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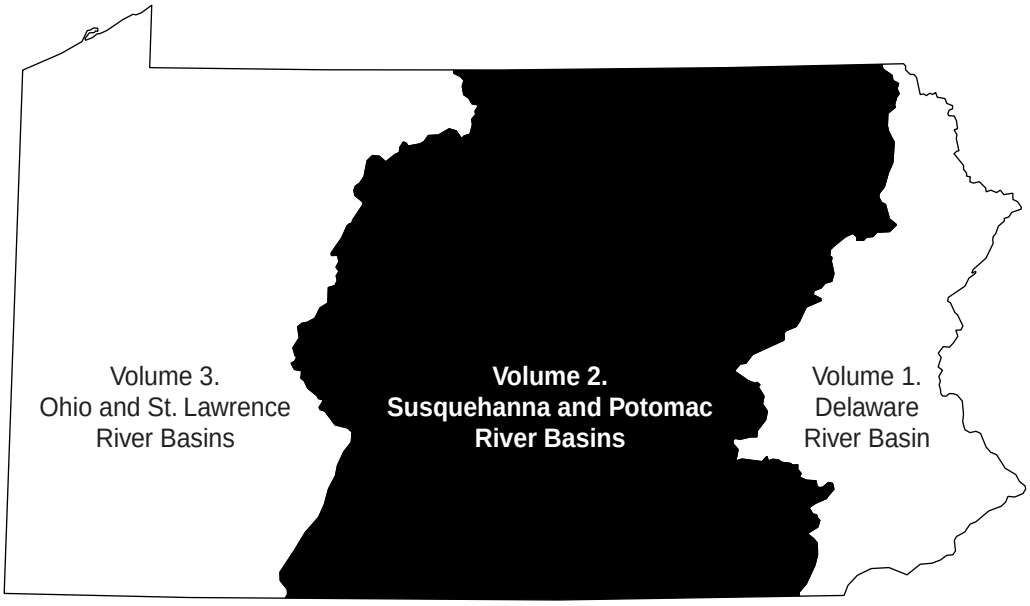
Water Resources Data Pennsylvania Water Year 2004

Volume 2. Susquehanna and Potomac River Basins

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

Water-Data Report PA-04-2



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2005

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, Director, USGS Pennsylvania Water Science Center; Robert A. Hainly, Assistant Director for Hydrologic Surveillance and Data Management; Randall R. Durlin, Chief of the Hydrologic Surveillance Program, New Cumberland, and William P. Schaffstall, Chief, Williamsport 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 2004 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 85 continuous-record streamflow-gaging stations, 13 partial-record stations, 18 special study and miscellaneous streamflow sites; (2) elevation and contents for 12 lakes and reservoirs, and water-quality records for 12 lakes and reservoirs; (3) water-quality records for 32 gaging stations and 82 ungaged streamsites; (4) water-level records for 40 network observation wells; and (5) water-quality analyses at 46 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.

14. SUBJECT TERMS

*Pennsylvania, *Hydrologic data, *Ground water, *Surface water, *Water quality, Gaging stations, Streamflow, Flow rates, Lakes, Reservoirs, Chemical analysis, Sediments, Water temperature, Water analysis, Water levels, Water wells, Data collection sites

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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

	Station number	Page
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CHEMUNG RIVER BASIN		
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Corey Creek near Mainesburg (d)	01516500	46
Tioga River at Tioga (d)	01518000	48
Tioga River at Tioga Junction (d,c,b)	01518700	50
Cowanesque River at Westfield (d)	01518862	54
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Fishing Creek near Bloomsburg (d)	01539000	90
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Beech Creek at Monument (d)	01547950	158
Pine Creek at Cedar Run (d)	01548500	160
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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)

GROUND-WATER RECORDS

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ADAMS COUNTY		
Well 395846077040601	Local number AD 146 (l)	504
Well 394430077225001	Local number AD 808 (l)	505
BEDFORD COUNTY		
Well 400217078281901	Local number BD 150 (l)	507
Well 400450078303001	Local number BD 654 (l)	508
BLAIR COUNTY		
Well 402452078271301	Local number BA 74 (l)	509
BRADFORD COUNTY		
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CAMERON COUNTY		
Well 412732078034201	Local number CM 13 (l)	512
CENTRE COUNTY		
Well 404518077575501	Local number CE 118 (l)	513
Well 404556077525101	Local number CE 686 (l)	514
CLEARFIELD COUNTY		
Well 410627078313601	Local number CF 321 (l)	515
CLINTON COUNTY		
Well 411424077462201	Local number CN 1 (l)	516
Well 410738077262702	Local number CN 398 (l)	517
Well 410740077262501	Local number CN 399 (l)	518
Well 410734077262102	Local number CN 419 (l)	519
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Well 411756076162701	Local number LU 294 (l)	530
LYCOMING COUNTY		
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Well 403939076591001 Local number SN 130 (l)	537
SULLIVAN COUNTY	
Well 413026076352901 Local number SU 34 (l)	538
SUSQUEHANNA COUNTY	
Well 415323077451301 Local number SQ 61 (l)	539
TIOGA COUNTY	
Well 414513077333701 Local number TI 100 (l)	540
UNION COUNTY	
Well 405928077115501 Local number UN 51 (l)	541
WYOMING COUNTY	
Well 412826076083301 Local number WY 179 (l)	542
YORK COUNTY	
Well 400916076492301 Local number YO 1147 (l)	543
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Chester County ground-water-quality monitoring program	556

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 USGS Pennsylvania Water Science Center 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 USGS Pennsylvania Water Science Center 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
Corey 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

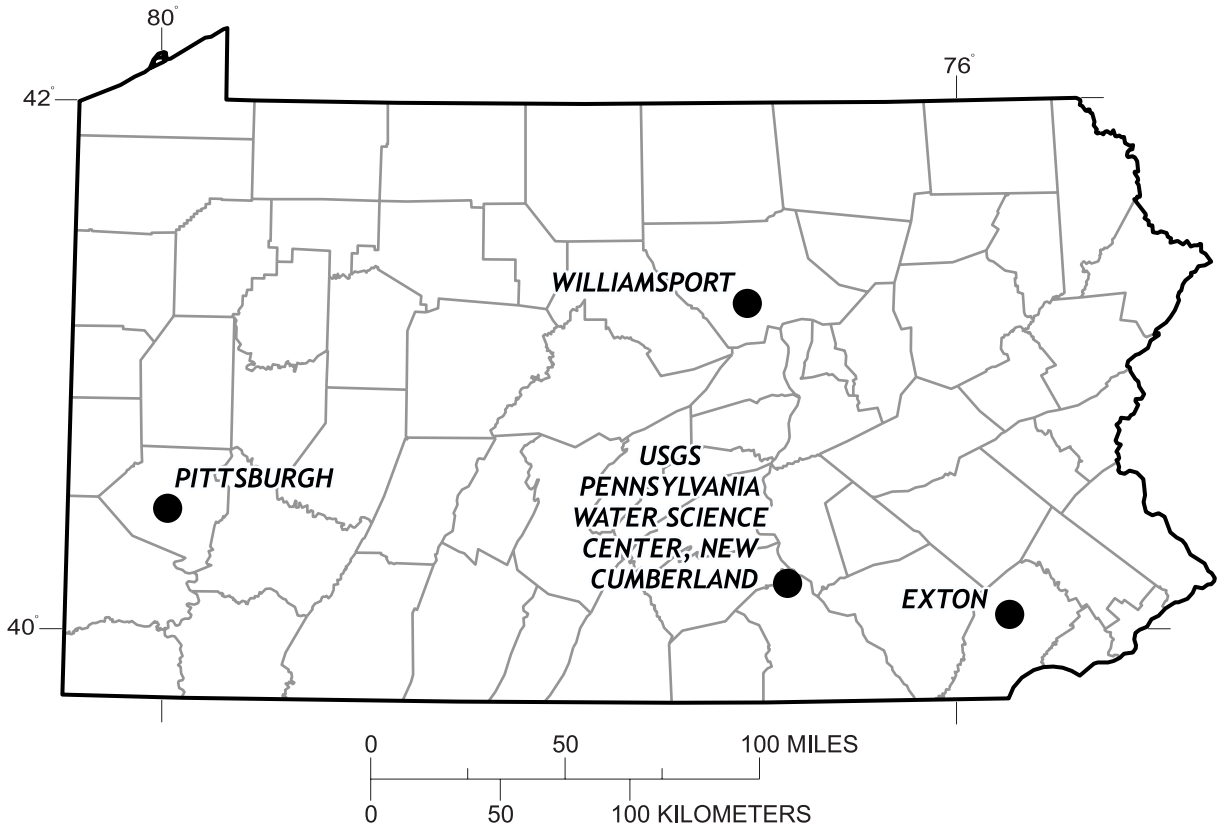
Station name	Station number	Drainage area (mi^2)	Type of Record	Period of record (water years)
East Mahantango Creek at Klingerstown	01555400	44.7	SC[a] Temp	1993-95 1993-95, 1997-2000
Juniata River at Huntingdon	01559000	816	Temp	1948-51, 1981-86[c]
Bobs Creek near Pavia	01559795	16.6	SC[a] Temp[a]	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.

USGS PENNSYLVANIA WATER SCIENCE CENTER LOCATIONS AND ADDRESSES



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INTRODUCTION

The USGS Pennsylvania Water Science Center, 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 85 continuous-record streamflow-gaging stations, 13 partial-record stations, and 18 special study and miscellaneous streamflow sites; (2) elevation and contents for 12 lakes and reservoirs, and water-quality records for 12 lakes and reservoirs; (3) water-quality records for 32 streamflow gaging stations and 82 partial-record and project stations; and (4) water-level records for 40 ground-water network observation wells; (5) water-quality analyses at 46 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-04-2." 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 USGS Pennsylvania Water Science Center 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 USGS Pennsylvania Water Science Center 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 A. Marrocco, Director;
- Bureau of Watershed Management, Stuart I. Gansell, Director;
- Bureau of Waterways Engineering, Michael D. Conway, Director;

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

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

Department of Military and Veterans Affairs, Major General Jessica L. Wright, Adjutant General

COOPERATION--Continued

Borough of Chambersburg, Thomas L. Newcomer, Mayor;
City of Sunbury Municipal Authority, Danny W. Ramer, General Manager;
City of Williamsport, Mary B. Wolf, 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;
Watershed Alliance of Adams County, Pat Naugle, President.

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 February and March. The greatest deficit basinwide, with an average of 0.33 inches below normal, occurred in March. The basin generally received above-normal precipitation for the months of October through January, April, and July through September. The greatest surplus basinwide, with an average of 5.96 inches above normal, occurred in September. Basinwide, precipitation totals for the water year averaged 56.5 inches compared to the historical average of 39.5 inches.

As an example, the 2004 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, 2003-2004) 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 2004 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 2004 water year annual mean streamflow was about 159 percent of the 1971-2000 median of the mean annual streamflows in the West Branch Susquehanna River at Williamsport, and about 161 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 for the months of October through January and July through September during the 2004 water year. Monthly mean streamflows were below normal only for the month of February (fig. 2). Normal streamflows are defined as those between the 25th and 75th percentiles as compared to the monthly mean streamflows for 1971-2000. In the Conestoga River, monthly mean streamflows were at normal levels for the period January through June, and above normal October through December and July through September (fig. 2). There were no Drought Declarations affecting the Susquehanna River basin during the 2004 water year.

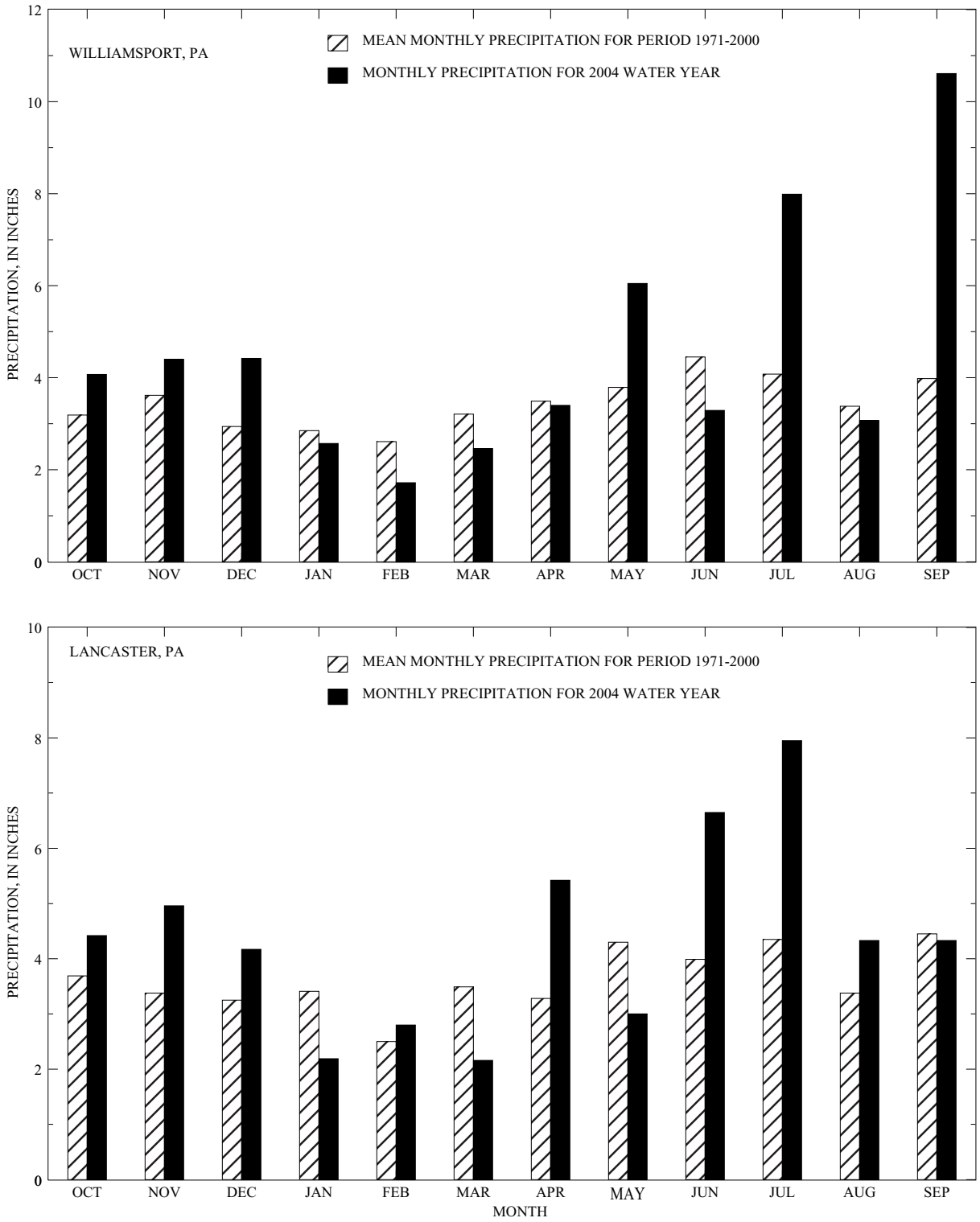

Figure 1.--Comparison of monthly precipitation at two National Oceanic and Atmospheric Administration climatological stations during the 2004 water year and mean monthly precipitation for the period 1971 through 2000.

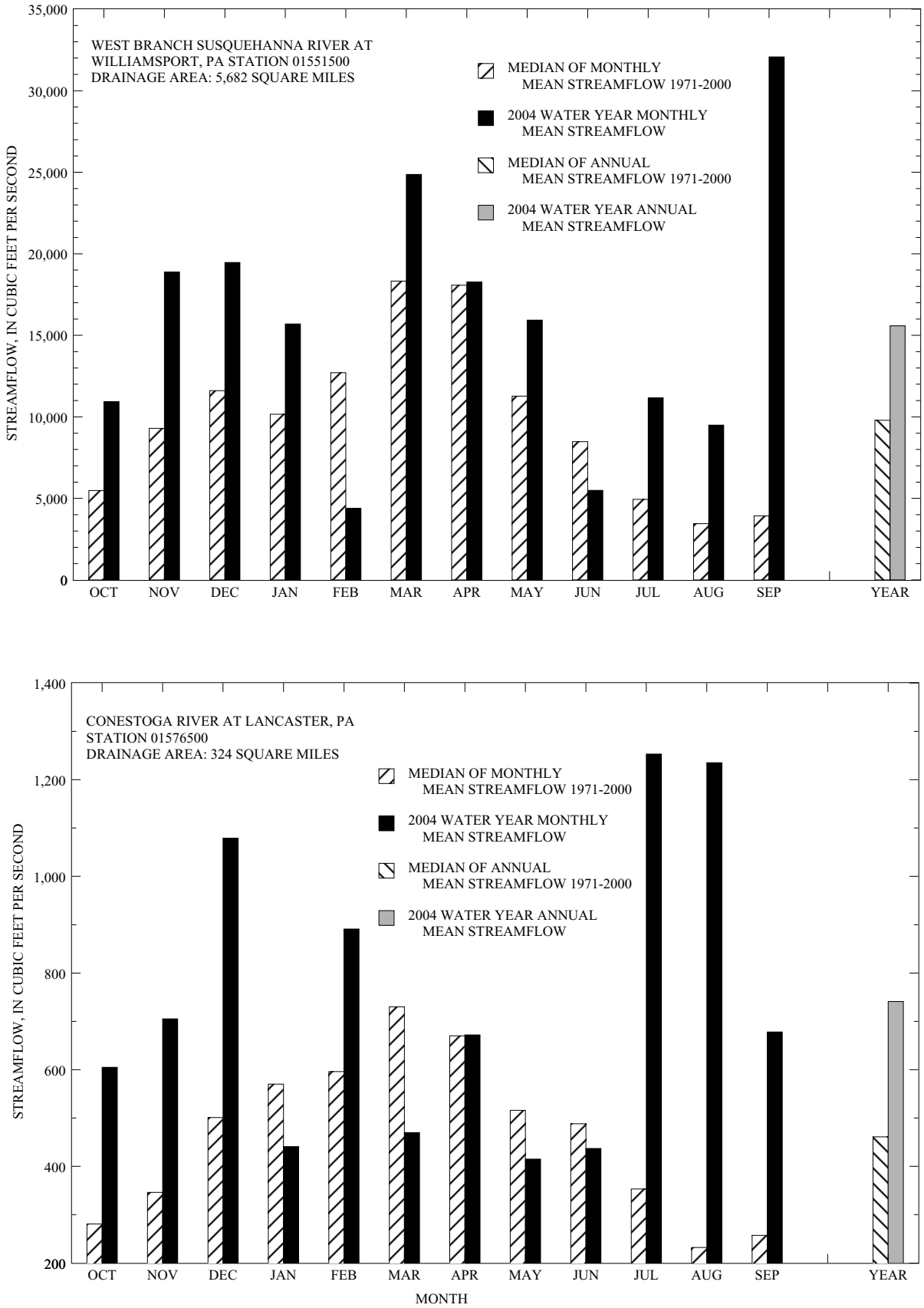

Figure 2.--Comparison of streamflow at two long-term streamflow-gaging stations during the 2004 water year and the median monthly and annual mean streamflow for the period 1971 through 2000.

Reservoirs

The combined storage of 12 major reservoirs in the Susquehanna River Basin increased from 697,063 acre-feet (47.0 percent of total combined capacity) on September 30, 2003, to 699,040 acre-feet (47.1 percent of total combined capacity) on September 30, 2004. 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 were generally above normal throughout all of the Susquehanna River basin at the end of the 2003 water year (Durlin and Schaffstall, 2004). Ground-water levels during the water year generally reflected the seasonal precipitation variations (fig. 1). The 2004 water year began with all 21 wells either above normal or much above normal (Durlin and Schaffstall, 2004) and ended with 20 of the 21wells in an above normal category. The water level for the lone remaining well, LU294, was in the normal range at the end of the 2004 water year. 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., 2004, Water resources data, Pennsylvania, water year 2003: U.S. Geological Survey Water-Data Report PA-03-2, 563 p.

U.S. Department of Commerce, 2003-2004, Climatological Data for Pennsylvania, Volume 108-109: National Oceanic and Atmospheric Administration, National Environmental Satellite, Data, and Information Service.

Pennsylvania Department of Environmental Protection, 2004, Drought Information Center, accessed many times in 2004, at URL *http://www.dep.state.pa.us/dep/subject/hotopics/drought/drought.htm*

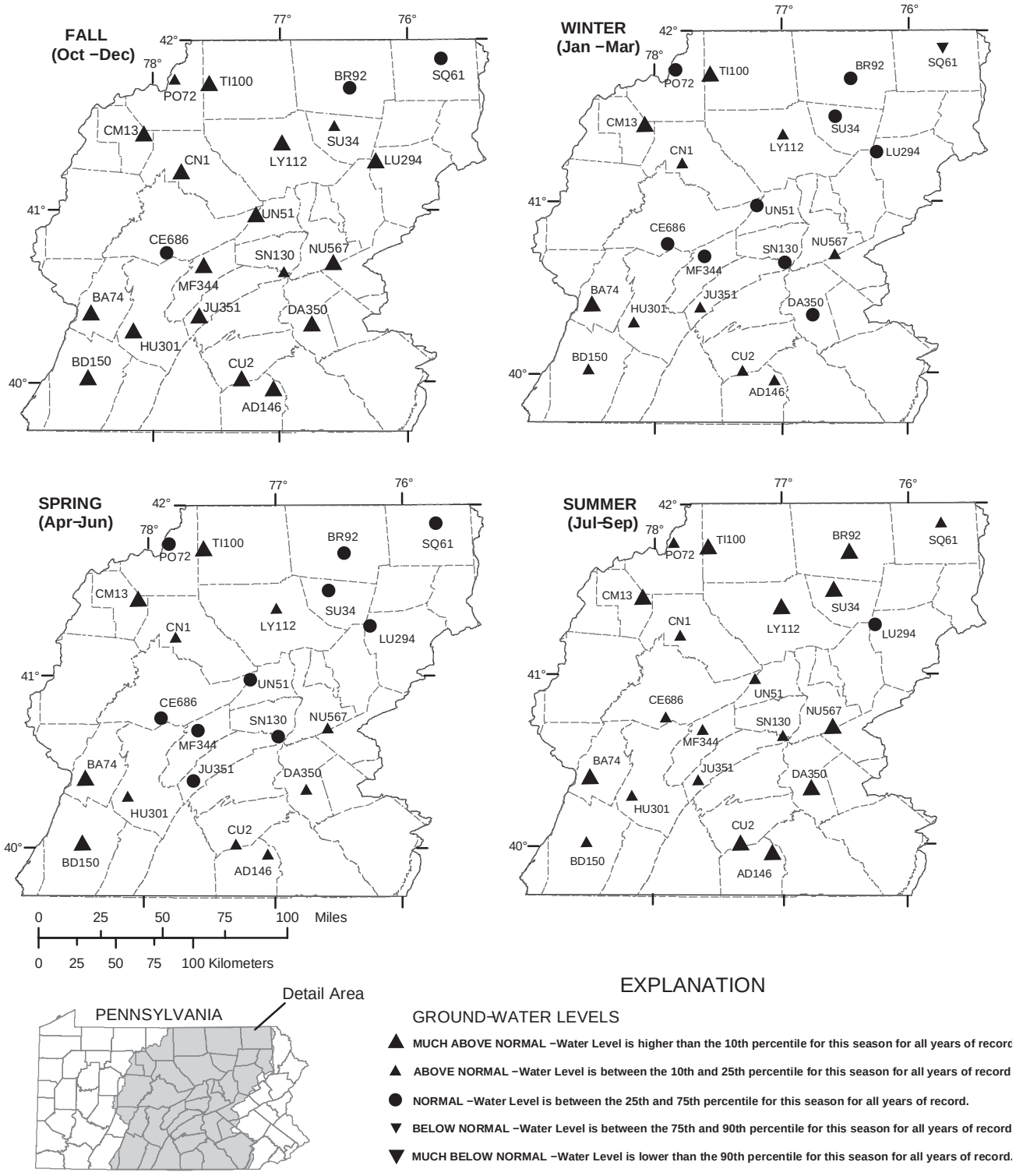

Figure 3.--Relation between 2004 seasonal ground-water levels and long-term ground-water levels *[Seasonal percentile values were determined by ranking the average monthly water levels for each month in the season from highest to lowest for all years of record and averaging the ranks for the three months. 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 61 sites in small drainage basins in 39 States that was established in 1963 to provide consistent streamflow data representative of undeveloped watersheds nationwide, and from which data could be analyzed on a continuing basis for use in comparison and contrast with conditions observed in basins more obviously affected by human activities. At selected sites, water-quality information is being gathered on major ions and nutrients, primarily to assess the effects of acid deposition on stream chemistry. Additional information on the Hydrologic Benchmark Program may be accessed from *http://water.usgs.gov/hbn/*.

The **National Stream-Quality Accounting Network** (NASQAN) is a network of sites used to monitor the water quality of large rivers within the Nations's largest river basins. From 1995 through 1999, a network of approximately 40 stations was operated in the Mississippi, Columbia, Colorado, and Rio Grande River basins. For the period 2000 through 2004, sampling on the Colorado and Columbia Rivers was reduced to a few index stations 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 (NAWQA) Program; (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 determing 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) is a network of monitoring sites that provide 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 this network of 250 precipitation-chemistry monitoring sites. The USGS supports 74 of these 250 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 data from the individual sites, may be accessed from *http://bqs.usgs.gov/acidrain/*.

The **USGS National Water-Quality Assessment Program** (NAWQA) 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; to provide an improved understanding of the primary natural and human factors affecting these observed conditions and trends; and to provide information that supports development and evaluation of management, regulatory, and monitoring decisions by other agencies.

Assessment activities are being conducted in 42 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 is 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 water-resources managers to use in making decisions 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 may be accessed from *http://water.usgs.gov/nawqa/*.

The **USGS National Streamflow Information Program** (NSIP) is a long-term program with goals to provide framework streamflow data across the Nation. Included in the program are creation of a permanent Federally funded streamflow network, research on the nature of streamflow, regional assessments of streamflow data and databases, and upgrades in the streamflow information delivery systems. Additional information about NSIP may be accessed from *http://water.usgs.gov/nsip/*.

EXPLANATION OF THE RECORDS

The surface-water and ground-water records in this report are for the 2004 water year that began October 1, 2003, and ended September 30, 2004. 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).

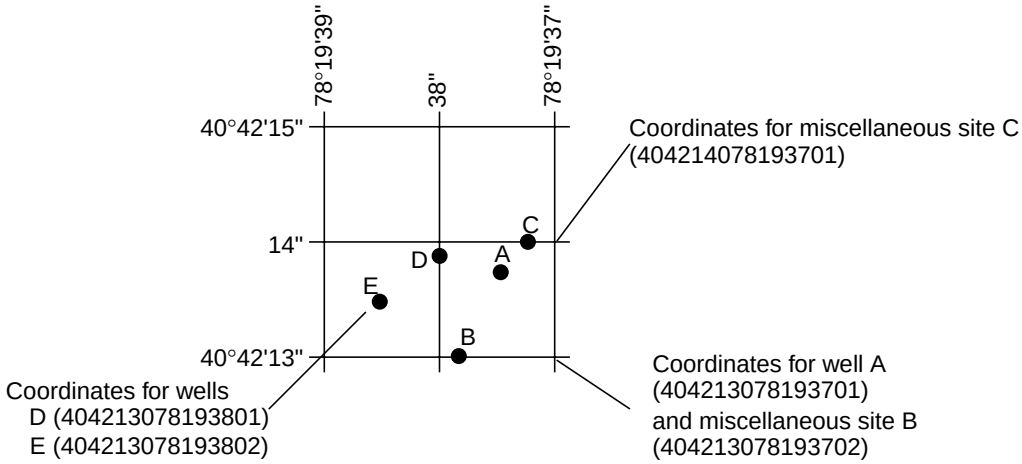

Figure 4.--System for numbering wells and miscellaneous sites (latitude and longitude).

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.

EXPLANATION OF STAGE- AND WATER-DISCHARGE RECORDS

Data Collection and Computation

The base data collected at gaging stations (fig. 5-13) consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and volume of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from a water-stage recorder that is either downloaded electronically in the field to a laptop computer or similar device or is transmitted using telemetry such as GOES satellite, land-line or cellular-phone modems, or by radio transmission. Measurements of discharge are made with a current meter or acoustic Doppler current profiler, using the general methods adopted by the USGS. These methods are described in standard textbooks, USGS Water-Supply Paper 2175, and the Techniques of Water-Resources Investigations of the United States Geological Survey (TWRIs), Book 3, Chapters A1 through A19 and Book 8, Chapters A2 and B2, which may be accessed from *http://water.usgs.gov/pubs/twri/*. The methods are consistent with the American Society for Testing and Materials (ASTM) standards and generally follow the standards of the International Organization for Standardization (ISO).

For stream-gaging stations, discharge-rating tables for any stage are prepared from stage-discharge curves. If extensions to the rating curves are necessary to express discharge greater than measured, the extensions are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, or computation of flow over dams and weirs), step-backwater techniques, velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables, then the monthly and yearly mean discharges are computed from the daily values. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features of the stream channel, the daily mean discharge is computed by the shifting-control method in which correction factors based on individual discharge measurements and notes by engineers and observers are used when applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the controlling section, the daily mean discharge is computed by the shifting-control method.

The stage-discharge relation at some stream-gaging stations is affected by backwater from reservoirs, tributary streams, or other sources. Such an occurrence 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 at some distance from the base gage.

An index velocity is measured using ultrasonic or acoustic instruments at some stream-gaging stations and this index velocity is used to calculate an average velocity for the flow in the stream. This average velocity along with a stage-area relation is then used to calculate average discharge.

At some stations, stage-discharge relation is affected by changing stage. At these stations, the rate of change in stage is used as a factor in computing discharge.

At some stream-gaging stations in the northern United States, the stage-discharge relation is affected by ice in the winter; therefore, computation of the discharge in the usual manner is impossible. Discharge for periods of ice effect is computed on the basis of gage-height record and occasional winter-discharge measurements. Consideration is given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge from other stations in the same or nearby basins.

For a lake or reservoir station, capacity tables giving the volume or contents for any stage are prepared from stage-area relation curves defined by surveys. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly changes are computed.

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys, the computed contents may be increasingly in error due to the gradual accumulation of sediment.

For some stream-gaging stations, periods of time occur when no gage-height record is obtained or the recorded gage height is faulty and cannot be used to compute daily discharge or contents. Such a situation can happen when the recorder stops or otherwise fails to operate properly, the intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods, the daily discharges are estimated on the basis of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records from other stations in the same or nearby basins. Likewise, lake or reservoir volumes may be estimated on the basis of operator’s log, prior and subsequent records, inflow-outflow studies, and other information.

Data Presentation

The records published for each continuous-record surface-water discharge station (stream-gaging station) consist of five parts; (1) the station manuscript or description; (2) the data table of daily mean values for the current water year with summary data; (3) a tabular statistical summary of monthly mean flow data for a designated period, by water year; (4) a summary statistics table 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; and (5) a hydrograph of discharge.

Station manuscript

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 information, as appropriate, is provided with each continuous record of discharge or lake content. Comments follow that clarify information presented under the various headings of the station description.

LOCATION.--Location information 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, given for only a few stations, were determined by methods given in "River Mileage Measurement," Bulletin 14, Revision of October 1968, prepared by the Water Resources Council or were provided by the U.S. Army Corps of Engineers.

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

PERIOD OF RECORD.--This term indicates the time 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 reasonably can be considered equivalent to the streamflow at the present station.

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

GAGE.--The type of gage in current use, the datum of the current gage referred to referred to a standard datum, and a condensed history of the types, locations, and datums of previous gages are given under this heading.

REMARKS.--All periods of estimated daily discharge either will be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily discharge table. (See section titled Identifying Estimated Daily Discharge.) Information is presented relative to the accuracy of the records, to special methods of computation, and to conditions that affect natural flow at the station. In addition, information may be presented pertaining to average discharge data for the period of record; to extremes data for the period of record and the current year; and possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, the outlet works and spillway, and the 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.—Information here documents 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 USGS.

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.—Records are revised if errors in published records are discovered. Appropriate updates are made in the USGS distributed data system, NWIS, and subsequently to its Web-based National data system, NWISWeb *(http://water.usgs.gov/nwis/nwis)*. Users are encouraged to obtain all required data from NWIS or NWISWeb to ensure that they have the most recent data updates. Updates to NWISWeb are made on an annual basis.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because no current or, possibly, future station manuscript would be published for these stations 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 USGS Pennsylvania Water Science Center (address given on the back of the title page of this report) to determine if the published records were revised after the station was discontinued. If, however, the data for a discontinued station were obtained by computer retrieval, the data would be current. Any published revision of data is always accompanied by revision of the corresponding data in computer storage.

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

Peak discharge greater than base discharge

Tables of peak discharge above base discharge are included for some stations where secondary instantaneous peak discharge data are used in flood-frequency studies of highway and bridge design, flood-control structures, and other flood-related projects. The base discharge value is selected so an average of three peaks a year will be reported. This base discharge value has a recurrence interval of approximately 1.1 years or a 91-percent chance of exceedence in any 1 year.

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 arithmetic 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."). Values 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, monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversion data or reservoir volumes are given. These values are identified by a symbol and corresponding footnote.

Statistics of monthly mean data

A tabular summary of the mean (line headed MEAN), maximum (MAX), and minimum (MIN) of monthly mean flows for each month for a designated period is provided below the mean values table. The water years of the first occurrence of the maximum and minimum monthly flows are provided immediately below those values. 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. The designated period will consist of all of the station record within the specified water years, including complete months of record for partial water years, and may coincide with the period of record for the station. The water years for which the statistics are computed are 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, including complete months of record for partial water years, and may coincide with the period of record for the station. The water years for which the statistics are computed are 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 may not be the same as the station period of record published in the manuscript, occasionally the dates of occurrence listed for the daily and instantaneous extremes may not be within the selected water years listed in the heading. When the dates of occurrence do not fall within the selected water years listed in the heading, it will be noted in the REMARKS paragraph or in footnotes. Selected streamflow duration-curve statistics and runoff data also are given. Runoff data may be omitted if extensive regulation or diversion of flow is in effect in the drainage basin.

The following summary statistics data are provided with each continuous record of discharge. Comments that follow 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.

ANNUAL MEAN.--The arithmetic mean for the individual daily mean discharges for the year noted or for the designated period.

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. Data reports may use any of the following units of measurement 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 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) 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 table lists annual maximum stage and discharge at crest-stage stations, and the second table lists 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 often made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables of annual State data reports are identified. This identification is shown either by flagging individual daily values with the letter "*e*" and noting in a table footnote, "*e–Estimated*," or by listing the dates of the estimated record in the REMARKS paragraph of the station description.

Accuracy of Field Data and Computed Results

The accuracy of streamflow data 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 observations of stage, measurements of discharge, and interpretations of records.

The degree of accuracy of the records is stated in the REMARKS in the station description. "*Excellent*" indicates that about 95 percent of the daily discharges are within 5 percent of the true value; "*good*," within 10 percent; and "*fair*," within 15 percent. "*Poor*" indicates that daily discharges have less than "*fair*" accuracy. Different accuracies may be attributed to different parts of a given record.

Values of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 ft^3/s; to the nearest tenths between 1.0 and 10 ft^3/s; to whole numbers between 10 and 1,000 ft^3/s; and to 3 significant figures above 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 discharge values listed for partial-record stations.

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 Data Records Available

Information of a more detailed nature than that published for most of the stream-gaging stations such as observations of water temperature, discharge measurements, gage-height records, and rating tables is available from the USGS Pennsylvania Water Science Center. Also, most stream-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 USGS Pennsylvania Water Science Center (see address that is shown on the back of the title page of this report).

EXPLANATION OF WATER-QUALITY RECORDS

Collection and Examination of Data

Surface-water samples for analysis usually are collected at or near stream-gaging stations. The quality-of-water records are given immediately following the discharge records at these stations.

The descriptive heading for water-quality records gives the period of record for all water-quality data; the period of daily record for parameters that are measured on a daily basis (specific conductance, water temperature, sediment discharge, and so forth); extremes for the current year; and general remarks.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, sampling date, or other pertinent data are given in the table containing the chemical analyses of the ground water.

Water Analysis

Most of the methods used for collecting and analyzing water samples are described in the TWRIs, which may be accessed from *http://water.usgs.gov/pubs/twri/*.

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 at several verticals to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum and minimum values (and sometimes mean or median values) for each constituent measured, and are based on 15-minute or 1-hour intervals of recorded data beginning at 0000 hours and ending at 2400 hours for the day of record.

Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because discharge data is useful in the interpretation of surface-water quality. Records of surface-water quality in this report 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 *continuous-record station* is a site where data are collected on a regularly scheduled basis. Frequency may be one or more times daily, weekly, monthly, or quarterly. A *partial-record station* is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A *miscellaneous sampling site* is a location other than a continuous- or partial-record station, where 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 *continuous records* as used in this report and *continuous recordings* that refer 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. Locations of stations for which records on the quality of surface water appear in this report are shown in figures 5-13.

Accuracy of the records

One of four accuracy classifications is applied for measured physical properties at continuous-record stations on a scale ranging from poor to excellent. The accuracy rating is based on data values recorded before any shifts or corrections are made. Additional consideration also is given to the amount of publishable record and to the amount of data that have been corrected or shifted.

Rating classifications for continuous water-quality records

[≤, less than or equal to; ±, plus or minus value shown; °C, degree Celsius; >, greater than; %, percent; mg/L, milligram per liter; pH unit, standard pH unit]

Measured physical property	Rating			
	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%

Arrangement of records

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

On-site measurements and sample collection

In obtaining water-quality data, a major concern is assuring that the data obtained represent the naturally occurring quality of the water. To ensure this, certain measurements, such as water temperature, pH, and dissolved oxygen, must be made on site when the samples are taken. To assure that measurements made in the laboratory also represent the naturally occurring water, carefully prescribed procedures must be followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for on-site measurements and for collecting, treating, and shipping samples are given in TWRIs Book 1, Chapter D2; Book 3, Chapters A1, A3, and A4; and Book 9, Chapters A1-A9. Most of the methods used for collecting and analyzing water samples are described in the TWRIs, which may be accessed from *http://water.usgs.gov/pubs/twri/*. Also, detailed information on collecting, treating, and shipping samples can be obtained from the USGS Pennsylvania Water Science Center (see address that is shown on the back of title page in this report).

Water temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at the time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, maximum, minimum, and mean temperatures for each day are published. Water temperatures measured at the time of water-discharge measurements are on file in the USGS Pennsylvania Water Science Center.

Sediment

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

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

At other stations, suspended-sediment samples are collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observation, 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

Samples for biochemical oxygen demand (BOD) and indicator bacteria are analyzed locally. All other samples are analyzed in the USGS laboratory in Lakewood, Colorado, unless otherwise noted. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chapter C1. Methods used by the USGS laboratories are given in the TWRIs, Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, and A4. The TWRI publications may be accessed from *http://water.usgs.gov/pubs/twri/*. These methods are consistent with ASTM standards and generally follow ISO standards.

Data presentation

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

In the descriptive headings, if the location is identical to that of the streamflow-gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information 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 information in the "Records of Stage and Water Discharge" section of this report (same comments apply).

DRAINAGE AREA.--See Data Presentation under "Records of Stage and Water Discharge" section of this report (same comments apply).

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

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

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

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

EXTREMES.—Maximums and minimums are given only for parameters measured daily or more frequently. For parameters measured weekly or less frequently, true maximums or minimums may not have been obtained. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.—Records are revised if errors in published water-quality records are discovered. Appropriate updates are made in the USGS distributed data system, NWIS, and subsequently to its Web-based National data system, NWISWeb (*http://waterdata.usgs.gov/nwis)*. Users of USGS water-quality data are encouraged to obtain all required data from NWIS or NWISWeb to ensure that they have the most recent updates. Updates to the NWISWeb are 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.

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

Remark codes

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

PRINTED OUTPUT	REMARK
E,e	Value is estimated.
>	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.

Water-Quality-Control Data

The USGS National Water Quality Laboratory collects quality-control data on a continuing basis to evaluate selected analytical methods to determine long-term method detection levels (LT-MDLs) and laboratory reporting levels (LRLs). These values are re-evaluated each year on the basis of the most recent quality-control data and, consequently, may change from year to year.

This reporting procedure limits the occurrence of false positive error. Falsely reporting a concentration greater than the LT-MDL for a sample in which the analyte is not present is 1 percent or less. Application of the LRL limits the occurrence of false negative error. The chance of falsely reporting a non-detection for a sample in which the analyte is present at a concentration equal to or greater than the LRL is 1 percent or less.

Accordingly, concentrations are reported as less than LRL for samples in which the analyte was either not detected or did not pass identification. Analytes detected at concentrations between the LT-MDL and the LRL and that pass identification criteria are estimated. Estimated concentrations will be noted with a remark code of “E.” These data should be used with the understanding that their uncertainty is greater than that of data reported without the E remark code.

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 USGS Water Science Center 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. These data are not presented in this report but are available from the USGS Pennsylvania Water Science Center.

Blank samples

Blank samples are collected and analyzed to ensure that environmental samples have not been contaminated in 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. Many types of blank samples are possible; each is designed to segregate a different part of the overall data-collection process. The types of blank samples collected in this USGS Water Science Center are:

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 bottle used for an environmental sample and kept with the set of sample 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.

Reference samples

Reference material is a solution or material prepared by a laboratory. The reference material composition is certified for one or more properties so that it can be used to assess a measurement method. 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. Many types of replicate samples are 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 USGS Water Science Center are:

Concurrent samples—A type of replicate sample in which the samples are collected simultaneously with two or more samplers or by using one sampler and alternating the collection of samples into two or more compositing containers.

Sequential samples—A type of replicate sample in which the samples are collected one after the other, typically over a short time.

Split sample—A type of replicate sample in which a sample is split into subsamples, each subsample 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.

EXPLANATION OF GROUND-WATER-LEVEL RECORDS

Generally, only ground-water-level data from selected wells with continuous recorders from a basic network of observation wells are published in this report. This basic network contains observation wells located so that the most significant data are obtained from the fewest wells in the most important aquifers.

Site Identification Numbers

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude and (2) a local number that is produced for local needs. (See "Numbering System for Wells and Miscellaneous Sites" in this report for a detailed explanation)

Data Collection and Computation

Measurements are made in many types of wells, under varying conditions of access and at different temperatures; hence, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will ensure that measurements at each well are consistent.

Most methods for collecting and analyzing water samples are described in the TWRIs referred to in the On-site Measurements and Sample Collection and the Laboratory Measurements sections in this report. In addition, TWRI Book 1, Chapter D2, describes guidelines for the collection and field analysis of ground-water samples for selected unstable constituents. Procedures for on-site measurements and for collecting, treating, and shipping samples are given in TWRIs Book 1, Chapter D2; Book 3, Chapters A1, A3, and A4; and Book 9, Chapters A1 through A9. The TWRI publications may be accessed from *http://water.usgs.gov/pubs/twri/*. The values in this report represent water-quality conditions at the time of sampling, as much as possible, and that are consistent with available sampling techniques and methods of analysis. These methods are consistent with ASTM standards and generally follow ISO standards. Trained personnel collected all samples. The wells sampled were pumped long enough to ensure 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.

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 above sea level is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported daily.

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

Data Presentation

Water-level data are presented in alphabetical order by county. The primary identification number for a given well is the 15-digit site identification number that appears in the upper left corner of the table. The secondary identification number is the local or county well number. Well locations are shown in figures 6-13; each well is identified on the map by its local well or county well number.

Each well record consists of three parts: the well description, the data table of water levels observed during the water year, and, for most wells, a hydrograph following the data table. Well descriptions are presented in the headings preceding the tabular data.

The following comments clarify information presented in these various headings.

LOCATION.—This paragraph follows the well-identification number and reports the hydrologic-unit number and a geographic point of reference. Latitudes and longitudes used in this report are reported as North American Datum of 1927 unless otherwise specified.

AQUIFER.--This entry designates by name and geologic age of the aquifer that the well taps.

WELL CHARACTERISTICS.--This entry describes the well in terms of depth, casing diameter and depth or screened interval, method of construction, use, and changes since construction.

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

DATUM.--This entry describes both the measuring point and the land-surface elevation at the well. The altitude of the land-surface datum is described in feet above the altitude datum; it is reported with a precision depending on the method of determination. The measuring point is described physically (such as top of casing, top of instrument shelf, and so forth), 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 National Geodetic Vertical Datum of 1929 (NGVD 29); it is reported with a precision depending on the method of determination.

REMARKS.—This entry describes factors that may influence the water level in a well or the measurement of the water level, when various methods of measurement were begun, and the network (climatic, terrane, local, or areal effects) or the special project to which the well belongs.

PERIOD OF RECORD.—This entry indicates the time period for which records are published for the well, the month and year at the start of publication of water-level records by the USGS, and the words “to current year” if the records are to be continued into the following year. Time periods for which water-level records are available, but are not published by the USGS, may be noted.

EXTREMES FOR PERIOD OF RECORD.—This entry contains the highest and lowest instantaneously recorded or measured water levels of the period of published record, with respect to land-surface datum or sea level, and the dates of occurrence.

Water-level tables

A table of water levels follows the well description for each well. Water-level measurements in this report are given in feet with reference to either sea level or land-surface datum (lsd). Missing records are indicated by dashes in place of the water-level value.

For wells not equipped with recorders, water-level measurements were obtained periodically by steel or electric tape. Tables of periodic water-level measurements in these wells show the date of measurement and the measured water-level value.

Hydrographs

Hydrographs are a graphic display of water-level fluctuations over a period of time. In this report, current water year and, when appropriate, period-of-record hydrographs are shown. Hydrographs that display recorder data show a solid line representing the maximum or mean water level recorded for each day. Missing data are indicated by a blank space or break in a hydrograph. Missing data may occur as a result of recorder malfunctions, battery failures, or mechanical problems related to the response of the recorder’s float mechanism to water-level fluctuations in a well.

GROUND-WATER-QUALITY DATA

Data Collection and Computation

The ground-water-quality data in this report were obtained as a part of special studies in specific areas. Consequently, a number of chemical analyses are presented for some wells within a county but not for others. As a result, the records for this year, by themselves, do not provide a balanced view of ground-water quality Statewide.

Most methods for collecting and analyzing water samples are described in the TWRIs, which may be accessed from *http://water.usgs.gov/pubs/twri/*. Procedures for on-site measurements and for collecting, treating, and shipping samples are given in TWRI, Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, and A4. Also, detailed information on collecting, treating, and shipping samples may be obtained from the USGS Pennsylvania Water Science Center (see address shown on back of title page in this report).

Laboratory Measurements

Analysis for sulfide and measurement of alkalinity, pH, water temperature, specific conductance, and dissolved oxygen are performed on site. All other sample analyses are performed at the USGS laboratory in Lakewood, Colorado, unless otherwise noted. Methods used by the USGS laboratory are given in TWRI, Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, and A4, which may be accessed from *http://water.usgs.gov/pubs/twri/*.

ACCESS TO USGS WATER DATA

The USGS provides near real-time stage and discharge data for many of the gaging 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 from *http://water.usgs.gov*.

Water-quality data and ground-water data also are available through the WWW. In addition, data can be provided in various machine-readable formats on various media. Information about the availability of specific types of data or products, and user charges, can be obtained from the local USGS Water Science Center (See address that is shown on the back of the title page of this report.)

DEFINITION OF TERMS

Specialized technical terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. Terms such as algae, water level, and precipitation are used in their common everyday meanings, definitions of which are given in standard dictionaries. Not all terms defined in this alphabetical list apply to every State. See also table for converting English units to International System (SI) Units. Other glossaries that also define water-related terms are accessible from *http://water.usgs.gov/glossaries.html.*

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.

Adjusted discharge is discharge data that have been mathematically adjusted (for example, to remove the effects of a daily tide cycle or reservoir storage).

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.

Canadian Geodetic Vertical Datum 1928 is a geodetic datum derived from a general adjustment of Canada's first order level network in 1928.

Cell 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 (μm^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.

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).

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")

Filtered pertains to constituents in a water sample passed through a filter of specified pore diameter, most commonly 0.45 micrometer or less for inorganic analytes and 0.7 micrometer for organic analytes.

Filtered, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that has passed through a filter has been extracted. Complete recovery is not achieved by the extraction procedure and thus the analytical determination represents something less than 95 percent of the total constituent concentration in the sample. To achieve comparability of analytical data, equivalent extraction procedures are required of all laboratories performing such analyses because different procedures are likely to produce different analytical results.

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")

International Boundary Commission Survey Datum refers to a geodetic datum established at numerous monuments along the United States-Canada boundary by the International Boundary Commission.

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.

Megahertz is a unit of frequency. One megahertz equals one million cycles per second.

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 code is a one-character code that identifies the analytical or field method used to determine a value stored in the National Water Information System (NWIS).

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.

Method of Cubatures is a method of computing discharge in tidal estuaries based on the conservation of mass equation.

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 eleva-

tions 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.

Nonfilterable refers to the portion of the total residue retained by a filter.

North American Datum of 1927 (NAD 27) is the horizontal control datum for the United States that was defined by a location and azimuth on the Clarke spheroid of 1866.

North American Datum of 1983 (NAD 83) is the horizontal control datum for the United States, Canada, Mexico, and Central America that is based on the adjustment of 250,000 points including 600 satellite Doppler stations that constrain the system to a geocentric origin. NAD 83 has been officially adopted as the legal horizontal datum for the United States by the Federal government.

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 is the amount of a given constituent that is in solution after a representative water sample has been extracted or digested. Complete recovery is not achieved by the extraction or digestion and thus the determination represents something less than 95 percent of the constituent present in the sample. To achieve comparability of analytical data, equivalent extraction or digestion procedures are required of all laboratories performing such analyses because different 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 exam-

ple, 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”)

Salinity is the total quantity of dissolved salts, measured by weight in parts per thousand. Values in this report are calculated from specific conductance and temperature. Seawater has an average salinity of about 35 parts per thousand (for additional information, refer to: Miller, R.L., Bradford, W.L., and Peters, N.E., 1988, Specific conductance: theoretical considerations and application to analytical quality control: U.S. Geological Survey Water-Supply Paper 2311, 16 p.)

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 75 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

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.

Surrogate is an analyte that behaves similarly to a target analyte, but that is highly unlikely to occur in a sample. A surrogate is added to a sample in known amounts before extraction and is measured with the same laboratory procedures used to measure the target analyte. Its purpose is to monitor method performance for an individual sample.

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 an expression of the optical properties of a liquid that causes light rays to be scattered and absorbed rather than transmitted in straight lines through water. Turbidity, which can make water appear cloudy or muddy, is caused by the presence of suspended and dissolved matter, such as clay, silt, finely divided organic matter, plankton and other microscopic organisms, organic acids, and dyes (ASTM International, 2003, D1889–00 Standard test method for turbidity of water, *in* ASTM International, Annual Book of ASTM Standards, Water and Environmental Technology, v. 11.01: West Conshohocken, Pennsylvania, 6 p.). The color of water, whether resulting from dissolved compounds or suspended particles, can affect a turbidity measurement. To ensure that USGS turbidity data can be understood and interpreted properly within the context of the instrument used and site conditions encountered, data from each instrument type are stored and reported in the National Water Information System (NWIS) using parameter codes and measurement reporting units that are specific to the instrument type, with specific instruments

designated by the method code. The respective measurement units, many of which also are in use internationally, fall into two categories: (1) the designations NTU, NTRU, BU, AU, and NTMU signify the use of a broad spectrum incident light in the wavelength range of 400-680 nanometers (nm), but having different light detection configurations; (2) The designations FNU, FNRU, FBU, FAU, and FNMU generally signify an incident light in the range between 780-900 nm, also with varying light detection configurations. These reporting units are equivalent when measuring a calibration solution (for example, formazin or polymer beads), but their respective instruments may not produce equivalent results for environmental samples. Specific reporting units are as follows:

NTU (Nephelometric Turbidity Units): white or broadband [400-680 nm] light source, 90 degree detection angle, one detector.

NTRU (Nephelometric Turbidity Ratio Units): white or broadband [400-680 nm] light source, 90 degree detection angle, multiple detectors with ratio compensation.

BU (Backscatter Units): white or broadband [400-680 nm] light source, 30 15 degree detection angle (backscatter).

AU (Attenuation Units): white or broadband [400-680 nm] light source, 180 degree detection angle (attenuation).

NTMU (Nephelometric Turbidity Multibeam Units): white or broadband [400-680 nm] light source, multiple light sources, detectors at 90 degrees and possibly other angles to each beam.

FNU (Formazin Nephelometric Units): near infrared [780-900 nm] or monochrome light source, 90 degree detection angle, one detector.

FNRU (Formazin Nephelometric Ratio Units): near infrared [780-900 nm] or monochrome light source, 90 degree detection angle, multiple detectors, ratio compensation.

FBU (Formazin Backscatter Units): near infrared [780-900 nm] or monochrome light source, 30 15 degree detection angle.

FAU (Formazin Attenuation Units): near infrared [780-900 nm] light source, 180 degree detection angle.

FNMU (Formazin Nephelometric Multibeam Units): near infrared [780-900 nm] or monochrome light source, multiple light sources, detectors at 90 degrees and possibly other angles to each beam.

For more information please see http://water.usgs.gov/owq/Field-Manual/Chapter6/6.7_contents.html.

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”)

Unfiltered pertains to the constituents in an unfiltered, representative water-suspended sediment sample.

Unfiltered, recoverable is the amount of a given constituent in a representative water-suspended sediment sample that has been extracted or digested. Complete recovery is not achieved by the extraction or digestion treatment and thus the determination represents less than 95 percent of the constituent present in the sample. To achieve comparability of analytical data, equivalent extraction or digestion procedures are required of all laboratories performing such analyses because different procedures are likely to produce different analytical results.

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.

Watershed (See “Drainage basin”)

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, 2004, is called the “2004 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

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

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2–E2.*Borehole geophysics applied to ground-water investigations*, by W.S. Keys: USGS–TWRI book 2, chap. E2. 1990. 150 p.

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Book 3. Applications of Hydraulics

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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.
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3–Al0.*Discharge ratings at gaging stations,* by E.J. Kennedy: USGS–TWRI book 3, chap. A10. 1984. 59 p.
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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.
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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.
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Book 4. Hydrologic Analysis and Interpretation

Section A. Statistical Analysis

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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

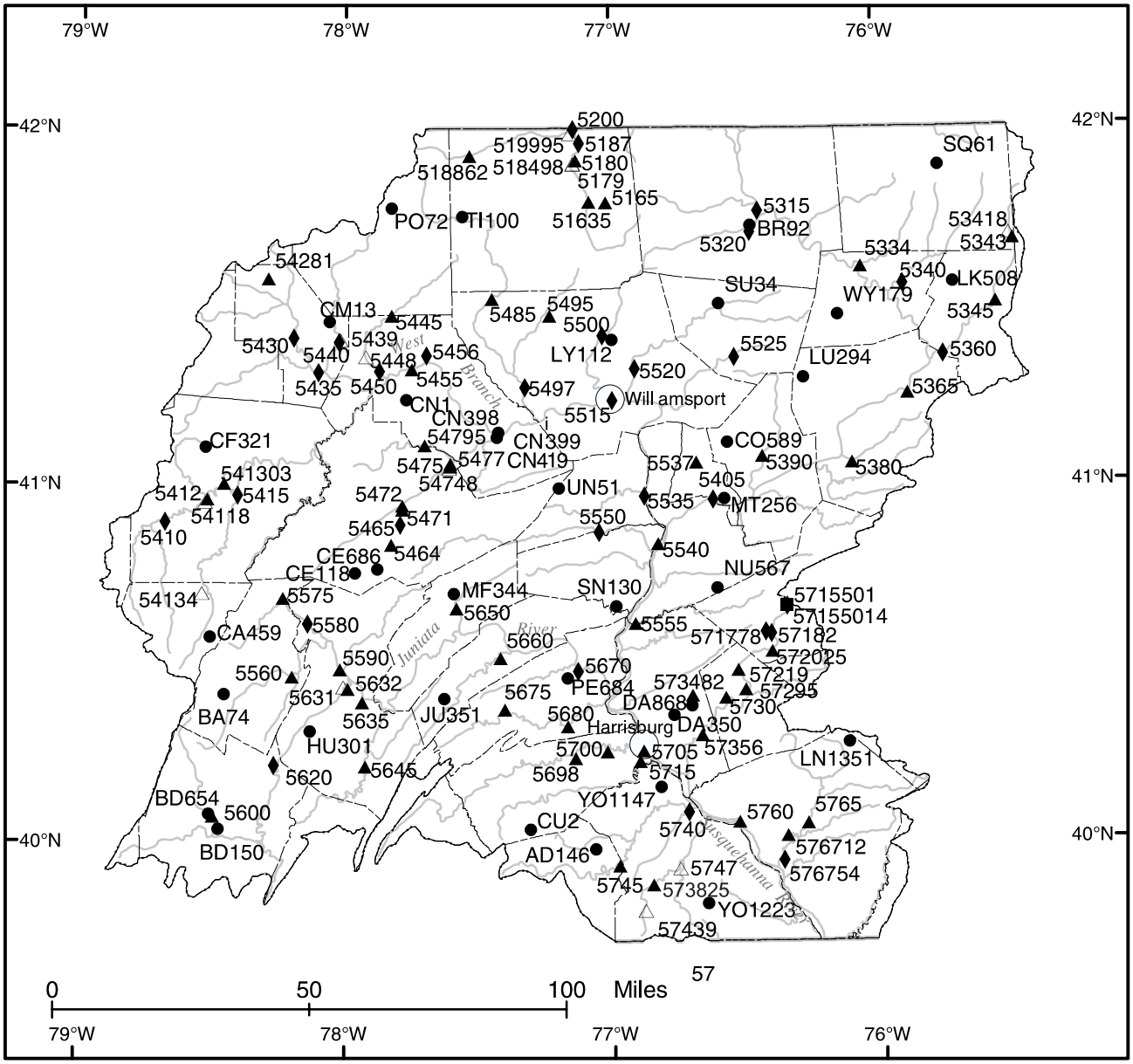
8–B2.*Calibration and maintenance of vertical-axis type current meters*, by G.F. Smoot and C.E. Novak: USGS–TWRI book 8, chap. B2. 1968. 15 p.

Book 9. Handbooks for Water-Resources Investigations

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

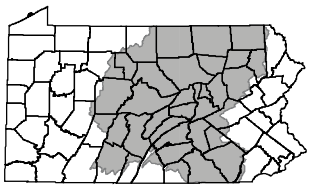
9–A1.*National field manual for the collection of water-quality data: Preparations for water sampling*, by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A1. 1998. 47 p.
9–A2.*National field manual for the collection of water-quality data: Selection of equipment for water 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

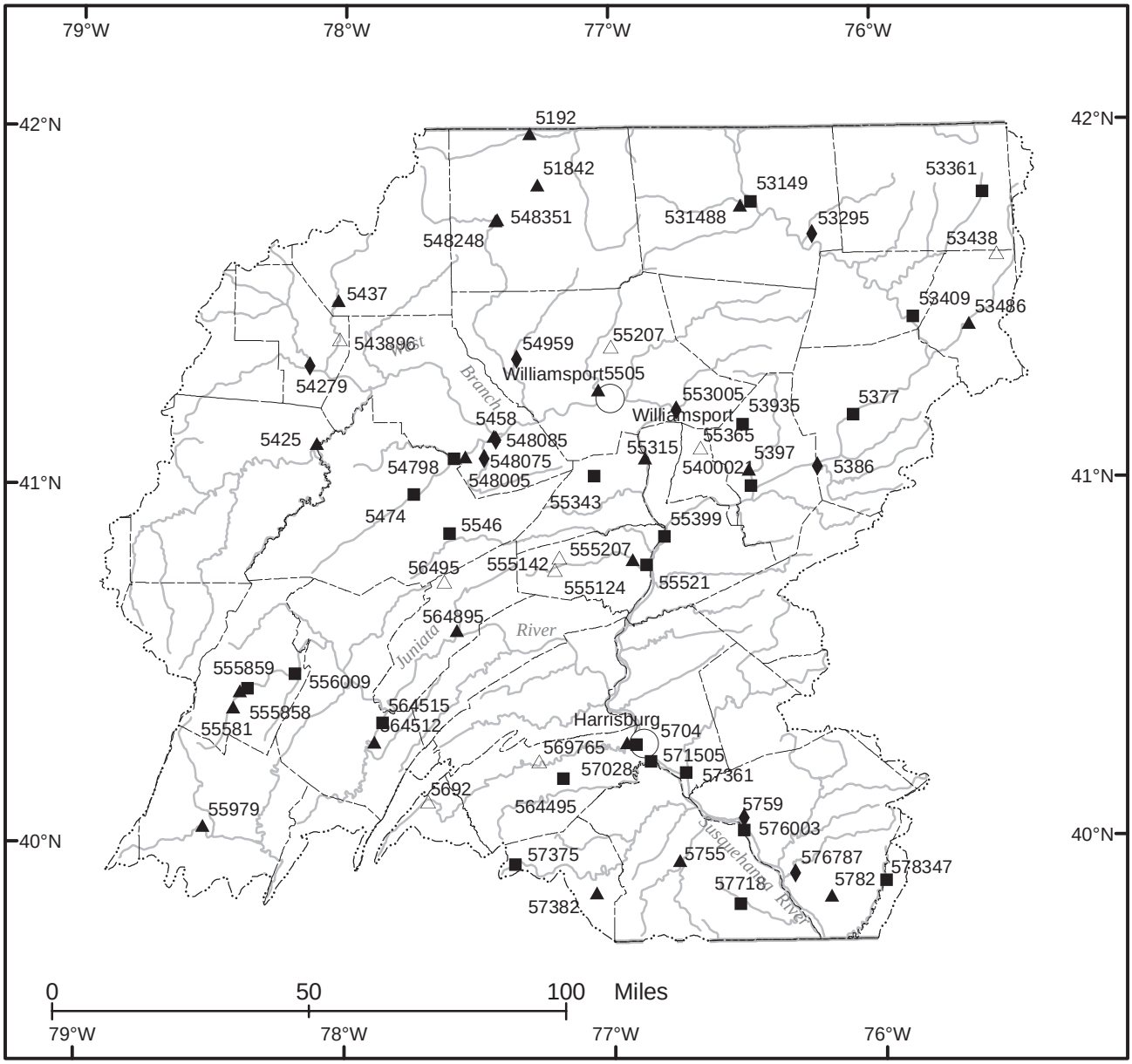
- ▲ Streamflow
- △ Lake
- ♦ Streamflow and water-quality station
- ■ Water-quality station
- ● Observation well

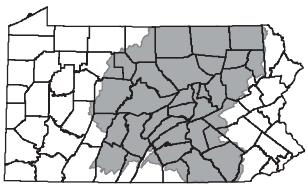


NOTE: Downstream station numbers are abbreviated; the first two digits (part number) and the last two digits (if zeros) are omitted (for example, station number 01573560 is shown as 57356, and station number 01570000 is shown as 5700).

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

SUSQUEHANNA RIVER BASIN





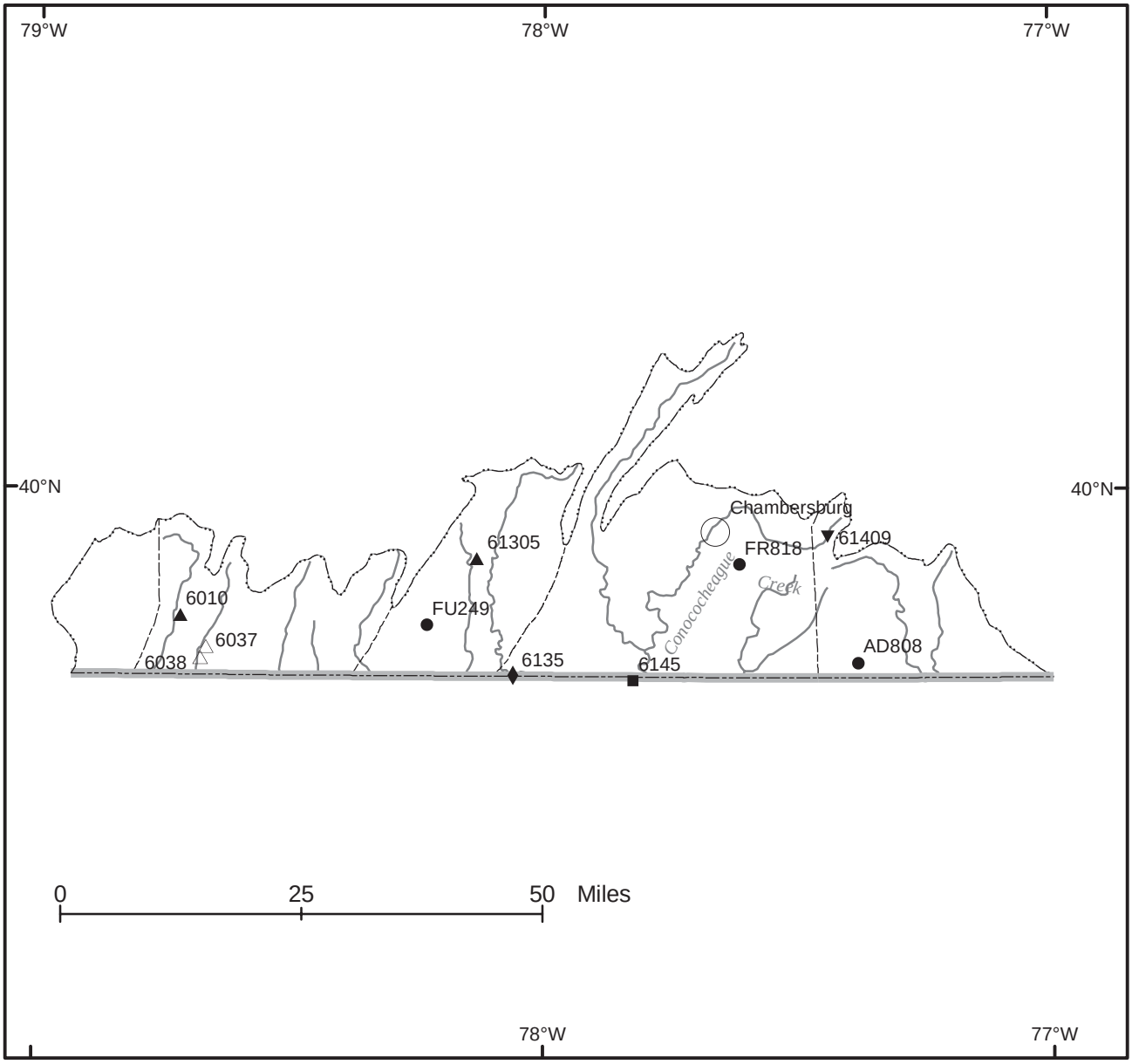
EXPLANATION

- ▲ 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).

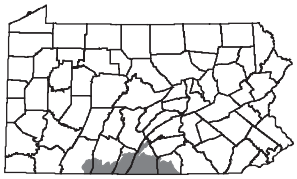
Figure 6.--Location of partial-record data-collection stations, Susquehanna River Basin.

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.
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.

****

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

(71999) SAMPLE PURPOSE CODES:

10--Routine
15--NAWQA
20--NASQAN
30--Benchmark
50--GW Network

(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
4040--Submersible pump

(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.)

****

(00027) AGENCY COLLECTING SAMPLE CODES: (partial listing)

1028 --U.S. Geological Survey

(00028) AGENCY ANALYZING SAMPLE CODES: (partial listing)

1028 --U.S. Geological Survey
80020 --U.S. Geological Survey, National Water-Quality Laboratory, Denver, Colorado
9813 --Pennsylvania Department of Environmental Protection
83613 --USGS Water Science Center, Water-Quality Laboratory, Troy, New York

MEDIUM CODES: (partial listing)

9-- Surface water.
6--Ground water.
R-- Quality-control sample. Surface water.
S--Quality-control sample, Ground water.
Q-- Quality-control sample. Artificial.

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.

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)
Nov. 19	2200	4,580	8.23	May 9	0530	4,120	7.92
Dec. 11	0900	7,140	9.24	July 27	1615	6,430	9.28
Dec. 24	1515	3,180	7.44	Sept. 9	0530	5,740	8.90
Mar. 2	----	Unknown	Ice jam	Sept. 18	0530	*20,900	*14.21
Apr. 13	2315	3,270	7.34				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	291	401	371	313	e74	e95	437	204	216	44	975	100
2	251	346	323	330	e71	e150	515	400	186	39	554	88
3	216	304	271	410	e71	659	413	990	249	35	398	83
4	260	267	240	697	e71	781	384	500	170	32	343	69
5	281	298	230	1270	e65	1150	328	442	156	47	391	63
6	206	347	228	774	e65	2090	286	380	167	39	273	58
7	174	265	207	e470	e68	1190	266	430	145	51	232	54
8	154	227	185	e350	e62	804	243	342	125	137	198	158
9	140	200	190	e250	e56	567	227	2050	114	69	170	3390
10	129	187	196	e200	e59	448	203	863	171	50	158	1030
11	119	182	3260	e200	e59	376	186	876	146	40	182	509
12	111	181	1220	e190	e56	343	178	599	116	38	143	350
13	103	180	745	e170	e56	284	1050	475	98	42	568	277
14	99	161	585	e140	e59	245	1460	383	91	112	300	222
15	408	150	512	e120	e56	246	688	332	92	127	209	196
16	227	143	421	e110	e50	225	502	285	88	79	175	181
17	166	138	437	e120	e52	218	419	245	94	69	154	3080
18	148	131	398	e130	e56	209	359	225	118	85	135	10100
19	140	1700	327	e120	e57	202	317	205	143	153	122	1550
20	131	1860	285	e110	e57	234	282	180	98	160	125	807
21	125	868	247	e100	e61	517	250	253	79	91	1170	538
22	122	627	234	e100	e68	316	279	257	74	70	389	398
23	118	e500	603	e100	e70	258	381	197	72	96	236	310
24	110	e450	1400	e82	e70	284	331	157	62	125	198	258
25	101	438	1020	e76	e67	488	280	135	56	81	173	224
26	97	338	644	e90	e66	530	347	163	55	355	150	197
27	930	296	496	e92	e70	568	305	325	49	3390	131	173
28	772	451	403	e87	e68	469	263	217	49	1790	118	217
29	781	690	358	e76	e88	384	237	168	56	774	108	233
30	641	429	482	e71	---	332	218	144	48	502	330	178
31	480	---	385	e74	---	300	---	154	---	1220	148	---
TOTAL	8031	12755	16903	7422	1848	14962	11634	12576	3383	9942	8956	25091
MEAN	259	425	545	239	63.7	483	388	406	113	321	289	836
MAX	930	1860	3260	1270	88	2090	1460	2050	249	3390	1170	10100
MIN	97	131	185	71	50	95	178	135	48	32	108	54
CFSM	1.69	2.78	3.56	1.56	0.42	3.15	2.53	2.65	0.74	2.10	1.89	5.47
IN.	1.95	3.10	4.11	1.80	0.45	3.64	2.83	3.06	0.82	2.42	2.18	6.10

e Estimated.

CHEMUNG RIVER BASIN

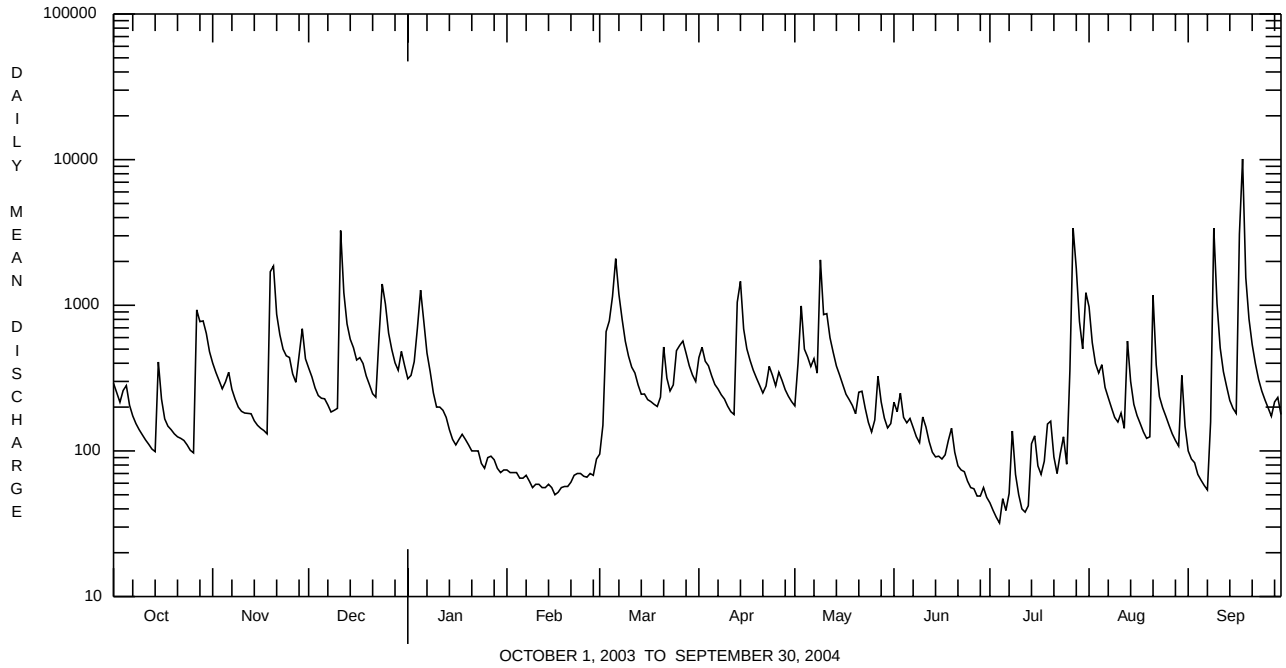
01516350 TIOGA RIVER NEAR MANSFIELD, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 2004, BY WATER YEAR (WY)

MEAN	134	207	235	221	241	418	495	249	173	85.8	83.5	95.7
MAX	653	620	666	943	682	832	1968	630	550	375	839	836
(WY)	1991	1978	1997	1996	1996	1978	1993	1978	1989	1994	1994	2004
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

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1976 - 2004	
ANNUAL TOTAL	117713		133503			
ANNUAL MEAN	323		365		219	
HIGHEST ANNUAL MEAN					388	1978
LOWEST ANNUAL MEAN					125	2001
HIGHEST DAILY MEAN	3260	Dec 11	10100	Sep 18	12200	Aug 18 1994
LOWEST DAILY MEAN	**e**38	Feb 3	32	Jul 4	8.1	Sep 3 1999
ANNUAL SEVEN-DAY MINIMUM	**a**43	Jan 28	41	Jun 30	8.7	Aug 31 1999
MAXIMUM PEAK FLOW			**b**20900	Sep 18	**b**38900	Jan 19 1996
MAXIMUM PEAK STAGE			14.21	Sep 18	**c**18.87	Jan 19 1996
ANNUAL RUNOFF (CFSM)	2.11		2.38		1.43	
ANNUAL RUNOFF (INCHES)	28.62		32.46		19.48	
10 PERCENT EXCEEDS	689		711		479	
50 PERCENT EXCEEDS	187		208		102	
90 PERCENT EXCEEDS	66		65		21	

a Computed using estimated daily discharges.
b From rating curve extended above 16,000 ft^3/s.
c From floodmark, at site then in use.
e Estimated.



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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Nov. 19	1645	401	4.27	July 27	1515	975	5.84
Dec. 11	0915	524	4.68	Aug. 21	1030	293	3.83
Dec. 24	1445	318	3.94	Sept. 9	0515	293	3.83
Apr. 13	2015	313	3.92	Sept. 18	0300	*1,960	*7.58
May 9	0515	374	4.17				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	17	16	16	e5.7	e7.5	49	8.7	11	1.1	39	3.7
2	16	15	14	18	e5.4	e14	42	28	8.0	1.0	24	2.9
3	15	13	e13	20	e5.4	e36	30	58	8.0	0.94	18	2.5
4	18	11	e13	42	e5.4	e49	28	26	5.5	0.92	15	2.3
5	17	13	e12	103	e5.1	e73	23	25	6.1	1.2	19	2.1
6	14	13	11	41	e5.0	102	20	20	6.1	1.2	11	1.9
7	12	10	e11	e32	e5.3	54	19	28	5.1	2.3	9.0	1.7
8	11	8.8	e10	e23	e4.8	40	16	19	4.1	5.3	7.1	4.5
9	11	7.9	9.6	e17	e4.4	29	14	132	3.3	1.5	5.5	131
10	10	7.2	13	e14	e4.6	24	12	43	4.0	1.2	7.0	37
11	9.6	7.4	226	e13	e4.5	22	11	47	3.5	1.0	9.5	22
12	9.3	7.4	63	e13	e4.4	21	11	28	2.8	1.1	6.7	16
13	8.7	7.8	34	e12	e4.3	17	97	23	2.4	1.3	41	11
14	8.6	6.7	26	e10	e4.5	e16	76	20	2.3	11	14	8.1
15	27	6.0	24	e8.8	e4.2	15	37	16	2.1	7.4	8.7	6.8
16	14	5.9	21	e8.0	e4.0	13	27	14	1.9	3.7	7.0	6.2
17	12	5.6	25	e8.7	e4.2	e13	22	11	3.7	2.9	5.5	336
18	11	5.3	22	e9.8	e4.4	e13	20	9.3	8.3	7.9	4.7	705
19	11	146	18	e9.1	e4.4	13	17	8.5	5.0	6.0	4.2	77
20	10	96	15	e8.2	e4.6	e15	14	7.0	2.6	3.5	4.5	38
21	11	40	14	7.5	e4.8	e34	13	41	2.1	2.6	115	28
22	11	27	13	7.1	e5.2	e20	15	17	2.0	2.5	29	18
23	10	21	63	6.5	e5.4	e19	20	11	1.7	6.2	20	14
24	9.8	20	116	e5.9	e5.4	23	16	7.7	1.4	3.7	19	12
25	9.2	19	58	e5.6	e5.3	35	14	6.3	1.4	2.6	14	9.8
26	9.2	15	35	e6.4	e5.2	29	16	8.5	1.3	35	10	8.5
27	80	13	25	e6.7	e5.1	34	13	20	1.2	256	8.2	7.5
28	32	27	21	e6.3	e5.3	27	10	10	1.2	85	7.1	12
29	49	26	19	e5.7	e5.1	23	9.2	7.2	2.0	35	6.2	9.9
30	27	17	27	e5.5	---	21	8.4	5.6	1.3	33	5.2	7.8
31	20	---	19	e5.6	---	20	---	8.3	---	65	4.7	---
TOTAL	530.4	635.0	1006.6	495.4	141.4	871.5	719.6	714.1	111.4	589.06	498.8	1543.2
MEAN	17.1	21.2	32.5	16.0	4.88	28.1	24.0	23.0	3.71	19.0	16.1	51.4
MAX	80	146	226	103	5.7	102	97	132	11	256	115	705
MIN	8.6	5.3	9.6	5.5	4.0	7.5	8.4	5.6	1.2	0.92	4.2	1.7
CFSM	1.40	1.73	2.66	1.31	0.40	2.30	1.97	1.89	0.30	1.56	1.32	4.22
IN.	1.62	1.94	3.07	1.51	0.43	2.66	2.19	2.18	0.34	1.80	1.52	4.71

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2004, BY WATER YEAR (WY)

MEAN	6.40	10.6	14.3	12.1	16.2	28.7	28.6	14.2	10.0	3.41	3.13	4.09
MAX	51.0	45.4	42.7	52.4	52.4	60.4	118	42.7	114	19.9	55.2	51.4
(WY)	1956	1978	1974	1996	1984	1964	1993	1989	1972	1994	1994	2004
MIN	0.15	0.48	0.80	0.75	1.71	4.88	8.19	2.88	0.69	0.10	0.07	0.00
(WY)	1964	1965	1999	1961	1963	1965	1955	1999	1991	1966	1964	1964

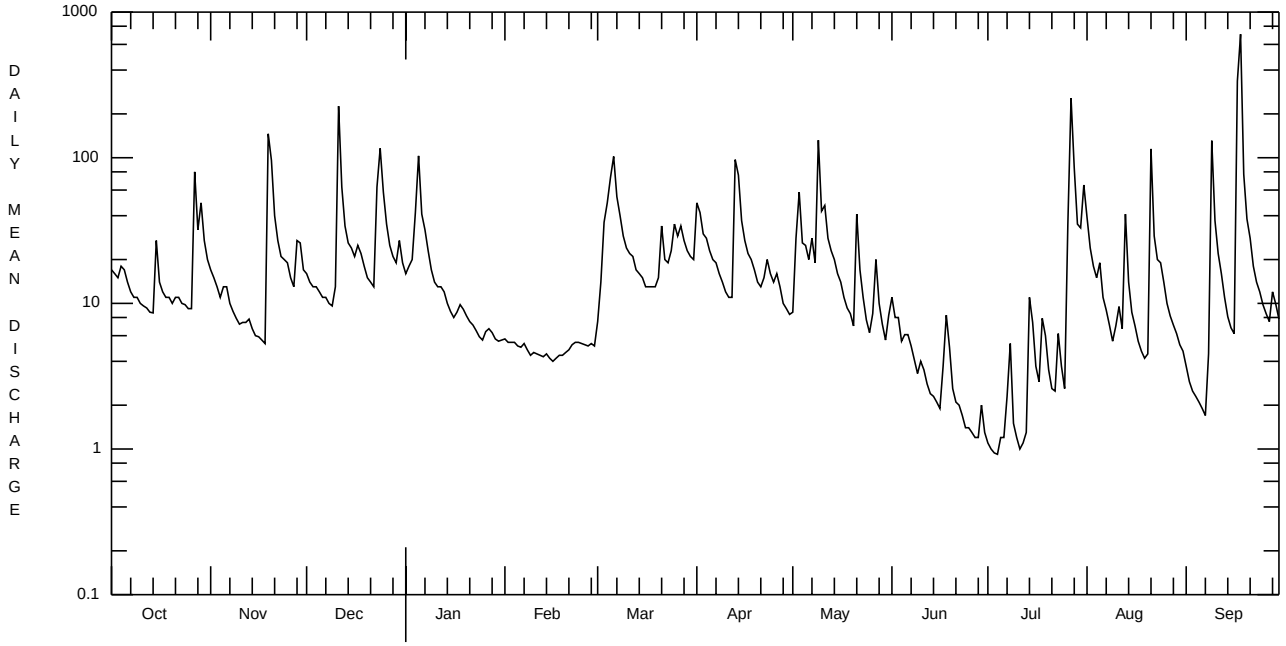
e Estimated.

CHEMUNG RIVER BASIN

01516500 COREY CREEK NEAR MAINESBURG, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1954 - 2004	
ANNUAL TOTAL	6550.8		7856.46			
ANNUAL MEAN	17.9		21.5		12.6	
HIGHEST ANNUAL MEAN					24.9	1978
LOWEST ANNUAL MEAN					4.82	1965
HIGHEST DAILY MEAN	331	Jun 21	705	Sep 18	1910	Jun 22 1972
LOWEST DAILY MEAN	1.1	Aug 28	0.92	Jul 4	0.00	Jul 11 1955
ANNUAL SEVEN-DAY MINIMUM	1.3	Aug 25	1.1	Jun 30	0.00	Aug 17 1959
MAXIMUM PEAK FLOW			**a**1960	Sep 18	**a**5580	Jun 23 1972
MAXIMUM PEAK STAGE			7.58	Sep 18	**b**10.44	Jun 23 1972
ANNUAL RUNOFF (CFSM)	1.47		1.76		1.04	
ANNUAL RUNOFF (INCHES)	19.97		23.96		14.08	
10 PERCENT EXCEEDS	36		39		28	
50 PERCENT EXCEEDS	9.1		11		4.5	
90 PERCENT EXCEEDS	2.2		2.9		0.52	

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.



OCTOBER 1, 2003 TO SEPTEMBER 30, 2004

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.--No estimated daily discharges. Record good. 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	510	743	725	823	213	341	1050	393	341	101	1940	302
2	489	738	665	717	212	1030	1480	489	360	73	989	225
3	452	619	646	770	213	2330	1190	2230	407	57	649	226
4	392	520	528	1580	210	2440	938	1040	354	65	607	224
5	353	469	398	2630	210	3340	741	1010	199	85	637	207
6	354	473	362	1850	210	3740	705	890	322	85	531	178
7	354	495	370	947	210	3110	683	1020	265	85	250	196
8	294	438	380	716	210	1780	520	830	209	222	222	450
9	253	412	448	730	210	1160	510	2420	180	174	314	1730
10	260	377	524	504	198	928	448	3610	213	99	277	3600
11	268	353	3500	421	182	845	449	2810	249	98	465	5130
12	213	319	3940	558	169	744	478	1450	166	155	491	4390
13	188	322	2210	599	162	642	1560	993	143	127	1300	1990
14	284	322	1710	399	162	547	3530	783	137	175	583	765
15	663	322	1130	293	163	532	2280	915	127	296	388	512
16	699	321	1030	296	161	527	1180	843	127	226	310	387
17	225	321	829	334	161	508	938	577	140	156	250	1300
18	168	350	790	399	161	489	750	509	196	717	220	85
19	191	2050	725	405	161	471	599	405	278	822	220	2660
20	245	3840	621	356	161	419	580	310	187	383	224	5460
21	217	3170	615	324	161	521	553	1270	143	148	3670	5900
22	175	1710	616	285	169	624	517	626	143	148	2190	5960
23	181	1070	1410	237	184	655	637	685	110	255	780	5530
24	206	1180	2560	200	195	686	823	467	73	577	543	5490
25	231	842	3080	200	202	1130	757	330	73	388	527	3670
26	290	763	1470	208	209	1390	848	281	73	1180	335	1380
27	1980	703	998	208	222	1200	708	455	73	4780	151	615
28	1970	848	976	199	216	1190	571	505	90	5760	291	373
29	1360	1290	916	199	240	935	520	338	101	4350	390	444
30	1410	930	914	199	---	803	444	284	101	1540	1130	381
31	841	---	938	208	---	690	---	285	---	2240	1060	---
TOTAL	15716	26310	36024	17794	5537	35747	26987	29053	5580	25567	21934	59760
MEAN	507	877	1162	574	191	1153	900	937	186	825	708	1992
MAX	1980	3840	3940	2630	240	3740	3530	3610	407	5760	3670	5960
MIN	168	319	362	199	161	341	444	281	73	57	151	85

CHEMUNG RIVER BASIN

01518000 TIOGA RIVER AT TIOGA, PA--Continued

REMARKS.--Those data in the first set of statistics (1978-2004) 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 - 2004, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	253	422	501	492	528	941	1072	544	394	183	187	201
MAX	1454	1684	1377	1709	1716	2161	4544	1433	1404	825	1747	1992
(WY)	1991	1978	1997	1996	1981	1979	1993	1989	1989	2004	1994	2004
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

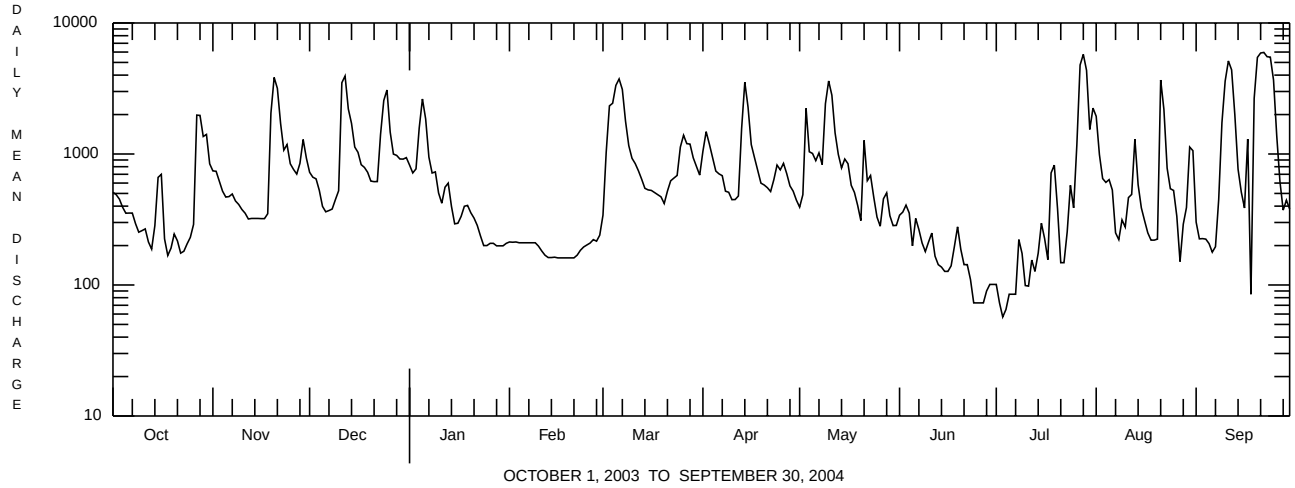
SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1978 - 2004	
ANNUAL TOTAL	262342		306009			
ANNUAL MEAN	719		836		476	
HIGHEST ANNUAL MEAN					862	1978
LOWEST ANNUAL MEAN					241	2001
HIGHEST DAILY MEAN	5080	Mar 25	5960	Sep 22	8360	Jan 9 1978
LOWEST DAILY MEAN	55	Aug 30	57	Jul 3	16	Aug 26-28 1980
ANNUAL SEVEN-DAY MINIMUM	82	Aug 25	79	Jul 1	16	Jan 15 1981
MAXIMUM PEAK FLOW			6230	Sep 22	14300	Nov 4 1977
MAXIMUM PEAK STAGE			7.03	Sep 22	8.84	Nov 4 1977
INSTANTANEOUS LOW FLOW					**a**0.00	Mar 6 1979**b**
10 PERCENT EXCEEDS	1700		2010		1090	
50 PERCENT EXCEEDS	392		472		194	
90 PERCENT EXCEEDS	141		161		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	**c**59000	Jun 22 1972
MAXIMUM PEAK STAGE	**d**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 Result of shutoff at Tioga Dam.
b Also Aug. 29, 1980.
c 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.
d From floodmark.



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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	525	813	824	953	247	385	1310	442	383	107	2210	384
2	495	794	736	829	e250	1250	2020	528	425	84	1140	276
3	462	678	699	872	246	3170	1530	2810	441	59	705	267
4	410	557	586	1780	245	3250	1170	1300	425	63	634	262
5	369	498	443	3360	e250	4340	867	1160	213	91	677	247
6	364	496	398	2440	245	4850	792	1050	357	89	576	210
7	360	519	400	1210	246	4020	787	1190	310	90	319	222
8	312	457	403	834	e250	2340	587	995	240	209	245	375
9	261	429	464	839	e250	1500	581	2970	213	209	337	3310
10	264	389	545	599	233	1100	519	4400	223	104	323	4000
11	272	373	4580	e500	216	996	499	3630	284	102	473	5990
12	230	334	5160	612	e200	853	537	1900	196	157	510	4970
13	185	339	2800	680	190	728	1990	1180	162	148	1420	2480
14	276	337	2180	e480	190	611	4750	937	156	197	668	845
15	642	335	1380	e360	e190	593	3000	1040	143	353	445	576
16	785	332	1230	e360	e190	587	1550	998	145	258	352	429
17	256	331	1000	e380	e190	566	1150	646	161	211	294	2400
18	178	346	940	422	e190	542	907	571	220	773	255	2240
19	191	2450	858	452	184	519	690	469	322	947	252	2910
20	252	4840	716	404	184	494	661	361	231	466	262	6590
21	232	4020	699	368	189	671	628	1560	168	185	4360	7480
22	183	2190	699	e330	198	719	590	885	165	176	2760	7490
23	187	1310	1610	e280	e210	729	718	789	137	273	954	6850
24	207	1390	3410	e240	229	770	938	573	80	602	606	6840
25	238	984	4100	e240	e230	1310	853	407	78	450	579	4590
26	278	875	1890	e250	241	1730	976	340	77	1070	414	1690
27	2130	778	1280	e250	257	1470	844	477	76	6170	194	726
28	2620	883	1160	238	252	1460	646	554	92	7010	311	426
29	1620	1610	1090	e240	276	1110	579	389	109	5340	418	504
30	1740	1110	1090	e240	---	913	501	325	107	1750	1110	453
31	996	---	1120	e250	---	773	---	326	---	2510	1390	---
TOTAL	17520	30797	44490	21292	6468	44349	33170	35202	6339	30253	25193	76032
MEAN	565	1027	1435	687	223	1431	1106	1136	211	976	813	2534
MAX	2620	4840	5160	3360	276	4850	4750	4400	441	7010	4360	7490
MIN	178	331	398	238	184	385	499	325	76	59	194	210

e Estimated.

CHEMUNG RIVER BASIN

01518700 TIOGA RIVER AT TIOGA JUNCTION, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2004, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	254	426	550	498	628	1002	1287	618	456	214	215	239
MAX	1515	1626	1632	1975	1837	2009	5667	1723	1619	976	1836	2534
(WY)	1991	1997	1997	1996	1981	1994	1993	1989	1989	2004	1994	2004
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

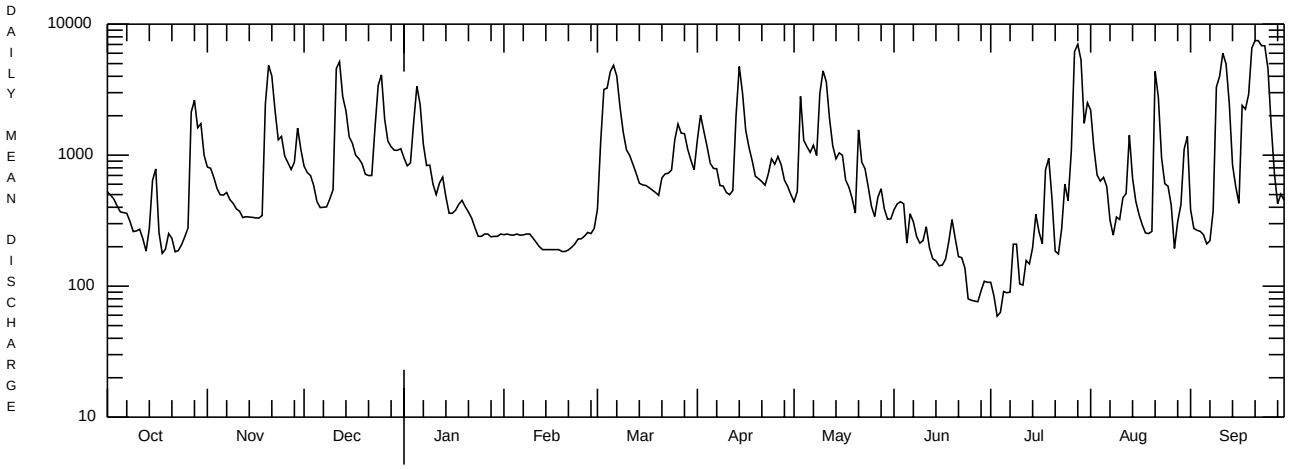
SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1980 - 2004	
ANNUAL TOTAL	308210		371105			
ANNUAL MEAN	844		1014		531	
HIGHEST ANNUAL MEAN					1014	2004
LOWEST ANNUAL MEAN					297	2001
HIGHEST DAILY MEAN	6330	Mar 25	7490	Sep 22	7490	Sep 22 2004
LOWEST DAILY MEAN	65	Aug 30	59	Jul 3	16	Aug 26-28 1980
ANNUAL SEVEN-DAY MINIMUM	92	Aug 25	83	Jul 1	21	Jan 23 1981
MAXIMUM PEAK FLOW			**a**11000	Sep 17	**a**11200	Aug 18 1994
MAXIMUM PEAK STAGE			15.33	Sep 17	15.42	Aug 18 1994
10 PERCENT EXCEEDS	1990		2540		1220	
50 PERCENT EXCEEDS	429		519		214	
90 PERCENT EXCEEDS	152		190		50	

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, 2003 TO SEPTEMBER 30, 2004

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 359-431.

