	1500	440	91	123	115
13	161	827	e380	e410	e230	307	363	1120	898	96	123	110
14	182	860	e310	e380	e300	316	337	1160	2370	91	121	241
15	171	668	e230	e350	e600	481	302	1040	3250	86	117	396
16	151	660	e270	e330	884	448	303	1040	1860	82	122	328
17	140	935	e280	e320	554	379	332	856	991	84	120	336
18	392	532	e180	e310	432	507	387	439	710	82	113	220
19	467	499	e190	e290	370	533	382	369	272	78	112	170
20	255	679	e220	e280	354	456	335	341	715	147	117	149
21	171	1100	e270	e280	1210	521	304	381	1290	144	116	136
22	251	888	e330	e270	1480	547	280	312	1420	104	112	165
23	265	1000	e400	e270	747	469	258	475	895	96	114	339
24	309	931	e530	e260	511	426	242	700	734	89	113	294
25	354	911	624	e260	415	212	229	561	744	87	111	211
26	269	888	457	e570	388	176	223	1800	675	111	107	177
27	199	873	375	1130	365	150	221	1720	940	143	106	156
28	188	919	1130	670	342	237	217	1110	906	124	102	142
29	203	926	1120	547	---	844	222	1060	964	97	133	136
30	169	908	600	532	---	962	247	992	936	88	129	130
31	149	---	475	497	---	1200	---	2030	---	83	117	---
TOTAL	5883	21712	16387	13726	12919	13750	22950	25989	32396	10453	3776	5346
MEAN	190	724	529	443	461	444	765	838	1080	337	122	178
MAX	467	1100	1130	1140	1480	1200	2630	2030	3250	902	187	396
MIN	107	140	180	250	200	150	217	294	272	78	79	110

CAL YR 1988 TOTAL 123439 MEAN 337 MAX 1890 MIN 43
WTR YR 1989 TOTAL 185287 MEAN 508 MAX 3250 MIN 78

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.--51 years, 761 ft^3/s, 17.70 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, 3,330 ft^3/s, Apr. 6, gage height, 6.08 ft; minimum daily, 133 ft^3/s, Mar. 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	165	404	1440	1690	1240	774	158	194	873	2290	225	238
2	165	404	1430	1420	1230	848	341	349	1040	2270	223	238
3	168	401	1280	1250	1070	893	592	531	1560	2260	224	238
4	168	399	1180	1000	890	882	609	673	1220	2250	223	238
5	168	402	1170	631	643	877	1380	726	1000	2240	220	238
6	168	407	1010	617	468	889	2750	722	1610	2230	219	238
7	168	744	906	697	468	1090	3300	719	2050	2270	219	239
8	168	1200	842	953	468	1200	3280	719	2160	2290	219	241
9	168	1350	723	1760	415	993	3240	719	1870	2270	212	238
10	168	1350	675	2100	376	785	3180	787	1690	2260	211	238
11	168	1350	620	1790	375	733	3140	849	2000	2240	211	238
12	168	1350	522	1340	368	728	3100	1190	1900	2210	211	238
13	168	1350	405	1010	361	719	2130	1910	1580	2180	211	238
14	168	1350	360	769	363	477	1080	2320	1080	2190	211	194
15	297	1400	360	675	368	615	698	2090	330	2200	211	273
16	584	1530	360	675	646	874	627	1680	606	2150	211	417
17	261	1570	360	681	1100	842	617	1680	1380	2100	214	492
18	174	1560	360	682	1250	556	596	1670	1850	2050	215	542
19	174	1540	360	632	1230	444	594	1660	2090	1850	215	542
20	165	1520	360	600	1220	325	590	1640	1860	1340	215	542
21	174	1520	360	600	1220	248	587	1620	921	677	215	542
22	213	1520	501	600	1630	197	587	1600	667	228	211	463
23	238	1510	594	520	2170	133	587	1240	790	234	212	410
24	338	1510	459	468	2320	135	419	1190	1510	234	211	489
25	407	1510	451	468	2370	137	259	1380	2190	230	211	542
26	404	1490	627	471	1630	137	227	1390	2270	232	211	542
27	404	1490	859	1110	918	137	202	1410	1690	231	211	542
28	404	1480	964	1660	779	141	185	1580	913	230	228	536
29	404	1460	1180	1640	---	148	164	1700	1340	228	239	457
30	404	1450	1590	1400	---	147	150	1880	2050	227	238	404
31	404	---	1720	1240	---	153	---	1410	---	227	238	---
TOTAL	7795	36521	24028	31149	27586	17257	35369	39228	44090	46118	6745	11027
MEAN	251	1217	775	1005	985	557	1179	1265	1470	1488	218	368
MAX	584	1570	1720	2100	2370	1200	3300	2320	2270	2290	239	542
MIN	165	399	360	468	361	133	150	194	330	227	211	194

CAL YR 1988 TOTAL 198090 MEAN 541 MAX 2030 MIN 105
WTR YR 1989 TOTAL 326913 MEAN 896 MAX 3300 MIN 133

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 at "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.--Records good except for estimated daily discharges, which are fair. 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.--61 years (1914-18, 1932-89), 2,491 ft^3/s, 15.14 in/yr, adjusted for storage from 1932-75.

EXTREWES FOR PERIOD OF REfORD.--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, 20,700 ft^3/s, June 15, gage height, 13.73 ft; minimum daily, 390 ft^3/s, Aug. 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	529	739	2230	3070	2830	2080	8850	982	7640	e5200	997	818
2	502	743	2190	2860	2640	1810	6320	1920	6120	e4800	966	851
3	502	750	2120	2400	2610	1850	7360	2230	5140	e4700	e860	e720
4	499	1410	1880	2230	2340	1870	9330	2200	10600	5660	e820	e620
5	497	1660	1810	1740	2090	2370	8990	2080	8610	6410	e840	e520
6	527	2670	1770	1610	1700	3410	7220	2170	6220	5620	e880	e400
7	501	2260	1550	2040	1510	2880	6860	2120	e5200	4810	938	717
8	497	2440	1500	4420	1280	2600	6770	2140	e4700	4170	e840	2620
9	497	2500	1400	5780	1220	2360	6160	2220	e4400	3690	e780	1560
10	493	2420	1240	4890	1070	2000	5390	4630	5200	3550	e700	1000
11	544	2620	1140	3860	1080	1800	5010	8810	4420	3440	e660	e760
12	548	2550	1000	3190	1080	1770	4600	7980	4170	3290	e620	e640
13	541	2540	900	3100	1030	1740	4480	6270	4430	3140	e600	e580
14	508	2820	822	2490	1230	1710	3150	6290	9550	3030	e580	782
15	497	2730	821	2480	2160	1640	2420	6410	18700	3060	e580	1890
16	606	2450	810	2490	3640	2480	1990	6950	17100	3020	e560	2230
17	810	2310	790	2300	3350	2330	1870	7080	8550	2970	e540	3000
18	758	2210	770	2090	2880	2010	1940	6520	5840	2910	e500	2000
19	935	2140	754	1990	2580	1860	1930	5840	5480	2870	e490	1480
20	818	2410	781	1860	2430	1690	1850	5240	8430	2780	e700	1260
21	728	3650	915	1700	4920	2020	1760	4940	13900	2180	903	e1000
22	753	3870	1100	1530	7610	2130	1670	4740	14600	1750	e740	e900
23	831	3070	1470	1480	6180	1800	1590	4840	12600	1130	e640	2910
24	1000	2570	1870	1340	4840	1490	1510	6610	7750	1020	e540	2100
25	1150	2320	2090	1280	4730	1390	1220	6770	6500	979	e480	1520
26	1120	2210	1790	1380	4450	1260	1030	8310	6470	1520	e450	1250
27	945	2140	1670	3130	3400	1130	978	7830	7140	2450	e420	e1080
28	818	2140	2940	4120	2660	1060	937	6120	8490	1970	e390	e980
29	785	2150	5140	3710	---	2740	944	4860	6390	1320	e600	e940
30	766	2190	4280	3490	---	6150	992	4430	5770	1100	999	e820
31	747	---	3500	3060	---	7880	---	5370	---	1060	821	---
TOTAL	21252	68682	53043	83110	79540	71310	115121	154902	240110	95599	21434	37948
MEAN	686	2289	1711	2681	2841	2300	3837	4997	8004	3084	691	1265
MAX	1150	3870	5140	5780	7610	7880	9330	8810	18700	6410	999	3000
MIN	493	739	754	1280	1030	1060	937	982	4170	979	390	400

CAL YR 1988 TOTAL 592854 MEAN 1620 MAX 8800 MIN 493
WTR YR 1989 TOTAL 1042051 MEAN 2855 MAX 18700 MIN 390

e Estimated

BEAVER RIVER BASIN

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.--70 years, 464 ft^3/s, 17.70 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)
Mar. 31	0300	5,460	8.74	June 17	1500	5,760	9.01
May 11	0200	6,050	9.26	June 19	1930	5,040	8.34
June 15	2100	*6,250	*9.43				

Minimum discharge, 23 ft^3/s, Oct. 3, gage height, 1.07 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	49	76	265	275	335	3860	181	620	386	75	57
2	24	48	73	205	244	254	2200	778	508	317	67	46
3	23	47	68	178	e220	244	1940	638	409	269	60	47
4	24	82	64	e150	e200	242	1780	510	840	240	55	42
5	26	217	62	e130	e180	317	2100	464	670	274	61	36
6	26	412	60	e120	e160	563	1650	568	528	256	66	33
7	26	175	58	e150	e150	425	1310	780	400	199	110	33
8	28	128	57	e310	e140	344	1070	760	316	163	80	360
9	26	107	54	522	e130	326	931	706	845	145	58	403
10	25	92	51	313	e120	391	770	3130	1320	129	50	124
11	28	85	e50	279	e115	483	625	5080	730	122	45	94
12	39	78	e48	334	e110	756	532	2900	531	117	42	101
13	41	79	e45	788	e105	676	486	1960	836	124	42	71
14	33	125	e44	431	e110	622	435	1570	3180	140	41	74
15	30	106	e42	641	e350	745	391	1460	4250	103	44	136
16	30	86	e41	578	1380	666	361	1500	4140	86	40	172
17	31	77	e40	447	828	519	328	1190	4800	79	37	289
18	42	72	e40	375	606	490	328	951	2560	74	37	195
19	56	65	e39	281	494	524	331	786	1350	69	37	116
20	58	96	e43	e280	410	456	283	685	1820	74	39	93
21	48	336	e54	e230	1950	1240	252	697	3580	83	61	80
22	51	218	e74	e190	2030	1070	232	557	3120	70	58	86
23	64	154	e70	e150	1240	891	212	541	2270	62	50	751
24	63	123	e240	e130	844	908	194	691	1300	56	56	545
25	58	107	830	e110	730	1000	187	541	922	51	55	283
26	62	96	410	e140	584	835	182	1860	724	51	46	198
27	54	90	265	516	492	715	174	1650	631	332	40	148
28	48	89	281	412	387	760	159	1030	1120	203	37	113
29	45	90	555	341	---	1680	161	774	712	123	37	98
30	48	85	301	327	---	3580	169	650	500	85	53	90
31	49	---	300	314	---	5290	---	584	---	78	69	---
TOTAL	1232	3614	4435	9637	14584	27347	23633	36172	45532	4560	1648	4914
MEAN	39.7	120	143	311	521	882	788	1167	1518	147	53.2	164
MAX	64	412	830	788	2030	5290	3860	5080	4800	386	110	751
MIN	23	47	39	110	105	242	159	181	316	51	37	33
CFSM	.11	.34	.40	.87	1.46	2.48	2.21	3.28	4.26	.41	.15	.46
IN.	.13	.38	.46	1.01	1.52	2.86	2.47	3.78	4.76	.48	.17	.51

CAL YR 1988 TOTAL 95740 MEAN 262 MAX 4320 MIN 23 CFSM .73 IN. 10.00
WTR YR 1989 TOTAL 177308 MEAN 486 MAX 5290 MIN 23 CFSM 1.36 IN. 18.53

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 good. 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.--26 years, 73.6 ft^3/s, 19.52 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, 820 ft^3/s, June 16, gage height, 6.35 ft; minimum daily, 2.1 ft^3/s, Nov. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.1	4.0	4.0	5.1	63	25	432	22	140	153	8.4	5.2
2	9.8	2.9	3.9	4.1	61	20	436	28	130	129	7.7	5.3
3	13	4.0	4.2	3.8	59	17	427	30	121	110	7.1	5.2
4	13	3.4	3.9	3.8	56	16	400	31	124	96	6.9	5.5
5	13	3.4	3.9	3.2	54	16	361	32	118	93	7.5	5.4
6	14	3.5	4.0	4.1	51	19	315	34	104	79	7.5	5.4
7	13	3.0	3.9	3.2	51	18	283	36	93	66	7.6	5.5
8	13	2.3	3.8	6.2	46	15	256	41	82	56	6.9	8.2
9	13	2.1	3.8	7.1	43	13	219	46	123	48	6.6	7.7
10	13	2.5	3.9	7.8	41	12	189	110	230	40	6.0	8.3
11	15	2.9	4.0	7.1	39	11	168	201	243	34	5.1	8.1
12	15	3.2	4.1	11	37	9.5	148	256	231	29	5.0	7.6
13	15	3.9	4.3	16	37	7.9	127	272	300	26	4.9	7.1
14	12	3.8	4.5	66	37	7.5	115	276	548	23	4.8	8.4
15	11	4.0	4.7	148	34	7.7	98	279	718	21	4.8	13
16	11	4.3	4.5	141	32	8.5	86	275	799	18	4.8	18
17	11	5.0	4.5	134	33	8.8	77	258	715	17	4.9	21
18	12	5.4	4.5	128	34	8.8	70	237	576	15	5.0	21
19	12	5.7	4.9	121	33	9.6	63	213	455	14	4.9	19
20	14	6.8	5.3	112	34	2.7	57	192	448	13	5.0	17
21	14	5.2	2.7	109	31	2.3	49	176	525	12	5.0	17
22	14	4.9	2.2	93	40	4.1	42	159	528	11	5.0	21
23	14	4.8	4.1	79	37	6.2	36	156	539	10	5.1	38
24	13	4.9	4.9	73	37	9.6	31	142	464	9.5	5.0	43
25	14	4.1	4.7	69	36	12	28	136	379	8.6	5.1	42
26	14	4.2	4.1	69	34	15	26	169	305	9.9	5.0	35
27	14	4.3	4.9	73	32	16	23	179	267	11	5.0	32
28	14	3.6	7.5	74	28	18	22	177	253	11	5.0	28
29	12	4.1	7.8	72	---	35	21	165	215	11	5.1	24
30	13	4.3	6.2	69	---	131	19	150	182	10	5.1	22
31	13	---	5.5	63	---	333	---	143	---	9.7	5.1	---
TOTAL	400.9	120.5	139.2	1775.5	1150	835.2	4624	4621	9955	1193.7	176.9	503.9
MEAN	12.9	4.02	4.49	57.3	41.1	26.9	154	149	332	38.5	5.71	16.8
MAX	15	6.8	7.8	148	63	333	436	279	799	153	8.4	43
MIN	9.1	2.1	2.2	3.2	28	2.3	19	22	82	8.6	4.8	5.2

CAL YR 1988 TOTAL 11589.6 MEAN 31.7 MAX 245 MIN 2.1
WTR YR 1989 TOTAL 25495.8 MEAN 69.9 MAX 799 MIN 2.1

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.--78 years, 570 ft^3/s, 19.45 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)
Mar. 31	2000	5,420	6.24	June 15	1900	5,790	6.44
June 13	2200	3,700	5.22	June 21	2000	*7,460	*7.30

Minimum discharge, 58 ft^3/s, Oct. 4, 5, 6, 7, gage height, 0.45 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	81	173	452	426	401	4540	277	1870	664	153	96
2	63	79	160	363	384	343	2990	675	1380	564	144	106
3	61	77	150	e280	377	324	2480	726	1120	495	135	104
4	59	181	142	e175	363	351	2700	651	1860	457	130	91
5	59	440	136	e180	323	514	2470	502	1850	824	129	81
6	58	702	130	e190	305	750	1920	573	1060	751	165	77
7	59	484	127	e250	274	543	1500	614	762	493	192	75
8	63	312	e120	e340	e250	449	1240	638	608	408	148	600
9	68	259	e115	e1020	e230	398	1090	679	801	370	128	285
10	66	232	e110	589	e210	377	964	2110	2650	336	116	175
11	69	294	e105	475	e190	368	837	3230	1840	356	108	132
12	78	264	e100	458	e170	379	736	2860	1180	335	104	114
13	86	243	e96	818	e150	365	672	2140	1820	307	103	102
14	82	363	e92	594	e250	342	637	2030	2530	281	98	97
15	75	276	e88	778	e450	433	570	1990	4130	264	94	154
16	73	216	e86	825	e770	543	520	1760	4070	247	92	240
17	69	192	e80	630	745	447	474	1400	2820	238	90	364
18	72	172	e78	520	499	466	488	1210	2090	227	85	280
19	104	153	e74	e400	420	668	493	1110	1590	217	82	199
20	132	223	e76	e340	375	537	430	889	2810	216	85	156
21	104	751	e90	e280	1200	744	383	887	6230	217	103	132
22	104	590	e110	e240	2090	814	351	829	5060	203	105	152
23	119	376	e105	e200	1390	643	320	783	3070	196	104	877
24	127	272	e470	e190	807	636	292	1090	1990	183	95	650
25	123	224	943	e170	597	768	276	1000	1410	171	85	359
26	120	199	669	e260	547	674	271	1770	1150	188	82	259
27	104	190	441	e870	490	590	265	1800	1110	181	78	214
28	90	188	646	710	427	566	254	1310	1440	260	76	192
29	86	194	1240	542	---	1050	253	993	1160	227	113	190
30	86	188	717	496	---	3150	269	742	801	179	108	179
31	85	---	525	477	---	4840	---	953	---	165	108	---
TOTAL	2608	8415	8194	14112	14709	23473	30685	38221	62262	10220	3438	6732
MEAN	84.1	280	264	455	525	757	1023	1233	2075	330	111	224
MAX	132	751	1240	1020	2090	4840	4540	3230	6230	824	192	877
MIN	58	77	74	170	150	324	253	277	608	165	76	75
MEAN‡	79.2	310	285	447	534	819	1092	1262	2078	288	101	242
CFSM‡	.20	.78	.72	1.12	1.34	2.06	2.74	3.17	5.22	.72	.25	.61
IN.‡	.23	.87	.83	1.29	1.40	2.37	3.06	3.65	5.82	.83	.29	.68

CAL YR 1988 TOTAL 121729 MEAN 333 MAX 2550 MIN 44 MEAN‡ 338 CFSM‡ .85 IN.‡ 11.38
WTR YR 1989 TOTAL 223069 MEAN 611 MAX 6230 MIN 58 MEAN‡ 614 CFSM‡ 1.54 IN.‡ 21.32

‡ 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 REC@RD.--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.--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.--33 years, (1956-89), 3,733 ft^3/s, 16.32 in/yr, adjusted for storage 1957-75.

EXTREMES FOR PERIOD OF REOORD.--Maximum discharge, 69,900 ft^3/s, Jan. 22, 1959, gage height, 14.42 ft; minimum not determined.

