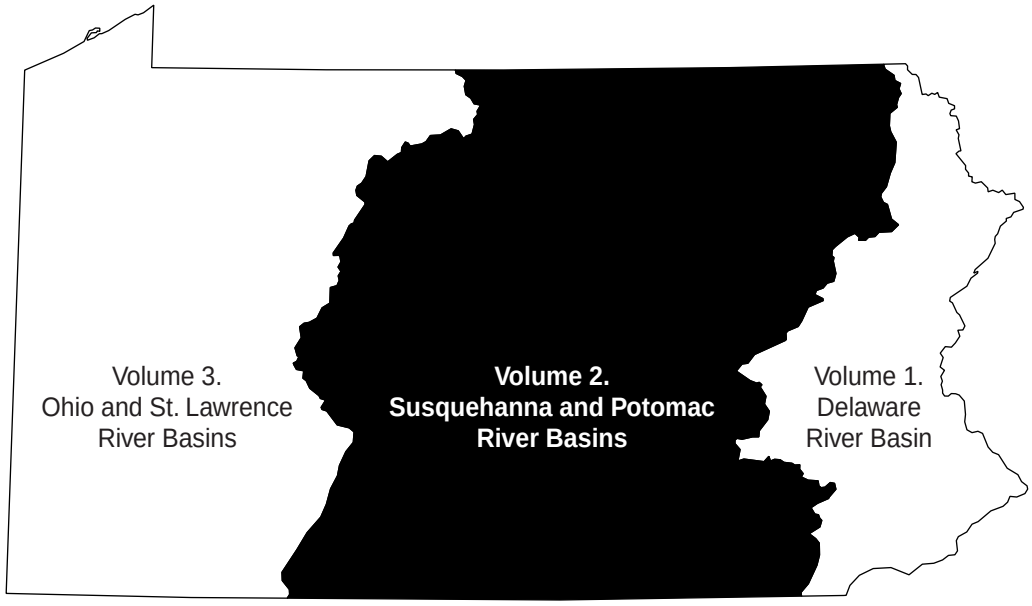
U.S. Department of the Interior
U.S. Geological Survey

Water Resources Data Pennsylvania Water Year 2003

Volume 2. Susquehanna and Potomac River Basins

By R.R. Durlin and W.P. Schaffstall

Water-Data Report PA-03-2



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2004

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 ground-water 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 3 volumes.

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

Volume 2 was prepared in cooperation with the Commonwealth of Pennsylvania and other agencies under the general supervision of Patricia L. Lietman, District Chief, Pennsylvania District; Robert A. Hainly, Assistant District Chief for Hydrologic Surveillance and Data Management; Randall R. Durlin, Chief of the Hydrologic Surveillance Program, New Cumberland District Office, and William P. Schaffstall, Chief, Williamsport Project Office. It is the product of a team effort by dedicated personnel of the U.S. Geological Survey who collected, compiled, analyzed, verified, and organized these 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 these data:

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13. ABSTRACT *(Maximum 200 words)*

Water resources data for the 2003 water year for Pennsylvania consist of records of discharge and water quality of streams; contents and elevations of lakes and reservoirs; and water levels and water quality of ground-water wells. This report, Volume 2 contains (1) discharge records for 84 continuous-record streamflow-gaging stations, 13 partial-record stations, 21 special study and miscellaneous streamflow sites; (2) elevation, contents, and water-quality records for 12 lakes and reservoirs; (3) water-quality records for 30 gaging stations and 66 ungaged streamsites; (4) water-level records for 39 network observation wells; and (5) water-quality analyses at 35 special study ground-water wells. Site locations are shown in figures throughout the report. Additional water data collected at various sites not involved in the systematic data-collection program are also presented. These data together with the data in Volumes 1 and 3, 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.

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SURFACE-WATER STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

[Letters after station name designate type of data: (d) discharge, (c) chemical, (b) biological, (t) water temperature, (sc) specific conductance, (e) elevation, gage heights, or contents.]

NORTH ATLANTIC SLOPE BASINS

SURFACE-WATER STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

NORTH ATLANTIC SLOPE BASINS--Continued

SURFACE-WATER STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

NORTH ATLANTIC SLOPE BASINS--Continued

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

(Letters after local well number designate type of data: (l) water level, (c) chemical)

GROUND-WATER RECORDS

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

GROUND-WATER RECORDS--Continued

The following continuous-record surface-water discharge stations (listed by downstream order) have been discontinued. Daily streamflow records were collected and published for the period of record shown for each station. Discontinued stations with less than 3 years of record have not been included. Information regarding these stations may be obtained from the District Office at the address given on the back of the title page of this report.

DISCONTINUED CONTINUOUS-RECORD SURFACE-WATER DISCHARGE STATIONS

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
SUSQUEHANNA RIVER BASIN			
Elk Run near Mainesburg	01517000	10.2	1955-78
Crooked Creek at Tioga	01518500	122	1954-74
N. Branch Sugar Creek trib. near Columbia Crossroads	01531250	8.83	1963-68
Middle Br. Wyalusing Creek trib. near Birchardsville	01532850	5.67	1965-79
North Branch Mehoopany Creek near Lovelton	01533500	35.2	1941-58
Butler Creek at Gibson	01533800	7.38	1974-79
South Branch Tunkhannock Creek near Montdale	01533950	12.6	1961-78
Lackawanna River at Moosic	01535500	264	1914-28
Toby Creek at Luzerne	01537000	32.4	1941-93
Solomon Creek at Wilkes-Barre	01537500	15.7	1940-90
Nescopeck Creek near St. Johns	01538500	49.0	1920-26
Little Nescopeck Creek tributary near Freeland	01538510	mine discharge	1974-79, 1996-98
Applemans Run above Light Street	01539200	1.72	1972-74
Applemans Run below Light Street	01539210	1.99	1972-74
Little Fishing Creek at Eyers Grove	01539500	56.5	1941-58
Fishing Creek at Bloomsburg	01540000	355	1914-28
Trexler Run near Ringtown	01540200	1.77	1963-81
Bradley Run near Ashville	01541308	6.77	1968-80
Moshannon Creek at Osceola Mills	01542000	68.8	1941-93
West Branch Susquehanna River at Karthaus	01542500*	1,462	1940-95
North Bald Eagle Creek at Milesburg	01546000	119	1911-28, 1934
Spring Creek near Bellefonte	01547000	136	1911-19
South Fork Beech Creek near Snow Shoe	01547800	12.2	1969-81
Bald Eagle Creek near Beech Creek Station	01548005*	562	1910-95
Wilson Creek above Sand Run near Antrim	01548408	12.6	1978-82
Mitchell Mine discharge #2 near Antrim	01548413	mine discharge	1978-81

DISCONTINUED CONTINUOUS-RECORD SURFACE-WATER DISCHARGE STATIONS —Continued

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
Anna S mine discharge #1 near Antrim	01548416	mine discharge	1978-81
Hunter Drift discharge near Antrim	01548418	mine discharge	1978-81
Pine Creek near Waterville	01549000	750	1909-20
Blockhouse Creek tributary at Liberty	01549100	1.08	1973-77
Blockhouse Creek at Buttonwood	01549300	22.3	1973-77
Steam Valley Run at Buttonwood	01549350	5.34	1973-77
Antes Creek near Jersey Shore	01549755	53.3	1974-77
Larrys Creek at Cogan House	01549780	6.80	1961-78
White Deer Cr. above Sand Spring Run near White Deer	01553120	17.8	1968-73
Sand Spring Run near White Deer	01553130	4.93	1968-81
White Deer Creek near White Deer	01553140	40.0	1968-73
East Branch Chillisquaque Creek near Washingtonville	01553600	9.48	1960-78
Shamokin Creek near Shamokin	01554500	54.2	1938-93
East Mahantango Creek at Klingerstown	01555400	44.7	1993-95, 1997-2000
Bear Creek (BC2) at Lykens	01555539	4.44	1999-2003
Little Juniata River at Tipton	01556500	93.7	1946-62
Little Juniata River near Tyrone	01557000	101	1940-45
Schell Run at Tyrone	01557100	1.68	1958-62
Shaver Creek near Petersburg	01558500	46.4	1930-38
Standing Stone Creek near Huntingdon	01559500	128	1930-58
Sulphur Springs Creek near Manns Choice	01559700	5.28	1962-78
Bobs Creek near Pavia	01559795	16.6	1993-1994, 1997-2000
Dunning Creek at Yount	01560500	191	1930-39
Brush Creek at Gapsville	01561000	36.8	1930-58
Great Trough Creek near Marklesburg	01562500	84.6	1930-57
Raystown Branch Juniata River near Huntingdon	01563000[a]	957	1947-71
Aughwick Creek near Orbisonia	01564000	174	1930-38
Little Lost Creek at Oakland Mills	01565700	6.52	1964-81
Cocalamus Creek near Millerstown	01566500	57.2	1931-58

DISCONTINUED CONTINUOUS-RECORD SURFACE-WATER DISCHARGE STATIONS —Continued

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
Clark Creek near Carsonville	01568500	22.5	1937-96
Stony Cr. above Pump-storage Reservoir near Dauphin	01568700	11.5	1974-80
Stony Creek at Water Tank Trail near Dauphin	01568750	21.9	1974-76, 1985-86
Stony Creek near Dauphin	01569000	33.2	1938-45, 1967-74
Conodoguinet Creek tributary No. 1 near Enola	01570100	.77	1969-76
Conodoguinet Creek tributary No. 2 near Enola	01570200	.76	1969-76
Conodoguinet Creek tributary No. 2A near Enola	01570230	.60	1969-76
Conodoguinet Creek tributary No. 2B near Enola	01570260	.65	1969-76
Conodoguinet Creek tributary No. 3 near Enola	01570300	.38	1969-76
Paxton Creek near Penbrook	01571000‡	11.2	1940-50, 1985-89, 1992-95
Cedar Run at Eberlys Mill	01571490	12.6	1993-95
Swatara Creek below Ravine	01571827	46.3	1985-87
Swatara Creek above highway bridge 895 at Pine Grove	01571919	72.6	1982-84
Lower Little Swatara Creek at Pine Grove	01572000	34.3	1920-32, 1981-84
Swatara Creek near Suedberg	01572030	124	1985-87
Beck Creek near Cleona	01573086	7.87	1963-81
Bachman Run at Annville	01573095	7.3	1993-95
Quittapahilla Creek near Bellegrove	01573160	74.2	1976-94
Manada Creek at Manada Gap	01573500	13.5	1938-58
Brush Run, Site 2, near McSherrystown	01573810	.38	1985-91
East Branch Codorus Creek tributary near Winterstown	01574800	5.17	1969-75
South Branch Codorus Creek near York	01575000	117	1928-95
Codorus Creek near York	01575500*	222	1940-96
Codorus Creek at Pleasureville	01575585	267	1985-90
Little Conestoga Creek, Site 3A, near Morgantown	0157608335	1.42	1984-91
Little Conestoga Creek near Churchtown	01576085	5.82	1982-95
Muddy Run at Weavertown	01576520	6.68	1993-97
Big Spring Run near Willow Street	01576521	1.77	1994-2001
North Fork Unnamed Tributary to Big Spring Run near Lampeter	015765265	.32	1995-2001

DISCONTINUED CONTINUOUS-RECORD SURFACE-WATER DISCHARGE STATIONS —Continued

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
North Fork Unnamed Tributary to Big Spring Run at Lampeter	01576527	.36	1994-2001
Unnamed Tributary to Big Spring Run near Lampeter	01576529	1.42	1994-2001
Mill Creek at Eshelman Mill Road near Lyndon	01576540	54.2	1992-99
Swarr Run near Landisville	01576697	8.67	1985-89
Pequea Creek at Martic Forge	01576787*****	148	1977-81, 1993-95
Pequea Creek tributary near Mt. Nebo	01576788	.20	1979-86
Susquehanna River near McCalls Ferry	01577000	26,800	1904-11
Bald Eagle Creek near Fawn Grove	01577400	.43	1986-89
Muddy Creek at Castle Fin	01577500	133	1929-38, 1968-71
Bowery Run near Quarryville	01578400	5.98	1963-81
POTOMAC RIVER BASIN			
Evitts Creek near Centerville	01603500	30.2	1933-82
Licking Creek near Sylvan	01613500*****	158	1930-41
Conococheague Creek near Fayetteville	01614090*****	5.05	1961-81
Dennis Creek near Chambersburg	01614137	13.2	1997-2001[b] 2001-2002

‡ Operated from October 1991 to September 1995 as a continuous-record surface-water discharge station and water-quality site.

***** Currently operated as a partial-record station.

a Records considered equivalent with station 01563200 Raystown Branch Juniata River below Raystown Dam near Huntingdon, published in this volume.

b Published as a partial record station, Apr. 1997 to May 2001.

The following continuous-record water-quality stations (listed by downstream order) have been discontinued. Daily records were collected and published for the period shown for each constituent. Discontinued stations with less than 3 years of record, or stations with data collection less than daily, have not been included. If a station had one constituent with 3 or more years of record, all constituents having daily values will be listed for that station regardless of the length of record. Information regarding these stations may be obtained from the District Office at the address given on the back of the title page of this report.

The following are used to identify the record type: SC (specific conductance); pH; Temp (water temperature); DO (dissolved oxygen); Turb (turbidity, in NTU); Sed (sediment concentration and discharge).

DISCONTINUED CONTINUOUS-RECORD SURFACE-WATER-QUALITY STATIONS

Station name	Station number	Drainage area (mi^2)	Type of Record	Period of record (water years)
SUSQUEHANNA RIVER BASIN				
Tioga River near Mansfield	01516350	153	SC[a], pH[a], Temp[a]	1977-88[c]
			DO[a]	1977-78
Cory Creek near Mainesburg	01516500	12.2	Temp[b]	1960-61
			Temp	1959, 1962
			Sed	1954-67[c]
Elk Run near Mainesburg	01517000	10.2	Temp[b]	1958-59
			Temp	1957, 1960-62
			Sed	1955-67
Tioga River at Tioga Junction	01518700	446	SC[a], pH[a], Temp[a], DO[a]	1977-88
Cowanesque River near Lawrenceville	01520000	298	Temp[a]	1972-86
Susquehanna River at Towanda	01531500	7,797	Sed	1951-54
Susquehanna River at Falls	01534090	9,440	SC	1945-51
			Temp	1947-53
Lackawanna River at Old Forge	01536000	332	Temp	1949-51
Fishing Creek near Bloomsburg	01539000	274	Sed	1967-69
Applemans Run above Light Street	01539200	1.72	Turb, Sed	1972-74
Applemans Run below Light Street	01539210	1.99	Turb, Sed	1972-74
Susquehanna River at Danville	01540500	11,220	SC	1946-52, 1963-76
			Temp	1948-53, 1957-70, 1975-76
			Sed	1974-76
West Branch Susquehanna River at Bower	01541000	315	Sed	1964-67

DISCONTINUED CONTINUOUS-RECORD SURFACE-WATER-QUALITY STATIONS —Continued

Station name	Station number	Drainage area (mi^2)	Type of Record	Period of record (water years)
West Branch Susquehanna River at Renovo	01545500	2,975	SC[a], pH[a], Temp[a] DO[a]	1967-88[c] 1975-78
West Branch Susquehanna River at Lock Haven	01545800	3,337	SC pH Temp	1946-51, 1959, 1964-72 1963-72 1946-51, 1958-72
Bald Eagle Creek below Spring Creek at Milesburg	01547200	265	Temp Temp[b] Sed	1956-58 1967-68 1956-58
Bald Eagle Creek near Milesburg	01547400	296	Temp[a]	1967-90
Bald Eagle Creek at Blanchard	01547500	339	Temp Temp[b] Temp[a] Sed	1957 1967-81 1982-85 1956-58
Marsh Creek at Blanchard	01547700	44.1	Temp Sed	1957 1956-58
Beech Creek at Monument	01547950	152	SC[a], pH[a], Temp[a] DO[a]	1969-80 1976-78
Wilson Creek above Sand Run near Antrim	01548408	12.6	Sed	1978-82
Basswood Run near Antrim	01548417	.57	Sed	1978-80
Blockhouse Creek tributary at Liberty	01549100	1.08	Temp[a], Turb, Sed	1973-77
Blockhouse Creek at Buttonwood	01549300	22.3	Temp[a], Turb, Sed	1973-77
Steam Valley Run at Buttonwood	01549350	5.34	Temp[a], Turb, Sed	1973-77
Blockhouse Creek near English Center	01549500	37.7	Temp[a], Turb, Sed	1973-77
West Branch Susquehanna River at Williamsport	01551500	5,682	SC[a], pH[a], Temp[a]	1980-88[c]
West Branch Susquehanna River at Lewisburg	01553500	6,847	SC, Temp Sed	1944-53[c], 1957-58, 1975-76 1975-76
Shamokin Creek near Shamokin	01554500	54.2	Temp	1959-61

DISCONTINUED CONTINUOUS-RECORD SURFACE-WATER-QUALITY STATIONS —Continued

Station name	Station number	Drainage area (mi^2)	Type of Record	Period of record (water years)
East Mahantango Creek at Klingerstown	01555400	44.7	SC[a] Temp	1993-95 1993-95, 1997-2000
Juniata River at Huntingdon	01559000	816	Temp	1948-51, 1981-86[c]
Bobs Creek near Pavia	01559795	16.6	SC[a] Temp[a]	1994-95 1994-95, 1997-2000
Raystown Branch Juniata River near Huntingdon	01563000	957	Temp	1947-50
Raystown Branch Juniata River below Raystown Dam near Huntingdon	01563200	960	Temp[a]	1978-86[c]
Bixler Run near Loysville	01567500	15.0	Temp Temp[a] Sed	1957-62 1963-65 1954-71
Sherman Creek at Shermans Dale	01568000	200	Temp[b]	1954-56
Stony Creek at Water Tank Trail near Dauphin	01568750	21.9	Temp[b]	1974-76
Conodoguinet Creek tributary No. 1 near Enola	01570100	.77	Turb Sed	1972-75 1969-76
Conodoguinet Creek tributary No. 2 near Enola	01570200	.76	Turb Sed	1973-75 1973-76
Conodoguinet Creek tributary No. 2A near Enola	01570230	.70	Turb Sed	1973-75 1973-76
Conodoguinet Creek tributary No. 2B near Enola	01570260	.65	Turb Sed	1973-75 1973-76
Conodoguinet Creek tributary No. 3 near Enola	01570300	.38	Turb Sed	1972-75 1969-76
Susquehanna River at Harrisburg	01570500	24,100	SC[a], pH[a], Temp[a], DO[a] Sed	1974-79 1964-81[c]
Cedar Run at Eberlys Mill	01571490	12.6	SC[a], Temp[a]	1993-95
Swatara Creek above Highway bridge 895 at Pine Grove	01571919	72.6	SC Temp, Sed	1983-84 1982-84
Lower Little Swatara Creek at Pine Grove	01572000	34.3	SC Temp, Sed	1981, 1983-84 1981-84

DISCONTINUED CONTINUOUS-RECORD SURFACE-WATER-QUALITY STATIONS —Continued

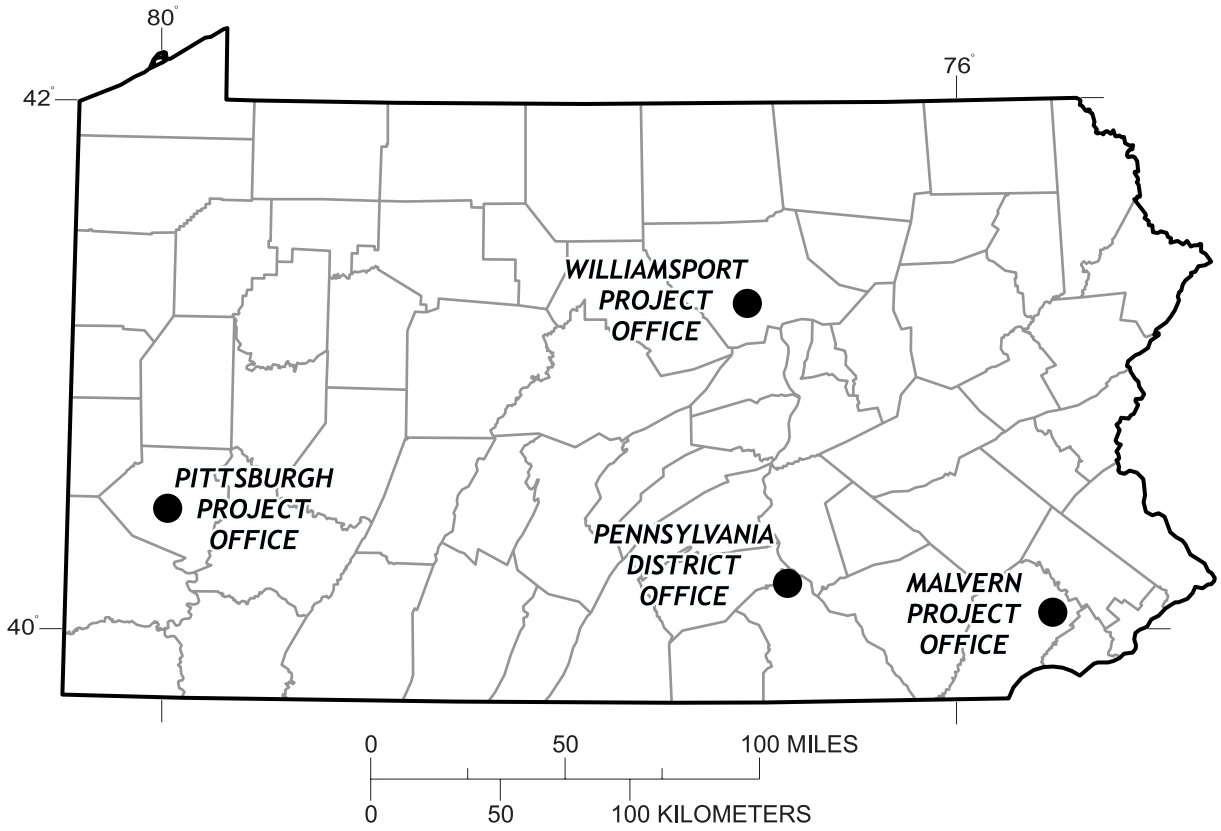
Station name	Station number	Drainage area (mi^2)	Type of Record	Period of record (water years)
Swatara Creek at Harper Tavern	01573000	337	SC	1977-79
			Temp	1959-61, 1977-79
			Sed	1959-60, 1977-79
Conestoga River at Lancaster	01576500	324	SC	1948-50, 1964-70, 1974-75
			Temp	1948-50, 1959-70, 1974-75
			Sed	1974-75
Muddy Creek at Muddy Creek Forks	01577300	71.9	SC[a], Temp[a]	1993-95

[a] Max, Min, Mean values.

[b] Max, Min values.

[c] Most years.

PENNSYLVANIA DISTRICT OFFICE LOCATIONS AND ADDRESSES



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INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with State, municipal, and Federal agencies, collects 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, these data are published annually in this report series entitled "Water Resources Data - Pennsylvania, Volumes 1, 2, and 3." Volume 1 contains data for the Delaware River Basin; Volume 2, the Susquehanna and Potomac River Basins; and Volume 3, the Ohio and St. Lawrence River Basins.

This report, Volume 2, contains: (1) discharge records for 84 continuous-record streamflow-gaging stations, 13 partial-record stations, and 21 special study and miscellaneous streamflow sites; (2) elevation, contents, and water-quality records for 12 lakes and reservoirs; (3) water-quality records for 30 streamflow gaging stations and 66 partial-record and project stations; and (4) water-level records for 39 ground-water network observation wells; (5) water-quality analyses at 35 special study ground-water wells. Additional water data collected at various sites not involved in the systematic data-collection program may also be presented.

Publications similar to this report are published annually by the Geological Survey for all States. For the purpose of archiving, these official 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-03-2." These water-data reports, beginning with the 1971 water year, are for sale as paper copy or microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

The annual series of Water Data Reports for Pennsylvania began with the 1961 water-year report and contained only data relating to quantities of surface water. With the 1964 water year, a companion report (part 2) was introduced that contained only data relating to water quality. Beginning with the 1975 water year the report was changed to three volumes (by river basin), with each volume containing 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 1961-70 water years, these 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, and 4. Data on chemical quality, temperature, and suspended sediment for the 1941-70 water years were published annually under the title "Quality of Surface Waters of the United States," and ground-water levels for the 1935-74 water years were published annually under the title "Ground-Water Levels in the United States." The above mentioned Water-Supply Papers may be consulted in the libraries of the principal cities of the United States and may be purchased from the U.S. Geological Survey, Information Services, Box 25286, Denver, CO 80225.

Information for ordering specific reports may be obtained from the Pennsylvania District Office at the address on the back of the title page or by phoning the Scientific and Technical Products Section at (717) 730-6940. Information on the availability of unpublished data or statistical analyses may be obtained from the District Information Specialist by telephone at (717) 730-6916 or by FAX at (717) 730-6997.

COOPERATION

The U.S. Geological Survey (USGS) 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 supplied data are acknowledged in station manuscripts. Organizations that assisted in collecting data for this report through cooperative agreements with the USGS are listed below.

The Commonwealth of Pennsylvania,
Department of Environmental Protection, Kathleen A. McGinty, Secretary, through the following:
Office of Water Management, Cathleen C. Myers, Deputy Secretary;
- Bureau of Water Supply and Wastewater Management, Frederick Marrocco, Director;
- Bureau of Watershed Management, Stuart I. Gansell, Director;
- Bureau of Waterways Engineering, Michael Conway, Director;

Office of Mineral Resources Management, J. Scott Roberts, Deputy Secretary;
- Bureau of Mining and Reclamation, Joseph Pizarchik, Director;

Field Operations, Eric Conrad, Deputy Secretary;
- Bureau of Laboratories, Roger H. Carlson, Director;

Department of Military and Veterans Affairs, Major General William B. Lynch, Adjutant General

COOPERATION--Continued

Borough of Chambersburg, Robert P. Morris, Mayor;
City of Sunbury Municipal Authority, Danny W. Ramer, General Manager;
City of Williamsport, Michael R. Rafferty, Mayor;
Letort Regional Authority, Brian L. Fischbach, Executive Director;
Luzerne County Emergency Management Agency, Albert Bardar, Director;
New Oxford Municipal Authority, Earl E. Mummert, Chairman;
Roaring Spring Municipal Authority, Fred L. Beers, Chairman;
Susquehanna River Basin Commission, Paul O. Swartz, Executive Director;
Town of Bloomsburg, Charles Coffman, Mayor;
Union County Commissioners, W. Max Bossert, Chairman;
University Area Joint Authority, Cory R. Miller, Executive Director.

Federal Energy Regulatory Commission Licensees:
Susquehanna Electric Company.
Safe Harbor Water Power Corporation.

The following Federal agencies assisted in the data-collection program by providing funds or services: Corps of Engineers, U.S. Army, Baltimore District, and the National Weather Service, NOAA, U.S. Department of Commerce.

The following organizations aided in collecting records: City of Lancaster, City of Lebanon, Hershey Chocolate U.S.A., Mechanicsburg Water Co., P.H. Glatfelter Co., Pennsylvania American Water Co., Pennsylvania Gas and Water Co., and York Water Co.

SUMMARY OF HYDROLOGIC CONDITIONS

Surface Water

The Susquehanna River flows generally southward from southern New York to the Chesapeake Bay in Maryland. At the point where the river enters Maryland, it drains 27,215 mi^2 (square miles). Most of this area, 20,962 mi^2, is in north- and southcentral Pennsylvania. Streams in the basin are located in the Appalachian Plateau, Valley and Ridge, and Piedmont Physiographic Provinces. The underlying geology includes rocks of Precambrian to Triassic age.

Precipitation and Streamflow

Data from 34 selected National Oceanic and Atmospheric Administration climatological sites, located within 5 climatic regions in the Susquehanna River Basin in Pennsylvania, indicated the annual precipitation for the Susquehanna River Basin in central Pennsylvania was well above normal. The basin generally received slightly below normal precipitation for the months of November and April. The greatest deficit basinwide, with an average of 0.50 inches below normal, occurred in April. The basin generally received above normal precipitation for the months of October, December, February, and May through September. The greatest surplus basinwide, with an average of 3.95 inches above normal, occurred in September. Basinwide, precipitation totals for the water year averaged 52.8 inches compared to the historical average of 39.5 inches.

As an example, the 2003 monthly and annual precipitation were compared with the 1971-2000 mean monthly and annual precipitation recorded at Lancaster and Williamsport, Pennsylvania (fig. 1). The precipitation data are from the National Oceanic and Atmospheric Administration (U.S. Department of Commerce, 2002-2003) and National Weather Service records.

Two U.S. Geological Survey streamflow-gaging stations within the basin were selected as indicators of basinwide streamflow conditions. Figure 2 compares the 2003 water year monthly and annual mean streamflows with the median of the monthly and annual mean streamflows for 1971 through 2000 at the indicator sites. The 2003 water year annual mean streamflow was about 115 percent of the 1971-2000 median of the mean annual streamflows in the West Branch Susquehanna River at Williamsport, and about 148 percent of the 1971-2000 median of the mean annual streamflows in the Conestoga River at Lancaster.

Monthly mean streamflows exceeded the normal range in the West Branch Susquehanna River in June, August, and September during the 2003 water year (fig. 2). Normal streamflows are defined as those between the 25th and 75th percentiles as compared to the monthly mean streamflows for 1971-2000. Monthly mean streamflows were below normal in the West Branch Susquehanna River for the months of October and February. In the Conestoga River, monthly mean streamflows were at normal levels for all months except December, March, June, and September when streamflows were above normal (fig. 2).

There were no Drought Declarations affecting the Susquehanna River basin during the 2003 water year. As a matter of fact, on June 18, 2003, seven Western Pennsylvania counties were upgraded from a drought watch status to normal status, putting all 67 Pennsylvania counties in a normal status for the first time since August 8, 2001. All counties in the Susquehanna River Basin were returned to normal status on February 20, 2003.

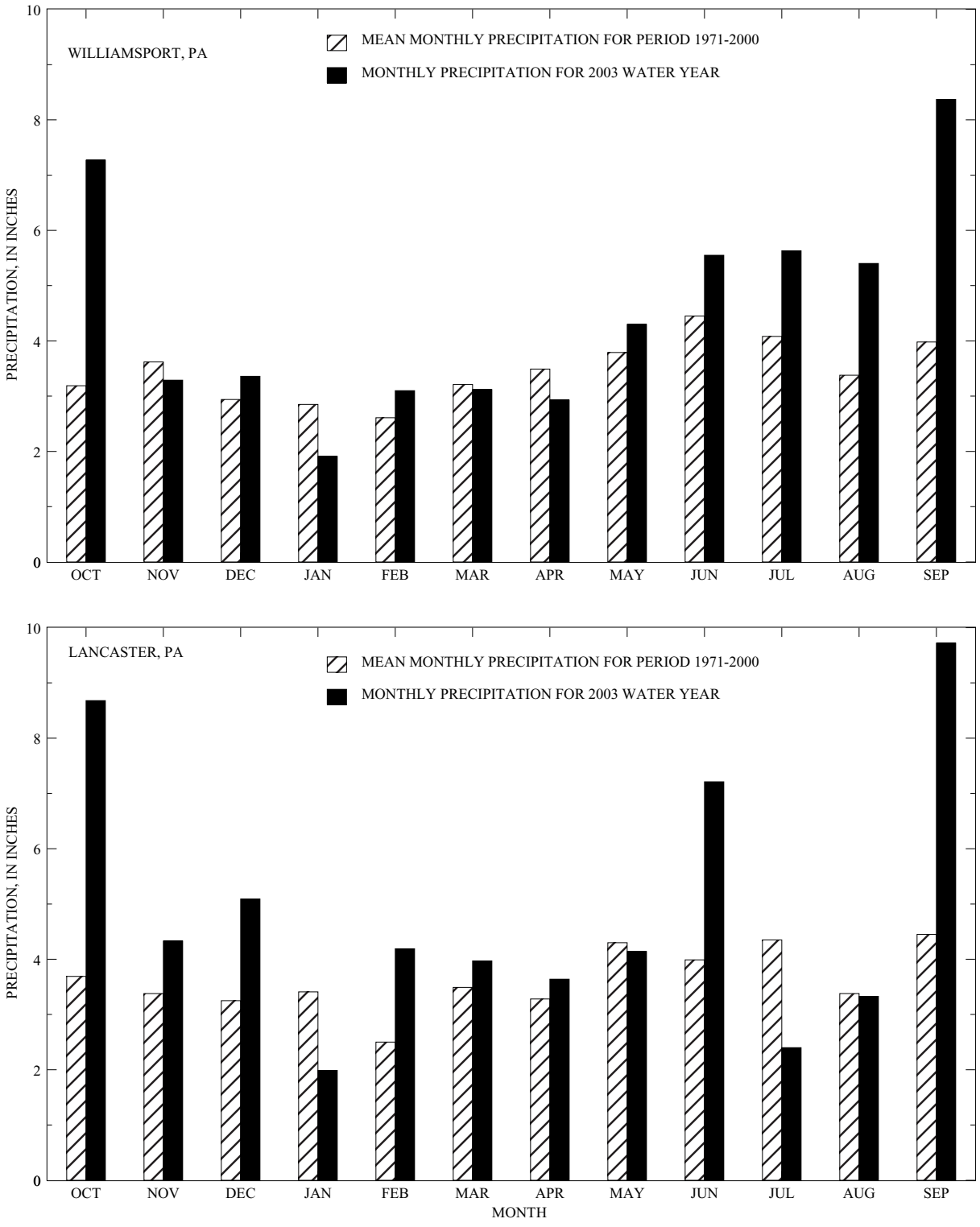


Figure 1.--Comparison of monthly precipitation at two National Oceanic and Atmospheric Administration climatological stations during the 2003 water year and mean monthly precipitation for the period 1971 through 2000.

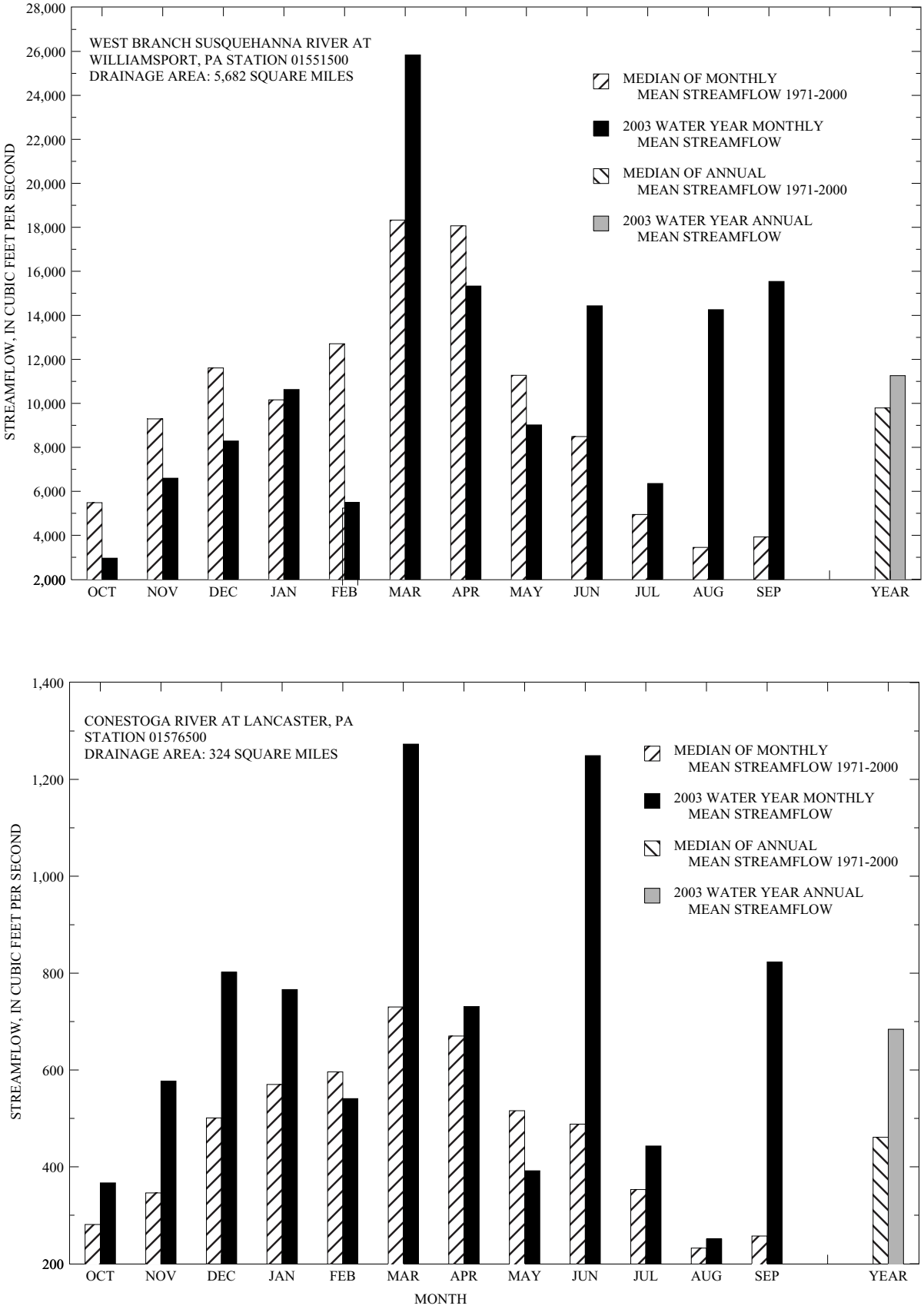


Figure 2.--Comparison of streamflow at two long-term streamflow-gaging stations during the 2003 water year and the median monthly and annual mean streamflow for the period 1971 through 2000.

Reservoirs

The combined storage of 12 major reservoirs in the Susquehanna River Basin increased from 639,835 acre-feet (43.1percent of total combined capacity) on September 30, 2002, to 697,059 acre-feet (47.0 percent of total combined capacity) on September 30, 2003. Maximum and minimum storage in individual reservoirs varied throughout the year depending on the purpose and capacity of each reservoir.

Ground Water

Ground-water levels, which were generally at or below normal throughout all of the Susquehanna River basin at the end of the 2002 water year (Durlin and Schaffstall, 2003), rebounded to normal levels during the winter of the 2003 water year. The water levels in 19 of the 20 observation wells were normal at that time, and 11 wells increased to much above normal levels throughout the summer season. Ground-water levels during the water year generally reflected the seasonal precipitation variations (fig. 1). The 2003 water year began with 9 wells either below normal or much below normal (Durlin and Schaffstall, 2003) and ended with all 20 wells in an above normal category. A comparison between ground-water levels for the 2003 water year and long-term seasonal ground-water levels is shown in figure 3.

References

Durlin, R. R., and Schaffstall W. P., 2003, Water resources data, Pennsylvania, water year 2002: U.S. Geological Survey Water-Data Report PA-02-2, 536 p.

U.S. Department of Commerce, 2002-2003, Climatological Data for Pennsylvania, Volume 107-108: National Oceanic and Atmospheric Administration, National Environmental Satellite, Data, and Information Service.

Pennsylvania Department of Environmental Protection, 2003, Drought Information Center, accessed many times in 2003, at URL *http://www.dep.state.pa.us/dep/subject/hotopics/drought/drought.htm*

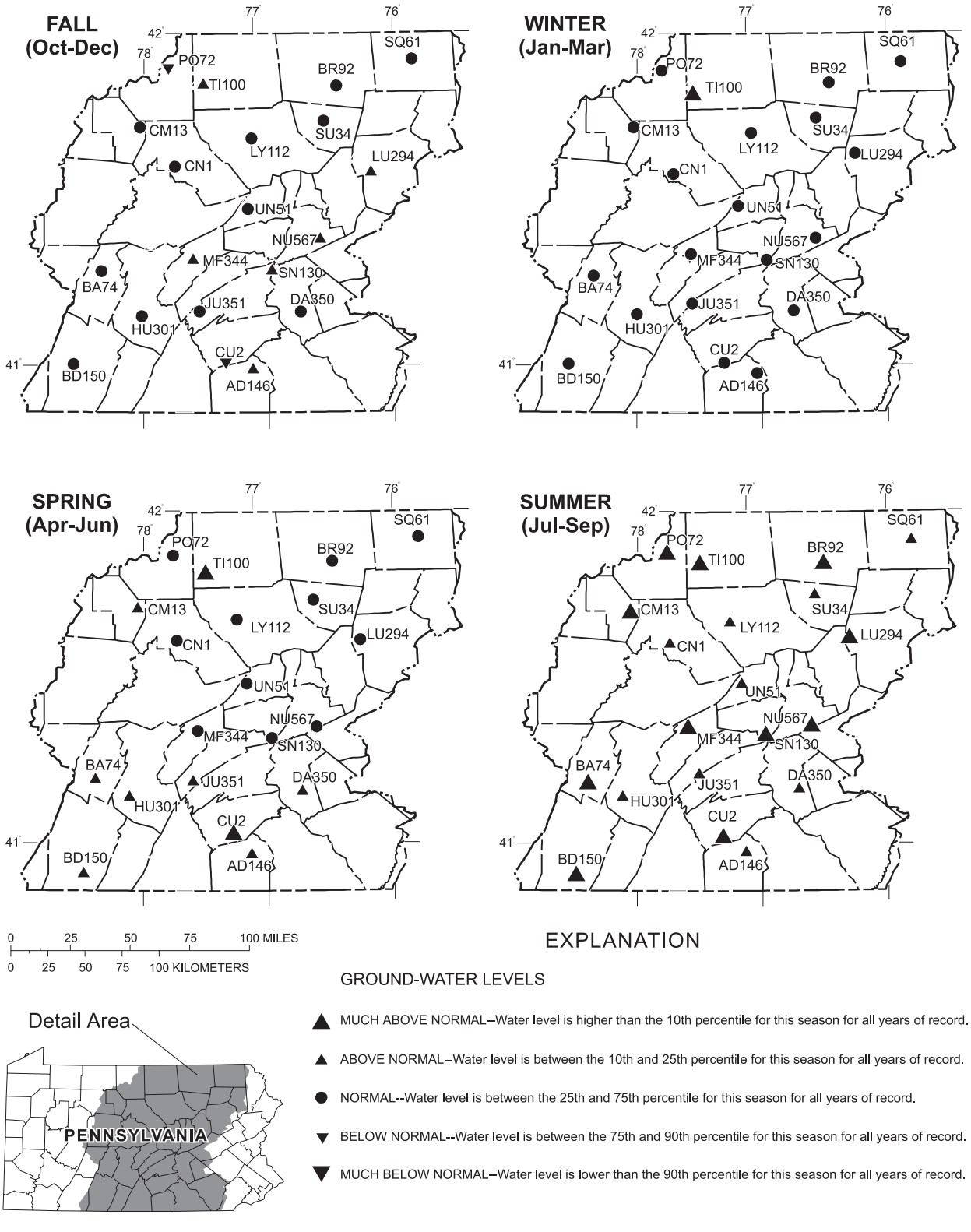


Figure 3.--Relation between 2003 seasonal ground-water levels and long-term ground-water levels *[Seasonal percentile values were determined by ranking the average monthly water levels for each month in the season from highest to lowest for all years of record and averaging the ranks for the three months. A water level that is higher than the seasonal 10th percentile value would be expected to occur only once in a ten-year period. Conversely, a water level that is lower than the seasonal 90th percentile value also would be expected to occur only once during a ten-year period.]*

SPECIAL NETWORKS AND PROGRAMS

The **Hydrologic Bench-Mark Network** is a network of 50 sites in small drainage basins around the country whose purpose is to provide consistent data on the streamflow representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by human activities. At 10 of these sites, water-quality information is being gathered on major ions and nutrients, primarily to assess the affects of acid deposition on stream chemistry. Additional information on the Hydrologic Benchmark Program can be found at *[http://water.usgs.gov/hbn/]*.

The **National Stream-Quality Accounting Network** (NASQAN) monitors the water quality of large rivers within the Nation's largest river basins. From 1995 through 1999, a network of approximately 40 stations were operated in the Mississippi, Columbia, Colorado, and Rio Grande. From 2000 through 2004, sampling was reduced to a few index stations on the Colorado and Columbia so that a network of 5 stations could be implemented on the Yukon River. Samples are collected with sufficient frequency that the flux of a wide range of constituents can be estimated. The objective of NASQAN is to characterize the water quality of these large rivers by measuring concentration and mass transport of a wide range of dissolved and suspended constituents, including nutrients, major ions, dissolved and sediment-bound heavy metals, common pesticides, and inorganic and organic forms of carbon. This information will be used (1) to describe the long-term trends and changes in concentration and transport of these constituents; (2) to test findings of the National Water-Quality Assessment Program (NAWQA); (3) to characterize processes unique to large-river systems such as storage and re-mobilization of sediments and associated contaminants; and (4) to refine existing estimates of off-continent transport of water, sediment, and chemicals for assessing human effects on the world’s oceans and for determining global cycles of carbon, nutrients, and other chemicals. Additional information about the NASQAN Program can be found at *[http://water.usgs.gov/nasqan/]*.

The **National Atmospheric Deposition Program/National Trends Network** (NADP/NTN) provides continuous measurement and assessment of the chemical constituents in precipitation throughout the United States. As the lead federal agency, the USGS works together with over 100 organizations to provide a long-term, spatial and temporal record of atmospheric deposition generated from a network of 225 precipitation chemistry monitoring sites. This long-term, nationally consistent monitoring program, coupled with ecosystem research, provides critical information toward a national scorecard to evaluate the effectiveness of ongoing and future regulations intended to reduce atmospheric emissions and subsequent impacts to the Nation’s land and water resources. Reports and other information on the NADP/NTN Program, as well as all data from the individual sites, can be found at *[http://bqs.usgs.gov/acidrain/]*.

The **National Water-Quality Assessment** (NAWQA) Program of the U.S. Geological Survey is a long-term program with goals to describe the status and trends of water-quality conditions for a large, representative part of the Nation's ground- and surface-water resources; provide an improved understanding of the primary natural and human factors affecting these observed conditions and trends; and provide information that supports development and evaluation of management, regulatory, and monitoring decisions by other agencies.

Assessment activities are being conducted in 59 study units (major watersheds and aquifer systems) that represent a wide range of environmental settings nationwide and that account for a large percentage of the Nation's water use. A wide array of chemical constituents will be measured in ground water, surface water, streambed sediments, and fish tissues. The coordinated application of comparative hydrologic studies at a wide range of spatial and temporal scales will provide information for decision making by water-resources managers and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

Communication and coordination between USGS personnel and other local, State, and federal interests are critical components of the NAWQA Program. Each study unit has a local liaison committee consisting of representatives from key federal, State, and local water-resources agencies, Indian nations, and universities in the study unit. Liaison committees typically meet semiannually to discuss their information needs, monitoring plans and progress, desired information products, and opportunities to collaborate efforts among the agencies. Additional information about the NAWQA Program can be found at *[http://water.usgs.gov/nawqa/]*.

EXPLANATION OF THE RECORDS

The surface-water and ground-water records in this report are for the 2003 water year that began October 1, 2002, and ended September 30, 2003. 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 streamflow stations, and ground-water-level data. The location of these stations and wells are shown in figures throughout the report. The following sections of the introductory text are presented to provide users with a more detailed explanation of how these hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

Each data station in this report, whether a streamsite or a 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 continuous-record 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 (fig. 4).

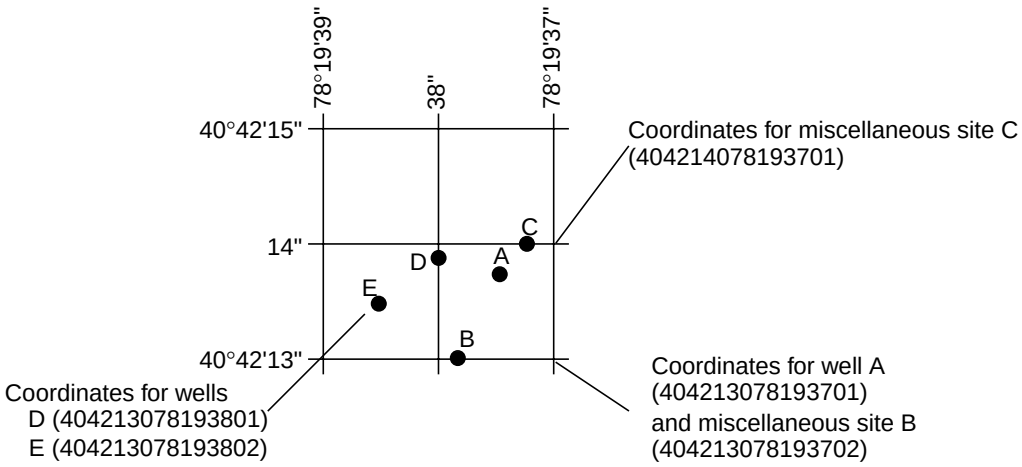


Figure 4.--System for numbering wells and miscellaneous sites (latitude and longitude).

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 end-of-day contents for reservoirs commonly are published for such stations, they are referred to as "*daily stations*" or "*continuous-record stations*."

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "*Crest-stage partial-record stations*," or "*Low-flow partial-record stations*." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this report. Location of all continuous-record and partial-record stations for which data are given in this report are shown in figures 5-11.

Data Collection and Computation

Those 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 relation 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 solid-state electronic data loggers, or with data collection platforms (DCPs) that electronically record and 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 the U.S. Geological Survey Techniques of Water-Resources Investigations (TWRIs), Book 3, Chapter A1 through A19 and Book 8, Chapters A2 and B2. The methods are consistent with the American Society for Testing and Materials (ASTM) standards and generally follow the standards of the International Organization for Standards (ISO).

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

Daily mean discharges are computed by applying 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 relation 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 continuous-record surface-water discharge station (gaging station) consist of four parts; (1) the manuscript or station description; (2) the data table of daily mean discharge values for the current water year with summary data; (3) a tabular statistical summary of monthly mean flow data for a designated period; and (4) a summary statistics table for a designated period that includes statistical data of annual, daily, and instantaneous flows as well as data pertaining to annual runoff, 7-day low-flow minimums, and flow duration.

Station manuscript

For each continuous-record station, the manuscript provides, under various headings, descriptive information such as station location, period of record, historical extremes outside the period of record, record accuracy, and other remarks pertinent to station operation and regulation. The following comments, as appropriate, clarify information presented under the various headings of the station description.

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

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

PERIOD OF RECORD.--This indicates the period for which records have been published for the station or for an equivalent station. An equivalent station is one that was in operation at a time that the present station was not and whose location was such that its streamflow can reasonably be considered equivalent to the streamflow at the present station.

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

GAGE.--The type of gage in current use, the datum of the current gage referred to sea level (see Definition of Terms), and a condensed history of the types, locations, and datums of previous gages are given under this heading.

REMARKS.--This paragraph is used to present information relative to the accuracy of the records, to special methods of computation, and to conditions that affect natural flow at the station. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

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

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

PEAK DISCHARGES FOR CURRENT YEAR.--Peaks given here are similar to those found in the summary statistics table, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and greater than a selected base discharge (see Definition of Terms) are presented under this heading. The peaks greater than the base discharge, excluding the highest one, are referred to as secondary peaks. Peak discharges are not published for 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.

REVISIONS.--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station manuscript published to document the revision in a "*Revised Records*" entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the District Office (address given on the back of the title page of this report) to determine if the published records were ever revised after the station was discontinued. Of course, if those data for a discontinued station were obtained by computer retrieval, these data would be current and accurate because published revisions of data are always accompanied by revisions of those data in computer storage.

Beginning with the 1991 annual State Data report, the heading for AVERAGE DISCHARGE has been deleted and the information contained in these paragraphs, except for the listing of secondary instantaneous peak discharges in the PEAK DISCHARGES FOR CURRENT YEAR paragraph, is now presented in the tabular summaries following the discharge table or in the REMARKS paragraph, as appropriate. No changes have been made to the data presentations of lake contents.

Data table of daily mean values

The daily table of discharge records for stream-gaging stations gives mean discharge for each day of the water year. In the monthly summary for the table, the line headed "TOTAL" gives the sum of the daily figures for each month; the line headed "MEAN" gives the average flow in cubic feet per second for the month; and the lines headed "MAX" and "MIN" give the maximum and minimum daily mean discharges, respectively, for each month. Discharge for the month also is usually expressed in cubic feet per second per square mile (line headed "CFSM"); or in inches (line headed "IN."). Figures for cubic feet per second per square mile and runoff in inches may be omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas. At some stations streamflow is affected by regulation or diversion. The monthly adjusting figure for known regulation or diversion may be shown at the bottom of the daily values table or in the appropriate lake or reservoir table.

Statistics of monthly mean data

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

Summary statistics

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

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

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

ANNUAL TOTAL.--The sum of the daily mean values of discharge for the year. At some stations the annual total discharge may be affected by reservoir storage or diversion. The monthly adjusting figures for known regulation or diversions may be shown 1) at the bottom of the daily values table, or 2) in the appropriate lake or reservoir table.

ANNUAL MEAN.--The arithmetic mean of the individual daily mean discharges for the year noted or for the designated period. At some stations the annual total discharge may be affected by reservoir storage or diversion. The monthly adjusting figures for known regulation or diversions may be shown 1) at the bottom of the daily values table, or 2) in the appropriate lake or reservoir table.

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

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

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

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

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

MAXIMUM PEAK FLOW.--The maximum instantaneous peak discharge occurring for the water year or designated period. Occasionally the maximum flow for a year may occur at midnight at the beginning or end of the year, on a recession from or rise toward a higher peak in the adjoining year. In this case, the maximum peak flow is given in the table and the maximum flow may be reported in a footnote or in the REMARKS paragraph in the manuscript.

MAXIMUM PEAK STAGE.--The maximum instantaneous peak stage occurring for the water year or designated period. Occasionally the maximum stage for a year may occur at midnight at the beginning or end of the year, on a recession from or rise toward a higher peak in the adjoining year. In this case, the maximum peak stage is given in the table and the maximum stage may be reported in the REMARKS paragraph in the manuscript or in a footnote. If the dates of occurrence of the maximum peak stage and maximum peak flow are different, the REMARKS paragraph in the manuscript or a footnote may be used to provide further information.

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

ANNUAL RUNOFF.--Indicates the total quantity of water in runoff for a drainage area for the year. Runoff figures may be omitted if there is extensive regulation or diversion. Data reports may use any of the following units of measurements in presenting annual runoff data:

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

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

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

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

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

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

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

Identifying Estimated Daily Discharge

Beginning with the 1987 annual State data report, estimated daily discharge values published in the water-discharge tables are identified by flagging individual daily values with the letter symbol "*e*" and printing a table footnote, "*e Estimated*".

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 temperature, discharge measurements, gage-height records, and rating tables is on file in the District's offices. 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 District Information Specialist (telephone (717) 730-6916).

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. Specifically, a continuing record station is a site which meets one or all of the following conditions: (1) When chemical samples are collected daily or monthly for 10 or more months during the water year. (2) When water temperature records include observations taken one or more times daily. (3) When sediment discharge records include periods for which sediment loads are computed and are considered to be representative of the runoff for the water year. 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 recorded at short intervals. 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. Location of stations for which records on the quality of surface water appear in this report are shown in figures throughout the report.

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 quality, 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 on-site measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," Book 1, Chap. D2; Book 3, Chap. A1, A3, and A4; Book 9, Chap. A1-A9. These references are listed in the PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS section of this report. These methods are consistent with ASTM standards and generally follow ISO standards. 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 Water Quality Assessment Program (see Definition of Terms) 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 published 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 solid-state electronic data loggers, or with Data Collection Platforms (DCPs). More detailed records (measured at a frequency greater than daily) may be obtained from the U.S. Geological Survey District Office at the address given on the back of the title page of this report or from *[http://waterdata.usgs.gov/pa/nwis/]*.

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 and recorded data are available from the District Office or from *[http://waterdata.usgs.gov/pa/nwis/]*. In addition, water temperatures are measured at the time of discharge measurements for most water-discharge stations and are on file in the District's offices. 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. Hand samples utilize the appropriate sampler (dependent on stream depth and velocity) and are collected using the depth-integrating method at single or multiple verticals in the cross section. Samples collected by pump samplers use 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, mean concentration, and the constant 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples were collected, daily discharges of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge. Methods used in the computation of sediment records are described in the TWRI Book 3, Chapters C1 and C3. These methods are consistent with ASTM standards and generally follow ISO standards.

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 Denver, Colorado. If other laboratories are used, they are identified in the "*Remarks*" or "*Cooperation*" paragraph of each water-quality station manuscript. Methods used to analyze sediment samples and to compute sediment records are described in TWRI Book 5, Chapter C1. Methods used by the Geological Survey laboratories are given in the TWRI Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, A4 and A5. These methods are consistent with ASTM standards and generally follow ISO standards. Methods used by other laboratories are approved by the U.S. Geological Survey, Water Resources Division.

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, and other data, 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 constituents measured daily or continuously and those measured less often than daily. For those measured daily or continuously, periods of record are given for the constituents individually.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor, temperature recorder, 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 in the U.S. Geological Survey's distributed data system, NWIS, and subsequently to its web-based National data system, NWISWeb *[http://waterdata.usgs.gov/nwis/]*. 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 NWIS or NWISWeb to insure the most recent updates. Updates to NWISWeb are currently made on an annual basis.

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.

Accuracy of the Records

The accuracy of water-quality records at continuous-record water-quality stations depends primarily on (1) hydrologic environment; (2) seasonal conditions; (3) operating accuracy of the equipment; (4) fouling of the probes; (5) calibration drift in the equipment; and (6) maintenance frequency.

Beginning with the 2000 water year, an additional statement describing the accuracy attributed to the records is included under the "REMARKS" heading. After the record has been evaluated for reporting continuous data (table 1), one of the four accuracy classifications is applied to each measured physical property on a scale ranging from poor to excellent. Table 2 shows the criteria used in rating continuous water-quality records.

In addition, beginning with the 2000 water year, the presentation of daily mean pH values has been discontinued and replaced by median pH values. (Wagner, R.J., Mattraw, H.C., Ritz, G.F., and Smith, B.A., 2000, Guidelines and standard procedures for continuous water-quality monitors—site selection, field operation, calibration, record computation, and reporting: U.S. Geological Survey Water-Resources Investigations Report 00-4252, 53 p.).

Table 1.--Maximum allowable limits for continuous water-quality monitoring sensors.

Measured physical property	Maximum allowable limits for water-quality sensor values
Temperature	± 2.0°C
Specific conductance	± 30 percent
Dissolved oxygen	The greater of ± 2.0 mg/L or 20 percent
pH	± 2 pH units
Turbidity	± 30 percent

Table 2.--Rating continuous water-quality records.

	Ratings			
Measured physical property	Excellent	Good	Fair	Poor
Water temperature	≤ ± 0.2°C	>± 0.2 to 0.5°C	>± 0.5 to 0.8°C	>± 0.8°C
Specific conductance	≤ ± 3%	>± 3 to 10%	>± 10 to 15%	>± 15%
Dissolved oxygen	≤ ± 0.3 mg/L	>± 0.3 to 0.5 mg/L	>± 0.5 to 0.8 mg/L	>± 0.8 mg/L
pH	≤ ± 0.2 unit	>± 0.2 to 0.5 unit	>± 0.5 to 0.8 unit	>± 0.8 unit
Turbidity	≤ ± 5%	>± 5 to 10%	>± 10 to 15%	>± 15%

Remark Codes

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

PRINTED OUTPUT	REMARK
E,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.
M	Presence of material verified, but not quantified.
N	Presumptive evidence of presence of material.
U	Material specifically analyzed for, but not detected.
A	Value is an average.
V	Analyte was detected in both the environmental sample and the associated blanks.
S	Most probable value.

Dissolved Trace-Element Concentrations

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

Change in National Trends Network Procedures

NOTE.--Sample handling procedures at all National Trends Network stations were changed substantially on January 11, 1994, in order to reduce contamination from the sample shipping container. The data for samples before and after that date are different and not directly comparable. A tabular summary of the differences based on a special intercomparison study, is available from the NADP Program Office, Illinois State Water Survey, 2204 Griffith Drive, Champaign, IL 61820-7459 (217-333-7873).

Water-Quality-Control Data

Data generated from quality-control (QC) samples are a requisite for evaluating the quality of the sampling and processing techniques as well as data from the actual samples themselves. Without QC data, environmental sample data cannot be adequately interpreted because the errors associated with the sample data are unknown. The various types of QC samples collected by this district are described in the following section. Procedures have been established for the storage of water-quality-control data within the USGS. These procedures allow for storage of all derived QC data and are identified so that they can be related to corresponding environmental samples.

BLANK SAMPLES.--Blank samples are collected and analyzed to ensure that environmental samples have not been contaminated by the overall data-collection process. The blank solution used to develop specific types of blank samples is a solution that is free of the analytes of interest. Any measured value in a blank sample for an analyte (a specific component measured in a chemical analysis) that was absent in the blank solution is believed to be due to contamination. There are many types of blank samples possible, each designed to segregate a different part of the overall data-collection process. The types of blank samples collected in this district are:

Ambient blank--a blank solution that is put in the same type of sample container used for an environmental sample, kept with the set of sample bottles before sample collection, and opened at the site and exposed to the ambient conditions.

Field blank--a blank solution that is subjected to all aspects of sample collection, field processing, preservation, transportation, and laboratory handling as an environmental sample.

Trip blank--a blank solution that is put in the same type of sample container used for an environmental sample and kept with the set of samples bottles before and after sample collection.

Equipment blank--a blank solution that is processed through all equipment used for collecting and processing an environmental sample (similar to a field blank but normally done in the more controlled conditions of the office).

Sampler blank--a blank solution that is poured or pumped through the same field sampler used for collecting an environmental sample.

Filter blank--a blank solution that is filtered in the same manner and through the same filter apparatus used for an environmental sample.

Splitter blank--a blank solution that is mixed and separated using a field sample splitter in the same manner and through the same apparatus used for an environmental sample.

Preservation blank--a blank solution that is treated with the same preservatives used for an environmental sample.

Canister blank--a blank solution that is taken directly from a stainless steel canister just before the VOC sampler is submerged to obtain a field sample.

REFERENCE SAMPLES.--Reference material samples are solutions or materials having a known composition that is certified by a laboratory. Samples of reference material are submitted for analysis to ensure that an analytical method is accurate for the known properties of the reference material. Generally, the selected reference material properties are similar to the environmental sample properties.

REPLICATE SAMPLES.--Replicate samples are a set of environmental samples collected in a manner such that the samples are thought to be essentially identical in composition. Replicate is the general case for which a duplicate is the special case consisting of two samples. Replicate samples are collected and analyzed to establish the amount of variability in the data contributed by some part of the collection and analytical process. There are many types of replicate samples possible, each of which may yield slightly different results in a dynamic hydrologic setting, such as a flowing stream. The types of replicate samples collected in this district are:

Sequential samples--a type of replicate sample in which environmental samples are collected one after the other, typically within a short time.

Split sample--a type of replicate sample in which an environmental sample is split into subsamples contemporaneous in time and space.

SPIKE SAMPLES.--Spike samples are samples to which known quantities of a solution with one or more well-established analyte concentrations have been added. These samples are analyzed to determine the extent of matrix interference or degradation on the analyte concentration during sample processing and analysis.

Records of Ground-Water Levels

Ground-water level data from an observation well network and from ground-water projects are published herein. Locations of observation wells in the basic network are shown in figures 5 and 7. Ground-water data are grouped by counties, arranged in alphabetical order, and are listed on pages x-xi. Those with an (l) following the well number have water-level data published in the report. Miscellaneous or short-term ground-water data collection projects are published following the basic network data.

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.

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 of a water-level recorder, with solid-state electronic data loggers, or with Data Collection Platforms (DCPs). 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 for most wells, especially historical network wells, are reported in feet above or below land surface datum. For some short term project wells the water levels may be reported as elevation (feet above sea level) for convenience of the project work. Water levels are reported daily for all wells equipped with recording gages.

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 may be given to a tenth of a foot.

Data Presentation

Each well record consists of three parts; (1) the station description, (2) the data table of water levels observed during the current water year, and (3) a graph of the water levels for the last 3 years. The description of the well is presented first through use of descriptive headings preceding the tabular data. The comments that follow clarify information presented under the various headings of the station description.

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

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

WELL CHARACTERISTICS.--This entry describes the well in terms of depth, diameter, casing depth 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, allowing the user to better evaluate the reported water-levels by knowing whether they are based on hourly, daily, 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) sea level; it is reported with a precision relative to 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 values of one daily water-level statistic (maximum, mean, or instantaneous) reported in the data tables for the period of published record with respect to land-surface datum, (or occasionally sea level), and the dates of their occurrence. For example, if the daily maximum depth below land surface is reported in the table of water levels, this paragraph would reflect the highest and lowest of these daily maximum values for the period of record. Depending on the statistic reported in the table of water levels, extremes would be determined from daily maximum, mean, or instantaneous values.

EXTREMES FOR CURRENT YEAR.--This entry contains the instantaneous highest and lowest water level for the current year, with respect to land-surface datum, (or occasionally sea level), and the dates of their occurrence.

Data table of water levels

A table of water levels follows the station description for each well. These tables usually report water-level data as maximum depth (in feet) above or below land-surface datum, but may report daily mean or instantaneous values depending upon the method used to obtain the record and how the record was published in the past. If water-level record is obtained from electronic data loggers or DCPs, in addition to data published in the table of water levels, the daily maximum, minimum, and mean water-levels are stored in computer files and available from the District Office as noted in the REMARKS paragraph for that well. Recorded data are available at the District Office or at *[http://waterdata.usgs.gov/pa/nwis/]*. Missing records are indicated by dashes in place of the water level. A hydrograph showing the last three years of water levels follows each water-level table.

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. Those wells with a (c) following the well number in the list of ground-water wells on pages x and xi, have water-quality data published in the report. Miscellaneous or short-term ground-water data collection projects are published following the basic network data.

Data Collection and Computation

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

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey TWRI publications referred to in the "*On-site Measurements and Sample Collection*" and the "*Laboratory Measurements*" sections in this data report. In addition, the TWRI Book 1, Chapter D2, describes guidelines for the collection and field analysis of ground-water samples for selected unstable constituents. 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. These methods are consistent with ASTM standards and generally follow ISO standards. All samples were obtained by trained personnel. Any wells sampled were pumped long enough to assure that the water collected came directly from the aquifer and had not stood for a long time in the well casing where it would have been exposed to the atmosphere and to the material, possibly metal, comprising the casings.

Data Presentation

Ground-water-quality data, if collected, are published with ground-water-level data at stations where level data are collected. Any 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 USGS WATER 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. The Geological Survey provides near real-time stream stage and discharge, groundwater well water level, and stream water-quality data for many of the stations equipped with the necessary telemetry and historic daily-mean and peak-flow discharge data for most current or discontinued gaging stations through the World Wide Web (WWW). These data may be accessed at *[http://waterdata.usgs.gov/pa/nwis/]*.

Water-quality and ground-water data also are available through the WWW at *[http://waterdata.usgs.gov/pa/nwis/]*. In addition, data can be provided in various machine-readable formats on compact disc or 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 District Offices (See address on the back of the title page.).

For most streamgages, "*real-time*" streamflow conditions are available on the World Wide Web (WWW) Pennsylvania District Home Page at *[http://pa.water.usgs.gov/]*. Daily streamflow values for the period of record, annual peak stream discharges, and streamflow conditions for surrounding states may be obtained at *[http://waterdata.usgs.gov/nwis/]*.

A wide variety of additional information, such as ordering U.S. Geological Survey maps and publications is available at the U.S. Geological Survey Home Page at *[http://www.usgs.gov/]*.

DEFINITION OF TERMS

Specialized technical terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. Definitions of common terms such as algae, water level, and precipitation are given in standard dictionaries. Not all terms defined in this alphabetical list apply to every State. See also table for converting inch/pound units to International System (SI) units on the inside of the back cover.

Acid neutralizing capacity (ANC) is the equivalent sum of all bases or base-producing materials, solutes plus particulates, in an aqueous system that can be titrated with acid to an equivalence point. This term designates titration of an "unfiltered" sample (formerly reported as alkalinity).

Acre-foot (AC-FT, acre-ft) is a unit of volume, commonly used to measure quantities of water used or stored, equivalent to the volume of water required to cover 1 acre to a depth of 1 foot and equivalent to 43,560 cubic feet, 325,851 gallons, or 1,233 cubic meters. (See also "Annual runoff")

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

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. (See also "Biomass" and "Dry weight")

Alkalinity is the capacity of solutes in an aqueous system to neutralize acid. This term designates titration of a "filtered" sample.

Annual runoff is the total quantity of water that is discharged ("runs off") from a drainage basin in a year. Data reports may present annual runoff data as volumes in acre-feet, as discharges per unit of drainage area in cubic feet per second per square mile, or as depths of water on the drainage basin in inches.

Annual 7-day minimum is the lowest mean value for any 7-consecutive-day period in a year. Annual 7-day minimum values are reported herein for the calendar year and the water year (October 1 through September 30). Most low-flow frequency analyses use a climatic year (April 1-March 31), which tends to prevent the low-flow period from being artificially split between adjacent years. The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day, 10-year low-flow statistic.)

Aroclor is the registered trademark for a group of poly-chlorinated biphenyls that were manufactured by the Monsanto Company prior to 1976. Aroclors are assigned specific 4-digit reference numbers dependent upon molecular type and degree of substitution of the biphenyl ring hydrogen atoms by chlorine atoms. The first two digits of a numbered aroclor represent the molecular type, and the last two digits represent the percentage weight of the hydrogen-substituted chlorine.

Artificial substrate is a device that 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 collected. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection. (See also "Substrate")

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. Ash mass of zooplankton and phytoplankton is expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2). (See also "Biomass" and "Dry mass")

Aspect is the direction toward which a slope faces with respect to the compass.

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

Bankfull stage, as used in this report, is the stage at which a stream first overflows its natural banks formed by floods with 1- to 3-year recurrence intervals.

Base discharge (for peak discharge) is a discharge value, determined for selected stations, above which peak discharge data are published. The base discharge at each station is selected so that an average of about three peak flows per year will be published. (See also "Peak flow")

Base flow is sustained flow of a stream in the absence of direct runoff. It includes natural and human-induced streamflows. Natural base flow is sustained largely by ground-water discharge.

Bedload is material in transport that is supported primarily by the streambed. In this report, bedload is considered to consist of particles in transit from the bed to an elevation equal to the top of the bedload sampler nozzle (ranging from 0.25 to 0.5 foot) that are retained in the bedload sampler. A sample collected with a pressure-differential bedload sampler also may contain a component of the suspended load.

Bedload discharge (tons per day) is the rate of sediment moving as bedload, reported as dry weight, that passes through a cross section in a given time. NOTE: Bedload discharge values in this report may include a component of the suspended-sediment discharge. A correction may be necessary when computing the total sediment discharge by summing the bedload discharge and the suspended-sediment discharge. (See also "Bedload," "Dry weight," "Sediment," and "Suspended-sediment discharge")

Bed material is the sediment mixture of which a stream-bed, lake, pond, reservoir, or estuary bottom is composed. (See also "Bedload" and "Sediment")

Benthic organisms are the group of organisms inhabiting the bottom of an aquatic environment. They include a number of types of organisms, such as bacteria, fungi, insect larvae and nymphs, snails, clams, and crayfish. They are useful as indicators of water quality.

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 mass per unit area or volume of habitat.

Biomass pigment ratio is an indicator of the total proportion of periphyton that are autotrophic (plants). This is also called the Autotrophic Index.

Blue-green algae (*Cyanophyta*) 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. Concentrations are expressed as a number of cells per milliliter (cells/mL) of sample. (See also "Phytoplankton")

Bottom material (See "Bed material")

Bulk electrical conductivity is the combined electrical conductivity of all material within a doughnut-shaped volume surrounding an induction probe. Bulk conductivity is affected by different physical and chemical properties of the material including the dissolved solids content of the pore water and lithology and porosity of the rock.

Cells/volume refers to the number of cells of any organism that 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 volume, and are generally reported as cells or units per milliliter (mL) or liter (L).

Cells volume (biovolume) determination is one of several common methods used to estimate biomass of algae in aquatic systems. Cell members of algae are frequently used in aquatic surveys as an indicator of algal production. However, cell numbers alone cannot represent true biomass because of considerable cell-size variation among the algal species. Cell volume (μm^3) is determined by obtaining critical cell measurements or cell dimensions (for example, length, width, height, or radius) for 20 to 50 cells of each important species to obtain an average biovolume per cell. Cells are categorized according to the correspondence of their cellular shape to the nearest geometric solid or combinations of simple solids (for example, spheres, cones, or cylinders). Representative formulae used to compute biovolume are as follows:

$$\text{sphere } 4/3\ \pi r^3 \quad \text{cone } 1/3\ \pi r^2 h \quad \text{cylinder } \pi r^2 h.$$

pi (π) is the ratio of the circumference to the diameter of a circle; pi = 3.14159….

From cell volume, total algal biomass expressed as biovolume ($\mu m^3/mL$) is thus determined by multiplying the number of cells of a given species by its average cell volume and then summing these volumes for all species.

Cfs-day (See "Cubic foot per second-day")

Channel bars, as used in this report, are the lowest prominent geomorphic features higher than the channel bed.

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 BOD or with carbonaceous organic pollution from sewage or industrial wastes. [See also "Biochemical oxygen demand (BOD)"]

Clostridium perfringens *(C. perfringens)* is a spore-forming bacterium that is common in the feces of human and other warm-blooded animals. Clostridial spores are being used experimentally as an indicator of past fecal contamination and presence of microorganisms that are resistant to disinfection and environmental stresses. (See also "Bacteria")

Coliphages are viruses that infect and replicate in coliform bacteria. They are indicative of sewage contamination of water and of the survival and transport of viruses in the environment.

Color unit is produced by 1 milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Confined aquifer is a term used to describe an aquifer containing water between two relatively impermeable bound-aries. The water level in a well tapping a confined aquifer stands above the top of the confined aquifer and can be higher or lower than the water table that may be present in the material above it. In some cases, the water level can rise above the ground surface, yielding a flowing well.

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 site where data are collected with sufficient frequency to define daily mean values and variations within a day.

Control designates a feature in the channel that physically affects the water-surface elevation and thereby determines the stage-discharge relation at the gage. This feature may be a constriction of the channel, a bedrock outcrop, a gravel bar, 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 saltwater.

Cubic foot per second (CFS, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point in 1 second. It is equivalent to approximately 7.48 gallons per second or approximately 449 gallons per minute, or 0.02832 cubic meters per second. The term "second-foot" sometimes is used synonymously with "cubic foot per second" but is now obsolete.

Cubic foot per second-day (CFS-DAY, Cfs-day, [(ft^3/s)/d]) is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, 1.98347 acre-feet, 646,317 gallons, or 2,446.6 cubic meters. The daily mean discharges reported in the daily value data tables are numerically equal to the daily volumes in cfs-days, and the totals also represent volumes in cfs-days.

Cubic foot per second per square mile [CFSM, (ft3/s)/mi^2] is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming the runoff is distributed uniformly in time and area. (See also "Annual runoff")

Daily mean suspended-sediment concentration is the time-weighted concentration of suspended sediment passing a stream cross section during a 24-hour day. (See also "Sediment" and "Suspended-sediment concentration")

Daily-record station is a site where data are collected with sufficient frequency to develop a record of one or more data values per day. The frequency of data collection can range from continuous recording to periodic sample or data collection on a daily or near-daily basis.

Data collection platform (DCP) is an electronic instrument that collects, processes, and stores data from various sensors, and transmits the data by satellite data relay, line-of-sight radio, and/or landline telemetry.

Data logger is a microprocessor-based data acquisition system designed specifically to acquire, process, and store data. Data are usually downloaded from onsite data loggers for entry into office data systems.

Datum is a surface or point relative to which measurements of height and/or horizontal position are reported. A vertical datum is a horizontal surface used as the zero point for measurements of gage height, stage, or elevation; a horizontal datum is a reference for positions given in terms of latitude-longitude, State Plane coordinates, or UTM coordinates. (See also "Gage datum," "Land-surface datum," "National Geodetic Vertical Datum of 1929," and "North American Vertical Datum of 1988")

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. (See also "Phytoplankton")

Diel is of or pertaining to a 24-hour period of time; a regular daily cycle.

Discharge, or **flow**, is the rate that matter passes through a cross section of a stream channel or other water body per unit of time. The term commonly refers to the volume of water (including, unless otherwise stated, any sediment or other constituents suspended or dissolved in the water) that passes a cross section in a stream channel, canal, pipeline, etc., within a given period of time (cubic feet per second). Discharge also can apply to the rate at which constituents, such as suspended sediment, bedload, and dissolved or suspended chemicals, pass through a cross section, in which cases the quantity is expressed as the mass of constituent that passes the cross section in a given period of time (tons per day).

Dissolved refers to that material in a representative water sample that passes through a 0.45-micrometer membrane filter. This is a convenient operational definition used by Federal and State agencies that collect water-quality data. Determinations of "dissolved" constituent concentrations are made on sample water that has been filtered.

Dissolved oxygen (DO) is the molecular oxygen (oxygen gas) dissolved in water. The concentration in water is a function of atmospheric pressure, temperature, and dissolved-solids concentration of the water. The ability of water to retain oxygen decreases with increasing temperature or dissolved-solids concentration. Photosynthesis and respiration by plants commonly cause diurnal variations in dissolved-oxygen concentration in water from some streams.

Dissolved-solids concentration in water is the quantity of dissolved material in a sample of water. It 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, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. In the mathematical calculation, the bicarbonate value, in milligrams per liter, is multiplied by 0.4926 to convert it to carbonate. Alternatively, alkalinity concentration (as mg/L $CaCO_3$) can be converted to carbonate concentration by multiplying by 0.60.

Diversity index (H) (Shannon index) is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\overline{d} = -\sum_{i\approx 1}^{s} \frac{n_i}{n} \log_2 \frac{n_i}{n} ,$$

where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specific location is that area upstream from the location, measured in a horizontal plane, that has a common outlet at the site for its surface runoff from precipitation that normally drains by gravity into a stream. Drainage areas given herein include all closed basins, or noncontributing areas, within the area unless otherwise specified.

Drainage basin is a part of the Earth's surface that contains a drainage system with a common outlet for its surface runoff. (See "Drainage area")

Dry mass refers to the mass of residue present after drying in an oven at 105 ˚C, 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. (See also "Ash mass," "Biomass," and "Wet mass")

Dry weight refers to the weight of animal tissue after it has been dried in an oven at 65 ˚C until a constant weight is achieved. Dry weight represents total organic and inorganic matter in the tissue. (See also "Wet weight")

Embeddedness is the degree to which gravel-sized and larger particles are surrounded or enclosed by finer-sized particles. (See also "Substrate embeddedness class")

Enterococcus bacteria are commonly found in the feces of humans and other warmblooded animals. Although some strains are ubiquitous and not related to fecal pollution, the presence of enterococci in water is an indication of fecal pollution and the possible presence of enteric pathogens. Enterococcus bacteria are those bacteria that produce pink to red colonies with black or reddish-brown precipitate after incubation at 41 ˚C on mE agar (nutrient medium for bacterial growth) and subsequent transfer to EIA medium. Enterococci include *Streptococcus feacalis*, *Streptococcus feacium*, *Streptococcus avium*, and their variants. (See also "Bacteria")

EPT Index is the total number of distinct taxa within the insect orders Ephemeroptera, Plecoptera, and Trichoptera. This index summarizes the taxa richness within the aquatic insects that are generally considered pollution sensitive; the index usually decreases with pollution.

Escherichia coli *(E. coli)* are bacteria present in the intestine and feces of warmblooded animals. E. coli are a member species of the fecal coliform group of indicator bacteria. In the laboratory, they are defined as those bacteria that produce yellow or yellow-brown colonies on a filter pad saturated with urea substrate broth after primary culturing for 22 to 24 hours at 44.5 ˚C on mTEC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (See also "Bacteria")

Estimated (E) concentration value is reported when an analyte is detected and all criteria for a positive result are met. If the concentration is less than the method detection limit (MDL), an 'E' code will be reported with the value. If the analyte is qualitatively identified as present, but the quantitative determination is substantially more uncertain, the National Water Quality Laboratory will identify the result with an 'E' code even though the measured value is greater than the MDL. A value reported with an 'E' code should be used with caution. When no analyte is detected in a sample, the default reporting value is the MDL preceded by a less than sign (<).

Euglenoids (*Euglenophyta*) are a group of algae that are usually free-swimming and rarely creeping. They have the ability to grow either photosynthetically in the light or heterotrophically in the dark. (See also "Phytoplankton")

Extractable organic halides (EOX) are organic compounds that contain halogen atoms such as chlorine. These organic compounds are semivolatile and extractable by ethyl acetate from air-dried streambed sediment. The ethyl acetate extract is combusted, and the concentration is determined by microcoulometric determination of the halides formed. The concentration is reported as micrograms of chlorine per gram of the dry weight of the streambed sediment.

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

Fecal streptococcal bacteria are present in the intestines of warmblooded animals and are ubiquitous in the environment. They are characterized as gram-positive, cocci bacteria that are capable of growth in brain-heart infusion broth. In the laboratory, they are defined as all the organisms that produce red or pink colonies within 48 hours at 35 °C plus or minus 1.0 °C on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (See also "Bacteria")

Fire algae (*Pyrrhophyta*) are free-swimming unicells characterized by a red pigment spot. (See also "Phytoplankton")

Flow-duration percentiles are values on a scale of 100 that indicate the percentage of time for which a flow is not exceeded. For example, the 90th percentile of river flow is greater than or equal to 90 percent of all recorded flow rates.

Gage datum is a horizontal surface used as a zero point for measurement of stage or gage height. This surface usually is located slightly below the lowest point of the stream bottom such that the gage height is usually slightly greater than the maximum depth of water. Because the gage datum itself is not an actual physical object, the datum usually is defined by specifying the elevations of permanent reference marks such as bridge abutments and survey monuments, and the gage is set to agree with the reference marks. Gage datum is a local datum that is maintained independently of any national geodetic datum. However, if the elevation of the gage datum relative to the national datum (North American Vertical Datum of 1988 or National Geodetic Vertical Datum of 1929) has been determined, then the gage readings can be converted to elevations above the national datum by adding the elevation of the gage datum to the gage reading.

Gage height (G.H.) is the water-surface elevation, in feet above the gage datum. If the water surface is below the gage datum, the gage height is negative. Gage height often is used interchangeably with the more general term "stage," although gage height is more appropriate when used in reference to a reading on a gage.

Gage values are values that are recorded, transmitted, and/or computed from a gaging station. Gage values typically are collected at 5-, 15-, or 30-minute intervals.

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

Gas chromatography/flame ionization detector (GC/FID) is a laboratory analytical method used as a screening technique for semivolatile organic compounds that are extractable from water in methylene chloride.

Geomorphic channel units, as used in this report, are fluvial geomorphic descriptors of channel shape and stream velocity. Pools, riffles, and runs are types of geomorphic channel units considered for National Water-Quality Assessment (NAWQA) Program habitat sampling.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algae mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample. (See also "Phytoplankton")

Habitat, as used in this report, includes all nonliving (physical) aspects of the aquatic ecosystem, although living components like aquatic macrophytes and riparian vegetation also are usually included. Measurements of habitat are typically made over a wider geographic scale than are measurements of species distribution.

Habitat quality index is the qualitative description (level 1) of instream habitat and riparian conditions surrounding the reach sampled. Scores range from 0 to 100 percent with higher scores indicative of desirable habitat conditions for aquatic life. Index only applicable to wadable streams.

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

High tide is the maximum height reached by each rising tide. The high-high and low-high tides are the higher and lower of the two high tides, respectively, of each tidal day. See NOAA web site: *http://www.co-ops.nos.noaa.gov/tideglos.html*

Hilsenhoff's Biotic Index (HBI) is an indicator of organic pollution that uses tolerance values to weight taxa abundances; usually increases with pollution. It is calculated as follows:

$$HBI = sum\frac{(n)(a)}{N},$$

where n is the number of individuals of each taxon, a is the tolerance value of each taxon, and N is the total number of organisms in the sample.

Horizontal datum (See "Datum")

Hydrologic index stations referred to in this report are continuous-record gaging stations that have been selected as representative of streamflow patterns for their respective regions. Station locations are shown on index maps.

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as defined by the former Office of Water Data Coordination and delineated on the State Hydrologic Unit Maps by the USGS. Each hydrologic unit is identified by an 8-digit number.

Inch (IN., in.), as used in this report, refers to the depth to which the drainage area would be covered with water if all of the runoff for a given time period were uniformly distributed on it. (See also "Annual runoff")

Instantaneous discharge is the discharge at a particular instant of time. (See also "Discharge")

Island, as used in this report, is a mid-channel bar that has permanent woody vegetation, is flooded once a year on average, and remains stable except during large flood events.

Laboratory reporting level (LRL) is generally equal to twice the yearly determined long-term method detection level (LT-MDL). The LRL controls false negative error. The probability of falsely reporting a nondetection for a sample that contained an analyte at a concentration equal to or greater than the LRL is predicted to be less than or equal to 1 percent. The value of the LRL will be reported with a "less than" (<) remark code for samples in which the analyte was not detected. The National Water Quality Laboratory (NWQL) collects quality-control data from selected analytical methods on a continuing basis to determine LT-MDLs and to establish LRLs. These values are reevaluated annually on the basis of the most current quality-control data and, therefore, may change. [Note: In several previous NWQL documents (NWQL Technical Memorandum 98.07, 1998), the LRL was called the nondetection value or NDV—a term that is no longer used.]

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

Latent heat flux (often used interchangeably with latent heat-flux density) is the amount of heat energy that converts water from liquid to vapor (evaporation) or from vapor to liquid (condensation) across a specified cross-sectional area per unit time. Usually expressed in watts per square meter.

Light-attenuation coefficient, also known as the extinction coefficient, is a measure of water clarity. Light is attenuated according to the Lambert-Beer equation:

$$I = I_o e^{-\lambda L},$$

where I_o is the source light intensity, I is the light intensity at length L (in meters) from the source, λ is the light-attenuation coefficient, and e is the base of the natural logarithm. The light-attenuation coefficient is defined as

$$\lambda = -\frac{1}{L}\log_e\frac{I}{I_o}.$$

Lipid is any one of a family of compounds that are insoluble in water and that make up one of the principal components of living cells. Lipids include fats, oils, waxes, and steroids. Many environmental contaminants such as organochlorine pesticides are lipophilic.

Long-term method detection level (LT-MDL) is a detection level derived by determining the standard deviation of a minimum of 24 method detection limit (MDL) spike sample measurements over an extended period of time. LT-MDL data are collected on a continuous basis to assess year-to-year variations in the LT-MDL. The LT-MDL controls false positive error. The chance of falsely reporting a concentration at or greater than the LT-MDL for a sample that did not contain the analyte is predicted to be less than or equal to 1 percent.

Low tide is the minimum height reached by each falling tide. The high-low and low-low tides are the higher and lower of the two low tides, respectively, of each tidal day. See NOAA web site: *http://www.co-ops.nos.noaa.gov/tideglos.html*

Macrophytes are the macroscopic plants in the aquatic environment. The most common macrophytes are the rooted vascular plants that usually are arranged in zones in aquatic ecosystems and restricted in the area by the extent of illumination through the water and sediment deposition along the shoreline.

Mean concentration of suspended sediment (Daily mean suspended-sediment concentration) is the time-weighted concentration of suspended sediment passing a stream cross section during a given time period. (See also "Daily mean suspended-sediment concentration" and "Suspended-sediment concentration")

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

Mean high or low tide is the average of all high or low tides, respectively, over a specific period.

Mean sea level is a local tidal datum. It is the arithmetic mean of hourly heights observed over the National Tidal Datum Epoch. Shorter series are specified in the name; for example, monthly mean sea level and yearly mean sea level. In order that they may be recovered when needed, such datums are referenced to fixed points known as benchmarks. (See also "Datum")

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

Membrane filter is a thin microporous material of specific pore size used to filter bacteria, algae, and other very small particles from water.

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

Method detection limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99-percent confidence that the analyte concentration is greater than zero. It is determined from the analysis of a sample in a given matrix containing the analyte. At the MDL concentration, the risk of a false positive is predicted to be less than or equal to 1 percent.

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

Micrograms per gram (UG/G, µg/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 kilogram (UG/KG, µg/kg) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the constituent per unit mass (kilogram) of the material analyzed. One microgram per kilogram is equivalent to 1 part per billion.

Micrograms per liter (UG/L, µg/L) is a unit expressing the concentration of chemical constituents in water as mass (micrograms) of constituent per unit volume (liter) of water. One thousand micrograms per liter is equivalent to 1 milligram per liter. One microgram per liter is equivalent to 1 part per billion.

Microsiemens per centimeter (US/CM, µS/cm) is a unit expressing the amount of electrical conductivity of a solution as measured between opposite faces of a centimeter cube of solution at a specified temperature. Siemens is the International System of Units nomenclature. It is synonymous with mhos and is the reciprocal of resistance in ohms.

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

Minimum reporting level (MRL) is the smallest measured concentration of a constituent that may be reliably reported by using a given analytical method.

Miscellaneous site, miscellaneous station, or miscellaneous sampling site is a site where streamflow, sediment, and/or water-quality data or water-quality or sediment samples are collected once, or more often on a random or discontinuous basis to provide better areal coverage for defining hydrologic and water-quality conditions over a broad area in a river basin.

Most probable number (MPN) is an index of the number of coliform bacteria that, more probably than any other number, would give the results shown by the laboratory examination; it is not an actual enumeration. MPN is determined from the distribution of gas-positive cultures among multiple inoculated tubes.

Multiple-plate samplers are artificial substrates of known surface area used for obtaining benthic invertebrate samples. They consist of a series of spaced, hardboard plates on an eyebolt.

Nanograms per liter (NG/L, ng/L) is a unit expressing the concentration of chemical constituents in solution as mass (nanograms) of solute per unit volume (liter) of water. One million nanograms per liter is equivalent to 1 milligram per liter.

National Geodetic Vertical Datum of 1929 (NGVD of 1929) is a fixed reference adopted as a standard geodetic datum for elevations determined by leveling. It was formerly called "Sea Level Datum of 1929" or "mean sea level." Although the datum was derived from the mean sea level at 26 tide stations, it does not necessarily represent local mean sea level at any particular place. *See NOAA web site: http://www.ngs.noaa.gov/faq.shtml#WhatVD29VD88* (See "North American Vertical Datum of 1988")

Natural substrate refers to any naturally occurring immersed or submersed solid surface, such as a rock or tree, upon which an organism lives. (See also "Substrate")

Nekton are the consumers in the aquatic environment and consist of large free-swimming organisms that are capable of sustained, directed mobility.

Nephelometric turbidity unit (NTU) is the measurement for reporting turbidity that is based on use of a standard suspension of formazin. Turbidity measured in NTU uses nephelometric methods that depend on passing specific light of a specific wavelength through the sample.

North American Vertical Datum of 1988 (NAVD 1988) is a fixed reference adopted as the official civilian vertical datum for elevations determined by Federal surveying and mapping activities in the United States. This datum was established in 1991 by minimum-constraint adjustment of the Canadian, Mexican, and United States first-order terrestrial leveling networks.

Open or screened interval is the length of unscreened opening or of well screen through which water enters a well, in feet below land surface.

Organic carbon (OC) is a measure of organic matter present in aqueous solution, suspension, or bottom sediment. May be reported as dissolved organic carbon (DOC), particulate organic carbon (POC), or total organic carbon (TOC).

Organic mass or volatile mass of a living substance is the difference between the dry mass and ash mass and represents the actual mass of the living matter. Organic mass is expressed in the same units as for ash mass and dry mass. (See also "Ash mass," "Biomass," and "Dry mass")

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

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

Organochlorine compounds are any chemicals that contain carbon and chlorine. Organochlorine compounds that are important in investigations of water, sediment, and biological quality include certain pesticides and industrial compounds.

Parameter code is a 5-digit number used in the USGS computerized data system, National Water Information System (NWIS), to uniquely identify a specific constituent or property.

Partial-record station is a site where discrete measurements of one or more hydrologic parameters are obtained over a period of time without continuous data being recorded or computed. A common example is a crest-stage gage partial-record station at which only peak stages and flows are recorded.

Particle size is the diameter, in millimeters (mm), of a particle determined by sieve or sedimentation methods. The sedimentation method utilizes the principle of Stokes law to calculate sediment particle sizes. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube, sedigraph) 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, as used in this report, agrees with the recommendation 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	>0.004 - 0.062	Sedimentation
Sand	>0.062 - 2.0	Sedimentation/sieve
Gravel	>2.0 - 64.0	Sieve
Cobble	>64 - 256	Manual measurement
Boulder	>256	Manual measurement

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

Peak flow (peak stage) is an instantaneous local maximum value in the continuous time series of streamflows or stages, preceded by a period of increasing values and followed by a period of decreasing values. Several peak values ordinarily occur in a year. The maximum peak value in a year is called the annual peak; peaks lower than the annual peak are called secondary peaks. Occasionally, the annual peak may not be the maximum value for the year; in such cases, the maximum value occurs at midnight at the beginning or end of the year, on the recession from or rise toward a higher peak in the adjoining year. If values are recorded at a discrete series of times, the peak recorded value may be taken as an approximation of the true peak, which may occur between the recording instants. If the values are recorded with finite precision, a sequence of equal recorded values may occur at the peak; in this case, the first value is taken as the peak.

Percent composition or percent of total 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, weight, mass, or volume.

Percent shading is a measure of the amount of sunlight potentially reaching the stream. A clinometer is used to measure left and right bank canopy angles. These values are added together, divided by 180, and multiplied by 100 to compute percentage of shade.

Periodic-record station is a site where stage, discharge, sediment, chemical, physical, or other hydrologic measurements are made one or more times during a year but at a frequency insufficient to develop a daily record.

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

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

pH of water is the negative logarithm of the hydrogen-ion activity. Solutions with pH less than 7.0 standard units are termed "acidic," and solutions with a pH greater than 7.0 are termed "basic." Solutions with a pH of 7.0 are neutral. The presence and concentration of many dissolved chemical constituents found in water are affected, in part, by the hydrogen-ion activity of water. Biological processes including growth, distribution of organisms, and toxicity of the water to organisms also are affected, in part, by the hydrogen-ion activity of water.

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 commonly are known as algae. (See also "Plankton")

Picocurie (PC, pCi) is one trillionth (1×10^{-12}) of the amount of radioactive nuclide represented by a curie (Ci). A curie is the quantity of radioactive nuclide that yields 3.7×10^{10} radioactive disintegrations per second (dps). A picocurie yields 0.037 dps, or 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.

Concentrations are expressed as a number of cells per milliliter (cells/mL) of sample.

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.

Polychlorinated naphthalenes (PCNs) are industrial chemicals that are mixtures of chlorinated naphthalene compounds. They have properties and applications similar to polychlorinated biphenyls (PCBs) and have been identified in commercial PCB preparations.

Pool, as used in this report, is a small part of a stream reach with little velocity, commonly with water deeper than surrounding areas.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photo-synthetic 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 (carbon method) by the plants.

Primary productivity (carbon method) is expressed as milligrams of carbon per area per unit time [mg C/(m^2/time)] for periphyton and macrophytes or per volume [mg C/(m^3/time)] for phytoplankton. The carbon method defines 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 with unenriched water samples. Unit time may be either the hour or day, depending on the incubation period. (See also "Primary productivity")

Primary productivity (oxygen method) is expressed as milligrams of oxygen per area per unit time [mg O/(m^2/time)] for periphyton and macrophytes or per volume [mg O/(m^3/time)] for phytoplankton. The oxygen method defines 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. (See also "Primary productivity")

Radioisotopes are isotopic forms of elements that exhibit radioactivity. Isotopes are varieties of a chemical element that differ in atomic weight but are very nearly alike in chemical properties. The difference arises because the atoms of the isotopic forms of an element differ in the number of neutrons in the nucleus; for example, ordinary chlorine is a mixture of isotopes having atomic weights of 35 and 37, and the natural mixture has an atomic weight of about 35.453. Many of the elements similarly exist as mixtures of isotopes, and a great many new isotopes have been produced in the operation of nuclear devices such as the cyclotron. There are 275 isotopes of the 81 stable elements, in addition to more than 800 radioactive isotopes.

Reach, as used in this report, is a length of stream that is chosen to represent a uniform set of physical, chemical, and biological conditions within a segment. It is the principal sampling unit for collecting physical, chemical, and biological data.

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

Recurrence interval, also referred to as return period, is the average time, usually expressed in years, between occurrences of hydrologic events of a specified type (such as exceedances of a specified high flow or nonexceedance of a specified low flow). The terms "return period" and "recurrence interval" do not imply regular cyclic occurrence. The actual times between occurrences vary randomly, with most of the times being less than the average and a few being substantially greater than the average. For example, the 100-year flood is the flow rate that is exceeded by the annual maximum peak flow at intervals whose average length is 100 years (that is, once in 100 years, on average); almost two-thirds of all exceedances of the 100-year flood occur less than 100 years after the previous exceedance, half occur less than 70 years after the previous exceedance, and about one-eighth occur more than 200 years after the previous exceedance. Similarly, the 7-day, 10-year low flow ($7Q_{10}$) is the flow rate below which the annual minimum 7-day-mean flow dips at intervals whose average length is 10 years (that is, once in 10 years, on average); almost two-thirds of the nonexceedances of the $7Q_{10}$ occur less than 10 years after the previous nonexceedance, half occur less than 7 years after, and about one-eighth occur more than 20 years after the previous nonexceedance. The recurrence interval for annual events is the reciprocal of the annual probability of occurrence. Thus, the 100-year flood has a 1-percent chance of being exceeded by the maximum peak flow in any year, and there is a 10-percent chance in any year that the annual minimum 7-day-mean flow will be less than the $7Q_{10}$.

Replicate samples are a group of samples collected in a manner such that the samples are thought to be essentially identical in composition.

Return period (See "Recurrence interval")

Riffle, as used in this report, is a shallow part of the stream where water flows swiftly over completely or partially submerged obstructions to produce surface agitation.

River mileage is the curvilinear distance, in miles, measured upstream from the mouth along the meandering path of a stream channel in accordance with Bulletin No. 14 (October 1968) of the Water Resources Council and typically is used to denote location along a river.

Run, as used in this report, is a relatively shallow part of a stream with moderate velocity and little or no surface turbulence.

Runoff is the quantity of water that is discharged ("runs off") from a drainage basin during a given time period. Runoff data may be presented as volumes in acre-feet, as mean discharges per unit of drainage area in cubic feet per second per square mile, or as

depths of water on the drainage basin in inches. (See also "Annual runoff")

Sea level, as used in this report, refers to one of the two commonly used national vertical datums (NGVD 1929 or NAVD 1988). See separate entries for definitions of these datums.

Sediment is solid material that originates mostly from disintegrated rocks; when transported by, suspended in, or deposited from water, it is referred to as "fluvial sediment." Sediment 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 affected by environmental and land-use factors. Some major factors are topography, soil characteristics, land cover, and depth and intensity of pre-cipitation.

Sensible heat flux (often used interchangeably with latent sensible heat-flux density) is the amount of heat energy that moves by turbulent transport through the air across a specified cross-sectional area per unit time and goes to heating (cooling) the air. Usually expressed in watts per square meter.

Seven-day, 10-year low flow ($7Q_{10}$) is the discharge below which the annual 7-day minimum flow falls in 1 year out of 10 on the long-term average. The recurrence interval of the $7Q_{10}$ is 10 years; the chance that the annual 7-day minimum flow will be less than the $7Q_{10}$ is 10 percent in any given year. (See also "Annual 7-day minimum" and "Recurrence interval")

Shelves, as used in this report, are streambank features extending nearly horizontally from the flood plain to the lower limit of persistent woody vegetation.

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. Sodium hazard in water is an index that can be used to evaluate the suitability of water for irrigating crops.

Soil heat flux (often used interchangeably with soil heat-flux density) is the amount of heat energy that moves by conduction across a specified cross-sectional area of soil per unit time and goes to heating (or cooling) the soil. Usually expressed in watts per square meter.

Soil-water content is the water lost from the soil upon drying to constant mass at 105 °C; expressed either as mass of water per unit mass of dry soil or as the volume of water per unit bulk volume of soil.

Specific electrical conductance (conductivity) is a measure of the capacity of water (or other media) to conduct an electrical current. It is expressed in microsiemens per centimeter at 25 °C. Specific electrical conductance is a function of the types and quantity of dissolved substances in water and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is from 55 to 75percent 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.

Stable isotope ratio (per MIL/MIL) is a unit expressing the ratio of the abundance of two radioactive isotopes. Isotope ratios are used in hydrologic studies to determine the age or source of specific water, to evaluate mixing of different water, as an aid in determining reaction rates, and other chemical or hydrologic processes.

Stage (See "Gage height")

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

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.

Substrate embeddedness class is a visual estimate of riffle streambed substrate larger than gravel that is surrounded or covered by fine sediment (<2mm, sand or finer). Below are the class categories expressed as the percentage covered by fine sediment:

0	no gravel or larger substrate	3	26-50 percent
1	> 75 percent	4	5-25 percent
2	51-75 percent	5	< 5 percent

Surface area of a lake is that area (acres) encompassed by the boundary of the lake as shown on USGS topographic maps, or other available maps or photographs. Because surface area changes with lake stage, surface areas listed in this report represent those determined for the stage at the time the maps or photographs were obtained.

Surficial bed material is the upper surface (0.1 to 0.2 foot) 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 defined operationally as the material retained on a 0.45-micrometer filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative suspended water-sediment sample that is retained on a 0.45-micrometer membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results. Determinations of "suspended, recoverable" constituents are made either by directly analyzing the suspended mate-rial collected on the filter or, more commonly, by difference, on the basis of determinations of (1) dissolved and (2) total recoverable concentrations of the constituent. (See also "Suspended")

Suspended sediment is the sediment maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid. (See also "Sediment")

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 foot above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L). The analytical technique uses the mass of all of the sediment and the net weight of the water-sediment mixture in a sample to compute the suspended-sediment concentration. (See also "Sediment" and "Suspended sediment")

Suspended-sediment discharge (tons/d) is the rate of sediment transport, as measured by dry mass or volume, that passes a cross 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. (See also "Sediment," "Suspended sediment," and "Suspended-sediment concentration")

Suspended-sediment load is a general term that refers to a given characteristic of the material in suspension that passes a point during a specified period of time. The term needs to be qualified, such as "annual suspended-sediment load" or "sand-size suspended-sediment load," and so on. It is not synonymous with either suspended-sediment discharge or concentration. (See also "Sediment")

Suspended solids, total residue at 105 ˚C concentration is the concentration of inorganic and organic material retained on a filter, expressed as milligrams of dry material per liter of water (mg/L). An aliquot of the sample is used for this analysis.

Suspended, total is the total amount of a given constituent in the part of a water-sediment sample that is retained on a 0.45-micrometer membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. 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 directly analyzing portions of the suspended material collected on the filter or, more commonly, by difference, on the basis of determinations of (1) dissolved and (2) total concentrations of the constituent. (See also "Suspended")

Synoptic studies are short-term investigations of specific water-quality conditions during selected seasonal or hydro-logic periods to provide improved spatial resolution for critical water-quality conditions. For the period and conditions sampled, they assess the spatial distribution of selected water-quality conditions in relation to causative factors, such as land use and contaminant sources.

Taxa (Species) richness is the number of species (taxa) present in a defined area or sampling unit.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchial 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*

Thalweg is the line formed by connecting points of minimum streambed elevation (deepest part of the channel).

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

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water resulting from the mixing of flow proportionally to the duration of the concentration.

Tons per acre-foot (T/acre-ft) is the dry mass (tons) of a constituent per unit volume (acre-foot) of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter, by 0.00136.

Tons per day (T/DAY, tons/d) is a common chemical or sediment discharge unit. It is the quantity of a substance in solution, in suspension, or as bedload that passes a stream section during a 24-hour period. It is equivalent to 2,000 pounds per day, or 0.9072 metric tons per day.

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

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

Total discharge is the quantity of a given constituent, measured as dry mass or volume, that passes a stream cross section per unit of time. When referring to constituents other than water, this term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

Total in bottom material is the amount of a given constituent in a representative sample of bottom material. 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 judge when the results should be reported as "total in bottom material."

Total length (fish) is the straight-line distance from the anterior point of a fish specimen's snout, with the mouth closed, to the posterior end of the caudal (tail) fin, with the lobes of the caudal fin squeezed together.

Total load refers to all of a constituent in transport. When referring to sediment, it includes suspended load plus bed load.

Total organism count is the number of organisms collected and enumerated in any particular sample. (See also "Organism count/ volume")

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

Total sediment discharge is the mass of suspended-sediment plus bed-load transport, measured as dry weight, that passes a cross section in a given time. It is a rate and is reported as tons per day. (See also "Bedload," "Bedload discharge," "Sediment," "Suspended sediment," and "Suspended-sediment concentration")

Total sediment load or **total load** is the sediment in transport as bedload and suspended-sediment load. The term may be qualified, such as "annual suspended-sediment load" or "sand-size suspended-sediment load," and so on. It differs from total sediment discharge in that load refers to the material, whereas discharge refers to the quantity of material, expressed in units of mass per unit time. (See also "Sediment," "Suspended-sediment load," and "Total load")

Transect, as used in this report, is a line across a stream perpendicular to the flow and along which measurements are taken, so that morphological and flow characteristics along the line are described from bank to bank. Unlike a cross section, no attempt is made to determine known elevation points along the line.

Turbidity is the reduction in the transparency of a solution due to the presence of suspended and some dissolved substances. The measurement technique records the collective optical properties of the solution that cause light to be scattered and attenuated rather than transmitted in straight lines; the higher the intensity of scattered or attenuated light, the higher the value of the turbidity. Turbidity is expressed in nephelometric turbidity units (NTU). Depending on the method used, the turbidity units as NTU can be defined as the intensity of light of a specified wavelength scattered or attenuated by suspended particles or absorbed at a method specified angle, usually 90 degrees, from the path of the incident light. Currently approved methods for the measurement of turbidity in the USGS include those that conform to U.S. EPA Method 180.1, ASTM D1889-00, and ISO 7027. Measurements of turbidity by these different methods and different instruments are unlikely to yield equivalent values.

Ultraviolet (UV) absorbance (absorption) at 254 or 280 nanometers is a measure of the aggregate concentration of the mixture of UV absorbing organic materials dissolved in the analyzed water, such as lignin, tannin, humic substances, and various aromatic compounds. UV absorbance (absorption) at 254 or 280 nanometers is measured in UV absorption units per centimeter of pathlength of UV light through a sample.

Unconfined aquifer is an aquifer whose upper surface is a water table free to fluctuate under atmospheric pressure. (See "Water-table aquifer")

Vertical datum (See "Datum")

Volatile organic compounds (VOCs) are organic compounds that can be isolated from the water phase of a sample by purging the water sample with inert gas, such as helium, and subsequently analyzed by gas chromatography. Many VOCs are human-made chemicals that are used and produced in the manufacture of paints, adhesives, petroleum products, pharmaceuticals, and refrigerants. They are often components of fuels, solvents, hydraulic fluids, paint thinners, and dry cleaning agents commonly used in urban settings. VOC contamination of drinking-water supplies is a human health concern because many are toxic and are known or suspected human carcinogens.

Water table is that surface in a ground-water body at which the water pressure is equal to the atmospheric pressure.

Water-table aquifer is an unconfined aquifer within which the water table is found.

Water year in USGS reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 2003, is called the "2003 water year."

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

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

Wet mass is the mass of living matter plus contained water. (See also "Biomass" and "Dry mass")

Wet weight refers to the weight of animal tissue or other substance including its contained water. (See also "Dry weight")

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

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and often are 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. (See also "Plankton")

Techniques of Water-Resources Investigations of the U.S. Geological Survey

The USGS publishes a series of manuals, the Techniques of Water-Resources Investigations, 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.

Reports in the Techniques of Water-Resources Investigations series, which are listed below, are online at *http://water.usgs.gov/pubs/twri/*. Printed copies are for sale by the USGS, Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office), telephone 1-888-ASK-USGS. Please telephone 1-888-ASK-USGS for current prices, and refer to the title, book number, chapter number, and mention the "U.S. Geological Survey Techniques of Water-Resources Investigations." Products can then be ordered by telephone, or online at http://www.usgs.gov/sales.html, or by FAX to (303)236-469 of an order form available online at *http://mac.usgs.gov/isb/pubs/forms/*. Prepayment by major credit card or by a check or money order payable to the "U.S. Geological Survey" is required.

Book 1. Collection of Water Data by Direct Measurement

Section D. Water Quality

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, chap. D1. 1975. 65 p.
1–D2.*Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W.W. Wood: USGS–TWRI book 1, chap. D2. 1976. 24 p.

Book 2. Collection of Environmental Data

Section D. Surface Geophysical Methods

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, chap. D1. 1974. 116 p.
2–D2.*Application of seismic-refraction techniques to hydrologic studies*, by F.P. Haeni: USGS–TWRI book 2, chap. D2. 1988. 86 p.

Section E. Subsurface Geophysical Methods

2–E1.*Application of borehole geophysics to water-resources investigations*, by W.S. Keys and L.M. MacCary: USGS–TWRI book 2, chap. E1. 1971. 126 p.
2–E2.*Borehole geophysics applied to ground-water investigations*, by W.S. Keys: USGS–TWRI book 2, chap. E2. 1990. 150 p.

Section F. Drilling and Sampling Methods

2–F1.*Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and W.E. Teasdale: USGS–TWRI book 2, chap. F1. 1989. 97 p.

Book 3. Applications of Hydraulics

Section A. Surface-Water Techniques

3–A1.*General field and office procedures for indirect discharge measurements,* by M.A. Benson and Tate Dalrymple: USGS–TWRI book 3, chap. A1. 1967. 30 p.
3–A2.*Measurement of peak discharge by the slope-area method,* by Tate Dalrymple and M.A. Benson: USGS–TWRI book 3, chap. A2. 1967. 12 p.
3–A3.*Measurement of peak discharge at culverts by indirect methods,* by G.L. Bodhaine: USGS–TWRI book 3, chap. A3. 1968. 60 p.
3–A4.*Measurement of peak discharge at width contractions by indirect methods,* by H.F. Matthai: USGS-TWRI book 3, chap. A4. 1967. 44 p.
3–A5.*Measurement of peak discharge at dams by indirect methods,* by Harry Hulsing: USGS–TWRI book 3, chap. A5. 1967. 29 p.
3–A6.*General procedure for gaging streams,* by R.W. Carter and Jacob Davidian: USGS–TWRI book 3, chap. A6. 1968. 13 p.
3–A7.*Stage measurement at gaging stations,* by T.J. Buchanan and W.P. Somers: USGS–TWRI book 3, chap. A7. 1968. 28 p.
3–A8.*Discharge measurements at gaging stations,* by T.J. Buchanan and W.P. Somers: USGS–TWRI book 3, chap. A8. 1969. 65 p.
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, chap. A9. 1989. 27 p.
3–Al0.*Discharge ratings at gaging stations,* by E.J. Kennedy: USGS–TWRI book 3, chap. A10. 1984. 59 p.
3–A11.*Measurement of discharge by the moving-boat method,* by G.F. Smoot and C.E. Novak: USGS–TWRI book 3, chap. A11. 1969. 22 p.
3–A12.*Fluorometric procedures for dye tracing,* Revised, by J.F. Wilson, Jr., E.D. Cobb, and F.A. Kilpatrick: USGS–TWRI book 3, chap. A12. 1986. 34 p.
3–A13.*Computation of continuous records of streamflow,* by E.J. Kennedy: USGS–TWRI book 3, chap. A13. 1983. 53 p.
3–A14.*Use of flumes in measuring discharge,* by F.A. Kilpatrick and V.R. Schneider: USGS–TWRI book 3, chap. A14. 1983. 46 p.
3–A15.*Computation of water-surface profiles in open channels,* by Jacob Davidian: USGS–TWRI book 3, chap. A15. 1984. 48 p.
3–A16.*Measurement of discharge using tracers,* by F.A. Kilpatrick and E.D. Cobb: USGS–TWRI book 3, chap. A16. 1985. 52 p.
3–A17.*Acoustic velocity meter systems,* by Antonius Laenen: USGS–TWRI book 3, chap. A17. 1985. 38 p.
3–A18.*Determination of stream reaeration coefficients by use of tracers,* by F.A. Kilpatrick, R.E. Rathbun, Nobuhiro Yotsukura, G.W. Parker, and L.L. DeLong: USGS–TWRI book 3, chap. A18. 1989. 52 p.
3–A19.*Levels at streamflow gaging stations,* by E.J. Kennedy: USGS–TWRI book 3, chap. A19. 1990. 31 p.
3–A20.*Simulation of soluble waste transport and buildup in surface waters using tracers,* by F.A. Kilpatrick: USGS–TWRI book 3, chap. A20. 1993. 38 p.
3–A21*Stream-gaging cableways,* by C. Russell Wagner: USGS–TWRI book 3, chap. A21. 1995. 56 p.

Section B. Ground-Water Techniques

3–B1. *Aquifer-test design, observation, and data analysis,* by R.W. Stallman: USGS–TWRI book 3, chap. B1. 1971. 26 p.
3–B2.*Introduction to ground-water hydraulics, a programed text for self-instruction,* by G.D. Bennett: USGS–TWRI book 3, chap. B2. 1976. 172 p.
3–B3.*Type curves for selected problems of flow to wells in confined aquifers,* by J.E. Reed: USGS–TWRI book 3, chap. B3. 1980. 106 p.
3–B4.*Regression modeling of ground-water flow,* by R.L. Cooley and R.L. Naff: USGS–TWRI book 3, chap. B4. 1990. 232 p.

3–B4.*Supplement 1. Regression modeling of ground-water flow—Modifications to the computer code for nonlinear regression solution of steady-state ground-water flow problems,* by R.L. Cooley: USGS–TWRI book 3, chap. B4. 1993. 8 p.
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, chap. B5. 1987. 15 p.
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, chap. B6. 1987. 28 p.
3–B7.*Analytical solutions for one-, two-, and three-dimensional solute transport in ground-water systems with uniform flow,* by E.J. Wexler: USGS–TWRI book 3, chap. B7. 1992. 190 p.
3–B8.*System and boundary conceptualization in ground-water flow simulation,* by T.E. Reilly: USGS–TWRI book 3, chap. B8. 2001. 29 p.

Section C. Sedimentation and Erosion Techniques

3–C1.*Fluvial sediment concepts,* by H.P. Guy: USGS–TWRI book 3, chap. C1. 1970. 55 p.
3–C2.*Field methods for measurement of fluvial sediment,* by T.K. Edwards and G.D. Glysson: USGS–TWRI book 3, chap. C2. 1999. 89 p.
3–C3.*Computation of fluvial-sediment discharge,* by George Porterfield: USGS–TWRI book 3, chap. C3. 1972. 66 p.

Book 4. Hydrologic Analysis and Interpretation

Section A. Statistical Analysis

4–A1.*Some statistical tools in hydrology,* by H.C. Riggs: USGS–TWRI book 4, chap. A1. 1968. 39 p.
4–A2.*Frequency curves,* by H.C. Riggs: USGS–TWRI book 4, chap. A2. 1968. 15 p.
4–A3.*Statistical methods in water resources,* by D.R. Helsel and R.M. Hirsch: USGS–TWRI book 4, chap. A3. 1991. Available only online at http://water.usgs.gov/pubs/twri/twri4a3/. (Accessed August 30, 2002.)

Section B. Surface Water

4–B1.*Low-flow investigations,* by H.C. Riggs: USGS–TWRI book 4, chap. B1. 1972. 18 p.
4–B2.*Storage analyses for water supply,* by H.C. Riggs and C.H. Hardison: USGS–TWRI book 4, chap. B2. 1973. 20 p.
4–B3.*Regional analyses of streamflow characteristics,* by H.C. Riggs: USGS–TWRI book 4, chap. B3. 1973. 15 p.

Section D. Interrelated Phases of the Hydrologic Cycle

4–D1.*Computation of rate and volume of stream depletion by wells,* by C.T. Jenkins: USGS–TWRI book 4, chap. D1. 1970. 17 p.

Book 5. Laboratory Analysis

Section A. Water Analysis

5–A1.*Methods for determination of inorganic substances in water and fluvial sediments,* by M.J. Fishman and L.C. Friedman, editors: USGS–TWRI book 5, chap. A1. 1989. 545 p.
5–A2.*Determination of minor elements in water by emission spectroscopy,* by P.R. Barnett and E.C. Mallory, Jr.: USGS–TWRI book 5, chap. A2. 1971. 31 p.
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, chap. A3. 1987. 80 p.

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, chap. A4. 1989. 363 p.
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, chap. A5. 1977. 95 p.
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, chap. A6. 1982. 181 p.

Section C. Sediment Analysis

5–C1.*Laboratory theory and methods for sediment analysis,* by H.P. Guy: USGS–TWRI book 5, chap. C1. 1969. 58 p.

Book 6. Modeling Techniques

Section A. Ground Water

6–A1.*A modular three-dimensional finite-difference ground-water flow model,* by M.G. McDonald and A.W. Harbaugh: USGS–TWRI book 6, chap. A1. 1988. 586 p.
6–A2.*Documentation of a computer program to simulate aquifer-system compaction using the modular finite-difference ground-water flow model,* by S.A. Leake and D.E. Prudic: USGS–TWRI book 6, chap. A2. 1991. 68 p.
6–A3.*A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 1: Model Description and User's Manual,* by L.J. Torak: USGS–TWRI book 6, chap. A3. 1993. 136 p.
6–A4.*A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 2: Derivation of finite-element equations and comparisons with analytical solutions,* by R.L. Cooley: USGS–TWRI book 6, chap. A4. 1992. 108 p.
6–A5.*A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 3: Design philosophy and programming details,* by L.J. Torak: USGS–TWRI book 6, chap. A5. 1993. 243 p.
6–A6.*A coupled surface-water and ground-water flow model (MODBRANCH) for simulation of stream-aquifer interaction*, by Eric D. Swain and Eliezer J. Wexler: USGS–TWRI book 6, chap. A6. 1996. 125 p.
6–A7.*User's guide to SEAWAT: A computer program for simulation of three-dimensional variable-density ground-water flow,* by Weixing Guo and Christian D. Langevin: USGS–TWRI book 6, chap. A7. 2002.
77 p.

Book 7. Automated Data Processing and Computations

Section C. Computer Programs

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, chap. C1. 1976. 116 p.
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, chap. C2. 1978. 90 p.
7–C3.*A model for simulation of flow in singular and interconnected channels,* by R.W. Schaffranek, R.A. Baltzer, and D.E. Goldberg: USGS–TWRI book 7, chap. C3. 1981. 110 p.

Book 8. Instrumentation

Section A. Instruments for Measurement of Water Level

8–A1.*Methods of measuring water levels in deep wells,* by M.S. Garber and F.C. Koopman: USGS–TWRI book 8, chap. A1. 1968. 23 p.

8–A2.*Installation and service manual for U.S. Geological Survey manometers*, by J.D. Craig: USGS–TWRI book 8, chap. A2. 1983. 57 p.

Section B. Instruments for Measurement of Discharge

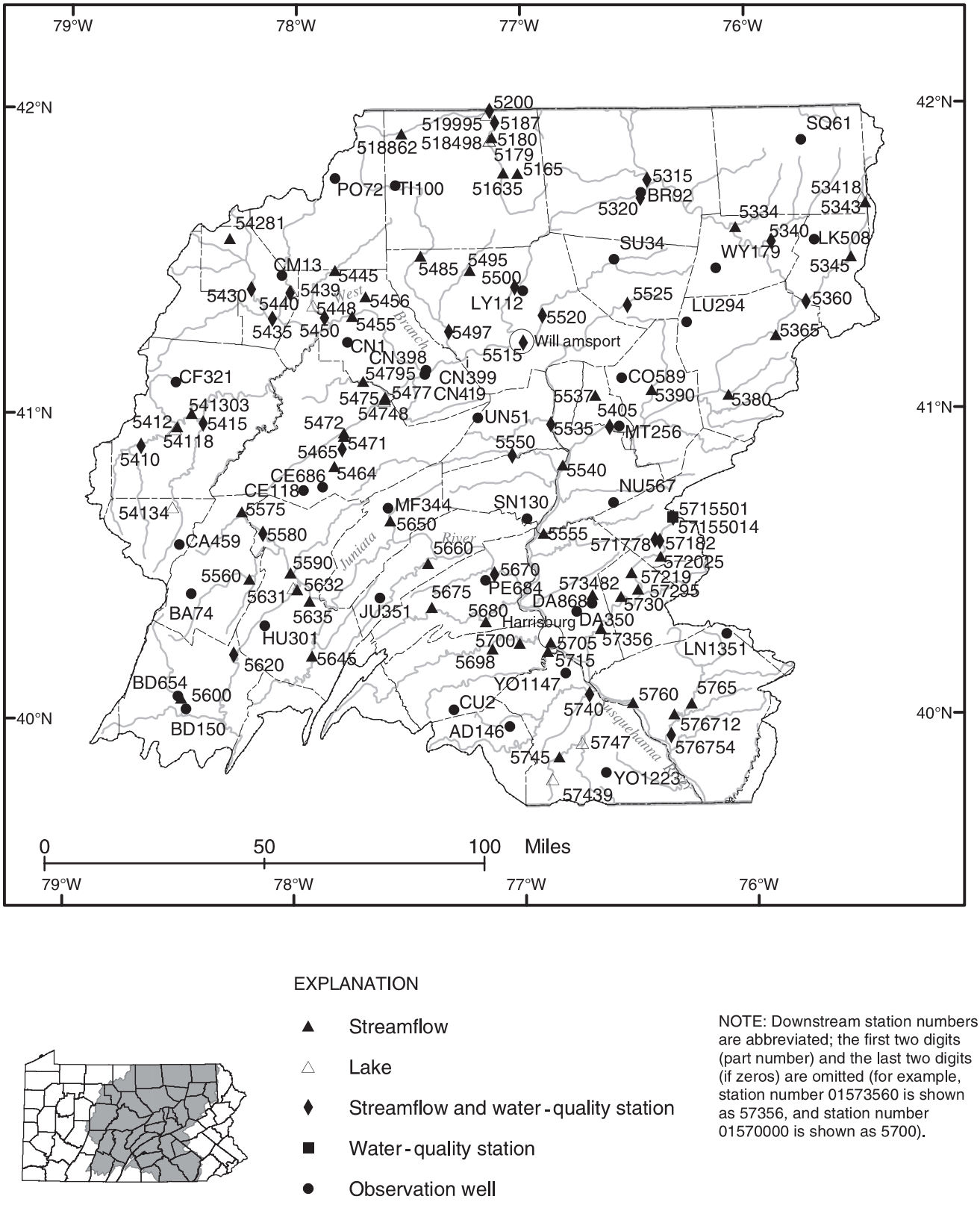
8–B2.*Calibration and maintenance of vertical-axis type current meters*, by G.F. Smoot and C.E. Novak: USGS–TWRI book 8, chap. B2. 1968. 15 p.

Book 9. Handbooks for Water-Resources Investigations

Section A. National Field Manual for the Collection of Water-Quality Data

9–A1.*National field manual for the collection of water-quality data: Preparations for water sampling*, by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A1. 1998. 47 p.
9–A2.*National field manual for the collection of water-quality data: Selection of equipment for water sampling*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A2. 1998. 94 p.
9–A3.*National field manual for the collection of water-quality data: Cleaning of equipment for water sampling*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A3. 1998. 75 p.
9–A4.*National field manual for the collection of water-quality data: Collection of water samples*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A4. 1999. 156 p.
9–A5.*National field manual for the collection of water-quality data: Processing of water samples*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A5. 1999, 149 p.
9–A6.*National field manual for the collection of water-quality data: Field measurements*, edited by F.D. Wilde and D.B. Radtke: USGS–TWRI book 9, chap. A6. 1998. Variously paginated.
9–A7.*National field manual for the collection of water-quality data: Biological indicators*, edited by D.N. Myers and F.D. Wilde: USGS–TWRI book 9, chap. A7. 1997 and 1999. Variously paginated.
9–A8.*National field manual for the collection of water-quality data: Bottom-material samples*, by D.B. Radtke: USGS–TWRI book 9, chap. A8. 1998. 48 p.
9–A9.*National field manual for the collection of water-quality data: Safety in field activities*, by S.L. Lane and R.G. Fay: USGS–TWRI book 9, chap. A9. 1998. 60 p.

SUSQUEHANNA RIVER BASIN



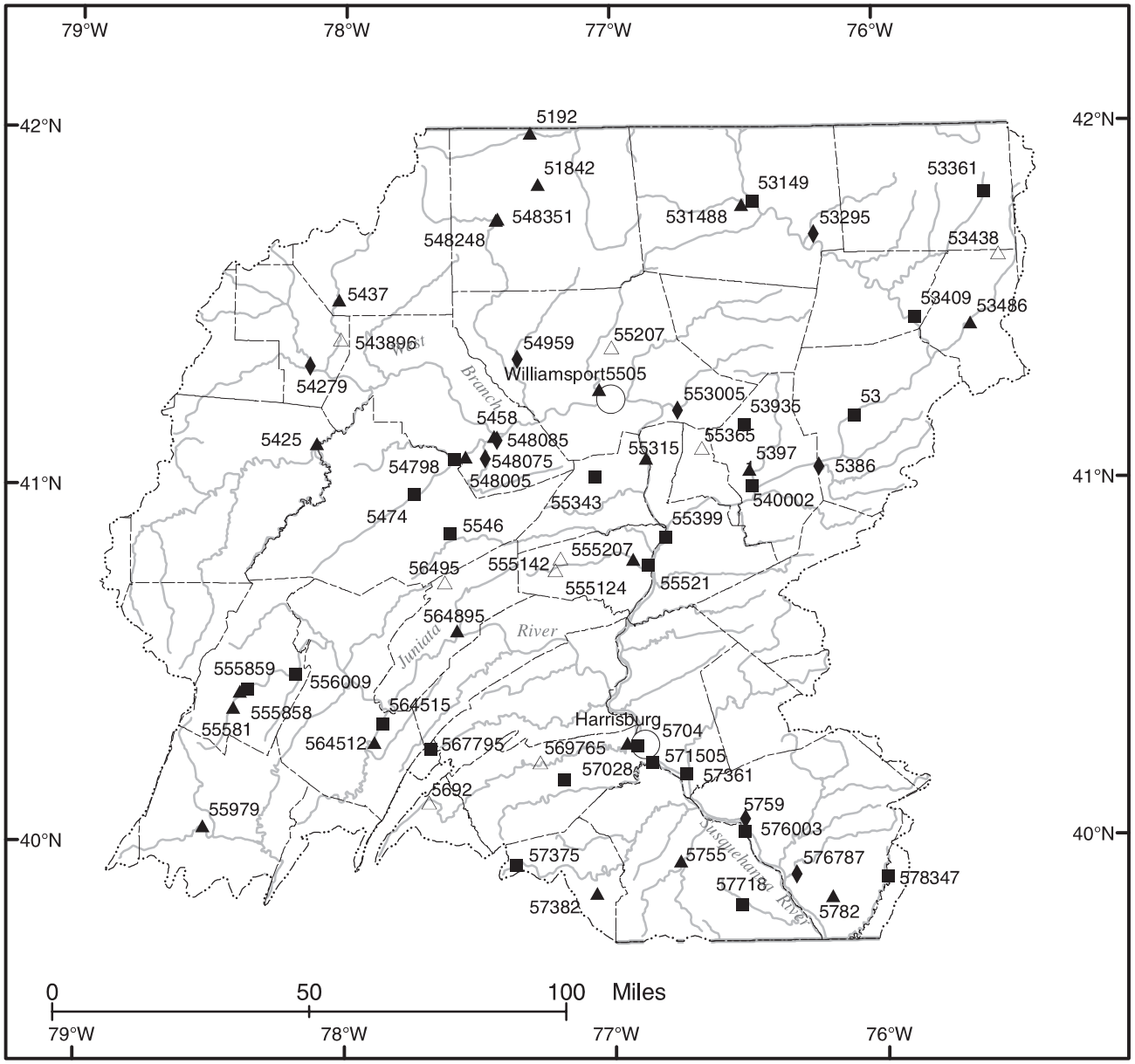
EXPLANATION

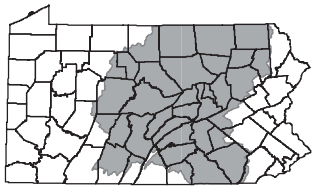
- ▲ Streamflow
- △ Lake
- ♦ Streamflow and water-quality station
- ■ Water-quality station
- ● Observation well

NOTE: Downstream station numbers are abbreviated; the first two digits (part number) and the last two digits (if zeros) are omitted (for example, station number 01573560 is shown as 57356, and station number 01570000 is shown as 5700).

Figure 5.--Location of continuous-record data-collection stations and network observation wells, Susquehanna River Basin.

SUSQUEHANNA RIVER BASIN





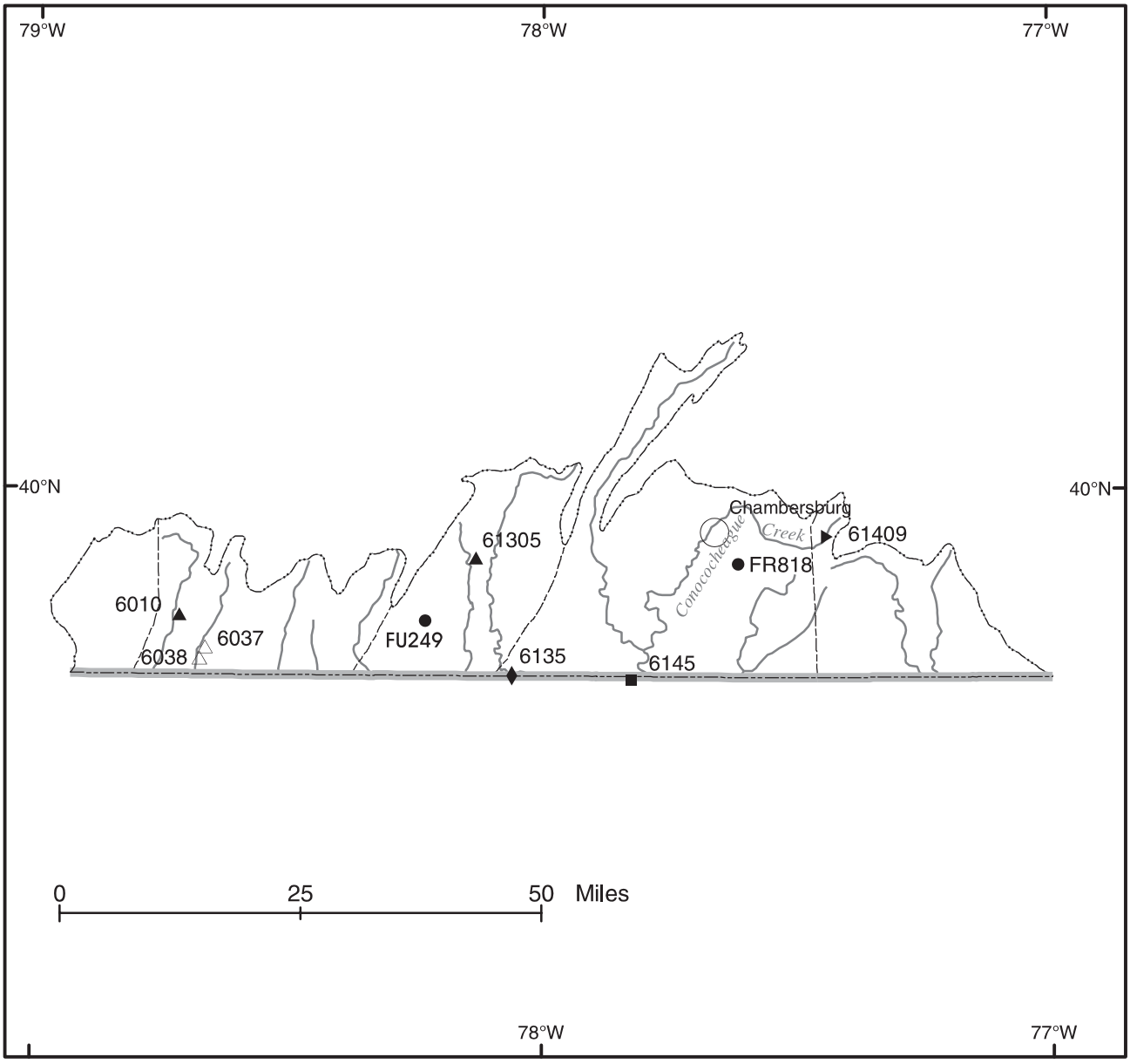
EXPLANATION

- ▲ Streamflow station
- △ Lake
- ♦ Streamflow and water-quality station
- ■ Water-quality station

NOTE: Downstream station numbers are abbreviated; the first two digits (part number) and the last two digits (if zeros) are omitted (for example, station number 01570280 is shown as 57028, and station number 01577500 is shown as 5775).

Figure 6.--Location of partial-record data-collection stations, Susquehanna River Basin.

POTOMAC RIVER BASIN



EXPLANATION

- ▲ Continuous-record streamflow station
- ▶ Partial-record streamflow station
- ♦ Partial-record streamflow and water-quality station
- ■ Water-quality station
- ● Observation well
- △ Lake

NOTE: Downstream station numbers are abbreviated; the first two digits (part number) and the last two digits (if zeros) are omitted (for example, station number 01613050 is shown as 61305, and station number 01613500 is shown as 6135).

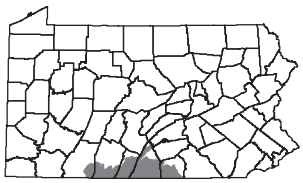


Figure 7.--Location of continuous- and partial-record data-collection stations, Potomac River Basin.

SPECIAL NOTES, REMARK CODES, AND SELECTED CONSTITUENT DEFINITIONS

****

NOTES--Traditionally, dissolved trace-element concentrations have been reported at the microgram per liter(µG/L) level. Recent evidence, mostly from large rivers, indicates that actual dissolved-phase concentrations for a number of trace elements are within the range of 10's to 100's of nanograms per liter (ng/L). Data above the µG/L level should be viewed with caution. Such data may actually represent elevated environmental concentrations from natural or human causes; however, these data could reflect contamination introduced during sampling, processing, or analysis. To confidently produce dissolved trace-element data with insignificant contamination, the U.S. Geological Survey began using new trace-element protocols at some stations in water year 1994. Full implementation of the protocols took place during the 1995 water year.

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

--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.

--**Methylene blue active substance (MBAS)** determinations made from January 1, 1970, through August 29, 1993, at the National Water Quality Laboratory in Denver (Analyzing Agency Code 80020) are positively biased. These data can be corrected on the basis of the following equation, if concentrations of dissolved nitrate plus nitrite, as nitrogen, and dissolved chloride, determined concurrently with the MBAS data are applied:

MBASCOR = M - 0.0088N - 0.00019C

where:

MBASCOR = corrected MBAS concentration, in mg/L;
M = reported MBAS concentration, in mg/L;
N = dissolved nitrate plus nitrite, as nitrogen, in mg/L; and
C = dissolved chloride concentration, in mg/L.

The detection limit of the new method is 0.02 mg/L, whereas the detection limit for the old method was 0.01 mg/L. A detection limit of 0.02 mg/L should be used with corrected MBAS data from January 1, 1970, through August 29, 1993.

****

Remark Codes.--The following remark codes may appear with the data tables in this report:

PRINTED OUTPUT	REMARK
E,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.
M	Presence of material verified but not quantified.
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).
ND	Material specifically analyzed for but not detected.
V	Analyte was detected in both the environmental sample and the associated blanks.

****

EXPLANATION OF CODES USED TO DEFINE SAMPLE COLLECTION PROCEDURES (partial listing)

(71999) SAMPLE PURPOSE CODES:

10--Routine
15--NAWQA
20--NASQAN
30--Benchmark

(82398) SAMPLE METHOD CODES:

10--Equal width increment
20--Equal discharge increment
30--Single vertical
40--Multiple verticals
50--Point sample
70--Grab sample
120--Velocity integrated
8010--Other

(84164) SAMPLER TYPE: (partial list)

110--Sewage sampler
3011--US D-77
3035--DH-76 Trace metal sampler with teflon gasket and nozzle
3039--D-77 Trace metal
3040--D-77 Trace metal modified teflon bag sampler
3045--DH-81 with Teflon cap and nozzle
8010--Other (other than a defined sampler type)

SPECIAL NOTES, REMARK CODES AND SELECTED CONSTITUENT DEFINITIONS--Continued

Explanation of selected abbreviations used in constituent definitions in water-quality tables:

AC-FT	acre-feet
BOT MAT	bottom material (Unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.)
COLS/100 ML	colonies per 100 milliliters
DIS	dissolved
FET	fixed end-point titration
FLD	field (Measurement determined at field site.)
F/S	feet per second
G/M	gallons per minute
G/SQM; MG/M2	grams or milligrams per square meter
IT	incremental titration
KF AGAR	nutrient medium for growth of fecal streptococcal bacteria
µG/L	micrograms per liter
µS/CM	microsiemens per centimeter
MG/L	milligrams per liter
MG/M2	milligrams per square meter
MM OF HG	millimeters of mercury
NONCARB	noncarbonate
NTU	nephelometric turbidity unit
PCI/L	picocuries per liter
REC	recoverable
TOT	total
T/DAY	tons per day
WH IT	whole water, incremental titration (Alkalinity, bicarbonate, and carbonate as determined by incremental titration of unfiltered water at the field site.)
2 SIGMA	Counting statistic that represents error in the reported radon, uranium, or tritium value caused by variations in sample counting, background radiation, volume of sample, and decay since sample was collected.
0.7µ GF	0.7 micron glass-fiber filter (Water filtered through a glass-fiber membrane filter with openings that are 0.7 microns in size.)

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(00027) AGENCY COLLECTING SAMPLE CODES:

1028 --U.S. Geological Survey

(00028) AGENCY ANALYZING SAMPLE CODES:

1028 --U.S. Geological Survey
80020 --U.S. Geological Survey, National Water-Quality Laboratory, Denver, Colorado
930 --National Institute of Occupational Safety and Health
9813 --Pennsylvania Department of Environmental Protection
83613 --District Water-Quality Laboratory, Troy, New York
36015 --Environmental Associates
42016 --Penn State University

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N	Presumptive evidence of presence of material.
U	Material specifically analyzed for, but not detected.
A	Value is an average.
V	Analyte was detected in both the environmental sample and the associated blanks.
S	Most probable value.

****

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G/M	gallons per minute
G/SQM; MG/M2	grams or milligrams per square meter
IT	incremental titration
KF AGAR	nutrient medium for growth of fecal streptococcal bacteria
µG/L	micrograms per liter
µS/CM	microsiemens per centimeter
MG/L	milligrams per liter
MG/M2	milligrams per square meter
MM OF HG	millimeters of mercury
NONCARB	noncarbonate
NTU	nephelometric turbidity unit
PCI/L	picocuries per liter
REC	recoverable
TOT	total
T/DAY	tons per day
WH IT	whole water, incremental titration (Alkalinity, bicarbonate, and carbonate as determined by incremental titration of unfiltered water at the field site.)
2 SIGMA	Counting statistic that represents error in the reported radon, uranium, or tritium value caused by variations in sample counting, background radiation, volume of sample, and decay since sample was collected.
0.7µ GF	0.7 micron glass-fiber filter (Water filtered through a glass-fiber membrane filter with openings that are 0.7 microns in size.)

****

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36015 --Environmental Associates
42016 --Penn State University

SURFACE-WATER RECORDS

NORTH ATLANTIC SLOPE BASINS

SUSQUEHANNA RIVER BASIN

CHEMUNG RIVER BASIN

01516350 TIOGA RIVER NEAR MANSFIELD, PA

LOCATION.--Lat 41°47'49", long 77°04'50", Tioga County, Hydrologic Unit 02050104, on left bank on Township Route 754, 0.9 mi downstream from Slate Creek, and 0.7 mi south of Mansfield. Prior to May 25, 1999, at site 0.3 mi upstream.

DRAINAGE AREA.--153 mi^2.

PERIOD OF RECORD.--July 1976 to current year.

REVISED RECORDS.--WDR PA-84-2: 1980-83 (P).

GAGE.--Water-stage recorder. Datum of gage is 1,121.28 ft above National Geodetic Vertical Datum of 1929. Prior to May 25, 1999, at site 0.3 mi upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in September 1975 reached an approximate stage of 20.1 ft, from floodmarks, site then in use, from original site 0.3 mi upstream, discharge, about 18,000 ft^3/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a 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)
Mar. 20	2130	*5,890	*8.80	June 21	0530	4,070	7.97
Mar. 21	2230	3,440	7.61				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	99	154	715	e40	e200	469	112	1460	130	445	64
2	38	94	135	688	e40	e200	1020	176	814	114	275	628
3	34	88	e120	393	e38	e190	807	159	520	100	177	383
4	32	82	e110	325	e70	e180	620	133	524	90	188	744
5	32	79	e120	280	e140	e170	1100	121	468	83	275	1030
6	31	89	e110	258	e110	e170	687	121	357	75	361	480
7	28	94	e110	236	e90	e170	550	118	429	71	226	302
8	25	83	e100	234	e78	e160	493	139	457	71	189	220
9	24	77	e90	318	e83	e160	467	131	336	76	347	178
10	22	75	e84	330	e67	e150	456	117	273	78	320	149
11	24	109	e90	240	e60	e150	571	118	248	102	300	126
12	48	131	e110	206	e56	e140	649	125	252	87	380	110
13	65	172	e120	e160	e54	e150	470	116	284	67	229	100
14	55	145	e240	e140	e52	e140	390	108	231	58	179	117
15	49	130	427	e130	e47	320	342	102	186	52	154	108
16	144	131	238	e120	e44	682	302	118	156	48	141	182
17	415	539	174	e100	e48	1110	265	241	136	44	156	118
18	197	482	e110	e80	e60	1320	237	173	141	49	113	95
19	151	319	e140	e85	e90	1170	230	143	144	62	98	175
20	136	270	940	e90	e80	1950	210	127	159	48	87	266
21	112	284	634	e72	e70	2940	191	135	2430	72	78	148
22	96	296	416	e66	e80	2110	209	129	1440	508	73	119
23	86	333	338	e66	e300	1340	191	117	756	228	70	1130
24	77	268	277	e64	e360	1040	174	186	470	492	64	542
25	73	246	259	e62	e300	899	155	230	336	246	60	416
26	206	220	238	e58	e260	909	154	204	261	158	58	360
27	183	205	207	e45	e240	767	155	201	212	132	60	312
28	136	181	185	e45	e220	584	136	175	180	170	55	909
29	118	168	183	e50	---	573	126	162	157	125	51	500
30	110	166	164	e45	---	582	119	145	148	101	54	361
31	105	---	224	e42	---	514	---	162	---	86	52	---
TOTAL	2898	5655	6847	5743	3177	21140	11945	4544	13965	3823	5315	10372
MEAN	93.5	188	221	185	113	682	398	147	466	123	171	346
MAX	415	539	940	715	360	2940	1100	241	2430	508	445	1130
MIN	22	75	84	42	38	140	119	102	136	44	51	64
CFSM	0.61	1.23	1.44	1.21	0.74	4.46	2.60	0.96	3.04	0.81	1.12	2.26
IN.	0.70	1.37	1.66	1.40	0.77	5.14	2.90	1.10	3.40	0.93	1.29	2.52

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 2003, BY WATER YEAR (WY)

MEAN	129	199	223	220	248	416	499	243	176	77.4	76.2	69.3
MAX	653	620	666	943	682	832	1968	630	550	375	839	346
(WY)	1991	1978	1997	1996	1996	1978	1993	1978	1989	1994	1994	2003
MIN	13.3	17.5	20.5	36.2	57.2	148	156	77.9	25.1	17.5	12.5	12.6
(WY)	1983	1999	1999	1981	1987	1981	1988	2001	1991	1999	1999	1980

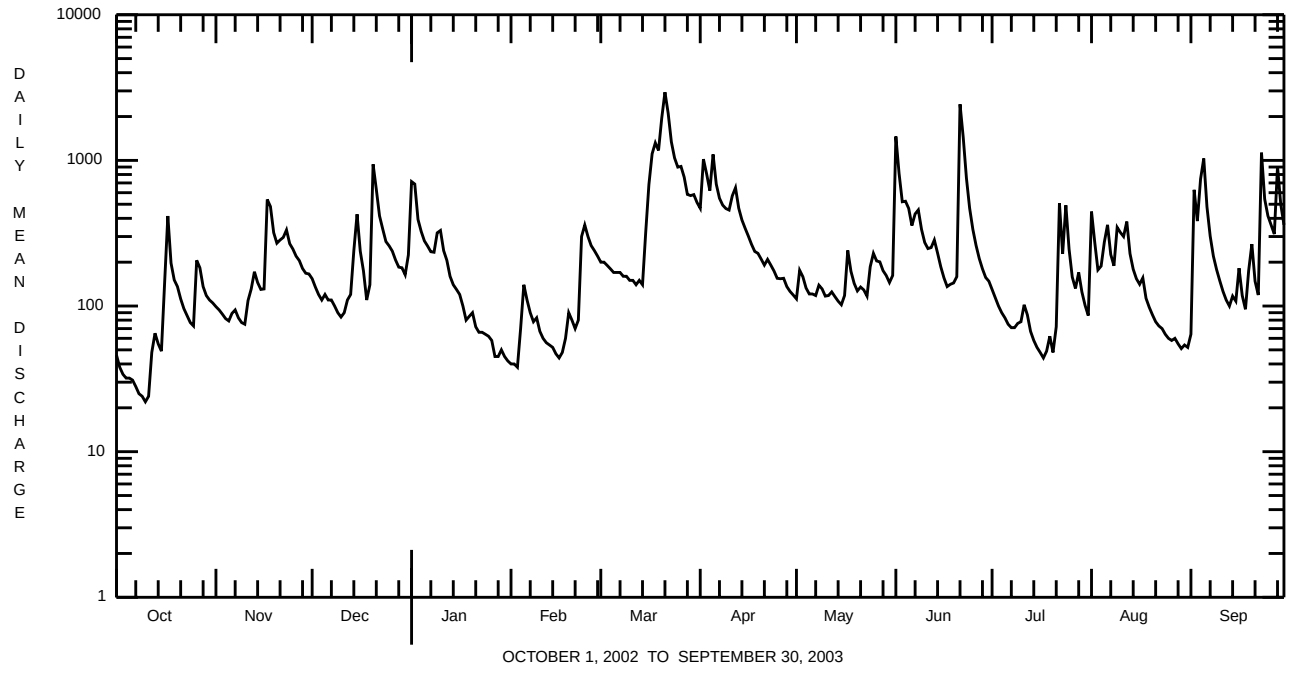
e Estimated.

CHEMUNG RIVER BASIN

01516350 TIOGA RIVER NEAR MANSFIELD, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1976 - 2003	
ANNUAL TOTAL	69893		95424			
ANNUAL MEAN	191		261		214	
HIGHEST ANNUAL MEAN					388	1978
LOWEST ANNUAL MEAN					125	2001
HIGHEST DAILY MEAN	2680	Jun 6	2940	Mar 21	12200	Aug 18 1994
LOWEST DAILY MEAN	10	Sep 11-14	22	Oct 10	8.1	Sep 3 1999
ANNUAL SEVEN-DAY MINIMUM	10	Sep 8	27	Oct 5	8.7	Aug 31 1999
MAXIMUM PEAK FLOW			5890	Mar 20	**a**38900	Jan 19 1996
MAXIMUM PEAK STAGE			8.80	Mar 20	**b**18.87	Jan 19 1996
ANNUAL RUNOFF (CFSM)	1.25		1.71		1.40	
ANNUAL RUNOFF (INCHES)	16.99		23.20		19.00	
10 PERCENT EXCEEDS	422		558		468	
50 PERCENT EXCEEDS	129		155		100	
90 PERCENT EXCEEDS	20		56		21	

a From rating curve extended above 16,000 ft^3/s.
b From floodmark, at site then in use.



CHEMUNG RIVER BASIN

01516500 COREY CREEK NEAR MAINESBURG, PA

LOCATION.--Lat 41°47'27", long 77°00'54", Tioga County, Hydrologic Unit 02050104, on right bank 30 ft upstream from bridge on Township Route 818, 500 ft upstream from small left-bank tributary, 1.1 mi west of Mainesburg, 3.5 mi east of Mansfield, and 4.2 mi upstream from mouth.

DRAINAGE AREA.--12.2 mi^2.

PERIOD OF RECORD.--May 1954 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,337.50 ft above National Geodetic Vertical Datum of 1929. Prior to June 28, 1954, nonrecording gage at site 30 ft downstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 280 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
Jan. 1	1930	347	4.07
Feb. 23	----	Unknown	Ice jam
Mar. 20	2030	432	4.38
June 21	0300	*766	*5.35
June 21	1815	398	4.26

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	2.1	e5.4	101	e2.2	e9.0	33	4.9	90	5.3	19	2.4
2	0.89	2.0	e4.6	58	e2.0	e8.4	93	9.9	39	4.4	8.4	29
3	0.92	2.0	e4.0	30	e1.8	e8.0	48	8.1	26	3.5	5.1	11
4	0.94	1.8	e3.4	25	e2.8	e7.2	39	6.3	25	3.0	6.7	42
5	0.95	1.7	e3.6	21	e4.0	e6.8	77	5.7	22	2.6	9.0	36
6	0.90	1.9	e3.6	18	e2.8	e6.4	38	5.6	16	2.4	9.0	19
7	0.79	1.9	e3.2	e15	e2.6	e6.0	32	5.4	24	2.2	5.7	13
8	0.70	1.7	e3.0	e13	e2.2	e5.7	31	6.7	20	2.2	5.8	10
9	0.68	1.6	e2.8	e11	e2.2	e5.4	32	5.9	15	3.4	5.5	8.6
10	0.71	1.6	e2.6	e10	e2.2	e5.0	29	5.1	12	2.6	18	6.8
11	0.78	2.6	e2.8	e9.0	e2.0	e4.8	34	6.4	12	4.2	8.7	5.0
12	0.97	3.2	e3.4	e8.0	e1.8	e4.6	34	6.4	13	2.5	8.8	4.0
13	0.99	4.9	e3.6	e7.5	e1.8	e4.4	25	5.5	14	2.0	6.2	3.6
14	0.98	3.7	e7.0	e6.9	e1.6	e4.0	22	5.0	10	1.7	4.8	3.9
15	0.91	3.2	e8.0	e6.1	e1.6	e20	19	4.6	8.1	1.5	3.8	3.7
16	7.1	4.0	e6.9	e5.7	e1.4	e68	16	7.7	6.0	1.4	3.7	6.2
17	9.4	27	e5.8	e5.4	e1.6	88	14	13	4.9	1.2	5.6	3.5
18	4.8	18	e5.0	e5.0	e1.8	81	12	8.8	6.5	1.9	3.3	2.7
19	3.4	12	e6.0	e5.8	e2.0	61	12	7.0	5.9	1.7	2.8	7.2
20	2.9	11	e100	e6.0	e1.8	132	10	6.2	17	1.3	2.3	8.3
21	2.3	11	37	e5.2	e1.6	138	9.9	7.7	331	8.4	2.1	4.7
22	1.9	13	26	e4.5	e2.0	96	12	6.3	129	27	1.9	3.8
23	1.7	14	20	e3.8	e14	59	10	5.4	52	8.5	1.7	78
24	1.5	12	16	e3.4	e18	42	9.6	10	30	19	1.5	26
25	1.6	11	e14	e3.0	e14	36	8.6	9.1	21	7.1	1.4	24
26	5.8	9.5	e12	e2.6	e12	44	8.8	9.7	15	4.2	1.4	21
27	4.1	8.9	e10	e2.4	e10	36	8.3	9.0	12	3.6	1.6	20
28	3.0	e7.0	e9.0	e2.2	e9.5	29	7.1	7.8	9.5	3.9	1.1	41
29	2.6	e6.4	e8.0	e2.8	---	30	5.8	7.0	7.8	2.7	1.2	25
30	2.4	e6.2	e7.4	e2.6	---	32	5.2	6.1	6.6	2.2	1.3	20
31	2.2	---	e12	e2.4	---	31	---	9.0	---	1.9	1.3	---
TOTAL	69.81	206.9	356.1	402.3	123.3	1108.7	735.3	221.3	1000.3	139.5	158.7	489.4
MEAN	2.25	6.90	11.5	13.0	4.40	35.8	24.5	7.14	33.3	4.50	5.12	16.3
MAX	9.4	27	100	101	18	138	93	13	331	27	19	78
MIN	0.68	1.6	2.6	2.2	1.4	4.0	5.2	4.6	4.9	1.2	1.1	2.4
CFSM	0.18	0.57	0.94	1.06	0.36	2.93	2.01	0.59	2.73	0.37	0.42	1.34
IN.	0.21	0.63	1.09	1.23	0.38	3.38	2.24	0.67	3.05	0.43	0.48	1.49

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2003, BY WATER YEAR (WY)

MEAN	6.19	10.4	14.0	12.0	16.4	28.7	28.7	14.0	10.2	3.09	2.87	3.15
MAX	51.0	45.4	42.7	52.4	52.4	60.4	118	42.7	114	19.9	55.2	44.4
(WY)	1956	1978	1974	1996	1984	1964	1993	1989	1972	1994	1994	1975
MIN	0.15	0.48	0.80	0.75	1.71	4.88	8.19	2.88	0.69	0.10	0.074	0.000
(WY)	1964	1965	1999	1961	1963	1965	1955	1999	1991	1966	1964	1964

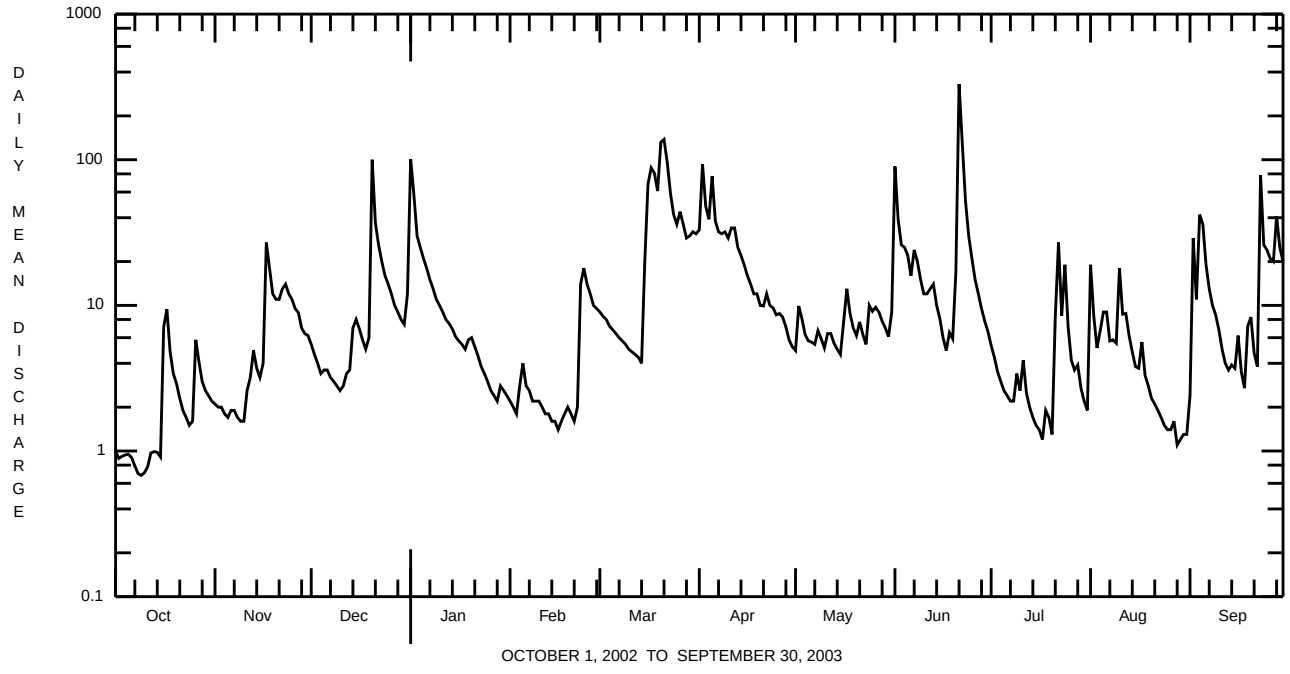
e Estimated.

CHEMUNG RIVER BASIN

01516500 COREY CREEK NEAR MAINESBURG, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1954 - 2003	
ANNUAL TOTAL	4118.23		5011.61			
ANNUAL MEAN	11.3		13.7		12.5	
HIGHEST ANNUAL MEAN					24.9	1978
LOWEST ANNUAL MEAN					4.82	1965
HIGHEST DAILY MEAN	338	Jun 6	331	Jun 21	1910	Jun 22 1972
LOWEST DAILY MEAN	0.04	Sep 14	0.68	Oct 9	0.00	Many days
ANNUAL SEVEN-DAY MINIMUM	0.06	Sep 8	0.79	Oct 5	0.00	Aug 17 1959
MAXIMUM PEAK FLOW			**a**766	Jun 21	**a**5580	Jun 23 1972
MAXIMUM PEAK STAGE			5.35	Jun 21	**b**10.44	Jun 23 1972
ANNUAL RUNOFF (CFSM)	0.92		1.13		1.02	
ANNUAL RUNOFF (INCHES)	12.56		15.28		13.88	
10 PERCENT EXCEEDS	23		31		28	
50 PERCENT EXCEEDS	6.5		6.2		4.4	
90 PERCENT EXCEEDS	0.31		1.7		0.50	

a From rating curve extended above 490 ft^3/s on basis of slope-area measurement at gage height 7.88 ft and at peak flow.
b From floodmark.



CHEMUNG RIVER BASIN

01518000 TIOGA RIVER AT TIOGA, PA

LOCATION.--Lat 41°54'30", long 77°07'47", Tioga County, Hydrologic Unit 02050104, on left bank l30 ft upstream from highway bridge on Township Route 667 at Tioga, 0.8 mi upstream from Crooked Creek, and 0.9 mi downstream from Tioga Dam.

DRAINAGE AREA.--282 mi^2.

PERIOD OF RECORD.--June 1938 to current year. Prior to October 1938 monthly discharge only, published in WSP 1302.

REVISED RECORDS.--WSP 871: 1938.

GAGE.--Water-stage recorder. Datum of gage is 1,021.07 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 9, 1953, at site 20 ft upstream at datum 2.11 ft higher. Sept. 9, 1953, to Aug. 10, 1954, at site 130 ft downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Discharges include flow diverted from Crooked Creek into Tioga River since Oct. 1, 1977. Flow regulated since November 1979 by Tioga Dam (station 01517900). Several measurements of water temperature were made during the year. Satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	125	184	995	146	360	966	205	2770	219	1640	177
2	32	108	192	2300	174	336	2270	206	2500	169	800	2190
3	33	98	199	1110	199	302	2080	245	1250	161	533	1020
4	33	98	175	918	264	269	e1500	263	1080	134	490	1180
5	32	116	159	589	262	307	e3000	262	1080	117	964	1610
6	32	120	189	606	245	394	e2000	236	742	117	967	925
7	32	101	179	571	219	338	e1400	187	592	117	501	530
8	32	98	168	528	188	331	1140	184	1190	117	460	387
9	32	94	166	559	166	406	1030	192	606	117	1520	322
10	32	94	150	719	166	449	975	189	545	117	3160	269
11	32	94	146	643	162	531	1010	199	451	181	1240	226
12	32	129	195	529	143	539	1120	240	566	172	1540	158
13	32	189	210	429	127	577	995	245	840	141	692	154
14	32	188	601	330	126	560	676	215	657	119	481	216
15	67	e190	1100	277	141	657	586	214	441	71	350	305
16	128	e190	625	278	148	1510	588	215	312	71	299	531
17	472	e520	445	257	140	3230	574	335	262	71	301	577
18	342	712	306	236	131	3990	527	432	313	97	257	325
19	198	453	261	226	152	4020	389	370	340	109	228	171
20	164	336	1970	226	166	3280	359	292	290	103	166	169
21	127	301	1650	205	165	1280	366	271	4460	195	129	309
22	127	302	709	165	167	1230	381	271	4500	2310	129	233
23	127	328	744	141	612	3770	e450	241	2210	574	129	1710
24	110	344	634	141	723	4970	e380	278	930	1700	129	998
25	99	385	560	141	593	5080	215	402	611	932	114	465
26	195	392	522	142	375	4030	262	475	611	390	87	520
27	270	355	476	135	339	1870	262	525	446	353	87	589
28	182	296	367	121	373	1100	261	500	293	409	87	2150
29	153	246	343	131	---	1040	248	417	291	254	73	989
30	125	215	384	137	---	1190	231	378	248	180	55	659
31	125	---	419	137	---	1110	---	444	---	148	69	---
TOTAL	3497	7217	14428	13922	6812	49056	26241	9128	31427	9965	17677	20064
MEAN	113	241	465	449	243	1582	875	294	1048	321	570	669
MAX	472	712	1970	2300	723	5080	3000	525	4500	2310	3160	2190
MIN	32	94	146	121	126	269	215	184	248	71	55	154

e Estimated.

CHEMUNG RIVER BASIN

01518000 TIOGA RIVER AT TIOGA, PA--Continued

REMARKS.--Those data in the first set of statistics (1978-2003) represent flow past the gage including streamflow diverted into Tioga River from the adjacent Crooked Creek Basin since October 1977, and are not equivalent to natural streamflow conditions prior to this date.

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	243	405	475	489	542	933	1079	529	402	158	167	132
MAX	1454	1684	1377	1709	1716	2161	4544	1433	1404	682	1747	669
(WY)	1991	1978	1997	1996	1981	1979	1993	1989	1989	1994	1994	2003
MIN	34.5	31.2	36.2	22.7	111	238	323	136	41.5	32.5	28.4	20.8
(WY)	1999	1981	1999	1981	1989	1981	1988	2001	1991	1991	1980	1980

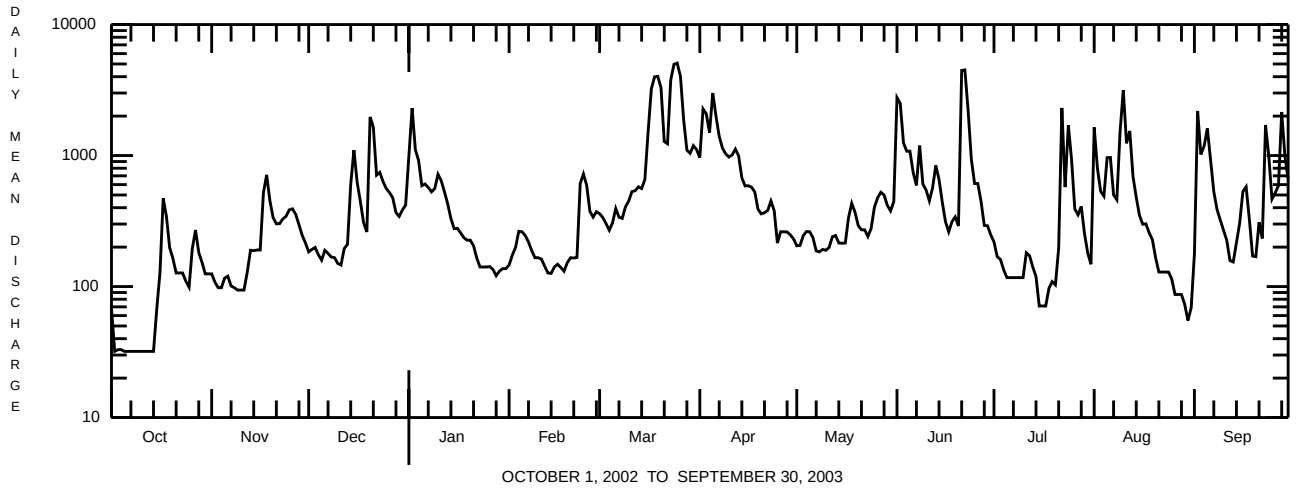
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1978 - 2003	
ANNUAL TOTAL	147368		209434			
ANNUAL MEAN	404		574		462	
HIGHEST ANNUAL MEAN					862	1978
LOWEST ANNUAL MEAN					241	2001
HIGHEST DAILY MEAN	5070	Jun 7	5080	Mar 25	8360	Jan 9 1978
LOWEST DAILY MEAN	31	Aug 10-13**a**	32	Oct 2,5-14	16	Aug 26-28 1980
ANNUAL SEVEN-DAY MINIMUM	31	Sep 19	32	Oct 5	16	Jan 15 1981
MAXIMUM PEAK FLOW			5400	Jun 21	14300	Nov 4 1977
MAXIMUM PEAK STAGE			6.60	Jun 21	8.84	Nov 4 1977
INSTANTANEOUS LOW FLOW					**b**0.00	Mar 6 1979**c**
10 PERCENT EXCEEDS	897		1240		1060	
50 PERCENT EXCEEDS	227		301		184	
90 PERCENT EXCEEDS	32		110		39	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1977, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	145	291	350	271	346	790	753	516	254	93.4	77.0	89.9
MAX	1084	1061	978	787	814	1694	2124	1534	2397	471	380	1083
(WY)	1956	1971	1974	1952	1976	1964	1958	1946	1972	1972	1947	1975
MIN	9.26	12.8	22.0	37.9	59.2	169	132	87.6	44.3	16.5	12.2	6.68
(WY)	1964	1965	1965	1961	1963	1969	1946	1941	1962	1955	1966	1964

SUMMARY STATISTICS	WATER YEARS 1939 - 1977	
ANNUAL MEAN	331	
HIGHEST ANNUAL MEAN	583	1972
LOWEST ANNUAL MEAN	138	1965
HIGHEST DAILY MEAN	26900	Jun 23 1972
LOWEST DAILY MEAN	5.0	Sep 11 1964
ANNUAL SEVEN-DAY MINIMUM	5.3	Sep 8 1964
MAXIMUM PEAK FLOW	**d**59000	Jun 22 1972
MAXIMUM PEAK STAGE	**f**19.70	Jun 22 1972
INSTANTANEOUS LOW FLOW	4.5	Aug 10,11 1955
ANNUAL RUNOFF (CFSM)	1.17	
ANNUAL RUNOFF (INCHES)	15.95	
10 PERCENT EXCEEDS	780	
50 PERCENT EXCEEDS	130	
90 PERCENT EXCEEDS	23	

a Also Sept. 20, 21, 23-25.
b Result of shutoff at Tioga Dam.
c Also Aug. 29, 1980.
d From rating curve extended above 8,000 ft^3/s on basis of slope-area and contracted-opening measurement at gage height 15.47 ft, and slope-area measurement of peak flow.
f From floodmark.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

CHEMUNG RIVER BASIN

01518700 TIOGA RIVER AT TIOGA JUNCTION, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 41°57'09", long 77°06'56", Tioga County, Hydrologic Unit 02050104, on left bank 0.3 mi upstream from bridge on Township Route 722 at Tioga Junction, 3.3 mi downstream from Crooked Creek, and 5.0 mi downstream from Tioga and Hammond Dams.

DRAINAGE AREA.--446 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 990.43 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated since November 1979 by Tioga Dam (station 01517900) and Hammond Dam (station 01518498). Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of September 1975 reached a stage of about 22.1 ft, from floodmarks, discharge, about 48,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	132	208	1020	161	385	1120	237	3000	246	1760	184
2	43	119	207	2860	186	365	2850	231	2890	198	942	2810
3	44	105	216	1230	215	328	2700	270	1340	180	581	1290
4	43	105	194	1060	284	299	1860	288	1110	155	545	1360
5	42	116	173	645	290	329	3700	288	1100	130	1120	1800
6	42	136	200	662	272	421	2550	267	808	131	1200	1100
7	42	107	198	625	241	e360	1610	208	568	129	631	565
8	43	105	180	579	e200	352	1360	208	1230	128	553	418
9	42	99	e180	630	185	465	1220	214	644	135	1800	338
10	43	99	e160	795	184	492	1130	214	574	133	4080	292
11	43	100	152	727	e180	546	1170	221	478	189	1600	246
12	43	126	210	583	162	564	1270	270	568	200	1890	171
13	43	201	236	483	e140	613	1150	277	839	157	856	155
14	43	201	626	384	e140	588	e760	241	715	141	577	212
15	66	201	1190	320	152	692	644	241	492	79	429	300
16	122	203	711	319	e160	1770	640	249	356	79	377	503
17	436	552	500	e290	e150	4280	620	358	299	77	371	615
18	384	766	358	e260	e140	5220	575	462	337	107	316	328
19	212	495	297	e250	160	5140	443	403	367	123	272	204
20	183	372	2070	254	180	4510	396	327	331	109	212	140
21	132	332	2090	e220	180	2440	403	309	4850	219	157	319
22	132	336	784	e180	185	1590	411	303	5370	2570	154	237
23	132	359	801	e150	656	4530	485	277	2490	720	151	1710
24	120	372	691	e150	784	6220	428	310	1040	1790	148	1220
25	108	405	602	e150	627	6330	245	435	644	1130	137	470
26	188	416	566	e150	429	5230	296	506	627	468	97	515
27	299	381	514	e140	363	2340	295	546	498	393	96	564
28	196	330	418	e130	398	1320	293	535	328	466	94	2460
29	170	275	376	e150	---	1220	281	447	321	309	87	1120
30	132	241	417	e150	---	1380	259	408	284	215	65	725
31	132	---	460	e150	---	1330	---	419	---	179	69	---
TOTAL	3782	7787	15985	15696	7404	61649	31164	9969	34498	11285	21367	22371
MEAN	122	260	516	506	264	1989	1039	322	1150	364	689	746
MAX	436	766	2090	2860	784	6330	3700	546	5370	2570	4080	2810
MIN	42	99	152	130	140	299	245	208	284	77	65	140

e Estimated.

CHEMUNG RIVER BASIN

01518700 TIOGA RIVER AT TIOGA JUNCTION, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	241	401	513	490	646	984	1294	596	466	182	190	143
MAX	1515	1626	1632	1975	1837	2009	5667	1723	1619	697	1836	746
(WY)	1991	1997	1997	1996	1981	1994	1993	1989	1989	1994	1994	2003
MIN	41.4	49.0	41.5	29.5	127	259	352	151	51.4	38.4	29.6	26.3
(WY)	1992	1981	1999	1981	1989	1981	1988	2001	1980	1991	1980	1980

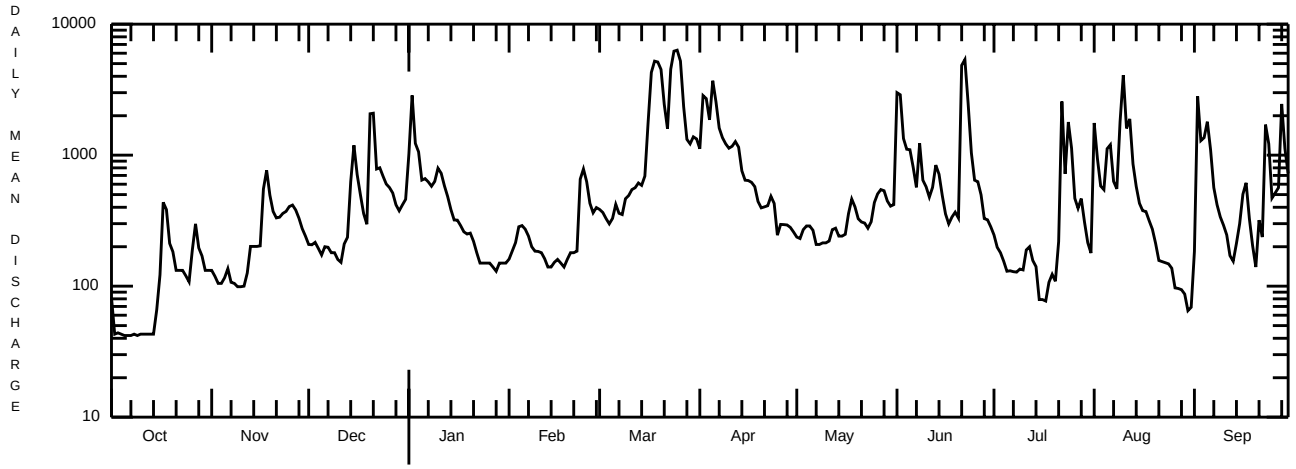
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1980 - 2003	
ANNUAL TOTAL	165096		242957			
ANNUAL MEAN	452		666		510	
HIGHEST ANNUAL MEAN					842	1994
LOWEST ANNUAL MEAN					297	2001
HIGHEST DAILY MEAN	5920	Jun 7	6330	Mar 25	7210	Apr 27 1993
LOWEST DAILY MEAN	32	Sep 20,21	42	Oct 5-7,9	16	Aug 26-28 1980
ANNUAL SEVEN-DAY MINIMUM	33	Sep 18	42	Oct 4	21	Jan 23 1981
MAXIMUM PEAK FLOW			**a**6480	Mar 25	**a**11200	Aug 18 1994
MAXIMUM PEAK STAGE			13.50	Mar 25	15.42	Aug 18 1994
10 PERCENT EXCEEDS	966		1590		1190	
50 PERCENT EXCEEDS	263		328		201	
90 PERCENT EXCEEDS	36		120		49	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 1979, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	581	746	635	963	453	1993	1010	663	210	123	177	160
MAX	838	1764	1324	1484	597	2355	1404	1365	318	181	288	278
(WY)	1978	1978	1978	1979	1977	1979	1978	1978	1978	1976	1976	1977
MIN	198	181	229	97.2	380	1478	807	311	153	78.3	65.2	80.3
(WY)	1979	1979	1977	1977	1978	1977	1979	1979	1977	1979	1979	1976

SUMMARY STATISTICS	WATER YEARS 1976 - 1979	
ANNUAL MEAN	643	
HIGHEST ANNUAL MEAN	955	1978
LOWEST ANNUAL MEAN	429	1977
HIGHEST DAILY MEAN	8510	Jan 9 1978
LOWEST DAILY MEAN	28	Sep 11 1977
ANNUAL SEVEN-DAY MINIMUM	32	Sep 7 1977
MAXIMUM PEAK FLOW	**bc**17900	Feb 25 1977
MAXIMUM PEAK STAGE	**d**17.20	Jan 26 1978
INSTANTANEOUS LOW FLOW	26	Feb 13, Sep 12, 1977; Feb 3, 1979.
ANNUAL RUNOFF (CFSM)	1.44	
ANNUAL RUNOFF (INCHES)	19.59	
10 PERCENT EXCEEDS	1520	
50 PERCENT EXCEEDS	232	
90 PERCENT EXCEEDS	69	

a From rating curve extended above 6,000 ft^3/s.
b From rating curve extended above 4,000 ft^3/s.
c Gage height 16.70 ft.
d Backwater from ice.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

CHEMUNG RIVER BASIN

01518700 TIOGA RIVER AT TIOGA JUNCTION, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002													
19...	0930	1028	9813	551	30	12.9	7.6	218	5.9	86	22.3	7.5	17
JAN 2003													
14...	0915	1028	9813	400	30	14.3	7.1	170	.3	62	17.8	4.3	28
MAR													
13...	1035	1028	9813	587	30	14.2	6.8	191	1.2	66	18.9	4.5	29
MAY													
15...	1530	1028	9813	241	30	11.4	7.8	174	14.0	65	17.7	5.1	19
JUL													
22...	1145	1028	9813	3180	30	9.3	7.4	175	21.7	63	17.3	4.7	31
SEP													
15...	1000	1028	9813	273	30	8.8	7.2	165	18.5	63	17.5	4.6	30

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, unfltrd recoverable, µg/L (01042)	Iron, water, unfltrd recoverable, µg/L (01045)
NOV 2002													
19...	67.4	174	<2	<.020	.35	<.040	<.01	.013	.60	1.6	<200	<10	110
JAN 2003													
14...	27.9	128	6	.050	.89	<.040	.02	.017	1.3	3.0	300	<10	340
MAR													
13...	30.7	146	14	.050	.86	<.040	.03	.027	1.2	3.0	300	<10	330
MAY													
15...	43.0	130	<2	<.020	.35	<.040	.01	.010	.62	1.7	<200	<10	150
JUL													
22...	33.6	106	24	.050	.26	<.040	.02	.038	.57	3.8	900	<10	1160
SEP													
15...	31.7	66	<2	<.020	.29	<.040	.01	.021	.26	3.3	<200	<10	310

Date	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 2002				
19...	<1.0	660	<50	<10
JAN 2003				
14...	<1.0	330	<50	<10
MAR				
13...	<1.0	430	<50	30
MAY				
15...	<1.0	550	<50	20
JUL				
22...	<1.0	810	<50	30
SEP				
15...	<1.0	300	<50	20

01518700 TIOGA RIVER AT TIOGA JUNCTION, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/18/02
Benthic Macroinvertebrate	Count
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia sp	3
Lymnaeidae	
Pseudosuccinea sp	
Bivalvia (CLAMS)	
Veneroida	
Corbiculidae	
Corbicula fluminea	1
Sphaeriidae	
Musiculum sp	9
Oligochaeta (AQUATIC EARTHWORMS)	1
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	
Lebertiidae	
Lebertia sp	3
Crustacea	
Amphipoda (SCUDS)	
Gammaridae	
Gammarus sp	2
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Baetis sp	6
Caenidae	
Caenis sp	3
Heptageniidae	
Stenonema sp	31
Isonychiidae	
Isonychia sp	6
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche sp	36
Hydropsyche sp	18
Hydroptilidae	
Hydroptila sp	14
Leptoceridae	
Oecetis sp	1
Setodes sp	3
Polycentropodidae	2
Cernotina sp	1
Psychomyiidae	
Psychomyia sp	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus sp	2
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	77
Total Organisms	221

CHEMUNG RIVER BASIN

01518862 COWANESQUE RIVER AT WESTFIELD, PA

LOCATION.--Lat 41°55'23", long 77°31'56", Tioga County, Hydrologic Unit 02050104, on left bank at Westfield, 800 ft downstream from Mill Creek, and 0.5 mi upstream from bridge on State Highway 49.

DRAINAGE AREA.--90.6 mi^2.

PERIOD OF RECORD.--August 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,337.58 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 1,900 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 17	1730	2,190	4.63
Mar. 20	2045	2,850	5.19
July 22	0445	2,960	5.28
Aug. 1	0715	*6,440	*7.65
Aug. 10	0030	3,330	5.58
Sept. 2	0400	3,460	5.67
Sept. 28	0400	2,820	5.17

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	9.0	e28	198	e12	e130	227	36	355	41	1390	70
2	4.8	9.7	e24	e180	e13	e130	644	47	187	35	558	915
3	5.6	10	e21	e130	e12	e120	328	43	168	30	732	245
4	6.4	9.4	e18	111	e24	e110	346	37	204	26	648	322
5	7.0	9.1	e22	e94	e50	e110	812	36	216	24	393	179
6	6.2	11	e20	87	e36	e110	403	37	158	22	344	140
7	5.4	12	e18	e80	e30	e110	312	36	167	23	265	111
8	5.6	12	e18	80	e24	e100	272	43	149	22	720	92
9	4.4	11	e16	91	e28	e100	257	38	145	47	536	77
10	4.1	10	e15	96	e22	e90	252	35	116	34	986	63
11	4.6	10	e16	e77	e20	e98	219	38	104	51	474	53
12	5.9	11	e20	e60	e18	e90	187	44	164	28	378	46
13	6.2	14	e22	e52	e18	e98	160	42	182	22	245	48
14	5.9	13	e60	e46	e17	e89	139	39	132	18	187	56
15	5.7	12	e50	e41	e16	e220	123	36	107	15	147	71
16	11	14	e40	e39	e14	685	109	80	89	14	125	112
17	21	72	e24	e32	e16	1080	96	108	75	13	119	58
18	12	73	e20	e26	e20	1030	87	78	85	176	90	46
19	12	45	e80	e30	e30	845	80	68	72	58	73	139
20	16	39	385	e32	e26	1110	73	63	75	36	61	139
21	11	41	195	e24	e22	1480	70	77	855	401	51	86
22	8.6	50	135	e22	e26	1120	83	71	390	1280	46	77
23	7.6	58	108	e22	e200	727	71	58	249	768	40	435
24	6.8	45	85	e20	e240	515	61	113	180	1020	34	163
25	6.7	41	e80	e20	e180	431	55	92	136	424	30	165
26	34	38	e73	e18	e170	487	53	118	105	252	29	135
27	22	35	e66	e15	e160	350	49	107	84	226	40	453
28	15	e30	e60	e15	e140	270	44	101	68	195	29	1280
29	12	30	e55	e17	---	259	40	93	56	136	28	434
30	10	29	e51	e15	---	239	37	79	48	106	42	290
31	9.0	---	77	e14	---	218	---	132	---	84	29	---
TOTAL	298.2	803.2	1902	1784	1584	12551	5689	2025	5121	5627	8869	6500
MEAN	9.62	26.8	61.4	57.5	56.6	405	190	65.3	171	182	286	217
MAX	34	73	385	198	240	1480	812	132	855	1280	1390	1280
MIN	4.1	9.0	15	14	12	89	37	35	48	13	28	46
CFSM	0.11	0.30	0.68	0.64	0.62	4.47	2.09	0.72	1.88	2.00	3.16	2.39
IN.	0.12	0.33	0.78	0.73	0.65	5.15	2.34	0.83	2.10	2.31	3.64	2.67

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2003, BY WATER YEAR (WY)

MEAN	50.6	95.0	108	112	131	194	243	118	86.0	39.6	52.6	31.1
MAX	323	353	278	444	281	405	618	382	361	182	372	217
(WY)	1991	1997	1991	1996	1984	2003	1993	1996	1989	2003	1994	2003
MIN	4.36	6.14	8.99	13.6	21.4	91.2	91.3	17.3	5.18	3.19	1.93	2.40
(WY)	1992	1999	1999	1989	1987	1990	1988	1985	1999	1993	1999	1991

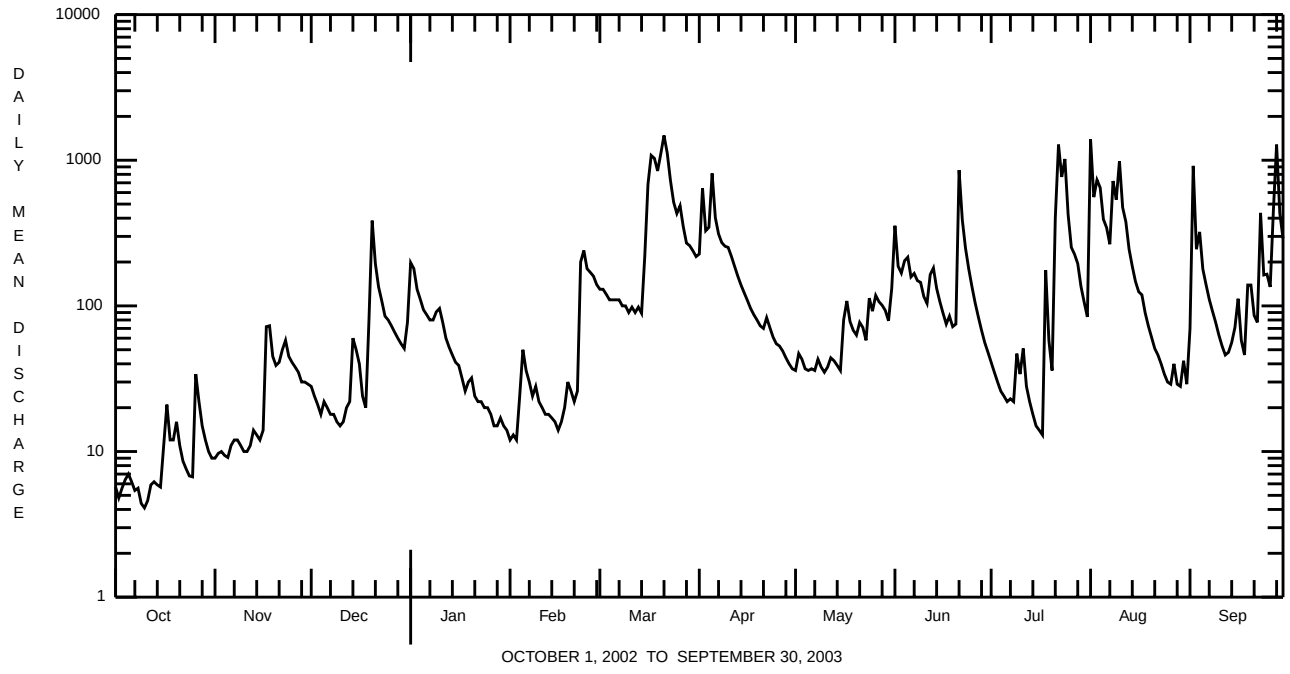
e Estimated.

CHEMUNG RIVER BASIN

01518862 COWANESQUE RIVER AT WESTFIELD, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1983 - 2003	
ANNUAL TOTAL	32029.9		52753.4			
ANNUAL MEAN	87.8		145		105	
HIGHEST ANNUAL MEAN					177	1996
LOWEST ANNUAL MEAN					58.4	1999
HIGHEST DAILY MEAN	2420	Jun 6	1480	Mar 21	**e**5400	Jan 19 1996
LOWEST DAILY MEAN	1.9	Sep 9	4.1	Oct 10	0.53	Sep 16 1991
ANNUAL SEVEN-DAY MINIMUM	2.2	Sep 6	5.2	Oct 6	0.78	Sep 10 1991
MAXIMUM PEAK FLOW			**a**6440	Aug 1	**a**13000	Jan 19 1996
MAXIMUM PEAK STAGE			7.65	Aug 1	**b**11.10	Jan 19 1996
ANNUAL RUNOFF (CFSM)	0.97		1.60		1.16	
ANNUAL RUNOFF (INCHES)	13.15		21.66		15.77	
10 PERCENT EXCEEDS	193		381		249	
50 PERCENT EXCEEDS	41		61		43	
90 PERCENT EXCEEDS	4.5		12		5.1	

a From rating curve extended above 4,000 ft^3/s.
b From floodmark.
e Estimated.



CHEMUNG RIVER BASIN

01520000 COWANESQUE RIVER NEAR LAWRENCEVILLE, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 4l°59'48", long 77°08'25", Tioga County, Hydrologic Unit 02050104, on left bank on SR 4022, 0.5 mi downstream from Cowanesque Dam, 0.8 mi upstream from highway bridge on U.S. Route 15 in Lawrenceville, and 1.4 mi upstream from mouth.

DRAINAGE AREA.--298 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1951 to current year. Prior to October 1951 monthly discharge only, published in WSP 1722.

REVISED RECORDS.--WDR PA-72-1: 1971(M).

GAGE.--Water-stage recorder. Datum of gage is 983.96 ft above National Geodetic Vertical Datum of 1929. Prior to July 1976 at site 1.1 mi upstream at datum 14.07 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since December 1979 by Cowanesque Dam (station 01519995). Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	20	87	510	59	245	706	99	1800	110	2800	223
2	22	20	75	843	59	197	2200	106	972	111	2600	2880
3	22	20	55	532	59	146	1240	120	676	76	1300	875
4	22	20	54	437	80	149	923	120	683	49	1420	817
5	22	20	50	398	73	212	2720	120	666	49	1380	564
6	22	25	47	293	112	255	1520	120	571	55	901	401
7	22	27	47	223	147	216	955	110	536	65	664	264
8	22	20	47	342	121	304	838	99	436	70	1090	178
9	21	22	56	366	91	366	748	82	390	125	1310	139
10	22	23	61	361	82	546	751	92	363	129	3710	144
11	22	23	62	362	82	643	777	106	315	132	1400	144
12	22	23	94	303	66	640	630	106	396	119	1040	144
13	22	22	120	210	54	640	463	106	642	78	691	144
14	22	22	121	139	54	640	421	106	428	44	532	144
15	22	22	487	144	54	675	408	106	348	31	385	184
16	24	23	493	139	54	1750	370	124	214	32	277	397
17	22	25	193	141	70	3740	273	236	128	37	277	320
18	22	193	223	130	78	3760	263	209	161	89	230	211
19	22	254	203	76	78	3320	263	161	251	120	191	163
20	22	119	655	71	78	2690	263	173	261	135	147	97
21	22	125	975	109	78	1230	239	180	3500	717	125	108
22	22	172	540	86	81	1130	219	181	1940	4770	125	170
23	22	144	374	66	125	4420	219	181	899	2320	85	708
24	23	130	282	69	399	4490	192	260	566	4630	67	531
25	24	120	343	75	470	2420	162	501	393	2390	71	300
26	23	106	199	59	341	1400	150	424	305	819	91	330
27	22	99	141	51	318	1100	116	367	280	621	91	382
28	22	99	161	51	301	845	99	344	218	581	70	3460
29	22	93	161	56	---	742	99	302	132	435	57	1510
30	22	87	175	59	---	796	99	236	109	286	99	662
31	20	---	195	59	---	728	---	330	---	250	97	---
TOTAL	685	2118	6776	6760	3664	40435	18326	5807	18579	19475	23323	16594
MEAN	22.1	70.6	219	218	131	1304	611	187	619	628	752	553
MAX	24	254	975	843	470	4490	2720	501	3500	4770	3710	3460
MIN	20	20	47	51	54	146	99	82	109	31	57	97

CHEMUNG RIVER BASIN

01520000 COWANESQUE RIVER NEAR LAWRENCEVILLE, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	140	255	307	292	387	626	736	371	295	114	122	90.9
MAX	1122	1114	864	1198	1027	1527	2773	1115	1222	628	889	553
(WY)	1991	1997	1991	1996	1981	1994	1993	1996	1989	2003	1994	2003
MIN	13.9	14.3	19.1	23.3	57.6	158	231	48.9	17.4	14.1	11.9	5.09
(WY)	1989	1992	1999	1981	1980	1981	1997	1985	1991	1991	1983	1980

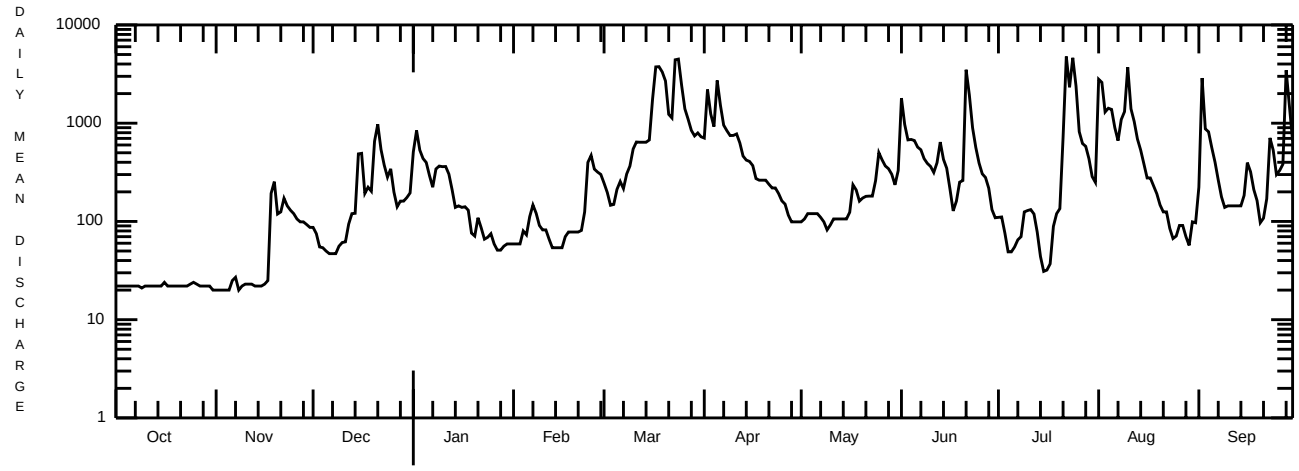
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1980 - 2003	
ANNUAL TOTAL	97328		162542			
ANNUAL MEAN	267		445		310	
HIGHEST ANNUAL MEAN					498	1984
LOWEST ANNUAL MEAN					165	1999
HIGHEST DAILY MEAN	5580	Jun 7	4770	Jul 22	5840	Jan 23 1996
LOWEST DAILY MEAN	18	Sep 7	20	Oct 31**a**	3.4	Sep 13 1980
ANNUAL SEVEN-DAY MINIMUM	19	Sep 5	20	Oct 30	3.9	Sep 10 1980
MAXIMUM PEAK FLOW			6320	Jun 21	6580	Jan 23 1996
MAXIMUM PEAK STAGE			12.31	Jun 21	12.41	Jan 23 1996
10 PERCENT EXCEEDS	586		1000		751	
50 PERCENT EXCEEDS	120		161		104	
90 PERCENT EXCEEDS	22		22		17	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 1979, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	121	203	297	288	345	808	707	359	220	61.0	39.1	87.9
MAX	809	826	860	886	1173	1909	1934	797	1366	223	125	1054
(WY)	1956	1978	1973	1952	1976	1964	1958	1960	1972	1977	1977	1975
MIN	3.33	7.95	12.2	13.9	45.6	230	167	55.5	13.8	7.00	3.11	2.52
(WY)	1965	1965	1961	1961	1963	1965	1955	1955	1955	1966	1954	1964

SUMMARY STATISTICS	WATER YEARS 1952 - 1979	
ANNUAL MEAN	294	
HIGHEST ANNUAL MEAN	514	1978
LOWEST ANNUAL MEAN	135	1965
HIGHEST DAILY MEAN	21500	Jun 23 1972
LOWEST DAILY MEAN	.00	Aug 22 1978
ANNUAL SEVEN-DAY MINIMUM	1.5	Sep 22 1964
MAXIMUM PEAK FLOW	**b**43700	Sep 26 1975
MAXIMUM PEAK STAGE	**c**18.13	Sep 26 1975
INSTANTANEOUS LOW FLOW	**d**0.8	Aug 31, Sep 1, 27, 1964
ANNUAL RUNOFF (CFSM)	.99	
ANNUAL RUNOFF (INCHES)	13.41	
10 PERCENT EXCEEDS	694	
50 PERCENT EXCEEDS	95	
90 PERCENT EXCEEDS	10	

a Also Nov. 1-5, 8.
b From rating curve extended above 6,000 ft^3/s, on basis of slope-area measurement of peak flow.
c From floodmark; site and datum then in use.
d No flow Aug. 22, 1978, during dam construction.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

CHEMUNG RIVER BASIN

01520000 COWANESQUE RIVER NEAR LAWRENCEVILLE, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002													
19...	1630	1028	9813	176	30	11.8	7.4	187	8.1	75	22.5	4.6	62
JAN 2003													
14...	1000	1028	9813	154	30	14.5	7.5	214	1.7	80	23.1	5.3	55
MAR													
11...	1445	1028	9813	640	30	13.7	7.3	209	2.1	82	24.3	5.2	50
MAY													
22...	0830	1028	9813	183	30	11.1	8.1	158	14.1	58	17.0	3.8	39
JUL													
22...	1245	1028	9813	5360	30	11.7	7.3	165	15.1	59	17.4	3.7	48
SEP													
16...	0945	1028	9813	406	30	8.7	7.7	164	20.3	64	18.5	4.3	55

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, unfltrd recoverable, µg/L (01042)	Iron, water, unfltrd recoverable, µg/L (01045)
NOV 2002													
19...	13.8	138	14	.140	.26	<.040	.03	.030	.82	4.6	200	<10	450
JAN 2003													
14...	17.9	144	4	.050	.70	<.040	.02	.023	1.0	4.3	500	<10	830
MAR													
11...	19.6	170	<2	<.020	1.17	<.040	.02	.015	1.5	3.6	<200	<10	170
MAY													
22...	14.0	142	2	<.020	.52	<.040	.01	.018	.78	3.3	<200	<10	140
JUL													
22...	11.9	98	4	<.020	.48	<.040	.03	.023	.71	4.7	300	<10	410
SEP													
16...	9.9	130	8	.040	.24	<.040	.03	.032	.79	5.3	400	<10	400

Date	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 2002				
19...	<1.0	450	<50	<10
JAN 2003				
14...	<1.0	440	<50	<10
MAR				
11...	<1.0	60	<50	40
MAY				
22...	<1.0	60	<50	120
JUL				
22...	<1.0	130	<50	<10
SEP				
16...	<1.0	100	<50	90

01520000 COWANESQUE RIVER NEAR LAWRENCEVILLE, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/15/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Dugesiidae	
Dugesia sp	40
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	
Lebertiidae	
Lebertia sp	1
Crustacea	
Amphipoda (SCUDS)	
Gammaridae	
Gammarus sp	4
Isopoda (AQUATIC SOWBUGS)	
Asellidae	
Caecidotea sp	72
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Baetis sp	15
Caenidae	
Caenis sp	8
Heptageniidae	
Stenonema sp	17
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Coenagrionidae	
Argia sp	1
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
Corydalus sp	3
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche sp	35
Hydropsyche sp	8
Hydroptilidae	
Hydroptila sp	6
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Stenelmis sp	1
Psephenidae (WATER PENNIES)	
Psephenus sp	2
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	244
Simuliidae (BLACK FLIES)	
Simulium sp	7
Total Organisms	464

CHEMUNG RIVER BASIN

LAKES AND RESERVOIRS IN CHEMUNG RIVER BASIN

01517900 TIOGA LAKE.--Lat 41°53'57", long 77°08'21", Tioga County, Hydrologic Unit 02050104, at Tioga Dam on Tioga River, 0.8 mi south of Tioga, and 1.7 mi upstream from Crooked Creek. DRAINAGE AREA, 280 mi^2. PERIOD OF RECORD, November 1979 to current year. GAGE, water-stage recorder (U.S. Army Corps of Engineers datum).

REMARKS.--Reservoir is formed by rolled earth and rockfill dam. Flood flows are routed to Hammond Lake through a connecting channel with weir at elevation 1,101.0 ft and to Hammond Dam spillway with crest at elevation 1,131.0 ft. Storage began in November 1979. Capacity at elevation l,l31.0 ft is 62,000 acre-ft. Recreation lake elevation is 1,081.0 ft, capacity 9,500 acre-ft. Reservoir is used for flood control and recreation. Figures given herein represent total contents. Flow is regulated by two service gates and low-flow by-pass system. Satellite and landline telemetry at station.

COOPERATION.--Records provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 50,090 acre-ft, Apr. 3, 1993, elevation, 1,123.21 ft; minimum, 2,210 acre-ft, Oct. 25, 1980, elevation, 1,060.05 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 22,980 acre-ft, Mar. 22, elevation, 1,100.14 ft; minimum, 9,090 acre-ft, Sept. 19, elevation, 1,080.09 ft.

01518498 HAMMOND LAKE.--Lat 41°53'56", long 77°08'52", Tioga County, Hydrologic Unit 02050104, at Hammond Dam on Crooked Creek, 3.0 mi upstream from mouth, and 0.8 mi southwest of Tioga. DRAINAGE AREA, 122 mi^2. PERIOD OF RECORD, November 1979 to current year. GAGE, water-stage recorder (U.S. Army Corps of Engineers datum).

REMARKS.--Reservoir is formed by rolled earth and rockfill dam with concrete chute spillway with uncontrolled weir at elevation l,l31.0 ft. Storage began in November 1979. Capacity at elevation 1,131.0 ft is 63,000 acre-ft. Recreation lake elevation is l,086.0 ft, capacity 8,850 acre-ft. Reservoir is used for flood control and recreation. Figures given herein represent total contents. Flow is regulated by two gates through a connecting channel that discharges into Tioga Lake, and a low-flow outlet to Crooked Creek. Satellite and landline telemetry at station.

COOPERATION.--Records provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 50,650 acre-ft, Apr. 3, 1993, elevation, 1,123.55 ft; minimum, 2,430 acre-ft, Oct. 24, 1980, elevation, 1,074.00 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 17,050 acre-ft, Mar. 23, elevation, 1,096.50 ft; minimum, 7,760 acre-ft, Oct. 10-12, 15, 16, elevation, 1,084.47 ft.

01519995 COWANESQUE LAKE.--Lat 41°59'05", long 77°09'05", Tioga County, Hydrologic Unit 02050104, at Cowanesque Dam on Cowanesque River, 1.8 mi southwest of Lawrenceville, and 2.5 mi upstream from mouth. DRAINAGE AREA, 298 mi^2. PERIOD OF RECORD, December 1979 to current year. GAGE, water-stage recorder (U.S. Army Corps of Engineers datum).

REMARKS.--Reservoir is formed by rolled earth and rockfill dam with concrete chute spillway with uncontrolled weir at elevation 1,117.0 ft. Storage began in December 1979. Capacity at elevation 1,117.0 ft is 89,110 acre-ft. Recreation lake elevation is 1,080.0 ft since May 1990, capacity 32,600 acre-ft. Reservoir is used for flood control, recreation, and water supply. Figures given herein represent total contents. Flow is regulated by two service gates and low-flow by-pass system. Satellite and landline telemetry at station.

COOPERATION.--Records provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 84,560 acre-ft, Apr. 2, 1993, elevation, 1,114.78 ft; minimum, 65 acre-ft, June 23, 1980, elevation, 1,011.50 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 45,040 acre-ft, Mar. 22, elevation, 1,090.57 ft; minimum, 29,320 acre-ft, Mar. 16, elevation, 1,076.92 ft.

CHEMUNG RIVER BASIN

Lakes and Reservoirs in Chemung River Basin--Continued

MONTHEND ELEVATION, IN FEET ABOVE SEA LEVEL, AND CONTENTS AT 2400 HRS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	01517900 Tioga Lake Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)	01518498 Hammond Lake Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)
Sept. 30	1,081.10	9,550	---	1,084.60	7,840	---
Oct. 31	1,081.26	9,630	+1.3	1,085.18	8,240	+6.5
Nov. 30	1,083.54	10,770	+19.2	1,087.68	9,960	+28.9
Dec. 31	1,083.03	10,510	-4.2	1,087.35	9,720	-3.9
CAL YR 2002	--	--	-0.2	--	--	-0.1
Jan. 31	1,081.84	9,910	-9.8	1,087.11	9,540	-2.9
Feb. 28	1,081.29	9,640	-4.9	1,087.08	9,520	-0.4
Mar. 31	1,081.47	9,730	+1.5	1,086.70	9,280	-3.9
Apr. 30	1,081.48	9,740	+0.2	1,086.54	9,180	-1.7
May 31	1,081.55	9,770	+0.5	1,086.44	9,120	-1.0
June 30	1,081.50	9,740	-0.5	1,086.58	9,200	+1.3
July 31	1,081.09	9,540	-3.3	1,086.63	9,230	+0.5
Aug. 31	1,081.59	9,790	+4.1	1,086.49	9,150	-1.3
Sept. 30	1,081.12	9,560	-3.9	1,086.45	9,120	-0.5
WTR YR 2003	--	--	0	--	--	+1.8

Date	01519995 Cowanesque Lake Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)
Sept. 30	1,079.44	31,980	---
Oct. 31	1,079.73	32,300	+5.2
Nov. 30	1,080.19	32,790	+8.2
Dec. 31	1,080.20	32,800	+0.2
CAL YR 2002	--	--	-0.2
Jan. 31	1,080.19	32,790	-0.2
Feb. 28	1,080.07	32,670	-2.2
Mar. 31	1,080.19	32,790	+2.0
Apr. 30	1,080.17	32,770	-0.3
May 31	1,080.17	32,770	0
June 30	1,080.19	32,790	+0.3
July 31	1,080.18	32,780	-0.2
Aug. 31	1,080.20	32,800	+0.3
Sept. 30	1,080.21	32,810	+0.2
WTR YR 2003	--	--	+1.1

SUSQUEHANNA RIVER BASIN

01531500 SUSQUEHANNA RIVER AT TOWANDA, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 4l°45'55", long 76°26'28", Bradford County, Hydrologic Unit 02050106, on right bank at Bridge Street in Towanda, and 1.8 mi upstream from Towanda Creek.

DRAINAGE AREA.--7,797 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1913 to current year. Gage-height records collected at same site since October 1892 are contained in reports of U.S. Weather Bureau.

REVISED RECORDS.--WSP 756: Drainage area. WSP 1302: 1922, 1929.

GAGE.--Water-stage recorder. Datum of gage is 694.38 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 18, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow slightly regulated by 7 flood-control reservoirs which have a combined capacity of 356,800 acre-ft. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 68,000 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 21	2245	*97,600	*15.98

Date	Time	Discharge ft^3/s	Gage Height (ft)
No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6260	6970	11600	14800	4830	12500	40900	10100	35400	5320	5940	2710
2	4730	6080	11200	35900	4830	11100	37200	14800	49900	4780	14900	e10300
3	3840	5860	10400	31400	4870	10400	40000	14900	32600	4380	13800	e32300
4	3090	5730	9080	23300	5570	9520	33300	15500	23200	3990	14600	e33400
5	2940	5500	8310	19700	9840	9230	46300	13100	20300	3610	14100	e31200
6	2940	5460	7810	17100	11500	9440	61300	11600	17900	3430	14000	e17200
7	2890	5810	8080	15600	12000	9020	46100	10600	16000	3240	12200	e12500
8	2730	7180	7790	14500	10300	9010	36500	9880	15800	3030	11500	e9750
9	2510	7620	7140	14600	9510	9420	30700	9290	14200	3020	12100	e7390
10	2250	6940	6250	16200	8520	10400	28000	8640	12100	3110	23000	e6480
11	2130	6430	5580	15300	7830	9680	27200	8120	10600	3290	23400	e5670
12	2160	6110	5930	13300	e7000	9020	26500	8810	10000	3990	19500	e4940
13	2550	6360	7770	11900	e6400	9380	24300	10900	12100	4330	18400	e4310
14	3210	7520	12900	9680	e5800	9230	21700	14600	14200	3840	12900	e3860
15	3060	8040	22400	9050	e5400	9170	19600	13900	16600	3360	10100	e3670
16	3300	7770	21800	8270	e5000	13600	17600	12000	13300	2940	8370	e3860
17	9250	11800	18000	e7600	e4500	35400	16200	11300	10500	2710	7290	e4940
18	15100	22800	13700	e7000	e3800	64500	15000	11100	8830	2850	6490	e7210
19	14500	21500	11200	e6400	e4400	70000	13800	9840	8340	3070	5840	e6480
20	11200	17100	14300	e6400	e4800	67800	12600	8600	7990	3360	5220	e5400
21	10800	15000	28800	e6000	e5200	89100	11900	7960	31400	3380	4630	e4400
22	9240	15500	28100	e5800	e5900	91100	11400	7670	46100	16000	3990	e5070
23	7410	20700	22400	e5200	e8400	87300	11500	7390	31300	39100	3590	e9000
24	6230	23700	18300	e4600	e13000	82600	12200	7360	21600	31900	3230	e15000
25	6140	22200	15900	e4800	e18000	71400	12200	10900	15000	30800	2940	e17000
26	6400	19200	14200	e5000	e16000	61300	11100	12700	11600	19500	2760	10400
27	9760	17200	12400	e5000	e15000	57600	12300	12200	9670	13100	2590	8440
28	11200	15300	11400	e4700	e14000	49300	13500	11600	8270	11000	2490	9580
29	10700	13500	11400	e4600	---	42200	12900	11300	7030	9550	2420	17700
30	8860	12300	11400	e4400	---	42000	11200	9810	6100	7620	2370	12800
31	7730	---	10900	e4600	---	43300	---	8870	---	6180	2370	---
TOTAL	195110	353180	406440	352700	232200	1115020	715000	335340	537930	259780	287030	322960
MEAN	6294	11770	13110	11380	8293	35970	23830	10820	17930	8380	9259	10770
MAX	15100	23700	28800	35900	18000	91100	61300	15500	49900	39100	23400	33400
MIN	2130	5460	5580	4400	3800	9010	11100	7360	6100	2710	2370	2710
CFSM	0.81	1.51	1.68	1.46	1.06	4.61	3.06	1.39	2.30	1.07	1.19	1.38
IN.	0.93	1.69	1.94	1.68	1.11	5.32	3.41	1.60	2.57	1.24	1.37	1.54

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2003, BY WATER YEAR (WY)

MEAN	5294	9317	11060	10610	11820	23590	25250	13200	7354	4109	3026	3289
MAX	31270	28940	32550	31200	35700	60780	76640	34770	41150	23840	16210	23200
(WY)	1978	1928	1997	1996	1976	1936	1993	1943	1972	1915	1915	1977
MIN	507	495	1459	1273	1821	8417	4975	3297	1381	783	571	432
(WY)	1965	1965	1931	1931	1920	1981	1946	1985	1999	1962	1964	1964

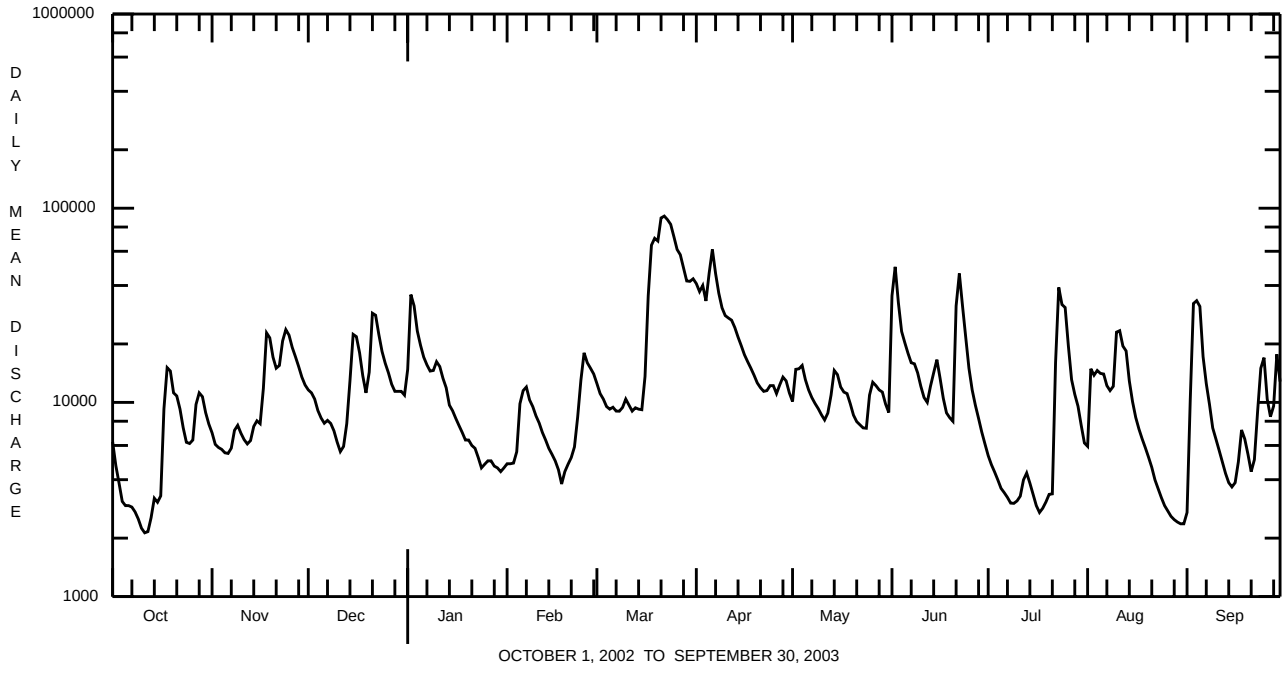
e Estimated.

SUSQUEHANNA RIVER BASIN

01531500 SUSQUEHANNA RIVER AT TOWANDA, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1914 - 2003	
ANNUAL TOTAL	3967980		5112690			
ANNUAL MEAN	10870		14010		10640	
HIGHEST ANNUAL MEAN					16610	1978
LOWEST ANNUAL MEAN					5104	1965
HIGHEST DAILY MEAN	62100	Jun 7	91100	Mar 22	283000	Jun 23 1972
LOWEST DAILY MEAN	636	Sep 14	2130	Oct 11	340	Sep 23 1964
ANNUAL SEVEN-DAY MINIMUM	686	Sep 11	2460	Oct 7	348	Sep 18 1964
MAXIMUM PEAK FLOW			97600	Mar 21	**a**320000	Jun 24 1972
MAXIMUM PEAK STAGE			15.98	Mar 21	**b**33.43	Jun 24 1972
INSTANTANEOUS LOW FLOW					334	Sep 23,24 1964
ANNUAL RUNOFF (CFSM)	1.39		1.80		1.37	
ANNUAL RUNOFF (INCHES)	18.93		24.39		18.55	
10 PERCENT EXCEEDS	22700		31000		25800	
50 PERCENT EXCEEDS	9080		10100		5500	
90 PERCENT EXCEEDS	1060		3600		1250	

a From rating curve extended above 180,000 ft^3/s.
b From floodmark.



01531500 SUSQUEHANNA RIVER AT TOWANDA, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002													
06...	0930	1028	9813	5430	40	12.7	8.0	254	5.8	98	31.8	4.5	74
JAN 2003													
06...	0800	1028	9813	17300	40	14.6	7.6	228	.0	67	20.9	3.7	46
MAY													
05...	0745	1028	9813	13400	40	10.1	8.1	209	14.1	81	25.0	4.4	61
JUL													
07...	0800	1028	9813	3200	40	10.3	8.5	313	26.2	120	37.1	6.3	92
SEP													
08...	0900	1028	9813	E9750	40	8.4	7.6	216	18.9	77	23.3	4.6	62

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, unfltrd recoverable, µg/L (01042)	Iron, water, unfltrd recoverable, µg/L (01045)
NOV 2002													
06...	16.0	144	<2	<.020	.62	<.040	.02	.026	.96	2.7	<200	<10	150
JAN 2003													
06...	11.7	152	12	<.020	.85	<.040	.02	.020	1.1	2.3	200	<10	370
MAY													
05...	12.4	172	22	<.020	.49	<.040	.03	.034	.92	2.8	500	<10	840
JUL													
07...	13.6	--	10	<.020	--	--	--	.041	.74	3.1	200	<4	320
SEP													
08...	12.6	140	18	<.020	.52	<.040	.04	.052	.65	4.2	600	<10	1040

Date	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 2002				
06...	<1.0	10	<50	<10
JAN 2003				
06...	<1.0	20	<50	<10
MAY				
05...	<1.0	50	<50	<10
JUL				
07...	<1.0	50	--	<5.0
SEP				
08...	1.1	60	<50	110

01531500 SUSQUEHANNA RIVER AT TOWANDA, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	9/4/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Dugesiidae	
Dugesia sp	7
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Hydrobiidae	
Amnicola sp	3
Pleuroceridae	
Leptoxis carinata	3
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	
Musiculum sp	1
Sphaerium sp	2
Oligochaeta (AQUATIC EARTHWORMS)	5
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Baetis sp	13
Heterocloeon sp	2
Caenidae	
Caenis sp	4
Heptageniidae	
Leucrocuta sp	1
Nixe sp	1
Rhithrogena sp	1
Stenonema sp	4
Isonychiidae	
Isonychia sp	22
Potamanthidae	
Anthopotamus sp	19
Plecoptera (STONEFLIES)	
Perlidae	
Agnetina sp	5
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche sp	10
Hydropsyche sp	6
Macrostemum sp	2
Philopotamidae	
Chimarra sp	25
Lepidoptera (MOTHS AND BUTTERFLIES)	
Pyralidae	
Petrophila sp	1

01531500 SUSQUEHANNA RIVER AT TOWANDA, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	9/4/02
Benthic Macroinvertebrate	Count
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus sp	8
Stenelmis sp	44
Psephenidae (WATER PENNIES)	
Psephenus sp	2
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	7
Simuliidae (BLACK FLIES)	
Simulium sp	38
Total Organisms	236

TOWANDA CREEK BASIN

01532000 TOWANDA CREEK NEAR MONROETON, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 4l°42'25", long 76°29'06", Bradford County, Hydrologic Unit 02050106, on left bank on Township Route 406, 0.8 mi southwest of Monroeton, and 1.0 mi upstream from South Branch Towanda Creek.

DRAINAGE AREA.--215 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1914 to current year.

REVISED RECORDS.--WSP 756: Drainage area. WSP 1051: 1943-44(M). WSP 1302: 1922(M), 1924, 1925-26(M), 1928, 1929(M), 1930-31. WSP 1432: 1921(M), 1932(M), 1933, 1934-35(M), 1936, 1938(M), 1940. WDR PA-78-2: 1972(M). WDR PA-87-2: 1978-79.

GAGE.--Water-stage recorder. Datum of gage is 765.53 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1942, nonrecording gage at present site at datum 8.62 ft higher. Water-stage recorder Oct. 1, 1942, to Sept. 25, 1975, 0.6 mi downstream at datum 11.82 ft lower. Nonrecording gage Sept. 26, 1975, to Aug. 26, 1976, at bridge 0.6 mi downstream at datum 11.82 ft lower. Nonrecording gage Aug. 27, 1976, to Oct. 20, 1977, at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 4,300 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Jan. 1	2345	5,280	11.10	June 1	1045	*18,200	*14.48
Mar. 21	0045	10,600	12.78	June 21	0715	5,770	11.29

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	144	186	1410	59	204	605	157	7800	122	180	48
2	30	132	154	2120	60	223	1270	890	1950	104	230	462
3	27	119	124	731	60	226	1020	323	975	91	137	250
4	24	105	e91	564	e310	173	780	224	840	82	503	826
5	25	96	e110	450	e330	232	1180	183	756	75	728	876
6	23	120	e91	387	e160	305	864	172	560	66	666	371
7	21	136	e80	340	e120	155	682	159	603	58	343	243
8	18	113	e87	328	e110	e190	629	255	661	58	237	178
9	17	101	e66	496	e90	307	621	212	451	58	212	143
10	17	95	e80	578	e80	265	641	173	360	64	294	117
11	25	116	e100	379	e76	156	842	189	313	94	203	97
12	434	165	136	301	e76	166	1180	252	305	85	211	84
13	278	273	186	239	e74	237	780	213	363	60	167	77
14	178	224	e1000	e180	e74	158	620	183	300	50	131	97
15	123	193	866	e160	e67	278	523	165	235	44	105	92
16	756	205	583	e120	e70	868	451	188	187	44	90	139
17	1430	1650	371	e100	e87	1700	372	397	158	41	92	109
18	577	1310	253	e90	e120	2000	321	291	184	43	79	83
19	361	808	e270	e88	e90	1550	322	226	185	51	66	85
20	274	590	2100	e97	e66	2400	305	190	257	43	57	166
21	201	484	1440	e91	e63	4970	263	190	4330	39	51	125
22	158	470	811	e90	e70	2390	278	174	2290	396	46	95
23	129	570	592	e80	e1000	1470	269	151	1080	206	42	1080
24	107	418	444	e77	766	1090	234	388	631	571	38	561
25	95	356	384	e74	476	899	201	554	428	223	36	351
26	336	298	339	e71	e280	836	218	393	318	127	34	301
27	322	268	282	e91	e260	768	251	343	246	94	34	267
28	230	231	243	e85	246	610	200	298	196	104	33	482
29	191	208	228	e80	---	598	175	296	157	83	33	311
30	168	201	195	e64	---	690	158	242	142	66	40	233
31	154	---	298	e60	---	641	---	270	---	56	37	---
TOTAL	6765	10199	12190	10021	5340	26755	16255	8341	27261	3298	5155	8349
MEAN	218	340	393	323	191	863	542	269	909	106	166	278
MAX	1430	1650	2100	2120	1000	4970	1270	890	7800	571	728	1080
MIN	17	95	66	60	59	155	158	151	142	39	33	48
CFSM	1.02	1.58	1.83	1.50	0.89	4.01	2.52	1.25	4.23	0.49	0.77	1.29
IN.	1.17	1.76	2.11	1.73	0.92	4.63	2.81	1.44	4.72	0.57	0.89	1.44

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2003, BY WATER YEAR (WY)

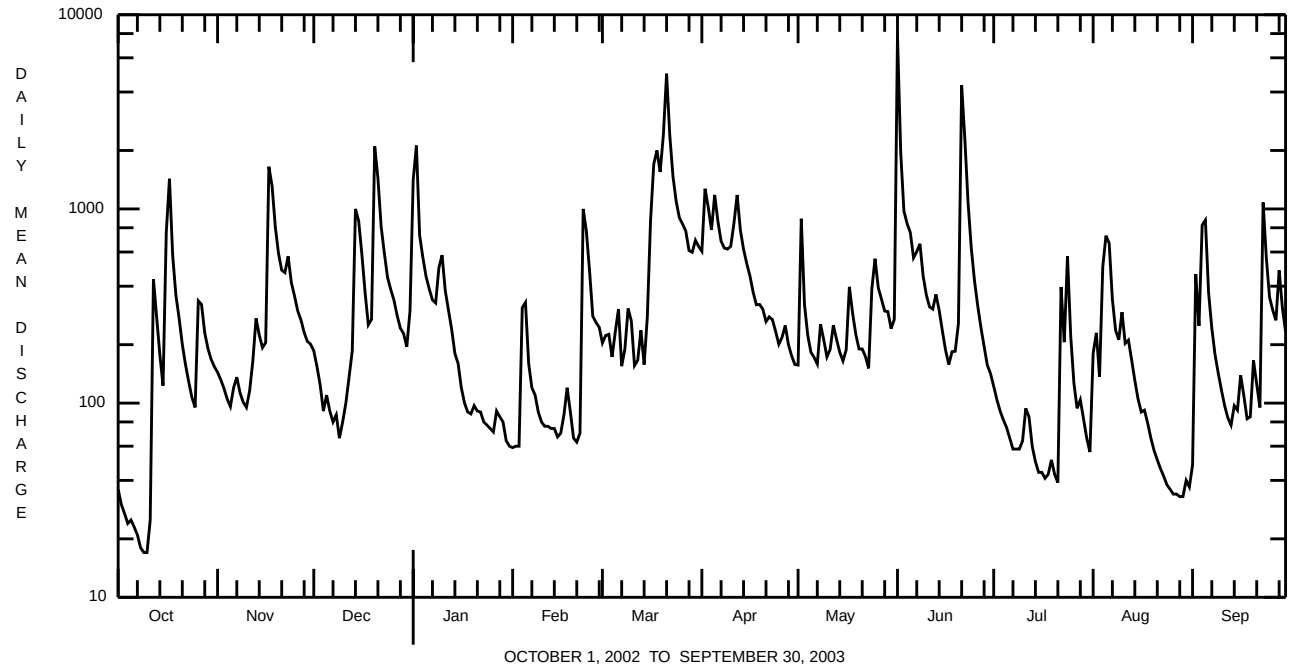
MEAN	148	273	311	287	344	656	622	368	193	93.9	80.9	87.3
MAX	1092	1326	1117	1542	1169	2287	1838	1262	1922	1376	986	950
(WY)	1991	1927	1997	1996	1984	1936	1993	1946	1972	1915	1915	1975
MIN	6.46	7.84	16.8	10.1	40.4	135	110	54.5	16.0	7.72	3.71	1.76
(WY)	1965	1931	1932	1931	1931	1965	1946	1926	1991	1955	1966	1964

e Estimated.

01532000 TOWANDA CREEK NEAR MONROETON, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1914 - 2003	
ANNUAL TOTAL	96135.5		139929			
ANNUAL MEAN	263		383		288	
HIGHEST ANNUAL MEAN					502	1978
LOWEST ANNUAL MEAN					111	1965
HIGHEST DAILY MEAN	4210	Mar 26	7800	Jun 1	28700	Jun 22 1972
LOWEST DAILY MEAN	**e**3.1	Sep 14	17	Oct 9,10	0.70	Sep 21 1932
ANNUAL SEVEN-DAY MINIMUM	**a**3.5	Sep 8	21	Oct 4	0.87	Sep 16 1932
MAXIMUM PEAK FLOW			18200	Jun 1	74000	Jun 22 1972
MAXIMUM PEAK STAGE			14.48	Jun 1	**b**20.86	Jan 19 1996
INSTANTANEOUS LOW FLOW					0.70	Sep 15 1932**c**
ANNUAL RUNOFF (CFSM)	1.23		1.78		1.34	
ANNUAL RUNOFF (INCHES)	16.63		24.21		18.19	
10 PERCENT EXCEEDS	579		838		655	
50 PERCENT EXCEEDS	165		204		116	
90 PERCENT EXCEEDS	7.6		59		14	

a Computed using estimated daily discharges.
b From floodmark.
c Also Sept. 17, 21, 22, 1932.
e Estimated.



TOWANDA CREEK BASIN

01532000 TOWANDA CREEK NEAR MONROETON, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002													
05...	1415	1028	9813	94	30	13.5	8.1	102	6.1	40	11.9	2.4	20
JAN 2003													
08...	1200	1028	9813	328	30	13.6	7.6	112	1.1	40	11.7	2.6	21
MAR													
05...	1030	1028	9813	169	30	14.2	7.2	120	.9	40	11.6	2.6	20
MAY													
07...	1215	1028	9813	153	30	11.9	7.6	96	13.9	42	11.9	2.9	30
JUL													
09...	1100	1028	9813	57	30	9.8	7.9	134	21.7	49	14.6	3.0	33
SEP													
09...	1200	1028	9813	142	30	10.3	7.9	111	17.1	43	13.1	2.4	31

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, unfltrd recoverable, µg/L (01042)	Iron, water, unfltrd recoverable, µg/L (01045)
NOV 2002													
05...	16.2	<2	<2	<.020	.25	<.040	<.01	<.010	.48	1.5	<200	<10	40
JAN 2003													
08...	15.2	100	<2	<.020	1.18	<.040	.01	.021	1.3	2.5	<200	<10	110
MAR													
05...	13.8	82	<2	<.020	.92	<.040	.02	.020	.98	2.3	<200	<10	140
MAY													
07...	13.7	108	2	<.020	.29	<.040	.02	.011	.46	2.3	<200	<10	170
JUL													
09...	15.3	122	<2	<.020	.40	<.040	.01	.025	.53	2.0	<200	<10	50
SEP													
09...	11.5	102	2	<.020	.34	<.040	.01	.026	.30	2.2	<200	<10	100

Date	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 2002				
05...	<1.0	20	<50	<10
JAN 2003				
08...	<1.0	60	<50	<10
MAR				
05...	<1.0	50	<50	10
MAY				
07...	<1.0	20	<50	40
JUL				
09...	<1.0	20	<50	<10
SEP				
09...	<1.0	20	<50	10

01532000 TOWANDA CREEK NEAR MONROETON, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/9/02
Benthic Macroinvertebrate	Count
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Baetis sp	5
Procloeon sp	1
Caenidae	
Caenis sp	5
Heptageniidae	
Leucrocuta sp	45
Stenacron sp	13
Stenonema sp	60
Isonychiidae	
Isonychia sp	11
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche sp	7
Hydropsyche sp	14
Hydroptilidae	
Leucotrichia sp	3
Philopotamidae	
Chimarra sp	2
Psychomyiidae	
Psychomyia sp	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Stenelmis sp	1
Psephenidae (WATER PENNIES)	
Psephenus sp	20
Diptera (TRUE FLIES)	
Athericidae	
Atherix sp	4
Chironomidae (MIDGES)	7
Total Organisms	199

SUSQUEHANNA RIVER BASIN

01533400 SUSQUEHANNA RIVER AT MESHOPPEN, PA

LOCATION.--Lat 4l°36'26", long 76°03'02", Wyoming County, Hydrologic Unit 02050106, on right bank 0.3 mi south of Meshoppen, 0.3 mi downstream from Meshoppen Creek, 2.3 mi upstream from bridge on State Highway 87, and 2.4 mi upstream from Mehoopany Creek.

DRAINAGE AREA.--8,720 mi^2.

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 599.76 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow slightly regulated by 7 flood-control reservoirs which have a combined capacity of 356,800 acre-ft. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1972 reached a stage of 43.51 ft, from floodmark information by local resident, discharge, about 331,000 ft^3/s, from rating curve extended above 220,000 ft^3/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 70,000 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 22	0600	*114,000	*26.84	Apr. 6	1430	70,500	22.01

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7650	8240	13400	16200	e5600	14000	45300	11600	35400	6390	6050	2600
2	5690	7270	12800	40200	e5800	13400	41700	17200	62800	5700	11200	8700
3	4500	6660	12000	40500	e6000	e13000	44200	17500	41800	5180	15100	31400
4	3550	6480	10800	29100	e6600	e11000	38600	17600	28900	4770	14800	32100
5	3020	6170	9630	23800	e9000	e11000	42400	15600	23800	4330	15900	32900
6	2890	6140	9220	20500	e13000	e10000	66300	13600	21000	3950	15200	22200
7	2890	6250	9240	18600	e14000	e10000	54100	12300	18800	3670	14300	16100
8	2810	7090	9280	17300	e12000	e11000	42300	11500	18800	3780	12300	11600
9	2660	8290	8570	17000	e10000	e11000	35500	10800	17200	3400	12600	9150
10	2450	7950	7740	18800	e9600	e12000	32200	10000	14600	3420	17900	7540
11	2480	7260	7030	18300	e9100	e11000	30700	9290	12700	5590	27200	6610
12	6670	6920	7210	16400	e8600	e10000	31800	9570	11700	5050	21100	5770
13	5100	7460	8690	14200	e7900	e11000	28400	10900	13100	5170	21100	5080
14	4170	8210	13500	12700	e7000	e11000	25300	14600	16200	4680	15600	4560
15	3890	8980	26100	11400	e6600	e11000	22600	15800	18100	4130	11800	4340
16	5860	9100	26300	10200	e6100	e15000	20400	13600	16100	3520	9630	4590
17	15000	12700	22400	e9200	e5500	34100	18600	12500	12800	3060	8210	5310
18	17200	26400	17200	e7800	e4400	67500	17200	12300	10600	3000	7280	7620
19	17900	26400	14500	e7300	e5200	80400	16000	11200	9710	3150	6560	6820
20	13900	21500	15800	e7800	e5600	77400	14600	9710	9930	3420	5890	5770
21	12400	18100	29900	e7200	e6200	100000	13600	8770	39800	3510	5350	5110
22	11200	17900	33800	e6700	7160	108000	13200	8320	65600	8290	4720	4670
23	9180	21500	27100	e6200	9450	98100	12900	7970	43800	35000	4200	8600
24	7270	25800	22000	e5600	e16000	91900	13300	7820	28500	35700	3680	14500
25	7000	25100	18900	e6000	e21000	80600	13700	10700	19800	33800	3280	17800
26	7450	21900	17200	e6200	20800	68400	12900	13800	14800	24500	2990	13500
27	9870	19700	15400	e6200	17900	63900	13300	13900	12000	15600	2790	10300
28	12400	17800	13300	e6000	15300	54800	14600	12800	10000	12100	2610	9620
29	12600	15800	13200	e5700	---	47300	14900	12800	8500	10700	2520	17700
30	10800	14500	13300	e5400	---	44900	13100	11300	7310	8760	2490	15400
31	9190	---	13000	e5700	---	46700	---	9940	---	7060	2460	---
TOTAL	239640	403570	478510	424200	271410	1249400	803700	375290	664150	280380	306810	347960
MEAN	7730	13450	15440	13680	9693	40300	26790	12110	22140	9045	9897	11600
MAX	17900	26400	33800	40500	21000	108000	66300	17600	65600	35700	27200	32900
MIN	2450	6140	7030	5400	4400	10000	12900	7820	7310	3000	2460	2600
CFSM	0.89	1.54	1.77	1.57	1.11	4.62	3.07	1.39	2.54	1.04	1.13	1.33
IN.	1.02	1.72	2.04	1.81	1.16	5.33	3.43	1.60	2.83	1.20	1.31	1.48

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 2003, BY WATER YEAR (WY)

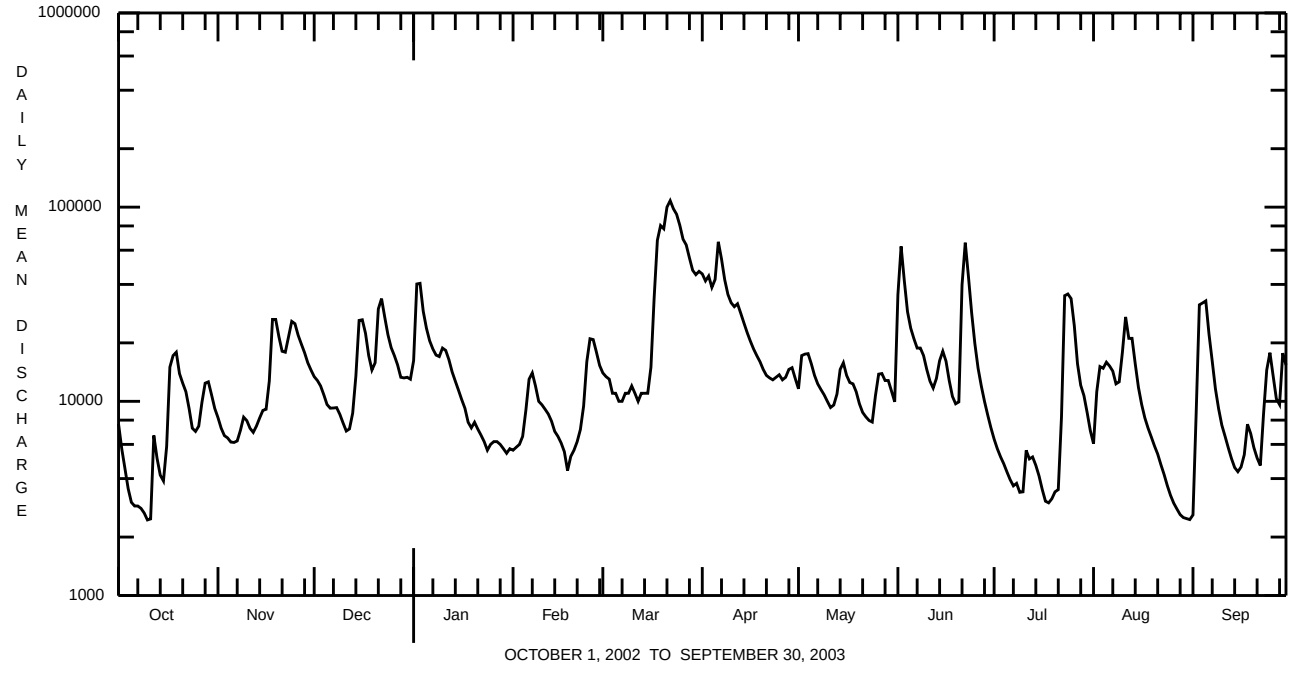
MEAN	7212	10720	13620	12590	14290	25070	28340	14390	8475	4196	3465	3825
MAX	35100	25890	38090	33960	36100	48830	86470	33200	22140	11530	17530	24900
(WY)	1978	1997	1997	1996	1981	1979	1993	1996	2003	1998	1994	1977
MIN	1045	1380	2382	2168	2702	9955	9638	4027	1610	1100	765	882
(WY)	1983	1999	1999	1981	1980	1981	1981	1985	1999	1991	1999	1995

e Estimated.

SUSQUEHANNA RIVER BASIN

01533400 SUSQUEHANNA RIVER AT MESHOPPEN, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1977 - 2003	
ANNUAL TOTAL	4437188		5845020			
ANNUAL MEAN	12160		16010		12160	
HIGHEST ANNUAL MEAN					18930	1978
LOWEST ANNUAL MEAN					7230	1985
HIGHEST DAILY MEAN	69600	Mar 28	108000	Mar 22	216000	Jan 20 1996
LOWEST DAILY MEAN	663	Sep 15	2450	Oct 10	557	Aug 31 1995
ANNUAL SEVEN-DAY MINIMUM	713	Sep 12	2640	Aug 26	593	Aug 29 1995
MAXIMUM PEAK FLOW			114000	Mar 22	226000	Jan 20 1996
MAXIMUM PEAK STAGE			26.84	Mar 22	36.34	Jan 20 1996
ANNUAL RUNOFF (CFSM)	1.39		1.84		1.39	
ANNUAL RUNOFF (INCHES)	18.93		24.94		18.94	
10 PERCENT EXCEEDS	25900		33300		28800	
50 PERCENT EXCEEDS	9930		11600		6480	
90 PERCENT EXCEEDS	1140		4540		1440	



TUNKHANNOCK CREEK BASIN

01534000 TUNKHANNOCK CREEK NEAR TUNKHANNOCK, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 41°33'30", long 75°53'42", Wyoming County, Hydrologic Unit 02050106, on left bank 300 ft upstream from bridge on U.S. Highway 6 at Dixon, 3.0 mi northeast of Tunkhannock, and 4.0 mi upstream from mouth.

DRAINAGE AREA.--383 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1914 to current year. Prior to October 1965, published as "*at Dixon*".

REVISED RECORDS.--WSP 756: Drainage area. WSP 1051: 1921(M), 1932, 1934-35(M), 1936, 1938(M), 1939-40, 1942-44, l945(M). WSP 1302: 1922, 1923(M), 1924-25, 1927-28. WSP 1432: 1919(M), 1920, 1933, 1934(P). WDR PA-85-2: 1954(P), 1955(M), 1956(P), 1957(M), 1958-64(P), 1967-71(P), 1977(M), 1978(P), 1981(M), 1982-84(P). WDR PA-96-2: 1947(M), 1986(M).

GAGE.--Water-stage recorder. Datum of gage is 610.10 ft above National Geodetic Vertical Datum of 1929 (Pennsylvania Department of Transportation bench mark). Prior to Aug. 10, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 5,700 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
Oct. 12	0715	5,800	7.37
Oct. 16	2330	6,900	8.06
Mar. 21	0445	10,500	9.91
June 1	1545	*10,900	*10.08
June 21	0630	6,360	7.68
Sept. 2	1400	6,390	7.70
Sept. 4	0745	8,140	8.74
Sept. 23	1430	7,430	8.34

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	203	382	599	1630	234	573	1280	486	6970	313	157	209
2	167	379	516	4160	233	546	1400	1130	3760	277	683	3620
3	141	353	453	2300	233	588	1460	1090	1980	245	345	2180
4	126	330	e360	1750	343	517	1180	738	1590	219	2090	5140
5	117	309	428	1380	689	494	1950	602	1240	203	1500	3520
6	105	403	439	1180	e500	541	1760	560	948	193	1660	1730
7	94	455	e380	1030	e400	e480	1330	502	1050	171	981	1130
8	80	376	396	957	e370	e480	1240	598	1250	202	655	798
9	72	341	340	945	e330	453	1200	532	866	178	723	604
10	71	331	e290	948	e300	402	1150	440	692	188	986	478
11	637	329	361	803	e280	e330	1190	424	603	1310	1190	399
12	4180	394	e800	705	e290	359	1410	851	661	754	2000	340
13	1820	1130	e1000	580	e270	384	1060	686	698	396	986	296
14	1020	804	1920	533	e260	354	869	596	776	284	676	287
15	690	665	2230	494	e260	402	764	503	611	224	507	310
16	2060	614	1550	e420	e250	1190	682	432	447	219	433	1420
17	3940	1580	1100	e380	e260	2950	597	381	362	223	471	690
18	1780	1870	801	e330	334	4140	524	342	402	190	350	451
19	1190	1460	743	e330	304	3900	502	301	399	219	296	384
20	897	1210	e2000	e360	262	3690	455	270	606	177	255	427
21	697	1150	e2600	e320	e240	7640	416	258	5210	147	220	364
22	560	1380	e1800	e270	278	4620	527	254	3970	436	196	302
23	475	1900	e1400	e260	e1600	3190	557	230	2460	705	187	3770
24	405	1300	908	e250	e1400	2230	469	256	1540	507	166	2400
25	369	1080	808	e280	e1200	1760	417	309	1080	371	139	1370
26	792	924	e800	e280	e1000	1540	564	323	812	277	125	1030
27	763	840	835	e240	e900	1430	1070	352	645	234	120	788
28	574	736	706	e230	732	1120	735	276	518	267	108	1050
29	495	653	643	e280	---	1100	609	341	422	215	96	927
30	443	616	581	e260	---	1710	532	289	365	173	160	703
31	412	---	801	e240	---	1480	---	271	---	144	166	---
TOTAL	25375	24294	28588	24125	13752	50593	27899	14623	42933	9661	18627	37117
MEAN	819	810	922	778	491	1632	930	472	1431	312	601	1237
MAX	4180	1900	2600	4160	1600	7640	1950	1130	6970	1310	2090	5140
MIN	71	309	290	230	233	330	416	230	362	144	96	209
CFSM	2.14	2.11	2.41	2.03	1.28	4.26	2.43	1.23	3.74	0.81	1.57	3.23
IN.	2.46	2.36	2.78	2.34	1.34	4.91	2.71	1.42	4.17	0.94	1.81	3.61

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2003, BY WATER YEAR (WY)

MEAN	317	531	616	559	657	1167	1109	639	358	211	172	206
MAX	1772	1934	1919	1978	1682	2910	3202	1806	1939	1007	841	1237
(WY)	1956	1973	1997	1979	1925	1936	1993	1989	1972	1947	1994	2003
MIN	21.4	25.9	51.6	59.0	76.3	288	235	122	48.4	23.9	19.0	12.4
(WY)	1965	1965	1923	1981	1980	1915	1946	1941	1962	1962	1930	1964

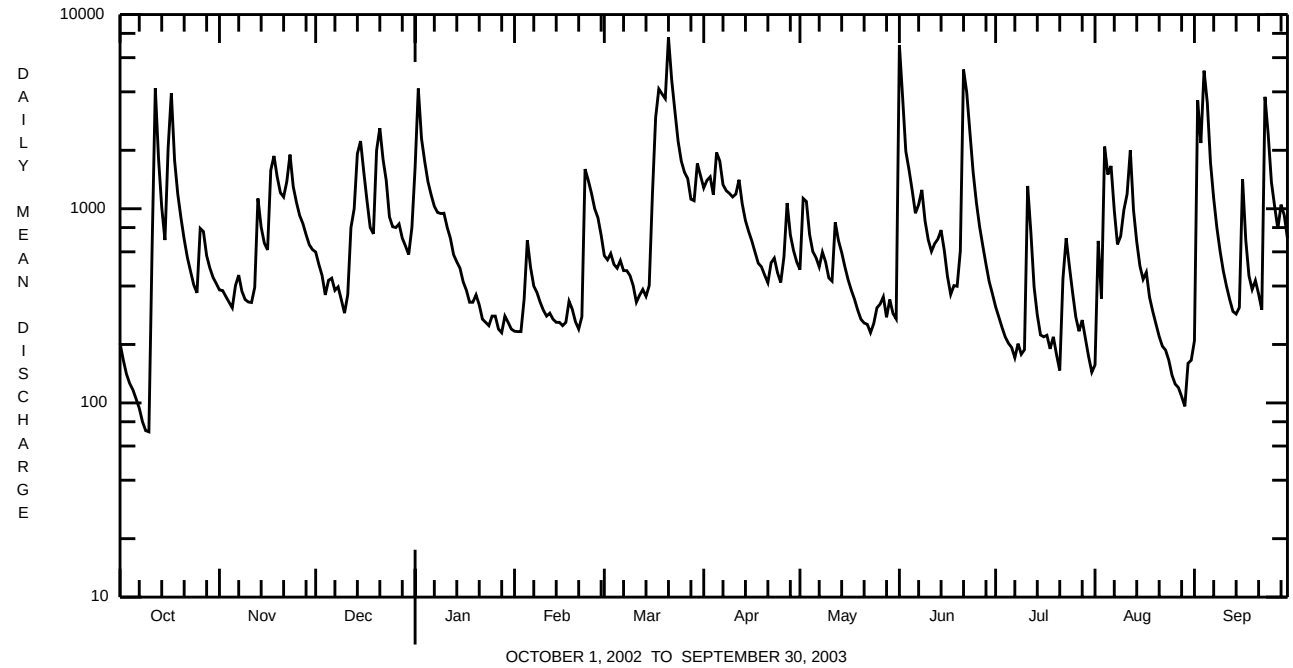
e Estimated.