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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)
OCT 2003													
22...	0945	1028	9813	183	10.1	7.3	7.0	178	170	10.4	65	18.4	4.7
DEC													
16...	1115	1028	9813	1280	13.2	7.2	7.0	112	117	1.7	42	12.1	2.8
FEB 2004													
23...	0930	1028	9813	E210	14.7	7.3	7.0	198	195	.2	73	20.4	5.4
APR													
07...	0930	1028	9813	838	12.0	7.3	7.5	128	128	5.9	47	13.6	3.1
JUN													
02...	0930	1028	9813	438	8.9	7.2	7.2	165	163	17.4	62	17.3	4.6
AUG													
04...	0930	1028	9813	604	8.7	6.8	6.9	124	121	19.3	45	12.7	3.2

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	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)
OCT 2003													
22...	33	34.4	132	<2	<.020	.26	<.040	.01	.012	.54	2.6	<200	<10
DEC													
16...	24	17.7	108	22	.020	.55	<.040	--	--	.75	3.5	1700	<10
FEB 2004													
23...	29	45.0	124	12	.070	.75	<.040	.01	.011	.90	1.5	<200	<10
APR													
07...	23	22.5	92	16	<.020	.52	<.040	.02	.022	.84	2.2	350	<10
JUN													
02...	28	33.4	124	4	.040	.35	<.040	.02	.019	.36	2.3	200	<10
AUG													
04...	28	19.9	86	6	.070	.33	<.040	.03	.024	.61	3.9	540	<10

Date	Iron, water, unfltrd recoverable, µg/L (01045)	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)
OCT 2003					
22...	120	<1.0	120	<50	10
DEC					
16...	1610	1.1	240	<50	20
FEB 2004					
23...	180	<1.0	680	<50	50
APR					
07...	420	<1.0	290	<50	20
JUN					
02...	300	<1.0	440	<50	<10
AUG					
04...	640	<1.0	290	<50	30

01518700 TIOGA RIVER AT TIOGA JUNCTION, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

Date	10/22/03
Benthic Macroinvertebrate	Count
Nematoda (NEMATODES)	1
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia	2
Planorbidae	
Planorbella	1
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Tubificida	
Naididae	1
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	4
Insecta	
Ephemeroptera (MAYFLIES)	
Ephemerellidae	
Ephemerella	1
Heptageniidae	
Stenonema	5
Isonychiidae	
Isonychia	2
Leptophlebiidae	
Paraleptophlebia	1
Plecoptera (STONEFLIES)	
Capniidae	1
Taeniopterygidae	
Taeniopteryx	6
Trichoptera (CADDISFLIES)	
Brachycentridae	
Micrasema	1
Hydropsychidae	
Cheumatopsyche	36
Hydropsyche	23
Macrostemum	1
Hydroptilidae	
Hydroptila	3
Philopotamidae	
Chimarra	2
Psychomyiidae	
Psychomyia	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Promoresia	1
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	20
Empididae (DANCE FLIES)	
Hemerodromia	1
Tipulidae (CRANE FLIES)	
Antocha	3
Total Organisms	117
Total Taxa	22

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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Nov. 19	1545	5,600	7.14	May 9	0515	3,320	5.57
Dec. 11	0730	3,980	6.04	Sept. 9	Unknown	*8,330	*8.70
Dec. 24	1400	2,060	4.50	Sept. 18	0400	7,380	8.19
Apr. 13	2015	2,840	5.18				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	226	162	153	168	e66	e75	492	124	125	12	139	70
2	199	151	142	197	e66	e550	462	169	88	10	104	54
3	169	140	e140	276	e64	716	319	183	87	8.9	84	45
4	267	124	e130	310	e64	738	269	126	62	8.4	71	38
5	203	130	e110	409	e60	1060	224	134	58	10	73	32
6	153	128	111	278	e59	1060	185	120	57	9.0	52	27
7	133	108	104	237	e62	642	166	153	50	8.4	43	24
8	116	95	e100	e210	e54	448	148	117	42	13	38	120
9	102	84	98	e160	e49	300	132	1320	36	13	32	e4400
10	91	79	106	e140	e53	239	114	527	34	16	31	e1600
11	82	80	1560	e140	e52	201	102	624	34	8.6	35	e500
12	74	81	532	e130	e52	180	104	385	29	8.1	30	e300
13	67	165	333	e100	e52	147	871	385	25	9.8	71	e220
14	73	106	264	e75	e53	128	647	319	25	56	41	e170
15	270	105	232	e75	e50	136	388	277	23	65	33	141
16	126	108	197	e93	e45	112	282	216	22	37	111	121
17	102	104	201	e100	e47	118	232	172	31	27	50	2260
18	92	96	175	e110	e50	106	197	176	36	52	39	3190
19	90	1680	148	e110	e50	98	165	142	37	62	33	705
20	82	1040	130	e97	e50	153	155	117	23	38	33	383
21	76	538	e120	e86	e52	279	134	647	18	25	539	267
22	74	351	115	e82	e60	178	226	302	17	23	162	208
23	68	267	349	e78	e58	161	250	331	15	34	114	164
24	61	264	798	e68	e54	200	180	237	13	30	90	135
25	55	237	445	e68	e50	317	183	184	12	20	73	114
26	66	187	303	e75	e48	262	304	173	13	119	56	95
27	554	163	242	e82	e45	410	210	137	11	590	46	79
28	260	206	202	e77	e47	282	184	124	12	382	59	68
29	273	209	183	e67	e65	233	158	97	27	232	45	57
30	215	159	310	e63	---	197	138	80	14	172	106	49
31	180	---	195	e65	---	189	---	113	---	193	126	---
TOTAL	4599	7347	8228	4226	1577	9915	7621	8211	1076	2292.2	2559	15636
MEAN	148	245	265	136	54.4	320	254	265	35.9	73.9	82.5	521
MAX	554	1680	1560	409	66	1060	871	1320	125	590	539	4400
MIN	55	79	98	63	45	75	102	80	11	8.1	30	24
CFSM	1.64	2.70	2.93	1.50	0.60	3.53	2.80	2.92	0.40	0.82	0.91	5.75
IN.	1.89	3.02	3.38	1.74	0.65	4.07	3.13	3.37	0.44	0.94	1.05	6.42

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2004, BY WATER YEAR (WY)

MEAN	55.3	102	116	113	127	200	243	125	83.6	41.2	54.0	53.4
MAX	323	353	278	444	281	405	618	382	361	182	372	521
(WY)	1991	1997	1991	1996	1984	2003	1993	1996	1989	2003	1994	2004
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

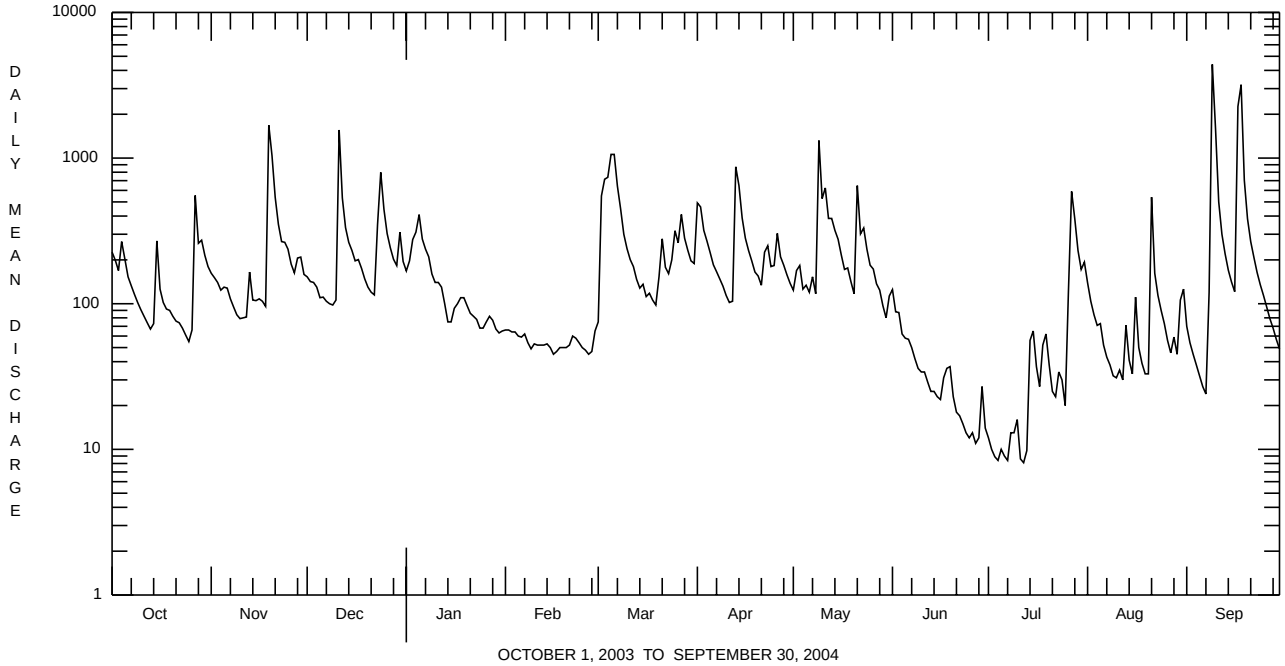
e Estimated.

CHEMUNG RIVER BASIN

01518862 COWANESQUE RIVER AT WESTFIELD, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1983 - 2004	
ANNUAL TOTAL	69924		73287.2			
ANNUAL MEAN	192		200		110	
HIGHEST ANNUAL MEAN					200	2004
LOWEST ANNUAL MEAN					58.4	1999
HIGHEST DAILY MEAN	1680	Nov 19	**e**4400	Sep 9	**e**5400	Jan 19 1996
LOWEST DAILY MEAN	**e**12	Feb 1	8.1	Jul 12	0.53	Sep 16 1991
ANNUAL SEVEN-DAY MINIMUM	**a**14	Jan 28	9.5	Jul 1	0.78	Sep 10 1991
MAXIMUM PEAK FLOW			**b**8330	Sep 9	**b**13000	Jan 19 1996
MAXIMUM PEAK STAGE			8.70	Sep 9	**c**11.10	Jan 19 1996
ANNUAL RUNOFF (CFSM)	2.11		2.21		1.21	
ANNUAL RUNOFF (INCHES)	28.71		30.09		16.45	
10 PERCENT EXCEEDS	434		384		257	
50 PERCENT EXCEEDS	106		114		46	
90 PERCENT EXCEEDS	26		30		5.3	

a Computed using estimated daily discharges.
b From rating curve extended above 4,000 ft^3/s.
c 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.--Records good except those for estimated daily discharges, which are fair. 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	513	466	527	549	107	274	1410	389	455	56	421	240
2	442	466	444	538	104	869	2220	470	333	46	270	145
3	417	433	278	722	104	3280	1230	836	269	38	224	135
4	376	342	239	1090	104	2760	949	495	174	37	313	114
5	508	371	322	1210	104	3240	747	420	151	38	296	114
6	475	340	383	1060	126	3220	524	442	130	37	163	114
7	312	267	289	572	117	1920	538	800	109	38	125	114
8	246	251	205	496	104	1170	484	504	86	38	103	479
9	199	230	255	482	104	868	430	2840	84	38	96	1720
10	187	205	343	329	104	677	331	2380	91	37	106	3170
11	193	250	2950	298	104	545	279	2090	74	38	96	5740
12	203	242	3150	335	104	437	351	990	59	53	115	6140
13	186	350	1320	396	104	451	1650	1280	61	42	302	3580
14	177	338	964	297	104	402	2520	1050	62	380	159	1250
15	481	295	832	182	104	384	1950	1280	62	403	86	722
16	430	295	746	210	104	400	849	721	61	118	123	378
17	275	295	546	177	78	352	653	528	70	116	149	1540
18	263	303	567	177	76	306	540	551	171	1160	98	128
19	219	1650	532	224	100	320	493	452	209	571	79	2060
20	197	3990	453	220	100	320	431	290	119	451	80	4910
21	190	3140	343	184	101	680	389	2050	61	223	1450	5900
22	179	1180	363	176	103	738	623	1050	49	149	792	6100
23	171	1060	1220	165	130	507	717	1040	49	199	366	4410
24	157	884	2100	148	145	e680	670	776	49	184	296	961
25	157	687	1890	128	145	1080	568	504	39	72	189	403
26	158	571	1180	118	136	947	826	406	34	539	129	408
27	1390	490	908	117	117	891	748	383	35	3680	129	297
28	1110	490	638	117	117	868	503	326	36	2070	165	239
29	719	543	578	117	146	696	428	289	43	1540	186	131
30	621	569	829	119	---	554	431	170	56	715	491	85
31	467	---	683	114	---	532	---	169	---	972	899	---
TOTAL	11618	20993	26077	11067	3196	30368	24482	25971	3281	14078	8496	51727
MEAN	375	700	841	357	110	980	816	838	109	454	274	1724
MAX	1390	3990	3150	1210	146	3280	2520	2840	455	3680	1450	6140
MIN	157	205	205	114	76	274	279	169	34	37	79	85

e Estimated.

CHEMUNG RIVER BASIN

01520000 COWANESQUE RIVER NEAR LAWRENCEVILLE, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2004, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	149	273	328	295	376	640	739	390	287	127	128	156
MAX	1122	1114	864	1198	1027	1527	2773	1115	1222	628	889	1724
(WY)	1991	1997	1991	1996	1981	1994	1993	1996	1989	2003	1994	2004
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

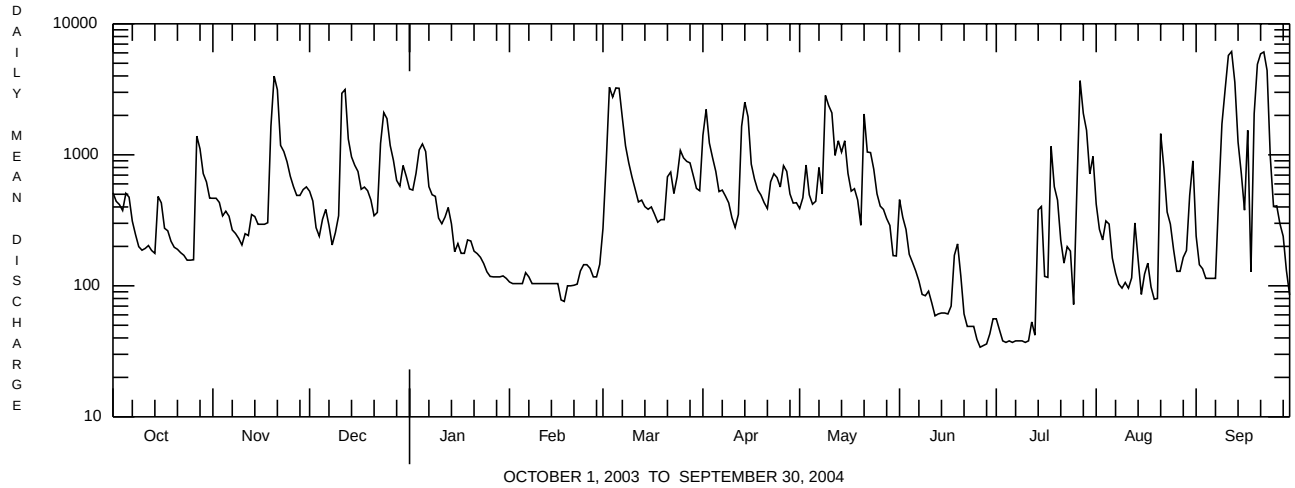
SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1980 - 2004	
ANNUAL TOTAL	211651		231354			
ANNUAL MEAN	580		632		323	
HIGHEST ANNUAL MEAN					632	2004
LOWEST ANNUAL MEAN					165	1999
HIGHEST DAILY MEAN	4770	Jul 22	6140	Sep 12	6140	Sep 12 2004
LOWEST DAILY MEAN	31	Jul 15	34	Jun 26	3.4	Sep 13 1980
ANNUAL SEVEN-DAY MINIMUM	56	Jan 26	38	Jul 4	3.9	Sep 10 1980
MAXIMUM PEAK FLOW			6400	Sep 12	6580	Jan 23 1996
MAXIMUM PEAK STAGE			12.34	Sep 12	12.41	Jan 23 1996
10 PERCENT EXCEEDS	1340		1400		792	
50 PERCENT EXCEEDS	295		341		109	
90 PERCENT EXCEEDS	78		85		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	**a**43700	Sep 26 1975
MAXIMUM PEAK STAGE	**b**18.13	Sep 26 1975
INSTANTANEOUS LOW FLOW	**c**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 From rating curve extended above 6,000 ft^3/s, on basis of slope-area measurement of peak flow.
b From floodmark; site and datum then in use.
c No flow Aug. 22, 1978, during dam construction.



CHEMUNG RIVER BASIN

01520000 COWANESQUE RIVER NEAR LAWRENCEVILLE, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 359-431. Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

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.

Date	10/22/03
Benthic Macroinvertebrate	Count
Arthropoda	
Crustacea	
Isopoda (AQUATIC SOWBUGS)	
Asellidae	
Caecidotea	6
Insecta	
Ephemeroptera (MAYFLIES)	
Heptageniidae	
Stenonema	13
Isonychiidae	
Isonychia	2
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche	170
Hydropsyche	23
Coleoptera (BEETLES)	
Psephenidae (WATER PENNIES)	
Psephenus	1
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	16
Simuliidae (BLACK FLIES)	
Simulium	1
Total Organisms	232
Total Taxa	8

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, 37,100 acre-ft, Sept. 19, elevation, 1,113.31 ft; minimum, 8,550 acre-ft, Mar. 2, elevation, 1,078.88 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, 35,700 acre-ft, Sept. 19, elevation, 1,113.11 ft; minimum, 8,660 acre-ft, Mar. 1, elevation, 1,085.75 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, 66,740 acre-ft, Sept. 19, elevation, 1,105.14 ft; minimum, 32,080 acre-ft, Mar. 7, elevation, 1,079.53 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 2003 TO SEPTEMBER 2004

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)
	01517900 Tioga Lake			01518498 Hammond Lake		
Sept. 30	1,081.12	9,560	---	1,086.45	9,120	---
Oct. 31	1,081.72	9,850	+4.7	1,086.55	9,190	+1.1
Nov. 30	1,082.80	10,400	+9.2	1,087.18	9,590	+6.7
Dec. 31	1,083.50	10,700	+4.9	1,087.19	9,600	+0.2
CAL YR 2003	--	--	+0.3	--	--	-0.2
Jan. 31	1,081.42	9,710	-16.1	1,087.22	9,620	+0.3
Feb. 29	1,079.23	8,700	-17.6	1,085.79	8,690	-16.2
Mar. 31	1,081.09	9,540	+13.7	1,086.66	9,250	+9.1
Apr. 30	1,081.00	9,500	-0.7	1,086.58	9,200	-0.8
May 31	1,081.18	9,590	+1.5	1,086.56	9,190	-0.2
June 30	1,081.63	9,810	+3.7	1,086.48	9,140	-0.8
July 31	1,082.06	10,000	+3.1	1,086.41	9,100	-0.7
Aug. 31	1,080.91	9,460	-8.8	1,086.50	9,150	+0.8
Sept. 30	1,081.03	9,510	+0.8	1,086.44	9,120	-0.5
WTR YR 2004	--	--	-0.1	--	--	0

	01519995 Cowanesque Lake		
Sept. 30	1,080.21	32,810	---
Oct. 31	1,080.49	33,090	+4.6
Nov. 30	1,080.37	32,970	-2.0
Dec. 31	1,080.30	32,900	-1.1
CAL YR 2003	--	--	+0.1
Jan. 31	1,080.21	32,810	-1.5
Feb. 29	1,080.12	32,720	-1.6
Mar. 31	1,080.13	32,730	+0.2
Apr. 30	1,080.19	32,790	+1.0
May 31	1,080.22	32,820	+0.5
June 30	1,080.20	32,800	-0.3
July 31	1,079.78	32,360	-7.2
Aug. 31	1,080.14	32,740	+6.2
Sept. 30	1,080.09	32,690	-0.8
WTR YR 2004	--	--	-0.2

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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Dec. 12	1000	76,000	13.32	July 28	0730	75,600	13.27
Mar. 6	2030	77,400	13.50	Sept. 18	2000	*154,000	*22.26

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11200	31300	24000	21100	5460	5390	21800	12200	11900	2710	31400	22300
2	9150	23800	20500	18800	5080	8020	31800	11200	13600	2700	22300	16300
3	8050	19500	18300	17700	4950	29500	31000	21000	18300	2630	16700	12700
4	7480	17100	16100	20900	5090	42000	25500	22800	16200	2340	13600	9900
5	7670	15500	14600	31200	4530	55000	21800	18800	12800	2190	12700	8430
6	9780	15300	13900	33200	e4400	73600	18900	16900	10600	2150	11500	7480
7	9580	14300	13000	24400	e4900	74300	16700	16700	9450	2140	9640	6650
8	8100	12900	12200	18600	e4500	58300	15300	17400	8480	3450	8110	6100
9	7010	11500	11300	e15000	e4900	44500	14000	16700	7580	5990	6950	32400
10	6190	10400	10900	e12000	e4700	33000	12900	22200	6820	6090	6260	61400
11	5510	9530	28100	e9900	e4700	26400	11600	24400	6430	5420	5870	35300
12	5230	9230	69900	e9400	e5000	23300	10700	23300	6460	4110	5880	26900
13	4880	9500	52500	e9000	5360	20400	12600	17900	5870	3390	13100	21900
14	4470	10400	38200	e8900	4730	17400	49400	16400	5010	3440	21800	14200
15	5390	10700	28500	e8300	4880	14800	51300	e18000	4480	7740	17700	10700
16	11700	10200	23900	e7600	4390	14000	33900	e16000	4160	9480	12700	8910
17	14700	9670	20900	e6800	e4500	e13000	23000	e14000	3930	8420	11000	10300
18	11600	9750	21500	e6100	e4000	12700	18700	12300	5250	9370	11100	127000
19	9140	11300	21400	e7400	e3800	11900	16600	10800	6420	13500	10300	127000
20	8750	49700	19200	8510	e4000	11400	16500	9560	5520	11200	8480	64500
21	9130	54500	16800	7780	4130	14300	15300	8840	4570	9140	18200	45500
22	8630	43000	14800	7810	4460	19000	14300	13500	3850	7450	36400	34900
23	7830	29000	15300	6820	4790	17100	15200	11000	3470	7770	26400	28400
24	7320	22900	30400	e5770	5120	15100	16700	13200	3280	11100	19600	22700
25	7010	20800	58600	e5300	5030	19000	15300	16100	3080	9010	14700	18000
26	6720	19700	49100	e5000	4950	25500	15700	14700	2890	7480	12000	14300
27	10200	18100	37600	e4700	4860	28500	20200	16000	2690	26300	10100	11300
28	42400	16300	27600	e4500	4620	36100	18900	18600	2580	67500	8700	9910
29	45100	22200	22800	e4600	4700	35000	15900	20500	2620	60700	8940	11600
30	51500	26300	20700	e4700	---	29100	13700	15800	2730	42400	9880	11300
31	42700	---	22800	e4900	---	24100	---	12500	---	34600	23900	---
TOTAL	404120	584380	795400	356690	136530	851710	615200	499300	201020	391910	445910	838280
MEAN	13040	19480	25660	11510	4708	27470	20510	16110	6701	12640	14380	27940
MAX	51500	54500	69900	33200	5460	74300	51300	24400	18300	67500	36400	127000
MIN	4470	9230	10900	4500	3800	5390	10700	8840	2580	2140	5870	6100
CFSM	1.67	2.50	3.29	1.48	0.60	3.52	2.63	2.07	0.86	1.62	1.84	3.58
IN.	1.93	2.79	3.79	1.70	0.65	4.06	2.94	2.38	0.96	1.87	2.13	4.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2004, BY WATER YEAR (WY)

MEAN	5379	9429	11220	10620	11740	23630	25190	13240	7347	4203	3151	3560
MAX	31270	28940	32550	31200	35700	60780	76640	34770	41150	23840	16210	27940
(WY)	1978	1928	1997	1996	1976	1936	1993	1943	1972	1915	1915	2004
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

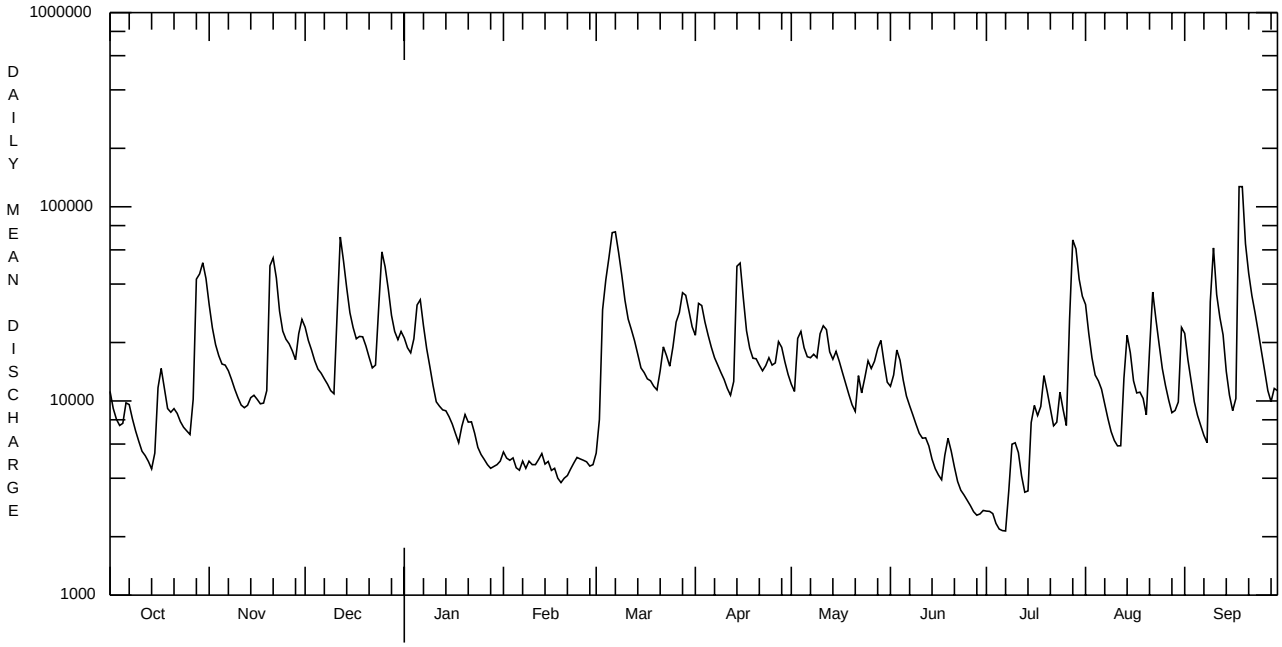
e Estimated.

SUSQUEHANNA RIVER BASIN

01531500 SUSQUEHANNA RIVER AT TOWANDA, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1914 - 2004	
ANNUAL TOTAL	5941860		6120450			
ANNUAL MEAN	16280		16720		10710	
HIGHEST ANNUAL MEAN					16720	2004
LOWEST ANNUAL MEAN					5104	1965
HIGHEST DAILY MEAN	91100	Mar 22	127000	Sep 18,19	283000	Jun 23 1972
LOWEST DAILY MEAN	2370	Aug 30,31	2140	Jul 7	340	Sep 23 1964
ANNUAL SEVEN-DAY MINIMUM	2530	Aug 26	2410	Jul 1	348	Sep 18 1964
MAXIMUM PEAK FLOW			154000	Sep 18	**a**320000	Jun 24 1972
MAXIMUM PEAK STAGE			22.26	Sep 18	**b**33.43	Jun 24 1972
INSTANTANEOUS LOW FLOW					334	Sep 23,24 1964
ANNUAL RUNOFF (CFSM)	2.09		2.14		1.37	
ANNUAL RUNOFF (INCHES)	28.35		29.20		18.66	
10 PERCENT EXCEEDS	36800		33400		26000	
50 PERCENT EXCEEDS	11300		12400		5560	
90 PERCENT EXCEEDS	4400		4590		1260	

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



OCTOBER 1, 2003 TO SEPTEMBER 30, 2004

SUSQUEHANNA RIVER BASIN

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 359-431.

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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)
OCT 2003													
06...	0900	1028	9813	9730	11.4	7.9	7.9	249	245	10.6	87	26.1	5.3
DEC													
08...	0930	1028	9813	11800	13.3	7.9	7.9	227	240	.0	82	25.1	4.7
FEB 2004													
05...	1000	1028	9813	3960	14.3	8.0	7.8	327	307	.0	120	36.7	6.2
APR													
21...	1100	1028	9813	15300	10.4	7.6	8.0	215	219	12.1	75	23.3	4.0
JUN													
21...	1130	1028	9813	4620	9.1	8.3	8.1	288	289	21.4	140	41.6	7.6
AUG													
25...	1200	1028	9813	14500	9.5	7.7	8.0	201	204	19.7	74	23.0	4.0

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	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)
OCT 2003													
06...	75	12.5	174	10	<.020	.56	<.040	.04	.038	.90	3.3	<200	<10
DEC													
08...	67	12.6	190	6	<.020	.90	<.040	.03	.031	1.1	2.4	330	<10
FEB 2004													
05...	89	16.8	210	<2	.110	1.44	<.040	.04	.041	1.9	1.7	<200	<10
APR													
21...	58	11.6	164	4	<.020	.77	<.040	.03	.036	1.1	2.6	470	<10
JUN													
21...	86	13.6	216	6	.040	.60	<.040	.03	.044	1.1	3.7	300	10
AUG													
25...	62	8.5	130	30	<.020	.45	<.040	.04	.055	.78	4.3	870	<10

Date	Iron, water, unfltrd recoverable, µg/L (01045)	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)
OCT 2003					
06...	480	<1.0	20	<50	<10
DEC					
08...	360	<1.0	30	<50	<10
FEB 2004					
05...	130	<1.0	10	<50	<10
APR					
21...	670	<1.0	40	<50	<10
JUN					
21...	480	<1.0	60	<50	90
AUG					
25...	1290	1.0	70	<50	<10

01531500 SUSQUEHANNA RIVER AT TOWANDA, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

Date	10/06/03
Benthic Macroinvertebrate	Count
Nematoda (NEMATODES)	1
Mollusca	
Gastropoda (SNAILS)	
Pleuroceridae	
Elimia	2
Leptoxis carinata	2
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	7
Pisidium	1
Sphaerium	3
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Tubificida	
Tubificidae	10
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Baetis	3
Ephemerellidae	
Serratella	3
Heptageniidae	2
Leucrocuta	2
Stenacron	3
Stenonema	9
Isonychiidae	
Isonychia	2
Potamanthidae	
Anthopotamus	43
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Coenagrionidae	1
Plecoptera (STONEFLIES)	
Perlidae	
Agnetina	2
Taeniopterygidae	
Taeniopteryx	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche	5
Hydroptilidae	
Hydroptila	2
Philopotamidae	
Chimarra	3

01531500 SUSQUEHANNA RIVER AT TOWANDA, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	10/06/03
Benthic Macroinvertebrate	Count
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Dubiraphia	1
Optioservus	19
Promoresia	1
Stenelmis	13
Psephenidae (WATER PENNIES)	
Psephenus	10
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	11
Total Organisms	162
Total Taxa	27

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)
Oct. 27	1630	4,760	11.34	July 27	1715	8,360	14.00
Nov. 19	2315	5,790	12.13	July 31	1615	5,240	11.70
Dec. 11	1300	8,140	13.87	Sept. 18	0530	*23,900	*18.99

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	192	564	467	384	e85	e160	375	226	149	44	1790	78
2	164	455	396	386	e91	e770	476	250	127	44	995	68
3	141	385	328	437	e91	1340	417	938	162	34	586	64
4	139	333	294	743	e91	1400	459	564	114	31	476	58
5	198	329	270	1690	e78	1700	386	465	94	31	523	54
6	150	418	266	1030	e78	2390	335	409	102	33	361	50
7	128	324	245	e600	e88	1300	309	493	93	32	300	50
8	121	272	216	e450	e85	940	279	387	82	115	245	57
9	108	233	221	e340	e66	679	257	1360	78	76	197	1970
10	98	213	221	e250	e78	545	228	829	119	50	177	825
11	90	204	4550	e260	e75	454	209	702	97	40	366	399
12	85	203	1860	e270	e69	412	197	622	78	35	211	275
13	80	204	919	e250	e72	343	806	550	66	41	1820	211
14	75	185	687	e200	e72	290	1740	427	61	63	866	168
15	457	171	608	e180	e66	291	792	365	62	203	511	142
16	277	159	500	e180	e50	266	572	315	59	125	374	123
17	194	151	556	e210	e69	256	465	261	56	131	301	2550
18	165	143	581	e200	e73	248	398	233	90	311	240	13900
19	154	1430	452	e180	e69	237	346	208	169	362	201	2550
20	141	3100	387	e160	e76	242	300	181	95	537	176	1290
21	132	1110	334	e140	e84	748	268	205	70	236	370	831
22	127	728	314	e140	e87	451	257	205	63	159	313	553
23	119	561	703	e160	e84	339	312	173	62	318	196	391
24	111	474	1730	e120	e83	364	320	141	53	275	199	295
25	102	494	1450	e110	e79	551	262	117	47	161	165	235
26	96	387	833	e120	e79	562	366	158	55	161	142	197
27	2090	335	633	e110	e79	559	342	224	48	4300	122	167
28	1630	415	514	e120	e74	494	314	156	41	3560	110	823
29	1600	1000	449	e100	e86	414	271	121	44	1100	103	1280
30	1100	563	516	e94	---	361	244	105	40	622	95	666
31	731	---	465	e94	---	329	---	103	---	2990	88	---
TOTAL	10995	15543	21965	9708	2257	19435	12302	11493	2476	16220	12619	30320
MEAN	355	518	709	313	77.8	627	410	371	82.5	523	407	1011
MAX	2090	3100	4550	1690	91	2390	1740	1360	169	4300	1820	13900
MIN	75	143	216	94	50	160	197	103	40	31	88	50
CFSM	1.65	2.41	3.30	1.46	0.36	2.92	1.91	1.72	0.38	2.43	1.89	4.70
IN.	1.90	2.69	3.80	1.68	0.39	3.36	2.13	1.99	0.43	2.81	2.18	5.25

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2004, BY WATER YEAR (WY)

MEAN	150	276	315	288	341	656	620	368	192	98.6	84.5	97.4
MAX	1092	1326	1117	1542	1169	2287	1838	1262	1922	1376	986	1011
(WY)	1991	1927	1997	1996	1984	1936	1993	1946	1972	1915	1915	2004
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

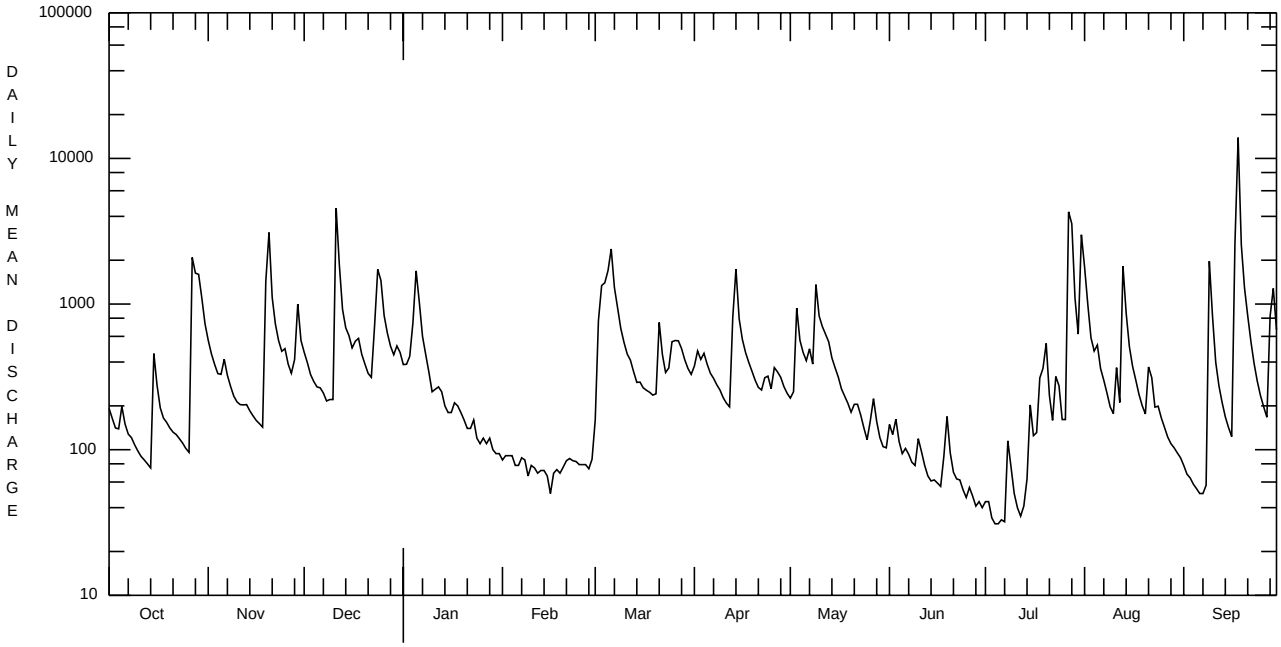
e Estimated.

TOWANDA CREEK BASIN

01532000 TOWANDA CREEK NEAR MONROETON, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1914 - 2004	
ANNUAL TOTAL	159278		165333			
ANNUAL MEAN	436		452		290	
HIGHEST ANNUAL MEAN					502	1978
LOWEST ANNUAL MEAN					111	1965
HIGHEST DAILY MEAN	7800	Jun 1	13900	Sep 18	28700	Jun 22 1972
LOWEST DAILY MEAN	33	Aug 28,29	31	Jul 4,5	0.70	Sep 21 1932
ANNUAL SEVEN-DAY MINIMUM	35	Aug 25	36	Jul 1	0.87	Sep 16 1932
MAXIMUM PEAK FLOW			23900	Sep 18	74000	Jun 22 1972
MAXIMUM PEAK STAGE			18.99	Sep 18	**a**20.86	Jan 19 1996
INSTANTANEOUS LOW FLOW					0.70	Sep 15 1932**b**
ANNUAL RUNOFF (CFSM)	2.03		2.10		1.35	
ANNUAL RUNOFF (INCHES)	27.56		28.61		18.30	
10 PERCENT EXCEEDS	894		925		660	
50 PERCENT EXCEEDS	232		236		118	
90 PERCENT EXCEEDS	66		69		14	

a From floodmark.
b Also Sept. 17, 21, 22, 1932.



OCTOBER 1, 2003 TO SEPTEMBER 30, 2004

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

WATER-QUALITY RECORDS

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

REMARKS.--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 Water-Quality Network can be found on pages 359-431.

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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)
OCT 2003													
07...	1230	1028	9813	127	12.3	7.8	7.7	105	101	9.0	41	12.2	2.4
DEC													
09...	1030	1028	9813	217	13.2	7.7	6.9	107	110	.3	38	11.3	2.5
APR 2004													
08...	1315	1028	9813	276	13.3	8.7	7.3	92	92	7.0	34	10.1	2.1
JUN													
03...	1245	1028	9813	174	10.6	8.6	7.8	121	121	18.8	44	13.0	2.8
AUG													
03...	1045	1028	9813	598	9.2	6.8	6.7	92	83	18.7	42	12.4	2.6

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	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)
OCT 2003													
07...	28	11.3	68	6	<.020	.21	<.040	<.01	.013	.59	1.8	<200	<10
DEC													
09...	25	13.6	68	10	<.020	.72	<.040	.01	.013	.81	1.6	<200	<10
APR 2004													
08...	21	12.2	48	<2	<.020	.37	<.040	.01	.014	.51	1.7	<200	<10
JUN													
03...	37	11.0	84	10	.020	.31	<.040	.02	.026	.55	2.9	<200	<10
AUG													
03...	30	9.7	70	6	.030	.50	<.040	--	--	.68	3.4	370	<10

Date	Iron, water, unfltrd recoverable, µg/L (01045)	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)
OCT 2003					
07...	40	<1.0	20	<50	<10
DEC					
09...	80	<1.0	40	<50	<10
APR 2004					
08...	80	<1.0	40	<50	<10
JUN					
03...	240	<1.0	<10	<50	<10
AUG					
03...	600	<1.0	60	<50	10

01532000 TOWANDA CREEK NEAR MONROETON, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

Date	10/07/03
Benthic Macroinvertebrate	Count
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Acentrella	1
Baetis	2
Ephemerellidae	
Ephemerella	1
Serratella	6
Heptageniidae	
Epeorus	2
Leucrocuta	21
Stenonema	6
Isonychiidae	
Isonychia	17
Leptophlebiidae	
Paraleptophlebia	1
Plecoptera (STONEFLIES)	
Perlidae	
Acroneuria	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche	39
Hydropsyche	29
Hydroptilidae	
Leucotrichia	1
Lepidostomatidae	
Lepidostoma	1
Philopotamidae	
Chimarra	15
Psychomyiidae	
Psychomyia	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus	2
Stenelmis	2
Psephenidae (WATER PENNIES)	
Psephenus	7
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	12
Tipulidae (CRANE FLIES)	
Antocha	2
Total Organisms	169
Total Taxa	21

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)
Dec. 12	1730	80,800	23.26	July 28	1400	78,100	22.94
Mar. 7	0330	84,100	23.65	Sept. 18	1900	*188,000	*35.27

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13100	38200	27600	24000	e5900	e6700	24300	14500	12800	2860	45000	26700
2	10800	28300	23700	21500	e5800	e8500	29100	13100	14000	2810	29400	18900
3	9170	23000	20800	20200	e5700	28100	35800	19800	17700	2830	21400	15000
4	8400	19700	18500	21700	e5800	47000	29600	27100	19300	2630	16900	11600
5	8160	18000	16600	34300	e5300	57900	25500	22500	15100	2390	15200	9570
6	9570	18000	15900	40500	e5200	74900	22000	19600	12500	2290	14200	8390
7	10700	17000	15100	30900	e5700	82400	19300	19100	10900	2250	11800	7480
8	9340	15400	13800	23100	e5300	68200	17600	20300	9730	2310	9840	7130
9	8030	13700	13200	18500	e5700	52400	16200	20200	8650	4820	8310	17200
10	7120	12300	12300	e16000	e5500	38900	14900	24300	7860	6740	7330	62100
11	6360	11100	29800	13200	e5500	30600	13600	28600	7260	5920	7280	44400
12	5900	10600	74500	11800	e5600	26500	12400	30000	6920	5080	6970	31000
13	5600	10600	64600	e11000	e5600	23400	13500	22300	6760	4020	14100	24600
14	5210	11100	46100	e11000	e5400	20200	43700	19900	5870	3620	24900	18800
15	6830	11900	34700	e10000	e5300	17300	61300	18300	5260	5460	22300	12700
16	10100	11600	28000	e9100	e5200	15900	42700	19900	4840	10100	16400	10500
17	16100	10900	24400	e8200	e5100	15500	28400	17900	4540	9410	13000	9590
18	14200	10600	24300	e7400	e5000	14700	22200	15000	4730	9570	12500	136000
19	11100	11700	24200	e8800	e4700	13700	19300	12900	6640	14100	11900	160000
20	9480	43500	22400	e10000	e5100	13000	18300	11400	6650	14000	10200	86400
21	9890	63200	19600	e9500	e5200	15600	17700	10200	5460	11000	11800	54900
22	9720	50700	17500	e9200	e5600	20700	16100	12800	4660	8750	35400	40400
23	8890	35800	16600	e8500	e6000	20400	16700	13900	4070	7710	30700	32900
24	8120	26800	26400	e6700	e6300	18000	18300	13100	3670	12400	23400	26700
25	7710	23600	59000	e6400	e6200	19100	17700	16100	3400	10400	17700	21300
26	7400	22300	58400	e6000	e6100	26500	17300	16800	3210	8780	14100	17500
27	10200	20700	44600	e5700	e6000	30000	21200	17000	2970	19000	11700	13900
28	39600	18800	33200	e5500	e5800	36600	22200	18600	2770	70700	10000	14900
29	52500	23000	26700	e5600	e5900	38300	18900	21400	2690	64900	9660	17500
30	57200	28600	23500	e5700	---	33500	16300	18600	2810	52200	10000	15800
31	49700	---	24500	e5700	---	27700	---	14600	---	38900	18400	---
TOTAL	446200	660700	900500	425700	161500	942200	692100	569800	223720	417950	511790	973860
MEAN	14390	22020	29050	13730	5569	30390	23070	18380	7457	13480	16510	32460
MAX	57200	63200	74500	40500	6300	82400	61300	30000	19300	70700	45000	160000
MIN	5210	10600	12300	5500	4700	6700	12400	10200	2690	2250	6970	7130
CFSM	1.65	2.53	3.33	1.57	0.64	3.49	2.65	2.11	0.86	1.55	1.89	3.72
IN.	1.90	2.82	3.84	1.82	0.69	4.02	2.95	2.43	0.95	1.78	2.18	4.15

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 2004, BY WATER YEAR (WY)

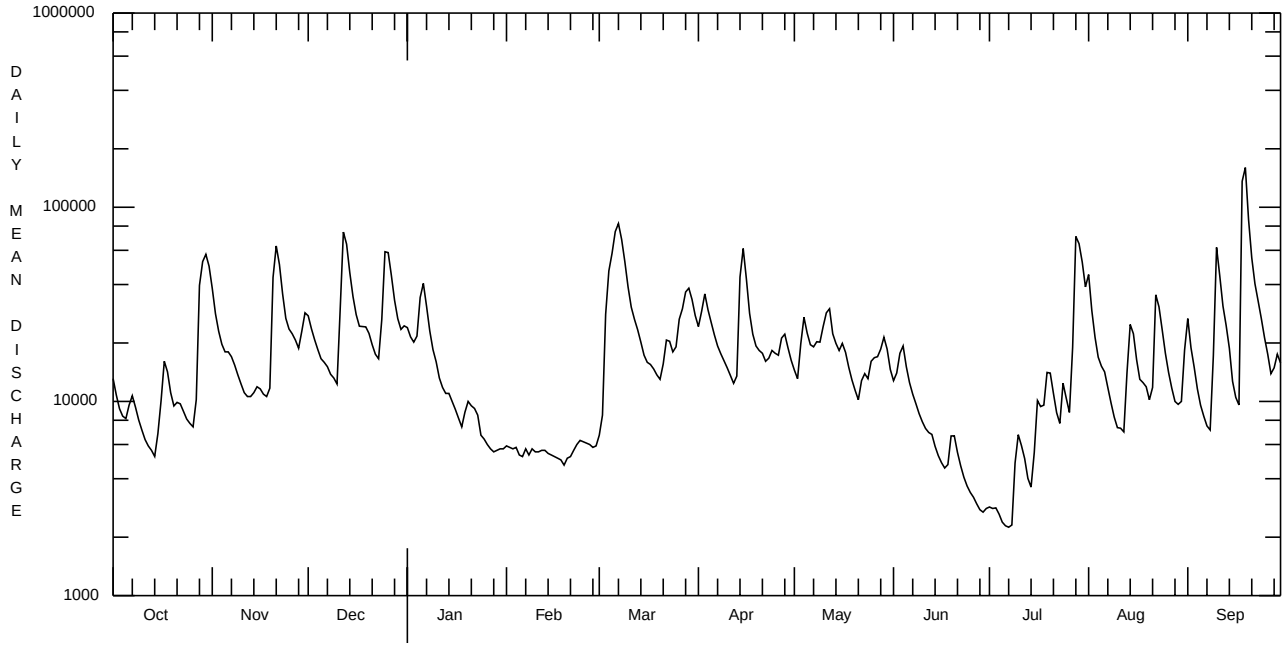
MEAN	7469	11120	14170	12630	13970	25260	28150	14530	8439	4528	3931	4848
MAX	35100	25890	38090	33960	36100	48830	86470	33200	22140	13480	17530	32460
(WY)	1978	1997	1997	1996	1981	1979	1993	1996	2003	2004	1994	2004
MIN	1045	1380	2382	2168	2702	9955	9638	4027	1610	1100	765	882
(WY)	1983	1999	1999	1981	1980	1981	1981	1985	1999	1991	1999	1995

e Estimated.

SUSQUEHANNA RIVER BASIN

01533400 SUSQUEHANNA RIVER AT MESHOPPEN, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1977 - 2004	
ANNUAL TOTAL	6730700		6926020			
ANNUAL MEAN	18440		18920		12400	
HIGHEST ANNUAL MEAN					18930	1978
LOWEST ANNUAL MEAN					7230	1985
HIGHEST DAILY MEAN	108000	Mar 22	160000	Sep 19	216000	Jan 20 1996
LOWEST DAILY MEAN	2460	Aug 31	2250	Jul 7	557	Aug 31 1995
ANNUAL SEVEN-DAY MINIMUM	2640	Aug 26	2500	Jul 2	593	Aug 29 1995
MAXIMUM PEAK FLOW			188000	Sep 18	226000	Jan 20 1996
MAXIMUM PEAK STAGE			35.27	Sep 18	36.34	Jan 20 1996
ANNUAL RUNOFF (CFSM)	2.11		2.17		1.42	
ANNUAL RUNOFF (INCHES)	28.71		29.55		19.32	
10 PERCENT EXCEEDS	41700		38500		29200	
50 PERCENT EXCEEDS	12800		14200		6700	
90 PERCENT EXCEEDS	5190		5370		1460	



OCTOBER 1, 2003 TO SEPTEMBER 30, 2004

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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Oct. 29	1700	6,980	8.04	July 28	0115	9,950	9.63
Nov. 20	0500	8,420	8.86	Sept. 18	1415	*36,500	*19.69
Dec. 11	2130	10,200	9.76				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	585	1520	1050	786	e250	e260	569	727	362	140	1040	702
2	513	1230	902	722	e240	e530	746	658	419	123	705	460
3	450	1070	745	873	e220	e1190	619	1650	682	110	514	356
4	432	921	639	1330	e270	2530	614	1080	420	97	478	301
5	644	894	607	3390	e230	2500	566	879	339	101	583	272
6	487	1270	613	2230	e250	2950	475	878	401	116	435	247
7	406	924	580	1510	e310	2280	437	994	387	94	340	220
8	374	771	530	1200	e260	1700	412	823	310	97	292	364
9	342	658	494	911	e240	1290	393	1180	270	95	259	1500
10	317	600	483	631	e260	1040	364	1060	339	80	230	1180
11	295	570	4660	619	e240	877	332	2910	279	69	361	675
12	271	635	4360	e640	e210	779	322	1610	235	66	285	496
13	254	618	2130	e600	e220	647	1050	1240	209	140	1380	409
14	236	538	1550	e490	e210	541	3580	951	194	145	903	348
15	2210	494	1380	e430	e200	521	1790	830	212	651	560	308
16	1240	461	1140	e390	e180	480	1230	1180	230	387	469	278
17	818	446	1340	e420	e190	479	977	788	213	291	540	419
18	677	426	1730	e420	e190	464	812	635	569	479	401	23400
19	604	940	1270	e390	e190	440	699	546	349	376	335	6510
20	549	5750	1070	e360	e190	421	586	455	255	295	305	2690
21	492	2450	907	e330	e210	969	525	442	201	227	434	1640
22	469	1680	811	e330	e200	804	483	415	183	185	509	1130
23	444	1310	896	e280	e190	568	631	365	193	253	358	833
24	403	1090	2320	e280	e200	568	693	323	164	334	483	675
25	353	1130	2550	e270	e190	622	540	282	154	212	363	579
26	326	956	1680	e280	e190	643	1760	405	343	171	300	520
27	1760	826	1330	e280	e190	778	1660	1460	266	3010	268	460
28	2890	810	1100	e290	e190	737	1300	670	188	4290	255	2200
29	4240	2000	957	e280	e210	614	1000	453	169	1780	346	3030
30	3340	1260	1000	e280	---	540	830	343	151	1020	278	1590
31	2020	---	946	e260	---	501	---	302	---	802	1710	---
TOTAL	28441	34248	41770	21502	6320	29263	25995	26534	8686	16236	15719	53792
MEAN	917	1142	1347	694	218	944	866	856	290	524	507	1793
MAX	4240	5750	4660	3390	310	2950	3580	2910	682	4290	1710	23400
MIN	236	426	483	260	180	260	322	282	151	66	230	220
CFSM	2.40	2.98	3.52	1.81	0.57	2.46	2.26	2.23	0.76	1.37	1.32	4.68
IN.	2.76	3.33	4.06	2.09	0.61	2.84	2.52	2.58	0.84	1.58	1.53	5.22

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2004, BY WATER YEAR (WY)

MEAN	323	538	624	561	652	1165	1106	641	358	214	176	223
MAX	1772	1934	1919	1978	1682	2910	3202	1806	1939	1007	841	1793
(WY)	1956	1973	1997	1979	1925	1936	1993	1989	1972	1947	1994	2004
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

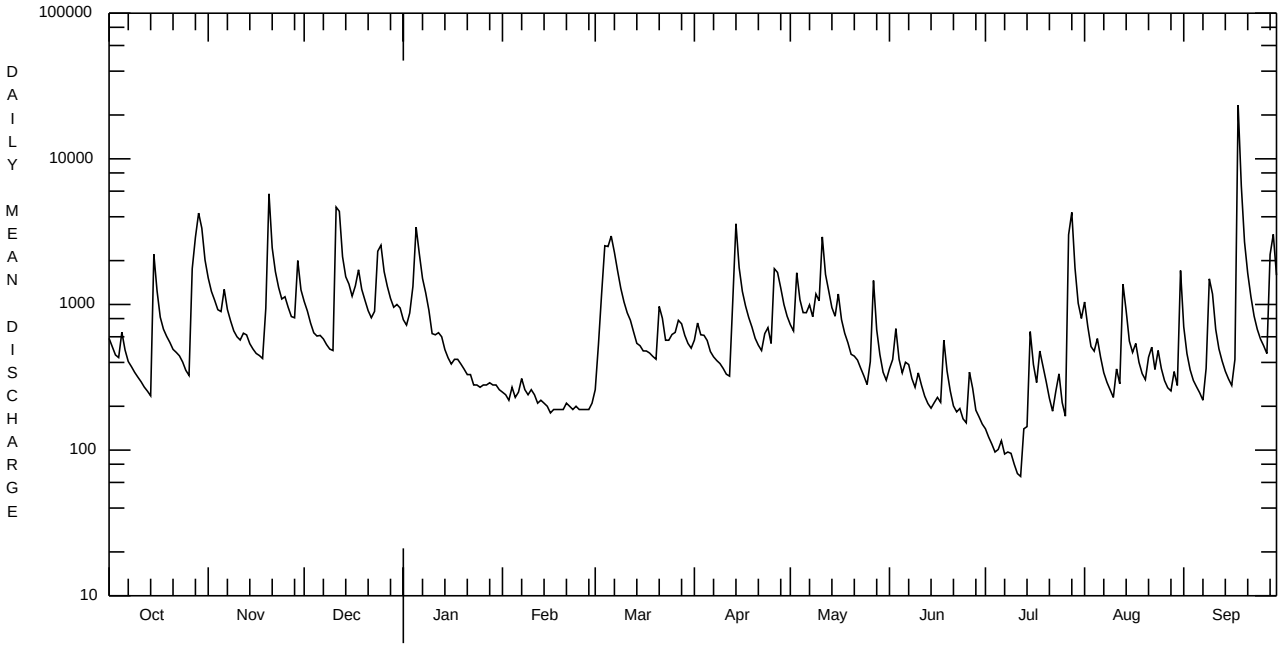
e Estimated.

TUNKHANNOCK CREEK BASIN

01534000 TUNKHANNOCK CREEK NEAR TUNKHANNOCK, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1914 - 2004	
ANNUAL TOTAL	343789		308506			
ANNUAL MEAN	942		843		546	
HIGHEST ANNUAL MEAN					897	1928
LOWEST ANNUAL MEAN					220	1965
HIGHEST DAILY MEAN	7640	Mar 21	23400	Sep 18	23400	Sep 18 2004
LOWEST DAILY MEAN	96	Aug 29	66	Jul 12	6.9	Sep 24 1964
ANNUAL SEVEN-DAY MINIMUM	131	Aug 24	88	Jul 6	7.9	Sep 18 1964
MAXIMUM PEAK FLOW			**a**36500	Sep 18	**ab**36500	Sep 18 2004
MAXIMUM PEAK STAGE			19.69	Sep 18	**c**19.97	Jan 19 1996
INSTANTANEOUS LOW FLOW					6.2	Sep 24 1964
ANNUAL RUNOFF (CFSM)	2.46		2.20		1.43	
ANNUAL RUNOFF (INCHES)	33.39		29.96		19.39	
10 PERCENT EXCEEDS	1990		1680		1250	
50 PERCENT EXCEEDS	585		505		265	
90 PERCENT EXCEEDS	235		200		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 At gage height 19.69 ft.
c Gage height affected by backwater.



OCTOBER 1, 2003 TO SEPTEMBER 30, 2004

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 359-431.

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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)
OCT 2003													
21...	1140	1028	9813	488	11.6	8.2	7.8	136	131	10.1	43	14.4	1.8
DEC													
03...	1140	1028	9813	713	15.2	8.2	7.6	120	109	.7	39	12.7	1.6
FEB 2004													
18...	1330	1028	9813	E190	17.1	8.2	7.7	185	194	.4	55	18.3	2.2
APR													
14...	1430	1028	9813	3240	10.4	7.0	7.1	117	119	7.3	33	10.5	1.7
JUN													
23...	1400	1028	9813	192	11.8	8.7	7.9	172	163	21.6	52	17.6	2.0
AUG													
05...	0900	1028	9813	594	9.6	7.7	7.0	144	133	20.0	46	15.3	1.9

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	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)
OCT 2003													
21...	33	9.0	64	<2	<.020	.25	<.040	.01	.017	.43	2.7	<200	<10
DEC													
03...	27	9.7	100	<2	<.020	.50	<.040	.01	.014	.73	2.2	<200	<10
FEB 2004													
18...	33	11.4	124	2	<.020	.93	<.040	.02	.019	1.0	1.5	<200	<10
APR													
14...	19	8.0	76	68	.030	.52	<.040	.02	.100	1.4	4.3	1700	<10
JUN													
23...	41	9.2	106	8	.030	.42	<.040	.02	.027	.52	2.3	<200	<10
AUG													
05...	40	7.8	102	<2	.040	.37	<.040	.02	.026	.55	3.1	<200	<10

Date	Iron, water, unfltrd recoverable, µg/L (01045)	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)
OCT 2003					
21...	70	<1.0	10	<50	10
DEC					
03...	130	<1.0	20	<50	<10
FEB 2004					
18...	80	<1.0	10	<50	<10
APR					
14...	2130	2.6	200	<50	20
JUN					
23...	100	<1.0	20	<50	20
AUG					
05...	240	<1.0	30	<50	<10

TUNKHANNOCK CREEK BASIN

01534000 TUNKHANNOCK CREEK NEAR TUNKHANNOCK, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

Date	08/20/03
Benthic Macroinvertebrate	Count
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	16
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	1
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Acentrella	5
Baetis	17
Ephemerellidae	
Serratella	1
Heptageniidae	
Epeorus	2
Stenonema	6
Isonychiidae	
Isonychia	2
Plecoptera (STONEFLIES)	
Perlidae	
Acroneuria	1
Agnetina	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche	3
Hydropsyche	3
Uenoidae	
Neophylax	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus	56
Stenelmis	10
Psephenidae (WATER PENNIES)	
Psephenus	3
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	16
Simuliidae (BLACK FLIES)	
Simulium	1
Tipulidae (CRANE FLIES)	
Antocha	1
Total Organisms	146
Total Taxa	19

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, 4,970 acre-ft, Sept. 19, elevation, 1,600.10 ft; minimum, 420 acre-ft, July 12, elevation, 1,572.86 ft.

MONTHEND ELEVATION, IN FEET ABOVE SEA LEVEL, AND CONTENTS AT 2400 HRS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)
Sept. 30	1,575.45	684	---
Oct. 31	1,579.58	1,190	+8.2
Nov. 30	1,577.42	912	-4.7
Dec. 31	1,574.46	578	-5.4
CAL YR 2003	--	--	+0.1
Jan. 31	1,573.14	446	-2.1
Feb. 29	1,572.95	428	-0.3
Mar. 31	1,573.96	526	+1.6
Apr. 30	1,574.24	555	+0.5
May 31	1,573.33	465	-1.5
June 30	1,572.93	427	-0.6
July 31	1,574.79	612	+3.0
Aug. 31	1,574.53	585	-0.4
Sept. 30	1,576.90	848	+4.4
WTR YR 2004	--	--	+0.2

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.--No estimated daily discharges. Records good. 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108	353	214	102	27	21	88	87	37	18	129	91
2	99	223	163	89	26	28	130	78	37	16	148	79
3	87	155	110	93	26	67	120	98	42	14	128	57
4	76	121	83	112	27	110	105	82	42	13	91	46
5	90	106	78	199	26	176	93	66	37	13	82	40
6	90	135	77	259	27	286	78	79	35	15	80	36
7	76	124	71	188	30	401	69	95	33	15	65	33
8	62	99	66	127	30	493	64	141	30	15	53	37
9	54	82	63	94	29	367	59	150	27	13	45	154
10	47	71	61	77	28	229	54	112	26	11	39	418
11	43	67	76	71	27	151	49	183	25	10	49	430
12	39	70	336	65	25	119	45	202	23	9.7	67	262
13	37	74	622	66	25	97	73	158	21	20	126	151
14	34	65	442	59	25	79	180	119	19	32	209	97
15	91	58	267	57	23	66	257	97	18	71	179	73
16	178	55	168	56	21	63	192	113	17	86	151	61
17	182	56	141	55	21	61	123	101	19	80	134	58
18	114	55	154	48	21	60	98	84	62	72	104	70
19	81	66	135	45	20	56	90	70	72	78	79	152
20	70	240	112	42	20	52	76	60	51	67	66	754
21	63	412	92	39	21	63	65	55	36	52	72	855
22	58	335	84	37	22	70	63	53	29	41	83	730
23	54	226	80	35	21	69	67	48	26	36	73	524
24	51	156	116	33	22	68	79	44	23	36	68	284
25	48	128	257	31	20	82	76	40	21	31	65	134
26	46	106	313	29	20	111	100	43	32	28	55	80
27	82	91	214	29	19	135	172	80	34	43	47	64
28	231	92	145	29	18	147	187	75	29	243	42	101
29	165	125	113	30	19	122	146	55	25	326	41	235
30	305	171	108	29	---	97	101	43	21	221	39	298
31	535	---	116	29	---	82	---	38	---	148	65	---
TOTAL	3296	4117	5077	2254	686	4028	3099	2749	949	1873.7	2674	6404
MEAN	106	137	164	72.7	23.7	130	103	88.7	31.6	60.4	86.3	213
MAX	535	412	622	259	30	493	257	202	72	326	209	855
MIN	34	55	61	29	18	21	45	38	17	9.7	39	33

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2004, BY WATER YEAR (WY)

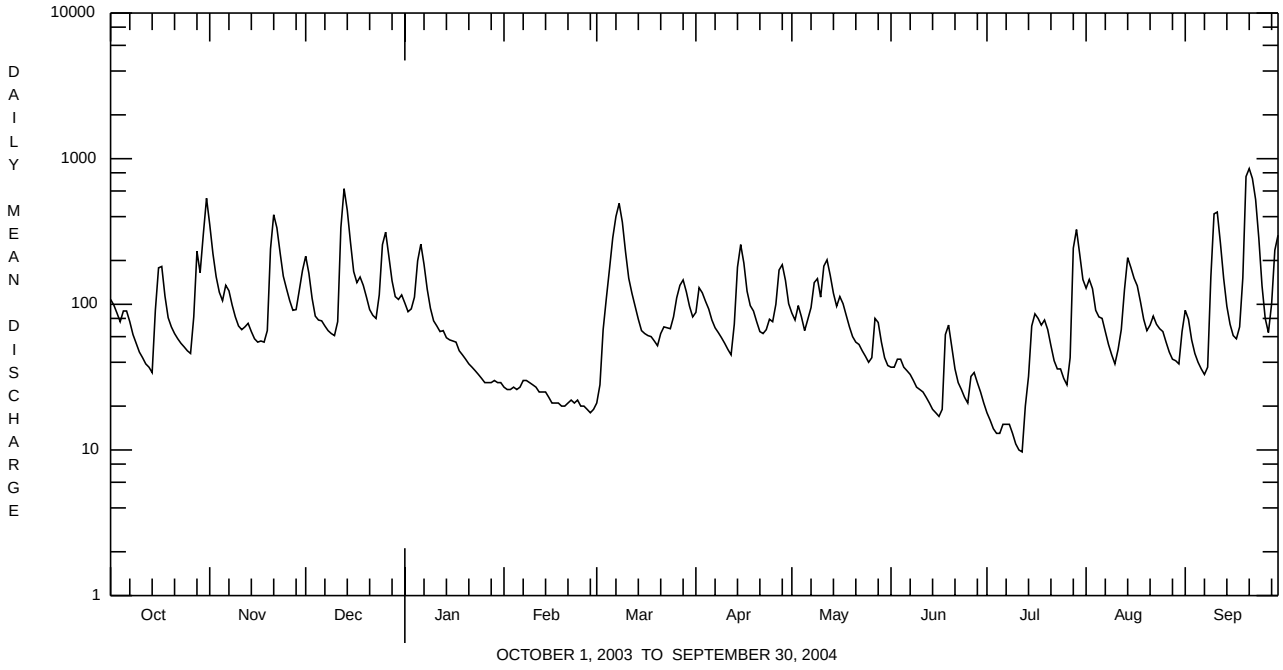
MEAN	48.4	73.9	85.4	71.6	76.4	135	166	86.9	56.5	27.5	20.3	33.6
MAX	239	264	234	209	245	261	517	232	205	123	122	221
(WY)	1978	1973	1974	1996	1981	1979	1993	1989	1989	1973	1994	1977
MIN	2.45	2.48	14.7	9.64	13.2	40.5	58.8	21.5	11.1	4.67	2.80	1.17
(WY)	1965	1965	1999	1981	1980	1993	1968	2001	1980	1991	1999	1980

LACKAWANNA RIVER BASIN

01534300 LACKAWANNA RIVER NEAR FOREST CITY, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1959 - 2004	
ANNUAL TOTAL	41362		37206.7			
ANNUAL MEAN	113		102		73.3	
HIGHEST ANNUAL MEAN					112	1973
LOWEST ANNUAL MEAN					36.3	1965
HIGHEST DAILY MEAN	938	Mar 25	855	Sep 21	1160	Apr 4 1993
LOWEST DAILY MEAN	11	Aug 29	9.7	Jul 12	**a**0.00	Jul 21 1978
ANNUAL SEVEN-DAY MINIMUM	13	Aug 25	13	Jul 6	0.43	Sep 11 1980
MAXIMUM PEAK FLOW			933	Sep 20	**bc**1390	Jan 22 1959
MAXIMUM PEAK STAGE			4.95	Sep 20	6.41	Jan 22 1959
INSTANTANEOUS LOW FLOW					**a**0.00	Jul 21 1978
10 PERCENT EXCEEDS	235		214		171	
50 PERCENT EXCEEDS	71		70		40	
90 PERCENT EXCEEDS	30		23		7.1	

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.--Records good except those for estimated daily discharges, which are poor. 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	312	676	463	294	94	72	280	276	133	59	211	160
2	288	504	395	269	90	136	339	262	137	55	203	142
3	260	408	319	314	89	303	309	421	151	51	190	114
4	256	348	269	442	89	426	294	334	127	49	150	95
5	286	353	247	714	85	525	261	287	140	50	158	84
6	252	388	246	640	87	801	224	293	158	50	137	79
7	226	345	223	492	96	767	205	349	132	52	118	73
8	202	301	205	400	89	780	188	337	118	50	101	163
9	183	265	194	326	85	612	176	462	108	48	87	715
10	168	240	187	253	86	452	163	370	117	46	79	698
11	156	228	1140	233	83	351	152	495	103	44	85	617
12	144	237	937	e240	78	300	144	460	90	46	132	425
13	135	230	1020	231	78	255	325	427	83	54	379	293
14	129	206	765	199	76	216	526	348	79	62	365	209
15	531	190	560	185	72	197	493	299	85	105	315	168
16	401	178	423	171	64	184	408	304	75	129	290	144
17	396	175	431	168	68	180	322	271	76	128	242	161
18	311	167	445	168	68	172	265	235	111	113	193	3400
19	257	311	382	157	67	162	241	203	142	151	159	1180
20	224	887	336	146	66	155	207	180	110	123	135	1270
21	205	773	293	134	69	215	189	184	88	100	201	1190
22	192	624	268	131	69	202	179	166	79	83	184	987
23	179	487	276	116	67	181	217	151	74	82	154	766
24	165	388	608	112	68	188	221	136	67	77	137	514
25	154	357	654	105	65	223	207	123	63	69	131	344
26	146	307	631	106	65	265	462	153	114	64	117	257
27	481	276	496	104	65	320	493	254	90	104	105	216
28	609	322	396	105	64	324	479	185	76	286	95	527
29	1120	546	339	101	66	288	395	148	71	392	100	640
30	800	433	343	97	---	246	321	125	64	305	87	598
31	947	---	328	96	---	222	---	119	---	228	167	---
TOTAL	10115	11150	13819	7249	2208	9720	8685	8357	3061	3255	5207	16229
MEAN	326	372	446	234	76.1	314	290	270	102	105	168	541
MAX	1120	887	1140	714	96	801	526	495	158	392	379	3400
MIN	129	167	187	96	64	72	144	119	63	44	79	73

e Estimated.

LACKAWANNA RIVER BASIN

01534500 LACKAWANNA RIVER AT ARCHBALD, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2004, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	130	194	227	192	213	366	420	264	173	90.5	70.5	102
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

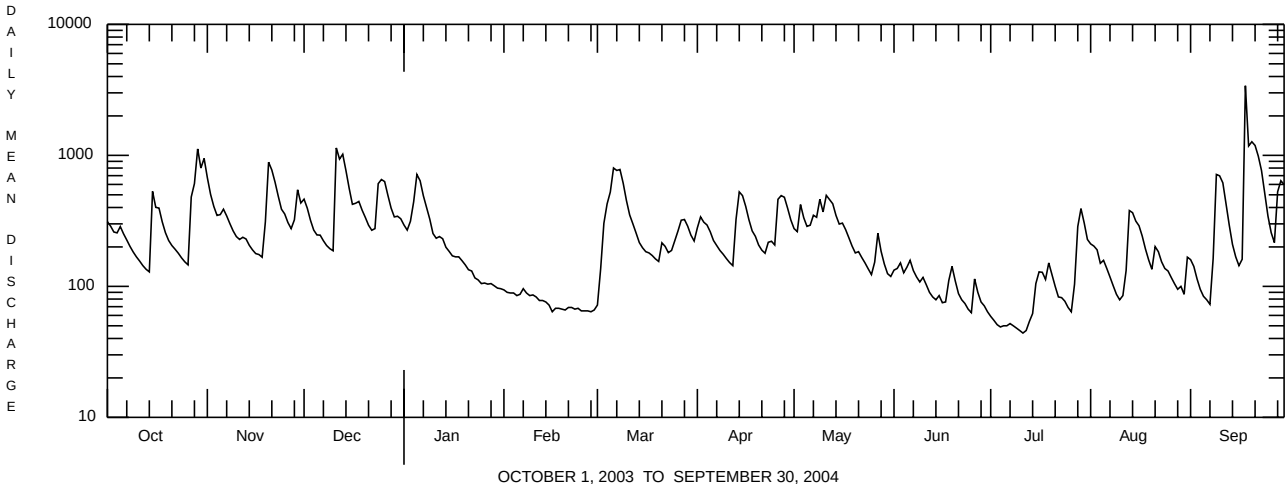
SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1960 - 2004	
ANNUAL TOTAL	123470		99055			
ANNUAL MEAN	338		271		203	
HIGHEST ANNUAL MEAN					313	1973
LOWEST ANNUAL MEAN					101	1965
HIGHEST DAILY MEAN	3240	Sep 4	3400	Sep 18	3400	Sep 18 2004
LOWEST DAILY MEAN	62	Aug 28	44	Jul 11	13	Nov 1 1964
ANNUAL SEVEN-DAY MINIMUM	71	Aug 23	48	Jul 6	14	Oct 26 1964
MAXIMUM PEAK FLOW			**a**6770	Sep 18	**a**8800	Sep 4 2003
MAXIMUM PEAK STAGE			9.07	Sep 18	10.21	Sep 4 2003
10 PERCENT EXCEEDS	724		526		461	
50 PERCENT EXCEEDS	234		200		123	
90 PERCENT EXCEEDS	92		73		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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	863	1460	1100	697	e200	169	524	588	414	115	349	229
2	757	1190	943	628	e180	384	596	609	571	104	308	209
3	673	1020	777	663	e170	890	545	1570	488	88	266	180
4	687	863	668	1040	217	1240	516	1100	352	80	217	154
5	775	837	617	1960	171	1340	466	878	378	82	386	135
6	633	908	623	1650	197	1610	407	846	450	79	250	128
7	548	785	564	1220	253	1450	374	1100	376	86	194	120
8	483	680	511	998	207	1370	354	913	311	82	157	290
9	436	595	471	815	183	1150	335	1170	291	73	135	1090
10	397	554	466	577	199	929	312	969	320	68	122	1040
11	353	532	3290	567	179	767	287	1040	260	63	341	842
12	321	558	3060	584	157	686	287	917	217	121	640	594
13	292	547	2090	547	165	576	742	817	189	104	1990	425
14	277	480	1550	446	157	490	1300	670	172	95	1190	329
15	1550	435	1280	415	145	452	1010	570	196	127	842	273
16	1100	404	1010	e350	121	437	798	544	235	187	709	236
17	949	391	1150	e380	135	434	649	481	234	180	536	320
18	781	372	1270	379	138	412	538	420	233	174	419	15000
19	658	722	1010	348	134	393	479	392	250	266	350	4460
20	574	2500	853	313	133	368	419	354	205	198	322	2460
21	517	1680	725	280	153	517	391	331	165	146	625	1910
22	479	1310	654	280	149	485	356	312	173	121	510	1470
23	438	1080	694	e230	137	410	491	285	168	150	374	1190
24	397	904	1640	e230	146	411	456	267	140	136	357	922
25	359	911	1910	e220	132	487	407	253	126	102	288	706
26	348	759	1520	e230	128	555	931	361	208	91	250	576
27	1670	678	1220	e230	133	691	1160	561	167	213	221	505
28	2030	776	997	e240	130	682	1030	427	135	344	201	1080
29	3430	1670	853	e230	142	596	832	345	135	452	192	1470
30	2480	1190	865	e220	---	522	690	272	120	373	169	1230
31	1950	---	802	e210	---	483	---	265	---	320	228	---
TOTAL	27205	26791	35183	17177	4691	21386	17682	19627	7679	4820	13138	39573
MEAN	878	893	1135	554	162	690	589	633	256	155	424	1319
MAX	3430	2500	3290	1960	253	1610	1300	1570	571	452	1990	15000
MIN	277	372	466	210	121	169	287	253	120	63	122	120

e Estimated.

LACKAWANNA RIVER BASIN

01536000 LACKAWANNA RIVER AT OLD FORGE, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2004, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	277	408	497	435	494	818	921	605	388	188	152	224
MAX	1276	1223	1414	1521	1198	1767	2712	1658	1498	566	432	1319
(WY)	1978	1973	1997	1996	1981	1977	1993	1989	2003	1984	1994	2004
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

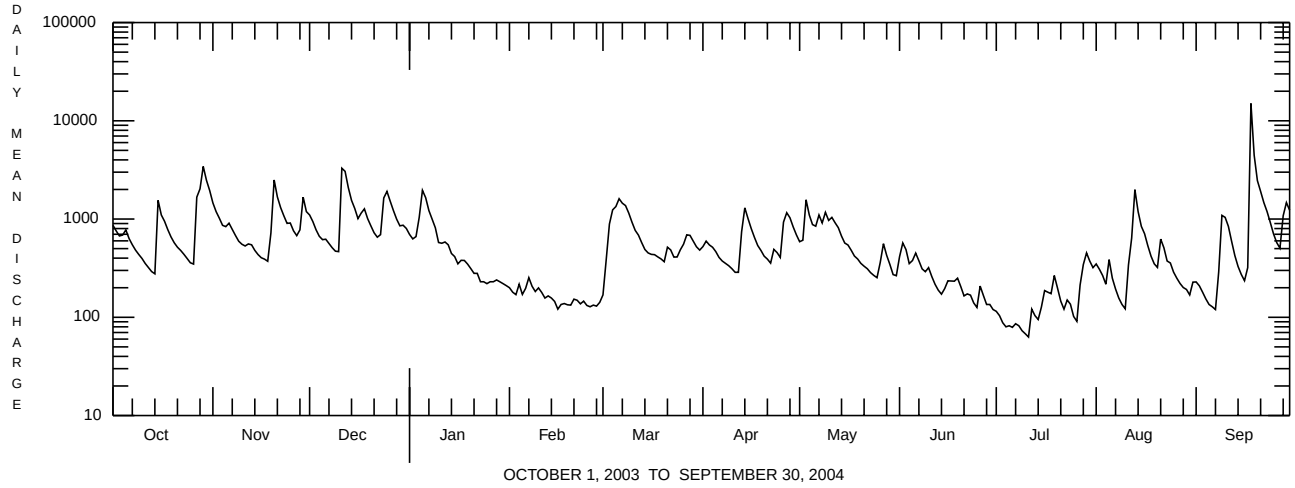
SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1960 - 2004	
ANNUAL TOTAL	296129		234952			
ANNUAL MEAN	811		642		450	
HIGHEST ANNUAL MEAN					731	2003
LOWEST ANNUAL MEAN					194	1965
HIGHEST DAILY MEAN	5750	Jun 1	15000	Sep 18	15000	Sep 18 2004
LOWEST DAILY MEAN	116	Jul 20	63	Jul 11	23	Sep 5 1999
ANNUAL SEVEN-DAY MINIMUM	141	Jul 14	76	Jul 5	27	Aug 30 1999
MAXIMUM PEAK FLOW			**a**23800	Sep 18	**ab**24000	Sep 27 1985
MAXIMUM PEAK STAGE			16.70	Sep 18	16.70	Sep 18 2004
10 PERCENT EXCEEDS	1650		1230		1070	
50 PERCENT EXCEEDS	547		436		250	
90 PERCENT EXCEEDS	224		137		65	

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	**c**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 At gage height 16.49 ft, from floodmark.
c From floodmark.



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 359-431.

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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)
OCT 2003													
21...	1500	1028	9813	515	10.7	7.6	7.4	194	188	12.0	54	11.9	5.9
DEC													
03...	1410	1028	9813	765	14.5	8.0	7.4	177	164	2.8	47	10.4	5.0
FEB 2004													
18...	1200	1028	9813	138	17.4	7.5	7.5	370	383	1.0	87	19.1	9.6
APR													
15...	0740	1028	9813	1040	--	7.0	6.9	188	183	6.1	36	9.5	3.0
JUN													
23...	1700	1028	9813	164	10.8	7.9	7.2	288	274	23.2	70	15.9	7.3
AUG													
05...	1320	1028	9813	371	9.5	7.3	6.9	231	212	21.3	49	12.6	4.3

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	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)
OCT 2003													
21...	20	34.6	134	<2	.070	.86	<.040	.10	.134	1.3	2.9	<200	<10
DEC													
03...	17	29.8	134	4	.030	.80	<.040	.07	.104	1.1	2.4	<200	<10
FEB 2004													
18...	26	52.5	272	<2	.210	1.86	.670	.28	.392	3.1	3.2	<200	<10
APR													
15...	13	17.7	438	18	.030	.54	.040	.04	.085	.70	2.3	340	<10
JUN													
23...	25	40.0	182	<2	.050	2.13	<.040	.31	.354	2.3	2.9	<200	<10
AUG													
05...	25	21.0	152	46	.090	1.60	<.040	.29	.348	2.2	3.5	1100	<10

Date	Iron, water, unfltrd recoverable, µg/L (01045)	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)
OCT 2003					
21...	150	<1.0	60	<50	20
DEC					
03...	210	<1.0	80	<50	20
FEB 2004					
18...	190	<1.0	130	<50	30
APR					
15...	520	2.0	110	<50	20
JUN					
23...	250	1.3	60	<50	20
AUG					
05...	1720	7.0	160	<50	40

01536000 LACKAWANNA RIVER AT OLD FORGE, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

Date	08/20/03
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	1
Nemertea (PROBOSCIS WORMS)	
Enopla	
Hoplonemertea	
Tetrastemmatidae	
Prostoma	2
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	3
Arthropoda	
Crustacea	
Amphipoda (SCUDS)	
Crangonyctidae	
Crangonyx	1
Isopoda (AQUATIC SOWBUGS)	
Asellidae	
Caecidotea	13
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Acentrella	1
Baetis	12
Heptageniidae	
Stenonema	6
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche	12
Hydropsyche	15
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus	2
Stenelmis	3
Psephenidae (WATER PENNIES)	
Psephenus	1
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	25
Simuliidae (BLACK FLIES)	
Simulium	8
Total Organisms	105
Total Taxa	15

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 good except for period Oct. 1 to July 3, which is fair, and 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)
Dec. 13	0030	90,700	18.67	Sept. 19	0200	*227,000	*34.96
Mar. 7	0900	89,800	18.55				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17100	48100	32000	27300	e7400	6920	28200	18600	15600	e3650	47100	29400
2	14700	34900	28200	25100	e7500	8250	29100	16900	15700	e3520	36500	22700
3	12000	28200	24800	23500	e7600	23000	38800	21100	18300	e3570	25700	17300
4	10500	24900	22300	24200	e7200	50100	34300	32000	22900	3510	19700	13600
5	10300	23100	19900	37700	e7200	60500	30100	28600	19200	3260	16900	10900
6	10200	23200	18700	48700	e7600	75600	26200	24900	16000	2970	15700	9400
7	12100	22300	17900	40400	e7300	88500	23200	24000	13800	2860	13500	8400
8	11600	19800	16500	29200	7330	78600	20900	24700	12200	2830	11300	7960
9	9880	17400	15500	23300	e7100	61600	19300	24700	10800	3120	9620	11700
10	8550	15400	14700	19400	6960	47100	17800	27800	9910	6180	8300	51600
11	7560	14100	29200	16300	7340	36900	16300	33200	9220	6780	8380	56500
12	6990	13200	83200	14000	7440	31700	14900	36000	8710	6310	8690	36400
13	6710	13200	80800	e14000	7300	28300	15900	29600	8430	5260	13400	28700
14	6490	13000	58500	e13000	7120	24800	36600	24900	e7630	4480	27200	23300
15	11000	13500	44000	e12000	7020	21700	66800	22100	e6770	4830	27400	15100
16	13600	13600	33700	e10000	e6700	19200	53900	23900	e6500	8580	20900	12200
17	18600	13200	29100	e8800	e6100	18600	36800	22600	e6120	10400	15600	10500
18	20500	13100	28700	e10000	5580	17800	28100	19200	e6120	9620	13600	122000
19	16200	14200	28000	e11000	5680	16700	24100	16600	e8220	12000	13100	204000
20	13000	38400	26700	e11000	5870	15700	21800	14500	e8320	15200	12100	125000
21	12300	70500	24000	e10000	6020	16800	21300	12900	e7030	12500	11000	67000
22	12600	61400	21400	e10000	6270	22900	19600	12400	e6230	10100	27200	48400
23	12100	46200	19600	e9300	6310	24400	19400	17000	e5450	8490	36400	38800
24	11200	32700	26500	e7800	6710	21900	21100	14300	e4980	9950	27800	32100
25	9690	27900	59900	e7000	6750	20900	21500	16600	e4660	12000	21200	25500
26	9660	26000	69300	e6800	6920	27500	21500	19500	e4360	9800	16100	20700
27	12800	24400	54900	e6800	6810	32600	25500	20800	e4230	9830	13300	16600
28	35400	22600	41400	e6700	6690	37400	27700	21100	e4140	63500	11300	16600
29	61800	25600	31500	e7600	6670	41400	24800	23400	e3550	72100	10300	24700
30	67600	31300	27500	e7900	---	38100	21200	23100	e3630	60500	10200	21000
31	61200	---	26600	e7900	---	32400	---	18300	---	42300	14100	---
TOTAL	543930	785400	1055000	506700	198490	1047870	806700	685300	278710	430000	563590	1128060
MEAN	17550	26180	34030	16350	6844	33800	26890	22110	9290	13870	18180	37600
MAX	67600	70500	83200	48700	7600	88500	66800	36000	22900	72100	47100	204000
MIN	6490	13000	14700	6700	5580	6920	14900	12400	3550	2830	8300	7960
CFSM	1.76	2.63	3.42	1.64	0.69	3.39	2.70	2.22	0.93	1.39	1.83	3.78
IN.	2.03	2.93	3.94	1.89	0.74	3.91	3.01	2.56	1.04	1.61	2.10	4.21

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1899 - 2004, BY WATER YEAR (WY)

MEAN	6972	11220	14130	13960	14780	30320	31210	16600	9329	5491	4137	4641
MAX	39860	32130	44610	40740	43030	80560	100000	39590	54330	29010	19560	37600
(WY)	1978	1928	1997	1996	1976	1936	1993	1943	1972	1902	1994	2004
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

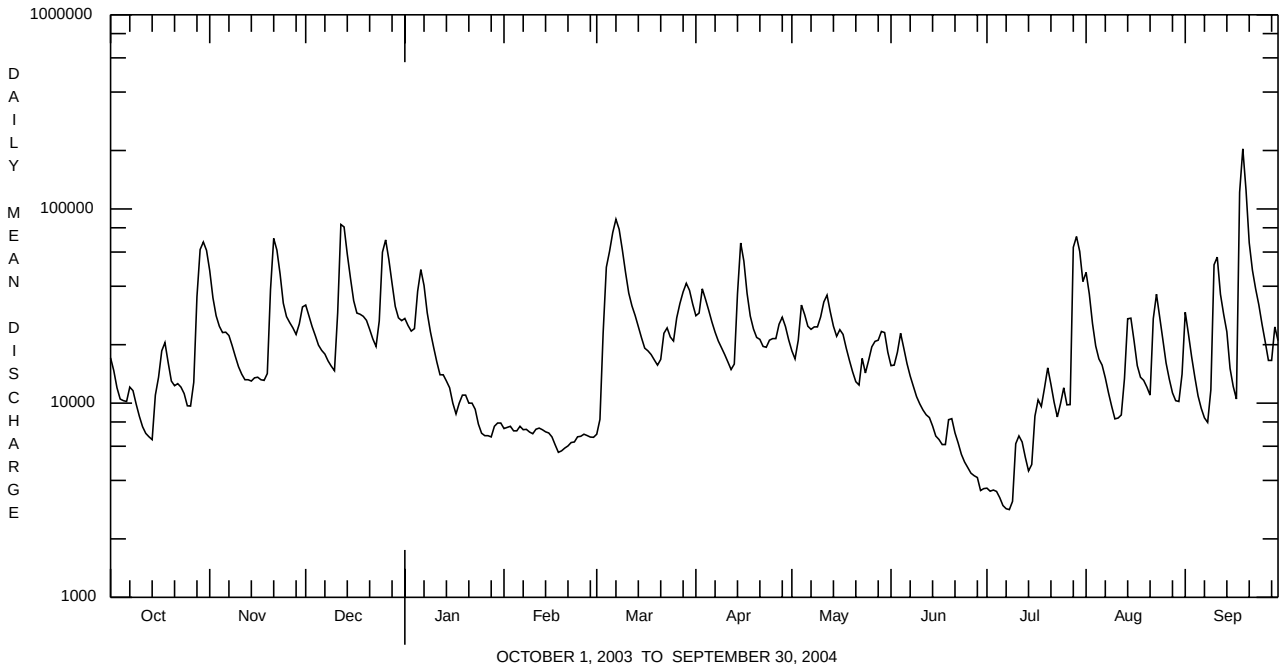
e Estimated.

SUSQUEHANNA RIVER BASIN

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

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1899 - 2004	
ANNUAL TOTAL	7867030		8029750			
ANNUAL MEAN	21550		21940		13570	
HIGHEST ANNUAL MEAN					21990	1978
LOWEST ANNUAL MEAN					6186	1965
HIGHEST DAILY MEAN	119000	Mar 22	204000	Sep 19	329000	Jun 24 1972
LOWEST DAILY MEAN	3580	Aug 31	2830	Jul 8	532	Sep 27 1964
ANNUAL SEVEN-DAY MINIMUM	3950	Aug 26	**a**3160	Jul 3	546	Sep 21 1964
MAXIMUM PEAK FLOW			227000	Sep 19	**b**345000	Jun 24 1972
MAXIMUM PEAK STAGE			34.96	Sep 19	**c**40.91	Jun 24 1972
INSTANTANEOUS LOW FLOW					528	Sep 27 1964
ANNUAL RUNOFF (CFSM)	2.16		2.20		1.36	
ANNUAL RUNOFF (INCHES)	29.38		29.99		18.51	
10 PERCENT EXCEEDS	48300		41700		32500	
50 PERCENT EXCEEDS	14700		16600		7250	
90 PERCENT EXCEEDS	6050		6700		1670	

a Computed using estimated daily discharges.
b From slope-area measurement of peak flow near West Pittston and adjusted for flow from intervening area.
c 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)
Oct. 15	0545	600	4.08	May 27	0445	750	4.54
Oct. 29	1300	877	4.90	Aug. 13	0830	784	4.64
Nov. 20	0300	582	4.02	Sept. 18	0900	*3,920	*9.62
Dec. 11	1530	1,410	6.19				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61	190	145	101	e65	48	64	82	109	24	55	35
2	58	158	123	95	e63	130	61	88	82	26	35	30
3	50	137	102	96	e67	176	57	354	73	37	27	27
4	54	115	89	178	e72	200	56	198	60	24	25	26
5	64	116	84	386	e66	184	52	161	68	22	30	24
6	50	121	86	248	e68	191	47	139	118	21	25	25
7	44	100	78	187	e85	158	45	178	76	20	22	24
8	40	84	72	e140	e60	164	43	138	59	20	22	32
9	38	73	e63	e120	e56	131	43	140	50	20	21	99
10	36	68	66	e120	e54	114	39	114	96	18	19	71
11	34	66	783	e110	e53	102	37	138	107	17	e28	39
12	32	70	455	e100	e50	96	38	105	64	34	83	32
13	30	66	285	e94	e48	84	100	90	52	44	442	30
14	30	58	227	e88	e44	75	191	79	49	27	147	26
15	303	54	201	e84	e40	73	102	86	53	25	96	26
16	117	49	164	e82	e38	71	83	102	43	24	78	25
17	88	48	194	e80	e36	71	75	75	47	26	64	27
18	77	45	193	e78	e36	70	70	69	68	30	53	2370
19	69	96	149	e76	e38	71	67	76	48	40	45	608
20	61	346	127	e76	e41	74	60	68	38	27	45	319
21	57	162	109	e74	e42	138	62	62	33	22	218	214
22	54	131	99	e74	e42	102	66	63	48	20	113	155
23	50	112	117	e72	e40	83	73	54	72	96	74	120
24	46	109	275	e78	e40	81	64	48	40	59	60	99
25	42	143	258	e77	e37	89	57	41	33	30	54	81
26	41	103	193	e80	e37	83	171	177	32	25	48	70
27	300	92	162	e77	e35	81	157	454	30	25	42	62
28	283	131	138	e77	e33	77	119	236	28	39	38	171
29	545	302	124	e72	38	71	100	159	27	74	35	209
30	353	171	143	e69	---	67	89	117	26	35	35	156
31	244	---	122	e68	---	65	---	106	---	32	54	---
TOTAL	3351	3516	5426	3357	1424	3220	2288	3997	1729	983	2133	5232
MEAN	108	117	175	108	49.1	104	76.3	129	57.6	31.7	68.8	174
MAX	545	346	783	386	85	200	191	454	118	96	442	2370
MIN	30	45	63	68	33	48	37	41	26	17	19	24
CFSM	2.47	2.68	4.00	2.47	1.12	2.37	1.74	2.94	1.32	0.72	1.57	3.98
IN.	2.85	2.99	4.61	2.85	1.21	2.73	1.94	3.39	1.47	0.83	1.81	4.44

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1920 - 2004, BY WATER YEAR (WY)

MEAN	39.1	60.8	75.0	71.2	82.3	118	114	86.5	51.8	34.6	25.4	29.1
MAX	202	203	206	284	284	327	362	243	248	172	149	174
(WY)	1956	1927	1997	1979	1981	1936	1993	1947	1972	1947	1933	2004
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

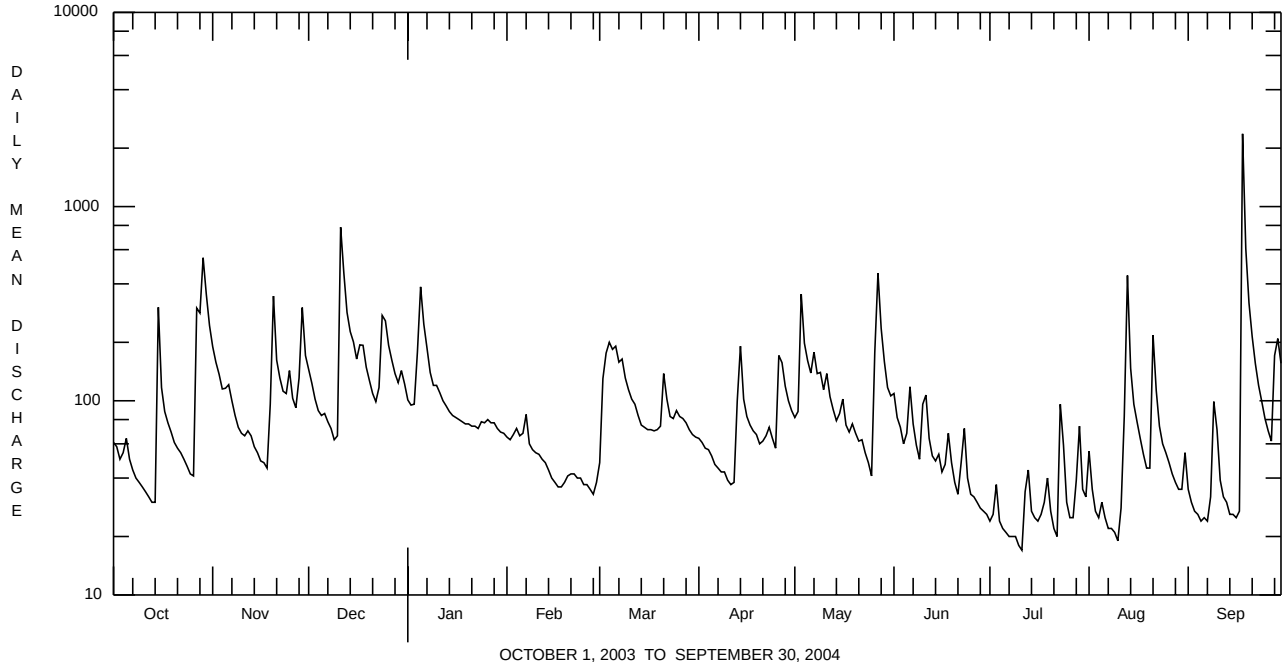
e Estimated.

WAPWALLOPEN CREEK BASIN

01538000 WAPWALLOPEN CREEK NEAR WAPWALLOPEN, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1920 - 2004	
ANNUAL TOTAL	38093		36656			
ANNUAL MEAN	104		100		65.5	
HIGHEST ANNUAL MEAN					108	1978
LOWEST ANNUAL MEAN					30.9	1965
HIGHEST DAILY MEAN	937	Jun 1	2370	Sep 18	2370	Sep 18 2004
LOWEST DAILY MEAN	18	Jul 20	17	Jul 11	1.5	Aug 31 1953
ANNUAL SEVEN-DAY MINIMUM	20	Jul 15	20	Jul 5	1.8	Aug 27 1953
MAXIMUM PEAK FLOW			**a**3920	Sep 18	**a**5410	Jun 22 1972
MAXIMUM PEAK STAGE			9.62	Sep 18	11.04	Jun 22 1972
INSTANTANEOUS LOW FLOW					1.1	Aug 4 1955
ANNUAL RUNOFF (CFSM)	2.38		2.29		1.50	
ANNUAL RUNOFF (INCHES)	32.35		31.13		20.32	
10 PERCENT EXCEEDS	199		185		140	
50 PERCENT EXCEEDS	67		70		41	
90 PERCENT EXCEEDS	28		27		9.0	

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



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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Nov. 20	0600	4,350	6.22	May 27	0530	6,320	7.30
Dec. 11	1800	5,830	7.05	Sept. 18	1430	*15,200	*10.97

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	513	1140	945	715	e230	277	532	472	754	141	874	265
2	475	939	813	667	e220	647	497	505	612	134	590	217
3	420	815	691	886	221	1170	447	1850	518	131	447	187
4	452	711	614	1610	225	1410	428	1280	421	119	362	168
5	590	704	575	3170	200	1590	388	1000	421	117	357	156
6	467	808	561	2270	204	2460	343	835	573	110	293	147
7	407	674	511	1480	253	2350	319	852	463	104	246	135
8	371	592	451	e1000	e220	1830	303	704	376	119	212	136
9	342	539	440	e730	e190	1320	295	764	323	114	187	327
10	314	512	423	e530	196	1050	273	680	433	108	162	344
11	290	501	3270	e500	186	885	254	637	446	100	308	240
12	272	535	3260	e460	168	802	246	579	343	126	273	194
13	255	544	1740	e440	172	669	751	517	288	254	1290	170
14	246	484	e1200	e380	165	576	1990	460	270	218	951	151
15	1640	435	e1100	e370	153	542	1310	503	288	349	630	141
16	1070	403	e900	e370	e130	514	965	739	313	247	484	133
17	811	385	e780	e370	e140	496	795	545	816	257	388	144
18	682	364	845	e360	e140	464	675	520	968	289	320	8990
19	597	780	712	e320	143	459	584	684	655	406	278	3820
20	526	3460	630	e300	145	473	511	629	417	303	286	1650
21	479	1910	561	e280	163	911	476	567	319	240	930	1070
22	440	e1300	522	e260	206	810	439	712	315	238	788	787
23	397	e1000	523	269	205	660	471	613	307	311	551	619
24	356	900	1690	263	211	625	445	514	243	412	444	519
25	321	980	2680	e240	e170	660	385	474	204	285	373	448
26	305	779	1640	e260	e170	717	672	827	246	235	319	394
27	1440	686	1210	e240	171	786	764	3670	228	790	282	342
28	2380	718	994	e250	179	773	633	1590	184	1580	258	577
29	2410	1370	859	e240	227	679	561	1010	171	878	230	764
30	2140	1090	933	e230	---	604	513	764	154	597	206	532
31	1480	---	847	e230	---	551	---	684	---	524	337	---
TOTAL	22888	26058	32920	19690	5403	27760	17265	26180	12069	9836	13656	23767
MEAN	738	869	1062	635	186	895	576	845	402	317	441	792
MAX	2410	3460	3270	3170	253	2460	1990	3670	968	1580	1290	8990
MIN	246	364	423	230	130	277	246	460	154	100	162	133
CFSM	2.69	3.17	3.88	2.32	0.68	3.27	2.10	3.08	1.47	1.16	1.61	2.89
IN.	3.11	3.54	4.47	2.67	0.73	3.77	2.34	3.55	1.64	1.34	1.85	3.23

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2004, BY WATER YEAR (WY)

MEAN	303	459	610	512	560	897	889	616	352	202	169	226
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

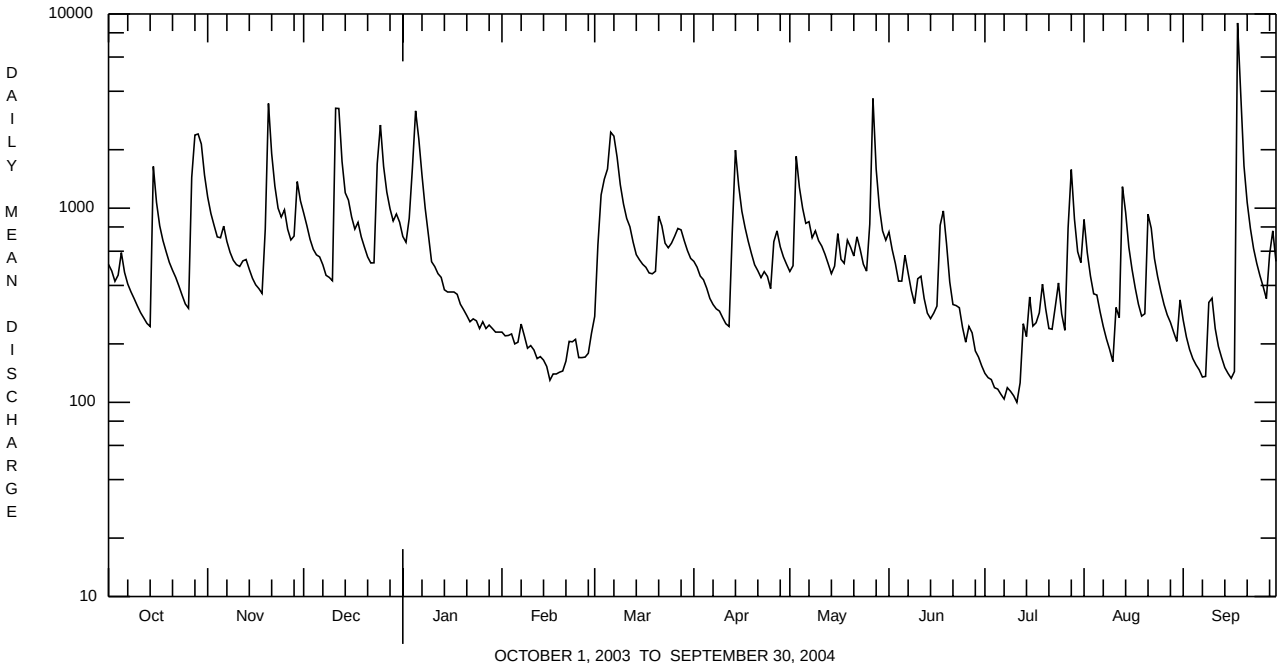
e Estimated.