EXTREMES OUTSIDE PERIOD OF REfORD.--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, 28,200 ft^3/s, June 15, gage height, 9.74 ft; minimum daily, 363 ft^3/s, Sept. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	628	885	2620	4190	3960	2850	17200	1650	9650	6950	1310	698
2	597	886	2560	3950	3650	2490	12000	3040	7760	6650	1240	735
3	594	891	2480	3270	3550	2440	11500	3490	6260	6300	1180	649
4	590	1700	2180	2910	3290	2460	13600	3290	11800	6870	1100	567
5	591	2400	2080	2250	2890	2960	13600	2990	11100	7840	1130	487
6	620	4040	2000	2160	2440	4470	11100	3180	7640	7190	1160	425
7	595	3350	1800	2660	2110	3830	9700	3360	6500	6130	1240	363
8	597	3170	1680	5170	1730	3340	9000	3370	6090	5400	1080	2650
9	600	3140	1550	7460	1600	3070	8050	3480	6010	4840	1000	2660
10	592	2980	1320	6070	1470	2810	6940	8200	8880	4630	935	1250
11	650	3270	1140	4930	1460	2700	6290	17100	6660	4500	873	882
12	678	3180	938	4360	1470	2950	5710	14300	5440	4360	826	752
13	682	3080	779	4870	1370	2890	5480	10900	6070	4170	810	645
14	634	3640	720	4140	1620	2750	4250	10100	13500	4050	799	555
15	612	3540	697	4190	3010	2800	3420	10000	23500	4030	754	1750
16	719	3020	679	4380	6280	3570	2970	10400	24200	3930	748	2430
17	920	2770	663	3920	5410	3270	2780	9800	16000	3860	716	3770
18	886	2630	589	3480	4450	2900	2800	8830	11300	3760	677	2610
19	1110	2490	532	3200	3980	3010	2830	7740	8670	3680	649	1820
20	1030	2900	578	2950	3640	2680	2680	6810	11600	3600	641	1410
21	896	4790	817	2720	7390	3890	2510	6350	21300	2900	899	1210
22	925	4970	1240	2290	11700	4080	2380	6040	21600	2500	792	1220
23	1040	4090	1700	2190	9000	3400	2270	5870	17600	1680	725	4010
24	1210	3340	2670	2110	6420	3030	2180	8100	11500	1490	715	3530
25	1350	2910	4140	2020	5730	3270	1920	7990	8990	1350	654	2230
26	1320	2700	3300	2060	5510	2880	1750	11000	8300	1690	582	1650
27	1120	2570	2630	4650	4450	2570	1690	11600	8640	3340	520	1430
28	972	2530	3620	5480	3550	2460	1680	8580	11100	2770	497	1350
29	931	2600	6880	4920	---	5120	1660	6600	8110	2010	548	1270
30	916	2620	5580	4630	---	12200	1720	5590	6970	1560	1030	1100
31	897	---	4620	4260	---	17500	---	6140	---	1440	775	---
TOTAL	25502	87082	64782	117840	113130	120640	171660	225890	332740	125470	26605	46108
MEAN	823	2903	2090	3801	4040	3892	5722	7287	11090	4047	858	1537
MAX	1350	4970	6880	7460	11700	17500	17200	17100	24200	7840	1310	4010
MIN	590	885	532	2020	1370	2440	1660	1650	5440	1350	497	363

CAL YR 1988 TOTAL 855435 MEAN 2337 MAX 15500 MIN 532
WTR YR 1989 TOTAL 1457449 MEAN 3993 MAX 24200 MIN 363

BEAVER RIVER BASIN

03107500 BEAVER RIVER AT BEAVER FALLS, PA--Continued

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 teh period between 1982 and 1989. Sulfate values in this report have not been corrected for this bias.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
DEC 07...	0900	2000	330	7.66	6.0	3.2	740	10.6	450	250	140
MAR 23...	0930	3500	470	7.90	6.0	4.3	753	12.0	240	99	140
MAY 24...	0830	8100	340	7.80	16.5	17	737	7.0	K6000	K2000	140
SEP 06...	0800	440	510	8.10	23.0	3.0	748	6.1	130	740	180

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
DEC 07...	--	40	10	21	3.6	79	65	68	32	0.20	3.5
MAR 23...	--	41	9.9	30	2.9	63	52	72	48	0.20	5.6
MAY 24...	--	40	10	21	3.1	80	90	65	26	0.20	4.3
SEP 06...	--	52	12	29	5.5	110	90	90	39	0.40	3.6

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)
DEC 07...	233	1.30	.180	.80	.170	.080	.090	20	1	25
MAR 23...	260	1.70	.150	.50	.100	.050	.040	40	1	57
MAY 24...	214	1.20	.100	.40	.200	.090	.080	40	1	53
SEP 06...	288	1.70	<.100	1.1	.270	.190	.171	60	1	46

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)
DEC 07...	<0.5	1	1	<3	2	11	<5	<4	71	<0.1
MAR 23...	<0.5	<1	<1	<3	2	22	<5	<4	150	<0.1
MAY 24...	<0.5	<1	<1	<3	2	27	1	5	43	0.4
SEP 06...	<0.5	<1	1	<3	7	6	<1	9	5	<0.1

DATE	MOLYB-DENUM, DIS-SOLVED (µG/L AS MO)	NICKEL, DIS-SOLVED (µG/L AS NI)	SELE-NIUM, DIS-SOLVED (µG/L AS SE)	SILVER, DIS-SOLVED (µG/L AS AG)	STRON-TIUM, DIS-SOLVED (µG/L AS SR)	VANA-DIUM, DIS-SOLVED (µG/L AS V)	ZINC, DIS-SOLVED (µG/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
DEC 07...	<10	1	<1	<1.0	130	<6	26	5	27	100
MAR 23...	10	4	<1	<1.0	140	<6	17	12	113	82
MAY 24...	<10	2	<1	<1.0	140	<6	12	77	1680	91
SEP 06...	20	6	<1	<1.0	170	<6	12	17	20	63

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, 205,420 acre-ft, June 27, elevation, 1,009.18 ft; minimum, 161,920 acre-ft, Dec. 14, elevation, 1005.78 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, 44,060 acre-ft, June 26, 1972, elevation, 1,191.96 ft; minimum (after first filling), 21,320 acre-ft, Nov. 30, 1975, elevation, 1,183.88 ft.

EXTREMES FOR CURRENT YEAR: Maximum contents, 44,240 acre-ft, June 16, elevation, 1,192.01 ft; minimum, 33,470 acre-ft, Oct. 10, elevation, 1,189.29 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	03100500 Pymatuning Reservoir Elevation (feet)	Content (acre-feet)	Change in contents (equivalent in cfs)	03106280 Lake Arthur Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in cfs)
Sept. 30	1,006.39	161,100	-	1 189.43	35,900	-
Oct. 31	1,006.56	165,230	+ 38.2	1,189.35	35,600	- 4.88
Nov. 30	1,006.56	167,440	- 2.35	1,189.95	37,400	- 30.2
Dec. 31	1,006.43	165,780	- 27.0	1.190.33	38,700	- 21.1
CAL YR 1988	-	-	- 6.45	-	-	- 4.68
Jan. 31	1,006.71	169,680	- 63.4	1,190.19	38,200	+ 8.13
Feb. 28	1,006.88	172,050	+ 42.7	1,190.33	38,700	+ 9.00
Mar. 31	1,007.52	181,130	+148	1,191.50	42,500	+ 61.8
Apr. 30	1,007.69	183,570	+ 41	1,190.25	38,400	+ 68.9
May 31	1,008.64	197,400	+225	1,190.80	40,200	+ 29.3
June 30	1,008.80	199,770	+ 39.8	1,190.89	40,400	+ 3.36
July 31	1,007.83	185,580	-231	1,190.07	37,800	- 4.23
Aug. 31	1,007.28	177,710	-128	1,189.85	37,200	- 9.76
Sept 30	1,007.09	175,010	- 4.54	1,190.23	38,300	+ 18.5
WTR YR 1989	-	-	+ 13.5	-	-	+ 3.32

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 exAcept 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. Publisbed records do not include diversion. Records of diversion furnished by Western Pennsylvania Water Company and Amhridge Water Authority. Several measurements of water temperature were made during the year. Satellite telemeter at station.

AVERAGE DISCHARGE.--47 years, 191 ft^3/s, 14.57 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)
Mar. 31	1900	4,370	9.97	June 16	0100	3,930	9.70

Minimum discharge, 20 ft^3/s, Oct. 2, 5, 6, 7, 8, gage height, 1.47 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	21	33	93	87	164	1590	119	220	253	84	22
2	11	20	31	70	78	129	938	356	188	203	57	23
3	10	22	30	61	87	132	773	366	164	176	45	23
4	9.5	35	27	e54	82	137	675	307	321	164	40	20
5	8.9	65	26	e52	e72	178	793	282	209	189	36	18
6	9.5	133	25	e60	e66	377	648	302	186	153	38	17
7	10	81	25	e90	e60	300	530	286	149	129	55	18
8	10	59	26	e140	e58	241	438	267	129	114	47	21
9	11	47	e23	143	e56	228	402	237	148	111	36	24
10	11	39	e21	93	e54	270	323	1330	268	109	34	21
11	14	40	e20	96	e50	395	278	2240	183	96	31	86
12	18	36	e19	110	e49	643	252	1490	155	88	29	45
13	19	38	e18	194	e47	534	236	1010	719	127	28	31
14	15	59	e18	137	e60	503	215	771	776	116	28	39
15	13	48	e22	186	e170	593	200	772	1710	81	26	96
16	13	39	e28	168	984	465	190	879	1760	70	24	92
17	14	38	e24	136	450	359	173	733	1480	66	24	98
18	17	34	e20	115	285	332	170	557	728	61	22	61
19	24	27	e21	e90	227	291	179	443	458	58	22	45
20	28	58	e23	e76	192	269	157	383	554	66	148	37
21	20	169	e27	e68	1200	822	143	347	1710	60	74	34
22	26	95	e33	e60	1050	663	137	278	2070	51	48	44
23	62	66	e30	e56	511	479	125	340	916	44	37	257
24	63	51	e90	e52	326	455	119	371	564	41	35	185
25	65	44	296	e50	246	437	115	290	380	37	31	93
26	42	40	123	e52	243	361	121	1440	287	35	26	73
27	29	38	85	151	216	311	114	984	265	41	24	58
28	24	40	97	123	172	299	107	554	1370	84	22	48
29	24	41	161	108	---	653	112	403	547	53	22	44
30	23	33	100	105	---	1340	120	330	335	42	21	40
31	21	---	114	95	---	1900	---	269	---	106	23	---
TOTAL	675.9	1556	1636	3084	7178	14260	10373	18736	18949	3024	1217	1713
MEAN	21.8	51.9	52.8	99.5	256	460	346	604	632	97.5	39.3	57.1
MAX	65	169	296	194	1200	1900	1590	2240	2070	253	148	257
MIN	8.9	20	18	50	47	129	107	119	129	35	21	17
CFSM	.12	.29	.30	.56	1.44	2.58	1.94	3.40	3.55	.55	.22	.32
IN.	.14	.33	.34	.64	1.50	2.98	2.17	3.92	3.96	.63	.25	.36

CAL YR 1988 TOTAL 35512.1 MEAN 97.0 MAX 1670 MIN 7.6 CFSM .55 IN. 7.42
WTR YR 1989 TOTAL 82401.9 MEAN 226 MAX 2240 MIN 8.9 CFSM 1.27 IN. 17.22

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.

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: Oct. 1 to July 12, July 27, 28, Aug. 1-21, Aug. 31 to Sept. 15. Records poor. Water-quality data collected at this site 1965 to 1977. Sediment data collected 1970 to 1974.

AVERAGE DISCHARGE.--52 years, 270 ft^3/s, 20.96 in/yr.

EXTREMES FOR CURRENT YEAR.--Peak discharge 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)
May 27	--	*1,300 a/	--	No other discharge greater than base discharge.			

Minimum daily discharge, 8.8 ft^3/s, Oct. 1.

a/ Maximum daily discharge.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.8	80	190	580	450	140	840	96	1000	130	19	18
2	9.2	74	160	460	350	130	800	150	500	100	18	17
3	11	70	160	380	270	120	1050	230	330	82	17	16
4	12	70	150	300	220	200	1200	185	290	65	16	15
5	11	200	140	200	180	310	700	170	220	54	17	15
6	11	500	130	180	150	300	500	190	170	48	19	14
7	12	620	120	500	140	270	390	250	130	45	18	14
8	14	580	110	660	130	240	330	325	110	42	17	13
9	16	580	110	760	120	200	280	450	100	40	16	13
10	25	660	130	600	110	170	245	850	350	38	15	13
11	29	650	140	500	100	140	225	1200	220	37	14	13
12	26	640	130	410	96	120	200	1200	170	35	13	12
13	29	620	130	350	210	100	185	1200	300	29	12	12
14	23	680	120	280	400	90	170	900	500	31	12	16
15	26	560	110	240	540	120	160	600	900	25	11	20
16	34	470	110	210	600	200	150	500	1000	24	10	27
17	60	410	110	180	520	350	150	370	920	22	10	46
18	140	340	110	170	460	480	170	300	820	20	11	68
19	320	260	110	160	380	430	190	250	750	20	13	42
20	150	370	110	170	580	380	140	230	840	50	17	26
21	130	480	110	170	660	340	130	250	980	38	20	20
22	130	550	110	170	740	310	120	225	750	40	24	27
23	150	500	110	150	640	290	115	195	580	37	47	92
24	140	440	120	220	580	270	110	210	400	27	22	126
25	130	370	180	360	440	250	100	400	200	22	32	128
26	130	310	360	580	330	240	98	900	130	20	25	85
27	120	260	620	680	240	220	95	1300	115	18	20	59
28	110	200	820	860	180	210	92	700	105	17	20	41
29	100	180	900	780	---	350	88	450	96	20	30	30
30	94	210	760	660	---	550	86	300	110	25	20	21
31	84	---	700	520	---	900	---	250	---	20	19	---
TOTAL	2285.0	11934	7390	12440	9816	8420	9109	14826	13086	1221	574	1060
MEAN	73.7	398	238	401	351	272	304	478	436	39.4	18.5	35.3
MAX	320	680	900	860	740	900	1200	1300	1000	130	47	128
MIN	8.8	70	110	150	96	90	86	96	96	17	10	12
CFSM	.42	2.27	1.36	2.29	2.00	1.55	1.74	2.73	2.49	.23	.11	.20
IN.	.49	2.54	1.57	2.64	2.09	1.79	1.94	3.15	2.78	.26	.12	.23

CAL YR 1988 TOTAL 68890.3 MEAN 188 MAX 1860 MIN 5.2 CFSM 1.08 IN. 14.64
WTR YR 1989 TOTAL 92161.0 MEAN 252 MAX 1300 MIN 8.8 CFSM 1.44 IN. 19.59

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 observations of water temperature were made during the year.

AVERAGE DISCHARGE.--20 years, 3.51 ft^3/s, 18.84 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 408 ft^3/s, Dec. 28, 1968, gage height, 6.06 ft, from ratine curve extended above 76 ft^3/s on basis of computation of flow through culvert at gage heieht 5.39 ft; no flow on nany 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)
Mar. 31	1900	4,370	9.97	June 16	0100	3,930	9.70

Minimum discharge, 20 ft^3/s, Oct. 2, 5, 6, 7, 8, gage height, 1.47 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.08	1.8	e1.5	1.7	1.7	9.6	2.2	5.0	.84	e.43	e.58
2	.03	.89	1.9	e1.2	1.6	1.6	16	3.8	4.9	.68	e.40	e.80
3	.03	1.2	2.9	e1.1	1.6	1.5	32	3.1	11	.62	e.38	e.66
4	.03	2.8	4.6	e1.0	1.5	2.3	24	2.5	19	.59	e1.1	e.54
5	e.09	3.8	2.9	e.90	e1.3	5.3	8.3	2.3	4.7	.56	e.76	e.48
6	e.06	4.3	e2.5	e.84	e1.2	3.2	5.3	2.3	3.3	.48	e.52	e.42
7	e.04	2.7	e2.0	e1.0	e1.1	2.3	4.0	4.2	2.4	.60	e.86	e.40
8	e.06	2.2	e1.8	e10	e1.0	1.9	3.3	14	1.9	.87	e.70	e.36
9	e.11	1.9	e1.7	4.5	e.90	1.6	2.9	5.9	1.8	.64	e.56	e.34
10	.17	3.6	e1.5	2.9	e.84	1.5	2.8	17	1.8	e.52	e.50	e.32
11	.13	2.8	e1.4	2.1	e.76	1.5	2.8	21	1.6	e.47	e.52	e.31
12	.25	1.8	e1.4	3.4	e.70	1.5	2.5	13	1.6	e.43	e.58	e.30
13	.28	4.0	e1.3	3.0	e.66	1.8	2.7	6.2	2.0	e.40	e.68	e.28
14	.13	2.6	e1.2	2.1	e6.0	2.2	2.5	4.6	1.9	e.38	e.90	e.27
15	e.11	1.7	e1.1	e1.6	7.4	2.9	2.6	3.8	2.7	e.36	e1.1	.50
16	e.09	1.5	e1.1	e1.3	4.3	2.7	2.5	3.7	3.3	e.34	e.78	1.5
17	e.08	1.6	e1.0	e1.2	2.4	2.5	2.6	3.1	2.8	e.32	e.56	1.2
18	e.60	1.4	e.98	e1.1	1.7	14	3.4	2.7	2.4	e.43	e.46	.78
19	1.7	1.3	e.94	e1.1	1.5	5.5	2.9	2.4	1.7	.64	e.38	.49
20	.83	4.8	e2.0	e1.0	1.5	3.8	2.7	2.6	47	.77	e.31	.42
21	.26	8.5	e5.0	e.98	9.0	4.1	2.5	3.0	12	.90	e.50	.42
22	.31	4.0	2.8	e.96	7.0	3.6	2.4	2.4	16	1.2	.90	1.2
23	.21	2.6	4.2	e.92	3.3	3.1	2.2	13	8.5	.87	.79	2.7
24	.15	2.1	3.3	e.90	2.4	3.0	2.1	9.1	3.6	.64	.51	1.6
25	.10	1.8	3.6	e1.0	2.5	2.9	2.0	5.1	2.4	e.50	.42	1.1
26	.36	1.7	2.3	e15	1.9	2.8	2.0	40	1.8	e.40	e.37	.79
27	.78	1.7	2.1	9.0	1.9	2.6	2.0	7.1	1.5	e.60	e.32	.53
28	.88	2.6	14	3.4	1.8	13	1.9	3.7	1.5	.75	.42	.42
29	.36	2.2	5.4	2.5	---	11	1.9	2.6	1.2	.64	1.3	.40
30	.19	1.9	3.0	2.3	---	24	2.0	2.2	.96	e.52	.47	.40
31	.12	---	2.2	1.9	---	11	---	7.6	---	e.46	.42	---
TOTAL	8.57	76.07	83.92	81.70	69.46	142.4	156.4	216.2	172.26	18.42	18.90	20.51
MEAN	.28	2.54	2.71	2.64	2.48	4.59	5.21	6.97	5.74	.59	.61	.68
MAX	1.7	8.5	14	15	9.0	24	32	40	47	1.2	1.3	2.7
MIN	.03	.08	.94	.84	.66	1.5	1.9	2.2	.96	.32	.31	.27
CFSM	.11	1.00	1.07	1.04	.98	1.82	2.06	2.76	2.27	.23	.24	.27
IN.	.13	1.12	1.23	1.20	1.02	2.09	2.30	3.18	2.53	.27	.28	.30

CAL YR 1988 TOTAL 712.11 MEAN 1.95 MAX 21 MIN .02 CFSM .77 IN. 10.47
WTR YR 1989 TOTAL 1064.81 MEAN 2.92 MAX 47 MIN .03 CFSM 1.15 IN. 15.66

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 south, 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, gage height, 2.77 ft; minimum daily discharge 0.19 ft^3/s, Jvly 11, 1986.