TUNKHANNOCK CREEK BASIN

01534000 TUNKHANNOCK CREEK NEAR TUNKHANNOCK, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1914 - 2003	
ANNUAL TOTAL	221533		317587			
ANNUAL MEAN	607		870		543	
HIGHEST ANNUAL MEAN					897	1928
LOWEST ANNUAL MEAN					220	1965
HIGHEST DAILY MEAN	6660	May 14	7640	Mar 21	22700	Apr 16 1983
LOWEST DAILY MEAN	15	Aug 21,22	71	Oct 10	6.9	Sep 24 1964
ANNUAL SEVEN-DAY MINIMUM	17	Aug 16	95	Oct 4	7.9	Sep 18 1964
MAXIMUM PEAK FLOW			10900	Jun 1	**a**30300	Jan 19 1996
MAXIMUM PEAK STAGE			10.08	Jun 1	**b**19.97	Jan 19 1996
INSTANTANEOUS LOW FLOW					6.2	Sep 24 1964
ANNUAL RUNOFF (CFSM)	1.58		2.27		1.42	
ANNUAL RUNOFF (INCHES)	21.52		30.85		19.27	
10 PERCENT EXCEEDS	1460		1790		1240	
50 PERCENT EXCEEDS	397		532		260	
90 PERCENT EXCEEDS	40		219		50	

a From computation of slope-area measurement of peak flow. Rating extended above 14,000 ft^3/s based on slope-area measurement at gage height 15.77 ft.
b Gage height affected by backwater.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

TUNKHANNOCK CREEK BASIN

01534000 TUNKHANNOCK CREEK NEAR TUNKHANNOCK, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002													
19...	1000	1028	9813	1480	40	12.3	7.0	124	4.6	38	12.5	1.6	24
JAN 2003													
22...	0930	1028	9813	E270	30	15.1	6.4	164	.0	48	15.6	2.1	28
MAR													
18...	1440	1028	9813	3170	30	12.2	7.5	137	2.7	36	11.9	1.6	18
MAY													
27...	1500	1028	9813	335	30	11.8	8.7	157	15.7	47	15.8	1.9	34
JUL													
28...	1220	1028	9813	272	30	11.0	7.6	163	21.1	53	17.8	2.2	42
SEP													
17...	1230	1028	9813	657	30	10.9	7.8	113	17.3	40	13.3	1.7	31

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, unfltrd recoverable, µg/L (01042)	Iron, water, unfltrd recoverable, µg/L (01045)
NOV 2002													
19...	11.6	68	26	<.020	.39	<.040	<.01	.018	1.1	3.6	<200	<10	150
JAN 2003													
22...	12.7	6	16	.050	.86	<.040	<.01	.017	1.4	1.9	<200	<10	80
MAR													
18...	9.0	76	30	.030	.78	<.040	.03	.046	1.2	3.2	900	<10	1100
MAY													
27...	9.7	110	<2	<.020	.22	<.040	.01	.024	.41	3.1	<200	<10	130
JUL													
28...	8.9	104	6	<.020	.37	<.040	.02	.031	.47	3.2	<200	<10	120
SEP													
17...	7.8	92	4	<.020	.22	<.040	.02	.033	.56	4.2	<200	<10	240

Date	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 2002				
19...	<1.0	20	<50	<10
JAN 2003				
22...	<1.0	20	<50	<10
MAR				
18...	<1.0	160	<50	<10
MAY				
27...	1.3	30	<50	<10
JUL				
28...	<1.0	20	<50	<10
SEP				
17...	<1.0	20	<50	60

01534000 TUNKHANNOCK CREEK NEAR TUNKHANNOCK, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/22/02
Benthic Macroinvertebrate	Count
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	3
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Acentrella sp	6
Caenidae	
Caenis sp	1
Ephemerellidae	
Serratella sp	9
Heptageniidae	25
Stenonema sp	11
Isonychiidae	
Isonychia sp	11
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
Corydalus sp	9
Trichoptera (CADDISFLIES)	
Apataniidae	
Apatania sp	1
Hydropsychidae	
Cheumatopsyche sp	9
Hydropsyche sp	10
Hydroptilidae	
Hydroptila sp	4
Philopotamidae	
Chimarra sp	20
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus sp	13
Stenelmis sp	7
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	31
Total Organisms	170

LACKAWANNA RIVER BASIN

01534180 STILLWATER LAKE NEAR FOREST CITY, PA

LOCATION.--Lat 41°41'46", long 75°29'10", Susquehanna County, Hydrologic Unit 02050107, at Stillwater Dam on Lackawanna River, 0.3 mi downstream from confluence of East and West Branches, 1.4 mi south of Union Dale, and 3.5 mi north of Forest City.

DRAINAGE AREA.--37.1 mi^2.

PERIOD OF RECORD.--December 1959 to current year.

GAGE.--Water-stage recorder (U.S. Army Corps of Engineers datum).

REMARKS.--Reservoir formed by an earthfill dam, rock faced, with ungated concrete spillway at elevation 1,621.00 ft (capacity, 12,000 acre-ft). Storage began December 1959. Reservoir is used for flood control and municipal water supply. Figures given herein represent total contents. Flood storage is regulated by power-operated slide gate; water supply storage is regulated by a weir formed by stop-logs. Satellite and landline telemetry at station.

COOPERATION.--Records provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 10,700 acre-ft, Apr. 2, 1993, elevation, 1,617.84 ft; minimum, 173 acre-ft, June 21, 1993, elevation, 1,569.69 ft; minimum elevation, 1,568.85 ft, Sept.10, 1960.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 5,620 acre-ft, Mar. 23, elevation, 1,602.58 ft; minimum, 403 acre-ft, Oct. 10, 11, elevation, 1,572.67 ft.

MONTHEND ELEVATION, IN FEET ABOVE SEA LEVEL, AND CONTENTS AT 2400 HRS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)
Sept. 30	1,573.23.	460	---
Oct. 31	1,573.52	480	+0.3
Nov. 30	1,573.89	520	+0.7
Dec. 31	1,573.99	530	+0.2
CAL YR 2002	--	--	+0.1
Jan. 31	1,573.17	450	-1.3
Feb. 28	1,573.75	510	+1.1
Mar. 31	1,576.94	850	+5.5
Apr. 30	1,573.99	530	-5.4
May 31	1,574.21	550	+0.3
June 30	1,573.73	500	-0.8
July 31	1,573.68	500	0
Aug. 31	1,572.94	430	-1.1
Sept. 30	1,575.45	680	+4.2
WTR YR 2003	--	--	+0.3

LACKAWANNA RIVER BASIN

01534300 LACKAWANNA RIVER NEAR FOREST CITY, PA

LOCATION.--Lat 41°40'47", long 75°28'20", Susquehanna County, Hydrologic Unit 02050107, on left bank 1,600 ft upstream from bridge on State Highway 171, 1.3 mi downstream from Stillwater Dam, 1.6 mi downstream from confluence of East and West Branches, and 2.2 mi north of Forest City.

DRAINAGE AREA.--38.8 mi^2.

PERIOD OF RECORD.--October 1958 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,551.28 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 11, 1958, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated since December 1959 by Stillwater Dam (station 01534180). Several measurements of water temperature were made during the year. Satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	48	71	98	35	65	260	79	122	43	16	18
2	21	45	63	216	35	63	200	101	483	37	17	78
3	17	43	56	266	35	e59	203	132	516	32	22	287
4	13	41	48	196	41	56	181	117	339	29	27	183
5	12	39	48	159	54	58	171	85	228	26	42	371
6	11	51	49	132	54	59	176	58	149	23	54	362
7	11	68	47	112	54	e53	168	45	116	21	42	192
8	10	64	46	101	50	57	149	48	120	20	32	108
9	9.2	56	42	95	47	56	130	66	114	21	30	76
10	8.4	50	39	89	46	50	121	137	100	22	32	59
11	16	49	42	80	43	49	135	107	92	54	34	48
12	103	55	49	71	41	50	147	145	95	93	39	40
13	242	94	54	63	39	50	136	191	89	66	36	34
14	203	114	68	59	37	48	114	168	146	44	30	33
15	125	109	95	57	36	50	98	133	182	33	25	44
16	87	83	100	56	34	63	88	102	138	31	22	101
17	261	102	89	e52	39	110	77	83	97	39	21	108
18	456	186	66	e52	36	139	69	71	82	35	21	94
19	287	189	62	e52	38	344	66	61	79	31	20	69
20	167	138	83	e50	37	486	62	54	75	28	19	65
21	108	125	160	e48	36	56	59	50	219	25	17	61
22	80	139	193	48	40	49	66	49	287	32	16	51
23	65	170	144	48	70	420	73	46	336	56	18	118
24	54	164	104	48	94	871	72	49	291	59	17	372
25	49	140	88	45	96	938	72	54	175	47	16	278
26	66	117	72	40	87	870	82	62	115	38	15	165
27	90	105	81	39	79	788	112	76	88	32	14	108
28	83	94	81	39	71	646	140	73	71	30	12	104
29	67	82	77	37	---	518	136	68	60	27	11	114
30	57	75	69	36	---	422	100	60	51	21	12	113
31	52	---	73	35	---	348	---	59	---	19	14	---
TOTAL	2859.6	2835	2359	2519	1404	7891	3663	2629	5055	1114	743	3854
MEAN	92.2	94.5	76.1	81.3	50.1	255	122	84.8	168	35.9	24.0	128
MAX	456	189	193	266	96	938	260	191	516	93	54	372
MIN	8.4	39	39	35	34	48	59	45	51	19	11	18

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2003, BY WATER YEAR (WY)

MEAN	47.2	72.5	83.7	71.6	77.6	135	168	86.8	57.0	26.8	18.9	29.6
MAX	239	264	234	209	245	261	517	232	205	123	122	221
(WY)	1978	1973	1974	1996	1981	1979	1993	1989	1989	1973	1994	1977
MIN	2.45	2.48	14.7	9.64	13.2	40.5	58.8	21.5	11.1	4.67	2.80	1.17
(WY)	1965	1965	1999	1981	1980	1993	1968	2001	1980	1991	1999	1980

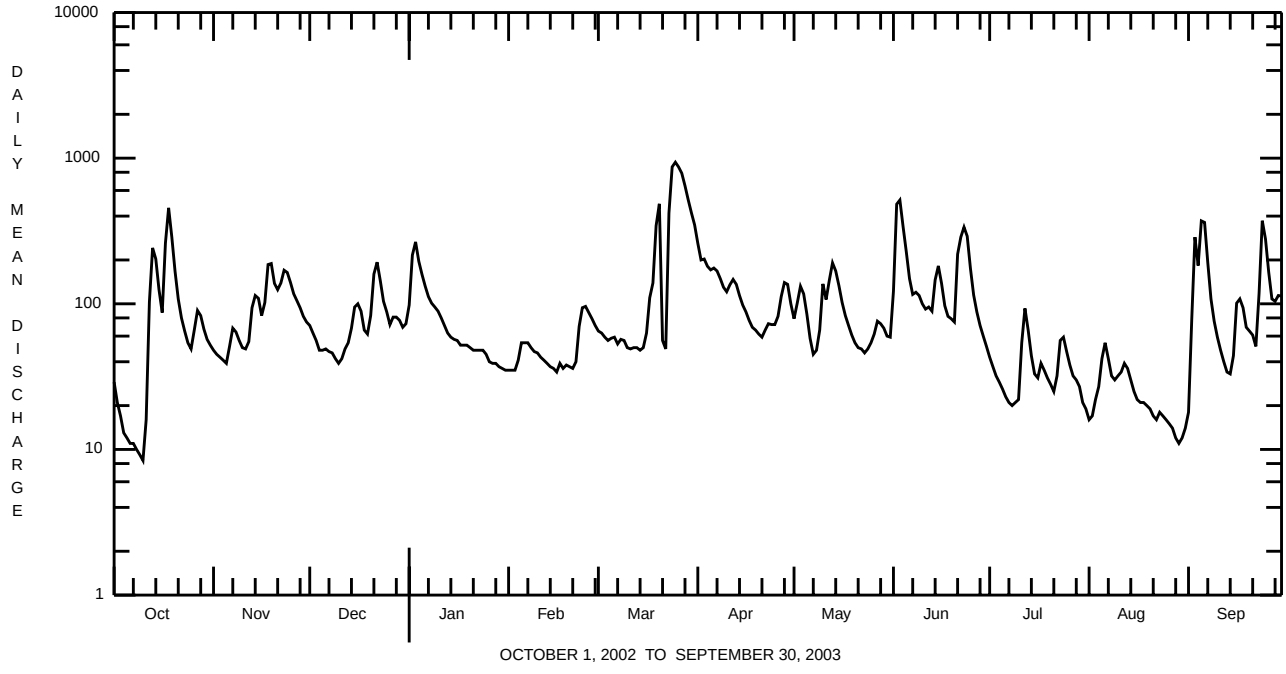
e Estimated.

LACKAWANNA RIVER BASIN

01534300 LACKAWANNA RIVER NEAR FOREST CITY, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1959 - 2003	
ANNUAL TOTAL	27235.3		36925.6			
ANNUAL MEAN	74.6		101		72.7	
HIGHEST ANNUAL MEAN					112	1973
LOWEST ANNUAL MEAN					36.3	1965
HIGHEST DAILY MEAN	635	May 15	938	Mar 25	1160	Apr 4 1993
LOWEST DAILY MEAN	3.2	Sep 15	8.4	Oct 10	**a**0.00	Jul 21 1978
ANNUAL SEVEN-DAY MINIMUM	4.1	Aug 18	11	Oct 4	0.43	Sep 11 1980
MAXIMUM PEAK FLOW			972	Mar 24	**bc**1390	Jan 22 1959
MAXIMUM PEAK STAGE			5.03	Mar 24	6.41	Jan 22 1959
INSTANTANEOUS LOW FLOW					**a**0.00	Jul 21 1978
10 PERCENT EXCEEDS	170		192		171	
50 PERCENT EXCEEDS	55		64		40	
90 PERCENT EXCEEDS	7.3		23		7.0	

a Result of shutoff at Stillwater Dam.
b From rating curve extended above 930 ft^3/s.
c Instantaneous peak since regulation, 1,020 ft^3/s, Feb. 26, 1975, gage height, 4.85 ft.



LACKAWANNA RIVER BASIN

01534500 LACKAWANNA RIVER AT ARCHBALD, PA

LOCATION.--Lat 4l°30'16", long 75°32'33", Lackawanna County, Hydrologic Unit 02050107, on right bank along SR 1012 in Archbald, and 0.5 mi upstream from White Oak Run and Gilmartin Street bridge.

DRAINAGE AREA.--108 mi^2.

PERIOD OF RECORD.--October 1939 to current year. Prior to February 1940 monthly discharge only, published in WSP 1302.

GAGE.--Water-stage recorder. Datum of gage is 889.33 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Regulation at low flow by mine pumps upstream from station. Flow regulated since December 1959 by Stillwater Dam (station 01534180) about 17 mi upstream. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	142	186	396	88	166	557	249	1700	149	92	135
2	71	134	166	772	86	174	523	268	1150	134	95	1330
3	61	125	148	650	85	171	523	306	931	122	85	994
4	54	119	129	529	114	156	469	269	697	113	92	3240
5	52	114	131	435	127	157	510	229	550	105	119	1440
6	47	153	131	378	117	163	508	189	420	97	163	992
7	45	163	122	330	121	148	449	163	441	92	127	662
8	43	150	116	301	109	151	411	192	439	88	131	461
9	41	136	104	281	108	152	369	178	381	86	165	375
10	40	127	96	263	106	138	358	251	331	84	145	315
11	306	129	108	233	101	134	388	263	317	124	334	269
12	1240	175	184	212	96	137	447	354	320	155	425	234
13	733	318	171	192	91	138	389	383	314	130	292	212
14	527	280	350	175	88	132	340	354	317	101	225	203
15	367	262	389	168	88	140	299	302	355	85	174	389
16	1030	222	329	162	79	232	268	251	293	79	148	586
17	1110	420	274	157	74	541	236	217	230	81	136	433
18	903	505	219	136	89	969	213	193	209	89	121	360
19	622	454	201	130	95	1080	200	172	197	81	110	332
20	445	386	482	136	92	1240	184	156	248	71	100	292
21	328	372	554	120	87	1390	174	150	832	76	91	248
22	254	412	510	112	111	1270	194	142	960	271	85	213
23	212	450	416	105	274	1170	205	137	781	339	82	1170
24	181	403	327	104	283	1450	190	154	626	273	76	920
25	164	355	287	105	246	1460	179	158	453	195	73	679
26	246	312	260	104	215	1360	376	205	337	150	70	509
27	240	275	240	97	197	1200	461	210	266	134	68	393
28	212	240	225	94	181	975	394	199	220	149	62	483
29	186	214	210	98	---	853	364	210	190	116	63	410
30	165	197	193	92	---	780	308	183	168	100	109	368
31	150	---	231	88	---	656	---	224	---	86	70	---
TOTAL	10159	7744	7489	7155	3548	18883	10486	6911	14673	3955	4128	18647
MEAN	328	258	242	231	127	609	350	223	489	128	133	622
MAX	1240	505	554	772	283	1460	557	383	1700	339	425	3240
MIN	40	114	96	88	74	132	174	137	168	71	62	135

01534500 LACKAWANNA RIVER AT ARCHBALD, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	126	190	222	191	216	367	423	264	175	90.2	68.3	92.4
MAX	578	661	581	541	598	741	1111	610	605	278	234	622
(WY)	1978	1973	1974	1996	1981	1977	1993	1989	1972	1984	1994	2003
MIN	15.8	17.4	42.6	38.2	40.4	143	174	99.1	47.9	25.6	25.0	18.4
(WY)	1965	1965	1999	1981	1980	1981	1988	2001	1962	1965	1966	1964

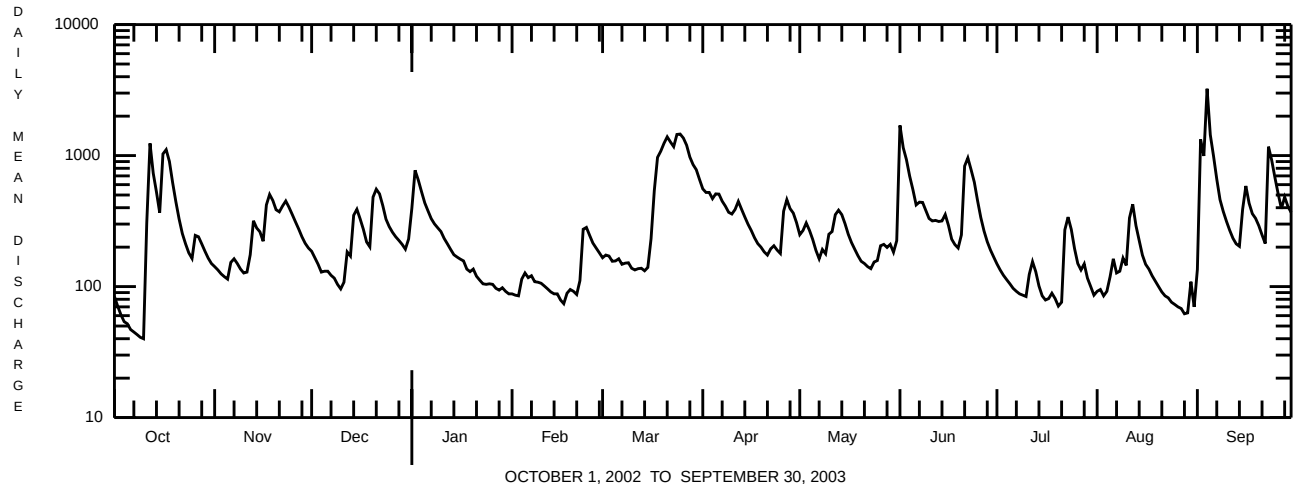
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1960 - 2003	
ANNUAL TOTAL	78290		113778			
ANNUAL MEAN	214		312		202	
HIGHEST ANNUAL MEAN					313	1973
LOWEST ANNUAL MEAN					101	1965
HIGHEST DAILY MEAN	1250	May 14,15	3240	Sep 4	3250	Mar 15 1986
LOWEST DAILY MEAN	27	Sep 14	40	Oct 10	13	Nov 1 1964
ANNUAL SEVEN-DAY MINIMUM	30	Sep 9	46	Oct 4	14	Oct 26 1964
MAXIMUM PEAK FLOW			**a**8800	Sep 4	**a**8800	Sep 4 2003
MAXIMUM PEAK STAGE			10.21	Sep 4	10.21	Sep 4 2003
10 PERCENT EXCEEDS	479		652		459	
50 PERCENT EXCEEDS	155		205		121	
90 PERCENT EXCEEDS	38		88		35	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1959, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	113	209	222	203	181	377	455	279	145	112	92.3	78.9
MAX	657	430	420	380	371	691	1113	553	284	373	443	187
(WY)	1956	1946	1951	1949	1951	1945	1940	1947	1946	1947	1955	1945
MIN	27.2	50.1	53.3	56.8	65.2	188	121	85.6	63.4	38.4	31.8	28.8
(WY)	1942	1942	1947	1948	1940	1941	1946	1941	1955	1955	1953	1953

SUMMARY STATISTICS	WATER YEARS 1940 - 1959	
ANNUAL MEAN	203	
HIGHEST ANNUAL MEAN	266	1956
LOWEST ANNUAL MEAN	153	1957
HIGHEST DAILY MEAN	4840	May 23 1942
LOWEST DAILY MEAN	17	Oct 12 1941
ANNUAL SEVEN-DAY MINIMUM	20	Oct 18 1953
MAXIMUM PEAK FLOW	**a**9510	May 22 1942
MAXIMUM PEAK STAGE	10.58	May 22 1942
INSTANTANEOUS LOW FLOW	3.0	Oct 9,11 1943
ANNUAL RUNOFF (CFSM)	1.88	
ANNUAL RUNOFF (INCHES)	25.54	
10 PERCENT EXCEEDS	439	
50 PERCENT EXCEEDS	123	
90 PERCENT EXCEEDS	42	

a From rating curve extended above 1,900 ft^3/s on basis of slope-area measurement of peak flow.



LACKAWANNA RIVER BASIN

01536000 LACKAWANNA RIVER AT OLD FORGE, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 4l°2l'33", long 75°44'41", Lackawanna County, Hydrologic Unit 02050107, on right bank 100 ft downstream from bridge on SR 3017, 150 ft upstream from Delaware, Lackawanna, and Western Railroad bridge in Old Forge, and 0.5 mi upstream from St. Johns Creek.

DRAINAGE AREA.--332 mi^2.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1432: 1939(M), 1940, 1945. WDR PA-90-2: 1985(M).

GAGE.--Water-stage recorder. Datum of gage is 595.26 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1974, water-stage recorder at same site and datum. Oct. 1, 1974, to Aug. 17, 1975, nonrecording gage at site 150 ft upstream at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated since December 1959 by Stillwater Dam (station 01534180) about 33 mi upstream. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	146	324	461	1080	190	441	e1200	513	5750	393	181	357
2	122	301	405	2130	190	499	e1300	493	3140	337	199	2930
3	105	278	365	1460	188	518	1260	534	1780	289	159	1950
4	96	257	289	1250	429	435	1150	477	1390	338	280	4150
5	100	239	302	1070	482	455	1160	428	1180	271	384	2060
6	83	331	305	959	349	517	1100	380	972	228	426	1410
7	80	339	269	841	349	448	998	337	1140	200	313	1110
8	74	298	263	765	286	453	916	413	1260	223	240	837
9	70	269	232	744	280	457	827	396	1070	218	410	666
10	71	253	208	724	273	416	788	418	932	195	320	549
11	1130	250	336	627	247	365	866	438	793	339	2120	476
12	2170	371	1090	555	234	379	996	520	814	263	2040	419
13	1230	715	849	494	e200	385	875	546	751	230	1060	385
14	910	583	1280	444	e190	378	757	527	733	180	752	385
15	627	537	1380	420	213	387	678	471	954	149	549	945
16	1850	493	1150	364	167	655	624	422	715	137	505	1610
17	2280	1030	934	385	e150	1510	554	360	566	126	460	1040
18	1370	1180	735	e290	255	2520	509	315	563	133	411	791
19	1120	1040	655	319	249	2610	484	284	515	144	332	776
20	904	896	1490	346	235	2500	447	252	840	116	271	743
21	689	875	1670	287	206	3690	423	263	4260	208	232	593
22	542	942	1290	262	422	3200	474	234	5730	1040	249	500
23	457	1020	1120	257	1020	2340	459	225	2950	858	223	3410
24	394	897	934	271	919	2120	421	277	1620	548	174	2260
25	360	808	865	288	725	1870	394	288	1220	383	154	1420
26	678	711	805	289	592	1700	734	448	970	273	144	1170
27	581	669	688	e250	540	e1600	937	458	755	258	139	969
28	482	580	619	263	486	e1400	733	394	610	466	128	1320
29	418	525	573	310	---	e1300	676	381	510	267	118	1160
30	384	482	524	256	---	e1400	595	332	447	204	207	977
31	350	---	590	199	---	e1300	---	481	---	164	141	---
TOTAL	19873	17493	22676	18199	10066	38248	23335	12305	44930	9178	13321	37368
MEAN	641	583	731	587	360	1234	778	397	1498	296	430	1246
MAX	2280	1180	1670	2130	1020	3690	1300	546	5750	1040	2120	4150
MIN	70	239	208	199	150	365	394	225	447	116	118	357

e Estimated.

01536000 LACKAWANNA RIVER AT OLD FORGE, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	263	397	483	433	501	821	929	604	391	189	146	200
MAX	1276	1223	1414	1521	1198	1767	2712	1658	1498	566	432	1246
(WY)	1978	1973	1997	1996	1981	1977	1993	1989	2003	1984	1994	2003
MIN	37.3	45.2	76.2	61.4	88.7	291	353	192	69.8	46.4	45.4	37.8
(WY)	1965	1965	1999	1981	1980	1981	1985	2001	1962	1965	1999	1964

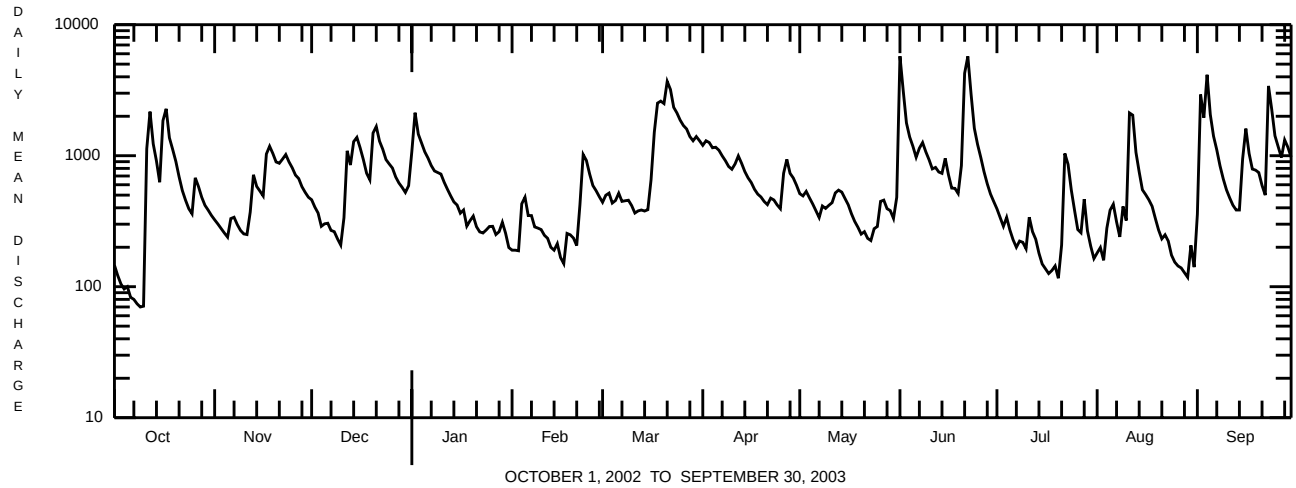
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1960 - 2003	
ANNUAL TOTAL	170928		266992			
ANNUAL MEAN	468		731		446	
HIGHEST ANNUAL MEAN					731	2003
LOWEST ANNUAL MEAN					194	1965
HIGHEST DAILY MEAN	2890	May 14	5750	Jun 1	10700	Jan 19 1996
LOWEST DAILY MEAN	34	Sep 14	70	Oct 9	23	Sep 5 1999
ANNUAL SEVEN-DAY MINIMUM	41	Sep 8	82	Oct 4	27	Aug 30 1999
MAXIMUM PEAK FLOW			8680	Jun 1	**a**24000	Sep 27 1985
MAXIMUM PEAK STAGE			9.04	Jun 1	**b**16.49	Sep 27 1985
10 PERCENT EXCEEDS	1110		1400		1060	
50 PERCENT EXCEEDS	336		482		246	
90 PERCENT EXCEEDS	69		200		64	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1959, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	305	503	600	512	531	986	1195	814	454	360	303	229
MAX	1618	1199	1260	1047	1263	1652	2614	1750	866	1375	1448	778
(WY)	1956	1956	1939	1949	1939	1945	1958	1947	1946	1947	1955	1945
MIN	106	122	169	166	160	526	368	262	188	125	130	116
(WY)	1942	1942	1942	1944	1940	1941	1946	1941	1955	1955	1954	1943

SUMMARY STATISTICS	WATER YEARS 1939 - 1959	
ANNUAL MEAN	566	
HIGHEST ANNUAL MEAN	781	1956
LOWEST ANNUAL MEAN	401	1944
HIGHEST DAILY MEAN	14000	Aug 19 1955
LOWEST DAILY MEAN	73	Sep 26 1943
ANNUAL SEVEN-DAY MINIMUM	87	Oct 8 1943
MAXIMUM PEAK FLOW	**a**31000	Aug 19 1955
MAXIMUM PEAK STAGE	**b**20.05	Aug 19 1955
INSTANTANEOUS LOW FLOW	54	Sep 1,2 1957
ANNUAL RUNOFF (CFSM)	1.70	
ANNUAL RUNOFF (INCHES)	23.16	
10 PERCENT EXCEEDS	1200	
50 PERCENT EXCEEDS	340	
90 PERCENT EXCEEDS	138	

a From rating curve extended above 3,800 ft^3/s on basis of slope-area measurements at gage heights 15.30 ft, 16.49 ft, and at peak flow.
b From floodmark.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

LACKAWANNA RIVER BASIN

01536000 LACKAWANNA RIVER AT OLD FORGE, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002													
19...	1500	1028	9813	1010	40	11.9	7.2	164	5.7	38	9.6	3.5	15
JAN 2003													
21...	1700	1028	9813	279	40	14.9	7.1	296	.0	74	16.3	8.0	27
MAR													
19...	1000	1028	9813	2480	40	12.6	7.0	166	3.1	32	8.1	2.8	16
MAY													
27...	1810	1028	9813	433	40	10.2	7.4	221	15.3	54	12.6	5.5	22
JUL													
28...	1440	1028	9813	409	40	9.3	8.6	242	20.1	63	13.8	6.9	26
SEP													
17...	1430	1028	9813	1010	40	11.5	7.5	160	17.3	54	11.8	6.0	21

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, unfltrd recoverable, µg/L (01042)	Iron, water, unfltrd recoverable, µg/L (01045)
NOV 2002													
19...	21.7	92	24	.030	.49	<.040	.04	.072	1.0	3.0	<200	<10	250
JAN 2003													
21...	45.8	194	4	.820	.69	.180	.16	.212	1.9	2.2	<200	<10	190
MAR													
19...	16.2	124	28	.100	.37	<.040	.03	.059	.71	2.3	600	<10	880
MAY													
27...	29.2	144	10	.150	.45	.140	.11	.160	.95	2.9	<200	<10	270
JUL													
28...	36.0	166	22	.050	1.15	<.040	.20	.242	1.5	3.3	800	<10	1120
SEP													
17...	32.3	146	<2	.050	.51	<.040	.05	.079	.90	3.5	<200	<10	420

Date	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 2002				
19...	1.1	80	<50	<10
JAN 2003				
21...	<1.0	140	<50	30
MAR				
19...	3.1	200	<50	30
MAY				
27...	1.1	90	<50	20
JUL				
28...	4.0	100	<50	20
SEP				
17...	2.1	90	<50	60

01536000 LACKAWANNA RIVER AT OLD FORGE, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/21/02
Benthic Macroinvertebrate	Count
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia sp	1
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	2
Tubificida	
Naididae	2
Arthropoda	
Crustacea	
Isopoda (AQUATIC SOWBUGS)	
Asellidae	
Caecidotea sp	1
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Baetis sp	10
Heptageniidae	
Leucrocuta sp	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche sp	20
Hydropsyche sp	18
Hydroptilidae	
Leucotrichia sp	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus sp	2
Stenelmis sp	4
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	49
Empididae (DANCE FLIES)	
Hemerodromia sp	1
Total Organisms	112

SUSQUEHANNA RIVER BASIN

01536500 SUSQUEHANNA RIVER AT WILKES-BARRE, PA

LOCATION.--Lat 41°15'03", long 75°52'52", Luzerne County, Hydrologic Unit 02050107, on left bank at downstream side of North Street bridge in Wilkes-Barre, and 1.8 mi upstream from Toby Creek.

DRAINAGE AREA.--9,960 mi^2.

PERIOD OF RECORD.--April 1899 to current year. Gage-height records collected at same site since November 1890 are contained in reports of U.S. Weather Bureau.

REVISED RECORDS.--WSP 109: 1900-1905. WSP 351: Drainage area. WSP 781: 1902(M). WSP 1302: 1916. WSP 1432: 1901-5, 1907, 1909, 1913, 1937(M). WDR PA-86-2: 1960(M), 1964(M), 1975(M), 1979(M). WDR PA-89-2: 1964(P). WDR PA-90-2: 1988(M) 1989(P).

GAGE.--Water-stage recorder. Datum of gage is 510.86 ft above North American Vertical Datum of 1988. See WSP 1722 for history of changes prior to Mar. 23, 1949. May 23, 1949 to Sept. 30, 1996, at site 800 ft downstream.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Flow slightly regulated by 8 flood-control reservoirs, which have a combined capacity of 368,800 acre-ft. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known prior to 1899, 33.1 ft, Mar. 18, 1865, from floodmarks, discharge, about 232,000 ft^3/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 82,000 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 22	1100	*122,000	*22.84	June 22	1530	86,400	18.05

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8720	8250	15000	16900	e6000	14700	51300	13900	37900	8310	6670	3960
2	6690	7380	13700	41500	e6000	13700	48500	15300	76800	7480	7050	10700
3	5630	6720	12800	51900	e6000	13000	49400	21800	57400	6840	16600	33100
4	4930	6430	10900	40700	e6200	12200	47500	19700	40600	6420	16700	46800
5	4440	6260	9670	31600	e6600	11400	44300	18900	31600	6030	19600	44900
6	4210	6350	9150	26400	e9900	11600	65000	15900	27400	5500	18600	33300
7	4050	6890	8320	22800	13100	10900	63400	14200	24600	5170	17700	22600
8	3940	7180	8740	20700	e13000	10200	50600	13300	24900	5000	14200	15700
9	3740	8230	8340	19500	11500	11200	43000	12600	22700	5020	13200	11600
10	3480	8930	7160	20800	9860	11700	38600	11600	19300	4730	15100	9020
11	4820	8260	6650	21700	9030	12400	36500	10700	16200	6130	32300	7410
12	18900	7870	8330	19100	7660	10900	38600	10800	14900	7530	32800	6720
13	17000	9560	e10000	15300	7570	10600	35500	11800	14300	5810	25900	6120
14	8230	10000	14200	14100	6590	10400	31700	14100	18200	5710	21300	5710
15	6680	10500	30500	11500	5990	10900	27900	17700	21100	5190	15000	6430
16	7500	10800	34400	10200	6070	13200	25100	16000	20700	4750	12500	9520
17	26500	13000	29700	e9400	5820	33600	22400	14100	16200	4340	10300	8590
18	23100	28400	22500	e8900	4950	65700	20400	13300	13200	4080	8300	9220
19	22700	34400	17000	e8700	5010	88000	18800	12700	11700	4410	7180	10400
20	18900	29200	17400	e9700	5660	85700	17200	11100	11400	4480	6630	9030
21	14100	23700	34000	e9100	6370	107000	15700	9810	41700	4850	6110	7860
22	12600	21800	42000	e8400	6700	119000	15200	9140	81200	6450	5690	7030
23	10500	25400	35900	e7500	8380	108000	14900	8820	63400	25500	5270	16000
24	8180	30200	28600	e6400	14700	99300	14700	8720	41800	40700	4790	22700
25	6910	31000	23600	e6600	23500	89600	15100	9750	29000	35100	4410	25500
26	7760	27800	20700	e6800	22700	76600	15300	14100	20800	30100	4200	20500
27	9560	24300	18300	e6600	19100	69100	16000	15700	16100	18400	4190	15300
28	12000	21600	15100	e6500	16900	62200	16700	14600	13100	13300	4090	13900
29	12900	18800	13900	e6400	---	54500	17300	14000	10900	11700	3780	17400
30	11900	16500	13700	e6200	---	50900	16000	13300	9310	9870	3840	22400
31	9710	---	13600	e6000	---	52000	---	11700	---	7690	3580	---
TOTAL	320280	475710	553860	497900	270860	1350200	932600	419140	848410	316590	367580	479420
MEAN	10330	15860	17870	16060	9674	43550	31090	13520	28280	10210	11860	15980
MAX	26500	34400	42000	51900	23500	119000	65000	21800	81200	40700	32800	46800
MIN	3480	6260	6650	6000	4950	10200	14700	8720	9310	4080	3580	3960
CFSM	1.04	1.59	1.79	1.61	0.97	4.37	3.12	1.36	2.84	1.03	1.19	1.60
IN.	1.20	1.78	2.07	1.86	1.01	5.04	3.48	1.57	3.17	1.18	1.37	1.79

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1899 - 2003, BY WATER YEAR (WY)

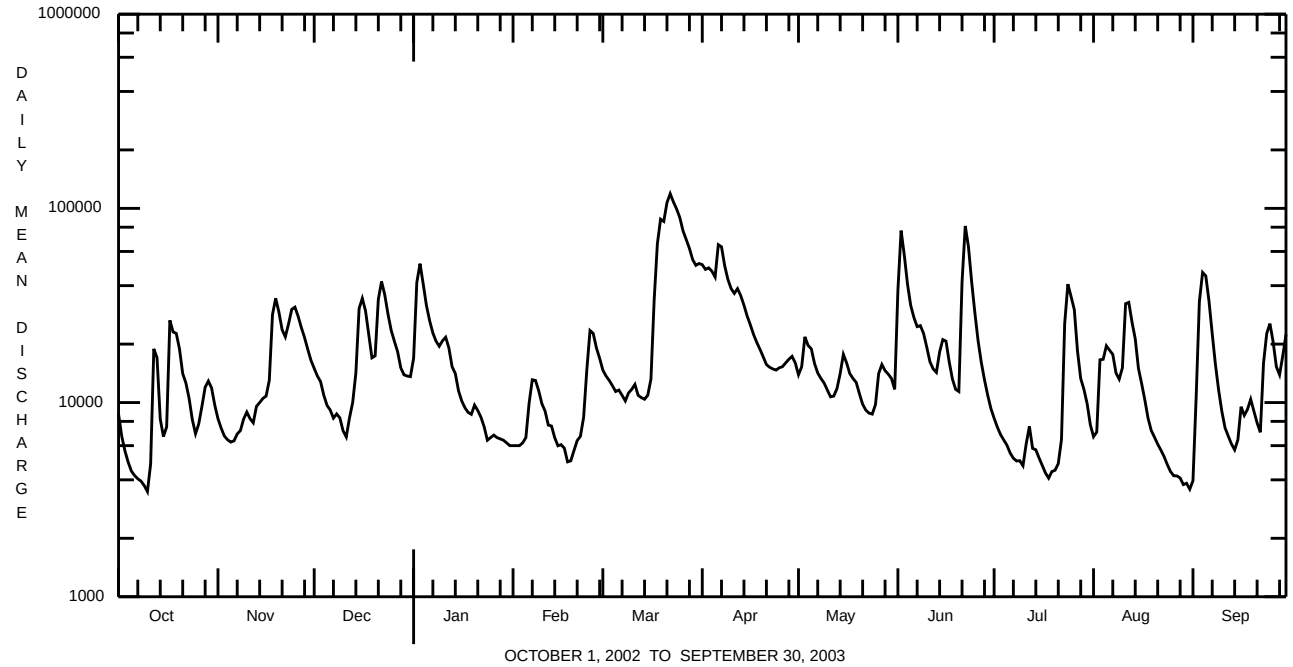
MEAN	6871	11080	13940	13940	14860	30280	31250	16550	9329	5411	4003	4327
MAX	39860	32130	44610	40740	43030	80560	100000	39590	54330	29010	19560	28680
(WY)	1978	1928	1997	1996	1976	1936	1993	1943	1972	1902	1994	1975
MIN	705	724	1357	1386	2710	10250	6918	3388	2137	1086	853	637
(WY)	1965	1965	1909	1931	1920	1965	1946	1903	1999	1962	1964	1964

e Estimated.

01536500 SUSQUEHANNA RIVER AT WILKES-BARRE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1899 - 2003	
ANNUAL TOTAL	5183297		6832550			
ANNUAL MEAN	14200		18720		13490	
HIGHEST ANNUAL MEAN					21990	1978
LOWEST ANNUAL MEAN					6186	1965
HIGHEST DAILY MEAN	76900	Mar 28	119000	Mar 22	329000	Jun 24 1972
LOWEST DAILY MEAN	924	Sep 14	3480	Oct 10	532	Sep 27 1964
ANNUAL SEVEN-DAY MINIMUM	977	Sep 8	3950	Aug 26	546	Sep 21 1964
MAXIMUM PEAK FLOW			122000	Mar 22	**a**345000	Jun 24 1972
MAXIMUM PEAK STAGE			22.84	Mar 22	**b**40.91	Jun 24 1972
INSTANTANEOUS LOW FLOW					528	Sep 27 1964
ANNUAL RUNOFF (CFSM)	1.43		1.88		1.35	
ANNUAL RUNOFF (INCHES)	19.36		25.52		18.40	
10 PERCENT EXCEEDS	32500		40600		32400	
50 PERCENT EXCEEDS	10900		13200		7180	
90 PERCENT EXCEEDS	1330		5710		1670	

a From slope-area measurement of peak flow near West Pittston and adjusted for flow from intervening area.
b From floodmark.



WAPWALLOPEN CREEK BASIN

01538000 WAPWALLOPEN CREEK NEAR WAPWALLOPEN, PA

LOCATION.--Lat 41°03'33", long 76°05'38", Luzerne County, Hydrologic Unit 02050107, on left bank 100 ft upstream from Harts Bridge on SR 3012, 2.2 mi southeast of Wapwallopen, and 3.7 mi upstream from mouth.

DRAINAGE AREA.--43.8 mi^2.

PERIOD OF RECORD.--October 1919 to current year.

REVISED RECORDS.--WSP 1302: 1926(M), 1929(M), 1938(M). WSP 1432: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 752.41 ft above National Geodetic Vertical Datum of 1929 (Penn Central Railroad bench mark). Prior to Mar. 15, 1930, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 580 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Feb. 23	----	Unknown	Ice jam	June 21	0300	1,450	6.29
Mar. 21	0100	703	4.40	Aug. 11	1645	1,000	5.24
June 1	0600	*1,610	*6.60	Sept. 23	1015	767	4.59

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	45	60	187	e22	87	133	54	937	55	22	52
2	16	44	52	316	e28	92	156	53	399	49	22	93
3	14	37	48	196	e24	e84	142	52	265	43	24	77
4	15	36	e44	166	e86	e78	125	46	260	39	53	72
5	15	33	e48	139	e110	71	139	45	189	35	40	47
6	12	53	e44	127	e80	81	109	46	147	33	63	36
7	11	46	e38	115	e60	e67	99	44	198	31	61	30
8	10	38	e40	109	e52	e71	103	51	198	31	35	28
9	9.9	36	e34	115	e50	76	102	52	153	30	31	26
10	10	34	e28	120	e46	e71	101	46	122	30	53	24
11	156	35	e40	e95	e44	e64	154	44	109	33	453	23
12	165	51	e180	e85	e42	60	174	95	161	27	260	22
13	70	107	165	e70	e40	71	132	59	126	24	120	22
14	48	67	307	e60	e37	e68	115	51	100	23	81	26
15	38	57	239	e55	e34	78	105	47	87	21	62	32
16	164	55	185	e51	e40	156	97	46	72	21	62	57
17	191	153	142	e42	e48	317	90	50	63	20	62	31
18	93	173	e110	e34	e66	355	87	44	73	19	46	25
19	71	135	104	e42	e44	312	82	39	64	20	40	47
20	61	116	169	e48	e42	337	69	36	191	18	35	44
21	51	109	149	e55	e38	521	67	60	828	20	32	31
22	43	126	119	e42	e60	369	78	49	577	173	30	27
23	39	139	105	e36	e220	281	67	42	374	63	30	355
24	35	105	94	e32	e180	222	60	54	245	54	26	158
25	36	92	e90	e38	e160	180	54	57	176	33	24	103
26	94	82	98	e32	e130	163	83	87	134	26	23	85
27	64	78	84	e40	e120	158	92	77	107	23	23	71
28	50	70	78	e35	e110	125	66	63	86	47	22	104
29	44	65	74	e32	---	125	60	63	72	28	20	79
30	46	63	69	e30	---	167	58	55	63	23	26	63
31	47	---	75	e26	---	151	---	71	---	20	23	---
TOTAL	1736.9	2280	3112	2570	2013	5058	2999	1678	6576	1112	1904	1890
MEAN	56.0	76.0	100	82.9	71.9	163	100	54.1	219	35.9	61.4	63.0
MAX	191	173	307	316	220	521	174	95	937	173	453	355
MIN	9.9	33	28	26	22	60	54	36	63	18	20	22
CFSM	1.28	1.74	2.29	1.89	1.64	3.73	2.28	1.24	5.00	0.82	1.40	1.44
IN.	1.48	1.94	2.64	2.18	1.71	4.30	2.55	1.43	5.59	0.94	1.62	1.61

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1920 - 2003, BY WATER YEAR (WY)

MEAN	38.3	60.1	73.8	70.8	82.7	118	114	85.9	51.8	34.6	24.9	27.4
MAX	202	203	206	284	284	327	362	243	248	172	149	160
(WY)	1956	1927	1997	1979	1981	1936	1993	1947	1972	1947	1933	1987
MIN	4.95	5.35	5.90	6.39	14.9	48.7	47.0	25.8	10.9	5.21	4.46	3.37
(WY)	1964	1931	1931	1931	1940	1981	1955	1955	1962	1955	1953	1936

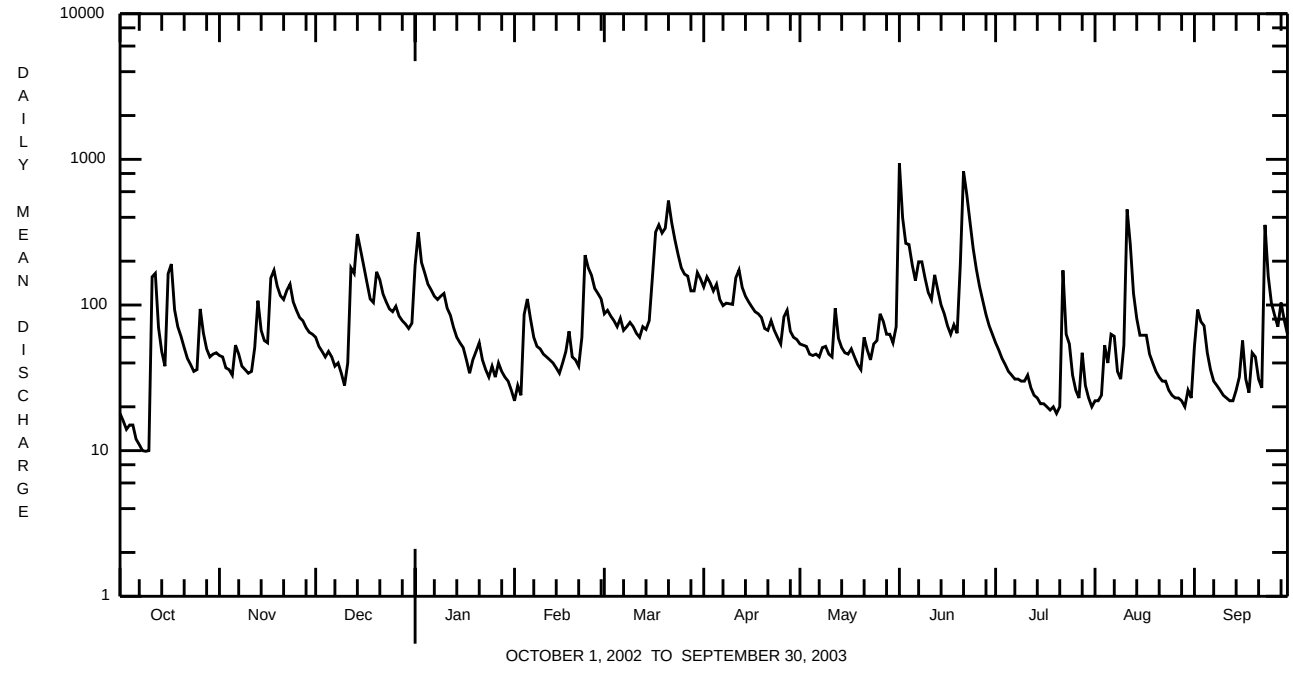
e Estimated.

WAPWALLOPEN CREEK BASIN

01538000 WAPWALLOPEN CREEK NEAR WAPWALLOPEN, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1920 - 2003	
ANNUAL TOTAL	20968.8		32928.9			
ANNUAL MEAN	57.4		90.2		65.1	
HIGHEST ANNUAL MEAN					108	1978
LOWEST ANNUAL MEAN					30.9	1965
HIGHEST DAILY MEAN	398	May 18	937	Jun 1	**e**2200	Jan 19 1996
LOWEST DAILY MEAN	8.1	Jul 18	9.9	Oct 9	1.5	Aug 31 1953
ANNUAL SEVEN-DAY MINIMUM	9.1	Sep 8	12	Oct 4	1.8	Aug 27 1953
MAXIMUM PEAK FLOW			**a**1610	Jun 1	**a**5410	Jun 22 1972
MAXIMUM PEAK STAGE			6.60	Jun 1	11.04	Jun 22 1972
INSTANTANEOUS LOW FLOW					1.1	Aug 4 1955
ANNUAL RUNOFF (CFSM)	1.31		2.06		1.49	
ANNUAL RUNOFF (INCHES)	17.81		27.97		20.20	
10 PERCENT EXCEEDS	128		173		139	
50 PERCENT EXCEEDS	40		61		41	
90 PERCENT EXCEEDS	11		24		9.0	

a From rating curve extended above 1,400 ft^3/s on basis of contracted-opening measurement of peak flow.
e Estimated.



FISHING CREEK BASIN

01539000 FISHING CREEK NEAR BLOOMSBURG, PA

LOCATION.--Lat 41°04'41", long 76°25'53", Columbia County, Hydrologic Unit 02050107, on left bank 10 ft downstream from Bowmans Mill bridge on SR 4034, 0.8 mi downstream from Green Creek, 0.9 mi west of Orangeville, and 5.5 mi north of Bloomsburg.

DRAINAGE AREA.--274 mi^2.

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

REVISED RECORDS.--WSP 1202: 1939-42, 1948(P), 1950.

GAGE.--Water-stage recorder. Datum of gage is 543.84 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite telemetry at station.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)
Oct. 12	1315	*8,600	*8.36
Oct. 16	2245	4,570	6.35
Mar. 21	0500	8,170	8.17
June 21	0730	6,560	7.42
Sept. 23	1100	4,810	6.49

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	353	571	459	822	e140	441	921	401	2850	306	389	287
2	274	511	400	1980	e150	432	977	386	2310	273	433	2010
3	224	460	353	1380	e140	419	993	358	1440	243	494	1490
4	193	419	278	1090	e400	353	890	313	1270	219	542	3100
5	175	386	308	894	547	386	1030	291	999	197	730	1690
6	167	616	311	782	365	365	963	282	808	177	943	1060
7	142	577	263	691	307	294	853	271	967	173	754	783
8	125	493	275	645	256	325	820	295	1170	194	601	618
9	112	462	236	677	255	356	791	291	938	169	538	516
10	107	438	e210	685	242	337	787	258	785	168	704	436
11	667	443	288	586	223	279	1260	241	693	691	824	373
12	5380	532	984	506	221	301	1790	248	951	440	1570	320
13	2930	921	882	446	e210	342	1310	243	778	272	982	300
14	1490	750	1730	409	e200	357	1040	222	661	212	1130	361
15	989	672	1790	391	e180	453	879	203	604	179	732	303
16	1960	617	1280	e340	e200	910	760	215	481	168	594	408
17	3180	949	949	e300	e220	1740	654	253	407	166	836	304
18	1690	1200	752	e230	e300	2760	596	223	480	147	576	251
19	1180	1050	671	e260	e220	2880	557	196	456	148	473	248
20	943	930	961	e260	193	2880	497	177	663	135	400	305
21	740	833	1160	e280	181	6500	460	213	4830	132	337	266
22	598	970	910	e240	260	3950	609	189	2770	477	298	231
23	511	1080	782	e220	1200	2630	541	174	1730	816	270	2540
24	442	901	675	e200	1050	1860	456	386	1160	579	233	1560
25	425	806	666	e220	748	1450	412	847	870	393	205	976
26	1170	709	641	e180	590	1270	487	733	687	293	188	761
27	1040	652	554	e220	540	1180	596	671	564	252	181	632
28	833	579	498	e210	489	953	479	610	474	1390	166	867
29	700	529	477	e200	---	895	458	749	401	776	151	685
30	663	499	432	e180	---	1150	441	591	344	536	166	567
31	650	---	427	e150	---	1020	---	535	---	416	177	---
TOTAL	30053	20555	20602	15674	10027	39468	23307	11065	33541	10737	16617	24248
MEAN	969	685	665	506	358	1273	777	357	1118	346	536	808
MAX	5380	1200	1790	1980	1200	6500	1790	847	4830	1390	1570	3100
MIN	107	386	210	150	140	279	412	174	344	132	151	231
CFSM	3.54	2.50	2.43	1.85	1.31	4.65	2.84	1.30	4.08	1.26	1.96	2.95
IN.	4.08	2.79	2.80	2.13	1.36	5.36	3.16	1.50	4.55	1.46	2.26	3.29

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2003, BY WATER YEAR (WY)

MEAN	296	453	603	510	566	897	893	612	351	200	164	217
MAX	1589	995	1867	1509	1456	1680	2518	1712	2230	835	548	1286
(WY)	1977	1946	1997	1979	1981	1977	1993	1989	1972	1947	2000	1975
MIN	12.5	16.4	87.4	53.5	128	293	221	127	74.3	30.3	15.5	9.96
(WY)	1965	1965	1999	1981	1940	1981	1946	1941	1939	1964	1964	1964

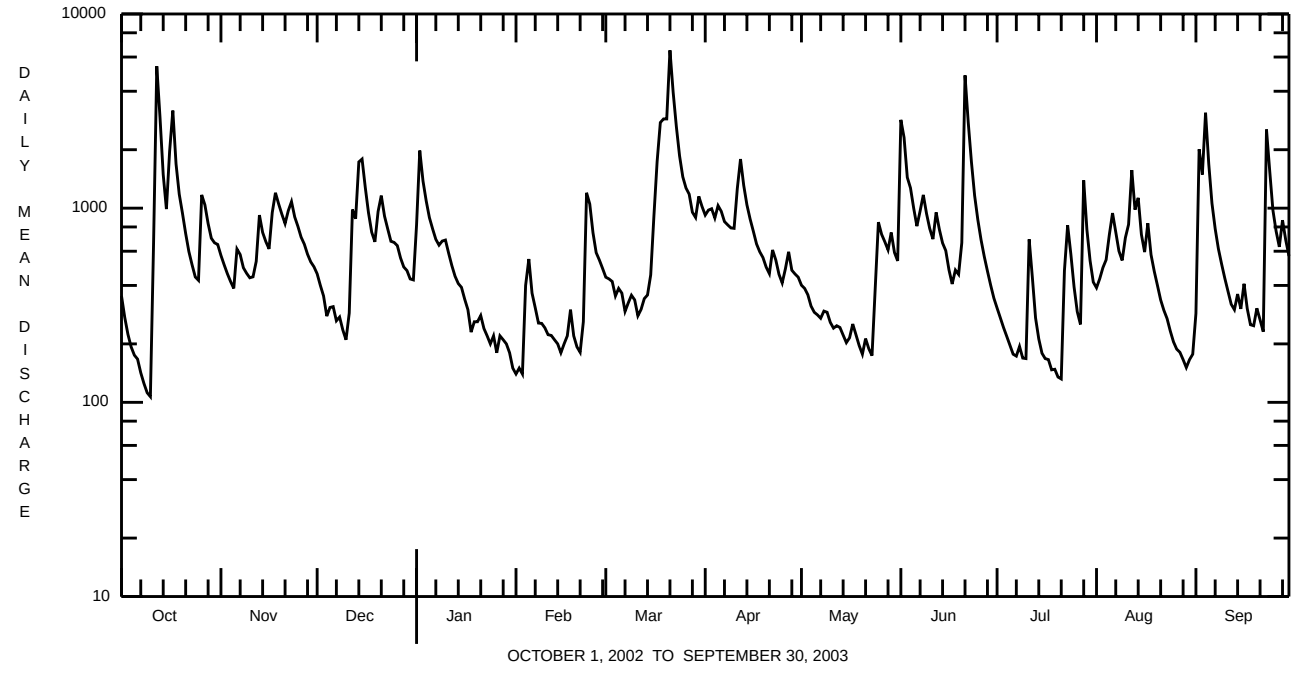
e Estimated.

FISHING CREEK BASIN

01539000 FISHING CREEK NEAR BLOOMSBURG, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1938 - 2003	
ANNUAL TOTAL	193080		255894			
ANNUAL MEAN	529		701		480	
HIGHEST ANNUAL MEAN					739	1960
LOWEST ANNUAL MEAN					229	1965
HIGHEST DAILY MEAN	8670	May 14	6500	Mar 21	18500	Jun 23 1972
LOWEST DAILY MEAN	18	Sep 13,14	107	Oct 10	8.4	Sep 12 1964
ANNUAL SEVEN-DAY MINIMUM	20	Sep 9	146	Oct 4	8.7	Sep 12 1964
MAXIMUM PEAK FLOW			8600	Oct 12	**a**30900	Jun 22 1972
MAXIMUM PEAK STAGE			8.36	Oct 12	**b**15.18	Jun 22 1972
INSTANTANEOUS LOW FLOW					7.6	Jul 19 1939
ANNUAL RUNOFF (CFSM)	1.93		2.56		1.75	
ANNUAL RUNOFF (INCHES)	26.21		34.74		23.78	
10 PERCENT EXCEEDS	1080		1270		1080	
50 PERCENT EXCEEDS	353		497		273	
90 PERCENT EXCEEDS	31		194		54	

a From rating curve extended above 9,500 ft^3/s on basis of contracted-opening measurement at gage height 12.08 ft.
b From floodmark in gage.



SUSQUEHANNA RIVER BASIN

01540500 SUSQUEHANNA RIVER AT DANVILLE, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 40°57'29", long 76°37'10", Montour County, Hydrologic Unit 02050107, on right bank 800 ft upstream from State Route 54 bridge at Danville, and 0.8 mi upstream from Mahoning Creek.

DRAINAGE AREA.--11,220 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1899 to current year. Prior to April 1905 monthly discharge only, published in WSP 1302.

REVISED RECORDS.--WSP 756: Drainage area. WSP 1302: 1904, 1914-17, 1923. WSP 1432: 1900-03, 1905-06, 1908-10, 1912-13, 1933.

GAGE.--Water-stage recorder. Datum of gage is 431.29 ft above National Geodetic Vertical Datum of 1929. Prior to June 29, 1939, nonrecording gage at or near Mill Street bridge at same datum. Since Oct. 1, 1971, water-stage recorder for Susquehanna River at Sunbury (station 01553990), used as an auxiliary gage.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow slightly regulated by 8 flood-control reservoirs which have a combined capacity of 368,800 acre-ft. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1865, reached a stage of 28 ft, discharge not determined.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10100	12600	17600	17900	7720	18400	53900	15900	28400	10600	9220	4620
2	9820	11300	16200	33600	7680	16900	52000	14300	75500	9380	8280	7760
3	7720	10300	15200	56500	8030	16800	50200	19400	73900	8390	11000	20400
4	6350	9280	13900	49900	9020	15300	51300	20300	52600	7630	17700	47300
5	5470	8820	12600	37700	10900	14900	45800	19700	38900	7120	20100	50200
6	4690	9050	11600	31300	12000	14900	55000	17700	32000	6600	21400	42200
7	4250	9210	e11000	27100	14100	14100	70500	15600	28500	6050	20400	29000
8	4070	8990	10800	24300	15200	13700	57400	14500	29600	5780	18400	21300
9	3950	9080	e11000	22800	15400	14100	47300	13800	27500	5570	15800	16000
10	3850	10000	e10000	22800	13300	14800	41200	13000	24100	5500	16200	12800
11	4610	10300	8860	24100	13300	15000	39700	12100	20400	5790	25400	10700
12	14100	9930	13000	22800	11600	14800	42700	11500	19200	7370	43500	9250
13	29000	11500	15000	20100	10900	14600	40900	11800	17900	8400	31100	8280
14	17100	12500	19500	17800	9730	14600	35400	12700	18200	6880	27800	7670
15	10900	12300	29100	16000	9330	14900	31400	15600	21900	6590	20800	7070
16	10400	12500	38400	15000	8330	16400	28100	17300	22700	5940	16000	7800
17	23600	14000	35100	12900	7710	26100	25100	15500	19900	5430	15600	9270
18	29700	21700	29200	11700	5920	57100	22600	14000	16600	5020	12400	8180
19	25500	35700	22800	9840	7910	89000	20900	13400	14500	4700	10600	9360
20	24000	33900	20300	9160	7980	97600	19200	12500	13400	4670	9280	10100
21	19100	28200	27300	10600	8440	114000	17600	11400	39800	4720	8350	8720
22	16000	24600	40100	9140	9060	129000	16900	10300	82300	6950	7560	7760
23	14400	25700	40400	8290	14000	124000	16500	9570	85700	11000	6990	14900
24	12200	28900	33000	8080	17000	111000	15800	9600	55600	38800	6290	28200
25	10300	31800	27900	7690	22200	101000	15600	10500	38000	37400	5660	25600
26	10900	30400	24600	7710	25200	87200	16100	12400	27400	35300	5220	25300
27	12700	26900	21900	7870	23400	75400	17100	16300	20900	26600	4840	19600
28	13600	24000	19600	8090	20400	68700	17100	16500	17000	20100	4570	16600
29	15400	21600	17100	7680	---	59400	17700	15600	14200	15600	4340	16200
30	15700	19300	16500	7410	---	54500	17800	15200	12200	13100	4480	21600
31	14400	---	16400	7740	---	54000	---	13800	---	11000	4440	---
TOTAL	403880	534360	645960	573600	345760	1492200	998800	441770	988800	353980	433720	523740
MEAN	13030	17810	20840	18500	12350	48140	33290	14250	32960	11420	13990	17460
MAX	29700	35700	40400	56500	25200	129000	70500	20300	85700	38800	43500	50200
MIN	3850	8820	8860	7410	5920	13700	15600	9570	12200	4670	4340	4620
CFSM	1.16	1.59	1.86	1.65	1.10	4.29	2.97	1.27	2.94	1.02	1.25	1.56
IN.	1.34	1.77	2.14	1.90	1.15	4.95	3.31	1.46	3.28	1.17	1.44	1.74

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1905 - 2003, BY WATER YEAR (WY)

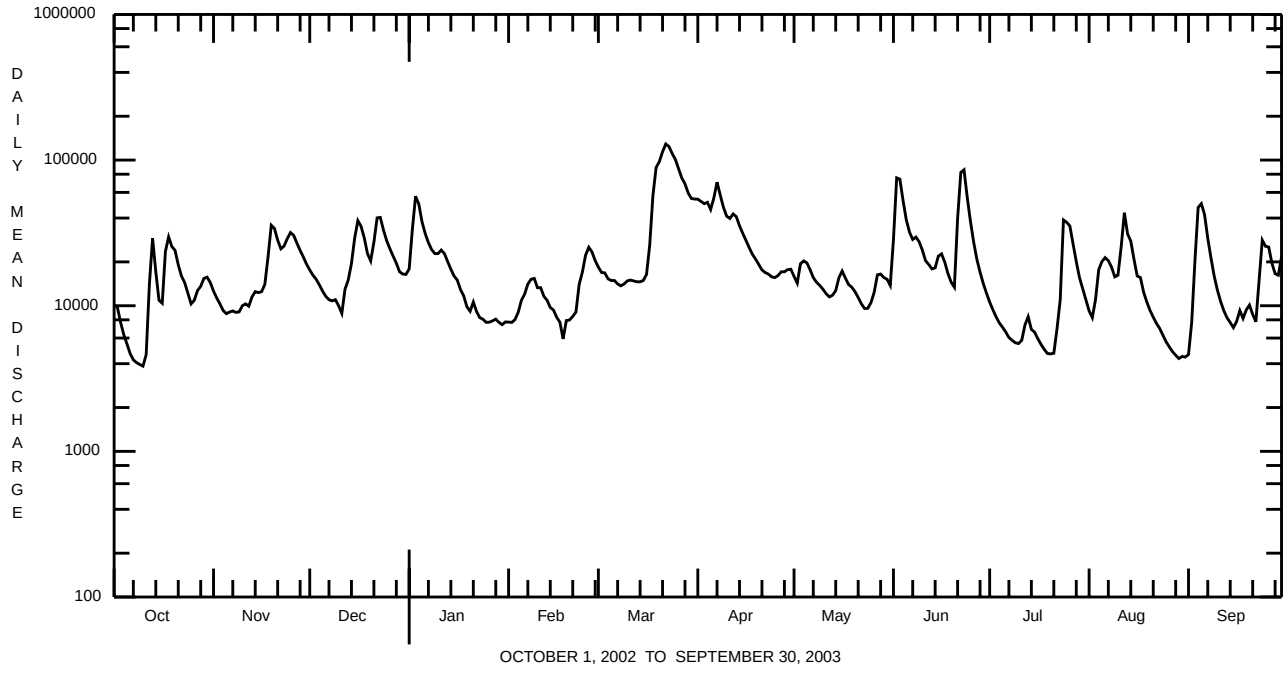
MEAN	7748	12750	15990	16080	16910	32680	35050	19430	10950	6327	4670	5165
MAX	43890	38540	49410	44410	46420	91900	106900	44980	62370	28490	23110	30900
(WY)	1978	1927	1997	1996	1976	1936	1993	1943	1972	1915	1915	1975
MIN	868	852	1602	1853	2841	11740	7664	5643	2427	1308	1087	740
(WY)	1965	1965	1909	1931	1920	1965	1946	1941	1999	1965	1999	1964

e Estimated.

01540500 SUSQUEHANNA RIVER AT DANVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1905 - 2003	
ANNUAL TOTAL	5726150		7736570			
ANNUAL MEAN	15690		21200		15300	
HIGHEST ANNUAL MEAN					24670	1978
LOWEST ANNUAL MEAN					6948	1965
HIGHEST DAILY MEAN	83200	May 15	129000	Mar 22	335000	Jun 25 1972
LOWEST DAILY MEAN	1090	Sep 14	3850	Oct 10	558	Sep 24 1964
ANNUAL SEVEN-DAY MINIMUM	1140	Sep 9	4410	Oct 5	579	Sep 21 1964
MAXIMUM PEAK FLOW			130000	Mar 22	**a**363000	Jun 25 1972
MAXIMUM PEAK STAGE			**b**18.81	Mar 22	**b**32.32	Jun 24 1972
INSTANTANEOUS LOW FLOW					508	Sep 27 1964
ANNUAL RUNOFF (CFSM)	1.40		1.89		1.36	
ANNUAL RUNOFF (INCHES)	18.99		25.65		18.53	
10 PERCENT EXCEEDS	32700		41600		36100	
50 PERCENT EXCEEDS	12700		15500		8520	
90 PERCENT EXCEEDS	1710		7270		2100	

a From rating curve extended above 250,000 ft^3/s.
b Backwater from West Branch Susquehanna River.



SUSQUEHANNA RIVER BASIN

01540500 SUSQUEHANNA RIVER AT DANVILLE, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002													
20...	1520	1028	9813	33300	40	11.7	7.5	173	6.1	64	18.9	4.0	40
JAN 2003													
13...	0930	1028	9813	20600	40	14.7	7.4	222	.1	77	22.4	5.2	44
MAR													
18...	1500	1028	9813	61000	40	13.2	7.2	205	2.7	66	18.8	4.6	35
MAY													
20...	1145	1028	9813	12600	40	10.8	8.1	225	16.3	79	23.2	5.0	57
JUL													
16...	1500	1028	9813	5860	40	8.2	8.1	305	25.8	100	29.4	7.2	63
SEP													
23...	1330	1028	9813	16800	40	10.2	7.2	262	19.2	77	21.3	5.7	49

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, unfltrd recoverable, µg/L (01042)	Iron, water, unfltrd recoverable, µg/L (01045)
NOV 2002													
20...	17.9	166	50	<.020	.63	<.040	.03	.042	1.3	3.9	700	<10	1460
JAN 2003													
13...	22.3	154	12	<.020	.96	<.040	.02	.024	1.2	2.2	<200	<10	520
MAR													
18...	15.1	36	130	.020	.87	<.040	.04	.158	1.6	3.4	3700	<10	5800
MAY													
20...	20.2	156	4	<.020	.45	<.040	.02	.035	.84	2.9	400	<10	760
JUL													
16...	36.6	220	2	<.020	.57	<.040	.02	.021	.89	3.2	<200	<10	480
SEP													
23...	24.5	170	152	<.020	.66	<.040	.03	.162	1.1	3.8	2700	<10	4870

Date	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd recoverable, µg/L (01092)	Gross alpha radioac water unfltrd pCi/L (01519)	Gross beta radioac water unfltrd pCi/L (85817)	Tritium water unfltrd pCi/L (07000)
NOV 2002							
20...	1.4	140	<50	<10	--	--	--
JAN 2003							
13...	<1.0	90	<50	50	.38	1	61
MAR							
18...	4.0	320	<50	70	1.06	6	43
MAY							
20...	<1.0	100	<50	10	.51	2	--
JUL							
16...	<1.0	60	<50	<10	.12	2	24
SEP							
23...	5.3	260	<50	40	--	--	--

01540500 SUSQUEHANNA RIVER AT DANVILLE, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/19/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	1
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Physidae	
Physa sp	1
Pleuroceridae	
Leptoxis carinata	2
Bivalvia (CLAMS)	
Veneroida	
Corbiculidae	
Corbicula fluminea	2
Sphaeriidae	
Sphaerium sp	2
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	5
Acentrella sp	2
Ephemerellidae	4
Serratella sp	11
Heptageniidae	1
Stenonema sp	1
Isonychiidae	
Isonychia sp	16
Potamanthidae	
Anthopotamus sp	27
Tricorythidae	
Tricorythodes sp	33
Plecoptera (STONEFLIES)	
Perlidae	
Agnetina sp	3
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
Corydalus sp	4
Trichoptera (CADDISFLIES)	
Hydropsychidae	4
Cheumatopsyche sp	19
Hydropsyche sp	6
Macrostemum sp	12
Hydroptilidae	
Hydroptila sp	17
Leptoceridae	
Ceraclea sp	1
Philopotamidae	
Chimarra sp	30

01540500 SUSQUEHANNA RIVER AT DANVILLE, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	8/19/02
Benthic Macroinvertebrate	Count
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Stenelmis sp	40
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	95
Empididae (DANCE FLIES)	
Hemerodromia sp	4
Simuliidae (BLACK FLIES)	
Simulium sp	138
Total Organisms	481

WEST BRANCH SUSQUEHANNA RIVER BASIN

01541000 WEST BRANCH SUSQUEHANNA RIVER AT BOWER, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 40°53'49", long 78°40'38", Clearfield County, Hydrologic Unit 02050201, on right bank at downstream side of highway bridge on Township Route 418 at Bower, and 4.6 mi downstream from Chest Creek and Mahaffey.

DRAINAGE AREA.--315 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1913 to current year.

REVISED RECORDS.--WSP 726: Drainage area. WSP 1302: 1914-17, 1918(M), 1922-23, 1924(M), 1925-29, 1930-31(M), 1933(M).

GAGE.--Water-stage recorder. Datum of gage is 1,207.14 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 17, 1929, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known prior to 1913, about 18.5 ft, May 13, 1889, discharge, about 27,000 ft^3/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 4,400 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Jan. 2	0730	*6,640	*11.30	Sept. 3	2315	4,620	10.05

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	379	337	2640	e230	e320	546	230	1030	203	1810	1780
2	84	319	285	5680	e230	e340	848	220	691	186	984	2570
3	76	252	e230	2880	e240	e350	696	209	581	178	925	2980
4	83	215	e190	1710	e340	e330	630	195	1410	166	1740	2780
5	103	199	e230	1200	e310	e380	2260	217	1290	169	1340	1740
6	92	456	e220	950	e280	e440	1940	296	974	162	916	1150
7	76	496	e210	783	e260	e380	1380	274	1010	220	682	849
8	69	405	e190	690	e240	e620	1210	379	1060	233	649	668
9	65	330	e180	696	e230	e1500	1130	417	1010	196	1010	555
10	63	285	e200	787	e220	1390	946	695	782	192	2420	476
11	66	298	e220	626	e220	1020	1360	799	642	664	1140	407
12	84	315	e230	517	e210	882	1470	621	641	375	902	357
13	126	341	e270	e470	e210	1600	1110	629	723	246	634	325
14	106	307	e500	e410	e210	2290	913	576	591	204	495	314
15	86	261	e760	e350	e200	1990	779	474	516	176	405	363
16	94	257	688	e290	e210	2460	678	551	424	216	370	396
17	200	833	561	e300	e220	2970	591	541	370	189	339	293
18	180	928	466	e290	e240	2880	522	483	656	258	314	255
19	157	659	411	e290	e260	2330	476	549	618	505	265	477
20	196	638	1710	e300	e220	2230	435	453	475	261	232	669
21	157	522	1920	e290	e220	2640	412	837	630	200	214	402
22	130	476	1260	e270	e300	1950	402	698	674	1010	200	348
23	113	462	1070	e260	e550	1450	390	590	509	971	187	1080
24	103	394	810	e250	e600	1140	339	717	420	585	170	681
25	97	365	706	e250	e490	937	311	607	361	447	161	557
26	553	328	610	e250	e400	809	307	577	316	333	366	570
27	386	315	505	e250	e370	707	304	527	283	284	1300	488
28	240	287	442	e240	e350	608	272	450	258	625	683	1090
29	192	268	425	e240	---	556	259	410	232	388	427	832
30	299	312	377	e230	---	566	244	364	214	292	2730	641
31	421	---	445	e230	---	545	---	428	---	246	2350	---
TOTAL	4793	11902	16658	24619	8060	38610	23160	15013	19391	10380	26360	26093
MEAN	155	397	537	794	288	1245	772	484	646	335	850	870
MAX	553	928	1920	5680	600	2970	2260	837	1410	1010	2730	2980
MIN	63	199	180	230	200	320	244	195	214	162	161	255
CFSM	0.49	1.26	1.71	2.52	0.91	3.95	2.45	1.54	2.05	1.06	2.70	2.76
IN.	0.57	1.41	1.97	2.91	0.95	4.56	2.74	1.77	2.29	1.23	3.11	3.08

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2003, BY WATER YEAR (WY)

MEAN	250	439	618	704	807	1203	934	649	399	272	207	197
MAX	915	1707	1958	2136	1924	3369	2080	1480	2446	1522	850	1349
(WY)	1928	1998	1924	1937	1918	1936	1940	1919	1972	1977	2003	1926
MIN	22.5	27.2	51.0	32.9	120	271	202	116	82.0	49.7	25.7	24.1
(WY)	1931	1931	1931	1931	1934	1969	1925	1926	1949	1965	1930	1939

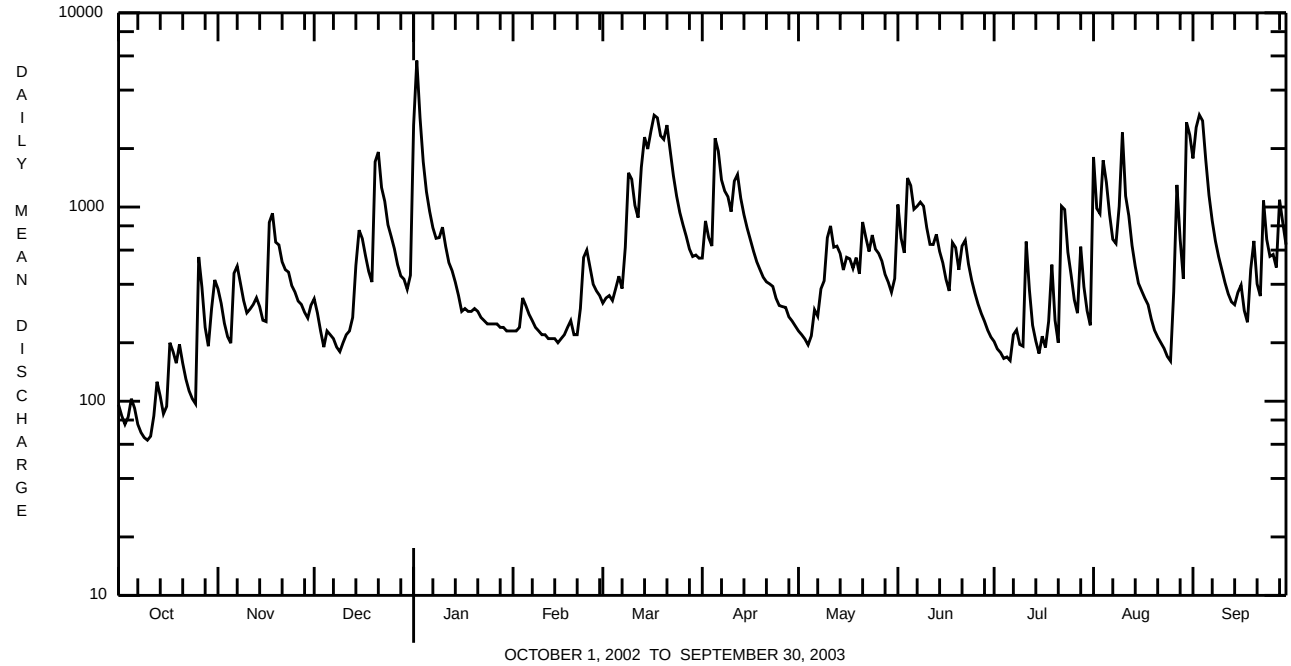
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01541000 WEST BRANCH SUSQUEHANNA RIVER AT BOWER, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1914 - 2003	
ANNUAL TOTAL	174952		225039			
ANNUAL MEAN	479		617		555	
HIGHEST ANNUAL MEAN					955	1928
LOWEST ANNUAL MEAN					294	1931
HIGHEST DAILY MEAN	4370	Mar 27	5680	Jan 2	23200	Jun 23 1972
LOWEST DAILY MEAN	42	Sep 12,13	63	Oct 10	16	Aug 29 1939**a**
ANNUAL SEVEN-DAY MINIMUM	44	Sep 8	74	Oct 6	17	Aug 28 1939
MAXIMUM PEAK FLOW			6640	Jan 2	**b**31500	Mar 18 1936
MAXIMUM PEAK STAGE			11.30	Jan 2	**c**19.74	Mar 18 1936
INSTANTANEOUS LOW FLOW					14	Aug 29 1939
ANNUAL RUNOFF (CFSM)	1.52		1.96		1.76	
ANNUAL RUNOFF (INCHES)	20.66		26.58		23.96	
10 PERCENT EXCEEDS	1050		1320		1300	
50 PERCENT EXCEEDS	331		407		285	
90 PERCENT EXCEEDS	64		191		62	

a Also Aug. 31 to Sept. 2, 1939.
b From rating curve extended above 7,200 ft^3/s on basis of slope-area measurement of peak flow.
c From floodmark in gage.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01541000 WEST BRANCH SUSQUEHANNA RIVER AT BOWER, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002													
12...	1030	1028	9813	312	30	11.4	7.6	342	8.8	130	37.1	9.9	36
JAN 2003													
21...	0930	1028	9813	E290	30	13.3	7.5	326	.0	200	49.5	17.7	43
MAR													
19...	0930	1028	9813	2350	30	12.0	7.5	180	6.0	67	16.5	6.2	14
MAY													
27...	0900	1028	9813	537	30	10.9	7.8	291	13.0	120	30.7	10.3	35
JUL													
23...	0945	1028	9813	1060	30	8.8	7.4	270	17.6	110	28.3	8.7	33
SEP													
29...	1000	1028	9813	831	30	10.0	7.4	234	12.9	94	24.3	8.0	33

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, unfltrd recoverable, µg/L (01042)	Iron, water, unfltrd recoverable, µg/L (01045)
NOV 2002													
12...	102	240	4	.040	.79	<.040	<.01	<.010	1.2	1.7	200	<10	490
JAN 2003													
21...	150	348	<2	.060	.97	<.040	<.01	<.010	1.3	.9	<200	<10	290
MAR													
19...	50.6	148	24	<.020	.91	<.040	.02	.017	1.1	1.7	900	<10	1430
MAY													
27...	87.3	224	<2	<.020	.53	<.040	.01	.015	.59	1.8	300	<10	550
JUL													
23...	73.1	200	134	.020	.66	<.040	.12	.118	1.1	4.3	4900	<10	7760
SEP													
29...	63.2	182	20	<.020	.73	<.040	.02	.028	1.4	3.1	700	<10	1440

Date	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 2002				
12...	<1.0	210	<50	<10
JAN 2003				
21...	<1.0	490	<50	20
MAR				
19...	<1.0	250	<50	30
MAY				
27...	<1.0	220	<50	20
JUL				
23...	6.1	720	<50	60
SEP				
29...	<1.0	270	<50	100

01541000 WEST BRANCH SUSQUEHANNA RIVER AT BOWER, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/27/02
Benthic Macroinvertebrate	Count
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia sp	3
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	10
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Baetis sp	10
Heptageniidae	
Stenonema sp	8
Isonychiidae	
Isonychia sp	6
Tricorythidae	
Tricorythodes sp	7
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
Corydalus sp	1
Trichoptera (CADDISFLIES)	
Brachycentridae	
Brachycentrus sp	175
Hydropsychidae	
Cheumatopsyche sp	7
Hydropsyche sp	6
Macrostemum sp	1
Polycentropodidae	
Neureclipsis sp	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Stenelmis sp	1
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	18
Total Organisms	254

WEST BRANCH SUSQUEHANNA RIVER BASIN

01541200 WEST BRANCH SUSQUEHANNA RIVER AT CURWENSVILLE, PA

LOCATION.--Lat 40°57'41", long 78°31'10", Clearfield County, Hydrologic Unit 02050201, on left bank 30 ft downstream from bridge on State Highway 453, 0.8 mi downstream from Curwensville Dam, 1.1 mi south of Curwensville, and 1.8 mi upstream from Anderson Creek.

DRAINAGE AREA.--367 mi^2.

PERIOD OF RECORD.--October 1955 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,124.52 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 24, 1956, nonrecording gage and crest-stage gage 30 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records fair except those below 100 ft^3/s, which are poor. Flow regulated since November 1965 by Curwensville Dam (station 01541180). Several measurements of water temperature were made during the year. Satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	127	462	358	2190	211	525	619	243	919	268	1950	2200
2	127	383	395	4470	243	491	881	220	1020	210	1640	3100
3	97	315	344	4700	245	599	866	220	794	187	1270	3290
4	83	295	219	3480	403	570	820	219	1360	200	2250	4360
5	121	265	225	1890	684	617	1880	252	1550	206	1650	2650
6	149	386	268	1270	534	948	2650	296	1230	204	1290	1500
7	99	562	267	1040	441	985	1980	296	1090	264	941	1080
8	61	510	225	905	496	899	1540	431	1300	373	773	849
9	77	494	193	808	398	1410	1400	596	1230	287	1240	629
10	101	417	193	868	325	1660	1140	654	982	241	2890	576
11	126	339	213	761	326	1150	1400	845	759	609	1900	507
12	125	395	319	563	325	1100	1770	903	846	555	1150	449
13	108	379	396	706	325	1770	1380	793	833	342	682	408
14	108	326	508	478	270	2640	1080	724	749	246	483	382
15	121	321	928	325	246	2370	937	549	661	226	570	461
16	185	376	993	386	246	2740	836	617	510	226	587	744
17	192	852	784	412	247	3690	702	677	468	226	481	458
18	221	1130	576	412	224	4090	619	547	602	194	381	395
19	247	853	514	366	200	3010	578	598	766	550	359	505
20	246	769	1640	324	271	2670	542	593	666	415	297	695
21	211	716	2240	325	319	2930	506	920	676	269	267	626
22	167	560	1570	324	408	2750	462	914	733	1090	265	491
23	167	535	1400	288	695	1970	462	780	610	1320	264	1080
24	134	566	1100	244	1410	1460	405	847	494	642	224	1000
25	118	469	916	246	871	1200	377	822	430	524	194	732
26	547	400	779	245	702	968	325	718	385	439	476	714
27	569	400	624	248	776	841	248	691	324	382	1270	713
28	364	400	531	285	643	754	244	566	296	749	894	1030
29	200	340	578	320	---	716	285	472	291	559	535	1210
30	338	313	535	258	---	684	295	462	287	380	2340	922
31	462	---	489	203	---	654	---	508	---	380	3130	---
TOTAL	5998	14528	20320	29340	12484	48861	27229	17973	22861	12763	32643	33756
MEAN	193	484	655	946	446	1576	908	580	762	412	1053	1125
MAX	569	1130	2240	4700	1410	4090	2650	920	1550	1320	3130	4360
MIN	61	265	193	203	200	491	244	219	287	187	194	382

01541200 WEST BRANCH SUSQUEHANNA RIVER AT CURWENSVILLE, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

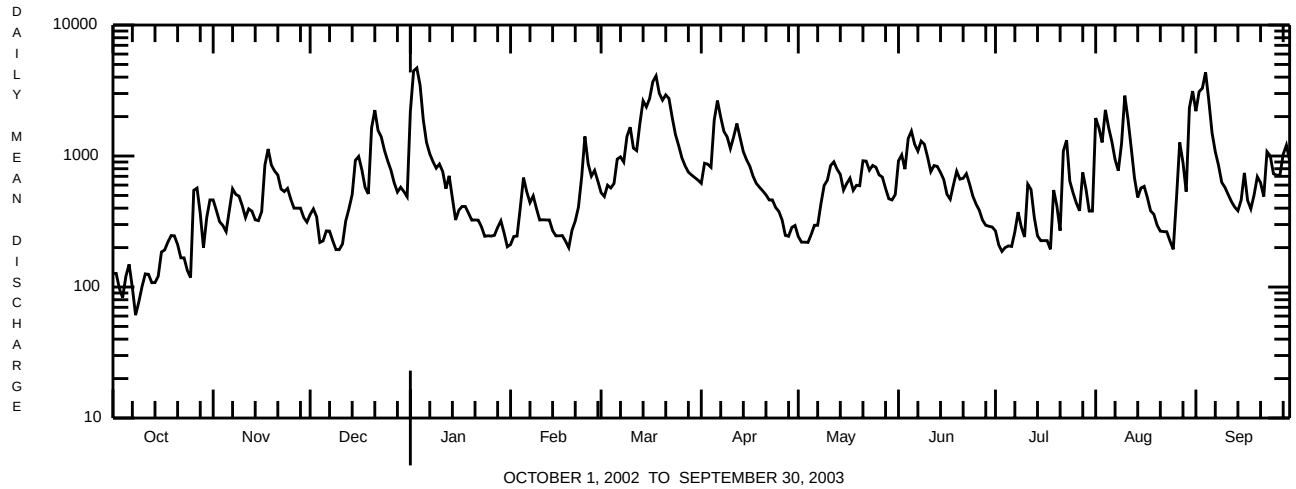
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	334	639	825	743	954	1304	1133	742	500	389	257	303
MAX	950	2010	1865	1749	1847	2532	2911	1593	2074	1650	1053	1460
(WY)	1980	1998	1973	1996	1986	1979	1993	1966	1972	1977	2003	1996
MIN	77.4	82.5	183	209	305	154	437	182	119	54.7	63.8	57.8
(WY)	1986	1999	1999	1977	1980	1969	1976	1986	1999	1966	1966	1968

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1966 - 2003	
ANNUAL TOTAL	211322		278756			
ANNUAL MEAN	579		764		675	
HIGHEST ANNUAL MEAN					905	1972
LOWEST ANNUAL MEAN					450	1999
HIGHEST DAILY MEAN	4980	Mar 27	4700	Jan 3	8420	Jun 26 1972
LOWEST DAILY MEAN	54	Aug 31	61	Oct 8	19	Aug 16,17 1966
ANNUAL SEVEN-DAY MINIMUM	57	Aug 14	98	Oct 3	36	Aug 11 1966
MAXIMUM PEAK FLOW			4800	Jan 2	8590	Jun 25 1972
MAXIMUM PEAK STAGE			7.69	Jan 2	11.40	Jun 25 1972
10 PERCENT EXCEEDS	1280		1600		1590	
50 PERCENT EXCEEDS	396		535		389	
90 PERCENT EXCEEDS	75		217		99	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 1965, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	158	329	501	685	889	1446	1323	783	310	321	265	137
MAX	363	610	1152	1210	1792	2661	1968	1521	656	1487	1068	322
(WY)	1956	1956	1957	1965	1956	1964	1957	1956	1956	1956	1956	1956
MIN	29.5	80.1	83.6	126	188	690	625	351	89.4	48.9	49.0	33.2
(WY)	1965	1958	1961	1956	1963	1957	1963	1965	1965	1965	1965	1964

SUMMARY STATISTICS	WATER YEARS 1956 - 1965	
ANNUAL MEAN	594	
HIGHEST ANNUAL MEAN	938	1956
LOWEST ANNUAL MEAN	454	1965
HIGHEST DAILY MEAN	14000	Mar 10 1964
LOWEST DAILY MEAN	21	Nov 13,15,16 1964
ANNUAL SEVEN-DAY MINIMUM	22	Nov 10 1964
MAXIMUM PEAK FLOW	15700	Mar 10 1964
MAXIMUM PEAK STAGE	14.19	Mar 10 1964
ANNUAL RUNOFF (CFSM)	1.62	
ANNUAL RUNOFF (INCHES)	22.00	
10 PERCENT EXCEEDS	1450	
50 PERCENT EXCEEDS	270	
90 PERCENT EXCEEDS	56	



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

WEST BRANCH SUSQUEHANNA RIVER BASIN

01541303 WEST BRANCH SUSQUEHANNA RIVER AT HYDE, PA

LOCATION.--Lat 4l°00'16", long 78°27'25", Clearfield County, Hydrologic Unit 02050201, on right bank 60 ft downstream from bridge at intersection of SR 1001 and State Highway 879 at Hyde.

DRAINAGE AREA.--474 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 1,093.90 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated since November 1965 by Curwensville Dam (station 01541180) about 5 mi upstream. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 10, 1964, reached a stage of 18.1 ft, from floodmarks, discharge, about 19,400 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	141	579	466	2620	e310	675	845	381	1320	337	2680	2360
2	138	513	505	5560	e370	631	1150	332	1420	283	2580	3940
3	127	411	e440	5290	e370	e750	1150	329	1170	236	2000	4040
4	109	396	e320	4210	e620	e700	1080	319	1690	246	3360	5530
5	129	353	e300	2540	e880	710	2710	358	1990	263	2730	3690
6	167	540	e340	1710	e740	1060	3500	446	1670	257	2250	2310
7	142	679	e340	1420	e600	e1100	2770	429	1520	336	1580	1610
8	90	657	e300	1200	e670	e1000	2110	537	1680	490	1520	1280
9	90	586	e260	1120	e570	1650	1970	e750	1740	378	2110	969
10	105	550	e260	1130	e440	2050	1640	e850	1410	335	3650	846
11	129	453	e280	1030	e440	e1400	1860	e1000	1110	731	2730	752
12	152	473	e380	773	e440	1320	2350	e1100	1170	757	1710	632
13	126	518	484	e850	e440	2160	1900	1040	1190	472	1170	579
14	126	427	641	e600	e400	3310	1490	957	1040	317	760	522
15	132	415	1040	e440	e350	3100	1300	799	939	281	806	600
16	188	455	1220	e470	e350	3590	1160	874	739	300	836	1110
17	255	1030	948	e490	e350	4740	980	1040	650	280	706	667
18	235	1480	727	e490	e320	5370	838	839	820	305	552	534
19	283	1120	605	e470	e280	4440	796	849	979	653	482	665
20	288	997	1860	e440	e380	3960	733	837	902	575	417	936
21	260	936	2840	e440	e440	4210	708	1380	875	321	356	845
22	192	770	2080	e440	e660	3820	659	1360	946	1260	342	666
23	187	700	1710	e420	e900	2880	640	1150	817	1750	329	1550
24	168	719	1460	e370	e1900	2090	587	1310	646	916	294	1450
25	140	646	1170	e370	e1400	1770	543	1240	560	654	244	1080
26	666	543	1020	e370	e920	1420	505	1090	482	571	598	999
27	747	540	812	e370	e940	1220	411	1010	425	461	1510	1000
28	515	523	687	e410	831	1060	362	955	367	1210	1190	1460
29	293	475	690	e440	---	1010	426	785	357	929	720	1580
30	402	441	683	e380	---	955	429	745	354	556	2280	1260
31	574	---	645	e300	---	901	---	832	---	524	3620	---
TOTAL	7296	18925	25513	37163	17311	65052	37602	25923	30978	16984	46112	45462
MEAN	235	631	823	1199	618	2098	1253	836	1033	548	1487	1515
MAX	747	1480	2840	5560	1900	5370	3500	1380	1990	1750	3650	5530
MIN	90	353	260	300	280	631	362	319	354	236	244	522

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 2003, BY WATER YEAR (WY)

MEAN	374	844	990	953	1240	1642	1518	925	692	485	358	354
MAX	1264	2425	1944	2092	2302	3377	3648	1831	1663	1497	1487	1819
(WY)	1980	1998	1991	1996	1986	1979	1993	1989	1989	1996	2003	1996
MIN	97.0	97.2	216	289	392	647	590	307	154	130	98.7	78.1
(WY)	1983	1999	1999	2001	1980	1990	1997	1986	1999	1999	1988	1995

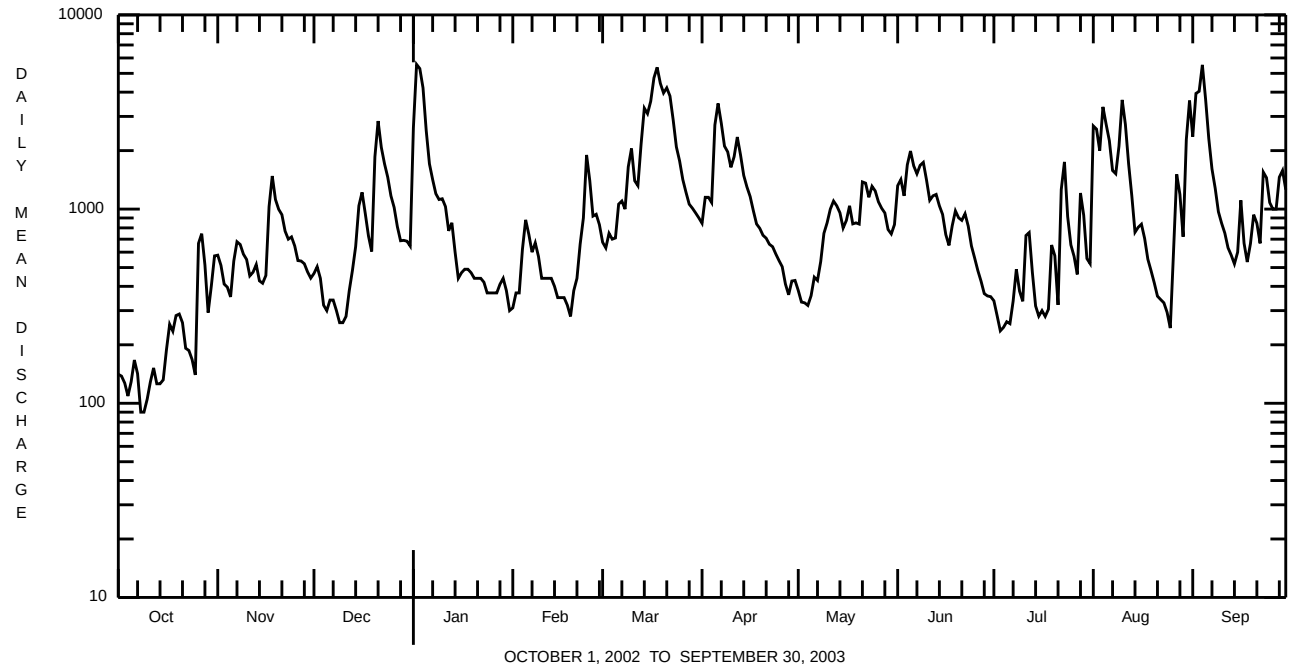
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01541303 WEST BRANCH SUSQUEHANNA RIVER AT HYDE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1979 - 2003	
ANNUAL TOTAL	276473		374321			
ANNUAL MEAN	757		1026		862	
HIGHEST ANNUAL MEAN					1146	1994
LOWEST ANNUAL MEAN					576	1999
HIGHEST DAILY MEAN	5670	Mar 27	5560	Jan 2	6850	Mar 8 1979
LOWEST DAILY MEAN	64	Sep 10-13	90	Oct 8	46	Sep 14 1982
ANNUAL SEVEN-DAY MINIMUM	64	Sep 8	117	Oct 8	53	Oct 6 1983
MAXIMUM PEAK FLOW			**a**6060	Sep 4	**a**7630	Jan 19 1996
MAXIMUM PEAK STAGE			9.82	Sep 4	**b**11.45	Feb 18 1981
10 PERCENT EXCEEDS	1690		2130		2040	
50 PERCENT EXCEEDS	540		719		510	
90 PERCENT EXCEEDS	92		286		121	

a From rating curve extended above 6,000 ft^3/s; gage height 10.82 ft.
b Backwater from ice.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01541500 CLEARFIELD CREEK AT DIMELING, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 40°58'18", long 78°24'22", Clearfield County, Hydrologic Unit 02050201, on right bank at downstream side of highway bridge on SR 2024 at Dimeling, 600 ft downstream from Little Clearfield Creek, and 4.0 mi southeast of Clearfield.

DRAINAGE AREA.--371 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1913 to current year.

REVISED RECORDS.--WSP 756: Drainage area. WSP 891: 1936-39. WSP 1302: 1915-17, 1918-19(M). WSP 1502: 1939. WDR PA-87-2: 1986(M).

GAGE.--Water-stage recorder. Datum of gage is 1,146.08 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 17, 1928, nonrecording gage, and Oct. 17, 1928, to Oct. 25, 1967, water-stage recorder at site 200 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated since December 1960 by Glendale Dam (station 01541340) about 25 mi upstream. Several measurements of water temperature were made during the year. Satellite telemetry at station. Landward wall of gage well collapsed July 28; gage out of operation July 28 to Sept. 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	88	302	330	1870	e240	e420	632	301	942	264	e1700	e2000
2	76	273	302	5910	e250	e400	897	286	858	246	e1100	e2800
3	69	227	e240	3200	e270	e390	832	271	689	229	e1000	e3200
4	73	197	e170	2030	e320	e380	729	255	1550	219	e1900	e3000
5	74	180	e240	1490	e340	e500	2530	262	1590	207	e1500	e1900
6	74	241	e220	1210	e300	e690	2500	324	1260	200	e1100	e1400
7	70	325	e210	1070	e270	e650	1670	307	1170	251	e760	e1000
8	64	289	e200	1030	e250	e600	1430	399	1420	285	e720	e840
9	59	255	e190	1030	e240	e1000	1310	554	1180	221	e1000	e600
10	57	225	e180	1120	e230	1360	1170	704	984	216	e2600	e510
11	62	222	e180	939	e230	934	1330	973	798	500	e1100	e440
12	94	259	e180	794	e220	e750	1600	803	810	420	e850	e380
13	174	369	e200	723	e220	e1200	1280	729	886	262	e580	e360
14	132	481	e360	e660	e220	2290	1080	697	773	218	e500	e340
15	101	457	e520	e640	e210	1920	931	590	659	193	e440	e370
16	99	488	e480	e590	e210	2370	835	652	552	221	e400	e400
17	157	846	e440	e500	e200	3090	748	933	481	203	e370	e340
18	203	1090	e420	e400	e210	3220	667	745	735	214	e330	e300
19	151	854	e410	e380	e210	2830	606	824	926	355	e280	604
20	135	773	e850	e360	e220	2610	558	691	651	236	e250	1500
21	122	653	1660	e330	e240	3120	516	798	668	192	e230	705
22	107	604	1060	e270	e280	2500	514	812	804	474	e210	557
23	96	593	876	e270	e580	1920	497	660	645	547	e190	1110
24	91	554	752	e260	e630	1510	437	730	529	364	e180	941
25	84	524	672	e260	e500	1230	397	750	455	297	e170	710
26	237	507	608	e250	e420	1040	385	745	400	253	e490	702
27	268	437	527	e250	e390	896	388	751	362	260	e1400	616
28	195	368	465	e240	e370	759	357	715	331	e500	e550	1760
29	153	348	459	e250	---	683	340	634	301	e400	e440	1590
30	174	333	421	e250	---	685	321	556	280	e280	e2900	1070
31	300	---	439	e240	---	658	---	600	---	e190	e2500	---
TOTAL	3839	13274	14261	28816	8270	42605	27487	19051	23689	8917	27740	32045
MEAN	124	442	460	930	295	1374	916	615	790	288	895	1068
MAX	300	1090	1660	5910	630	3220	2530	973	1590	547	2900	3200
MIN	57	180	170	240	200	380	321	255	280	190	170	300

e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01541500 CLEARFIELD CREEK AT DIMELING, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	263	466	609	628	824	1267	1067	732	452	289	212	249
MAX	1024	1603	1693	1549	1708	2578	2786	1800	2522	1189	895	1393
(WY)	1980	1998	1973	1996	1976	1979	1993	1978	1972	1977	2003	1996
MIN	41.1	73.3	68.4	139	154	318	378	248	90.3	46.1	55.3	43.4
(WY)	1964	1965	1961	1961	1963	1969	1968	1976	1965	1965	1965	1964

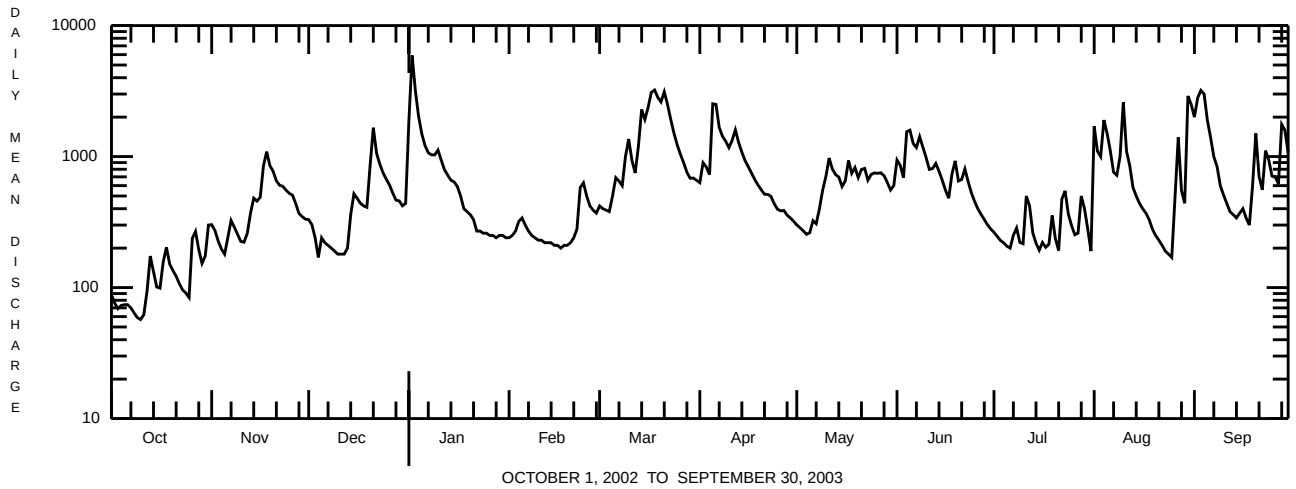
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1961 - 2003	
ANNUAL TOTAL	184689		249994			
ANNUAL MEAN	506		685		587	
HIGHEST ANNUAL MEAN					866	1972,1978
LOWEST ANNUAL MEAN					350	1969
HIGHEST DAILY MEAN	4480	Mar 27	5910	Jan 2	21100	Jun 23 1972
LOWEST DAILY MEAN	42	Sep 14	57	Oct 10	30	Aug 17 1988
ANNUAL SEVEN-DAY MINIMUM	46	Sep 8	66	Oct 5	37	Aug 12 1988
MAXIMUM PEAK FLOW			6260	Jan 2	**a**22400	Jun 23 1972
MAXIMUM PEAK STAGE			9.82	Jan 2	17.56	Jun 23 1972
10 PERCENT EXCEEDS	1130		1490		1330	
50 PERCENT EXCEEDS	330		480		330	
90 PERCENT EXCEEDS	65		191		82	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1960, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	253	386	557	764	789	1284	1059	781	457	241	194	152
MAX	876	1355	1533	2152	1996	4153	2470	1656	1931	1233	901	1370
(WY)	1928	1922	1924	1937	1915	1936	1940	1960	1946	1956	1956	1926
MIN	16.9	26.0	55.1	34.3	103	390	245	121	102	68.7	24.9	22.3
(WY)	1931	1931	1931	1931	1934	1915	1925	1926	1949	1936	1930	1932

SUMMARY STATISTICS	WATER YEARS 1914 - 1960	
ANNUAL MEAN	576	
HIGHEST ANNUAL MEAN	921	1928
LOWEST ANNUAL MEAN	309	1931
HIGHEST DAILY MEAN	27100	Mar 18 1936
LOWEST DAILY MEAN	7.1	Oct 1 1925
ANNUAL SEVEN-DAY MINIMUM	13	Oct 4 1925
MAXIMUM PEAK FLOW	**a**30600	Mar 18 1936
MAXIMUM PEAK STAGE	**b**18.49	Mar 18 1936
INSTANTANEOUS LOW FLOW	6.0	Oct 1,9 1925
ANNUAL RUNOFF (CFSM)	1.55	
ANNUAL RUNOFF (INCHES)	21.08	
10 PERCENT EXCEEDS	1380	
50 PERCENT EXCEEDS	278	
90 PERCENT EXCEEDS	54	

a From rating curve extended above 15,000 ft^3/s.
b From floodmark in gage.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01541500 CLEARFIELD CREEK AT DIMELING, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002													
12...	1240	1028	9813	274	30	12.0	7.3	518	8.2	230	59.0	20.4	20
JAN 2003													
21...	1130	1028	9813	E330	30	11.6	6.8	565	.0	230	51.4	23.8	20
MAR													
19...	1100	1028	9813	2960	30	11.6	6.8	239	6.5	100	23.6	10.5	7
MAY													
27...	1030	1028	9813	776	30	10.7	7.4	357	13.9	150	34.4	16.5	13
JUL													
23...	1200	1028	9813	624	30	9.1	7.3	503	19.6	210	49.0	21.5	15
SEP													
29...	1130	1028	9813	1520	30	9.9	7.3	270	13.0	104	24.0	10.6	16

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, unfltrd recoverable, µg/L (01042)	Iron, water, unfltrd recoverable, µg/L (01045)
NOV 2002													
12...	213	434	14	.050	.58	<.040	<.01	<.010	.98	1.8	500	<10	2360
JAN 2003													
21...	204	400	10	.090	.85	<.040	<.01	<.010	1.0	1.2	400	<10	2060
MAR													
19...	83.5	160	34	<.020	.71	<.040	<.01	.022	.85	1.9	1600	<10	2890
MAY													
27...	139	296	2	<.020	.40	<.040	<.01	.013	.44	1.4	700	<10	1570
JUL													
23...	206	446	30	<.020	.29	<.040	.01	.018	.42	2.4	1200	<10	3220
SEP													
29...	91.3	222	34	<.020	.41	<.040	.03	.030	.90	3.9	--	<10	2537

Date	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 2002				
12...	<1.0	2060	<50	50
JAN 2003				
21...	<1.0	2310	64	110
MAR				
19...	1.1	1050	<50	80
MAY				
27...	<1.0	1670	50	80
JUL				
23...	<1.0	2340	67	80
SEP				
29...	1.2	1085	<50	151

01541500 CLEARFIELD CREEK AT DIMELING, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/27/02
Benthic Macroinvertebrate	Count
Insecta	
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Hydropsyche sp	1
Macrostemum sp	2
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus sp	1
Hymenoptera	2
Total Organisms	6

WEST BRANCH SUSQUEHANNA RIVER BASIN

01542810 WALDY RUN NEAR EMPORIUM, PA

LOCATION.--Lat 41°34'44", long 78°17'34", Cameron County, Hydrologic Unit 02050202, on left bank 15 ft downstream from highway bridge on Township Route 318 at North Creek Chapel, 0.1 mi upstream from mouth, and 5.5 mi northwest of Emporium.

DRAINAGE AREA.--5.24 mi^2.

PERIOD OF RECORD.--Occasional discharge measurements and annual maximum, water years 1963-64. September 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,263.62 ft above National Geodetic Vertical Datum of 1929. July 25, 1963, to Aug. 27, 1964, crest-stage gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 100 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 18	0200	132	4.57
Mar. 21	0030	115	4.49
Apr. 5	0730	170	4.72
Aug. 1	0815	123	4.53
Aug. 9	2345	*315	*5.21
Aug. 10	1930	149	4.64

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.85	2.4	3.7	23	e1.1	5.9	7.3	2.0	13	1.3	96	1.7
2	0.67	2.6	3.3	63	e1.1	5.7	15	2.8	15	1.2	50	16
3	0.54	2.6	2.7	32	1.7	e4.8	23	2.4	11	1.2	37	21
4	0.45	2.6	e4.0	19	13	e6.0	20	2.4	8.7	1.1	66	24
5	0.65	2.7	8.5	13	15	4.5	130	3.1	7.3	0.91	33	14
6	0.45	5.9	2.9	9.6	e9.0	e3.8	68	3.9	6.6	0.92	17	8.9
7	0.33	8.0	2.6	7.7	7.7	e4.4	33	4.9	6.7	0.81	11	6.3
8	0.28	6.7	2.5	7.2	e6.0	4.6	20	6.0	6.4	0.79	7.1	4.6
9	0.26	5.4	2.4	7.0	e5.2	6.0	14	6.4	7.1	0.77	39	3.6
10	0.26	4.5	e3.5	6.3	5.0	e5.5	12	6.6	7.1	1.0	177	2.9
11	0.26	5.0	4.2	5.7	e4.4	e8.0	12	6.3	7.8	1.4	85	2.5
12	0.27	4.5	3.6	5.3	4.8	7.5	12	6.0	16	0.84	58	2.2
13	0.31	4.7	3.2	e4.0	e4.9	7.2	9.9	5.3	48	0.70	29	2.0
14	0.31	4.6	14	e3.4	e3.5	6.6	7.6	4.5	30	0.62	16	2.0
15	0.26	4.2	21	e3.0	3.0	8.4	6.8	4.2	18	0.53	9.8	3.2
16	0.89	4.5	15	e2.6	4.7	27	6.2	5.0	10	0.62	7.1	2.7
17	1.2	43	9.8	e2.0	5.3	82	5.1	4.6	6.8	0.52	5.2	2.0
18	0.90	39	7.6	e1.6	3.8	120	4.3	5.3	5.7	1.5	3.9	1.8
19	1.7	20	6.8	e1.2	2.4	99	3.9	5.1	4.4	1.3	3.1	3.1
20	1.8	12	36	e0.80	2.4	87	3.5	4.9	3.6	0.79	2.6	3.6
21	1.3	8.7	48	e0.60	2.1	104	3.7	6.3	4.7	13	2.4	3.4
22	1.1	7.9	26	e0.50	2.6	81	3.5	6.2	3.7	40	2.2	4.7
23	0.90	6.9	16	e0.45	7.5	45	3.0	6.4	3.4	29	1.9	21
24	0.76	6.3	11	e0.70	11	28	2.7	7.5	3.0	22	1.5	18
25	0.90	5.9	9.4	e1.0	9.9	22	2.6	7.7	2.6	27	1.4	12
26	11	5.2	7.4	e1.0	7.9	19	2.6	8.2	2.3	17	1.6	8.1
27	7.2	4.8	5.7	e1.1	7.4	12	2.4	7.1	2.1	25	1.6	10
28	4.3	4.4	5.1	e1.0	6.7	9.5	2.2	6.4	1.8	68	1.3	48
29	3.1	4.1	4.7	e1.0	---	8.6	2.0	5.4	1.6	29	1.3	33
30	2.8	4.1	4.1	e1.0	---	7.4	2.0	4.5	1.5	13	1.4	18
31	2.5	---	4.6	e1.1	---	6.7	---	6.9	---	7.4	1.1	---
TOTAL	48.50	243.2	299.3	226.85	159.1	847.1	440.3	164.3	265.9	309.22	770.5	304.3
MEAN	1.56	8.11	9.65	7.32	5.68	27.3	14.7	5.30	8.86	9.97	24.9	10.1
MAX	11	43	48	63	15	120	130	8.2	48	68	177	48
MIN	0.26	2.4	2.4	0.45	1.1	3.8	2.0	2.0	1.5	0.52	1.1	1.7
CFSM	0.30	1.55	1.84	1.40	1.08	5.21	2.80	1.01	1.69	1.90	4.74	1.94
IN.	0.34	1.73	2.12	1.61	1.13	6.01	3.13	1.17	1.89	2.20	5.47	2.16

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2003, BY WATER YEAR (WY)

MEAN	4.32	8.92	10.8	8.31	10.9	17.6	17.1	10.9	6.58	2.87	2.96	3.36
MAX	22.1	29.3	27.8	23.8	30.7	33.0	48.3	26.7	30.9	10.2	25.8	15.7
(WY)	1982	1986	1973	1996	1976	1979	1970	2002	1972	1994	1994	1987
MIN	0.10	0.31	2.02	0.83	0.98	4.25	5.34	1.95	0.50	0.26	0.19	0.080
(WY)	1965	1965	1990	1981	1980	1981	1976	1999	1999	1966	1991	1964

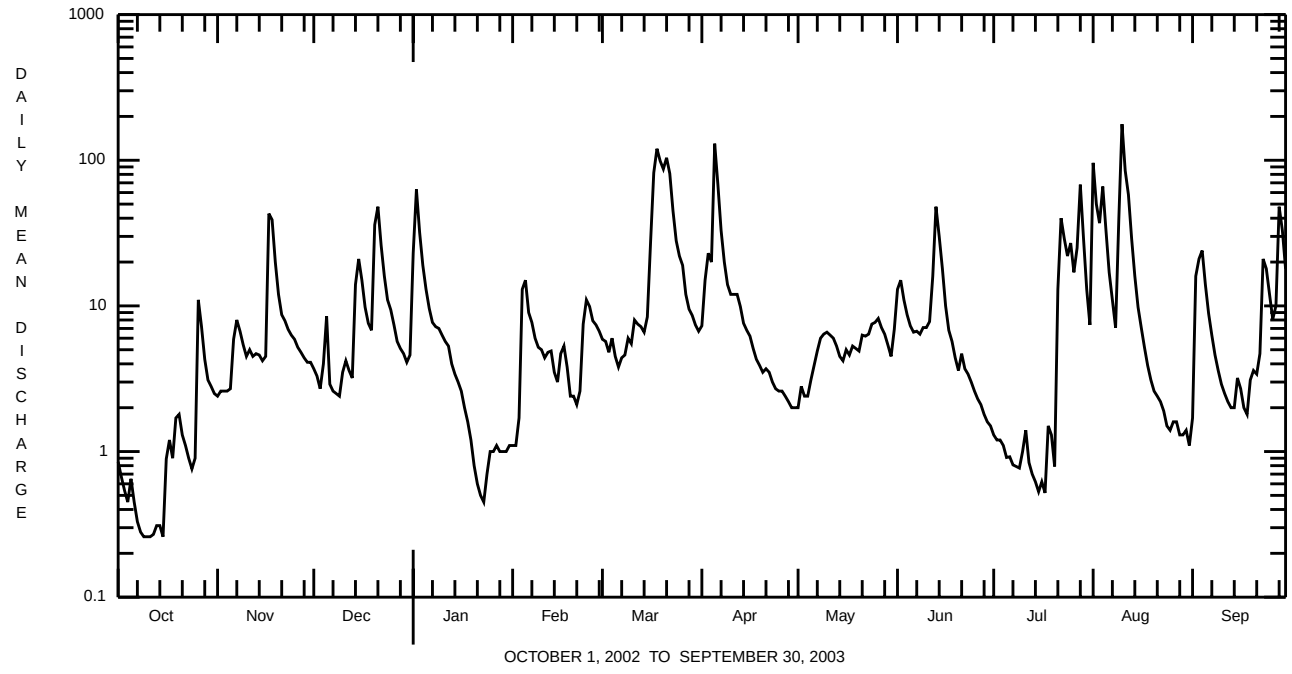
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01542810 WALDY RUN NEAR EMPORIUM, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1964 - 2003	
ANNUAL TOTAL	3394.36		4078.57			
ANNUAL MEAN	9.30		11.2		8.70	
HIGHEST ANNUAL MEAN					14.5	1994
LOWEST ANNUAL MEAN					5.11	1965
HIGHEST DAILY MEAN	131	May 13	177	Aug 10	**e**300	Jan 19 1996
LOWEST DAILY MEAN	0.12	Sep 13	0.26	Oct 9-11,15	0.00	Sep 14 1964
ANNUAL SEVEN-DAY MINIMUM	0.14	Sep 8	0.28	Oct 9	0.01	Sep 13 1964
MAXIMUM PEAK FLOW			**a**315	Aug 9	**a**828	Sep 28 1967
MAXIMUM PEAK STAGE			5.21	Aug 9	6.32	Sep 28 1967
INSTANTANEOUS LOW FLOW					0.00	Sep 14 1964
ANNUAL RUNOFF (CFSM)	1.77		2.13		1.66	
ANNUAL RUNOFF (INCHES)	24.10		28.95		22.56	
10 PERCENT EXCEEDS	25		27		21	
50 PERCENT EXCEEDS	4.5		4.9		3.5	
90 PERCENT EXCEEDS	0.27		0.92		0.42	

a From rating curve extended above 80 ft^3/s on basis of slope-area measurements at gage heights 5.09 ft, 5.86 ft, and at peak flow.
e Estimated.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01543000 DRIFTWOOD BRANCH SINNEMAHONING CREEK AT STERLING RUN, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 41°24'48", long 78°11'50", Cameron County, Hydrologic Unit 02050202, on left bank at downstream side of highway bridge on SR 3002 at village of Sterling Run, and 300 ft upstream from Sterling Run.

DRAINAGE AREA.--272 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1913 to current year.

REVISED RECORDS.--WSP 1272: Drainage area. WSP 1502: 1933(M), 1934-38, 1939(M).

GAGE.--Water-stage recorder. Datum of gage is 894.84 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1913, to Sept. 30, 1931, nonrecording gage, Oct. 1, 193l, to Sept. 30, 1932, and Oct. 1, 1942, to Oct. 3, 1991, water-stage recorder at site 50 feet upstream on steel-truss bridge at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 4,700 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
Aug. 1	1215	*7,890	*6.34
Aug. 10	0400	7,650	6.24

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	127	221	952	e130	e480	544	192	772	129	4630	97
2	43	128	190	2810	e140	e440	820	238	719	113	2800	1400
3	35	124	e140	1720	e150	e400	941	224	e630	103	1770	1100
4	31	120	e130	1190	e220	e360	947	197	e620	94	1990	1210
5	33	119	e140	872	613	e370	3360	211	e610	88	1530	1020
6	36	208	e150	695	e540	e380	2820	278	e530	81	1120	753
7	27	254	e140	561	e440	e340	1760	291	e510	75	839	560
8	21	225	e130	503	e390	e340	1260	363	e540	75	635	437
9	19	201	e130	481	e320	e420	1000	416	e650	77	877	351
10	17	182	e120	469	e270	626	875	445	637	73	4930	286
11	17	219	e140	400	e230	542	784	475	628	121	2260	234
12	17	212	e220	e310	e210	e520	728	498	754	85	1950	200
13	18	205	e260	e260	e220	e480	634	496	1210	67	1300	181
14	20	193	e650	e230	e210	e510	538	450	1110	56	866	187
15	20	181	e440	e240	e220	e580	483	402	864	47	599	202
16	23	194	e360	e210	e180	1330	439	471	638	50	473	422
17	69	1030	e320	e190	e170	2710	396	467	486	46	410	228
18	65	1150	e300	e170	e180	4080	348	448	442	42	302	189
19	61	776	378	e180	e180	3830	312	430	388	97	246	331
20	112	585	1170	e190	e170	3210	287	394	333	56	201	570
21	81	439	1680	e180	e180	4110	299	539	455	307	177	445
22	63	438	1220	e170	e180	3450	343	440	419	1510	159	411
23	53	399	901	e160	e380	2280	297	423	357	1600	140	1460
24	46	341	684	e150	856	1610	271	558	305	1550	119	1210
25	42	317	598	e140	771	1300	259	547	258	1890	112	1000
26	322	288	487	e150	e660	1140	254	548	218	1220	108	785
27	252	267	395	e140	e580	930	241	504	193	1170	136	794
28	168	240	347	e130	e520	759	215	e490	170	3350	112	2900
29	134	224	320	e140	---	e680	207	422	146	1820	93	2050
30	126	228	280	e130	---	e640	197	364	144	1080	124	1360
31	129	---	297	e130	---	582	---	e530	---	689	104	---
TOTAL	2154	9614	12938	14253	9310	39429	21859	12751	15736	17761	31112	22373
MEAN	69.5	320	417	460	332	1272	729	411	525	573	1004	746
MAX	322	1150	1680	2810	856	4110	3360	558	1210	3350	4930	2900
MIN	17	119	120	130	130	340	197	192	144	42	93	97
CFSM	0.26	1.18	1.53	1.69	1.22	4.68	2.68	1.51	1.93	2.11	3.69	2.74
IN.	0.29	1.31	1.77	1.95	1.27	5.39	2.99	1.74	2.15	2.43	4.26	3.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2003, BY WATER YEAR (WY)

MEAN	186	399	489	506	547	987	909	630	331	168	126	130
MAX	838	1918	1394	2027	2047	3366	2310	1758	1783	1308	1294	746
(WY)	1918	1951	1928	1937	1918	1936	1940	1953	1972	1942	1994	2003
MIN	10.0	21.2	24.5	33.2	76.0	250	199	104	38.8	16.9	9.20	5.16
(WY)	1965	1965	1961	1961	1963	1981	1946	1941	1991	1966	1957	1964

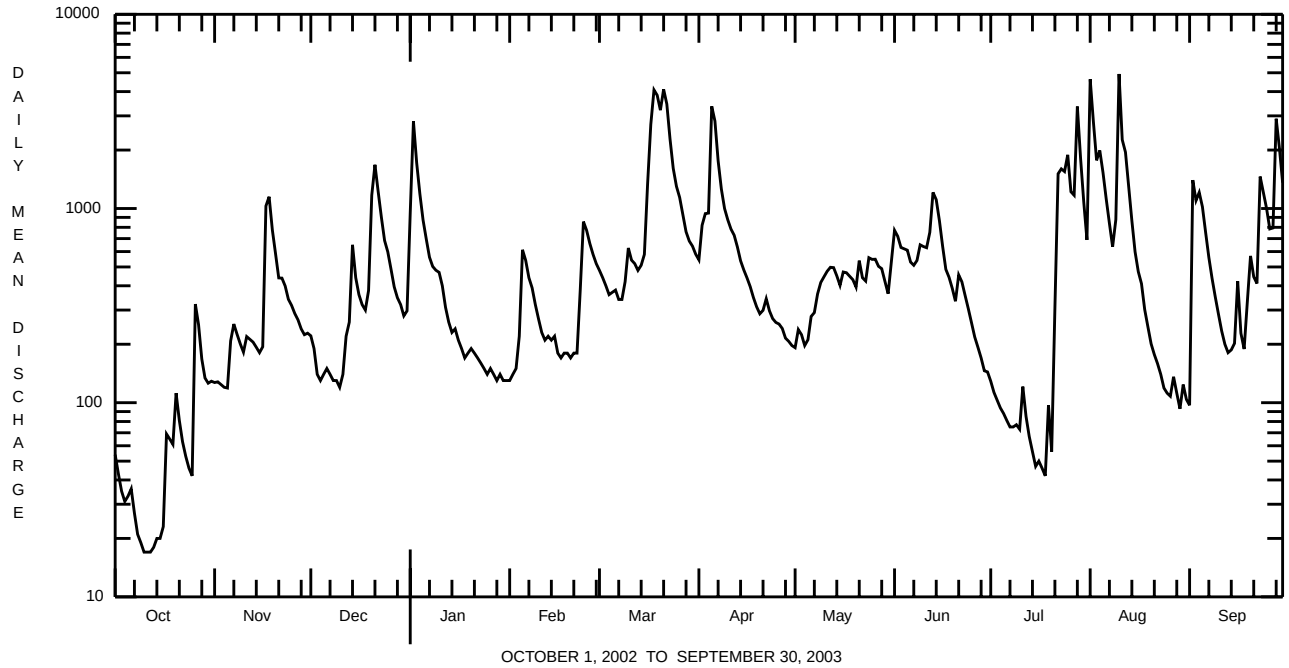
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01543000 DRIFTWOOD BRANCH SINNEMAHONING CREEK AT STERLING RUN, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1914 - 2003	
ANNUAL TOTAL	159249.0		209290			
ANNUAL MEAN	436		573		450	
HIGHEST ANNUAL MEAN					735	1994
LOWEST ANNUAL MEAN					235	1934
HIGHEST DAILY MEAN	7250	May 13	4930	Aug 10	18600	Jun 23 1972
LOWEST DAILY MEAN	5.6	Sep 14	17	Oct 10-12	0.40	Sep 13 1930
ANNUAL SEVEN-DAY MINIMUM	6.7	Sep 8	18	Oct 9	0.87	Aug 28 1939
MAXIMUM PEAK FLOW			7890	Aug 1	**a**47800	Jul 18 1942
MAXIMUM PEAK STAGE			6.34	Aug 1	**b**14.70	Jul 18 1942
INSTANTANEOUS LOW FLOW					0.40	Sep 12 1930**c**
ANNUAL RUNOFF (CFSM)	1.60		2.11		1.65	
ANNUAL RUNOFF (INCHES)	21.78		28.62		22.48	
10 PERCENT EXCEEDS	1150		1280		1080	
50 PERCENT EXCEEDS	234		341		205	
90 PERCENT EXCEEDS	17		83		26	

a From rating curve extended above 11,000 ft^3/s on basis of slope-area measurement of peak flow.
b From floodmarks.
c Also Sept. 13, 14, 1930.



01543000 DRIFTWOOD BRANCH SINNEMAHONING CREEK AT STERLING RUN, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)
NOV 2002													
12...	1540	1028	9813	203	30	12.4	7.6	77	8.4	25	6.76	6.8	1.96
JAN 2003													
21...	1430	1028	9813	E180	30	13.7	7.1	84	.0	26	6.69	6.8	2.03
MAR													
19...	1345	1028	9813	3550	30	12.0	7.1	46	6.0	17	3.96	4.2	1.25
MAY													
27...	1230	1028	9813	495	30	11.7	7.7	58	12.3	21	5.33	5.6	1.62
JUL													
23...	1400	1028	9813	1450	30	10.3	7.6	59	15.0	21	5.21	5.7	1.44
SEP													
29...	1345	1028	9813	1950	30	11.0	7.2	52	11.2	18	4.65	4.7	1.41

Date	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)
NOV 2002													
12...	2.0	13	.0	12.2	58	<2	.040	.29	<.040	<.01	<.010	.60	1.6
JAN 2003													
21...	2.0	11	.0	12.9	70	2	.020	.44	<.040	<.01	<.010	.46	1.3
MAR													
19...	1.4	6	.0	9.7	40	36	<.020	.54	<.040	.03	.026	.64	<.2
MAY													
27...	1.7	13	.0	10.1	60	<2	<.020	.18	<.040	.01	.022	.18	1.3
JUL													
23...	1.6	11	.0	9.6	60	8	<.020	.34	<.040	.03	.028	.41	1.2
SEP													
29...	1.4	11	.0	9.6	34	6	<.020	.24	<.040	.01	.011	.46	.70

01543000 DRIFTWOOD BRANCH SINNEMAHONING CREEK AT STERLING RUN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)	Mangan-ese, water, fltrd, µg/L (01056)	Mangan-ese, water, unfltrd recover-able, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)
NOV 2002													
12...	27	77	<4	<4	<20	120	<1.0	<1.0	4.9	9.7	<4.0	<4.0	<5.0
JAN 2003													
21...	21	42	<4	<4	40	80	<1.0	<1.0	20	20	<4.0	<4.0	6.1
MAR													
19...	29	800	<4	<4	20	1450	<1.0	1.3	20	90	<4.0	<4.0	<5.0
MAY													
27...	12	53	<4	<4	20	90	<1.0	<1.0	10	20	<4.0	<4.0	<5.0
JUL													
23...	19	400	<4	<4	30	730	<1.0	<1.0	10	40	<4.0	<4.0	<5.0
SEP													
29...	--	--	<4	<4	33	240	<1.0	<1.0	8	25	<4.0	<4.0	<5.0

Date	Zinc, water, unfltrd recover-able, µg/L (01092)
NOV 2002	
12...	<5.0
JAN 2003	
21...	<5.0
MAR	
19...	8.7
MAY	
27...	<5.0
JUL	
23...	<5.0
SEP	
29...	<5.0

01543000 DRIFTWOOD BRANCH SINNEMAHONING CREEK AT STERLING RUN, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/27/02
Benthic Macroinvertebrate	Count
Mollusca	
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	
Musiculum sp	1
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	1
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Acentrella sp	1
Baetis sp	5
Caenidae	
Caenis sp	2
Ephemeridae	
Ephemera sp	1
Heptageniidae	
Epeorus sp	1
Leucrocuta sp	29
Stenacron sp	2
Stenonema sp	65
Isonychiidae	
Isonychia sp	30
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Coenagrionidae	
Argia sp	3
Gomphidae	
Dromogomphus sp	3
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
Corydalus sp	7
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche sp	7
Hydropsyche sp	2
Philopotamidae	
Chimarra sp	1
Coleoptera (BEETLES)	
Psephenidae (WATER PENNIES)	
Psephenus sp	4
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	10
Simuliidae (BLACK FLIES)	
Simulium sp	1
Total Organisms	176

WEST BRANCH SUSQUEHANNA RIVER BASIN

01543500 SINNEMAHONING CREEK AT SINNEMAHONING, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 41°19'02", long 78°06'12", Cameron County, Hydrologic Unit 02050202, on left bank 0.2 mi upstream from Grove Run, and 0.7 mi upstream from Penn Central Railroad bridge at Sinnemahoning.

DRAINAGE AREA.--685 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1938 to current year. Prior to October 1938 monthly discharge only, published in WSP 1302.

GAGE.--Water-stage recorder. Datum of gage is 769.36 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 21.94 ft, Mar. 18, 1936, from floodmark, discharge, 61,200 ft^3/s, from rating curve extended above 31,000 ft^3/s on basis of slope-area measurement at gage height 21.58 ft.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 8,400 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Jan. 1	0400	10,200	7.83	July 28	0615	9,440	7.54
Mar. 19	0045	11,400	8.32	Aug. 1	1100	*16,400	*10.11
Apr. 5	1600	9,940	7.74	Aug. 10	0515	12,600	8.76

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	134	300	548	2320	e300	e1200	1320	541	2590	315	10000	301
2	104	316	474	8540	e340	e1100	1810	642	2210	274	7220	2480
3	88	299	e450	5130	e500	e970	1980	631	1950	248	4480	2080
4	84	281	e400	3440	e700	e1000	1980	540	2040	228	5140	2530
5	82	274	e360	2480	e1400	e1100	7320	538	1960	211	4090	2340
6	86	414	e420	1960	e1200	e930	7290	705	1750	199	3290	1720
7	77	633	e380	1580	e1100	e910	4870	1060	1760	197	2460	1330
8	62	523	e360	1380	e1000	e1100	3630	1330	1880	248	2030	1060
9	53	457	e340	1310	e800	e1300	2950	1700	2110	294	2200	869
10	48	410	e300	1330	e700	e1400	2540	1770	1940	238	9170	737
11	47	436	e360	1120	e640	e1400	2280	1820	1770	340	4960	621
12	46	494	e440	947	e580	e1300	2180	1890	1810	324	4020	530
13	47	459	e560	839	e640	e1400	1860	1800	2600	219	2760	471
14	48	431	e700	826	e580	e1600	1610	1600	2320	178	1920	475
15	50	401	e1800	e760	e620	e2200	1440	1400	1890	147	1400	488
16	59	422	1340	e700	e500	3690	1300	1590	1460	139	1170	1250
17	108	1650	1050	e640	e440	7270	1210	1670	1150	136	1090	720
18	157	2240	875	e580	e490	10400	1080	1520	1110	118	839	558
19	129	1610	879	e500	e500	9840	970	1390	987	157	689	761
20	191	1320	2410	e580	e460	8200	895	1230	864	143	579	1470
21	195	1070	4060	e540	e510	9820	891	1790	990	169	505	1110
22	141	996	3000	e500	e900	8190	1030	1540	983	2660	453	1000
23	112	956	2270	e440	e1400	5760	905	1420	798	2940	406	3380
24	97	816	1710	e420	e2200	4160	815	1780	678	2360	350	2920
25	88	747	1500	e380	e2000	3320	767	1750	578	2880	313	2350
26	452	688	1250	e400	e1800	2830	750	1750	501	1830	299	1950
27	648	640	1000	e360	e1600	2290	724	1620	441	1310	411	1740
28	392	582	869	e320	e1300	1850	647	1680	393	7500	362	6220
29	301	541	812	e340	---	1660	601	1480	348	4230	288	4560
30	275	549	719	e320	---	1620	563	1280	331	2500	327	3090
31	292	---	739	e320	---	1440	---	1410	---	1580	369	---
TOTAL	4693	20955	32375	41302	25200	101250	58208	42867	42192	34312	73590	51111
MEAN	151	698	1044	1332	900	3266	1940	1383	1406	1107	2374	1704
MAX	648	2240	4060	8540	2200	10400	7320	1890	2600	7500	10000	6220
MIN	46	274	300	320	300	910	563	538	331	118	288	301
CFSM	0.22	1.02	1.52	1.94	1.31	4.77	2.83	2.02	2.05	1.62	3.47	2.49
IN.	0.25	1.14	1.76	2.24	1.37	5.50	3.16	2.33	2.29	1.86	4.00	2.78

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2003, BY WATER YEAR (WY)

MEAN	457	949	1266	1240	1450	2442	2312	1598	854	424	328	335
MAX	2186	4836	2883	4349	3732	5608	5500	3771	4066	2134	2596	1706
(WY)	1991	1951	1973	1952	1976	1945	1940	1953	1972	1992	1994	1975
MIN	31.5	52.0	64.1	91.8	257	771	556	313	97.3	37.9	28.7	29.6
(WY)	1965	1965	1961	1961	1963	1981	1946	1941	1999	1966	1957	1939

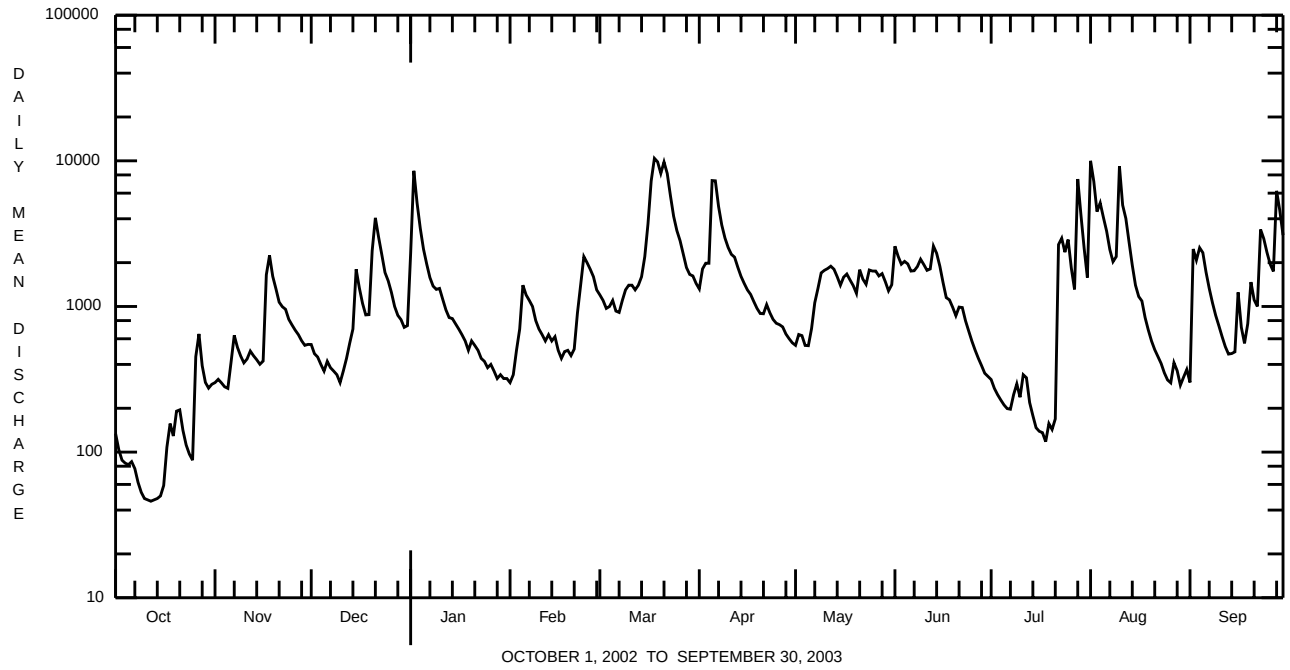
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01543500 SINNEMAHONING CREEK AT SINNEMAHONING, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1939 - 2003	
ANNUAL TOTAL	387721		528055			
ANNUAL MEAN	1062		1447		1136	
HIGHEST ANNUAL MEAN					1798	1951
LOWEST ANNUAL MEAN					705	1999
HIGHEST DAILY MEAN	14700	May 13	10400	Mar 18	44000	Jun 23 1972
LOWEST DAILY MEAN	13	Sep 13,14	46	Oct 12	1.4	Sep 3 1939
ANNUAL SEVEN-DAY MINIMUM	15	Sep 8	48	Oct 9	4.2	Aug 29 1939
MAXIMUM PEAK FLOW			16400	Aug 1	**a**60800	Jun 23 1972
MAXIMUM PEAK STAGE			10.11	Aug 1	21.78	Jun 23 1972
INSTANTANEOUS LOW FLOW					1.2	Sep 4 1939
ANNUAL RUNOFF (CFSM)	1.55		2.11		1.66	
ANNUAL RUNOFF (INCHES)	21.06		28.68		22.53	
10 PERCENT EXCEEDS	2670		2930		2750	
50 PERCENT EXCEEDS	633		910		563	
90 PERCENT EXCEEDS	47		216		70	

a From rating curve extended above 31,000 ft^3/s on basis of slope-area measurement at gage height 21.58 ft.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01543500 SINNEMAHONING CREEK AT SINNEMAHONING, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002													
07...	1530	1028	9813	614	40	12.6	7.1	132	6.4	48	11.8	4.5	8
JAN 2003													
13...	0930	1028	9813	823	40	14.8	7.6	79	.0	30	7.8	2.6	7
MAR													
10...	1500	1028	9813	E1400	40	14.3	5.8	282	.0	31	7.9	2.8	7
MAY													
12...	0900	1028	9813	1870	40	9.7	7.6	64	13.9	27	6.8	2.5	8
JUL													
14...	1130	1028	9813	180	40	8.4	6.5	137	23.8	45	11.2	4.3	10
SEP													
15...	1400	1028	9813	422	40	9.2	7.5	91	20.4	34	8.8	3.0	12

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, unfltrd recoverable, µg/L (01042)	Iron, water, unfltrd recoverable, µg/L (01045)
NOV 2002													
07...	37.3	104	4	.020	.02	<.040	<.01	<.010	.32	1.4	--	<10	194
JAN 2003													
13...	24.2	8	<2	<.020	.27	<.040	<.01	<.010	.22	.8	<200	<10	180
MAR													
10...	21.7	70	12	<.020	.33	<.040	.01	.017	.38	.9	700	<10	720
MAY													
12...	20.1	62	4	<.020	.08	<.040	.01	.017	.17	1.2	<200	<10	140
JUL													
14...	37.3	110	<2	.050	.08	<.040	<.01	.012	.15	1.2	<200	<10	100
SEP													
15...	21.2	104	<2	<.020	.12	<.040	<.01	<.010	.12	1.1	<200	<10	70

Date	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 2002				
07...	<1.0	200	<50	<10
JAN 2003				
13...	<1.0	130	<50	10
MAR				
10...	<1.0	140	<50	10
MAY				
12...	<1.0	80	<50	10
JUL				
14...	<1.0	50	<50	50
SEP				
15...	<1.0	30	<50	<10

01543500 SINNEMAHONING CREEK AT SINNEMAHONING, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/14/02
Benthic Macroinvertebrate	Count
Mollusca	
Gastropoda (SNAILS)	2
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	7
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Baetis sp	9
Heterocloeon sp	6
Heptageniidae	
Epeorus sp	5
Leucrocuta sp	4
Stenacron sp	11
Stenonema sp	8
Isonychiidae	
Isonychia sp	6
Plecoptera (STONEFLIES)	
Perlidae	
Acroneuria sp	4
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
Corydalus sp	1
Nigronia sp	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche sp	7
Hydropsyche sp	14
Macrostemum sp	3
Hydroptilidae	
Hydroptila sp	3
Leptoceridae	
Oecetis sp	1
Philopotamidae	
Chimarra sp	34
Polycentropodidae	
Cernotina sp	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus sp	7
Psephenidae (WATER PENNIES)	
Psephenus sp	4
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	22
Simuliidae (BLACK FLIES)	
Simulium sp	19
Total Organisms	179

WEST BRANCH SUSQUEHANNA RIVER BASIN

01544000 FIRST FORK SINNEMAHONING CREEK NEAR SINNEMAHONING, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 41°24'06", long 78°01'28", Cameron County, Hydrologic Unit 02050202, on right bank on Township Route 357, 350 ft downstream from Woodrock Run, 1,500 ft upstream from Roaring Run, 0.8 mi downstream from George B. Stevenson Dam (First Fork Sinnemahoning Creek Reservoir), and 7.5 mi northeast of Sinnemahoning.

DRAINAGE AREA.--245 mi^2.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 878.71 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 1, 1954, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since Jan. 31, 1956 by George B. Stevenson Dam (station 01543900). Several measurements of water temperature were made during the year. Satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge known, 80,000 ft^3/s, July 18, 1942, by slope-area measurement.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	98	223	439	106	378	580	190	668	146	2050	88
2	32	96	209	1920	91	349	753	219	813	112	4000	460
3	31	75	142	1420	111	264	862	226	816	112	2190	405
4	30	62	80	1130	142	229	961	175	750	111	2890	797
5	30	69	72	702	329	340	1850	161	660	104	2930	812
6	29	114	120	683	263	254	2810	229	572	88	1410	679
7	28	209	162	559	275	230	1890	270	637	68	1040	514
8	25	187	161	455	273	237	1180	274	659	61	768	400
9	17	157	135	475	229	330	953	350	608	70	949	319
10	16	157	57	446	220	381	848	381	628	81	1770	267
11	16	158	74	382	218	356	657	387	654	133	1720	211
12	16	158	142	332	190	403	657	407	665	108	1960	192
13	15	157	174	297	181	428	637	462	1040	41	1450	107
14	16	157	253	312	152	434	524	443	1160	38	965	240
15	15	155	483	271	171	437	494	411	888	52	669	146
16	16	154	374	245	128	760	444	434	646	58	519	253
17	16	360	372	249	102	2030	421	492	524	62	396	208
18	75	740	291	188	133	3690	320	570	456	65	373	232
19	64	697	252	131	164	4540	312	545	420	304	232	179
20	49	548	424	218	164	3340	309	464	276	64	227	311
21	50	420	1430	200	135	1400	262	439	424	135	204	340
22	48	368	1480	139	122	937	314	438	536	1540	175	340
23	38	405	1070	109	291	3870	352	306	497	2690	150	1050
24	29	336	680	128	584	4500	141	401	455	2700	128	1350
25	28	295	617	175	620	3900	245	511	355	2660	124	990
26	84	295	486	164	497	1830	297	541	314	1580	105	771
27	226	322	329	137	469	1160	214	559	272	888	94	599
28	121	266	258	112	421	900	235	535	189	2860	106	3460
29	100	210	302	103	---	782	186	533	177	2110	111	3480
30	100	219	303	130	---	718	181	489	183	1040	107	1570
31	98	---	244	134	---	542	---	470	---	811	95	---
TOTAL	1490	7644	11399	12385	6781	39949	19889	12312	16942	20892	29907	20770
MEAN	48.1	255	368	400	242	1289	663	397	565	674	965	692
MAX	226	740	1480	1920	620	4540	2810	570	1160	2860	4000	3480
MIN	15	62	57	103	91	229	141	161	177	38	94	88

01544000 FIRST FORK SINNEMAHONING CREEK NEAR SINNEMAHONING, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

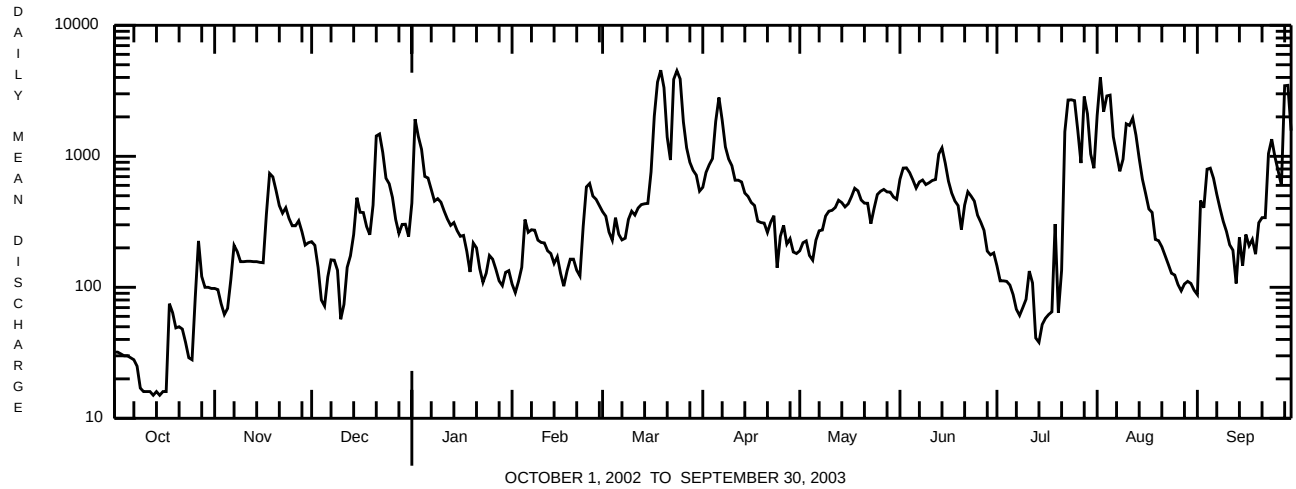
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	206	383	465	376	467	808	877	516	282	168	133	143
MAX	1033	1162	1051	1131	1452	1820	2300	1265	1334	808	977	837
(WY)	1991	1986	1991	1996	1981	1964	1993	2002	1989	1992	1994	1975
MIN	9.76	17.6	21.3	16.6	77.9	171	320	103	39.5	14.5	14.2	5.31
(WY)	1964	1965	1961	1961	1963	1960	1976	1985	1999	1966	1962	1964

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1956 - 2003	
ANNUAL TOTAL	141615.5		200360			
ANNUAL MEAN	388		549		401	
HIGHEST ANNUAL MEAN					640	1994
LOWEST ANNUAL MEAN					236	1999
HIGHEST DAILY MEAN	4520	May 16	4540	Mar 19	7360	Mar 10 1956
LOWEST DAILY MEAN	9.8	Sep 8-14	15	Oct 13,15	0.10	Aug 8 1975
ANNUAL SEVEN-DAY MINIMUM	9.8	Sep 8	16	Oct 10	3.6	Oct 23 1963
MAXIMUM PEAK FLOW			4920	Mar 19,23	10200	Mar 1 1956
MAXIMUM PEAK STAGE			4.00	Mar 19,23	6.60	Mar 1 1956
10 PERCENT EXCEEDS	1020		1370		960	
50 PERCENT EXCEEDS	219		304		194	
90 PERCENT EXCEEDS	21		70		27	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1955, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	55.2	101	374	394	467	1277	699	391	177	30.6	44.6	20.4
MAX	96.7	132	509	503	631	1672	936	626	260	38.9	74.4	23.4
(WY)	1955	1955	1955	1955	1954	1955	1954	1954	1954	1954	1955	1955
MIN	13.7	70.0	239	285	304	883	462	156	93.4	22.3	14.9	17.4
(WY)	1954	1954	1954	1954	1955	1954	1955	1955	1955	1955	1954	1954

SUMMARY STATISTICS	WATER YEARS 1954 - 1955	
ANNUAL MEAN	336	
HIGHEST ANNUAL MEAN	339	1955
LOWEST ANNUAL MEAN	332	1954
HIGHEST DAILY MEAN	5020	Mar 2 1954
LOWEST DAILY MEAN	5.6	Sep 22 1955
ANNUAL SEVEN-DAY MINIMUM	8.3	Sep 6 1954
MAXIMUM PEAK FLOW	7000	Mar 1 1954
MAXIMUM PEAK STAGE	5.64	Mar 1 1954
ANNUAL RUNOFF (CFSM)	1.37	
ANNUAL RUNOFF (INCHES)	18.63	
10 PERCENT EXCEEDS	980	
50 PERCENT EXCEEDS	103	
90 PERCENT EXCEEDS	14	



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

01544000 FIRST FORK SINNEMAHONING CREEK NEAR SINNEMAHONING, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)
NOV 2002													
20...	0915	1028	9813	509	30	12.9	7.2	57	5.0	21	5.38	5.5	1.61
JAN 2003													
16...	1000	1028	9813	249	30	13.9	7.5	65	.6	21	5.81	5.7	1.69
MAR													
24...	1000	1028	9813	4560	30	13.4	7.0	46	6.6	18	4.80	4.8	1.40
MAY													
15...	1030	1028	9813	400	30	10.9	7.4	55	11.6	20	5.40	5.4	1.56
JUL													
16...	1245	1028	9813	59	30	8.5	7.4	67	24.3	25	6.56	6.7	1.87
SEP													
18...	1030	1028	9813	258	30	9.3	6.8	61	18.2	22	5.70	5.9	1.69

Date	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)
NOV 2002													
20...	1.6	10	.0	9.6	42	4	<.020	.54	<.040	<.01	<.010	.96	1.3
JAN 2003													
16...	1.6	10	.0	9.6	58	<2	<.020	.43	<.040	<.01	<.010	.43	.7
MAR													
24...	1.4	8	9.4	8.7	34	6	<.020	.65	<.040	.02	.015	.71	--
MAY													
15...	1.6	12	.0	8.9	40	<2	<.020	.23	<.040	.01	<.010	.42	.9
JUL													
16...	1.9	18	.0	7.7	50	6	<.020	.17	<.040	.01	.012	.43	1.2
SEP													
18...	1.8	15	.0	7.6	36	16	.020	.19	<.040	<.01	.016	.35	1.0

01544000 FIRST FORK SINNEMAHONING CREEK NEAR SINNEMAHONING, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)	Mangan-ese, water, fltrd, µg/L (01056)	Mangan-ese, water, unfltrd recover-able, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)
NOV 2002													
20...	18	70	<4	<4	20	120	<1.0	<1.0	8.5	10	<4.0	<4.0	<5.0
JAN 2003													
16...	24	36	<4	<4	30	90	<1.0	<1.0	20	20	<4.0	<4.0	<5.0
MAR													
24...	23	100	<4	<4	<20	170	<1.0	<1.0	8.5	20	<4.0	<4.0	<5.0
MAY													
15...	<10	24	<4	<4	40	150	1.3	<1.0	20	30	<4.0	<4.0	<5.0
JUL													
16...	<10	25	<4	<4	150	370	<1.0	<1.0	30	80	<4.0	<4.0	<5.0
SEP													
18...	<10	57	<4	<4	70	280	<1.0	<1.0	7.0	40	<4.0	<4.0	<5.0

Date	Zinc, water, unfltrd recover-able, µg/L (01092)
NOV 2002	
20...	<5.0
JAN 2003	
16...	<5.0
MAR	
24...	<5.0
MAY	
15...	<5.0
JUL	
16...	9.5
SEP	
18...	<5.0

01544000 FIRST FORK SINNEMAHONING CREEK NEAR SINNEMAHONING, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/13/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Dugesiidae	
Dugesia sp	4
Nematoda (NEMATODES)	1
Mollusca	
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	
Musiculum sp	4
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	9
Arthropoda	
Crustacea	
Isopoda (AQUATIC SOWBUGS)	
Asellidae	
Caecidotea sp	22
Insecta	
Ephemeroptera (MAYFLIES)	
Heptageniidae	
Stenacron sp	3
Stenonema sp	12
Isonychiidae	
Isonychia sp	4
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Coenagrionidae	
Argia sp	2
Gomphidae	2
Plecoptera (STONEFLIES)	
Perlidae	
Acroneuria sp	2
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche sp	55
Hydropsyche sp	4
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus sp	1
Stenelmis sp	1
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	37
Empididae (DANCE FLIES)	
Hemerodromia sp	1
Total Organisms	164

WEST BRANCH SUSQUEHANNA RIVER BASIN

01544500 KETTLE CREEK AT CROSS FORK, PA

LOCATION.--Lat 41°28'33", long 77°49'34", Clinton County, Hydrologic Unit 02050203, on right bank just upstream from abutment of former highway bridge on Township Route 318, 0.2 mi downstream from Potter-Clinton County line, and 0.7 mi southeast of Cross Fork.

DRAINAGE AREA.--136 mi^2.

PERIOD OF RECORD.--October 1940 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,027.12 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, about 14.0 ft, Mar. 18, 1936, from information by local residents, discharge, about 20,000 ft^3/s, from rating curve extended above 9,200 ft^3/s on basis of slope-area measurement of peak flow.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 2,400 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 21	2130	*2,550	*5.25

Date	Time	Discharge ft^3/s	Gage Height (ft)
No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	77	144	246	e75	e200	368	97	965	110	1180	60
2	27	73	126	509	e85	e190	460	111	1070	97	1240	265
3	23	67	104	461	e80	e180	577	98	812	87	884	215
4	21	65	e91	407	e95	e170	605	92	641	78	698	326
5	23	63	e95	346	e110	e160	975	97	524	70	591	390
6	20	97	e100	304	e99	e160	1100	103	440	65	517	347
7	17	108	e96	265	e110	e150	894	102	432	68	428	283
8	15	115	e92	246	e110	e150	689	e130	394	66	360	230
9	14	117	e84	242	e110	e150	548	119	401	57	440	191
10	13	115	e74	228	e100	e160	452	125	378	57	1430	162
11	13	115	e86	207	e95	e140	412	135	e362	95	1080	135
12	15	107	e100	195	e92	e150	399	144	366	62	755	118
13	16	110	e120	181	e90	e150	378	140	393	49	552	112
14	17	100	e140	175	e89	e140	350	133	e437	42	414	123
15	15	99	196	e170	e85	e150	324	130	e412	37	320	118
16	21	107	156	e150	e80	e300	293	167	e340	39	262	169
17	50	259	133	e140	e70	e700	261	194	e276	34	225	129
18	34	391	e120	e130	e73	1750	229	232	264	59	180	121
19	36	379	161	e140	e80	1910	208	256	219	72	149	171
20	48	330	296	e150	e89	1680	188	250	192	46	127	222
21	41	281	559	e130	e80	2280	178	254	367	100	112	240
22	37	269	537	e110	e80	2270	181	213	518	479	100	250
23	35	248	450	e90	e140	1610	158	191	524	499	89	707
24	33	238	365	e100	e340	1170	140	258	427	870	78	712
25	32	233	328	e94	e320	983	131	288	334	731	71	601
26	97	217	269	e93	e260	925	128	494	266	513	69	467
27	98	202	223	e86	e240	783	120	617	216	476	72	417
28	92	180	197	e80	e220	631	110	626	177	730	61	1470
29	86	167	179	e80	---	548	105	569	147	623	57	1310
30	87	159	159	e80	---	e508	100	492	127	465	62	859
31	81	---	153	e77	---	411	---	477	---	346	51	---
TOTAL	1190	5088	5933	5912	3497	20859	11061	7334	12421	7122	12654	10920
MEAN	38.4	170	191	191	125	673	369	237	414	230	408	364
MAX	98	391	559	509	340	2280	1100	626	1070	870	1430	1470
MIN	13	63	74	77	70	140	100	92	127	34	51	60
CFSM	0.28	1.25	1.41	1.40	0.92	4.95	2.71	1.74	3.04	1.69	3.00	2.68
IN.	0.33	1.39	1.62	1.62	0.96	5.71	3.03	2.01	3.40	1.95	3.46	2.99

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2003, BY WATER YEAR (WY)

MEAN	106	209	245	221	257	481	502	318	167	84.1	61.9	67.4
MAX	700	868	552	663	800	1055	1303	721	797	436	581	699
(WY)	1991	1951	1973	1952	1981	1945	1993	1946	1972	1992	1994	1975
MIN	6.23	9.53	18.8	18.4	52.1	132	112	63.8	22.1	12.8	7.07	6.32
(WY)	1965	1965	1961	1961	1963	1981	1946	1941	1991	1962	1971	1964

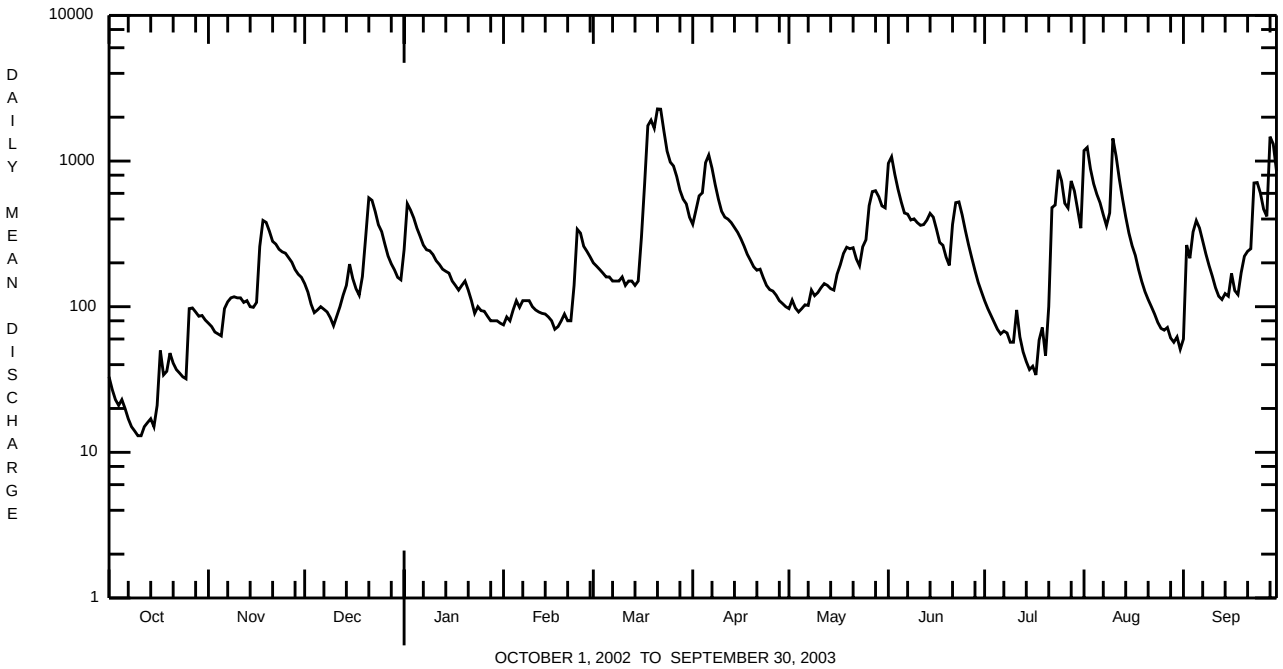
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01544500 KETTLE CREEK AT CROSS FORK, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1941 - 2003	
ANNUAL TOTAL	69771.5		103991			
ANNUAL MEAN	191		285		226	
HIGHEST ANNUAL MEAN					351	1951
LOWEST ANNUAL MEAN					125	1941
HIGHEST DAILY MEAN	2210	May 14	2280	Mar 21	10500	Jun 23 1972
LOWEST DAILY MEAN	4.7	Sep 12	13	Oct 10,11	1.2	Sep 2-4 1971
ANNUAL SEVEN-DAY MINIMUM	5.0	Sep 8	15	Oct 7	1.4	Sep 1 1971
MAXIMUM PEAK FLOW			2550	Mar 21	**a**14300	Jun 23 1972
MAXIMUM PEAK STAGE			5.25	Mar 21	**b**11.76	Jun 23 1972
ANNUAL RUNOFF (CFSM)	1.41		2.09		1.66	
ANNUAL RUNOFF (INCHES)	19.08		28.44		22.61	
10 PERCENT EXCEEDS	456		624		537	
50 PERCENT EXCEEDS	120		160		109	
90 PERCENT EXCEEDS	12		60		16	

a From rating curve extended above 9,200 ft^3/s on basis of slope-area measurement of peak flow.
b From floodmark in gage.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

WEST BRANCH SUSQUEHANNA RIVER BASIN

01545000 KETTLE CREEK NEAR WESTPORT, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 41°19'10", long 77°52'27", Clinton County, Hydrologic Unit 02050203, on left bank on SR 4001, 0.4 mi upstream from Short Bond Run, 3.5 mi upstream from mouth and Westport, and 5.0 mi downstream from Alvin R. Bush Dam (Kettle Creek Lake).

DRAINAGE AREA.--233 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1954 to current year.

GAGE.--Water-stage recorder. Datum of gage is 728.24 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 14, 1956, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated since February 1962 by Alvin R. Bush Dam (station 01544800). Several measurements of water temperature were made during the year. Satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	102	212	393	e130	397	592	171	1500	169	2290	100
2	26	109	194	1380	e130	337	663	191	1940	148	2800	377
3	40	95	e150	1060	e130	e270	944	186	1420	138	1610	317
4	46	83	e120	804	e150	e240	1020	157	1090	124	1520	591
5	36	83	e140	628	e180	275	1750	177	836	119	1240	689
6	24	110	163	554	e150	251	2140	201	725	107	1020	582
7	18	158	e140	465	e180	e200	1670	189	722	101	823	472
8	17	170	120	417	e180	e170	1220	253	671	108	633	391
9	19	173	e130	405	e170	e310	927	261	667	102	599	321
10	19	179	e110	383	e180	e270	752	276	629	98	1970	263
11	21	168	e130	357	e160	e280	662	294	608	142	1630	229
12	23	147	e170	324	e150	312	639	342	606	123	1170	196
13	21	148	e180	288	e140	e360	622	324	600	93	867	178
14	18	134	197	274	e130	e350	581	290	611	71	625	194
15	22	131	266	270	e140	379	538	292	594	53	490	277
16	44	155	299	e240	e130	708	482	350	515	61	424	408
17	50	333	e260	e210	e110	1740	461	361	427	64	362	314
18	39	618	e180	e180	e120	3080	372	393	394	70	285	206
19	53	581	e220	e150	e130	3460	331	451	358	113	239	237
20	59	503	429	e220	e140	3010	327	439	301	93	199	319
21	60	425	860	e190	e130	1330	316	457	453	136	184	368
22	58	390	921	e150	e160	1400	304	374	657	650	160	398
23	66	364	742	e140	e300	4290	280	327	725	778	144	1160
24	61	335	572	e160	e450	4150	245	401	601	1400	129	1300
25	53	339	529	e150	e500	3010	231	496	492	1260	115	1020
26	90	329	433	e160	e450	1660	226	1090	395	839	113	777
27	162	290	345	e150	e470	1290	213	1170	330	678	119	661
28	215	265	314	e120	461	1050	191	1060	265	2210	109	2040
29	118	247	292	e130	---	909	179	934	231	1430	97	2240
30	58	224	254	e130	---	724	179	799	201	916	102	1450
31	77	---	232	e130	---	638	---	722	---	647	99	---
TOTAL	1667	7388	9304	10612	5851	36850	19057	13428	19564	13041	22167	18075
MEAN	53.8	246	300	342	209	1189	635	433	652	421	715	602
MAX	215	618	921	1380	500	4290	2140	1170	1940	2210	2800	2240
MIN	17	83	110	120	110	170	179	157	201	53	97	100

e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01545000 KETTLE CREEK NEAR WESTPORT, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	183	346	414	345	446	735	801	477	284	150	112	131
MAX	1096	1060	954	857	1330	1739	2453	992	1278	677	927	1058
(WY)	1991	1971	1973	1979	1981	1979	1993	2002	1972	1972	1994	1975
MIN	13.5	5.37	55.4	63.8	78.8	167	309	141	39.8	8.06	7.69	13.0
(WY)	1965	1965	1999	1981	1963	1968	1976	1999	1999	1962	1962	1991

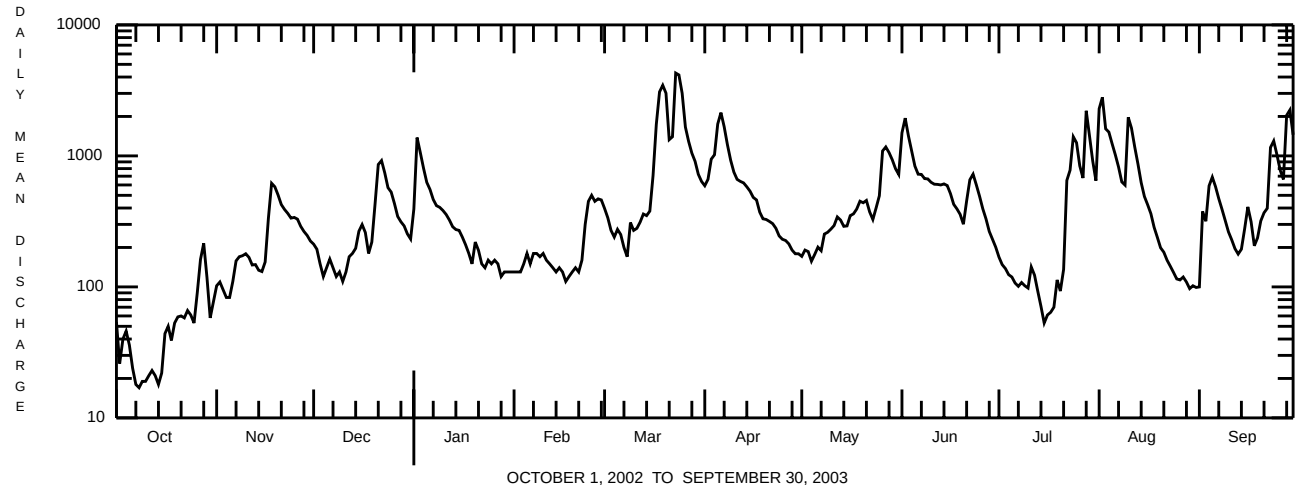
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1962 - 2003	
ANNUAL TOTAL	115945.7		177004			
ANNUAL MEAN	318		485		368	
HIGHEST ANNUAL MEAN					575	1994
LOWEST ANNUAL MEAN					203	2001
HIGHEST DAILY MEAN	3660	May 14	4290	Mar 23	7200	Apr 14 1970
LOWEST DAILY MEAN	4.4	Sep 14	17	Oct 8	4.4	Nov 3 1964**a**
ANNUAL SEVEN-DAY MINIMUM	5.4	Sep 8	20	Oct 7	4.6	Nov 2 1964
MAXIMUM PEAK FLOW			4810	Mar 24	7540	Apr 13 1970
MAXIMUM PEAK STAGE			8.25	Mar 24	10.17	Apr 13 1970
INSTANTANEOUS LOW FLOW					3.0	Dec 6 1964
10 PERCENT EXCEEDS	768		1160		873	
50 PERCENT EXCEEDS	194		285		180	
90 PERCENT EXCEEDS	13		93		29	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 1961, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	192	247	373	297	387	837	1066	541	204	131	120	72.8
MAX	709	647	708	564	713	1373	1496	1103	631	318	276	177
(WY)	1956	1960	1957	1959	1961	1955	1958	1960	1960	1958	1956	1958
MIN	23.7	41.3	27.0	27.6	127	394	411	151	63.9	25.1	16.9	24.3
(WY)	1958	1961	1961	1961	1958	1960	1955	1955	1955	1955	1957	1957

SUMMARY STATISTICS	WATER YEARS 1955 - 1961	
ANNUAL MEAN	372	
HIGHEST ANNUAL MEAN	492	1956
LOWEST ANNUAL MEAN	266	1955
HIGHEST DAILY MEAN	5970	Mar 8 1956
LOWEST DAILY MEAN	8.9	Sep 10 1957
ANNUAL SEVEN-DAY MINIMUM	10	Sep 24 1959
MAXIMUM PEAK FLOW	**b**7970	Mar 8 1956
MAXIMUM PEAK STAGE	**c**13.31	Jan 22 1959
INSTANTANEOUS LOW FLOW	8.9	Sep 9,10 1957
ANNUAL RUNOFF (CFSM)	1.60	
ANNUAL RUNOFF (INCHES)	21.69	
10 PERCENT EXCEEDS	942	
50 PERCENT EXCEEDS	160	
90 PERCENT EXCEEDS	26	

a Also Nov. 6, 12, 1964, Sept. 14, 2002.
b Gage height 10.48 ft.
c Backwater from ice.



01545000 KETTLE CREEK NEAR WESTPORT, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)
NOV 2002													
20...	1130	1028	9813	495	30	13.0	7.3	53	5.4	20	5.41	5.5	1.40
JAN 2003													
16...	1330	1028	9813	E240	30	15.2	6.9	61	.1	20	5.62	5.4	1.51
MAR													
24...	1245	1028	9813	4720	30	12.3	7.0	42	6.8	16	4.30	4.5	1.14
MAY													
15...	1230	1028	9813	284	30	10.7	7.5	55	12.5	20	5.62	5.7	1.53
JUL													
16...	1400	1028	9813	66	30	8.9	7.7	65	25.8	24	6.49	6.7	1.77
SEP													
18...	1330	1028	9813	206	30	10.1	7.3	57	17.9	20	5.63	5.7	1.51

Date	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)
NOV 2002													
20...	1.5	11	.0	9.2	48	8	<.020	.38	<.040	<.01	<.010	.77	1.2
JAN 2003													
16...	1.5	8	.0	10.8	54	<2	<.020	.33	<.040	<.01	<.010	.31	.8
MAR													
24...	1.2	8	7.0	8.6	46	6	<.020	.57	<.040	.01	.016	.85	--
MAY													
15...	1.5	11	.0	10.1	28	<2	<.020	.13	<.040	.01	<.010	.34	1.2
JUL													
16...	1.8	16	.0	11.9	38	<2	<.020	.25	<.040	<.01	<.010	.38	.8
SEP													
18...	1.5	13	.0	8.8	40	8	<.020	.16	<.040	<.01	.010	.26	.8

01545000 KETTLE CREEK NEAR WESTPORT, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover -able, µg/L (01105)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover -able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover -able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover -able, µg/L (01051)	Mangan-ese, water, fltrd, µg/L (01056)	Mangan-ese, water, unfltrd recover -able, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover -able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)
NOV 2002													
20...	27	100	<4	<4	20	180	<1.0	<1.0	20	30	<4.0	<4.0	<5.0
JAN 2003													
16...	36	100	<4	<4	<20	160	<1.0	<1.0	40	50	<4.0	<4.0	<5.0
MAR													
24...	26	200	<4	<4	<20	270	<1.0	<1.0	10	60	<4.0	<4.0	<5.0
MAY													
15...	20	85	<4	<4	30	180	<1.0	<1.0	30	50	<4.0	<4.0	<5.0
JUL													
16...	84	100	<4	<4	90	150	<1.0	<1.0	10	20	<4.0	<4.0	<5.0
SEP													
18...	49	92	<4	<4	60	170	<1.0	<1.0	20	40	<4.0	<4.0	<5.0

Date	Zinc, water, unfltrd recover -able, µg/L (01092)
NOV 2002	
20...	<5.0
JAN 2003	
16...	<5.0
MAR	
24...	6.1
MAY	
15...	<5.0
JUL	
16...	<5.0
SEP	
18...	<5.0

01545000 KETTLE CREEK NEAR WESTPORT, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/13/02
Benthic Macroinvertebrate	Count
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia sp	4
Physidae	
Aplexa sp	1
Planorbidae	
Helisoma sp	2
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	1
Musiculum sp	2
Sphaerium sp	4
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	6
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Plauditus sp	1
Ephemerellidae	
Serratella sp	1
Heptageniidae	2
Stenonema sp	17
Stenacron sp	1
Isonychiidae	
Isonychia sp	3
Plecoptera (STONEFLIES)	
Perlidae	
Acroneuria sp	1
Trichoptera (CADDISFLIES)	1
Brachycentridae	
Brachycentrus sp	9
Hydropsychidae	
Cheumatopsyche sp	5
Hydropsyche sp	4
Macrostemum sp	4
Hydroptilidae	
Hydroptila sp	1
Lepidostomatidae	
Lepidostoma sp	1
Leptoceridae	
Oecetis sp	1
Philopotamidae	
Chimarra sp	2
Polycentropodidae	
Neureclipsis sp	40

01545000 KETTLE CREEK NEAR WESTPORT, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	8/13/02
Benthic Macroinvertebrate	Count
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Stenelmis sp	6
Psephenidae (WATER PENNIES)	
Psephenus sp	1
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	81
Simuliidae (BLACK FLIES)	
Simulium sp	1
Total Organisms	203

WEST BRANCH SUSQUEHANNA RIVER BASIN

01545500 WEST BRANCH SUSQUEHANNA RIVER AT RENOVO, PA

LOCATION.--Lat 41°19'28", long 77°45'03", Clinton County, Hydrologic Unit 02050203, on right bank at abandoned Eighth Street bridge abutment at South Renovo, and 1.0 mi upstream from Paddy Run.

DRAINAGE AREA.--2,975 mi^2.

PERIOD OF RECORD.--October 1907 to current year. Gage height records collected July 1895 to December 1903 and October 1905 to September 1974 are contained in reports of U.S. Weather Bureau.

REVISED RECORDS.--WSP 756: Drainage area. WSP 1302: 1908-10, 1912-13, 1914-15(M). WSP 2103: 1968 (monthly mean). WDR PA-88-2: 1987.

GAGE.--Water-stage recorder. Datum of gage is 634.19 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 17, 1930, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow slightly regulated by 4 flood-control reservoirs which have a combined capacity of 316,000 acre-ft. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known prior to 1895, 27.3 ft, June 1, 1889, from floodmark, discharge, about 211,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1090	1810	2650	4900	e1700	e4000	6510	e2640	9990	2140	16100	6890
2	768	2000	2500	28200	e2200	e3600	7110	e2650	11100	1910	24600	10100
3	e590	1900	2300	26600	e3200	e3300	8420	2620	9780	1760	16800	12300
4	e580	1620	1800	18900	e4200	e3000	8380	2360	9300	1610	18400	21400
5	e560	1510	1600	13700	e5600	e3200	15200	2240	10200	1500	17900	18300
6	534	1590	e1700	10300	e4800	e3100	24900	2580	9640	1450	14000	13100
7	520	2460	e1800	8500	e4200	e3000	19400	3310	8810	1400	10600	9580
8	528	2720	e1600	7290	e3500	e3200	14900	3840	9340	1600	8400	7650
9	501	2500	e1700	6870	e3000	e3600	12100	4940	9490	1890	8920	6330
10	425	2220	e1600	6770	e2600	e4000	10900	5750	8950	1700	20800	5270
11	398	2200	e1900	6440	e2200	e4800	9880	6000	7990	1860	18900	4570
12	433	2130	e3000	5610	e2000	e5600	10900	6780	7540	2730	14600	3990
13	e500	2150	2500	4780	e1800	e6400	10600	6640	8540	2450	11300	3510
14	628	2260	2880	e4200	e1900	e7300	9180	6180	8560	1680	8330	3370
15	606	2220	5010	e3600	e2000	e10000	8110	5720	7570	1320	6430	3340
16	620	2250	5430	e3200	e1900	14600	7310	5820	6360	1210	5560	4390
17	709	3410	5090	e2800	e1600	23700	6660	6810	5350	1210	5200	4450
18	899	7530	4140	e2600	e1600	35300	5930	7010	4860	1180	4420	3380
19	1020	7130	3660	e2400	e1700	37700	5300	6550	5390	1180	3650	3300
20	1010	6000	4890	e2600	e2000	31500	4850	6220	5230	1800	3110	5550
21	1060	5240	12600	e2500	e2400	32400	4600	6460	5140	1650	2800	6350
22	960	4730	12800	e2400	e2700	27200	4600	7040	5830	4360	2470	5270
23	854	4470	9810	e2200	e3800	27600	4430	6300	5670	8880	2250	10600
24	743	4070	8060	e2100	5720	23800	3950	6540	4960	9190	2030	13600
25	689	3760	7090	e1900	7060	19200	3560	7470	4200	8820	1860	10800
26	836	3600	6190	e2100	5750	14000	3500	8700	3640	6500	1730	9180
27	2400	3250	5220	e1800	5020	11200	3350	8680	3180	4730	2260	7600
28	2540	3150	4420	e1700	e4600	9240	e3120	9110	2840	14600	4070	18000
29	1830	2810	4040	e1800	---	8110	e2910	8600	2450	12700	3310	21200
30	1450	2680	3850	e1700	---	7640	e2730	7480	2270	8120	2720	14800
31	1390	---	3660	e1600	---	6940	---	6900	---	5450	7230	---
TOTAL	27671	95370	135490	192060	90750	398230	243290	179940	204170	118580	270750	268170
MEAN	893	3179	4371	6195	3241	12850	8110	5805	6806	3825	8734	8939
MAX	2540	7530	12800	28200	7060	37700	24900	9110	11100	14600	24600	21400
MIN	398	1510	1600	1600	1600	3000	2730	2240	2270	1180	1730	3300
CFSM	0.30	1.07	1.47	2.08	1.09	4.32	2.73	1.95	2.29	1.29	2.94	3.00
IN.	0.35	1.19	1.69	2.40	1.13	4.98	3.04	2.25	2.55	1.48	3.39	3.35

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1908 - 2003, BY WATER YEAR (WY)

MEAN	2152	3842	4970	5657	6201	10840	9846	7033	3965	2100	1456	1520
MAX	10330	16700	13570	19060	16640	34360	25010	16670	18840	8100	8734	9220
(WY)	1912	1951	1928	1937	1915	1936	1940	1919	1972	1928	2003	1975
MIN	139	174	307	196	1078	3141	2456	1436	659	368	166	166
(WY)	1931	1931	1931	1931	1934	1969	1925	1941	1999	1965	1930	1908

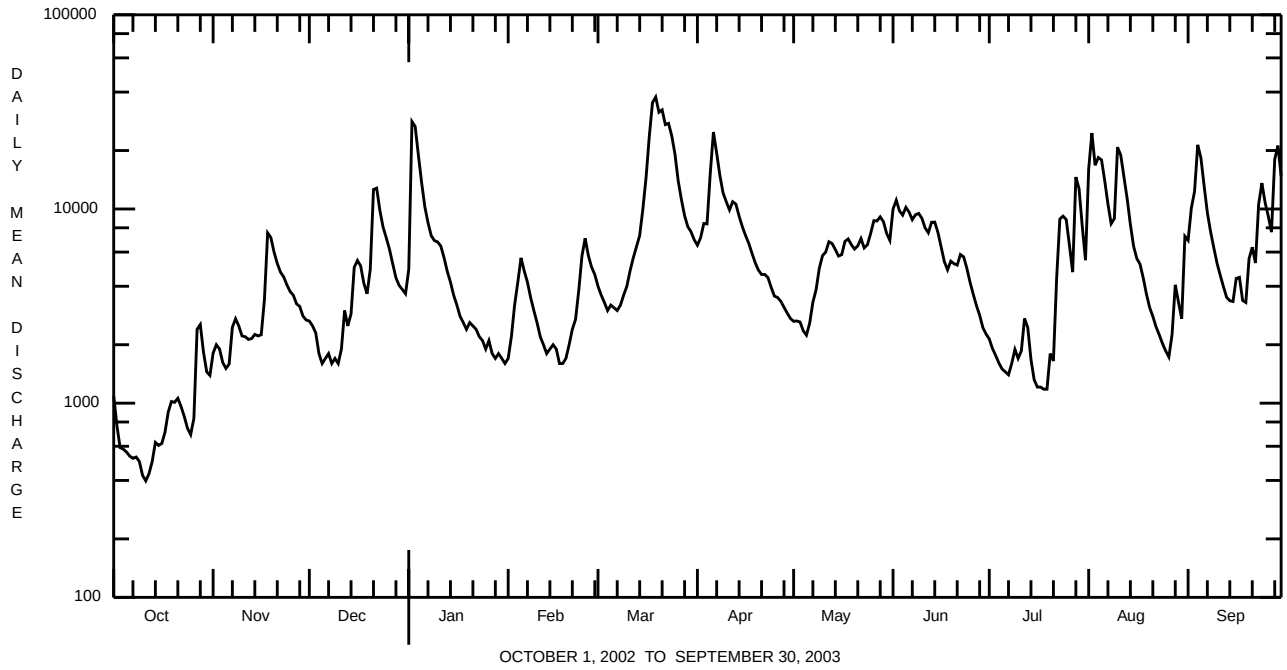
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01545500 WEST BRANCH SUSQUEHANNA RIVER AT RENOVO, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1908 - 2003	
ANNUAL TOTAL	1625232		2224471			
ANNUAL MEAN	4453		6094		4958	
HIGHEST ANNUAL MEAN					7683	1951
LOWEST ANNUAL MEAN					2579	1934
HIGHEST DAILY MEAN	38000	May 14	37700	Mar 19	201000	Mar 18 1936
LOWEST DAILY MEAN	184	Sep 14	398	Oct 11	80	Dec 6 1908
ANNUAL SEVEN-DAY MINIMUM	199	Sep 9	472	Oct 7	104	Aug 29 1939
MAXIMUM PEAK FLOW			39900	Mar 19	**a**236000	Mar 18 1936
MAXIMUM PEAK STAGE			11.24	Mar 19	**b**29.39	Mar 18 1936
INSTANTANEOUS LOW FLOW					80	Dec 6 1908
ANNUAL RUNOFF (CFSM)	1.50		2.05		1.67	
ANNUAL RUNOFF (INCHES)	20.32		27.82		22.64	
10 PERCENT EXCEEDS	10200		12900		11700	
50 PERCENT EXCEEDS	3000		4200		2740	
90 PERCENT EXCEEDS	430		1510		478	

a From rating curve extended above 87,000 ft^3/s on basis of slope-area measurement of peak flow.
b From floodmark in gage.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01545600 YOUNG WOMANS CREEK NEAR RENOVO, PA

LOCATION.--Lat 41°23'22", long 77°41'28", Clinton County, Hydrologic Unit 02050203, on left bank on SR 4005, 0.3 mi downstream from Laurelly Fork, 1.5 mi upstream from Left Branch Young Womans Creek, 3.7 mi upstream from mouth, and 5.0 mi northeast of Renovo.

DRAINAGE AREA.--46.2 mi^2.

PERIOD OF RECORD.--December 1964 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 780.41 ft above National Geodetic Vertical Datum of 1929.

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

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 460 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 21	2115	*829	*3.88	Sept. 28	1300	562	3.41
July 28	0000	465	3.21				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	33	48	84	e32	e54	131	39	248	41	273	26
2	15	31	43	147	e34	e48	159	39	270	36	284	72
3	13	28	38	125	e35	e46	177	36	239	32	244	56
4	12	27	e32	114	e40	e44	188	33	212	29	213	99
5	13	26	43	102	e36	42	251	35	179	27	179	86
6	11	34	42	92	e32	40	283	36	151	25	166	78
7	9.2	35	41	83	e33	e38	263	35	154	28	148	69
8	7.9	36	34	78	e28	e36	225	40	146	27	136	61
9	7.4	37	25	80	e24	42	190	37	147	23	149	54
10	7.2	38	26	79	e26	e40	165	36	131	23	159	48
11	7.5	40	39	71	e25	e38	157	41	120	49	158	42
12	8.9	38	40	66	e24	e39	152	48	147	29	148	38
13	9.6	40	30	63	e26	47	142	48	143	22	128	39
14	9.0	37	46	e60	e23	47	131	48	138	19	110	44
15	7.4	36	49	57	e24	56	122	49	124	18	94	46
16	14	39	46	e54	e22	102	112	66	106	17	83	63
17	25	84	41	e50	e23	214	105	79	90	15	75	51
18	18	118	e36	e47	e25	407	93	88	84	28	62	48
19	19	117	40	e48	e30	510	86	92	72	33	54	72
20	22	105	78	e48	e28	510	77	90	66	21	47	84
21	19	93	116	e43	e28	721	72	90	139	44	42	83
22	18	93	119	e44	47	791	71	77	149	191	39	84
23	18	86	108	e40	110	572	63	69	145	158	35	148
24	16	78	95	e41	106	432	58	86	125	139	31	148
25	16	74	90	e43	97	360	54	82	103	117	28	145
26	44	69	77	e40	90	323	52	119	86	95	27	125
27	42	64	66	e36	80	275	49	151	72	139	27	121
28	40	58	59	e33	65	226	45	159	61	371	24	511
29	37	55	55	e34	---	197	43	144	51	297	23	472
30	37	52	49	e30	---	173	41	124	47	221	27	335
31	35	---	49	e31	---	148	---	131	---	163	22	---
TOTAL	576.1	1701	1700	1963	1193	6618	3757	2247	3945	2477	3235	3348
MEAN	18.6	56.7	54.8	63.3	42.6	213	125	72.5	132	79.9	104	112
MAX	44	118	119	147	110	791	283	159	270	371	284	511
MIN	7.2	26	25	30	22	36	41	33	47	15	22	26
CFSM	0.40	1.23	1.19	1.37	0.92	4.62	2.71	1.57	2.85	1.73	2.26	2.42
IN.	0.46	1.37	1.37	1.58	0.96	5.33	3.03	1.81	3.18	1.99	2.60	2.70

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 2003, BY WATER YEAR (WY)

MEAN	37.5	73.2	80.6	64.9	87.3	137	159	96.5	61.2	34.0	23.5	25.4
MAX	181	211	194	164	250	349	447	204	303	162	244	211
(WY)	1991	1997	1973	1996	1984	1979	1993	1996	1972	1992	1994	1975
MIN	4.05	4.65	8.63	8.25	19.6	44.7	60.9	31.8	9.09	4.64	2.47	2.17
(WY)	1983	1999	1999	1981	1987	1969	1988	1999	1991	1966	1999	1998

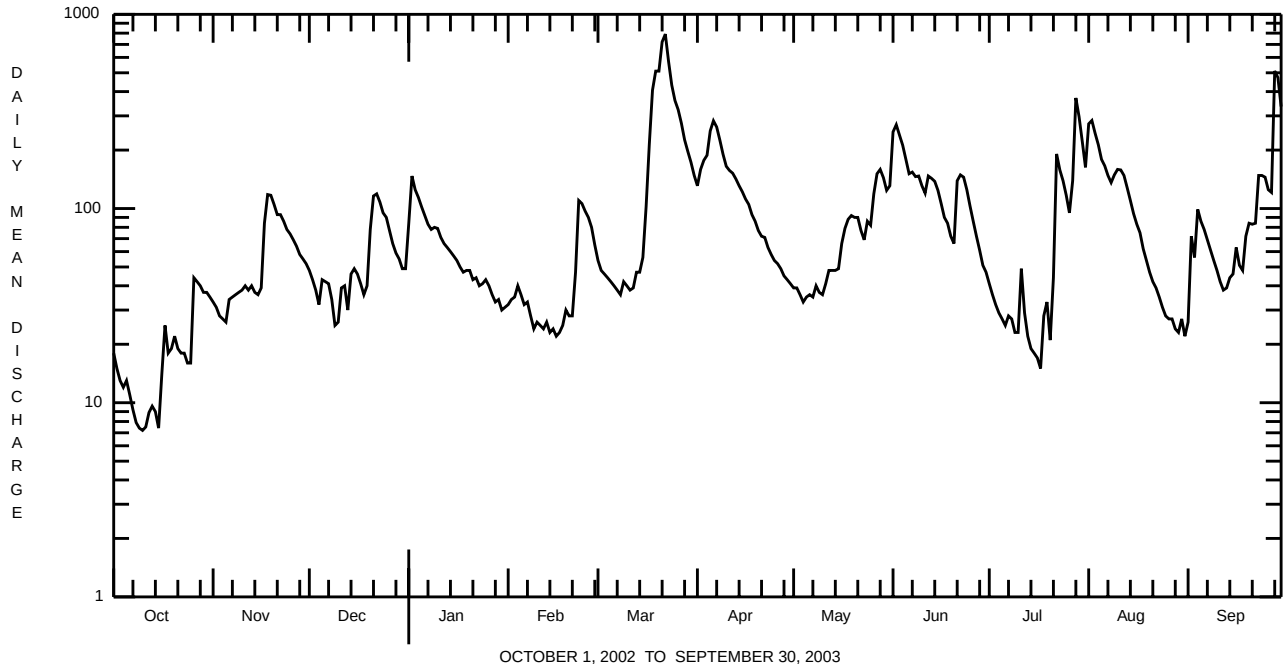
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01545600 YOUNG WOMANS CREEK NEAR RENOVO, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1965 - 2003	
ANNUAL TOTAL	22697.8		32760.1			
ANNUAL MEAN	62.2		89.8		73.7	
HIGHEST ANNUAL MEAN					118	1994
LOWEST ANNUAL MEAN					37.4	2001
HIGHEST DAILY MEAN	590	May 14	791	Mar 22	3310	Jun 23 1972
LOWEST DAILY MEAN	1.0	Sep 10,11	7.2	Oct 10	0.53	Sep 4 1999
ANNUAL SEVEN-DAY MINIMUM	1.1	Sep 8	8.1	Oct 9	0.92	Aug 30 1999
MAXIMUM PEAK FLOW			829	Mar 21	**a**5370	Jun 23 1972
MAXIMUM PEAK STAGE			3.88	Mar 21	7.98	Jun 23 1972
ANNUAL RUNOFF (CFSM)	1.35		1.94		1.60	
ANNUAL RUNOFF (INCHES)	18.28		26.38		21.68	
10 PERCENT EXCEEDS	137		178		170	
50 PERCENT EXCEEDS	41		52		41	
90 PERCENT EXCEEDS	3.5		23		6.4	

a From rating curve extended above 1,000 ft^3/s on basis of slope-area measurement of peak flow.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01546400 SPRING CREEK AT HOUSERVILLE, PA

LOCATION.--Lat 40°50'01", long 77°49'40", Centre County, Hydrologic Unit 02050204, on right bank 15 ft upstream from bridge on Township Route 365, 0.7 mi north of Houserville, 1.3 mi downstream from Slab Cabin Run, and 3.3 mi northeast of State College.

DRAINAGE AREA.--58.5 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 926.63 ft above National Geodetic Vertical Datum of 1929.

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

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 400 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 20	2015	497	5.82	Sept. 1	0530	437	5.55
Aug. 3	0100	*772	*6.89	Sept. 23	0415	520	5.88

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	45	54	178	48	55	114	70	153	78	98	238
2	25	45	52	236	47	57	116	70	133	76	112	201
3	24	40	50	194	47	54	e110	67	151	73	454	203
4	25	40	48	174	82	51	e110	64	172	70	191	196
5	27	42	49	156	59	61	e100	74	154	67	152	171
6	26	54	47	144	53	87	e160	67	141	66	131	153
7	25	43	45	133	52	63	e150	64	170	79	114	138
8	24	41	45	128	49	62	e150	81	157	58	103	125
9	23	40	43	137	47	150	142	79	158	58	111	114
10	25	38	42	134	47	99	138	77	139	63	114	105
11	46	e46	56	121	46	81	166	77	132	144	140	98
12	97	50	63	113	45	140	173	74	135	72	121	92
13	40	48	61	107	43	208	158	71	121	66	100	99
14	34	45	111	100	42	169	148	68	116	62	92	91
15	32	45	118	95	41	151	139	67	114	60	86	107
16	59	62	115	88	39	162	132	100	107	62	93	93
17	46	136	102	85	43	196	121	83	104	57	95	79
18	41	129	91	78	40	217	116	81	160	66	79	78
19	37	115	86	76	40	214	111	78	127	60	73	187
20	36	103	127	73	40	293	104	76	125	55	68	161
21	35	93	121	69	39	361	102	75	133	65	66	130
22	33	96	115	65	64	253	106	70	124	99	65	141
23	32	83	107	61	130	204	93	68	117	71	61	394
24	31	75	98	58	99	180	87	76	109	64	58	250
25	33	69	98	56	73	161	83	68	103	58	56	206
26	47	65	90	55	64	150	84	72	98	55	95	177
27	35	65	83	52	60	137	78	67	93	55	100	182
28	33	60	79	50	57	124	73	73	88	65	70	253
29	34	59	75	50	---	125	78	73	84	54	75	185
30	45	58	69	48	---	124	72	65	81	52	172	164
31	43	---	73	48	---	117	---	97	---	51	116	---
TOTAL	1121	1930	2413	3162	1536	4506	3514	2292	3799	2081	3461	4811
MEAN	36.2	64.3	77.8	102	54.9	145	117	73.9	127	67.1	112	160
MAX	97	136	127	236	130	361	173	100	172	144	454	394
MIN	23	38	42	48	39	51	72	64	81	51	56	78
CFSM	0.62	1.10	1.33	1.74	0.94	2.48	2.00	1.26	2.16	1.15	1.91	2.74
IN.	0.71	1.23	1.53	2.01	0.98	2.87	2.23	1.46	2.42	1.32	2.20	3.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 2003, BY WATER YEAR (WY)

MEAN	41.5	51.8	67.3	70.1	70.9	110	118	80.5	65.1	43.7	38.5	44.3
MAX	210	142	240	191	151	263	404	161	152	94.1	112	192
(WY)	1997	1997	1997	1996	1998	1994	1993	1998	2002	1989	2003	1996
MIN	18.2	18.6	15.0	22.6	32.2	54.0	49.8	46.2	31.0	24.2	22.1	18.1
(WY)	1993	2002	1999	2002	1992	1990	1995	2001	1999	1999	1995	1995

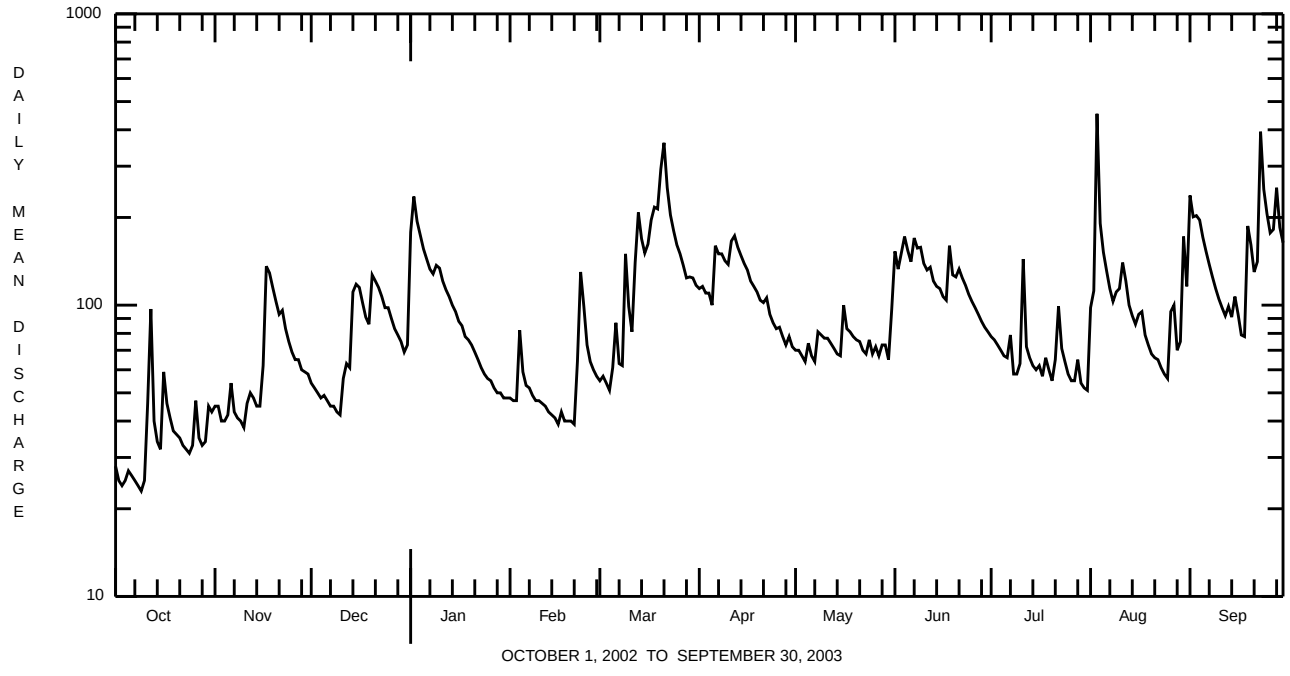
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01546400 SPRING CREEK AT HOUSERVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1985 - 2003	
ANNUAL TOTAL	22278		34626			
ANNUAL MEAN	61.0		94.9		67.2	
HIGHEST ANNUAL MEAN					105	1998
LOWEST ANNUAL MEAN					38.9	2001
HIGHEST DAILY MEAN	550	Jun 7	454	Aug 3	1130	Jan 19 1996
LOWEST DAILY MEAN	19	Sep 11	23	Oct 9	13	Dec 31 1998**a**
ANNUAL SEVEN-DAY MINIMUM	20	Sep 6	25	Oct 3	**b**13	Jan 5 1999
MAXIMUM PEAK FLOW			772	Aug 3	2370	Jan 19 1996
MAXIMUM PEAK STAGE			6.89	Aug 3	10.05	Jan 19 1996
ANNUAL RUNOFF (CFSM)	1.04		1.62		1.15	
ANNUAL RUNOFF (INCHES)	14.17		22.02		15.60	
10 PERCENT EXCEEDS	115		161		126	
50 PERCENT EXCEEDS	42		79		48	
90 PERCENT EXCEEDS	22		42		22	

a Also Jan. 1, 5-8, 10, 11, 1999.
b Computed using estimated daily discharges.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01546500 SPRING CREEK NEAR AXEMANN, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 40°53'23", long 77°47'40", Centre County, Hydrologic Unit 02050204, on right bank at upstream side of bridge on SR 3001, 1.6 mi west of Axemann, 1.8 mi southwest of Bellefonte, and 2.5 mi upstream from Logan Branch.

DRAINAGE AREA.--87.2 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1940 to current year.

GAGE.--Water-stage recorder. Datum of gage is 788.81 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 19, 1940, nonrecording gage at same site and datum. Nonrecording gage Mar. 6 to Sept. 30, 1995.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Occasional regulation at low flow by fish hatchery and Rockview Penitentiary. Several measurements of water temperature were made during the year. Satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 1936 reached a stage of 8.6 ft, from information by local residents, discharge not determined.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 20	2245	532	3.65
Aug. 3	0415	*876	*4.19
Sept. 23	0715	553	3.69

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	57	68	187	78	82	150	102	167	107	127	257
2	33	60	67	317	76	82	151	102	153	104	99	229
3	32	55	65	248	74	81	146	98	157	99	539	227
4	32	53	63	212	106	78	143	93	202	95	222	228
5	32	52	64	190	90	80	195	99	179	92	179	198
6	31	68	61	176	79	117	176	96	166	90	159	182
7	30	57	58	163	78	91	179	92	187	108	148	169
8	29	53	58	157	74	86	177	100	185	96	138	156
9	29	53	55	164	72	167	176	108	184	92	133	147
10	28	52	55	164	73	142	174	101	167	92	152	139
11	41	61	64	151	71	113	198	101	155	185	162	133
12	136	61	80	140	70	161	214	98	162	113	158	130
13	60	64	75	136	68	295	199	95	149	101	136	133
14	49	59	125	130	67	248	190	91	141	95	129	128
15	42	59	143	124	66	202	180	88	137	91	122	136
16	73	68	140	119	65	204	172	115	130	93	122	137
17	69	148	126	118	e66	249	159	106	124	86	130	119
18	59	154	113	111	68	285	149	101	184	87	116	116
19	53	131	107	109	64	281	141	98	155	95	109	201
20	50	115	151	106	63	323	136	96	150	82	105	193
21	46	105	153	101	64	445	134	94	160	86	103	162
22	47	108	139	97	85	351	137	90	152	131	101	157
23	43	99	131	94	157	284	124	87	145	106	95	432
24	41	89	120	91	138	244	121	94	139	95	94	297
25	42	82	120	88	108	212	118	87	132	88	91	244
26	63	78	110	87	95	194	118	90	126	84	121	209
27	47	78	102	84	90	180	113	85	122	83	135	196
28	44	72	98	83	85	166	107	84	117	96	112	311
29	43	70	94	82	---	163	112	97	113	82	101	221
30	57	71	90	79	---	162	106	84	110	79	200	197
31	57	---	91	78	---	155	---	106	---	76	153	---
TOTAL	1475	2332	2986	4186	2290	5923	4595	2978	4550	3009	4491	5784
MEAN	47.6	77.7	96.3	135	81.8	191	153	96.1	152	97.1	145	193
MAX	136	154	153	317	157	445	214	115	202	185	539	432
MIN	28	52	55	78	63	78	106	84	110	76	91	116
CFSM	0.55	0.89	1.10	1.55	0.94	2.19	1.76	1.10	1.74	1.11	1.66	2.21
IN.	0.63	0.99	1.27	1.79	0.98	2.53	1.96	1.27	1.94	1.28	1.92	2.47

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2003, BY WATER YEAR (WY)

MEAN	59.3	69.0	83.6	91.8	107	149	154	121	99.3	71.1	61.4	59.2
MAX	216	206	251	224	257	335	475	257	369	216	145	208
(WY)	1997	1978	1997	1996	1984	1994	1993	1978	1972	1972	2003	1996
MIN	26.1	26.0	22.8	23.3	38.1	36.5	49.6	50.5	41.1	28.0	24.4	24.9
(WY)	1964	1966	1966	1966	1963	1969	1969	1969	1965	1965	1966	1965

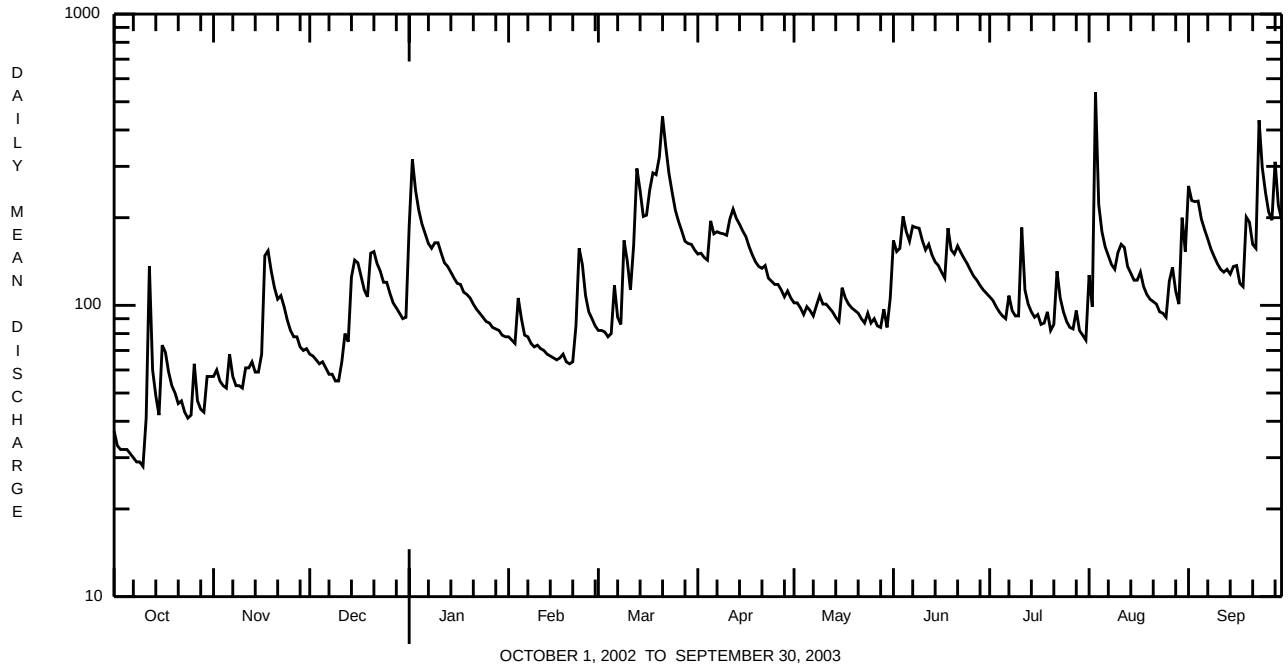
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01546500 SPRING CREEK NEAR AXEMANN, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1941 - 2003	
ANNUAL TOTAL	30005		44599			
ANNUAL MEAN	82.2		122		93.7	
HIGHEST ANNUAL MEAN					161	1978
LOWEST ANNUAL MEAN					43.5	1965
HIGHEST DAILY MEAN	661	Jun 7	539	Aug 3	2910	Jun 23 1972
LOWEST DAILY MEAN	28	Oct 10	28	Oct 10	20	Dec 20,30 1963**a**
ANNUAL SEVEN-DAY MINIMUM	30	Oct 4	30	Oct 4	21	Jan 28 1966
MAXIMUM PEAK FLOW			876	Aug 3	**b**5410	Jun 23 1972
MAXIMUM PEAK STAGE			4.19	Aug 3	**c**7.47	Jun 23 1972
ANNUAL RUNOFF (CFSM)	0.94		1.40		1.07	
ANNUAL RUNOFF (INCHES)	12.80		19.03		14.59	
10 PERCENT EXCEEDS	147		196		165	
50 PERCENT EXCEEDS	61		107		72	
90 PERCENT EXCEEDS	39		58		40	

a Also Jan 28, 29, 31, 1966.
b From rating curve extended above 1,400 ft^3/s on basis of contracted-opening measurement of peak flow.
c In gage; 8.75 ft from outside floodmark.



01546500 SPRING CREEK NEAR AXEMANN, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002													
06...	1000	1028	9813	71	30	9.8	8.3	622	8.7	240	61.9	20.5	200
JAN 2003													
08...	1110	1028	9813	154	30	10.8	7.8	567	5.5	280	72.2	23.5	192
MAR													
12...	1050	1028	9813	109	30	13.8	7.8	569	6.2	240	61.9	20.7	184
MAY													
27...	1715	1028	9813	87	30	10.4	8.2	508	14.7	230	57.9	21.0	180
JUL													
23...	1315	1028	9813	103	30	10.2	8.3	468	17.4	240	60.9	21.5	183
SEP													
17...	1030	1028	9813	118	30	10.3	8.1	579	13.6	280	69.3	24.8	205

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, unfltrd recoverable, µg/L (01042)	Iron, water, unfltrd recoverable, µg/L (01045)
NOV 2002													
06...	35.3	392	14	<.020	5.34	<.040	.02	.031	6.0	1.7	<200	<10	180
JAN 2003													
08...	31.4	368	<2	<.020	3.86	<.040	.02	.028	4.4	1.4	<200	<10	150
MAR													
12...	23.2	382	12	<.020	3.67	<.200	.02	.035	4.1	2.5	<200	<10	140
MAY													
27...	21.2	342	<2	.020	3.34	<.040	.03	.033	3.8	2.0	<200	<10	230
JUL													
23...	22.2	370	14	.030	3.45	<.040	.03	.041	3.8	2.5	300	<10	350
SEP													
17...	29.9	444	<2	.020	4.36	<.040	.02	.032	4.7	1.9	<200	<10	90

Date	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 2002				
06...	<1.0	<10	<50	<10
JAN 2003				
08...	<1.0	<10	<50	<10
MAR				
12...	<1.0	<10	<50	10
MAY				
27...	<1.0	10	<50	<10
JUL				
23...	<1.0	10	<50	10
SEP				
17...	<1.0	10	<50	<10

01546500 SPRING CREEK NEAR AXEMANN, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/14/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	24
Nematoda (NEMATODES)	2
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Tubificida	
Naididae	8
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	7
Crustacea	
Amphipoda (SCUDS)	
Gammaridae	
Gammarus sp	1
Isopoda (AQUATIC SOWBUGS)	
Asellidae	
Lirceus sp	125
Podocopa (SEED SHRIMP)	1
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Baetis sp	41
Heptageniidae	
Stenacron sp	1
Tricorythidae	
Tricorythodes sp	7
Trichoptera (CADDISFLIES)	
Brachycentridae	
Micrasema sp	6
Hydropsychidae	31
Hydropsyche sp	23
Hydroptilidae	
Hydroptila sp	2
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus sp	19
Stenelmis sp	4
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	55
Simuliidae (BLACK FLIES)	
Simulium sp	20
Tipulidae (CRANE FLIES)	1
Antocha sp	9
Total Organisms	387

WEST BRANCH SUSQUEHANNA RIVER BASIN

01547100 SPRING CREEK AT MILESBURG, PA

LOCATION.--Lat 40°55'54", long 77°47'13", Centre County, Hydrologic Unit 02050204, on left bank 60 ft downstream from privately-owned bridge, 400 ft west of State Highway 144, and 0.8 mi upstream from mouth and Milesburg.

DRAINAGE AREA.--142 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 696.42 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Occasional regulation at low flow by fish hatchery and Rockview Penitentiary. Several measurements of water temperature were made during the year. Satellite telemetry at station.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 13	1645	806	5.07
Mar. 21	0030	926	5.37
Aug. 03	0545	*936	*5.67

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	123	164	167	312	196	170	317	219	335	218	266	413
2	115	165	164	566	191	171	319	211	323	207	249	418
3	114	159	163	473	188	170	308	209	325	201	662	408
4	115	159	158	413	226	166	303	200	415	200	386	447
5	116	158	e150	369	196	171	416	206	395	195	325	407
6	112	175	156	343	173	208	381	207	368	186	299	362
7	111	161	151	319	172	180	393	202	392	224	278	330
8	110	156	151	308	164	174	384	206	387	201	262	301
9	109	153	148	310	160	270	381	220	382	187	247	286
10	111	150	147	322	159	267	370	214	349	198	279	266
11	135	163	156	300	156	212	418	213	330	349	307	255
12	254	160	178	285	154	266	464	208	336	222	331	245
13	163	168	176	270	151	552	440	205	317	202	281	258
14	147	161	243	256	150	503	407	204	302	193	262	257
15	138	160	278	e240	147	439	384	197	295	187	248	258
16	177	170	281	241	146	448	360	236	276	185	247	288
17	180	267	252	234	e140	530	335	224	266	170	264	242
18	157	285	232	222	151	591	318	216	359	178	231	236
19	149	258	225	218	146	579	305	218	317	196	221	359
20	146	235	278	217	145	637	293	209	303	181	207	373
21	140	223	284	212	144	841	285	213	349	184	205	315
22	139	227	269	202	172	706	288	201	336	e270	201	301
23	137	212	252	e190	281	579	267	200	319	226	197	623
24	134	196	238	e190	257	508	252	207	299	203	194	509
25	142	189	240	190	212	447	251	200	280	193	195	441
26	172	182	227	189	191	410	250	200	269	186	221	403
27	148	182	215	184	182	383	242	198	256	182	251	404
28	142	175	205	181	175	348	228	198	245	194	220	690
29	141	175	200	186	---	346	233	207	234	181	205	527
30	160	173	198	186	---	347	228	192	220	175	349	446
31	163	---	200	194	---	327	---	222	---	166	287	---
TOTAL	4400	5561	6382	8322	4925	11946	9820	6462	9579	6240	8377	11068
MEAN	142	185	206	268	176	385	327	208	319	201	270	369
MAX	254	285	284	566	281	841	464	236	415	349	662	690
MIN	109	150	147	181	140	166	228	192	220	166	194	236
CFSM	1.00	1.31	1.45	1.89	1.24	2.71	2.31	1.47	2.25	1.42	1.90	2.60
IN.	1.15	1.46	1.67	2.18	1.29	3.13	2.57	1.69	2.51	1.63	2.19	2.90

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2003, BY WATER YEAR (WY)

MEAN	171	189	220	226	260	327	335	263	241	188	169	165
MAX	411	421	486	455	500	617	825	507	729	434	357	388
(WY)	1997	1978	1997	1996	1984	1994	1993	1978	1972	1972	1984	1996
MIN	102	107	121	118	128	104	149	147	123	118	110	108
(WY)	1970	2002	2002	2002	1969	1969	1969	1969	1969	1969	1968	1969

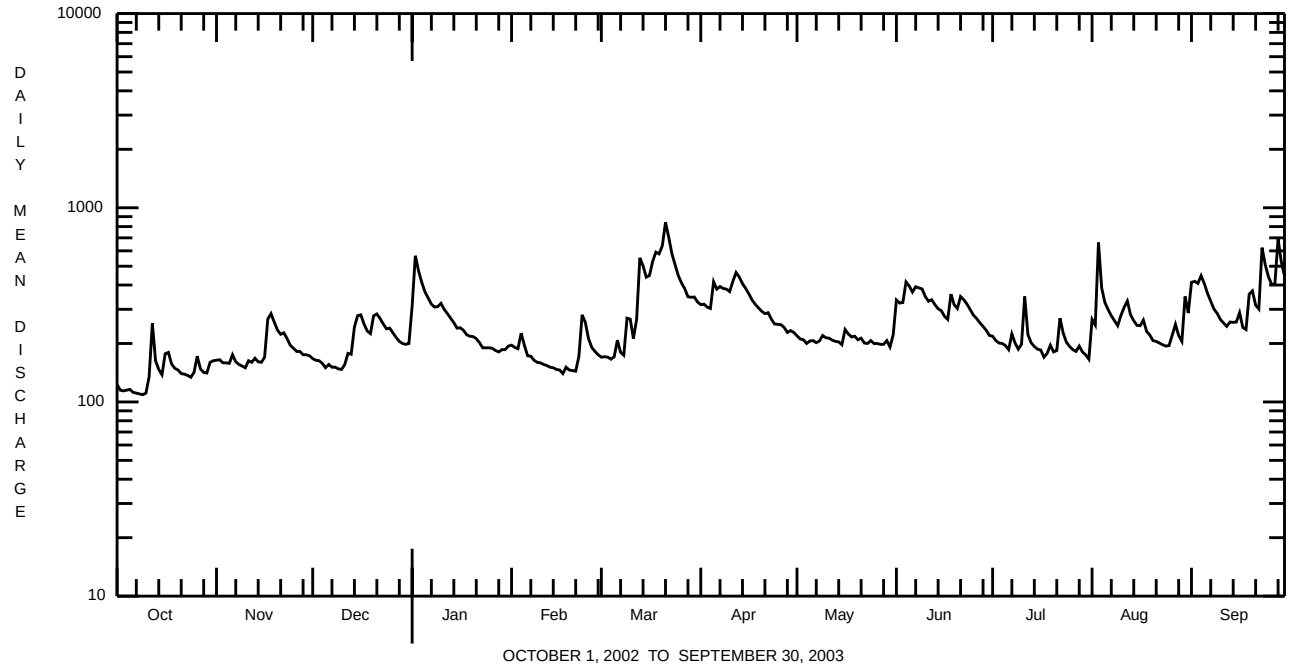
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01547100 SPRING CREEK AT MILESBURG, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1967 - 2003	
ANNUAL TOTAL	69984		92967			
ANNUAL MEAN	192		255		230	
HIGHEST ANNUAL MEAN					350	1978
LOWEST ANNUAL MEAN					128	1969
HIGHEST DAILY MEAN	1090	Jun 7	841	Mar 21	6000	Jun 23 1972
LOWEST DAILY MEAN	109	Oct 9	109	Oct 9	82	Mar 24 1969
ANNUAL SEVEN-DAY MINIMUM	112	Oct 4	112	Oct 4	87	Mar 18 1969
MAXIMUM PEAK FLOW			**a**936	Aug 3	**a**8170	Jun 23 1972
MAXIMUM PEAK STAGE			5.67	Aug 3	**b**13.20	Jun 23 1972
ANNUAL RUNOFF (CFSM)	1.35		1.79		1.62	
ANNUAL RUNOFF (INCHES)	18.33		24.35		21.97	
10 PERCENT EXCEEDS	286		403		365	
50 PERCENT EXCEEDS	156		220		189	
90 PERCENT EXCEEDS	116		151		128	

a From rating curve extended above 900 ft^3/s on basis of flow-over-dam measurement of peak flow.
b From peak-stage indicator.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01547200 BALD EAGLE CREEK BELOW SPRING CREEK AT MILESBURG, PA

LOCATION.--Lat 40°56'35", long 77°47'12", Centre County, Hydrologic Unit 02050204, on right bank 130 ft downstream from bridge on State Highway 144 at Milesburg, and 250 ft downstream from Spring Creek.

DRAINAGE AREA.--265 mi^2.

PERIOD OF RECORD.--October 1955 to current year. Prior to October 1967, published as North Bald Eagle Creek below Spring Creek at Milesburg.

GAGE.--Water-stage recorder. Datum of gage is 682.49 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 31, 1956, nonrecording gage at site 130 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)
Jan. 2	0330	3,240	4.36
Mar. 20	2215	3,900	5.03
Aug. 3	0315	3,570	4.73
Sept. 4	0415	2,910	4.10
Sept. 28	0345	*6,630	*7.04

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	134	397	280	1210	217	304	522	295	941	281	972	934
2	126	360	257	2360	215	310	580	285	765	e260	858	1120
3	123	300	238	1240	213	317	549	277	772	254	2310	1130
4	124	269	216	890	291	292	541	263	1340	248	1200	2090
5	124	250	237	711	305	307	1430	282	1150	239	858	1030
6	122	533	238	615	238	380	1160	e300	891	230	741	711
7	120	420	217	542	233	317	934	e320	890	272	561	563
8	117	342	233	518	217	318	823	352	802	259	529	471
9	116	296	209	613	209	544	789	464	751	e240	524	416
10	118	270	199	633	208	544	785	512	629	e260	730	373
11	147	333	224	530	202	430	1130	556	559	562	943	342
12	557	321	335	459	200	518	1270	520	556	308	929	319
13	266	365	379	411	195	e1100	992	475	531	259	655	333
14	202	318	e780	375	194	e1400	801	428	474	240	515	347
15	173	299	930	368	191	1250	693	384	468	230	429	414
16	277	333	791	330	184	1500	611	748	401	239	390	733
17	369	1030	594	321	185	2180	540	709	373	217	394	425
18	247	e900	e500	280	191	2450	491	614	965	218	328	370
19	209	e640	428	291	188	1980	459	529	781	309	299	919
20	194	e500	821	292	190	2280	428	451	658	229	273	966
21	177	e400	861	276	191	2740	409	438	730	220	262	688
22	168	e360	700	252	233	1930	422	381	674	375	253	593
23	161	e340	591	242	e520	1380	384	354	574	328	243	1980
24	155	e330	495	240	571	1060	352	418	494	267	234	1160
25	161	e320	476	234	433	872	341	384	432	240	232	850
26	493	317	426	234	367	776	346	492	391	221	261	700
27	320	314	379	226	344	691	347	543	357	213	341	1310
28	241	294	351	218	323	595	315	530	332	242	291	4480
29	213	285	337	224	---	569	e330	527	310	216	249	1620
30	283	301	322	217	---	571	e310	445	289	202	1000	993
31	358	---	331	214	---	538	---	553	---	191	560	---
TOTAL	6595	11737	13375	15566	7248	30443	19084	13829	19280	8069	18364	28380
MEAN	213	391	431	502	259	982	636	446	643	260	592	946
MAX	557	1030	930	2360	571	2740	1430	748	1340	562	2310	4480
MIN	116	250	199	214	184	292	310	263	289	191	232	319
CFSM	0.80	1.48	1.63	1.89	0.98	3.71	2.40	1.68	2.43	0.98	2.24	3.57
IN.	0.93	1.65	1.88	2.19	1.02	4.27	2.68	1.94	2.71	1.13	2.58	3.98

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 2003, BY WATER YEAR (WY)

MEAN	253	329	396	379	518	759	698	496	364	242	219	223
MAX	950	811	1035	1049	1227	1489	2001	1162	1689	804	643	986
(WY)	1977	1978	1997	1996	1984	1994	1993	1978	1972	1972	1956	1996
MIN	89.8	94.3	103	141	147	255	276	235	131	102	101	84.3
(WY)	1964	1965	1966	1981	1963	1969	1968	2001	1965	1965	1965	1965

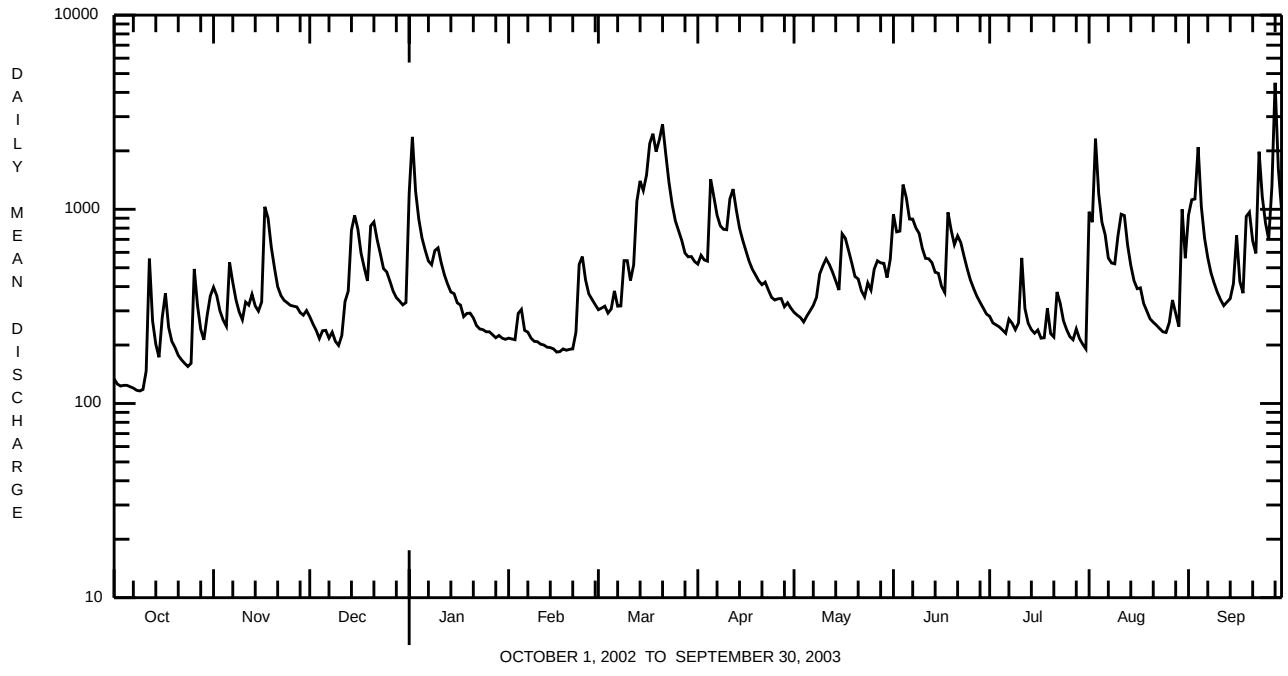
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01547200 BALD EAGLE CREEK BELOW SPRING CREEK AT MILESBURG, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1956 - 2003	
ANNUAL TOTAL	136188		191970			
ANNUAL MEAN	373		526		406	
HIGHEST ANNUAL MEAN					638	1978
LOWEST ANNUAL MEAN					213	1965
HIGHEST DAILY MEAN	3180	Jun 7	4480	Sep 28	15000	Jun 23 1972
LOWEST DAILY MEAN	114	Sep 12**a**	116	Oct 9	79	Sep 11 1965
ANNUAL SEVEN-DAY MINIMUM	115	Sep 8	120	Oct 4	80	Sep 17 1965
MAXIMUM PEAK FLOW			6630	Sep 28	**b**21300	Jun 23 1972
MAXIMUM PEAK STAGE			7.04	Sep 28	**c**11.67	Jun 23 1972
ANNUAL RUNOFF (CFSM)	1.41		1.98		1.53	
ANNUAL RUNOFF (INCHES)	19.12		26.95		20.80	
10 PERCENT EXCEEDS	748		980		790	
50 PERCENT EXCEEDS	262		373		261	
90 PERCENT EXCEEDS	127		209		133	

a Also Sept. 13, 19-21.
b From rating curve extended above 9,000 ft^3/s.
c From floodmark in gage.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01547500 BALD EAGLE CREEK AT BLANCHARD, PA

LOCATION.--Lat 41°03'06", long 77°36'17", Centre County, Hydrologic Unit 02050204, on left bank 0.4 mi downstream from Foster Joseph Sayers Dam, 0.7 mi upstream from Marsh Creek, and 0.9 mi south of Blanchard.

DRAINAGE AREA.--339 mi^2.

PERIOD OF RECORD.--May 1954 to current year. Prior to October 1967, published as North Bald Eagle Creek at Blanchard.

REVISED RECORDS.--WSP 1903: 1956(M).

GAGE.--Water-stage recorder. Datum of gage is 579.79 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated since March 1971 by Foster Joseph Sayers Dam (station 01547480). Several measurements of water temperature were made during the year. Satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	129	456	e350	813	258	887	665	187	1450	321	1210	1100
2	128	516	e300	1820	258	776	665	181	1260	285	1260	1480
3	126	400	e240	2270	258	752	666	181	993	285	2030	1350
4	126	314	e240	2230	356	730	668	181	1720	285	2330	1770
5	126	315	e240	1440	390	550	1240	184	1590	285	1460	1920
6	126	498	e240	897	249	501	1640	184	1290	285	1250	1290
7	126	562	e240	707	249	451	1620	e240	1180	285	709	742
8	126	458	e240	565	249	371	1420	e300	942	282	608	574
9	126	303	e240	697	249	655	1180	360	856	280	574	494
10	126	266	e220	879	249	799	1040	360	794	280	785	405
11	126	391	e200	707	249	527	1220	371	732	650	878	371
12	646	476	e290	542	248	605	1660	365	661	445	1410	371
13	436	460	554	487	249	1200	1500	311	660	325	1340	398
14	236	426	1010	487	249	1890	1110	309	581	280	786	444
15	222	e500	1550	469	249	1920	860	307	528	280	490	471
16	294	e700	1340	378	249	1910	764	357	498	280	418	896
17	404	e1300	816	344	249	1530	644	423	482	263	481	747
18	335	e1600	563	344	417	630	361	423	1030	232	456	512
19	266	e1200	488	343	737	674	246	423	1060	232	340	1110
20	240	e1000	921	343	967	494	249	422	1030	232	303	1440
21	220	e750	1220	344	947	6.0	251	422	953	249	276	1030
22	201	e820	991	306	929	429	253	423	911	783	276	724
23	164	e890	810	253	917	1610	224	428	814	427	276	1730
24	163	e800	610	253	1020	2190	208	487	629	300	275	2170
25	160	e680	535	253	1170	2480	209	523	515	266	267	1300
26	555	e620	534	253	1140	2570	212	523	487	266	276	892
27	501	e590	519	253	1110	2700	197	567	451	266	319	811
28	297	e580	434	254	1070	2720	189	720	388	375	719	161
29	270	e510	399	257	---	1830	191	671	361	306	291	1600
30	288	e430	380	258	---	1210	191	555	339	238	668	2450
31	365	---	344	258	---	984	---	634	---	220	744	---
TOTAL	7654	18811	17058	19704	14931	36581.0	21543	12022	25185	9788	23505	30753
MEAN	247	627	550	636	533	1180	718	388	840	316	758	1025
MAX	646	1600	1550	2270	1170	2720	1660	720	1720	783	2330	2450
MIN	126	266	200	253	248	6.0	189	181	339	220	267	161

e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01547500 BALD EAGLE CREEK AT BLANCHARD, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	393	562	555	511	653	730	676	567	462	315	272	325
MAX	1012	1291	1211	1213	1450	1664	2095	1328	1184	1580	867	1096
(WY)	1980	1978	1997	1996	1984	1979	1993	1978	1972	1972	1984	1996
MIN	159	188	160	133	275	238	208	203	167	139	140	120
(WY)	2002	1988	1999	1981	1993	1990	1976	1995	1999	1999	1995	1995

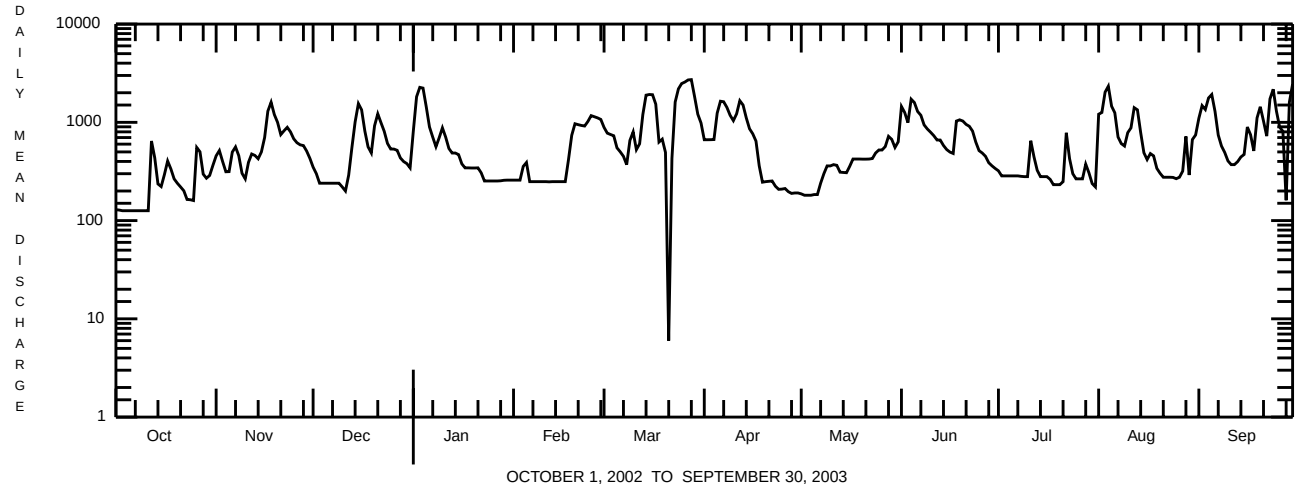
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1971 - 2003	
ANNUAL TOTAL	166135		237535.0			
ANNUAL MEAN	455		651		501	
HIGHEST ANNUAL MEAN					764	1978
LOWEST ANNUAL MEAN					300	2001
HIGHEST DAILY MEAN	3000	Jun 10	2720	Mar 28	4730	Jun 29 1972
LOWEST DAILY MEAN	15	May 13	6.0	Mar 21	5.3	Mar 29 1993**a**
ANNUAL SEVEN-DAY MINIMUM	126	Oct 3	126	Oct 3	71	Apr 20 1971
MAXIMUM PEAK FLOW			2820	Mar 27	**b**4890	Jun 28 1972
MAXIMUM PEAK STAGE			6.85	Mar 27	9.37	Jun 28 1972
INSTANTANEOUS LOW FLOW					0.00	May 12 1976**c**
10 PERCENT EXCEEDS	927		1410		1040	
50 PERCENT EXCEEDS	288		476		325	
90 PERCENT EXCEEDS	129		229		160	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1970, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	224	287	330	318	506	855	797	547	289	212	201	178
MAX	534	557	686	547	909	1376	1392	1053	561	478	623	437
(WY)	1956	1960	1957	1960	1956	1964	1957	1960	1968	1956	1956	1956
MIN	105	102	109	161	158	304	318	289	137	105	100	99.8
(WY)	1965	1965	1966	1966	1963	1969	1968	1955	1965	1965	1966	1965

SUMMARY STATISTICS	WATER YEARS 1954 - 1970	
ANNUAL MEAN	395	
HIGHEST ANNUAL MEAN	555	1956
LOWEST ANNUAL MEAN	247	1965
HIGHEST DAILY MEAN	7010	Mar 10 1964
LOWEST DAILY MEAN	90	Sep 11,13 1966
ANNUAL SEVEN-DAY MINIMUM	93	Sep 7 1966
MAXIMUM PEAK FLOW	**b**10100	Mar 10 1964
MAXIMUM PEAK STAGE	11.59	Mar 10 1964
INSTANTANEOUS LOW FLOW	.00	Jun 16 1970**c**
ANNUAL RUNOFF (CFSM)	1.16	
ANNUAL RUNOFF (INCHES)	15.82	
10 PERCENT EXCEEDS	834	
50 PERCENT EXCEEDS	235	
90 PERCENT EXCEEDS	124	

a Also Mar. 31 and Apr. 1.
b From rating curve extended above 4,100 ft^3/s.
c No flow parts of June 16, Nov. 10, 1970, due to construction of dam; May 12, 18, 19, 1976; Mar. 6, 1979, result of shutoff at dam.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01547700 MARSH CREEK AT BLANCHARD, PA

LOCATION.--Lat 41°03'34", long 77°36'22", Centre County, Hydrologic Unit 02050204, on right bank 20 ft downstream from highway bridge on SR 1002, 0.5 mi southwest of Blanchard, 0.6 mi downstream from bridge on State Highway 150, and 0.6 mi upstream from mouth.

DRAINAGE AREA.--44.1 mi^2.

PERIOD OF RECORD.--October 1955 to current year.

REVISED RECORDS.--WDR PA-72-1: 1971 (runoff in CFSM and inches).

GAGE.--Water-stage recorder. Datum of gage is 586.16 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 31, 1956, nonrecording gage at site 20 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 450 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Jan. 1	2300	840	4.30	Aug. 11	1445	*1,540	*5.06
Mar. 20	2045	1,320	4.85	Sept. 4	0200	678	4.06
Aug. 1	1215	1,220	4.75	Sept.28	0115	1,360	4.89

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	41	30	264	16	49	76	26	285	26	439	36
2	2.1	44	26	501	17	51	83	26	261	23	202	60
3	2.0	35	20	286	16	47	84	24	219	20	234	94
4	2.3	29	16	191	38	40	89	22	214	17	172	344
5	2.8	25	20	136	33	44	307	26	213	15	127	188
6	2.8	58	23	105	17	50	278	31	185	14	93	120
7	2.3	52	17	85	21	39	213	59	169	17	70	84
8	1.7	44	22	78	16	41	168	96	133	16	56	65
9	1.4	36	14	98	15	82	145	142	117	13	60	53
10	1.6	31	12	99	17	70	130	144	95	13	126	43
11	5.5	42	18	85	14	64	194	135	82	34	382	36
12	52	41	43	73	15	78	243	117	86	16	268	32
13	16	51	55	65	14	203	200	100	75	12	160	36
14	9.4	46	e180	58	14	234	150	86	70	10	107	42
15	6.1	42	233	52	13	241	118	75	67	9.4	78	56
16	22	49	182	46	11	302	95	100	61	12	63	77
17	31	177	129	43	11	466	77	105	56	8.7	77	58
18	16	182	96	27	12	620	66	114	70	7.8	52	52
19	12	130	80	38	14	509	60	107	63	8.0	43	204
20	9.7	98	133	37	14	657	54	91	68	6.5	36	222
21	7.5	76	146	e25	13	785	51	89	120	7.1	32	174
22	5.9	73	142	e23	23	489	52	71	128	35	28	130
23	5.2	61	116	e21	100	329	45	62	108	19	24	261
24	4.8	50	91	e21	77	225	40	78	85	13	20	183
25	4.6	44	82	e20	65	167	36	72	68	12	17	150
26	61	39	68	e19	58	138	37	78	56	9.0	18	112
27	35	39	56	e18	55	112	34	80	48	27	19	197
28	24	34	49	16	52	92	31	110	40	83	14	926
29	18	33	46	18	---	86	31	107	33	32	13	445
30	26	34	40	17	---	83	28	97	30	21	22	241
31	34	---	43	16	---	77	---	123	---	16	15	---
TOTAL	427.1	1736	2228	2581	781	6470	3215	2593	3305	572.5	3067	4721
MEAN	13.8	57.9	71.9	83.3	27.9	209	107	83.6	110	18.5	98.9	157
MAX	61	182	233	501	100	785	307	144	285	83	439	926
MIN	1.4	25	12	16	11	39	28	22	30	6.5	13	32
CFSM	0.31	1.31	1.63	1.89	0.63	4.73	2.43	1.90	2.50	0.42	2.24	3.57
IN.	0.36	1.46	1.88	2.18	0.66	5.46	2.71	2.19	2.79	0.48	2.59	3.98

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 2003, BY WATER YEAR (WY)

MEAN	26.7	50.1	66.4	55.0	84.3	135	114	72.7	47.8	20.6	17.4	19.4
MAX	154	151	252	193	267	283	337	181	344	170	98.9	157
(WY)	1991	1978	1973	1996	1984	1994	1993	2002	1972	1972	2003	2003
MIN	1.08	1.94	2.06	4.01	14.0	32.5	29.9	20.1	5.37	1.18	0.61	0.25
(WY)	1965	1965	1999	1981	1963	1969	1968	1977	1991	1965	1966	1964

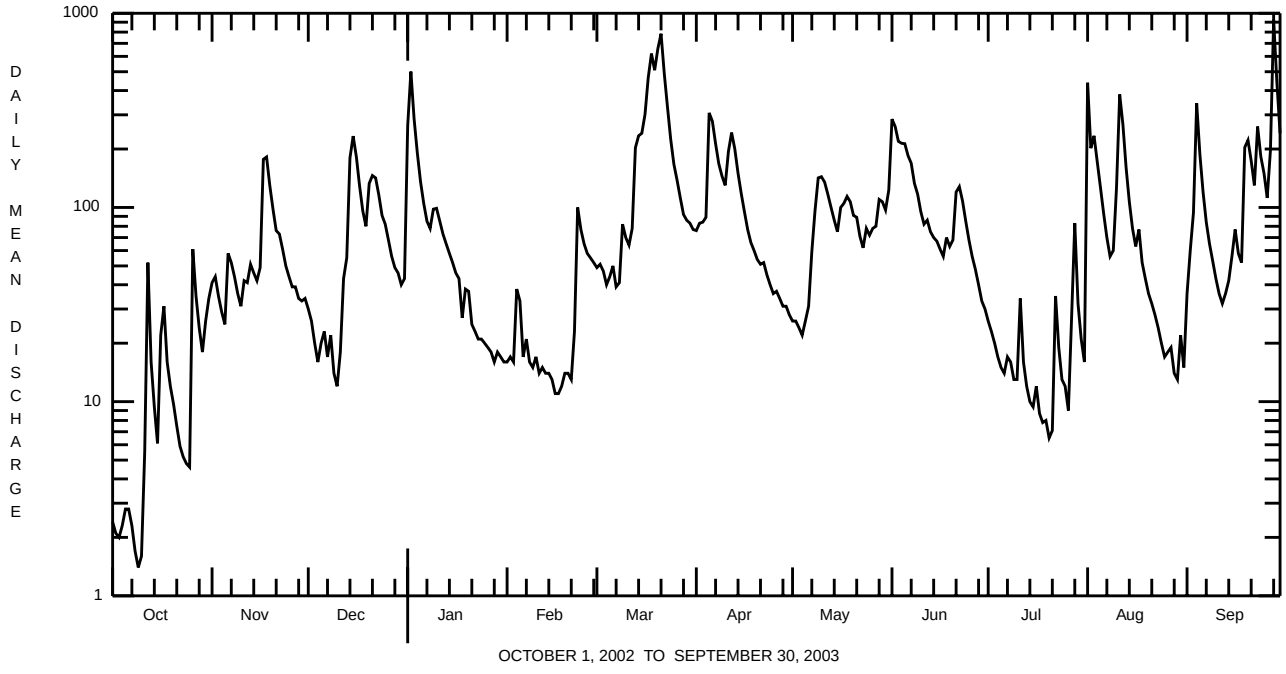
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01547700 MARSH CREEK AT BLANCHARD, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1956 - 2003	
ANNUAL TOTAL	21258.40		31696.6			
ANNUAL MEAN	58.2		86.8		58.9	
HIGHEST ANNUAL MEAN					102	1972
LOWEST ANNUAL MEAN					28.6	1965
HIGHEST DAILY MEAN	808	May 13	926	Sep 28	3800	Jun 23 1972
LOWEST DAILY MEAN	0.39	Sep 8-10	1.4	Oct 9	0.00	Aug 30 1966
ANNUAL SEVEN-DAY MINIMUM	0.44	Sep 7	2.1	Oct 4	0.07	Aug 27 1966
MAXIMUM PEAK FLOW			1540	Aug 11	**a**6900	Jun 18 1984
MAXIMUM PEAK STAGE			5.06	Aug 11	7.85	Jun 18 1984
ANNUAL RUNOFF (CFSM)	1.32		1.97		1.34	
ANNUAL RUNOFF (INCHES)	17.93		26.74		18.15	
10 PERCENT EXCEEDS	133		202		141	
50 PERCENT EXCEEDS	30		52		25	
90 PERCENT EXCEEDS	0.99		13		3.5	

a From rating curve extended above 4,900 ft^3/s.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01547950 BEECH CREEK AT MONUMENT, PA

LOCATION.--Lat 41°06'42", long 77°42'09", Centre County, Hydrologic Unit 02050204, on right bank 800 ft downstream from bridge at Monument, 850 ft downstream from Monument Run, 0.6 mi upstream from Twin Run, and 8.7 mi upstream from mouth.

DRAINAGE AREA.--152 mi^2.

PERIOD OF RECORD.--October 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 741.60 ft above National Geodetic Vertical Datum of 1929.