FISHING CREEK BASIN

01539000 FISHING CREEK NEAR BLOOMSBURG, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1938 - 2004	
ANNUAL TOTAL	266550		237492			
ANNUAL MEAN	730		649		482	
HIGHEST ANNUAL MEAN					739	1960
LOWEST ANNUAL MEAN					229	1965
HIGHEST DAILY MEAN	6500	Mar 21	8990	Sep 18	18500	Jun 23 1972
LOWEST DAILY MEAN	132	Jul 21	100	Jul 11	8.4	Sep 12 1964
ANNUAL SEVEN-DAY MINIMUM	154	Jul 15	110	Jul 5	8.7	Sep 12 1964
MAXIMUM PEAK FLOW			**a**15200	Sep 18	**a**30900	Jun 22 1972
MAXIMUM PEAK STAGE			10.97	Sep 18	**b**15.18	Jun 22 1972
INSTANTANEOUS LOW FLOW					7.6	Jul 19 1939
ANNUAL RUNOFF (CFSM)	2.67		2.37		1.76	
ANNUAL RUNOFF (INCHES)	36.19		32.24		23.91	
10 PERCENT EXCEEDS	1440		1280		1080	
50 PERCENT EXCEEDS	522		474		277	
90 PERCENT EXCEEDS	202		171		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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19900	57900	36300	30300	e8500	7530	31000	20500	18200	4200	44400	21100
2	16900	45400	34000	29000	e7900	8420	28200	18400	16000	4390	44800	27800
3	14500	35200	29300	26600	7860	13100	34700	24100	16800	4320	31400	20300
4	12500	29200	25600	27700	8170	41000	38100	31400	20400	4090	23600	16200
5	12100	25300	22800	39900	7940	58400	32500	34300	21700	3970	19100	12900
6	11600	24100	20800	55200	7670	70100	28200	29000	18900	3740	17000	10700
7	11700	23600	19600	51800	8270	89300	24600	26000	15900	3480	15600	9360
8	12900	21800	18300	39300	e7800	89600	21700	25800	13700	3450	13100	8520
9	11900	19400	16800	30400	8120	72200	19900	26000	12100	3350	11100	9250
10	10400	17300	16000	24500	7770	56600	18200	26900	11500	3630	9550	26200
11	9340	15800	25000	21300	7490	44100	16800	30700	12600	6320	8710	63300
12	8490	14700	75400	17200	7740	35900	15400	36200	10200	7080	8920	43200
13	7810	14200	95300	15800	7700	31400	16400	34700	9060	7550	13500	32400
14	7440	14000	71500	e15000	7530	27500	26200	27000	8670	6120	23200	26200
15	11000	13700	54400	e14000	7440	23900	60400	24000	8210	5730	30300	20300
16	15600	14200	42300	e13000	7080	20900	63500	23000	7850	5790	26100	14000
17	15200	13900	35100	e11000	e6800	19300	46900	24000	7230	10200	19600	11800
18	19800	13100	33500	e9500	e6400	18500	33600	21300	10600	10600	15600	74600
19	18200	13300	32300	e11000	6010	17600	27100	18500	8830	10700	14300	205000
20	14900	27800	30700	11700	6080	16600	23500	16300	8550	14100	13600	179000
21	12700	64900	28000	e12000	6410	17600	21800	14400	9010	15000	14300	93500
22	12500	69600	24500	11300	6950	21200	20800	e14000	7600	12100	15600	61000
23	12300	55800	22100	e11000	7020	25500	19400	e13000	7440	10000	37600	46600
24	11400	41400	25000	e10000	7080	24200	20100	e18000	6520	9390	32400	38000
25	10400	33900	50500	e8500	7200	21800	21400	15100	5900	11900	25700	31100
26	9930	30000	74900	7610	7170	23800	22000	18500	5420	11600	19700	25200
27	11600	27700	64200	7440	7250	31700	26100	27000	5380	10100	15700	20800
28	27600	25800	50700	7480	7180	35200	28700	25900	5620	30900	13300	18100
29	59000	28500	39400	e7400	7290	41100	28100	24000	4730	76500	11500	25700
30	75300	33500	33200	8270	---	40800	23900	25400	4290	66500	10900	26700
31	70200	---	30300	e8500	---	36200	---	21800	---	50500	11200	---
TOTAL	575110	865000	1177800	593700	213820	1081050	839200	735200	318910	427300	611380	1218830
MEAN	18550	28830	37990	19150	7373	34870	27970	23720	10630	13780	19720	40630
MAX	75300	69600	95300	55200	8500	89600	63500	36200	21700	76500	44800	205000
MIN	7440	13100	16000	7400	6010	7530	15400	13000	4290	3350	8710	8520
CFSM	1.65	2.57	3.39	1.71	0.66	3.11	2.49	2.11	0.95	1.23	1.76	3.62
IN.	1.91	2.87	3.91	1.97	0.71	3.58	2.78	2.44	1.06	1.42	2.03	4.04

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1905 - 2004, BY WATER YEAR (WY)

MEAN	7857	12910	16210	16110	16810	32700	34980	19470	10950	6401	4821	5520
MAX	43890	38540	49410	44410	46420	91900	106900	44980	62370	28490	23110	40630
(WY)	1978	1927	1997	1996	1976	1936	1993	1943	1972	1915	1915	2004
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

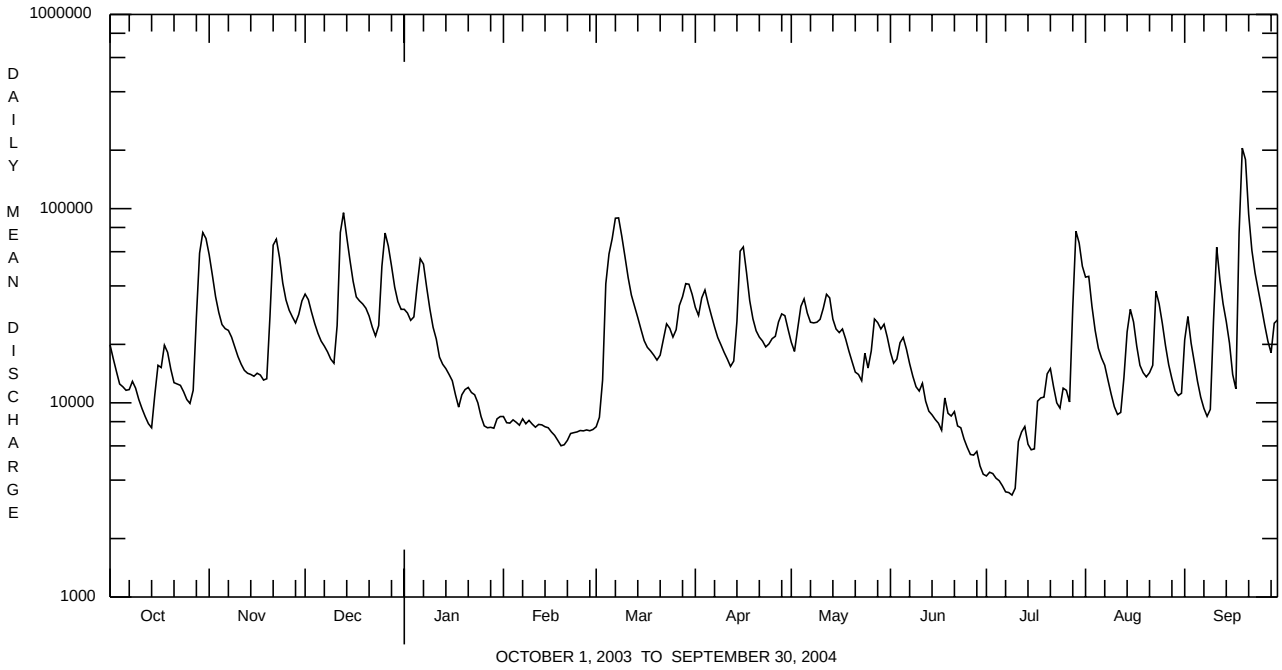
e Estimated.

SUSQUEHANNA RIVER BASIN

01540500 SUSQUEHANNA RIVER AT DANVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1905 - 2004	
ANNUAL TOTAL	8770280		8657300			
ANNUAL MEAN	24030		23650		15380	
HIGHEST ANNUAL MEAN					24670	1978
LOWEST ANNUAL MEAN					6948	1965
HIGHEST DAILY MEAN	129000	Mar 22	205000	Sep 19	335000	Jun 25 1972
LOWEST DAILY MEAN	4340	Aug 29	3350	Jul 9	558	Sep 24 1964
ANNUAL SEVEN-DAY MINIMUM	4640	Aug 26	3670	Jul 4	579	Sep 21 1964
MAXIMUM PEAK FLOW			220000	Sep 19	**a**363000	Jun 25 1972
MAXIMUM PEAK STAGE			**b**26.22	Sep 19	**b**32.32	Jun 24 1972
INSTANTANEOUS LOW FLOW					508	Sep 27 1964
ANNUAL RUNOFF (CFSM)	2.14		2.11		1.37	
ANNUAL RUNOFF (INCHES)	29.08		28.70		18.63	
10 PERCENT EXCEEDS	53900		45800		36200	
50 PERCENT EXCEEDS	16400		18200		8600	
90 PERCENT EXCEEDS	7690		7280		2120	

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 359-431.

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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)
OCT 2003													
21...	1445	1028	9813	12400	11.0	7.5	7.3	202	208	11.3	73	20.8	5.1
DEC													
17...	1230	1028	9813	34800	11.3	6.4	7.2	160	165	1.3	58	16.5	4.0
FEB 2004													
18...	1500	1028	9813	E6400	13.9	7.4	7.9	323	332	1.0	110	31.8	7.6
APR													
21...	1030	1028	9813	21800	9.7	7.3	7.5	194	128	13.5	67	19.9	4.1
JUN													
07...	1500	1028	9813	15500	8.7	7.4	7.3	206	215	18.3	77	23.2	4.7
AUG													
17...	1415	1028	9813	19000	8.2	7.7	7.1	190	192	21.0	66	19.2	4.4

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	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)
OCT 2003													
21...	48	21.8	128	<2	<.020	.52	<.040	.02	.040	.81	3.4	310	<10
DEC													
17...	37	16.9	120	16	.030	.75	<.040	.05	.055	.78	2.8	1100	<10
FEB 2004													
18...	67	33.6	186	10	.130	1.33	<.040	.03	.043	1.7	1.8	<200	<10
APR													
21...	44	17.6	132	12	<.020	.76	<.040	.03	.048	1.1	2.4	620	<10
JUN													
07...	52	18.3	122	38	<.020	.73	<.040	.03	.070	1.0	3.2	1100	<10
AUG													
17...	52	14.6	136	28	<.020	.46	<.040	.03	.054	.90	3.6	1000	<10

Date	Iron, water, unfltrd recoverable, µg/L (01045)	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)
OCT 2003								
21...	820	<1.0	100	<50	<10	--	1	27
DEC								
17...	1430	<1.0	100	<50	10	--	--	--
FEB 2004								
18...	670	<1.0	140	<50	10	--	2	153
APR								
21...	1160	<1.0	80	<50	10	--	2	--
JUN								
07...	1780	1.5	140	<50	<10	.48	2	--
AUG								
17...	1440	1.4	120	<50	<10	1.07	2	20

01540500 SUSQUEHANNA RIVER AT DANVILLE, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

Date	10/21/03
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	1
Nematoda (NEMATODES)	1
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia	1
Bivalvia (CLAMS)	
Veneroida	
Corbiculidae	
Corbicula fluminea	19
Sphaeriidae	
Pisidium	1
Sphaerium	10
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	2
Tubificida	
Naididae	1
Tubificidae	9
Arthropoda	
Crustacea	
Amphipoda (SCUDS)	
Gammaridae	
Gammarus	2
Insecta	
Ephemeroptera (MAYFLIES)	
Ephemerellidae	1
Serratella	1
Heptageniidae	
Leucrocuta	2
Stenonema	3
Potamanthidae	
Anthopotamus	5
Plecoptera (STONEFLIES)	
Taeniopterygidae	
Taeniopteryx	10
Trichoptera (CADDISFLIES)	
Glossosomatidae	
Protoptila	2
Hydropsychidae	
Cheumatopsyche	18
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus	2
Oulimnius	1
Stenelmis	18

01540500 SUSQUEHANNA RIVER AT DANVILLE, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	10/21/03
Benthic Macroinvertebrate	Count
Diptera (TRUE FLIES)	
Ceratopogonidae (BITING MIDGES)	1
Chironomidae (MIDGES)	14
Empididae (DANCE FLIES)	
Hemerodromia	1
Total Organisms	126
Total Taxa	24

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)
Nov. 20	0045	9,010	12.52	Apr. 14	0600	8,110	12.08
Dec. 11	1445	4,640	10.06	May 21	0945	14,000	14.60
Jan. 5	1430	10,400	13.17	July 27	2145	4,680	10.09
Mar. 3	0130	4,800	10.17	Sept. 18	0945	*17,100	*15.69
Mar. 6	1545	6,770	11.37				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	572	409	727	867	e340	716	1130	770	e400	214	1180	254
2	509	386	664	1170	e320	1980	1740	743	390	197	762	217
3	435	366	e590	1450	e350	3810	1380	782	372	185	576	197
4	474	343	e540	2840	e340	3070	1340	630	315	177	529	184
5	551	572	552	9700	e360	3880	1180	568	323	341	796	171
6	425	1080	e550	5330	e360	6330	982	529	323	418	517	162
7	373	710	e500	2320	e440	4050	880	498	280	279	412	156
8	341	593	e490	1570	e430	2620	829	586	250	235	355	306
9	315	509	459	1240	e410	1790	962	492	228	204	310	3100
10	294	455	457	913	e380	1360	764	481	225	179	279	1490
11	273	452	3400	831	e380	1120	684	423	667	167	316	793
12	257	553	2600	782	e370	1010	677	386	958	678	308	566
13	246	572	1530	701	e360	862	3400	356	503	785	389	449
14	256	485	1190	e560	e360	755	6660	347	847	408	360	377
15	1460	434	1010	e510	e360	765	2760	315	2300	493	283	363
16	817	409	845	e440	e360	701	1700	293	1350	460	249	333
17	631	408	807	e470	e350	668	1280	276	946	351	225	3470
18	586	387	750	e480	e350	618	1040	757	1020	426	208	15300
19	519	4390	665	e460	e350	644	872	633	713	392	247	5640
20	453	6790	609	e430	e390	901	757	582	544	324	521	1900
21	408	2530	540	e430	e460	3330	682	6840	450	269	1910	1180
22	393	1590	527	e410	e520	1980	661	4460	560	234	1170	844
23	376	1180	755	e380	e500	1360	1150	2360	536	236	662	649
24	334	989	1880	e390	e470	1120	960	1390	382	292	495	538
25	302	952	1780	e370	e450	1050	915	931	326	223	402	468
26	287	776	1300	e370	e440	979	2040	753	301	286	339	413
27	495	691	1040	e360	e430	914	1640	816	268	2760	302	368
28	737	681	881	e360	e480	817	1300	604	253	2320	295	431
29	556	893	789	e350	e570	711	1030	488	276	1090	307	542
30	511	749	1140	e340	---	654	865	412	245	830	265	392
31	443	---	1050	e330	---	749	---	388	---	1490	302	---
TOTAL	14629	31334	30617	37154	11680	51314	42260	29889	16551	16943	15271	41253
MEAN	472	1044	988	1199	403	1655	1409	964	552	547	493	1375
MAX	1460	6790	3400	9700	570	6330	6660	6840	2300	2760	1910	15300
MIN	246	343	457	330	320	618	661	276	225	167	208	156
CFSM	1.50	3.32	3.14	3.80	1.28	5.25	4.47	3.06	1.75	1.74	1.56	4.37
IN.	1.73	3.70	3.62	4.39	1.38	6.06	4.99	3.53	1.95	2.00	1.80	4.87

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2004, BY WATER YEAR (WY)

MEAN	253	446	622	709	802	1208	939	652	400	275	210	210
MAX	915	1707	1958	2136	1924	3369	2080	1480	2446	1522	850	1375
(WY)	1928	1998	1924	1937	1918	1936	1940	1919	1972	1977	2003	2004
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

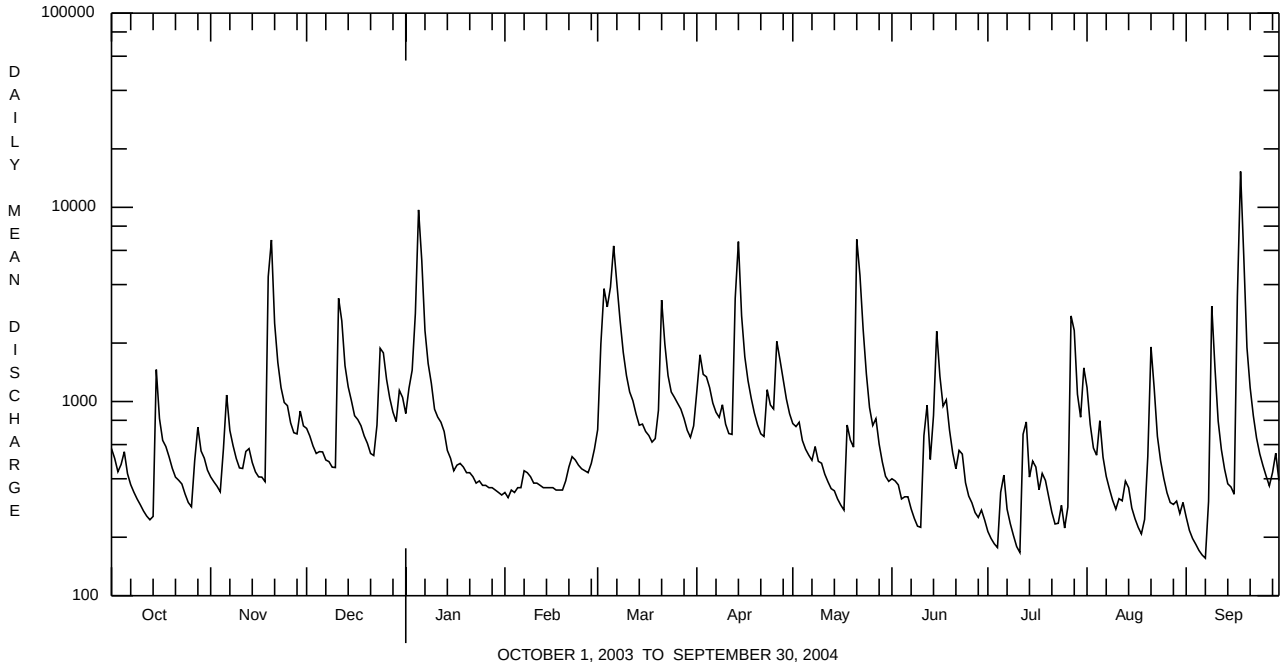
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

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

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1914 - 2004	
ANNUAL TOTAL	268266		338895			
ANNUAL MEAN	735		926		559	
HIGHEST ANNUAL MEAN					955	1928
LOWEST ANNUAL MEAN					294	1931
HIGHEST DAILY MEAN	6790	Nov 20	15300	Sep 18	23200	Jun 23 1972
LOWEST DAILY MEAN	161	Aug 25	156	Sep 7	16	Aug 29 1939**a**
ANNUAL SEVEN-DAY MINIMUM	183	Jun 30	192	Sep 1	17	Aug 28 1939
MAXIMUM PEAK FLOW			**b**17100	Sep 18	**b**31500	Mar 18 1936
MAXIMUM PEAK STAGE			15.69	Sep 18	**c**19.74	Mar 18 1936
INSTANTANEOUS LOW FLOW					14	Aug 29 1939
ANNUAL RUNOFF (CFSM)	2.33		2.94		1.78	
ANNUAL RUNOFF (INCHES)	31.68		40.02		24.13	
10 PERCENT EXCEEDS	1480		1780		1300	
50 PERCENT EXCEEDS	516		532		290	
90 PERCENT EXCEEDS	230		278		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 359-431.

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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)
OCT 2003													
23...	1100	1028	9813	380	11.5	6.9	7.0	339	331	8.2	150	38.4	13.6
DEC													
22...	0930	1028	9813	540	13.8	6.8	7.4	345	359	.6	160	40.8	14.2
APR 2004													
26...	1130	1028	9813	2320	10.5	7.1	7.3	239	235	10.7	99	25.8	8.3
JUN													
22...	1030	1028	9813	450	9.2	7.2	7.6	323	322	16.8	130	33.8	11.6
AUG													
16...	1100	1028	9813	250	10.4	7.9	7.4	416	399	17.6	160	42.5	14.3

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	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)
OCT 2003													
23...	42	106	476	8	<.020	.52	<.040	<.01	<.010	.72	1.7	<200	<10
DEC													
22...	37	115	296	<2	.030	.73	<.040	<.01	.010	.61	1.0	460	20
APR 2004													
26...	23	72.8	170	60	.030	.51	<.040	.01	.045	.92	2.8	3100	<10
JUN													
22...	40	97.6	256	<2	<.020	.78	<.040	.01	.015	.79	1.6	400	<10
AUG													
16...	52	122	358	2	<.020	.53	<.040	<.01	<.010	.61	1.8	<200	<10

Date	Iron, water, unfltrd recoverable, µg/L (01045)	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)
OCT 2003					
23...	380	<1.0	230	<50	<10
DEC					
22...	850	<1.0	430	<50	20
APR 2004					
26...	3930	2.7	450	<50	40
JUN					
22...	680	<1.0	200	<50	<10
AUG					
16...	350	<1.0	140	<50	<10

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

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

Date	10/23/03
Benthic Macroinvertebrate	Count
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia	3
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	6
Tubificida	
Naididae	12
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	1
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Plauditus	2
Heptageniidae	1
Stenonema	5
Isonychiidae	
Isonychia	5
Plecoptera (STONEFLIES)	
Taeniopterygidae	
Taeniopteryx	4
Trichoptera (CADDISFLIES)	
Brachycentridae	
Brachycentrus	60
Micrasema	8
Hydropsychidae	
Cheumatopsyche	3
Hydropsyche	20
Macrostemum	1
Uenoidae	
Neophylax	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus	1
Oulimnius	1
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	5
Tipulidae (CRANE FLIES)	
Antocha	3
Total Organisms	142
Total Taxa	19

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	661	480	755	1050	334	648	1100	883	557	280	1550	322
2	612	472	702	1220	332	1620	1930	770	579	254	1040	265
3	585	466	619	1850	333	3790	1470	868	499	217	780	236
4	540	459	618	2780	267	4420	1250	760	424	201	690	207
5	636	656	618	3210	216	4510	1330	635	394	289	868	187
6	561	1160	619	4950	334	3780	1220	582	392	466	758	180
7	447	912	577	5460	594	4980	997	556	356	393	540	186
8	406	785	452	5420	866	5300	914	559	302	303	431	256
9	406	699	438	4040	938	5020	1010	559	299	241	398	3300
10	446	609	541	2350	683	2620	937	560	299	205	347	2720
11	427	575	2330	1320	530	1490	754	532	651	180	341	1160
12	354	623	3570	921	480	1280	702	407	1020	570	476	899
13	318	744	2640	873	450	1090	2170	335	804	1310	471	698
14	377	664	1640	720	406	825	4620	335	726	582	423	549
15	1580	551	1360	560	406	766	5110	337	2040	563	372	504
16	1190	520	1140	424	363	770	4050	334	2030	609	282	492
17	673	521	852	335	325	726	2320	281	1110	605	252	1120
18	743	520	763	502	325	657	1560	688	1130	515	251	748
19	656	1270	763	638	325	732	1070	870	939	396	251	3230
20	554	4440	670	478	325	1100	814	600	686	400	597	5190
21	521	4820	620	335	508	2620	770	2710	552	348	1670	5430
22	501	4900	619	430	834	3130	767	4980	559	287	1680	5500
23	500	3840	699	463	934	1970	1160	4790	697	284	944	5520
24	454	1940	1760	334	770	1480	1240	3690	561	283	651	5470
25	431	1140	2300	258	593	1260	1050	1800	406	283	498	3270
26	392	946	1710	258	547	967	2070	663	364	422	412	1670
27	517	779	1340	302	547	1050	2380	1210	315	2380	414	956
28	845	819	1040	335	547	1050	1640	1010	284	3440	439	497
29	761	968	900	335	547	851	1330	696	284	1560	353	672
30	640	810	1140	335	---	766	1080	476	283	1000	322	625
31	543	---	1260	337	---	840	---	476	---	1720	322	---
TOTAL	18277	38088	35055	42823	14659	62108	48815	33952	19542	20586	18823	52059
MEAN	590	1270	1131	1381	505	2003	1627	1095	651	664	607	1735
MAX	1580	4900	3570	5460	938	5300	5110	4980	2040	3440	1680	5520
MIN	318	459	438	258	216	648	702	281	283	180	251	180

WEST BRANCH SUSQUEHANNA RIVER BASIN

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

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 2004, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	340	655	833	760	943	1322	1145	751	504	397	266	340
MAX	950	2010	1865	1749	1847	2532	2911	1593	2074	1650	1053	1735
(WY)	1980	1998	1973	1996	1986	1979	1993	1966	1972	1977	2003	2004
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

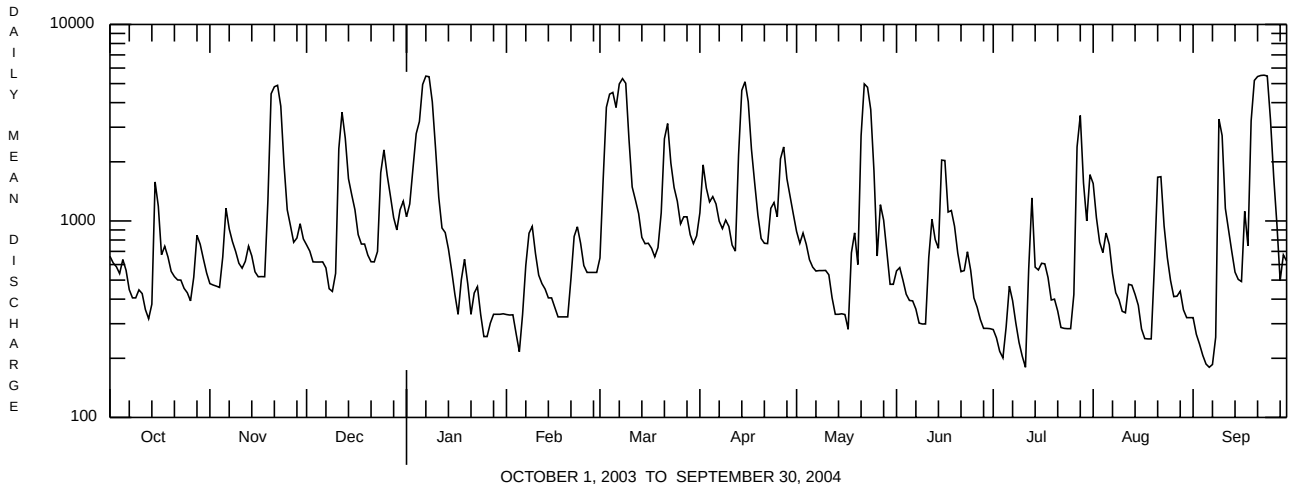
SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1966 - 2004	
ANNUAL TOTAL	329330		404787			
ANNUAL MEAN	902		1106		686	
HIGHEST ANNUAL MEAN					1106	2004
LOWEST ANNUAL MEAN					450	1999
HIGHEST DAILY MEAN	4900	Nov 22	5520	Sep 23	8420	Jun 26 1972
LOWEST DAILY MEAN	187	Jul 3	180	Jul 11**a**	19	Aug 16,17 1966
ANNUAL SEVEN-DAY MINIMUM	220	Jul 1	217	Sep 2	36	Aug 11 1966
MAXIMUM PEAK FLOW			5700	Jan 8**b**	8590	Jun 25 1972
MAXIMUM PEAK STAGE			8.50	Jan 8**b**	11.40	Jun 25 1972
10 PERCENT EXCEEDS	1890		2660		1610	
50 PERCENT EXCEEDS	629		656		399	
90 PERCENT EXCEEDS	265		311		100	

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	

a Also Sept. 6.
b Also Mar. 8.



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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	958	573	1000	1400	e430	782	1400	1260	714	352	2270	416
2	839	562	955	1630	e430	1910	2390	1080	757	324	1620	355
3	797	547	826	2580	e420	4410	1970	1180	674	280	1160	297
4	766	526	813	3860	e370	5250	1610	1060	569	252	1040	270
5	841	748	817	5970	e340	5660	1670	861	519	294	1180	233
6	774	1360	821	6050	e480	6030	1560	805	513	568	1050	224
7	612	1130	759	6060	e800	6140	1280	763	472	492	775	218
8	536	933	633	5840	e1070	6030	1160	746	376	399	610	423
9	523	849	594	4630	e1120	5630	1230	734	364	300	571	4870
10	543	736	684	2850	e900	3420	1170	742	386	256	484	3900
11	540	692	3010	1790	e690	1990	953	708	733	219	470	1910
12	445	748	4230	1210	e650	1730	895	590	1180	685	578	1380
13	378	854	3310	1130	e590	1500	3160	473	1010	1860	672	1110
14	433	814	2180	e990	e510	1150	5640	463	864	853	565	808
15	1800	656	1740	e830	e490	1060	5740	452	2240	683	502	769
16	1680	609	1490	e650	e460	1050	4710	441	2530	730	385	698
17	870	609	1190	e580	e420	985	2930	391	1540	713	324	2710
18	936	600	1030	e730	e420	885	2090	734	1620	649	319	5680
19	856	3150	998	e870	e410	917	1460	1230	1360	544	337	4170
20	721	5990	903	e710	e400	1520	1130	896	979	566	670	5510
21	666	5510	809	e530	e600	3280	1030	3470	778	508	1960	5520
22	633	5340	796	e650	e900	3850	1030	5860	823	389	2140	5480
23	616	4370	908	e640	e1000	2640	1550	5450	922	436	1230	5420
24	564	2610	2220	e550	e850	1950	1690	4380	794	518	844	5350
25	513	1570	2930	e470	e670	1820	1460	2520	582	422	664	3670
26	474	1300	2300	e350	e620	1430	2710	1130	504	638	538	2040
27	623	1110	1740	e380	e620	1560	3150	1550	442	2830	512	1300
28	1020	1060	1440	e410	e620	1510	2270	1290	380	4170	574	683
29	939	1320	1200	e440	e630	1270	1830	1010	385	2210	488	802
30	786	1100	1510	e440	---	1110	1490	660	364	1570	436	806
31	680	---	1640	e440	---	1180	---	659	---	2450	448	---
TOTAL	23362	47976	45476	55660	17910	79649	62358	43588	25374	27160	25416	67022
MEAN	754	1599	1467	1795	618	2569	2079	1406	846	876	820	2234
MAX	1800	5990	4230	6060	1120	6140	5740	5860	2530	4170	2270	5680
MIN	378	526	594	350	340	782	895	391	364	219	319	218

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 2004, BY WATER YEAR (WY)

MEAN	388	874	1009	985	1215	1678	1539	943	698	500	376	426
MAX	1264	2425	1944	2092	2302	3377	3648	1831	1663	1497	1487	2234
(WY)	1980	1998	1991	1996	1986	1979	1993	1989	1989	1996	2003	2004
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

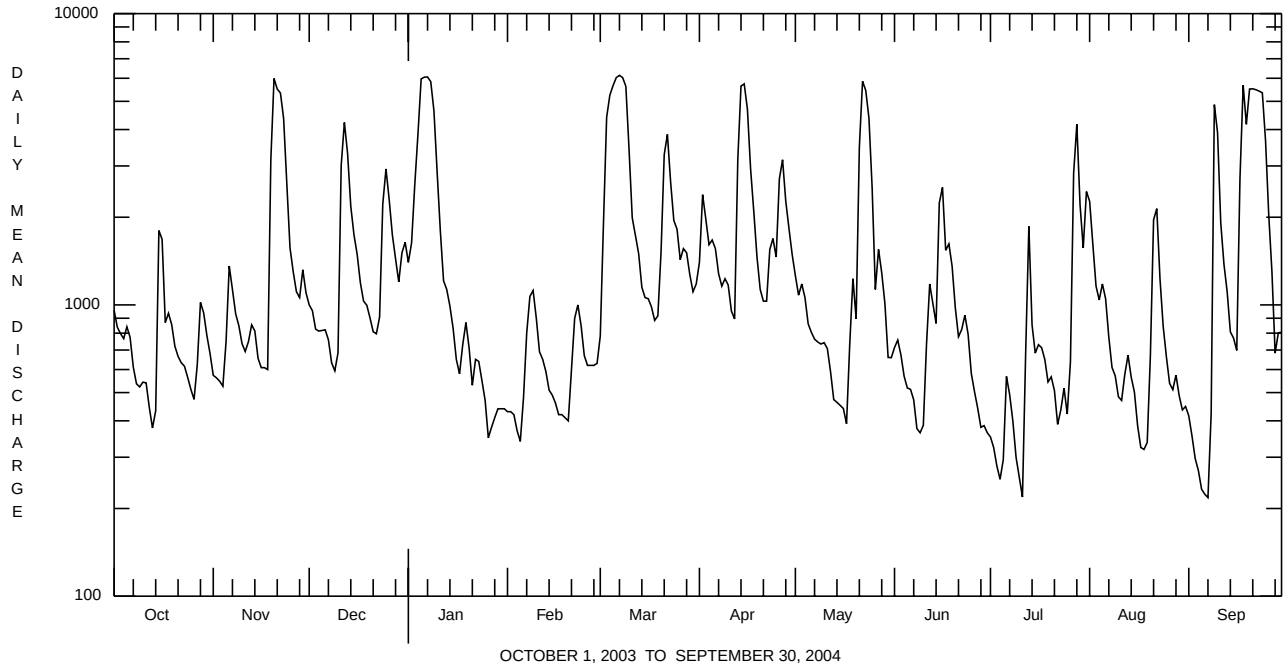
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

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

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1979 - 2004	
ANNUAL TOTAL	439401		520951			
ANNUAL MEAN	1204		1423		884	
HIGHEST ANNUAL MEAN					1423	2004
LOWEST ANNUAL MEAN					576	1999
HIGHEST DAILY MEAN	5990	Nov 20	6140	Mar 7	6850	Mar 8 1979
LOWEST DAILY MEAN	236	Jul 3	218	Sep 7	46	Sep 14 1982
ANNUAL SEVEN-DAY MINIMUM	280	Jul 1	288	Sep 1	53	Oct 6 1983
MAXIMUM PEAK FLOW			**a**10100	Sep 17	**a**10100	Sep 17 2004
MAXIMUM PEAK STAGE			12.63	Sep 17	12.63	Sep 17 2004
10 PERCENT EXCEEDS	2610		3530		2080	
50 PERCENT EXCEEDS	846		852		529	
90 PERCENT EXCEEDS	370		419		123	

a From rating curve extended above 6,000 ft^3/s.



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 fair 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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	865	461	746	965	e440	e650	1230	955	519	216	1440	399
2	754	434	683	1110	e440	e1200	2500	864	493	197	911	320
3	636	410	596	1410	e470	3440	1880	927	433	186	691	282
4	601	388	543	2280	e470	3000	1680	749	374	178	620	258
5	627	626	e540	6920	e460	3840	1530	651	358	258	948	237
6	524	1120	e560	5010	e450	5440	1300	596	358	280	676	219
7	455	809	497	3010	e490	4630	1170	550	326	237	522	209
8	407	677	465	2260	e460	3290	1080	596	299	251	449	299
9	377	583	475	1820	e450	2430	1230	527	281	248	391	5430
10	354	525	449	1390	e450	1900	1010	531	282	183	349	3320
11	332	506	3270	1170	e440	1580	894	454	399	162	324	1680
12	311	536	3340	1140	e430	1420	863	401	844	428	346	1190
13	296	596	2020	971	e420	1230	2790	368	532	733	404	898
14	311	519	1600	e800	e420	1050	5530	343	465	366	423	721
15	1060	458	1400	e700	e420	994	3130	325	942	418	323	653
16	736	429	1180	e550	e420	914	2220	300	923	337	283	618
17	553	420	1080	e540	e420	876	1740	279	692	293	262	2510
18	515	403	970	e580	e410	806	1430	364	685	330	245	12600
19	498	2710	861	e570	e400	805	1210	465	636	443	256	7170
20	431	6180	773	e520	e450	960	1020	483	491	467	326	3240
21	395	3100	700	e470	e540	3100	870	2650	421	308	861	2300
22	375	2150	677	e450	e600	2190	797	4390	444	261	870	1750
23	364	1650	828	e440	e560	1630	1310	2500	473	377	508	1400
24	340	1390	1830	e470	e540	1420	1260	1700	365	349	399	1140
25	316	1320	2250	e460	e500	1360	1090	1260	320	276	350	940
26	303	1070	1620	e440	e500	1300	2240	1140	293	355	308	795
27	441	932	1350	e420	e470	1190	2130	1130	266	3440	284	686
28	889	868	1160	e420	e500	1070	1660	916	248	3130	273	897
29	638	903	995	e420	e585	925	1360	614	253	1480	276	1110
30	564	809	1140	e420	---	841	1120	544	245	980	401	756
31	501	---	1170	e430	---	888	---	508	---	1430	628	---
TOTAL	15769	32982	35768	38556	13605	56369	49274	28080	13660	18597	15347	54027
MEAN	509	1099	1154	1244	469	1818	1642	906	455	600	495	1801
MAX	1060	6180	3340	6920	600	5440	5530	4390	942	3440	1440	12600
MIN	296	388	449	420	400	650	797	279	245	162	245	209

e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01541500 CLEARFIELD CREEK AT DIMELING, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2004, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	268	480	621	642	815	1280	1080	736	452	296	218	284
MAX	1024	1603	1693	1549	1708	2578	2786	1800	2522	1189	895	1801
(WY)	1980	1998	1973	1996	1976	1979	1993	1978	1972	1977	2003	2004
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

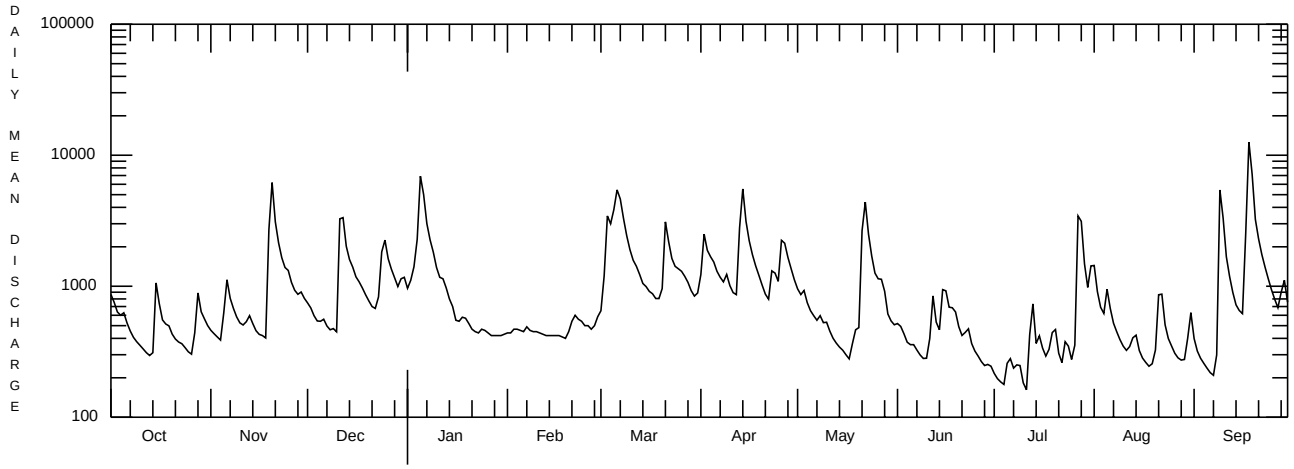
SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1961 - 2004	
ANNUAL TOTAL	303139		372034			
ANNUAL MEAN	831		1016		596	
HIGHEST ANNUAL MEAN					1016	2004
LOWEST ANNUAL MEAN					350	1969
HIGHEST DAILY MEAN	6180	Nov 20	12600	Sep 18	21100	Jun 23 1972
LOWEST DAILY MEAN	**e**170	Aug 25	162	Jul 11	30	Aug 17 1988
ANNUAL SEVEN-DAY MINIMUM	**a**211	Feb 13	218	Jun 28	37	Aug 12 1988
MAXIMUM PEAK FLOW			14700	Sep 18	**b**22400	Jun 23 1972
MAXIMUM PEAK STAGE			14.35	Sep 18	17.56	Jun 23 1972
10 PERCENT EXCEEDS	1680		2230		1340	
50 PERCENT EXCEEDS	600		596		337	
90 PERCENT EXCEEDS	248		299		83	

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	**b**30600	Mar 18 1936
MAXIMUM PEAK STAGE	**c**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 Computed using estimated daily discharges.
b From rating curve extended above 15,000 ft^3/s.
c From floodmark in gage.
e Estimated.



OCTOBER 1, 2003 TO SEPTEMBER 30, 2004

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 359-431.

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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)
OCT 2003													
23...	1245	1028	9813	363	11.5	7.0	6.5	500	471	8.4	230	49.9	25.0
DEC													
22...	1115	1028	9813	724	13.6	7.1	6.8	458	449	1.2	220	50.1	23.7
APR 2004													
26...	1320	1028	9813	2490	10.6	6.7	6.9	315	313	10.9	140	31.6	15.0
JUN													
22...	1215	1028	9813	434	9.0	7.1	7.2	433	431	19.0	190	43.5	19.8
AUG													
16...	1245	1028	9813	297	10.2	7.4	6.7	523	504	19.5	240	53.6	25.6

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	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)
OCT 2003													
23...	18	214	474	12	.030	.28	<.040	<.01	<.010	.44	1.5	630	<10
DEC													
22...	17	187	400	8	.030	.53	<.040	<.01	<.010	.36	1.2	1200	<10
APR 2004													
26...	12	116	228	46	<.020	.43	<.040	<.01	.030	.73	2.4	2200	<10
JUN													
22...	24	167	352	4	<.020	.54	<.040	<.01	.012	.59	1.6	300	<10
AUG													
16...	25	201	444	12	<.020	.35	<.040	<.01	<.010	.46	1.7	500	<10

Date	Iron, water, unfltrd recoverable, µg/L (01045)	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)
OCT 2003					
23...	1830	<1.0	2450	50	80
DEC					
22...	2830	<1.0	2140	60	90
APR 2004					
26...	3670	1.3	1430	<50	80
JUN					
22...	910	<1.0	1620	<50	40
AUG					
16...	1430	<1.0	2130	50	40

01541500 CLEARFIELD CREEK AT DIMELING, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

Date	10/23/03
Benthic Macroinvertebrate	Count
Nemertea (PROBOSCIS WORMS)	
Enopla	
Hoplonemertea	
Tetrastemmatidae	
Prostoma	1
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia	2
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	14
Insecta	
Ephemeroptera (MAYFLIES)	
Leptophlebiidae	
Paraleptophlebia	1
Plecoptera (STONEFLIES)	
Taeniopterygidae	
Taeniopteryx	2
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Hydropsyche sp	34
Lepidoptera (MOTHS AND BUTTERFLIES)	
Pyralidae	1
Diptera (TRUE FLIES)	1
Ceratopogonidae (BITING MIDGES)	
Probezzia	4
Chironomidae (MIDGES)	4
Empididae (DANCE FLIES)	
Hemerodromia	4
Total Organisms	68
Total Taxa	11

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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Nov. 19	2015	*299	*5.16	Sept. 9	0945	220	4.90
Mar. 6	1030	147	4.65	Sept. 18	0145	284	5.11
July 27	1430	132	4.59				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	7.5	11	15	1.5	7.4	14	8.7	7.3	0.99	30	15
2	8.0	6.7	11	15	1.4	21	19	8.0	8.3	0.96	18	8.6
3	5.9	6.1	9.6	25	e1.5	50	19	6.7	7.1	e0.90	11	5.7
4	7.7	5.5	8.5	39	1.6	49	15	6.0	5.6	e1.0	8.2	4.3
5	7.7	6.5	7.9	65	1.4	73	11	6.3	5.2	e13	5.8	3.5
6	7.9	6.9	7.1	49	2.1	129	8.2	5.6	4.3	e7.0	4.3	2.9
7	7.2	8.0	5.8	27	5.0	66	7.1	5.3	3.7	e3.0	3.6	2.6
8	5.8	8.0	e5.2	17	e3.3	35	6.3	4.7	3.3	1.2	3.1	7.7
9	4.7	7.0	4.6	12	e2.8	23	5.2	5.6	3.0	1.0	2.6	166
10	4.0	6.3	4.9	e10	2.2	16	4.2	5.8	3.0	0.90	3.0	73
11	3.4	6.2	68	e8.5	2.2	13	3.7	12	2.7	0.83	2.7	25
12	2.9	6.6	50	7.3	2.0	11	4.0	17	2.3	3.2	2.7	13
13	2.7	16	26	5.5	2.0	8.5	26	14	2.0	2.4	3.3	8.5
14	4.7	20	17	e5.0	1.9	8.0	76	11	2.4	9.9	2.7	5.5
15	19	17	13	e4.5	1.8	8.6	33	7.8	2.0	12	2.4	4.2
16	22	15	9.7	e4.2	e1.7	9.9	20	5.9	1.8	8.0	2.2	3.5
17	16	14	8.4	e3.8	e1.7	e10	14	4.4	2.3	5.2	2.0	61
18	12	12	7.2	e3.4	1.7	e9.5	10	4.6	2.2	17	1.8	196
19	8.9	139	6.2	3.2	1.8	8.5	8.0	5.2	1.8	40	1.8	49
20	6.9	132	5.4	2.8	2.1	12	7.0	4.9	1.6	22	2.1	19
21	6.0	41	4.8	2.5	5.6	30	5.9	6.3	1.5	13	16	11
22	5.3	22	4.7	2.5	5.4	e23	5.5	23	1.6	8.3	15	7.0
23	4.4	15	7.0	e2.5	4.9	17	6.2	35	1.5	6.4	8.5	4.8
24	3.7	12	43	e2.5	4.6	14	6.4	20	1.3	4.4	5.4	3.8
25	3.3	9.3	51	e2.5	e4.3	14	8.5	12	1.2	3.4	3.9	3.1
26	3.5	7.6	27	e2.5	e4.0	25	37	8.5	1.1	29	3.1	2.7
27	6.4	6.8	17	2.5	3.7	41	38	6.1	e1.0	109	2.7	2.4
28	10	7.6	13	2.2	e3.7	31	22	7.1	e1.1	77	2.5	2.2
29	13	8.9	10	1.9	4.9	22	15	5.6	1.2	38	2.3	2.0
30	10	9.6	12	1.8	---	16	11	4.7	1.0	24	9.5	1.8
31	8.3	---	14	1.7	---	13	---	6.0	---	27	26	---
TOTAL	242.3	586.1	490.0	347.3	82.8	814.4	466.2	283.8	84.4	489.98	208.2	714.8
MEAN	7.82	19.5	15.8	11.2	2.86	26.3	15.5	9.15	2.81	15.8	6.72	23.8
MAX	22	139	68	65	5.6	129	76	35	8.3	109	30	196
MIN	2.7	5.5	4.6	1.7	1.4	7.4	3.7	4.4	1.0	0.83	1.8	1.8
CFSM	1.49	3.73	3.02	2.14	0.54	5.01	2.97	1.75	0.54	3.02	1.28	4.55
IN.	1.72	4.16	3.48	2.47	0.59	5.78	3.31	2.01	0.60	3.48	1.48	5.07

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2004, BY WATER YEAR (WY)

MEAN	4.41	9.19	10.9	8.38	10.7	17.8	17.0	10.9	6.49	3.20	3.06	3.86
MAX	22.1	29.3	27.8	23.8	30.7	33.0	48.3	26.7	30.9	15.8	25.8	23.8
(WY)	1982	1986	1973	1996	1976	1979	1970	2002	1972	2004	1994	2004
MIN	0.10	0.31	2.02	0.83	0.98	4.25	5.34	1.95	0.50	0.26	0.19	0.08
(WY)	1965	1965	1990	1981	1980	1981	1976	1999	1999	1966	1991	1964

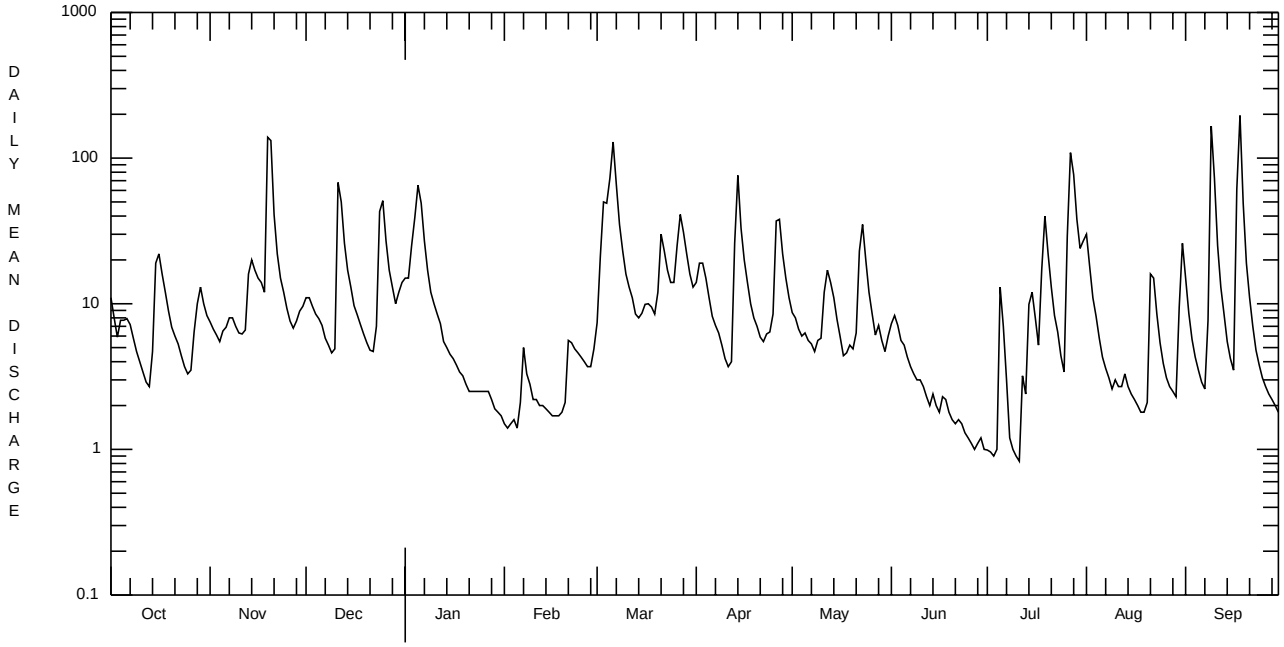
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01542810 WALDY RUN NEAR EMPORIUM, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1964 - 2004	
ANNUAL TOTAL	4805.97		4810.28			
ANNUAL MEAN	13.2		13.1		8.81	
HIGHEST ANNUAL MEAN					14.5	1994
LOWEST ANNUAL MEAN					5.11	1965
HIGHEST DAILY MEAN	177	Aug 10	196	Sep 18	**e**300	Jan 19 1996
LOWEST DAILY MEAN	**e**0.45	Jan 23	0.83	Jul 11	0.00	Sep 14 1964
ANNUAL SEVEN-DAY MINIMUM	**a**0.72	Jan 20	**a**1.0	Jun 27	0.01	Sep 13 1964
MAXIMUM PEAK FLOW			**b**299	Nov 19	**b**828	Sep 28 1967
MAXIMUM PEAK STAGE			5.16	Nov 19	6.32	Sep 28 1967
INSTANTANEOUS LOW FLOW					0.00	Sep 14 1964
ANNUAL RUNOFF (CFSM)	2.51		2.51		1.68	
ANNUAL RUNOFF (INCHES)	34.12		34.15		22.84	
10 PERCENT EXCEEDS	29		27		21	
50 PERCENT EXCEEDS	6.4		6.6		3.6	
90 PERCENT EXCEEDS	1.4		1.9		0.43	

a Computed using estimated daily discharges.
b 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.



OCTOBER 1, 2003 TO SEPTEMBER 30, 2004

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 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.

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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Nov. 19	2145	14,400	8.51	Sept. 9	1415	8,860	6.72
Mar. 6	1100	5,750	5.09	Sept. 18	0415	*19,800	*9.88

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	963	506	603	731	e110	e440	933	645	532	54	1490	318
2	741	468	579	911	e100	e700	1110	583	435	50	1070	224
3	576	433	508	1370	e110	e1600	1090	633	395	45	752	177
4	685	395	463	2180	e120	2370	971	490	322	42	639	154
5	671	463	438	3950	e120	3160	769	484	295	210	614	134
6	578	607	425	3150	e140	5320	612	432	276	105	402	119
7	525	580	e350	1960	e170	3690	524	394	234	74	323	110
8	466	565	e310	1320	e170	2340	452	347	198	68	263	146
9	406	504	323	e920	e160	1530	402	460	173	59	215	6080
10	353	459	290	e550	e160	1110	338	476	174	49	200	3730
11	308	442	2790	e460	e160	877	295	739	182	44	248	1760
12	273	481	2600	e400	e160	750	275	742	150	129	202	1040
13	246	669	1620	e340	e160	580	1420	653	130	467	295	680
14	226	696	1170	e280	e150	483	3840	549	152	757	242	467
15	1030	694	906	e240	e140	557	2170	464	146	1050	195	360
16	983	686	687	e200	e140	499	1390	381	127	688	168	296
17	872	677	619	e190	e140	494	1010	312	137	446	153	3140
18	732	632	529	e190	e140	446	769	360	231	511	133	13200
19	616	5300	449	e180	e140	423	608	771	151	1290	124	3820
20	504	7010	396	e170	e150	511	517	797	123	1280	133	1920
21	450	2860	345	e160	e250	1700	434	884	110	840	1790	1140
22	406	1670	321	e150	e340	1320	427	2590	108	574	1440	785
23	351	1140	378	e140	e320	1030	533	2710	108	535	877	550
24	301	906	1430	e130	e300	870	507	1700	88	408	575	411
25	257	777	2180	e120	e280	933	533	1090	77	297	406	330
26	244	607	1580	e120	e260	1210	1550	865	73	1230	301	277
27	548	513	1120	e130	e240	1800	1840	656	65	3970	244	234
28	708	517	850	e130	e240	1590	1380	554	61	3490	216	211
29	715	654	684	e120	e320	1230	998	418	74	2170	188	194
30	626	581	826	e120	---	963	777	342	64	1560	200	167
31	532	---	747	e110	---	881	---	351	---	1980	554	---
TOTAL	16892	32492	26516	21122	5390	41407	28474	22872	5391	24472	14652	42174
MEAN	545	1083	855	681	186	1336	949	738	180	789	473	1406
MAX	1030	7010	2790	3950	340	5320	3840	2710	532	3970	1790	13200
MIN	226	395	290	110	100	423	275	312	61	42	124	110
CFSM	2.00	3.98	3.14	2.50	0.68	4.91	3.49	2.71	0.66	2.90	1.74	5.17
IN.	2.31	4.44	3.63	2.89	0.74	5.66	3.89	3.13	0.74	3.35	2.00	5.77

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2004, BY WATER YEAR (WY)

MEAN	190	407	493	508	543	991	909	631	330	174	130	144
MAX	838	1918	1394	2027	2047	3366	2310	1758	1783	1308	1294	1406
(WY)	1918	1951	1928	1937	1918	1936	1940	1953	1972	1942	1994	2004
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

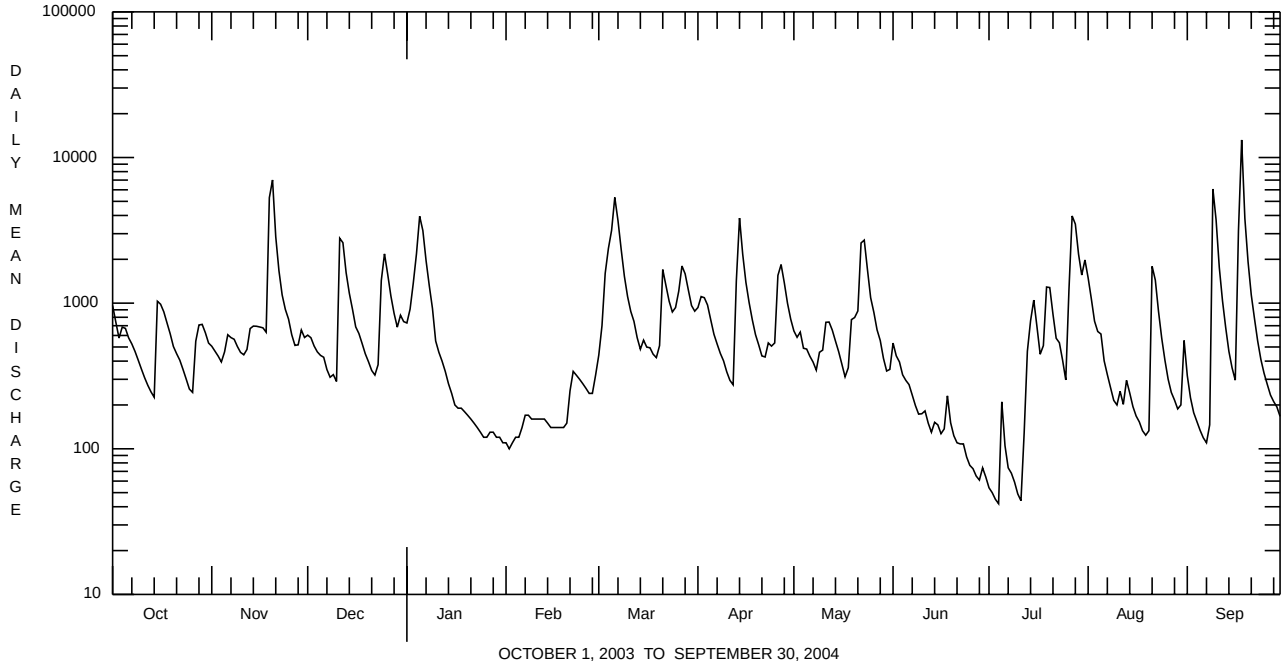
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01543000 DRIFTWOOD BRANCH SINNEMAHONING CREEK AT STERLING RUN, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1914 - 2004	
ANNUAL TOTAL	260484		281854			
ANNUAL MEAN	714		770		454	
HIGHEST ANNUAL MEAN					770	2004
LOWEST ANNUAL MEAN					235	1934
HIGHEST DAILY MEAN	7010	Nov 20	13200	Sep 18	18600	Jun 23 1972
LOWEST DAILY MEAN	42	Jul 18	42	Jul 4	0.40	Sep 13 1930
ANNUAL SEVEN-DAY MINIMUM	56	Jul 12	56	Jun 28	0.87	Aug 28 1939
MAXIMUM PEAK FLOW			**a**19800	Sep 18	**a**47800	Jul 18 1942
MAXIMUM PEAK STAGE			9.88	Sep 18	**b**14.70	Jul 18 1942
INSTANTANEOUS LOW FLOW					0.40	Sep 12 1930**c**
ANNUAL RUNOFF (CFSM)	2.62		2.83		1.67	
ANNUAL RUNOFF (INCHES)	35.63		38.55		22.66	
10 PERCENT EXCEEDS	1540		1640		1090	
50 PERCENT EXCEEDS	473		466		208	
90 PERCENT EXCEEDS	140		130		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.



WEST BRANCH SUSQUEHANNA RIVER BASIN

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.--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 Water-Quality Network can be found on pages 359-431.

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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)
OCT 2003													
23...	1530	1028	9813	340	12.7	7.4	6.6	61	56	7.5	21	5.4	5.6
DEC													
18...	1530	1028	9813	516	13.0	6.9	7.0	63	64	2.3	20	5.4	5.3
FEB 2004													
23...	1345	1028	9813	E320	15.4	7.5	6.7	90	90	.2	24	6.6	6.7
APR													
27...	1545	1028	9813	1780	11.8	7.0	7.0	51	50	9.3	17	4.3	4.5
JUN													
23...	1450	1028	9813	105	9.9	8.3	7.8	78	78	24.5	25	6.4	6.9
AUG													
18...	1030	1028	9813	132	10.6	7.4	6.8	73	73	17.6	23	6.0	6.2

Date	Magnesium, water, fltrd, mg/L (00925)	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)
OCT 2003													
23...	1.6	1.7	12	.00	10.1	82	14	<.020	.15	<.040	<.01	<.010	.26
DEC													
18...	1.7	1.7	9	.00	11.0	54	<2	<.020	.38	<.040	.01	.012	.26
FEB 2004													
23...	1.9	1.9	11	10	11.2	44	4	<.020	.56	<.040	<.01	.012	.61
APR													
27...	1.3	1.4	8	12	9.4	44	6	<.020	.38	<.040	.01	.012	.52
JUN													
23...	1.8	1.9	17	4.4	10.3	62	<2	.030	.21	<.040	<.01	.016	.27
AUG													
18...	1.8	1.8	20	.60	9.9	56	4	<.020	.14	<.040	<.01	.011	.18

WEST BRANCH SUSQUEHANNA RIVER BASIN

01543000 DRIFTWOOD BRANCH SINNEMAHONING CREEK AT STERLING RUN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	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)
OCT 2003													
23...	.8	10	40	<4	<4	30	80	<1.0	<1.0	8	10	<4.0	<4.0
DEC													
18...	1.5	10	60	<4	<4	30	110	<1.0	<1.0	20	20	<4.0	<4.0
FEB 2004													
23...	2.0	<10	70	<4	<4	<20	120	<1.0	<1.0	10	20	<4.0	<4.0
APR													
27...	1.0	40	170	<4	<4	<20	100	<1.0	<1.0	10	20	<4.0	<4.0
JUN													
23...	.2	20	60	<4	<4	50	120	<1.0	<1.0	7	10	<4.0	<4.0
AUG													
18...	1.0	<10	40	<4	<4	40	100	<1.0	<1.0	5	9	<4.0	<4.0

Date	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover -able, µg/L (01092)
OCT 2003		
23...	<5.0	<5.0
DEC		
18...	<5.0	<5.0
FEB 2004		
23...	<5.0	<5.0
APR		
27...	<5.0	<5.0
JUN		
23...	<5.0	<5.0
AUG		
18...	<5.0	<5.0

01543000 DRIFTWOOD BRANCH SINNEMAHONING CREEK AT STERLING RUN, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

Date	10/21/03
Benthic Macroinvertebrate	Count
Nemertea (PROBOSCIS WORMS)	
Enopla	
Hoplonemertea	
Tetrastemmatidae	
Prostoma	2
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	16
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Acentrella	2
Ephemerellidae	
Ephemerella	7
Eurylophella	3
Serratella	3
Heptageniidae	
Epeorus	6
Leucrocuta	8
Stenonema	7
Isonychiidae	
Isonychia	7
Leptophlebiidae	
Paraleptophlebia	2
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Gomphidae	
Lanthus	1
Plecoptera (STONEFLIES)	
Leuctridae	
Leuctra	2
Perlidae	
Acroneuria	2
Taeniopterygidae	
Taenionema	6
Taeniopteryx	29
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
Corydalus	1
Trichoptera (CADDISFLIES)	
Apataniidae	
Apatania	5
Hydropsychidae	
Cheumatopsyche	4
Hydropsyche	13
Lepidostomatidae	
Lepidostoma	3
Uenoidae	
Neophylax	1

01543000 DRIFTWOOD BRANCH SINNEMAHONING CREEK AT STERLING RUN, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	10/21/03
Benthic Macroinvertebrate	Count
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus	10
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	62
Tipulidae (CRANE FLIES)	
Antocha	1
Total Organisms	203
Total Taxa	25

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)
Nov. 19	2345	25,600	13.08	Apr. 14	0130	12,100	8.58
Dec. 11	1315	9,140	7.42	May 22	1815	10,500	7.98
Jan. 5	1115	12,600	8.77	July 27	2045	9,590	7.60
Mar. 2	2115	11,400	8.31	Sept. 9	1430	20,100	11.37
Mar. 6	1130	16,100	10.00	Sept. 18	0400	*42,900	*17.78

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2230	1120	1410	1770	e510	e1700	2260	1750	1400	214	3320	704
2	1760	1050	1350	2230	e480	e3300	2940	1570	1220	191	2390	535
3	1410	981	1210	3290	e450	e5600	2790	1660	1100	175	1740	439
4	1510	899	1120	5350	e460	6060	2510	1320	911	160	1460	383
5	1680	902	1080	11200	e460	8120	2040	1230	834	405	1860	342
6	1340	1230	1090	8840	e460	14500	1680	1140	819	350	1210	301
7	1200	1110	950	5330	e540	9940	1470	1030	710	248	984	273
8	1070	1060	870	3570	e690	6400	1300	929	610	214	832	324
9	946	965	890	2630	e710	4150	1200	1130	531	213	694	14800
10	836	893	784	1840	e640	3000	1010	1360	499	173	600	9620
11	743	868	6350	1540	e540	2370	903	1600	583	149	681	4640
12	664	958	6310	1590	e490	2050	835	1610	511	298	589	2820
13	607	1170	3990	1280	e440	1660	3100	1450	427	1970	828	1920
14	570	1210	2940	1020	e430	1400	9890	1280	451	1340	714	1410
15	2310	1180	2350	e900	e420	1520	5710	1140	534	1930	572	1130
16	2190	1170	1840	e790	e450	1380	3670	991	425	1350	486	963
17	1910	1170	1670	e740	e440	1330	2680	852	433	970	426	5710
18	1650	1120	1480	e800	e420	1210	2100	1160	1490	845	379	e38000
19	1430	8760	1270	e780	e380	1150	1700	3580	866	1850	353	e10000
20	1210	17000	1120	e740	e380	1250	1500	4180	651	2210	405	e5000
21	1070	7510	984	e680	e600	4330	1280	4980	527	1530	4230	e2800
22	975	4430	910	e630	e680	3440	1270	9290	490	1130	3730	2280
23	861	3110	1000	e530	e720	2670	1740	7690	513	1180	2140	1690
24	755	2400	2960	e520	e690	2260	1790	4680	387	1090	1440	1310
25	658	2140	4740	e520	e690	2340	1740	2980	336	793	1080	1080
26	608	1680	3660	e510	e680	2850	4090	2410	309	1830	835	916
27	1170	1440	2730	e550	e760	3710	4710	2080	271	8140	694	782
28	1650	1350	2140	e580	e1000	3360	3630	1680	245	7740	614	701
29	1530	1680	1770	e560	e1300	2680	2650	1310	269	4860	548	648
30	1390	1440	2050	e550	---	2190	2080	1060	252	3250	541	556
31	1210	---	1930	e540	---	2060	---	980	---	4150	1050	---
TOTAL	39143	71996	64948	62400	16910	109980	76268	70102	18604	50948	37425	112077
MEAN	1263	2400	2095	2013	583	3548	2542	2261	620	1643	1207	3736
MAX	2310	17000	6350	11200	1300	14500	9890	9290	1490	8140	4230	38000
MIN	570	868	784	510	380	1150	835	852	245	149	353	273
CFSM	1.84	3.50	3.06	2.94	0.85	5.18	3.71	3.30	0.91	2.40	1.76	5.45
IN.	2.13	3.91	3.53	3.39	0.92	5.97	4.14	3.81	1.01	2.77	2.03	6.09

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2004, BY WATER YEAR (WY)

MEAN	469	971	1279	1252	1436	2459	2316	1608	851	443	341	386
MAX	2186	4836	2883	4349	3732	5608	5500	3771	4066	2134	2596	3736
(WY)	1991	1951	1973	1952	1976	1945	1940	1953	1972	1992	1994	2004
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

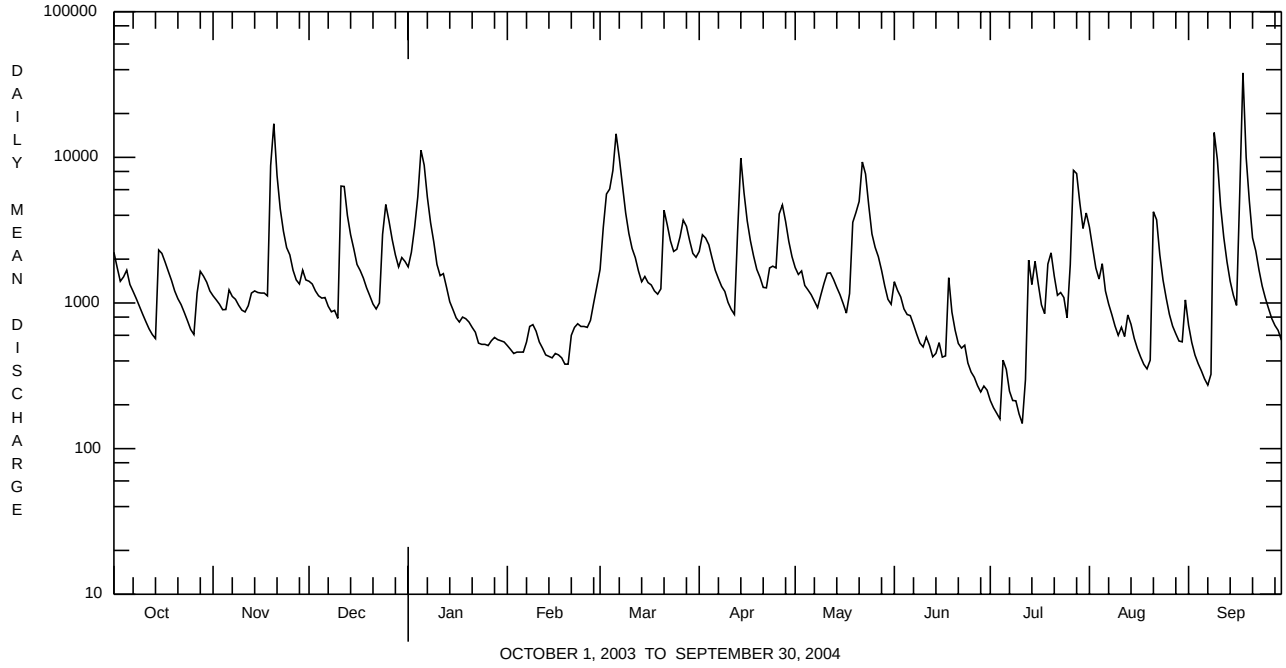
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01543500 SINNEMAHONING CREEK AT SINNEMAHONING, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1939 - 2004	
ANNUAL TOTAL	646119		730881			
ANNUAL MEAN	1770		1997		1149	
HIGHEST ANNUAL MEAN					1997	2004
LOWEST ANNUAL MEAN					705	1999
HIGHEST DAILY MEAN	17000	Nov 20	**e**38000	Sep 18	44000	Jun 23 1972
LOWEST DAILY MEAN	118	Jul 18	149	Jul 11	1.4	Sep 3 1939
ANNUAL SEVEN-DAY MINIMUM	144	Jul 15	215	Jun 28	4.2	Aug 29 1939
MAXIMUM PEAK FLOW			**a**42900	Sep 18	**a**60800	Jun 23 1972
MAXIMUM PEAK STAGE			17.78	Sep 18	21.78	Jun 23 1972
INSTANTANEOUS LOW FLOW					1.2	Sep 4 1939
ANNUAL RUNOFF (CFSM)	2.58		2.92		1.68	
ANNUAL RUNOFF (INCHES)	35.09		39.69		22.79	
10 PERCENT EXCEEDS	3520		4200		2770	
50 PERCENT EXCEEDS	1230		1190		574	
90 PERCENT EXCEEDS	361		437		71	

a From rating curve extended above 31,000 ft^3/s on basis of slope-area measurement at gage height 21.58 ft.
e Estimated.



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 359-431.

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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)
OCT 2003													
22...	1530	1028	9813	960	11.4	7.3	6.7	74	69	10.3	25	6.5	2.2
DEC													
23...	1030	1028	9813	940	13.3	6.1	6.7	82	86	2.4	28	7.0	2.6
FEB 2004													
17...	1230	1028	9813	E440	14.9	7.2	6.8	109	108	.1	37	9.2	3.4
APR													
28...	1330	1028	9813	3530	12.1	6.7	6.6	61	58	8.8	20	5.0	1.7
AUG													
19...	1245	1028	9813	350	9.1	7.4	6.8	96	94	21.3	32	8.0	2.9

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	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)
OCT 2003													
22...	9	17.8	38	<2	<.020	.09	<.040	<.01	<.010	.15	1.0	<200	<10
DEC													
23...	7	23.3	--	<2	<.020	.25	<.040	<.01	<.010	.40	.7	<200	<10
FEB 2004													
17...	7	30.0	88	<2	<.020	.36	<.040	<.01	<.010	.39	.5	<200	<10
APR													
28...	8	14.5	34	<2	<.020	.30	<.040	.01	.011	.40	.9	<200	<10
AUG													
19...	14	22.6	52	<2	.020	.09	<.040	<.01	.011	.12	1.2	<200	<10

Date	Iron, water, unfltrd recoverable, µg/L (01045)	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)
OCT 2003					
22...	70	<1.0	40	<50	<10
DEC					
23...	160	<1.0	110	<50	<10
FEB 2004					
17...	30	<1.0	140	<50	20
APR					
28...	200	<1.0	60	<50	<10
AUG					
19...	60	<1.0	20	<50	<10

01543500 SINNEMAHONING CREEK AT SINNEMAHONING, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

Date	10/21/03
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	2
Nematoda (NEMATODES)	2
Nemertea (PROBOSCIS WORMS)	
Enopla	
Hoplonemertea	
Tetrastemmatidae	
Prostoma	7
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia	3
Physidae	
Physa	1
Planorbidae	
Planorbella	3
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	7
Tubificida	
Naididae	18
Tubificidae	6
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	3
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Procloeon	2
Caenidae	
Caenis	3
Ephemerellidae	
Eurylophella	33
Heptageniidae	15
Leucrocuta	14
Stenacron	14
Stenonema	8
Isonychiidae	
Isonychia	2
Leptophlebiidae	
Leptophlebia	2
Paraleptophlebia	2
Odonata	
Anisoptera (DRAGONFLIES)	
Macromiidae	
Macromia	1
Zygoptera (DAMSELFLIES)	1

WEST BRANCH SUSQUEHANNA RIVER BASIN

01543500 SINNEMAHONING CREEK AT SINNEMAHONING, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATContinued

Date	10/21/03
Benthic Macroinvertebrate	Count
Plecoptera (STONEFLIES)	
Capniidae	1
Leuctridae	
Leuctra	2
Taeniopterygidae	
Taeniopteryx	7
Megaloptera	
Sialidae (ALDERFLIES)	
Sialis	3
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche	4
Hydropsyche	2
Macrostemum	1
Hydroptilidae	
Hydroptila	1
Leptoceridae	
Mystacides	2
Oecetis	1
Polycentropodidae	
Neureclipsis	2
Coleoptera (BEETLES)	
Psephenidae (WATER PENNIES)	
Psephenus	4
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	39
Simuliidae (BLACK FLIES)	
Simulium	1
Tipulidae (CRANE FLIES)	
Antocha	2
Total Organisms	221
Total Taxa	37

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.--Records good except those for estimated daily discharges, which are poor. 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1040	569	574	671	112	247	687	644	419	74	1260	219
2	743	513	546	794	e110	438	837	566	315	66	999	223
3	588	451	513	883	102	1270	828	728	267	48	843	180
4	628	450	464	1540	96	1670	771	501	286	39	587	146
5	584	363	425	2580	e96	1990	694	502	283	39	706	156
6	501	507	430	2880	e96	2660	543	542	252	48	367	129
7	531	496	390	1830	96	3020	486	504	221	64	466	91
8	502	454	309	1280	e120	3260	501	463	136	120	385	154
9	392	503	264	984	e120	2910	430	1120	175	127	261	564
10	406	431	304	689	106	1670	352	1810	175	32	289	2910
11	302	375	2010	625	98	949	316	1360	172	30	261	4230
12	297	415	3720	598	98	846	297	1200	145	60	241	3550
13	255	455	2330	487	77	656	438	1160	118	117	268	1200
14	240	464	1320	368	99	531	2380	911	118	174	264	684
15	613	467	930	302	97	468	2630	929	116	757	226	557
16	497	512	801	236	e70	474	1260	810	123	457	197	411
17	760	481	701	218	e52	488	976	598	136	427	167	713
18	581	468	559	288	62	438	721	631	271	392	144	1180
19	556	828	494	267	80	397	608	674	168	523	134	2900
20	469	2340	431	205	91	372	571	953	168	511	132	4570
21	408	4770	360	169	102	863	432	827	141	436	816	4800
22	397	4510	307	168	168	947	510	1400	124	384	1300	4620
23	310	3260	314	182	168	834	413	2020	109	324	754	4190
24	267	1210	952	e160	168	712	629	1360	96	272	595	2590
25	260	737	2310	e170	149	641	647	926	86	188	390	488
26	221	721	1560	107	140	722	1090	724	80	444	364	469
27	428	558	1140	121	140	1350	1510	580	79	2780	231	364
28	970	515	1020	157	152	1660	1310	499	79	3470	198	229
29	985	597	713	128	189	1220	968	403	78	2310	197	155
30	846	560	677	e110	---	976	766	322	78	1390	244	113
31	748	---	705	112	---	799	---	258	---	1640	436	---
TOTAL	16325	28980	27573	19309	3254	35478	24601	25925	5014	17743	13722	42785
MEAN	527	966	889	623	112	1144	820	836	167	572	443	1426
MAX	1040	4770	3720	2880	189	3260	2630	2020	419	3470	1300	4800
MIN	221	363	264	107	52	247	297	258	78	30	132	91

e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01544000 FIRST FORK SINNEMAHONING CREEK NEAR SINNEMAHONING, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 2004, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	212	395	474	381	460	815	876	522	280	176	139	169
MAX	1033	1162	1051	1131	1452	1820	2300	1265	1334	808	977	1426
(WY)	1991	1986	1991	1996	1981	1964	1993	2002	1989	1992	1994	2004
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

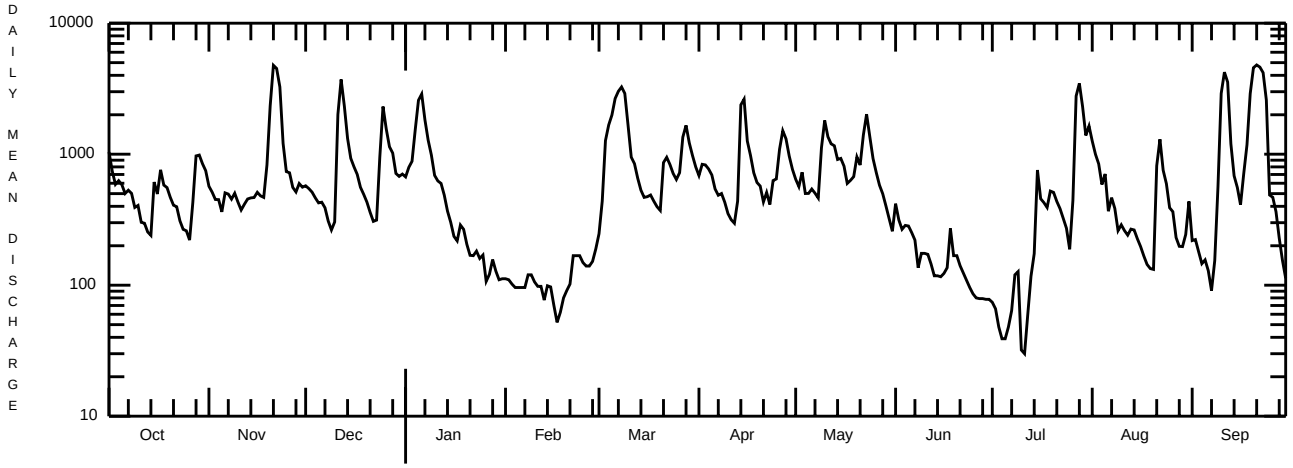
SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1956 - 2004	
ANNUAL TOTAL	252705		260709			
ANNUAL MEAN	692		712		408	
HIGHEST ANNUAL MEAN					712	2004
LOWEST ANNUAL MEAN					236	1999
HIGHEST DAILY MEAN	4770	Nov 21	4800	Sep 21	7360	Mar 10 1956
LOWEST DAILY MEAN	38	Jul 14	30	Jul 11	0.10	Aug 8 1975
ANNUAL SEVEN-DAY MINIMUM	61	Jul 12	54	Jul 1	3.6	Oct 23 1963
MAXIMUM PEAK FLOW			5010	Nov 21**a**	10200	Mar 1 1956
MAXIMUM PEAK STAGE			4.05	Nov 21**a**	6.60	Mar 1 1956
10 PERCENT EXCEEDS	1570		1580		970	
50 PERCENT EXCEEDS	443		465		198	
90 PERCENT EXCEEDS	128		108		28	

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	

a Also Sept. 20.



OCTOBER 1, 2003 TO SEPTEMBER 30, 2004

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.--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 Water-Quality Network can be found on pages 359-431.

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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)
OCT 2003													
16...	0945	1028	9813	462	11.1	7.6	6.7	58	54	10.2	19	5.0	5.2
DEC													
23...	1330	1028	9813	330	12.9	6.5	7.0	51	54	2.1	19	4.9	5.1
FEB 2004													
17...	1000	1028	9813	E52	14.8	7.9	7.1	63	62	.6	21	5.4	5.7
APR													
29...	1215	1028	9813	1000	11.9	7.1	6.6	49	47	9.2	17	4.5	4.6
JUL													
01...	0930	1028	9813	78.5	8.6	6.4	6.8	64	64	20.5	23	6.4	6.4
AUG													
19...	1030	1028	9813	134	9.4	7.2	6.8	61	61	19.6	21	5.6	5.7

Date	Magnesium, water, fltrd, mg/L (00925)	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)
OCT 2003													
16...	1.5	1.5	14	.00	7.8	72	2	<.020	.21	<.040	.02	.017	.47
DEC													
23...	1.5	1.6	10	.00	9.1	34	<2	<.020	.44	<.040	<.01	<.010	.60
FEB 2004													
17...	1.6	1.7	13	19	8.8	68	<2	<.020	.53	<.040	<.01	.010	.60
APR													
29...	1.4	1.4	11	32	8.3	48	<2	<.020	.46	<.040	<.01	.015	.68
JUL													
01...	1.7	1.7	18	25	7.4	58	2	.030	.12	<.040	.01	.020	.38
AUG													
19...	1.6	1.7	21	18	7.5	30	<2	.040	.17	<.040	<.01	.013	.70

WEST BRANCH SUSQUEHANNA RIVER BASIN

01544000 FIRST FORK SINNEMAHONING CREEK NEAR SINNEMAHONING, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	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)
OCT 2003													
16...	1.1	10	70	<4	<4	80	200	<1.0	<1.0	20	30	<4.0	<4.0
DEC													
23...	1.5	<10	30	<4	<4	<20	90	<1.0	<1.0	20	20	<4.0	<4.0
FEB 2004													
17...	.5	<10	20	<4	<4	30	110	<1.0	<1.0	30	40	<4.0	<4.0
APR													
29...	.5	<10	70	<4	<4	30	120	<1.0	<1.0	20	20	<4.0	<4.0
JUL													
01...	.7	<10	30	<4	<4	190	440	<1.0	<1.0	60	120	<4.0	<4.0
AUG													
19...	1.2	<10	30	<4	<4	60	250	<1.0	<1.0	10	50	<4.0	<4.0

Date	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover -able, µg/L (01092)
OCT 2003		
16...	<5.0	<5.0
DEC		
23...	<5.0	<5.0
FEB 2004		
17...	6.2	<5.0
APR		
29...	<5.0	<5.0
JUL		
01...	<5.0	<5.0
AUG		
19...	<5.0	<5.0

01544000 FIRST FORK SINNEMAHONING CREEK NEAR SINNEMAHONING, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

Date	08/16/03
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	3
Mollusca	
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	
Sphaerium	13
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Tubificida	
Naididae	2
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	1
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Acentrella	2
Baetis	1
Ephemerellidae	
Eurylophella	2
Heptageniidae	1
Stenonema	3
Isonychiidae	
Isonychia	10
Plecoptera (STONEFLIES)	
Taeniopterygidae	
Taenionema	1
Taeniopteryx	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche	59
Hydropsyche	14
Philopotamidae	
Chimarra	2
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	95
Simuliidae (BLACK FLIES)	
Simulium	1
Total Organisms	211
Total Taxa	17

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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Nov. 20	0130	3,410	6.02	Sept. 9	1415	6,290	8.03
Mar. 6	1845	2,470	5.17	Sept. 18	0730	*8,880	*9.45

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	623	383	389	380	e82	e110	478	366	197	59	879	153
2	476	336	369	415	e80	e250	503	362	170	50	683	139
3	368	298	326	495	e80	e380	524	449	176	45	518	127
4	362	265	295	750	e78	e500	495	486	153	43	411	115
5	304	283	274	1220	e78	879	429	488	154	70	330	103
6	269	286	259	1260	e84	1940	365	423	147	45	249	90
7	253	294	227	956	e90	1970	318	385	134	47	205	83
8	236	302	205	726	e85	1320	282	319	120	61	171	105
9	e220	288	185	562	e82	933	247	843	111	42	143	3960
10	e190	271	180	e400	e80	698	215	1030	141	36	129	2850
11	e170	257	1400	e350	e80	562	190	861	177	32	172	1270
12	e160	245	1540	e300	e79	472	179	701	163	46	131	786
13	e150	235	1010	e260	e78	379	325	602	150	51	169	546
14	e150	205	762	e200	e77	319	785	535	145	234	149	397
15	396	186	595	e170	e76	300	793	474	134	474	145	318
16	412	173	464	e150	e75	277	652	418	120	387	137	258
17	407	168	396	e140	e75	258	532	358	152	296	126	1070
18	370	161	332	e140	e75	235	432	323	225	264	115	7010
19	330	1050	283	e130	e80	220	359	311	224	251	107	2560
20	282	2790	244	e120	e85	229	305	271	196	223	105	1170
21	255	1490	213	e110	e90	414	265	269	170	192	416	742
22	229	944	194	e100	e95	437	272	376	155	176	574	523
23	202	691	205	e96	e85	425	294	470	130	181	495	391
24	177	568	538	e93	e75	396	311	445	110	143	381	307
25	155	471	972	e90	e65	404	367	367	96	121	296	253
26	147	386	809	e87	e65	495	462	311	85	234	235	213
27	290	338	641	e87	e65	816	552	294	75	1680	193	180
28	454	337	515	e85	e70	866	555	242	71	1780	164	165
29	544	370	425	e85	e90	713	480	208	76	1270	142	145
30	492	370	433	e82	---	582	409	181	61	1020	160	128
31	429	---	380	e82	---	501	---	191	---	1130	181	---
TOTAL	9502	14441	15060	10121	2299	18280	12375	13359	4218	10683	8311	26157
MEAN	307	481	486	326	79.3	590	412	431	141	345	268	872
MAX	623	2790	1540	1260	95	1970	793	1030	225	1780	879	7010
MIN	147	161	180	82	65	110	179	181	61	32	105	83
CFSM	2.25	3.54	3.57	2.40	0.58	4.34	3.03	3.17	1.03	2.53	1.97	6.41
IN.	2.60	3.95	4.12	2.77	0.63	5.00	3.38	3.65	1.15	2.92	2.27	7.15

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2004, BY WATER YEAR (WY)

MEAN	109	214	248	223	254	483	500	320	167	88.2	65.1	80.0
MAX	700	868	552	663	800	1055	1303	721	797	436	581	872
(WY)	1991	1951	1973	1952	1981	1945	1993	1946	1972	1992	1994	2004
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

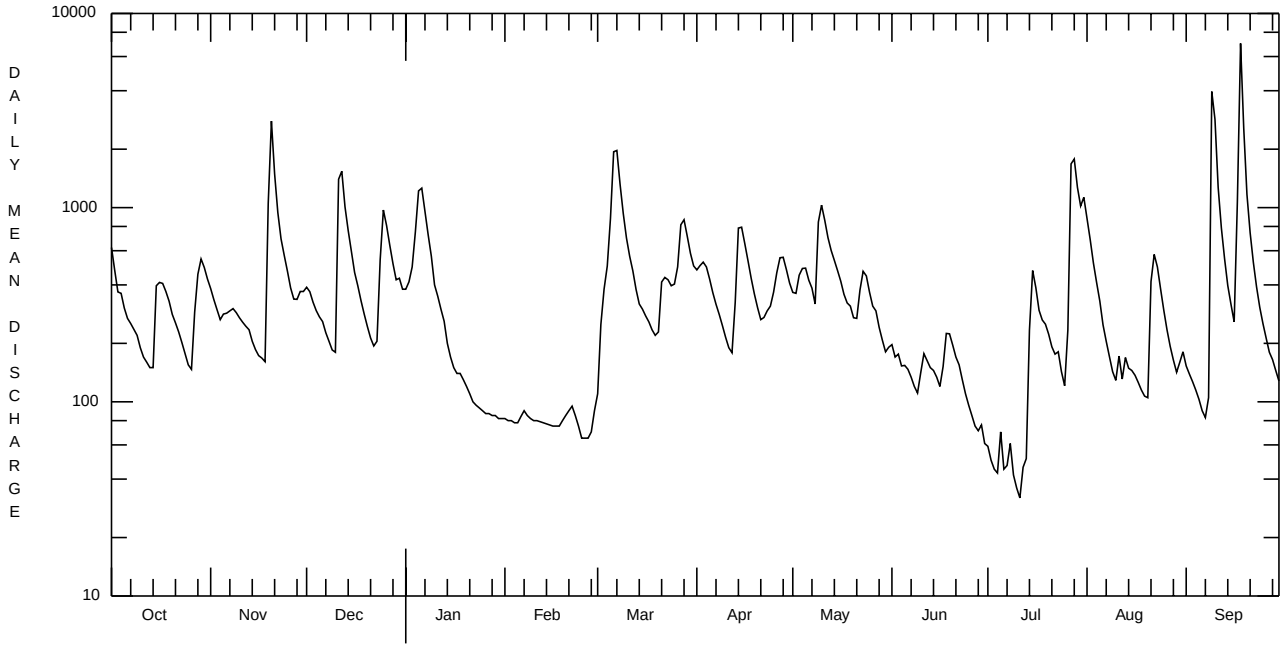
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01544500 KETTLE CREEK AT CROSS FORK, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1941 - 2004	
ANNUAL TOTAL	130783		144806			
ANNUAL MEAN	358		396		229	
HIGHEST ANNUAL MEAN					396	2004
LOWEST ANNUAL MEAN					125	1941
HIGHEST DAILY MEAN	2790	Nov 20	7010	Sep 18	10500	Jun 23 1972
LOWEST DAILY MEAN	34	Jul 17	32	Jul 11	1.2	Sep 2-4 1971
ANNUAL SEVEN-DAY MINIMUM	46	Jul 12	44	Jul 6	1.4	Sep 1 1971
MAXIMUM PEAK FLOW			8880	Sep 18	**a**14300	Jun 23 1972
MAXIMUM PEAK STAGE			9.45	Sep 18	**b**11.76	Jun 23 1972
ANNUAL RUNOFF (CFSM)	2.63		2.91		1.68	
ANNUAL RUNOFF (INCHES)	35.77		39.61		22.88	
10 PERCENT EXCEEDS	741		788		541	
50 PERCENT EXCEEDS	246		265		110	
90 PERCENT EXCEEDS	80		81		17	

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, 2003 TO SEPTEMBER 30, 2004

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1000	600	537	532	e130	e240	743	596	353	90	1440	353
2	748	523	554	690	e140	380	845	554	286	88	1100	299
3	573	461	465	761	e140	896	890	670	272	79	794	249
4	528	418	430	1400	e130	1360	859	670	255	73	664	213
5	505	419	411	2460	e130	1830	704	735	243	87	513	190
6	422	455	409	2580	e130	2140	585	638	243	92	399	169
7	397	441	349	1810	e140	3500	521	580	221	73	344	152
8	376	462	279	1270	e130	3530	460	506	194	110	277	205
9	338	453	311	938	e120	2230	398	848	189	88	244	3010
10	309	419	307	639	e120	1370	339	1380	182	62	221	4390
11	276	407	2400	497	e130	972	310	1180	224	57	250	3730
12	252	400	3010	591	e130	820	320	920	220	117	231	1790
13	229	359	1820	476	e130	625	526	827	203	101	233	877
14	217	322	1310	e380	e120	489	1720	726	203	133	233	622
15	671	288	978	e320	e120	470	1530	761	198	543	197	494
16	772	280	759	e280	e120	464	1130	604	184	456	187	422
17	729	278	628	e270	e120	418	883	549	174	367	181	759
18	645	276	518	e280	e120	379	715	523	255	321	167	573
19	540	1340	433	e250	e130	358	572	598	272	321	164	2090
20	468	3660	371	e240	e140	361	488	674	265	293	166	4610
21	421	4000	353	e220	e150	670	440	696	225	245	417	4900
22	379	2020	322	e200	e170	756	444	799	209	234	802	4710
23	322	1370	325	e160	e160	715	520	1070	186	249	694	3880
24	279	917	828	e150	e150	665	601	990	153	203	512	1240
25	245	736	1930	e140	e130	645	727	707	139	155	406	404
26	245	593	1480	e130	e130	810	881	569	119	225	336	359
27	421	545	1080	e130	e130	1380	1090	501	109	2420	275	311
28	761	522	819	e130	e160	1520	995	419	108	3070	238	285
29	904	516	693	e130	e190	1180	814	331	107	2310	204	211
30	782	506	679	e130	---	985	679	297	100	1600	207	190
31	688	---	585	e130	---	759	---	303	---	2020	473	---
TOTAL	15442	23986	25373	18314	3940	32917	21729	21221	6091	16282	12569	41687
MEAN	498	800	818	591	136	1062	724	685	203	525	405	1390
MAX	1000	4000	3010	2580	190	3530	1720	1380	353	3070	1440	4900
MIN	217	276	279	130	120	240	310	297	100	57	164	152

e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01545000 KETTLE CREEK NEAR WESTPORT, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 2004, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	191	356	423	351	439	743	799	482	282	159	119	160
MAX	1096	1060	954	857	1330	1739	2453	992	1278	677	927	1390
(WY)	1991	1971	1973	1979	1981	1979	1993	2002	1972	1972	1994	2004
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

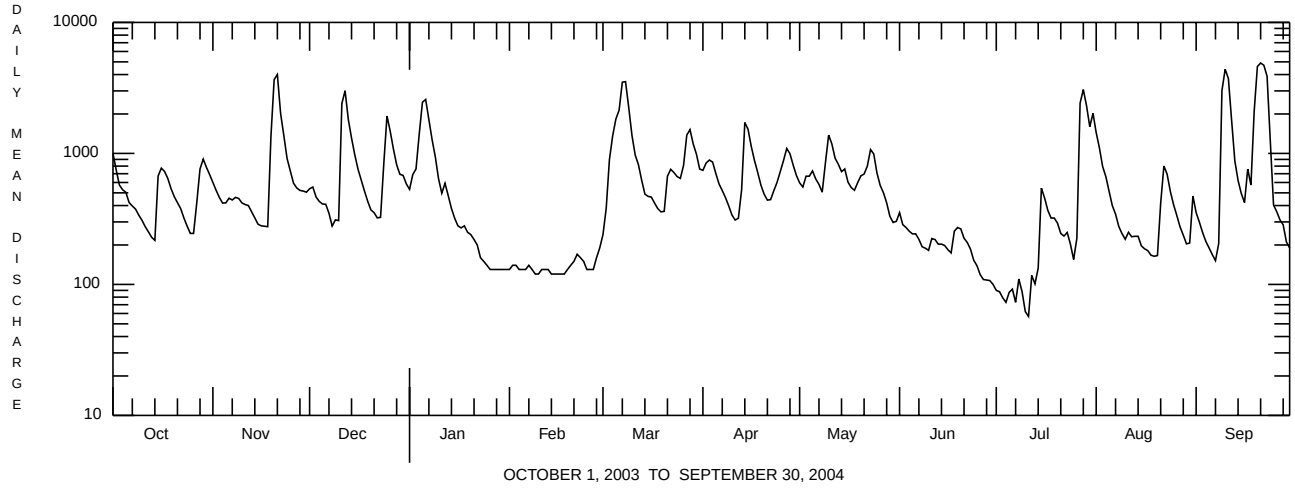
SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1962 - 2004	
ANNUAL TOTAL	223446		239551			
ANNUAL MEAN	612		655		374	
HIGHEST ANNUAL MEAN					655	2004
LOWEST ANNUAL MEAN					203	2001
HIGHEST DAILY MEAN	4290	Mar 23	4900	Sep 21	7200	Apr 14 1970
LOWEST DAILY MEAN	53	Jul 15	57	Jul 11	4.4	Nov 3 1964**a**
ANNUAL SEVEN-DAY MINIMUM	75	Jul 13	81	Jul 5	4.6	Nov 2 1964
MAXIMUM PEAK FLOW			5090	Sep 21	7540	Apr 13 1970
MAXIMUM PEAK STAGE			8.52	Sep 21	10.17	Apr 13 1970
INSTANTANEOUS LOW FLOW					3.0	Dec 6 1964
10 PERCENT EXCEEDS	1370		1380		880	
50 PERCENT EXCEEDS	400		419		185	
90 PERCENT EXCEEDS	130		130		30	

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.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01545000 KETTLE CREEK NEAR WESTPORT, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

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

REMARKS.--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 Water-Quality Network can be found on pages 359-431.