EXTREMES FWR 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)
Mar. 31	1900	4,370	9.97	June 16	0100	3,930	9.70

Minimum discharge, 20 ft^3/s, Oct. 2, 5, 6, 7, 8, gage height, 1.47 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	1.9	4.4	4.0	4.5	13	23	4.2	5.8	3.2	e1.0	e1.4
2	1.1	2.4	4.4	4.0	3.5	29	74	9.0	5.1	2.7	e.94	e1.4
3	1.1	2.7	5.9	3.5	3.3	12	216	6.4	7.9	3.6	e.98	e1.4
4	e1.2	11	13	e2.5	e2.9	20	133	5.1	23	10	2.6	e1.1
5	e2.5	12	8.8	e2.3	e2.6	33	27	4.6	7.4	5.8	e1.7	e.94
6	e4.6	11	6.5	e2.1	e2.3	e20	12	4.8	6.2	3.0	e1.1	e.84
7	e3.2	7.2	e4.5	e2.0	e2.1	e14	9.8	8.5	5.5	e2.4	2.3	e.78
8	2.1	6.7	e3.7	e3.0	e2.0	e10	7.2	29	2.5	e2.0	e1.7	e.72
9	2.6	6.0	e3.4	e8.6	e1.9	e8.0	6.6	14	3.4	e1.7	e1.3	e.68
10	6.3	11	e3.2	35	e1.8	e7.0	5.8	36	4.5	e1.4	e1.1	e.62
11	10	14	e3.0	7.3	e1.7	e6.0	5.6	39	2.3	e1.4	e1.2	e.60
12	7.7	7.2	e2.9	9.8	e1.6	e5.8	5.5	29	2.3	e1.4	e1.4	e.58
13	8.3	14	e2.8	8.2	e4.5	e6.0	5.5	15	3.7	e1.3	e1.5	e.58
14	4.0	9.6	e2.8	e5.0	e13	9.7	5.5	7.4	3.5	e1.2	2.1	e1.0
15	3.1	5.2	e2.7	e4.3	27	14	4.7	5.9	4.6	e1.2	3.2	2.1
16	2.7	5.1	e2.7	e4.0	20	9.7	5.1	6.1	7.6	e1.2	2.7	7.4
17	2.2	5.1	e2.6	e3.7	e12	9.1	4.0	5.5	5.8	e1.1	1.7	3.6
18	70	3.6	e2.6	e3.4	e8.0	35	7.7	4.7	5.0	e1.1	e1.2	1.9
19	17	3.2	e2.5	e3.2	e6.0	23	6.0	4.7	2.4	e1.8	e.84	1.4
20	10	10	e4.5	e3.0	e3.7	11	4.8	4.0	31	5.1	e.82	e1.0
21	4.6	18	e9.0	e2.8	e8.0	9.5	4.4	4.0	22	2.7	1.6	1.4
22	8.3	7.4	5.2	e2.6	e12	8.8	4.0	3.3	16	e2.0	2.6	2.5
23	5.4	6.9	6.5	e2.5	e9.0	e8.8	3.4	12	13	e1.6	2.2	15
24	3.2	6.0	6.2	e2.3	e42	e8.0	3.5	16	5.1	e1.4	1.6	13
25	2.7	3.7	7.9	e2.1	55	e6.4	4.0	13	3.7	e1.2	1.2	2.7
26	5.6	3.0	5.8	e30	29	6.0	e2.6	119	2.7	e1.0	.92	2.2
27	10	3.6	4.8	17	14	6.0	e2.3	17	7.5	e1.7	.70	1.9
28	10	9.1	15	6.8	13	21	e3.0	5.0	4.6	e1.5	.92	1.7
29	4.4	5.0	11	5.8	---	17	e3.0	4.4	3.5	e1.2	3.4	1.6
30	2.6	4.4	8.4	5.5	---	131	4.1	2.7	3.3	e1.1	e1.6	1.6
31	2.1	---	3.9	5.2	---	28	---	6.8	---	e1.0	e1.1	---
TOTAL	219.7	216.0	170.6	201.5	306.4	545.8	603.1	446.1	220.9	69.0	49.22	73.64
MEAN	7.09	7.20	5.50	6.50	10.9	17.6	20.1	14.4	7.36	2.23	1.59	2.45
MAX	70	18	15	35	55	131	216	119	31	10	3.4	15
MIN	1.1	1.9	2.5	2.0	1.6	5.8	2.3	2.7	2.3	1.0	.70	.58
CFSM	1.61	1.64	1.25	1.48	2.49	4.00	4.57	3.27	1.67	.51	.36	.56
IN.	1.86	1.83	1.44	1.70	2.59	4.61	5.10	3.77	1.87	.58	.42	.62

CAL YR 1988 TOTAL 2350.95 MEAN 6.42 MAX 118 MIN .34 CFSM 1.46 IN. 19.88
WTR YR 1989 TOTAL 3121.96 MEAN 8.55 MAX 216 MIN .58 CFSM 1.94 IN. 26.39

e Estimated

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

As the number of streams on which streamflow information is likely to te desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gagine 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 usuable 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 1989

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Measurement Date	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	10-26-88 6-22-89 8-09-89	72.8 1200 37.0
		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	1972-89	9-09-89	27.9
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 1970-89	8-17-89	17.9
		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	1970-89	8-30-89	.019
		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 1970-89	8-30-89	17.5
		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	6-23-89 9-06-89 9-28-89	216 5.14 22.2
		Monongahela River basin				
03083100	Jacobs Creek at Jacobs Creek, Pa.	Lat 40°07'23", long 79°44'14", Westmoreland County, 0.3 mile ahove highway bridge at Jacobs Creek, and 0.4 mile above mouth.	94.9	1950 1965-67 1970-89	9-06-89	19.8
		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	10-12-89 7-24-89 9-28-89	34.7 52.8 46.5
		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	11-02-88 6-21-89 8-31-89 9-28-89	5.36 452 8.23 17.0

Discharge measurements made at low-flow partial-record stations during water year 1989

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Measurement Date	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	10-14-88 9-27-89	269 594
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	10-14-88 7-25-89 9-27-89	170 291 641
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 Thorn Creek.	137	1989	10-29-88 7-24-89 9-27-89	18.2 23.9 62.6
		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	10-19-88 8-16-89	552 14.5
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	8-17-89	1.38

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	1964-89	--	<5.51	<700
		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	1963-89	2-16-89	9.25	660
		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	1964-89	10-18-89	14.69	2550

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 1989

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	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	9-05-89	60.4
		Allegheny River basin				
Browns Run	Allegheny River	Lat 41°49'21", lone 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	8-21-89 9-06-89	6.88 .210
		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	8-22-89	3.05
		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	8-21-89	3.63
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	11-22-88 1-13-89 2-24-89 4-06-89 6-08-89 7-25-89 9-13-89	565 414 590 1710 413 94 30.5
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	8-17-89	5.40
		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	8-17-89	9.31
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	8-16-89	.367
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	8-30-89	53.2
		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	9-05-89	7.80
		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† 1954-88	11-14-88 2-24-89 4-03-89 6-01-89 7-18-89 8-30-89	444 836 1620 671 194 211

† Operated as a continuous record station.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 1989--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 qnd 0.3 mi above Licking Creek.	1,163	1970-72† 1979-89	11-23-88 1-19-89 3-01-89 4-07-89 6-09-89 6-22-89 7-24-89 7-26-89 9-12-89	3,960 4,400 4,120 6,290 4,530 14,100 186 161 83
		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	8-18-89	2.69
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	8-18-89	1.84
		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	8-17-89	1.57
		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	8-28-89	.630
		Monongabela 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	9-06-89	3.87
		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	9-06-89	.336
		Monongahela River basin				
Peters Creek	Monongahela River	Lat 40°17'31", long 79°54'56", Allegbeny County, at bridge on State Highway 51 at Large and 3 mi above mouth.	42.6	1966-67 1970-79 1981, 1988	8-23-89	14.5
		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	8-25-89	17.9
		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	8-28-89	3.99

† Operated as a continuous record station.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 1989--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	8-24-89	5.90
		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 wingall 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	8-24-89	.670
		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	10-20-88 7-24-89	18.2 23.9
		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	8-25-89	13.6
		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	8-16-89	45.8
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	8-17-89	2.03

† 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 1988 TO SEPTEMBER 1989

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	ACIDITY (MG/L AS H)	ACIDITY TOTAL HEATED (MG/L AS CAC03)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG)	MAGNESIUM, DISSOLVED (MG/L AS MG)
03070415 STONY FORK NEAR FARMINGTON, PA (SITE 4) (LAT 39 46 51N LONG 079 34 31W)											
DEC 1988											
15...	1555	1.5	180	4.94	0.5	--	20	--	12	--	5.6
MAR 1989											
14...	0930	8.5	92	4.75	4.5	--	26	--	12	--	3.7
JUN											
27...	1345	2.1	112	4.85	19.0	--	12	--	9.5	--	3.9
SEP											
21...	1200	2.0	137	4.43	18.0	--	14	10	10	4.3	4.3
03070418 STONY FORK TRIB ABOVE SURFACE MINE NEAR GIBBON GLADE, PA(SITE 7) (LAT 39 45 32N LONG 079 35 28W)											
OCT 1988											
27...	1400	0.27	106	6.60	8.5	--	0.0	--	9.1	--	2.4
NOV											
23...	1230	0.70	80	6.30	7.5	--	0.0	--	6.7	--	2.0
DEC											
15...	1415	0.09	150	6.87	1.5	--	0.0	--	9.7	--	2.9
JAN 1989											
18...	1115	0.61	74	6.50	4.0	--	0.0	--	5.9	--	1.8
FEB											
28...	1450	0.27	120	6.67	2.5	--	4.0	--	6.8	--	2.0
MAR											
14...	0850	0.64	83	6.12	5.0	--	22	--	6.3	--	1.9
JUN											
27...	1235	0.20	91	7.20	17.5	--	12	--	7.7	--	2.6
JUL											
24...	1255	0.21	100	7.07	21.0	--	0.0	--	8.9	--	2.1
AUG											
31...	1105	0.01	181	7.27	17.0	--	0.0	--	20	--	3.6
SEP											
21...	1220	0.02	146	6.71	18.5	--	0.0	15	15	3.3	3.2
03070430 STONY FORK AT BETHEL CHAPEL, PA (SITE 3) (LAT 39 46 54N LONG 079 35 00W)											
DEC 1988											
15...	1510	2.0	160	6.31	1.0	--	2.0	--	8.4	--	5.1
MAR 1989											
14...	1040	12	122	5.77	5.0	--	34	--	6.8	--	2.9
JUN											
27...	1030	4.6	135	7.45	16.5	--	0.0	--	17	--	4.6
SEP											
21...	1130	2.8	176	6.10	17.0	--	0.0	17	17	5.2	5.2
03070435 STONY FORK TRIB #4(N OF DELTA SITE) NEAR BETHEL CHAPEL,PA(SITE 2)(LAT 39 46 48N LONG 079 35 38W)											
DEC 1988											
15...	1415	0.03	90	6.78	2.0	--	0.0	--	9.9	--	2.3
MAR 1989											
14...	1130	1.3	70	6.46	7.0	--	24	--	7.8	--	1.7
JUN											
27...	1105	0.61	79	7.21	25.0	--	0.0	--	11	--	2.1
SEP											
21...	1055	0.11	106	6.90	20.5	--	0.0	12	12	2.6	2.6
03070440 HAGER MINE DISCHARGE BAUER ESTATE NEAR BETHEL CHAPEL,PA(SITE 6)(LAT 39 46 38N LONG 079 35 25W)											
MAR 1989											
14...	1000	--	2000	2.77	11.0	--	672	--	120	--	97
JUN											
27...	1305	0.14	2030	2.81	23.0	--	558	--	120	--	83
03070455 STONY FORK NEAR ELLIOTTSVILLE, PA (SITE 1) (LAT 39 46 08N LONG 079 36 34W)											
OCT 1988											
27...	1345	7.2	174	5.25	8.0	--	10	--	17	--	6.1
NOV											
23...	1155	22	140	5.10	5.0	--	20	--	10	--	3.9
DEC											
15...	1345	3.9	270	5.12	0.5	--	6.0	--	22	--	11
JAN 1989											
18...	1040	19	160	4.92	2.0	--	24	--	12	--	5.2
FEB											
28...	1425	13	220	5.08	0.5	--	18	--	20	--	7.6
MAR											
14...	1100	17	120	4.99	5.0	--	38	--	14	--	5.3
JUN											
27...	1145	6.8	189	7.14	18.5	--	4.0	--	19	--	6.5
JUL											
24...	1000	6.6	195	6.13	20.0	--	10	--	17	--	6.0
AUG											
31...	1045	2.6	239	6.45	17.0	--	24	--	25	--	8.0
SEP											
21...	0945	3.6	230	6.19	17.0	--	10	20	20	7.0	7.0

ANALYSIS OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STONY FORK STUDY

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET LAB MG/L AS CACO3	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, TOTAL (MG/L AS F)	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)
03070415 STONY FORK NEAR FARMINGTON, PA (SITE 4) (LAT 39 46 51N LONG 079 34 31W)											
DEC 1988											
15...	--	2.4	--	1.3	6	--	67	5.0	<0.1	144	12
MAR 1989											
14...	--	1.6	--	1.1	10	--	36	3.0	<0.1	120	6
JUN											
27...	--	1.0	--	1.3	6	--	41	3.0	<0.1	100	6
SEP											
21...	1.0	0.97	1.4	1.4	6	--	45	--	--	74	10
03070418 STONY FORK TRIB ABOVE SURFACE MINE NEAR GIBBON GLADE, PA(SITE 7) (LAT 39 45 32N LONG 079 35 28W)											
OCT 1988											
27...	--	5.1	--	1.3	22	--	17	10	<0.1	94	<2
NOV											
23...	--	2.6	--	0.79	14	--	22	5.0	<0.1	42	14
DEC											
15...	--	12	--	0.96	20	--	21	24	<0.1	106	14
JAN 1989											
18...	--	3.6	--	2.5	14	--	16	7.0	<0.1	52	12
FEB											
28...	--	6.4	--	0.77	14	--	16	15	<0.1	42	14
MAR											
14...	--	4.3	--	1.0	12	--	29	9.0	<0.1	44	<2
JUN											
27...	--	3.7	--	0.97	18	--	22	7.0	<0.1	76	4
JUL											
24...	--	3.9	--	1.3	20	--	<10	6.0	<0.1	76	12
AUG											
31...	--	8.0	--	1.6	56	--	12	11	0.1	122	<2
SEP											
21...	4.8	4.8	1.6	1.4	48	--	20	--	--	64	2
03070430 STONY FORK AT BETHEL CHAPEL, PA (SITE 3) (LAT 39 46 54N LONG 079 35 00W)											
DEC 1988											
15...	--	2.4	--	1.3	14	--	56	4.0	<0.1	142	18
MAR 1989											
14...	--	0.85	--	1.0	6	--	34	2.0	<0.1	<2	2
JUN											
27...	--	1.7	--	1.3	16	--	51	3.0	<0.1	104	<2
SEP											
21...	1.6	1.6	1.6	1.6	14	--	57	--	--	108	<2
03070435 STONY FORK TRIB #4(N OF DELTA SITE) NEAR BETHEL CHAPEL,PA(SITE 2)(LAT 39 46 48N LONG 079 35 38W)											
DEC 1988											
15...	--	1.1	--	1.3	20	--	26	2.0	<0.1	64	14
MAR 1989											
14...	--	0.68	--	0.80	16	--	14	1.0	0.1	88	<2
JUN											
27...	--	0.71	--	1.0	26	--	11	3.0	<0.1	76	8
SEP											
21...	0.9	0.87	1.8	1.7	42	--	<13	--	--	56	<2
03070440 HAGER MINE DISCHARGE BAUER ESTATE NEAR BETHEL CHAPEL,PA(SITE 6)(LAT 39 46 38N LONG 079 35 25W)											
MAR 1989											
14...	--	0.82	--	1.7	--	--	1200	3.0	0.5	2350	<2
JUN											
27...	--	1.0	--	1.8	--	--	1100	3.0	0.7	1860	4
03070455 STONY FORK NEAR ELLIOTTSVILLE, PA (SITE 1) (LAT 39 46 08N LONG 079 36 34W)											
OCT 1988											
27...	--	2.3	--	1.7	8	--	68	4.0	<0.1	118	<2
NOV											
23...	--	16	--	1.2	6	--	47	3.0	<0.1	72	16
DEC											
15...	--	2.8	--	1.5	8	--	120	4.0	0.2	208	14
JAN 1989											
18...	--	1.6	--	1.2	6	--	57	3.0	<0.1	108	26
FEB											
28...	--	2.4	--	1.1	6	--	77	4.0	0.1	116	18
MAR											
14...	--	1.6	--	1.1	6	--	60	3.0	0.2	128	4
JUN											
27...	--	1.6	--	1.3	8	--	73	3.0	<0.1	140	10
JUL											
24...	--	1.8	--	1.7	6	--	74	3.0	<0.1	196	6
AUG											
31...	--	2.6	--	2.0	8	--	100	4.0	<0.1	194	<2
SEP											
21...	2.1	2.1	1.7	1.7	10	--	80	--	--	140	6

ANALYSIS OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STONY FORK STUDY

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	BORON, DIS-SOLVED (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)
03070415 STONY FORK NEAR FARMINGTON, PA (SITE 4) (LAT 39 46 51N LONG 079 34 31W)											
DEC 1988											
15...	--	3100	2600	--	--	--	--	--	--	--	--
MAR 1989											
14...	--	870	480	--	--	--	--	--	--	--	--
JUN											
27...	--	1500	1300	--	--	--	--	--	--	--	--
SEP											
21...	--	1300	860	<4	<4	<250	--	--	--	<50	<50
03070418 STONY FORK TRIB ABOVE SURFACE MINE NEAR GIBBON GLADE, PA(SITE 7) (LAT 39 45 32N LONG 079 35 28W)											
OCT 1988											
27...	--	260	<130	--	--	--	--	--	--	--	--
NOV											
23...	--	220	<130	--	--	--	--	--	--	--	--
DEC											
15...	--	310	<130	--	--	--	--	--	--	--	--
JAN 1989											
18...	--	<130	<130	--	--	--	--	--	--	--	--
FEB											
28...	--	140	<130	--	--	--	--	--	--	--	--
MAR											
14...	--	230	<130	--	--	--	--	--	--	--	--
JUN											
27...	--	<130	<130	--	--	--	--	--	--	--	--
JUL											
24...	--	280	<130	--	--	--	--	--	--	--	--
AUG											
31...	--	200	<130	--	--	--	--	--	--	--	--
SEP											
21...	--	680	<130	<4	<4	<250	--	--	--	<50	<50
03070430 STONY FORK AT BETHEL CHAPEL, PA (SITE 3) (LAT 39 46 54N LONG 079 35 00W)											
DEC 1988											
15...	--	1400	<130	--	--	--	--	--	--	--	--
MAR 1989											
14...	--	1600	1300	--	--	--	--	--	--	--	--
JUN											
27...	--	810	190	--	--	--	--	--	--	--	--
SEP											
21...	--	190	<130	<4	<4	<250	--	--	--	<50	<50
03070435 STONY FORK TRIB #4(N OF DELTA SITE) NEAR BETHEL CHAPEL,PA(SITE 2)(LAT 39 46 48N LONG 079 35 38W)											
DEC 1988											
15...	--	1600	<130	--	--	--	--	--	--	--	--
MAR 1989											
14...	--	2200	<130	--	--	--	--	--	--	--	--
JUN											
27...	--	730	<130	--	--	--	--	--	--	--	--
SEP											
21...	--	470	470	<4	<4	<250	--	--	--	<50	<50
03070440 HAGER MINE DISCHARGE BAUER ESTATE NEAR BETHEL CHAPEL,PA(SITE 6)(LAT 39 46 38N LONG 079 35 25W)											
MAR 1989											
14...	--	75000	71000	--	--	--	--	--	--	--	--
JUN											
27...	--	57000	57000	--	--	--	--	--	--	--	--
03070455 STONY FORK NEAR ELLIOTTSVILLE, PA (SITE 1) (LAT 39 46 08N LONG 079 36 34W)											
OCT 1988											
27...	--	690	530	--	--	--	--	--	--	--	--
NOV											
23...	--	1200	410	--	--	--	--	--	--	--	--
DEC											
15...	--	1400	1100	--	--	--	--	--	--	--	--
JAN 1989											
18...	--	1900	1200	--	--	--	--	--	--	--	--
FEB											
28...	--	1700	1100	--	--	--	--	--	--	--	--
MAR											
14...	--	1600	1100	--	--	--	--	--	--	--	--
JUN											
27...	--	410	190	--	--	--	--	--	--	--	--
JUL											
24...	--	210	<130	--	--	--	--	--	--	--	--
AUG											
31...	--	<130	<130	--	--	--	--	--	--	--	--
SEP											
21...	--	<130	360	<4	<4	<250	--	--	--	<50	<50

ANALYSIS OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STONY FORK STUDY

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
03070415 STONY FORK NEAR FARMINGTON, PA (SITE 4) (LAT 39 46 51N LONG 079 34 31W)										
DEC 1988 15...	--	--	--	--	530	490	--	--	1700	1700
MAR 1989 14...	--	--	--	--	400	350	--	--	510	650
JUN 27...	--	--	--	--	420	420	--	--	1200	1200
SEP 21...	30	40	<10	<10	300	270	<50	<50	1400	1400
03070418 STONY FORK TRIB ABOVE SURFACE MINE NEAR GIBBON GLADE, PA(SITE 7) (LAT 39 45 32N LONG 079 35 28W)										
OCT 1988 27...	--	--	--	--	480	180	--	--	110	110
NOV 23...	--	--	--	--	340	210	--	--	53	53
DEC 15...	--	--	--	--	440	170	--	--	99	93
JAN 1989 18...	--	--	--	--	360	260	--	--	33	32
FEB 28...	--	--	--	--	290	100	--	--	41	41
MAR 14...	--	--	--	--	280	69	--	--	41	34
JUN 27...	--	--	--	--	410	240	--	--	100	100
JUL 24...	--	--	--	--	730	180	--	--	110	100
AUG 31...	--	--	--	--	1100	580	--	--	290	250
SEP 21...	<20	<20	<10	<10	2500	500	<50	<50	350	300
03070430 STONY FORK AT BETHEL CHAPEL, PA (SITE 3) (LAT 39 46 54N LONG 079 35 00W)										
DEC 1988 15...	--	--	--	--	570	440	--	--	920	920
MAR 1989 14...	--	--	--	--	390	200	--	--	810	740
JUN 27...	--	--	--	--	490	220	--	--	710	710
SEP 21...	<20	<20	11	11	400	250	<50	<50	940	940
03070435 STONY FORK TRIB #4(N OF DELTA SITE) NEAR BETHEL CHAPEL,PA(SITE 2)(LAT 39 46 48N LONG 079 35 38W)										
DEC 1988 15...	--	--	--	--	920	230	--	--	150	150
MAR 1989 14...	--	--	--	--	2000	200	--	--	160	140
JUN 27...	--	--	--	--	1700	420	--	--	280	250
SEP 21...	<20	<20	60	47	1900	910	<50	<50	310	270
03070440 HAGER MINE DISCHARGE BAUER ESTATE NEAR BETHEL CHAPEL,PA(SITE 6)(LAT 39 46 38N LONG 079 35 25W)										
MAR 1989 14...	--	--	--	--	58000	54000	--	--	43000	44000
JUN 27...	--	--	--	--	37000	37000	--	--	40000	40000
03070455 STONY FORK NEAR ELLIOTTSVILLE, PA (SITE 1) (LAT 39 46 08N LONG 079 36 34W)										
OCT 1988 27...	--	--	--	--	730	4000	--	--	1800	1900
NOV 23...	--	--	--	--	1200	420	--	--	1100	1100
DEC 15...	--	--	--	--	1500	910	--	--	3100	3700
JAN 1989 18...	--	--	--	--	1000	400	--	--	1600	1500
FEB 28...	--	--	--	--	1400	480	--	--	1800	2200
MAR 14...	--	--	--	--	1100	480	--	--	1600	1500
JUN 27...	--	--	--	--	400	210	--	--	1800	1800
JUL 24...	--	--	--	--	460	210	--	--	1800	1700
AUG 31...	--	--	--	--	170	55	--	--	2300	2300
SEP 21...	40	40	40	39	200	150	<50	<50	1900	1900