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

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a 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)
Mar. 21	0000	*2,220	*9.22	Sept. 28	0645	2,140	9.13

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	71	145	424	e110	e200	362	148	848	135	564	140
2	20	73	131	1020	e100	200	385	143	879	124	518	320
3	20	70	e110	898	e100	189	370	138	828	115	767	338
4	21	68	e94	750	e130	184	371	131	812	105	762	1120
5	20	67	e100	604	e120	174	700	144	704	98	746	944
6	18	129	e100	510	e110	184	743	168	617	92	635	709
7	17	136	e94	433	e110	167	736	248	611	111	487	538
8	16	117	e90	392	e110	164	655	313	561	111	413	421
9	16	107	e73	383	e110	211	579	397	515	91	528	340
10	17	100	e76	365	e100	223	543	435	447	88	1060	283
11	27	121	e100	314	e100	224	646	447	401	147	960	241
12	81	122	e140	278	e100	232	714	430	413	102	867	210
13	57	125	e140	260	e96	323	691	393	405	84	683	207
14	44	117	e220	248	e94	467	609	349	358	74	533	217
15	33	111	316	e220	e92	534	535	316	334	68	424	236
16	45	118	313	e210	e86	755	471	480	295	70	352	350
17	79	238	284	e200	e90	1240	409	508	267	63	336	273
18	55	317	257	e180	e92	1790	357	516	320	60	265	249
19	46	282	243	e170	e94	1870	321	484	286	59	224	523
20	44	261	412	e160	e95	1740	289	435	270	55	195	688
21	39	235	533	e150	e95	2090	271	451	349	53	174	615
22	35	237	523	e140	e100	1870	273	376	349	102	158	536
23	32	227	478	e130	e180	1460	242	337	325	107	143	918
24	31	197	411	e120	e280	1140	217	383	296	74	130	778
25	31	182	384	e120	e260	932	202	360	262	71	119	687
26	93	170	330	e110	e240	798	200	428	232	59	118	567
27	86	165	282	e110	e230	664	188	447	205	70	123	593
28	64	152	254	e100	e220	547	172	505	182	401	105	1940
29	57	146	235	e110	---	483	165	512	161	271	99	1530
30	62	148	213	e110	---	441	155	476	146	215	140	1120
31	64	---	210	e110	---	393	---	534	---	177	119	---
TOTAL	1292	4609	7291	9329	3644	21889	12571	11432	12678	3452	12747	17631
MEAN	41.7	154	235	301	130	706	419	369	423	111	411	588
MAX	93	317	533	1020	280	2090	743	534	879	401	1060	1940
MIN	16	67	73	100	86	164	155	131	146	53	99	140
CFSM	0.27	1.01	1.55	1.98	0.86	4.65	2.76	2.43	2.78	0.73	2.71	3.87
IN.	0.32	1.13	1.78	2.28	0.89	5.36	3.08	2.80	3.10	0.84	3.12	4.31

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 2003, BY WATER YEAR (WY)

MEAN	137	242	295	244	325	491	495	332	254	147	97.4	113
MAX	620	673	656	585	809	949	1353	709	895	621	411	588
(WY)	1991	1971	1997	1979	1981	1979	1993	1978	1972	1972	2003	2003
MIN	21.0	17.3	19.3	54.9	73.8	167	213	112	48.0	27.8	17.8	16.0
(WY)	1999	1999	1999	1981	1980	1969	1988	1976	1991	1991	1991	1998

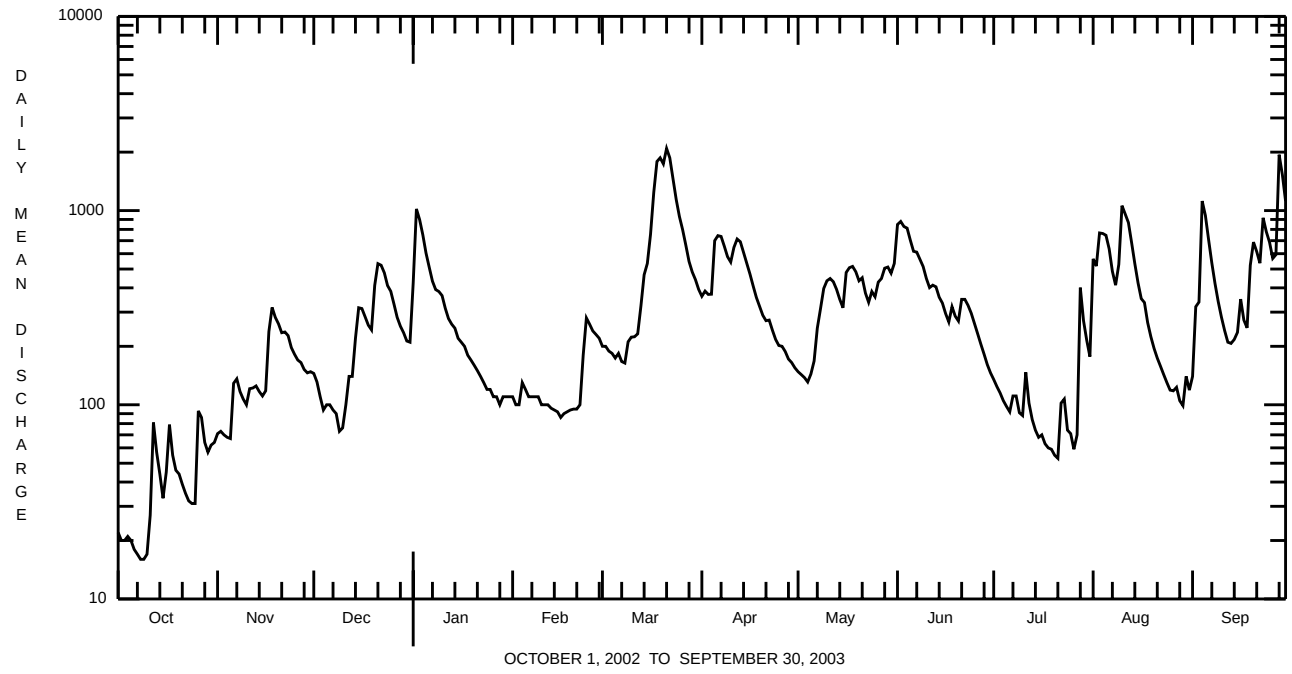
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01547950 BEECH CREEK AT MONUMENT, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1969 - 2003	
ANNUAL TOTAL	81209.7		118565			
ANNUAL MEAN	222		325		264	
HIGHEST ANNUAL MEAN					385	1978
LOWEST ANNUAL MEAN					147	1999
HIGHEST DAILY MEAN	2040	May 14	2090	Mar 21	7490	Jun 23 1972
LOWEST DAILY MEAN	**e**9.4	Sep 14	16	Oct 8,9	8.3	Sep 9 1991
ANNUAL SEVEN-DAY MINIMUM	**a**9.8	Sep 8	18	Oct 4	**a**9.8	Sep 8 2002
MAXIMUM PEAK FLOW			**b**2220	Mar 21	**b**9740	Jun 23 1972
MAXIMUM PEAK STAGE			9.22	Mar 21	15.22	Jun 23 1972
ANNUAL RUNOFF (CFSM)	1.46		2.14		1.74	
ANNUAL RUNOFF (INCHES)	19.88		29.02		23.58	
10 PERCENT EXCEEDS	473		702		581	
50 PERCENT EXCEEDS	146		223		162	
90 PERCENT EXCEEDS	19		69		35	

a Computed using estimated daily discharges.
b From rating curve extended above 2,000 ft^3/s on basis of slope-area measurement of peak flow.
e Estimated.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01548500 PINE CREEK AT CEDAR RUN, PA

LOCATION.--Lat 41°31'18", long 77°26'52", Lycoming County, Hydrologic Unit 02050205, on left bank at upstream side of highway bridge on Township Route 762 at village of Cedar Run, 2,000 ft downstream from Cedar Run, and 1.2 mi upstream from Gamble Run.

DRAINAGE AREA.--604 mi^2.

PERIOD OF RECORD.--July 1918 to current year. Prior to October 1918 monthly discharge only, published in WSP 1302.

GAGE.--Water-stage recorder. Datum of gage is 780.36 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 13, 1930, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 5,900 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 21	2300	*11,200	*7.33
Aug. 1	1430	7,360	6.13
Sept. 28	0915	6,480	5.81

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	129	196	449	855	e240	e740	1720	385	3690	453	3290	225
2	107	189	392	1750	e220	e740	2280	398	3470	393	3680	1650
3	94	181	e340	1340	e210	e670	2420	406	2710	343	3320	1280
4	89	173	e260	1190	e280	e740	2330	355	2450	320	3780	1920
5	90	167	e280	1050	e380	e750	3840	340	2090	283	3070	2070
6	87	188	e300	953	e340	e640	3700	350	1730	254	2680	1470
7	82	214	e270	855	e300	e580	3110	342	1660	256	1980	1140
8	72	204	e300	821	e280	e540	2580	375	1730	254	1850	914
9	62	197	e260	881	e260	e540	2140	365	1570	237	2570	755
10	59	196	e220	971	e240	e600	1930	339	1380	291	4660	632
11	62	215	e250	810	e230	e460	1930	351	1240	355	3620	528
12	70	233	e280	709	e230	e540	1850	449	1300	306	2740	458
13	78	270	e320	e620	e220	e600	1680	437	1630	224	1980	431
14	78	268	e440	e580	e210	e650	1510	420	1520	192	1510	487
15	71	254	e800	e520	e200	e760	1360	413	1400	170	1190	430
16	97	260	e700	e470	e180	e1100	1220	501	1210	163	971	750
17	279	874	e500	e440	e200	e3000	1080	818	1010	169	865	513
18	228	1340	e440	e420	e230	6590	952	801	941	166	685	414
19	174	965	e420	e370	e260	6690	863	836	840	211	567	525
20	172	801	e900	e360	e240	6560	778	810	737	175	479	1000
21	168	710	e2000	e320	e220	10100	715	849	3460	187	415	753
22	142	700	1720	e320	e360	9780	754	744	3630	2100	371	710
23	128	806	1450	e310	e900	6910	683	651	2820	1320	332	2220
24	117	737	1190	e300	e1400	5130	597	785	2050	2560	294	2140
25	112	714	1060	e280	e1100	4340	542	1000	1550	2310	267	1900
26	227	655	922	e260	e950	4310	503	1160	1210	1640	249	1670
27	377	602	764	e230	e850	3750	503	1520	962	1320	267	1360
28	270	537	650	e230	e800	2930	454	1580	767	1970	269	5070
29	230	490	621	e280	---	2510	424	1560	623	1380	228	4310
30	215	474	538	e250	---	2270	400	1340	528	1130	245	3050
31	205	---	512	e240	---	1940	---	1310	---	905	227	---
TOTAL	4371	13810	19548	18985	11530	87460	44848	21990	51908	22037	48651	40775
MEAN	141	460	631	612	412	2821	1495	709	1730	711	1569	1359
MAX	377	1340	2000	1750	1400	10100	3840	1580	3690	2560	4660	5070
MIN	59	167	220	230	180	460	400	339	528	163	227	225
CFSM	0.23	0.76	1.04	1.01	0.68	4.67	2.48	1.17	2.86	1.18	2.60	2.25
IN.	0.27	0.85	1.20	1.17	0.71	5.39	2.76	1.35	3.20	1.36	3.00	2.51

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1919 - 2003, BY WATER YEAR (WY)

MEAN	356	742	835	824	904	1851	1969	1239	633	284	234	217
MAX	2910	3077	2260	2741	3090	6362	5678	3580	3601	1160	2712	2458
(WY)	1991	1951	1928	1937	1981	1936	1993	1919	1972	1928	1994	1975
MIN	28.9	41.3	65.4	47.6	119	590	374	238	90.4	50.2	32.6	19.3
(WY)	1965	1931	1961	1931	1920	1981	1946	1941	1991	1966	1939	1964

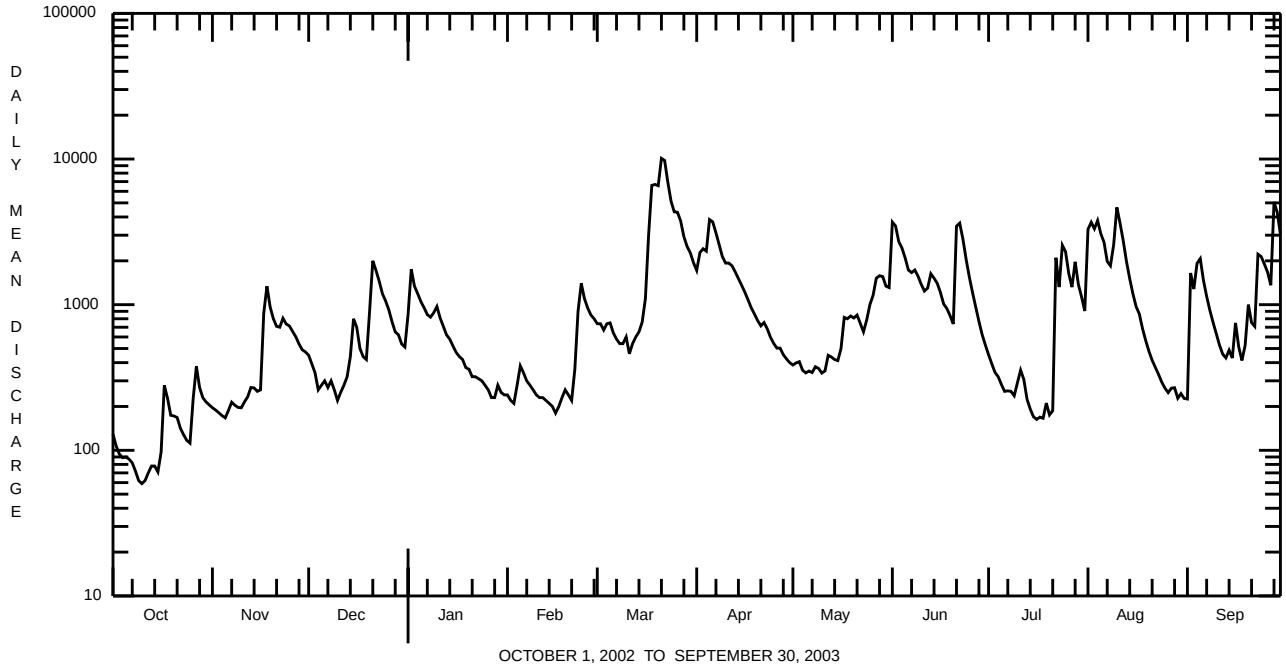
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01548500 PINE CREEK AT CEDAR RUN, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1919 - 2003	
ANNUAL TOTAL	263078		385913			
ANNUAL MEAN	721		1057		840	
HIGHEST ANNUAL MEAN					1400	1978
LOWEST ANNUAL MEAN					444	1941
HIGHEST DAILY MEAN	7610	May 14	10100	Mar 21	42600	Jun 23 1972
LOWEST DAILY MEAN	23	Sep 13,14	59	Oct 10	8.0	Sep 2 1939
ANNUAL SEVEN-DAY MINIMUM	26	Sep 8	69	Oct 9	11	Aug 28 1939
MAXIMUM PEAK FLOW			11200	Mar 21	**a**66000	Jun 23 1972
MAXIMUM PEAK STAGE			7.33	Mar 21	**b**16.00	Jun 23 1972
INSTANTANEOUS LOW FLOW					8.0	Sep 1,2 1939
ANNUAL RUNOFF (CFSM)	1.19		1.75		1.39	
ANNUAL RUNOFF (INCHES)	16.20		23.77		18.89	
10 PERCENT EXCEEDS	1870		2530		2040	
50 PERCENT EXCEEDS	449		600		397	
90 PERCENT EXCEEDS	65		194		65	

a From rating curve extended above 16,000 ft^3/s on basis of slope-area measurement of peak flow.
b From floodmark.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01549500 BLOCKHOUSE CREEK NEAR ENGLISH CENTER, PA

LOCATION.--Lat 41°28'25", long 77°13'52", Lycoming County, Hydrologic Unit 02050205, on right bank just downstream from bridge on State Highway 284, 0.7 mi upstream from Blacks Creek, 1.7 mi upstream from confluence with Texas Creek, and 5.0 mi northeast of English Center.

DRAINAGE AREA.--37.7 mi^2.

PERIOD OF RECORD.--October 1940 to current year.

REVISED RECORDS.--WSP 951: 1941. WSP 1031: 1942-44(M). WSP 1502: 1942. WDR PA-75-2: 1973(P), 1974(P).

GAGE.--Water-stage recorder. Datum of gage is 1,041.85 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936 reached a stage of 9.0 ft, from floodmark, discharge, 5,780 ft^3/s, from rating curve extended above 1,200 ft^3/s on basis of contracted-opening measurement at gage height 8.81 ft.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 1,100 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 20	2115	*1,380	*5.16
Aug. 5	1715	1,110	4.77
Sept. 23	0530	1,200	4.91

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.7	45	47	125	e22	e46	85	24	134	31	112	37
2	6.2	42	43	192	e22	e42	120	24	96	29	72	93
3	5.3	39	e37	116	e21	e38	113	23	84	27	61	62
4	4.7	37	e32	98	e32	e36	110	21	84	25	62	173
5	5.0	35	e34	85	e44	e34	200	21	79	23	286	145
6	4.8	53	e32	77	e32	e34	153	22	64	22	252	92
7	4.1	46	e30	70	e30	e32	134	21	77	30	163	76
8	3.5	43	e30	68	e27	e33	113	23	77	29	128	65
9	3.1	43	e26	77	e26	e34	95	21	66	26	101	57
10	3.0	43	e26	77	e25	e34	97	20	59	25	82	50
11	5.1	69	e28	e60	e24	e32	128	21	55	37	99	45
12	62	66	e30	e56	e23	e34	147	22	60	26	116	41
13	36	78	34	e50	e22	42	120	21	59	22	79	42
14	27	70	70	e42	e21	38	102	20	50	19	73	46
15	21	67	70	e40	e19	49	87	19	44	18	60	53
16	89	69	61	e38	e17	144	73	22	39	18	73	88
17	115	157	50	e36	e18	299	62	31	36	17	92	53
18	69	145	e44	e34	e22	480	53	25	39	20	64	47
19	58	122	e46	e36	e24	436	49	23	36	21	57	164
20	49	106	197	e38	e22	555	44	22	38	17	51	167
21	40	94	164	e32	e20	735	41	24	366	23	46	125
22	34	92	129	e30	e24	571	41	23	240	80	42	103
23	31	85	107	e30	e94	393	37	22	156	39	39	587
24	27	73	88	e30	e110	278	33	33	102	64	35	290
25	27	67	83	e32	e80	214	31	34	75	43	33	197
26	75	62	72	e28	e60	195	32	33	59	33	32	142
27	58	59	63	e24	e52	153	30	33	49	62	32	110
28	49	54	e52	e24	e48	114	27	32	42	105	29	161
29	46	52	55	e26	---	113	26	31	37	55	28	104
30	46	51	48	e24	---	e110	25	29	35	43	32	90
31	46	---	50	e23	---	95	---	35	---	37	28	---
TOTAL	1057.5	2064	1878	1718	981	5443	2408	775	2437	1066	2459	3505
MEAN	34.1	68.8	60.6	55.4	35.0	176	80.3	25.0	81.2	34.4	79.3	117
MAX	115	157	197	192	110	735	200	35	366	105	286	587
MIN	3.0	35	26	23	17	32	25	19	35	17	28	37
CFSM	0.90	1.82	1.61	1.47	0.93	4.66	2.13	0.66	2.15	0.91	2.10	3.10
IN.	1.04	2.04	1.85	1.70	0.97	5.37	2.38	0.76	2.40	1.05	2.43	3.46

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2003, BY WATER YEAR (WY)

MEAN	32.7	60.7	66.3	56.1	67.9	124	124	76.8	41.4	18.5	15.3	17.7
MAX	194	195	184	182	268	260	429	211	303	74.7	204	117
(WY)	1991	1978	1974	1996	1981	1945	1993	1946	1972	1990	1994	2003
MIN	1.36	3.25	4.34	6.18	12.8	16.5	24.8	15.7	5.42	1.98	1.21	0.43
(WY)	1965	1999	1999	1981	1941	1969	1946	1941	1991	1955	1966	1964

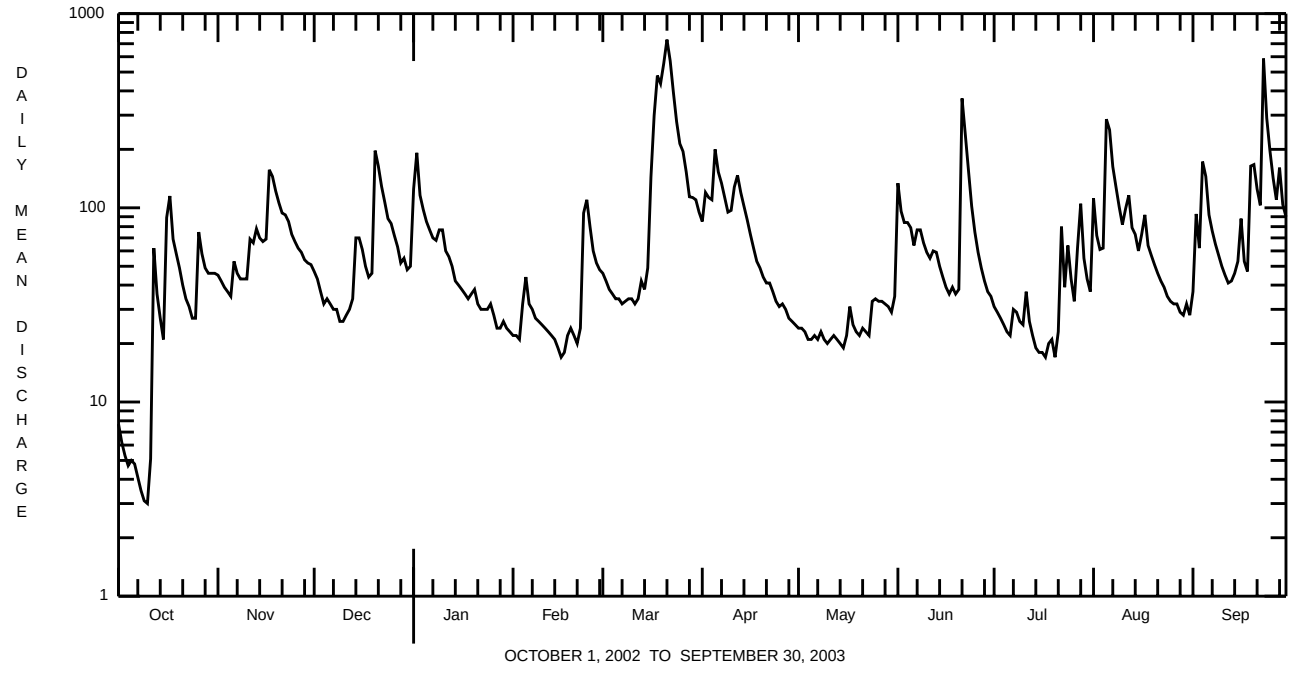
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01549500 BLOCKHOUSE CREEK NEAR ENGLISH CENTER, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1941 - 2003	
ANNUAL TOTAL	17058.6		25791.5			
ANNUAL MEAN	46.7		70.7		58.3	
HIGHEST ANNUAL MEAN					104	1978
LOWEST ANNUAL MEAN					26.3	1965
HIGHEST DAILY MEAN	415	May 14	735	Mar 21	3180	Jun 22 1972
LOWEST DAILY MEAN	**e**1.6	Sep 9,10	3.0	Oct 10	0.00	Aug 6 1962**c**
ANNUAL SEVEN-DAY MINIMUM	**a**1.7	Sep 5	4.0	Oct 4	0.19	Aug 29 1962
MAXIMUM PEAK FLOW			**b**1380	Mar 20	**b**6260	Jun 23 1972
MAXIMUM PEAK STAGE			5.16	Mar 20	9.34	Jun 23 1972
INSTANTANEOUS LOW FLOW					0.00	Aug 6 1962**c**
ANNUAL RUNOFF (CFSM)	1.24		1.87		1.55	
ANNUAL RUNOFF (INCHES)	16.83		25.45		21.02	
10 PERCENT EXCEEDS	100		134		131	
50 PERCENT EXCEEDS	35		45		27	
90 PERCENT EXCEEDS	3.2		22		3.7	

a Computed using estimated daily discharges.
b From rating curve extended above 1,200 ft^3/s on basis of contracted-opening measurement at gage height 8.81 ft.
c Also Aug. 31, Sept. 1, 2, 1962.
e Estimated.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01549700 PINE CREEK BELOW LITTLE PINE CREEK NEAR WATERVILLE, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 41°16'25", long 77°19'28", Lycoming County, Hydrologic Unit 02050205, on left bank on State Highway 44, on abutment of abandoned bridge 0.9 mi downstream from Ramsey Run, 4.0 mi downstream from Little Pine Creek, 4.0 mi south of Waterville, and 9.2 mi upstream from mouth.

DRAINAGE AREA.--944 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1957 to current year.

REVISED RECORDS.--WDR PA-72-1: 1964(P).

GAGE.--Water-stage recorder. Datum of gage is 570.62 ft above National Geodetic Vertical Datum of 1929. Prior to June 16, 1982, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flood flows subject to regulation by Little Pine Dam 8.5 mi upstream, capacity 24,900 acre-ft. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 9,200 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 22	0315	*17,300	*8.38

No other peak greater than base discharge.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	230	414	830	1180	e440	e1400	2630	656	4400	792	3150	352
2	186	400	740	3140	e420	e1400	2950	636	5190	676	4910	1390
3	158	383	713	2570	e400	e1300	3600	659	4070	597	4030	1780
4	139	365	e580	2210	e520	e1400	3480	604	3610	540	4090	2550
5	139	353	e500	1930	e700	e1400	5190	574	3190	493	3630	3110
6	131	389	e530	1740	e630	e1200	5800	579	2720	440	3810	2330
7	123	451	e500	1570	e580	e1100	4870	578	2450	408	2750	1790
8	113	449	e540	1480	e520	e1000	4020	596	2770	470	2210	1440
9	102	433	e480	1490	e500	e1000	3310	619	2460	413	3010	1200
10	93	422	e420	1690	e470	e1100	2910	572	2230	432	4540	1010
11	105	465	e440	1500	e440	e870	2960	570	1970	536	4190	860
12	188	535	e520	1310	e420	e1000	3090	668	2020	573	3380	742
13	258	598	e660	1260	e400	e1100	2870	691	2340	411	2530	693
14	209	631	e820	1160	e400	e1200	2590	663	2230	337	1960	759
15	178	595	e1400	1050	e380	e1400	2330	644	2080	296	1560	730
16	202	590	1320	967	e340	e2000	2090	700	1820	280	1300	1050
17	615	1020	e980	e900	e380	e4800	1850	1050	1560	261	1270	985
18	581	e2500	e830	e780	e430	10200	1630	1160	1400	255	1040	741
19	423	e1900	e790	e700	e490	11100	1480	1190	1330	311	867	797
20	370	1640	1580	e700	e440	10200	1350	1170	1150	312	741	1670
21	342	1430	3680	e600	e400	15900	1240	1180	4030	264	642	1450
22	305	1330	2910	e600	e590	16000	1240	1140	5560	1840	573	1290
23	266	1410	2470	e580	e1800	12200	1180	998	4410	1880	517	3500
24	241	1300	2070	e560	e2600	9290	1030	1060	3240	2230	459	3800
25	227	1230	1850	e530	e2000	7180	937	1500	2450	2730	414	3050
26	366	1160	1660	e500	e1800	6430	888	1530	1930	1940	386	2710
27	686	1070	1410	e440	e1600	5820	880	2000	1560	1590	380	2140
28	585	982	1190	e440	e1500	4480	798	2090	1280	3120	401	5930
29	486	900	1160	e520	---	3710	737	2100	1060	2220	349	6220
30	455	864	1030	e480	---	3450	692	1870	921	1740	364	4340
31	431	---	956	e460	---	2980	---	1740	---	1380	364	---
TOTAL	8933	26209	35559	35037	21590	143610	70622	31787	77431	29767	59817	60409
MEAN	288	874	1147	1130	771	4633	2354	1025	2581	960	1930	2014
MAX	686	2500	3680	3140	2600	16000	5800	2100	5560	3120	4910	6220
MIN	93	353	420	440	340	870	692	570	921	255	349	352
CFSM	0.31	0.93	1.22	1.20	0.82	4.91	2.49	1.09	2.73	1.02	2.04	2.13
IN.	0.35	1.03	1.40	1.38	0.85	5.66	2.78	1.25	3.05	1.17	2.36	2.38

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 2003, BY WATER YEAR (WY)

MEAN	657	1239	1473	1275	1653	2888	3209	1838	1153	518	427	445
MAX	4597	4337	3860	4114	5148	6840	9683	3919	6070	2423	4096	4053
(WY)	1991	1978	1974	1996	1981	1964	1993	1960	1972	1972	1994	1975
MIN	46.7	66.3	107	93.7	410	850	1171	446	153	73.4	51.7	30.4
(WY)	1964	1965	1961	1961	1987	1969	1988	1985	1991	1964	1966	1964

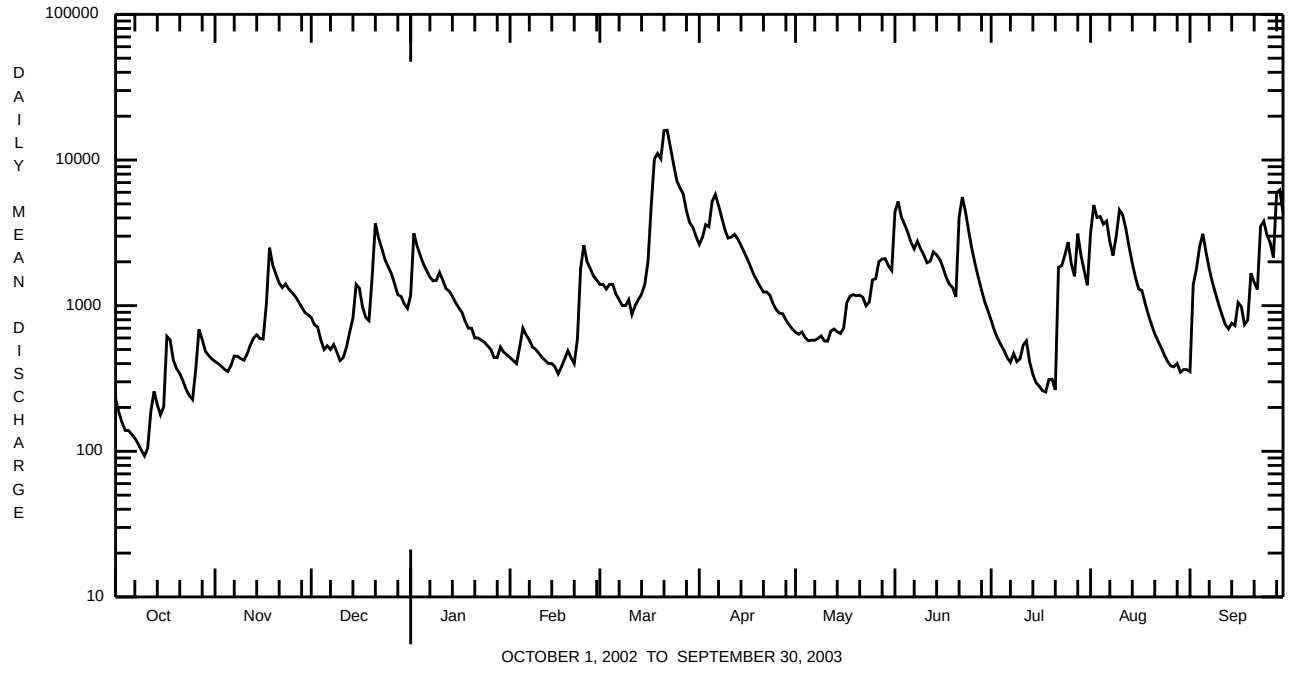
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01549700 PINE CREEK BELOW LITTLE PINE CREEK NEAR WATERVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1958 - 2003	
ANNUAL TOTAL	418935		600771			
ANNUAL MEAN	1148		1646		1395	
HIGHEST ANNUAL MEAN					2379	1978
LOWEST ANNUAL MEAN					739	1965
HIGHEST DAILY MEAN	12400	May 14	16000	Mar 22	75000	Jun 23 1972
LOWEST DAILY MEAN	39	Sep 14	93	Oct 10	23	Sep 5 1999
ANNUAL SEVEN-DAY MINIMUM	42	Sep 9	115	Oct 5	26	Sep 21 1964
MAXIMUM PEAK FLOW			17300	Mar 22	**a**104000	Jun 23 1972
MAXIMUM PEAK STAGE			8.38	Mar 22	**b**22.76	Jun 23 1972
ANNUAL RUNOFF (CFSM)	1.22		1.74		1.48	
ANNUAL RUNOFF (INCHES)	16.51		23.67		20.08	
10 PERCENT EXCEEDS	2760		3600		3340	
50 PERCENT EXCEEDS	746		1050		670	
90 PERCENT EXCEEDS	93		366		111	

a From rating curve extended above 22,000 ft^3/s on basis of slope-area measurement of peak flow.
b From floodmark.



01549700 PINE CREEK BELOW LITTLE PINE CREEK NEAR WATERVILLE, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)
NOV 2002													
13...	1430	1028	9813	614	30	12.3	7.4	108	8.5	39	11.2	11.1	2.85
JAN 2003													
15...	1045	1028	9813	1090	30	14.7	7.2	84	.1	32	8.67	8.9	2.31
MAR													
12...	1330	1028	9813	E1000	30	15.1	6.7	239	.6	32	9.53	9.3	2.21
MAY													
14...	1100	1028	9813	662	30	10.7	7.5	99	12.3	36	9.86	10.1	2.67
JUL													
17...	0945	1028	9813	254	30	8.5	7.5	121	22.5	44	12.2	12.6	3.02
SEP													
17...	1200	1028	9813	957	30	10.0	7.7	94	17.9	36	10.4	10.2	2.50

Date	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)
NOV 2002													
13...	2.8	18	.0	20.2	148	<2	.050	.25	<.040	<.01	<.010	.58	.7
JAN 2003													
15...	2.3	13	.0	15.9	54	6	<.020	.50	<.040	<.01	.010	.52	1.1
MAR													
12...	2.1	16	.0	13.8	78	<2	<.020	.47	<.040	.01	.011	.55	2.0
MAY													
14...	2.7	21	.0	17.6	50	<2	<.020	.05	<.040	.01	.010	.26	1.2
JUL													
17...	3.1	25	.0	19.5	84	4	<.020	<.04	<.040	.01	.012	.21	.9
SEP													
17...	2.5	23	.0	12.6	50	<2	<.020	.17	<.040	.01	.021	.34	.9

01549700 PINE CREEK BELOW LITTLE PINE CREEK NEAR WATERVILLE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover -able, µg/L (01105)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover -able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover -able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover -able, µg/L (01051)	Mangan-ese, water, fltrd, µg/L (01056)	Mangan-ese, water, unfltrd recover -able, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover -able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)
NOV 2002													
13...	27	46	<4	<4	<20	40	<1.0	<1.0	4.7	9.1	<4.0	<4.0	<5.0
JAN 2003													
15...	30	65	<4	<4	<20	70	<1.0	<1.0	30	30	<4.0	<4.0	<5.0
MAR													
12...	31	100	<4	<4	20	130	<1.0	<1.0	10	40	<4.0	<4.0	<5.0
MAY													
14...	24	42	<4	<4	30	80	<1.0	<1.0	20	30	<4.0	<4.0	<5.0
JUL													
17...	21	33	<4	<4	30	80	<1.0	<1.0	30	50	<4.0	<4.0	<5.0
SEP													
17...	36	91	<4	<4	50	170	<1.0	<1.0	7.9	20	<4.0	<4.0	<5.0

Date	Zinc, water, unfltrd recover -able, µg/L (01092)
NOV 2002	
13...	<5.0
JAN 2003	
15...	<5.0
MAR	
12...	<5.0
MAY	
14...	<5.0
JUL	
17...	<5.0
SEP	
17...	<5.0

01549700 PINE CREEK BELOW LITTLE PINE CREEK NEAR WATERVILLE, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/12/02
Benthic Macroinvertebrate	Count
Mollusca	
Bivalvia (CLAMS)	
Sphaeriidae	
Sphaerium sp	1
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	1
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Acentrella sp	4
Baetis sp	15
Heterocloeon sp	3
Ephemerellidae	
Serratella sp	3
Heptageniidae	
Epeorus sp	1
Leucrocuta sp	12
Stenacron sp	5
Stenonema sp	53
Isonychiidae	
Isonychia sp	19
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Coenagrionidae	
Enallagma sp	1
Gomphidae	
Ophiogomphus sp	1
Plecoptera (STONEFLIES)	
Perlidae	
Acroneuria sp	6
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
Corydalus sp	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche sp	14
Hydropsyche sp	12
Macrostemum sp	2
Lepidostomatidae	
Lepidostoma sp	1
Leptoceridae	
Oecetis sp	4
Philopotamidae	
Chimarra sp	5
Polycentropodidae	
Neureclipsis sp	5
Lepidoptera (MOTHS AND BUTTERFLIES)	
Pyralidae	
Petrophila sp	1

01549700 PINE CREEK BELOW LITTLE PINE CREEK NEAR WATERVILLE, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	8/12/02
Benthic Macroinvertebrate	Count
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Stenelmis sp	9
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	15
Total Organisms	194

WEST BRANCH SUSQUEHANNA RIVER BASIN

01550000 LYCOMING CREEK NEAR TROUT RUN, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 41°25'06", long 77°01'59", Lycoming County, Hydrologic Unit 02050206, on right bank 150 ft upstream from bridge on Township Route 840, 0.5 mi downstream from Grays Run, and 2.6 mi northeast of Trout Run.

DRAINAGE AREA.--173 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1913 to current year.

REVISED RECORDS.--WSP 756: Drainage area. WSP 921: 1933, 1934(M), 1935-39. WSP 1302: 1914-16, 1922(M), 1932-25, 1926(M), 1927-28, 1930, 1931(M). WSP 1502: 1920-21(M), 1932(M), 1933.

GAGE.--Water-stage recorder. Datum of gage is 693.95 ft above National Geodetic Vertical Datum of 1929. Prior to June 1, 1939, nonrecording gage at site 150 ft downstream at same datum.

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

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a 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)
Mar. 20	2315	*7,430	*10.42	Aug. 5	0330	5,220	8.87
June 21	0700	2,980	6.99	Sept. 23	0730	5,260	8.90

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	107	281	265	396	104	266	576	214	1600	189	617	122
2	87	268	236	961	102	255	757	213	1060	169	549	357
3	73	245	208	555	97	e240	847	205	733	154	435	292
4	63	227	e170	459	146	e230	712	191	686	144	852	815
5	65	213	186	395	191	223	1100	182	606	132	3510	666
6	61	273	183	357	e150	218	906	182	486	120	2070	431
7	56	291	168	317	137	e200	761	175	487	156	1110	340
8	52	255	164	304	122	e200	664	178	523	238	737	285
9	48	242	145	334	e120	202	582	171	423	163	594	247
10	46	231	e140	375	115	e200	572	161	381	162	581	219
11	61	293	144	303	e110	e170	823	169	343	250	502	193
12	499	334	174	263	108	187	1120	221	349	204	609	171
13	430	428	181	234	101	195	838	198	366	154	431	161
14	336	379	337	e200	99	186	683	179	331	132	367	187
15	264	354	426	210	e86	193	579	167	280	121	309	180
16	650	349	366	e190	75	324	503	193	241	128	272	334
17	1070	812	e300	e170	80	1190	436	339	218	116	311	228
18	576	861	e260	e160	101	2280	390	281	240	112	247	187
19	441	666	285	e170	106	2180	385	256	234	146	214	303
20	380	562	1070	176	98	2570	359	239	217	120	188	552
21	304	511	1020	147	94	4500	330	235	1810	112	170	377
22	257	509	706	144	111	3140	341	224	1350	561	158	330
23	226	535	557	143	412	2020	323	205	871	365	148	2630
24	202	451	453	145	467	1480	295	338	581	614	134	1250
25	188	414	411	147	367	1180	272	410	438	363	124	811
26	503	374	359	136	e320	1040	269	357	358	267	117	617
27	445	347	305	115	305	887	276	330	313	253	116	478
28	376	317	265	114	287	689	252	304	268	372	108	771
29	329	295	258	121	---	677	239	303	231	260	100	516
30	310	282	233	112	---	753	224	265	207	209	103	415
31	296	---	228	106	---	638	---	290	---	178	102	---
TOTAL	8801	11599	10203	7959	4611	28713	16414	7375	16231	6664	15885	14465
MEAN	284	387	329	257	165	926	547	238	541	215	512	482
MAX	1070	861	1070	961	467	4500	1120	410	1810	614	3510	2630
MIN	46	213	140	106	75	170	224	161	207	112	100	122
CFSM	1.64	2.23	1.90	1.48	0.95	5.35	3.16	1.38	3.13	1.24	2.96	2.79
IN.	1.89	2.49	2.19	1.71	0.99	6.17	3.53	1.59	3.49	1.43	3.42	3.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2003, BY WATER YEAR (WY)

MEAN	159	297	308	271	295	591	624	384	207	112	90.9	107
MAX	983	1044	1003	1095	1082	1788	1783	979	1488	674	812	776
(WY)	1991	1927	1997	1996	1981	1936	1993	1919	1972	1915	1994	1975
MIN	7.65	13.4	26.4	20.5	37.8	160	132	74.8	18.0	16.0	10.3	6.25
(WY)	1965	1965	1965	1931	1931	1969	1946	1941	1991	1964	1964	1964

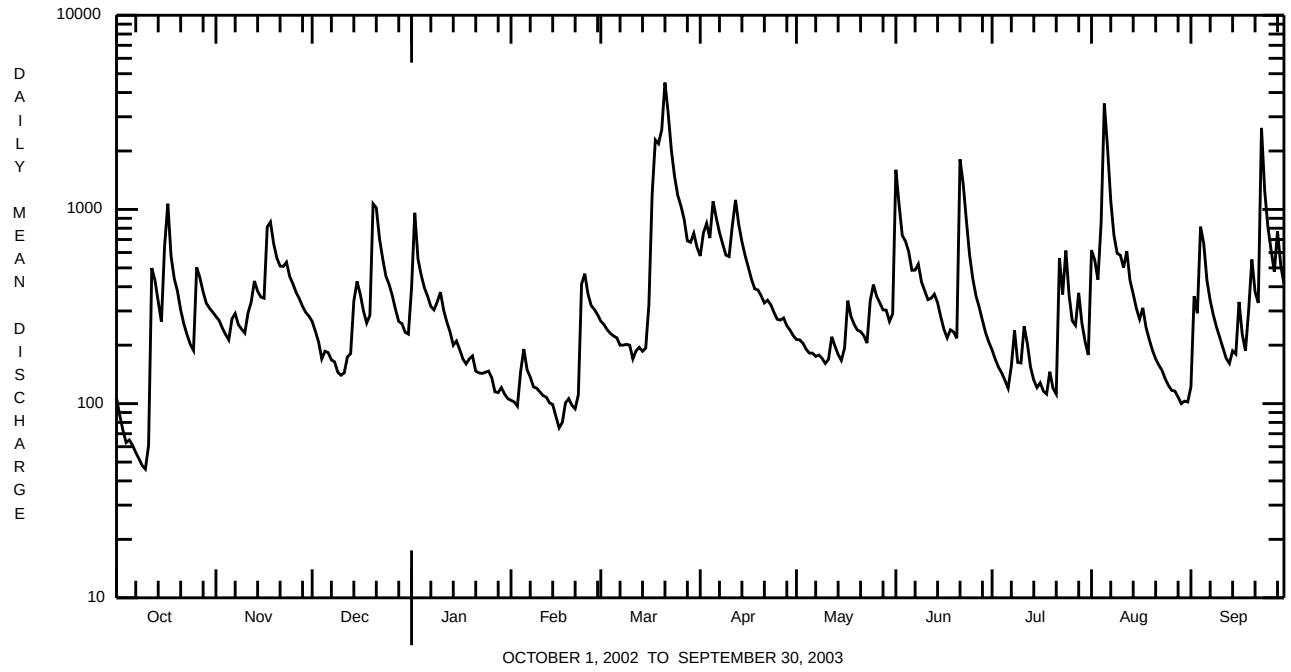
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01550000 LYCOMING CREEK NEAR TROUT RUN, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1914 - 2003	
ANNUAL TOTAL	94710.8		148920			
ANNUAL MEAN	259		408		287	
HIGHEST ANNUAL MEAN					491	1978
LOWEST ANNUAL MEAN					124	1965
HIGHEST DAILY MEAN	2570	Mar 27	4500	Mar 21	15000	Jan 19 1996
LOWEST DAILY MEAN	8.1	Sep 10	46	Oct 10	4.0	Sep 19-24 1936**a**
ANNUAL SEVEN-DAY MINIMUM	9.1	Sep 7	56	Oct 5	4.1	Sep 18 1936
MAXIMUM PEAK FLOW			**b**7430	Mar 20	**b**32000	Jan 19 1996
MAXIMUM PEAK STAGE			10.42	Mar 20	**c**22.68	Jan 19 1996
INSTANTANEOUS LOW FLOW					3.2	Sep 27 1936
ANNUAL RUNOFF (CFSM)	1.50		2.36		1.66	
ANNUAL RUNOFF (INCHES)	20.37		32.02		22.53	
10 PERCENT EXCEEDS	505		787		665	
50 PERCENT EXCEEDS	213		272		142	
90 PERCENT EXCEEDS	26		115		25	

a Also Sept. 27, 28, 1936 and Sept. 1, 1968.
b From rating curve extended above 5,300 ft^3/s on basis of slope-area measurement of peak flow.
c From floodmark in gage.



01550000 LYCOMING CREEK NEAR TROUT RUN, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)
OCT 2002													
10...	1130	1028	9813	46	30	10.8	7.1	83	12.8	33	9.85	9.8	2.03
NOV													
14...	1015	1028	9813	375	30	12.4	7.4	67	6.9	25	7.57	7.3	1.55
DEC													
11...	1130	1028	9813	138	30	14.0	7.1	63	.6	--	8.25	7.5	1.85
JAN 2003													
22...	0830	1028	9813	122	30	14.2	7.3	80	.0	25	7.21	7.3	1.61
FEB													
10...	0915	1028	9813	114	30	14.4	7.7	72	.2	23	6.80	6.7	1.55
MAR													
18...	1115	1028	9813	1740	30	13.8	7.8	55	2.6	19	5.66	5.6	1.27
APR													
15...	1030	1028	9813	582	30	12.3	6.9	53	6.8	19	5.38	5.4	1.27
MAY													
08...	1130	1028	9813	180	30	10.8	7.2	49	11.5	23	6.96	6.8	1.48
JUN													
11...	1230	1028	9813	343	30	10.3	6.0	52	12.4	21	6.19	6.1	1.52
JUL													
24...	1100	1028	9813	604	30	9.2	7.3	69	17.0	27	7.37	7.8	1.59
AUG													
14...	0715	1028	9813	384	30	9.6	7.3	54	16.4	21	5.89	6.0	1.41
SEP													
03...	1330	1028	9813	273	30	10.1	7.3	77	15.7	24	6.95	7.1	1.42

Date	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, unfltrd mg/L (00951)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)
OCT 2002													
10...	2.0	18	.0	3.8	<.2	13.9	42	4	.050	.35	<.040	<.01	<.010
NOV													
14...	1.6	11	.0	4.0	<.2	11.6	--	<2	<.020	.41	<.040	<.01	<.010
DEC													
11...	172	12	.0	3.5	<.2	12.0	154	<2	<.020	.56	<.040	<.01	<.010
JAN 2003													
22...	1.6	11	.0	3.6	<.2	12.4	48	<2	<.020	.70	<.040	<.01	<.010
FEB													
10...	1.5	10	.0	3.6	<.2	10.5	94	2	<.020	.62	<.040	<.01	<.010
MAR													
18...	1.3	8	.0	3.6	<.2	9.0	34	14	<.020	.86	<.040	.02	.023
APR													
15...	1.3	8	.0	2.5	<.2	9.7	66	<2	<.020	.51	<.040	<.01	.011
MAY													
08...	1.5	12	.0	3.0	<.2	10.8	270	6	<.020	.38	<.040	<.01	<.010
JUN													
11...	1.4	11	.0	2.3	<.2	9.1	66	<2	<.020	.30	<.040	<.01	<.010
JUL													
24...	1.9	15	.0	3.6	<.2	8.1	18	48	<.020	.45	<.040	.11	.068
AUG													
14...	1.5	12	.0	1.9	<.2	8.5	42	2	<.020	.33	<.040	<.01	<.010
SEP													
03...	1.5	16	.0	3.7	<.2	9.1	78	<2	<.020	.33	<.040	<.01	<.010

01550000 LYCOMING CREEK NEAR TROUT RUN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Total nitro-gen, water, unfltrd mg/L (00600)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45uMF col/ 100 mL (31616)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)	Mangan-ese, water, fltrd, µg/L (01056)	Mangan-ese, water, unfltrd recover-able, µg/L (01055)
OCT 2002													
10...	.44	1.1	80	16	24	<4	<4	<20	80	<1.0	<1.0	6.3	8.4
NOV													
14...	.99	1.1	<20	47	77	<4	<4	20	40	<1.0	<1.0	20	20
DEC													
11...	.83	.2	<20	42	64	<4	<4	<20	20	<1.0	<1.0	20	20
JAN 2003													
22...	.57	.7	10	40	74	<4	<4	<20	<20	<1.0	<1.0	20	20
FEB													
10...	.48	.6	<20	45	63	<4	<4	<20	<20	<1.0	<1.0	10	10
MAR													
18...	1.2	1.6	20	70	400	<4	<4	20	670	<1.0	<1.0	40	80
APR													
15...	.66	.8	10	67	96	<4	<4	<20	50	<1.0	<1.0	30	30
MAY													
08...	.47	1.1	20	33	66	<4	<4	<20	<20	<1.0	<1.0	10	10
JUN													
11...	.37	.8	<20	30	73	<4	<4	20	30	<1.0	<1.0	20	20
JUL													
24...	.74	1.4	2600	52	1500	<4	<4	90	2090	<1.0	1.3	10	110
AUG													
14...	.37	.9	30	34	59	<4	<4	<20	50	<1.0	<1.0	20	30
SEP													
03...	.37	1.2	200	32	55	<4	<4	30	120	<1.0	<1.0	10	20

Date	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)	Phen-olic com-pounds, water, unfltrd µg/L (32730)
OCT 2002					
10...	<4.0	<4.0	<5.0	<5.0	<5
NOV					
14...	<4.0	<4.0	8.3	8.3	<5
DEC					
11...	<4.0	<4.0	7.4	7.2	<5
JAN 2003					
22...	<4.0	<4.0	9.3	9.1	<5
FEB					
10...	<4.0	<4.0	7.4	7.6	<5
MAR					
18...	<4.0	<4.0	7.7	10	<5
APR					
15...	<4.0	<4.0	60	20	<5
MAY					
08...	<4.0	<4.0	<5.0	5.4	<5
JUN					
11...	<4.0	<4.0	5.8	6.6	<5
JUL					
24...	<4.0	<4.0	<5.0	10	<5
AUG					
14...	<4.0	<4.0	5.4	6.0	<5
SEP					
03...	<4.0	<4.0	<5.0	<5.0	<5

01550000 LYCOMING CREEK NEAR TROUT RUN, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 200 (approximate) subsamples.

Date	3/19/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	2
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	1
Tubificida	
Naididae	2
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Baetis sp	3
Caenidae	
Caenis sp	
Ephemerellidae	1
Drunella sp	24
Ephemerella sp	9
Serratella sp	5
Heptageniidae	
Cinygmula sp	4
Epeorus sp	15
Rhithrogena sp	2
Stenonema sp	5
Isonychiidae	
Isonychia sp	5
Leptophlebiidae	
Paraleptophlebia sp	16
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Gomphidae	
Ophiogomphus sp	1
Plecoptera (STONEFLIES)	
Leuctridae	
Leuctra sp	1
Perlodidae	
Isoperla sp	2
Taeniopterygidae	
Taenionema sp	1

01550000 LYCOMING CREEK NEAR TROUT RUN, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	3/19/02
Benthic Macroinvertebrate	Count
Trichoptera (CADDISFLIES)	
Brachycentridae	
Brachycentrus sp	1
Helicopsychidae	
Helicopsyche sp	1
Hydropsychidae	
Cheumatopsyche sp	10
Hydropsyche sp	6
Leptoceridae	
Setodes sp	1
Rhyacophilidae	
Rhyacophila sp	10
Uenoidae	
Neophylax sp	13
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus sp	1
Psephenidae (WATER PENNIES)	
Psephenus sp	15
Diptera (TRUE FLIES)	
Athericidae	
Atherix sp	1
Chironomidae (MIDGES)	44
Simuliidae (BLACK FLIES)	
Prosimulium sp	2
Tipulidae (CRANE FLIES)	
Antocha sp	3
Hexatoma sp	8
Total Organisms	215

WEST BRANCH SUSQUEHANNA RIVER BASIN

01551500 WEST BRANCH SUSQUEHANNA RIVER AT WILLIAMSPORT, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 41°14'10", long 76°59'49", Lycoming County, Hydrologic Unit 02050206, on right bank 100 ft upstream from Market Street bridge at South Williamsport, and 350 ft upstream from Hagermans Run.

DRAINAGE AREA.--5,682 mi^2.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 756: Drainage area. WSP 1302: 1925-28. WSP 1502: 1895-1904, 1912-13, 1919.

GAGE.--Water-stage recorder. Datum of gage is 494.98 ft above National Geodetic Vertical Datum of 1929. Mar. 1, 1895, to Sept. 30, 1928, nonrecording gage at bridge 100 ft downstream at same datum. Prior to July 1980, 100 ft downstream on left bank at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow slightly regulated by 6 flood-control reservoirs which have a combined capacity of 440,200 acre-ft. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known prior to 1895, 32.4 ft, June 1, 1889, discharge, about 252,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2490	3620	5250	7610	4290	8880	14200	4900	19800	4900	11100	9890
2	1860	3950	5000	25200	4500	8210	14000	4690	26300	4480	36600	10500
3	1480	4100	4560	43700	4380	e7600	16700	4600	22900	4050	32100	18100
4	1270	3770	e3800	33700	4360	6990	17500	4490	20900	3700	27100	24900
5	1190	3360	3210	25600	e4600	6560	20500	4190	19900	3440	33000	32400
6	1120	3450	3140	19000	e4800	6850	37300	4180	19400	3180	28800	24500
7	1090	3940	3370	15500	e5000	6490	37200	4580	17200	3010	21700	17600
8	987	4640	3340	13400	e5000	6590	29700	5600	17600	3140	16400	13500
9	964	4690	e3200	12100	e4800	7240	23400	6340	16500	3200	14900	11100
10	962	4330	e2900	12500	e4600	9060	20600	7560	16200	3380	20000	9250
11	1200	4220	2850	12000	e4600	10600	19500	8240	14600	4100	31700	7810
12	7000	4590	3250	10600	e4400	9670	21900	9180	13800	4580	27100	6880
13	5360	4950	4230	9220	e4200	9980	22400	9620	13800	4500	21800	6200
14	3220	4990	6310	7930	3860	12900	19800	9150	14500	3910	16800	6130
15	2420	4930	10400	e7500	e3600	17400	16900	8550	13600	3050	12700	5870
16	2930	5060	12500	e6900	e3800	19400	15000	8260	11900	2710	10400	6980
17	6820	6880	11000	e5600	e3800	30200	13300	9710	10100	2450	9940	8430
18	4880	13500	8890	e5000	3930	53200	11800	10700	9280	2460	8880	7180
19	3800	15500	7510	e4800	3970	66700	10300	10700	9610	2530	7430	6830
20	3380	13300	9130	e4800	4510	62400	9330	10100	9530	2390	6230	10100
21	2930	11100	17400	e5000	4630	75300	8560	9900	16000	2790	5400	12400
22	2680	9980	23400	e4800	4980	68900	8390	10200	20200	4250	4860	11100
23	2410	9640	19700	e4300	6980	58900	8150	10100	17500	10800	4370	18900
24	2130	8910	15800	e4000	8920	50900	7490	9850	14300	12900	3950	28700
25	1980	8030	13600	e3900	10900	40900	6750	12000	11500	13800	3610	24200
26	3060	7400	12100	e4000	11800	33800	6440	12600	9530	11800	3350	19100
27	4410	7030	10300	e4300	10100	28100	6320	14300	8130	9150	3250	15800
28	5110	6430	8860	4360	9230	23400	5900	14400	6970	14000	3690	21300
29	4780	6050	7840	4030	---	20100	5470	15100	6100	22200	5580	38500
30	4130	5640	7260	4050	---	17800	5100	13500	5340	15500	4530	32000
31	3770	---	6870	4060	---	16100	---	12300	---	10600	4680	---
TOTAL	91813	197980	256970	329460	154540	801120	459900	279590	432990	196950	441950	466150
MEAN	2962	6599	8289	10630	5519	25840	15330	9019	14430	6353	14260	15540
MAX	7000	15500	23400	43700	11800	75300	37300	15100	26300	22200	36600	38500
MIN	962	3360	2850	3900	3600	6490	5100	4180	5340	2390	3250	5870
CFSM	0.52	1.16	1.46	1.87	0.97	4.55	2.70	1.59	2.54	1.12	2.51	2.73
IN.	0.60	1.30	1.68	2.16	1.01	5.24	3.01	1.83	2.83	1.29	2.89	3.05

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1895 - 2003, BY WATER YEAR (WY)

MEAN	4135	6988	8843	9687	10580	19920	18270	12300	7202	4033	2914	2836
MAX	20850	28330	24140	30210	29100	62970	51090	32030	37400	20080	16450	20280
(WY)	1991	1951	1928	1937	1981	1936	1993	1919	1972	1902	1994	1975
MIN	416	408	642	423	1965	5559	4633	2766	1501	847	592	425
(WY)	1931	1931	1931	1931	1931	1969	1946	1941	1999	1966	1910	1932

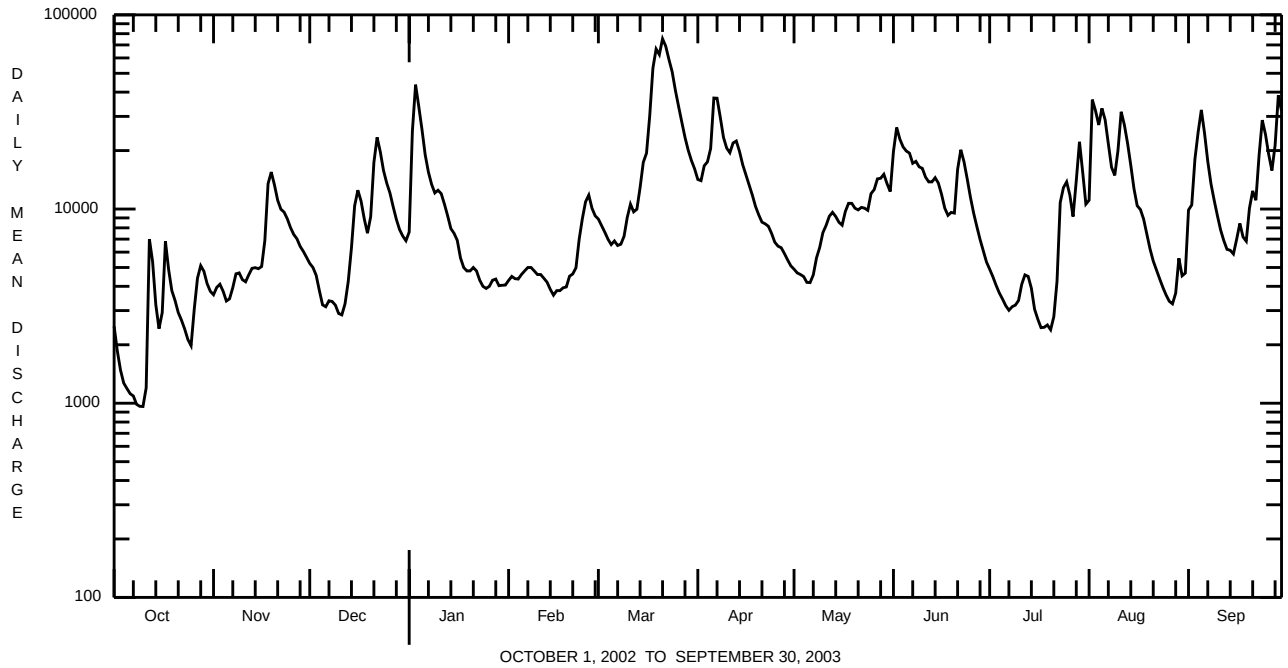
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01551500 WEST BRANCH SUSQUEHANNA RIVER AT WILLIAMSPORT, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1895 - 2003	
ANNUAL TOTAL	2961137		4109413			
ANNUAL MEAN	8113		11260		8975	
HIGHEST ANNUAL MEAN					14010	1928
LOWEST ANNUAL MEAN					5357	1934
HIGHEST DAILY MEAN	73400	May 14	75300	Mar 21	240000	Jun 23 1972
LOWEST DAILY MEAN	531	Sep 14	962	Oct 10	251	Sep 13 1932
ANNUAL SEVEN-DAY MINIMUM	567	Sep 10	1070	Oct 5	328	Nov 25 1930
MAXIMUM PEAK FLOW			78300	Mar 21	**a**279000	Jun 23 1972
MAXIMUM PEAK STAGE			16.13	Mar 21	34.75	Jun 23 1972
INSTANTANEOUS LOW FLOW					162	Sep 17 1943
ANNUAL RUNOFF (CFSM)	1.43		1.98		1.58	
ANNUAL RUNOFF (INCHES)	19.39		26.90		21.46	
10 PERCENT EXCEEDS	17900		23100		20900	
50 PERCENT EXCEEDS	5560		7930		5050	
90 PERCENT EXCEEDS	976		3240		1060	

a From rating curve extended above 210,000 ft^3/s on basis of slope-area measurement at gage height 33.57 ft.



01551500 WEST BRANCH SUSQUEHANNA RIVER AT WILLIAMSPORT, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002													
20...	1415	1028	9813	13000	40	12.7	7.3	200	6.2	81	19.9	7.5	24
MAR 2003													
12...	1000	1028	9813	9590	40	15.6	6.6	173	.5	91	22.8	8.3	18
MAY													
14...	1230	1028	9813	9100	40	10.4	7.3	221	13.6	80	19.1	7.8	16
JUL													
17...	1200	1028	9813	2470	40	8.9	7.6	355	24.8	140	34.2	14.1	26
SEP													
17...	1400	1028	9813	8690	40	9.4	7.5	236	20.1	94	22.8	9.1	25

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, unfltrd recoverable, µg/L (01042)	Iron, water, unfltrd recoverable, µg/L (01045)
NOV 2002													
20...	51.9	138	18	<.020	.59	<.040	<.01	.013	1.1	2.1	1000	<10	1470
MAR 2003													
12...	67.3	198	<2	.030	.70	<.040	.01	.024	.90	1.5	1300	<10	2210
MAY													
14...	68.5	150	<2	<.020	.27	<.040	.01	.016	.50	1.5	200	<10	220
JUL													
17...	106	286	6	<.020	.58	<.040	.01	.012	.73	1.6	<200	<10	120
SEP													
17...	68.3	198	6	<.020	.46	<.040	.01	.017	.62	1.7	200	<10	240

Date	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 2002				
20...	<1.0	800	<50	<10
MAR 2003				
12...	<1.0	620	<50	30
MAY				
14...	<1.0	470	<50	30
JUL				
17...	<1.0	420	<50	120
SEP				
17...	<1.0	460	<50	20

01551500 WEST BRANCH SUSQUEHANNA RIVER AT WILLIAMSPORT, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	9/10/02
Benthic Macroinvertebrate	Count
Mollusca	
Bivalvia (CLAMS)	
Veneroida	
Corbiculidae	
Corbicula fluminea	2
Unionidae	
Strophitus sp	1
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Acentrella sp	3
Acerpenna sp	1
Baetis sp	7
Heterocloeon sp	3
Heptageniidae	
Leucrocuta sp	4
Stenonema sp	23
Isonychiidae	
Isonychia sp	43
Tricorythidae	
Tricorythodes sp	2
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
Corydalus sp	2
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche sp	107
Hydropsyche sp	15
Macrostemum sp	16
Hydroptilidae	
Hydroptila sp	2
Philopotamidae	
Chimarra sp	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus sp	1
Stenelmis sp	2
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	4
Simuliidae (BLACK FLIES)	
Simulium sp	1
Total Organisms	240

WEST BRANCH SUSQUEHANNA RIVER BASIN

01552000 LOYALSOCK CREEK AT LOYALSOCKVILLE, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 41°19'30", long 76°54'46", Lycoming County, Hydrologic Unit 02050206, on right bank 30 ft downstream from bridge on State Highway 973 at Loyalsockville, 2.5 mi downstream from Wallis Run, and 7.3 mi upstream from mouth.

DRAINAGE AREA.--435 mi^2 .

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1925 to September 1974, October 1975 to current year. Prior to October 1925, monthly discharge only, published in WSP 1302. Prior to October 1969, published as "at Loyalsock".

REVISED RECORDS.--WSP 871: 1938(M). WSP 1051: 1926(M), 1933(M), 1936(M). WSP 1302: 1926-30. WSP 1502: 1932-33, 1935(M), 1937(M). WDR PA-99-2: Drainage area, 1972(M). WDR PA-02-2: 1926-95(M).

GAGE.--Water-stage recorder. Datum of gage is 586.33 ft above National Geodetic Vertical Datum of 1929 (revised). August 1925 to Sept. 16, 1926, nonrecording gage, and Sept. 17, 1926, to June 13, 1988, water-stage recorder at site 500 feet downstream on left bank at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 26, l975, reached a stage of 14.50 ft, from floodmark, discharge, 46,000 ft^3/s (revised), from rating curve extended above 16,000 ft^3/s on basis of slope-area measurement of peak flow.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 6,400 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
Oct. 12	1315	*14,300	*9.65
Oct. 17	0115	8,320	7.88
Mar. 21	0415	12,300	9.11
June 1	1730	6,850	7.36
June 21	1100	6,850	7.36
Sept. 4	0945	8,630	7.98
Sept. 23	1445	7,150	7.47

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	320	709	663	942	e260	e640	1410	460	3970	437	509	194
2	247	655	597	2600	e250	e620	1680	440	3480	389	579	1210
3	199	601	e530	1680	e240	e580	2140	419	1900	346	489	e1000
4	172	551	e500	1350	e400	e570	1690	390	1700	309	841	e3500
5	171	516	e540	1140	e580	e540	2310	366	1450	281	1590	2630
6	183	599	e520	1020	e480	e520	2130	355	1170	257	1400	1540
7	160	645	e500	922	e400	e480	1690	349	1040	232	906	1090
8	134	568	e460	865	e360	e470	1480	360	1240	263	692	840
9	118	527	e420	878	e340	e460	1310	370	988	237	733	693
10	109	502	e420	1020	e320	e440	1270	343	831	235	790	594
11	188	523	e440	859	e300	e380	1650	351	725	567	e710	507
12	7840	555	e520	e740	e300	e400	2880	573	751	708	e1100	439
13	3730	861	e700	e660	e280	e420	2050	537	805	406	825	397
14	1870	832	1350	e560	e260	e400	1600	469	813	294	732	444
15	1240	737	1930	e540	e240	451	1330	426	679	237	610	430
16	2020	725	1450	e530	e220	626	1150	431	566	231	507	503
17	5600	1650	1150	e480	e230	1990	996	602	488	224	802	432
18	2530	2410	945	e440	e280	4300	879	553	514	201	605	351
19	1680	1760	884	e480	e300	4090	840	482	554	215	472	363
20	1310	1420	2890	e500	e280	4150	762	430	489	214	398	590
21	1040	1280	3720	e400	e260	9580	686	419	4660	179	346	501
22	848	1280	2220	e380	e300	6610	719	398	4880	462	307	399
23	724	1550	1680	e370	e1200	4370	716	369	2890	794	276	4110
24	635	1230	1330	e380	e1300	3030	640	675	1730	523	245	2780
25	583	1090	1180	e390	e1000	2310	580	1160	1230	388	218	1580
26	1260	969	1060	e360	e870	1990	573	933	965	309	201	1210
27	1330	888	907	e300	e740	1900	657	831	775	298	186	981
28	1020	807	e740	e280	e700	1500	583	732	649	579	179	1240
29	871	739	e700	e300	---	1430	532	763	554	433	163	1060
30	802	696	682	e280	---	1820	489	691	483	317	164	830
31	759	---	654	e280	---	1600	---	646	---	257	168	---
TOTAL	39693	27875	32282	21926	12690	58667	37422	16323	42969	10822	17743	32438
MEAN	1280	929	1041	707	453	1892	1247	527	1432	349	572	1081
MAX	7840	2410	3720	2600	1300	9580	2880	1160	4880	794	1590	4110
MIN	109	502	420	280	220	380	489	343	483	179	163	194
CFSM	2.94	2.14	2.39	1.63	1.04	4.35	2.87	1.21	3.29	0.80	1.32	2.49
IN.	3.39	2.38	2.76	1.88	1.09	5.02	3.20	1.40	3.67	0.93	1.52	2.77

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 2003, BY WATER YEAR (WY)

MEAN	483	841	892	773	820	1478	1557	953	524	277	268	283
MAX	2512	2856	3033	3070	2961	4490	4236	2694	4327	1206	1797	1503
(WY)	1991	1951	1974	1996	1981	1936	1993	1946	1972	1928	1994	1933
MIN	20.2	28.4	80.5	34.1	108	449	363	220	92.4	41.6	31.5	13.8
(WY)	1965	1965	1931	1931	1931	1969	1946	1941	1991	1962	1964	1964

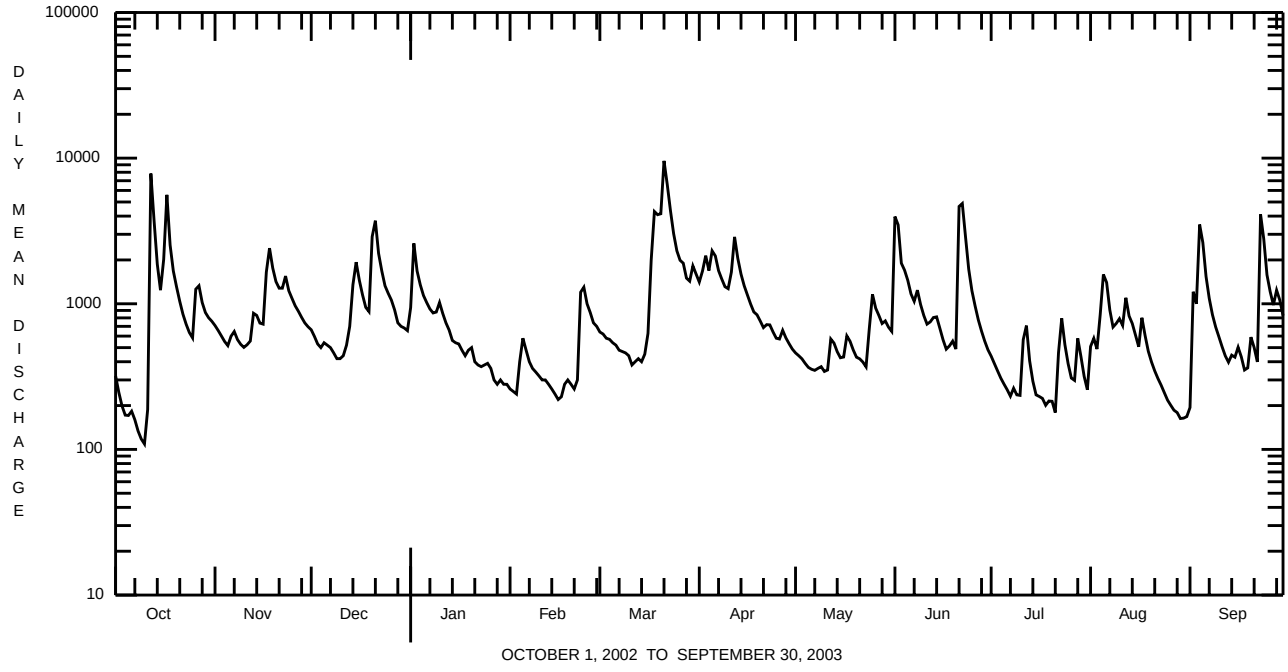
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01552000 LOYALSOCK CREEK AT LOYALSOCKVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1926 - 2003	
ANNUAL TOTAL	280655		350850			
ANNUAL MEAN	769		961		762	
HIGHEST ANNUAL MEAN					1312	1978
LOWEST ANNUAL MEAN					332	1965
HIGHEST DAILY MEAN	8830	Mar 27	9580	Mar 21	45000	Jun 23 1972
LOWEST DAILY MEAN	24	Sep 14	109	Oct 10	11	Sep 25,26 1964**c**
ANNUAL SEVEN-DAY MINIMUM	28	Sep 8	150	Oct 4	12	Sep 20 1964
MAXIMUM PEAK FLOW			**a**14300	Oct 12	**a**55800	Jan 19 1996
MAXIMUM PEAK STAGE			9.65	Oct 12	**b**17.93	Jan 19 1996
INSTANTANEOUS LOW FLOW					11	Sep 25,26 1964**c**
ANNUAL RUNOFF (CFSM)	1.77		2.21		1.75	
ANNUAL RUNOFF (INCHES)	24.00		30.00		23.79	
10 PERCENT EXCEEDS	1540		1900		1680	
50 PERCENT EXCEEDS	560		620		404	
90 PERCENT EXCEEDS	52		259		68	

a From rating curve extended above 11,000 ft^3/s on basis of slope-area measurement of peak flow.
b From floodmark in gage.
c Also Nov. 24, 1964.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01552000 LOYALSOCK CREEK AT LOYALSOCKVILLE, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)
NOV 2002													
14...	1315	1028	9813	822	30	12.8	7.5	56	7.9	22	6.55	6.9	1.03
MAR 2003													
18...	1300	1028	9813	3720	30	14.6	7.2	53	1.7	19	5.50	5.8	.94
MAY													
08...	1300	1028	9813	356	30	10.8	7.6	53	14.3	23	7.14	7.1	1.15
JUL													
24...	1230	1028	9813	517	30	9.5	7.8	65	20.7	22	6.78	7.1	1.09
SEP													
03...	1230	1028	9813	E1000	30	9.7	7.3	56	16.5	18	5.47	5.7	.89

Date	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)
NOV 2002													
14...	1.1	9	.0	9.4	30	<2	.040	.17	<.040	<.01	<.010	.29	1.3
MAR 2003													
18...	1.0	8	.0	7.7	30	22	<.020	.60	<.040	.02	.021	.78	1.3
MAY													
08...	1.1	13	.0	8.7	52	<2	<.020	.22	<.040	.01	.011	.34	1.6
JUL													
24...	1.1	16	.0	7.7	148	8	<.020	.10	<.040	<.01	<.010	.17	.6
SEP													
03...	.9	12	.0	6.5	62	<2	<.020	.18	<.040	.01	.014	.34	1.2

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recoverable, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)
NOV 2002													
14...	28	52	<4	<4	20	50	<1.0	<1.0	2.6	4.5	<4.0	<4.0	<5.0
MAR 2003													
18...	65	400	<4	<4	30	510	<1.0	<1.0	30	90	<4.0	<4.0	5.5
MAY													
08...	11	40	<4	<4	<20	20	<1.0	<1.0	3.4	5.0	<4.0	<4.0	<5.0
JUL													
24...	24	49	<4	<4	50	90	<1.0	<1.0	4.7	10	<4.0	<4.0	<5.0
SEP													
03...	46	100	<4	<4	110	340	<1.0	<1.0	6.1	30	<4.0	<4.0	8.6

Date	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 2002	
14...	<5.0
MAR 2003	
18...	9.9
MAY	
08...	<5.0
JUL	
24...	<5.0
SEP	
03...	10

01552000 LOYALSOCK CREEK AT LOYALSOCKVILLE, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/8/02
Benthic Macroinvertebrate	Count
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia sp	1
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Baetis sp	1
Procloeon sp	1
Ephemerellidae	
Serratella sp	1
Heptageniidae	
Leucrocuta sp	24
Stenacron sp	4
Stenonema sp	33
Isonychiidae	
Isonychia sp	9
Leptophlebiidae	
Paraleptophlebia sp	1
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Coenagrionidae	
Argia sp	2
Gomphidae	
Ophiogomphus sp	3
Plecoptera (STONEFLIES)	
Perlidae	
Acroneuria sp	1
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
Nigronia sp	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche sp	4
Hydropsyche sp	1
Leptoceridae	
Ceraclea sp	1
Philopotamidae	
Chimarra sp	3
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus sp	4
Psephenidae (WATER PENNIES)	
Psephenus sp	14
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	7
Tanyderidae	
Protoplasa sp	1
Total Organisms	117

WEST BRANCH SUSQUEHANNA RIVER BASIN

01552500 MUNCY CREEK NEAR SONESTOWN, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 41°21'25", long 76°32'06", Sullivan County, Hydrologic Unit 02050206, on right bank 150 ft downstream from Slip Run, 185 ft downstream from bridge on SR 2002, and 1.2 mi east of Sonestown.

DRAINAGE AREA.--23.8 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1940 to current year.

REVISED RECORDS.--WSP 1502: 1941-42; WDR PA-00-2: 1942, 1946, 1951-52, 1959, 1964, 1972, 1975, 1977-79, 1984, 1986, 1988, 1991, 1993-94, 1996-97(P).

GAGE.--Water-stage recorder. Datum of gage is 1,025.01 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 31, 1941, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1936 reached a stage of about 9.3 ft, discharge not determined.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 1,100 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Oct. 12	0630	*1,860	*5.88	Sept. 23	0430	1,210	4.86
Mar. 20	2100	1,210	4.86				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	43	39	109	e14	38	83	23	242	20	35	40
2	20	38	33	147	e15	37	120	23	145	17	46	163
3	17	33	e30	97	e14	e34	112	22	101	16	159	121
4	15	31	e32	80	e42	57	93	20	89	14	80	228
5	19	29	e32	66	e50	31	119	19	70	12	76	122
6	14	48	e28	59	e34	29	91	19	56	11	71	80
7	12	38	e28	52	e28	e28	79	18	69	15	59	58
8	11	34	e24	49	e24	30	70	20	61	15	83	45
9	9.8	32	e22	50	e23	27	64	18	49	14	188	37
10	9.6	31	e30	50	e22	e28	63	17	40	13	157	31
11	72	32	42	e43	e21	e30	132	20	38	172	216	26
12	930	52	76	e40	e19	25	139	27	45	44	205	23
13	230	66	49	e36	e18	23	104	23	40	28	127	24
14	128	53	155	e34	e17	e24	84	21	33	22	90	26
15	86	49	113	e32	e16	25	70	19	29	19	64	23
16	318	50	91	e30	e20	59	60	21	24	19	164	28
17	269	138	70	e28	e22	181	53	26	22	16	148	20
18	143	118	e60	e23	e28	256	46	22	28	17	89	18
19	105	95	54	e26	e24	220	42	20	24	17	65	24
20	81	86	197	e26	e18	404	37	18	53	13	51	31
21	62	83	156	e28	e17	533	34	19	395	13	40	22
22	50	121	112	e24	e20	317	38	18	207	69	34	19
23	42	114	88	e22	e120	206	34	17	127	45	28	374
24	36	93	71	e20	e90	146	30	49	81	35	24	129
25	34	80	67	e22	e68	115	28	48	57	33	21	81
26	119	67	56	e18	e48	111	30	47	43	26	19	59
27	75	60	48	e24	e44	98	29	40	35	46	18	49
28	62	51	e44	e22	43	77	26	39	29	109	16	55
29	54	46	39	e20	---	96	25	50	25	54	15	41
30	50	43	36	e18	---	115	24	37	22	39	18	34
31	47	---	37	e15	---	94	---	45	---	31	15	---
TOTAL	3145.4	1854	1959	1310	919	3494	1959	825	2279	1014	2421	2031
MEAN	101	61.8	63.2	42.3	32.8	113	65.3	26.6	76.0	32.7	78.1	67.7
MAX	930	138	197	147	120	533	139	50	395	172	216	374
MIN	9.6	29	22	15	14	23	24	17	22	11	15	18
CFSM	4.26	2.60	2.66	1.78	1.38	4.74	2.74	1.12	3.19	1.37	3.28	2.84
IN.	4.92	2.90	3.06	2.05	1.44	5.46	3.06	1.29	3.56	1.58	3.78	3.17

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2003, BY WATER YEAR (WY)

MEAN	33.1	56.1	61.3	50.7	53.7	85.6	87.8	59.5	31.6	18.3	17.7	22.5
MAX	127	140	161	167	236	168	220	156	240	93.0	95.3	167
(WY)	1977	1973	1974	1976	1981	1964	1993	1946	1972	1972	1994	1975
MIN	1.44	2.62	8.57	6.60	7.70	25.4	20.9	11.9	4.93	2.21	1.60	0.73
(WY)	1965	1965	1999	1981	1987	1981	1946	1941	1991	1999	1957	1964

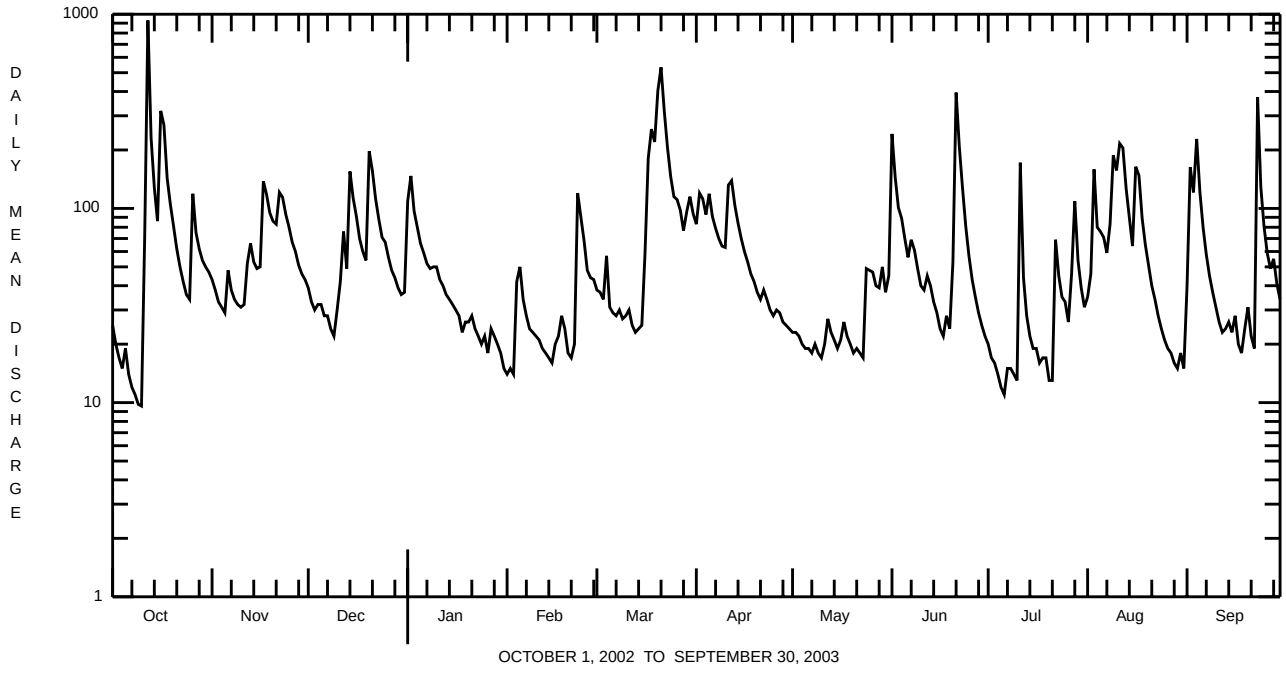
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01552500 MUNCY CREEK NEAR SONESTOWN, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1941 - 2003	
ANNUAL TOTAL	18912.6		23210.4			
ANNUAL MEAN	51.8		63.6		48.1	
HIGHEST ANNUAL MEAN					77.3	1978
LOWEST ANNUAL MEAN					22.1	1965
HIGHEST DAILY MEAN	930	Oct 12	930	Oct 12	3910	Jun 22 1972
LOWEST DAILY MEAN	1.4	Sep 13,14	9.6	Oct 10	0.20	Sep 11 1964
ANNUAL SEVEN-DAY MINIMUM	1.5	Sep 8	13	Oct 4	0.31	Sep 8 1964
MAXIMUM PEAK FLOW			**a**1860	Oct 12	**a**4630	Jun 22 1972
MAXIMUM PEAK STAGE			5.88	Oct 12	8.94	Jun 22 1972
INSTANTANEOUS LOW FLOW					0.10	Sep 11 1964
ANNUAL RUNOFF (CFSM)	2.18		2.67		2.02	
ANNUAL RUNOFF (INCHES)	29.56		36.28		27.45	
10 PERCENT EXCEEDS	107		128		102	
50 PERCENT EXCEEDS	35		39		26	
90 PERCENT EXCEEDS	2.9		18		4.4	

a From rating curve extended above 900 ft^3/s.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01552500 MUNCY CREEK NEAR SONESTOWN, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)
OCT 2002													
10...	0900	1028	9813	9.4	30	10.9	7.6	73	12.2	29	9.39	9.5	1.18
NOV													
13...	1150	1028	9813	64	30	11.8	7.5	55	7.8	20	6.81	6.7	.90
DEC													
11...	0900	1028	9813	25	30	13.0	7.2	56	.1	21	7.20	6.8	.89
MAR 2003													
17...	1045	1028	9813	89	30	12.8	7.0	71	1.8	20	--	6.5	.85
APR													
15...	0830	1028	9813	73	30	12.5	7.2	54	5.7	19	5.59	6.1	.81
MAY													
08...	0900	1028	9813	21	30	10.5	7.7	52	11.6	23	7.36	7.5	.94
JUN													
11...	0830	1028	9813	35	30	9.9	7.1	58	12.8	21	6.76	6.8	.91
JUL													
24...	0900	1028	9813	32	30	9.8	7.2	66	16.3	25	7.89	8.1	1.06
AUG													
06...	0700	1028	9813	73	30	9.8	7.1	56	15.6	20	6.66	6.5	.86
SEP													
03...	0830	1028	9813	93	30	9.9	7.2	55	15.1	18	5.71	6.0	.73

Date	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, unfltrd mg/L (00951)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)
OCT 2002													
10...	1.2	20	.0	3.8	<.2	7.8	26	2	.030	.10	<.040	<.01	<.010
NOV													
13...	.9	12	.0	2.8	<.2	8.3	58	<2	<.020	.12	<.040	<.01	<.010
DEC													
11...	.9	12	.0	3.2	<.2	8.2	74	<2	<.020	.26	<.040	<.01	<.010
MAR 2003													
17...	.9	15	--	--	--	7.5	48	<2	<.020	.43	<.040	<.01	<.010
APR													
15...	.9	9	.0	4.0	<.2	7.7	48	<2	<.020	.29	<.040	<.01	<.010
MAY													
08...	1.0	15	.0	3.3	<.2	7.8	44	4	<.020	.20	<.040	.01	.012
JUN													
11...	.9	13	.0	3.1	<.2	7.1	44	<2	<.020	.15	<.040	<.01	<.010
JUL													
24...	1.1	19	.0	3.0	<.2	7.1	60	<2	<.020	.13	<.040	<.01	<.010
AUG													
06...	.8	15	.0	2.1	<.2	7.1	74	<2	<.020	.12	<.040	<.01	<.010
SEP													
03...	.8	13	.0	1.8	<.2	6.6	66	<2	<.020	.14	<.040	<.01	<.010

01552500 MUNCY CREEK NEAR SONESTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Total nitro-gen, water, unfltrd mg/L (00600)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45uMF col/ 100 mL (31616)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)	Mangan-ese, water, fltrd, µg/L (01056)	Mangan-ese, water, unfltrd recover-able, µg/L (01055)
OCT 2002													
10...	.17	.8	20	16	18	<4	<4	<20	<20	<1.0	<1.0	2.6	3.3
NOV													
13...	.43	.9	40	32	45	<4	<4	<20	<20	<1.0	<1.0	<2.0	<2
DEC													
11...	.65	.5	<20	21	22	<4	<4	<20	<20	<1.0	<1.0	<2.0	<2
MAR 2003													
17...	.41	--	20	<200	<200	6410	<10	<20	40	--	<1.0	<10	<10
APR													
15...	.53	.7	<20	28	33	<4	<4	<20	20	<1.0	<1.0	<2.0	2.1
MAY													
08...	.28	1.3	40	22	34	<4	<4	<20	<20	<1.0	<1.0	<2.0	<2
JUN													
11...	.21	.8	<20	<10	19	<4	<4	<20	<20	<1.0	<1.0	<2.0	<2
JUL													
24...	.14	.6	80	13	24	<4	<4	<20	30	<1.0	<1.0	<2.0	2.7
AUG													
06...	.14	.7	100	23	26	<4	<4	<20	40	<1.0	<1.0	2.3	3.9
SEP													
03...	.18	.8	20	25	49	<4	<4	30	80	<1.0	<1.0	<2.0	5.2

Date	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)	Phen-olic com-pounds, water, unfltrd µg/L (32730)
OCT 2002					
10...	<4.0	<4.0	<5.0	<5.0	<5
NOV					
13...	<4.0	<4.0	<5.0	<5.0	<5
DEC					
11...	<4.0	<4.0	<5.0	<5.0	<5
MAR 2003					
17...	<50	<50	<10	<10	<5
APR					
15...	<4.0	<4.0	<5.0	10	<5
MAY					
08...	<4.0	<4.0	<5.0	<5.0	<5
JUN					
11...	<4.0	<4.0	<5.0	<5.0	<5
JUL					
24...	<4.0	<4.0	5.2	<5.0	<5
AUG					
06...	<4.0	<4.0	<5.0	<5.0	<5
SEP					
03...	<4.0	<4.0	<5.0	<5.0	<5

01552500 MUNCY CREEK NEAR SONESTOWN, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	3/19/02
Benthic Macroinvertebrate	Count
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	1
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	1
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Baetis sp	3
Ephemerellidae	
Drunella sp	12
Ephemerella sp	6
Heptageniidae	
Cinygmula sp	9
Epeorus sp	52
Rhithrogena sp	5
Stenonema sp	2
Isonychiidae	
Isonychia sp	4
Leptophlebiidae	
Paraleptophlebia sp	36
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Gomphidae	
Lanthus sp	1
Plecoptera (STONEFLIES)	
Chloroperlidae	
Sweltsa sp	5
Perlidae	
Agnetina sp	2
Perlodidae	
Isoperla sp	8
Taeniopterygidae	
Taenionema sp	7
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche sp	1
Hydropsyche sp	1
Lepidostomatidae	
Lepidostoma sp	5
Rhyacophilidae	
Rhyacophila sp	2
Uenoidae	
Neophylax sp	11

01552500 MUNCY CREEK NEAR SONESTOWN, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	3/19/02
Benthic Macroinvertebrate	Count
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	42
Empididae (DANCE FLIES)	
Chelifera sp	1
Simuliidae (BLACK FLIES)	
Prosimulium sp	1
Tipulidae (CRANE FLIES)	
Hexatoma sp	4
Total Organisms	222

WEST BRANCH SUSQUEHANNA RIVER BASIN

01553500 WEST BRANCH SUSQUEHANNA RIVER AT LEWISBURG, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 40°58'03", long 76°52'36", Northumberland County, Hydrologic Unit 02050206, at downstream side of left abutment of Market Street bridge on State Highway 45 at Lewisburg, 0.2 mi downstream from Buffalo Creek, and 7.4 mi upstream from mouth.

DRAINAGE AREA.--6,847 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1939 to current year. September 1913 to August 1923 (gage heights only), are contained in reports of Water Supply Commission of Pennsylvania or Pennsylvania Department of Forests and Waters.

GAGE.--Water-stage recorder. Datum of gage is 428.20 ft above National Geodetic Vertical Datum of 1929. Sept. 21, 1913, to Aug. 31, 1923, Dec. 7, 1939, to July 2, 1940, and Oct. 20, 1987, to Sept. 30, 1988, nonrecording gage at same site and datum. Since Oct. 1, 1942, water-stage recorder for Susquehanna River at Sunbury (station 01553990) used as an auxiliary gage.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow slightly regulated by 6 flood-control reservoirs, which have a combined capacity of 440,200 acre-ft. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 19, 1936, reached a stage of 32.1 ft, from floodmarks (backwater from Susquehanna River), discharge, 287,000 ft^3/s from slope-area measurement at Watsontown, 8.0 mi upstream.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4250	5480	6780	9380	4490	e11000	18200	6340	20800	6390	10900	8690
2	3090	5390	6300	22500	4780	e10000	17200	6150	32100	5880	28200	13600
3	2500	5550	5890	45000	4910	e9500	19400	5920	28600	5360	36400	18100
4	2100	5310	5090	39000	5820	e9000	20600	5900	25200	4890	29900	25600
5	1830	4820	4390	29700	6270	8530	22000	5560	23500	4590	33300	35800
6	1740	4880	4090	22900	6170	8420	34500	5370	22400	4220	33800	29200
7	1650	5190	4270	18600	6370	8170	41600	5550	21000	3980	26000	21500
8	1550	5640	4290	16000	6160	7890	34400	6420	20600	3900	19900	16500
9	1410	6020	4450	14900	5890	8340	27800	7370	19800	4060	17300	13500
10	1380	5690	4150	14900	5630	9760	24000	8360	18600	4070	21300	11400
11	1910	5420	e3600	14400	5580	11400	23800	9270	17400	6310	32400	9670
12	16300	5800	e5200	12900	5500	11300	28300	10200	16600	6300	32700	8410
13	16600	6940	6180	11300	e5200	11700	27300	11000	16100	5800	26100	7620
14	8150	6940	9790	9910	e5000	13400	24200	10700	16500	5350	20800	7410
15	5370	6700	14600	9380	e4800	18100	20900	9970	16300	4380	16200	7230
16	5770	6610	16000	9080	e4200	21500	18300	9570	14600	3760	13000	7970
17	14300	8530	14600	7760	e4600	29100	16200	10700	12600	3400	13800	9250
18	10500	14900	12100	e6600	e4800	50000	14500	12100	11900	3230	11800	9010
19	7290	19000	9950	e5800	e5000	69200	13000	12200	11500	3540	9780	7890
20	6030	17100	10200	e5600	e5200	70300	11500	11600	11400	3220	8180	10500
21	5120	14500	18200	e5900	e5400	84900	10500	11300	21900	3240	7060	13300
22	4410	12900	24900	e5600	e5600	80500	10200	11200	29400	4440	6320	13200
23	3980	12800	23200	e4800	e7200	68100	9950	11500	25700	9530	5720	22400
24	3510	11800	18900	e4200	e9300	60200	9320	12100	19600	13800	5190	33000
25	3220	10500	16200	e4200	e11000	49600	8510	14300	15600	14800	4780	29000
26	4600	9580	14600	4710	e14000	40600	8090	15000	13000	13900	4470	23300
27	6670	9010	12600	4650	e13000	33800	8110	15900	10900	11000	4250	19400
28	6800	8290	10900	4700	e12000	28400	7730	16300	9220	13500	4120	18900
29	6870	7740	9600	4340	---	24200	7260	16900	8020	22700	5680	35900
30	6190	7220	8840	4300	---	22300	6790	16000	7050	18700	6040	35000
31	6100	---	8330	4350	---	20500	---	14200	---	13300	5180	---
TOTAL	171190	256250	318190	377360	183870	909710	544160	324950	537890	231540	500570	522250
MEAN	5522	8542	10260	12170	6567	29350	18140	10480	17930	7469	16150	17410
MAX	16600	19000	24900	45000	14000	84900	41600	16900	32100	22700	36400	35900
MIN	1380	4820	3600	4200	4200	7890	6790	5370	7050	3220	4120	7230
CFSM	0.81	1.25	1.50	1.78	0.96	4.29	2.65	1.53	2.62	1.09	2.36	2.54
IN.	0.93	1.39	1.73	2.05	1.00	4.94	2.96	1.77	2.92	1.26	2.72	2.84

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2003, BY WATER YEAR (WY)

MEAN	5157	8933	11500	11250	12900	21850	22340	14880	9027	4725	3598	3725
MAX	24900	32000	28230	30740	33010	49200	62990	28750	46900	20120	18700	24080
(WY)	1991	1951	1973	1952	1981	1945	1993	1978	1972	1972	1994	1975
MIN	659	762	1727	1752	2914	6169	5822	3353	1807	1032	983	601
(WY)	1964	1965	1961	1981	1940	1969	1946	1941	1999	1965	1966	1964

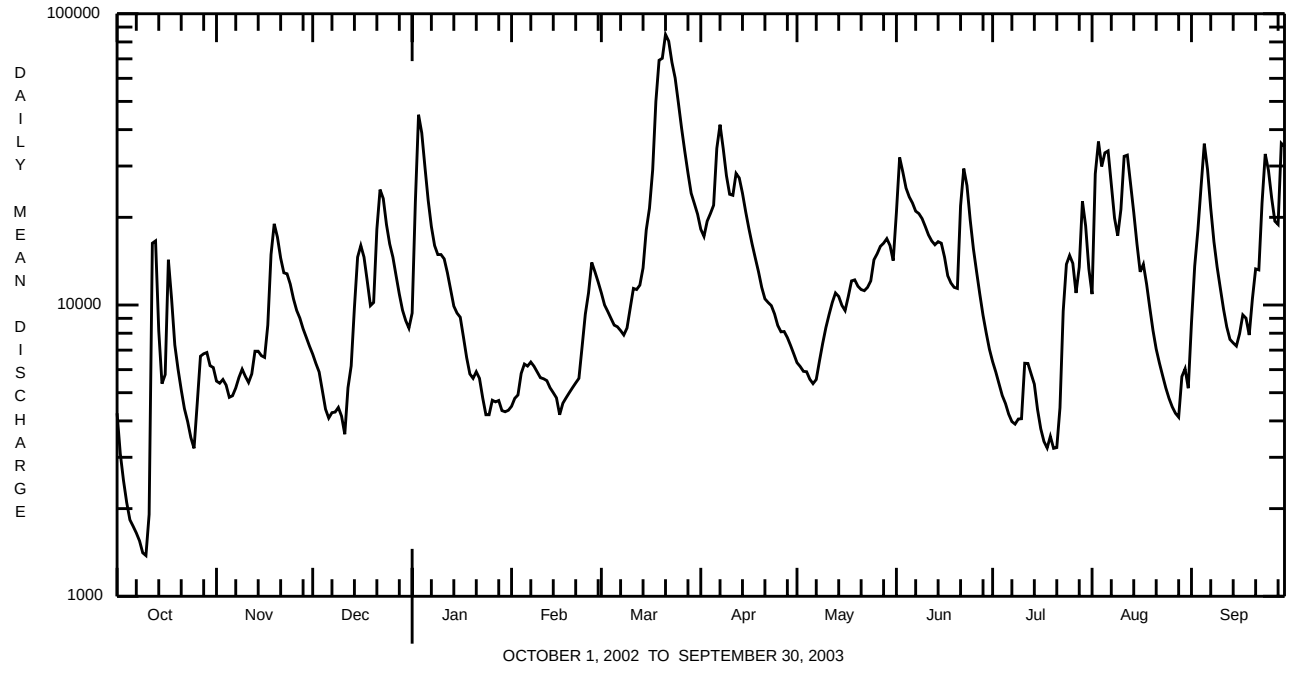
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01553500 WEST BRANCH SUSQUEHANNA RIVER AT LEWISBURG, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1940 - 2003	
ANNUAL TOTAL	3500070		4877930			
ANNUAL MEAN	9589		13360		10810	
HIGHEST ANNUAL MEAN					16710	1978
LOWEST ANNUAL MEAN					6158	1965
HIGHEST DAILY MEAN	82700	May 14	84900	Mar 21	285000	Jun 24 1972
LOWEST DAILY MEAN	**e**700	Sep 14	1380	Oct 10	417	Nov 16 1964
ANNUAL SEVEN-DAY MINIMUM	**a**757	Sep 10	1640	Oct 5	511	Sep 15 1964
MAXIMUM PEAK FLOW			90200	Mar 21	**b**300000	Jun 24 1972
MAXIMUM PEAK STAGE			16.14	Mar 21	**c**34.23	Jun 24 1972
INSTANTANEOUS LOW FLOW					390	Nov 16 1964
ANNUAL RUNOFF (CFSM)	1.40		1.95		1.58	
ANNUAL RUNOFF (INCHES)	19.02		26.50		21.44	
10 PERCENT EXCEEDS	19700		27500		24500	
50 PERCENT EXCEEDS	6870		9780		6400	
90 PERCENT EXCEEDS	1280		4320		1480	

a Computed using estimated daily discharges.
b About.
c From floodmarks (backwater from Susquehanna River).
e Estimated.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01553500 WEST BRANCH SUSQUEHANNA RIVER AT LEWISBURG, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002													
21...	1130	1028	9813	14600	40	11.6	7.4	162	6.2	64	16.9	5.4	26
JAN 2003													
14...	1150	1028	9813	10000	40	17.1	6.5	198	.1	76	18.5	7.2	17
MAR													
25...	1045	1028	9813	50300	40	12.2	6.3	101	7.3	35	8.8	3.2	9
MAY													
29...	1045	1028	9813	17000	40	9.8	7.0	141	15.2	54	13.4	4.9	17
JUL													
17...	0940	1028	9813	3400	40	6.9	7.6	289	24.1	130	31.2	12.2	27
SEP													
22...	1230	1028	9813	13100	40	8.9	7.2	194	18.4	83	20.6	7.7	26

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, unfltrd recoverable, µg/L (01042)	Iron, water, unfltrd recoverable, µg/L (01045)
NOV 2002													
21...	36.8	134	<2	.030	.88	<.040	<.01	<.010	1.3	1.8	500	<10	650
JAN 2003													
14...	53.1	138	6	.070	.88	<.040	<.01	.011	.96	1.3	400	<10	520
MAR													
25...	24.7	78	24	<.020	.52	<.040	.01	.018	.64	1.7	600	<10	780
MAY													
29...	36.0	98	12	<.020	.30	<.040	.02	.017	.48	1.6	500	<10	700
JUL													
17...	88.3	246	<2	<.020	.64	<.040	.01	.017	.81	1.7	<200	<10	100
SEP													
22...	55.1	156	6	<.020	.50	<.040	.01	.022	.70	2.1	400	<10	470

Date	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 2002				
21...	<1.0	380	<50	10
JAN 2003				
14...	<1.0	450	<50	<10
MAR				
25...	<1.0	270	<50	20
MAY				
29...	<1.0	420	<50	10
JUL				
17...	<1.0	110	<50	<10
SEP				
22...	<1.0	320	<50	20

01553500 WEST BRANCH SUSQUEHANNA RIVER AT LEWISBURG, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/20/02
Benthic Macroinvertebrate	Count
Nematoda (NEMATODES)	1
Nemertea (PROBOSAS WORMS)	
Enopla	
Hoplonemertea	
Tetrastemmatidae	
Prostoma sp	1
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Hydrobiidae	
Amnicola sp	2
Planorbidae	
Gyraulus sp	1
Pleuroceridae	
Elimia sp	3
Bivalvia (CLAMS)	
Veneroida	
Corbiculidae	
Corbicula fluminea	2
Sphaeriidae	
Sphaerium sp	1
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Tubificida	
Naididae	5
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	1
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	13
Baetis sp	12
Plauditus sp	2
Heptageniidae	18
Leucrocuta sp	4
Stenonema sp	10
Isonychiidae	
Isonychia sp	40
Tricorythidae	
Tricorythodes sp	30
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Gomphidae	1
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
Corydalus sp	1

01553500 WEST BRANCH SUSQUEHANNA RIVER AT LEWISBURG, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	8/20/02
Benthic Macroinvertebrate	Count
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche sp	16
Hydropsyche sp	3
Macrostemum sp	2
Hydroptilidae	
Hydroptila sp	10
Philopotamidae	
Chimarra sp	20
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Stenelmis sp	1
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	23
Total Organisms	223

WEST BRANCH SUSQUEHANNA RIVER BASIN

01553700 CHILLISQUAQUE CREEK AT WASHINGTONVILLE, PA

LOCATION.--Lat 41°03'42", long 76°40'50", Montour County, Hydrologic Unit 02050206, on left bank 60 ft upstream from bridge on State Highway 54, and 0.7 mi north of U.S. Post Office in Washingtonville.

DRAINAGE AREA.--51.3 mi^2.

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

REVISED RECORDS.--WDR PA-82-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 503.70 ft above National Geodetic Vertical Datum of 1929 (Pennsylvania Power and Light Co. benchmark).

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow includes diversion from West Branch Susquehanna River. Several measurements of water temperature were made during the year. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 1,200 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Oct. 12	1115	1,360	6.57	Mar. 20	2315	1,470	7.05
Oct. 16	1945	1,280	6.15	Apr. 11	1700	1,270	6.12
Jan. 2	0015	1,220	5.90	June 21	0600	*1,660	*7.73

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	98	45	492	26	37	98	e32	277	27	32	63
2	30	82	39	703	28	41	116	e31	153	26	37	291
3	26	73	34	235	27	e50	90	30	110	25	60	129
4	26	65	32	153	224	37	80	28	142	24	87	177
5	26	58	33	114	75	38	132	27	84	22	115	124
6	24	123	34	96	42	45	93	28	63	21	100	65
7	23	77	32	82	37	e34	83	28	193	21	125	48
8	23	61	32	81	31	31	96	33	143	22	64	39
9	23	57	30	235	29	48	124	29	95	21	241	34
10	23	54	28	161	28	65	105	28	68	21	e520	31
11	151	55	45	86	27	37	615	28	59	208	e230	29
12	910	145	338	66	25	37	546	29	181	44	e140	26
13	245	181	299	56	e24	120	188	28	128	30	e76	26
14	111	103	806	50	23	166	112	26	88	26	e53	27
15	100	108	389	43	23	306	87	25	64	24	e41	27
16	590	85	202	37	21	523	72	28	48	23	e37	53
17	515	332	115	36	29	529	58	39	39	22	e47	28
18	158	377	81	e31	23	485	51	30	100	23	e30	25
19	96	194	69	30	22	332	51	27	57	23	e26	37
20	73	138	126	30	21	579	e47	25	128	21	e24	61
21	56	102	104	e26	21	826	e44	30	1160	24	e23	35
22	47	191	74	e24	31	339	59	28	335	86	e23	30
23	43	156	65	e23	540	226	46	27	159	77	e21	484
24	38	103	57	21	272	144	39	179	88	38	e20	132
25	40	83	61	20	117	97	35	132	61	30	e20	70
26	252	70	58	20	70	87	41	93	48	26	e20	53
27	110	66	52	21	54	86	45	69	42	33	e20	43
28	78	58	48	20	43	67	34	74	35	151	e20	40
29	63	51	46	20	---	74	35	71	31	41	20	35
30	134	50	44	19	---	164	e34	49	28	30	22	30
31	169	---	53	22	---	134	---	57	---	26	21	---
TOTAL	4237	3396	3471	3053	1933	5784	3256	1388	4207	1236	2315	2292
MEAN	137	113	112	98.5	69.0	187	109	44.8	140	39.9	74.7	76.4
MAX	910	377	806	703	540	826	615	179	1160	208	520	484
MIN	23	50	28	19	21	31	34	25	28	21	20	25
CFSM	2.66	2.21	2.18	1.92	1.35	3.64	2.12	0.87	2.73	0.78	1.46	1.49
IN.	3.07	2.46	2.52	2.21	1.40	4.19	2.36	1.01	3.05	0.90	1.68	1.66

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 2003, BY WATER YEAR (WY)

MEAN	49.0	82.1	91.5	79.8	99.2	128	108	69.1	59.4	32.7	30.6	36.1
MAX	211	149	274	269	243	336	286	228	221	102	87.0	99.8
(WY)	1991	1987	1997	1996	1981	1994	1993	1989	1982	1984	1990	1987
MIN	16.5	23.4	22.2	20.7	25.6	38.3	34.4	17.8	16.0	12.9	15.0	13.0
(WY)	1983	2001	1990	2001	1993	1981	1997	2001	1991	1999	2002	1995

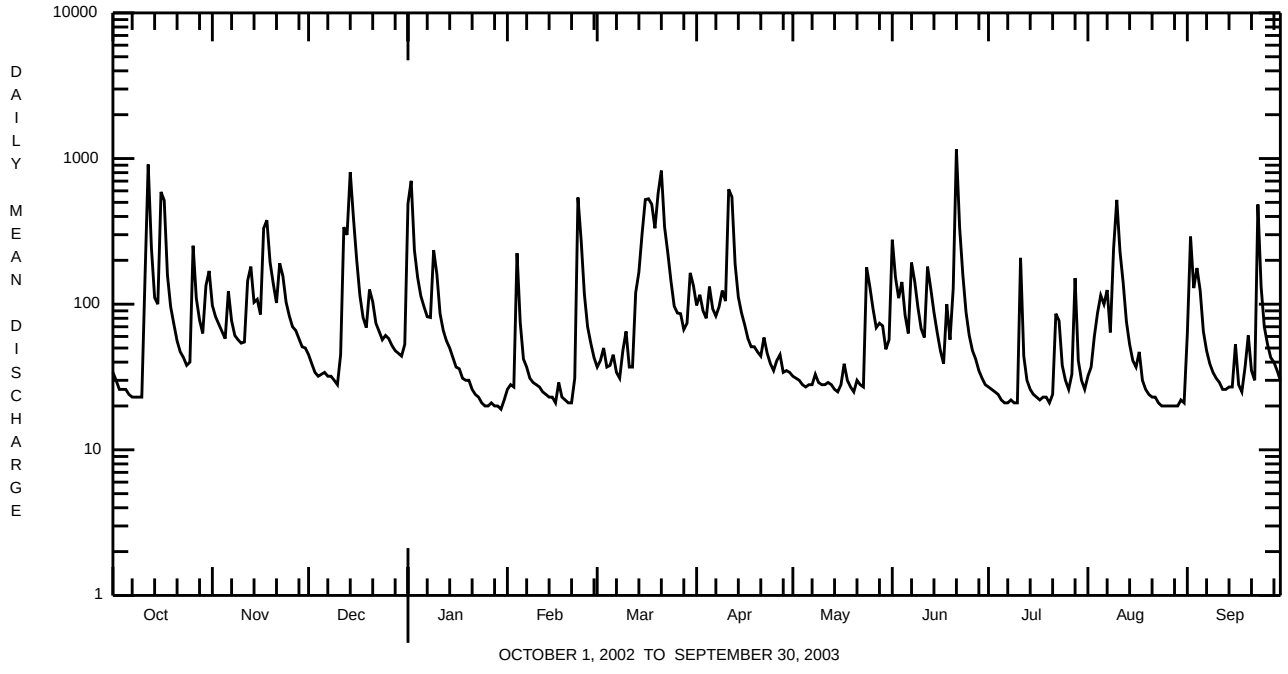
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01553700 CHILLISQUAQUE CREEK AT WASHINGTONVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1979 - 2003	
ANNUAL TOTAL	30220		36568			
ANNUAL MEAN	82.8		100		72.0	
HIGHEST ANNUAL MEAN					108	1984
LOWEST ANNUAL MEAN					48.1	2001
HIGHEST DAILY MEAN	1650	May 13	1160	Jun 21	2080	Mar 15 1986
LOWEST DAILY MEAN	13	Aug 19,22	19	Jan 30	6.2	Jul 27 1991
ANNUAL SEVEN-DAY MINIMUM	14	Aug 16	20	Jan 24**a**	7.6	Jul 27 1999
MAXIMUM PEAK FLOW			1660	Jun 21	**b**3770	Jan 19 1996
MAXIMUM PEAK STAGE			7.73	Jun 21	11.27	Jan 19 1996
ANNUAL RUNOFF (CFSM)	1.61		1.95		1.40	
ANNUAL RUNOFF (INCHES)	21.91		26.52		19.06	
10 PERCENT EXCEEDS	187		225		145	
50 PERCENT EXCEEDS	38		50		35	
90 PERCENT EXCEEDS	15		23		17	

a Also Aug. 23, which included estimated daily discharges.
b From rating curve extended above 2,600 ft^3/s.



WEST BRANCH SUSQUEHANNA RIVER BASIN

LAKES AND RESERVOIRS IN WEST BRANCH SUSQUEHANNA RIVER BASIN

01541180 CURWENSVILLE LAKE.--Lat 40°57'13", long 78°31'40", Clearfield County, Hydrologic Unit 02050201, at Curwensville Dam on West Branch Susquehanna River, 0.7 mi upstream from State Highway 453, 1.2 mi south of Curwensville, and 2.5 mi upstream from Anderson Creek. DRAINAGE AREA, 365 mi^2. PERIOD OF RECORD, November 1965 to current year. GAGE, water-stage recorder (U.S. Army Corps of Engineers datum).

REMARKS.--Reservoir formed by earthfill dam with excavated chute spillway and concrete control sill at elevation 1,228.00 ft. Storage began in November 1965. Capacity at elevation 1,228.00 ft is 124,200 acre-ft. Conservation pool elevation is 1,155.00 ft, capacity, 4,870 acre-ft. Reservoir is used for flood control, recreation and study of water quality. Figures given herein represent total contents. Flow regulated by three gates and low-flow bypass system. Satellite and landline telemetry at station.

COOPERATION.--Records provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 87,650 acre-ft, June 25, 1972, elevation, 1,214.11 ft; minimum, 252 acre-ft, Nov. 6, 1968, elevation, 1,136.70 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 15,300 acre-ft, Jan. 3, elevation, 1,168.4 ft; minimum, 9,220 acre-ft, Mar. 9, elevation, 1,161.58 ft.

01541340 GLENDALE LAKE.--Lat 40°41'50", long 78°32'15", Cambria County, Hydrologic Unit 02050201, at Glendale Dam on Beaverdam Run, 1.0 mi upstream from Dutch Run, 1.3 mi southwest of Flinton, 1.9 mi above mouth, and 3.4 mi south of Coalport. DRAINAGE AREA, 41.9 mi^2. PERIOD OF RECORD, January 1963 to current year. GAGE, water-stage recorder. Datum of gage is sea level.

REMARKS.--Reservoir formed by an earth and rockfill dam with ungated concrete spillway at elevation 1,435.00 ft. Storage began Dec. 1, 1960. Capacity at elevation 1,435.00 ft is 41,200 acre-ft of which 15,900 acre-ft is controlled storage above elevation 1,427.00 ft. Dead storage is 25,300 acre-ft. Reservoir is used for flood control and recreation. Figures given herein represent total contents. Outflow is controlled by 72-inch gate and an 8-inch bypass valve. Satellite telemetry at station.

COOPERATION.--Records provided by Pennsylvania Department of Environmental Protection.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 33,390 acre-ft, June 24, 1972, elevation, 1,431.63 ft; minimum, 10,640 acre-ft, Nov. 16, 1965, elevation, 1,415.53 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 26,920 acre-ft, June 5, Sept. 3, elevation, 1,428.01 ft; minimum, 14,840 acre-ft, Feb. 22, elevation, 1,419.03 ft

01543900 FIRST FORK SINNEMAHONING CREEK RESERVOIR.--Lat 41°24'25", long 78°01'10", Cameron County, Hydrologic Unit 02050202, at control tower of George B. Stevenson Dam on First Fork Sinnemahoning Creek, 8.0 mi northeast of Sinnemahoning, and 8.0 mi upstream from mouth. DRAINAGE AREA, 243 mi^2. PERIOD OF RECORD, January 1956 to current year. GAGE, water-stage recorder. Datum of gage is sea level.

REMARKS.--Reservoir is formed by an earthfill dam. Storage began Jan. 31, 1956. Capacity, 75,800 acre-ft between elevations 890.00 ft (sill of outlet gates) and 1,026.00 ft (crest of spillway). No dead storage. Ordinary minimum (conservation) pool elevation is 920.00 ft, capacity, 2,000 acre-ft. Reservoir is used for flood control and recreation. Figures given herein represent total contents. Satellite telemetry at station.

COOPERATION.--Records provided by Pennsylvania Department of Environmental Protection.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 62,030 acre-ft, June 26, 1972, elevation, 1,015.87 ft; minimum, (after first filling), 37 acre-ft many days in October 1973, elevation, 891.84 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 16,260 acre-ft, Mar. 23, elevation, 961.77 ft; minimum, 1,860 acre-ft, Aug. 3, elevation, 918.60 ft.

01544800 KETTLE CREEK LAKE (formerly published as Alvin R. Bush Reservoir).--Lat 41°21'37", long 77°55'27", Clinton County, Hydrologic Unit 02050203, at control tower of dam on Kettle Creek, 1.1 mi downstream from Sugar Camp Run, and 8.5 mi upstream from mouth and Westport. DRAINAGE AREA, 226 mi^2. PERIOD OF RECORD, February 1962 to current year. GAGE, water-stage recorder (U.S. Army Corps of Engineers datum).

REMARKS.--Reservoir formed by an earthfill embankment, rock faced, with ungated concrete spillway at elevation 937.00 ft. Storage began Feb. 7, 1962; water in reservoir first reached conservation pool elevation in March 1962. Total capacity at elevation 937.00 ft is 75,000 acre-ft. No dead storage. Ordinary minimum (conservation) pool elevation is 840.00 ft, capacity, 1,590 acre-ft. Reservoir is used for flood control and recreation. Figures given herein represent total contents. Storage is regulated by three gates and low-flow bypass system. Satellite and landline telemetry at station.

COOPERATION.--Records provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 52,960 acre-ft, Apr. 2, 1993, elevation, 920.23 ft; minimum, no storage, June 7, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 12,820 acre-ft, Mar. 22, elevation, 872.90 ft; minimum, 1,070 acre-ft, Sept. 23, elevation, 836.09 ft.

01547480 FOSTER JOSEPH SAYERS LAKE.--Lat 41°02'53", long 77°36'35", Centre County, Hydrologic Unit 02050204, at Foster Joseph Sayers Dam on Bald Eagle Creek, 1.0 mi upstream from Marsh Creek, and 1.2 mi south of Blanchard. DRAINAGE AREA, 339 mi^2. PERIOD OF RECORD, March 1971 to current year. GAGE, water-stage recorder (U.S. Army Corps of Engineers datum).

REMARKS.--Reservoir formed by an earthfill dam with ungaged concrete ogee weir at elevation 657.00 ft with abutting concrete gravity walls and partially paved exit channel. Storage began in March 1971. Capacity at elevation 657.00 ft is 99,100 acre-ft. Dead storage is 25 acre-ft. Ordinary minimum (conservation) pool elevation is 610.0 ft, capacity, 6,300 acre-ft. Reservoir used for flood control and recreation. Figures given herein represent total contents. Regulation is accomplished by two gates. Satellite and landline telemetry at station.

COOPERATION.--Records provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 103,900 acre-ft, June 25, 1972, elevation, 658.41 ft; minimum, 3,250 acre-ft, Oct. 27, 1987, elevation, 604.45 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 41,560 acre-ft, Sept. 29, elevation, 636.61 ft; minimum, 6,350 acre-ft, Mar. 11, elevation, 610.07 ft.

WEST BRANCH SUSQUEHANNA RIVER BASIN

Lakes and Reservoirs in West Branch Susquehanna River Basin--Continued

MONTHEND ELEVATION, IN FEET ABOVE SEA LEVEL, AND CONTENTS AT 2400 HRS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)	Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)
	01541180 Curwensville Lake			01541340 Glendale Lake		
Sept. 30	1,162.41	9,880	--	1,426.91	25,160	--
Oct. 31	1,162.42	9,890	+0.2	1,427.33	25,830	+10.9
Nov. 30	1,162.36	9,840	-0.8	1,422.50	19,050	-114
Dec. 31	1,162.17	9,680	-2.6	1,423.13	19,870	+13.3
CAL YR 2002	--	--	-0.1	--	--	-8.7
Jan. 31	1,162.01	9,550	-2.1	1,420.34	16,410	-56.3
Feb. 28	1,162.16	9,670	+2.2	1,419.53	15,440	-17.5
Mar. 31	1,162.08	9,610	-1.0	1,425.45	23,030	+123
Apr. 30	1,162.29	9,780	+2.9	1,427.38	25,910	+48.4
May 31	1,162.26	9,760	-0.3	1,427.65	26,340	+7.0
June 30	1,162.47	9,930	+2.9	1,427.34	25,840	-8.4
July 31	1,162.51	9,960	+0.5	1,427.29	25,760	-1.3
Aug. 31	1,162.60	10,040	+1.3	1,427.80	26,580	+13.3
Sept. 30	1,161.96	9,510	-8.9	1,427.67	26,370	-3.5
WTR YR 2003	--	--	-0.5	--	--	+1.7
	01543900 F.F. Sinnemahoning Cr. Reservoir			01544800 Kettle Creek Lake		
Sept. 30	921.52	2,350	--	841.09	1,760	--
Oct. 31	921.57	2,360	+0.2	840.99	1,740	-0.3
Nov. 30	921.73	2,370	+0.2	841.13	1,760	+0.3
Dec. 31	921.26	2,330	-0.7	840.88	1,730	-0.5
CAL YR 2002	--	--	0	--	--	-0.1
Jan. 31	920.99	2,300	-0.5	840.78	1,710	-0.3
Feb. 28	921.12	2,310	+0.2	841.14	1,770	+1.1
Mar. 31	922.04	2,410	+1.6	841.29	1,790	+0.3
Apr. 30	921.86	2,390	-0.3	841.28	1,790	0
May 31	921.63	2,360	-0.5	841.21	1,780	-0.2
June 30	921.36	2,340	-0.3	841.10	1,760	-0.3
July 31	921.23	2,320	-0.3	841.07	1,760	0
Aug. 31	921.27	2,330	+0.2	841.09	1,760	0
Sept. 30	921.32	2,330	0	841.32	1,800	+0.7
WTR YR 2003	--	--	0	--	--	+0.1
	01547480 Foster Joseph Sayers Lake					
Sept. 30	630.08	28,940	--			
Oct. 31	630.43	29,570	+10.2			
Nov. 30	625.30	21,480	-136			
Dec. 31	625.28	21,450	-0.5			
CAL YR 2002	--	--	+0.3			
Jan. 31	625.25	21,410	-0.7			
Feb. 28	615.12	10,100	-204			
Mar. 31	620.56	15,480	+87.5			
Apr. 30	624.50	20,360	+82.0			
May 31	630.37	29,460	+148			
June 30	630.16	29,090	-6.2			
July 31	630.16	29,090	0			
Aug. 31	630.21	29,180	+1.5			
Sept. 30	635.41	39,050	+166			
WTR YR 2003	--	--	+14.0			

SUSQUEHANNA RIVER BASIN

01554000 SUSQUEHANNA RIVER AT SUNBURY, PA

LOCATION.--Lat 40°51'15", long 76°48'21", Snyder County, Hydrologic Unit 02050301, on right bank in borough of Shamokin Dam, on grounds of Pennsylvania Power and Light Company generating plant, 1.0 mi downstream from Shamokin Creek, 1.5 mi downstream from Sunbury Fabridam, and 1.8 mi south of Sunbury.

DRAINAGE AREA.--18,300 mi^2, approximately (excluding that of Shamokin Creek).

PERIOD OF RECORD.--October 1937 to current year. June 1918 to September 1918 (gage heights only), in reports of Pennsylvania Department of Forests and Waters.

REVISED RECORDS.--WSP 891: 1936(M). WDR PA-79-2: 1978(M).

GAGE.--Water-stage recorder. Datum of gage is 408.61 ft above National Geodetic Vertical Datum of 1929. See WSP 1903 for history of changes prior to Dec. 13, 1937. Dec. 13, 1937, to Mar. 23, 1967, water-stage recorder at site 1.7 mi upstream at datum 11.05 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow slightly regulated by 14 flood-control reservoirs which have a capacity of about 809,000 acre-ft, and during low flow by Fabridam. Satellite and landline telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14000	19800	26000	28200	13400	30900	75900	23700	46600	18200	21300	12900
2	13500	18000	23900	53700	13400	28500	73000	21900	107000	16300	37300	21900
3	10500	17200	22300	101000	13600	27500	72300	24700	109000	14600	51300	37100
4	8560	15800	20400	96100	15300	25600	75200	27900	83600	12800	52100	73300
5	7600	14600	18000	73600	18400	24300	71500	26400	67200	12100	56500	90300
6	6640	14600	16600	59100	17600	24200	85600	24600	58500	11100	60900	76800
7	6080	15300	15700	49600	20800	23400	116000	22500	53900	10200	51000	55600
8	5700	15500	15400	43600	22300	22800	98600	22000	53700	9720	42400	41700
9	5560	15900	15400	40700	21900	23100	81100	21800	51700	9600	36400	31700
10	5450	16400	14100	40700	20600	26100	70300	23100	45900	9540	42300	26300
11	6590	16700	12300	41100	18100	27300	67400	22700	41400	12200	58900	21900
12	28300	16600	20300	38900	17000	27900	76300	22900	39000	13500	81900	18900
13	50100	19600	22600	34900	14700	27800	74000	24000	37400	15300	62900	16900
14	28600	20800	30800	e28500	14200	30700	65600	24500	37200	12700	52400	15800
15	18400	20300	45300	e26500	13400	34900	57500	26500	40000	11300	40900	15000
16	18100	20200	56700	e23300	12200	41100	50700	28600	39900	9850	31900	16000
17	38900	23200	53700	e21500	13300	53500	45100	27800	35700	8850	31800	19200
18	44900	36600	45200	e18200	13800	96600	40600	27700	31000	8260	27000	18500
19	35300	56300	36200	16700	19200	154000	37200	27400	28600	8320	22100	17600
20	32000	54900	32200	e15200	17900	169000	33700	25900	26300	7830	18800	21500
21	26400	46400	44400	e14500	15000	196000	29900	24400	60700	7880	16400	23400
22	21700	40500	65700	e13800	16300	214000	29200	22900	110000	11500	14700	22700
23	19500	40500	67800	e12800	23000	196000	27900	22600	117000	19600	12800	38900
24	17000	42200	56400	e12400	32100	172000	26900	23300	82000	51500	11900	65300
25	14600	44300	47700	e12400	35000	152000	24800	26600	58300	55400	10400	58500
26	15500	42500	42500	e12800	40400	132000	25300	29000	43800	51800	9800	52900
27	20300	38500	37600	e12400	38500	114000	26600	34400	35000	41000	9130	43500
28	20600	34700	33300	e12000	33600	102000	25700	35700	28700	35500	8630	38400
29	23400	31400	28900	e12400	---	88600	26100	35400	24200	41100	9490	54300
30	23500	28300	27100	e12000	---	81000	26000	33900	20800	35300	11000	60300
31	22400	---	26200	e12400	---	78100	---	30500	---	26600	9550	---
TOTAL	609680	837600	1020700	991000	565000	2444900	1636000	815300	1614100	609450	1003900	1107100
MEAN	19670	27920	32930	31970	20180	78870	54530	26300	53800	19660	32380	36900
MAX	50100	56300	67800	101000	40400	214000	116000	35700	117000	55400	81900	90300
MIN	5450	14600	12300	12000	12200	22800	24800	21800	20800	7830	8630	12900
CFSM	1.07	1.53	1.80	1.75	1.10	4.31	2.98	1.44	2.94	1.07	1.77	2.02
IN.	1.24	1.70	2.07	2.01	1.15	4.97	3.33	1.66	3.28	1.24	2.04	2.25

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2003, BY WATER YEAR (WY)

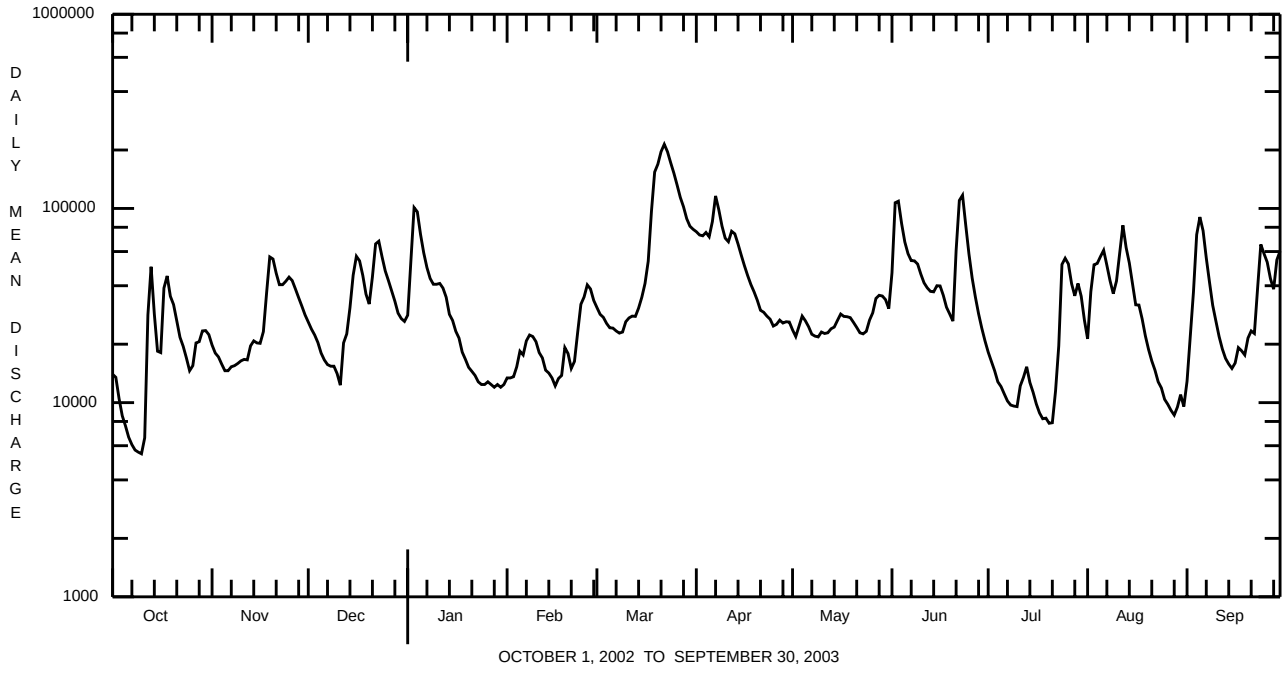
MEAN	13110	22120	29120	27600	31930	54480	58690	35370	20850	10780	8099	8934
MAX	62760	54540	79050	77850	78120	115800	170900	69950	111600	38930	40040	55820
(WY)	1978	1978	1997	1996	1981	1945	1993	1989	1972	1972	1994	1975
MIN	1607	1673	4608	4510	7500	21370	14560	9826	4386	2390	2533	1372
(WY)	1965	1965	1999	1981	1980	1969	1946	1941	1999	1965	1939	1964

e Estimated.

01554000 SUSQUEHANNA RIVER AT SUNBURY, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1938 - 2003	
ANNUAL TOTAL	9616550		13254730			
ANNUAL MEAN	26350		36310		26710	
HIGHEST ANNUAL MEAN					42520	1978
LOWEST ANNUAL MEAN					13420	1965
HIGHEST DAILY MEAN	164000	May 15	214000	Mar 22	609000	Jun 24 1972
LOWEST DAILY MEAN	2050	Sep 12,13	5450	Oct 10	1110	Sep 24 1964
ANNUAL SEVEN-DAY MINIMUM	2150	Sep 9	6230	Oct 5	1140	Sep 22 1964
MAXIMUM PEAK FLOW			217000	Mar 22	620000	Jun 24 1972
MAXIMUM PEAK STAGE			22.06	Mar 22	35.80	Jun 24 1972
INSTANTANEOUS LOW FLOW			5330	Oct 9,10	**a**964	Oct 16 1971
ANNUAL RUNOFF (CFSM)	1.44		1.98		1.46	
ANNUAL RUNOFF (INCHES)	19.55		26.94		19.83	
10 PERCENT EXCEEDS	55900		72600		60600	
50 PERCENT EXCEEDS	20800		26600		15900	
90 PERCENT EXCEEDS	3070		12400		3760	

a Result of shutoff at Fabridam.



PENNS CREEK BASIN

01555000 PENNS CREEK AT PENNS CREEK, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 40°52'00", long 77°02'55", Union County, Hydrologic Unit 02050301, on left bank 200 ft downstream from bridge on State Highway 104, 2.9 mi upstream from Sweitzers Run, and 0.8 mi northeast of Penns Creek, Pa.

DRAINAGE AREA.--301 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1929 to current year. Prior to October 1965, published as Penn Creek at Penns Creek.

REVISED RECORDS.--WSP 891: 1934(M). WSP 1502: 1933(M), 1934, 1936(M). WDR PA-72-1: 1933-34(M), 1936(M), 1940(M), 1951(M). WDR PA-79-2: 1978.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 506.72 ft, datum of 1912; 507.38 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 1, 1930, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 3,100 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 21	0445	4,380	7.01
Sept. 20	0000	4,220	6.88
Sept. 23	0615	*6,270	*8.44

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	379	371	929	e280	388	891	398	1060	379	343	499
2	93	378	338	2650	e290	380	919	391	796	355	461	674
3	87	351	315	1870	e300	e380	900	366	757	338	1420	644
4	84	324	e270	1470	459	375	856	345	1170	318	1300	648
5	90	304	e280	1200	e400	339	1170	342	1030	300	1160	580
6	87	357	e280	1030	e340	407	1150	354	931	286	1100	515
7	81	369	e270	910	e280	e380	1070	354	1230	322	815	465
8	75	328	e260	848	e240	345	1070	405	1360	378	697	425
9	73	311	e250	974	e250	422	1050	418	1170	302	801	397
10	74	304	e230	959	e260	568	1050	413	1020	288	763	373
11	227	312	e300	784	e250	389	1800	411	904	1040	819	346
12	827	409	e490	680	e240	388	2400	415	864	655	704	327
13	526	496	e700	e600	e230	751	1930	397	804	435	570	349
14	298	433	1090	e550	e240	1240	1570	381	701	367	501	437
15	225	404	1360	e500	e240	1090	1330	363	696	332	447	432
16	637	428	1180	e450	e230	1290	1150	470	611	323	473	891
17	777	817	989	e410	e220	1710	990	684	545	304	969	587
18	499	1110	838	e380	e218	2240	876	562	731	289	694	500
19	367	929	757	e390	e300	2440	831	533	734	310	526	2300
20	304	805	895	e400	e360	2700	738	502	718	285	463	3380
21	259	713	992	e340	e340	4030	677	486	1100	279	423	2120
22	227	732	877	e300	329	3310	661	466	925	467	391	1580
23	206	672	816	e260	e700	2620	607	437	804	469	364	4950
24	190	576	735	e240	e900	2110	544	644	697	363	334	3090
25	184	513	716	e260	e650	1740	505	579	620	319	312	2160
26	377	466	657	e280	e500	1490	525	490	562	286	306	1700
27	317	451	581	e250	e420	1310	524	466	514	269	322	1370
28	257	417	534	e240	415	1100	458	449	469	355	300	1930
29	239	394	511	e250	---	1040	438	449	430	346	279	1490
30	304	393	474	e260	---	1110	426	425	400	273	325	1210
31	366	---	465	e270	---	983	---	652	---	251	373	---
TOTAL	8459	14875	18821	20934	9881	39065	29106	14047	24353	11283	18755	36369
MEAN	273	496	607	675	353	1260	970	453	812	364	605	1212
MAX	827	1110	1360	2650	900	4030	2400	684	1360	1040	1420	4950
MIN	73	304	230	240	218	339	426	342	400	251	279	327
CFSM	0.91	1.65	2.02	2.24	1.17	4.19	3.22	1.51	2.70	1.21	2.01	4.03
IN.	1.05	1.84	2.33	2.59	1.22	4.83	3.60	1.74	3.01	1.39	2.32	4.49

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2003, BY WATER YEAR (WY)

MEAN	220	356	445	450	529	900	881	615	398	194	157	176
MAX	1355	1567	1359	1627	1697	3093	2855	1793	2845	759	684	1295
(WY)	1991	1978	1997	1996	1984	1936	1993	1978	1972	1989	1984	1979
MIN	35.9	34.1	46.3	76.0	108	195	278	179	107	57.2	37.0	36.4
(WY)	1931	1931	1999	1981	1940	1931	1995	1941	1962	1962	1966	1964

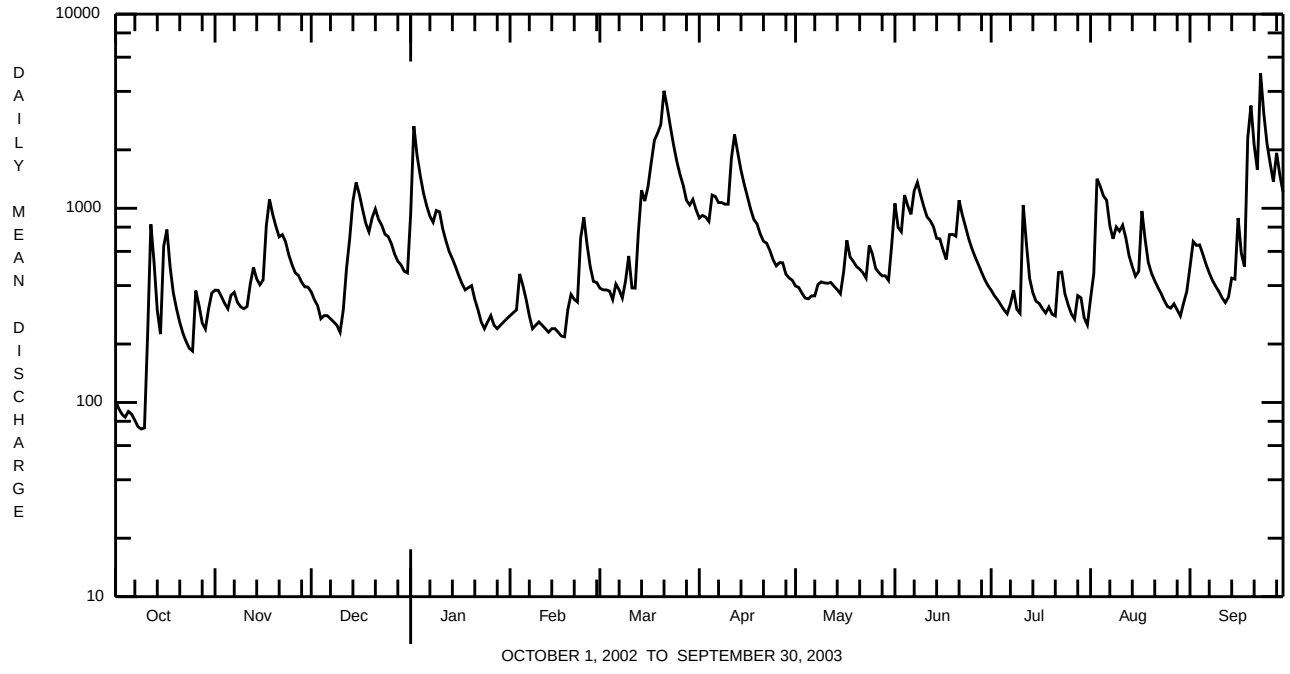
e Estimated.

PENNS CREEK BASIN

01555000 PENNS CREEK AT PENNS CREEK, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1930 - 2003	
ANNUAL TOTAL	153397		245948			
ANNUAL MEAN	420		674		443	
HIGHEST ANNUAL MEAN					878	1978
LOWEST ANNUAL MEAN					205	1965
HIGHEST DAILY MEAN	3170	May 14	4950	Sep 23	24600	Jun 23 1972
LOWEST DAILY MEAN	53	Sep 12-14	73	Oct 9	21	Aug 30 1966
ANNUAL SEVEN-DAY MINIMUM	55	Sep 9	81	Oct 4	24	Aug 28 1966
MAXIMUM PEAK FLOW			6270	Sep 23	**a**34600	Jun 23 1972
MAXIMUM PEAK STAGE			8.44	Sep 23	**b**14.85	Jun 23 1972
INSTANTANEOUS LOW FLOW			71	Oct 9,10	7.0	Sep 27 1932
ANNUAL RUNOFF (CFSM)	1.40		2.24		1.47	
ANNUAL RUNOFF (INCHES)	18.96		30.40		19.98	
10 PERCENT EXCEEDS	831		1230		975	
50 PERCENT EXCEEDS	304		465		262	
90 PERCENT EXCEEDS	82		260		68	

a From rating curve extended above 6,800 ft^3/s on basis of contracted-opening measurement of peak flow.
b From floodmark in gage.



PENNS CREEK BASIN

01555000 PENNS CREEK AT PENNS CREEK, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002													
21...	1315	1028	9813	701	30	11.5	8.1	203	6.0	100	33.6	4.5	78
JAN 2003													
14...	1320	1028	9813	E550	30	19.6	8.1	238	.2	110	35.6	4.7	86
MAR													
25...	1430	1028	9813	1700	30	11.2	7.5	138	10.0	56	17.9	2.8	46
MAY													
19...	1450	1028	9813	530	30	10.9	8.5	153	16.0	62	18.3	4.0	60
JUL													
17...	1120	1028	9813	306	30	8.8	8.3	245	21.3	120	40.4	5.4	96
SEP													
22...	1100	1028	9813	1570	30	9.8	7.4	177	14.3	87	29.2	3.4	70

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, unfltrd recoverable, µg/L (01042)	Iron, water, unfltrd recoverable, µg/L (01045)
NOV 2002													
21...	13.7	64	10	<.020	2.13	<.040	.02	.016	2.5	2.0	<200	<10	180
JAN 2003													
14...	13.1	158	2	<.020	2.41	<.040	<.01	.014	2.5	1.5	<200	<10	120
MAR													
25...	9.6	78	16	<.020	1.11	<.040	.02	.035	1.3	2.7	500	<10	520
MAY													
19...	9.7	122	12	<.020	.82	<.040	.02	.043	1.1	2.3	200	<10	320
JUL													
17...	12.0	186	8	<.020	1.69	<.040	.03	.034	1.9	2.5	<200	<10	200
SEP													
22...	9.7	130	10	<.020	1.44	<.040	.03	.046	1.6	2.8	400	<10	560

Date	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 2002				
21...	<1.0	10	<50	<10
JAN 2003				
14...	<1.0	<10	<50	<10
MAR				
25...	<1.0	30	<50	<10
MAY				
19...	<1.0	30	<50	70
JUL				
17...	<1.0	20	<50	<10
SEP				
22...	<1.0	30	<50	<10

01555000 PENNS CREEK AT PENNS CREEK, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/20/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	1
Nematoda (NEMATODES)	1
Nemertea (PROBOSAS WORMS)	
Enopla	
Hoplonemertea	
Tetrastemmatidae	
Prostoma sp	1
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Physidae	
Physa sp	2
Pleuroceridae	
Leptoxis carinata	10
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	
Sphaerium sp	1
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	1
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Acentrella sp	3
Baetis sp	5
Heterocloeon sp	1
Plauditus sp	1
Caenidae	
Caenis sp	2
Ephemerellidae	12
Serratella sp	14
Heptageniidae	1
Heptagenia sp	1
Leucrocuta sp	1
Stenonema sp	8
Isonychiidae	
Isonychia sp	14
Tricorythidae	
Tricorythodes sp	1
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Gomphidae	
Dromogomphus sp	1
Plecoptera (STONEFLIES)	
Perlidae	1
Acroneuria sp	1
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
Corydalus sp	4

01555000 PENNS CREEK AT PENNS CREEK, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	8/20/02
Benthic Macroinvertebrate	Count
Trichoptera (CADDISFLIES)	
Brachycentridae	
Brachycentrus sp	1
Hydropsychidae	
Cheumatopsyche sp	36
Hydropsyche sp	15
Hydroptilidae	
Hydroptila sp	1
Leucotrichia sp	1
Lepidoptera (MOTHS AND BUTTERFLIES)	
Pyralidae	
Petrophila sp	2
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus sp	11
Stenelmis sp	11
Psephenidae (WATER PENNIES)	
Psephenus sp	2
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	45
Simuliidae (BLACK FLIES)	
Simulium sp	1
Total Organisms	214

EAST MAHANTANGO CREEK BASIN

01555500 EAST MAHANTANGO CREEK NEAR DALMATIA, PA

LOCATION.--Lat 40°36'40", long 76°54'44", Northumberland County, Hydrologic Unit 02050301, on right bank at bridge on SR 3017, 2.0 mi upstream from mouth, and 3.2 mi south of Dalmatia.

DRAINAGE AREA.--162 mi^2.

PERIOD OF RECORD.--October 1929 to current year. Prior to October 1945, published as Mahantango Creek East near Dalmatia.

REVISED RECORDS.--WSP 891: 1933(M). WSP 1302: 1930(M), 1938(M).

GAGE.--Water-stage recorder. Datum of gage is 401.22 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1929, to Feb. 11, 1930, nonrecording gage, and Feb. 12, 1930, to Nov. 18, 1973, water-stage recorder at present site at datum 0.72 ft lower. Nov. 19, 1973, to June 18, 1974, nonrecording gage at site 2 mi upstream at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Intermittent regulation evident during low flows. Several measurements of water temperature were made during the year. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 1,900 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Dec. 14	1830	1,960	5.54	June 21	1545	1,980	5.58
Jan. 2	0700	2,180	5.85	Aug. 11	2200	2,920	6.78
Mar. 21	0500	2,860	6.71	Sept. 23	1530	*4,550	*8.56

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	115	426	184	507	e160	193	503	149	375	189	140	136
2	86	347	158	1900	e175	204	491	149	440	166	978	177
3	70	267	132	1240	e190	617	434	144	361	150	446	220
4	59	213	e90	909	e250	329	391	131	537	134	690	379
5	51	179	e95	656	e340	e250	412	126	491	123	1000	290
6	46	228	e88	530	e210	626	364	122	408	112	1550	212
7	42	227	e82	451	e200	e350	329	122	582	273	1120	173
8	37	199	e80	405	e120	e220	333	149	1080	279	710	146
9	35	188	e85	430	e90	e400	344	139	738	175	517	130
10	34	171	e80	586	e95	581	367	127	549	161	444	116
11	143	165	e95	496	e85	314	572	126	435	167	1090	104
12	572	182	e800	389	e80	268	1220	119	423	142	1770	96
13	384	399	892	325	e75	505	875	113	386	116	1090	106
14	242	391	1630	e270	e80	759	633	106	321	100	688	130
15	171	324	1470	e230	e90	724	508	100	272	87	499	106
16	349	272	992	e190	e80	848	433	102	228	82	444	116
17	1030	503	658	e160	e70	982	371	117	200	74	455	114
18	554	1260	487	e130	e75	1110	327	109	226	67	355	92
19	350	938	409	e140	e80	1070	302	100	219	71	282	167
20	256	605	494	e150	e85	1150	266	91	207	70	237	312
21	195	449	519	e140	e80	2440	246	94	1480	72	204	228
22	153	423	437	e130	e90	1520	300	94	1380	435	181	181
23	129	447	388	e120	e660	1080	253	88	1030	315	184	2660
24	112	386	335	e110	e950	799	219	102	711	792	150	1560
25	102	344	331	e120	452	623	202	134	522	413	133	719
26	188	300	317	e135	329	530	202	141	419	262	124	457
27	207	278	262	e125	248	492	205	186	347	198	124	336
28	169	243	232	e120	202	405	182	169	290	188	118	353
29	149	215	227	e130	---	380	172	198	243	157	111	266
30	208	204	212	e140	---	461	163	195	212	123	169	207
31	429	---	210	e150	---	506	---	178	---	107	179	---
TOTAL	6667	10773	12471	11514	5641	20736	11619	4020	15112	5800	16182	10289
MEAN	215	359	402	371	201	669	387	130	504	187	522	343
MAX	1030	1260	1630	1900	950	2440	1220	198	1480	792	1770	2660
MIN	34	165	80	110	70	193	163	88	200	67	111	92
CFSM	1.33	2.22	2.48	2.29	1.24	4.13	2.39	0.80	3.11	1.15	3.22	2.12
IN.	1.53	2.47	2.86	2.64	1.30	4.76	2.67	0.92	3.47	1.33	3.72	2.36

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2003, BY WATER YEAR (WY)

MEAN	126	208	282	277	305	428	366	276	179	99.7	80.8	100
MAX	1025	553	852	1259	831	1212	1160	986	2361	504	585	1112
(WY)	1977	1951	1997	1996	1981	1994	1993	1989	1972	1947	1933	1975
MIN	5.14	8.65	14.0	12.4	54.3	111	126	67.5	29.7	13.5	9.36	3.98
(WY)	1931	1931	1931	1981	1934	1931	1965	1941	1965	1965	1957	1932

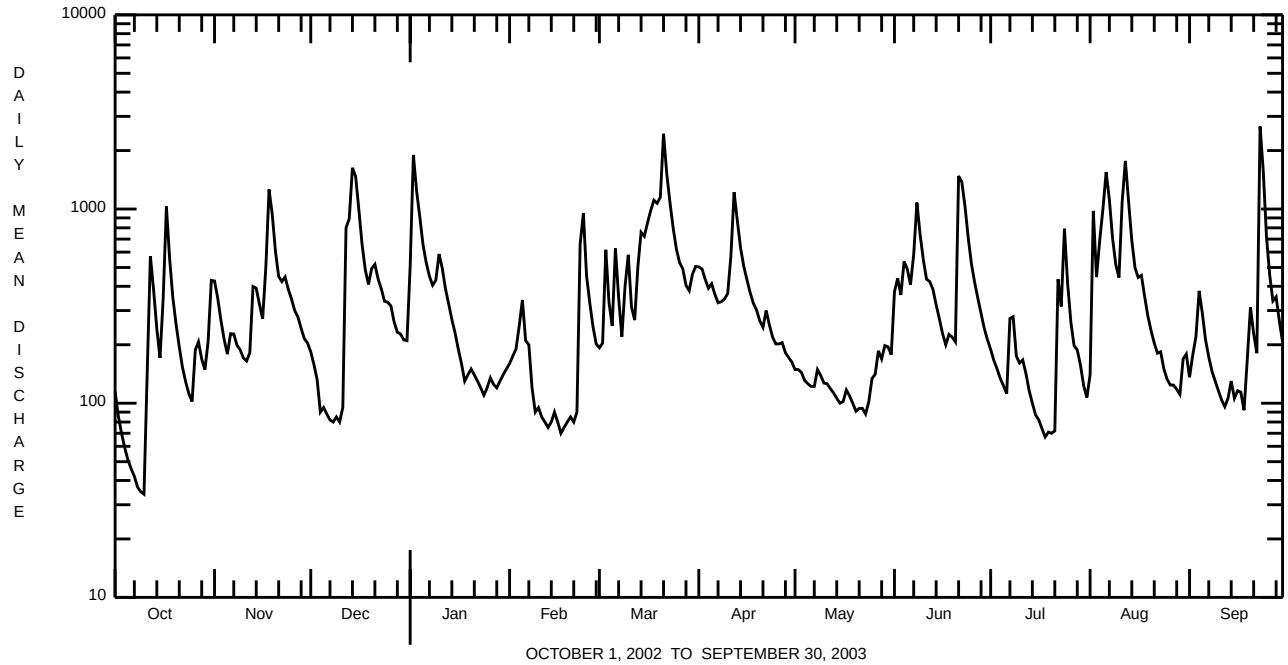
e Estimated.

EAST MAHANTANGO CREEK BASIN

01555500 EAST MAHANTANGO CREEK NEAR DALMATIA, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1930 - 2003	
ANNUAL TOTAL	63504.7		130824			
ANNUAL MEAN	174		358		227	
HIGHEST ANNUAL MEAN					454	1972
LOWEST ANNUAL MEAN					70.7	1931
HIGHEST DAILY MEAN	1630	Dec 14	2660	Sep 23	39000	Jun 22 1972
LOWEST DAILY MEAN	6.0	Sep 14	34	Oct 10	1.5	Sep 21 1932
ANNUAL SEVEN-DAY MINIMUM	7.3	Sep 9	43	Oct 4	1.7	Sep 16 1932
MAXIMUM PEAK FLOW			4550	Sep 23	**a**69900	Jun 22 1972
MAXIMUM PEAK STAGE			8.56	Sep 23	**b**26.62	Jun 22 1972
INSTANTANEOUS LOW FLOW			32	Oct 9,10	1.3	Oct 7 1957**c**
ANNUAL RUNOFF (CFSM)	1.07		2.21		1.40	
ANNUAL RUNOFF (INCHES)	14.58		30.04		19.02	
10 PERCENT EXCEEDS	396		795		493	
50 PERCENT EXCEEDS	110		227		120	
90 PERCENT EXCEEDS	14		91		23	

a From rating curve extended above 5,000 ft^3/s on basis of slope-area measurement of peak flow.
b From floodmark in gage.
c Also Nov. 3, 1964.



JUNIATA RIVER BASIN

01556000 FRANKSTOWN BRANCH JUNIATA RIVER AT WILLIAMSBURG, PA

LOCATION.--Lat 40°27'47", long 78°12'00", Blair County, Hydrologic Unit 02050302, on left bank 10 ft downstream from highway bridge on SR 2015 at Williamsburg, and 2.5 mi upstream from Clover Creek.

DRAINAGE AREA.--291 mi^2.

PERIOD OF RECORD.--October 1916 to current year.

REVISED RECORDS.--WSP 756: Drainage area. WDR PA-71-1: 1954(M), 1960(M), 1961(M). WDR PA-77-2: 1936-39(M).

GAGE.--Water-stage recorder. Datum of gage is 831.78 ft above National Geodetic Vertical Datum of 1929 (Penn Central Railroad bench mark). Prior to Aug. 14, 1928, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Some regulation at low flow by mill upstream. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1889, reached a stage of 19.1 ft, from floodmark, discharge, about 35,500 ft^3/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 4,200 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Jan. 2	0745	*8,690	*13.49	Sept. 28	0715	5,430	10.79
June 4	1000	6,530	11.73				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	86	342	248	2010	e150	334	540	233	905	220	250	688
2	80	282	225	6420	e150	328	616	280	590	204	220	750
3	73	243	221	2210	e150	345	544	233	1190	200	1730	1200
4	75	215	179	1470	e320	293	532	225	5360	185	578	1170
5	74	202	205	1050	310	383	1560	299	2520	174	675	719
6	71	422	202	890	e170	1110	1390	437	1590	169	670	551
7	66	374	177	779	e165	704	1160	414	2150	310	402	444
8	63	325	201	731	e160	607	1090	583	1880	194	493	383
9	62	287	178	850	e155	1450	1010	593	1630	171	373	340
10	62	264	156	778	e155	1070	908	1010	1140	173	1390	e300
11	94	309	207	e625	e155	750	1100	1190	910	691	790	264
12	361	328	343	e500	e150	905	1220	942	769	268	640	238
13	189	483	381	e410	e140	1600	1020	890	793	213	442	228
14	141	363	758	e375	e135	1870	844	715	622	181	436	239
15	144	285	940	e365	e100	1540	721	618	534	164	345	269
16	358	278	810	e345	e80	1700	630	2100	456	178	299	324
17	472	928	622	e300	e70	2230	542	2200	416	158	322	224
18	278	801	503	e255	e70	2480	479	1980	983	148	267	213
19	196	614	430	e235	e75	2190	438	1540	628	165	231	1430
20	173	527	784	e220	e80	2140	406	1180	566	140	211	1120
21	154	431	886	e200	e110	2760	381	1160	793	132	197	680
22	142	382	712	e185	355	2290	416	833	650	199	188	549
23	133	351	645	e175	1140	1690	364	972	553	202	176	1490
24	126	302	533	e155	818	1290	316	1240	470	163	162	884
25	124	275	505	e155	569	1030	295	984	412	138	153	684
26	426	251	459	e160	446	875	315	1600	364	125	556	580
27	303	262	399	e160	406	740	312	1400	323	118	468	691
28	218	244	369	e160	362	626	270	1150	284	118	316	4030
29	183	230	351	e155	---	578	253	911	258	112	264	1590
30	492	254	332	e155	---	608	238	727	235	104	484	1020
31	467	---	334	e150	---	570	---	714	---	103	396	---
TOTAL	5886	10854	13295	22628	7146	37086	19910	29353	29974	5820	14124	23292
MEAN	190	362	429	730	255	1196	664	947	999	188	456	776
MAX	492	928	940	6420	1140	2760	1560	2200	5360	691	1730	4030
MIN	62	202	156	150	70	293	238	225	235	103	153	213
CFSM	0.65	1.24	1.47	2.51	0.88	4.11	2.28	3.25	3.43	0.65	1.57	2.67
IN.	0.75	1.39	1.70	2.89	0.91	4.74	2.55	3.75	3.83	0.74	1.81	2.98

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1917 - 2003, BY WATER YEAR (WY)

MEAN	180	279	371	417	547	893	766	526	314	184	146	147
MAX	969	1298	1268	1446	1340	3561	2194	1314	1743	824	738	964
(WY)	1977	1998	1973	1937	1971	1936	1993	1924	1972	1989	1956	1996
MIN	45.9	48.0	52.4	61.3	86.0	263	215	127	83.0	49.7	46.9	45.9
(WY)	1931	1931	1931	1918	1934	1990	1925	1934	1965	1965	1966	1932

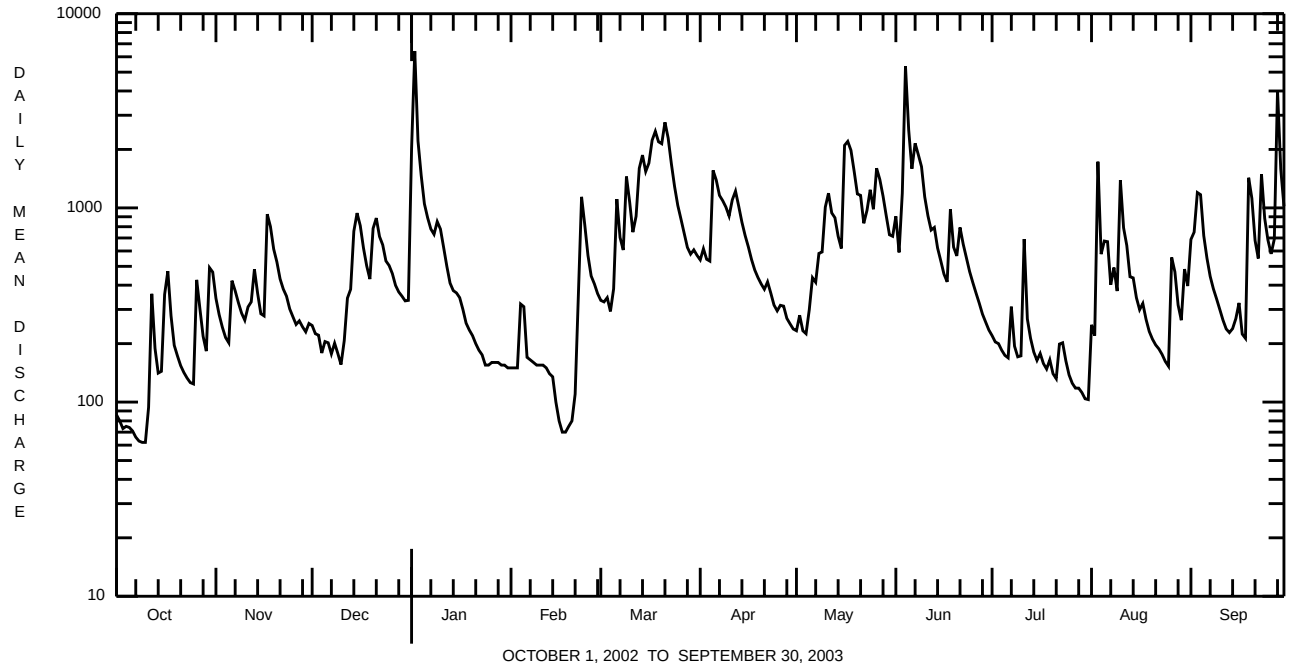
e Estimated.

JUNIATA RIVER BASIN

01556000 FRANKSTOWN BRANCH JUNIATA RIVER AT WILLIAMSBURG, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1917 - 2003	
ANNUAL TOTAL	117773		219368			
ANNUAL MEAN	323		601		396	
HIGHEST ANNUAL MEAN					670	1972
LOWEST ANNUAL MEAN					200	1969
HIGHEST DAILY MEAN	3520	May 18	6420	Jan 2	25000	Mar 18 1936
LOWEST DAILY MEAN	46	Sep 12-14	62	Oct 9,10	31	Dec 24 1930
ANNUAL SEVEN-DAY MINIMUM	47	Sep 9	68	Oct 4	32	Dec 19 1930
MAXIMUM PEAK FLOW			8690	Jan 2	**ab**30000	Mar 18 1936
MAXIMUM PEAK STAGE			13.49	Jan 2	19.35	Jan 19 1996
INSTANTANEOUS LOW FLOW			**c**46	Feb 17	13	Jul 24 1934
ANNUAL RUNOFF (CFSM)	1.11		2.07		1.36	
ANNUAL RUNOFF (INCHES)	15.06		28.04		18.51	
10 PERCENT EXCEEDS	755		1330		885	
50 PERCENT EXCEEDS	205		374		205	
90 PERCENT EXCEEDS	61		149		72	

a From rating curve extended above 14,000 ft^3/s on basis of slope-area measurement of peak flow.
b Gage height 18.58 ft, from floodmark in gage shelter.
c Result of freeze-up.



JUNIATA RIVER BASIN

01557500 BALD EAGLE CREEK AT TYRONE, PA

LOCATION.--Lat 40°41'01", long 78°14'02", Blair County, Hydrologic Unit 02050302, on left bank 0.2 mi upstream from highway bridge on SR 220 at Tyrone, 0.2 mi upstream from Laurel Run, and 1.3 mi upstream from mouth.

DRAINAGE AREA.--44.1 mi^2.

PERIOD OF RECORD.--October 1944 to current year. Prior to October 1967, published as South Bald Eagle Creek at Tyrone.

REVISED RECORDS.--WSP 1903: 1954(M). WDR PA-75-2: 1974.

GAGE.--Water-stage recorder. Datum of gage is 921.80 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1944, to Nov. 15, 1950, water-stage recorder, and Nov. 16, 1950, to Nov. 30, 1952, nonrecording gage at site 0.5 mi downstream at datum 17.99 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Prior to Nov. 30, 1952, daily discharges were affected by West Virginia Pulp and Paper Company diversion. Several measurements of water temperature were made during the year. Satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, about 15 ft, Mar. 17 or 18, 1936, site and datum in use prior to Dec. 1, 1952.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 940 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Jan. 1	2145	1,080	3.18	Sept. 27	2315	*1,460	*3.70
Sept. 3	2200	1,020	3.10				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.1	43	42	434	e36	e85	95	e35	e90	e35	160	404
2	5.6	37	e38	601	e36	e75	102	e33	e180	e34	157	307
3	5.4	26	e35	277	e35	e60	95	e32	e280	31	283	452
4	5.3	23	e35	188	e50	e50	95	e36	e600	29	196	513
5	6.8	21	e39	142	e45	e50	317	e40	e350	27	209	266
6	6.1	92	e40	118	e40	e55	e270	e38	e290	26	133	183
7	5.0	53	e35	99	e41	e50	e240	e40	e230	29	97	138
8	4.8	44	e38	94	e40	e60	e210	e45	e160	26	178	108
9	4.7	37	e37	120	e39	e90	e190	e60	e131	23	314	87
10	4.8	35	e32	e105	e38	e100	e170	e90	e119	25	397	74
11	10	52	e32	e85	e35	96	e210	e140	e110	71	341	63
12	61	50	e33	e75	e35	102	e220	e120	e90	28	259	57
13	19	56	e34	e70	e30	214	e190	e100	e75	23	161	55
14	14	45	e75	e65	e30	259	e170	e85	e65	21	114	56
15	11	42	e130	e60	e30	246	e160	e70	e50	19	87	245
16	34	52	e100	e55	e30	339	e140	e320	e45	21	79	155
17	33	192	e80	e53	e29	530	e120	e250	e40	18	72	74
18	20	144	e60	e50	e30	641	e110	e175	e320	17	58	57
19	15	105	e50	e46	e32	550	e100	e145	e230	25	50	245
20	14	87	e105	e45	e33	565	e80	e130	e170	16	44	193
21	12	74	e130	e43	e35	565	e65	e100	e180	15	40	146
22	10	72	e110	e42	e60	474	e70	e85	e160	30	37	168
23	9.3	64	e100	e40	e290	365	e60	e65	e130	23	33	589
24	8.6	55	e85	e40	e250	279	e50	e75	e110	20	30	323
25	8.7	50	e75	e39	e175	226	e45	e60	e80	16	27	228
26	69	46	e65	e38	e150	198	e40	e100	e65	14	49	173
27	32	46	e55	e38	e120	167	e45	e90	e55	13	56	419
28	22	42	e52	e38	e100	139	e45	e80	e45	18	38	823
29	19	42	e50	e37	---	120	e40	e70	e40	14	31	376
30	48	48	e47	e37	---	111	e35	e77	e40	12	405	238
31	47	---	e52	e37	---	99	---	e90	---	12	212	---
TOTAL	571.2	1775	1891	3211	1894	6960	3779	2876	4530	731	4347	7215
MEAN	18.4	59.2	61.0	104	67.6	225	126	92.8	151	23.6	140	240
MAX	69	192	130	601	290	641	317	320	600	71	405	823
MIN	4.7	21	32	37	29	50	35	32	40	12	27	55
CFSM	0.42	1.34	1.38	2.35	1.53	5.09	2.86	2.10	3.42	0.53	3.18	5.45
IN.	0.48	1.50	1.60	2.71	1.60	5.87	3.19	2.43	3.82	0.62	3.67	6.09

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2003, BY WATER YEAR (WY)

MEAN	32.7	55.4	74.8	79.1	103	165	145	109	64.3	30.3	22.4	26.9
MAX	178	216	217	226	251	364	399	304	377	138	140	240
(WY)	1991	1951	1973	1952	1981	1945	1993	1978	1972	1956	2003	2003
MIN	4.10	5.95	6.43	10.9	15.9	48.1	34.0	23.8	11.9	5.41	4.15	3.59
(WY)	1964	1954	1966	1981	1963	1990	1946	1976	1999	1965	1966	1965

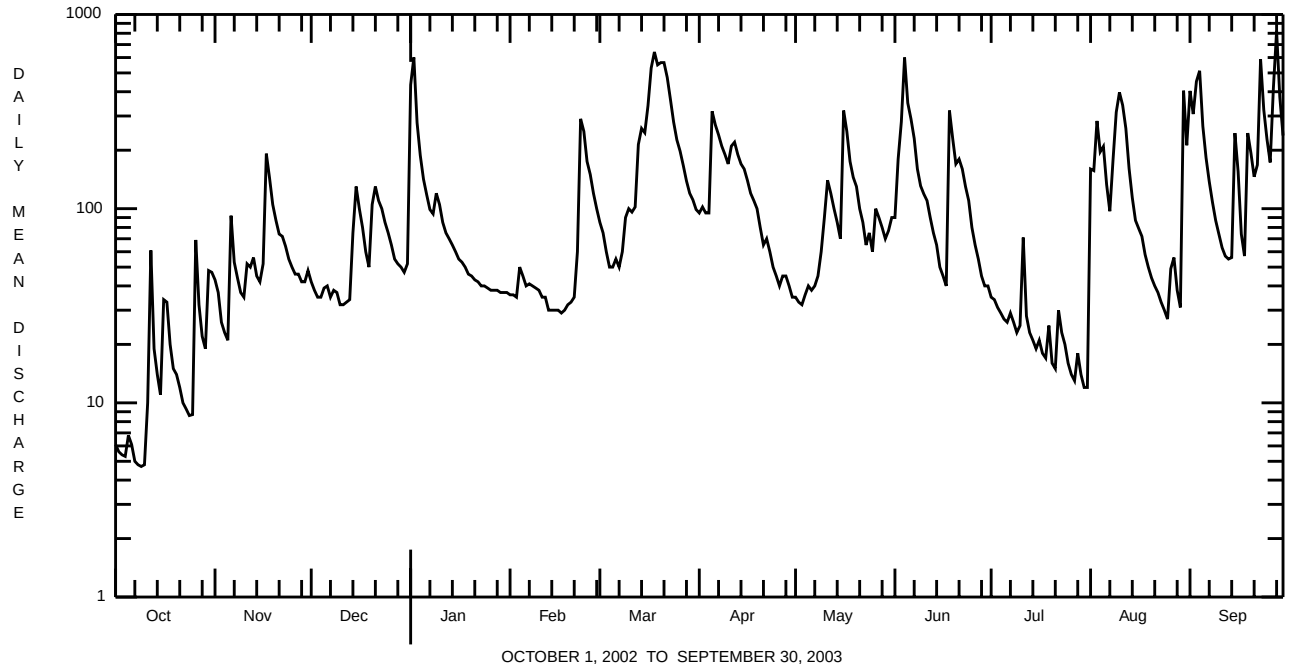
e Estimated.

JUNIATA RIVER BASIN

01557500 BALD EAGLE CREEK AT TYRONE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1945 - 2003	
ANNUAL TOTAL	24314.0		39780.2			
ANNUAL MEAN	66.6		109		75.4	
HIGHEST ANNUAL MEAN					133	1951
LOWEST ANNUAL MEAN					42.8	1999
HIGHEST DAILY MEAN	708	May 13	823	Sep 28	2800	Jun 23 1972
LOWEST DAILY MEAN	2.8	Sep 12	4.7	Oct 9	1.4	Sep 13 1973
ANNUAL SEVEN-DAY MINIMUM	3.2	Sep 8	5.4	Oct 4	1.7	Sep 7 1973
MAXIMUM PEAK FLOW			1460	Sep 27	**a**5140	Nov 25 1950
MAXIMUM PEAK STAGE			3.70	Sep 27	**b**7.50	Nov 25 1950
INSTANTANEOUS LOW FLOW			4.7	Oct 8-10	1.4	Sep 12 1973
ANNUAL RUNOFF (CFSM)	1.51		2.47		1.71	
ANNUAL RUNOFF (INCHES)	20.51		33.56		23.23	
10 PERCENT EXCEEDS	145		262		173	
50 PERCENT EXCEEDS	41		60		41	
90 PERCENT EXCEEDS	6.1		21		7.5	

a From rating curve extended above 2,100 ft^3/s on basis of contracted-opening measurement of peak flow.
b From floodmark, site and datum then in use.



JUNIATA RIVER BASIN

01558000 LITTLE JUNIATA RIVER AT SPRUCE CREEK, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 40°36'45", long 78°08'27", Huntingdon County, Hydrologic Unit 02050302, on right bank on SR 4006, 150 ft downstream from Penn Central Railroad bridge, 0.5 mi northwest of village of Spruce Creek, and 0.5 mi upstream from Spruce Creek.

DRAINAGE AREA.--220 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1938 to current year. Prior to October 1938 monthly discharge only, published in WSP 1302.

GAGE.--Water-stage recorder. Datum of gage is 751.15 ft above National Geodetic Vertical Datum of 1929.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936 reached a stage of 19.1 ft, from floodmarks 175 ft downstream, discharge, 39,800 ft^3/s, from rating curve extended above 5,600 ft^3/s on basis of slope-area measurement of peak flow.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)
Jan. 2	0200	*5,660	*7.72
Mar. 20	2045	3,230	5.95
Aug. 10	0445	3,280	5.99
Sept. 3	2315	3,230	5.95
Sept. 28	0145	5,270	7.46

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	221	236	1670	164	311	555	242	708	251	450	1330
2	69	186	209	3400	170	319	608	238	549	236	298	1190
3	66	148	194	1630	158	324	e675	225	861	224	652	1500
4	67	135	158	1190	296	282	e1110	214	1940	183	481	1770
5	63	124	174	929	275	313	1570	256	1550	166	572	1110
6	59	325	191	770	174	507	1290	303	1190	157	376	843
7	56	252	155	653	189	379	1100	271	1360	177	293	681
8	54	213	180	606	163	358	976	480	1150	180	512	574
9	57	178	147	690	150	757	911	552	1090	169	654	493
10	59	164	130	649	161	622	849	796	886	176	1640	434
11	69	216	165	550	144	505	1080	836	777	379	992	383
12	284	217	271	471	153	653	1150	753	714	182	853	346
13	127	271	290	425	131	1170	996	713	687	141	608	307
14	97	221	561	390	144	1320	861	611	579	151	503	312
15	79	198	691	362	139	1210	756	545	513	128	408	503
16	152	217	617	316	106	1450	669	1310	455	143	364	554
17	230	706	460	316	105	2100	593	1300	429	127	380	326
18	131	649	372	260	143	2530	529	1380	958	116	315	e350
19	106	489	331	275	150	2320	484	1190	661	163	268	e1480
20	95	429	653	273	157	2290	446	989	602	117	238	1150
21	84	369	708	250	149	2410	421	933	726	107	214	857
22	79	357	605	204	252	2220	416	754	612	207	200	745
23	74	341	542	200	845	1770	367	669	527	209	183	2010
24	71	295	455	197	652	1410	308	770	466	137	162	1290
25	72	270	445	205	487	1170	305	642	418	112	148	999
26	270	251	406	208	401	1020	330	954	380	101	190	824
27	175	253	360	184	364	865	318	898	345	95	301	1260
28	127	234	330	172	339	740	275	831	300	108	213	3600
29	107	223	313	178	---	663	252	738	274	97	158	1900
30	252	255	295	178	---	e620	244	645	254	88	1020	1340
31	276	---	297	168	---	585	---	663	---	85	669	---
TOTAL	3580	8407	10941	17969	6761	33193	20444	21701	21961	4912	14315	30461
MEAN	115	280	353	580	241	1071	681	700	732	158	462	1015
MAX	284	706	708	3400	845	2530	1570	1380	1940	379	1640	3600
MIN	54	124	130	168	105	282	244	214	254	85	148	307
CFSM	0.52	1.27	1.60	2.63	1.10	4.87	3.10	3.18	3.33	0.72	2.10	4.62
IN.	0.61	1.42	1.85	3.04	1.14	5.61	3.46	3.67	3.71	0.83	2.42	5.15

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2003, BY WATER YEAR (WY)

MEAN	184	273	358	372	483	778	715	522	341	187	144	159
MAX	816	1092	997	991	1128	1609	1928	1239	2022	623	462	1015
(WY)	1991	1951	1973	1949	1976	1979	1993	1978	1972	1956	2003	2003
MIN	64.7	71.3	73.2	90.5	138	261	228	150	104	70.4	56.9	50.8
(WY)	1964	1939	1966	1940	1963	1990	1946	1976	1965	1965	1966	1995

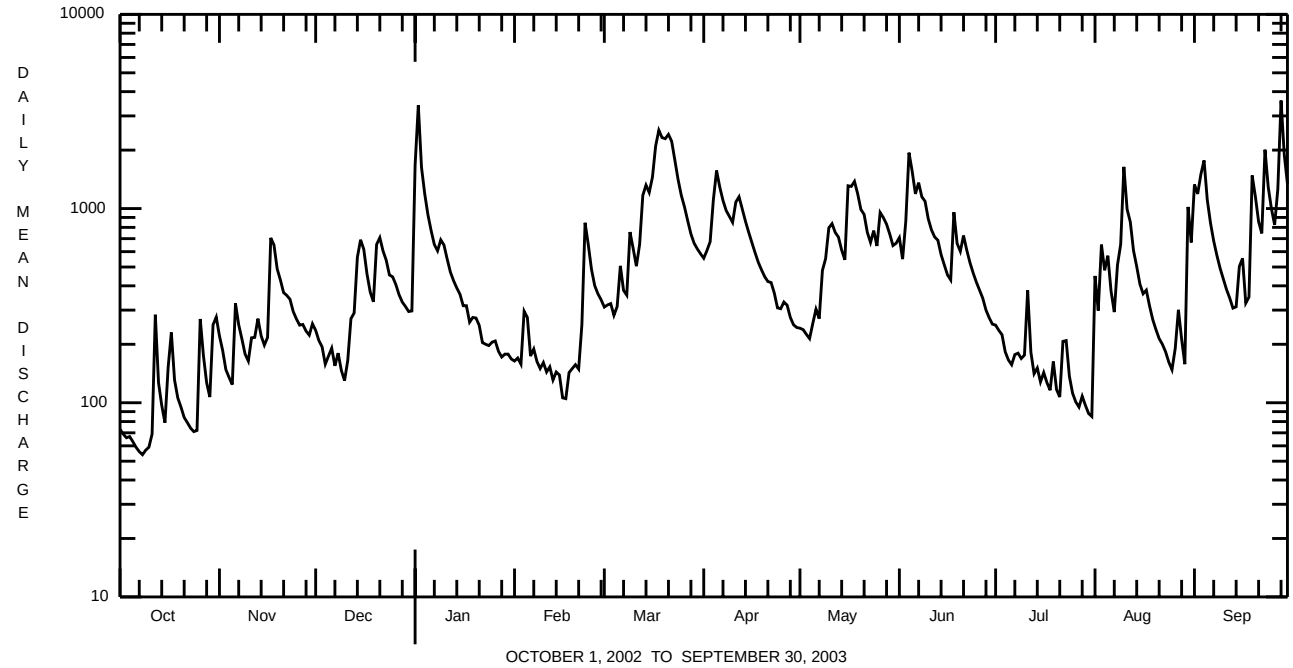
e Estimated.

JUNIATA RIVER BASIN

01558000 LITTLE JUNIATA RIVER AT SPRUCE CREEK, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1939 - 2003	
ANNUAL TOTAL	117742		194645			
ANNUAL MEAN	323		533		376	
HIGHEST ANNUAL MEAN					630	1972
LOWEST ANNUAL MEAN					248	1966
HIGHEST DAILY MEAN	2740	Mar 27	3600	Sep 28	21100	Jun 23 1972
LOWEST DAILY MEAN	51	Sep 12-14	54	Oct 8	31	Sep 12 1995
ANNUAL SEVEN-DAY MINIMUM	54	Sep 9	59	Oct 4	34	Sep 7 1995
MAXIMUM PEAK FLOW			**a**5660	Jan 2	**a**28600	Jun 23 1972
MAXIMUM PEAK STAGE			7.72	Jan 2	16.98	Jun 23 1972
INSTANTANEOUS LOW FLOW			53	Oct 8	45	Sep 26 1943**b**
ANNUAL RUNOFF (CFSM)	1.47		2.42		1.71	
ANNUAL RUNOFF (INCHES)	19.91		32.91		23.20	
10 PERCENT EXCEEDS	688		1190		814	
50 PERCENT EXCEEDS	221		346		220	
90 PERCENT EXCEEDS	65		127		83	

a From rating curve, then in use, extended above 3,600 ft^3/s on basis of slope-area measurement at gage height 15.77 ft.
b Also Oct. 4, 1949.



JUNIATA RIVER BASIN

01558000 LITTLE JUNIATA RIVER AT SPRUCE CREEK, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002													
05...	1400	1028	9813	120	30	11.9	7.8	223	7.4	140	33.8	12.4	108
JAN 2003													
07...	1510	1028	9813	638	30	13.3	7.8	254	3.2	100	27.2	7.8	60
MAR													
11...	1515	1028	9813	546	30	15.4	8.3	314	3.1	110	28.7	8.6	63
MAY													
27...	1325	1028	9813	870	30	10.3	7.6	191	12.3	75	18.7	7.0	53
JUL													
22...	1325	1028	9813	271	30	8.6	7.9	307	17.8	130	33.9	11.4	104
SEP													
16...	1600	1028	9813	442	30	9.8	8.0	221	16.5	92	24.4	7.5	70

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, unfltrd recoverable, µg/L (01042)	Iron, water, unfltrd recoverable, µg/L (01045)
NOV 2002													
05...	33.1	242	<2	.060	2.33	<.040	.07	.114	2.9	2.1	<200	<10	110
JAN 2003													
07...	21.6	152	<2	<.020	1.94	<.040	.03	.032	2.1	1.5	<200	<10	140
MAR													
11...	22.9	226	2	<.020	1.62	<.040	.13	.164	1.8	1.9	<200	<10	200
MAY													
27...	17.6	152	10	<.020	1.01	<.040	.06	.073	1.2	2.6	400	<10	620
JUL													
22...	25.0	206	8	.050	2.02	<.040	.56	.586	2.4	2.3	<200	<10	200
SEP													
16...	18.2	166	16	<.020	1.30	<.040	.11	.107	1.6	3.6	600	<10	770

Date	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 2002				
05...	<1.0	<10	<50	<10
JAN 2003				
07...	<1.0	10	<50	<10
MAR				
11...	<1.0	10	<50	40
MAY				
27...	1.4	40	<50	<10
JUL				
22...	<1.0	20	<50	90
SEP				
16...	1.0	30	<50	<10

01558000 LITTLE JUNIATA RIVER AT SPRUCE CREEK, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/13/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	1
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	3
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	1
Crustacea	
Amphipoda (SCUDS)	
Crangonyctidae	
Crangonyx sp	1
Isopoda (AQUATIC SOWBUGS)	
Asellidae	
Caecidotea sp	1
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Acentrella sp	2
Baetis sp	17
Ephemerellidae	2
Serratella sp	1
Heptageniidae	
Stenonema sp	7
Isonychiidae	
Isonychia sp	1
Leptophlebiidae	1
Trichoptera (CADDISFLIES)	
Brachycentridae	
Brachycentrus sp	4
Hydropsychidae	
Cheumatopsyche sp	6
Hydropsyche sp	12
Hydroptilidae	
Hydroptila sp	3
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Stenelmis sp	4
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	40
Tipulidae (CRANE FLIES)	
Antocha sp	8
Total Organisms	115

JUNIATA RIVER BASIN

01559000 JUNIATA RIVER AT HUNTINGDON, PA

LOCATION.--Lat 40°29'05", long 78°01'09", Huntingdon County, Hydrologic Unit 02050302, on right bank 170 ft downstream from Smithfield Bridge on State Highway 26 at Huntingdon, and 0.8 mi upstream from Standing Stone Creek.

DRAINAGE AREA.--816 mi^2.

PERIOD OF RECORD.--October 1941 to current year. Gage-height records collected in this vicinity for the period May 1895 to December 1938 are contained in reports of U.S. Weather Bureau. Prior to October 1950, published as Frankstown Branch Juniata River at Huntingdon.

REVISED RECORDS.--WDR PA-73-1: 1936(M). WDR PA-80-2: 1972(M). WDR PA-84-2: 1936(M) 1972(M).

GAGE.--Water-stage recorder. Datum of gage is 599.69 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Flow regulated September 1941 to June 1972, and since December 15, 1985 by Warrior Ridge Hydroelectric Plant 4 mi upstream (reservoir capacity 400 acre-ft). Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936, reached a stage of 21.87 ft, from floodmark, discharge, 81,000 ft^3/s, from rating curve extended on basis of computation of peak discharge at dam and runoff comparison with downstream station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 5,500 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Jan. 2	0915	*13,500	*9.46	June 7	2345	6,560	6.26
Mar. 14	0330	5,560	5.67	Aug. 3	1230	5,870	5.86
Mar. 18	0600	6,760	6.37	Aug. 10	0915	6,070	5.98
Mar. 21	0500	8,620	7.32	Sept. 4	0230	7,210	6.61
May 16	2300	5,670	5.74	Sept. 23	1145	5,850	5.85
June 4	1530	9,820	7.91	Sept. 28	1100	10,600	8.30

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	191	800	631	3160	473	841	1520	691	2470	703	862	e1340
2	227	653	578	12000	480	784	1650	728	1800	664	858	e1890
3	213	519	539	5770	459	e740	1540	696	2070	643	4240	2940
4	205	480	475	3920	e650	731	1460	647	8970	596	2120	4960
5	209	459	e465	2890	919	772	3550	676	6160	547	1790	2940
6	199	828	e460	2370	553	1880	3850	1000	4220	525	1510	2160
7	194	911	e450	2050	523	1610	3070	883	4440	635	1140	1710
8	187	695	e430	1850	483	1240	2920	1470	4900	597	1240	1420
9	183	600	e420	2090	442	2530	2700	1550	4050	527	1310	1220
10	185	586	e380	2080	456	2590	2520	2210	3110	529	3420	1070
11	232	630	e450	1710	438	1710	2830	2820	2560	1560	2290	933
12	667	731	e660	1450	429	1760	3380	2350	2220	852	2470	834
13	560	1010	919	1300	e430	3710	2890	2140	2140	594	1550	765
14	400	822	1620	1110	e410	4720	2460	1810	1800	530	1300	789
15	305	657	2520	1010	e390	3890	2130	1560	1560	495	1100	780
16	425	664	2100	e910	e350	4230	1870	3350	1360	492	930	1450
17	1090	2120	1640	e830	274	5620	1630	4730	1220	492	910	819
18	594	2380	1280	e750	358	6530	1450	4310	2460	434	849	714
19	459	1660	1100	e710	491	6130	1320	3880	1900	495	718	2660
20	404	1400	1550	e690	507	5550	1220	3030	1690	454	654	3420
21	321	1180	2290	e660	463	7400	1130	2820	1850	417	610	2120
22	301	1020	1820	e650	538	6210	1160	2270	1820	539	577	1720
23	294	980	1620	e610	2400	4870	1050	2170	1500	732	548	4590
24	286	819	1370	e560	2250	3860	899	2640	1320	523	511	3240
25	281	744	1300	e540	1440	3140	845	2380	1170	459	487	2460
26	685	691	1200	e510	1110	2680	855	2810	1050	411	595	2080
27	778	679	1020	e500	992	2300	914	3400	948	391	1230	1900
28	500	658	926	e500	930	1930	794	2750	849	396	815	8840
29	422	604	871	e490	---	1730	744	2410	777	387	629	4960
30	794	644	819	499	---	1710	720	2000	728	362	e970	3400
31	1110	---	787	479	---	1650	---	1930	---	351	e1060	---
TOTAL	12901	26624	32690	54648	19638	95048	55071	68111	73112	17332	39293	70124
MEAN	416	887	1055	1763	701	3066	1836	2197	2437	559	1268	2337
MAX	1110	2380	2520	12000	2400	7400	3850	4730	8970	1560	4240	8840
MIN	183	459	380	479	274	731	720	647	728	351	487	714
CFSM	0.51	1.09	1.29	2.16	0.86	3.76	2.25	2.69	2.99	0.69	1.55	2.86
IN.	0.59	1.21	1.49	2.49	0.90	4.33	2.51	3.11	3.33	0.79	1.79	3.20

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 2003, BY WATER YEAR (WY)

MEAN	543	805	1059	1127	1426	2259	2022	1485	984	568	461	485
MAX	2114	3020	3100	2780	3059	4920	5739	3217	5562	1920	1447	2856
(WY)	1991	1998	1973	1996	1971	1994	1993	1978	1972	1989	1956	1996
MIN	146	233	232	265	379	693	747	528	312	201	163	143
(WY)	1964	1964	1966	1981	1963	1969	1946	1976	1965	1966	1966	1963

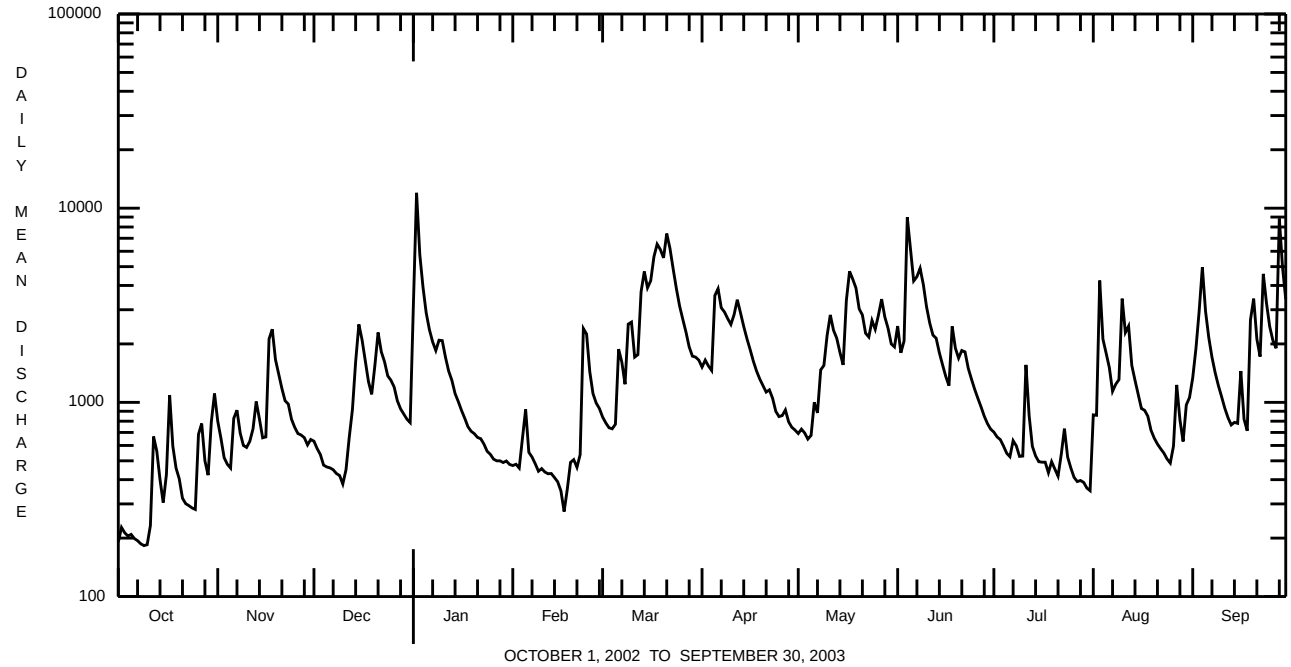
e Estimated.

JUNIATA RIVER BASIN

01559000 JUNIATA RIVER AT HUNTINGDON, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1942 - 2003	
ANNUAL TOTAL	316147		564592			
ANNUAL MEAN	866		1547		1100	
HIGHEST ANNUAL MEAN					1830	1972
LOWEST ANNUAL MEAN					595	1969
HIGHEST DAILY MEAN	8150	Mar 27	12000	Jan 2	50400	Jun 23 1972
LOWEST DAILY MEAN	130	Sep 16	183	Oct 9	40	Sep 12 1963
ANNUAL SEVEN-DAY MINIMUM	150	Sep 13	195	Oct 4	117	Sep 10 1963
MAXIMUM PEAK FLOW			13500	Jan 2	**a**57000	Jun 23 1972
MAXIMUM PEAK STAGE			9.46	Jan 2	20.03	Jun 23 1972
INSTANTANEOUS LOW FLOW			148	Oct 1	**b**14	Feb 8 1948
ANNUAL RUNOFF (CFSM)	1.06		1.90		1.35	
ANNUAL RUNOFF (INCHES)	14.41		25.74		18.31	
10 PERCENT EXCEEDS	1880		3360		2360	
50 PERCENT EXCEEDS	527		980		656	
90 PERCENT EXCEEDS	200		430		264	

a From rating curve extended above 22,000 ft^3/s on basis of computation of peak discharge at dam, slope-conveyance study, and Pennsylvania Department of Environmental Protection step-backwater study.
b Minimum recorded; Also Aug. 2, 1954.



JUNIATA RIVER BASIN

01560000 DUNNING CREEK AT BELDEN, PA

LOCATION.--Lat 40°04'18", long 78°29'34", Bedford County, Hydrologic Unit 02050303, on left bank 10 ft upstream from highway bridge on SR 1014, 0.8 mi southeast of Belden, 3.8 mi north of Bedford, and 4.3 mi upstream from mouth.

DRAINAGE AREA.--172 mi^2.

PERIOD OF RECORD.--May 1939 to current year. Prior to October 1939 monthly discharge only, published in WSP 1302.

REVISED RECORDS.--WSP 971: 1940(M). WSP 1502: 1940-41. WDR PA-72-1: 1967(M).

GAGE.--Water-stage recorder. Datum of gage is 1,051.16 ft above National Geodetic Vertical Datum of 1929.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 17.8 ft, Mar. 18, 1936, from floodmarks (backwater from Raystown Branch Juniata River), discharge, about 16,900 ft^3/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 2,300 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
Jan. 2	0530	6,920	10.62
Mar. 21	0030	3,950	8.61
May 10	1815	2,720	7.32
May 16	1230	2,840	7.47
June 4	0600	*7,560	*10.98
June 7	1745	2,850	7.49
Sept. 28	0230	2,710	7.30

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	279	148	2050	e70	e220	263	98	527	97	45	63
2	27	213	131	5440	e65	212	295	104	339	88	55	85
3	23	166	e110	1810	e65	205	293	98	1350	82	332	427
4	21	140	e90	1020	e100	187	317	128	6000	76	140	380
5	21	125	e100	683	e110	273	884	213	1980	70	218	202
6	19	406	e110	536	e80	1100	936	362	1010	65	126	148
7	18	299	e100	424	e75	716	821	347	1590	74	94	118
8	17	251	e90	387	e70	615	783	463	1290	68	79	99
9	17	215	e85	486	e70	1180	817	633	1010	65	112	88
10	17	188	e80	409	e65	836	761	1600	665	60	91	79
11	36	204	e100	341	e65	571	936	1600	512	152	115	69
12	112	297	160	e260	e60	633	1010	925	396	86	112	62
13	82	417	202	e240	e60	1130	767	751	465	71	77	61
14	60	276	477	e210	e55	1540	570	564	340	59	82	62
15	48	232	641	e170	e55	1350	448	476	282	52	78	61
16	220	208	586	e140	e50	1410	357	1890	229	53	69	61
17	322	680	393	e150	e60	1840	285	1700	204	51	214	51
18	156	590	300	e140	e55	1960	242	1440	461	44	124	46
19	110	463	254	e130	e55	1540	216	1010	293	52	90	728
20	89	383	476	e120	e70	1800	192	719	318	45	74	736
21	74	303	585	e110	e70	2510	178	588	1330	39	63	407
22	62	290	528	e110	e130	1610	185	433	914	37	56	265
23	54	251	477	e105	e500	1070	155	705	602	40	49	685
24	49	209	384	e100	e925	750	133	810	410	43	42	442
25	46	185	363	e100	e560	565	124	699	292	38	38	329
26	332	166	298	e85	e400	459	128	692	223	33	68	259
27	220	169	240	e80	e300	374	130	622	181	31	127	459
28	147	159	207	e75	e250	298	110	606	149	28	117	1740
29	150	147	190	e80	---	270	105	476	125	28	82	693
30	570	163	171	e75	---	283	100	361	109	27	73	456
31	446	---	174	e70	---	267	---	342	---	25	70	---
TOTAL	3597	8074	8250	16136	4490	27774	12541	21455	23596	1779	3112	9361
MEAN	116	269	266	521	160	896	418	692	787	57.4	100	312
MAX	570	680	641	5440	925	2510	1010	1890	6000	152	332	1740
MIN	17	125	80	70	50	187	100	98	109	25	38	46
CFSM	0.67	1.56	1.55	3.03	0.93	5.21	2.43	4.02	4.57	0.33	0.58	1.81
IN.	0.78	1.75	1.78	3.49	0.97	6.01	2.71	4.64	5.10	0.38	0.67	2.02

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2003, BY WATER YEAR (WY)

MEAN	94.6	169	245	258	355	559	445	289	178	89.4	56.1	62.7
MAX	798	917	859	664	825	1408	1370	1013	1015	740	214	547
(WY)	1977	1998	1973	1952	1971	1994	1993	1998	1972	1989	1979	1996
MIN	14.0	18.3	18.8	45.8	65.2	129	112	45.7	25.6	8.96	8.05	9.86
(WY)	1970	1954	1999	1981	1963	1990	1946	1941	1965	1966	1966	1985

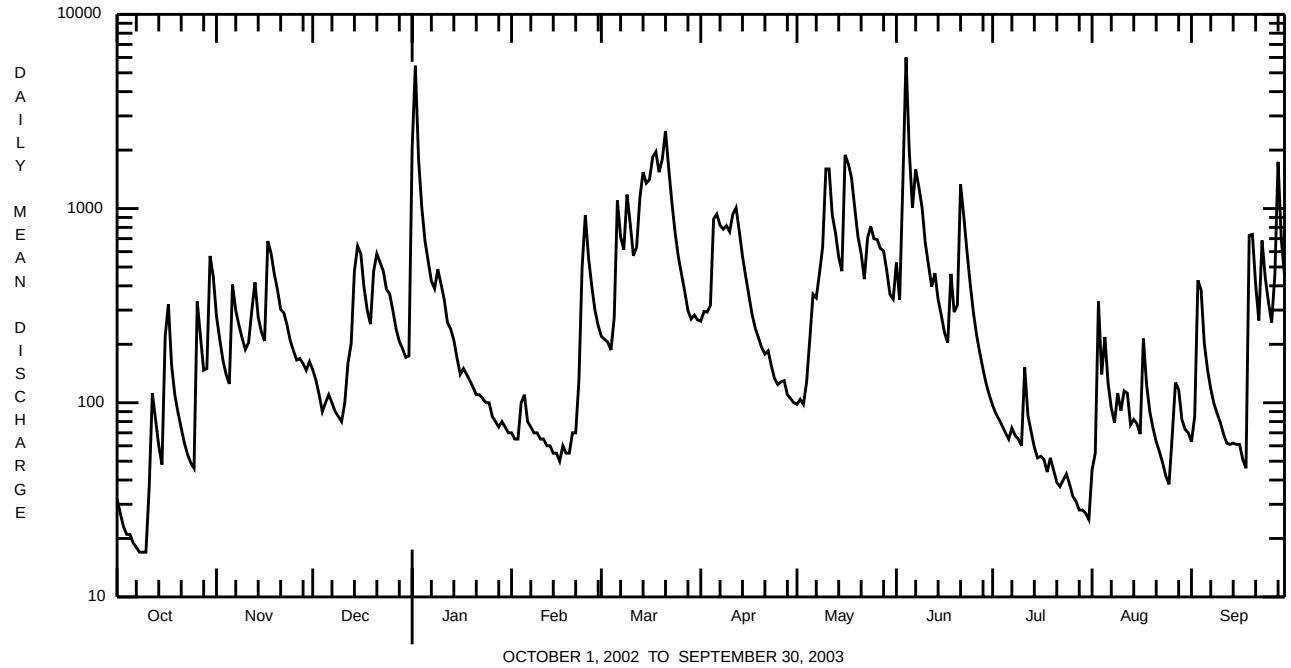
e Estimated.

JUNIATA RIVER BASIN

01560000 DUNNING CREEK AT BELDEN, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1940 - 2003	
ANNUAL TOTAL	65335.7		140165			
ANNUAL MEAN	179		384		233	
HIGHEST ANNUAL MEAN					397	1998
LOWEST ANNUAL MEAN					107	1954
HIGHEST DAILY MEAN	2640	May 9	6000	Jun 4	9140	Jun 23 1972
LOWEST DAILY MEAN	7.7	Sep 8-10	17	Oct 8-10	6.4	Sep 6 1964
ANNUAL SEVEN-DAY MINIMUM	8.0	Sep 6	19	Oct 4	6.7	Aug 5 1966
MAXIMUM PEAK FLOW			7560	Jun 4	**a**19400	Jul 20 1977
MAXIMUM PEAK STAGE			10.98	Jun 4	14.15	Jul 20 1977
INSTANTANEOUS LOW FLOW			15	Oct 9	2.6	Sep 6 1964
ANNUAL RUNOFF (CFSM)	1.04		2.23		1.35	
ANNUAL RUNOFF (INCHES)	14.13		30.31		18.38	
10 PERCENT EXCEEDS	430		925		572	
50 PERCENT EXCEEDS	90		192		98	
90 PERCENT EXCEEDS	13		52		20	

a From rating curve extended above 9,200 ft^3/s on basis of contracted-opening measurement at gage height 12.67 ft and contracted-opening and flow-over-road measurement at gage height 13.03 ft.



JUNIATA RIVER BASIN

01562000 RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 40°12'57", long 78°15'56", Bedford County, Hydrologic Unit 02050303, on left bank 500 ft downstream from bridge on State Highway 913, 0.5 mi west of Saxton, and 1.5 mi upstream from Shoup Run.

DRAINAGE AREA.--756 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1911 to current year. Monthly discharge only for September 1911 published in WSP 1302.

REVISED RECORDS.--WSP 1302: 1912-13(M), 1914-15. WSP 1502: 1934, 1936.

GAGE.--Water-stage recorder. Datum of gage is 795.77 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1931, nonrecording gage at site 0.8 mi downstream at datum 4.82 ft lower.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1889, reached a stage of 23.0 ft at present site and datum, from floodmarks, discharge, about 71,300 ft^3/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 7,700 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
Jan. 2	1330	15,600	12.05
Mar. 21	1000	10,900	9.87
May 11	0645	8,520	8.53
May 16	2345	8,640	8.61
June 4	1630	*18,400	*13.21
June 8	0500	9,400	9.08
Sept. 28	1245	10,600	9.71

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	240	1500	586	1880	e460	e1480	1250	564	2570	583	222	303
2	180	985	542	13300	e460	e1260	1440	627	2360	530	269	339
3	147	778	489	8920	e470	e1000	1520	633	2540	497	1160	671
4	127	643	e400	4920	e490	e900	1470	651	15300	466	1400	1650
5	114	564	e365	3300	e510	857	1930	733	10700	448	774	1430
6	103	684	e365	2500	e480	e2700	3530	1110	5100	418	738	905
7	96	1410	e360	1920	e400	e4700	2970	1350	4580	423	601	672
8	90	984	e360	1770	e370	3020	3120	1330	7420	399	517	540
9	87	815	e375	1730	e350	3820	3210	2150	5000	393	538	460
10	84	723	e370	1950	e330	4770	3990	4110	3620	380	734	406
11	122	721	e380	1740	e320	3000	3640	7250	2600	438	1020	360
12	244	827	e590	e1290	e310	2320	4260	4560	2010	538	870	322
13	490	1520	e885	e1180	e290	3390	3610	3220	2090	436	691	298
14	428	1580	e1420	e1150	e270	5350	2760	2450	2020	359	507	298
15	308	1100	e2750	e1040	e280	5170	2200	1770	1520	324	414	308
16	415	924	2610	e785	e270	5120	1770	3720	1280	298	392	345
17	1490	1330	2100	e630	e260	5900	1460	6820	1100	279	467	347
18	1250	3050	1450	e590	e250	6250	1340	5150	1150	270	860	301
19	673	2220	1200	e570	e300	5390	1130	4310	1350	275	554	1750
20	492	1610	1270	e550	e380	4740	1000	3330	1250	248	416	5130
21	390	1390	2210	e530	e400	e5060	920	2700	2960	246	349	2540
22	326	1230	2060	e520	e480	e4420	963	2190	4540	237	308	1620
23	279	1080	1680	e510	e1500	e3640	1070	1780	3020	228	278	3940
24	246	919	1590	e500	e4500	e3120	796	2300	2030	225	253	3440
25	225	801	1340	e510	4010	2520	710	2190	1460	251	237	2040
26	373	771	1200	e490	2800	1980	687	1960	1170	251	268	1550
27	925	732	1070	e470	1990	1890	704	2410	979	221	286	1300
28	792	635	1020	e450	1750	1420	671	2590	841	200	424	7050
29	558	596	777	e440	---	1250	606	2610	737	194	440	4380
30	1110	576	728	e450	---	1330	588	2090	648	183	363	2650
31	2170	---	703	e450	---	1390	---	1660	---	177	321	---
TOTAL	14574	32698	33245	57035	24680	99157	55315	80318	93945	10415	16671	47345
MEAN	470	1090	1072	1840	881	3199	1844	2591	3132	336	538	1578
MAX	2170	3050	2750	13300	4500	6250	4260	7250	15300	583	1400	7050
MIN	84	564	360	440	250	857	588	564	648	177	222	298
CFSM	0.62	1.44	1.42	2.43	1.17	4.23	2.44	3.43	4.14	0.44	0.71	2.09
IN.	0.72	1.61	1.64	2.81	1.21	4.88	2.72	3.95	4.62	0.51	0.82	2.33

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1912 - 2003, BY WATER YEAR (WY)

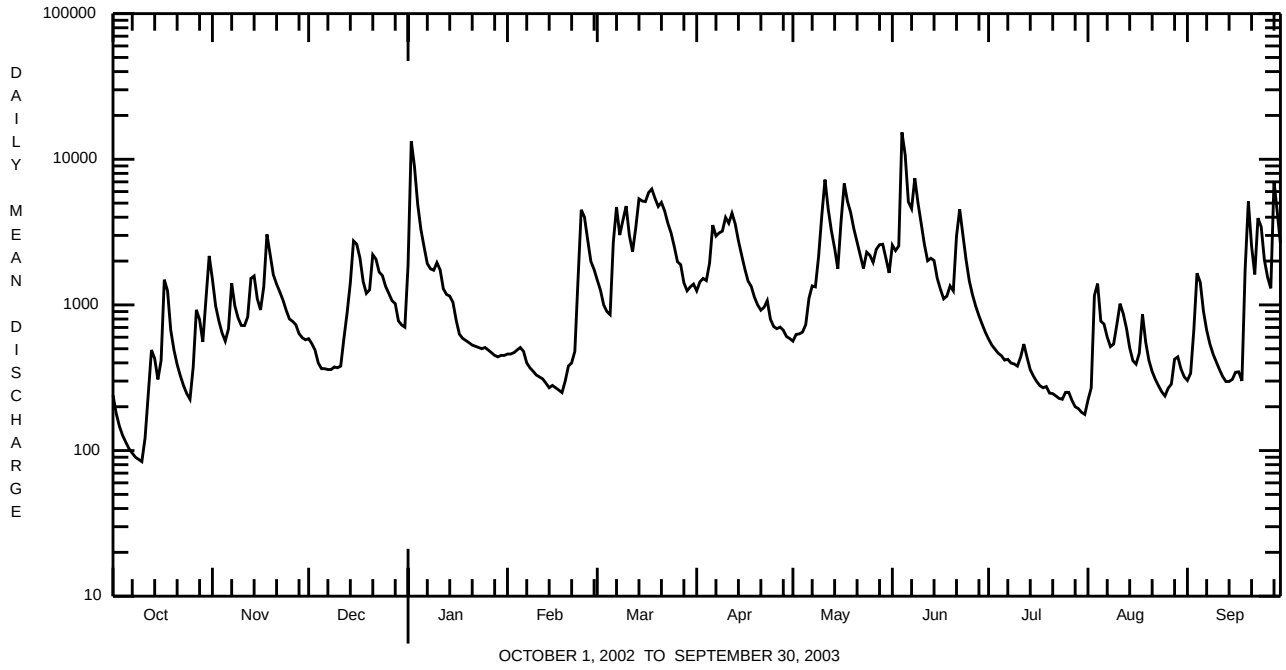
MEAN	419	607	851	1013	1416	2111	1739	1244	754	396	266	284
MAX	3561	2897	3254	3477	4817	7669	5811	3425	4624	2847	851	2356
(WY)	1977	1998	1973	1937	1979	1936	1993	1924	1972	1989	1915	1996
MIN	59.5	65.3	93.6	132	138	459	338	211	134	66.6	55.1	57.6
(WY)	1964	1931	1931	1981	1934	1990	1915	1926	1965	1966	1966	1963

e Estimated.

01562000 RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1912 - 2003	
ANNUAL TOTAL	228453		565398			
ANNUAL MEAN	626		1549		922	
HIGHEST ANNUAL MEAN					1575	1996
LOWEST ANNUAL MEAN					402	1969
HIGHEST DAILY MEAN	4830	May 10,19	15300	Jun 4	58300	Mar 18 1936
LOWEST DAILY MEAN	44	Sep 14	84	Oct 10	39	Sep 12 1966
ANNUAL SEVEN-DAY MINIMUM	48	Sep 10	99	Oct 5	41	Sep 7 1966
MAXIMUM PEAK FLOW			18400	Jun 4	**a**80500	Mar 18 1936
MAXIMUM PEAK STAGE			13.21	Jun 4	**b**24.54	Mar 18 1936
INSTANTANEOUS LOW FLOW			80	Oct 10	39	Sep 6 1966**c**
ANNUAL RUNOFF (CFSM)	0.83		2.05		1.22	
ANNUAL RUNOFF (INCHES)	11.24		27.82		16.58	
10 PERCENT EXCEEDS	1540		3760		2200	
50 PERCENT EXCEEDS	305		870		420	
90 PERCENT EXCEEDS	81		273		117	

a From rating curve extended above 21,000 ft^3/s on basis of slope-area measurement of peak flow.
b From floodmark in gage.
c Also Sept. 7, 12, 1966.



JUNIATA RIVER BASIN

01562000 RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002													
05...	0900	1028	9813	569	40	11.4	7.8	225	5.9	91	23.2	8.1	58
JAN 2003													
07...	1000	1028	9813	1950	40	13.2	7.4	198	1.7	74	19.8	5.9	41
MAR													
11...	0915	1028	9813	3100	40	14.3	6.7	184	1.3	60	15.8	5.0	35
MAY													
27...	0930	1028	9813	2660	40	9.6	7.1	176	14.3	72	19.1	5.9	49
JUL													
22...	0900	1028	9813	239	40	6.4	8.0	353	23.4	170	41.7	15.8	131
SEP													
16...	1030	1028	9813	325	40	8.5	8.1	317	19.1	140	34.7	12.3	105

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, unfltrd recoverable, µg/L (01042)	Iron, water, unfltrd recoverable, µg/L (01045
NOV 2002													
05...	25.7	152	<2	<.020	2.24	<.040	<.01	.013	3.0	2.7	<200	<10	160
JAN 2003													
07...	19.8	124	8	<.020	2.25	<.040	.02	.018	2.7	2.2	300	<10	350
MAR													
11...	16.3	144	12	.040	1.62	<.040	.04	.042	1.9	2.8	900	190	870
MAY													
27...	16.7	128	24	<.020	1.33	<.040	.03	.043	1.8	2.6	600	<10	980
JUL													
22...	30.0	234	2	<.020	2.58	<.040	.01	.025	2.9	2.5	200	<10	230
SEP													
16...	26.0	214	10	<.020	2.10	<.040	.02	.022	2.5	2.1	200	<10	250

Date	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 2002				
05...	<1.0	20	<50	<10
JAN 2003				
07...	<1.0	40	<50	<10
MAR				
11...	<1.0	50	<50	160
MAY				
27...	1.1	80	<50	20
JUL				
22...	<1.0	40	<50	10
SEP				
16...	<1.0	30	<50	<10

01562000 RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/13/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	1
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia sp	2
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	1
Sphaerium sp	1
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Tubificida	
Tubificidae	1
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Baetis sp	11
Caenidae	
Caenis sp	5
Ephemerellidae	
Serratella sp	1
Heptageniidae	
Leucrocuta sp	15
Nixe sp	4
Stenonema sp	2
Isonychiidae	
Isonychia sp	1
Leptophlebiidae	1
Tricorythidae	
Tricorythodes sp	2
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Coenagrionidae	
Argia sp	2
Trichoptera (CADDISFLIES)	
Glossosomatidae	
Culoptila sp	1
Protoptila sp	1
Hydropsychidae	1
Cheumatopsyche sp	9
Hydropsyche sp	2
Philopotamidae	
Chimarra sp	3

01562000 RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	8/13/02
Benthic Macroinvertebrate	Count
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus sp	9
Stenelmis sp	33
Psephenidae (WATER PENNIES)	
Psephenus sp	6
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	3
Simuliidae (BLACK FLIES)	
Simulium sp	1
Tipulidae (CRANE FLIES)	
Antocha sp	1
Total Organisms	120

JUNIATA RIVER BASIN

01563100 RAYSTOWN LAKE NEAR HUNTINGDON, PA

LOCATION.--Lat 40°26'06", long 78°00'25", Huntingdon County, Hydrologic Unit 02050303, at Raystown Dam on Raystown Branch Juniata River, 3.5 mi south of Huntingdon, and 5.7 mi upstream from mouth.

DRAINAGE AREA.--959 mi^2.

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum is given in feet above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Reservoir is formed by earthfill dam with a gated spillway in right abutment at elevation 768.6 ft (capacity, 383,500 acre-ft), and an ungated spillway separate from embankment at elevation 812.0 ft (capacity, 762,000 acre-ft). Storage began November 1972. Conservation pool elevation is 786.0 ft, capacity 514,000 acre-ft. Lake is used for flood control, low-flow augmentation, and recreation. Figures given herein represent total contents. Satellite telemetry at station.

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 667,010 acre-ft, Apr. 3, 1993, elevation, 802.89 ft; minimum, 2,240 acre-ft, March 2, 1973, elevation, 628.80 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 529,600 acre-ft, June 5, elevation, 787.84 ft; minimum, 470,100 acre-ft, Mar. 15, elevation, 780.75 ft.

MONTHEND ELEVATION, IN FEET ABOVE SEA LEVEL, AND CONTENTS AT 2400 HRS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)
Sept. 30	784.11	497,700	---
Oct. 31	786.24	516,000	+298
Nov. 30	786.00	514,000	-34
Dec. 31	786.07	514,600	+10
CAL YR 2002	--	--	+91
Jan. 31	786.08	514,700	+2
Feb. 28	784.38	500,000	-265
Mar. 31	786.69	519,900	+324
Apr. 30	786.36	517,100	-47
May 31	786.02	514,200	-47
June 30	786.59	519,000	+81
July 31	786.55	518,700	-5
Aug. 31	786.70	519,900	+20
Sept. 30	786.61	519,200	-12
WTR YR 2003	--	--	+30

JUNIATA RIVER BASIN

01563200 RAYSTOWN BRANCH JUNIATA RIVER BELOW RAYSTOWN DAM NEAR HUNTINGDON, PA

LOCATION.--Lat 40°25'44", long 77°59'29", Huntingdon County, Hydrologic Unit 02050303, on left bank 1.0 mi downstream from Raystown Dam on Township Route 430, 4.0 mi south of Huntingdon, and 4.7 mi upstream from mouth.

DRAINAGE AREA.--960 mi^2.

PERIOD OF RECORD.--January 1946 to current year. Prior to October 1946 monthly discharge only, published in WSP 1302. Prior to Oct. 1, l969, published as Raystown Branch Juniata River near Huntingdon.

GAGE.--Water-stage recorder. Datum of gage is 597.36 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers benchmark). Prior to Oct. 1, 1969, water-stage recorder at site 4.3 mi upstream at datum 22.72 ft higher.

REMARKS.--Records fair. Flow regulated since October 1972 by Raystown Dam (station 01563100). Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936, reached a stage of 31.0 ft, discharge, 87,000 ft^3/s, at previous site and datum, by computation of peak discharge at dam.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	214	1530	637	2410	492	1570	1590	1340	2570	766	203	397
2	207	1220	633	10200	494	1570	1730	1050	2000	649	202	398
3	207	1030	547	12800	491	1570	1960	646	2280	487	945	724
4	212	1030	488	9010	496	1570	1770	702	12300	446	1900	1660
5	207	726	481	4270	493	1580	2210	1150	14500	446	1190	2020
6	206	778	489	2610	494	1990	3480	1100	10600	446	882	1190
7	206	1290	488	2560	494	4260	4260	1150	5900	446	882	869
8	205	1030	490	2110	493	5940	3930	1890	8490	446	882	592
9	205	665	505	1620	494	5950	3460	2290	7680	448	883	401
10	203	664	502	1610	492	5960	4640	3070	4470	447	1310	401
11	208	885	505	1600	493	6450	4380	e5940	2540	508	1620	392
12	207	1180	495	1600	494	6780	4350	e6230	2440	549	1620	336
13	207	1530	1110	1590	790	6780	4290	5900	2130	549	973	297
14	206	1530	1580	1590	1080	6570	3260	3100	2620	550	509	298
15	207	1530	2050	1590	1080	6040	2560	2260	1960	466	510	423
16	211	1530	2530	1580	1080	5690	2260	3390	1620	455	430	1080
17	208	1530	2530	1070	1080	6590	1620	6690	1320	369	373	1620
18	207	2320	2520	563	1080	6560	1740	6830	1100	254	632	1630
19	207	2920	2520	490	1350	6490	1630	6470	1330	204	685	1470
20	208	2270	1970	494	1560	5930	2040	3240	1420	204	477	2170
21	207	1600	1600	491	1570	3230	1210	4220	1710	203	401	2630
22	205	1590	1590	549	1570	580	880	3050	3150	202	336	2630
23	200	1310	1590	588	1570	617	533	2490	3350	201	294	3610
24	201	940	1590	530	1570	2710	829	2590	2690	201	294	4710
25	201	814	1580	491	1570	3030	1020	2600	1610	201	239	3480
26	201	812	1580	495	1570	2240	1050	2590	1320	201	187	2070
27	198	808	1570	491	1570	2430	983	2330	1050	201	257	1670
28	200	809	1520	496	1570	1860	932	2580	767	201	419	7270
29	198	808	1560	476	---	1140	684	2580	764	201	438	5630
30	878	701	1560	492	---	1640	1280	2580	764	201	397	2650
31	1530	---	1520	492	---	1920	---	2570	---	201	397	---
TOTAL	8367	37380	40330	66958	27580	117237	66561	94618	106445	11349	20767	54718
MEAN	270	1246	1301	2160	985	3782	2219	3052	3548	366	670	1824
MAX	1530	2920	2530	12800	1570	6780	4640	6830	14500	766	1900	7270
MIN	198	664	481	476	491	580	533	646	764	201	187	297

e Estimated.

01563200 RAYSTOWN BRANCH JUNIATA RIVER BELOW RAYSTOWN DAM NEAR HUNTINGDON, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	720	1006	1245	1252	1687	2415	2263	1490	875	507	346	469
MAX	4616	3778	4204	4768	3999	7104	8605	3438	3548	3484	802	3007
(WY)	1977	1974	1973	1996	1984	1994	1993	1978	2003	1989	1979	1996
MIN	150	125	215	208	436	212	370	18.6	59.1	133	118	134
(WY)	1975	1975	1981	1981	2002	2002	1974	1973	1973	1973	1973	1973

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1973 - 2003	
ANNUAL TOTAL	247027		652310			
ANNUAL MEAN	677		1787		1186	
HIGHEST ANNUAL MEAN					1989	1996
LOWEST ANNUAL MEAN					525	1992
HIGHEST DAILY MEAN	5550	May 10	14500	Jun 5	15400	Apr 7 1993
LOWEST DAILY MEAN	197	Jul 14	187	Aug 26	5.0	May 18 1973
ANNUAL SEVEN-DAY MINIMUM	200	Oct 23	200	Oct 23	8.3	May 18 1973
MAXIMUM PEAK FLOW			16000	Jun 4	16200	Apr 6 1993
MAXIMUM PEAK STAGE			15.05	Jun 4	15.12	Apr 6 1993
10 PERCENT EXCEEDS	1600		4280		2810	
50 PERCENT EXCEEDS	331		1150		501	
90 PERCENT EXCEEDS	204		207		201	

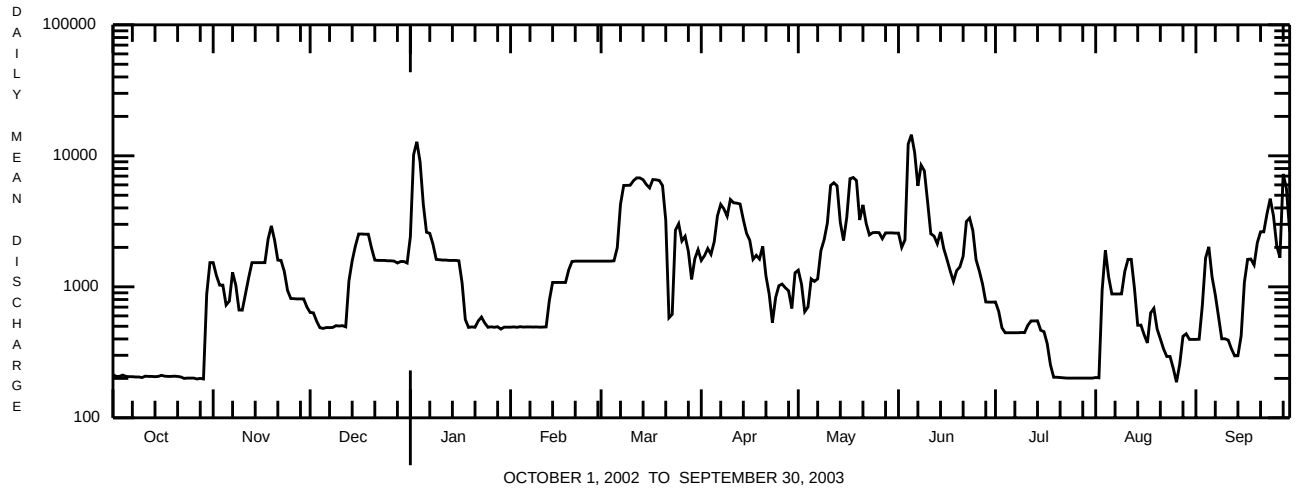
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1972, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	343	651	985	1195	1649	2695	2132	1500	875	442	303	229
MAX	1587	2796	2877	2915	4150	4481	4632	3346	5740	1722	925	648
(WY)	1955	1971	1951	1949	1971	1963	1970	1960	1972	1972	1956	1950
MIN	64.7	65.3	131	220	317	754	683	482	180	80.1	66.0	67.6
(WY)	1964	1958	1966	1954	1954	1969	1968	1969	1965	1966	1966	1963

SUMMARY STATISTICS	WATER YEARS 1947 - 1972	
ANNUAL MEAN	1080	
HIGHEST ANNUAL MEAN	1960	1972
LOWEST ANNUAL MEAN	497	1969
HIGHEST DAILY MEAN	22200	Apr 3 1970
LOWEST DAILY MEAN	5.0	Oct 30 1957
ANNUAL SEVEN-DAY MINIMUM	7.7	Nov 3 1957
MAXIMUM PEAK FLOW	**a**24500	Nov 25 1950
MAXIMUM PEAK STAGE	**b**18.54	Apr 3 1970
INSTANTANEOUS LOW FLOW	4.3	Oct 31 1957
ANNUAL RUNOFF (CFSM)	1.13	
ANNUAL RUNOFF (INCHES)	15.29	
10 PERCENT EXCEEDS	2580	
50 PERCENT EXCEEDS	475	
90 PERCENT EXCEEDS	114	

a From rating curve extended above 16,000 ft^3/s on basis of computation of peak discharge at dam, gage height, 16.74 ft, site and datum then in use.

b Present site and datum.



JUNIATA RIVER BASIN

01563500 JUNIATA RIVER AT MAPLETON DEPOT, PA

LOCATION.--Lat 40°23'32", long 77°56'07", Huntingdon County, Hydrologic Unit 02050304, on right bank 0.2 mi downstream from Scrub Run, and 0.3 mi downstream from bridge on State Highway 655 at Mapleton Depot.

DRAINAGE AREA.--2,030 mi^2.

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

REVISED RECORDS.--WDR PA-73-1: 1936(M).

GAGE.--Water-stage recorder. Datum of gage is 557.31 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Flow regulated since October 1972 by Raystown Dam (station 01563100) 12 mi upstream. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936, reached a stage of 38.2 ft, from floodmark, discharge, 165,000 ft^3/s from rating curve extended above 39,000 ft^3/s on basis of runoff comparison with upstream and downstream stations.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	454	3190	1690	6100	1260	e3060	3940	2530	5790	1840	1330	3120
2	520	2650	1610	26200	1280	3010	4160	2400	4640	1710	1740	4030
3	500	2070	e1480	20600	1260	3030	4400	1720	5020	1470	6420	3980
4	493	1980	e1210	14300	1520	2920	4050	1720	22700	1340	5310	7360
5	483	1690	e1160	8110	1980	2990	6570	2170	22700	1270	3840	5840
6	476	1970	e1130	5740	e1420	4460	8450	2630	16500	1240	3060	4130
7	470	2900	e1130	5360	e1280	6270	8180	2490	11000	1350	2650	3170
8	454	2510	e1120	4790	e1270	7660	7710	3920	14300	1360	2590	2620
9	452	1720	e1120	4510	e1180	8910	6970	4850	12700	1240	2770	2060
10	453	1680	e1140	4600	e1180	9300	7780	6070	8520	1240	5220	1890
11	559	1960	e1140	4170	e1180	8520	8010	9070	5850	2740	4580	1730
12	1090	2600	e1390	e3700	e1190	8860	8730	9450	5410	2000	4880	1560
13	1230	3600	e2700	e3460	e1350	11000	8060	8820	4870	1510	3340	1430
14	833	3270	e4300	e3300	e1770	12300	6640	5700	5080	1390	2280	1460
15	718	3000	5920	e3230	e1820	10900	5480	4560	4290	1270	2080	1480
16	941	2900	e5590	e3070	e1750	10700	4980	7070	3610	1130	1810	2760
17	2010	4690	e5090	e2510	e1640	13200	4090	12100	3190	1210	1730	2960
18	1290	6080	e4470	e1590	e1730	14200	3780	11700	4050	933	1850	2810
19	955	5620	e4380	e1440	2180	13900	3630	11200	3930	935	1870	4640
20	838	4710	4380	e1420	2560	12500	3960	7190	3860	904	1520	6550
21	751	3590	4760	e1390	2520	13700	3040	7410	3960	813	1320	5420
22	638	3410	4250	e1400	2650	8410	2750	6260	5480	937	1220	4920
23	636	3100	4000	e1400	4830	6640	2190	5170	5420	1460	1100	9840
24	619	2420	3730	e1420	5070	7260	2020	5880	4740	1050	1040	8920
25	605	2090	3640	e1350	e3850	7290	2550	5790	3330	900	967	6790
26	1120	2000	3520	e1320	e3330	5670	2430	5770	2960	821	928	4980
27	1550	1980	3310	e1290	e3200	5580	2400	6390	2530	778	1840	4210
28	1030	1950	3110	e1270	e3170	4780	2290	5980	2040	773	1580	16400
29	895	1860	3110	e1250	---	3650	1880	5670	1950	779	1410	12000
30	1940	1820	3040	e1290	---	4050	2390	5230	1880	725	2020	6630
31	3670	---	2990	e1270	---	4460	---	5130	---	699	2840	---
TOTAL	28673	85010	91610	142850	59420	239180	143510	182040	202300	37817	77135	145690
MEAN	925	2834	2955	4608	2122	7715	4784	5872	6743	1220	2488	4856
MAX	3670	6080	5920	26200	5070	14200	8730	12100	22700	2740	6420	16400
MIN	452	1680	1120	1250	1180	2920	1880	1720	1880	699	928	1430

e Estimated.

01563500 JUNIATA RIVER AT MAPLETON DEPOT, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1569	2235	2844	2793	3702	5371	5002	3449	2182	1280	950	1196
MAX	7397	7196	8006	8972	8159	14040	15970	7725	6743	6123	2488	6926
(WY)	1977	1998	1973	1996	1984	1994	1993	1978	2003	1989	2003	1996
MIN	459	578	872	481	1269	1612	1781	1309	679	557	490	484
(WY)	2002	1979	1981	1981	1993	1990	1997	1976	1991	1999	2002	1995

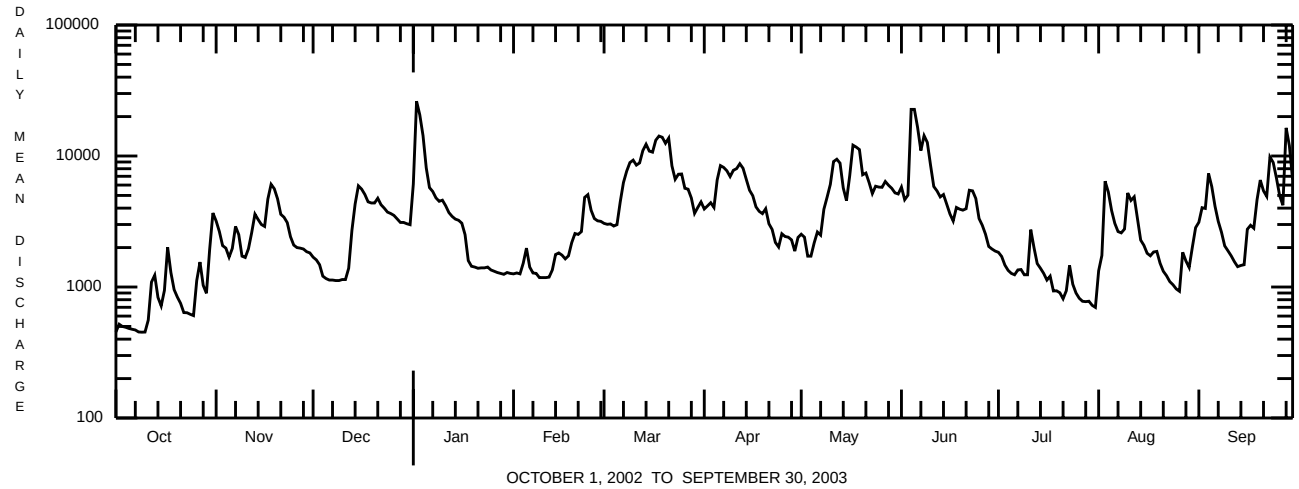
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1973 - 2003	
ANNUAL TOTAL	703973		1435235			
ANNUAL MEAN	1929		3932		2707	
HIGHEST ANNUAL MEAN					4119	1996
LOWEST ANNUAL MEAN					1360	1992
HIGHEST DAILY MEAN	12600	May 19	26200	Jan 2	37300	Jan 20 1996
LOWEST DAILY MEAN	374	Sep 14	452	Oct 9	374	Sep 14 2002
ANNUAL SEVEN-DAY MINIMUM	395	Sep 13	469	Oct 4	395	Sep 13 2002
MAXIMUM PEAK FLOW			30100	Jan 2	**a**57600	Jan 20 1996
MAXIMUM PEAK STAGE			15.97	Jan 2	22.47	Jan 20 1996
10 PERCENT EXCEEDS	4330		8270		6000	
50 PERCENT EXCEEDS	1220		2900		1540	
90 PERCENT EXCEEDS	467		1000		558	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 1972, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	925	1473	2124	2500	3303	5542	4766	3324	2215	1058	812	664
MAX	3136	6057	6058	6342	8327	8641	9845	7044	14450	3864	2638	3073
(WY)	1938	1951	1951	1949	1971	1967	1940	1960	1972	1972	1956	1945
MIN	245	377	374	610	826	1763	1697	849	540	317	244	262
(WY)	1964	1958	1966	1940	1963	1969	1968	1941	1965	1966	1966	1964

SUMMARY STATISTICS	WATER YEARS 1938 - 1972	
ANNUAL MEAN	2387	
HIGHEST ANNUAL MEAN	4479	1972
LOWEST ANNUAL MEAN	1329	1969
HIGHEST DAILY MEAN	115000	Jun 23 1972
LOWEST DAILY MEAN	101	Aug 21 1966
ANNUAL SEVEN-DAY MINIMUM	203	Sep 7 1964
MAXIMUM PEAK FLOW	**a**125000	Jun 23 1972
MAXIMUM PEAK STAGE	33.07	Jun 23 1972
INSTANTANEOUS LOW FLOW	68	Sep 13 1964
ANNUAL RUNOFF (CFSM)	1.18	
ANNUAL RUNOFF (INCHES)	15.97	
10 PERCENT EXCEEDS	5520	
50 PERCENT EXCEEDS	1210	
90 PERCENT EXCEEDS	393	

a From rating curve extended above 39,000 ft^3/s on basis of runoff comparison with upstream and downstream stations.



JUNIATA RIVER BASIN

01564500 AUGHWICK CREEK NEAR THREE SPRINGS, PA

LOCATION.--Lat 40°12'45", long 77°55'32", Huntingdon County, Hydrologic Unit 02050304, on right bank 10 ft downstream from bridge on State Highway 994, 300 ft upstream from East Broad Top Railroad bridge, 350 ft upstream from Three Springs Creek, and 3.5 mi northeast of Three Springs. Records include flow of Three Springs Creek.

DRAINAGE AREA.--205 mi^2, includes that of Three Springs Creek.

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

GAGE.--Water-stage recorder. Datum of gage is 618.65 ft above National Geodetic Vertical Datum of 1929.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1889, reached a stage of about 19.3 ft, discharge, about 24,000 ft^3/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 2,100 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Jan. 2	0630	5,310	10.70	June 7	2145	3,270	9.45
Mar. 21	0400	3,670	9.93	Sept. 23	1315	3,250	9.43
May 16	1745	2,630	8.57	Sept. 28	0815	2,610	8.55
June 4	0845	*7,300	*13.27				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	423	137	988	e80	e370	401	138	527	70	64	57
2	18	262	115	3510	e100	e300	453	257	385	64	112	63
3	15	183	103	1590	e90	e280	422	201	793	63	218	145
4	13	138	e70	1070	e150	e250	389	176	5040	59	203	730
5	12	115	e75	786	e240	e280	701	187	1830	53	130	354
6	12	251	e80	638	e130	e850	772	263	1090	62	87	207
7	11	254	e75	525	e110	e1000	669	239	1670	146	98	146
8	9.7	192	e85	473	e100	e680	701	262	1970	93	191	115
9	9.2	159	e80	567	e85	e980	856	346	1260	67	241	96
10	9.4	135	e70	650	e80	1010	1040	728	833	66	519	82
11	33	127	e100	531	e70	663	991	1080	625	167	459	71
12	199	161	e375	e400	e65	547	963	757	496	127	300	62
13	146	489	e600	e340	e60	903	773	577	489	78	181	61
14	86	353	e1000	e280	e60	1280	610	424	388	63	129	81
15	57	260	1220	e230	e55	e1020	504	331	306	53	99	81
16	154	209	912	e170	e50	1430	435	1450	240	49	81	82
17	612	599	615	e170	e50	1760	371	1530	204	45	130	84
18	243	881	435	e160	e50	1600	315	1190	235	e41	139	64
19	135	592	342	e150	e100	e1200	278	977	205	57	89	907
20	96	426	411	e150	e120	1330	249	752	204	e44	69	1040
21	72	320	437	e140	e100	2660	236	642	283	e36	60	539
22	57	337	364	e140	e180	1400	344	515	241	36	52	357
23	47	315	330	e130	e1000	984	262	439	201	38	47	2060
24	41	244	281	e110	e1400	746	211	506	164	54	42	1110
25	38	211	277	e100	e900	605	186	473	139	53	37	645
26	237	186	253	e100	e600	524	190	387	121	38	54	464
27	277	181	208	e90	e520	500	188	387	107	32	85	392
28	164	166	182	e80	e440	395	160	551	96	30	102	1750
29	128	143	176	e80	---	364	152	492	86	28	74	996
30	451	146	165	e75	---	406	155	416	77	27	56	621
31	688	---	169	e75	---	416	---	390	---	25	57	---
TOTAL	4094.3	8458	9742	14498	6985	26733	13977	17063	20305	1864	4205	13462
MEAN	132	282	314	468	249	862	466	550	677	60.1	136	449
MAX	688	881	1220	3510	1400	2660	1040	1530	5040	167	519	2060
MIN	9.2	115	70	75	50	250	152	138	77	25	37	57
CFSM	0.64	1.38	1.53	2.28	1.22	4.21	2.27	2.68	3.30	0.29	0.66	2.19
IN.	0.74	1.53	1.77	2.63	1.27	4.85	2.54	3.10	3.68	0.34	0.76	2.44

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2003, BY WATER YEAR (WY)

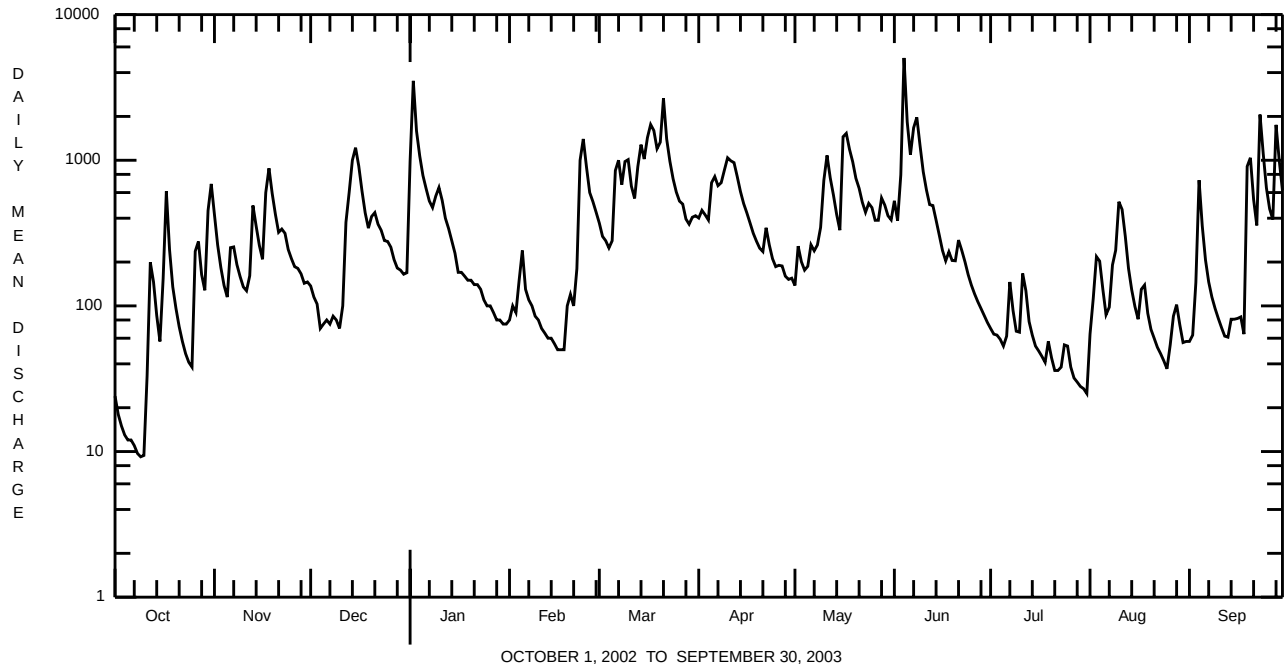
MEAN	108	188	260	256	376	572	472	317	191	81.3	61.6	68.7
MAX	656	946	890	1062	1399	1612	1296	798	1985	848	355	978
(WY)	1977	1951	1973	1996	1984	1994	1993	1960	1972	1989	1967	1996
MIN	6.59	12.3	12.6	14.2	29.5	93.0	103	55.0	25.0	8.40	3.25	5.08
(WY)	1964	1999	1999	1981	2002	1990	1971	1941	1991	1966	1966	1964

e Estimated.

01564500 AUGHWICK CREEK NEAR THREE SPRINGS, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1938 - 2003	
ANNUAL TOTAL	54952.1		141386.3			
ANNUAL MEAN	151		387		245	
HIGHEST ANNUAL MEAN					486	1972
LOWEST ANNUAL MEAN					93.9	2002
HIGHEST DAILY MEAN	2010	May 18	5040	Jun 4	18700	Jun 23 1972
LOWEST DAILY MEAN	2.7	Sep 14	9.2	Oct 9	0.80	Sep 3 1966
ANNUAL SEVEN-DAY MINIMUM	3.4	Sep 9	11	Oct 4	1.2	Aug 29 1966
MAXIMUM PEAK FLOW			**a**7300	Jun 4	**a**32600	Jan 19 1996
MAXIMUM PEAK STAGE			13.27	Jun 4	20.85	Jan 19 1996
INSTANTANEOUS LOW FLOW			8.8	Oct 9,10	0.80	Sep 2 1966**b**
ANNUAL RUNOFF (CFSM)	0.73		1.89		1.20	
ANNUAL RUNOFF (INCHES)	9.97		25.66		16.27	
10 PERCENT EXCEEDS	402		986		586	
50 PERCENT EXCEEDS	57		205		99	
90 PERCENT EXCEEDS	8.4		53		14	

a From rating curve extended above 7,100 ft^3/s on basis of contracted-opening measurement at gage height 18.04 ft.
b Also Sept. 3, 4, 11-13, 1966.



JUNIATA RIVER BASIN

01565000 KISHACOQUILLAS CREEK AT REEDSVILLE, PA

LOCATION.--Lat 40°39'17", long 77°35'00", Mifflin County, Hydrologic Unit 02050304, on left bank 150 ft downstream from bridge on old U.S. Highway 322, 1.0 mi southeast of Reedsville, and 1.0 mi downstream from Honey Creek.

DRAINAGE AREA.--164 mi^2.

PERIOD OF RECORD.--October 2001 to current year. October 1939 to September 1970, monthly discharge only for October, November 1939, published in WSP 1302; October 1983 to September 1985; October 1988 to September 2001, crest-stage partial-record station.

GAGE.--Water-stage recorder. Datum of gage is 551.23 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1936 reached a stage about 14.1 ft, discharge about 11,500 ft^3/s. Flood of June 23, 1972 reached a stage of 16.17 ft from floodmarks, discharge 16,400 ft^3/s from rating curve extended above 10,000 ft^3/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 1,100 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Jan. 1	2345	1,560	6.44	Sept. 19	1415	1,320	6.04
Mar. 13	1930	1,350	6.08	Sept. 23	0745	*2,650	*7.94
Mar. 20	2215	2,180	7.36	Sept. 28	0315	1,220	5.84
June 7	1715	1,250	5.91				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	254	209	588	136	189	433	187	433	183	188	193
2	55	226	194	1180	134	186	438	193	323	170	164	233
3	50	205	181	934	130	183	419	178	402	162	272	277
4	47	192	159	801	224	168	404	167	844	152	218	315
5	45	181	169	660	195	179	745	172	728	143	193	280
6	43	232	164	566	e145	292	663	181	634	136	173	245
7	42	200	146	492	e135	227	660	173	853	139	155	225
8	40	185	151	467	e125	202	633	231	883	142	143	208
9	39	180	142	503	e120	427	617	253	857	126	144	195
10	39	175	128	476	e115	307	613	263	719	129	184	182
11	77	196	154	401	e110	230	799	293	616	356	160	169
12	262	232	316	356	e105	306	902	284	551	186	154	158
13	175	316	282	332	e100	645	835	270	480	151	135	158
14	132	269	539	308	e95	679	734	252	415	134	125	195
15	113	257	604	292	e90	631	635	236	367	124	116	202
16	295	266	539	e250	e86	679	546	367	323	121	110	345
17	364	505	451	e230	e83	893	472	348	298	112	207	226
18	237	554	389	e215	e80	1200	412	345	448	114	160	223
19	202	479	357	e205	e78	1290	381	338	389	123	139	865
20	179	440	498	e195	e85	1410	344	318	401	104	130	1070
21	158	396	463	e185	e92	1720	324	319	429	101	124	819
22	141	402	428	e170	e105	1440	319	295	379	159	118	632
23	129	359	406	e165	531	1190	286	287	344	189	112	1860
24	117	314	370	e160	398	987	258	374	310	137	106	1270
25	111	289	366	e155	275	847	243	332	285	136	101	989
26	206	265	337	e150	234	740	250	300	260	115	105	811
27	161	260	306	e145	214	625	240	298	240	107	122	680
28	140	240	287	145	201	529	216	292	221	110	110	948
29	136	229	273	145	---	515	207	301	205	102	97	664
30	221	225	257	140	---	528	197	272	193	93	167	558
31	266	---	252	135	---	471	---	288	---	87	172	---
TOTAL	4284	8523	9517	11146	4421	19915	14225	8407	13830	4343	4604	15195
MEAN	138	284	307	360	158	642	474	271	461	140	149	506
MAX	364	554	604	1180	531	1720	902	374	883	356	272	1860
MIN	39	175	128	135	78	168	197	167	193	87	97	158
CFSM	0.84	1.73	1.87	2.19	0.96	3.92	2.89	1.65	2.81	0.85	0.91	3.09
IN.	0.97	1.93	2.16	2.53	1.00	4.52	3.23	1.91	3.14	0.99	1.04	3.45

STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF DAILY RECORD, BY WATER YEAR (WY)

MEAN	75.2	142	186	205	252	439	442	332	200	86.0	70.1	65.5
MAX	277	678	719	557	849	680	782	616	516	182	253	506
(WY)	1956	1951	1951	1952	1984	1945	1970	1942	1946	1967	1967	2003
MIN	19.2	18.8	22.1	27.7	45.0	105	174	90.3	57.1	27.2	22.1	17.4
(WY)	1965	1965	1940	1940	1940	1969	1966	1941	1965	1965	1966	1965

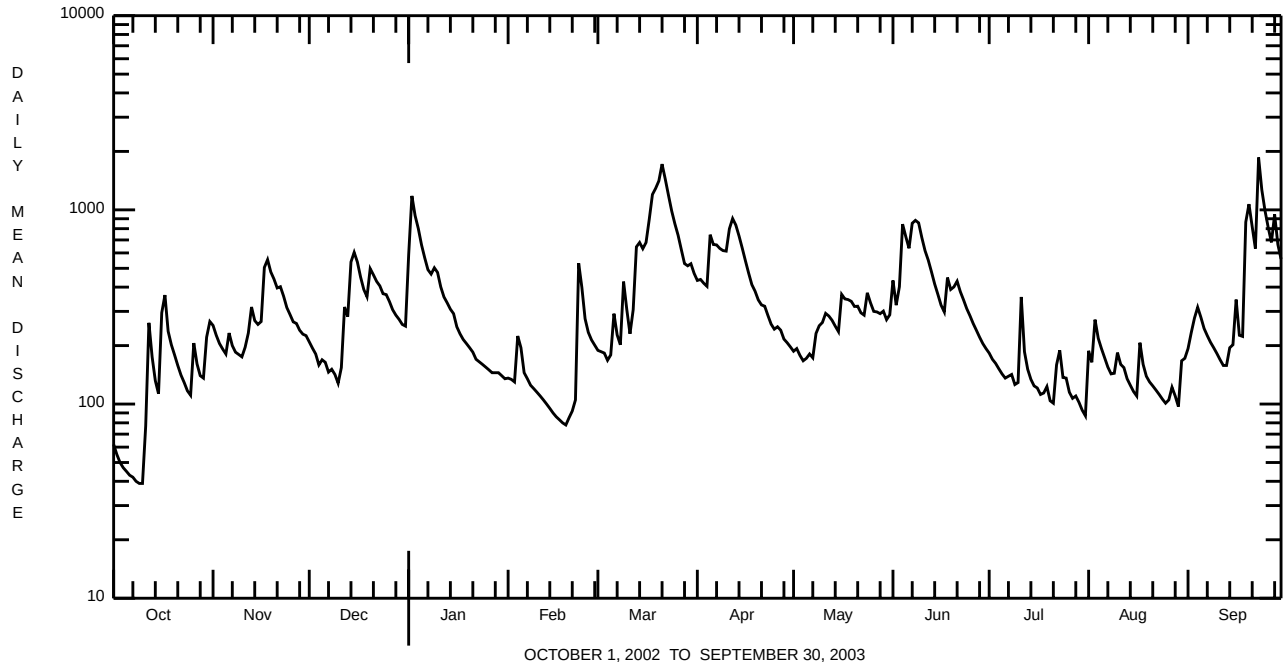
e Estimated.