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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)
OCT 2003													
16...	1300	1028	9813	786	11.3	7.5	6.8	53	49	11.1	18	4.9	5.1
DEC													
23...	0830	1028	9813	313	13.1	6.5	6.9	54	62	2.1	20	5.2	5.5
APR 2004													
07...	1330	1028	9813	515	12.9	7.3	7.2	46	45	7.7	17	4.4	4.6
JUL													
01...	1100	1028	9813	90	9.8	6.7	6.9	60	60	20.8	22	6.1	6.3
AUG													
17...	1345	1028	9813	188	10.1	7.8	6.6	55	55	21.3	20	5.7	5.7

Date	Magnesium, water, fltrd, mg/L (00925)	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)
OCT 2003													
16...	1.3	1.4	14	.00	8.1	48	4	<.020	.18	<.040	.02	.016	.44
DEC													
23...	1.5	1.6	9	.00	12.1	<2	<2	<.020	.39	<.040	<.01	<.010	.54
APR 2004													
07...	1.2	1.2	8	17	9.3	24	4	<.020	.36	<.040	<.01	.014	.43
JUL													
01...	1.6	1.6	13	12	9.8	50	<2	<.020	.23	<.040	<.01	.011	.27
AUG													
17...	1.5	1.5	17	10	7.8	46	<2	<.020	.20	<.040	<.01	<.010	.29

Date	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	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)
OCT 2003													
16...	1.1	30	100	<4	<4	50	180	<1.0	<1.0	20	30	<4.0	<4.0
DEC													
23...	1.6	30	130	<4	<4	40	130	<1.0	<1.0	60	70	<4.0	<4.0
APR 2004													
07...	.3	30	80	<4	<4	<20	80	<1.0	<1.0	20	20	<4.0	<4.0
JUL													
01...	<.2	40	70	<4	<4	80	130	<1.0	<1.0	20	30	<4.0	<4.0
AUG													
17...	.8	50	70	<4	<4	40	120	<1.0	<1.0	10	30	<4.0	<4.0

Date	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
OCT 2003		
16...	<5.0	<5.0
DEC		
23...	<5.0	5.7
APR 2004		
07...	<5.0	<5.0
JUL		
01...	<5.0	<5.0
AUG		
17...	<5.0	<5.0

01545000 KETTLE CREEK NEAR WESTPORT, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

Date	08/16/03
Benthic Macroinvertebrate	Count
Nemertea (PROBOSCIS WORMS)	
Enopla	
Hoplonemertea	
Tetrastemmatidae	
Prostoma	7
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia	2
Physidae	
Physa	1
Planorbidae	
Planorbella	1
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	
Pisidium	1
Sphaerium	9
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	2
Tubificida	
Naididae	7
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	3
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Baetis	3
Plauditus	1
Procloeon	2
Caenidae	
Caenis	1
Ephemerellidae	1
Eurylophella	32
Serratella	1
Heptageniidae	
Stenonema	22
Isonychiidae	
Isonychia	1
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Coenagrionidae	
Argia	1
Corduliidae	
Tetragoneuria	1
Plecoptera (STONEFLIES)	
Taeniopterygidae	
Taeniopteryx	7

WEST BRANCH SUSQUEHANNA RIVER BASIN

01545000 KETTLE CREEK NEAR WESTPORT, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	08/16/03
Benthic Macroinvertebrate	Count
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
Nigronia	1
Sialidae (ALDERFLIES)	
Sialis	1
Trichoptera (CADDISFLIES)	
Apataniidae	
Apatania	2
Brachycentridae	
Brachycentrus	2
Micrasema	4
Hydropsychidae	
Cheumatopsyche	1
Hydropsyche	2
Hydroptilidae	
Hydroptila	5
Lepidostomatidae	
Lepidostoma	2
Leptoceridae	
Mystacides	1
Oecetis	4
Polycentropodidae	
Neureclipsis	4
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	22
Empididae (DANCE FLIES)	
Hemerodromia	4
Tipulidae (CRANE FLIES)	
Antocha	2
Total Organisms	163
Total Taxa	36

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 fair 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11000	5710	6840	8450	e2500	e3400	9150	8710	5340	1520	15400	4480
2	8730	5240	6540	8580	e2500	e4600	12600	7840	5030	1410	12200	3500
3	7420	4820	6050	11100	e2500	e13000	13700	8070	4750	1300	9050	2930
4	6610	4540	5520	17300	e2500	e23000	12100	7430	4220	1190	7180	2450
5	7250	4470	5190	37600	e2500	27600	10600	6780	e3900	1490	8080	2230
6	6220	6160	5330	39900	e2600	43300	9320	6310	e3600	1740	6660	e2000
7	5690	6970	5000	28000	e2600	41800	8210	5800	e3300	1760	5620	e1900
8	5070	6150	4440	21300	e2700	33500	7400	5420	3000	1860	4690	1830
9	4570	5710	4180	17500	e3300	25900	6960	5840	2590	1730	3880	34100
10	4190	5280	4050	12900	e3700	19400	6570	8400	2460	1460	3520	42100
11	3800	4860	17700	9840	e3700	13500	5880	7680	2630	1210	3420	26700
12	3560	4920	31100	8640	e3300	11200	5340	7170	3140	1230	3130	17700
13	3270	5110	22300	7510	e2900	9480	6970	6600	3790	4040	3510	11100
14	3000	5350	15700	6330	e2800	7990	30700	5790	3310	5690	3860	7880
15	6600	4960	12400	5500	e2600	7260	27900	5660	3190	6460	3250	6640
16	9760	4720	10100	e4200	e2400	6960	20100	5150	5120	5020	2820	5850
17	8310	4550	8840	e3000	e2100	6650	15300	4540	4830	4170	2470	7460
18	6950	4340	7790	e3300	e1800	6130	11700	4480	5670	3640	2200	99100
19	6400	12100	6870	e3800	e1900	5700	9360	7450	5040	4840	2050	55900
20	5780	52100	6220	e3500	e1900	5820	8020	11200	4140	5450	2100	37500
21	5080	38200	5570	e3000	e2100	13000	6820	10600	3370	4820	5480	28900
22	4740	26400	5080	e2800	e2400	17400	6700	26300	2980	3960	11400	24700
23	4270	20900	e4900	e2500	e3300	14200	7570	26700	3110	4090	8120	21400
24	3890	14700	8580	e2000	e3800	11400	9920	19800	2930	5220	5690	16400
25	3540	11400	19300	e2000	e3500	10700	9290	14100	2550	4220	4380	11200
26	3260	9130	16900	e2100	e3100	11400	12700	e11000	2040	3720	3680	8080
27	4170	7880	13000	e2100	e2900	13100	18500	e9500	1850	21700	2970	6440
28	7010	7070	10500	e2300	e2900	13800	16000	8140	1740	33900	2680	5660
29	7860	7520	8900	e2400	e3000	11700	12600	6700	1640	23400	2690	5540
30	7140	7350	8460	e2500	---	9800	10300	5570	1630	15000	2940	5190
31	6280	---	9250	e2500	---	8840	---	4670	---	15500	5410	---
TOTAL	181420	308610	302600	284450	79800	451530	348280	279400	102890	192740	160530	506860
MEAN	5852	10290	9761	9176	2752	14570	11610	9013	3430	6217	5178	16900
MAX	11000	52100	31100	39900	3800	43300	30700	26700	5670	33900	15400	99100
MIN	3000	4340	4050	2000	1800	3400	5340	4480	1630	1190	2050	1830
CFSM	1.97	3.46	3.28	3.08	0.92	4.90	3.90	3.03	1.15	2.09	1.74	5.68
IN.	2.27	3.86	3.78	3.56	1.00	5.65	4.35	3.49	1.29	2.41	2.01	6.34

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1908 - 2004, BY WATER YEAR (WY)

MEAN	2190	3908	5020	5693	6165	10880	9864	7054	3960	2143	1494	1678
MAX	10330	16700	13570	19060	16640	34360	25010	16670	18840	8100	8734	16900
(WY)	1912	1951	1928	1937	1915	1936	1940	1919	1972	1928	2003	2004
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

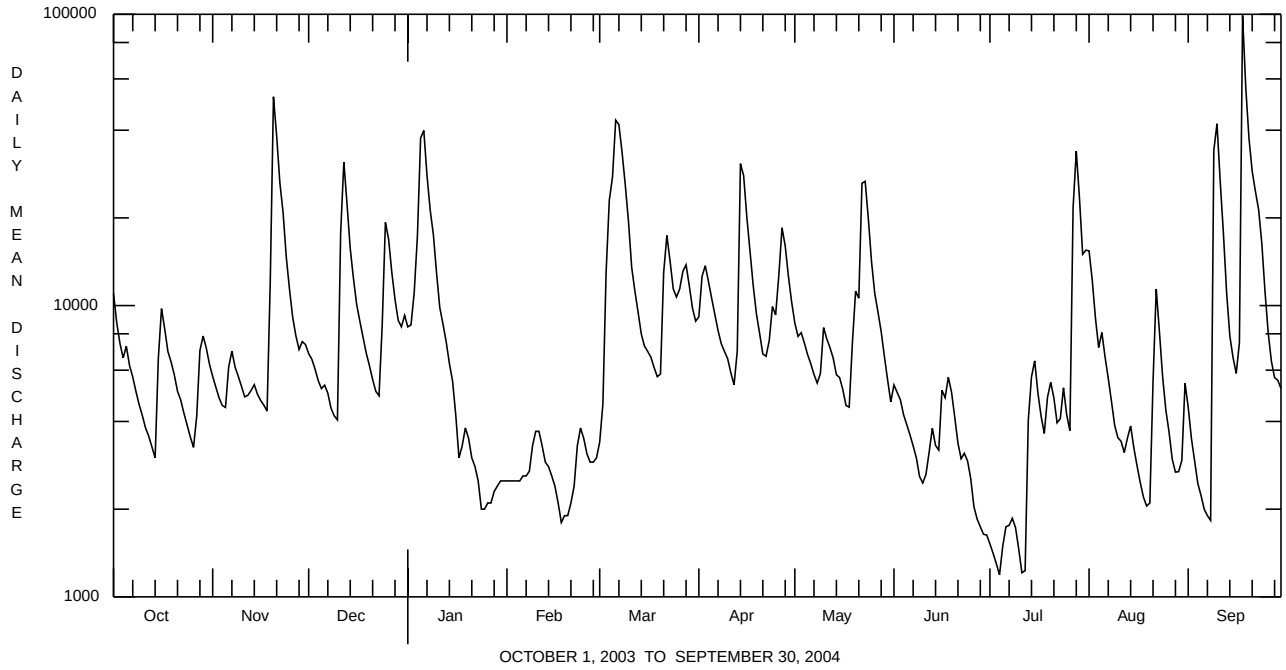
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01545500 WEST BRANCH SUSQUEHANNA RIVER AT RENOVO, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1908 - 2004	
ANNUAL TOTAL	2758570		3199110			
ANNUAL MEAN	7558		8741		4997	
HIGHEST ANNUAL MEAN					8741	2004
LOWEST ANNUAL MEAN					2579	1934
HIGHEST DAILY MEAN	52100	Nov 20	99100	Sep 18	201000	Mar 18 1936
LOWEST DAILY MEAN	1180	Jul 18,19	1190	Jul 4	80	Dec 6 1908
ANNUAL SEVEN-DAY MINIMUM	1360	Jul 15	1450	Jun 29	104	Aug 29 1939
MAXIMUM PEAK FLOW			128000	Sep 18	**a**236000	Mar 18 1936
MAXIMUM PEAK STAGE			21.84	Sep 18	**b**29.39	Mar 18 1936
INSTANTANEOUS LOW FLOW					80	Dec 6 1908
ANNUAL RUNOFF (CFSM)	2.54		2.94		1.68	
ANNUAL RUNOFF (INCHES)	34.49		40.00		22.82	
10 PERCENT EXCEEDS	15000		18700		11800	
50 PERCENT EXCEEDS	5710		5700		2790	
90 PERCENT EXCEEDS	2020		2400		481	

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.

WATER-DISCHARGE RECORDS

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)
Nov. 20	0215	933	4.03	July 27	2000	1,000	4.14
Dec. 11	1400	560	3.40	Sept. 9	Unknown	1.650	5.05
Mar. 6	2200	843	3.88	Sept. 18	Unknown	*3,110	*6.49

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	240	113	138	113	e35	47	179	122	69	18	221	e110
2	183	105	125	120	e35	74	204	127	61	17	175	68
3	143	97	111	140	e39	135	204	150	55	16	144	62
4	135	90	101	205	e38	169	187	147	48	16	131	62
5	116	99	94	387	e35	247	162	148	48	30	118	62
6	97	106	88	423	e39	605	137	134	46	18	94	57
7	85	104	78	333	e45	744	120	129	42	22	81	54
8	77	102	70	255	e37	508	108	111	38	32	69	e66
9	71	97	65	201	e33	342	96	125	35	20	60	e1300
10	65	92	64	151	e35	254	84	123	38	17	55	e640
11	60	88	443	e130	e35	203	76	177	38	16	52	e330
12	57	86	516	e120	e33	173	72	173	33	22	52	e210
13	54	81	355	103	e34	141	107	160	31	22	60	e170
14	55	74	265	87	e31	120	165	155	30	77	47	e130
15	106	67	208	e76	e27	110	173	151	32	105	41	e110
16	89	62	165	e75	e24	104	160	132	33	89	37	e100
17	86	58	142	e68	e25	96	144	116	38	74	34	e470
18	85	56	122	e66	e25	87	127	109	40	73	31	e2300
19	82	308	106	e60	e27	82	113	156	34	70	30	846
20	77	853	93	e54	e29	87	102	160	29	62	30	e390
21	73	522	81	e52	e31	135	92	159	27	55	50	e270
22	70	333	75	e47	e34	126	92	216	29	51	38	190
23	64	244	79	e46	e30	122	97	239	26	76	32	143
24	59	198	152	e43	e26	118	91	216	24	71	31	114
25	54	164	233	e42	e25	129	96	175	22	61	32	95
26	53	134	217	e40	e27	155	135	144	22	106	30	81
27	98	116	186	e40	e26	227	160	120	20	779	30	70
28	123	119	157	e40	e28	242	163	100	20	839	28	71
29	134	142	136	e40	38	212	150	83	21	535	30	62
30	129	141	138	e39	---	181	135	71	19	360	72	54
31	119	---	120	e37	---	162	---	70	---	284	e96	---
TOTAL	2939	4851	4923	3633	926	6137	3931	4398	1048	4033	2031	8687
MEAN	94.8	162	159	117	31.9	198	131	142	34.9	130	65.5	290
MAX	240	853	516	423	45	744	204	239	69	839	221	2300
MIN	53	56	64	37	24	47	72	70	19	16	28	54
CFSM	2.05	3.50	3.44	2.54	0.69	4.29	2.84	3.07	0.76	2.82	1.42	6.27
IN.	2.37	3.91	3.96	2.93	0.75	4.94	3.17	3.54	0.84	3.25	1.64	6.99

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 2004, BY WATER YEAR (WY)

MEAN	39.0	75.5	82.5	66.2	85.9	138	158	97.6	60.6	36.4	24.6	32.0
MAX	181	211	194	164	250	349	447	204	303	162	244	290
(WY)	1991	1997	1973	1996	1984	1979	1993	1996	1972	1992	1994	2004
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

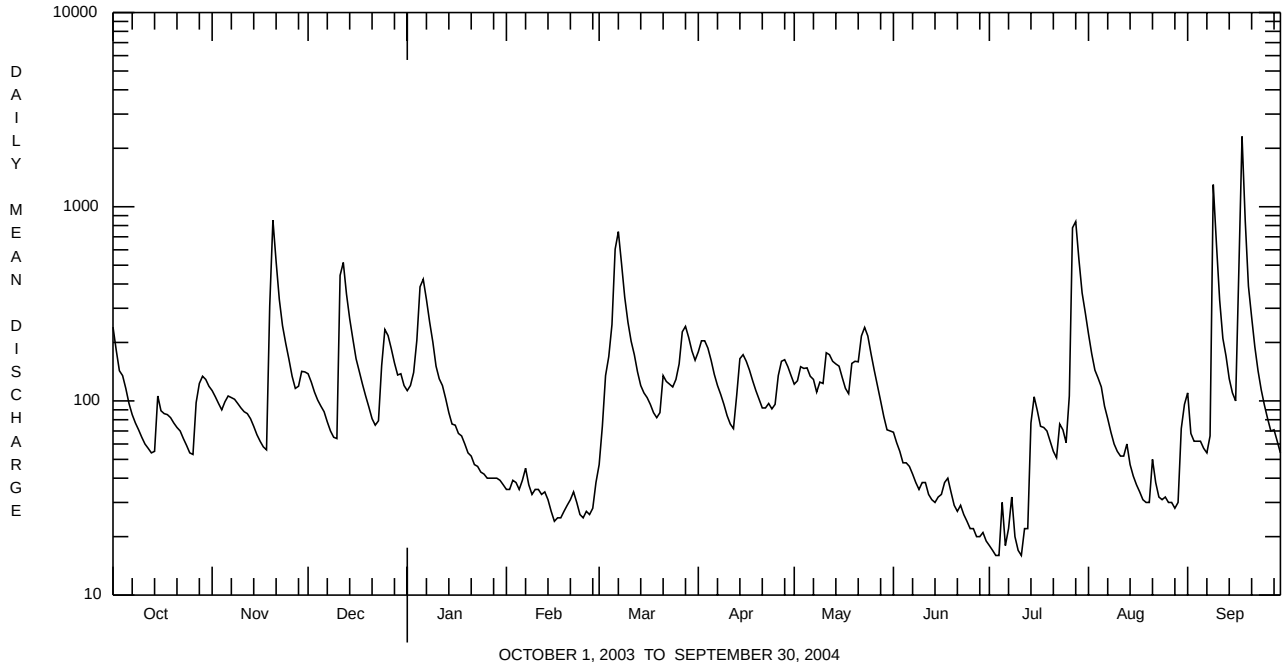
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01545600 YOUNG WOMANS CREEK NEAR RENOVO, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1965 - 2004	
ANNUAL TOTAL	41496		47537			
ANNUAL MEAN	114		130		75.2	
HIGHEST ANNUAL MEAN					130	2004
LOWEST ANNUAL MEAN					37.4	2001
HIGHEST DAILY MEAN	853	Nov 20	**e**2300	Sep 18	3310	Jun 23 1972
LOWEST DAILY MEAN	15	Jul 17	16	Jul 3,4,11	0.53	Sep 4 1999
ANNUAL SEVEN-DAY MINIMUM	21	Jul 12	18	Jun 28	0.92	Aug 30 1999
MAXIMUM PEAK FLOW			**a**3110	Sep 18	**a**5370	Jun 23 1972
MAXIMUM PEAK STAGE			6.49	Sep 18	7.98	Jun 23 1972
ANNUAL RUNOFF (CFSM)	2.46		2.81		1.63	
ANNUAL RUNOFF (INCHES)	33.41		38.28		22.11	
10 PERCENT EXCEEDS	225		229		172	
50 PERCENT EXCEEDS	83		90		42	
90 PERCENT EXCEEDS	30		30		6.6	

a From rating curve extended above 1,000 ft^3/s on basis of slope-area measurement of peak flow.
e Estimated.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01545600 YOUNG WOMANS CREEK NEAR RENOVO, PA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1965 to 1999, 2004 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: October 1980 to September 1981.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)
OCT 2003										
14...	0630	1028	83613	52	6.6	36	9.3	3.85	.96	.73
14...	2219	1028	83613	75	6.8	36	10.7	3.62	.94	1.19
15...	0439	1028	83613	127	6.8	38	10.5	3.80	.97	1.15
17...	1009	1028	83613	86	6.6	37	8.0	3.69	.94	.79
17...	1014	1028	83613	86	6.7	37	8.0	3.67	.94	.70
20...	0737	1028	83613	78	6.7	36	6.9	3.68	.94	.71
27...	1005	1028	83613	87	6.7	36	9.5	3.79	.95	.85
27...	2213	1028	83613	126	6.8	38	8.5	3.82	.97	.85
NOV										
11...	0830	1028	83613	88	6.8	36	--	3.72	.93	.65
19...	0925	1028	83613	92	6.3	35	--	3.70	.93	.75
19...	2114	1028	83613	806	6.2	37	--	3.58	.92	1.16
21...	0053	1028	83613	684	6.3	34	--	3.43	1.00	.75
DEC										
09...	0745	1028	83613	66	6.4	34	--	3.52	.92	.60
JAN 2004										
05...	0543	1028	83613	339	5.9	33	4.9	3.14	.77	.60
06...	0845	1028	83613	435	5.8	34	4.7	3.21	.79	.62
FEB										
02...	1145	1028	83613	E35	6.0	35	-.1	3.46	.89	.55
MAR										
02...	0745	1028	83613	56	6.4	39	1.5	4.03	1.04	.60
04...	1850	1028	83613	185	6.4	37	4.3	3.76	.92	--
06...	1730	1028	83613	777	6.3	34	5.2	3.10	.78	--
07...	0353	1028	83613	819	6.2	33	4.7	3.07	.80	.65
21...	0715	1028	83613	136	6.5	35	3.5	3.29	.84	--
30...	0920	1028	83613	185	6.3	31	5.4	3.03	.80	.59
APR										
01...	2048	1028	83613	208	6.5	34	6.7	3.27	.84	--
27...	0715	1028	83613	155	6.5	35	7.5	3.70	.92	--
JUN										
22...	0645	1028	83613	28	6.8	39	14.5	4.04	1.00	--
JUL										
20...	0700	1028	83613	64	7.0	39	14.4	4.18	.98	--
AUG										
17...	0545	1028	83613	35	6.7	36	13.9	3.75	.94	--
SEP										
09...	0311	1028	83613	E1300	6.7	33	15.5	3.38	.84	--
09...	1456	1028	83613	E1300	6.4	30	14.7	2.98	.69	--
10...	1746	1028	83613	E640	6.6	32	13.4	3.20	.79	--
14...	0700	1028	83613	E130	6.8	32	12.5	3.25	.86	--
17...	1750	1028	83613	E470	6.7	37	13.8	3.83	.96	--
17...	2121	1028	83613	E470	6.4	33	13.7	3.49	.86	--
17...	2235	1028	83613	E470	6.7	33	13.7	3.38	.84	--
18...	0231	1028	83613	E2300	6.3	31	13.2	3.22	.77	--
18...	0731	1028	83613	E2300	6.3	30	12.5	3.12	.74	--
18...	1756	1028	83613	E2300	6.3	31	12.2	3.21	.79	--
19...	0906	1028	83613	906	6.5	31	10.7	3.19	.79	--
28...	0610	1028	83613	76	6.7	35	12.9	3.61	.93	--

WEST BRANCH SUSQUEHANNA RIVER BASIN

01545600 YOUNG WOMANS CREEK NEAR RENOVO, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Sodium, water, fltrd, mg/L (00930)	ANC, water, unfltrd Gran titr., µeq/L (00409)	Chlor-ide, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water, fltrd, mg/L as N (00618)	Organic carbon, water, fltrd, mg/L (00681)	Alum-inum, water, fltrd, µg/L (01106)	Organic mono-meric alum-inum, wat unf µg/L (49288)
OCT 2003										
14...	.81	104	1.0	2.14	7.3	<.028	.10	1.2	<27	<40
14...	.77	125	1.1	2.01	7.0	.036	.05	5.1	33	<40
15...	.78	124	1.2	2.10	7.1	.056	.16	4.5	38	<40
17...	.77	109	1.1	2.16	7.9	<.028	.09	2.7	<27	<40
17...	.78	105	1.1	2.22	8.0	.063	.17	2.5	<27	<40
20...	.78	102	1.1	2.15	8.0	.040	.13	2.8	<27	<40
27...	.80	111	1.1	1.98	7.3	<.028	.08	4.0	<27	<40
27...	.82	100	1.2	2.09	7.6	.029	.24	3.5	31	<40
NOV										
11...	.75	89	1.0	2.09	8.0	<.028	.21	1.1	<27	<40
19...	.79	107	1.1	1.88	7.6	<.028	.16	4.8	<27	<40
19...	.62	68	.9	1.84	8.0	<.028	.61	3.2	48	<40
21...	.62	63	.8	2.15	8.2	<.028	.32	1.8	31	<40
DEC										
09...	.77	77	1.0	2.09	8.3	<.028	.27	1.2	<27	<40
JAN 2004										
05...	.72	64	.9	1.84	7.4	<.028	.31	2.4	<27	57
06...	.63	52	.8	1.94	8.0	<.028	.38	1.2	<27	56
FEB										
02...	.84	79	1.1	1.92	7.6	<.028	.29	.7	<27	<40
MAR										
02...	.83	88	.9	1.84	8.1	<.028	.58	.9	<27	<40
04...	--	68	1.1	1.91	9.0	.140	.74	1.7	<27	<40
06...	--	55	.8	1.78	7.3	.148	.57	1.6	<27	<40
07...	.61	41	.8	1.90	7.6	.084	.51	1.7	<27	<40
21...	--	68	1.1	1.75	7.3	.038	.47	1.7	<27	<40
30...	.68	50	.8	1.98	7.5	<.028	.29	1.1	<27	<40
APR										
01...	--	75	1.2	1.85	8.3	.131	.39	2.0	58	<40
27...	--	78	1.0	1.93	9.0	<.028	.48	1.0	48	<40
JUN										
22...	--	142	1.0	1.99	6.9	<.028	.29	1.0	89	<40
JUL										
20...	--	150	.3	2.03	4.3	<.028	.17	1.7	<27	--
AUG										
17...	--	141	1.1	1.97	7.4	<.028	.20	1.0	<27	--
SEP										
09...	--	106	.8	1.79	5.3	--	.33	4.7	48	--
09...	--	53	.6	1.96	7.0	--	.21	2.9	61	--
10...	--	73	.6	2.21	7.3	--	.16	2.2	<27	--
14...	--	88	.8	2.26	7.0	--	.18	1.5	<27	--
17...	--	122	.6	1.97	6.5	--	.38	4.1	43	--
17...	--	100	.7	1.87	6.2	<.028	.34	3.7	54	--
17...	--	87	.6	2.20	7.3	--	.22	2.3	<27	--
18...	--	69	.5	1.88	7.0	<.028	.28	3.6	49	--
18...	--	53	.5	2.01	7.5	<.028	.24	3.0	37	--
18...	--	59	.6	2.21	7.9	<.028	.21	2.3	31	--
19...	--	68	.6	2.25	8.0	<.028	.19	2.2	65	--
28...	--	113	.9	2.30	7.4	<.028	.17	1.2	<27	--

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)
Nov. 19	2300	685	6.54	Aug. 29	2100	Unknown	6.21
Dec. 11	1145	762	6.85	Sept. 9	1330	822	7.09
Jan. 5	1000	430	5.52	Sept. 18	0745	*2,110	*9.76
Mar. 6	0800	432	5.53	Sept. 28	0500	445	5.58
Apr. 1	1330	402	5.41				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	155	88	145	132	62	65	274	122	73	44	116	78
2	141	84	133	136	60	130	268	158	68	41	99	73
3	129	81	122	136	63	201	234	180	66	40	91	70
4	129	80	115	217	60	221	216	148	62	40	128	66
5	117	101	113	381	57	256	189	143	66	69	127	63
6	106	91	109	301	64	376	170	135	62	43	99	60
7	99	82	101	252	63	293	160	130	60	56	90	59
8	93	76	94	223	58	256	162	121	57	50	82	104
9	88	73	90	203	57	211	153	120	56	42	76	681
10	83	71	98	174	56	184	135	116	62	42	76	357
11	80	72	621	161	55	166	126	108	72	39	72	230
12	78	74	393	157	54	156	138	102	64	77	87	186
13	76	70	282	147	54	140	187	96	58	55	102	159
14	91	67	246	136	53	131	203	93	57	55	78	143
15	122	65	220	129	53	125	175	89	66	48	72	131
16	87	63	194	119	51	121	163	86	56	47	67	121
17	82	63	183	115	50	118	154	81	59	44	62	271
18	80	62	166	115	49	113	144	93	55	69	59	1620
19	77	347	153	108	49	117	135	95	53	53	67	820
20	73	449	141	102	52	140	128	83	51	49	80	595
21	72	266	131	97	59	253	123	118	49	47	158	405
22	69	213	128	94	59	192	117	110	80	49	99	303
23	67	180	147	88	60	171	141	88	57	49	85	246
24	64	177	214	85	61	161	120	80	52	46	80	213
25	62	166	211	78	58	159	141	77	50	45	73	192
26	64	138	186	77	57	150	177	90	48	56	69	170
27	140	127	169	77	56	151	158	77	47	138	66	153
28	122	171	159	75	56	140	148	74	47	117	86	285
29	108	187	151	72	59	132	138	70	47	85	e130	211
30	99	154	165	69	---	128	130	67	46	85	114	163
31	92	---	143	65	---	133	---	80	---	127	85	---
TOTAL	2945	3938	5523	4321	1645	5290	4907	3230	1746	1847	2775	8228
MEAN	95.0	131	178	139	56.7	171	164	104	58.2	59.6	89.5	274
MAX	155	449	621	381	64	376	274	180	80	138	158	1620
MIN	62	62	90	65	49	65	117	67	46	39	59	59
CFSM	1.62	2.24	3.05	2.38	0.97	2.92	2.80	1.78	0.99	1.02	1.53	4.69
IN.	1.87	2.50	3.51	2.75	1.05	3.36	3.12	2.05	1.11	1.17	1.76	5.23

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 2004, BY WATER YEAR (WY)

MEAN	44.3	56.0	72.9	73.5	70.1	113	121	81.7	64.7	44.5	41.0	55.8
MAX	210	142	240	191	151	263	404	161	152	94.1	112	274
(WY)	1997	1997	1997	1996	1998	1994	1993	1998	2002	1989	2003	2004
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

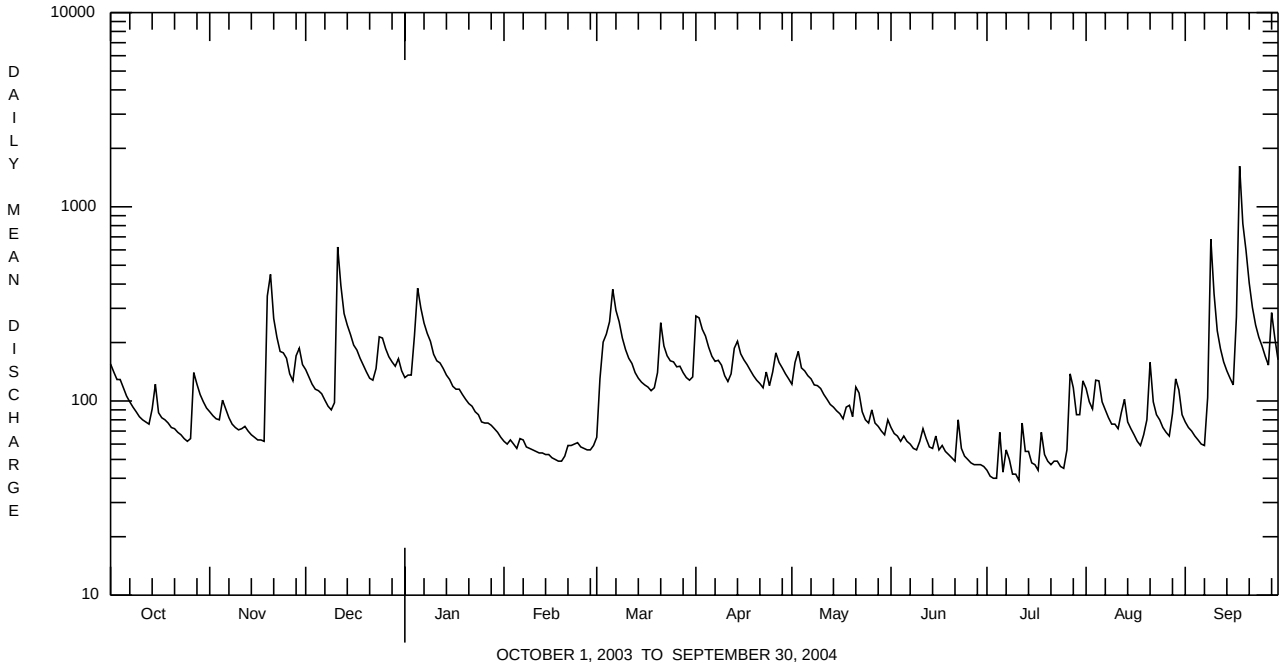
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01546400 SPRING CREEK AT HOUSERVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1985 - 2004	
ANNUAL TOTAL	41568		46395			
ANNUAL MEAN	114		127		70.3	
HIGHEST ANNUAL MEAN					127	2004
LOWEST ANNUAL MEAN					38.9	2001
HIGHEST DAILY MEAN	621	Dec 11	1620	Sep 18	1620	Sep 18 2004
LOWEST DAILY MEAN	39	Feb 16,21	39	Jul 11	13	Dec 31 1998**a**
ANNUAL SEVEN-DAY MINIMUM	40	Feb 15	44	Jun 28	**b**13	Jan 5 1999
MAXIMUM PEAK FLOW			2110	Sep 18	2370	Jan 19 1996
MAXIMUM PEAK STAGE			9.76	Sep 18	10.05	Jan 19 1996
ANNUAL RUNOFF (CFSM)	1.95		2.17		1.20	
ANNUAL RUNOFF (INCHES)	26.43		29.50		16.33	
10 PERCENT EXCEEDS	184		213		134	
50 PERCENT EXCEEDS	98		98		50	
90 PERCENT EXCEEDS	57		54		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.--No estimated daily discharges. Records fair. 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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Nov. 20	0115	807	4.09	Aug. 30	0000	522	3.61
Dec. 11	1445	1,050	4.42	Sept. 9	1645	883	4.20
Jan. 5	1300	516	3.60	Sept. 18	0730	*4,190	*6.81

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	189	125	174	183	114	101	311	167	111	81	169	131
2	175	122	165	186	112	147	344	190	106	81	148	125
3	166	120	156	183	117	258	299	238	102	80	141	120
4	164	119	150	252	111	273	277	190	98	81	161	116
5	157	135	147	468	107	312	249	184	101	114	193	112
6	146	129	144	397	115	444	227	176	98	86	152	108
7	139	121	137	329	111	374	214	171	96	85	144	106
8	134	115	131	293	105	329	212	161	94	108	135	124
9	128	110	127	268	103	272	207	158	93	85	128	660
10	123	109	128	239	102	243	184	155	95	83	125	436
11	120	107	721	223	101	221	174	148	107	82	123	303
12	118	111	519	216	99	208	178	144	100	115	126	255
13	116	116	376	204	98	190	231	137	94	108	156	225
14	116	115	325	192	97	180	263	134	92	102	128	204
15	165	114	292	186	95	174	229	129	102	96	119	192
16	127	111	260	173	93	170	215	125	92	89	115	179
17	120	108	247	168	92	165	204	122	100	86	108	260
18	120	107	228	167	91	158	194	130	95	111	105	2840
19	115	338	209	160	92	162	185	132	91	99	111	1260
20	110	572	196	153	94	167	176	122	89	94	117	747
21	108	322	184	148	100	319	171	153	92	90	216	525
22	107	250	179	146	101	248	163	149	116	91	159	414
23	105	210	195	139	100	227	186	129	100	92	139	347
24	102	202	259	136	100	212	169	121	92	88	132	306
25	98	198	273	131	97	209	184	116	88	85	126	277
26	98	170	243	132	95	198	227	129	87	92	121	251
27	162	158	226	131	94	198	207	116	85	178	117	231
28	159	189	213	128	94	188	196	112	86	175	132	356
29	142	221	203	123	95	179	184	107	85	136	157	311
30	135	183	218	121	---	173	175	104	83	126	200	249
31	128	---	196	117	---	179	---	115	---	174	140	---
TOTAL	4092	5107	7221	6092	2925	6878	6435	4464	2870	3193	4343	11770
MEAN	132	170	233	197	101	222	214	144	95.7	103	140	392
MAX	189	572	721	468	117	444	344	238	116	178	216	2840
MIN	98	107	127	117	91	101	163	104	83	80	105	106
CFSM	1.51	1.95	2.67	2.25	1.16	2.54	2.46	1.65	1.10	1.18	1.61	4.50
IN.	1.75	2.18	3.08	2.60	1.25	2.93	2.75	1.90	1.22	1.36	1.85	5.02

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2004, BY WATER YEAR (WY)

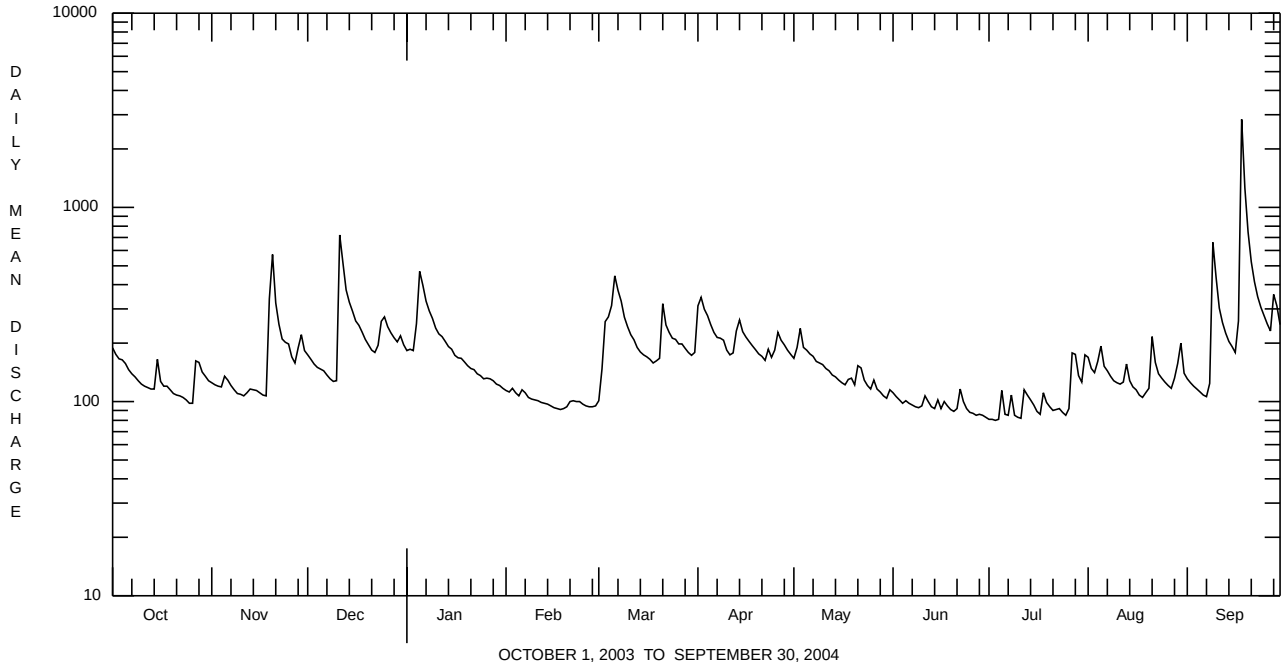
MEAN	60.5	70.6	85.9	93.4	107	150	155	121	99.2	71.6	62.6	64.4
MAX	216	206	251	224	257	335	475	257	369	216	145	392
(WY)	1997	1978	1997	1996	1984	1994	1993	1978	1972	1972	2003	2004
MIN	26.1	26.0	22.8	23.3	38.1	36.5	49.6	50.5	41.1	28.0	24.4	24.9
(WY)	1964	1966	1966	1966	1963	1969	1969	1969	1965	1965	1966	1965

WEST BRANCH SUSQUEHANNA RIVER BASIN

01546500 SPRING CREEK NEAR AXEMANN, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1941 - 2004	
ANNUAL TOTAL	54226		65390			
ANNUAL MEAN	149		179		95.0	
HIGHEST ANNUAL MEAN					179	2004
LOWEST ANNUAL MEAN					43.5	1965
HIGHEST DAILY MEAN	721	Dec 11	2840	Sep 18	2910	Jun 23 1972
LOWEST DAILY MEAN	63	Feb 20	80	Jul 3	20	Dec 20,30 1963**a**
ANNUAL SEVEN-DAY MINIMUM	**b**65	Feb 15	82	Jun 28	21	Jan 28 1966
MAXIMUM PEAK FLOW			**c**4190	Sep 18	**c**5410	Jun 23 1972
MAXIMUM PEAK STAGE			6.81	Sep 18	**d**7.47	Jun 23 1972
ANNUAL RUNOFF (CFSM)	1.70		2.05		1.09	
ANNUAL RUNOFF (INCHES)	23.13		27.90		14.80	
10 PERCENT EXCEEDS	226		272		168	
50 PERCENT EXCEEDS	130		140		73	
90 PERCENT EXCEEDS	84		94		40	

a Also Jan 28, 29, 31, 1966.
b Computed using estimated daily discharges.
c From rating curve extended above 1,400 ft^3/s on basis of contracted-opening measurement of peak flow.
d In gage; 8.75 ft from outside floodmark.



WEST BRANCH SUSQUEHANNA RIVER BASIN

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 359-431.

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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)
OCT 2003													
07...	1030	1028	9813	137	10.0	8.4	8.2	565	542	9.6	240	61.1	22.0
DEC													
15...	1145	1028	9813	292	12.3	7.2	8.3	504	474	5.8	230	61.0	18.8
FEB 2004													
10...	1215	1028	9813	98	14.1	8.4	8.4	612	620	6.2	270	68.5	24.5
APR													
28...	0830	1028	9813	194	10.8	8.2	8.2	505	469	8.4	240	61.6	20.1
JUN													
16...	1115	1028	9813	89	10.1	8.1	8.2	600	589	16.8	270	65.9	26.0
AUG													
26...	1000	1028	9813	118	10.7	8.2	8.3	586	595	15.6	280	70.5	25.4

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	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)
OCT 2003													
07...	206	22.0	372	8	.030	4.13	<.040	.02	.025	5.1	1.5	<200	<10
DEC													
15...	189	21.3	282	32	<.020	3.33	<.040	.02	.029	3.5	1.4	<200	<10
FEB 2004													
10...	212	23.9	422	<2	.020	4.78	.050	.02	.029	5.1	2.1	<200	<10
APR													
28...	177	24.3	304	18	<.020	3.27	<.040	.02	.027	3.6	1.4	<200	<10
JUN													
16...	200	24.9	402	2	.040	4.19	<.040	.03	.040	4.3	1.7	210	<10
AUG													
26...	211	23.4	424	8	<.020	3.78	<.040	.01	.023	4.1	1.6	<200	<10

Date	Iron, water, unfltrd recoverable, µg/L (01045)	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)
OCT 2003					
07...	80	<1.0	10	<50	260
DEC					
15...	200	<1.0	10	<50	<10
FEB 2004					
10...	40	<1.0	<10	<50	250
APR					
28...	230	<1.0	10	<50	<10
JUN					
16...	260	<1.0	20	<50	<10
AUG					
26...	230	<1.0	30	<50	<10

WEST BRANCH SUSQUEHANNA RIVER BASIN

01546500 SPRING CREEK NEAR AXEMANN, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

Date	10/07/03
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	4
Nematoda (NEMATODES)	2
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia	1
Hydrobiidae	
Fontigens nickliniana	1
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	
Sphaerium	1
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Tubificida	
Tubificidae	2
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	1
Crustacea	
Amphipoda (SCUDS)	
Gammaridae	
Gammarus	6
Isopoda (AQUATIC SOWBUGS)	
Asellidae	
Lirceus	117
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Baetis	27
Ephemerellidae	
Ephemerella	2
Heptageniidae	
Stenonema	2
Trichoptera (CADDISFLIES)	
Brachycentridae	
Micrasema	1
Hydropsychidae	
Hydropsyche	31
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus	16
Stenelmis	2

WEST BRANCH SUSQUEHANNA RIVER BASIN

01546500 SPRING CREEK NEAR AXEMANN, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	10/07/03
Benthic Macroinvertebrate	Count
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	28
Empididae (DANCE FLIES)	
Hemerodromia	1
Simuliidae (BLACK FLIES)	
Simulium	4
Tipulidae (CRANE FLIES)	
Antocha	12
Total Organisms	261
Total Taxa	20

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 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.

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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Nov. 20	0330	1,280	6.45	Mar. 6	1315	912	5.52
Dec. 11	1600	1,530	6.97	Sept. 9	1800	1,360	6.63
Jan. 5	1415	908	5.51	Sept. 18	1000	*6,710	*12.41

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	412	259	379	351	228	219	541	348	249	177	320	246
2	375	257	363	357	227	310	644	356	237	175	286	237
3	350	244	344	353	227	536	584	451	227	169	273	228
4	346	241	325	457	220	572	541	365	226	173	275	226
5	326	269	319	842	212	637	483	357	227	246	341	224
6	301	280	318	764	234	835	442	349	219	193	276	214
7	284	253	302	640	221	737	410	342	215	183	262	211
8	276	243	293	566	212	650	406	322	215	215	248	242
9	268	239	286	512	212	544	407	314	203	184	237	1060
10	262	239	279	447	208	481	364	315	212	e180	238	761
11	249	238	1140	419	202	442	345	298	231	e170	229	551
12	246	238	917	409	202	416	346	282	220	e250	232	466
13	241	238	699	392	196	382	433	274	204	235	290	412
14	244	228	615	365	194	357	503	264	208	215	239	362
15	323	224	552	350	191	342	454	253	214	205	226	332
16	253	221	478	336	191	340	431	249	202	192	218	312
17	243	215	465	328	188	331	410	246	231	187	213	521
18	238	213	423	325	184	316	383	255	227	234	207	4420
19	232	567	399	310	188	322	363	264	206	217	212	1700
20	225	990	367	295	189	347	351	248	199	201	226	1010
21	226	646	350	290	201	594	343	305	200	197	401	795
22	220	524	340	285	211	498	328	305	234	194	328	675
23	211	449	365	267	202	450	361	268	216	210	284	597
24	204	418	471	260	202	420	338	254	197	195	266	540
25	201	415	519	255	202	419	367	244	194	187	256	501
26	202	366	469	251	195	394	470	270	187	205	248	465
27	311	344	438	253	191	395	446	262	184	377	234	431
28	321	381	411	250	191	377	412	251	187	358	251	707
29	293	450	391	e220	200	360	383	238	187	286	258	632
30	278	391	410	e220	---	347	355	233	176	266	352	523
31	264	---	373	229	---	352	---	259	---	323	255	---
TOTAL	8425	10280	13800	11598	5921	13722	12644	9041	6334	6799	8181	19601
MEAN	272	343	445	374	204	443	421	292	211	219	264	653
MAX	412	990	1140	842	234	835	644	451	249	377	401	4420
MIN	201	213	279	220	184	219	328	233	176	169	207	211
CFSM	1.91	2.41	3.13	2.63	1.44	3.12	2.97	2.05	1.49	1.54	1.86	4.60
IN.	2.21	2.69	3.62	3.04	1.55	3.59	3.31	2.37	1.66	1.78	2.14	5.13

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2004, BY WATER YEAR (WY)

MEAN	174	193	226	230	258	330	338	264	240	189	171	178
MAX	411	421	486	455	500	617	825	507	729	434	357	653
(WY)	1997	1978	1997	1996	1984	1994	1993	1978	1972	1972	1984	2004
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

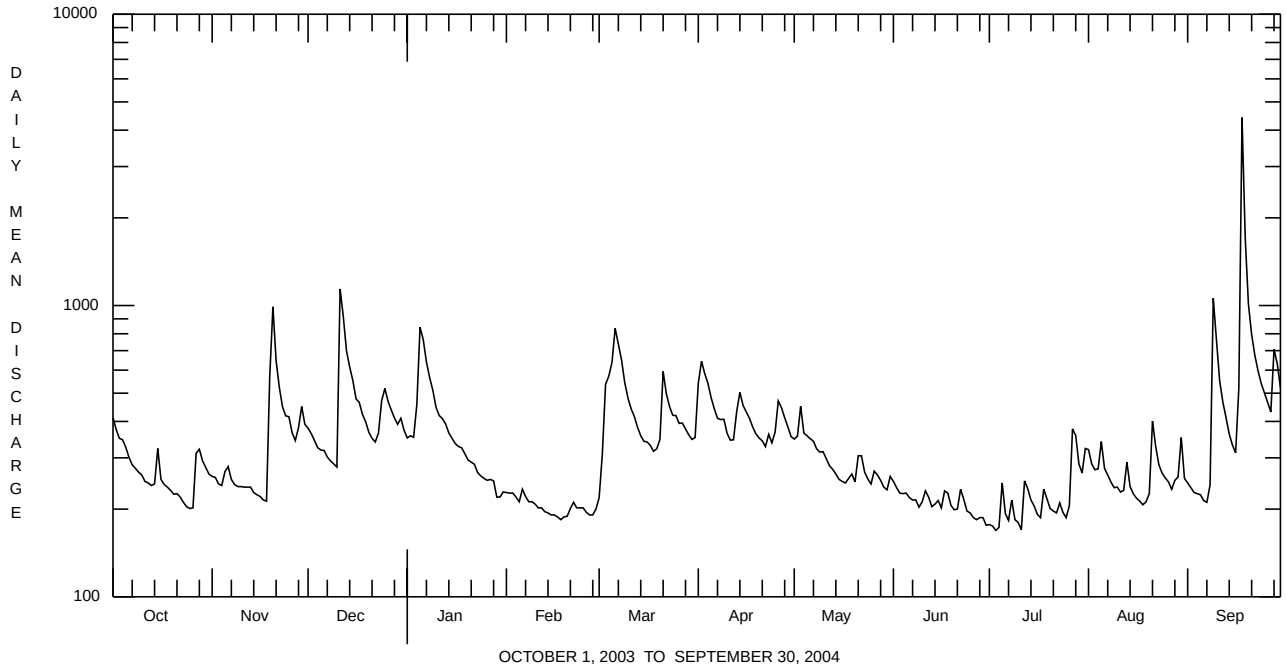
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01547100 SPRING CREEK AT MILESBURG, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1967 - 2004	
ANNUAL TOTAL	109244		126346			
ANNUAL MEAN	299		345		233	
HIGHEST ANNUAL MEAN					350	1978
LOWEST ANNUAL MEAN					128	1969
HIGHEST DAILY MEAN	1140	Dec 11	4420	Sep 18	6000	Jun 23 1972
LOWEST DAILY MEAN	**e**140	Feb 17	169	Jul 3	82	Mar 24 1969
ANNUAL SEVEN-DAY MINIMUM	**a**146	Feb 15	178	Jun 28	87	Mar 18 1969
MAXIMUM PEAK FLOW			**b**6710	Sep 18	**b**8170	Jun 23 1972
MAXIMUM PEAK STAGE			12.41	Sep 18	**c**13.20	Jun 23 1972
ANNUAL RUNOFF (CFSM)	2.11		2.43		1.64	
ANNUAL RUNOFF (INCHES)	28.62		33.10		22.27	
10 PERCENT EXCEEDS	447		528		371	
50 PERCENT EXCEEDS	264		281		191	
90 PERCENT EXCEEDS	185		201		128	

a Computed using estimated daily discharges.
b From rating curve extended above 900 ft^3/s on basis of flow-over-dam measurement of peak flow.
c From peak-stage indicator.
e Estimated.



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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Nov. 19	2130	7,060	7.29	July 27	1800	3,490	4.66
Dec. 11	1115	6,320	6.85	Sept. 9	1045	9,830	8.65
Jan. 5	0845	3,680	4.83	Sept. 18	0745	*21,100	*12.15
Mar. 6	0815	3,790	4.93				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	771	435	717	538	275	e520	1310	578	346	198	704	300
2	637	413	630	589	271	e800	1530	623	315	196	526	285
3	549	388	561	647	269	e1400	1190	825	296	189	453	272
4	553	371	509	1230	265	2030	982	607	277	195	462	266
5	516	520	496	3180	257	2240	800	583	276	615	640	261
6	437	628	489	1930	276	3380	687	546	267	271	423	249
7	397	537	448	1250	287	2200	618	516	257	229	376	245
8	374	484	424	960	309	1630	607	477	250	343	345	350
9	353	443	412	801	290	1140	648	464	237	239	317	6190
10	338	418	414	621	280	901	533	473	247	218	308	2010
11	319	407	4520	597	276	768	493	426	318	208	296	1090
12	310	411	2160	597	271	703	501	425	304	372	340	789
13	300	392	1310	547	266	606	1060	504	253	517	500	631
14	305	358	1030	470	263	547	1440	448	249	363	347	542
15	821	339	875	437	258	521	997	420	274	323	307	499
16	461	325	730	404	249	507	801	379	250	272	286	462
17	410	316	697	414	246	493	697	355	310	245	272	1610
18	403	305	635	426	243	463	618	391	346	393	259	13400
19	371	3080	578	406	250	488	560	496	262	394	264	3260
20	346	3490	525	378	266	691	522	457	242	436	293	1790
21	337	1540	486	365	335	1910	493	743	236	334	925	1290
22	326	1050	473	355	392	1160	502	849	281	318	568	1010
23	307	826	618	326	370	882	758	646	270	420	417	836
24	290	745	1490	320	363	772	688	524	232	397	362	729
25	277	747	1470	311	345	788	971	442	224	316	332	662
26	276	608	999	307	332	763	1930	482	215	421	310	599
27	775	555	799	310	326	753	1360	434	209	2770	292	550
28	747	771	686	308	339	675	950	382	211	1860	309	2110
29	611	1040	618	297	421	606	750	340	213	905	322	1500
30	529	813	693	287	---	559	635	316	201	625	418	967
31	465	---	597	279	---	570	---	347	---	781	328	---
TOTAL	13911	22755	27089	19887	8590	31466	25631	15498	7868	15363	12301	44754
MEAN	449	758	874	642	296	1015	854	500	262	496	397	1492
MAX	821	3490	4520	3180	421	3380	1930	849	346	2770	925	13400
MIN	276	305	412	279	243	463	493	316	201	189	259	245
CFSM	1.69	2.86	3.30	2.42	1.12	3.83	3.22	1.89	0.99	1.87	1.50	5.63
IN.	1.95	3.19	3.80	2.79	1.21	4.42	3.60	2.18	1.10	2.16	1.73	6.28

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 2004, BY WATER YEAR (WY)

MEAN	257	338	406	385	513	764	701	496	362	247	222	249
MAX	950	811	1035	1049	1227	1489	2001	1162	1689	804	643	1492
(WY)	1977	1978	1997	1996	1984	1994	1993	1978	1972	1972	1956	2004
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

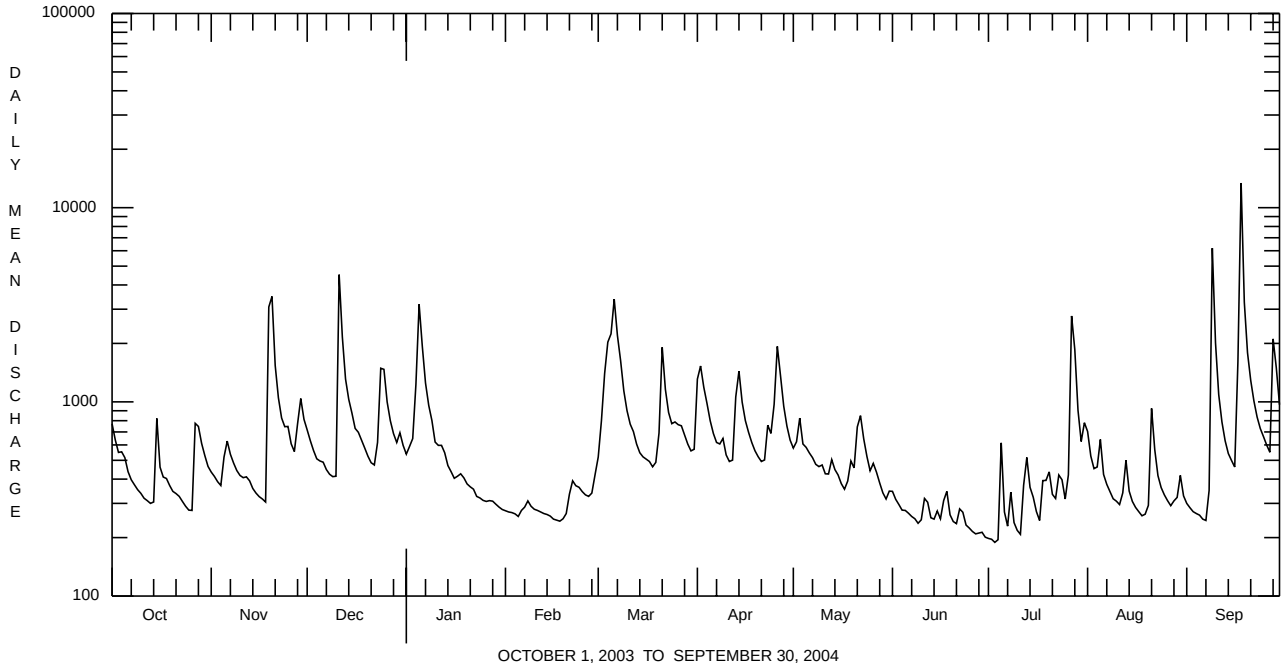
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01547200 BALD EAGLE CREEK BELOW SPRING CREEK AT MILESBURG, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1956 - 2004	
ANNUAL TOTAL	224018		245113			
ANNUAL MEAN	614		670		411	
HIGHEST ANNUAL MEAN					670	2004
LOWEST ANNUAL MEAN					213	1965
HIGHEST DAILY MEAN	4520	Dec 11	13400	Sep 18	15000	Jun 23 1972
LOWEST DAILY MEAN	184	Feb 16	189	Jul 3	79	Sep 11 1965
ANNUAL SEVEN-DAY MINIMUM	189	Feb 15	200	Jun 28	80	Sep 17 1965
MAXIMUM PEAK FLOW			**a**21100	Sep 18	**ab**21300	Jun 23 1972
MAXIMUM PEAK STAGE			12.15	Sep 18	12.15	Sep 18 2004
ANNUAL RUNOFF (CFSM)	2.32		2.53		1.55	
ANNUAL RUNOFF (INCHES)	31.45		34.41		21.07	
10 PERCENT EXCEEDS	1120		1170		797	
50 PERCENT EXCEEDS	459		459		265	
90 PERCENT EXCEEDS	234		263		134	

a From rating curve extended above 9,000 ft^3/s.
b At gage height 11.67 ft., 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.--No estimated daily discharges. Records good. 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2850	490	1600	611	290	679	1110	517	471	202	1770	380
2	2860	470	998	598	290	1100	1910	543	466	164	1930	382
3	2090	470	709	779	321	1800	2090	764	430	164	1230	382
4	945	470	642	1090	383	1620	1460	760	290	164	594	301
5	523	582	566	238	382	1330	1110	715	325	596	774	228
6	485	816	565	758	669	185	804	635	281	640	594	228
7	419	814	517	1440	961	483	688	606	167	345	426	284
8	421	595	482	2200	944	1380	690	489	222	275	382	485
9	422	517	482	2520	928	2140	782	417	314	275	387	291
10	401	481	482	2730	911	2370	675	570	350	243	388	932
11	366	417	192	2140	893	2360	525	617	423	217	388	2190
12	340	433	899	1310	875	2280	550	559	314	438	436	2670
13	321	463	2000	820	853	1980	1090	559	267	635	628	3100
14	382	464	2530	552	776	1190	1310	525	267	987	339	3350
15	830	464	2710	476	721	771	812	470	371	856	339	2250
16	655	464	2740	474	703	571	568	470	373	367	339	891
17	460	556	2650	476	637	567	414	441	368	210	339	922
18	423	662	1830	475	600	565	336	423	538	418	339	1810
19	423	694	909	470	587	565	290	539	330	557	271	131
20	399	346	700	472	640	683	298	602	241	434	271	1730
21	365	1710	595	438	589	1470	272	926	220	435	1100	2520
22	366	2370	551	380	529	1730	364	1210	310	371	929	2930
23	349	2730	705	377	518	1830	584	853	407	481	511	3140
24	318	2750	893	378	486	1410	590	665	278	556	386	3330
25	319	2930	1590	330	394	1070	568	468	208	434	388	3370
26	319	2210	1790	289	381	1070	1340	526	167	464	388	3510
27	869	1590	1500	328	426	941	1350	886	231	425	388	3520
28	1070	1580	1050	377	411	745	865	631	266	307	320	1480
29	764	1810	808	379	454	695	699	372	264	1560	278	2060
30	659	1890	794	349	---	710	517	319	265	2380	437	2990
31	517	---	884	289	---	640	---	354	---	2020	472	---
TOTAL	21930	32238	35363	24543	17552	36930	24661	18431	9424	17620	17761	51787
MEAN	707	1075	1141	792	605	1191	822	595	314	568	573	1726
MAX	2860	2930	2740	2730	961	2370	2090	1210	538	2380	1930	3520
MIN	318	346	192	238	290	185	272	319	167	164	271	131

WEST BRANCH SUSQUEHANNA RIVER BASIN

01547500 BALD EAGLE CREEK AT BLANCHARD, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 2004, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	402	577	572	519	651	744	681	568	457	322	281	366
MAX	1012	1291	1211	1213	1450	1664	2095	1328	1184	1580	867	1726
(WY)	1980	1978	1997	1996	1984	1979	1993	1978	1972	1972	1984	2004
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

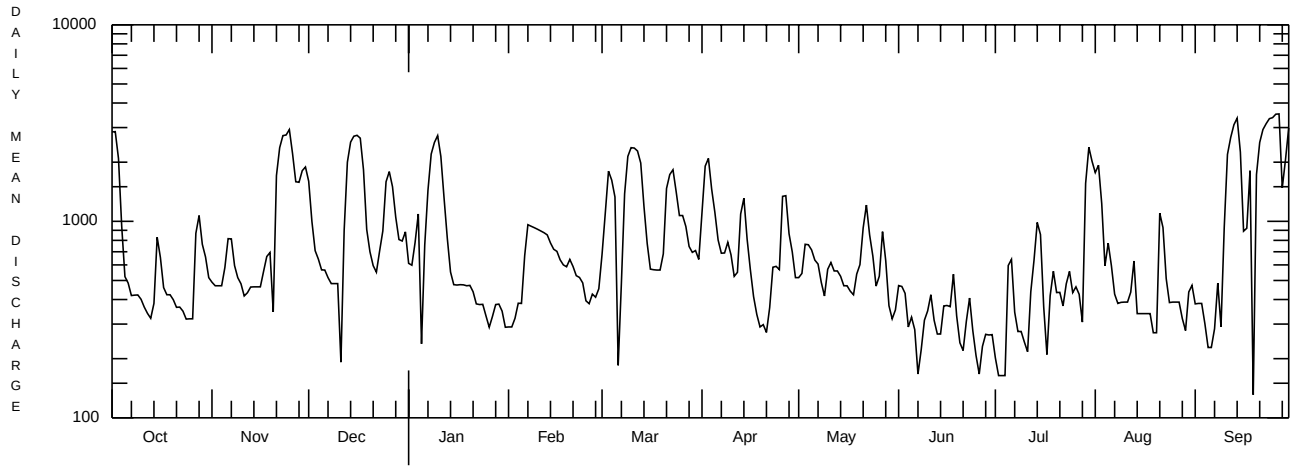
SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1971 - 2004	
ANNUAL TOTAL	283543.0		308240			
ANNUAL MEAN	777		842		511	
HIGHEST ANNUAL MEAN					842	2004
LOWEST ANNUAL MEAN					300	2001
HIGHEST DAILY MEAN	2930	Nov 25	3520	Sep 27	4730	Jun 29 1972
LOWEST DAILY MEAN	6.0	Mar 21	131	Sep 19	5.3	Mar 29 1993**a**
ANNUAL SEVEN-DAY MINIMUM	184	Apr 30	213	Jun 28	71	Apr 20 1971
MAXIMUM PEAK FLOW			3760	Sep 28	**b**4890	Jun 28 1972
MAXIMUM PEAK STAGE			7.91	Sep 28	9.37	Jun 28 1972
INSTANTANEOUS LOW FLOW					0.00	May 12 1976**c**
10 PERCENT EXCEEDS	1720		2030		1060	
50 PERCENT EXCEEDS	528		556		331	
90 PERCENT EXCEEDS	249		290		161	

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.



OCTOBER 1, 2003 TO SEPTEMBER 30, 2004

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)
Nov. 19	1945	2,140	5.54	July 23	1615	564	3.83
Dec. 11	0900	2,290	5.65	July 27	1230	1,400	4.93
Dec. 24	1545	487	3.66	Sept. 9	1230	2,760	5.96
Jan. 5	0630	1,120	4.64	Sept. 18	0230	*7,080	*7.91
Mar. 6	0830	1,160	4.68	Sept. 28	0645	743	4.20
July 14	1400	918	4.40				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	157	73	139	83	e15	e85	228	97	44	7.0	116	12
2	111	66	108	99	e14	e200	275	109	38	6.5	87	11
3	85	61	84	149	e14	393	224	127	35	6.1	71	10
4	77	56	72	300	e14	479	180	113	27	5.9	79	10
5	65	104	66	869	e14	566	134	112	26	38	75	9.3
6	54	117	63	498	e14	988	104	98	24	25	58	8.7
7	47	115	55	307	e16	599	88	85	22	16	49	8.3
8	42	100	49	213	e18	379	79	72	19	14	41	19
9	37	85	45	158	e15	248	70	75	18	11	36	1450
10	33	75	48	e110	e15	181	60	105	18	9.4	35	508
11	31	71	1270	e88	e15	140	53	91	21	8.2	30	235
12	28	68	559	e80	e14	119	53	93	18	17	30	143
13	27	65	317	e65	e14	93	128	87	15	23	e50	96
14	26	56	227	e58	e13	78	214	80	15	275	31	71
15	61	50	176	e50	e13	72	185	72	17	138	26	59
16	40	45	133	e33	e10	67	147	62	14	82	24	49
17	35	43	119	e40	e11	63	120	54	21	58	22	588
18	34	40	103	e45	e11	57	98	60	30	55	20	4480
19	33	730	88	e40	e12	60	83	61	18	46	20	911
20	32	852	76	e35	e14	105	73	56	15	51	23	352
21	31	386	67	e30	e22	338	64	118	13	41	64	187
22	31	226	65	e29	e33	243	61	183	16	50	38	113
23	29	154	89	e20	e33	188	92	176	14	168	30	81
24	27	127	246	e20	e35	150	88	144	11	128	26	65
25	24	105	301	e20	e33	149	112	107	10	86	22	55
26	24	83	244	e20	e33	158	206	97	14	136	20	48
27	109	73	187	e20	e34	155	224	76	9.8	947	19	42
28	110	130	143	e20	e40	129	185	62	9.2	667	18	489
29	107	179	117	e20	e55	106	145	50	9.7	314	17	351
30	89	166	124	e18	---	91	116	43	8.0	190	16	178
31	78	---	96	e17	---	87	---	47	---	155	14	---
TOTAL	1714	4501	5476	3554	594	6766	3889	2812	569.7	3774.1	1207	10639.3
MEAN	55.3	150	177	115	20.5	218	130	90.7	19.0	122	38.9	355
MAX	157	852	1270	869	55	988	275	183	44	947	116	4480
MIN	24	40	45	17	10	57	53	43	8.0	5.9	14	8.3
CFSM	1.25	3.40	4.01	2.60	0.46	4.95	2.94	2.06	0.43	2.76	0.88	8.04
IN.	1.45	3.80	4.62	3.00	0.50	5.71	3.28	2.37	0.48	3.18	1.02	8.97

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 2004, BY WATER YEAR (WY)

MEAN	27.3	52.1	68.7	56.2	83.0	136	114	73.0	47.2	22.7	17.8	26.2
MAX	154	151	252	193	267	283	337	181	344	170	98.9	355
(WY)	1991	1978	1973	1996	1984	1994	1993	2002	1972	1972	2003	2004
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

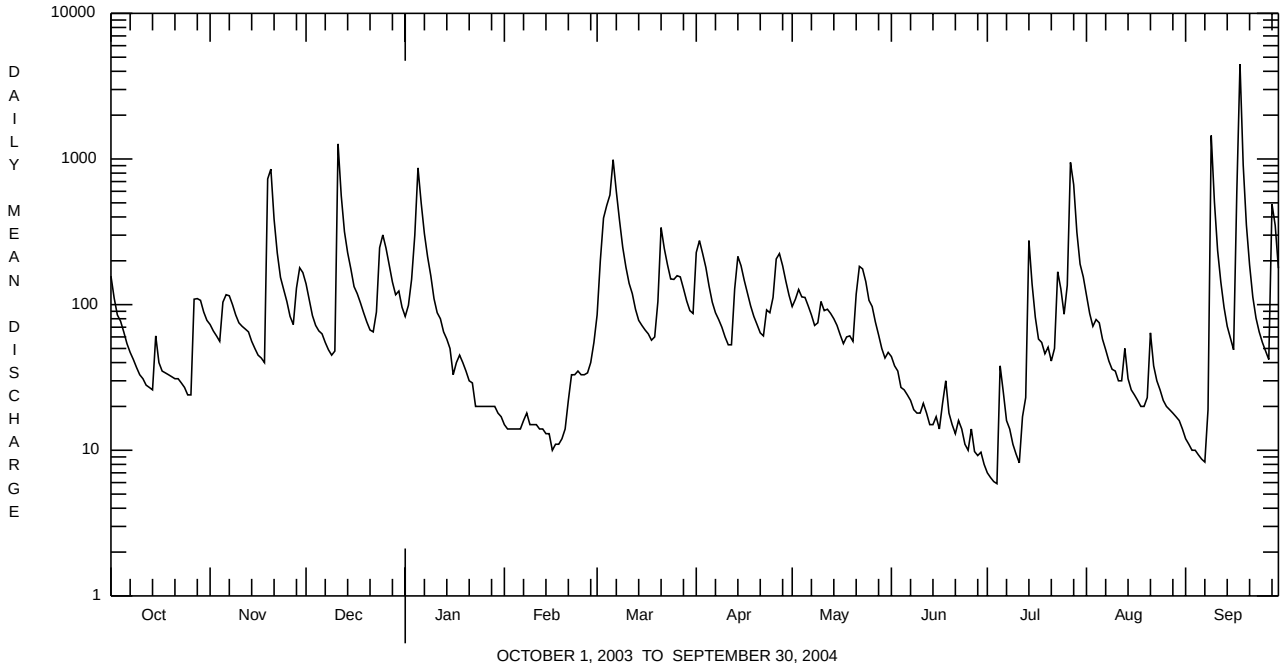
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01547700 MARSH CREEK AT BLANCHARD, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1956 - 2004	
ANNUAL TOTAL	38996.5		45496.1			
ANNUAL MEAN	107		124		60.2	
HIGHEST ANNUAL MEAN					124	2004
LOWEST ANNUAL MEAN					28.6	1965
HIGHEST DAILY MEAN	1270	Dec 11	4480	Sep 18	4480	Sep 18 2004
LOWEST DAILY MEAN	6.5	Jul 20	5.9	Jul 4	0.00	Aug 30 1966
ANNUAL SEVEN-DAY MINIMUM	8.5	Jul 15	7.5	Jun 28	0.07	Aug 27 1966
MAXIMUM PEAK FLOW			**a**7080	Sep 18	**a**7080	Sep 18 2004
MAXIMUM PEAK STAGE			7.91	Sep 18	7.91	Sep 18 2004
ANNUAL RUNOFF (CFSM)	2.42		2.82		1.37	
ANNUAL RUNOFF (INCHES)	32.90		38.38		18.56	
10 PERCENT EXCEEDS	230		230		143	
50 PERCENT EXCEEDS	68		64		26	
90 PERCENT EXCEEDS	16		14		3.6	

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)
Nov. 19	2300	2,420	9.46	July 27	1730	2,880	9.97
Dec. 11	1430	2,680	9.75	Sept. 9	1030	3,450	10.55
Jan. 5	1615	1,860	8.78	Sept. 18	0830	*6,310	*12.96
Mar. 6	1745	2,490	9.54				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	865	329	428	435	e110	138	668	433	380	71	689	173
2	683	310	397	476	e110	239	761	430	330	68	538	147
3	556	294	362	570	e99	591	735	499	294	65	448	130
4	514	277	333	829	e97	837	680	412	246	65	423	117
5	453	369	319	1740	e89	1260	576	404	231	155	475	107
6	378	447	312	1630	e110	2210	489	377	215	107	342	100
7	333	421	281	1230	e120	2020	431	350	196	83	297	95
8	297	407	e250	956	e140	1550	393	318	177	104	261	127
9	269	379	240	763	e120	1140	362	358	161	83	229	2540
10	246	356	242	607	e110	881	311	655	156	74	207	1750
11	225	342	2060	e510	e110	728	279	532	163	68	192	1120
12	211	338	1860	460	e110	640	266	494	151	147	199	798
13	199	330	1290	408	e99	539	450	459	135	209	236	590
14	196	291	1010	359	e95	473	670	452	132	250	187	459
15	431	264	806	327	e89	436	644	431	137	262	165	387
16	317	243	648	279	e82	411	586	374	120	227	150	332
17	298	229	573	273	e72	384	519	332	137	201	141	696
18	289	216	499	e260	e78	351	454	333	195	232	133	5040
19	279	988	435	e240	e82	340	401	416	143	258	130	2530
20	260	2070	384	e210	e93	365	369	396	125	241	134	1500
21	249	1460	340	e200	e110	769	328	531	114	213	161	1050
22	239	1070	312	e190	e130	707	320	760	130	200	145	794
23	224	830	332	e160	e110	644	419	806	121	277	124	631
24	208	696	645	e150	e99	599	391	732	103	346	114	521
25	191	605	885	e140	e97	634	428	589	95	297	108	448
26	185	500	813	e140	e99	702	599	631	92	336	102	392
27	334	438	691	e140	e100	779	655	658	85	2200	97	348
28	378	438	585	e140	e110	731	640	591	84	2170	104	706
29	368	497	514	e130	e120	636	560	502	84	1390	99	692
30	364	444	546	e120	---	563	488	424	76	979	140	584
31	343	---	474	e120	---	529	---	400	---	842	240	---
TOTAL	10382	15878	18866	14192	2990	22826	14872	15079	4808	12220	7010	24904
MEAN	335	529	609	458	103	736	496	486	160	394	226	830
MAX	865	2070	2060	1740	140	2210	761	806	380	2200	689	5040
MIN	185	216	240	120	72	138	266	318	76	65	97	95
CFSM	2.20	3.48	4.00	3.01	0.68	4.84	3.26	3.20	1.05	2.59	1.49	5.46
IN.	2.54	3.89	4.62	3.47	0.73	5.59	3.64	3.69	1.18	2.99	1.72	6.09

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 2004, BY WATER YEAR (WY)

MEAN	143	250	304	250	319	498	495	336	252	153	101	133
MAX	620	673	656	585	809	949	1353	709	895	621	411	830
(WY)	1991	1971	1997	1979	1981	1979	1993	1978	1972	1972	2003	2004
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

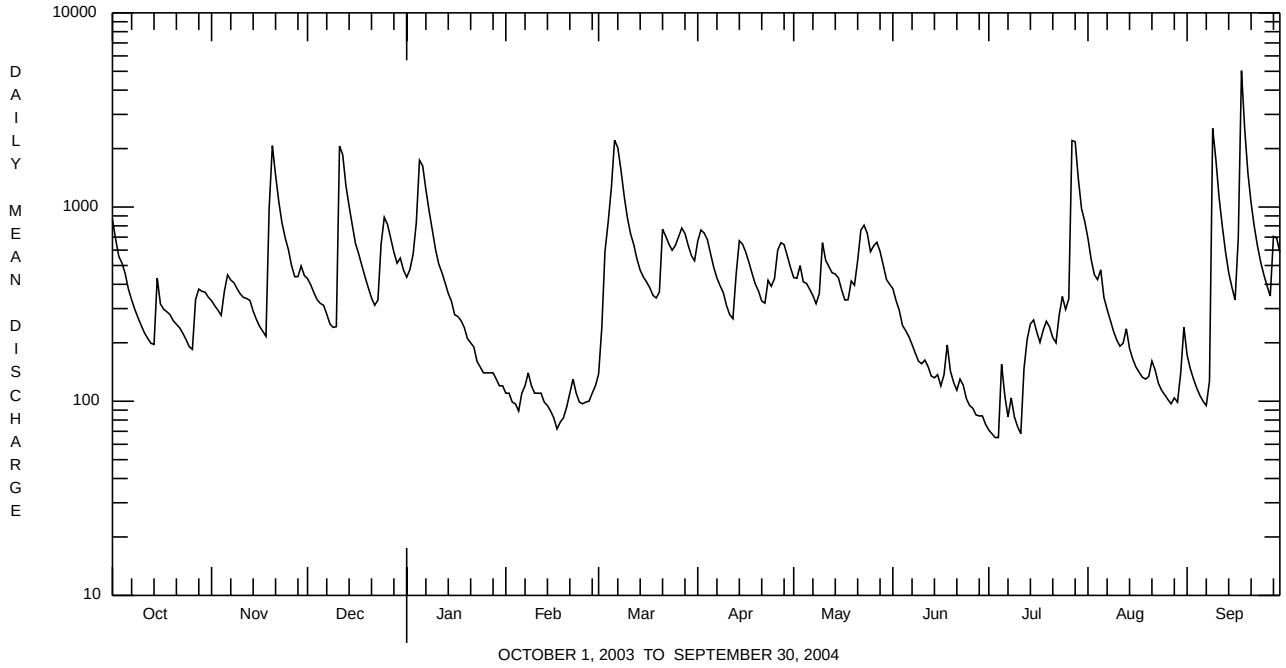
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01547950 BEECH CREEK AT MONUMENT, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1969 - 2004	
ANNUAL TOTAL	150499		164027			
ANNUAL MEAN	412		448		269	
HIGHEST ANNUAL MEAN					448	2004
LOWEST ANNUAL MEAN					147	1999
HIGHEST DAILY MEAN	2090	Mar 21	5040	Sep 18	7490	Jun 23 1972
LOWEST DAILY MEAN	53	Jul 21	65	Jul 3,4	8.3	Sep 9 1991
ANNUAL SEVEN-DAY MINIMUM	61	Jul 15	73	Jun 28	**a**9.8	Sep 8 2002
MAXIMUM PEAK FLOW			**b**6310	Sep 18	**b**9740	Jun 23 1972
MAXIMUM PEAK STAGE			12.96	Sep 18	15.22	Jun 23 1972
ANNUAL RUNOFF (CFSM)	2.71		2.95		1.77	
ANNUAL RUNOFF (INCHES)	36.83		40.14		24.04	
10 PERCENT EXCEEDS	808		808		592	
50 PERCENT EXCEEDS	325		337		165	
90 PERCENT EXCEEDS	104		104		36	

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.



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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Nov. 19	2345	12,400	7.64	July 27	1630	9,940	6.96
Dec. 11	1245	8,740	6.59	Sept. 9	1515	24,800	10.33
Mar. 6	1845	8,150	6.40	Sept. 18	0645	*34,200	*11.94
May 9	1045	8,000	6.35				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2230	1580	1500	1380	e400	e600	1870	1250	784	188	2400	1040
2	1760	1400	1390	1430	e390	e760	2220	1320	618	173	1810	739
3	1440	1250	1200	1710	e410	e1900	1970	2390	678	155	1410	607
4	1390	1110	1060	2390	e430	e2900	1900	1850	536	143	1170	529
5	1440	1080	985	4160	e400	e3800	1700	1730	492	202	1070	469
6	1140	1250	937	4060	e420	7060	1480	1560	510	199	846	421
7	1030	1030	843	3060	e430	6450	1330	1930	461	161	713	382
8	940	951	737	e2000	e400	4760	1190	1710	419	293	616	398
9	836	879	732	e1500	e380	3370	1080	5710	390	208	530	15900
10	740	828	652	e1300	e390	2540	952	5330	413	160	468	10900
11	659	803	5480	e1200	e330	2040	852	4420	490	141	679	5100
12	591	793	5370	e1100	e330	1790	786	3280	415	149	503	3090
13	541	950	3750	e1000	e320	1480	1550	2640	371	198	849	2060
14	504	852	2730	e800	e300	1240	3860	2180	354	375	696	1510
15	1250	790	2190	e750	e290	1210	3260	2150	351	1120	530	1230
16	1050	757	1730	e700	e270	1100	2570	1720	357	712	486	1060
17	947	722	1540	e670	e310	1030	2090	1450	380	586	455	4110
18	926	683	1380	e650	e330	943	1750	1280	468	499	414	27500
19	901	3730	1160	e620	e320	882	1490	1170	411	661	389	10800
20	824	9970	1010	e560	e310	853	1290	993	354	661	376	5260
21	766	5800	875	e490	e330	1690	1140	1020	315	544	2330	3430
22	723	3670	802	e580	e360	1480	1200	1530	302	482	1950	2410
23	657	2580	972	e610	e340	1320	1370	1430	292	551	1430	1760
24	582	2040	2720	e550	e350	1350	1370	1280	256	587	1130	1380
25	518	1920	3830	e500	e330	1670	1300	1120	229	418	949	1160
26	482	1500	3060	e510	e330	1940	1740	1030	216	911	783	1000
27	1610	1290	2340	e470	e350	2740	1790	1020	200	8510	661	854
28	2350	1310	1860	e440	e390	3010	1750	866	188	6650	593	818
29	2340	1930	1580	e430	e470	2560	1590	724	216	4680	525	766
30	2170	1570	1750	e430	---	2110	1400	616	210	2990	955	647
31	1800	---	1560	e410	---	1860	---	590	---	2980	1450	---
TOTAL	35137	55018	57725	36460	10410	68438	49840	57289	11676	36287	29166	107330
MEAN	1133	1834	1862	1176	359	2208	1661	1848	389	1171	941	3578
MAX	2350	9970	5480	4160	470	7060	3860	5710	784	8510	2400	27500
MIN	482	683	652	410	270	600	786	590	188	141	376	382
CFSM	1.88	3.04	3.08	1.95	0.59	3.66	2.75	3.06	0.64	1.94	1.56	5.92
IN.	2.16	3.39	3.56	2.25	0.64	4.22	3.07	3.53	0.72	2.23	1.80	6.61

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1919 - 2004, BY WATER YEAR (WY)

MEAN	365	755	847	828	897	1855	1966	1246	630	294	242	256
MAX	2910	3077	2260	2741	3090	6362	5678	3580	3601	1171	2712	3578
(WY)	1991	1951	1928	1937	1981	1936	1993	1919	1972	2004	1994	2004
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

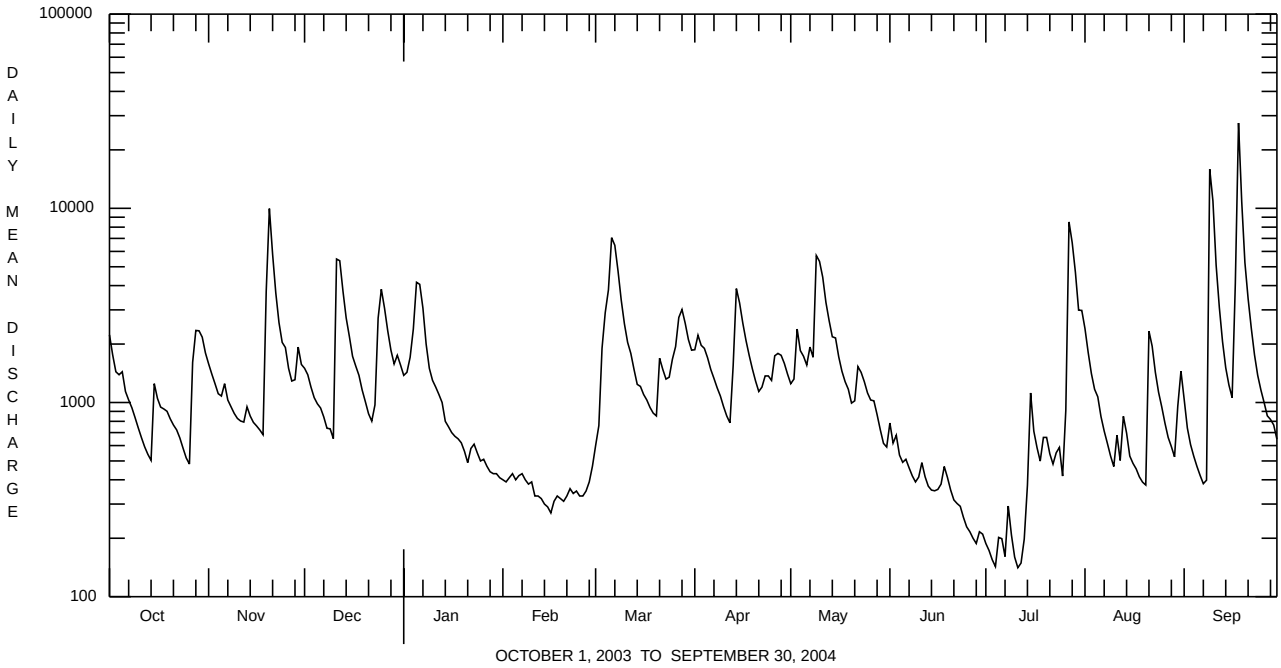
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01548500 PINE CREEK AT CEDAR RUN, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1919 - 2004	
ANNUAL TOTAL	496064		554776			
ANNUAL MEAN	1359		1516		848	
HIGHEST ANNUAL MEAN					1516	2004
LOWEST ANNUAL MEAN					444	1941
HIGHEST DAILY MEAN	10100	Mar 21	27500	Sep 18	42600	Jun 23 1972
LOWEST DAILY MEAN	163	Jul 16	141	Jul 11	8.0	Sep 2 1939
ANNUAL SEVEN-DAY MINIMUM	177	Jul 15	174	Jul 1	11	Aug 28 1939
MAXIMUM PEAK FLOW			**a**34200	Sep 18	**a**66000	Jun 23 1972
MAXIMUM PEAK STAGE			11.94	Sep 18	**b**16.00	Jun 23 1972
INSTANTANEOUS LOW FLOW					8.0	Sep 1,2 1939
ANNUAL RUNOFF (CFSM)	2.25		2.51		1.40	
ANNUAL RUNOFF (INCHES)	30.55		34.17		19.07	
10 PERCENT EXCEEDS	3020		3000		2040	
50 PERCENT EXCEEDS	881		989		400	
90 PERCENT EXCEEDS	258		337		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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Nov. 19	2245	1,280	5.03	July 27	1615	1,430	5.23
Dec. 11	1015	1,640	5.50	Sept. 18	0430	*3,810	*7.56

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	112	117	82	e17	40	102	57	30	9.8	287	16
2	74	97	103	88	e17	89	94	91	26	9.0	173	15
3	68	85	88	103	e16	173	84	254	25	8.6	109	14
4	82	76	79	156	e15	244	80	169	20	8.0	85	14
5	74	87	75	340	e14	369	71	140	22	15	82	13
6	62	87	73	259	e32	579	64	109	23	10	52	13
7	57	75	67	188	e42	407	61	135	20	10	44	12
8	53	69	67	148	e51	287	57	91	18	24	37	16
9	50	64	60	e94	e41	186	53	294	16	13	32	542
10	48	62	63	e82	e37	134	49	207	23	10	43	243
11	45	61	891	e80	e35	108	46	225	24	8.8	49	127
12	44	60	422	e78	e35	94	45	301	18	9.4	37	83
13	42	58	244	e54	e32	77	171	194	16	12	166	61
14	44	53	179	e50	e28	67	308	132	15	17	69	47
15	148	49	142	e48	e25	63	194	97	17	28	52	40
16	80	47	113	e48	e23	60	140	72	17	19	46	35
17	71	45	106	e47	e20	59	110	56	24	16	39	482
18	67	43	95	e45	e22	54	90	51	29	13	34	2130
19	64	450	82	e40	e25	52	77	46	20	15	31	468
20	59	603	73	e33	e30	54	67	40	17	20	30	224
21	56	305	66	e30	e35	106	61	40	15	14	58	142
22	53	198	62	e29	e41	75	63	49	15	12	37	100
23	50	147	88	e27	e30	e63	72	40	15	29	29	76
24	46	127	307	e24	e25	75	62	33	14	27	27	60
25	43	119	274	e23	e24	112	60	29	13	18	25	50
26	43	95	195	e24	e25	116	82	35	13	62	23	43
27	224	86	149	e24	e26	158	71	38	11	630	21	36
28	180	127	119	e24	e29	143	68	29	11	475	20	92
29	195	159	103	e21	e33	118	63	25	12	252	19	77
30	157	126	116	e18	---	99	60	22	11	149	19	54
31	130	---	94	e18	---	88	---	25	---	383	18	---
TOTAL	2491	3772	4712	2325	825	4349	2625	3126	550	2326.6	1793	5325
MEAN	80.4	126	152	75.0	28.4	140	87.5	101	18.3	75.1	57.8	178
MAX	224	603	891	340	51	579	308	301	30	630	287	2130
MIN	42	43	60	18	14	40	45	22	11	8.0	18	12
CFSM	2.13	3.34	4.03	1.99	0.75	3.72	2.32	2.67	0.49	1.99	1.53	4.71
IN.	2.46	3.72	4.65	2.29	0.81	4.29	2.59	3.08	0.54	2.30	1.77	5.25

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2004, BY WATER YEAR (WY)

MEAN	33.4	61.7	67.7	56.4	67.3	124	123	77.2	41.0	19.4	16.0	20.2
MAX	194	195	184	182	268	260	429	211	303	75.1	204	178
(WY)	1991	1978	1974	1996	1981	1945	1993	1946	1972	2004	1994	2004
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

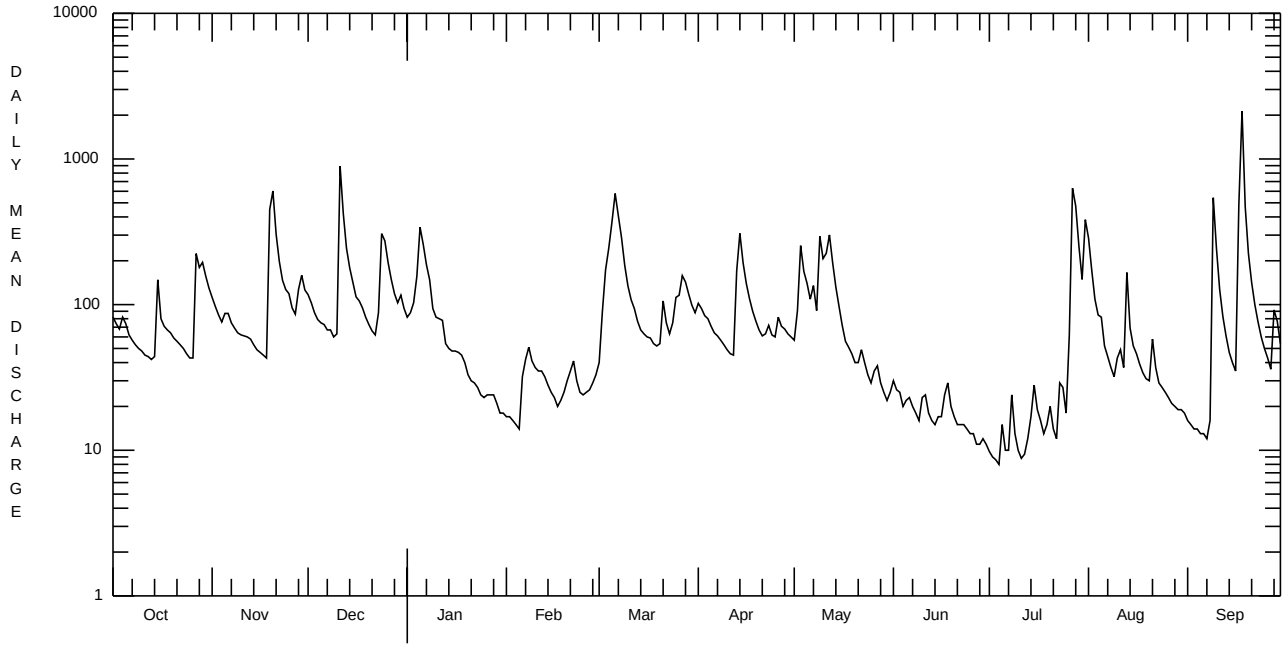
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01549500 BLOCKHOUSE CREEK NEAR ENGLISH CENTER, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1941 - 2004	
ANNUAL TOTAL	31767		34219.6			
ANNUAL MEAN	87.0		93.5		58.9	
HIGHEST ANNUAL MEAN					104	1978
LOWEST ANNUAL MEAN					26.3	1965
HIGHEST DAILY MEAN	891	Dec 11	2130	Sep 18	3180	Jun 22 1972
LOWEST DAILY MEAN	**e**17	Feb 16**a**	8.0	Jul 4	0.00	Aug 6 1962**c**
ANNUAL SEVEN-DAY MINIMUM	19	Jul 14	9.9	Jun 28	0.19	Aug 29 1962
MAXIMUM PEAK FLOW			**b**3810	Sep 18	**b**6260	Jun 23 1972
MAXIMUM PEAK STAGE			7.56	Sep 18	9.34	Jun 23 1972
INSTANTANEOUS LOW FLOW					0.00	Aug 6 1962**c**
ANNUAL RUNOFF (CFSM)	2.31		2.48		1.56	
ANNUAL RUNOFF (INCHES)	31.35		33.77		21.21	
10 PERCENT EXCEEDS	163		194		133	
50 PERCENT EXCEEDS	57		57		27	
90 PERCENT EXCEEDS	23		16		3.8	

a Also July 17, 20.
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.



OCTOBER 1, 2003 TO SEPTEMBER 30, 2004

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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Nov. 20	0430	18,300	8.59	July 27	2045	15,400	7.97
Dec. 11	1645	13,800	7.60	Sept. 9	1915	33,500	11.39
Mar. 6	2245	13,400	7.52	Sept. 18	0915	*49,600	*14.10
May 9	1530	9,900	6.60				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3210	2410	2540	2160	e1100	e1600	2650	1920	1230	318	4380	1460
2	2540	2140	2330	2110	e1100	e2200	3390	1840	1110	297	3250	1090
3	2100	1940	2060	2380	e1100	e3500	3110	3510	1050	271	2540	863
4	1850	1710	1820	3180	e1100	e4600	2940	3110	931	252	2070	745
5	2070	1630	1680	6570	e1100	e5800	2630	2770	818	300	1940	660
6	1650	1950	1600	7260	e1100	11100	2300	2550	840	329	1560	598
7	1450	1700	1460	5370	e1100	11600	2060	2620	778	293	1280	537
8	1320	1580	1330	4010	e1100	8740	1860	2520	694	455	1100	531
9	1200	1480	1250	e2800	e990	5830	1700	6100	624	453	947	18800
10	1090	1390	1140	e2300	e1000	4160	1520	7270	581	319	836	18300
11	990	1340	7480	e2100	e930	3290	1370	5960	791	266	1000	8280
12	900	1310	10000	e2000	e910	2860	1260	4900	726	276	915	4850
13	829	1340	7010	e1800	e900	2380	1650	3950	618	323	1200	3280
14	780	1350	4530	e1500	e890	2020	5720	3300	575	410	1380	2440
15	1590	1190	3590	e1500	e860	1880	5090	3100	571	1480	990	1990
16	1750	1130	2860	e1400	e840	1780	4000	2570	538	1220	844	1680
17	1470	1070	2480	e1400	e890	1660	3250	2200	585	952	791	2390
18	1420	1020	2270	e1400	e880	1540	2700	1940	780	771	706	39700
19	1360	2850	1960	e1300	e920	1430	2320	1870	698	802	650	19200
20	1280	15900	1720	e1300	e890	1370	2020	1660	597	868	616	10200
21	1210	10200	1520	e1200	e930	2300	1800	1530	518	765	1800	7210
22	1130	6300	1380	e1300	e930	2410	1750	2150	503	656	2770	5580
23	1040	4130	1370	e1300	e920	2150	1870	2280	479	689	1970	4350
24	939	3230	3010	e1300	e920	2130	2040	2120	441	843	1560	2460
25	846	2990	6430	e1200	e920	2380	1850	1860	398	652	1310	1830
26	776	2420	4930	e1200	e940	2970	2340	1780	370	586	1100	1570
27	1420	2080	3790	e1200	e1000	3880	2690	1940	345	10700	940	1340
28	3670	1970	3050	e1100	e1100	4470	2600	1630	326	11900	829	1560
29	3240	3080	2580	e1100	e1300	3830	2380	1370	332	8850	765	1610
30	3310	2730	2500	e1100	---	3190	2140	1140	350	5480	749	1320
31	2720	---	2560	e1100	---	2780	---	1040	---	4590	1970	---
TOTAL	51150	85560	94230	66940	28660	111830	75000	84500	19197	56366	44758	166424
MEAN	1650	2852	3040	2159	988	3607	2500	2726	640	1818	1444	5547
MAX	3670	15900	10000	7260	1300	11600	5720	7270	1230	11900	4380	39700
MIN	776	1020	1140	1100	840	1370	1260	1040	326	252	616	531
CFSM	1.75	3.02	3.22	2.29	1.05	3.82	2.65	2.89	0.68	1.93	1.53	5.88
IN.	2.02	3.37	3.71	2.64	1.13	4.41	2.96	3.33	0.76	2.22	1.76	6.56

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 2004, BY WATER YEAR (WY)

MEAN	678	1273	1506	1294	1639	2903	3194	1857	1142	546	449	554
MAX	4597	4337	3860	4114	5148	6840	9683	3919	6070	2423	4096	5547
(WY)	1991	1978	1974	1996	1981	1964	1993	1960	1972	1972	1994	2004
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

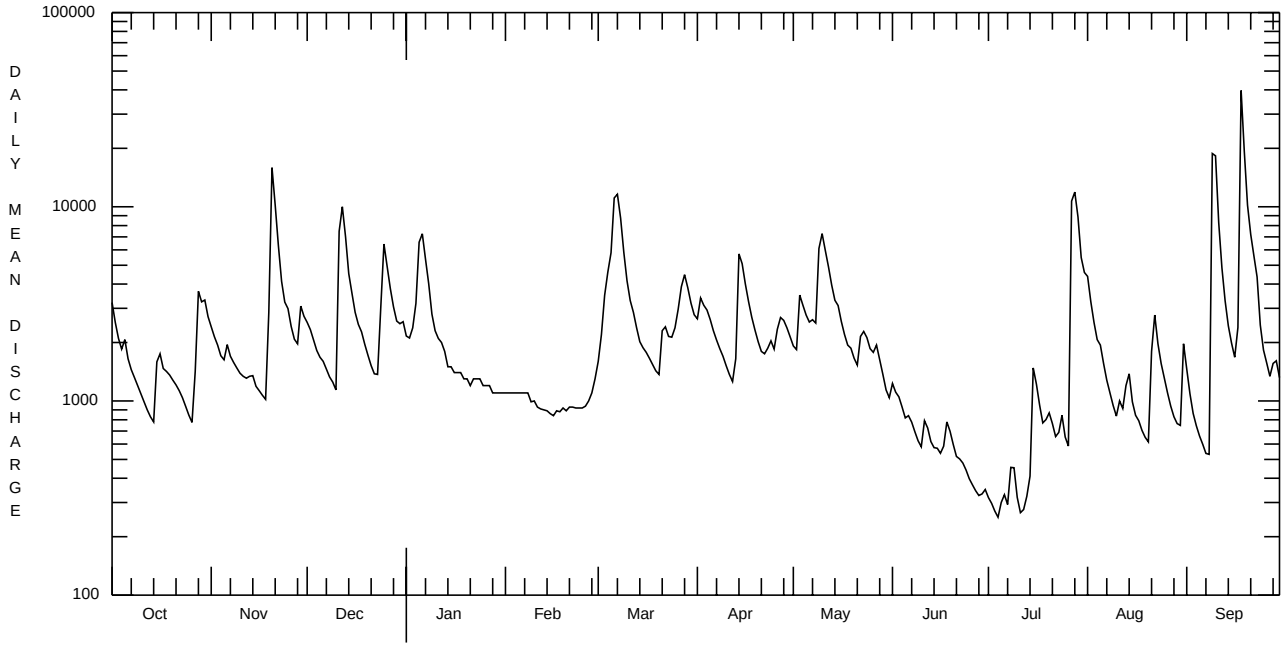
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01549700 PINE CREEK BELOW LITTLE PINE CREEK NEAR WATERVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1958 - 2004	
ANNUAL TOTAL	761010		884615			
ANNUAL MEAN	2085		2417		1417	
HIGHEST ANNUAL MEAN					2417	2004
LOWEST ANNUAL MEAN					739	1965
HIGHEST DAILY MEAN	16000	Mar 22	39700	Sep 18	75000	Jun 23 1972
LOWEST DAILY MEAN	255	Jul 18	252	Jul 4	23	Sep 5 1999
ANNUAL SEVEN-DAY MINIMUM	283	Jul 15	294	Jul 1	26	Sep 21 1964
MAXIMUM PEAK FLOW			**a**49600	Sep 18	**a**104000	Jun 23 1972
MAXIMUM PEAK STAGE			14.10	Sep 18	**b**22.76	Jun 23 1972
ANNUAL RUNOFF (CFSM)	2.21		2.56		1.50	
ANNUAL RUNOFF (INCHES)	29.99		34.86		20.39	
10 PERCENT EXCEEDS	4080		4590		3360	
50 PERCENT EXCEEDS	1440		1580		690	
90 PERCENT EXCEEDS	451		622		113	

a From rating curve extended above 22,000 ft^3/s on basis of slope-area measurement of peak flow.
b From floodmark.