ANALYSIS OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STONY FORK STUDY

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)	STRON-TIUM, TOTAL RECOV-ERABLE (UG/L AS SR)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)
03070415 STONY FORK NEAR FARMINGTON, PA (SITE 4) (LAT 39 46 51N LONG 079 34 31W)										
DEC 1988 15...	--	--	--	--	130	120	--	--	--	--
MAR 1989 14...	--	--	--	--	50	49	--	--	--	--
JUN 27...	--	--	--	--	110	110	--	--	--	--
SEP 21...	<25	<25	30	31	60	61	<6	<6	<1.0	<1.0
03070418 STONY FORK TRIB ABOVE SURFACE MINE NEAR GIBBON GLADE, PA(SITE 7) (LAT 39 45 32N LONG 079 35 28W)										
OCT 1988 27...	--	--	--	--	50	50	--	--	--	--
NOV 23...	--	--	--	--	20	16	--	--	--	--
DEC 15...	--	--	--	--	20	18	--	--	--	--
JAN 1989 18...	--	--	--	--	70	68	--	--	--	--
FEB 28...	--	--	--	--	10	13	--	--	--	--
MAR 14...	--	--	--	--	<10	<10	--	--	--	--
JUN 27...	--	--	--	--	20	12	--	--	--	--
JUL 24...	--	--	--	--	20	13	--	--	--	--
AUG 31...	--	--	--	--	10	13	--	--	--	--
SEP 21...	51	42	50	44	<10	<10	<6	<6	<1.0	<1.0
03070430 STONY FORK AT BETHEL CHAPEL, PA (SITE 3) (LAT 39 46 54N LONG 079 35 00W)										
DEC 1988 15...	--	--	--	--	70	71	--	--	--	--
MAR 1989 14...	--	--	--	--	70	52	--	--	--	--
JUN 27...	--	--	--	--	50	48	--	--	--	--
SEP 21...	<25	<25	50	47	30	32	<6	<6	<1.0	<1.0
03070435 STONY FORK TRIB #4(N OF DELTA SITE) NEAR BETHEL CHAPEL,PA(SITE 2)(LAT 39 46 48N LONG 079 35 38W)										
DEC 1988 15...	--	--	--	--	30	30	--	--	--	--
MAR 1989 14...	--	--	--	--	20	11	--	--	--	--
JUN 27...	--	--	--	--	20	18	--	--	--	--
SEP 21...	28	<25	40	39	20	21	<6	<6	<1.0	<1.0
03070440 HAGER MINE DISCHARGE BAUER ESTATE NEAR BETHEL CHAPEL,PA(SITE 6)(LAT 39 46 38N LONG 079 35 25W)										
MAR 1989 14...	--	--	--	--	3500	3500	--	--	--	--
JUN 27...	--	--	--	--	2800	2800	--	--	--	--
03070455 STONY FORK NEAR ELLIOTTSVILLE, PA (SITE 1) (LAT 39 46 08N LONG 079 36 34W)										
OCT 1988 27...	--	--	--	--	100	99	--	--	--	--
NOV 23...	--	--	--	--	110	87	--	--	--	--
DEC 15...	--	--	--	--	180	180	--	--	--	--
JAN 1989 18...	--	--	--	--	150	94	--	--	--	--
FEB 28...	--	--	--	--	60	60	--	--	--	--
MAR 14...	--	--	--	--	100	96	--	--	--	--
JUN 27...	--	--	--	--	90	84	--	--	--	--
JUL 24...	--	--	--	--	100	94	--	--	--	--
AUG 31...	--	--	--	--	90	100	--	--	--	--
SEP 21...	49	<25	50	52	80	84	<6	<6	<1.0	<1.0

ANALYSIS OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

POPLAR RUN BASIN

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 (MG/L AS H)	ACIDITY TOTAL HEATED (MG/L AS CAC03)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
	03082165	POPLAR RUN AT CLINTON, PA (SITE 5) (LAT 40 02 38N LONG 079 27 44W)									
DEC 1988											
16...	1130	1.0	256	4.19	0.5	--	16	--	20	--	8.3
MAR 1989											
14...	1415	5.5	160	4.78	8.0	--	34	--	14	--	5.5
JUN											
27...	1050	2.5	196	4.19	17.0	--	26	--	16	--	6.8
SEP											
21...	1640	0.70	234	4.12	19.5	--	16	18	17	7.4	7.3
	03082170	UNNAMED TRIB TO POPLAR RUN NR CLINTON,PA (SITE 4) (LAT 40 02 02N LONG 079 27 35W)									
DEC 1988											
16...	1055	0.48	62	6.33	0.0	--	0.0	--	6.9	--	1.9
MAR 1989											
14...	1345	2.1	70	5.70	8.0	--	26	--	5.9	--	1.8
JUN											
27...	1015	0.84	63	5.80	15.0	--	20	--	6.0	--	1.8
SEP											
21...	1610	0.04	78	6.56	19.5	--	0.0	7.8	7.8	1.6	1.6
	03082175	POPLAR RUN ABOVE NEWMYER RN NR CLINTON, PA (SITE 3) (LAT 40 02 13N LONG 079 26 31W)									
OCT 1988											
26...	1045	3.3	202	--	7.0	--	6.0	--	21	--	6.4
NOV											
22...	1130	17	134	6.30	7.0	--	24	--	12	--	3.9
DEC											
16...	1210	1.8	264	5.62	0.0	--	8.0	--	28	--	9.4
JAN 1989											
18...	1450	7.9	164	5.40	5.0	--	18	--	17	--	5.8
FEB											
28...	1025	7.5	240	5.65	0.5	--	10	--	22	--	7.4
MAR											
14...	1300	9.2	190	5.47	8.5	--	30	--	22	--	7.3
JUN											
27...	1125	4.2	214	6.27	18.0	--	18	--	22	--	7.2
JUL											
24...	1430	1.2	338	6.84	22.0	--	10	--	29	--	8.9
AUG											
31...	1345	0.91	290	6.72	19.5	--	0.0	--	34	--	9.8
SEP											
21...	1510	0.95	282	6.72	19.0	--	8.0	27	27	8.5	8.5
	03082177	NEWMYER RUN AT CLINTON, PA (SITE 6) (LAT 40 03 08N LONG 079 27 34W)									
DEC 1988											
16...	1020	0.48	386	3.88	0.0	--	58	--	20	--	17
MAR 1989											
14...	1430	2.9	300	3.73	9.0	--	64	--	14	--	10
JUN											
27...	0920	1.5	278	3.97	17.0	--	52	--	15	--	10
SEP											
21...	1705	0.27	382	3.83	20.5	--	52	20	20	14	14
	03082180	NEWMYER RUN ABOVE POPLAR RN NR CLINTON, PA (SITE 2) (LAT 40 02 13N LONG 079 26 29W)									
OCT 1988											
26...	1130	3.4	614	--	7.0	--	10	--	65	--	32
NOV											
22...	1215	13	294	6.50	7.0	--	0.0	--	30	--	11
DEC											
16...	1240	1.8	524	5.10	0.0	--	26	--	41	--	24
JAN 1989											
18...	1520	7.8	272	6.30	5.0	--	0.0	--	28	--	11
FEB											
28...	1105	8.3	536	5.17	0.5	--	18	--	42	--	22
MAR											
14...	1320	11	300	5.21	8.0	--	34	--	34	--	15
JUN											
27...	1215	5.9	498	6.75	18.5	--	16	--	49	--	22
JUL											
24...	1500	1.4	1320	6.65	22.0	--	18	--	110	--	67
AUG											
31...	1415	0.82	662	6.67	18.5	--	0.0	--	70	--	31
SEP											
21...	1535	1.1	1070	6.64	19.0	--	0.0	89	89	55	55

ANALYSIS OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

POPLAR RUN BASIN

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET LAB MG/L AS CACO3	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, TOTAL (MG/L AS F)	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)
03082165	POPLAR RUN AT CLINTON, PA (SITE 5) (LAT 40 02 38N LONG 079 27 44W)										
DEC 1988											
16...	--	3.0	--	1.3	4	--	93	6.0	0.1	150	12
MAR 1989											
14...	--	1.8	--	1.0	6	--	58	4.0	<0.1	72	<2
JUN											
27...	--	1.6	--	1.6	6	--	70	4.0	<0.1	148	10
SEP											
21...	2.1	2.0	1.6	1.6	6	--	78	--	--	150	<2
03082170	UNNAMED TRIB TO POPLAR RUN NR CLINTON,PA (SITE 4) (LAT 40 02 02N LONG 079 27 35W)										
DEC 1988											
16...	--	0.77	--	0.78	10	--	21	3.0	<0.1	48	8
MAR 1989											
14...	--	0.59	--	0.83	8	--	23	3.0	<0.1	30	<2
JUN											
27...	--	0.60	--	1.0	10	--	<10	3.0	<0.1	50	8
SEP											
21...	0.7	0.71	0.9	0.94	18	--	22	--	--	38	<2
03082175	POPLAR RUN ABOVE NEWMYER RN NR CLINTON, PA (SITE 3) (LAT 40 02 13N LONG 079 26 31W)										
OCT 1988											
26...	--	2.2	--	1.5	8	--	82	5.0	0.1	148	<2
NOV											
22...	--	1.6	--	1.2	6	--	45	3.0	<0.1	64	22
DEC											
16...	--	3.0	--	1.4	8	--	110	6.0	0.1	186	14
JAN 1989											
18...	--	1.8	--	1.2	8	--	64	4.0	0.1	120	12
FEB											
28...	--	1.7	--	1.1	8	--	80	4.0	0.1	128	18
MAR											
14...	--	1.6	--	1.1	6	--	67	4.0	<0.1	58	90
JUN											
27...	--	1.6	--	1.6	10	--	88	4.0	<0.1	152	12
JUL											
24...	--	1.5	--	1.9	8	--	150	3.0	0.1	222	8
AUG											
31...	--	2.3	--	1.9	8	--	130	3.0	<0.1	236	2
SEP											
21...	1.9	1.9	1.7	1.7	10	--	110	--	--	230	<2
03082177	NEWMYER RUN AT CLINTON, PA (SITE 6) (LAT 40 03 08N LONG 079 27 34W)										
DEC 1988											
16...	--	1.7	--	1.1	0	--	180	3.0	0.2	318	18
MAR 1989											
14...	--	1.2	--	0.91	--	--	90000	3.0	0.1	136	<2
JUN											
27...	--	10	--	2.0	--	--	100	3.0	0.2	226	8
SEP											
21...	1.8	1.8	1.7	1.7	2	--	140	--	--	288	2
03082180	NEWMYER RUN ABOVE POPLAR RN NR CLINTON, PA (SITE 2) (LAT 40 02 13N LONG 079 26 29W)										
OCT 1988											
26...	--	15	--	2.2	12	--	300	4.0	0.2	414	2
NOV											
22...	--	1.6	--	1.4	18	--	120	2.0	<0.1	208	18
DEC											
16...	--	6.0	--	1.5	8	--	250	5.0	0.1	458	22
JAN 1989											
18...	--	1.8	--	1.4	12	--	120	2.0	<0.1	178	12
FEB											
28...	--	14	--	1.3	8	--	230	3.0	0.3	326	20
MAR											
14...	--	2.0	--	1.1	8	--	120	3.0	0.1	194	4
JUN											
27...	--	11	--	1.9	16	--	230	4.0	0.2	364	20
JUL											
24...	--	42	--	3.0	14	--	800	3.0	<0.1	1210	26
AUG											
31...	--	11	--	2.4	14	--	320	3.0	0.1	532	14
SEP											
21...	40	40	2.5	2.5	18	--	530	--	--	898	8

ANALYSIS OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

POPLAR RUN BASIN

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	BORON, DIS-SOLVED (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)
03082165	POPLAR RUN AT CLINTON, PA (SITE 5) (LAT 40 02 38N LONG 079 27 44W)										
DEC 1988											
16...	--	860	820	--	--	--	--	--	--	--	--
MAR 1989											
14...	--	890	1100	--	--	--	--	--	--	--	--
JUN											
27...	--	1000	890	--	--	--	--	--	--	--	--
SEP											
21...	--	580	530	<4	<4	<250	--	--	--	<50	<50
03082170	UNNAMED TRIB TO POPLAR RUN NR CLINTON,PA (SITE 4) (LAT 40 02 02N LONG 079 27 35W)										
DEC 1988											
16...	--	380	<130	--	--	--	--	--	--	--	--
MAR 1989											
14...	--	290	<130	--	--	--	--	--	--	--	--
JUN											
27...	--	<130	<130	--	--	--	--	--	--	--	--
SEP											
21...	--	<130	<130	<4	<4	<250	--	--	--	<50	<50
03082175	POPLAR RUN ABOVE NEWMYER RN NR CLINTON, PA (SITE 3) (LAT 40 02 13N LONG 079 26 31W)										
OCT 1988											
26...	--	360	60	--	--	--	--	--	--	--	--
NOV											
22...	--	580	170	--	--	--	--	--	--	--	--
DEC											
16...	--	830	390	--	--	--	--	--	--	--	--
JAN 1989											
18...	--	470	220	--	--	--	--	--	--	--	--
FEB											
28...	--	1000	210	--	--	--	--	--	--	--	--
MAR											
14...	--	880	220	--	--	--	--	--	--	--	--
JUN											
27...	--	<130	<130	--	--	--	--	--	--	--	--
JUL											
24...	--	<130	<130	--	--	--	--	--	--	--	--
AUG											
31...	--	180	<130	--	--	--	--	--	--	--	--
SEP											
21...	--	<130	<130	<4	<4	<250	--	--	--	<50	<50
03082177	NEWMYER RUN AT CLINTON, PA (SITE 6) (LAT 40 03 08N LONG 079 27 34W)										
DEC 1988											
16...	--	8200	8200	--	--	--	--	--	--	--	--
MAR 1989											
14...	--	5100	4900	--	--	--	--	--	--	--	--
JUN											
27...	--	4600	4400	--	--	--	--	--	--	--	--
SEP											
21...	--	6200	6100	<4	<4	<250	--	--	--	<50	<50
03082180	NEWMYER RUN ABOVE POPLAR RN NR CLINTON, PA (SITE 2) (LAT 40 02 13N LONG 079 26 29W)										
OCT 1988											
26...	--	2200	190	--	--	--	--	--	--	--	--
NOV											
22...	--	890	<130	--	--	--	--	--	--	--	--
DEC											
16...	--	4500	3600	--	--	--	--	--	--	--	--
JAN 1989											
18...	--	1200	<130	--	--	--	--	--	--	--	--
FEB											
28...	--	3200	950	--	--	--	--	--	--	--	--
MAR											
14...	--	1900	1100	--	--	--	--	--	--	--	--
JUN											
27...	--	920	640	--	--	--	--	--	--	--	--
JUL											
24...	--	2200	350	--	--	--	--	--	--	--	--
AUG											
31...	--	1200	<130	--	--	--	--	--	--	--	--
SEP											
21...	--	1200	<130	<4	<4	<250	--	--	--	<50	<50

ANALYSIS OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

POPLAR RUN BASIN

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
03082165 POPLAR RUN AT CLINTON, PA (SITE 5) (LAT 40 02 38N LONG 079 27 44W)										
DEC 1988 16...	--	--	--	--	890	770	--	--	1900	1900
MAR 1989 14...	--	--	--	--	800	480	--	--	1200	1200
JUN 27...	--	--	--	--	250	290	--	--	1700	1600
SEP 21...	<20	<20	<10	38	210	150	<50	<50	1900	1900
03082170 UNNAMED TRIB TO POPLAR RUN NR CLINTON,PA (SITE 4) (LAT 40 02 02N LONG 079 27 35W)										
DEC 1988 16...	--	--	--	--	150	77	--	--	110	110
MAR 1989 14...	--	--	--	--	120	38	--	--	140	140
JUN 27...	--	--	--	--	80	66	--	--	120	120
SEP 21...	<20	<20	<10	<10	140	120	<50	<50	81	81
03082175 POPLAR RUN ABOVE NEWMYER RN NR CLINTON, PA (SITE 3) (LAT 40 02 13N LONG 079 26 31W)										
OCT 1988 26...	--	--	--	--	290	200	--	--	1100	1100
NOV 22...	--	--	--	--	700	230	--	--	610	600
DEC 16...	--	--	--	--	460	260	--	--	1300	1200
JAN 1989 18...	--	--	--	--	410	220	--	--	760	760
FEB 28...	--	--	--	--	680	400	--	--	920	920
MAR 14...	--	--	--	--	380	230	--	--	770	770
JUN 27...	--	--	--	--	150	110	--	--	1000	1000
JUL 24...	--	--	--	--	230	70	--	--	1100	950
AUG 31...	--	--	--	--	280	110	--	--	1300	1300
SEP 21...	<20	<20	49	46	180	110	<50	<50	1000	1000
03082177 NEWMYER RUN AT CLINTON, PA (SITE 6) (LAT 40 03 08N LONG 079 27 34W)										
DEC 1988 16...	--	--	--	--	1800	1500	--	--	7800	7800
MAR 1989 14...	--	--	--	--	2400	2100	--	--	4500	4400
JUN 27...	--	--	--	--	710	1600	--	--	4900	4800
SEP 21...	110	90	<10	<10	1200	1100	<50	<50	7400	7300
03082180 NEWMYER RUN ABOVE POPLAR RN NR CLINTON, PA (SITE 2) (LAT 40 02 13N LONG 079 26 29W)										
OCT 1988 26...	--	--	--	--	790	550	--	--	4800	4800
NOV 22...	--	--	--	--	480	240	--	--	1100	1100
DEC 16...	--	--	--	--	1400	880	--	--	5800	5800
JAN 1989 18...	--	--	--	--	610	360	--	--	1600	1600
FEB 28...	--	--	--	--	1000	490	--	--	3100	3100
MAR 14...	--	--	--	--	840	530	--	--	2200	2200
JUN 27...	--	--	--	--	410	410	--	--	3000	3000
JUL 24...	--	--	--	--	1400	800	--	--	16000	13000
AUG 31...	--	--	--	--	1400	1100	--	--	5300	5300
SEP 21...	50	50	<10	<10	1200	1000	<50	<50	8500	8500