JUNIATA RIVER BASIN

01565000 KISHACOQUILLAS CREEK AT REEDSVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	74180		118410			
ANNUAL MEAN	203		324		208	
HIGHEST ANNUAL MEAN					383	1951
LOWEST ANNUAL MEAN					99.3	1965
HIGHEST DAILY MEAN	1110	May 18	1860	Sep 23	5310	Nov 25 1950
LOWEST DAILY MEAN	28	Sep 12-14**a**	39	Oct 9,10	14	Jan 9 1940**b**
ANNUAL SEVEN-DAY MINIMUM	29	Sep 12	42	Oct 4	14	Jan 6 1940
MAXIMUM PEAK FLOW			2650	Sep 23	**c**12400	Jan 19 1996
MAXIMUM PEAK STAGE			7.94	Sep 23	14.20	Jan 19 1996
INSTANTANEOUS LOW FLOW			37	Oct 10		
ANNUAL RUNOFF (CFSM)	1.24		1.98		1.27	
ANNUAL RUNOFF (INCHES)	16.83		26.86		17.20	
10 PERCENT EXCEEDS	444		663		479	
50 PERCENT EXCEEDS	136		232		120	
90 PERCENT EXCEEDS	43		111		30	

a Also Sept. 18-21.
b Also Jan. 12, 1940, Sept. 2, 3, 1966.
c From rating curve extended above 3,900 ft^3/s on basis of slope-area measurement at gage height 13.12 ft.



JUNIATA RIVER BASIN

01566000 TUSCARORA CREEK NEAR PORT ROYAL, PA

LOCATION.--Lat 40°30'55", long 77°25'10", Juniata County, Hydrologic Unit 02050304, at single-span bridge on SR 3008, 2.0 mi southwest of Port Royal, and 3.5 mi upstream from mouth.

DRAINAGE AREA.--214 mi^2.

PERIOD OF RECORD.--October 2001 to current year. October 1910 to September 1958; October 1981 to September 1987, low-flow partial record; October 1987 to September 1990, crest-stage partial-record; October 1991 to September 1995, miscellaneous measurements; October 1995 to September 2001, crest-stage partial-record and miscellaneous measurements.

GAGE.--Water-stage recorder. Datum of gage is 420.47 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known prior to 1911, 20.5 ft, June 1, 1889 (backwater from Juniata River). Flood of June 23, 1972, reached a stage of 25.10 ft, discharge not determined.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Jan. 2	1330	*4,900	*10.76	Mar. 21	0800	4,730	10.58

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	432	168	718	e90	e220	420	160	375	96	73	61
2	25	292	e140	3960	e100	e210	448	167	327	91	150	69
3	22	220	e130	1630	e110	e230	419	151	362	92	87	140
4	21	175	e120	1010	e170	e210	384	134	2780	106	106	887
5	23	152	e110	716	e200	e200	588	134	1430	86	79	480
6	22	236	e100	568	e130	e600	663	184	848	81	63	273
7	22	275	e95	474	e100	e700	550	160	1330	135	55	191
8	23	217	e90	447	e90	e500	551	173	2240	143	50	147
9	23	188	e85	606	e80	e700	626	286	1250	95	63	123
10	24	168	e100	692	e75	e800	761	400	819	96	341	107
11	49	164	e160	528	e70	e470	838	600	602	159	235	93
12	198	202	e660	397	e65	e360	862	474	484	155	1130	83
13	169	546	715	e320	e65	e700	656	374	410	95	328	81
14	97	393	1070	e270	e60	e1100	519	294	355	79	195	101
15	67	289	1300	e220	e50	e1000	438	244	306	71	139	99
16	183	239	969	e170	e50	e1200	385	1120	262	67	113	82
17	678	602	638	e140	e45	e1600	336	1700	231	62	347	72
18	280	863	437	e120	e55	e1700	298	1210	269	61	192	65
19	172	562	343	e110	e70	1440	293	1020	285	72	122	1180
20	130	405	414	e110	e100	1700	272	730	323	108	97	1640
21	107	313	434	e100	e110	3830	247	606	289	75	84	623
22	90	330	326	e100	e130	1820	369	491	248	101	76	386
23	79	336	292	e90	e800	1200	313	426	213	119	71	2280
24	72	266	260	e80	e1000	885	259	695	178	87	63	1180
25	69	237	264	e90	e600	692	240	723	158	94	56	e720
26	150	215	255	e80	e400	577	241	540	143	66	55	e540
27	239	207	218	e75	e300	530	239	451	131	57	75	e400
28	160	198	194	e70	e240	419	203	400	120	54	83	1200
29	133	179	195	e70	---	376	184	371	111	49	63	741
30	302	174	184	e75	---	414	175	303	102	45	60	473
31	590	---	181	e80	---	449	---	275	---	44	68	---
TOTAL	4250	9075	10647	14116	5355	26832	12777	14996	16981	2741	4719	14517
MEAN	137	302	343	455	191	866	426	484	566	88.4	152	484
MAX	678	863	1300	3960	1000	3830	862	1700	2780	159	1130	2280
MIN	21	152	85	70	45	200	175	134	102	44	50	61
CFSM	0.64	1.41	1.60	2.13	0.89	4.04	1.99	2.26	2.65	0.41	0.71	2.26
IN.	0.74	1.58	1.85	2.45	0.93	4.66	2.22	2.61	2.95	0.48	0.82	2.52

STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF DAILY RECORD, BY WATER YEAR (WY)

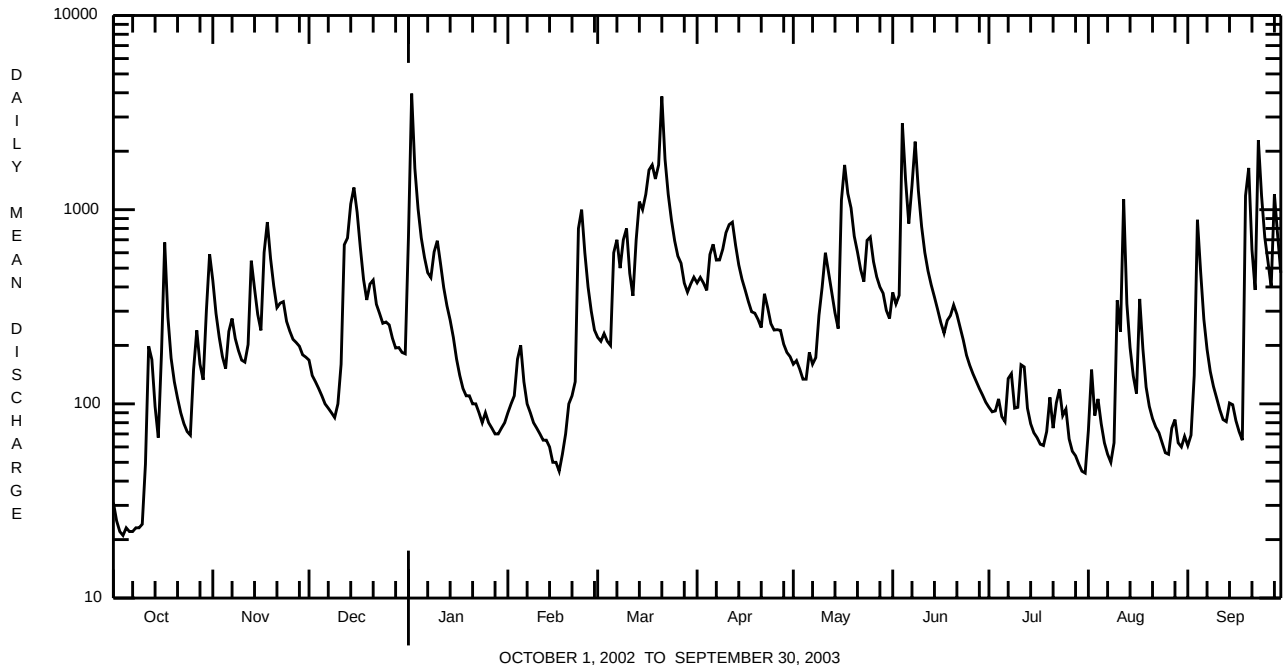
MEAN	124	208	241	290	354	580	492	376	176	102	80.9	85.8
MAX	832	934	829	746	1016	2347	1071	1052	1141	438	363	484
(WY)	1928	1951	1951	1915	1915	1936	1937	1919	1916	1928	1933	2003
MIN	7.51	10.1	10.8	21.1	44.3	135	107	64.4	46.3	26.0	8.15	6.53
(WY)	1931	1931	1931	1931	2002	1931	1925	1941	1957	2002	1930	1930

e Estimated.

01566000 TUSCARORA CREEK NEAR PORT ROYAL, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	60022.8		137006			
ANNUAL MEAN	164		375		258	
HIGHEST ANNUAL MEAN					448	1928
LOWEST ANNUAL MEAN					106	2002
HIGHEST DAILY MEAN	2320	May 18	3960	Jan 2	12000	Mar 18 1936
LOWEST DAILY MEAN	**e**2.5	Sep 14	21	Oct 4	2.2	Sep 29 1930
ANNUAL SEVEN-DAY MINIMUM	**a**2.8	Sep 12	22	Oct 3	**a**2.8	Sep 12 2002
MAXIMUM PEAK FLOW			4900	Jan 2	**bc**25000	Sep 7 1996
MAXIMUM PEAK STAGE			10.76	Jan 2	**d**21.60	Mar 19 1936
ANNUAL RUNOFF (CFSM)	0.77		1.75		1.21	
ANNUAL RUNOFF (INCHES)	10.43		23.82		16.39	
10 PERCENT EXCEEDS	406		854		593	
50 PERCENT EXCEEDS	79		213		114	
90 PERCENT EXCEEDS	9.0		66		24	

a Computed using estimated daily discharges.
b Gage height 21.27 ft.
c From rating curve extended above 5,000 ft^3/s.
d From floodmark, backwater from Juniata River, discharge 14,400 ft^3/s.
e Estimated.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

JUNIATA RIVER BASIN

01567000 JUNIATA RIVER AT NEWPORT, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 40°28'42", long 77°07'46", Perry County, Hydrologic Unit 02050304, on right bank at downstream side of bridge on State Highway 34 at Newport, and 1,000 ft upstream from Little Buffalo Creek.

DRAINAGE AREA.--3,354 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1899 to current year.

REVISED RECORDS.--WSP 756: Drainage area. WSP 781: 1902(M). WSP 1302: 1915-17. WSP 1502: 1899-1908, 1914, 1924, 1936. WSP 1722: 1916.

GAGE.--Water-stage recorder. Datum of gage is 363.93 ft above National Geodetic Vertical Datum of 1929. Prior to July 16, 1929, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated since October 1972 by Raystown Dam (station 01563100) about 75 mi upstream. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1889, reached a stage of 35.9 ft, from floodmarks, discharge, about 209,000 ft^3/s, from rating curve extended above 100,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1390	6630	2870	5100	e2100	e4850	7640	3460	9000	2800	1270	4020
2	1130	e6300	2620	23400	e2150	e4700	7030	3940	8950	2690	1820	4000
3	832	e5200	2430	36300	e2150	e4600	7170	3820	7290	2650	2970	6030
4	797	e4200	2180	26500	e2300	e4450	7190	3030	17400	2350	8180	8870
5	765	3100	1940	18100	e3150	e4400	7390	2850	34800	2100	6840	11000
6	715	3240	1930	12100	e2850	5380	11300	3220	27200	1970	5280	8390
7	690	3110	1930	9600	e2350	8110	12400	3950	21100	1960	4160	6160
8	674	4160	e1900	8840	e2250	9900	12200	4210	23900	2190	3670	4840
9	655	3960	e1900	8800	e2200	11400	11800	6030	22800	2230	3400	4250
10	655	2850	e1900	8970	e2200	14600	11800	7330	17900	2010	8410	3400
11	1020	2710	e1950	8460	e2200	12600	13600	9900	12500	2660	8580	3060
12	2190	2970	e3500	7290	e2250	11400	14900	12900	9630	3660	8900	2750
13	2770	4970	5200	6470	e2700	13100	14100	12500	8680	3430	7550	2590
14	2750	5840	7850	5940	e3100	18900	12400	11000	7800	2380	5420	2880
15	1920	5180	11800	e5500	e3150	18900	10300	7730	7610	2040	3820	2570
16	2340	4600	11900	e5100	e3100	18000	8830	7240	6410	1910	3410	2660
17	4850	5450	10200	e4850	e3100	20200	7870	15500	5420	1710	4110	3410
18	4540	9270	8340	e4350	e3400	23800	6630	17500	5340	1720	3770	4090
19	3430	10100	7090	e3450	e3750	23800	6230	17300	6120	1730	3180	6600
20	2310	8730	7000	e2350	e4450	22900	5800	15000	6500	1540	3160	13000
21	1800	7140	7300	e2200	e5050	31500	5920	10300	6510	1550	2610	11700
22	1540	5820	7190	e2100	e6450	24000	5590	10800	6350	2160	2200	9060
23	1330	5700	6340	e2100	e7850	16500	5080	8690	7600	2690	2010	17900
24	1170	5080	5820	e2100	e9350	12900	4280	9180	7220	2310	1810	21100
25	1110	4180	5540	e2150	e9000	12700	3830	10600	6240	2050	1660	14800
26	1510	3580	5350	e2050	e6700	11300	4290	9370	4660	1640	1600	11100
27	1960	3400	4970	e2000	e5700	9710	4070	9240	4270	1450	1690	8570
28	2820	3260	4600	e2000	e5250	9030	3890	9340	3710	1360	2230	10300
29	2230	3120	4330	e2050	---	7810	3800	9460	3210	1290	2480	23300
30	2370	2980	4270	e2050	---	6840	3330	8470	2960	1220	2600	14500
31	4190	---	4160	e2100	---	7460	---	7620	---	1180	2610	---
TOTAL	58453	146830	156300	234370	110250	405740	240660	271480	319080	64630	121400	246900
MEAN	1886	4894	5042	7560	3938	13090	8022	8757	10640	2085	3916	8230
MAX	4850	10100	11900	36300	9350	31500	14900	17500	34800	3660	8900	23300
MIN	655	2710	1900	2000	2100	4400	3330	2850	2960	1180	1270	2570

e Estimated.

01567000 JUNIATA RIVER AT NEWPORT, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2549	3562	4904	4777	6094	8702	8186	5636	3585	2146	1538	2023
MAX	11610	10850	13770	15810	15070	23500	25780	13940	10640	12080	3916	13220
(WY)	1977	1998	1973	1996	1984	1994	1993	1978	2003	1989	2003	1996
MIN	657	789	1045	495	1498	2576	2898	2258	1084	864	674	586
(WY)	2002	2002	1999	1981	2002	1990	1995	2001	1991	1988	2002	1986

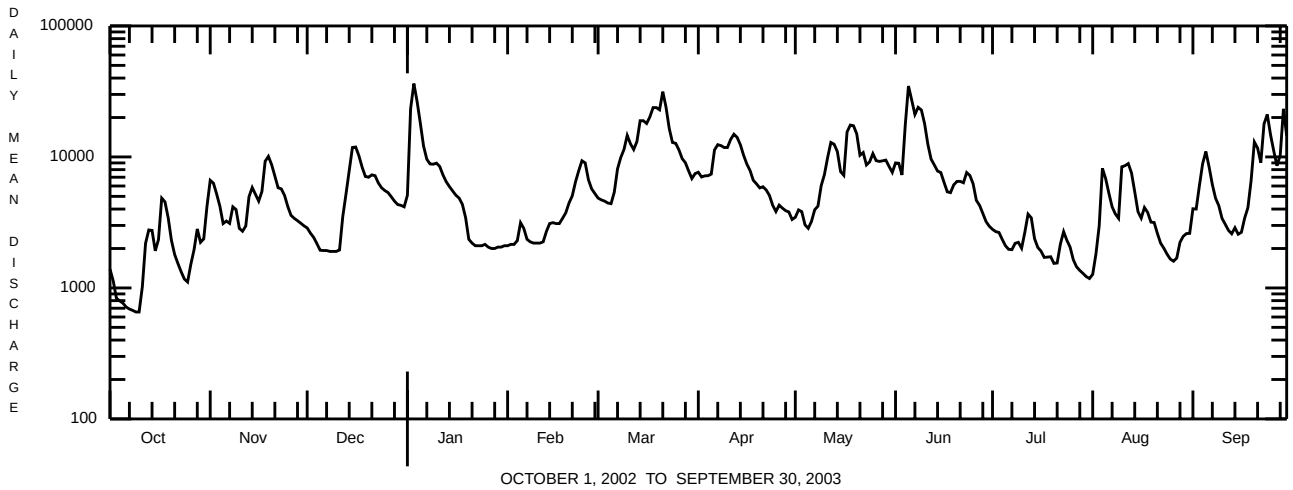
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1973 - 2003	
ANNUAL TOTAL	1095254		2376093			
ANNUAL MEAN	3001		6510		4464	
HIGHEST ANNUAL MEAN					7166	1996
LOWEST ANNUAL MEAN					2241	2002
HIGHEST DAILY MEAN	23700	May 19	36300	Jan 3	92300	Jan 20 1996
LOWEST DAILY MEAN	**e**499	Sep 17	655	Oct 9,10	450	Jan 13 1981
ANNUAL SEVEN-DAY MINIMUM	**a**527	Sep 15	707	Oct 4	461	Jan 9 1981
MAXIMUM PEAK FLOW			39200	Jan 3	**b**103000	Jan 20 1996
MAXIMUM PEAK STAGE			14.75	Jan 3	24.69	Jan 20 1996
10 PERCENT EXCEEDS	6670		12900		10000	
50 PERCENT EXCEEDS	1750		4600		2640	
90 PERCENT EXCEEDS	654		1900		836	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1899 - 1972, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1820	2658	3649	4621	5570	9856	8097	5797	3612	2072	1563	1419
MAX	8108	10880	11310	13300	16160	33600	17160	14870	25050	7865	4605	6890
(WY)	1928	1951	1902	1937	1915	1936	1940	1908	1972	1972	1905	1911
MIN	351	418	471	841	943	2340	2026	1319	890	455	327	370
(WY)	1964	1931	1931	1931	1934	1931	1915	1941	1965	1966	1966	1964

SUMMARY STATISTICS	WATER YEARS 1899 - 1972	
ANNUAL MEAN	4228	
HIGHEST ANNUAL MEAN	7403	1972
LOWEST ANNUAL MEAN	2166	1969
HIGHEST DAILY MEAN	172000	Mar 19 1936
LOWEST DAILY MEAN	207	Jul 27 1966
ANNUAL SEVEN-DAY MINIMUM	269	Aug 3 1966
MAXIMUM PEAK FLOW	**b**190000	Mar 19 1936
MAXIMUM PEAK STAGE	**c**34.24	Mar 19 1936
INSTANTANEOUS LOW FLOW	195	Jul 27 1966
ANNUAL RUNOFF (CFSM)	1.26	
ANNUAL RUNOFF (INCHES)	17.13	
10 PERCENT EXCEEDS	9360	
50 PERCENT EXCEEDS	2300	
90 PERCENT EXCEEDS	680	

a Computed using estimated daily discharges.
b From rating curve extended above 100,000 ft^3/s, on basis of slope-area measurement of peak flow.
c From floodmark in gage.
e Estimated.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

01567000 JUNIATA RIVER AT NEWPORT, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002													
18...	1330	1028	9813	9730	40	10.3	7.7	206	8.3	85	23.1	6.6	60
JAN 2003													
15...	1330	1028	9813	5260	40	13.5	7.4	198	.3	110	28.7	8.3	68
MAR													
06...	1415	1028	9813	5650	40	13.8	7.9	254	2.8	93	26.0	6.8	60
MAY													
05...	1545	1028	9813	2840	40	9.7	8.5	224	15.7	100	26.4	8.4	71
JUL													
08...	1220	1028	9813	2260	40	8.4	8.7	246	26.5	120	32.4	9.2	93
SEP													
15...	1000	1028	9813	2570	40	8.1	7.9	280	20.1	120	32.1	8.5	92

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, unfltrd recoverable, µg/L (01042)	Iron, water, unfltrd recoverable, µg/L (01045)
NOV 2002													
18...	21.0	246	62	.020	1.53	<.040	.04	.086	2.6	3.5	900	<10	1110
JAN 2003													
15...	23.2	160	6	<.020	2.02	<.040	.01	.019	2.1	1.8	<200	<10	100
MAR													
06...	22.6	224	16	<.020	1.43	<.040	.02	.029	1.7	2.6	<200	<10	160
MAY													
05...	19.8	162	12	<.020	1.02	<.040	.02	.024	1.5	2.7	<200	<10	250
JUL													
08...	22.7	216	2	<.020	1.32	<.040	.02	.023	1.6	2.8	<200	<10	140
SEP													
15...	20.9	170	8	<.020	1.82	<.040	.04	.051	1.6	2.7	200	<10	300

Date	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 2002				
18...	2.0	80	<50	<10
JAN 2003				
15...	<1.0	10	<50	<10
MAR				
06...	<1.0	10	<50	<10
MAY				
05...	<1.0	40	<50	170
JUL				
08...	1.0	30	<50	<10
SEP				
15...	<1.0	20	<50	<10

01567000 JUNIATA RIVER AT NEWPORT, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/22/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	1
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Hydrobiidae	
Amnicola sp	2
Bivalvia (CLAMS)	
Veneroida	
Corbiculidae	
Corbicula fluminea	6
Sphaeriidae	
Sphaerium sp	3
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Caenidae	
Caenis sp	21
Heptageniidae	
Leucrocuta sp	15
Stenonema sp	4
Isonychiidae	
Isonychia sp	1
Potamanthidae	
Anthopotamus sp	8
Tricorythidae	
Tricorythodes sp	27
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Coenagrionidae	
Argia sp	5
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
Corydalus sp	3
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Hydropsyche sp	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus sp	4
Stenelmis sp	16
Psephenidae (WATER PENNIES)	
Psephenus sp	1
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	1
Total Organisms	119

SHERMAN CREEK BASIN

01567500 BIXLER RUN NEAR LOYSVILLE, PA

LOCATION.--Lat 40°22'15", long 77°24'09", Perry County, Hydrologic Unit 02050305, on right bank 400 ft upstream from bridge on State Highway 850 at Bixler, 2.3 mi upstream from mouth, and 3.6 mi west of Loysville.

DRAINAGE AREA.--15.0 mi^2.

REVISED RECORDS.--WDR PA-90-2: 1989 (M). WDR PA-01-2: 1957, 1972, 1977-79, 1981, 1984, 1989, 1991, 1994, 1995 (P).

PERIOD OF RECORD.--February 1954 to current year.

GAGE.--Water-stage recorder. Datum of gage is 601.22 ft above National Geodetic Vertical Datum of 1929. Prior to May 14, 1954, nonrecording gage and crest-stage gage 400 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records fair. Several measurements of water temperature were made during the year. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 250 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 13	1600	350	6.00	Aug. 11	1430	*524	*6.59
Mar. 20	1915	405	6.21	Sept. 4	0200	315	5.84
June 7	1345	397	6.18	Sept. 23	0415	297	5.74

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.6	19	11	85	9.8	17	33	16	30	11	12	9.7
2	2.4	15	10	89	10	19	32	16	22	12	8.4	15
3	2.4	12	9.6	57	10	21	30	15	65	13	18	32
4	2.6	11	8.7	46	29	16	29	14	94	11	11	100
5	2.9	10	9.3	38	15	26	43	16	66	10	8.8	32
6	2.7	21	9.3	34	11	74	34	16	50	11	8.2	23
7	2.7	13	8.6	30	11	33	34	15	147	14	7.8	19
8	2.4	12	8.7	32	10	27	38	17	96	10	7.7	17
9	2.5	11	8.1	47	9.5	86	46	18	71	11	28	16
10	3.0	11	7.9	41	9.6	40	45	22	52	11	51	14
11	18	10	28	34	9.2	29	55	20	45	24	111	13
12	16	23	45	28	9.0	33	52	19	39	12	39	12
13	9.3	22	38	26	8.7	117	44	18	36	10	24	15
14	6.4	16	83	23	8.3	87	38	16	31	9.5	19	14
15	4.7	14	65	21	8.2	85	35	15	27	9.2	16	13
16	33	14	47	18	6.6	83	31	60	24	9.1	14	11
17	21	43	34	18	7.3	86	28	52	22	8.5	17	10
18	12	33	27	15	9.7	84	26	65	26	8.5	13	11
19	9.9	24	24	15	9.2	64	28	52	25	8.6	12	44
20	8.7	20	36	14	9.6	169	24	42	28	8.0	11	27
21	7.5	18	27	13	9.3	143	24	39	25	7.8	11	21
22	7.0	24	24	11	28	81	31	32	22	9.9	10	19
23	6.8	19	22	11	107	60	24	30	19	10	9.7	88
24	6.5	16	20	11	58	49	23	53	17	9.2	9.1	37
25	6.9	15	21	11	36	42	22	41	16	7.9	8.8	28
26	19	14	18	11	26	39	23	38	15	7.6	9.9	24
27	10	14	17	10	21	35	21	36	14	7.5	11	24
28	8.6	13	16	9.7	19	30	19	34	13	7.5	9.3	44
29	10	12	16	9.6	---	30	18	31	13	7.4	8.7	25
30	28	12	15	9.6	---	34	17	26	12	7.1	12	22
31	27	---	17	9.6	---	34	---	26	---	7.2	9.8	---
TOTAL	302.5	511	731.2	827.5	515.0	1773	947	910	1162	310.5	546.2	779.7
MEAN	9.76	17.0	23.6	26.7	18.4	57.2	31.6	29.4	38.7	10.0	17.6	26.0
MAX	33	43	83	89	107	169	55	65	147	24	111	100
MIN	2.4	10	7.9	9.6	6.6	16	17	14	12	7.1	7.7	9.7
CFSM	0.65	1.14	1.57	1.78	1.23	3.81	2.10	1.96	2.58	0.67	1.17	1.73
IN.	0.75	1.27	1.81	2.05	1.28	4.40	2.35	2.26	2.88	0.77	1.35	1.93

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2003, BY WATER YEAR (WY)

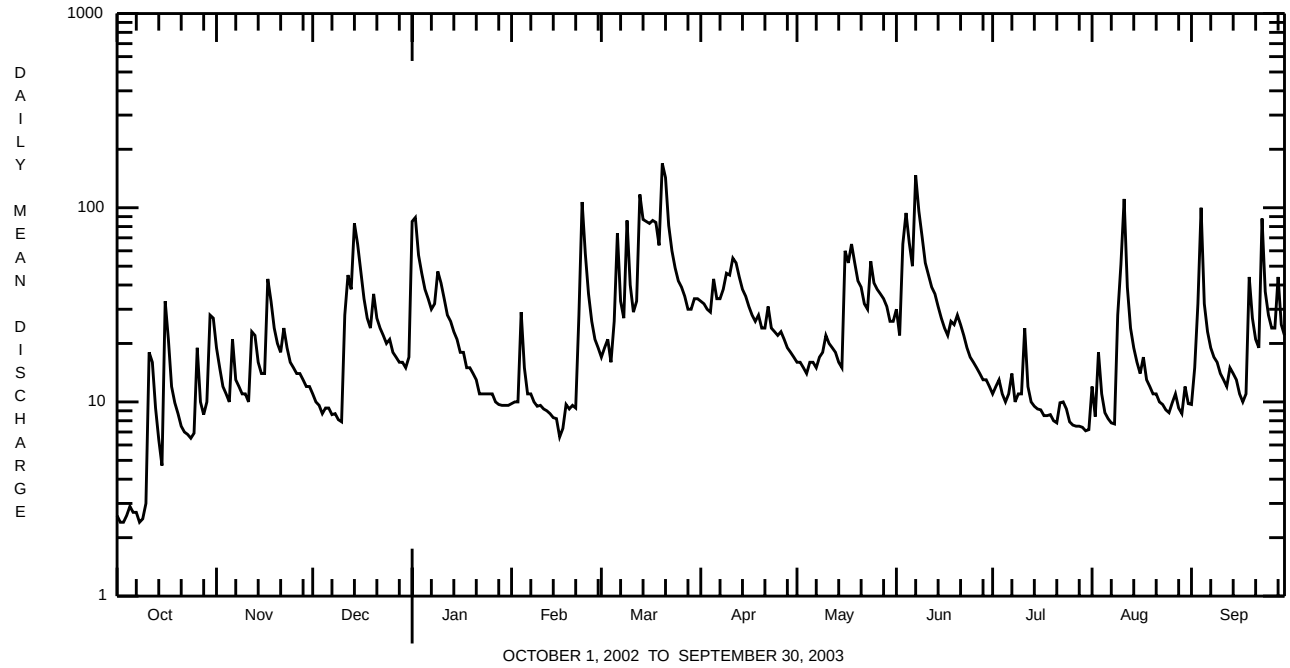
MEAN	10.7	15.2	19.0	19.1	27.5	39.5	32.7	23.3	17.8	11.4	7.02	8.28
MAX	48.6	61.9	66.8	80.9	91.0	135	122	81.2	172	112	32.3	55.9
(WY)	1977	1957	1997	1996	1984	1994	1993	1978	1972	1989	1955	1996
MIN	2.07	2.96	2.70	3.51	3.96	9.77	9.59	6.79	4.12	2.62	2.28	2.38
(WY)	1964	1966	1966	1981	2002	1990	2002	1969	1965	1966	1966	1963

SHERMAN CREEK BASIN

01567500 BIXLER RUN NEAR LOYSVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1954 - 2003	
ANNUAL TOTAL	3533.6		9315.6			
ANNUAL MEAN	9.68		25.5		19.3	
HIGHEST ANNUAL MEAN					42.6	1972
LOWEST ANNUAL MEAN					6.67	2002
HIGHEST DAILY MEAN	121	May 18	169	Mar 20	2120	Jun 22 1972
LOWEST DAILY MEAN	1.6	Sep 8-10	2.4	Oct 2,3,8	1.6	Jul 21 1999
ANNUAL SEVEN-DAY MINIMUM	1.7	Sep 5	2.6	Oct 2	1.7	Sep 5 2002
MAXIMUM PEAK FLOW			524	Aug 11	**a**7100	Jun 20 1989
MAXIMUM PEAK STAGE			6.59	Aug 11	**b**12.90	Jun 20 1989
INSTANTANEOUS LOW FLOW			2.4	Oct 2-4,7-9	1.5	Feb 2 1959
ANNUAL RUNOFF (CFSM)	0.65		1.70		1.29	
ANNUAL RUNOFF (INCHES)	8.76		23.10		17.51	
10 PERCENT EXCEEDS	21		52		39	
50 PERCENT EXCEEDS	5.5		18		9.6	
90 PERCENT EXCEEDS	2.5		8.5		3.6	

a From rating curve extended above 2,700 ft^3/s on basis of contracted-opening and flow-over-road measurement of peak flow.
b From outside floodmark; 12.19 ft in gage well.



SHERMAN CREEK BASIN

01568000 SHERMAN CREEK AT SHERMANS DALE, PA

LOCATION.--Lat 40°19'24", long 77°10'09", Perry County, Hydrologic Unit 02050305, on left bank on downstream side of bridge on State Highway 34 at Shermans Dale, and 1.2 mi upstream from Fishing Run.

DRAINAGE AREA.--207 mi^2.

PERIOD OF RECORD.--October 1929 to current year. Prior to October 1962, published as "*at Shermandale*".

REVISED RECORDS.--WSP 1302: 1930(M). WSP 1502: 1933, 1934(M), 1935-36. WDR PA-97-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 422.63 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 29, 1930, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 22, 1927, reached a stage of 20.34 ft, from floodmark, discharge, about 44,000 ft^3/s.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Jan. 2	0515	3,380	6.64	June 7	2100	3,850	7.08
Mar. 21	0200	*6,190	*8.98	Sept. 23	1115	3,210	6.47

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	455	174	787	e140	243	566	253	478	147	86	96
2	27	323	153	2620	e145	255	549	257	415	136	109	124
3	25	244	141	1280	e150	e240	501	226	449	210	80	177
4	25	199	123	930	e200	e250	461	207	2070	145	133	893
5	27	170	e115	716	e250	262	603	210	1220	124	81	358
6	25	305	e110	611	e150	812	547	267	848	118	75	214
7	22	271	e115	530	e110	603	485	231	1960	188	70	158
8	20	205	e105	508	e105	402	521	257	2200	143	63	130
9	19	179	e100	709	e110	863	688	330	1300	112	80	124
10	21	165	e115	748	e115	804	776	442	900	115	358	109
11	245	158	e190	547	e105	449	945	509	703	211	665	97
12	407	221	e680	438	e105	387	1030	448	593	160	883	90
13	243	507	732	e350	e100	783	782	390	544	111	279	112
14	147	322	1250	e300	e105	1120	630	331	511	97	192	179
15	100	258	1300	e250	e100	1020	547	285	527	89	150	136
16	506	226	892	e210	e100	1210	487	1120	378	90	136	126
17	717	717	616	e170	e105	1630	437	1700	326	85	230	98
18	293	831	456	e140	e110	1960	398	1170	359	81	181	90
19	185	532	379	e150	e125	1650	433	983	410	86	128	762
20	142	414	601	e155	e135	2460	387	742	744	82	110	908
21	112	348	613	e140	e130	4220	375	659	729	74	102	399
22	94	429	479	e125	e140	1960	623	558	585	81	95	312
23	85	404	410	e115	e800	1330	505	485	446	129	92	2220
24	78	307	348	e125	1000	1020	431	1030	347	142	84	864
25	77	265	351	e130	556	823	390	912	288	94	78	540
26	342	234	314	e140	425	739	390	831	249	74	83	422
27	271	229	263	e125	325	684	362	747	221	69	144	350
28	174	213	238	e120	273	554	306	796	198	65	111	600
29	158	191	227	e125	---	527	287	637	179	63	88	394
30	466	187	218	e130	---	603	266	505	162	59	90	298
31	657	---	215	e135	---	624	---	441	---	57	112	---
TOTAL	5742	9509	12023	13559	6214	30487	15708	17959	20339	3437	5168	11380
MEAN	185	317	388	437	222	983	524	579	678	111	167	379
MAX	717	831	1300	2620	1000	4220	1030	1700	2200	211	883	2220
MIN	19	158	100	115	100	240	266	207	162	57	63	90
CFSM	0.89	1.53	1.87	2.11	1.07	4.75	2.53	2.80	3.28	0.54	0.81	1.83
IN.	1.03	1.71	2.16	2.44	1.12	5.48	2.82	3.23	3.66	0.62	0.93	2.05

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2003, BY WATER YEAR (WY)

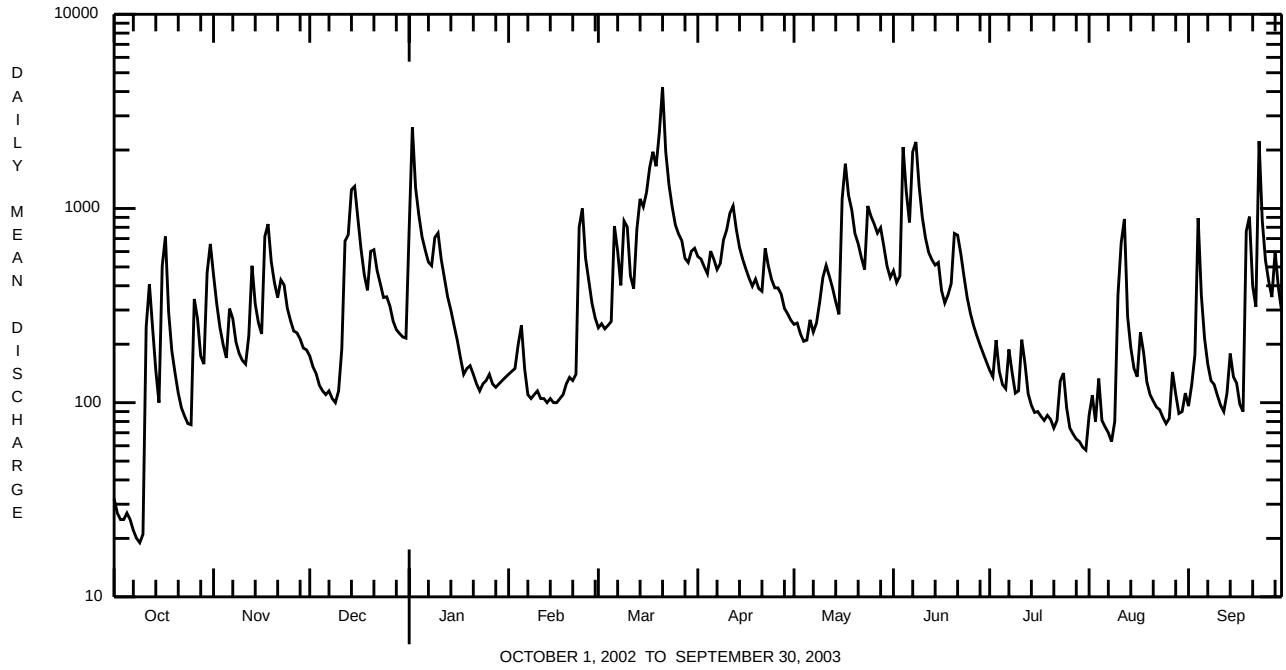
MEAN	144	246	309	320	399	610	541	394	215	116	98.3	103
MAX	905	924	968	1144	1253	1941	1675	1196	1969	1187	777	954
(WY)	1977	1971	1997	1996	1984	1936	1993	1978	1972	1989	1933	1996
MIN	18.5	22.1	22.7	22.0	54.2	133	161	88.8	48.4	18.9	14.4	18.6
(WY)	1964	1931	1931	1981	1931	1931	1997	1941	1965	1966	2002	1930

e Estimated.

01568000 SHERMAN CREEK AT SHERMANS DALE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1930 - 2003	
ANNUAL TOTAL	65579.9		151525			
ANNUAL MEAN	180		415		291	
HIGHEST ANNUAL MEAN					544	1972
LOWEST ANNUAL MEAN					114	2002
HIGHEST DAILY MEAN	2050	May 18	4220	Mar 21	18300	Jun 23 1972
LOWEST DAILY MEAN	9.9	Aug 15	19	Oct 9	9.9	Aug 15 2002
ANNUAL SEVEN-DAY MINIMUM	10	Aug 14	23	Oct 4	10	Aug 14 2002
MAXIMUM PEAK FLOW			6190	Mar 21	**a**27500	Jun 23 1972
MAXIMUM PEAK STAGE			8.98	Mar 21	18.09	Jun 23 1972
INSTANTANEOUS LOW FLOW			19	Oct 8-10	3.9	Dec 1 1930
ANNUAL RUNOFF (CFSM)	0.87		2.01		1.40	
ANNUAL RUNOFF (INCHES)	11.79		27.23		19.08	
10 PERCENT EXCEEDS	416		872		651	
50 PERCENT EXCEEDS	100		262		141	
90 PERCENT EXCEEDS	18		89		31	

a From rating curve extended above 18,000 ft^3/s.



CONODOGUINET CREEK BASIN

01569800 LETORT SPRING RUN NEAR CARLISLE, PA

LOCATION.--Lat 40°14'05", long 77°08'23", Cumberland County, Hydrologic Unit 02050305, on right bank 320 ft downstream from bridge on U.S. Highway 11, 0.2 mi upstream from mouth, 3.1 mi west of New Kingstown, and 3.7 mi east of Carlisle.

DRAINAGE AREA.--21.6 mi^2.

PERIOD OF RECORD.--June 1976 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 402.05 ft above North American Vertical Datum of 1988.

REMARKS.--No estimated daily discharges. Records fair. Several measurements of water temperature were made during the year. Satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1936 reached a stage of 8.8 ft, discharge not determined, and flood in June 1972 reached a stage of 8.4 ft, from information by local resident, discharge not determined.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 180 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 20	2000	*214	*4.79	June 7	1600	212	4.78

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	38	30	70	37	44	70	59	65	65	61	47
2	19	35	30	77	36	49	68	54	61	63	49	52
3	18	33	29	75	35	53	66	51	78	63	48	50
4	19	31	29	70	39	51	65	50	87	61	53	75
5	18	31	29	65	36	51	67	55	80	63	49	56
6	17	35	28	63	35	75	62	51	74	60	47	52
7	17	30	28	59	35	71	66	50	131	61	45	50
8	16	29	27	59	34	66	65	58	111	58	45	48
9	17	27	27	58	34	71	69	59	98	56	60	47
10	21	27	26	58	34	74	67	60	89	56	47	45
11	52	28	48	56	33	68	74	57	86	56	96	44
12	38	37	47	54	33	64	71	54	86	54	72	44
13	31	33	48	53	32	68	69	53	84	53	62	53
14	28	31	64	51	31	73	67	51	83	51	57	53
15	26	30	60	49	31	76	66	50	80	50	54	47
16	58	32	55	49	31	82	64	72	76	52	62	46
17	41	48	51	48	32	88	64	61	74	50	82	45
18	36	46	48	47	30	87	64	64	75	50	62	47
19	33	43	46	45	30	83	64	58	78	49	58	93
20	30	40	57	43	31	134	60	57	119	48	55	61
21	28	41	47	42	33	136	64	57	104	53	53	56
22	26	41	45	42	56	107	69	54	94	65	50	55
23	24	38	44	40	66	95	61	53	85	81	48	99
24	23	36	42	40	60	88	58	74	81	70	47	62
25	24	36	44	40	55	83	57	61	77	59	46	57
26	39	34	43	40	51	85	63	72	75	55	61	55
27	27	35	42	37	48	78	57	78	72	53	57	54
28	25	34	41	36	46	74	55	78	70	51	49	65
29	32	32	41	37	---	75	55	72	68	49	47	52
30	42	31	40	36	---	78	53	68	67	47	56	50
31	42	---	40	35	---	73	---	71	---	47	50	---
TOTAL	886	1042	1276	1574	1084	2400	1920	1862	2508	1749	1728	1660
MEAN	28.6	34.7	41.2	50.8	38.7	77.4	64.0	60.1	83.6	56.4	55.7	55.3
MAX	58	48	64	77	66	136	74	78	131	81	96	99
MIN	16	27	26	35	30	44	53	50	61	47	45	44
CFSM	1.32	1.61	1.91	2.35	1.79	3.58	2.96	2.78	3.87	2.61	2.58	2.56
IN.	1.53	1.79	2.20	2.71	1.87	4.13	3.31	3.21	4.32	3.01	2.98	2.86

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 2003, BY WATER YEAR (WY)

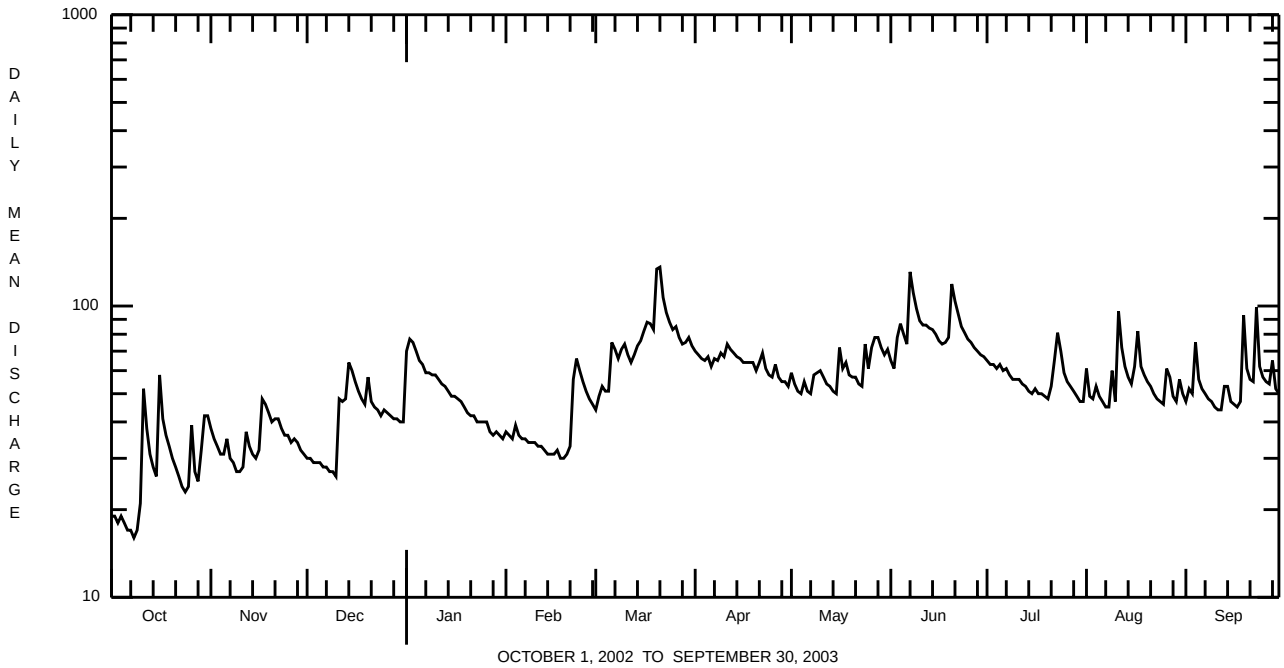
MEAN	34.0	34.7	40.4	43.4	47.8	58.1	60.0	51.4	44.9	39.0	34.2	33.7
MAX	79.6	62.2	94.5	92.0	93.9	123	126	90.9	83.6	68.3	55.7	68.4
(WY)	1977	1997	1997	1979	1998	1994	1993	1998	2003	1996	2003	1996
MIN	16.5	17.0	18.0	17.6	16.6	21.9	23.0	27.8	21.2	16.4	14.9	16.6
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002

CONODOGUINET CREEK BASIN

01569800 LETORT SPRING RUN NEAR CARLISLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1976 - 2003	
ANNUAL TOTAL	8550.8		19689			
ANNUAL MEAN	23.4		53.9		43.4	
HIGHEST ANNUAL MEAN					62.4	1998
LOWEST ANNUAL MEAN					19.0	2002
HIGHEST DAILY MEAN	69	May 18	136	Mar 21	452	Jan 24 1979
LOWEST DAILY MEAN	9.8	Sep 13	16	Oct 8	9.8	Sep 13 2002
ANNUAL SEVEN-DAY MINIMUM	11	Sep 8	17	Oct 3	11	Sep 8 2002
MAXIMUM PEAK FLOW			214	Mar 20	**a**1400	Jan 24 1979
MAXIMUM PEAK STAGE			4.79	Mar 20	6.53	Jan 24 1979
INSTANTANEOUS LOW FLOW			15	Oct 8-10	0.00	Aug 15 1976**b**
ANNUAL RUNOFF (CFSM)	1.08		2.50		2.01	
ANNUAL RUNOFF (INCHES)	14.73		33.91		27.30	
10 PERCENT EXCEEDS	40		78		70	
50 PERCENT EXCEEDS	20		53		38	
90 PERCENT EXCEEDS	14		30		23	

a From rating curve extended above 680 ft^3/s on basis of slope-area measurement at gage height 6.43 ft.
b Part of day.



CONODOGUINET CREEK BASIN

01570000 CONODOGUINET CREEK NEAR HOGESTOWN, PA

LOCATION.--Lat 40°15'08", long 77°01'17", Cumberland County, Hydrologic Unit 02050305, on left bank 1,000 ft upstream from highway bridge on Township Route 596 (Sample Bridge Road), 0.4 mi downstream from Hogestown Run, and 1.0 mi northeast of Hogestown.

DRAINAGE AREA.--470 mi^2.

PERIOD OF RECORD.--October 1911 to September 1917, October 1929 to September 1958, July 1967 to current year. October 1917 to December 1919 (gage heights and discharge measurements only), in reports of Water Supply Commission of Pennsylvania. Published as "*at Brysons Bridge*" 1912-17.

REVISED RECORDS.--WSP 1722: 1913, 1917.

GAGE.--Water-stage recorder. Datum of gage is 351.00 ft above National Geodetic Vertical Datum of 1929. Prior to December 1919, nonrecording gage at site 2 mi downstream at different datum. Oct. 1, 1929, to Aug. 3, 1931, nonrecording gage at site 1,000 ft downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Since June 1969 the Pennsylvania American Water Co. has diverted water upstream from station for municipal supply. Diversion for the year was equivalent to a mean daily discharge of 8.7 ft^3/s. Satellite and landline telemetry at station.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)
Jan. 3	0815	6,000	8.00
Mar. 22	0030	*6,590	*8.37
May 17	1630	4,550	6.92
June 5	1245	5,710	7.79
June 8	1745	5,930	7.95

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	177	1450	377	985	319	619	1190	578	1140	438	278	276
2	141	975	341	3900	321	616	1140	783	998	415	319	352
3	122	704	311	4860	323	863	1080	626	887	433	336	523
4	164	537	272	2430	363	817	984	549	3420	414	300	579
5	125	441	257	1820	463	722	1060	513	5110	385	285	1170
6	111	533	e240	1490	408	1330	1250	597	2570	374	263	632
7	101	766	e230	1290	348	2280	1090	613	2830	373	249	465
8	88	621	e220	1140	332	1400	1150	602	5600	511	241	384
9	82	501	e210	1270	296	1400	1430	790	3940	390	281	338
10	89	424	e205	1380	286	2390	2110	987	2380	364	305	307
11	449	392	e280	1230	297	1500	1930	1200	1780	377	460	281
12	1190	420	1530	1020	274	1160	1890	1120	1450	383	607	264
13	1130	906	1920	872	247	1180	1560	943	1280	339	555	271
14	765	1060	2360	796	e230	2020	1300	821	1180	311	384	313
15	525	794	2750	716	e260	2040	1130	700	1080	294	324	293
16	777	621	2020	614	e250	2340	1020	931	878	294	302	297
17	2150	895	1460	e570	e190	2680	928	4050	772	288	415	271
18	1370	1650	1110	e500	e280	2660	852	2490	734	276	388	251
19	816	1340	922	e470	e350	2250	838	2160	761	272	340	495
20	564	1020	1060	e470	e360	2470	844	1650	1190	284	298	802
21	422	838	1410	e450	e340	5810	775	1370	1520	273	275	749
22	327	868	1160	e400	e450	5070	1110	1200	1220	289	263	534
23	271	995	991	e370	1460	2590	1270	1020	998	352	254	1160
24	233	858	864	e350	2310	1970	988	1370	823	534	242	2050
25	215	709	824	e355	1460	1620	860	2060	712	361	232	1100
26	491	596	805	e360	1020	1410	834	1680	632	310	245	814
27	835	544	703	e330	835	1360	796	1490	574	283	304	670
28	613	508	622	e325	708	1170	696	1810	529	270	276	827
29	469	444	587	e330	---	1050	633	1560	493	259	261	1230
30	821	404	581	321	---	1110	605	1250	463	248	271	787
31	1690	---	578	312	---	1300	---	1080	---	241	281	---
TOTAL	17323	22814	27200	31726	14780	57197	33343	38593	47944	10635	9834	18485
MEAN	559	760	877	1023	528	1845	1111	1245	1598	343	317	616
MAX	2150	1650	2750	4860	2310	5810	2110	4050	5600	534	607	2050
MIN	82	392	205	312	190	616	605	513	463	241	232	251
CFSM	1.19	1.62	1.87	2.18	1.12	3.93	2.36	2.65	3.40	0.73	0.67	1.31
IN.	1.37	1.81	2.15	2.51	1.17	4.53	2.64	3.05	3.79	0.84	0.78	1.46

STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF DAILY RECORD, BY WATER YEAR (WY)

MEAN	351	475	639	699	793	1084	935	687	498	323	295	307
MAX	1838	1436	1940	1850	2257	3463	2693	1753	3120	1184	1584	1684
(WY)	1977	1971	1997	1996	1984	1994	1993	1998	1972	1989	1915	1996
MIN	55.1	53.4	57.3	83.5	133	287	268	194	148	77.0	60.0	68.0
(WY)	1931	1931	1931	1931	2002	1931	1915	1941	1991	2002	2002	1932

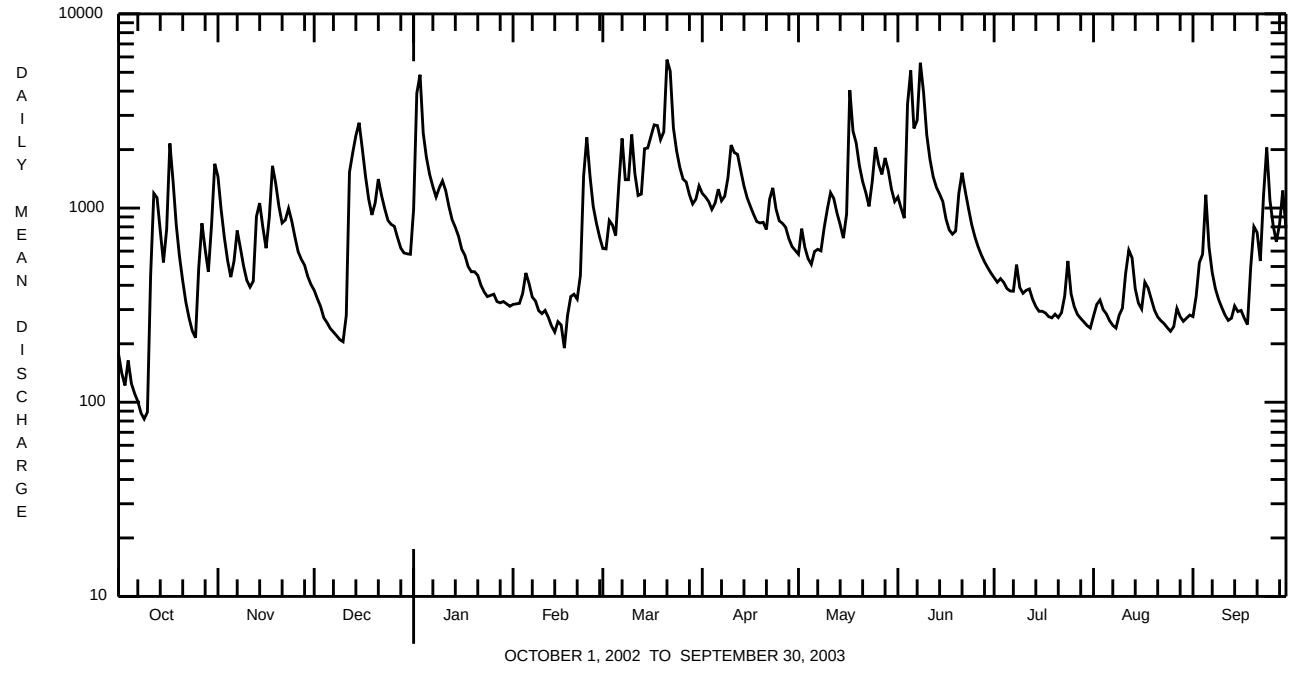
e Estimated.

CONODOGUINET CREEK BASIN

01570000 CONODOGUINET CREEK NEAR HOGESTOWN, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	137362		329874			
ANNUAL MEAN	376		904		590	
HIGHEST ANNUAL MEAN					1045	1972
LOWEST ANNUAL MEAN					212	2002
HIGHEST DAILY MEAN	2750	Dec 15	5810	Mar 21	24500	Jun 23 1972
LOWEST DAILY MEAN	38	Sep 13	82	Oct 9	26	Dec 23 1930
ANNUAL SEVEN-DAY MINIMUM	43	Sep 9	109	Oct 4	27	Dec 19 1930
MAXIMUM PEAK FLOW			6590	Mar 22	**a**33700	Jun 23 1972
MAXIMUM PEAK STAGE			8.37	Mar 22	**b**17.01	Jun 23 1972
INSTANTANEOUS LOW FLOW			76	Oct 9	24	Dec 16 1930
ANNUAL RUNOFF (CFSM)	0.80		1.92		1.25	
ANNUAL RUNOFF (INCHES)	10.87		26.11		17.05	
10 PERCENT EXCEEDS	879		1900		1260	
50 PERCENT EXCEEDS	210		632		344	
90 PERCENT EXCEEDS	59		264		117	

a From rating curve extended above 27,100 ft^3/s.
b From floodmark in gage.



SUSQUEHANNA RIVER BASIN

01570500 SUSQUEHANNA RIVER AT HARRISBURG, PA

LOCATION.--Lat 40°15'17", long 76°53'11", Dauphin County, Hydrologic Unit 02050305, on east bank of City Island, 60 ft downstream from Market Street bridge in Harrisburg, 3,670 ft upstream from sanitary dam, and 1.7 mi upstream from Paxton Creek.

DRAINAGE AREA.--24,100 mi^2.

PERIOD OF RECORD.--October 1890 to current year.

REVISED RECORDS.--WSP 711: 1929. WSP 1502: 1891-1923, 1926(M), 1928. WSP 1702: 1953 (total runoff in inches), 1958 (1957 calendar year mean discharge).

GAGE.--Water-stage recorder. Concrete control since Aug. 29, 1916. Datum of gage is 290.01 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1928, nonrecording gage at Walnut Street Bridge 600 ft upstream, and Oct. 1, 1928, to Aug. 31, 1975, water-stage recorder at site 3,170 ft downstream, all gages at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow slightly regulated by 15 flood-control reservoirs which have a combined capacity of 1,571,000 acre-ft. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known during period 1786 to 1890, 26.8 ft at Walnut Street bridge, June 2, 1889, discharge, 654,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15500	33700	32800	35600	e16200	e43500	89700	31500	45400	25500	28000	14600
2	15300	30100	30400	69000	e17100	e40500	86200	30000	90000	22800	25900	19000
3	14600	26500	28200	137000	e16000	e43900	83400	28000	130000	20600	50900	32000
4	12200	23800	e25700	146000	e17700	e41800	85500	32400	118000	18700	62000	63600
5	10100	21200	e23200	113000	e20400	e35900	85200	32100	122000	16800	61800	101000
6	8830	20200	e21100	86300	e22200	e41100	87800	31500	101000	15700	75700	97900
7	7890	20800	e19200	68800	e23000	e48400	125000	30000	88800	15000	66400	75300
8	7120	21500	e18000	59800	e24500	e41700	126000	29100	95400	15000	55300	56000
9	6770	21800	e17600	56000	e25500	e44700	105000	30400	90600	14200	46600	44200
10	6650	21200	e17600	56200	e25400	e54100	92300	32200	77900	13800	49200	34500
11	7990	21200	e18000	55600	e25900	e53900	87600	35200	63500	13900	58100	29600
12	12000	21800	e21900	e52300	e22400	e46500	99400	38500	56700	17900	96300	25300
13	48500	25300	e34300	e47500	e21500	e47800	101000	38800	53800	19500	89600	22200
14	48800	30800	43300	e40900	e19300	e57700	90300	38800	50100	19100	66800	21200
15	30000	30600	62600	e36800	e18100	60800	78200	35900	51300	16200	55700	19900
16	22800	28800	73300	e30900	e18200	65900	67400	37000	51000	14600	43800	18900
17	35800	30000	74800	e29700	e15100	76500	60600	48500	48100	13100	39000	21500
18	55900	43400	64100	e23200	e13700	113000	54800	53300	42600	12000	39600	25100
19	48600	62700	54200	e22000	e12300	179000	50600	51400	39300	11600	32300	26400
20	39100	71600	47500	e21700	e11400	209000	46400	48500	39300	11400	27100	37000
21	34700	63000	49500	e19200	e17200	245000	42600	41900	44700	10700	23400	42900
22	28500	54400	66300	e19000	e22600	266000	40400	37400	102000	11600	20300	38300
23	24000	51300	80500	e18300	e35900	240000	38800	36200	137000	18700	18100	51900
24	21400	51200	72100	e16200	e46100	208000	36100	34600	111000	33200	16100	98000
25	18700	51700	61700	e15600	e53500	184000	34000	42400	79400	61400	14900	91200
26	17800	51400	55200	e15400	e49900	161000	32800	44100	58900	56300	13500	74700
27	21100	48100	49900	e15900	e50100	138000	33200	45300	48200	51800	13200	62300
28	25500	43200	44400	e16800	e48000	121000	33700	51200	39000	39600	12600	54700
29	25800	38900	39500	e16200	---	107000	32400	51100	33200	39000	12400	68100
30	29100	35900	35600	e14900	---	95700	32500	49100	28800	43000	13800	79300
31	32300	---	34200	e16700	---	91500	---	45600	---	34500	15800	---
TOTAL	733350	1096100	1316700	1372500	709200	3202900	2058900	1212000	2137000	727200	1244200	1446600
MEAN	23660	36540	42470	44270	25330	103300	68630	39100	71230	23460	40140	48220
MAX	55900	71600	80500	146000	53500	266000	126000	53300	137000	61400	96300	101000
MIN	6650	20200	17600	14900	11400	35900	32400	28000	28800	10700	12400	14600
CFSM	0.98	1.52	1.76	1.84	1.05	4.29	2.85	1.62	2.96	0.97	1.67	2.00
IN.	1.13	1.69	2.03	2.12	1.09	4.94	3.18	1.87	3.30	1.12	1.92	2.23

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1891 - 2003, BY WATER YEAR (WY)

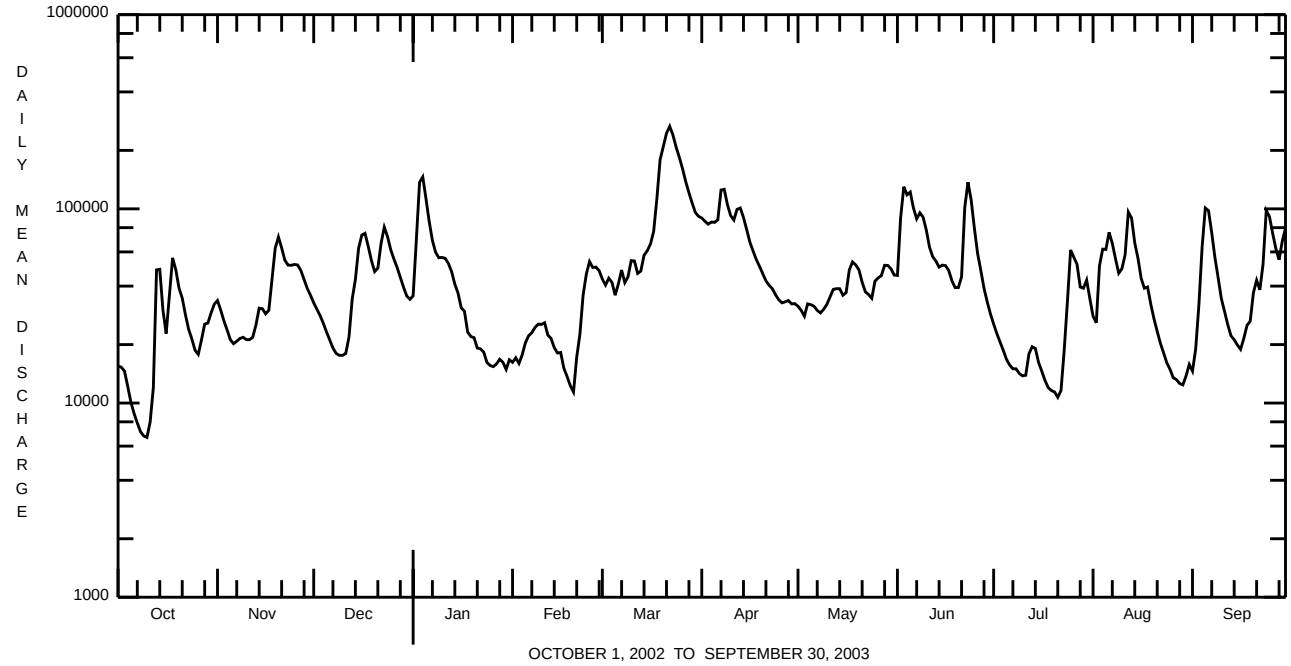
MEAN	17190	26280	34210	36760	40640	73980	72310	44860	26580	15240	11770	11760
MAX	75150	83540	98870	103100	153500	216100	217000	103900	166800	71450	44960	69050
(WY)	1977	1927	1997	1996	1891	1936	1993	1894	1972	1902	1994	1975
MIN	2356	2303	3835	3876	9122	27460	20380	12750	6226	3315	2878	2066
(WY)	1931	1931	1931	1931	1931	1960	1946	1941	1999	1965	1930	1964

e Estimated.

01570500 SUSQUEHANNA RIVER AT HARRISBURG, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1891 - 2003	
ANNUAL TOTAL	11421470		17256650			
ANNUAL MEAN	31290		47280		34250	
HIGHEST ANNUAL MEAN					53040	1972
LOWEST ANNUAL MEAN					16940	1965
HIGHEST DAILY MEAN	190000	May 15	266000	Mar 22	954000	Jun 24 1972
LOWEST DAILY MEAN	2420	Sep 14	6650	Oct 10	1700	Nov 29 1930
ANNUAL SEVEN-DAY MINIMUM	2670	Sep 9	7910	Oct 5	1790	Sep 17 1964
MAXIMUM PEAK FLOW			272000	Mar 22	1020000	Jun 24 1972
MAXIMUM PEAK STAGE			15.62	Mar 22	**a**32.57	Jun 24 1972
INSTANTANEOUS LOW FLOW			6460	Oct 10	**b**1600	Nov 29 1930
ANNUAL RUNOFF (CFSM)	1.30		1.96		1.42	
ANNUAL RUNOFF (INCHES)	17.63		26.64		19.31	
10 PERCENT EXCEEDS	63400		90800		78800	
50 PERCENT EXCEEDS	24400		38800		20200	
90 PERCENT EXCEEDS	4020		15500		5430	

a From floodmark.
b Result of freezeup. Minimum daily discharge since construction of sanitary dam and not affected by freezeup, 1,700 ft^3/s, Sept. 18, 1964.



YELLOW BREECHES CREEK BASIN

01571500 YELLOW BREECHES CREEK NEAR CAMP HILL, PA

LOCATION.--Lat 40°13'29", long 76°53'54", Cumberland County, Hydrologic Unit 02050305, on left bank 50 ft downstream from single-span highway bridge on Green Lane Drive, 150 ft downstream from Olmsted Mill dam, 1.0 mi southeast of Camp Hill, and 3.1 mi upstream from mouth.

DRAINAGE AREA.--216 mi^2.

PERIOD OF RECORD.--April 1909 to December 1919, July 1954 to current year. Prior to January 1910 monthly discharge only, published in WSP 1302. Prior to June 1954, published as "*at Olmsteds Mill*".

REVISED RECORDS.--WSP 1302: 1910, 1912-13, 1914(M), 1916.

GAGE.--Water-stage recorder. Datum of gage is 307.49 ft above National Geodetic Vertical Datum of 1929. March 1909 to December 1919, nonrecording gage at site 50 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. The Mechanicsburg Water Co. diverts water about 4 mi upstream from station for municipal supply. Diversion for the year was equivalent to a mean daily discharge of 3.6 ft^3/s. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 22, 1953, reached a stage of 9.4 ft, from floodmarks, discharge, about 3,940 ft^3/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 1,250 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Jan. 2	0215	1,360	4.42	June 7	2245	2,830	7.56
Mar. 17	2145	1,420	4.65	June 22	1415	2,070	5.98
Mar. 21	0430	2,910	7.71	Aug. 9	2015	1,660	5.06
May 28	1715	1,310	4.32	Sept. 19	0730	1,260	4.21
June 5	0600	1,710	5.19	Sept. 23	1345	*3,350	*8.43

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	238	182	543	205	272	587	320	711	361	216	218
2	94	195	173	1180	209	339	547	334	557	336	236	441
3	92	172	167	857	208	536	503	317	508	358	224	261
4	101	160	156	743	256	374	469	297	1230	323	254	339
5	91	154	162	604	254	341	515	291	1460	312	217	315
6	90	183	164	530	209	630	484	331	1070	306	232	238
7	89	183	155	483	209	775	450	315	1640	297	229	214
8	86	159	150	453	197	510	488	390	2210	290	205	204
9	85	147	155	503	180	581	605	582	1500	264	510	197
10	94	142	145	498	192	687	655	577	1090	265	333	186
11	224	146	238	423	184	511	703	535	880	279	278	180
12	268	180	562	369	177	456	752	476	777	254	374	175
13	178	270	449	341	170	483	628	433	785	235	256	210
14	141	208	706	326	175	723	567	393	691	225	224	294
15	123	178	629	311	175	736	526	361	608	220	209	227
16	201	171	498	283	157	1010	499	502	532	216	234	226
17	336	326	411	289	82	1260	464	959	483	213	494	198
18	205	511	347	257	156	1310	436	775	496	202	281	188
19	161	324	317	256	237	1110	463	709	497	212	230	646
20	145	265	498	262	230	1410	433	595	617	202	214	397
21	132	248	576	252	192	2590	407	539	911	223	205	290
22	125	300	437	225	341	1700	466	498	1600	384	200	260
23	119	279	394	200	749	1170	453	458	1040	552	194	2070
24	118	236	357	205	561	925	382	514	742	550	184	679
25	118	219	370	227	404	788	360	585	625	276	176	431
26	187	207	377	228	336	723	401	660	550	233	193	380
27	187	207	328	215	309	759	421	655	497	218	227	334
28	150	202	303	193	291	614	360	872	454	209	198	394
29	145	194	293	203	---	585	341	716	423	202	240	346
30	240	189	287	202	---	645	332	590	394	193	210	294
31	349	---	283	196	---	681	---	569	---	187	215	---
TOTAL	4771	6593	10269	11857	7045	25234	14697	16148	25578	8597	7692	10832
MEAN	154	220	331	382	252	814	490	521	853	277	248	361
MAX	349	511	706	1180	749	2590	752	959	2210	552	510	2070
MIN	85	142	145	193	82	272	332	291	394	187	176	175
CFSM	0.71	1.02	1.53	1.77	1.16	3.77	2.27	2.41	3.95	1.28	1.15	1.67
IN.	0.82	1.14	1.77	2.04	1.21	4.35	2.53	2.78	4.41	1.48	1.32	1.87

STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF DAILY RECORD, BY WATER YEAR (WY)

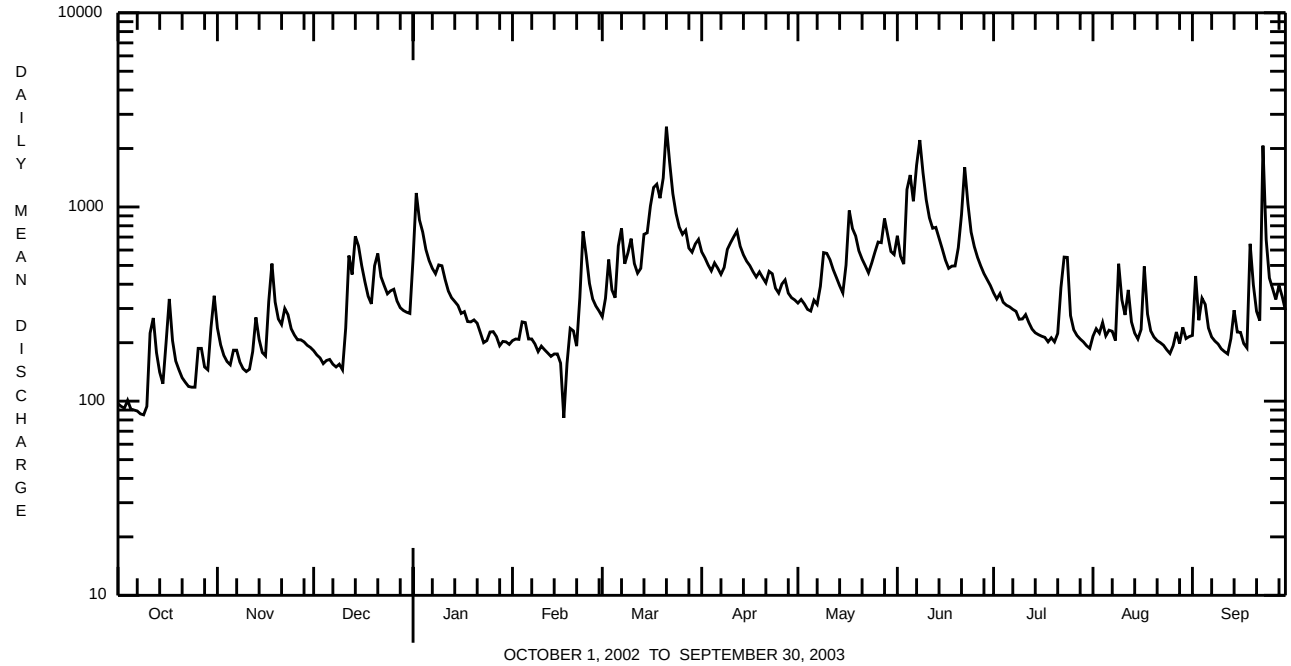
MEAN	185	209	268	302	375	495	467	367	292	202	183	188
MAX	620	419	824	815	964	1335	1353	809	1639	486	573	1012
(WY)	1977	1997	1997	1996	1998	1994	1993	1998	1972	1989	1915	1975
MIN	93.6	97.5	97.2	92.4	102	161	186	167	122	81.2	80.6	93.6
(WY)	2002	2002	1966	1981	2002	2002	2002	1969	1966	1966	1966	2002

YELLOW BREECHES CREEK BASIN

01571500 YELLOW BREECHES CREEK NEAR CAMP HILL, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	56987		149313			
ANNUAL MEAN	156		409		295	
HIGHEST ANNUAL MEAN					500	1972
LOWEST ANNUAL MEAN					122	2002
HIGHEST DAILY MEAN	706	Dec 14	2590	Mar 21	12400	Jun 22 1972
LOWEST DAILY MEAN	72	Sep 14	**a**82	Feb 17	67	Sep 13 1966
ANNUAL SEVEN-DAY MINIMUM	75	Sep 9	91	Oct 3	70	Sep 7 1966
MAXIMUM PEAK FLOW			3350	Sep 23	**b**19300	Sep 26 1975
MAXIMUM PEAK STAGE			8.43	Sep 23	**c**18.77	Sep 26 1975
INSTANTANEOUS LOW FLOW			**a**65	Feb 17	23	Sep 12 1966
ANNUAL RUNOFF (CFSM)	0.72		1.89		1.36	
ANNUAL RUNOFF (INCHES)	9.81		25.72		18.53	
10 PERCENT EXCEEDS	267		728		533	
50 PERCENT EXCEEDS	126		312		214	
90 PERCENT EXCEEDS	82		163		116	

a Result of freezeup.
b From rating curve extended above 16,000 ft^3/s.
c From floodmark.



SWATARA CREEK BASIN

0157155010 SWATARA CREEK, SITE C1, AT NEWTOWN, PA
(Swatara Creek Project)

LOCATION.--Lat 40°39'34", long 76°20'50", Schuylkill County, Hydrologic Unit 02050305, on left bank 500 ft upstream from bridge on U.S. Highway 209, 0.5 mi north of Newtown.

DRAINAGE AREA.--2.58 mi^2.

PERIOD OF RECORD.--August 1995 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1996 to current year.
pH: October 1996 to current year.
WATER TEMPERATURE: October 1996 to current year.

INSTRUMENTATION.--Water-quality monitor (in situ system).

REMARKS.--Specific conductance records rated fair except for periods Oct. 1-10, 19-24, Oct. 29 to Nov. 5, Mar. 10-19, Mar. 25 to Apr. 10, May 30 to June 7, June 23-26, Aug. 11-18, and Sept. 3-9, which are poor. pH records rated good. Water temperature records rated good. Interruptions in the record were due to malfunctions of the instrumentation. Analytical data from samples are used to determine effectiveness of various limestone treatment systems used to aid in the remediation efforts of acid mine drainage. Data collected prior to construction dates of upstream treatment, May 1997, are considered untreated water. Some values for "*dissolved*" parameters exceed values for the corresponding "*total*" parameter. These results are within the limits of analytical precision and methods. Other data for this project presented in tables on pages 436-482. Figure 8 shows the location of sites sampled as part of the Swatara Creek Project.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 414 microsiemens, Aug. 13, 1999; minimum, 16 microsiemens, Aug. 11, 2003.
pH: Maximum, 7.7, Mar. 21, 1997; minimum, 3.3, Jan. 1, 1997.
WATER TEMPERATURE: Maximum, 22.5°C, July 4, 2002; minimum, 0.0°C, many days during winters.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 247 microsiemens, Oct. 10; minimum, 16 microsiemens, Aug. 11.
pH: Maximum, 7.2, Sept. 15, 16; minimum, 4.6, Mar. 21, 22.
WATER TEMPERATURE: Maximum, 19.5°C, Aug. 4; minimum 0.0°C, many days during winter.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf µS/cm 25 degC (00095)
NOV										
21...	1030	1028	89203	7.41	495	5.00	11.5	5.4	5.2	141
FEB										
27...	1345	1028	89203	4.41	447	2.00	13.9	5.8	5.3	133
APR										
29...	1030	1028	89203	4.58	432	9.00	11.1	5.7	5.5	143
JUN										
26...	1130	1028	89203	9.57	478	8.00	10.0	5.0	5.0	140
AUG										
25...	1030	1028	89203	4.58	385	--	9.82	6.0	5.9	145

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV										
21...	7.60	7.20	7.20	6.90	6.80	1.00	.900	6.40	6.40	2.30
FEB										
27...	1.60	7.40	7.80	5.50	5.90	.800	.800	6.70	6.80	3.00
APR										
29...	9.80	7.90	8.00	5.50	6.20	.800	.800	8.40	6.30	2.30
JUN										
26...	15.0	7.30	6.00	6.20	6.20	.900	.800	7.30	6.60	1.80
AUG										
25...	14.8	9.30	9.70	6.70	7.00	.900	1.00	7.20	7.40	2.80

SWATARA CREEK BASIN

0157155010 SWATARA CREEK, SITE C1, AT NEWTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Mangan-ese, water, fltrd, µg/L (01056)	Mangan-ese, water, unfltrd recover-able, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)
NOV										
21...	800	1200	630	850	560	530	38.0	57.0	113	103
FEB										
27...	300	800	290	440	440	420	26.0	26.0	90.0	77.0
APR										
29...	300	900	580	720	440	430	24.0	31.0	84.0	86.0
JUN										
26...	700	1000	690	970	480	450	38.0	38.0	107	95.0
AUG										
25...	<100	800	260	690	480	510	35.0	37.0	87.0	81.0

SWATARA CREEK BASIN

0157155010 SWATARA CREEK, SITE C1, AT NEWTOWN, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	125	107	116	122	112	118	148	139	143	137	87	113
2	143	124	134	130	120	125	149	144	146	126	91	112
3	160	137	150	136	128	132	154	145	149	137	124	131
4	174	156	164	142	134	138	155	150	153	147	136	142
5	179	162	170	144	134	141	154	143	148	149	144	146
6	194	173	183	136	112	121	152	147	149	148	143	145
7	206	187	199	137	127	133	157	149	152	148	143	145
8	221	203	211	140	131	134	155	150	152	145	141	143
9	234	217	224	137	132	134	161	151	156	146	134	140
10	247	187	229	139	134	136	164	151	157	146	136	141
11	187	49	86	139	133	136	159	76	133	150	144	147
12	69	55	62	141	106	127	107	78	98	151	146	149
13	82	69	75	127	110	119	115	103	110	150	145	148
14	90	81	85	131	124	127	112	90	99	152	146	149
15	94	89	91	134	128	131	133	109	124	152	147	149
16	94	56	77	133	110	126	144	132	138	155	147	151
17	92	69	80	117	100	108	147	142	144	156	146	149
18	107	91	100	120	104	111	147	143	145	158	147	151
19	117	107	111	133	118	126	146	141	143	158	134	148
20	126	115	121	140	131	136	143	92	114	152	145	149
21	137	126	132	143	136	139	130	115	124	156	148	152
22	148	136	142	139	111	126	138	128	133	160	151	155
23	157	147	152	126	113	121	141	135	139	163	151	157
24	162	157	159	129	124	127	145	140	142	158	152	155
25	162	140	157	130	126	128	143	132	138	156	151	153
26	140	72	86	135	129	132	146	138	143	154	149	151
27	99	86	92	139	132	136	147	143	145	156	148	152
28	105	96	101	142	137	140	147	143	145	156	150	153
29	109	103	106	143	138	140	147	142	145	153	146	150
30	111	105	108	144	138	141	151	144	147	156	149	153
31	115	108	112	---	---	---	148	134	143	155	148	152
MONTH	247	49	130	144	100	130	164	76	139	163	87	146

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	153	147	150	140	136	137	106	101	104	147	139	144
2	153	148	150	138	110	124	108	103	106	143	123	137
3	155	150	152	142	114	128	114	108	111	143	129	137
4	152	110	130	149	131	139	118	113	116	148	142	144
5	144	119	131	139	124	135	119	114	116	147	143	145
6	155	138	146	138	120	126	125	117	121	147	143	145
7	146	141	144	154	136	145	127	122	125	149	131	145
8	162	142	150	155	147	151	130	125	128	138	119	130
9	169	140	151	156	146	151	134	128	131	141	136	139
10	150	142	146	172	153	163	136	123	129	145	138	141
11	156	143	148	180	170	175	130	88	110	144	137	142
12	156	144	149	180	175	177	137	111	125	145	140	142
13	157	147	151	178	149	169	144	135	141	145	141	143
14	155	147	150	185	156	177	146	142	144	147	143	145
15	154	148	150	189	161	178	149	143	145	148	143	146
16	159	151	155	188	133	165	147	141	144	147	133	144
17	158	144	149	154	105	133	149	145	147	138	127	133
18	146	141	143	128	113	119	148	142	145	141	135	138
19	148	143	145	141	124	134	145	141	143	144	138	141
20	147	142	145	135	50	112	146	142	144	147	141	144
21	148	140	145	122	95	111	145	137	142	146	134	139
22	143	95	120	119	90	99	140	135	138	148	141	145
23	109	95	99	93	87	89	145	138	142	150	143	148
24	128	109	119	91	88	89	150	142	146	143	95	113
25	131	124	128	92	89	90	151	147	149	126	111	120
26	134	128	131	93	81	89	149	118	133	125	97	107
27	136	130	133	93	84	89	143	127	136	130	110	118
28	138	132	135	97	92	95	149	141	144	139	114	130
29	---	---	---	97	80	91	146	140	143	147	121	137
30	---	---	---	95	86	92	147	141	144	154	145	149
31	---	---	---	102	95	98	---	---	---	156	86	142
MONTH	169	95	141	189	50	128	151	88	133	156	86	138

SWATARA CREEK BASIN

0157155010 SWATARA CREEK, SITE C1, AT NEWTOWN, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	108	62	90	153	142	148	99	72	89	152	101	136
2	123	108	117	157	144	150	85	60	73	124	104	116
3	124	100	118	157	146	152	86	63	81	124	75	100
4	113	99	107	162	147	156	74	31	61	110	78	95
5	119	111	115	---	---	---	83	56	70	132	108	122
6	124	118	121	167	160	163	62	53	58	140	130	134
7	123	93	111	170	116	153	83	60	66	143	136	138
8	124	109	118	---	---	---	96	83	93	145	138	141
9	131	123	126	---	---	---	96	81	90	149	142	144
10	136	130	133	---	---	---	100	73	84	152	142	147
11	137	134	135	---	---	---	90	16	47	155	146	150
12	135	117	127	---	---	---	48	27	39	155	148	153
13	133	117	127	---	---	---	64	48	56	156	132	148
14	141	133	136	---	---	---	79	64	71	137	101	120
15	145	139	142	---	---	---	92	79	85	137	79	129
16	148	143	145	---	---	---	104	92	98	120	73	101
17	149	145	147	---	---	---	119	104	110	131	119	125
18	146	102	117	---	---	---	131	118	125	136	130	132
19	138	120	128	---	---	---	134	125	129	133	84	100
20	137	53	114	---	---	---	138	130	133	116	100	108
21	102	51	75	---	---	---	141	133	136	123	115	119
22	111	98	104	---	---	---	143	125	136	127	105	124
23	123	110	116	---	---	---	144	124	134	108	48	77
24	133	122	127	62	39	50	151	141	144	132	104	122
25	140	131	135	78	61	68	155	145	149	132	128	130
26	148	139	142	86	77	79	156	147	151	129	125	127
27	146	138	142	87	81	84	153	147	149	126	123	125
28	150	140	144	84	71	77	161	149	152	125	115	120
29	148	140	145	94	82	87	162	129	157	127	121	123
30	149	142	145	97	91	93	147	123	129	126	123	125
31	---	---	---	98	94	96	152	127	139	---	---	---
MONTH	150	51	125	170	39	111	162	16	104	156	48	124
YEAR	247	16	130									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	6.8	6.7	6.8	6.0	5.9	5.9	5.6	5.5	5.6	5.9	5.5	5.7
2	6.7	6.7	6.7	5.9	5.8	5.9	5.7	5.6	5.6	5.5	5.4	5.5
3	6.7	6.6	6.7	5.8	5.8	5.8	5.8	5.6	5.7	5.4	5.3	5.3
4	6.7	6.6	6.7	5.8	5.7	5.8	5.8	5.8	5.8	5.3	5.3	5.3
5	6.7	6.6	6.6	5.8	5.7	5.8	5.8	5.8	5.8	5.4	5.3	5.4
6	6.6	6.6	6.6	5.9	5.5	5.6	5.9	5.8	5.8	5.5	5.4	5.4
7	6.6	6.6	6.6	5.7	5.6	5.6	6.0	5.9	5.9	5.5	5.5	5.5
8	6.6	6.6	6.6	5.7	5.7	5.7	6.0	5.9	6.0	5.5	5.5	5.5
9	6.6	6.6	6.6	5.7	5.6	5.7	6.1	6.0	6.0	5.6	5.4	5.5
10	7.0	6.6	6.6	5.7	5.6	5.6	6.1	5.9	6.0	5.6	5.5	5.6
11	7.0	5.3	5.9	5.6	5.6	5.6	6.2	5.6	6.1	5.7	5.6	5.6
12	5.8	5.4	5.6	6.0	5.6	5.7	5.6	5.5	5.5	5.7	5.6	5.7
13	5.9	5.8	5.9	5.6	5.5	5.5	5.7	5.5	5.5	5.7	5.6	5.7
14	5.8	5.7	5.8	5.5	5.5	5.5	5.8	5.3	5.5	5.7	5.7	5.7
15	5.8	5.8	5.8	5.5	5.5	5.5	5.3	5.2	5.2	5.7	5.7	5.7
16	6.3	5.3	5.8	5.5	5.5	5.5	5.2	5.2	5.2	5.8	5.7	5.7
17	5.4	5.3	5.4	5.5	5.4	5.5	5.3	5.2	5.2	5.8	5.7	5.7
18	5.4	5.4	5.4	5.6	5.4	5.5	5.4	5.3	5.3	5.8	5.7	5.7
19	5.5	5.4	5.5	5.5	5.4	5.4	5.4	5.4	5.4	5.8	5.7	5.8
20	5.6	5.5	5.5	5.4	5.3	5.4	6.2	5.2	5.4	5.8	5.8	5.8
21	5.7	5.6	5.6	5.4	5.4	5.4	5.3	5.3	5.3	5.9	5.8	5.8
22	5.8	5.7	5.8	5.6	5.4	5.4	5.3	5.3	5.3	5.9	5.7	5.8
23	5.9	5.8	5.8	5.5	5.4	5.4	5.4	5.3	5.4	5.9	5.7	5.8
24	6.1	5.9	6.1	5.5	5.4	5.5	5.5	5.4	5.5	5.9	5.8	5.9
25	6.1	6.1	6.1	5.5	5.4	5.4	5.5	5.5	5.5	5.9	5.9	5.9
26	6.4	5.6	5.6	5.5	5.4	5.5	5.6	5.5	5.5	5.9	5.8	5.9
27	6.0	5.7	5.8	5.5	5.5	5.5	5.6	5.6	5.6	5.9	5.8	5.9
28	6.0	5.9	6.0	5.6	5.5	5.5	5.6	5.6	5.6	5.9	5.9	5.9
29	6.1	6.0	6.1	5.6	5.5	5.5	5.7	5.6	5.6	5.9	5.9	5.9
30	6.2	6.0	6.1	5.6	5.5	5.5	5.7	5.7	5.7	5.9	5.8	5.9
31	6.2	6.0	6.1	---	---	---	5.7	5.7	5.7	5.9	5.9	5.9
MAX	7.0	6.7	6.8	6.0	5.9	5.9	6.2	6.0	6.1	5.9	5.9	5.9
MIN	5.4	5.3	5.4	5.4	5.3	5.4	5.2	5.2	5.2	5.3	5.3	5.3

SWATARA CREEK BASIN

0157155010 SWATARA CREEK, SITE C1, AT NEWTOWN, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	5.9	5.9	5.9	5.7	5.7	5.7	5.3	5.3	5.3	5.7	5.6	5.7
2	5.9	5.9	5.9	5.7	5.6	5.7	5.3	5.2	5.3	5.7	5.5	5.6
3	6.0	5.9	5.9	5.7	5.6	5.7	5.3	5.2	5.3	5.6	5.6	5.6
4	6.0	5.8	6.0	5.7	5.6	5.6	5.4	5.3	5.4	5.7	5.6	5.6
5	6.2	5.9	5.9	5.9	5.6	5.7	5.4	5.4	5.4	5.7	5.6	5.7
6	6.1	5.8	6.0	5.9	5.7	5.8	5.5	5.4	5.4	5.7	5.6	5.7
7	6.1	6.0	6.0	5.7	5.6	5.7	5.5	5.5	5.5	5.7	5.6	5.6
8	6.1	5.8	6.0	5.7	5.6	5.6	5.5	5.5	5.5	5.7	5.5	5.5
9	6.1	5.8	6.1	5.7	5.6	5.6	5.6	5.5	5.5	5.6	5.5	5.6
10	6.1	6.1	6.1	5.7	5.6	5.6	5.6	5.4	5.5	5.6	5.6	5.6
11	6.1	5.9	6.1	5.6	5.6	5.6	5.8	5.2	5.5	5.6	5.6	5.6
12	6.1	5.9	6.1	5.6	5.5	5.5	5.3	5.2	5.3	5.6	5.6	5.6
13	6.1	5.9	6.0	5.9	5.5	5.6	5.3	5.2	5.3	5.6	5.6	5.6
14	6.1	6.0	6.0	5.7	5.5	5.6	5.3	5.2	5.3	5.6	5.6	5.6
15	6.1	6.0	6.0	5.9	5.5	5.6	5.4	5.3	5.3	5.7	5.6	5.7
16	6.0	6.0	6.0	5.9	5.3	5.5	5.4	5.3	5.4	5.7	5.7	5.7
17	6.0	5.8	5.9	5.5	5.1	5.3	5.5	5.4	5.4	5.7	5.6	5.6
18	6.1	6.0	6.0	5.2	4.9	5.1	5.6	5.5	5.5	5.7	5.6	5.7
19	6.1	6.0	6.1	5.0	4.9	4.9	5.6	5.5	5.5	5.7	5.6	5.7
20	6.1	6.0	6.1	5.5	4.8	5.0	5.6	5.5	5.6	5.7	5.5	5.7
21	6.1	6.0	6.1	4.8	4.6	4.7	5.6	5.6	5.6	5.9	5.7	5.7
22	6.1	5.8	6.0	4.8	4.6	4.7	5.6	5.5	5.6	5.8	5.7	5.8
23	6.1	5.8	6.0	4.9	4.8	4.8	5.7	5.6	5.6	5.9	5.8	5.8
24	6.0	5.9	6.0	5.1	4.9	5.0	5.7	5.6	5.7	6.0	5.5	5.8
25	5.9	5.9	5.9	5.1	5.0	5.1	5.8	5.6	5.7	5.5	5.5	5.5
26	5.9	5.8	5.9	5.2	5.1	5.1	5.8	5.6	5.7	6.0	5.4	5.4
27	5.8	5.7	5.8	5.2	5.1	5.2	5.7	5.6	5.6	5.4	5.3	5.4
28	5.7	5.7	5.7	5.3	5.2	5.3	5.7	5.6	5.7	5.5	5.1	5.3
29	---	---	---	5.3	5.1	5.3	5.7	5.7	5.7	5.3	5.2	5.2
30	---	---	---	5.3	5.2	5.3	5.7	5.7	5.7	5.3	5.2	5.3
31	---	---	---	5.3	5.3	5.3	---	---	---	5.7	5.1	5.3
MAX	6.2	6.1	6.1	5.9	5.7	5.8	5.8	5.7	5.7	6.0	5.8	5.8
MIN	5.7	5.7	5.7	4.8	4.6	4.7	5.3	5.2	5.3	5.3	5.1	5.2

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	5.5	5.0	5.1	5.4	5.3	5.4	6.6	6.3	6.5	---	---	---
2	5.0	4.9	5.0	5.5	5.4	5.4	6.6	6.0	6.1	---	---	---
3	5.2	5.0	5.0	5.5	5.4	5.5	6.7	6.2	6.4	---	---	---
4	5.2	5.1	5.1	5.6	5.5	5.5	6.6	5.4	5.5	---	---	---
5	5.1	5.1	5.1	---	---	---	6.1	5.2	5.3	---	---	---
6	5.1	5.1	5.1	5.7	5.6	5.7	5.7	5.1	5.2	---	---	---
7	5.5	5.1	5.2	5.9	5.6	5.8	5.2	5.2	5.2	---	---	---
8	5.2	5.1	5.1	---	---	---	5.2	5.2	5.2	---	---	---
9	5.1	5.1	5.1	---	---	---	5.3	5.2	5.3	---	---	---
10	5.1	5.1	5.1	---	---	---	5.8	5.3	5.4	---	---	---
11	5.2	5.1	5.1	---	---	---	6.6	5.2	5.4	6.3	6.1	6.2
12	5.5	5.0	5.1	---	---	---	5.2	5.0	5.0	6.5	6.3	6.4
13	5.3	5.1	5.2	---	---	---	5.1	5.0	5.1	6.7	6.5	6.6
14	5.2	5.1	5.1	---	---	---	5.2	5.1	5.2	6.9	6.3	6.4
15	5.2	5.1	5.2	---	---	---	5.4	5.2	5.4	7.2	6.2	6.6
16	5.2	5.2	5.2	---	---	---	5.4	5.4	5.4	7.2	6.4	6.5
17	5.4	5.2	5.3	---	---	---	5.5	5.4	5.4	6.8	6.6	6.7
18	5.9	5.3	5.4	---	---	---	---	---	---	6.8	6.7	6.8
19	5.4	5.3	5.3	---	---	---	---	---	---	7.1	6.4	6.6
20	5.9	5.2	5.3	---	---	---	---	---	---	6.5	6.5	6.5
21	5.3	4.9	5.0	---	---	---	---	---	---	6.6	6.5	6.6
22	4.9	4.8	4.8	---	---	---	---	---	---	6.6	6.5	6.6
23	4.8	4.7	4.8	---	---	---	---	---	---	7.0	5.6	5.7
24	4.8	4.7	4.8	5.7	5.2	5.5	---	---	---	5.7	5.7	5.7
25	4.8	4.8	4.8	6.0	5.7	5.9	---	---	---	5.8	5.7	5.8
26	5.1	4.8	5.1	6.1	6.0	6.1	---	---	---	5.9	5.8	5.9
27	5.3	5.1	5.2	6.2	6.0	6.1	---	---	---	6.0	5.9	6.0
28	5.3	5.2	5.2	6.3	5.9	5.9	---	---	---	6.0	6.0	6.0
29	5.3	5.2	5.3	6.3	6.0	6.2	---	---	---	6.1	6.0	6.1
30	5.3	5.3	5.3	6.4	6.3	6.4	---	---	---	6.1	6.1	6.1
31	---	---	---	6.5	6.4	6.5	---	---	---	---	---	---
MAX	5.9	5.3	5.4	6.5	6.4	6.5	6.7	6.3	6.5	7.2	6.7	6.8
MIN	4.8	4.7	4.8	5.4	5.2	5.4	5.1	5.0	5.0	5.7	5.6	5.7

YEAR			
	MAX	MAXIMUM 7.2	MINIMUM 4.8
	MIN	MAXIMUM 6.7	MINIMUM 4.6
	MEDIAN	MAXIMUM 6.8	MINIMUM 4.7

SWATARA CREEK BASIN

0157155010 SWATARA CREEK, SITE C1, AT NEWTOWN, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	15.5	12.5	14.0	7.0	5.5	6.5	5.0	2.5	4.0	5.0	4.0	4.5
2	17.0	14.0	15.5	7.0	5.5	6.0	4.5	2.5	3.5	5.0	4.0	4.5
3	17.0	15.0	16.0	7.0	5.5	6.5	4.0	1.0	2.0	4.5	2.5	4.0
4	16.0	15.0	15.5	7.5	5.5	6.5	2.0	0.5	1.5	5.0	4.5	5.0
5	17.5	14.0	16.0	7.5	6.0	6.5	2.0	0.0	1.5	5.0	4.0	4.5
6	14.5	12.0	13.5	8.0	6.5	7.5	3.0	0.5	2.0	5.0	4.0	4.5
7	15.0	12.0	14.0	7.0	5.5	6.5	1.5	0.0	1.0	4.0	2.5	3.0
8	12.0	10.0	11.0	8.5	5.5	7.0	3.5	0.5	2.0	5.0	3.5	4.5
9	12.0	9.0	10.5	9.5	6.5	8.0	2.0	0.0	0.5	6.0	4.5	5.0
10	13.0	12.0	12.5	11.5	8.5	10.0	1.5	0.0	0.5	5.0	3.0	4.5
11	13.5	13.0	13.0	12.5	10.0	11.5	3.0	0.5	1.5	3.0	1.5	2.5
12	14.0	13.5	13.5	10.0	9.5	9.5	4.5	3.0	4.0	2.5	1.0	2.0
13	13.5	12.0	13.0	9.5	7.0	8.5	5.0	4.5	5.0	3.0	1.0	2.0
14	12.0	9.0	10.5	9.0	6.5	8.0	5.5	4.5	5.0	2.0	0.5	1.5
15	10.5	8.0	9.5	9.0	7.0	8.0	6.5	5.5	6.0	2.0	0.5	1.5
16	11.5	10.5	11.0	8.5	7.0	8.0	6.5	4.5	6.0	1.5	0.0	1.0
17	11.5	10.5	11.0	7.5	6.5	7.5	5.0	3.5	4.5	1.5	0.0	1.0
18	10.5	9.0	10.0	7.5	6.5	7.0	4.5	2.5	3.5	1.0	0.0	0.0
19	10.5	9.0	10.0	7.5	6.5	7.0	6.0	4.0	5.0	1.0	0.0	0.5
20	10.5	9.0	10.0	8.5	6.5	7.5	6.5	5.0	6.0	1.5	0.5	1.0
21	10.0	8.0	9.0	8.5	6.5	7.5	6.0	5.0	5.5	1.0	0.0	0.5
22	9.5	7.0	8.5	8.5	7.5	8.0	6.5	5.0	5.5	0.5	0.0	0.5
23	9.5	8.0	8.5	7.5	6.0	6.5	6.0	5.0	5.5	0.5	0.0	0.0
24	8.0	7.0	7.5	8.0	6.0	7.0	5.5	4.0	5.0	0.5	0.0	0.5
25	8.0	7.5	7.5	8.5	6.5	7.5	4.5	2.0	3.5	1.0	0.5	1.0
26	10.0	8.0	9.5	7.5	6.0	7.0	4.5	3.0	3.5	1.5	0.5	1.0
27	10.5	8.5	9.5	6.0	4.5	5.5	4.0	2.5	3.5	1.0	0.0	0.5
28	9.0	7.5	8.5	5.0	3.5	4.5	4.0	2.5	3.5	1.0	0.0	0.5
29	7.5	4.5	6.5	5.5	4.0	4.5	4.5	3.0	4.0	2.0	1.0	1.5
30	6.0	5.0	5.5	6.5	5.0	5.5	4.5	2.5	3.5	2.0	0.5	1.0
31	7.0	6.0	6.0	---	---	---	5.5	4.5	5.0	2.5	1.5	2.0
MONTH	17.5	4.5	10.9	12.5	3.5	7.2	6.5	0.0	3.6	6.0	0.0	2.1

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	2.5	2.0	2.0	3.0	2.0	2.5	5.5	3.5	5.0	14.0	10.0	11.5
2	3.5	2.0	2.5	3.5	2.5	3.0	10.0	5.0	7.5	14.5	11.5	12.5
3	4.0	1.5	2.5	2.5	0.0	0.5	10.0	7.0	8.5	13.5	9.5	11.0
4	3.0	1.5	2.5	2.0	0.0	1.0	8.0	6.5	7.5	12.5	9.0	10.0
5	1.5	0.0	1.0	4.5	2.0	3.0	7.0	6.0	6.5	9.5	8.0	8.5
6	1.0	0.0	0.5	3.0	0.5	2.0	7.5	5.0	6.0	11.0	8.0	9.5
7	2.5	0.0	1.0	2.0	0.0	1.0	5.5	2.5	4.0	15.0	9.5	12.0
8	1.0	0.0	0.5	4.0	0.5	2.5	5.0	4.0	4.5	13.5	11.5	12.0
9	1.0	0.0	0.5	5.0	1.0	3.0	5.5	4.5	5.0	12.0	11.0	11.5
10	1.0	0.5	1.0	2.5	0.5	1.5	7.5	5.0	6.0	13.0	10.5	11.5
11	1.0	0.0	0.5	2.5	0.0	1.5	6.5	5.5	6.0	13.5	11.5	12.5
12	1.0	0.0	0.5	4.5	2.0	3.0	9.0	6.5	7.5	13.0	10.0	11.5
13	0.5	0.0	0.0	5.0	2.5	3.5	9.0	6.5	7.5	10.5	9.5	10.0
14	1.0	0.0	0.5	4.0	1.5	2.5	9.5	6.0	8.0	11.0	9.0	10.0
15	1.0	0.0	0.5	6.0	2.5	3.5	12.0	7.5	9.5	10.5	8.0	9.5
16	0.0	0.0	0.0	7.0	3.5	4.5	13.0	8.5	10.5	10.5	9.5	10.0
17	0.0	0.0	0.0	6.5	4.0	5.0	10.0	6.5	8.0	10.0	9.0	9.5
18	0.0	0.0	0.0	6.5	4.5	5.5	7.0	6.0	6.5	11.5	9.0	10.0
19	1.0	0.0	0.5	6.5	5.0	5.5	10.5	7.0	8.5	13.0	7.5	10.0
20	2.0	0.5	1.0	5.5	3.0	4.5	11.0	6.5	8.5	13.0	8.5	11.0
21	2.5	0.0	1.0	7.5	4.0	6.0	9.5	8.0	9.0	11.5	10.5	11.0
22	1.5	0.5	1.0	8.0	6.5	7.0	11.5	8.0	9.5	11.5	10.0	10.5
23	1.5	0.5	1.0	8.0	6.0	7.0	9.5	6.5	7.5	11.0	10.0	10.5
24	1.5	0.0	1.0	8.5	6.0	7.0	10.5	5.0	7.5	11.5	10.5	11.0
25	2.0	0.0	1.0	9.5	6.0	8.0	11.5	6.0	8.5	11.5	11.0	11.0
26	1.5	0.0	0.5	9.0	6.5	7.5	10.0	9.5	9.5	11.5	10.5	11.5
27	1.5	0.5	1.0	9.0	6.0	7.5	12.5	8.5	10.0	11.5	10.5	10.5
28	3.0	1.5	2.0	8.5	6.5	7.5	13.5	7.0	10.5	11.5	10.0	10.5
29	---	---	---	9.5	8.0	8.5	12.5	9.0	10.5	12.5	10.0	11.5
30	---	---	---	8.0	4.5	6.0	13.0	8.0	10.5	13.0	11.0	12.0
31	---	---	---	6.0	4.0	5.0	---	---	---	13.0	11.0	11.5
MONTH	4.0	0.0	0.9	9.5	0.0	4.4	13.5	2.5	7.8	15.0	7.5	10.8

SWATARA CREEK BASIN

0157155010 SWATARA CREEK, SITE C1, AT NEWTOWN, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	13.0	10.0	11.0	16.0	13.0	14.5	17.0	15.5	16.0	16.0	15.0	15.5
2	11.5	9.5	10.5	16.0	13.5	14.5	18.5	16.5	17.5	16.5	15.0	16.0
3	10.5	10.0	10.5	17.0	14.5	15.5	18.5	17.5	17.5	16.5	15.0	15.5
4	10.5	10.5	10.5	18.0	14.5	16.0	19.5	17.0	18.0	16.5	15.5	16.5
5	12.0	10.5	11.0	---	---	---	17.5	16.0	16.5	15.5	13.5	15.0
6	12.0	10.5	11.0	18.5	15.5	17.0	17.0	15.5	16.5	15.0	12.5	14.0
7	12.0	10.5	11.5	18.5	16.0	17.0	15.5	14.5	15.0	15.5	12.5	14.0
8	11.5	11.0	11.0	---	---	---	16.0	14.5	15.0	15.5	13.5	14.5
9	12.5	11.0	12.0	---	---	---	16.0	15.0	15.0	15.5	13.5	14.5
10	13.5	10.5	12.0	---	---	---	17.0	15.5	16.0	15.0	12.0	13.5
11	13.5	12.0	12.5	---	---	---	19.0	16.0	17.5	15.5	12.5	14.0
12	14.5	12.5	13.0	---	---	---	16.0	15.0	15.5	14.5	14.0	14.0
13	14.5	13.0	14.0	---	---	---	16.0	14.5	15.0	15.5	14.0	14.5
14	15.0	13.0	14.0	---	---	---	16.5	14.5	15.5	17.5	15.5	16.5
15	15.0	13.0	14.0	---	---	---	16.5	15.0	15.5	17.0	15.5	16.0
16	14.5	11.5	13.0	---	---	---	16.5	15.0	16.0	17.0	14.0	15.5
17	13.5	11.0	12.5	---	---	---	17.0	15.5	16.0	15.5	12.5	14.0
18	13.0	12.0	12.5	---	---	---	16.5	14.5	15.5	15.0	13.0	14.0
19	14.5	12.5	13.5	---	---	---	16.5	14.0	15.0	16.5	15.0	16.0
20	14.0	13.0	13.5	---	---	---	17.0	14.0	15.5	16.5	14.0	15.5
21	13.5	12.0	12.5	---	---	---	18.0	15.0	16.5	15.0	13.0	14.0
22	12.5	11.5	12.0	---	---	---	18.5	16.0	17.0	16.0	14.5	15.0
23	14.0	12.0	12.5	---	---	---	17.5	14.5	16.0	17.0	13.5	15.5
24	14.0	12.0	13.0	18.0	16.0	17.0	16.0	13.0	14.5	14.0	12.5	13.5
25	15.0	12.5	13.5	17.5	15.0	16.0	17.0	13.5	15.5	14.0	12.5	13.5
26	16.0	13.5	14.5	18.0	14.5	16.0	17.5	15.5	16.0	14.0	13.5	14.0
27	16.0	14.0	14.5	18.5	16.0	17.0	17.5	16.0	16.5	15.5	14.0	14.5
28	15.5	13.0	14.0	18.5	16.5	17.5	17.5	15.5	16.5	15.0	13.0	14.0
29	15.5	13.0	14.5	17.5	14.5	16.0	17.5	14.5	16.0	13.0	11.5	12.5
30	15.5	13.5	14.5	17.5	14.0	15.5	17.5	15.5	17.0	12.5	10.5	11.5
31	---	---	---	16.5	14.5	15.5	16.0	13.5	15.0	---	---	---
MONTH	16.0	9.5	12.6	18.5	13.0	16.1	19.5	13.0	16.0	17.5	10.5	14.6
YEAR	19.5	0.0	8.6									

SWATARA CREEK BASIN

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA
(Swatara Creek Project)

LOCATION.--Lat 40°39'28", long 76°20'43", Schuylkill County, Hydrologic Unit 02050305, on left bank 500 ft downstream from bridge on U.S. Highway 209. Located on Swatara Coal Company property.

DRAINAGE AREA.--2.92 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1996 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 900 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair except those below 10 ft^3/s, which are poor. Other data for this project presented in tables on pages 436-482. Diversion upstream from station by limestone treatment system used to aid in the remediation efforts of acid mine drainage.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 50 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 20	2030	*109	*2.40
June 1	0145	55	2.02
June 21	0015	67	2.12
July 23	2115	83	2.24
Aug. 4	1045	92	2.30
Aug. 11	1415	*109	*2.40
Sept. 23	0545	107	2.39

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	5.1	4.8	11	2.2	3.6	7.6	3.7	35	4.4	3.3	4.4
2	1.8	4.7	4.4	13	2.1	4.7	7.8	4.1	20	4.0	4.5	5.6
3	1.5	4.5	4.1	10	2.1	e4.5	7.1	3.9	15	3.8	3.9	11
4	1.4	4.4	3.7	9.0	3.2	e4.2	6.5	3.7	18	3.4	21	13
5	1.6	4.4	3.7	7.7	2.9	e4.2	7.1	3.6	13	3.0	14	7.8
6	1.3	6.5	3.0	7.1	e2.5	e4.8	6.2	3.6	11	2.8	21	6.9
7	1.2	5.0	e2.9	6.4	e2.3	e4.5	5.9	3.6	17	3.3	15	6.2
8	1.2	4.8	2.8	6.0	e2.2	4.6	5.6	4.1	14	3.2	11	5.6
9	1.1	4.6	2.7	5.9	e2.1	5.0	5.8	3.8	12	2.8	9.7	5.2
10	1.3	4.4	e2.5	5.6	e2.0	4.9	6.4	3.7	9.9	2.8	9.1	4.8
11	13	4.4	6.7	5.0	e1.9	4.7	16	3.6	8.7	3.9	34	4.4
12	8.3	6.5	9.4	4.6	e1.8	4.6	14	3.5	9.2	2.8	18	4.2
13	4.8	6.2	7.3	4.3	e1.8	5.7	11	3.4	8.9	2.4	11	4.3
14	4.0	5.0	18	4.1	e1.7	6.1	10	3.2	7.1	2.2	8.0	5.8
15	3.5	4.9	14	3.9	e1.7	7.0	8.7	3.1	6.5	2.1	6.2	5.0
16	14	5.6	11	3.8	e1.8	12	7.7	3.1	5.7	2.0	5.1	8.5
17	9.1	11	8.9	3.6	e2.0	23	7.0	3.3	5.3	1.8	4.5	5.1
18	6.9	10	7.5	e3.5	e1.9	32	6.1	3.0	7.6	1.8	5.6	4.6
19	6.1	8.9	6.6	e3.3	e2.0	27	5.4	2.9	5.6	2.0	6.5	9.4
20	5.4	8.2	14	3.2	e1.9	42	4.9	2.9	15	1.7	5.8	7.3
21	4.8	8.0	8.9	3.2	e1.9	42	4.7	3.1	36	4.1	5.2	6.2
22	4.4	10	7.8	e3.0	e3.0	26	4.6	2.8	24	4.6	5.1	6.0
23	4.1	8.7	7.2	e2.8	5.4	17	4.1	2.7	17	15	4.8	37
24	3.7	7.6	6.5	2.7	4.1	13	4.0	6.2	12	12	4.1	16
25	3.7	7.1	6.5	2.6	e3.7	10	3.9	5.3	9.9	5.5	3.9	12
26	8.1	6.5	5.6	2.6	e3.7	10	5.0	10	8.2	4.6	3.9	9.8
27	4.7	6.3	5.1	2.4	3.8	8.7	4.2	8.3	7.0	4.1	3.8	8.1
28	4.2	5.7	4.8	2.3	3.8	7.3	3.9	9.7	6.1	4.5	3.5	7.3
29	4.2	5.4	4.5	2.3	---	9.2	3.9	9.5	5.4	3.5	3.4	6.0
30	4.7	5.2	4.1	2.2	---	8.9	3.8	7.9	4.9	3.1	4.6	5.3
31	5.2	---	4.1	2.1	---	8.1	---	11	---	2.9	3.9	---
TOTAL	141.3	189.6	203.1	149.2	71.5	369.3	198.9	146.3	375.0	120.1	263.4	242.8
MEAN	4.56	6.32	6.55	4.81	2.55	11.9	6.63	4.72	12.5	3.87	8.50	8.09
MAX	14	11	18	13	5.4	42	16	11	36	15	34	37
MIN	1.1	4.4	2.5	2.1	1.7	3.6	3.8	2.7	4.9	1.7	3.3	4.2

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2003, BY WATER YEAR (WY)

MEAN	3.11	3.38	5.55	4.91	4.82	7.73	5.80	4.52	4.74	2.07	1.98	2.53
MAX	7.81	8.40	15.3	10.9	10.4	11.9	8.09	9.19	12.5	3.87	8.50	8.09
(WY)	1997	1997	1997	1998	1998	2003	1998	1998	2003	2003	2003	2003
MIN	1.10	0.86	0.71	1.94	2.55	5.44	3.95	2.05	0.89	0.10	0.26	0.42
(WY)	1999	1999	1999	2002	2003	2002	1999	1999	1999	1999	1999	1998

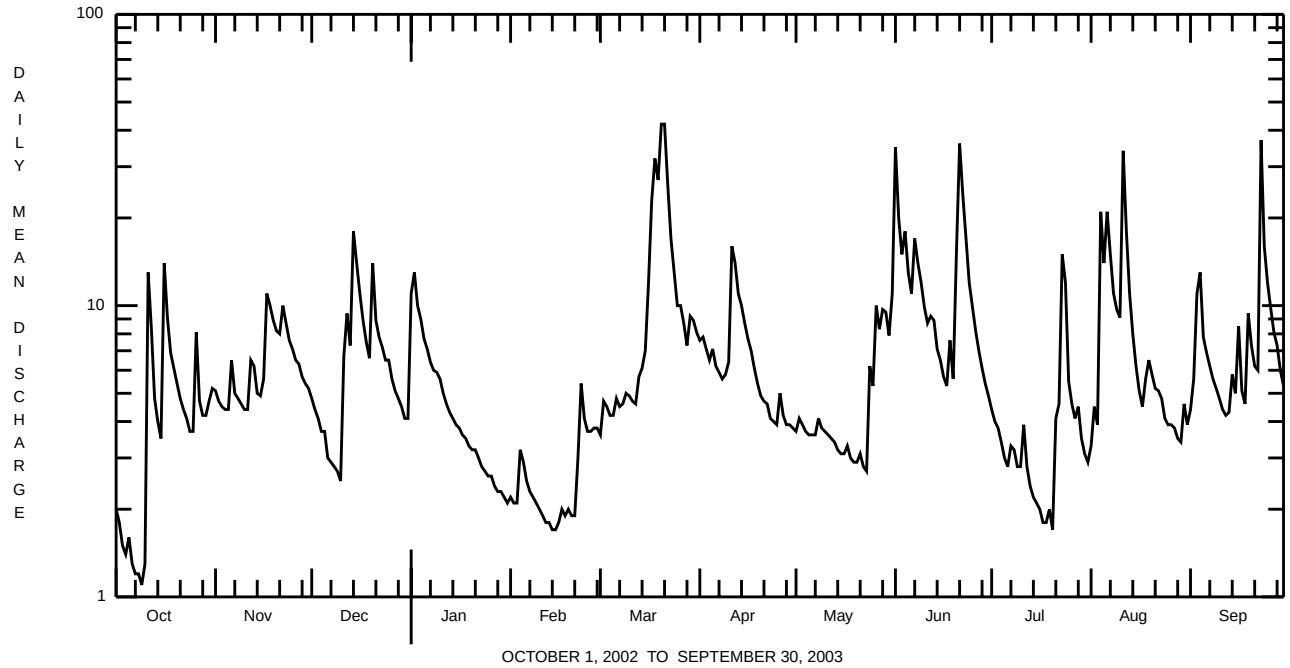
e Estimated.

SWATARA CREEK BASIN

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1996 - 2003	
ANNUAL TOTAL	1342.71		2470.5			
ANNUAL MEAN	3.68		6.77		4.26	
HIGHEST ANNUAL MEAN					6.77	2003
LOWEST ANNUAL MEAN					2.61	1999
HIGHEST DAILY MEAN	19	May 18	42	Mar 20,21	**a**64	Dec 17 2000
LOWEST DAILY MEAN	0.04	Sep 11-13	1.1	Oct 9	0.00	Jul 27 1999**b**
ANNUAL SEVEN-DAY MINIMUM	0.06	Sep 8	1.3	Oct 4	0.00	Jul 29 1999
MAXIMUM PEAK FLOW			**a**109	Mar 20,Aug 11	**a**162	Jun 13 1998
MAXIMUM PEAK STAGE			2.40	Mar 20,Aug 11	2.65	Jun 13 1998
INSTANTANEOUS LOW FLOW			1.1	Oct 8-10	0.00	Jul 27 1999**b**
10 PERCENT EXCEEDS	7.7		13		8.8	
50 PERCENT EXCEEDS	2.8		4.9		2.8	
90 PERCENT EXCEEDS	0.44		2.3		0.67	

a From rating curve extended above 44 ft^3/s.
b Several days.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA--Continued
(Swatara Creek Project)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1996 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1996 to May 2003. (discontinued)
pH: July 1996 to May 2003. (discontinued)
WATER TEMPERATURE: July 1996 to current year.

INSTRUMENTATION.--Water-quality monitor (in situ system). Automatic pumping sampler for stormflow samples since July 1996. Water temperature taken from in-situ transducer beginning May 2003.

REMARKS.--Specific conductance records rated fair. pH records rated fair except for periods Oct. 26-Nov. 5, and Jan. 9-30, which are poor. The pH probe is subject to fowling from precipitation of iron, adhesion of lime on electrodes, and occasional burial by sediment. Water temperature records rated good except for period May 20-Sept. 30, which is poor. Interruptions in the record were due to malfunctions of the instrumentation. Some values for "*dissolved*" parameters exceed values for the corresponding "*total*" parameter. These results are within the limits of analytical precision and methods. Other data for the Swatara Creek Project presented in tables on pages 436-482. Figure 8 shows the location of sites sampled as part of the Swatara Creek Project.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 438 microsiemens, Aug. 13, 1999; minimum, 51 microsiemens, July 24, 1997.
pH: Maximum, 8.2, Aug. 20, 2001; minimum, 3.6, Oct. 21-23, 25, Dec. 3, 1996.
WATER TEMPERATURE: Maximum, 23.5°C, July 5, 6, 1999; minimum, 0.0°C, many days during winters.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 18.5°C, Aug. 4; minimum 0.0°C, many days during winter.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
OCT										
01...	1600	1028	9801	1.9	400	--	10.0	101	6.7	6.2
NOV										
21...	1000	1028	89203	7.4	474	5.0	11.7	96	5.3	5.2
FEB										
27...	1215	1028	89203	4.2	455	2.0	14.3	100	5.9	5.1
APR										
29...	1000	1028	89203	4.6	435	7.0	11.1	98	5.7	5.6
JUN										
26...	1100	1028	89203	9.7	454	11	10.1	100	5.2	5.7
AUG										
25...	1000	1028	89203	4.6	358	--	9.9	97	6.0	6.1

Date	Specif. conduct-ance, wat unf µS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnes-ium, water, fltrd, mg/L (00925)	Magnes-ium, water, unfltrd recover-able, mg/L (00927)	Potas-sium, water, fltrd, mg/L (00935)	Potas-sium, water, unfltrd recover-able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover-able, mg/L (00929)
OCT										
01...	211	15.8	13.6	13.8	7.00	7.0	1.25	1.2	8.60	8.8
NOV										
21...	153	7.3	7.90	8.3	6.90	7.2	.90	1.0	6.60	7.2
FEB										
27...	151	1.3	8.10	8.6	5.60	6.0	.90	.9	7.80	7.0
APR										
29...	153	9.9	9.30	9.6	5.80	6.6	.80	1.0	9.50	7.6
JUN										
26...	155	13.4	7.40	8.5	6.10	6.8	.90	.8	7.20	6.9
AUG										
25...	126	13.5	10.2	10.3	6.90	7.0	.90	.9	6.30	7.8

SWATARA CREEK BASIN

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Silica, water, fltrd, mg/L (00955)	Silica, water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water unfltrd mg/L (00946)	Phos-phorus, water, fltrd, mg/L (00666)	Phos-phorus, water, unfltrd mg/L (00665)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)
OCT 01...	5.00	.000	6.02	6.39	52.0	53.0	<.004	<.004	35.5	555
NOV 21...	1.80	--	--	--	--	--	--	--	700	1100
FEB 27...	4.00	--	--	--	--	--	--	--	200	700
APR 29...	2.40	--	--	--	--	--	--	--	200	800
JUN 26...	2.90	--	--	--	--	--	--	--	400	900
AUG 25...	3.10	--	--	--	--	--	--	--	<100	700

Date	Anti-mony, water, fltrd, µg/L (01095)	Anti-mony, water, unfltrd µg/L (01097)	Arsenic water, fltrd, µg/L (01000)	Arsenic water unfltrd µg/L (01002)	Barium, water, fltrd, µg/L (01005)	Barium, water, unfltrd recover-able, µg/L (01007)	Beryll-ium, water, fltrd, µg/L (01010)	Beryll-ium, water, unfltrd recover-able, µg/L (00998)	Bismuth water, fltrd, µg/L (01015)	Bismuth water unfltrd µg/L (01017)
OCT 01...	<.050	<.050	<.600	<.600	36.0	37.0	<.050	.300	<.040	<.040
NOV 21...	--	--	--	--	--	--	--	--	--	--
FEB 27...	--	--	--	--	--	--	--	--	--	--
APR 29...	--	--	--	--	--	--	--	--	--	--
JUN 26...	--	--	--	--	--	--	--	--	--	--
AUG 25...	--	--	--	--	--	--	--	--	--	--

Date	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)	Cerium, water, fltrd, µg/L (01110)	Cerium, water, unfltrd µg/L (01112)	Cesium, water, fltrd, µg/L (01115)	Cesium, water, unfltrd µg/L (01117)	Chrom-ium, water, fltrd, µg/L (01030)	Chrom-ium, water, unfltrd recover-able, µg/L (01034)	Cobalt water, fltrd, µg/L (01035)	Cobalt water, unfltrd recover-able, µg/L (01037)
OCT 01...	<2.40	<2.40	.400	1.70	.040	.050	<1.00	<1.00	17.0	16.5
NOV 21...	--	--	--	--	--	--	--	--	--	--
FEB 27...	--	--	--	--	--	--	--	--	--	--
APR 29...	--	--	--	--	--	--	--	--	--	--
JUN 26...	--	--	--	--	--	--	--	--	--	--
AUG 25...	--	--	--	--	--	--	--	--	--	--

Date	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Dyspros ium, water, fltrd, µg/L (82331)	Dyspros ium, water, unfltrd µg/L (82330)	Erbium, water, fltrd, µg/L (50573)	Erbium, water, unfltrd µg/L (01246)	Euro-pium, water, fltrd, µg/L (50574)	Europ-ium, water, unfltrd µg/L (01236)	Gado-linium, water, fltrd, µg/L (50575)	Gado-linium, water, unfltrd µg/L (01219)
OCT 01...	1.00	2.00	.030	.150	.020	.091	.005	.030	.055	.200
NOV 21...	--	--	--	--	--	--	--	--	--	--
FEB 27...	--	--	--	--	--	--	--	--	--	--
APR 29...	--	--	--	--	--	--	--	--	--	--
JUN 26...	--	--	--	--	--	--	--	--	--	--
AUG 25...	--	--	--	--	--	--	--	--	--	--

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Gallium water, fltrd, µg/L (01120)	Gallium water, unfltrd µg/L (01122)	Germanium, water, fltrd, µg/L (01125)	Germanium, water, unfltrd µg/L (01127)	Gold, water, fltrd, µg/L (82334)	Gold, water, unfltrd µg/L (71910)	Holmium water, fltrd, µg/L (50577)	Holmium water unfltrd µg/L (01247)	Indium water, fltrd, µg/L (62843)	Indium, water, unfltrd µg/L (01168)
OCT										
01...	<.020	<.020	<.020	<.020	<.010	<.010	.006	.030	<.010	<.010
NOV										
21...	--	--	--	--	--	--	--	--	--	--
FEB										
27...	--	--	--	--	--	--	--	--	--	--
APR										
29...	--	--	--	--	--	--	--	--	--	--
JUN										
26...	--	--	--	--	--	--	--	--	--	--
AUG										
25...	--	--	--	--	--	--	--	--	--	--

Date	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lanthanum, water, fltrd, µg/L (01180)	Lanthanum, water, unfltrd µg/L (01182)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)	Lithium water, fltrd, µg/L (01130)	Lithium water unfltrd recover-able, µg/L (01132)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recover-able, µg/L (01055)
OCT										
01...	53.0	435	.300	.850	<.050	.600	5.30	5.00	474	486
NOV										
21...	580	810	--	--	--	--	--	--	560	560
FEB										
27...	280	400	--	--	--	--	--	--	410	410
APR										
29...	330	650	--	--	--	--	--	--	490	510
JUN										
26...	590	940	--	--	--	--	--	--	480	500
AUG										
25...	160	600	--	--	--	--	--	--	510	520

Date	Molybdenum, water, fltrd, µg/L (01060)	Molybdenum, water, unfltrd recover-able, µg/L (01062)	Neodymium, water, fltrd, µg/L (50579)	Neodymium, water, unfltrd µg/L (01237)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Praseodymium, water, fltrd, µg/L (50582)	Praseodymium, water, unfltrd µg/L (01238)	Rhenium water, fltrd, µg/L (50583)	Rhenium water unfltrd µg/L (01242)
OCT										
01...	.090	.090	.220	.880	26.0	26.0	.060	.220	<.020	<.020
NOV										
21...	--	--	--	--	41.0	61.0	--	--	--	--
FEB										
27...	--	--	--	--	27.0	29.0	--	--	--	--
APR										
29...	--	--	--	--	36.0	33.0	--	--	--	--
JUN										
26...	--	--	--	--	42.0	32.0	--	--	--	--
AUG										
25...	--	--	--	--	45.0	33.0	--	--	--	--

Date	Rubidium, water, fltrd, µg/L (01135)	Rubidium, water, unfltrd µg/L (01137)	Samarium, water, fltrd, µg/L (82323)	Samarium, water, unfltrd µg/L (82322)	Selenium, water, fltrd, µg/L (01145)	Selenium, water, unfltrd µg/L (01147)	Silver, water, fltrd, µg/L (01075)	Silver, water, unfltrd recover-able, µg/L (01077)	Strontium, water, fltrd, µg/L (01080)	Strontium, water, unfltrd recover-able, µg/L (01082)
OCT										
01...	2.80	3.00	.040	.200	<.200	<.200	.040	.080	45.0	45.5
NOV										
21...	--	--	--	--	--	--	--	--	--	--
FEB										
27...	--	--	--	--	--	--	--	--	--	--
APR										
29...	--	--	--	--	--	--	--	--	--	--
JUN										
26...	--	--	--	--	--	--	--	--	--	--
AUG										
25...	--	--	--	--	--	--	--	--	--	--

SWATARA CREEK BASIN

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Terbium water, fltrd, µg/L (50586)	Terbium water unfltrd µg/L (01218)	Thall-ium, water, fltrd, µg/L (01057)	Thall-ium, water, unfltrd µg/L (01059)	Thorium water, fltrd, µg/L (82365)	Thorium water unfltrd µg/L (82364)	Thulium water, fltrd, µg/L (50587)	Thulium water unfltrd µg/L (01245)	Tung-sten, water, fltrd, µg/L (01155)	Tung-sten, water, unfltrd µg/L (01154)
OCT										
01...	<.005	.030	<.050	<.050	<.020	<.020	<.005	.010	<.020	<.020
NOV										
21...	--	--	--	--	--	--	--	--	--	--
FEB										
27...	--	--	--	--	--	--	--	--	--	--
APR										
29...	--	--	--	--	--	--	--	--	--	--
JUN										
26...	--	--	--	--	--	--	--	--	--	--
AUG										
25...	--	--	--	--	--	--	--	--	--	--

Date	Vanad-ium, water, fltrd, µg/L (01085)	Vanad-ium, water, unfltrd µg/L (01087)	Ytterb-ium, water, fltrd, µg/L (01194)	Ytterb-ium, water, unfltrd µg/L (01196)	Yttrium water, fltrd, µg/L (01201)	Yttrium water unfltrd µg/L (01203)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)	Uranium natural water, fltrd, µg/L (22703)	Uranium natural water unfltrd µg/L (28011)
OCT										
01...	<.200	<.200	.020	.090	.200	.700	46.0	53.0	.020	.080
NOV										
21...	--	--	--	--	--	--	111	109	--	--
FEB										
27...	--	--	--	--	--	--	85.0	70.0	--	--
APR										
29...	--	--	--	--	--	--	82.0	86.0	--	--
JUN										
26...	--	--	--	--	--	--	94.0	95.0	--	--
AUG										
25...	--	--	--	--	--	--	80.0	77.0	--	--

SWATARA CREEK BASIN

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	215	200	208	137	130	135	162	154	159	112	82	100
2	223	214	219	137	131	135	163	162	163	132	94	115
3	231	223	228	144	135	141	168	163	166	145	132	139
4	235	229	234	148	143	145	168	164	166	150	145	148
5	235	220	225	148	142	146	164	148	159	152	149	151
6	239	227	234	142	117	128	164	161	163	149	148	148
7	248	239	243	142	135	139	170	154	163	150	146	149
8	255	247	251	143	141	141	166	164	165	147	145	146
9	262	254	258	145	142	143	172	130	158	146	137	142
10	264	204	252	149	145	146	178	162	169	145	138	142
11	204	83	111	150	146	148	168	79	142	152	145	149
12	135	104	122	152	117	139	107	79	90	154	151	153
13	162	135	150	137	120	130	120	104	114	153	150	152
14	178	161	171	142	137	139	120	88	102	154	150	152
15	183	178	181	144	141	143	142	120	135	157	151	153
16	183	97	134	145	124	141	153	142	149	163	132	155
17	144	112	130	124	109	115	155	153	154	159	135	150
18	156	144	150	128	115	120	155	151	154	168	135	157
19	157	155	156	141	128	136	152	149	151	168	143	159
20	160	156	158	150	141	146	149	95	120	155	151	153
21	162	158	160	153	143	150	139	124	133	160	154	157
22	163	161	162	146	123	136	144	139	142	163	141	159
23	167	161	164	142	129	137	146	120	137	178	140	169
24	169	161	165	147	142	145	122	118	122	174	170	171
25	170	130	163	151	147	149	119	111	115	172	169	171
26	130	88	113	153	151	152	122	117	120	172	160	168
27	138	127	135	154	151	153	122	122	122	169	161	166
28	139	137	138	157	153	155	122	119	121	165	161	164
29	139	132	137	157	156	157	121	114	120	161	159	160
30	135	129	132	157	154	156	120	113	117	165	159	160
31	135	126	131	---	---	---	120	111	117	160	158	159
MONTH	264	83	175	157	109	142	178	79	139	178	82	152

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	162	158	160	159	156	157	137	133	136	154	149	152
2	163	160	161	158	131	145	137	130	134	155	136	148
3	164	162	163	157	131	144	137	132	135	152	140	145
4	166	124	144	161	143	154	140	136	138	154	151	153
5	154	133	143	159	147	157	140	132	134	155	152	154
6	167	147	157	161	144	150	143	137	140	154	152	153
7	161	154	155	172	148	162	144	140	142	155	138	152
8	171	155	161	169	161	166	149	144	147	143	123	134
9	182	151	163	166	160	163	149	137	145	148	143	146
10	161	156	159	177	164	171	145	131	139	152	145	150
11	167	132	158	181	144	172	137	94	118	153	143	150
12	168	133	157	179	175	178	128	119	122	155	148	152
13	169	159	164	175	150	168	141	128	136	156	148	154
14	168	162	164	177	155	171	145	141	144	154	148	150
15	168	164	165	178	148	168	148	145	147	156	151	154
16	173	168	170	175	127	152	150	146	148	153	140	150
17	173	160	166	152	128	143	153	149	151	145	135	140
18	161	158	159	163	119	143	154	153	154	149	145	147
19	162	160	161	144	128	138	156	153	154	155	149	152
20	164	161	162	139	53	116	158	154	156	---	---	---
21	165	161	163	116	86	109	156	150	154	---	---	---
22	161	112	140	123	116	121	152	147	149	---	---	---
23	126	112	116	129	123	125	155	150	153	---	---	---
24	143	126	137	128	125	126	158	153	155	---	---	---
25	148	143	145	130	126	128	159	155	157	---	---	---
26	150	147	148	127	110	122	158	125	141	---	---	---
27	152	149	151	125	115	121	147	131	141	---	---	---
28	156	152	154	128	125	127	153	147	150	---	---	---
29	---	---	---	125	106	118	153	150	152	---	---	---
30	---	---	---	125	112	120	154	151	152	---	---	---
31	---	---	---	133	125	129	---	---	---	---	---	---
MONTH	182	112	155	181	53	144	159	94	144	156	123	149

SWATARA CREEK BASIN

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	6.8	6.7	6.7	6.4	6.2	6.2	5.7	5.5	5.6	5.9	5.5	5.6
2	6.7	6.6	6.7	6.2	6.1	6.2	5.7	5.7	5.7	5.5	5.3	5.4
3	6.7	6.6	6.7	6.3	6.1	6.2	5.9	5.7	5.8	5.3	5.3	5.3
4	6.7	6.7	6.7	6.1	6.0	6.1	6.0	5.9	6.0	5.3	5.3	5.3
5	6.7	6.6	6.7	6.1	5.8	5.8	6.1	6.0	6.0	5.3	5.3	5.3
6	6.7	6.6	6.6	5.9	5.5	5.6	6.1	6.0	6.1	5.4	5.3	5.4
7	6.7	6.6	6.7	5.7	5.6	5.7	6.2	6.1	6.2	5.4	5.4	5.4
8	6.7	6.6	6.7	5.7	5.6	5.7	6.2	6.2	6.2	5.4	5.4	5.4
9	6.7	6.6	6.6	5.7	5.6	5.7	6.3	6.2	6.2	5.5	5.4	5.5
10	6.9	6.5	6.6	5.6	5.6	5.6	6.2	6.1	6.2	5.5	5.4	5.5
11	6.9	5.4	6.0	5.6	5.5	5.6	6.2	5.7	6.2	5.5	5.5	5.5
12	5.9	5.4	5.7	5.9	5.6	5.7	5.7	5.5	5.6	5.6	5.4	5.5
13	6.0	5.9	5.9	5.6	5.5	5.6	5.7	5.6	5.6	5.5	5.4	5.5
14	5.9	5.8	5.8	5.6	5.6	5.6	5.8	5.3	5.6	5.5	5.5	5.5
15	5.9	5.8	5.8	5.6	5.6	5.6	5.3	5.2	5.2	5.5	5.4	5.4
16	6.3	5.4	5.9	5.6	5.5	5.6	5.2	5.2	5.2	5.5	5.4	5.5
17	5.5	5.4	5.4	5.6	5.5	5.6	5.3	5.2	5.3	5.5	5.4	5.5
18	5.5	5.4	5.4	5.6	5.5	5.5	5.4	5.3	5.3	5.7	5.3	5.5
19	5.5	5.5	5.5	5.5	5.3	5.4	5.4	5.3	5.4	5.5	5.4	5.5
20	5.6	5.5	5.6	5.3	5.3	5.3	6.1	5.3	5.5	5.4	5.4	5.4
21	5.8	5.6	5.7	5.9	5.3	5.3	5.8	5.3	5.3	5.5	5.4	5.5
22	5.9	5.8	5.8	5.5	5.4	5.4	5.4	5.3	5.4	5.5	5.4	5.5
23	6.0	5.9	5.9	5.4	5.4	5.4	5.4	5.3	5.4	5.6	5.3	5.4
24	6.1	5.9	6.0	5.4	5.4	5.4	5.5	5.4	5.4	5.7	5.5	5.6
25	6.1	6.1	6.1	5.4	5.3	5.4	5.5	5.4	5.4	5.7	5.6	5.7
26	6.3	5.9	6.0	5.4	5.4	5.4	5.5	5.5	5.5	5.8	5.7	5.8
27	6.4	6.0	6.2	5.5	5.4	5.4	5.5	5.5	5.5	5.9	5.7	5.7
28	6.6	6.4	6.5	5.5	5.5	5.5	5.5	5.5	5.5	5.9	5.8	5.9
29	6.7	6.6	6.6	5.5	5.5	5.5	5.6	5.5	5.5	5.9	5.8	5.8
30	6.7	6.5	6.5	5.6	5.5	5.5	5.6	5.6	5.6	6.0	5.8	5.9
31	6.6	6.4	6.5	---	---	---	5.6	5.6	5.6	6.0	5.9	5.9
MAX	6.9	6.7	6.7	6.4	6.2	6.2	6.3	6.2	6.2	6.0	5.9	5.9
MIN	5.5	5.4	5.4	5.3	5.3	5.3	5.2	5.2	5.2	5.3	5.3	5.3

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	6.0	5.9	5.9	5.9	5.8	5.9	5.5	5.4	5.5	5.8	5.7	5.8
2	6.0	5.9	5.9	5.9	5.8	5.8	5.6	5.4	5.4	5.8	5.6	5.7
3	6.0	5.9	6.0	5.9	5.8	5.9	5.7	5.5	5.6	5.8	5.6	5.6
4	6.0	5.8	6.0	5.9	5.8	5.9	5.6	5.6	5.6	5.6	5.6	5.6
5	6.1	5.9	5.9	6.0	5.8	5.8	5.6	5.5	5.6	5.7	5.6	5.6
6	6.2	5.9	6.1	6.1	5.9	5.9	5.6	5.5	5.6	5.7	5.7	5.7
7	6.2	6.1	6.2	5.9	5.8	5.9	5.6	5.6	5.6	5.7	5.6	5.7
8	6.3	6.0	6.2	5.9	5.8	5.8	5.6	5.6	5.6	5.8	5.6	5.6
9	6.3	6.0	6.2	5.9	5.7	5.8	5.6	5.6	5.6	5.6	5.6	5.6
10	6.2	6.2	6.2	5.9	5.8	5.8	5.6	5.5	5.6	5.6	5.6	5.6
11	6.2	6.0	6.2	5.8	5.7	5.8	5.7	5.3	5.5	5.6	5.6	5.6
12	6.2	6.0	6.2	5.8	5.7	5.7	5.4	5.3	5.3	5.6	5.6	5.6
13	6.2	6.1	6.2	6.0	5.7	5.7	5.3	5.2	5.3	5.7	5.6	5.6
14	6.2	6.1	6.2	5.9	5.7	5.8	5.3	5.2	5.3	5.7	5.7	5.7
15	6.2	6.2	6.2	6.0	5.7	5.8	5.3	5.2	5.3	5.8	5.7	5.7
16	6.2	6.1	6.1	6.0	5.6	5.7	5.3	5.2	5.3	5.8	5.7	5.8
17	6.1	6.0	6.0	5.7	5.4	5.6	5.4	5.3	5.4	5.8	5.7	5.7
18	6.1	6.1	6.1	5.5	5.2	5.4	5.5	5.4	5.4	5.7	5.7	5.7
19	6.2	6.1	6.2	5.2	5.1	5.1	5.4	5.3	5.4	5.8	5.7	5.7
20	6.3	6.2	6.3	5.6	5.1	5.2	5.5	5.3	5.4	---	---	---
21	6.3	6.2	6.3	5.1	4.8	4.9	5.4	5.4	5.4	---	---	---
22	6.3	6.0	6.2	5.0	4.8	4.9	5.4	5.4	5.4	---	---	---
23	6.2	6.0	6.2	5.1	5.0	5.0	5.5	5.4	5.5	---	---	---
24	6.2	6.1	6.1	5.2	5.1	5.2	5.6	5.5	5.5	---	---	---
25	6.1	6.1	6.1	5.3	5.2	5.3	5.6	5.5	5.6	---	---	---
26	6.1	6.0	6.1	5.4	5.3	5.3	5.7	5.5	5.6	---	---	---
27	6.0	5.8	6.0	5.4	5.3	5.4	5.6	5.5	5.5	---	---	---
28	5.9	5.9	5.9	5.4	5.4	5.4	5.8	5.6	5.7	---	---	---
29	---	---	---	5.4	5.3	5.4	5.8	5.7	5.7	---	---	---
30	---	---	---	5.5	5.3	5.5	5.8	5.7	5.8	---	---	---
31	---	---	---	5.5	5.4	5.5	---	---	---	---	---	---
MAX	6.3	6.2	6.3	6.1	5.9	5.9	5.8	5.7	5.8	5.8	5.7	5.8
MIN	5.9	5.8	5.9	5.0	4.8	4.9	5.3	5.2	5.3	5.6	5.6	5.6

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	16.0	12.5	14.5	7.0	5.5	6.5	5.0	2.5	3.5	5.0	4.0	4.5
2	17.0	14.5	15.5	7.0	5.5	6.0	4.5	2.5	3.5	5.0	4.0	4.5
3	17.5	15.0	16.5	7.0	5.5	6.5	4.0	0.5	1.5	4.5	2.5	4.0
4	16.5	15.5	15.5	7.5	5.5	6.5	2.0	0.0	1.0	5.0	4.5	4.5
5	17.5	14.5	16.5	7.0	6.0	6.5	2.0	0.0	1.0	4.5	4.0	4.0
6	14.5	12.0	13.5	8.0	6.5	7.5	3.0	0.5	2.0	4.5	4.0	4.0
7	15.0	12.5	14.0	7.0	5.0	6.5	1.5	0.0	0.5	4.0	2.5	3.0
8	12.5	10.0	11.5	8.0	5.0	7.0	3.0	0.5	2.0	5.0	3.0	4.0
9	12.0	9.5	11.0	9.5	6.5	8.0	2.0	0.0	0.5	6.0	4.5	5.0
10	13.0	12.0	12.5	11.5	8.5	10.0	1.5	0.0	0.5	5.0	3.0	4.5
11	13.5	13.0	13.0	12.5	10.0	11.5	2.5	0.5	1.5	3.0	1.5	2.0
12	14.0	13.5	13.5	10.0	9.5	9.5	4.5	2.5	4.0	2.5	1.0	1.5
13	13.5	12.5	13.0	9.5	7.0	8.5	5.0	4.5	4.5	2.5	0.5	1.5
14	12.5	9.0	10.5	9.0	6.5	8.0	5.5	4.5	5.0	1.5	0.0	1.0
15	11.0	8.0	9.5	9.0	7.0	8.0	6.5	5.5	6.0	2.0	0.0	1.0
16	11.5	10.5	11.0	8.0	7.0	8.0	6.5	4.5	5.5	1.5	0.0	0.5
17	11.5	10.5	11.0	7.5	6.5	7.0	4.5	3.5	4.0	1.5	0.0	0.5
18	10.5	9.0	10.0	7.5	6.5	7.0	4.5	2.5	3.5	0.5	0.0	0.0
19	10.5	9.0	10.0	7.5	6.0	7.0	6.0	3.5	5.0	1.0	0.0	0.5
20	10.5	8.5	10.0	8.5	6.5	7.5	6.5	5.0	6.0	1.5	0.0	1.0
21	10.0	8.0	9.0	8.0	6.5	7.5	5.5	5.0	5.5	0.5	0.0	0.0
22	9.5	7.0	8.5	8.5	7.0	8.0	6.0	4.5	5.5	0.5	0.0	0.0
23	9.5	7.5	8.5	7.0	6.0	6.5	6.0	5.0	5.5	0.0	0.0	0.0
24	8.0	7.0	7.5	7.5	6.0	7.0	5.0	4.0	4.5	0.5	0.0	0.0
25	8.0	7.5	7.5	8.5	6.0	7.5	4.5	2.0	3.0	1.0	0.5	0.5
26	10.0	7.5	9.0	7.5	6.0	6.5	4.0	2.5	3.5	1.5	0.5	1.0
27	10.5	8.5	9.5	6.0	4.5	5.5	4.0	2.5	3.5	1.0	0.0	0.5
28	9.0	7.5	8.5	5.0	3.5	4.0	4.0	2.0	3.0	1.0	0.0	0.5
29	7.5	4.5	6.5	5.0	3.5	4.5	4.5	3.0	4.0	1.5	1.0	1.0
30	6.0	5.0	5.5	6.5	5.0	5.5	4.5	2.5	3.5	2.0	0.0	1.0
31	7.0	6.0	6.5	---	---	---	5.5	4.5	5.0	2.0	1.0	1.5
MONTH	17.5	4.5	10.9	12.5	3.5	7.2	6.5	0.0	3.5	6.0	0.0	1.9

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	2.5	1.5	2.0	3.0	2.0	2.5	5.5	3.5	4.5	14.5	10.0	12.0
2	3.5	1.5	2.5	3.5	2.5	3.0	10.0	5.0	7.5	14.5	11.5	12.5
3	4.0	1.5	2.5	2.5	0.0	0.5	10.0	7.0	8.5	14.0	9.5	11.5
4	2.5	1.5	2.0	2.0	0.0	1.0	8.0	6.5	7.0	12.5	9.0	10.5
5	1.5	0.0	1.0	4.5	1.5	3.0	7.0	6.0	6.5	9.5	8.0	9.0
6	1.0	0.0	0.5	3.0	0.5	2.0	7.5	4.5	6.0	11.5	8.0	9.5
7	2.0	0.0	1.0	2.0	0.0	1.0	5.5	2.5	4.0	15.0	9.5	12.0
8	0.5	0.0	0.0	4.5	0.0	2.5	5.0	4.0	4.5	13.5	11.5	12.0
9	1.0	0.0	0.5	5.0	1.0	3.0	5.5	4.5	5.0	12.0	11.0	11.5
10	1.0	0.5	1.0	2.5	0.5	1.0	7.5	5.0	6.0	13.0	10.5	12.0
11	1.0	0.0	0.5	2.5	0.0	1.5	6.0	5.5	6.0	14.0	11.5	12.5
12	0.5	0.0	0.0	4.5	2.0	3.0	9.0	6.0	7.5	13.0	10.0	11.5
13	0.5	0.0	0.0	5.0	2.5	3.5	9.0	6.5	7.5	10.5	9.5	10.0
14	0.5	0.0	0.5	4.0	1.0	2.5	10.0	6.0	8.0	11.5	9.0	10.0
15	1.0	0.0	0.5	6.0	2.0	3.5	12.0	7.5	9.5	11.0	8.0	9.5
16	0.0	0.0	0.0	7.0	3.0	4.0	13.5	8.5	10.5	10.5	9.5	10.0
17	0.0	0.0	0.0	6.5	4.0	5.0	10.0	6.5	8.0	10.0	9.0	9.5
18	0.0	0.0	0.0	6.5	4.5	5.5	7.0	6.0	6.5	11.5	9.5	10.0
19	0.5	0.0	0.5	6.5	5.0	5.5	10.5	7.0	8.5	13.0	7.5	10.5
20	1.5	0.5	1.0	5.0	3.0	4.5	11.0	6.5	9.0	11.0	8.5	10.0
21	2.0	0.0	1.0	7.5	4.0	6.0	9.5	8.0	9.0	10.5	10.0	10.0
22	1.0	0.5	1.0	8.0	6.5	7.0	11.0	8.0	9.5	10.0	9.5	9.5
23	1.5	0.5	1.0	8.0	6.0	7.0	9.5	6.5	7.5	10.0	9.5	9.5
24	1.5	0.0	1.0	8.5	6.0	7.0	10.5	5.0	7.5	10.0	9.5	10.0
25	2.0	0.0	1.0	9.5	6.0	8.0	11.5	6.0	8.5	10.0	10.0	10.0
26	1.0	0.0	0.5	9.0	6.5	7.5	10.0	9.5	9.5	10.5	10.0	10.5
27	1.5	0.5	1.0	9.0	5.5	7.5	13.0	8.5	10.0	10.0	9.5	10.0
28	3.0	1.5	2.0	8.5	6.5	7.5	14.0	7.0	10.5	10.0	9.5	10.0
29	---	---	---	9.5	8.0	8.5	12.5	9.0	10.5	11.0	9.5	10.0
30	---	---	---	8.0	4.5	6.0	13.5	8.5	10.5	11.5	10.0	10.5
31	---	---	---	6.5	4.0	5.0	---	---	---	11.5	10.5	10.5
MONTH	4.0	0.0	0.9	9.5	0.0	4.4	14.0	2.5	7.8	15.0	7.5	10.5

SWATARA CREEK BASIN

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	12.0	9.5	10.5	14.5	12.5	13.5	16.0	15.0	15.0	15.5	14.5	15.0
2	10.5	8.5	9.5	14.5	13.0	13.5	17.0	15.5	16.0	15.5	14.5	15.0
3	10.0	9.5	9.5	15.0	13.5	14.0	17.0	16.0	16.5	15.5	14.5	15.0
4	10.0	9.5	10.0	15.5	14.0	14.5	18.5	16.5	17.5	16.0	15.0	15.5
5	10.5	9.5	10.0	16.0	14.5	15.5	16.5	15.5	16.0	15.0	13.5	14.5
6	11.0	10.0	10.5	16.5	15.0	15.5	16.5	15.5	16.0	14.5	12.5	13.5
7	11.0	10.0	10.5	16.5	15.0	16.0	15.5	14.5	14.5	14.5	12.5	13.5
8	10.5	10.5	10.5	16.5	15.5	16.0	15.0	14.0	14.5	14.5	13.0	14.0
9	11.5	10.5	11.0	16.0	15.5	16.0	15.0	14.5	14.5	15.0	13.5	14.0
10	12.0	10.0	11.0	15.5	14.5	15.0	16.0	15.0	15.5	14.0	11.5	13.0
11	12.0	11.0	11.5	15.5	14.5	15.0	18.0	15.5	16.5	15.0	12.5	13.5
12	13.0	11.5	12.0	15.5	14.0	15.0	15.5	14.5	14.5	14.0	13.5	13.5
13	13.0	12.5	12.5	15.5	14.0	15.0	15.5	14.0	14.5	14.5	13.5	14.0
14	13.5	12.5	13.0	15.5	14.0	15.0	16.0	14.0	15.0	16.5	14.5	15.5
15	13.5	12.0	13.0	16.0	14.0	15.0	16.0	14.5	15.0	15.5	15.0	15.0
16	13.0	11.5	12.5	16.5	15.5	16.0	16.0	15.0	15.5	16.0	14.0	15.0
17	12.5	11.0	12.0	16.0	14.5	15.5	16.0	15.0	15.5	15.0	12.5	13.5
18	12.0	11.5	12.0	15.5	14.5	15.0	15.5	14.0	15.0	14.0	13.0	13.5
19	13.0	11.5	12.5	16.0	14.5	15.0	15.5	13.5	14.5	15.5	14.0	15.0
20	13.0	12.0	12.5	16.0	14.0	15.0	16.0	13.5	15.0	16.0	14.0	15.0
21	13.0	11.0	12.0	18.0	15.0	16.0	17.0	14.5	15.5	14.5	12.5	13.5
22	12.0	11.0	11.5	17.5	16.0	16.5	17.0	15.5	16.0	15.0	14.0	14.0
23	13.0	11.0	12.0	17.5	16.0	16.5	16.5	14.5	16.0	16.5	13.5	15.0
24	13.5	11.5	12.5	17.5	15.5	16.5	15.0	13.0	14.0	13.5	12.0	13.0
25	14.0	12.0	13.0	16.5	14.5	15.5	16.5	13.5	14.5	13.5	12.0	12.5
26	15.0	13.0	14.0	16.5	14.5	15.5	16.5	15.0	15.5	13.5	13.0	13.0
27	14.5	13.0	14.0	17.0	15.0	16.0	16.5	15.0	16.0	14.5	13.5	14.0
28	14.0	12.5	13.5	17.0	16.0	16.5	16.5	15.0	15.5	14.5	13.0	13.5
29	14.0	12.5	13.5	16.0	14.5	15.5	16.0	14.5	15.0	13.0	11.5	12.0
30	14.0	13.0	13.5	16.0	14.0	15.0	16.5	15.5	16.0	12.0	10.0	11.0
31	---	---	---	15.5	14.5	15.0	15.5	13.5	14.5	---	---	---
MONTH	15.0	8.5	11.9	18.0	12.5	15.3	18.5	13.0	15.3	16.5	10.0	13.9
YEAR	18.5	0.0	8.7									

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA
(Swatara Creek Project)

LOCATION.--Lat 40°35'42", long 76°26'32", Schuylkill County, Hydrologic Unit 02050305, on left bank above weir, 350 ft downstream from drainage tunnel. Located on Schuylkill County property.

DRAINAGE AREA.--Indeterminate.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 2000 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,000 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Outflow is from mine drainage tunnel and is regulated by mining activity. Other data for this project presented in tables on pages 436-482.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	3.1	5.9	7.6	4.2	4.4	11	6.3	10	9.6	4.2	5.6
2	1.9	2.6	7.0	8.6	5.3	3.8	11	7.2	10	8.9	3.0	4.2
3	1.5	3.7	5.5	8.8	4.2	4.9	11	5.8	10	8.9	2.9	5.2
4	1.0	2.9	4.9	9.1	4.4	4.2	10	6.7	12	7.9	4.7	5.6
5	2.0	2.7	6.0	11	4.8	4.3	10	6.0	11	7.5	4.6	4.5
6	1.3	4.0	6.2	9.7	3.6	5.3	10	5.9	12	7.6	5.4	5.8
7	1.1	2.7	4.7	10	4.4	e4.1	9.2	6.5	13	6.6	7.1	5.2
8	2.0	3.2	5.2	10	4.0	4.5	9.8	5.3	14	6.6	7.0	5.0
9	1.3	3.6	4.9	8.8	3.4	4.5	8.9	5.8	14	6.8	8.1	5.8
10	1.0	3.0	4.0	9.4	4.8	3.9	8.7	5.9	15	5.5	8.0	4.9
11	2.4	4.2	4.3	8.3	3.2	5.3	9.1	5.1	15	6.2	7.2	5.4
12	2.1	4.1	3.5	8.2	3.7	4.4	9.3	6.1	13	6.2	8.8	5.5
13	1.7	3.6	3.9	8.1	4.2	4.8	13	4.9	13	4.7	11	4.5
14	2.8	4.4	6.0	7.0	3.0	5.2	14	5.3	13	5.6	11	5.6
15	1.8	3.4	7.0	7.9	4.0	4.6	13	5.4	11	5.4	12	4.9
16	2.0	3.9	8.7	6.8	3.4	6.1	14	4.4	12	4.5	11	4.9
17	3.6	4.9	11	6.7	3.0	6.0	13	5.6	11	5.4	9.9	5.5
18	2.3	4.1	10	7.0	4.4	8.6	11	4.4	10	4.7	9.8	4.6
19	2.7	6.1	11	5.8	2.9	14	11	5.1	10	4.3	8.6	5.0
20	3.5	6.8	11	6.7	3.4	18	10	5.0	9.0	5.1	8.2	5.4
21	2.6	7.2	9.9	5.8	3.9	25	9.7	4.2	11	3.9	8.3	6.0
22	3.4	9.2	12	5.6	2.9	29	9.8	5.4	12	4.4	7.1	5.7
23	3.1	7.3	12	6.3	4.2	30	8.5	4.0	16	4.8	7.2	7.7
24	2.1	8.2	12	4.9	3.4	28	8.9	4.5	17	4.1	7.0	15
25	3.3	8.0	12	5.9	3.0	26	8.3	5.2	16	3.6	5.8	17
26	2.9	7.0	11	5.4	4.6	23	7.8	4.5	15	4.2	6.6	17
27	2.3	8.5	11	4.7	3.3	19	8.2	6.6	14	4.5	5.9	16
28	3.5	6.7	11	5.8	4.0	16	6.7	7.9	12	3.1	5.2	14
29	2.3	7.2	8.8	4.4	---	14	7.3	9.0	11	4.4	6.1	13
30	2.5	7.2	9.1	4.9	---	13	6.8	10	11	3.6	5.0	12
31	3.5	---	8.5	5.0	---	12	---	9.2	---	3.2	5.0	---
TOTAL	70.7	153.5	248.0	224.2	107.6	355.9	299.0	183.2	373.0	171.8	221.7	226.5
MEAN	2.28	5.12	8.00	7.23	3.84	11.5	9.97	5.91	12.4	5.54	7.15	7.55
MAX	3.6	9.2	12	11	5.3	30	14	10	17	9.6	12	17
MIN	1.0	2.6	3.5	4.4	2.9	3.8	6.7	4.0	9.0	3.1	2.9	4.2

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)

MEAN	2.17	2.92	5.97	4.78	4.24	7.83	9.37	7.06	7.27	4.12	3.72	3.22
MAX	2.74	5.12	8.00	7.23	4.49	11.5	9.97	10.6	12.4	5.54	7.15	7.55
(WY)	2001	2003	2003	2003	2001	2003	2003	2002	2003	2003	2003	2003
MIN	1.49	1.23	2.62	3.01	3.84	5.53	9.00	4.65	4.34	2.47	1.51	1.25
(WY)	2002	2002	2002	2002	2003	2002	2002	2001	2001	2002	2002	2002

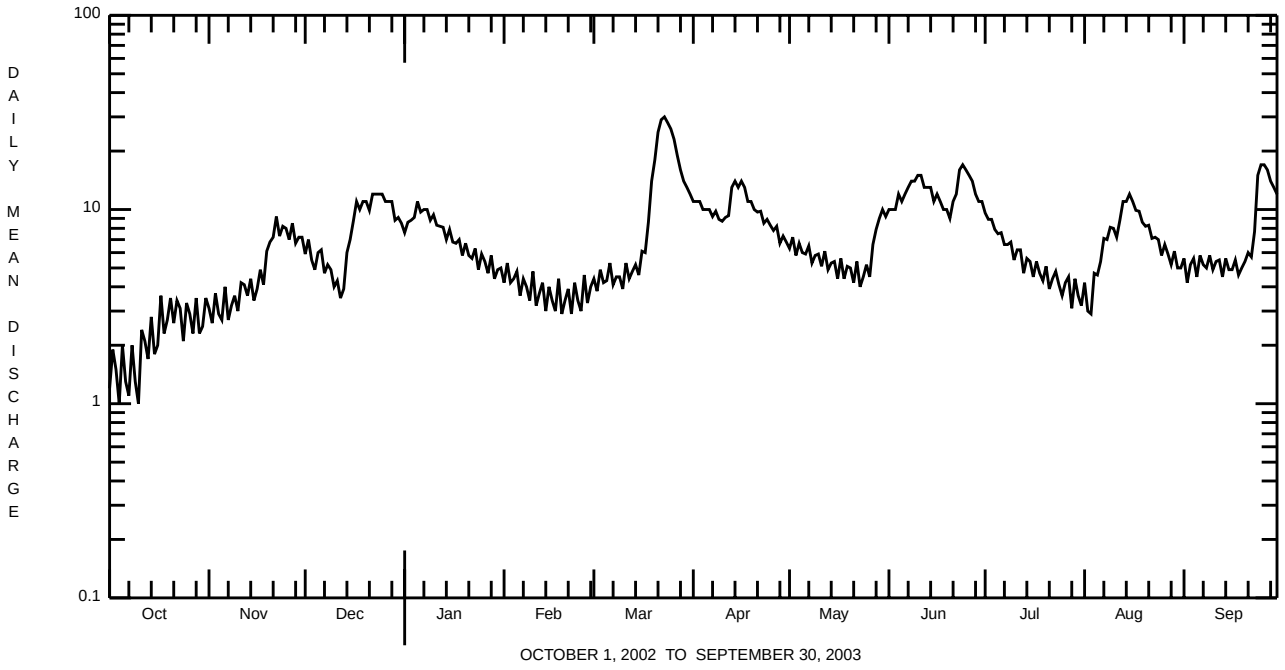
e Estimated.

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2000 - 2003	
ANNUAL TOTAL	1770.95		2635.1			
ANNUAL MEAN	4.85		7.22		5.26	
HIGHEST ANNUAL MEAN					7.22	2003
LOWEST ANNUAL MEAN					4.01	2002
HIGHEST DAILY MEAN	14	May 21,23	30	Mar 23	30	Mar 23 2003
LOWEST DAILY MEAN	0.59	Sep 13	1.0	Oct 4,10	0.59	Nov 23 2001**a**
ANNUAL SEVEN-DAY MINIMUM	1.0	Sep 13	1.4	Oct 4	1.00	Nov 17 2001
MAXIMUM PEAK FLOW			30	Mar 22,23	30	Mar 22,23 2003
MAXIMUM PEAK STAGE			2.30	Mar 22,23	2.30	Mar 22,23 2003
INSTANTANEOUS LOW FLOW			0.88	Oct 6	0.59	Nov 17 2001**b**
10 PERCENT EXCEEDS	10		12		10	
50 PERCENT EXCEEDS	3.8		5.9		4.2	
90 PERCENT EXCEEDS	1.3		3.1		1.6	

a Also Sept. 13, 2002.
b Also Nov. 18, 20-24, 2001, Sept. 12-15, 19, 2002.



403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued
(Swatara Creek Project)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1996 to current year.
PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1999 to current year.
pH: April 1999 to current year.
WATER TEMPERATURE: April 1999 to current year.
INSTRUMENTATION.--Water-quality monitor (in situ system).
REMARKS.--Specific conductance records rated fair except for periods Nov. 5 to Dec. 12, and Dec. 23 to Jan. 9, which are poor. pH records rated fair except for period Oct. 1 to Nov. 18, which is poor. The pH probe is subject to fowling from precipitation of iron, adhesion of lime on electrodes, and occasional burial by sediment. Water temperature records rated good. Interruptions in the record were due to malfunctions of the instrumentation. Some values for "*dissolved*" parameters exceed values for the corresponding "*total*" parameter. These results are within the limits of analytical precision and methods. Instantaneous discharge data provided by the Pottsville Mining office of the Pennsylvania Department of Environmental Protection. Other data for this project presented in tables on pages 436-482. Figure 8 shows the location of sites sampled as part of the Swatara Creek Project. Abbreviations used: E, estimated.
EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 904 microsiemens, Sept. 28, 2002; minimum, 141 microsiemens, Aug. 13, 1999.
pH: Maximum, 7.0, June 26, 27, 1999; minimum, 3.4, Sept. 8, 17, 1999.
WATER TEMPERATURE: Maximum, 14.5°C, Sept. 30, 1999; minimum, 10.0°C, Dec. 17, 2000.
EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 795 microsiemens, Oct. 12; minimum, 227 microsiemens, Mar. 24, 25.
pH: Maximum, 6.6, Nov. 13, 14; minimum, 3.6, Oct. 11.
WATER TEMPERATURE: Maximum, 13.5°C, Aug. 4; minimum 10.5°C, Feb. 17.

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf µS/cm 25 degC (00095)
OCT										
16...	0400	1028	89203	1.77	--	--	--	4.9	4.2	599
16...	0800	1028	89203	1.77	--	--	--	4.9	4.2	585
16...	1000	1028	89203	1.93	--	--	--	4.9	4.2	571
16...	1400	1028	89203	2.09	--	--	--	4.9	4.1	564
16...	1700	1028	89203	2.26	--	--	--	4.8	4.1	620
NOV										
06...	0100	1028	89203	4.23	--	--	--	4.3	4.3	463
06...	0400	1028	89203	4.23	--	--	--	4.3	4.3	449
06...	0830	1028	89203	4.23	--	--	--	4.5	4.4	442
06...	1130	1028	89203	4.23	--	--	--	4.6	4.4	439
06...	1900	1028	89203	4.02	--	--	--	4.8	3.9	430
12...	1500	1028	89203	3.60	--	--	--	6.5	6.1	371
12...	1630	1028	89203	3.60	--	--	--	6.5	6.0	369
12...	1930	1028	89203	3.60	--	--	--	6.5	6.0	368
12...	2100	1028	89203	3.60	--	--	--	6.5	6.0	373
13...	0600	1028	89203	3.60	--	--	--	6.5	6.1	375
14...	0900	1028	89203	4.45	--	--	--	5.6	--	416
14...	1400	1028	89203	4.45	444	10.0	9.40	5.8	5.1	416
16...	1600	1028	89203	3.40	--	--	--	6.2	6.3	401
16...	2000	1028	89203	5.35	--	--	--	6.1	4.9	416
17...	1800	1028	89203	5.35	--	--	--	6.0	6.0	389
17...	2000	1028	89203	3.81	--	--	--	6.0	5.6	389
18...	0200	1028	89203	4.02	--	--	--	6.0	5.4	382
DEC										
12...	0800	1028	89203	3.60	--	--	--	6.0	6.1	371
12...	0815	1028	89203	3.60	--	--	--	6.0	6.1	371
13...	0600	1028	89203	3.40	--	--	--	6.1	6.5	373
13...	1930	1028	89203	3.60	--	--	--	6.1	6.3	373
14...	0130	1028	89203	5.59	--	--	--	5.2	5.0	392
14...	0430	1028	89203	5.83	--	--	--	5.3	5.2	395
14...	0600	1028	89203	5.83	--	--	--	5.3	4.7	400
14...	0730	1028	89203	6.07	--	--	--	5.2	5.0	413
14...	1030	1028	89203	6.07	--	--	--	5.2	4.7	442
19...	1445	1028	89203	11.3	476	16.0	8.90	5.6	5.2	310
JAN										
01...	0900	1028	89203	7.46	--	--	--	5.9	6.1	274
01...	1500	1028	89203	7.46	--	--	--	5.9	6.0	270
01...	2100	1028	89203	7.93	--	--	--	5.8	5.6	305
02...	0300	1028	89203	7.93	--	--	--	5.6	4.8	327
02...	0600	1028	89203	8.87	--	--	--	5.2	4.1	342
MAR										
05...	1600	1028	89203	4.01	364	7.00	9.50	6.4	6.1	310
19...	1300	1028	89203	13.7	--	--	--	5.7	5.3	312
20...	1230	1028	89203	17.3	--	--	--	5.7	--	264
20...	1630	1028	89203	18.1	--	--	--	5.7	--	259
20...	1830	1028	89203	18.8	--	--	--	5.7	--	263
20...	2030	1028	89203	19.5	--	--	--	5.7	--	272
21...	0030	1028	89203	20.6	--	--	--	5.6	--	285
21...	0230	1028	89203	21.1	--	--	--	5.6	--	280
21...	0830	1028	89203	24.4	--	--	--	5.4	--	303
22...	0030	1028	89203	28.6	--	--	--	5.5	--	279
APR										
03...	1430	1028	89203	11.0	493	32.0	9.24	5.2	4.8	267
MAY										
01...	1445	1028	89203	6.06	472	36.0	9.38	5.4	5.6	268
24...	0900	1028	89203	3.80	--	--	--	6.2	--	263
24...	1200	1028	89203	3.80	--	--	--	6.2	6.0	264
24...	1500	1028	89203	5.36	--	--	--	5.5	4.1	302
25...	2100	1028	89203	5.36	--	--	--	5.6	4.3	329
26...	0000	1028	89203	4.01	--	--	--	6.0	5.5	316
JUN										
03...	1400	1028	89203	9.91	439	24.0	9.23	5.6	5.3	274
20...	0315	1028	89203	9.10	--	--	--	5.4	5.0	264
20...	1500	1028	89203	8.87	--	--	--	5.4	4.3	264
20...	2100	1028	89203	8.87	--	--	--	5.4	4.0	262
21...	0300	1028	89203	9.37	--	--	--	5.1	3.9	302
21...	2100	1028	89203	11.5	--	--	--	4.6	3.9	360
22...	0900	1028	89203	11.8	--	--	--	5.0	3.8	317
23...	0600	1028	89203	14.3	--	--	--	5.0	4.0	288
23...	0900	1028	89203	16.0	--	--	--	4.8	--	296
JUL										
23...	1530	1028	89203	4.89	459	17.0	10.2	5.2	4.8	299
AUG										
19...	1415	1028	89203	8.16	378	36.0	9.30	6.1	5.7	262
SEP										
24...	1500	1028	89203	15.3	484	21.6	9.39	5.2	5.2	314

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Temper-ature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnes-ium, water, fltrd, mg/L (00925)	Magnes-ium, water, unfltrd recover-able, mg/L (00927)	Potas-sium, water, fltrd, mg/L (00935)	Potas-sium, water, unfltrd recover-able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover-able, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
OCT										
16...	11.7	25.3	22.8	68.2	69.2	1.90	1.70	6.00	5.00	.00
16...	11.7	21.5	23.6	59.3	66.5	1.70	1.60	5.20	4.80	.00
16...	11.7	24.3	21.7	63.2	65.4	1.80	1.70	5.60	5.30	.00
16...	11.8	23.0	22.9	67.9	70.4	1.80	1.60	5.20	4.80	.00
16...	11.7	26.0	23.7	72.8	72.2	1.90	1.60	5.70	4.60	.00
NOV										
06...	12.1	16.5	16.1	36.0	38.0	1.40	1.40	4.80	3.80	.00
06...	12.1	21.5	21.9	37.3	41.8	1.80	1.50	5.10	4.80	.00
06...	12.2	21.1	19.2	37.2	36.9	1.70	1.40	4.90	3.90	.00
06...	12.3	20.7	18.4	36.1	34.9	1.70	1.30	4.80	3.60	.00
06...	12.2	21.1	19.5	36.1	36.8	1.60	1.50	4.70	3.80	.00
12...	11.9	14.7	12.9	28.9	27.5	1.40	1.20	5.10	3.60	6.80
12...	11.9	14.2	13.0	27.6	27.6	1.30	1.30	4.10	3.70	8.60
12...	11.9	14.1	12.8	27.3	27.3	1.40	1.20	4.30	3.30	8.90
12...	11.9	14.5	13.4	28.1	28.5	1.30	1.20	4.70	4.10	9.30
13...	11.9	14.4	13.2	28.1	28.8	1.40	1.20	4.90	3.80	10.2
14...	12.2	17.1	20.7	30.8	34.8	1.40	1.60	3.50	4.00	--
14...	12.2	--	--	--	--	--	--	--	--	2.50
16...	11.9	13.1	12.3	24.8	26.7	1.30	1.10	4.50	3.20	13.1
16...	12.1	16.4	14.8	30.3	29.3	1.50	1.30	4.30	3.60	1.90
17...	12.2	15.0	13.3	29.0	29.4	1.20	1.20	4.40	3.60	10.9
17...	11.9	17.3	--	30.3	--	1.50	--	4.90	--	4.60
18...	11.8	16.7	15.2	28.9	28.2	1.50	1.40	4.30	3.80	3.90
DEC										
12...	11.6	14.8	--	30.0	--	1.30	--	4.40	--	15.2
12...	11.6	--	12.7	--	28.5	--	1.10	--	3.60	15.2
13...	11.6	12.9	11.4	25.8	25.2	1.50	1.20	4.30	3.20	14.7
13...	11.6	13.6	15.1	27.7	34.2	1.30	1.60	4.10	4.00	13.0
14...	11.8	15.6	17.3	27.8	33.5	1.50	1.60	4.20	3.50	3.00
14...	11.9	15.6	18.0	27.8	35.0	1.50	1.50	4.00	4.30	3.00
14...	11.9	16.3	17.3	28.7	33.7	1.50	1.50	3.60	3.50	1.00
14...	11.9	17.6	18.4	32.5	36.4	1.60	1.80	3.80	4.00	3.00
14...	11.9	18.2	18.2	36.7	40.3	1.70	1.60	4.10	3.30	2.00
19...	11.8	12.9	12.0	24.6	24.0	1.30	1.30	3.60	3.50	4.70
JAN										
01...	11.8	11.7	11.6	21.6	22.9	1.30	1.20	3.50	3.30	10.3
01...	11.7	12.1	12.0	21.8	23.7	1.30	1.20	3.50	3.20	11.0
01...	11.7	13.4	13.2	27.9	29.8	1.30	1.40	3.80	3.50	5.20
02...	11.6	14.7	14.2	29.6	30.4	1.50	1.30	3.70	3.50	1.50
02...	11.7	15.5	14.2	30.3	30.2	1.50	1.20	3.60	3.40	.00
MAR										
05...	11.7	13.0	13.8	25.3	28.2	1.40	1.30	4.10	3.00	15.0
19...	11.8	13.3	13.0	25.0	26.4	1.40	1.40	4.50	4.70	4.80
20...	11.7	10.1	10.5	18.8	20.6	1.60	1.50	4.10	4.30	--
20...	11.7	10.6	9.90	19.5	19.2	1.60	1.60	4.20	3.90	--
20...	11.6	10.3	10.3	19.1	20.5	1.70	1.50	4.30	4.40	--
20...	11.6	10.8	10.9	20.9	23.1	1.70	1.80	4.20	3.90	--
21...	11.6	11.1	--	20.9	--	1.70	--	4.40	--	--
21...	11.6	10.9	10.8	21.5	22.8	1.60	1.50	4.00	4.20	--
21...	11.7	12.0	11.5	23.3	24.1	1.90	1.60	4.30	4.20	--
22...	11.7	--	11.4	--	22.7	--	1.80	--	4.00	--
APR										
03...	11.9	11.4	11.1	19.5	21.2	1.30	1.30	3.90	2.90	1.60
MAY										
01...	11.9	10.3	10.1	19.2	20.5	1.10	1.20	3.70	2.70	5.70
24...	11.9	11.2	11.1	18.8	20.4	1.10	1.30	3.10	3.10	--
24...	11.9	11.6	11.6	19.6	20.7	1.20	1.20	3.50	3.30	4.00
24...	12.2	14.2	14.1	21.7	23.2	1.40	1.40	3.40	3.80	.00
25...	12.2	15.2	15.1	25.5	27.0	1.40	1.50	3.50	3.60	.00
26...	11.9	13.3	13.1	27.2	28.1	1.30	1.40	3.60	3.40	4.00
JUN										
03...	11.8	9.60	10.0	19.3	20.7	1.20	1.00	4.20	3.30	4.40
20...	11.8	10.7	10.2	22.1	22.7	1.30	1.20	3.50	3.80	1.00
20...	11.8	10.6	9.90	21.7	21.9	1.20	1.20	4.00	3.40	.00
20...	11.8	10.6	10.2	22.7	23.4	1.30	1.40	3.50	3.70	.00
21...	11.7	11.7	11.7	24.5	25.3	1.30	1.30	3.80	3.70	.00
21...	11.8	13.1	12.6	28.9	29.7	1.40	1.40	3.70	3.90	.00
22...	11.6	11.3	10.7	26.4	27.0	1.20	1.30	3.70	4.20	.00
23...	11.7	10.0	9.90	22.0	23.4	1.20	1.20	4.10	4.00	.00
23...	11.8	11.1	11.1	22.8	24.2	1.20	1.20	4.10	3.90	--
JUL										
23...	12.3	13.8	14.8	22.8	24.4	1.20	1.30	3.00	3.50	1.20
AUG										
19...	11.9	10.5	10.8	21.5	22.0	1.20	1.30	3.60	4.20	9.00
SEP										
24...	11.9	11.8	12.3	24.5	25.8	1.20	1.30	3.40	4.60	3.60

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Mangan-ese, water, fltrd, µg/L (01056)	Mangan-ese, water, unfltrd recover-able, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)
OCT										
16...	2000	3400	9080	11600	2720	2500	167	159	340	296
16...	1700	3400	7800	14100	2390	2460	145	154	329	293
16...	1600	3400	9310	14800	2560	2420	160	158	332	283
16...	2200	3800	8020	13700	2450	2320	157	162	357	293
16...	2000	3700	9700	13600	2670	2410	173	170	371	295
NOV										
06...	1800	1900	10800	11800	2310	2220	113	117	228	195
06...	2500	2700	6390	12500	2870	2950	169	182	414	388
06...	2400	2300	7200	10700	2960	2680	166	161	410	354
06...	2300	2100	7940	10100	2950	2590	159	168	409	350
06...	2000	2000	7780	10800	2870	2670	158	157	381	328
12...	<100	1300	8770	10400	2390	2050	109	92.0	173	145
12...	<100	1000	8910	10000	2330	2090	112	104	173	145
12...	<100	1400	8620	11700	2310	2070	93.0	92.0	171	141
12...	<100	1300	8860	11800	2340	2140	107	86.0	172	146
13...	<100	1300	9550	11400	2330	2130	102	96.0	177	149
14...	700	1800	8600	10600	2610	2870	109	130	296	283
14...	--	--	--	--	--	--	--	--	--	--
16...	<100	1200	7210	10300	2010	1960	88.0	101	157	140
16...	100	1700	8390	15800	2470	2200	112	109	260	226
17...	200	2000	8300	18800	2300	2040	111	103	221	169
17...	600	--	8000	--	2610	--	139	--	295	--
18...	200	1300	7640	10100	2500	2250	122	126	283	234
DEC										
12...	200	--	10900	--	2230	--	105	--	174	--
12...	--	1400	--	9850	--	1940	--	87.0	--	141
13...	<100	1400	7940	9790	1960	1740	85.0	81.0	157	133
13...	<100	1600	8190	11800	2040	2310	95.0	114	160	165
14...	500	1900	7080	10400	2320	2520	123	149	277	280
14...	400	1900	6680	10600	2260	2610	125	145	279	284
14...	400	1900	6900	10500	2310	2470	124	142	273	274
14...	500	2000	7300	11300	2470	2620	108	147	275	290
14...	1000	2000	7700	9590	2440	2470	128	158	306	318
19...	700	1200	7380	8560	2160	1900	96.0	87.0	226	191
JAN										
01...	<100	900	6370	8960	1980	2010	65.0	86.0	133	131
01...	<100	900	6450	8980	2020	2060	57.0	93.0	136	130
01...	<100	1300	6830	9080	2070	2050	72.0	101	163	162
02...	900	1800	6310	9380	2240	2160	114	133	261	261
02...	1700	1900	6070	9040	2310	2150	113	128	276	264
MAR										
05...	<100	1100	10200	11500	2100	2130	70.0	68.0	123	118
19...	600	1800	5990	9460	2030	2040	100	102	239	225
20...	400	1700	4050	12400	1710	1850	75.0	68.0	154	161
20...	200	1500	4200	11400	1800	1730	73.0	64.0	163	156
20...	300	2000	4100	16200	1760	1800	72.0	66.0	150	164
20...	100	2200	3960	15500	1770	1900	73.0	75.0	162	170
21...	900	--	4310	--	1790	--	86.0	--	207	--
21...	900	2000	3970	13200	1730	1780	71.0	66.0	178	187
21...	1100	2600	4030	16000	1890	1840	87.0	90.0	211	225
22...	--	2500	--	15500	--	1870	--	80.0	--	223
APR										
03...	1000	1100	3010	5050	1880	1820	94.0	85.0	242	243
MAY										
01...	400	800	4840	6510	1770	1690	72.0	64.0	176	169
24...	<100	800	<10.0	8920	1950	1990	58.0	65.0	111	124
24...	<100	700	60.0	9120	2010	2070	64.0	68.0	117	127
24...	800	1200	50.0	8650	2240	2290	106	86.0	245	263
25...	600	1100	910	7630	2140	2180	99.0	84.0	222	240
26...	<100	1200	2610	9140	2010	2030	86.0	70.0	150	156
JUN										
03...	600	1000	4510	6130	1650	1620	73.0	75.0	174	168
20...	500	900	3420	5220	1790	1750	90.0	86.0	221	226
20...	800	900	60.0	4970	1750	1690	88.0	79.0	205	201
20...	1400	1500	100	5830	1720	1680	107	101	329	324
21...	1500	1500	110	5220	1780	1780	108	108	316	311
21...	1600	1600	80.0	4730	1790	1750	110	101	305	293
22...	1300	1300	80.0	4380	1660	1600	94.0	88.0	242	236
23...	1100	1200	30.0	3820	1520	1540	90.0	82.0	222	225
23...	1200	1300	180	4000	1670	1660	100	93.0	253	252
JUL										
23...	600	1100	4540	6630	1940	2090	85.0	85.0	255	245
AUG										
19...	300	800	5280	7080	1780	1850	68.0	72.0	161	151
SEP										
24...	800	1300	4340	6910	1770	1840	85.0	74.0	214	199

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	695	638	665	465	429	444	302	300	301	319	270	281
2	638	565	605	429	420	424	319	300	314	348	319	340
3	592	543	572	461	419	446	321	308	312	345	312	328
4	578	545	567	444	400	414	317	307	308	312	294	302
5	558	534	547	465	395	405	332	307	318	301	290	296
6	553	522	538	465	409	439	336	331	334	291	278	282
7	528	510	518	414	407	410	332	314	317	291	279	286
8	548	508	527	450	402	417	345	314	327	293	283	290
9	521	501	513	440	389	415	346	322	338	305	283	286
10	501	450	482	389	380	384	323	320	321	306	303	304
11	602	454	534	425	378	403	351	320	340	307	290	297
12	795	602	728	410	368	386	375	330	365	315	292	304
13	788	731	758	392	374	382	400	370	379	313	298	308
14	731	604	652	419	391	414	464	392	434	301	297	299
15	661	593	633	420	402	408	460	390	436	322	301	319
16	655	555	604	426	401	407	390	337	361	320	301	307
17	659	610	626	426	384	403	351	323	336	328	300	311
18	668	610	645	413	382	398	327	297	307	328	304	321
19	611	531	573	417	383	399	311	293	301	306	302	304
20	531	501	514	383	338	358	320	298	308	332	301	324
21	507	473	490	345	324	332	308	297	304	329	307	316
22	473	460	467	343	322	331	309	290	299	333	305	311
23	462	439	451	322	306	309	290	266	278	333	315	328
24	439	410	424	324	305	316	285	262	271	315	306	308
25	466	408	435	323	301	313	286	270	278	332	306	321
26	439	403	416	309	296	299	270	263	265	331	318	327
27	426	410	420	316	309	314	283	262	272	321	315	316
28	476	425	460	315	296	301	288	277	281	340	321	337
29	449	412	420	314	295	303	281	265	269	339	324	331
30	445	401	408	315	302	311	291	268	285	325	318	322
31	478	409	454	---	---	---	291	272	283	318	285	303
MONTH	795	401	537	465	295	376	464	262	317	348	270	310

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	286	280	283	336	319	328	271	251	259	296	267	276
2	322	282	313	319	297	309	271	267	269	297	290	293
3	312	280	288	324	296	314	269	259	266	293	268	273
4	325	274	289	323	319	321	270	251	257	298	269	289
5	326	303	319	319	308	313	269	251	264	293	267	278
6	304	295	300	315	309	311	268	252	264	297	267	280
7	326	292	312	327	311	315	270	249	256	299	291	296
8	324	300	313	329	308	319	270	268	269	295	269	276
9	300	295	297	321	304	312	268	252	260	292	268	281
10	314	295	310	313	304	308	273	251	263	286	257	276
11	314	304	309	328	310	323	303	264	278	293	256	261
12	308	300	303	321	300	306	302	275	284	294	286	290
13	312	307	310	325	297	305	290	268	277	288	260	267
14	308	295	301	340	325	335	270	253	265	299	259	282
15	308	291	297	350	334	340	265	250	253	292	262	282
16	312	308	310	402	350	372	265	261	263	300	261	266
17	309	293	302	407	400	403	263	250	259	299	289	293
18	308	291	301	403	346	377	268	249	255	290	260	267
19	308	305	307	346	286	314	268	263	265	297	260	282
20	306	301	304	291	258	271	265	249	257	293	263	283
21	305	303	304	303	278	290	270	249	260	304	261	269
22	304	295	300	279	249	264	270	267	268	303	294	298
23	336	292	305	250	233	240	269	252	256	296	265	272
24	353	336	346	235	227	231	285	252	274	327	262	286
25	369	349	361	231	227	229	282	260	273	332	316	329
26	370	360	365	235	230	232	291	260	273	354	303	331
27	360	354	358	241	235	238	291	287	288	355	315	341
28	355	335	347	246	240	243	289	266	270	315	272	290
29	---	---	---	254	245	249	300	267	290	290	274	281
30	---	---	---	262	253	256	294	269	284	289	276	282
31	---	---	---	267	252	262	---	---	---	276	255	259
MONTH	370	274	313	407	227	298	303	249	267	355	255	285

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	292	256	279	275	262	270	321	318	320	286	277	282
2	300	283	292	279	261	268	318	314	316	286	281	283
3	287	270	278	281	278	280	314	312	313	289	279	283
4	298	284	292	283	268	277	416	313	329	343	289	312
5	299	283	291	286	268	276	558	416	519	366	343	357
6	291	275	282	288	285	287	558	440	519	366	357	363
7	307	279	288	289	272	280	440	372	407	357	348	352
8	304	294	300	289	273	281	372	330	348	348	340	343
9	299	276	284	289	283	285	330	320	325	340	327	334
10	288	276	283	287	264	268	320	307	315	327	315	321
11	279	269	275	298	260	287	329	301	309	337	314	327
12	273	260	263	297	290	294	337	306	328	331	307	325
13	288	262	283	290	276	278	306	268	285	308	301	304
14	289	287	288	310	278	301	274	262	268	328	303	325
15	287	269	273	303	277	295	273	269	271	323	294	310
16	288	283	286	303	276	280	271	257	265	356	294	334
17	284	254	271	308	302	305	274	257	265	360	338	355
18	279	253	265	303	280	294	276	273	274	341	325	333
19	280	276	278	306	280	288	276	260	268	343	315	326
20	300	260	268	309	306	307	279	260	268	350	337	344
21	361	298	336	307	286	296	279	277	278	348	338	345
22	353	292	313	309	285	297	279	260	267	341	314	331
23	296	287	291	302	277	297	278	260	272	403	297	361
24	291	278	284	324	279	306	279	275	278	387	299	330
25	278	271	275	327	310	315	275	265	267	299	271	284
26	271	266	269	336	310	325	280	265	277	276	269	274
27	267	265	266	332	303	323	281	273	279	272	267	269
28	267	256	263	308	304	307	274	267	270	268	258	264
29	270	255	263	330	304	325	278	271	274	270	257	263
30	273	270	272	327	313	321	280	272	277	272	270	271
31	---	---	---	319	309	311	277	271	273	---	---	---
MONTH	361	253	282	336	260	294	558	257	307	403	257	317
YEAR	795	227	326									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	4.8	4.7	4.7	5.0	4.6	4.8	6.2	6.2	6.2	6.0	5.7	5.9
2	4.8	4.2	4.4	5.3	5.0	5.2	6.2	5.5	5.6	5.7	5.1	5.2
3	4.8	4.2	4.7	5.4	5.0	5.1	6.2	5.6	6.1	5.5	5.2	5.2
4	5.0	4.8	4.8	5.3	5.1	5.2	6.2	6.0	6.2	5.6	5.3	5.5
5	5.0	4.4	4.6	6.2	4.3	5.4	6.3	5.5	5.9	5.4	5.2	5.3
6	5.0	4.6	4.9	6.0	4.2	4.6	5.6	5.5	5.5	5.7	5.4	5.6
7	5.2	5.0	5.2	6.4	6.0	6.2	6.3	5.6	6.2	5.7	5.3	5.4
8	5.2	4.8	4.8	6.4	4.7	6.4	6.3	5.6	6.3	5.6	5.3	5.3
9	5.3	4.8	5.0	6.4	4.7	5.4	6.0	5.5	5.6	5.8	5.4	5.7
10	5.5	5.2	5.3	6.5	6.4	6.4	6.4	6.0	6.3	5.6	5.4	5.5
11	5.6	3.6	3.7	6.5	5.3	5.5	6.4	5.7	5.9	5.9	5.5	5.9
12	4.6	3.8	4.5	6.5	5.6	6.4	6.1	6.0	6.0	5.9	5.4	5.5
13	4.7	4.6	4.6	6.6	6.5	6.5	6.1	5.2	6.1	5.9	5.5	5.6
14	4.7	3.8	4.0	6.6	5.6	5.8	5.3	5.0	5.2	6.0	5.9	6.0
15	4.8	4.0	4.7	6.2	5.8	6.1	5.8	5.2	5.3	5.9	5.3	5.4
16	4.9	4.7	4.8	6.3	6.1	6.1	5.9	5.5	5.9	5.9	5.5	5.9
17	4.8	4.2	4.3	6.1	6.0	6.1	5.6	5.4	5.5	5.9	5.2	5.9
18	5.0	4.5	4.8	6.1	6.0	6.0	5.9	5.6	5.9	5.9	5.2	5.4
19	5.1	4.8	5.0	6.1	5.3	5.6	5.9	5.5	5.9	5.9	5.8	5.8
20	5.1	4.8	4.9	6.2	5.6	6.0	5.8	5.6	5.6	5.8	5.1	5.2
21	5.4	5.1	5.3	6.2	5.7	6.2	5.9	5.8	5.8	5.8	5.3	5.8
22	5.6	5.2	5.4	5.8	5.6	5.8	5.9	5.5	5.6	5.8	5.0	5.8
23	5.6	5.2	5.4	6.2	5.8	6.2	5.8	5.6	5.7	5.4	5.0	5.1
24	5.8	5.4	5.6	6.2	5.6	5.7	5.8	5.4	5.8	5.6	5.4	5.6
25	5.7	3.8	4.2	6.2	5.7	5.8	5.8	5.4	5.5	5.6	4.9	5.1
26	5.8	4.3	5.6	6.2	5.6	6.2	5.9	5.8	5.9	5.3	5.0	5.0
27	5.9	5.7	5.8	5.8	5.6	5.7	5.9	5.4	5.9	5.4	5.3	5.4
28	5.8	4.1	4.3	6.2	5.8	6.2	5.6	5.5	5.6	5.3	5.0	5.0
29	5.8	4.3	5.6	6.2	5.5	6.1	5.9	5.6	5.9	5.3	5.0	5.2
30	5.8	5.1	5.8	6.2	5.6	5.8	5.9	5.4	5.5	5.7	5.3	5.3
31	5.6	4.6	4.7	---	---	---	6.0	5.6	5.6	6.4	5.7	5.8
MAX	5.9	5.7	5.8	6.6	6.5	6.5	6.4	6.2	6.3	6.4	5.9	6.0
MIN	4.6	3.6	3.7	5.0	4.2	4.6	5.3	5.0	5.2	5.3	4.9	5.0

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	6.5	6.4	6.5	6.2	5.9	5.9	5.3	4.9	5.2	5.4	4.9	5.4
2	6.5	5.5	5.7	6.3	6.2	6.3	4.9	4.8	4.8	4.9	4.8	4.9
3	6.4	5.8	6.4	6.4	6.0	6.2	4.9	4.8	4.9	5.4	4.9	5.4
4	6.4	5.3	6.3	6.2	6.0	6.1	5.1	4.8	5.0	5.4	4.8	4.8
5	6.3	5.4	5.6	6.4	6.2	6.4	5.0	4.7	4.8	5.4	4.8	5.3
6	6.3	6.2	6.3	6.3	6.1	6.1	5.0	4.7	4.7	5.5	4.9	5.5
7	6.2	5.2	5.4	6.4	6.1	6.3	5.0	4.6	5.0	4.9	4.8	4.9
8	6.2	5.4	6.0	6.4	5.6	5.9	4.6	4.5	4.6	5.4	4.9	5.3
9	6.2	6.2	6.2	6.4	5.9	6.0	4.9	4.6	4.6	5.4	5.0	5.3
10	6.2	5.2	5.3	6.4	6.4	6.4	4.9	4.7	4.9	5.9	5.3	5.4
11	6.3	5.4	6.1	6.4	5.6	5.8	5.0	4.9	5.0	5.9	5.2	5.9
12	6.3	5.3	6.3	6.4	5.9	6.3	5.3	4.8	5.3	5.5	5.2	5.4
13	5.9	5.3	5.4	6.3	5.6	6.3	5.3	4.8	4.9	6.0	5.4	5.9
14	6.2	5.9	6.2	6.2	5.7	5.8	5.4	5.0	5.1	6.0	5.2	5.3
15	6.2	5.6	5.9	6.2	6.0	6.2	5.5	5.1	5.4	5.9	5.4	5.4
16	6.0	5.6	5.7	6.0	5.4	5.5	5.2	5.1	5.2	6.0	5.2	6.0
17	6.2	6.0	6.2	5.8	5.4	5.7	5.5	5.2	5.2	5.4	5.2	5.4
18	6.2	5.6	5.7	5.7	5.3	5.7	5.5	5.1	5.5	6.0	5.4	6.0
19	6.2	5.7	6.0	5.6	5.4	5.5	5.1	5.1	5.1	6.0	5.2	5.3
20	6.3	5.9	6.2	5.7	5.6	5.7	5.3	5.1	5.1	6.1	5.3	5.4
21	5.9	5.7	5.8	5.6	5.4	5.5	5.3	4.9	5.1	6.1	5.4	6.1
22	6.2	5.8	6.1	5.5	5.4	5.4	5.0	4.9	5.0	5.7	5.5	5.6
23	6.2	5.6	5.9	5.5	5.5	5.5	5.3	4.9	5.3	6.2	5.7	6.2
24	5.9	5.6	5.8	5.5	5.5	5.5	5.3	4.7	4.9	6.2	5.4	6.2
25	6.1	5.9	6.0	5.5	5.4	5.5	5.5	5.0	5.1	6.0	5.4	5.5
26	6.1	5.7	5.8	5.4	5.4	5.4	5.5	4.9	5.5	6.0	5.8	6.0
27	6.2	5.8	6.0	5.4	5.2	5.3	5.0	4.8	4.9	5.9	5.3	5.5
28	6.2	5.9	6.2	5.2	5.1	5.2	5.4	5.0	5.4	5.8	5.5	5.7
29	---	---	---	5.1	5.0	5.1	5.4	4.8	4.8	5.7	5.2	5.6
30	---	---	---	5.1	5.0	5.0	5.4	4.9	5.0	5.4	5.2	5.4
31	---	---	---	5.2	5.0	5.0	---	---	---	5.6	5.4	5.6
MAX	6.5	6.4	6.5	6.4	6.4	6.4	5.5	5.2	5.5	6.2	5.8	6.2
MIN	5.9	5.2	5.3	5.1	5.0	5.0	4.6	4.5	4.6	4.9	4.8	4.8

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	5.6	5.3	5.3	5.0	4.8	4.8	5.3	5.2	5.2	5.8	5.7	5.8
2	5.6	5.2	5.3	5.0	4.8	5.0	5.5	5.3	5.5	5.8	5.8	5.8
3	5.6	5.3	5.6	4.8	4.6	4.7	5.5	5.4	5.5	5.8	5.8	5.8
4	5.4	5.3	5.3	4.8	4.7	4.7	5.4	5.1	5.2	5.8	5.7	5.8
5	5.5	5.3	5.5	4.8	4.7	4.8	5.2	5.0	5.1	5.8	5.7	5.8
6	5.5	5.1	5.4	4.7	4.6	4.6	5.2	5.2	5.2	5.8	5.8	5.8
7	5.2	5.1	5.2	4.7	4.6	4.6	5.2	5.2	5.2	5.8	5.8	5.8
8	5.2	5.1	5.1	5.0	4.7	4.8	5.3	5.2	5.3	5.8	5.8	5.8
9	5.3	5.1	5.3	5.2	4.9	5.1	5.4	5.3	5.3	5.9	5.8	5.9
10	5.3	5.0	5.1	5.6	5.2	5.6	5.4	5.3	5.3	6.0	5.9	5.9
11	5.1	5.1	5.1	5.6	4.8	5.0	5.5	5.4	5.5	6.0	5.3	5.4
12	5.3	5.1	5.3	5.1	5.0	5.1	5.5	5.2	5.4	6.0	5.5	5.5
13	5.3	4.8	5.0	5.6	5.1	5.6	5.8	5.2	5.6	6.0	6.0	6.0
14	4.9	4.8	4.8	5.5	4.6	4.8	5.8	5.6	5.8	6.0	5.4	5.4
15	5.0	4.8	5.0	5.5	4.8	4.9	5.8	5.6	5.6	6.1	5.5	6.0
16	4.8	4.7	4.7	5.5	4.8	5.5	6.0	5.8	5.8	6.0	5.2	5.9
17	5.4	4.8	4.8	4.8	4.5	4.7	6.0	5.7	6.0	5.8	5.2	5.4
18	5.4	4.9	5.4	5.2	4.7	4.7	5.8	5.6	5.7	6.0	5.3	5.9
19	5.1	4.9	5.0	5.2	4.7	5.1	6.0	5.7	5.8	5.9	5.3	5.9
20	5.4	4.9	5.4	4.7	4.5	4.6	6.1	5.6	6.0	5.9	5.2	5.3
21	5.1	4.5	4.6	4.8	4.5	4.7	5.7	5.6	5.7	5.9	5.3	5.3
22	5.2	4.7	5.1	5.0	4.6	4.8	6.0	5.7	6.0	5.9	5.4	5.4
23	5.0	4.8	4.8	5.9	4.9	5.2	6.0	5.5	5.6	5.9	5.1	5.4
24	4.8	4.7	4.8	5.9	4.9	5.8	5.7	5.6	5.6	5.3	5.1	5.2
25	4.8	4.8	4.8	6.0	5.0	5.9	6.0	5.7	5.9	5.4	5.3	5.4
26	4.8	4.7	4.8	6.0	4.8	4.9	6.0	5.7	5.7	5.4	5.3	5.4
27	4.8	4.8	4.8	6.0	4.9	5.2	5.7	5.7	5.7	5.4	5.4	5.4
28	5.0	4.8	4.8	6.1	6.0	6.1	5.9	5.7	5.8	5.6	5.4	5.4
29	5.1	4.8	5.0	6.2	5.0	5.2	5.9	5.8	5.8	5.6	5.3	5.5
30	4.8	4.8	4.8	6.1	5.3	5.4	5.8	5.7	5.8	5.4	5.3	5.4
31	---	---	---	6.1	5.3	6.0	5.8	5.8	5.8	---	---	---
MAX	5.6	5.3	5.6	6.2	6.0	6.1	6.1	5.8	6.0	6.1	6.0	6.0
MIN	4.8	4.5	4.6	4.7	4.5	4.6	5.2	5.0	5.1	5.3	5.1	5.2

YEAR			
	MAX	MAXIMUM 6.6	MINIMUM 4.6
	MIN	MAXIMUM 6.5	MINIMUM 3.6
	MEDIAN	MAXIMUM 6.5	MINIMUM 3.7

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	12.0	12.0	12.0	12.5	11.5	12.0	12.0	12.0	12.0	12.0	11.5	11.5
2	12.5	12.0	12.0	12.0	11.5	11.5	12.0	12.0	12.0	12.0	11.5	11.5
3	12.5	12.0	12.0	12.0	11.5	12.0	12.0	11.5	12.0	12.0	11.5	11.5
4	12.0	12.0	12.0	12.0	11.5	12.0	12.0	12.0	12.0	12.0	11.5	11.5
5	12.5	12.0	12.5	12.0	11.5	11.5	12.0	11.5	12.0	12.0	12.0	12.0
6	12.5	12.0	12.0	12.5	12.0	12.0	12.0	11.5	12.0	12.0	11.5	11.5
7	12.0	11.5	12.0	12.0	11.5	11.5	11.5	11.5	11.5	12.0	11.5	11.5
8	12.5	11.5	12.0	12.0	11.5	12.0	12.0	11.5	11.5	12.0	11.5	12.0
9	12.5	12.0	12.0	12.5	12.0	12.0	12.0	11.5	11.5	12.0	11.5	11.5
10	12.0	12.0	12.0	12.0	12.0	12.0	11.5	11.5	11.5	12.0	12.0	12.0
11	12.5	12.0	12.0	12.5	12.0	12.0	12.0	11.5	11.5	12.0	11.5	11.5
12	12.5	11.5	12.0	12.5	12.0	12.0	11.5	11.5	11.5	12.0	11.5	11.5
13	12.0	11.5	11.5	12.0	12.0	12.0	12.0	11.5	11.5	12.0	11.5	12.0
14	12.5	11.5	12.0	12.5	12.0	12.0	12.0	12.0	12.0	11.5	11.5	11.5
15	12.5	11.5	11.5	12.0	12.0	12.0	12.0	11.5	12.0	12.0	11.5	11.5
16	12.0	11.5	11.5	12.0	12.0	12.0	11.5	11.5	11.5	12.0	11.5	11.5
17	12.5	11.5	12.0	12.0	11.5	12.0	12.0	11.5	12.0	11.5	11.5	11.5
18	12.0	11.5	11.5	12.0	11.5	12.0	12.0	11.5	11.5	12.0	11.5	11.5
19	12.0	11.5	12.0	12.0	12.0	12.0	12.0	11.5	12.0	11.5	11.5	11.5
20	12.5	11.5	12.0	12.0	12.0	12.0	12.0	11.5	12.0	12.0	11.5	11.5
21	12.0	11.5	11.5	12.0	12.0	12.0	12.0	11.5	11.5	12.0	11.5	11.5
22	12.0	11.5	12.0	12.0	12.0	12.0	12.0	11.5	12.0	11.5	11.5	11.5
23	12.5	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	11.5	12.0
24	11.5	11.5	11.5	12.0	12.0	12.0	12.0	11.5	12.0	11.5	11.5	11.5
25	12.5	11.5	12.0	12.0	12.0	12.0	12.0	11.5	12.0	12.0	11.5	12.0
26	12.5	12.0	12.0	12.0	12.0	12.0	12.0	11.5	11.5	12.0	11.5	12.0
27	12.0	11.5	12.0	12.0	12.0	12.0	12.0	11.5	12.0	11.5	11.5	11.5
28	12.5	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	11.5	12.0
29	12.5	11.5	11.5	12.0	12.0	12.0	12.0	11.5	12.0	12.0	11.5	11.5
30	12.0	11.5	11.5	12.0	12.0	12.0	12.0	11.5	12.0	12.0	11.5	11.5
31	12.0	11.5	12.0	---	---	---	12.0	12.0	12.0	12.0	11.5	12.0
MONTH	12.5	11.5	11.9	12.5	11.5	11.9	12.0	11.5	11.8	12.0	11.5	11.6

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	11.5	11.5	11.5	12.0	11.5	12.0	12.0	11.5	11.5	12.0	12.0	12.0
2	12.0	11.5	12.0	11.5	11.5	11.5	12.0	12.0	12.0	12.0	12.0	12.0
3	12.0	11.5	11.5	12.0	11.0	11.5	12.0	12.0	12.0	12.0	11.5	12.0
4	11.5	11.5	11.5	11.5	11.5	11.5	12.0	11.5	11.5	12.0	11.5	12.0
5	12.0	11.0	11.5	12.0	11.5	11.5	12.0	11.5	12.0	12.0	11.5	12.0
6	11.5	11.0	11.0	12.0	11.5	12.0	12.0	11.5	12.0	12.0	11.5	12.0
7	12.0	11.0	11.5	12.0	11.5	11.5	11.5	11.5	11.5	12.5	12.0	12.0
8	12.0	11.0	11.5	12.0	11.5	11.5	12.0	11.5	12.0	12.0	12.0	12.0
9	11.5	11.0	11.0	12.0	11.5	11.5	12.0	11.5	11.5	12.0	12.0	12.0
10	12.0	11.5	12.0	11.5	11.5	11.5	12.0	11.5	11.5	12.0	12.0	12.0
11	12.0	11.0	11.0	12.0	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0
12	11.5	11.0	11.5	12.0	11.5	11.5	12.0	11.5	11.5	12.0	12.0	12.0
13	12.0	11.0	11.5	12.0	11.5	11.5	12.0	11.5	12.0	12.0	12.0	12.0
14	11.5	11.0	11.0	12.0	11.5	12.0	12.0	11.5	12.0	12.0	12.0	12.0
15	11.5	11.5	11.5	12.0	11.5	11.5	12.0	11.5	11.5	12.0	12.0	12.0
16	11.5	11.0	11.5	12.0	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0
17	11.5	10.5	11.0	12.0	11.5	12.0	12.0	11.5	12.0	12.0	12.0	12.0
18	12.0	11.5	12.0	12.0	11.5	11.5	12.0	11.5	11.5	12.0	11.5	12.0
19	12.0	11.5	11.5	12.0	11.5	12.0	12.0	12.0	12.0	12.5	11.5	12.0
20	12.0	11.5	11.5	12.0	11.5	11.5	12.0	11.5	12.0	12.5	12.0	12.0
21	12.0	11.5	12.0	12.0	11.5	11.5	12.0	11.5	12.0	12.0	12.0	12.0
22	11.5	11.0	11.5	12.0	11.5	12.0	12.0	12.0	12.0	12.5	12.0	12.0
23	12.0	11.0	11.5	12.0	12.0	12.0	12.0	11.5	11.5	12.5	12.0	12.0
24	11.5	11.0	11.5	12.0	12.0	12.0	12.0	11.5	12.0	12.0	12.0	12.0
25	11.5	11.0	11.0	12.0	12.0	12.0	12.0	12.0	12.0	12.5	12.0	12.0
26	12.0	11.5	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
27	12.0	11.5	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
28	12.0	11.5	11.5	12.0	12.0	12.0	12.0	11.5	12.0	12.0	12.0	12.0
29	---	---	---	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
30	---	---	---	12.0	12.0	12.0	12.5	12.0	12.0	12.0	12.0	12.0
31	---	---	---	12.0	11.5	11.5	---	---	---	12.0	12.0	12.0
MONTH	12.0	10.5	11.5	12.0	11.0	11.8	12.5	11.5	11.8	12.5	11.5	12.0

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	12.0	12.0	12.0	12.0	12.0	12.0	12.5	12.0	12.5	12.5	12.0	12.0
2	12.0	12.0	12.0	12.0	12.0	12.0	12.5	12.0	12.0	12.0	12.0	12.0
3	12.0	12.0	12.0	12.0	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0
4	12.0	12.0	12.0	12.0	12.0	12.0	13.5	12.0	12.5	12.0	12.0	12.0
5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	11.5	12.0	12.0	12.0	12.0
6	12.0	12.0	12.0	12.0	12.0	12.0	12.0	11.5	12.0	12.5	12.0	12.0
7	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.5	12.0	12.0
8	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
9	12.0	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.5	12.0	12.0
10	12.0	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
11	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
12	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
13	12.0	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
14	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
15	12.0	11.5	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.5	12.0	12.0
16	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
17	12.0	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
18	12.0	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
19	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
20	12.0	12.0	12.0	12.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
21	12.0	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
22	12.0	11.5	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
23	12.0	11.5	12.0	12.5	12.0	12.0	12.0	12.0	12.0	12.5	11.5	12.0
24	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
25	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
26	12.0	12.0	12.0	12.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
27	12.0	12.0	12.0	12.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
28	12.0	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
29	12.0	11.5	12.0	12.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
30	12.0	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0	12.0	12.0	12.0
31	---	---	---	12.0	12.0	12.0	12.0	12.0	12.0	---	---	---
MONTH	12.0	11.5	12.0	12.5	12.0	12.0	13.5	11.5	12.0	12.5	11.5	12.0
YEAR	13.5	10.5	11.9									

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA
(Swatara Creek Project)

LOCATION.--Lat 40°35'15", long 76°25'35", Schuylkill County, Hydrologic Unit 02050301, on left bank 100 ft downstream from bridge on SR 4011, 0.75 mi west of Lorberry Junction.

DRAINAGE AREA.--3.59 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1999 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 740 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records poor. Other data for this project presented in tables on pages 436-482.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 70 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 20	2000	138	2.56
Aug. 4	1015	*150	*2.64
Sept. 23	Unknown	Unknown	Unknown

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	8.4	12	23	5.5	7.4	19	10	25	12	4.8	5.7
2	2.7	6.8	12	29	6.5	8.6	20	11	22	11	3.6	5.4
3	2.5	7.7	10	25	5.5	9.5	19	9.2	23	10	4.6	16
4	2.1	6.5	9.3	23	8.1	7.8	17	9.5	30	8.7	34	13
5	2.9	6.0	10	24	7.3	8.4	18	8.9	26	8.4	17	e6.4
6	2.4	12	11	22	5.1	12	16	8.7	24	8.3	18	e6.3
7	1.9	7.1	8.1	22	5.8	9.1	15	10	34	7.4	14	e6.0
8	2.5	7.2	8.8	22	5.6	10	16	9.1	31	7.5	12	e5.0
9	2.2	8.2	8.2	21	4.8	10	15	9.2	27	7.6	13	e5.6
10	3.0	6.9	6.9	22	6.1	9.0	15	9.1	26	6.2	e17	e4.8
11	17	8.9	17	18	4.7	10	26	8.1	26	7.9	e25	e4.5
12	10	12	23	17	4.9	8.6	24	9.2	33	6.8	e20	e5.0
13	5.4	11	18	16	5.4	11	25	7.7	30	5.2	e16	e6.0
14	5.7	11	32	13	4.2	13	25	8.1	25	5.8	20	e5.6
15	3.8	9.2	30	14	5.0	12	23	7.6	22	5.4	18	e11
16	14	11	29	12	4.5	18	22	6.9	21	4.7	17	e9.0
17	e11	22	29	12	e4.2	27	21	8.4	16	5.2	16	e5.1
18	6.5	23	26	12	5.5	38	18	6.8	17	4.7	15	e5.0
19	6.0	20	25	10	4.1	40	18	7.1	15	4.3	13	e15
20	6.5	19	38	11	4.5	62	16	7.0	19	4.7	11	e13
21	5.0	19	26	9.4	5.0	65	15	6.7	33	4.1	11	e11
22	5.6	24	26	8.6	7.2	58	15	7.8	28	4.9	8.6	e25
23	6.0	19	25	9.4	9.7	50	13	6.5	27	8.1	8.1	e50
24	4.7	18	23	7.4	7.6	42	12	15	25	7.1	7.6	e27
25	6.1	17	24	8.6	6.7	36	11	12	23	4.6	e6.0	e20
26	10	15	21	8.1	8.0	33	14	19	21	4.6	6.8	e19
27	6.0	17	20	6.6	6.4	28	12	17	19	4.7	6.1	e18
28	6.7	14	19	8.3	6.9	24	10	20	16	3.7	5.0	e24
29	5.3	14	16	6.4	---	24	11	21	14	4.4	5.6	18
30	7.1	14	16	6.4	---	23	11	20	14	3.7	5.5	e15
31	9.9	---	15	6.3	---	21	---	20	---	3.3	4.9	---
TOTAL	182.8	394.9	594.3	453.5	164.8	735.4	512	336.6	712	195.0	384.2	380.4
MEAN	5.90	13.2	19.2	14.6	5.89	23.7	17.1	10.9	23.7	6.29	12.4	12.7
MAX	17	24	38	29	9.7	65	26	21	34	12	34	50
MIN	1.9	6.0	6.9	6.3	4.1	7.4	10	6.5	14	3.3	3.6	4.5

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)

MEAN	4.17	6.67	10.8	8.51	7.38	17.4	15.3	11.1	12.6	5.24	5.48	5.51
MAX	5.90	13.2	19.2	14.6	9.82	24.7	19.5	16.4	23.7	6.29	12.4	12.7
(WY)	2003	2003	2003	2003	2001	2000	2000	2002	2003	2003	2003	2003
MIN	2.99	3.03	3.35	3.97	5.83	10.3	12.2	7.30	6.65	2.59	1.82	2.52
(WY)	2002	2002	2002	2002	2002	2002	2002	2001	2002	2002	2002	2002

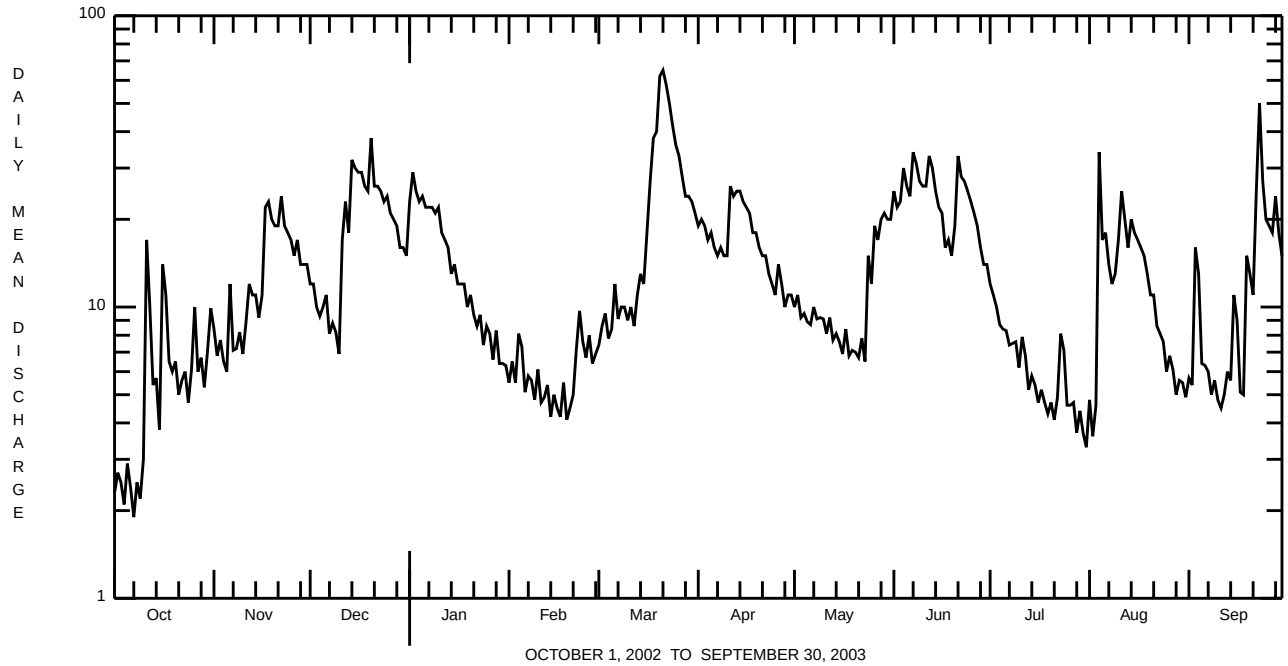
e Estimated.

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2000 - 2003	
ANNUAL TOTAL	3062.6		5045.9			
ANNUAL MEAN	8.39		13.8		9.08	
HIGHEST ANNUAL MEAN					13.8	2003
LOWEST ANNUAL MEAN					5.97	2002
HIGHEST DAILY MEAN	38	Dec 20	65	Mar 21	92	Dec 17 2000
LOWEST DAILY MEAN	1.2	Sep 7,10,13	1.9	Oct 7	**a**1.2	Sep 7 2002
ANNUAL SEVEN-DAY MINIMUM	1.5	Sep 7	2.4	Oct 3	1.5	Sep 7 2002
MAXIMUM PEAK FLOW			**b**150	Aug 4	**b**150	Aug 4 2003
MAXIMUM PEAK STAGE			2.64	Aug 4	2.64	Aug 4 2003
10 PERCENT EXCEEDS	18		25		19	
50 PERCENT EXCEEDS	6.0		11		6.6	
90 PERCENT EXCEEDS	1.9		4.9		2.5	

a Also Sept. 10, 13, 2002.
b From rating extended above 46 ft^3/s.



SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued
(Swatara Creek Project)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1996 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1996 to current year.
pH: July 1996 to current year.
WATER TEMPERATURE: July 1996 to current year.

INSTRUMENTATION.--Water-quality monitor (in situ system). Automatic pumping sampler for stormflow samples since July 1996.

REMARKS.--Specific conductance records rated fair except for periods Oct. 1-10, Apr. 10-24, and Sept. 23-30, which are poor. pH records rated fair. Water temperature records rated good. Interruptions in the record were due to malfunctions of the instrumentation. Some values for "*dissolved*" parameters exceed values for the corresponding "*total*" parameter. These results are within the limits of analytical precision and methods. Other data for the Swatara Creek Project presented in tables on pages 436-482. Figure 8 shows the location of sites sampled as part of the Swatara Creek Project.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 526, microsiemens, Sept. 29, 2002; minimum, 44, microsiemens, Sept, 23, 2003.
pH: Maximum, 8.1, Aug. 14, 1999; minimum, 3.6, Oct. 21-23, 25, Dec. 3, 1996.
WATER TEMPERATURE: Maximum, 23.5°C, July 5, 6, 1999; minimum, 0.0°C, many days during winters.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 496, microsiemens, Oct. 2; minimum 44, microsiemens, Sept. 23.
pH: Maximum, 7.2, Sept. 2, 3; minimum, 4.1, Oct. 9, 10.
WATER TEMPERATURE: Maximum, 19.5°C, Aug. 4; minimum 0.0°C, Feb. 17.