WEST BRANCH SUSQUEHANNA RIVER BASIN

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.--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 Water-Quality Network can be found on pages 359-431.

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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)
OCT 2003													
15...	1115	1028	9813	1430	10.7	7.4	6.8	85	84	11.3	32	8.5	8.6
DEC													
15...	1545	1028	9813	3450	12.7	7.0	6.8	62	63	2.2	21	5.7	5.8
APR 2004													
22...	1130	1028	9813	1700	10.3	7.2	7.0	72	72	14.7	26	7.6	7.4
JUN													
17...	1130	1028	9813	524	9.3	7.9	7.4	97	96	24.1	36	9.9	10.4
AUG													
26...	1145	1028	9813	1100	10.6	8.2	7.6	85	82	19.7	33	9.9	9.7

Date	Magnesium, water, fltrd, mg/L (00925)	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)
OCT 2003													
15...	2.5	2.5	17	.00	15.3	62	<2	<.020	.17	<.040	.01	.014	.38
DEC													
15...	1.5	1.5	11	.00	11.5	46	18	<.020	.41	<.040	.01	.020	.45
APR 2004													
22...	1.9	1.9	14	3.8	13.1	72	<2	<.020	.23	<.040	<.01	.022	.46
JUN													
17...	2.3	2.5	21	3.6	16.5	98	<2	<.020	<.04	<.040	<.01	.012	.26
AUG													
26...	2.3	2.3	23	1.0	11.5	92	2	<.020	.19	<.040	.01	.017	.28

Date	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	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)
OCT 2003													
15...	1.0	10	60	<4	<4	40	110	<1.0	<1.0	20	30	<4.0	<4.0
DEC													
15...	2.8	10	110	<4	<4	<20	130	<1.0	<1.0	30	40	<4.0	<4.0
APR 2004													
22...	1.0	30	90	<4	<4	--	--	<1.0	<1.0	20	40	<4.0	<4.0
JUN													
17...	.9	40	50	<4	<4	40	80	<1.0	<1.0	20	30	<4.0	<4.0
AUG													
26...	.5	30	90	<4	<4	60	150	<1.0	<1.0	10	30	<4.0	<4.0

Date	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
OCT 2003		
15...	<5.0	<5.0
DEC		
15...	<5.0	<5.0
APR 2004		
22...	<5.0	<5.0
JUN		
17...	<5.0	<5.0
AUG		
26...	<5.0	<5.0

01549700 PINE CREEK BELOW LITTLE PINE CREEK NEAR WATERVILLE, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

Date	10/15/03
Benthic Macroinvertebrate	Count
Nemertea (PROBOSCIS WORMS)	
Enopla	
Hoplonemertea	
Tetrastemmatidae	
Prostoma	1
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia	2
Bivalvia (CLAMS)	
Sphaeriidae	
Sphaerium	3
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Tubificida	
Tubificidae	1
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	1
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Acentrella	3
Baetis	1
Caenidae	
Caenis	4
Ephemerellidae	
Eurylophella	1
Serratella	7
Heptageniidae	
Epeorus	2
Stenacron	4
Stenonema	28
Isonychiidae	
Isonychia	18
Potamanthidae	
Anthopotamus	1
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Coenagrionidae	
Argia	2
Gomphidae	
Lanthus	1
Plecoptera (STONEFLIES)	
Taeniopterygidae	
Taeniopteryx	13

01549700 PINE CREEK BELOW LITTLE PINE CREEK NEAR WATERVILLE, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	10/15/03
Benthic Macroinvertebrate	Count
Trichoptera (CADDISFLIES)	
Glossosomatidae	
Glossosoma	3
Protoptila	1
Hydropsychidae	
Cheumatopsyche	14
Hydropsyche	14
Lepidostomatidae	
Lepidostoma	5
Leptoceridae	
Mystacides	1
Polycentropodidae	
Neureclipsis	1
Psychomyiidae	
Psychomyia	1
Uenoidae	
Neophylax	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus	1
Stenelmis	1
Psephenidae (WATER PENNIES)	
Psephenus	9
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	14
Total Organisms	159
Total Taxa	31

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)
Nov. 19	2315	6,360	9.69	July 27	1745	7,820	10.68
Dec. 11	1245	6,540	9.82	July 31	1730	4,230	8.10
Dec. 24	1745	3,160	7.16	Sept. 9	0845	3,330	7.32
Mar. 6	0815	3,210	7.21	Sept. 18	0645	*17,100	*15.78

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	362	565	588	387	e90	118	420	246	183	51	1900	107
2	325	486	506	370	e89	169	439	319	171	42	1130	100
3	296	424	426	439	e74	477	387	1260	159	35	718	93
4	331	382	373	691	e72	790	368	769	133	31	540	89
5	368	394	342	1520	e63	1450	337	627	123	69	550	84
6	300	463	327	1190	e82	2830	308	523	131	60	384	82
7	272	378	300	824	e86	1840	293	599	121	73	317	78
8	251	342	256	650	e97	1280	278	460	109	331	270	86
9	235	315	261	510	e92	854	266	1190	99	160	232	1680
10	221	301	245	417	e86	648	246	864	98	107	204	748
11	209	291	3660	e380	e86	536	233	767	105	83	265	431
12	198	290	1960	e340	e86	487	224	854	93	89	211	324
13	191	290	1100	e300	e80	415	575	628	83	118	744	272
14	184	270	817	e260	e76	365	1470	497	82	239	423	231
15	589	253	665	e240	e71	353	830	425	95	391	316	207
16	364	240	539	e220	e66	336	611	357	132	284	273	191
17	316	231	509	e220	e60	318	500	300	141	234	244	1340
18	303	221	472	e210	e66	298	416	281	195	239	216	10100
19	286	1940	401	206	e69	285	361	260	159	340	193	2150
20	270	3380	354	180	81	274	317	233	121	466	182	1130
21	257	1500	312	165	86	465	285	273	100	320	249	754
22	249	960	294	159	93	386	277	287	108	266	240	551
23	245	715	329	e130	92	340	310	247	110	386	183	428
24	232	593	1280	e120	92	360	299	206	87	439	166	348
25	220	587	1340	e110	e85	537	266	176	73	308	155	299
26	212	471	870	e110	e82	583	362	206	89	336	144	263
27	1110	416	667	e110	88	684	335	215	70	3500	135	225
28	1100	547	547	e110	e85	622	305	171	60	3080	129	622
29	1050	1000	472	e100	97	526	279	149	72	1360	122	717
30	884	678	513	e96	---	461	260	134	62	838	132	485
31	681	---	453	e96	---	422	---	137	---	2250	119	---
TOTAL	12111	18923	21178	10860	2372	19509	11857	13660	3364	16525	11086	24215
MEAN	391	631	683	350	81.8	629	395	441	112	533	358	807
MAX	1110	3380	3660	1520	97	2830	1470	1260	195	3500	1900	10100
MIN	184	221	245	96	60	118	224	134	60	31	119	78
CFSM	2.26	3.65	3.95	2.02	0.47	3.64	2.28	2.55	0.65	3.08	2.07	4.67
IN.	2.60	4.07	4.55	2.34	0.51	4.19	2.55	2.94	0.72	3.55	2.38	5.21

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2004, BY WATER YEAR (WY)

MEAN	162	301	312	272	292	592	621	385	206	117	93.8	115
MAX	983	1044	1003	1095	1082	1788	1783	979	1488	674	812	807
(WY)	1991	1927	1997	1996	1981	1936	1993	1919	1972	1915	1994	2004
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

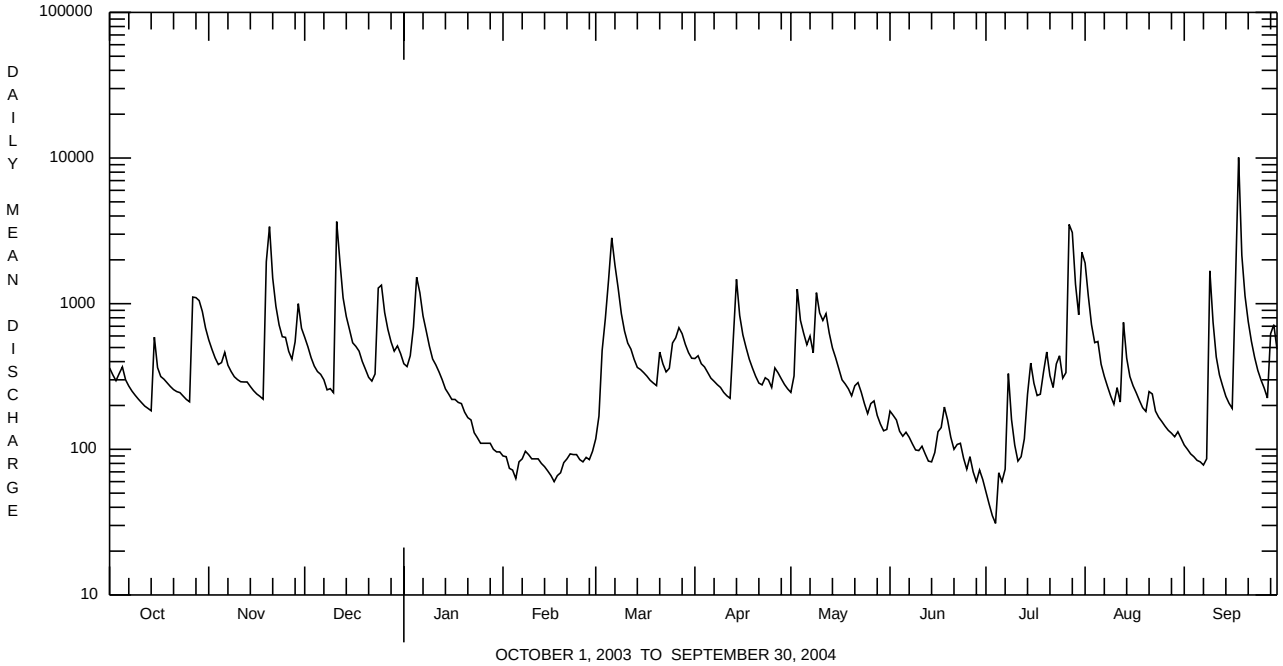
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01550000 LYCOMING CREEK NEAR TROUT RUN, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1914 - 2004	
ANNUAL TOTAL	170529		165660			
ANNUAL MEAN	467		453		289	
HIGHEST ANNUAL MEAN					491	1978
LOWEST ANNUAL MEAN					124	1965
HIGHEST DAILY MEAN	4500	Mar 21	10100	Sep 18	15000	Jan 19 1996
LOWEST DAILY MEAN	75	Feb 16	31	Jul 4	4.0	Sep 19-24 1936**a**
ANNUAL SEVEN-DAY MINIMUM	**b**91	Feb 15	50	Jun 30	4.1	Sep 18 1936
MAXIMUM PEAK FLOW			**c**17100	Sep 18	**c**32000	Jan 19 1996
MAXIMUM PEAK STAGE			15.78	Sep 18	**d**22.68	Jan 19 1996
INSTANTANEOUS LOW FLOW					3.2	Sep 27 1936
ANNUAL RUNOFF (CFSM)	2.70		2.62		1.67	
ANNUAL RUNOFF (INCHES)	36.67		35.62		22.67	
10 PERCENT EXCEEDS	895		857		665	
50 PERCENT EXCEEDS	301		290		142	
90 PERCENT EXCEEDS	123		86		25	

a Also Sept. 27, 28, 1936 and Sept. 1, 1968.
b Computed using estimated daily discharges.
c From rating curve extended above 5,300 ft^3/s on basis of slope-area measurement of peak flow.
d From floodmark in gage.



WEST BRANCH SUSQUEHANNA RIVER BASIN

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.--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 Water-Quality Network can be found on pages 359-431.

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 2003 TO SEPTEMBER 2004

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Pressure, osmotic water, unfltrd mosm/kg (82550)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)
OCT 2003													
02...	1330	1028	9813	320	3.0	11.0	7.2	6.7	63	61	11.0	23	6.8
NOV													
05...	1000	1028	9813	357	5.0	10.6	7.0	6.6	62	54	11.8	21	5.8
DEC													
04...	1145	1028	9813	366	<1.0	13.2	7.5	7.0	58	55	1.8	21	5.9
JAN 2004													
06...	1145	1028	9813	1170	<1.0	13.3	7.0	6.9	52	52	3.1	21	5.7
FEB													
02...	0930	1028	9813	E89	7.0	14.4	7.8	6.9	64	59	.1	22	6.4
MAR													
10...	0945	1028	9813	653	6.0	13.9	7.6	6.8	54	56	2.7	17	4.8
APR													
05...	0915	1028	9813	343	5.0	13.6	7.7	7.2	60	55	2.4	20	5.8
MAY													
11...	1240	1028	9813	802	3.0	10.8	6.8	7.0	57	53	14.1	19	5.6
JUN													
02...	1200	1028	9813	177	2.0	10.1	7.3	7.0	66	64	14.2	24	6.7
JUL													
13...	1230	1028	9813	119	2.0	9.7	6.8	6.6	65	61	16.9	22	6.2
AUG													
05...	1315	1028	9813	555	<1.0	9.7	6.8	6.6	57	56	16.4	20	6.2
SEP													
21...	1130	1028	9813	762	<1.0	10.5	6.7	6.7	55	53	12.5	20	5.7

Date	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	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)
OCT 2003													
02...	6.6	1.5	1.5	13	.00	2.5	<.2	10.1	34	4	<.020	.37	<.040
NOV													
05...	6.1	1.3	1.4	12	.00	2.2	<.2	9.7	40	2	<.020	.38	<.040
DEC													
04...	6.0	1.4	1.4	10	.00	2.0	<.2	10.1	44	<2	<.020	.52	<.040
JAN 2004													
06...	6.0	1.3	1.4	8	.00	2.4	<.2	9.5	40	4	<.020	.59	<.040
FEB													
02...	6.5	1.4	1.5	11	.00	2.6	<.2	11.1	118	<2	<.020	.66	<.040
MAR													
10...	5.1	1.1	1.1	8	4.4	2.2	<.2	9.0	54	<2	<.020	.83	<.040
APR													
05...	5.8	1.3	1.3	10	1.0	2.8	<.2	9.6	76	<2	<.020	.61	<.040
MAY													
11...	5.7	1.2	1.3	13	6.2	2.3	<.2	9.2	52	2	<.020	.45	<.040
JUN													
02...	6.9	1.5	1.5	15	4.6	2.8	<.2	9.5	16	38	<.020	.42	<.040
JUL													
13...	6.6	1.4	1.4	15	--	2.6	<.2	10.0	34	<2	<.020	.40	<.040
AUG													
05...	6.1	1.3	1.3	16	3.0	2.1	<.2	8.3	36	4	.040	.36	<.040
SEP													
21...	5.7	1.3	1.4	10	13	2.0	<.2	9.8	56	4	<.020	.45	<.040

WEST BRANCH SUSQUEHANNA RIVER BASIN

01550000 LYCOMING CREEK NEAR TROUT RUN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	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)	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)
OCT 2003													
02...	<.01	<.010	.45	.4	30	40	80	<4	<4	<20	30	<1.0	<1.0
NOV													
05...	.01	.011	.40	1.3	40	40	80	<4	<4	20	30	<1.0	<1.0
DEC													
04...	.01	<.010	.66	1.5	<20	50	100	<4	<4	<20	30	<1.0	<1.0
JAN 2004													
06...	.01	.010	.74	1.3	20	60	130	<4	<4	40	100	<1.0	<1.0
FEB													
02...	<.01	<.010	.70	.8	<20	10	50	<4	<4	<20	<20	<1.0	<1.0
MAR													
10...	<.01	.015	.94	1.3	<20	60	140	<4	<4	<20	290	<1.0	<1.0
APR													
05...	.01	<.010	.67	.9	<10	50	80	<4	<4	<20	30	<1.0	<1.0
MAY													
11...	<.01	.010	.51	1.0	20	40	80	<4	<4	<20	100	<1.0	<1.0
JUN													
02...	<.01	.015	.68	.4	10	30	40	<4	<4	<20	40	<1.0	<1.0
JUL													
13...	<.01	<.010	.60	.6	80	20	40	<4	<4	<20	30	<1.0	<1.0
AUG													
05...	<.01	.013	.38	.6	100	40	100	<4	<4	30	90	<1.0	<1.0
SEP													
21...	<.01	.011	.59	.4	80	40	190	<4	<4	<20	330	<1.0	<1.0

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)
OCT 2003							
02...	20	30	<4.0	<4.0	6	7	<5
NOV							
05...	20	20	<4.0	<4.0	7	7	<5
DEC							
04...	20	30	<4.0	<4.0	10	9	<5
JAN 2004							
06...	30	30	<4.0	<4.0	7	9	<5
FEB							
02...	20	20	<4.0	<4.0	8	8	<5
MAR							
10...	30	40	<4.0	<4.0	10	10	5
APR							
05...	20	20	<4.0	<4.0	9	8	<5
MAY							
11...	20	30	<4.0	<4.0	6	8	<5
JUN							
02...	10	10	<4.0	<4.0	<5	<5	<5
JUL							
13...	5	9	<4.0	<4.0	<5	<5	<5
AUG							
05...	30	80	<4.0	<4.0	5	10	<5
SEP							
21...	40	50	<4.0	<4.0	8	9	<5

01550000 LYCOMING CREEK NEAR TROUT RUN, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 200 animal (approximate) subsamples.

Date	12/11/02
Benthic Macroinvertebrate	Count
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia	5
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	1
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Acentrella	2
Ephemerellidae	
Drunella	7
Ephemerella	17
Serratella	6
Heptageniidae	
Epeorus	2
Leucrocuta	9
Rhithrogena	2
Stenonema	7
Isonychiidae	
Isonychia	4
Leptophlebiidae	
Paraleptophlebia	8
Plecoptera (STONEFLIES)	
Perlidae	
Acroneuria	2
Taeniopterygidae	
Taenionema	4
Taeniopteryx	2
Trichoptera (CADDISFLIES)	
Apataniidae	
Apatania	1
Brachycentridae	
Brachycentrus	1
Helicopsychidae	
Helicopsyche	1
Hydropsychidae	
Cheumatopsyche	26
Hydropsyche	17
Lepidostomatidae	
Lepidostoma	1
Leptoceridae	
Setodes	4
Philopotamidae	
Chimarra	2

WEST BRANCH SUSQUEHANNA RIVER BASIN

01550000 LYCOMING CREEK NEAR TROUT RUN, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	12/11/02
Benthic Macroinvertebrate	Count
Trichoptera (CADDISFLIES)	
Polycentropodidae	
Polycentropus	2
Rhyacophilidae	
Rhyacophila	10
Uenoidae	
Neophylax	8
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus	19
Stenelmis	3
Psephenidae (WATER PENNIES)	
Psephenus	12
Diptera (TRUE FLIES)	
Ceratopogonidae (BITING MIDGES)	
Probezzia	1
Chironomidae (MIDGES)	16
Simuliidae (BLACK FLIES)	
Prosimulium	6
Total Organisms	208
Total Taxa	32

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 from Aug. 18 to Sept. 30, which are fair, and 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24100	12900	16200	15300	e4000	5630	15900	14700	8790	2710	32000	8290
2	19500	11500	14500	14200	e4000	7340	20300	13400	9120	2500	26000	6550
3	16200	10500	13000	16000	e4000	15600	23700	16500	8270	2310	19900	5320
4	13400	9560	11700	21900	e3800	e34000	22300	16600	7570	2170	14800	4610
5	12600	9290	10700	43500	e4000	42300	19100	14800	6650	2460	13600	3950
6	11600	10700	10300	68200	e3900	61900	16500	13500	6340	3040	13000	3580
7	10100	12300	9880	53200	e4100	79600	14500	12600	5840	3070	10400	3270
8	9110	11900	8900	38800	e4400	64100	12900	12000	5320	3740	8770	3140
9	8270	10500	8210	31500	e4900	47900	11900	12800	4900	3460	7510	e20000
10	7550	9800	7900	25000	e5400	36700	11100	18600	4620	2940	6510	e65000
11	6950	9110	23900	19500	e5500	27800	9960	18400	4580	2520	6220	e50000
12	6360	8730	60700	16700	e5100	21800	8960	17100	4760	2750	6120	36200
13	5910	8720	50500	14600	e4700	18900	9960	15100	4870	4080	7850	25800
14	5530	8760	35300	12000	e4400	15700	29200	13500	5300	6890	8200	19300
15	7240	8570	27900	9920	e4100	13100	45200	12300	4970	11200	7000	15700
16	13100	7990	22600	e7300	e3800	12200	34300	11300	4980	10200	5920	11700
17	13600	7640	19600	e5900	e3500	11600	26200	10000	7070	7670	5260	11700
18	11300	7450	17600	e6200	e3300	10800	20400	9290	7280	6400	4700	142000
19	10200	9680	14500	e7300	e3300	10100	16700	9770	7940	6500	4230	171000
20	9520	70000	12500	e7400	e3700	9670	13900	14800	6480	7670	3900	81600
21	8610	78900	11200	e7000	e3800	14900	12300	15400	5400	7810	4780	53600
22	7880	52800	9960	e6200	4130	25100	10900	23900	4870	6680	13500	43300
23	7360	38800	9510	e5600	4830	24000	11500	37800	4630	6070	14100	37200
24	6690	30300	12800	e4700	5730	20300	13500	31100	4530	7870	10000	30600
25	6140	24600	30500	e4200	e5500	17900	14500	23400	4180	7790	7870	23300
26	5680	20200	34000	e3500	e5100	19200	15500	18800	3780	6470	6490	18900
27	7890	16400	27200	e3600	4730	21100	23700	17700	3170	24100	5750	15300
28	16700	14800	21300	e4200	4700	24400	25000	15700	2980	66700	4950	17300
29	17400	17000	18000	e4500	4940	22100	20900	13100	2900	54000	4520	17700
30	17600	17400	15900	e4400	---	18800	17200	10700	2770	35100	4410	16100
31	14700	---	16400	e4300	---	16300	---	9110	---	29000	5970	---
TOTAL	338790	566800	603160	486620	127360	770840	547980	493770	164860	345870	294230	962010
MEAN	10930	18890	19460	15700	4392	24870	18270	15930	5495	11160	9491	32070
MAX	24100	78900	60700	68200	5730	79600	45200	37800	9120	66700	32000	171000
MIN	5530	7450	7900	3500	3300	5630	8960	9110	2770	2170	3900	3140
CFSM	1.92	3.33	3.42	2.76	0.77	4.38	3.21	2.80	0.97	1.96	1.67	5.64
IN.	2.22	3.71	3.95	3.19	0.83	5.05	3.59	3.23	1.08	2.26	1.93	6.30

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1895 - 2004, BY WATER YEAR (WY)

MEAN	4197	7097	8940	9742	10520	19970	18270	12330	7186	4097	2974	3102
MAX	20850	28330	24140	30210	29100	62970	51090	32030	37400	20080	16450	32070
(WY)	1991	1951	1928	1937	1981	1936	1993	1919	1972	1902	1994	2004
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

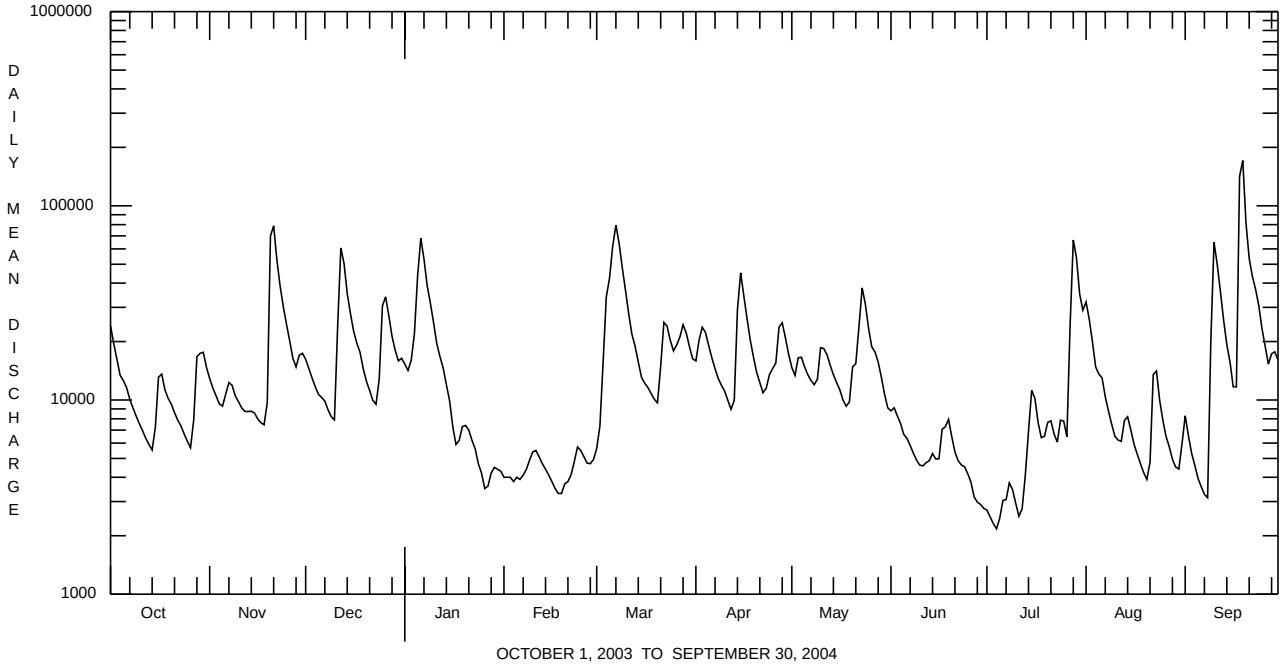
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01551500 WEST BRANCH SUSQUEHANNA RIVER AT WILLIAMSPORT, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1895 - 2004	
ANNUAL TOTAL	5071400		5702290			
ANNUAL MEAN	13890		15580		9035	
HIGHEST ANNUAL MEAN					15580	2004
LOWEST ANNUAL MEAN					5357	1934
HIGHEST DAILY MEAN	78900	Nov 21	171000	Sep 19	240000	Jun 23 1972
LOWEST DAILY MEAN	2390	Jul 20	2170	Jul 4	251	Sep 13 1932
ANNUAL SEVEN-DAY MINIMUM	2630	Jul 15	2550	Jun 29	328	Nov 25 1930
MAXIMUM PEAK FLOW			203000	Sep 18	**a**279000	Jun 23 1972
MAXIMUM PEAK STAGE			27.79	Sep 18	34.75	Jun 23 1972
INSTANTANEOUS LOW FLOW					162	Sep 17 1943
ANNUAL RUNOFF (CFSM)	2.45		2.74		1.59	
ANNUAL RUNOFF (INCHES)	33.20		37.33		21.61	
10 PERCENT EXCEEDS	27500		31200		20900	
50 PERCENT EXCEEDS	10100		10700		5100	
90 PERCENT EXCEEDS	4200		4060		1070	

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.--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 Water-Quality Network can be found on pages 359-431.

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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)
OCT 2003													
15...	1400	1028	9813	7720	10.3	7.4	6.9	194	208	13.7	75	17.6	7.4
DEC													
16...	1430	1028	9813	22000	15.3	7.1	6.8	140	150	2.6	55	13.7	5.1
APR 2004													
06...	1415	1028	9813	16300	12.3	7.2	7.3	155	151	6.4	59	14.2	5.6
JUN													
16...	1000	1028	9813	4880	9.3	7.3	7.4	293	284	22.7	120	27.1	11.8
AUG													
26...	1345	1028	9813	6360	10.2	7.8	7.5	191	181	21.5	75	18.4	6.9

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	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)
OCT 2003													
15...	21	57.5	124	14	<.020	.43	<.040	.01	.024	.70	1.6	520	<10
DEC													
16...	19	35.1	108	8	<.020	.63	<.040	.02	.019	.65	1.2	470	<10
APR 2004													
06...	14	43.3	128	4	<.020	.51	<.040	.01	.012	.61	1.1	430	<10
JUN													
16...	24	92.7	204	28	<.020	.51	<.040	<.01	<.010	.85	1.3	<200	30
AUG													
26...	26	46.8	154	4	<.020	.44	<.040	<.01	<.010	.51	1.7	<200	<10

Date	Iron, water, unfltrd recoverable, µg/L (01045)	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)
OCT 2003					
15...	720	<1.0	500	<50	80
DEC					
16...	530	<1.0	260	<50	20
APR 2004					
06...	410	<1.0	330	<50	20
JUN					
16...	80	<1.0	330	<50	50
AUG					
26...	160	<1.0	160	<50	<10

01551500 WEST BRANCH SUSQUEHANNA RIVER AT WILLIAMSPORT, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

Date	10/15/03
Benthic Macroinvertebrate	Count
Nematoda (NEMATODES)	4
Mollusca	
Bivalvia (CLAMS)	
Veneroida	
Planorbidae	
Planorbella	1
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Tubificida	
Naididae	6
Tubificidae	13
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	2
Insecta	
Ephemeroptera (MAYFLIES)	
Heptageniidae	1
Epeorus	1
Leucrocuta	1
Stenacron	3
Stenonema	9
Isonychiidae	
Isonychia	8
Plecoptera (STONEFLIES)	
Capniidae	3
Perlidae	
Acroneuria	1
Taeniopterygidae	
Taeniopteryx	21
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche	23
Hydropsyche	6
Leptoceridae	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Stenelmis	1
Psephenidae (WATER PENNIES)	
Psephenus	1
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	14
Psychodidae	
Pericoma	2
Psychoda	3
Total Organisms	125
Total Taxa	22

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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Oct. 27	2145	8,350	7.89	July 27	2115	11,300	8.82
Nov. 20	0400	9,440	8.24	Aug. 1	0000	11,600	8.89
Dec. 11	1615	17,000	10.37	Sept. 18	1130	*40,400	*15.24

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	722	1620	1390	1040	e570	317	833	673	563	176	6750	601
2	643	1320	1200	978	e560	375	894	704	565	151	3140	425
3	574	1150	1040	1130	e560	1010	807	2060	526	137	1850	353
4	588	1000	909	1520	e550	1740	768	1620	456	127	1320	314
5	782	968	874	3920	e540	2900	731	1270	405	142	1470	283
6	652	1200	833	3210	e490	5360	665	1140	434	126	1120	265
7	554	1000	767	2090	e480	4090	618	1190	444	122	868	245
8	500	875	e710	1580	e420	2760	581	1120	388	262	732	236
9	464	778	692	e1200	e380	1950	543	1590	332	274	623	1250
10	433	720	647	e1000	e360	1510	500	1570	318	176	532	1390
11	408	687	8680	e950	e350	1260	475	1300	316	143	746	815
12	383	681	6320	e900	e310	1140	452	1750	291	140	786	607
13	359	703	2960	e880	e280	984	820	1550	256	192	3160	509
14	343	653	2060	e820	e270	845	2820	1200	240	267	2390	440
15	1380	587	1700	e780	e250	806	1780	1040	262	613	1420	390
16	1220	547	1360	e780	e230	764	1320	1190	358	434	1070	358
17	875	517	1260	e780	e220	733	1110	969	293	342	883	1480
18	749	494	1300	e770	e220	689	971	857	302	423	730	28100
19	683	1640	1110	e720	e210	643	868	806	318	726	626	5730
20	630	6990	988	e690	e210	598	772	755	322	804	577	2760
21	584	3210	877	e670	e220	992	707	756	255	532	684	1860
22	550	2070	816	e640	e230	965	663	877	249	447	840	1410
23	515	1570	810	e630	e230	798	751	773	271	456	602	1130
24	477	1320	2240	e620	e230	831	844	671	290	619	572	935
25	439	1320	3930	e600	e210	1000	714	585	230	445	585	804
26	415	1130	2290	e600	e200	1210	861	665	230	371	486	702
27	3170	1000	1700	e600	e210	1250	1030	853	242	3850	430	607
28	4930	1030	1380	e590	e220	1210	885	685	204	5360	389	1980
29	3530	2360	1200	e580	e260	1050	796	559	193	2490	368	3230
30	3220	1700	1230	e560	---	926	722	473	194	1500	352	1910
31	2100	---	1230	e560	---	853	---	449	---	3350	635	---
TOTAL	32872	40840	54503	32388	9470	41559	26301	31700	9747	25197	36736	61119
MEAN	1060	1361	1758	1045	327	1341	877	1023	325	813	1185	2037
MAX	4930	6990	8680	3920	570	5360	2820	2060	565	5360	6750	28100
MIN	343	494	647	560	200	317	452	449	193	122	352	236
CFSM	2.44	3.13	4.04	2.40	0.75	3.08	2.02	2.35	0.75	1.87	2.72	4.68
IN.	2.81	3.49	4.66	2.77	0.81	3.55	2.25	2.71	0.83	2.15	3.14	5.23

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 2004, BY WATER YEAR (WY)

MEAN	491	848	903	776	814	1476	1548	953	522	283	280	306
MAX	2512	2856	3033	3070	2961	4490	4236	2694	4327	1206	1797	2037
(WY)	1991	1951	1974	1996	1981	1936	1993	1946	1972	1928	1994	2004
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

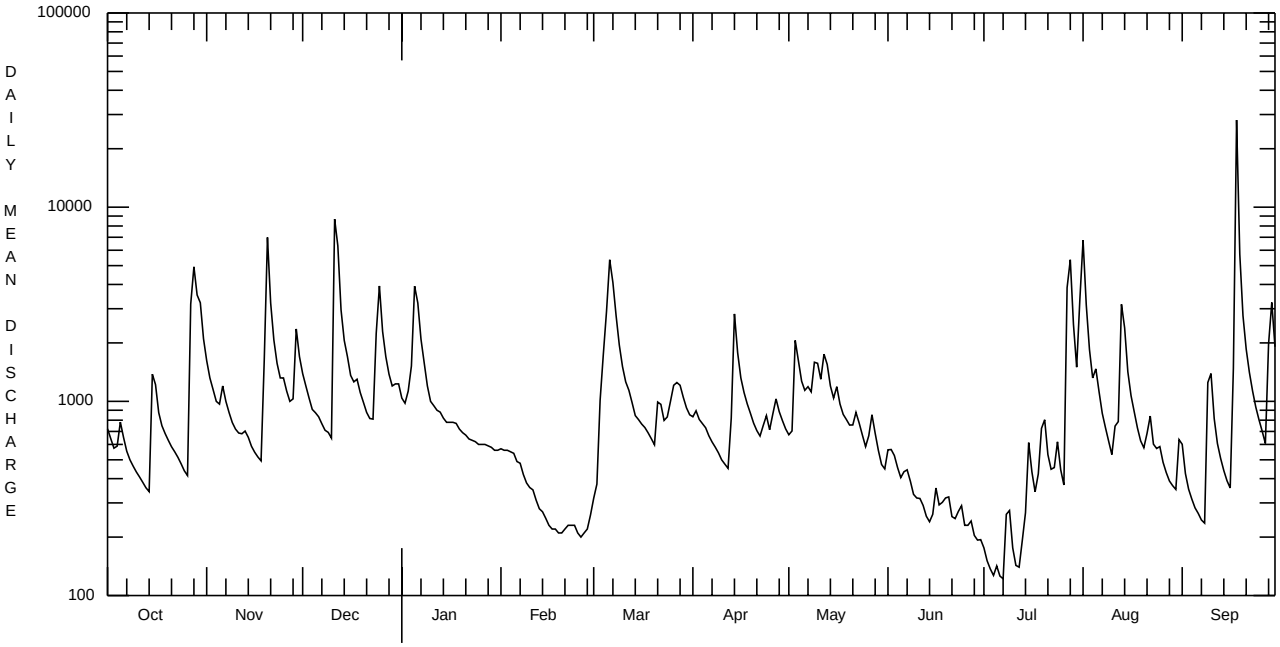
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01552000 LOYALSOCK CREEK AT LOYALSOCKVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1926 - 2004	
ANNUAL TOTAL	379215		402432			
ANNUAL MEAN	1039		1100		766	
HIGHEST ANNUAL MEAN					1312	1978
LOWEST ANNUAL MEAN					332	1965
HIGHEST DAILY MEAN	9580	Mar 21	28100	Sep 18	45000	Jun 23 1972
LOWEST DAILY MEAN	163	Aug 29	122	Jul 7	11	Sep 25 1964
ANNUAL SEVEN-DAY MINIMUM	179	Aug 26	140	Jul 1	12	Sep 20 1964
MAXIMUM PEAK FLOW			**a**40400	Sep 18	**a**55800	Jan 19 1996
MAXIMUM PEAK STAGE			15.24	Sep 18	**b**17.93	Jan 19 1996
INSTANTANEOUS LOW FLOW					11	Sep 25,26 1964**c**
ANNUAL RUNOFF (CFSM)	2.39		2.53		1.76	
ANNUAL RUNOFF (INCHES)	32.43		34.41		23.92	
10 PERCENT EXCEEDS	2080		2060		1690	
50 PERCENT EXCEEDS	660		724		410	
90 PERCENT EXCEEDS	280		256		69	

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.



OCTOBER 1, 2003 TO SEPTEMBER 30, 2004

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.--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 Water-Quality Network can be found on pages 359-431.

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 2003 TO SEPTEMBER 2004

Date	Time	Agency col-lecting sample, code (00027)	Agency ana-lyzing sample, code (00028)	Instan-taneous dis-charge, cfs (00061)	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unf lab, µS/cm 25 degC (90095)	Specif. conduc-tance, wat unf µS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)
OCT 2003													
02...	1130	1028	9813	646	11.3	7.5	6.7	58	56	11.6	23	6.9	7.1
DEC													
04...	1345	1028	9813	886	13.9	7.3	7.1	54	50	1.4	19	6.1	6.0
APR 2004													
05...	1130	1028	9813	735	13.3	7.5	7.2	58	54	4.3	20	5.9	6.1
JUN													
01...	1315	1028	9813	579	10.8	8.0	7.4	61	57	16.7	22	7.1	6.9
AUG													
04...	1230	1028	9813	1300	9.8	7.3	6.8	56	54	20.1	21	6.9	6.8

Date	Magnes-ium, water, fltrd, mg/L (00925)	Magnes-ium, water, unfltrd recover-able, 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, 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)
OCT 2003													
02...	1.1	1.2	14	.00	7.7	40	4	<.020	.16	<.040	<.01	<.010	.30
DEC													
04...	1.1	1.1	11	.00	8.4	42	<2	<.020	.33	<.040	<.01	<.010	.61
APR 2004													
05...	1.0	1.0	11	.80	8.2	136	<2	<.020	.38	<.040	<.01	<.010	.40
JUN													
01...	1.1	1.1	15	.80	8.0	--	<2	<.020	.25	<.040	<.01	.010	.46
AUG													
04...	1.1	1.0	13	2.6	7.3	32	<2	.050	.20	<.040	<.01	<.010	.32

Date	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	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)
OCT 2003													
02...	.4	30	40	<4	<4	20	50	<1.0	<1.0	4	6	<4.0	<4.0
DEC													
04...	1.4	20	50	<4	<4	<20	20	<1.0	<1.0	3	5	<4.0	<4.0
APR 2004													
05...	.9	20	30	<4	<4	<20	30	<1.0	<1.0	2	4	<4.0	<4.0
JUN													
01...	.9	20	40	<4	<4	30	40	<1.0	<1.0	6	10	<4.0	<4.0
AUG													
04...	1.4	40	70	<4	<4	40	100	<1.0	<1.0	8	20	<4.0	<4.0

Date	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)
OCT 2003		
02...	<5.0	<5.0
DEC		
04...	<5.0	<5.0
APR 2004		
05...	<5.0	<5.0
JUN		
01...	<5.0	<5.0
AUG		
04...	<5.0	<5.0

WEST BRANCH SUSQUEHANNA RIVER BASIN

01552000 LOYALSOCK CREEK AT LOYALSOCKVILLE, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

Date	10/02/03
Benthic Macroinvertebrate	Count
Nemertea (PROBOSCIS WORMS)	
Enopla	
Hoplonemertea	
Tetrastemmatidae	
Prostoma	1
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia	1
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	29
Tubificida	
Naididae	1
Arthropoda	
Decapoda	
Cambaridae (CRAYFISH)	
Orconectes	1
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Baetis	4
Plauditus	8
Caenidae	
Caenis	1
Ephemerellidae	
Ephemerella	1
Serratella	1
Heptageniidae	
Leucrocuta	5
Stenonema	43
Isonychiidae	
Isonychia	21
Leptophlebiidae	
Paraleptophlebia	1
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Coenagrionidae	1
Gomphidae	
Lanthus	2
Plecoptera (STONEFLIES)	
Perlidae	
Acroneuria	4
Megaloptera	
Sialidae (ALDERFLIES)	
Sialis	1

01552000 LOYALSOCK CREEK AT LOYALSOCKVILLE, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	10/02/03
Benthic Macroinvertebrate	Count
Trichoptera (CADDISFLIES)	
Apataniidae	
Apatania	1
Hydropsychidae	
Cheumatopsyche	3
Hydropsyche	3
Lepidostomatidae	
Lepidostoma	2
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Stenelmis	1
Psephenidae (WATER PENNIES)	
Psephenus	5
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	9
Tipulidae (CRANE FLIES)	
Antocha	3
Total Organisms	153
Total Taxa	26

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)
Dec. 11	0945	1,580	5.46	Sept. 18	0815	*2,440	*6.64
July 31	1615	1,870	5.89				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	90	91	56	19	15	48	43	26	8.4	354	43
2	29	73	73	56	17	e40	43	90	30	7.5	150	33
3	27	62	60	81	21	e80	39	235	22	6.9	95	29
4	48	54	53	116	26	135	38	129	19	6.4	72	25
5	44	66	48	211	20	190	34	99	21	7.4	79	22
6	35	66	45	145	23	366	31	79	25	6.7	48	21
7	32	54	40	e110	26	206	29	96	22	9.2	38	19
8	30	48	e38	e90	18	143	27	69	19	32	33	24
9	28	43	33	e63	16	103	26	102	17	11	28	97
10	26	40	41	e62	14	81	25	82	16	8.8	26	63
11	24	39	776	e60	14	69	23	80	16	8.0	43	45
12	23	41	260	e56	13	61	23	68	14	12	74	37
13	22	41	141	e53	13	50	86	56	13	14	326	32
14	26	36	111	e36	13	43	127	48	13	15	143	28
15	175	33	90	e33	e11	41	86	49	18	20	96	26
16	77	31	72	e43	e9.0	38	69	52	17	16	71	24
17	61	30	76	e43	14	38	58	40	13	15	54	112
18	53	28	68	e40	13	35	49	38	13	24	44	1400
19	46	223	57	e33	12	33	42	e44	12	23	37	354
20	40	325	50	37	11	e30	36	37	10	19	39	182
21	36	160	43	34	12	e60	34	39	8.9	16	91	115
22	33	109	e40	34	12	e38	32	38	12	16	62	81
23	30	84	52	31	12	e32	43	33	17	115	46	60
24	28	76	220	e33	12	46	35	30	11	57	42	49
25	26	76	183	e31	e10	68	32	27	12	36	35	42
26	25	60	123	e35	e10	71	91	35	17	30	31	35
27	330	54	95	e31	e10	89	70	32	11	328	28	30
28	220	105	78	e31	e9.6	77	62	28	9.6	203	25	262
29	238	167	67	e26	13	63	54	24	11	110	22	218
30	162	112	82	e23	---	54	49	21	8.9	76	51	146
31	116	---	66	22	---	49	---	23	---	597	89	---
TOTAL	2122	2426	3272	1755	423.6	2444	1441	1866	474.4	1854.3	2372	3654
MEAN	68.5	80.9	106	56.6	14.6	78.8	48.0	60.2	15.8	59.8	76.5	122
MAX	330	325	776	211	26	366	127	235	30	597	354	1400
MIN	22	28	33	22	9.0	15	23	21	8.9	6.4	22	19
CFSM	2.88	3.40	4.43	2.38	0.61	3.31	2.02	2.53	0.66	2.51	3.21	5.12
IN.	3.32	3.79	5.11	2.74	0.66	3.82	2.25	2.92	0.74	2.90	3.71	5.71

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2004, BY WATER YEAR (WY)

MEAN	33.6	56.5	62.0	50.8	53.0	85.5	87.2	59.5	31.3	19.0	18.6	24.1
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

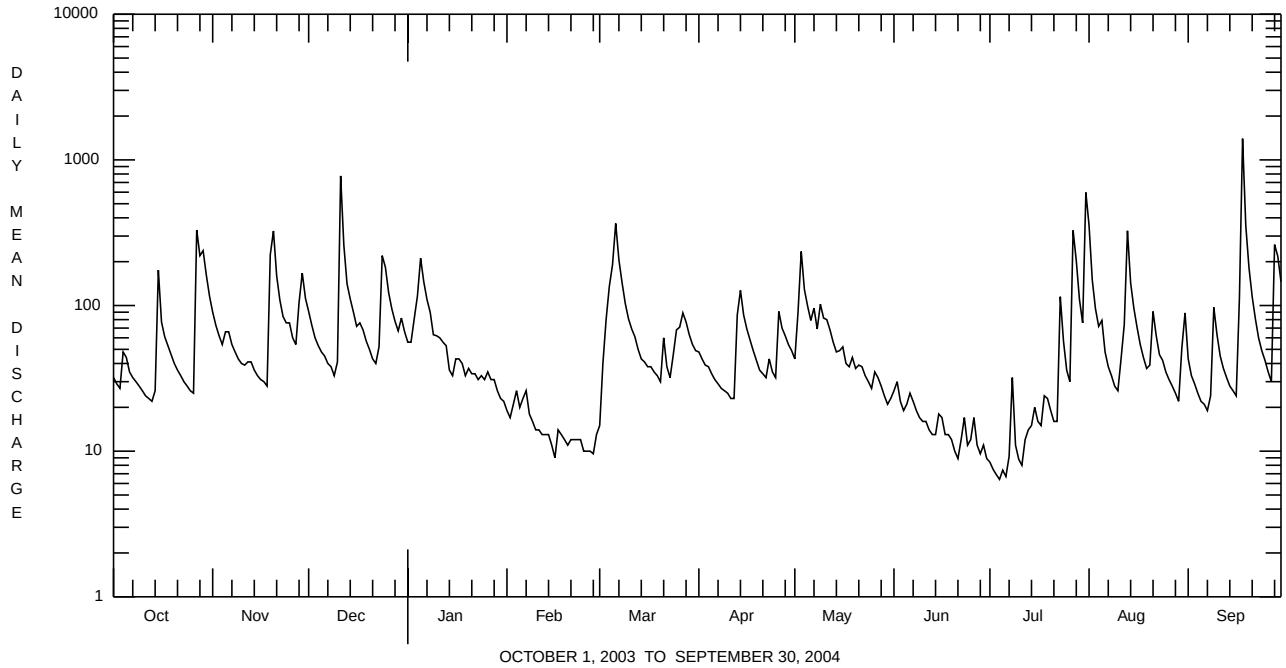
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01552500 MUNCY CREEK NEAR SONESTOWN, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1941 - 2004	
ANNUAL TOTAL	24072		24104.3			
ANNUAL MEAN	66.0		65.9		48.4	
HIGHEST ANNUAL MEAN					77.3	1978
LOWEST ANNUAL MEAN					22.1	1965
HIGHEST DAILY MEAN	776	Dec 11	1400	Sep 18	3910	Jun 22 1972
LOWEST DAILY MEAN	11	Jul 6	6.4	Jul 4	0.20	Sep 11 1964
ANNUAL SEVEN-DAY MINIMUM	13	Jul 4	7.5	Jun 30	0.31	Sep 8 1964
MAXIMUM PEAK FLOW			**a**2440	Sep 18	**a**4630	Jun 22 1972
MAXIMUM PEAK STAGE			6.64	Sep 18	8.94	Jun 22 1972
INSTANTANEOUS LOW FLOW					0.10	Sep 11 1964
ANNUAL RUNOFF (CFSM)	2.77		2.77		2.03	
ANNUAL RUNOFF (INCHES)	37.63		37.68		27.61	
10 PERCENT EXCEEDS	145		128		102	
50 PERCENT EXCEEDS	40		39		26	
90 PERCENT EXCEEDS	18		13		4.4	

a From rating curve extended above 2,000 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.--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 Water-Quality Network can be found on pages 359-431.

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 2003 TO SEPTEMBER 2004

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Pressure, osmotic water, unfltrd mosm/kg (82550)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)
OCT 2003													
02...	0800	1028	9813	30	3.0	11.0	7.2	7.2	56	55	9.4	21	6.9
NOV													
05...	0800	1028	9813	48	6.0	10.6	7.3	6.7	54	51	11.7	18	5.9
DEC													
03...	1200	1028	9813	60	<1.0	12.7	7.4	7.2	48	56	7.5	16	5.4
JAN 2004													
06...	0845	1028	9813	151	<1.0	13.4	7.7	7.0	45	45	2.6	21	6.3
MAR													
10...	1245	1028	9813	78	6.0	13.9	7.6	6.8	53	54	2.6	17	5.2
APR													
01...	0930	1028	9813	47	5.0	12.2	7.8	7.0	54	49	5.7	18	5.8
MAY													
11...	0930	1028	9813	80	3.0	10.9	7.0	7.1	54	50	12.7	19	6.0
JUN													
01...	0915	1028	9813	25	3.0	10.7	7.5	7.2	59	56	12.9	22	6.7
JUL													
13...	0930	1028	9813	15	3.0	9.5	6.9	6.9	73	56	17.1	26	8.2
AUG													
05...	0945	1028	9813	87	<1.0	9.5	7.0	6.6	55	55	16.0	21	6.9
SEP													
21...	0845	1028	9813	123	<1.0	10.8	7.1	6.8	51	50	11.6	20	6.2

Date	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	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)
OCT 2003													
02...	6.8	.90	.88	14	.00	2.3	<.2	6.9	28	2	<.020	.13	<.040
NOV													
05...	5.9	.83	.84	14	.00	2.0	<.2	7.3	38	<2	<.020	.17	<.040
DEC													
03...	5.3	.80	.78	10	.00	1.8	<.2	7.8	52	18	<.020	.29	<.040
JAN 2004													
06...	6.7	.97	1.1	8	.00	2.1	<.2	7.5	42	<2	<.020	.43	<.040
MAR													
10...	5.5	.73	.78	8	--	3.3	<.2	7.0	40	4	<.020	.67	<.040
APR													
01...	5.9	.79	.81	10	3.2	3.2	<.2	7.4	14	<2	<.020	.48	<.040
MAY													
11...	6.1	.83	.86	11	.40	2.5	<.2	7.5	28	6	<.020	.29	<.040
JUN													
01...	7.0	.90	.95	14	3.6	3.0	<.2	6.9	46	<2	<.020	.31	<.040
JUL													
13...	8.6	1.0	1.1	23	--	3.5	<.2	6.5	46	<2	<.020	.30	<.040
AUG													
05...	7.0	.83	.84	14	--	2.3	<.2	6.5	34	6	.040	.19	<.040
SEP													
21...	6.6	.81	.92	15	--	1.9	<.2	7.1	34	<2	<.020	.23	<.040

WEST BRANCH SUSQUEHANNA RIVER BASIN

01552500 MUNCY CREEK NEAR SONESTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	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)	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)
OCT 2003													
02...	<.01	<.010	.18	.6	40	<10	20	<4	<4	<20	30	<1.0	<1.0
NOV													
05...	<.01	<.010	.23	.9	20	10	40	<4	<4	<20	20	<1.0	<1.0
DEC													
03...	<.01	<.010	.39	1.2	<10	10	20	<4	<4	<20	<20	<1.0	<1.0
JAN 2004													
06...	.01	<.010	.58	1.0	<20	20	50	<4	<4	20	20	<1.0	<1.0
MAR													
10...	<.01	<.010	.72	1.4	<20	20	30	<4	<4	<20	<20	<1.0	<1.0
APR													
01...	<.01	<.010	.53	.8	<20	10	30	<4	<4	<20	<20	<1.0	<1.0
MAY													
11...	<.01	<.010	.77	.9	<20	10	30	<4	<4	<20	40	<1.0	<1.0
JUN													
01...	<.01	<.010	.49	.7	<20	10	20	<4	<4	<20	30	<1.0	<1.0
JUL													
13...	<.01	.011	.55	.6	20	<10	20	<4	<4	<20	<20	<1.0	<1.0
AUG													
05...	<.01	.018	.23	.4	20	20	80	<4	<4	<20	70	<1.0	<1.0
SEP													
21...	<.01	<.010	.37	.4	40	20	60	<4	<4	<20	50	<1.0	<1.0

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)
OCT 2003							
02...	<2.0	2.4	<4.0	<4.0	<5.0	<5.0	<5
NOV							
05...	<2.0	3.0	<4.0	<4.0	<5.0	<5.0	<5
DEC							
03...	<2.0	<2.0	<4.0	<4.0	<5.0	<5.0	<5
JAN 2004							
06...	2.9	4.8	<4.0	<4.0	<5.0	<5.0	<5
MAR							
10...	<2.0	2.1	<4.0	<4.0	<5.0	<5.0	<5
APR							
01...	<2.0	<2.0	<4.0	<4.0	<5.0	<5.0	<5
MAY							
11...	<2.0	3.4	<4.0	<4.0	<5.0	<5.0	<5
JUN							
01...	<2.0	3.0	<4.0	<4.0	<5.0	<5.0	<5
JUL							
13...	2.4	4.4	<4.0	<4.0	<5.0	<5.0	<5
AUG							
05...	2.1	7.1	<4.0	<4.0	<5.0	<5.0	<5
SEP							
21...	2.7	5.9	<4.0	<4.0	<5.0	<5.0	<5

WEST BRANCH SUSQUEHANNA RIVER BASIN

01552500 MUNCY CREEK NEAR SONESTOWN, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

Date	12/11/02
Benthic Macroinvertebrate	Count
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Acentrella	1
Ephemerellidae	
Ephemerella	29
Serratella	3
Heptageniidae	
Epeorus	54
Rhithrogena	4
Stenonema	1
Isonychiidae	
Isonychia	5
Leptophlebiidae	
Paraleptophlebia	30
Plecoptera (STONEFLIES)	
Capniidae	
Allocapnia	1
Paracapnia	2
Chloroperlidae	
Alloperla	4
Sweltsa	4
Perlidae	
Acroneuria	2
Agnetina	4
Perlodidae	
Isoperla	13
Taeniopterygidae	
Taenionema	15
Taeniopteryx	3
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche	6
Hydropsyche	3
Lepidostomatidae	
Lepidostoma	7
Odontoceridae	
Psilotreta	1
Philopotamidae	
Dolophilodes	4
Rhyacophilidae	
Rhyacophila	2
Uenoidae	
Neophylax	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Oulimnius	1
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	8
Simuliidae (BLACK FLIES)	
Prosimulium	1
Total Organisms	209
Total Taxa	27

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27000	17200	19300	18000	e5000	6400	17900	17100	11100	3440	43300	9490
2	22000	15000	17400	16600	e4700	8440	20900	15400	11200	3310	33500	8610
3	18500	13400	15600	17400	4720	15200	24600	19700	10400	3030	25500	6960
4	15800	12100	13800	22800	4770	32800	24800	21100	9540	2830	19500	5930
5	14200	11300	12600	42600	e4600	44100	21700	18500	8600	2900	16700	5240
6	13800	12700	11900	68400	4770	59000	18900	16800	8050	3270	16300	4620
7	11800	14000	11500	60400	e4700	82800	16700	15600	7580	3780	13400	4320
8	10700	14100	10600	43700	e4900	73400	15000	14900	6910	4140	11300	4090
9	9650	12700	9680	35000	5150	56000	13800	13900	6330	4540	9630	8870
10	8860	11700	9250	28200	5730	42800	12800	20000	5910	3880	8340	73300
11	8130	11000	25200	e22000	6190	33000	11700	21300	6330	3380	7780	64900
12	7510	10400	66800	e19000	6220	25800	10600	20700	5970	3100	8220	40200
13	7010	10500	60400	e17000	5870	22100	11500	19100	5960	4890	11500	28600
14	6550	10200	43000	e15000	5440	18800	24800	16600	6220	6000	13600	21000
15	8890	10100	32800	e12000	e5200	16000	48200	15400	6340	12000	10800	17000
16	13500	9460	26600	e10000	e4900	14400	40500	14400	6040	12600	8730	13900
17	15600	8940	22700	8060	e4500	13800	30600	12800	7240	9750	7520	11900
18	13700	8620	21000	7240	e4300	12900	24200	11600	10400	8020	6670	113000
19	11900	10600	17800	8730	4070	12200	19800	11600	9930	7670	6010	190000
20	11100	54100	15100	8720	4120	11700	16600	14800	8680	8810	5810	104000
21	10300	84800	13400	8620	4490	15800	14600	18100	7230	9220	8250	63400
22	9310	61600	12000	e7700	4930	25400	12900	23000	6260	8460	12600	47800
23	8680	43500	11200	e7000	5290	27200	12800	37800	5930	7620	17800	39600
24	8050	34400	14200	5970	6390	23500	14200	34600	5630	8590	13700	33600
25	7370	28100	31800	5520	6430	20600	16000	27100	5240	9540	10600	26400
26	6850	23600	39700	4800	6080	21000	16800	22300	4910	8030	8740	21000
27	9470	19300	33000	4370	5630	22700	22700	23400	4370	15600	7540	17300
28	22500	17100	26000	4510	5480	25800	27100	20600	3860	65000	6740	18600
29	23200	20200	21300	e5000	5730	25300	23800	16900	3760	62100	6110	24000
30	24800	20900	19100	e5300	---	21900	19900	13800	3580	42400	5660	20000
31	20700	---	18700	e5200	---	19000	---	11900	---	32200	6040	---
TOTAL	407430	631620	703430	544840	150300	849840	606400	580800	209500	380100	387890	1047630
MEAN	13140	21050	22690	17580	5183	27410	20210	18740	6983	12260	12510	34920
MAX	27000	84800	66800	68400	6430	82800	48200	37800	11200	65000	43300	190000
MIN	6550	8620	9250	4370	4070	6400	10600	11600	3580	2830	5660	4090
CFSM	1.92	3.07	3.31	2.57	0.76	4.00	2.95	2.74	1.02	1.79	1.83	5.10
IN.	2.21	3.43	3.82	2.96	0.82	4.62	3.29	3.16	1.14	2.07	2.11	5.69

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2004, BY WATER YEAR (WY)

MEAN	5280	9119	11670	11350	12780	21930	22310	14940	8995	4841	3735	4205
MAX	24900	32000	28230	30740	33010	49200	62990	28750	46900	20120	18700	34920
(WY)	1991	1951	1973	1952	1981	1945	1993	1978	1972	1972	1994	2004
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

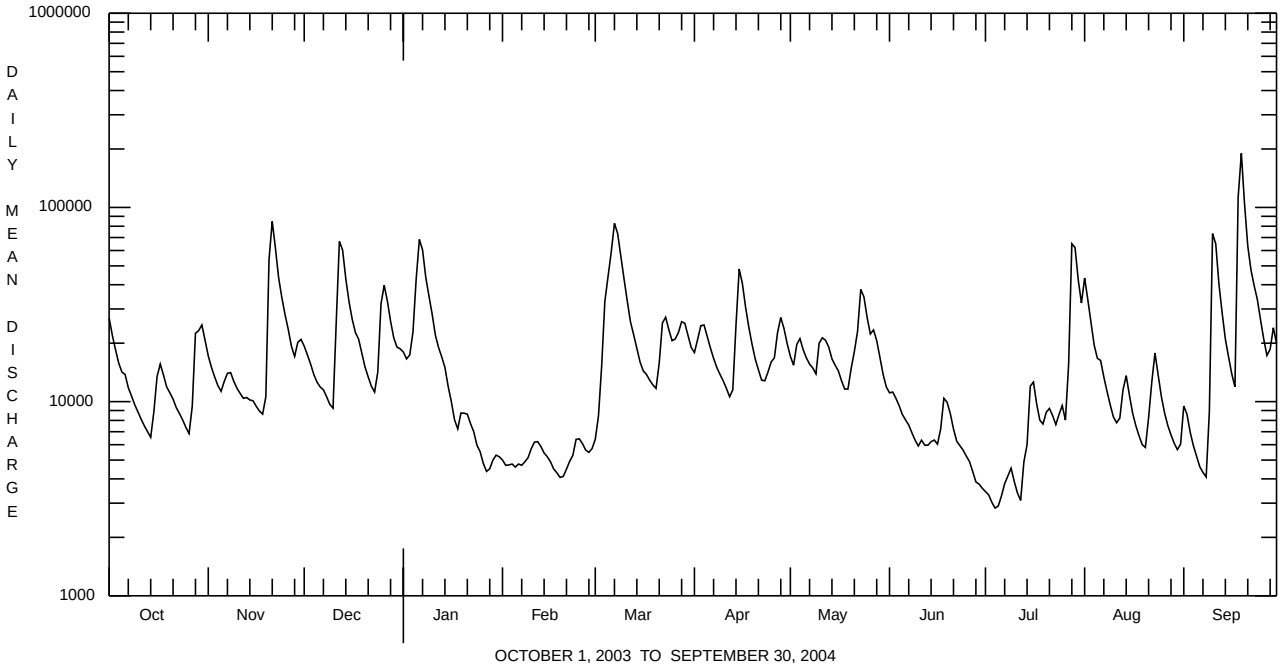
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01553500 WEST BRANCH SUSQUEHANNA RIVER AT LEWISBURG, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1940 - 2004	
ANNUAL TOTAL	5874780		6499780			
ANNUAL MEAN	16100		17760		10910	
HIGHEST ANNUAL MEAN					17760	2004
LOWEST ANNUAL MEAN					6158	1965
HIGHEST DAILY MEAN	84900	Mar 21	190000	Sep 19	285000	Jun 24 1972
LOWEST DAILY MEAN	3220	Jul 20	2830	Jul 4	417	Nov 16 1964
ANNUAL SEVEN-DAY MINIMUM	3540	Jul 15	3190	Jun 30	511	Sep 15 1964
MAXIMUM PEAK FLOW			209000	Sep 19	**a**300000	Jun 24 1972
MAXIMUM PEAK STAGE			26.01	Sep 19	**b**34.23	Jun 24 1972
INSTANTANEOUS LOW FLOW					390	Nov 16 1964
ANNUAL RUNOFF (CFSM)	2.35		2.59		1.59	
ANNUAL RUNOFF (INCHES)	31.92		35.31		21.66	
10 PERCENT EXCEEDS	31900		34500		24800	
50 PERCENT EXCEEDS	11900		12800		6470	
90 PERCENT EXCEEDS	5000		4910		1490	

a About.
b From floodmarks (backwater from Susquehanna River).



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 359-431.

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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)
OCT 2003													
09...	1300	1028	9813	9610	9.5	7.2	7.4	176	171	11.9	67	16.8	6.1
DEC													
18...	0745	1028	9813	21500	11.1	--	7.2	152	152	2.1	55	13.8	5.1
FEB 2004													
19...	0930	1028	9813	4100	14.1	7.5	7.6	311	316	.8	130	31.2	12.3
APR													
14...	1130	1028	9813	22300	11.2	7.3	7.2	163	154	8.1	66	17.4	5.5
JUN													
08...	1100	1028	9813	6900	9.5	7.2	7.0	193	197	19.8	77	19.5	6.9
AUG													
16...	1100	1028	9813	8770	9.1	7.4	7.0	180	180	20.5	71	17.9	6.3

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	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 deg C (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, unfltrd recoverable, µg/L (01042)
OCT 2003													
09...	18	50.7	66	10	<.020	.49	<.040	<.01	.011	.71	1.2	<200	<10
DEC													
18...	20	35.2	120	2	.040	.69	<.040	.02	.021	.63	1.2	470	<10
FEB 2004													
19...	46	76.1	200	<2	.070	1.36	<.040	.01	.015	1.6	1.0	<200	<10
APR													
14...	25	34.7	112	54	.060	.88	<.040	.02	.075	1.7	2.7	2200	<10
JUN													
08...	26	52.4	148	4	<.020	.59	<.040	<.01	<.010	.78	1.2	<200	<10
AUG													
16...	27	41.9	170	<2	<.020	.52	<.040	<.01	.024	.62	1.8	<200	<10

Date	Iron, water, unfltrd recoverable, µg/L (01045)	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)
OCT 2003					
09...	170	<1.0	320	<50	<10
DEC					
18...	490	<1.0	250	<50	70
FEB 2004					
19...	100	<1.0	460	<50	20
APR					
14...	2130	2.2	300	<50	30
JUN					
08...	140	<1.0	180	<50	<10
AUG					
16...	140	<1.0	90	<50	10

WEST BRANCH SUSQUEHANNA RIVER BASIN

01553500 WEST BRANCH SUSQUEHANNA RIVER AT LEWISBURG, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

Date	10/09/03
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	4
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia	2
Hydrobiidae	
Amnicola	6
Planorbidae	
Planorbella	1
Pleuroceridae	
Elimia	1
Bivalvia (CLAMS)	
Veneroida	
Corbiculidae	
Corbicula fluminea	83
Sphaeriidae	
Sphaerium	2
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbricina	1
Tubificida	
Tubificidae	1
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Acentrella	1
Caenidae	
Caenis	3
Ephemerellidae	
Ephemerella	3
Serratella	1
Heptageniidae	2
Leucrocuta	2
Stenacron	2
Stenonema	23
Isonychiidae	
Isonychia	9
Tricorythidae	
Tricorythodes	1
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Gomphidae	
Gomphus	1
Plecoptera (STONEFLIES)	
Taeniopterygidae	
Taeniopteryx	4

01553500 WEST BRANCH SUSQUEHANNA RIVER AT LEWISBURG, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	10/09/03
Benthic Macroinvertebrate	Count
Trichoptera (CADDISFLIES)	
Glossosomatidae	
Protoptila	1
Hydropsychidae	
Cheumatopsyche	10
Hydropsyche	2
Hydroptilidae	
Hydroptila	1
Leptoceridae	
Ceraclea	2
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Dubiraphia	1
Optioservus	3
Psephenidae (WATER PENNIES)	
Psephenus	3
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	6
Empididae (DANCE FLIES)	
Hemerodromia	2
Simuliidae (BLACK FLIES)	
Simulium	7
Total Organisms	191
Total Taxa	32

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. 27	1630	1,220	5.85	Dec. 24	1715	1,260	6.05
Nov. 19	2100	1,440	6.90	Aug. 13	0800	1,200	5.81
Dec. 11	1300	1,700	7.84	Sept. 18	1130	*4,600	*10.86

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	124	92	86	e28	94	59	46	87	26	179	30
2	29	68	71	98	28	394	61	73	66	26	70	29
3	28	58	57	205	29	408	50	332	52	25	46	27
4	30	51	50	564	36	449	48	140	42	25	39	27
5	31	81	49	855	36	342	41	95	54	29	41	27
6	28	85	49	324	35	401	38	70	58	26	34	27
7	26	62	45	e150	42	273	36	63	45	26	31	27
8	25	48	e40	e110	39	256	35	50	e42	34	30	27
9	25	42	40	e70	34	170	36	53	e38	28	29	60
10	24	41	66	e65	33	129	32	44	71	26	27	44
11	24	41	1060	e60	33	112	30	53	75	25	42	30
12	24	46	377	e50	32	94	31	114	49	47	57	27
13	23	55	168	e44	32	59	326	68	42	39	568	27
14	25	40	123	e38	33	50	428	53	40	71	138	26
15	340	36	109	e35	31	48	171	49	e40	66	72	26
16	76	35	90	e35	29	45	107	61	e40	34	51	26
17	51	35	100	36	28	47	80	42	e95	31	42	78
18	44	34	123	38	28	54	62	44	154	30	38	2910
19	40	433	98	36	29	91	53	104	107	29	34	434
20	37	769	80	34	31	177	45	72	66	27	145	148
21	34	201	68	32	40	387	43	80	49	25	484	92
22	32	113	62	32	63	165	40	533	56	24	130	68
23	30	82	79	e30	75	111	53	181	45	28	74	56
24	28	84	557	29	62	85	44	106	35	26	54	49
25	28	150	460	e28	45	81	44	69	32	24	46	46
26	27	76	196	28	40	77	173	143	33	24	39	43
27	521	65	134	30	40	74	116	302	30	188	35	40
28	357	160	106	30	49	61	81	467	29	142	42	109
29	466	267	88	31	78	52	63	154	29	63	45	138
30	258	125	158	30	---	45	53	91	27	42	34	75
31	164	---	112	e28	---	42	---	87	---	107	33	---
TOTAL	2904	3507	4907	3261	1138	4873	2479	3839	1628	1363	2729	4773
MEAN	93.7	117	158	105	39.2	157	82.6	124	54.3	44.0	88.0	159
MAX	521	769	1060	855	78	449	428	533	154	188	568	2910
MIN	23	34	40	28	28	42	30	42	27	24	27	26
CFSM	1.83	2.28	3.09	2.05	0.76	3.06	1.61	2.41	1.06	0.86	1.72	3.10
IN.	2.11	2.54	3.56	2.36	0.83	3.53	1.80	2.78	1.18	0.99	1.98	3.46

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 2004, BY WATER YEAR (WY)

MEAN	50.8	83.5	94.2	80.8	96.7	129	107	71.2	59.2	33.1	32.8	40.8
MAX	211	149	274	269	243	336	286	228	221	102	88.0	159
(WY)	1991	1987	1997	1996	1981	1994	1993	1989	1982	1984	2004	2004
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

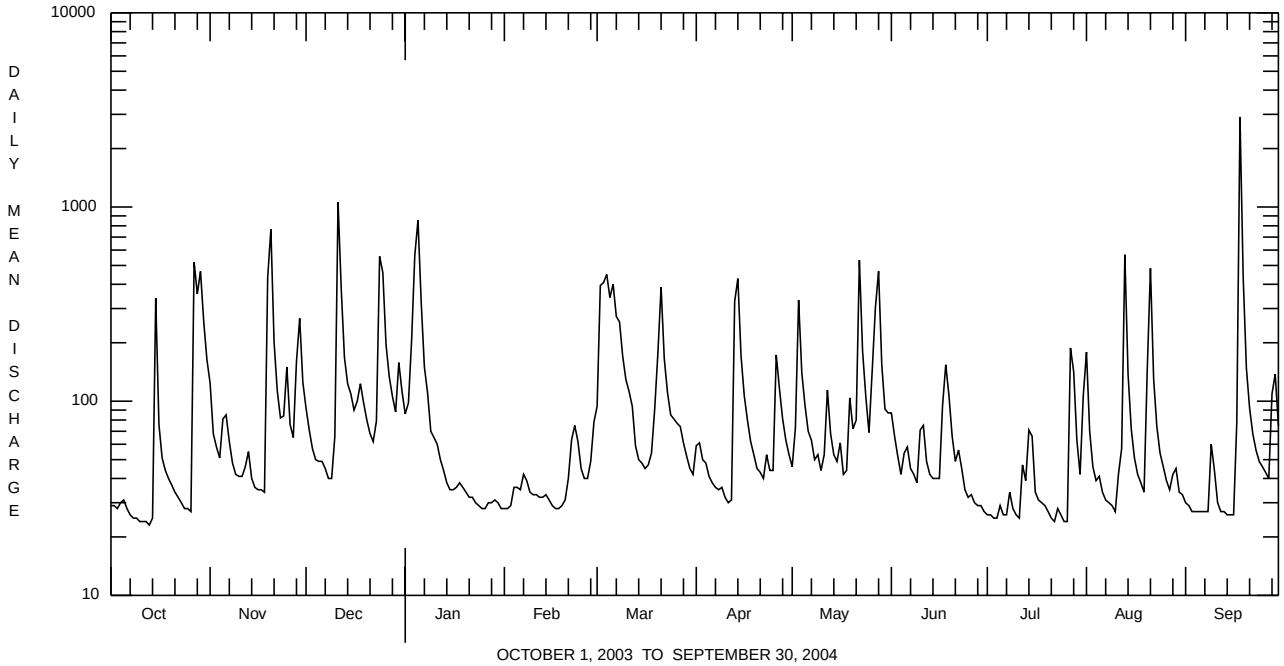
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01553700 CHILLISQUAQUE CREEK AT WASHINGTONVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1979 - 2004	
ANNUAL TOTAL	36782		37401			
ANNUAL MEAN	101		102		73.2	
HIGHEST ANNUAL MEAN					108	1984
LOWEST ANNUAL MEAN					48.1	2001
HIGHEST DAILY MEAN	1160	Jun 21	2910	Sep 18	2910	Sep 18 2004
LOWEST DAILY MEAN	19	Jan 30	23	Oct 13	6.2	Jul 27 1991
ANNUAL SEVEN-DAY MINIMUM	20	Jan 24**a**	24	Oct 8	7.6	Jul 27 1999
MAXIMUM PEAK FLOW			**b**4600	Sep 18	**bc**4600	Sep 18 2004
MAXIMUM PEAK STAGE			10.86	Sep 18	11.27	Jan 19 1996
ANNUAL RUNOFF (CFSM)	1.96		1.99		1.43	
ANNUAL RUNOFF (INCHES)	26.67		27.12		19.38	
10 PERCENT EXCEEDS	228		190		147	
50 PERCENT EXCEEDS	47		49		36	
90 PERCENT EXCEEDS	23		28		17	

a Also Aug. 23, which included estimated daily discharges.
b From rating curve extended above 2,600 ft^3/s.
c Gage height 10.86 ft.



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, 55,000 acre-ft, Sept. 19, elevation, 1,197.34 ft; minimum, 8,980 acre-ft, Mar. 20, elevation, 1,161.26 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, 29,930 acre-ft, Sept. 18, elevation, 1,429.84 ft; minimum, 25,670 acre-ft, July 12, elevation, 1,427.23 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, 33,220 acre-ft, Sept. 19, elevation, 987.20 ft; minimum, 1,950 acre-ft, Dec. 13, elevation, 919.50 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, 31,830 acre-ft, Sept. 19, elevation, 899.45 ft; minimum, 1,670 acre-ft, Aug. 1, Sept. 17, elevation, 840.51 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, 71,850 acre-ft, Sept. 20, elevation, 648.34 ft; minimum, 6,350 acre-ft, Feb. 25, elevation, 610.08 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 2003 TO SEPTEMBER 2004

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	1,161.96	9,510	--	1,427.67	26,370	--
Oct. 31	1,162.17	9,680	+2.8	1,427.58	26,230	-2.3
Nov. 30	1,162.08	9,610	-1.2	1,427.72	26,450	+3.7
Dec. 31	1,162.47	9,930	+5.2	1,427.74	26,480	+0.5
CAL YR 2003	--	--	+0.3	--	--	+9.1
Jan. 31	1,162.22	9,720	-3.4	1,427.35	25,860	-10.1
Feb. 29	1,162.03	9,560	-2.8	1,427.49	26,080	+3.8
Mar. 31	1,162.22	9,720	+2.6	1,427.65	26,340	+4.2
Apr. 30	1,161.99	9,530	-3.2	1,427.96	26,840	+8.4
May 31	1,162.38	9,860	+5.4	1,427.59	26,240	-9.8
June 30	1,162.43	9,900	+0.7	1,427.31	25,800	-7.4
July 31	1,162.41	9,880	-0.3	1,427.73	26,470	+10.9
Aug. 31	1,162.13	9,650	-3.7	1,427.55	26,180	-4.7
Sept. 30	1,161.97	9,520	-2.2	1,427.65	26,340	+2.7
WTR YR 2004	--	--	0	--	--	0

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)
	01543900 F.F. Sinnemahoning Cr. Reservoir			01544800 Kettle Creek Lake		
Sept. 30	921.32	2,330	--	841.32	1,800	--
Oct. 31	920.75	2,220	-1.8	841.30	1,790	-0.2
Nov. 30	921.63	2,360	+2.4	841.46	1,820	+0.5
Dec. 31	921.34	2,330	-0.5	841.18	1,770	-0.8
CAL YR 2003	--	--	0	--	--	+0.1
Jan. 31	921.10	2,310	-0.3	841.26	1,780	+0.2
Feb. 29	920.86	2,260	-0.9	841.17	1,770	-0.2
Mar. 31	921.05	2,300	+0.7	841.13	1,760	-0.2
Apr. 30	921.40	2,340	+0.7	841.27	1,790	+0.5
May 31	922.22	2,430	+1.5	841.09	1,760	-0.5
June 30	921.25	2,320	-1.8	840.99	1,740	-0.3
July 31	920.71	2,210	-1.8	840.61	1,680	-1.0
Aug. 31	921.16	2,320	+1.8	841.28	1,790	+1.8
Sept. 30	923.90	2,680	+6.0	841.40	1,810	+0.3
WTR YR 2004	--	--	+0.5	--	--	0

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)
	01547480 Foster Joseph Sayers Lake		
Sept. 30	635.41	39,050	--
Oct. 31	630.26	29,270	-159
Nov. 30	626.46	23,160	-103
Dec. 31	625.12	21,230	-31.4
CAL YR 2003	--	--	-0.3
Jan. 31	625.27	21,440	+3.4
Feb. 29	610.39	6,560	-259
Mar. 31	620.11	14,970	+137
Apr. 30	629.32	27,680	+214
May 31	630.25	29,250	+25.5
June 30	630.13	29,030	-3.7
July 31	632.88	34,060	+81.8
Aug. 31	630.23	29,210	-78.9
Sept. 30	636.73	41,820	+212
WTR YR 2004	--	--	+3.8

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 poor. 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52000	79900	58900	51300	e11000	14700	52400	41300	31700	7640	89900	29000
2	42600	65300	55100	49000	e11500	17000	51600	37000	28900	7650	84300	39500
3	36400	52800	48400	46800	e12000	29300	60100	46400	28500	7410	62100	29700
4	30900	44900	42600	52200	e12500	69600	67100	54900	30800	7030	47100	23900
5	28100	39500	38400	78700	e11500	106000	58400	57400	32500	6990	38900	19600
6	27900	39600	35300	122000	e12000	130000	50900	49900	28900	7010	36000	16300
7	25400	40300	33400	121000	e11500	174000	44600	44900	25200	7350	31400	14500
8	25500	39100	31200	91200	e11000	168000	39800	43600	22000	7580	26400	12800
9	23500	35300	28400	71800	e10500	135000	36400	42300	19600	8020	22400	16500
10	21100	31700	26900	56700	e11000	106000	33400	47300	17900	7400	19300	87400
11	19100	29100	47100	47000	e11500	82700	30600	54400	20400	9030	17700	132000
12	17400	27200	137000	40700	e11000	66700	28000	58900	17300	10500	18300	91500
13	16000	26400	158000	36200	e11500	57500	30000	57400	15900	12700	26800	66400
14	15200	25900	122000	33900	e12000	50000	49700	47000	15600	12400	38500	51000
15	20100	25500	93300	31000	e11500	43200	105000	42300	15500	18500	43700	41000
16	30000	25200	74500	25700	e11000	38300	112000	39800	14600	19300	38100	30600
17	33400	24500	62400	20400	e10000	35500	84700	39600	14800	20400	29800	26000
18	35600	23300	58300	19200	e10000	33700	63800	35700	22000	19900	24000	164000
19	33200	24600	53900	e18000	10200	32200	51300	32400	19800	19100	21400	406000
20	28600	74400	49100	e17000	10200	30500	43800	33000	18300	23000	20400	316000
21	25100	149000	44800	e16500	10900	35500	39300	35800	17300	25900	24100	168000
22	23300	139000	39700	e17500	12200	48000	36600	39900	14900	22200	28000	116000
23	22400	106000	36100	e17000	12900	56400	34600	57200	14100	19100	56400	92100
24	21000	82600	39200	e15000	14000	52000	36200	56900	12700	18800	50200	76100
25	19200	67500	75800	e13000	14400	46200	39800	45700	11400	21800	39600	62100
26	17900	57900	114000	e12000	13900	46400	41500	43900	10300	21400	31100	49600
27	21000	50800	104000	e11500	13600	56100	50400	53000	9780	25400	25200	41400
28	49800	46200	82500	e11500	13200	63400	59100	50600	9530	86400	21600	39200
29	81400	51400	66000	e11000	13600	69400	56400	43800	8530	138000	18900	52100
30	103000	57100	56500	e10500	---	66700	48100	41700	7970	116000	17400	50600
31	95300	---	52500	e10500	---	59200	---	36800	---	88200	17800	---
TOTAL	1041400	1582000	1965300	1175800	342100	2019200	1535600	1410800	556710	822110	1066800	2360900
MEAN	33590	52730	63400	37930	11800	65140	51190	45510	18560	26520	34410	78700
MAX	103000	149000	158000	122000	14400	174000	112000	58900	32500	138000	89900	406000
MIN	15200	23300	26900	10500	10000	14700	28000	32400	7970	6990	17400	12800
CFSM	1.84	2.88	3.46	2.07	0.64	3.56	2.80	2.49	1.01	1.45	1.88	4.30
IN.	2.12	3.22	4.00	2.39	0.70	4.10	3.12	2.87	1.13	1.67	2.17	4.80

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2004, BY WATER YEAR (WY)

MEAN	13420	22580	29630	27760	31620	54640	58580	35520	20810	11020	8492	9975
MAX	62760	54540	79050	77850	78120	115800	170900	69950	111600	38930	40040	78700
(WY)	1978	1978	1997	1996	1981	1945	1993	1989	1972	1972	1994	2004
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

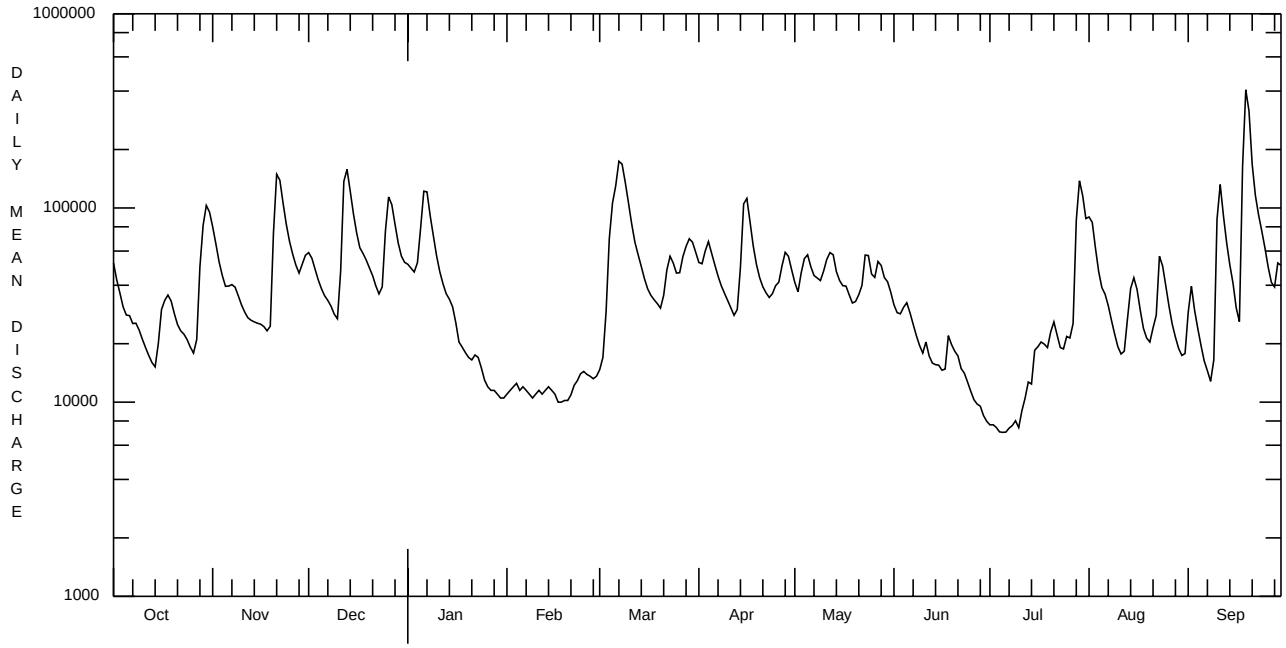
e Estimated.

SUSQUEHANNA RIVER BASIN

01554000 SUSQUEHANNA RIVER AT SUNBURY, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1938 - 2004	
ANNUAL TOTAL	15375450		15878720			
ANNUAL MEAN	42120		43380		26960	
HIGHEST ANNUAL MEAN					43380	2004
LOWEST ANNUAL MEAN					13420	1965
HIGHEST DAILY MEAN	214000	Mar 22	406000	Sep 19	609000	Jun 24 1972
LOWEST DAILY MEAN	7830	Jul 20	6990	Jul 5	1110	Sep 24 1964
ANNUAL SEVEN-DAY MINIMUM	8900	Jul 15	7290	Jul 2	1140	Sep 22 1964
MAXIMUM PEAK FLOW			427000	Sep 19	620000	Jun 24 1972
MAXIMUM PEAK STAGE			30.44	Sep 19	35.80	Jun 24 1972
INSTANTANEOUS LOW FLOW			6800	Jul 5	**a**964	Oct 16 1971
ANNUAL RUNOFF (CFSM)	2.30		2.37		1.47	
ANNUAL RUNOFF (INCHES)	31.26		32.28		20.01	
10 PERCENT EXCEEDS	82200		85200		60800	
50 PERCENT EXCEEDS	30900		35000		16000	
90 PERCENT EXCEEDS	12900		11500		3780	

a Result of shutoff at Fabridam.



OCTOBER 1, 2003 TO SEPTEMBER 30, 2004

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 and the discharge on Sept. 18, 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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Nov. 20	0330	4,560	7.16	Sept. 9	1715	3,820	6.54
Dec. 11	1745	5,950	8.23	Sept. 18	1230	*16,000	*12.27

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1040	700	951	727	e280	343	1070	643	424	208	1620	290
2	919	660	862	724	e265	614	1640	713	385	200	1010	272
3	803	627	775	746	e270	1250	1370	1460	364	192	803	259
4	757	586	713	1190	e270	1540	1250	1050	329	187	742	249
5	744	587	683	2640	e250	1770	1080	952	336	226	896	240
6	640	702	671	2360	e265	2410	929	865	347	222	669	235
7	576	607	617	1790	e265	2270	835	787	316	195	577	228
8	531	545	571	1450	e250	1950	778	728	290	276	516	233
9	493	508	540	1250	e230	1490	844	661	270	238	461	2490
10	459	487	548	1020	e230	1210	696	677	283	196	435	2260
11	430	481	4420	949	e230	1030	631	596	316	183	429	1320
12	406	488	3760	859	e225	928	608	677	325	229	384	988
13	384	476	2360	773	e225	802	1280	611	281	254	605	797
14	384	441	1830	696	e225	717	2140	524	258	425	479	678
15	827	421	1530	641	e220	677	1620	489	263	492	380	604
16	570	402	1260	e520	e220	648	1310	463	250	311	345	552
17	466	388	1120	e530	e215	614	1130	419	258	263	324	963
18	438	373	999	e500	e225	571	976	454	471	243	306	13000
19	412	1200	867	e470	e220	581	860	466	349	262	295	6920
20	390	3960	772	e440	e245	613	771	442	296	247	332	3800
21	383	2380	690	e400	e270	1330	707	486	271	228	902	2590
22	374	1730	640	e380	e315	1150	657	607	309	214	851	1910
23	357	1370	647	e350	e300	973	676	496	390	281	600	1480
24	343	1190	1310	e320	e280	895	657	413	299	271	511	1170
25	328	1290	1740	e290	e275	899	625	376	265	231	458	986
26	323	989	1310	e290	e270	898	955	410	254	217	413	842
27	764	871	1120	e300	e270	888	897	694	239	843	377	735
28	1130	930	974	e300	e270	843	796	538	230	1230	383	1090
29	919	1270	874	e310	323	763	740	453	229	748	403	1390
30	858	1020	896	e300	---	709	688	401	218	602	338	905
31	745	---	841	e290	---	688	---	398	---	920	312	---
TOTAL	18193	27679	36891	23805	7398	32064	29216	18949	9115	10834	17156	49476
MEAN	587	923	1190	768	255	1034	974	611	304	349	553	1649
MAX	1130	3960	4420	2640	323	2410	2140	1460	471	1230	1620	13000
MIN	323	373	540	290	215	343	608	376	218	183	295	228
CFSM	1.95	3.07	3.95	2.55	0.85	3.44	3.24	2.03	1.01	1.16	1.84	5.48
IN.	2.25	3.42	4.56	2.94	0.91	3.96	3.61	2.34	1.13	1.34	2.12	6.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2004, BY WATER YEAR (WY)

MEAN	225	364	455	454	525	902	882	615	397	196	162	196
MAX	1355	1567	1359	1627	1697	3093	2855	1793	2845	759	684	1649
(WY)	1991	1978	1997	1996	1984	1936	1993	1978	1972	1989	1984	2004
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

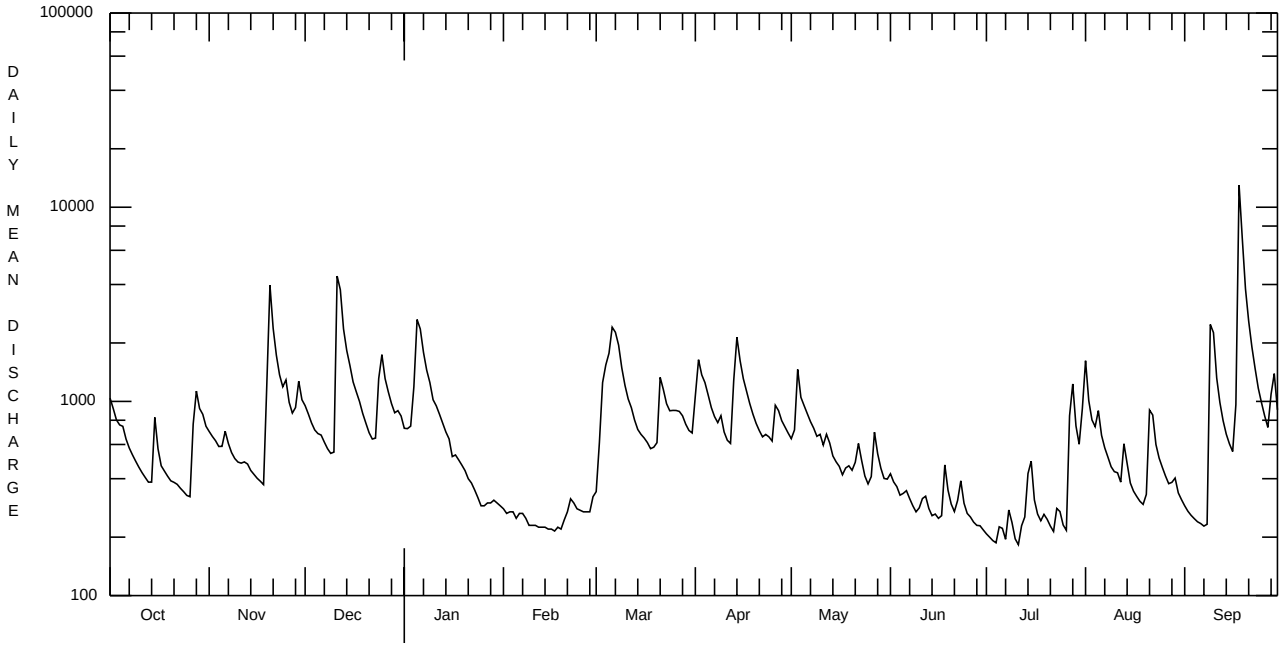
e Estimated.

PENNS CREEK BASIN

01555000 PENNS CREEK AT PENNS CREEK, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1930 - 2004	
ANNUAL TOTAL	286556		280776			
ANNUAL MEAN	785		767		447	
HIGHEST ANNUAL MEAN					878	1978
LOWEST ANNUAL MEAN					205	1965
HIGHEST DAILY MEAN	4950	Sep 23	13000	Sep 18	24600	Jun 23 1972
LOWEST DAILY MEAN	218	Feb 18	183	Jul 11	21	Aug 30 1966
ANNUAL SEVEN-DAY MINIMUM	231	Feb 12	204	Jul 1	24	Aug 28 1966
MAXIMUM PEAK FLOW			**a**16000	Sep 18	**a**34600	Jun 23 1972
MAXIMUM PEAK STAGE			12.27	Sep 18	**b**14.85	Jun 23 1972
INSTANTANEOUS LOW FLOW			177	Jul 11,12	7.0	Sep 27 1932
ANNUAL RUNOFF (CFSM)	2.61		2.55		1.48	
ANNUAL RUNOFF (INCHES)	35.41		34.70		20.18	
10 PERCENT EXCEEDS	1440		1320		986	
50 PERCENT EXCEEDS	562		584		267	
90 PERCENT EXCEEDS	300		246		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.



OCTOBER 1, 2003 TO SEPTEMBER 30, 2004

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 359-431.