ANALYSIS OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

POPLAR RUN BASIN

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)	STRON-TIUM, TOTAL RECOV-ERABLE (UG/L AS SR)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)
03082165 POPLAR RUN AT CLINTON, PA (SITE 5) (LAT 40 02 38N LONG 079 27 44W)										
DEC 1988 16...	--	--	--	--	180	170	--	--	--	--
MAR 1989 14...	--	--	--	--	140	140	--	--	--	--
JUN 27...	--	--	--	--	160	160	--	--	--	--
SEP 21...	51	66	50	51	120	130	<6	<6	<1.0	<1.0
03082170 UNNAMED TRIB TO POPLAR RUN NR CLINTON,PA (SITE 4) (LAT 40 02 02N LONG 079 27 35W)										
DEC 1988 16...	--	--	--	--	50	49	--	--	--	--
MAR 1989 14...	--	--	--	--	50	50	--	--	--	--
JUN 27...	--	--	--	--	30	34	--	--	--	--
SEP 21...	<25	<25	20	22	10	<10	<6	<6	<1.0	<1.0
03082175 POPLAR RUN ABOVE NEWMYER RN NR CLINTON, PA (SITE 3) (LAT 40 02 13N LONG 079 26 31W)										
OCT 1988 26...	--	--	--	--	50	50	--	--	--	--
NOV 22...	--	--	--	--	90	86	--	--	--	--
DEC 16...	--	--	--	--	110	110	--	--	--	--
JAN 1989 18...	--	--	--	--	100	100	--	--	--	--
FEB 28...	--	--	--	--	100	89	--	--	--	--
MAR 14...	--	--	--	--	110	96	--	--	--	--
JUN 27...	--	--	--	--	80	80	--	--	--	--
JUL 24...	--	--	--	--	70	70	--	--	--	--
AUG 31...	--	--	--	--	80	81	--	--	--	--
SEP 21...	<25	67	70	67	80	71	<6	<6	<1.0	<1.0
03082177 NEWMYER RUN AT CLINTON, PA (SITE 6) (LAT 40 03 08N LONG 079 27 34W)										
DEC 1988 16...	--	--	--	--	360	360	--	--	--	--
MAR 1989 14...	--	--	--	--	280	280	--	--	--	--
JUN 27...	--	--	--	--	350	350	--	--	--	--
SEP 21...	130	120	40	44	310	290	<6	<6	<1.0	<1.0
03082180 NEWMYER RUN ABOVE POPLAR RN NR CLINTON, PA (SITE 2) (LAT 40 02 13N LONG 079 26 29W)										
OCT 1988 26...	--	--	--	--	200	180	--	--	--	--
NOV 22...	--	--	--	--	100	87	--	--	--	--
DEC 16...	--	--	--	--	290	280	--	--	--	--
JAN 1989 18...	--	--	--	--	90	75	--	--	--	--
FEB 28...	--	--	--	--	180	180	--	--	--	--
MAR 14...	--	--	--	--	130	130	--	--	--	--
JUN 27...	--	--	--	--	120	120	--	--	--	--
JUL 24...	--	--	--	--	510	480	--	--	--	--
AUG 31...	--	--	--	--	150	150	--	--	--	--
SEP 21...	74	63	150	150	140	120	<15	<15	<1.0	<1.0

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.--None.
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.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.66	7.66	7.72	7.48	7.08	6.82	5.90	6.24	5.31	5.30	6.70	7.31
2	7.52	7.67	7.79	7.44	7.17	6.83	5.90	6.10	5.35	5.32	6.69	7.60
3	7.64	7.72	7.70	7.41	7.40	6.72	5.64	6.18	5.38	5.40	6.66	7.77
4	7.69	7.58	7.87	7.62	7.41	6.70	5.50	6.18	5.63	5.48	6.61	7.82
5	7.87	7.33	7.76	7.60	7.28	6.76	5.55	5.99	5.64	5.56	6.60	7.80
6	7.96	7.45	7.61	7.45	7.17	6.77	5.54	5.92	5.62	5.61	6.64	7.74
7	7.94	7.74	7.64	7.48	7.24	7.01	5.38	5.95	5.65	5.62	6.76	7.67
8	7.85	7.86	7.81	7.55	7.31	7.06	5.32	5.97	5.68	5.69	6.92	7.60
9	7.71	7.91	7.80	7.68	7.44	7.02	5.62	5.97	5.64	5.72	7.01	7.55
10	7.60	7.72	7.65	7.68	7.20	6.92	5.80	5.88	5.88	5.78	7.04	7.64
11	7.66	7.96	7.90	7.76	7.08	6.73	5.80	5.87	5.96	6.02	7.03	7.79
12	7.93	7.96	7.92	7.50	7.32	6.67	5.76	5.70	5.95	6.09	7.01	7.82
13	8.01	7.71	7.62	7.62	7.32	6.66	5.70	5.62	5.75	6.06	7.03	7.82
14	7.97	7.72	7.66	7.62	7.35	6.36	5.70	5.60	5.78	6.22	7.05	7.75
15	7.80	7.74	7.95	7.23	7.33	6.52	5.52	5.57	5.78	6.33	7.03	7.76
16	7.78	7.58	7.95	7.30	7.49	6.66	5.64	5.44	5.59	6.30	7.06	7.73
17	7.79	7.75	7.68	7.27	7.49	6.55	5.65	5.50	5.50	6.30	7.22	7.74
18	7.75	7.89	7.76	7.26	7.22	6.42	5.71	5.53	5.44	6.34	7.22	7.80
19	7.79	7.80	7.78	7.25	6.83	6.60	5.77	5.47	5.35	6.29	7.24	7.80
20	7.88	7.49	7.78	7.40	6.74	6.59	5.81	5.31	5.28	6.26	7.12	7.74
21	7.79	7.75	8.08	7.54	6.47	6.49	5.78	5.34	5.20	6.43	7.13	7.73
22	7.57	7.76	8.12	7.41	6.62	6.56	5.81	5.32	5.11	6.59	7.15	7.66
23	7.54	7.65	7.78	7.31	6.75	6.49	5.87	5.24	5.09	6.63	7.12	7.77
24	7.54	7.54	7.73	7.29	6.76	6.32	5.92	5.23	5.05	6.64	7.16	7.88
25	7.65	7.52	7.90	7.38	6.66	6.17	5.87	5.22	5.08	6.62	7.21	7.80
26	7.80	7.47	7.97	7.24	6.28	6.22	5.86	5.24	5.07	6.60	7.22	7.81
27	7.88	7.32	7.84	7.25	6.48	6.18	5.89	5.42	5.08	6.52	7.32	7.93
28	7.90	7.60	7.78	7.27	6.59	6.11	5.93	5.50	5.18	6.51	7.38	7.86
29	7.94	7.80	7.82	7.17	---	6.01	5.96	5.40	5.36	6.59	7.33	7.66
30	7.96	7.60	7.70	6.99	---	5.89	6.24	5.25	5.37	6.58	7.34	7.74
31	7.92	---	7.57	6.99	---	5.74	---	5.28	---	6.64	7.39	---
MEAN	7.78	7.68	7.79	7.40	7.05	6.53	5.74	5.63	5.46	6.13	7.04	7.74
MAX	8.01	7.96	8.12	7.76	7.49	7.06	6.24	6.24	5.96	6.64	7.39	7.93
MIN	7.52	7.32	7.57	6.99	6.28	5.74	5.32	5.22	5.05	5.30	6.60	7.31

WTR YR 1989 MEAN 6.83 HIGH 5.05 June 24 LOW 8.12 Dec 22

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.--Missing record Dec. 12-20, Jan. 10-22, Feb. 4-6, July 21 to Aug. 29, and Sept. 30.
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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34.76	35.05	34.24	33.09	31.21	30.58	29.12	31.40	29.82	29.98	---	32.94
2	34.87	35.00	34.27	33.00	31.25	30.71	29.11	31.40	29.83	30.00	---	32.94
3	34.95	35.00	34.31	33.00	31.28	30.73	29.12	31.36	29.84	30.00	---	33.11
4	34.97	35.00	34.37	32.78	---	30.74	29.10	31.22	29.87	30.13	---	33.24
5	34.98	34.93	34.35	32.74	---	30.74	29.08	31.04	29.98	30.25	---	33.30
6	35.04	34.84	34.35	32.70	---	30.77	29.07	30.84	30.04	30.36	---	33.32
7	35.05	35.00	34.27	32.68	31.39	30.79	29.06	30.70	30.12	30.82	---	33.34
8	35.05	35.07	34.21	32.64	31.36	30.73	29.06	30.63	30.19	31.05	---	33.34
9	34.99	35.11	34.29	32.64	31.39	30.72	29.09	30.56	30.22	31.15	---	33.27
10	34.85	35.12	34.30	---	31.41	30.68	29.30	30.42	30.27	31.20	---	33.23
11	34.82	35.08	34.34	---	31.41	30.57	29.47	30.15	30.40	31.21	---	33.25
12	34.99	35.08	---	---	31.37	30.40	29.53	29.86	30.42	31.31	---	33.30
13	35.08	35.08	---	---	31.30	30.37	29.60	29.67	30.38	31.31	---	33.34
14	35.00	35.07	---	---	31.35	30.30	29.88	29.60	30.28	31.37	---	33.35
15	34.91	35.10	---	---	31.44	30.13	30.00	29.57	30.27	31.58	---	33.34
16	34.96	35.10	---	---	31.54	30.18	30.03	29.53	30.25	31.66	---	33.30
17	34.98	34.92	---	---	31.55	30.23	30.11	29.56	30.13	31.78	---	33.13
18	34.99	34.81	---	---	31.55	30.21	30.25	29.67	30.04	31.85	---	33.08
19	35.05	34.81	---	---	31.39	30.37	30.37	29.82	29.98	31.91	---	32.98
20	35.07	34.80	---	---	31.13	30.39	30.59	29.88	29.97	31.92	---	32.77
21	35.08	34.62	34.27	---	30.90	30.21	30.72	29.88	29.86	---	---	32.71
22	35.05	34.64	34.32	---	30.64	30.17	30.75	29.89	29.77	---	---	32.68
23	34.99	34.63	34.31	31.68	30.50	30.20	30.78	29.89	29.61	---	---	32.50
24	34.91	34.55	34.25	31.62	30.48	30.19	30.80	29.90	29.56	---	---	32.48
25	34.89	34.48	34.10	31.66	30.33	30.04	30.81	29.93	29.53	---	---	32.48
26	34.93	34.35	34.01	31.64	30.19	29.88	30.92	29.93	29.48	---	---	32.40
27	35.01	34.22	33.89	31.58	30.10	29.78	31.07	29.91	29.39	---	---	32.30
28	35.05	34.13	33.63	31.51	30.36	29.73	31.11	29.90	29.47	---	---	32.30
29	35.09	34.20	33.45	31.44	---	29.63	31.20	29.82	29.56	---	---	32.24
30	35.09	34.21	33.37	31.40	---	29.55	31.34	29.82	29.79	---	32.94	---
31	35.07	---	33.19	31.26	---	29.32	---	29.76	---	---	32.95	---
MEAN	34.98	34.80	34.10	32.17	31.07	30.29	30.01	30.18	29.94	31.04	32.95	32.96
MAX	35.09	35.12	34.37	33.09	31.55	30.79	31.34	31.40	30.42	31.92	32.95	33.35
MIN	34.76	34.13	33.19	31.26	30.10	29.32	29.06	29.53	29.39	29.98	32.94	32.24

WTR YR 1989 MEAN 31.94 HIGH 29.06 Apr 7, 8 LOW 35.12 Nov 10

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 Oct 11-21.
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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.81	9.37	9.13	8.83	8.50	8.40	7.72	8.51	8.05	8.07	9.09	9.59
2	9.72	9.35	9.17	8.81	8.59	8.42	7.74	8.28	8.08	8.11	9.13	9.66
3	9.78	9.37	9.19	8.78	8.74	8.39	7.67	8.30	8.07	8.12	9.06	9.77
4	9.86	9.28	9.25	8.93	8.74	8.36	7.66	8.31	7.98	8.14	9.03	9.79
5	9.81	9.07	9.23	8.91	8.70	8.34	7.74	8.18	7.99	8.18	9.07	9.82
6	9.73	9.01	9.15	8.81	8.65	8.29	7.75	8.14	8.05	8.21	9.04	9.80
7	9.60	9.19	9.16	8.79	8.72	8.44	7.74	8.18	8.09	8.27	9.13	9.76
8	9.64	9.26	9.28	8.75	8.77	8.49	7.74	8.18	8.15	8.32	9.23	9.65
9	9.70	9.31	9.28	8.85	8.85	8.48	7.93	8.18	8.11	8.34	9.33	9.60
10	9.62	9.18	9.22	8.86	8.78	8.43	8.07	8.03	8.10	8.39	9.37	9.61
11	---	9.33	9.34	8.90	8.69	8.32	8.09	7.78	8.16	8.48	9.38	9.67
12	---	9.35	9.38	8.77	8.85	8.19	8.10	7.70	8.14	8.50	9.37	9.72
13	---	9.18	9.22	8.78	8.84	8.18	8.10	7.76	7.76	8.50	9.39	9.78
14	---	9.14	9.23	8.77	8.81	8.01	8.09	7.79	7.66	8.62	9.40	9.68
15	---	9.17	9.36	8.50	8.78	7.97	8.00	7.79	7.65	8.70	9.40	9.50
16	---	9.07	9.35	8.55	8.71	8.07	8.09	7.73	7.50	8.72	9.42	9.49
17	---	9.17	9.25	8.52	8.71	8.03	8.10	7.83	7.70	8.78	9.49	9.45
18	---	9.28	9.36	8.50	8.60	8.09	8.13	7.90	7.80	8.82	9.57	9.55
19	---	9.24	9.30	8.53	8.40	8.17	8.23	7.94	7.88	8.78	9.56	9.51
20	---	9.09	9.29	8.65	8.35	8.13	8.25	7.89	7.88	8.78	9.35	9.48
21	---	9.98	9.40	8.75	8.14	8.01	8.23	7.98	7.73	8.91	9.38	9.46
22	9.42	9.98	9.41	8.70	8.02	8.10	8.24	8.03	7.53	9.02	9.41	9.39
23	9.38	9.98	9.26	8.67	8.20	8.11	8.30	7.99	7.63	9.10	9.40	9.26
24	9.28	8.92	9.13	8.68	8.23	8.04	8.32	7.93	7.74	9.09	9.45	9.35
25	9.34	8.91	9.06	8.73	8.22	7.96	8.28	7.93	7.83	9.13	9.47	9.31
26	9.44	8.90	9.12	8.62	8.02	8.07	8.32	7.88	7.87	9.15	9.49	9.32
27	9.47	8.83	9.06	8.55	8.14	8.07	8.31	7.86	7.91	9.12	9.52	9.41
28	9.48	8.97	8.90	8.59	8.24	8.04	8.32	7.95	7.86	9.02	9.58	9.37
29	9.53	9.11	8.95	8.55	---	7.95	8.37	7.96	8.03	9.13	9.57	9.27
30	9.55	9.05	8.92	8.42	---	7.83	8.49	7.95	8.07	9.09	9.53	9.30
31	9.54	---	8.87	8.43	---	7.53	---	8.02	---	9.04	9.61	---
MEAN	9.59	9.23	9.20	8.69	8.54	8.16	8.07	8.00	7.90	8.67	9.36	9.54
MAX	9.86	9.98	9.41	8.93	8.85	8.49	8.49	8.51	8.16	9.15	9.61	9.82
MIN	9.28	8.83	8.87	8.42	8.02	7.53	7.66	7.70	7.50	8.07	9.03	9.26

WTR YR 1989 MEAN 8.72 HIGH 7.50 June 16 LOW 9.98 Nov 21, 22, 23

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 Feb. 1-15, Feb. 21 to Mar. 22, and Sept. 3-24.
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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.08	28.63	23.29	7.05	---	---	3.28	4.70	3.34	3.92	17.86	29.30
2	28.05	28.72	25.97	7.31	---	---	3.28	4.02	3.53	4.05	19.00	29.45
3	28.12	28.76	25.97	7.76	---	---	3.21	4.06	3.57	4.15	19.18	---
4	28.15	28.62	28.02	8.42	---	---	3.10	4.12	3.16	4.20	19.40	---
5	28.26	19.83	27.81	8.82	---	---	3.16	4.10	3.22	4.23	19.58	---
6	28.33	15.61	27.88	10.69	---	---	3.21	4.00	3.46	4.35	19.77	---
7	28.32	13.11	28.17	11.51	---	---	3.32	3.97	3.62	4.52	19.95	---
8	28.32	12.76	28.64	7.90	---	---	3.38	3.95	3.71	4.68	20.15	---
9	28.31	12.01	28.63	6.20	---	---	3.50	4.00	3.70	4.81	20.30	---
10	28.43	11.85	28.64	6.36	---	---	3.63	3.60	3.00	4.95	20.50	---
11	28.64	12.82	29.03	6.40	---	---	3.70	3.25	3.18	5.12	20.70	---
12	28.79	13.20	29.08	6.12	---	---	3.70	3.37	3.18	5.28	20.88	---
13	28.85	13.26	29.03	5.52	---	---	3.75	3.40	3.08	5.50	21.05	---
14	28.84	11.14	29.09	5.48	---	---	3.76	3.25	3.09	5.90	21.25	---
15	28.81	12.27	29.47	4.99	---	---	3.75	3.25	2.93	6.30	21.45	---
16	28.81	14.07	29.47	5.05	4.87	---	3.84	3.30	2.90	6.70	21.60	---
17	28.84	17.02	29.33	5.09	4.87	---	3.85	3.50	3.00	7.46	21.80	---
18	28.85	19.88	29.43	5.22	4.81	---	3.84	3.60	3.19	8.19	22.00	---
19	28.89	20.54	29.50	5.22	4.78	---	3.93	3.64	3.32	8.72	22.15	---
20	28.93	20.50	29.34	5.40	4.80	---	4.03	3.64	3.30	9.94	22.30	---
21	28.89	10.95	29.23	5.50	---	---	4.10	3.65	2.91	12.26	22.45	---
22	28.71	9.50	21.70	5.45	---	---	4.15	3.71	3.05	14.11	22.60	---
23	28.70	9.10	19.50	5.50	---	4.38	4.21	3.71	3.19	15.34	22.70	---
24	26.68	10.78	13.90	5.67	---	4.33	4.26	3.40	3.32	16.30	22.85	---
25	24.42	12.96	8.25	5.78	---	4.14	4.27	3.42	3.49	16.96	23.00	18.15
26	28.17	14.49	8.15	5.67	---	4.21	4.34	3.23	3.61	17.36	25.70	20.70
27	28.57	16.43	7.88	4.68	---	4.21	4.40	3.43	3.68	17.65	27.20	21.95
28	28.60	18.29	7.70	4.80	---	4.19	4.45	3.56	3.36	17.90	27.90	21.95
29	28.77	20.86	6.65	4.83	---	4.00	4.51	3.63	3.58	18.15	28.35	24.77
30	28.83	21.49	6.57	4.83	---	3.67	4.70	3.68	3.78	18.40	28.75	24.97
31	28.82	---	6.83	4.83	---	3.19	---	3.69	---	18.63	29.03	---
MEAN	28.38	16.65	22.65	6.26	4.83	4.04	3.82	3.67	3.32	9.55	22.30	23.91
MAX	28.93	28.76	29.50	11.51	4.87	4.38	4.70	4.70	3.78	18.63	29.03	29.45
MIN	24.42	9.10	6.57	4.68	4.78	3.19	3.10	3.23	2.90	3.92	17.86	18.15

WTR YR 1989 MEAN 12.89 HIGH 2.90 June 16 LOW 29.50 Dec 19

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 1988 TO SEPTEMBER 1989
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	17.40	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	17.40	---	---	17.10	---	---	15.50	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	17.20	---	---	---	---	---	17.10	17.10	---	17.70
6	---	---	---	---	17.00	16.30	---	---	---	---	---	---
7	---	17.20	---	---	---	---	---	---	---	---	17.20	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	16.90	---	---	---	16.00	---	---	---	---
10	17.50	---	---	---	---	---	16.50	---	---	16.30	---	---
11	---	---	---	---	---	---	---	---	---	---	---	17.50
12	---	---	17.60	---	---	---	---	---	17.30	---	---	---
13	---	---	---	---	17.40	16.20	---	---	---	---	---	---
14	---	17.40	---	---	---	---	---	---	---	---	17.40	---
15	---	---	---	---	---	---	---	16.80	---	---	---	---
16	---	---	---	15.80	---	---	---	---	---	---	---	---
17	17.70	---	---	---	---	---	---	---	---	16.50	---	---
18	---	---	---	---	---	---	---	---	---	---	---	17.40
19	---	---	17.60	---	---	---	---	---	16.70	---	---	---
20	---	---	---	---	16.60	---	---	---	---	---	---	---
21	---	16.10	---	---	---	---	---	---	---	---	17.40	---
22	---	---	---	---	---	---	---	16.30	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	17.30	---	---	---	---	---	17.00	---	---	17.10	---	---
25	---	---	---	17.00	---	---	---	---	---	---	---	17.60
26	---	---	---	---	---	---	---	---	16.50	---	---	---
27	---	---	16.60	---	16.70	15.80	---	---	---	---	---	---
28	---	16.90	---	---	---	---	---	---	---	---	17.60	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	16.80	---	---	---	16.80	---	---	---	---
31	17.70	---	---	---	---	---	---	---	---	16.90	---	---
MEAN	17.52	16.90	17.25	16.72	16.93	16.10	16.33	16.66	16.90	16.78	17.40	17.55
MAX	17.70	17.40	17.60	17.10	17.40	16.30	17.00	17.40	17.30	17.10	17.60	17.70
MIN	17.30	16.10	16.60	15.80	16.60	15.80	15.50	16.00	16.50	16.30	17.20	17.40