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
OCT										
16...	0600	1028	930	9.1	--	--	--	--	4.8	4.5
16...	0700	1028	930	13	--	--	--	--	5.0	4.6
16...	1100	1028	930	20	--	--	--	--	5.2	4.7
16...	1300	1028	930	20	--	--	--	--	5.2	4.7
16...	1700	1028	930	14	--	--	--	--	5.0	4.7
NOV										
06...	0200	1028	89203	12	--	--	--	--	5.2	4.1
06...	0500	1028	89203	12	--	--	--	--	5.0	3.9
06...	0930	1028	89203	11	--	--	--	--	4.8	3.8
06...	1230	1028	89203	11	--	--	--	--	4.7	3.8
06...	2000	1028	89203	9.9	--	--	--	--	4.7	3.9
12...	1600	1028	89203	15	--	--	--	--	5.7	4.4
12...	1730	1028	89203	17	--	--	--	--	5.8	4.2
12...	2030	1028	89203	16	--	--	--	--	5.8	5.0
12...	2200	1028	89203	15	--	--	--	--	5.8	4.8
13...	0700	1028	89203	11	--	--	--	--	6.0	4.4
14...	0430	1028	89203	11	--	--	--	--	5.5	--
14...	0930	1028	89203	11	413	11	10.9	95	5.2	5.2
16...	1700	1028	89203	11	--	--	--	--	6.0	5.1
16...	2100	1028	89203	17	--	--	--	--	5.4	5.2
17...	1900	1028	89203	20	--	--	--	--	5.2	6.1
17...	2100	1028	89203	19	--	--	--	--	5.5	5.8
18...	0100	1028	89203	29	--	--	--	--	5.6	5.1
DEC										
12...	0830	1028	89203	22	--	--	--	--	5.7	6.0
13...	0700	1028	89203	14	--	--	--	--	6.0	4.5
13...	1600	1028	89203	13	--	--	--	--	6.0	4.2
14...	0230	1028	89203	29	--	--	--	--	5.3	4.0
14...	0530	1028	89203	30	--	--	--	--	5.2	3.7
14...	0700	1028	89203	36	--	--	--	--	5.2	3.7
14...	0830	1028	89203	33	--	--	--	--	5.1	3.8
14...	1130	1028	89203	31	--	--	--	--	5.0	3.9
19...	1015	1028	89203	22	354	13	11.5	96	6.4	6.3
JAN										
01...	0800	1028	89203	14	--	--	--	--	6.4	4.9
01...	1200	1028	89203	20	--	--	--	--	6.3	4.9
01...	1800	1028	89203	31	--	--	--	--	6.0	4.7
01...	1900	1028	89203	35	--	--	--	--	5.9	4.4
02...	0000	1028	89203	35	--	--	--	--	5.8	4.6
02...	0500	1028	930	33	--	--	--	--	5.4	4.4
02...	0600	1028	89203	31	--	--	--	--	5.2	4.3
MAR										
05...	1200	1028	89203	7.7	327	7.0	11.9	98	6.4	6.3
19...	1230	1028	89203	37	--	--	--	--	4.6	4.9
19...	1900	1028	89203	39	--	--	--	--	4.8	--
20...	1300	1028	89203	43	--	--	--	--	5.2	4.7
20...	1700	1028	89203	76	--	--	--	--	5.1	4.8
20...	1900	1028	89203	116	--	--	--	--	5.1	5.6
20...	2100	1028	89203	128	--	--	--	--	5.0	5.0
21...	0100	1028	89203	84	--	--	--	--	4.8	4.5
21...	0300	1028	89203	72	--	--	--	--	4.8	4.5
21...	0900	1028	89203	63	--	--	--	--	4.7	4.3
22...	0100	1028	89203	60	--	--	--	--	4.7	--
APR										
03...	1000	1028	89203	20	454	21	11.1	99	4.6	4.8
MAY										
01...	1100	1028	89203	11	409	22	10.6	97	5.8	5.9
23...	2200	1028	89203	9.9	--	--	--	--	6.4	5.4
24...	0400	1028	89203	14	--	--	--	--	6.3	5.7
24...	1000	1028	89203	19	--	--	--	--	6.1	5.2
24...	1300	1028	89203	23	--	--	--	--	5.9	4.8
24...	1600	1028	89203	23	--	--	--	--	5.5	4.7
JUN										
03...	1015	1028	89203	22	399	17	10.7	98	5.7	5.5
20...	0300	1028	89203	14	--	--	--	--	4.9	5.2
20...	1300	1028	89203	14	--	--	--	--	5.3	5.2
20...	1900	1028	89203	30	--	--	--	--	5.5	4.2
20...	2200	1028	89203	36	--	--	--	--	5.1	3.9
21...	0400	1028	89203	39	--	--	--	--	4.9	4.0
21...	1000	1028	89203	35	--	--	--	--	4.7	4.5
21...	2200	1028	89203	28	--	--	--	--	4.6	4.6
22...	0400	1028	89203	29	--	--	--	--	4.7	4.6
JUL										
23...	1230	1028	89203	5.8	456	14	10.3	100	5.5	4.7
AUG										
19...	1045	1028	89203	12	384	29	10.2	98	6.0	5.5
SEP										
24...	1030	1028	89203	23	478	20	10.6	100	5.5	5.1

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Specif. conduc-tance, wat unf µS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnes-ium, water, fltrd, mg/L (00925)	Magnes-ium, water, unfltrd recover-able, mg/L (00927)	Potas-sium, water, fltrd, mg/L (00935)	Potas-sium, water, unfltrd recover-able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover-able, mg/L (00929)
OCT										
16...	234	11.7	7.70	8.0	13.0	13.0	1.20	.8	2.90	3.0
16...	181	11.9	6.30	6.8	10.0	10.0	.95	.7	2.90	2.8
16...	141	12.3	6.20	6.7	9.60	9.6	.87	.6	2.50	2.5
16...	148	12.2	6.90	7.4	11.0	11.0	.89	.7	2.40	2.3
16...	181	11.9	8.50	8.7	14.0	14.0	1.10	.8	2.30	2.4
NOV										
06...	249	8.6	11.6	11.9	16.2	18.2	1.00	1.2	3.00	2.9
06...	233	8.8	11.0	11.8	15.5	18.0	1.10	1.1	2.90	2.9
06...	254	9.3	11.7	13.0	16.6	19.4	1.00	1.0	2.70	2.9
06...	265	9.7	12.7	13.2	17.6	19.8	1.10	1.1	2.60	2.9
06...	282	8.9	13.0	14.3	18.0	21.7	1.10	1.1	3.00	3.4
12...	192	10.4	7.70	8.4	9.60	11.2	.80	.9	2.40	2.6
12...	168	10.2	8.00	8.5	10.2	11.8	.90	.9	2.70	2.3
12...	165	10.0	8.40	8.8	10.9	12.7	.80	.9	3.00	2.6
12...	169	10.0	8.70	9.1	11.5	13.2	.90	1.0	2.90	2.3
13...	197	9.9	9.40	10.3	13.0	15.6	.90	1.1	2.50	3.2
14...	264	8.7	13.0	15.0	19.5	22.7	1.00	1.3	2.80	3.2
14...	268	9.1	--	--	--	--	--	--	--	--
16...	225	9.4	8.80	16.7	11.3	25.0	.90	1.2	2.70	3.4
16...	225	9.2	10.1	10.7	13.8	16.0	1.00	1.1	2.40	3.1
17...	207	9.1	9.70	10.6	13.8	16.8	.90	1.2	2.70	2.6
17...	183	8.8	9.80	15.0	14.1	23.7	1.00	1.2	2.50	3.4
18...	145	8.0	9.00	10.5	12.4	15.5	1.00	1.1	2.40	2.9
DEC										
12...	142	4.9	7.20	7.4	9.70	10.6	.80	.9	2.80	2.9
13...	167	5.9	7.80	8.2	10.7	12.0	1.10	1.1	2.80	3.4
13...	175	6.2	7.80	--	10.6	--	1.00	--	4.10	--
14...	140	5.9	7.20	7.0	9.00	9.4	.90	.9	3.70	2.5
14...	143	5.9	6.80	6.8	8.40	9.1	1.00	.9	2.70	2.8
14...	139	5.8	6.60	6.7	8.20	9.1	.90	.8	2.40	2.6
14...	140	5.8	7.10	6.9	9.10	9.8	.90	.9	2.60	3.3
14...	152	6.0	7.30	7.2	9.70	10.5	1.10	1.0	3.30	3.1
19...	211	7.6	10.3	11.9	15.6	17.2	1.10	1.1	2.70	2.4
JAN										
01...	187	7.7	9.10	8.9	10.9	13.4	1.00	1.0	5.80	4.1
01...	164	7.1	7.80	7.4	10.2	10.2	.90	.9	5.20	4.4
01...	115	5.7	6.20	20.4	7.40	6.8	.80	1.7	4.40	12.6
01...	114	5.6	5.80	31.9	6.90	6.9	.80	1.5	3.70	15.4
02...	116	5.4	5.80	5.7	7.30	7.9	.70	.8	3.50	3.1
02...	142	5.9	--	--	--	--	--	--	--	--
02...	147	5.9	7.10	7.0	9.90	10.7	.80	.8	3.20	2.9
MAR										
05...	220	6.8	9.60	11.2	15.2	17.4	1.00	1.0	2.50	3.1
19...	184	7.3	8.80	8.3	12.4	12.7	.90	.9	2.90	2.4
19...	175	7.0	--	6.6	--	5.0	--	1.4	--	3.3
20...	132	6.7	7.50	6.7	9.70	9.3	1.20	1.0	3.40	2.9
20...	98	4.9	5.90	6.1	5.70	6.1	1.20	1.3	3.60	3.0
20...	84	4.2	5.06	--	4.16	--	1.18	--	4.04	--
20...	83	4.0	5.10	5.7	4.30	4.8	1.20	1.1	2.60	2.4
21...	112	5.0	7.10	--	9.70	--	1.20	--	2.70	--
21...	122	5.4	5.80	6.1	6.80	7.9	1.10	1.2	2.30	2.4
21...	148	6.6	6.90	7.0	8.60	9.8	1.30	1.1	3.10	3.0
22...	145	7.6	--	7.4	--	10.8	--	1.2	--	2.6
APR										
03...	215	10.3	9.40	9.8	13.2	15.2	1.10	1.0	3.10	2.6
MAY										
01...	183	11.6	8.70	8.7	12.1	13.4	.90	.8	3.00	1.8
23...	183	11.5	8.60	8.5	10.1	11.1	.80	.8	2.80	3.3
24...	147	11.2	6.70	6.7	7.30	7.9	.80	.8	2.40	2.7
24...	114	11.3	5.50	5.8	5.80	6.4	.70	.7	2.70	2.8
24...	110	11.6	6.50	5.9	6.80	6.7	.90	.8	3.50	2.2
24...	110	11.6	6.70	6.6	7.40	7.8	.70	.6	2.80	2.3
JUN										
03...	181	11.7	8.50	8.4	12.5	13.7	.80	.9	3.90	4.2
20...	168	13.0	8.60	8.6	13.0	14.0	.90	.9	2.70	2.8
20...	164	13.0	4.90	4.5	5.40	5.4	.80	.7	2.70	2.3
20...	106	13.8	4.80	4.5	5.60	5.8	.80	.6	2.20	2.3
20...	100	13.6	5.50	4.9	7.00	6.8	.70	.7	2.40	1.8
21...	118	13.3	6.00	5.1	8.20	7.6	.80	.6	2.50	1.8
21...	132	13.1	7.10	6.9	10.5	11.1	.70	.7	2.80	2.4
21...	189	12.8	6.90	6.5	10.5	10.9	.80	.7	3.00	2.4
22...	172	12.6	6.80	6.7	10.5	10.9	.70	.8	2.70	1.7
JUL										
23...	242	15.1	12.9	12.3	16.8	16.6	1.10	1.1	2.80	2.9
AUG										
19...	200	13.4	10.3	11.4	16.0	18.0	1.00	1.2	2.50	3.3
SEP										
24...	182	13.2	8.80	9.4	13.6	14.2	1.00	1.0	2.30	3.0

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Silica, water, fltrd, mg/L (00955)	Silica, water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water unfltrd mg/L (00946)	Phos-phorus, water, fltrd, mg/L (00666)	Phos-phorus, water, unfltrd mg/L (00665)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)
OCT										
16...	.100	--	--	--	79.0	82.0	--	--	450	1300
16...	.600	--	--	--	60.0	65.0	--	--	390	1200
16...	.700	--	--	--	58.0	62.0	--	--	310	700
16...	.700	--	--	--	65.0	68.0	--	--	350	760
16...	.700	--	--	--	79.0	87.0	--	--	430	740
NOV										
06...	.000	--	--	--	--	--	--	--	1000	1700
06...	.000	--	--	--	--	--	--	--	900	1300
06...	.000	--	--	--	--	--	--	--	1000	1400
06...	.000	--	--	--	--	--	--	--	1100	1300
06...	.000	--	--	--	--	--	--	--	1000	1300
12...	.000	--	--	--	--	--	--	--	400	800
12...	.000	--	--	--	--	--	--	--	500	800
12...	1.60	--	--	--	--	--	--	--	300	800
12...	1.00	--	--	--	--	--	--	--	400	800
13...	.000	--	--	--	--	--	--	--	600	900
14...	--	--	--	--	--	--	--	--	400	1300
14...	1.50	--	--	--	--	--	--	--	--	--
16...	1.60	--	--	--	--	--	--	--	300	900
16...	2.20	--	--	--	--	--	--	--	200	1400
17...	3.40	--	--	--	--	--	--	--	<100	1100
17...	2.80	--	--	--	--	--	--	--	<100	1000
18...	2.10	--	--	--	--	--	--	--	200	1300
DEC										
12...	3.40	--	--	--	--	--	--	--	200	700
13...	.000	--	--	--	--	--	--	--	1500	10200
13...	.000	--	--	--	--	--	--	--	800	--
14...	.000	--	--	--	--	--	--	--	800	1100
14...	.000	--	--	--	--	--	--	--	900	1500
14...	.000	--	--	--	--	--	--	--	900	1600
14...	.000	--	--	--	--	--	--	--	800	1400
14...	.000	--	--	--	--	--	--	--	900	1700
19...	4.70	--	--	--	--	--	--	--	<100	1000
JAN										
01...	2.30	--	--	--	--	--	--	--	<100	900
01...	1.10	--	--	--	--	--	--	--	200	1000
01...	.900	--	--	--	--	--	--	--	300	200
01...	.000	--	--	--	--	--	--	--	300	<100
02...	.500	--	--	--	--	--	--	--	300	800
02...	.000	--	--	--	--	--	--	--	--	--
02...	.000	--	--	--	--	--	--	--	400	900
MAR										
05...	7.00	.000	--	--	--	--	--	--	<100	900
19...	1.20	--	--	--	--	--	--	--	1300	1300
19...	--	--	--	--	--	--	--	--	--	4600
20...	.900	--	--	--	--	--	--	--	400	2100
20...	.900	--	--	--	--	--	--	--	200	5200
20...	3.00	--	--	--	--	--	--	--	<100	--
20...	1.40	--	--	--	--	--	--	--	200	2700
21...	.000	--	--	--	--	--	--	--	500	--
21...	.000	--	--	--	--	--	--	--	400	1100
21...	.000	--	--	--	--	--	--	--	600	1200
22...	--	--	--	--	--	--	--	--	--	1200
APR										
03...	1.00	--	--	--	--	--	--	--	500	900
MAY										
01...	2.80	--	--	--	--	--	--	--	<100	700
23...	1.30	--	--	--	--	--	--	--	<100	700
24...	1.80	--	--	--	--	--	--	--	<100	600
24...	1.20	--	--	--	--	--	--	--	100	800
24...	.600	--	--	--	--	--	--	--	200	600
24...	.600	--	--	--	--	--	--	--	200	500
JUN										
03...	2.10	--	--	--	--	--	--	--	<100	800
20...	1.00	--	--	--	--	--	--	--	200	700
20...	2.00	--	--	--	--	--	--	--	200	900
20...	.000	--	--	--	--	--	--	--	400	600
20...	.000	--	--	--	--	--	--	--	600	600
21...	.000	--	--	--	--	--	--	--	600	600
21...	.000	--	--	--	--	--	--	--	600	700
21...	.400	--	--	--	--	--	--	--	500	700
22...	.300	--	--	--	--	--	--	--	500	700
JUL										
23...	.800	--	--	--	--	--	--	--	400	800
AUG										
19...	2.20	--	--	--	--	--	--	--	100	800
SEP										
24...	2.20	--	--	--	--	--	--	--	200	900

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Anti-mony, water, fltrd, µg/L (01095)	Anti-mony, water, unfltrd µg/L (01097)	Arsenic water, fltrd, µg/L (01000)	Arsenic water unfltrd µg/L (01002)	Barium, water, fltrd, µg/L (01005)	Barium, water, unfltrd recover-able, µg/L (01007)	Beryll-ium, water, fltrd, µg/L (01010)	Beryll-ium, water, unfltrd recover-able, µg/L (00998)	Bismuth water, fltrd, µg/L (01015)	Bismuth water unfltrd µg/L (01017)
OCT										
16...	<6.00	<6.00	<7.50	<7.50	29.0	22.0	.350	.550	--	--
16...	<6.00	<6.00	<7.50	<7.50	22.0	20.0	.360	.560	--	--
16...	<6.00	<6.00	<7.50	<7.50	29.0	19.0	.340	.410	--	--
16...	<6.00	<6.00	<7.50	<7.50	42.0	21.0	.310	.440	--	--
16...	<6.00	<6.00	<7.50	<7.50	28.0	20.0	.360	.480	--	--
NOV										
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
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18...	--	--	--	--	--	--	--	--	--	--
DEC										
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19...	--	--	--	--	--	--	--	--	--	--
JAN										
01...	--	--	--	--	--	--	--	--	--	--
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MAR										
05...	--	--	--	--	--	--	--	--	--	--
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22...	--	--	--	--	--	--	--	--	--	--
APR										
03...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
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24...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
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22...	--	--	--	--	--	--	--	--	--	--
JUL										
23...	--	--	--	--	--	--	--	--	--	--
AUG										
19...	--	--	--	--	--	--	--	--	--	--
SEP										
24...	--	--	--	--	--	--	--	--	--	--

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)	Cerium, water, fltrd, µg/L (01110)	Cerium, water, unfltrd µg/L (01112)	Cesium, water, fltrd, µg/L (01115)	Cesium, water, unfltrd µg/L (01117)	Chrom-ium, water, fltrd, µg/L (01030)	Chrom-ium, water, unfltrd recover-able, µg/L (01034)	Cobalt water, fltrd, µg/L (01035)	Cobalt water, unfltrd recover-able, µg/L (01037)
OCT										
16...	<1.00	<1.00	--	--	--	--	2.70	2.30	18.0	18.0
16...	<1.00	<1.00	--	--	--	--	2.20	2.50	14.0	16.0
16...	<1.00	<1.00	--	--	--	--	1.80	1.30	13.0	13.0
16...	<1.00	<1.00	--	--	--	--	2.20	1.90	14.0	15.0
16...	<1.00	<1.00	--	--	--	--	2.50	2.20	19.0	18.0
NOV										
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
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18...	--	--	--	--	--	--	--	--	--	--
DEC										
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JAN										
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MAR										
05...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
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22...	--	--	--	--	--	--	--	--	--	--
APR										
03...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
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JUN										
03...	--	--	--	--	--	--	--	--	--	--
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21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
JUL										
23...	--	--	--	--	--	--	--	--	--	--
AUG										
19...	--	--	--	--	--	--	--	--	--	--
SEP										
24...	--	--	--	--	--	--	--	--	--	--

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover -able, µg/L (01042)	Dyspros ium, water, fltrd, µg/L (82331)	Dyspros ium, water, unfltrd µg/L (82330)	Erbium, water, fltrd, µg/L (50573)	Erbium, water, unfltrd µg/L (01246)	Euro- pium, water, fltrd, µg/L (50574)	Europ- ium, water, unfltrd µg/L (01236)	Gado- linium, water, fltrd, µg/L (50575)	Gado- linium, water, unfltrd µg/L (01219)
OCT										
16...	4.10	4.40	--	--	--	--	--	--	--	--
16...	4.70	5.40	--	--	--	--	--	--	--	--
16...	3.50	3.20	--	--	--	--	--	--	--	--
16...	23.0	3.40	--	--	--	--	--	--	--	--
16...	3.20	4.00	--	--	--	--	--	--	--	--
NOV										
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
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17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
DEC										
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
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14...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
JAN										
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
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22...	--	--	--	--	--	--	--	--	--	--
APR										
03...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
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24...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
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22...	--	--	--	--	--	--	--	--	--	--
JUL										
23...	--	--	--	--	--	--	--	--	--	--
AUG										
19...	--	--	--	--	--	--	--	--	--	--
SEP										
24...	--	--	--	--	--	--	--	--	--	--

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover -able, µg/L (01045)	Lantha- num, water, fltrd, µg/L (01180)	Lantha- num, water, unfltrd µg/L (01182)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover -able, µg/L (01051)	Lithium water, fltrd, µg/L (01130)	Lithium water unfltrd recover -able, µg/L (01132)	Mangan- ese, water, fltrd, µg/L (01056)	Mangan- ese, water, unfltrd recover -able, µg/L (01055)
OCT										
16...	350	5100	--	--	<5.00	<5.00	--	--	620	610
16...	500	4700	--	--	<5.00	<5.00	--	--	490	530
16...	560	2100	--	--	<5.00	<5.00	--	--	470	470
16...	670	2700	--	--	<5.00	<5.00	--	--	520	510
16...	1200	1900	--	--	<5.00	<5.00	--	--	640	620
NOV										
06...	2880	7720	--	--	--	--	--	--	1190	1260
06...	2980	5660	--	--	--	--	--	--	1170	1270
06...	2900	6190	--	--	--	--	--	--	1310	1430
06...	3220	4990	--	--	--	--	--	--	1380	1440
06...	3280	5250	--	--	--	--	--	--	1430	1570
12...	2080	3890	--	--	--	--	--	--	800	890
12...	2890	4010	--	--	--	--	--	--	840	920
12...	2520	3950	--	--	--	--	--	--	890	950
12...	2630	4040	--	--	--	--	--	--	940	990
13...	3490	4660	--	--	--	--	--	--	1060	1180
14...	4570	6520	--	--	--	--	--	--	1600	1720
14...	--	--	--	--	--	--	--	--	--	--
16...	2250	7950	--	--	--	--	--	--	990	2010
16...	2650	6850	--	--	--	--	--	--	1190	1270
17...	2780	5720	--	--	--	--	--	--	1140	1260
17...	2870	8350	--	--	--	--	--	--	1180	1900
18...	2410	7260	--	--	--	--	--	--	1060	1240
DEC										
12...	2390	2960	--	--	--	--	--	--	710	730
13...	1670	55600	--	--	--	--	--	--	830	1340
13...	2270	--	--	--	--	--	--	--	810	--
14...	1760	5310	--	--	--	--	--	--	720	730
14...	1670	7140	--	--	--	--	--	--	670	740
14...	1530	8470	--	--	--	--	--	--	640	740
14...	1640	6860	--	--	--	--	--	--	680	760
14...	1600	8200	--	--	--	--	--	--	700	780
19...	3790	5490	--	--	--	--	--	--	1270	1380
JAN										
01...	2100	5670	--	--	--	--	--	--	1000	1160
01...	2080	6870	--	--	--	--	--	--	930	860
01...	1490	2440	--	--	--	--	--	--	660	1010
01...	1330	7110	--	--	--	--	--	--	560	1300
02...	1370	3160	--	--	--	--	--	--	570	570
02...	--	--	--	--	--	--	--	--	--	--
02...	1760	3320	--	--	--	--	--	--	740	750
MAR										
05...	4200	6150	--	--	--	--	--	--	1180	1290
19...	4120	4860	--	--	--	--	--	--	1070	1000
19...	--	27100	--	--	--	--	--	--	--	2310
20...	1410	14400	--	--	--	--	--	--	910	1000
20...	490	36900	--	--	--	--	--	--	630	1790
20...	186	--	--	--	--	--	--	--	530	--
20...	320	16000	--	--	--	--	--	--	500	1640
21...	1830	--	--	--	--	--	--	--	870	--
21...	1050	5470	--	--	--	--	--	--	640	770
21...	1490	6130	--	--	--	--	--	--	780	840
22...	--	6120	--	--	--	--	--	--	--	930
APR										
03...	1720	3350	--	--	--	--	--	--	1230	1250
MAY										
01...	2280	3670	--	--	--	--	--	--	1100	1120
23...	<10.0	5650	--	--	--	--	--	--	1030	1020
24...	310	4360	--	--	--	--	--	--	720	730
24...	250	4360	--	--	--	--	--	--	570	620
24...	390	3130	--	--	--	--	--	--	670	610
24...	480	2220	--	--	--	--	--	--	710	680
JUN										
03...	2510	3670	--	--	--	--	--	--	1080	1050
20...	1670	2880	--	--	--	--	--	--	1080	1070
20...	210	3880	--	--	--	--	--	--	440	490
20...	340	2020	--	--	--	--	--	--	420	400
20...	760	1730	--	--	--	--	--	--	530	470
21...	470	1620	--	--	--	--	--	--	610	520
21...	150	2010	--	--	--	--	--	--	730	700
21...	70.0	1960	--	--	--	--	--	--	680	640
22...	90.0	2010	--	--	--	--	--	--	690	680
JUL										
23...	2470	3930	--	--	--	--	--	--	1440	1440
AUG										
19...	2700	4730	--	--	--	--	--	--	1360	1550
SEP										
24...	2140	3890	--	--	--	--	--	--	950	1020

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Molyb-denum, water, fltrd, µg/L (01060)	Molyb-denum, water, unfltrd recover-able, µg/L (01062)	Neodym-ium, water, fltrd, µg/L (50579)	Neodym-ium, water, unfltrd µg/L (01237)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Praseo-dymium, water, fltrd, µg/L (50582)	Praseo-dymium, water, unfltrd µg/L (01238)	Rhenium water, fltrd, µg/L (50583)	Rhenium water unfltrd µg/L (01242)
OCT										
16...	--	--	--	--	36.0	32.0	--	--	--	--
16...	--	--	--	--	28.0	28.0	--	--	--	--
16...	--	--	--	--	27.0	26.0	--	--	--	--
16...	--	--	--	--	31.0	28.0	--	--	--	--
16...	--	--	--	--	39.0	36.0	--	--	--	--
NOV										
06...	--	--	--	--	66.0	60.0	--	--	--	--
06...	--	--	--	--	57.0	60.0	--	--	--	--
06...	--	--	--	--	76.0	69.0	--	--	--	--
06...	--	--	--	--	72.0	76.0	--	--	--	--
06...	--	--	--	--	73.0	77.0	--	--	--	--
12...	--	--	--	--	32.0	33.0	--	--	--	--
12...	--	--	--	--	38.0	44.0	--	--	--	--
12...	--	--	--	--	31.0	41.0	--	--	--	--
12...	--	--	--	--	38.0	42.0	--	--	--	--
13...	--	--	--	--	44.0	52.0	--	--	--	--
14...	--	--	--	--	85.0	85.0	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	49.0	69.0	--	--	--	--
16...	--	--	--	--	51.0	60.0	--	--	--	--
17...	--	--	--	--	49.0	55.0	--	--	--	--
17...	--	--	--	--	47.0	72.0	--	--	--	--
18...	--	--	--	--	53.0	47.0	--	--	--	--
DEC										
12...	--	--	--	--	30.0	30.0	--	--	--	--
13...	--	--	--	--	33.0	19.0	--	--	--	--
13...	--	--	--	--	34.0	--	--	--	--	--
14...	--	--	--	--	44.0	28.0	--	--	--	--
14...	--	--	--	--	31.0	27.0	--	--	--	--
14...	--	--	--	--	33.0	28.0	--	--	--	--
14...	--	--	--	--	30.0	32.0	--	--	--	--
14...	--	--	--	--	39.0	35.0	--	--	--	--
19...	--	--	--	--	41.0	67.0	--	--	--	--
JAN										
01...	--	--	--	--	42.0	45.0	--	--	--	--
01...	--	--	--	--	38.0	34.0	--	--	--	--
01...	--	--	--	--	33.0	70.0	--	--	--	--
01...	--	--	--	--	25.0	72.0	--	--	--	--
02...	--	--	--	--	33.0	26.0	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	32.0	45.0	--	--	--	--
MAR										
05...	--	--	--	--	40.0	49.0	--	--	--	--
19...	--	--	--	--	52.0	48.0	--	--	--	--
19...	--	--	--	--	--	30.0	--	--	--	--
20...	--	--	--	--	41.0	31.0	--	--	--	--
20...	--	--	--	--	31.0	33.0	--	--	--	--
20...	--	--	--	--	13.2	--	--	--	--	--
20...	--	--	--	--	16.0	54.0	--	--	--	--
21...	--	--	--	--	62.0	--	--	--	--	--
21...	--	--	--	--	44.0	46.0	--	--	--	--
21...	--	--	--	--	51.0	55.0	--	--	--	--
22...	--	--	--	--	--	59.0	--	--	--	--
APR										
03...	--	--	--	--	72.0	60.0	--	--	--	--
MAY										
01...	--	--	--	--	45.0	53.0	--	--	--	--
23...	--	--	--	--	46.0	44.0	--	--	--	--
24...	--	--	--	--	41.0	45.0	--	--	--	--
24...	--	--	--	--	39.0	43.0	--	--	--	--
24...	--	--	--	--	44.0	45.0	--	--	--	--
24...	--	--	--	--	48.0	43.0	--	--	--	--
JUN										
03...	--	--	--	--	52.0	51.0	--	--	--	--
20...	--	--	--	--	76.0	69.0	--	--	--	--
20...	--	--	--	--	38.0	42.0	--	--	--	--
20...	--	--	--	--	41.0	39.0	--	--	--	--
20...	--	--	--	--	45.0	43.0	--	--	--	--
21...	--	--	--	--	41.0	50.0	--	--	--	--
21...	--	--	--	--	58.0	58.0	--	--	--	--
21...	--	--	--	--	50.0	56.0	--	--	--	--
22...	--	--	--	--	54.0	52.0	--	--	--	--
JUL										
23...	--	--	--	--	76.0	62.0	--	--	--	--
AUG										
19...	--	--	--	--	62.0	65.0	--	--	--	--
SEP										
24...	--	--	--	--	49.0	50.0	--	--	--	--

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Rubid-ium, water, fltrd, µg/L (01135)	Rubid-ium, water, unfltrd µg/L (01137)	Samar-ium, water, fltrd, µg/L (82323)	Samar-ium, water, unfltrd µg/L (82322)	Selen-ium, water, fltrd, µg/L (01145)	Selen-ium, water, unfltrd µg/L (01147)	Silver, water, fltrd, µg/L (01075)	Silver, water, unfltrd recover-able, µg/L (01077)	Stront-ium, water, fltrd, µg/L (01080)	Stront-ium, water, unfltrd recover-able, µg/L (01082)
OCT										
16...	--	--	--	--	<7.50	<7.50	--	--	--	--
16...	--	--	--	--	<7.50	<7.50	--	--	--	--
16...	--	--	--	--	<7.50	<7.50	--	--	--	--
16...	--	--	--	--	<7.50	<7.50	--	--	--	--
16...	--	--	--	--	<7.50	<7.50	--	--	--	--
NOV										
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
DEC										
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
JAN										
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
APR										
03...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
JUL										
23...	--	--	--	--	--	--	--	--	--	--
AUG										
19...	--	--	--	--	--	--	--	--	--	--
SEP										
24...	--	--	--	--	--	--	--	--	--	--

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Vanadium, water, fltrd, µg/L (01085)	Vanadium, water, unfltrd µg/L (01087)	Ytterbium, water, fltrd, µg/L (01194)	Ytterbium, water, unfltrd µg/L (01196)	Yttrium water, fltrd, µg/L (01201)	Yttrium water unfltrd µg/L (01203)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)	Uranium natural water, fltrd, µg/L (22703)	Uranium natural water unfltrd µg/L (28011)
OCT										
16...	--	--	--	--	--	--	99.0	91.0	--	--
16...	--	--	--	--	--	--	88.0	84.0	--	--
16...	--	--	--	--	--	--	83.0	79.0	--	--
16...	--	--	--	--	--	--	94.0	85.0	--	--
16...	--	--	--	--	--	--	110	99.0	--	--
NOV										
06...	--	--	--	--	--	--	195	167	--	--
06...	--	--	--	--	--	--	169	166	--	--
06...	--	--	--	--	--	--	198	190	--	--
06...	--	--	--	--	--	--	204	195	--	--
06...	--	--	--	--	--	--	213	198	--	--
12...	--	--	--	--	--	--	107	96.0	--	--
12...	--	--	--	--	--	--	109	93.0	--	--
12...	--	--	--	--	--	--	104	96.0	--	--
12...	--	--	--	--	--	--	112	103	--	--
13...	--	--	--	--	--	--	140	132	--	--
14...	--	--	--	--	--	--	214	202	--	--
14...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	148	128	--	--
16...	--	--	--	--	--	--	156	148	--	--
17...	--	--	--	--	--	--	125	117	--	--
17...	--	--	--	--	--	--	137	133	--	--
18...	--	--	--	--	--	--	143	146	--	--
DEC										
12...	--	--	--	--	--	--	87.0	78.0	--	--
13...	--	--	--	--	--	--	102	157	--	--
13...	--	--	--	--	--	--	102	--	--	--
14...	--	--	--	--	--	--	103	97.0	--	--
14...	--	--	--	--	--	--	102	99.0	--	--
14...	--	--	--	--	--	--	110	102	--	--
14...	--	--	--	--	--	--	106	105	--	--
14...	--	--	--	--	--	--	114	112	--	--
19...	--	--	--	--	--	--	113	106	--	--
JAN										
01...	--	--	--	--	--	--	97.0	95.0	--	--
01...	--	--	--	--	--	--	96.0	81.0	--	--
01...	--	--	--	--	--	--	78.0	94.0	--	--
01...	--	--	--	--	--	--	77.0	145	--	--
02...	--	--	--	--	--	--	75.0	70.0	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	112	110	--	--
MAR										
05...	--	--	--	--	--	--	84.0	82.0	--	--
19...	--	--	--	--	--	--	238	130	--	--
19...	--	--	--	--	--	--	--	173	--	--
20...	--	--	--	--	--	--	122	119	--	--
20...	--	--	--	--	--	--	91.0	183	--	--
20...	--	--	--	--	--	--	54.4	--	--	--
20...	--	--	--	--	--	--	62.0	129	--	--
21...	--	--	--	--	--	--	131	--	--	--
21...	--	--	--	--	--	--	93.0	92.0	--	--
21...	--	--	--	--	--	--	120	112	--	--
22...	--	--	--	--	--	--	--	116	--	--
APR										
03...	--	--	--	--	--	--	173	169	--	--
MAY										
01...	--	--	--	--	--	--	122	133	--	--
23...	--	--	--	--	--	--	84.0	85.0	--	--
24...	--	--	--	--	--	--	69.0	73.0	--	--
24...	--	--	--	--	--	--	80.0	84.0	--	--
24...	--	--	--	--	--	--	102	92.0	--	--
24...	--	--	--	--	--	--	97.0	90.0	--	--
JUN										
03...	--	--	--	--	--	--	115	120	--	--
20...	--	--	--	--	--	--	162	143	--	--
20...	--	--	--	--	--	--	72.0	71.0	--	--
20...	--	--	--	--	--	--	115	98.0	--	--
20...	--	--	--	--	--	--	134	113	--	--
21...	--	--	--	--	--	--	143	112	--	--
21...	--	--	--	--	--	--	173	154	--	--
21...	--	--	--	--	--	--	116	105	--	--
22...	--	--	--	--	--	--	133	113	--	--
JUL										
23...	--	--	--	--	--	--	195	179	--	--
AUG										
19...	--	--	--	--	--	--	169	166	--	--
SEP										
24...	--	--	--	--	--	--	128	129	--	--

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	476	460	470	296	257	276	215	210	212	190	112	154
2	496	457	471	267	257	263	240	213	235	185	116	159
3	463	402	440	321	267	303	241	220	226	196	177	186
4	442	418	427	321	280	297	234	220	222	204	178	188
5	436	372	410	290	253	283	250	215	233	208	196	200
6	433	399	418	284	229	259	255	250	252	208	184	194
7	426	420	423	280	253	257	252	221	228	218	184	196
8	449	413	432	302	260	271	253	221	233	211	181	198
9	441	408	424	310	273	300	258	234	251	200	177	183
10	454	177	343	273	261	265	234	226	228	210	200	207
11	194	136	161	299	246	275	250	104	208	214	199	205
12	308	178	239	299	158	240	159	110	142	225	201	213
13	360	299	333	221	175	202	196	142	168	225	208	221
14	427	360	413	276	221	263	184	129	154	213	209	210
15	413	371	392	276	244	252	217	184	201	231	208	226
16	391	136	218	247	203	231	214	192	196	229	208	217
17	338	259	306	204	146	189	222	214	219	232	208	216
18	356	299	333	200	137	171	222	209	213	235	213	230
19	387	352	360	240	200	224	225	210	217	214	210	212
20	385	353	376	241	210	226	224	126	170	240	210	230
21	354	349	352	231	208	219	194	170	186	237	213	224
22	378	344	357	234	201	219	209	193	207	238	213	217
23	378	345	366	204	179	185	210	198	204	246	220	242
24	345	328	336	210	188	199	214	198	204	223	216	219
25	364	296	342	209	190	201	213	196	205	246	215	233
26	296	187	220	213	191	203	232	196	205	245	211	230
27	277	241	260	235	213	229	217	200	207	239	210	214
28	341	277	328	227	211	214	219	214	217	246	237	243
29	341	275	303	236	209	220	214	197	201	243	212	217
30	275	204	247	240	215	231	218	198	212	251	211	225
31	281	205	252	---	---	---	217	190	208	241	206	229
MONTH	496	136	347	321	137	239	258	104	209	251	112	211

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	207	198	202	265	233	256	---	---	---	204	183	187
2	243	198	229	233	179	204	---	---	---	203	194	198
3	238	203	217	244	181	222	---	---	---	199	175	182
4	211	145	181	249	220	231	---	---	---	208	175	196
5	235	198	222	239	213	222	---	---	---	206	172	188
6	215	211	213	240	213	228	---	---	---	207	174	189
7	259	211	234	224	213	219	---	---	---	214	183	205
8	258	223	242	247	218	231	---	---	---	191	172	177
9	224	221	222	239	207	225	---	---	---	203	173	189
10	261	222	255	219	207	214	---	---	---	203	183	198
11	257	223	233	250	218	245	184	110	148	201	175	178
12	258	220	232	246	217	226	173	138	157	207	200	204
13	267	235	258	225	184	207	197	172	186	204	180	188
14	235	225	227	230	196	214	204	195	200	213	180	196
15	269	223	249	217	186	204	209	193	196	212	189	206
16	270	223	249	240	179	212	214	209	211	192	167	181
17	223	212	217	216	151	185	216	199	211	204	192	201
18	266	219	259	181	157	169	214	198	204	205	175	185
19	266	224	234	184	174	178	217	213	215	216	177	196
20	260	222	236	178	78	133	215	194	205	219	195	209
21	272	233	262	151	106	140	207	191	198	211	172	181
22	233	153	190	149	145	146	209	204	206	219	210	216
23	238	161	196	154	149	152	209	192	198	218	167	195
24	253	227	236	155	146	153	223	204	215	167	107	127
25	232	227	230	149	145	147	213	189	205	178	140	165
26	271	230	264	152	140	146	190	147	169	161	97	122
27	265	229	235	159	141	152	200	183	194	177	140	168
28	261	226	238	190	158	177	200	177	184	176	130	158
29	---	---	---	189	159	175	209	182	201	189	146	167
30	---	---	---	171	162	167	211	186	203	193	189	191
31	---	---	---	---	---	---	---	---	---	192	124	167
MONTH	272	145	231	265	78	193	223	110	195	219	97	184

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	182	135	160	223	208	216	283	241	251	243	206	234
2	193	181	186	230	204	215	256	233	242	206	186	195
3	182	129	173	235	228	231	251	143	212	186	95	137
4	175	126	154	233	215	226	220	47	125	200	117	165
5	181	171	175	242	210	225	169	117	144	232	197	215
6	199	178	184	245	236	241	170	97	135	263	231	252
7	201	111	167	242	202	222	176	170	173	262	247	254
8	194	161	181	230	205	219	174	162	165	259	237	244
9	179	165	169	231	220	227	171	150	162	267	258	261
10	187	166	181	221	194	201	---	---	---	264	242	251
11	186	115	179	214	167	198	---	---	---	270	238	254
12	171	119	152	223	213	217	---	---	---	267	245	261
13	189	143	177	218	201	206	---	---	---	245	197	224
14	198	188	193	238	205	225	205	165	176	246	202	235
15	197	182	184	238	219	231	195	188	191	246	86	227
16	201	196	199	234	207	215	194	182	189	219	92	164
17	200	178	193	249	232	241	194	176	183	245	219	234
18	178	140	158	245	222	234	199	193	195	242	225	228
19	176	163	170	247	216	227	200	191	196	242	173	190
20	177	94	147	259	247	252	213	190	198	212	185	201
21	189	98	145	256	200	235	215	207	211	235	205	227
22	184	161	170	248	209	226	214	198	205	233	177	224
23	207	176	193	218	126	189	225	198	211	177	44	108
24	213	206	209	208	126	167	230	222	224	188	168	180
25	215	208	211	215	196	206	225	209	213	191	178	184
26	213	209	211	250	211	230	243	213	230	192	185	190
27	214	208	211	256	223	247	239	219	234	192	184	187
28	214	201	208	233	218	224	237	210	217	185	165	172
29	220	198	208	267	229	254	245	234	238	178	164	170
30	223	216	219	265	249	258	241	199	218	190	178	183
31	---	---	---	260	239	245	243	205	221	---	---	---
MONTH	223	94	182	267	126	224	283	47	198	270	44	208
YEAR	496	44	219									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	4.4	4.3	4.4	5.4	5.0	5.0	6.5	6.4	6.5	6.4	5.8	6.3
2	4.4	4.3	4.4	5.6	5.3	5.5	6.5	5.8	5.9	5.8	5.0	5.1
3	4.3	4.2	4.2	5.8	5.0	5.2	6.5	5.8	6.4	5.6	5.0	5.0
4	4.3	4.2	4.2	5.4	4.9	5.0	6.5	6.1	6.5	5.7	5.0	5.7
5	4.4	4.3	4.3	5.9	5.4	5.6	6.5	5.6	6.1	5.2	4.9	5.0
6	4.3	4.2	4.2	6.0	4.7	4.7	5.9	5.5	5.7	6.0	5.2	5.8
7	4.3	4.2	4.3	5.9	4.6	5.5	6.4	5.8	6.4	6.1	5.2	5.4
8	4.3	4.3	4.3	6.2	5.1	6.0	6.4	5.6	6.4	6.0	5.4	5.4
9	4.3	4.1	4.2	5.4	4.8	4.8	6.3	5.6	5.7	6.1	5.6	6.1
10	5.0	4.1	4.4	6.3	5.4	6.2	6.4	6.3	6.4	5.6	5.3	5.4
11	5.4	4.7	5.0	6.3	4.9	5.6	6.4	5.4	5.6	6.3	5.6	6.1
12	4.7	4.5	4.6	5.9	4.9	5.2	6.0	5.5	5.8	6.4	5.5	6.3
13	4.6	4.6	4.6	6.0	5.9	6.0	6.2	5.3	6.0	6.2	5.6	5.7
14	4.7	4.3	4.4	6.1	5.0	5.0	5.3	4.8	5.0	6.4	6.2	6.4
15	4.5	4.3	4.4	6.0	5.0	5.8	5.4	4.7	4.8	6.5	5.5	5.7
16	5.2	4.5	4.9	6.0	5.3	6.0	5.8	5.2	5.6	6.5	5.7	6.3
17	4.7	4.5	4.6	5.6	5.1	5.2	5.4	5.1	5.2	6.5	5.6	6.5
18	4.6	4.5	4.6	5.8	5.5	5.6	6.3	5.4	6.0	6.3	5.5	5.8
19	4.7	4.6	4.6	6.0	5.1	5.2	6.4	5.8	6.3	6.5	6.3	6.5
20	4.6	4.6	4.6	6.2	5.2	5.8	5.9	5.3	5.4	6.6	5.5	5.7
21	5.0	4.6	4.8	6.3	5.6	6.3	6.0	5.8	5.9	6.5	5.7	6.3
22	5.1	4.8	5.0	5.7	5.4	5.6	6.1	5.4	5.5	6.6	5.9	6.5
23	4.8	4.7	4.7	6.3	5.6	6.3	6.2	5.6	6.0	6.2	5.6	5.8
24	6.0	4.8	5.6	6.4	5.5	5.8	6.3	5.7	6.2	6.5	6.2	6.5
25	6.4	5.2	5.5	6.4	5.7	5.8	6.4	5.7	5.9	6.6	5.5	6.0
26	5.6	5.2	5.3	6.4	6.4	6.4	6.4	6.3	6.4	6.5	5.7	5.9
27	5.8	5.6	5.7	6.4	5.6	5.8	6.5	5.6	6.4	6.6	6.3	6.5
28	6.1	5.1	5.2	6.4	5.9	6.4	6.0	5.6	5.9	6.3	5.5	5.8
29	5.8	5.0	5.2	6.5	5.8	6.5	6.5	6.0	6.4	6.5	5.7	6.5
30	6.0	5.6	5.9	6.4	5.8	6.0	6.5	5.9	6.0	6.6	5.5	6.5
31	5.9	5.0	5.3	---	---	---	6.4	6.0	6.1	6.5	5.5	5.8
MAX	6.4	5.6	5.9	6.5	6.4	6.5	6.5	6.4	6.5	6.6	6.3	6.5
MIN	4.3	4.1	4.2	5.4	4.6	4.7	5.3	4.7	4.8	5.2	4.9	5.0

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	6.7	6.5	6.6	6.1	5.8	5.8	5.1	4.6	4.9	5.9	5.1	5.8
2	6.8	5.6	5.7	6.4	6.1	6.3	4.8	4.6	4.6	5.3	4.9	5.0
3	6.6	5.7	6.4	6.5	5.9	6.2	4.6	4.6	4.6	5.9	5.3	5.8
4	6.6	5.8	6.4	6.3	5.9	6.0	5.0	4.6	4.8	5.9	5.0	5.3
5	6.2	5.3	5.5	6.5	6.0	6.4	4.8	4.5	4.6	5.8	5.1	5.4
6	6.6	6.2	6.6	6.1	5.6	5.7	4.6	4.5	4.6	5.9	5.1	5.8
7	6.7	5.5	6.2	6.4	6.1	6.4	4.8	4.5	4.7	5.1	5.0	5.0
8	6.5	5.5	5.7	6.5	5.6	6.2	4.5	4.4	4.4	5.6	5.1	5.5
9	6.6	6.5	6.6	6.3	5.6	5.8	4.7	4.4	4.4	5.8	5.2	5.5
10	6.7	5.6	5.7	6.4	6.3	6.4	4.8	4.7	4.7	6.0	5.2	5.3
11	6.6	5.6	6.5	6.5	5.5	5.8	4.8	4.6	4.7	6.3	5.6	6.1
12	6.7	5.9	6.7	6.5	5.8	6.4	4.6	4.5	4.6	5.6	5.2	5.3
13	6.2	5.5	5.6	6.5	5.5	6.5	4.5	4.5	4.5	6.3	5.3	6.1
14	6.7	6.2	6.7	6.1	5.5	5.6	4.6	4.5	4.5	6.4	5.3	5.8
15	6.8	5.6	6.2	6.3	6.1	6.2	4.7	4.6	4.6	6.1	5.3	5.4
16	6.6	5.6	5.8	6.2	5.2	5.4	4.6	4.6	4.6	6.3	5.8	6.3
17	6.8	6.6	6.7	5.6	5.1	5.4	4.8	4.6	4.6	5.8	5.3	5.4
18	6.8	5.7	5.8	5.4	4.7	5.3	4.9	4.7	4.8	6.3	5.4	6.1
19	6.7	5.8	6.5	4.8	4.6	4.7	4.7	4.6	4.7	6.4	5.4	6.0
20	6.7	6.0	6.7	5.2	4.8	5.1	4.9	4.6	4.7	6.3	5.6	5.7
21	6.1	5.7	5.8	4.9	4.7	4.7	5.0	4.6	4.9	6.5	6.1	6.4
22	6.6	6.1	6.4	5.0	4.7	4.8	4.6	4.6	4.6	6.1	5.7	5.9
23	6.6	5.6	6.2	5.2	4.9	5.1	5.5	4.6	5.0	6.5	5.8	6.4
24	6.1	5.6	5.7	5.3	5.2	5.2	5.6	4.9	5.0	6.4	5.4	6.0
25	6.2	6.1	6.2	5.3	5.2	5.2	5.4	4.8	4.9	5.9	5.4	5.5
26	6.3	5.6	5.6	5.2	5.1	5.2	5.6	4.8	5.4	5.9	5.7	5.8
27	6.4	5.6	6.2	5.1	5.0	5.1	4.8	4.8	4.8	5.9	5.3	5.5
28	6.5	5.9	6.5	5.0	4.8	4.9	5.7	4.8	5.4	6.0	5.7	5.8
29	---	---	---	4.9	4.8	4.8	5.8	4.8	4.9	5.9	5.1	5.8
30	---	---	---	4.8	4.6	4.7	5.6	4.8	4.9	5.2	5.1	5.1
31	---	---	---	4.9	4.6	4.6	---	---	---	5.6	5.1	5.5
MAX	6.8	6.6	6.7	6.5	6.3	6.5	5.8	4.9	5.4	6.5	6.1	6.4
MIN	6.1	5.3	5.5	4.8	4.6	4.6	4.5	4.4	4.4	5.1	4.9	5.0

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	5.5	5.0	5.0	5.1	4.7	4.7	6.7	5.6	6.0	6.7	6.6	6.6
2	5.5	5.0	5.0	5.2	4.7	5.1	7.1	6.7	7.0	7.2	6.6	7.0
3	5.7	5.2	5.6	4.7	4.7	4.7	7.1	6.3	6.9	7.2	6.3	6.6
4	5.2	4.9	5.0	5.1	4.7	4.7	6.4	5.5	5.9	6.3	6.0	6.1
5	5.2	4.8	5.1	5.2	4.7	5.1	6.0	5.4	5.5	6.7	6.3	6.5
6	5.3	4.8	5.2	4.7	4.7	4.7	6.2	5.5	5.9	6.7	6.2	6.3
7	5.2	4.8	4.8	5.1	4.7	4.9	6.0	5.5	5.8	6.7	6.3	6.3
8	4.8	4.7	4.7	5.2	5.0	5.1	6.5	5.9	6.4	6.8	6.6	6.8
9	5.0	4.7	4.9	5.1	5.0	5.0	6.5	5.9	6.0	6.6	6.3	6.4
10	5.0	4.7	4.7	6.0	5.0	5.6	---	---	---	6.7	6.4	6.7
11	5.1	4.7	4.8	6.1	5.0	5.1	---	---	---	6.8	6.2	6.4
12	5.2	4.7	5.0	5.0	5.0	5.0	---	---	---	6.8	6.2	6.5
13	5.1	4.7	4.7	6.0	5.0	5.8	---	---	---	6.9	6.7	6.8
14	4.7	4.7	4.7	6.2	5.0	5.2	5.9	5.4	5.8	6.7	5.9	6.1
15	4.9	4.6	4.8	5.6	5.0	5.0	5.5	5.3	5.4	6.5	6.0	6.2
16	4.7	4.6	4.6	6.2	5.5	6.0	6.3	5.5	5.6	6.4	5.9	6.3
17	5.0	4.6	4.7	5.5	5.0	5.1	6.4	5.7	6.3	6.0	5.9	5.9
18	5.4	4.8	5.0	5.9	5.0	5.1	5.8	5.5	5.7	6.6	6.0	6.5
19	4.9	4.8	4.8	6.1	5.3	6.0	6.6	5.8	6.0	6.5	5.9	6.4
20	5.5	4.8	5.2	5.3	5.0	5.1	6.8	6.6	6.7	6.4	5.6	5.7
21	5.1	4.6	4.7	6.1	5.1	5.5	6.7	6.3	6.5	6.4	6.0	6.0
22	4.7	4.6	4.7	6.2	5.5	6.2	6.8	6.5	6.7	6.6	6.1	6.3
23	4.7	4.6	4.6	6.7	5.4	5.5	6.8	6.5	6.7	6.5	5.3	5.9
24	4.6	4.6	4.6	6.5	5.5	5.7	6.6	6.5	6.5	5.7	5.3	5.5
25	4.7	4.6	4.6	6.4	5.4	5.7	7.0	6.6	7.0	6.0	5.7	5.9
26	4.7	4.6	4.7	6.8	5.4	5.9	7.0	6.5	6.6	6.0	5.6	5.7
27	4.7	4.7	4.7	5.5	5.4	5.4	7.1	6.6	6.8	5.9	5.7	5.8
28	4.9	4.7	4.7	6.8	5.5	6.5	6.9	6.2	6.7	6.1	5.8	5.8
29	5.0	4.7	4.9	6.9	5.5	5.8	6.5	5.8	6.0	6.1	5.6	6.1
30	4.7	4.7	4.7	6.2	5.5	5.6	7.0	6.5	6.8	5.8	5.5	5.6
31	---	---	---	6.7	6.2	6.6	7.1	6.7	7.0	---	---	---
MAX	5.7	5.2	5.6	6.9	6.2	6.6	7.1	6.7	7.0	7.2	6.7	7.0
MIN	4.6	4.6	4.6	4.7	4.7	4.7	5.5	5.3	5.4	5.7	5.3	5.5

YEAR			
	MAX	MAXIMUM 7.2	MINIMUM 4.3
	MIN	MAXIMUM 6.7	MINIMUM 4.1
	MEDIAN	MAXIMUM 7.0	MINIMUM 4.2

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	17.0	12.0	14.5	9.0	7.5	8.5	8.0	7.0	7.5	8.0	5.5	7.0
2	17.0	13.5	15.0	9.0	7.5	8.0	8.5	7.0	8.0	7.0	5.5	6.0
3	18.5	14.0	15.5	9.5	7.5	8.5	8.0	6.0	6.5	6.5	5.0	6.0
4	16.5	15.0	15.0	9.5	7.5	8.5	7.5	5.5	6.5	7.0	6.5	7.0
5	16.5	13.5	15.5	9.5	8.0	8.5	7.5	5.5	6.5	7.5	7.0	7.0
6	15.0	11.5	13.0	9.5	8.5	9.0	8.0	6.0	7.5	7.5	7.0	7.5
7	15.0	12.5	14.0	9.0	7.5	8.5	7.0	4.5	6.0	7.5	6.0	7.0
8	13.0	9.5	11.5	10.5	7.0	8.5	8.0	5.5	7.0	8.0	7.0	7.5
9	13.5	9.5	11.5	11.5	8.5	10.0	7.0	4.5	6.0	8.0	7.0	7.5
10	13.5	13.0	13.0	12.0	9.5	11.0	7.0	4.0	5.5	8.0	7.0	7.5
11	14.0	13.5	13.5	12.5	10.5	12.0	7.5	4.0	5.5	7.0	6.0	6.5
12	14.0	13.5	13.5	11.0	10.0	10.5	5.5	4.0	5.0	7.0	5.5	6.5
13	13.5	11.5	13.0	10.0	8.5	9.5	6.5	5.5	6.0	7.5	6.0	6.5
14	12.5	9.5	11.0	11.0	8.5	10.0	6.0	5.5	6.0	6.5	5.5	6.0
15	12.0	9.0	11.0	11.0	8.5	10.0	7.0	6.0	6.5	7.0	5.5	6.5
16	12.5	11.5	12.0	9.5	9.0	9.5	7.5	6.5	7.0	6.0	5.0	5.5
17	12.5	11.5	11.5	9.0	8.0	9.0	7.5	6.5	7.0	6.5	5.0	5.5
18	12.0	10.0	10.5	8.5	8.0	8.0	7.5	6.0	7.0	6.5	4.0	5.0
19	11.0	9.5	10.5	9.0	8.0	8.5	8.5	7.0	8.0	6.0	4.0	5.0
20	12.0	9.5	11.0	10.0	8.5	9.0	8.5	6.5	7.5	6.5	5.0	6.0
21	11.5	9.0	10.5	10.0	8.5	9.0	7.5	7.0	7.0	5.5	4.0	5.0
22	11.5	8.0	9.5	10.0	9.0	9.5	8.5	7.0	8.0	5.0	4.0	4.5
23	11.5	9.5	10.0	9.0	8.0	8.5	8.5	8.0	8.0	5.5	3.0	4.5
24	9.5	8.5	9.0	10.0	8.5	9.0	8.5	8.0	8.0	5.5	3.0	4.0
25	10.0	9.0	9.5	10.5	9.0	9.5	8.0	6.5	7.5	7.0	4.0	5.5
26	11.5	9.5	10.5	9.5	8.5	9.0	8.0	7.0	7.5	6.5	4.5	6.0
27	11.5	9.5	10.5	9.0	8.0	8.5	8.0	7.0	7.5	4.5	2.5	3.5
28	11.0	9.0	10.0	8.5	7.5	8.0	8.5	7.0	8.0	6.0	3.5	5.0
29	9.5	7.0	8.0	9.0	7.5	8.0	8.0	7.0	8.0	6.5	5.0	5.5
30	8.0	7.5	7.5	9.5	8.0	9.0	8.5	7.0	8.0	7.0	3.5	5.0
31	9.5	8.0	8.5	---	---	---	9.0	8.0	8.5	7.5	6.0	6.5
MONTH	18.5	7.0	11.6	12.5	7.0	9.1	9.0	4.0	7.0	8.0	2.5	5.9

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	6.5	6.0	6.5	7.0	6.0	6.5	8.5	5.5	7.5	14.5	11.0	12.5
2	7.5	6.0	7.0	6.0	4.5	5.5	12.0	8.0	10.0	14.0	11.5	12.5
3	7.5	5.5	6.5	5.5	3.0	4.0	11.5	9.0	10.0	14.0	10.5	12.0
4	6.5	4.5	5.0	6.0	3.5	4.5	10.0	9.0	9.5	13.0	10.5	11.5
5	5.5	3.5	4.5	7.5	5.0	6.5	9.5	8.5	9.0	11.5	10.0	10.5
6	5.5	3.0	4.0	7.0	4.0	5.5	10.0	8.5	9.0	12.5	10.0	11.0
7	6.5	4.0	5.0	6.0	3.0	4.5	8.5	6.5	7.5	15.0	11.0	12.5
8	5.5	2.5	4.5	8.0	4.0	6.0	8.5	8.0	8.0	13.5	12.0	12.5
9	5.5	2.5	4.0	7.5	4.0	6.0	8.5	7.5	8.0	12.5	12.0	12.0
10	6.5	4.5	5.5	5.5	4.0	4.5	9.5	7.5	8.5	13.5	11.5	12.5
11	5.5	2.5	4.0	6.5	4.0	5.5	8.5	7.0	7.5	14.0	12.0	12.5
12	4.5	2.5	3.5	7.5	5.0	6.5	10.5	7.5	9.0	13.0	11.0	12.0
13	5.5	3.0	4.0	7.5	5.0	6.5	10.5	8.5	9.5	11.5	10.5	11.0
14	5.5	2.5	4.0	7.5	4.5	5.5	11.0	8.5	10.0	12.5	10.5	11.5
15	5.5	4.0	5.0	8.0	5.0	6.0	12.5	9.5	11.0	12.5	10.0	11.5
16	4.5	0.5	3.0	9.0	5.5	6.5	13.0	10.5	11.5	11.5	11.0	11.0
17	3.5	0.0	1.0	8.0	5.5	6.5	11.0	9.0	10.0	11.5	10.5	11.0
18	6.5	3.5	5.5	7.5	5.5	6.5	9.5	9.0	9.0	13.0	10.5	11.5
19	7.0	4.5	5.5	7.5	6.0	6.5	12.0	9.5	10.5	14.0	9.0	11.5
20	7.5	5.0	6.0	7.0	4.0	6.0	12.0	9.5	10.5	14.0	10.0	12.0
21	8.5	4.5	6.0	8.0	5.0	7.0	11.0	10.0	10.5	12.0	11.5	12.0
22	6.0	3.5	4.5	9.5	7.5	8.5	12.0	10.0	11.0	12.5	11.0	12.0
23	5.0	3.5	4.0	10.0	8.5	9.0	11.0	9.0	10.0	12.0	11.0	11.5
24	4.5	3.5	4.0	10.5	9.0	9.5	12.0	8.5	10.0	11.5	11.0	11.5
25	4.5	2.5	3.5	11.0	9.0	10.0	12.5	9.0	11.0	12.5	11.5	12.0
26	5.0	2.5	4.0	11.0	9.0	10.0	11.0	10.5	10.5	12.0	11.5	11.5
27	5.0	3.5	4.5	11.0	9.0	10.0	13.0	10.0	11.5	12.0	11.5	12.0
28	6.5	4.5	5.5	10.5	9.0	10.0	14.0	9.5	11.5	12.5	11.5	12.0
29	---	---	---	10.5	9.5	10.0	13.0	10.5	11.5	13.0	11.0	12.0
30	---	---	---	9.5	8.0	8.5	13.5	10.0	11.5	13.5	11.5	12.5
31	---	---	---	9.0	7.0	8.0	---	---	---	12.5	12.0	12.0
MONTH	8.5	0.0	4.6	11.0	3.0	7.0	14.0	5.5	9.8	15.0	9.0	11.8

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	12.0	11.0	11.5	14.5	12.5	13.5	16.0	14.0	14.5	15.0	13.5	14.0
2	12.5	10.5	11.5	14.5	12.5	13.5	18.0	14.5	16.0	15.0	14.5	14.5
3	12.0	11.0	11.5	15.0	13.0	14.0	18.0	15.0	16.0	16.5	14.5	15.5
4	11.5	11.0	11.5	16.0	13.0	14.0	19.5	15.5	17.5	16.0	15.5	15.5
5	12.5	11.5	12.0	15.5	13.5	14.5	17.5	16.5	17.0	15.5	14.0	15.0
6	12.5	11.5	12.0	15.5	13.5	14.5	17.5	15.5	16.5	15.0	12.5	14.0
7	12.0	11.5	12.0	16.5	13.5	14.5	16.0	15.0	15.5	15.5	12.5	14.0
8	12.0	11.5	12.0	16.0	14.0	14.5	16.0	14.5	15.0	15.5	13.0	14.0
9	13.0	12.0	12.5	15.0	13.5	14.5	16.5	14.0	15.0	15.0	13.0	14.0
10	13.5	11.5	12.5	14.0	13.5	14.0	---	---	---	15.0	12.0	13.5
11	15.0	12.0	12.5	15.5	14.0	14.5	---	---	---	15.5	12.5	13.5
12	14.0	13.0	13.0	15.5	13.0	14.0	---	---	---	14.0	13.0	13.5
13	14.0	13.0	13.5	16.0	13.0	14.5	---	---	---	14.5	13.5	14.0
14	14.0	13.0	13.5	15.5	13.0	14.0	15.5	14.5	15.0	15.5	14.0	14.5
15	14.0	13.0	13.5	16.0	13.0	14.5	15.5	14.0	14.5	17.0	13.5	14.5
16	14.0	12.0	13.0	16.5	14.0	15.0	15.0	14.0	14.0	16.5	13.5	15.0
17	13.5	12.0	12.5	16.0	13.0	14.5	15.0	14.0	14.5	15.5	12.5	14.0
18	13.0	12.5	13.0	15.0	13.5	14.0	15.0	13.5	14.0	14.0	12.5	13.5
19	14.0	12.5	13.0	16.5	13.0	14.5	15.0	13.0	14.0	15.5	14.0	15.0
20	14.0	13.0	13.0	16.5	12.5	14.0	15.5	13.0	14.0	15.5	13.5	14.5
21	13.5	13.0	13.0	18.0	14.0	15.5	15.5	13.5	14.5	14.5	12.5	13.5
22	13.0	12.5	13.0	16.5	14.0	15.0	15.5	13.5	14.5	15.5	13.5	14.0
23	14.0	12.5	13.0	17.5	14.5	15.5	15.5	13.5	14.5	17.0	14.0	16.0
24	14.0	12.5	13.0	16.0	14.5	15.5	15.0	12.5	13.5	14.0	13.0	13.5
25	14.0	12.5	13.5	17.5	14.0	15.5	16.0	13.0	14.0	13.5	12.5	13.0
26	14.5	13.0	13.5	17.0	13.5	15.0	15.0	13.5	14.0	13.5	13.0	13.0
27	14.0	13.0	13.5	17.0	14.0	15.5	16.0	14.0	14.5	14.0	13.0	13.5
28	14.0	12.5	13.5	17.5	15.0	16.0	16.0	13.5	14.5	13.5	13.0	13.0
29	14.5	12.5	13.5	16.5	13.0	14.5	15.0	13.5	14.0	13.0	12.0	12.5
30	14.0	13.0	13.5	17.5	13.0	15.0	15.5	14.0	14.5	13.0	11.5	12.0
31	---	---	---	15.5	13.5	14.5	15.0	13.0	14.0	---	---	---
MONTH	15.0	10.5	12.8	18.0	12.5	14.6	19.5	12.5	14.8	17.0	11.5	14.0
YEAR	19.5	0.0	10.2									

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA
(Swatara Creek Project)

LOCATION.--Lat 40°34'50", long 76°24'18", Schuylkill County, Hydrologic Unit 02050305, on right bank 800 ft downstream of Adam's Run, 1,000 ft downstream from State Highway 125 bridge crossing Swatara Creek and 0.4 mi north of Ravine.

DRAINAGE AREA.--43.3 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1996 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 590 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records poor. Other data for this project presented in tables on pages 436-482.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 600 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 20	2130	*1,640	*3.83	Aug. 4	1130	1,510	3.70
June 1	0630	701	2.73	Aug. 11	1330	1,500	3.69
June 21	0200	1,100	3.27	Sept. 23	0630	1,500	3.69

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	68	71	193	52	65	173	74	423	76	37	48
2	27	61	67	282	53	87	170	88	223	70	47	60
3	25	57	64	199	52	90	151	86	197	66	46	154
4	e29	57	61	171	87	74	138	74	305	61	386	179
5	e35	51	63	149	76	76	141	70	220	57	206	82
6	e30	82	61	136	58	95	125	68	177	55	308	67
7	e25	64	56	125	57	84	117	69	313	58	177	59
8	e20	58	56	121	53	83	113	84	279	57	121	55
9	e17	56	54	131	51	93	116	71	218	50	101	53
10	e25	54	50	126	51	91	125	66	178	49	111	49
11	161	57	129	108	49	85	283	63	163	58	e235	47
12	136	81	217	98	48	82	286	62	197	48	e188	46
13	72	98	149	93	46	99	219	58	208	42	e93	48
14	55	74	303	87	45	114	187	56	146	41	e82	59
15	46	68	249	85	45	112	167	52	120	39	e74	57
16	142	75	199	79	e36	157	151	52	104	38	e62	121
17	119	153	161	78	e36	251	134	56	93	36	e62	61
18	77	183	138	72	e38	338	121	52	145	34	e58	52
19	64	140	127	70	e39	327	117	50	104	35	78	89
20	57	121	282	70	48	622	107	46	224	33	70	82
21	51	111	194	65	47	923	104	50	687	38	67	64
22	46	138	163	61	79	584	105	47	401	57	63	59
23	44	130	146	58	125	425	93	44	293	107	62	719
24	40	107	133	e57	92	334	86	109	220	136	54	310
25	40	98	133	58	77	266	81	89	179	53	50	200
26	103	91	120	57	71	239	110	207	146	42	50	158
27	68	91	109	54	68	213	101	144	123	39	48	127
28	58	83	103	55	66	176	83	136	103	43	44	134
29	54	79	98	54	---	212	80	145	92	37	43	107
30	67	77	93	51	---	225	76	110	84	33	51	89
31	76	---	93	51	---	193	---	126	---	31	48	---
TOTAL	1839	2663	3942	3094	1645	6815	4060	2504	6365	1619	3122	3435
MEAN	59.3	88.8	127	99.8	58.8	220	135	80.8	212	52.2	101	114
MAX	161	183	303	282	125	923	286	207	687	136	386	719
MIN	17	51	50	51	36	65	76	44	84	31	37	46
CFSM	1.37	2.05	2.94	2.30	1.36	5.08	3.13	1.87	4.90	1.21	2.33	2.64
IN.	1.58	2.29	3.39	2.66	1.41	5.85	3.49	2.15	5.47	1.39	2.68	2.95

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2003, BY WATER YEAR (WY)

MEAN	45.8	51.7	96.8	82.1	88.7	143	113	86.4	88.1	40.8	35.6	42.5
MAX	135	143	284	177	196	220	144	181	212	64.2	101	114
(WY)	1997	1997	1997	1998	1998	2003	1998	1998	2003	1996	2003	2003
MIN	13.2	16.5	11.4	34.3	42.9	86.0	75.4	47.0	18.4	13.5	13.0	15.7
(WY)	2002	1999	1999	2002	2002	2002	1999	1999	1999	1999	2002	1998

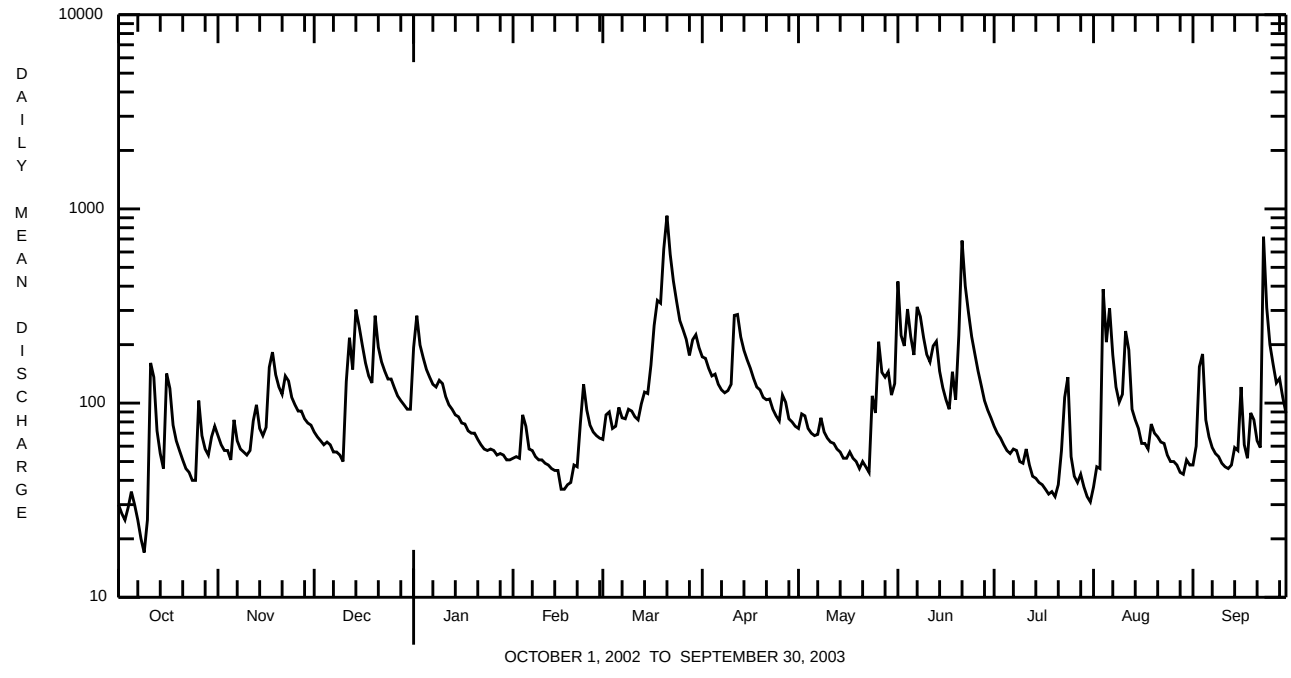
e Estimated.

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1996 - 2003	
ANNUAL TOTAL	22859.7		41103			
ANNUAL MEAN	62.6		113		75.9	
HIGHEST ANNUAL MEAN					113	2003
LOWEST ANNUAL MEAN					44.9	2002
HIGHEST DAILY MEAN	303	Dec 14	923	Mar 21	1280	Dec 17 2000
LOWEST DAILY MEAN	9.3	Sep 10	**e**17	Oct 9	9.3	Sep 10 2002
ANNUAL SEVEN-DAY MINIMUM	10	Sep 7	26	Oct 3	10	Dec 14 1998
MAXIMUM PEAK FLOW			**a**1640	Mar 20	**a**2030	Dec 17 2000
MAXIMUM PEAK STAGE			3.83	Mar 20	4.17	Dec 17 2000
INSTANTANEOUS LOW FLOW			17	Oct 9,10	9.2	Oct 14 2001
ANNUAL RUNOFF (CFSM)	1.45		2.60		1.75	
ANNUAL RUNOFF (INCHES)	19.64		35.31		23.82	
10 PERCENT EXCEEDS	132		215		150	
50 PERCENT EXCEEDS	51		81		53	
90 PERCENT EXCEEDS	13		45		14	

a From rating curve extended above 638 ft^3/s based on a straight line extension.
e Estimated.



01571820 SWATARA CREEK NEAR RAVINE, PA--Continued
(Swatara Creek Project)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1996 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1996 to current year.
pH: April 1996 to current year.
WATER TEMPERATURE: April 1996 to current year.

INSTRUMENTATION.--Water-quality monitor (in situ system). Automatic pumping sampler for stormflow samples since July 1996.

REMARKS.--Specific conductance records rated fair except for periods Oct. 1-10, 16-24, Apr. 17-23, and July 3-8, which are poor. pH records rated fair except for period Aug. 18 to Sept. 30, which is poor. Water temperature records rated good. Interruptions in the record were due to malfunctions of the instrumentation. Some values for "*dissolved*" parameters exceed values for the corresponding "*total*" parameter. These results are within the limits of analytical precision and methods. Other data for this project presented in tables on pages 436-482. Figure 8 shows the location of sites sampled as part of the Swatara Creek Project. Abbreviations used: E, estimated.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 538 microsiemens, Jan. 9, 1999; minimum, 27 microsiemens, June 11, 1997.
pH: Maximum, 8.2, July 30, 1999; minimum, 4.7, June 13, 1998.
WATER TEMPERATURE: Maximum, 26.5°C, July 5, 6, 1999, Aug. 1, 1999; minimum, 0.0°C, many days during winters.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 291, microsiemens, July 21; minimum, 74, microsiemens, June 1.
PH: Maximum, 8.1, July 21; minimum, 5.5, Mar. 23.
WATER TEMPERATURE: Maximum, 20.5°C, July 27, 28; minimum, 0.0°C, several days during winter.

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
OCT										
01...	0830	1028	1028	31	350	7.0	10.4	99	7.0	6.3
16...	0700	1028	930	52	--	--	--	--	6.8	6.7
16...	0900	1028	930	63	--	--	--	--	6.8	6.6
16...	1300	1028	930	197	--	--	--	--	6.8	6.4
16...	1700	1028	930	256	--	--	--	--	6.8	6.3
16...	2300	1028	930	194	--	--	--	--	6.7	6.3
NOV										
06...	0300	1028	89203	78	--	--	--	--	7.0	6.1
06...	0500	1028	89203	86	--	--	--	--	7.0	6.1
06...	0900	1028	89203	92	--	--	--	--	6.9	6.0
06...	1300	1028	89203	88	--	--	--	--	6.8	6.1
06...	2100	1028	89203	78	--	--	--	--	6.8	5.9
12...	1700	1028	89203	102	--	--	--	--	7.1	6.6
12...	1900	1028	89203	130	--	--	--	--	7.0	5.8
12...	2100	1028	89203	137	--	--	--	--	7.0	6.4
12...	2300	1028	89203	130	--	--	--	--	7.0	6.4
13...	0900	1028	89203	100	--	--	--	--	6.9	6.1
14...	0300	1028	89203	78	--	--	--	--	6.9	--
14...	0800	1028	89203	76	318	5.0	11.3	93	6.9	6.4
18...	0300	1028	89203	216	--	--	--	--	7.0	6.3
DEC										
12...	0900	1028	89203	216	--	--	--	--	6.8	6.4
13...	2015	1028	89203	174	--	--	--	--	7.0	6.2
14...	0300	1028	89203	252	--	--	--	--	6.9	6.3
14...	0700	1028	89203	320	--	--	--	--	6.8	6.0
14...	0900	1028	89203	333	--	--	--	--	6.8	6.2
14...	1300	1028	89203	320	--	--	--	--	6.7	6.1
14...	1700	1028	89203	333	--	--	--	--	6.8	6.2
15...	0900	1028	89203	252	--	--	--	--	6.7	6.2
19...	0845	1028	89203	123	347	8.0	12.9	98	6.9	6.8
JAN										
01...	1230	1028	89203	135	--	--	--	--	7.2	6.4
01...	1900	1028	89203	308	--	--	--	--	7.1	6.4
01...	2300	1028	89203	398	--	--	--	--	7.0	6.2
02...	0100	1028	89203	398	--	--	--	--	7.0	6.3
02...	0700	1028	89203	308	--	--	--	--	6.8	5.2
MAR										
05...	0900	1028	89203	63	337	4.0	13.2	98	6.8	6.7
19...	1400	1028	89203	285	--	--	--	--	6.3	6.0
21...	1300	1028	89203	976	--	--	--	--	6.0	5.8
22...	0300	1028	89203	624	--	--	--	--	5.9	6.2
APR										
03...	0830	1028	89203	149	412	10	11.7	99	6.7	6.5
MAY										
01...	0945	1028	89203	60	336	10	11.1	100	7.0	6.5
24...	1100	1028	89203	90	--	--	--	--	7.7	6.7
24...	1500	1028	89203	171	--	--	--	--	7.6	6.3
25...	0500	1028	89203	98	--	--	--	--	7.4	6.0
26...	0215	1028	89203	78	--	--	--	--	7.3	6.4
26...	0500	1028	89203	174	--	--	--	--	7.4	6.2
26...	0900	1028	89203	268	--	--	--	--	7.3	5.5
26...	1500	1028	89203	236	--	--	--	--	7.2	5.8
JUN										
03...	0900	1028	89203	180	335	15	10.9	100	6.9	6.3
20...	0245	1028	89203	83	--	--	--	--	7.2	7.2
20...	1430	1028	89203	108	--	--	--	--	7.2	6.3
20...	1900	1028	89203	357	--	--	--	--	7.3	6.6
20...	2300	1028	89203	726	--	--	--	--	6.9	6.5
21...	0100	1028	89203	1360	--	--	--	--	6.8	5.9
21...	0500	1028	89203	1320	--	--	--	--	6.7	6.3
21...	1700	1028	89203	508	--	--	--	--	6.8	4.9
22...	0500	1028	89203	397	--	--	--	--	6.8	4.8
JUL										
23...	1115	1028	89203	46	327	16	9.5	100	7.6	6.8
AUG										
19...	0930	1028	89203	62	280	22	10.4	100	7.5	5.8
SEP										
24...	0915	1028	89203	299	308	34	10.4	100	6.9	6.4

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Specif. conduc-tance, wat unf µS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnes-ium, water, fltrd, mg/L (00925)	Magnes-ium, water, unfltrd recover-able, mg/L (00927)	Potas-sium, water, fltrd, mg/L (00935)	Potas-sium, water, unfltrd recover-able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover-able, mg/L (00929)
OCT										
01...	235	13.1	16.6	16.6	13.2	13.2	1.65	1.6	7.85	7.8
16...	165	11.1	12.0	14.0	8.60	8.8	1.90	1.7	7.60	7.2
16...	159	11.3	11.0	11.0	6.50	6.6	2.00	1.8	6.50	6.4
16...	119	12.0	9.10	9.6	5.60	5.7	1.80	1.6	5.40	5.5
16...	109	12.2	8.70	9.2	5.40	5.5	2.00	1.8	5.70	5.6
16...	112	11.9	9.20	9.6	6.50	6.5	2.00	1.7	5.80	5.7
NOV										
06...	204	7.3	14.0	15.2	10.1	11.3	1.60	1.7	7.30	8.6
06...	191	7.5	14.2	13.4	9.60	9.5	1.70	1.5	7.20	7.7
06...	182	7.8	12.7	12.0	8.50	8.9	1.50	1.5	6.90	8.0
06...	174	8.3	14.4	11.7	9.20	8.8	1.60	1.5	7.50	7.4
06...	169	7.6	11.8	12.5	8.40	9.2	1.50	1.6	6.70	7.5
12...	177	10.2	13.5	13.3	9.00	9.4	1.50	1.4	6.90	7.5
12...	172	10.0	14.1	12.9	9.10	9.1	1.60	1.5	7.20	7.4
12...	164	9.9	12.8	11.9	7.90	7.9	1.50	1.4	6.80	7.4
12...	154	9.8	12.6	11.4	7.80	7.7	1.70	1.6	7.10	7.4
13...	146	9.4	11.0	10.3	6.60	7.0	1.50	1.6	6.20	6.5
14...	171	7.4	11.9	14.7	8.90	10.7	1.20	1.6	5.80	7.4
14...	179	7.0	--	--	--	--	--	--	--	--
18...	123	7.4	9.20	8.7	5.40	5.7	1.60	1.5	5.70	6.5
DEC										
12...	149	3.5	9.50	8.9	5.80	6.0	1.40	1.1	9.70	11.0
13...	165	4.9	9.50	9.3	5.80	6.2	1.50	1.6	9.40	9.4
14...	160	5.0	10.8	9.7	6.60	6.5	1.60	1.5	9.60	9.7
14...	155	5.0	10.7	10.1	6.60	6.9	1.70	1.7	9.00	9.8
14...	152	5.0	10.6	9.8	6.90	6.6	1.80	1.7	9.00	10.2
14...	149	5.2	10.7	9.4	6.70	6.4	1.40	1.5	9.00	9.4
14...	145	5.2	10.5	9.8	6.90	6.8	1.40	1.4	8.50	8.5
15...	147	5.4	10.6	9.6	6.00	6.0	1.60	2.4	10.0	11.8
19...	172	4.1	10.8	12.6	8.90	10.4	1.30	1.3	6.30	6.7
JAN										
01...	214	5.7	14.7	14.0	9.80	9.7	1.50	1.5	11.3	12.5
01...	172	5.0	11.8	10.2	6.80	6.4	1.60	1.5	12.9	13.6
01...	150	4.6	9.90	9.2	5.60	5.6	1.60	1.6	11.7	12.5
02...	143	4.5	9.30	8.9	5.50	5.5	1.80	1.6	10.3	11.2
02...	143	4.6	9.20	9.1	5.90	6.1	1.60	1.6	9.50	10.9
MAR										
05...	207	3.1	13.4	13.2	9.80	10.3	1.30	1.3	8.60	9.1
19...	141	5.9	8.30	8.2	6.10	6.7	.90	1.0	6.60	7.5
21...	116	6.6	8.70	8.5	6.10	6.4	1.30	1.5	7.40	8.9
22...	122	6.3	6.60	8.5	3.20	4.2	1.50	2.0	8.80	10.4
APR										
03...	183	8.3	10.7	13.1	8.90	11.1	1.10	1.2	6.70	6.4
MAY										
01...	201	11.8	14.3	14.0	11.1	11.9	1.20	1.2	7.90	5.7
24...	175	11.8	12.3	12.5	8.00	8.6	1.30	1.4	7.80	10.2
24...	156	12.2	11.7	11.5	7.20	7.6	1.20	1.3	8.40	10.2
25...	142	11.8	10.1	10.3	6.60	7.2	1.20	1.3	7.20	7.3
26...	161	12.3	10.3	10.3	6.70	7.6	1.10	1.2	7.30	8.6
26...	144	12.3	11.4	11.2	7.60	8.0	1.20	1.3	7.70	9.0
26...	126	12.0	9.50	9.1	5.40	5.7	1.30	1.3	7.80	8.9
26...	121	12.3	8.50	8.2	4.90	5.1	1.40	1.3	6.90	8.1
JUN										
03...	131	11.4	8.30	8.5	6.00	6.8	1.10	1.1	6.40	6.8
20...	179	14.5	12.4	12.2	9.50	9.9	1.30	1.3	6.20	7.1
20...	174	14.3	11.7	11.6	8.60	9.3	1.10	1.4	5.80	7.6
20...	134	14.4	9.10	9.6	5.80	6.6	1.10	1.2	5.70	6.5
20...	99	14.3	7.40	7.6	4.40	4.7	1.30	1.4	4.90	5.6
21...	87	14.2	6.40	6.9	3.40	3.9	1.40	1.6	4.40	5.8
21...	83	14.1	5.90	6.1	3.20	3.4	1.50	1.7	4.20	4.5
21...	101	13.9	6.70	6.6	4.30	4.7	1.30	1.5	4.90	6.0
22...	111	13.0	7.70	7.8	5.60	6.0	1.30	1.3	4.80	5.8
JUL										
23...	206	18.1	15.7	17.9	11.6	12.4	1.30	1.4	6.00	6.6
AUG										
19...	213	15.2	15.1	14.4	11.7	11.6	1.40	1.3	6.40	6.5
SEP										
24...	137	13.7	8.40	8.8	6.10	6.4	1.50	1.5	4.80	6.2

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Silica, water, fltrd, mg/L (00955)	Silica, water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water unfltrd mg/L (00946)	Phos-phorus, water, fltrd, mg/L (00666)	Phos-phorus, water, unfltrd mg/L (00665)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)
OCT										
01...	6.00	.000	7.43	7.48	78.0	78.0	<.004	<.004	27.0	250
16...	9.10	--	--	--	62.0	66.0	--	--	28.0	2100
16...	9.20	--	--	--	49.0	50.0	--	--	26.0	1900
16...	6.00	--	--	--	42.0	44.0	--	--	57.0	1900
16...	5.50	--	--	--	41.0	43.0	--	--	91.0	1700
16...	5.20	--	--	--	46.0	49.0	--	--	86.0	960
NOV										
06...	6.60	--	--	--	--	--	--	--	<100	2400
06...	5.40	--	--	--	--	--	--	--	<100	3000
06...	3.80	--	--	--	--	--	--	--	<100	1400
06...	5.00	--	--	--	--	--	--	--	<100	2800
06...	4.00	--	--	--	--	--	--	--	<100	1200
12...	6.30	--	--	--	--	--	--	--	<100	1200
12...	3.30	--	--	--	--	--	--	--	<100	1200
12...	5.20	--	--	--	--	--	--	--	<100	2100
12...	6.00	--	--	--	--	--	--	--	<100	1900
13...	4.20	--	--	--	--	--	--	--	<100	700
14...	--	--	--	--	--	--	--	--	<100	300
14...	5.60	--	--	--	--	--	--	--	--	--
18...	5.80	--	--	--	--	--	--	--	100	1600
DEC										
12...	5.70	--	--	--	--	--	--	--	<100	600
13...	6.00	--	--	--	--	--	--	--	<100	600
14...	6.00	--	--	--	--	--	--	--	<100	700
14...	4.00	--	--	--	--	--	--	--	<100	700
14...	3.00	--	--	--	--	--	--	--	<100	600
14...	4.00	--	--	--	--	--	--	--	<100	500
14...	3.00	--	--	--	--	--	--	--	<100	500
15...	3.00	--	--	--	--	--	--	--	<100	1000
19...	11.7	--	--	--	--	--	--	--	<100	600
JAN										
01...	9.00	--	--	--	--	--	--	--	<100	3000
01...	7.00	--	--	--	--	--	--	--	<100	1400
01...	7.00	--	--	--	--	--	--	--	<100	1300
02...	10.0	--	--	--	--	--	--	--	<100	1100
02...	3.00	--	--	--	--	--	--	--	<100	700
MAR										
05...	13.0	.000	--	--	--	--	--	--	<100	300
19...	2.60	--	--	--	--	--	--	--	<100	200
21...	10.0	--	--	--	--	--	--	--	<100	1700
22...	3.00	--	--	--	--	--	--	--	<100	8600
APR										
03...	5.40	--	--	--	--	--	--	--	<100	500
MAY										
01...	6.50	.000	--	--	--	--	--	--	<100	400
24...	7.40	--	--	--	--	--	--	--	100	900
24...	4.10	--	--	--	--	--	--	--	<100	500
25...	3.50	--	--	--	--	--	--	--	<100	500
26...	2.90	--	--	--	--	--	--	--	<100	500
26...	3.50	--	--	--	--	--	--	--	<100	300
26...	1.80	--	--	--	--	--	--	--	100	1400
26...	2.30	--	--	--	--	--	--	--	100	1100
JUN										
03...	4.80	.000	--	--	--	--	--	--	<100	500
20...	7.00	--	--	--	--	--	--	--	<100	300
20...	6.60	--	--	--	--	--	--	--	<100	700
20...	8.00	--	--	--	--	--	--	--	<100	1300
20...	6.80	--	--	--	--	--	--	--	100	2800
21...	3.60	--	--	--	--	--	--	--	200	2600
21...	5.30	--	--	--	--	--	--	--	200	1800
21...	1.50	--	--	--	--	--	--	--	300	800
22...	1.00	--	--	--	--	--	--	--	300	600
JUL										
23...	6.06	.000	--	--	--	--	--	--	<100	300
AUG										
19...	2.60	--	--	--	--	--	--	--	<100	400
SEP										
24...	5.70	--	--	--	--	--	--	--	100	500

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Anti-mony, water, fltrd, µg/L (01095)	Anti-mony, water, unfltrd µg/L (01097)	Arsenic water, fltrd, µg/L (01000)	Arsenic water unfltrd µg/L (01002)	Barium, water, fltrd, µg/L (01005)	Barium, water, unfltrd recover-able, µg/L (01007)	Beryll-ium, water, fltrd, µg/L (01010)	Beryll-ium, water, unfltrd recover-able, µg/L (00998)	Bismuth water, fltrd, µg/L (01015)	Bismuth water unfltrd µg/L (01017)
OCT										
01...	<.050	<.050	<.600	<.600	28.0	28.5	.050	.100	<.040	<.040
16...	<6.00	<6.00	<7.50	<7.50	19.0	37.0	<.100	1.10	--	--
16...	<6.00	<6.00	<7.50	<7.50	22.0	37.0	<.100	.920	--	--
16...	<6.00	<6.00	<7.50	<7.50	31.0	37.0	<.100	.820	--	--
16...	<6.00	<6.00	<7.50	<7.50	37.0	23.0	<.100	.740	--	--
16...	<6.00	<6.00	<7.50	<7.50	41.0	25.0	<.100	.460	--	--
NOV										
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
DEC										
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
JAN										
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
APR										
03...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
JUL										
23...	--	--	--	--	--	--	--	--	--	--
AUG										
19...	--	--	--	--	--	--	--	--	--	--
SEP										
24...	--	--	--	--	--	--	--	--	--	--

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)	Cerium, water, fltrd, µg/L (01110)	Cerium, water, unfltrd µg/L (01112)	Cesium, water, fltrd, µg/L (01115)	Cesium, water, unfltrd µg/L (01117)	Chrom-ium, water, fltrd, µg/L (01030)	Chrom-ium, water, unfltrd recover-able, µg/L (01034)	Cobalt water, fltrd, µg/L (01035)	Cobalt water, unfltrd recover-able, µg/L (01037)
OCT										
01...	.200	.200	.510	1.10	.030	.030	<1.00	<1.00	10.7	12.0
16...	<1.00	<1.00	--	--	--	--	<1.50	3.00	8.50	28.0
16...	<1.00	<1.00	--	--	--	--	<1.50	2.60	5.90	23.0
16...	<1.00	<1.00	--	--	--	--	<1.50	2.00	8.50	24.0
16...	<1.00	<1.00	--	--	--	--	<1.50	2.00	8.90	23.0
16...	<1.00	<1.00	--	--	--	--	<1.50	1.80	11.0	16.0
NOV										
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
DEC										
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
JAN										
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
APR										
03...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
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26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
JUL										
23...	--	--	--	--	--	--	--	--	--	--
AUG										
19...	--	--	--	--	--	--	--	--	--	--
SEP										
24...	--	--	--	--	--	--	--	--	--	--

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover -able, µg/L (01042)	Dyspros ium, water, fltrd, µg/L (82331)	Dyspros ium, water, unfltrd µg/L (82330)	Erbium, water, fltrd, µg/L (50573)	Erbium, water, unfltrd µg/L (01246)	Euro- pium, water, fltrd, µg/L (50574)	Europ- ium, water, unfltrd µg/L (01236)	Gado- linium, water, fltrd, µg/L (50575)	Gado- linium, water, unfltrd µg/L (01219)
OCT										
01...	.900	2.00	.051	.150	.030	.082	.007	.030	.056	.160
16...	2.70	9.40	--	--	--	--	--	--	--	--
16...	<1.00	9.70	--	--	--	--	--	--	--	--
16...	3.20	11.0	--	--	--	--	--	--	--	--
16...	3.10	9.10	--	--	--	--	--	--	--	--
16...	2.70	5.80	--	--	--	--	--	--	--	--
NOV										
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
DEC										
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
JAN										
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
APR										
03...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
JUL										
23...	--	--	--	--	--	--	--	--	--	--
AUG										
19...	--	--	--	--	--	--	--	--	--	--
SEP										
24...	--	--	--	--	--	--	--	--	--	--

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Gallium water, fltrd, µg/L (01120)	Gallium water, unfltrd µg/L (01122)	German-ium, water, fltrd, µg/L (01125)	German-ium, water, unfltrd µg/L (01127)	Gold, water, fltrd, µg/L (82334)	Gold, water, unfltrd µg/L (71910)	Holmium water, fltrd, µg/L (50577)	Holmium water unfltrd µg/L (01247)	Indium water, fltrd, µg/L (62843)	Indium, water, unfltrd µg/L (01168)
OCT										
01...	<.020	<.020	<.020	<.020	<.010	<.010	.010	.030	<.010	<.010
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
NOV										
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
DEC										
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
JAN										
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
APR										
03...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
JUL										
23...	--	--	--	--	--	--	--	--	--	--
AUG										
19...	--	--	--	--	--	--	--	--	--	--
SEP										
24...	--	--	--	--	--	--	--	--	--	--

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover -able, µg/L (01045)	Lantha- num, water, fltrd, µg/L (01180)	Lantha- num, water, unfltrd µg/L (01182)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover -able, µg/L (01051)	Lithium water, fltrd, µg/L (01130)	Lithium water unfltrd recover -able, µg/L (01132)	Mangan- ese, water, fltrd, µg/L (01056)	Mangan- ese, water, unfltrd recover -able, µg/L (01055)
OCT										
01...	150	470	.300	.580	<.050	.300	12.0	11.5	628	648
16...	150	5500	--	--	<5.00	7.30	--	--	510	1200
16...	79.0	5500	--	--	<5.00	<5.00	--	--	450	940
16...	88.0	3800	--	--	<5.00	<5.00	--	--	440	960
16...	130	3700	--	--	<5.00	<5.00	--	--	450	940
16...	120	1700	--	--	<5.00	<5.00	--	--	510	650
NOV										
06...	90.0	5550	--	--	--	--	--	--	720	1150
06...	60.0	8010	--	--	--	--	--	--	720	1330
06...	100	3390	--	--	--	--	--	--	680	930
06...	130	8080	--	--	--	--	--	--	700	1370
06...	250	2880	--	--	--	--	--	--	690	970
12...	50.0	3250	--	--	--	--	--	--	630	760
12...	150	3170	--	--	--	--	--	--	640	750
12...	70.0	5680	--	--	--	--	--	--	570	790
12...	60.0	5290	--	--	--	--	--	--	570	750
13...	210	1580	--	--	--	--	--	--	560	600
14...	700	1220	--	--	--	--	--	--	660	790
14...	--	--	--	--	--	--	--	--	--	--
18...	200	4610	--	--	--	--	--	--	450	710
DEC										
12...	380	1230	--	--	--	--	--	--	470	550
13...	130	1240	--	--	--	--	--	--	460	510
14...	100	2120	--	--	--	--	--	--	510	510
14...	180	1530	--	--	--	--	--	--	510	550
14...	180	1570	--	--	--	--	--	--	500	540
14...	290	1020	--	--	--	--	--	--	510	480
14...	290	1060	--	--	--	--	--	--	520	520
15...	100	2110	--	--	--	--	--	--	490	580
19...	1020	1670	--	--	--	--	--	--	690	760
JAN										
01...	<10.0	9310	--	--	--	--	--	--	640	1500
01...	30.0	2740	--	--	--	--	--	--	490	560
01...	70.0	2020	--	--	--	--	--	--	440	590
02...	170	1600	--	--	--	--	--	--	450	560
02...	150	1120	--	--	--	--	--	--	460	530
MAR										
05...	840	1250	--	--	--	--	--	--	690	640
19...	560	780	--	--	--	--	--	--	500	510
21...	140	5950	--	--	--	--	--	--	480	660
22...	90.0	31600	--	--	--	--	--	--	410	3890
APR										
03...	510	1260	--	--	--	--	--	--	600	680
MAY										
01...	340	2180	--	--	--	--	--	--	660	650
24...	400	3660	--	--	--	--	--	--	380	470
24...	100	1450	--	--	--	--	--	--	350	360
25...	260	1360	--	--	--	--	--	--	440	480
26...	140	1320	--	--	--	--	--	--	440	480
26...	70.0	600	--	--	--	--	--	--	430	440
26...	70.0	3670	--	--	--	--	--	--	360	460
26...	100	1990	--	--	--	--	--	--	380	420
JUN										
03...	310	960	--	--	--	--	--	--	460	480
20...	170	790	--	--	--	--	--	--	620	620
20...	80.0	1770	--	--	--	--	--	--	500	600
20...	70.0	3320	--	--	--	--	--	--	260	400
20...	140	8220	--	--	--	--	--	--	190	840
21...	140	8030	--	--	--	--	--	--	250	870
21...	190	4270	--	--	--	--	--	--	210	680
21...	230	1500	--	--	--	--	--	--	360	450
22...	110	930	--	--	--	--	--	--	420	450
JUL										
23...	450	960	--	--	--	--	--	--	620	690
AUG										
19...	470	1450	--	--	--	--	--	--	800	820
SEP										
24...	430	1290	--	--	--	--	--	--	490	760

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Molyb-denum, water, fltrd, µg/L (01060)	Molyb-denum, water, unfltrd recover-able, µg/L (01062)	Neodym-ium, water, fltrd, µg/L (50579)	Neodym-ium, water, unfltrd µg/L (01237)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Praseo-dymium, water, fltrd, µg/L (50582)	Praseo-dymium, water, unfltrd µg/L (01238)	Rhenium water, fltrd, µg/L (50583)	Rhenium water unfltrd µg/L (01242)
OCT										
01...	.200	.300	.270	.620	30.0	31.0	.060	.200	<.020	<.020
16...	--	--	--	--	22.0	35.0	--	--	--	--
16...	--	--	--	--	19.0	28.0	--	--	--	--
16...	--	--	--	--	18.0	28.0	--	--	--	--
16...	--	--	--	--	19.0	27.0	--	--	--	--
16...	--	--	--	--	22.0	24.0	--	--	--	--
NOV										
06...	--	--	--	--	31.0	35.0	--	--	--	--
06...	--	--	--	--	27.0	35.0	--	--	--	--
06...	--	--	--	--	32.0	23.0	--	--	--	--
06...	--	--	--	--	33.0	33.0	--	--	--	--
06...	--	--	--	--	29.0	37.0	--	--	--	--
12...	--	--	--	--	42.0	24.0	--	--	--	--
12...	--	--	--	--	32.0	24.0	--	--	--	--
12...	--	--	--	--	29.0	28.0	--	--	--	--
12...	--	--	--	--	28.0	20.0	--	--	--	--
13...	--	--	--	--	18.0	34.0	--	--	--	--
14...	--	--	--	--	24.0	31.0	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	22.0	38.0	--	--	--	--
DEC										
12...	--	--	--	--	19.0	32.0	--	--	--	--
13...	--	--	--	--	22.0	39.0	--	--	--	--
14...	--	--	--	--	31.0	32.0	--	--	--	--
14...	--	--	--	--	27.0	36.0	--	--	--	--
14...	--	--	--	--	20.0	28.0	--	--	--	--
14...	--	--	--	--	20.0	33.0	--	--	--	--
14...	--	--	--	--	28.0	36.0	--	--	--	--
15...	--	--	--	--	23.0	34.0	--	--	--	--
19...	--	--	--	--	30.0	32.0	--	--	--	--
JAN										
01...	--	--	--	--	30.0	63.0	--	--	--	--
01...	--	--	--	--	26.0	38.0	--	--	--	--
01...	--	--	--	--	18.0	39.0	--	--	--	--
02...	--	--	--	--	22.0	29.0	--	--	--	--
02...	--	--	--	--	15.0	28.0	--	--	--	--
MAR										
05...	--	--	--	--	19.0	33.0	--	--	--	--
19...	--	--	--	--	28.0	32.0	--	--	--	--
21...	--	--	--	--	21.0	37.0	--	--	--	--
22...	--	--	--	--	5.00	115	--	--	--	--
APR										
03...	--	--	--	--	37.0	35.0	--	--	--	--
MAY										
01...	--	--	--	--	30.0	32.0	--	--	--	--
24...	--	--	--	--	18.0	42.0	--	--	--	--
24...	--	--	--	--	16.0	37.0	--	--	--	--
25...	--	--	--	--	19.0	35.0	--	--	--	--
26...	--	--	--	--	23.0	43.0	--	--	--	--
26...	--	--	--	--	27.0	39.0	--	--	--	--
26...	--	--	--	--	19.0	29.0	--	--	--	--
26...	--	--	--	--	18.0	33.0	--	--	--	--
JUN										
03...	--	--	--	--	29.0	21.0	--	--	--	--
20...	--	--	--	--	26.0	46.0	--	--	--	--
20...	--	--	--	--	32.0	41.0	--	--	--	--
20...	--	--	--	--	17.0	31.0	--	--	--	--
20...	--	--	--	--	21.0	34.0	--	--	--	--
21...	--	--	--	--	17.0	42.0	--	--	--	--
21...	--	--	--	--	10.0	37.0	--	--	--	--
21...	--	--	--	--	14.0	28.0	--	--	--	--
22...	--	--	--	--	31.0	39.0	--	--	--	--
JUL										
23...	--	--	--	--	24.0	28.0	--	--	--	--
AUG										
19...	--	--	--	--	26.0	36.0	--	--	--	--
SEP										
24...	--	--	--	--	13.0	18.0	--	--	--	--

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Rubid-ium, water, fltrd, µg/L (01135)	Rubid-ium, water, unfltrd µg/L (01137)	Samar-ium, water, fltrd, µg/L (82323)	Samar-ium, water, unfltrd µg/L (82322)	Selen-ium, water, fltrd, µg/L (01145)	Selen-ium, water, unfltrd µg/L (01147)	Silver, water, fltrd, µg/L (01075)	Silver, water, unfltrd recover-able, µg/L (01077)	Stront-ium, water, fltrd, µg/L (01080)	Stront-ium, water, unfltrd recover-able, µg/L (01082)
OCT										
01...	2.30	2.30	.040	.100	.300	<.200	.010	<.010	91.0	91.5
16...	--	--	--	--	<7.50	<7.50	--	--	--	--
16...	--	--	--	--	<7.50	<7.50	--	--	--	--
16...	--	--	--	--	<7.50	<7.50	--	--	--	--
16...	--	--	--	--	<7.50	<7.50	--	--	--	--
16...	--	--	--	--	<7.50	<7.50	--	--	--	--
NOV										
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
DEC										
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
JAN										
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
APR										
03...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
JUL										
23...	--	--	--	--	--	--	--	--	--	--
AUG										
19...	--	--	--	--	--	--	--	--	--	--
SEP										
24...	--	--	--	--	--	--	--	--	--	--

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Terbium water, fltrd, µg/L (50586)	Terbium water unfltrd µg/L (01218)	Thallium, water, fltrd, µg/L (01057)	Thallium, water, unfltrd µg/L (01059)	Thorium water, fltrd, µg/L (82365)	Thorium water unfltrd µg/L (82364)	Thulium water, fltrd, µg/L (50587)	Thulium water unfltrd µg/L (01245)	Tungsten, water, fltrd, µg/L (01155)	Tungsten, water, unfltrd µg/L (01154)
OCT										
01...	.010	.020	<.050	<.050	<.020	<.020	<.005	.010	<.020	<.020
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
NOV										
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
DEC										
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
JAN										
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
APR										
03...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
JUL										
23...	--	--	--	--	--	--	--	--	--	--
AUG										
19...	--	--	--	--	--	--	--	--	--	--
SEP										
24...	--	--	--	--	--	--	--	--	--	--

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Vanad-ium, water, fltrd, µg/L (01085)	Vanad-ium, water, unfltrd µg/L (01087)	Ytterb-ium, water, fltrd, µg/L (01194)	Ytterb-ium, water, unfltrd µg/L (01196)	Yttrium water, fltrd, µg/L (01201)	Yttrium water unfltrd µg/L (01203)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)	Uranium natural water, fltrd, µg/L (22703)	Uranium natural water unfltrd µg/L (28011)
OCT										
01...	<.200	<.200	.040	.070	.300	.680	62.0	61.0	.010	.040
16...	--	--	--	--	--	--	57.0	100	--	--
16...	--	--	--	--	--	--	29.0	88.0	--	--
16...	--	--	--	--	--	--	39.0	91.0	--	--
16...	--	--	--	--	--	--	45.0	89.0	--	--
16...	--	--	--	--	--	--	55.0	72.0	--	--
NOV										
06...	--	--	--	--	--	--	72.0	108	--	--
06...	--	--	--	--	--	--	65.0	122	--	--
06...	--	--	--	--	--	--	64.0	88.0	--	--
06...	--	--	--	--	--	--	63.0	119	--	--
06...	--	--	--	--	--	--	68.0	89.0	--	--
12...	--	--	--	--	--	--	55.0	73.0	--	--
12...	--	--	--	--	--	--	54.0	70.0	--	--
12...	--	--	--	--	--	--	47.0	76.0	--	--
12...	--	--	--	--	--	--	47.0	72.0	--	--
13...	--	--	--	--	--	--	58.0	56.0	--	--
14...	--	--	--	--	--	--	70.0	65.0	--	--
14...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	164	74.0	--	--
DEC										
12...	--	--	--	--	--	--	48.0	56.0	--	--
13...	--	--	--	--	--	--	57.0	65.0	--	--
14...	--	--	--	--	--	--	53.0	58.0	--	--
14...	--	--	--	--	--	--	57.0	73.0	--	--
14...	--	--	--	--	--	--	53.0	63.0	--	--
14...	--	--	--	--	--	--	54.0	56.0	--	--
14...	--	--	--	--	--	--	53.0	57.0	--	--
15...	--	--	--	--	--	--	52.0	62.0	--	--
19...	--	--	--	--	--	--	75.0	72.0	--	--
JAN										
01...	--	--	--	--	--	--	60.0	125	--	--
01...	--	--	--	--	--	--	47.0	66.0	--	--
01...	--	--	--	--	--	--	49.0	66.0	--	--
02...	--	--	--	--	--	--	50.0	64.0	--	--
02...	--	--	--	--	--	--	54.0	72.0	--	--
MAR										
05...	--	--	--	--	--	--	60.0	52.0	--	--
19...	--	--	--	--	--	--	59.0	59.0	--	--
21...	--	--	--	--	--	--	88.0	97.0	--	--
22...	--	--	--	--	--	--	34.0	249	--	--
APR										
03...	--	--	--	--	--	--	135	79.0	--	--
MAY										
01...	--	--	--	--	--	--	73.0	68.0	--	--
24...	--	--	--	--	--	--	45.0	152	--	--
24...	--	--	--	--	--	--	47.0	132	--	--
25...	--	--	--	--	--	--	62.0	145	--	--
26...	--	--	--	--	--	--	52.0	98.0	--	--
26...	--	--	--	--	--	--	48.0	74.0	--	--
26...	--	--	--	--	--	--	45.0	84.0	--	--
26...	--	--	--	--	--	--	44.0	68.0	--	--
JUN										
03...	--	--	--	--	--	--	148	60.0	--	--
20...	--	--	--	--	--	--	70.0	78.0	--	--
20...	--	--	--	--	--	--	257	67.0	--	--
20...	--	--	--	--	--	--	27.0	63.0	--	--
20...	--	--	--	--	--	--	22.0	93.0	--	--
21...	--	--	--	--	--	--	35.0	92.0	--	--
21...	--	--	--	--	--	--	27.0	71.0	--	--
21...	--	--	--	--	--	--	49.0	55.0	--	--
22...	--	--	--	--	--	--	53.0	60.0	--	--
JUL										
23...	--	--	--	--	--	--	86.0	60.0	--	--
AUG										
19...	--	--	--	--	--	--	123	74.0	--	--
SEP										
24...	--	--	--	--	--	--	73.0	54.0	--	--

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	252	225	241	210	194	201	148	143	145	214	144	189
2	285	237	258	212	195	204	156	147	152	156	138	146
3	286	247	264	231	203	214	158	154	156	169	154	160
4	---	---	---	228	201	210	161	156	159	184	164	172
5	---	---	---	230	205	218	162	156	159	188	167	174
6	---	---	---	220	167	183	169	160	164	196	169	182
7	---	---	---	191	168	180	172	167	169	202	177	188
8	---	---	---	213	181	194	176	166	171	207	179	193
9	---	---	---	214	198	206	182	174	178	226	184	203
10	---	---	---	210	190	201	182	176	179	218	195	203
11	246	118	175	211	190	200	273	163	190	211	197	204
12	124	106	113	211	147	188	169	147	155	219	199	209
13	147	122	135	174	144	155	172	158	162	220	203	213
14	167	141	155	192	162	180	165	140	150	221	202	213
15	174	156	163	195	178	185	150	141	146	231	210	218
16	173	106	139	194	162	180	157	147	151	227	212	220
17	163	114	138	165	130	141	167	157	162	233	212	222
18	186	154	170	148	122	135	180	165	169	239	220	229
19	208	173	190	164	146	154	181	168	174	236	219	228
20	223	197	208	168	152	161	183	125	154	235	222	229
21	230	205	217	167	146	154	152	129	142	241	225	232
22	250	218	232	148	129	140	158	150	155	245	227	236
23	256	238	247	140	127	132	164	155	160	250	237	243
24	264	244	254	147	135	141	178	160	166	252	219	237
25	274	242	261	149	141	145	192	164	170	254	236	244
26	246	145	166	149	139	142	197	165	177	247	232	240
27	193	160	177	160	147	153	194	176	185	253	229	241
28	216	186	204	154	142	147	199	179	189	262	234	247
29	219	199	211	150	140	144	202	177	190	259	237	246
30	228	199	215	148	143	145	207	185	197	278	240	253
31	209	192	201	---	---	---	207	188	198	263	235	249
MONTH	286	106	197	231	122	171	273	125	167	278	138	215

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	276	233	253	219	202	210	187	172	177	210	184	198
2	266	238	252	230	199	214	191	172	179	193	168	179
3	259	237	249	205	191	196	196	174	186	193	163	174
4	278	195	237	220	190	203	201	180	191	195	175	187
5	227	200	214	234	194	215	201	180	189	202	182	191
6	240	215	228	242	216	231	196	183	190	200	182	191
7	263	223	237	243	218	228	209	183	194	206	186	196
8	258	236	246	235	210	224	217	194	204	189	161	172
9	263	233	246	231	207	218	215	192	204	195	171	184
10	257	235	247	221	210	215	208	188	200	200	180	191
11	264	242	250	231	208	219	203	133	169	200	182	191
12	285	244	254	222	210	216	155	137	146	209	187	197
13	263	246	254	266	200	219	158	150	154	210	190	199
14	257	244	251	209	189	200	161	153	157	214	189	202
15	260	244	251	208	186	200	168	157	161	219	200	207
16	266	247	257	199	165	185	179	164	170	222	196	207
17	257	220	237	170	134	158	182	169	176	216	194	202
18	261	224	245	145	129	138	188	178	183	212	190	202
19	264	239	250	143	129	138	200	182	188	223	194	207
20	270	234	250	148	112	136	205	189	195	223	202	212
21	287	251	264	122	103	114	213	190	202	219	188	202
22	288	225	267	136	121	128	213	196	204	213	192	202
23	231	205	216	157	135	145	218	202	206	214	191	203
24	212	200	207	175	156	164	224	195	212	206	135	165
25	213	199	206	185	166	175	224	204	215	165	136	152
26	219	203	212	189	168	178	224	161	192	164	121	133
27	214	201	207	189	163	176	191	159	176	147	127	134
28	216	200	208	197	177	185	201	180	192	149	117	137
29	---	---	---	195	165	180	203	185	195	143	118	127
30	---	---	---	186	163	171	206	188	196	155	132	143
31	---	---	---	189	173	178	---	---	---	157	119	143
MONTH	288	195	239	266	103	186	224	133	187	223	117	182

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	124	74	101	216	200	209	277	231	251	244	211	234
2	131	116	125	215	199	206	254	197	223	231	193	205
3	136	120	131	220	199	210	253	194	232	207	130	153
4	123	108	114	225	206	215	220	75	144	167	127	148
5	130	121	125	232	207	221	153	116	135	201	161	181
6	137	121	132	237	217	228	133	102	114	219	190	203
7	145	99	121	242	214	230	149	122	135	221	197	211
8	137	112	127	245	206	228	156	136	146	234	204	216
9	150	133	139	256	230	245	183	148	171	236	213	225
10	160	136	149	263	231	246	183	130	167	---	---	---
11	166	128	154	257	221	232	---	---	---	---	---	---
12	155	125	139	260	226	243	---	---	---	---	---	---
13	154	127	138	262	238	253	---	---	---	---	---	---
14	162	143	154	268	245	258	---	---	---	---	---	---
15	170	152	161	275	243	261	---	---	---	---	---	---
16	177	161	170	272	252	261	---	---	---	---	---	---
17	185	167	175	279	254	268	---	---	---	---	---	---
18	181	139	156	285	257	270	---	---	---	---	---	---
19	184	152	166	280	245	265	219	199	210	224	150	184
20	184	91	158	285	258	272	230	206	217	186	148	160
21	112	80	95	291	221	270	232	212	223	202	169	189
22	114	109	111	237	196	216	238	210	224	211	180	197
23	150	111	125	224	118	191	233	206	220	189	93	117
24	163	142	151	177	113	140	243	221	231	158	121	140
25	177	152	165	220	172	196	243	222	234	165	147	156
26	194	167	178	247	206	227	249	227	239	179	156	166
27	195	176	187	250	224	243	253	229	238	184	162	174
28	193	179	186	249	217	231	248	227	237	186	154	167
29	204	171	187	260	225	245	257	234	245	188	158	174
30	216	192	203	268	244	254	252	212	231	198	169	185
31	---	---	---	273	243	258	243	215	228	---	---	---
MONTH	216	74	147	291	113	235	277	75	204	244	93	180
YEAR	291	74	192									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.1	6.7	7.0	6.8	6.7	6.8	7.0	6.9	6.9	7.2	6.9	7.2
2	7.1	6.8	7.0	6.8	6.8	6.8	6.9	6.9	6.9	7.0	6.8	7.0
3	7.1	6.8	6.9	6.8	6.7	6.8	6.9	6.9	6.9	7.0	6.9	7.0
4	---	---	---	6.8	6.7	6.7	7.0	6.9	6.9	7.1	6.9	6.9
5	---	---	---	7.0	6.7	7.0	7.0	6.9	6.9	7.0	6.9	7.0
6	---	---	---	7.0	6.8	6.9	6.9	6.9	6.9	7.1	7.0	7.0
7	---	---	---	6.9	6.8	6.9	6.9	6.9	6.9	7.2	7.0	7.1
8	---	---	---	7.1	6.9	7.0	6.9	6.9	6.9	7.3	7.2	7.2
9	---	---	---	7.0	6.9	7.0	6.9	6.8	6.9	7.3	6.9	7.2
10	---	---	---	7.0	7.0	7.0	6.9	6.8	6.9	7.1	7.0	7.0
11	7.1	6.5	6.9	7.0	6.9	7.0	7.1	6.8	6.9	7.2	7.1	7.1
12	6.7	6.5	6.6	7.1	6.8	6.9	6.9	6.6	6.8	7.2	7.1	7.1
13	6.8	6.7	6.7	7.0	6.9	6.9	7.0	6.9	6.9	7.2	7.1	7.1
14	6.8	6.7	6.7	7.0	6.9	6.9	6.9	6.7	6.7	7.2	7.2	7.2
15	6.8	6.7	6.7	7.1	6.9	6.9	6.8	6.7	6.7	7.2	7.1	7.2
16	6.9	6.6	6.7	7.1	7.0	7.0	6.8	6.7	6.8	7.2	7.1	7.2
17	6.8	6.6	6.7	7.1	6.8	6.9	6.8	6.7	6.7	7.2	7.1	7.2
18	6.9	6.8	6.8	7.0	6.8	7.0	6.9	6.8	6.8	7.2	7.1	7.2
19	6.9	6.7	6.8	7.0	6.9	7.0	6.9	6.9	6.9	7.2	7.2	7.2
20	6.8	6.6	6.7	7.0	6.9	7.0	6.9	6.5	6.7	7.2	7.1	7.2
21	6.9	6.8	6.8	7.0	7.0	7.0	6.8	6.6	6.8	7.2	7.1	7.2
22	6.9	6.7	6.8	7.0	6.9	7.0	6.8	6.7	6.7	7.2	7.1	7.2
23	6.8	6.7	6.7	7.0	6.9	6.9	6.8	6.7	6.7	7.2	7.0	7.1
24	7.1	6.8	7.1	6.9	6.8	6.9	6.9	6.8	6.8	7.1	7.0	7.1
25	7.1	6.9	7.0	6.9	6.8	6.8	6.9	6.9	6.9	7.1	7.0	7.0
26	7.0	6.8	6.9	6.9	6.9	6.9	7.0	6.9	6.9	7.1	6.9	7.0
27	6.9	6.9	6.9	6.9	6.8	6.8	7.1	7.0	7.0	7.1	7.0	7.0
28	6.9	6.8	6.9	6.9	6.8	6.9	7.1	7.0	7.0	7.0	6.9	7.0
29	6.9	6.8	6.8	7.0	6.9	6.9	7.1	7.0	7.1	7.1	7.0	7.0
30	7.0	6.9	7.0	6.9	6.9	6.9	7.2	7.1	7.1	7.2	6.9	7.1
31	7.0	6.8	6.9	---	---	---	7.2	7.1	7.2	7.2	7.0	7.1
MAX	7.1	6.9	7.1	7.1	7.0	7.0	7.2	7.1	7.2	7.3	7.2	7.2
MIN	6.7	6.5	6.6	6.8	6.7	6.7	6.8	6.5	6.7	7.0	6.8	6.9

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	7.2	7.1	7.1	6.8	6.7	6.7	6.8	6.7	6.8	7.1	6.9	7.0
2	7.2	7.0	7.1	6.9	6.7	6.8	6.8	6.6	6.7	7.0	6.8	6.9
3	7.2	7.1	7.1	6.9	6.7	6.8	6.7	6.7	6.7	7.0	6.8	6.9
4	7.2	6.7	7.1	6.8	6.7	6.8	6.7	6.7	6.7	6.9	6.9	6.9
5	7.0	6.8	6.9	7.0	6.7	6.9	6.8	6.6	6.7	7.0	6.8	6.9
6	7.1	6.9	7.0	7.0	6.8	6.9	6.8	6.6	6.8	7.0	6.9	7.0
7	7.1	7.0	7.0	7.0	6.9	7.0	6.9	6.8	6.8	7.0	6.9	6.9
8	7.1	6.9	7.0	7.1	6.9	7.0	6.9	6.8	6.8	7.0	6.9	6.9
9	7.1	6.9	7.0	7.0	6.9	7.0	6.9	6.8	6.8	7.3	6.9	7.2
10	7.0	6.9	7.0	7.0	6.9	7.0	7.0	6.8	6.9	7.3	7.2	7.3
11	7.0	6.9	7.0	7.0	6.8	6.9	7.0	6.6	6.9	7.4	7.2	7.3
12	7.0	6.9	7.0	7.0	6.9	6.9	6.8	6.6	6.7	7.4	7.3	7.4
13	7.0	6.8	6.9	7.1	6.9	6.9	6.8	6.7	6.7	7.5	7.4	7.4
14	7.0	6.9	7.0	6.9	6.8	6.9	6.7	6.7	6.7	7.5	7.3	7.4
15	7.0	6.9	6.9	6.9	6.8	6.9	6.8	6.7	6.8	7.4	7.3	7.3
16	7.0	6.9	6.9	6.8	6.6	6.8	6.8	6.7	6.7	7.5	7.3	7.4
17	7.0	6.8	6.9	6.6	6.4	6.6	6.9	6.8	6.8	7.5	7.3	7.4
18	6.9	6.8	6.9	6.5	6.3	6.4	6.9	6.8	6.9	7.6	7.4	7.5
19	7.0	6.9	6.9	6.4	6.3	6.3	6.9	6.8	6.9	7.6	7.4	7.5
20	7.0	6.9	7.0	6.5	6.1	6.4	6.9	6.8	6.9	7.8	7.4	7.7
21	7.0	6.9	6.9	6.2	5.9	6.0	6.9	6.7	6.9	7.9	7.6	7.8
22	7.1	6.9	7.0	6.0	5.6	5.8	6.8	6.6	6.7	7.7	7.6	7.6
23	7.0	6.7	6.9	6.0	5.5	5.7	7.1	6.7	7.0	7.7	7.6	7.6
24	6.9	6.8	6.9	6.4	5.9	6.2	7.1	7.0	7.1	7.7	7.4	7.6
25	6.9	6.8	6.9	6.6	6.4	6.4	7.1	7.0	7.0	7.4	7.3	7.3
26	6.9	6.7	6.8	6.8	6.5	6.6	7.1	6.9	7.1	7.4	7.1	7.2
27	6.9	6.8	6.8	6.7	6.6	6.7	7.0	6.9	7.0	7.1	7.0	7.1
28	6.9	6.7	6.8	6.8	6.6	6.7	7.1	7.0	7.0	7.1	6.9	7.0
29	---	---	---	6.9	6.7	6.8	7.0	6.9	7.0	7.0	6.9	6.9
30	---	---	---	6.8	6.7	6.8	7.0	6.9	7.0	6.9	6.9	6.9
31	---	---	---	6.8	6.7	6.8	---	---	---	7.2	6.9	7.0
MAX	7.2	7.1	7.1	7.1	6.9	7.0	7.1	7.0	7.1	7.9	7.6	7.8
MIN	6.9	6.7	6.8	6.0	5.5	5.7	6.7	6.6	6.7	6.9	6.8	6.9

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	7.0	6.4	6.7	7.3	7.2	7.2	7.7	7.5	7.6	7.7	7.6	7.7
2	7.0	6.7	6.9	7.4	7.3	7.3	7.8	7.3	7.6	7.7	7.6	7.7
3	7.0	6.8	6.9	7.4	7.2	7.3	7.7	7.4	7.6	7.7	7.2	7.4
4	7.0	6.6	6.8	7.4	7.3	7.3	7.7	6.5	6.8	7.4	7.0	7.3
5	6.9	6.8	6.9	7.4	7.3	7.3	6.9	6.7	6.7	7.6	7.4	7.5
6	7.1	6.9	7.1	7.4	7.3	7.3	6.9	6.7	6.8	7.6	7.5	7.6
7	7.1	6.8	7.0	7.5	7.3	7.4	6.8	6.7	6.7	7.7	7.6	7.6
8	6.9	6.8	6.9	7.7	7.4	7.6	7.2	6.7	6.8	7.7	7.6	7.7
9	7.0	6.9	6.9	7.7	7.5	7.7	7.3	7.2	7.3	7.7	7.6	7.6
10	6.9	6.8	6.9	7.8	7.7	7.7	7.3	7.1	7.2	---	---	---
11	7.1	6.7	6.9	7.7	7.5	7.6	---	---	---	---	---	---
12	7.3	6.7	6.8	7.6	7.5	7.6	---	---	---	---	---	---
13	7.1	6.8	6.9	7.7	7.5	7.7	---	---	---	---	---	---
14	7.1	6.8	7.0	7.7	7.6	7.6	---	---	---	---	---	---
15	7.1	7.0	7.1	7.7	7.5	7.6	---	---	---	---	---	---
16	7.1	7.0	7.0	7.8	7.6	7.7	---	---	---	---	---	---
17	7.2	7.0	7.2	7.7	7.5	7.7	---	---	---	---	---	---
18	7.4	7.1	7.2	7.8	7.6	7.6	---	---	---	---	---	---
19	7.2	7.1	7.1	7.8	7.7	7.7	7.5	7.4	7.5	7.7	7.5	7.6
20	7.3	6.9	7.2	7.7	7.5	7.6	7.5	7.4	7.5	7.6	7.5	7.5
21	6.9	6.7	6.7	8.1	7.4	7.7	7.5	7.4	7.4	7.7	7.6	7.6
22	6.9	6.8	6.8	7.9	7.2	7.6	7.6	6.9	7.5	7.7	7.5	7.6
23	6.9	6.7	6.8	7.6	6.6	7.5	7.6	7.5	7.5	7.6	6.6	6.8
24	6.8	6.7	6.8	7.4	6.8	7.3	7.6	7.5	7.6	7.0	6.9	7.0
25	6.9	6.7	6.8	7.6	7.4	7.5	7.8	7.6	7.7	7.1	6.9	7.0
26	7.0	6.9	7.0	7.6	7.5	7.6	7.7	7.5	7.6	7.0	6.9	6.9
27	7.1	7.0	7.0	7.6	7.3	7.5	7.8	7.6	7.7	7.0	6.9	6.9
28	7.2	7.1	7.1	7.7	7.6	7.6	7.8	7.6	7.7	7.0	6.9	7.0
29	7.2	7.1	7.1	7.7	7.6	7.6	7.6	7.5	7.6	7.1	7.0	7.1
30	7.2	7.1	7.2	7.7	7.5	7.6	7.7	7.5	7.6	7.2	7.1	7.2
31	---	---	---	7.7	7.6	7.7	7.8	7.7	7.8	---	---	---
MAX	7.4	7.1	7.2	8.1	7.7	7.7	7.8	7.7	7.8	7.7	7.6	7.7
MIN	6.8	6.4	6.7	7.3	6.6	7.2	6.8	6.5	6.7	7.0	6.6	6.8

YEAR			
	MAX	MAXIMUM 8.1	MINIMUM 6.0
	MIN	MAXIMUM 7.7	MINIMUM 5.5
	MEDIAN	MAXIMUM 7.8	MINIMUM 5.7

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	16.5	13.0	15.0	7.5	6.0	7.0	5.5	3.0	4.5	5.5	4.5	5.5
2	18.0	15.0	16.5	7.5	6.0	7.0	5.0	3.0	4.0	5.0	4.5	5.0
3	18.5	15.5	17.0	7.5	6.0	7.0	4.5	1.5	2.5	4.5	3.0	4.0
4	---	---	---	7.5	6.0	6.5	2.5	1.0	2.0	5.0	4.0	4.5
5	---	---	---	7.5	6.5	7.0	3.0	1.0	2.0	5.0	4.5	4.5
6	---	---	---	8.5	7.0	8.0	3.5	2.0	3.0	5.0	4.5	4.5
7	---	---	---	8.0	6.0	7.5	2.0	0.5	1.5	4.5	3.0	4.0
8	---	---	---	8.0	5.0	6.5	3.5	1.0	2.5	5.5	4.0	5.0
9	---	---	---	9.0	6.5	8.0	3.0	0.5	1.5	6.0	5.0	5.5
10	---	---	---	11.5	8.5	10.0	2.0	0.5	1.0	5.5	4.0	5.0
11	14.0	13.5	14.0	13.0	11.0	12.0	3.0	1.5	2.0	4.0	2.5	3.5
12	14.5	14.0	14.5	11.0	9.5	10.0	4.5	2.5	3.5	3.5	2.0	3.0
13	14.5	13.5	14.0	9.5	8.0	9.0	5.0	4.5	5.0	3.5	2.0	2.5
14	13.5	10.5	12.0	9.0	7.0	8.0	5.5	5.0	5.0	3.0	1.5	2.5
15	11.0	8.5	10.0	9.0	7.5	8.5	6.0	5.5	5.5	3.0	1.5	2.5
16	12.5	11.0	11.5	8.5	8.0	8.5	6.0	4.5	5.5	2.5	1.0	1.5
17	12.5	11.5	12.0	8.0	7.5	8.0	4.5	4.0	4.0	2.5	1.0	2.0
18	11.5	10.0	10.5	8.0	7.0	7.5	4.5	2.5	3.5	1.0	0.5	1.0
19	10.5	9.0	10.0	7.5	6.5	7.0	6.0	4.0	5.0	1.5	0.5	1.0
20	11.0	9.0	10.0	8.5	6.5	7.5	6.5	5.0	6.0	2.5	1.0	1.5
21	10.5	9.0	9.5	8.5	6.5	7.5	5.5	5.0	5.5	1.5	0.5	1.0
22	10.0	7.0	8.5	8.5	8.0	8.5	6.0	5.0	5.5	1.0	0.5	0.5
23	10.0	7.5	9.0	8.0	6.5	7.0	6.0	5.5	6.0	1.0	0.0	0.5
24	9.0	7.5	8.0	8.0	6.5	7.0	5.5	5.0	5.5	1.0	0.0	0.5
25	8.5	8.0	8.0	8.0	6.5	7.5	5.0	3.0	4.0	1.5	0.5	1.0
26	10.5	8.5	9.5	8.0	6.5	7.0	4.5	3.0	4.0	2.0	1.0	1.5
27	11.0	9.0	10.0	7.0	5.0	6.0	5.0	4.0	4.5	1.5	0.0	0.5
28	10.0	8.5	9.0	5.5	4.0	5.0	5.0	3.5	4.0	1.0	0.0	0.5
29	8.5	6.0	7.0	5.5	4.5	5.0	5.5	4.0	5.0	2.0	1.0	1.0
30	6.5	6.0	6.0	6.5	5.5	6.0	5.0	3.5	4.5	2.0	0.5	1.5
31	8.0	6.5	7.0	---	---	---	6.5	5.0	5.5	3.0	2.0	2.5
MONTH	18.5	6.0	10.8	13.0	4.0	7.6	6.5	0.5	4.0	6.0	0.0	2.6

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	3.5	3.0	3.0	3.5	3.0	3.0	6.5	5.0	6.0	15.5	11.5	13.0
2	4.5	3.0	3.5	5.0	3.0	4.0	11.0	6.0	8.5	15.5	13.0	14.0
3	5.0	2.5	3.5	3.0	0.5	1.5	11.0	8.0	9.5	15.0	11.5	13.0
4	4.0	2.5	3.5	2.5	0.0	1.5	9.5	8.0	8.5	14.0	11.0	12.0
5	2.5	1.0	2.0	5.5	2.5	4.0	8.0	7.0	7.5	11.5	10.0	10.5
6	2.0	0.5	1.0	4.5	1.5	3.0	8.5	6.0	7.5	12.5	9.5	10.5
7	3.0	1.0	2.0	3.0	0.5	1.5	7.0	4.5	5.5	15.5	10.5	13.0
8	2.0	0.0	1.0	4.5	1.0	3.0	6.0	5.0	5.5	14.5	13.0	13.5
9	1.5	0.0	0.5	5.5	2.5	4.0	6.5	5.5	6.0	13.5	12.5	13.0
10	2.0	1.5	1.5	3.5	1.5	2.0	8.5	6.0	7.0	14.0	12.0	13.0
11	1.5	0.0	0.5	3.0	0.5	2.0	7.0	6.5	7.0	15.0	13.0	13.5
12	1.0	0.0	0.5	4.5	2.0	3.5	10.5	7.0	8.5	14.5	11.5	13.0
13	1.0	0.0	0.5	5.0	3.5	4.0	10.5	7.5	9.0	12.0	10.5	11.5
14	1.5	0.0	0.5	5.0	2.0	3.5	11.0	7.0	9.0	12.5	10.5	11.5
15	1.5	0.5	1.0	6.5	2.5	4.5	13.0	8.5	10.5	12.0	9.5	11.0
16	0.5	0.0	0.5	7.5	3.5	5.0	14.0	10.0	12.0	12.0	11.0	11.5
17	0.0	0.0	0.0	7.0	4.5	5.5	12.0	8.0	10.0	11.0	10.5	11.0
18	1.0	0.0	0.5	7.5	4.5	5.5	8.0	7.5	7.5	13.0	10.5	11.5
19	2.0	0.5	1.0	6.0	4.5	5.5	12.0	8.0	9.5	14.5	9.0	12.0
20	2.5	1.0	1.5	5.5	3.5	4.5	12.0	8.0	10.0	15.0	10.0	12.5
21	3.0	0.5	2.0	7.5	3.5	5.5	10.5	9.5	10.0	13.5	12.0	12.5
22	3.0	2.0	2.5	8.5	6.5	7.0	12.0	10.0	11.0	12.5	11.5	12.0
23	2.5	1.0	2.0	8.5	6.5	7.5	11.0	8.5	9.5	12.0	11.5	12.0
24	2.0	0.5	1.5	9.5	6.5	8.0	12.0	7.0	9.0	12.0	11.5	12.0
25	2.5	1.0	1.5	10.0	7.0	8.5	12.5	8.0	10.0	12.5	12.0	12.0
26	2.0	0.5	1.0	9.5	7.5	8.5	11.0	10.5	11.0	12.5	12.0	12.0
27	2.0	1.0	1.5	10.0	7.0	8.5	14.0	9.5	11.5	12.5	11.5	12.0
28	3.5	2.0	2.5	9.0	7.5	8.5	15.0	9.0	12.0	13.0	11.5	12.0
29	---	---	---	10.0	9.0	9.5	13.5	10.5	12.0	13.5	11.0	12.5
30	---	---	---	9.0	6.0	7.0	14.5	10.0	12.0	14.5	12.0	13.5
31	---	---	---	7.5	5.0	6.0	---	---	---	13.5	12.5	13.0
MONTH	5.0	0.0	1.5	10.0	0.0	5.0	15.0	4.5	9.1	15.5	9.0	12.3

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	13.0	11.5	12.5	17.5	14.0	15.5	18.0	17.0	17.5	16.5	16.0	16.0
2	13.0	10.5	11.5	17.5	14.5	16.0	20.0	17.5	19.0	16.5	16.0	16.5
3	12.0	11.0	11.5	18.5	15.5	17.0	20.0	18.5	19.0	17.0	16.0	16.5
4	11.5	11.5	11.5	19.5	15.5	17.5	20.0	18.5	19.5	17.5	16.5	17.0
5	12.5	11.5	12.0	19.0	16.5	17.5	19.0	18.0	18.5	17.0	15.5	16.5
6	13.5	11.5	12.5	19.5	16.5	18.0	18.5	17.5	18.0	16.5	13.5	15.0
7	12.5	12.0	12.5	19.0	16.5	18.0	18.0	17.0	17.5	16.5	13.5	15.0
8	12.5	12.0	12.5	20.0	17.0	18.0	18.0	16.5	17.0	17.0	14.5	15.5
9	13.5	12.0	13.0	18.5	17.0	17.5	17.5	16.5	17.0	17.0	15.5	16.0
10	14.5	12.0	13.5	17.0	16.0	16.0	19.5	17.0	18.0	---	---	---
11	15.0	13.0	14.0	18.5	16.0	17.0	---	---	---	---	---	---
12	15.0	13.5	14.0	18.0	15.0	16.5	---	---	---	---	---	---
13	15.5	14.0	14.5	19.0	15.0	17.0	---	---	---	---	---	---
14	16.0	14.0	15.0	18.5	15.0	16.5	---	---	---	---	---	---
15	15.5	14.0	15.0	18.5	15.0	17.0	---	---	---	---	---	---
16	16.0	13.0	14.5	20.0	17.0	18.5	---	---	---	---	---	---
17	15.0	13.0	14.0	19.5	15.5	17.5	---	---	---	---	---	---
18	14.5	13.5	14.0	17.5	16.0	17.0	---	---	---	---	---	---
19	16.0	13.5	14.5	19.5	15.5	17.0	17.5	15.0	16.5	17.0	15.5	16.5
20	15.0	14.0	14.5	19.0	14.5	17.0	18.0	15.0	16.5	17.5	16.0	16.5
21	14.5	13.5	14.0	20.0	16.5	18.5	18.5	16.0	17.5	16.0	14.0	15.0
22	14.0	13.0	13.5	19.0	18.0	18.5	19.0	16.5	17.5	16.5	15.5	15.5
23	15.5	13.0	14.0	19.0	17.5	18.0	18.5	16.0	17.5	17.5	15.5	17.0
24	16.0	13.5	15.0	19.0	18.0	18.5	17.0	14.0	15.5	15.5	13.5	14.5
25	16.5	14.0	15.0	20.0	16.5	18.0	18.5	14.5	16.5	14.5	13.0	14.0
26	17.5	15.0	16.0	20.0	16.0	18.0	18.0	16.0	17.0	15.0	14.0	14.5
27	17.0	15.0	16.0	20.5	17.0	18.5	18.5	16.0	17.0	16.0	15.0	15.5
28	17.0	14.5	15.5	20.5	18.5	19.0	19.0	16.5	17.5	16.0	14.5	15.0
29	17.0	14.5	15.5	20.0	16.0	18.0	17.5	16.0	16.5	14.5	13.0	14.0
30	17.0	15.0	15.5	19.5	15.5	17.5	18.0	17.0	17.5	13.5	11.5	12.5
31	---	---	---	18.0	16.0	17.0	17.5	15.0	16.5	---	---	---
MONTH	17.5	10.5	13.9	20.5	14.0	17.5	20.0	14.0	17.4	17.5	11.5	15.5
YEAR	20.5	0.0	9.5									

SWATARA CREEK BASIN

01572025 SWATARA CREEK NEAR PINE GROVE, PA

LOCATION.--Lat 40°31'57", long 76°24'09", Schuylkill County, Hydrologic Unit 02050305, on right bank 1.0 mi downstream from Lower Little Swatara Creek, 1.3 mi southwest of Pine Grove, and 1.6 mi upstream from bridge on Interstate Highway 81.

DRAINAGE AREA.--116 mi^2.

PERIOD OF RECORD.--October 1988 to January 1991, October 1991 to current year.

REVISED RECORDS.--WDR PA-90-2: 1989.

GAGE.--Water-stage recorder. Datum of gage is 480.66 ft above North American Vertical Datum of 1988.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite telemetry at station.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 20	2330	3,090	10.64
June 7	1715	1,730	8.30
June 13	0515	3,070	10.60
June 21	0715	*3,550	*11.32
Aug. 4	1315	1,600	8.04
Aug. 11	1700	1,870	8.57
Sept. 23	0800	2,430	9.57

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	263	171	528	124	175	479	188	1130	227	116	114
2	43	221	157	1150	127	272	446	215	797	205	128	153
3	43	190	145	778	125	e265	390	213	618	190	113	376
4	50	171	e120	608	252	260	350	183	993	173	658	364
5	60	151	e122	487	e170	240	354	172	825	158	652	214
6	46	241	e125	422	e130	471	314	169	623	148	936	168
7	39	188	e105	375	e135	331	294	170	997	167	572	144
8	35	148	e115	357	e110	273	290	215	1050	174	443	129
9	34	132	e105	396	e105	371	317	183	752	140	484	120
10	40	136	e110	423	e107	e290	346	171	577	137	529	110
11	410	138	292	364	e80	263	741	169	483	156	902	104
12	505	193	837	309	e62	241	965	160	733	129	859	99
13	274	270	621	279	e65	425	681	150	1880	112	573	107
14	196	218	1210	252	e69	563	534	141	792	104	426	143
15	156	195	977	234	e63	500	453	134	549	99	319	133
16	376	219	679	211	e60	591	399	134	431	94	287	366
17	416	516	502	e190	e68	783	350	144	362	89	273	192
18	267	646	400	e170	e75	929	317	136	473	86	220	155
19	208	463	353	e160	e90	844	301	128	367	91	192	273
20	177	379	719	e160	e85	1250	272	119	669	81	172	243
21	150	324	629	e150	e110	2190	260	131	2760	83	160	194
22	130	365	508	e145	e210	1240	265	123	1420	170	150	175
23	118	347	427	e140	e400	884	238	117	964	340	150	1550
24	101	294	365	e130	e350	691	217	259	697	711	129	883
25	85	267	366	e135	e250	572	204	259	544	268	120	590
26	286	239	334	139	e170	528	281	617	444	179	116	464
27	212	235	290	e125	198	499	267	531	372	145	117	380
28	177	210	268	e112	186	410	208	425	318	141	108	412
29	161	193	253	e115	---	452	201	400	279	119	101	309
30	239	186	239	e118	---	536	197	318	252	103	123	240
31	304	---	239	122	---	524	---	352	---	94	115	---
TOTAL	5388	7738	11783	9284	3976	17863	10931	6826	23151	5113	10243	8904
MEAN	174	258	380	299	142	576	364	220	772	165	330	297
MAX	505	646	1210	1150	400	2190	965	617	2760	711	936	1550
MIN	34	132	105	112	60	175	197	117	252	81	101	99
CFSM	1.50	2.22	3.28	2.58	1.22	4.97	3.14	1.90	6.65	1.42	2.85	2.56
IN.	1.73	2.48	3.78	2.98	1.28	5.73	3.51	2.19	7.42	1.64	3.28	2.86

STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF DAILY RECORD, BY WATER YEAR (WY)

MEAN	125	198	249	267	232	396	327	258	218	117	89.2	90.8
MAX	361	396	745	683	555	846	874	756	772	378	330	297
(WY)	1997	1993	1997	1996	1998	1994	1993	1989	2003	1989	2003	2003
MIN	27.3	32.1	27.4	70.4	82.8	185	135	91.9	46.6	23.1	19.7	26.1
(WY)	2002	2002	1999	2002	2002	1990	1995	1999	1999	1999	2002	1995

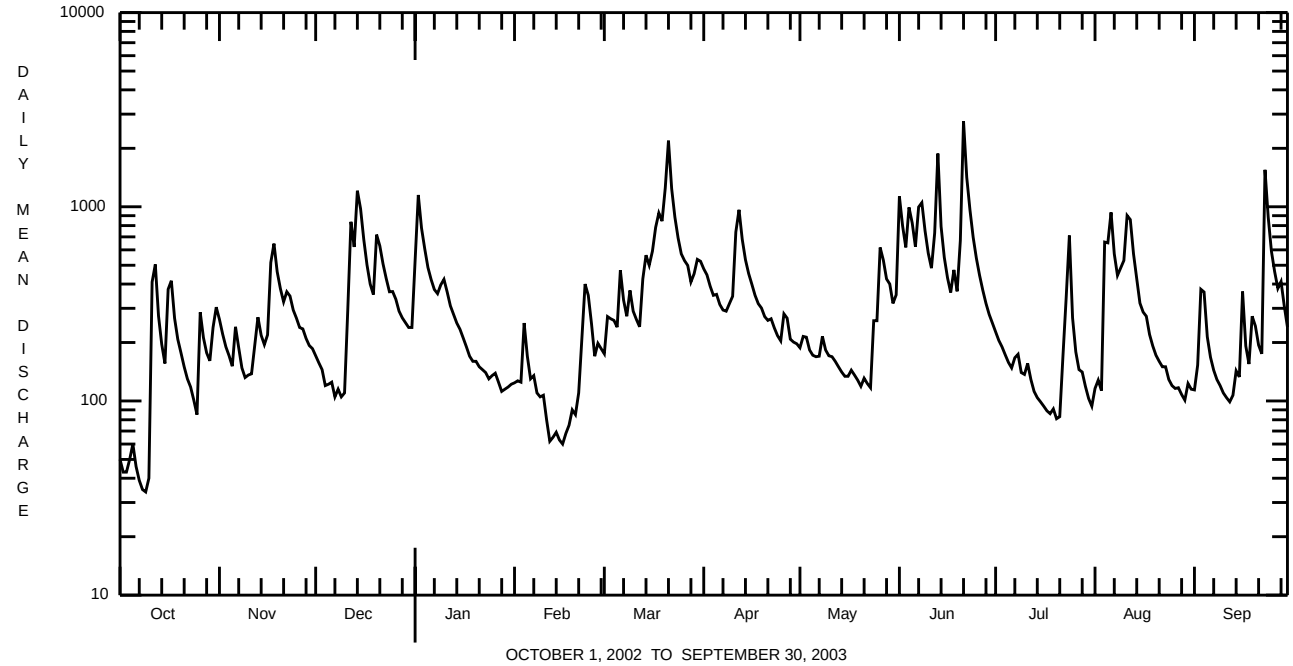
e Estimated.

SWATARA CREEK BASIN

01572025 SWATARA CREEK NEAR PINE GROVE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	59043		121200			
ANNUAL MEAN	162		332		211	
HIGHEST ANNUAL MEAN					332	2003
LOWEST ANNUAL MEAN					104	2002
HIGHEST DAILY MEAN	1210	Dec 14	2760	Jun 21	4130	Nov 28 1993
LOWEST DAILY MEAN	14	Sep 11,14	34	Oct 9	14	Aug 7 1999
ANNUAL SEVEN-DAY MINIMUM	15	Sep 8	43	Oct 4	15	Sep 8 2002
MAXIMUM PEAK FLOW			**a**3550	Jun 21	**a**5880	Nov 28 1993
MAXIMUM PEAK STAGE			11.32	Jun 21	14.17	Nov 28 1993
INSTANTANEOUS LOW FLOW			31	Oct 10	13	Sep 10 2002**b**
ANNUAL RUNOFF (CFSM)	1.39		2.86		1.82	
ANNUAL RUNOFF (INCHES)	18.93		38.87		24.68	
10 PERCENT EXCEEDS	364		685		440	
50 PERCENT EXCEEDS	108		239		127	
90 PERCENT EXCEEDS	21		105		34	

a From rating curve extended above 3,300 ft^3/s on basis of step-backwater analysis.
b Also Sept. 12, 14, 2002.



SWATARA CREEK BASIN

01572190 SWATARA CREEK NEAR INWOOD, PA

LOCATION.--Lat 40°28'45", long 76°31'52", Lebanon County, Hydrologic Unit 02050305, on right bank 20 ft downstream from single-span steel-truss bridge on Appalachian Trail, 0.4 mi upstream from steel-truss bridge at Inwood, 0.5 mi downstream from Trout Run, and 2.0 mi north of Lickdale.

DRAINAGE AREA.--167 mi^2.

PERIOD OF RECORD.--October 1988 to January 1991, October 1991 to current year.

GAGE.--Water-stage recorder. Datum of gage is 426.13 ft above North American Vertical Datum of 1988.

REMARKS.--Records good except those for estimated daily discharges, which are poor. The Pennsylvania American Water Company diverts water upstream from station for municipal supply of city of Lebanon. Diversion for the year was equivalent to a mean daily discharge of 10.2 ft^3/s. Several measurements of water temperature were made during the year. Satellite telemetry at station.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 21	0515	*4,460	*11.25
June 7	2045	2,330	8.10
June 13	0915	3,170	9.45
June 21	1345	4,040	10.69
Aug. 4	1630	2,060	7.64
Aug. 11	2015	2,970	9.14
Sept. 23	1215	3,600	10.07

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72	380	242	577	169	231	635	243	1290	291	122	138
2	59	313	212	1680	174	307	594	272	1010	264	143	209
3	51	263	199	1160	170	e385	523	272	750	243	129	468
4	64	230	e158	889	304	340	469	232	1330	218	966	538
5	72	202	e160	699	e200	304	471	213	1160	197	1170	323
6	64	304	e150	600	e150	573	427	209	859	184	1610	236
7	50	255	e140	527	e155	463	392	209	1270	176	928	195
8	45	210	e150	494	e135	363	383	273	1640	224	622	171
9	43	177	e140	524	e120	437	408	239	1120	169	601	155
10	46	183	e150	577	e130	e400	461	218	837	163	700	140
11	434	182	288	504	e115	355	918	215	668	186	1560	129
12	754	217	1300	428	e120	317	1480	204	894	162	1630	121
13	403	372	900	384	e110	449	989	188	2210	134	964	147
14	272	304	1700	349	e120	783	752	173	1080	121	691	201
15	207	278	1520	323	e110	647	629	162	737	113	504	182
16	406	283	1040	289	e100	778	549	160	577	107	434	498
17	605	688	752	e230	e110	1100	475	182	482	101	413	300
18	377	992	593	e200	e120	1420	427	169	609	97	327	226
19	282	721	514	e210	e135	1320	405	158	507	102	280	377
20	235	569	1010	e200	e130	1590	363	144	628	91	247	417
21	193	475	1010	e185	e160	3540	341	154	3380	85	223	314
22	165	526	768	e170	e220	1960	350	150	1990	161	206	275
23	148	536	633	e155	e700	1320	312	139	1340	265	201	2360
24	130	441	532	e160	633	987	278	337	944	869	171	1480
25	110	394	518	e170	390	794	258	445	722	336	156	905
26	333	349	478	e150	e255	697	347	830	584	211	147	687
27	286	337	407	e135	e250	681	370	833	489	166	153	553
28	235	301	373	e138	252	545	286	642	414	156	141	551
29	209	272	352	e142	---	574	264	612	363	135	127	442
30	303	261	329	e145	---	727	259	474	327	116	149	336
31	440	---	321	166	---	704	---	439	---	104	154	---
TOTAL	7093	11015	17039	12560	5737	25091	14815	9190	30211	5947	15869	13074
MEAN	229	367	550	405	205	809	494	296	1007	192	512	436
MAX	754	992	1700	1680	700	3540	1480	833	3380	869	1630	2360
MIN	43	177	140	135	100	231	258	139	327	85	122	121
CFSM	1.37	2.20	3.29	2.43	1.23	4.85	2.96	1.78	6.03	1.15	3.07	2.61
IN.	1.58	2.45	3.80	2.80	1.28	5.59	3.30	2.05	6.73	1.32	3.53	2.91

STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF DAILY RECORD, BY WATER YEAR (WY)

MEAN	172	281	361	387	333	582	481	373	295	159	121	122
MAX	538	662	1098	987	832	1263	1325	1184	1007	576	512	436
(WY)	1997	1993	1997	1996	1998	1994	1993	1989	2003	1989	2003	2003
MIN	35.1	40.8	35.8	94.6	96.4	271	165	123	58.3	26.2	31.5	32.7
(WY)	2002	2002	1999	2002	2002	1990	1995	1999	1999	1999	1999	1995

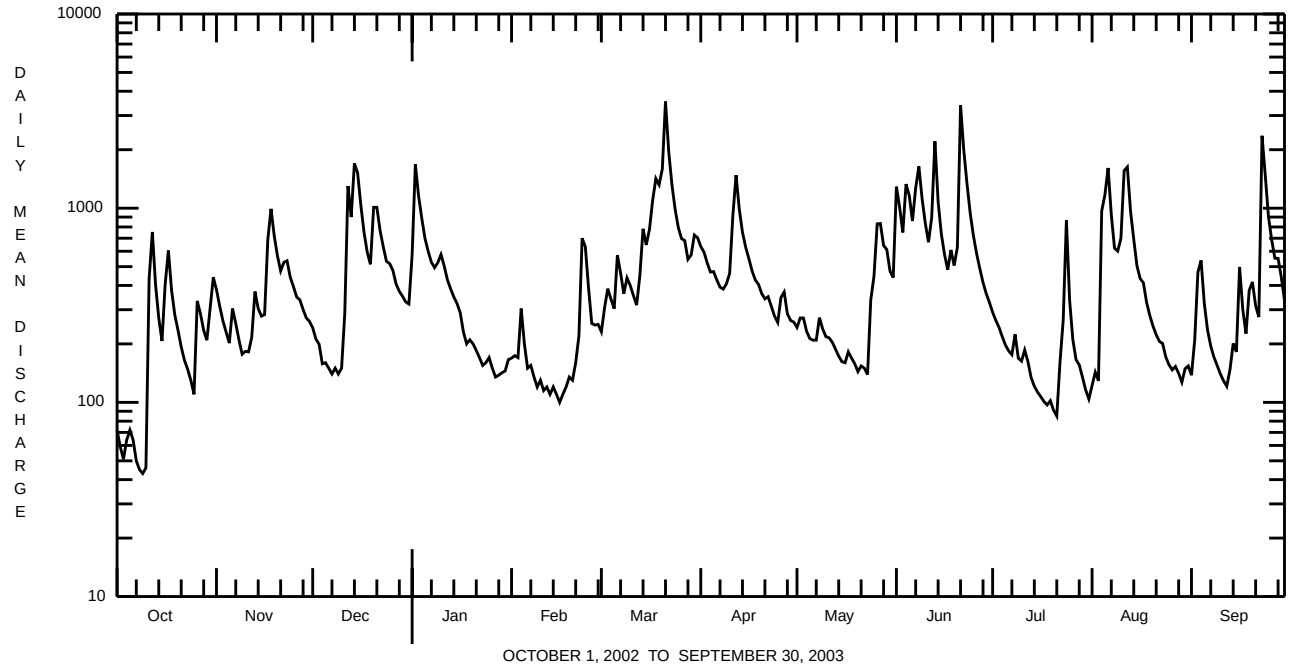
e Estimated.

SWATARA CREEK BASIN

01572190 SWATARA CREEK NEAR INWOOD, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	81405		167641			
ANNUAL MEAN	223		459		301	
HIGHEST ANNUAL MEAN					459	2003
LOWEST ANNUAL MEAN					140	2002
HIGHEST DAILY MEAN	1700	Dec 14	3540	Mar 21	6200	Jan 20 1996
LOWEST DAILY MEAN	19	Sep 12	43	Oct 9	17	Aug 2 1999**a**
ANNUAL SEVEN-DAY MINIMUM	22	Sep 8	55	Oct 4	17	Aug 2 1999
MAXIMUM PEAK FLOW			4460	Mar 21	**b**9510	Nov 28 1993
MAXIMUM PEAK STAGE			11.25	Mar 21	16.20	Nov 28 1993
INSTANTANEOUS LOW FLOW			42	Oct 10	17	Aug 2 1999**c**
ANNUAL RUNOFF (CFSM)	1.34		2.75		1.80	
ANNUAL RUNOFF (INCHES)	18.13		37.34		24.46	
10 PERCENT EXCEEDS	512		988		667	
50 PERCENT EXCEEDS	138		312		163	
90 PERCENT EXCEEDS	33		130		43	

a Also Aug. 3-8, 12, 13.
b From rating curve extended above 4,500 ft^3/s.
c Also Aug. 3-8, 12, 13, Sept. 5, 1999.



SWATARA CREEK BASIN

01572950 INDIANTOWN RUN NEAR HARPER TAVERN, PA

LOCATION.--Lat 40°26'20", long 76°35'55", Lebanon County, Hydrologic Unit 02050305, on left bank, 10 ft downstream from Lake Road bridge over Indiantown Run, 20 ft west of State Highway 443 in Indiantown Gap Military Reservation, 1,500 ft upstream from Marquette Lake, 1.9 mi upstream from State Memorial Lake dam and 2.5 mi north of Harper Tavern.

DRAINAGE AREA.--5.48 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 2002 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 530 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair except those for estimated daily discharges and those for period July 13 to Sept. 30, which are poor. Satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, **WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002**
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	1.3
2	---	---	---	---	---	---	---	---	---	---	---	1.2
3	---	---	---	---	---	---	---	---	---	---	---	1.1
4	---	---	---	---	---	---	---	---	---	---	---	1.1
5	---	---	---	---	---	---	---	---	---	---	---	0.96
6	---	---	---	---	---	---	---	---	---	---	---	0.92
7	---	---	---	---	---	---	---	---	---	---	---	0.91
8	---	---	---	---	---	---	---	---	---	---	---	0.86
9	---	---	---	---	---	---	---	---	---	---	---	0.84
10	---	---	---	---	---	---	---	---	---	---	---	0.83
11	---	---	---	---	---	---	---	---	---	---	---	0.87
12	---	---	---	---	---	---	---	---	---	---	---	0.98
13	---	---	---	---	---	---	---	---	---	---	---	1.0
14	---	---	---	---	---	---	---	---	---	---	---	1.1
15	---	---	---	---	---	---	---	---	---	---	---	1.5
16	---	---	---	---	---	---	---	---	---	---	---	1.7
17	---	---	---	---	---	---	---	---	---	---	---	1.3
18	---	---	---	---	---	---	---	---	---	---	---	1.3
19	---	---	---	---	---	---	---	---	---	---	---	1.3
20	---	---	---	---	---	---	---	---	---	---	---	1.4
21	---	---	---	---	---	---	---	---	---	---	---	1.4
22	---	---	---	---	---	---	---	---	---	---	---	2.3
23	---	---	---	---	---	---	---	---	---	---	---	4.4
24	---	---	---	---	---	---	---	---	---	---	---	1.9
25	---	---	---	---	---	---	---	---	---	---	---	1.6
26	---	---	---	---	---	---	---	---	---	---	---	2.0
27	---	---	---	---	---	---	---	---	---	---	1.0	11
28	---	---	---	---	---	---	---	---	---	---	1.1	5.8
29	---	---	---	---	---	---	---	---	---	---	1.6	2.7
30	---	---	---	---	---	---	---	---	---	---	1.2	2.4
31	---	---	---	---	---	---	---	---	---	---	1.1	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	57.97
MEAN	---	---	---	---	---	---	---	---	---	---	---	1.93
MAX	---	---	---	---	---	---	---	---	---	---	---	11
MIN	---	---	---	---	---	---	---	---	---	---	---	0.83
CFSM	---	---	---	---	---	---	---	---	---	---	---	0.35
IN.	---	---	---	---	---	---	---	---	---	---	---	0.39

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2002 - 2002, BY WATER YEAR (WY)

MEAN	---	---	---	---	---	---	---	---	---	---	---	1.93
MAX	---	---	---	---	---	---	---	---	---	---	---	1.93
(WY)	---	---	---	---	---	---	---	---	---	---	---	2002
MIN	---	---	---	---	---	---	---	---	---	---	---	1.93
(WY)	---	---	---	---	---	---	---	---	---	---	---	2002

SWATARA CREEK BASIN

01572950 INDIANTOWN RUN NEAR HARPER TAVERN, PA--Continued

DISCHARGE, CUBIC FEET PER SECOND, **WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003**
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	11	7.8	32	4.7	11	19	11	24	7.5	4.0	4.6
2	1.9	9.1	7.0	47	4.9	17	18	12	20	6.7	3.4	5.2
3	1.8	7.8	6.2	37	4.8	17	17	10	20	6.1	3.3	6.9
4	2.0	7.1	5.6	30	9.4	14	16	8.0	34	5.7	12	7.8
5	2.3	6.4	e5.4	26	6.7	14	16	8.5	28	5.2	9.3	5.9
6	1.9	13	5.2	23	e5.3	19	14	8.9	24	5.9	26	5.2
7	1.9	7.8	e4.6	21	e5.0	17	14	9.9	51	6.7	12	4.8
8	1.8	7.0	e4.4	20	e4.5	17	14	12	42	5.0	8.9	4.6
9	1.8	6.5	e4.3	21	e4.9	18	16	11	34	4.6	8.2	4.7
10	2.8	6.3	e4.2	19	e4.2	17	17	11	27	4.5	7.5	4.4
11	20	6.7	15	17	e3.6	16	33	10	23	4.9	47	4.2
12	14	11	24	16	e3.9	15	35	10	23	4.1	30	4.1
13	6.6	14	22	15	e3.6	19	29	8.8	23	3.8	22	7.9
14	4.9	11	49	14	e3.4	22	25	8.1	18	3.4	16	10
15	4.1	9.1	41	13	e3.6	23	22	7.3	15	3.3	12	9.2
16	15	11	32	12	e3.2	30	20	11	13	3.3	12	15
17	9.9	27	25	e10	e3.5	44	18	10	12	3.1	11	8.7
18	6.4	29	20	e9.5	e4.0	56	16	7.5	18	4.5	8.4	9.4
19	5.3	21	18	e8.5	e4.3	47	15	6.4	13	4.9	7.2	18
20	4.5	17	36	e7.5	e4.0	87	13	8.7	20	3.3	6.6	14
21	4.0	17	24	e6.8	e4.5	90	13	7.9	34	3.2	6.2	11
22	3.5	21	22	e6.0	e4.8	55	13	6.9	31	4.5	5.8	11
23	3.3	18	20	e5.5	19	39	11	6.9	25	12	5.4	90
24	3.1	16	18	e5.0	16	30	9.4	19	21	13	4.9	41
25	3.3	14	18	e5.2	15	26	9.0	17	18	5.9	4.6	27
26	12	13	16	e4.7	14	24	16	29	16	5.0	4.5	19
27	5.7	12	14	e4.1	13	22	13	27	13	4.4	5.0	14
28	5.0	11	13	e3.7	12	19	12	25	12	4.1	4.5	12
29	5.5	9.7	12	e3.8	---	20	12	21	10	3.7	4.2	9.3
30	16	9.0	12	e4.0	---	21	11	18	8.5	3.4	4.9	8.0
31	16	---	12	4.2	---	20	---	21	---	3.3	4.5	---
TOTAL	188.4	379.5	517.7	451.5	189.8	886	506.4	388.8	670.5	159.0	321.3	396.9
MEAN	6.08	12.7	16.7	14.6	6.78	28.6	16.9	12.5	22.4	5.13	10.4	13.2
MAX	20	29	49	47	19	90	35	29	51	13	47	90
MIN	1.8	6.3	4.2	3.7	3.2	11	9.0	6.4	8.5	3.1	3.3	4.1
CFSM	1.11	2.31	3.05	2.66	1.24	5.22	3.08	2.29	4.08	0.94	1.89	2.41
IN.	1.28	2.58	3.51	3.06	1.29	6.01	3.44	2.64	4.55	1.08	2.18	2.69

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2002 - 2003, BY WATER YEAR (WY)

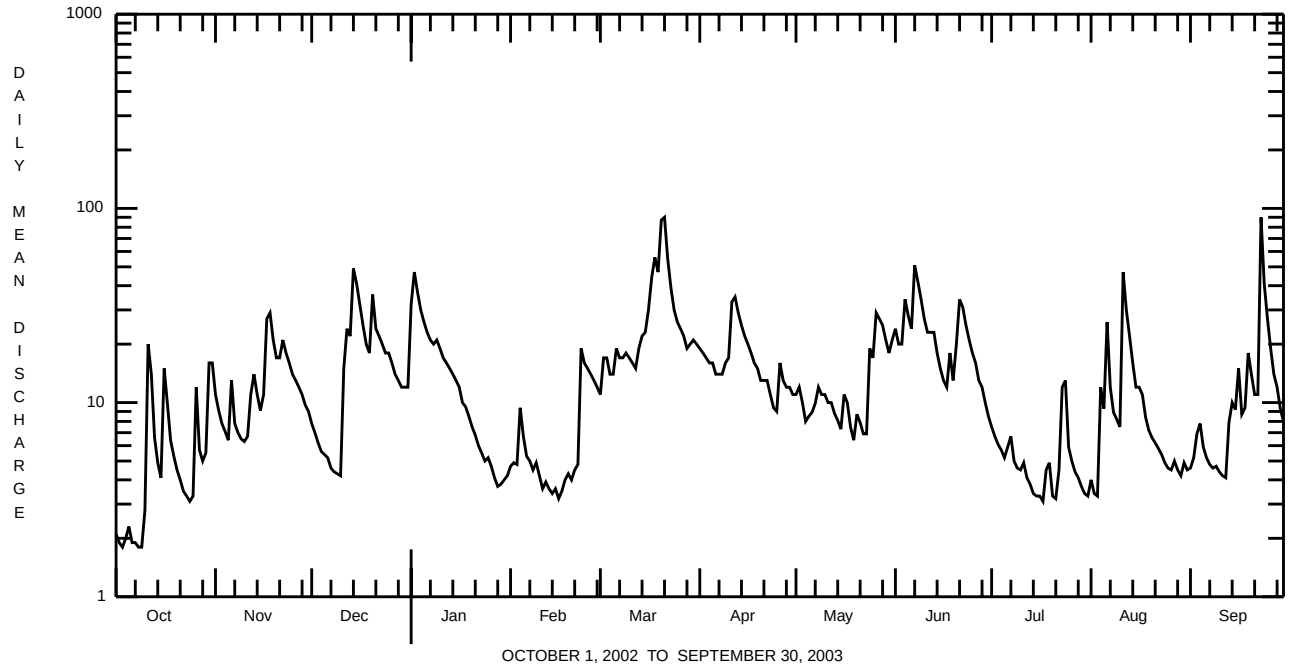
MEAN	6.08	12.7	16.7	14.6	6.78	28.6	16.9	12.5	22.4	5.13	10.4	7.58
MAX	6.08	12.7	16.7	14.6	6.78	28.6	16.9	12.5	22.4	5.13	10.4	13.2
(WY)	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
MIN	6.08	12.7	16.7	14.6	6.78	28.6	16.9	12.5	22.4	5.13	10.4	1.93
(WY)	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2002

e Estimated.

SWATARA CREEK BASIN

01572950 INDIANTOWN RUN NEAR HARPER TAVERN, PA--Continued

SUMMARY STATISTICS	FOR 2003 WATER YEAR		WATER YEARS 2002 - 2003	
ANNUAL TOTAL	5055.8			
ANNUAL MEAN	13.9		13.9	
HIGHEST ANNUAL MEAN			13.9	2003
LOWEST ANNUAL MEAN			13.9	2003
HIGHEST DAILY MEAN	90	Mar 21,Sep 23	90	Mar 21 2003
LOWEST DAILY MEAN	1.8	Oct 3,8,9	0.83	Sep 10 2002
ANNUAL SEVEN-DAY MINIMUM	1.9	Oct 3	0.88	Sep 5 2002
MAXIMUM PEAK FLOW	203	Mar 20	203	Mar 20 2003
MAXIMUM PEAK STAGE	3.61	Mar 20	3.61	Mar 20 2003
INSTANTANEOUS LOW FLOW	1.8	Oct 3,7-10	0.83	Sep 10 2002
ANNUAL RUNOFF (CFSM)	2.53		2.53	
ANNUAL RUNOFF (INCHES)	34.32		34.34	
10 PERCENT EXCEEDS	27		27	
50 PERCENT EXCEEDS	11		11	
90 PERCENT EXCEEDS	4.0		4.0	



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

SWATARA CREEK BASIN

01573000 SWATARA CREEK AT HARPER TAVERN, PA

LOCATION.--Lat 40°24'09", long 76°34'39", Lebanon County, Hydrologic Unit 02050305, on left bank 100 ft downstream from bridge on State Highway 934 at Harper Tavern, 6.0 mi northwest of Annville, and 8.5 mi downstream from Little Swatara Creek.

DRAINAGE AREA.--337 mi^2.

PERIOD OF RECORD.--January 1919 to current year. Prior to October 1927, published as "*at Harpers*".

REVISED RECORDS.--WSP 1202: 1948. WSP 1302: 1920(M), 1921, 1924-25(M), 1927-28(M), 1930(M). WSP 1903: Drainage area. WDR PA-72-1: 1889 (M). WDR PA-85-2: 1984(P)(m).

GAGE.--Water-stage recorder. Datum of gage is 356.68 ft above National Geodetic Vertical Datum of 1929. Prior to July 16, 1931, nonrecording gage at same site and datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. The Pennsylvania American Water Company diverts water upstream from station for municipal supply of city of Lebanon. Diversion for the year was equivalent to a mean daily discharge of 10.8 ft^3/s. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1889, reached a stage of 25.6 ft, from floodmark, discharge, about 88,000 ft^3/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 4,800 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Jan. 2	0630	4,800	7.00	June 21	1800	8,960	10.28
Mar. 21	1000	*9,120	*10.39	Aug. 6	0530	5,300	7.43
June 8	0000	5,690	7.75	Aug. 11	1815	7,710	9.40
June 13	1045	5,770	7.82	Sept. 23	1830	6,940	8.81

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	147	860	417	1450	e310	439	1110	445	2230	468	236	202
2	129	660	355	4050	e320	869	1040	532	1980	407	258	276
3	115	521	e260	2560	e300	2100	904	489	1430	372	236	449
4	118	436	e210	2090	e480	761	789	417	2930	336	1040	718
5	140	378	e215	1540	e650	645	823	380	2490	299	2160	443
6	128	688	e230	1250	e310	1940	748	369	1830	280	4340	303
7	93	580	e215	1070	e300	1160	646	364	2840	297	1840	246
8	76	421	e200	964	e270	736	670	448	4060	327	1070	216
9	69	348	e185	1120	e230	1360	835	453	2480	261	993	199
10	82	328	e170	1210	e250	1400	1010	397	1850	253	1450	180
11	874	332	e500	969	e210	705	1900	371	1460	269	3610	170
12	2150	451	3670	770	e200	586	3340	365	1850	255	3660	155
13	1030	965	2110	672	e190	1240	2180	335	4550	206	1760	249
14	637	641	3840	603	e170	2480	1670	305	2280	181	1210	309
15	430	544	3280	e500	e180	1590	1370	283	1510	172	865	273
16	831	560	2140	e450	e160	1750	1180	290	1090	160	787	814
17	1780	1840	1480	e400	e180	2150	1000	341	849	152	782	480
18	924	2510	1090	e350	e200	2520	882	309	1030	157	566	325
19	612	1650	911	e340	e230	2300	838	287	920	249	447	680
20	489	1200	1750	e280	e260	2920	726	259	1190	161	384	796
21	390	985	1930	e310	e230	7780	660	261	7480	143	343	518
22	321	1180	1320	e280	e500	3850	682	264	4710	416	311	412
23	280	1270	1080	e230	e2000	2480	614	247	2900	1040	286	4220
24	248	906	884	e200	2590	1830	527	616	1870	3440	257	3180
25	223	764	879	e220	1150	1430	480	1050	1370	958	229	1790
26	809	661	927	e240	e700	1210	693	2000	1060	545	218	1360
27	724	634	743	e220	e500	1320	817	1920	863	405	231	1070
28	487	577	645	e240	e480	976	570	1390	709	346	231	1080
29	427	490	601	e260	---	935	490	1230	598	298	193	922
30	1030	456	574	e270	---	1380	479	960	530	246	205	659
31	1390	---	562	e300	---	1420	---	857	---	219	242	---
TOTAL	17183	23836	33373	25408	13550	54262	29673	18234	62939	13318	30440	22694
MEAN	554	795	1077	820	484	1750	989	588	2098	430	982	756
MAX	2150	2510	3840	4050	2590	7780	3340	2000	7480	3440	4340	4220
MIN	69	328	170	200	160	439	479	247	530	143	193	155
CFSM	1.64	2.36	3.19	2.43	1.44	5.19	2.94	1.75	6.23	1.27	2.91	2.24
IN.	1.90	2.63	3.68	2.80	1.50	5.99	3.28	2.01	6.95	1.47	3.36	2.51

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1919 - 2003, BY WATER YEAR (WY)

MEAN	329	522	699	679	752	1076	880	676	460	303	247	265
MAX	2104	1752	2168	2538	2097	3096	2466	2189	3952	1472	1772	2000
(WY)	1977	1927	1997	1996	1925	1994	1983	1989	1972	1945	1933	1975
MIN	28.1	35.9	60.0	42.1	162	358	297	154	80.2	30.8	22.0	15.9
(WY)	1942	1932	1931	1981	1980	1985	1988	1926	1965	1966	1966	1932

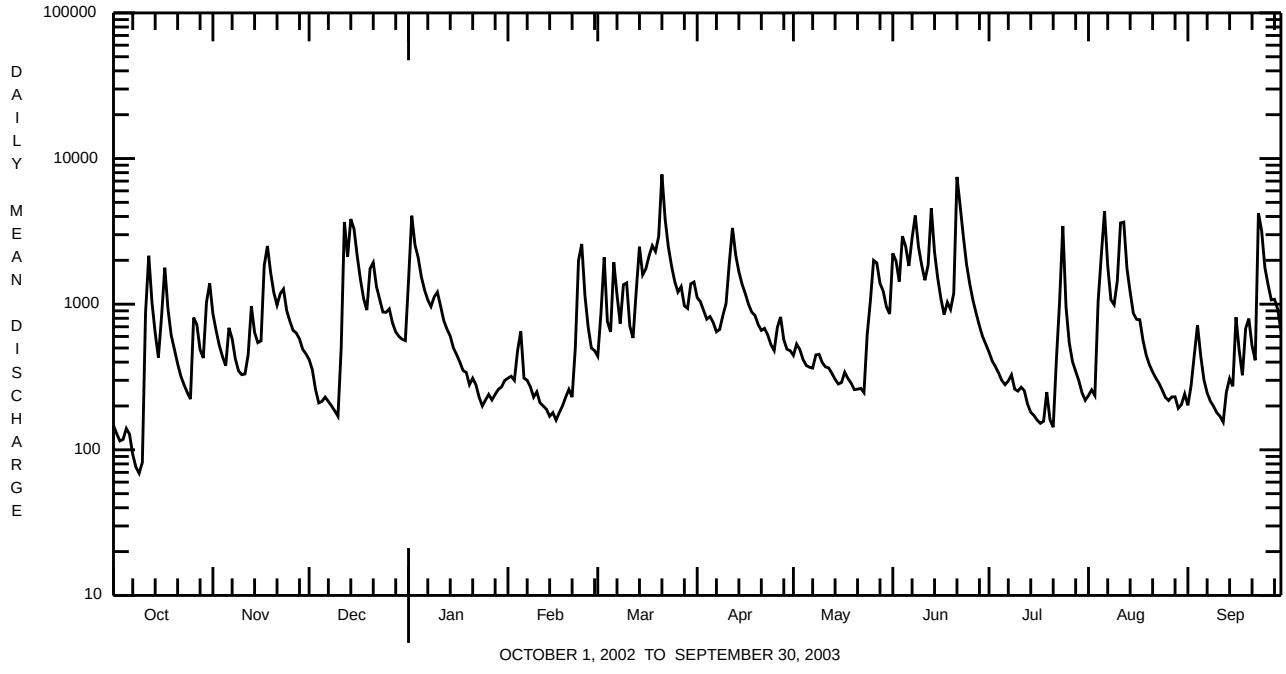
e Estimated.

SWATARA CREEK BASIN

01573000 SWATARA CREEK AT HARPER TAVERN, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1919 - 2003	
ANNUAL TOTAL	163066		344910			
ANNUAL MEAN	447		945		572	
HIGHEST ANNUAL MEAN					948	1972
LOWEST ANNUAL MEAN					201	1931
HIGHEST DAILY MEAN	3840	Dec 14	7780	Mar 21	42500	Jun 23 1972
LOWEST DAILY MEAN	13	Sep 15	69	Oct 9	6.6	Aug 21 1965
ANNUAL SEVEN-DAY MINIMUM	16	Sep 9	101	Oct 4	10	Sep 19 1932
MAXIMUM PEAK FLOW			9120	Mar 21	**a**66700	Jun 23 1972
MAXIMUM PEAK STAGE			10.39	Mar 21	**b**23.72	Jun 23 1972
INSTANTANEOUS LOW FLOW			67	Oct 9,10	6.0	Aug 21 1965
ANNUAL RUNOFF (CFSM)	1.33		2.80		1.70	
ANNUAL RUNOFF (INCHES)	18.00		38.07		23.08	
10 PERCENT EXCEEDS	1060		2140		1290	
50 PERCENT EXCEEDS	234		603		315	
90 PERCENT EXCEEDS	33		208		65	

a From rating curve extended above 25,000 ft^3/s on basis of slope-area measurement of peak flow.
b From floodmark in gage.



SWATARA CREEK BASIN

01573482 MANADA CREEK AT MANADA GAP, PA

LOCATION.--Lat 40°24'24", long 76°42'34", Dauphin County, Hydrologic Unit 02050305, on left bank, just upstream from bridge on Fogarty Road, 2.7 mi upstream from Walnut Run and 0.8 mi north of Manada Gap.

DRAINAGE AREA.--8.59 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 2002 to current year.

GAGE.--Water-stage recorder. Datum of gage is 530 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, **WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002**
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	0.74
13	---	---	---	---	---	---	---	---	---	---	---	0.82
14	---	---	---	---	---	---	---	---	---	---	---	0.83
15	---	---	---	---	---	---	---	---	---	---	---	1.4
16	---	---	---	---	---	---	---	---	---	---	---	1.7
17	---	---	---	---	---	---	---	---	---	---	---	1.2
18	---	---	---	---	---	---	---	---	---	---	---	1.1
19	---	---	---	---	---	---	---	---	---	---	---	1.1
20	---	---	---	---	---	---	---	---	---	---	---	1.2
21	---	---	---	---	---	---	---	---	---	---	---	1.1
22	---	---	---	---	---	---	---	---	---	---	---	1.5
23	---	---	---	---	---	---	---	---	---	---	---	7.6
24	---	---	---	---	---	---	---	---	---	---	---	1.6
25	---	---	---	---	---	---	---	---	---	---	---	1.3
26	---	---	---	---	---	---	---	---	---	---	---	1.7
27	---	---	---	---	---	---	---	---	---	---	---	10
28	---	---	---	---	---	---	---	---	---	---	---	8.4
29	---	---	---	---	---	---	---	---	---	---	---	3.5
30	---	---	---	---	---	---	---	---	---	---	---	2.8
31	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	49.59
MEAN	---	---	---	---	---	---	---	---	---	---	---	2.61
MAX	---	---	---	---	---	---	---	---	---	---	---	10
MIN	---	---	---	---	---	---	---	---	---	---	---	0.74
CFSM	---	---	---	---	---	---	---	---	---	---	---	0.30
IN.	---	---	---	---	---	---	---	---	---	---	---	0.21

SWATARA CREEK BASIN

01573482 MANADA CREEK AT MANADA GAP, PA--Continued

DISCHARGE, CUBIC FEET PER SECOND, **WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003**
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	19	9.6	43	e7.0	18	30	17	29	11	6.1	7.2
2	2.1	15	8.8	88	e7.5	26	30	21	23	11	5.2	8.5
3	1.9	13	8.1	63	8.1	29	28	16	24	10	5.2	11
4	2.2	11	7.4	48	13	25	26	15	44	9.3	8.6	13
5	2.5	9.4	e6.6	36	11	24	27	15	39	8.7	10	9.4
6	2.0	16	e6.9	29	9.3	34	23	15	33	8.3	14	8.1
7	1.9	11	e6.3	25	8.6	30	22	15	79	9.3	8.8	7.3
8	1.7	9.7	e5.8	24	e7.5	30	22	19	68	8.3	7.5	7.0
9	1.7	9.1	e5.4	25	e6.5	33	26	19	51	7.7	9.2	7.0
10	2.3	8.7	e4.9	23	e7.0	32	27	18	37	7.7	e9.0	6.3
11	18	9.1	e15	20	e6.0	29	55	17	30	8.5	e65	6.1
12	19	14	41	18	e5.3	27	62	17	27	7.1	48	5.9
13	11	17	36	17	e4.8	32	48	16	27	6.7	31	8.7
14	8.0	15	95	16	e5.0	38	38	15	21	6.4	23	9.7
15	6.3	13	76	15	e5.2	38	33	14	18	6.2	18	7.6
16	20	e15	53	13	e4.8	46	28	17	16	6.1	25	11
17	17	e34	35	e12	e4.4	70	25	19	14	5.6	27	7.9
18	12	e38	27	e10	e4.0	84	23	17	20	8.8	19	7.8
19	9.6	31	23	e8.8	e4.4	66	22	16	16	10	15	28
20	8.0	24	47	e9.0	e4.6	125	20	15	27	6.3	13	23
21	6.6	22	35	e9.2	e6.0	170	20	15	45	6.0	11	19
22	5.8	26	30	e7.5	e14	92	20	14	41	7.2	10	17
23	5.2	22	26	e6.6	36	62	17	13	34	11	9.0	201
24	4.8	19	22	e7.0	31	48	16	25	28	12	7.9	79
25	4.8	17	22	e7.5	27	40	15	24	24	7.1	7.6	47
26	16	15	19	e8.0	24	37	23	41	20	6.2	7.6	34
27	9.9	15	16	e8.4	22	34	20	38	17	5.8	8.8	27
28	8.5	13	15	e7.5	20	29	18	34	15	5.6	7.5	23
29	8.5	11	14	e7.6	---	30	18	30	14	5.3	6.9	19
30	23	11	13	e7.8	---	33	16	25	12	5.0	8.3	16
31	27	---	13	e8.0	---	31	---	26	---	4.9	7.4	---
TOTAL	269.7	503.0	742.8	627.9	314.0	1442	798	618	893	239.1	459.6	682.5
MEAN	8.70	16.8	24.0	20.3	11.2	46.5	26.6	19.9	29.8	7.71	14.8	22.8
MAX	27	38	95	88	36	170	62	41	79	12	65	201
MIN	1.7	8.7	4.9	6.6	4.0	18	15	13	12	4.9	5.2	5.9
CFSM	1.01	1.95	2.79	2.36	1.31	5.42	3.10	2.32	3.47	0.90	1.73	2.65
IN.	1.17	2.18	3.22	2.72	1.36	6.24	3.46	2.68	3.87	1.04	1.99	2.96

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2002 - 2003, BY WATER YEAR (WY)

MEAN	8.70	16.8	24.0	20.3	11.2	46.5	26.6	19.9	29.8	7.71	14.8	22.8
MAX	8.70	16.8	24.0	20.3	11.2	46.5	26.6	19.9	29.8	7.71	14.8	22.8
(WY)	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
MIN	8.70	16.8	24.0	20.3	11.2	46.5	26.6	19.9	29.8	7.71	14.8	22.8
(WY)	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003

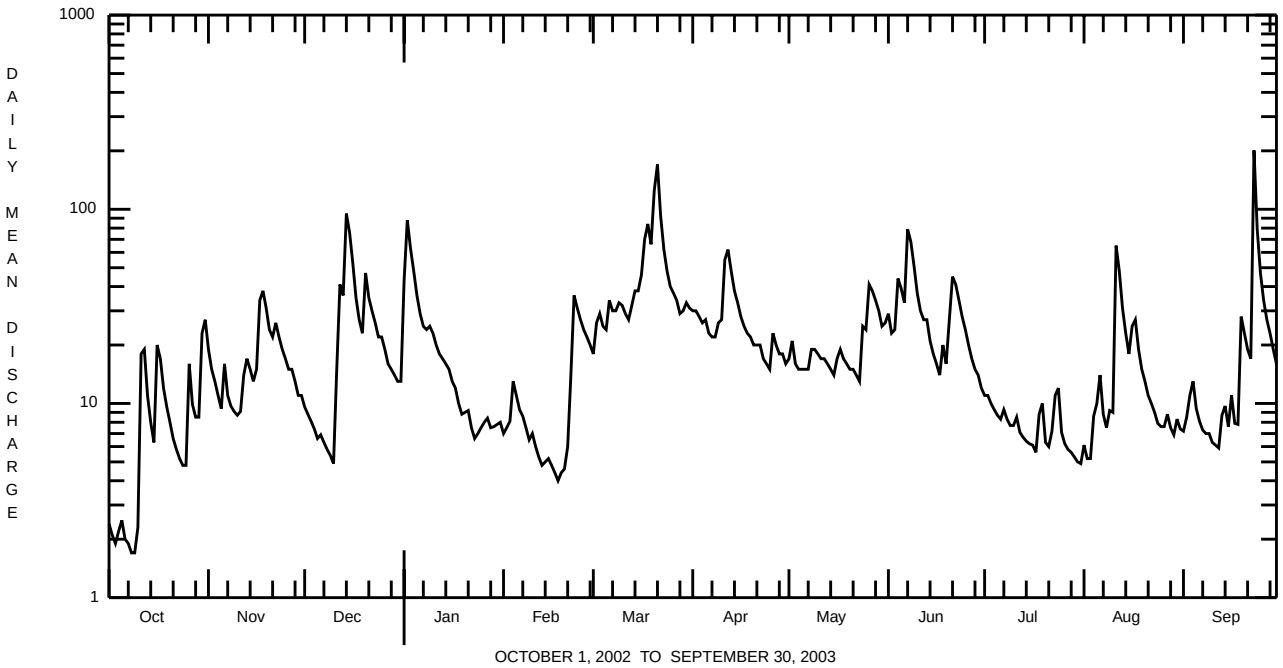
e Estimated.

SWATARA CREEK BASIN

01573482 MANADA CREEK AT MANADA GAP, PA--Continued

SUMMARY STATISTICS	FOR 2003 WATER YEAR		WATER YEARS 2002 - 2003	
ANNUAL TOTAL	7589.6			
ANNUAL MEAN	20.8		20.8	
HIGHEST ANNUAL MEAN			20.8	2003
LOWEST ANNUAL MEAN			20.8	2003
HIGHEST DAILY MEAN	201	Sep 23	201	Sep 23 2003
LOWEST DAILY MEAN	1.7	Oct 8,9	0.74	Sep 12 2002
ANNUAL SEVEN-DAY MINIMUM	2.0	Oct 3	1.1	Sep 12 2002
MAXIMUM PEAK FLOW	337	Sep 23	337	Sep 23 2003
MAXIMUM PEAK STAGE	5.08	Sep 23	5.08	Sep 23 2003
INSTANTANEOUS LOW FLOW	1.7	Oct 8,9	0.58	Sep 11 2002**a**
ANNUAL RUNOFF (CFSM)	2.42		2.42	
ANNUAL RUNOFF (INCHES)	32.87		32.89	
10 PERCENT EXCEEDS	38		38	
50 PERCENT EXCEEDS	15		15	
90 PERCENT EXCEEDS	6.0		6.0	

a Also Sept. 12, 2002.



SWATARA CREEK BASIN

01573560 SWATARA CREEK NEAR HERSHEY, PA

LOCATION.--Lat 40°17'54", long 76°40'05", Dauphin County, Hydrologic Unit 02050305, on left bank, 0.4 mi downstream from Manada Creek, 0.5 mi upstream from State Highway 39, and 1.5 mi northwest of Hershey.

DRAINAGE AREA.--483 mi^2.

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder and gated concrete control. Datum of gage is 325.94 ft above National Geodetic Vertical Datum of 1929 (levels by Susquehanna River Basin Commission).

REMARKS.--Records fair except for estimated daily discharges, which are poor. The Pennsylvania American Water Company diverts water upstream from station for municipal supply of city of Lebanon. Diversion for the year was equivalent to a mean daily discharge of 7.3 ft^3/s. No diversion by Hershey Chocolate U.S.A. Satellite and landline telemetry at station.

COOPERATION.--Records of daily diversion furnished by Hershey Chocolate U.S.A., a division of Hershey Foods Corporation.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 6,900 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 21	1500	*8,650	*6.90	June 22	0000	8,300	6.74

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	192	1130	464	1790	407	716	1720	671	2390	850	460	408
2	186	892	422	4690	426	1080	1590	825	2470	764	481	525
3	173	736	394	3430	439	2940	1410	763	1790	702	427	602
4	160	610	286	2930	639	1350	1250	709	3340	656	959	1040
5	198	522	e320	2300	978	1090	1280	682	3210	609	2480	771
6	182	813	e350	1900	587	2510	1220	561	2410	589	4800	561
7	149	792	e270	1630	501	2050	1060	548	3300	603	2640	496
8	112	589	e260	1500	459	1270	1110	671	5190	665	1560	427
9	96	495	e230	1640	377	1770	1330	711	3280	545	1360	384
10	98	477	e240	1760	398	2300	1630	636	2480	531	1890	333
11	686	478	547	1450	374	1250	2360	575	1950	547	2780	318
12	2120	615	3890	1210	347	1030	4050	561	1910	526	4760	302
13	1110	1130	2880	1070	309	1480	2870	526	4990	442	2420	366
14	708	882	4190	951	325	3320	2230	481	3100	382	1770	630
15	511	733	3990	e860	335	2480	1830	440	2150	366	1290	490
16	825	704	2860	e750	233	2660	1550	467	1610	354	1590	932
17	1720	1920	2120	e730	109	3010	1330	582	1310	336	1660	817
18	989	2730	1630	e560	e150	3300	1200	529	1460	314	1100	558
19	702	1820	1380	e530	e210	3020	1160	464	1510	483	875	920
20	576	1310	2040	e500	e300	3470	1030	422	1630	355	749	1140
21	476	1080	2570	e480	403	8050	938	429	6490	301	695	826
22	398	1280	1800	e400	711	4960	951	433	6260	684	650	655
23	335	1350	1530	e380	3010	3370	880	396	3890	1400	580	3820
24	315	1020	1290	e350	3100	2600	771	785	2730	3980	530	4190
25	302	851	1230	e330	1730	2140	703	1350	2130	1680	484	2260
26	748	744	1300	e340	1130	1860	903	2320	1680	961	470	1690
27	825	699	1090	e310	911	1970	1130	2680	1400	742	477	1320
28	559	666	955	e330	802	1530	825	1990	1190	633	478	1240
29	497	574	897	e370	---	1420	720	1720	1040	572	417	1130
30	1060	526	883	e380	---	1910	696	1350	942	473	407	875
31	1680	---	864	384	---	2110	---	1250	---	432	489	---
TOTAL	18688	28168	43172	36235	19700	74016	41727	26527	79232	22477	41728	30026
MEAN	603	939	1393	1169	704	2388	1391	856	2641	725	1346	1001
MAX	2120	2730	4190	4690	3100	8050	4050	2680	6490	3980	4800	4190
MIN	96	477	230	310	109	716	696	396	942	301	407	302
CFSM	1.25	1.94	2.88	2.42	1.46	4.94	2.88	1.77	5.47	1.50	2.79	2.07
IN.	1.44	2.17	3.33	2.79	1.52	5.70	3.21	2.04	6.10	1.73	3.21	2.31

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 2003, BY WATER YEAR (WY)

MEAN	548	703	953	962	955	1428	1210	881	657	426	329	346
MAX	2632	1427	2693	3370	1963	3848	3207	2708	2641	1536	1346	1320
(WY)	1977	1993	1997	1979	1998	1994	1993	1989	2003	1989	2003	1987
MIN	85.3	109	111	79.9	220	459	420	295	158	78.9	81.8	73.0
(WY)	1981	2002	1981	1981	2002	1985	1995	1999	1999	1999	2002	1980

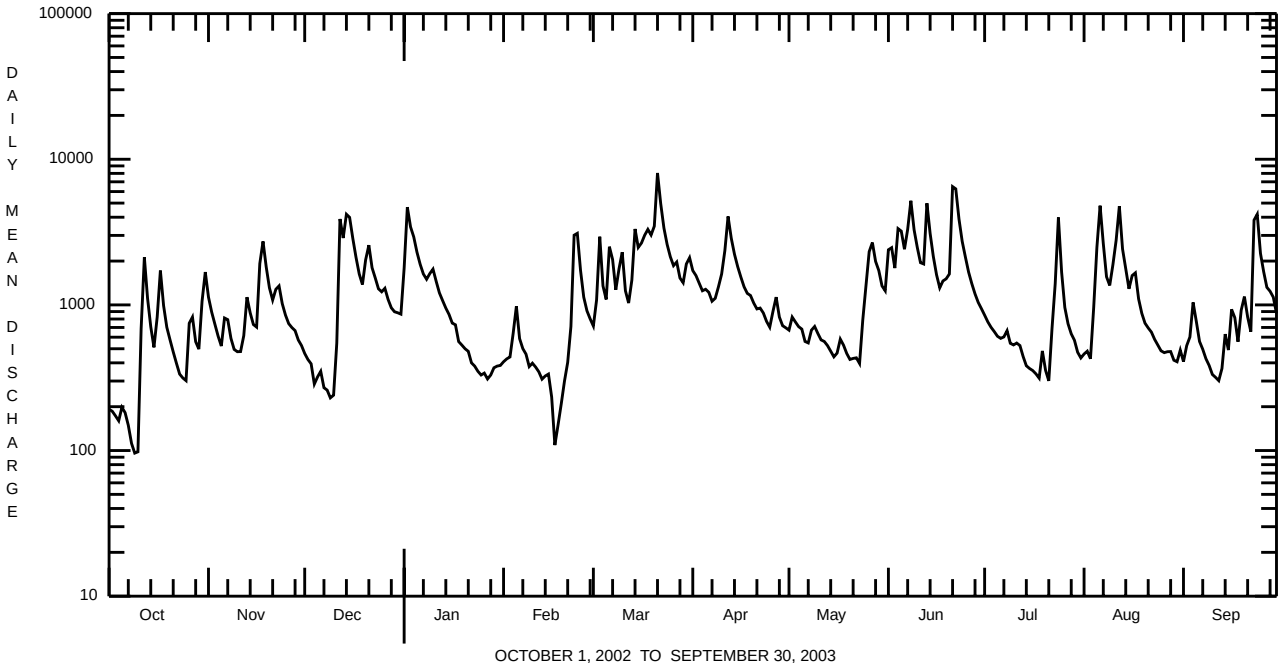
e Estimated.

SWATARA CREEK BASIN

01573560 SWATARA CREEK NEAR HERSHEY, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1976 - 2003	
ANNUAL TOTAL	197175		461696			
ANNUAL MEAN	540		1265		782	
HIGHEST ANNUAL MEAN					1265	2003
LOWEST ANNUAL MEAN					327	2002
HIGHEST DAILY MEAN	4190	Dec 14	8050	Mar 21	23800	Jan 25 1979
LOWEST DAILY MEAN	29	Aug 6	96	Oct 9	29	Aug 6 2002
ANNUAL SEVEN-DAY MINIMUM	52	Aug 6	142	Oct 4	52	Aug 6 2002
MAXIMUM PEAK FLOW			8650	Mar 21	29400	Sep 27 1975
MAXIMUM PEAK STAGE			6.90	Mar 21	15.36	Sep 27 1975
INSTANTANEOUS LOW FLOW			67	Feb 17	24	Aug 5 2002**a**
ANNUAL RUNOFF (CFSM)	1.12		2.62		1.62	
ANNUAL RUNOFF (INCHES)	15.19		35.56		22.01	
10 PERCENT EXCEEDS	1230		2810		1740	
50 PERCENT EXCEEDS	318		860		439	
90 PERCENT EXCEEDS	81		338		129	

a Also Aug. 6, Sept. 10, 14, 15, 21.



WEST CONEWAGO CREEK BASIN

01574000 WEST CONEWAGO CREEK NEAR MANCHESTER, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 40°04'56", long 76°43'13", York County, Hydrologic Unit 02050306, on left bank 500 ft upstream from bridge on State Highway 181, 0.6 mi downstream from Little Conewago Creek, and 1.5 mi north of Manchester.

DRAINAGE AREA.--510 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1928 to current year. Prior to October 1931, published as Conewago Creek near Manchester.

REVISED RECORDS.--WSP 741: Drainage area. WSP 1502: 1930, 1936.

GAGE.--Water-stage recorder. Datum of gage is 263.68 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Occasional slight regulation since October 1959 by Conewago Lake about 13 miles upstream, capacity, 3,570 acre-ft. Gage height record affected at times by backwater from the Susquehanna River. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 10,800 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 21	0845	13,700	14.02	Sept. 23	2030	*14,400	*14.47
June 8	0445	12,900	13.48				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	124	1320	401	2000	e230	656	1800	380	2160	419	132	226
2	93	748	356	7750	e260	805	1420	363	1600	372	145	920
3	76	547	351	3940	e280	3340	1130	390	1130	365	258	950
4	63	438	327	4190	e300	2150	882	333	5570	407	204	1180
5	54	378	228	2360	e500	1330	855	297	5240	367	217	2270
6	48	501	247	1790	e420	3650	916	316	2800	329	469	694
7	53	813	252	1570	e280	4860	767	617	4850	328	500	432
8	57	472	263	1390	e260	2060	1150	809	9020	587	304	337
9	52	367	265	1910	e250	3110	2400	1590	3300	330	211	289
10	50	320	239	1570	e270	4860	3100	1590	2250	276	307	258
11	373	304	e580	1130	e230	2010	2100	1440	1630	682	478	233
12	2030	427	4490	843	e200	1420	2340	1010	1390	345	2550	213
13	941	1830	3200	719	e190	1970	1530	723	1680	274	868	207
14	469	1000	5520	655	e180	3990	1130	571	1410	228	532	565
15	303	635	4430	526	e190	3310	959	474	1160	207	335	373
16	452	595	2440	e420	e130	3870	847	849	876	187	359	541
17	2510	2710	1500	e390	e90	3910	749	4290	706	173	3140	587
18	958	4340	1030	e360	e160	3350	669	1980	640	165	1880	432
19	559	1910	864	e350	e180	2460	670	1520	657	159	673	2730
20	387	1090	1870	e360	e290	3070	715	1050	1030	155	468	1650
21	309	923	2570	e310	e280	10700	608	849	3840	165	376	798
22	251	1690	1250	e270	e800	3940	585	772	5780	439	340	538
23	205	1460	987	e230	e3500	2500	650	663	2880	408	315	8220
24	179	906	787	e220	4650	1830	519	794	1550	778	263	6370
25	169	715	760	e230	2580	1450	435	1290	1090	533	231	1790
26	718	618	852	e240	1660	1160	500	2360	866	280	214	1330
27	1190	593	761	e230	1070	1520	650	2920	718	210	298	1080
28	514	595	643	e215	763	1190	536	4150	610	183	270	1540
29	391	493	591	e220	---	999	438	3820	531	165	234	1540
30	1680	423	625	e220	---	1800	410	1950	471	147	267	824
31	2660	---	670	e225	---	2860	---	1370	---	133	223	---
TOTAL	17918	29161	39349	36833	20193	86130	31460	41530	67435	9796	17061	39117
MEAN	578	972	1269	1188	721	2778	1049	1340	2248	316	550	1304
MAX	2660	4340	5520	7750	4650	10700	3100	4290	9020	778	3140	8220
MIN	48	304	228	215	90	656	410	297	471	133	132	207
CFSM	1.13	1.91	2.49	2.33	1.41	5.45	2.06	2.63	4.41	0.62	1.08	2.56
IN.	1.31	2.13	2.87	2.69	1.47	6.28	2.29	3.03	4.92	0.71	1.24	2.85

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2003, BY WATER YEAR (WY)

MEAN	276	459	671	782	949	1282	977	659	443	253	221	273
MAX	1783	1534	2578	3126	2526	4510	3273	2874	4445	1419	2423	3862
(WY)	1977	1933	1997	1996	1998	1994	1993	1989	1972	1969	1933	1975
MIN	9.71	14.7	43.3	37.7	86.2	345	253	135	52.7	12.2	13.3	12.0
(WY)	1942	1932	1966	1981	1934	1931	1995	1941	1965	1966	1930	1964

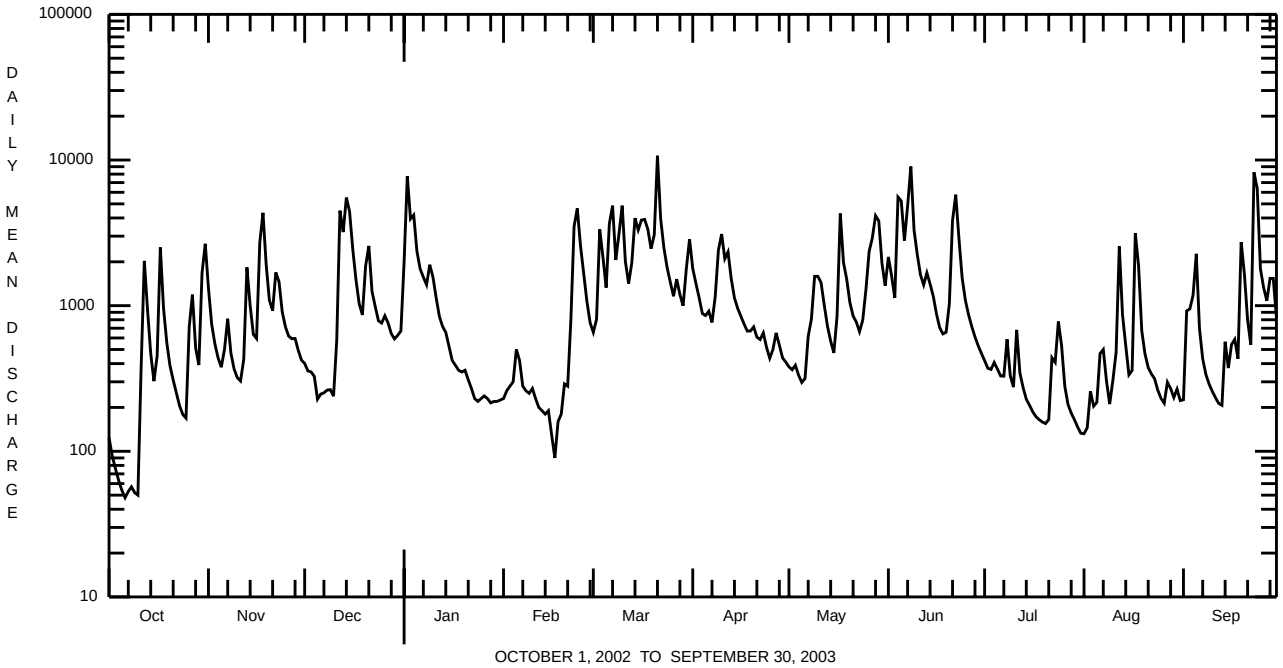
e Estimated.

WEST CONEWAGO CREEK BASIN

01574000 WEST CONEWAGO CREEK NEAR MANCHESTER, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1929 - 2003	
ANNUAL TOTAL	138945.2		435983			
ANNUAL MEAN	381		1194		602	
HIGHEST ANNUAL MEAN					1194	2003
LOWEST ANNUAL MEAN					154	1931
HIGHEST DAILY MEAN	5520	Dec 14	10700	Mar 21	64000	Sep 26 1975
LOWEST DAILY MEAN	5.6	Aug 22,23	48	Oct 6	2.0	Aug 8 1930
ANNUAL SEVEN-DAY MINIMUM	7.7	Aug 17	54	Oct 4	3.9	Aug 3 1966
MAXIMUM PEAK FLOW			14400	Sep 23	**a**96200	Sep 26 1975
MAXIMUM PEAK STAGE			14.47	Sep 23	**b**32.11	Sep 26 1975
INSTANTANEOUS LOW FLOW			45	Oct 10	1.9	Oct 13 1941
ANNUAL RUNOFF (CFSM)	0.75		2.34		1.18	
ANNUAL RUNOFF (INCHES)	10.13		31.80		16.04	
10 PERCENT EXCEEDS	930		3080		1310	
50 PERCENT EXCEEDS	161		650		250	
90 PERCENT EXCEEDS	22		209		46	

a From rating curve extended above 45,000 ft^3/s on basis of slope-area computation at gage height 30.26 ft.
b From floodmark.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

01574000 WEST CONEWAGO CREEK NEAR MANCHESTER, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002													
26...	0900	1028	9813	630	40	11.5	7.6	278	6.2	110	29.0	8.3	68
JAN 2003													
21...	1130	1028	9813	E310	40	14.7	6.8	310	.2	120	33.1	9.7	68
MAR													
17...	1115	1028	9813	3980	40	12.2	7.4	147	5.6	59	15.5	4.9	37
MAY													
08...	1030	1028	9813	697	40	7.2	7.3	241	16.6	96	26.9	7.0	66
JUL													
10...	0930	1028	9813	273	40	5.2	7.6	277	24.4	110	29.6	8.1	83
SEP													
03...	0900	1028	9813	933	40	6.5	7.8	288	21.9	100	27.6	8.3	82

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, unfltrd recoverable, µg/L (01042)	Iron, water, unfltrd recoverable, µg/L (01045)
NOV 2002													
26...	25.4	220	<2	<.020	3.98	<.040	.06	.088	4.1	4.6	<200	<10	210
JAN 2003													
21...	25.2	244	6	<.020	4.88	<.040	.04	.041	5.3	1.9	<200	<10	120
MAR													
17...	11.8	116	76	.150	1.60	<.040	.12	.193	2.4	5.3	2300	<10	2080
MAY													
08...	17.8	182	52	.140	1.47	<.040	.14	.141	2.5	5.7	2400	<10	1870
JUL													
10...	18.6	190	2	<.020	2.13	<.040	.09	.107	2.6	3.7	<200	<10	250
SEP													
03...	16.4	274	26	.060	1.97	<.040	.18	.253	2.8	6.2	1800	<10	1570

Date	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 2002				
26...	<1.0	<10	<50	<10
JAN 2003				
21...	<1.0	<10	<50	<10
MAR				
17...	1.8	90	<50	10
MAY				
08...	1.6	90	<50	10
JUL				
10...	<1.0	30	<50	<10
SEP				
03...	1.9	90	<50	130

WEST CONEWAGO CREEK BASIN

01574000 WEST CONEWAGO CREEK NEAR MANCHESTER, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/27/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	5
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia sp	2
Bivalvia (CLAMS)	
Veneroida	
Corbiculidae	
Corbicula fluminea	3
Sphaeriidae	
Sphaerium sp	2
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	1
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Baetis sp	10
Heterocloeon sp	1
Caenidae	
Caenis sp	10
Heptageniidae	
Stenonema sp	1
Isonychiidae	
Isonychia sp	5
Potamanthidae	
Anthopotamus sp	1
Tricorythidae	
Tricorythodes sp	9
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Coenagrionidae	
Argia sp	2
Plecoptera (STONEFLIES)	
Perlidae	
Agnetina sp	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche sp	33
Hydropsyche sp	2
Macrostemum sp	2
Philopotamidae	
Chimarra sp	20

01574000 WEST CONEWAGO CREEK NEAR MANCHESTER, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	8/27/02
Benthic Macroinvertebrate	Count
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus sp	6
Oulimnius sp	1
Stenelmis sp	14
Psephenidae (WATER PENNIES)	
Psephenus sp	1
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	50
Total Organisms	182

CODORUS CREEK BASIN

01574500 CODORUS CREEK AT SPRING GROVE, PA

LOCATION.--Lat 39°52'43", long 76°51'13", York County, Hydrologic Unit 02050306, on right bank 15 ft downstream from abutments of dismantled county highway bridge on Township Route 452, 0.1 mi downstream from small left-bank tributary, 0.3 mi downstream from east boundary of Spring Grove, and 7.0 mi southwest of York.

DRAINAGE AREA.--75.5 mi^2.

PERIOD OF RECORD.--May 1929 to September 1964, November 1965 to current year. October 1962 to September 1964, November 1965 to September 1968, published as West Branch Codorus Creek at Spring Grove.

REVISED RECORDS.--WSP 1302: 1929-30. WSP 1502: 1932(M), 1933, 1935(M), 1940, 1942(M), 1943, 1944-46(M), 1951(M), 1955(m).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 430.86 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 18, 1930, nonrecording gage, Jan. 18, 1930, to Sept. 9, 1941, water-stage recorder at site 0.9 mi upstream, and Sept. 10, 1941, to Sept. 30, 1964, water-stage recorder at site 0.8 mi upstream, all at datum 5.64 ft higher. Nov. 1 to Dec. 20, 1965, nonrecording gage about 40 ft downstream at unknown datum, Dec. 21, 1965, to Mar. 31, 1966, nonrecording gage at present site and datum.

REMARKS.--Records fair. Daily discharges include water diverted around station by waste treatment plant of P.H. Glatfelter Company. Flow regulated by dam on Lake Marburg (station 01574390) about 20 miles upstream. Several measurements of water temperature were made during the year. Satellite telemetry at station.

COOPERATION.--Records of change in lake contents and daily diversion furnished by P.H. Glatfelter Company.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	57	37	260	38	56	109	48	179	84	68	73
2	32	46	36	430	37	134	98	46	143	83	89	191
3	33	41	35	321	36	221	88	45	145	88	63	89
4	59	39	33	225	61	98	83	43	440	80	64	306
5	34	39	37	137	43	141	86	46	362	74	65	133
6	34	54	38	112	36	417	75	50	248	96	227	93
7	33	41	35	97	41	198	85	44	634	198	79	81
8	33	38	35	102	34	169	109	56	550	89	71	76
9	31	35	34	96	33	521	166	72	409	82	70	72
10	33	35	32	78	35	242	134	76	310	172	68	69
11	164	35	191	67	33	137	150	70	258	90	281	70
12	89	70	245	59	37	149	135	79	227	80	131	67
13	48	84	170	57	43	230	105	71	226	72	88	108
14	37	46	338	55	46	210	93	56	234	70	75	103
15	42	42	178	52	40	159	86	48	194	71	71	98
16	148	49	117	47	35	154	81	192	171	66	104	223
17	89	176	85	50	47	157	77	194	160	70	397	205
18	52	250	70	45	49	138	73	143	160	73	118	194
19	43	87	66	43	37	112	79	121	151	71	88	152
20	42	69	128	43	38	316	70	106	267	65	80	72
21	38	78	73	42	40	426	66	105	322	64	74	75
22	34	95	70	39	320	211	70	98	377	67	72	75
23	29	63	59	39	547	153	66	94	218	94	71	1310
24	30	55	57	41	208	126	58	112	183	113	67	283
25	38	51	78	42	98	110	56	116	160	68	65	244
26	83	47	72	42	70	124	77	209	140	65	69	235
27	46	52	62	40	58	127	64	168	121	63	70	201
28	37	46	56	38	55	98	54	359	106	63	65	238
29	45	42	60	41	---	94	53	283	94	64	66	189
30	96	40	54	35	---	149	50	194	86	60	68	159
31	91	---	59	34	---	141	---	167	---	60	65	---
TOTAL	1674	1902	2640	2809	2195	5718	2596	3511	7275	2555	3049	5484
MEAN	54.0	63.4	85.2	90.6	78.4	184	86.5	113	242	82.4	98.4	183
MAX	164	250	338	430	547	521	166	359	634	198	397	1310
MIN	29	35	32	34	33	56	50	43	86	60	63	67
(†)	+22.3	+43.2	+72.7	+70.4	+55.1	+79.8	+41.5	+5.5	-7.4	-11.7	-4.9	+6.4

† Change in contents from Lake Marburg, equivalent in cubic feet per second.

CODORUS CREEK BASIN

01574500 CODORUS CREEK AT SPRING GROVE, PA--Continued

REMARKS.--Daily and monthly discharge figures (and those data determined from them) include water diverted around station by P.H. Glatfelter Co. Instantaneous data reflect actual streamflow past gage and do not include diverted streamflow.

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	65.4	61.1	76.0	86.6	99.4	124	116	88.0	89.4	62.6	56.6	68.4
MAX	269	159	270	264	269	492	372	171	699	185	109	360
(WY)	1980	1997	1997	1996	1971	1994	1993	1975	1972	1970	1996	1975
MIN	18.1	15.8	16.9	19.5	25.7	33.0	31.2	28.8	21.4	17.4	17.1	19.2
(WY)	1967	1966	1966	1966	1969	1969	1969	1969	1966	1966	1966	1966

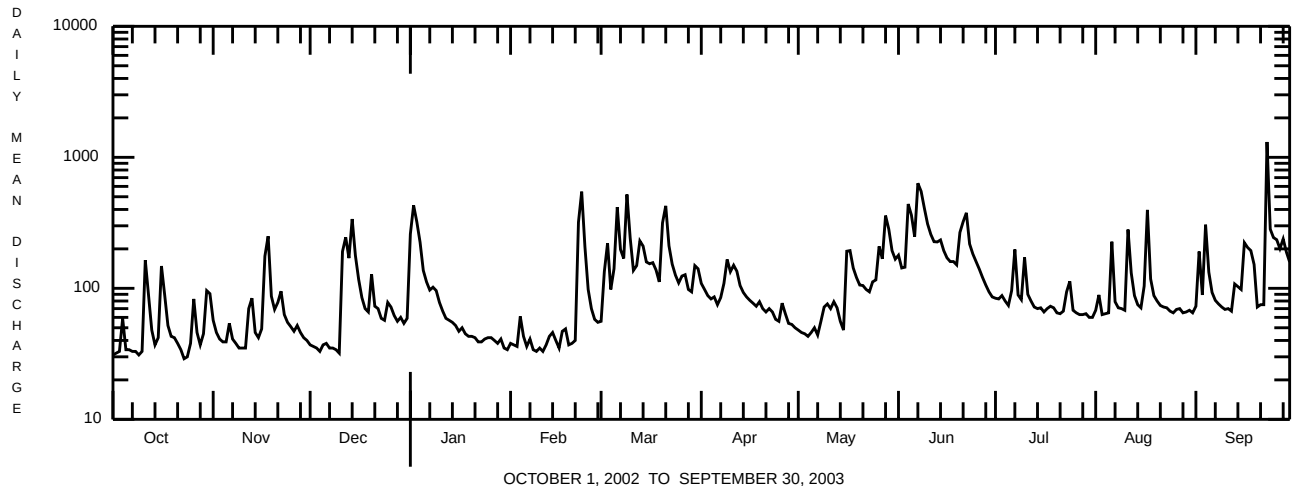
SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1966 - 2003	
ANNUAL TOTAL	17456		41408			
ANNUAL MEAN	47.8		113		83.8	
HIGHEST ANNUAL MEAN					163	1972
LOWEST ANNUAL MEAN					33.6	1969
HIGHEST DAILY MEAN	338	Dec 14	1310	Sep 23	11000	Jun 22 1972
LOWEST DAILY MEAN	23	Jun 21	29	Oct 23	0.60	Sep 4 1966
ANNUAL SEVEN-DAY MINIMUM	28	Jun 15	35	Dec 4	10	Sep 1 1966
MAXIMUM PEAK FLOW			**a**2790	Sep 23	**a**19400	Jun 22 1972
MAXIMUM PEAK STAGE			8.17	Sep 23	**b**15.57	Jun 22 1972
10 PERCENT EXCEEDS	71		228		152	
50 PERCENT EXCEEDS	38		74		55	
90 PERCENT EXCEEDS	32		37		35	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1964, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	38.4	52.7	64.4	87.4	114	144	125	86.1	55.6	38.7	44.0	41.7
MAX	151	148	164	223	244	360	326	206	165	157	321	424
(WY)	1943	1938	1951	1949	1951	1936	1952	1952	1946	1945	1933	1934
MIN	8.76	11.9	18.1	19.5	27.3	50.1	41.3	26.6	19.6	9.09	11.9	8.93
(WY)	1942	1937	1959	1942	1932	1959	1947	1963	1959	1954	1935	1941

SUMMARY STATISTICS	WATER YEARS 1929 - 1964	
ANNUAL MEAN	**c**74.1	
HIGHEST ANNUAL MEAN	127	1933
LOWEST ANNUAL MEAN	31.4	1959
HIGHEST DAILY MEAN	3920	Sep 16 1934
LOWEST DAILY MEAN	.80	Oct 26 1947
ANNUAL SEVEN-DAY MINIMUM	5.0	Jul 9 1959
MAXIMUM PEAK FLOW	**d**11200	Aug 23 1933
MAXIMUM PEAK STAGE	**f**11.84	Aug 23 1933
INSTANTANEOUS LOW FLOW	.00	Oct 26 1947
ANNUAL RUNOFF (CFSM)	.98	
ANNUAL RUNOFF (INCHES)	13.34	
10 PERCENT EXCEEDS	151	
50 PERCENT EXCEEDS	42	
90 PERCENT EXCEEDS	14	

a From rating curve extended above 2,000 ft^3/s on basis of computation of peak discharge at dam at gage height 6.80 ft and at peak flow.
b From floodmark in gage.
c Adjusted for diversion since March 1961.
d From rating curve extended above 2,400 ft^3/s on basis of computation of flow at gage height 11.84 ft.
f Site and datum then in use.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

CODORUS CREEK BASIN

LAKES AND RESERVOIRS IN CODORUS CREEK BASIN

0l574390 LAKE MARBURG.--Lat 39°48'26", long 76°52'58", York County, Hydrologic Unit 02050306, at dam on West Branch Codorus Creek, 0.7 mi upstream from Codorus Creek, and 4.5 mi south of Spring Grove. DRAINAGE AREA, 23.2 mi^2. PERIOD OF RECORD, October 1972 to current year in reports of Geological Survey; July 1972 to September 1974 in files of P. H. Glatfelter Co., Spring Grove. Records for period December 1966 to June 1972 were lost in the flood of June 1972. GAGE, Nonrecording. Datum of gage is given in feet above National Geodetic Vertical Datum of 1929.

REMARKS.--Lake is formed by earthfill dam with two bascule spillway gates. Each is 7 ft high and 106.50 ft long. Storage began in December 1966. Elevation of top of gates is 623.00 ft (capacity, 47,680 acre-ft). Top of dam is at elevation 627.00 ft (capacity, 53,210 acre-ft). At the spillway crest, an elevation of 616.00 ft, the capacity is 39,430 acre-ft. The lake is used for water supply and recreation. An average of about 3,380 acre-ft is diverted from Codorus Creek into the lake each year.

COOPERATION.--Records provided by P.H. Glatfelter Company.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 48,010 acre-ft, June 24, 1998, elevation, 623.25 ft; minimum, 23,960 acre-ft, Oct. 10, 2002, elevation, 599.29 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 47,810 acre-ft, May 5, 6, elevation, 623.10 ft; minimum, 23,960 acre-ft, Oct. 10, elevation, 599.29 ft.

01574700 INDIAN ROCK DAM.--Lat 39°55'22", long 76°45'14", York County, Hydrologic Unit 02050306, at dam on Codorus Creek, 0.1 mi upstream from mouth of South Branch Codorus Creek, 0.3 mi west of York Water Co. pumping station, and 3.0 mi southwest of York. DRAINAGE AREA, 93.7 mi^2. PERIOD OF RECORD, September 1962 to current year in reports of Geological Survey, September 1942 to August 1962 in files of Baltimore District, U.S. Army Corps of Engineers. GAGE, water-stage recorder (U.S. Army Corps of Engineers datum).

REMARKS.--Reservoir formed by an earth and rockfill dam with ungated concrete spillway at elevation 435.00 ft (capacity, 28,000 acre-ft). Reservoir completed in June l942; storage began in June 1946. No dead storage. Reservoir is used for flood control. Figures given herein represent total contents. Flood storage is regulated by three vertical-lift tractor gates. Water is stored only during high flows and released when downstream conditions warrant. Satellite telemetry at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 30,200 acre-ft, June 23, 1972, elevation, 436.44 ft; minimum, no storage many days most years.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 2,490 acre-ft, Sept. 23, elevation, 399.97 ft; minimum, 8.9 acre-ft, July 31, elevation, 371.96 ft.

MONTHEND ELEVATION, IN FEET ABOVE SEA LEVEL, AND CONTENTS AT 2400 HRS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	01574390 Lake Marburg Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)	01574700 Indian Rock Dam Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)
Sept. 30	599.54	24,160	---	372.33	10.0	---
Oct. 31	601.25	25,530	+22.3	374.79	22.1	+.20
Nov. 30	604.33	28,100	+43.2	373.85	14.5	-.13
Dec. 31	609.21	32,570	+72.7	374.76	21.8	+.12
CAL YR 2002	--	--	-2.1	--	--	+.02
Jan. 31	613.56	36,900	+70.4	373.63	13.9	-.13
Feb. 28	616.50	39,960	+55.1	375.40	27.6	+.25
Mar. 31	620.88	44,870	+79.8	379.24	81.0	+.87
Apr. 30	622.75	47,340	+41.5	375.71	30.4	-.85
May 31	623.00	47,680	+5.5	380.68	123	+1.5
June 30	622.67	47,240	-7.4	377.59	46.5	-1.3
July 31	622.13	46,520	-11.7	371.98	8.9	-.61
Aug. 31	621.90	46,220	-4.9	372.57	10.7	+.03
Sept. 30	622.19	46,600	+6.4	375.55	28.9	+.31
WTR YR 2003	--	--	+31.0	--	--	+.03

SUSQUEHANNA RIVER BASIN

01576000 SUSQUEHANNA RIVER AT MARIETTA, PA

LOCATION.--Lat 40°03'16", long 76°31'52", Lancaster County, Hydrologic Unit 02050306, on left bank 420 ft upstream from Chickies Creek, and 1.0 mi downstream from Marietta. Records include flow of Chickies Creek.

DRAINAGE AREA.--25,990 mi^2, approximately, includes that of Chickies Creek.

PERIOD OF RECORD.--October 1931 to current year.

REVISED RECORDS.--WSP 781: 1933(M). WSP 1502: 1937.

GAGE.--Water-stage recorder. Datum of gage is 200.56 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow slightly regulated by 16 flood-control reservoirs which have a combined capacity of 1,599,000 acre-ft. Some diurnal fluctuation below 8,000 ft^3/s caused by hydroelectric plant 9.7 mi upstream. Several measurements of water temperature were made during the year. Satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 2, 1889, reached a stage of 58.2 ft, from floodmark, discharge, about 630,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18900	37600	35800	39400	e18500	45900	96600	34400	48600	30200	32200	18200
2	17200	34800	33300	72900	e19600	43700	92800	33300	76300	27200	27900	20500
3	17600	30500	31100	135000	e20400	47300	88700	31500	133000	25000	39400	29000
4	15200	27800	28500	162000	e22300	44100	88600	31900	132000	23400	58600	49600
5	12900	25100	e26800	129000	e24200	38800	90400	35200	136000	21300	65400	96000
6	10800	24200	e24100	98200	e27400	43400	88700	33800	116000	19700	75600	103000
7	9670	24400	e21700	78700	e25200	49900	120000	33200	103000	19100	75400	85300
8	8320	24400	e20400	67200	26300	44700	135000	33100	117000	18700	60500	63900
9	7650	24700	e19900	61600	28000	47100	117000	33500	105000	18100	50500	49800
10	7320	24400	e19700	60300	e27100	57000	103000	35500	91000	17300	46400	40100
11	10200	23900	e21200	59400	27500	55700	95200	37400	75400	17200	57100	34300
12	15900	24600	e28300	56700	24400	48700	106000	39900	64200	18200	91400	29900
13	33400	27900	e40700	51700	23400	49900	110000	40700	61600	21900	100000	26700
14	55500	32600	e50400	45500	e20300	64800	100000	40600	57600	22400	76000	25200
15	36500	33500	e67400	41000	e18700	69600	87300	38700	54900	20300	62300	24200
16	27700	32000	79400	e34400	e18600	74300	75900	38000	54300	18500	50100	23000
17	33300	35100	82100	e32500	e16200	83400	67100	48600	51500	16400	48100	23700
18	53500	46500	72000	e23400	e14900	111000	59900	56300	46900	15000	44800	26100
19	53400	62400	60300	e23700	13900	175000	54300	53000	43200	14400	38300	32700
20	42000	76200	52800	e23000	13700	216000	50000	51000	43600	13900	32000	34800
21	37500	69800	53600	e21000	19800	266000	45700	45800	51700	13400	28200	44400
22	32400	60700	64500	e20600	24600	284000	43400	39800	101000	15700	25000	41600
23	27400	54700	82900	e19200	37700	259000	42100	39100	143000	19300	22600	56700
24	24700	52900	79200	e17300	48600	224000	39600	36800	128000	30400	20600	105000
25	22500	52700	68500	e16300	57800	195000	37400	42700	92300	58200	18600	104000
26	22000	52900	60000	e16500	52800	173000	36000	49300	69400	58300	17600	85600
27	23400	50400	53300	e17200	53400	150000	36500	51300	54400	53900	16600	73800
28	27000	45800	47500	e19100	50600	131000	36700	57900	44900	43900	16200	62100
29	28100	41900	43100	e17200	---	117000	35300	58400	38700	38300	15400	62600
30	31600	38900	39300	e16000	---	105000	35000	53600	33800	42400	16000	82900
31	37100	---	37400	e19400	---	101000	---	49300	---	38500	18400	---
TOTAL	800660	1193300	1445200	1495400	775900	3415300	2214200	1303600	2368300	810500	1347200	1554700
MEAN	25830	39780	46620	48240	27710	110200	73810	42050	78940	26150	43460	51820
MAX	55500	76200	82900	162000	57800	284000	135000	58400	143000	58300	100000	105000
MIN	7320	23900	19700	16000	13700	38800	35000	31500	33800	13400	15400	18200
CFSM	0.99	1.53	1.79	1.86	1.07	4.24	2.84	1.62	3.04	1.01	1.67	1.99
IN.	1.15	1.71	2.07	2.14	1.11	4.89	3.17	1.87	3.39	1.16	1.93	2.23

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 2003, BY WATER YEAR (WY)

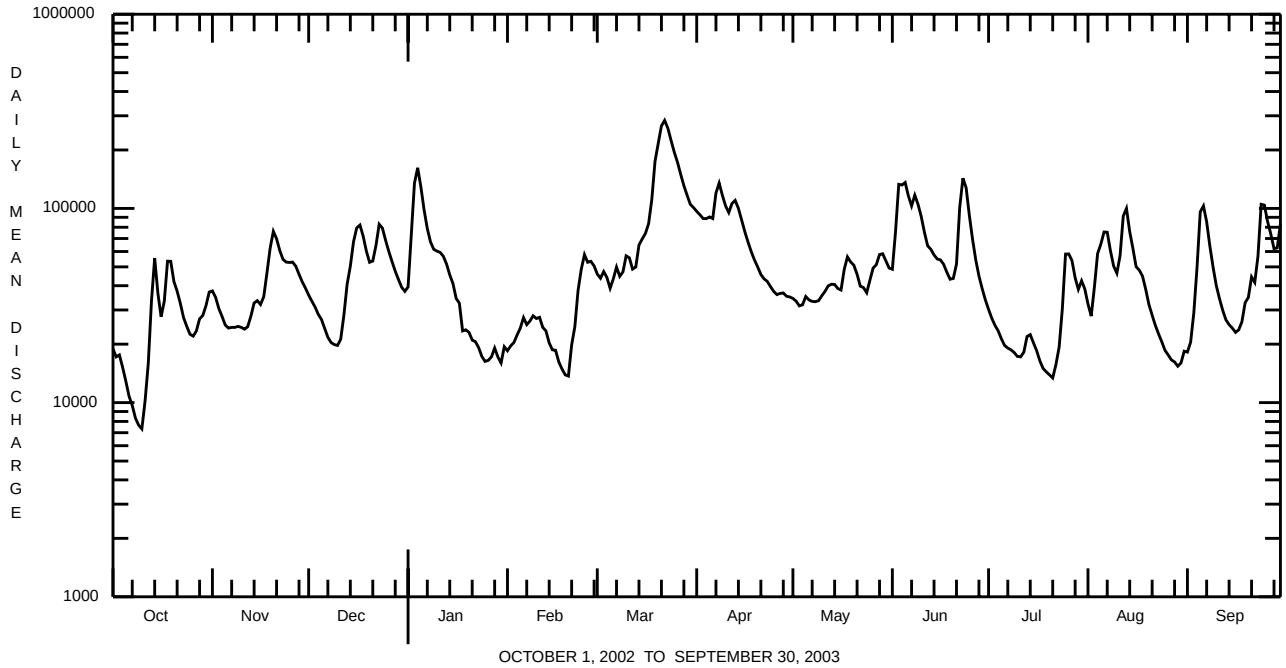
MEAN	17620	29280	39330	40030	44780	76170	79230	48790	29150	15840	12230	13040
MAX	81330	71930	114300	116900	109300	229100	235100	103400	190700	61480	47180	78650
(WY)	1977	1978	1997	1996	1984	1936	1993	1989	1972	1972	1994	1975
MIN	2699	3041	6216	6635	10730	28120	22450	14240	6974	3957	3627	2296
(WY)	1964	1965	1999	1981	1934	1960	1946	1941	1999	1965	1966	1964

e Estimated.

01576000 SUSQUEHANNA RIVER AT MARIETTA, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1932 - 2003	
ANNUAL TOTAL	12169820		18724260			
ANNUAL MEAN	33340		51300		37060	
HIGHEST ANNUAL MEAN					59900	1972
LOWEST ANNUAL MEAN					19060	1965
HIGHEST DAILY MEAN	190000	May 15	284000	Mar 22	1040000	Jun 24 1972
LOWEST DAILY MEAN	2150	Sep 13	7320	Oct 10	1380	Sep 26 1932
ANNUAL SEVEN-DAY MINIMUM	2350	Sep 10	9550	Oct 5	1720	Sep 26 1932
MAXIMUM PEAK FLOW			289000	Mar 22	**a**1080000	Jun 23 1972
MAXIMUM PEAK STAGE			48.73	Mar 22	**b**64.54	Jun 23 1972
INSTANTANEOUS LOW FLOW			6830	Oct 10	618	Sep 26 1932
ANNUAL RUNOFF (CFSM)	1.28		1.97		1.43	
ANNUAL RUNOFF (INCHES)	17.42		26.80		19.37	
10 PERCENT EXCEEDS	67800		100000		84300	
50 PERCENT EXCEEDS	27300		40600		22300	
90 PERCENT EXCEEDS	3900		18200		6000	

a From rating curve extended above 961,000 ft^3/s.
b From floodmarks.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

CONESTOGA RIVER BASIN

01576500 CONESTOGA RIVER AT LANCASTER, PA

LOCATION.--Lat 40°03'00", long 76°16'39", Lancaster County, Hydrologic Unit 02050306, on left bank at Penn Central Railroad bridge, 50 ft downstream from small right-bank tributary, 500 ft downstream from diversion dam at city water plant, and 0.7 mi east of Lancaster.

DRAINAGE AREA.--324 mi^2.

PERIOD OF RECORD.--October 1928 to March 1932; August, September 1932; April 1933 to current year. Prior to October 1973, published as Conestoga Creek at Lancaster.

REVISED RECORDS.--WSP 1202: Drainage area. WSP 1502: 1943(P). WDR PA-87-2: 1985-86(P) (monthly and yearly summaries) WDR PA-90-2: 1972(M).

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 245.63 ft above National Geodetic Vertical Datum of 1929. Prior to May 1, 1933, at site 600 ft upstream at different datum, excluding small tributary.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Regulation at low flow by water plant and mill above station. Diversion upstream for municipal supply of city of Lancaster. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

COOPERATION.--Records of diversion provided by city of Lancaster.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 2,800 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
Oct. 17	0200	3,200	7.07
Nov. 17	1200	2,800	6.73
Dec. 14	1345	3,090	6.98
Jan. 2	0245	4,100	8.07
Feb. 23	2300	3,820	7.81
Mar. 6	1945	3,480	7.49
Mar. 21	0945	4,440	8.36
June 4	1800	3,860	7.84
June 8	0215	2,900	6.92
June 21	1330	9.460	12.20
Sept. 16	0415	3,150	7.17
Sept. 23	2030	*10,400	*12.74

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	573	373	1290	337	564	887	417	589	661	256	168
2	71	412	343	2980	354	741	810	408	715	613	257	1050
3	66	346	328	1780	354	1930	746	395	447	584	242	692
4	86	316	302	1910	406	1070	e670	367	2150	554	244	536
5	93	287	309	1390	544	941	e650	360	1870	522	277	530
6	79	456	319	1170	349	2360	e610	356	1130	610	501	340
7	63	396	e280	1060	e280	1740	e610	360	1230	525	392	285
8	58	293	e270	970	e220	1090	684	391	2080	525	282	250
9	52	266	e260	983	e230	1520	789	410	1260	468	247	233
10	58	248	e240	915	e250	1800	962	393	1030	453	354	217
11	674	239	499	790	e230	1070	1260	360	885	447	333	203
12	1230	294	2190	692	e200	911	1610	341	806	418	283	190
13	381	742	1520	643	e180	1150	1080	315	739	390	248	239
14	235	403	2540	597	e160	1430	888	298	710	361	221	446
15	185	322	1980	566	e140	1170	812	285	759	343	208	588
16	918	393	1270	516	e130	1170	758	288	604	332	333	1700
17	1870	2110	975	e450	e120	1220	698	330	542	320	511	544
18	583	1910	819	e410	e130	1120	650	300	599	301	280	381
19	363	1060	732	e420	e140	947	642	285	612	304	226	e1190
20	306	753	816	e440	e150	1050	607	266	1090	299	205	843
21	259	645	957	e400	e160	3360	575	272	6010	287	183	492
22	223	788	711	e360	e600	1780	581	291	2860	779	180	401
23	204	756	625	e320	3210	1310	547	264	1890	831	174	5090
24	192	565	559	e340	2520	1100	499	340	1400	643	166	3160
25	183	500	819	e350	1420	981	464	440	1180	428	158	1150
26	371	461	1250	e360	978	918	644	904	1040	340	153	1020
27	361	477	881	e330	735	1080	751	917	937	312	164	812
28	244	489	748	e330	624	868	525	564	843	297	158	746
29	224	418	675	e330	---	806	468	472	768	278	153	648
30	514	398	645	334	---	1050	450	396	709	260	205	554
31	1150	---	641	335	---	1230	---	364	---	246	178	---
TOTAL	11381	17316	24876	23761	15151	39477	21927	12149	37484	13731	7772	24698
MEAN	367	577	802	766	541	1273	731	392	1249	443	251	823
MAX	1870	2110	2540	2980	3210	3360	1610	917	6010	831	511	5090
MIN	52	239	240	320	120	564	450	264	447	246	153	168
CFSM	1.13	1.78	2.48	2.37	1.67	3.93	2.26	1.21	3.86	1.37	0.77	2.54
IN.	1.31	1.99	2.86	2.73	1.74	4.53	2.52	1.39	4.30	1.58	0.89	2.84
(†)	12.8	13.0	15.0	16.1	16.5	15.4	15.9	15.7	15.9	16.4	17.6	14.9

† Diversion for municipal supply of city of Lancaster, equivalent in cubic feet per second.
e Estimated.

CONESTOGA RIVER BASIN

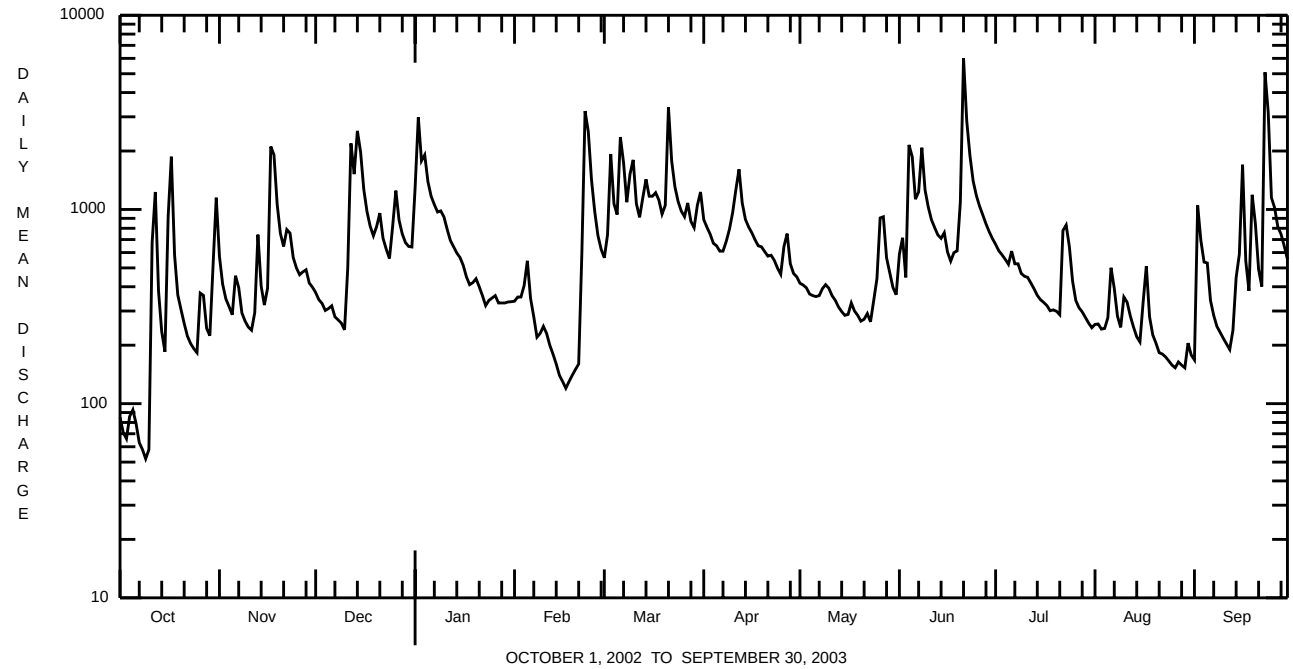
01576500 CONESTOGA RIVER AT LANCASTER, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF DAILY RECORD, BY WATER YEAR (WY)

MEAN	210	278	394	471	543	688	621	457	387	299	232	225
MAX	930	866	1618	1699	1191	2089	1720	1529	3286	944	1427	908
(WY)	1980	1997	1997	1979	1979	1994	1993	1989	1972	1984	1933	1987
MIN	33.2	41.1	70.3	61.3	77.0	155	166	148	92.0	50.3	30.3	40.9
(WY)	1931	1931	2002	1981	2002	2002	1985	1965	1965	1999	1957	1957

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	98204		249723			
ANNUAL MEAN	269		684		398	
HIGHEST ANNUAL MEAN					753	1972
LOWEST ANNUAL MEAN					138	2002
HIGHEST DAILY MEAN	3370	May 14	6010	Jun 21	47600	Jun 23 1972
LOWEST DAILY MEAN	27	Aug 16	52	Oct 9	7.0	Aug 11 1930
ANNUAL SEVEN-DAY MINIMUM	33	Sep 9	70	Oct 4	20	Aug 9 1930
MAXIMUM PEAK FLOW			10400	Sep 23	**a**50300	Jun 23 1972
MAXIMUM PEAK STAGE			12.74	Sep 23	**b**27.90	Jun 23 1972
ANNUAL RUNOFF (CFSM)	0.83		2.11		1.23	
ANNUAL RUNOFF (INCHES)	11.28		28.67		16.71	
10 PERCENT EXCEEDS	657		1260		806	
50 PERCENT EXCEEDS	131		499		258	
90 PERCENT EXCEEDS	49		204		84	

a From rating curve extended above 13,000 ft^3/s on basis of slope-area measurement at gage height 17.50 ft and contracted-opening measurement of peak flow.
b From floodmark.



CONESTOGA RIVER BASIN

01576712 LITTLE CONESTOGA CREEK NEAR MILLERSVILLE, PA

LOCATION.--Lat 40°01'15", long 76°21'33", Lancaster County, Hydrologic Unit 02050306, on right bank, 150 ft downstream from highway bridge on State Route 741, 7.9 mi upstream from confluence with Conestoga River, and 2.0 mi north of Millersville.

DRAINAGE AREA.--42.3 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 2003 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 270 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a 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)
Feb. 22	1730	536	8.09	June 20	2130	644	8.73
Mar. 21	0000	611	8.54	Aug. 16	1615	654	8.79
June 4	0915	577	8.34	Sept. 23	1030	*1,290	*12.14
June 7	1630	502	7.90				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	51	71	87	54	71	63	35	42
2	---	---	---	---	51	108	85	54	59	63	31	148
3	---	---	---	---	50	138	83	49	64	57	30	68
4	---	---	---	---	e60	94	75	49	278	55	36	100
5	---	---	---	---	54	103	70	47	148	57	33	63
6	---	---	---	---	47	255	65	48	107	56	56	55
7	---	---	---	---	47	146	71	46	223	64	40	49
8	---	---	---	---	42	121	74	58	144	52	32	44
9	---	---	---	---	40	192	89	57	110	49	36	40
10	---	---	---	---	39	150	77	59	101	55	34	39
11	---	---	---	---	41	111	178	51	93	50	63	36
12	---	---	---	---	40	107	117	47	83	47	40	34
13	---	---	---	---	35	135	96	44	81	45	31	55
14	---	---	---	---	34	133	92	41	80	42	29	53
15	---	---	---	74	36	125	94	39	77	39	27	63
16	---	---	---	70	28	123	89	63	69	37	202	47
17	---	---	---	68	52	120	77	54	66	36	75	40
18	---	---	---	67	59	102	81	44	77	34	49	43
19	---	---	---	65	54	91	76	41	78	35	40	e125
20	---	---	---	66	40	217	70	39	280	33	37	73
21	---	---	---	62	41	265	68	53	218	50	34	61
22	---	---	---	60	234	146	75	42	137	136	56	56
23	---	---	---	54	221	123	64	46	110	75	46	744
24	---	---	---	58	152	106	61	74	93	98	31	153
25	---	---	---	56	112	98	59	60	91	46	30	112
26	---	---	---	49	90	110	115	168	79	40	30	122
27	---	---	---	51	78	104	74	84	80	37	31	96
28	---	---	---	50	74	96	62	79	75	37	27	92
29	---	---	---	50	---	96	60	68	68	34	26	83
30	---	---	---	60	---	130	56	61	64	32	30	74
31	---	---	---	51	---	106	---	62	---	38	26	---
TOTAL	---	---	---	1011	1902	4022	2440	1781	3304	1592	1323	2810
MEAN	---	---	---	59.5	67.9	130	81.3	57.5	110	51.4	42.7	93.7
MAX	---	---	---	74	234	265	178	168	280	136	202	744
MIN	---	---	---	49	28	71	56	39	59	32	26	34
CFSM	---	---	---	1.41	1.61	3.07	1.92	1.36	2.60	1.21	1.01	2.21
IN.	---	---	---	0.89	1.67	3.54	2.15	1.57	2.91	1.40	1.16	2.47

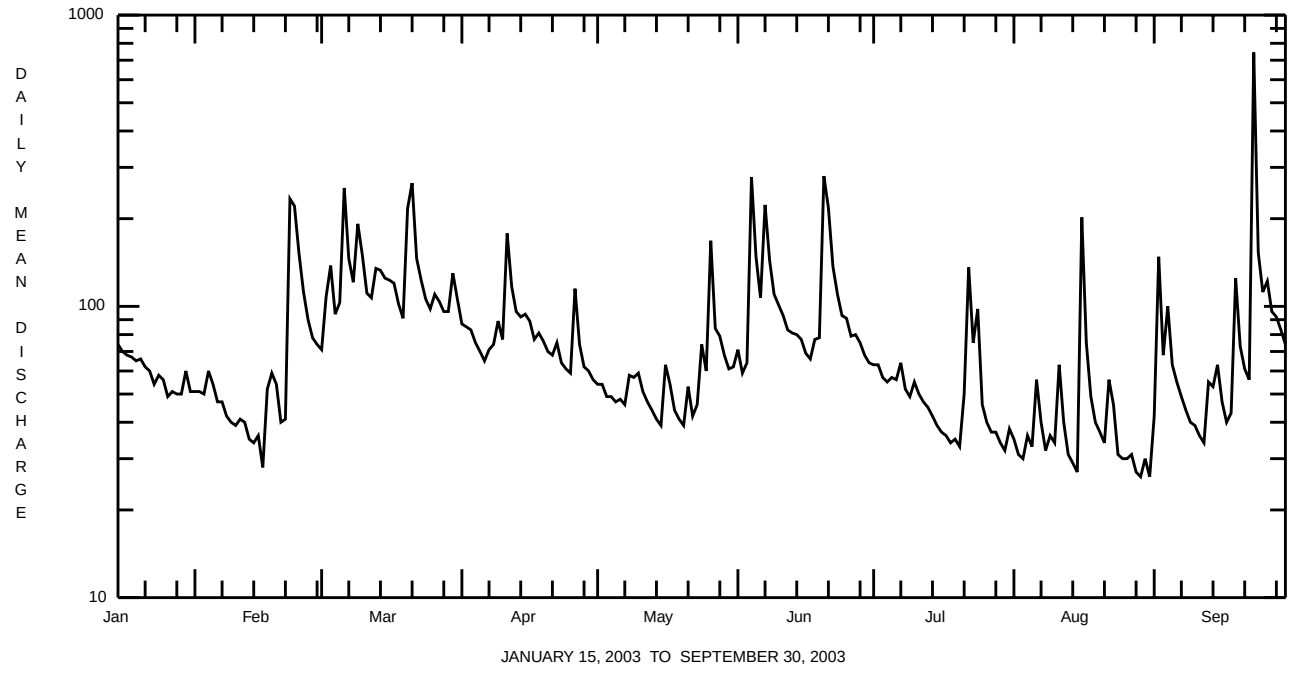
STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF DAILY RECORD, BY WATER YEAR (WY)

MEAN	---	---	---	59.5	67.9	130	81.3	57.5	110	51.4	42.7	93.7
MAX	---	---	---	59.5	67.9	130	81.3	57.5	110	51.4	42.7	93.7
(WY)	---	---	---	2003	2003	2003	2003	2003	2003	2003	2003	2003
MIN	---	---	---	59.5	67.9	130	81.3	57.5	110	51.4	42.7	93.7
(WY)	---	---	---	2003	2003	2003	2003	2003	2003	2003	2003	2003

e Estimated.

01576712 LITTLE CONESTOGA CREEK NEAR MILLERSVILLE, PA--Continued

SUMMARY STATISTICS	FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	20185	
ANNUAL MEAN	77.9	
HIGHEST DAILY MEAN	744	Sep 23
LOWEST DAILY MEAN	26	Aug 29,31
ANNUAL SEVEN-DAY MINIMUM	29	Aug 25
MAXIMUM PEAK FLOW	1290	Sep 23
MAXIMUM PEAK STAGE	12.14	Sep 23
INSTANTANEOUS LOW FLOW	17	Feb 16
ANNUAL RUNOFF (CFSM)	1.84	
ANNUAL RUNOFF (INCHES)	17.76	
10 PERCENT EXCEEDS	135	
50 PERCENT EXCEEDS	62	
90 PERCENT EXCEEDS	35	



CONESTOGA RIVER BASIN

01576754 CONESTOGA RIVER AT CONESTOGA, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 39°56'47", long 76°22'05", Lancaster County, Hydrologic Unit 02050306, on left bank on SR 3030, 1,500 ft downstream from Little Conestoga Creek, 1.0 mi west of Conestoga, and 2.6 mi upstream from mouth.

DRAINAGE AREA.--470 mi^2.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR PA-86-2: 1985(M).

GAGE.--Water-stage recorder. Datum of gage is 180.45 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daly discharges, which are fair. Several measurements of water temperature were made during the year. Satellite telemetry at station.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Jan. 2	0430	5,930	6.67	June 4	2115	5,210	6.21
Feb. 23	1000	5,980	6.70	June 21	1630	12,400	10.24
Mar. 6	2215	5,580	6.45	Sept. 16	0615	5,820	6.60
Mar. 21	1330	6,200	6.84	Sept. 24	0130	*13,400	*10.92

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	152	918	622	1660	559	854	1240	667	702	926	421	393
2	127	674	572	4290	575	1020	1130	649	1110	880	418	2170
3	113	582	539	2390	576	3010	1070	630	726	848	400	1050
4	159	517	518	2530	636	1480	1020	595	2790	835	401	969
5	153	479	521	1900	822	1230	989	580	2810	811	437	851
6	133	613	542	1660	601	3710	971	573	1550	863	668	582
7	116	713	507	1550	e550	2780	925	576	1670	916	697	484
8	98	504	481	1430	e510	1500	998	625	2910	810	460	437
9	92	458	470	1460	e480	2290	1060	671	1670	744	412	406
10	92	434	448	1370	e490	2870	1310	647	1410	701	452	379
11	872	413	844	1210	e480	1480	1610	598	1220	690	608	363
12	1810	513	2920	1080	e460	1320	2270	558	1130	661	490	343
13	597	1070	2010	1020	e430	1690	1460	524	1060	622	411	401
14	361	704	3140	953	e410	1990	1220	497	1030	583	373	631
15	284	541	2490	914	e400	1610	1140	479	1060	544	346	696
16	1140	616	1660	856	e330	1570	1080	540	920	524	763	2870
17	2510	2680	1350	845	e220	1600	1010	568	847	506	924	791
18	776	2570	1170	807	e300	1520	954	513	884	485	510	593
19	529	1500	1060	768	e350	1300	937	486	907	477	410	1770
20	449	1100	1160	762	e400	1490	894	462	1610	480	373	1230
21	395	994	1420	729	e450	4760	853	495	9020	461	350	758
22	342	1150	1070	694	e1300	2410	865	494	3710	1020	373	641
23	305	1130	958	643	5320	1760	829	468	2340	1060	416	7090
24	288	905	887	571	4140	1500	764	583	1760	1040	315	5860
25	286	799	1150	677	2080	1350	728	731	1510	672	300	1660
26	447	743	1870	618	1420	1280	980	1220	1340	529	298	1540
27	578	756	1290	617	1060	1470	1120	1410	1230	485	307	1310
28	380	780	1130	607	930	1240	826	883	1130	470	315	1210
29	342	678	1050	573	---	1140	740	761	1040	441	288	1110
30	633	658	1010	575	---	1400	711	667	980	416	347	937
31	1380	---	994	557	---	1690	---	613	---	424	330	---
TOTAL	15939	26192	35853	36316	26279	56314	31704	19763	52076	20924	13613	39525
MEAN	514	873	1157	1171	939	1817	1057	638	1736	675	439	1318
MAX	2510	2680	3140	4290	5320	4760	2270	1410	9020	1060	924	7090
MIN	92	413	448	557	220	854	711	462	702	416	288	343
CFSM	1.09	1.86	2.46	2.49	2.00	3.87	2.25	1.36	3.69	1.44	0.93	2.80
IN.	1.26	2.07	2.84	2.87	2.08	4.46	2.51	1.56	4.12	1.66	1.08	3.13

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 2003, BY WATER YEAR (WY)

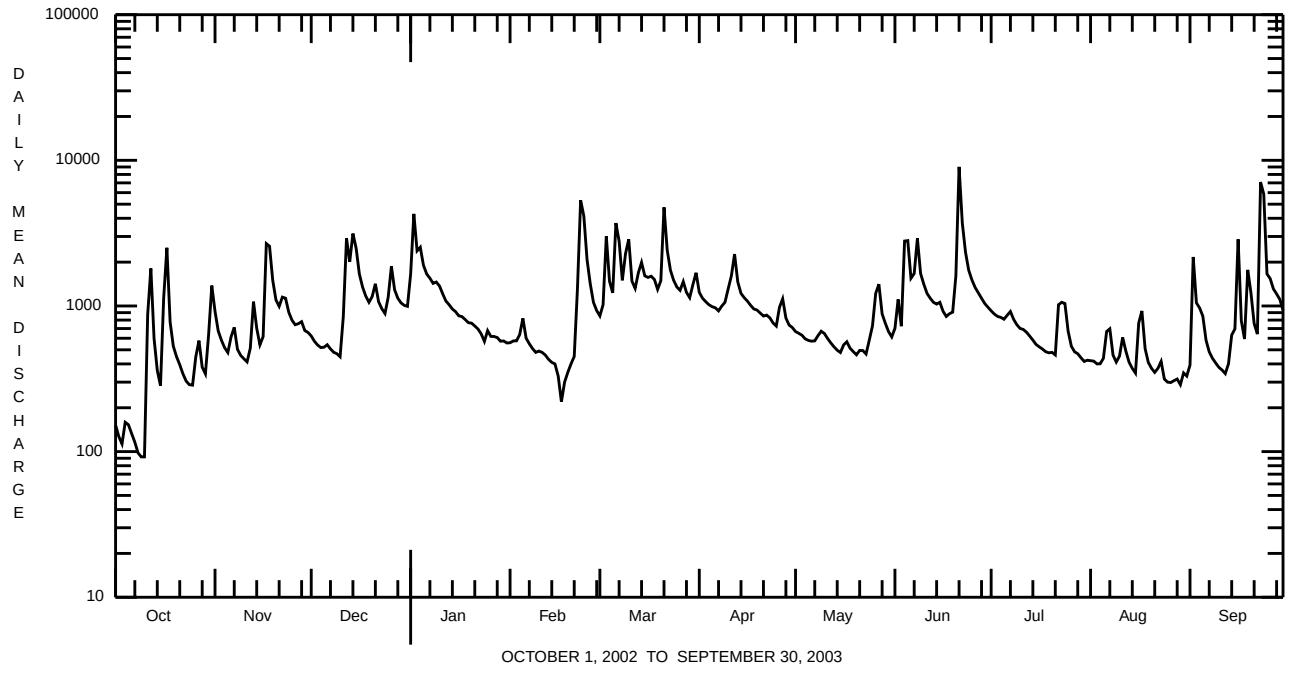
MEAN	394	529	703	766	774	1103	845	724	568	467	333	456
MAX	1183	1348	2339	1887	1264	3145	2508	2148	1736	1202	659	1318
(WY)	1997	1997	1997	1996	1986	1994	1993	1989	2003	1988	1986	2003
MIN	118	110	130	192	144	261	274	308	203	107	102	132
(WY)	2002	2002	2002	2002	2002	2002	1985	1999	1999	1999	2002	2002

e Estimated.

CONESTOGA RIVER BASIN

01576754 CONESTOGA RIVER AT CONESTOGA, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1985 - 2003	
ANNUAL TOTAL	146300		374498			
ANNUAL MEAN	401		1026		638	
HIGHEST ANNUAL MEAN					1026	2003
LOWEST ANNUAL MEAN					217	2002
HIGHEST DAILY MEAN	4520	May 14	9020	Jun 21	14100	Sep 17 1999
LOWEST DAILY MEAN	59	Sep 14	92	Oct 9,10	58	Aug 7 1999
ANNUAL SEVEN-DAY MINIMUM	65	Sep 9	120	Oct 4	65	Sep 9 2002
MAXIMUM PEAK FLOW			13400	Sep 24	19000	Sep 9 1987
MAXIMUM PEAK STAGE			10.92	Sep 24	14.37	Sep 9 1987
INSTANTANEOUS LOW FLOW			81	Oct 9	52	Aug 7 1999
ANNUAL RUNOFF (CFSM)	0.85		2.18		1.36	
ANNUAL RUNOFF (INCHES)	11.58		29.64		18.44	
10 PERCENT EXCEEDS	979		1760		1210	
50 PERCENT EXCEEDS	220		764		435	
90 PERCENT EXCEEDS	89		377		171	



01576754 CONESTOGA RIVER AT CONESTOGA, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002													
19...	1430	1028	9813	1390	40	10.5	7.4	420	7.6	190	52.9	14.9	128
JAN 2003													
23...	1530	1028	9813	655	40	16.4	7.6	703	.1	300	80.1	24.0	193
MAR													
24...	1440	1028	9813	1500	40	12.5	8.0	508	12.5	210	57.9	16.6	143
MAY													
12...	1650	1028	9813	549	40	8.7	7.8	449	17.6	250	66.8	20.9	173
JUL													
28...	1300	1028	9813	466	40	7.8	8.1	673	25.1	260	68.7	20.4	184
SEP													
11...	1415	1028	9813	357	40	11.1	8.4	588	21.8	260	70.3	21.7	198

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, unfltrd recoverable, µg/L (01042)	Iron, water, unfltrd recoverable, µg/L (01045)
NOV 2002													
19...	33.2	304	50	.080	6.60	<.040	.23	.324	7.3	6.3	1300	<10	1590
JAN 2003													
23...	46.9	462	16	.030	12.5	<.200	.05	.074	13	2.7	<200	<10	190
MAR													
24...	32.6	362	8	<.020	8.15	<.040	.06	.091	8.5	3.1	300	<10	450
MAY													
12...	38.6	368	54	.040	7.78	<.040	.13	.162	8.6	3.4	200	<10	330
JUL													
28...	42.2	432	6	<.020	9.20	.070	.15	.175	9.6	3.7	200	<10	310
SEP													
11...	45.1	480	20	.030	9.07	<.200	.15	.172	9.1	3.5	<200	<10	140

Date	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 2002				
19...	2.1	80	<50	<10
JAN 2003				
23...	<1.0	30	<50	<10
MAR				
24...	1.0	40	<50	50
MAY				
12...	<1.0	40	<50	30
JUL				
28...	<1.0	20	<50	10
SEP				
11...	<1.0	20	<50	10

01576754 CONESTOGA RIVER AT CONESTOGA, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/26/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	6
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia sp	1
Physidae	
Physa sp	1
Bivalvia (CLAMS)	
Veneroida	
Corbiculidae	
Corbicula fluminea	1
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	3
Baetis sp	28
Plauditus sp	1
Caenidae	
Caenis sp	1
Heptageniidae	
Leucrocuta sp	1
Stenonema sp	13
Tricorythidae	
Tricorythodes sp	10
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche sp	34
Hydropsyche sp	3
Hydroptilidae	
Hydroptila sp	2
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus sp	3
Stenelmis sp	53
Psephenidae (WATER PENNIES)	
Psephenus sp	13
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	17
Total Organisms	191

POTOMAC RIVER BASIN

01601000 WILLS CREEK BELOW HYNDMAN, PA

LOCATION.--Lat 39°48'43", long 78°43'00", Bedford County, Hydrologic Unit 02070004, on left bank 150 ft upstream from county highway bridge, 150 ft downstream from Pennsylvania Railroad bridge, 0.35 mi downstream from Little Wills Creek, and 0.5 mi south of Hyndman.

DRAINAGE AREA.--146 mi^2.

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1983-91, and crest-stage partial-record, water years 1968-86. June 1951 to September 1967, April 2002 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 893.37 ft above National Geodetic Vertical Datum of 1929 (Pennsylvania Railroad Bench mark).

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 2,100 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
Jan. 1	2100	6,870	6.60
Mar. 17	2100	2,350	4.54
Mar. 20	1830	3,190	5.05
May 9	1530	2,870	4.87
May 10	1500	4,800	5.82
June 3	2330	*7,480	*6.80
Sept. 19	0900	5,190	5.98

DISCHARGE, CUBIC FEET PER SECOND, **WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002**
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	572	72	12	e3.0	e3.0
2	---	---	---	---	---	---	---	554	61	11	e3.0	e2.8
3	---	---	---	---	---	---	---	508	52	11	e2.5	e2.7
4	---	---	---	---	---	---	---	428	50	9.5	e5.0	e2.6
5	---	---	---	---	---	---	---	348	47	9.5	23	e2.5
6	---	---	---	---	---	---	---	279	63	9.9	61	e2.2
7	---	---	---	---	---	---	---	278	107	10	21	e2.0
8	---	---	---	---	---	---	---	352	61	11	12	e1.5
9	---	---	---	---	---	---	---	665	48	9.9	8.1	e1.3
10	---	---	---	---	---	---	---	904	43	8.9	6.0	e1.1
11	---	---	---	---	---	---	---	619	38	8.3	4.8	e1.0
12	---	---	---	---	---	---	100	455	35	6.0	e4.0	e0.90
13	---	---	---	---	---	---	102	424	39	4.7	e3.5	e0.90
14	---	---	---	---	---	---	110	478	65	7.8	e3.4	e0.80
15	---	---	---	---	---	---	202	429	52	15	e3.3	e1.1
16	---	---	---	---	---	---	193	363	43	10	e3.3	e1.5
17	---	---	---	---	---	---	197	306	35	6.9	e3.2	e2.0
18	---	---	---	---	---	---	192	837	29	5.6	e3.1	e2.0
19	---	---	---	---	---	---	210	855	26	5.7	e3.5	e3.0
20	---	---	---	---	---	---	192	594	23	5.6	e3.8	e2.0
21	---	---	---	---	---	---	192	417	20	5.9	e3.3	e3.5
22	---	---	---	---	---	---	325	315	17	e5.5	e3.4	e4.0
23	---	---	---	---	---	---	337	249	16	e5.0	e3.4	e4.2
24	---	---	---	---	---	---	322	204	15	e4.5	7.9	e3.0
25	---	---	---	---	---	---	281	183	15	e5.0	16	e2.5
26	---	---	---	---	---	---	232	158	14	6.2	8.6	e5.0
27	---	---	---	---	---	---	195	132	13	12	5.7	54
28	---	---	---	---	---	---	921	114	13	12	4.1	68
29	---	---	---	---	---	---	1370	114	14	7.5	e3.5	27
30	---	---	---	---	---	---	803	90	12	5.1	e3.4	16
31	---	---	---	---	---	---	---	80	---	e3.5	e3.1	---
TOTAL	---	---	---	---	---	---	---	12304	1138	250.5	242.9	224.10
MEAN	---	---	---	---	---	---	---	397	37.9	8.08	7.84	7.47
MAX	---	---	---	---	---	---	---	904	107	15	61	68
MIN	---	---	---	---	---	---	---	80	12	3.5	2.5	0.80
CFSM	---	---	---	---	---	---	---	2.72	0.26	0.06	0.05	0.05
IN.	---	---	---	---	---	---	---	3.13	0.29	0.06	0.06	0.06

STATISTICS OF MONTHLY MEAN DATA FOR FOR PERIOD OF DAILY RECORD, BY WATER YEAR (WY)

MEAN	44.4	71.2	134	208	292	594	419	265	107	27.8	28.8	16.8
MAX	311	288	423	549	689	983	762	529	245	59.9	146	66.7
(WY)	1955	1960	1957	1952	1961	1963	1964	1958	1955	1960	1955	1956
MIN	3.15	6.49	10.2	36.5	47.6	294	131	80.3	15.3	3.40	2.68	3.42
(WY)	1964	1954	1966	1954	1954	1957	1954	1963	1965	1965	1957	1957

e Estimated.

POTOMAC CREEK BASIN

01601000 WILLS CREEK BELOW HYNDMAN, PA--Continued

SUMMARY STATISTICS	FOR PERIOD OF DAILY RECORD	
ANNUAL MEAN	183	
HIGHEST ANNUAL MEAN	254	1960
LOWEST ANNUAL MEAN	80.4	1954
HIGHEST DAILY MEAN	4710	Mar 6 1967
LOWEST DAILY MEAN	0.70	Sep 12 1966
ANNUAL SEVEN-DAY MINIMUM	0.84	Aug 5 1966
MAXIMUM PEAK FLOW	**a**17100	Jun 21 1984
MAXIMUM PEAK STAGE	13.76	Jun 21 1984
INSTANTANEOUS LOW FLOW	0.70	Sep 10 1965**b**
ANNUAL RUNOFF (CFSM)	1.26	
ANNUAL RUNOFF (INCHES)	17.08	
10 PERCENT EXCEEDS	472	
50 PERCENT EXCEEDS	60	
90 PERCENT EXCEEDS	5.5	

a From rating curve extended above 3,050 ft^3/s.
b Also Sept. 11, 1965, Aug. 9, 1966, Sept. 12, 1966.

DISCHARGE, CUBIC FEET PER SECOND, **WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003**
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	224	106	2440	e60	e190	209	101	762	65	16	19
2	9.5	183	94	3120	e55	e180	276	96	648	61	17	106
3	8.1	145	e75	1250	e55	e150	291	91	2000	64	86	87
4	7.4	118	e70	760	e70	e160	292	103	3990	51	48	92
5	7.2	106	e65	545	e75	e190	501	141	1370	45	38	70
6	6.7	384	e60	423	e70	e900	574	202	748	42	28	49
7	6.2	340	e60	345	e65	957	629	229	1140	56	23	37
8	5.4	262	e55	308	e60	736	562	1130	1220	49	19	31
9	4.7	205	e55	306	e60	1130	660	1850	860	60	28	27
10	5.1	171	e50	298	e55	970	830	3360	557	57	29	24
11	33	161	e50	268	e50	659	1120	2240	402	69	26	19
12	80	250	e90	226	e50	534	1020	1030	323	49	24	17
13	43	417	e110	217	e50	794	713	801	473	48	18	20
14	28	361	246	193	e45	1520	513	618	380	37	15	31
15	22	276	282	168	e40	1310	395	493	314	31	13	31
16	117	224	283	e125	e40	1490	325	1220	246	29	11	24
17	142	389	247	e120	e60	2010	276	1160	229	25	9.8	18
18	86	411	219	e110	e80	2030	231	954	298	23	9.9	19
19	59	371	200	e105	e75	1560	205	740	251	22	8.8	2620
20	45	312	466	e100	e70	1820	183	574	262	19	7.6	948
21	36	260	761	e95	e65	2130	180	497	417	17	7.0	426
22	30	236	585	e90	e110	1240	187	369	387	17	6.4	282
23	25	201	496	e85	e400	801	159	326	329	19	6.5	631
24	23	168	403	e80	e300	570	143	334	255	25	6.1	417
25	22	149	367	e80	e270	433	137	286	197	19	5.3	302
26	113	131	290	e75	e240	361	140	593	157	16	16	231
27	96	126	228	e70	e220	295	132	586	130	14	44	325
28	77	113	196	e70	e200	247	116	544	108	12	30	653
29	105	106	179	e75	---	223	111	432	91	13	19	454
30	368	112	161	e70	---	219	106	361	76	12	16	322
31	279	---	167	e60	---	200	---	450	---	11	18	---
TOTAL	1901.3	6912	6716	12277	2990	26009	11216	21911	18620	1077	649.4	8332
MEAN	61.3	230	217	396	107	839	374	707	621	34.7	20.9	278
MAX	368	417	761	3120	400	2130	1120	3360	3990	69	86	2620
MIN	4.7	106	50	60	40	150	106	91	76	11	5.3	17
CFSM	0.42	1.58	1.48	2.71	0.73	5.75	2.56	4.84	4.25	0.24	0.14	1.90
IN.	0.48	1.76	1.71	3.13	0.76	6.63	2.86	5.58	4.74	0.27	0.17	2.12

STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF DAILY RECORD, BY WATER YEAR (WY)

MEAN	45.4	80.6	139	219	281	608	417	290	135	28.1	28.4	30.5
MAX	311	288	423	549	689	983	762	707	621	59.9	146	278
(WY)	1955	1960	1957	1952	1961	1963	1964	2003	2003	1960	1955	2003
MIN	3.15	6.49	10.2	36.5	47.6	294	131	80.3	15.3	3.40	2.68	3.42
(WY)	1964	1954	1966	1954	1954	1957	1954	1963	1965	1965	1957	1957

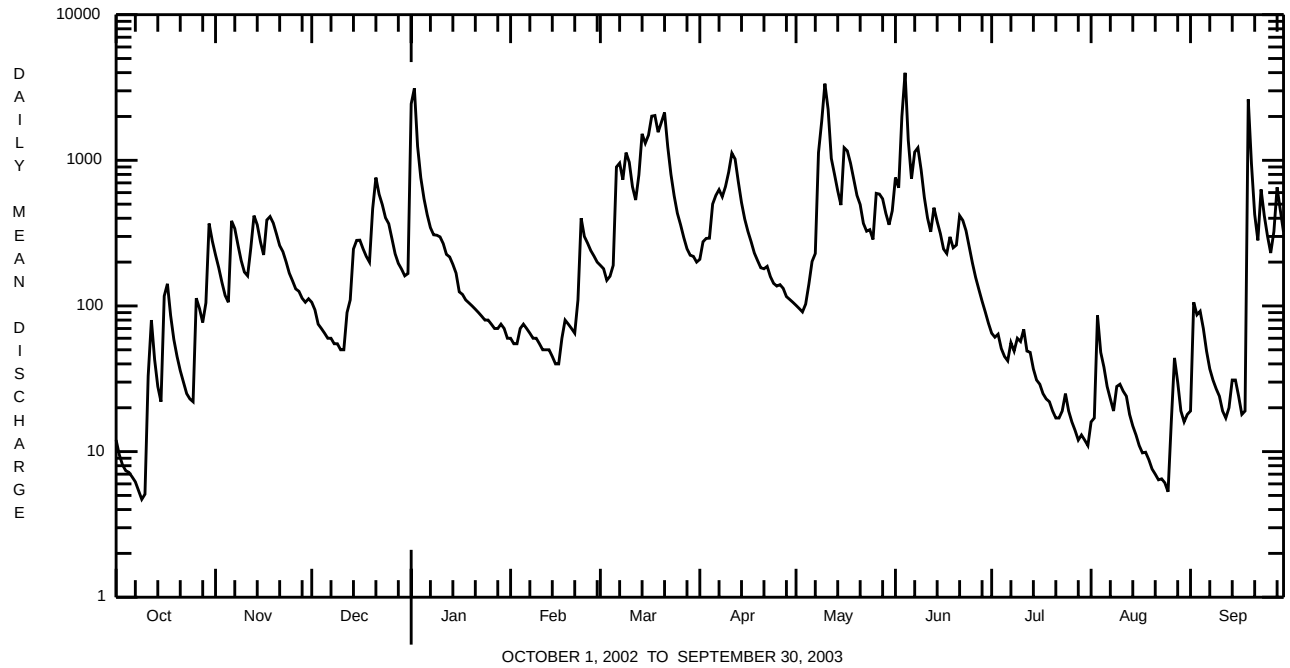
e Estimated.

POTOMAC CREEK BASIN

01601000 WILLS CREEK BELOW HYNDMAN, PA--Continued

SUMMARY STATISTICS	FOR 2003 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	118610.7			
ANNUAL MEAN	325		192	
HIGHEST ANNUAL MEAN			325	2003
LOWEST ANNUAL MEAN			80.4	1954
HIGHEST DAILY MEAN	3990	Jun 4	4710	Mar 6 1967
LOWEST DAILY MEAN	4.7	Oct 9	0.70	Sep 12 1966
ANNUAL SEVEN-DAY MINIMUM	6.1	Oct 4	0.84	Aug 5 1966
MAXIMUM PEAK FLOW	**a**7480	Jun 3	**a**17100	Jun 21 1984
MAXIMUM PEAK STAGE	6.80	Jun 3	13.76	Jun 21 1984
ANNUAL RUNOFF (CFSM)	2.23		1.31	
ANNUAL RUNOFF (INCHES)	30.22		17.85	
10 PERCENT EXCEEDS	801		491	
50 PERCENT EXCEEDS	143		64	
90 PERCENT EXCEEDS	18		5.8	

a From rating curve extended above 3,050 ft^3/s.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

POTOMAC RIVER BASIN

TONOLOWAY CREEK BASIN

01613050 TONOLOWAY CREEK NEAR NEEDMORE, PA

LOCATION.--Lat 39°53'54", long 78°07'57", Fulton County, Hydrologic Unit 02070004, on left bank 10 ft downstream from bridge on SR 3008, 0.2 mi upstream from Foster Creek, and 3.5 mi north of Needmore.

DRAINAGE AREA.--10.7 mi^2.

PERIOD OF RECORD.--Occasional discharge measurements and annual maximums, water years 1963-65. October 1965 to current year.