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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)
OCT 2003													
09...	1100	1028	9813	492	10.8	8.2	8.2	220	212	11.3	100	32.7	4.5
DEC													
18...	0930	1028	9813	1020	12.0	7.0	7.8	195	195	2.5	92	29.7	4.4
FEB 2004													
19...	1130	1028	9813	E220	13.8	7.9	8.0	236	236	.1	110	34.7	6.1
APR													
14...	1245	1028	9813	2160	11.3	7.3	7.7	155	141	7.6	77	25.2	3.3
JUN													
08...	1245	1028	9813	292	12.4	8.8	8.7	201	211	21.1	100	31.2	5.3
AUG													
16...	1230	1028	9813	346	10.7	8.2	8.2	229	227	17.9	110	34.1	5.5

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	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)
OCT 2003													
09...	86	10.9	134	2	<.020	1.66	<.040	<.01	.018	2.0	1.7	<200	<10
DEC													
18...	73	10.7	134	6	<.020	1.77	<.040	.02	.029	1.6	1.4	220	<10
FEB 2004													
19...	93	12.2	150	<2	<.020	1.76	<.040	.01	.018	2.0	1.3	<200	<10
APR													
14...	57	8.9	102	72	.030	1.20	<.040	.03	.124	2.0	3.6	2600	<10
JUN													
08...	83	10.5	138	6	.030	1.12	<.040	.02	.022	1.4	2.2	<200	<10
AUG													
16...	90	10.5	164	6	<.020	1.29	<.040	.01	.023	1.4	2.5	<200	<10

Date	Iron, water, unfltrd recoverable, µg/L (01045)	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)
OCT 2003					
09...	120	<1.0	<10	<50	40
DEC					
18...	260	<1.0	20	<50	120
FEB 2004					
19...	90	<1.0	<10	<50	<10
APR					
14...	2430	2.2	100	<50	20
JUN					
08...	260	<1.0	20	<50	<10
AUG					
16...	190	<1.0	10	<50	10

PENNS CREEK BASIN

01555000 PENNS CREEK AT PENNS CREEK, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

Date	10/09/03
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	3
Nematoda (NEMATODES)	1
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia	1
Pleuroceridae	
Leptoxis carinata	1
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	
Sphaerium	3
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	1
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	1
Crustacea	
Amphipoda (SCUDS)	
Crangonyctidae	
Crangonyx	1
Isopoda (AQUATIC SOWBUGS)	
Asellidae	
Caecidotea	2
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Acentrella	1
Baetis	1
Caenidae	
Caenis	12
Ephemerellidae	
Ephemerella	2
Eurylophella	1
Serratella	2
Heptageniidae	1
Stenonema	16
Isonychiidae	
Isonychia	2
Plecoptera (STONEFLIES)	
Perlidae	
Acroneuria	1
Taeniopterygidae	
Taeniopteryx	6
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
Corydalus	1

01555000 PENNS CREEK AT PENNS CREEK, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	10/09/03
Benthic Macroinvertebrate	Count
Trichoptera (CADDISFLIES)	
Helicopsychidae	
Helicopsyche	2
Hydropsychidae	
Cheumatopsyche	5
Hydropsyche	4
Hydroptilidae	
Leucotrichia	1
Lepidostomatidae	
Lepidostoma	2
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus	11
Stenelmis	3
Psephenidae (WATER PENNIES)	
Psephenus	9
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	24
Empididae (DANCE FLIES)	
Hemerodromia	3
Simuliidae (BLACK FLIES)	
Simulium	3
Total Organisms	127
Total Taxa	32

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 and those for period Oct. 1-28, 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. 11	1730	5,280	9.27	Sept. 29	0315	1,960	5.54
Sept. 18	1700	*15,900	*15.80				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	182	651	563	344	e140	281	273	311	252	111	226	86
2	163	511	456	314	e150	319	354	301	288	99	277	74
3	138	430	383	300	e170	438	337	920	210	91	199	69
4	135	372	338	438	e250	398	325	692	175	84	175	64
5	142	349	316	1330	e220	390	299	538	203	81	223	61
6	116	379	315	1170	e280	461	263	449	358	74	169	58
7	103	366	272	762	e900	489	248	385	331	69	134	57
8	96	325	244	566	e500	549	236	335	269	80	118	56
9	87	293	222	475	e320	494	255	293	225	74	103	102
10	82	270	218	e380	e300	420	217	274	198	63	91	118
11	76	259	3250	e340	e250	365	200	239	217	58	86	80
12	72	262	2580	e350	e230	335	201	214	198	127	92	65
13	68	249	1240	e290	e200	287	693	193	158	237	382	59
14	66	215	902	e250	e190	252	1470	182	147	175	277	55
15	472	194	720	e240	e170	237	996	238	193	389	189	53
16	383	182	544	e300	e140	224	676	1120	164	234	154	52
17	254	172	538	e400	e130	225	523	553	151	171	126	62
18	222	159	583	e250	e140	213	435	396	221	141	115	10300
19	177	283	484	e230	e150	246	374	381	171	125	104	4650
20	148	1510	425	e220	e180	278	328	353	141	112	101	1350
21	134	956	372	e190	e240	410	297	316	122	96	373	811
22	128	645	354	e180	e300	417	266	281	166	138	364	543
23	120	499	373	e170	e270	354	273	241	273	217	252	414
24	104	430	851	e160	e240	312	246	213	178	233	193	338
25	93	539	1460	e150	226	276	219	193	145	153	155	280
26	88	446	938	e140	190	253	395	270	181	119	132	238
27	406	404	683	e140	177	240	595	758	148	122	117	204
28	1460	406	542	e130	186	222	464	499	125	144	114	599
29	1380	843	465	e130	237	202	389	351	162	200	126	1510
30	1320	725	448	e130	---	189	344	269	133	150	103	830
31	893	---	394	e130	---	185	---	236	---	134	94	---
TOTAL	9308	13324	21473	10599	7076	9961	12191	11994	5903	4301	5364	23238
MEAN	300	444	693	342	244	321	406	387	197	139	173	775
MAX	1460	1510	3250	1330	900	549	1470	1120	358	389	382	10300
MIN	66	159	218	130	130	185	200	182	122	58	86	52
CFSM	1.85	2.74	4.28	2.11	1.51	1.98	2.51	2.39	1.21	0.86	1.07	4.78
IN.	2.14	3.06	4.93	2.43	1.62	2.29	2.80	2.75	1.36	0.99	1.23	5.34

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2004, BY WATER YEAR (WY)

MEAN	128	211	287	278	305	427	367	277	179	100	82.0	109
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

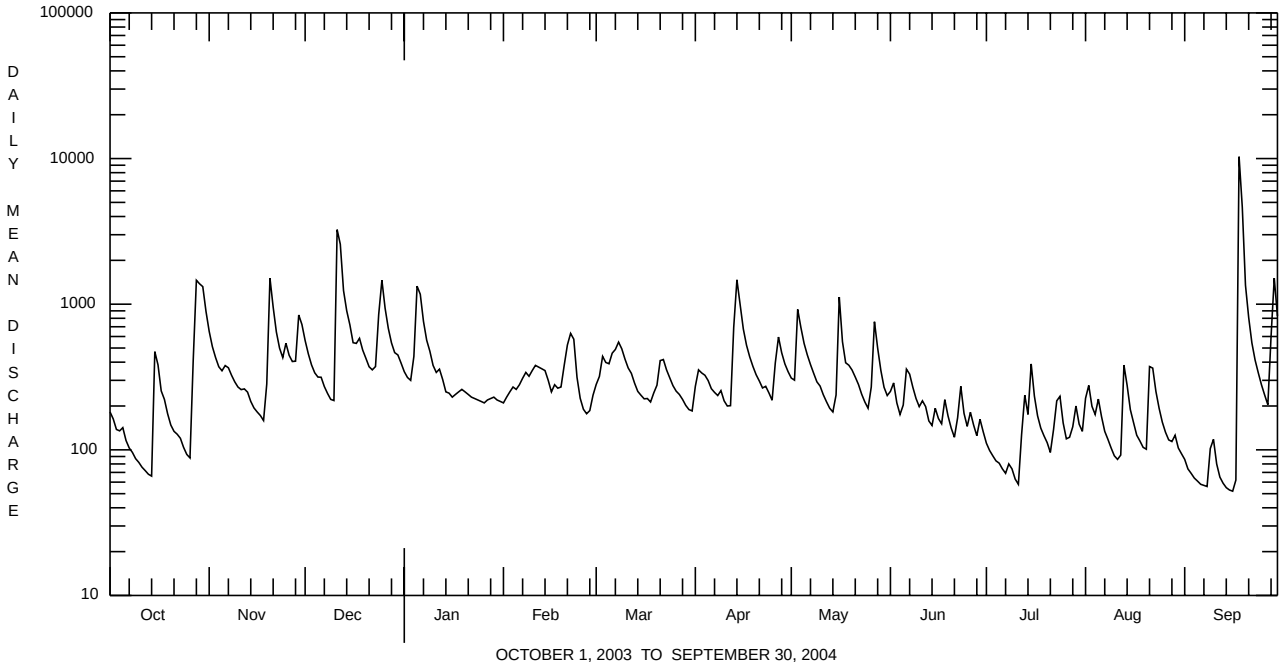
e Estimated.

EAST MAHANTANGO CREEK BASIN

01555500 EAST MAHANTANGO CREEK NEAR DALMATIA, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1930 - 2004	
ANNUAL TOTAL	145018		134732			
ANNUAL MEAN	397		368		229	
HIGHEST ANNUAL MEAN					454	1972
LOWEST ANNUAL MEAN					70.7	1931
HIGHEST DAILY MEAN	3250	Dec 11	10300	Sep 18	39000	Jun 22 1972
LOWEST DAILY MEAN	66	Oct 14	52	Sep 16	1.5	Sep 21 1932
ANNUAL SEVEN-DAY MINIMUM	75	Jul 15	61	Sep 11	1.7	Sep 16 1932
MAXIMUM PEAK FLOW			**a**15900	Sep 18	**a**69900	Jun 22 1972
MAXIMUM PEAK STAGE			15.80	Sep 18	**b**26.62	Jun 22 1972
INSTANTANEOUS LOW FLOW			51	Sep 16	1.3	Oct 7 1957**c**
ANNUAL RUNOFF (CFSM)	2.45		2.27		1.41	
ANNUAL RUNOFF (INCHES)	33.30		30.94		19.18	
10 PERCENT EXCEEDS	897		647		497	
50 PERCENT EXCEEDS	262		240		120	
90 PERCENT EXCEEDS	98		95		23	

a From rating curve extended above 11,600 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)
Nov. 20	0300	7,880	12.85	Apr. 2	1045	4,260	9.66
Dec. 11	1500	6,690	11.86	May 21	1715	4,680	10.08
Jan. 5	1700	5,130	10.52	Sept. 9	1130	13,600	16.91
Mar. 6	1330	4,760	10.16	Sept. 18	1145	*18,000	*19.46

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	794	388	584	495	e170	e650	1920	566	503	165	463	260
2	646	364	528	533	e170	1500	3550	622	395	156	325	208
3	539	342	493	586	e190	2900	2340	816	337	149	271	185
4	505	321	458	1590	e200	2620	1960	545	295	147	247	173
5	474	373	462	4620	e190	2710	1410	500	327	337	348	164
6	396	465	485	2800	e220	4150	1080	467	313	209	254	154
7	357	437	435	1610	e300	2830	918	526	276	174	223	154
8	333	363	407	1140	e290	2140	855	516	250	183	204	301
9	306	344	392	908	e230	1500	860	422	235	151	192	10100
10	290	333	408	e680	e250	1130	675	392	231	140	185	2750
11	270	337	4750	e600	e240	918	607	368	605	136	223	1260
12	260	430	2390	e580	e240	841	656	359	625	183	228	840
13	247	407	1380	e540	e230	692	2060	339	375	257	423	634
14	249	351	1070	e460	e230	609	2630	351	372	265	250	514
15	843	331	893	e430	e220	580	1590	390	397	176	204	605
16	400	319	731	e360	e210	550	1130	312	308	188	191	505
17	376	326	678	e350	e210	547	906	281	305	153	174	1710
18	458	303	632	e340	e210	520	755	402	364	284	162	15000
19	389	2280	580	e330	e220	739	663	458	301	304	202	5150
20	365	5110	531	e310	e260	824	597	432	272	204	211	1960
21	340	1860	477	e280	e500	2140	534	2110	252	174	422	1290
22	332	1210	454	e260	e600	1340	491	1560	255	165	365	959
23	321	910	695	e240	e500	1010	534	950	251	409	237	755
24	295	772	1650	e220	e470	826	455	699	217	215	205	623
25	265	751	1600	e210	e420	747	514	571	202	172	186	533
26	258	586	1100	e200	e400	688	1480	757	198	173	174	469
27	733	519	856	e200	e380	667	1040	620	186	1440	164	423
28	735	604	724	e190	e380	625	876	497	182	898	157	874
29	535	823	647	e190	e480	565	714	417	209	516	193	847
30	469	623	675	e180	---	518	629	370	179	395	636	541
31	414	---	562	e180	---	611	---	362	---	484	531	---
TOTAL	13194	22582	27727	21612	8610	38687	34429	17977	9217	9002	8250	49941
MEAN	426	753	894	697	297	1248	1148	580	307	290	266	1665
MAX	843	5110	4750	4620	600	4150	3550	2110	625	1440	636	15000
MIN	247	303	392	180	170	518	455	281	179	136	157	154
CFSM	1.46	2.59	3.07	2.40	1.02	4.29	3.94	1.99	1.06	1.00	0.91	5.72
IN.	1.69	2.89	3.54	2.76	1.10	4.95	4.40	2.30	1.18	1.15	1.05	6.38

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1917 - 2004, BY WATER YEAR (WY)

MEAN	182	284	377	420	544	897	770	527	314	185	147	165
MAX	969	1298	1268	1446	1340	3561	2194	1314	1743	824	738	1665
(WY)	1977	1998	1973	1937	1971	1936	1993	1924	1972	1989	1956	2004
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

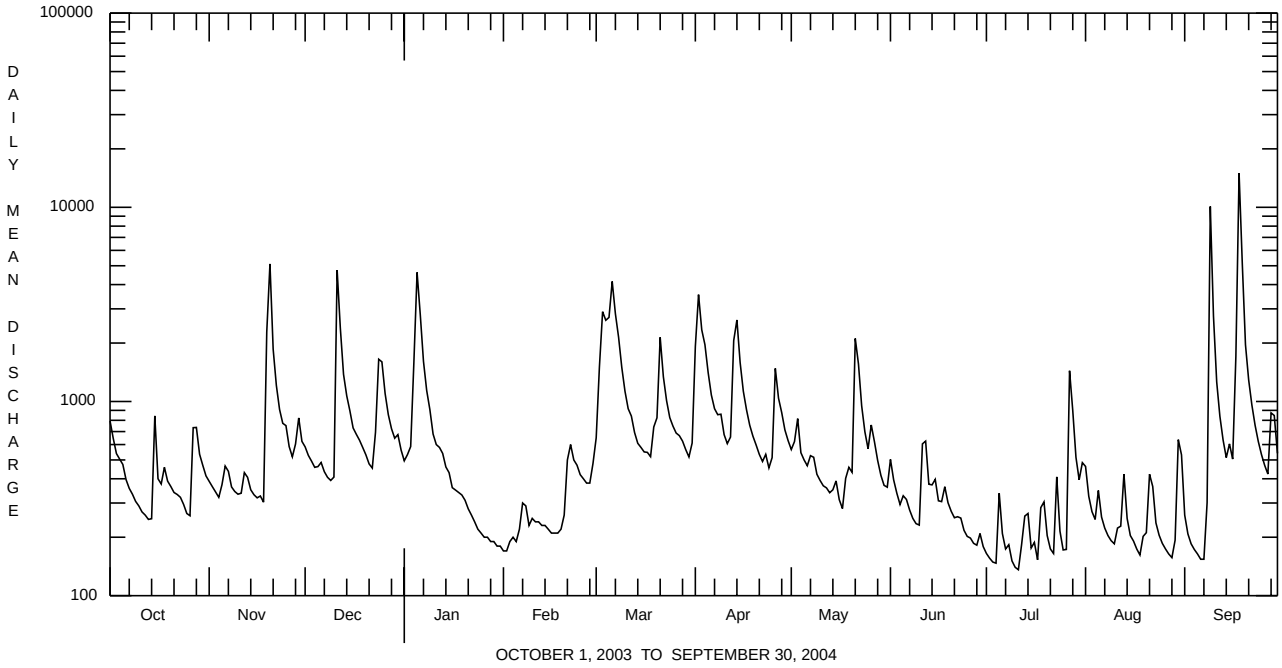
e Estimated.

JUNIATA RIVER BASIN

01556000 FRANKSTOWN BRANCH JUNIATA RIVER AT WILLIAMSBURG, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1917 - 2004	
ANNUAL TOTAL	252836		261228			
ANNUAL MEAN	693		714		400	
HIGHEST ANNUAL MEAN					714	2004
LOWEST ANNUAL MEAN					200	1969
HIGHEST DAILY MEAN	6420	Jan 2	15000	Sep 18	25000	Mar 18 1936
LOWEST DAILY MEAN	**e**70	Feb 17,18	136	Jul 11	31	Dec 24 1930
ANNUAL SEVEN-DAY MINIMUM	**a**84	Feb 15	168	Jul 6	32	Dec 19 1930
MAXIMUM PEAK FLOW			**b**18000	Sep 18	**cd**30000	Mar 18 1936
MAXIMUM PEAK STAGE			19.46	Sep 18	19.46	Sep 18 2004
INSTANTANEOUS LOW FLOW			133	Jul 11	13	Jul 24 1934
ANNUAL RUNOFF (CFSM)	2.38		2.45		1.37	
ANNUAL RUNOFF (INCHES)	32.32		33.39		18.68	
10 PERCENT EXCEEDS	1510		1450		890	
50 PERCENT EXCEEDS	462		430		208	
90 PERCENT EXCEEDS	160		189		72	

a Computed using estimated daily discharges.
b From rating curve extended above 13,100 ft^3/s on basis of straight-line extension.
c From rating curve in use at that time based on slope-area measurement at gage height 18.58 ft.
d Gage height 18.58 ft, from floodmark in gage shelter.
e Estimated.



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)
Nov. 19	1430	1,870	4.17	Sept. 9	0500	2,960	5.16
Dec. 11	0830	1,140	3.27	Sept. 18	0200	*3,660	*5.70
July 27	1515	1,150	3.29				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	181	71	94	91	e40	e70	254	125	50	11	164	40
2	144	65	85	105	e40	e200	263	141	41	10	118	34
3	119	62	75	120	e40	376	214	135	38	9.6	95	31
4	121	58	68	300	e50	387	186	102	33	14	100	28
5	101	94	70	760	e50	478	150	95	35	47	106	26
6	83	93	68	435	e100	800	127	87	32	17	75	23
7	72	80	61	274	e200	541	114	81	29	44	65	22
8	65	73	e52	202	e90	394	116	73	29	48	57	150
9	60	67	e48	164	e40	268	109	66	26	21	51	1650
10	55	63	e60	e130	e30	199	91	63	26	16	47	560
11	51	64	827	e110	e30	165	81	56	40	14	44	304
12	48	73	374	e90	e30	146	108	54	36	214	47	206
13	45	65	226	e80	e40	119	327	53	27	133	53	156
14	75	56	183	e70	e40	103	352	55	29	79	38	126
15	160	52	156	e60	e30	97	224	52	40	49	33	119
16	93	49	132	e70	e30	91	170	44	28	38	31	101
17	90	48	120	e80	e40	84	142	40	26	31	28	650
18	92	44	109	e90	e40	78	122	63	24	43	27	2040
19	81	873	96	e80	e50	87	105	80	20	103	28	685
20	73	665	85	e70	e50	161	94	75	18	99	40	352
21	69	334	76	e70	e60	362	84	183	16	56	147	224
22	67	221	74	e70	e50	203	80	171	27	62	64	159
23	60	170	112	e70	e50	158	175	133	19	133	40	121
24	55	149	287	e60	e50	139	121	110	16	102	33	100
25	50	130	238	e60	e40	135	286	93	14	86	29	85
26	50	107	173	e60	e40	127	578	84	14	168	26	73
27	137	95	140	e50	e40	130	363	78	12	887	24	64
28	107	118	119	e50	e40	124	237	63	12	533	35	283
29	95	119	107	e50	e60	114	177	53	13	273	34	156
30	84	98	127	e40	---	105	145	46	11	187	75	100
31	77	---	102	e40	---	106	---	53	---	230	59	---
TOTAL	2660	4256	4544	4001	1490	6547	5595	2607	781	3757.6	1813	8668
MEAN	85.8	142	147	129	51.4	211	186	84.1	26.0	121	58.5	289
MAX	181	873	827	760	200	800	578	183	50	887	164	2040
MIN	45	44	48	40	30	70	80	40	11	9.6	24	22
CFSM	1.95	3.22	3.32	2.93	1.17	4.79	4.23	1.91	0.59	2.75	1.33	6.55
IN.	2.24	3.59	3.83	3.37	1.26	5.52	4.72	2.20	0.66	3.17	1.53	7.31

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2004, BY WATER YEAR (WY)

MEAN	33.6	56.9	76.0	79.9	102	165	145	108	63.7	31.8	23.0	31.3
MAX	178	216	217	226	251	364	399	304	377	138	140	289
(WY)	1991	1951	1973	1952	1981	1945	1993	1978	1972	1956	2003	2004
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

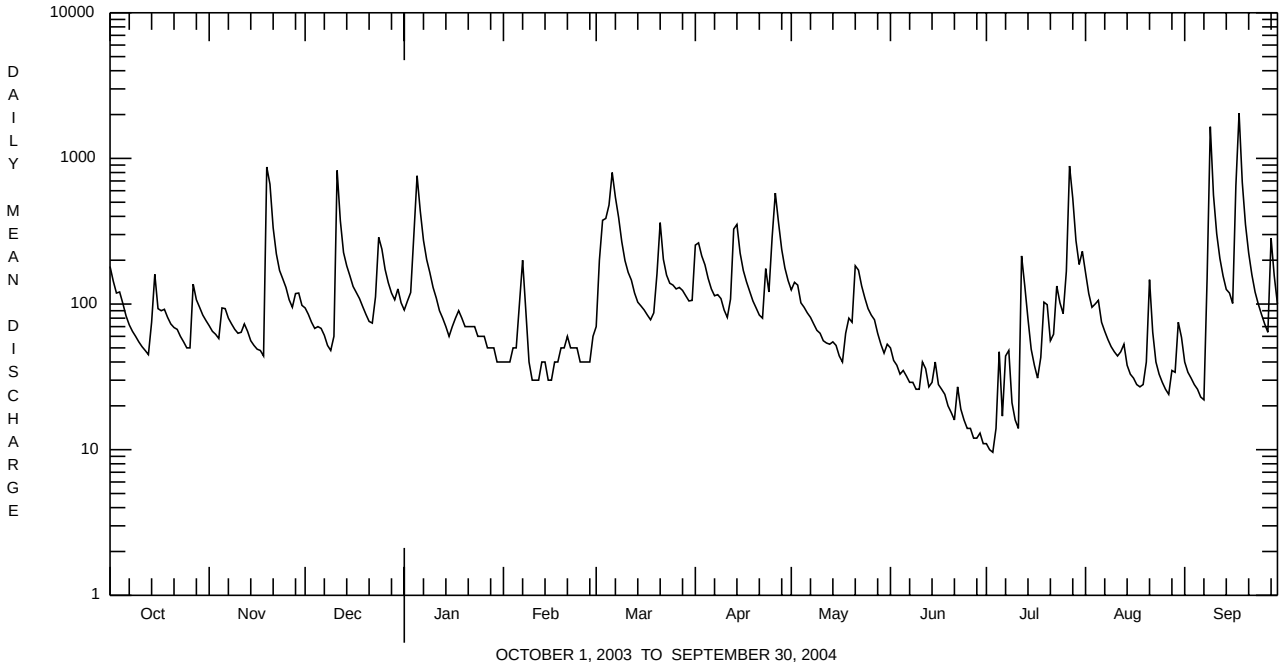
e Estimated.

JUNIATA RIVER BASIN

01557500 BALD EAGLE CREEK AT TYRONE, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1945 - 2004	
ANNUAL TOTAL	47003		46719.6			
ANNUAL MEAN	129		128		76.3	
HIGHEST ANNUAL MEAN					133	1951
LOWEST ANNUAL MEAN					42.8	1999
HIGHEST DAILY MEAN	873	Nov 19	2040	Sep 18	2800	Jun 23 1972
LOWEST DAILY MEAN	12	Jul 30,31	9.6	Jul 3	1.4	Sep 13 1973
ANNUAL SEVEN-DAY MINIMUM	14	Jul 25	11	Jun 27	1.7	Sep 7 1973
MAXIMUM PEAK FLOW			**a**3660	Sep 18	**a**5140	Nov 25 1950
MAXIMUM PEAK STAGE			5.70	Sep 18	**b**7.50	Nov 25 1950
INSTANTANEOUS LOW FLOW			9.2	Jul 2-4	1.4	Sep 12 1973
ANNUAL RUNOFF (CFSM)	2.92		2.89		1.73	
ANNUAL RUNOFF (INCHES)	39.65		39.41		23.50	
10 PERCENT EXCEEDS	285		243		174	
50 PERCENT EXCEEDS	83		80		42	
90 PERCENT EXCEEDS	31		29		7.6	

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 poor. 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 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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Nov. 19	2145	8,540	9.43	July 27	2000	3,640	6.32
Dec. 11	0930	5,110	7.35	Sept. 9	0645	14,800	12.94
Jan. 5	0845	3,810	6.41	Sept. 18	0600	*22,100	*15.46
Mar. 6	0945	3,780	6.39				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1060	378	535	501	e155	519	1380	618	343	129	706	194
2	862	357	488	537	e155	1170	1630	625	282	122	539	169
3	714	337	447	594	e160	1810	1330	683	256	117	459	153
4	686	321	e395	1290	e170	1740	1240	525	227	120	412	144
5	606	435	e360	3270	e160	2020	1000	488	240	290	482	138
6	501	509	e370	2110	e180	3280	835	454	228	161	359	130
7	440	405	e330	1460	310	2420	735	452	208	142	312	129
8	393	370	e320	1130	277	1860	699	439	190	227	284	319
9	350	346	331	933	222	1370	687	385	179	142	258	7760
10	301	337	336	e700	225	1090	562	368	173	124	239	2190
11	280	335	3460	e620	225	898	508	343	369	116	263	1330
12	262	377	1850	e575	208	787	553	318	382	291	248	967
13	248	364	1250	e505	211	648	1600	308	252	363	336	743
14	262	326	1030	e440	201	568	1840	311	262	235	244	583
15	735	295	874	e370	189	532	1270	320	418	177	213	560
16	393	286	730	e340	156	497	989	276	304	165	192	490
17	374	287	669	e330	168	479	820	254	e235	144	181	1970
18	402	269	600	e325	170	447	701	299	257	173	172	13400
19	353	3400	527	e320	180	510	618	342	224	244	178	3350
20	328	3430	469	297	228	685	552	354	200	280	195	1890
21	324	1760	413	e260	391	1840	497	955	188	183	444	1390
22	318	1270	397	e230	409	1130	471	887	225	167	316	1100
23	302	1010	577	e210	346	888	643	677	200	458	224	892
24	278	875	1220	e200	336	755	527	563	172	311	194	740
25	261	798	1200	e185	306	699	860	481	161	248	174	638
26	253	657	952	e180	295	646	1760	432	154	294	165	566
27	596	573	796	e180	277	632	1370	444	143	2210	157	510
28	577	619	691	e175	293	600	1040	366	142	1620	156	1070
29	476	701	614	e170	373	555	824	318	153	966	175	878
30	441	568	677	e165	---	515	697	284	136	727	286	632
31	403	---	570	e160	---	548	---	297	---	830	307	---
TOTAL	13779	21995	23478	18762	6976	32138	28238	13866	6903	11776	8870	45025
MEAN	444	733	757	605	241	1037	941	447	230	380	286	1501
MAX	1060	3430	3460	3270	409	3280	1840	955	418	2210	706	13400
MIN	248	269	320	160	155	447	471	254	136	116	156	129
CFSM	2.02	3.33	3.44	2.75	1.09	4.71	4.28	2.03	1.05	1.73	1.30	6.82
IN.	2.33	3.72	3.97	3.17	1.18	5.43	4.77	2.34	1.17	1.99	1.50	7.61

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2004, BY WATER YEAR (WY)

MEAN	187	280	364	376	479	782	718	521	339	190	146	180
MAX	816	1092	997	991	1128	1609	1928	1239	2022	623	462	1501
(WY)	1991	1951	1973	1949	1976	1979	1993	1978	1972	1956	2003	2004
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

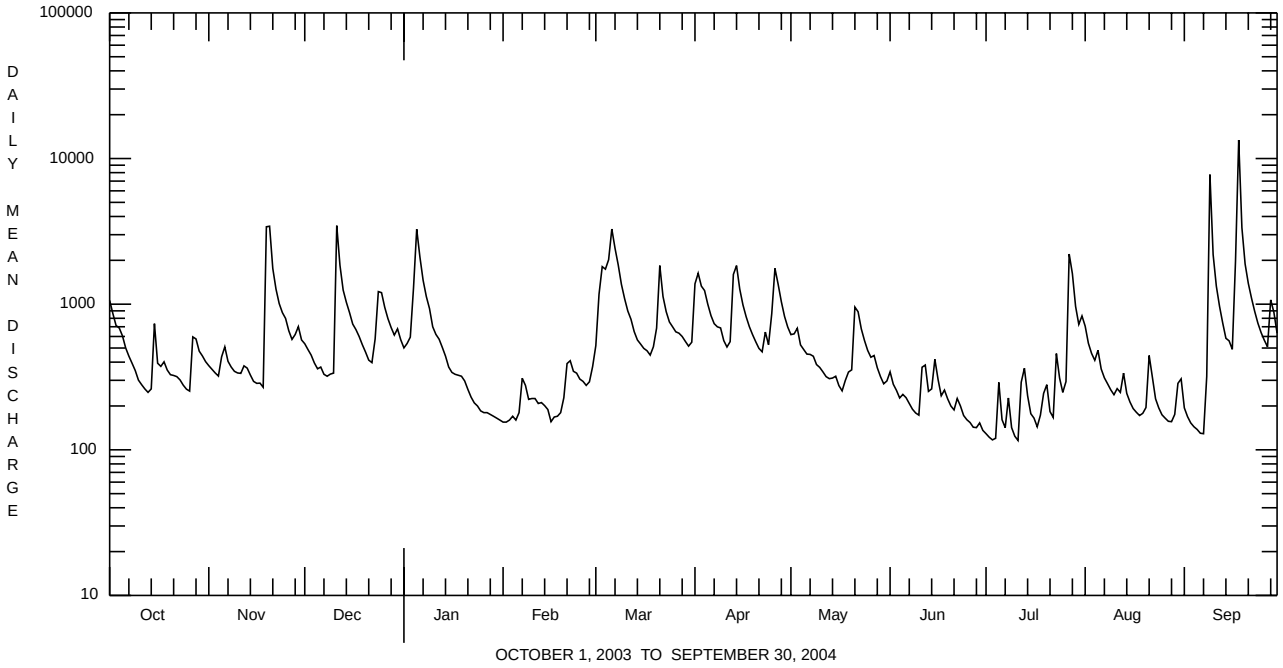
e Estimated.

JUNIATA RIVER BASIN

01558000 LITTLE JUNIATA RIVER AT SPRUCE CREEK, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1939 - 2004	
ANNUAL TOTAL	230969		231806			
ANNUAL MEAN	633		633		380	
HIGHEST ANNUAL MEAN					633	2004
LOWEST ANNUAL MEAN					248	1966
HIGHEST DAILY MEAN	3600	Sep 28	13400	Sep 18	21100	Jun 23 1972
LOWEST DAILY MEAN	85	Jul 31	116	Jul 11	31	Sep 12 1995
ANNUAL SEVEN-DAY MINIMUM	98	Jul 25	131	Jun 28	34	Sep 7 1995
MAXIMUM PEAK FLOW			**a**22100	Sep 18	**a**28600	Jun 23 1972
MAXIMUM PEAK STAGE			15.46	Sep 18	16.98	Jun 23 1972
INSTANTANEOUS LOW FLOW			111	Jul 12	45	Sep 26 1943**b**
ANNUAL RUNOFF (CFSM)	2.88		2.88		1.73	
ANNUAL RUNOFF (INCHES)	39.05		39.20		23.44	
10 PERCENT EXCEEDS	1280		1260		821	
50 PERCENT EXCEEDS	466		388		224	
90 PERCENT EXCEEDS	164		170		83	

a From rating curve, then in use, extended above 10,900 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 359-431.

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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)
OCT 2003													
30...	1200	1028	9813	440	11.8	8.0	7.5	215	196	9.4	92	24.4	7.4
DEC													
10...	1245	1028	9813	320	13.4	8.4	8.2	251	255	4.8	110	29.1	9.0
FEB 2004													
11...	1115	1028	9813	230	14.1	8.2	8.0	350	357	2.5	120	31.2	9.7
APR													
27...	1700	1028	9813	1280	10.8	7.6	7.4	151	138	10.6	59	16.0	4.7
JUN													
03...	1230	1028	9813	250	11.0	8.2	8.0	269	258	15.7	97	24.0	9.0
AUG													
18...	1345	1028	9813	170	12.2	8.7	8.5	314	310	16.8	130	33.9	10.7

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	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)
OCT 2003													
30...	70	18.7	166	10	<.020	1.32	<.040	.04	.060	1.4	1.8	<200	<10
DEC													
10...	79	20.7	170	<2	<.020	1.58	<.040	.03	.033	1.8	1.3	<200	<10
FEB 2004													
11...	83	21.4	178	20	<.020	1.66	<.040	.09	.089	1.9	1.7	<200	<10
APR													
27...	44	15.3	116	4	<.020	.81	<.040	.04	.062	1.1	1.8	380	<10
JUN													
03...	84	22.0	172	10	.030	1.58	<.040	.08	.097	1.8	1.7	<200	<10
AUG													
18...	104	22.9	216	4	<.020	1.72	<.040	.25	.261	2.0	2.1	<200	<10

Date	Iron, water, unfltrd recoverable, µg/L (01045)	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)
OCT 2003					
30...	110	<1.0	<10	<50	100
DEC					
10...	70	<1.0	<10	<50	<10
FEB 2004					
11...	70	<1.0	10	<50	<10
APR					
27...	490	<1.0	40	<50	<10
JUN					
03...	170	<1.0	20	<50	70
AUG					
18...	70	<1.0	10	<50	80

01558000 LITTLE JUNIATA RIVER AT SPRUCE CREEK, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

Date	10/30/03
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	1
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	8
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	9
Crustacea	
Amphipoda (SCUDS)	
Gammaridae	
Gammarus	3
Isopoda (AQUATIC SOWBUGS)	
Asellidae	
Caecidotea	2
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Baetis	2
Ephemerellidae	
Ephemerella	17
Serratella	16
Heptageniidae	
Stenonema	7
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche	2
Hydropsyche	7
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus	20
Stenelmis	2
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	25
Empididae (DANCE FLIES)	
Hemerodromia	1
Tipulidae (CRANE FLIES)	
Antocha	6
Total Organisms	128
Total Taxa	16

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 fair 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)
Nov. 20	0230	15,800	10.28	Apr. 2	1415	7,680	6.85
Dec. 11	1430	15,800	10.29	Apr. 14	0545	7,040	6.52
Dec. 24	2215	6,150	6.03	May 21	2215	6,280	6.10
Jan. 5	1200	11,600	8.77	July 28	0200	5,980	5.93
Mar. 3	0945	7,660	6.84	Sept. 9	1245	26,100	13.45
Mar. 6	1615	10,500	8.23	Sept. 18	1115	*45,700	*17.89
Mar. 21	0845	6,580	6.27				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2680	1160	1670	1760	e625	1530	3840	1820	1120	458	1890	682
2	2200	1090	1520	1740	e650	2790	7180	1770	996	438	1270	560
3	1810	1050	1410	1890	e680	6470	5450	2510	824	410	1040	512
4	1660	939	1320	3590	613	6000	4650	1750	765	407	908	471
5	1630	1030	1310	9970	688	6640	3660	1570	744	756	1130	459
6	1300	1550	1350	7630	572	9360	2950	1470	792	584	911	444
7	1180	1260	1220	4910	928	7540	2550	1410	705	491	764	421
8	1090	1100	1130	3740	966	5820	2300	1560	649	578	692	569
9	975	1020	1070	3090	826	4260	2440	1270	609	468	652	19000
10	892	977	1060	2480	763	3330	1930	e1150	592	416	591	8460
11	834	969	10600	e2100	794	2760	1720	1110	912	398	714	3900
12	790	1080	7600	e2000	717	2450	1670	1020	1590	468	752	2720
13	755	1160	4470	e1850	717	2070	4080	997	909	1060	1020	e2100
14	744	1020	3590	e1650	725	1800	6110	916	811	724	809	1660
15	2040	864	3060	e1500	697	1690	4170	1060	1080	564	649	1590
16	1270	867	2550	e1400	635	1570	3180	883	898	513	585	1560
17	1050	865	2320	e1300	623	1550	2630	809	770	484	565	2260
18	1220	832	2160	e1400	633	1440	2260	876	808	487	523	37700
19	1090	4220	1940	e1250	642	1740	1990	1120	738	778	527	16100
20	996	12000	1770	e1100	747	2060	1780	1170	662	771	611	6330
21	950	5280	1610	e1000	1130	5590	1620	2460	618	566	969	4430
22	915	3620	1520	e950	1500	3810	1520	3540	629	505	1270	3470
23	888	2830	1870	e900	1260	2940	1710	2230	652	972	751	2830
24	824	2360	3780	e800	1180	2490	1570	1700	571	807	633	2350
25	771	2320	4610	e800	1090	2230	1710	e1300	521	613	578	2070
26	740	1830	3380	e750	1020	2040	4260	e1410	512	563	537	1840
27	1420	1610	2780	e750	952	1930	3630	1500	490	3480	509	1660
28	2300	1670	2400	e725	965	1830	2860	1210	474	3970	511	3000
29	1580	2430	2150	e700	1170	1660	2340	1030	506	2110	552	3390
30	1400	1840	2220	e675	---	1550	2030	898	488	1550	778	2240
31	1220	---	2030	e700	---	1660	---	874	---	1690	1300	---
TOTAL	39214	60843	81470	65100	24508	100600	89790	44393	22435	28079	24991	134778
MEAN	1265	2028	2628	2100	845	3245	2993	1432	748	906	806	4493
MAX	2680	12000	10600	9970	1500	9360	7180	3540	1590	3970	1890	37700
MIN	740	832	1060	675	572	1440	1520	809	474	398	509	421
CFSM	1.55	2.49	3.22	2.57	1.04	3.98	3.67	1.75	0.92	1.11	0.99	5.51
IN.	1.79	2.77	3.71	2.97	1.12	4.59	4.09	2.02	1.02	1.28	1.14	6.14

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 2004, BY WATER YEAR (WY)

MEAN	555	824	1084	1142	1417	2275	2037	1485	980	573	466	548
MAX	2114	3020	3100	2780	3059	4920	5739	3217	5562	1920	1447	4493
(WY)	1991	1998	1973	1996	1971	1994	1993	1978	1972	1989	1956	2004
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

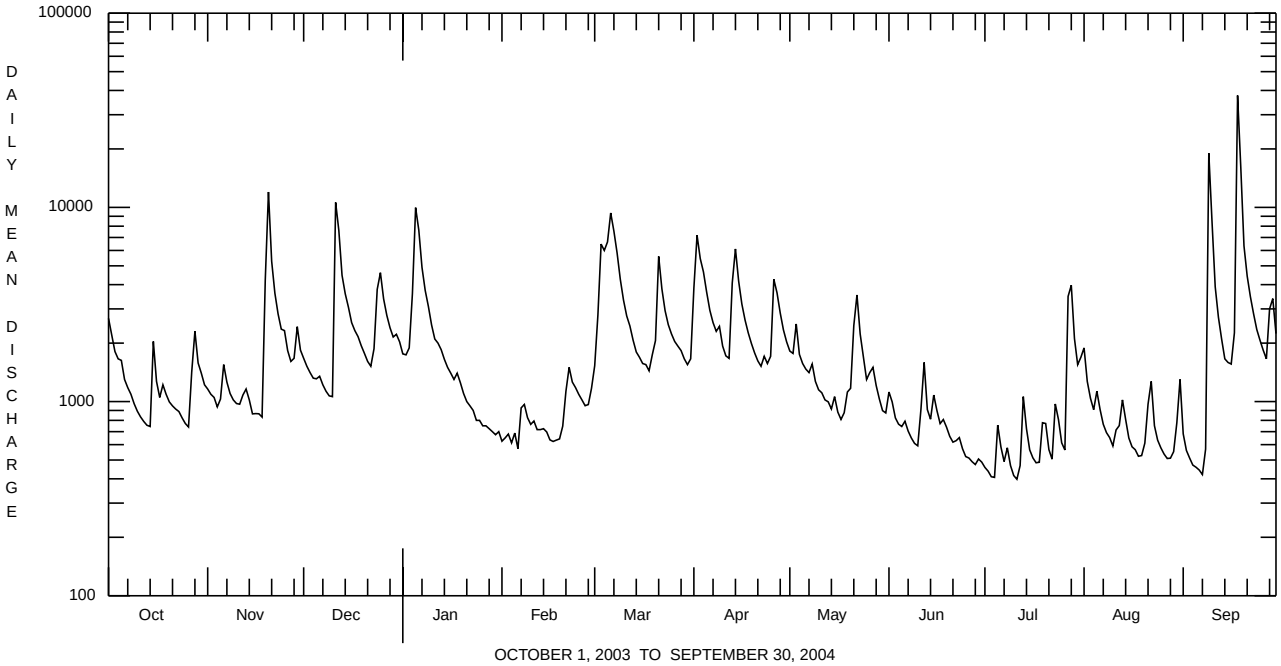
e Estimated.

JUNIATA RIVER BASIN

01559000 JUNIATA RIVER AT HUNTINGDON, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1942 - 2004	
ANNUAL TOTAL	673904		716201			
ANNUAL MEAN	1846		1957		1114	
HIGHEST ANNUAL MEAN					1957	2004
LOWEST ANNUAL MEAN					595	1969
HIGHEST DAILY MEAN	12000	Jan 2	37700	Sep 18	50400	Jun 23 1972
LOWEST DAILY MEAN	274	Feb 17	398	Jul 11	40	Sep 12 1963
ANNUAL SEVEN-DAY MINIMUM	**a**377	Feb 12	454	Jun 28	117	Sep 10 1963
MAXIMUM PEAK FLOW			**b**45700	Sep 18	**b**57000	Jun 23 1972
MAXIMUM PEAK STAGE			17.89	Sep 18	20.03	Jun 23 1972
INSTANTANEOUS LOW FLOW			370	Feb 4,Aug 18	**c**14	Feb 8 1948
ANNUAL RUNOFF (CFSM)	2.26		2.40		1.36	
ANNUAL RUNOFF (INCHES)	30.72		32.65		18.54	
10 PERCENT EXCEEDS	3810		3750		2390	
50 PERCENT EXCEEDS	1320		1240		665	
90 PERCENT EXCEEDS	504		570		265	

a Computed using estimated daily discharges.
b From rating curve extended above 26,000 ft^3/s on basis of computation of peak discharge at dam, slope-conveyance study, and Pennsylvania Department of Environmental Protection step-backwater study.
c 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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Nov. 20	0245	6,130	10.15	Apr. 2	1015	4,450	9.01
Dec. 11	1345	5,560	9.79	Apr. 14	0145	3,050	7.75
Jan. 5	1800	3,230	7.98	Sept. 9	1130	*8,700	*11.45
Mar. 3	0245	3,500	8.23	Sept. 18	1215	8,200	11.25
Mar. 6	1415	4,270	8.87				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	341	218	352	243	e61	439	947	295	117	44	249	112
2	257	193	304	272	e59	1290	3560	288	96	40	145	94
3	202	172	266	292	e58	2760	2120	362	89	38	114	81
4	177	153	235	700	e58	2330	1240	246	79	38	98	72
5	161	174	230	2510	e58	2180	759	221	82	54	100	63
6	133	265	228	1970	e68	3740	538	203	84	49	81	57
7	117	279	198	965	e110	2360	434	186	73	39	69	55
8	106	206	176	626	e160	1490	384	189	65	37	61	564
9	98	188	162	483	e140	1000	408	158	61	34	54	6830
10	95	179	172	e320	e130	686	298	143	59	31	50	2050
11	89	177	4120	e280	e120	527	268	132	88	43	46	761
12	85	285	2120	e245	e115	454	370	130	151	85	63	461
13	81	253	953	e210	e108	366	1670	127	91	114	122	306
14	81	220	665	e180	e105	311	2260	115	85	82	74	219
15	309	215	534	e160	e103	290	1130	109	97	64	57	209
16	164	206	410	e145	e108	266	650	108	84	56	50	183
17	176	198	360	e130	e102	265	465	96	108	49	47	519
18	329	178	319	e120	e98	253	369	112	133	53	41	6910
19	312	1650	264	e110	e98	429	303	169	135	89	42	2960
20	270	4370	234	e100	e124	431	262	161	124	68	61	932
21	229	1320	204	e96	e246	1190	230	223	105	53	148	553
22	201	753	203	e88	e334	907	213	274	95	46	143	395
23	184	526	475	e83	e302	606	222	240	89	52	89	283
24	153	428	1130	e78	e270	458	190	202	73	55	74	219
25	134	421	1200	e80	e240	384	191	168	66	44	64	180
26	125	300	788	e74	e212	337	999	198	71	43	57	151
27	315	253	558	e70	e207	333	667	167	57	271	57	131
28	425	379	430	e67	e207	319	542	147	52	232	157	283
29	360	523	355	e64	e276	271	411	131	60	175	518	307
30	314	384	347	e63	---	236	344	112	50	159	210	164
31	255	---	282	e64	---	282	---	109	---	267	159	---
TOTAL	6278	15066	18274	10888	4277	27190	22444	5521	2619	2504	3300	26104
MEAN	203	502	589	351	147	877	748	178	87.3	80.8	106	870
MAX	425	4370	4120	2510	334	3740	3560	362	151	271	518	6910
MIN	81	153	162	63	58	236	190	96	50	31	41	55
CFSM	1.18	2.92	3.43	2.04	0.86	5.10	4.35	1.04	0.51	0.47	0.62	5.06
IN.	1.36	3.26	3.95	2.35	0.93	5.88	4.85	1.19	0.57	0.54	0.71	5.65

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2004, BY WATER YEAR (WY)

MEAN	96.3	174	251	259	352	564	450	287	177	89.2	56.9	75.2
MAX	798	917	859	664	825	1408	1370	1013	1015	740	214	870
(WY)	1977	1998	1973	1952	1971	1994	1993	1998	1972	1989	1979	2004
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

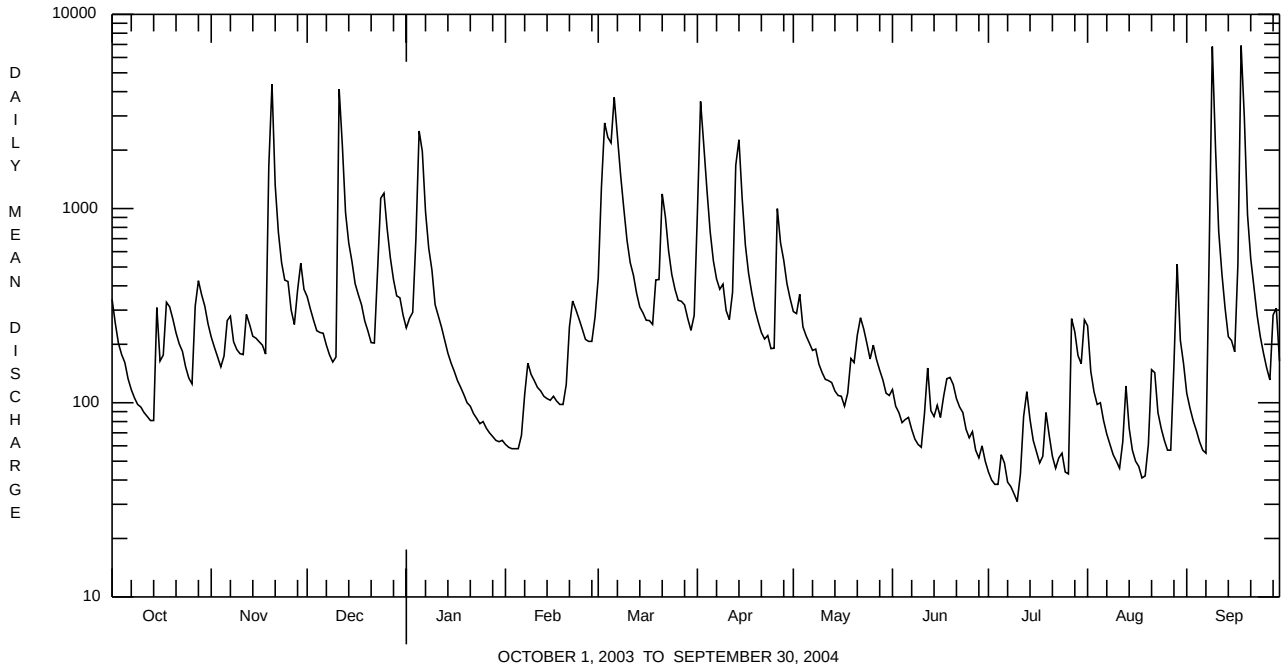
e Estimated.

JUNIATA RIVER BASIN

01560000 DUNNING CREEK AT BELDEN, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1940 - 2004	
ANNUAL TOTAL	159862		144465			
ANNUAL MEAN	438		395		235	
HIGHEST ANNUAL MEAN					397	1998
LOWEST ANNUAL MEAN					107	1954
HIGHEST DAILY MEAN	6000	Jun 4	6910	Sep 18	9140	Jun 23 1972
LOWEST DAILY MEAN	25	Jul 31	31	Jul 10	6.4	Sep 6 1964
ANNUAL SEVEN-DAY MINIMUM	30	Jul 25	40	Jul 4	6.7	Aug 5 1966
MAXIMUM PEAK FLOW			8700	Sep 9	**a**19400	Jul 20 1977
MAXIMUM PEAK STAGE			11.45	Sep 9	14.15	Jul 20 1977
INSTANTANEOUS LOW FLOW			29	Jul 10,11	2.6	Sep 6 1964
ANNUAL RUNOFF (CFSM)	2.55		2.29		1.37	
ANNUAL RUNOFF (INCHES)	34.57		31.24		18.58	
10 PERCENT EXCEEDS	1010		760		573	
50 PERCENT EXCEEDS	223		190		100	
90 PERCENT EXCEEDS	61		58		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 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 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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Nov. 20	0830	14,000	11.19	Apr. 2	2330	10,700	9.56
Dec. 11	2000	15,000	11.63	Apr. 14	1115	9,210	8.77
Mar. 3	1100	9,730	9.05	Sept. 9	1330	28,600	17.15
Mar. 6	2230	9,390	8.87	Sept. 18	1230	*39,200	*20.02

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1920	934	1380	1210	e460	1440	1640	1530	578	231	2540	458
2	1550	820	1260	1140	e520	2790	7780	1410	573	208	1730	361
3	1210	747	1130	1180	e570	8280	8960	2000	502	193	1130	305
4	1020	679	1040	1420	e620	7640	5540	1640	438	193	826	269
5	912	652	1030	3760	e600	7090	3820	1350	444	245	693	241
6	793	794	1050	5740	e850	7930	2840	1210	449	275	553	220
7	669	1100	992	3780	e1200	8120	2270	1130	440	241	459	213
8	587	1060	893	2560	e800	5250	1840	1050	394	258	389	316
9	530	881	847	e1950	e680	3950	1880	922	358	313	343	21600
10	485	801	828	e1700	e650	3020	1670	837	332	225	308	12300
11	455	767	8060	e1200	e720	2400	1360	728	353	205	281	4180
12	424	836	10000	e1100	e800	1950	1340	717	456	1750	290	2530
13	404	1140	4630	e1050	e800	1690	3810	805	631	3000	389	1730
14	392	1000	3120	e900	e720	1460	7860	746	444	1520	521	1320
15	670	909	2480	e800	e650	1230	5410	717	405	924	369	1230
16	1100	862	1970	e700	e580	1190	3530	632	391	627	286	1270
17	718	816	1690	e550	e610	1190	2670	590	376	479	249	2700
18	719	827	1570	e700	e650	1060	2080	556	372	411	228	32800
19	870	1640	1370	e600	e680	1420	1650	1110	381	385	232	16500
20	792	11800	1220	e550	e700	1930	1410	1750	375	432	239	7520
21	728	6810	1090	e500	e950	3040	1270	1410	349	388	320	4460
22	672	3650	1010	e550	e1500	3580	1180	1510	328	311	425	2590
23	623	2630	1260	e500	1580	2750	1210	1260	312	397	525	1740
24	583	2000	2470	e430	1400	2080	1130	1040	290	467	330	1390
25	512	1780	4650	e420	1360	1720	961	869	266	403	270	1140
26	472	1500	3480	e420	1210	1490	2270	1010	270	330	237	1020
27	654	1260	2540	e450	1070	1430	4570	967	266	455	215	871
28	1430	1200	2010	e480	1020	1280	3080	763	255	884	242	1650
29	1410	1740	1680	e500	1140	1130	2320	659	250	707	1310	2860
30	1240	1600	1520	e480	---	1000	1820	580	241	534	1010	1800
31	1060	---	1420	e470	---	1050	---	537	---	1230	666	---
TOTAL	25604	53235	69690	37790	25090	91580	89171	32035	11519	18221	17605	127584
MEAN	826	1774	2248	1219	865	2954	2972	1033	384	588	568	4253
MAX	1920	11800	10000	5740	1580	8280	8960	2000	631	3000	2540	32800
MIN	392	652	828	420	460	1000	961	537	241	193	215	213
CFSM	1.09	2.35	2.97	1.61	1.14	3.91	3.93	1.37	0.51	0.78	0.75	5.63
IN.	1.26	2.62	3.43	1.86	1.23	4.51	4.39	1.58	0.57	0.90	0.87	6.28

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1912 - 2004, BY WATER YEAR (WY)

MEAN	423	620	866	1015	1410	2120	1753	1242	750	398	269	327
MAX	3561	2897	3254	3477	4817	7669	5811	3425	4624	2847	851	4253
(WY)	1977	1998	1973	1937	1979	1936	1993	1924	1972	1989	1915	2004
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

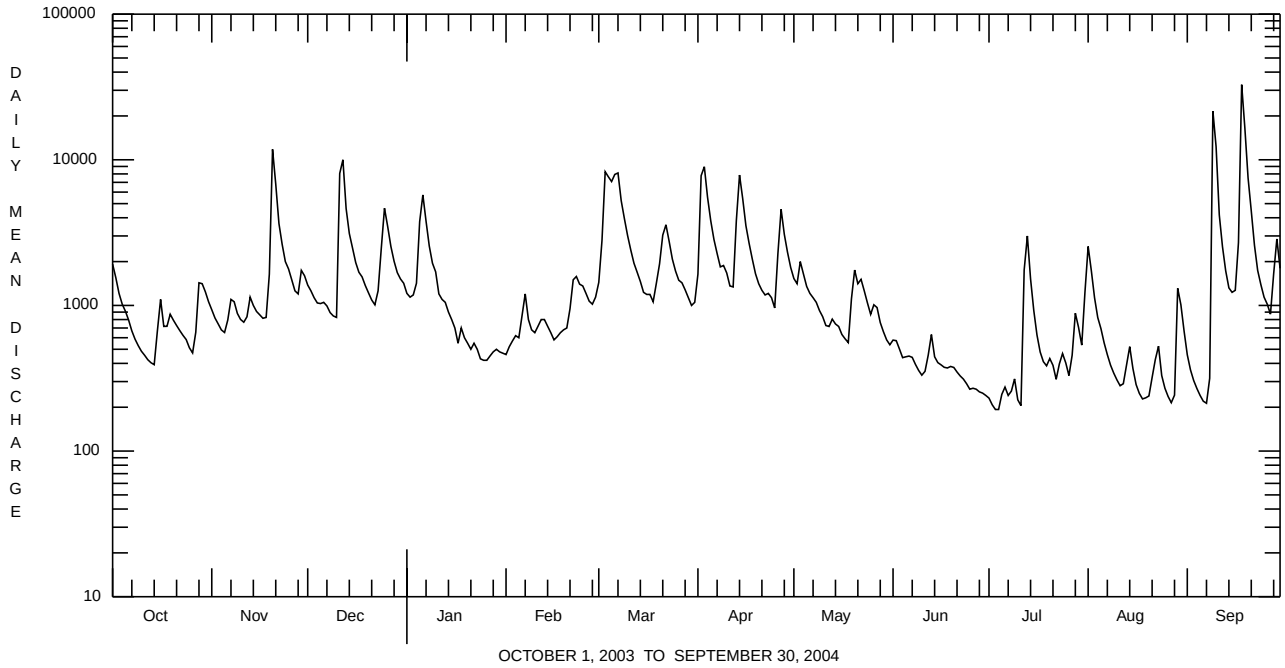
e Estimated.

JUNIATA RIVER BASIN

01562000 RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1912 - 2004	
ANNUAL TOTAL	633410		599124			
ANNUAL MEAN	1735		1637		930	
HIGHEST ANNUAL MEAN					1637	2004
LOWEST ANNUAL MEAN					402	1969
HIGHEST DAILY MEAN	15300	Jun 4	32800	Sep 18	58300	Mar 18 1936
LOWEST DAILY MEAN	177	Jul 31	193	Jul 3	39	Sep 12 1966
ANNUAL SEVEN-DAY MINIMUM	207	Jul 26	223	Jun 29	41	Sep 7 1966
MAXIMUM PEAK FLOW			**a**39200	Sep 18	**a**80500	Mar 18 1936
MAXIMUM PEAK STAGE			20.02	Sep 18	**b**24.54	Mar 18 1936
INSTANTANEOUS LOW FLOW			180	Jul 4	39	Sep 6 1966**c**
ANNUAL RUNOFF (CFSM)	2.30		2.17		1.23	
ANNUAL RUNOFF (INCHES)	31.17		29.48		16.71	
10 PERCENT EXCEEDS	4280		3090		2200	
50 PERCENT EXCEEDS	1050		942		426	
90 PERCENT EXCEEDS	309		313		118	

a From rating curve extended above 28,000 ft^3/s on basis of slope-area measurement of peak flow.
b From floodmark in gage.
c Also Sept. 7, 12, 1966.



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 359-431.

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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)
OCT 2003													
28...	1000	1028	9813	1270	10.4	7.8	7.8	224	218	9.1	96	25.1	8.2
DEC													
10...	0800	1028	9813	1810	13.2	7.6	7.7	270	284	1.7	100	27.3	8.2
FEB 2004													
03...	0830	1028	9813	E570	13.7	7.8	7.9	329	337	.0	140	35.3	12.6
APR													
27...	1215	1028	9813	4380	9.7	7.3	7.2	150	122	11.9	60	16.4	4.7
JUN													
03...	0800	1028	9813	510	8.2	7.8	7.8	280	276	18.6	110	26.7	10.3
AUG													
18...	0845	1028	9813	230	7.3	8.0	7.8	313	314	20.7	130	33.8	11.2

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	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)
OCT 2003													
28...	70	20.9	152	14	.050	1.36	<.040	.02	.027	1.8	3.2	530	<10
DEC													
10...	71	21.8	174	<2	<.020	1.95	<.040	.01	.021	2.2	1.6	200	<10
FEB 2004													
03...	94	25.8	224	14	.030	2.95	<.040	<.01	.014	3.3	1.3	<200	<10
APR													
27...	41	13.5	128	142	.050	1.17	<.040	.03	.132	2.1	4.6	2800	<10
JUN													
03...	87	22.6	202	12	.040	2.14	<.040	.03	.036	2.2	1.9	690	<10
AUG													
18...	100	25.9	228	8	<.020	1.85	<.040	.01	.019	2.0	2.3	250	30

Date	Iron, water, unfltrd recoverable, µg/L (01045)	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)
OCT 2003					
28...	620	<1.0	60	<50	110
DEC					
10...	250	<1.0	40	<50	<10
FEB 2004					
03...	170	<1.0	30	<50	<10
APR					
27...	4030	3.5	150	<50	20
JUN					
03...	810	1.0	70	<50	70
AUG					
18...	250	<1.0	40	<50	90

01562000 RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animals (approximate) subsamples.

Date	09/16/03
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	2
Mollusca	
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	
Sphaerium	1
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Branchiobdellida	
Branchiobdellidae	1
Lumbriculida	
Lumbriculidae	3
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Acentrella	1
Baetis	57
Plauditus	8
Caenidae	
Caenis	3
Ephemerellidae	
Serratella	21
Heptageniidae	
Leucrocuta	6
Stenacron	2
Stenonema	24
Isonychiidae	
Isonychia	6
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Coenagrionidae	
Argia	2
Plecoptera (STONEFLIES)	
Perlidae	
Agnetina	2
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
Corydalus	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche	6
Hydropsyche	14
Macrostemum	1
Hydroptilidae	
Leucotrichia	8
Philopotamidae	
Chimarra	16

01562000 RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	09/16/03
Benthic Macroinvertebrate	Count
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus	4
Stenelmis	30
Psephenidae (WATER PENNIES)	
Psephenus	11
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	9
Simuliidae (BLACK FLIES)	
Simulium	3
Total Organisms	242
Total Taxa	26

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, 656,300 acre-ft, Sept. 20, elevation, 801.81 ft; minimum, 511,500 acre-ft, Mar. 6, elevation, 785.71 ft.

MONTHEND ELEVATION, IN FEET ABOVE SEA LEVEL, AND CONTENTS AT 2400 HRS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)
Sept. 30	786.61	519,200	---
Oct. 31	786.56	518,800	-6.5
Nov. 30	786.75	520,400	+26.9
Dec. 31	786.30	516,500	-63.4
CAL YR 2003	--	--	+2.6
Jan. 31	786.13	515,100	-22.8
Feb. 29	786.04	514,300	-13.9
Mar. 31	786.35	517,000	+43.9
Apr. 30	786.69	519,900	+48.7
May 31	786.38	517,200	-43.9
June 30	786.40	517,400	+3.4
July 31	786.63	519,400	+32.5
Aug. 31	786.30	516,500	-47.2
Sept. 30	786.82	521,000	+75.6
WTR YR 2004	--	--	+2.5

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 good except those for estimated daily discharges, which are 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2490	1900	2880	1890	587	1910	3190	2550	563	253	2890	572
2	1870	1570	2820	1890	588	2770	8790	2060	574	253	2850	286
3	1630	1350	1570	1890	589	8600	11400	2510	557	253	1550	286
4	1630	1200	901	1910	600	11200	6830	2500	557	253	1550	286
5	1310	958	661	5000	1090	10800	4970	1890	558	253	1120	287
6	982	809	1910	8000	1290	9940	4520	1880	557	253	492	287
7	892	1230	1670	5960	573	8460	3330	1790	557	253	281	287
8	777	1240	1500	2840	573	6350	2610	1870	557	253	280	498
9	707	1230	1550	1910	1330	4850	2730	1870	557	253	280	3810
10	584	1230	1890	1900	1400	3550	2290	1870	559	252	280	8170
11	510	1230	5800	1890	1100	2630	1890	1410	561	252	280	11500
12	449	1240	11400	1880	1100	2430	2050	971	560	380	491	11200
13	409	1220	10200	1880	1100	2010	5170	875	557	4080	897	10700
14	333	1220	3480	1880	1100	1360	9490	871	557	2910	897	e5030
15	729	1220	2890	1880	1100	1880	7310	871	557	1240	527	1600
16	988	1220	5440	1420	1100	1780	4240	857	557	469	281	2870
17	701	1230	3340	788	890	1880	2980	869	557	227	241	4310
18	1230	1210	2230	573	755	1880	2970	867	492	370	215	e1140
19	1240	1880	1890	573	757	1890	2950	806	461	474	255	464
20	1090	10600	1880	573	838	2520	2250	2690	324	381	280	10400
21	992	7800	1880	673	890	4070	1880	2200	464	369	291	13100
22	851	2980	1340	894	1110	4960	1870	2730	427	471	848	13500
23	760	2930	1290	999	1660	4780	1870	1890	401	480	851	14600
24	756	4750	2590	999	1900	3450	1870	1480	401	475	521	15500
25	755	5280	4930	999	2250	2740	1880	1210	306	475	505	13400
26	758	3070	4940	999	2560	2070	2320	1220	253	476	380	8320
27	880	1700	4200	982	2290	1890	5290	1220	253	1170	284	3370
28	1450	1680	2490	971	1900	1890	3780	1050	253	1040	284	3180
29	1820	1680	2560	971	1900	1890	3170	892	253	284	993	4420
30	1890	1680	2840	971	---	1880	2900	624	253	508	1900	2400
31	1900	---	1900	734	---	1880	---	497	---	2010	1220	---
TOTAL	33363	68537	96862	56719	34920	120190	118790	46890	14043	21070	24014	165773
MEAN	1076	2285	3125	1830	1204	3877	3960	1513	468	680	775	5526
MAX	2490	10600	11400	8000	2560	11200	11400	2730	574	4080	2890	15500
MIN	333	809	661	573	573	1360	1870	497	253	227	215	286

e Estimated.

01563200 RAYSTOWN BRANCH JUNIATA RIVER BELOW RAYSTOWN DAM NEAR HUNTINGDON, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 2004, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	731	1046	1304	1270	1671	2461	2316	1490	863	512	360	627
MAX	4616	3778	4204	4768	3999	7104	8605	3438	3548	3484	802	5526
(WY)	1977	1974	1973	1996	1984	1994	1993	1978	2003	1989	1979	2004
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

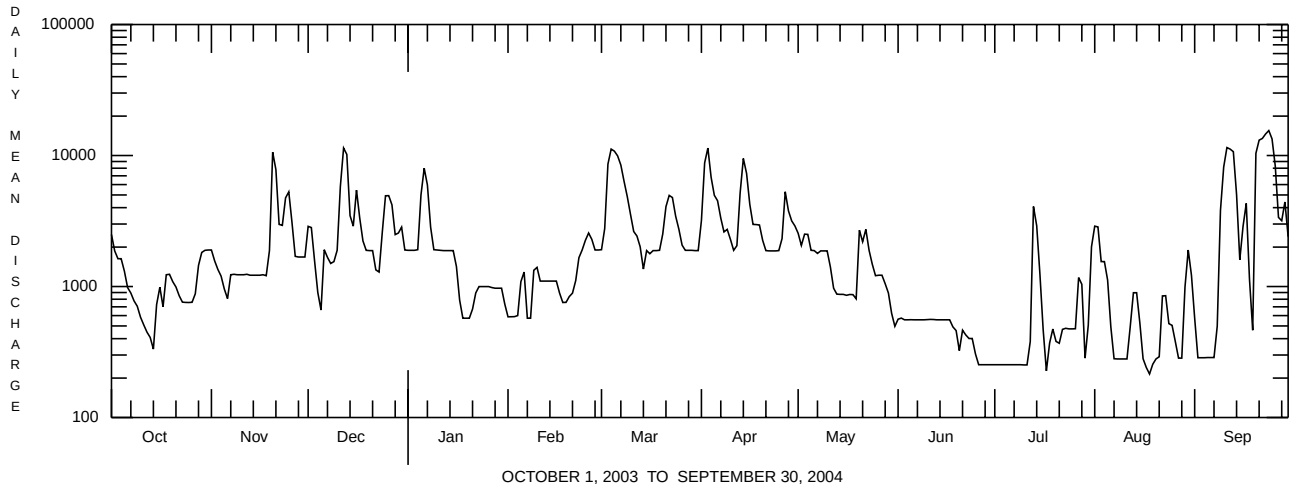
SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1973 - 2004	
ANNUAL TOTAL	764995		801171			
ANNUAL MEAN	2096		2189		1218	
HIGHEST ANNUAL MEAN					2189	2004
LOWEST ANNUAL MEAN					525	1992
HIGHEST DAILY MEAN	14500	Jun 5	15500	Sep 24	15500	Sep 24 2004
LOWEST DAILY MEAN	187	Aug 26	215	Aug 18	5.0	May 18 1973
ANNUAL SEVEN-DAY MINIMUM	201	Jul 23	253	Jul 5	8.3	May 18 1973
MAXIMUM PEAK FLOW			16000	Sep 24	16200	Apr 6 1993
MAXIMUM PEAK STAGE			15.06	Sep 24	15.12	Apr 6 1993
10 PERCENT EXCEEDS	5340		4960		2860	
50 PERCENT EXCEEDS	1550		1290		507	
90 PERCENT EXCEEDS	406		290		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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5840	3420	4820	3920	e1250	e3950	7350	4810	2110	923	5320	1730
2	4780	3130	5020	3840	e1200	e5750	17400	4370	2050	893	4810	1090
3	4110	2830	3580	4010	e1150	16100	18100	5670	1810	857	3050	1000
4	3910	2570	2910	5780	e1200	18600	12100	4980	1710	852	2880	957
5	3680	2420	2460	16900	e1700	19600	9090	4050	1700	1180	2860	939
6	2890	2870	3610	17500	e2100	21900	7930	3900	1780	1140	2050	914
7	2590	3040	3400	11600	e1650	18500	6420	3760	1650	970	1480	887
8	2370	2830	3090	7080	e1900	13400	5520	3950	1570	1090	1350	1210
9	2150	2700	3030	5340	e2200	9820	5650	3630	1510	956	1280	25400
10	1950	2640	3340	4630	e2500	7510	4930	3510	1490	859	1190	18500
11	1730	2630	19800	e4200	e2200	5960	4220	3140	1870	824	1320	15600
12	1630	2750	22400	e4100	e2100	5400	4190	2530	2750	1020	1440	13700
13	1510	2840	16100	e3900	e1900	4780	9040	2350	1970	4830	2460	12500
14	1420	2660	7660	e3700	e1800	3640	16700	2290	1760	4210	2220	7610
15	3230	2470	5970	e3500	e1700	4060	12500	2430	2010	2320	1680	3510
16	2800	2480	7920	e2800	e1600	3850	8090	2250	1950	1410	1180	4410
17	2310	2480	6150	e2250	e1600	3910	6040	2130	1710	968	1100	6070
18	2790	2410	4690	e2150	e1650	3790	5620	2160	1710	1010	983	52500
19	2770	6110	4110	e1900	e1700	4140	5310	2270	1590	1590	1040	24500
20	2550	27400	3900	e1850	e1900	4970	4580	4130	1360	1550	1170	16600
21	2350	15200	3710	e1800	e2500	10900	3970	4380	1360	1180	1490	17900
22	2210	7160	3260	e1850	e3150	9600	3860	6790	1390	1230	2570	16800
23	2040	6380	3410	e1900	e3300	8260	4000	4740	1400	1660	1990	17100
24	1960	7150	6400	e1850	e3500	6540	3920	3740	1280	1680	1550	17700
25	1890	8170	10400	e1750	e3600	5470	3850	3100	1140	1390	1380	15600
26	1840	5540	8620	e1700	e3850	4670	7030	3230	1000	1290	1240	10300
27	2680	3860	7370	e1650	e3650	4340	9630	3280	982	4220	1030	5180
28	4690	3870	5270	e1600	e3200	4220	7270	2830	954	6050	1060	6060
29	3980	5020	4790	e1550	e3450	4020	5950	2410	1000	2970	1580	8490
30	3790	4270	5290	e1500	---	3890	5310	2040	986	2500	2850	5160
31	3550	---	4290	e1300	---	3990	---	1770	---	4050	2850	---
TOTAL	87990	149300	196770	129400	65200	245530	225570	106620	47552	57672	60453	329917
MEAN	2838	4977	6347	4174	2248	7920	7519	3439	1585	1860	1950	11000
MAX	5840	27400	22400	17500	3850	21900	18100	6790	2750	6050	5320	52500
MIN	1420	2410	2460	1300	1150	3640	3850	1770	954	824	983	887

e Estimated.

01563500 JUNIATA RIVER AT MAPLETON DEPOT, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 2004, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1608	2320	2953	2836	3655	5450	5081	3449	2163	1298	981	1503
MAX	7397	7196	8006	8972	8159	14040	15970	7725	6743	6123	2488	11000
(WY)	1977	1998	1973	1996	1984	1994	1993	1978	2003	1989	2003	2004
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

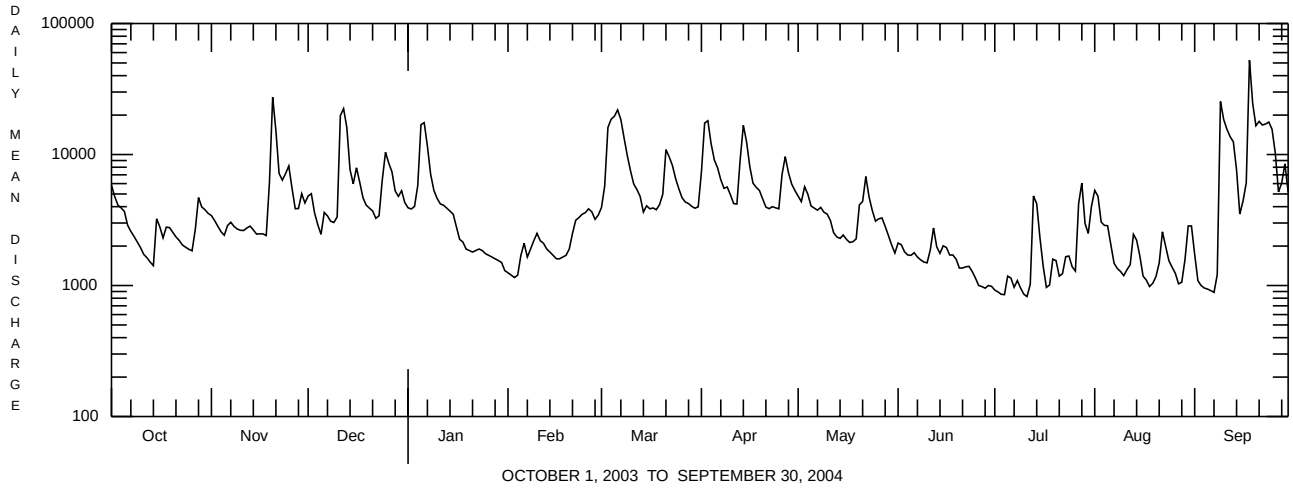
SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1973 - 2004	
ANNUAL TOTAL	1664002		1701974			
ANNUAL MEAN	4559		4650		2768	
HIGHEST ANNUAL MEAN					4650	2004
LOWEST ANNUAL MEAN					1360	1992
HIGHEST DAILY MEAN	27400	Nov 20	52500	Sep 18	52500	Sep 18 2004
LOWEST DAILY MEAN	699	Jul 31	824	Jul 11	374	Sep 14 2002
ANNUAL SEVEN-DAY MINIMUM	782	Jul 25	924	Jun 28	395	Sep 13 2002
MAXIMUM PEAK FLOW			**a**64000	Sep 18	**a**64000	Sep 18 2004
MAXIMUM PEAK STAGE			23.76	Sep 18	23.76	Sep 18 2004
10 PERCENT EXCEEDS	8840		9690		6090	
50 PERCENT EXCEEDS	3330		3100		1590	
90 PERCENT EXCEEDS	1280		1200		562	

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 discharges above 7,100 ft^3/s and 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)
Nov. 20	0215	4,310	10.66	Apr. 26	2015	2,660	8.62
Dec. 11	1630	7,910	14.05	Sept. 9	1245	5,220	11.65
Mar. 3	0200	2,540	8.44	Sept. 18	Unknown	*22,500	*a21.82

a From highwater mark in gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	481	291	357	302	e110	e500	567	431	147	47	1270	36
2	401	256	302	293	e100	e1000	1610	435	117	41	938	32
3	291	230	261	298	e90	1960	1260	980	176	39	436	30
4	255	210	232	433	e90	1540	956	626	118	36	272	28
5	250	207	238	1430	e80	1300	700	496	144	59	236	27
6	197	334	255	1280	e90	1430	547	413	233	66	169	26
7	166	376	276	815	e780	1190	464	372	152	44	130	26
8	147	315	269	616	e800	985	409	387	117	61	107	44
9	132	266	221	502	e500	742	415	281	97	57	90	3100
10	120	236	223	e350	e300	590	325	237	88	41	78	1260
11	111	228	5370	e340	e270	489	279	207	138	38	69	624
12	103	270	2400	e330	e260	436	314	186	227	534	64	393
13	97	281	1230	e300	e250	356	1270	317	136	1320	107	274
14	101	221	914	e250	e240	299	1630	208	102	606	105	203
15	663	202	742	e200	e230	288	1050	178	177	340	69	266
16	406	191	574	e170	e190	257	731	218	139	221	58	230
17	321	184	499	e150	e180	259	575	157	105	160	50	363
18	347	172	464	e200	e170	246	469	153	157	128	46	12400
19	290	1020	374	e170	e160	424	394	399	112	119	53	3190
20	253	2900	319	e150	e200	566	334	368	87	101	103	1340
21	225	1300	268	e130	e400	980	294	354	74	87	190	874
22	205	865	243	e120	e600	809	283	377	68	72	196	623
23	182	649	352	e110	e500	614	339	269	78	103	105	455
24	160	536	1050	e120	e400	499	276	205	66	225	77	347
25	142	513	1420	e140	e350	421	237	167	55	108	64	279
26	131	401	904	e130	e300	356	1460	209	74	85	54	237
27	451	346	674	e150	e250	313	1600	171	67	133	47	201
28	979	349	537	e160	e260	276	955	138	51	182	47	719
29	631	543	452	e170	e300	236	672	117	57	118	56	1230
30	462	411	429	e150	---	215	524	98	61	105	49	667
31	343	---	363	e130	---	241	---	92	---	418	41	---
TOTAL	9043	14303	22212	10089	8450	19817	20939	9246	3420	5694	5376	29524
MEAN	292	477	717	325	291	639	698	298	114	184	173	984
MAX	979	2900	5370	1430	800	1960	1630	980	233	1320	1270	12400
MIN	97	172	221	110	80	215	237	92	51	36	41	26
CFSM	1.42	2.33	3.50	1.59	1.42	3.12	3.40	1.45	0.56	0.90	0.85	4.80
IN.	1.64	2.60	4.03	1.83	1.53	3.60	3.80	1.68	0.62	1.03	0.98	5.36

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2004, BY WATER YEAR (WY)

MEAN	110	192	267	257	375	573	475	317	190	82.8	63.3	82.4
MAX	656	946	890	1062	1399	1612	1296	798	1985	848	355	984
(WY)	1977	1951	1973	1996	1984	1994	1993	1960	1972	1989	1967	2004
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

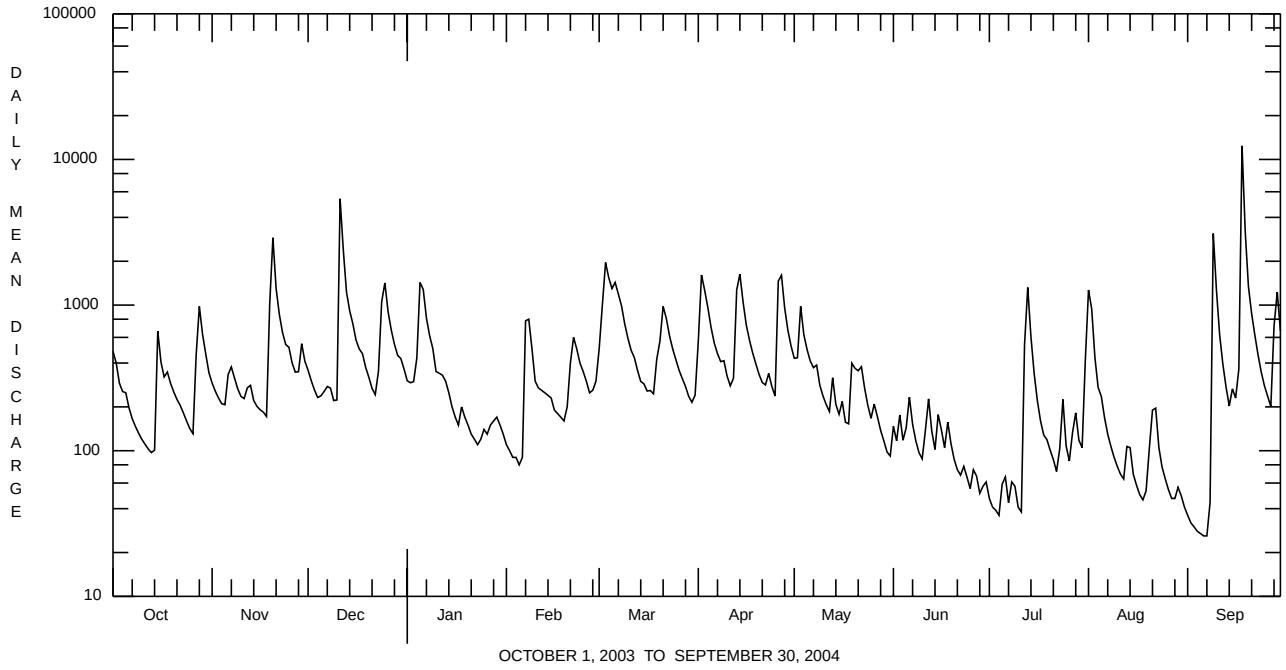
e Estimated.

JUNIATA RIVER BASIN

01564500 AUGHWICK CREEK NEAR THREE SPRINGS, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1938 - 2004	
ANNUAL TOTAL	164650		158113			
ANNUAL MEAN	451		432		248	
HIGHEST ANNUAL MEAN					486	1972
LOWEST ANNUAL MEAN					93.9	2002
HIGHEST DAILY MEAN	5370	Dec 11	12400	Sep 18	18700	Jun 23 1972
LOWEST DAILY MEAN	25	Jul 31	26	Sep 6,7	0.80	Sep 3 1966
ANNUAL SEVEN-DAY MINIMUM	33	Jul 25	29	Sep 1	1.2	Aug 29 1966
MAXIMUM PEAK FLOW			**b**22500	Sep 18	**e**32600	Jan 19 1996**c**
MAXIMUM PEAK STAGE			**a**21.82	Sep 18	**a**21.82	Sep 18 2004
INSTANTANEOUS LOW FLOW			25	Sep 6	0.80	Sep 2 1966**d**
ANNUAL RUNOFF (CFSM)	2.20		2.11		1.21	
ANNUAL RUNOFF (INCHES)	29.88		28.69		16.46	
10 PERCENT EXCEEDS	1010		955		591	
50 PERCENT EXCEEDS	263		256		100	
90 PERCENT EXCEEDS	62		67		14	

a From highwater mark in gage.
b From rating curve extended above 7,100 ft^3/s.
c Gage height unknown.
d Also Sept. 3, 4, 11-13, 1966.
e Estimated.



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)
Nov. 19	1930	3,040	7.73	Apr. 13	2345	1,170	5.72
Dec. 11	1115	4,180	8.72	July 27	1545	1,100	5.61
Dec. 24	1645	1,310	5.94	July 31	2000	2,070	6.88
Jan. 5	1300	1,560	6.27	Sept. 9	0845	2,160	6.98
Mar. 6	0945	1,580	6.30	Sept. 18	0600	*8,470	*12.18
Apr. 1	1615	1,230	5.82				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	497	326	524	386	e130	e170	742	381	199	75	991	95
2	434	312	477	367	e130	e400	860	412	183	73	638	90
3	379	299	429	366	e120	771	789	654	166	70	499	85
4	377	280	393	683	e120	864	754	491	150	70	458	82
5	353	290	378	1380	e120	995	650	472	165	89	511	79
6	307	314	361	1170	e130	1430	564	431	165	78	357	77
7	278	278	330	933	e130	1240	506	403	148	74	306	76
8	255	250	304	783	e120	1100	474	365	136	102	268	84
9	237	236	288	679	e110	853	460	342	128	84	239	1300
10	222	228	292	548	e110	713	389	346	147	73	223	696
11	209	226	2850	497	e110	621	352	300	192	68	241	482
12	198	238	1790	482	e100	557	349	277	190	107	209	385
13	188	226	1230	430	e100	476	710	252	158	161	328	322
14	190	209	986	380	e100	424	967	257	149	e294	227	275
15	450	199	819	347	e95	391	808	264	151	e345	198	252
16	259	192	687	284	e90	365	702	252	138	144	183	229
17	239	186	613	294	e90	343	621	221	130	127	172	621
18	244	177	540	297	e90	323	546	222	139	140	162	6150
19	224	1120	475	274	e95	344	484	226	125	138	158	2620
20	212	1820	422	252	e100	388	430	219	115	119	153	1500
21	207	1180	376	235	e110	820	392	277	108	106	179	1050
22	200	910	346	227	e140	637	366	272	111	104	171	808
23	191	741	364	203	e140	564	381	236	117	119	144	656
24	182	686	722	198	e130	515	337	215	104	122	133	554
25	173	679	754	185	e130	492	352	201	97	104	124	480
26	171	545	652	185	e120	461	609	222	92	100	118	420
27	431	489	586	182	e120	441	548	243	86	543	111	371
28	427	557	526	177	e120	410	502	206	83	474	118	664
29	400	674	480	167	e140	378	456	186	84	321	123	641
30	370	559	507	e150	---	354	416	172	79	262	107	467
31	341	---	436	e140	---	356	---	176	---	765	101	---
TOTAL	8845	14426	19937	12881	3340	18196	16516	9193	4035	5451	7950	21611
MEAN	285	481	643	416	115	587	551	297	134	176	256	720
MAX	497	1820	2850	1380	140	1430	967	654	199	765	991	6150
MIN	171	177	288	140	90	170	337	172	79	68	101	76
CFSM	1.74	2.93	3.92	2.53	0.70	3.58	3.36	1.81	0.82	1.07	1.56	4.39
IN.	2.01	3.27	4.52	2.92	0.76	4.13	3.75	2.09	0.92	1.24	1.80	4.90

STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF DAILY RECORD, BY WATER YEAR (WY)

MEAN	81.0	152	199	210	248	443	445	331	199	88.5	75.2	83.6
MAX	285	678	719	557	849	680	782	616	516	182	256	720
(WY)	2004	1951	1951	1952	1984	1945	1970	1942	1946	1967	2004	2004
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

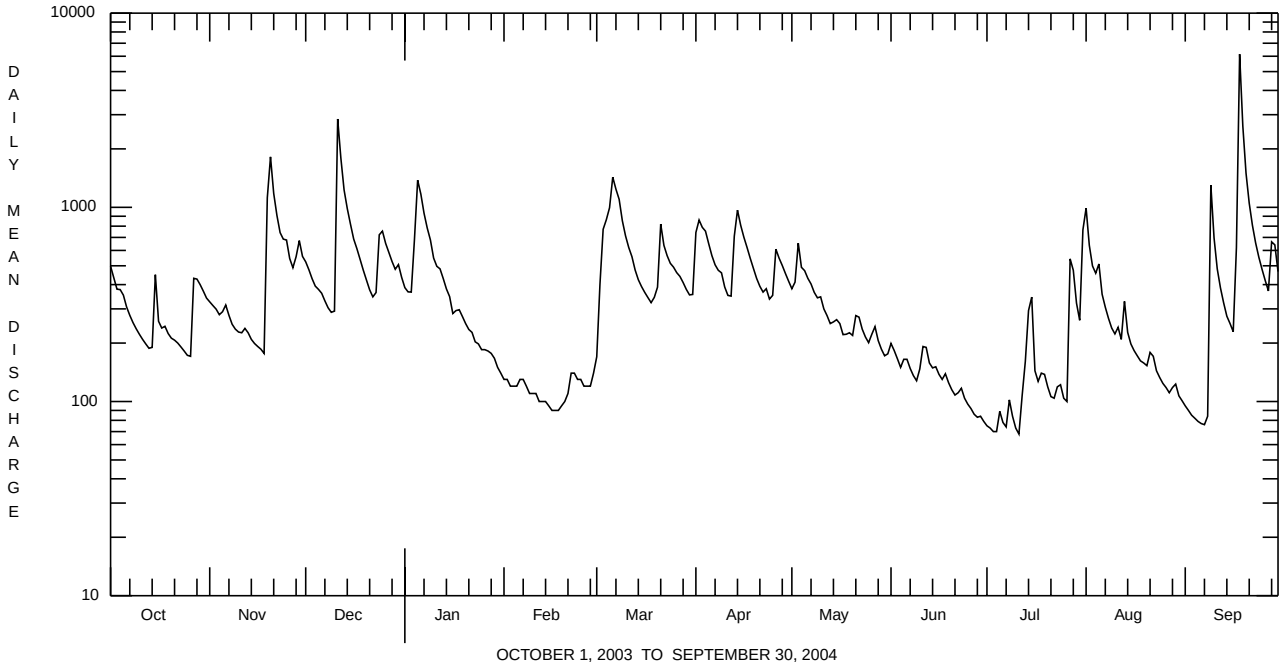
e Estimated.

JUNIATA RIVER BASIN

01565000 KISHACOQUILLAS CREEK AT REEDSVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	139294		142381			
ANNUAL MEAN	382		389		213	
HIGHEST ANNUAL MEAN					389	2004
LOWEST ANNUAL MEAN					99.3	1965
HIGHEST DAILY MEAN	2850	Dec 11	6150	Sep 18	6150	Sep 18 2004
LOWEST DAILY MEAN	**e**78	Feb 19	68	Jul 11	14	Jan 9 1940**b**
ANNUAL SEVEN-DAY MINIMUM	**a**85	Feb 15	76	Jul 1	14	Jan 6 1940
MAXIMUM PEAK FLOW			**c**8470	Sep 18	**c**12400	Jan 19 1996
MAXIMUM PEAK STAGE			12.18	Sep 18	14.20	Jan 19 1996
ANNUAL RUNOFF (CFSM)	2.33		2.37		1.30	
ANNUAL RUNOFF (INCHES)	31.60		32.30		17.62	
10 PERCENT EXCEEDS	772		741		486	
50 PERCENT EXCEEDS	278		279		124	
90 PERCENT EXCEEDS	124		103		31	

a Computed using estimated daily discharges.
b Also Jan. 12, 1940, Sept. 2, 3, 1966.
c From rating curve extended above 4,400 ft^3/s on basis of slope-area measurement at gage height 13.12 ft.
e Estimated.



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)
Nov. 20	0800	5,220	11.73	Sept. 18	1645	*14,200	*18.49
Dec. 11	2215	8,920	15.16				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	369	446	434	338	e120	e495	1250	388	161	70	939	68
2	332	382	371	313	e110	984	2990	383	161	64	456	62
3	267	330	320	320	e110	1940	1780	1220	133	60	320	59
4	246	294	286	610	e100	1500	1260	749	111	58	293	55
5	248	281	283	2020	e100	1290	932	571	136	70	588	53
6	209	353	300	1660	e120	1360	704	473	236	67	290	51
7	182	373	270	931	391	1100	596	404	156	64	217	51
8	167	318	245	652	e590	1010	544	479	124	113	177	56
9	156	278	242	536	e440	757	597	359	107	85	148	1460
10	145	256	246	e370	e270	615	445	321	110	62	130	738
11	136	248	5890	e310	e240	520	393	285	228	54	115	353
12	128	274	3700	e315	e225	473	394	256	444	153	107	250
13	121	295	1360	e320	e210	406	1830	249	262	1120	361	199
14	121	234	984	e270	e210	356	2560	252	193	275	273	165
15	534	217	809	e220	e200	343	1360	313	199	184	165	160
16	342	205	623	e170	e190	323	893	395	220	133	132	148
17	259	199	534	e220	e180	325	692	274	176	111	113	283
18	352	187	508	e240	e170	311	570	229	165	99	104	11300
19	304	1050	414	e230	e160	424	483	318	138	107	103	4550
20	262	4030	353	e200	e190	561	418	285	116	103	115	1260
21	233	1450	308	e180	e380	1240	375	268	104	97	187	810
22	216	898	279	e170	e540	911	367	335	98	79	266	570
23	195	656	332	e170	e460	636	377	306	100	80	159	426
24	173	550	1120	e160	e390	514	331	228	98	173	121	342
25	156	627	1810	e160	e340	445	288	191	82	110	104	288
26	147	448	962	e150	e280	400	755	267	78	85	93	251
27	703	387	677	e170	e240	366	1420	226	79	251	82	218
28	1520	400	531	e160	e260	342	779	174	72	424	77	730
29	957	677	447	e160	e330	306	553	149	85	229	121	1530
30	744	494	455	e150	---	281	450	130	88	156	95	711
31	539	---	413	e140	---	293	---	127	---	179	76	---
TOTAL	10463	16837	25506	12015	7546	20827	26386	10604	4460	4915	6527	27197
MEAN	338	561	823	388	260	672	880	342	149	159	211	907
MAX	1520	4030	5890	2020	590	1940	2990	1220	444	1120	939	11300
MIN	121	187	242	140	100	281	288	127	72	54	76	51
CFSM	1.58	2.62	3.84	1.81	1.22	3.14	4.11	1.60	0.69	0.74	0.98	4.24
IN.	1.82	2.93	4.43	2.09	1.31	3.62	4.59	1.84	0.78	0.85	1.13	4.73

STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF DAILY RECORD, BY WATER YEAR (WY)

MEAN	128	215	253	292	352	582	500	375	176	103	83.4	102
MAX	832	934	829	746	1016	2347	1071	1052	1141	438	363	907
(WY)	1928	1951	1951	1915	1915	1936	1937	1919	1916	1928	1933	2004
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

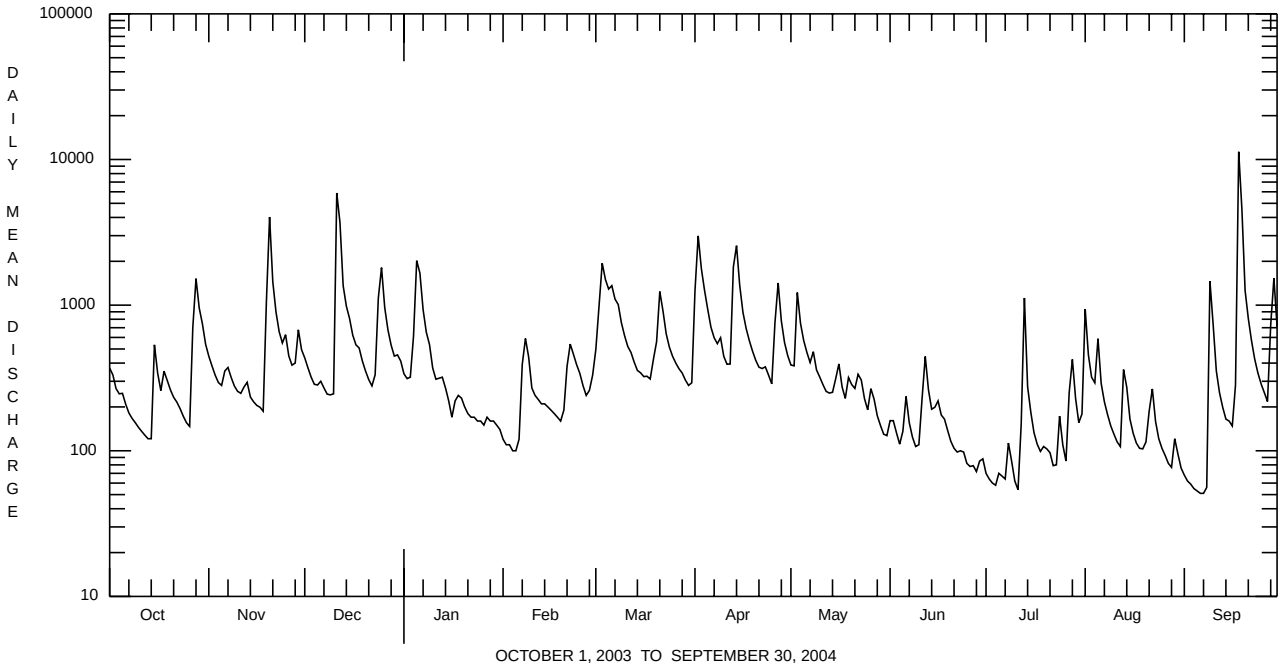
e Estimated.

JUNIATA RIVER BASIN

01566000 TUSCARORA CREEK NEAR PORT ROYAL, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	165840		173283			
ANNUAL MEAN	454		473		262	
HIGHEST ANNUAL MEAN					473	2004
LOWEST ANNUAL MEAN					106	2002
HIGHEST DAILY MEAN	5890	Dec 11	11300	Sep 18	12000	Mar 18 1936
LOWEST DAILY MEAN	44	Jul 31	51	Sep 6,7	2.2	Sep 29 1930
ANNUAL SEVEN-DAY MINIMUM	55	Jul 26	55	Sep 2	**a**2.8	Sep 12 2002
MAXIMUM PEAK FLOW			14200	Sep 18	**bc**25000	Sep 7 1996
MAXIMUM PEAK STAGE			18.49	Sep 18	**d**21.60	Mar 19 1936
ANNUAL RUNOFF (CFSM)	2.12		2.21		1.23	
ANNUAL RUNOFF (INCHES)	28.83		30.12		16.66	
10 PERCENT EXCEEDS	1000		958		600	
50 PERCENT EXCEEDS	275		280		118	
90 PERCENT EXCEEDS	72		100		24	

a Computed using estimated daily discharges.
b Gage height 21.27 ft.
c From rating curve extended above 7,000 ft^3/s.
d From floodmark, backwater from Juniata River, discharge 14,400 ft^3/s.



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 and crest-stage gage. 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9890	6400	7470	6870	e2600	e4800	7940	7770	3230	1620	9080	3710
2	8730	5910	7690	6220	e2600	e6000	21100	7190	3350	1550	9650	2760
3	7250	5450	7510	6130	e2500	e15000	28200	10200	3330	1480	7890	1830
4	6270	4880	5790	7340	e2400	25700	24200	10500	2960	1420	5400	1580
5	6020	4610	5120	17300	e2450	26800	17500	8450	2980	1490	6050	1520
6	5600	4740	4670	28600	e2600	26700	13400	7040	3180	1490	5150	1460
7	4590	5100	5450	22800	e2800	29000	11500	6500	3160	1820	4060	1440
8	4080	5140	5220	15600	e3000	23100	9520	6350	2870	1860	3060	1460
9	3820	4750	4790	10900	e2900	17800	8830	6250	2590	1710	2690	6250
10	3450	4490	4730	8630	e3100	13700	8440	5840	2510	1640	2440	32300
11	3220	4370	24000	e7200	e3000	10700	7250	5440	3290	1470	2280	20700
12	2860	4420	46700	e6850	e2900	8970	6460	4910	3950	1810	2250	17300
13	2690	4600	29900	e6750	e2800	8060	10800	4210	4570	3500	3290	15300
14	2520	4540	20600	e6200	e2700	7060	24100	4280	3600	7890	4020	14000
15	4340	4200	12900	e5700	e2600	5880	24900	5060	3320	7140	3690	8190
16	5690	3920	10800	e5300	e2400	6140	17200	5630	3190	4210	3060	4770
17	5070	3860	12000	e4700	e2200	5910	12100	4530	3420	2940	2250	5800
18	4600	3800	9550	e4200	e2000	5840	9720	3990	3200	2190	2000	54300
19	4550	4780	7820	e4400	e2000	6090	8790	3950	2870	2010	1880	85100
20	4590	26400	6780	e4100	e2100	7140	8060	4380	2670	2250	1860	30600
21	4240	34000	6270	e3600	e2400	11700	7020	5830	2380	2520	2110	24000
22	3890	18900	5840	e3300	e3100	17100	6290	6960	2170	2100	2650	21700
23	3690	11900	5450	e3400	e3300	13700	6170	8490	2430	2070	3700	20200
24	3360	10300	7910	e3300	e3500	11600	6210	6260	2200	2200	3160	20100
25	3190	12100	16900	e2700	e3500	9390	5860	5120	2050	2800	2690	19900
26	3050	11500	16500	e2700	e3400	8140	6730	4750	2000	2330	2120	16700
27	5710	8560	13300	e2650	e3500	7120	14000	5880	1710	3050	2060	11400
28	9500	6830	11000	e2700	e3400	6610	14400	4950	1650	7630	1860	8140
29	10000	8300	8540	e2750	e3400	6290	10600	4300	1750	7930	1870	13500
30	8390	8780	8040	e2800	---	5930	8770	3680	1660	4740	1910	12700
31	7170	---	8400	e2700	---	5760	---	3360	---	4030	3310	---
TOTAL	162020	247530	347640	218390	81150	363730	366060	182050	84240	92890	109490	478710
MEAN	5226	8251	11210	7045	2798	11730	12200	5873	2808	2996	3532	15960
MAX	10000	34000	46700	28600	3500	29000	28200	10500	4570	7930	9650	85100
MIN	2520	3800	4670	2650	2000	4800	5860	3360	1650	1420	1860	1440

e Estimated.