WTR YR 1989 MEAN 16.95 HIGH 15.50 Apr 3 LOW 17.70 Oct 17, 31, Sept 5

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 to Nov. 3, Nov. 17, 18, Dec. 7-22, Jan. 4-11, 13, 15, 18-22, Feb. 3-8, Feb. 27 to Mar. 13, May 22-24, June 10-12, and Sept. 11-20, 28-30.
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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		---	47.68	46.92	46.81	---	46.97	47.80	46.68	45.81	49.70	51.27
2		---	47.70	46.84	46.87	---	46.79	47.95	46.64	45.95	49.74	51.30
3		---	47.65	46.82	---	---	46.05	47.90	46.61	46.12	49.73	51.32
4		51.17	47.75	47.12	---	---	45.60	47.85	46.63	46.30	49.83	51.30
5		50.98	47.60	47.12	---	---	45.30	47.94	46.60	46.48	49.95	51.30
6		50.76	47.55	---	---	---	44.99	48.10	46.65	46.65	50.03	51.30
7		50.80	---	---	---	---	44.81	48.20	46.71	46.86	50.16	51.28
8		50.70	---	---	---	---	44.82	48.24	46.75	46.99	50.27	51.30
9		50.48	---	---	47.34	---	45.11	48.24	46.86	47.09	50.29	51.42
10		49.85	---	---	47.21	---	45.25	48.19	---	47.36	50.33	51.50
11		49.84	---	---	47.20	---	45.50	48.08	---	47.53	50.35	---
12		49.80	---	46.91	47.58	---	45.56	47.74	---	47.62	50.40	---
13		49.20	---	---	47.57	---	45.71	47.70	47.11	47.78	50.44	---
14		49.17	---	46.84	47.74	47.30	45.71	47.50	47.12	48.07	50.44	---
15		49.01	---	---	47.80	47.85	45.95	47.30	47.03	48.16	50.58	---
16		48.65	---	47.06	47.91	47.93	46.09	47.10	46.90	48.13	50.70	---
17		---	---	47.12	47.86	47.90	46.27	47.10	46.81	48.45	50.71	---
18		---	---	---	47.52	48.05	46.41	47.06	46.66	48.50	50.69	---
19		48.50	---	---	47.16	48.08	46.51	46.95	46.56	48.50	50.64	---
20		48.27	---	---	47.13	47.96	46.55	46.85	46.51	48.75	50.77	---
21		48.36	---	---	46.95	47.92	46.71	47.03	46.32	48.80	50.80	51.88
22		48.31	---	---	47.05	48.03	46.83	---	46.02	48.95	50.81	51.80
23		47.97	48.07	47.35	47.13	47.97	46.94	---	45.74	49.03	50.85	51.99
24		47.75	48.07	47.43	47.13	47.79	47.00	---	45.60	49.19	50.88	52.04
25		47.68	48.12	47.55	46.96	47.75	47.10	47.15	45.42	49.20	50.89	51.84
26		47.52	48.14	47.39	46.63	47.82	47.26	47.23	45.34	49.19	51.00	51.85
27		47.37	47.91	47.35	---	47.80	47.41	47.22	45.50	49.35	51.03	51.85
28		47.80	47.58	47.29	---	47.72	47.51	47.18	45.71	49.45	50.94	---
29		47.82	47.58	47.10	---	47.74	47.65	46.93	45.80	49.47	51.10	---
30		47.55	47.42	46.81	---	47.40	47.80	46.70	45.76	49.62	51.11	---
31		---	47.17	46.72	---	47.17	---	46.72	---	49.70	51.15	---
MEAN		48.99	47.73	47.09	47.25	47.79	46.27	47.50	46.37	48.03	50.53	51.91
MAX		51.17	48.14	47.55	47.91	48.08	47.80	48.24	47.12	49.70	51.15	55.29
MIN		47.37	47.17	46.72	46.63	47.17	44.81	46.70	45.34	45.81	49.70	51.27

WTR YR 1989 MEAN 48.11 HIGH 44.81 APR 7 LOW 52.04 SEPT 24

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.--None.
PERIOD OF RECORD.--October 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 2.41 ft below land-surface datum, June 22, 1989; lowest, 6.62 ft below land-surface datum, Oct. 7, 8, 1980.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.39	4.57	4.18	4.11	3.95	3.98	3.28	3.77	3.08	2.86	4.15	5.02
2	4.33	4.60	4.20	4.12	4.00	4.01	3.30	3.43	3.12	2.87	4.14	5.18
3	4.40	4.69	4.20	3.99	4.15	3.96	3.16	3.46	3.13	2.90	4.12	5.24
4	4.42	4.61	4.28	4.20	4.18	3.95	3.06	3.54	3.17	2.92	4.10	5.25
5	4.56	4.38	4.14	4.16	4.02	3.89	3.11	3.40	3.17	2.93	4.13	5.24
6	4.66	4.35	4.11	4.15	3.95	3.95	3.06	3.21	3.13	2.98	4.20	5.22
7	4.65	4.60	4.18	4.16	3.98	4.11	3.08	3.13	3.15	3.06	4.28	5.20
8	4.57	4.64	4.31	4.15	4.00	4.13	3.08	3.17	3.16	3.21	4.46	5.18
9	4.51	4.67	4.23	4.30	4.10	4.07	3.38	3.18	3.14	3.25	4.53	5.20
10	4.42	4.42	4.22	4.28	3.93	4.02	3.52	2.98	3.31	3.27	4.59	5.25
11	4.52	4.66	4.40	4.32	3.85	3.88	3.52	2.75	3.37	3.40	4.55	5.36
12	4.73	4.65	4.41	4.05	4.15	3.98	3.51	2.75	3.33	3.48	4.54	5.39
13	4.79	4.36	4.26	4.25	4.11	3.94	3.52	2.85	3.13	3.47	4.58	5.40
14	4.78	4.42	4.28	4.23	4.17	3.82	3.51	2.86	3.18	3.56	4.63	5.37
15	4.68	4.44	4.48	3.95	4.13	4.05	3.35	2.86	3.07	3.71	4.59	5.38
16	4.73	4.29	4.49	3.98	4.25	4.13	3.49	2.68	2.88	3.72	4.58	5.36
17	4.73	4.42	4.33	3.98	4.24	4.07	3.51	2.78	2.92	3.73	4.83	5.38
18	4.69	4.51	4.40	3.95	4.00	4.05	3.50	2.91	2.92	3.82	4.86	5.40
19	4.74	4.45	4.48	3.97	3.78	4.08	3.52	2.95	2.91	3.81	4.86	5.41
20	4.80	4.16	4.48	4.12	3.84	3.99	3.57	2.81	2.88	3.83	4.79	5.38
21	4.78	4.35	4.65	4.29	3.58	3.95	3.50	2.94	2.46	4.01	4.82	5.40
22	4.56	4.35	4.71	4.20	3.73	4.06	3.49	2.95	2.41	4.10	4.85	5.35
23	4.61	4.20	4.52	4.16	3.90	4.05	3.52	2.93	2.42	4.12	4.83	5.37
24	4.55	4.12	4.32	4.17	3.90	3.96	3.54	2.90	2.46	4.11	4.89	5.45
25	4.60	4.12	4.32	4.27	3.79	3.65	3.52	2.90	2.52	4.13	4.96	5.43
26	4.74	4.06	4.43	4.13	3.55	3.73	3.53	2.91	2.54	3.96	4.90	5.25
27	4.79	3.91	4.43	4.07	3.78	3.70	3.54	3.12	2.56	3.96	4.93	5.30
28	4.76	4.17	4.57	4.11	3.82	3.60	3.58	3.15	2.60	3.98	4.98	5.18
29	4.80	4.28	4.23	4.00	---	3.35	3.64	3.12	2.86	4.03	4.95	4.92
30	4.81	4.06	4.37	3.83	---	3.30	3.77	3.02	2.92	4.06	4.99	4.90
31	4.80	---	4.11	3.82	---	2.90	---	3.05	---	4.12	5.08	---
MEAN	4.64	4.38	4.35	4.11	3.96	3.88	3.42	3.05	2.93	3.59	4.64	5.28
MAX	4.81	4.69	4.71	4.32	4.25	4.13	3.77	3.77	3.37	4.13	5.08	5.45
MIN	4.33	3.91	4.11	3.82	3.55	2.90	3.06	2.68	2.41	2.86	4.10	4.90

WTR YR 1989 MEAN 4.02 HIGH 2.41 June 22 LOW 5.45 Sept 24

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. 26 to Dec. 6, Jan. 5-22, Feb. 25, 26, June 24 and July 19-27.
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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.10	18.96	---	18.22	18.72	18.97	18.74	18.86	18.51	18.53	20.92	22.80
2	21.09	18.90	---	18.19	18.70	18.97	18.64	18.90	18.52	18.57	20.90	22.78
3	21.07	18.85	---	18.19	18.69	18.97	18.54	18.94	18.53	18.59	20.88	22.78
4	21.07	18.80	---	18.19	18.68	18.97	18.45	18.97	18.53	18.60	20.86	22.74
5	21.06	18.73	---	---	18.70	18.97	18.34	19.01	18.54	18.62	20.85	22.67
6	21.02	18.68	---	---	18.69	18.98	18.22	19.03	18.53	18.65	20.85	22.63
7	20.99	18.63	18.06	---	18.69	18.99	18.10	19.06	18.53	18.70	20.86	22.58
8	20.97	18.58	18.12	---	18.73	18.98	18.02	19.06	18.53	18.79	20.92	22.62
9	20.93	18.53	18.14	---	18.74	18.95	17.98	19.06	18.55	18.88	20.96	22.63
10	20.89	18.49	18.17	---	18.77	18.95	17.96	19.05	18.55	18.96	21.15	22.64
11	20.83	18.43	18.18	---	18.79	18.95	17.98	19.01	18.54	19.07	21.30	22.64
12	20.76	18.39	18.20	---	18.83	18.95	18.02	18.96	18.53	19.17	21.42	22.66
13	20.67	18.36	18.23	---	18.88	18.97	18.08	18.86	18.48	19.27	21.53	22.72
14	20.59	18.31	18.25	---	18.96	18.98	18.12	18.78	18.45	19.38	21.63	22.76
15	20.47	18.27	18.30	---	19.02	19.01	18.17	18.67	18.40	19.46	21.74	22.76
16	20.39	18.22	18.33	---	19.05	19.03	18.21	18.57	18.39	19.53	21.86	22.77
17	20.32	18.19	18.37	---	19.08	19.06	18.24	18.48	18.36	19.59	22.02	22.73
18	20.23	18.17	18.40	---	19.08	19.06	18.27	18.43	18.35	19.66	22.17	22.70
19	20.10	18.17	18.44	---	19.07	19.06	18.30	18.41	18.35	---	22.21	22.67
20	19.94	18.17	18.47	---	19.08	19.03	18.34	18.41	18.36	---	22.28	22.68
21	19.84	18.14	18.51	---	19.08	18.97	18.37	18.40	18.37	---	22.40	22.66
22	19.69	18.11	18.51	---	19.08	18.96	18.40	18.40	18.37	---	22.53	22.64
23	19.55	18.07	18.50	18.73	19.06	18.94	18.46	18.40	18.38	---	22.52	22.46
24	19.40	18.04	18.48	18.78	19.06	18.94	18.51	18.40	---	---	22.53	22.39
25	19.37	17.99	18.44	18.83	---	18.91	18.55	18.42	18.35	---	22.61	22.36
26	19.30	---	18.38	18.85	---	18.90	18.60	18.41	18.38	---	22.65	22.29
27	19.25	---	18.37	18.87	18.97	18.88	18.65	18.43	18.39	---	22.74	22.29
28	19.16	---	18.34	18.87	18.98	18.87	18.70	18.43	18.42	21.02	22.80	22.29
29	19.11	---	18.30	18.86	---	18.85	18.76	18.47	18.45	21.00	22.80	22.29
30	19.06	---	18.26	18.82	---	18.83	18.82	18.48	18.50	20.97	22.80	22.24
31	19.02	---	18.24	18.80	---	18.82	---	18.49	---	20.97	22.81	---
MEAN	20.23	18.41	18.32	18.63	18.89	18.96	18.35	18.69	18.45	19.36	21.82	22.60
MAX	21.10	18.96	18.51	18.87	19.08	19.06	18.82	19.06	18.55	21.02	22.81	22.80
MIN	19.02	17.99	18.06	18.19	18.68	18.82	17.96	18.40	18.35	18.53	20.85	22.24

WTR YR 1989 MEAN 19.48 HIGH 17.96 Apr 10 LOW 22.81 Aug 31

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. 15-22, Oct. 26 to Nov. 1, Nov. 17-20, Dec. 20 to Mar. 2, June 23, 24, July 28 to Aug. 9, and Sept. 1-25.
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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.06	---	22.84			---	20.15	22.15	22.09	22.07	---	---
2	23.01	23.07	22.86			---	20.20	21.95	22.17	22.06	---	---
3	23.06	23.07	22.84			20.79	20.08	21.82	22.21	22.09	---	---
4	23.06	23.07	22.90			20.94	19.96	21.83	22.33	22.19	---	---
5	23.13	23.05	22.85			20.94	20.07	21.67	22.33	22.29	---	---
6	23.21	22.98	22.81			20.82	20.07	21.43	22.44	22.36	---	---
7	23.20	22.96	22.81			20.74	20.08	21.25	22.53	22.40	---	---
8	23.15	23.02	22.84			20.81	20.09	21.13	22.59	22.48	---	---
9	23.13	23.02	22.83			20.81	20.54	21.01	22.58	22.52	---	---
10	23.12	23.03	22.79			20.77	20.79	20.75	22.91	22.55	23.23	---
11	23.17	22.98	22.85			20.69	20.88	20.46	23.00	22.62	23.15	---
12	23.20	23.06	22.86			20.60	20.95	20.28	22.93	22.65	23.05	---
13	23.25	23.04	22.78			20.60	21.04	20.16	22.85	22.59	22.93	---
14	23.21	22.97	22.80			20.42	21.12	20.16	22.97	22.83	22.92	---
15	---	22.97	22.91			20.53	21.07	20.13	22.97	22.93	22.88	---
16	---	22.95	22.90			20.68	21.25	20.10	23.01	22.91	22.83	---
17	---	---	22.82			20.70	21.35	20.23	23.00	22.92	22.95	---
18	---	---	22.85			20.70	21.37	20.39	22.86	22.95	23.02	---
19	---	---	22.88			20.83	21.54	20.45	22.77	22.90	23.02	---
20	---	---	---			20.84	21.57	20.41	22.70	22.70	22.88	---
21	---	22.59	---			20.58	21.52	20.65	22.61	22.83	22.85	---
22	---	22.63	---			20.63	21.60	20.74	22.43	22.97	22.88	---
23	23.14	22.60	---			20.58	21.65	20.72	---	23.00	22.85	---
24	23.05	22.62	---			20.41	21.70	21.02	---	22.98	22.78	---
25	23.06	22.63	---			20.15	21.70	21.15	22.23	23.00	22.70	---
26	---	22.61	---			20.24	21.65	21.44	22.20	22.96	22.70	22.36
27	---	22.58	---			20.26	21.75	21.73	22.18	22.84	22.78	22.73
28	---	22.71	---			20.22	21.80	21.84	22.15	---	22.80	22.70
29	---	22.80	---			20.18	21.87	21.89	22.14	---	22.81	22.57
30	---	22.80	---			20.18	22.00	21.92	22.13	---	22.82	22.59
31	---	---	---			19.93	---	22.02	---	---	22.82	---
MEAN	23.13	22.87	22.84			20.57	21.05	21.06	22.55	22.65	22.89	22.59
MAX	23.25	23.07	22.91			20.94	22.00	22.15	23.01	23.00	23.23	22.73
MIN	23.01	22.58	22.78			19.93	19.96	20.10	22.09	22.06	22.70	22.36

WTR YR 1989 MEAN 22.06 HIGH 19.93 Mar 31 LOW 23.25 Oct 13

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 Sept. 25-30.
PERIOD OF RECORD.--August 1973 to current year.
EXTREHES 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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.83	9.89	9.06	8.61	8.51	8.59	7.78	8.87	8.40	8.58	9.15	10.38
2	10.83	9.81	9.09	8.60	8.55	8.59	7.78	8.67	8.42	8.69	9.20	10.50
3	10.88	9.80	9.09	8.60	8.58	8.66	7.75	8.67	8.46	8.81	9.23	10.55
4	10.92	9.80	9.14	8.59	8.59	8.69	7.60	8.67	8.43	8.85	9.25	10.60
5	10.99	9.67	9.13	8.61	8.60	8.73	7.50	8.72	8.50	8.86	9.32	10.65
6	11.05	9.49	9.12	8.61	8.59	8.72	7.62	8.50	8.52	8.90	9.37	10.67
7	11.05	9.47	9.10	8.76	8.58	8.64	7.72	8.50	8.58	8.91	9.45	10.67
8	11.04	9.47	9.19	8.75	8.58	8.69	7.80	8.50	8.63	8.95	9.55	10.67
9	11.02	9.46	9.20	8.77	8.59	8.73	8.01	8.37	8.68	9.02	9.65	10.68
10	11.00	9.45	9.20	8.77	8.59	8.74	8.15	8.25	8.65	9.10	9.73	10.71
11	10.82	9.38	9.23	8.80	8.59	8.75	8.29	8.13	8.70	9.22	9.77	10.75
12	10.83	9.39	9.24	8.79	8.66	8.73	8.34	8.07	8.70	9.32	9.80	10.80
13	10.85	9.36	9.24	8.73	8.69	8.71	8.37	8.15	8.62	9.36	9.85	10.85
14	10.86	9.28	9.20	8.73	8.70	8.72	8.38	8.14	8.63	9.45	9.89	10.85
15	10.82	9.23	9.25	8.67	8.70	8.73	8.34	8.04	8.50	9.58	9.91	10.80
16	10.80	9.22	9.29	8.63	8.76	8.71	8.40	8.08	8.30	9.67	9.94	10.80
17	10.77	9.14	9.28	8.61	8.75	8.78	8.45	8.25	8.33	9.73	10.04	10.55
18	10.74	9.22	9.28	8.63	8.74	8.78	8.45	8.15	8.23	9.79	10.08	10.55
19	10.59	9.23	9.29	8.60	8.63	8.79	8.48	8.25	8.30	9.84	10.10	10.55
20	10.47	9.14	9.30	8.61	8.60	8.71	8.54	8.27	8.29	9.85	10.10	10.55
21	10.46	9.10	9.33	8.71	8.60	8.71	8.60	8.34	8.09	9.79	10.05	10.50
22	10.29	9.10	9.34	8.72	8.49	8.60	8.63	8.41	8.04	9.60	10.06	10.50
23	10.17	9.10	9.29	8.73	8.51	8.61	8.67	8.41	8.06	9.16	10.07	10.25
24	10.09	9.05	9.15	8.76	8.53	8.60	8.70	8.29	8.09	8.94	10.16	10.30
25	10.00	9.02	8.99	8.80	8.52	8.49	8.70	8.31	8.09	8.90	10.23	---
26	9.97	9.02	8.98	8.80	8.48	8.39	8.68	8.33	8.13	8.93	10.28	---
27	10.00	9.00	8.95	8.68	8.41	8.32	8.70	8.33	8.20	8.93	10.35	---
28	9.99	9.00	8.85	8.68	8.50	8.26	8.75	8.37	8.25	8.86	10.37	---
29	9.93	9.05	8.76	8.64	---	8.12	8.80	8.37	8.38	8.95	10.37	---
30	9.93	9.05	8.75	8.57	---	8.08	8.91	8.36	8.48	9.01	10.34	---
31	9.93	---	8.72	8.54	---	7.88	---	8.36	---	9.08	10.38	---
MEAN	10.58	9.31	9.13	8.68	8.59	8.59	8.30	8.36	8.39	9.18	9.87	10.61
MAX	11.05	9.89	9.34	8.80	8.76	8.79	8.91	8.87	8.70	9.85	10.38	10.85
MIN	9.93	9.00	8.72	8.54	8.41	7.88	7.50	8.04	8.04	8.58	9.15	10.25