REVISED RECORDS.--WSP 2103: 1966-68(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 688.94 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 2, 1965, crest-stage gage at same site at datum 2.0 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite telemetry at station.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)
Jan. 1	1945	265	5.19
Feb. 22	----	Unknown	Ice jam
Mar. 20	1830	263	5.18
May 10	1230	150	4.67
May 16	0800	177	4.79
June 3	2100	531	6.40
June 7	1130	232	5.04
Sept. 3	2030	504	6.28
Sept. 19	0500	216	4.97
Sept. 23	0215	397	5.79
Sept. 27	2045	*553	*6.49

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	26	6.6	81	e6.4	14	26	14	73	5.2	3.8	9.8
2	1.3	19	5.6	164	e6.0	e12	29	25	47	4.7	1.9	19
3	1.0	13	5.2	e111	e5.8	e14	30	21	193	4.4	2.9	70
4	0.97	12	e4.5	e80	19	19	27	18	284	3.8	4.2	111
5	0.93	12	5.2	e50	9.3	17	37	20	102	3.5	2.5	39
6	0.73	24	4.6	e30	9.1	79	31	18	50	3.4	2.7	21
7	0.64	20	7.1	26	6.5	57	37	16	109	4.0	3.8	14
8	0.52	18	5.0	27	5.8	44	37	22	99	2.9	7.3	9.9
9	0.49	15	e4.0	29	7.2	80	78	37	74	3.5	11	8.8
10	0.69	13	5.0	30	5.7	72	83	96	44	4.2	19	6.4
11	8.8	11	9.2	27	5.2	45	93	106	32	6.8	11	5.0
12	13	21	16	22	4.8	39	86	59	25	3.7	7.7	4.4
13	9.7	27	24	e18	5.3	60	55	36	29	3.1	5.5	4.8
14	6.4	25	47	e15	4.7	82	37	26	19	2.5	4.3	4.7
15	4.6	20	54	e14	4.4	76	28	21	15	2.2	3.4	15
16	39	17	38	e13	3.4	82	24	134	13	2.3	3.0	15
17	40	34	27	e12	e4.8	102	19	123	12	1.7	26	11
18	21	39	21	e11	e4.8	81	16	87	13	1.6	12	9.2
19	13	33	18	e13	e5	51	15	63	17	1.6	8.0	147
20	8.7	26	27	e11	e5	125	13	46	29	1.3	5.8	88
21	6.3	22	28	e8	e5	173	14	35	43	1.2	4.6	40
22	4.8	21	26	e7	e75	85	14	26	41	1.4	3.9	35
23	3.9	16	21	e7.1	e160	48	11	22	31	3.0	3.3	215
24	3.3	14	17	e7.9	e85	33	9.6	27	22	2.7	2.6	83
25	3.3	12	16	e7.7	e25	26	9.1	20	16	1.5	2.2	47
26	21	11	13	e7.4	e20	24	11	20	12	1.2	2.8	32
27	15	11	10	e7.7	17	19	9.1	21	10	1.00	5.3	93
28	14	9.1	9.0	e7.0	15	16	8.0	26	8.4	0.93	5.1	179
29	22	8.3	8.6	e7.0	---	18	8.0	27	6.9	0.98	3.2	75
30	e55	8.0	7.8	e7.1	---	20	7.4	26	5.9	0.82	3.3	42
31	38	---	9.2	e6.6	---	22	---	28	---	0.83	3.0	---
TOTAL	359.87	557.4	499.6	864.5	530.2	1635	902.2	1266	1475.2	81.96	185.1	1454.0
MEAN	11.6	18.6	16.1	27.9	18.9	52.7	30.1	40.8	49.2	2.64	5.97	48.5
MAX	55	39	54	164	160	173	93	134	284	6.8	26	215
MIN	0.49	8.0	4.0	6.6	3.4	12	7.4	14	5.9	0.82	1.9	4.4

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 2003, BY WATER YEAR (WY)

MEAN	6.02	11.4	14.3	14.4	21.2	28.4	24.0	17.6	11.3	4.17	2.04	4.77
MAX	37.7	58.2	43.8	62.1	59.5	78.2	72.4	51.5	85.6	39.7	9.93	50.0
(WY)	1991	1998	1997	1996	1986	1994	1993	1988	1972	1989	1989	1996
MIN	0.13	0.26	0.23	0.54	2.00	5.44	5.19	3.53	0.38	0.065	0.000	0.002
(WY)	1992	1999	1999	1981	2002	1990	1968	1976	1991	1966	1966	1991

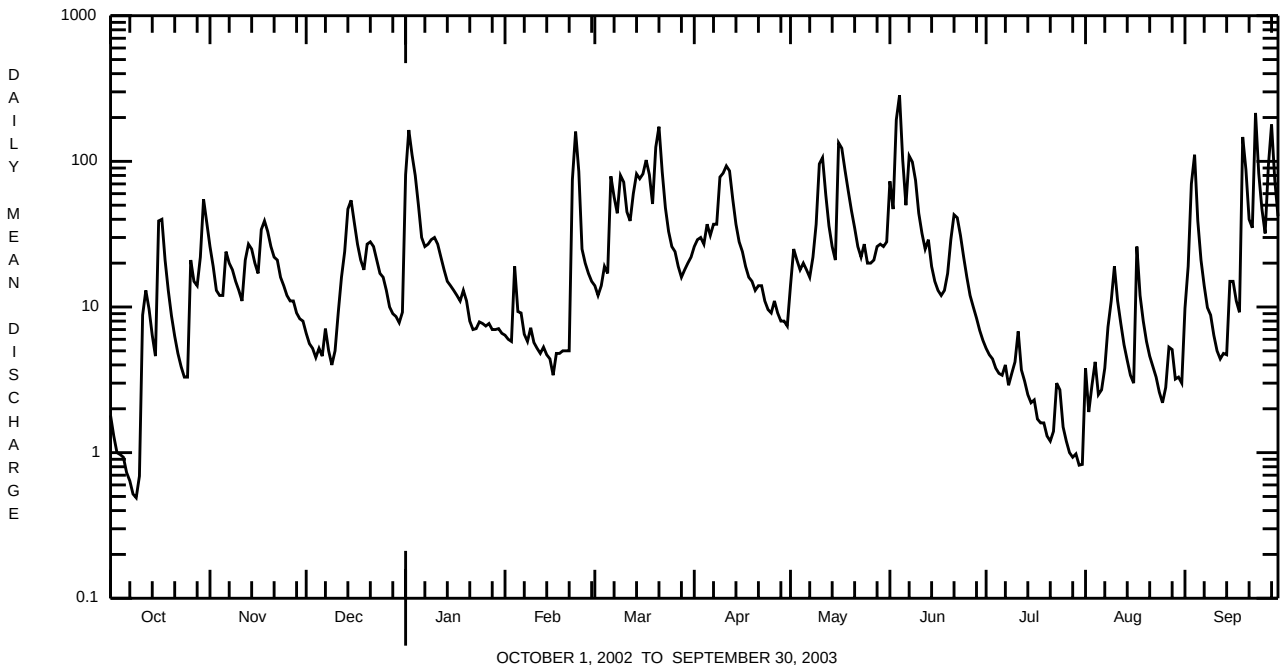
e Estimated.

TONOLOWAY CREEK BASIN

01613050 TONOLOWAY CREEK NEAR NEEDMORE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1966 - 2003	
ANNUAL TOTAL	2982.48		9811.03			
ANNUAL MEAN	8.17		26.9		13.2	
HIGHEST ANNUAL MEAN					28.3	1996
LOWEST ANNUAL MEAN					4.45	2002
HIGHEST DAILY MEAN	83	Mar 20	284	Jun 4	868	Jun 22 1972
LOWEST DAILY MEAN	0.01	Aug 18**a**	0.49	Oct 9	0.00	Jun 25 1966**b**
ANNUAL SEVEN-DAY MINIMUM	0.01	Aug 17	0.71	Oct 4	0.00	Jul 1 1966
MAXIMUM PEAK FLOW			**d**553	Sep 27	**cd**1300	Jun 22 1972
MAXIMUM PEAK STAGE			6.49	Sep 27	9.48	Jan 19 1996
INSTANTANEOUS LOW FLOW			0.46	Oct 9	0.00	Jul 18 1991**b**
10 PERCENT EXCEEDS	21		77		33	
50 PERCENT EXCEEDS	3.3		14		4.9	
90 PERCENT EXCEEDS	0.10		3.0		0.29	

a Also Aug. 19-23, Sept. 11-15, 17, 18.
b No flow many days throughout period of record.
c Gage height 9.17 ft.
d From rating curve extended above 540 ft^3/s on basis of contracted-opening and slope-area measurement of peak flow.



DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which these data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at crest-stage partial-record stations are presented in the following table. Discharge measurements made at low-flow partial-record sites and at miscellaneous sites and for special studies are given in separate tables.

Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations during water year 2003

Station name and number	Location and drainage area	Period of Record	Water year 2003 maximum			Period of record maximum		
			Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
SUSQUEHANNA RIVER BASIN								
CHEMUNG RIVER BASIN								
Crooked Creek below Catlin Hollow at Middlebury Center, Pa. (01518420)	Lat 41°50’33”, long 77°16’25”, Tioga County, Hydrologic Unit 02050104, at single-span bridge on Township Route 586 at Middlebury Center. Drainage area is 74.3 mi^2.	1986-2003	3-20-03	46.48	4,870	11-08-96	51.93	15,300
Cowanesque River at Elkland, Pa. (01519200)	Lat 41°59’15”, long 77°18’09”, Tioga County, Hydrologic Unit 02050104, at single-span steel-truss bridge on State Highway 49 at Elkland. Drainage area is 235 mi^2.	1980-2003	8-01-03	24.88	10,800	1-19-96	[a]30.20	28,000
WEST BRANCH SUSQUEHANNA RIVER BASIN								
West Branch Susquehanna River at Karthaus, Pa. (01542500)	Lat 41°07’03”, long 78°06’33”, Clearfield County, Hydrologic Unit 02050201, at steel-truss bridge on State Highway 879 at Karthaus, Drainage area is 1,462 mi^2.	1918-1920[b] 1940-95≠ 1996-2003	9-04-03	9.29	19,400	6-23-72	18.57	84,300
First Fork Sinnemahoning Creek at Wharton, Pa. (01543700)	Lat 41°31’08”, long 78°01’40”, Potter County, Hydrologic Unit 02050202, 50 ft upstream from bridge on State Highway 872, and 0.8 mi southwest of Wharton. Drainage area is 182 mi^2.	1968-80* 1982* 1984-2003	3-22-03	9.18	3,980	1-19-96	15.37	15,400
West Branch Susquehanna River at Lock Haven, Pa. (01545800)	Lat 41°08’17”, long 77°26’32”, Clinton County, Hydrologic Unit 02050203, on right bank 1,250 ft downstream from Jay Street bridge, and 2.1 mi upstream from Bald Eagle Creek. Drainage area is 3,345 mi^2.	1975-2003	3-19-03	14.91	44,600	1-20-96	25.76	93,900

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Annual maximum discharge at crest-stage partial-record stations during water year 2003—Continued

Station name and number	Location and drainage area	Period of Record	Water year 2003 maximum			Period of record maximum		
			Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
SUSQUEHANNA RIVER BASIN--Continued								
WEST BRANCH SUSQUEHANNA RIVER BASIN--Continued								
Bald Eagle Creek near Beech Creek Station, Pa. (01548005)	Lat 41°04'51", long 77°32'59", Clinton County, Hydrologic Unit 02050204, on right bank at abandoned railroad bridge, 1.5 mi downstream from Beech Creek, and 4.2 mi downstream from Foster Joseph Sayers Dam. Drainage area is 562 mi^2. Datum of gage is 560 ft above NGVD of 1929, from topographic map.	1910-95≠ 1996-2003	3-21-03	10.83	4,200	3-18-36	[c]14.42	25,600
Lycoming Creek near Williamsport, Pa. (01550500)	Lat 41°16'01", long 77°02'49", Lycoming County, Hydrologic Unit 02050206, 150 ft downstream from concrete bridge on U.S. Highway 15, 1.2 mi downstream from Beautys Run, and 3.4 mi upstream from mouth. Datum of gage is 530.12 ft above NAVD of 1988. Drainage area is 268 mi^2.	1908-13[d] 1982-87* 1988-90 1995-2003	3-21-03	9.19	7,910	1-19-96	18.69	[f]45,000
Muncy Creek near Muncy, Pa. (01553005)	Lat 41°12'27", long 76°45'09", Lycoming County, Hydrologic Unit 02050206, 1,900 ft downstream from Little Muncy Creek, 2,300 ft upstream from bridge on State Highway 405, and 2.2 mi east of Muncy. Drainage area is 209 mi^2.	1989-2003	10-12-02	15.67	8,760	1-19-96	20.57	[g]43,000
JUNIATA RIVER BASIN								
Raystown Branch Juniata River at Wolfsburg, Pa. (01559790)	Lat 40°02'45", long 78°31'45", Bedford County, Hydrologic Unit 02050303, 150 ft upstream from single-span steel-girder bridge on U.S. Highway 30 at Wolfsburg, and 4.7 mi upstream from Dunning Creek. Drainage area is 132 mi^2.	1989-90 1996-2003	6-04-03	12.52	3,970	1-19-96	16.97	9,340
Aughwick Creek near Shirleysburg, Pa. (01564512)	Lat 40°16'55", long 77°53'27", Huntingdon County, Hydrologic Unit 02050304, on left bank 0.2 mi upstream from Sugar Run, and 1.2 mi southwest of Shirleysburg. Drainage area is 301 mi^2.	1990-2003	6-04-03	12.60	9,880	1-19-96	19.46	44,400
Juniata River at Lewistown, Pa. (01564895)	Lat 40°35'40", long 77°34'58", Mifflin County, Hydrologic Unit 02050304, on left bank 1,200 ft upstream from Kishacoquillas Creek. Datum of gage is 443.83 ft above NGVD of 1929. Drainage area is 2,519 mi^2.	1989-2003	6-05-03	18.78	32,000	1-20-96	[h]31.64	74,400

Annual maximum discharge at crest-stage partial-record stations during water year 2003—Continued

Station name and number	Location and drainage area	Period of Record	Water year 2003 maximum			Period of record maximum		
			Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
SUSQUEHANNA RIVER BASIN--Continued								
CODORUS CREEK BASIN								
Codorus Creek near York, Pa. (01575500)	Lat 39°56'46", long 76°45'20", York County, Hydrologic Unit 02050306, on left bank 0.5 mi upstream from bridge on Richland Ave. (SR 3054), 2.0 mi downstream from South Branch Codorus Creek, and 2.0 mi southwest of York. Drainage area is 222 mi^2. Datum of gage is 356.39 ft above NGVD of 1929.	1915-23**i** 1926-32**i** 1940-96≠ 1997-2003	2-23-03	9.43	4,010	6-22-72	**j**26.36	30,000
CONOWINGO CREEK BASIN								
Conowingo Creek near Buck, Pa. (01578200)	Lat 39°50'35", long 76°11'45", Lancaster County, Hydrologic Unit 02050306, at concrete bridge on SR 3008, 2.0 mi upstream from Jackson Run, and 2.5 mi southeast of Buck. Drainage area is 8.71 mi^2.	1963-2003	6-21-03	5.69	321	7-01-84	**k**13.50	6,200

≠ Operated as a continuous-record gaging station.
* Operated as a low-flow partial-record station.
a From floodmark.
b Gage heights only, in reports of Water Supply Commission of Pennsylvania.
c Site and datum in use before October 1984.
d Operated as a continuous-record station by the Pennsylvania Department of Forests and Waters. Published as "at Bridge No. 2, near Williamsport."
f From rating curve extended above 8,000 ft^3/s.
g From rating curve extended above 9,000 ft^3/s.
h From peak-stage indicator.
i Gage heights and discharge measurements only, in reports of Pennsylvania Department of Forests and Waters.
j From floodmark in gage.
k From floodmark; farm pond failure upstream.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Miscellaneous sites

Discharge measurements made at miscellaneous sites during water year 2003

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements: Date	Measurements: Discharge (ft^3/s)
		SUSQUEHANNA RIVER BASIN				
		SUGAR CREEK BASIN				
01531488 Sugar Creek	Susquehanna River	Lat 41°46'52", long 76°30'10", Bradford County, Hydologic Unit 02050106, at steel-truss bridge in North Towanda township, and 3.5 mi upstream from mouth.	184	2000-2002	10-08-02 4-14-03 5-19-03 7-08-03 8-11-03	8.7 309 104 45 130
		WYALUSING CREEK BASIN				
01532950 Wyalusing Creek	Susquehanna River	Lat 41°41'49", long 76°13'52", Bradford County, Hydrologic Unit 02050106, at concrete bridge on State Highway 706, 2.8 mi north of Wyalusing, and 3.0 mi upstream from mouth.	215	1989-2002	10-07-02 4-14-03 5-19-03 7-08-03 8-11-03	20 460 117 152 109
		LACKAWANNA RIVER BASIN				
01534860 Lackawanna River	Susquehanna River	Lat 41°26'28", long 75°38'33", Lackawanna County, Hydrologic Unit 02050107, at Parker Street Bridge at Scranton, and 14.1 mi upstream from mouth.	174	1999-2002	10-03-02 11-15-02 3-26-03 4-23-03 5-15-03 7-09-03 8-21-03	64 355 1,710 250 365 129 126
		NESCOPECK CREEK BASIN				
01538600 Nescopeck Creek	Susquehanna River	Lat 41°02'46", long 76°13'28", Luzerne County, Hydrologic Unit 02050107, at bridge on State Highway 339, just downstream from railroad bridge at Nescopeck.	171	1949-50 1982-87 1989-91 1995-2002	10-04-02 4-17-03 5-21-03 7-14-03 8-15-03	84 536 206 158 384
		FISHING CREEK BASIN				
01539700 Little Fishing Creek	Fishing Creek	Lat 41°02'25", long 76°29'01", Columbia County, Hydrologic Unit 02050107, on Township Route 493, 1.6 mi upstream from mouth, and 2.8 mi northwest of Bloomsburg.	66.5	1991* 1992-2002	10-02-02 4-17-03 5-21-03 7-09-03 8-13-03	45 113 59 21 195
		WEST BRANCH SUSQUEHANNA RIVER BASIN				
		SINNEMAHONING CREEK BASIN				
01542790 Bennett Branch	Sinnemahoning Creek	Lat 41°20'02", long 78°08'10", Cameron County, Hydrologic Unit 02050202, at bridge on Township Route 343 at Driftwood and 1,000 ft upstream from mouth.	365	1975-2002	3-25-03 4-29-03 6-09-03 7-21-03 9-02-03	1,460 304 1,290 70 1,400
		BALD EAGLE CREEK BASIN				
01548075 Fishing Creek	Bald Eagle Creek	Lat 41°04'31", long 77°28'40", Clinton County, Hydrologic Unit 02050204, at bridge on SR 2004, 1,700 ft south of Cedar Springs (Hill St.), and 4.5 mi upstream from mouth.	137	1989-2002	10-28-02 11-12-02 4-02-03 7-01-03 9-11-03	58 86 331 147 92

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 2003—Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements: Date	Measurements: Discharge (ft^3/s)
		SUSQUEHANNA RIVER BASIN--Continued				
		WEST BRANCH SUSQUEHANNA RIVER BASIN--Continued				
		BALD EAGLE CREEK BASIN--Continued				
01548085 Bald Eagle Creek	West Branch Susquehanna River	Lat 41°07'35", long 77°26'00', Clinton County, Hydrologic Unit 02050204, at concrete bridge on SR 2012 at Castanea, and 2.0 mi upstream from mouth.	768	1988-89 1991-2002	10-28-02 3-19-03 4-02-03 7-01-03	567 4,290 1,710 782
		PINE CREEK BASIN				
01548248 Pine Creek	West Branch Susquehanna River	Lat 41°44'37", long 77°26'03", Tioga County, Hydrologic Unit 02050205, at concrete bridge on forest road at Ansonia, 1,500 ft upstream from mouth, and 7.0 mi west of Wellsboro.	274	1989-2002	10-03-02	30
01548351 Marsh Creek	Pine Creek	Lat 41°44'48", long 77°25'40", Tioga County, Hydrologic Unit 02050205, at bridge on State Highway 6 at Ansonia, 1,300 ft upstream from mouth, and 7.0 mi west of Wellsboro.	81.6	1989-2002	10-01-02	20
01549590 Little Pine Creek	Pine Creek	Lat 41°21'06", long 77°21'18", Lycoming County, Hydrologic Unit 02050205, at bridge at Little Pine State Park campground, 0.2 mi downstream from Little Pine Dam, and 3.4 mi upstream from mouth and Waterville.	172	1987-90 1992-2002	3-06-03 4-21-03 5-22-03 7-16-03 8-19-03	169 247 118 53 155
		WHITE DEER CREEK BASIN				
01553150 White Deer Creek	West Branch Susquehanna River	Lat 41°04'29", long 76°52'22", Union County, Hydrologic Unit 02050206, at concrete bridge on SR 1011 at White Deer, and 0.5 mi upstream from mouth.	46.9	1945 1989-95 1997-2002	11-05-02	46
		PENNS CREEK BASIN				
01555207 Middle Creek	Penns Creek	Lat 40°47'27", long 76°55'24", Snyder County, Hydrologic Unit 02050301, at double-span concrete bridge on Creek Road (T-460), 1.8 mi north of Kantz, and 2.2 mi northeast of Freeburg.	155	1989-2002	10-01-02 3-10-03 3-21-03 4-21-03 6-09-03 7-21-03 9-03-03	76 368 2,760 267 1,040 63 198
		JUNIATA RIVER BASIN				
01555810 Frankstown Branch Juniata River	Juniata River	Lat 40°22'42", long 78°25'01", Blair County, Hydrologic Unit 02050302, at end of cantilevered wooden walkway 0.6 mi downstream from McDonald Run, and 3.4 mi south of Duncansville.	84.3	1995-2002	11-06-02 12-11-02 1-14-03 3-11-03 4-24-03 4-24-03 6-17-03 9-10-03	165 44 113 253 84 90 40 62

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 2003—Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements: Date	Measurements: Discharge (ft^3/s)
		SUSQUEHANNA RIVER BASIN--Continued				
		JUNIATA RIVER BASIN--Continued				
01555858 Beaverdam Branch Juniata River	Frankstown Branch Juniata River	Lat 40°25'27", long 78°23'37", Blair County, Hydrologic Unit 02050302, at bridge on Plank Road in Hollidaysburg, 1.5 mi downstream from Blair Gap Run, and 2.2 mi upstream from mouth.	72.1	1982-2002	11-06-02 12-11-02 1-14-03 3-11-03 4-23-03 7-17-03 9-09-03 9-19-03	108 42 94 181 96 35 100 554
		CONODOGUINET CREEK BASIN				
01570280 Conodoguinet Creek	Susquehanna River	Lat 40°16'38", long 76°57'00", Cumberland County, Hydrologic Unit 02050305, at bridge on Oyster Mill Road at Enola, 0.2 mi downstream from Holtz Run, and 4.7 mi upstream from mouth. Datum of gage is 311.08 ft above NGVD of 1929.	501	1989-2002	10-28-02 1-14-03 2-03-03 3-19-03 7-01-03 7-29-03	712 860 353 2,550 494 307
		CONEWAGO CREEK BASIN				
01573820 South Branch Conewago Creek	Conewago Creek	Lat 39°51'30", long 77°03'59", Adams County, Hydrologic Unit 02050306, on right bank 3,500 ft upstream from bridge on SR 30, and 0.5 mi west of New Oxford. Datum of gage is 470 ft above NGVD of 1929, from topographic map.	65.8	1995-2002	10-30-02 12-24-02 3-20-03 5-06-03 6-18-03 9-24-03	132 86 112 46 95 341
		CHICKIES CREEK BASIN				
01575900 Chickies Creek	Susquehanna River	Lat 40°03'46", long 76°30'57", Lancaster County, Hydrologic Unit 02050306, at double-span concrete bridge on SR 23, 400 ft downstream from Little Chickies Creek, and 1.2 mi east of Marietta.	108	1989-2002	10-18-02 12-18-02 1-28-03 3-12-03 6-27-03 7-30-03 9-11-03	112 259 108 253 233 72 100
		PEQUEA CREEK BASIN				
01576787 Pequea Creek	Susquehanna River	Lat 39°54'21", long 76°19'43", Lancaster County, Hydrologic Unit 02050306, at bridge on SR 324 at Martic Forge, and 3.4 mi upstream from mouth.	148	1977-81≠ 1993-95≠ 1989-2002	10-18-02 1-14-03 1-29-03 3-11-03 6-26-03 7-30-03 9-11-03	97 207 171 334 344 145 115
		POTOMAC RIVER BASIN				
		NORTH BRANCH POTOMAC RIVER BASIN				
		LICKING CREEK BASIN				
01613500 Licking Creek	Potomac River	Lat 39°43'23", long 78°03'38", Franklin County, Hydrologic Unit 02070004, at bridge on State Highway 456, 200 ft north of PA-MD state line, 3.0 mi southwest of Sylvan, and 10 mi upstream from mouth.	158	1930-41≠ 1983-91*[a] 1992-2002	10-08-02 11-22-02 1-06-03 3-14-03 4-29-03 6-02-03 7-24-03 9-16-03	13 260 460 1,010 150 430 44 80

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 2003—Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements: Date	Measurements: Discharge (ft^3/s)
		POTOMAC RIVER BASIN--Continued				
		CONOCOCHEAGUE CREEK BASIN				
01614090 Conococheague Creek	Potomac River	Lat 39°55'48", long 77°26'23", Franklin County, Hydrologic Unit 02070004, on State Highway 233 bridge, 0.3 mi upstream from Birch Run, 1.3 mi upstream from Chambersburg Reservoir Dam, and 4.0 mi northeast of Fayetteville. Datum of gage is 1,132.76 ft above NGVD of 1929.	5.05	1960-81≠ 1998-2002	10-30-02 12-18-02 1-29-03 3-19-03 3-19-03 4-22-03 6-18-03 8-12-03 9-18-03	4.1 10 5.0 39 35 14 18 3.1 1.8

≠ Operated as a continuous-record gaging station.
* Operated as a low-flow partial-record station.
a Most years during period.

ANALYSIS OF STREAMFLOW SAMPLES COLLECTED AT PARTIAL-RECORD STATIONS
OCTORARO CREEK BASIN

01578347 EB OCTORARO CREEK NEAR STEELVILLE, PA

Water-quality partial-record stations are sites where chemical-quality, biological, or sediment data are collected systematically over a period of years for use in hydrologic analyses. These data are usually collected less than quarterly.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MISCELLANEOUS STATION ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conduct-ance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419)
OCT 2002 22...	1145	1028	80020	12	12.3	7.8	325	8.7	32.5	11.1	5.50	10.7	59

Date	Chloride, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phosphate, water, fltrd, mg/L as P (00671)	Boron, water, fltrd, µg/L (01020)	Iron, water, fltrd, µg/L (01046)
OCT 2002 22...	22.1	11.9	30.9	<.04	6.87	.017	.09	30	42

ANALYSIS OF STREAMFLOW SAMPLES COLLECTED AT PARTIAL-RECORD STATIONS
OCTORARO CREEK BASIN

01578347 EB OCTORARO CREEK NEAR STEELVILLE, PA--Continued

REMARKS.--Samples were collected using a Hess sampler with a mesh size of 500 µm. Each sample covered a total area of 2.4 m^2.

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
BENTHIC MACROINVERTEBRATES

Date	10/22/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	140
Nematoda (NEMATODES)	70
Nemertea (PROBOSAS WORMS)	
Enopla	
Hoplonemertea	
Tetrastemmatidae	
Prostoma sp	30
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia sp	1
Planorbidae	
Gyraulus sp	1
Mesogastropoda	
Hydrobiidae	
Amnicola sp	1
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	
Musculium sp	4
Sphaerium sp	15
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	1
Tubificida	
Naididae	5
Hirudinea (LEECHES)	
Arhynchobdellida	
Erpobdellidae	1
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	30
Crustacea	
Amphipoda (SCUDS)	
Crangonyctidae	
Crangonyx sp	10
Gammaridae	
Gammarus sp	9
Isopoda (AQUATIC SOWBUGS)	
Asellidae	
Caecidotea sp	1
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Baetis sp	6
Caenidae	
Caenis sp	6

ANALYSIS OF STREAMFLOW SAMPLES COLLECTED AT PARTIAL-RECORD STATIONS
OCTORARO CREEK BASIN

01578347 EB OCTORARO CREEK NEAR STEELVILLE, PA--Continued

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
BENTHIC MACROINVERTEBRATES

Date	10/22/02
Benthic Macroinvertebrate	Count
Ephemerellidae	
Serratella sp	560
Heptageniidae	
Stenonema sp	117
Isonychiidae	
Isonychia sp	2
Tricorythidae	
Tricorythodes sp	33
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Coenagrionidae	
Argia sp	2
Plecoptera (STONEFLIES)	
Leuctridae	8
Taeniopterygidae	
Taeniopteryx sp	2
Trichoptera (CADDISFLIES)	
Brachycentridae	
Micrasema sp	3
Glossosomatidae	
Glossosoma sp	1
Helicopsychidae	
Helicopsyche sp	35
Hydropsychidae	
Cheumatopsyche sp	69
Hydropsyche sp	143
Hydroptilidae	
Leucotrichia sp	98
Lepidostomatidae	
Lepidostoma sp	10
Leptoceridae	
Oecetis sp	2
Philopotamidae	
Chimarra sp	897
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Ancyronyx sp	2
Dubiraphia sp	2
Macronychus sp	2
Optioservus sp	364
Oulimnius sp	14
Stenelmis sp	1350
Psephenidae (WATER PENNIES)	
Psephenus sp	312
Diptera (TRUE FLIES)	
Ceratopogonidae (BITING MIDGES)	1
Chironomidae (MIDGES)	258
Empididae (DANCE FLIES)	
Hemerodromia sp	14
Tipulidae (CRANE FLIES)	
Antocha sp	21
Tipula sp	1
Total organisms	4654
Total number of taxa	45

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

The Pennsylvania Water-Quality Network (WQN) is a statewide, fixed station water-quality sampling system currently operated by the Department of Environmental Protection (PaDEP), Bureau of Water Supply and Wastewater Management in cooperation with the United States Geological Survey (USGS). It is designed to assess both the quality of Pennsylvania's surface waters and the effectiveness of the water quality management program by accomplishing three basic objectives:

* Monitor temporal water-quality trends in major surface streams throughout the Commonwealth of Pennsylvania.

* Monitor temporal water-quality trends in selected reference waters.

* Monitor temporal water-quality trends in selected Pennsylvania lakes.

Major streams are defined as interstate waters and intrastate streams with drainage areas of roughly 200 mi^2 or greater. These waters are sampled at or near their mouths to measure overall quality before flows enter the next higher order stream or before exiting the Commonwealth. In this way, trends can be established and the effectiveness of water-quality management programs can be assessed by watershed. Samples are collected on fixed time intervals resulting in coverage of a range of flow regimes. All samples collected from April 1, 2002 through September 30, 2003 were collected by the USGS and analyzed by the PaDEP laboratory in Harrisburg.

Most of the current WQN standard sites are co-located with USGS gage stations and others are equipped with a wire-weight gage. Currently the network consists of 120 standard stream sites, 26 reference stream sites, and 27 lakes distributed across the Commonwealth. This report contains only those sites in the Susquehanna or Potomac River basins. The locations of these sites can be found in figures 5-7. Other data for the WQN can be found in the annual Water Data Reports PA-03-1 and PA-03-3.

Standard stations are sampled bimonthly (6 times per year) for physical and chemical parameters and stream discharge or a stage reading. Reference stations are sampled monthly at 25-30 day intervals for physical and chemical parameters and stream discharge or a stage reading. Benthic macroinvertebrate samples are also collected annually at all WQN stations.

Ninety lakes are part of the WQN. Of these 90 lakes, approximately 15-20 are sampled annually during mid-summer stratification for 5 years; and then a different set of 15-20 lakes is sampled for 5 years. Using this schedule, all 90 lakes are sampled over a 30-year period. However, 27 lakes are scheduled for sampling in the current 5-year sampling period. Lakes are sampled for physical and chemical parameters. Two samples are collected from the deepest point of the lake with the first sample being collected 1-meter below the surface and the second sample collected 1-meter from the bottom. Each sample is analyzed separately. A temperature and dissolved oxygen profile is collected at the site through the water column. This report contains only data for lakes in the Susquehanna and Potomac River basins. The locations of these sites can be found in figures 5-7.

For additional information, contact Andrew Reif at the U.S. Geological Survey, 111 Great Valley Parkway, Malvern, PA 19355; 610-647-9008, (email: agreif@usgs.gov).

TABLE 3.--Pennsylvania Water-Quality Network (WQN) station list.

Station number	WQN No.	Location	Latitude	Longitude	Drainage area (mi^2)
01503000	306	Susquehanna River at Conklin, NY	42° 02’ 07”	75° 48’ 12”	2,232
[a]01518700	324	Tioga River at Tioga Junction, PA	41° 57’ 09”	77° 06’ 56”	446
[a]01520000	320	Cowanesque River near Lawrenceville, PA	41° 59’ 48”	77° 08’ 25”	298
01531000	332	Chemung River at Chemung, NY	40° 00’ 08”	76° 38’ 06”	2,506
01531490	333	Sugar Creek near Towanda, PA	41° 47’ 27”	76° 27’ 45”	188
[a]01531500	305	Susquehanna River at Towanda, PA	41° 45’ 55”	76° 26’ 28”	7,797
[a]01532000	318	Towanda Creek near Monroeton, PA	41° 42’ 25”	76° 29’ 06”	215
01532950	334	Wyalusing Creek near Wyalusing, PA	41° 41’ 49”	76° 13’ 52”	215
01533610	340	Unnamed Tributary to Tunkhannock Creek at Gelatt, PA	41° 48’ 30”	75° 34’ 50”	9.00
[a]01534000	317	Tunkhannock Creek near Tunkhannock, PA	41° 33’ 30”	75° 53’ 42”	383
01534090	323	Susquehanna River at Falls, PA	41° 27’ 42”	75° 51’ 15”	9,440
[a]01536000	313	Lackawanna River at Old Forge, PA	41° 21’ 33”	75° 44’ 41”	332
01537700	302	Susquehanna River near Hunlock Creek, PA	41° 11’ 19”	76° 05’ 13”	10,140
01538600	309	Nescopeck Creek at Nescopeck, PA	41° 02’ 46”	76° 13’ 28”	171
01539350	339	Little Fishing Creek above Wolfhouse Run near Millville, PA	41° 09’ 58”	76° 30’ 14”	19.1
015400021	308	Fishing Creek near Bloomsburg, PA	40° 59’ 37”	76° 28’ 33”	379
[a]01540500	301	Susquehanna River at Danville, PA	40° 57’ 29”	76° 37’ 10”	11,220
[a]01541000	406	West Branch Susquehanna River at Bower, PA	40° 53’ 49”	78° 40’ 38”	315
[a]01541500	422	Clearfield Creek at Dimeling, PA	40° 58’ 18”	78° 24’ 22”	371
01542790	439	Bennett Branch Sinnemahoning Creek at Driftwood, PA	41° 20’ 02”	78° 08’ 10”	365
[a]01543000	420	Driftwood Branch Sinnemahoning Creek at Sterling Run, PA	41° 24’ 48”	78° 11’ 50”	272
[a]01543500	418	Sinnemahoning Creek at Sinnemahoning, PA	41° 19’ 02”	78° 06’ 12”	685
[a]01544000	419	First Fork Sinnemahoning Creek near Sinnemahoning, PA	41° 24’ 06”	78° 01’ 28”	245
[a]01545000	434	Kettle Creek near Westport, PA	41° 19’ 10”	77° 52’ 27”	233
[a]01546500	415	Spring Creek near Axemann, PA	40° 53’ 23”	77° 47’ 40”	87.2
01547400	413	Bald Eagle Creek near Milesburg, PA	40° 58’ 31”	77° 44’ 35”	296
01547980	423	Beech Creek at Beech Creek, PA	41° 04’ 29”	77° 35’ 30”	170
01548075	433	Fishing Creek near Cedar Springs, PA	41° 04’ 31”	77° 28’ 40”	137
01548085	445	Bald Eagle Creek at Castanea, PA	41° 07’ 35”	77° 26’ 00”	768
01549590	429	Little Pine Creek below Reservoir near Waterville	41° 21’ 06”	77° 21’ 20”	172
[a]01549700	410	Pine Creek below Little Pine Creek near Waterville, PA	41° 16’ 25”	77° 19’ 28”	944
[a]01550000	409	Lycoming Creek near Trout Run, PA	41° 25’ 06”	77° 01’ 59”	173
[a]01551500	402	West Branch Susquehanna River at Williamsport, PA	41° 14’ 10”	76° 59’ 49”	5,682
[a]01552000	408	Loyalsock Creek at Loyalsockville, PA	41° 19’ 30”	76° 54’ 46”	435
[a]01552500	446	Muncy Creek near Sonestown, PA	41° 21’ 25”	76° 32’ 06”	23.8
01553005	444	Muncy Creek near Muncy, PA	41° 12’ 27”	76° 45’ 09”	209
01553430	447	Spruce Run above Spruce Run Reservoir near Mazeppa, PA	41° 01’ 27”	77° 03’ 54”	6.70
[a]01553500	401	West Branch Susquehanna River at Lewisburg, PA	40° 58’ 05”	76° 52’ 25”	6,847
01553990	203	Susquehanna River above Dam at Sunbury, PA	40° 51’ 13”	76° 48’ 08”	18,300
01554600	268	Penns Creek at Farmers Mills near Spring Mills, PA	40° 51’ 57”	77° 36’ 35”	13.5
[a]01555000	229	Penns Creek at Penns Creek, PA	40° 52’ 00”	77° 02’ 55”	301
01555210	228	Middle Creek near Selinsgrove, PA	40° 46’ 29”	76° 52’ 11”	174
01555859	252	Beaverdam Branch Juniata River near Hollidaysburg, PA	40° 25’ 50”	78° 21’ 50”	75.4

TABLE 3.--Pennsylvania Water-Quality Network (WQN) station list.--continued.

Station number	WQN No.	Location	Latitude	Longitude	Drainage area (mi^2)
01556009	224	Frankstown Branch Juniata River at RR at Williamsburg, PA	40° 28’ 19”	78° 11’ 13”	296
[a]01558000	217	Little Juniata River at Spruce Creek, PA	40° 36’ 45”	78° 08’ 27”	220
[a]01562000	223	Raystown Branch Juniata River at Saxton, PA	40° 12’ 57”	78° 15’ 56”	756
01564515	249	Aughwick Creek at Aughwick Mills, PA	40° 20’ 05”	77° 51’ 36”	356
[a]01567000	214	Juniata River at Newport, PA	40° 28’ 42”	77° 07’ 46”	3,354
01567795	270	Letort Spring Run at Bonny Brook near Carlisle, PA	40° 10’ 39”	77° 11’ 10”	7.26
01570400	240	Conodoguinet Creek at mouth at West Fairview, PA	40° 16’ 17”	76° 54’ 51”	506
01571505	212	Yellow Breeches Creek at New Cumberland, PA	40° 13’ 27”	76° 51’ 38”	218
01573610	211	Swatara Creek at Harrisburg Airport at Middletown, PA	40° 11’ 28”	76° 43’ 52”	571
01573750	267	Conewago Creek near Arendtsville, PA	39° 56’ 13”	77° 21’ 58”	6.90
[a]01574000	210	West Conewago Creek near Manchester, PA	40° 04’ 56”	76° 43’ 13”	510
01575900	206	Chickies Creek near Marietta, PA	40° 03’ 46”	76° 30’ 57”	108
01576003	201	Susquehanna River at Columbia, PA	40° 01’42”	76° 31’ 05”	25,990
[a]01576754	231	Conestoga River at Conestoga, PA	39° 56’ 47”	76° 22’ 05”	470
01576787	204	Pequea Creek at Martic Forge, PA	39° 54’ 21”	76° 19’ 43”	148
01577180	265	Rambo Run at Meadetown near Stewartstown, PA	39° 49’ 21”	76° 31’ 59”	10.2
01613500	505	Licking Creek near Sylvan, PA	39° 43’ 23”	78° 03’ 38”	158
01614500	501	Conococheague Creek at Fairview, MD	39° 42’ 59”	77° 49’ 29”	494

[a]Other data for this station can be found in the continuous station records section of this report.

TABLE 4.--List of lakes sampled as part of the Pennsylvania Water-Quality Network.

Station number	WQN No.	Location	Latitude	Longitude	Drainage area (mi^2)
[a]01541340	L403	Glendale Lake, PA	40° 41’ 50”	78° 32’ 15”	41.9
01543896	L407	George B. Stevenson Lake near First Fork, PA	41° 24’ 35”	78° 01’ 15”	243
[a]01544800	L404	Kettle Creek Lake at Kettle Creek Dam, PA	41° 21’ 37”	77° 55’ 27”	226
01552070	L406	Rose Valley Lake near Bodines, PA	41° 23’ 12”	76° 59’ 54”	3.43
01553650	L405	Lake Chillisquaque near White Hall, PA	41° 06’ 08”	76° 39’ 41”	5.52
01555124	L306	Faylor Lake at Beaver Springs, PA	40° 45’ 47”	77° 12’ 51”	33.3
01555142	L308	Walker Lake at Troxelville, PA	40° 47’48”	77° 11’ 47”	18.5
01564950	L209	Laurel Creek Reservoir near Milroy, PA	40° 43’ 48”	77° 37’ 45”	
01569200	L210	Letterkenny Reservoir near Roxbury, PA	40° 06’ 52”	77° 41’ 18”	32.8
01569765	L208	Opossum Lake near Plainfield, PA	40° 13’ 32”	77° 16’ 32”	4.98
01603700	L504	Lake Koon near Cooks Mill, PA	39° 45’ 52”	78° 39’ 54”	41.6
01603800	L503	Lake Gordon near Cooks Mill, PA	39° 44’ 52”	78° 40’ 34”	51.8

[a]Other data for this station can be found in the continuous station records section of this report.

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)
01503000 Susquehanna River at Conklin, NY (LAT 42 02 07N LONG 075 48 12W)													
NOV 2002													
06...	1600	1028	9813	2440	40	12.8	7.7	207	5.7	74	--	25.9	--
JAN 2003													
06...	1145	1028	9813	5580	40	14.5	7.6	158	.3	55	--	18.1	--
MAY													
05...	1200	1028	9813	5690	40	10.7	7.6	145	13.0	57	--	19.0	--
JUL													
07...	1200	1028	9813	1070	40	10.0	8.0	228	26.3	88	--	29.8	--
SEP													
08...	1315	1028	9813	2540	40	9.3	7.6	148	18.2	54	--	17.3	--
01531000 Chemung River at Chemung, NY (LAT 42 00 08N LONG 076 38 06W)													
NOV 2002													
05...	1000	1028	9813	375	30	14.0	8.5	440	4.8	169	--	48.3	--
JAN 2003													
08...	0930	1028	9813	2830	30	13.7	7.7	284	.5	91	--	27.1	--
MAY													
07...	1000	1028	9813	1360	30	10.8	8.4	286	13.5	120	--	33.3	--
JUL													
09...	0830	1028	9813	650	30	8.7	7.9	433	24.9	150	--	43.9	--
SEP													
09...	0900	1028	9813	1550	30	8.6	7.8	298	18.7	110	--	34.0	--
01531490 Sugar Creek near Towanda, PA (LAT 41 47 27N LONG 076 27 45W)													
NOV 2002													
05...	1245	1028	9813	34	30	15.9	8.8	243	5.4	98	--	29.9	--
JAN 2003													
08...	1100	1028	9813	286	30	13.8	7.8	172	.4	61	--	18.3	--
MAR													
05...	0915	1028	9813	--	30	14.5	7.5	278	.1	73	--	21.6	--
MAY													
07...	1100	1028	9813	159	30	11.3	8.1	135	13.0	58	--	16.7	--
JUL													
09...	0945	1028	9813	38	30	9.7	7.8	228	22.8	85	--	26.0	--
SEP													
09...	1045	1028	9813	97	30	10.0	7.9	209	17.1	82	--	25.7	--
01532950 Wyalusing Creek near Wyalusing, PA (LAT 41 41 49N LONG 076 13 52W)													
NOV 2002													
06...	1245	1028	9813	129	30	13.6	8.0	125	6.5	39	--	11.2	--
JAN 2003													
06...	0930	1028	9813	646	30	14.3	7.8	90	.5	27	--	7.3	--
MAR													
03...	1015	1028	9813	295	30	13.7	7.0	180	.0	30	--	8.1	--
MAY													
05...	0915	1028	9813	346	30	11.8	7.8	82	11.3	28	--	7.7	--
JUL													
07...	0945	1028	9813	54	30	10.8	8.0	124	22.9	42	--	11.7	--
SEP													
08...	1115	1028	9813	441	30	9.6	7.3	84	16.7	35	--	9.5	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Magnes-ium, water, unfltrd recover-able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, unfltrd mg/L (00951)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phos-phate, water, unfltrd mg/L as P (70507)	Phos-phorus, water, unfltrd mg/L (00665)	Total nitro-gen, water, unfltrd mg/L (00600)
01503000 Susquehanna River at Conklin, NY (LAT 42 02 07N LONG 075 48 12W)													
NOV 2002													
06...	2.3	56	--	--	11.7	110	4	.080	.40	<.040	<.01	.012	.69
JAN 2003													
06...	2.3	38	--	--	9.0	126	18	<.020	.60	<.040	.02	.014	.69
MAY													
05...	2.3	45	--	--	8.2	96	14	<.020	.34	<.040	.03	.023	.58
JUL													
07...	3.2	72	--	--	9.3	130	10	<.020	.30	<.040	.01	.025	.56
SEP													
08...	2.6	44	--	--	7.5	100	2	<.020	.38	<.040	.02	.030	.39
01531000 Chemung River at Chemung, NY (LAT 42 00 08N LONG 076 38 06W)													
NOV 2002													
05...	11.6	106	--	--	37.8	--	20	1.02	.58	<.040	.02	.041	.98
JAN 2003													
08...	5.7	59	--	--	20.4	188	<2	<.020	1.23	<.040	.03	.031	1.4
MAY													
07...	8.7	87	--	--	22.6	278	<2	<.020	.50	<.040	.01	.040	.83
JUL													
09...	9.5	109	--	--	21.2	316	4	<.020	.58	<.040	.03	.048	1.0
SEP													
09...	6.2	86	--	--	16.9	236	2	<.020	.56	<.040	.03	.036	.53
01531490 Sugar Creek near Towanda, PA (LAT 41 47 27N LONG 076 27 45W)													
NOV 2002													
05...	5.7	68	--	--	22.2	178	<2	<.020	.23	<.040	<.01	.012	.56
JAN 2003													
08...	3.7	36	--	--	16.2	146	2	<.020	2.00	<.040	.02	.027	2.3
MAR													
05...	4.6	44	--	--	16.9	136	<2	.030	1.78	<.040	.02	.029	2.0
MAY													
07...	4.0	47	--	--	13.8	164	2	<.020	.44	<.040	.02	.030	.70
JUL													
09...	4.9	74	--	--	13.1	180	<2	<.020	.33	<.040	.02	.025	.63
SEP													
09...	4.4	73	--	--	12.0	170	2	<.020	.62	<.040	.03	.033	.65
01532950 Wyalusing Creek near Wyalusing, PA (LAT 41 41 49N LONG 076 13 52W)													
NOV 2002													
06...	2.6	24	--	--	13.1	58	4	.080	.38	<.040	<.01	<.010	.60
JAN 2003													
06...	2.2	14	--	--	10.3	284	10	<.020	.77	<.040	<.01	.016	.84
MAR													
03...	2.5	17	--	--	11.0	84	4	<.020	.98	<.040	.02	.016	1.2
MAY													
05...	2.2	21	--	--	9.7	70	10	<.020	.27	<.040	.02	.018	.44
JUL													
07...	3.1	33	--	--	9.6	72	2	<.020	.56	<.040	<.01	.018	.71
SEP													
08...	2.7	24	--	--	9.1	70	6	<.020	.62	<.040	.02	.030	.57

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
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WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45uMF col/ 100 mL (31616)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Cadmium water, fltrd, µg/L (01025)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)
01503000 Susquehanna River at Conklin, NY (LAT 42 02 07N LONG 075 48 12W)													
NOV 2002													
06...	2.6	--	--	--	<200	--	--	--	<10	--	150	--	<1.0
JAN 2003													
06...	1.9	--	--	--	<200	--	--	--	<10	--	270	--	<1.0
MAY													
05...	2.9	--	--	--	400	--	--	--	<10	--	510	--	<1.0
JUL													
07...	2.8	--	--	--	<200	--	--	--	<10	--	220	--	<1.0
SEP													
08...	3.8	--	--	--	200	--	--	--	<10	--	450	--	<1.0
01531000 Chemung River at Chemung, NY (LAT 42 00 08N LONG 076 38 06W)													
NOV 2002													
05...	2.4	--	--	--	<200	--	--	--	<10	--	30	--	<1.0
JAN 2003													
08...	2.8	--	--	--	<200	--	--	--	<10	--	250	--	<1.0
MAY													
07...	3.2	--	--	--	<200	--	--	--	<10	--	120	--	<1.0
JUL													
09...	3.2	--	--	--	<200	--	--	--	<10	--	200	--	<1.0
SEP													
09...	3.6	--	--	--	200	--	--	--	<10	--	480	--	<1.0
01531490 Sugar Creek near Towanda, PA (LAT 41 47 27N LONG 076 27 45W)													
NOV 2002													
05...	3.1	--	--	--	<200	--	--	--	<10	--	60	--	<1.0
JAN 2003													
08...	3.1	--	--	--	<200	--	--	--	<10	--	230	--	<1.0
MAR													
05...	3.1	--	--	--	<200	--	--	--	<10	--	250	--	<1.0
MAY													
07...	3.5	--	--	--	<200	--	--	--	<10	--	280	--	<1.0
JUL													
09...	3.7	--	--	--	<200	--	--	--	<10	--	90	--	<1.0
SEP													
09...	4.3	--	--	--	<200	--	--	--	<10	--	270	--	<1.0
01532950 Wyalusing Creek near Wyalusing, PA (LAT 41 41 49N LONG 076 13 52W)													
NOV 2002													
06...	1.8	--	--	--	<200	--	--	--	<10	--	50	--	<1.0
JAN 2003													
06...	2.0	--	--	--	300	--	--	--	<10	--	430	--	<1.0
MAR													
03...	1.4	--	--	--	<200	--	--	--	<10	--	200	--	<1.0
MAY													
05...	2.3	--	--	--	<200	--	--	--	<10	--	180	--	<1.0
JUL													
07...	2.2	--	--	--	<200	--	--	--	<10	--	60	--	<1.0
SEP													
08...	3.1	--	--	--	<200	--	--	--	<10	--	290	--	<1.0

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MISCELLANEOUS STATION ANALYSES

Date	Mangan-ese, water, fltrd, µg/L (01056)	Mangan-ese, water, unfltrd recover-able, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)	Phen-olic com-pounds, water, unfltrd µg/L (32730)
01503000 Susquehanna River at Conklin, NY (LAT 42 02 07N LONG 075 48 12W)							
NOV 2002							
06...	--	20	--	<50	--	<10	--
JAN 2003							
06...	--	20	--	<50	--	<10	--
MAY							
05...	--	40	--	<50	--	<10	--
JUL							
07...	--	80	--	<50	--	10	--
SEP							
08...	--	40	--	<50	--	100	--
01531000 Chemung River at Chemung, NY (LAT 42 00 08N LONG 076 38 06W)							
NOV 2002							
05...	--	<10	--	<50	--	<10	--
JAN 2003							
08...	--	40	--	<50	--	<10	--
MAY							
07...	--	20	--	<50	--	90	--
JUL							
09...	--	60	--	<50	--	<10	--
SEP							
09...	--	60	--	<50	--	20	--
01531490 Sugar Creek near Towanda, PA (LAT 41 47 27N LONG 076 27 45W)							
NOV 2002							
05...	--	<10	--	<50	--	<10	--
JAN 2003							
08...	--	20	--	<50	--	<10	--
MAR							
05...	--	20	--	<50	--	<10	--
MAY							
07...	--	20	--	<50	--	50	--
JUL							
09...	--	20	--	<50	--	10	--
SEP							
09...	--	20	--	<50	--	<10	--
01532950 Wyalusing Creek near Wyalusing, PA (LAT 41 41 49N LONG 076 13 52W)							
NOV 2002							
06...	--	<10	--	<50	--	<10	--
JAN 2003							
06...	--	30	--	<50	--	<10	--
MAR							
03...	--	20	--	<50	--	<10	--
MAY							
05...	--	20	--	<50	--	<10	--
JUL							
07...	--	10	--	<50	--	<10	--
SEP							
08...	--	20	--	<50	--	50	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conduct-ance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)
01533610 Unnamed Tributary to Tunkhannock Creek at Gelatt, PA (LAT 41 48 30N LONG 075 34 50W)													
OCT 2002													
08...	1000	1028	9813	1.1	30	11.6	8.2	137	10.1	58	--	19.6	--
NOV													
21...	1030	1028	9813	23	30	12.9	7.5	80	5.0	27	--	9.0	--
DEC													
10...	1030	1028	9813	--	30	--	8.1	84	.0	35	--	11.6	--
JAN 2003													
07...	0930	1028	9813	25	30	14.4	7.6	78	.3	23	--	7.6	--
APR													
08...	0930	1028	9813	23	30	13.4	7.5	69	2.0	27	--	8.9	--
MAY													
06...	0900	1028	9813	18	30	12.2	7.6	76	8.0	29	--	9.7	--
JUN													
10...	0930	1028	9813	15	30	10.3	7.1	75	11.8	30	--	10.3	--
JUL													
08...	0830	1028	9813	3.4	30	8.9	7.6	104	16.3	41	--	14.0	--
AUG													
11...	1000	1028	9813	19	30	9.4	7.5	97	17.1	40	--	13.5	--
SEP													
11...	1215	1028	9813	9.1	30	10.2	7.4	91	13.9	32	--	11.0	--
01534090 Susquehanna River at Falls, PA (LAT 41 27 42N LONG 075 51 15W)													
NOV 2002													
19...	1210	1028	9813	33000	40	11.3	7.4	187	5.5	61	--	18.9	--
JAN 2003													
22...	1140	1028	9813	E7950	40	15.4	7.1	277	.1	96	--	29.5	--
MAR													
18...	1630	1028	9813	67500	40	11.7	7.7	164	2.1	62	--	17.3	--
MAY													
27...	1640	1028	9813	15000	40	10.6	8.3	210	16.1	77	--	23.6	--
JUL													
28...	1320	1028	9813	12600	40	8.2	7.4	192	22.4	76	--	22.9	--
SEP													
17...	1330	1028	9813	7250	40	9.6	2.3	214	20.5	80	--	24.8	--
01537700 Susquehanna River near Hunlock Creek, PA (LAT 41 11 19N LONG 076 05 13W)													
NOV 2002													
18...	1340	1028	9813	31700	40	9.8	7.4	196	6.9	74	--	22.6	--
JAN 2003													
21...	1500	1028	9813	9260	40	14.3	6.9	298	.1	100	--	30.8	--
MAR													
18...	1230	1028	9813	68300	40	11.6	7.2	172	2.5	62	--	17.9	--
MAY													
28...	0900	1028	9813	15300	40	10.0	7.8	223	15.9	82	--	24.2	--
JUL													
29...	0900	1028	9813	12200	40	7.9	7.2	225	22.3	83	--	24.0	--
SEP													
17...	1700	1028	9813	8090	40	11.3	7.5	237	20.7	88	--	25.4	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Magnes-ium, water, unfltrd recover-able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, unfltrd mg/L (00951)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phos-phate, water, unfltrd mg/L as P (70507)	Phos-phorus, water, unfltrd mg/L (00665)	Total nitro-gen, water, unfltrd mg/L (00600)
01533610 Unnamed Tributary to Tunkhannock Creek at Gelatt, PA (LAT 41 48 30N LONG 075 34 50W)													
OCT 2002													
08...	2.2	46	7.4	<.2	11.3	94	2	.100	.31	<.040	<.01	<.010	.51
NOV													
21...	1.1	17	6.0	<.2	10.0	50	<2	<.020	.41	<.040	<.01	<.010	.81
DEC													
10...	1.4	22	6.4	<.2	9.9	64	<2	<.020	.48	<.040	<.01	<.010	.71
JAN 2003													
07...	.9	17	6.4	<.2	8.5	56	4	<.020	.52	<.040	.01	<.010	.55
APR													
08...	1.0	15	6.3	<.2	8.3	40	<2	<.020	.47	<.040	<.01	.013	.52
MAY													
06...	1.2	20	5.0	<.2	8.0	64	<2	<.020	.34	<.040	<.01	.011	.56
JUN													
10...	1.1	22	4.4	<.2	7.5	58	8	<.020	.25	<.040	<.01	.015	.46
JUL													
08...	1.5	31	5.6	<.2	7.8	82	<2	<.020	.34	<.040	.01	.052	.44
AUG													
11...	1.4	31	5.3	<.2	6.8	66	<2	<.020	.32	<.040	.01	.015	.47
SEP													
11...	1.2	28	4.4	<.2	7.2	90	2	<.020	.39	<.040	.01	.015	.54
01534090 Susquehanna River at Falls, PA (LAT 41 27 42N LONG 075 51 15W)													
NOV 2002													
19...	3.5	44	--	--	13.3	154	4	<.020	.57	<.040	.03	.062	1.3
JAN 2003													
22...	5.4	69	--	--	17.0	138	22	.050	1.21	<.040	.01	.018	1.4
MAR													
18...	4.6	33	--	--	11.2	80	366	.050	.82	<.040	.15	.284	1.8
MAY													
27...	4.4	61	--	--	11.7	146	16	<.020	.33	<.040	.02	.029	.62
JUL													
28...	4.5	61	--	--	10.7	98	44	<.020	.63	<.040	.06	.075	.93
SEP													
17...	4.3	66	--	--	12.6	138	18	<.020	.44	<.040	.03	.037	.74
01537700 Susquehanna River near Hunlock Creek, PA (LAT 41 11 19N LONG 076 05 13W)													
NOV 2002													
18...	4.3	48	--	--	17.6	140	56	.030	.47	<.040	.02	.093	1.4
JAN 20													
21...	6.9	65	--	--	30.5	224	6	.070	1.10	<.040	.02	.016	1.3
MAR													
18...	4.3	34	--	--	12.8	164	244	.060	.84	<.040	.08	.263	1.8
MAY													
28...	5.3	61	--	--	18.3	158	16	<.020	.35	<.040	.03	.033	.77
JUL													
29...	5.5	59	--	--	21.0	186	8	<.020	.66	<.040	.05	.066	1.0
SEP													
17...	6.1	58	--	--	28.4	178	12	<.020	.44	<.040	.02	.039	.71

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45uMF col/ 100 mL (31616)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Cadmium water, fltrd, µg/L (01025)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)
01533610 Unnamed Tributary to Tunkhannock Creek at Gelatt, PA (LAT 41 48 30N LONG 075 34 50W)													
OCT 2002													
08...	--	1.3	<20	17	27	<4.0	<.20	<4	<4	<20	20	<1.0	<1.0
NOV													
21...	--	.8	20	25	34	<4.0	<.20	<4	<4	<20	40	<1.0	<1.0
DEC													
10...	--	1.3	<20	23	29	<4.0	<.20	<4	<4	<20	120	<1.0	<1.0
JAN 2003													
07...	--	.9	<20	28	46	<4.0	<.20	<4	<4	<20	40	<1.0	<1.0
APR													
08...	--	1.2	<20	25	43	<4.0	<.20	<4	<4	<20	40	<1.0	<1.0
MAY													
06...	--	1.1	<20	22	47	<4.0	<.20	<4	<4	<20	40	<1.0	<1.0
JUN													
10...	--	1.0	<20	<10	33	<4.0	<.20	<4	<4	<20	60	<1.0	<1.0
JUL													
08...	--	.9	<20	<10	10	<4.0	<.20	<4	<4	<20	20	<1.0	<1.0
AUG													
11...	--	.8	40	<10	26	<4.0	<.20	<4	<4	<20	50	<1.0	<1.0
SEP													
11...	--	.5	40	<10	13	<4.0	<.20	<4	<4	<20	20	<1.0	<1.0
01534090 Susquehanna River at Falls, PA (LAT 41 27 42N LONG 075 51 15W)													
NOV 2002													
19...	4.2	--	--	--	800	--	--	--	<10	--	1240	--	1.4
JAN 2003													
22...	2.6	--	--	--	<200	--	--	--	<10	--	170	--	<1.0
MAR													
18...	4.2	--	--	--	6600	--	--	--	<10	--	11100	--	5.8
MAY													
27...	3.3	--	--	--	300	--	--	--	<10	--	560	--	<1.0
JUL													
28...	4.5	--	--	--	1700	--	--	--	<10	--	1860	--	1.5
SEP													
17...	3.7	--	--	--	300	--	--	--	<10	--	380	--	<1.0
01537700 Susquehanna River near Hunlock Creek, PA (LAT 41 11 19N LONG 076 05 13W)													
NOV 2002													
18...	3.2	--	--	--	800	--	--	--	<10	--	2390	--	2.2
JAN 2003													
21...	1.9	--	--	--	<200	--	--	--	<10	--	860	--	<1.0
MAR													
18...	3.9	--	--	--	4200	--	--	--	<10	--	7720	--	7.9
MAY													
28...	3.0	--	--	--	400	--	--	--	<10	--	960	--	<1.0
JUL													
29...	4.1	--	--	--	1200	--	--	--	<10	--	2400	--	1.5
SEP													
17...	3.2	--	--	--	300	--	--	--	<10	--	1050	--	<1.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)	Phenolic compounds, water, unfltrd µg/L (32730)
01533610 Unnamed Tributary to Tunkhannock Creek at Gelatt, PA (LAT 41 48 30N LONG 075 34 50W)							
OCT 2002							
8...	4.7	8.5	<4.0	<4.0	<5.0	<5.0	<5
NOV							
21...	<2.0	4.2	<4.0	<4.0	<5.0	<5.0	<5
DEC							
10...	2.9	3.8	<4.0	<4.0	<5.0	<5.0	<5
JAN 2003							
07...	<2.0	4.7	<4.0	<4.0	<5.0	<5.0	<5
APR							
08...	2.0	4.9	<4.0	<4.0	<5.0	<5.0	<5
MAY							
06...	<2.0	7.8	<4.0	<4.0	<5.0	<5.0	<5
JUN							
10...	<2.0	9.5	<4.0	<4.0	<5.0	<5.0	--
JUL							
08...	2.5	4.5	<4.0	<4.0	<5.0	<5.0	<5
AUG							
11...	2.5	7.7	<4.0	<4.0	<5.0	<5.0	<5
SEP							
11...	2.0	4.5	<4.0	<4.0	<5.0	<5.0	<5
01534090 Susquehanna River at Falls, PA (LAT 41 27 42N LONG 075 51 15W)							
NOV 2002							
19...	--	70	--	<50	--	<10	--
JAN 2003							
22...	--	20	--	<50	--	80	--
MAR							
18...	--	490	--	<50	--	50	--
MAY							
27...	--	50	--	<50	--	<10	--
JUL							
28...	--	80	--	<50	--	<10	--
SEP							
17...	--	30	--	<50	--	100	--
01537700 Susquehanna River near Hunlock Creek, PA (LAT 41 11 19N LONG 076 05 13W)							
NOV 2002							
18...	--	200	--	<50	--	<10	--
JAN 2003							
21...	--	150	--	<50	--	<10	--
MAR							
18...	--	440	--	<50	--	60	--
MAY							
28...	--	100	--	<50	--	60	--
JUL							
29...	--	140	--	<50	--	<10	--
SEP							
17...	--	140	--	<50	--	10	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)
01538600 Nescopeck Creek at Nescopeck, PA (LAT 41 02 49N LONG 076 13 17W)													
NOV 2002													
18...	1130	1028	9813	971	40	10.5	5.8	197	6.8	64	--	12.0	--
JAN 2003													
21...	1300	1028	9813	264	40	14.6	5.0	351	.1	100	--	20.0	--
MAR													
18...	1030	1028	9813	1650	40	11.4	5.4	214	5.0	51	--	9.6	--
MAY													
28...	1110	1028	9813	299	40	10.9	5.4	234	13.3	74	--	11.6	--
JUL													
29...	1130	1028	9813	152	40	10.7	5.5	413	18.6	140	--	19.4	--
SEP													
17...	1800	1028	9813	221	40	6.4	5.2	268	17.1	100	--	15.0	--
01539350 Little Fishing Creek above Wolfhouse Run near Millville PA (LAT 41 09 58N LONG 076 30 14W)													
OCT 2002													
17...	1200	1028	9813	--	30	10.1	6.7	56	10.9	20	4.92	5.1	1.66
NOV													
20...	1130	1028	9813	76	30	11.9	7.2	54	6.7	19	4.78	4.9	1.64
JAN 2003													
13...	1440	1028	9813	31	30	14.8	7.0	59	.1	21	5.23	5.4	1.84
FEB													
27...	1230	1028	9813	37	30	15.1	6.3	54	.1	18	4.43	4.6	1.44
MAR													
18...	1045	1028	9813	217	30	12.7	6.9	51	4.0	18	4.49	4.7	1.47
APR													
22...	1250	1028	9813	43	30	11.5	6.3	54	10.1	21	5.20	5.3	1.74
MAY													
20...	1400	1028	9813	18	30	9.8	7.3	54	14.1	19	4.69	4.8	1.62
JUN													
18...	1450	1028	9813	36	30	9.2	--	63	13.4	22	5.67	5.7	1.84
JUL													
16...	1100	1028	9813	12	30	8.3	7.5	71	19.2	23	6.27	6.3	1.80
AUG													
06...	1130	1028	9813	40	30	9.5	7.1	73	17.2	26	7.09	7.2	1.92
SEP													
29...	1030	1028	9813	31	30	10.1	6.7	60	12.4	20	5.34	5.4	1.69
015400021 Fishing Creek near Bloomsburg, PA (LAT 40 59 37N LONG 076 28 33W)													
NOV 2002													
20...	1400	1028	9813	1310	30	9.7	7.5	109	8.0	40	10.4	10.4	3.29
JAN 2003													
13...	1130	1028	9813	532	30	11.7	7.9	153	1.5	55	14.9	14.6	4.48
MAR													
18...	1300	1028	9813	3160	30	10.7	7.6	94	6.9	33	8.27	8.7	2.55
MAY													
19...	1135	1028	9813	267	30	9.5	7.9	186	15.2	57	14.1	14.3	5.08
JUL													
16...	1330	1028	9813	214	30	8.0	8.2	211	22.0	69	19.2	19.2	5.17
SEP													
23...	1500	1028	9813	5350	30	10.7	6.5	65	17.0	27	6.30	7.3	1.54

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Magnes-ium, water, unfltrd recover-able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, unfltrd mg/L (00951)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phos-phate, water, unfltrd mg/L as P (70507)	Phos-phorus, water, unfltrd mg/L (00665)	Total nitro-gen, water, unfltrd mg/L (00600)
01538600 Nescopeck Creek at Nescopeck, PA (LAT 41 02 49N LONG 076 13 17W)													
NOV 2002													
18...	8.1	4	--	--	51.4	146	44	.040	1.38	<.040	.03	.138	2.7
JAN 2003													
21...	20.0	2	--	--	110	200	8	.370	1.00	<.040	.02	.032	1.5
MAR													
18...	6.7	3	--	--	44.6	76	86	.040	.67	<.040	<.01	.133	1.2
MAY													
28...	10.9	4	--	--	67.7	190	6	.070	.75	<.040	.02	.056	1.1
JUL													
29...	23.3	2	--	--	144	396	10	.080	1.33	<.040	.01	.030	1.6
SEP													
17...	15.6	2	--	--	94.3	260	12	<.020	.74	<.040	.01	.038	.88
01539350 Little Fishing Creek above Wolfhouse Run near Millville PA (LAT 41 09 58N LONG 076 30 14W)													
OCT 2002													
17...	1.7	9	2.6	<.2	8.1	50	<2	.120	1.15	<.040	.01	.012	1.5
NOV													
20...	1.7	10	3.1	<.2	8.2	28	6	<.020	1.07	<.040	<.01	<.010	1.6
JAN 2003													
13...	1.9	10	4.1	<.2	7.9	46	4	<.020	1.24	<.040	<.01	<.010	1.3
FEB													
27...	1.5	8	3.3	<.2	7.5	62	<2	<.020	.94	<.040	.01	<.010	1.1
MAR													
18...	1.6	8	3.0	<.2	7.8	628	46	<.020	.90	<.040	<.01	.023	1.1
APR													
22...	1.8	11	3.8	<.2	6.8	58	<2	<.020	.73	<.040	.01	.012	.95
MAY													
20...	1.7	14	3.3	<.2	6.1	56	<2	<.020	.43	<.040	.01	<.010	.55
JUN													
18...	1.9	15	4.4	<.2	6.4	62	4	<.020	.72	<.040	.01	.013	.78
JUL													
16...	1.8	17	4.6	<.2	5.6	112	14	<.020	.87	<.040	.01	.012	1.0
AUG													
06...	2.0	19	.7	<.2	6.9	54	4	<.020	.70	<.040	.01	.016	.81
SEP													
29...	1.7	14	3.2	<.2	6.4	36	2	<.020	.83	<.040	<.01	<.010	.72
015400021 Fishing Creek near Bloomsburg, PA (LAT 40 59 37N LONG 076 28 33W)													
NOV 2002													
20...	3.3	20	--	--	12.5	82	2	<.020	2.16	<.040	<.01	<.010	2.7
JAN 2003													
13...	4.5	25	--	--	13.8	128	<2	<.020	2.68	<.040	<.01	<.010	2.8
MAR													
18...	2.8	14	--	--	11.1	42	44	<.020	1.36	<.040	<.01	.035	1.8
MAY													
19...	5.1	41	--	--	14.4	120	<2	<.020	1.18	<.040	.01	.016	1.4
JUL													
16...	5.2	46	--	--	13.5	152	4	<.020	1.63	<.040	.01	.013	1.8
SEP													
23...	2.2	14	--	--	6.8	76	166	<.020	.96	<.040	.03	.148	1.6

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45uMF col/ 100 mL (31616)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Cadmium water, fltrd, µg/L (01025)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)
01538600 Nescopeck Creek at Nescopeck, PA (LAT 41 02 49N LONG 076 13 17W)													
NOV 2002													
18...	3.8	--	--	--	2400	--	--	--	<10	--	2150	--	2.6
JAN 2003													
21...	1.0	--	--	--	3000	--	--	--	10	--	700	--	1.2
MAR													
18...	2.5	--	--	--	3800	--	--	--	20	--	4270	--	4.7
MAY													
28...	1.9	--	--	--	1500	--	--	--	<10	--	620	--	1.1
JUL													
29...	1.4	--	--	--	2100	--	--	--	10	--	340	--	1.2
SEP													
17...	1.8	--	--	--	1500	--	--	--	<10	--	490	--	<1.0
01539350 Little Fishing Creek above Wolfhouse Run near Millville PA (LAT 41 09 58N LONG 076 30 14W)													
OCT 2002													
17...	--	1.6	300	40	100	<4.0	<.20	<4	<4	20	300	<1.0	<1.0
NOV													
20...	--	1.3	40	32	75	<4.0	<.20	<4	<4	20	70	<1.0	<1.0
JAN 2003													
13...	--	<.2	40	24	56	<4.0	<.20	<4	<4	30	80	<1.0	<1.0
FEB													
27...	--	.9	30	32	80	<4.0	<.20	<4	<4	<20	80	<1.0	<1.0
MAR													
18...	--	1.1	70	37	500	<4.0	<.20	<4	<4	20	830	<1.0	<1.0
APR													
22...	--	1.5	60	25	95	<4.0	<.20	<4	<4	30	170	<1.0	<1.0
MAY													
20...	--	1.0	10	12	24	<4.0	<.20	<4	<4	30	80	<1.0	<1.0
JUN													
18...	--	1.1	140	17	100	<4.0	<.20	<4	<4	50	240	<1.0	<1.0
JUL													
16...	--	.6	110	17	51	<4.0	<.20	<4	<4	30	130	<1.0	<1.0
AUG													
06...	--	1.1	300	39	100	<4.0	<.20	<4	<4	50	260	<1.0	<1.0
SEP													
29...	--	.4	40	13	31	<4.0	<.20	<4	<4	50	100	<1.0	<1.0
015400021 Fishing Creek near Bloomsburg, PA (LAT 40 59 37N LONG 076 28 33W)													
NOV 2002													
20...	--	1.2	--	32	81	--	--	<4	<4	<20	110	<1.0	<1.0
JAN 2003													
13...	--	<.2	--	21	54	--	--	<4	<4	30	80	<1.0	<1.0
MAR													
18...	--	1.6	--	33	700	--	--	<4	<4	20	1270	<1.0	1.1
MAY													
19...	--	1.7	--	11	36	--	--	<4	<4	20	80	<1.0	<1.0
JUL													
16...	--	.8	--	14	38	--	--	<4	<4	20	100	<1.0	<1.0
SEP													
23...	--	2.4	--	66	1700	--	--	<4	5	140	4890	<1.0	4.8

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recover able, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover able, µg/L (01092)	Phenolic compounds, water, unfltrd µg/L (32730)
01538600 Nescopeck Creek at Nescopeck, PA (LAT 41 02 49N LONG 076 13 17W)							
NOV 2002							
18...	--	600	--	<50	--	80	--
JAN 2003							
21...	--	1000	--	72	--	200	--
MAR							
18...	--	640	--	<50	--	120	--
MAY							
28...	--	820	--	<50	--	200	--
JUL							
29...	--	1690	--	77	--	270	--
SEP							
17...	--	1090	--	<50	--	180	--
01539350 Little Fishing Creek above Wolfhouse Run near Millville PA (LAT 41 09 58N LONG 076 30 14W)							
OCT 2002							
17...	8.6	20	<4.0	<4.0	<5.0	<5.0	<5
NOV							
20...	5.2	8.3	--	<4.0	<5.0	<5.0	<5
JAN 2003							
13...	6.6	8.3	<4.0	<4.0	<5.0	<5.0	<5
FEB							
27...	8.3	10	<4.0	<4.0	<5.0	<5.0	<5
MAR							
18...	20	40	<4.0	<4.0	<5.0	5.3	<5
APR							
22...	5.1	8.0	<4.0	<4.0	<5.0	<5.0	<5
MAY							
20...	4.6	6.1	<4.0	<4.0	<5.0	<5.0	<5
JUN							
18...	10	20	<4.0	<4.0	<5.0	<5.0	<5
JUL							
16...	6.3	9.1	<4.0	<4.0	<5.0	<5.0	6
AUG							
06...	7.5	20	<4.0	<4.0	<5.0	<5.0	<5
SEP							
29...	8.3	10	<4.0	<4.0	<5.0	<5.0	<5
015400021 Fishing Creek near Bloomsburg, PA (LAT 40 59 37N LONG 076 28 33W)							
NOV 2002							
20...	7.5	10	<4.0	<4.0	<5.0	<5.0	--
JAN 2003							
13...	9.9	10	<4.0	<4.0	<5.0	<5.0	--
MAR							
18...	20	60	<4.0	<4.0	<5.0	5.1	--
MAY							
19...	9.6	10	<4.0	<4.0	<5.0	<5.0	--
JUL							
16...	6.4	8.8	<4.0	<4.0	<5.0	<5.0	--
SEP							
23...	20	240	<4.0	4.9	<5.0	20	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conduct-ance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)
		01542790 Bennett Branch Sinnemahoning Creek at Driftwood, PA (LAT 41 20 02N LONG 078 08 10W)											
NOV 2002													
07...	1300	1028	9813	321	30	12.8	6.5	178	6.1	68	--	16.3	--
JAN 2003													
13...	1045	1028	9813	459	30	14.4	6.1	116	.0	45	--	11.1	--
MAY													
12...	1130	1028	9813	1230	30	10.2	7.0	76	12.6	32	--	7.8	--
JUL													
14...	0930	1028	9813	99	30	8.9	5.6	198	19.7	57	--	12.9	--
SEP													
15...	1530	1028	9813	214	30	9.1	7.2	142	20.8	51	--	11.9	--
		01547400 Bald Eagle Creek near Milesburg, PA (LAT 40 58 31N LONG 077 44 35W)											
NOV 2002													
06...	1140	1028	9813	799	30	10.6	8.0	300	7.4	110	--	29.1	--
JAN 2003													
08...	1300	1028	9813	564	30	12.9	7.9	389	4.8	180	--	47.2	--
MAR													
12...	1310	1028	9813	458	30	14.2	7.5	367	4.7	140	--	37.1	--
MAY													
28...	0800	1028	9813	582	30	9.6	7.8	299	12.5	110	--	29.2	--
JUL													
23...	1415	1028	9813	355	30	9.7	8.3	383	18.5	180	--	46.2	--
SEP													
17...	1230	1028	9813	422	30	10.8	8.3	354	14.7	160	--	41.4	--
		01547980 Beech Creek at Beech Creek, PA (LAT 41 04 29N LONG 077 35 30W)											
NOV 2002													
06...	1310	1028	9813	162	30	11.1	5.3	280	5.8	100	--	22.7	--
JAN 2003													
08...	1420	1028	9813	427	30	12.6	4.7	139	3.9	48	--	9.7	--
MAR													
13...	1500	1028	9813	358	30	12.8	7.0	135	1.8	60	--	14.6	--
MAY													
28...	0915	1028	9813	569	30	10.1	4.9	117	11.6	38	--	7.7	--
JUL													
23...	1520	1028	9813	109	30	7.6	4.4	286	21.2	120	--	22.9	--
SEP													
17...	1345	1028	9813	271	30	9.5	5.3	150	14.6	50	--	9.8	--
		01548075 Fishing Creek near Cedar Springs, PA (LAT 41 04 31N LONG 077 28 40W)											
NOV 2002													
07...	1110	1028	9813	85	30	10.7	8.1	280	8.2	140	--	38.4	--
JAN 2003													
09...	0930	1028	9813	313	30	11.7	7.4	240	5.7	97	--	25.5	--
MAR													
13...	1200	1028	9813	159	30	11.1	7.8	281	5.0	130	--	34.8	--
MAY													
28...	1200	1028	9813	145	30	11.3	8.1	233	12.1	100	--	27.9	--
JUL													
24...	0945	1028	9813	77	30	9.7	7.7	313	14.6	140	--	38.8	--
SEP													
24...	1000	1028	9813	1170	30	10.3	7.4	177	12.6	73	--	20.9	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Magnes-ium, water, unfltrd recover-able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, unfltrd mg/L (00951)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phos-phate, water, unfltrd mg/L as P (70507)	Phos-phorus, water, unfltrd mg/L (00665)	Total nitro-gen, water, unfltrd mg/L (00600)
		01542790 Bennett Branch Sinnemahoning Creek at Driftwood, PA (LAT 41 20 02N LONG 078 08 10W)											
NOV 2002													
07...	6.6	3	--	--	64.4	152	8	<.020	.14	<.040	<.01	<.010	.31
JAN 2003													
13...	4.1	3	--	--	44.1	76	6	<.020	.18	<.040	<.01	<.010	.13
MAY													
12...	3.1	5	--	--	28.7	82	10	<.020	.08	<.040	<.01	<.010	.15
JUL													
14...	6.0	2	--	--	66.7	168	4	<.020	.10	<.040	<.01	<.010	.09
SEP													
15...	5.2	7	--	--	48.2	92	6	<.020	.05	<.040	<.01	<.010	.12
		01547400 Bald Eagle Creek near Milesburg, PA (LAT 40 58 31N LONG 077 44 35W)											
NOV 2002													
06...	9.1	82	--	--	28.5	222	36	<.020	1.88	<.040	.03	.040	2.6
JAN 2003													
08...	15.3	114	--	--	30.7	282	4	<.020	2.40	<.040	.01	.022	2.6
MAR													
12...	12.1	102	--	--	21.8	230	<2	<.020	1.99	<.040	.01	.019	2.2
MAY													
28...	9.8	85	--	--	19.4	192	8	<.020	1.40	<.040	.02	.029	1.6
JUL													
23...	16.1	132	--	--	25.4	284	16	<.020	2.38	<.040	.05	.048	2.6
SEP													
17...	13.7	122	--	--	22.2	244	<2	<.020	2.12	<.040	.02	.030	2.5
		01547980 Beech Creek at Beech Creek, PA (LAT 41 04 29N LONG 077 35 30W)											
NOV 2002													
06...	10.5	1	--	--	118	220	8	<.020	.36	<.040	<.01	<.010	.54
JAN 2003													
08...	5.8	2	--	--	53.4	126	2	<.020	.29	<.040	<.01	<.010	.26
MAR													
13...	5.6	14	--	--	32.3	120	<2	.170	.60	<.040	.34	.314	2.0
MAY													
28...	4.5	3	--	--	43.4	80	2	<.020	.14	<.040	.01	.021	.17
JUL													
23...	15.2	0	--	--	143	278	<2	<.020	.21	<.040	<.01	.025	.21
SEP													
17...	6.1	2	--	--	57.5	62	2	<.020	.13	<.040	<.01	.016	.23
		01548075 Fishing Creek near Cedar Springs, PA (LAT 41 04 31N LONG 077 28 40W)											
NOV 2002													
07...	10.3	104	--	--	16.9	208	6	.290	2.26	<.040	.01	.012	2.8
JAN 2003													
09...	8.2	79	--	--	13.4	166	<2	<.020	2.19	<.040	<.01	.016	2.4
MAR													
13...	10	91	--	--	13.1	210	38	.200	2.25	<.040	.09	.143	3.0
MAY													
28...	8.1	82	--	--	12.3	148	<2	<.020	1.54	<.040	.02	.024	1.7
JUL													
24...	11.2	116	--	--	14.5	210	12	<.020	2.48	<.040	.02	.018	2.7
SEP													
24...	5.0	60	--	--	10.3	148	34	<.020	1.46	<.040	.04	.059	1.7

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45uMF col/ 100 mL (31616)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Cadmium water, fltrd, µg/L (01025)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)
		01542790 Bennett Branch Sinnemahoning Creek at Driftwood, PA (LAT 41 20 02N LONG 078 08 10W)											
NOV 2002													
07...	1.4	--	--	--	800	--	--	--	<10	--	650	--	<1.0
JAN 2003													
13...	.8	--	--	--	500	--	--	--	<10	--	610	--	<1.0
MAY													
12...	1.1	--	--	--	300	--	--	--	<10	--	290	--	<1.0
JUL													
14...	.8	--	--	--	<200	--	--	--	<10	--	20	--	<1.0
SEP													
15...	.9	--	--	--	<200	--	--	--	<10	--	20	--	<1.0
		01547400 Bald Eagle Creek near Milesburg, PA (LAT 40 58 31N LONG 077 44 35W)											
NOV 2002													
06...	3.0	--	--	--	600	--	--	--	<10	--	830	--	1.6
JAN 2003													
08...	1.3	--	--	--	<200	--	--	--	<10	--	110	--	<1.0
MAR													
12...	1.7	--	--	--	<200	--	--	--	<10	--	110	--	<1.0
MAY													
28...	1.8	--	--	--	400	--	--	--	<10	--	500	--	<1.0
JUL													
23...	2.8	--	--	--	500	--	--	--	<10	--	570	--	1.2
SEP													
17...	2.2	--	--	--	<200	--	--	--	10	--	200	--	<1.0
		01547980 Beech Creek at Beech Creek, PA (LAT 41 04 29N LONG 077 35 30W)											
NOV 2002													
06...	1.4	--	--	--	1300	--	--	--	<10	--	310	--	<1.0
JAN 2003													
08...	.7	--	--	--	1100	--	--	--	<10	--	420	--	<1.0
MAR													
13...	7.3	--	--	--	7200	--	--	--	<10	--	10300	--	6.2
MAY													
28...	1.1	--	--	--	800	--	--	--	<10	--	520	--	<1.0
JUL													
23...	1.0	--	--	--	2000	--	--	--	<10	--	240	--	1.2
SEP													
17...	1.2	--	--	--	800	--	--	--	10	--	270	--	<1.0
		01548075 Fishing Creek near Cedar Springs, PA (LAT 41 04 31N LONG 077 28 40W)											
NOV 2002													
07...	1.6	--	--	--	<200	--	--	--	<10	--	100	--	<1.0
JAN 2003													
09...	1.4	--	--	--	<200	--	--	--	<10	--	160	--	<1.0
MAR													
13...	4.4	--	--	--	1100	--	--	--	<10	--	1030	--	1.0
MAY													
28...	1.3	--	--	--	<200	--	--	--	<10	--	160	--	<1.0
JUL													
24...	1.4	--	--	--	<200	--	--	--	<10	--	110	--	<1.0
SEP													
24...	4.1	--	--	--	900	--	--	--	<10	--	1010	--	<1.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Mangan-ese, water, fltrd, µg/L (01056)	Mangan-ese, water, unfltrd recover-able, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)	Phen-olic com-pounds, water, unfltrd µg/L (32730)
01542790 Bennett Branch Sinnemahoning Creek at Driftwood, PA (LAT 41 20 02N LONG 078 08 10W)							
NOV 2002							
07...	--	520	--	<50	--	30	--
JAN 2003							
13...	--	290	--	<50	--	30	--
MAY							
12...	--	170	--	<50	--	20	--
JUL							
14...	--	380	--	<50	--	70	--
SEP							
15...	--	240	--	<50	--	10	--
01547400 Bald Eagle Creek near Milesburg, PA (LAT 40 58 31N LONG 077 44 35W)							
NOV 2002							
06...	--	40	--	<50	--	10	--
JAN 2003							
08...	--	<10	--	<50	--	<10	--
MAR							
12...	--	<10	--	<50	--	<10	--
MAY							
28...	--	30	--	<50	--	30	--
JUL							
23...	--	20	--	<50	--	10	--
SEP							
17...	--	10	--	<50	--	150	--
01547980 Beech Creek at Beech Creek, PA (LAT 41 04 29N LONG 077 35 30W)							
NOV 2002							
06...	--	2620	--	58	--	100	--
JAN 2003							
08...	--	1080	--	<50	--	30	--
MAR							
13...	--	990	--	<50	--	80	--
MAY							
28...	--	880	--	<50	--	80	--
JUL							
23...	--	2940	--	72	--	130	--
SEP							
17...	--	1220	--	<50	--	110	--
01548075 Fishing Creek near Cedar Springs, PA (LAT 41 04 31N LONG 077 28 40W)							
NOV 2002							
07...	--	<10	--	<50	--	<10	--
JAN 2003							
09...	--	10	--	<50	--	<10	--
MAR							
13...	--	40	--	<50	--	40	--
MAY							
28...	--	10	--	<50	--	<10	--
JUL							
24...	--	<10	--	<50	--	160	--
SEP							
24...	--	40	--	<50	--	<10	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)
01548085 Bald Eagle Creek at Castanea, PA (LAT 41 07 29N LONG 077 26 09W)													
NOV 2002													
07...	0900	1028	9813	1030	30	10.7	7.3	326	7.7	150	--	34.9	--
JAN 2003													
09...	0810	1028	9813	1550	30	12.5	6.9	216	3.8	82	--	20.8	--
MAR													
13...	1325	1028	9813	1880	30	12.5	7.5	286	3.2	120	--	30.3	--
MAY													
28...	1100	1028	9813	1600	30	10.3	7.5	207	13.3	85	--	21.3	--
JUL													
24...	0810	1028	9813	593	30	7.8	7.7	350	20.7	150	--	37.4	--
SEP													
24...	0830	1028	9813	4100	30	10.1	7.8	--	15.9	87	--	22.5	--
01549590 Little Pine Creek below Reservoir near Waterville, PA (LAT 41 21 12N LONG 077 21 20W)													
NOV 2002													
07...	0945	1028	9813	135	30	13.4	7.5	115	5.8	42	12.1	11.0	3.51
JAN 2003													
15...	0930	1028	9813	216	30	15.6	7.2	93	.5	35	9.18	9.2	2.95
MAR													
12...	1600	1028	9813	164	30	15.9	6.7	221	.5	38	9.71	10.2	2.92
MAY													
14...	0930	1028	9813	99	30	10.6	7.3	116	12.5	44	10.4	10.8	3.90
JUL													
17...	0830	1028	9813	49	30	8.2	7.3	132	22.4	48	12.3	12.6	3.98
SEP													
17...	0915	1028	9813	220	30	10	7.3	99	16.8	37	9.70	10.0	2.91
01553005 Muncy Creek near Muncy, PA (LAT 41 12 27N LONG 076 45 09W)													
NOV 2002													
13...	0915	1028	9813	697	30	11.6	7.5	96	8.9	36	10.9	11.0	2.11
MAY 2003													
08...	1000	1028	9813	159	30	10.1	7.4	86	13.9	39	11.6	12.1	2.02
JUL													
24...	0745	1028	9813	187	30	8.3	7.1	113	19.8	42	12.6	12.9	2.31
SEP													
03...	1000	1028	9813	860	30	9.5	7.3	98	16.3	31	10.0	9.6	1.77
01553430 Spruce Run above Spruce Run Reservoir near Mazeppa, PA (LAT 41 01 27N LONG 077 03 54W)													
OCT 2002													
17...	0830	1028	9813	16	30	9.3	6.1	26	10.8	10	2.22	2.2	.99
NOV													
07...	1400	1028	9813	11	30	9.7	6.7	21	7.0	8	1.58	1.6	.87
JAN 2003													
09...	1415	1028	9813	20	30	11.2	6.2	18	5.8	7	1.42	1.4	.80
MAR													
25...	1315	1028	9813	54	30	11.5	5.8	18	7.7	6	1.29	1.4	.60
APR													
24...	1445	1028	9813	14	30	10.2	6.5	17	8.8	6	1.19	1.2	.66
MAY													
29...	1300	1028	9813	21	30	10.3	6.0	21	10.3	7	1.4	1	.82
JUN													
18...	1130	1028	9813	23	30	9.5	5.0	19	11.3	8	1.71	1.8	.88
JUL													
24...	1200	1028	9813	5.7	30	9.4	5.7	20	14.6	7	1.47	1.5	.84
AUG													
06...	0900	1028	9813	19	30	9.2	5.7	21	14.6	8	1.82	1.8	.80
SEP													
24...	1230	1028	9813	55	30	11.1	5.8	20	12.1	6	1.32	1.4	.69

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Magnes-ium, water, unfltrd recover-able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, unfltrd mg/L (00951)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phos-phate, water, unfltrd mg/L as P (70507)	Phos-phorus, water, unfltrd mg/L (00665)	Total nitro-gen, water, unfltrd mg/L (00600)
01548085 Bald Eagle Creek at Castanea, PA (LAT 41 07 29N LONG 077 26 09W)													
NOV 2002													
07...	14.8	90	--	--	45.0	248	14	.200	1.08	<.040	<.01	.015	1.6
JAN 2003													
09...	7.3	48	--	--	29.1	192	<2	<.020	1.29	<.040	.01	.016	1.4
MAR													
13...	9.7	69	--	--	26.8	416	10	.090	1.46	<.040	.04	.040	1.9
MAY													
28...	7.7	55	--	--	27.2	138	16	<.020	.79	<.040	.02	.022	1.1
JUL													
24...	13.1	98	--	--	43.2	282	6	<.020	1.56	<.040	.01	.018	2.0
SEP													
24...	7.5	62	--	--	21.4	174	12	<.020	.84	<.040	.02	.051	1.2
01549590 Little Pine Creek below Reservoir near Waterville, PA (LAT 41 21 12N LONG 077 21 20W)													
NOV 2002													
07...	3.5	17	--	--	23.7	84	<2	.630	.46	<.040	<.01	<.010	.68
JAN 2003													
15...	2.9	10	--	--	19.9	70	4	<.020	.72	<.040	<.01	<.010	1.1
MAR													
12...	3.1	12	--	--	20.2	56	<2	<.020	.69	<.040	<.01	<.010	.72
MAY													
14...	4.0	16	--	--	28.1	80	<2	<.020	.22	<.040	.04	.022	.58
JUL													
17...	4.1	20	--	--	27.1	108	6	<.020	.17	<.040	.01	.012	.47
SEP													
17...	3.0	19	--	--	17.5	82	2	.020	.33	<.040	.02	.018	.60
01553005 Muncy Creek near Muncy, PA (LAT 41 12 27N LONG 076 45 09W)													
NOV 2002													
13...	2.1	20	--	--	11.0	104	<2	<.020	1.15	<.040	.01	.019	1.7
MAY 2003													
08...	2.1	23	--	--	10.0	78	<2	<.020	.97	<.040	.01	<.010	1.2
JUL													
24...	2.4	30	--	--	9.2	100	4	<.020	1.00	<.040	.01	.016	1.2
SEP													
03...	1.7	23	--	--	9.0	92	<2	<.020	.97	<.040	.02	.022	1.1
01553430 Spruce Run above Spruce Run Reservoir near Mazeppa, PA (LAT 41 01 27N LONG 077 03 54W)													
OCT 2002													
17...	1.0	5	.9	<.2	6.3	334	2	.130	<.04	<.040	<.01	<.010	.28
NOV													
07...	.9	5	1.0	<.2	5.1	40	2	.100	<.04	<.040	<.01	<.010	.18
JAN 2003													
09...	.8	4	.7	<.2	4.6	22	<2	<.020	<.04	<.040	<.01	<.010	<.06
MAR													
25...	.6	3	.6	<.2	4.7	24	<2	<.020	<.04	<.040	<.01	<.010	<.06
APR													
24...	.7	5	.5	<.2	4.0	22	6	<.020	<.04	<.040	<.01	<.010	.08
MAY													
29...	.8	6	<.5	<.2	4.2	20	<2	<.020	<.04	<.040	<.01	.011	<.06
JUN													
18...	.9	5	.5	<.2	4.1	18	<2	<.020	<.04	<.040	<.01	.011	.37
JUL													
24...	.9	5	.6	<.2	3.5	58	6	<.020	<.04	<.040	<.01	<.010	<.06
AUG													
06...	.8	6	.6	<.2	4.5	32	<2	<.020	<.04	<.040	<.01	<.010	.08
SEP													
24...	.7	3	.6	<.2	5.0	42	<2	<.020	<.04	<.040	<.01	<.010	.08

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45uMF col/ 100 mL (31616)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Cadmium water, fltrd, µg/L (01025)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)
01548085 Bald Eagle Creek at Castanea, PA (LAT 41 07 29N LONG 077 26 09W)													
NOV 2002													
07...	2.5	--	--	--	300	--	--	--	<10	--	170	--	<1.0
JAN 2003													
09...	1.6	--	--	--	500	--	--	--	<10	--	350	--	<1.0
MAR													
13...	2.9	--	--	--	700	--	--	--	<10	--	630	--	<1.0
MAY													
28...	1.8	--	--	--	700	--	--	--	<10	--	700	--	<1.0
JUL													
24...	1.8	--	--	--	300	--	--	--	<10	--	240	--	<1.0
SEP													
24...	3.2	--	--	--	700	--	--	--	<10	--	870	--	<1.0
01549590 Little Pine Creek below Reservoir near Waterville, PA (LAT 41 21 12N LONG 077 21 20W)													
NOV 2002													
07...	--	.9	--	19	42	--	--	<4	<4	<20	70	<1.0	<1.0
JAN 2003													
15...	--	1.2	--	25	40	--	--	<4	<4	<20	30	<1.0	<1.0
MAR													
12...	--	1.8	--	20	42	--	--	<4	<4	<20	30	<1.0	<1.0
MAY													
14...	--	1.4	--	<10	40	--	--	<4	<4	40	280	<1.0	<1.0
JUL													
17...	--	1.5	--	<10	47	--	--	<4	<4	60	210	<1.0	<1.0
SEP													
17...	--	1.2	--	12	100	--	--	<4	<4	30	240	<1.0	<1.0
01553005 Muncy Creek near Muncy, PA (LAT 41 12 27N LONG 076 45 09W)													
NOV 2002													
13...	--	.9	--	25	100	--	--	<4	<4	20	140	<1.0	<1.0
MAY 2003													
08...	--	1.3	--	19	37	--	--	<4	<4	<20	40	<1.0	<1.0
JUL													
24...	--	.9	--	<10	48	--	--	<4	<4	20	100	<1.0	<1.0
SEP													
03...	--	1.3	--	12	82	--	--	<4	<4	50	270	<1.0	<1.0
01553430 Spruce Run above Spruce Run Reservoir near Mazeppa, PA (LAT 41 01 27N LONG 077 03 54W)													
OCT 2002													
17...	--	1.6	<10	95	100	<4.0	<.20	<4	<4	30	60	<1.0	<1.0
NOV													
07...	--	.8	<20	45	52	<4.0	<.20	<4	<4	220	200	<1.0	<1.0
JAN 2003													
09...	--	.5	<20	44	57	<4.0	<.20	<4	<4	30	30	<1.0	<1.0
MAR													
25...	--	--	<10	64	90	<4.0	<.20	<4	<4	<20	30	<1.0	<1.0
APR													
24...	--	.9	<20	17	28	<4.0	<.20	<4	<4	<20	<20	<1.0	5.2
MAY													
29...	--	1.0	10	24	54	<4.0	<.20	<4	<4	<20	40	<1.0	<1.0
JUN													
18...	--	1.0	20	92	100	<4.0	<.20	<4	<4	40	100	<1.0	<1.0
JUL													
24...	--	.6	<10	39	56	<4.0	<.20	<4	<4	20	80	<1.0	<1.0
AUG													
06...	--	1.0	20	78	100	<4.0	<.20	<4	<4	<20	80	<1.0	<1.0
SEP													
24...	--	.9	80	73	100	<4.0	<.20	<4	<4	20	60	<1.0	<1.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Mangan-ese, water, fltrd, µg/L (01056)	Mangan-ese, water, unfltrd recover-able, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)	Phen-olic com-pounds, water, unfltrd µg/L (32730)
01548085 Bald Eagle Creek at Castanea, PA (LAT 41 07 29N LONG 077 26 09W)							
NOV 2002							
07...	--	540	--	<50	--	<10	--
JAN 2003							
09...	--	320	--	<50	--	20	--
MAR							
13...	--	300	--	<50	--	30	--
MAY							
28...	--	360	--	<50	--	40	--
JUL							
24...	--	410	--	<50	--	160	--
SEP							
24...	--	260	--	<50	--	20	--
01549590 Little Pine Creek below Reservoir near Waterville, PA (LAT 41 21 12N LONG 077 21 20W)							
NOV 2002							
07...	20	20	<4.0	<4.0	<5.0	<5.0	--
JAN 2003							
15...	40	40	4.1	4.3	6.5	6.3	--
MAR							
12...	30	40	<4.0	<4.0	<5.0	5.1	--
MAY							
14...	260	280	4.3	4.7	<5.0	<5.0	--
JUL							
17...	50	120	<4.0	<4.0	<5.0	<5.0	--
SEP							
17...	50	80	<4.0	<4.0	<5.0	<5.0	--
01553005 Muncy Creek near Muncy, PA (LAT 41 12 27N LONG 076 45 09W)							
NOV 2002							
13...	4.5	7.6	<4.0	<4.0	<5.0	<5.0	--
MAY 2003							
08...	4.9	6.9	<4.0	<4.0	<5.0	<5.0	--
JUL							
24...	3.8	6.8	--	<4.0	30	20	--
SEP							
03...	4.7	20	<4.0	<4.0	10	<5.0	--
01553430 Spruce Run above Spruce Run Reservoir near Mazeppa, PA (LAT 41 01 27N LONG 077 03 54W)							
OCT 2002							
17...	7.4	10	<4.0	<4.0	5.7	6.1	<5
NOV							
07...	2.8	4.2	<4.0	<4.0	<5.0	<5.0	<5
JAN 2003							
09...	2.1	3.4	<4.0	<4.0	<5.0	<5.0	<5
MAR							
25...	10	10	<4.0	<4.0	6.9	5.1	<5
APR							
24...	2.0	3.5	<4.0	<4.0	<5.0	<5.0	<5
MAY							
29...	2.3	8.0	<4.0	<4.0	<5.0	<5.0	<5
JUN							
18...	4.8	10	<4.0	<4.0	<5.0	<5.0	<5
JUL							
24...	2.2	7.1	<4.0	<4.0	<5.0	7.0	<5
AUG							
06...	6.6	20	<4.0	<4.0	<5.0	<5.0	<5
SEP							
24...	10	20	<4.0	<4.0	5.2	5.8	<5

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)
		01553990 Susquehanna River above Dam at Sunbury, PA (LAT 40 51 13N LONG 076 48 08W)											
NOV 2002													
21...	0900	1028	9813	47300	40	10.7	7.6	166	5.8	57	--	16.5	--
JAN 2003													
14...	0930	1028	9813	E28800	40	15.1	6.8	129	.0	75	--	20.6	--
MAR													
25...	0910	1028	9813	15500	40	12.7	6.5	117	5.1	39	--	10.4	--
MAY													
20...	1000	1028	9813	26200	40	10.5	7.7	172	14.6	71	--	18.8	--
JUL													
17...	0810	1028	9813	9020	40	7.2	8.2	285	25.4	110	--	30.7	--
SEP													
25...	1030	1028	9813	55600	40	8.3	7.1	172	17.8	60	--	16.8	--
		01554600 Penns Creek at Farmers Mills near Spring Mills, PA (LAT 40 51 57N LONG 077 36 35W)											
OCT 2002													
16...	1345	1028	9813	25	30	10.0	7.6	379	10.8	190	--	60.3	--
NOV													
05...	1730	1028	9813	18	30	9.8	7.8	415	8.2	180	--	58.6	--
JAN 2003													
08...	0820	1028	9813	57	30	11.3	6.8	307	6.3	150	--	49.5	--
FEB													
26...	1300	1028	9813	25	30	12.7	7.3	339	5.5	160	--	51.4	--
MAR													
12...	0945	1028	9813	24	30	12.6	6.8	366	6.3	160	--	52.7	--
APR													
24...	1130	1028	9813	37	30	11.3	7.8	303	9.3	140	--	46.6	--
MAY													
27...	1530	1028	9813	25	30	10.7	7.8	274	12.0	140	--	44.9	--
JUN													
17...	1520	1028	9813	35	30	10.3	7.0	301	12.2	160	--	48.9	--
JUL													
23...	1045	1028	9813	23	30	10.9	7.7	285	12.7	200	--	65.8	--
AUG													
05...	1130	1028	9813	79	30	9.9	7.3	368	13.0	180	--	59.9	--
SEP													
17...	0730	1028	9813	38	30	9.1	7.3	378	11.4	190	--	63.6	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Magnes-ium, water, unfltrd recover-able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, unfltrd mg/L (00951)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phos-phate, water, unfltrd mg/L as P (70507)	Phos-phorus, water, unfltrd mg/L (00665)	Total nitro-gen, water, unfltrd mg/L (00600)
		01553990 Susquehanna River above Dam at Sunbury, PA (LAT 40 51 13N LONG 076 48 08W)											
NOV 2002													
21...	3.9	32	--	--	20.6	128	6	.020	1.19	<.040	.02	.028	1.6
JAN 2003													
14...	5.8	36	--	--	31.1	152	6	.030	1.01	<.040	.01	.019	1.2
MAR													
25...	3.2	18	--	--	16.6	84	78	.030	.73	<.040	.06	.078	1.2
MAY													
20...	5.8	31	--	--	38.4	158	<2	<.020	.37	<.040	.02	.027	.54
JUL													
17...	8.6	49	--	--	54.0	206	8	<.020	.57	<.040	.02	.022	.85
SEP													
25...	4.3	33	--	--	22.4	64	52	<.020	.53	<.040	.04	.080	.75
		01554600 Penns Creek at Farmers Mills near Spring Mills, PA (LAT 40 51 57N LONG 077 36 35W)											
OCT 2002													
16...	8.5	144	8.4	<.2	24.3	262	2	.030	3.07	<.040	.04	.043	3.8
NOV													
05...	9.4	168	14.3	<.2	19.0	286	<2	.020	5.00	<.040	<.01	.018	5.7
JAN 2003													
08...	7.2	122	8.9	<.2	14.1	230	4	<.020	3.67	<.040	.02	.021	4.0
FEB													
26...	6.9	121	16.1	<.2	13.4	262	10	.250	3.48	.040	.10	.144	4.7
MAR													
12...	7.9	132	16.5	<.2	14.4	240	<2	.450	3.34	.110	.12	.217	5.2
APR													
24...	6.8	123	7.8	<.2	13.7	216	2	<.020	3.01	<.040	.02	.018	3.4
MAY													
27...	6.1	108	7.8	<.2	12.4	188	<2	<.020	2.30	<.040	.02	.023	2.6
JUN													
17...	7.9	126	7.7	<.2	12.2	228	8	<.020	2.88	<.040	.02	.022	3.1
JUL													
23...	9.1	164	10.7	<.2	14.7	262	4	<.020	4.14	<.040	.02	.018	4.4
AUG													
05...	7.8	145	10.4	<.2	12.7	264	16	<.020	4.78	<.040	.06	.055	5.1
SEP													
17...	7.9	156	9.4	<.2	12.5	292	8	<.020	4.39	<.040	.10	.076	4.9

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45uMF col/ 100 mL (31616)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Cadmium water, fltrd, µg/L (01025)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)
01553990 Susquehanna River above Dam at Sunbury, PA (LAT 40 51 13N LONG 076 48 08W)													
NOV 2002													
21...	3.2	--	--	--	500	--	--	--	<10	--	860	--	<1.0
JAN 2003													
14...	2.1	--	--	--	<200	--	--	--	<10	--	450	--	<1.0
MAR													
25...	2.9	--	--	--	2100	--	--	--	<10	--	3080	--	2.6
MAY													
20...	2.0	--	--	--	300	--	--	--	<10	--	430	--	<1.0
JUL													
17...	2.6	--	--	--	<200	--	--	--	<10	--	240	--	<1.0
SEP													
25...	3.9	--	--	--	1800	--	--	--	<10	--	2350	--	2.5
01554600 Penns Creek at Farmers Mills near Spring Mills, PA (LAT 40 51 57N LONG 077 36 35W)													
OCT 2002													
16...	--	1.8	2200	22	200	<4.0	<.20	<4	<4	30	400	<1.0	<1.0
NOV													
05...	--	1.3	220	22	92	<4.0	<.20	<4	<4	40	120	<1.0	<1.0
JAN 2003													
08...	--	.9	60	19	88	<4.0	<.20	<4	<4	<20	260	<1.0	<1.0
FEB													
26...	--	2.8	800	21	300	<4.0	<.20	<4	<4	30	370	<1.0	<1.0
MAR													
12...	--	4.4	<20	27	100	<4.0	<.20	<4	<4	40	240	<1.0	<1.0
APR													
24...	--	1.1	20	<10	100	<4.0	<.20	<4	<4	<20	140	<1.0	<1.0
MAY													
27...	--	1.1	320	<10	66	<4.0	<.20	<4	<4	<20	170	<1.0	<1.0
JUN													
17...	--	.8	200	<10	97	<4.0	<.20	<4	<4	30	220	<1.0	<1.0
JUL													
23...	--	1.4	650	<10	77	<4.0	<.20	<4	<4	<20	140	<1.0	<1.0
AUG													
05...	--	.8	3800	30	400	<4.0	<.20	<4	<4	30	780	<1.0	<1.0
SEP													
17...	--	1.3	39000	<10	1000	<4.0	<.20	<4	<4	30	1170	<1.0	<1.0

Date	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recover-able, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)	Phenolic compounds, water, unfltrd µg/L (32730)
01553990 Susquehanna River above Dam at Sunbury, PA (LAT 40 51 13N LONG 076 48 08W)							
NOV 2002							
21...	--	110	--	<50	--	20	--
JAN 2003							
14...	--	180	--	<50	--	<10	--
MAR							
25...	--	230	--	<50	--	20	--
MAY							
20...	--	170	--	<50	--	10	--
JUL							
17...	--	50	--	<50	--	<10	--
SEP							
25...	--	220	--	<50	--	20	--
01554600 Penns Creek at Farmers Mills near Spring Mills, PA (LAT 40 51 57N LONG 077 36 35W)							
OCT 2002							
16...	30	50	<4.0	<4.0	<5.0	<5.0	<5
NOV							
05...	10	20	5.1	<4.0	<5.0	<5.0	<5
JAN 2003							
08...	20	20	<4.0	<4.0	<5.0	<5.0	<5
FEB							
26...	20	30	<4.0	<4.0	<5.0	<5.0	9
MAR							
12...	10	20	<4.0	<4.0	6.9	<5.0	<5
APR							
24...	10	20	<4.0	<4.0	<5.0	<5.0	<5
MAY							
27...	10	20	<4.0	<4.0	<5.0	<5.0	<5
JUN							
17...	10	20	<4.0	<4.0	<5.0	<5.0	<5
JUL							
23...	10	20	<4.0	<4.0	<5.0	<5.0	<5
AUG							
05...	20	40	<4.0	<4.0	<5.0	<5.0	<5
SEP							
17...	20	40	<4.0	<4.0	<5.0	<5.0	<5

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)
01555210 Middle Creek near Selinsgrove, PA (LAT 40 46 29N LONG 076 52 11W)													
NOV 2002													
21...	1515	1028	9813	451	30	10.3	7.7	147	6.6	65	--	18.6	--
JAN 2003													
14...	1445	1028	9813	323	30	16.6	7.1	181	.2	73	--	20.7	--
MAR													
25...	1550	1028	9813	665	30	11.3	7.4	116	9.7	43	--	12.3	--
MAY													
29...	1600	1028	9813	389	30	10.2	7.8	143	17.2	61	--	17.8	--
JUL													
17...	1250	1028	9813	93	30	7.4	8.0	227	23.5	110	--	31.3	--
SEP													
23...	1130	1028	9813	4260	30	9.3	6.5	116	17.9	51	--	15.0	--
01555859 Beaverdam Branch Juniata River near Hollidaysburg, PA (LAT 40 25 50N LONG 078 21 50W)													
NOV 2002													
05...	1045	1028	9813	52	30	10.4	7.8	457	8.0	160	--	41.2	--
JAN 2003													
07...	1200	1028	9813	199	30	13.3	7.5	462	1.8	130	--	35.8	--
MAR													
11...	1115	1028	9813	220	30	14.8	7.1	457	1.8	120	--	33.8	--
MAY													
27...	1100	1028	9813	423	30	9.8	7.4	282	12.0	98	--	27.0	--
JUL													
22...	1030	1028	9813	75	30	7.4	7.5	374	20.0	140	--	38.5	--
SEP													
16...	1230	1028	9813	58	30	8.7	7.7	452	16.3	170	--	45.2	--
01556009 Frankstown Branch Juniata R at RR at Williamsburg, PA (LAT 40 28 19N LONG 078 11 13W)													
NOV 2002													
05...	1220	1028	9813	201	30	11.7	8.1	433	7.5	160	--	40.3	--
JAN 2003													
07...	1350	1028	9813	762	30	12.9	7.8	348	3.0	120	--	31.6	--
MAR													
11...	1330	1028	9813	700	30	14.4	7.4	343	2.4	120	--	32.0	--
MAY													
27...	1220	1028	9813	1380	30	9.6	7.5	256	12.7	100	--	27.1	--
JUL													
22...	1150	1028	9813	266	30	7.9	8.1	495	20.7	200	--	52.0	--
SEP													
16...	1415	1028	9813	271	30	7.9	8.0	376	18.6	160	--	40.6	--
01564515 Aughwick Creek at Aughwick Mills, PA (LAT 40 20 05N LONG 077 51 36W)													
OCT 2002													
16...	1030	1028	9813	128	30	8.0	7.2	230	12.1	75	--	21.2	--
NOV													
04...	1445	1028	9813	266	30	12.2	7.5	154	6.1	57	--	16.2	--
DEC													
16...	1200	1028	9813	1760	30	12.3	6.7	136	4.4	43	--	11.7	--
JAN 2003													
06...	1515	1028	9813	1110	30	13.0	7.4	136	3.0	43	--	11.9	--
FEB													
26...	1000	1028	9813	711	30	15.2	6.7	188	.1	47	--	13.0	--
MAR													
10...	1500	1028	9813	1640	30	13.6	6.9	129	2.4	37	--	10.0	--
APR													
21...	1200	1028	9813	366	30	10.8	7.6	131	11.5	52	--	14.6	--
MAY													
15...	1540	1028	9813	498	30	10.2	7.3	108	14.0	41	--	11.2	--
JUN													
17...	1140	1028	9813	332	30	8.5	6.5	139	18.7	54	--	15.4	--
JUL													
21...	1500	1028	9813	74	30	8.5	8.2	211	25.1	84	--	24.8	--
AUG													
05...	0830	1028	9813	293	30	6.4	7.0	159	23.2	58	--	16.9	--
SEP													
18...	1530	1028	9813	95	30	8.1	--	212	18.5	78	--	23.0	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
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MISCELLANEOUS STATION ANALYSES

Date	Magnes-ium, water, unfltrd recover-able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, unfltrd mg/L (00951)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phos-phate, water, unfltrd mg/L as P (70507)	Phos-phorus, water, unfltrd mg/L (00665)	Total nitro-gen, water, unfltrd mg/L (00600)
01555210 Middle Creek near Selinsgrove, PA (LAT 40 46 29N LONG 076 52 11W)													
NOV 2002													
21...	4.5	42	--	--	14.1	6	<2	.040	2.28	<.040	.02	.016	2.6
JAN 2003													
14...	5.3	85	--	--	14.6	144	6	.020	2.69	<.040	.02	.024	2.9
MAR													
25...	3.0	30	--	--	10.8	68	22	<.020	1.32	<.040	.03	.037	1.5
MAY													
29...	4.1	47	--	--	11.1	118	8	<.020	1.05	<.040	.04	.036	1.3
JUL													
17...	7.0	77	--	--	16.1	176	18	<.020	1.49	<.040	.06	.063	1.7
SEP													
23...	3.4	39	--	--	7.7	110	276	.040	1.10	<.040	.09	.381	2.1
01555859 Beaverdam Branch Juniata River near Hollidaysburg, PA (LAT 40 25 50N LONG 078 21 50W)													
NOV 2002													
05...	13.8	74	--	--	83.6	158	<2	<.020	2.36	<.040	.07	.123	3.2
JAN 2003													
07...	10.9	42	--	--	73.9	348	12	<.020	1.82	<.200	.02	.051	2.1
MAR													
11...	9.3	46	--	--	52.0	284	8	.020	1.75	<.200	.02	.052	2.0
MAY													
27...	7.5	50	--	--	41.7	200	6	.020	1.08	<.040	.03	.055	1.3
JUL													
22...	11.3	68	--	--	65.5	266	30	.030	2.02	<.040	.11	.236	2.5
SEP													
16...	13.5	85	--	--	82.1	332	24	<.020	1.60	<.040	.08	.087	2.0
01556009 Frankstown Branch Juniata R at RR at Williamsburg, PA (LAT 40 28 19N LONG 078 11 13W)													
NOV 2002													
05...	14.2	108	--	--	58.7	312	<2	.020	2.67	<.040	.04	.068	3.4
JAN 2003													
07...	10.2	69	--	--	40.2	274	4	<.020	2.52	<.040	.02	.036	3.0
MAR													
11...	9.4	64	--	--	33.4	226	10	<.020	2.18	<.040	.03	.034	2.4
MAY													
27...	7.8	66	--	--	28.3	186	24	.030	1.39	<.040	.05	.073	1.8
JUL													
22...	17.7	146	--	--	58.4	334	16	<.020	2.76	<.040	.10	.122	3.0
SEP													
16...	13.3	112	--	--	39.1	274	26	<.020	1.93	<.040	.11	.130	2.3
01564515 Aughwick Creek at Aughwick Mills, PA (LAT 40 20 05N LONG 077 51 36W)													
OCT 2002													
16...	5.4	50	21.1	<.2	22.8	166	<2	.030	.85	<.040	.02	.019	1.2
NOV													
04...	4.1	34	12.3	<.2	16.8	128	6	<.020	1.45	<.040	.01	<.010	1.7
DEC													
16...	3.3	22	14.7	<.2	13.3	90	<2	<.020	1.52	<.040	.02	.024	2.0
JAN 2003													
06...	3.2	23	14.7	<.2	12.3	138	30	<.020	1.33	<.040	.02	.013	1.7
FEB													
26...	3.5	23	30.8	<.2	12.5	136	6	.060	1.06	<.040	.03	.029	1.5
MAR													
10...	3.0	20	17.2	<.2	10.6	110	36	.050	.85	<.040	.08	.080	1.2
APR													
21...	3.8	33	11.6	<.2	11.5	76	<2	<.020	.42	<.040	.01	.014	.67
MAY													
15...	3.3	28	11.9	<.2	10.9	84	10	<.020	.47	<.040	.02	.014	.93
JUN													
17...	3.7	42	8.2	<.2	10.6	106	4	<.020	.43	<.040	.02	.019	.53
JUL													
21...	5.3	69	12.8	<.2	13.6	142	6	<.020	.26	<.040	.02	.018	1.2
AUG													
05...	3.8	46	8.9	<.2	12.4	118	12	<.020	.61	<.040	.04	.030	1.3
SEP													
18...	5.1	65	16.4	<.2	12.1	146	<2	.020	.39	<.040	.01	.018	.61

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
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WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45uMF col/ 100 mL (31616)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Cadmium water, fltrd, µg/L (01025)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)
01555210 Middle Creek near Selinsgrove, PA (LAT 40 46 29N LONG 076 52 11W)													
NOV 2002													
21...	2.7	--	--	--	<200	--	--	--	<10	--	220	--	<1.0
JAN 2003													
14...	1.9	--	--	--	<200	--	--	--	<10	--	220	--	<1.0
MAR													
25...	2.7	--	--	--	500	--	--	--	<10	--	610	--	<1.0
MAY													
29...	3.0	--	--	--	500	--	--	--	<10	--	720	--	<1.0
JUL													
17...	3.3	--	--	--	400	--	--	--	<10	--	640	--	<1.0
SEP													
23...	7.8	--	--	--	4800	--	--	--	<10	--	8150	--	7.9
01555859 Beaverdam Branch Juniata River near Hollidaysburg, PA (LAT 40 25 50N LONG 078 21 50W)													
NOV 2002													
05...	2.4	--	--	--	<200	--	--	--	<10	--	230	--	<1.0
JAN 2003													
07...	1.9	--	--	--	800	--	--	--	<10	--	1370	--	<1.0
MAR													
11...	1.7	--	--	--	500	--	--	--	<10	--	2020	--	<1.0
MAY													
27...	2.2	--	--	--	500	--	--	--	<10	--	1110	--	1.4
JUL													
22...	4.1	--	--	--	1300	--	--	--	<10	--	1750	--	4.4
SEP													
16...	2.7	--	--	--	1000	--	--	--	<10	--	990	--	1.4
01556009 Frankstown Branch Juniata R at RR at Williamsburg, PA (LAT 40 28 19N LONG 078 11 13W)													
NOV 2002													
05...	3.9	--	--	--	<200	--	--	--	<10	--	110	--	<1.0
JAN 2003													
07...	2.8	--	--	--	300	--	--	--	<10	--	440	--	<1.0
MAR													
11...	2.5	--	--	--	200	--	--	--	<10	--	250	--	<1.0
MAY													
27...	3.1	--	--	--	700	--	--	--	<10	--	1220	--	2.0
JUL													
22...	4.4	--	--	--	<200	--	--	--	<10	--	280	--	<1.0
SEP													
16...	4.4	--	--	--	1000	--	--	--	<10	--	1290	--	1.9
01564515 Aughwick Creek at Aughwick Mills, PA (LAT 40 20 05N LONG 077 51 36W)													
OCT 2002													
16...	--	1.7	260	21	99	<4.0	<.20	<4	<4	40	170	<1.0	<1.0
NOV													
04...	--	1.4	140	26	76	<4.0	<.20	<4	<4	30	100	1.5	1.0
DEC													
16...	--	<.2	650	41	300	<4.0	<.20	4	<4	40	450	1.8	<1.0
JAN 2003													
06...	--	<.2	310	31	200	<4.0	<.20	<4	<4	60	330	<1.0	<1.0
FEB													
26...	--	1.0	260	27	200	<4.0	<.20	<4	<4	40	260	<1.0	<1.0
MAR													
10...	--	<.2	120	32	900	<4.0	<.20	<4	<4	40	1150	<1.0	1.1
APR													
21...	--	<.2	140	26	60	<4.0	<.20	<4	<4	90	190	<1.0	<1.0
MAY													
15...	--	1.3	420	<10	200	<4.0	<.20	<4	<4	90	330	<1.0	<1.0
JUN													
17...	--	1.2	600	12	100	<4.0	<.20	<4	<4	220	250	<1.0	<1.0
JUL													
21...	--	1.3	100	10	100	<4.0	<.20	<4	<4	70	240	<1.0	<1.0
AUG													
05...	--	1.3	320	40	400	<4.0	<.20	<4	<4	60	710	<1.0	<1.0
SEP													
18...	--	.8	160	<10	39	<4.0	<.20	<4	<4	110	220	<1.0	<1.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)	Phenolic compounds, water, unfltrd µg/L (32730)
01555210 Middle Creek near Selinsgrove, PA (LAT 40 46 29N LONG 076 52 11W)							
NOV 2002							
21...	--	20	--	<50	--	<10	--
JAN 2003							
14...	--	20	--	<50	--	<10	--
MAR							
25...	--	30	--	<50	--	<10	--
MAY							
29...	--	50	--	<50	--	<10	--
JUL							
17...	--	50	--	<50	--	<10	--
SEP							
23...	--	340	--	<50	--	40	--
01555859 Beaverdam Branch Juniata River near Hollidaysburg, PA (LAT 40 25 50N LONG 078 21 50W)							
NOV 2002							
05...	--	480	--	<50	--	20	--
JAN 2003							
07...	--	820	--	<50	--	60	--
MAR							
11...	--	390	--	<50	--	110	--
MAY							
27...	--	320	--	<50	--	20	--
JUL							
22...	--	590	--	<50	--	60	--
SEP							
16...	--	660	--	<50	--	10	--
01556009 Frankstown Brranch Juniata R at RR at Williamsburg, PA (LAT 40 28 19N LONG 078 11 13W)							
NOV 2002							
05...	--	60	--	<50	--	<10	--
JAN 2003							
07...	--	180	--	<50	--	10	--
MAR							
11...	--	120	--	<50	--	50	--
MAY							
27...	--	140	--	<50	--	30	--
JUL							
22...	--	60	--	<50	--	200	--
SEP							
16...	--	100	--	<50	--	10	--
01564515 Aughwick Creek at Aughwick Mills, PA (LAT 40 20 05N LONG 077 51 36W)							
OCT 2002							
16...	10	20	<4.0	<4.0	10	10	<5
NOV							
04...	6.9	8.3	<4.0	<4.0	<5.0	<5.0	<5
DEC							
16...	9.2	40	<4.0	<4.0	7.3	<5.0	<5
JAN 2003							
06...	10	20	4.1	<4.0	<5.0	6.0	<5
FEB							
26...	20	20	<4.0	<4.0	<5.0	<5.0	<5
MAR							
10...	20	70	<4.0	<4.0	<5.0	8.6	<5
APR							
21...	20	20	<4.0	<4.0	<5.0	<5.0	<5
MAY							
15...	20	30	<4.0	<4.0	<5.0	<5.0	<5
JUN							
17...	10	20	<4.0	<4.0	<5.0	<5.0	<5
JUL							
21...	20	20	<4.0	<4.0	<5.0	5.3	<5
AUG							
05...	10	30	<4.0	<4.0	<5.0	<5.0	<5
SEP							
18...	10	20	<4.0	<4.0	<5.0	<5.0	<5

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)
01567795 Letort Spring Run at Bonny Brook near Carlisle, PA (LAT 40 10 39N LONG 077 11 10W)													
OCT 2002													
15...	1430	1028	9813	10	30	9.9	7.7	543	11.8	280	--	84.6	--
NOV													
14...	1400	1028	9813	13	30	10.4	7.9	506	11.9	300	--	91.2	--
DEC													
12...	1400	1028	9813	14	30	10.7	7.5	531	10.3	280	--	85.3	--
JAN 2003													
28...	0930	1028	9813	20	30	10.4	7.5	540	9.0	300	--	90.0	--
FEB													
25...	1430	1028	9813	21	30	10.1	7.4	525	11.1	280	--	85.6	--
MAR													
27...	1500	1028	9813	36	30	11.2	7.5	519	13.2	300	--	90.4	--
APR													
15...	1320	1028	9813	32	30	12.5	7.4	492	14.1	290	--	87.2	--
MAY													
13...	1500	1028	9813	27	30	10.6	7.5	520	11.5	280	--	84.7	--
JUN													
19...	1300	1028	9813	35	30	11.3	7.6	540	12.8	280	--	84.1	--
JUL													
14...	1430	1028	9813	31	30	9.9	7.5	538	13.9	280	--	87.1	--
AUG													
04...	1230	1028	9813	26	30	10.6	7.5	519	13.1	290	--	87.7	--
SEP													
10...	1130	1028	9813	25	30	10.2	7.5	538	11.7	290	--	86.8	--
01570400 Conodoguinet Creek at Mouth at West Fairview, PA (LAT 40 16 17N LONG 076 54 51W)													
NOV 2002													
18...	1030	1028	9813	1840	40	10.3	7.9	325	7.8	150	--	47.5	--
JAN 2003													
15...	1050	1028	9813	725	40	13.9	7.8	415	.8	180	--	55.2	--
MAR													
06...	1100	1028	9813	970	40	10.8	7.6	453	4.7	160	--	52.3	--
MAY													
05...	1230	1028	9813	541	40	10.0	8.1	412	15.1	180	--	54.2	--
JUL													
08...	1430	1028	9813	689	40	12.0	8.4	413	26.4	220	--	69.3	--
SEP													
09...	1300	1028	9813	418	40	8.3	8.1	421	21.2	180	--	56.5	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Magnes-ium, water, unfltrd recover-able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, unfltrd mg/L (00951)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phos-phate, water, unfltrd mg/L as P (70507)	Phos-phorus, water, unfltrd mg/L (00665)	Total nitro-gen, water, unfltrd mg/L (00600)
01567795 Letort Spring Run at Bonny Brook near Carlisle, PA (LAT 40 10 39N LONG 077 11 10W)													
OCT 2002													
15...	16.7	226	11.3	<.2	21.1	328	<2	.150	6.77	<.040	<.01	<.010	7.3
NOV													
14...	16.9	218	11.2	.2	20.8	66	<2	<.020	6.76	<.040	<.01	.016	6.7
DEC													
12...	15.6	222	12.2	<.2	21.4	334	10	<.020	6.48	<.040	<.01	<.010	7.0
JAN 2003													
28...	20.0	200	10.0	<.2	21.0	300	10	<.020	6.8	<.040	<.01	.011	7.3
FEB													
25...	15.7	221	12.2	<.2	20.9	388	10	<.020	6.69	<.040	<.01	.011	6.9
MAR													
27...	17.7	222	11.6	<.2	21.2	334	4	<.020	6.76	<.040	<.01	<.010	6.7
APR													
15...	16.5	221	11.4	<.2	20.6	344	<2	<.020	6.29	<.040	<.01	<.010	6.6
MAY													
13...	15.8	226	11.7	<.2	20.4	346	6	<.020	6.48	<.040	.01	.013	7.3
JUN													
19...	16.7	222	11.2	<.2	20.7	402	4	.020	6.35	<.040	<.01	.011	6.7
JUL													
14...	16.4	225	11.8	<.2	20.3	384	8	<.020	6.60	<.040	<.01	.017	6.7
AUG													
04...	16.5	226	11.9	<.2	20.7	366	10	<.020	6.74	<.040	.01	.015	6.8
SEP													
10...	16.8	226	11.9	<.2	20.9	434	6	<.020	7.12	<.040	<.01	.041	6.5
01570400 Conodoguinet Creek at Mouth at West Fairview, PA (LAT 40 16 17N LONG 076 54 51W)													
NOV 2002													
18...	8.1	98	--	--	22.2	254	54	<.020	4.05	<.040	.03	.088	5.3
JAN 2003													
15...	9.3	119	--	--	22.0	276	26	<.020	5.73	<.040	.01	.025	5.7
MAR													
06...	8.3	109	--	--	21.7	298	18	.160	3.77	<.200	.02	.062	4.5
MAY													
05...	9.9	137	--	--	20.5	266	6	<.020	3.36	<.040	.02	.027	4.1
JUL													
08...	10.3	173	--	--	24.1	338	4	<.020	4.38	<.040	.02	.026	4.6
SEP													
09...	9.8	136	--	--	22.3	308	16	.030	3.91	<.040	.04	.062	3.9

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45uMF col/ 100 mL (31616)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Cadmium water, fltrd, µg/L (01025)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)
01567795 Letort Spring Run at Bonny Brook near Carlisle, PA (LAT 40 10 39N LONG 077 11 10W)													
OCT 2002													
15...	--	.5	40	19	24	<4.0	<.20	<4	<4	<20	30	<1.0	<1.0
NOV													
14...	--	1.7	<20	21	32	<4.0	<.20	<4	<4	30	60	<1.0	<1.0
DEC													
12...	--	.8	20	18	38	<4.0	<.20	<4	<4	40	60	<1.0	<1.0
JAN 2003													
28...	--	.6	30	27	42	<4.0	<.20	<4	<4	40	100	<1.0	<1.0
FEB													
25...	--	1.0	120	15	67	<4.0	<.20	<4	<4	<20	120	<1.0	<1.0
MAR													
27...	--	.4	20	17	55	<4.0	<.20	<4	<4	<20	110	<1.0	<1.0
APR													
15...	--	.9	40	18	48	<4.0	<.20	<4	<4	<20	70	<1.0	<1.0
MAY													
13...	--	1.5	120	<10	32	<4.0	<.20	<4	<4	<20	100	<1.0	<1.0
JUN													
19...	--	.6	40	<10	46	<4.0	<.20	<4	<4	30	100	<1.0	<1.0
JUL													
14...	--	1.1	260	<10	28	<4.0	<.20	<4	<4	<20	80	<1.0	<1.0
AUG													
04...	--	.7	200	21	38	<4.0	<.20	<4	<4	<20	160	<1.0	<1.0
SEP													
10...	--	.6	40	<10	22	<4.0	<.20	<4	<4	<20	110	<1.0	<1.0
01570400 Conodoguinet Creek at Mouth at West Fairview, PA (LAT 40 16 17N LONG 076 54 51W)													
NOV 2002													
18...	3.9	--	--	--	400	--	--	--	<10	--	550	--	1.6
JAN 2003													
15...	1.6	--	--	--	<200	--	--	--	<10	--	230	--	<1.0
MAR													
06...	2.8	--	--	--	<200	--	--	--	<10	--	220	--	<1.0
MAY													
05...	2.8	--	--	--	<200	--	--	--	<10	--	130	--	<1.0
JUL													
08...	2.7	--	--	--	<200	--	--	--	<10	--	140	--	<1.0
SEP													
09...	3.7	--	--	--	<200	--	--	--	<10	--	210	--	<1.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)	Phenolic compounds, water, unfltrd µg/L (32730)
01567795 Letort Spring Run at Bonny Brook near Carlisle, PA (LAT 40 10 39N LONG 077 11 10W)							
OCT 2002							
15...	2.4	2.8	4.4	4.5	<5.0	<5.0	<5
NOV							
14...	2.5	3.0	<4.0	<4.0	<5.0	<5.0	<5
DEC							
12...	7.0	6.6	<4.0	<4.0	<5.0	<5.0	<5
JAN 2003							
28...	2.7	4.0	<4.0	<4.0	<5.0	<5.0	<5
FEB							
25...	3.6	4.4	<4.0	<4.0	<5.0	<5.0	<5
MAR							
27...	2.1	3.2	<4.0	<4.0	<5.0	<5.0	<5
APR							
15...	2.2	3.8	<4.0	<4.0	--	--	<5
MAY							
13...	4.4	5.1	<4.0	<4.0	<5.0	<5.0	<5
JUN							
19...	4.3	5.0	4.9	5.1	<5.0	<5.0	<5
JUL							
14...	3.2	4.0	<4.0	<4.0	<5.0	<5.0	<5
AUG							
04...	4.1	4.6	<4.0	<4.0	<5.0	<5.0	<5
SEP							
10...	3.3	3.9	5.1	5.0	<5.0	<5.0	<5
01570400 Conodoguinet Creek at Mouth at West Fairview, PA (LAT 40 16 17N LONG 076 54 51W)							
NOV 2002							
18...	--	90	--	<50	--	<10	--
JAN 2003							
15...	--	20	--	<50	--	<10	--
MAR							
06...	--	20	--	<50	--	10	--
MAY							
05...	--	10	--	<50	--	140	--
JUL							
08...	--	10	--	<50	--	<10	--
SEP							
09...	--	20	--	<50	--	<10	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)
		01571505 Yellow Breeches Creek at New Cumberland, PA (LAT 40 13 27N LONG 076 51 38W)											
NOV 2002													
18...	0830	1028	9813	637	40	10.9	7.3	290	8.1	130	--	37.0	--
JAN 2003													
15...	0920	1028	9813	317	40	14.3	7.8	304	1.9	130	--	36.8	--
MAR													
06...	0945	1028	9813	473	40	12.0	7.2	343	5.2	140	--	40.3	--
MAY													
05...	1030	1028	9813	290	40	9.8	7.7	295	14.5	130	--	34.5	--
JUL													
08...	0930	1028	9813	295	40	8.5	7.7	254	20.5	130	--	36.0	--
SEP													
09...	1100	1028	9813	187	40	9.2	7.7	366	18.2	160	--	43.7	--
		01573610 Swatara Creek at Harrisburg Airport at Middletown (LAT 40 11 28N LONG 076 43 52W)											
NOV 2002													
26...	1245	1028	9813	881	40	11.6	7.7	270	7.0	100	--	29.1	--
JAN 2003													
21...	1440	1028	9813	E560	40	14.6	7.4	349	.8	140	--	40.3	--
MAR													
17...	1500	1028	9813	3590	40	11.8	7.4	221	7.3	86	--	24.2	--
MAY													
08...	1345	1028	9813	768	40	8.8	7.7	307	16.4	120	--	36.7	--
JUL													
10...	1350	1028	9813	636	40	8.4	8.1	376	21.7	160	--	44.5	--
SEP													
03...	1300	1028	9813	655	40	8.1	7.9	373	19.1	150	--	41.8	--
		01573750 Conewago Creek near Arendtsville, PA (LAT 39 56 13N LONG 077 21 58W)											
OCT 2002													
15...	1230	1028	9813	4.0	30	9.4	6.7	88	8.8	26	6.63	6.8	2.10
NOV													
14...	1100	1028	9813	9.8	30	10.3	6.6	70	7.6	23	5.84	5.9	1.98
DEC													
12...	1100	1028	9813	21	30	13.4	6.0	68	3.3	21	5.61	5.4	1.83
JAN 2003													
28...	1230	1028	9813	9.5	30	14.2	6.9	61	.1	16	3.65	3.9	1.49
FEB													
25...	1200	1028	9813	12	30	13.9	6.8	78	.5	21	5.06	5.2	1.79
MAR													
27...	0945	1028	9813	30	30	12.0	6.2	53	6.9	20	3.60	4.0	1.4
APR													
15...	0930	1028	9813	21	30	11.8	5.8	54	7.6	15	3.56	3.8	1.34
MAY													
13...	1130	1028	9813	17	30	10.8	6.3	57	10.7	15	3.69	3.8	1.35
JUN													
19...	1020	1028	9813	22	30	9.6	6.5	58	14.2	17	4.14	4.2	1.50
JUL													
14...	1050	1028	9813	7.2	30	9.3	6.3	61	16.5	17	4.07	4.1	1.49
AUG													
04...	0900	1028	9813	3.4	30	8.6	6.7	63	19.4	20	4.60	4.9	1.79
SEP													
10...	0800	1028	9813	2.4	30	9.0	7.3	70	14.6	21	5.26	5.5	1.78

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Magnes-ium, water, unfltrd recover-able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, unfltrd mg/L (00951)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phos-phate, water, unfltrd mg/L as P (70507)	Phos-phorus, water, unfltrd mg/L (00665)	Total nitro-gen, water, unfltrd mg/L (00600)
		01571505 Yellow Breeches Creek at New Cumberland, PA (LAT 40 13 27N LONG 076 51 38W)											
NOV 2002													
18...	9.7	94	--	--	20.1	198	156	<.020	1.66	<.040	.07	.192	3.4
JAN 2003													
15...	9.3	93	--	--	18.1	232	<2	.020	2.40	<.040	.01	.022	2.6
MAR													
06...	8.6	91	--	--	17.9	310	14	<.020	2.14	<.040	.02	.033	2.3
MAY													
05...	10.5	100	--	--	15.6	218	<2	<.020	1.81	<.040	.02	.027	2.3
JUL													
08...	9.1	107	--	--	14.8	216	<2	<.020	2.40	<.040	.03	.032	2.6
SEP													
09...	11.2	129	--	--	17.3	264	10	<.020	2.66	<.040	.03	.040	2.5
		01573610 Swatara Creek at Harrisburg Airport at Middletown (LAT 40 11 28N LONG 076 43 52W)											
NOV 2002													
26...	7.3	60	--	--	25.5	206	<2	<.020	5.32	<.040	.03	.038	5.5
JAN 2003													
21...	9.8	81	--	--	30.0	266	2	.130	5.25	<.040	.03	.031	6.0
MAR													
17...	6.2	49	--	--	16.6	168	46	.090	2.97	<.040	.06	.108	3.7
MAY													
08...	8.1	81	--	--	25.5	232	10	.050	3.10	.090	.04	.044	3.7
JUL													
10...	10.9	105	--	--	31.1	266	14	<.020	4.17	.080	.04	.054	4.7
SEP													
03...	10.5	106	--	--	28.6	284	12	<.020	4.17	<.040	.05	.087	4.7
		01573750 Conewago Creek near Arendtsville, PA (LAT 39 56 13N LONG 077 21 58W)											
OCT 2002													
15...	2.2	16	7.6	<.2	9.1	60	2	.160	.76	<.040	<.01	.011	1.1
NOV													
14...	2.0	12	5.9	<.2	8.7	356	<2	.060	.86	<.040	<.01	<.010	1.1
DEC													
12...	1.8	11	8.2	<.2	8.0	72	4	<.020	.85	<.040	<.01	<.010	1.3
JAN 2003													
28...	1.6	11	4.7	<.2	6.7	60	<2	<.020	.98	<.040	<.01	<.010	1.1
FEB													
25...	1.9	10	9.2	<.2	7.6	96	2	<.020	1.07	<.040	<.01	<.010	1.4
MAR													
27...	1.0	8	5.0	<.2	7.0	54	<2	<.020	.64	<.040	<.01	<.010	.69
APR													
15...	1.4	13	4.9	<.2	6.8	64	<2	<.020	.66	<.040	<.01	<.010	.69
MAY													
13...	1.4	13	4.8	<.2	6.3	52	2	<.020	.50	<.040	.01	.010	.79
JUN													
19...	1.5	12	4.7	<.2	5.9	16000	<2	<.020	.56	<.040	<.01	.010	.60
JUL													
14...	1.5	16	4.4	<.2	4.8	64	8	<.020	.60	<.040	<.01	.017	.70
AUG													
04...	1.9	16	4.5	<.2	4.4	34	2	<.020	.45	<.040	.01	.020	.54
SEP													
10...	1.8	19	5.0	<.2	4.5	88	2	<.020	.52	<.040	<.01	<.010	.68

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45uMF col/ 100 mL (31616)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Cadmium water, fltrd, µg/L (01025)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)
01571505 Yellow Breeches Creek at New Cumberland, PA (LAT 40 13 27N LONG 076 51 38W)													
NOV 2002													
18...	4.6	--	--	--	3600	--	--	--	<10	--	3730	--	5.6
JAN 2003													
15...	1.5	--	--	--	<200	--	--	--	<10	--	160	--	<1.0
MAR													
06...	2.1	--	--	--	300	--	--	--	<10	--	350	--	<1.0
MAY													
05...	2.0	--	--	--	<200	--	--	--	<10	--	1100	--	<1.0
JUL													
08...	1.9	--	--	--	200	--	--	--	<10	--	310	--	<1.0
SEP													
09...	2.1	--	--	--	<200	--	--	--	<10	--	230	--	<1.0
01573610 Swatara Creek at Harrisburg Airport at Middletown (LAT 40 11 28N LONG 076 43 52W)													
NOV 2002													
26...	2.0	--	--	--	<200	--	--	--	<10	--	160	--	<1.0
JAN 2003													
21...	1.3	--	--	--	<200	--	--	--	<10	--	180	--	<1.0
MAR													
17...	3.2	--	--	--	1300	--	--	--	<10	--	1490	--	3.4
MAY													
08...	2.7	--	--	--	400	--	--	--	<10	--	420	--	<1.0
JUL													
10...	3.1	--	--	--	300	--	--	--	<10	--	450	--	<1.0
SEP													
03...	2.8	--	--	--	200	--	--	--	10	--	340	--	<1.0
01573750 Conewago Creek near Arendtsville, PA (LAT 39 56 13N LONG 077 21 58W)													
OCT 2002													
15...	--	1.0	40	44	59	<4.0	<.20	<4	<4	90	140	<1.0	<1.0
NOV													
14...	--	1.5	20	59	74	<4.0	<.20	<4	<4	80	110	<1.0	<1.0
DEC													
12...	--	.8	140	82	100	<4.0	<.20	<4	<4	90	150	<1.0	<1.0
JAN 2003													
28...	--	1.0	20	38	53	<4.0	<.20	<4	<4	40	90	<1.0	<1.0
FEB													
25...	--	1.8	200	48	68	<4.0	<.20	<4	<4	40	70	<1.0	<1.0
MAR													
27...	--	.6	10	58	104	<4.0	<.20	<4	<4	30	80	<1.0	<1.0
APR													
15...	--	1.2	<10	51	73	<4.0	<.20	<4	<4	40	70	<1.0	<1.0
MAY													
13...	--	1.4	40	38	63	<4.0	20	<4	<4	60	110	<1.0	<1.0
JUN													
19...	--	.6	40	33	89	<4.0	<.20	<4	<4	80	1900	<1.0	<1.0
JUL													
14...	--	.8	<20	27	54	<4.0	<.20	<4	<4	80	160	<1.0	<1.0
AUG													
04...	--	1.1	60	41	67	<4.0	<.20	<4	<4	110	190	<1.0	<1.0
SEP													
10...	--	.6	20	18	34	<4.0	<.20	<4	<4	120	190	<1.0	<1.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)	Phenolic compounds, water, unfltrd µg/L (32730)
01571505 Yellow Breeches Creek at New Cumberland, PA (LAT 40 13 27N LONG 076 51 38W)							
NOV 2002							
18...	--	190	--	<50	--	20	--
JAN 2003							
15...	--	20	--	<50	--	<10	--
MAR							
06...	--	30	--	<50	--	20	--
MAY							
05...	--	30	--	<50	--	90	--
JUL							
08...	--	20	--	<50	--	<10	--
SEP							
09...	--	20	--	<50	--	10	--
01573610 Swatara Creek at Harrisburg Airport at Middletown (LAT 40 11 28N LONG 076 43 52W)							
NOV 2002							
26...	--	40	--	<50	--	<10	--
JAN 2003							
21...	--	60	--	<50	--	<10	--
MAR							
17...	--	120	--	<50	--	10	--
MAY							
08...	--	40	--	<50	--	<10	--
JUL							
10...	--	50	--	<50	--	<10	--
SEP							
03...	--	40	--	<50	--	200	--
01573750 Conewago Creek near Arendtsville, PA (LAT 39 56 13N LONG 077 21 58W)							
OCT 2002							
15...	10	10	<4.0	<4.0	5.1	<5.0	6
NOV							
14...	6.9	8.5	<4.0	<4.0	6.8	10	<5
DEC							
12...	10	20	<4.0	<4.0	7.8	10	<5
JAN 2003							
28...	6.2	8.2	<4.0	<4.0	<5.0	5.3	<5
FEB							
25...	7.9	9.1	<4.0	<4.0	5.0	6.3	<5
MAR							
27...	6.0	10	<4.0	<4.0	5.2	10	<5
APR							
15...	6.9	9.0	<4.0	<4.0	--	--	<5
MAY							
13...	10	10	<4.0	<4.0	<5.0	7.2	<5
JUN							
19...	8.2	10	<4.0	<4.0	<5.0	27	<5
JUL							
14...	7.3	10	<4.0	<4.0	<5.0	<5.0	<5
AUG							
04...	8.0	10	<4.0	<4.0	<5.0	<5.0	<5
SEP							
10...	8.6	10	<4.0	<4.0	--	--	<5

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)
01575900 Chickies Creek near Marietta, PA (LAT 40 03 46N LONG 076 30 57W)													
NOV 2002													
26...	1130	1028	9813	159	30	11.9	7.9	517	7.4	230	--	61.9	--
JAN 2003													
21...	1320	1028	9813	140	30	15.1	7.8	573	1.4	260	--	71.3	--
MAR													
17...	1310	1028	9813	436	30	11.2	7.8	370	9.8	160	--	42.8	--
MAY													
08...	1230	1028	9813	180	30	8.8	7.6	491	15.1	240	--	63.7	--
JUL													
10...	1145	1028	9813	116	30	7.9	7.9	539	19.9	240	--	65.4	--
SEP													
03...	1100	1028	9813	254	30	8.0	7.7	387	19.2	150	--	42.4	--
01576003 Susquehanna River at Columbia, PA (LAT 40 01 42N LONG 076 31 05W)													
NOV 2002													
13...	1015	1028	9813	27300	40	9.7	8.2	244	11.1	100	--	26.9	--
JAN 2003													
30...	1345	1028	9813	E16000	40	14.9	7.3	304	.5	110	--	30.0	--
MAR													
26...	1100	1028	9813	173200	40	11.4	7.2	121	7.2	41	--	11.2	--
MAY													
21...	1010	1028	9813	46300	40	9.3	7.7	187	16.1	72	--	19.6	--
JUL													
15...	1240	1028	9813	20200	40	8.7	8.8	279	27.0	110	--	29.2	--
SEP													
30...	1030	1028	9813	84500	40	8.9	7.2	174	16.7	75	--	19.8	--
01576787 Pequea Creek at Martic Forge, PA (LAT 39 54 21N LONG 076 19 43W)													
NOV 2002													
19...	1300	1028	9813	217	30	10.6	7.9	410	6.8	190	--	47.9	--
JAN 2003													
23...	1330	1028	9813	150	30	16.0	7.9	566	.1	270	--	66.9	--
MAR													
24...	1330	1028	9813	304	30	11.9	8.1	461	11.9	210	--	53.5	--
MAY													
12...	1510	1028	9813	200	30	9.8	8.0	350	17.0	230	--	56.0	--
JUL													
28...	1145	1028	9813	153	30	7.8	8.2	496	23.1	240	--	56.7	--
SEP													
11...	1200	1028	9813	117	30	9.0	8.3	426	18.1	240	--	57.1	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Magnes-ium, water, unfltrd recover-able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, unfltrd mg/L (00951)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phos-phate, water, unfltrd mg/L as P (70507)	Phos-phorus, water, unfltrd mg/L (00665)	Total nitro-gen, water, unfltrd mg/L (00600)
			01575900 Chickies Creek near Marietta, PA (LAT 40 03 46N LONG 076 30 57W)										
NOV 2002													
26...	17.4	134	--	--	33.8	390	<2	.020	13.0	<.040	.05	.077	13
JAN 2003													
21...	20.3	150	--	--	30.5	436	2	.100	15.1	<.040	.02	.020	16
MAR													
17...	12.4	95	--	--	22.4	280	30	.160	8.44	.110	.09	.123	9.1
MAY													
08...	18.4	143	--	--	24.9	330	16	.070	10.1	.110	.04	.071	11
JUL													
10...	18.5	160	--	--	26.5	340	14	<.020	12.1	<.040	.06	.062	12
SEP													
03...	11.6	114	--	--	21.0	274	64	.080	6.56	.040	.27	.355	7.6
			01576003 Susquehanna River at Columbia, PA (LAT 40 01 42N LONG 076 31 05W)										
NOV 2002													
13...	8.5	50	--	--	42.9	124	<2	<.020	1.12	<.040	.01	.024	1.8
JAN 2003													
30...	8.4	63	--	--	46.0	234	10	.040	1.95	<.040	<.01	.013	2.4
MAR													
26...	3.2	20	--	--	16.1	106	70	<.020	.83	<.040	.01	.077	1.1
MAY													
21...	5.5	42	--	--	27.3	136	26	<.020	.82	<.040	.02	.038	1.2
JUL													
15...	8.2	64	--	--	41.4	188	2	<.020	.90	<.040	.03	.030	1.3
SEP													
30...	6.1	46	--	--	22.9	298	56	<.020	1.01	<.040	.05	.078	1.1
			01576787 Pequea Creek at Martic Forge, PA (LAT 39 54 21N LONG 076 19 43W)										
NOV 2002													
19...	17.1	130	--	--	33.3	314	36	.170	6.37	.070	.32	.432	7.2
JAN 2003													
23...	25.9	172	--	--	35.5	342	18	.070	11.9	<.040	.02	.035	12
MAR													
24...	19.4	139	--	--	30.2	356	<2	<.020	8.69	<.040	.05	.061	8.9
MAY													
12...	22.4	152	--	--	28.5	662	12	.030	7.76	.110	.05	.075	8.5
JUL													
28...	23.5	164	--	--	31.7	328	14	<.020	8.86	<.040	.07	.119	9.4
SEP													
11...	23.4	170	--	--	30.3	416	<2	<.020	9.34	<.040	.10	.123	8.6

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45uMF col/ 100 mL (31616)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Cadmium water, fltrd, µg/L (01025)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)
01575900 Chickies Creek near Marietta, PA (LAT 40 03 46N LONG 076 30 57W)													
NOV 2002													
26...	2.5	--	--	--	<200	--	--	--	<10	--	160	--	<1.0
JAN 2003													
21...	1.4	--	--	--	<200	--	--	--	<10	--	170	--	<1.0
MAR													
17...	3.4	--	--	--	900	--	--	--	<10	--	1580	--	2.0
MAY													
08...	2.7	--	--	--	500	--	--	--	<10	--	560	--	1.2
JUL													
10...	2.5	--	--	--	200	--	--	--	<10	--	310	--	<1.0
SEP													
03...	7.1	--	--	--	2700	--	--	--	10	--	2960	--	5.4
01576003 Susquehanna River at Columbia, PA (LAT 40 01 42N LONG 076 31 05W)													
NOV 2002													
13...	2.3	--	--	--	<200	--	--	--	<10	--	320	--	<1.0
JAN 2003													
30...	1.7	--	--	--	<200	--	--	--	<10	--	210	--	<1.0
MAR													
26...	2.9	--	--	--	2000	--	--	--	<10	--	3100	--	2.7
MAY													
21...	2.3	--	--	--	500	--	--	--	<10	--	800	--	<1.0
JUL													
15...	3.5	--	--	--	<200	--	--	--	<10	--	290	--	<1.0
SEP													
30...	3.0	--	--	--	1600	--	--	--	<10	--	2050	--	2.9
01576787 Pequea Creek at Martic Forge, PA (LAT 39 54 21N LONG 076 19 43W)													
NOV 2002													
19...	6.2	--	--	--	1500	--	--	--	<10	--	2010	--	1.7
JAN 2003													
23...	1.7	--	--	--	<200	--	--	--	<10	--	260	--	<1.0
MAR													
24...	2.2	--	--	--	200	--	--	--	<10	--	370	--	<1.0
MAY													
12...	2.5	--	--	--	<200	--	--	--	<10	--	360	--	<1.0
JUL													
28...	2.3	--	--	--	400	--	--	--	<10	--	600	--	<1.0
SEP													
11...	2.3	--	--	--	<200	--	--	--	<10	--	270	--	<1.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Mangan-ese, water, fltrd, µg/L (01056)	Mangan-ese, water, unfltrd recover-able, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)	Phen-olic com-pounds, water, unfltrd µg/L (32730)
01575900 Chickies Creek near Marietta, PA (LAT 40 03 46N LONG 076 30 57W)							
NOV 2002							
26...	--	30	--	<50	--	<10	--
JAN 2003							
21...	--	40	--	<50	--	20	--
MAR							
17...	--	70	--	<50	--	10	--
MAY							
08...	--	90	--	<50	--	<10	--
JUL							
10...	--	30	--	<50	--	<10	--
SEP							
03...	--	130	--	<50	--	210	--
01576003 Susquehanna River at Columbia, PA (LAT 40 01 42N LONG 076 31 05W)							
NOV 2002							
13...	--	<10	--	<50	--	<10	--
JAN 2003							
30...	--	100	--	<50	--	10	--
MAR							
26...	--	230	--	<50	--	40	--
MAY							
21...	--	130	--	<50	--	20	--
JUL							
15...	--	80	--	<50	--	30	--
SEP							
30...	--	200	--	<50	--	100	--
01576787 Pequea Creek at Martic Forge, PA (LAT 39 54 21N LONG 076 19 43W)							
NOV 2002							
19...	--	90	--	<50	--	<10	--
JAN 2003							
23...	--	40	--	<50	--	<10	--
MAR							
24...	--	30	--	<50	--	50	--
MAY							
12...	--	50	--	<50	--	10	--
JUL							
28...	--	30	--	<50	--	<10	--
SEP							
11...	--	40	--	<50	--	<10	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)
		01577180 Rambo Run at Meadetown near Stewartstown, PA (LAT 39 49 21N LONG 076 31 59W)											
OCT 2002													
15...	0900	1028	9813	4.2	30	9.9	7.0	141	8.6	48	--	10.7	--
NOV													
19	1015	1028	9813	18	30	11.5	7.0	129	6.9	47	--	10.7	--
JAN 2003													
23...	1120	1028	9813	12	30	14.8	6.4	137	.1	49	--	10.0	--
FEB													
25...	0900	1028	9813	29	30	13.6	6.8	131	1.4	39	--	9.0	--
MAR													
24...	1050	1028	9813	26	30	11.7	6.5	110	9.3	37	--	8.0	--
APR													
17...	1145	1028	9813	17	30	10.6	6.5	120	10.4	45	--	9.5	--
MAY													
12...	1230	1028	9813	14	30	9.7	6.4	89	14.4	40	--	8.4	--
JUN													
24...	1230	1028	9813	26	30	9.2	6.9	121	16.3	45	--	9.8	--
JUL													
28...	1000	1028	9813	14	30	9.0	7.1	135	18.0	43	--	8.9	--
AUG													
07...	1000	1028	9813	14	30	9.0	7.0	135	17.3	45	--	9.5	--
SEP													
11...	1030	1028	9813	9.3	30	9.4	7.3	108	14.3	45	--	9.2	--
		01613500 Licking Creek near Sylvan, PA (LAT 39 43 23N LONG 078 03 38W)											
NOV 2002													
04...	1220	--	9813	127	30	12.2	6.9	170	6.6	76	--	19.3	--
JAN 2003													
06...	1230	1028	9813	476	30	13.3	7.2	150	3.4	62	--	15.4	--
MAR													
10...	1200	1028	9813	946	30	13.4	6.8	112	2.9	45	--	11.1	--
MAY													
15...	1310	1028	9813	308	30	9.6	7.5	140	14.0	70	--	17.1	--
JUL													
21...	1230	1028	9813	39.4	30	7.5	8.1	378	22.8	180	--	45.5	--
SEP													
18...	1330	1028	9813	59.1	30	8.8	8.0	263	17.4	120	--	31.3	--
		01614500 Conococheague Creek at Fairview, MD (LAT 39 42 59N LONG 077 49 29W)											
NOV 2002													
04...	1020	1028	9813	500	40	11.3	7.5	408	7.6	189	--	55.5	--
JAN 2003													
06...	0930	1028	9813	1550	40	12.7	7.5	343	4.5	156	--	47.2	--
MAR													
10...	0935	1028	9813	2900	40	12.7	6.7	261	3.3	119	--	35.3	--
MAY													
15...	1045	1028	9813	876	40	9.7	7.7	305	14.2	158	--	46.4	--
JUL													
21...	1100	1028	9813	277	40	8.9	8.2	493	21.5	240	--	71.2	--
SEP													
18...	1015	1028	9813	303	40	8.6	8.0	455	16.7	210	--	63.0	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Magnes-ium, water, unfltrd recover-able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, unfltrd mg/L (00951)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phos-phate, water, unfltrd mg/L as P (70507)	Phos-phorus, water, unfltrd mg/L (00665)	Total nitro-gen, water, unfltrd mg/L (00600)
		01577180 Rambo Run at Meadetown near Stewartstown, PA (LAT 39 49 21N LONG 076 31 59W)											
OCT 2002													
15...	5.2	22	12.3	<.2	5.3	88	<2	.100	4.84	<.040	<.01	.016	5.4
NOV													
19...	4.9	20	11.2	<.2	7.4	92	12	<.020	4.88	<.040	<.01	<.010	5.3
JAN 2003													
23...	5.9	13	12.7	<.2	3.8	100	8	<.020	7.19	<.040	<.01	<.010	7.3
FEB													
25...	4.1	17	14.0	<.2	6.1	136	18	.240	3.94	<.040	.07	.120	5.0
MAR													
24...	4.1	13	10.2	<.2	4.5	110	2	<.020	4.59	<.040	.01	.016	4.9
APR													
17...	5.1	18	11.2	<.2	4.0	88	14	<.020	5.08	<.040	<.01	<.010	5.1
MAY													
12...	4.6	17	11.4	<.2	3.4	122	<2	<.020	4.84	<.040	.01	.022	5.2
JUN													
24...	4.9	16	10.7	<.2	4.1	122	18	<.020	5.02	<.040	.02	.018	5.5
JUL													
28...	5.1	17	12.1	<.2	2.8	126	2	<.020	5.95	<.040	.01	.012	6.3
AUG													
07...	5.2	21	12.1	<.2	3.3	122	4	<.020	5.12	<.040	.01	.016	5.6
SEP													
11...	5.3	17	12.6	<.2	2.5	170	4	<.020	5.90	<.040	.01	.014	6.5
		01613500 Licking Creek near Sylvan, PA (LAT 39 43 23N LONG 078 03 38W)											
NOV 2002													
04...	6.7	52	--	--	13.7	150	4	<.020	1.95	<.040	.01	.017	2.1
JAN 2003													
06...	5.7	40	--	--	11.3	222	6	<.020	1.90	<.040	.02	.017	2.0
MAR													
10...	4.2	27	--	--	10.3	80	64	.040	1.22	<.040	.08	.081	1.5
MAY													
15...	6.6	52	--	--	10.2	98	10	<.020	1.16	<.040	.02	.018	1.6
JUL													
21...	17.3	158	--	--	13.6	224	10	.020	2.47	<.040	.04	.046	2.6
SEP													
18...	11.1	106	--	--	11.4	164	4	<.020	1.65	<.040	.02	.022	1.9
		01614500 Conococheague Creek at Fairview, MD (LAT 39 42 59N LONG 077 49 29W)											
NOV 2002													
04...	12.2	134	--	--	25.9	308	14	<.020	7.52	<.040	.03	.038	7.6
JAN 2003													
06...	9.2	103	--	--	18.6	144	20	<.020	6.09	<.040	.03	.041	6.4
MAR													
10...	7.5	79	--	--	14.4	200	80	.150	3.65	<.040	.13	.170	4.4
MAY													
15...	10.1	117	--	--	16.0	242	20	<.020	3.91	<.040	.03	.058	4.7
JUL													
21...	15.1	184	--	--	19.4	338	<2	<.020	5.78	<.040	.04	.051	5.7
SEP													
18...	12.7	175	--	--	19.6	312	4	<.020	4.58	<.040	.06	.078	4.9

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45uMF col/ 100 mL (31616)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Cadmium water, fltrd, µg/L (01025)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)
		01577180 Rambo Run at Meadetown near Stewartstown, PA (LAT 39 49 21N LONG 076 31 59W)											
OCT 2002													
15...	--	.8	240	24	76	<4.0	<.20	<4	<4	30	170	<1.0	<1.0
NOV													
19	--	3.8	90	24	76	<4.0	<.20	<4	<4	<20	120	<1.0	<1.0
JAN 2003													
23...	--	1.0	10	--	--	<4.0	<.20	<4	<4	40	140	<1.0	<1.0
FEB													
25...	--	2.8	660	34	100	<4.0	<.20	<4	<4	60	450	<1.0	<1.0
MAR													
24...	--	--	<20	27	84	<4.0	<.20	<4	<4	30	210	<1.0	<1.0
APR													
17...	--	.3	<20	26	90	<4.0	<.20	<4	<4	20	230	<1.0	<1.0
MAY													
12...	--	1.7	40	<10	69	<4.0	<.20	<4	<4	20	200	<1.0	<1.0
JUN													
24...	--	1.0	220	<10	200	<4.0	<.20	<4	<4	20	340	<1.0	<1.0
JUL													
28...	--	.9	120	22	97	<4.0	<.20	<4	<4	<20	230	<1.0	<1.0
AUG													
07...	--	.9	280	<10	100	<4.0	<.20	<4	<4	20	270	<1.0	<1.0
SEP													
11...	--	.6	100	<10	31	<4.0	<.20	<4	<4	<20	160	<1.0	<1.0
			01613500 Licking Creek near Sylvan, PA (LAT 39 43 23N LONG 078 03 38W)										
NOV 2002													
04...	2.4	--	--	--	<200	--	--	--	<10	--	140	--	1.5
JAN 2003													
06...	1.7	--	--	--	200	--	--	--	<10	--	340	--	<1.0
MAR													
10...	2.8	--	--	--	1300	--	--	--	<10	--	1950	--	1.6
MAY													
15...	1.8	--	--	--	300	--	--	--	<10	--	380	--	<1.0
JUL													
21...	2.5	--	--	--	<200	--	--	--	<10	--	180	--	<1.0
SEP													
18...	2.5	--	--	--	<200	--	--	--	<10	--	190	--	<1.0
			01614500 Conococheague Creek at Fairview, MD (LAT 39 42 59N LONG 077 49 29W)										
NOV 2002													
04...	3.0	--	--	--	<200	--	--	--	<10	--	180	--	2.7
JAN 2003													
06...	2.0	--	--	--	500	--	--	--	<10	--	710	--	<1.0
MAR													
10...	3.4	--	--	--	2100	--	--	--	<10	--	3200	--	2.3
MAY													
15...	2.2	--	--	--	600	--	--	--	<10	--	730	--	<1.0
JUL													
21...	2.2	--	--	--	<200	--	--	--	<10	--	250	--	<1.0
SEP													
18...	2.7	--	--	--	<200	--	--	--	<10	--	170	--	<1.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recover-able, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)	Phenolic compounds, water, unfltrd µg/L (32730)
01577180 Rambo Run at Meadetown near Stewartstown, PA (LAT 39 49 21N LONG 076 31 59W)							
OCT 2002							
15...	20	20	<4.0	<4.0	6.9	5.6	<5
NOV							
19...	10	10	<4.0	<4.0	<5.0	<5.0	<5
JAN 2003							
23...	20	10	<4.0	<4.0	<5.0	<5.0	<5
FEB							
25...	20	30	<4.0	<4.0	<5.0	6.6	<5
MAR							
24...	10	10	<4.0	<4.0	<5.0	<5.0	<5
APR							
17...	7.6	10	<4.0	<4.0	7.5	<5.0	<5
MAY							
12...	10	20	<4.0	<4.0	<5.0	<5.0	<5
JUN							
24...	20	30	<4.0	<4.0	<5.0	<5.0	<5
JUL							
28...	6.6	10	<4.0	<4.0	<5.0	<5.0	<5
AUG							
07...	9.3	20	<4.0	<4.0	<5.0	<5.0	<5
SEP							
11...	8.4	10	<4.0	<4.0	<5.0	<5.0	<5
01613500 Licking Creek near Sylvan, PA (LAT 39 43 23N LONG 078 03 38W)							
NOV 2002							
04...	--	<10	--	<50	--	<10	--
JAN 2003							
06...	--	20	--	<50	--	<10	--
MAR							
10...	--	90	--	<50	--	10	--
MAY							
15...	--	30	--	<50	--	70	--
JUL							
21...	--	30	--	<50	--	<10	--
SEP							
18...	--	20	--	<50	--	<10	--
01614500 Conococheague Creek at Fairview, MD (LAT 39 42 59N LONG 077 49 29W)							
NOV 2002							
12...	--	20	--	<50	--	<10	--
JAN 2003							
22...	--	40	--	<50	--	<10	--
MAR							
11...	--	130	--	<50	--	20	--
MAY							
27...	--	40	--	<50	--	160	--
JUL							
24...	--	20	--	<50	--	<10	--
SEP							
25...	--	10	--	<50	--	40	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MISCELLANEOUS LAKE ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Sampling depth, meters (00098)	Transparency Secchi disc, meters (00078)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
		01534380 Crystel Lake near Dandaff, PA (LAT 41 38 08N LONG 075 31 55W)											
AUG 2003													
05...	1450	1028	9813	1.0	4.8	8.2	7.5	123	24.1	27	9.2	1.0	21
05...	1515	1028	9813	21.0	4.8	4.4	6.3	121	6.6	28	9.5	1.0	22
		01541340 Glendale Lake, PA (LAT 40 39 00N LONG 078 32 00W)											
JUL 2003													
30...	1145	1028	9813	1.0	2.9	8.8	8.4	107	24.8	38	10.1	3.2	21
30...	1200	1028	9813	10.0	2.9	0.4	6.9	124	13.3	40	10.7	3.3	31
		01543896 George B. Stevenson Lake near First Fork, PA (LAT 41 24 35N LONG 078 01 15W)											
JUL 2002													
30...	1320	1028	9813	1.0	2.1	9.0	7.7	70	22.3	26	7.1	2.0	20
30...	1330	1028	9813	7.0	2.1	3.1	6.6	78	22.7	27	7.3	2.1	22
JUN 2003													
23...	1400	1028	9813	1.0	3.7	10.3	6.9	57	17.6	21	5.8	1.7	12
23...	1430	1028	9813	8.0	3.7	8.6	6.9	60	12.7	21	5.8	1.7	13
		015448000 Kettle Creek Lake at Kettle Creek Dam, PA (LAT 41 21 37N LONG 077 55 27W)											
JUL 2002													
30...	1045	1028	9813	1.0	3.0	8.2	7.7	61	26.7	24	6.9	1.7	18
30...	1100	1028	9813	8.0	3.0	3.2	6.6	66	22.8	25	7.1	1.7	22
JUN 2003													
23...	1000	1028	9813	1.0	2.2	10.4	6.1	49	15.6	19	5.4	1.4	12
23...	1030	1028	9813	9.0	2.2	5.0	6.5	80	12.8	19	5.4	1.4	12
		01552070 Rose Valley Lake near Bodines, PA (LAT 41 23 12N LONG 076 59 54W)											
JUL 2002													
29...	0945	1028	9813	1.0	1.8	7.8	7.6	60	24.4	22	6.8	1.2	15
29...	1015	1028	9813	4.0	1.8	.8	6.7	77	24.4	23	7.0	1.2	15
JUN 2003													
24...	1330	1028	9813	1.0	3.5	8.8	7.4	53	22.7	19	5.9	1.1	12
46...	1400	1028	9813	4.0	3.5	3.8	6.7	57	18.1	20	6.1	1.2	13
		01553650 Lake Chulliaqueque near White Hall, PA (LAT 41 06 08N LONG 076 39 41W)											
JUL 2002													
29...	1315	1028	9813	1.0	1.6	9.7	9.3	158	26.8	62	17.2	4.6	32
29...	1330	1028	9813	10.0	1.6	.4	7.0	202	11.4	66	18.6	4.8	70
JUN 2002													
24...	1000	1028	9813	1.0	3.8	9.6	6.9	135	21.8	54	15.6	3.7	30
24...	1030	1028	9813	10.0	3.8	.2	7.0	173	10.4	61	17.1	4.3	53
		01555124 Faylor Lake at Beaver Springs, PA (LAT 40 45 47N LONG 077 12 51W)											
JUL 2002													
31...	1010	1028	9813	1.0	.8	6.5	8.9	182	27.0	77	20.4	6.2	74
31...	1015	1028	9813	2.0	.8	1.0	7.4	225	23.6	85	25.2	5.4	84
JUN 2003													
25...	0900	1028	9813	1.0	1.0	12.4	8.7	140	23.5	55	16.0	3.7	46
25...	0930	1028	9813	2.0	1.0	3.0	7.3	149	15.4	55	15.9	3.7	45

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MISCELLANEOUS LAKE ANALYSES

Date	Sulfate water, fltrd, mg/L (00945)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Phos-phorus, water, unfltrd mg/L (00665)	Total nitro-gen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover -able, µg/L (01105)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover -able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover -able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)
		01534380 Crystel Lake near Dandaff, PA (LAT 41 38 08N LONG 075 31 55W)											
AUG 2003													
05...	7.0	2	<.02	<.01	.21	3.0	11	21	<4	<4	<20	80	<1.0
05...	7.0	<2	<.02	<.01	.50	2.7	<10	18	<4	<4	<20	120	<1.0
		01541340 Glendale Lake, PA (LAT 40 39 00N LONG 078 32 00W)											
JUL 2003													
30...	15.1	10	<.02	.01	.52	2.9	24	35	<4	<4	<20	50	<1.0
30...	13.8	10	.42	.01	.74	3.0	19	100	<4	<4	310	840	<1.0
		01543896 George B. Stevenson Lake near First Fork, PA (LAT 41 24 35N LONG 078 01 15W)											
JUL 2002													
30...	7.6	6	<.02	.03	.39	2.5	22	44	<4	<4	20	190	<1.0
30...	7.5	14	.02	.04	.45	2.0	18	88	<4	<4	100	650	<1.0
JUN 2003													
23...	8.2	<2	<.02	.01	.28	1.4	23	23	<4	<4	70	170	<1.0
23...	8.0	<2	<.02	.01	.31	1.5	<10	28	<4	<4	90	240	<1.0
		01544800 Kettle Creek Lake at Kettle Creek Dam, PA (LAT 41 21 37N LONG 077 55 27W)											
JUL 2002													
30...	7.1	4	<.02	.02	.22	1.8	18	23	<4	<4	40	140	<1.0
30...	6.7	<2	.23	.05	.48	2.0	18	46	<4	100	250	720	<1.0
JUN 2003													
23...	7.4	<2	<.02	.02	.40	1.4	<10	25	<4	<4	60	130	<1.0
23...	7.1	4	.03	.02	.33	1.7	<10	36	<4	<4	70	210	<1.0
		01552070 Rose Valley Lake near Bodines, PA (LAT 41 23 12N LONG 076 59 54W)											
SEP 2002													
17...	8.4	2	<.02	.03	.34	3.6	19	20	<4	<4	30	180	<1.0
17...	8.2	<2	<.02	.02	.36	3.5	20	22	<4	<4	50	390	<1.0
AUG 2003													
26...	7.6	<2	<.02	.01	.29	2.8	<10	<10	<4	<4	50	100	<1.0
26...	7.5	<2	.04	.01	.32	2.9	<10	<10	<4	<4	60	120	<1.0
		01553650 Lake Chulliaqueque near White Hall, PA (LAT 41 06 0N8 LONG 076 39 41W)											
AUG 2002													
24...	28.7	16	<.02	.03	2.1	5.8	--	23	--	<4	--	4400	--
24...	10.7	10	1.7	.03	.42	4.3	--	50	--	<4	--	30	--
JUN 2003													
24...	21.7	<2	<.02	.02	.77	3.0	16	38	<4	<4	30	90	<1.0
24...	16.0	8	1.2	.04	1.6	4.3	<10	160	<4	<4	3900	4300	<1.0
		01555124 Faylor Lake at Beaver Springs, PA (LAT 40 45 47N LONG 077 12 51W)											
JUL 2002													
31...	8.2	12	<.02	.08	.68	5.1	28	84	<4	<4	30	560	<1.0
31...	7.7	20	.26	.11	.88	5.0	22	210	<4	<4	100	1100	<1.0
JUN 2003													
25...	9.0	8	<.02	.03	1.7	4.8	13	120	<4	<4	160	390	<1.0
25...	9.0	2	<.02	.03	2.1	4.8	14	140	<4	<4	160	420	<1.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MISCELLANEOUS LAKE ANALYSES

Date	Lead, water, unfltrd recover -able, µg/L (01051)	Mangan- ese, water, fltrd, µg/L (01056)	Mangan- ese, water, unfltrd recover -able, µg/L (01055)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover -able, µg/L (01092)
01534380 Crystel Lake near Dandaff, PA (LAT 41 38 08N LONG 075 31 55W)					
AUG 2003					
05...	<1.0	<2	10	<5.0	<5.0
05...	<1.0	<2	200	<5.0	<5.0
01541340 Glendale Lake, PA (LAT 40 39 00N LONG 078 32 00W)					
JUL 2003					
30...	<1.0	4	36	<5.0	<5.0
30...	<1.0	2000	2300	<5.0	<5.0
01543896 George B. Stevenson Lake near First Fork, PA (LAT 41 24 35N LONG 078 01 15W)					
JUL 2002					
30...	<1.0	<2	33	<5.0	<5.0
30...	<1.0	100	170	<5.0	<5.0
JUN 2003					
23...	<1.0	23	26	<5.0	<5.0
23...	<1.0	36	39	<5.0	<5.0
01544800 Kettle Creek Lake at Kettle Creek Dam, PA (LAT 10 21 37N LONG 077 55 27W)					
JUL 2002					
30...	<1.0	6	22	<5.0	<5.0
30...	3.5	170	240	<5.0	<5.0
JUN 2003					
23...	<1.0	17	28	6.5	<5.0
23...	<1.0	32	40	<5.0	<5.0
01552070 Rose Valley Lake near Bodines, PA (LAT 41 23 12N LONG 076 59 54W)					
SEP 2002					
17...	<1.0	<2	72	<5.0	<5.0
17...	<1.0	<2	140	<5.0	<5.0
AUG 2003					
26...	<1.0	8	32	<5.0	<5.0
26...	<1.0	41	67	<5.0	6.2
01553650 Lake Chulliaqueque near White Hall, PA (LAT 41 06 08N LONG 076 39 41W)					
AUG 2002					
27...	<1.0	--	2	--	<5.0
27...	<1.0	--	4400	--	<5.0
JUN 2003					
24...	<1.0	<2	8	<5.0	<5.0
24...	<1.0	2600	2600	<5.0	<5.0
01555124 Faylor Lake at Beaver Springs, PA (LAT 40 45 47N LONG 077 12 51W)					
AUG 2002					
28...	<1.0	3	210	<5.0	13
28...	<1.0	1400	1500	<5.0	<5.0
JUN 2003					
25...	<1.0	6	40	<5.0	<5.0
25...	<1.0	6	40	<5.0	5.3

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MISCELLANEOUS LAKE ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Sampling depth, meters (00098)	Transparency Secchi disc, meters (00078)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
01555142 Walker Lake at Troxelville, PA (LAT 40 47 48N LONG 077 11 47W)													
JUL 2002													
31...	1200	1028	9813	1.0	.5	10.1	9.1	136	27.4	55	15.8	3.8	46
31...	1210	1028	9813	8.0	.5	1.1	6.7	162	13.7	53	14.7	3.9	56
JUN 2003													
25...	1230	1028	9813	1.0	1.8	11.3	8.1	107	20.5	42	12.5	2.7	33
25...	1300	1028	9813	7.0	1.8	.1	6.8	124	11.5	45	13.3	2.8	40
01564950 Laurel Creek Reservoir near Milroy, PA (LAT 40 43 48N LONG 077 37 45W)													
JUL 2002													
15...	1015	1028	9813	1.0	6.7	8.7	7.1	44	22.2	14	3.4	1.4	9
15...	1030	1028	9813	28.0	6.7	9.2	5.7	167	25.0	17	4.2	1.6	20
JUN 2003													
30...	1100	1028	9813	1.0	5.0	9.9	7.0	62	21.4	13	3.0	1.3	7
30...	1130	1028	9813	29.0	5.0	1.7	6.1	110	5.4	17	4.1	1.7	6
01569200 Letterkenney Reservoir near Roxbury, PA (LAT 40 06 52N LONG 077 41 18W)													
AUG 2002													
07...	1012	1028	9813	1.0	5.5	7.6	7.7	237	27.4	42	12.5	2.5	36
07...	1020	1028	9813	7.0	5.5	.0	6.5	237	19.8	40	12.0	2.4	36
JUL 2003													
21...	1304	1028	9813	1.0	3.8	8.5	7.7	--	25.6	28	8.1	1.9	26
21...	1313	1028	9813	8.0	3.8	4.6	6.2	--	14.7	18	5.0	1.4	17
01569765 Opossum Lake near Plainfield, PA (LAT 40 13 32N LONG 077 16 32W)													
AUG 2002													
05...	1050	1028	9813	1.0	1.8	8.6	9.2	375	29.5	38	7.7	4.6	32
05...	1100	1028	9813	6.0	1.8	.0	5.4	516	11.2	54	12.2	5.8	72
JUL 2003													
21...	1038	1028	9813	1.0	1.7	11.8	9.2	--	26.6	35	7.3	4.2	31
21...	1051	1028	9813	6.0	1.7	.2	4.7	--	9.7	41	9.0	4.6	49
01603700 Lake Koon near Cooks Mills, PA (LAT 39 45 52N LONG 78 39 54W)													
AUG 2002													
06...	1055	1028	9813	1.0	3.8	9.0	8.6	321	26.8	66	20.8	3.5	48
06...	1105	1028	9813	13.0	3.8	--	6.6	--	--	79	25.1	3.9	56
JUL 2003													
28...	1157	1028	9813	1.0	5.2	7.6	8.0	168	25.2	83	26.2	4.2	68
28...	1205	1028	9813	14.0	5.2	.5	6.4	145	4.8	75	23.5	4.1	66
01603800 Lake Gordon near Cooks Mills, PA (LAT 39 44 52N LONG 078 40 34W)													
AUG 2002													
06...	1255	1028	9813	1.0	3.5	8.0	7.6	317	24.8	77	24.7	3.8	56
06...	1310	1028	9813	13.0	3.5	6.5	7.2	315	21.0	78	24.8	3.8	56
JUL 2003													
28...	1337	1028	9813	1.0	2.9	7.8	7.7	163	24.8	78	24.7	3.9	65
28...	1339	1028	9813	15.0	2.9	6.4	7.5	170	24.1	79	25.0	4.1	66

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MISCELLANEOUS LAKE ANALYSES

Date	Sulfate water, fltrd, mg/L (00945)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Phos-phorus, water, unfltrd mg/L (00665)	Total nitro-gen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover -able, µg/L (01105)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover -able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover -able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)
01555142 Walker Lake at Troxelville, PA (LAT 40 47 48N LONG 077 11 47W)													
JUL 2002													
31...	11.6	8	<.02	.03	.78	5.3	48	310	<4	<4	<20	300	<1.0
31...	6.6	12	1.2	.07	.80	5.4	33	450	<4	<4	4400	3400	<1.0
JUN 2003													
25...	8.5	6	<02	.02	1.31	4.6	<10	200	<4	<4	100	330	<1.0
25...	8.8	20	.72	.06	1.35	4.7	22	490	<4	<4	120	1700	<1.0
01564950 Laurel Creek Reservoir near Milroy, PA (LAT 40 43 48N LONG 077 37 45W)													
JUL 2002													
15...	6.5	6	<.02	<.01	.14	1.7	32	48	<4	<4	20	40	<1.0
15...	6.6	<2	.03	.01	.35	1.4	22	38	<4	<4	35	120	<1.0
JUN 2003													
30...	6.5	<2	<.02	.02	.10	1.4	42	52	<4	<4	20	30	<1.0
30...	6.7	<2	.03	.02	.16	1.3	28	61	<4	<4	50	170	<1.0
01569200 Letterkenney Reservoir near Roxbury, PA (LAT 40 06 52N LONG 077 41 18W)													
AUG 2002													
07..	4.4	<2	<.02	.01	.17	2.8	11	12	<4	<4	60	100	<1.0
07...	4.4	2	<.02	<.01	.18	2.8	<10	13	<4	<4	30	340	<1.0
JUL 2003													
21...	5.1	<2	<.02	.01	.26	2.5	28	35	<4	<4	91	150	<1.0
21...	5.7	<2	<.19	.01	.53	2.9	44	71	<4	<4	270	460	1.0
01569765 Opossum Lake near Plainfield, PA (LAT 40 13 32N LONG 077 16 32W)													
AUG 2002													
05..	10.1	<2	<.02	.02	.45	5.0	<10	14	<4	<4	50	170	<1.0
05...	7.7	<2	3.6	.14	2.41	6.8	<10	18	<4	<4	4600	5800	<1.0
JUL 2003													
21...	8.8	6	<.02	.02	.63	4.6	19	22	<4	<4	110	230	<1.0
21...	7.0	8	.86	.03	1.24	4.4	20	48	<4	<4	3700	3300	<1.0
01603700 Lake Koon near Cooks Mills, PA (LAT 39 45 52N LONG 078 39 54W)													
AUG 2002													
06...	13.0	<2	<.02	<.01	.34	3.7	46	57	<4	<4	30	60	<1.0
06...	15.9	<2	.12	.02	.67	3.5	37	40	<4	<4	190	610	<1.0
JUL 2003													
28...	11.3	8	<.02	<.01	.55	3.5	39	24	<4	<4	60	40	<1.0
28...	34.2	8	.74	.04	.96	4.6	19	25	<4	<4	3800	2700	<1.0
01603800 Lake Gordon near Cooks Mills, PA (LAT 39 44 52N LONG 078 40 34W)													
AUG 2002													
06...	14.5	<2	<.02	.01	.47	3.1	<10	<10	<4	<4	20	60	<1.0
06...	14.7	2	.05	.02	.54	3.2	<10	17	<4	<4	50	200	<1.0
JUL 2003													
28...	11.1	2	<.02	.02	.48	3.4	<10	21	<4	<4	<20	70	<1.0
28...	11.1	<2	<.02	.01	.46	3.1	<10	11	<4	<4	<20	70	<1.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MISCELLANEOUS LAKE ANALYSES

Date	Lead, water, unfltrd recover -able, µg/L (01051)	Mangan- ese, water, fltrd, µg/L (01056)	Mangan- ese, water, unfltrd recover -able, µg/L (01055)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover -able, µg/L (01092)
01555142	Walker Lake at Troxelville, PA (LAT 40 47 48N LONG 077 11 47W)				
JUL 2002					
31...	<1.0	6.9	30	<5.0	<5.0
31...	<1.0	1200	1100	<5.0	<5.0
JUN 2003					
25...	<1.0	<2.0	20	<5.0	<5.0
25...	<1.0	600	660	<5.0	<5.0
01564950	Laurel Creek Reservoir near Milroy, PA (LAT 40 43 48N LONG 077 37 45W)				
JUL 2002					
15...	<1.0	26	35	<5.0	<5.0
15...	1.4	55	71	<5.0	<5.0
JUN 2003					
30...	<1.0	22	23	<5.0	<5.0
30...	<1.0	92	100	5.3	5.0
01569200	Letterkenney Reservoir near Roxbury, PA (LAT 40 06 52 N LONG 077 41 18W)				
AUG 2002					
07...	<1.0	<2.0	16	<5.0	<5.0
07...	<1.0	640	350	<5.0	<5.0
JUL 2003					
21...	<1.0	3.3	21	<5.0	<5.0
21...	<1.0	740	830	<5.0	<5.0
01569765	Opossum Lake near Plainfield, PA (LAT 40 13 32N LONG 077 16 32W)				
AUG 2002					
05...	<1.0	<2.0	35	<5.0	<5.0
05...	<1.0	6500	6600	<5.0	<5.0
JUL 2003					
21...	<1.0	5.2	50	<5.0	<5.0
21...	<1.0	3300	3300	<5.0	<5.0
01603700	Lake Koon near Cooks Mills, PA (LAT 39 45 52N LONG 078 39 54W)				
AUG 2002					
06...	<1.0	3.8	15	<5.0	5.1
06...	<1.0	440	520	<5.0	<5.0
JUL 2003					
28...	<1.0	3.9	10	<5.0	<5.0
28...	<1.0	1800	2000	<5.0	<5.0
01603800	Lake Gordon near Cooks Mills, PA (LAT 39 44 52N LONG 078 40 34W)				
AUG 2002					
06..	<1.0	7.9	76	<5.0	<5.0
06...	<1.0	62	310	<5.0	19
JUL 2003					
28...	<1.0	2.3	99	<5.0	<5.0
28...	<1.0	18	170	<5.0	<5.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. A dash (--) indicates there were no observations of the organism in the sample. Samples represent counts per 100 (approximate) subsamples.

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
BENTHIC MACROINVERTEBRATES

Station Number	01503000	01531000	01531490	01532950	01534090	01537700	01538600
Date	9/5/02	8/9/02	8/7/02	9/4/02	8/22/02	8/21/02	8/21/02
Benthic Macroinvertebrate	Count	Count	Count	Count	Count	Count	Count
Platyhelminthes							
Turbellaria (FLATWORMS)							
Tricladida							
Dugesiidae							
Dugesia sp	24	--	--	1	--	--	--
Planariidae	--	--	--	--	--	--	--
Nematoda (NEMATODES)	--	--	--	1	--	--	--
Mollusca							
Gastropoda (SNAILS)	--	--	--	--	--	--	--
Basommatophora							
Ancylidae							
Ferrissia sp	--	--	--	--	--	--	--
Hydrobiidae	1	--	--	--	--	--	--
Lymnaeidae							
Stagnicola sp	--	--	--	--	1	--	--
Physidae							
Aplexa sp	1	--	--	--	--	--	--
Pleuroceridae							
Leptoxis carinata	4	--	--	--	--	--	--
Bivalvia (CLAMS)							
Veneroida							
Corbiculidae							
Corbicula fluminea	--	1	--	--	--	--	--
Sphaeriidae							
Musiculum sp	3	--	--	--	--	--	--
Pisidium sp	--	--	--	--	5	--	--
Sphaerium sp	--	1	--	--	1	62	--
Annelida							
Hirudinea (LEECHES)							
Arhynchobdellida							
Erpobdellidae							
Erpobdella sp	--	--	--	--	--	--	--
Oligochaeta (AQUATIC EARTHWORMS)	16	1	--	16	--	--	--
Lumbriculida							
Lumbriculidae	--	--	--	--	--	--	--
Tubificida							
Enchytraeidae	--	--	--	--	--	--	--
Naididae	--	--	--	--	--	--	--
Arthropoda							
Acariformes							
Hydrachnidia (WATER MITES)	--	--	--	--	--	--	--
Crustacea							
Amphipoda (SCUDS)							
Gammaridae							
Gammarus sp	--	--	--	--	--	1	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
BENTHIC MACROINVERTEBRATES

015400021	01542790	01547400	01547980	01548075	01548085	01549590	Station Number
8/19/02	8/14/02	8/14/02	8/14/02	8/15/02	8/15/02	8/12/02	Date
Count	Count	Count	Count	Count	Count	Count	Benthic Macroinvertebrate
							Platyhelminthes
							Turbellaria (FLATWORMS)
							Tricladida
							Dugesiidae
--	--	--	--	--	--	--	Dugesia sp
--	--	1	--	9	8	--	Planariidae
--	--	--	--	--	--	--	Nematoda (NEMATODES)
							Mollusca
--	--	--	--	--	--	1	Gastropoda (SNAILS)
							Basommatophora
							Ancylidae
--	--	--	--	--	1	--	Ferrissia sp
--	--	--	--	--	--	--	Hydrobiidae
							Lymnaeidae
--	--	--	--	--	--	--	Stagnicola sp
							Physidae
--	--	--	--	--	--	--	Aplexa sp
							Pleuroceridae
--	--	--	--	--	--	--	Leptoxis carinata
							Bivalvia (CLAMS)
							Veneroida
							Corbiculidae
--	--	--	--	--	--	--	Corbicula fluminea
							Sphaeriidae
--	--	--	--	--	--	--	Musiculum sp
--	--	--	--	--	--	--	Pisidium sp
--	--	--	--	--	--	3	Sphaerium sp
							Annelida
							Hirudinea (LEECHES)
							Arhynchobdellida
							Erpobdellidae
1	--	--	--	--	--	--	Erpobdella sp
--	1	--	--	--	--	7	Oligochaeta (AQUATIC EARTHWORMS)
							Lumbriculida
1	--	1	2	--	--	--	Lumbriculidae
							Tubificida
--	--	--	53	1	2	--	Enchytraeidae
--	--	--	--	7	17	--	Naididae
							Arthropoda
							Acariformes
3	--	--	1	2	4	--	Hydrachnidia (WATER MITES)
							Crustacea
							Amphipoda (SCUDS)
							Gammaridae
--	--	3	--	75	--	--	Gammarus sp

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
BENTHIC MACROINVERTEBRATES

Station Number	01503000	01531000	01531490	01532950	01534090	01537700	01538600
Date	9/5/02	8/9/02	8/7/02	9/4/02	8/22/02	8/21/02	8/21/02
Benthic Macroinvertebrate	Count	Count	Count	Count	Count	Count	Count
Crustacea							
Isopoda (AQUATIC SOWBUGS)							
Asellidae							
Caecidotea sp	--	--	--	--	--	1	--
Lirceus sp	--	--	--	--	--	--	--
Decapoda							
Cambaridae (CRAYFISH)	--	--	--	--	--	--	--
Insecta							
Ephemeroptera (MAYFLIES)							
Baetidae	--	--	--	--	--	--	--
Acentrella sp	--	--	1	--	1	1	--
Acerpenna sp	--	--	--	1	--	--	--
Baetis sp	9	21	6	2	--	3	--
Heterocloeon sp	1	--	--	--	--	--	--
Plauditus sp	--	--	--	--	--	--	--
Procloeon sp	--	--	--	1	--	--	--
Caenidae							
Caenis sp	2	2	18	7	2	5	--
Ephemerellidae							
Attenella sp	--	--	--	--	--	--	--
Drunella sp	--	--	--	--	--	--	--
Ephemerella sp	--	1	--	--	--	--	--
Serratella sp	1	9	--	4	4	--	--
Heptageniidae	--	--	--	--	2	6	--
Epeorus sp	1	--	--	--	--	--	--
Heptagenia sp	--	--	--	--	--	--	--
Leucrocuta sp	2	1	44	26	--	--	--
Stenacron sp	--	--	--	--	--	--	--
Stenonema sp	1	14	40	11	7	3	--
Isonychiidae							
Isonychia sp	--	7	4	30	12	5	--
Leptophlebiidae	--	--	--	--	--	--	--
Habrophlebiodes sp	--	--	--	--	11	5	--
Paraleptophlebia sp	--	--	--	2	--	--	--
Potamanthidae							
Anthopotamus sp	5	2	--	--	--	--	--
Tricorythidae							
Tricorythodes sp	--	--	--	1	4	5	--
Odonata (DRAGONFLIES AND DAMSELFLIES)							
Coenagrionidae	--	--	--	1	--	--	--
Argia sp	--	--	--	--	1	--	--
Enallagma sp	--	--	1	--	--	--	--
Gomphidae	--	--	--	1	--	--	--
Plecoptera (STONEFLIES)							
Perlidae							
Acroneuria sp	--	--	2	1	--	--	--
Agnetina sp	--	--	--	--	4	1	--
Neoperla sp	--	--	--	--	1	--	--
Paragnetina sp	--	--	1	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
BENTHIC MACROINVERTEBRATES

015400021	01542790	01547400	01547980	01548075	01548085	01549590	Station Number
8/19/02	8/14/02	8/14/02	8/14/02	8/15/02	8/15/02	8/12/02	Date
Count	Count	Count	Count	Count	Count	Count	Benthic Macroinvertebrate
							Crustacea
							Isopoda (AQUATIC SOWBUGS)
							Asellidae
--	--	2	--	--	4	--	Caecidotea sp
--	--	5	--	--	--	--	Lirceus sp
							Decapoda
--	--	--	--	--	--	1	Cambaridae (CRAYFISH)
							Insecta
							Ephemeroptera (MAYFLIES)
1	--	--	--	--	1	--	Baetidae
--	--	--	--	--	2	--	Acentrella sp
--	--	--	--	--	--	--	Acerpenna sp
--	--	37	--	33	7	--	Baetis sp
--	--	--	--	--	--	--	Heterocloeon sp
--	--	--	--	--	20	--	Plauditus sp
--	--	--	--	--	--	--	Procloeon sp
							Caenidae
--	--	9	--	--	--	--	Caenis sp
							Ephemerellidae
--	--	--	--	1	--	--	Attenella sp
--	--	--	--	1	--	--	Drunella sp
--	--	--	--	--	--	--	Ephemerella sp
4	--	--	--	--	--	--	Serratella sp
1	--	--	--	--	--	--	Heptageniidae
--	--	--	--	--	--	--	Epeorus sp
--	--	1	--	--	--	--	Heptagenia sp
3	--	6	--	--	--	--	Leucrocuta sp
--	--	--	--	--	1	--	Stenacron sp
3	1	8	--	1	8	37	Stenonema sp
							Isonychiidae
6	--	1	--	--	--	38	Isonychia sp
--	--	--	--	2	--	--	Leptophlebiidae
--	--	--	--	--	--	--	Habrophlebiodes sp
--	--	--	--	--	--	--	Paraleptophlebia sp
							Potamanthidae
--	--	--	--	--	--	--	Anthopotamus sp
							Tricorythidae
1	--	--	--	--	1	--	Tricorythodes sp
							Odonata (DRAGONFLIES AND DAMSELFLIES)
--	--	--	--	--	--	--	Coenagrionidae
--	--	--	--	--	--	3	Argia sp
--	--	--	--	--	--	--	Enallagma sp
--	--	--	--	--	--	1	Gomphidae
							Plecoptera (STONEFLIES)
							Perlidae
--	--	--	--	--	--	6	Acroneuria sp
--	--	--	--	--	--	--	Agnetina sp
--	--	--	--	--	--	--	Neoperla sp
1	--	--	--	--	--	--	Paragnetina sp

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
BENTHIC MACROINVERTEBRATES

Station Number	01503000	01531000	01531490	01532950	01534090	01537700	01538600
Date	9/5/02	8/9/02	8/7/02	9/4/02	8/22/02	8/21/02	8/21/02
Benthic Macroinvertebrate	Count	Count	Count	Count	Count	Count	Count
Megaloptera							
Corydalidae (FISHFLIES AND DOBSONFLIES)							
Corydalus sp	--	--	--	7	3	--	4
Nigronia sp	--	--	--	--	--	--	1
Sialidae (ALDERFLIES)							
Sialis sp	--	--	1	1	--	1	--
Trichoptera (CADDISFLIES)							
Brachycentridae							
Brachycentrus sp	--	--	--	--	--	--	--
Micrasema sp	--	--	--	--	--	--	--
Glossosomatidae							
Protoptila sp	--	2	--	--	--	--	--
Helicopsychidae							
Helicopsyche sp	--	--	1	--	--	--	--
Hydropsychidae	--	--	--	--	--	--	--
Cheumatopsyche sp	1	11	2	19	20	29	--
Hydropsyche sp	3	11	7	4	2	--	8
Macrostemum sp	4	2	--	1	11	5	--
Potamyia sp	--	--	--	--	1	--	--
Hydroptilidae							
Hydroptila sp	--	--	3	--	--	--	--
Leucotrichia sp	--	--	7	4	--	--	--
Leptoceridae							
Ceraclea sp	2	--	--	--	--	--	--
Philopotamidae							
Chimarra sp	3	6	2	22	14	18	--
Dolophilodes sp	1	--	--	--	--	--	--
Uenoidae							
Neophylax sp	--	--	--	1	--	--	--
Coleoptera (BEETLES)							
Elmidae (RIFFLE BEETLES)							
Optioservus sp	11	2	--	13	--	1	--
Oulimnius sp	--	--	--	--	--	--	--
Promoresia sp	--	--	--	--	--	--	--
Stenelmis sp	40	2	37	11	61	25	--
Gyrinidae							
Dineutus sp	--	--	--	--	--	--	1
Psephenidae (WATER PENNIES)							
Psephenus sp	--	--	5	15	--	--	--
Diptera (TRUE FLIES)							
Chironomidae (MIDGES)	13	33	23	44	4	19	101
Empididae (DANCE FLIES)							
Hemerodromia sp	--	--	--	--	--	--	4
Simuliidae (BLACK FLIES)							
Simulium sp	--	23	--	1	--	1	--
Tabanidae	--	--	--	1	--	--	--
Tipulidae (CRANE FLIES)							
Antocha sp	--	--	1	--	--	--	--
Total Organisms	149	152	206	250	172	197	119

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
BENTHIC MACROINVERTEBRATES

015400021	01542790	01547400	01547980	01548075	01548085	01549590	Station Number
8/19/02	8/14/02	8/14/02	8/14/02	8/15/02	8/15/02	8/12/02	Date
Count	Count	Count	Count	Count	Count	Count	Benthic Macroinvertebrate
							Megaloptera
							Corydalidae (FISHFLIES AND DOBSO
--	--	--	--	--	--	2	Corydalus sp
--	--	--	--	--	1	--	Nigronia sp
							Sialidae (ALDERFLIES)
--	--	--	2	--	--	--	Sialis sp
							Trichoptera (CADDISFLIES)
							Brachycentridae
--	--	--	--	7	1	--	Brachycentrus sp
--	--	--	--	3	--	--	Micrasema sp
							Glossosomatidae
--	--	--	--	--	--	--	Protoptila sp
							Helicopsychidae
--	--	--	--	--	--	--	Helicopsyche sp
2	--	--	--	--	--	--	Hydropsychidae
24	4	12	1	8	65	11	Cheumatopsyche sp
8	8	13	1	7	38	--	Hydropsyche sp
--	1	--	--	--	--	--	Macrostemum sp
--	--	--	--	--	--	--	Potamyia sp
							Hydroptilidae
1	--	--	--	--	23	--	Hydroptila sp
--	--	--	--	--	--	--	Leucotrichia sp
							Leptoceridae
--	--	--	--	--	--	--	Ceraclea sp
							Philopotamidae
15	5	--	--	--	--	9	Chimarra sp
--	1	--	--	--	--	--	Dolophilodes sp
							Uenoidae
--	--	--	--	--	--	--	Neophylax sp
							Coleoptera (BEETLES)
							Elmidae (RIFFLE BEETLES)
8	--	3	--	19	2	--	Optioservus sp
1	--	--	--	1	--	--	Oulimnius sp
8	--	--	--	--	--	--	Promoresia sp
11	1	3	1	--	1	--	Stenelmis sp
							Gyrinidae
--	1	--	--	--	--	--	Dineutus sp
							Psephenidae (WATER PENNIES)
1	--	--	--	--	--	--	Psephenus sp
							Diptera (TRUE FLIES)
12	13	37	30	72	143	23	Chironomidae (MIDGES)
							Empididae (DANCE FLIES)
--	--	--	8	--	2	--	Hemerodromia sp
							Simuliidae (BLACK FLIES)
--	--	4	--	10	2	--	Simulium sp
--	--	--	--	--	--	--	Tabanidae
							Tipulidae (CRANE FLIES)
--	--	2	--	2	--	--	Antocha sp
116	36	152	99	261	354	142	Total Organisms

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
BENTHIC MACROINVERTEBRATES

Station Number	01553005	01553990	01555210	01555859	01556009	01570400	01571505
Date	8/8/02	8/20/02	8/20/02	8/13/02	8/13/02	8/22/02	8/22/02
Benthic Macroinvertebrate	Count	Count	Count	Count	Count	Count	Count
Platyhelminthes							
Turbellaria (FLATWORMS)							
Tricladida							
Planariidae	--	2	--	--	4	3	1
Nematoda (NEMATODES)	--	--	--	--	1	--	--
Mollusca							
Gastropoda (SNAILS)							
Basommatophora							
Ancylidae							
Ferrissia sp	1	--	--	--	--	--	--
Physidae							
Physa sp	--	--	--	--	--	--	--
Planorbidae							
Planorbella sp	--	--	--	--	--	--	--
Pleuroceridae							
Leptoxis carinata	--	4	--	--	--	2	--
Bivalvia (CLAMS)							
Veneroida							
Corbiculidae							
Corbicula fluminea	--	1	--	--	4	7	--
Sphaeriidae	--	--	--	--	--	--	--
Sphaerium sp	--	19	--	--	--	2	--
Annelida							
Hirudinea (LEECHES)							
Arhynchobdellida							
Erpobdellidae							
Erpobdella punctata	--	--	--	--	--	--	--
Oligochaeta (AQUATIC EARTHWORMS)	2	--	--	--	--	--	--
Lumbricina	--	--	--	2	7	--	--
Lumbriculida							
Lumbriculidae	--	--	--	--	--	--	2
Tubificida							
Naididae	--	--	--	--	--	--	--
Tubificidae	--	--	--	--	--	28	1
Arthropoda							
Acariformes							
Hydrachnidia (WATER MITES)	--	--	--	--	--	--	1
Crustacea							
Amphipoda (SCUDS)							
Crangonyctidae							
Crangonyx sp	--	--	1	--	--	--	--
Gammaridae							
Gammarus sp	--	--	--	--	--	43	6
Isopoda (AQUATIC SOWBUGS)							
Asellidae							
Caecidotea sp	--	--	--	--	7	--	--
Decapoda							
Cambaridae (CRAYFISH)							
Orconectes sp	--	--	--	--	1	1	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
BENTHIC MACROINVERTEBRATES

01573610	01575900	01576003	01576787	01613500	01614500	Station Number
8/27/02	8/27/02	8/28/02	8/26/02	8/12/02	8/12/02	Date
Count	Count	Count	Count	Count	Count	Benthic Macroinvertebrate
						Platyhelminthes
						Turbellaria (FLATWORMS)
						Tricladida
9	2	3	--	--	--	Planariidae
--	--	--	--	--	--	Nematoda (NEMATODES)
						Mollusca
						Gastropoda (SNAILS)
						Basommatophora
						Ancylidae
--	3	1	--	3	--	Ferrissia sp
						Physidae
5	--	--	--	--	--	Physa sp
						Planorbidae
1	--	--	--	--	--	Planorbella sp
						Pleuroceridae
1	--	--	--	--	--	Leptoxis carinata
						Bivalvia (CLAMS)
						Veneroida
						Corbiculidae
--	1	--	1	3	1	Corbicula fluminea
1	--	--	--	--	--	Sphaeriidae
--	--	--	1	--	1	Sphaerium sp
						Annelida
						Hirudinea (LEECHES)
						Arhynchobdellida
						Erpobdellidae
--	--	1	--	--	--	Erpobdella punctata
--	--	--	--	--	--	Oligochaeta (AQUATIC EARTHWORMS)
--	--	--	--	--	--	Lumbricina
						Lumbriculida
--	--	--	--	--	--	Lumbriculidae
						Tubificida
--	--	1	1	1	--	Naididae
--	--	--	1	1	--	Tubificidae
						Arthropoda
						Acariformes
1	--	--	1	1	--	Hydrachnidia (WATER MITES)
						Crustacea
						Amphipoda (SCUDS)
						Crangonyctidae
--	--	--	--	--	--	Crangonyx sp
						Gammaridae
30	--	--	--	--	--	Gammarus sp
						Isopoda (AQUATIC SOWBUGS)
						Asellidae
--	--	--	--	--	--	Caecidotea sp
						Decapoda
						Cambaridae (CRAYFISH)
--	--	--	--	--	--	Orconectes sp

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
BENTHIC MACROINVERTEBRATES

Station Number	01553005	01553990	01555210	01555859	01556009	01570400	01571505
Date	8/8/02	8/20/02	8/20/02	8/13/02	8/13/02	8/22/02	8/22/02
Benthic Macroinvertebrate	Count	Count	Count	Count	Count	Count	Count
Insecta							
Ephemeroptera (MAYFLIES)							
Baetidae	--	--	--	--	--	--	--
Baetis sp	6	2	22	--	15	26	14
Heterocloeon sp	--	--	--	--	--	--	--
Procloeon sp	--	--	--	--	--	2	--
Caenidae							
Caenis sp	--	4	2	--	2	9	2
Ephemerellidae							
Serratella sp	5	--	12	--	40	--	--
Heptageniidae	--	--	--	--	4	--	1
Leucrocuta sp	38	1	6	--	21	2	--
Stenacron sp	--	--	--	--	--	2	--
Stenonema sp	25	2	29	--	20	9	9
Isonychiidae							
Isonychia sp	36	31	10	--	7	2	2
Potamanthidae							
Anthopotamus sp	--	1	--	--	--	--	--
Tricorythidae							
Tricorythodes sp	--	7	--	--	--	15	2
Odonata (DRAGONFLIES AND DAMSELFLIES)							
Coenagrionidae							
Argia sp	--	--	--	--	1	2	--
Plecoptera (STONEFLIES)							
Leuctridae							
Leuctra sp	1	--	--	--	--	--	--
Perlidae							
Acroneuria sp	3	--	--	--	--	--	--
Agnetina sp	1	2	--	--	--	--	--
Megaloptera							
Corydalidae (FISHFLIES AND DOBSONFLIES)							
Chauliodes sp	--	--	--	--	--	--	--
Corydalus sp	--	--	1	--	--	--	--
Trichoptera (CADDISFLIES)							
Glossosomatidae							
Protoptila sp	--	2	--	--	--	--	--
Helicopsychidae							
Helicopsyche sp	--	--	--	--	--	--	--
Hydropsychidae	--	--	--	12	--	--	--
Cheumatopsyche sp	5	36	8	27	1	--	5
Hydropsyche sp	6	2	7	11	--	--	1
Macrostemum sp	--	9	--	--	--	--	--
Hydroptilidae	--	--	--	1	--	--	--
Hydroptila sp	--	--	--	2	--	--	7
Leucotrichia sp	--	--	--	--	2	--	--
Limnephilidae							
Pycnopsyche sp	--	--	--	--	--	--	--
Philopotamidae							
Chimarra sp	5	41	8	--	10	5	1

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
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BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
BENTHIC MACROINVERTEBRATES

01573610	01575900	01576003	01576787	01613500	01614500	Station Number
8/27/02	8/27/02	8/28/02	8/26/02	8/12/02	8/12/02	Date
Count	Count	Count	Count	Count	Count	Benthic Macroinvertebrate
						Insecta
						Ephemeroptera (MAYFLIES)
2	--	--	--	--	--	Baetidae
8	8	10	13	1	21	Baetis sp
--	--	3	--	--	--	Heterocloeon sp
--	--	1	--	--	--	Procloeon sp
						Caenidae
--	31	4	2	3	12	Caenis sp
						Ephemerellidae
--	1	--	--	--	4	Serratella sp
7	--	--	--	--	8	Heptageniidae
2	--	2	3	1	5	Leucrocuta sp
--	--	1	--	--	--	Stenacron sp
17	5	12	12	3	5	Stenonema sp
						Isonychiidae
4	--	--	2	2	4	Isonychia sp
						Potamanthidae
6	--	4	1	--	7	Anthopotamus sp
						Tricorythidae
15	--	1	4	--	12	Tricorythodes sp
						Odonata (DRAGONFLIES AND DAMSELFLIES)
						Coenagrionidae
--	--	14	1	--	--	Argia sp
						Plecoptera (STONEFLIES)
						Leuctridae
--	--	--	--	--	--	Leuctra sp
						Perlidae
--	--	--	--	--	--	Acroneuria sp
--	--	1	--	--	--	Agnetina sp
						Megaloptera
						Corydalidae (FISHFLIES AND DOBSONFLIES)
--	--	--	--	1	--	Chauliodes sp
--	--	--	7	1	--	Corydalus sp
						Trichoptera (CADDISFLIES)
						Glossosomatidae
--	--	--	--	--	--	Protoptila sp
						Helicopsychidae
1	--	--	1	--	--	Helicopsyche sp
--	--	--	--	--	15	Hydropsychidae
13	3	--	2	14	19	Cheumatopsyche sp
2	1	3	--	1	--	Hydropsyche sp
--	--	--	--	--	--	Macrostemum sp
--	--	--	--	--	--	Hydroptilidae
12	--	--	3	--	10	Hydroptila sp
--	--	--	--	--	--	Leucotrichia sp
						Limnephilidae
--	1	--	--	--	--	Pycnopsyche sp
						Philopotamidae
8	--	11	1	13	--	Chimarra sp

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
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BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
BENTHIC MACROINVERTEBRATES

Station Number	01553005	01553990	01555210	01555859	01556009	01570400	01571505
Date	8/8/02	8/20/02	8/20/02	8/13/02	8/13/02	8/22/02	8/22/02
Benthic Macroinvertebrate	Count	Count	Count	Count	Count	Count	Count
Trichoptera (CADDISFLIES)							
Rhyacophilidae							
Rhyacophila sp	--	--	--	1	--	--	--
Lepidoptera (MOTHS AND BUTTERFLIES)							
Pyralidae	--	--	--	--	--	--	--
Petrophila sp	--	--	--	--	--	--	--
Coleoptera (BEETLES)							
Elmidae (RIFFLE BEETLES)							
Microcylloepus sp	--	--	--	--	--	--	--
Optioservus sp	1	1	9	--	8	--	15
Stenelmis sp	3	21	24	2	30	14	12
Gyrinidae							
Dineutus sp	2	--	--	--	--	--	--
Psephenidae (WATER PENNIES)							
Psephenus sp	3	--	7	--	14	--	--
Diptera (TRUE FLIES)	--	--	--	--	--	--	--
Chironomidae (MIDGES)	20	8	1	29	9	15	13
Empididae (DANCE FLIES)							
Hemerodromia sp	--	--	--	4	--	--	--
Simuliidae (BLACK FLIES)							
Simulium sp	--	--	1	--	--	--	--
Tipulidae (CRANE FLIES)							
Antocha sp	--	--	--	1	--	--	--
Hexatoma sp	1	--	--	--	--	--	--
Total Organisms	164	196	148	92	208	189	95

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
BENTHIC MACROINVERTEBRATES

01573610	01575900	01576003	01576787	01613500	01614500	Station Number
8/27/02	8/27/02	8/28/02	8/26/02	8/12/02	8/12/02	Date
Count	Count	Count	Count	Count	Count	Benthic Macroinvertebrate
						Trichoptera (CADDISFLIES)
						Rhyacophilidae
--	--	--	--	--	--	Rhyacophila sp
--	--	--	--	--	2	Lepidoptera (MOTHS AND BUTTERFLIES)
						Pyralidae
1	--	1	1	--	--	Petrophila sp
						Coleoptera (BEETLES)
						Elmidae (RIFFLE BEETLES)
--	--	--	--	--	1	Microcylloepus sp
36	4	1	2	22	18	Optioservus sp
62	29	11	56	16	17	Stenelmis sp
						Gyrinidae
--	--	--	--	--	--	Dineutus sp
						Psephenidae (WATER PENNIES)
4	8	6	4	3	3	Psephenus sp
1	--	--	--	--	--	Diptera (TRUE FLIES)
50	12	5	33	4	113	Chironomidae (MIDGES)
						Empididae (DANCE FLIES)
--	--	1	--	--	--	Hemerodromia sp
						Simuliidae (BLACK FLIES)
--	--	--	--	--	--	Simulium sp
						Tipulidae (CRANE FLIES)
--	1	--	--	--	--	Antocha sp
--	--	--	--	--	--	Hexatoma sp
299	110	98	153	94	278	Total Organisms

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocals for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. A dash (--) indicates there were no observations of the organism in the sample. Samples represent counts per 200 (approximate) subsamples.

Station Number	01533610	01539350	01553430	01554600	01564515	01567795	01573750	01577180
Date	3/29/02	4/2/02	4/11/02	4/11/02	4/10/02	4/17/02	4/17/02	4/12/02
Benthic Macroinvertebrate	Count	Count	Count	Count	Count	Count	Count	Count
Platyhelminthes								
Turbellaria (FLATWORMS)								
Tricladida								
Planariidae	--	1	--	--	--	--	--	--
Mollusca								
Gastropoda (SNAILS)								
Basommatophora								
Ancylidae								
Ferrissia sp	--	--	--	--	1	--	--	--
Lymnaeidae								
Fossaria sp	--	--	--	--	--	1	--	--
Physidae								
Physa sp	--	--	--	--	--	5	--	--
Planorbidae								
Planorbella sp	--	--	--	--	--	--	1	--
Bivalvia (CLAMS)								
Veneroida								
Corbiculidae								
Corbicula fluminea	--	--	--	--	3	--	--	--
Sphaeriidae								
Sphaerium sp	--	--	--	4	3	--	--	--
Annelida								
Oligochaeta (AQUATIC EARTHWORMS)								
Lumbricina	--	--	--	--	1	--	--	--
Tubificida								
Naididae	--	1	2	--	--	--	1	1
Tubificidae	--	--	--	--	--	6	1	--
Arthropoda								
Acariformes								
Hydrachnidia (WATER MITES)	--	--	7	1	--	3	--	--
Crustacea								
Amphipoda (SCUDS)								
Gammaridae								
Gammarus sp	--	--	--	6	--	94	--	--
Isopoda (AQUATIC SOWBUGS)								
Asellidae								
Lirceus sp	--	--	--	--	--	24	--	--
Insecta								
Ephemeroptera (MAYFLIES)								
Baetidae								
Acentrella sp	--	1	--	--	--	--	--	5
Baetis sp	2	1	2	11	1	7	--	1
Caenidae								
Caenis sp	--	--	--	--	1	--	--	--
Ephemerellidae								
Drunella sp	6	13	--	14	--	1	11	68
Ephemerella sp	11	10	34	6	1	8	51	34
Eurylophella sp	1	--	1	--	1	--	1	--
Serratella sp	--	12	--	--	19	--	7	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
BENTHIC MACROINVERTEBRATES

Station Number	01533610	01539350	01553430	01554600	01564515	01567795	01573750	01577180
Date	3/29/02	4/2/02	4/11/02	4/11/02	4/10/02	4/17/02	4/17/02	4/12/02
Benthic Macroinvertebrate	Count	Count	Count	Count	Count	Count	Count	Count
Ephemeroptera (MAYFLIES)								
Ephemeridae								
Ephemera sp	--	2	--	--	--	--	--	--
Heptageniidae								
Cinygmula sp	20	2	1	--	--	--	--	--
Epeorus sp	39	6	7	--	--	--	18	10
Leucrocuta sp	1	5	1	--	--	--	--	--
Rhithrogena sp	3	--	--	--	--	--	--	--
Stenacron sp	--	--	--	--	1	--	--	--
Stenonema sp	--	2	7	2	16	--	16	5
Isonychiidae								
Isonychia sp	--	3	--	--	2	--	7	3
Leptophlebiidae	--	--	--	2	--	--	--	--
Paraleptophlebia sp	9	9	6	--	--	--	9	1
Odonata								
Coenagrionidae								
Argia sp	--	--	--	--	1	--	--	--
Gomphidae	--	1	1	--	--	--	--	--
Lanthus sp	--	--	--	--	--	--	2	--
Plecoptera (STONEFLIES)								
Chloroperlidae								
Sweltsa sp	4	--	1	--	--	--	--	--
Leuctridae								
Leuctra sp	6	--	--	--	--	--	1	1
Nemouridae								
Amphinemura sp	1	--	8	--	--	--	1	3
Perlidae								
Acroneuria sp	1	3	1	--	2	--	11	1
Agnetina sp	6	1	--	--	2	--	1	--
Perlesta sp	--	--	--	--	3	--	--	--
Perlodidae								
Isoperla sp	2	1	3	--	--	--	--	4
Remenus sp	--	--	--	--	--	--	2	--
Pteronarcyidae								
Pteronarcys sp	--	--	2	--	--	--	--	--
Taeniopterygidae								
Taenionema sp	6	1	--	--	--	--	--	--
Megaloptera								
Corydalidae								
Nigronia sp	--	2	1	--	--	--	2	2
Trichoptera (CADDISFLIES)								
Brachycentridae								
Micrasema sp	--	--	--	4	1	--	3	--
Glossosomatidae								
Agapetus sp	--	--	--	3	--	--	--	--
Helicopsychidae								
Helicopsyche sp	--	--	--	--	1	--	--	--
Hydropsychidae								
Cheumatopsyche sp	3	14	6	6	14	1	7	5
Diplectrona sp	--	--	9	--	--	--	--	1
Hydropsyche sp	3	6	4	20	5	--	--	14
Hydroptilidae								
Hydroptila sp	--	--	1	--	--	--	--	--
Leucotrichia sp	--	--	--	--	1	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
BENTHIC MACROINVERTEBRATES

Station Number	01533610	01539350	01553430	01554600	01564515	01567795	01573750	01577180
Date	3/29/02	4/2/02	4/11/02	4/11/02	4/10/02	4/17/02	4/17/02	4/12/02
Benthic Macroinvertebrate	Count	Count	Count	Count	Count	Count	Count	Count
Trichoptera (CADDISFLIES)								
Lepidostomatidae								
Lepidostoma sp	--	--	1	--	1	--	2	--
Leptoceridae								
Ceraclea sp	--	1	--	--	--	--	--	--
Limnephilidae								
Pycnopsyche sp	--	--	--	--	1	--	--	--
Odontoceridae								
Psilotreta sp	4	--	--	--	--	--	--	--
Philopotamidae								
Chimarra sp	--	23	--	--	27	--	--	--
Dolophilodes sp	1	1	3	--	--	--	--	4
Rhyacophilidae								
Rhyacophila sp	3	1	5	1	--	--	2	3
Uenoidae								
Neophylax sp	4	4	--	8	--	--	1	--
Coleoptera (BEETLES)								
Dryopidae								
Helichus sp	--	--	--	--	--	--	1	--
Elmidae (RIFFLE BEETLES)								
Optioservus sp	1	5	--	56	14	13	--	5
Oulimnius sp	1	--	11	--	--	--	30	--
Promoresia sp	--	--	25	--	4	--	12	8
Stenelmis sp	--	--	--	--	63	--	--	--
Psephenidae (WATER PENNIES)								
Psephenus sp	--	1	--	--	9	--	--	--
Diptera (TRUE FLIES)								
Ceratopogonidae (BITING MIDGES)	--	--	1	--	2	--	--	--
Chironomidae (MIDGES)	16	33	73	54	29	45	78	20
Empididae (DANCE FLIES)								
Chelifera sp	1	2	1	1	--	--	3	--
Hemerodromia sp	--	4	1	--	4	--	--	--
Simuliidae (BLACK FLIES)								
Prosimulium sp	4	10	24	--	1	--	7	--
Simulium sp	--	--	--	--	--	--	--	3
Tipulidae (CRANE FLIES)								
Antocha sp	3	3	--	--	--	--	1	9
Dicranota sp	--	--	1	--	--	--	--	--
Hexatoma sp	10	2	--	2	--	--	--	--
Limnophila sp	--	--	--	1	--	--	--	--
Tipula sp	--	--	1	--	1	--	--	--
Total Organisms	172	207	252	202	236	208	280	311

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT

EVALUATION OF LIMESTONE TREATMENT OF ACIDIC MINE DRAINAGE IN SWATARA CREEK BASIN, SCHUYLKILL COUNTY, PENNSYLVANIA

Acidic mine drainage (AMD) from abandoned anthracite mines has degraded water resources in the 48 mi^2 northern Swatara Creek Basin. To neutralize the AMD, with a goal of remediating approximately 25 miles (67 percent) of degraded streams in the basin, a variety of limestone treatment systems have been constructed (fig. 8). Most of the limestone treatment systems were installed during fall 1996 and spring 1997. The type and size of the treatment system was based on streamflow rates and chemistry determined by preliminary monitoring and field trials. The treatments, which include limestone-sand dosing, open limestone channels, anoxic and oxic limestone drains, and limestone diversion wells, were constructed by the Schuylkill County Conservation District and the Northern Swatara Creek Watershed Association, with technical assistance from the USGS and the Pennsylvania Department of Environmental Protection (PaDEP). Each treatment has different advantages and disadvantages; however, all suffer from possible complication associated with variability of flow rates and chemistry of the AMD-contaminated water and from uncertainties about efficiency and longevity of the treatment.

To resolve uncertainties about treatment designs (efficiency and longevity), limestone dissolution in response to variations in water chemistry and coating (armoring) by iron and aluminum hydroxides, and appropriate uses of the various limestone treatments, the USGS has established monitoring stations upstream and downstream of each treatment. During base-flow and high-flow conditions in 1995-2003, data on discharge rate and water quality at 48 stations in the Swatara Creek basin and 5 stations in adjacent watersheds (table 5) were collected to characterize untreated mine drainage, treatment-system performance, and cumulative downstream effects. In spring-summer 1996, two streamflow stations on Swatara Creek, Site C3, at Newtown (station 0157155014) and Swatara Creek near Ravine (station 01571820) were installed for continuous streamflow and water-quality monitoring. The data for these stations indicate cumulative effects of AMD remediation throughout the northern Swatara Creek basin.

Limestone sand dosing and open limestone channels are the simplest treatment systems where limestone is added directly to the stream channel semiannually or less frequently. Limestone sand, which can dissolve rapidly because of its small size (<1/8 inch), was dumped into Coal Run (14 tons) between stations C4 and C6 on September 4, 1996, and into Lorberry Creek (150 tons) below station E2 on February 13-14, 1997 (fig. 8). An open limestone channel was constructed within a 110-ft long segment of Swatara Creek at station B2 (fig. 8) on March 21, 1997. A total of 44 tons of sand-size fragments and 70 tons of larger fragments (1-4 inches) were installed as a series of alternating berms extending part way across the 15-ft-wide channel from opposite sides of the stream.

A limestone drain is another relatively simple treatment method, which involves the burial of limestone in air-tight trenches that intercept acidic discharge water. Keeping oxygen out of contact with the discharge water minimizes the potential for oxidation of ferrous iron and the consequent precipitation of ferric-iron armoring as iron hydroxides. Furthermore, keeping carbon dioxide within the drain can enhance limestone dissolution and alkalinity production. Limestone drains were constructed on March 15, 1995, at station E3 to treat a small acidic discharge (10-30 gpm, oxic inflow; 44 tons limestone) along Lower Rausch Creek May 21, 1997, at station A1 to treat a large discharge (50-200 gpm, anoxic inflow; 400 tons limestone) at the headwaters of Swatara Creek; and on May 20, 2000, at station C0-1 to treat a large discharge (50-500 gpm; oxic inflow; 880 tons limestone) near the headwaters of Swatara Creek (fig. 8).

In a limestone diversion well, acidic water is diverted from upstream points and the hydraulic force of the piped flow is deflected upward through limestone fragments inside 4-ft diameter "wells." Hydraulic churning abrades limestone forming fine particles and preventing the buildup of iron or aluminum hydroxides armoring. On November 14, 1995, a pair of diversion wells was installed to treat water diverted from Swatara Creek at station C2; on July 13, 1997, a single diversion well was installed to treat water from Martin Run at station C8 (fig. 8); and, on November 18-19, 1998, another pair of diversion wells was installed to treat water diverted from Lorberry Creek above station E2-0. Approximately 1 ton of limestone is consumed weekly by each operating diversion well.

Constructed wetlands for treatment of mine drainage can attenuate the transport of dissolved and suspended pollutants by promoting the production of alkalinity and the precipitation and deposition of iron and other metals. For net acidic water (acidity > alkalinity), wetlands that have compost and/or limestone substrates can be appropriate. The organic matter in the compost provides a substrate for plant rooting and for microbial reduction of sulfate. In December 1998, a 3-acre aerobic wetland system with limestone and compost substrate was installed near the mouth of Lower Rausch Creek between stations E3-1 and E3-2, and in December 2001, a 3-acre aerobic wetland system that intercepts outflow from the limestone diversion wells on Lorberry Creek below station E2-0 began operation. At the inflow to the Lorberry wetlands, a hopper with water-powered auger was installed to deliver pelletized lime or limestone as needed. The main objective for these wetlands is to reduce the downstream transport of metals, with a secondary objective of providing additional alkalinity.

Additional data for this project can be found in this report on pages 252-317. For additional information, contact Charles Cravotta at the U.S. Geological Survey, 215 Limekiln Road, New Cumberland, PA 17070; 717-730-6963 (email: cravotta@usgs.gov).

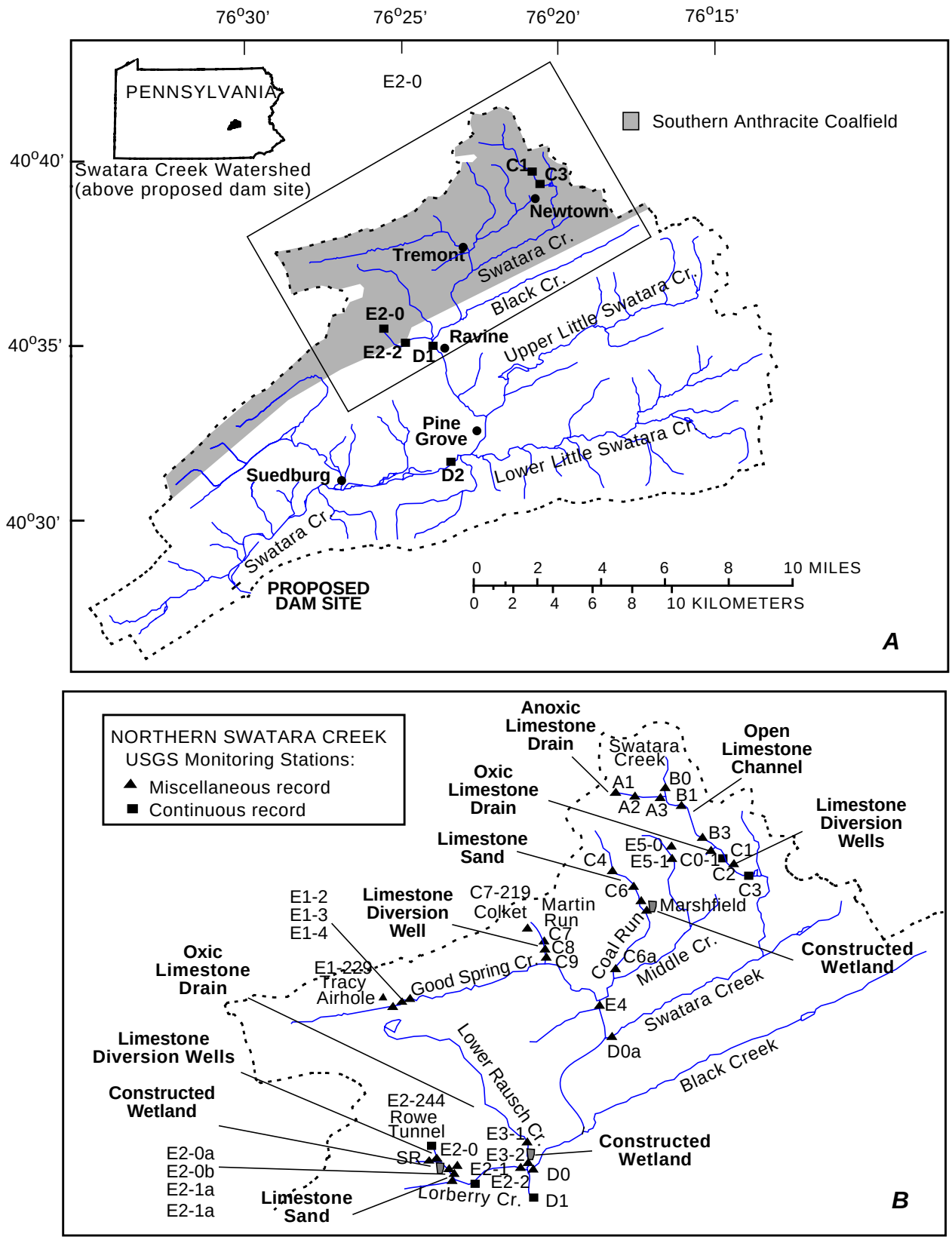


Figure 8.--Locations of water-quality and streamflow monitoring stations in the Swatara Creek Basin, Lebanon and Schuylkill Counties, Pennsylvania: *A*, continuous monitoring stations on Swatara Creek above the proposed dam for Swatara State Park Reservoir; B, monitoring stations within the Southern Anthracite Coalfield, above Ravine (area denoted in *A*).

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

TABLE 5.--Swatara Creek project station list.

REMARKS.--All samples collected by the U.S. Geological Survey. Abbreviations used in the following table include: AB-above; BL-below; NR-near; DS-downstream, US-upstream, ALD-anoxic limestone drain; OLD-oxic limestone drain; OLC-open limestone channel; LS-limestone sand; LDW-limestone diversion well; n.a.-not applicable.