01567000 JUNIATA RIVER AT NEWPORT, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 2004, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2633	3709	5101	4847	5988	8797	8311	5643	3560	2172	1600	2458
MAX	11610	10850	13770	15810	15070	23500	25780	13940	10640	12080	3916	15960
(WY)	1977	1998	1973	1996	1984	1994	1993	1978	2003	1989	2003	2004
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

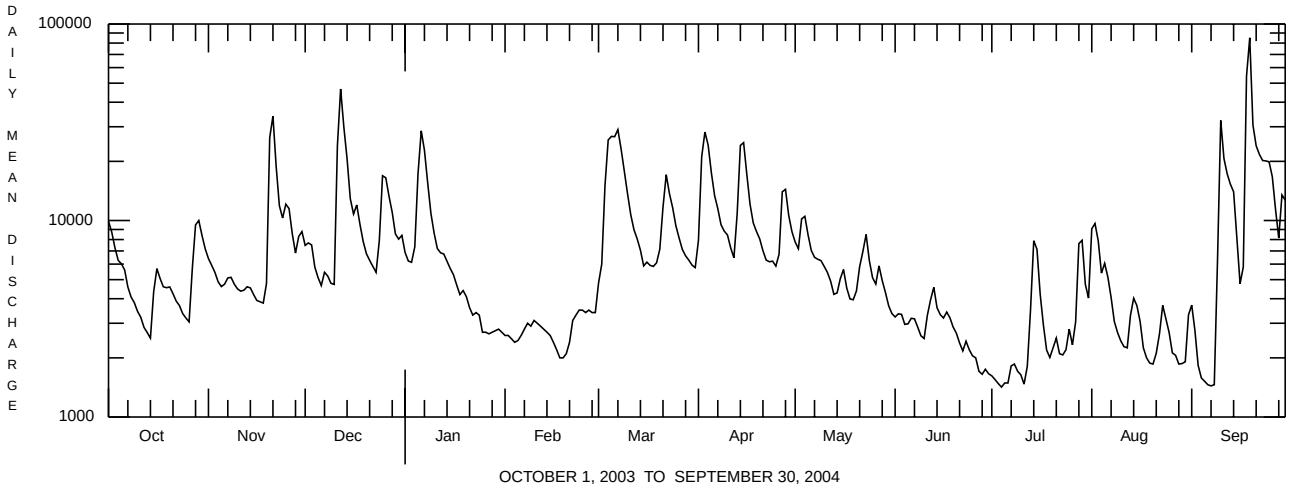
SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1973 - 2004	
ANNUAL TOTAL	2771700		2733900			
ANNUAL MEAN	7594		7470		4558	
HIGHEST ANNUAL MEAN					7470	2004
LOWEST ANNUAL MEAN					2241	2002
HIGHEST DAILY MEAN	46700	Dec 12	85100	Sep 19	92300	Jan 20 1996
LOWEST DAILY MEAN	1180	Jul 31	1420	Jul 4	450	Jan 13 1981
ANNUAL SEVEN-DAY MINIMUM	1340	Jul 26	1530	Jun 30	461	Jan 9 1981
MAXIMUM PEAK FLOW			96200	Sep 19	**a**103000	Jan 20 1996
MAXIMUM PEAK STAGE			23.74	Sep 19	24.69	Jan 20 1996
10 PERCENT EXCEEDS	15200		16800		10200	
50 PERCENT EXCEEDS	5600		5000		2700	
90 PERCENT EXCEEDS	2150		2100		843	

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	**a**190000	Mar 19 1936
MAXIMUM PEAK STAGE	**b**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 From rating curve extended above 100,000 ft^3/s, on basis of slope-area measurement of peak flow.
b From floodmark in gage.



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 359-431.

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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)
OCT 2003													
14...	1300	1028	9813	2450	8.7	8.3	8.2	276	280	15.5	120	33.9	9.8
DEC													
11...	0830	1028	9813	18170	11.7	7.7	7.6	173	212	4.9	67	17.0	5.9
FEB 2004													
24...	1030	1028	9813	E3500	14.5	7.6	8.0	279	280	2.5	99	27.9	7.1
APR													
01...	1330	1028	9813	7380	11.9	7.9	8.0	215	181	8.4	87	24.1	6.6
JUN													
09...	1145	1028	9813	2600	9.1	8.7	8.7	273	236	24.4	110	30.9	8.5
AUG													
03...	1200	1028	9813	8120	7.3	7.5	7.3	199	209	23.3	79	20.8	6.5

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	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)
OCT 2003													
14...	93	22.5	158	4	<.020	1.81	<.040	.02	.022	2.3	2.1	<200	<10
DEC													
11...	49	13.5	174	300	.080	1.76	<.040	.07	.345	3.6	4.2	4700	20
FEB 2004													
24...	66	20.3	196	<2	.040	1.66	<.040	.03	.034	1.9	2.4	220	<10
APR													
01...	63	18.2	120	2	<.020	1.63	<.040	.03	.024	1.9	2.0	300	<10
JUN													
09...	86	20.4	174	<2	<.020	1.60	<.040	.05	.051	1.9	2.4	<200	<10
AUG													
03...	62	16.7	142	40	.040	1.36	<.040	.04	.071	1.8	3.3	1400	<10

Date	Iron, water, unfltrd recoverable, µg/L (01045)	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)
OCT 2003					
14...	110	<1.0	10	<50	<10
DEC					
11...	7520	8.2	460	<50	120
FEB 2004					
24...	290	<1.0	20	<50	<10
APR					
01...	390	<1.0	30	<50	<10
JUN					
09...	290	<1.0	30	<50	<10
AUG					
03...	1950	2.4	100	<50	40

01567000 JUNIATA RIVER AT NEWPORT, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

Date	10/14/03
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	1
Nematoda (NEMATODES)	1
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia	5
Hydrobiidae	
Amnicola	33
Pleuroceridae	
Leptoxis carinata	4
Bivalvia (CLAMS)	
Veneroida	
Corbiculidae	
Corbicula fluminea	3
Sphaeriidae	
Sphaerium	14
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Tubificida	
Tubificidae	6
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	1
Crustacea	
Amphipoda (SCUDS)	
Gammaridae	
Gammarus	1
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Plauditus	1
Ephemerellidae	
Serratella	3
Heptageniidae	
Leucrocuta	6
Stenonema	16
Isonychiidae	
Isonychia	12
Leptophlebiidae	
Paraleptophlebia	2
Potamanthidae	
Anthopotamus	16
Plecoptera (STONEFLIES)	
Taeniopterygidae	
Taeniopteryx	8

01567000 JUNIATA RIVER AT NEWPORT, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	10/14/03
Benthic Macroinvertebrate	Count
Trichoptera (CADDISFLIES)	
Glossosomatidae	
Protoptila	7
Hydropsychidae	
Cheumatopsyche	4
Hydropsyche	2
Philopotamidae	
Chimarra	2
Psychomyiidae	
Psychomyia	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus	26
Oulimnius	1
Stenelmis	48
Psephenidae (WATER PENNIES)	
Psephenus	2
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	7
Total Organisms	233
Total Taxa	28

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.--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 250 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Oct. 27	1145	322	5.87	July 27	1230	322	5.87
Nov. 19	1545	282	5.65	Sept. 9	0415	279	5.75
Dec. 11	0715	1,390	7.92	Sept. 18	0045	*4,560	*11.00
Apr. 13	2115	294	5.72	Sept. 28	1500	307	6.09
July 12	2045	481	6.46				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	31	31	29	e12	44	e100	34	19	10	44	8.9
2	19	28	27	28	e11	74	126	56	17	10	30	9.1
3	17	26	24	29	e13	62	77	81	15	9.6	26	9.1
4	18	23	23	60	e12	57	72	54	14	13	34	9.0
5	16	27	23	112	e12	48	52	47	24	13	25	8.9
6	15	28	23	69	e18	53	44	40	18	10	18	9.3
7	14	25	22	50	e20	43	40	38	16	11	16	9.1
8	13	22	21	43	e15	41	44	35	14	14	14	12
9	13	20	20	38	e14	35	39	32	13	9.9	13	69
10	12	20	28	e30	e13	31	33	30	15	9.3	13	11
11	12	20	464	e29	e13	29	32	29	26	9.1	13	7.8
12	12	23	116	e28	e12	27	50	27	22	110	15	6.8
13	11	20	70	e27	e12	24	192	26	17	46	31	6.2
14	18	19	59	e24	e11	24	148	27	19	26	12	5.5
15	37	18	51	e23	e11	23	90	54	24	20	9.9	5.4
16	18	17	43	e21	e12	23	67	41	19	17	8.9	5.3
17	22	17	42	e20	e13	23	57	25	18	15	8.3	100
18	24	16	38	e19	e13	24	50	52	18	15	7.9	1140
19	20	109	34	e19	e15	33	45	44	15	14	9.8	161
20	18	86	30	e18	e20	36	41	34	14	14	9.0	88
21	18	51	28	e18	38	53	38	37	13	13	11	60
22	16	40	27	e18	40	40	36	38	13	20	8.9	45
23	15	34	35	e17	32	35	36	30	13	25	7.9	37
24	14	43	100	e17	29	31	33	26	12	17	7.4	31
25	13	40	68	e16	25	28	31	23	12	14	6.9	27
26	13	32	51	e16	23	26	72	28	13	14	6.6	24
27	125	30	43	e15	23	25	52	21	11	124	6.3	22
28	68	46	38	e15	29	23	44	20	11	56	6.2	122
29	61	40	35	e14	42	22	39	18	15	36	6.9	72
30	42	34	37	e13	---	21	36	17	11	28	8.5	46
31	36	---	32	e12	---	e22	---	19	---	41	9.0	---
TOTAL	771	985	1683	887	553	1080	1816	1083	481	783.9	443.4	2167.4
MEAN	24.9	32.8	54.3	28.6	19.1	34.8	60.5	34.9	16.0	25.3	14.3	72.2
MAX	125	109	464	112	42	74	192	81	26	124	44	1140
MIN	11	16	20	12	11	21	31	17	11	9.1	6.2	5.3
CFSM	1.66	2.19	3.62	1.91	1.27	2.32	4.04	2.33	1.07	1.69	0.95	4.82
IN.	1.91	2.44	4.17	2.20	1.37	2.68	4.50	2.69	1.19	1.94	1.10	5.38

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2004, BY WATER YEAR (WY)

MEAN	11.0	15.5	19.7	19.3	27.3	39.4	33.2	23.5	17.7	11.7	7.16	9.53
MAX	48.6	61.9	66.8	80.9	91.0	135	122	81.2	172	112	32.3	72.2
(WY)	1977	1957	1997	1996	1984	1994	1993	1978	1972	1989	1955	2004
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

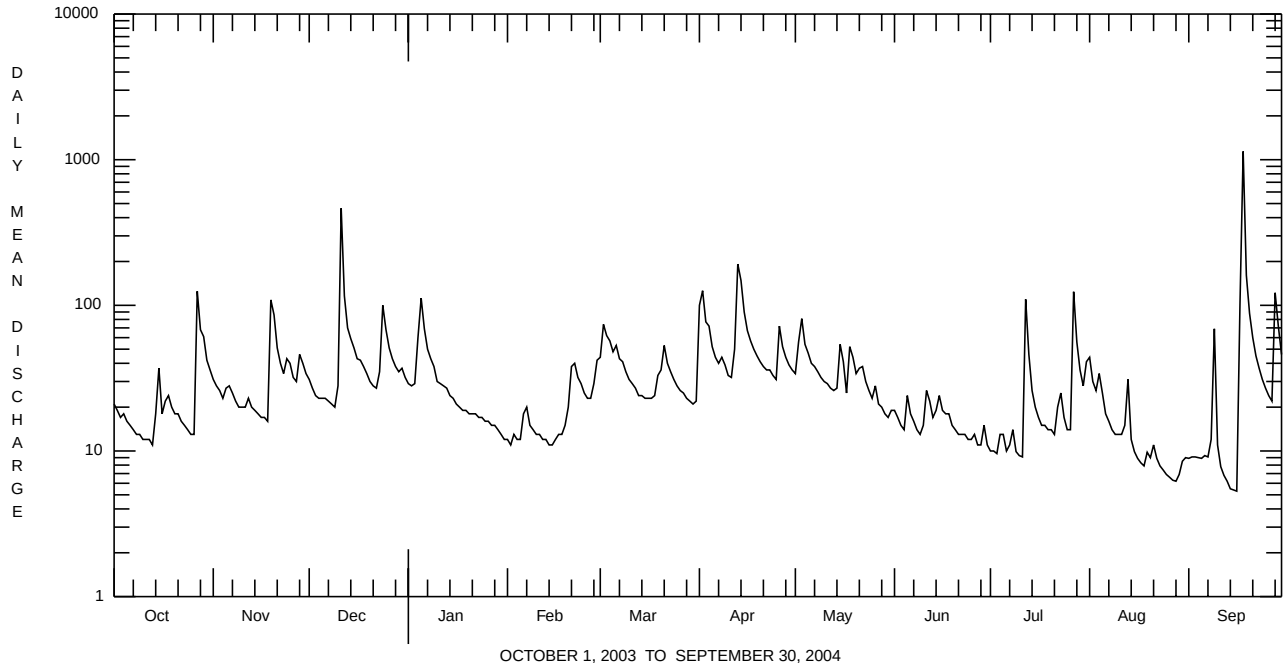
e Estimated.

SHERMAN CREEK BASIN

01567500 BIXLER RUN NEAR LOYSVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1954 - 2004	
ANNUAL TOTAL	11209.9		12733.7			
ANNUAL MEAN	30.7		34.8		19.6	
HIGHEST ANNUAL MEAN					42.6	1972
LOWEST ANNUAL MEAN					6.67	2002
HIGHEST DAILY MEAN	464	Dec 11	1140	Sep 18	2120	Jun 22 1972
LOWEST DAILY MEAN	6.6	Feb 16	5.3	Sep 16	1.6	Jul 21 1999
ANNUAL SEVEN-DAY MINIMUM	7.5	Jul 25	6.9	Sep 10	1.7	Sep 5 2002
MAXIMUM PEAK FLOW			**a**4560	Sep 18	**a**7100	Jun 20 1989
MAXIMUM PEAK STAGE			11.00	Sep 18	**b**12.90	Jun 20 1989
INSTANTANEOUS LOW FLOW			5.2	Sep 16	1.5	Feb 2 1959
ANNUAL RUNOFF (CFSM)	2.05		2.32		1.31	
ANNUAL RUNOFF (INCHES)	27.80		31.58		17.79	
10 PERCENT EXCEEDS	60		58		40	
50 PERCENT EXCEEDS	22		23		9.8	
90 PERCENT EXCEEDS	9.6		11		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)
Oct. 27	2015	3,300	6.56	July 13	0215	3,540	6.79
Nov. 20	0500	3,390	6.65	Sept. 18	1130	*21,700	*16.31
Dec. 11	1300	9,990	11.38	Sept. 28	2230	3,790	7.02
Apr. 14	0245	4,590	7.72				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	269	543	531	416	e100	e500	1220	404	218	109	1010	108
2	256	467	447	390	e110	e800	2530	429	214	103	488	101
3	220	411	385	389	e120	1300	1520	1470	164	97	363	97
4	222	366	347	579	e150	1060	1190	808	143	94	482	95
5	228	367	348	1730	e200	932	897	641	247	132	1010	93
6	189	503	364	1240	e270	1110	702	535	320	117	386	91
7	169	540	325	839	e450	875	619	465	219	98	300	92
8	158	403	305	e650	e430	822	573	489	181	157	256	98
9	148	355	285	e520	e300	649	596	384	158	124	219	967
10	140	328	300	e400	e250	547	468	352	157	95	202	456
11	133	317	6970	e410	e220	485	424	318	330	88	190	253
12	128	351	2680	e460	e200	448	498	289	509	493	179	205
13	121	343	1280	e380	e180	389	2860	264	292	1650	711	181
14	136	271	1010	e320	e200	350	3080	261	240	363	359	160
15	777	250	865	e250	e190	344	1410	340	312	252	253	160
16	351	234	696	e180	e180	330	972	549	337	195	211	166
17	332	225	645	e200	e170	333	770	307	277	164	190	239
18	477	212	619	e220	e160	319	644	331	285	152	172	12900
19	354	644	520	e200	e150	428	552	505	220	157	195	3100
20	295	2380	456	e180	e200	523	481	343	187	144	221	1300
21	265	988	401	e170	e320	940	431	327	164	144	359	892
22	243	700	377	e160	e500	722	396	327	154	127	278	663
23	218	566	471	e150	e420	577	404	283	154	199	207	527
24	197	528	1460	e140	e370	500	356	235	140	251	176	438
25	179	755	1490	e130	e300	452	314	207	126	158	158	383
26	170	518	922	e130	e260	411	872	254	166	136	147	341
27	1250	458	717	e120	e250	385	1010	229	133	667	136	302
28	1880	571	603	e120	e270	360	669	194	117	1040	128	1680
29	1130	903	533	e110	e350	320	532	171	149	462	128	1940
30	853	606	537	e110	---	300	456	154	127	327	127	856
31	643	---	486	e100	---	303	---	162	---	298	116	---
TOTAL	12131	16103	27375	11393	7270	17814	27446	12027	6440	8593	9357	28884
MEAN	391	537	883	368	251	575	915	388	215	277	302	963
MAX	1880	2380	6970	1730	500	1300	3080	1470	509	1650	1010	12900
MIN	121	212	285	100	100	300	314	154	117	88	116	91
CFSM	1.89	2.59	4.27	1.78	1.21	2.78	4.42	1.87	1.04	1.34	1.46	4.65
IN.	2.18	2.89	4.92	2.05	1.31	3.20	4.93	2.16	1.16	1.54	1.68	5.19

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2004, BY WATER YEAR (WY)

MEAN	148	249	317	320	397	610	546	394	215	118	101	115
MAX	905	924	968	1144	1253	1941	1675	1196	1969	1187	777	963
(WY)	1977	1971	1997	1996	1984	1936	1993	1978	1972	1989	1933	2004
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

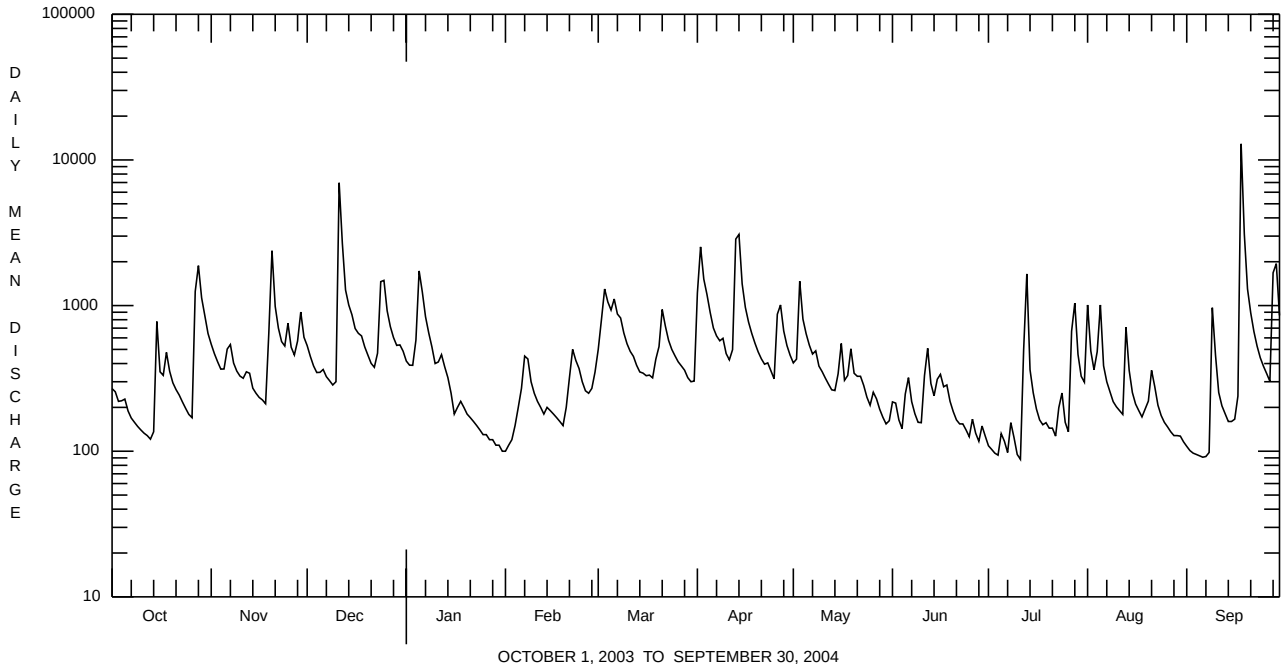
e Estimated.

SHERMAN CREEK BASIN

01568000 SHERMAN CREEK AT SHERMANS DALE, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1930 - 2004	
ANNUAL TOTAL	179860		184833			
ANNUAL MEAN	493		505		294	
HIGHEST ANNUAL MEAN					544	1972
LOWEST ANNUAL MEAN					114	2002
HIGHEST DAILY MEAN	6970	Dec 11	12900	Sep 18	18300	Jun 23 1972
LOWEST DAILY MEAN	57	Jul 31	88	Jul 11	9.9	Aug 15 2002
ANNUAL SEVEN-DAY MINIMUM	68	Jul 26	95	Sep 2	10	Aug 14 2002
MAXIMUM PEAK FLOW			**a**21700	Sep 18	**a**27500	Jun 23 1972
MAXIMUM PEAK STAGE			16.31	Sep 18	18.09	Jun 23 1972
INSTANTANEOUS LOW FLOW			87	Jul 11,12	3.9	Dec 1 1930
ANNUAL RUNOFF (CFSM)	2.38		2.44		1.42	
ANNUAL RUNOFF (INCHES)	32.32		33.22		19.27	
10 PERCENT EXCEEDS	985		948		655	
50 PERCENT EXCEEDS	350		328		144	
90 PERCENT EXCEEDS	100		130		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.--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)
Dec. 11	0815	304	5.12	Sept. 28	2015	298	5.10
Sept. 18	1030	*351	*5.27				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	55	56	66	49	66	92	62	42	34	100	49
2	47	52	54	67	49	67	75	69	41	43	65	48
3	45	50	52	65	53	68	70	75	40	34	59	47
4	50	47	50	75	54	69	69	62	39	38	66	45
5	44	57	52	87	52	67	65	61	67	34	66	45
6	43	65	53	80	74	77	62	58	50	33	57	44
7	41	60	51	77	77	73	60	66	45	42	54	45
8	40	54	50	74	70	71	60	59	42	55	51	48
9	39	51	49	72	66	69	58	57	41	39	49	57
10	38	50	53	70	65	68	56	55	53	36	47	47
11	36	48	e200	68	64	66	56	54	61	35	46	45
12	35	52	122	66	63	65	72	52	54	90	55	44
13	34	47	101	65	62	63	111	50	48	79	91	43
14	40	44	95	64	61	63	96	52	48	67	61	40
15	79	43	90	63	60	62	82	52	60	62	56	38
16	45	42	85	62	58	64	76	56	49	63	53	38
17	57	40	85	61	56	63	72	49	52	56	52	56
18	60	39	81	61	56	63	69	49	46	55	53	278
19	50	81	78	59	57	71	65	49	44	53	57	140
20	47	94	75	58	62	68	63	47	42	48	57	113
21	45	75	72	57	67	68	61	49	41	45	90	102
22	43	69	70	56	69	65	60	49	42	44	64	93
23	41	65	70	55	69	64	63	45	39	48	60	89
24	39	68	80	54	69	63	58	44	37	44	58	85
25	38	68	80	53	67	62	58	44	40	42	56	81
26	38	61	77	52	66	62	104	52	42	41	54	78
27	79	59	74	52	64	63	77	44	36	52	52	75
28	60	67	72	52	64	61	70	43	36	48	61	176
29	77	64	70	51	65	59	65	41	43	44	57	167
30	63	59	71	51	---	58	64	40	35	41	53	124
31	59	---	68	50	---	58	---	43	---	48	51	---
TOTAL	1501	1726	2336	1943	1808	2026	2109	1628	1355	1493	1851	2380
MEAN	48.4	57.5	75.4	62.7	62.3	65.4	70.3	52.5	45.2	48.2	59.7	79.3
MAX	79	94	200	87	77	77	111	75	67	90	100	278
MIN	34	39	49	50	49	58	56	40	35	33	46	38
CFSM	2.24	2.66	3.49	2.90	2.89	3.03	3.25	2.43	2.09	2.23	2.76	3.67
IN.	2.59	2.97	4.02	3.35	3.11	3.49	3.63	2.80	2.33	2.57	3.19	4.10

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 2004, BY WATER YEAR (WY)

MEAN	34.5	35.5	41.7	44.1	48.3	58.4	60.3	51.4	44.9	39.4	35.1	35.3
MAX	79.6	62.2	94.5	92.0	93.9	123	126	90.9	83.6	68.3	59.7	79.3
(WY)	1977	1997	1997	1979	1998	1994	1993	1998	2003	1996	2004	2004
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

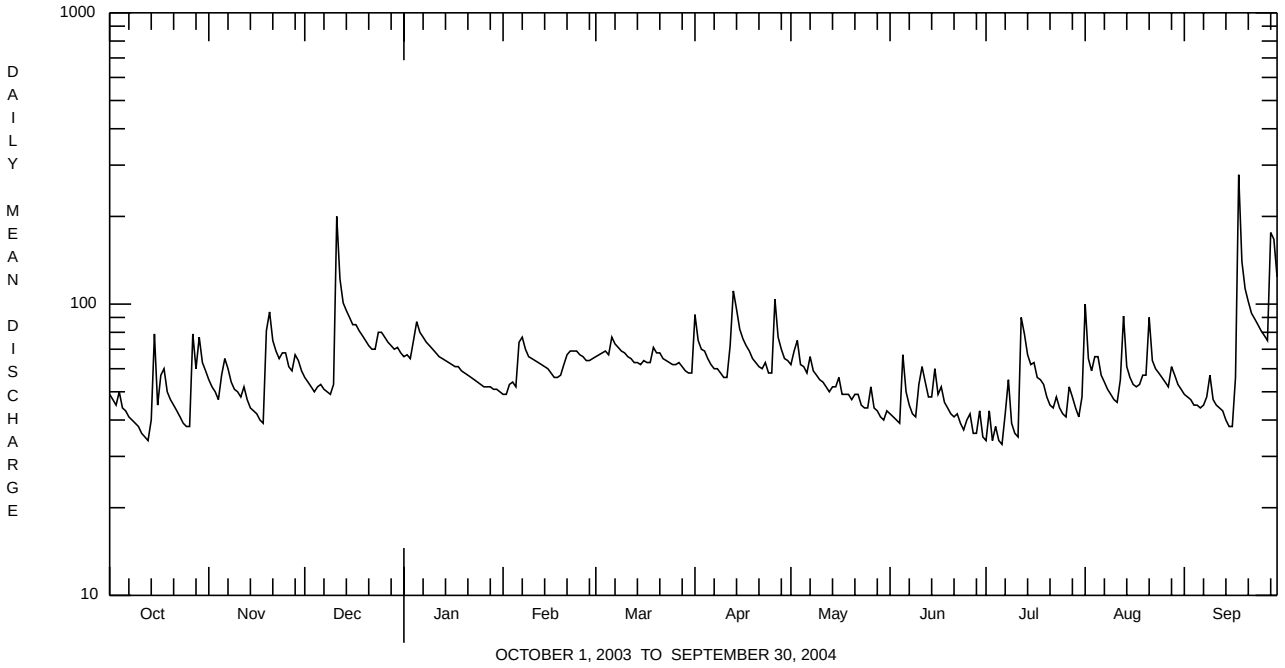
e Estimated.

CONODOGUINET CREEK BASIN

01569800 LETORT SPRING RUN NEAR CARLISLE, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1976 - 2004	
ANNUAL TOTAL	22048		22156			
ANNUAL MEAN	60.4		60.5		44.0	
HIGHEST ANNUAL MEAN					62.4	1998
LOWEST ANNUAL MEAN					19.0	2002
HIGHEST DAILY MEAN	200	Dec 11	278	Sep 18	452	Jan 24 1979
LOWEST DAILY MEAN	30	Feb 18	33	Jul 6	9.8	Sep 13 2002
ANNUAL SEVEN-DAY MINIMUM	31	Feb 14	36	Jun 30	11	Sep 8 2002
MAXIMUM PEAK FLOW			**a**351	Sep 18	**b**1400	Jan 24 1979
MAXIMUM PEAK STAGE			**c**5.59	Dec 11	6.53	Jan 24 1979
INSTANTANEOUS LOW FLOW			32	Jul 6	0.00	Aug 15 1976**d**
ANNUAL RUNOFF (CFSM)	2.80		2.80		2.04	
ANNUAL RUNOFF (INCHES)	37.97		38.16		27.69	
10 PERCENT EXCEEDS	81		79		71	
50 PERCENT EXCEEDS	57		58		38	
90 PERCENT EXCEEDS	40		41		23	

a Gage height 5.27 ft.
b From rating curve extended above 680 ft^3/s on basis of slope-area measurement at gage height 6.43 ft.
c Gage height affected by backwater from debris.
d 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 8.3 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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Dec. 12	1430	7,760	9.10	Aug. 21	2315	4,010	6.47
Apr. 14	1545	5,490	7.62	Sept. 19	1845	*12,600	*11.35
July 13	0300	4,140	6.58	Sept. 30	0100	7,150	8.73

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	638	988	930	852	e340	1340	1030	934	461	345	1360	407
2	583	833	805	797	e330	1420	2330	871	497	349	2320	376
3	516	729	698	794	e350	1780	2340	1510	455	321	1250	354
4	477	657	623	831	e390	1610	1790	1530	437	307	950	343
5	489	623	600	1660	e400	1450	1450	1120	496	313	978	333
6	452	776	644	2380	515	1500	1150	990	946	301	775	320
7	397	970	607	1690	921	1780	996	881	827	329	623	312
8	366	881	557	1260	1130	1550	902	894	640	445	543	321
9	346	743	528	e1000	893	1340	870	805	541	453	487	455
10	330	655	527	e850	754	1120	807	712	512	338	447	1100
11	313	603	4360	e750	715	977	724	655	767	301	419	634
12	301	613	7480	e790	679	890	746	602	1160	965	429	474
13	291	674	4010	783	638	812	2750	562	997	3190	937	417
14	290	601	2140	718	624	729	5050	531	762	1540	1260	388
15	643	521	1820	e600	595	687	3180	572	1080	1050	771	359
16	1120	494	1490	e540	539	666	2010	629	1400	770	606	373
17	758	464	1310	e530	484	673	1560	628	955	617	518	410
18	803	439	1280	e560	483	672	1300	532	894	534	472	4900
19	725	537	1120	e550	493	808	1110	586	799	526	456	11200
20	605	2610	984	e510	624	1160	975	727	634	479	515	6130
21	526	2310	882	e480	908	1240	881	660	546	444	2120	2110
22	480	1450	813	e450	1400	1240	824	650	494	428	2610	1560
23	440	1120	824	e430	1570	1010	805	637	498	443	1340	1220
24	408	930	1160	e420	1390	882	795	544	490	474	958	1010
25	375	1010	2440	e400	1180	806	701	483	449	467	773	884
26	353	955	1910	e390	1020	745	1280	623	475	394	653	801
27	553	800	1460	e380	915	707	2700	778	417	394	570	726
28	1960	761	1220	e370	919	663	1730	590	381	1250	522	1830
29	1880	1120	1060	e360	1110	604	1290	504	399	1020	514	6510
30	1690	1140	993	e350	---	563	1080	448	384	689	489	5240
31	1250	---	964	e340	---	547	---	423	---	560	444	---
TOTAL	20358	27007	46239	22815	22309	31971	45156	22611	19793	20036	27109	51497
MEAN	657	900	1492	736	769	1031	1505	729	660	646	874	1717
MAX	1960	2610	7480	2380	1570	1780	5050	1530	1400	3190	2610	11200
MIN	290	439	527	340	330	547	701	423	381	301	419	312
CFSM	1.40	1.92	3.17	1.57	1.64	2.19	3.20	1.55	1.40	1.38	1.86	3.65
IN.	1.61	2.14	3.66	1.81	1.77	2.53	3.57	1.79	1.57	1.59	2.15	4.08

STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF DAILY RECORD, BY WATER YEAR (WY)

MEAN	355	481	651	700	793	1083	943	687	500	327	303	327
MAX	1838	1436	1940	1850	2257	3463	2693	1753	3120	1184	1584	1717
(WY)	1977	1971	1997	1996	1984	1994	1993	1998	1972	1989	1915	2004
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

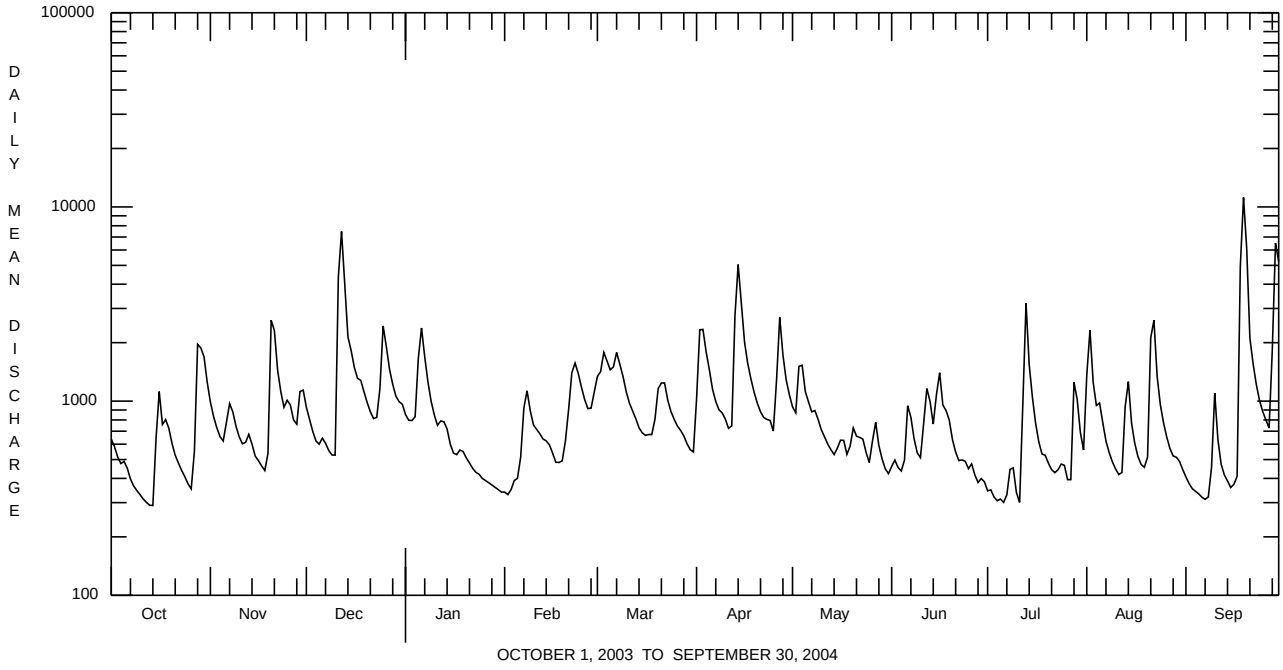
e Estimated.

CONODOGUINET CREEK BASIN

01570000 CONODOGUINET CREEK NEAR HOGESTOWN, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	356141		356901			
ANNUAL MEAN	976		975		595	
HIGHEST ANNUAL MEAN					1045	1972
LOWEST ANNUAL MEAN					212	2002
HIGHEST DAILY MEAN	7480	Dec 12	11200	Sep 19	24500	Jun 23 1972
LOWEST DAILY MEAN	**e**190	Feb 17	290	Oct 14	26	Dec 23 1930
ANNUAL SEVEN-DAY MINIMUM	**a**247	Feb 12	320	Oct 8	27	Dec 19 1930
MAXIMUM PEAK FLOW			12600	Sep 19	**b**33700	Jun 23 1972
MAXIMUM PEAK STAGE			11.35	Sep 19	**c**17.01	Jun 23 1972
INSTANTANEOUS LOW FLOW			275	Oct 14	24	Dec 16 1930
ANNUAL RUNOFF (CFSM)	2.08		2.07		1.27	
ANNUAL RUNOFF (INCHES)	28.19		28.25		17.20	
10 PERCENT EXCEEDS	1990		1670		1270	
50 PERCENT EXCEEDS	712		721		350	
90 PERCENT EXCEEDS	284		383		117	

a Computed using estimated daily discharges.
b From rating curve extended above 27,100 ft^3/s.
c From floodmark in gage.
e Estimated.



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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71900	99900	70800	61800	e20000	28000	66000	56900	40400	11400	98700	23300
2	59100	83200	68500	59600	e21000	30000	78600	51600	36000	10900	108000	38900
3	51300	67700	63300	56900	e22000	42800	91200	57300	34100	10700	86000	39300
4	44100	57500	55600	58500	e24000	71500	99000	69700	33600	10200	63300	30500
5	38600	51300	50800	86800	e23000	129000	88200	72500	37500	9750	54300	25500
6	36500	48500	46700	152000	e24000	152000	73100	65800	37400	9600	46800	21200
7	34600	49500	43300	165000	e25000	197000	63600	58400	34300	9830	41700	18000
8	31900	49500	41500	129000	e24000	211000	56800	55200	29900	10800	35300	16700
9	31400	46400	38300	97300	e25000	179000	52700	53700	26300	10700	30300	16800
10	28900	41500	35700	76200	e26000	138000	48600	53600	23700	11000	26100	71100
11	26100	38000	70100	63200	e26000	109000	44600	58500	24900	10100	23300	156000
12	23800	36100	180000	56600	e27000	87100	40600	63700	27700	12400	21900	135000
13	21600	34300	217000	50300	e28000	72500	48600	65300	24700	20500	27400	91900
14	20000	33500	178000	45100	e24000	63900	76900	58900	22500	23800	41000	73800
15	23300	32600	129000	e39000	e22000	56000	119000	52900	22100	29700	48800	58600
16	33500	31800	101000	e32000	e21000	51100	149000	52700	22200	29100	48300	43400
17	41900	31300	85600	e32000	e21000	47100	118000	49800	20800	26100	39700	35200
18	41800	30300	76200	e33000	e21000	44200	89200	45700	23000	26100	31800	172000
19	43000	30300	69100	e29000	e21000	43300	70300	41700	28500	24000	27100	500000
20	39000	67600	62500	e26000	e23000	43200	59800	40000	25200	23400	25000	451000
21	34300	180000	57500	e26000	e24000	47600	53700	42800	22600	28900	26500	258000
22	31000	186000	53100	e27000	e26000	62700	49300	45700	21100	29400	33100	166000
23	29200	139000	48200	e24000	e28000	72400	46300	57300	20100	28000	43700	129000
24	27800	109000	48000	e20000	e30000	70800	45200	68300	18500	24600	62200	108000
25	25800	90900	82000	e18000	e29000	62600	47400	58800	16800	24300	50800	92900
26	23700	80000	132000	e18000	e28000	56900	52400	51600	15900	27300	40600	76800
27	25100	67300	135000	e18000	e28000	60500	63300	56400	14400	25100	32900	61900
28	52700	59300	109000	e19000	e27000	68200	76300	61900	13500	57000	28000	55100
29	83300	61300	87500	e18000	27300	74900	74800	54600	13600	143000	24900	74500
30	116000	69000	72100	e18000	---	76700	65400	49000	12300	139000	21900	81700
31	115000	---	66000	e19000	---	70700	---	46300	---	107000	20900	---
TOTAL	1306200	2002600	2573400	1574300	715300	2519700	2107900	1716600	743600	963680	1310300	3122100
MEAN	42140	66750	83010	50780	24670	81280	70260	55370	24790	31090	42270	104100
MAX	116000	186000	217000	165000	30000	211000	149000	72500	40400	143000	108000	500000
MIN	20000	30300	35700	18000	20000	28000	40600	40000	12300	9600	20900	16700
CFSM	1.75	2.77	3.44	2.11	1.02	3.37	2.92	2.30	1.03	1.29	1.75	4.32
IN.	2.02	3.09	3.97	2.43	1.10	3.89	3.25	2.65	1.15	1.49	2.02	4.82

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1891 - 2004, BY WATER YEAR (WY)

MEAN	17410	26640	34640	36890	40500	74050	72300	44950	26560	15380	12040	12570
MAX	75150	83540	98870	103100	153500	216100	217000	103900	166800	71450	44960	104100
(WY)	1977	1927	1997	1996	1891	1936	1993	1894	1972	1902	1994	2004
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

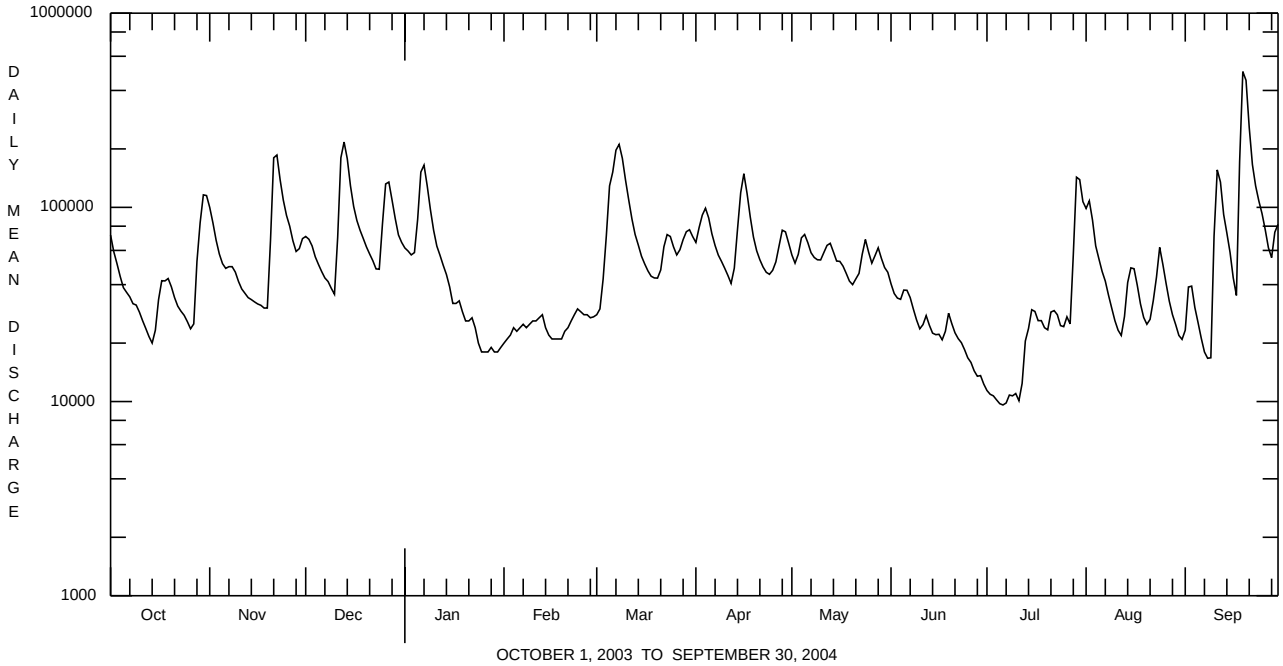
e Estimated.

SUSQUEHANNA RIVER BASIN

01570500 SUSQUEHANNA RIVER AT HARRISBURG, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1891 - 2004	
ANNUAL TOTAL	19992700		20655680			
ANNUAL MEAN	54770		56440		34450	
HIGHEST ANNUAL MEAN					56440	2004
LOWEST ANNUAL MEAN					16940	1965
HIGHEST DAILY MEAN	266000	Mar 22	500000	Sep 19	954000	Jun 24 1972
LOWEST DAILY MEAN	10700	Jul 21	9600	Jul 6	1700	Nov 29 1930
ANNUAL SEVEN-DAY MINIMUM	12100	Jul 16	10200	Jul 3	1790	Sep 17 1964
MAXIMUM PEAK FLOW			557000	Sep 19	1020000	Jun 24 1972
MAXIMUM PEAK STAGE			24.40	Sep 19	**a**32.57	Jun 24 1972
INSTANTANEOUS LOW FLOW			9470	Jul 5,6	**b**1600	Nov 29 1930
ANNUAL RUNOFF (CFSM)	2.27		2.34		1.43	
ANNUAL RUNOFF (INCHES)	30.86		31.88		19.42	
10 PERCENT EXCEEDS	103000		108000		79200	
50 PERCENT EXCEEDS	43500		44400		20400	
90 PERCENT EXCEEDS	16800		21000		5470	

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.--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 2.9 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)
Dec. 11	1545	3,380	8.49	Aug. 1	1445	2,770	7.44
Apr. 14	0045	1,600	4.94	Sept. 18	1715	*3,600	*a8.78
July 12	2330	1,400	4.50	Sept. 29	2315	2,900	7.68

a From floodmark.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	283	372	358	426	222	433	611	453	305	204	1700	240
2	273	351	334	418	219	473	824	473	303	359	792	229
3	256	336	316	424	241	562	688	869	292	220	473	222
4	271	322	305	443	307	540	623	590	258	202	417	218
5	279	321	315	706	264	544	573	509	373	218	519	213
6	253	383	346	634	523	654	503	480	606	211	385	207
7	239	433	331	486	853	644	468	485	410	216	320	208
8	228	345	314	435	554	609	444	525	339	311	293	214
9	223	309	306	426	405	542	447	437	303	222	271	286
10	217	295	315	369	381	491	408	471	297	198	258	296
11	211	291	2460	e330	379	459	382	408	382	191	245	227
12	208	322	2560	382	350	438	430	374	539	586	280	211
13	205	328	1300	380	334	405	1320	411	375	729	809	207
14	218	290	959	358	326	380	1350	362	331	423	478	200
15	607	275	888	342	310	370	941	464	544	390	350	201
16	350	267	743	e280	275	365	760	500	457	293	305	206
17	295	262	704	e250	265	380	670	391	374	251	282	231
18	325	254	704	321	275	367	611	353	355	241	266	2910
19	294	352	605	324	294	454	562	466	316	236	289	2680
20	267	837	554	293	351	498	523	409	286	220	310	1180
21	257	515	506	269	434	484	489	374	269	207	816	732
22	254	428	475	271	457	423	460	368	261	215	605	604
23	245	398	509	259	436	372	448	341	277	342	403	515
24	238	386	627	e240	406	358	485	305	251	272	345	443
25	229	463	745	e230	379	349	416	286	237	222	314	406
26	228	392	594	251	353	342	741	349	242	212	292	385
27	412	357	551	253	337	337	864	390	233	299	276	365
28	528	365	519	255	338	340	582	309	216	551	267	1120
29	676	502	495	249	371	317	514	278	245	303	296	2580
30	522	399	490	239	---	302	479	260	221	247	259	1830
31	413	---	462	226	---	301	---	262	---	237	269	---
TOTAL	9504	11150	20690	10769	10639	13533	18616	12952	9897	9028	13184	19566
MEAN	307	372	667	347	367	437	621	418	330	291	425	652
MAX	676	837	2560	706	853	654	1350	869	606	729	1700	2910
MIN	205	254	305	226	219	301	382	260	216	191	245	200
CFSM	1.42	1.72	3.09	1.61	1.70	2.02	2.87	1.93	1.53	1.35	1.97	3.02
IN.	1.64	1.92	3.56	1.85	1.83	2.33	3.21	2.23	1.70	1.55	2.27	3.37

STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF DAILY RECORD, BY WATER YEAR (WY)

MEAN	187	212	275	303	375	494	469	368	293	204	187	196
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

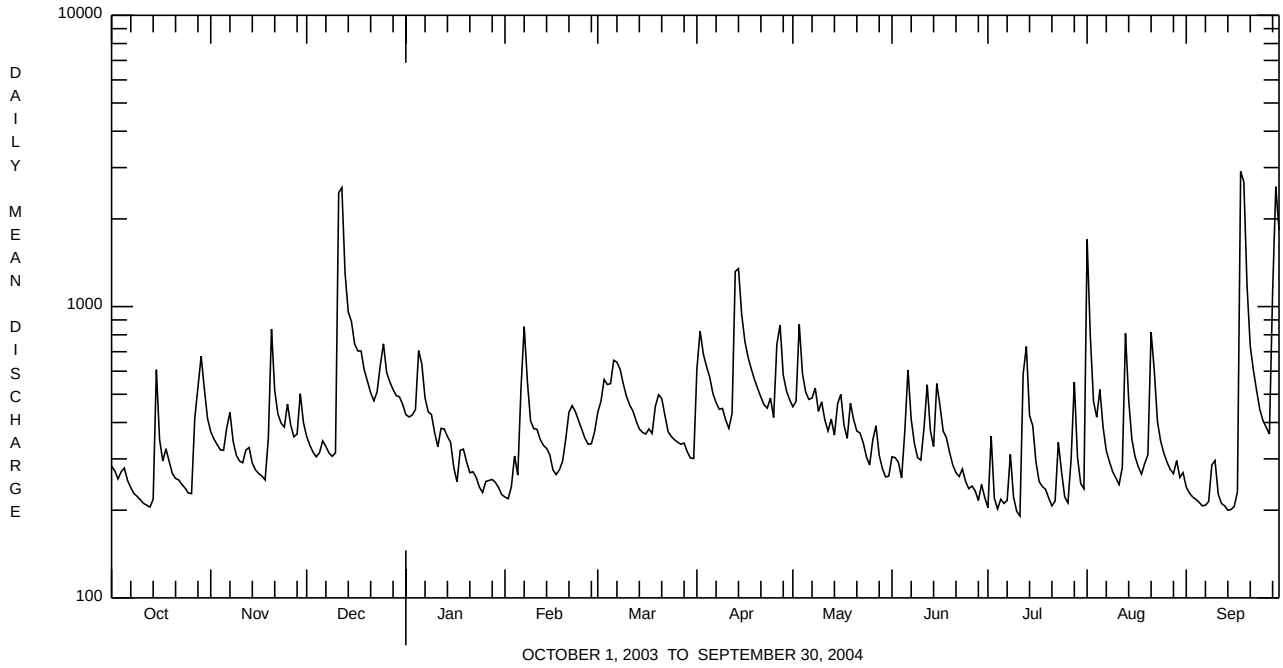
e Estimated.

YELLOW BREECHES CREEK BASIN

01571500 YELLOW BREECHES CREEK NEAR CAMP HILL, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	169024		159528			
ANNUAL MEAN	463		436		297	
HIGHEST ANNUAL MEAN					500	1972
LOWEST ANNUAL MEAN					122	2002
HIGHEST DAILY MEAN	2590	Mar 21	2910	Sep 18	12400	Jun 22 1972
LOWEST DAILY MEAN	**b**82	Feb 17	191	Jul 11	67	Sep 13 1966
ANNUAL SEVEN-DAY MINIMUM	156	Feb 12	212	Sep 11	70	Sep 7 1966
MAXIMUM PEAK FLOW			3600	Sep 18	**c**19300	Sep 26 1975
MAXIMUM PEAK STAGE			**a**8.78	Sep 18	**a**18.77	Sep 26 1975
INSTANTANEOUS LOW FLOW			190	Jul 11,12	23	Sep 12 1966
ANNUAL RUNOFF (CFSM)	2.14		2.02		1.37	
ANNUAL RUNOFF (INCHES)	29.11		27.47		18.68	
10 PERCENT EXCEEDS	765		647		537	
50 PERCENT EXCEEDS	357		354		216	
90 PERCENT EXCEEDS	205		227		116	

a From floodmark.
b Result of freezeup.
c From rating curve extended above 16,000 ft^3/s.



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 good except for periods Oct. 27 to Nov. 7, Apr. 9-12, July 12 to July 22, Aug. 21 to Sept. 22, which are fair, Nov. 8-17, Apr. 13-19, Apr. 30 to May 13, and July 23 to Aug. 3, 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 439-497. Figure 10 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, 184 microsiemens, July 21; minimum recorded (may have been lower Sept. 18, 19 during period of gap in record), 58 microsiemens, Dec. 11.
pH: Maximum, 6.9, Oct. 14, 15; minimum recorded (may have been lower Sept. 18-22 during period of gap in record), 4.9, Dec. 11, Sept. 28.
WATER TEMPERATURE: Maximum, 19.5°C, July 5; minimum 0.0°C, many days during winter.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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										
29...	1115	1028	89203	41	482	130	11.1	99	5.4	4.9
JAN										
05...	1045	1028	89203	12	223	25	10.6	83	5.7	5.3
MAR										
04...	1100	1028	89203	6.7	252	14	12.7	99	5.7	5.3
APR										
21...	1000	1028	89203	5.0	441	5.1	11.3	101	5.5	5.2
JUN										
03...	1000	1028	89203	2.8	377	13	9.9	94	5.8	5.5
JUL										
21...	1015	1028	89203	3.1	223	15	10.2	101	5.4	5.2
SEP										
08...	1045	1028	89203	1.6	358	9.0	9.7	99	6.0	6.0

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										
29...	77.0	10.2	3.70	3.70	3.10	3.10	1.30	1.30	4.90	4.90
JAN										
05...	61.0	5.30	4.00	4.00	2.70	2.80	1.20	1.20	4.40	4.90
MAR										
04...	87.0	4.90	4.20	4.30	3.10	3.10	.900	1.00	4.70	4.40
APR										
21...	127	10.5	6.20	6.20	5.30	5.40	.800	.800	5.70	5.60
JUN										
03...	117	13.2	6.80	6.80	4.70	4.80	.800	.800	6.20	6.10
JUL										
21...	171	15.3	8.40	8.50	8.00	8.10	.900	.800	5.50	5.60
SEP										
08...	179	16.1	8.00	7.80	30.8	30.4	1.80	1.80	6.50	6.50

SWATARA CREEK BASIN

0157155010 SWATARA CREEK, SITE C1, AT NEWTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
29...	2.20	5.30	<.010	22.4	.070	<.030	<.020	600	1000	.060
JAN										
05...	1.90	7.79	<.010	21.5	.150	<.030	<.020	200	500	.040
MAR										
04...	2.30	7.55	--	23.8	--	--	--	400	600	--
APR										
21...	2.00	8.91	--	39.9	--	--	--	500	800	--
JUN										
03...	2.00	10.4	--	34.6	--	--	--	200	800	--
JUL										
21...	1.20	8.57	--	48.7	.080	--	--	500	1000	--
SEP										
08...	3.00	6.83	<.010	172	.100	<.030	<.020	3600	3500	.110

Date	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								
29...	320	770	300	320	22.0	13.0	56.0	56.0
JAN								
05...	400	640	300	310	13.0	15.0	51.0	52.0
MAR								
04...	130	250	300	300	15.0	15.0	50.0	55.0
APR								
21...	420	660	340	330	30.0	30.0	80.0	85.0
JUN								
03...	90.0	490	340	340	25.0	25.0	65.0	65.0
JUL								
21...	70.0	380	460	460	36.0	38.0	51.0	56.0
SEP								
08...	190	160	1430	1400	125	120	330	330

SWATARA CREEK BASIN

0157155010 SWATARA CREEK, SITE C1, AT NEWTOWN, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	129	121	125	126	122	123	117	109	113	111	106	109
2	130	125	127	123	119	121	121	116	118	112	108	110
3	132	128	130	123	119	121	124	118	120	111	108	109
4	132	119	124	125	120	122	123	118	121	108	86	98
5	130	121	126	126	103	118	122	116	120	98	86	90
6	136	130	133	114	91	108	122	116	119	110	97	103
7	138	134	136	101	92	97	123	117	121	114	106	110
8	141	136	138	104	99	102	125	120	122	118	109	114
9	144	139	141	107	103	105	127	121	124	121	112	117
10	146	141	143	110	105	107	127	76	117	126	119	123
11	149	140	145	111	107	109	100	58	71	126	118	122
12	149	144	147	111	105	109	125	95	115	124	118	120
13	151	143	149	116	108	111	118	107	111	123	117	120
14	152	81	146	119	114	117	109	97	103	126	119	123
15	100	66	86	123	118	120	104	98	101	129	121	124
16	114	100	107	125	120	123	105	101	103	132	123	128
17	118	112	115	130	124	126	104	90	97	130	122	126
18	120	112	115	130	126	128	105	94	100	126	121	123
19	125	119	122	128	62	103	107	103	105	129	122	126
20	130	125	127	98	64	83	110	105	107	133	127	129
21	133	128	130	114	97	105	112	108	110	133	128	131
22	134	130	132	121	112	117	112	109	110	133	128	130
23	138	132	135	124	119	121	109	97	104	138	122	133
24	142	136	139	124	96	119	101	77	86	137	131	134
25	145	140	142	119	96	111	96	86	92	141	134	137
26	149	145	147	122	118	120	101	96	99	137	132	135
27	148	63	90	123	120	121	104	100	102	136	130	133
28	124	79	105	122	70	105	105	102	104	135	129	132
29	122	79	100	102	73	91	106	104	105	137	131	134
30	125	113	121	112	102	107	107	99	103	138	133	135
31	126	123	124	---	---	---	109	104	107	140	134	137
MONTH	152	63	127	130	62	112	127	58	107	141	86	122

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	140	135	138	117	101	110	122	86	103	143	137	139
2	141	134	138	107	73	93	115	91	102	143	77	133
3	139	119	131	92	77	85	117	112	114	98	70	88
4	133	118	125	90	84	87	117	112	114	107	98	102
5	136	129	133	98	89	94	119	113	115	110	105	108
6	135	94	119	99	86	92	120	116	118	114	108	111
7	112	93	101	108	96	102	124	118	121	115	109	112
8	122	109	117	106	96	101	124	111	120	118	113	115
9	132	115	123	112	105	109	125	114	119	119	115	117
10	124	117	121	115	111	113	130	123	126	121	115	118
11	126	117	121	117	113	115	131	126	129	124	118	121
12	127	122	125	119	113	116	132	93	126	125	107	119
13	128	123	125	122	116	119	113	68	100	128	110	120
14	128	124	126	123	117	119	111	69	93	129	124	127
15	139	125	129	121	116	118	123	111	117	133	110	128
16	148	122	135	122	112	116	125	121	123	125	94	110
17	141	127	132	121	115	118	127	122	124	129	121	124
18	134	127	131	122	114	118	126	123	125	125	98	114
19	132	124	128	120	112	116	130	123	127	122	115	119
20	132	125	128	122	97	115	132	128	130	124	118	121
21	130	122	126	111	93	101	133	128	130	125	120	122
22	129	121	126	120	110	116	134	128	131	128	122	124
23	129	123	127	122	115	118	131	124	128	136	125	129
24	130	124	126	120	109	116	135	127	131	135	122	131
25	133	125	130	114	109	111	136	129	133	142	128	132
26	144	126	133	115	110	112	132	95	109	140	76	109
27	135	130	132	115	110	113	126	109	120	116	100	107
28	134	123	130	117	113	115	133	125	130	119	97	109
29	128	103	120	120	115	117	137	131	134	126	118	121
30	---	---	---	122	118	119	140	135	137	130	123	126
31	---	---	---	122	118	120	---	---	---	131	108	123
MONTH	148	93	127	123	73	110	140	68	121	143	70	119

SWATARA CREEK BASIN

0157155010 SWATARA CREEK, SITE C1, AT NEWTOWN, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	117	93	110	159	155	156	140	74	101	156	153	155
2	119	100	110	163	158	160	117	100	106	160	156	159
3	127	117	120	168	163	164	125	112	117	163	160	162
4	132	124	126	169	165	167	129	90	120	165	162	164
5	130	80	105	166	158	161	124	97	113	166	164	165
6	104	82	93	169	164	167	132	124	127	165	163	164
7	112	102	107	172	166	170	136	131	133	167	165	166
8	119	111	114	167	163	165	142	135	137	170	138	161
9	127	118	121	172	167	170	149	140	142	138	104	121
10	126	122	125	175	172	174	151	145	147	146	126	137
11	126	122	125	179	175	177	153	147	150	156	146	151
12	136	126	129	179	60	100	154	77	125	162	156	159
13	137	134	135	131	92	109	102	69	85	167	162	165
14	140	136	138	141	88	126	127	102	116	172	167	170
15	137	108	127	125	90	108	136	127	131	173	171	172
16	130	90	114	138	125	132	141	134	136	177	173	175
17	131	83	120	146	138	141	143	138	140	178	159	175
18	123	94	110	150	142	145	146	140	142	159	---	---
19	133	123	127	154	143	146	147	144	145	146	---	---
20	143	133	136	165	153	156	151	119	144	135	124	128
21	148	141	143	184	165	176	126	86	103	126	120	123
22	149	104	132	182	178	179	132	116	125	126	123	125
23	140	112	128	181	76	134	140	132	135	128	123	126
24	149	140	143	139	109	125	143	140	141	128	126	127
25	151	144	149	145	139	141	145	143	144	128	126	127
26	151	121	135	147	144	145	146	145	145	131	127	129
27	153	141	146	147	120	134	148	145	146	133	130	131
28	154	121	151	132	121	128	150	146	148	133	66	97
29	144	119	133	141	132	136	151	150	150	111	83	100
30	155	144	149	143	141	142	154	151	152	117	111	114
31	---	---	---	145	138	143	153	152	153	---	---	---
MONTH	155	80	127	184	60	148	154	69	132	178	66	145
YEAR	184	58	125									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	6.0	5.9	6.0	5.6	5.5	5.6	5.6	5.5	5.6	5.7	5.6	5.7
2	6.0	5.9	6.0	5.7	5.6	5.7	5.6	5.5	5.6	5.7	5.6	5.6
3	6.1	6.0	6.1	5.7	5.7	5.7	5.7	5.6	5.7	5.7	5.6	5.6
4	6.2	6.0	6.1	5.8	5.7	5.7	5.7	5.7	5.7	5.8	5.6	5.7
5	6.2	6.0	6.1	6.0	5.8	5.8	5.8	5.7	5.8	5.7	5.5	5.6
6	6.3	6.1	6.2	5.9	5.7	5.8	5.8	5.8	5.8	5.6	5.6	5.6
7	6.4	6.2	6.3	5.8	5.7	5.7	5.9	5.8	5.8	5.6	5.6	5.6
8	6.4	6.3	6.4	5.8	5.8	5.8	5.9	5.9	5.9	5.6	5.6	5.6
9	6.5	6.4	6.5	5.9	5.8	5.8	5.9	5.9	5.9	5.7	5.6	5.6
10	6.6	6.5	6.5	5.9	5.7	5.8	6.4	5.7	5.9	5.7	5.7	5.7
11	6.6	6.5	6.6	5.8	5.7	5.8	5.7	4.9	5.1	5.7	5.7	5.7
12	6.7	6.6	6.6	5.8	5.7	5.8	5.1	5.0	5.1	5.7	5.7	5.7
13	6.7	6.6	6.7	5.8	5.7	5.7	5.3	5.1	5.2	5.7	5.7	5.7
14	6.9	6.6	6.7	5.8	5.7	5.8	5.4	5.3	5.3	5.8	5.7	5.8
15	6.9	5.8	6.0	5.8	5.7	5.7	5.4	5.4	5.4	5.8	5.8	5.8
16	6.3	6.0	6.3	5.7	5.7	5.7	5.5	5.4	5.5	5.9	5.7	5.8
17	6.4	6.3	6.4	6.1	5.7	5.9	5.6	5.5	5.6	5.9	5.8	5.9
18	6.3	6.2	6.3	6.1	6.0	6.1	5.6	5.6	5.6	5.9	5.9	5.9
19	6.3	6.3	6.3	6.7	5.4	6.1	5.7	5.6	5.7	6.0	5.9	5.9
20	6.3	6.2	6.3	5.7	5.4	5.6	5.8	5.7	5.7	6.0	6.0	6.0
21	6.4	6.3	6.3	5.6	5.6	5.6	5.8	5.7	5.8	6.1	6.0	6.1
22	6.4	6.2	6.3	5.6	5.6	5.6	5.8	5.8	5.8	6.1	6.1	6.1
23	6.3	6.2	6.3	5.7	5.6	5.6	6.0	5.8	5.8	6.1	6.0	6.1
24	6.3	6.3	6.3	5.8	5.6	5.7	6.1	5.2	5.6	6.2	6.1	6.2
25	6.4	6.3	6.4	5.7	5.6	5.6	5.5	5.4	5.5	6.2	6.1	6.2
26	6.5	6.4	6.5	5.8	5.7	5.7	5.4	5.4	5.4	6.2	6.2	6.2
27	6.7	5.3	5.8	5.8	5.7	5.8	5.5	5.4	5.5	6.2	6.2	6.2
28	5.5	5.4	5.4	6.3	5.4	5.8	5.5	5.5	5.5	6.2	6.2	6.2
29	5.7	5.4	5.4	5.6	5.4	5.6	5.6	5.5	5.6	6.2	6.2	6.2
30	5.4	5.3	5.4	5.6	5.5	5.6	5.6	5.6	5.6	6.3	6.2	6.3
31	5.5	5.4	5.5	---	---	---	5.7	5.6	5.7	6.3	6.2	6.2
MAX	6.9	6.6	6.7	6.7	6.0	6.1	6.4	5.9	5.9	6.3	6.2	6.3
MIN	5.4	5.3	5.4	5.6	5.4	5.6	5.1	4.9	5.1	5.6	5.5	5.6

SWATARA CREEK BASIN

0157155010 SWATARA CREEK, SITE C1, AT NEWTOWN, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		FEBRUARY			MARCH			APRIL			MAY	
1	6.3	6.2	6.3	6.3	6.0	6.1	6.0	5.6	5.7	5.4	5.3	5.4
2	6.3	6.3	6.3	6.6	5.8	6.1	5.7	5.6	5.6	5.6	5.2	5.4
3	6.3	6.2	6.3	5.9	5.7	5.8	5.7	5.6	5.7	5.3	5.1	5.2
4	6.2	6.1	6.2	5.7	5.6	5.7	5.7	5.7	5.7	5.3	5.2	5.2
5	6.3	6.2	6.3	5.6	5.5	5.6	5.7	5.7	5.7	5.2	5.2	5.2
6	6.3	6.0	6.3	5.5	5.4	5.5	5.7	5.7	5.7	5.3	5.2	5.2
7	6.1	6.0	6.0	5.5	5.4	5.5	5.7	5.6	5.7	5.3	5.2	5.2
8	6.1	6.0	6.1	5.5	5.4	5.5	5.7	5.6	5.7	5.3	5.2	5.3
9	6.2	6.0	6.1	5.5	5.4	5.4	5.6	5.6	5.6	5.3	5.3	5.3
10	6.1	6.0	6.1	5.5	5.4	5.5	5.7	5.6	5.6	5.3	5.2	5.3
11	6.0	6.0	6.0	5.5	5.5	5.5	5.7	5.6	5.7	5.3	5.2	5.3
12	6.1	6.0	6.0	5.6	5.5	5.5	5.9	5.6	5.6	5.3	5.1	5.3
13	6.0	6.0	6.0	5.6	5.6	5.6	5.9	5.4	5.6	---	---	---
14	6.0	6.0	6.0	5.6	5.6	5.6	5.4	5.3	5.3	---	---	---
15	6.0	6.0	6.0	5.6	5.6	5.6	5.3	5.3	5.3	---	---	---
16	6.1	5.8	6.0	5.7	5.6	5.7	5.3	5.3	5.3	---	---	---
17	6.1	5.9	6.0	5.7	5.7	5.7	5.3	5.3	5.3	---	---	---
18	6.1	6.0	6.0	5.7	5.7	5.7	5.3	5.3	5.3	---	---	---
19	6.1	6.0	6.1	5.7	5.7	5.7	5.5	5.3	5.4	---	---	---
20	6.1	6.0	6.0	5.8	5.7	5.8	5.5	5.5	5.5	---	---	---
21	6.2	6.1	6.1	5.8	5.7	5.8	5.5	5.5	5.5	---	---	---
22	6.2	6.1	6.2	5.7	5.7	5.7	5.5	5.5	5.5	---	---	---
23	6.2	6.2	6.2	5.7	5.7	5.7	5.5	5.5	5.5	---	---	---
24	6.2	6.1	6.2	5.7	5.6	5.7	5.6	5.5	5.5	---	---	---
25	6.2	6.1	6.1	5.6	5.6	5.6	5.6	5.6	5.6	---	---	---
26	6.3	6.0	6.1	5.6	5.6	5.6	5.8	5.5	5.6	---	---	---
27	6.2	6.1	6.1	5.6	5.5	5.6	5.5	5.5	5.5	---	---	---
28	6.2	6.1	6.1	5.6	5.6	5.6	5.5	5.5	5.5	---	---	---
29	6.5	6.1	6.2	5.7	5.6	5.6	5.5	5.4	5.4	---	---	---
30	---	---	---	5.7	5.6	5.7	5.4	5.4	5.4	---	---	---
31	---	---	---	5.7	5.7	5.7	---	---	---	---	---	---
MAX	6.5	6.3	6.3	6.6	6.0	6.1	6.0	5.7	5.7	5.6	5.3	5.4
MIN	6.0	5.8	6.0	5.5	5.4	5.4	5.3	5.3	5.3	5.2	5.1	5.2

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	5.9	5.7	5.8	6.4	5.2	5.4	6.1	6.0	6.1
2	---	---	---	5.9	5.8	5.8	5.5	5.4	5.5	6.1	6.1	6.1
3	---	---	---	5.9	5.8	5.9	5.6	5.5	5.5	6.2	6.1	6.1
4	---	---	---	6.0	5.8	6.0	6.1	5.3	5.6	6.2	6.2	6.2
5	---	---	---	6.1	5.9	6.0	5.5	5.4	5.4	6.3	6.2	6.2
6	---	---	---	6.0	5.9	6.0	5.6	5.5	5.5	6.3	6.3	6.3
7	---	---	---	6.0	5.9	6.0	5.6	5.6	5.6	6.3	6.0	6.0
8	5.4	5.3	5.4	6.1	6.0	6.1	5.7	5.6	5.6	6.3	6.0	6.0
9	5.4	5.3	5.4	6.1	6.0	6.0	5.7	5.6	5.6	6.2	5.7	5.8
10	5.4	5.3	5.3	6.0	6.0	6.0	5.7	5.6	5.6	5.9	5.8	5.9
11	5.4	5.3	5.3	6.0	6.0	6.0	5.7	5.6	5.6	6.0	5.9	5.9
12	5.4	5.3	5.3	6.3	5.2	5.5	6.4	5.2	5.7	6.0	5.9	6.0
13	5.4	5.3	5.4	5.4	5.2	5.3	5.6	5.3	5.4	6.0	6.0	6.0
14	5.4	5.3	5.4	5.5	5.1	5.2	5.6	5.5	5.5	6.0	6.0	6.0
15	5.6	5.1	5.3	5.1	5.0	5.0	5.5	5.5	5.5	6.1	6.0	6.0
16	5.9	5.2	5.2	5.0	5.0	5.0	5.5	5.5	5.5	6.1	6.0	6.0
17	6.0	5.1	5.3	5.1	5.0	5.0	5.5	5.3	5.5	6.1	6.0	6.1
18	5.3	5.1	5.2	5.2	5.0	5.1	5.5	5.5	5.5	---	---	---
19	5.4	5.3	5.3	5.2	5.1	5.2	5.5	5.5	5.5	---	---	---
20	5.5	5.4	5.4	5.2	5.2	5.2	5.7	5.5	5.5	---	---	---
21	5.5	5.4	5.5	5.4	5.2	5.3	6.0	5.6	5.6	---	---	---
22	5.7	5.3	5.5	5.4	5.3	5.4	5.7	5.7	5.7	---	---	---
23	5.4	5.3	5.3	6.3	5.2	5.4	5.8	5.7	5.7	5.3	5.1	5.2
24	5.5	5.4	5.4	5.4	5.3	5.4	5.8	5.7	5.8	5.4	5.3	5.3
25	5.6	5.4	5.5	5.6	5.4	5.5	5.8	5.8	5.8	5.5	5.4	5.4
26	5.9	5.5	5.6	5.6	5.6	5.6	5.8	5.7	5.8	5.5	5.5	5.5
27	5.6	5.5	5.6	5.8	5.6	5.7	5.9	5.8	5.8	5.6	5.5	5.6
28	5.7	5.6	5.7	5.7	5.6	5.6	5.9	5.9	5.9	6.0	4.9	5.5
29	5.9	5.5	5.6	5.6	5.6	5.6	6.0	5.9	6.0	5.3	5.0	5.2
30	5.8	5.6	5.7	5.7	5.6	5.7	6.0	6.0	6.0	5.3	5.3	5.3
31	---	---	---	5.8	5.7	5.7	6.0	6.0	6.0	---	---	---
MAX	6.0	5.6	5.7	6.3	6.0	6.1	6.4	6.0	6.0	6.3	6.3	6.3
MIN	5.3	5.1	5.2	5.0	5.0	5.0	5.5	5.2	5.4	5.3	4.9	5.2

YEAR			
	MAX	MAXIMUM 6.9	MINIMUM 5.0
	MIN	MAXIMUM 6.6	MINIMUM 4.9
	MEDIAN	MAXIMUM 6.7	MINIMUM 5.0

SWATARA CREEK BASIN

0157155010 SWATARA CREEK, SITE C1, AT NEWTOWN, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	11.5	9.5	11.0	12.5	10.0	11.5	8.0	6.0	7.0	5.5	4.5	5.0
2	10.5	8.5	9.5	13.0	11.5	12.0	6.0	4.0	5.5	6.5	4.5	5.5
3	10.0	7.5	9.0	13.5	11.5	12.5	4.5	3.5	4.0	8.0	6.0	7.0
4	10.0	9.0	9.5	13.0	11.0	12.0	5.5	3.5	4.5	8.0	6.0	7.0
5	10.0	8.5	9.0	12.5	12.0	12.0	5.0	3.0	4.5	6.0	5.0	5.5
6	9.5	7.0	8.5	12.5	11.5	12.0	3.5	2.5	3.5	5.0	2.5	4.0
7	10.0	7.0	8.5	11.5	9.0	10.5	3.0	2.0	2.5	3.0	2.0	2.5
8	12.0	8.5	10.5	9.0	6.0	7.5	3.5	2.0	3.0	3.5	2.0	2.5
9	13.5	10.0	11.5	6.5	4.5	5.5	4.5	3.0	4.0	3.0	0.5	2.0
10	14.0	11.5	12.5	6.5	4.0	5.5	5.5	4.0	4.5	1.0	0.0	0.5
11	13.5	11.0	12.5	8.0	5.0	6.5	7.0	5.5	6.5	1.5	0.5	1.0
12	13.0	10.5	12.0	10.0	8.0	9.0	6.5	6.0	6.5	3.5	1.5	2.5
13	13.0	10.5	12.0	10.0	5.5	8.0	6.0	5.5	5.5	4.0	1.5	3.5
14	12.5	10.0	11.0	6.5	5.5	6.0	5.5	3.5	4.5	1.5	0.5	1.0
15	12.5	10.0	11.5	8.0	6.0	7.0	5.5	4.0	5.0	1.0	0.0	0.5
16	11.0	9.0	10.0	8.0	6.0	7.0	5.5	4.0	5.0	0.5	0.0	0.0
17	10.5	9.5	10.0	9.0	7.5	8.0	6.0	4.0	5.5	1.5	0.5	1.0
18	10.0	8.5	9.5	9.0	7.0	8.0	4.5	4.0	4.0	2.0	1.0	1.5
19	11.0	9.0	10.0	12.5	9.0	10.5	4.5	4.0	4.0	2.0	1.0	1.5
20	10.0	7.5	9.0	10.5	8.0	9.0	4.5	3.5	4.0	2.0	0.5	1.0
21	12.5	9.5	11.0	10.0	8.0	9.0	4.0	2.5	3.5	1.5	0.0	0.5
22	11.0	8.0	10.0	10.0	8.0	9.0	5.5	3.0	4.5	2.5	0.5	1.0
23	8.0	6.0	7.0	9.5	7.5	8.5	6.0	5.0	5.5	0.5	0.0	0.0
24	8.0	5.5	7.0	10.0	7.5	9.0	6.0	5.0	5.5	1.0	0.0	0.5
25	9.0	5.5	7.5	7.5	6.0	6.5	6.0	5.0	5.5	0.5	0.0	0.0
26	11.5	9.0	10.5	7.0	5.5	6.5	6.0	5.0	5.5	1.0	0.0	0.5
27	12.5	10.0	12.0	8.0	6.0	7.0	6.0	5.0	5.5	1.0	0.0	0.5
28	10.5	9.0	10.0	10.0	7.5	8.5	6.0	4.5	5.0	1.5	0.5	1.0
29	10.5	9.5	10.0	7.5	6.5	7.0	6.0	4.5	5.0	1.5	0.5	1.0
30	10.5	9.0	10.0	7.5	6.5	7.0	6.0	5.0	5.5	1.0	0.0	0.5
31	11.0	9.0	10.5	---	---	---	5.5	4.5	5.0	0.5	0.0	0.0
MONTH	14.0	5.5	10.1	13.5	4.0	8.6	8.0	2.0	4.8	8.0	0.0	2.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	1.5	0.0	0.5	4.5	2.5	3.5	7.5	7.0	7.0	15.0	10.5	12.5
2	2.0	0.0	1.0	6.0	3.0	4.0	7.0	6.5	6.5	14.5	12.5	13.0
3	1.5	0.5	1.0	6.0	3.5	4.5	7.0	6.0	6.5	13.5	9.5	11.0
4	2.5	1.0	1.5	5.5	4.5	5.0	6.5	4.0	5.5	11.0	8.0	9.5
5	2.5	0.5	1.5	6.0	5.0	5.5	6.0	2.5	4.0	11.0	8.5	9.5
6	1.5	0.0	1.0	7.5	5.5	6.5	7.0	3.0	5.0	12.0	8.0	10.0
7	2.5	1.0	1.5	7.0	5.0	6.0	10.0	5.5	7.5	13.5	10.5	12.0
8	1.5	0.0	0.5	6.0	4.5	5.5	7.0	5.0	6.5	12.5	10.0	11.0
9	2.0	0.0	1.0	5.0	4.0	4.5	9.5	6.0	7.5	13.5	9.5	11.5
10	3.5	1.5	2.5	6.0	3.5	4.5	10.0	5.0	7.0	15.5	11.5	13.0
11	3.0	1.0	2.0	6.5	3.5	5.0	7.0	6.0	6.5	16.0	12.5	14.0
12	3.0	1.0	2.0	5.0	3.5	4.5	7.0	6.0	6.5	16.0	13.0	14.0
13	3.5	1.5	2.0	5.0	2.5	3.5	7.0	6.0	6.5	16.5	13.0	14.5
14	3.0	1.0	2.0	4.5	2.0	3.5	7.5	6.5	7.0	15.5	13.5	14.5
15	2.0	0.0	1.0	7.0	4.0	5.5	9.0	6.0	7.5	16.5	13.0	15.0
16	0.5	0.0	0.0	4.5	1.0	2.5	9.5	6.0	7.5	16.0	14.0	15.0
17	1.5	0.0	0.5	4.5	2.0	3.0	11.5	7.0	9.0	15.0	12.5	14.0
18	2.5	0.0	1.0	5.5	2.5	3.5	13.0	9.0	11.0	16.0	14.0	15.0
19	3.5	1.0	2.0	5.0	2.0	3.5	14.0	9.0	11.5	14.5	13.0	14.5
20	4.0	1.5	2.5	6.0	1.5	3.5	13.0	10.0	11.5	14.0	12.5	13.0
21	4.0	2.0	3.0	6.0	3.0	4.5	13.0	10.0	11.0	15.5	13.5	14.0
22	4.0	1.5	2.5	4.5	1.5	2.5	14.0	10.5	11.5	17.0	14.0	15.5
23	4.0	1.0	2.5	5.5	1.0	3.0	12.0	10.5	11.5	18.5	15.0	16.5
24	2.5	1.0	2.0	7.0	2.5	4.5	13.5	10.0	11.0	17.5	15.5	16.5
25	3.0	0.0	1.5	6.5	5.0	5.5	10.0	8.5	9.0	17.0	14.0	15.5
26	3.0	0.0	1.5	9.5	5.5	7.5	10.0	8.5	9.5	16.0	14.5	15.5
27	4.5	1.0	2.5	10.5	7.5	9.0	11.5	8.0	9.5	16.0	14.5	15.0
28	5.0	1.0	2.5	11.0	7.5	8.5	10.5	6.5	8.5	16.5	14.0	15.5
29	5.5	1.5	3.0	10.0	6.5	8.0	13.0	7.5	10.0	14.0	11.5	13.0
30	---	---	---	6.5	5.0	6.0	14.0	9.5	11.5	14.0	10.0	12.0
31	---	---	---	8.0	6.0	7.0	---	---	---	13.0	12.5	12.5
MONTH	5.5	0.0	1.7	11.0	1.0	5.0	14.0	2.5	8.3	18.5	8.0	13.5

SWATARA CREEK BASIN

0157155010 SWATARA CREEK, SITE C1, AT NEWTOWN, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	15.5	12.0	13.5	16.5	13.5	15.0	19.0	17.0	18.0	17.0	14.0	15.5
2	15.5	12.0	13.5	18.0	14.0	16.0	18.5	16.5	17.5	16.5	14.0	15.0
3	15.5	12.5	14.0	18.0	14.5	16.0	18.0	16.0	17.0	16.5	14.0	15.5
4	14.5	11.5	13.0	16.5	15.0	16.0	18.0	16.0	17.0	17.5	14.0	15.5
5	13.0	12.0	12.5	19.5	16.0	17.5	17.5	15.0	16.5	15.5	15.0	15.5
6	12.5	12.0	12.5	19.0	16.0	17.0	15.0	13.0	14.0	16.5	14.0	15.0
7	15.0	11.5	13.0	17.5	15.5	16.5	14.5	13.0	13.5	17.5	15.0	16.0
8	15.5	12.5	14.0	18.5	16.0	17.0	15.5	12.5	14.0	17.0	16.0	16.5
9	17.5	13.5	15.5	17.5	15.0	16.0	16.5	13.5	15.0	18.5	16.5	18.0
10	15.5	14.5	15.0	18.0	14.0	16.0	17.0	14.0	15.5	18.0	15.5	16.5
11	14.5	12.5	13.5	19.0	15.0	17.0	17.5	15.5	16.5	17.0	14.5	15.5
12	14.5	11.5	13.0	18.5	16.5	17.5	17.5	15.5	16.0	16.5	14.0	15.0
13	13.0	11.5	12.5	17.0	16.0	16.5	17.0	16.0	16.5	17.5	14.0	15.5
14	15.5	13.0	14.0	17.0	15.0	15.5	16.0	14.5	15.0	16.0	14.5	15.5
15	17.0	14.0	15.5	16.5	14.5	16.0	16.0	14.5	15.0	16.5	14.5	15.5
16	17.0	15.5	16.5	16.0	14.0	15.0	16.0	13.5	15.0	16.5	15.0	15.5
17	18.0	15.5	16.5	16.5	14.0	15.0	15.5	14.0	14.5	17.0	15.0	15.5
18	18.5	16.5	17.0	15.0	14.5	15.0	16.5	14.5	15.0	17.5	13.0	15.0
19	16.5	14.0	16.0	16.0	14.5	15.0	16.5	15.0	16.0	13.0	12.0	12.5
20	15.0	12.5	13.5	17.0	14.5	15.5	18.0	15.5	16.5	13.0	11.5	12.5
21	15.5	11.5	13.5	17.5	14.5	16.0	17.5	15.0	16.5	14.0	12.0	13.0
22	15.5	14.0	14.5	17.5	15.0	16.5	15.5	13.0	14.5	14.5	12.5	13.5
23	17.0	14.5	15.5	18.5	16.0	17.0	16.0	13.0	14.5	15.0	13.0	14.0
24	17.5	14.0	15.5	17.5	15.5	16.5	16.5	14.5	15.5	15.5	13.5	14.5
25	16.5	14.5	15.5	17.0	15.0	16.0	16.5	15.5	16.0	15.0	13.5	14.5
26	17.0	14.0	15.5	16.0	15.0	15.5	16.5	15.0	15.5	15.0	13.5	14.5
27	16.0	12.5	14.0	16.0	15.0	15.5	17.5	15.5	16.5	14.5	12.5	14.0
28	15.0	12.5	14.0	17.0	15.5	16.0	18.5	16.0	17.0	16.0	14.5	15.0
29	16.0	13.0	14.5	17.5	14.5	16.0	18.5	16.5	17.0	15.5	14.0	15.0
30	16.5	12.5	14.5	17.5	15.0	16.0	18.0	16.5	17.0	14.5	12.5	14.0
31	---	---	---	19.0	16.5	17.5	17.5	15.5	17.0	---	---	---
MONTH	18.5	11.5	14.4	19.5	13.5	16.1	19.0	12.5	15.8	18.5	11.5	15.0
YEAR	19.5	0.0	9.6									

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 above 44 ft^3/s and those for estimated daily discharges, which are poor. Other data for this project presented in tables on pages 439-497. 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)
Oct. 27	1345	69	2.14
Dec. 11	1030	91	2.29
Sept. 18	0600	*483	*a3.60

a From crest-stage gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	12	8.6	5.6	2.1	3.1	5.5	4.4	3.6	2.0	2.2	2.0
2	4.7	10	7.7	5.2	2.0	5.5	6.6	6.5	3.4	1.9	7.6	1.9
3	4.3	8.8	6.8	5.0	2.4	5.7	5.0	14	2.7	1.8	4.1	1.7
4	4.5	7.9	6.1	7.6	2.3	6.2	5.0	8.6	2.5	1.8	3.7	1.7
5	4.2	8.0	5.8	11	2.1	6.0	4.8	7.4	5.7	1.8	3.9	1.6
6	3.8	7.8	5.4	8.0	3.0	7.9	4.5	6.5	7.5	1.6	4.3	1.6
7	3.5	7.0	5.0	7.2	3.5	6.5	4.3	6.0	4.9	1.5	3.2	1.5
8	3.4	6.1	4.7	6.7	2.8	7.4	4.4	5.3	4.3	1.7	2.9	1.9
9	3.2	5.7	4.3	6.3	2.7	6.1	4.4	4.8	3.8	1.5	2.7	2.9
10	3.0	5.4	5.7	5.6	2.6	5.6	3.9	4.5	3.7	1.5	2.5	2.2
11	2.9	5.3	45	5.2	2.6	5.2	3.7	4.0	3.6	1.4	2.3	2.0
12	2.8	5.3	22	5.0	2.5	4.9	4.2	4.2	3.3	11	2.2	2.0
13	2.8	5.0	15	4.7	2.4	4.5	13	4.0	3.0	4.6	4.9	2.0
14	3.0	4.7	13	4.4	2.4	4.1	15	3.3	2.8	7.1	9.0	2.0
15	10	4.4	10	4.2	2.3	3.9	11	3.2	3.3	6.7	4.5	2.2
16	4.4	4.1	8.4	4.0	e2.3	4.0	9.3	4.3	4.3	4.7	4.1	2.3
17	4.2	3.9	8.7	3.7	2.2	3.8	7.9	3.1	4.4	3.9	3.7	2.5
18	4.4	3.8	7.6	3.6	2.2	3.7	6.7	3.7	4.6	3.7	3.4	e400
19	4.1	12	6.5	3.3	2.2	3.7	5.9	3.2	3.3	3.8	3.1	31
20	3.9	13	5.8	3.1	2.2	3.9	5.3	3.0	2.9	3.4	2.8	17
21	3.9	9.0	5.4	3.0	2.3	5.8	4.9	2.9	2.7	3.0	2.8	13
22	3.8	8.0	5.1	2.9	2.4	4.7	4.5	2.7	3.5	2.6	6.1	e10
23	3.7	7.2	5.9	2.8	2.4	4.4	4.5	2.5	3.2	2.4	3.4	8.3
24	3.5	7.4	20	2.7	2.4	4.5	4.1	2.4	2.6	5.2	2.9	7.3
25	3.4	7.7	14	2.6	2.3	4.8	3.8	2.3	2.4	3.4	2.6	6.5
26	3.3	6.2	11	2.5	2.2	4.4	8.0	4.7	2.9	2.7	2.4	5.9
27	30	5.7	9.8	2.5	2.1	4.3	6.1	3.8	2.3	2.6	2.3	5.4
28	18	11	8.6	2.4	2.2	4.0	5.4	3.6	2.3	3.2	2.3	19
29	27	13	7.6	2.3	2.7	3.8	5.1	2.7	2.9	3.1	2.2	15
30	18	9.5	7.3	2.2	---	3.7	4.8	2.5	2.2	2.6	2.2	11
31	14	---	6.2	2.2	---	3.7	---	2.8	---	2.4	2.1	---
TOTAL	210.9	224.9	303.0	137.5	69.8	149.8	181.6	136.9	104.6	100.6	108.4	583.4
MEAN	6.80	7.50	9.77	4.44	2.41	4.83	6.05	4.42	3.49	3.25	3.50	19.4
MAX	30	13	45	11	3.5	7.9	15	14	7.5	11	9.0	400
MIN	2.8	3.8	4.3	2.2	2.0	3.1	3.7	2.3	2.2	1.4	2.1	1.5

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2004, BY WATER YEAR (WY)

MEAN	3.58	3.90	6.08	4.85	4.51	7.37	5.83	4.51	4.59	2.20	2.15	4.41
MAX	7.81	8.40	15.3	10.9	10.4	11.9	8.09	9.19	12.5	3.87	8.50	19.4
(WY)	1997	1997	1997	1998	1998	2003	1998	1998	2003	2003	2003	2004
MIN	1.10	0.86	0.71	1.94	2.41	4.83	3.95	2.05	0.89	0.10	0.26	0.42
(WY)	1999	1999	1999	2002	2004	2004	1999	1999	1999	1999	1999	1998

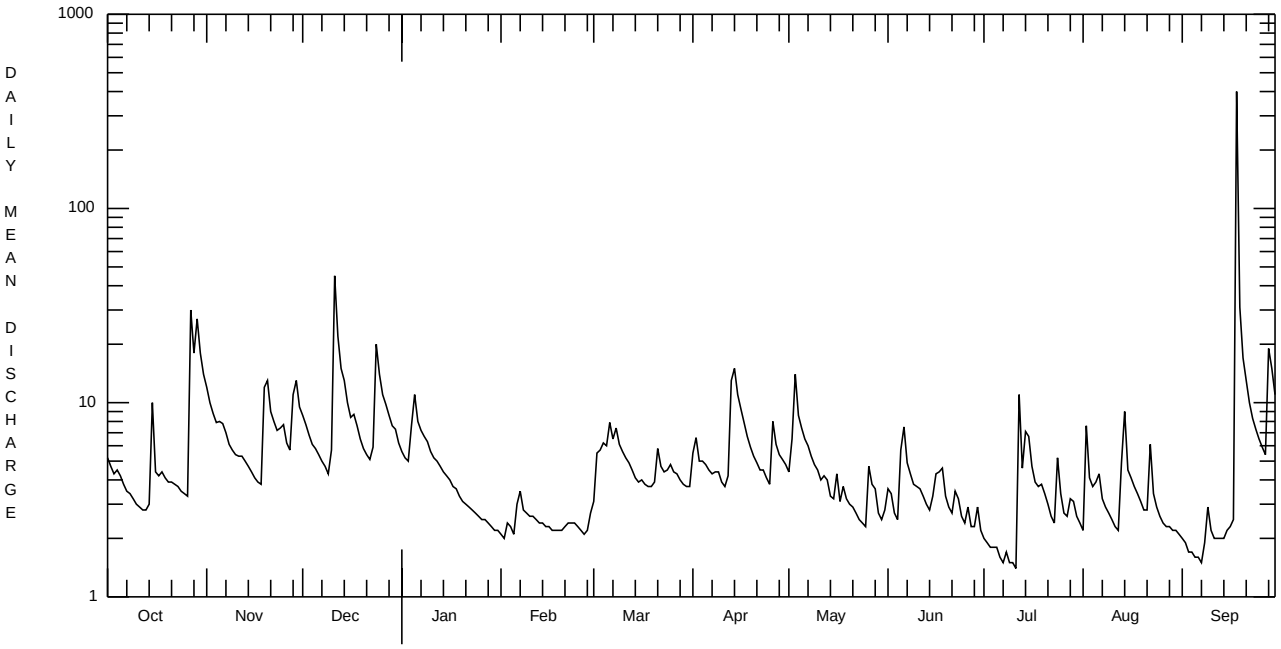
e Estimated.

SWATARA CREEK BASIN

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1996 - 2004	
ANNUAL TOTAL	2675.3		2311.4			
ANNUAL MEAN	7.33		6.32		4.51	
HIGHEST ANNUAL MEAN					6.77	2003
LOWEST ANNUAL MEAN					2.61	1999
HIGHEST DAILY MEAN	45	Dec 11	**e**400	Sep 18	**e**400	Sep 18 2004
LOWEST DAILY MEAN	**e**1.7	Feb 14,15	1.4	Jul 11	0.00	Jul 27 1999**d**
ANNUAL SEVEN-DAY MINIMUM	**b**1.8	Feb 10	1.6	Jul 5	0.00	Jul 29 1999
MAXIMUM PEAK FLOW			**c**483	Sep 18	**c**483	Sep 18 2004
MAXIMUM PEAK STAGE			**a**3.60	Sep 18	**a**3.60	Sep 18 2004
INSTANTANEOUS LOW FLOW			1.4	Jul 6**f**	0.00	Jul 27 1999**d**
10 PERCENT EXCEEDS	14		9.4		8.9	
50 PERCENT EXCEEDS	5.2		4.1		3.0	
90 PERCENT EXCEEDS	2.8		2.2		0.73	

a From crest-stage gage.
b Computed using estimated daily discharges.
c From rating curve extended above 44 ft^3/s.
d Several days.
e Estimated.
f Also July 7, 9-12, Sept. 7.