WTR YR 1989 MEAN 9.11 HIGH 7.50 Apr 5 LOW 11.05 Oct 6, 7

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.--Missing record Jan. 16-28, and Feb. 6-21.
PERIOD OF RECORD.--June 1973 to current year.
EXTREHES 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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43.90	44.38	42.37	39.94	34.90	33.40	31.45	33.29	33.40	34.40	34.23	37.71
2	43.80	44.35	42.34	39.77	34.90	33.48	31.57	31.90	33.55	34.49	34.44	37.82
3	43.83	44.35	42.47	39.56	34.72	33.61	31.73	31.92	33.68	34.62	34.54	37.97
4	43.95	44.36	42.52	39.45	33.93	33.70	31.96	32.00	33.88	34.75	34.72	38.16
5	44.04	44.29	42.55	39.43	33.66	33.70	32.13	32.04	33.98	34.75	34.79	38.32
6	44.06	43.85	42.58	39.32	---	32.98	32.25	32.07	34.16	33.97	34.98	38.39
7	44.02	43.52	42.60	38.36	---	31.76	32.39	31.75	34.35	33.79	35.10	38.43
8	43.98	43.49	42.61	37.54	---	32.02	32.53	31.69	34.52	33.91	35.32	38.39
9	44.30	43.68	42.63	36.76	---	32.13	32.74	31.75	34.69	33.96	35.43	38.47
10	44.25	44.09	42.66	36.58	---	32.18	32.83	30.84	34.81	33.96	35.64	38.47
11	44.20	43.89	42.83	36.53	---	32.17	32.92	31.02	34.95	34.01	35.74	38.54
12	44.17	43.89	43.09	36.43	---	32.29	32.99	31.18	35.02	32.85	35.89	38.63
13	44.17	43.89	43.15	35.42	---	32.35	33.16	31.31	35.14	31.97	35.96	38.62
14	44.19	43.64	43.23	35.03	---	32.44	33.26	31.47	35.29	32.08	36.17	38.63
15	44.36	43.42	43.13	34.06	---	32.79	33.38	31.55	35.35	32.33	36.23	38.63
16	44.32	43.39	43.10	---	---	32.92	33.55	31.16	35.38	32.51	36.43	38.64
17	44.33	43.37	43.11	---	---	32.96	33.65	31.37	35.35	32.76	36.53	38.57
18	44.34	43.40	43.07	---	---	33.03	33.67	31.53	35.37	32.96	36.63	38.56
19	44.14	43.46	43.07	---	---	33.05	33.49	31.71	35.45	33.04	36.62	38.54
20	44.18	43.33	43.07	---	---	33.01	32.89	31.87	35.50	32.46	36.72	38.57
21	44.24	41.92	42.93	---	---	32.58	32.86	32.08	35.32	32.73	36.85	38.59
22	44.19	42.17	42.64	---	31.78	32.05	32.96	32.18	35.00	32.95	36.95	38.59
23	44.13	42.30	42.48	---	32.21	32.20	33.07	32.29	34.93	33.15	37.03	38.57
24	44.06	42.41	42.07	---	32.49	32.21	33.16	32.46	34.97	33.33	37.12	37.70
25	43.60	42.48	40.81	---	32.56	31.81	33.28	32.55	35.05	33.47	37.24	37.38
26	43.87	42.50	40.73	---	32.81	32.01	33.38	32.60	35.14	33.59	37.39	37.16
27	44.63	42.58	40.69	---	33.05	32.18	33.52	32.72	35.15	33.64	37.56	37.16
28	44.98	42.49	40.68	---	33.23	32.29	33.64	32.76	34.78	33.71	37.61	37.13
29	44.76	42.45	40.50	35.24	---	32.36	33.64	32.90	34.38	33.88	37.75	37.16
30	44.33	42.40	40.22	35.12	---	32.10	33.35	33.04	34.31	33.95	37.70	37.22
31	44.35	---	40.07	35.03	---	31.11	---	33.23	---	34.14	37.73	---
MEAN	44.18	43.32	42.26	37.20	33.35	32.54	32.91	32.01	34.76	33.49	36.23	38.16
MAX	44.98	44.38	43.23	39.94	34.90	33.70	33.67	33.29	35.50	34.75	37.75	38.64
MIN	43.60	41.92	40.07	34.06	31.78	31.11	31.45	30.84	33.40	31.97	34.23	37.13

WTR YR 1989 MEAN 36.86 HIGH 30.84 May 10 LOW 44.98 Oct 28

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: Commomwealth 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 Feb. 18, 19, June 20 to July 19 and July 23 to Aug. 1.
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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	77.57	77.88	77.44	77.36	77.09	76.82	74.64	75.44	74.39	---	---	75.05
2	77.59	77.99	77.51	77.39	77.18	76.82	74.65	74.99	74.41	---	74.81	75.24
3	77.70	78.08	77.42	77.39	77.34	76.76	74.42	75.09	74.45	---	74.77	75.30
4	77.73	77.96	77.62	77.65	77.33	76.74	74.47	75.13	74.46	---	74.71	75.37
5	77.90	77.82	77.49	77.59	77.15	76.73	74.53	74.92	74.49	---	74.71	75.35
6	77.96	77.86	77.40	77.58	77.08	76.72	74.53	74.77	74.45	---	74.71	75.33
7	77.91	78.02	77.50	77.63	77.12	76.85	74.50	74.71	74.55	---	74.74	75.31
8	77.84	77.98	77.67	77.59	77.19	76.90	74.50	74.70	74.61	---	74.89	75.30
9	77.77	77.99	77.65	77.64	77.29	76.89	74.85	74.70	74.58	---	74.99	75.04
10	77.71	77.76	77.54	77.60	77.09	76.65	75.01	74.40	74.80	---	75.01	74.98
11	77.91	77.98	77.79	77.65	76.99	76.33	75.02	74.28	74.90	---	74.95	74.88
12	78.12	77.98	77.81	77.32	77.33	76.08	75.01	74.22	74.81	---	74.86	74.89
13	78.15	77.72	77.61	77.44	77.33	76.07	75.03	74.27	74.56	---	74.84	74.89
14	78.09	77.71	77.67	77.41	77.38	75.75	75.03	74.27	74.58	---	74.89	74.83
15	77.98	77.69	77.97	77.02	77.24	75.73	74.90	74.27	74.54	---	74.83	74.60
16	78.00	77.56	77.95	77.05	77.31	75.93	75.06	74.20	74.43	---	74.85	74.38
17	78.05	77.72	77.73	76.99	77.20	75.85	75.08	74.44	74.43	---	75.11	74.40
18	78.07	77.83	77.81	76.98	---	75.71	75.04	74.55	74.40	---	75.20	74.45
19	78.12	77.72	77.88	77.04	---	75.84	75.09	74.54	74.39	---	75.16	74.46
20	78.21	77.46	77.91	77.16	76.60	75.80	75.20	74.39	---	74.24	75.05	74.46
21	78.14	77.53	78.16	77.27	76.45	75.42	75.13	74.53	---	74.48	75.03	74.53
22	77.99	77.52	78.16	77.14	76.27	75.50	75.17	74.57	---	74.68	75.03	74.53
23	77.99	77.30	77.84	77.07	76.47	75.46	75.22	74.51	---	---	75.05	74.53
24	77.84	77.18	77.78	77.10	76.63	75.37	75.24	74.41	---	---	75.13	74.68
25	77.95	77.17	77.86	77.20	76.53	75.04	75.21	74.43	---	---	75.17	74.64
26	78.09	77.15	77.87	77.08	76.13	75.06	75.21	74.36	---	---	75.13	74.93
27	78.16	77.09	77.63	77.15	76.35	75.05	75.21	74.54	---	---	75.20	75.10
28	78.11	77.37	77.68	77.17	76.59	75.02	75.25	74.64	---	---	75.23	75.10
29	78.15	77.57	77.70	77.07	---	74.74	75.31	74.56	---	---	75.15	75.10
30	78.12	77.32	77.51	76.95	---	74.62	75.45	74.50	---	---	75.15	75.20
31	78.11	---	77.48	76.97	---	74.37	---	74.59	---	---	75.20	---
MEAN	77.97	77.66	77.71	77.28	76.95	75.89	74.97	74.58	74.54	74.47	74.99	74.90
MAX	78.21	78.08	78.16	77.65	77.38	76.90	75.45	75.44	74.90	74.68	75.23	75.37
MIN	77.57	77.09	77.40	76.95	76.13	74.37	74.42	74.20	74.39	74.24	74.71	74.38

WTR YR 1989 MEAN 76.17 HIGH 74.20 May 16 LOW 78.21 Oct 20

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 Oct. 1, and Oct. 31, to Nov. 19.
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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	27.50	27.73	27.29	27.62	26.80	26.80	25.85	25.73	28.37	28.65
2	30.01	---	27.52	27.65	27.29	27.46	26.48	26.70	25.85	25.77	28.42	28.63
3	29.81	---	27.56	27.62	27.35	27.27	26.16	26.73	25.83	25.89	28.44	28.52
4	29.51	---	27.64	27.77	27.37	27.23	26.03	26.81	25.93	25.91	28.40	28.41
5	29.46	---	27.50	27.69	27.23	27.13	26.05	26.63	25.89	26.02	28.57	28.49
6	29.43	---	27.56	27.71	27.01	27.20	25.93	26.52	25.81	26.07	28.47	28.55
7	29.48	---	27.66	27.80	27.11	27.40	26.02	26.46	25.81	26.16	28.54	28.60
8	29.59	---	27.76	27.81	27.11	27.51	26.32	26.43	25.86	26.34	28.55	28.78
9	29.43	---	27.72	27.84	27.22	27.56	26.48	26.37	25.88	26.40	28.66	28.73
10	29.28	---	27.66	27.84	27.14	27.56	26.63	26.24	26.06	26.44	28.72	28.72
11	29.37	---	27.82	27.86	27.14	27.41	26.80	26.06	26.11	26.56	28.65	28.92
12	29.39	---	27.82	27.63	27.52	27.53	26.76	25.92	26.05	26.57	28.57	28.99
13	29.38	---	27.74	27.81	27.55	27.56	26.83	25.84	26.01	26.52	28.60	28.96
14	29.64	---	27.77	27.78	27.62	27.57	26.86	25.72	26.01	26.76	28.67	28.67
15	29.49	---	27.93	27.59	27.57	27.96	26.97	25.60	25.92	26.94	28.64	28.80
16	29.25	---	27.91	27.59	27.69	27.96	27.10	25.44	25.82	26.92	28.65	28.73
17	29.25	---	27.82	27.48	27.68	27.88	27.15	25.53	25.89	27.00	28.82	28.91
18	29.04	---	27.89	27.45	27.42	28.09	27.13	25.55	25.83	27.08	28.90	29.04
19	28.99	---	28.07	27.48	27.29	28.10	27.30	25.53	25.75	27.05	28.85	29.16
20	29.16	27.70	28.09	27.46	27.37	27.90	27.26	25.37	25.70	27.12	28.76	29.12
21	29.16	28.07	28.32	27.73	27.16	27.99	27.24	25.44	25.60	27.33	28.87	29.16
22	29.16	28.06	28.37	27.69	27.30	27.99	27.32	25.44	25.48	27.48	28.89	29.04
23	29.40	27.76	28.10	27.53	27.25	27.85	27.32	25.45	25.49	27.57	28.91	29.13
24	29.34	27.60	28.07	27.41	27.24	27.52	27.17	25.53	25.45	27.71	29.00	29.22
25	30.28	27.54	28.21	27.52	27.22	27.73	26.98	25.54	25.45	27.77	29.02	29.16
26	30.26	27.42	28.25	27.34	27.18	27.54	26.75	25.60	25.46	27.80	28.92	29.05
27	30.15	27.25	28.11	27.49	27.48	27.34	26.75	25.79	25.44	27.72	28.80	29.18
28	29.74	27.44	28.00	27.48	27.62	27.26	26.67	25.85	25.59	27.65	28.60	29.06
29	29.66	27.57	28.05	27.39	---	27.30	26.54	25.82	25.76	27.82	28.44	28.95
30	29.63	27.38	27.91	27.20	---	26.90	26.80	25.75	25.76	27.85	28.46	29.05
31	---	---	27.79	27.21	---	26.80	---	25.82	---	28.10	28.50	---
MEAN	29.51	27.62	27.87	27.60	27.34	27.55	26.75	25.94	25.78	26.90	28.67	28.88
MAX	30.28	28.07	28.37	27.86	27.69	28.10	27.32	26.81	26.11	28.10	29.02	29.22
MIN	28.99	27.25	27.50	27.20	27.01	26.80	25.93	25.37	25.44	25.73	28.37	28.41

WTR YR 1989 MEAN 27.52 HIGH 25.37 May 20 LOW 30.28 Oct 25

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.--Higbest 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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.99	18.81	16.98	16.50	16.14	16.13	15.64	17.07	15.82	15.73	17.07	18.22
2	18.98	18.83	17.05	16.46	16.21	16.23	15.29	17.04	15.63	15.94	17.10	18.33
3	19.00	18.86	17.05	16.47	16.27	16.30	15.04	17.08	15.55	16.09	17.14	18.40
4	19.03	18.81	17.15	16.58	16.28	16.49	14.81	17.10	15.45	16.22	17.16	18.43
5	19.03	18.33	17.17	16.59	16.28	16.40	14.60	17.07	15.17	16.29	17.21	18.44
6	19.09	17.96	17.20	16.59	16.32	16.22	14.48	17.07	15.03	16.32	17.28	18.47
7	19.10	17.70	17.30	16.58	16.37	16.17	14.58	17.11	15.18	16.41	17.34	18.45
8	19.09	17.58	17.40	16.47	16.42	16.19	14.72	17.15	15.29	16.52	17.44	18.43
9	19.07	17.53	17.42	16.22	16.49	16.20	14.95	17.17	15.44	16.59	17.51	18.40
10	19.05	17.54	17.46	16.12	16.53	16.22	15.16	17.10	15.61	16.68	17.57	18.40
11	19.09	17.51	17.58	16.15	16.57	16.19	15.34	16.82	15.73	16.78	17.60	18.44
12	19.17	17.48	17.61	16.12	16.71	16.18	15.46	16.36	15.79	16.86	17.64	18.46
13	19.20	17.32	17.64	16.05	16.71	16.17	15.62	16.03	15.80	16.92	17.69	18.46
14	19.20	17.20	17.69	16.05	16.80	16.12	15.70	15.82	15.77	17.02	17.74	18.47
15	19.19	17.14	17.79	16.00	16.79	16.13	15.85	15.65	15.25	17.10	17.76	18.43
16	19.19	17.05	17.81	15.98	16.69	16.17	15.97	15.51	14.58	17.16	17.80	18.41
17	19.20	17.09	17.81	16.03	16.54	16.17	16.08	15.45	14.15	17.23	17.89	18.24
18	19.17	17.16	17.85	16.03	16.41	16.21	16.18	15.49	14.34	17.30	17.93	18.12
19	19.01	17.16	17.92	16.06	16.32	16.26	16.29	15.58	14.60	17.34	17.93	18.07
20	18.98	17.13	17.97	16.08	16.34	16.26	16.36	15.67	14.67	17.35	17.91	18.05
21	18.96	16.97	17.97	16.15	16.29	16.20	16.44	15.83	14.62	17.45	17.95	18.02
22	18.86	16.85	17.97	16.27	15.89	16.22	16.55	15.92	14.50	17.54	17.98	18.01
23	18.82	16.78	17.91	16.32	15.60	16.13	16.63	15.96	14.28	17.56	18.01	17.81
24	18.73	16.75	17.79	16.37	15.57	16.08	16.67	15.96	14.50	17.59	18.05	17.51
25	18.70	16.76	17.58	16.40	15.59	16.05	16.71	15.96	14.75	17.66	18.11	17.37
26	18.69	16.77	17.40	16.38	15.68	16.14	16.79	15.86	14.99	17.69	18.12	17.29
27	18.71	16.81	17.31	16.27	15.85	16.20	16.86	15.62	15.09	17.39	18.17	17.33
28	18.75	16.85	17.13	16.20	15.99	16.22	16.91	15.57	15.23	17.01	18.19	17.34
29	18.79	16.87	16.88	16.13	---	16.22	16.97	15.64	15.41	16.93	18.18	17.35
30	18.82	16.91	16.62	16.06	---	16.19	17.05	15.73	15.58	16.95	18.21	17.41
31	18.85	---	16.53	16.06	---	15.98	---	15.81	---	16.98	18.24	---
MEAN	18.98	17.42	17.45	16.25	16.27	16.19	15.86	16.23	15.13	16.92	17.74	18.09
MAX	19.20	18.86	17.97	16.59	16.80	16.49	17.05	17.17	15.82	17.69	18.24	18.47
MIN	18.69	16.75	16.53	15.98	15.57	15.98	14.48	15.45	14.15	15.73	17.07	17.29

WTR YR 1989 MEAN 16.89 HIGH 14.15 June 17 LOW 19.20 Oct 13, 14, 17

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 , deptb 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.--Missing record Sept. 20 .
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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.54	27.23	27.11	26.97	27.04	26.95	26.75	27.00	26.44	26.22	27.03	27.31
2	27.39	27.14	27.14	26.88	27.06	26.97	26.75	26.88	26.38	26.22	27.03	27.37
3	27.39	27.39	27.14	26.87	27.23	26.97	26.61	27.01	26.44	26.23	27.02	27.43
4	27.44	27.37	27.14	27.02	27.25	26.98	26.48	27.05	26.42	26.26	27.02	27.43
5	27.46	27.26	27.14	26.99	27.17	26.98	26.52	26.95	26.43	26.31	27.02	27.43
6	27.53	27.14	27.13	27.01	27.07	27.01	26.50	26.84	26.40	26.31	27.03	27.40
7	27.54	27.35	27.12	27.04	27.07	27.20	26.42	26.80	26.44	26.32	27.04	27.36
8	27.54	27.42	27.31	27.04	27.06	27.23	26.37	26.86	26.46	26.31	27.04	27.30
9	27.45	27.45	27.31	27.20	27.19	27.19	26.50	26.88	26.46	26.31	27.04	27.29
10	27.29	27.31	27.23	27.18	27.07	27.14	26.61	26.75	26.58	26.32	27.03	27.29
11	27.29	27.38	27.16	27.22	27.01	27.04	26.63	26.68	26.66	26.42	27.04	27.34
12	27.46	27.38	27.16	27.12	27.10	27.01	26.63	26.60	26.66	26.43	27.03	27.38
13	27.50	27.19	27.16	27.19	27.10	27.01	26.63	26.64	26.52	26.41	27.02	27.38
14	27.50	27.15	27.16	27.20	27.25	26.94	26.63	26.64	26.57	26.50	27.01	27.34
15	27.46	27.22	27.33	26.95	27.25	27.00	26.53	26.60	26.56	26.57	27.09	27.30
16	27.39	27.18	27.36	27.02	27.45	27.13	26.60	26.55	26.52	26.58	27.19	27.31
17	27.40	27.23	27.22	27.03	27.44	27.14	26.62	26.63	26.53	26.60	27.30	27.35
18	27.33	27.45	27.22	27.02	27.28	27.13	26.61	26.66	26.52	26.68	27.34	27.42
19	27.28	27.44	27.26	27.01	27.02	27.22	26.67	26.63	26.50	26.65	27.29	27.42
20	27.41	27.20	27.26	27.15	26.93	27.20	26.70	26.53	26.43	26.68	27.14	---
21	27.36	27.21	27.41	27.24	26.74	27.04	26.71	26.45	26.36	26.84	27.17	27.40
22	27.19	27.27	27.46	27.22	26.89	27.23	26.73	26.42	26.29	26.94	27.21	27.37
23	27.25	27.27	27.21	27.20	27.02	27.25	26.75	26.39	26.19	26.98	27.17	27.43
24	27.24	27.18	27.15	27.21	27.02	27.17	26.77	26.32	26.13	27.03	27.26	27.55
25	27.34	27.15	27.19	27.26	26.94	27.02	26.78	26.33	26.10	27.02	27.31	27.53
26	27.46	27.08	27.28	27.15	26.68	27.03	26.78	26.37	26.05	27.03	27.25	27.40
27	27.50	26.96	27.21	27.17	26.79	27.03	26.80	26.48	25.99	27.00	27.28	27.46
28	27.43	26.95	27.02	27.17	26.83	26.97	26.83	26.53	26.05	27.00	27.29	27.42
29	27.41	27.13	27.04	27.15	---	26.85	26.88	26.54	26.18	27.03	27.25	27.24
30	27.41	27.12	27.04	26.98	---	26.82	27.00	26.45	26.22	27.02	27.24	27.30
31	27.43	---	27.02	26.97	---	26.59	---	26.42	---	27.03	27.32	---
MEAN	27.41	27.24	27.20	27.09	27.07	27.05	26.66	26.64	26.38	26.62	27.15	27.38
MAX	27.54	27.45	27.46	27.26	27.45	27.25	27.00	27.05	26.66	27.03	27.34	27.55
MIN	27.19	26.95	27.02	26.87	26.68	26.59	26.37	26.32	25.99	26.22	27.01	27.24