LOCAL ID	STATION NUMBER	STATION NAME	LATITUDE	LONGITUDE	DRAINAGE AREA
		CONTINUOUS-RECORD STATIONS			
C1	0157155010	SWATARA CREEK, SITE C1, 350 FT AB LDW, AB SR209 BRIDGE AT NEWTOWN, PA	40°39'34"	76°20'50"	2.58
C3	0157155014	SWATARA CREEK, SITE C3, 350 FT BL LDW, BL SR209 BRIDGE AT NEWTOWN, PA	40°39'28"	76°20'43"	2.92
E2-244	403542076263201	ROWE DRAINAGE TUNNEL, SITE E2-244, NEAR JOLIETT	40°35'42"	76°26'32"	n.a.
E2-1	01571778	LORBERRY CREEK NEAR LORBERRY JUNCTION, PA	40°35'15"	76°25'35"	3.59
D1	01571820	SWATARA CREEK NEAR RAVINE, PA	40°34'50"	76°24'18"	43.3
D2	01572025	SWATARA CREEK NEAR PINE GROVE, PA	40°31'57"	76°24'09"	116
		MISCELLANEOUS-RECORD STATIONS			
A1-199	404032076222901	WM CARL BUCK MTN MINE, SITE A1-199, NEAR NEWTOWN	40°40'32"	76°22'29"	n.a.
A2	0157154970	NORTHWEST TRIBIUTARY TO SWATARA CREEK, SITE A2, AT ALD OUTFLOW, NEAR NEWTOWN, PA	40°40'32"	76°22'25"	.25
A3	0157154972	NORTHWEST TRIBIUTARY TO SWATARA CREEK, SITE A3, 1500 FT BELOW ALD, NEAR NEWTOWN, PA	40°40'32"	76°21'59"	.40
B0	0157154960	SWATARA CREEK, ABOVE NORTHWEST TRIBUTARY, SITE B0, NEAR NEWTOWN, PA	40°40'34"	76°21'57"	1.14
B3	0157154984	SWATARA CREEK, BELOW NORTHWEST TRIBUTARY, SITE B3, 400 FT BELOW OLC, NEAR NEWTOWN, PA	40°40'22"	76°21'36"	1.90
C0-1	403955076211801	HEGINS MINE DISCHARGE, SITE C0-1, AT NEWTOWN, PA	40°39'55"	76°21'18"	n.a.
	403955076211802	HEGINS MINE DISCHARGE, TREATED, AT NEWTOWN, PA	40°39'55"	76°21'18"	n.a.
C2	0157155012	SWATARA CREEK, SITE C2, AT LDW OUTFLOW, AT NEWTOWN, PA	40°39'31"	76°20'47"	2.65
E1-229	403745076271901	TRACY AIRHOLE, SITE E1-229, NEAR DONALDSON, PA	40°37'45"	76°27'19"	n.a.
D0a	01571552	SWATARA CREEK AT TREMONT, PA	40°37'08"	76°23'09"	9.81
E4	01571593	GOOD SPRING CREEK BL MIDDLE CREEK AT TREMONT, PA	40°37'35"	76°23'15"	14.0
E3-1	01571758	LOWER RAUSCH CREEK, SITE E3-1 ABOVE WETLAND, NEAR LORBERRY JUNCTION, PA	40°35'34"	76°24'40"	4.65
E3-2	01571760	LOWER RAUSCH CREEK, SITE E3-2 BELOW WETLAND, AT LORBERRY JUNCTION, PA	40°35'22"	76°24'42"	4.65
E2-0b	01571773	LORBERRY CREEK DIV WELLS OUTFLOW NR LORBERRY,PA	40°35'36"	76°26'25"	1.01
E2-0	01571774	LORBERRY CREEK, SITE E2-0, AT LORBERRY, PA	40°35'32"	76°26'22"	1.15
SR	01571776	STUMPS RUN AT LORBERRY, PA	40°35'30"	76°26'23"	.65
	0157177610	LORBERRY CREEK WETLANDS INFLOW AT LORBERRY, PA	40°35'29"	76°26'23"	
	0157177612	LORBERRY CR WETLANDS CELL 1 OUTFLOW AT LORBERRY	40°35'27"	76°26'25"	
	0157177614	LORBERRY CR WETLANDS CELL 2 OUTFLOW AT LORBERRY	40°35'28"	76°26'20"	
	0157177616	LORBERRY CR WETLANDS CELL 3 OUTFLOW AT LORBERRY	40°35'26"	76°26'24"	
	0157177618	LORBERRY CR WETLANDS CELL 4 OUTFLOW AT LORBERRY	40°35'27"	76°26'19"	
	403530076262601	PIPED DISCHARGE NEAR CELL 1, PA	40°35'30"	76°26'26"	
	0157177620	LORBERRY CREEK BELOW WETLANDS AT LORBERRY, PA	40°35'27"	76°26'17"	1.80
SH	403521076260601	SHADLE MINE SHAFT AT LORBERRY, PA	40°35'21"	76°26'06"	n.a.
	0157177680	SHADLE MINE DISCHARGE, 250 FT BL SHAFT NEAR LORBERRY, PA	40°35'15"	76°25'59"	
	01571777	LORBERRY CREEK ABOVE PANTHER HEAD DISCHARGE NEAR LORBERRY JUNCTION, PA	40°35'11"	76°25'55"	2.11
	0157177780	PANTHER HEAD, 500 FT BELOW DISCHARGE TO LORBERRY CREEK NEAR LORBERRY JUNCTION, PA	40°35'10"	76°25'56"	.01
	0157177790	UNNAMED TRIBUTARY TO LORBERRY CREEK NEAR LORBERRY JUNCTION, PA	40°35'07"	76°25'48"	1.14
E2-2	01571780	LORBERRY CREEK ABOVE LOWER RAUSCH CREEK AT LORBERRY JUNCTION, PA	40°35'20"	76°24'43"	4.17
D0	01571798	SWATARA CREEK BELOW TR412 BRIDGE AT LORBERRY JUNCTION, PA	40°35'18"	76°24'37"	42.3

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

404032076222901 -- WM Carl Buck Mtn Mine, Site A1-199, nr Newtown, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf µS/cm 25 degC (00095)
NOV										
21...	1345	1028	89203	.02	466	1.0	1.8	5.0	4.8	283
FEB										
27...	1515	1028	89203	.02	444	.0	2.2	5.0	4.7	240
APR										
29...	1345	1028	89203	.01	392	.0	1.8	4.8	4.5	276
JUN										
26...	1445	1028	89203	.01	426	1.0	4.1	4.6	4.8	237
AUG										
25...	1300	1028	89203	.01	435	--	1.7	4.8	4.8	231

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV										
21...	10.3	5.70	7.1	11.0	12.6	2.00	2.0	12.1	15.8	3
FEB										
27...	.0	5.00	4.7	9.70	9.7	1.70	1.6	14.0	14.3	3
APR										
29...	9.4	4.50	4.2	8.60	9.0	1.70	1.4	16.9	15.5	.0
JUN										
26...	10.2	4.50	4.3	9.20	9.7	1.60	1.6	16.5	18.1	2
AUG										
25...	11.0	4.10	3.9	8.30	7.9	1.50	1.4	14.2	15.1	2

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV										
21...	800	900	20500	20500	2000	2170	139	148	299	293
FEB										
27...	800	700	17700	15600	1650	1530	118	111	284	243
APR										
29...	800	800	12900	12800	1470	1390	112	103	259	261
JUN										
26...	800	800	13100	13800	1440	1400	108	101	269	248
AUG										
25...	700	600	12000	12300	1310	1270	97.0	92.0	253	227

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157154970 -- NW Trib to Swatara Cr, Site A2, near Newtown, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf µS/cm 25 degC (00095)
NOV										
21...	1400	1028	89203	.71	466	.0	4.0	5.2	6.8	280
FEB										
27...	1500	1028	89203	.14	328	.0	.7	6.7	6.6	317
APR										
29...	1330	1028	89203	.04	340	.0	1.0	6.5	6.6	323
JUN										
26...	1430	1028	89203	.09	316	.0	1.0	6.1	6.3	361
AUG										
25...	1245	1028	89203	.07	272	--	.6	6.2	6.5	313

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV										
21...	10.4	31.2	--	8.20	--	1.84	--	12.7	--	63
FEB										
27...	8.0	32.1	--	6.70	--	1.60	--	14.1	--	65
APR										
29...	7.4	26.8	27.7	5.90	6.7	1.40	1.5	18.4	17.2	6
JUN										
26...	9.8	32.2	33.0	8.90	9.5	1.60	1.6	17.4	17.6	69
AUG										
25...	11.7	35.6	34.3	6.50	6.3	1.70	1.6	13.9	15.2	59

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV										
21...	<100	--	10100	--	1650	--	85.1	--	176	--
FEB										
27...	<100	--	6890	--	1320	--	74.0	--	160	--
APR										
29...	<100	<100	6610	6770	1150	1190	77.0	63.0	154	161
JUN										
26...	100	100	12800	13300	1460	1430	96.0	91.0	263	245
AUG										
25...	<100	<100	8140	8220	1140	1110	67.0	64.0	178	149

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157154972 -- NW Trib to Swatara Cr, Site A3, near Newtown, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf µS/cm 25 degC (00095)
NOV										
21...	1245	1028	89203	.46	387	9.0	10.8	7.2	6.5	248
FEB										
27...	1430	1028	89203	1.1	319	16	12.8	7.0	6.8	247
APR										
29...	1245	1028	89203	.86	375	9.0	11.1	6.5	6.7	198
JUN										
26...	1345	1028	89203	1.1	218	8.0	10.1	6.6	6.4	245
AUG										
25...	1215	1028	89203	1.1	241	--	10.1	6.2	7.0	203

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV										
21...	9.6	18.8	23.6	7.80	9.0	1.90	2.1	11.3	12.7	19
FEB										
27...	3.4	21.4	--	6.90	--	1.90	--	11.6	--	26
APR										
29...	9.3	18.4	19.1	6.60	7.4	1.50	1.5	16.8	14.2	2
JUN										
26...	13.9	14.3	14.8	6.90	7.4	1.50	1.5	14.9	16.9	13
AUG										
25...	13.4	21.0	20.0	7.10	7.2	1.50	1.6	13.5	14.4	22

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV										
21...	<100	200	4350	5470	1370	1480	74.0	87.0	134	143
FEB										
27...	<100	--	2070	--	1080	--	46.0	--	98.0	--
APR										
29...	<100	300	2990	4530	1080	1090	65.0	59.0	110	131
JUN										
26...	<100	300	4230	5710	1100	1130	78.0	66.0	147	163
AUG										
25...	<100	200	1690	4100	1060	1070	66.0	64.0	88.0	112

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157154960 -- Swatara Creek, ab NW Trib, Site B0, nr Newtown, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf µS/cm 25 degC (00095)
NOV										
21...	1230	1028	89203	4.3	613	1.0	11.5	4.2	4.2	92
FEB										
27...	1415	1028	89203	2.7	525	.0	13.8	4.4	4.4	108
APR										
29...	1230	1028	89203	1.3	516	2.0	11.0	4.2	4.4	104
JUN										
26...	1330	1028	89203	3.6	503	4.0	9.9	4.1	4.2	82
AUG										
25...	1200	1028	89203	.90	602	--	9.4	4.1	4.3	71

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV										
21...	7.1	1.10	7.9	1.10	1.5	.50	.8	6.10	7.4	.0
FEB										
27...	.8	1.40	1.3	1.10	1.1	.40	.5	7.70	8.3	.0
APR										
29...	9.9	1.30	1.2	1.00	1.1	.50	.5	8.00	6.7	.0
JUN										
26...	15.0	1.30	1.0	1.10	1.1	.40	.4	6.10	5.7	.0
AUG										
25...	15.6	1.00	1.0	1.10	1.0	.50	.5	4.40	5.0	.0

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV										
21...	1000	1100	220	310	180	220	9.00	20.0	50.0	160
FEB										
27...	1000	900	110	130	210	210	<5.00	14.0	54.0	43.0
APR										
29...	900	900	160	130	190	190	9.00	9.00	46.0	43.0
JUN										
26...	1000	1000	90.0	150	170	150	8.00	17.0	45.0	40.0
AUG										
25...	1000	1000	310	260	190	190	15.0	14.0	44.0	40.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157154984 -- Swatara Cr, bl NW Trib, Site B3, near Newtown, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf µS/cm 25 degC (00095)
NOV										
21...	1145	1028	89203	4.7	391	7.0	11.4	6.1	6.0	119
APR										
29...	1145	1028	89203	2.2	406	8.0	11.1	6.2	6.2	138
JUN										
26...	1230	1028	89203	4.7	422	14	10.0	5.6	6.5	112
AUG										
25...	1145	1028	89203	2.0	299	--	9.8	6.0	6.7	119

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV										
21...	7.5	6.10	6.7	3.00	3.2	1.00	1.1	8.20	7.8	3
APR										
29...	9.8	6.60	6.6	2.80	3.0	.90	.8	10.3	8.2	3
JUN										
26...	15.1	5.20	5.3	2.90	3.1	.80	.7	8.40	9.8	15
AUG										
25...	15.1	8.40	8.8	3.40	3.4	.90	.9	8.00	8.7	6

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV										
21...	<100	800	1060	1500	490	520	23.0	26.0	77.0	72.0
APR										
29...	<100	700	750	1470	450	450	35.0	26.0	67.0	71.0
JUN										
26...	100	800	1270	1760	470	460	29.0	37.0	79.0	81.0
AUG										
25...	100	600	510	1610	490	530	24.0	32.0	59.0	69.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403955076211801 -- Hegins Mine Discharge Site C0-1, at Newtown, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
NOV										
21...	1115	1028	89203	.34	704	.0	10.8	96	3.5	3.5
APR										
29...	1115	1028	89203	.22	475	.0	10.8	96	3.5	4.5
JUN										
04...	1200	1028	1028	1.2	620	.0	11.0	98	3.6	3.6
26...	1215	1028	89203	.68	572	.0	11.0	99	3.6	3.7
AUG										
25...	1115	1028	89203	.22	677	--	10.8	98	3.5	3.7

Date	Specif. conduct-ance, wat unf µS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnes-ium, water, fltrd, mg/L (00925)	Magnes-ium, water, unfltrd recover-able, mg/L (00927)	Potas-sium, water, fltrd, mg/L (00935)	Potas-sium, water, unfltrd recover-able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover-able, mg/L (00929)
NOV										
21...	295	10.0	8.80	10.3	32.3	36.7	1.80	2.0	5.40	6.2
APR										
29...	451	10.0	7.90	7.6	26.3	27.7	1.60	1.5	7.80	5.8
JUN										
04...	430	10.0	7.00	--	25.4	--	1.50	--	5.15	--
26...	430	10.4	7.70	7.7	27.1	27.7	1.60	1.8	6.70	7.0
AUG										
25...	419	10.7	7.50	7.8	26.8	28.3	1.60	1.8	5.00	6.2

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)
NOV										
21...	.000	--	--	--	--	--	--	--	--	--
APR										
29...	.000	--	--	--	--	--	--	--	--	--
JUN										
04...	.000	46.0	46.0	10.1	.20	13.2	168	.10	<.040	<.001
26...	.000	--	--	--	--	--	--	--	--	--
AUG										
25...	.000	--	--	--	--	--	--	--	--	--

Date	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Anti-mony, water, fltrd, µg/L (01095)	Arsenic water, fltrd, µg/L (01000)	Barium, water, fltrd, µg/L (01005)	Beryll-ium, water, fltrd, µg/L (01010)	Bismuth water, fltrd, µg/L (01015)	Bromine water unfltrd mg/L (71871)	Cadmium water, fltrd, µg/L (01025)	Cerium, water, fltrd, µg/L (01110)	Cesium, water, fltrd, µg/L (01115)
NOV											
21...	5500	5600	--	--	--	--	--	--	--	--	--
APR											
29...	4400	4200	--	--	--	--	--	--	--	--	--
JUN											
04...	3750	--	.088	<1.00	18.5	1.60	.030	<.06	.670	13.0	.088
26...	4000	3700	--	--	--	--	--	--	--	--	--
AUG											
25...	3900	3800	--	--	--	--	--	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403955076211801 -- Hegins Mine Discharge Site C0-1, at Newtown, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Chromium, water, fltrd, µg/L (01030)	Cobalt water, fltrd, µg/L (01035)	Copper, water, fltrd, µg/L (01040)	Dysprosium, water, fltrd, µg/L (82331)	Erbium, water, fltrd, µg/L (50573)	Europium, water, fltrd, µg/L (50574)	Gadolinium, water, fltrd, µg/L (50575)	Gallium water, fltrd, µg/L (01120)	Germanium, water, fltrd, µg/L (01125)	Gold, water, fltrd, µg/L (82334)
NOV										
21...	--	--	--	--	--	--	--	--	--	--
APR										
29...	--	--	--	--	--	--	--	--	--	--
JUN										
04...	1.50	66.0	24.5	1.00	.580	.260	1.20	.055	.067	.094
26...	--	--	--	--	--	--	--	--	--	--
AUG										
25...	--	--	--	--	--	--	--	--	--	--

Date	Holmium water, fltrd, µg/L (50577)	Indium water, fltrd, µg/L (62843)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lantha-num, water, fltrd, µg/L (01180)	Lead, water, fltrd, µg/L (01049)	Lithium water, fltrd, µg/L (01130)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recover-able, µg/L (01055)	Molybdenum, water, fltrd, µg/L (01060)
NOV										
21...	--	--	190	290	--	--	--	1650	1720	--
APR										
29...	--	--	210	140	--	--	--	1340	1290	--
JUN										
04...	.210	<.010	200	--	6.60	3.40	16.0	1060	--	.120
26...	--	--	210	170	--	--	--	1200	1140	--
AUG										
25...	--	--	150	190	--	--	--	1250	1330	--

Date	Neodymium, water, fltrd, µg/L (50579)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Praseodymium, water, fltrd, µg/L (50582)	Rhenium water, fltrd, µg/L (50583)	Rubidium, water, fltrd, µg/L (01135)	Samarium, water, fltrd, µg/L (82323)	Selenium, water, fltrd, µg/L (01145)	Silver, water, fltrd, µg/L (01075)	Strontium, water, fltrd, µg/L (01080)
NOV										
21...	--	167	177	--	--	--	--	--	--	--
APR										
29...	--	138	118	--	--	--	--	--	--	--
JUN										
04...	6.50	102	--	1.60	<.020	3.10	1.30	.790	.071	55.5
26...	--	117	105	--	--	--	--	--	--	--
AUG										
25...	--	121	117	--	--	--	--	--	--	--

Date	Terbium water, fltrd, µg/L (50586)	Thallium, water, fltrd, µg/L (01057)	Thorium water, fltrd, µg/L (82365)	Thulium water, fltrd, µg/L (50587)	Tungsten, water, fltrd, µg/L (01155)	Vanadium, water, fltrd, µg/L (01085)	Ytterbium, water, fltrd, µg/L (01194)	Yttrium water, fltrd, µg/L (01201)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)	Uranium natural water, fltrd, µg/L (22703)
NOV											
21...	--	--	--	--	--	--	--	--	435	406	--
APR											
29...	--	--	--	--	--	--	--	--	337	341	--
JUN											
04...	.160	<.050	.010	.087	.031	<.100	.550	4.40	285	--	.490
26...	--	--	--	--	--	--	--	--	326	299	--
AUG											
25...	--	--	--	--	--	--	--	--	346	327	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403955076211802 -- Hegins Mine Discharge, Treated, at Newtown, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
NOV										
21...	1100	1028	89203	.34	629	.0	10.6	94	4.1	4.1
APR										
29...	1100	1028	89203	.22	498	.0	11.2	100	4.4	3.7
JUN										
04...	1145	1028	1028	1.2	550	.0	10.2	91	4.2	--
26...	1200	1028	89203	.68	533	.0	11.1	100	4.2	4.3
AUG										
25...	1100	1028	89203	.22	596	--	10.8	97	4.2	4.4

Date	Specif. conduct-ance, wat unf µS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnes-ium, water, fltrd, mg/L (00925)	Magnes-ium, water, unfltrd recover-able, mg/L (00927)	Potas-sium, water, fltrd, mg/L (00935)	Potas-sium, water, unfltrd recover-able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover-able, mg/L (00929)
NOV										
21...	429	9.8	14.2	16.7	34.8	39.2	2.10	2.0	5.40	5.9
APR										
29...	394	10.0	13.9	13.3	26.6	27.8	1.80	1.5	8.40	7.6
JUN										
04...	390	10.2	11.3	--	25.6	--	1.55	--	5.10	--
26...	374	10.9	11.7	12.2	25.7	27.8	1.60	1.4	6.00	6.1
AUG										
25...	366	10.7	12.2	12.4	27.1	28.0	1.60	1.6	5.50	6.2

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)
NOV										
21...	.000	--	--	--	--	--	--	--	--	--
APR										
29...	.000	--	--	--	--	--	--	--	--	--
JUN										
04...	.000	--	28.0	--	--	13.6	290	--	--	<.001
26...	.000	--	--	--	--	--	--	--	--	--
AUG										
25...	.000	--	--	--	--	--	--	--	--	--

Date	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Anti-mony, water, fltrd, µg/L (01095)	Arsenic water, fltrd, µg/L (01000)	Barium, water, fltrd, µg/L (01005)	Beryll-ium, water, fltrd, µg/L (01010)	Bismuth water, fltrd, µg/L (01015)	Bromine water unfltrd mg/L (71871)	Cadmium water, fltrd, µg/L (01025)	Cerium, water, fltrd, µg/L (01110)	Cesium, water, fltrd, µg/L (01115)
NOV											
21...	5700	6100	--	--	--	--	--	--	--	--	--
APR											
29...	4200	3900	--	--	--	--	--	--	--	--	--
JUN											
04...	3750	--	.050	<1.00	19.5	1.40	<.020	--	.640	13.0	.084
26...	3600	3600	--	--	--	--	--	--	--	--	--
AUG											
25...	3900	3600	--	--	--	--	--	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403955076211802 -- Hegins Mine Discharge, Treated, at Newtown, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Chromium, water, fltrd, µg/L (01030)	Cobalt water, fltrd, µg/L (01035)	Copper, water, fltrd, µg/L (01040)	Dysprosium, water, fltrd, µg/L (82331)	Erbium, water, fltrd, µg/L (50573)	Europium, water, fltrd, µg/L (50574)	Gadolinium, water, fltrd, µg/L (50575)	Gallium water, fltrd, µg/L (01120)	Germanium, water, fltrd, µg/L (01125)	Gold, water, fltrd, µg/L (82334)
NOV										
21...	--	--	--	--	--	--	--	--	--	--
APR										
29...	--	--	--	--	--	--	--	--	--	--
JUN										
04...	<1.00	65.0	21.5	.940	.560	.260	1.10	<.020	.025	.077
26...	--	--	--	--	--	--	--	--	--	--
AUG										
25...	--	--	--	--	--	--	--	--	--	--

Date	Holmium water, fltrd, µg/L (50577)	Indium water, fltrd, µg/L (62843)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lanthanum, water, fltrd, µg/L (01180)	Lead, water, fltrd, µg/L (01049)	Lithium water, fltrd, µg/L (01130)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recover-able, µg/L (01055)	Molybdenum, water, fltrd, µg/L (01060)
NOV										
21...	--	--	240	230	--	--	--	1650	1880	--
APR										
29...	--	--	90.0	60.0	--	--	--	1300	1240	--
JUN										
04...	.190	<.010	155	--	6.50	3.20	16.0	1050	--	.150
26...	--	--	260	100	--	--	--	1120	1100	--
AUG										
25...	--	--	160	60.0	--	--	--	1240	1280	--

Date	Neodymium, water, fltrd, µg/L (50579)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Praseodymium, water, fltrd, µg/L (50582)	Rhenium water, fltrd, µg/L (50583)	Rubidium, water, fltrd, µg/L (01135)	Samarium, water, fltrd, µg/L (82323)	Selenium, water, fltrd, µg/L (01145)	Silver, water, fltrd, µg/L (01075)	Strontium, water, fltrd, µg/L (01080)
NOV										
21...	--	158	169	--	--	--	--	--	--	--
APR										
29...	--	130	112	--	--	--	--	--	--	--
JUN										
04...	6.20	99.5	--	1.60	<.020	3.10	1.30	.740	.036	59.0
26...	--	114	114	--	--	--	--	--	--	--
AUG										
25...	--	120	118	--	--	--	--	--	--	--

Date	Terbium water, fltrd, µg/L (50586)	Thallium, water, fltrd, µg/L (01057)	Thorium water, fltrd, µg/L (82365)	Thulium water, fltrd, µg/L (50587)	Tungsten, water, fltrd, µg/L (01155)	Vanadium, water, fltrd, µg/L (01085)	Ytterbium, water, fltrd, µg/L (01194)	Yttrium water, fltrd, µg/L (01201)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)	Uranium natural water, fltrd, µg/L (22703)
NOV											
21...	--	--	--	--	--	--	--	--	449	411	--
APR											
29...	--	--	--	--	--	--	--	--	333	327	--
JUN											
04...	.160	<.050	<.010	.087	.020	<.100	.530	4.20	286	--	.470
26...	--	--	--	--	--	--	--	--	310	292	--
AUG											
25...	--	--	--	--	--	--	--	--	333	314	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157155012 -- Swatara Creek, Site C2, at Newtown, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf µS/cm 25 degC (00095)
NOV										
21...	1015	1028	89203	.11	483	16	10.9	5.3	5.2	158
FEB										
27...	1315	1028	89203	.38	410	1.0	14.3	5.8	5.3	153
APR										
29...	1015	1028	89203	.42	436	4.0	10.8	5.8	5.9	364
JUN										
26...	1115	1028	89203	1.6	453	17	10.1	5.3	6.4	145
AUG										
25...	1015	1028	89203	.41	353	--	9.8	6.2	6.4	154

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV										
21...	6.8	7.40	8.1	6.90	7.1	1.10	.9	5.90	7.1	2
FEB										
27...	1.3	7.90	7.9	5.70	6.0	.90	.9	7.80	8.3	2
APR										
29...	10.0	8.50	8.4	5.70	6.0	.90	.9	9.00	7.4	3
JUN										
26...	14.8	7.50	10.7	6.00	6.8	.90	.8	7.10	7.3	5
AUG										
25...	14.3	10.0	10.2	6.70	6.7	.90	1.0	6.60	7.4	4

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV										
21...	800	1100	580	740	570	550	44.0	68.0	111	117
FEB										
27...	300	800	370	420	450	410	32.0	36.0	90.0	75.0
APR										
29...	200	800	390	680	450	430	29.0	31.0	82.0	85.0
JUN										
26...	300	1000	640	1080	480	480	32.0	35.0	98.0	98.0
AUG										
25...	<100	700	210	640	490	490	31.0	37.0	84.0	79.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403745076271901 -- Tracy Airhole, Site E1-229, near Donaldson, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
JUN 04...	1100	1028	1028	3.4	310	32	1.8	18	5.9	6.5

Date	Specif. conduct-tance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recover-able, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recover-able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover-able, mg/L (00929)
JUN 04...	540	10.9	32.9	--	32.5	--	1.85	--	8.35	--

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)
JUN 04...	41.0	<22.7	55.0	16.2	.10	8.15	202	.20	<.040	<.001

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recover-able, µg/L (01105)	Antimony, water, fltrd, µg/L (01095)	Arsenic water, fltrd, µg/L (01000)	Barium, water, fltrd, µg/L (01005)	Beryllium, water, fltrd, µg/L (01010)	Bismuth water, fltrd, µg/L (01015)	Bromine water unfltrd mg/L (71871)	Cadmium water, fltrd, µg/L (01025)	Cerium, water, fltrd, µg/L (01110)	Cesium, water, fltrd, µg/L (01115)
JUN 04...	9.30	--	.030	<1.00	22.0	.250	<.020	<.06	.140	.180	.072

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403745076271901 -- Tracy Airhole, Site E1-229, near Donaldson, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Chromium, water, fltrd, µg/L (01030)	Cobalt water, fltrd, µg/L (01035)	Copper, water, fltrd, µg/L (01040)	Dysprosium, water, fltrd, µg/L (82331)	Erbium, water, fltrd, µg/L (50573)	Europium, water, fltrd, µg/L (50574)	Gadolinium, water, fltrd, µg/L (50575)	Gallium water, fltrd, µg/L (01120)	Germanium, water, fltrd, µg/L (01125)	Gold, water, fltrd, µg/L (82334)
JUN 04...	<1.00	36.0	.780	.025	.015	<.005	.023	.039	<.020	<.010

Date	Holmium water, fltrd, µg/L (50577)	Indium water, fltrd, µg/L (62843)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lanthanum, water, fltrd, µg/L (01180)	Lead, water, fltrd, µg/L (01049)	Lithium water, fltrd, µg/L (01130)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recover-able, µg/L (01055)	Molybdenum, water, fltrd, µg/L (01060)
JUN 04...	.007	<.010	10200	--	.120	<.050	23.0	1860	--	.071

Date	Neodymium, water, fltrd, µg/L (50579)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Praseodymium, water, fltrd, µg/L (50582)	Rhenium water, fltrd, µg/L (50583)	Rubidium, water, fltrd, µg/L (01135)	Samarium, water, fltrd, µg/L (82323)	Selenium, water, fltrd, µg/L (01145)	Silver, water, fltrd, µg/L (01075)	Strontium, water, fltrd, µg/L (01080)
JUN 04...	.073	44.0	--	.017	<.020	2.90	.014	<.200	.015	150

Date	Terbium water, fltrd, µg/L (50586)	Thallium, water, fltrd, µg/L (01057)	Thorium water, fltrd, µg/L (82365)	Thulium water, fltrd, µg/L (50587)	Tungsten, water, fltrd, µg/L (01155)	Vanadium, water, fltrd, µg/L (01085)	Ytterbium, water, fltrd, µg/L (01194)	Yttrium water, fltrd, µg/L (01201)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)	Uranium natural water, fltrd, µg/L (22703)
JUN 04...	<.005	<.050	<.010	<.005	<.020	<.100	.014	.280	31.5	--	.016

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571593 -- Good Spring Creek bl Middle Creek at Tremont, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
OCT										
02...	1400	1028	9801	9.1	360	--	10.1	105	6.9	6.2
NOV										
21...	0930	1028	89203	15	429	4.0	11.7	93	5.9	6.4
FEB										
27...	1015	1028	89203	15	423	3.0	13.9	100	6.7	6.6
APR										
29...	0915	1028	89203	28	388	10	11.1	98	6.6	6.6
JUN										
26...	1030	1028	89203	15	359	20	10.2	100	6.2	6.1
AUG										
25...	0930	1028	89203	15	272	--	10.0	98	6.7	6.7

Date	Specif. conduct-ance, wat unf µS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnes-ium, water, fltrd, mg/L (00925)	Magnes-ium, water, unfltrd recover-able, mg/L (00927)	Potas-sium, water, fltrd, mg/L (00935)	Potas-sium, water, unfltrd recover-able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover-able, mg/L (00929)
OCT										
02...	340	15.7	23.2	23.0	17.5	17.4	2.15	2.2	9.80	9.8
NOV										
21...	148	5.7	12.8	--	6.40	--	1.20	--	3.70	--
FEB										
27...	294	2.1	10.6	--	6.20	--	.90	--	4.80	--
APR										
29...	321	10.1	11.6	12.0	7.00	7.6	.90	1.1	5.20	3.9
JUN										
26...	238	14.2	14.4	16.0	12.1	13.8	1.60	1.7	8.00	8.2
AUG										
25...	338	14.2	25.6	24.2	20.3	20.7	1.80	1.8	9.00	9.6

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Silica, water, fltrd, mg/L (00955)	Silica, water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water unfltrd mg/L (00946)	Phos-phorus, water, fltrd, mg/L (00666)	Phos-phorus, water, unfltrd mg/L (00665)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)
OCT										
02...	9.00	.000	8.39	8.64	110	120	<.003	<.003	34.5	405
NOV										
21...	5.80	--	--	--	--	--	--	--	200	--
FEB										
27...	19.0	.000	--	--	--	--	--	--	100	--
APR										
29...	7.50	--	--	--	--	--	--	--	<100	400
JUN										
26...	3.80	--	--	--	--	--	--	--	<100	1200
AUG										
25...	11.5	.000	--	--	--	--	--	--	<100	600

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571593 -- Good Spring Creek bl Middle Creek at Tremont, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Anti-mony, water, fltrd, µg/L (01095)	Anti-mony, water, unfltrd µg/L (01097)	Arsenic water, fltrd, µg/L (01000)	Arsenic water unfltrd µg/L (01002)	Barium, water, fltrd, µg/L (01005)	Barium, water, unfltrd recover-able, µg/L (01007)	Beryll-ium, water, fltrd, µg/L (01010)	Beryll-ium, water, unfltrd recover-able, µg/L (00998)	Bismuth water, fltrd, µg/L (01015)	Bismuth water unfltrd µg/L (01017)
OCT 02...	<.040	<.040	<.200	<.200	29.5	30.0	.100	.500	<.030	<.030
NOV 21...	--	--	--	--	--	--	--	--	--	--
FEB 27...	--	--	--	--	--	--	--	--	--	--
APR 29...	--	--	--	--	--	--	--	--	--	--
JUN 26...	--	--	--	--	--	--	--	--	--	--
AUG 25...	--	--	--	--	--	--	--	--	--	--

Date	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)	Cerium, water, fltrd, µg/L (01110)	Cerium, water, unfltrd µg/L (01112)	Cesium, water, fltrd, µg/L (01115)	Cesium, water, unfltrd µg/L (01117)	Chrom-ium, water, fltrd, µg/L (01030)	Chrom-ium, water, unfltrd recover-able, µg/L (01034)	Cobalt water, fltrd, µg/L (01035)	Cobalt water, unfltrd recover-able, µg/L (01037)
OCT 02...	0.30	0.20	.720	1.30	.040	.050	<1.00	<1.00	21.0	21.0
NOV 21...	--	--	--	--	--	--	--	--	--	--
FEB 27...	--	--	--	--	--	--	--	--	--	--
APR 29...	--	--	--	--	--	--	--	--	--	--
JUN 26...	--	--	--	--	--	--	--	--	--	--
AUG 25...	--	--	--	--	--	--	--	--	--	--

Date	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Dyspros-ium, water, fltrd, µg/L (82331)	Dyspros-ium, water, unfltrd µg/L (82330)	Erbium, water, fltrd, µg/L (50573)	Erbium, water, unfltrd µg/L (01246)	Euro-pium, water, fltrd, µg/L (50574)	Europ-ium, water, unfltrd µg/L (01236)	Gado-linium, water, fltrd, µg/L (50575)	Gado-linium, water, unfltrd µg/L (01219)
OCT 02...	2.00	3.00	.065	.180	.040	.100	.010	.030	.076	.200
NOV 21...	--	--	--	--	--	--	--	--	--	--
FEB 27...	--	--	--	--	--	--	--	--	--	--
APR 29...	--	--	--	--	--	--	--	--	--	--
JUN 26...	--	--	--	--	--	--	--	--	--	--
AUG 25...	--	--	--	--	--	--	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571593 -- Good Spring Creek bl Middle Creek at Tremont, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Gallium water, fltrd, µg/L (01120)	Gallium water, unfltrd µg/L (01122)	Germanium, water, fltrd, µg/L (01125)	Germanium, water, unfltrd µg/L (01127)	Gold, water, fltrd, µg/L (82334)	Gold, water, unfltrd µg/L (71910)	Holmium water, fltrd, µg/L (50577)	Holmium water unfltrd µg/L (01247)	Indium water, fltrd, µg/L (62843)	Indium, water, unfltrd µg/L (01168)
OCT										
02...	<.020	<.020	<.020	<.020	<.010	<.010	.010	.030	<.010	<.010
NOV										
21...	--	--	--	--	--	--	--	--	--	--
FEB										
27...	--	--	--	--	--	--	--	--	--	--
APR										
29...	--	--	--	--	--	--	--	--	--	--
JUN										
26...	--	--	--	--	--	--	--	--	--	--
AUG										
25...	--	--	--	--	--	--	--	--	--	--

Date	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Lanthanum, water, fltrd, µg/L (01180)	Lanthanum, water, unfltrd µg/L (01182)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recoverable, µg/L (01051)	Lithium water, fltrd, µg/L (01130)	Lithium water unfltrd recoverable, µg/L (01132)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)
OCT										
02...	400	935	.500	.670	<.050	.400	17.5	17.0	1000	1010
NOV										
21...	190	--	--	--	--	--	--	--	710	--
FEB										
27...	300	--	--	--	--	--	--	--	650	--
APR										
29...	100	260	--	--	--	--	--	--	560	570
JUN										
26...	1220	2220	--	--	--	--	--	--	820	870
AUG										
25...	480	1940	--	--	--	--	--	--	1230	1250

Date	Molybdenum, water, fltrd, µg/L (01060)	Molybdenum, water, unfltrd recoverable, µg/L (01062)	Neodymium, water, fltrd, µg/L (50579)	Neodymium, water, unfltrd µg/L (01237)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Praseodymium, water, fltrd, µg/L (50582)	Praseodymium, water, unfltrd µg/L (01238)	Rhenium water, fltrd, µg/L (50583)	Rhenium water unfltrd µg/L (01242)
OCT										
02...	.090	.090	.310	.660	35.5	36.5	.080	.200	<.020	<.020
NOV										
21...	--	--	--	--	22.0	--	--	--	--	--
FEB										
27...	--	--	--	--	29.0	--	--	--	--	--
APR										
29...	--	--	--	--	31.0	34.0	--	--	--	--
JUN										
26...	--	--	--	--	45.0	54.0	--	--	--	--
AUG										
25...	--	--	--	--	43.0	40.0	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571593 -- Good Spring Creek bl Middle Creek at Tremont, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Rubid-ium, water, fltrd, µg/L (01135)	Rubid-ium, water, unfltrd µg/L (01137)	Samar-ium, water, fltrd, µg/L (82323)	Samar-ium, water, unfltrd µg/L (82322)	Selen-ium, water, fltrd, µg/L (01145)	Selen-ium, water, unfltrd µg/L (01147)	Silver, water, fltrd, µg/L (01075)	Silver, water, unfltrd recover-able, µg/L (01077)	Stront-ium, water, fltrd, µg/L (01080)	Stront-ium, water, unfltrd recover-able, µg/L (01082)
OCT										
02...	2.50	2.40	.050	.100	<.200	<.200	.060	.100	126	124
NOV										
21...	--	--	--	--	--	--	--	--	--	--
FEB										
27...	--	--	--	--	--	--	--	--	--	--
APR										
29...	--	--	--	--	--	--	--	--	--	--
JUN										
26...	--	--	--	--	--	--	--	--	--	--
AUG										
25...	--	--	--	--	--	--	--	--	--	--

Date	Terbium water, fltrd, µg/L (50586)	Terbium water unfltrd µg/L (01218)	Thall-ium, water, fltrd, µg/L (01057)	Thall-ium, water, unfltrd µg/L (01059)	Thorium water, fltrd, µg/L (82365)	Thorium water unfltrd µg/L (82364)	Thulium water, fltrd, µg/L (50587)	Thulium water unfltrd µg/L (01245)	Tung-sten, water, fltrd, µg/L (01155)	Tung-sten, water, unfltrd µg/L (01154)
OCT										
02...	.010	.030	<.050	<.050	<.040	<.040	<.005	.010	.070	.070
NOV										
21...	--	--	--	--	--	--	--	--	--	--
FEB										
27...	--	--	--	--	--	--	--	--	--	--
APR										
29...	--	--	--	--	--	--	--	--	--	--
JUN										
26...	--	--	--	--	--	--	--	--	--	--
AUG										
25...	--	--	--	--	--	--	--	--	--	--

Date	Vanad-ium, water, fltrd, µg/L (01085)	Vanad-ium, water, unfltrd µg/L (01087)	Ytterb-ium, water, fltrd, µg/L (01194)	Ytterb-ium, water, unfltrd µg/L (01196)	Yttrium water, fltrd, µg/L (01201)	Yttrium water unfltrd µg/L (01203)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)	Uranium natural water, fltrd, µg/L (22703)	Uranium natural water unfltrd µg/L (28011)
OCT										
02...	<.100	<.100	.020	.080	.500	.950	77.0	78.0	.020	.060
NOV										
21...	--	--	--	--	--	--	149	--	--	--
FEB										
27...	--	--	--	--	--	--	212	--	--	--
APR										
29...	--	--	--	--	--	--	94.0	76.0	--	--
JUN										
26...	--	--	--	--	--	--	134	132	--	--
AUG										
25...	--	--	--	--	--	--	96.0	93.0	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571552 -- Swatara Creek at Tremont, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf µS/cm 25 degC (00095)
NOV										
21...	0830	1028	89203	2.2	363	7.0	11.6	6.5	5.9	212
FEB										
27...	0915	1028	89203	15	458	2.0	14.6	6.4	6.2	170
APR										
29...	0900	1028	89203	19	378	7.0	10.6	6.6	6.6	177
JUN										
26...	0915	1028	89203	36	369	7.0	9.8	6.9	6.3	150
AUG										
25...	0915	1028	89203	12	319	--	9.5	6.5	6.5	194

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV										
21...	7.1	14.2	13.0	10.0	10.0	2.20	1.9	7.80	8.9	3
FEB										
27...	.3	18.3	19.4	14.2	14.5	2.00	1.9	11.1	11.6	15
APR										
29...	11.2	20.0	20.0	16.7	18.0	1.70	1.7	10.5	8.7	7
JUN										
26...	15.6	10.3	10.9	6.70	7.5	.80	.9	3.90	4.8	5
AUG										
25...	15.7	16.8	16.0	9.40	9.3	1.30	1.4	5.60	6.4	6

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV										
21...	<100	600	710	1230	730	720	31.0	42.0	86.0	86.0
FEB										
27...	<100	500	1560	2030	980	900	32.0	36.0	85.0	71.0
APR										
29...	<100	700	850	1750	990	990	47.0	50.0	97.0	105
JUN										
26...	<100	600	190	520	550	580	36.0	35.0	90.0	79.0
AUG										
25...	<100	100	260	200	810	810	41.0	40.0	102	89.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571773 -- Lorberry Cr Div Wells Outflow nr Lorberry, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf µS/cm 25 degC (00095)
NOV 14...	1345	1028	89203	1.9	438	13	9.5	5.3	5.2	391
DEC 19...	1430	1028	89203	3.2	481	18	8.9	5.4	5.4	312
MAR 05...	1545	1028	89203	2.4	330	8.0	9.6	6.3	6.2	321
APR 03...	1415	1028	89203	2.3	473	35	9.3	5.1	--	272
MAY 01...	1430	1028	89203	1.6	489	39	9.4	5.6	--	261
JUN 03...	1345	1028	89203	1.6	420	26	9.5	5.6	--	281
JUL 23...	1500	1028	89203	1.3	452	20	10.3	5.1	--	321
AUG 19...	1400	1028	89203	1.8	375	40	9.4	5.7	--	271
SEP 24...	1445	1028	89203	.62	479	26	9.8	5.4	--	309

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 14...	12.2	18.1	21.5	31.4	35.6	1.50	1.5	3.60	4.1	3
DEC 19...	11.7	12.9	7.6	23.9	11.4	1.30	.8	3.60	2.7	5
MAR 05...	11.5	12.4	13.6	23.7	27.8	1.10	1.2	4.60	3.1	16
APR 03...	11.9	--	--	--	--	--	--	--	--	--
MAY 01...	12.1	--	--	--	--	--	--	--	--	--
JUN 03...	11.8	--	--	--	--	--	--	--	--	--
JUL 23...	12.4	--	--	--	--	--	--	--	--	--
AUG 19...	11.9	--	--	--	--	--	--	--	--	--
SEP 24...	11.9	--	--	--	--	--	--	--	--	--

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 14...	700	1700	8170	11100	2490	2800	108	120	313	284
DEC 19...	600	1200	7220	7680	2130	750	91.0	36.0	222	81.0
MAR 05...	<100	1000	9690	10700	1970	2040	63.0	66.0	118	115
APR 03...	--	--	--	--	--	--	--	--	--	--
MAY 01...	--	--	--	--	--	--	--	--	--	--
JUN 03...	--	--	--	--	--	--	--	--	--	--
JUL 23...	--	--	--	--	--	--	--	--	--	--
AUG 19...	--	--	--	--	--	--	--	--	--	--
SEP 24...	--	--	--	--	--	--	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571774 -- Lorberry Creek, Site E2-0, at Lorberry, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf µS/cm 25 degC (00095)
NOV										
14...	1330	1028	89203	1.9	403	12	10.1	5.7	5.3	374
DEC										
19...	1345	1028	89203	7.1	447	22	10.2	6.1	6.0	303
MAR										
05...	1530	1028	89203	1.5	252	6.0	10.7	6.9	6.5	307
APR										
03...	1400	1028	89203	8.4	462	31	10.5	5.3	5.0	260
MAY										
01...	1415	1028	89203	3.0	346	34	10.3	6.4	6.3	251
JUN										
03...	1330	1028	89203	7.6	368	35	10.6	6.2	6.0	268
JUL										
23...	1445	1028	89203	7.0	416	25	10.7	5.6	5.0	287
AUG										
19...	1345	1028	89203	8.1	281	38	10.3	6.4	6.3	266
SEP										
24...	1430	1028	89203	8.1	456	34	10.8	5.8	5.5	290

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV										
14...	12.0	16.9	20.7	29.2	33.4	1.50	1.5	3.40	4.3	2
DEC										
19...	11.3	13.3	13.2	23.3	23.4	1.50	1.2	4.30	3.4	4
MAR										
05...	10.8	11.9	13.8	21.4	25.4	1.10	1.2	4.30	3.8	15
APR										
03...	11.9	11.0	11.1	18.4	20.4	1.20	1.1	3.80	3.0	2
MAY										
01...	12.8	11.1	10.5	18.8	19.5	1.20	1.0	4.10	3.2	6
JUN										
03...	11.7	10.3	10.0	19.4	19.8	1.10	1.1	4.10	4.8	4
JUL										
23...	13.1	13.6	14.9	21.2	23.1	1.20	1.3	2.90	3.7	1
AUG										
19...	12.3	10.3	11.1	20.1	21.6	1.20	1.2	3.70	4.3	9
SEP										
24...	12.2	11.5	12.3	22.6	24.2	1.10	1.3	3.50	4.8	4

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV										
14...	200	1600	7420	9500	2310	2630	106	112	285	261
DEC										
19...	<100	1100	6470	8230	2030	1790	96.0	80.0	213	180
MAR										
05...	<100	900	7710	8950	1700	1840	62.0	61.0	102	104
APR										
03...	700	1000	2570	4540	1680	1680	87.0	73.0	230	225
MAY										
01...	<100	800	4210	5880	1680	1590	66.0	64.0	163	161
JUN										
03...	100	900	4220	5650	1630	1530	67.0	59.0	163	153
JUL										
23...	200	1000	3960	6280	1760	1940	87.0	84.0	220	223
AUG										
19...	<100	700	4580	6620	1650	1790	68.0	57.0	149	147
SEP										
24...	200	1300	3840	7240	1600	1790	75.0	73.0	199	192

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571776 -- Stumps Run at Lorberry, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf µS/cm 25 degC (00095)
NOV 14...	1315	1028	89203	2.3	420	.0	10.5	5.8	5.8	75
DEC 19...	1330	1028	89203	4.5	445	.0	12.2	6.0	5.9	72
MAR 05...	1515	1028	89203	.72	405	.0	12.8	6.0	5.8	70
APR 03...	1345	1028	89203	2.3	432	.0	11.3	5.8	6.1	69
MAY 01...	1400	1028	89203	.71	500	1.0	10.3	5.8	6.0	46
JUN 03...	1315	1028	89203	2.3	430	.0	10.5	6.0	6.0	49
JUL 23...	1430	1028	89203	.56	435	14	9.5	5.8	5.8	39
AUG 19...	1330	1028	89203	1.1	339	11	9.1	6.8	6.1	49
SEP 24...	1415	1028	89203	4.2	417	1.3	9.8	6.3	6.3	44

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 14...	9.9	4.80	5.8	3.00	3.3	.70	.8	.80	.7	3
DEC 19...	4.7	4.40	4.1	2.90	2.8	.70	.7	.60	.6	3
MAR 05...	4.1	3.90	4.1	2.40	2.7	.60	.6	.90	.4	4
APR 03...	9.0	3.70	3.9	2.40	2.5	.60	.7	.70	.6	3
MAY 01...	12.7	3.50	3.3	2.20	2.2	.70	.6	.90	.6	3
JUN 03...	11.5	3.90	3.8	2.20	2.3	.70	.5	.80	<.1	3
JUL 23...	16.0	3.20	2.8	1.90	1.7	.60	.7	.70	.7	4
AUG 19...	17.3	3.80	3.8	2.30	2.3	.80	.7	.70	.8	4
SEP 24...	16.0	7.30	4.0	4.00	2.0	.90	.9	1.00	.8	4

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 14...	<100	<100	150	<10.0	100	100	9.00	13.0	63.0	65.0
DEC 19...	<100	<100	80.0	30.0	70.0	50.0	18.0	10.0	54.0	44.0
MAR 05...	<100	<100	110	40.0	40.0	40.0	<5.00	9.00	37.0	36.0
APR 03...	<100	<100	60.0	40.0	50.0	50.0	6.00	12.0	40.0	40.0
MAY 01...	<100	<100	220	90.0	30.0	40.0	<5.00	10.0	42.0	41.0
JUN 03...	<100	<100	130	60.0	40.0	50.0	9.00	6.00	32.0	33.0
JUL 23...	<100	100	310	350	50.0	120	<5.00	13.0	37.0	30.0
AUG 19...	<100	<100	90.0	20.0	30.0	30.0	<5.00	11.0	30.0	25.0
SEP 24...	100	<100	360	80.0	160	100	19.0	9.00	58.0	36.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177610 -- Lorberry Creek Wetlands Inflow at Lorberry, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf µS/cm 25 degC (00095)
NOV										
14...	1255	1028	89203	1.9	427	13	9.9	5.4	5.3	393
DEC										
19...	1320	1028	89203	1.9	414	26	9.8	5.9	6.0	312
MAR										
05...	1510	1028	89203	1.3	337	8.0	10.6	6.4	6.2	316
APR										
03...	1330	1028	89203	2.2	492	36	10.6	5.1	5.0	262
MAY										
01...	1340	1028	89203	1.2	434	39	10.1	5.8	6.0	262
JUN										
03...	1300	1028	89203	1.1	424	27	10.1	5.7	5.5	277
JUL										
23...	1410	1028	89203	2.9	418	19	10.8	5.5	5.0	326
AUG										
19...	1315	1028	89203	1.7	367	40	10.1	5.6	6.0	273
SEP										
24...	1400	1028	89203	1.3	374	31	9.9	6.4	5.6	333

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV										
14...	12.4	17.3	20.9	30.6	35.1	1.40	1.4	3.90	3.9	2
DEC										
19...	11.6	14.8	16.2	24.3	24.6	1.20	1.2	4.10	3.6	12
MAR										
05...	11.6	12.5	13.2	24.2	27.3	1.20	1.2	3.60	3.0	14
APR										
03...	12.0	11.5	12.7	19.3	21.9	1.30	1.2	3.80	3.6	3
MAY										
01...	12.5	11.0	11.0	19.4	20.2	1.10	1.2	4.10	2.1	8
JUN										
03...	11.9	11.2	11.1	20.8	21.4	1.30	1.2	5.00	4.2	5
JUL										
23...	12.5	15.1	15.8	23.5	24.6	1.20	1.3	3.50	3.4	2
AUG										
19...	12.4	11.4	12.0	22.4	21.8	1.15	1.2	4.19	4.1	10
SEP										
24...	12.4	12.6	14.9	24.3	25.9	1.30	1.5	3.70	4.7	6

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV										
14...	700	1700	8220	10800	2480	2750	114	111	303	284
DEC										
19...	200	1200	7150	9190	2120	1970	85.0	79.0	205	180
MAR										
05...	<100	1000	9220	10600	1990	2010	66.0	70.0	120	114
APR										
03...	900	1100	2910	5170	1860	1870	93.0	89.0	237	251
MAY										
01...	300	800	4560	6300	1800	1690	70.0	67.0	169	165
JUN										
03...	500	900	4770	6270	1810	1700	82.0	70.0	170	167
JUL										
23...	500	1100	4630	6500	1990	2110	88.0	83.0	257	252
AUG										
19...	254	770	5360	6790	1880	1830	60.7	63.5	137	137
SEP										
24...	600	1300	4250	7010	1740	1850	92.0	76.0	209	204

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177612 -- Lorberry Cr Wetlands Cell 1 Outflow at Lorberry, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduct-ance, wat unf µS/cm 25 degC (00095)
NOV										
14...	1245	1028	89203	1.3	427	13	10.1	5.3	5.1	393
DEC										
19...	1310	1028	89203	1.6	353	22	10.1	6.4	6.5	304
MAR										
05...	1500	1028	89203	1.5	306	13	10.5	6.5	6.4	324
APR										
03...	1320	1028	89203	1.8	483	32	10.6	5.2	5.1	273
MAY										
01...	1330	1028	89203	1.7	425	47	10.2	5.8	6.0	263

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recover-able, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recover-able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover-able, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV										
14...	13.5	17.7	21.8	30.7	35.7	1.30	1.5	4.00	3.9	2
DEC										
19...	11.5	16.7	--	25.1	--	1.30	--	4.20	--	17
MAR										
05...	12.3	12.6	12.6	25.6	27.1	1.20	1.3	3.10	3.3	13
APR										
03...	13.2	12.3	12.9	19.5	22.1	1.30	1.3	3.90	3.7	2
MAY										
01...	14.2	11.4	11.0	19.2	20.4	1.20	.9	3.80	3.4	7

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recover-able, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recover-able, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)
NOV										
14...	500	1900	8240	10900	2580	2910	118	131	313	307
DEC										
19...	<100	--	7320	--	2030	--	75.0	--	144	--
MAR										
05...	<100	900	9450	9550	2040	1890	70.0	69.0	126	110
APR										
03...	600	1100	2630	4960	1830	1900	100	89.0	238	251
MAY										
01...	<100	800	4010	7760	1780	1710	70.0	75.0	167	168

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177614 -- Lorberry Cr Wetlands Cell 2 Outflow at Lorberry,PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduct-ance, wat unf µS/cm 25 degC (00095)
NOV										
14...	1235	1028	89203	1.3	429	16	10.3	5.3	5.2	394
DEC										
19...	1300	1028	89203	1.5	326	22	10.3	6.6	6.7	304
MAR										
05...	1450	1028	89203	1.3	297	10	10.3	6.6	6.4	323
APR										
03...	1310	1028	89203	1.6	465	29	10.5	5.2	5.2	273
MAY										
01...	1320	1028	89203	1.5	410	39	10.2	5.8	6.1	263
JUN										
03...	1245	1028	89203	1.5	409	30	10.3	5.8	5.8	282
JUL										
23...	1400	1028	89203	.95	411	21	10.6	5.2	5.0	316
AUG										
19...	1300	1028	89203	1.9	378	29	10.0	5.4	5.8	286
SEP										
24...	1345	1028	89203	.69	365	11	10.4	6.2	6.4	340

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV										
14...	13.7	--	21.3	--	35.1	--	1.6	--	3.8	2
DEC										
19...	11.4	15.7	14.9	23.9	22.8	1.20	1.2	3.90	3.2	17
MAR										
05...	12.9	12.6	12.8	25.7	26.8	1.30	1.1	3.30	3.4	16
APR										
03...	15.8	12.9	13.1	20.8	22.5	1.40	1.3	3.90	2.9	2
MAY										
01...	15.0	11.2	10.8	19.3	20.0	1.10	1.1	3.60	3.6	7
JUN										
03...	12.7	11.7	11.0	21.0	21.4	1.20	1.0	5.50	4.3	5
JUL										
23...	15.6	15.7	16.0	23.9	24.5	1.30	1.4	3.30	3.4	2
AUG										
19...	16.9	12.8	13.6	22.8	23.0	1.19	1.3	4.00	4.0	6
SEP										
24...	17.0	19.0	20.0	26.2	27.7	1.20	1.3	3.00	4.4	16

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV										
14...	--	1900	--	10700	--	2910	--	126	--	313
DEC										
19...	<100	900	7060	7970	1950	1790	71.0	71.0	139	120
MAR										
05...	<100	900	9060	9310	2030	1910	68.0	57.0	124	107
APR										
03...	600	1000	2550	4790	1960	1920	100	86.0	253	250
MAY										
01...	<100	700	4090	5660	1790	1670	71.0	68.0	168	172
JUN										
03...	100	1100	3960	6700	1810	1640	76.0	66.0	165	164
JUL										
23...	300	1000	3840	5920	2090	2100	99.0	88.0	273	255
AUG										
19...	<100	740	3680	5430	1970	1990	69.1	68.5	182	178
SEP										
24...	<100	700	2440	4630	1740	1850	70.0	87.0	183	187

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177616 -- Lorberry Cr Wetlands Cell 3 Outflow at Lorberry, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduct-ance, wat unf µS/cm 25 degC (00095)
NOV										
14...	1225	1028	89203	1.4	403	13	10.3	5.6	5.3	384
DEC										
19...	1250	1028	89203	1.7	297	20	10.8	6.7	6.7	304
MAR										
05...	1440	1028	89203	1.4	277	13	10.1	6.6	6.5	322
APR										
03...	1300	1028	89203	1.7	454	42	10.3	5.3	5.2	274
MAY										
01...	1310	1028	89203	1.5	395	41	10.2	5.9	6.1	263

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recover-able, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recover-able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover-able, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV										
14...	13.3	18.0	22.0	31.4	35.7	1.50	1.6	4.20	3.7	2
DEC										
19...	11.4	15.4	16.2	22.7	23.7	1.20	1.3	4.30	3.4	17
MAR										
05...	13.6	12.7	13.2	25.5	26.8	1.30	1.3	3.00	3.0	14
APR										
03...	17.0	12.5	12.6	19.5	21.9	1.20	1.4	3.50	2.9	2
MAY										
01...	15.3	11.8	11.2	19.8	20.4	1.30	1.1	4.00	2.2	7

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recover-able, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recover-able, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)
NOV										
14...	300	1800	7830	10600	2580	2990	134	119	312	297
DEC										
19...	<100	900	6450	7800	1910	1890	70.0	61.0	133	121
MAR										
05...	<100	900	8670	9110	2020	1940	64.0	63.0	117	107
APR										
03...	400	1000	2430	4530	1840	1860	95.0	94.0	244	248
MAY										
01...	<100	700	3720	5640	1810	1700	78.0	69.0	194	165

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177618 -- Lorberry Cr Wetlands Cell 4 Outflow at Lorberry, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf µS/cm 25 degC (00095)
NOV										
14...	1215	1028	89203	2.0	393	13	10.2	5.6	5.3	390
DEC										
19...	1240	1028	89203	2.5	328	24	10.7	6.6	6.6	302
MAR										
05...	1430	1028	89203	2.1	265	12	9.9	6.6	6.5	320
APR										
03...	1250	1028	89203	2.5	438	27	10.2	5.3	5.2	272
MAY										
01...	1300	1028	89203	2.5	378	44	10.2	6.0	6.2	263
JUN										
03...	1230	1028	89203	1.9	392	34	10.3	6.0	5.9	282
JUL										
23...	1350	1028	89203	2.1	409	14	10.2	5.2	5.1	319
AUG										
19...	1250	1028	89203	2.2	366	26	9.7	5.5	5.8	279
SEP										
24...	1330	1028	89203	1.2	349	6.2	10.0	6.3	6.3	329

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV										
14...	13.8	17.3	21.7	29.8	35.9	1.30	1.6	4.50	4.5	2
DEC										
19...	11.0	16.2	--	24.1	--	1.20	--	3.80	--	16
MAR										
05...	13.5	12.7	12.8	25.6	26.3	1.30	1.2	3.20	3.0	12
APR										
03...	17.8	12.7	12.8	20.0	22.3	1.30	1.2	4.00	4.1	2
MAY										
01...	15.8	11.5	11.5	19.7	21.2	1.10	1.1	3.60	3.0	6
JUN										
03...	13.3	11.2	11.9	19.9	22.5	1.10	1.1	5.10	4.7	4
JUL										
23...	17.5	15.4	15.5	23.5	24.0	1.30	1.3	3.50	3.2	2
AUG										
19...	20.4	14.2	13.1	23.2	22.2	1.28	1.2	4.21	3.9	4
SEP										
24...	19.0	16.2	17.4	26.9	28.7	1.20	1.5	3.30	4.3	8

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV										
14...	200	1700	7420	10200	2440	2820	127	122	305	293
DEC										
19...	<100	--	6290	--	1980	--	70.0	--	131	--
MAR										
05...	<100	900	8370	8950	2000	1880	65.0	63.0	118	105
APR										
03...	300	1000	2770	4370	1890	1900	96.0	86.0	239	246
MAY										
01...	<100	700	3610	5750	1820	1760	68.0	63.0	172	164
JUN										
03...	<100	1000	3450	6010	1720	1750	74.0	68.0	165	168
JUL										
23...	300	800	3430	5120	2000	2060	90.0	95.0	263	251
AUG										
19...	<100	636	2840	4330	2020	1930	71.4	78.6	189	187
SEP										
24...	<100	400	2680	3790	1830	1960	90.0	92.0	213	208

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403530076262601 -- Piped Discharge near Cell 1, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
28...	1440	1028	930	<.01	530	9.1	82	4.9	6.0	52.0
DEC										
18...	1410	1028	930	<.01	440	11	98	5.5	5.9	52.0
JAN										
08...	1330	1028	930	<.01	530	10	86	5.3	5.8	49.0
29...	1445	1028	930	<.01	430	10	90	5.6	5.8	480

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
28...	10.5	3.5	3.3	2.2	2.0	.56	.6	.9	.8	--
DEC										
18...	8.70	3.3	3.2	2.4	2.4	.48	.9	.9	.9	<5.0
JAN										
08...	6.70	3.2	3.1	2.5	2.4	.44	.5	1.1	.9	--
29...	8.90	3.4	3.2	2.7	2.5	.46	.5	.89	.8	--

Date	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV										
28...	5.6	14	60	110	<40	<40	19	21	<3.0	<3.0
DEC										
18...	--	14	80	1800	<40	<40	18	27	<3.0	<3.0
JAN										
08...	5.7	13	50	70	<40	<40	14	14	<3.0	<3.0
29...	6.1	14	60	200	<40	<40	13	14	<3.0	<3.0

Date	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)
NOV										
28...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	20	100	<40	<40
DEC										
18...	<3.0	3.0	<3.0	3.0	<3.0	<3.0	120	1900	<40	<40
JAN										
08...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	20	20	<40	<40
29...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	290	470	<40	<40

Date	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	SELE-NIUM, DIS-SOLVED (µG/L AS SE) (01145)	SELE-NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
NOV								
28...	100	110	6.0	<5.0	<100	<100	16	17
DEC								
18...	140	240	<5.0	<5.0	<100	<100	15	19
JAN								
08...	100	100	<5.0	<5.0	<100	<100	<3.0	5.0
29...	110	110	<5.0	<5.0	<100	<100	25	15

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177620 -- Lorberry Creek below Wetlands at Lorberry, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf µS/cm 25 degC (00095)
NOV										
14...	1045	1028	89203	6.2	366	12	10.4	5.6	5.4	352
DEC										
19...	1145	1028	89203	10	295	19	10.7	6.6	6.6	274
MAR										
05...	1415	1028	89203	5.4	291	7.0	10.4	6.3	6.5	281
APR										
03...	1130	1028	89203	13	408	27	10.4	5.3	5.0	253
MAY										
01...	1230	1028	89203	6.1	324	32	10.2	6.3	6.4	240
JUN										
03...	1130	1028	89203	11	320	25	10.6	6.1	6.0	259
JUL										
23...	1345	1028	89203	9.7	385	14	10.3	5.4	5.0	296
AUG										
19...	1215	1028	89203	8.8	281	30	10.0	5.9	6.3	263
SEP										
24...	1215	1028	89203	17	398	24	10.6	5.9	5.8	275

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV										
14...	11.5	16.8	17.7	27.9	30.5	1.30	1.4	3.90	3.6	2
DEC										
19...	10.4	13.6	13.1	21.9	21.2	1.20	1.2	3.50	3.0	11
MAR										
05...	11.0	11.7	12.0	21.8	23.1	1.20	1.1	3.10	3.6	9
APR										
03...	13.3	12.2	11.5	18.8	20.0	1.30	1.1	3.90	3.9	2
MAY										
01...	13.0	10.7	10.3	17.7	18.9	1.20	.9	3.70	2.8	6
JUN										
03...	12.2	11.2	10.4	18.7	19.8	1.20	1.1	4.70	5.8	4
JUL										
23...	15.0	14.0	14.2	21.3	21.9	1.20	1.3	3.10	3.3	2
AUG										
19...	15.1	11.0	11.1	19.9	20.6	1.10	1.2	3.70	3.8	7
SEP										
24...	13.5	11.6	12.2	20.9	22.7	1.10	1.4	3.50	4.2	4

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV										
14...	200	1400	7200	9060	2190	2270	104	101	271	246
DEC										
19...	<100	900	7280	7530	1790	1640	63.0	69.0	133	112
MAR										
05...	<100	800	7610	7720	1660	1590	49.0	51.0	110	93.0
APR										
03...	600	1000	3670	4610	1710	1670	73.0	79.0	229	218
MAY										
01...	<100	700	3990	5330	1590	1510	60.0	59.0	151	150
JUN										
03...	<100	900	5100	6400	1600	1500	68.0	52.0	153	150
JUL										
23...	200	800	7310	5290	1780	1850	76.0	78.0	226	220
AUG										
19...	<100	700	4650	5610	1640	1710	68.0	63.0	153	156
SEP										
24...	200	1000	4460	5870	1450	1590	69.0	74.0	173	174

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403521076260601 -- Shadle Mine Shaft at Lorberry, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
NOV										
14...	1030	1028	89203	.01	242	1.0	.5	5	4.2	4.2
DEC										
19...	1115	1028	89203	.01	348	.0	1.0	9	4.2	4.2
MAR										
05...	1400	1028	89203	.01	294	.0	.5	6	4.0	4.0
APR										
03...	1115	1028	89203	.01	308	.0	.1	9	4.1	4.1
MAY										
01...	1200	1028	89203	.00	321	.0	.9	8	4.0	4.1
JUN										
03...	1115	1028	89203	.01	330	.0	.9	10	4.1	4.1
04...	0930	1028	1028	.02	340	.0	1.9	18	4.1	2.7
JUL										
23...	1330	1028	89203	.00	306	.0	.3	9	4.0	4.0
AUG										
19...	1145	1028	89203	.01	286	.0	.6	5	3.9	4.2
SEP										
24...	1200	1028	89203	.01	320	.0	.6	5	4.3	4.4

Date	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)
NOV										
14...	1370	12.6	133	152	57.3	60.7	3.90	3.9	2.00	1.7
DEC										
19...	1380	12.4	157	169	65.7	66.3	4.30	3.8	1.80	1.7
MAR										
05...	1470	12.5	155	171	60.4	65.8	4.40	4.3	1.70	1.3
APR										
03...	1460	12.5	163	157	58.8	65.7	4.00	4.1	2.10	1.2
MAY										
01...	1620	12.6	156	168	60.1	66.3	4.40	4.1	2.10	.6
JUN										
03...	1820	12.6	181	179	66.7	71.5	4.40	4.1	2.30	2.6
04...	1750	12.6	163	--	61.1	--	3.80	--	1.65	--
JUL										
23...	1770	13.0	176	175	62.6	68.7	3.90	4.4	1.70	1.9
AUG										
19...	1840	12.6	196	201	74.3	75.8	4.10	4.1	2.00	2.4
SEP										
24...	1920	12.6	210	217	76.1	79.6	4.00	4.2	1.80	2.4

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)
NOV										
14...	.000	--	--	--	--	--	--	--	--	--
DEC										
19...	.000	--	--	--	--	--	--	--	--	--
MAR										
05...	.000	--	--	--	--	--	--	--	--	--
APR										
03...	.000	--	--	--	--	--	--	--	--	--
MAY										
01...	.000	--	--	--	--	--	--	--	--	--
JUN										
03...	.000	--	--	--	--	--	--	--	--	--
04...	.000	490	380	20.9	.20	29.3	1090	<.10	<.200	.003
JUL										
23...	.000	--	--	--	--	--	--	--	--	--
AUG										
19...	.000	--	--	--	--	--	--	--	--	--
SEP										
24...	.000	--	--	--	--	--	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403521076260601 -- Shadle Mine Shaft at Lorberry, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Anti-mony, water, fltrd, µg/L (01095)	Arsenic water, fltrd, µg/L (01000)	Barium, water, fltrd, µg/L (01005)	Beryll-ium, water, fltrd, µg/L (01010)	Bismuth water, fltrd, µg/L (01015)	Bromine water unfltrd mg/L (71871)	Cadmium water, fltrd, µg/L (01025)	Cerium, water, fltrd, µg/L (01110)	Cesium, water, fltrd, µg/L (01115)
NOV											
14...	4400	4300	--	--	--	--	--	--	--	--	--
DEC											
19...	4000	3800	--	--	--	--	--	--	--	--	--
MAR											
05...	5200	5100	--	--	--	--	--	--	--	--	--
APR											
03...	4100	4100	--	--	--	--	--	--	--	--	--
MAY											
01...	5200	5300	--	--	--	--	--	--	--	--	--
JUN											
03...	4700	4500	--	--	--	--	--	--	--	--	--
04...	4150	--	.040	<1.00	16.5	2.70	<.020	<.30	2.79	12.0	.670
JUL											
23...	5800	5800	--	--	--	--	--	--	--	--	--
AUG											
19...	5300	5000	--	--	--	--	--	--	--	--	--
SEP											
24...	4000	3800	--	--	--	--	--	--	--	--	--

Date	Chrom-ium, water, fltrd, µg/L (01030)	Cobalt water, fltrd, µg/L (01035)	Copper, water, fltrd, µg/L (01040)	Dyspros-ium, water, fltrd, µg/L (82331)	Erbium, water, fltrd, µg/L (50573)	Euro-pium, water, fltrd, µg/L (50574)	Gado-linium, water, fltrd, µg/L (50575)	Gallium water, fltrd, µg/L (01120)	German-ium, water, fltrd, µg/L (01125)	Gold, water, fltrd, µg/L (82334)
NOV										
14...	--	--	--	--	--	--	--	--	--	--
DEC										
19...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	--	--	--	--	--	--	--	--	--	--
APR										
03...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
04...	<1.00	205	2.60	2.40	1.40	.330	2.00	.130	.120	.160
JUL										
23...	--	--	--	--	--	--	--	--	--	--
AUG										
19...	--	--	--	--	--	--	--	--	--	--
SEP										
24...	--	--	--	--	--	--	--	--	--	--

Date	Neodym-ium, water, fltrd, µg/L (50579)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Praseo-dymium, water, fltrd, µg/L (50582)	Rhenium water, fltrd, µg/L (50583)	Rubid-ium, water, fltrd, µg/L (01135)	Samar-ium, water, fltrd, µg/L (82323)	Selen-ium, water, fltrd, µg/L (01145)	Silver, water, fltrd, µg/L (01075)	Stront-ium, water, fltrd, µg/L (01080)
NOV										
14...	--	115	119	--	--	--	--	--	--	--
DEC										
19...	--	96.0	96.0	--	--	--	--	--	--	--
MAR										
05...	--	113	106	--	--	--	--	--	--	--
APR										
03...	--	69.0	97.0	--	--	--	--	--	--	--
MAY										
01...	--	93.0	116	--	--	--	--	--	--	--
JUN										
03...	--	80.0	90.0	--	--	--	--	--	--	--
04...	6.20	178	--	1.50	<.020	14.0	1.30	<.200	.024	678
JUL										
23...	--	82.0	63.0	--	--	--	--	--	--	--
AUG										
19...	--	48.0	36.0	--	--	--	--	--	--	--
SEP										
24...	--	6.00	<5.00	--	--	--	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403521076260601 -- Shadle Mine Shaft at Lorberry, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Terbium water, fltrd, µg/L (50586)	Thallium, water, fltrd, µg/L (01057)	Thorium water, fltrd, µg/L (82365)	Thulium water, fltrd, µg/L (50587)	Tungsten, water, fltrd, µg/L (01155)	Vanadium, water, fltrd, µg/L (01085)	Ytterbium, water, fltrd, µg/L (01194)	Yttrium water, fltrd, µg/L (01201)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)	Uranium natural water, fltrd, µg/L (22703)
NOV 14...	--	--	--	--	--	--	--	--	395	360	--
DEC 19...	--	--	--	--	--	--	--	--	382	343	--
MAR 05...	--	--	--	--	--	--	--	--	441	394	--
APR 03...	--	--	--	--	--	--	--	--	375	358	--
MAY 01...	--	--	--	--	--	--	--	--	412	446	--
JUN 03...	--	--	--	--	--	--	--	--	362	358	--
04...	.360	.260	<.010	.190	<.020	.990	1.10	15.0	338	--	.310
JUL 23...	--	--	--	--	--	--	--	--	421	395	--
AUG 19...	--	--	--	--	--	--	--	--	368	337	--
SEP 24...	--	--	--	--	--	--	--	--	297	272	--

0157177680 -- Shadle Mine Drainage, 250 ft bl Shaft, nr Lorberry, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf µS/cm 25 degC (00095)
JUN 04...	0945	1028	1028	.02	544	.0	10.0	3.7	--	1680

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
JUN 04...	12.5	--	--	--	--	--	--	--	--	.0

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
JUN 04...	--	--	--	--	--	--	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571777 -- Lorberry Cr ab Panther Head Disch nr Lorberry Jct, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf µS/cm 25 degC (00095)
NOV										
14...	0945	1028	89203	12	441	12	10.8	5.2	5.2	328
DEC										
19...	1030	1028	89203	18	333	15	11.1	6.8	6.5	257
MAR										
05...	1300	1028	89203	5.8	324	6.0	10.9	6.9	6.4	268
APR										
03...	1015	1028	89203	16	311	26	10.8	4.8	4.9	247
MAY										
01...	1115	1028	89203	7.3	366	27	10.5	6.3	6.3	223
JUN										
03...	1030	1028	89203	18	377	19	10.7	6.2	5.8	237
JUL										
23...	1245	1028	89203	4.7	485	14	10.3	4.7	4.9	287
AUG										
19...	1100	1028	89203	12	378	30	10.3	5.8	5.9	262
SEP										
24...	1100	1028	89203	21	479	24	10.8	5.6	5.3	248

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV										
14...	9.9	15.1	17.6	23.2	26.3	1.30	1.2	3.30	3.7	2
DEC										
19...	9.0	12.7	13.5	19.9	21.2	1.20	1.2	3.70	3.5	6
MAR										
05...	9.1	11.7	13.6	19.0	22.6	1.10	1.1	3.10	3.8	8
APR										
03...	11.3	10.9	11.6	16.3	18.4	1.20	1.1	3.30	2.7	2
MAY										
01...	11.9	10.5	10.7	15.8	17.1	1.00	.9	3.30	2.5	4
JUN										
03...	11.8	10.5	10.4	16.0	17.5	1.10	1.0	4.30	3.7	2
JUL										
23...	14.3	14.3	14.7	20.1	20.9	1.10	1.2	3.40	3.1	1
AUG										
19...	13.3	11.7	12.7	18.6	20.3	1.10	1.2	3.40	3.7	3
SEP										
24...	12.8	11.0	12.2	18.4	19.4	1.20	1.2	3.00	3.8	3

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV										
14...	300	1500	5770	7670	1940	2040	96.0	97.0	243	228
DEC										
19...	<100	1100	5040	7020	1610	1680	66.0	65.0	132	129
MAR										
05...	<100	900	5700	6910	1500	1600	56.0	54.0	99.0	96.0
APR										
03...	500	1000	2230	4170	1490	1490	76.0	85.0	206	199
MAY										
01...	<100	800	3040	4840	1420	1400	60.0	66.0	143	148
JUN										
03...	<100	900	3200	4890	1360	1350	63.0	55.0	140	141
JUL										
23...	300	900	3390	5010	1730	1800	81.0	79.0	222	212
AUG										
19...	<100	900	3280	5390	1590	1740	75.0	66.0	185	187
SEP										
24...	200	1100	2960	5440	1280	1410	58.0	61.0	160	156

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177780 -- Panther Head Disch to Lorberry Cr nr Lorberry Jct, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf µS/cm 25 degC (00095)
NOV 14...	1000	1028	89203	.04	702	.0	8.3	3.2	3.2	426
DEC 19...	1045	1028	89203	.27	564	.0	10.2	3.1	3.1	364
MAR 05...	1315	1028	89203	.01	502	.0	11.0	3.5	3.5	226
APR 03...	1030	1028	89203	.13	400	.0	10.5	3.2	3.2	385
MAY 01...	1130	1028	89203	.11	663	.0	9.6	3.3	3.4	368
JUN 03...	1045	1028	89203	.13	575	.0	9.6	3.3	3.4	375
JUL 23...	1300	1028	89203	.01	562	.0	5.7	3.4	3.4	377
AUG 19...	1115	1028	89203	.07	539	.0	7.5	3.0	3.4	393
SEP 24...	1115	1028	89203	.46	608	.0	8.8	3.4	3.5	288

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 14...	8.6	9.40	10.8	10.2	11.5	.90	1.0	.70	1.3	.0
DEC 19...	6.7	7.40	8.4	8.00	9.0	1.00	.9	.80	.9	.0
MAR 05...	4.6	4.70	5.1	4.70	4.9	.70	.8	.70	.6	.0
APR 03...	7.3	8.70	8.6	8.30	9.3	1.10	1.0	1.20	.7	.0
MAY 01...	9.7	8.80	8.8	8.40	9.0	1.00	1.0	1.30	.7	.0
JUN 03...	9.5	7.10	6.6	6.70	6.9	1.00	.7	1.50	.2	.0
JUL 23...	16.6	12.5	12.5	10.6	10.4	1.00	1.0	1.40	1.3	.0
AUG 19...	13.8	8.50	9.1	8.70	8.9	.90	1.0	1.10	1.1	.0
SEP 24...	12.9	4.90	4.9	4.80	4.4	.90	.9	1.00	1.0	.0

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 14...	8600	8900	1500	1530	2310	2500	255	258	715	663
DEC 19...	6100	6100	1550	1570	1590	1680	216	203	521	473
MAR 05...	3500	3500	770	710	890	930	104	113	279	239
APR 03...	6700	6200	1540	1640	1650	1590	231	228	548	533
MAY 01...	6700	6700	1710	1700	1620	1630	235	206	560	568
JUN 03...	4800	4400	1880	1260	1300	1180	184	159	432	419
JUL 23...	7700	7100	2900	1610	2140	2100	246	243	662	629
AUG 19...	5700	5600	1110	1240	1650	1780	205	205	572	552
SEP 24...	2700	2500	620	660	910	900	100	103	297	269

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177790 -- Unnamed Trib to Lorberry Cr nr Lorberry Jct, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf µS/cm 25 degC (00095)
NOV 14...	1015	1028	89203	.05	531	.0	10.9	4.8	4.9	42
DEC 19...	1100	1028	89203	3.4	530	.0	13.0	4.7	4.9	39
MAR 05...	1330	1028	89203	1.8	419	.0	14.0	5.0	5.0	38
APR 03...	1045	1028	89203	2.9	483	.0	12.0	4.7	4.8	45
MAY 01...	1145	1028	89203	3.2	560	.0	10.4	4.7	5.0	19
JUN 03...	1100	1028	89203	2.5	499	.0	10.3	4.8	4.8	20
JUL 23...	1315	1028	89203	1.2	495	.0	8.7	4.7	4.8	19
AUG 19...	1130	1028	89203	.37	487	13	8.9	4.5	4.4	19
SEP 24...	1145	1028	89203	10	557	.0	10.0	4.7	4.8	24

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 14...	7.9	2.10	1.9	.80	.8	.40	.4	1.20	.6	1
DEC 19...	2.6	1.20	1.2	.70	.7	.40	.4	.60	.6	.0
MAR 05...	1.2	1.00	1.1	.60	.6	.30	.4	.70	.6	3
APR 03...	6.5	1.00	1.0	.60	.6	.30	.4	.70	.3	1
MAY 01...	10.8	.90	.9	.50	.5	.30	.1	.80	<.1	2
JUN 03...	11.3	.90	.9	.50	.6	.10	.2	.80	.3	1
JUL 23...	17.3	.90	1.0	.50	.4	.50	.4	.70	.8	1
AUG 19...	17.0	.90	.9	.50	.4	.40	.4	.50	.8	.0
SEP 24...	14.4	.90	.9	.60	.5	.50	.5	.50	.7	2

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 14...	200	200	170	170	70.0	70.0	<5.00	<5.00	38.0	20.0
DEC 19...	200	100	100	110	50.0	50.0	<5.00	<5.00	24.0	15.0
MAR 05...	100	100	190	110	30.0	30.0	<5.00	10.0	14.0	15.0
APR 03...	200	100	230	80.0	50.0	40.0	<5.00	<5.00	18.0	13.0
MAY 01...	200	200	180	140	30.0	30.0	<5.00	10.0	20.0	17.0
JUN 03...	200	200	360	150	40.0	30.0	<5.00	6.00	17.0	11.0
JUL 23...	300	300	590	650	60.0	80.0	<5.00	<5.00	15.0	12.0
AUG 19...	300	300	470	650	50.0	60.0	10.0	6.00	15.0	13.0
SEP 24...	200	200	330	340	70.0	70.0	<5.00	8.00	19.0	15.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571780 -- Lorberry Creek at Lorberry Junction, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
OCT										
01...	1430	1028	1028	3.0	440	7.0	11.4	113	5.4	5.3
NOV										
14...	0830	1028	89203	11	356	10	11.0	94	6.0	5.8
DEC										
19...	0930	1028	89203	24	333	13	11.8	96	6.6	6.4
MAR										
05...	1030	1028	89203	9.3	376	6.0	12.1	97	6.7	6.3
APR										
03...	0915	1028	89203	26	439	17	11.2	99	5.4	5.3
MAY										
01...	1015	1028	89203	9.8	376	21	11.2	101	6.0	6.0
JUN										
03...	0930	1028	89203	23	366	15	10.9	100	6.1	5.9
JUL										
23...	1145	1028	89203	7.0	423	16	10.0	100	5.7	5.2
AUG										
19...	1000	1028	89203	17	352	26	10.3	99	6.1	5.9
SEP										
24...	0945	1028	89203	22	439	27	10.7	100	5.8	5.7

Date	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)
OCT										
01...	430	15.0	20.4	20.5	32.4	32.6	1.40	1.4	8.00	8.0
NOV										
14...	273	8.2	13.2	15.7	18.3	21.4	1.20	1.3	4.20	4.2
DEC										
19...	205	6.8	10.0	11.9	13.8	15.9	1.00	1.0	2.90	3.4
MAR										
05...	216	5.7	9.90	10.2	14.3	15.3	1.00	1.0	4.40	4.6
APR										
03...	207	9.7	9.00	9.5	11.9	13.6	1.00	1.0	3.90	3.0
MAY										
01...	179	11.4	8.70	8.6	11.2	12.0	.80	.8	3.80	2.9
JUN										
03...	188	11.5	8.30	8.4	11.7	12.6	.80	1.0	4.20	3.1
JUL										
23...	225	15.1	11.9	12.3	14.6	14.9	1.00	1.1	3.70	3.7
AUG										
19...	222	13.6	10.6	11.8	15.4	16.4	1.00	1.2	3.70	4.3
SEP										
24...	184	13.0	8.70	9.2	12.4	13.2	.90	1.0	3.20	3.3

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Silica, water, fltrd, mg/L (00955)	Silica, water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water unfltrd mg/L (00946)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)
OCT										
01...	4.00	--	9.31	9.52	180	180	<.003	<.003	670	1400
NOV										
14...	3.30	--	--	--	--	--	--	--	<100	1000
DEC										
19...	4.50	--	--	--	--	--	--	--	<100	900
MAR										
05...	6.00	.000	--	--	--	--	--	--	<100	500
APR										
03...	2.40	--	--	--	--	--	--	--	400	800
MAY										
01...	2.90	--	--	--	--	--	--	--	<100	600
JUN										
03...	2.40	--	--	--	--	--	--	--	<100	700
JUL										
23...	2.00	--	--	--	--	--	--	--	200	600
AUG										
19...	2.60	--	--	--	--	--	--	--	<100	700
SEP										
24...	3.00	--	--	--	--	--	--	--	200	800

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571780 -- Lorberry Creek at Lorberry Junction, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Anti-mony, water, fltrd, µg/L (01095)	Anti-mony, water, unfltrd µg/L (01097)	Arsenic water, fltrd, µg/L (01000)	Arsenic water unfltrd µg/L (01002)	Barium, water, fltrd, µg/L (01005)	Barium, water, unfltrd recover-able, µg/L (01007)	Beryll-ium, water, fltrd, µg/L (01010)	Beryll-ium, water, unfltrd recover-able, µg/L (00998)	Bismuth water, fltrd, µg/L (01015)	Bismuth water unfltrd µg/L (01017)
OCT 01...	<.040	<.040	<.200	<.200	23.5	24.0	.800	.900	<.030	<.030
NOV 14...	--	--	--	--	--	--	--	--	--	--
DEC 19...	--	--	--	--	--	--	--	--	--	--
MAR 05...	--	--	--	--	--	--	--	--	--	--
APR 03...	--	--	--	--	--	--	--	--	--	--
MAY 01...	--	--	--	--	--	--	--	--	--	--
JUN 03...	--	--	--	--	--	--	--	--	--	--
JUL 23...	--	--	--	--	--	--	--	--	--	--
AUG 19...	--	--	--	--	--	--	--	--	--	--
SEP 24...	--	--	--	--	--	--	--	--	--	--

Date	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)	Cerium, water, fltrd, µg/L (01110)	Cerium, water, unfltrd µg/L (01112)	Cesium, water, fltrd, µg/L (01115)	Cesium, water, unfltrd µg/L (01117)	Chrom-ium, water, fltrd, µg/L (01030)	Chrom-ium, water, unfltrd recover-able, µg/L (01034)	Cobalt water, fltrd, µg/L (01035)	Cobalt water, unfltrd recover-able, µg/L (01037)
OCT 01...	.200	.200	6.30	6.60	.040	.050	<1.00	<1.00	33.0	33.5
NOV 14...	--	--	--	--	--	--	--	--	--	--
DEC 19...	--	--	--	--	--	--	--	--	--	--
MAR 05...	--	--	--	--	--	--	--	--	--	--
APR 03...	--	--	--	--	--	--	--	--	--	--
MAY 01...	--	--	--	--	--	--	--	--	--	--
JUN 03...	--	--	--	--	--	--	--	--	--	--
JUL 23...	--	--	--	--	--	--	--	--	--	--
AUG 19...	--	--	--	--	--	--	--	--	--	--
SEP 24...	--	--	--	--	--	--	--	--	--	--

Date	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Dyspros-ium, water, fltrd, µg/L (82331)	Dyspros-ium, water, unfltrd µg/L (82330)	Erbium, water, fltrd, µg/L (50573)	Erbium, water, unfltrd µg/L (01246)	Euro-pium, water, fltrd, µg/L (50574)	Europ-ium, water, unfltrd µg/L (01236)	Gado-linium, water, fltrd, µg/L (50575)	Gado-linium, water, unfltrd µg/L (01219)
OCT 01...	3.00	4.00	.680	.720	.410	.420	.140	.140	.630	.740
NOV 14...	--	--	--	--	--	--	--	--	--	--
DEC 19...	--	--	--	--	--	--	--	--	--	--
MAR 05...	--	--	--	--	--	--	--	--	--	--
APR 03...	--	--	--	--	--	--	--	--	--	--
MAY 01...	--	--	--	--	--	--	--	--	--	--
JUN 03...	--	--	--	--	--	--	--	--	--	--
JUL 23...	--	--	--	--	--	--	--	--	--	--
AUG 19...	--	--	--	--	--	--	--	--	--	--
SEP 24...	--	--	--	--	--	--	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571780 -- Lorberry Creek at Lorberry Junction, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Gallium water, fltrd, µg/L (01120)	Gallium water, unfltrd µg/L (01122)	Germanium, water, fltrd, µg/L (01125)	Germanium, water, unfltrd µg/L (01127)	Gold, water, fltrd, µg/L (82334)	Gold, water, unfltrd µg/L (71910)	Holmium water, fltrd, µg/L (50577)	Holmium water unfltrd µg/L (01247)	Indium water, fltrd, µg/L (62843)	Indium, water, unfltrd µg/L (01168)
OCT										
01...	<.020	<.020	<.020	<.020	<.010	<.010	.150	.150	<.010	<.010
NOV										
14...	--	--	--	--	--	--	--	--	--	--
DEC										
19...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	--	--	--	--	--	--	--	--	--	--
APR										
03...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
JUL										
23...	--	--	--	--	--	--	--	--	--	--
AUG										
19...	--	--	--	--	--	--	--	--	--	--
SEP										
24...	--	--	--	--	--	--	--	--	--	--

Date	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lantha-num, water, fltrd, µg/L (01180)	Lantha-num, water, unfltrd µg/L (01182)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)	Lithium water, fltrd, µg/L (01130)	Lithium water unfltrd recover-able, µg/L (01132)	Mangan-ese, water, fltrd, µg/L (01056)	Mangan-ese, water, unfltrd recover-able, µg/L (01055)
OCT										
01...	1300	1750	3.10	3.20	.300	.500	14.5	15.0	1040	1120
NOV										
14...	3760	5320	--	--	--	--	--	--	1440	1580
DEC										
19...	3020	4370	--	--	--	--	--	--	1120	1280
MAR										
05...	2990	3430	--	--	--	--	--	--	1070	990
APR										
03...	1310	2790	--	--	--	--	--	--	1050	1050
MAY										
01...	1540	2760	--	--	--	--	--	--	950	940
JUN										
03...	1700	2970	--	--	--	--	--	--	970	930
JUL										
23...	1590	2930	--	--	--	--	--	--	1190	1210
AUG										
19...	1910	3500	--	--	--	--	--	--	1250	1330
SEP										
24...	1750	3330	--	--	--	--	--	--	860	930

Date	Molyb-denum, water, fltrd, µg/L (01060)	Molyb-denum, water, unfltrd recover-able, µg/L (01062)	Neodym-ium, water, fltrd, µg/L (50579)	Neodym-ium, water, unfltrd µg/L (01237)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Praseo-dymium, water, fltrd, µg/L (50582)	Praseo-dymium, water, unfltrd µg/L (01238)	Rhenium water, fltrd, µg/L (50583)	Rhenium water unfltrd µg/L (01242)
OCT										
01...	.070	.080	3.10	3.20	59.0	61.5	.810	.850	<.020	<.020
NOV										
14...	--	--	--	--	73.0	76.0	--	--	--	--
DEC										
19...	--	--	--	--	43.0	56.0	--	--	--	--
MAR										
05...	--	--	--	--	37.0	42.0	--	--	--	--
APR										
03...	--	--	--	--	64.0	62.0	--	--	--	--
MAY										
01...	--	--	--	--	44.0	40.0	--	--	--	--
JUN										
03...	--	--	--	--	50.0	47.0	--	--	--	--
JUL										
23...	--	--	--	--	55.0	56.0	--	--	--	--
AUG										
19...	--	--	--	--	59.0	72.0	--	--	--	--
SEP										
24...	--	--	--	--	40.0	40.0	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571780 -- Lorberry Creek at Lorberry Junction, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Rubid-ium, water, fltrd, µg/L (01135)	Rubid-ium, water, unfltrd µg/L (01137)	Samar-ium, water, fltrd, µg/L (82323)	Samar-ium, water, unfltrd µg/L (82322)	Selen-ium, water, fltrd, µg/L (01145)	Selen-ium, water, unfltrd µg/L (01147)	Silver, water, fltrd, µg/L (01075)	Silver, water, unfltrd recover-able, µg/L (01077)	Stront-ium, water, fltrd, µg/L (01080)	Stront-ium, water, unfltrd recover-able, µg/L (01082)
OCT										
01...	2.20	2.10	.570	.670	<.200	<.200	.010	<.010	72.0	71.5
NOV										
14...	--	--	--	--	--	--	--	--	--	--
DEC										
19...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	--	--	--	--	--	--	--	--	--	--
APR										
03...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
JUL										
23...	--	--	--	--	--	--	--	--	--	--
AUG										
19...	--	--	--	--	--	--	--	--	--	--
SEP										
24...	--	--	--	--	--	--	--	--	--	--

Date	Terbium water, fltrd, µg/L (50586)	Terbium water unfltrd µg/L (01218)	Thall-ium, water, fltrd, µg/L (01057)	Thall-ium, water, unfltrd µg/L (01059)	Thorium water, fltrd, µg/L (82365)	Thorium water unfltrd µg/L (82364)	Thulium water, fltrd, µg/L (50587)	Thulium water unfltrd µg/L (01245)	Tung-sten, water, fltrd, µg/L (01155)	Tung-sten, water, unfltrd µg/L (01154)
OCT										
01...	.110	.120	<.050	<.050	<.040	<.040	.057	.059	.030	.030
NOV										
14...	--	--	--	--	--	--	--	--	--	--
DEC										
19...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	--	--	--	--	--	--	--	--	--	--
APR										
03...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
JUL										
23...	--	--	--	--	--	--	--	--	--	--
AUG										
19...	--	--	--	--	--	--	--	--	--	--
SEP										
24...	--	--	--	--	--	--	--	--	--	--

Date	Vanad-ium, water, fltrd, µg/L (01085)	Vanad-ium, water, unfltrd µg/L (01087)	Ytterb-ium, water, fltrd, µg/L (01194)	Ytterb-ium, water, unfltrd µg/L (01196)	Yttrium water, fltrd, µg/L (01201)	Yttrium water unfltrd µg/L (01203)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)	Uranium natural water, fltrd, µg/L (22703)	Uranium natural water unfltrd µg/L (28011)
OCT										
01...	<.100	<.100	.330	.360	3.30	3.50	142	140	.130	.160
NOV										
14...	--	--	--	--	--	--	173	166	--	--
DEC										
19...	--	--	--	--	--	--	98.0	99.0	--	--
MAR										
05...	--	--	--	--	--	--	82.0	70.0	--	--
APR										
03...	--	--	--	--	--	--	152	154	--	--
MAY										
01...	--	--	--	--	--	--	111	109	--	--
JUN										
03...	--	--	--	--	--	--	109	106	--	--
JUL										
23...	--	--	--	--	--	--	159	151	--	--
AUG										
19...	--	--	--	--	--	--	158	150	--	--
SEP										
24...	--	--	--	--	--	--	117	113	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571758 -- Lower Rausch Creek near Lorberry Junction, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf µS/cm 25 degC (00095)
NOV 14...	0915	1028	89203	8.0	258	9.0	11.1	7.0	6.7	335
DEC 19...	1000	1028	89203	9.9	283	10	11.8	7.0	6.8	321
MAR 05...	1130	1028	89203	5.8	317	7.0	11.8	7.1	6.8	387
APR 03...	0945	1028	89203	9.1	370	13	11.2	6.8	6.6	342
MAY 01...	1045	1028	89203	7.3	264	13	10.7	6.8	6.9	361
JUN 03...	1000	1028	89203	13	232	8.0	10.8	7.0	6.9	322
JUL 23...	1215	1028	89203	3.5	281	26	10.2	6.9	6.9	432
AUG 19...	1030	1028	89203	7.7	240	28	10.1	6.7	6.8	381
SEP 24...	1015	1028	89203	18	250	15	10.5	7.1	6.8	223

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 14...	8.4	25.3	30.5	15.6	17.5	1.90	1.9	14.8	15.7	14
DEC 19...	6.6	22.5	30.2	14.4	16.9	1.70	1.9	13.5	15.3	11
MAR 05...	6.9	26.8	29.0	15.8	16.9	2.30	2.2	21.5	20.7	17
APR 03...	9.9	23.4	27.4	15.0	17.2	1.80	1.9	16.3	12.6	8
MAY 01...	11.4	28.0	27.7	17.4	19.3	1.90	1.8	13.2	12.6	11
JUN 03...	11.4	23.2	21.6	13.0	13.2	1.80	1.8	18.6	16.9	14
JUL 23...	15.0	31.4	33.8	19.7	20.4	1.90	2.1	16.9	17.2	19
AUG 19...	13.9	29.4	30.7	17.8	19.3	2.00	2.3	15.6	17.9	13
SEP 24...	13.6	16.6	16.3	9.50	9.8	1.60	1.6	9.10	11.2	13

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 14...	<100	300	2500	3410	1180	1320	29.0	42.0	56.0	88.0
DEC 19...	<100	700	2780	4410	1180	1400	42.0	54.0	72.0	77.0
MAR 05...	<100	400	2020	2530	1190	1140	44.0	39.0	56.0	57.0
APR 03...	<100	900	1310	2560	1200	1290	58.0	57.0	104	113
MAY 01...	<100	900	1860	3400	1380	1430	55.0	50.0	92.0	110
JUN 03...	<100	600	1500	2380	980	1000	33.0	31.0	49.0	63.0
JUL 23...	<100	700	660	2520	1380	1470	52.0	50.0	50.0	77.0
AUG 19...	<100	800	1420	3250	1360	1480	47.0	52.0	73.0	89.0
SEP 24...	<100	400	850	1570	690	770	32.0	32.0	52.0	57.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571760 -- Lower Rausch Creek at Lorberry Junction, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf µS/cm 25 degC (00095)
NOV										
14...	0900	1028	89203	5.4	299	7.0	11.3	6.7	6.5	329
DEC										
19...	0945	1028	89203	8.8	311	7.0	12.3	6.9	6.9	320
MAR										
05...	1045	1028	89203	5.8	349	9.0	12.5	6.9	6.8	387
APR										
03...	0930	1028	89203	9.9	391	11	11.4	6.6	6.6	339
MAY										
01...	1030	1028	89203	6.1	276	9.0	10.7	6.8	6.8	358
JUN										
03...	0945	1028	89203	8.5	244	8.0	11.0	6.8	6.8	319
JUL										
23...	1200	1028	89203	4.2	382	14	9.8	6.7	6.8	425
AUG										
19...	1015	1028	89203	5.4	275	24	10.1	6.5	6.8	377
SEP										
24...	1000	1028	89203	17	291	24	10.6	7.0	5.3	218

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV										
14...	7.2	22.5	31.0	14.2	17.2	1.80	2.0	13.6	15.9	13
DEC										
19...	5.4	24.7	27.2	15.4	16.8	1.80	1.9	13.2	13.3	12
MAR										
05...	5.4	30.3	30.2	16.8	16.9	2.30	2.2	21.0	20.3	18
APR										
03...	9.6	24.3	26.9	14.8	17.0	1.90	1.9	17.7	12.6	9
MAY										
01...	11.6	27.6	28.0	17.6	18.8	1.80	1.8	14.7	13.4	11
JUN										
03...	11.7	23.4	23.1	12.9	13.7	1.90	1.9	18.8	16.9	15
JUL										
23...	17.1	33.1	34.0	19.9	20.0	2.30	2.3	18.6	18.6	2
AUG										
19...	14.6	28.5	29.6	18.3	18.8	2.20	2.2	15.7	15.8	13
SEP										
24...	13.5	15.6	16.9	9.30	9.6	1.60	1.8	8.90	11.2	7

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV										
14...	<100	200	1430	2150	1110	1260	39.0	41.0	51.0	54.0
DEC										
19...	<100	600	2580	3260	1200	1310	35.0	44.0	74.0	76.0
MAR										
05...	<100	400	1850	2560	1190	1170	50.0	46.0	63.0	58.0
APR										
03...	<100	800	1120	2360	1190	1280	67.0	59.0	102	112
MAY										
01...	<100	700	1480	2310	1390	1340	60.0	51.0	92.0	102
JUN										
03...	<100	400	1140	1870	950	920	35.0	48.0	48.0	56.0
JUL										
23...	<100	300	360	1160	1330	1340	48.0	42.0	43.0	53.0
AUG										
19...	<100	600	780	2240	1340	1410	47.0	46.0	71.0	77.0
SEP										
24...	<100	500	600	1670	670	730	26.0	23.0	49.0	60.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571798 -- Swatara Creek at Lorberry Junction, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf µS/cm 25 degC (00095)
NOV 14...	0815	1028	89203	41	339	4.0	11.3	6.6	6.4	176
DEC 19...	0900	1028	89203	50	385	6.0	12.9	6.4	6.5	167
MAR 05...	1000	1028	89203	53	370	4.0	13.4	6.8	6.3	204
APR 03...	0900	1028	89203	27	408	9.0	11.7	6.6	6.5	191
MAY 01...	1000	1028	89203	57	362	9.0	11.1	6.7	6.8	205
JUN 03...	0915	1028	89203	82	379	18	10.8	6.3	6.2	130
JUL 23...	1130	1028	89203	54	376	15	9.3	7.1	6.8	214
AUG 19...	0945	1028	89203	64	316	21	9.9	6.9	6.8	194
SEP 24...	0930	1028	89203	92	394	40	10.3	6.6	6.4	118

Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 14...	6.5	11.3	13.8	7.50	8.7	1.50	1.6	6.70	7.1	6
DEC 19...	3.2	10.2	11.9	7.70	8.5	1.20	1.2	6.10	5.7	5
MAR 05...	2.5	12.1	13.2	8.70	9.4	1.30	1.3	7.10	7.9	9
APR 03...	7.9	12.0	12.6	8.70	9.9	1.20	1.2	7.00	5.4	6
MAY 01...	11.9	14.2	13.8	10.6	11.1	1.20	1.1	7.10	6.4	7
JUN 03...	11.2	7.70	7.8	5.40	6.0	1.20	1.1	6.60	6.0	4
JUL 23...	18.3	14.9	16.9	10.3	11.3	1.30	1.5	5.70	6.0	8
AUG 19...	15.5	13.1	13.4	10.0	10.3	1.30	1.4	5.90	6.4	8
SEP 24...	13.6	7.90	8.5	5.00	5.4	1.40	1.6	4.20	5.4	7

Date	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 14...	<100	300	290	580	580	670	21.0	30.0	55.0	54.0
DEC 19...	<100	600	610	1010	590	650	30.0	31.0	71.0	69.0
MAR 05...	<100	300	540	850	620	600	26.0	23.0	60.0	52.0
APR 03...	<100	500	610	950	530	560	33.0	30.0	70.0	63.0
MAY 01...	<100	300	180	800	560	540	21.0	34.0	56.0	62.0
JUN 03...	<100	500	200	1250	400	420	21.0	20.0	56.0	54.0
JUL 23...	<100	200	130	710	490	570	33.0	24.0	41.0	44.0
AUG 19...	<100	400	220	1010	650	690	33.0	27.0	63.0	60.0
SEP 24...	100	500	270	970	450	530	23.0	18.0	45.0	52.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403650076330701 -- Valley View Tunnel near Valley View, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
JUN 04...	1015	1028	1028	2.5	280	17	10.0	90	6.0	6.5

Date	Specif. conduct-ance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recover-able, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recover-able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover-able, mg/L (00929)
JUN 04...	250	11.2	15.1	--	13.8	--	1.10	--	.80	--

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)
JUN 04...	40.0	<10.3	50.0	1.0	.10	9.66	75.2	.10	<.020	<.001

Date	Aluminum, water, fltrd, ug/L (01106)	Aluminum, water, unfltrd recover-able, ug/L (01105)	Antimony, water, fltrd, ug/L (01095)	Arsenic water, fltrd, ug/L (01000)	Barium, water, fltrd, ug/L (01005)	Beryllium, water, fltrd, ug/L (01010)	Bismuth water, fltrd, ug/L (01015)	Bromine water unfltrd mg/L (71871)	Cadmium water, fltrd, ug/L (01025)	Cerium, water, fltrd, ug/L (01110)	Cesium, water, fltrd, ug/L (01115)
JUN 04...	105	--	.130	5.20	27.5	.240	.020	<.03	.079	.420	.110

Date	Chromium, water, fltrd, ug/L (01030)	Cobalt water, fltrd, ug/L (01035)	Copper, water, fltrd, ug/L (01040)	Dysprosium, water, fltrd, ug/L (82331)	Erbium, water, fltrd, ug/L (50573)	Europium, water, fltrd, ug/L (50574)	Gadolinium, water, fltrd, ug/L (50575)	Gallium water, fltrd, ug/L (01120)	Germanium, water, fltrd, ug/L (01125)	Gold, water, fltrd, ug/L (82334)
JUN 04...	1.00	29.5	<.500	.086	.041	.007	.065	.034	.031	.060

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403650076330701 -- Valley View Tunnel near Valley View, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Holmium water, fltrd, ug/L (50577)	Indium water, fltrd, ug/L (62843)	Iron, water, fltrd, ug/L (01046)	Iron, water, unfltrd recover -able, ug/L (01045)	Lantha- num, water, fltrd, ug/L (01180)	Lead, water, fltrd, ug/L (01049)	Lithium water, fltrd, ug/L (01130)	Mangan- ese, water, fltrd, ug/L (01056)	Mangan- ese, water, unfltrd recover -able, ug/L (01055)	Molyb- denum, water, fltrd, ug/L (01060)
JUN 04...	.016	<.010	17400	--	.230	.069	20.0	1930	--	.110

Date	Neodym- ium, water, fltrd, ug/L (50579)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd recover -able, ug/L (01067)	Praseo- dymium, water, fltrd, ug/L (50582)	Rhenium water, fltrd, ug/L (50583)	Rubid- ium, water, fltrd, ug/L (01135)	Samar- ium, water, fltrd, ug/L (82323)	Selen- ium, water, fltrd, ug/L (01145)	Silver, water, fltrd, ug/L (01075)	Stront- ium, water, fltrd, ug/L (01080)
JUN 04...	.180	31.5	--	.052	<.020	2.30	.040	<.200	.150	77.5

Date	Terbium water, fltrd, ug/L (50586)	Thall- ium, water, fltrd, ug/L (01057)	Thorium water, fltrd, ug/L (82365)	Thulium water, fltrd, ug/L (50587)	Tung- sten, water, fltrd, ug/L (01155)	Vanad- ium, water, fltrd, ug/L (01085)	Ytterb- ium, water, fltrd, ug/L (01194)	Yttrium water, fltrd, ug/L (01201)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd recover -able, ug/L (01092)	Uranium natural water, fltrd, ug/L (22703)
JUN 04...	.012	<.050	<.010	.006	.092	<.100	.032	.500	35.0	--	.010

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403709076330201 -- Markson Columway near Valley View, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
JUN 04...	1030	1028	1028	4.5	680	10	3.0	27	3.4	3.3

Date	Specif. conduct-tance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recover-able, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recover-able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover-able, mg/L (00929)
JUN 04...	730	10.8	38.1	--	36.4	--	1.50	--	2.15	--

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Ortho-phosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)
JUN 04...	.000	55.0	90.0	4.6	.10	12.5	310	.04	<.080	<.001

Date	Aluminum, water, fltrd, ug/L (01106)	Aluminum, water, unfltrd recover-able, ug/L (01105)	Antimony, water, fltrd, ug/L (01095)	Arsenic water, fltrd, ug/L (01000)	Barium, water, fltrd, ug/L (01005)	Beryllium, water, fltrd, ug/L (01010)	Bismuth water, fltrd, ug/L (01015)	Bromine water unfltrd mg/L (71871)	Cadmium water, fltrd, ug/L (01025)	Cerium, water, fltrd, ug/L (01110)	Cesium, water, fltrd, ug/L (01115)
JUN 04...	2150	--	<.020	<1.00	19.5	2.40	<.020	<.12	.430	11.0	.110

Date	Chromium, water, fltrd, ug/L (01030)	Cobalt water, fltrd, ug/L (01035)	Copper, water, fltrd, ug/L (01040)	Dysprosium, water, fltrd, ug/L (82331)	Erbium, water, fltrd, ug/L (50573)	Europium, water, fltrd, ug/L (50574)	Gadolinium, water, fltrd, ug/L (50575)	Gallium water, fltrd, ug/L (01120)	Germanium, water, fltrd, ug/L (01125)	Gold, water, fltrd, ug/L (82334)
JUN 04...	<1.00	144	6.50	1.50	.860	.280	1.50	.072	.020	<.010

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403709076330201 -- Markson Columway near Valley View, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Holmium water, fltrd, ug/L (50577)	Indium water, fltrd, ug/L (62843)	Iron, water, fltrd, ug/L (01046)	Iron, water, unfltrd recover -able, ug/L (01045)	Lantha- num, water, fltrd, ug/L (01180)	Lead, water, fltrd, ug/L (01049)	Lithium water, fltrd, ug/L (01130)	Mangan- ese, water, fltrd, ug/L (01056)	Mangan- ese, water, unfltrd recover -able, ug/L (01055)	Molyb- denum, water, fltrd, ug/L (01060)
JUN 04...	.310	<.010	6250	--	4.70	3.30	32.5	4430	--	.060

Date	Neodym- ium, water, fltrd, ug/L (50579)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd recover -able, ug/L (01067)	Praseo- dymium, water, fltrd, ug/L (50582)	Rhenium water, fltrd, ug/L (50583)	Rubid- ium, water, fltrd, ug/L (01135)	Samar- ium, water, fltrd, ug/L (82323)	Selen- ium, water, fltrd, ug/L (01145)	Silver, water, fltrd, ug/L (01075)	Stront- ium, water, fltrd, ug/L (01080)
JUN 04...	5.40	199	--	1.30	<.020	3.90	1.30	<.200	<.010	120

Date	Terbium water, fltrd, ug/L (50586)	Thall- ium, water, fltrd, ug/L (01057)	Thorium water, fltrd, ug/L (82365)	Thulium water, fltrd, ug/L (50587)	Tung- sten, water, fltrd, ug/L (01155)	Vanad- ium, water, fltrd, ug/L (01085)	Ytterb- ium, water, fltrd, ug/L (01194)	Yttrium water, fltrd, ug/L (01201)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd recover -able, ug/L (01092)	Uranium natural water, fltrd, ug/L (22703)
JUN 04...	.240	<.050	.030	.130	<.020	<.100	.730	7.40	398	--	.560

GROUND-WATER-LEVEL AND GROUND-WATER-QUALITY STATION RECORDS

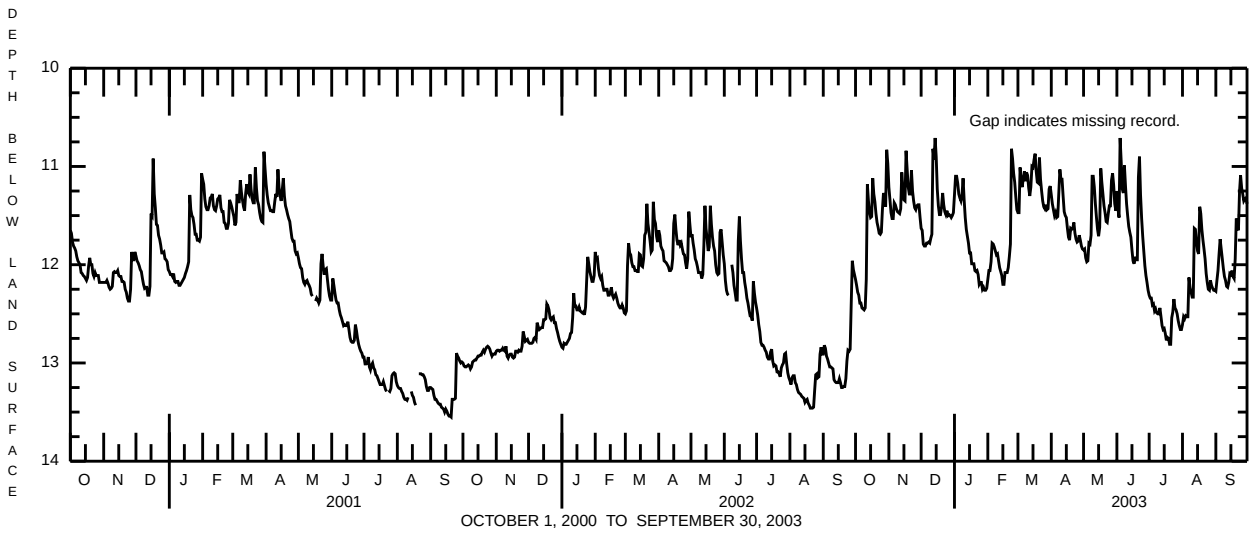
ADAMS COUNTY

395846077040601. Local number, AD 146.

LOCATION.--Lat 39°58'46", long 77°04'06", Hydrologic Unit 02050306, at State Game Land No. 249, and near York Springs.
Owner: U.S. Geological Survey.
AQUIFER.--Gettysburg Formation, Late Triassic age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 100 ft, cased to 17 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 540 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.00 ft above land-surface datum.
REMARKS.--Well shows significant response to earth tides. Water-quality records for 1973-75 are available in files of the District Office. In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.
PERIOD OF RECORD.--January 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 9.75 ft below land-surface datum, Mar. 20, 2003; lowest, 14.02 ft below land-surface datum, July 16-18, 1988.
EXTREMES FOR CURRENT YEAR.--Highest water level, 9.75 ft below land-surface datum, Mar. 20; lowest, 12.81 ft below land-surface datum, July 20, 21.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.15	11.21	11.63	11.29	12.15	11.47	11.29	11.85	11.25	12.31	12.61	12.27
2	12.21	11.34	11.65	11.10	12.06	11.47	11.38	11.84	11.43	12.34	12.53	12.16
3	12.28	11.47	11.79	11.10	12.06	11.01	11.44	11.93	11.52	12.34	12.55	12.06
4	12.31	11.53	11.81	11.17	11.97	11.16	11.50	11.97	10.71	12.41	12.52	11.89
5	12.39	11.53	11.81	11.28	11.78	11.21	11.47	11.96	10.95	12.40	12.53	11.74
6	12.39	11.37	11.78	11.32	11.79	11.11	11.52	11.78	11.23	12.47	12.53	11.84
7	12.44	11.39	11.78	11.35	11.82	11.05	11.51	11.79	11.27	12.45	12.13	11.94
8	12.45	11.43	11.77	11.29	11.86	11.15	11.27	11.70	10.99	12.49	12.23	12.04
9	12.46	11.46	11.78	11.12	11.90	11.06	11.03	11.10	11.20	12.50	12.28	12.12
10	12.44	11.47	11.73	11.34	11.89	11.09	11.13	11.10	11.38	12.50	12.33	12.16
11	12.15	11.48	11.69	11.52	11.96	11.22	11.13	11.21	11.50	12.44	12.33	12.22
12	11.18	11.43	10.82	11.64	12.03	11.30	11.30	11.38	11.61	12.53	11.63	12.23
13	11.35	11.06	10.93	11.71	12.07	11.21	11.46	11.52	11.67	12.62	11.64	12.18
14	11.46	11.22	10.71	11.78	12.11	11.00	11.50	11.64	11.72	12.66	11.77	12.09
15	11.52	11.34	10.90	11.88	12.20	11.01	11.52	11.71	11.85	12.65	11.86	12.10
16	11.51	11.35	11.23	11.88	12.20	10.93	11.63	11.62	11.96	12.70	11.89	12.06
17	11.12	10.84	11.40	11.99	12.08	10.87	11.72	11.02	11.99	12.77	11.41	12.12
18	11.28	11.03	11.49	11.99	12.08	11.05	11.75	11.16	11.92	12.74	11.48	12.14
19	11.36	11.21	11.49	11.99	12.08	11.16	11.63	11.28	11.95	12.75	11.64	11.94
20	11.48	11.28	11.41	12.06	12.03	11.17	11.64	11.40	11.95	12.81	11.75	11.53
21	11.57	11.28	11.27	12.07	11.92	10.91	11.63	11.47	11.11	12.81	11.84	11.61
22	11.62	11.04	11.39	12.06	11.79	11.13	11.57	11.56	10.90	12.54	11.94	11.65
23	11.68	11.25	11.46	12.10	10.82	11.25	11.68	11.57	11.29	12.48	12.09	11.26
24	11.69	11.35	11.49	12.20	10.92	11.35	11.74	11.48	11.53	12.35	12.18	11.09
25	11.67	11.42	11.45	12.18	11.07	11.41	11.77	11.40	11.71	12.44	12.25	11.22
26	11.44	11.44	11.50	12.18	11.16	11.43	11.76	11.40	11.86	12.46	12.26	11.28
27	11.27	11.40	11.49	12.25	11.31	11.39	11.70	11.14	12.01	12.50	12.16	11.35
28	11.35	11.39	11.50	12.23	11.44	11.44	11.75	11.07	12.11	12.57	12.21	11.33
29	11.41	11.39	11.52	12.26	---	11.43	11.81	11.19	12.18	12.62	12.24	11.32
30	10.83	11.52	11.50	12.26	---	11.23	11.84	11.38	12.26	12.66	12.26	11.38
31	10.97	---	11.47	12.24	---	11.20	---	11.45	---	12.66	12.26	---
MEAN	11.72	11.33	11.47	11.77	11.81	11.19	11.54	11.49	11.57	12.55	12.11	11.81
MAX	12.46	11.53	11.81	12.26	12.20	11.47	11.84	11.97	12.26	12.81	12.61	12.27
MIN	10.83	10.84	10.71	11.10	10.82	10.87	11.03	11.02	10.71	12.31	11.41	11.09



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

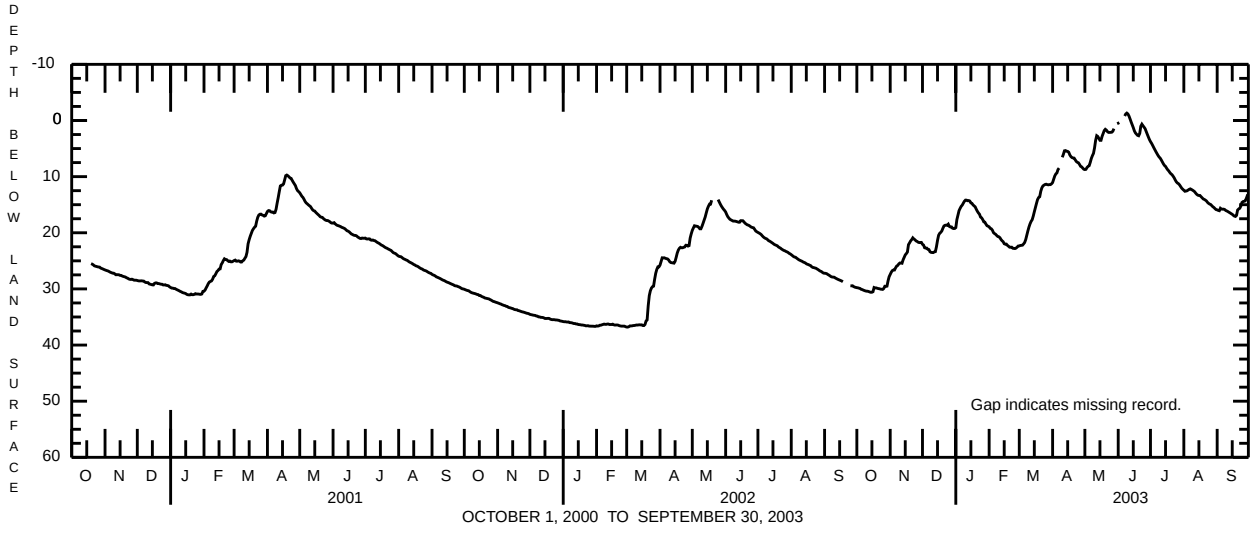
BEDFORD COUNTY

400217078281901. Local number, BD 150.

LOCATION.--Lat 40°02'17", long 78°28'19", Hydrologic Unit 02050303, at Bedford.
Owner: U.S. Geological Survey.
AQUIFER.--Onondaga Formation, Middle Devonian age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in., depth 150 ft, cased to 47 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,160 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of instrument shelf, 3.07 ft above land-surface datum. Prior to Oct. 18, 2001, measuring point, top of casing, 3.10 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since June 1999, are also available from the District Office.
PERIOD OF RECORD.--July 1965 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 1.40 ft above land-surface datum, June 9, 2003; lowest, 41.42 ft below land-surface datum, Feb. 12, 13, 1966.
EXTREMES FOR CURRENT YEAR.--Highest water level, 1.40 ft above land-surface datum, June 9; lowest, 30.59 ft below land-surface datum, Oct. 14.

DEPTH ABOVE (-) AND BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.78	27.42	22.05	19.08	18.94	22.34	11.05	8.74	0.48	3.76	12.43	15.92
2	29.81	27.02	22.19	17.66	19.21	22.26	10.45	8.70	0.38	4.07	12.61	16.02
3	29.87	26.74	22.67	16.85	19.29	22.24	9.88	8.37	---	4.43	12.57	16.07
4	29.92	26.63	22.73	16.06	19.53	22.21	9.52	8.17	---	4.82	12.52	15.63
5	30.07	26.63	22.73	15.66	19.97	21.99	9.34	8.05	---	5.18	12.39	15.77
6	30.12	26.25	22.94	15.29	20.14	21.74	8.74	7.46	---	5.54	12.26	15.80
7	30.21	25.93	22.99	15.07	20.27	21.20	8.48	6.76	-0.80	5.88	12.18	15.79
8	30.29	25.82	23.38	14.72	20.48	20.44	---	6.27	-1.16	6.22	12.28	15.86
9	30.36	25.55	23.49	14.38	20.66	19.68	---	5.85	-1.32	6.50	12.40	16.04
10	30.40	25.38	23.52	14.18	20.71	18.98	6.56	4.86	-1.16	6.70	12.53	16.12
11	30.41	25.39	23.53	14.19	20.88	18.42	6.04	3.54	-0.79	7.02	12.68	16.23
12	30.47	25.43	23.41	14.29	21.19	17.97	5.40	2.71	-0.28	7.37	12.93	16.35
13	30.55	24.81	23.36	14.26	21.42	17.67	5.36	2.85	0.26	7.73	13.15	16.46
14	30.60	24.38	22.49	14.34	21.59	17.03	5.47	3.19	0.77	8.01	13.30	16.60
15	30.59	23.94	21.37	14.68	21.95	16.26	5.51	3.53	1.27	8.18	13.36	16.71
16	30.50	23.71	20.44	14.76	22.03	15.51	5.65	3.53	1.85	8.50	13.36	16.89
17	29.75	23.43	20.10	15.03	22.02	14.78	6.13	2.83	2.22	8.78	13.57	17.03
18	29.82	22.12	19.93	15.21	22.24	14.09	6.43	2.31	2.44	8.99	13.77	17.09
19	29.82	21.79	19.67	15.38	22.40	13.72	6.60	1.80	2.65	9.28	13.97	16.90
20	29.89	21.45	19.19	15.79	22.57	13.58	6.67	1.57	2.72	9.50	14.06	15.96
21	29.94	21.22	18.79	16.16	22.58	12.62	6.70	1.72	2.30	9.65	14.18	15.76
22	29.97	20.90	18.67	16.46	22.57	11.99	7.00	1.99	1.03	9.91	14.33	15.64
23	30.04	21.10	18.64	16.69	22.76	11.66	7.30	2.12	0.66	10.21	14.58	15.25
24	30.06	21.24	18.67	17.20	22.79	11.51	7.45	2.12	0.93	10.59	14.76	14.61
25	30.09	21.45	18.47	17.34	22.81	11.40	7.53	2.11	1.18	10.92	14.89	14.45
26	29.93	21.54	18.87	17.64	22.73	11.35	7.82	2.09	1.46	11.13	14.97	14.40
27	29.53	21.68	18.97	18.05	22.56	11.42	8.16	1.91	1.95	11.25	15.17	14.33
28	29.55	21.75	18.96	18.11	22.36	11.46	8.26	1.45	2.44	11.47	15.37	13.93
29	29.51	21.73	19.19	18.46	---	11.42	8.47	---	2.93	11.76	15.50	13.39
30	28.57	21.72	19.25	18.74	---	11.42	8.68	---	3.39	12.05	15.71	13.46
31	27.83	---	19.23	18.83	---	11.28	---	0.57	---	12.25	15.87	---
MEAN	29.94	23.80	20.96	16.15	21.38	16.12	7.52	4.04	1.07	8.31	13.67	15.68
MAX	30.60	27.42	23.53	19.08	22.81	22.34	11.05	8.74	3.39	12.25	15.87	17.09
MIN	27.83	20.90	18.47	14.18	18.94	11.28	5.36	0.57	-1.32	3.76	12.18	13.39



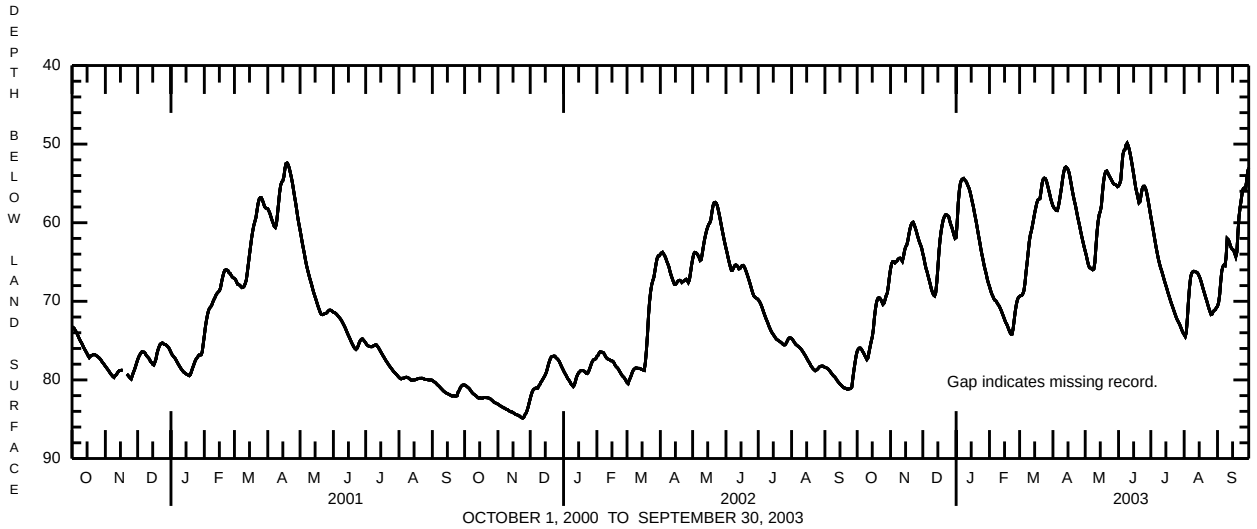
BEDFORD COUNTY

400450078303001. Local number, BD 654.

LOCATION.--Lat 40°04'50", long 78°30'30", Hydrologic Unit 02050303, at Bedford County Airport 3.0 mi north of Bedford.
Owner: Bedford Township.
AQUIFER.--Bloomsburg and Mifflintown undifferentiated.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 245 ft, cased to 105 ft, open hole.
INSTRUMENTATION.--Electronic data logger with 60-minute recording interval.
DATUM.--Elevation of land surface is 1,190 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.05 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels are also available from the District Office.
PERIOD OF RECORD.--October 1999 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 49.85 ft below land-surface datum, June 9, 2003; lowest, 84.89 ft below land-surface datum, Nov. 24, 25, 2001.
EXTREMES FOR CURRENT YEAR.--Highest water level, 49.85 ft below land-surface datum, June 9; lowest, 77.46 ft below land-surface datum, Oct. 10, 11.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76.36	65.87	63.93	61.88	68.11	69.39	57.87	63.62	55.33	59.21	74.24	70.64
2	76.07	65.22	64.47	59.89	68.60	69.27	58.10	64.15	55.05	59.98	74.47	70.16
3	75.95	64.96	65.21	57.40	69.03	69.27	58.24	64.80	54.63	60.76	73.96	69.17
4	75.95	64.97	65.83	55.84	69.31	69.04	58.45	65.38	52.95	61.58	72.13	67.49
5	76.10	65.11	66.26	54.95	69.65	68.66	58.46	65.73	51.35	62.40	69.94	66.14
6	76.37	64.96	66.81	54.55	69.87	67.70	57.98	65.77	50.83	63.19	68.17	65.59
7	76.58	64.87	67.34	54.43	69.95	66.25	57.25	65.89	50.68	63.91	66.93	65.38
8	76.88	64.64	67.87	54.37	70.18	65.07	56.37	65.99	50.10	64.60	66.42	65.45
9	77.13	64.53	68.46	54.58	70.41	63.74	55.46	65.90	49.89	65.17	66.24	64.34
10	77.40	64.51	68.87	54.70	70.59	62.39	54.43	65.03	50.21	65.69	66.18	62.02
11	77.20	64.69	69.20	54.97	70.90	61.53	53.59	63.02	50.72	66.10	66.23	62.16
12	76.48	64.90	69.31	55.32	71.21	61.00	53.03	61.16	51.38	66.57	66.27	62.46
13	75.78	64.34	68.91	55.62	71.57	60.30	52.91	59.83	52.12	67.06	66.33	62.96
14	75.11	63.58	67.60	56.10	71.93	59.56	53.03	58.97	52.96	67.55	66.51	63.25
15	74.55	63.08	65.78	56.71	72.31	58.79	53.24	58.57	53.81	67.98	66.81	63.40
16	73.62	62.87	63.74	57.36	72.67	58.11	53.64	57.89	54.72	68.43	67.15	63.50
17	72.09	62.35	62.21	57.96	72.90	57.49	54.33	56.25	55.60	68.93	67.60	63.92
18	70.95	61.55	61.11	58.74	73.24	57.11	55.12	54.83	56.19	69.35	68.11	64.31
19	70.12	60.82	60.28	59.42	73.61	57.04	55.90	53.94	56.81	69.80	68.59	63.75
20	69.67	60.32	59.63	60.15	73.95	56.92	56.62	53.50	57.45	70.23	69.04	61.29
21	69.54	60.04	59.25	60.98	74.17	55.92	57.27	53.42	57.30	70.60	69.52	59.23
22	69.59	59.94	59.01	61.76	74.16	54.94	57.85	53.66	56.40	71.00	69.95	58.07
23	69.79	60.25	58.99	62.51	73.47	54.45	58.58	53.95	55.68	71.41	70.43	57.11
24	70.08	60.65	59.12	63.35	72.35	54.33	59.29	54.21	55.37	71.80	70.90	56.15
25	70.39	61.10	59.18	64.07	71.24	54.40	59.91	54.45	55.36	72.18	71.31	55.64
26	70.23	61.62	59.74	64.70	70.38	54.71	60.54	54.72	55.59	72.47	71.68	55.57
27	69.75	62.08	60.22	65.44	69.79	55.24	61.25	54.98	56.08	72.72	71.62	55.70
28	69.26	62.53	60.59	66.00	69.48	55.81	61.88	55.13	56.79	73.01	71.30	54.77
29	68.94	62.85	61.06	66.56	---	56.37	62.48	55.13	57.57	73.36	71.14	53.51
30	68.01	63.26	61.59	67.21	---	56.98	63.09	55.24	58.39	73.71	71.08	53.04
31	66.84	---	61.99	67.71	---	57.45	---	55.41	---	74.02	70.78	---
MEAN	72.99	63.08	63.66	59.52	71.25	60.30	57.21	59.05	54.24	67.90	69.39	61.87
MAX	77.40	65.87	69.31	67.71	74.17	69.39	63.09	65.99	58.39	74.02	74.47	70.64
MIN	66.84	59.94	58.99	54.37	68.11	54.33	52.91	53.42	49.89	59.21	66.18	53.04



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

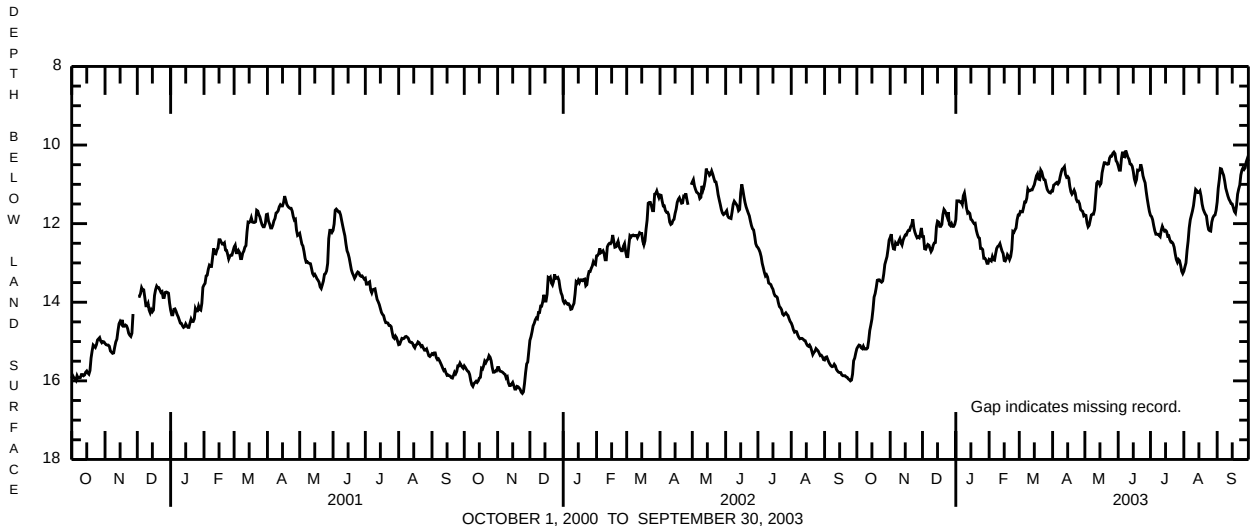
BLAIR COUNTY

402452078271301. Local number, BA 74.

LOCATION.--Lat 40°24'52", long 78°27'13", Hydrologic Unit 02050302, at Allegheny Portage Railroad National Historic Site, and southwest of Duncansville.
Owner: U.S. Geological Survey.
AQUIFER.--Brallier Formation, Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 150 ft, cased to 14 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,130 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.06 ft above land-surface datum. Prior to June 10, 1999, top of casing 1.8 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since June 1999, are also available from the District Office.
PERIOD OF RECORD.--August 1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 9.65 ft below land-surface datum, May 11, l989; lowest, 18.65 ft below land-surface datum, Oct. 29, 30, 1969.
EXTREMES FOR CURRENT YEAR.--Highest water level, 10.11 ft below land-surface datum, June 8, 9; lowest, 15.19 ft below land-surface datum, Oct. 8-10.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.18	12.35	12.33	11.90	12.91	11.78	11.17	11.78	10.53	11.79	13.21	11.45
2	15.13	12.27	12.33	11.42	12.93	11.69	11.02	11.79	10.64	11.82	13.10	11.10
3	15.09	12.51	12.64	11.42	12.95	11.70	11.00	11.98	10.64	11.90	13.00	10.88
4	15.10	12.64	12.65	11.42	12.84	11.70	10.97	12.08	10.35	12.05	12.68	10.60
5	15.16	12.65	12.58	11.45	12.92	11.59	10.95	12.04	10.17	12.18	12.44	10.61
6	15.18	12.49	12.53	11.45	12.93	11.45	10.99	11.91	10.29	12.27	12.11	10.70
7	15.12	12.53	12.55	11.51	12.77	11.45	10.95	11.78	10.30	12.27	11.90	10.77
8	15.19	12.53	12.63	11.29	12.63	11.35	10.81	11.76	10.14	12.27	11.79	10.92
9	15.19	12.44	12.71	11.22	12.58	11.12	10.69	11.76	10.22	12.30	11.68	11.10
10	15.19	12.38	12.66	11.40	12.56	11.17	10.61	11.65	10.31	12.33	11.54	11.20
11	15.16	12.48	12.55	11.61	12.51	11.16	10.59	11.31	10.36	12.17	11.32	11.30
12	14.97	12.54	12.49	11.73	12.61	11.14	10.55	10.97	10.48	12.07	11.13	11.38
13	14.72	12.42	12.48	11.71	12.70	11.14	10.75	10.93	10.49	12.14	11.16	11.43
14	14.58	12.35	12.08	11.74	12.76	11.07	10.82	10.94	10.54	12.19	11.21	11.49
15	14.43	12.29	11.94	11.89	12.94	11.01	10.80	11.02	10.67	12.17	11.21	11.50
16	14.19	12.29	11.96	11.91	12.95	10.89	10.84	10.97	10.86	12.20	11.17	11.59
17	13.87	12.21	12.07	11.96	12.89	10.78	11.05	10.71	10.96	12.32	11.30	11.69
18	13.78	12.17	12.07	12.00	12.79	10.73	11.19	10.57	10.88	12.31	11.50	11.73
19	13.63	12.17	12.02	11.99	12.83	10.87	11.25	10.45	10.64	12.41	11.63	11.54
20	13.44	12.08	11.77	12.16	12.91	10.88	11.21	10.45	10.65	12.47	11.70	11.25
21	13.43	12.03	11.64	12.27	12.84	10.64	11.15	10.48	10.63	12.47	11.76	11.12
22	13.43	11.89	11.68	12.35	12.66	10.69	11.22	10.49	10.49	12.51	11.80	11.02
23	13.47	12.11	11.75	12.37	12.20	10.81	11.38	10.48	10.60	12.60	12.01	10.76
24	13.49	12.22	11.83	12.63	12.22	10.88	11.44	10.33	10.78	12.77	12.15	10.64
25	13.46	12.30	11.71	12.63	12.16	10.89	11.43	10.28	10.88	12.91	12.18	10.58
26	13.28	12.36	12.02	12.66	12.11	11.02	11.49	10.28	10.96	12.98	12.19	10.62
27	13.04	12.34	12.05	12.88	11.90	11.13	11.64	10.21	11.18	12.91	11.96	10.58
28	12.94	12.36	12.00	12.88	11.78	11.18	11.67	10.18	11.37	12.94	11.85	10.43
29	12.84	12.27	12.07	12.92	---	11.21	11.69	10.22	11.54	13.06	11.80	10.35
30	12.65	12.11	12.07	13.01	---	11.22	11.80	10.40	11.69	13.21	11.78	10.41
31	12.42	---	12.02	13.01	---	11.17	---	10.44	---	13.27	11.66	---
MEAN	14.15	12.33	12.19	12.03	12.63	11.15	11.10	10.99	10.67	12.43	11.87	11.02
MAX	15.19	12.65	12.71	13.01	12.95	11.78	11.80	12.08	11.69	13.27	13.21	11.73
MIN	12.42	11.89	11.64	11.22	11.78	10.64	10.55	10.18	10.14	11.79	11.13	10.35



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

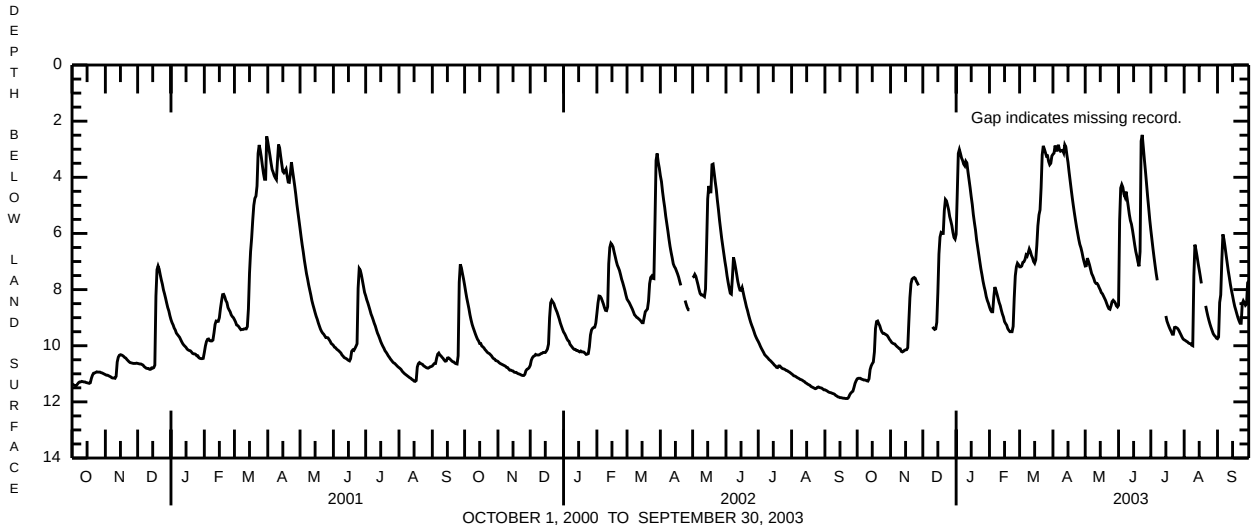
BRADFORD COUNTY

414330076280501. Local number, BR 92.

LOCATION.--Lat 41°43'30", long 76°28'05", Hydrologic Unit 02050106, at Monroeton.
Owner: U.S. Geological Survey.
AQUIFER.--Lock Haven Formation, Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 117 ft, cased to 55 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 750 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.05 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since September 1998, are also available from the District Office.
PERIOD OF RECORD.--May 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 1.33 ft below land-surface datum, Apr. 6, 1984; lowest, 11.99 ft below land-surface datum, Sept. 20, 24, 1991.
EXTREMES FOR CURRENT YEAR.--Highest water level, 2.14 ft below land-surface datum, June 22; lowest, 11.26 ft below land-surface datum, Oct. 11.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.18	9.82	---	6.03	8.62	7.19	3.18	7.16	8.56	5.87	9.79	9.75
2	11.16	9.88	---	4.64	8.73	7.19	3.14	7.15	5.54	6.21	9.81	9.69
3	11.16	9.91	---	3.15	8.79	7.16	2.87	6.88	4.38	6.54	9.84	8.46
4	11.16	9.93	---	3.01	8.79	7.03	3.04	6.99	4.26	6.85	9.86	8.19
5	11.19	9.94	---	3.15	8.26	7.01	3.04	7.12	4.36	7.15	9.90	7.00
6	11.20	9.99	---	3.31	7.91	6.93	2.84	7.28	4.60	7.43	9.92	6.03
7	11.22	10.03	---	3.40	8.02	6.77	3.00	7.43	4.70	7.67	9.93	6.21
8	11.22	10.06	---	3.53	8.16	6.81	3.07	7.51	4.51	---	9.98	6.48
9	11.23	10.10	---	3.59	8.31	6.69	3.05	7.61	4.76	---	10.00	6.77
10	11.25	10.11	9.33	3.43	8.46	6.55	3.04	7.73	5.03	---	7.52	7.05
11	11.26	10.20	9.38	3.49	8.57	6.64	3.13	7.78	5.32	---	6.40	7.33
12	11.18	10.22	9.42	3.81	8.73	6.78	2.84	7.78	5.54	---	6.59	7.57
13	10.85	10.20	9.40	4.09	8.87	6.87	2.92	7.84	5.67	---	6.82	7.82
14	10.72	10.16	9.17	4.37	8.98	7.00	3.21	7.93	5.89	---	7.07	8.03
15	10.64	10.15	8.11	4.69	9.14	7.06	3.47	8.01	6.14	8.94	7.29	8.22
16	10.58	10.14	6.73	4.97	9.21	6.94	3.81	8.11	6.40	9.12	7.53	8.42
17	10.22	10.07	6.13	5.33	9.27	6.43	4.12	8.15	6.64	9.23	7.78	8.60
18	9.39	9.17	5.97	5.62	9.39	5.73	4.44	8.23	6.81	9.33	---	8.73
19	9.14	8.29	6.00	5.88	9.45	5.34	4.74	8.31	7.01	9.42	---	8.87
20	9.12	7.79	6.00	6.22	9.50	5.16	5.02	8.39	7.17	9.50	---	9.00
21	9.21	7.63	5.19	6.48	9.50	4.37	5.29	8.50	6.65	9.59	8.58	9.11
22	9.29	7.59	4.79	6.74	9.50	3.20	5.54	8.60	2.71	9.59	8.77	9.20
23	9.42	7.57	4.84	7.00	9.31	2.88	5.78	8.68	2.49	9.35	8.94	9.20
24	9.51	7.60	4.99	7.26	8.30	2.99	6.00	8.70	2.92	9.34	9.09	8.50
25	9.56	7.70	5.16	7.47	7.51	3.12	6.21	8.58	3.36	9.36	9.23	8.40
26	9.56	7.77	5.40	7.70	7.19	3.25	6.39	8.43	3.78	9.39	9.35	8.47
27	9.59	7.85	5.55	7.89	7.06	3.24	6.51	8.38	4.22	9.45	9.46	8.56
28	9.61	---	5.72	8.05	7.11	3.44	6.67	8.42	4.67	9.53	9.57	8.52
29	9.64	---	5.96	8.25	---	3.55	6.86	8.48	5.09	9.61	9.63	7.76
30	9.70	---	6.14	8.39	---	3.50	7.02	8.58	5.51	9.69	9.67	7.69
31	9.77	---	6.20	8.49	---	3.24	---	8.62	---	9.76	9.73	---
MEAN	10.32	9.25	6.62	5.47	8.59	5.49	4.34	7.98	5.16	8.66	8.86	8.12
MAX	11.26	10.22	9.42	8.49	9.50	7.19	7.02	8.70	8.56	9.76	10.00	9.75
MIN	9.12	7.57	4.79	3.01	7.06	2.88	2.84	6.88	2.49	5.87	6.40	6.03



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

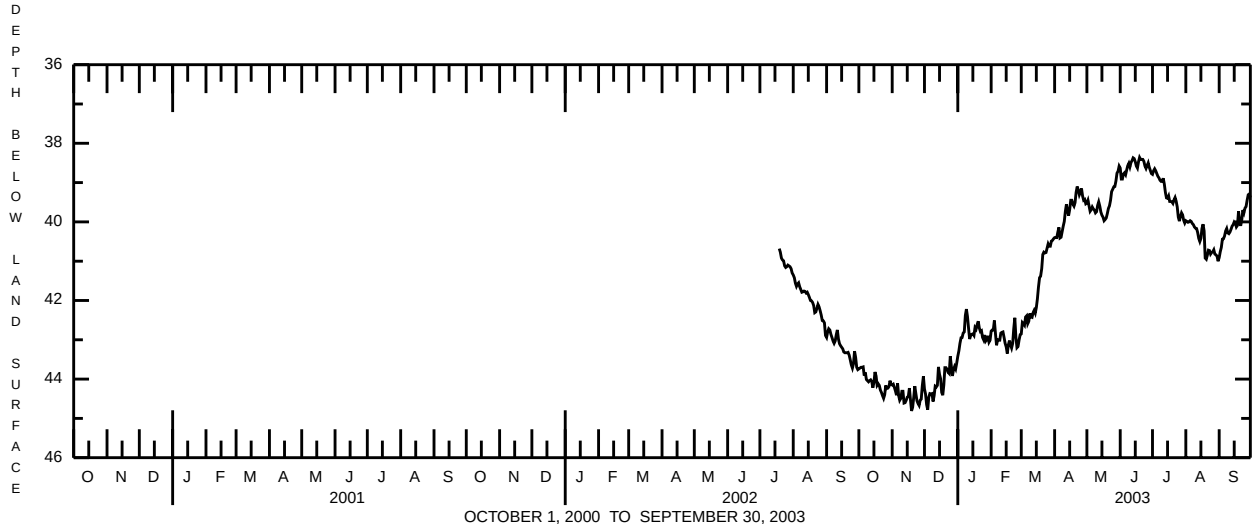
CAMBRIA COUNTY

403434078302201. Local number, CA 459.

LOCATION.--Lat 40°34'34", long 78°30'22", Hydrologic Unit 02050201, at State Game Lands No. 184.
Owner: U.S. Geological Survey.
AQUIFER.--Pottsville Formation, Middle Pennsylvanian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in, depth 146 ft, cased to 18 ft.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land-surface datum is 2,070 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of instrument shelf, 2.00 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels are available from the District Office.
PERIOD OF RECORD.--July 2002 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 38.34 ft below land-surface datum, June 19, 2003; lowest, 44.92 ft below land-surface datum, Nov. 19, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level, 38.34 ft below land-surface datum, June 19; lowest, 44.92 ft below land-surface datum, Nov. 19.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43.74	44.15	44.25	43.42	42.78	42.85	40.40	39.52	38.63	38.79	39.97	40.91
2	43.72	44.13	44.38	43.28	42.75	42.56	40.40	39.45	38.91	38.70	39.99	40.76
3	43.70	44.21	44.65	43.09	42.75	42.59	40.40	39.59	38.91	38.65	40.01	40.65
4	43.70	44.30	44.78	42.95	42.51	42.63	40.26	39.73	38.78	38.70	40.00	40.44
5	43.69	44.41	44.46	42.94	42.84	42.42	40.14	39.69	38.75	38.77	39.97	40.43
6	43.91	44.11	44.37	42.83	43.14	42.39	40.41	39.62	38.80	38.84	39.99	40.36
7	43.83	44.42	44.38	42.80	43.00	42.59	40.39	39.67	38.68	38.88	40.04	40.23
8	44.01	44.54	44.37	42.38	43.01	42.53	40.25	39.70	38.57	38.94	40.07	40.17
9	44.04	44.49	44.57	42.22	43.01	42.33	40.11	39.77	38.51	38.97	40.13	40.28
10	44.07	44.31	44.42	42.41	42.83	42.42	39.99	39.74	38.60	38.97	40.16	40.30
11	44.04	44.31	44.18	42.71	42.81	42.43	39.73	39.58	38.49	38.89	40.17	40.26
12	44.02	44.61	44.20	42.98	42.80	42.31	39.55	39.49	38.44	39.04	40.27	40.19
13	44.06	44.60	44.16	42.89	42.94	42.25	39.72	39.60	38.37	39.25	40.42	40.11
14	44.22	44.54	43.69	42.86	43.09	42.32	39.84	39.75	38.39	39.39	40.50	40.07
15	44.09	44.46	43.88	42.85	43.18	42.18	39.69	39.83	38.47	39.40	40.42	40.00
16	43.82	44.44	43.99	42.89	43.35	41.96	39.45	39.88	38.58	39.34	40.17	40.03
17	43.92	44.23	44.34	42.69	43.13	41.66	39.45	39.97	38.63	39.48	40.06	40.13
18	44.16	44.53	44.41	42.73	43.02	41.42	39.55	39.94	38.47	39.48	40.23	40.09
19	44.12	44.81	44.15	42.61	43.13	41.38	39.60	39.90	38.36	39.49	40.92	39.73
20	44.16	44.72	43.71	42.53	43.21	41.19	39.51	39.79	38.41	39.53	40.95	39.99
21	44.28	44.47	43.71	42.70	43.09	40.83	39.25	39.66	38.41	39.44	40.85	40.10
22	44.34	44.18	43.75	42.79	42.72	40.77	39.10	39.59	38.41	39.38	40.72	39.95
23	44.42	44.37	43.83	42.77	42.44	40.79	39.19	39.45	38.46	39.47	40.73	39.70
24	44.49	44.55	43.86	42.94	42.93	40.78	39.31	39.23	38.58	39.62	40.82	39.77
25	44.40	44.62	43.42	43.00	43.20	40.67	39.24	39.17	38.64	39.88	40.78	39.65
26	44.16	44.67	43.68	42.88	43.17	40.56	39.15	39.11	38.57	39.98	40.76	39.61
27	44.24	44.54	43.92	43.03	43.00	40.62	39.34	39.10	38.50	39.86	40.71	39.45
28	44.23	44.51	43.76	42.99	42.87	40.62	39.45	38.96	38.61	39.77	40.82	39.31
29	44.19	44.17	43.68	42.90	---	40.49	39.43	38.76	38.69	39.82	40.84	39.29
30	44.04	43.93	43.74	43.06	---	40.47	39.54	38.71	38.77	39.96	40.87	39.38
31	44.14	---	43.59	43.01	---	40.43	---	38.58	---	40.03	41.00	---
MEAN	44.06	44.41	44.07	42.84	42.95	41.66	39.73	39.50	38.58	39.31	40.43	40.04
MAX	44.49	44.81	44.78	43.42	43.35	42.85	40.41	39.97	38.91	40.03	41.00	40.91
MIN	43.69	43.93	43.42	42.22	42.44	40.43	39.10	38.58	38.36	38.65	39.97	39.29



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

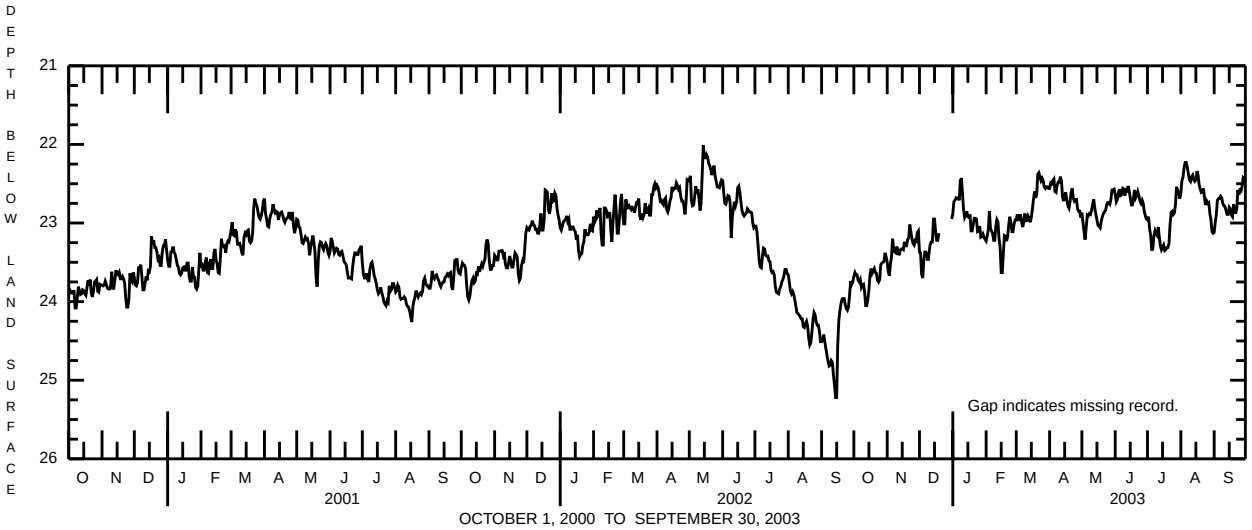
CAMERON COUNTY

412732078034201. Local number, CM 13.

LOCATION.--Lat 41°27'32", long 78°03'42", Hydrologic Unit 02050202, at Sinnemahoning State Park.
Owner: U.S. Geological Survey.
AQUIFER.--Catskill Formation, Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 102 ft, cased to 57 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,010 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.04 ft above land-surface datum.
REMARKS.--Water levels reported Apr. 1-8, 1993 affected by surface-water impounded by George B. Stevenson Dam (wellhead submerged April 3). In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.
PERIOD OF RECORD.--October 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 3.21 ft above land-surface datum, Apr. 3, 1993 (see Remarks); lowest, 25.98 ft below land-surface datum, Sept. 10, 1972.
EXTREMES FOR CURRENT YEAR.--Highest water level, 22.18 ft below land-surface datum, Aug. 5, 6; lowest, 24.05 ft below land-surface datum, Oct. 13.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.68	23.50	23.37	22.88	23.23	22.96	22.56	22.87	22.64	22.96	22.62	23.12
2	23.63	23.62	23.38	22.73	23.16	22.89	22.49	22.99	22.73	22.92	22.46	22.99
3	23.66	23.67	23.65	22.71	23.09	22.96	22.50	23.11	22.70	23.08	22.42	22.89
4	23.66	23.52	23.70	22.68	22.85	22.96	22.46	23.21	22.61	23.16	22.30	22.71
5	23.73	23.43	23.49	22.69	23.07	22.89	22.44	23.06	22.57	23.35	22.23	22.69
6	23.75	23.20	23.37	22.68	23.10	22.99	22.60	22.90	22.65	23.32	22.23	22.69
7	23.72	23.33	23.37	22.71	23.13	23.05	22.61	22.91	22.64	23.16	22.29	22.66
8	23.82	23.37	23.42	22.46	23.22	22.99	22.52	22.88	22.56	23.10	22.37	22.68
9	23.79	23.38	23.48	22.43	23.22	22.88	22.48	22.89	22.57	23.14	22.45	22.75
10	23.78	23.30	23.37	22.63	23.04	22.97	22.48	22.84	22.65	23.16	22.47	22.78
11	23.88	23.35	23.27	22.83	22.96	22.97	22.41	22.76	22.58	23.05	22.41	22.79
12	24.05	23.41	23.24	22.93	22.99	22.91	22.46	22.70	22.59	23.18	22.39	22.84
13	24.05	23.35	23.24	22.90	23.20	22.94	22.67	22.81	22.53	23.29	22.45	22.89
14	23.97	23.33	22.95	22.85	23.31	22.99	22.72	22.89	22.59	23.34	22.47	22.89
15	23.85	23.33	22.95	22.92	23.63	22.93	22.65	22.96	22.68	23.31	22.45	22.80
16	23.66	23.34	23.11	22.93	23.63	22.82	22.61	23.03	22.77	23.28	22.34	22.82
17	23.58	23.24	23.22	22.89	23.38	22.70	22.71	23.04	22.77	23.35	22.39	22.90
18	23.64	23.29	23.22	23.10	23.16	22.60	22.78	23.06	22.68	23.34	22.51	22.92
19	23.61	23.29	23.13	23.10	23.17	22.68	22.81	22.98	22.58	23.31	22.57	22.76
20	23.58	23.21	---	23.02	23.23	22.64	22.73	22.92	22.68	23.31	22.61	22.82
21	23.63	23.19	---	22.94	23.17	22.38	22.61	22.88	22.65	23.26	22.60	22.88
22	23.64	23.02	---	22.94	23.02	22.36	22.56	22.86	22.60	23.02	22.56	22.82
23	23.73	23.11	---	22.95	22.92	22.41	22.68	22.84	22.65	22.86	22.68	22.58
24	23.75	23.20	---	23.11	22.99	22.46	22.72	22.77	22.72	22.85	22.77	22.64
25	23.72	23.26	---	23.10	23.11	22.43	22.70	22.74	22.75	22.89	22.72	22.58
26	23.53	23.28	---	23.04	23.11	22.46	22.70	22.74	22.71	22.87	22.75	22.59
27	23.51	23.22	---	23.18	23.01	22.54	22.82	22.76	22.75	22.77	22.74	22.53
28	23.50	23.23	---	23.17	22.96	22.56	22.85	22.70	22.85	22.54	22.88	22.42
29	23.49	23.12	---	23.14	---	22.54	22.85	22.58	22.91	22.58	22.96	22.43
30	23.38	23.10	---	23.18	---	22.54	22.93	22.58	22.95	22.62	23.11	22.46
31	23.43	---	22.95	23.21	---	22.56	---	22.57	---	22.69	23.13	---
MEAN	23.69	23.31	23.29	22.90	23.14	22.74	22.64	22.87	22.68	23.07	22.56	22.74
MAX	24.05	23.67	23.70	23.21	23.63	23.05	22.93	23.21	22.95	23.35	23.13	23.12
MIN	23.38	23.02	22.95	22.43	22.85	22.36	22.41	22.57	22.53	22.54	22.23	22.42



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

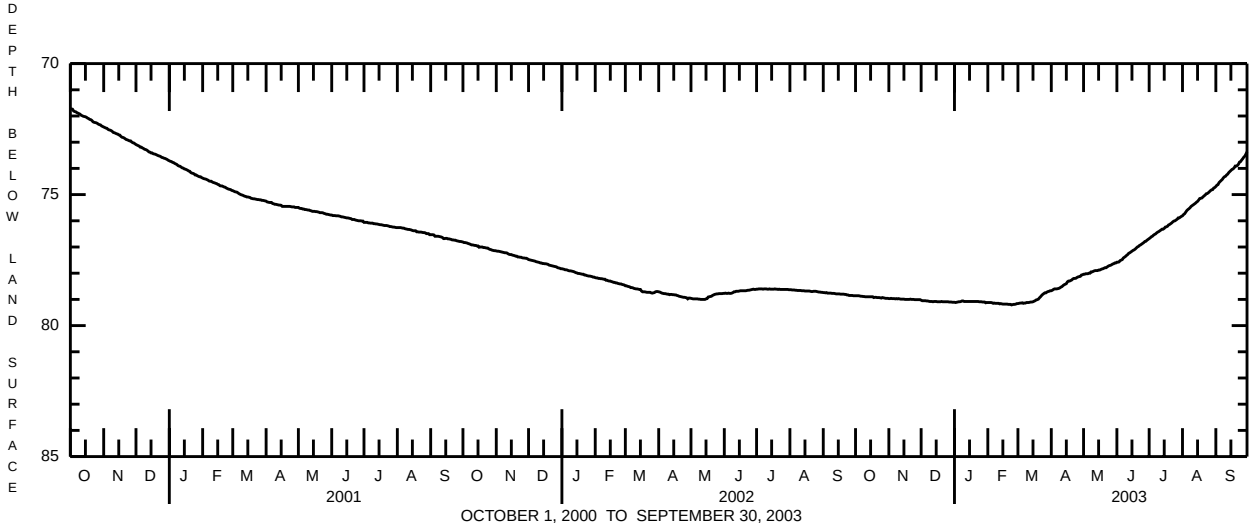
CENTRE COUNTY

404518077575501. Local number, CE 118.

LOCATION.--Lat 40°45'18", long 77°57'55", Hydrologic Unit 02050302, at State Game Land No. 176, and near Fairbrook. Owner: U.S. Geological Survey.
AQUIFER.--Gatesburg Formation, Late Cambrian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 130 ft, cased to 40 ft, open hole.
INSTRUMENTATION.--Electronic data logger with 60-minute recording interval.
DATUM.--Elevation of land surface is 1,150 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.89 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since June 1999, are also available from the District Office.
PERIOD OF RECORD.--January 1968 to June 1981, July 1984 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 45.95 ft below land-surface datum, Aug. 27-31, Sept. 1-4, 1998; lowest, 80.14 ft below land-surface datum, Mar. 26, 1970.
EXTREMES FOR CURRENT YEAR.--Highest water level, 73.29 ft below land-surface datum, Sept. 30; lowest, 79.21 ft below land-surface datum, Feb. 23.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78.86	78.97	79.03	79.11	79.12	79.16	78.67	78.04	77.58	76.68	75.81	74.69
2	78.86	78.97	79.05	79.12	79.12	79.15	78.65	78.04	77.58	76.65	75.76	74.64
3	78.86	78.96	79.05	79.11	79.12	79.14	78.62	78.02	77.57	76.61	75.73	74.62
4	78.86	78.97	79.05	79.10	79.12	79.14	78.60	78.02	77.52	76.59	75.67	74.54
5	78.87	78.97	79.05	79.09	79.13	79.13	78.60	78.02	77.50	76.55	75.61	74.50
6	78.88	78.97	79.06	79.09	79.15	79.15	78.60	78.00	77.48	76.52	75.57	74.46
7	78.88	78.98	79.06	79.08	79.14	79.14	78.59	78.00	77.42	76.50	75.54	74.42
8	78.89	78.97	79.07	79.06	79.15	79.14	78.58	77.95	77.39	76.46	75.50	74.36
9	78.89	78.98	79.08	79.06	79.15	79.12	78.56	77.95	77.36	76.43	75.45	74.32
10	78.90	78.97	79.08	79.08	79.15	79.12	78.53	77.93	77.32	76.41	75.42	74.30
11	78.90	78.98	79.08	79.08	79.15	79.12	78.51	77.91	77.29	76.38	75.39	74.25
12	78.90	78.99	79.09	79.08	79.17	79.11	78.47	77.90	77.24	76.35	75.36	74.22
13	78.90	78.99	79.08	79.08	79.16	79.10	78.44	77.90	77.22	76.32	75.33	74.16
14	78.90	78.99	79.08	79.08	79.17	79.10	78.42	77.90	77.19	76.32	75.29	74.12
15	78.90	78.99	79.08	79.08	79.18	79.09	78.40	77.88	77.16	76.29	75.26	74.08
16	78.90	79.00	79.09	79.08	79.18	79.07	78.33	77.88	77.13	76.24	75.21	74.04
17	78.90	79.00	79.09	79.08	79.18	79.05	78.30	77.86	77.11	76.23	75.15	74.02
18	78.93	79.00	79.09	79.08	79.18	79.02	78.30	77.84	77.08	76.21	75.14	73.98
19	78.92	79.00	79.09	79.08	79.18	79.01	78.28	77.83	77.04	76.16	75.13	73.91
20	78.92	79.00	79.08	79.08	79.19	78.99	78.26	77.81	77.00	76.14	75.09	73.91
21	78.93	78.99	79.09	79.08	79.19	78.94	78.22	77.79	76.98	76.11	75.05	73.89
22	78.93	79.00	79.09	79.08	79.19	78.90	78.20	77.79	76.94	76.08	75.02	73.84
23	78.93	79.00	79.09	79.08	79.21	78.85	78.20	77.76	76.92	76.04	74.97	73.76
24	78.94	79.00	79.09	79.09	79.20	78.81	78.19	77.73	76.89	76.01	74.96	73.74
25	78.95	79.01	79.09	79.09	79.19	78.78	78.16	77.71	76.86	76.00	74.93	73.68
26	78.93	79.01	79.09	79.09	79.19	78.75	78.14	77.70	76.83	75.97	74.89	73.63
27	78.94	79.01	79.10	79.10	79.18	78.75	78.13	77.68	76.79	75.94	74.85	73.57
28	78.95	79.01	79.10	79.10	79.16	78.72	78.12	77.65	76.78	75.89	74.82	73.53
29	78.96	79.01	79.10	79.10	---	78.70	78.07	77.64	76.74	75.89	74.81	73.45
30	78.96	79.01	79.11	79.13	---	78.69	78.06	77.61	76.71	75.86	74.75	73.37
31	78.96	---	79.11	79.12	---	78.67	---	77.61	---	75.83	74.73	---
MEAN	78.91	78.99	79.08	79.09	79.16	78.99	78.37	77.85	77.15	76.25	75.23	74.07
MAX	78.96	79.01	79.11	79.13	79.21	79.16	78.67	78.04	77.58	76.68	75.81	74.69
MIN	78.86	78.96	79.03	79.06	79.12	78.67	78.06	77.61	76.71	75.83	74.73	73.37



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

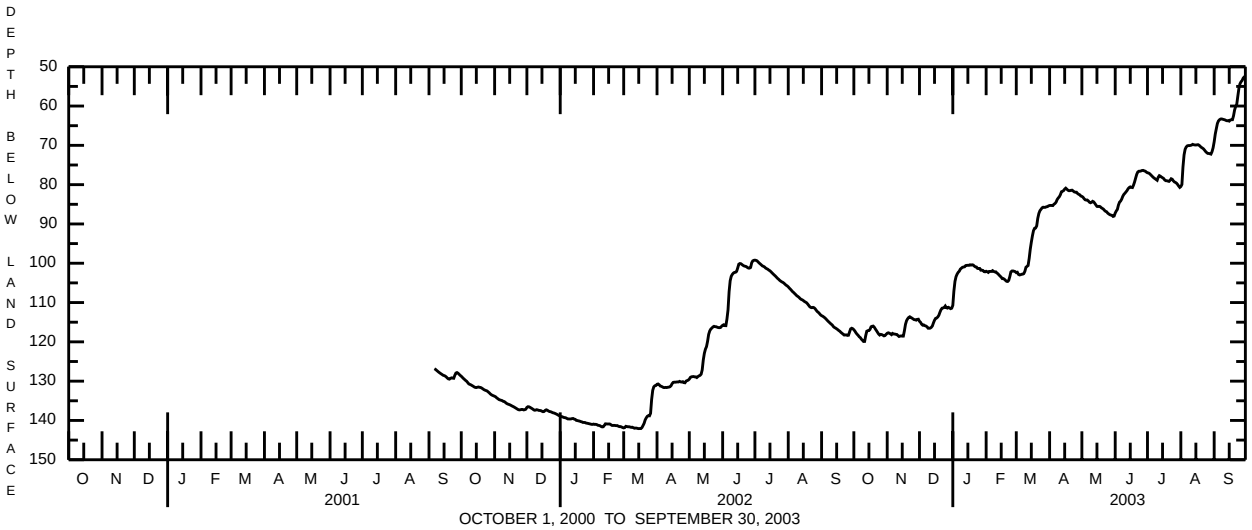
CENTRE COUNTY

404556077525101. Local number, CE 686.

LOCATION.--Lat 40°45'56", long 77°52'51", Hydrologic Unit 02050302, at State College.
Owner: Todd Giddings and Associates.
AQUIFER.--Nittany Formation, Early-Lower Ordovician Age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 345 ft, 6 in. steel casing to 84 ft, 4 in. slotted pvc casing from 0-345 ft..
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,222.6 ft above National Geodetic Vertical Datum of 1929, from local survey. Measuring point: Top of casing, 1.80 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily minimum and maximum water levels, are also available from the District Office.
PERIOD OF RECORD.--September 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 52.47 ft below land-surface datum, Sept. 30, 2003; lowest, 142.15 ft below land-surface datum, Mar. 14, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level, 52.47 ft below land-surface datum, Sept. 30; lowest, 120.02 ft below land-surface datum, Oct. 10, 11.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	116.92	117.82	114.77	110.71	102.04	102.39	85.31	82.99	87.23	76.98	80.48	69.10
2	117.28	117.70	115.03	107.10	102.16	102.30	85.29	83.18	86.69	77.04	79.96	67.13
3	117.72	117.79	115.50	104.61	102.34	102.83	85.31	83.56	86.30	77.21	75.50	65.75
4	118.06	117.97	115.76	103.41	102.09	102.98	85.33	83.84	85.20	77.48	72.43	64.43
5	118.35	118.17	115.70	102.77	102.08	102.92	84.99	83.92	84.46	77.77	71.00	63.78
6	118.71	117.86	115.89	102.31	102.08	102.80	84.80	83.91	84.19	78.05	70.42	63.47
7	118.92	118.00	115.97	102.02	101.88	102.78	84.46	84.14	83.70	78.29	70.13	63.30
8	119.32	118.02	116.17	101.50	102.09	102.64	83.81	84.46	82.98	78.49	70.05	63.28
9	119.61	118.09	116.53	101.25	102.20	102.06	83.40	84.61	82.49	78.69	70.06	63.36
10	119.91	118.13	116.55	101.03	102.19	101.02	83.09	84.50	82.19	78.89	70.01	63.44
11	119.89	118.40	116.51	100.96	102.48	100.80	82.58	84.24	81.85	78.10	69.94	63.52
12	118.44	118.64	116.31	100.90	102.69	100.58	81.81	84.39	81.50	77.71	69.75	63.66
13	117.30	118.54	115.95	100.59	103.00	98.77	81.68	84.75	81.03	77.85	69.85	63.74
14	117.15	118.48	115.17	100.54	103.28	96.45	81.52	85.15	80.73	78.07	69.90	63.72
15	117.13	118.55	114.50	100.52	103.55	94.66	81.13	85.53	80.57	78.24	69.92	63.84
16	116.84	118.54	114.03	100.53	103.91	93.03	80.89	85.57	80.70	78.43	69.87	63.55
17	116.17	117.18	113.93	100.39	103.91	91.72	81.14	85.52	80.75	78.81	69.83	63.48
18	116.04	115.55	113.68	100.47	104.09	91.12	81.41	85.60	80.13	78.99	69.98	63.47
19	115.99	114.61	113.24	100.39	104.36	91.02	81.54	85.86	79.32	79.00	70.25	62.48
20	116.28	114.13	112.49	100.46	104.60	90.49	81.53	86.04	78.31	79.10	70.50	61.00
21	116.73	113.79	111.84	100.73	104.64	88.58	81.43	86.22	77.37	79.17	70.68	60.10
22	117.14	113.62	111.44	100.92	104.36	87.32	81.41	86.54	76.78	78.90	70.88	59.53
23	117.58	113.80	111.36	100.97	103.38	86.64	81.64	86.78	76.59	78.50	71.20	57.44
24	118.00	113.96	111.27	101.32	102.21	86.28	81.86	86.90	76.58	78.62	71.56	55.47
25	118.27	114.16	110.88	101.32	101.97	85.90	81.92	87.24	76.51	79.02	71.84	54.33
26	118.10	114.34	111.31	101.33	101.96	85.74	81.93	87.45	76.39	79.30	72.05	53.81
27	118.16	114.38	111.41	101.77	102.04	85.78	82.26	87.64	76.37	79.44	72.06	53.48
28	118.31	114.48	111.23	101.77	102.13	85.77	82.45	87.74	76.49	79.63	72.14	52.88
29	118.48	114.28	111.39	101.83	---	85.63	82.57	87.82	76.58	79.96	72.23	52.58
30	118.39	114.24	111.56	102.13	---	85.59	82.89	88.09	76.82	80.36	71.60	52.53
31	118.09	---	111.43	102.18	---	85.40	---	87.99	---	80.71	70.62	---
MEAN	117.85	116.44	113.83	101.89	102.85	94.26	82.71	85.55	80.56	78.61	71.51	61.05
MAX	119.91	118.64	116.55	110.71	104.64	102.98	85.33	88.09	87.23	80.71	80.48	69.10
MIN	115.99	113.62	110.88	100.39	101.88	85.40	80.89	82.99	76.37	76.98	69.75	52.53



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

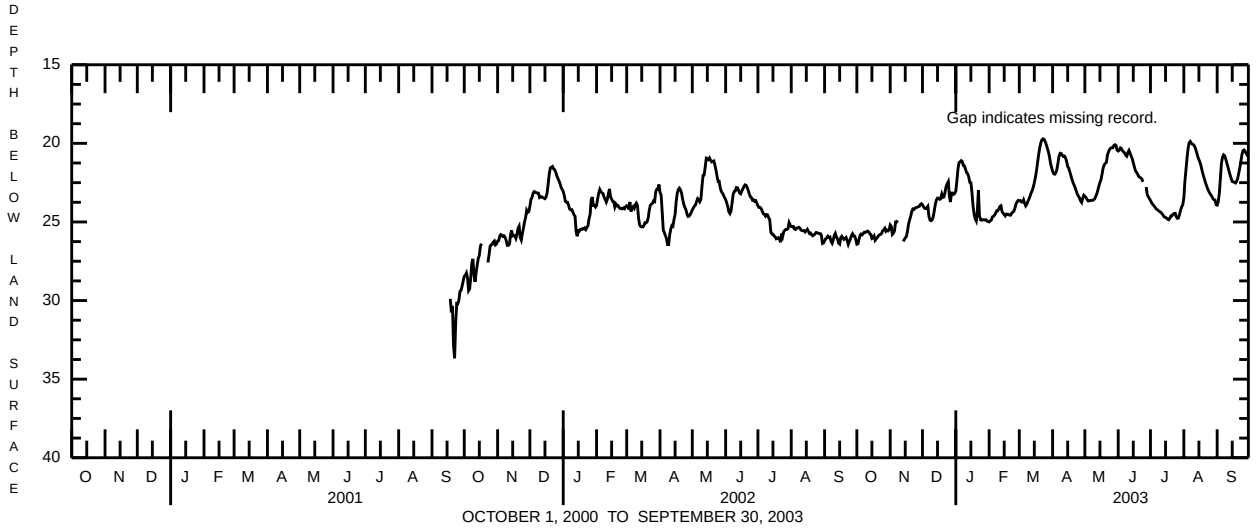
CLEARFIELD COUNTY

410627078313601. Local number, CF 321.

LOCATION.--Lat 41°06'27", long 78°31'36", Hydrologic Unit 02050201, at S. B. Elliott State Park.
Owner: U.S. Geological Survey.
AQUIFER.--Burgoon Member of Pocono Formation.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 150 ft, cased to 26 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 2,160 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.40 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels, are also available from the District Office.
PERIOD OF RECORD.--September 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 19.70 ft below land-surface datum, Mar. 23, 24, 2003; lowest, 34.66 ft below land-surface datum, Sept. 21, 22, 2001.
EXTREMES FOR CURRENT YEAR.--Highest water level, 19.70 ft below land-surface datum, Mar. 23, 24; lowest recorded, 26.56 ft below land-surface datum, Nov. 12.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.42	25.19	23.91	23.04	25.00	23.66	21.77	23.37	20.49	23.63	23.48	23.93
2	26.39	25.28	24.03	22.40	24.93	23.64	21.93	23.44	20.43	23.78	22.41	23.72
3	26.11	25.79	24.13	21.62	24.88	23.73	21.96	23.56	20.29	23.87	21.68	23.17
4	25.85	25.71	24.15	21.23	24.68	23.73	21.87	23.66	20.33	23.95	20.92	22.23
5	25.77	25.56	24.09	21.17	24.64	23.59	21.65	23.66	20.47	24.04	20.30	21.24
6	25.82	25.00	24.00	21.10	24.57	23.81	21.24	23.63	20.55	24.15	19.96	20.88
7	25.73	25.00	24.64	21.16	24.44	23.98	20.81	23.64	20.61	24.20	19.88	20.73
8	25.65	24.91	24.88	21.41	24.29	23.88	20.63	23.62	20.77	24.26	19.99	20.79
9	25.66	---	24.92	21.44	24.29	23.70	20.65	23.60	20.82	24.32	20.05	21.01
10	25.63	---	24.86	21.64	24.18	23.54	20.76	23.54	20.58	24.35	20.09	21.26
11	25.58	---	24.67	21.86	24.01	23.37	20.84	23.40	20.45	24.42	20.18	21.50
12	25.63	---	24.28	21.93	23.97	23.16	20.81	23.22	20.62	24.50	20.37	21.77
13	25.75	26.23	23.86	22.13	24.34	23.01	20.92	23.00	20.80	24.60	20.60	22.01
14	25.79	26.14	23.59	22.47	24.44	22.78	21.14	22.72	20.97	24.69	20.85	22.23
15	26.05	26.01	23.48	22.50	24.54	22.51	21.47	22.49	21.23	24.72	21.04	22.43
16	26.01	25.94	23.48	23.10	24.62	22.16	21.58	22.30	21.49	24.75	21.20	22.45
17	25.90	25.61	23.56	23.97	24.50	21.75	21.82	21.95	21.74	24.83	21.44	22.48
18	26.17	25.16	23.53	24.51	24.50	21.23	22.05	21.56	21.84	24.86	21.74	22.52
19	26.08	24.88	23.23	24.80	24.53	20.72	22.29	21.36	21.95	24.76	22.01	22.42
20	25.99	24.66	23.43	24.94	24.57	20.30	22.50	21.28	22.10	24.61	22.24	22.25
21	25.88	24.35	23.41	24.32	24.57	19.98	22.66	21.21	22.16	24.61	22.48	21.91
22	25.82	24.18	23.09	22.97	24.44	19.78	22.83	20.74	22.20	24.51	22.67	21.58
23	25.80	24.21	22.74	24.62	24.38	19.71	23.04	20.54	22.27	24.46	22.87	21.16
24	25.73	24.12	22.58	24.86	24.32	19.74	23.24	20.38	22.45	24.45	23.03	20.72
25	25.56	24.09	22.44	24.89	24.11	19.87	23.36	20.30	---	24.67	23.16	20.46
26	25.49	24.07	23.34	24.86	23.85	20.05	23.48	20.28	---	24.77	23.27	20.42
27	25.40	24.03	23.73	24.86	23.71	20.29	23.66	20.28	22.78	24.75	23.36	20.51
28	25.59	24.01	23.16	24.87	23.63	20.52	23.76	20.13	23.27	24.53	23.51	20.63
29	25.52	23.89	23.16	24.86	---	20.82	23.48	20.09	23.39	24.25	23.58	20.76
30	25.57	23.84	23.24	24.95	---	21.24	23.30	20.14	23.52	24.04	23.61	20.87
31	25.50	---	23.18	24.97	---	21.53	---	20.44	---	23.91	23.90	---
MEAN	25.80	24.92	23.70	23.21	24.39	21.99	22.05	22.05	21.45	24.39	21.80	21.67
MAX	26.42	26.23	24.92	24.97	25.00	23.98	23.76	23.66	23.52	24.86	23.90	23.93
MIN	25.40	23.84	22.44	21.10	23.63	19.71	20.63	20.09	20.29	23.63	19.88	20.42



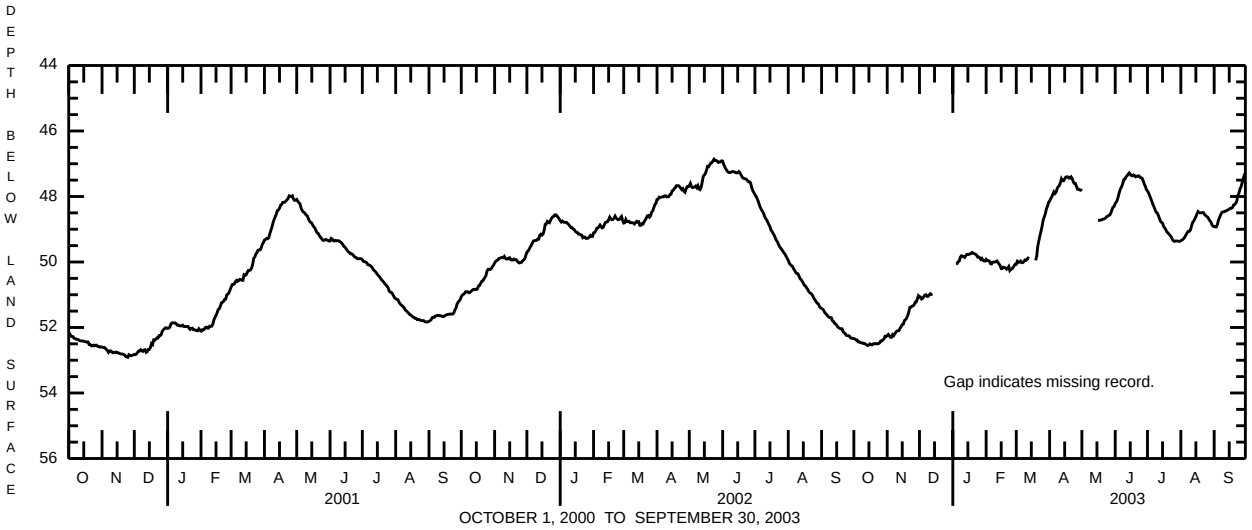
CLINTON COUNTY

411424077462201. Local number, CN 1.

LOCATION.--Lat 41°14'24", long 77°46'22", Hydrologic Unit 02050203, at Sproul State Forest, and at State Camp.
Owner: Commonwealth of Pennsylvania.
AQUIFER.--Huntley Mountain Formation, Early Mississippian-Late Devonian age.
WELL CHARACTERISTICS.--Drilled unused observation well, diameter 6 in., depth 78 ft, cased to 38 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 2,050 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of platform, 3.20 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.
PERIOD OF RECORD.--August 1950 to March 1964, instantaneous water levels obtained several times per month. April 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 44.00 ft below land-surface datum, Jan. 13, 1951; lowest, 57.24 ft below land-surface datum, Dec. 21, 1964.
EXTREMES FOR CURRENT YEAR.--Highest water level, 47.21 ft below land-surface datum, Sept. 30; lowest, 52.55 ft below land-surface datum, Oct. 14.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52.34	52.24	51.07	---	49.92	50.07	48.14	47.83	48.21	47.83	49.35	48.92
2	52.35	52.21	51.07	---	49.96	49.98	48.07	---	48.17	47.89	49.33	48.93
3	52.38	52.25	51.13	---	49.96	50.01	48.01	---	48.10	47.97	49.31	48.93
4	52.38	52.30	51.11	50.06	49.97	50.00	47.93	---	47.98	48.06	49.27	48.85
5	52.44	52.30	51.06	50.05	50.05	49.97	47.86	---	47.85	48.14	49.22	48.72
6	52.44	52.22	51.01	49.99	50.06	50.02	47.91	---	47.76	48.24	49.16	48.64
7	52.46	52.25	51.00	49.97	50.01	50.02	47.87	---	47.70	48.31	49.10	48.56
8	52.47	52.19	51.05	49.85	50.00	49.99	47.76	---	47.60	48.40	49.06	48.49
9	52.47	52.15	51.05	49.81	50.00	49.94	47.70	---	47.48	48.48	49.06	48.47
10	52.49	52.11	51.01	49.82	49.99	49.95	47.67	---	47.47	48.50	49.02	48.47
11	52.49	52.10	50.97	49.84	49.97	49.92	47.58	---	47.40	48.57	48.89	48.45
12	52.51	52.09	50.99	49.86	50.02	49.88	47.46	---	47.37	48.66	48.79	48.44
13	52.54	52.02	50.97	49.81	50.06	49.90	47.52	---	47.32	48.75	48.75	48.42
14	52.55	51.97	---	49.77	50.11	---	47.52	---	47.28	48.79	48.68	48.41
15	52.53	51.91	---	49.77	50.20	---	47.46	---	47.32	48.81	48.62	48.38
16	52.50	51.90	---	49.77	50.20	---	47.41	48.73	47.36	48.91	48.53	48.36
17	52.53	51.79	---	49.75	50.16	---	47.40	48.73	47.37	48.96	48.46	48.36
18	52.53	51.76	---	49.74	50.17	---	47.40	48.72	47.34	49.01	48.49	48.34
19	52.50	51.72	---	49.71	50.18	49.95	47.44	48.72	47.36	49.08	48.50	48.26
20	52.49	51.64	---	49.73	50.22	49.82	47.44	48.70	47.40	49.11	48.50	48.25
21	52.50	51.54	---	49.75	50.19	49.52	47.40	48.69	47.39	49.15	48.49	48.21
22	52.49	51.39	---	49.76	50.14	49.35	47.45	48.68	47.37	49.19	48.49	48.14
23	52.50	51.38	---	49.78	50.26	49.20	47.55	48.66	47.37	49.23	48.55	47.97
24	52.49	51.35	---	49.85	50.22	49.06	47.60	48.62	47.41	49.30	48.58	47.90
25	52.47	51.34	---	49.85	50.21	48.91	47.60	48.60	47.43	49.35	48.61	47.77
26	52.41	51.31	---	49.87	50.17	48.72	47.70	48.58	47.44	49.37	48.63	47.70
27	52.41	51.23	---	49.92	50.12	48.63	47.78	48.56	47.52	49.36	48.69	47.58
28	52.38	51.22	---	49.89	50.07	48.53	47.78	48.50	47.62	49.36	48.74	47.48
29	52.35	51.13	---	49.95	---	48.38	47.80	48.40	47.69	49.36	48.78	47.34
30	52.27	51.03	---	49.97	---	48.30	47.80	48.32	47.79	49.37	48.87	47.29
31	52.28	---	---	49.97	---	48.18	---	48.30	---	49.37	48.91	---
MEAN	52.45	51.80	51.04	49.85	50.09	49.47	47.67	48.55	47.56	48.80	48.82	48.27
MAX	52.55	52.30	51.13	50.06	50.26	50.07	48.14	48.73	48.21	49.37	49.35	48.93
MIN	52.27	51.03	50.97	49.71	49.92	48.18	47.40	47.83	47.28	47.83	48.46	47.29



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

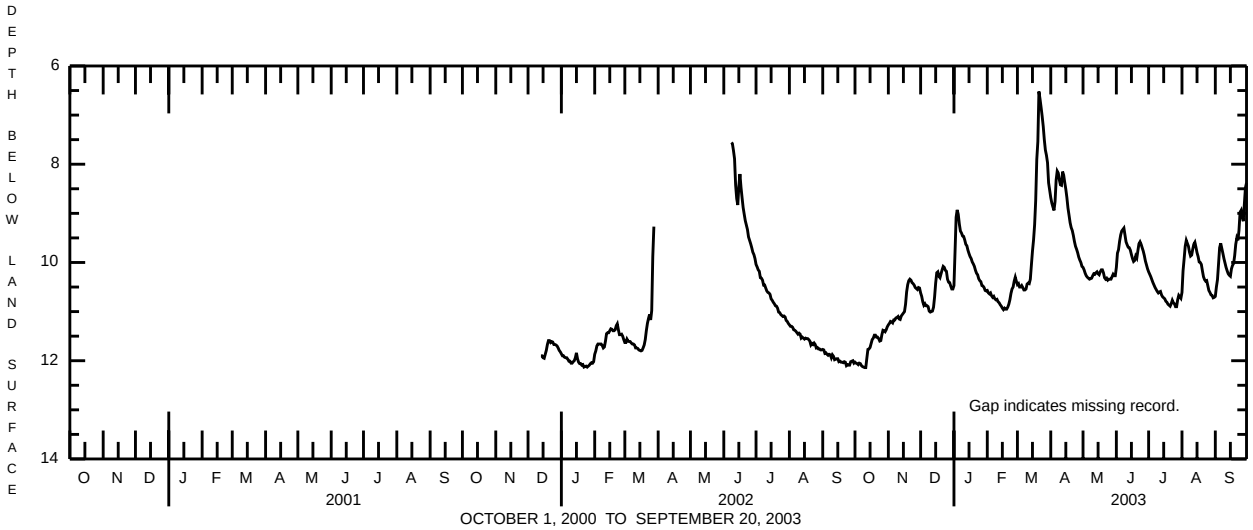
CLINTON COUNTY

410738077262702. Local number, CN 398.
(Drake Chemical Superfund Project)

LOCATION.--Lat 41°07'38", long 77°26'27" , Hydrologic Unit 02050204, at the Drake Chemical Site in Castanea Township
Owner: Privately owned.
AQUIFER.--Gravel, sand, and clay of the Quaternary System
WELL CHARACTERISTICS.--Drilled unused observation well, diameter 4 in., depth 36.4 ft, cased to 21.5 ft, screened from 21.5-36.4 ft.
INSTRUMENTATION.--Electronic data logger with 15-minute recording interval.
DATUM.--Elevation of land surface is 552.43 ft above National Geodetic Vertical Datum of 1929, from levels. Measuring point: Top of PVC casing, 2.2 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels are also available from the District Office.
PERIOD OF RECORD.--December 13, 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 6.29 ft below land-surface datum, Mar. 21, 2003; lowest, 12.23 ft below land-surface datum, Oct. 9, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level 6.29 ft below land-surface datum, Mar. 21; lowest 12.23 ft below land-surface datum, Oct. 9.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.03	11.27	10.62	10.47	10.57	10.45	8.68	10.10	10.10	10.19	10.61	10.69
2	12.05	11.24	10.69	9.79	10.62	10.43	8.79	10.15	9.81	10.24	10.17	10.50
3	12.06	11.20	10.80	9.08	10.64	10.50	8.87	10.22	9.74	10.29	9.93	10.35
4	12.08	11.21	10.87	8.93	10.62	10.50	8.94	10.27	9.57	10.35	9.67	10.03
5	12.05	11.23	10.84	9.02	10.68	10.47	8.76	10.30	9.44	10.41	9.55	9.70
6	12.06	11.17	10.88	9.22	10.71	10.51	8.32	10.32	9.36	10.46	9.61	9.61
7	12.10	11.17	10.88	9.36	10.69	10.56	8.14	10.34	9.33	10.51	9.67	9.71
8	12.12	11.13	10.90	9.40	10.74	10.56	8.18	10.33	9.30	10.55	9.79	9.81
9	12.13	11.12	10.99	9.46	10.76	10.54	8.32	10.32	9.44	10.59	9.87	9.92
10	12.14	11.10	11.01	9.47	10.75	10.44	8.42	10.27	9.58	10.62	9.85	10.01
11	12.14	11.15	11.00	9.54	10.80	10.42	8.43	10.23	9.64	10.60	9.73	10.10
12	11.95	11.16	10.99	9.63	10.82	10.43	8.15	10.24	9.69	10.59	9.63	10.17
13	11.77	11.09	10.91	9.66	10.86	10.34	8.22	10.21	9.70	10.66	9.59	10.23
14	11.76	11.06	10.70	9.75	10.89	10.05	8.37	10.19	9.75	10.70	9.69	10.26
15	11.73	11.03	10.42	9.82	10.93	9.77	8.51	10.23	9.84	10.72	9.80	10.28
16	11.65	11.00	10.21	9.88	10.96	9.54	8.68	10.25	9.92	10.74	9.88	10.13
17	11.57	10.85	10.19	9.92	10.93	9.23	8.89	10.19	9.98	10.79	9.99	10.06
18	11.54	10.60	10.28	9.99	10.95	8.74	9.04	10.15	9.96	10.81	10.00	10.02
19	11.48	10.45	10.31	10.03	10.95	7.90	9.19	10.15	9.87	10.85	10.04	9.86
20	11.48	10.37	10.23	10.08	10.91	7.54	9.29	10.21	9.91	10.87	10.17	9.63
21	11.52	10.34	10.15	10.16	10.85	6.52	9.35	10.31	9.76	10.89	10.29	9.50
22	11.52	10.36	10.08	10.22	10.76	6.67	9.45	10.34	9.62	10.84	10.35	9.55
23	11.55	10.41	10.10	10.25	10.63	6.84	9.57	10.32	9.58	10.77	10.38	9.35
24	11.60	10.43	10.16	10.33	10.54	7.02	9.67	10.36	9.63	10.82	10.37	8.98
25	11.59	10.46	10.18	10.37	10.50	7.23	9.73	10.34	9.70	10.84	10.47	8.94
26	11.47	10.51	10.34	10.39	10.38	7.50	9.80	10.34	9.77	10.90	10.57	9.07
27	11.38	10.53	10.40	10.47	10.30	7.71	9.89	10.34	9.86	10.90	10.61	9.16
28	11.39	10.55	10.41	10.48	10.38	7.82	9.95	10.29	9.97	10.76	10.66	8.81
29	11.41	10.51	10.48	10.51	---	7.97	10.00	10.24	10.05	10.67	10.67	8.48
30	11.37	10.52	10.54	10.57	---	8.38	10.08	10.27	10.13	10.70	10.72	8.38
31	11.31	---	10.54	10.58	---	8.53	---	10.27	---	10.73	10.71	---
MEAN	11.74	10.84	10.55	9.90	10.72	9.07	8.99	10.26	9.73	10.66	10.10	9.71
MAX	12.14	11.27	11.01	10.58	10.96	10.56	10.08	10.36	10.13	10.90	10.72	10.69
MIN	11.31	10.34	10.08	8.93	10.30	6.52	8.14	10.10	9.30	10.19	9.55	8.38



OCTOBER 1, 2000 TO SEPTEMBER 20, 2003

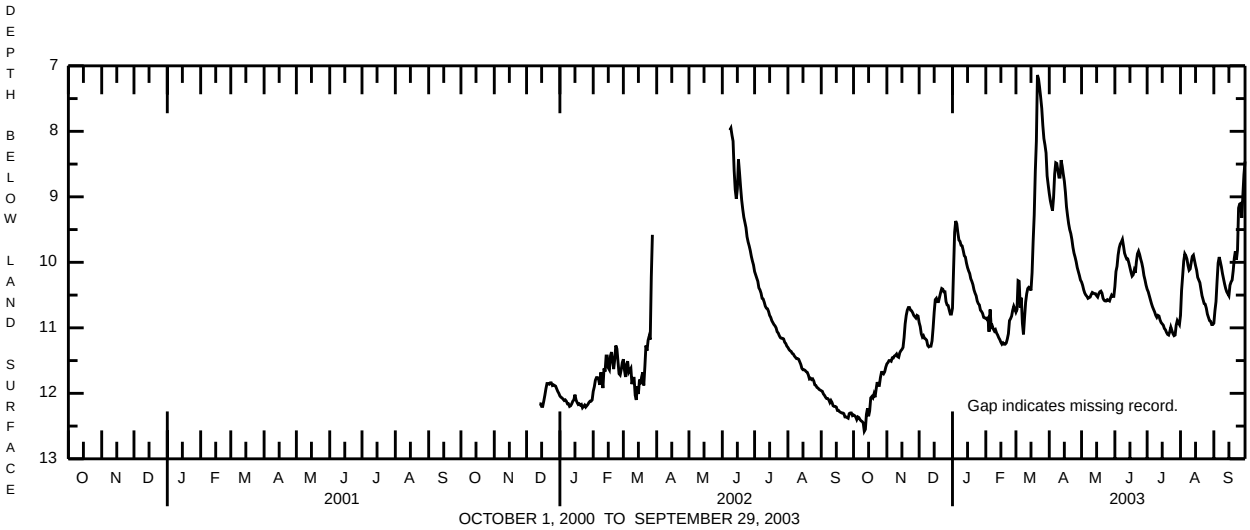
CLINTON COUNTY

410740077262501. Local number, CN 399.
(Drake Chemical Superfund Project)

LOCATION.--Lat 41°07’ 40.38”, long 77°26’ 25.46”, Hydrologic Unit 02050204, at the Drake Chemical Site in Castanea Township
Owner: Privately owned.
AQUIFER.--Gravel, sand, and clay of the Quaternary System
WELL CHARACTERISTICS.--Drilled unused observation well, diameter 2 in., depth 41.0 ft, cased to 36 ft, screened from 36-41 ft.
INSTRUMENTATION.--Electronic data logger with 15-minute recording interval.
DATUM.--Elevation of land surface is 552.91 ft above National Geodetic Vertical Datum of 1929, from levels. Measuring point: Top of PVC casing, 0.25 ft below land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels are also available from the District Office.
PERIOD OF RECORD.--December 13, 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 6.92 ft below land-surface datum, Mar. 21, 2003; lowest, 12.75 ft below land-surface datum, Oct. 11, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level, 6.92 ft below land-surface datum, Mar. 21; lowest, 12.75 ft below land-surface datum, Oct. 11.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.33	11.55	10.92	10.70	10.85	10.76	8.95	10.30	10.37	10.41	10.81	10.93
2	12.34	11.53	10.98	10.12	10.87	10.72	9.06	10.35	10.14	10.45	10.43	10.74
3	12.36	11.50	11.09	9.54	10.85	10.28	9.14	10.42	10.06	10.51	10.21	10.60
4	12.40	11.50	11.14	9.37	11.06	10.29	9.21	10.47	9.89	10.57	9.98	10.29
5	12.36	11.51	11.12	9.41	10.72	10.69	9.01	10.50	9.78	10.63	9.87	10.01
6	12.37	11.46	11.16	9.55	10.99	10.54	8.65	10.52	9.72	10.68	9.90	9.92
7	12.40	11.46	11.17	9.66	10.97	10.93	8.48	10.55	9.69	10.72	9.95	9.99
8	12.42	11.43	11.19	9.68	11.02	11.10	8.49	10.54	9.65	10.76	10.05	10.07
9	12.43	11.42	11.27	9.74	11.05	10.85	8.60	10.53	9.75	10.81	10.12	10.17
10	12.45	11.40	11.29	9.75	11.03	10.61	8.70	10.49	9.86	10.84	10.10	10.25
11	12.58	11.44	11.28	9.82	11.08	10.48	8.70	10.46	9.91	10.81	10.00	10.33
12	12.55	11.45	11.28	9.90	11.11	10.40	8.44	10.47	9.95	10.82	9.91	10.40
13	12.32	11.38	11.20	9.92	11.15	10.38	8.53	10.48	9.95	10.88	9.89	10.45
14	12.23	11.35	11.00	10.01	11.18	10.39	8.65	10.48	10.01	10.92	9.97	10.48
15	12.35	11.33	10.76	10.08	11.22	10.43	8.76	10.51	10.08	10.94	10.05	10.51
16	12.27	11.30	10.57	10.13	11.25	10.16	8.93	10.53	10.15	10.96	10.12	10.35
17	12.07	11.15	10.55	10.17	11.23	9.68	9.15	10.48	10.21	11.01	10.23	10.30
18	12.05	10.94	10.60	10.25	11.25	9.28	9.29	10.45	10.19	11.03	10.27	10.27
19	12.07	10.81	10.60	10.29	11.25	8.61	9.41	10.44	10.12	11.07	10.31	10.13
20	12.01	10.73	10.53	10.34	11.23	8.15	9.50	10.47	10.16	11.10	10.41	9.94
21	12.06	10.69	10.46	10.42	11.17	7.14	9.56	10.55	9.99	11.11	10.51	9.83
22	11.94	10.69	10.40	10.47	11.09	7.20	9.65	10.58	9.87	11.06	10.57	9.96
23	11.83	10.73	10.41	10.51	10.89	7.33	9.77	10.59	9.83	10.99	10.63	9.81
24	11.88	10.74	10.45	10.59	10.86	7.48	9.86	10.59	9.88	11.04	10.64	9.17
25	11.88	10.77	10.45	10.63	10.82	7.65	9.92	10.57	9.95	11.09	10.70	9.11
26	11.76	10.81	10.60	10.65	10.73	7.91	9.99	10.58	10.01	11.12	10.79	9.10
27	11.68	10.83	10.65	10.73	10.67	8.11	10.08	10.59	10.09	11.11	10.84	9.32
28	11.68	10.85	10.66	10.75	10.71	8.21	10.14	10.54	10.20	10.96	10.89	8.97
29	11.70	10.81	10.73	10.78	---	8.33	10.20	10.50	10.27	10.89	10.90	8.66
30	11.67	10.82	10.79	10.84	---	8.68	10.27	10.52	10.35	10.92	10.95	8.46
31	11.60	---	10.79	10.85	---	8.82	---	10.52	---	10.95	10.95	---
MEAN	12.13	11.15	10.84	10.18	11.01	9.41	9.24	10.50	10.00	10.88	10.35	9.95
MAX	12.58	11.55	11.29	10.85	11.25	11.10	10.27	10.59	10.37	11.12	10.95	10.93
MIN	11.60	10.69	10.40	9.37	10.67	7.14	8.44	10.30	9.65	10.41	9.87	8.46



OCTOBER 1, 2000 TO SEPTEMBER 29, 2003

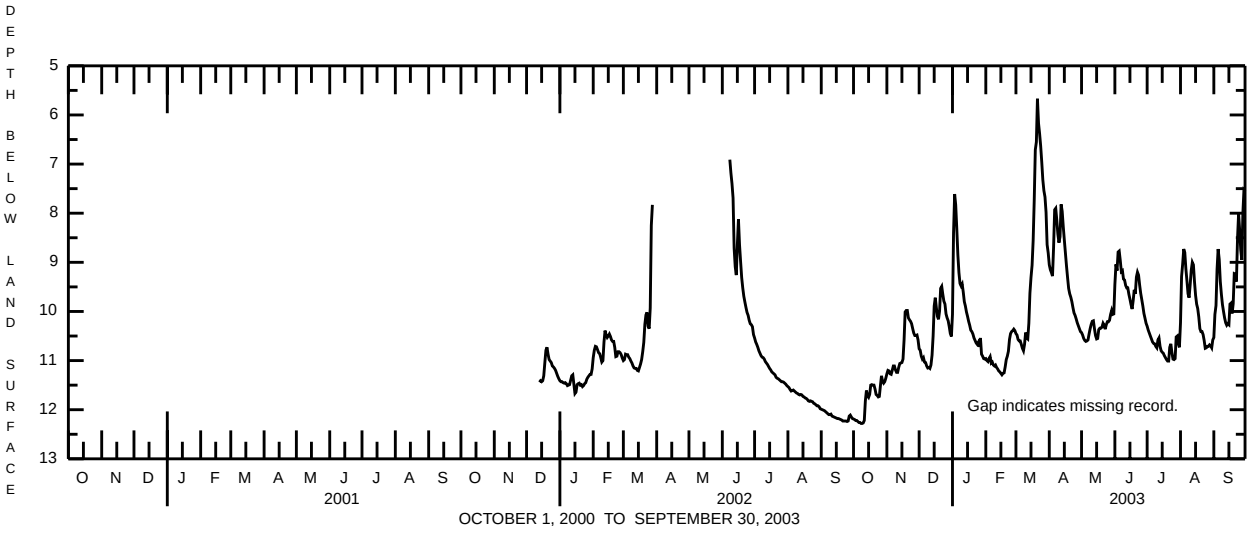
CLINTON COUNTY

410734077262102. Local number, CN 419.
(Drake Chemical Superfund Project)

LOCATION.--Lat 41°07’ 33.55”, long 77°26’ 21.44”, Hydrologic Unit 02050204, at the Drake Chemical Site in Castanea Township
Owner: Privately owned.
AQUIFER.--Gravel, sand, and clay of the Quaternary System
WELL CHARACTERISTICS.--Drilled unused observation well, diameter 2 in., depth 39.3 ft, cased to 30.3 ft, screened from 30.3-39.3 ft.
INSTRUMENTATION.--Electronic data logger with 15-minute recording interval.
DATUM.--Elevation of land surface is 551.5 ft above National Geodetic Vertical Datum of 1929, from levels. Measuring point: Top of PVC casing, 1.4 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels are also available from the District Office.
PERIOD OF RECORD.--December 13, 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 5.44 ft below land-surface datum, Mar. 21, 2003; lowest, 12.29 ft below land-surface datum, Oct. 9, 10, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level, 5.44 ft below land-surface datum, Mar. 21; lowest, 12.29 ft below land-surface datum, Oct. 9, 10.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.19	11.27	10.76	10.06	10.96	10.45	9.05	10.43	9.45	10.30	10.23	10.53
2	12.20	11.20	10.79	8.40	11.00	10.48	9.15	10.48	9.04	10.38	9.29	10.06
3	12.22	11.21	10.91	7.61	11.02	10.57	9.21	10.55	9.17	10.44	9.04	9.88
4	12.22	11.27	10.97	7.83	10.96	10.60	9.28	10.59	8.79	10.50	8.73	9.14
5	12.24	11.28	10.94	8.31	10.92	10.60	8.70	10.61	8.77	10.56	8.80	8.73
6	12.26	11.20	11.03	8.85	11.05	10.67	7.93	10.60	8.96	10.62	9.13	8.94
7	12.26	11.11	11.04	9.21	11.03	10.75	7.90	10.58	9.19	10.65	9.38	9.39
8	12.28	11.11	11.11	9.43	11.09	10.80	8.14	10.46	9.17	10.66	9.64	9.65
9	12.28	11.19	11.15	9.48	11.11	10.67	8.43	10.35	9.34	10.71	9.72	9.86
10	12.27	11.24	11.14	9.44	11.09	10.43	8.60	10.26	9.36	10.74	9.45	10.00
11	12.22	11.24	11.16	9.60	11.14	10.54	8.48	10.20	9.47	10.58	9.16	10.13
12	11.82	11.14	11.09	9.80	11.17	10.56	7.82	10.19	9.52	10.54	9.00	10.23
13	11.61	11.06	10.89	9.89	11.21	10.24	7.96	10.35	9.52	10.71	9.05	10.28
14	11.72	11.05	10.50	10.01	11.23	9.63	8.27	10.49	9.65	10.80	9.39	10.25
15	11.75	11.04	9.89	10.10	11.26	9.31	8.55	10.56	9.75	10.83	9.67	10.27
16	11.69	10.97	9.72	10.20	11.29	9.06	8.81	10.55	9.86	10.85	9.85	9.85
17	11.50	10.58	9.92	10.28	11.26	8.56	9.07	10.37	9.95	10.90	9.94	9.83
18	11.49	10.01	10.10	10.38	11.25	7.75	9.31	10.34	9.78	10.94	10.11	10.04
19	11.50	9.98	10.16	10.41	11.13	6.71	9.53	10.34	9.56	10.98	10.35	9.84
20	11.50	9.98	9.99	10.46	10.98	6.55	9.64	10.32	9.64	11.01	10.41	9.23
21	11.58	10.13	9.53	10.54	10.91	5.67	9.71	10.24	9.30	11.01	10.41	9.24
22	11.69	10.17	9.49	10.59	10.81	6.17	9.80	10.28	9.20	10.73	10.47	9.39
23	11.71	10.20	9.65	10.64	10.57	6.38	9.92	10.36	9.26	10.66	10.59	8.52
24	11.74	10.25	9.79	10.67	10.45	6.63	10.03	10.27	9.46	10.83	10.75	8.01
25	11.73	10.35	9.85	10.63	10.41	6.96	10.08	10.21	9.63	10.97	10.74	8.34
26	11.51	10.44	10.05	10.72	10.39	7.32	10.15	10.21	9.76	10.98	10.71	8.75
27	11.31	10.49	10.13	10.54	10.36	7.54	10.23	10.18	9.89	10.96	10.71	8.95
28	11.42	10.49	10.19	10.87	10.39	7.67	10.29	10.06	10.04	10.52	10.68	8.00
29	11.46	10.48	10.31	10.91	---	7.98	10.35	9.98	10.14	10.50	10.70	7.53
30	11.43	10.58	10.45	10.96	---	8.64	10.41	10.06	10.24	10.65	10.74	7.56
31	11.36	---	10.51	10.97	---	8.81	---	10.05	---	10.73	10.58	---
MEAN	11.81	10.76	10.43	9.93	10.94	8.86	9.16	10.34	9.50	10.72	9.92	9.35
MAX	12.28	11.28	11.16	10.97	11.29	10.80	10.41	10.61	10.24	11.01	10.75	10.53
MIN	11.31	9.98	9.49	7.61	10.36	5.67	7.82	9.98	8.77	10.30	8.73	7.53



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

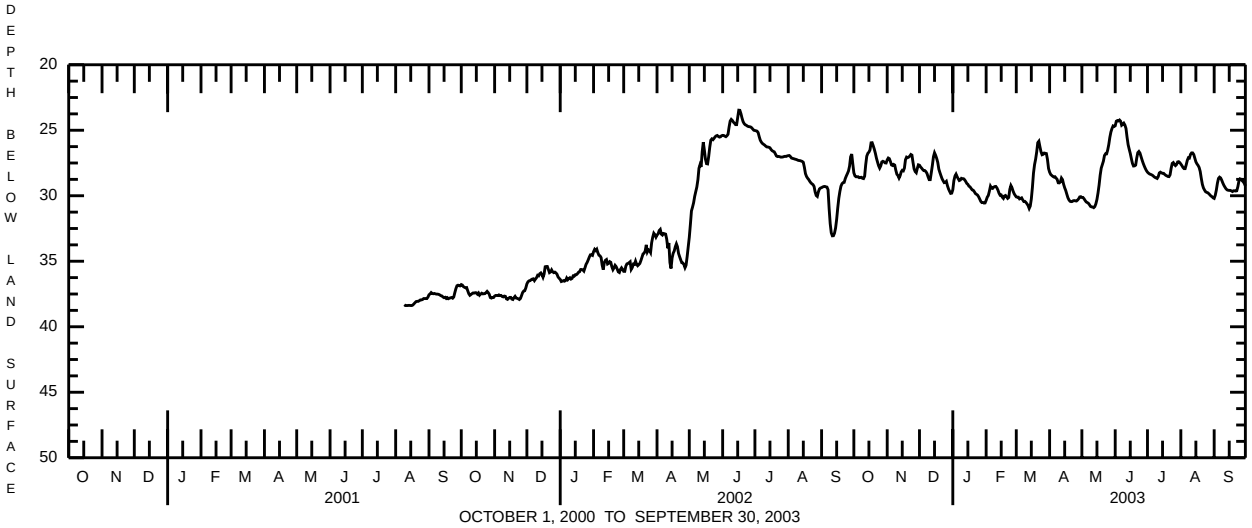
COLUMBIA COUNTY

410705076334901. Local number, CO 589.

LOCATION.--Lat 41°07'05", long 76°33'49", Hydrologic Unit 02050107, at State Game Land No. 226, near Millville.
Owner: U.S. Geological Survey.
AQUIFER.--Hamilton Group.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 241 ft, cased to 18 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 720 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.79 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels, are also available from the District Office.
PERIOD OF RECORD.--September 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 23.42 ft below land-surface datum, June 16, 17, 2002; lowest, 38.01 ft below land-surface datum, Sept. 17, 2001.
EXTREMES FOR CURRENT YEAR.--Highest water level, 24.21 ft below land-surface datum, June 5, 6; lowest, 31.01 ft below land-surface datum, Mar. 13.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.25	27.26	27.67	29.54	30.35	30.09	28.20	30.13	24.66	28.20	27.58	30.20
2	28.48	27.12	27.80	28.85	30.11	30.11	28.37	30.13	24.31	28.28	27.70	29.96
3	28.55	27.17	27.89	28.50	29.98	30.11	28.45	30.23	24.26	28.34	27.84	29.57
4	28.55	27.39	28.00	28.35	29.66	30.24	28.52	30.36	24.29	28.37	27.93	29.05
5	28.55	27.65	28.08	28.54	29.27	30.20	28.57	30.47	24.22	28.41	27.93	28.68
6	28.62	27.69	28.08	28.70	29.41	30.16	28.55	30.52	24.31	28.46	27.64	28.58
7	28.60	27.61	28.16	28.84	29.44	30.32	28.65	30.57	24.62	28.54	27.30	28.64
8	28.59	27.66	28.30	28.80	29.34	30.44	28.75	30.68	24.55	28.60	27.10	28.81
9	28.67	28.05	28.55	28.67	29.30	30.43	29.01	30.81	24.46	28.64	27.12	29.02
10	28.69	28.36	28.77	28.70	29.29	30.51	29.02	30.85	24.60	28.68	26.84	29.20
11	28.51	28.46	28.77	28.70	29.40	30.62	28.95	30.86	24.86	28.54	26.73	29.34
12	27.64	28.65	28.24	28.78	29.58	30.75	28.65	30.91	25.53	28.26	26.73	29.47
13	26.98	28.47	27.67	28.91	29.81	30.97	28.77	30.83	26.10	28.20	26.85	29.55
14	26.76	28.18	27.02	29.06	29.96	30.79	29.12	30.62	26.45	28.25	27.13	29.58
15	26.67	28.06	26.72	29.13	29.94	30.25	29.39	30.28	26.77	28.29	27.41	29.59
16	26.50	28.10	26.91	29.27	30.11	29.36	29.60	29.79	27.16	28.29	27.57	29.59
17	25.96	27.89	27.15	29.32	30.20	28.28	29.88	29.19	27.53	28.37	27.68	29.63
18	25.95	27.25	27.45	29.44	30.02	27.63	30.15	28.43	27.73	28.44	27.84	29.68
19	26.18	27.05	27.97	29.55	29.98	27.20	30.32	27.89	27.72	28.48	28.14	29.62
20	26.45	27.09	28.23	29.58	30.09	26.65	30.42	27.63	27.66	28.53	28.66	29.62
21	26.76	27.05	28.47	29.69	30.20	25.95	30.45	27.36	27.12	28.54	29.13	29.64
22	27.13	26.97	28.70	29.83	30.13	25.84	30.44	26.93	26.71	28.40	29.40	29.62
23	27.43	26.85	28.86	29.89	29.51	26.26	30.38	26.80	26.62	27.90	29.56	29.31
24	27.71	26.90	29.00	29.95	29.22	26.64	30.37	26.80	26.74	27.53	29.69	28.88
25	27.89	27.46	28.98	30.08	29.38	26.87	30.39	26.51	27.01	27.47	29.74	28.71
26	27.72	27.95	28.90	30.25	29.64	26.84	30.40	26.10	27.28	27.61	29.77	28.74
27	27.42	28.15	29.23	30.43	29.84	26.74	30.33	25.54	27.52	27.70	29.84	28.85
28	27.37	28.24	29.48	30.52	29.97	26.76	30.23	25.13	27.73	27.62	29.93	28.93
29	27.41	27.91	29.66	30.51	---	26.78	30.09	24.87	27.92	27.42	30.02	29.05
30	27.49	27.64	29.82	30.56	---	27.22	30.07	24.67	28.08	27.40	30.07	29.25
31	27.50	---	29.80	30.55	---	27.92	---	24.71	---	27.47	30.16	---
MEAN	27.58	27.68	28.33	29.40	29.75	28.68	29.48	28.60	26.15	28.17	28.29	29.28
MAX	28.69	28.65	29.82	30.56	30.35	30.97	30.45	30.91	28.08	28.68	30.16	30.20
MIN	25.95	26.85	26.72	28.35	29.22	25.84	28.20	24.67	24.22	27.40	26.73	28.58



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

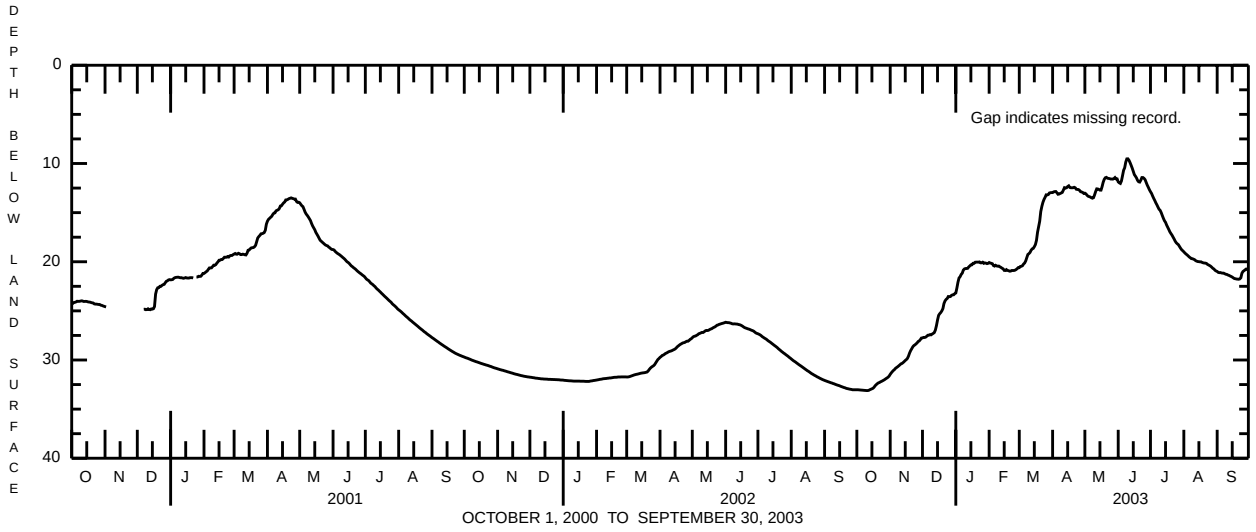
CUMBERLAND COUNTY

400209077183301. Local number, CU 2.

LOCATION.--Lat 40°02'09", long 77°l8'33", Hydrologic Unit 02050305, at Michaux State Forest, and at Pine Grove Furnace.
Owner: Commonwealth of Pennsylvania.
AQUIFER.--Metarhyolite, Precambrian age.
WELL CHARACTERISTICS.--Drilled unused observation well, diameter 6 in., depth 37 ft, cased to 19 ft.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 955 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.29 ft above land-surface datum. Prior to June 2, 1999, top of casing, 1.56 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since June 1999, are also available from the District Office.
PERIOD OF RECORD.--June 1951 to March 1955, instantaneous water levels obtained several times per month. July 1955 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 8.96 ft below land-surface datum, May 14, 1998; lowest, 33.50 ft below land-surface datum, Feb. 3, 1955.
EXTREMES FOR CURRENT YEAR.--Highest water level, 9.39 ft below land-surface datum, June 9; lowest, 33.11 ft below land-surface datum, Oct. 10, 11.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33.03	31.46	27.75	23.18	20.08	20.60	12.96	13.02	11.87	12.87	18.99	20.99
2	33.03	31.31	27.70	22.68	20.13	20.48	12.89	13.09	11.97	13.05	19.11	21.08
3	33.04	31.18	27.71	22.08	20.16	20.46	12.86	13.23	12.03	13.31	19.21	21.11
4	33.05	31.06	27.67	21.65	20.20	20.40	12.85	13.33	11.78	13.55	19.30	21.10
5	33.06	30.97	27.58	21.52	20.39	20.23	12.98	13.37	11.24	13.77	19.40	21.14
6	33.07	30.84	27.48	21.29	20.44	20.13	13.13	13.41	10.69	14.01	19.51	21.16
7	33.08	30.76	27.47	21.16	20.36	19.91	13.11	13.48	10.44	14.21	19.59	21.16
8	33.09	30.68	27.42	20.85	20.43	19.58	13.05	13.53	9.86	14.45	19.68	21.22
9	33.10	30.59	27.44	20.73	20.45	19.26	13.00	13.48	9.53	14.66	19.69	21.27
10	33.11	30.49	27.36	20.69	20.44	19.17	12.94	13.20	9.52	14.77	19.74	21.29
11	33.11	30.39	27.29	20.69	20.52	19.05	12.71	12.86	9.67	15.01	19.79	21.35
12	33.09	30.35	27.21	20.67	20.58	18.83	12.46	12.58	9.91	15.30	19.89	21.39
13	33.03	30.26	26.95	20.53	20.66	18.69	12.50	12.59	10.18	15.58	19.94	21.45
14	32.98	30.16	26.50	20.43	20.72	18.64	12.47	12.64	10.47	15.83	19.98	21.50
15	32.93	30.05	25.94	20.32	20.88	18.47	12.34	12.71	10.80	15.99	19.99	21.56
16	32.88	29.96	25.46	20.31	20.89	18.25	12.27	12.71	11.13	16.26	20.01	21.64
17	32.77	29.84	25.29	20.16	20.80	17.82	12.44	12.36	11.29	16.49	20.01	21.71
18	32.62	29.61	25.17	20.16	20.88	17.00	12.47	11.91	11.47	16.71	20.07	21.73
19	32.51	29.29	25.00	20.05	20.91	16.43	12.47	11.61	11.72	16.95	20.11	21.76
20	32.41	29.05	24.77	20.04	20.96	15.87	12.47	11.45	11.86	17.13	20.13	21.77
21	32.33	28.86	24.25	20.04	20.95	14.89	12.42	11.41	11.89	17.29	20.14	21.78
22	32.29	28.66	23.98	20.04	20.89	14.36	12.47	11.50	11.70	17.49	20.17	21.75
23	32.22	28.53	23.83	20.02	20.89	13.95	12.62	11.52	11.43	17.69	20.27	21.63
24	32.17	28.46	23.74	20.11	20.89	13.66	12.64	11.54	11.43	17.91	20.33	21.17
25	32.11	28.36	23.54	20.11	20.86	13.44	12.65	11.58	11.51	18.07	20.39	20.99
26	32.05	28.26	23.56	20.05	20.80	13.19	12.73	11.58	11.65	18.18	20.46	20.91
27	31.98	28.12	23.54	20.16	20.71	13.20	12.87	11.59	11.93	18.27	20.56	20.82
28	31.90	28.06	23.42	20.12	20.60	13.16	12.90	11.53	12.20	18.45	20.67	20.74
29	31.83	27.93	23.37	20.14	---	13.00	12.95	11.43	12.43	18.63	20.74	20.77
30	31.75	27.77	23.36	20.19	---	12.97	13.05	11.57	12.67	18.78	20.87	20.77
31	31.64	---	23.25	20.16	---	12.96	---	11.57	---	18.88	20.94	---
MEAN	32.62	29.71	25.65	20.66	20.62	17.03	12.72	12.37	11.21	16.11	19.99	21.29
MAX	33.11	31.46	27.75	23.18	20.96	20.60	13.13	13.53	12.67	18.88	20.94	21.78
MIN	31.64	27.77	23.25	20.02	20.08	12.96	12.27	11.41	9.52	12.87	18.99	20.74



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

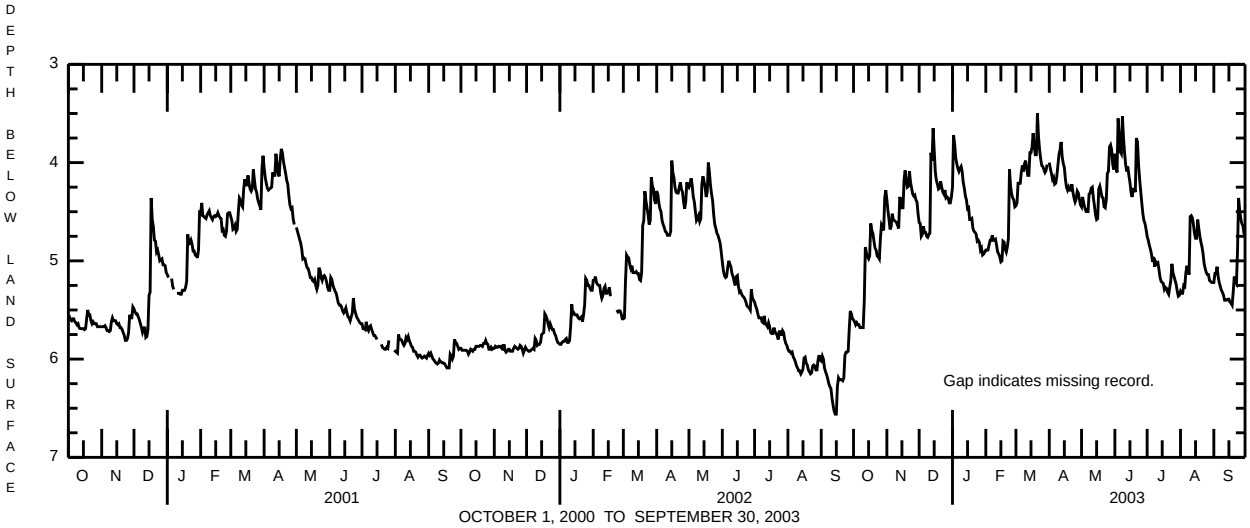
DAUPHIN COUNTY

402118076462201. Local number, DA 350.

LOCATION.--Lat 40°21'18", long 76°46'22", Hydrologic Unit 02050305, at R. D. l, Linglestown.
Owner: Privately owned.
AQUIFER.--Hamburg sequence, Early-Middle Ordovician age.
WELL CHARACTERISTICS.--Drilled unused observation well, diameter 6 in., depth 225 ft, cased to 19 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 450 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.30 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.
PERIOD OF RECORD.--September 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 1.15 ft below land-surface datum, June 22, 1972; lowest, 6.95 ft below land-surface datum, Sept. 11, 1966.
EXTREMES FOR CURRENT YEAR.--Highest water level, 2.27 ft below land-surface datum, Mar. 20; lowest, 5.68 ft below land-surface datum, Oct. 7-10.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.60	4.38	4.61	4.25	4.89	4.44	4.00	4.45	3.91	4.75	5.31	5.22
2	5.62	4.49	4.62	3.72	4.89	4.41	4.06	4.35	4.04	4.79	5.33	5.13
3	5.65	4.58	4.75	3.81	4.89	4.21	4.11	4.41	4.10	4.84	5.33	5.13
4	5.63	4.68	4.73	3.95	4.84	4.21	4.17	4.46	3.55	4.88	5.25	5.06
5	5.65	4.65	4.65	4.01	4.79	4.21	4.15	4.49	3.72	4.93	5.26	5.16
6	5.65	4.52	4.71	4.06	4.79	4.10	4.22	4.48	3.89	5.01	5.12	5.22
7	5.68	4.58	4.71	4.09	4.74	4.03	4.21	4.51	3.91	4.96	5.05	5.26
8	5.68	4.59	4.75	4.06	4.79	4.09	4.14	4.32	3.53	5.06	5.10	5.30
9	5.68	4.60	4.76	4.04	4.79	4.01	4.03	4.31	3.75	5.01	5.14	5.32
10	5.68	4.61	4.73	4.09	4.78	3.98	3.92	4.26	3.90	5.03	4.55	5.35
11	5.40	4.64	4.72	4.20	4.84	4.06	3.87	4.25	4.02	5.02	4.54	5.40
12	4.86	4.67	3.90	4.26	4.91	4.13	3.79	4.36	4.09	5.09	4.56	5.40
13	4.92	4.35	3.98	4.34	4.93	4.13	3.94	4.44	4.04	5.17	4.63	5.40
14	4.96	4.38	3.65	4.38	4.96	3.90	4.01	4.53	4.13	5.21	4.72	5.39
15	4.98	4.46	3.87	4.47	5.01	3.90	4.05	4.58	4.20	5.22	4.77	5.39
16	4.95	4.46	4.09	4.46	5.00	3.84	4.17	4.57	4.30	5.23	4.77	5.42
17	4.62	4.17	4.18	4.58	4.80	3.70	4.25	4.27	4.35	5.29	4.58	5.43
18	4.69	4.08	4.22	4.58	4.81	3.83	4.28	4.24	4.27	5.27	4.67	5.45
19	4.72	4.18	4.27	4.57	4.88	3.92	4.25	4.29	4.27	5.28	4.75	5.32
20	4.80	4.25	4.26	4.67	4.91	3.92	4.28	4.35	4.30	5.32	4.81	5.16
21	4.87	4.24	4.19	4.70	4.86	3.50	4.28	4.36	3.75	5.34	4.86	5.21
22	4.89	4.09	4.25	4.71	4.77	3.74	4.22	4.45	3.79	5.27	4.93	5.23
23	4.95	4.20	4.30	4.73	4.07	3.87	4.30	4.46	4.02	5.20	5.03	4.90
24	4.96	4.26	4.32	4.80	4.24	3.96	4.36	4.38	4.17	5.03	5.08	4.36
25	4.98	4.32	4.28	4.79	4.32	4.03	4.40	4.11	4.29	5.12	5.12	4.48
26	4.77	4.34	4.36	4.81	4.36	4.04	4.37	4.09	4.41	5.16	5.14	4.57
27	4.63	4.33	4.35	4.89	4.38	4.07	4.29	3.84	4.52	5.20	5.14	4.62
28	4.65	4.38	4.36	4.87	4.45	4.10	4.31	3.82	4.59	5.24	5.20	4.64
29	4.69	4.40	4.41	4.94	---	4.08	4.37	3.87	4.62	5.31	5.21	4.72
30	4.36	4.52	4.41	4.93	---	4.02	4.43	4.02	4.68	5.36	5.22	4.74
31	4.28	---	4.35	4.91	---	---	---	4.07	---	5.35	5.22	---
MEAN	5.08	4.41	4.38	4.44	4.74	4.01	4.17	4.30	4.10	5.13	4.98	5.11
MAX	5.68	4.68	4.76	4.94	5.01	4.44	4.43	4.58	4.68	5.36	5.33	5.45
MIN	4.28	4.08	3.65	3.72	4.07	3.50	3.79	3.82	3.53	4.75	4.54	4.36



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

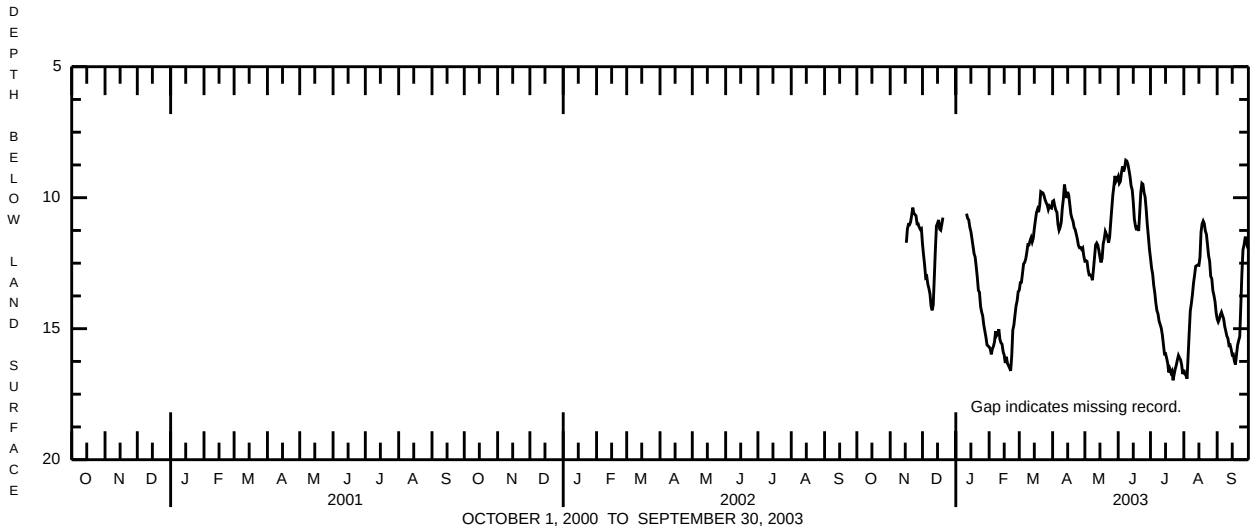
DAUPHIN COUNTY

402255076422001. Local number, DA 868.

LOCATION.--Lat 40°22'55", long 76°42'20", Hydrologic Unit 02050305, at Ft. Indiantown Gap.
Owner: Ft. Indiantown Gap.
AQUIFER.--Hamburg Formation, Ordovician age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 141 ft, cased to 17 ft, open hole.
INSTRUMENTATION.--Electronic data logger with 60-minute recording interval.
DATUM.--Elevation of land surface is 510 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.70 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level shown below, daily minimum and maximum water levels are also available from the District Office. Water level affected by pumping.
PERIOD OF RECORD.--November 15, 2002 to current year.
EXTREMES FOR CURRENT YEAR.--Highest water level, 8.27 ft below land-surface datum, June 9; lowest, 17.64 ft below land-surface datum, July 22.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	11.76	---	15.70	13.53	10.14	12.42	9.19	12.30	16.57	14.63
2	---	---	12.18	---	15.77	13.24	10.11	12.40	9.45	12.68	16.73	14.74
3	---	---	12.57	---	15.98	13.23	10.32	12.43	9.38	12.91	16.79	14.64
4	---	---	13.05	---	15.77	12.89	10.48	12.76	9.05	13.34	16.91	14.47
5	---	---	13.01	---	15.67	12.53	10.55	12.95	8.81	13.63	16.04	14.37
6	---	---	13.30	---	15.49	12.47	11.03	12.95	9.00	14.03	15.16	14.50
7	---	---	13.47	---	15.10	12.34	11.24	12.98	8.87	14.31	14.32	14.62
8	---	---	13.68	---	15.26	12.09	11.13	13.15	8.57	14.44	14.04	14.91
9	---	---	14.14	---	15.20	11.79	10.94	12.73	8.60	14.71	13.70	15.09
10	---	---	14.30	---	15.02	11.80	10.41	12.26	8.72	14.84	13.26	15.28
11	---	---	14.09	10.61	15.41	11.65	10.05	11.80	8.95	14.98	12.96	15.37
12	---	---	13.06	10.79	15.54	11.53	9.50	11.73	9.20	15.23	12.62	15.64
13	---	---	11.97	10.84	15.59	11.69	9.76	11.81	9.55	15.59	12.59	15.62
14	---	---	11.08	11.12	15.88	11.55	10.01	12.01	9.70	15.96	12.57	15.78
15	---	---	10.98	11.29	16.01	11.18	9.78	12.27	10.17	15.95	12.58	16.00
16	---	11.72	10.85	11.56	16.31	10.86	9.91	12.47	10.81	16.12	12.28	15.98
17	---	11.19	11.20	11.85	16.07	10.57	10.26	12.33	11.08	16.32	11.31	16.24
18	---	11.02	11.24	12.14	16.32	10.44	10.63	11.77	11.24	16.67	11.00	16.37
19	---	11.03	11.01	12.27	16.41	10.55	10.79	11.58	11.06	16.54	10.89	15.98
20	---	10.92	10.76	12.64	16.50	10.29	10.90	11.29	11.27	16.68	10.98	15.63
21	---	10.66	---	13.05	16.61	9.77	11.14	11.39	10.56	16.61	11.27	15.45
22	---	10.38	---	13.54	16.04	9.80	11.22	11.49	9.80	16.97	11.40	15.30
23	---	10.60	---	13.61	15.05	9.82	11.39	11.72	9.45	16.74	11.79	14.06
24	---	10.64	---	14.14	14.86	9.92	11.58	11.51	9.49	16.54	12.21	12.89
25	---	10.69	---	14.36	14.49	10.08	11.82	10.95	9.80	16.39	12.43	11.99
26	---	11.00	---	14.51	14.13	10.19	11.91	10.42	9.97	16.19	13.00	11.80
27	---	11.00	---	14.86	13.94	10.28	11.90	9.89	10.44	16.02	13.09	11.53
28	---	11.13	---	15.09	13.59	10.45	11.97	9.55	11.01	16.11	13.55	11.53
29	---	11.21	---	15.32	---	10.32	11.92	9.17	11.47	16.19	13.73	11.86
30	---	11.18	---	15.62	---	10.38	12.23	9.37	11.95	16.39	13.97	11.96
31	---	---	---	15.66	---	10.40	---	9.29	---	16.73	14.38	---
MEAN	---	10.96	12.38	13.09	15.49	11.21	10.83	11.64	9.89	15.42	13.36	14.47
MAX	---	11.72	14.30	15.66	16.61	13.53	12.23	13.15	11.95	16.97	16.91	16.37
MIN	---	10.38	10.76	10.61	13.59	9.77	9.50	9.17	8.57	12.30	10.89	11.53



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

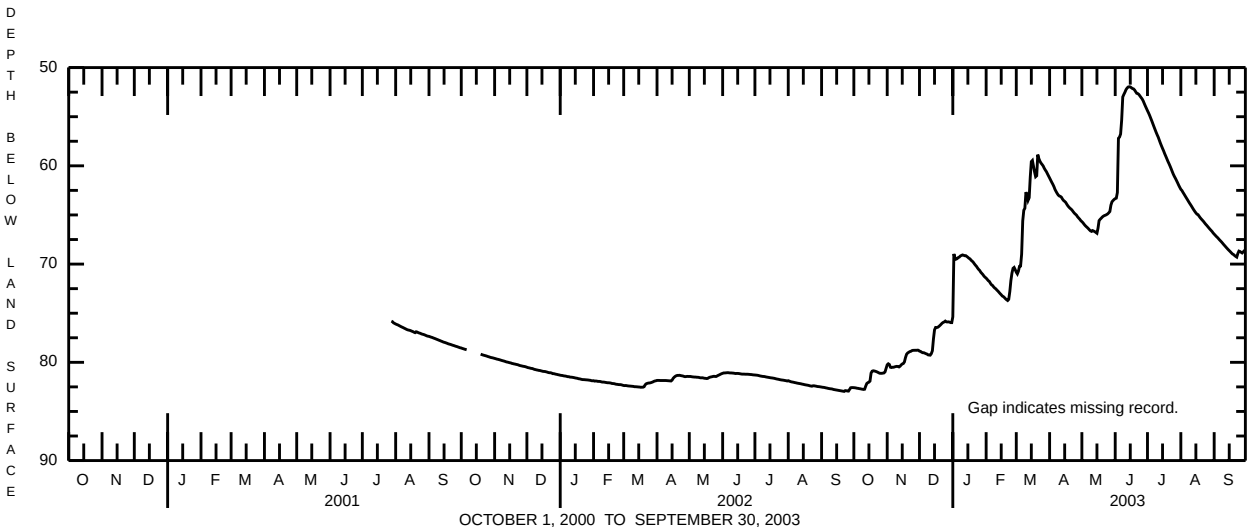
FRANKLIN COUNTY

395322077365301. Local number, FR 818.

LOCATION.--Lat 39°53'22", long 77°36'53", Hydrologic Unit 02070004, near Chambersburg.
Owner: Privately owned.
AQUIFER.--Zullinger Formation, Cambrian age.
WELL CHARACTERISTICS.--Drilled unused observation well, diameter 6 in., depth 202 ft, cased to 37 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 760 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.90 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels, are also available from the District Office.
PERIOD OF RECORD.--July 28, 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 51.93 ft above land-surface datum, June 14, 2002; lowest, 82.97 ft below land-surface datum, Sept. 22, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level, 51.93 ft below land-surface datum, June 14; lowest, 82.77 ft below land-surface datum, Oct. 11.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82.58	80.25	78.86	75.37	71.43	70.83	61.24	65.68	63.34	54.39	62.39	66.95
2	82.59	80.15	78.89	68.97	71.56	71.00	61.46	65.79	63.29	54.62	62.51	67.07
3	82.61	80.22	78.97	69.35	71.69	70.73	61.68	65.94	62.72	54.87	62.70	67.19
4	82.64	80.50	79.02	69.50	71.77	70.23	61.88	66.07	57.20	55.15	62.88	67.29
5	82.65	80.53	79.02	69.45	71.96	70.20	62.11	66.18	57.07	55.43	63.06	67.41
6	82.68	80.50	79.07	69.34	72.11	68.99	62.40	66.28	56.76	55.72	63.24	67.54
7	82.69	80.50	79.12	69.29	72.18	65.61	62.61	66.39	55.35	56.01	63.42	67.65
8	82.72	80.46	79.16	69.18	72.33	64.52	62.80	66.51	52.99	56.30	63.60	67.77
9	82.74	80.43	79.24	69.12	72.44	64.32	62.97	66.62	52.74	56.58	63.78	67.90
10	82.76	80.41	79.26	69.07	72.52	62.68	63.07	66.67	52.52	56.84	63.95	68.03
11	82.74	80.43	79.27	69.10	72.65	62.96	63.11	66.59	52.25	57.09	64.12	68.15
12	82.43	80.47	79.12	69.15	72.75	63.51	63.20	66.64	52.09	57.39	64.30	68.28
13	82.16	80.39	78.82	69.14	72.88	63.24	63.39	66.70	51.98	57.69	64.48	68.40
14	82.07	80.26	77.62	69.22	73.01	61.16	63.53	66.78	51.95	57.97	64.64	68.52
15	82.02	80.17	76.70	69.31	73.12	59.57	63.62	66.86	51.97	58.23	64.79	68.63
16	81.91	80.12	76.45	69.41	73.25	59.45	63.73	66.35	52.05	58.48	64.92	68.74
17	81.09	79.96	76.46	69.47	73.31	60.03	63.91	65.58	52.13	58.77	64.97	68.86
18	80.90	79.52	76.43	69.61	73.41	60.61	64.08	65.44	52.17	59.02	65.13	68.97
19	80.86	79.18	76.35	69.70	73.53	61.11	64.21	65.33	52.28	59.28	65.28	69.03
20	80.88	79.05	76.25	69.81	73.63	61.01	64.32	65.21	52.46	59.55	65.41	69.13
21	80.91	78.98	76.14	69.97	73.71	58.86	64.41	65.12	52.62	59.78	65.53	69.22
22	80.95	78.91	76.02	70.11	73.59	59.26	64.53	65.06	52.65	60.03	65.65	69.29
23	81.00	78.88	75.94	70.23	72.79	59.53	64.68	65.02	52.74	60.30	65.79	68.92
24	81.06	78.81	75.89	70.40	71.68	59.72	64.82	64.96	52.89	60.58	65.93	68.68
25	81.11	78.78	75.80	70.54	70.92	59.86	64.92	64.89	53.04	60.85	66.05	68.72
26	81.12	78.78	75.88	70.65	70.43	60.01	65.02	64.78	53.19	61.08	66.18	68.80
27	81.12	78.77	75.89	70.83	70.34	60.24	65.19	64.65	53.39	61.28	66.31	68.87
28	81.10	78.78	75.88	70.95	70.56	60.43	65.31	64.00	53.65	61.50	66.44	68.76
29	81.08	78.76	75.91	71.07	---	60.59	65.43	63.66	53.91	61.73	66.56	68.64
30	80.97	78.77	75.96	71.23	---	60.81	65.58	63.53	54.15	61.97	66.68	68.62
31	80.61	---	75.96	71.34	---	61.03	---	63.42	---	62.19	66.83	---
MEAN	81.77	79.72	77.40	70.00	72.34	62.97	63.64	65.57	54.25	58.41	64.76	68.33
MAX	82.76	80.53	79.27	75.37	73.71	71.00	65.58	66.86	63.34	62.19	66.83	69.29
MIN	80.61	78.76	75.80	68.97	70.34	58.86	61.24	63.42	51.95	54.39	62.39	66.95



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

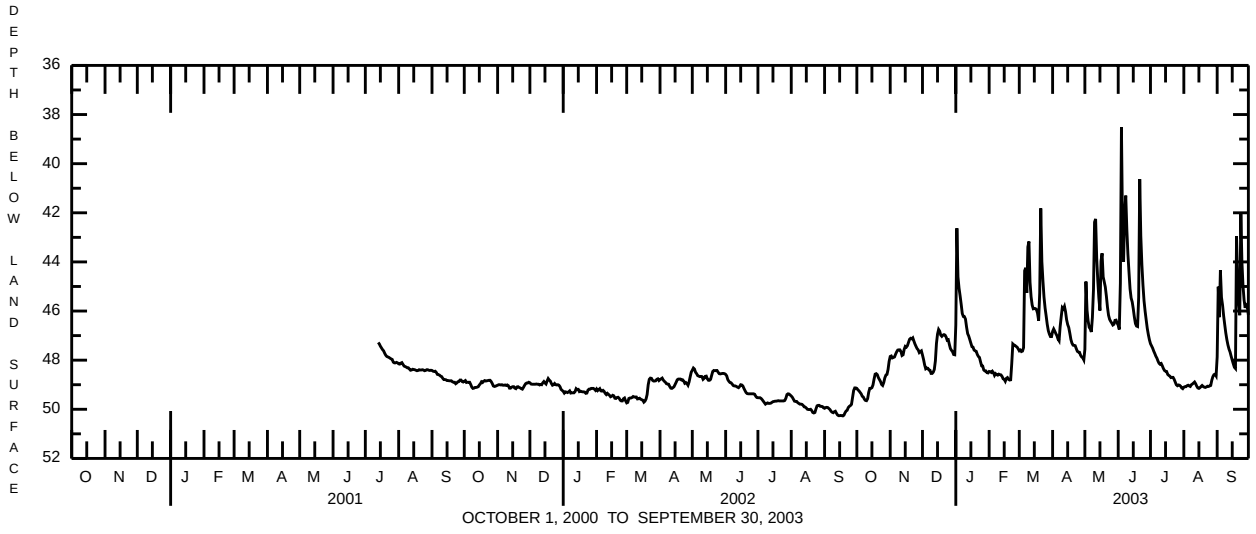
FULTON COUNTY

394755078135001. Local number, FU 249.

LOCATION.--Lat 39°47'55", long 78°13'50", Hydrologic Unit 02070004, at State Game Land No. 128, at Deneen Gap.
Owner: U.S. Geological Survey.
AQUIFER.--Stonehenge Formation, Early Ordovician age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in., depth 122 ft, cased to 18 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 760 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of plywood shelf, 3.30 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels, are also available from the District Office.
PERIOD OF RECORD.--July 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 36.33 ft below land-surface datum, June 4, 2003; lowest, 50.27 ft below land-surface datum, Sept. 15, 17-19, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level, 36.33 ft below land-surface datum, June 4; lowest, 49.66 ft below land-surface datum, Oct. 10.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49.15	47.85	47.79	46.57	48.46	47.62	46.83	47.56	46.58	47.33	49.10	47.87
2	49.21	47.83	47.97	42.63	48.47	47.59	46.73	44.80	46.75	47.42	49.08	45.01
3	49.25	47.91	48.19	44.61	48.50	47.65	46.82	45.97	44.86	47.51	49.08	46.25
4	49.31	47.89	48.35	45.07	48.45	47.63	46.92	46.40	38.51	47.63	49.04	44.34
5	49.37	47.87	48.32	45.38	48.51	47.49	47.00	46.66	42.65	47.73	49.02	45.44
6	49.47	47.76	48.33	45.73	48.62	44.36	47.14	46.73	43.99	47.84	49.05	45.76
7	49.50	47.66	48.40	46.10	48.55	44.24	47.21	46.85	41.97	47.92	49.07	46.19
8	49.59	47.59	48.41	46.22	48.59	45.26	46.64	46.26	41.30	48.04	49.00	46.55
9	49.64	47.58	48.54	46.23	48.61	43.39	46.23	45.12	42.66	48.13	48.97	46.89
10	49.65	47.58	48.54	46.33	48.57	43.17	45.86	42.38	43.67	48.17	48.93	47.16
11	49.57	47.65	48.49	46.65	48.59	44.83	45.91	42.25	44.41	48.14	48.89	47.38
12	49.31	47.81	48.38	46.92	48.60	45.42	45.81	43.86	45.10	48.23	48.96	47.55
13	49.15	47.78	48.03	47.02	48.66	45.76	46.02	44.76	45.47	48.34	49.06	47.67
14	49.15	47.56	47.32	47.16	48.76	45.91	46.35	45.47	45.63	48.42	49.13	47.84
15	49.12	47.44	46.94	47.31	48.78	45.90	46.55	45.98	45.91	48.45	49.15	48.00
16	49.01	47.47	46.75	47.45	48.86	45.90	46.67	43.97	46.24	48.46	49.12	48.15
17	48.77	47.41	46.82	47.47	48.74	45.94	46.90	43.65	46.51	48.58	49.07	48.29
18	48.57	47.28	46.98	47.59	48.71	46.09	47.16	44.61	46.61	48.62	49.03	48.34
19	48.55	47.15	47.03	47.62	48.78	46.39	47.31	44.81	46.63	48.65	49.07	42.95
20	48.59	47.11	46.98	47.64	48.81	45.27	47.39	45.02	45.45	48.71	49.10	44.74
21	48.71	47.13	46.96	47.77	48.80	41.82	47.40	45.40	40.63	48.70	49.11	45.68
22	48.79	47.09	46.98	47.85	48.15	43.99	47.41	45.84	42.94	48.70	49.09	46.17
23	48.87	47.22	47.06	47.89	47.34	44.77	47.53	46.17	44.12	48.78	49.06	42.01
24	48.99	47.34	47.19	48.07	47.38	45.43	47.64	46.34	44.94	48.89	49.07	44.00
25	49.03	47.44	47.17	48.23	47.40	45.88	47.67	46.42	45.58	49.00	49.05	44.96
26	48.91	47.53	47.36	48.24	47.44	46.20	47.68	46.49	46.01	49.04	49.03	45.55
27	48.72	47.58	47.53	48.40	47.47	46.54	47.80	46.57	46.36	49.01	48.82	45.87
28	48.61	47.69	47.60	48.44	47.54	46.80	47.87	46.54	46.70	49.02	48.67	45.74
29	48.58	47.65	47.66	48.44	---	46.94	47.90	46.38	46.96	49.06	48.59	45.78
30	48.38	47.62	47.77	48.51	---	47.04	47.99	46.37	47.17	49.13	48.57	46.16
31	48.05	---	47.78	48.52	---	47.04	---	46.49	---	49.16	48.64	---
MEAN	49.02	47.55	47.67	47.03	48.36	45.75	47.01	45.55	44.74	48.41	48.99	46.14
MAX	49.65	47.91	48.54	48.52	48.86	47.65	47.99	47.56	47.17	49.16	49.15	48.34
MIN	48.05	47.09	46.75	42.63	47.34	41.82	45.81	42.25	38.51	47.33	48.57	42.01



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

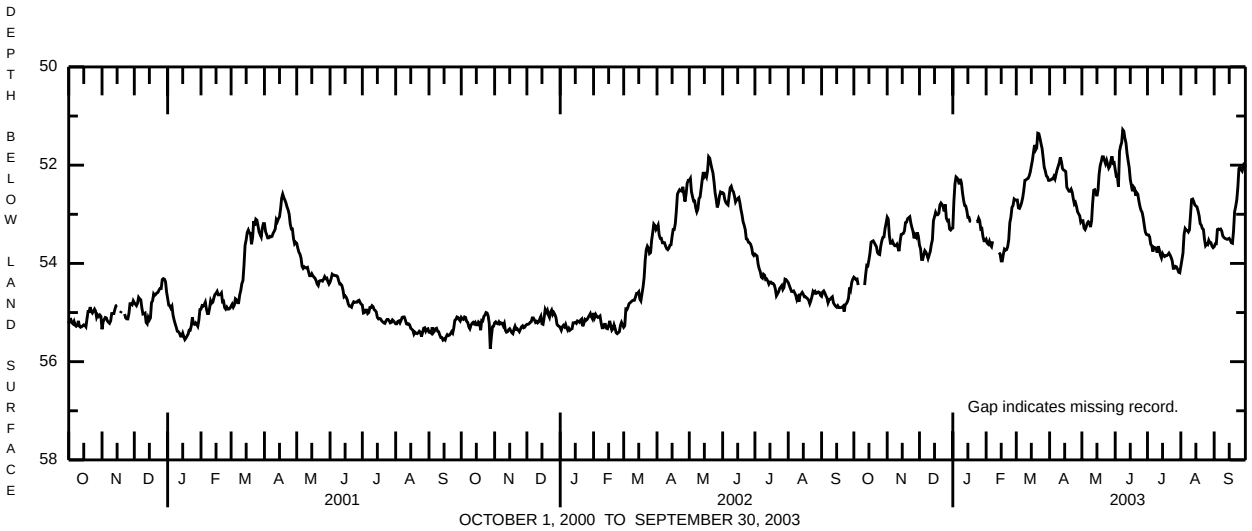
HUNTINGDON COUNTY

401843078075401. Local number, HU 301.

LOCATION.--Lat 40°18'43", long 78°07'54", Hydrologic Unit 02050303, at Trough Creek State Park, and near Newburg.
Owner: U.S. Geological Survey.
AQUIFER.--Pocono Formation, Early Mississippian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 105 ft, cased to 18 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 970 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of instrument shelf, 3.63 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.
PERIOD OF RECORD.--August 1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 48.82 ft below land-surface datum, June 23, l972; lowest, 55.96 ft below land-surface datum, Aug. 28, 30, 1981.
EXTREMES FOR CURRENT YEAR.--Highest water level, 51.15 ft below land-surface datum, June 9; lowest, 54.45 ft below land-surface datum, Oct. 10.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54.28	53.06	53.63	53.28	53.51	52.71	52.31	53.13	52.09	53.42	54.06	53.66
2	54.30	53.10	53.70	52.74	53.59	52.71	52.30	53.13	52.23	53.42	53.93	53.60
3	54.33	53.43	53.92	52.38	53.61	52.87	52.28	53.28	52.23	53.46	53.79	53.60
4	54.32	53.59	53.92	52.24	53.55	52.88	52.28	53.31	52.44	53.61	53.41	53.31
5	54.44	53.59	53.82	52.26	53.63	52.83	52.23	53.26	51.72	53.64	53.29	53.30
6	---	53.55	53.74	52.31	53.66	52.76	52.28	53.18	51.61	53.76	53.32	53.31
7	---	53.61	53.77	52.39	53.55	52.66	52.18	53.15	51.54	53.67	53.33	53.30
8	---	53.64	53.83	52.28	---	52.51	52.09	53.17	51.28	53.68	53.36	53.34
9	---	53.64	53.90	52.36	---	52.31	52.02	53.26	51.31	53.69	53.32	53.44
10	---	53.61	53.83	52.56	---	52.30	51.95	53.14	51.45	53.78	53.01	53.47
11	54.44	53.68	53.76	52.71	---	52.28	51.84	52.78	51.55	53.65	52.70	53.49
12	54.22	53.75	53.62	52.82	---	52.27	51.93	52.51	51.76	53.72	52.69	53.50
13	54.04	53.55	53.52	52.83	53.78	52.22	52.07	52.50	51.91	53.83	52.74	53.51
14	54.05	53.41	53.13	52.92	53.81	52.14	52.10	52.56	52.05	53.89	52.81	53.50
15	53.93	53.40	53.05	53.06	53.95	52.02	52.11	52.63	52.29	53.80	52.83	53.49
16	53.79	53.39	52.96	53.06	53.95	51.90	52.13	52.51	52.41	53.84	52.85	53.53
17	53.57	53.34	53.01	53.14	53.81	51.74	52.45	52.19	52.53	53.86	52.93	53.58
18	53.55	53.17	53.01	53.14	53.71	51.59	52.49	52.01	52.44	53.84	53.03	53.59
19	53.54	53.16	52.98	---	53.73	51.69	52.53	51.93	52.47	53.84	53.19	53.34
20	53.58	53.09	52.81	---	53.72	51.65	52.53	51.83	52.62	53.82	53.22	52.95
21	53.62	53.07	52.77	---	53.66	51.35	52.49	51.83	52.56	53.79	53.29	52.84
22	53.66	53.05	52.80	---	53.52	51.36	52.55	51.90	52.59	53.83	53.31	52.71
23	53.78	53.18	52.85	53.15	53.17	51.45	52.68	51.97	52.73	53.88	53.51	52.45
24	53.81	53.27	52.94	53.15	53.06	51.56	52.79	51.90	52.84	53.95	53.64	52.07
25	53.82	53.35	52.80	53.08	52.86	51.66	52.76	51.98	52.92	54.10	53.61	52.04
26	53.65	53.49	53.08	53.13	52.82	51.85	52.84	52.06	52.96	54.10	53.62	52.09
27	53.54	53.42	53.13	53.30	52.69	52.04	52.95	52.02	53.07	54.06	53.53	52.12
28	53.47	53.46	53.12	53.29	52.71	52.12	52.99	51.90	53.22	54.07	53.58	52.04
29	53.46	53.37	53.30	53.45	---	52.22	53.03	51.82	53.36	54.12	53.58	51.95
30	53.29	53.45	53.32	53.54	---	52.24	53.16	51.96	53.41	54.18	53.65	52.04
31	53.18	---	53.29	53.54	---	52.31	---	51.95	---	54.19	53.68	---
MEAN	53.83	53.40	53.33	52.89	53.48	52.14	52.41	52.48	52.32	53.82	53.32	53.04
MAX	54.44	53.75	53.92	53.54	53.95	52.88	53.16	53.31	53.41	54.19	54.06	53.66
MIN	53.18	53.05	52.77	52.24	52.69	51.35	51.84	51.82	51.28	53.42	52.69	51.95



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

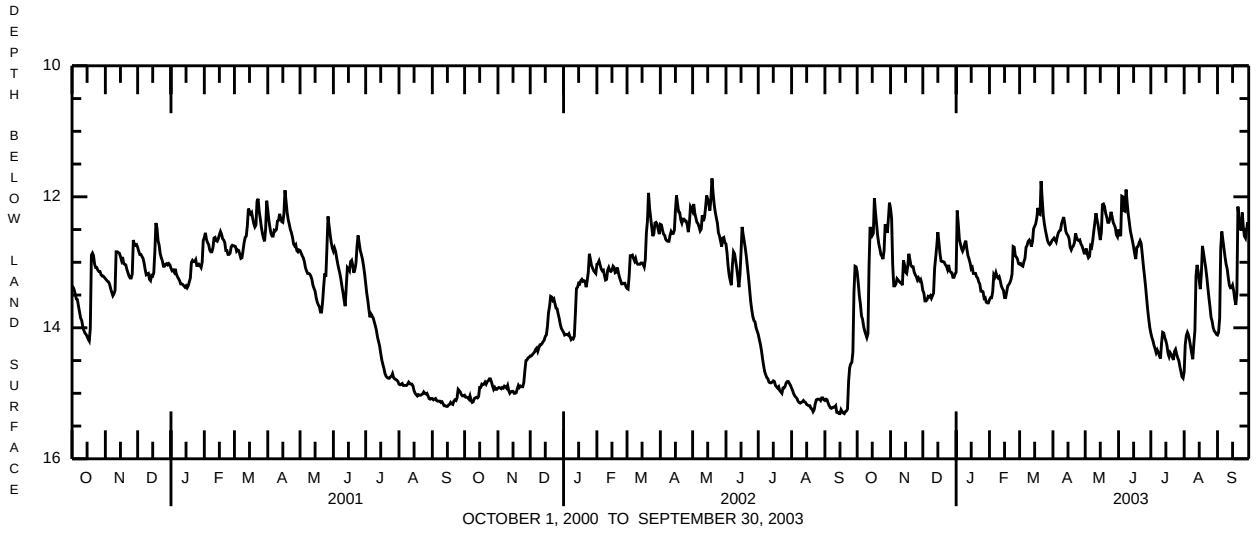
JUNIATA COUNTY

402411077374801. Local number, JU 351.

LOCATION.--Lat 40°24'11", long 77°37'48", Hydrologic Unit 02050304, at State Game Land No. 215, and near Reeds Gap.
Owner: U.S. Geological Survey.
AQUIFER.--Brailler and Harrell Formations, undivided, Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 110 ft, cased to 18 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 635 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of metal cover, 3.55 ft above land-surface datum.
REMARKS.--This well shows significant response to Earth tides. In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since June 1999, are also available from the District Office.
PERIOD OF RECORD.--June 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 10.65 ft below land-surface datum, Feb. 7, l996; lowest, 16.62 ft below land-surface datum, June 10, 1994.
EXTREMES FOR CURRENT YEAR.--Highest water level, 11.54 ft below land-surface datum, Mar. 21; lowest, 14.77 ft below land-surface datum, July 31.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.15	12.18	13.43	13.15	13.57	13.03	12.65	12.86	12.50	14.08	14.67	14.11
2	13.32	12.33	13.47	12.21	13.54	13.02	12.63	12.79	12.57	14.15	14.26	14.07
3	13.51	13.03	13.59	12.42	13.54	13.05	12.66	12.88	12.60	14.20	14.12	13.85
4	13.64	13.36	13.59	12.65	13.45	13.06	12.69	12.93	11.99	14.27	14.07	12.78
5	13.82	13.36	13.57	12.72	13.19	12.99	12.61	12.91	12.00	14.32	14.11	12.53
6	13.87	13.33	13.52	12.79	13.22	12.94	12.55	12.75	12.21	14.38	14.19	12.66
7	13.98	13.25	13.53	12.83	13.16	12.77	12.52	12.77	12.22	14.34	14.29	12.79
8	14.05	13.27	13.51	12.79	13.22	12.74	12.51	12.67	11.89	14.38	14.39	12.92
9	14.10	13.29	13.55	12.71	13.24	12.68	12.41	12.52	12.09	14.43	14.48	13.03
10	14.15	13.31	13.51	12.67	13.22	12.66	12.36	12.39	12.26	14.47	14.24	13.10
11	14.09	13.31	13.47	12.80	13.28	12.69	12.31	12.25	12.39	14.23	14.04	13.23
12	13.07	13.35	13.09	12.90	13.36	12.76	12.41	12.35	12.52	14.07	13.21	13.35
13	12.46	12.97	12.92	12.95	13.40	12.68	12.53	12.43	12.60	14.08	13.04	13.39
14	12.52	13.04	12.75	13.01	13.43	12.49	12.57	12.55	12.68	14.15	13.14	13.39
15	12.59	13.15	12.54	13.10	13.54	12.45	12.59	12.66	12.77	14.20	13.28	13.35
16	12.56	13.17	12.70	13.08	13.54	12.41	12.64	12.54	12.87	14.27	13.41	13.43
17	12.02	13.06	12.87	13.17	13.45	12.32	12.77	12.12	12.95	14.39	13.17	13.56
18	12.24	12.87	12.98	13.17	13.36	12.17	12.81	12.11	12.77	14.44	12.75	13.65
19	12.41	12.96	12.99	13.17	13.34	12.26	12.77	12.15	12.76	14.38	12.86	13.47
20	12.59	13.05	12.99	13.22	13.31	12.27	12.75	12.25	12.71	14.41	12.97	12.15
21	12.71	13.07	13.00	13.24	13.26	11.76	12.70	12.31	12.67	14.45	13.08	12.35
22	12.79	13.07	13.04	13.30	13.18	12.04	12.56	12.39	12.71	14.49	13.22	12.50
23	12.88	13.15	13.06	13.33	12.76	12.28	12.62	12.39	12.87	14.36	13.38	12.43
24	12.91	13.19	13.11	13.44	12.77	12.41	12.66	12.33	13.04	14.33	13.54	12.24
25	12.95	13.22	13.04	13.44	12.90	12.51	12.67	12.23	13.19	14.40	13.68	12.46
26	12.82	13.27	13.13	13.45	12.92	12.59	12.66	12.30	13.35	14.46	13.84	12.60
27	12.42	13.24	13.15	13.55	12.95	12.67	12.72	12.39	13.53	14.50	13.90	12.63
28	12.47	13.28	13.16	13.54	13.02	12.71	12.75	12.43	13.71	14.59	14.00	12.51
29	12.55	13.26	13.23	13.61	---	12.73	12.80	12.47	13.86	14.67	14.05	12.39
30	12.34	13.32	13.23	13.62	---	12.71	12.86	12.58	13.99	14.75	14.07	12.49
31	12.09	---	13.18	13.62	---	12.67	---	12.61	---	14.77	14.10	---
MEAN	13.00	13.12	13.19	13.09	13.25	12.60	12.62	12.49	12.74	14.37	13.73	12.98
MAX	14.15	13.36	13.59	13.62	13.57	13.06	12.86	12.93	13.99	14.77	14.67	14.11
MIN	12.02	12.18	12.54	12.21	12.76	11.76	12.31	12.11	11.89	14.07	12.75	12.15



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

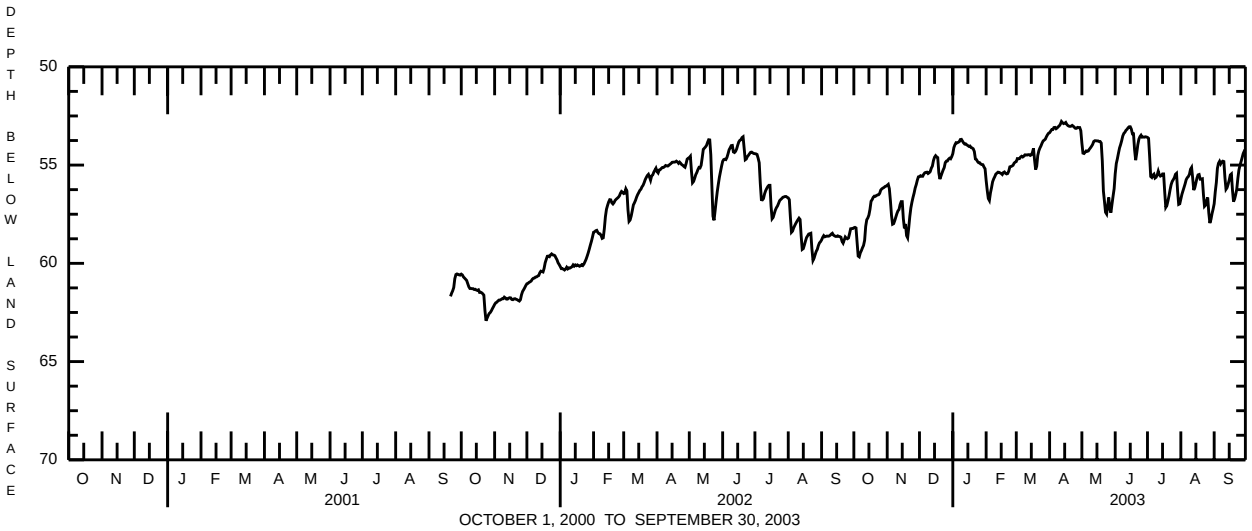
LACKAWANNA COUNTY

413346075421301. Local number, LK 508.

LOCATION.--Lat 41°33'46", long 75°42'13", Hydrologic Unit 02050106, at Lackawanna State Park, near Dalton.
Owner: U.S. Geological Survey.
AQUIFER.--Quaternary System.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 202 ft, cased to 90 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,000 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.84 ft above land-surface datum.
REMARKS.--Water levels affected by pumping. In addition to the daily mean water level table shown below, daily maximum and minimum water levels, are also available from the District Office.
PERIOD OF RECORD.--September 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 52.75 ft below land-surface datum, Apr. 12, 2003; lowest, 62.96 ft below land-surface datum, Oct. 24, 2001.
EXTREMES FOR CURRENT YEAR.--Highest water level, 52.75 ft below land-surface datum, Apr. 12; lowest, 59.76 ft below land-surface datum, Oct. 6.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58.19	56.03	55.58	54.42	55.78	54.82	53.35	53.88	55.44	53.59	56.73	56.97
2	58.17	55.98	55.54	54.11	56.29	54.67	53.27	54.39	54.92	53.64	56.49	56.36
3	58.20	56.20	55.57	53.96	56.70	54.68	53.19	54.41	54.68	54.56	56.31	55.89
4	58.92	56.83	55.57	53.86	56.80	54.67	53.19	54.35	54.40	55.58	56.13	55.17
5	59.63	57.56	55.46	53.87	56.41	54.59	53.09	54.28	54.13	55.63	55.95	54.91
6	59.67	58.01	55.39	53.84	56.15	54.55	53.08	54.30	53.96	55.51	55.74	54.81
7	59.47	57.98	55.37	53.81	55.85	54.59	53.15	54.28	53.76	55.46	55.64	54.94
8	59.35	57.83	55.36	53.70	55.70	54.55	53.11	54.19	53.52	55.66	55.58	54.84
9	59.21	57.65	55.43	53.69	55.59	54.48	53.05	54.12	53.39	55.62	55.47	54.80
10	59.09	57.47	55.39	53.78	55.46	54.48	53.00	54.04	53.33	55.51	55.21	54.82
11	58.83	57.33	55.33	53.87	55.41	54.49	52.92	53.95	53.23	55.31	55.12	55.63
12	58.12	57.26	55.16	53.93	55.36	54.47	52.78	53.80	53.18	55.49	55.65	56.23
13	57.78	57.01	55.05	53.92	55.37	54.47	52.84	53.76	53.10	55.56	56.27	56.15
14	57.69	56.86	54.77	53.97	55.40	54.51	52.89	53.76	53.05	55.53	56.15	55.97
15	57.54	56.86	54.60	54.01	55.43	54.48	52.87	53.77	53.05	55.45	55.91	55.76
16	57.25	57.73	54.52	54.05	55.48	54.36	52.83	53.77	53.17	55.45	55.66	55.50
17	56.84	58.22	54.58	54.03	55.38	54.15	52.93	53.80	53.41	56.37	55.50	55.45
18	56.76	58.00	54.62	54.11	55.35	54.73	52.99	53.80	53.41	57.15	55.48	56.27
19	56.64	58.59	55.40	54.13	55.42	55.23	53.02	53.88	54.21	57.06	55.72	56.86
20	56.58	58.70	55.71	54.17	55.45	55.06	53.03	54.79	54.75	56.83	55.72	56.73
21	56.59	58.20	55.56	54.31	55.43	54.51	53.02	56.32	54.39	56.57	55.70	56.50
22	56.55	57.62	55.40	54.69	55.31	54.27	52.98	56.85	53.97	56.26	56.49	56.23
23	56.52	57.18	55.25	54.72	55.09	54.13	53.02	57.40	53.68	55.99	57.10	55.68
24	56.51	56.89	55.13	54.82	55.07	54.02	53.08	57.49	53.55	55.83	57.04	55.25
25	56.44	56.64	54.87	54.88	55.05	53.88	53.13	57.03	53.48	55.74	56.80	55.01
26	56.27	56.43	54.80	54.88	55.01	53.77	53.13	56.65	53.58	55.64	56.65	54.82
27	56.21	56.17	54.79	54.95	54.90	53.73	53.08	57.25	53.57	55.47	57.43	54.62
28	56.17	55.99	54.70	54.97	54.85	53.68	53.09	57.42	53.58	55.42	57.95	54.41
29	56.14	55.77	54.65	54.98	---	53.56	53.09	56.99	53.56	56.32	57.77	54.29
30	56.09	55.60	54.68	55.10	---	53.46	53.25	56.58	53.57	57.00	57.47	54.33
31	56.07	---	54.57	55.19	---	53.38	---	56.20	---	56.97	57.24	---
MEAN	57.53	57.15	55.12	54.28	55.55	54.34	53.05	55.08	53.77	55.75	56.26	55.51
MAX	59.67	58.70	55.71	55.19	56.80	55.23	53.35	57.49	55.44	57.15	57.95	56.97
MIN	56.07	55.60	54.52	53.69	54.85	53.38	52.78	53.76	53.05	53.59	55.12	54.29



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

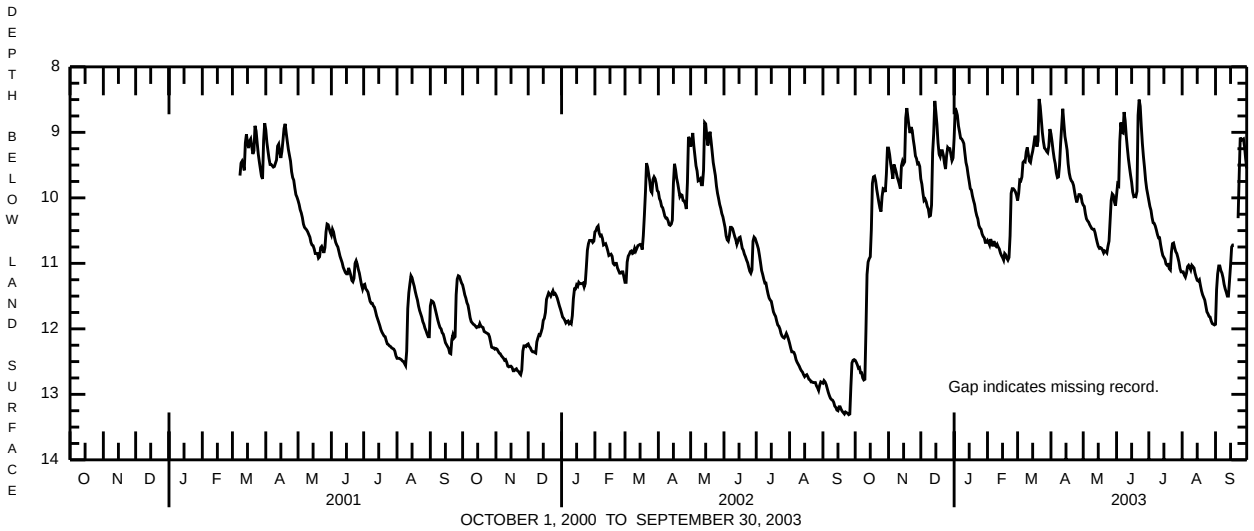
LANCASTER COUNTY

401637076071501. Local number, LN 1351.

LOCATION.--Lat 40°16'37", long 76°07'15", Hydrologic Unit 02050306, at State Game Lands 220, near Blainsport.
Owner: Pennsylvania Game Commission.
AQUIFER.--Hammer Creek Formation, Triassic age.
WELL CHARACTERISTICS.--Drilled unused well, diameter 6 in., depth 135 ft, cased to 50 ft.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 480 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.89 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels are also available from the District Office.
PERIOD OF RECORD.--March 8, 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 8.45 ft below land-surface datum, Dec. 14, 2002; lowest, 13.32 ft below land-surface datum, Sept. 25, 26, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level, 8.45 ft below land-surface datum, Dec. 14; lowest, 12.81 ft below land-surface datum, Oct. 10.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.48	9.24	9.71	9.09	10.65	10.04	9.02	10.11	9.96	10.04	11.13	11.93
2	12.51	9.34	9.79	8.63	10.68	9.93	9.14	10.13	9.79	10.13	11.13	11.40
3	12.55	9.48	9.93	8.67	10.72	9.73	9.28	10.24	9.81	10.19	11.18	11.16
4	12.60	9.58	10.04	8.74	10.63	9.74	9.40	10.32	9.14	10.30	11.21	11.04
5	12.59	9.71	10.02	8.90	10.69	9.68	9.48	10.35	8.85	10.38	11.15	11.04
6	12.67	9.49	10.06	8.99	10.74	9.46	9.62	10.37	9.00	10.39	11.05	11.11
7	12.67	9.54	10.13	9.09	10.66	9.44	9.69	10.41	9.01	10.43	11.03	11.15
8	12.75	9.60	10.17	9.10	10.72	9.45	9.68	10.44	8.69	10.49	11.06	11.22
9	12.78	9.68	10.28	9.13	10.74	9.30	9.50	10.47	8.82	10.56	11.10	11.32
10	12.77	9.73	10.27	9.17	10.71	9.23	9.17	10.48	9.05	10.61	11.03	11.39
11	12.03	9.79	10.11	9.32	10.75	9.34	8.90	10.48	9.23	10.61	11.05	11.44
12	11.17	9.86	9.31	9.46	10.78	9.44	8.64	10.53	9.40	10.72	11.07	11.50
13	10.98	9.51	9.02	9.53	10.84	9.46	8.86	10.61	9.53	10.81	11.15	11.50
14	10.93	9.44	8.52	9.65	10.88	9.36	9.06	10.68	9.65	10.88	11.21	11.27
15	10.90	9.48	8.69	9.75	10.91	9.29	9.16	10.74	9.76	10.91	11.26	11.03
16	10.49	9.45	8.88	9.86	10.95	9.19	9.27	10.77	9.91	10.94	11.27	10.75
17	9.78	8.78	9.16	9.88	10.85	9.07	9.48	10.76	9.98	11.01	11.25	10.72
18	9.68	8.63	9.33	9.97	10.87	9.07	9.62	10.77	9.97	11.03	11.34	10.72
19	9.67	8.77	9.37	10.04	10.92	9.22	9.70	10.80	9.98	11.02	11.42	---
20	9.74	8.91	9.28	10.10	10.95	9.13	9.74	10.84	9.90	11.08	11.48	---
21	9.87	9.01	9.28	10.20	10.91	8.49	9.76	10.81	8.74	11.10	11.52	---
22	9.97	8.92	9.35	10.27	10.58	8.60	9.81	10.82	8.50	10.83	11.56	10.31
23	10.07	8.97	9.47	10.32	9.93	8.80	9.91	10.84	8.60	10.70	11.65	9.67
24	10.16	9.11	9.56	10.42	9.86	9.00	10.00	10.74	8.91	10.69	11.74	9.08
25	10.21	9.22	9.35	10.46	9.86	9.14	10.07	10.66	9.17	10.76	11.77	9.12
26	9.98	9.36	9.23	10.48	9.88	9.24	10.01	10.35	9.37	10.82	11.81	9.11
27	9.86	9.40	9.25	10.55	9.91	9.26	9.95	10.04	9.54	10.85	11.82	9.10
28	9.87	9.48	9.25	10.59	9.96	9.29	9.95	9.94	9.73	10.91	11.88	9.22
29	9.91	9.47	9.34	10.61	---	9.31	9.97	9.96	9.86	10.98	11.92	9.40
30	9.64	9.52	9.43	10.68	---	9.21	10.07	10.06	9.95	11.08	11.93	9.55
31	9.24	---	9.39	10.68	---	8.95	---	10.12	---	11.13	11.94	---
MEAN	10.98	9.35	9.52	9.75	10.59	9.29	9.53	10.47	9.39	10.72	11.39	10.60
MAX	12.78	9.86	10.28	10.68	10.95	10.04	10.07	10.84	9.98	11.13	11.94	11.93
MIN	9.24	8.63	8.52	8.63	9.86	8.49	8.64	9.94	8.50	10.04	11.03	9.08



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

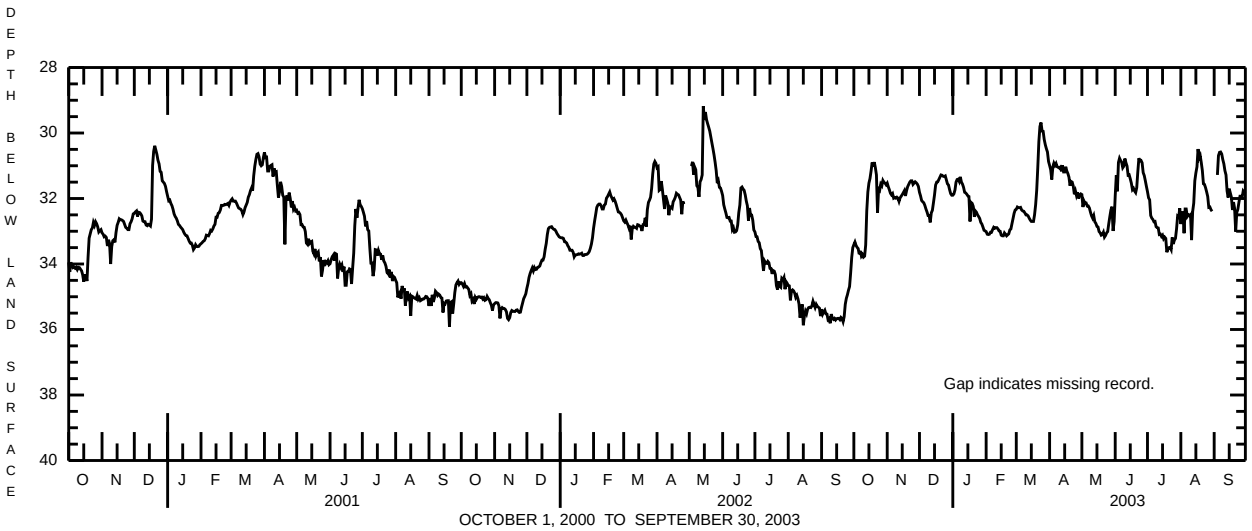
LUZERNE COUNTY

411756076162701. Local number, LU 294.

LOCATION.--Lat 41°17'56", long 76°16'27", Hydrologic Unit 02050107, at Ricketts Glen Park, and near Red Rock.
Owner: Commonwealth of Pennsylvania.
AQUIFER.--Catskill Formation, Late Devonian age.
WELL CHARACTERISTICS.--Drilled unused observation well, diameter 6 in., depth 167 ft, cased to 40 ft, open hole.
INSTRUMENTATION.--Electronic data logger with 60-minute recording interval. Landline telemetry at station.
DATUM.--Elevation of land surface is 1,245 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.79 ft above land-surface datum; 2.79 ft above land-surface datum since April 19, 1999.
REMARKS.--Well levels affected by nearby intermittent pumpage. In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since April 1999, are also available from the District Office.
PERIOD OF RECORD.--November 1994 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 28.72 ft below land-surface datum, May 14, 2002; lowest, 38.20 ft below land-surface datum, Oct. 18, 19, 1998.
EXTREMES FOR CURRENT YEAR.--Highest water level, 29.60 ft below land-surface datum, Mar. 24; lowest, 33.79 ft below land-surface datum, Oct. 10.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33.41	31.53	31.81	31.90	33.01	32.33	30.99	31.88	31.92	31.79	32.78	---
2	33.33	31.64	31.92	31.86	33.09	32.26	31.12	32.26	31.29	31.98	32.49	---
3	33.43	31.73	32.06	31.74	33.10	32.28	31.42	32.08	31.78	32.04	32.40	---
4	33.49	31.84	32.10	31.50	33.09	32.28	31.04	32.15	30.90	32.52	33.06	31.28
5	33.53	31.89	32.13	31.42	33.03	32.27	30.92	32.14	30.77	32.60	32.32	30.69
6	33.70	31.85	32.21	31.41	33.03	32.35	30.99	32.23	30.84	32.64	32.32	30.59
7	33.60	31.99	32.32	31.48	32.95	32.38	30.93	32.23	30.89	32.71	32.55	30.58
8	33.76	31.97	32.41	31.34	32.88	32.39	31.03	32.29	31.06	32.70	32.50	30.64
9	33.71	31.99	32.52	31.50	32.91	32.44	31.05	32.42	31.01	32.86	32.52	30.81
10	33.79	31.96	32.52	31.56	32.89	32.50	31.07	32.53	30.78	32.89	32.49	30.94
11	33.76	31.99	32.73	31.66	32.89	32.50	31.04	32.60	30.91	32.90	33.27	31.15
12	33.42	32.09	32.44	31.81	32.93	32.53	31.17	32.52	31.01	33.10	32.40	31.28
13	32.38	31.98	32.36	31.83	32.99	32.60	30.99	32.71	31.29	33.09	32.14	31.77
14	31.80	31.93	32.13	31.87	33.00	32.66	31.19	32.76	31.28	33.16	31.46	31.97
15	31.53	31.88	31.89	31.92	33.12	32.70	31.19	32.85	31.40	33.12	31.22	31.70
16	31.39	31.82	31.59	31.94	33.14	32.70	31.03	32.87	31.53	33.23	31.03	31.83
17	31.16	31.76	31.50	32.70	33.14	32.70	31.16	33.01	31.73	33.18	30.49	31.96
18	30.90	31.92	31.49	32.12	33.05	32.50	31.24	33.05	31.69	33.22	30.76	32.35
19	31.02	31.76	31.42	32.15	33.09	32.19	31.35	33.12	31.77	33.64	30.69	32.11
20	30.89	31.64	31.35	32.24	33.14	31.75	31.61	33.10	31.82	33.55	30.90	32.30
21	31.06	31.57	31.28	32.56	33.11	31.06	31.48	33.03	31.67	33.50	31.15	33.01
22	31.28	31.50	31.29	32.38	33.08	30.26	31.50	33.18	31.19	33.49	31.55	32.43
23	32.43	31.46	31.32	32.42	32.96	29.80	31.62	33.13	30.77	33.56	31.57	32.33
24	31.71	31.46	31.33	32.50	32.93	29.68	31.87	33.05	30.85	33.19	31.67	32.12
25	31.75	31.57	31.31	32.55	32.77	29.94	31.77	33.01	30.84	33.39	31.80	31.93
26	31.56	31.53	31.43	32.61	32.61	29.95	31.91	32.77	30.91	33.27	31.94	31.93
27	31.61	31.49	31.55	32.73	32.45	30.20	31.81	32.55	31.21	33.22	32.27	31.96
28	31.45	31.52	31.59	32.78	32.35	30.36	32.00	32.35	31.30	32.94	32.26	31.77
29	31.51	31.56	31.73	32.87	---	30.48	31.90	32.25	31.46	32.54	32.34	31.81
30	31.53	31.63	31.85	32.97	---	30.58	31.86	32.99	31.63	32.57	32.39	31.84
31	31.58	---	31.90	32.99	---	30.87	---	32.70	---	32.30	---	---
MEAN	32.31	31.75	31.85	32.11	32.95	31.66	31.34	32.64	31.25	32.93	31.96	31.67
MAX	33.79	32.09	32.73	32.99	33.14	32.70	32.00	33.18	31.92	33.64	33.27	33.01
MIN	30.89	31.46	31.28	31.34	32.35	29.68	30.92	31.88	30.77	31.79	30.49	30.58



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

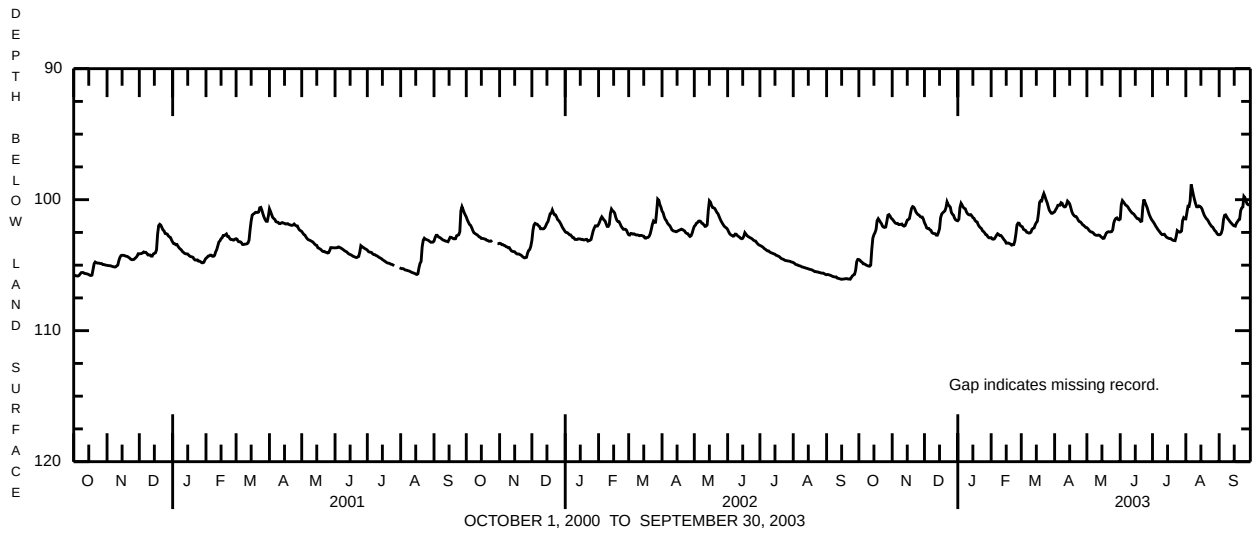
LYCOMING COUNTY

412427076594401. Local number, LY 112.

LOCATION.--Lat 41°24'27", long 76°59'44", Hydrologic Unit 02050206, at State Game Land No. 133, and near Trout Run.
Owner: U.S. Geological Survey.
AQUIFER.--Catskill Formation, Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 200 ft, cased to 23 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,400 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder shelf, 3.00 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since September 1995, are also available from the District Office. Water level was lowered when nearby well was drilled in Aug. 1999.
PERIOD OF RECORD.--October 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 76.10 ft below land-surface datum, June 23, l972; lowest recorded, 107.22 ft below land-surface datum, Sept. 6, 1999.
EXTREMES FOR CURRENT YEAR.--Highest water level, 98.48 ft below land-surface datum, Aug. 6; lowest, 105.08 ft below land-surface datum, Oct. 11.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	104.57	101.48	101.76	101.61	102.90	102.03	100.92	102.14	101.47	101.62	101.47	102.68
2	104.62	101.58	101.92	101.49	103.00	102.07	100.76	102.22	100.38	101.73	100.98	102.66
3	104.73	101.70	102.15	100.60	103.02	102.26	100.63	102.34	100.07	101.87	100.50	102.55
4	104.77	101.79	102.20	100.28	102.99	102.31	100.43	102.42	100.17	102.02	100.51	102.25
5	104.89	101.82	102.19	100.42	102.86	102.35	100.42	102.47	100.29	102.14	100.08	101.54
6	104.90	101.81	102.30	100.57	102.71	102.48	100.42	102.48	100.41	102.28	98.84	101.20
7	104.95	101.90	102.34	100.66	102.60	102.51	100.23	102.55	100.46	102.38	99.23	101.16
8	105.00	101.90	102.52	100.70	102.66	102.55	100.28	102.65	100.54	102.49	99.64	101.30
9	105.04	101.88	102.57	100.93	102.74	102.54	100.47	102.70	100.68	102.60	99.98	101.45
10	105.07	101.86	102.59	101.07	102.73	102.48	100.55	102.72	100.81	102.67	100.29	101.55
11	105.08	101.98	102.60	101.14	102.82	102.26	100.54	102.72	100.91	102.65	100.54	101.67
12	105.00	102.02	102.71	101.17	102.94	102.19	100.39	102.70	101.02	102.64	100.55	101.77
13	103.81	101.98	102.71	101.14	103.06	102.15	100.11	102.73	101.06	102.76	100.48	101.86
14	102.94	101.78	102.50	101.23	103.15	101.90	100.20	102.82	101.14	102.86	100.51	101.95
15	102.67	101.56	102.22	101.37	103.32	101.75	100.32	102.89	101.26	102.91	100.57	102.00
16	102.52	101.52	101.38	101.42	103.32	101.64	100.61	102.96	101.37	102.95	100.70	102.02
17	102.27	101.44	101.10	101.58	103.31	101.06	100.91	102.94	101.45	102.97	100.94	101.80
18	101.60	101.04	101.00	101.67	103.35	100.21	101.10	102.75	101.45	102.97	101.16	101.68
19	101.45	100.67	100.93	101.71	103.39	100.09	101.21	102.56	101.55	103.05	101.31	101.55
20	101.57	100.53	100.85	101.92	103.47	100.10	101.28	102.48	101.66	103.10	101.44	101.50
21	101.71	100.57	100.61	102.05	103.45	99.75	101.29	102.45	101.63	103.12	101.52	100.83
22	101.83	100.71	100.17	102.14	103.43	99.53	101.41	102.46	100.57	103.13	101.65	100.63
23	102.02	100.93	100.37	102.21	103.17	99.75	101.57	102.46	99.98	102.82	101.81	100.56
24	102.10	101.05	100.47	102.38	102.63	100.01	101.67	102.44	100.19	102.36	101.93	99.75
25	102.12	101.14	100.57	102.44	101.93	100.21	101.70	102.31	100.40	102.43	102.04	99.86
26	102.09	101.18	100.97	102.54	101.79	100.51	101.79	101.78	100.60	102.48	102.10	100.12
27	101.67	101.29	101.11	102.67	101.80	100.79	101.91	101.54	100.89	102.47	102.24	100.32
28	101.19	101.33	101.19	102.70	101.96	100.93	101.96	101.43	101.14	102.39	102.37	100.39
29	101.14	101.33	101.42	102.84	---	101.04	102.04	101.39	101.33	101.60	102.44	100.40
30	101.25	101.49	101.54	102.91	---	101.04	102.12	101.51	101.50	101.38	102.59	100.45
31	101.41	---	101.59	102.91	---	100.98	---	101.54	---	101.46	102.67	---
MEAN	103.10	101.44	101.63	101.63	102.88	101.34	100.97	102.37	100.88	102.46	101.07	101.31
MAX	105.08	102.02	102.71	102.91	103.47	102.55	102.12	102.96	101.66	103.13	102.67	102.68
MIN	101.14	100.53	100.17	100.28	101.79	99.53	100.11	101.39	99.98	101.38	98.84	99.75



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

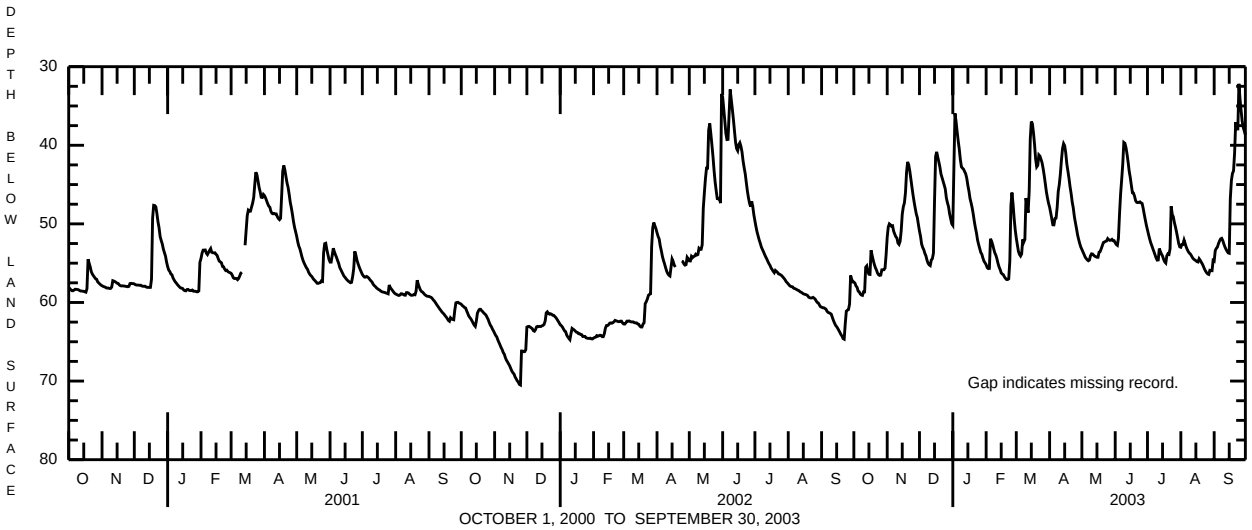
MIFFLIN COUNTY

404140077354001. Local number, MF 344.

LOCATION.--Lat 40°41'40", long 77°35'48", Hydrologic Unit 02050304, at Roseann.
Owner: Privately owned.
AQUIFER.--Bellefonte Formation, Early-Middle Ordovician age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 200 ft, cased to 42 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 800 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of shelter platform, 2.92 ft above land-surface datum. Prior to July 1998, measuring point was 1.0 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since August 1998, are also available from the District Office.
PERIOD OF RECORD.--September 1983 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 13.54 ft below land-surface datum, Apr. 28, 1993; lowest, 77.13 ft below land-surface datum, Oct. 11, 1983.
EXTREMES FOR CURRENT YEAR.--Highest water level, 29.41 ft below land-surface datum, Sept. 23; lowest, 59.10 ft below land-surface datum, Oct. 9.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57.40	51.68	50.91	50.18	55.20	51.80	47.88	53.25	52.39	50.77	52.98	54.74
2	57.54	50.39	51.59	42.97	55.57	52.67	48.59	53.57	52.63	51.37	52.62	53.39
3	57.90	50.00	52.57	35.94	55.69	53.49	49.33	53.88	52.73	51.90	52.62	53.12
4	58.07	50.12	53.01	36.94	55.67	53.89	50.12	54.21	51.82	52.39	52.07	52.95
5	58.56	50.30	53.29	38.24	51.90	54.09	50.13	54.41	48.72	52.77	52.49	52.52
6	58.65	50.25	53.75	39.45	52.18	53.83	49.33	54.58	46.20	53.17	52.94	52.17
7	58.92	50.94	54.07	40.48	52.62	51.97	49.26	54.69	44.39	53.53	53.27	51.91
8	59.05	51.30	54.62	41.80	53.18	52.31	47.95	54.60	42.40	53.94	53.55	51.84
9	59.10	51.63	55.01	42.75	53.67	51.98	45.89	54.05	39.64	54.33	53.72	52.12
10	58.64	51.80	55.21	42.91	53.97	46.72	45.00	53.81	39.75	54.61	53.86	52.56
11	58.64	52.44	55.31	43.05	54.44	47.64	43.67	53.84	40.29	54.59	54.09	52.93
12	55.52	52.61	54.60	43.35	55.02	48.58	41.87	54.00	41.13	53.14	54.34	53.24
13	55.35	52.22	54.42	43.65	55.48	45.88	40.42	54.12	42.15	53.52	54.49	53.48
14	56.06	50.89	53.72	44.21	55.81	39.21	39.79	54.18	43.31	53.84	54.60	53.69
15	56.41	48.77	47.15	45.12	56.24	36.98	40.06	54.25	44.11	54.09	54.68	53.74
16	56.43	47.81	41.41	45.84	56.38	37.27	40.97	54.25	45.09	54.51	54.81	46.82
17	53.37	47.33	40.84	46.77	56.48	38.42	42.37	53.61	46.04	54.83	54.85	44.49
18	54.02	46.02	41.50	47.34	56.75	39.88	43.28	53.52	46.09	54.98	54.43	43.58
19	54.62	43.39	42.12	47.96	56.93	41.77	44.19	53.16	46.49	54.06	54.62	43.26
20	55.15	42.12	42.78	48.75	57.08	42.75	45.26	52.77	47.07	53.80	54.88	40.98
21	55.57	42.49	43.66	49.70	57.08	42.55	46.15	52.37	47.26	53.87	55.11	37.06
22	55.87	43.28	44.12	50.48	56.99	41.23	47.21	52.30	47.30	53.17	55.41	37.92
23	56.26	44.29	44.60	51.16	54.73	41.38	47.97	52.23	47.25	47.77	55.75	37.92
24	56.48	45.31	45.06	52.06	47.71	41.78	49.07	52.17	47.20	48.80	56.01	32.18
25	56.56	46.32	45.58	52.63	46.02	42.24	49.86	51.88	47.32	49.09	56.22	34.07
26	56.52	47.19	46.70	53.13	47.47	42.98	50.59	52.03	47.40	49.83	56.37	35.56
27	55.85	47.97	47.31	53.64	49.28	43.86	51.41	52.10	48.03	50.39	56.43	36.91
28	55.84	48.72	47.80	53.87	50.73	44.89	51.98	52.07	48.79	51.03	55.91	37.72
29	55.83	49.20	48.71	54.36	---	45.92	52.51	51.97	49.52	51.75	55.95	38.18
30	55.62	50.07	49.34	54.76	---	46.69	52.95	52.14	50.20	52.49	55.96	38.69
31	53.90	---	49.98	54.96	---	47.38	---	52.14	---	52.93	54.65	---
MEAN	56.57	48.56	49.06	46.72	53.94	45.87	46.84	53.30	46.42	52.62	54.51	45.99
MAX	59.10	52.61	55.31	54.96	57.08	54.09	52.95	54.69	52.73	54.98	56.43	54.74
MIN	53.37	42.12	40.84	35.94	46.02	36.98	39.79	51.88	39.64	47.77	52.07	32.18



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

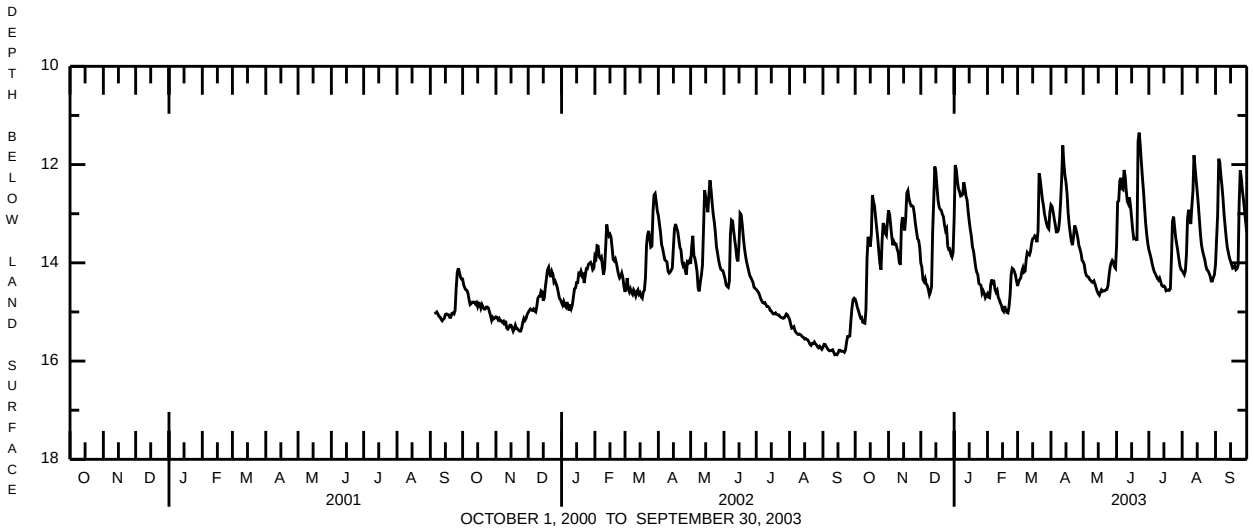
MONTOUR COUNTY

405738076343501. Local number, MT 256.

LOCATION.--Lat 40°57'38", long 76°34'35", Hydrologic Unit 02050106, at Danville.
Owner: U.S. Geological Survey.
AQUIFER.--Hamilton Group.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 121 ft, cased to 25 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 540 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.80 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels, are also available from the District Office.
PERIOD OF RECORD.--September 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 11.16 ft below land-surface datum, June 21, 2003; lowest, 15.89 ft below land-surface datum, Sept. 14, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level, 11.16 ft below land-surface datum, June 21; lowest, 15.25 ft below land-surface datum, Oct. 10.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.74	12.93	14.00	13.12	14.63	14.47	12.82	13.98	13.66	13.73	14.16	14.03
2	14.81	13.02	14.09	12.01	14.70	14.38	12.85	14.04	12.76	13.81	14.20	13.52
3	14.91	13.24	14.34	12.10	14.71	14.34	12.96	14.19	12.74	13.90	14.24	13.03
4	14.97	13.46	14.38	12.33	14.44	14.30	13.10	14.26	12.33	14.01	14.16	11.88
5	15.05	13.64	14.32	12.49	14.34	14.17	13.22	14.28	12.27	14.10	13.82	11.96
6	15.12	13.57	14.43	12.55	14.41	14.10	13.37	14.29	12.49	14.18	13.10	12.22
7	15.11	13.62	14.46	12.64	14.39	14.19	13.37	14.34	12.51	14.22	12.92	12.44
8	15.21	13.62	14.54	12.63	14.54	14.17	13.33	14.36	12.11	14.27	13.07	12.70
9	15.22	13.72	14.65	12.60	14.60	13.93	13.13	14.39	12.24	14.32	13.21	13.02
10	15.23	13.79	14.59	12.36	14.56	13.79	12.76	14.40	12.53	14.35	12.85	13.27
11	14.96	13.99	14.48	12.48	14.70	13.82	12.27	14.37	12.75	14.31	12.55	13.50
12	13.91	14.04	13.38	12.64	14.75	13.84	11.61	14.43	12.80	14.38	11.81	13.69
13	13.47	13.23	12.74	12.72	14.82	13.77	11.98	14.51	12.67	14.46	12.06	13.80
14	13.58	13.07	12.04	12.95	14.87	13.60	12.22	14.58	12.85	14.48	12.32	13.90
15	13.67	13.19	12.15	13.15	14.96	13.51	12.36	14.63	13.09	14.47	12.55	13.97
16	13.42	13.34	12.44	13.32	14.99	13.50	12.60	14.66	13.33	14.49	12.81	14.04
17	12.62	13.08	12.72	13.46	14.88	13.45	12.99	14.60	13.51	14.57	13.12	14.11
18	12.75	12.58	12.86	13.67	14.96	13.47	13.23	14.55	13.50	14.56	13.42	14.10
19	12.85	12.53	12.91	13.76	15.01	13.58	13.41	14.58	13.50	14.55	13.64	14.06
20	13.08	12.69	12.93	13.92	15.02	13.35	13.56	14.57	13.55	14.56	13.76	14.14
21	13.30	12.78	13.01	14.09	14.90	12.18	13.64	14.57	11.53	14.53	13.85	14.12
22	13.51	12.84	13.06	14.19	14.66	12.30	13.47	14.55	11.35	13.93	13.93	14.05
23	13.78	12.84	13.22	14.24	14.24	12.51	13.24	14.54	11.59	13.16	14.06	12.78
24	14.02	12.86	13.34	14.42	14.11	12.70	13.29	14.47	11.94	13.06	14.14	12.12
25	14.14	13.01	13.30	14.44	14.13	12.83	13.39	14.26	12.25	13.28	14.16	12.28
26	13.56	13.21	13.66	14.46	14.18	13.00	13.50	14.09	12.52	13.49	14.21	12.53
27	13.19	13.36	13.73	14.62	14.25	13.11	13.65	14.00	12.86	13.63	14.27	12.71
28	13.25	13.51	13.72	14.57	14.37	13.21	13.72	13.95	13.18	13.77	14.37	12.93
29	13.40	13.54	13.83	14.62	---	13.28	13.81	13.98	13.41	13.93	14.37	13.16
30	13.44	13.69	13.88	14.71	---	13.31	13.95	14.08	13.60	14.07	14.30	13.37
31	13.16	---	13.79	14.67	---	12.97	---	14.11	---	14.14	14.24	---
MEAN	13.98	13.27	13.58	13.42	14.61	13.52	13.09	14.34	12.71	14.09	13.54	13.25
MAX	15.23	14.04	14.65	14.71	15.02	14.47	13.95	14.66	13.66	14.57	14.37	14.14
MIN	12.62	12.53	12.04	12.01	14.11	12.18	11.61	13.95	11.35	13.06	11.81	11.88



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

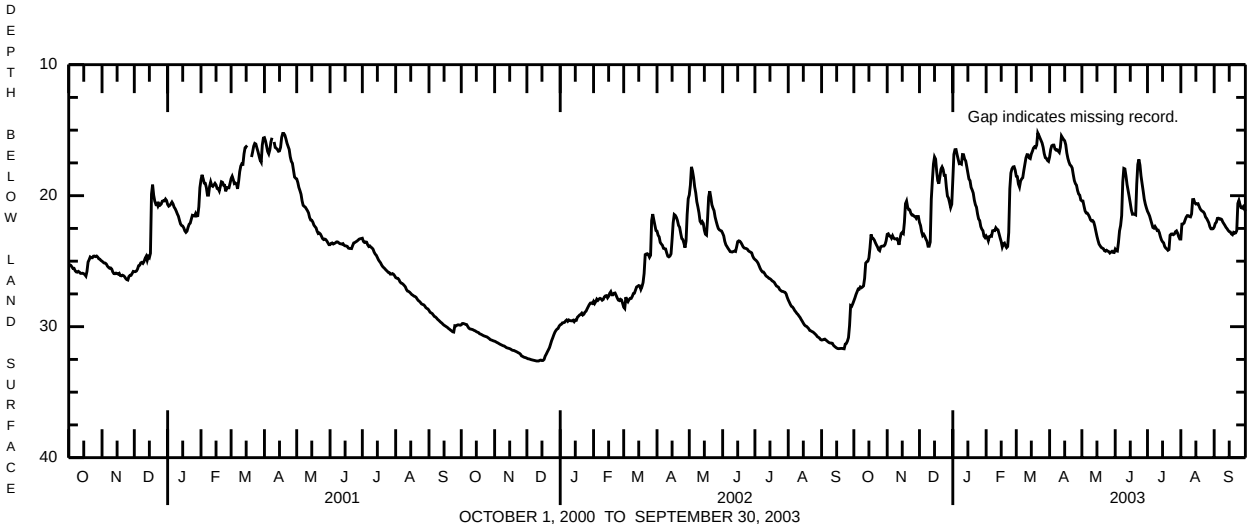
NORTHUMBERLAND COUNTY

404239076362001. Local number, NU 567.

LOCATION.--Lat 40°42'39", long 76°36'20", Hydrologic Unit 02050301, at 0.3 mi southwest of intersection T371 and T488, 1.2 mi east of Leck Kill. Owner: U.S. Department of Agriculture.
AQUIFER.--Catskill Formation, Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 156 ft, cased to 23.5 ft.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 946.47 ft above National Geodetic Vertical Datum of 1929, from survey. Measuring point: Top of metal shelf, 3.25 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily minimum and maximum water levels since Mar. 20, 2001 are also available from the District Office. Data from January 1, 1995 to March 16, 2001 collected by Agricultural Research Service (ARS). Well is part of the ground-water monitoring network within the ARS experimental watershed WE-38.
PERIOD OF RECORD.--January 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 14.70 ft below land-surface datum, Apr. 10, 2000; lowest, 32.65 ft below land-surface datum, Dec. 11, 12, 2001.
EXTREMES FOR CURRENT YEAR.--Highest water level, 15.13 ft below land-surface datum, Mar. 21; lowest, 28.15 ft below land-surface datum, Oct. 1.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.03	22.95	22.04	18.80	23.07	18.52	17.04	20.40	24.09	21.19	23.31	22.40
2	27.80	22.91	22.28	16.85	23.20	18.55	16.48	20.41	24.21	21.36	22.17	22.12
3	27.54	23.07	22.75	16.49	23.44	19.11	16.19	20.81	24.23	21.56	22.16	22.03
4	27.34	23.09	23.05	16.48	23.12	19.34	16.14	21.17	23.57	21.85	22.09	21.73
5	27.13	23.24	22.96	16.87	23.08	18.89	16.14	21.32	22.69	22.14	21.85	21.72
6	27.14	23.06	23.11	17.23	23.10	18.72	16.44	21.33	22.28	22.43	21.64	21.79
7	26.97	23.24	23.32	17.56	22.68	18.63	16.52	21.45	21.53	22.48	21.52	21.77
8	27.03	23.30	23.48	17.54	22.66	18.09	16.50	21.61	18.96	22.35	21.53	21.82
9	26.97	23.30	23.86	17.59	22.67	17.61	16.60	21.84	17.92	22.48	21.60	22.01
10	26.89	23.28	23.86	16.86	22.45	17.11	16.70	21.93	17.96	22.66	21.62	22.14
11	26.31	23.43	23.54	16.87	22.56	16.87	16.31	21.90	18.50	22.64	21.39	22.27
12	25.15	23.75	20.27	17.21	22.61	16.88	15.44	22.01	19.15	22.82	20.30	22.42
13	25.05	23.24	18.83	17.35	22.91	17.12	15.58	22.32	19.61	23.13	20.29	22.52
14	25.00	22.89	17.58	17.79	23.23	17.17	15.71	22.71	20.08	23.38	20.55	22.65
15	24.75	22.80	17.04	18.27	23.51	16.82	15.81	23.10	20.57	23.52	20.64	22.74
16	23.98	22.88	17.21	18.73	23.91	16.61	16.11	23.42	21.09	23.60	20.62	22.77
17	22.96	22.03	18.16	18.85	23.67	16.37	16.74	23.70	21.42	23.88	20.61	22.92
18	23.23	20.61	18.86	19.37	23.62	16.27	17.16	23.83	21.41	24.00	20.82	22.98
19	23.27	20.41	19.08	19.56	23.83	16.33	17.44	23.95	21.43	24.07	21.01	22.81
20	23.39	20.87	18.56	19.80	23.97	16.13	17.65	24.00	21.47	24.17	21.12	22.87
21	23.59	21.07	17.98	20.34	23.88	15.21	17.73	24.05	19.12	24.11	21.19	22.84
22	23.76	21.09	17.81	20.69	22.82	15.39	17.89	24.20	17.62	23.02	21.24	22.67
23	23.92	21.35	18.00	20.88	19.47	15.59	18.39	24.24	17.23	22.93	21.37	20.59
24	24.13	21.48	18.45	21.40	18.27	15.78	18.85	24.17	17.67	22.92	21.63	20.36
25	24.20	21.48	18.45	21.78	17.95	15.98	19.08	24.23	18.50	22.98	21.74	20.67
26	23.90	21.57	19.35	21.90	17.81	16.31	19.20	24.27	19.09	22.93	21.90	20.92
27	23.86	21.59	20.03	22.36	17.79	16.79	19.61	24.38	19.65	22.75	22.07	20.95
28	23.85	21.73	20.19	22.56	18.05	17.10	19.87	24.31	20.26	22.69	22.37	20.84
29	23.84	21.59	20.53	22.67	---	17.15	19.96	24.25	20.65	22.86	22.53	21.01
30	23.73	21.59	20.91	23.09	---	17.31	20.33	24.33	20.94	23.13	22.54	21.18
31	23.45	---	20.66	23.20	---	17.38	---	24.34	---	23.31	22.52	---
MEAN	25.10	22.30	20.39	19.26	22.12	17.13	17.32	22.90	20.43	22.88	21.55	21.95
MAX	28.03	23.75	23.86	23.20	23.97	19.34	20.33	24.38	24.23	24.17	23.31	22.98
MIN	22.96	20.41	17.04	16.48	17.79	15.21	15.44	20.40	17.23	21.19	20.29	20.36



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

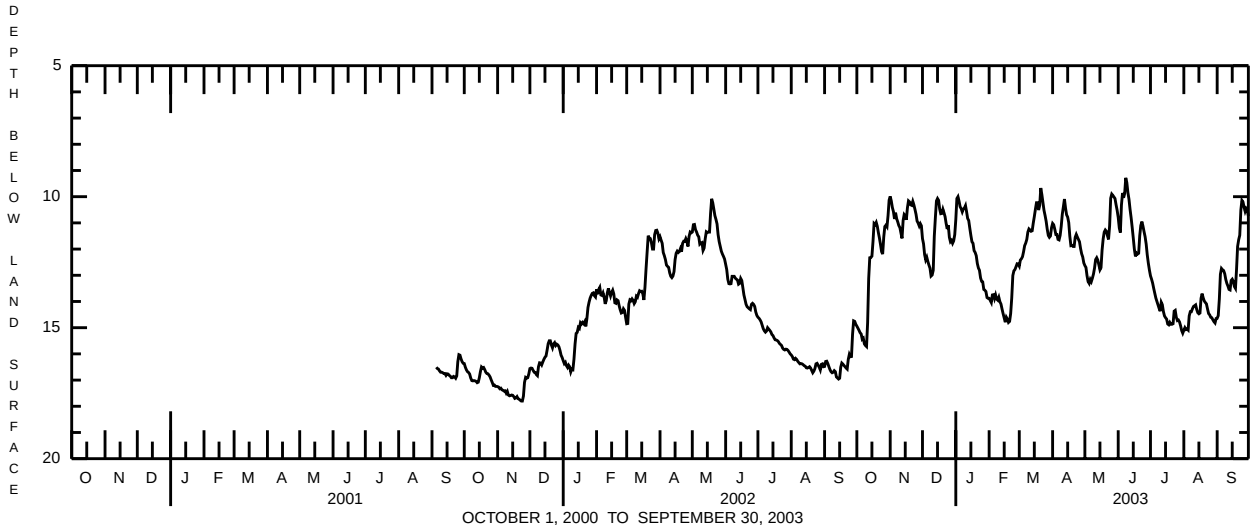
PERRY COUNTY

402735077100901. Local number, PE 684.

LOCATION.--Lat 40°27'35", long 77°10'09", Hydrologic Unit 02050301, at Little Buffalo State Park.
Owner: U.S. Geological Survey.
AQUIFER.--Trimmers Rock.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 150 ft, cased to 18 ft.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 495 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of steel cover, 2.90 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels are also available from the District Office.
PERIOD OF RECORD.--September 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 9.25 ft below land-surface datum, June 8, 2003; lowest, 17.83 ft below land-surface datum, Nov. 24, 2001.
EXTREMES FOR CURRENT YEAR.--Highest water level, 9.25 ft below land-surface datum, June 8; lowest, 15.74 ft below land-surface datum, Oct. 10.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.94	9.99	11.60	10.87	13.88	12.65	11.02	12.63	10.79	13.02	15.10	14.64
2	15.02	10.16	11.80	10.07	13.96	12.42	11.07	12.70	11.20	13.15	15.00	14.54
3	15.10	10.41	12.21	10.0	14.04	12.37	11.24	13.02	11.37	13.30	15.07	13.91
4	15.19	10.57	12.41	10.17	13.75	12.29	11.44	13.24	10.32	13.50	15.05	12.96
5	15.24	10.85	12.31	10.38	13.74	12.10	11.44	13.31	9.86	13.69	15.09	12.74
6	15.44	10.61	12.47	10.46	13.89	11.87	11.63	13.16	10.04	13.87	14.55	12.79
7	15.40	10.84	12.61	10.58	13.75	11.77	11.65	13.24	9.88	14.00	14.39	12.82
8	15.62	10.96	12.73	10.47	13.91	11.63	11.48	13.11	9.28	14.13	14.39	12.94
9	15.68	11.10	13.03	10.43	13.95	11.35	11.13	12.95	9.46	14.26	14.28	13.16
10	15.72	11.18	12.99	10.34	13.84	11.23	10.67	12.72	9.84	14.37	14.19	13.31
11	14.81	11.39	12.81	10.57	14.01	11.27	10.39	12.40	10.10	14.03	14.16	13.41
12	13.12	11.59	11.51	10.83	14.10	11.32	10.09	12.33	10.48	14.12	14.13	13.54
13	12.33	10.91	10.79	10.91	14.29	11.30	10.43	12.42	10.80	14.38	14.31	13.56
14	12.32	10.68	10.16	11.20	14.47	11.01	10.69	12.60	11.18	14.55	14.43	13.20
15	12.27	10.73	10.07	11.48	14.63	10.76	10.78	12.79	11.58	14.62	14.47	13.15
16	11.72	10.88	10.14	11.72	14.79	10.48	10.99	12.71	12.00	14.67	14.44	13.23
17	11.02	10.43	10.47	11.78	14.60	10.23	11.51	12.04	12.28	14.86	13.88	13.43
18	11.06	10.16	10.65	12.06	14.67	10.23	11.87	11.61	12.15	14.89	13.70	13.50
19	10.98	10.20	10.64	12.13	14.80	10.51	11.86	11.35	12.19	14.80	13.86	12.78
20	11.13	10.31	10.48	12.25	14.76	10.33	11.90	11.27	12.16	14.87	13.98	11.90
21	11.37	10.33	10.61	12.55	14.46	9.67	11.90	11.32	11.49	14.87	14.04	11.64
22	11.58	10.18	10.76	12.72	13.87	9.92	11.55	11.49	11.10	14.85	14.09	11.47
23	11.83	10.31	11.02	12.81	13.01	10.22	11.44	11.63	10.95	14.37	14.28	10.51
24	12.10	10.48	11.23	13.10	12.83	10.52	11.54	11.11	11.12	14.34	14.46	10.14
25	12.19	10.67	11.09	13.23	12.78	10.72	11.63	10.06	11.33	14.60	14.51	10.20
26	11.54	10.93	11.55	13.25	12.67	10.94	11.72	9.90	11.53	14.73	14.60	10.40
27	11.14	11.01	11.72	13.54	12.56	11.24	11.98	9.95	11.81	14.71	14.62	10.56
28	11.09	11.12	11.67	13.57	12.57	11.48	12.18	10.01	12.22	14.78	14.70	10.45
29	11.15	11.03	11.78	13.62	---	11.55	12.30	10.07	12.54	14.93	14.77	10.51
30	10.72	11.11	11.69	13.85	---	11.50	12.53	10.31	12.80	15.11	14.82	10.74
31	10.13	---	11.45	13.88	---	11.18	---	10.52	---	15.21	14.65	---
MEAN	12.87	10.70	11.50	11.77	13.88	11.16	11.40	11.87	11.13	14.37	14.45	12.40
MAX	15.72	11.59	13.03	13.88	14.80	12.65	12.53	13.31	12.80	15.21	15.10	14.64
MIN	10.13	9.99	10.07	10.00	12.56	9.67	10.09	9.90	9.28	13.02	13.70	10.14



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

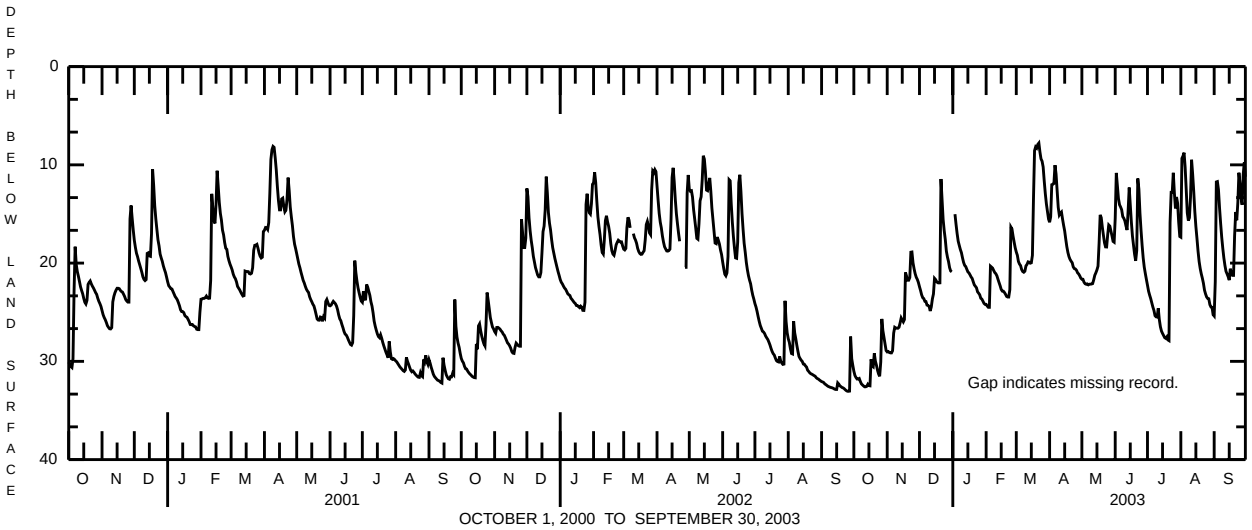
POTTER COUNTY

414640077493801. Local number, PO 72.

LOCATION.--Lat 41°46'40", long 77°49'38", Hydrologic Unit 02050205, at Denton Hill State Park, and near Walton.
Owner: U.S. Geological Survey.
AQUIFER.--Catskill Formation, Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 110 ft, cased to 21 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,810 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of metal shelf, 3.68 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.
PERIOD OF RECORD.--October 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 5.20 ft below land-surface datum, Mar. 23, 1968; lowest, 39.12 ft below land-surface datum, Dec. 11, 1987.
EXTREMES FOR CURRENT YEAR.--Highest water level, 7.29 ft below land-surface datum, Mar. 22; lowest, 32.59 ft below land-surface datum, Oct. 11, 12.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31.00	29.04	22.40	---	24.20	18.87	15.84	21.64	15.45	22.25	17.36	25.38
2	31.44	29.00	22.78	---	24.37	19.20	15.29	21.65	10.82	22.86	9.34	21.90
3	31.65	29.10	23.22	15.02	24.50	19.83	12.02	21.95	12.11	23.26	9.11	11.74
4	31.80	29.14	23.52	16.05	24.50	20.10	11.97	22.10	13.42	23.61	8.76	11.70
5	31.79	29.14	23.61	16.98	20.31	20.25	11.90	22.15	14.06	24.05	10.23	12.52
6	31.74	28.92	23.88	17.77	20.41	20.65	10.03	22.12	14.29	24.47	12.48	14.41
7	32.04	27.12	23.91	18.20	20.51	20.86	10.94	22.21	14.57	24.81	14.90	15.95
8	32.29	26.53	24.27	18.61	20.75	20.93	12.62	22.15	15.27	25.35	15.67	17.37
9	32.40	26.60	24.31	18.94	20.96	20.83	14.32	22.14	15.44	25.47	15.38	18.49
10	32.50	26.63	24.42	19.46	21.08	20.28	15.10	22.13	15.71	25.49	13.29	19.47
11	32.59	26.63	24.87	19.92	21.30	20.13	14.92	22.09	16.22	24.60	9.48	20.23
12	32.59	26.53	24.46	20.23	21.65	19.87	14.80	21.70	16.63	25.74	10.94	20.84
13	32.54	26.08	23.65	20.35	21.98	19.90	15.50	21.24	14.68	26.47	12.73	21.10
14	32.33	25.58	23.14	20.62	22.31	20.01	16.14	20.99	12.31	26.92	14.75	21.38
15	32.47	25.78	21.55	20.89	22.68	19.97	16.73	20.69	14.07	27.16	16.27	21.73
16	32.49	25.98	21.68	21.00	22.85	19.21	17.56	20.31	15.80	27.37	17.50	20.57
17	29.79	25.75	21.89	21.19	22.86	13.46	18.32	18.01	17.24	27.59	18.78	21.04
18	30.47	20.95	22.00	21.41	22.99	8.55	18.92	15.09	18.17	27.66	19.84	21.25
19	30.56	21.33	22.02	21.56	23.17	8.17	19.34	15.37	19.09	27.51	20.55	21.25
20	29.19	21.74	22.01	21.90	23.39	8.29	19.62	16.33	19.77	27.82	21.09	17.23
21	29.97	21.74	11.44	22.22	23.45	7.92	19.81	17.14	18.72	27.89	21.54	14.80
22	30.39	21.47	13.54	22.36	23.45	7.78	19.96	17.92	11.39	15.87	22.05	15.64
23	30.91	18.89	15.56	22.51	22.71	8.69	20.39	18.35	12.47	12.80	22.75	13.82
24	31.29	18.87	16.69	22.92	16.33	9.39	20.56	18.36	14.91	12.80	23.14	10.80
25	31.52	19.98	17.60	23.06	16.52	9.63	20.60	17.11	16.65	10.81	23.45	11.89
26	30.06	20.58	18.78	23.22	17.25	10.22	20.73	16.12	18.19	12.87	23.60	13.40
27	25.68	21.08	19.38	23.58	17.85	11.64	20.99	16.24	19.47	14.43	23.63	14.07
28	26.88	21.44	19.84	23.66	18.43	12.94	21.10	16.73	20.41	13.27	24.23	10.98
29	27.56	21.66	20.46	23.87	---	13.97	21.29	17.23	21.07	13.90	24.46	9.76
30	28.24	21.97	20.80	24.10	---	14.74	21.53	17.79	21.67	15.83	24.50	11.21
31	28.90	---	20.89	24.20	---	15.52	---	17.87	---	17.29	25.25	---
MEAN	30.81	24.51	21.24	20.89	21.53	15.54	16.96	19.45	16.00	21.88	17.65	16.73
MAX	32.59	29.14	24.87	24.20	24.50	20.93	21.53	22.21	21.67	27.89	25.25	25.38
MIN	25.68	18.87	11.44	15.02	16.33	7.78	10.03	15.09	10.82	10.81	8.76	9.76



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

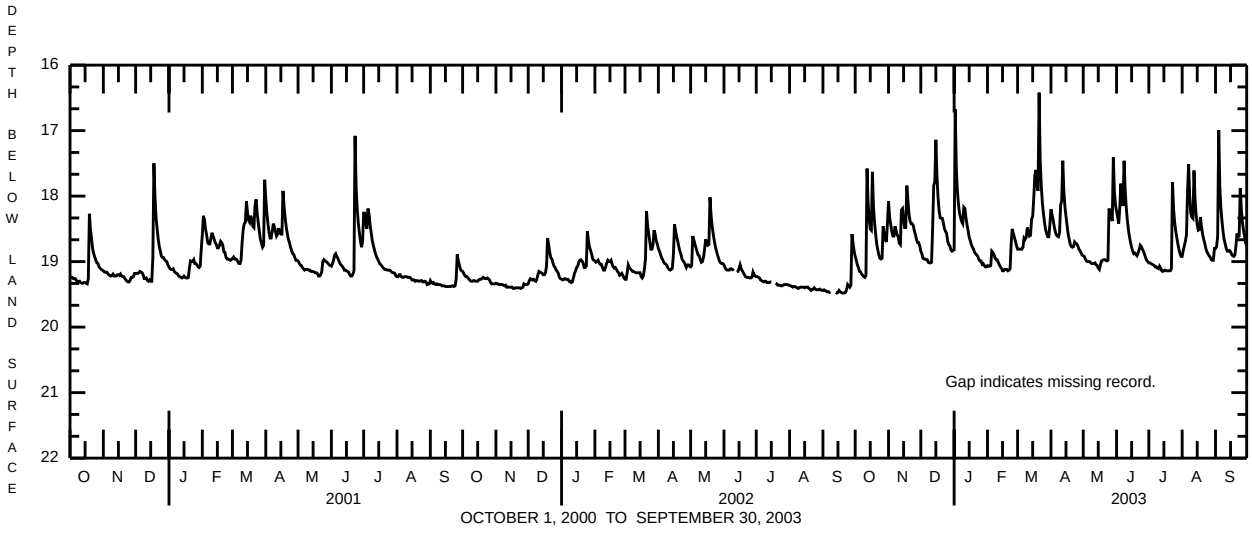
SNYDER COUNTY

403939076591001. Local number, SN 130.

LOCATION.--Lat 40°39'39", long 76°59'10", Hydrologic Unit 02050301, at State Game Land No. 194, and at Meiserville.
Owner: U.S. Geological Survey.
AQUIFER.--Irish Valley member of Catskill Formation, Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 100 ft, cased to 40 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 740 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of metal shelf, 3.47 ft above land-surface datum. Prior to July 3, 2000, measuring point was 3.55 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since October 1997, are also available from the District Office.
PERIOD OF RECORD.--June 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 11.51 ft below land-surface datum, Jan. 19, 1996 (may have been higher during period of no record, Jan. 1-18); lowest, 19.63 ft below land-surface datum, Jan. 1, 2, 1999.
EXTREMES FOR CURRENT YEAR.--Highest water level, 14.67 ft below land-surface datum, Mar. 21; lowest, 19.24 ft below land-surface datum, Oct. 10.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.92	18.08	18.84	18.82	19.06	18.81	18.20	18.91	18.23	19.02	18.92	18.80
2	18.98	18.33	18.88	16.67	19.07	18.81	18.28	18.92	18.32	19.02	18.83	18.77
3	19.05	18.43	18.95	17.56	19.07	18.81	18.36	18.96	18.42	19.03	18.76	18.62
4	19.09	18.54	18.96	17.92	19.06	18.81	18.46	18.99	18.18	19.04	18.69	16.99
5	19.15	18.61	18.96	18.12	18.84	18.81	18.54	19.00	17.81	19.05	18.59	17.86
6	19.16	18.61	18.97	18.26	18.86	18.78	18.59	19.00	18.07	19.06	17.93	18.18
7	19.19	18.46	18.97	18.33	18.89	18.64	18.61	19.00	18.15	19.08	17.51	18.38
8	19.21	18.52	19.01	18.39	18.94	18.66	18.62	19.02	17.46	19.08	18.01	18.54
9	19.23	18.59	19.02	18.42	18.97	18.63	18.56	19.03	17.91	19.10	18.26	18.66
10	19.24	18.62	19.02	18.17	18.97	18.48	18.14	19.03	18.17	19.11	18.32	18.73
11	19.21	18.72	19.01	18.19	19.01	18.54	18.07	19.03	18.36	19.07	18.34	18.80
12	17.58	18.74	18.48	18.33	19.05	18.61	17.46	19.02	18.51	19.10	17.61	18.84
13	18.10	18.21	17.84	18.44	19.08	18.60	17.93	19.05	18.62	19.14	18.06	18.84
14	18.35	18.19	17.78	18.53	19.10	18.35	18.16	19.06	18.71	19.15	18.29	18.83
15	18.50	18.36	17.14	18.63	19.14	18.31	18.31	19.10	18.78	19.14	18.44	18.85
16	18.52	18.48	17.68	18.68	19.14	18.04	18.45	19.12	18.84	19.13	18.52	18.89
17	17.63	18.48	18.02	18.74	19.12	17.69	18.58	19.05	18.88	19.14	18.51	18.91
18	18.16	17.84	18.22	18.78	19.12	17.60	18.66	18.99	18.87	19.14	18.32	18.92
19	18.40	18.06	18.33	18.81	19.12	17.83	18.74	18.98	18.89	19.14	18.47	18.90
20	18.58	18.27	18.34	18.86	19.14	17.92	18.77	18.97	18.91	19.14	18.58	18.76
21	18.73	18.38	18.34	18.88	19.13	16.42	18.78	18.97	18.87	19.14	18.66	18.57
22	18.82	18.42	18.41	18.90	19.11	17.45	18.77	18.98	18.82	19.11	18.72	18.62
23	18.90	18.42	18.50	18.92	18.74	17.84	18.70	18.99	18.75	17.79	18.80	18.61
24	18.95	18.45	18.54	18.97	18.50	18.10	18.72	18.98	18.77	18.19	18.85	17.88
25	18.96	18.53	18.57	18.99	18.57	18.26	18.73	18.19	18.81	18.40	18.88	18.20
26	18.95	18.59	18.69	18.99	18.63	18.40	18.76	18.27	18.84	18.53	18.91	18.40
27	18.46	18.66	18.74	19.04	18.69	18.51	18.81	18.32	18.89	18.63	18.93	18.52
28	18.58	18.71	18.76	19.03	18.76	18.57	18.83	18.38	18.94	18.73	18.97	18.61
29	18.66	18.71	18.82	19.06	---	18.62	18.87	17.41	18.98	18.81	18.98	18.71
30	18.70	18.76	18.84	19.08	---	18.62	18.90	17.94	19.00	18.88	18.98	18.76
31	18.41	---	18.83	19.08	---	18.44	---	18.14	---	18.92	18.80	---
MEAN	18.72	18.46	18.56	18.57	18.96	18.32	18.51	18.80	18.56	18.94	18.53	18.57
MAX	19.24	18.76	19.02	19.08	19.14	18.81	18.90	19.12	19.00	19.15	18.98	18.92
MIN	17.58	17.84	17.14	16.67	18.50	16.42	17.46	17.41	17.46	17.79	17.51	16.99



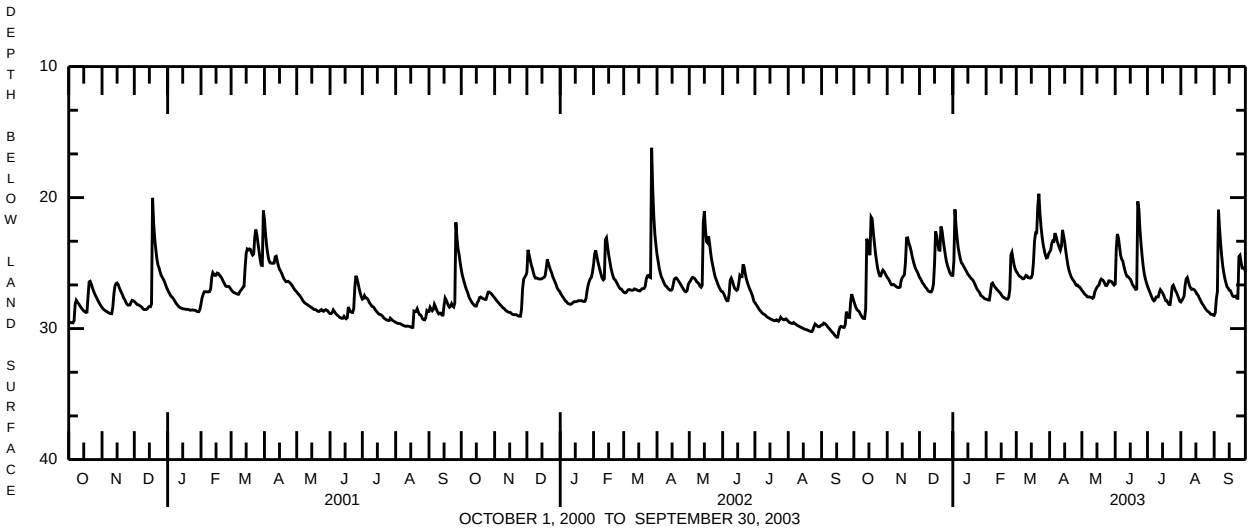
SULLIVAN COUNTY

413026076352901. Local number, SU 34.

LOCATION.--Lat 41°30'26", long 76°35'29", Hydrologic Unit 02050206, near Forksville.
Owner: U.S. Geological Survey.
AQUIFER.--Catskill Formation, Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 50 ft, cased to 34 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,060 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.72 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.
PERIOD OF RECORD.--April 1965 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 7.42 ft below land-surface datum, June 23, 1972; lowest, 31.12 ft below land-surface datum, Sept. 4, 1966.
EXTREMES FOR CURRENT YEAR.--Highest water level, 17.81 ft below land-surface datum, Sept. 4; lowest, 29.23 ft below land-surface datum, Oct. 10, 11.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.92	26.09	26.09	25.94	27.75	25.64	24.15	27.08	26.60	26.76	27.97	28.99
2	28.18	26.19	26.20	24.87	27.78	25.75	24.02	27.18	23.87	26.98	27.85	28.79
3	28.41	26.34	26.36	20.90	27.82	25.90	23.50	27.30	22.78	27.18	27.70	27.75
4	28.57	26.53	26.54	22.16	27.82	26.00	23.30	27.40	23.08	27.39	27.53	27.17
5	28.63	26.66	26.62	23.09	27.24	26.05	23.33	27.46	23.73	27.60	26.69	20.93
6	28.71	26.66	26.77	23.83	26.58	26.11	22.71	27.58	24.39	27.78	26.21	22.37
7	28.89	26.63	26.88	24.28	26.52	26.20	22.96	27.59	24.71	27.88	26.10	23.51
8	29.03	26.70	26.98	24.67	26.67	26.19	23.31	27.58	24.83	27.81	26.40	24.49
9	29.16	26.77	27.11	24.98	26.81	26.08	23.57	27.61	25.21	27.59	26.71	25.25
10	29.23	26.83	27.17	25.08	26.90	25.94	23.82	27.63	25.56	27.58	26.89	25.77
11	29.23	26.87	27.20	25.23	27.02	25.98	24.02	27.69	25.84	27.58	27.01	26.20
12	28.50	26.87	27.20	25.38	27.10	26.11	23.71	27.61	26.01	27.25	26.98	26.53
13	23.14	26.83	27.02	25.54	27.19	26.12	22.47	27.19	26.04	27.03	27.01	26.82
14	23.43	26.32	26.62	25.68	27.27	26.15	22.91	27.02	26.14	27.14	27.08	26.91
15	24.19	26.11	25.09	25.85	27.41	26.11	23.39	26.85	26.22	27.27	27.21	27.07
16	24.39	26.01	22.58	25.94	27.52	25.86	24.06	26.74	26.40	27.45	27.37	27.10
17	21.48	25.89	22.93	26.06	27.61	24.92	24.62	26.66	26.63	27.65	27.45	27.29
18	21.62	24.93	23.46	26.17	27.65	23.30	25.17	26.36	26.75	27.87	27.64	27.48
19	22.58	23.09	24.00	26.24	27.71	22.69	25.55	26.22	26.87	27.87	27.80	27.56
20	23.38	23.07	24.02	26.35	27.75	22.69	25.81	26.27	27.01	28.03	27.98	27.55
21	24.18	23.45	22.21	26.51	27.75	20.71	26.05	26.35	26.98	28.16	28.12	27.52
22	24.79	23.68	22.52	26.70	27.62	19.71	26.19	26.52	20.29	28.16	28.23	27.68
23	25.35	23.99	23.20	26.89	27.01	21.17	26.32	26.70	20.91	27.57	28.37	27.69
24	25.71	24.39	23.81	27.05	24.40	22.20	26.43	26.72	22.43	26.78	28.50	24.51
25	25.97	24.77	24.35	27.15	24.19	22.99	26.59	26.59	23.53	26.69	28.60	24.41
26	25.98	25.07	24.86	27.27	24.70	23.59	26.70	26.36	24.46	26.89	28.68	24.93
27	25.71	25.34	25.17	27.47	25.15	24.00	26.68	26.36	25.24	27.11	28.73	25.38
28	25.54	25.53	25.43	27.53	25.45	24.38	26.80	26.40	25.80	27.25	28.83	25.39
29	25.64	25.67	25.69	27.59	---	24.61	26.83	26.44	26.21	27.46	28.91	25.37
30	25.78	25.87	25.85	27.68	---	24.58	26.96	26.59	26.49	27.67	28.92	25.65
31	25.94	---	25.95	27.73	---	24.30	---	26.68	---	27.91	28.97	---
MEAN	26.11	25.64	25.35	25.74	26.87	24.58	24.73	26.93	25.03	27.46	27.69	26.14
MAX	29.23	26.87	27.20	27.73	27.82	26.20	26.96	27.69	27.01	28.16	28.97	28.99
MIN	21.48	23.07	22.21	20.90	24.19	19.71	22.47	26.22	20.29	26.69	26.10	20.93



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

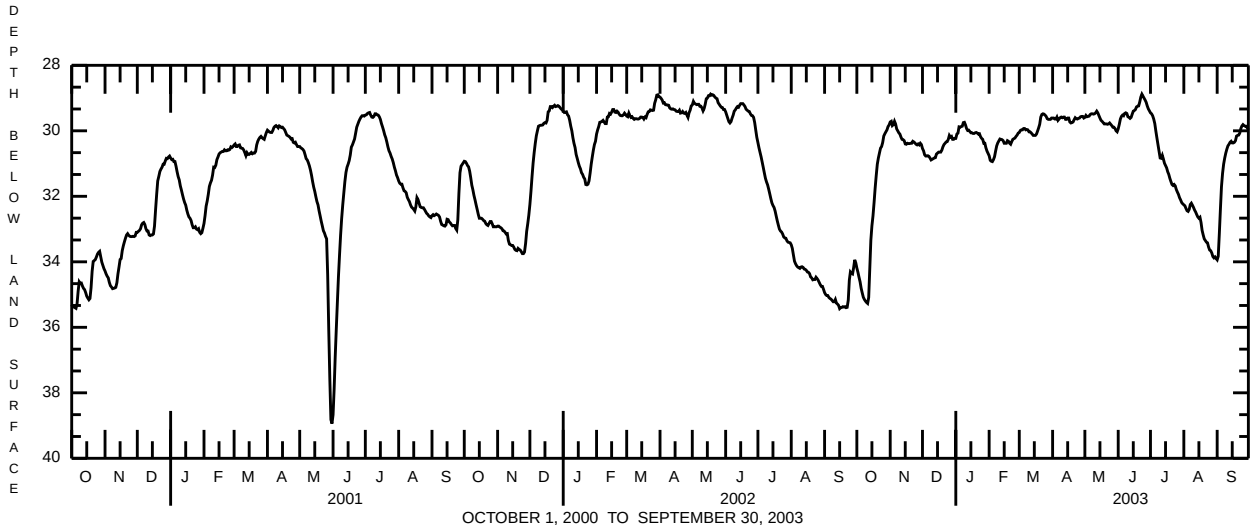
SUSQUEHANNA COUNTY

415323077451301. Local number, SQ 61.

LOCATION.--Lat 41°53'23", long 75°45'13", Hydrologic Unit 02050101, at State Game Land No. 175, and at New Milford.
Owner: U.S. Geological Survey.
AQUIFER.--Catskill Formation, Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 175 ft, cased to 80 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,270 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.00 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.
PERIOD OF RECORD.--July 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 21.49 ft below land-surface datum, Apr. 3, 1978; lowest, 38.94 ft below land-surface datum, May 31, 2001.
EXTREMES FOR CURRENT YEAR.--Highest water level, 28.83 ft below land-surface datum, June 23; lowest, 35.27 ft below land-surface datum, Oct. 11.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34.19	29.73	30.54	30.23	30.76	30.05	29.61	29.59	29.94	29.45	32.26	33.94
2	34.32	29.71	30.61	30.10	30.90	29.99	29.61	29.53	29.80	29.48	32.29	33.83
3	34.47	29.84	30.73	30.07	30.93	29.97	29.64	29.57	29.64	29.54	32.37	33.14
4	34.61	29.81	30.77	29.88	30.94	29.97	29.64	29.56	29.56	29.64	32.44	32.40
5	34.81	29.71	30.77	29.89	30.88	29.93	29.58	29.55	29.52	29.78	32.46	31.71
6	34.95	29.79	30.76	29.87	30.79	29.93	29.68	29.50	29.54	30.01	32.40	31.30
7	35.08	29.94	30.78	29.86	30.62	29.97	29.64	29.48	29.47	30.22	32.25	31.02
8	35.15	30.00	30.83	29.75	30.46	29.96	29.60	29.48	29.45	30.43	32.21	30.83
9	35.20	30.06	30.89	29.74	30.37	29.97	29.58	29.49	29.47	30.63	32.27	30.68
10	35.24	30.10	30.87	29.82	30.31	30.03	29.60	29.48	29.57	30.83	32.34	30.56
11	35.27	30.19	30.85	29.93	30.25	30.03	29.58	29.45	29.59	30.84	32.42	30.46
12	35.09	30.26	30.83	29.99	30.26	30.06	29.58	29.40	29.62	30.75	32.48	30.41
13	34.23	30.27	30.82	29.98	30.27	30.10	29.65	29.45	29.59	30.86	32.56	30.35
14	33.34	30.30	30.71	30.02	30.30	30.14	29.65	29.53	29.49	30.99	32.63	30.32
15	32.90	30.40	30.68	30.06	30.38	30.14	29.61	29.61	29.40	31.06	32.67	30.37
16	32.60	30.41	30.65	30.06	30.38	30.14	29.61	29.68	29.38	31.13	32.64	30.37
17	32.19	30.38	30.65	30.08	30.38	30.10	29.73	29.71	29.35	31.25	32.80	30.35
18	31.75	30.39	30.65	30.08	30.30	30.01	29.76	29.75	29.27	31.33	33.04	30.30
19	31.37	30.39	30.59	30.06	30.32	29.91	29.75	29.79	29.25	31.45	33.18	30.16
20	31.02	30.38	30.49	30.05	30.38	29.80	29.73	29.79	29.24	31.55	33.30	30.14
21	30.83	30.38	30.42	30.07	30.41	29.58	29.66	29.79	29.12	31.64	33.35	30.13
22	30.68	30.32	30.38	30.10	30.33	29.50	29.60	29.80	28.97	31.67	33.40	30.07
23	30.53	30.34	30.34	30.09	30.26	29.48	29.63	29.79	28.88	31.64	33.42	29.93
24	30.48	30.37	30.33	30.18	30.24	29.49	29.64	29.76	28.94	31.68	33.55	29.85
25	30.36	30.41	30.26	30.23	30.22	29.52	29.62	29.80	29.00	31.79	33.64	29.81
26	30.16	30.43	30.14	30.26	30.17	29.56	29.61	29.84	29.06	31.87	33.66	29.84
27	30.09	30.40	30.19	30.38	30.13	29.63	29.57	29.89	29.13	31.94	33.73	29.86
28	30.03	30.43	30.17	30.38	30.07	29.65	29.56	29.89	29.24	32.04	33.84	29.86
29	29.97	30.38	30.26	30.52	---	29.65	29.56	29.93	29.33	32.11	33.88	29.91
30	29.87	30.42	30.26	30.62	---	29.65	29.61	30.00	29.39	32.19	33.85	29.97
31	29.82	---	30.23	30.69	---	29.61	---	30.03	---	32.23	33.90	---
MEAN	32.60	30.20	30.56	30.10	30.43	29.86	29.63	29.67	29.37	31.03	32.94	30.73
MAX	35.27	30.43	30.89	30.69	30.94	30.14	29.76	30.03	29.94	32.23	33.90	33.94
MIN	29.82	29.71	30.14	29.74	30.07	29.48	29.56	29.40	28.88	29.45	32.21	29.81



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

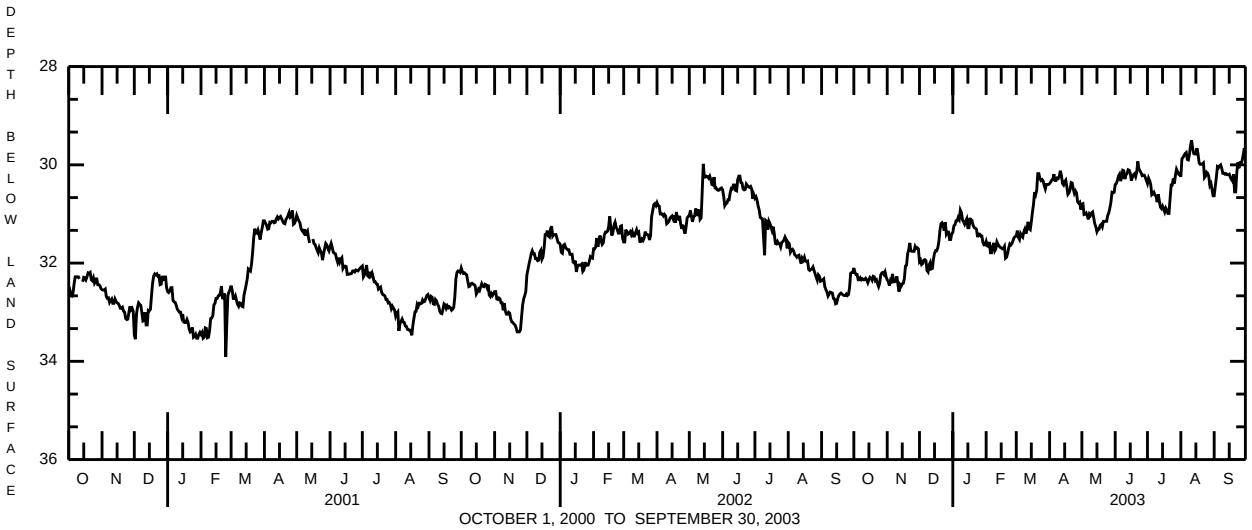
TIOGA COUNTY

414513077333701. Local number, TI 100.

LOCATION.--Lat 41°45'13", long 77°33'37", Hydrologic Unit 02050205, at State Game Land No. 208, and at Gaines.
Owner: U.S. Geological Survey.
AQUIFER.--Catskill Formation, Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 5 in., depth 77 ft, cased to 67 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,310 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 4.00 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since July 1999, are also available from the District Office.
PERIOD OF RECORD.--July 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 28.95 ft below land-surface datum, July 13, 1998; lowest, 35.88 ft below land-surface datum, Oct. 11, 1988.
EXTREMES FOR CURRENT YEAR.--Highest water level, 29.42 ft below land-surface datum, Aug. 10; lowest, 32.58 ft below land-surface datum, Nov. 12.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32.10	32.34	31.97	31.38	31.56	31.45	30.38	30.80	30.40	30.38	30.24	30.63
2	32.19	32.37	31.94	31.24	31.65	31.34	30.35	30.79	30.38	30.27	29.88	30.44
3	32.23	32.46	32.03	31.22	31.66	31.48	30.31	31.01	30.32	30.32	29.85	30.26
4	32.23	32.36	32.01	31.14	31.57	31.52	30.30	31.00	30.23	30.40	29.81	30.04
5	32.34	32.41	31.94	31.14	31.79	31.40	30.19	30.98	30.19	30.61	29.77	30.06
6	32.34	32.22	31.93	31.07	31.79	31.44	30.32	31.04	30.33	30.59	29.75	30.02
7	32.30	32.38	31.95	31.11	31.66	31.47	30.32	31.11	30.26	30.56	29.89	30.00
8	32.34	32.38	32.15	30.92	31.59	31.37	30.27	31.00	30.11	30.62	29.90	30.07
9	32.32	32.35	32.18	30.97	31.75	31.31	30.28	31.03	30.12	30.64	29.79	30.17
10	32.34	32.27	32.04	31.12	31.71	31.40	30.23	30.98	30.29	30.76	29.61	30.17
11	32.34	32.44	31.99	31.16	31.57	31.32	30.12	30.96	30.20	30.60	29.50	30.19
12	32.31	32.58	32.12	31.21	31.62	31.16	30.22	31.08	30.18	30.73	29.66	30.18
13	32.34	32.44	32.11	31.15	31.65	31.30	30.38	31.20	30.10	30.86	29.77	30.20
14	32.40	32.47	31.92	31.10	31.68	31.32	30.41	31.26	30.11	30.89	29.78	30.20
15	32.34	32.42	31.80	31.28	31.69	31.16	30.34	31.36	30.17	30.84	29.78	30.19
16	32.29	32.41	31.75	31.28	31.71	30.97	30.31	31.31	30.32	30.90	29.66	30.25
17	32.31	32.31	31.75	31.08	31.70	30.81	30.44	31.31	30.26	30.96	29.78	30.30
18	32.35	32.06	31.69	31.17	31.66	30.56	30.60	31.23	30.20	30.88	29.96	30.33
19	32.27	32.04	31.57	31.15	31.90	30.61	30.57	31.21	30.18	30.92	29.99	30.19
20	32.28	31.81	31.34	31.24	31.88	30.52	30.51	31.26	30.24	30.99	29.99	30.55
21	32.36	31.73	31.20	31.28	31.80	30.18	30.36	31.15	30.15	30.99	29.98	30.55
22	32.34	31.59	31.18	31.29	31.69	30.18	30.37	31.15	29.93	30.69	29.96	30.16
23	32.42	31.75	31.23	31.31	31.61	30.28	30.49	31.15	30.08	30.41	30.26	29.95
24	32.48	31.76	31.34	31.47	31.63	30.32	30.58	31.15	30.12	30.41	30.23	30.07
25	32.41	31.76	31.17	31.41	31.60	30.30	30.53	31.03	30.16	30.28	30.15	29.96
26	32.24	31.76	31.41	31.41	31.54	30.33	30.57	30.98	30.22	30.38	30.17	29.97
27	32.20	31.66	31.37	31.45	31.48	30.42	30.75	30.88	30.21	30.21	30.24	29.91
28	32.19	31.70	31.37	31.45	31.46	30.49	30.78	30.76	30.21	30.09	30.42	29.80
29	32.23	31.69	31.52	31.58	---	30.40	30.76	30.56	30.26	30.14	30.38	29.66
30	32.18	31.71	31.52	31.63	---	30.40	30.91	30.57	30.32	30.19	30.50	29.76
31	32.28	---	31.40	31.63	---	30.40	---	30.56	---	30.19	30.63	---
MEAN	32.30	32.12	31.71	31.26	31.66	30.89	30.43	31.03	30.21	30.57	29.98	30.14
MAX	32.48	32.58	32.18	31.63	31.90	31.52	30.91	31.36	30.40	30.99	30.63	30.63
MIN	32.10	31.59	31.17	30.92	31.46	30.18	30.12	30.56	29.93	30.09	29.50	29.66



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

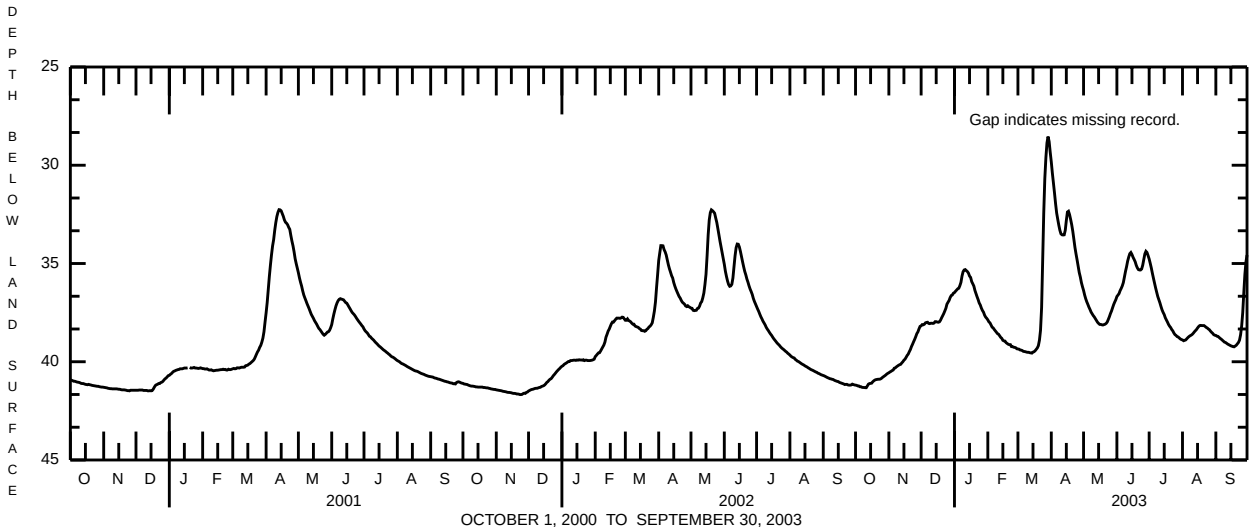
UNION COUNTY

405928077115501. Local number, UN 51.

LOCATION.--Lat 40°59'28", long 77°11'55", Hydrologic Unit 02050206, at Raymond B. Winter Park, and 5.5 mi east of Livonia. Owner: U.S. Geological Survey.
AQUIFER.--Reedsville Formation, Late Ordovician age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 115 ft, cased to 91 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,550 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder shelf, 3.54 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.
PERIOD OF RECORD.--October 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 25.26 ft below land-surface datum, Apr. 10, 1978; lowest, 42.31 ft below land-surface datum, Jan. 18, 1999.
EXTREMES FOR CURRENT YEAR.--Highest water level, 28.39 ft below land-surface datum, Mar. 29; lowest, 41.32 ft below land-surface datum, Oct. 10, 11.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41.19	40.56	38.17	36.48	37.87	39.35	29.83	36.37	36.68	34.77	38.89	38.66
2	41.20	40.52	38.11	36.41	37.97	39.36	30.40	36.60	36.61	34.99	38.93	38.70
3	41.23	40.49	38.12	36.35	38.02	39.40	30.90	36.79	36.53	35.23	38.91	38.71
4	41.23	40.45	38.09	36.29	38.13	39.41	31.42	36.95	36.38	35.50	38.89	38.76
5	41.27	40.42	38.02	36.26	38.24	39.43	31.96	37.08	36.27	35.75	38.83	38.81
6	41.27	40.33	38.00	36.13	38.28	39.47	32.43	37.22	36.14	36.00	38.77	38.85
7	41.30	40.31	37.99	35.96	38.36	39.48	32.75	37.34	35.97	36.24	38.72	38.90
8	41.31	40.26	38.05	35.64	38.43	39.49	33.05	37.47	35.69	36.46	38.68	38.95
9	41.31	40.22	38.06	35.42	38.50	39.51	33.31	37.56	35.40	36.68	38.65	39.00
10	41.32	40.18	38.04	35.33	38.57	39.52	33.49	37.65	35.16	36.84	38.61	39.02
11	41.32	40.15	38.04	35.31	38.60	39.52	33.54	37.72	34.88	37.00	38.55	39.06
12	41.23	40.13	38.05	35.36	38.68	39.54	33.55	37.81	34.67	37.19	38.48	39.10
13	41.14	40.06	38.03	35.41	38.76	39.55	33.54	37.90	34.50	37.36	38.42	39.13
14	41.11	40.00	37.96	35.49	38.81	39.56	33.31	37.99	34.44	37.49	38.36	39.16
15	41.10	39.92	37.96	35.64	38.91	39.51	32.81	38.05	34.54	37.60	38.28	39.19
16	41.09	39.87	37.98	35.71	38.94	39.49	32.38	38.10	34.68	37.76	38.21	39.21
17	41.02	39.78	37.99	35.92	38.95	39.44	32.34	38.10	34.79	37.87	38.16	39.23
18	40.97	39.68	37.97	36.03	39.03	39.37	32.51	38.12	34.91	37.98	38.15	39.24
19	40.93	39.61	37.89	36.15	39.07	39.30	32.76	38.13	35.09	38.10	38.16	39.20
20	40.91	39.49	37.77	36.37	39.11	39.18	33.03	38.11	35.22	38.19	38.16	39.16
21	40.90	39.38	37.66	36.53	39.13	38.90	33.36	38.09	35.31	38.26	38.16	39.09
22	40.89	39.23	37.55	36.69	39.13	38.40	33.77	38.05	35.33	38.36	38.20	39.02
23	40.89	39.11	37.42	36.84	39.23	37.24	34.18	37.98	35.33	38.43	38.25	38.90
24	40.88	38.98	37.28	37.01	39.23	34.83	34.51	37.85	35.28	38.54	38.28	38.63
25	40.85	38.86	37.07	37.11	39.26	32.43	34.82	37.71	35.09	38.62	38.33	38.18
26	40.80	38.72	36.97	37.27	39.27	30.68	35.14	37.55	34.80	38.66	38.37	37.50
27	40.76	38.57	36.88	37.39	39.29	29.60	35.46	37.42	34.51	38.72	38.44	36.50
28	40.72	38.48	36.73	37.48	39.34	28.86	35.69	37.25	34.38	38.74	38.50	35.55
29	40.68	38.33	36.63	37.63	---	28.54	35.97	37.09	34.44	38.79	38.55	34.92
30	40.63	38.20	36.60	37.73	---	28.79	36.18	36.96	34.60	38.84	38.62	34.57
31	40.59	---	36.51	37.79	---	29.33	---	36.84	---	38.87	38.65	---
MEAN	41.03	39.68	37.66	36.36	38.75	36.98	33.28	37.54	35.25	37.41	38.49	38.43
MAX	41.32	40.56	38.17	37.79	39.34	39.56	36.18	38.13	36.68	38.87	38.93	39.24
MIN	40.59	38.20	36.51	35.31	37.87	28.54	29.83	36.37	34.38	34.77	38.15	34.57



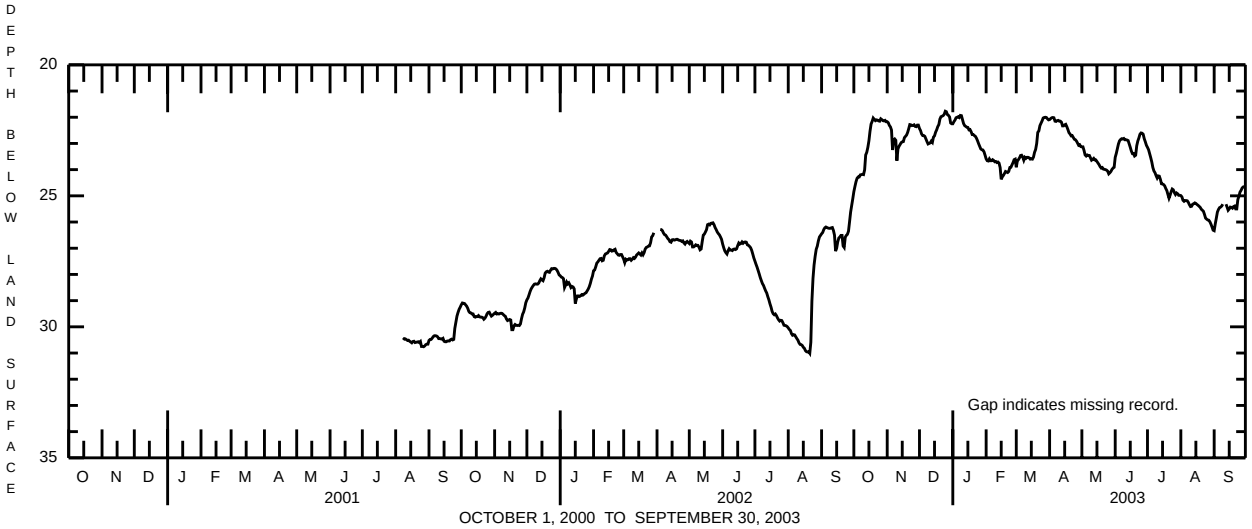
WYOMING COUNTY

412826076083301. Local number, WY 179.

LOCATION.--Lat 41°28'26", long 77°08'33", Hydrologic Unit 02050302, at State Game Land No. 57, and near Forkston.
Owner: Pennsylvania Game Commission.
AQUIFER.--Catskill Formation.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 122 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,000 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.78 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels, are also available from the District Office.
PERIOD OF RECORD.--August 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 21.69 ft below land-surface datum, Dec. 25, 2002; lowest, 31.13 ft below land-surface datum, Aug. 25, 2001.
EXTREMES FOR CURRENT YEAR.--Highest water level, 21.69 ft below land-surface datum, Dec. 25; lowest, 26.41 ft below land-surface datum, Aug. 31.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.84	22.17	22.43	22.25	23.59	23.91	22.09	23.13	23.53	23.15	24.99	26.33
2	24.64	22.21	22.51	22.17	23.66	23.67	22.05	23.13	23.38	23.24	25.04	26.07
3	24.46	22.31	22.64	22.11	23.67	23.62	22.02	23.27	23.20	23.39	25.17	25.85
4	24.33	22.37	22.70	22.02	23.59	23.55	22.01	23.44	23.02	23.54	25.21	25.62
5	24.28	22.49	22.70	22.00	23.66	23.46	22.02	23.48	22.90	23.71	25.18	25.52
6	24.28	23.25	22.73	21.98	23.66	23.45	22.15	23.44	22.85	23.92	25.18	25.45
7	24.20	22.87	22.83	22.01	23.62	23.52	22.16	23.46	22.82	24.05	25.19	25.43
8	24.19	22.83	22.93	21.93	23.65	23.64	22.13	23.46	22.83	24.12	25.25	25.39
9	24.18	22.88	23.02	21.94	23.70	23.53	22.12	23.55	22.81	24.23	25.34	25.32
10	24.19	23.66	23.00	22.09	23.69	23.57	22.15	23.64	22.86	24.32	25.41	---
11	24.01	23.21	22.98	22.24	23.73	23.53	22.15	23.61	22.86	24.24	25.40	---
12	23.44	23.11	22.91	22.32	23.71	23.53	22.19	23.57	22.87	24.25	25.32	25.32
13	23.34	23.04	22.96	22.35	23.75	23.55	22.33	23.63	22.89	24.37	25.30	25.43
14	23.15	22.97	22.76	22.38	23.92	23.60	22.33	23.63	23.02	24.54	25.27	25.55
15	22.90	22.94	22.71	22.39	24.37	23.59	22.29	23.69	23.15	24.55	25.29	25.50
16	22.54	22.93	22.57	22.48	24.28	23.60	22.27	23.75	23.29	24.57	25.33	25.43
17	22.26	22.78	22.48	22.47	24.22	23.52	22.36	23.81	23.39	24.62	25.36	25.44
18	22.16	22.73	22.36	22.55	24.15	23.34	22.47	23.89	23.39	24.72	25.40	25.47
19	22.03	22.68	22.28	22.66	24.07	23.23	22.59	23.94	23.48	24.80	25.44	25.41
20	22.08	22.58	22.07	22.66	24.09	23.00	22.64	23.92	23.45	24.95	25.51	25.39
21	22.13	22.44	21.98	22.70	24.11	22.58	22.71	23.98	23.09	25.09	25.55	25.50
22	22.10	22.28	21.96	22.73	24.07	22.52	22.70	23.99	22.91	24.98	25.59	25.50
23	22.11	22.29	21.94	22.80	23.92	22.32	22.77	24.00	22.79	24.84	25.71	25.14
24	22.14	22.32	21.89	22.90	23.91	22.23	22.84	24.02	22.65	24.74	25.85	25.02
25	22.15	22.31	21.77	23.01	23.82	22.14	22.86	24.06	22.60	24.77	25.89	24.86
26	22.06	22.29	21.79	23.11	23.73	22.03	22.91	24.16	22.61	24.88	25.92	24.79
27	22.09	22.35	21.90	23.21	23.62	22.01	22.99	24.12	22.65	24.95	25.93	24.70
28	22.13	22.36	21.93	23.24	23.60	22.00	23.07	24.07	22.82	24.89	25.99	24.66
29	22.14	22.30	21.99	23.25	---	22.01	23.05	23.99	22.94	24.92	26.08	24.65
30	22.12	22.30	22.22	23.32	---	22.06	23.12	23.94	23.07	24.98	26.19	24.66
31	22.17	---	22.25	23.45	---	22.10	---	23.91	---	24.98	26.31	---
MEAN	23.06	22.64	22.43	22.54	23.84	23.05	22.45	23.73	23.00	24.43	25.50	25.34
MAX	24.84	23.66	23.02	23.45	24.37	23.91	23.12	24.16	23.53	25.09	26.31	26.33
MIN	22.03	22.17	21.77	21.93	23.59	22.00	22.01	23.13	22.60	23.15	24.99	24.65



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

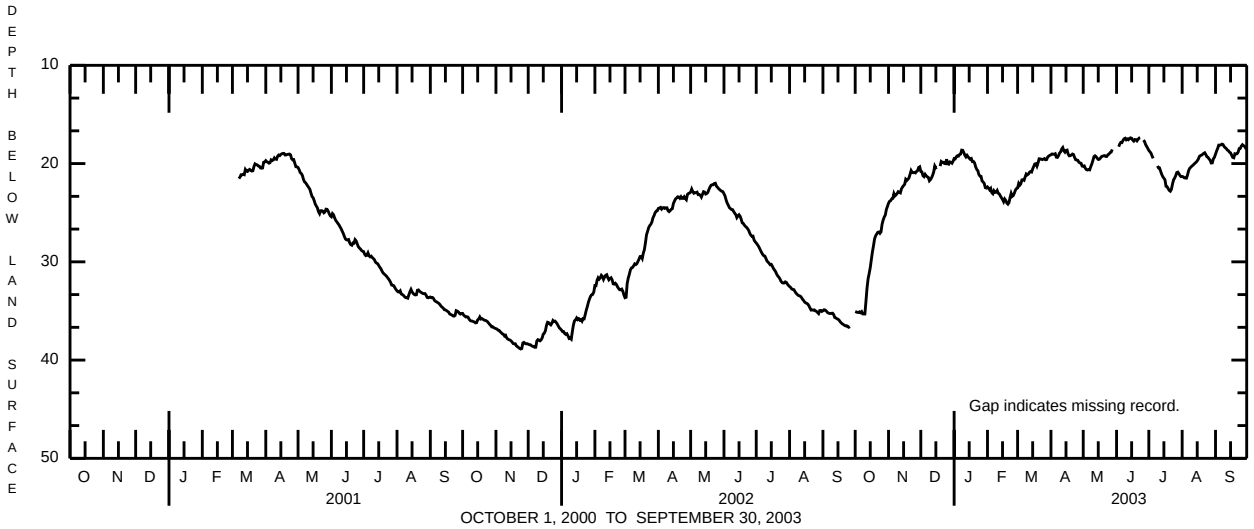
YORK COUNTY

400916076492301. Local number, YO 1147.

LOCATION.--Lat 40°09'16", long 76°49'23", Hydrologic Unit 02050305, at I83 south rest stop between exits 34 and 35.
Owner: U.S. Geological Survey.
AQUIFER.--Gettysburg Formation, Triassic age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 182 ft, cased to 41 ft.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 470 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder shelf, 2.25 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels are also available from the District Office.
PERIOD OF RECORD.--March 7, 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 17.32 ft below land-surface datum, June 14, 22, 23, 2003; lowest, 38.90 ft below land-surface datum, Sept. 24, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level, 17.32 ft below land-surface datum, June 14, 22, 23; lowest, 35.37 ft below land-surface datum, Oct. 10.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35.06	24.03	20.79	19.49	22.38	22.48	19.10	20.28	---	18.66	21.31	19.04
2	35.10	23.83	20.84	19.52	22.50	22.02	19.02	20.24	---	18.79	21.35	18.72
3	35.15	23.77	21.23	19.31	22.67	22.20	19.04	20.48	18.28	18.94	21.45	18.46
4	35.15	23.59	21.33	19.21	22.53	22.06	19.06	20.62	18.00	19.21	21.47	18.12
5	35.09	23.55	21.09	19.24	22.96	21.66	19.00	20.65	17.84	19.47	21.48	18.12
6	35.18	23.05	21.24	19.08	23.07	21.64	19.35	20.61	17.86	---	21.15	18.10
7	35.07	23.29	21.34	19.03	22.77	21.70	19.37	20.64	17.64	---	20.72	18.02
8	35.30	23.19	21.41	18.63	22.93	21.37	19.20	20.32	17.48	---	20.48	18.06
9	35.31	23.04	21.75	18.65	22.91	21.06	18.93	20.04	17.42	20.24	20.37	18.27
10	35.31	22.86	21.63	18.88	22.74	21.15	18.81	19.68	17.58	20.44	20.26	18.38
11	34.03	22.92	21.44	19.16	23.02	21.07	18.51	19.29	17.49	20.45	20.17	18.47
12	32.66	22.98	21.19	19.32	23.09	20.89	18.37	19.21	17.57	20.79	20.06	18.62
13	31.72	22.58	20.85	19.16	23.30	20.81	18.71	19.30	17.44	21.10	19.95	18.69
14	31.19	22.38	20.24	19.32	23.48	20.86	18.84	19.46	17.38	21.33	19.86	18.84
15	30.58	22.24	20.43	19.45	23.65	20.54	18.66	19.58	17.42	21.49	19.72	18.91
16	29.78	22.11	20.39	19.57	23.88	20.29	18.63	19.56	17.61	21.65	19.55	19.14
17	29.00	21.60	---	19.50	23.60	20.04	19.03	19.44	17.71	22.31	19.27	19.37
18	28.38	21.72	---	19.80	23.75	20.01	19.21	19.29	17.55	22.36	19.19	19.41
19	27.67	21.60	20.26	19.79	24.02	20.26	19.19	19.24	17.57	22.55	19.14	19.00
20	27.35	21.46	19.79	19.93	24.13	19.93	19.13	19.21	17.69	22.73	19.06	19.03
21	27.17	21.10	19.88	20.33	23.97	19.51	19.03	19.19	17.53	22.81	18.96	19.00
22	26.99	20.71	19.87	20.59	23.45	19.52	19.08	19.28	17.40	22.62	18.90	18.84
23	26.96	20.90	19.99	20.72	23.04	19.56	19.38	19.27	17.37	22.09	19.08	18.48
24	27.10	20.93	20.01	21.11	23.34	19.59	19.61	19.09	---	21.65	19.30	18.46
25	26.95	20.90	19.56	21.27	23.25	19.54	19.64	19.03	---	21.48	19.36	18.22
26	26.17	20.95	20.02	21.30	23.00	19.49	19.67	18.88	17.61	21.23	19.53	18.08
27	25.75	20.80	20.06	21.77	22.69	19.61	19.87	18.83	17.75	20.91	19.66	18.17
28	25.44	20.73	19.83	21.88	22.54	19.59	19.93	18.56	18.06	20.87	19.94	18.24
29	25.24	20.40	19.87	22.03	---	19.33	19.97	---	18.25	21.03	19.93	18.42
30	24.67	20.33	19.96	22.45	---	19.23	20.25	---	18.45	21.23	19.51	18.36
31	24.36	---	19.76	22.49	---	19.16	---	---	---	21.33	19.36	---
MEAN	30.35	22.12	20.55	20.06	23.17	20.52	19.19	19.62	17.69	21.06	19.99	18.57
MAX	35.31	24.03	21.75	22.49	24.13	22.48	20.25	20.65	18.45	22.81	21.48	19.41
MIN	24.36	20.33	19.56	18.63	22.38	19.16	18.37	18.56	17.37	18.66	18.90	18.02



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

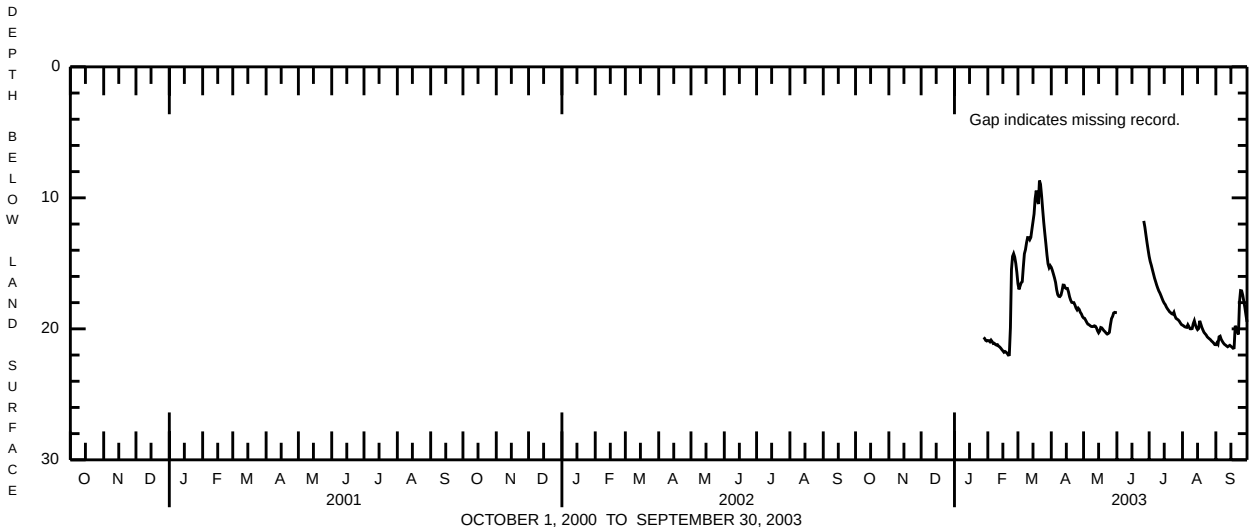
YORK COUNTY

394937076390701. Local number, YO 1223.

LOCATION.--Lat 39°49'37", long 76°39'07", Hydrologic Unit 02050306, in Spring Valley County Park, at Glen Rock.
Owner: U.S. Geological Survey.
AQUIFER.--Wissahickon Formation, Paleozoic age.
WELL CHARACTERISTICS.--Drilled unused well, diameter 6 in., depth 150 ft, cased to 24 ft.
INSTRUMENTATION.--Electronic data logger with 60-minute recording interval.
DATUM.--Elevation of land surface is 740 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of instrument shelf, 2.80 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels are also available from the District Office.
PERIOD OF RECORD.--January 27, 2003 to current year.
EXTREMES FOR CURRENT YEAR.--Highest water level, 8.51 ft below land-surface datum, Mar. 21; lowest, 22.05 ft below land-surface datum, Feb. 20.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	20.89	16.55	15.31	19.17	18.77	14.47	19.72	21.21
2	---	---	---	---	20.91	16.99	15.54	19.20	---	14.86	19.77	21.07
3	---	---	---	---	20.99	16.73	15.82	19.35	---	15.15	19.84	21.18
4	---	---	---	---	20.86	16.49	16.12	19.51	---	15.48	19.87	20.61
5	---	---	---	---	20.97	16.40	16.46	19.64	---	15.80	19.89	20.56
6	---	---	---	---	21.12	15.28	17.01	19.68	---	16.13	19.69	20.80
7	---	---	---	---	21.10	14.27	17.39	19.75	---	16.39	19.84	20.95
8	---	---	---	---	21.19	13.96	17.52	19.81	---	16.66	19.99	21.08
9	---	---	---	---	21.24	13.43	17.54	19.83	---	16.90	20.00	21.18
10	---	---	---	---	21.21	13.03	17.43	19.82	---	17.11	19.98	21.24
11	---	---	---	---	21.32	13.04	17.10	19.77	---	17.27	19.60	21.31
12	---	---	---	---	21.38	13.19	16.66	19.80	---	17.47	19.38	21.37
13	---	---	---	---	21.47	13.02	16.67	19.93	---	17.68	19.69	21.31
14	---	---	---	---	21.58	12.40	16.87	20.15	---	17.88	19.92	21.26
15	---	---	---	---	21.68	11.82	16.93	20.30	---	18.04	20.06	21.33
16	---	---	---	---	21.79	11.23	16.92	20.17	---	18.15	19.98	21.40
17	---	---	---	---	21.73	10.08	17.18	19.90	---	18.33	19.39	21.48
18	---	---	---	---	21.78	9.45	17.55	19.93	---	18.47	19.63	21.45
19	---	---	---	---	21.88	10.16	17.81	20.04	---	18.58	19.89	19.77
20	---	---	---	---	22.00	10.47	17.98	20.15	---	18.70	20.09	19.94
21	---	---	---	---	21.98	8.68	18.00	20.22	---	18.77	20.27	20.24
22	---	---	---	---	19.93	8.96	18.00	20.33	---	18.85	20.37	20.43
23	---	---	---	---	15.47	9.86	18.18	20.40	---	18.88	20.47	17.95
24	---	---	---	---	14.47	10.89	18.41	20.36	---	18.73	20.61	17.08
25	---	---	---	---	14.26	11.87	18.55	20.27	---	19.02	20.69	17.10
26	---	---	---	---	14.52	12.71	18.42	19.69	11.76	19.20	20.76	17.42
27	---	---	---	---	15.01	13.52	18.52	19.22	12.23	19.26	20.83	17.89
28	---	---	---	20.66	15.70	14.36	18.74	19.05	12.83	19.32	20.93	18.38
29	---	---	---	20.73	---	15.04	18.86	18.79	13.41	19.41	21.00	18.95
30	---	---	---	20.88	---	15.33	19.06	18.74	13.96	19.55	21.09	19.47
31	---	---	---	20.93	---	15.18	---	18.76	---	19.67	21.20	---
MEAN	---	---	---	20.80	19.94	13.04	17.42	19.73	13.83	17.75	20.14	20.18
MAX	---	---	---	20.93	22.00	16.99	19.06	20.40	18.77	19.67	21.20	21.48
MIN	---	---	---	20.66	14.26	8.68	15.31	18.74	11.76	14.47	19.38	17.08



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

The following tables contain water-quality data from wells sampled in Pennsylvania during the first year of the Ground Water Pesticides Network project. The 5-year study is being conducted by the U.S. Geological Survey in cooperation with the Pennsylvania Department of Agriculture. Sites were selected to meet project objectives in the Annual Baseline Network, the Baseline Trends Network, and Hot-Spot Trends Networks. Twenty Annual Baseline Network sites were selected in the Blue Ridge and Triassic Lowlands orchard area to fill an existing data gap in ground-water quality; sites in this network are only sampled one time as part of an occurrence survey. Sixteen Baseline Trend Network sites were selected in four hydrogeologic settings (4 sites per setting) of carbonate bedrock where wells had previous detections of pesticides. The wells in this network are sampled yearly to evaluate trends. The three Hot-Spot Trend Network sites have well water with recorded pesticide concentrations at or above the Pennsylvania Pesticides and Ground Water Strategy action levels. These wells are sampled four times per year during: 1) declining water levels; 2) stable water levels; 3) rising water levels due to spring/summer flush; and 4) rising water levels due to winter recharge. Declining water level, rising water level due to spring/summer flush, and rising water level due to winter recharge samples from the Susquehanna River Basin are included in this report. Samples are identified by network in the third heading within the table: Annual Baseline = AB, Baseline Trends = BT, Baseline Trends Quality Assurance = BT-QA, and Hot-Spot Trends = HST. Well locations are shown in Figure 9 , Figure 10, and Figure 11. The following analytical methods were used to determine results for the Annual Baseline samples: USGS National Water Quality Laboratory (NWQL)(Analyzing Agency Code 80020), pesticides - (SH2001) C-18 solid-phase extraction and capillary-column gas chromatography/mass spectrometry with selected-ion monitoring and (SH2060) graphitized carbon-based solid-phase extraction and high-performance liquid chromatography/mass spectrometry, nitrate/nitrite - colorimetry (cadmium reduction) , total coliform and E. coli bacteria - Colilert Quantitray; PA Department of Environmental Protection Laboratory (PADEP)(Analyzing Agency Code 9813), pesticides - SAC USGS1 (EPA 525.2) solid phase extraction gas chromatography/mass spectrometry and (EPA 531.1) reverse phase high performance liquid chromatography column with post-column derivatization and fluorescence detection, nitrate/nitrite - colorimetry (cadmium reduction), total coliform and E. coli bacteria - Colilert Quantitray. For the Baseline Trend and Hot-Spot Trend samples, SH2001 pesticides were analyzed at the USGS NWQL, and SAC USGS2 (EPA525.2) pesticides were analyzed at the PADEP Laboratory. Pesticides analyzed for this study are identified by analyzing agency in the table which follows study area maps. Other data for the project can be found in the annual Water Data Report PA-03-1. For additional information, contact Connie Loper at the U.S. Geological Survey, 215 Limekiln Road, New Cumberland, PA 17070; 717-730-6976 (email caloper@usgs.gov).

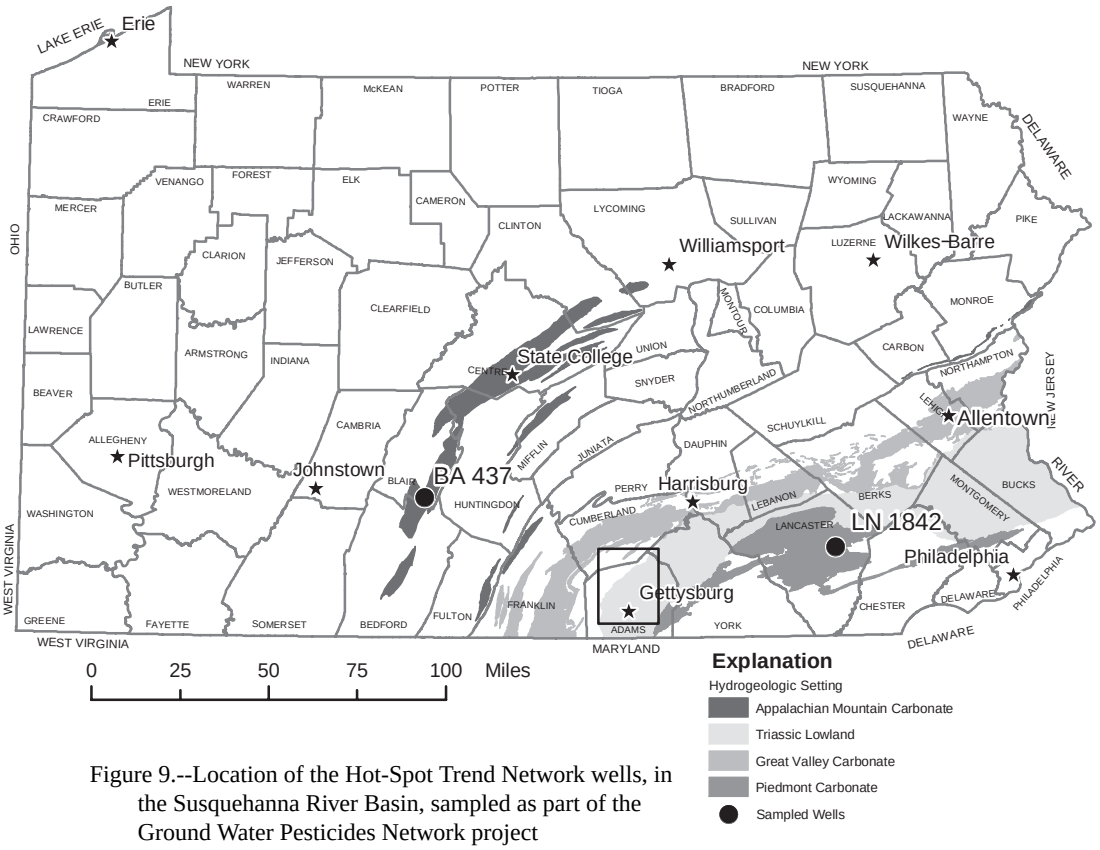


Figure 9.--Location of the Hot-Spot Trend Network wells, in the Susquehanna River Basin, sampled as part of the Ground Water Pesticides Network project

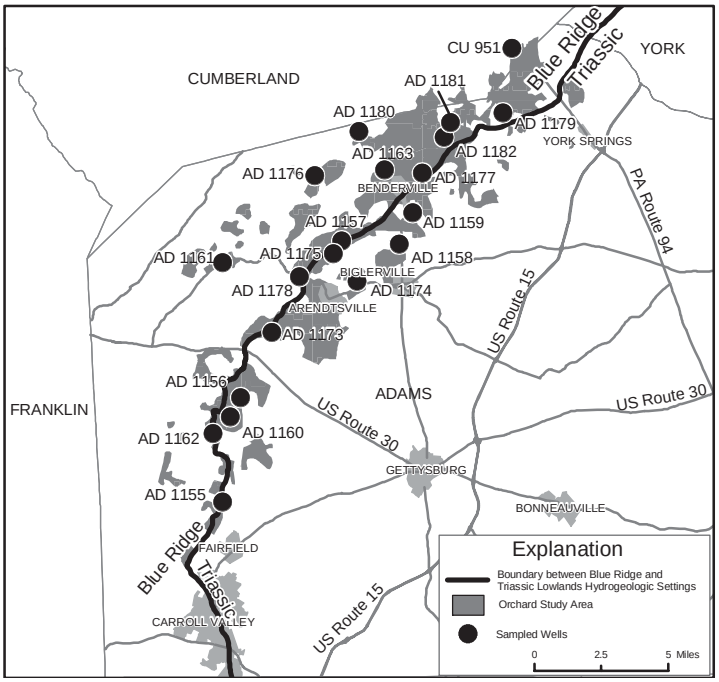


Figure 10.--Location of the Annual Baseline Network wells, in the Susquehanna River Basin, sampled as part of the Ground Water Pesticides Network project.

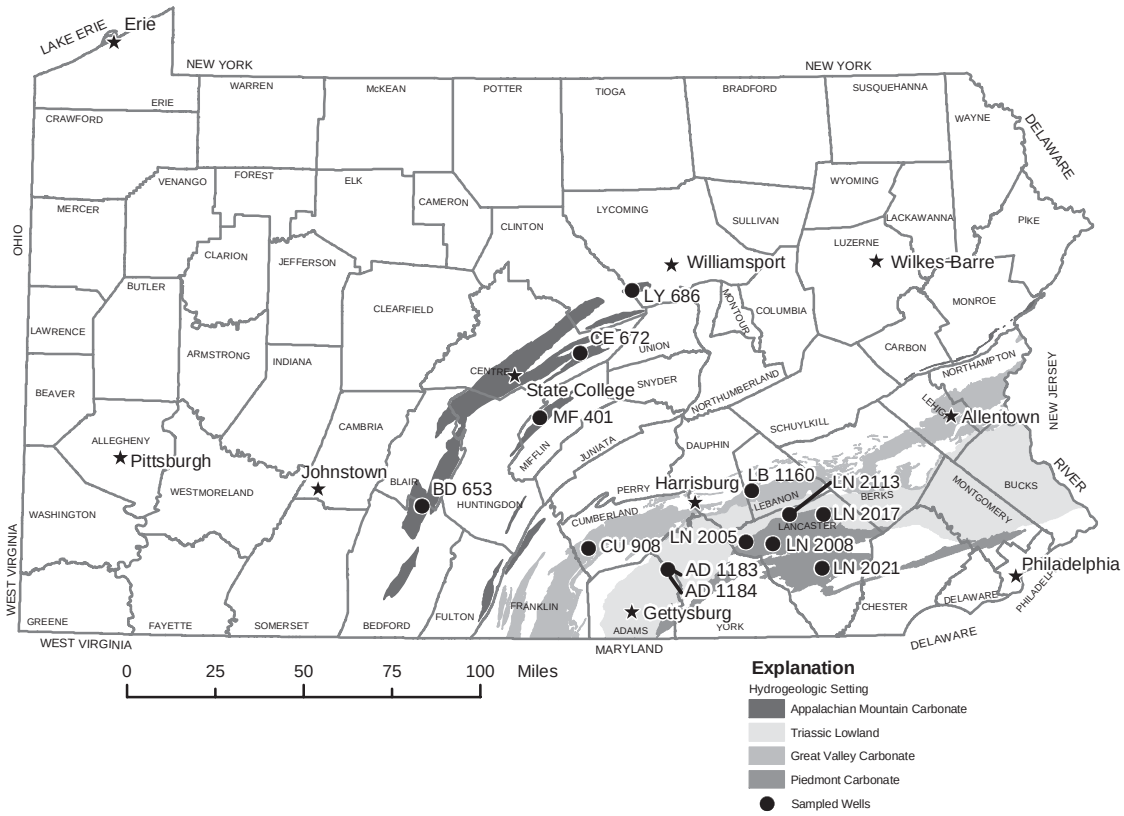


Figure 11.--Location of the Baseline Trend Network wells, in the Susquehanna River Basin, sampled as part of the Ground Water Pesticides Network project.

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

Compounds analyzed at the USGS National Water-Quality Laboratory for the Ground Water Pesticides Network Project

Pesticide Schedule (SH2001)			Polar Pesticides and Metabolites Schedule (SH2060)	
Analyte	NWIS Parameter Code		Analyte	NWIS Parameter Code
Alpha-HC	34253		2,4,5-T (surrogate)	99958
Acetochlor	49260		2,4-D	39732
Alachlor	46342		2,4-D methyl ester	50470
2,6 –Diethylaniline	82660		2,4-DB	38746
Atrazine	39632		3(4-Chlorophenyl)-1-methyl urea	61692
Desethyl atrazine (CIAT)	04040		3-Ketocarbofuran	50295
Azinphos-methyl	82686		Acifluorfen	49315
Benfluralin	82673		Aldicarb	49312
Butylate	04028		Aldicarb sulfone	49313
Carbaryl	82680		Aldicarb sulfoxide	49314
Carbofuran	82674		Chloramben, methyl ester	61188
Chlorpyrifos	38933		Atrazine	39632
cis-Permethrin	82687		2-Hydroxyatrazine (OIET)	50355
Cyanazine	04041		Desethylatrazine (CIAT)	04040
Dacthal (DCPA)	82682		Deethyldeisopropylatrazine*	04039
Diazanon	39572		Deisopropylatrazine (CEAT)	04038
Diazinon-d10(surrogate)	91063		Barban	90640
Dieldrin	39381		Bendiocarb	50299
Disulfoton	82677		Benomyl	50300
EPTC	82668		Bensulfuron-methyl	61693
Ethalfluralin	82663		Bentazon	38711
Ethoprophos	82672		Bromacil	04029
Desulfinylfipronil amide	62169		Bromoxynil	49311
Fipronil sulfide	62167		Caffeine	50305
Fipronil sulfone	62168		Caffeine-C13	99959
Desulfinylfipronil	62170		Carbaryl	49310
Fipronil	62166		Carbofuran	49309
Fonofos	04095		3-Hydroxycarbofuran	49308
alpha-HCH-d6 (surrogate)	91065		Chlorimuron-ethyl	50306
Lindane	39341		Chlorothalonil	49306
Linuron	82666		Clopyralid	49305
Malathion	39532		Cycloate	04031
Parathion-methyl	82667		Dacthal monoacid	49304
Metolachlor	39415		Dicamba	38442
Metribuzin	82630		Dichlorprop	49302
Molinate	82671		Dinoseb	49301
Napropamide	82684		Diphenamid	04033
p,p'-DDE	34653		Diuron	49300
Parathion	39542		Fenuron	49297
Pebulate	82669		Flumetsulam	61694
Pendimethalin	82683		Fluometuron	38811
Phorate	82664		Imazaquin	50356
Prometon	04037		Imazethapyr	50407
Propyzamide	82676		Imidacloprid	61695
Propachlor	04024		Linuron	38478
Propanil	82679		MCPA	38482
Propargite	82685			

* Chloro-di-amino-s-triazine

Compounds analyzed at the USGS National Water-Quality Laboratory for the Ground Water Pesticides Network Project--Continued

Pesticide Schedule (SH2001)			Polar Pesticides & Metabolites Schedule (SH2060)	
Analyte	Parameter Code		Analyte	Parameter Code
Simazine	04035		MCPB	38487
Tebuthiuron	82670		Metalaxyl	50359
Terbacil	82665		Methiocarb	38501
Terbufos	82675		Methomyl	49296
Thiobencarb	82681		Metsulfuron methyl	61697
Triallate	82678		Neburon	49294
Trifluralin	82661		Nicosulfuron	50364
			Norflurazon	49293
			Oryzalin	49292
			Oxamyl	38866
			Picloram	49291
			Propham	49236
			Propicanazole	50471
			Propoxur	38538
			Siduron	38548
			Sulfometuron-methyl	50337
			Tebuthiuron	82670
			Terbacil	04032
			Tribenuron-methyl	61159
			Triclopyr	49235

Compounds analyzed at the Pennsylvania Department of Environmental Protection Laboratory for the Ground Water Pesticides Network Project

Pesticide Schedule used for Annual Baseline Network (SAC USGS1)			Pesticide Schedule Used for Baseline Trends and Hot-Spot Trends Networks (SAC USGS2)	
Analyte EPA 525.2	NWIS Parameter Code		Analyte EPA 525.2	NWIS Parameter Code
Acetochlor	49260		Acetochlor	49260
Alachlor	46342		Alachlor	46342
Atrazine	39632		Atrazine	39632
Captan	61582		Chlorothalonil	49306
Chlorothalonil	49306		Chlorpyriphos (Dursban)	38933
Chlorpyriphos (Dursban)	38933		Hexachlorocyclopentadiene	34386
Diuron	49300		Metolachlor	39415
Hexachlorocyclopentadiene	34386		Metribuzin	82630
Methyl parathion	82667		Pendimethalin	82683
Metolachlor	39415		Simazine	04035
Metribuzin	82630			
Pendimethalin	82683			
Phosphamidon	None available			
Simazine	04035			
Terbacil	82665			
EPA 531.1				
Carbaryl	49310			
Methomyl	49296			
Oxamyl	38866			

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

REMARKS.--Explanation of column headings--Station number: 15-digit unique identifier based on site latitude (first six digits), longitude (digits seven through thirteen), and a 2-digit sequence number suffix; Altitude of land surface: land-surface at well site in feet above sea level; Sampling method code 4040 = submersible pump; Sampling condition code 8 = pumping; µS/cm: microsiemens per centimeter at 25 degrees Celsius; deg C: degrees Celsius; µg/L: micrograms per liter (parts per billion); mg/L = milligrams per liter (parts per million); "<" = less than; "E" = estimated; "M" = presence of material verified but not quantified; CIAT = desethyl atrazine; CEAT = Deisopropylatrazine; OIET = 2-hydroxyatrazine; DCPA = dacthal; Network Identifier AB = Annual Baseline, BT = Baseline Trends, or HST = Hot-Spot Trends. Quality-control data for replicate samples are shown for Local Well ID 2017 (bacteria) on April 16, 2003 at 1033 and 1034 and for Local Well ID 686 (nitrate, nitrite) on April 30, 2003 at 1211 and 1212.

WATER-QUALITY DATA, WATER YEARS OCTOBER 2002 TO SEPTEMBER 2003

Station number	Local Well ID	Network Identifier	Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Depth of well, feet below LSD (72008)	Depth to water level, feet below LSD (72019)	Altitude of land surface feet (72000)	Pump or flow period prior to sampling, minutes (72004)	Sampling method, code (82398)	Turbidity, water, unfiltrd field, NTU (61028)
ADAMS COUNTY												
394850077223401	AD 1155	AB	05-05-03	1255	1028	80020	202	23.57	670	75	4040	12
395212077214701	AD 1156	AB	05-05-03	1615	1028	80020	220	14.08	720	40	4040	--
395713077172701	AD 1157	AB	05-08-03	1045	1028	80020	260	9.00	920	30	4040	1.2
395706077150001	AD 1158	AB	05-07-03	1035	1028	80020	220	24.66	690	35	4040	12
395807077142601	AD 1159	AB	05-07-03	1550	1028	80020	160	12.60	630	40	4040	.2
395135077221301	AD 1160	AB	05-06-03	1050	1028	80020	200	2.60	710	50	4040	.9
395632077223201	AD 1161	AB	05-14-03	1020	1028	80020	180	46.99	1300	50	4040	30
395102077225701	AD 1162	AB	05-14-03	1420	1028	80020	180	15.90	860	70	4040	110
395930077153601	AD 1163	AB	05-13-03	1150	1028	80020	190	5.12	730	85	4040	.2
395417077202601	AD 1173	AB	08-20-03	1035	1028	9813	99	10.42	760	50	4040	.6
395555077164801	AD 1174	AB	08-28-03	1400	1028	9813	225	16.55	735	60	4040	22
395649077174801	AD 1175	AB	08-20-03	1500	1028	9813	155	32.23	780	80	4040	.2
395919077183601	AD 1176	AB	08-21-03	1405	1028	9813	175	43.55	1145	50	4040	.5
395923077140001	AD 1177	AB	08-26-03	1000	1028	9813	120	50.08	750	45	4040	.5
395605077191501	AD 1178	AB	08-27-03	1000	1028	9813	140	37.50	660	40	4040	.6
400119077103401	AD 1179	AB	08-19-03	1100	1028	9813	200	11.40	835	50	4040	.5
400045077164201	AD 1180	AB	08-21-03	1029	1028	9813	180	4.80	970	62	4040	2.1
400101077124801	AD 1181	AB	08-28-03	1020	1028	9813	140	43.60	760	40	4040	10
400033077130401	AD 1182	AB	08-26-03	1320	1028	9813	210	21.80	890	55	4040	.6
395952077020501	AD 1183	BT	09-04-03	1505	1028	9813	240	--	455	85	4040	2.2
395955077020801	AD 1184	BT	10-02-03	1045	1028	9813	180	11.18	500	55	4040	2.0
BEDFORD COUNTY												
401525078213801	BD 653	BT	04-08-03	1505	1028	80020	170	61.39	1370	35	4040	--
BLAIR COUNTY												
401724078195801	BA 437	HST	03-25-03	1340	1028	80020	105	15.95	1435	65	4040	--
401724078195801	BA 437	HST	05-12-03	1310	1028	80020	105	24.88	1435	55	4040	.1
401724078195801	BA 437	HST	08-14-03	1120	1028	9813	105	23.94	1435	45	4040	.2
CENTRE COUNTY												
405253077301501	CE 672	BT	04-22-03	1105	1028	80020	200	94.80	1190	35	4040	--
CUMBERLAND COUNTY												
400514077274501	CU 908	BT	04-08-03	1030	1028	80020	182	37.67	650	35	4040	--
400324077100901	CU 951	AB	05-13-03	1530	1028	80020	90	24.00	940	60	4040	.1
LANCASTER COUNTY												
400456076065701	LN 1842	HST	03-26-03	1140	1028	80020	65	31.06	440	45	4040	--
400456076065701	LN 1842	HST	05-15-03	1435	1028	80020	65	33.40	440	35	4040	.3
400456076065701	LN 1842	HST	08-13-03	1410	1028	9813	65	32.80	440	30	4040	.5
400629076365201	LN 2005	BT	04-16-03	1505	1028	80020	100	7.54	390	35	4040	--
400558076281201	LN 2008	BT	04-09-03	1445	1028	80020	175	50.91	370	50	4040	--
401307076224301	LN 2113	BT	04-02-03	1545	1028	80020	200	--	500	45	4040	--
401254076114701	LN 2017	BT	04-16-03	1035	1028	80020	160	42.95	410	30	4040	--
401254076114701	LN 2017	BT-QA	04-16-03	1033	1028	80020	160	--	410	30	4040	--
401254076114701	LN 2017	BT-QA	04-16-03	1034	1028	80020	160	--	410	30	4040	--
395951076122301	LN 2021	BT	04-09-03	1000	1028	80020	150	22.82	370	50	4040	--
LEBANON COUNTY												
401856076345101	LB 1160	BT	04-02-03	1200	1028	80020	180	--	440	35	4040	--
LYCOMING COUNTY												
410805077131401	LY 686	BT	04-30-03	1210	1028	80020	175	83.95	765	40	4040	--
410805077131401	LY 686	BT-QA	04-30-03	1211	1028	80020	175	--	765	40	4040	--
410805077131401	LY 686	BT-QA	04-30-03	1212	1028	80020	175	--	765	40	4040	--
MIFFLIN COUNTY												
403706077432801	MF 401	BT	04-14-03	1125	1028	80020	120	5.60	870	35	4040	--

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

WATER-QUALITY DATA, WATER YEARS OCTOBER 2002 TO SEPTEMBER 2003

Date	Baro-metric pres-sure, mm Hg (00025)	Dis-solved oxygen, mg/L (00300)	Dis-solved oxygen, percent of sat-uration (00301)	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unf µS/cm 25 degC (00095)	Temper-ature, air, deg C (00020)	Temper-ature, water, deg C (00010)	Nitrate water, fltrd, mg/L (71851)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L (71856)	Nitrite water, fltrd, mg/L as N (00613)	E coli, Coli-lert Quantry water, MPN/ 100 mL (50468)
						ADAMS COUNTY							
05-05-03	755	7.8	74	7.4	371	12.3	12.8	--	--	3.75	--	<.008	1
05-05-03	744	1.8	17	7.7	278	8.1	12.7	--	--	1.67	--	<.008	<1
05-08-03	734	1.9	19	7.8	171	16.2	12.6	--	--	.32	--	<.008	<1
05-07-03	741	3.9	38	7.8	254	17.2	12.7	--	--	1.89	--	<.008	<1
05-07-03	741	4.0	39	8.0	292	25.9	12.5	--	--	2.19	--	<.008	<1
05-06-03	741	4.9	48	7.8	388	14.6	13.4	--	--	4.75	--	<.008	<1
05-14-03	724	7.2	71	5.9	868	10.4	12.3	--	--	3.98	--	<.008	<1
05-14-03	737	7.8	77	6.3	101	16.3	13.2	--	--	1.38	--	<.008	<1
05-13-03	735	3.7	36	6.6	204	15.9	12.4	--	--	2.14	--	<.008	<1
08-20-03	746	8.6	84	6.8	307	22.5	13.1	--	--	4.28	--	<.010	<1
08-28-03	745	6.8	67	6.4	230	33.6	13.6	--	--	3.57	--	<.010	<1
08-20-03	746	1.3	13	7.0	191	29.3	13.2	--	--	.39	--	<.010	<1
08-21-03	733	9.3	91	5.8	175	27.4	12.8	--	--	7.47	--	<.010	<1
08-26-03	741	7.0	69	5.6	162	22.0	13.3	--	--	4.26	--	<.010	<1
08-27-03	739	4.8	46	6.7	157	21.2	12.2	--	--	2.69	--	<.010	<1
08-19-03	744	3.2	32	6.8	263	24.7	14.4	--	--	2.38	--	<.010	<1
08-21-03	738	7.6	77	5.7	137	25.3	14.7	--	--	2.72	--	<.010	<1
08-28-03	745	6.0	58	6.2	253	22.1	12.6	--	--	4.08	--	<.010	<1
08-26-03	737	6.5	66	6.6	215	27.0	14.5	--	--	4.07	--	<.010	1
09-04-03	745	2.4	24	7.4	677	26.1	13.4	--	--	8.12	--	<.010	11
10-02-03	750	.6	6	7.6	519	16.3	15.7	--	--	.37	--	<.010	<1
						BEDFORD COUNTY							
04-08-03	729	8.6	80	7.2	732	2.4	10.3	--	--	14.2	--	<.008	<1
						BLAIR COUNTY							
03-25-03	719	6.0	59	7.4	4640	22.1	11.0	--	--	41.9	--	E.004	1
05-12-03	712	.4	4	7.0	2230	13.4	11.8	307	69.4	69.4	.095	.029	16
08-14-03	733	.5	5	6.9	2220	29.1	13.1	321	72.4	72.5	.066	.020	6
						CENTRE COUNTY							
04-22-03	721	7.7	73	7.2	581	13.5	10.4	--	--	7.48	--	<.008	1
						CUMBERLAND COUNTY							
04-08-03	752	9.4	86	7.2	650	2.0	10.7	--	--	8.61	--	<.008	3
05-13-03	729	6.5	62	6.8	222	13.5	11.2	--	--	1.55	--	<.008	<1
						LANCASTER COUNTY							
03-26-03	744	8.1	81	--	1110	18.2	13.9	--	--	41.6	--	<.008	<1
05-15-03	752	8.3	81	7.0	1090	19.0	13.7	--	--	40.2	--	<.008	<1
08-13-03	757	8.0	80	7.3	1070	31.1	14.9	--	--	42.2	--	<.010	<1
04-16-03	747	1.7	16	7.1	663	31.6	11.7	--	--	23.2	--	<.008	1
04-09-03	755	7.8	73	7.3	600	5.4	12.0	--	--	20.8	--	<.008	<1
04-02-03	745	3.1	31	7.2	562	27.1	13.7	--	--	11.4	--	<.008	<1
04-16-03	749	8.0	76	7.2	702	22.8	12.4	--	--	11.2	--	<.008	<1
04-16-03	--	--	--	--	--	--	--	--	--	--	--	--	<1
04-16-03	--	--	--	--	--	--	--	--	--	--	--	--	<1
04-09-03	755	7.7	73	7.1	1090	4.4	12.6	--	--	7.63	--	<.008	<1
						LEBANON COUNTY							
04-02-03	750	6.0	58	7.2	660	21.4	13.1	--	--	5.23	--	<.008	<1
						LYCOMING COUNTY							
04-30-03	744	10.6	97	7.4	642	18.1	10.4	--	--	13.6	--	<.008	<1
04-30-03	--	--	--	--	--	--	--	--	--	13.6	--	<.008	--
04-30-03	--	--	--	--	--	--	--	--	--	13.4	--	<.008	--
						MIFFLIN COUNTY							
04-14-03	746	5.4	51	6.8	976	13.5	11.8	--	--	7.44	--	<.008	<1

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

WATER-QUALITY DATA, WATER YEARS OCTOBER 2002 TO SEPTEMBER 2003

Date	Total coli-form, Colert Quantry MPN/ 100 mL (50569)	2,4,5-T surrog, water, fltrd, percent recovry (99958)	2,4-D methyl ester water, fltrd, µg/L (50470)	2,4-D water, fltrd, µg/L (39732)	2,4-DB water, fltrd 0.7µ GF µg/L (38746)	2,6-Di-ethyl-aniline water fltrd 0.7µ GF µg/L (82660)	CIAT, water, fltrd, µg/L (04040)	CEAT, water, fltrd, µg/L (04038)	OIET, water, fltrd, µg/L (50355)	3-Hydroxy carbo-furan, wat flt 0.7µ GF µg/L (49308)	3-Keto-carbo-furan, water, fltrd, µg/L (50295)	Aceto-chlor, water, fltrd, µg/L (49260)	Aci-fluor-fen, water, fltrd 0.7µ GF µg/L (49315)
ADAMS COUNTY													
05-05-03	10	71.0	.663	E2.52	<.02	<.006	E.085	E.11	<.008	<.006	<2	<.006	<.007
05-05-03	<1	75.5	<.009	<.02	<.02	<.006	<.006	<.04	<.008	<.006	<2	<.006	<.007
05-08-03	<1	89.4	<.009	<.02	<.02	<.006	<.006	<.04	<.008	<.006	<2	<.006	<.007
05-07-03	<1	74.1	<.009	<.02	<.02	<.006	<.006	<.04	<.008	<.006	<2	<.006	<.007
05-07-03	23	74.6	<.009	<.02	<.02	<.006	E.007	<.04	<.008	<.006	<2	<.006	<.007
05-06-03	<1	74.7	<.009	<.02	<.02	<.006	<.006	<.04	<.008	<.006	<2	<.006	<.007
05-14-03	25	106	<.009	<.02	<.02	<.006	E.007	E.17	<.008	<.006	<2	<.006	<.007
05-14-03	<1	96.7	<.009	<.02	<.02	<.006	<.006	<.04	<.008	<.006	<2	<.006	<.007
05-13-03	20	100	<.009	<.02	<.02	<.006	<.006	<.04	<.008	<.006	<2	<.006	<.007
08-20-03	<1	--	--	--	--	--	--	--	--	--	--	<.100	--
08-28-03	2	--	--	--	--	--	--	--	--	--	--	<.100	--
08-20-03	1	--	--	--	--	--	--	--	--	--	--	<.100	--
08-21-03	<1	--	--	--	--	--	--	--	--	--	--	<.100	--
08-26-03	2	--	--	--	--	--	--	--	--	--	--	<.100	--
08-27-03	<1	--	--	--	--	--	--	--	--	--	--	<.100	--
08-19-03	50	--	--	--	--	--	--	--	--	--	--	<.100	--
08-21-03	19	--	--	--	--	--	--	--	--	--	--	<.100	--
08-28-03	2	--	--	--	--	--	--	--	--	--	--	<.100	--
08-26-03	48	--	--	--	--	--	--	--	--	--	--	<.100	--
09-04-03	200	--	--	--	--	--	--	--	--	--	--	<.100	--
10-02-03	11	--	--	--	--	--	--	--	--	--	--	<.110	--
BEDFORD COUNTY													
04-08-03	<1	--	--	--	--	<.006	E.279	--	--	--	--	<.006	--
BLAIR COUNTY													
03-25-03	4	--	--	--	--	<.006	E.177	--	--	--	--	<.006	--
05-12-03	35	--	--	--	--	.013	E.201	--	--	--	--	<.006	--
08-14-03	170	--	--	--	--	--	--	--	--	--	--	<.100	--
CENTRE COUNTY													
04-22-03	2	--	--	--	--	<.006	E.040	--	--	--	--	<.006	--
CUMBERLAND COUNTY													
04-08-03	4	--	--	--	--	<.006	E.425	--	--	--	--	<.006	--
05-13-03	<1	95.8	<.009	<.02	<.02	<.006	<.006	<.04	<.008	<.006	<2	<.006	<.007
LANCASTER COUNTY													
03-26-03	1	--	--	--	--	<.006	E.542	--	--	--	--	.577	--
05-15-03	<1	--	--	--	--	E.005	E.345	--	--	--	--	.298	--
08-13-03	1	--	--	--	--	--	--	--	--	--	--	<.100	--
04-16-03	99	--	--	--	--	<.006	E.239	--	--	--	--	<.006	--
04-09-03	70	--	--	--	--	<.006	E.345	--	--	--	--	<.006	--
04-02-03	<1	--	--	--	--	<.006	E.127	--	--	--	--	<.006	--
04-16-03	<1	--	--	--	--	<.006	E.232	--	--	--	--	<.006	--
04-16-03	1	--	--	--	--	--	--	--	--	--	--	--	--
04-16-03	2	--	--	--	--	--	--	--	--	--	--	--	--
04-09-03	<1	--	--	--	--	<.006	E.178	--	--	--	--	<.006	--
LEBANON COUNTY													
04-02-03	6	--	--	--	--	<.006	E.100	--	--	--	--	<.006	--
LYCOMING COUNTY													
04-30-03	<1	--	--	--	--	<.006	E.241	--	--	--	--	<.006	--
04-30-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-30-03	--	--	--	--	--	--	--	--	--	--	--	--	--
MIFFLIN COUNTY													
04-14-03	<1	--	--	--	--	<.006	E.315	--	--	--	--	<.006	--

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

WATER-QUALITY DATA, WATER YEARS OCTOBER 2002 TO SEPTEMBER 2003

Date	Ala-chlor, water, fltrd, µg/L (46342)	Aldi-carb sulfone water, fltrd 0.7µ GF µg/L (49313)	Aldi-carb sulf-oxide, wat flt 0.7µ GF µg/L (49314)	Aldi-carb, water, fltrd 0.7µ GF µg/L (49312)	alpha-HCH, water, fltrd, µg/L (34253)	alpha-HCH-d6, surrog, wat flt 0.7µ GF percent recovry (91065)	Atra-zine, water, fltrd, µg/L (39632)	Azin-phos-methyl, water, fltrd 0.7µ GF µg/L (82686)	Barban, surrog, Sched. 2060/ 9060, wat flt pct rcv (90640)	Bendio-carb, water, fltrd, µg/L (50299)	Ben-flur-alin, water, fltrd 0.7µ GF µg/L (82673)	Benomyl water, fltrd, µg/L (50300)	Bensul-furon, water, fltrd, µg/L (61693)
ADAMS COUNTY													
05-05-03	<.004	<.02	<.008	<.04	<.005	89.0	.040	<.050	88.8	<.03	<.010	E.026	<.02
05-05-03	<.004	<.02	<.008	<.04	<.005	102	<.007	<.050	101	<.03	<.010	<.004	<.02
05-08-03	<.004	<.02	<.008	<.04	<.005	95.3	<.007	<.050	98.4	<.03	<.010	<.004	<.02
05-07-03	<.004	<.02	<.008	<.04	<.005	90.5	<.007	<.050	93.1	<.03	<.010	<.004	<.02
05-07-03	<.010	<.02	<.008	<.04	<.005	93.4	.011	<.050	93.8	<.03	<.010	<.004	<.02
05-06-03	<.004	<.02	<.008	<.04	<.005	94.3	<.007	<.050	99.0	<.03	<.010	<.004	<.02
05-14-03	<.004	<.02	<.008	<.04	<.005	99.1	.007	<.050	E148	<.03	<.010	E.005	<.02
05-14-03	<.004	<.02	<.008	<.04	<.005	97.2	<.007	<.050	109	<.03	<.010	<.004	<.02
05-13-03	<.004	<.02	<.008	<.04	<.005	91.4	<.007	<.050	98.4	<.03	<.010	<.004	<.02
08-20-03	<.10	--	--	--	--	--	<.10	<.100	--	--	--	--	--
08-28-03	<.10	--	--	--	--	--	<.10	<.500	--	--	--	--	--
08-20-03	<.10	--	--	--	--	--	<.10	<.100	--	--	--	--	--
08-21-03	<.10	--	--	--	--	--	<.10	<.100	--	--	--	--	--
08-26-03	<.10	--	--	--	--	--	<.10	<.100	--	--	--	--	--
08-27-03	<.10	--	--	--	--	--	<.10	<.100	--	--	--	--	--
08-19-03	<.10	--	--	--	--	--	<.10	<.100	--	--	--	--	--
08-21-03	<.10	--	--	--	--	--	<.10	<.100	--	--	--	--	--
08-28-03	<.10	--	--	--	--	--	<.10	<.500	--	--	--	--	--
08-26-03	<.10	--	--	--	--	--	<.10	<.100	--	--	--	--	--
09-04-03	4.19	--	--	--	--	--	<.10	--	--	--	--	--	--
10-02-03	<.11	--	--	--	--	--	<.10	--	--	--	--	--	--
BEDFORD COUNTY													
04-08-03	<.010	--	--	--	<.005	94.4	.233	<.050	--	--	<.010	--	--
BLAIR COUNTY													
03-25-03	.060	--	--	--	<.005	95.4	.511	<.050	--	--	<.010	--	--
05-12-03	.292	--	--	--	<.005	99.1	.881	<.050	--	--	<.010	--	--
08-14-03	.28	--	--	--	--	--	1.11	--	--	--	--	--	--
CENTRE COUNTY													
04-22-03	<.004	--	--	--	<.005	86.0	.030	<.050	--	--	<.010	--	--
CUMBERLAND COUNTY													
04-08-03	<.004	--	--	--	<.005	93.5	.125	<.050	--	--	<.010	--	--
05-13-03	<.004	<.02	<.008	<.04	<.005	89.4	<.007	<.050	108	<.03	<.010	<.004	<.02
LANCASTER COUNTY													
03-26-03	3.33	--	--	--	<.005	83.9	.627	<.050	--	--	<.010	--	--
05-15-03	1.52	--	--	--	E.002	86.2	.310	<.050	--	--	<.010	--	--
08-13-03	1.79	--	--	--	--	--	<.10	--	--	--	--	--	--
04-16-03	.007	--	--	--	<.005	94.9	.152	<.050	--	--	<.010	--	--
04-09-03	<.004	--	--	--	<.005	100	.331	<.050	--	--	<.010	--	--
04-02-03	.234	--	--	--	<.005	82.8	.036	<.050	--	--	<.010	--	--
04-16-03	<.004	--	--	--	<.005	97.1	.129	<.050	--	--	<.010	--	--
04-16-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-16-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-09-03	<.004	--	--	--	<.005	107	.223	<.050	--	--	<.010	--	--
LEBANON COUNTY													
04-02-03	<.020	--	--	--	<.005	81.4	.068	<.050	--	--	<.010	--	--
LYCOMING COUNTY													
04-30-03	<.010	--	--	--	<.005	89.5	.137	<.050	--	--	<.010	--	--
04-30-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-30-03	--	--	--	--	--	--	--	--	--	--	--	--	--
MIFFLIN COUNTY													
04-14-03	<.004	--	--	--	<.005	88.2	.102	<.050	--	--	<.010	--	--

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

WATER-QUALITY DATA, WATER YEARS OCTOBER 2002 TO SEPTEMBER 2003

Date	Ben-tazon, water, fltrd 0.7µ GF µg/L (38711)	Broma-cil, water, fltrd, µg/L (04029)	Brom-oxynil, water, fltrd 0.7µ GF µg/L (49311)	Butyl-ate, water, fltrd, µg/L (04028)	Caf-feine, water, fltrd, µg/L (50305)	Caf-feine-13C, surrog, wat flt percent recovry (99959)	Captan, water, fltrd, µg/L (61582)	Car-baryl, water, fltrd 0.7µ GF µg/L (49310)	Car-baryl, water, fltrd 0.7µ GF µg/L (82680)	Carbo-furan, water, fltrd 0.7µ GF µg/L (49309)	Carbo-furan, water, fltrd 0.7µ GF µg/L (82674)	Chlor-amben methyl ester, water, fltrd, µg/L (61188)	Chlori-muron, water, fltrd, µg/L (50306)
ADAMS COUNTY													
05-05-03	<.01	<.03	<.02	<.002	<.010	112	--	<.03	E.007	<.006	<.020	<.02	<.010
05-05-03	<.01	<.03	<.02	<.002	<.010	110	--	<.03	<.041	<.006	<.020	<.02	<.010
05-08-03	<.01	<.03	<.02	<.002	<.010	130	--	<.03	<.041	<.006	<.020	<.02	<.010
05-07-03	<.01	<.03	<.02	<.002	<.010	124	--	<.03	<.041	<.006	<.020	<.02	<.010
05-07-03	<.01	<.03	<.02	<.002	<.010	105	--	<.03	<.041	<.006	<.020	<.02	<.010
05-06-03	<.01	<.03	<.02	<.002	<.010	98.8	--	<.03	<.041	<.006	<.020	<.02	<.010
05-14-03	<.01	<.03	<.02	<.002	<.010	E187	--	<.03	<.041	<.006	<.020	<.02	<.010
05-14-03	<.01	<.03	<.02	<.002	<.010	108	--	<.03	<.041	<.006	<.020	<.02	<.010
05-13-03	<.01	<.03	<.02	<.002	<.010	133	--	<.03	<.041	<.006	<.020	<.02	<.010
08-20-03	--	--	--	--	--	--	<.50	--	<1.60	--	--	--	--
08-28-03	--	--	--	--	--	--	<1.00	--	<1.60	--	--	--	--
08-20-03	--	--	--	--	--	--	<.50	--	<1.60	--	--	--	--
08-21-03	--	--	--	--	--	--	<.50	--	<1.60	--	--	--	--
08-26-03	--	--	--	--	--	--	<.50	--	<1.60	--	--	--	--
08-27-03	--	--	--	--	--	--	<.50	--	<1.60	--	--	--	--
08-19-03	--	--	--	--	--	--	<.50	--	<1.60	--	--	--	--
08-21-03	--	--	--	--	--	--	<.50	--	<1.60	--	--	--	--
08-28-03	--	--	--	--	--	--	<1.00	--	<1.60	--	--	--	--
08-26-03	--	--	--	--	--	--	<.50	--	<1.60	--	--	--	--
09-04-03	--	--	--	--	--	--	--	--	--	--	--	--	--
10-02-03	--	--	--	--	--	--	--	--	--	--	--	--	--
BEDFORD COUNTY													
04-08-03	--	--	--	<.002	--	--	--	--	<.041	--	<.020	--	--
BLAIR COUNTY													
03-25-03	--	--	--	<.002	--	--	--	--	<.041	--	<.020	--	--
05-12-03	--	--	--	.006	--	--	--	--	E.004	--	E.011	--	--
08-14-03	--	--	--	--	--	--	--	--	--	--	--	--	--
CENTRE COUNTY													
04-22-03	--	--	--	<.002	--	--	--	--	<.041	--	<.020	--	--
CUMBERLAND COUNTY													
04-08-03	--	--	--	<.002	--	--	--	--	<.041	--	<.020	--	--
05-13-03	<.01	<.03	<.02	<.002	<.010	139	--	<.03	<.041	<.006	<.020	<.02	<.010
LANCASTER COUNTY													
03-26-03	--	--	--	.030	--	--	--	--	<.041	--	<.020	--	--
05-15-03	--	--	--	.022	--	--	--	--	<.041	--	E.006	--	--
08-13-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-16-03	--	--	--	<.002	--	--	--	--	<.041	--	<.020	--	--
04-09-03	--	--	--	<.002	--	--	--	--	<.041	--	<.020	--	--
04-02-03	--	--	--	<.002	--	--	--	--	<.041	--	<.020	--	--
04-16-03	--	--	--	<.002	--	--	--	--	<.041	--	<.020	--	--
04-16-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-16-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-09-03	--	--	--	<.002	--	--	--	--	<.041	--	<.020	--	--
LEBANON COUNTY													
04-02-03	--	--	--	<.002	--	--	--	--	<.041	--	<.020	--	--
LYCOMING COUNTY													
04-30-03	--	--	--	<.002	--	--	--	--	<.041	--	<.020	--	--
04-30-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-30-03	--	--	--	--	--	--	--	--	--	--	--	--	--
MIFFLIN COUNTY													
04-14-03	--	--	--	<.002	--	--	--	--	<.041	--	<.020	--	--

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

WATER-QUALITY DATA, WATER YEARS OCTOBER 2002 TO SEPTEMBER 2003

Date	Chloro-di-amino-s-tri-azine, wat flt µg/L (04039)	Chloro-thalo-nil, water, fltrd 0.7µ GF µg/L (49306)	Chlor-pyrifos water, fltrd, µg/L (38933)	cis-Per-methrin water fltrd 0.7µ GF µg/L (82687)	Clopyr-alid, water, fltrd 0.7µ GF µg/L (49305)	Cyana-zine, water, fltrd, µg/L (04041)	Cyclo-ate, water, fltrd, µg/L (04031)	Dacthal mono-acid, water, fltrd 0.7µ GF µg/L (49304)	DCPA, water fltrd 0.7µ GF µg/L (82682)	Desulf-inyl fipro-nil, water, fltrd, µg/L (62170)	Diazi-non, water, fltrd, µg/L (39572)	Diazi-non-d10 surrog. wat flt 0.7µ GF percent recovry (91063)	Dicamba water fltrd 0.7µ GF µg/L (38442)
ADAMS COUNTY													
05-05-03	E.02	<.04	<.005	<.006	<.01	<.018	<.01	<.01	<.003	<.004	<.005	116	<.01
05-05-03	<.01	<.04	<.005	<.006	<.01	<.018	<.01	<.01	<.003	<.004	<.005	115	<.01
05-08-03	<.01	<.04	<.005	<.006	<.01	<.018	<.01	<.01	<.003	<.004	<.005	93.2	<.01
05-07-03	<.01	<.04	<.005	<.006	<.01	<.018	<.01	<.01	<.003	<.004	<.005	116	<.01
05-07-03	<.01	<.04	<.005	<.006	<.01	<.018	<.01	<.01	<.003	<.004	<.005	115	<.01
05-06-03	E.01	<.04	<.005	<.006	<.01	<.018	<.01	<.01	<.003	<.004	<.005	112	<.01
05-14-03	E.25	<.04	<.005	<.006	<.01	<.018	<.01	<.01	<.003	<.004	<.005	103	<.01
05-14-03	E.01	<.04	<.005	<.006	<.01	<.018	<.01	<.01	<.003	<.004	<.005	107	<.01
05-13-03	<.01	<.04	<.005	<.006	<.01	<.018	<.01	<.01	<.003	<.004	<.005	93.6	<.01
08-20-03	--	<.10	<.10	--	--	--	--	--	--	--	--	--	--
08-28-03	--	<.10	<.10	--	--	--	--	--	--	--	--	--	--
08-20-03	--	<.10	<.10	--	--	--	--	--	--	--	--	--	--
08-21-03	--	<.10	<.10	--	--	--	--	--	--	--	--	--	--
08-26-03	--	<.10	<.10	--	--	--	--	--	--	--	--	--	--
08-27-03	--	<.10	<.10	--	--	--	--	--	--	--	--	--	--
08-19-03	--	<.10	<.10	--	--	--	--	--	--	--	--	--	--
08-21-03	--	<.10	<.10	--	--	--	--	--	--	--	--	--	--
08-28-03	--	<.10	<.10	--	--	--	--	--	--	--	--	--	--
08-26-03	--	<.10	<.10	--	--	--	--	--	--	--	--	--	--
09-04-03	--	<.10	<.10	--	--	--	--	--	--	--	--	--	--
10-02-03	--	<.11	<.11	--	--	--	--	--	--	--	--	--	--
BEDFORD COUNTY													
04-08-03	--	--	<.005	<.006	--	<.018	--	--	<.003	<.004	<.005	116	--
BLAIR COUNTY													
03-25-03	--	--	<.020	<.006	--	<.018	--	--	<.003	<.004	<.005	117	--
05-12-03	--	--	<.005	<.006	--	E.131	--	--	<.003	<.004	<.005	107	--
08-14-03	--	<.10	<.10	--	--	--	--	--	--	--	--	--	--
CENTRE COUNTY													
04-22-03	--	--	<.005	<.006	--	<.018	--	--	<.003	<.004	<.005	101	--
CUMBERLAND COUNTY													
04-08-03	--	--	<.005	<.006	--	<.018	--	--	<.003	<.004	<.005	107	--
05-13-03	<.01	<.04	<.005	<.006	<.01	<.018	<.01	<.01	<.003	<.004	<.005	93.5	<.01
LANCASTER COUNTY													
03-26-03	--	--	<.005	<.006	--	--	--	--	<.003	<.004	<.005	115	--
05-15-03	--	--	<.005	<.006	--	.414	--	--	<.003	<.004	<.005	99.0	--
08-13-03	--	<.10	<.10	--	--	--	--	--	--	--	--	--	--
04-16-03	--	--	<.005	<.006	--	<.018	--	--	<.003	<.004	<.005	109	--
04-09-03	--	--	<.005	<.006	--	<.018	--	--	<.003	<.004	<.005	112	--
04-02-03	--	--	<.005	<.006	--	<.018	--	--	<.003	<.004	<.005	111	--
04-16-03	--	--	<.005	<.006	--	<.018	--	--	<.003	<.004	<.005	111	--
04-16-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-16-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-09-03	--	--	<.005	<.006	--	<.018	--	--	<.003	<.004	<.005	115	--
LEBANON COUNTY													
04-02-03	--	--	<.005	<.006	--	<.018	--	--	<.003	<.004	<.005	106	--
LYCOMING COUNTY													
04-30-03	--	--	<.005	<.006	--	<.018	--	--	<.003	<.004	<.005	116	--
04-30-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-30-03	--	--	--	--	--	--	--	--	--	--	--	--	--
MIFFLIN COUNTY													
04-14-03	--	--	<.005	<.006	--	<.018	--	--	<.003	<.004	<.005	104	--

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

WATER-QUALITY DATA, WATER YEARS OCTOBER 2002 TO SEPTEMBER 2003

Date	Di-chlor-prop, water, fltrd 0.7µ GF µg/L (49302)	Diel-drin, water, fltrd, µg/L (39381)	Dinoseb water, fltrd 0.7µ GF µg/L (49301)	Diphen-amid, water, fltrd, µg/L (04033)	Disul-foton, water, fltrd 0.7µ GF µg/L (82677)	Diuron, water, fltrd 0.7µ GF µg/L (49300)	EPTC, water, fltrd 0.7µ GF µg/L (82668)	Ethal-flur-alin, water, fltrd 0.7µ GF µg/L (82663)	Etho-prop, water, fltrd 0.7µ GF µg/L (82672)	Fenuron water, fltrd 0.7µ GF µg/L (49297)	Desulf-inyl-fipro-nil amide, wat flt µg/L (62169)	Fipro-nil sulfide water, fltrd, µg/L (62167)	Fipro-nil sulfone water, fltrd, µg/L (62168)
ADAMS COUNTY													
05-05-03	<.01	<.010	E.01	<.03	<.02	.19	<.002	<.009	<.005	<.03	<.009	<.005	<.005
05-05-03	<.01	<.005	<.01	<.03	<.02	<.01	<.002	<.009	<.005	<.03	<.009	<.005	<.005
05-08-03	<.01	<.005	<.01	<.03	<.02	<.01	<.002	<.009	<.005	<.03	<.009	<.005	<.005
05-07-03	<.01	<.005	<.01	<.03	<.02	<.01	<.002	<.009	<.005	<.03	<.009	<.005	<.005
05-07-03	<.01	<.005	<.01	<.03	<.02	<.01	<.002	<.009	<.005	<.03	<.009	<.005	<.005
05-06-03	<.01	<.005	<.01	<.03	<.02	<.01	<.002	<.009	<.005	<.03	<.009	<.005	<.005
05-14-03	<.01	<.005	<.01	<.03	<.02	E.01	<.002	<.009	<.005	<.03	<.009	<.005	<.005
05-14-03	<.01	<.005	<.01	<.03	<.02	<.01	<.002	<.009	<.005	<.03	<.009	<.005	<.005
05-13-03	<.01	<.005	<.01	<.03	<.02	<.01	<.002	<.009	<.005	<.03	<.009	<.005	<.005
08-20-03	--	--	--	--	--	<.10	--	--	--	--	--	--	--
08-28-03	--	--	--	--	--	--	--	--	--	--	--	--	--
08-20-03	--	--	--	--	--	<.10	--	--	--	--	--	--	--
08-21-03	--	--	--	--	--	<.10	--	--	--	--	--	--	--
08-26-03	--	--	--	--	--	<.10	--	--	--	--	--	--	--
08-27-03	--	--	--	--	--	<.10	--	--	--	--	--	--	--
08-19-03	--	--	--	--	--	<.10	--	--	--	--	--	--	--
08-21-03	--	--	--	--	--	<.10	--	--	--	--	--	--	--
08-28-03	--	--	--	--	--	--	--	--	--	--	--	--	--
08-26-03	--	--	--	--	--	<.10	--	--	--	--	--	--	--
09-04-03	--	--	--	--	--	--	--	--	--	--	--	--	--
10-02-03	--	--	--	--	--	--	--	--	--	--	--	--	--
BEDFORD COUNDY													
04-08-03	--	<.005	--	--	<.02	--	<.002	<.009	<.005	--	<.009	<.005	<.005
BLAIR COUNTY													
03-25-03	--	<.005	--	--	<.02	--	<.002	<.009	<.005	--	<.009	<.005	<.005
05-12-03	--	.034	--	--	<.02	--	.013	<.009	<.005	--	<.009	<.005	<.005
08-14-03	--	--	--	--	--	--	--	--	--	--	--	--	--
CENTRE COUNTY													
04-22-03	--	<.005	--	--	<.02	--	<.002	<.009	<.005	--	<.009	<.005	<.005
CUMBERLAND COUNTY													
04-08-03	--	<.005	--	--	<.02	--	<.002	<.009	<.005	--	<.009	<.005	<.005
05-13-03	<.01	<.005	<.01	<.03	<.02	.03	<.002	<.009	<.005	<.03	<.009	<.005	<.005
LANCASTER COUNTY													
03-26-03	--	<.005	--	--	<.02	--	.232	<.009	<.005	--	<.009	<.005	<.005
05-15-03	--	<.015	--	--	<.02	--	.227	<.009	<.005	--	<.009	<.005	<.005
08-13-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-16-03	--	.005	--	--	<.02	--	<.002	<.009	<.005	--	<.009	<.005	<.005
04-09-03	--	<.005	--	--	<.02	--	<.002	<.009	<.005	--	<.009	<.005	<.005
04-02-03	--	<.005	--	--	<.02	--	<.002	<.009	<.005	--	<.009	<.005	<.005
04-16-03	--	<.005	--	--	<.02	--	<.002	<.009	<.005	--	<.009	<.005	<.005
04-16-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-16-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-09-03	--	<.005	--	--	<.02	--	<.002	<.009	<.005	--	<.009	<.005	<.005
LEBANON COUNTY													
04-02-03	--	<.005	--	--	<.02	--	<.002	<.009	<.005	--	<.009	<.005	<.005
LYCOMING COUNTY													
04-30-03	--	<.005	--	--	<.02	--	<.002	<.009	<.005	--	<.009	<.005	<.005
04-30-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-30-03	--	--	--	--	--	--	--	--	--	--	--	--	--
MIFFLIN COUNTY													
04-14-03	--	<.005	--	--	<.02	--	<.002	<.009	<.005	--	<.009	<.005	<.005

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

WATER-QUALITY DATA, WATER YEARS OCTOBER 2002 TO SEPTEMBER 2003

Date	Fipronil, water, fltrd, µg/L (62166)	Flumetsulam, water, fltrd, µg/L (61694)	Fluometuron water fltrd 0.7µ GF µg/L (38811)	Fonofos water, fltrd, µg/L (04095)	Hexachlorocyclopentadiene, wat unf µg/L (34386)	Imazaquin, water, fltrd, µg/L (50356)	Imazethapyr, water, fltrd, µg/L (50407)	Imidacloprid water, fltrd, µg/L (61695)	Lindane water, fltrd, µg/L (39341)	Linuron water fltrd 0.7µ GF µg/L (38478)	Linuron water fltrd 0.7µ GF µg/L (82666)	Malathion, water, fltrd, µg/L (39532)	MCPA, water, fltrd 0.7µ GF µg/L (38482)
ADAMS COUNTY													
05-05-03	<.007	<.01	<.03	<.003	--	<.02	<.02	E.006	<.004	<.01	<.035	<.027	<.02
05-05-03	<.007	<.01	<.03	<.003	--	<.02	<.02	<.007	<.004	<.01	<.035	<.027	<.02
05-08-03	<.007	<.01	<.03	<.003	--	<.02	<.02	<.007	<.004	<.01	<.035	<.027	<.02
05-07-03	<.007	<.01	<.03	<.003	--	<.02	<.02	<.007	<.004	<.01	<.035	<.027	<.02
05-07-03	<.007	<.01	<.03	<.003	--	<.02	<.02	<.007	<.004	<.01	<.035	<.027	<.02
05-06-03	<.007	<.01	<.03	<.003	--	<.02	<.02	<.007	<.004	<.01	<.035	<.027	<.02
05-14-03	<.007	<.01	<.03	<.003	--	<.02	<.02	<.007	<.004	<.01	<.035	<.027	<.02
05-14-03	<.007	<.01	<.03	<.003	--	<.02	<.02	<.007	<.004	<.01	<.035	<.027	<.02
05-13-03	<.007	<.01	<.03	<.003	--	<.02	<.02	<.007	<.004	<.01	<.035	<.027	<.02
08-20-03	--	--	--	--	<.10	--	--	--	--	--	--	--	--
08-28-03	--	--	--	--	<.10	--	--	--	--	--	--	--	--
08-20-03	--	--	--	--	<.10	--	--	--	--	--	--	--	--
08-21-03	--	--	--	--	<.10	--	--	--	--	--	--	--	--
08-26-03	--	--	--	--	<.10	--	--	--	--	--	--	--	--
08-27-03	--	--	--	--	<.10	--	--	--	--	--	--	--	--
08-19-03	--	--	--	--	<.10	--	--	--	--	--	--	--	--
08-21-03	--	--	--	--	<.10	--	--	--	--	--	--	--	--
08-28-03	--	--	--	--	<.10	--	--	--	--	--	--	--	--
08-26-03	--	--	--	--	<.10	--	--	--	--	--	--	--	--
09-04-03	--	--	--	--	<.10	--	--	--	--	--	--	--	--
10-02-03	--	--	--	--	<.11	--	--	--	--	--	--	--	--
BEDFORD COUNTY													
04-08-03	<.007	--	--	<.003	--	--	--	--	<.004	--	<.035	<.027	--
BLAIR COUNTY													
03-25-03	<.007	--	--	<.003	--	--	--	--	<.004	--	<.035	<.027	--
05-12-03	<.007	--	--	<.003	--	--	--	--	<.004	--	<.035	<.027	--
08-14-03	--	--	--	--	<.1	--	--	--	--	--	--	--	--
CENTRE COUNTY													
04-22-03	<.007	--	--	<.003	--	--	--	--	<.004	--	<.035	<.027	--
CUMBERLAND COUNTY													
04-08-03	<.007	--	--	<.003	--	--	--	--	<.004	--	<.035	<.027	--
05-13-03	<.007	<.01	<.03	<.003	--	<.02	<.02	<.007	<.004	<.01	<.035	<.027	<.02
LANCASTER COUNTY													
03-26-03	<.007	--	--	<.003	--	--	--	--	<.004	--	<.035	<.027	--
05-15-03	<.007	--	--	<.003	--	--	--	--	<.004	--	.127	<.027	--
08-13-03	--	--	--	--	<.10	--	--	--	--	--	--	--	--
04-16-03	<.007	--	--	<.003	--	--	--	--	<.004	--	<.035	<.027	--
04-09-03	<.007	--	--	<.003	--	--	--	--	<.004	--	<.035	<.027	--
04-02-03	<.007	--	--	<.003	--	--	--	--	<.004	--	<.035	<.027	--
04-16-03	<.007	--	--	<.003	--	--	--	--	<.004	--	<.035	<.027	--
04-16-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-16-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-09-03	<.007	--	--	<.003	--	--	--	--	<.004	--	<.035	<.027	--
LEBANON COUNTY													
04-02-03	<.007	--	--	<.003	--	--	--	--	<.004	--	<.035	<.027	--
LYCOMING COUNTY													
04-30-03	<.007	--	--	<.003	--	--	--	--	<.004	--	<.035	<.027	--
04-30-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-30-03	--	--	--	--	--	--	--	--	--	--	--	--	--
MIFFLIN COUNTY													
04-14-03	<.007	--	--	<.003	--	--	--	--	<.004	--	<.035	<.027	--

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

WATER-QUALITY DATA, WATER YEARS OCTOBER 2002 TO SEPTEMBER 2003

Date	MCPB, water, fltrd 0.7µ GF µg/L (38487)	Meta-laxyl, water, fltrd, µg/L (50359)	Methio-carb, water, fltrd 0.7µ GF µg/L (38501)	Meth-omyl, water, fltrd 0.7µ GF µg/L (49296)	Methyl para-thion, water, fltrd 0.7µ GF µg/L (82667)	Metola-chlor, water, fltrd, µg/L (39415)	Metri-buzin, water, fltrd, µg/L (82630)	Metsul-furon, water, fltrd, µg/L (61697)	Moli-nate, water, fltrd 0.7µ GF µg/L (82671)	N-(4-Chloro-phenyl) -N'-methyl-urea, µg/L (61692)	Naprop-amide, water, fltrd 0.7µ GF µg/L (82684)	Neburon water, fltrd 0.7µ GF µg/L (49294)	Nico-sul-furon, water, fltrd, µg/L (50364)
ADAMS COUNTY													
05-05-03	<.01	M	<.008	<.004	<.006	E.008	<.006	<.03	<.002	<.02	<.007	<.01	<.01
05-05-03	<.01	<.02	<.008	<.004	<.006	<.013	<.006	<.03	<.002	<.02	<.007	<.01	<.01
05-08-03	<.01	<.02	<.008	<.004	<.006	<.013	<.006	<.03	<.002	<.02	<.007	<.01	<.01
05-07-03	<.01	<.02	<.008	<.004	<.006	<.013	<.006	<.03	<.002	<.02	<.007	<.01	<.01
05-07-03	<.01	<.02	<.008	<.004	<.006	<.013	<.006	<.03	<.002	<.02	<.007	<.01	<.01
05-06-03	<.01	<.02	<.008	<.004	<.006	<.013	<.006	<.03	<.002	<.02	<.007	<.01	<.01
05-14-03	<.01	<.02	<.008	<.004	<.006	E.004	<.006	<.03	<.002	<.02	<.007	<.01	<.01
05-14-03	<.01	<.02	<.008	<.004	<.006	<.013	<.006	<.03	<.002	<.02	<.007	<.01	<.01
05-13-03	<.01	<.02	<.008	<.004	<.006	<.013	<.006	<.03	<.002	<.02	<.007	<.01	<.01
08-20-03	--	--	--	<1.60	<.100	<.10	<.10	--	--	--	--	--	--
08-28-03	--	--	--	<1.60	<.100	<.10	<.10	--	--	--	--	--	--
08-20-03	--	--	--	<1.60	<.100	<.10	<.10	--	--	--	--	--	--
08-21-03	--	--	--	<1.60	<.100	<.10	<.10	--	--	--	--	--	--
08-26-03	--	--	--	<1.60	<.100	<.10	<.10	--	--	--	--	--	--
08-27-03	--	--	--	<1.60	<.100	<.10	<.10	--	--	--	--	--	--
08-19-03	--	--	--	<1.60	<.100	<.10	<.10	--	--	--	--	--	--
08-21-03	--	--	--	<1.60	<.100	<.10	<.10	--	--	--	--	--	--
08-28-03	--	--	--	<1.60	<.100	<.10	<.10	--	--	--	--	--	--
08-26-03	--	--	--	<1.60	<.100	<.10	<.10	--	--	--	--	--	--
09-04-03	--	--	--	--	--	33.6	<.10	--	--	--	--	--	--
10-02-03	--	--	--	--	--	<.11	<.10	--	--	--	--	--	--
BEDFORD COUNTY													
04-08-03	--	--	--	--	<.006	.062	<.006	--	<.002	--	<.007	--	--
BLAIR COUNTY													
03-25-03	--	--	--	--	<.006	8.50	<.006	--	<.002	--	<.007	--	--
05-12-03	--	--	--	--	<.006	E25.9	<.006	--	<.002	--	<.007	--	--
08-14-03	--	--	--	--	--	E41.9	<.10	--	--	--	--	--	--
CENTRE COUNTY													
04-22-03	--	--	--	--	<.006	<.013	<.006	--	<.002	--	<.007	--	--
CUMBERLAND COUNTY													
04-08-03	--	--	--	--	<.006	E.005	<.006	--	<.002	--	<.007	--	--
05-13-03	<.01	<.02	<.008	<.004	<.006	<.013	<.006	<.03	<.002	<.02	<.007	<.01	<.01
LANCASTER COUNTY													
03-26-03	--	--	--	--	<.006	E210	<.006	--	<.002	--	.044	--	--
05-15-03	--	--	--	--	<.008	E150	.007	--	<.002	--	.033	--	--
08-13-03	--	--	--	--	--	E83.8	<.10	--	--	--	--	--	--
04-16-03	--	--	--	--	<.006	.074	E.004	--	<.002	--	<.007	--	--
04-09-03	--	--	--	--	<.006	E.010	<.006	--	<.002	--	<.007	--	--
04-02-03	--	--	--	--	<.006	.034	<.006	--	<.005	--	<.007	--	--
04-16-03	--	--	--	--	<.006	E.003	<.006	--	<.004	--	<.007	--	--
04-16-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-16-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-09-03	--	--	--	--	<.006	<.013	<.006	--	<.002	--	<.007	--	--
LEBANON COUNTY													
04-02-03	--	--	--	--	<.006	E.004	<.006	--	<.005	--	<.007	--	--
LYCOMING COUNTY													
04-30-03	--	--	--	--	<.006	<.013	<.006	--	<.002	--	<.007	--	--
04-30-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-30-03	--	--	--	--	--	--	--	--	--	--	--	--	--
MIFFLIN COUNTY													
04-14-03	--	--	--	--	<.006	E.007	<.006	--	<.002	--	<.007	--	--

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

WATER-QUALITY DATA, WATER YEARS OCTOBER 2002 TO SEPTEMBER 2003

Date	Norflurazon, water, fltrd 0.7µ GF µg/L (49293)	Oryzalin, water, fltrd 0.7µ GF µg/L (49292)	Oxamyl, water, fltrd 0.7µ GF µg/L (38866)	p,p'-DDE, water, fltrd, µg/L (34653)	Parathion, water, fltrd, µg/L (39542)	Pebulate, water, fltrd 0.7µ GF µg/L (82669)	Pendimethalin, water, fltrd 0.7µ GF µg/L (82683)	Phorate water fltrd 0.7µ GF µg/L (82664)	Picloram, water, fltrd 0.7µ GF µg/L (49291)	Prometon, water, fltrd, µg/L (04037)	Pronamide, water, fltrd 0.7µ GF µg/L (82676)	Propachlor, water, fltrd, µg/L (04024)	Propanil, water, fltrd 0.7µ GF µg/L (82679)
ADAMS COUNTY													
05-05-03	E.15	<.02	<.01	<.003	<.010	<.004	<.022	<.011	<.02	.03	<.004	<.010	<.060
05-05-03	<.02	<.02	<.01	<.003	<.010	<.004	<.022	<.011	<.02	<.01	<.004	<.010	<.011
05-08-03	<.02	<.02	<.01	<.003	<.010	<.004	<.022	<.011	<.02	<.01	<.004	<.010	<.011
05-07-03	<.02	<.02	<.01	<.003	<.010	<.004	<.022	<.011	<.02	<.01	<.004	<.010	<.011
05-07-03	<.02	<.02	<.01	<.003	<.010	<.004	<.022	<.011	<.02	<.01	<.004	<.010	<.011
05-06-03	<.02	<.02	<.01	<.003	<.010	<.004	<.022	<.011	<.02	<.01	<.004	<.010	<.011
05-14-03	<.02	<.02	<.01	<.003	<.010	<.004	<.022	<.011	<.02	<.01	<.004	<.010	<.011
05-14-03	<.02	<.02	<.01	<.003	<.010	<.004	<.022	<.011	<.02	<.01	<.004	<.010	<.011
05-13-03	<.02	<.02	<.01	<.003	<.010	<.004	<.022	<.011	<.02	<.01	<.004	<.010	<.011
08-20-03	--	--	<1.60	--	--	--	<.100	--	--	--	--	--	--
08-28-03	--	--	<1.60	--	--	--	<.100	--	--	--	--	--	--
08-20-03	--	--	<1.60	--	--	--	<.100	--	--	--	--	--	--
08-21-03	--	--	<1.60	--	--	--	<.100	--	--	--	--	--	--
08-26-03	--	--	<1.60	--	--	--	<.100	--	--	--	--	--	--
08-27-03	--	--	<1.60	--	--	--	<.100	--	--	--	--	--	--
08-19-03	--	--	<1.60	--	--	--	<.100	--	--	--	--	--	--
08-21-03	--	--	<1.60	--	--	--	<.100	--	--	--	--	--	--
08-28-03	--	--	<1.60	--	--	--	<.100	--	--	--	--	--	--
08-26-03	--	--	<1.60	--	--	--	<.100	--	--	--	--	--	--
09-04-03	--	--	--	--	--	--	<.100	--	--	--	--	--	--
10-02-03	--	--	--	--	--	--	<.110	--	--	--	--	--	--
BEDFORD COUNTY													
04-08-03	--	--	--	<.003	<.010	<.004	<.022	<.011	--	E.01	<.004	<.010	<.011
BLAIR COUNTY													
03-25-03	--	--	--	<.003	<.010	<.004	<.022	<.011	--	.13	<.004	<.010	<.011
05-12-03	--	--	--	<.003	<.010	<.004	<.022	<.011	--	.26	<.004	<.010	<.011
08-14-03	--	--	--	--	--	--	<.100	--	--	--	--	--	--
CENTRE COUNTY													
04-22-03	--	--	--	<.003	<.010	<.004	<.022	<.011	--	<.01	<.004	<.010	<.011
CUMBERLAND COUNTY													
04-08-03	--	--	--	<.003	<.010	<.004	<.022	<.011	--	.02	<.004	<.010	<.011
05-13-03	<.02	<.02	<.01	<.003	<.010	<.004	<.022	<.011	<.02	<.01	<.004	<.010	<.011
LANCASTER COUNTY													
03-26-03	--	--	--	<.003	<.010	<.004	<.022	<.011	--	.06	<.004	<.010	<.011
05-15-03	--	--	--	<.003	<.010	.007	<.045	<.011	--	.04	<.004	<.100	<.011
08-13-03	--	--	--	--	--	--	<.100	--	--	--	--	--	--
04-16-03	--	--	--	<.003	<.010	<.004	<.022	<.011	--	E.01	<.004	<.010	<.011
04-09-03	--	--	--	<.003	<.010	<.004	<.022	<.011	--	<.01	<.004	<.010	<.011
04-02-03	--	--	--	<.003	<.010	<.004	<.022	<.011	--	<.01	<.004	<.010	<.011
04-16-03	--	--	--	<.003	<.010	<.004	<.022	<.011	--	M	<.004	<.010	<.011
04-16-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-16-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-09-03	--	--	--	<.003	<.010	<.004	<.022	<.011	--	E.01	<.004	<.010	<.011
LEBANON COUNTY													
04-02-03	--	--	--	<.003	<.010	<.004	<.022	<.011	--	.02	<.004	<.010	<.011
LYCOMING COUNTY													
04-30-03	--	--	--	<.003	<.010	<.004	<.022	<.011	--	<.01	<.004	<.010	<.011
04-30-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-30-03	--	--	--	--	--	--	--	--	--	--	--	--	--
MIFFLIN COUNTY													
04-14-03	--	--	--	<.003	<.010	<.004	<.022	<.011	--	<.01	<.004	<.010	<.011

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

WATER-QUALITY DATA, WATER YEARS OCTOBER 2002 TO SEPTEMBER 2003

Date	Propar-gite, water, fltrd 0.7µ GF µg/L (82685)	Propham water fltrd 0.7µ GF µg/L (49236)	Propi-cona-zole, water, fltrd, µg/L (50471)	Pro-poxur, water, fltrd 0.7µ GF µg/L (38538)	Siduron water, fltrd, µg/L (38548)	Sima-zine, water, fltrd, µg/L (04035)	Sulfo-met-ruron, water, fltrd, µg/L (50337)	Tebu-thiuron water fltrd 0.7µ GF µg/L (82670)	Terba-cil, water, fltrd 0.7µ GF µg/L (82665)	Terba-cil, water, fltrd, µg/L (04032)	Terbu-fos, water, fltrd 0.7µ GF µg/L (82675)	Thio-bencarb water fltrd 0.7µ GF µg/L (82681)	Tri-allate, water, fltrd 0.7µ GF µg/L (82678)
ADAMS COUNTY													
05-05-03	<.02	<.010	<.02	<.008	<.02	.104	E.006	<.02	<.034	<.010	<.02	<.005	<.002
05-05-03	<.02	<.010	<.02	<.008	<.02	<.005	<.009	<.02	<.034	<.010	<.02	<.005	<.002
05-08-03	<.02	<.010	<.02	<.008	<.02	<.005	<.009	<.02	<.034	<.010	<.02	<.005	<.002
05-07-03	<.02	<.010	<.02	<.008	<.02	<.005	<.009	<.02	<.034	<.010	<.02	<.005	<.002
05-07-03	<.02	<.010	<.02	<.008	<.02	<.005	<.002	<.02	<.034	<.010	<.02	<.005	<.002
05-06-03	<.02	<.010	<.02	<.008	<.02	<.005	<.009	<.02	<.034	<.010	<.02	<.005	<.002
05-14-03	<.02	<.010	<.02	<.008	<.02	.151	<.009	<.02	<.034	<.010	<.02	<.005	<.002
05-14-03	<.02	<.010	<.02	<.008	<.02	<.005	<.009	<.02	<.034	<.010	<.02	<.005	<.002
05-13-03	<.02	<.010	<.02	<.008	<.02	<.005	<.009	<.02	<.034	<.010	<.02	<.005	<.002
08-20-03	--	--	--	--	--	<.10	--	--	<.100	--	--	--	--
08-28-03	--	--	--	--	--	<.10	--	--	<.250	--	--	--	--
08-20-03	--	--	--	--	--	<.10	--	--	<.100	--	--	--	--
08-21-03	--	--	--	--	--	<.10	--	--	<.100	--	--	--	--
08-26-03	--	--	--	--	--	<.10	--	--	<.100	--	--	--	--
08-27-03	--	--	--	--	--	<.10	--	--	<.100	--	--	--	--
08-19-03	--	--	--	--	--	<.10	--	--	<.100	--	--	--	--
08-21-03	--	--	--	--	--	<.10	--	--	<.100	--	--	--	--
08-28-03	--	--	--	--	--	<.10	--	--	<.250	--	--	--	--
08-26-03	--	--	--	--	--	<.10	--	--	<.100	--	--	--	--
09-04-03	--	--	--	--	--	<.10	--	--	--	--	--	--	--
10-02-03	--	--	--	--	--	<.10	--	--	--	--	--	--	--
BEDFORD COUNTY													
04-08-03	<.02	--	--	--	--	.016	--	<.02	<.034	--	<.02	<.005	<.002
BLAIR COUNTY													
03-25-03	<.02	--	--	--	--	.055	--	<.02	<.034	--	<.02	<.005	<.002
05-12-03	<.02	--	--	--	--	.126	--	<.02	<.034	--	<.02	<.005	<.002
08-14-03	--	--	--	--	--	.26	--	--	--	--	--	--	--
CENTRE COUNTY													
04-22-03	<.02	--	--	--	--	<.005	--	<.02	<.034	--	<.02	<.005	<.002
CUMBERLAND COUNTY													
04-08-03	<.02	--	--	--	--	.026	--	<.02	<.034	--	<.02	<.005	<.002
05-13-03	<.02	<.010	<.02	<.008	<.02	<.005	<.009	<.02	<.034	<.010	<.02	<.005	<.002
LANCASTER COUNTY													
03-26-03	<.02	--	--	--	--	.074	--	<.02	E.280	--	<.02	<.005	<.002
05-15-03	<.02	--	--	--	--	.049	--	E.01	E.233	--	<.02	<.005	<.002
08-13-03	--	--	--	--	--	<.10	--	--	--	--	--	--	--
04-16-03	<.02	--	--	--	--	E.004	--	<.02	<.034	--	<.02	<.005	<.002
04-09-03	<.02	--	--	--	--	<.005	--	<.02	<.034	--	<.02	<.005	<.002
04-02-03	<.02	--	--	--	--	<.005	--	<.02	<.034	--	<.02	<.005	<.002
04-16-03	<.02	--	--	--	--	.040	--	<.02	<.034	--	<.02	<.005	<.002
04-16-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-16-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-09-03	<.02	--	--	--	--	<.005	--	<.02	<.034	--	<.02	<.005	<.002
LEBANON COUNTY													
04-02-03	<.02	--	--	--	--	.006	--	<.02	<.034	--	<.02	<.005	<.002
LYCOMING COUNTY													
04-30-03	<.02	--	--	--	--	<.005	--	<.02	<.034	--	<.02	<.005	<.002
04-30-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-30-03	--	--	--	--	--	--	--	--	--	--	--	--	--
MIFFLIN COUNTY													
04-14-03	<.02	--	--	--	--	.018	--	<.02	<.034	--	<.02	<.005	<.002

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

WATER-QUALITY DATA, WATER YEARS OCTOBER 2002 TO SEPTEMBER 2003

Date	Tri-clopyr, water, fltrd 0.7µ GF µg/L (49235)	Tri-flur-alin, water, fltrd 0.7µ GF µg/L (82661)	Phos-phami-don, water fltrd 0.7µ GF µg/L	Purpose site visit, code (50280)	Sample purpose code (71999)	Sample volume, Sched-ule 2001, mL (99856)	Sample volume, Sched-ules 2060 & 9060, mL (99840)	Sam-pling condi-tion, code (72006)	Type of sample related QA data, code (99111)	Type of repli-cate, code (99105)	Data base number	Medium code
ADAMS COUNTY												
05-05-03	<.02	<.009	--	2001	50.00	961	965	8.00	100	--	01	6
05-05-03	<.02	<.009	--	2001	50.00	927	971	8.00	10	--	01	6
05-08-03	<.02	<.009	--	2001	50.00	931	951	8.00	--	--	01	6
05-07-03	<.02	<.009	--	2001	50.00	933	957	8.00	--	--	01	6
05-07-03	<.02	<.009	--	2001	50.00	935	937	8.00	--	--	01	6
05-06-03	<.02	<.009	--	2001	50.00	943	929	8.00	100	--	01	6
05-14-03	<.02	<.009	--	2001	50.00	938	947	8.00	--	--	01	6
05-14-03	<.02	<.009	--	2001	50.00	937	956	8.00	--	--	01	6
05-13-03	<.02	<.009	--	2001	50.00	941	933	8.00	40	--	01	6
08-20-03	--	--	<0.10	2001	50.00	--	--	8.00	--	--	01	6
08-28-03	--	--	<0.10	2001	50.00	--	--	8.00	--	--	01	6
08-20-03	--	--	<0.10	2001	50.00	--	--	8.00	--	--	01	6
08-21-03	--	--	<0.10	2001	50.00	--	--	8.00	--	--	01	6
08-26-03	--	--	<0.10	2001	50.00	--	--	8.00	--	--	01	6
08-27-03	--	--	<0.10	2001	50.00	--	--	8.00	100	--	01	6
08-19-03	--	--	<0.10	2001	50.00	--	--	8.00	--	--	01	6
08-21-03	--	--	<0.10	2001	50.00	--	--	8.00	--	--	01	6
08-28-03	--	--	<0.10	2001	50.00	--	--	8.00	--	--	01	6
08-26-03	--	--	<0.10	2001	50.00	--	--	8.00	--	--	01	6
09-04-03	--	--	--	2001	50.00	--	--	8.00	--	--	01	6
10-02-03	--	--	--	2001	50.00	--	--	8.00	--	--	01	6
BEDFORD COUNTY												
04-08-03	--	<.009	--	2001	50.00	935	--	8.00	10	--	01	6
BLAIR COUNTY												
03-25-03	--	<.009	--	2001	50.00	917	--	8.00	--	--	01	6
05-12-03	--	<.009	--	2001	50.00	947	--	8.00	--	--	01	6
08-14-03	--	--	--	2001	50.00	--	--	8.00	--	--	01	6
CENTRE COUNTY												
04-22-03	--	<.009	--	2001	50.00	937	--	8.00	--	--	01	6
CUMBERLAND COUNTY												
04-08-03	--	<.009	--	2001	50.00	932	--	8.00	--	--	01	6
05-13-03	<.02	<.009	--	2001	50.00	923	924	8.00	40	--	01	6
LANCASTER COUNTY												
03-26-03	--	<.009	--	2001	50.00	945	--	8.00	--	--	01	6
05-15-03	--	<.009	--	2001	50.00	960	--	8.00	--	--	01	6
08-13-03	--	--	--	2001	50.00	--	--	8.00	--	--	01	6
04-16-03	--	<.009	--	2001	50.00	953	--	8.00	--	--	01	6
04-09-03	--	<.009	--	2001	50.00	930	--	8.00	--	--	01	6
04-02-03	--	<.009	--	2001	50.00	949	--	8.00	10	--	01	6
04-16-03	--	<.009	--	2001	50.00	958	--	8.00	30	20.00	01	6
04-16-03	--	--	--	2098	50.00	--	--	8.00	--	20.00	02	S
04-16-03	--	--	--	2098	50.00	--	--	8.00	--	20.00	02	S
04-09-03	--	<.009	--	2001	50.00	926	--	8.00	--	--	01	6
LEBANON COUNTY												
04-02-03	--	<.009	--	2001	50.00	938	--	8.00	--	--	01	6
LYCOMING COUNTY												
04-30-03	--	<.009	--	2001	50.00	934	--	8.00	30	30.00	01	6
04-30-03	--	--	--	2098	50.00	--	--	8.00	--	30.00	02	S
04-30-03	--	--	--	2098	50.00	--	--	8.00	--	30.00	02	S
MIFFLIN COUNTY												
04-14-03	--	<.009	--	2001	50.00	935	--	8.00	--	--	01	6

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

REMARKS.--The following are quality-control samples (blanks) processed during the 2003 water year. "Blanks" are defined in the explanation of records section entitled, "Water Quality-Control Data"; "<" = less than; µg/L: micrograms per liter (parts per billion); mg/L = milligrams per liter (parts per million); Network Identifier BT = Baseline Trends or AB = Annual Baseline; CIAT = desethyl atrazine; CEAT = deisopropylatrazine; OIET = 2-hydroxyatrazine; DCPA = dacthal.

QUALITY-CONTROL DATA, WATER YEARS OCTOBER 2002 TO SEPTEMBER 2003

Station number	Local Well ID	Network Identifier	Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Depth of well, feet below LSD (72008)	Altitude of land surface feet (72000)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	E coli, Colilert Quantry water, MPN/ 100 mL (50468)	Total coliform, Colert Quantry MPN/ 100 mL (50569)
401435076540910	Lemoyne Station	--	03-24-03	2000	1028	80020	--	--	--	--	<1	<1
401435076540910	Lemoyne Station	--	03-24-03	2010	1028	80020	--	--	--	--	--	--
401435076540910	Lemoyne Station	--	03-24-03	2015	1028	80020	--	--	<.06	<.008	--	--
401435076540910	Lemoyne Station	--	05-06-03	1300	1028	80020	--	--	--	--	--	--
401435076540910	Lemoyne Station	--	05-06-03	1305	1028	80020	--	--	--	--	--	--
401307076224301	LN 2113	BT	04-02-03	1605	1028	80020	200	500	--	--	<1	<1
401525078213801	BD 653	BT	04-08-03	1450	1028	80020	170	1370	--	--	<1	<1
394850077223401	AD 1155	AB	05-05-03	0720	1028	9813	202	670	--	--	<1	<1
394850077223401	AD 1155	AB	05-05-03	1100	1028	9813	202	670	--	--	<1	<1
395212077214701	AD 1156	AB	05-05-03	0745	1028	80020	220	720	<.06	<.008	--	--

Date	2,4,5-T surrog, water, fltrd, percent recovry (99958)	2,4-D water, fltrd, µg/L (50470)	2,4-D water, fltrd, µg/L (39732)	2,4-DB water, fltrd 0.7µ GF µg/L (38746)	2,6-Diethylaniline water fltrd 0.7µ GF µg/L (82660)	CIAT, water, fltrd, µg/L (04040)	CEAT, water, fltrd, µg/L (04038)	OIET, water, fltrd, µg/L (50355)	3-Hydroxy carbofuran, wat flt 0.7µ GF µg/L (49308)	3-Ketocarbofuran, water, fltrd, µg/L (50295)	Acetochlor, water, fltrd, µg/L (49260)	Acifluorfen, water, fltrd 0.7µ GF µg/L (49315)	Alachlor, water, fltrd, µg/L (46342)
03-24-03	--	--	--	--	--	--	--	--	--	--	--	--	--
03-24-03	--	--	--	--	<.006	<.006	--	--	--	--	<.006	--	<.004
03-24-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-06-03	--	--	--	--	<.006	<.006	--	--	--	--	<.006	--	<.004
05-06-03	77.6	<.009	<.02	<.02	--	<.03	<.04	<.008	<.006	<2	--	<.007	--
04-02-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-08-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	Aldicarb sulfone water, fltrd 0.7µ GF µg/L (49313)	Aldicarb sulfoxide, wat flt 0.7µ GF µg/L (49314)	Aldicarb, water, fltrd 0.7µ GF µg/L (49312)	alpha-HCH, water, fltrd, µg/L (34253)	alpha-HCH-d6, surrog, wat flt 0.7µ GF percent recovry (91065)	Atrazine, water, fltrd, µg/L (39632)	Azinphos-methyl, water, fltrd 0.7µ GF µg/L (82686)	Barban, surrog, Sched. 2060/ 9060, wat flt pct rcv (90640)	Bendiocarb, water, fltrd, µg/L (50299)	Benfluralin, water, fltrd 0.7µ GF µg/L (82673)	Benomyl water, fltrd, µg/L (50300)	Bensulfuron, water, fltrd, µg/L (61693)	Bentazon, water, fltrd 0.7µ GF µg/L (38711)
03-24-03	--	--	--	--	--	--	--	--	--	--	--	--	--
03-24-03	--	--	--	<.005	79.4	<.007	<.050	--	--	<.010	--	--	--
03-24-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-06-03	--	--	--	<.005	91.8	<.007	<.050	--	--	<.010	--	--	--
05-06-03	<.02	<.008	<.04	--	--	<.009	--	91.6	<.03	--	<.004	<.02	<.01
04-02-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-08-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

QUALITY-CONTROL DATA, WATER YEARS OCTOBER 2002 TO SEPTEMBER 2003

Date	Broma-cil, water, fltrd, µg/L (04029)	Brom-oxynil, water, fltrd 0.7µ GF µg/L (49311)	Butyl-ate, water, fltrd, µg/L (04028)	Caf-feine, water, fltrd, µg/L (50305)	Caf-feine-13C, surrog, wat flt percent recovry (99959)	Car-baryl, water, fltrd 0.7µ GF µg/L (49310)	Car-baryl, water, fltrd 0.7µ GF µg/L (82680)	Carbo-furan, water, fltrd 0.7µ GF µg/L (49309)	Carbo-furan, water, fltrd 0.7µ GF µg/L (82674)	Chlor-amben methyl ester, water, fltrd, µg/L (61188)	Chlori-muron, water, fltrd, µg/L (50306)	Chloro-di-amino-s-tri-azine, wat flt µg/L (04039)	Chloro-thalo-nil, water, fltrd 0.7µ GF µg/L (49306)
03-24-03	--	--	--	--	--	--	--	--	--	--	--	--	--
03-24-03	--	--	<.002	--	--	--	<.041	--	<.020	--	--	--	--
03-24-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-06-03	--	--	<.002	--	--	--	<.041	--	<.020	--	--	--	--
05-06-03	<.03	<.02	--	<.010	115	<.03	--	<.006	--	<.02	<.010	<.01	<.04
04-02-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-08-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	Chlor-pyrifos water, fltrd, µg/L (38933)	cis-Per-methrin water fltrd 0.7µ GF µg/L (82687)	Clopyr-alid, water, fltrd 0.7µ GF µg/L (49305)	Cyana-zine, water, fltrd, µg/L (04041)	Cyclo-ate, water, fltrd, µg/L (04031)	Dacthal mono-acid, water, fltrd 0.7µ GF µg/L (49304)	DCPA, water fltrd 0.7µ GF µg/L (82682)	Desulf-inyl fipro-nil, water, fltrd, µg/L (62170)	Diazi-non, water, fltrd, µg/L (39572)	Diazi-non-d10 surrog. wat flt 0.7µ GF percent recovry (91063)	Dicamba water fltrd 0.7µ GF µg/L (38442)	Di-chlor-prop, water, fltrd 0.7µ GF µg/L (49302)	Diel-drin, water, fltrd, µg/L (39381)
03-24-03	--	--	--	--	--	--	--	--	--	--	--	--	--
03-24-03	<.005	<.006	--	<.018	--	--	<.003	<.004	<.005	107	--	--	<.005
03-24-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-06-03	<.005	<.006	--	<.018	--	--	<.003	<.004	<.005	105	--	--	<.005
05-06-03	--	--	<.01	--	<.01	<.01	--	--	--	--	<.01	<.01	--
04-02-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-08-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	Dinoseb water, fltrd 0.7µ GF µg/L (49301)	Diphen-amid, water, fltrd, µg/L (04033)	Disul-foton, water, fltrd 0.7µ GF µg/L (82677)	Diuron, water, fltrd 0.7µ GF µg/L (49300)	EPTC, water, fltrd 0.7µ GF µg/L (82668)	Ethal-flur-alin, water, fltrd 0.7µ GF µg/L (82663)	Etho-prop, water, fltrd 0.7µ GF µg/L (82672)	Fenuron water, fltrd 0.7µ GF µg/L (49297)	Desulf-inyl-fipro-nil amide, wat flt µg/L (62169)	Fipro-nil sulfide water, fltrd, µg/L (62167)	Fipro-nil sulfone water, fltrd, µg/L (62168)	Fipro-nil, water, fltrd, µg/L (62166)	Flumet-sulam, water, fltrd, µg/L (61694)
03-24-03	--	--	--	--	--	--	--	--	--	--	--	--	--
03-24-03	--	--	<.02	--	<.002	<.009	<.005	--	<.009	<.005	<.005	<.007	--
03-24-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-06-03	--	--	<.02	--	<.002	<.009	<.005	--	<.009	<.005	<.005	<.007	--
05-06-03	<.01	<.03	--	<.01	--	--	--	<.03	--	--	--	--	<.01
04-02-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-08-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

QUALITY-CONTROL DATA, WATER YEARS OCTOBER 2002 TO SEPTEMBER 2003

Date	Fluo-meturon water fltrd 0.7µ GF µg/L (38811)	Fonofos water, fltrd, µg/L (04095)	Imaza-quin, water, fltrd, µg/L (50356)	Imaze-thapyr, water, fltrd, µg/L (50407)	Imida-cloprid water, fltrd, µg/L (61695)	Lindane water, fltrd, µg/L (39341)	Linuron water fltrd 0.7µ GF µg/L (38478)	Linuron water fltrd 0.7µ GF µg/L (82666)	Mala-thion, water, fltrd, µg/L (39532)	MCPA, water, fltrd 0.7µ GF µg/L (38482)	MCPB, water, fltrd 0.7µ GF µg/L (38487)	Meta-laxyl, water, fltrd, µg/L (50359)	Methio-carb, water, fltrd 0.7µ GF µg/L (38501)
03-24-03	--	--	--	--	--	--	--	--	--	--	--	--	--
03-24-03	--	<.003	--	--	--	<.004	--	<.035	<.027	--	--	--	--
03-24-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-06-03	--	<.003	--	--	--	<.004	--	<.035	<.027	--	--	--	--
05-06-03	<.03	--	<.02	<.02	<.007	--	<.01	--	--	<.02	<.01	<.02	<.008
04-02-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-08-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	Meth-omyl, water, fltrd 0.7µ GF µg/L (49296)	Methyl para-thion, water, fltrd 0.7µ GF µg/L (82667)	Metola-chlor, water, fltrd, µg/L (39415)	Metri-buzin, water, fltrd, µg/L (82630)	Metsul-furon, water, fltrd, µg/L (61697)	Moli-nate, water, fltrd 0.7µ GF µg/L (82671)	N-(4-Chloro-phenyl) -N'-methyl-urea, µg/L (61692)	Naprop-amide, water, fltrd 0.7µ GF µg/L (82684)	Neburon water, fltrd 0.7µ GF µg/L (49294)	Nico-sul-furon, water, fltrd, µg/L (50364)	Norflur azon, water, fltrd 0.7µ GF µg/L (49293)	Ory-zalin, water, fltrd 0.7µ GF µg/L (49292)	Oxamyl, water, fltrd 0.7µ GF µg/L (38866)
03-24-03	--	--	--	--	--	--	--	--	--	--	--	--	--
03-24-03	--	<.006	<.013	<.006	--	<.002	--	<.007	--	--	--	--	--
03-24-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-06-03	--	<.006	<.013	<.006	--	<.002	--	<.007	--	--	--	--	--
05-06-03	<.004	--	--	--	<.03	--	<.02	--	<.01	<.01	<.02	<.02	<.01
04-02-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-08-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	p,p'-DDE, water, fltrd, µg/L (34653)	Para-thion, water, fltrd, µg/L (39542)	Peb-ulate, water, fltrd 0.7µ GF µg/L (82669)	Pendi-meth-alin, water, fltrd 0.7µ GF µg/L (82683)	Phorate fltrd 0.7µ GF µg/L (82664)	Pic-loram, water, fltrd 0.7µ GF µg/L (49291)	Prome-ton, water, fltrd, µg/L (04037)	Pron-amide, water, fltrd 0.7µ GF µg/L (82676)	Propa-chlor, water, fltrd, µg/L (04024)	Pro-panil, water, fltrd 0.7µ GF µg/L (82679)	Propar-gite, water, fltrd 0.7µ GF µg/L (82685)	Propham water fltrd 0.7µ GF µg/L (49236)	Propi-cona-zole, water, fltrd, µg/L (50471)
03-24-03	--	--	--	--	--	--	--	--	--	--	--	--	--
03-24-03	<.003	<.010	<.004	<.022	<.011	--	<.01	<.004	<.010	<.011	<.02	--	--
03-24-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-06-03	<.003	<.010	<.004	<.022	<.011	--	<.01	<.004	<.010	<.011	<.02	--	--
05-06-03	--	--	--	--	--	<.02	--	--	--	--	--	<.010	<.02
04-02-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-08-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	--

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

QUALITY-CONTROL DATA, WATER YEARS OCTOBER 2002 TO SEPTEMBER 2003

Date	Pro-poxur, water, fltrd 0.7µ GF µg/L (38538)	Siduron water, fltrd, µg/L (38548)	Sima-zine, water, fltrd, µg/L (04035)	Sulfo-met-ruron, water, fltrd, µg/L (50337)	Tebu-thiuron water fltrd 0.7µ GF µg/L (82670)	Terba-cil, water, fltrd 0.7µ GF µg/L (82665)	Terba-cil, water, fltrd, µg/L (04032)	Terbu-fos, water, fltrd 0.7µ GF µg/L (82675)	Thio-bencarb water fltrd 0.7µ GF µg/L (82681)	Tri-allate, water, fltrd 0.7µ GF µg/L (82678)	Tri-clopyr, water, fltrd 0.7µ GF µg/L (49235)	Tri-flur-alin, water, fltrd 0.7µ GF µg/L (82661)	Purpose site visit, code (50280)
03-24-03	--	--	--	--	--	--	--	--	--	--	--	--	2098
03-24-03	--	--	<.005	--	<.02	<.034	--	<.02	<.005	<.002	--	<.009	2098
03-24-03	--	--	--	--	--	--	--	--	--	--	--	--	2098
05-06-03	--	--	<.005	--	<.02	<.034	--	<.02	<.005	<.002	--	<.009	2098
05-06-03	<.008	<.02	--	<.009	<.006	--	<.010	--	--	--	<.02	--	2098
04-02-03	--	--	--	--	--	--	--	--	--	--	--	--	2098
04-08-03	--	--	--	--	--	--	--	--	--	--	--	--	2098
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	2098
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	2098
05-05-03	--	--	--	--	--	--	--	--	--	--	--	--	2098

Date	Sample purpose code (71999)	Sample volume, Sched-ule 2001, mL (99856)	Sample volume, Sched-ules 2060 & 9060, mL (99840)	Source of blank solu-tion, code (99101)	Refer-ence mater-ial or spike lot number (99104)	Type of blank sample, code (99102)	Type of blank solu-tion, code (99100)
03-24-03	50.00	--	--	80.00	--	200.00	200.00
03-24-03	50.00	924	--	10.00	80201	200.00	40.00
03-24-03	50.00	--	--	80.00	2330	200.00	10.00
05-06-03	50.00	938	--	10.00	80201	150.00	40.00
05-06-03	50.00	--	933	10.00	80201	150.00	40.00
04-02-03	50.00	--	--	80.00	--	100.00	200.00
04-08-03	50.00	--	--	80.00	--	100.00	200.00
05-05-03	50.00	--	--	80.00	--	30.00	200.00
05-05-03	50.00	--	--	80.00	--	100.00	200.00
05-05-03	50.00	--	--	80.00	2330	30.00	10.00

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

401435076540910 - LEMOYNE STATION QUALITY-ASSURANCE RESULTS

REMARKS.--A commercially-available and USGS-certified mixture of pesticides and herbicides was spiked into approximately 3 liters of organic-free blank water May 6, 2003 to create three 1-L triplicate quality-assurance samples which were submitted to the U.S. Geological Survey National Water Quality Laboratory. These samples are used to determine both precision and accuracy. Concentrations of pesticides and herbicides (in µg/L) and calculated recoveries (in percent) are shown in the table below for estimation of accuracy. Less-than values were set equal to zero for calculations; E = estimated value; "<" = less than.

QUALITY-CONTROL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003--Continued

		Concentration, in micrograms per liter			
		Laboratory results			
Parameter code	Constituent	Blank (05/06/03 @ 1300) A	Spiked Blank (05/06/03 @ 1240) B	[a] Calculated concentration in spiked blank C	Recovery in percent [(B-A)/C] x 100
49260	Acetochlor	<0.006	0.494	.40	124
46342	Alachlor	<0.004	0.477	.40	119
34253	Alpha BHC	<0.005	0.415	.40	104
39632	Atrazine	<0.007	0.444	.40	111
82673	Benfluralin	<0.010	0.307	.40	77
04028	Butylate	<0.002	0.425	.40	106
82680	Carbaryl	<0.041	E0.282	.40	71
82674	Carbofuran	<0.020	E0.368	.40	92
38933	Chlorpyrifos	<0.005	0.367	.40	92
04041	Cyanazine	<0.018	0.467	.40	117
82682	DCPA (Dacthal)	<0.003	0.437	.40	109
04040	CIAT (Desethyl Atrazine)	<0.006	E0.205	.40	51
39572	Diazinon	<0.005	0.423	.40	106
39381	Dieldrin	<0.005	0.347	.39	89
82660	2,6-Diethyl Aniline	<0.006	0.347	.40	87
82677	Disulfoton	<0.02	0.174	.40	44
82668	EPTC	<0.002	0.344	.40	86
82663	Ethalfluralin	<0.009	0.338	.40	84
82672	Ethoprop	<0.005	0.315	.40	79
04095	Fonofos	<0.003	0.444	.40	111
39341	Lindane	<0.004	0.436	.40	109
82666	Linuron	<0.035	0.488	.40	122
39532	Malathion	<0.027	0.330	.39	85
82686	Methyl Azinphos	<0.050	E0.128	.40	32
82667	Methyl Parathion	<0.006	0.348	.40	87
39415	Metolachlor	<0.013	0.484	.40	121
82630	Metribuzin	<0.006	0.396	.40	99
82671	Molinate	<0.002	0.366	.40	92
82684	Napropamide	<0.007	0.294	.40	74
34653	P, P' DDE	<0.003	0.225	.40	56
39542	Parathion	<0.010	0.369	.40	92
82669	Pebulate	<0.004	0.360	.40	90
82683	Pendimethalin	<0.022	0.284	.40	71
82687	Permethrin, cis	<0.006	0.208	.40	52
82664	Phorate	<0.011	0.297	.40	74
04037	Prometon	<0.01	0.416	.40	104
82676	Pronamide	<0.004	0.409	.40	103
04024	Propachlor	<0.010	0.411	.40	103
82679	Propanil	<0.011	0.403	.40	101
82685	Propargite	<0.02	0.218	.40	54
04035	Simazine	<0.005	0.420	.40	105
82670	Tebuthiuron	<0.02	0.398	.40	100
82665	Terbacil	<0.034	E0.334	.40	84
82675	Terbufos	<0.02	0.304	.40	76
82681	Thiobencarb	<0.005	0.410	.40	102
82678	Triallate	<0.002	0.395	.40	99
82661	Trifluralin	<0.009	0.317	.40	79
				Mean recovery	90
				Standard deviation	21
				Median recovery	92

a Calculated concentration of spike in sample equals the concentration of the spike solution, in micrograms per milliliter x amount of spike added, in milliliters, divided by the spiked sample volume, in liters.

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

401435076540910 - LEMOYNE STATION QUALITY-ASSURANCE RESULTS

REMARKS.--A commercially-available and USGS-certified mixture of pesticides and herbicides was spiked into approximately 3 liters of organic-free blank water May 6, 2003 to create three 1-L triplicate quality-assurance samples which were submitted to the U.S. Geological Survey National Water Quality Laboratory. These samples are used to determine both precision and accuracy. Concentrations of pesticides and herbicides (in µg/L) and calculated recoveries (in percent) are shown in the table below for estimation of accuracy. Less-than values were set equal to zero for calculations; E = estimated value; "<" = less than.

QUALITY-CONTROL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003--Continued

		Concentration, in micrograms per liter			
		Laboratory results			
Parameter code	Constituent	Blank (05/06/03 @ 1300) A	Spiked Blank (05/06/03 @ 1241) B	**a** Calculated concentration in spiked blank C	Recovery in percent [(B-A)/C] x 100
49260	Acetochlor	<0.006	0.488	.40	122
46342	Alachlor	<0.004	0.466	.40	116
34253	Alpha BHC	<0.005	0.417	.40	104
39632	Atrazine	<0.007	0.450	.40	112
82673	Benfluralin	<0.010	0.322	.40	80
04028	Butylate	<0.002	0.442	.40	110
82680	Carbaryl	<0.041	E0.265	.40	66
82674	Carbofuran	<0.020	E0.360	.40	90
38933	Chlorpyrifos	<0.005	0.386	.40	96
04041	Cyanazine	<0.018	0.473	.40	118
82682	DCPA (Dacthal)	<0.003	0.430	.40	108
04040	CIAT (Desethyl Atrazine)	<0.006	E0.203	.40	51
39572	Diazinon	<0.005	0.439	.40	110
39381	Dieldrin	<0.005	0.379	.39	97
82660	2,6-Diethyl Aniline	<0.006	0.353	.40	88
82677	Disulfoton	<0.02	0.170	.40	42
82668	EPTC	<0.002	0.353	.40	88
82663	Ethalfluralin	<0.009	0.342	.40	86
82672	Ethoprop	<0.005	0.324	.40	81
04095	Fonofos	<0.003	0.444	.40	111
39341	Lindane	<0.004	0.429	.40	107
82666	Linuron	<0.035	0.457	.40	114
39532	Malathion	<0.027	0.319	.39	82
82686	Methyl Azinphos	<0.050	E0.122	.40	30
82667	Methyl Parathion	<0.006	0.330	.40	82
39415	Metolachlor	<0.013	0.479	.40	120
82630	Metribuzin	<0.006	0.393	.40	98
82671	Molinate	<0.002	0.366	.40	92
82684	Napropamide	<0.007	0.321	.40	80
34653	P, P' DDE	<0.003	0.245	.40	61
39542	Parathion	<0.010	0.367	.40	92
82669	Pebulate	<0.004	0.366	.40	92
82683	Pendimethalin	<0.022	0.304	.40	76
82687	Permethrin, cis	<0.006	0.220	.40	55
82664	Phorate	<0.011	0.305	.40	76
04037	Prometon	<0.01	0.429	.40	107
82676	Pronamide	<0.004	0.402	.40	100
04024	Propachlor	<0.010	0.405	.40	101
82679	Propanil	<0.011	0.383	.40	96
82685	Propargite	<0.02	0.237	.40	59
04035	Simazine	<0.005	0.412	.40	103
82670	Tebuthiuron	<0.02	0.399	.40	100
82665	Terbacil	<0.034	E0.316	.40	79
82675	Terbufos	<0.02	0.321	.40	80
82681	Thiobencarb	<0.005	0.414	.40	104
82678	Triallate	<0.002	0.400	.40	100
82661	Trifluralin	<0.009	0.331	.40	83
				Mean recovery	90
				Standard deviation	21
				Median recovery	92

a Calculated concentration of spike in sample equals the concentration of the spike solution, in micrograms per milliliter x amount of spike added, in milliliters, divided by the spiked sample volume, in liters.

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

401435076540910 - LEMOYNE STATION QUALITY-ASSURANCE RESULTS

REMARKS.--A commercially-available and USGS-certified mixture of pesticides and herbicides was spiked into approximately 3 liters of organic-free blank water May 6, 2003 to create three 1-L triplicate quality-assurance samples which were submitted to the U.S. Geological Survey National Water Quality Laboratory. These samples are used to determine both precision and accuracy. Concentrations of pesticides and herbicides (in µg/L) and calculated recoveries (in percent) are shown in the table below for estimation of accuracy. Less-than values were set equal to zero for calculations; E = estimated value; "<" = less than.

QUALITY-CONTROL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003--Continued

		Concentration, in micrograms per liter			
		Laboratory results			
Parameter code	Constituent	Blank (05/06/03 @ 1300) A	Spiked Blank (05/06/03 @ 1242) B	[a] Calculated concentration in spiked blank C	Recovery in percent [(B-A)/C] x 100
49260	Acetochlor	<0.006	0.498	.40	124
46342	Alachlor	<0.004	0.475	.40	119
34253	Alpha BHC	<0.005	0.404	.40	101
39632	Atrazine	<0.007	0.440	.40	110
82673	Benfluralin	<0.010	0.334	.40	84
04028	Butylate	<0.002	0.413	.40	103
82680	Carbaryl	<0.041	E0.321	.40	80
82674	Carbofuran	<0.020	E0.384	.40	96
38933	Chlorpyrifos	<0.005	0.400	.40	100
04041	Cyanazine	<0.018	0.464	.40	116
82682	DCPA (Dacthal)	<0.003	0.429	.40	107
04040	CIAT (Desethyl Atrazine)	<0.006	E0.208	.40	52
39572	Diazinon	<0.005	0.446	.40	112
39381	Dieldrin	<0.005	0.350	.39	90
82660	2,6-Diethyl Aniline	<0.006	0.334	.40	84
82677	Disulfoton	<0.02	0.165	.40	41
82668	EPTC	<0.002	0.330	.40	82
82663	Ethalfluralin	<0.009	0.346	.40	86
82672	Ethoprop	<0.005	0.326	.40	82
04095	Fonofos	<0.003	0.452	.40	113
39341	Lindane	<0.004	0.420	.40	105
82666	Linuron	<0.035	0.494	.40	124
39532	Malathion	<0.027	0.368	.39	94
82686	Methyl Azinphos	<0.050	E0.132	.40	33
82667	Methyl Parathion	<0.006	0.355	.40	89
39415	Metolachlor	<0.013	0.502	.40	126
82630	Metribuzin	<0.006	0.398	.40	100
82671	Molinate	<0.002	0.360	.40	90
82684	Napropamide	<0.007	0.308	.40	77
34653	P, P' DDE	<0.003	0.220	.40	55
39542	Parathion	<0.010	0.391	.40	98
82669	Pebulate	<0.004	0.360	.40	90
82683	Pendimethalin	<0.022	0.314	.40	79
82687	Permethrin, cis	<0.006	0.204	.40	51
82664	Phorate	<0.011	0.299	.40	75
04037	Prometon	<0.01	0.436	.40	109
82676	Pronamide	<0.004	0.410	.40	102
04024	Propachlor	<0.010	0.405	.40	101
82679	Propanil	<0.011	0.409	.40	102
82685	Propargite	<0.02	0.224	.40	56
04035	Simazine	<0.005	0.430	.40	108
82670	Tebuthiuron	<0.02	0.386	.40	96
82665	Terbacil	<0.034	E0.332	.40	83
82675	Terbufos	<0.02	0.322	.40	80
82681	Thiobencarb	<0.005	0.420	.40	105
82678	Triallate	<0.002	0.403	.40	101
82661	Trifluralin	<0.009	0.339	.40	85
				Mean recovery	91
				Standard deviation	21
				Median recovery	96

a Calculated concentration of spike in sample equals the concentration of the spike solution, in micrograms per milliliter x amount of spike added, in milliliters, divided by the spiked sample volume, in liters.

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

401435076540910 - LEMOYNE STATION QUALITY-ASSURANCE RESULTS

REMARKS.--A commercially-available mixture of pesticides was spiked into approximately 3 liters of organic-free blank water May 6, 2003 to create three 1-L triplicate quality assurance samples which were submitted to the U.S. Geological Survey National Water Quality Laboratory. These samples are used to determine both precision and accuracy. Concentrations of pesticides and herbicides (in µg/L) and calculated recoveries (in percent) are shown in the table below for estimation of accuracy. Less-than values were set equal to zero for calculations; E = estimated value; "<" = less than.

QUALITY-CONTROL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003--Continued

		Concentration, in micrograms per liter			
		Laboratory results			
Parameter code	Constituent	Blank (05/06/03 @ 1305) A	Spiked Blank (05/06/03 @ 1243) B	[a] Calculated concentration in spiked blank C	Recovery in percent [(B-A)/C] x 100
49312	Aldicarb	<0.04	E1.47	3.2	46
49313	Aldicarb sulfone	<0.02	E1.51	3.2	47
49314	Aldicarb sulfoxide	<0.008	E1.19	3.2	37
49310	Carbaryl	<0.03	2.25	3.2	70
49309	Carbofuran	<0.006	2.47	3.2	77
49308	3-Hydroxy carbofuran	<0.006	2.05	3.2	64
38501	Methiocarb	<0.008	E2.31	3.2	72
49296	Methomyl	<0.004	E1.97	3.2	62
38866	Oxamyl	<0.01	1.46	3.2	46
38538	Propoxur	<0.008	2.17	3.2	68
				Mean recovery	59
				Standard deviation	14
				Median recovery	63

a Calculated concentration of spike in sample equals the concentration of the spike solution, in micrograms per milliliter x amount of spike added, in milliliters, divided by the spiked sample volume, in liters.

401435076540910 - LEMOYNE STATION QUALITY-ASSURANCE RESULTS

REMARKS.--A commercially-available mixture of pesticides was spiked into approximately 3 liters of organic-free blank water May 6, 2003 to create three 1-L triplicate quality assurance samples which were submitted to the U.S. Geological Survey National Water Quality Laboratory. These samples are used to determine both precision and accuracy. Concentrations of pesticides and herbicides (in µg/L) and calculated recoveries (in percent) are shown in the table below for estimation of accuracy. Less-than values were set equal to zero for calculations; E = estimated value; "<" = less than.

QUALITY-CONTROL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003--Continued

		Concentration, in micrograms per liter			
		Laboratory results			
Parameter code	Constituent	Blank (05/06/03 @ 1305) A	Spiked Blank (05/06/03 @ 1244) B	[a] Calculated concentration in spiked blank C	Recovery in percent [(B-A)/C] x 100
49312	Aldicarb	<0.04	E0.36	3.2	11
49313	Aldicarb sulfone	<0.02	E2.07	3.2	65
49314	Aldicarb sulfoxide	<0.008	E0.812	3.2	25
49310	Carbaryl	<0.03	2.36	3.2	74
49309	Carbofuran	<0.006	2.65	3.2	83
49308	3-Hydroxy carbofuran	<0.006	2.49	3.2	78
38501	Methiocarb	<0.008	E0.516	3.2	16
49296	Methomyl	<0.004	E0.930	3.2	29
38866	Oxamyl	<0.01	1.57	3.2	49
38538	Propoxur	<0.008	2.53	3.2	79
				Mean recovery	51
				Standard deviation	28
				Median recovery	57

a Calculated concentration of spike in sample equals the concentration of the spike solution, in micrograms per milliliter x amount of spike added, in milliliters, divided by the spiked sample volume, in liters.

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

401435076540910 - LEMOYNE STATION QUALITY-ASSURANCE RESULTS

REMARKS.--A commercially-available mixture of pesticides was spiked into approximately 3 liters of organic-free blank water May 6, 2003 to create three 1-L triplicate quality assurance samples which were submitted to the U.S. Geological Survey National Water Quality Laboratory. These samples are used to determine both precision and accuracy. Concentrations of pesticides and herbicides (in µg/L) and calculated recoveries (in percent) are shown in the table below for estimation of accuracy. Less-than values were set equal to zero for calculations; E = estimated value; "<" = less than.

QUALITY-CONTROL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003--Continued

		Concentration, in micrograms per liter			
		Laboratory results			
Parameter code	Constituent	Blank (05/06/03 @ 1305) A	Spiked Blank (05/06/03 @ 1245) B	Calculated concentration in spiked blank[a] C	Recovery in percent [(B-A)/C] x 100
49312	Aldicarb	<0.04	E0.35	3.2	11
49313	Aldicarb sulfone	<0.02	E2.02	3.2	63
49314	Aldicarb sulfoxide	<0.008	E0.743	3.2	23
49310	Carbaryl	<0.03	2.87	3.2	90
49309	Carbofuran	<0.006	2.95	3.2	92
49308	3-Hydroxy carbofuran	<0.006	2.77	3.2	87
38501	Methiocarb	<0.008	E0.520	3.2	16
49296	Methomyl	<0.004	E0.807	3.2	25
38866	Oxamyl	<0.01	1.89	3.2	59
38538	Propoxur	<0.008	2.74	3.2	86
				Mean recovery	55
				Standard deviation	33
				Median recovery	61

a Calculated concentration of spike in sample equals the concentration of the spike solution, in micrograms per milliliter x amount of spike added, in milliliters, divided by the spiked sample volume, in liters.

401435076540910 - LEMOYNE STATION QUALITY-ASSURANCE RESULTS

REMARKS.--A commercially-available and USGS-certified mixture of pesticides and herbicides was spiked into two 3-liter bottles of organic-free blank water August 27, 2003 to create three 1-L triplicate quality-assurance samples (2 1-liter bottles per sample). A commercially-available mixture of carbamate pesticides was spiked into approximately 3 liters of organic-free blank water at an elevated concentration due to the higher respective reporting limits for these three pesticides. Triplicate samples for carbamate pesticide analysis were submitted in 40-mL vials. All samples were analyzed at the Pennsylvania Department of Environmental Protection Bureau of Laboratories. Triplicate spiked samples are used to determine both precision and accuracy. Concentrations of analytes in blank water were assumed to be less than the reporting limits for purposes of calculations. Concentrations of pesticides and herbicides (in µg/L) and calculated recoveries (in percent) are shown in the table below for estimation of accuracy. Less-than values were set equal to zero for calculations; E = estimated value; "<" = less than.

QUALITY-CONTROL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003--Continued

		Concentration, in micrograms per liter			
		Laboratory results			
Parameter code	Constituent	Assumed Concentration of Blank A	Spiked Blank (08/27/03 @ 1100) B	Calculated concentration in spiked blank[a] C	Recovery in percent [(B-A)/C] x 100
49260	Acetochlor	<0.10	0.13	.40	32
46342	Alachlor	<0.10	0.38	.40	95
39632	Atrazine	<0.10	0.35	.40	88
38933	Chlorpyrifos (Dursban)	<0.10	0.34	.41	83
82686	Methyl Azinphos	<0.10	0.49	.40	122
82667	Methyl Parathion	<0.10	0.43	.41	105
39415	Metolachlor	<0.10	0.34	.40	85
82630	Metribuzin	<0.10	0.17	.40	42
82683	Pendimethalin	<0.10	0.38	.40	95
04035	Simazine	<0.10	0.41	.40	102
82665	Terbacil	<0.10	0.34	.40	85
Carbamates:					
49310	Carbaryl	<1.6	3.47	3.2	108
49296	Methomyl	<1.6	3.30	3.2	103
38866	Oxamyl	<1.6	3.35	3.2	105
				Mean recovery	89
				Standard deviation	25
				Median recovery	94

a Calculated concentration of spike in sample equals the concentration of the spike solution, in micrograms per milliliter x amount of spike added, in milliliters, divided by the spiked sample volume, in liters

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

401435076540910 - LEMOYNE STATION QUALITY-ASSURANCE RESULTS

REMARKS.--A commercially-available and USGS-certified mixture of pesticides and herbicides was spiked into two 3-liter bottles of organic-free blank water August 27, 2003 to create three 1-L triplicate quality-assurance samples (2 1-liter bottles per sample). A commercially-available mixture of carbamates pesticides was spiked into approximately 3 liters of organic-free blank water at an elevated concentration due to the higher respective reporting limits for these three pesticides. Triplicate samples for carbamate pesticide analysis were submitted in 40-mL vials. All samples were analyzed at the Pennsylvania Department of Environmental Protection Bureau of Laboratories. Triplicate spiked samples are used to determine both precision and accuracy. Concentions of analytes in blank water were assumed to be less than the reporting limits for purposes of calculations. Concentrations of pesticides and herbicides (in µg/L) and calculated recoveries (in percent) are shown in the table below for estimation of accuracy. Less-than values were set equal to zero for calculations; E = estimated value; "<" = less than.

QUALITY-CONTROL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003--Continued

		Concentration, in micrograms per liter			
		Laboratory results			
Parameter code	Constituent	Assumed Concentration of Blank A	Spiked Blank (08/27/03 @ 1105) B	Calculated concentration[a] in spiked blank C	Recovery in percent [(B-A)/C] x 100
49260	Acetochlor	<0.10	0.12	.40	30
46342	Alachlor	<0.10	0.38	.40	95
39632	Atrazine	<0.10	0.34	.40	85
38933	Chlorpyrifos (Dursban)	<0.10	0.34	.41	83
82686	Methyl Azinphos	<0.10	0.50	.40	125
82667	Methyl Parathion	<0.10	0.41	.41	100
39415	Metolachlor	<0.10	0.36	.40	90
82630	Metribuzin	<0.10	0.19	.40	48
82683	Pendimethalin	<0.10	0.37	.40	92
04035	Simazine	<0.10	0.40	.40	100
82665	Terbacil	<0.10	0.37	.40	92
Carbamates:					
49310	Carbaryl	<1.6	3.86	3.2	121
49296	Methomyl	<1.6	3.47	3.2	108
38866	Oxamyl	<1.6	3.32	3.2	104
				Mean recovery	91
				Standard deviation	25
				Median recovery	93

a Calculated concentration of spike in sample equals the concentration of the spike solution, in micrograms per milliliter x amount of spike added, in milliliters, divided by the spiked sample volume, in liters.

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

401435076540910 - LEMOYNE STATION QUALITY-ASSURANCE RESULTS

REMARKS.--A commercially-available and USGS-certified mixture of pesticides and herbicides was spiked into two 3-liter bottles of organic-free blank water August 27, 2003 to create three 1-L triplicate quality assurance samples (2 1-liter bottles per sample). A commercially-available mixture of carbamates pesticides was spiked into approximately 3 liters of organic-free blank water at an elevated concentration due to the higher respective reporting limits for these three pesticides. Triplicate samples for carbamate pesticide analysis were submitted in 40-mL vials. All samples were analyzed at the Pennsylvania Department of Environmental Protection Bureau of Laboratories. Triplicate spiked samples are used to determine both precision and accuracy. Concentrations of analytes in blank water were assumed to be less than the reporting limits for purposes of calculations. Concentrations of pesticides and herbicides (in µg/L) and calculated recoveries (in percent) are shown in the table below. Less-than values were set equal to zero for calculations; E = estimated value; "<" = less than.

QUALITY-CONTROL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003--Continued

		Concentration, in micrograms per liter			
		Laboratory results			
Parameter code	Constituent	Assumed Concentration of Blank A	Spiked Blank (08/27/03 @ 1110) B	Calculated concentration[a] in spiked blank C	Recovery in percent [(B-A)/C] x 100
49260	Acetochlor	<0.10	0.23	.40	58
46342	Alachlor	<0.10	0.44	.40	110
39632	Atrazine	<0.10	0.45	.40	112
38933	Chlorpyrifos (Dursban)	<0.10	0.42	.41	102
82686	Methyl Azinphos	<0.10	0.49	.40	122
82667	Methyl Parathion	<0.10	0.46	.41	112
39415	Metolachlor	<0.10	0.39	.40	98
82630	Metribuzin	<0.10	0.21	.40	52
82683	Pendimethalin	<0.10	0.45	.40	112
04035	Simazine	<0.10	0.54	.40	135
82665	Terbacil	<0.10	0.40	.40	100
Carbamates:					
49310	Carbaryl	<1.6	2.84	3.2	90
49296	Methomyl	<1.6	3.41	3.2	107
38866	Oxamyl	<1.6	3.06	3.2	96
				Mean recovery	100
				Standard deviation	22
				Median recovery	104

a Calculated concentration of spike in sample equals the concentration of the spike solution, in micrograms per milliliter x amount of spike added, in milliliters, divided by the spiked sample volume, in liters.

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

401435076540910 - LEMOYNE STATION QUALITY-ASSURANCE RESULTS

REMARKS.--A commercially-available anion solution (including nitrate-N and nitrite-N) of known concentration was spiked into 1-L of inorganic blank water on May 13, 2003 at 1130, 1131, and 1132, and three triplicate spiked samples were submitted for analysis for estimates of precision and accuracy. Concentions of analytes in blank water were assumed to be less than the reporting limits for purposes of calculations. Concentrations of nitrate-N and nitrite-N (in mg/L) and calculated recoveries (in percent) are shown in the table below for estimations of accuracy. Less-than values were set equal to zero for calculations; "<" = less than. All samples were analyzed at the U.S. Geological Survey National Water Quality Laboratory.

QUALITY-CONTROL DATA, WATER YEAR OCTOBER 2002 to September 2003 --Continued

	Concentration, in milligrams per liter								
	Laboratory results								
	Assumed Concentration of Blank		Spiked Blank			**a** Calculated concentration in spiked blank		Recovery in percent	
Sample Time	Nitrate + Nitrite-N A	Nitrate + Nitrite A	Nitrate + Nitrite-N B	Nitrate-N B	Nitrite-N B	Nitrate-N C	Nitrite-N C	Nitrate-N [(B-A)/C] x 100	Nitrite-N [(B-A)/C] x 100
1130	<0.06	<0.008	6.51	5.56	.953	5.61	.95	99	100
1131	<0.06	<0.008	6.74	5.77	.973	5.61	.95	103	102
1132	<0.06	<0.008	6.46	5.51	.946	5.61	.95	98	100

a Calculated concentration of spike in sample equals the concentration of the spike solution, in micrograms per milliliter x amount of spike added, in milliliters, divided by the spiked sample volume, in liters

Using the results from these spiked triplicate samples, the Relative Standard Deviation (RSD), otherwise known as the coefficient of variation, was calculated as a measure of precision using the following formula:

RSD = standard deviation of triplicate results divided by the mean concentration of the triplicate results

RSD Nitrate-N = .024 mg/L
RSD Nitrite-N = .015 mg/L

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

401435076540910 - LEMOYNE STATION QUALITY-ASSURANCE RESULTS

REMARKS.--A U.S. Geological Survey Standard Reference Water Sample (SRWS) N78 was submitted to the Pennsylvania Department of Environmental Protection Bureau of Laboratories on August 27, 2003 for estimation of accuracy. Blank water concentration is assumed to be less than the reporting limits for purpose of calculation. The concentrations of nitrate-N (in mg/L) and the calculated recovery (in percent) are shown in the table below for estimation of accuracy. Less-than values were set equal to zero for calculation; "<" = less than; "mg/L" = milligrams per liter.

QUALITY-CONTROL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003--Continued

	Concentration, in milligrams per liter			
		Laboratory results		
Constituent	Assumed Concentration of Blank Nitrate A	Reported Value of Nitrate in SRWS B	Prepared Sample Value of Nitrate in SRWS C	Recovery in percent [(B-A)/C] x 100
Nitrate-N	<0.04	.70	.66	106

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INDEX--Continued

CALENDAR FOR WATER YEAR 2003

2002

OCTOBER

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

NOVEMBER

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

DECEMBER

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

2003

JANUARY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

FEBRUARY

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	

MARCH

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

APRIL

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

MAY

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

JUNE

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

JULY

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

AUGUST

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

SEPTEMBER

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

Conversion Factors

Multiply	By	To obtain
	Length	
inch (in.)	2.54×10^{1}	millimeter (mm)
	2.54×10^{-2}	meter (m)
foot (ft)	3.048×10^{-1}	meter (m)
mile (mi)	1.609×10^{0}	kilometer (km)
	Area	
acre	4.047×10^{3}	square meter (m^2)
	4.047×10^{-1}	square hectometer (hm^2)
	4.047×10^{-3}	square kilometer (km^2)
square mile (mi^2)	2.590×10^{0}	square kilometer (km^2)
	Volume	
gallon (gal)	3.785×10^{0}	liter (L)
	3.785×10^{-3}	cubic meter (m^3)
	3.785×10^{0}	cubic decimeter (dm^3)
million gallons (Mgal)	3.785×10^{3}	cubic meter (m^3)
	3.785×10^{-3}	cubic hectometer (hm^3)
cubic foot (ft^3)	2.832×10^{-2}	cubic meter (m^3)
	2.832×10^{1}	cubic decimeter (dm^3)
cubic-foot-per-second-per-day [(ft^3/s/d]	2.447×10^{3}	cubic meter (m^3)
	2.447×10^{-3}	cubic hectometer (hm^3)
acre-foot (acre-ft)	1.223×10^{3}	cubic meter (m^3)
	1.223×10^{-3}	cubic hectometer (hm^3)
	1.223×10^{-6}	cubic kilometer (km^3)
	Flow rate	
cubic foot per second (ft^3/s)	2.832×10^{1}	liter per second (L/s)
	2.832×10^{-2}	cubic meter per second (m^3/s)
	2.832×10^{1}	cubic decimeter per second (dm^3/s)
gallon per minute (gal/min)	6.309×10^{-2}	liter per second (L/s)
	6.309×10^{-5}	cubic meter per second (m^3/s)
	6.309×10^{-2}	cubic decimeter per second (dm^3/s)
million gallons per day (Mgal/d)	4.381×10^{-2}	cubic meter per second (m^3/s)
	4.381×10^{1}	cubic decimeter per second (dm^3/s)
	Mass	
ton, short (2,000 lb)	9.072×10^{-1}	megagram (Mg) or metric ton

Temperature in degrees Celsius (˚C) may be converted to degrees Fahrenheit (˚F) as follows:

$$˚F = (1.8 \times ˚C) + 32$$