WTR YR 1989 MEAN 26.99 HIGH 25.99 June 27 LOW 27.55 Sept 24

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. 12-21, and May 24-27.
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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.76	4.97	4.78	4.52	4.27	4.52	3.81	4.71	3.56	3.27	3.60	3.82
2	4.94	4.98	4.68	4.60	4.47	4.52	3.64	4.61	3.64	3.15	3.77	3.83
3	5.13	4.91	4.52	4.60	4.42	4.27	3.52	4.61	3.68	3.37	3.95	3.91
4	5.22	4.89	4.56	4.62	4.67	4.23	3.32	4.80	3.68	3.37	3.80	3.88
5	5.27	4.49	4.55	4.66	4.61	4.36	3.33	4.49	3.73	3.50	3.74	4.16
6	5.16	4.15	4.55	4.65	4.62	4.41	3.32	4.49	4.35	3.70	3.95	3.95
7	5.15	4.31	4.62	4.64	4.75	4.71	3.31	4.80	3.15	3.60	3.96	3.90
8	5.04	4.39	4.71	4.50	4.68	4.67	3.37	4.85	2.99	3.37	3.97	3.91
9	5.02	4.34	4.71	4.40	4.64	4.56	3.81	4.71	2.96	3.56	3.85	3.90
10	5.01	4.36	4.75	4.38	4.53	4.42	3.84	4.40	3.00	3.55	3.80	4.00
11	5.09	4.40	4.93	4.60	4.46	4.61	3.71	4.31	2.88	3.86	3.60	4.24
12	5.08	4.37	---	4.58	4.79	4.50	3.74	3.96	3.18	3.80	3.62	4.02
13	5.11	4.27	---	4.61	4.63	4.17	4.25	3.82	2.75	3.55	3.70	4.17
14	5.06	4.24	---	4.54	4.53	4.20	4.27	3.90	2.71	3.79	3.72	4.08
15	5.13	4.21	---	4.60	4.46	4.32	4.27	3.91	1.97	3.93	3.73	3.82
16	5.09	4.21	---	4.57	4.47	4.30	4.34	4.26	2.08	3.93	3.61	3.76
17	5.24	4.33	---	4.52	4.52	4.30	4.57	4.31	2.35	4.05	3.70	4.02
18	5.01	4.37	---	4.51	4.52	4.49	4.56	4.18	2.33	4.41	3.80	4.13
19	4.89	4.37	---	4.60	4.33	4.62	4.36	4.26	2.58	4.38	3.45	3.91
20	4.85	4.31	---	4.62	4.20	4.25	4.67	4.01	2.58	4.10	3.53	3.86
21	4.85	4.51	---	4.77	4.07	4.40	4.42	4.22	2.38	4.09	3.64	3.99
22	4.87	4.28	4.97	4.80	4.11	4.33	4.52	4.25	2.38	4.04	3.53	3.93
23	5.09	4.28	4.82	4.68	4.25	4.41	4.52	4.35	2.45	4.00	3.60	3.87
24	4.89	4.43	4.82	4.62	4.05	4.57	4.73	---	2.76	4.25	4.01	3.83
25	4.82	4.40	4.82	4.62	3.90	4.60	4.66	---	2.87	4.35	3.70	3.95
26	5.03	4.43	4.95	4.41	4.07	4.85	4.85	---	2.90	4.00	3.76	3.92
27	4.95	4.56	4.66	4.37	4.14	4.78	4.84	---	3.05	3.69	3.75	4.13
28	4.95	4.77	4.70	4.34	4.20	4.32	4.70	4.33	3.25	3.85	3.98	4.03
29	5.03	4.88	4.62	4.28	---	4.31	4.63	4.58	3.23	3.62	3.91	4.08
30	5.11	4.56	4.47	4.29	---	4.21	4.71	4.28	3.78	3.48	3.81	4.02
31	5.03	---	4.60	4.19	---	3.84	---	3.97	---	3.68	3.85	---
MEAN	5.03	4.47	4.70	4.54	4.41	4.42	4.15	4.35	2.97	3.78	3.75	3.97
MAX	5.27	4.98	4.97	4.80	4.79	4.85	4.85	4.85	4.35	4.41	4.01	4.24
MIN	4.76	4.15	4.47	4.19	3.90	3.84	3.31	3.82	1.97	3.15	3.45	3.76

WTR YR 1989 MEAN 4.20 HIGH 1.97 June 15 LOW 5.27 Oct 5

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. Missing record Jan. 24-29, and June 7-22.
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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35.66	35.51	34.88	34.44	33.84	33.59	33.16	33.22	33.09	33.03	33.24	34.04
2	35.63	35.48	34.86	34.41	33.86	33.59	33.15	33.18	33.10	33.03	33.27	34.11
3	35.60	35.43	34.86	34.39	33.87	33.61	33.11	33.20	33.10	33.04	33.27	34.15
4	35.60	35.43	34.86	34.37	33.87	33.61	33.09	33.25	33.06	33.04	33.27	34.17
5	35.60	35.39	34.86	34.37	33.87	33.61	33.12	33.19	33.06	32.98	33.31	34.22
6	35.64	35.26	34.83	34.35	33.84	33.50	33.11	33.14	33.07	32.92	33.32	34.24
7	35.63	35.35	34.81	34.33	33.85	33.42	33.09	33.14	---	32.86	33.33	34.25
8	35.63	35.37	34.82	34.32	33.86	33.51	33.07	33.15	---	32.87	33.39	34.26
9	35.60	35.37	34.82	34.31	33.86	33.52	33.09	33.15	---	32.87	33.42	34.20
10	35.60	35.36	34.80	34.34	33.85	33.52	33.13	33.02	---	32.87	33.49	34.24
11	35.53	35.37	34.78	34.34	33.83	33.49	33.13	33.00	---	32.87	33.53	34.22
12	35.60	35.40	34.78	34.33	33.84	33.47	33.13	33.00	---	32.92	33.54	34.27
13	35.61	35.36	34.72	34.17	33.84	33.47	33.13	33.02	---	32.92	33.56	34.30
14	35.62	35.28	34.69	34.17	33.81	33.46	33.13	33.02	---	32.87	33.60	34.31
15	35.60	35.29	34.69	34.08	33.75	33.40	33.11	33.02	---	32.96	33.62	34.31
16	35.60	35.28	34.71	34.13	33.77	33.42	33.12	33.00	---	32.96	33.63	34.27
17	35.60	35.25	34.66	34.13	33.81	33.42	33.13	33.00	---	32.97	33.69	34.32
18	35.57	35.26	34.66	34.13	33.79	33.42	33.12	33.04	---	33.02	33.76	34.35
19	35.58	35.26	34.68	34.04	33.76	33.46	33.12	33.07	---	33.02	33.76	34.37
20	35.60	35.20	34.67	34.04	33.75	33.47	33.14	33.04	---	32.98	33.76	34.39
21	35.60	35.07	34.66	34.05	33.62	33.35	33.14	33.05	---	33.05	33.77	34.39
22	35.51	35.08	34.65	34.04	33.61	33.37	33.14	33.05	---	33.08	33.82	34.38
23	35.49	35.09	34.64	34.06	33.63	33.40	33.17	33.03	33.07	33.12	33.85	34.27
24	35.40	35.09	34.59	---	33.63	33.33	33.21	32.95	33.07	33.15	33.81	34.39
25	35.42	35.07	34.52	---	33.63	33.31	33.20	32.96	33.07	33.19	33.88	34.35
26	35.43	35.02	34.56	---	33.60	33.33	33.21	32.95	33.06	33.23	33.91	34.36
27	35.49	34.96	34.56	---	33.52	33.33	33.20	33.00	33.06	33.14	33.98	34.39
28	35.51	34.91	34.50	---	33.54	33.31	33.22	33.01	32.96	33.15	34.03	34.40
29	35.52	34.91	34.45	---	---	33.26	33.21	33.06	33.02	33.23	34.04	34.40
30	35.55	34.90	34.45	33.83	---	33.15	33.22	33.06	33.04	33.24	34.00	34.42
31	35.56	---	34.44	33.83	---	33.09	---	33.07	---	33.16	34.04	---
MEAN	35.57	35.23	34.69	34.20	33.76	33.43	33.14	33.07	33.06	33.02	33.64	34.29
MAX	35.66	35.51	34.88	34.44	33.87	33.61	33.22	33.25	33.10	33.24	34.04	34.42
MIN	35.40	34.90	34.44	33.83	33.52	33.09	33.07	32.95	32.96	32.86	33.24	34.04

WTR YR 1989 MEAN 33.96 HIGH 32.86 July 7 LOW 35.66 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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44.08	44.00	43.03	42.70	43.06	42.85	41.90	41.93	40.21	39.91	42.41	43.40
2	43.96	43.83	43.06	42.69	43.18	42.91	41.92	41.84	40.17	40.05	42.45	43.44
3	44.00	43.92	42.97	42.65	43.30	42.91	41.86	41.80	40.15	40.19	42.45	43.55
4	44.04	43.92	42.98	42.71	43.32	42.91	41.63	41.86	39.96	40.32	42.45	43.61
5	44.05	43.81	42.98	42.74	43.32	42.91	41.51	41.80	40.00	40.48	42.42	43.60
6	44.16	43.58	42.97	42.74	43.26	42.90	41.50	41.65	39.96	40.61	42.46	43.58
7	44.17	43.65	42.97	42.77	43.26	43.06	41.37	41.58	39.96	40.69	42.57	43.56
8	44.17	43.66	43.07	42.77	43.36	43.16	41.28	41.48	40.01	40.80	42.69	43.53
9	44.16	43.72	43.07	42.59	43.33	43.17	41.11	41.45	40.02	40.91	42.81	43.50
10	44.06	43.72	43.04	42.60	43.33	43.16	41.31	41.37	40.00	40.93	42.89	43.49
11	43.90	43.81	43.18	42.68	43.20	43.13	41.40	41.02	40.13	41.11	42.92	43.53
12	43.93	43.84	43.24	42.67	43.06	42.97	41.41	40.78	40.14	41.25	42.88	43.58
13	44.06	43.71	43.20	42.63	42.93	42.98	41.46	40.68	40.01	41.28	42.91	43.61
14	44.07	43.48	43.07	42.65	42.93	42.91	41.50	40.66	39.96	41.36	42.96	43.60
15	44.09	43.46	43.20	42.52	42.94	42.89	41.47	40.63	39.85	41.50	43.01	43.59
16	44.10	43.45	43.25	42.54	43.16	43.08	41.46	40.48	39.76	41.55	42.94	43.59
17	44.08	43.38	43.15	42.54	43.18	43.11	41.37	40.38	39.65	41.58	43.05	43.54
18	44.00	43.51	43.12	42.51	43.18	42.98	41.34	40.41	39.65	41.65	43.14	43.62
19	43.91	43.51	43.22	42.41	43.03	43.00	41.42	40.41	39.62	41.65	43.14	43.63
20	43.99	43.45	43.27	42.47	42.84	43.00	41.49	40.37	39.58	41.63	43.12	43.66
21	43.93	43.33	43.39	42.72	42.73	42.93	41.51	40.26	39.37	41.78	43.05	43.69
22	43.78	43.35	43.43	42.74	42.57	43.07	41.53	40.28	39.33	41.94	43.09	43.69
23	43.71	43.35	43.42	42.74	42.76	43.08	41.57	40.26	39.30	42.06	43.14	43.48
24	43.67	43.21	43.24	42.71	42.85	42.98	41.61	40.19	39.28	42.11	43.23	43.63
25	43.69	43.16	43.07	42.77	42.85	42.86	41.60	40.18	39.29	42.15	43.30	43.66
26	43.86	43.13	43.16	42.77	42.60	42.88	41.61	40.16	39.30	42.19	43.32	43.69
27	43.94	42.94	43.16	42.95	42.52	42.87	41.64	40.27	39.29	42.19	43.37	43.82
28	43.95	42.87	42.99	43.17	42.67	42.79	41.66	40.40	39.48	42.19	43.43	43.82
29	44.04	43.05	42.77	43.15	---	42.61	41.76	40.40	39.72	42.27	43.41	43.78
30	44.11	43.05	42.77	43.09	---	42.46	41.88	40.35	39.84	42.34	43.38	43.82
31	44.13	---	42.69	43.09	---	42.09	---	40.25	---	42.38	43.44	---
MEAN	43.99	43.50	43.10	42.73	43.03	42.92	41.54	40.83	39.77	41.39	42.96	43.61
MAX	44.17	44.00	43.43	43.17	43.36	43.17	41.92	41.93	40.21	42.38	43.44	43.82
MIN	43.67	42.87	42.69	42.41	42.52	42.09	41.11	40.16	39.28	39.91	42.41	43.40

WTR YR 1989 MEAN 42.44 HIGH 39.28 June 24 LOW 44.17 Oct 7, 8

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 July 18,19.
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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36.44	36.28	36.15	35.62	35.77	35.21	33.92	35.58	35.69	35.50	36.04	36.31
2	36.49	36.27	36.18	35.65	35.80	35.24	33.92	35.37	35.75	35.57	36.05	36.25
3	36.59	36.30	36.17	35.65	35.87	35.28	33.97	35.07	35.77	35.66	36.05	36.28
4	36.67	36.27	36.25	35.82	35.87	35.32	34.13	34.98	35.82	35.71	36.04	36.29
5	36.80	36.11	36.23	35.82	35.81	35.33	34.17	34.96	35.82	35.74	36.01	36.30
6	36.88	36.04	36.16	35.79	35.74	35.06	34.21	35.06	35.82	35.78	36.01	36.32
7	36.91	36.14	36.22	35.74	35.75	34.63	34.33	35.09	35.85	35.81	36.00	36.37
8	36.91	36.22	36.28	35.61	35.83	34.64	34.47	35.06	35.87	35.87	36.08	36.42
9	36.93	36.22	36.28	35.61	35.88	34.66	34.72	35.04	35.88	35.89	36.12	36.47
10	36.93	36.19	36.24	35.62	35.82	34.66	34.92	34.87	35.96	35.91	36.17	36.57
11	37.00	36.32	36.33	35.68	35.80	34.64	35.04	34.62	35.99	35.98	36.17	36.69
12	37.13	36.32	36.35	35.62	35.93	34.74	35.07	34.44	35.99	35.98	36.18	36.76
13	37.16	36.21	36.24	35.48	35.93	34.75	35.21	34.33	35.90	35.98	36.21	36.78
14	37.16	36.21	36.26	35.42	35.93	34.77	35.22	34.32	35.88	35.86	36.24	36.78
15	37.08	36.20	36.39	35.19	35.90	35.07	35.28	34.35	35.88	35.90	36.27	36.73
16	37.07	36.15	36.39	35.17	35.58	35.18	35.39	34.48	35.80	35.90	36.36	36.60
17	37.04	36.26	36.29	35.21	35.04	35.19	35.42	34.68	35.71	35.97	36.47	36.36
18	36.96	36.34	36.32	35.23	34.77	35.37	35.43	34.81	35.70	---	36.51	36.32
19	36.96	36.31	36.32	35.33	34.69	35.42	35.40	34.91	35.71	---	36.51	36.28
20	36.84	36.19	36.31	35.54	34.75	35.40	35.35	34.99	35.72	35.89	36.52	36.23
21	36.70	36.03	36.37	35.64	34.71	35.20	35.28	35.14	35.68	35.98	36.53	36.23
22	36.46	36.02	36.37	35.64	34.43	34.96	35.33	35.19	35.13	36.05	36.47	36.19
23	36.41	35.96	36.17	35.65	34.38	34.79	35.38	35.19	34.97	36.09	36.39	35.99
24	36.24	35.99	36.09	35.72	34.52	34.74	35.41	35.28	35.13	36.10	36.32	35.83
25	36.20	36.01	35.81	35.77	34.55	34.64	35.44	35.33	35.26	36.13	36.27	35.77
26	36.27	36.00	35.72	35.76	34.66	34.66	35.45	35.41	35.38	36.13	36.25	35.87
27	36.29	35.95	35.65	35.76	34.85	34.76	35.49	35.53	35.49	36.11	36.26	35.94
28	36.33	36.07	35.65	35.79	35.03	34.81	35.52	35.58	35.49	35.98	36.30	35.94
29	36.35	36.15	35.65	35.76	---	34.86	35.51	35.58	35.46	36.02	36.30	35.94
30	36.37	36.07	35.61	35.70	---	34.60	35.57	35.58	35.46	36.02	36.33	35.98
31	36.37	---	35.60	35.70	---	34.22	---	35.67	---	36.02	36.33	---
MEAN	36.71	36.16	36.13	35.60	35.34	34.93	35.00	35.05	35.67	35.91	36.25	36.29
MAX	37.16	36.34	36.39	35.82	35.93	35.42	35.57	35.67	35.99	36.13	36.53	36.78
MIN	36.20	35.95	35.60	35.17	34.38	34.22	33.92	34.32	34.97	35.50	36.00	35.77

WTR YR 1989 MEAN 35.76 HIGH 33.92 Apr 1, 2 LOW 37.16 Oct 13, 14

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-svrface datum.
REMARKS.--Missing record Nov. 22.
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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.08	17.63	16.49	16.38	15.61	15.37	14.05	14.95	13.89	14.32	15.68	16.93
2	17.03	17.69	16.56	16.37	15.75	15.37	14.06	14.84	13.98	14.36	15.66	17.09
3	17.09	17.72	16.50	16.33	16.01	15.22	13.72	14.94	14.04	14.43	15.59	17.14
4	17.12	17.65	16.63	16.59	16.06	15.24	13.71	14.96	14.19	14.56	15.52	17.17
5	17.25	17.53	16.54	16.54	15.86	15.15	13.75	14.63	14.20	14.64	15.54	17.15
6	17.30	17.61	16.41	16.52	15.66	15.18	13.71	14.41	14.23	14.65	15.60	17.13
7	17.31	17.70	16.43	16.59	15.70	15.32	13.66	14.34	14.30	14.57	15.77	17.11
8	17.28	17.67	16.66	16.55	15.75	15.37	13.68	14.24	14.32	14.52	15.98	17.11
9	17.27	17.66	16.66	16.69	15.86	15.25	14.03	14.23	14.32	14.48	16.06	17.11
10	17.25	17.48	16.51	16.68	15.60	15.11	14.17	13.91	14.63	14.44	16.10	17.10
11	17.36	17.54	16.76	16.71	15.48	14.84	14.22	13.81	14.72	14.52	16.04	17.14
12	17.50	17.52	16.81	16.41	15.87	14.81	14.23	13.67	14.63	14.54	16.03	17.11
13	17.58	17.36	16.54	16.45	15.86	14.74	14.23	13.69	14.43	14.49	16.09	17.05
14	17.57	17.32	16.65	16.42	15.92	14.53	14.25	13.66	14.56	14.64	16.13	16.91
15	17.57	17.28	16.98	15.91	15.93	14.79	14.10	13.64	14.56	14.71	16.12	16.94
16	17.60	17.12	16.98	15.91	16.09	14.88	14.27	13.54	14.58	14.66	16.22	16.81
17	17.68	17.21	16.79	15.85	16.06	14.84	14.31	13.62	14.62	14.66	16.39	16.80
18	17.70	17.28	16.91	15.82	15.73	14.86	14.34	13.69	14.57	14.71	16.44	16.81
19	17.76	17.12	16.99	15.77	15.31	14.94	14.46	13.64	14.44	14.67	16.43	16.72
20	17.80	16.88	17.01	16.00	15.20	14.82	14.52	13.49	14.34	14.78	16.40	16.64
21	17.78	17.04	17.29	16.11	14.86	14.72	14.38	13.54	14.20	15.04	16.50	16.61
22	17.79	---	17.31	15.98	15.13	14.78	14.40	13.56	14.09	15.21	16.53	16.47
23	17.81	16.65	17.01	15.88	15.28	14.71	14.44	13.50	13.98	15.27	16.58	16.70
24	17.81	16.48	16.90	15.86	15.28	14.44	14.48	13.68	13.90	15.28	16.65	16.77
25	17.83	16.41	17.04	15.94	15.14	14.29	14.45	13.73	13.91	15.34	16.71	16.59
26	17.87	16.34	17.10	15.78	14.85	14.32	14.50	13.84	13.92	15.35	16.73	16.58
27	17.90	16.19	16.86	15.84	15.02	14.27	14.56	13.99	14.05	15.31	16.80	16.65
28	17.85	16.39	16.73	15.86	15.28	14.16	14.60	14.06	14.21	15.46	16.86	16.53
29	17.85	16.67	16.76	15.70	---	14.04	14.76	13.94	14.35	15.57	16.82	16.37
30	17.84	16.51	16.61	15.49	---	13.86	14.90	13.78	14.38	15.59	16.93	16.44
31	17.79	---	16.49	15.50	---	13.79	---	13.82	---	15.65	16.97	---
MEAN	17.56	17.16	16.77	16.14	15.58	14.77	14.23	13.98	14.28	14.85	16.36	16.86
MAX	17.90	17.72	17.31	16.71	16.09	15.37	14.90	14.96	14.72	15.65	16.97	17.17
MIN	17.03	16.19	16.41	15.49	14.85	13.79	13.66	13.49	13.89	14.32	15.52	16.37

WTR YR 1989 MEAN 15.70 HIGH 15.70 May 20 LOW 17.90 Oct 27

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☆U.S. GOVERNMENT PRINTING OFFICE: 1990-714-967

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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