OCTOBER 1, 2003 TO SEPTEMBER 30, 2004

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.
pH: July 1996 to May 2003.
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.--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 439-497. Figure 10 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, 17.5°C, July 5, 6, 11, 12, Aug. 1-3; minimum 0.0°C, many days during winter.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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	1028	5.3	470	6.0	10.8	99	5.5	5.4
29...	1030	1028	89203	43	437	150	11.0	98	5.0	5.1
JAN										
05...	1015	1028	89203	11	229	29	10.5	83	5.4	5.3
MAR										
04...	1030	1028	89203	6.4	269	15	12.8	99	5.3	5.4
APR										
21...	0930	1028	89203	5.0	428	7.2	11.3	101	5.5	5.2
JUN										
03...	0945	1028	89203	2.8	364	12	9.9	94	6.0	5.5
JUL										
21...	0930	1028	89203	3.2	400	13	10.3	100	5.4	5.0
SEP										
08...	0930	1028	89203	1.6	350	9.0	9.8	100	6.6	6.0

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...	134	11.0	6.40	6.25	4.70	4.65	.760	.745	5.00	4.95
29...	88.0	9.20	4.30	4.20	3.20	3.20	1.30	1.30	4.80	4.90
JAN										
05...	95.0	4.60	4.90	4.80	3.30	3.10	1.20	1.20	5.50	5.20
MAR										
04...	97.0	3.75	4.90	4.90	3.40	3.50	.900	1.00	5.10	5.20
APR										
21...	140	9.30	7.30	7.40	5.60	5.60	.900	.800	6.00	6.10
JUN										
03...	124	12.2	7.40	7.50	4.90	5.10	.800	1.00	6.40	6.50
JUL										
21...	171	14.3	9.50	9.90	8.20	8.40	.900	.900	6.00	5.90
SEP										
08...	161	15.3	10.8	10.5	8.40	8.40	1.00	1.00	6.90	7.10

SWATARA CREEK BASIN

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Silica, water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water unfltrd mg/L (00946)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)
OCT										
01...	2.60	--	8.43	<.010	6.02	6.02	41.1	48.0	.040	<.030
29...	2.80	--	5.49	<.010	--	--	23.8	--	.090	<.030
JAN										
05...	2.00	--	7.98	<.010	--	--	24.1	--	.130	<.030
MAR										
04...	2.50	--	8.15	--	--	--	26.8	--	--	--
APR										
21...	3.20	--	9.42	--	--	--	42.7	--	--	--
JUN										
03...	2.30	--	10.9	--	--	--	36.8	--	--	--
JUL										
21...	1.20	--	8.77	--	--	--	51.7	--	.060	--
SEP										
08...	2.40	--	10.4	<.010	--	--	53.9	--	.120	<.030

Date	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	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)	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)
OCT									
01...	<.020	<.001	<.001	270	625	<.020	<.020	<.200	<.200
29...	<.020	--	--	600	1000	--	--	--	--
JAN									
05...	<.020	--	--	200	500	--	--	--	--
MAR									
04...	--	--	--	300	600	--	--	--	--
APR									
21...	--	--	--	400	700	--	--	--	--
JUN									
03...	--	--	--	200	700	--	--	--	--
JUL									
21...	--	--	--	400	900	--	--	--	--
SEP									
08...	<.020	--	--	<100	500	--	--	--	--

Date	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)	Bromine water unfltrd mg/L (71871)	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)
OCT									
01...	32.5	32.0	.340	.500	<.010	<.010	.070	.230	.220
29...	--	--	--	--	--	--	.070	--	--
JAN									
05...	--	--	--	--	--	--	.040	--	--
MAR									
04...	--	--	--	--	--	--	--	--	--
APR									
21...	--	--	--	--	--	--	--	--	--
JUN									
03...	--	--	--	--	--	--	--	--	--
JUL									
21...	--	--	--	--	--	--	--	--	--
SEP									
08...	--	--	--	--	--	--	.060	--	--

SWATARA CREEK BASIN

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	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)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover -able, µg/L (01042)
OCT										
01...	1.60	1.80	.028	.026	<1.00	<1.00	14.5	14.0	2.90	3.30
29...	--	--	--	--	--	--	--	--	--	--
JAN										
05...	--	--	--	--	--	--	--	--	--	--
MAR										
04...	--	--	--	--	--	--	--	--	--	--
APR										
21...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
JUL										
21...	--	--	--	--	--	--	--	--	--	--
SEP										
08...	--	--	--	--	--	--	--	--	--	--

Date	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)	Gallium water, fltrd, µg/L (01120)	Gallium water, unfltrd µg/L (01122)
OCT										
01...	.120	.160	.069	.098	.028	.038	.130	.170	<.020	<.020
29...	--	--	--	--	--	--	--	--	--	--
JAN										
05...	--	--	--	--	--	--	--	--	--	--
MAR										
04...	--	--	--	--	--	--	--	--	--	--
APR										
21...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
JUL										
21...	--	--	--	--	--	--	--	--	--	--
SEP										
08...	--	--	--	--	--	--	--	--	--	--

Date	German-ium, water, fltrd, µg/L (01125)	German-ium, water, unfltrd µg/L (01127)	Holmium water, fltrd, µg/L (50577)	Holmium water unfltrd µg/L (01247)	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)
OCT										
01...	<.020	<.020	.027	.033	340	605	.890	.980	.310	.650
29...	--	--	--	--	310	850	--	--	--	--
JAN										
05...	--	--	--	--	390	570	--	--	--	--
MAR										
04...	--	--	--	--	140	280	--	--	--	--
APR										
21...	--	--	--	--	360	650	--	--	--	--
JUN										
03...	--	--	--	--	100	450	--	--	--	--
JUL										
21...	--	--	--	--	60.0	370	--	--	--	--
SEP										
08...	--	--	--	--	80.0	300	--	--	--	--

SWATARA CREEK BASIN

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	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)	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)
OCT										
01...	5.45	5.55	390	389	.052	.044	.800	.950	26.5	26.0
29...	--	--	310	330	--	--	--	--	15.0	20.0
JAN										
05...	--	--	330	320	--	--	--	--	12.0	14.0
MAR										
04...	--	--	290	300	--	--	--	--	15.0	15.0
APR										
21...	--	--	360	380	--	--	--	--	30.0	30.0
JUN										
03...	--	--	350	360	--	--	--	--	25.0	25.0
JUL										
21...	--	--	500	510	--	--	--	--	37.0	37.0
SEP										
08...	--	--	350	350	--	--	--	--	30.0	30.0

Date	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)	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)
OCT										
01...	.200	.240	<.020	<.020	1.30	1.30	.140	.170	<.200	<.200
29...	--	--	--	--	--	--	--	--	--	--
JAN										
05...	--	--	--	--	--	--	--	--	--	--
MAR										
04...	--	--	--	--	--	--	--	--	--	--
APR										
21...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
JUL										
21...	--	--	--	--	--	--	--	--	--	--
SEP										
08...	--	--	--	--	--	--	--	--	--	--

Date	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)	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)
OCT										
01...	.120	.051	26.5	26.0	.021	.030	<.050	<.050	<.020	<.020
29...	--	--	--	--	--	--	--	--	--	--
JAN										
05...	--	--	--	--	--	--	--	--	--	--
MAR										
04...	--	--	--	--	--	--	--	--	--	--
APR										
21...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
JUL										
21...	--	--	--	--	--	--	--	--	--	--
SEP										
08...	--	--	--	--	--	--	--	--	--	--

SWATARA CREEK BASIN

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	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)	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)
OCT										
01...	.010	.015	.040	.031	<.100	<.100	.067	.091	.620	.770
29...	--	--	--	--	--	--	--	--	--	--
JAN										
05...	--	--	--	--	--	--	--	--	--	--
MAR										
04...	--	--	--	--	--	--	--	--	--	--
APR										
21...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
JUL										
21...	--	--	--	--	--	--	--	--	--	--
SEP										
08...	--	--	--	--	--	--	--	--	--	--

Date	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...	70.5	70.5	.038	.053
29...	53.0	54.0	--	--
JAN				
05...	51.0	53.0	--	--
MAR				
04...	50.0	50.0	--	--
APR				
21...	80.0	95.0	--	--
JUN				
03...	70.0	65.0	--	--
JUL				
21...	49.0	53.0	--	--
SEP				
08...	80.0	75.0	--	--

SWATARA CREEK BASIN

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	11.0	10.0	10.5	11.5	9.5	10.5	7.0	5.5	6.5	4.5	3.5	4.0
2	10.0	9.0	9.5	12.0	10.5	11.5	5.5	3.5	5.0	5.5	3.5	4.5
3	9.5	7.5	8.5	12.5	10.5	11.5	4.0	3.0	3.5	7.0	5.0	6.0
4	9.5	9.0	9.0	12.5	10.5	11.5	4.5	2.5	3.5	7.0	5.0	6.5
5	9.5	8.0	8.5	11.5	11.0	11.5	4.0	2.5	4.0	5.0	4.5	5.0
6	9.0	7.0	8.0	11.5	11.0	11.5	3.0	2.0	2.5	4.5	2.0	3.5
7	9.5	6.5	8.0	11.0	9.0	10.0	2.5	1.5	2.0	2.0	1.5	1.5
8	11.0	8.0	9.5	9.0	5.5	7.5	3.0	1.5	2.0	2.5	1.5	2.0
9	12.0	9.5	10.5	6.0	4.5	5.5	3.5	2.5	3.0	2.5	0.0	1.5
10	13.0	10.5	11.5	6.0	3.5	5.0	4.5	3.0	4.0	0.0	0.0	0.0
11	12.5	10.5	11.5	7.0	4.5	5.5	6.0	4.5	5.5	1.0	0.0	0.5
12	12.5	10.0	11.0	9.0	7.0	8.0	5.5	5.0	5.5	2.5	1.0	2.0
13	12.0	10.5	11.5	9.0	5.5	7.5	5.0	4.5	4.5	3.0	1.0	2.5
14	11.0	9.5	10.5	6.0	5.0	5.5	4.5	3.0	3.5	1.0	0.0	0.0
15	11.5	9.5	11.0	7.0	5.5	6.0	4.5	3.0	4.0	0.0	0.0	0.0
16	10.0	8.5	9.5	7.0	5.5	6.5	4.5	3.0	4.0	0.0	0.0	0.0
17	9.5	9.0	9.5	8.0	7.0	7.5	5.0	3.5	4.5	0.5	0.0	0.0
18	9.5	8.0	9.0	8.0	6.5	7.0	3.5	3.0	3.0	1.5	0.5	1.0
19	10.5	8.5	9.0	11.0	8.0	9.5	4.0	3.0	3.5	1.0	0.5	0.5
20	9.5	7.0	8.5	9.5	7.5	8.5	3.5	2.5	3.0	1.0	0.0	0.5
21	11.5	9.0	10.0	9.0	7.0	8.0	3.0	2.0	2.5	1.0	0.0	0.5
22	10.5	8.0	9.5	9.0	7.5	8.0	4.5	2.5	3.5	1.5	0.0	0.5
23	8.0	6.0	7.0	9.0	7.0	8.0	5.0	4.0	4.5	0.0	0.0	0.0
24	7.5	5.5	6.5	9.0	6.5	8.0	5.0	4.5	4.5	0.0	0.0	0.0
25	8.5	5.5	7.0	6.5	5.5	6.0	5.0	4.0	4.5	0.0	0.0	0.0
26	10.5	8.0	9.5	6.5	5.0	5.5	5.0	4.0	4.5	0.0	0.0	0.0
27	11.5	9.5	11.0	7.0	5.5	6.5	5.0	4.0	4.5	0.5	0.0	0.0
28	9.5	8.5	9.0	9.0	7.0	7.5	5.0	3.5	4.0	0.5	0.0	0.5
29	9.5	9.0	9.5	7.0	6.0	6.0	5.0	3.5	4.5	0.5	0.0	0.5
30	10.0	8.5	9.0	6.5	6.0	6.0	5.0	4.0	4.5	0.5	0.0	0.0
31	10.5	8.5	9.5	---	---	---	4.5	3.5	4.0	0.0	0.0	0.0
MONTH	13.0	5.5	9.4	12.5	3.5	7.9	7.0	1.5	4.0	7.0	0.0	1.4

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	0.0	0.0	0.0	3.5	1.5	2.5	6.5	6.0	6.0	13.5	10.0	11.5
2	1.0	0.0	0.5	4.5	2.5	3.0	6.0	5.5	6.0	13.0	11.5	12.0
3	0.5	0.0	0.0	5.0	2.5	3.5	6.0	5.5	5.5	12.5	9.0	10.5
4	1.5	0.5	1.0	4.5	3.5	4.0	5.5	3.5	5.0	10.0	7.5	9.0
5	1.0	0.0	0.5	5.0	4.0	4.5	5.5	2.5	3.5	10.0	8.0	9.0
6	0.5	0.0	0.0	6.5	4.5	5.5	6.0	2.5	4.0	11.5	7.5	9.5
7	1.5	0.5	1.0	6.0	4.0	5.0	8.5	4.5	6.5	12.5	10.0	11.0
8	0.5	0.0	0.0	5.0	4.0	4.5	6.0	4.5	5.5	11.5	9.5	10.5
9	1.0	0.0	0.5	4.0	3.0	3.5	8.0	5.0	6.5	12.5	9.0	10.5
10	2.5	1.0	1.5	4.5	3.0	3.5	8.5	4.0	6.5	14.0	10.5	12.0
11	2.0	0.5	1.5	5.5	2.5	4.0	6.0	5.0	5.5	14.5	11.5	13.0
12	2.0	0.0	1.0	4.5	2.5	3.5	6.5	5.5	5.5	14.5	12.0	13.0
13	2.5	1.0	1.5	4.0	2.0	3.0	6.0	5.0	5.5	15.0	12.5	13.5
14	2.0	0.5	1.0	3.5	1.5	2.5	6.5	6.0	6.5	14.5	13.0	13.5
15	1.5	0.0	0.5	6.0	3.0	4.5	8.0	5.5	6.5	15.5	12.5	14.0
16	0.0	0.0	0.0	3.5	1.0	2.0	8.5	5.0	6.5	15.0	13.0	14.0
17	0.5	0.0	0.0	3.5	1.5	2.0	10.5	6.5	8.0	14.0	12.0	13.0
18	1.5	0.0	0.5	4.5	1.5	2.5	12.0	8.0	10.0	15.0	13.5	14.0
19	2.5	0.0	1.0	4.0	1.5	2.5	12.5	8.5	10.5	14.0	13.0	13.5
20	3.0	0.5	1.5	5.0	1.0	3.0	12.0	9.5	10.5	13.0	12.0	12.5
21	3.0	1.5	2.0	4.5	2.5	3.5	12.0	9.0	10.0	14.5	12.5	13.5
22	3.0	1.0	1.5	3.5	1.0	2.0	12.5	9.5	11.0	16.0	13.5	14.5
23	3.0	0.5	1.5	4.5	0.5	2.5	11.0	10.0	10.5	17.0	14.0	15.5
24	1.5	0.5	1.5	5.5	2.0	3.5	12.5	9.0	10.5	16.5	14.5	15.5
25	2.0	0.0	0.5	5.5	4.0	4.5	9.5	8.0	8.5	16.0	14.0	15.0
26	2.0	0.0	1.0	8.0	4.5	6.0	9.5	8.0	8.5	15.0	14.0	14.5
27	3.0	0.0	1.5	9.0	6.5	7.5	10.5	8.0	9.0	15.0	14.0	14.5
28	3.5	0.0	1.5	9.5	6.5	7.5	9.5	6.0	8.0	15.0	13.5	14.5
29	4.5	1.0	2.5	8.5	5.5	7.0	12.0	7.0	9.5	13.5	11.5	12.5
30	---	---	---	6.0	4.5	5.0	12.5	8.5	10.5	13.5	10.0	11.5
31	---	---	---	7.0	5.0	6.0	---	---	---	12.5	12.0	12.0
MONTH	4.5	0.0	0.9	9.5	0.5	4.0	12.5	2.5	7.5	17.0	7.5	12.7

SWATARA CREEK BASIN

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	14.0	11.5	12.5	15.5	13.0	14.5	17.5	16.0	16.5	16.5	15.5	16.5
2	14.0	11.5	13.0	16.5	13.5	15.0	17.5	16.0	17.0	16.5	14.5	15.5
3	14.0	12.0	13.0	16.5	14.0	15.0	17.5	16.0	16.5	16.0	14.0	15.0
4	13.5	11.0	12.5	15.5	14.5	15.0	17.0	15.5	16.5	16.0	14.0	15.0
5	12.5	11.5	12.0	17.5	15.5	16.5	17.0	15.5	16.5	16.0	14.0	15.0
6	12.0	11.5	12.0	17.5	15.5	16.5	17.0	15.0	16.0	15.0	14.5	15.0
7	14.0	11.0	12.5	16.5	15.0	16.0	15.0	13.5	14.0	16.5	14.0	15.0
8	14.5	12.0	13.5	17.0	15.5	16.0	14.0	13.0	13.5	16.0	15.0	15.5
9	16.0	13.0	14.5	16.0	15.0	15.5	14.5	12.5	13.5	17.0	16.0	16.5
10	14.5	14.0	14.0	16.5	14.0	15.5	15.5	13.5	14.5	16.5	15.0	16.0
11	14.0	12.5	13.0	17.5	15.0	16.0	16.0	14.0	15.0	16.0	14.5	15.5
12	13.5	11.0	12.5	17.5	16.0	16.5	16.5	15.0	15.5	15.5	14.0	15.0
13	12.5	11.5	12.0	16.5	15.5	16.0	16.0	15.0	15.5	16.0	14.0	15.0
14	14.5	12.0	13.0	16.5	15.0	15.5	16.0	15.5	16.0	15.5	14.5	15.0
15	15.5	13.5	14.5	16.0	14.5	15.5	15.5	14.5	15.0	15.5	14.5	15.0
16	16.0	14.5	15.0	15.5	14.0	14.5	15.0	14.5	14.5	15.5	15.0	15.0
17	16.5	14.5	15.5	15.5	14.0	14.5	15.5	13.5	14.5	15.5	14.5	15.0
18	17.0	15.5	16.0	15.5	14.0	15.0	15.0	13.5	14.5	16.5	12.5	14.5
19	16.0	14.0	15.0	14.5	14.0	14.5	15.5	14.0	14.5	12.5	11.5	12.0
20	14.5	12.5	13.5	15.0	14.0	14.5	15.5	14.5	15.0	13.0	11.0	12.0
21	14.5	11.5	13.0	16.0	14.0	15.0	17.0	15.0	16.0	13.5	11.5	12.5
22	14.5	13.5	14.0	16.5	14.0	15.5	16.5	15.0	16.0	14.0	12.0	13.0
23	15.5	14.0	14.5	16.5	14.5	15.5	15.0	13.5	14.5	14.5	12.5	13.5
24	16.0	13.5	14.5	17.0	15.5	16.0	15.5	13.0	14.0	14.5	13.0	14.0
25	15.5	14.0	15.0	16.5	15.0	16.0	15.5	14.5	15.0	14.5	13.0	14.0
26	15.5	14.0	15.0	16.0	14.5	15.5	15.5	15.0	15.0	14.5	13.0	14.0
27	15.0	12.5	14.0	15.5	14.5	15.0	15.5	14.5	15.0	14.0	12.0	13.0
28	14.0	12.5	13.5	15.5	14.5	15.0	16.5	15.0	15.5	15.5	13.5	14.5
29	15.0	13.0	14.0	16.0	15.0	15.5	17.0	15.5	16.0	15.0	13.5	14.0
30	15.0	12.5	14.0	16.5	14.5	15.5	17.5	16.0	16.5	14.0	12.0	13.5
31	---	---	---	16.5	15.0	15.5	17.0	16.0	16.5	---	---	---
MONTH	17.0	11.0	13.7	17.5	13.0	15.4	17.5	12.5	15.3	17.0	11.0	14.5
YEAR	17.5	0.0	8.9									

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 439-497.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	16	9.8	8.3	4.0	3.3	4.8	6.6	5.5	e4.5	3.5	3.9
2	9.0	15	9.3	8.4	4.2	2.3	5.3	7.6	5.2	e5.0	2.8	3.3
3	9.1	13	9.7	8.2	3.1	3.2	5.6	7.8	6.0	4.1	4.0	4.4
4	8.9	13	10	7.6	3.8	3.9	4.9	7.4	5.4	2.8	3.6	3.6
5	8.5	12	9.3	6.8	4.0	3.3	5.1	8.6	4.9	2.8	2.7	3.0
6	7.4	11	8.8	7.5	3.5	4.0	5.6	9.3	6.3	3.5	3.9	4.0
7	7.3	9.8	9.0	7.6	3.0	5.1	5.0	9.0	5.7	3.8	3.9	3.5
8	7.1	8.4	8.4	7.1	3.2	5.3	e6.0	8.6	6.6	3.8	2.7	2.7
9	6.7	8.8	7.6	7.5	4.0	6.3	e6.5	8.9	7.3	2.5	3.7	4.2
10	7.0	8.7	8.2	7.9	2.8	6.1	e5.4	8.5	6.7	3.1	3.9	3.5
11	5.8	7.9	9.7	7.9	3.2	5.7	e5.6	7.5	7.3	3.5	2.7	2.8
12	6.4	7.7	15	7.0	3.8	6.5	e6.3	8.1	7.5	2.7	3.4	4.0
13	6.1	7.9	18	7.5	2.6	6.4	5.2	7.7	6.7	3.8	4.4	3.4
14	5.2	7.1	18	7.5	3.3	5.8	6.0	6.4	6.7	3.8	3.8	2.5
15	6.0	7.5	17	6.5	3.7	6.4	8.2	7.1	7.0	2.9	4.4	3.8
16	6.3	6.7	15	6.4	2.5	5.9	9.0	6.8	6.1	4.0	5.7	3.1
17	5.4	6.6	13	6.7	3.0	5.9	9.2	5.6	5.6	4.0	5.1	2.3
18	5.9	7.0	12	5.9	3.8	6.2	9.7	6.2	6.2	3.1	5.5	17
19	6.3	6.4	11	5.4	2.4	5.1	9.7	6.3	5.7	4.4	6.1	30
20	5.2	6.5	9.6	5.9	3.1	5.4	9.5	5.6	4.5	4.0	5.2	30
21	5.8	8.1	8.7	5.3	3.5	5.8	9.0	5.0	5.4	3.2	5.3	28
22	6.0	8.6	8.6	4.6	2.2	4.6	8.5	5.8	4.6	4.5	5.8	26
23	5.8	9.1	8.1	5.4	2.9	5.3	7.9	5.3	4.9	4.0	4.9	23
24	6.1	10	8.0	4.9	3.5	5.6	7.0	4.7	5.0	3.1	4.7	19
25	6.3	9.8	7.6	3.9	2.2	4.9	7.0	5.6	3.8	4.2	5.4	16
26	6.3	8.5	9.7	5.1	2.9	5.2	7.2	5.2	4.7	3.8	4.6	13
27	5.9	9.0	11	5.1	3.3	5.8	6.7	4.5	4.5	2.9	4.3	11
28	8.1	9.1	10	3.7	2.2	5.1	6.2	5.6	3.4	4.2	5.0	11
29	12	8.4	11	4.4	3.0	5.2	7.2	5.3	e4.8	3.5	4.3	10
30	14	9.0	10	4.7	---	5.8	7.2	4.7	e4.9	2.7	3.8	10
31	15	---	9.7	3.3	---	5.2	---	5.9	---	4.0	4.7	---
TOTAL	231.9	276.6	330.8	194.0	92.7	160.6	206.5	207.2	168.9	112.2	133.8	302.0
MEAN	7.48	9.22	10.7	6.26	3.20	5.18	6.88	6.68	5.63	3.62	4.32	10.1
MAX	15	16	18	8.4	4.2	6.5	9.7	9.3	7.5	5.0	6.1	30
MIN	5.2	6.4	7.6	3.3	2.2	2.3	4.8	4.5	3.4	2.5	2.7	2.3

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2004, BY WATER YEAR (WY)

MEAN	3.50	4.50	7.14	5.15	3.97	7.16	8.75	6.97	6.86	4.00	3.87	4.59
MAX	7.48	9.22	10.7	7.23	4.49	11.5	9.97	10.6	12.4	5.54	7.15	10.1
(WY)	2004	2004	2004	2003	2001	2003	2003	2002	2003	2003	2003	2004
MIN	1.49	1.23	2.62	3.01	3.20	5.18	6.88	4.65	4.34	2.47	1.51	1.25
(WY)	2002	2002	2002	2002	2004	2004	2004	2001	2001	2002	2002	2002

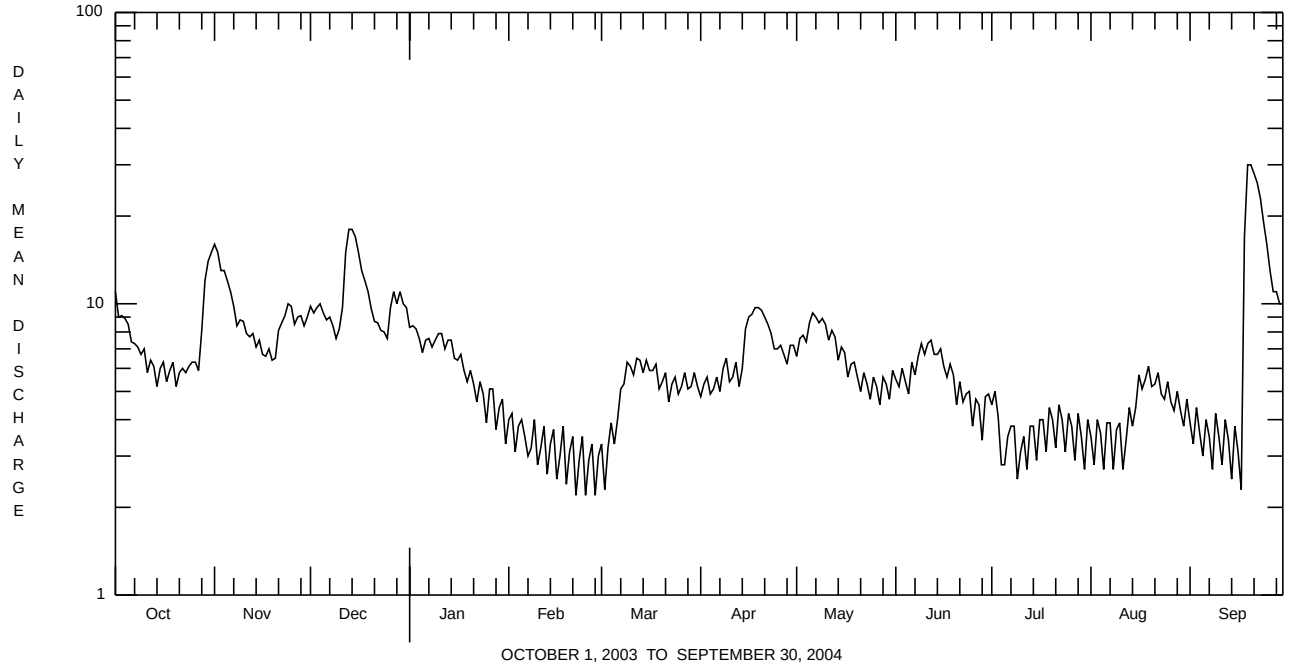
e Estimated.

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2000 - 2004	
ANNUAL TOTAL	3002.2		2417.2			
ANNUAL MEAN	8.23		6.60		5.59	
HIGHEST ANNUAL MEAN					7.22	2003
LOWEST ANNUAL MEAN					4.01	2002
HIGHEST DAILY MEAN	30	Mar 23	30	Sep 19,20	30	Mar 23 2003
LOWEST DAILY MEAN	2.9	Feb 19,22,Aug 3	2.2	Feb 22,25,28	0.59	Nov 23 2001**a**
ANNUAL SEVEN-DAY MINIMUM	3.4	Feb 19	2.7	Feb 22	1.00	Nov 17 2001
MAXIMUM PEAK FLOW			31	Sep 19	31	Sep 19 2004
MAXIMUM PEAK STAGE			2.32	Sep 19	2.32	Sep 19 2004
INSTANTANEOUS LOW FLOW			2.2	Feb 22**b**	0.59	Nov 17 2001**c**
10 PERCENT EXCEEDS	13		10		10	
50 PERCENT EXCEEDS	7.2		5.8		4.7	
90 PERCENT EXCEEDS	4.2		3.2		1.9	

a Also Sept. 13, 2002.
b Also Feb. 23-26, 28, 29, Sept. 16, 17.
c Also Nov. 18, 20-24, 2001, Sept. 12-15, 19, 2002.



SWATARA CREEK BASIN

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 good except for periods Dec. 30 to Feb. 20, and Mar. 4-29, which are fair. pH records rated good except for period Mar. 4 to June 7, which is fair and Aug. 3 to Sept. 7, 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 439-497. Figure 10 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, 613 microsiemens, Sept. 18; minimum, 203 microsiemens, Sept. 18.
pH: Maximum, 6.2, Sept. 7-11; minimum, 4.6, Oct. 16, Nov. 2-4, Sept. 18.
WATER TEMPERATURE: Maximum, 13.5°C, July 12, Sept. 18; minimum 11.0°C, several days in Feb.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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										
26...	2100	1028	89203	6.3	--	--	--	--	5.1	4.7
27...	0500	1028	89203	5.4	--	--	--	--	5.0	5.9
27...	1500	1028	89203	6.1	--	--	--	--	5.3	5.7
28...	0500	1028	89203	6.5	--	--	--	--	5.2	4.7
28...	0900	1028	89203	7.7	--	--	--	--	5.1	4.8
28...	1430	1028	89203	8.6	438	26	9.7	90	4.9	4.9
NOV										
19...	0800	1028	89203	7.0	--	--	--	--	5.3	4.1
19...	1100	1028	89203	5.8	--	--	--	--	5.6	4.0
19...	1700	1028	89203	6.1	--	--	--	--	5.7	5.7
20...	0200	1028	89203	6.1	--	--	--	--	5.7	5.5
24...	1430	1028	89203	10	440	32	10.0	92	5.3	5.1
DEC										
30...	1500	1028	89203	10	374	26	9.2	85	5.2	5.1
MAR										
01...	1500	1028	89203	4.0	403	15	10.5	98	5.4	5.3
APR										
12...	1700	1028	89203	6.3	--	--	--	--	5.4	5.2
13...	1100	1028	89203	6.1	--	--	--	--	5.4	5.1
13...	2300	1028	89203	6.1	--	--	--	--	5.4	5.8
14...	1400	1028	89203	6.5	--	--	--	--	5.5	5.7
14...	1700	1028	89203	7.0	--	--	--	--	5.4	5.6
20...	1345	1028	89203	10	401	23	9.9	92	5.3	5.4
JUN										
02...	1415	1028	89203	5.6	340	11	9.8	91	5.5	6.2
JUL										
14...	0630	1028	89203	4.9	--	--	--	--	5.0	4.7
14...	1030	1028	89203	4.7	--	--	--	--	5.0	4.8
14...	1430	1028	89203	4.9	--	--	--	--	5.0	4.7
14...	1630	1028	89203	4.9	--	--	--	--	5.0	5.0
14...	1830	1028	89203	4.9	--	--	--	--	5.0	5.8
14...	2230	1028	89203	3.8	--	--	--	--	5.0	5.9
19...	1500	1028	89203	5.4	369	10	10.1	95	5.2	5.7
AUG										
12...	1200	1028	89203	4.9	--	--	--	--	5.3	4.3
12...	1500	1028	89203	3.8	--	--	--	--	5.3	5.7
12...	2100	1028	89203	4.9	--	--	--	--	5.4	4.4
13...	0000	1028	89203	5.1	--	--	--	--	5.3	4.5
13...	1200	1028	89203	5.4	--	--	--	--	5.1	4.3
SEP										
13...	1430	1028	89203	3.6	316	8.0	10.4	97	5.9	6.0

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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										
26...	276	12.1	12.7	12.8	20.6	20.9	1.20	1.20	2.90	3.30
27...	274	11.9	10.0	10.2	18.6	19.1	1.10	1.10	1.10	1.90
27...	258	11.8	11.6	11.7	27.0	27.6	1.30	1.30	2.00	3.40
28...	308	11.6	13.4	13.5	28.8	29.0	1.30	1.30	2.80	3.80
28...	335	11.8	12.5	12.5	25.3	25.4	1.30	1.30	3.80	2.80
28...	338	11.8	--	--	--	--	--	--	--	--
NOV										
19...	272	12.1	9.60	9.70	21.0	21.4	1.00	1.00	1.70	1.70
19...	254	11.9	8.80	9.00	17.0	17.6	.900	.900	1.60	1.70
19...	243	11.8	10.6	10.9	18.5	19.0	1.00	1.00	1.60	1.70
20...	282	11.7	11.2	11.6	19.0	19.7	1.00	1.00	1.70	1.70
24...	259	11.9	9.50	9.60	17.1	17.2	.900	.900	3.40	3.50
DEC										
30...	262	11.8	10.0	9.80	19.0	18.8	1.20	1.20	3.30	3.20
MAR										
01...	335	12.1	14.6	14.7	24.6	24.7	1.30	1.30	3.10	3.40
APR										
12...	265	12.0	12.7	12.8	21.5	21.6	1.30	1.30	3.30	3.40
13...	270	11.9	12.6	12.5	20.0	19.9	1.20	1.30	3.20	3.00
13...	264	11.7	10.5	10.7	21.3	21.8	1.20	1.30	3.30	3.40
14...	297	11.6	11.7	11.6	26.3	26.7	1.40	1.40	3.60	3.50
14...	302	11.6	11.7	11.7	26.5	26.6	1.40	1.40	3.60	3.80
20...	269	12.0	11.5	11.3	18.8	18.5	1.20	1.20	3.70	3.60
JUN										
02...	256	12.0	10.5	10.4	21.0	21.2	1.20	1.20	3.20	3.10
JUL										
14...	431	12.2	18.6	18.1	38.2	35.5	1.20	1.20	3.90	3.60
14...	426	12.2	18.8	17.8	37.3	35.3	1.20	1.20	3.90	3.60
14...	420	12.2	16.5	16.5	32.4	32.4	1.20	1.20	3.30	3.20
14...	417	12.2	17.1	17.5	34.3	35.3	1.20	1.20	3.60	3.60
14...	409	12.3	14.5	14.3	36.5	37.2	1.10	1.20	3.70	3.60
14...	409	11.9	15.0	14.6	40.3	39.4	1.20	1.20	3.70	3.70
19...	364	12.2	14.4	14.5	25.8	27.1	1.20	1.30	3.10	3.40
AUG										
12...	331	12.2	15.0	14.9	25.3	25.7	1.30	1.30	3.50	3.50
12...	327	12.2	11.5	11.9	24.3	24.9	1.10	1.20	3.40	3.30
12...	321	12.2	15.2	15.0	27.3	27.6	1.40	1.30	3.70	3.60
13...	333	12.2	14.1	14.9	25.9	26.6	1.30	1.30	3.40	3.60
13...	372	12.2	16.3	16.3	32.5	32.8	1.40	1.40	3.70	3.80
SEP										
13...	308	12.1	13.8	13.8	24.6	25.2	1.20	1.20	3.90	3.80

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
26...	.900	3.20	<.010	115	.010	<.030	<.020	200	600	.060
27...	7.90	3.31	<.010	97.7	<.010	<.030	<.020	<100	400	.030
27...	5.20	3.10	<.010	134	.010	<.030	<.020	<100	700	.050
28...	1.10	3.26	<.010	153	.010	<.030	<.020	700	1500	.060
28...	1.90	3.21	<.010	133	.010	<.030	<.020	500	1100	.060
28...	2.80	--	--	--	--	--	--	--	--	--
NOV										
19...	.000	5.82	<.010	113	<.010	<.030	<.020	200	500	.040
19...	.000	5.77	<.010	93.8	<.010	<.030	<.020	<100	400	.050
19...	4.80	8.68	<.010	106	<.010	<.030	<.020	600	600	.090
20...	3.60	6.93	<.010	111	<.010	<.030	<.020	600	700	.060
24...	3.00	3.49	<.010	106	<.010	<.030	<.020	600	800	.080
DEC										
30...	2.40	3.45	<.010	109	<.010	<.030	<.020	600	800	.120
MAR										
01...	3.50	3.08	--	142	--	--	--	500	900	--
APR										
12...	2.30	3.08	<.010	119	.020	<.030	<.020	<100	1100	.020
13...	2.30	3.06	<.010	113	.020	<.030	<.020	<100	1900	.020
13...	7.50	3.36	<.010	110	.010	<.030	<.020	<100	400	.010
14...	4.50	3.47	.010	134	.020	<.030	<.020	<100	1500	.020
14...	3.30	3.50	<.010	134	.020	<.030	<.020	<100	1600	.020
20...	4.30	3.64	--	110	--	--	--	500	800	--
JUN										
02...	14.8	3.48	--	108	--	--	--	200	800	--
JUL										
14...	1.20	3.57	--	168	.020	--	--	300	700	--
14...	.800	3.20	--	165	.020	--	--	300	800	--
14...	1.40	2.95	--	154	.020	--	--	200	600	--
14...	1.50	3.20	--	164	.010	--	--	200	700	--
14...	5.20	3.59	--	159	.010	--	--	<100	600	--
14...	5.60	3.62	--	171	.020	--	--	<100	700	--
19...	4.90	3.24	--	140	.030	--	--	300	--	--
AUG										
12...	.000	3.50	<.010	131	.020	<.030	<.020	500	900	.090
12...	3.20	3.80	<.010	113	.020	<.030	<.020	<100	600	.060
12...	.000	3.65	<.010	135	.010	<.030	<.020	500	800	.070
13...	.000	3.57	<.010	132	.020	<.030	<.020	500	900	.080
13...	.000	3.53	<.010	158	.030	<.030	<.020	600	1000	.100
SEP										
13...	11.6	3.93	.010	125	.050	<.030	<.020	<100	700	.030

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	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								
26...	1300	5200	1940	1940	74.0	75.0	194	188
27...	2200	5860	1750	1770	57.0	57.0	126	127
27...	3200	6330	1740	1760	70.0	70.0	161	159
28...	3480	8340	1920	1950	90.0	93.0	229	230
28...	3300	5980	1850	1880	88.0	86.0	216	226
28...	--	--	--	--	--	--	--	--
NOV								
19...	3190	4830	1580	1610	58.0	52.0	152	160
19...	3030	4760	1600	1640	57.0	58.0	136	135
19...	320	2750	1730	1770	65.0	69.0	165	172
20...	240	2700	1780	1830	69.0	69.0	188	192
24...	2620	4210	1560	1590	60.0	69.0	218	182
DEC								
30...	2840	4510	1630	1620	74.0	73.0	210	204
MAR								
01...	4720	5710	2080	2090	75.0	75.0	190	190
APR								
12...	1050	8450	1890	1900	70.0	70.0	160	165
13...	960	15000	1890	1910	70.0	70.0	160	160
13...	3140	5530	1790	1790	60.0	65.0	120	125
14...	3260	8870	1850	1860	75.0	75.0	165	170
14...	3360	9290	1870	1830	80.0	80.0	170	175
20...	4090	5340	1470	1470	75.0	75.0	205	205
JUN								
02...	7000	7740	1740	1760	60.0	60.0	115	115
JUL								
14...	2470	5980	1520	1510	95.0	85.0	230	215
14...	2660	7000	1560	1520	95.0	90.0	225	210
14...	2350	5860	1450	1450	85.0	80.0	200	195
14...	2680	6630	1500	1490	85.0	85.0	200	210
14...	3920	7330	1410	1420	70.0	70.0	145	145
14...	4540	7600	1360	1380	75.0	75.0	160	145
19...	4470	5050	1880	1900	85.0	85.0	106	111
AUG								
12...	130	8470	1570	1590	80.0	80.0	195	195
12...	110	8510	1440	1480	60.0	60.0	105	110
12...	180	6950	1610	1590	80.0	85.0	210	210
13...	110	7950	1570	1580	75.0	80.0	180	190
13...	110	7540	1620	1640	85.0	90.0	205	210
SEP								
13...	7090	7970	2000	2020	65.0	60.0	135	140

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 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	274	261	270	262	256	258	272	263	268	262	246	250
2	262	257	260	256	253	254	264	248	255	268	247	261
3	279	258	271	254	240	244	266	247	257	268	265	266
4	285	279	283	256	253	254	266	261	263	268	249	262
5	285	281	282	259	241	253	264	246	257	288	250	261
6	284	259	269	263	259	260	262	244	249	294	288	291
7	288	259	275	268	246	261	263	261	262	293	285	289
8	288	259	277	253	249	251	269	250	263	285	260	268
9	289	259	275	275	252	272	264	247	250	276	258	266
10	290	286	288	277	272	274	270	263	266	277	273	274
11	287	257	264	275	252	263	365	269	321	273	270	271
12	290	257	280	275	252	261	361	283	320	271	253	256
13	289	260	283	281	261	277	283	267	273	274	255	268
14	264	251	257	281	257	266	267	256	261	274	272	273
15	318	264	299	284	280	282	256	249	253	274	259	266
16	323	314	320	281	260	270	250	247	248	277	259	267
17	318	293	305	278	258	267	247	236	243	279	276	278
18	302	288	295	281	273	277	254	236	246	276	262	272
19	302	297	300	279	241	262	258	254	255	268	259	261
20	297	274	283	309	271	289	258	243	250	281	268	278
21	281	270	275	307	282	294	261	243	253	282	278	281
22	284	265	273	282	249	265	265	261	263	278	271	273
23	283	259	271	264	245	252	266	263	264	280	273	277
24	284	264	277	264	258	261	296	264	276	285	279	282
25	284	282	283	263	259	261	286	280	283	281	267	274
26	282	276	279	262	244	246	289	276	283	291	267	282
27	290	254	268	266	246	262	276	266	271	291	288	290
28	342	290	325	267	262	263	266	250	257	289	266	274
29	325	287	296	273	258	262	263	248	256	291	265	277
30	289	263	280	275	259	268	264	260	261	294	291	293
31	265	256	261	---	---	---	262	261	262	294	272	282
MONTH	342	251	281	309	240	264	365	236	264	294	246	273

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	297	270	280	---	---	---	280	255	260	260	253	255
2	299	297	298	---	---	---	285	258	277	275	253	272
3	298	267	282	---	---	---	286	283	284	295	272	290
4	301	266	282	---	---	---	283	256	267	295	271	278
5	304	301	303	340	294	312	280	255	269	283	268	279
6	304	279	291	305	282	293	278	272	275	280	273	277
7	300	275	288	304	274	298	272	243	254	274	255	266
8	321	275	292	293	270	280	---	---	---	268	252	257
9	325	321	324	293	288	291	---	---	---	268	266	268
10	325	300	314	289	261	277	---	---	---	273	262	268
11	323	295	304	269	258	261	---	---	---	262	249	252
12	328	323	327	281	268	277	---	---	---	271	249	268
13	327	305	318	282	274	279	273	263	267	272	249	261
14	321	298	305	278	257	266	308	263	289	251	229	230
15	331	321	327	283	256	278	310	280	296	255	229	249
16	331	316	326	284	257	274	280	253	265	261	237	254
17	316	303	309	284	256	269	254	244	248	242	237	240
18	330	314	325	289	283	286	264	243	254	268	239	257
19	330	313	324	289	262	271	270	260	264	269	267	268
20	---	---	---	288	261	275	270	268	270	269	244	261
21	---	---	---	307	288	297	271	269	270	265	242	246
22	---	---	---	309	289	296	270	268	269	267	264	266
23	---	---	---	314	290	305	270	267	269	265	239	256
24	---	---	---	317	313	315	270	247	254	258	236	240
25	---	---	---	315	289	302	272	247	262	264	258	262
26	---	---	---	310	288	295	281	268	274	268	232	260
27	---	---	---	312	310	311	290	270	281	260	232	253
28	---	---	---	311	290	305	291	271	277	288	258	281
29	---	---	---	291	284	286	291	277	288	290	279	288
30	---	---	---	289	285	288	285	259	279	279	270	272
31	---	---	---	286	258	274	---	---	---	283	271	280
MONTH	331	266	306	340	256	287	310	243	270	295	229	263

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 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	277	264	274	---	---	---	357	352	354	325	321	322
2	269	256	259	---	---	---	363	357	360	322	296	306
3	276	269	274	316	294	314	369	363	366	324	296	317
4	281	274	276	294	282	284	370	328	360	324	304	319
5	281	271	276	306	278	283	355	347	352	304	295	297
6	305	271	288	317	275	297	369	353	365	325	296	318
7	317	305	310	324	317	321	364	341	359	326	289	312
8	314	304	308	321	315	318	341	326	333	290	287	289
9	304	290	296	316	277	294	342	325	334	331	290	324
10	290	268	274	314	275	291	342	331	340	335	303	320
11	283	266	277	315	304	312	331	313	316	331	301	305
12	283	277	280	336	250	287	333	312	323	335	329	332
13	279	259	267	439	336	404	401	333	369	333	300	318
14	276	257	266	436	409	423	402	372	391	303	297	300
15	276	273	275	427	410	417	372	341	354	333	298	328
16	276	252	264	440	421	430	341	323	332	327	286	313
17	272	250	254	421	387	406	324	292	305	286	273	282
18	278	272	275	387	360	372	307	289	298	613	203	423
19	280	261	278	365	358	362	307	303	306	363	266	296
20	261	255	257	362	343	359	304	275	288	266	235	252
21	284	254	276	344	330	336	303	274	288	238	231	234
22	284	257	271	349	330	345	312	303	309	232	230	231
23	296	261	283	347	336	345	313	291	304	237	229	233
24	300	296	298	336	325	328	305	291	294	241	237	239
25	299	276	280	352	334	349	314	305	310	247	241	244
26	297	279	284	351	339	348	316	305	313	254	247	251
27	306	297	303	339	321	327	305	293	297	258	254	256
28	306	296	303	354	324	351	315	295	310	293	256	267
29	---	---	---	357	329	350	316	302	313	314	287	306
30	---	---	---	330	328	329	302	288	293	312	288	300
31	---	---	---	353	328	346	322	298	316	---	---	---
MONTH	317	250	280	440	250	342	402	274	327	613	203	294
YEAR	613	203	287									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	5.7	5.4	5.4	4.8	4.8	4.8	5.2	5.2	5.2	5.8	5.5	5.8
2	5.7	5.6	5.7	4.8	4.6	4.7	5.4	5.2	5.4	5.8	5.4	5.5
3	5.7	5.3	5.4	4.8	4.6	4.8	5.5	5.2	5.3	5.5	5.4	5.5
4	5.3	5.2	5.3	5.4	4.6	4.7	5.3	5.2	5.2	5.9	5.5	5.6
5	5.3	5.2	5.3	5.6	5.3	5.4	5.5	5.3	5.3	5.9	5.4	5.9
6	5.6	5.2	5.6	5.4	5.4	5.4	5.6	5.4	5.6	5.4	5.4	5.4
7	5.6	5.0	5.1	5.7	5.4	5.4	5.4	5.3	5.3	5.5	5.4	5.5
8	5.5	5.0	5.1	5.8	5.6	5.8	5.5	5.3	5.3	5.8	5.5	5.7
9	5.5	4.9	5.1	5.8	5.3	5.4	5.6	5.4	5.5	5.7	5.3	5.7
10	5.0	4.9	5.0	5.4	5.3	5.4	5.5	5.3	5.4	5.3	5.2	5.3
11	5.5	5.0	5.5	5.6	5.4	5.5	5.4	4.7	5.1	5.3	5.3	5.3
12	5.5	4.8	4.9	5.6	5.2	5.6	5.2	5.0	5.1	5.5	5.3	5.5
13	5.2	4.8	4.9	5.2	5.2	5.2	5.3	5.0	5.2	5.6	5.3	5.3
14	5.3	5.2	5.3	5.4	5.2	5.4	5.1	5.0	5.1	5.4	5.3	5.3
15	5.2	4.7	4.9	5.4	5.3	5.3	5.2	5.1	5.1	5.6	5.4	5.5
16	4.8	4.6	4.7	5.4	5.3	5.4	5.3	5.2	5.2	5.6	5.4	5.6
17	5.2	4.8	5.0	5.5	5.2	5.4	5.5	5.2	5.3	5.4	5.3	5.4
18	5.3	4.8	5.2	5.4	5.2	5.3	5.5	5.2	5.3	5.5	5.4	5.4
19	4.9	4.8	4.8	5.7	5.3	5.7	5.3	5.2	5.3	5.6	5.5	5.6
20	5.3	4.8	5.2	5.7	5.0	5.6	5.6	5.3	5.3	5.5	5.4	5.4
21	5.3	5.0	5.2	5.3	5.1	5.2	5.6	5.2	5.4	5.5	5.4	5.4
22	5.4	5.0	5.3	5.6	5.2	5.3	5.3	5.1	5.2	5.7	5.5	5.6
23	5.4	5.0	5.1	5.6	5.2	5.6	5.2	5.0	5.1	5.7	5.5	5.6
24	5.4	5.1	5.2	5.3	5.2	5.2	5.1	5.0	5.1	5.5	5.5	5.5
25	5.1	5.0	5.1	5.4	5.3	5.3	5.2	5.1	5.2	5.6	5.5	5.6
26	5.1	5.0	5.1	5.7	5.4	5.7	5.2	4.9	5.0	5.6	5.6	5.6
27	5.4	5.0	5.3	5.7	5.3	5.4	5.1	5.0	5.1	5.6	5.5	5.5
28	5.3	4.8	5.0	5.4	5.4	5.4	5.3	5.1	5.2	5.5	5.5	5.5
29	4.8	4.8	4.8	5.6	5.4	5.6	5.3	5.2	5.2	5.6	5.5	5.6
30	4.9	4.8	4.8	5.6	5.2	5.3	5.5	5.2	5.2	5.5	5.5	5.5
31	4.9	4.8	4.9	---	---	---	5.5	5.5	5.5	5.5	5.4	5.4
MAX	5.7	5.6	5.7	5.8	5.6	5.8	5.6	5.5	5.6	5.9	5.6	5.9
MIN	4.8	4.6	4.7	4.8	4.6	4.7	5.1	4.7	5.0	5.3	5.2	5.3

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		FEBRUARY			MARCH			APRIL			MAY	
1	5.5	5.4	5.5	---	---	---	6.0	5.6	6.0	5.2	5.1	5.2
2	5.5	5.4	5.5	---	---	---	5.9	5.5	5.6	5.2	4.9	4.9
3	5.4	5.4	5.4	---	---	---	5.6	5.5	5.5	4.9	4.9	4.9
4	5.4	5.4	5.4	---	---	---	5.8	5.5	5.8	5.0	4.9	5.0
5	5.4	5.4	5.4	6.0	5.5	6.0	5.8	5.3	5.5	5.0	4.8	4.9
6	5.4	5.4	5.4	6.0	5.6	6.0	5.4	5.3	5.4	4.9	4.8	4.8
7	5.4	5.4	5.4	6.0	5.6	5.7	5.7	5.4	5.6	4.9	4.8	4.9
8	5.4	5.4	5.4	6.1	5.7	6.0	---	---	---	5.0	4.9	5.0
9	5.4	5.4	5.4	5.7	5.7	5.7	---	---	---	5.0	4.9	4.9
10	5.4	5.3	5.4	6.0	5.7	5.7	---	---	---	4.9	4.8	4.9
11	5.4	5.3	5.4	6.0	5.8	5.9	---	---	---	5.0	4.9	5.0
12	5.4	5.4	5.4	5.9	5.7	5.7	---	---	---	5.0	4.9	5.0
13	5.4	5.4	5.4	5.7	5.6	5.7	5.4	5.4	5.4	5.5	4.9	4.9
14	5.4	5.3	5.4	5.9	5.7	5.8	5.5	5.4	5.5	5.7	5.4	5.7
15	5.4	5.4	5.4	5.8	5.4	5.5	5.4	5.1	5.2	5.7	5.4	5.5
16	5.4	5.3	5.4	5.8	5.4	5.5	5.5	5.2	5.4	5.8	5.5	5.5
17	5.4	5.3	5.3	5.9	5.5	5.8	5.5	5.4	5.5	5.8	5.7	5.8
18	5.4	5.3	5.4	5.5	5.5	5.5	5.6	5.4	5.5	5.7	5.3	5.4
19	5.4	5.3	5.3	5.8	5.5	5.7	5.4	5.3	5.4	5.5	5.3	5.4
20	---	---	---	5.9	5.6	5.8	5.3	5.3	5.3	5.7	5.4	5.4
21	---	---	---	5.6	5.5	5.6	5.3	5.3	5.3	5.7	5.3	5.7
22	---	---	---	5.7	5.6	5.7	5.3	5.2	5.3	5.3	5.2	5.2
23	---	---	---	5.8	5.6	5.7	5.3	5.3	5.3	5.5	5.2	5.3
24	---	---	---	5.6	5.5	5.5	5.6	5.3	5.5	5.6	5.4	5.6
25	---	---	---	5.5	5.5	5.5	5.6	5.2	5.3	5.4	5.2	5.2
26	---	---	---	5.7	5.5	5.7	5.2	5.2	5.2	5.2	5.2	5.2
27	---	---	---	5.7	5.6	5.7	5.4	5.2	5.2	5.5	5.2	5.4
28	---	---	---	5.7	5.6	5.6	5.4	5.0	5.4	5.6	5.5	5.5
29	---	---	---	5.7	5.5	5.6	5.0	4.9	4.9	5.6	5.5	5.5
30	---	---	---	5.7	5.6	5.6	5.1	4.9	4.9	5.6	5.5	5.6
31	---	---	---	6.0	5.7	5.7	---	---	---	5.6	5.5	5.6
MAX	5.5	5.4	5.5	6.1	5.8	6.0	6.0	5.6	6.0	5.8	5.7	5.8
MIN	5.4	5.3	5.3	5.5	5.4	5.5	5.0	4.9	4.9	4.9	4.8	4.8

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	5.5	5.4	5.5	---	---	---	5.5	5.5	5.5	5.9	5.9	5.9
2	5.6	5.4	5.5	---	---	---	5.5	5.5	5.5	5.9	5.8	5.9
3	5.7	5.6	5.7	5.8	5.6	5.7	5.7	5.5	5.5	6.0	5.8	5.9
4	5.7	5.6	5.6	6.0	5.8	5.9	6.0	5.6	5.7	6.0	5.9	6.0
5	5.7	5.6	5.6	6.0	5.6	5.9	6.1	6.0	6.0	6.0	5.8	6.0
6	5.7	5.6	5.7	5.8	5.5	5.6	6.0	5.3	5.5	6.0	5.9	6.0
7	5.9	5.6	5.8	5.5	5.4	5.5	5.5	5.3	5.4	6.2	6.0	6.1
8	5.9	5.5	5.6	5.4	5.4	5.4	5.6	5.5	5.5	6.2	6.2	6.2
9	5.6	5.5	5.6	5.4	5.4	5.4	5.7	5.3	5.4	6.2	5.6	5.7
10	5.9	5.6	5.9	5.5	5.3	5.4	5.4	5.3	5.4	6.2	5.8	5.8
11	5.9	5.6	5.6	5.3	5.1	5.2	5.5	5.4	5.4	6.2	5.6	6.1
12	5.7	5.5	5.6	5.2	5.1	5.2	5.7	5.2	5.4	5.6	5.5	5.6
13	5.8	5.6	5.8	5.3	5.0	5.2	5.3	5.0	5.1	6.1	5.6	5.6
14	5.8	5.5	5.8	5.0	4.9	5.0	5.2	5.0	5.0	6.0	5.9	6.0
15	5.6	5.4	5.5	5.1	4.9	5.0	5.4	5.2	5.3	5.9	5.2	5.3
16	5.8	5.6	5.7	5.2	5.0	5.2	5.3	5.0	5.1	5.7	5.3	5.3
17	5.8	5.5	5.8	5.2	5.0	5.1	5.3	5.1	5.3	5.7	5.6	5.7
18	5.5	5.4	5.4	5.2	5.0	5.1	5.4	5.3	5.4	5.7	4.6	5.0
19	5.4	5.4	5.4	5.3	5.2	5.2	5.5	5.4	5.5	5.2	5.0	5.0
20	5.6	5.4	5.6	5.3	5.1	5.2	5.6	5.5	5.6	5.3	5.2	5.2
21	5.6	5.4	5.5	5.2	5.1	5.2	5.6	5.5	5.5	5.4	5.2	5.3
22	5.5	5.4	5.4	5.3	5.1	5.2	5.6	5.5	5.6	5.2	5.2	5.2
23	5.6	5.5	5.5	5.3	5.2	5.3	5.7	5.6	5.6	5.3	5.2	5.2
24	5.5	5.4	5.4	5.4	5.2	5.3	5.7	5.7	5.7	5.3	5.2	5.2
25	5.4	5.3	5.4	5.5	5.1	5.4	5.7	5.6	5.7	5.2	5.2	5.2
26	5.5	5.4	5.5	5.2	5.1	5.2	5.7	5.5	5.6	5.2	5.1	5.2
27	5.6	5.5	5.6	5.4	5.2	5.3	5.8	5.6	5.6	5.2	5.1	5.1
28	5.6	5.6	5.6	5.4	5.3	5.4	5.8	5.8	5.8	5.1	5.0	5.1
29	---	---	---	5.4	5.4	5.4	5.8	5.7	5.8	5.0	4.9	4.9
30	---	---	---	5.4	5.4	5.4	5.8	5.8	5.8	4.9	4.9	4.9
31	---	---	---	5.5	5.4	5.5	5.9	5.8	5.9	---	---	---
MAX	5.9	5.6	5.9	6.0	5.8	5.9	6.1	6.0	6.0	6.2	6.2	6.2
MIN	5.4	5.3	5.4	5.0	4.9	5.0	5.2	5.0	5.0	4.9	4.6	4.9

YEAR			
	MAX	MAXIMUM 6.2	MINIMUM 4.8
	MIN	MAXIMUM 6.2	MINIMUM 4.6
	MEDIAN	MAXIMUM 6.2	MINIMUM 4.7

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	11.5	11.5
2	12.0	11.5	12.0	12.0	12.0	12.0	12.0	11.5	11.5	12.0	11.5	11.5
3	12.0	11.5	12.0	12.0	11.5	12.0	12.0	11.5	11.5	12.0	12.0	12.0
4	12.0	12.0	12.0	12.0	12.0	12.0	12.0	11.5	12.0	12.0	11.5	12.0
5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	11.5	11.5	12.0	11.5	11.5
6	12.0	11.5	12.0	12.0	12.0	12.0	11.5	11.5	11.5	12.0	11.5	11.5
7	12.0	11.5	12.0	12.0	11.5	12.0	12.0	11.5	11.5	11.5	11.5	11.5
8	12.0	12.0	12.0	11.5	11.5	11.5	12.0	11.5	11.5	11.5	11.5	11.5
9	12.0	12.0	12.0	12.0	11.5	12.0	12.0	11.5	11.5	11.5	11.5	11.5
10	12.0	12.0	12.0	12.0	11.5	12.0	12.0	12.0	12.0	11.5	11.5	11.5
11	12.0	12.0	12.0	12.0	11.5	12.0	12.0	11.5	11.5	12.0	11.5	12.0
12	12.0	12.0	12.0	12.0	11.5	12.0	11.5	11.5	11.5	12.0	11.5	11.5
13	12.0	12.0	12.0	12.0	11.5	12.0	11.5	11.5	11.5	12.0	11.5	11.5
14	12.0	12.0	12.0	12.0	11.5	11.5	11.5	11.5	11.5	12.0	11.5	12.0
15	12.0	11.5	12.0	12.0	12.0	12.0	11.5	11.5	11.5	12.0	11.5	11.5
16	12.0	12.0	12.0	12.0	11.5	12.0	11.5	11.5	11.5	12.0	11.5	11.5
17	12.0	11.5	12.0	12.0	11.5	12.0	11.5	11.5	11.5	12.0	12.0	12.0
18	12.0	11.5	12.0	12.0	12.0	12.0	11.5	11.5	11.5	12.0	11.5	12.0
19	12.0	12.0	12.0	12.0	11.5	12.0	11.5	11.5	11.5	12.0	11.5	11.5
20	12.0	11.5	11.5	12.0	11.5	11.5	11.5	11.5	11.5	12.0	12.0	12.0
21	12.0	12.0	12.0	12.0	12.0	12.0	11.5	11.5	11.5	12.0	11.5	12.0
22	12.0	12.0	12.0	12.0	11.5	12.0	12.0	11.5	12.0	11.5	11.5	11.5
23	12.0	11.5	12.0	12.0	11.5	12.0	12.0	12.0	12.0	12.0	11.5	12.0
24	12.0	11.5	12.0	12.0	12.0	12.0	12.0	11.5	12.0	12.0	11.5	12.0
25	12.0	12.0	12.0	12.0	12.0	12.0	11.5	11.5	11.5	11.5	11.5	11.5
26	12.0	12.0	12.0	12.0	11.5	11.5	11.5	11.5	11.5	12.0	11.5	12.0
27	12.0	11.5	12.0	12.0	11.5	12.0	11.5	11.5	11.5	12.0	11.5	12.0
28	12.0	11.5	11.5	12.0	12.0	12.0	11.5	11.5	11.5	12.0	11.5	11.5
29	12.0	12.0	12.0	12.0	11.5	11.5	12.0	11.5	11.5	12.0	11.5	11.5
30	12.0	11.5	12.0	12.0	11.5	11.5	12.0	11.5	12.0	12.0	12.0	12.0
31	12.0	11.5	12.0	---	---	---	12.0	11.5	12.0	12.0	11.5	11.5
MONTH	12.0	11.5	12.0	12.0	11.5	11.9	12.0	11.5	11.6	12.0	11.5	11.7

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	12.0	11.5	11.5	12.0	12.0	12.0	12.0	11.5	12.0	12.0	12.0	12.0
2	12.0	12.0	12.0	12.0	11.5	11.5	12.0	11.5	12.0	12.0	12.0	12.0
3	12.0	11.0	11.5	---	---	---	12.0	12.0	12.0	12.0	12.0	12.0
4	12.0	11.5	11.5	---	---	---	12.0	11.5	12.0	12.0	11.5	11.5
5	12.0	11.5	12.0	12.0	11.5	12.0	12.0	11.5	11.5	12.0	11.5	12.0
6	12.0	11.0	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
7	12.0	11.0	11.5	12.0	11.5	12.0	12.0	11.5	12.0	12.0	12.0	12.0
8	11.5	11.0	11.5	12.0	11.5	11.5	---	---	---	12.0	11.5	12.0
9	12.0	11.5	12.0	12.0	12.0	12.0	---	---	---	12.0	12.0	12.0
10	12.0	11.5	11.5	12.0	11.5	12.0	---	---	---	12.0	12.0	12.0
11	11.5	11.5	11.5	12.0	11.5	11.5	---	---	---	12.0	12.0	12.0
12	12.0	11.5	12.0	12.0	11.5	12.0	---	---	---	12.0	12.0	12.0
13	12.0	11.5	11.5	12.0	11.5	12.0	12.0	11.5	12.0	12.0	12.0	12.0
14	12.0	11.0	11.5	11.5	11.5	11.5	12.0	11.5	11.5	12.0	12.0	12.0
15	12.0	11.5	11.5	12.0	11.5	12.0	12.0	11.5	12.0	12.0	12.0	12.0
16	11.5	11.0	11.0	12.0	11.5	11.5	12.0	11.5	11.5	12.0	12.0	12.0
17	12.0	11.0	11.5	12.0	11.5	11.5	12.0	11.5	12.0	12.0	12.0	12.0
18	12.0	11.5	12.0	12.0	11.5	12.0	12.0	11.5	12.0	12.0	12.0	12.0
19	12.0	11.5	11.5	12.0	11.5	11.5	12.0	12.0	12.0	12.0	12.0	12.0
20	12.0	11.5	11.5	12.0	11.5	11.5	12.0	12.0	12.0	12.0	12.0	12.0
21	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
22	12.0	11.0	11.5	12.0	11.5	11.5	12.0	12.0	12.0	12.0	12.0	12.0
23	12.0	11.0	11.5	12.0	11.5	11.5	12.0	12.0	12.0	12.5	12.0	12.0
24	12.0	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
25	11.5	11.0	11.0	12.0	11.5	12.0	12.0	11.5	12.0	12.5	12.0	12.0
26	12.0	11.0	11.5	12.0	11.5	12.0	12.0	12.0	12.0	12.5	12.0	12.0
27	12.0	11.5	12.0	12.0	12.0	12.0	12.0	11.5	12.0	12.0	12.0	12.0
28	11.5	11.0	11.5	12.0	11.5	12.0	12.0	11.5	11.5	12.0	12.0	12.0
29	12.0	11.5	11.5	12.0	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0
30	---	---	---	12.0	12.0	12.0	12.0	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	11.0	11.6	12.0	11.5	11.8	12.0	11.5	11.9	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 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	12.5	12.0	12.0	---	---	---	12.5	12.0	12.0	12.5	12.0	12.0
2	12.0	12.0	12.0	---	---	---	12.0	12.0	12.0	12.0	12.0	12.0
3	12.5	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0
4	12.5	12.0	12.0	12.0	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0
5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
6	12.0	12.0	12.0	12.5	12.0	12.0	12.0	12.0	12.0	12.5	12.0	12.0
7	12.0	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0
8	12.0	12.0	12.0	12.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
9	12.0	12.0	12.0	12.0	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0
10	12.0	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0
11	12.0	12.0	12.0	12.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
12	12.0	12.0	12.0	13.5	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0
13	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.5	12.0	12.0
14	12.0	12.0	12.0	12.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
15	12.0	12.0	12.0	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	12.5	12.0	12.0
17	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
18	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	13.5	11.5	12.0
19	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	11.5	11.5	11.5
20	12.0	12.0	12.0	12.5	12.0	12.0	12.0	12.0	12.0	12.0	11.5	11.5
21	12.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	11.5	12.0
22	12.0	12.0	12.0	12.0	12.0	12.0	12.5	12.0	12.0	12.0	12.0	12.0
23	12.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
24	12.5	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	12.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
27	12.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
28	12.0	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0	12.0	12.0	12.0
29	---	---	---	12.5	12.0	12.0	12.5	12.0	12.0	12.0	12.0	12.0
30	---	---	---	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
31	---	---	---	12.5	12.0	12.0	12.0	12.0	12.0	---	---	---
MONTH	12.5	12.0	12.0	13.5	12.0	12.0	12.5	12.0	12.0	13.5	11.5	12.0
YEAR	13.5	11.0	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 439-497.

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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Dec. 11	1145	77	2.09	Sept. 18	0300	*578	***a**4.21
July 12	1130	174	2.77	Sept. 28	1715	73	2.14

a From floodmark.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e11	e26	20	25	8.3	7.1	14	11	11	5.7	11	7.0
2	e9.0	e24	20	24	8.7	8.4	14	13	9.4	6.4	9.3	6.2
3	e8.0	e30	19	24	8.2	11	13	24	9.6	6.5	10	7.3
4	e9.0	e28	19	26	8.9	12	12	19	8.9	5.0	9.9	6.6
5	e8.0	26	19	29	8.3	11	12	20	15	4.9	10	5.9
6	e7.0	26	18	25	11	14	13	20	18	5.3	9.3	6.9
7	e6.0	24	18	23	11	15	12	19	14	5.8	8.9	6.3
8	e6.0	20	16	22	9.1	16	13	18	13	5.7	7.5	5.7
9	e5.0	19	15	22	9.0	16	13	18	13	4.4	8.1	8.5
10	e5.0	17	18	21	7.5	14	12	17	12	4.8	8.1	6.6
11	e6.0	15	53	20	7.6	14	12	15	14	5.1	6.6	5.2
12	e5.0	15	43	19	8.0	14	14	15	13	26	9.4	6.4
13	e6.0	16	39	19	6.8	14	24	14	12	11	14	5.7
14	e5.0	15	38	18	6.9	12	22	12	11	12	9.3	4.9
15	e20	15	35	16	7.1	13	20	14	12	11	9.0	6.2
16	e7.0	13	31	15	5.9	12	19	15	10	9.0	9.8	5.8
17	e6.0	13	30	16	6.2	12	18	11	9.8	8.2	9.0	5.3
18	e5.0	13	28	15	6.8	12	17	14	10	7.6	9.3	e450
19	e5.0	20	26	13	5.6	11	16	12	9.4	8.5	9.9	e150
20	e4.5	22	23	14	6.9	12	15	11	7.8	7.5	9.1	e50
21	e5.0	19	22	13	8.2	14	14	10	8.5	6.4	12	e40
22	e6.0	19	21	12	6.8	12	13	11	9.6	7.3	10	e35
23	e5.0	19	21	12	7.0	11	13	9.6	9.2	8.8	9.1	e30
24	e6.0	20	31	11	7.5	11	11	8.7	8.4	7.0	8.5	24
25	e5.0	21	26	9.9	5.9	11	11	9.4	6.9	7.4	9.2	20
26	e8.0	18	26	11	6.2	11	17	11	8.0	6.8	8.3	17
27	e40	18	26	11	6.5	11	14	15	7.5	8.1	7.8	14
28	e25	22	25	9.0	5.3	10	12	11	6.2	9.2	8.6	31
29	e39	23	25	9.5	6.3	10	12	9.8	7.7	7.3	7.7	24
30	e30	20	26	9.8	---	11	12	8.9	7.1	6.1	7.0	18
31	e28	---	28	8.1	---	11	---	11	---	7.4	7.9	---
TOTAL	340.5	596	805	522.3	217.5	373.5	434	427.4	312.0	242.2	283.6	1009.5
MEAN	11.0	19.9	26.0	16.8	7.50	12.0	14.5	13.8	10.4	7.81	9.15	33.6
MAX	40	30	53	29	11	16	24	24	18	26	14	450
MIN	4.5	13	15	8.1	5.3	7.1	11	8.7	6.2	4.4	6.6	4.9

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2004, BY WATER YEAR (WY)

MEAN	5.87	9.97	13.8	10.2	7.40	16.4	15.2	11.6	12.2	5.75	6.21	11.1
MAX	11.0	19.9	26.0	16.8	9.82	24.7	19.5	16.4	23.7	7.81	12.4	33.6
(WY)	2004	2004	2004	2004	2001	2000	2000	2002	2003	2004	2003	2004
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

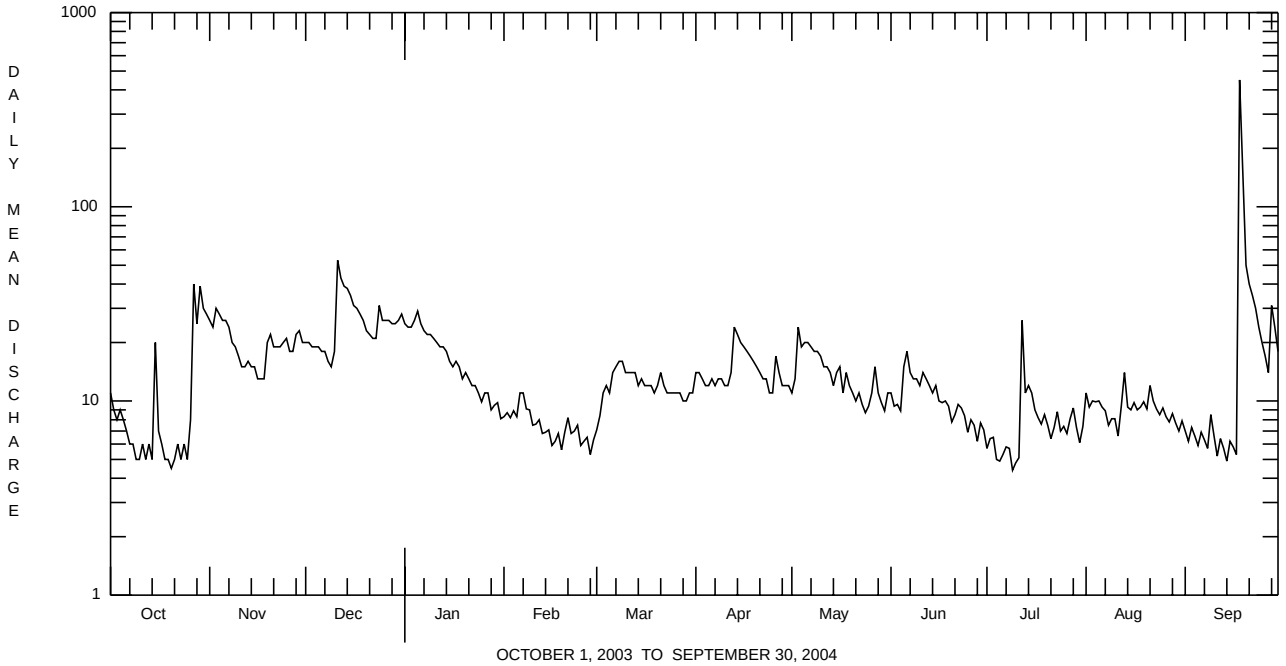
e Estimated.

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2000 - 2004	
ANNUAL TOTAL	5615.4		5563.5			
ANNUAL MEAN	15.4		15.2		10.6	
HIGHEST ANNUAL MEAN					15.2	2004
LOWEST ANNUAL MEAN					5.97	2002
HIGHEST DAILY MEAN	65	Mar 21	**e**450	Sep 18	**e**450	Sep 18 2004
LOWEST DAILY MEAN	3.3	Jul 31	4.4	Jul 9	1.2	Sep 7 2002**b**
ANNUAL SEVEN-DAY MINIMUM	4.0	Jul 28	5.1	Jul 4	1.5	Sep 7 2002
MAXIMUM PEAK FLOW			**c**578	Sep 18	**c**578	Sep 18 2004
MAXIMUM PEAK STAGE			**a**4.21	Sep 18	**a**4.21	Sep 18 2004
10 PERCENT EXCEEDS	27		25		21	
50 PERCENT EXCEEDS	13		11		8.1	
90 PERCENT EXCEEDS	5.0		6.0		2.8	

a From floodmark.
b Also Sept. 10, 13, 2002.
c From rating extended above 46 ft^3/s.
e Estimated.



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, 2, Nov. 10-17, July 16 to Aug. 3, Aug. 27 to Sept. 7, and Sept. 18-23, which are poor. pH records rated good except for periods Oct. 1, 2, Apr. 19 to May 13, which are fair, and Aug. 20 to Sept. 30, which are 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 the Swatara Creek Project presented in tables on pages 439-497. Figure 10 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, 43, microsiemens, Sept, 18, 2004.
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, 325, microsiemens, July 11; minimum 43, microsiemens, Sept. 18.
pH: Maximum, 7.3, Sept. 7-9; minimum, 4.5, Oct. 30.
WATER TEMPERATURE: Maximum, 19.5°C, Aug. 2; minimum 2.0°C, Feb. 16.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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										
26...	2200	1028	89203	--	--	--	--	--	--	4.5
28...	0400	1028	89203	--	--	--	--	--	--	4.5
28...	1000	1028	89203	--	--	--	--	--	--	4.4
28...	1015	1028	89203	22	440	15	11.2	100	4.8	5.2
NOV										
19...	0300	1028	89203	12	--	--	--	--	5.9	4.2
19...	1500	1028	89203	20	--	--	--	--	5.9	4.2
19...	1800	1028	89203	26	--	--	--	--	5.7	4.4
19...	2100	1028	89203	34	--	--	--	--	5.7	4.4
20...	0300	1028	89203	26	--	--	--	--	5.6	4.1
20...	1200	1028	89203	19	--	--	--	--	5.7	4.4
24...	1045	1028	89203	18	388	20	11.0	98	5.0	4.9
DEC										
30...	1115	1028	89203	24	347	17	11.4	98	5.0	5.0
MAR										
01...	1045	1028	89203	6.4	365	7.0	12.1	100	6.1	6.0
APR										
20...	1015	1028	89203	18	369	19	11.0	100	5.8	5.6
JUN										
02...	1030	1028	89203	7.7	238	10	10.4	99	6.2	6.3
JUL										
14...	0900	1028	89203	8.3	--	--	--	--	5.5	4.4
14...	1100	1028	89203	8.3	--	--	--	--	5.5	4.6
14...	1500	1028	89203	11	--	--	--	--	5.5	4.6
14...	1505	1028	89203	--	--	--	--	--	--	--
14...	1900	1028	89203	25	--	--	--	--	5.6	4.7
14...	2300	1028	89203	17	--	--	--	--	5.5	4.9
15...	0500	1028	89203	13	--	--	--	--	5.7	5.0
19...	1030	1028	89203	8.7	337	10	10.4	101	5.4	6.0
AUG										
12...	1300	1028	89203	6.1	--	--	--	--	5.4	5.4
12...	1600	1028	89203	13	--	--	--	--	5.5	5.4
12...	1900	1028	89203	8.3	--	--	--	--	5.8	4.8
12...	2200	1028	89203	11	--	--	--	--	5.6	5.3
13...	0100	1028	89203	15	--	--	--	--	5.6	5.1
13...	1300	1028	89203	11	--	--	--	--	5.4	4.6
13...	1600	1028	89203	9.9	--	--	--	--	5.4	4.7
SEP										
13...	1030	1028	89203	4.8	266	10	10.4	101	6.3	5.9

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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										
26...	--	--	10.4	10.7	14.2	14.5	1.20	1.20	3.80	2.80
28...	--	--	6.20	6.30	8.10	8.30	.900	.800	2.80	1.00
28...	--	--	7.20	7.30	9.80	9.90	.900	.900	1.60	.800
28...	135	9.90	--	--	--	--	--	--	--	--
NOV										
19...	184	10.8	6.00	6.10	8.00	8.20	.700	.600	1.10	1.10
19...	172	12.3	5.20	5.40	6.60	6.80	.600	.700	1.00	1.10
19...	90.0	10.8	4.60	4.70	5.00	5.10	.700	.700	1.20	1.20
19...	82.0	10.7	4.60	4.80	4.60	4.90	.700	.700	1.50	1.50
20...	101	10.1	5.00	5.30	5.20	5.40	.700	.700	1.50	1.60
20...	122	10.0	9.80	10.0	12.9	13.1	.800	.800	1.30	1.30
24...	184	10.4	8.30	7.70	12.3	11.4	.800	.700	4.10	3.80
DEC										
30...	189	8.53	8.40	8.30	12.9	13.0	1.00	.900	2.20	2.60
MAR										
01...	217	7.20	12.2	12.4	14.9	15.0	1.00	1.00	2.50	3.10
APR										
20...	191	11.7	9.30	9.30	12.7	12.7	.900	.900	3.00	2.90
JUN										
02...	168	13.1	8.60	9.00	13.5	13.9	.900	1.00	2.50	2.50
JUL										
14...	166	14.6	13.2	12.7	20.5	19.9	.900	.800	3.00	2.60
14...	170	14.7	12.6	12.1	18.4	17.6	.900	.900	3.20	3.00
14...	138	15.4	10.9	10.3	15.4	14.9	.800	.800	2.60	2.70
14...	--	--	10.0	10.4	14.4	14.6	.800	.800	2.80	2.80
14...	78.0	16.8	6.90	6.70	7.80	7.50	.600	.600	2.50	2.40
14...	77.0	16.4	7.90	7.50	11.5	11.1	.600	.600	2.20	2.10
15...	95.0	15.3	6.90	6.60	8.80	8.40	.600	.600	2.00	2.10
19...	146	14.2	11.5	13.9	17.4	21.2	1.00	1.10	2.60	2.80
AUG										
12...	224	14.4	6.90	7.50	8.50	8.90	1.00	1.10	1.70	1.80
12...	115	16.9	8.10	8.40	11.1	11.3	.900	.900	2.30	2.30
12...	150	16.2	9.10	9.10	11.9	11.9	.900	.900	2.30	2.40
12...	174	15.6	7.30	7.40	8.50	8.60	.800	.800	2.20	2.20
13...	148	16.1	7.10	7.20	8.50	8.60	.700	.700	2.00	2.00
13...	170	15.6	9.70	9.80	14.6	14.8	.900	.900	2.40	2.30
13...	183	15.9	10.2	10.1	15.9	16.3	.900	.900	2.40	2.50
SEP										
13...	257	13.7	14.5	15.2	20.4	20.9	1.10	1.10	3.30	3.30

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
26...	.100	3.18	<.010	84.5	.030	<.030	<.020	400	500	.090
28...	.100	3.20	<.010	47.8	.060	<.030	<.020	300	400	.050
28...	.000	3.69	<.010	58.0	.050	<.030	<.020	400	500	.060
28...	3.00	--	--	--	--	--	--	--	--	--
NOV										
19...	.000	5.69	<.010	49.5	.050	<.030	<.020	200	400	.070
19...	.000	8.38	<.010	40.7	.060	<.030	<.020	300	400	.030
19...	.000	6.62	<.010	31.5	.080	<.030	<.020	300	400	.070
19...	.000	7.79	<.010	29.9	.100	<.030	<.020	300	400	.060
20...	.000	9.99	<.010	33.3	.100	<.030	<.020	300	400	.060
20...	.000	7.41	<.010	78.8	.030	<.030	<.020	500	600	.060
24...	1.30	2.67	<.010	76.0	.030	<.030	<.020	300	600	.060
DEC										
30...	1.80	2.73	<.010	76.2	.030	<.030	<.020	300	600	.090
MAR										
01...	3.50	3.47	--	92.2	--	--	--	<100	500	--
APR										
20...	2.10	3.13	--	79.4	--	--	--	<100	600	--
JUN										
02...	5.30	2.98	--	76.9	--	--	--	<100	600	--
JUL										
14...	.000	3.43	--	99.6	.060	--	--	300	400	--
14...	.500	3.36	--	90.5	.100	--	--	300	300	--
14...	.300	3.72	--	40.1	.100	--	--	200	400	--
14...	--	3.23	--	76.7	.090	--	--	200	500	--
14...	1.30	3.24	--	76.8	.090	--	--	200	300	--
14...	1.00	3.03	--	55.4	.080	--	--	200	300	--
15...	1.20	2.88	--	43.2	.080	--	--	200	300	--
19...	2.50	2.71	--	92.5	.030	--	--	<100	900	--
AUG										
12...	2.40	2.26	.020	45.4	.220	.030	<.020	200	1900	.030
12...	1.40	3.14	<.010	59.3	.100	<.030	<.020	<100	700	.060
12...	1.10	3.39	<.010	64.5	.070	<.030	<.020	200	600	.060
12...	2.20	2.78	<.010	47.1	.090	<.030	<.020	200	600	.070
13...	1.40	2.61	<.010	46.8	.080	<.030	<.020	200	500	.040
13...	.300	2.94	<.010	78.0	.070	<.030	<.020	300	600	.080
13...	.500	2.94	<.010	83.9	.040	<.030	<.020	400	700	.060
SEP										
13...	2.40	3.13	.010	113	.070	<.030	<.020	<100	600	.040

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	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								
26...	20.0	1000	1320	1340	46.0	53.0	141	139
28...	600	1780	570	590	33.0	22.0	80.0	70.0
28...	840	1810	700	710	29.0	33.0	96.0	90.0
28...	--	--	--	--	--	--	--	--
NOV								
19...	1080	1640	630	650	31.0	29.0	80.0	76.0
19...	900	1380	510	530	24.0	23.0	72.0	64.0
19...	590	1410	420	440	23.0	21.0	58.0	51.0
19...	520	1480	430	450	14.0	14.0	62.0	52.0
20...	590	1340	480	510	20.0	19.0	70.0	73.0
20...	420	2200	1190	1210	54.0	48.0	129	120
24...	1690	2560	1100	1030	48.0	48.0	258	145
DEC								
30...	1600	2920	1090	1110	54.0	53.0	154	151
MAR								
01...	1640	2380	1180	1190	40.0	45.0	100	100
APR								
20...	2170	3360	970	960	55.0	55.0	145	150
JUN								
02...	2650	3380	1100	1130	45.0	40.0	80.0	95.0
JUL								
14...	110	1970	880	870	55.0	55.0	145	140
14...	90.0	990	800	780	50.0	50.0	125	120
14...	120	2530	680	680	45.0	45.0	115	110
14...	130	3300	640	670	40.0	45.0	105	110
14...	490	1100	360	350	25.0	25.0	90.0	85.0
14...	1050	1720	450	450	30.0	30.0	80.0	75.0
15...	630	1320	370	360	25.0	25.0	70.0	65.0
19...	1950	3360	1210	1490	54.0	68.0	69.0	82.0
AUG								
12...	260	5130	390	630	25.0	30.0	55.0	90.0
12...	90.0	4120	660	700	30.0	35.0	60.0	70.0
12...	40.0	3040	690	690	40.0	40.0	115	120
12...	180	3020	500	530	30.0	30.0	75.0	80.0
13...	220	2200	490	500	30.0	30.0	75.0	80.0
13...	80.0	2600	720	730	45.0	45.0	105	105
13...	130	3040	780	790	45.0	50.0	115	120
SEP								
13...	3000	4000	1630	1650	60.0	65.0	140	150

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	200	192	197	179	172	176	176	173	174	189	174	178
2	202	195	199	182	178	180	178	161	168	193	175	186
3	216	200	209	184	169	173	186	162	175	193	184	190
4	217	202	208	194	184	189	187	184	186	184	131	167
5	211	205	208	195	89	164	187	163	178	165	128	136
6	212	196	203	123	58	80	184	161	170	186	165	178
7	218	195	206	131	56	85	194	183	187	192	184	188
8	220	200	213	117	111	114	199	173	187	191	174	180
9	222	197	208	142	116	133	190	170	175	194	174	181
10	228	218	222	147	140	144	207	143	185	199	194	197
11	222	196	205	150	133	141	149	68	101	200	194	197
12	227	194	214	148	129	137	152	132	144	195	175	179
13	229	204	224	162	145	155	159	145	152	193	176	188
14	204	97	194	177	149	160	160	152	157	195	193	194
15	168	85	124	195	177	188	167	155	160	194	175	184
16	195	168	186	200	181	189	165	161	162	198	176	186
17	197	161	182	193	182	188	164	143	156	200	195	197
18	193	161	176	194	189	192	166	147	157	196	178	188
19	195	192	194	189	76	146	173	166	170	195	177	181
20	195	174	178	160	89	125	177	163	169	201	195	199
21	190	173	180	172	160	167	181	163	172	203	183	198
22	188	169	179	174	159	167	188	181	184	199	180	183
23	190	171	180	179	159	165	187	178	182	212	199	208
24	193	173	187	181	157	176	192	112	144	209	189	205
25	198	193	195	176	157	168	166	133	153	189	183	186
26	196	189	193	176	162	165	185	166	181	212	180	205
27	189	76	108	187	166	182	191	184	187	212	206	209
28	146	92	129	186	110	161	189	176	182	208	181	188
29	143	96	123	147	114	135	195	177	187	211	180	198
30	161	142	153	174	146	161	195	186	190	214	210	212
31	173	152	161	---	---	---	191	186	189	214	183	191
MONTH	229	76	185	200	56	157	207	68	170	214	128	189

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	218	183	202	217	201	211	181	134	154	180	178	178
2	221	216	218	206	132	166	180	146	165	199	91	182
3	218	178	194	191	139	169	189	180	185	175	96	149
4	218	173	197	184	171	177	190	168	178	179	161	169
5	218	213	216	176	147	157	192	164	179	190	171	182
6	218	160	186	151	119	133	196	192	195	192	187	190
7	165	143	153	159	135	148	196	174	182	194	178	186
8	195	153	169	152	119	133	196	176	180	196	177	183
9	205	195	201	168	151	158	193	181	188	196	190	194
10	206	186	194	164	141	154	194	174	182	195	182	191
11	209	177	192	151	142	145	198	175	186	182	176	179
12	217	209	213	163	147	156	206	122	190	203	179	197
13	217	190	202	171	161	167	142	77	119	202	187	195
14	218	188	200	173	157	164	157	84	127	189	169	172
15	228	218	223	185	158	178	171	156	164	195	145	181
16	229	191	210	186	160	176	172	158	166	177	143	164
17	219	189	199	189	163	176	168	164	166	172	152	162
18	226	219	223	195	187	191	188	166	179	173	128	154
19	227	196	209	190	167	178	192	186	189	178	171	175
20	222	195	207	194	149	170	193	190	192	182	162	174
21	222	207	216	161	146	154	195	192	194	184	159	164
22	214	184	192	163	146	155	196	189	194	193	184	188
23	222	186	206	192	161	181	192	184	189	196	177	189
24	228	221	224	197	189	194	191	174	180	195	173	177
25	226	196	201	194	173	181	195	176	185	209	195	202
26	230	196	214	198	173	183	193	125	147	205	85	188
27	234	227	230	202	198	200	174	146	162	155	85	127
28	229	183	197	203	181	191	191	161	171	205	155	185
29	218	184	198	204	181	190	196	185	194	216	205	210
30	---	---	---	207	204	205	199	180	195	206	198	201
31	---	---	---	205	180	196	---	---	---	212	181	203
MONTH	234	143	203	217	119	172	206	77	176	216	85	180

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	196	181	187	254	229	234	249	128	187	259	234	250
2	212	183	192	276	230	256	225	135	184	254	228	233
3	226	212	219	284	270	276	224	161	205	267	254	261
4	230	215	225	279	245	250	235	110	200	265	240	256
5	215	94	161	262	240	248	177	122	153	247	229	233
6	177	111	147	301	249	275	218	176	205	270	247	262
7	190	177	186	311	293	305	225	208	219	274	239	259
8	214	188	202	311	293	302	208	196	201	239	211	229
9	218	208	212	309	271	282	240	202	225	255	171	221
10	214	191	199	321	269	293	244	225	237	264	236	247
11	202	189	196	325	314	319	225	212	216	248	236	240
12	212	202	207	319	56	148	237	121	198	289	248	280
13	211	194	201	207	101	168	220	127	175	291	261	279
14	216	194	203	221	95	173	230	214	222	261	251	257
15	211	198	205	173	105	145	241	218	225	307	250	293
16	214	199	207	213	170	197	241	235	238	307	291	304
17	205	188	197	218	204	210	238	216	225	292	214	278
18	222	205	214	204	181	189	238	213	225	214	43	115
19	226	210	221	214	183	203	238	234	236	---	---	---
20	210	201	204	219	206	213	237	188	222	---	---	---
21	235	203	223	214	205	208	196	140	168	---	---	---
22	233	143	198	233	207	224	248	196	221	---	---	---
23	229	165	204	232	160	197	244	222	233	---	---	---
24	241	228	233	205	174	189	251	223	231	162	157	159
25	230	212	215	237	202	225	252	247	250	166	161	163
26	246	208	228	242	221	235	253	229	242	175	166	170
27	252	241	246	223	149	187	249	227	232	179	174	176
28	242	210	224	210	149	191	254	248	251	182	68	128
29	250	186	224	232	210	222	251	231	244	142	90	122
30	263	249	255	229	216	222	249	226	230	151	141	147
31	---	---	---	268	226	254	260	248	254	---	---	---
MONTH	263	94	208	325	56	227	260	110	218	307	43	222
YEAR	325	43	192									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	6.1	5.6	5.6	4.8	4.6	4.7	5.0	5.0	5.0	6.1	5.3	6.0
2	6.6	6.1	6.4	4.8	4.7	4.8	5.3	5.0	5.2	6.1	5.3	5.5
3	6.7	6.1	6.3	5.2	4.8	5.1	5.3	5.0	5.1	5.7	5.4	5.6
4	6.1	5.7	6.0	5.0	4.8	4.8	5.2	5.0	5.0	6.0	5.6	5.7
5	6.0	5.6	5.8	5.5	5.0	5.0	5.4	5.2	5.2	6.1	5.5	6.0
6	6.6	5.8	6.3	5.1	5.0	5.0	5.5	5.2	5.5	5.5	5.3	5.4
7	6.6	5.6	6.4	5.6	5.0	5.0	5.2	5.1	5.1	5.6	5.4	5.5
8	6.4	5.6	5.7	6.1	5.4	6.0	5.4	5.1	5.2	6.0	5.5	6.0
9	6.5	5.8	6.4	6.0	5.0	5.1	5.6	5.4	5.5	6.1	5.6	6.0
10	5.8	5.3	5.6	5.2	5.0	5.1	5.5	5.1	5.3	5.6	5.3	5.4
11	6.3	5.5	6.2	5.8	5.1	5.1	5.6	4.8	5.0	5.4	5.3	5.4
12	6.2	5.0	5.3	5.9	5.1	5.8	4.9	4.7	4.8	6.0	5.4	5.8
13	5.6	5.0	5.0	5.1	5.0	5.0	4.9	4.8	4.9	6.1	5.5	5.7
14	6.0	5.6	5.9	5.8	5.1	5.6	4.9	4.8	4.8	5.6	5.5	5.5
15	5.8	5.0	5.2	5.2	5.1	5.2	5.0	4.9	4.9	6.1	5.6	5.8
16	5.1	4.9	5.0	5.6	5.1	5.3	5.2	5.0	5.0	6.2	5.7	6.1
17	5.6	5.0	5.4	5.6	5.1	5.5	5.8	5.2	5.2	5.7	5.6	5.6
18	5.7	4.9	5.6	5.9	5.0	5.1	5.9	5.1	5.4	5.9	5.6	5.7
19	5.1	4.9	4.9	6.2	5.6	5.8	5.1	5.0	5.0	6.0	5.7	6.0
20	5.5	5.0	5.5	5.8	5.1	5.6	5.5	5.0	5.0	5.7	5.5	5.5
21	5.6	5.0	5.3	5.2	5.0	5.0	5.6	5.0	5.5	5.7	5.5	5.5
22	5.5	5.0	5.4	5.6	5.0	5.2	5.0	4.9	5.0	6.1	5.7	6.0
23	5.5	4.9	5.0	5.8	5.1	5.6	5.0	4.9	4.9	6.1	5.9	5.9
24	5.5	5.0	5.1	5.1	5.0	5.1	5.3	4.9	5.0	5.9	5.7	5.8
25	5.0	4.9	4.9	5.2	5.1	5.1	5.1	5.0	5.0	6.0	5.8	5.9
26	5.0	4.9	5.0	5.8	5.2	5.7	5.0	4.8	4.8	6.0	5.7	5.8
27	5.5	5.0	5.1	5.8	5.2	5.3	4.9	4.8	4.9	5.7	5.6	5.6
28	5.0	4.6	4.7	5.5	5.2	5.3	5.6	4.8	5.3	5.9	5.6	5.7
29	5.0	4.7	4.8	5.5	5.3	5.5	5.6	5.0	5.1	6.0	5.8	5.9
30	4.8	4.5	4.7	5.5	5.0	5.2	5.1	4.8	5.0	5.8	5.7	5.7
31	4.8	4.6	4.8	---	---	---	5.4	5.1	5.2	5.8	5.7	5.8
MAX	6.7	6.1	6.4	6.2	5.6	6.0	5.9	5.4	5.5	6.2	5.9	6.1
MIN	4.8	4.5	4.7	4.8	4.6	4.7	4.9	4.7	4.8	5.4	5.3	5.4

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	5.9	5.7	5.8	6.2	6.1	6.1	6.7	6.4	6.6	6.0	6.0	6.0
2	5.7	5.7	5.7	6.4	6.1	6.3	6.6	6.3	6.4	6.0	5.5	5.6
3	5.8	5.6	5.7	6.3	6.0	6.1	6.5	6.3	6.4	5.8	5.6	5.8
4	5.9	5.8	5.9	6.2	5.9	6.0	6.7	6.4	6.6	6.0	5.7	5.9
5	5.9	5.9	5.9	6.6	6.2	6.4	6.8	6.5	6.6	5.9	5.5	5.6
6	6.0	5.8	5.9	6.6	6.3	6.5	6.6	6.5	6.5	5.6	5.5	5.6
7	6.2	6.0	6.0	6.6	6.2	6.4	6.7	6.5	6.7	5.8	5.6	5.6
8	6.2	6.1	6.2	6.6	6.3	6.5	6.7	6.4	6.7	6.0	5.7	5.9
9	6.2	6.1	6.1	6.5	6.4	6.4	6.4	6.4	6.4	5.7	5.6	5.6
10	6.4	6.1	6.2	6.6	6.4	6.5	6.6	6.4	6.6	5.7	5.6	5.6
11	6.4	6.2	6.4	6.6	6.6	6.6	6.7	6.4	6.5	6.0	5.7	6.0
12	6.2	6.1	6.2	6.6	6.4	6.4	6.4	6.0	6.4	6.0	5.6	5.8
13	6.3	6.2	6.2	6.4	6.3	6.4	6.4	5.8	6.1	5.9	5.7	5.8
14	6.4	6.3	6.4	6.6	6.4	6.5	6.1	5.6	5.9	6.3	5.8	6.2
15	6.3	6.2	6.3	6.6	6.2	6.3	5.7	5.5	5.6	6.3	5.2	5.8
16	6.3	6.3	6.3	6.6	6.3	6.3	6.0	5.6	5.9	5.8	5.6	5.7
17	6.5	6.3	6.4	6.6	6.4	6.6	6.0	5.9	6.0	6.3	5.6	6.2
18	6.4	6.2	6.3	6.4	6.3	6.4	6.0	5.8	5.8	6.2	5.7	5.8
19	6.3	6.2	6.3	6.6	6.4	6.6	5.9	5.7	5.8	5.9	5.6	5.8
20	6.5	6.1	6.3	6.6	6.2	6.5	5.9	5.8	5.8	6.1	5.8	5.9
21	6.2	6.0	6.2	6.2	6.0	6.1	5.9	5.8	5.8	6.1	5.7	6.1
22	6.6	6.1	6.5	6.4	6.0	6.3	5.9	5.8	5.9	5.7	5.5	5.6
23	6.7	6.0	6.5	6.4	6.0	6.1	6.0	5.9	5.9	5.8	5.5	5.6
24	6.2	6.0	6.0	6.0	5.9	5.9	6.3	5.9	6.3	5.9	5.6	5.9
25	6.6	6.1	6.6	6.4	5.9	6.2	6.4	5.8	5.9	5.6	5.3	5.4
26	6.7	6.0	6.4	6.4	6.1	6.4	5.9	5.6	5.7	5.6	5.3	5.5
27	6.2	6.0	6.1	6.1	6.1	6.1	6.2	5.7	5.8	6.0	5.5	6.0
28	6.6	6.2	6.6	6.4	6.1	6.1	6.2	5.8	6.2	6.0	5.5	5.7
29	6.7	6.1	6.4	6.6	6.4	6.5	6.0	5.6	5.8	6.2	5.7	5.9
30	---	---	---	6.5	6.4	6.5	6.0	5.7	5.8	6.2	6.2	6.2
31	---	---	---	6.7	6.4	6.5	---	---	---	6.2	5.8	5.8
MAX	6.7	6.3	6.6	6.7	6.6	6.6	6.8	6.5	6.7	6.3	6.2	6.2
MIN	5.7	5.6	5.7	6.0	5.9	5.9	5.7	5.5	5.6	5.6	5.2	5.4

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	6.1	5.8	5.8	6.6	6.3	6.6	5.7	5.4	5.4	6.6	6.3	6.4
2	6.2	6.0	6.1	6.7	6.2	6.4	5.7	5.5	5.7	6.8	6.6	6.7
3	6.0	5.8	5.9	6.4	6.2	6.3	5.8	5.2	5.5	6.7	6.3	6.4
4	6.1	5.9	6.0	6.6	6.3	6.5	6.1	5.4	5.8	6.5	6.3	6.3
5	6.2	5.9	6.1	6.5	6.2	6.4	6.2	5.8	6.0	6.7	6.5	6.7
6	5.9	5.8	5.8	6.5	6.1	6.3	6.4	5.5	5.7	6.8	6.4	6.6
7	6.4	5.8	5.9	6.1	5.8	6.0	5.9	5.5	5.9	7.3	6.4	6.4
8	6.4	6.1	6.2	6.0	5.8	5.9	6.3	5.8	6.2	7.3	7.1	7.3
9	6.2	6.1	6.2	6.2	5.9	6.2	6.3	5.5	5.7	7.3	6.5	6.6
10	6.5	6.2	6.4	6.3	5.8	6.2	5.8	5.5	5.7	6.9	6.5	6.8
11	6.6	6.2	6.3	5.8	5.6	5.8	6.1	5.8	6.1	6.9	6.7	6.9
12	6.3	6.2	6.3	6.0	5.0	5.4	6.2	5.5	5.9	6.8	6.0	6.2
13	6.6	6.3	6.5	5.8	5.1	5.3	5.9	5.5	5.6	6.5	6.0	6.2
14	6.6	6.2	6.5	5.8	5.3	5.5	6.1	5.5	5.8	6.5	6.4	6.4
15	6.3	6.1	6.2	5.7	5.6	5.7	6.2	5.9	6.1	6.6	5.8	5.9
16	6.5	6.2	6.3	5.8	5.2	5.3	6.1	6.0	6.0	6.4	5.9	6.0
17	6.6	6.3	6.4	5.7	5.3	5.4	6.5	6.1	6.4	6.6	6.4	6.5
18	6.3	6.2	6.3	5.7	5.6	5.7	6.5	6.2	6.5	6.6	5.0	5.3
19	6.4	6.3	6.3	5.8	5.2	5.4	6.3	6.2	6.3	5.8	5.5	5.6
20	6.6	6.4	6.5	5.9	5.4	5.6	6.6	6.3	6.6	5.9	5.3	5.8
21	6.6	6.1	6.3	5.9	5.9	5.9	6.6	6.3	6.5	5.9	5.6	5.9
22	6.4	6.1	6.2	6.0	5.4	5.5	6.5	6.3	6.3	6.0	5.0	5.8
23	6.5	6.2	6.3	5.7	5.4	5.5	6.8	6.5	6.7	6.1	5.7	6.0
24	6.4	6.3	6.4	5.8	5.7	5.7	6.8	6.5	6.8	6.1	6.0	6.0
25	6.6	6.4	6.6	5.8	5.3	5.4	6.6	6.5	6.5	6.0	5.8	5.9
26	6.6	6.2	6.3	5.6	5.3	5.4	6.8	6.6	6.6	5.8	5.6	5.7
27	6.3	6.2	6.3	5.7	5.6	5.7	7.0	6.7	6.8	5.7	5.5	5.6
28	6.6	6.3	6.5	5.7	5.3	5.4	6.7	6.5	6.6	5.7	5.4	5.5
29	6.6	6.2	6.3	5.8	5.3	5.4	6.7	6.5	6.5	5.8	5.7	5.7
30	6.4	6.3	6.4	5.8	5.8	5.8	6.8	6.7	6.8	5.9	5.7	5.8
31	---	---	---	5.9	5.3	5.4	6.7	6.3	6.4	---	---	---
MAX	6.6	6.4	6.6	6.7	6.3	6.6	7.0	6.7	6.8	7.3	7.1	7.3
MIN	5.9	5.8	5.8	5.6	5.0	5.3	5.7	5.2	5.4	5.7	5.0	5.3

YEAR			
	MAX	MAXIMUM 7.3	MINIMUM 4.8
	MIN	MAXIMUM 7.1	MINIMUM 4.5
	MEDIAN	MAXIMUM 7.3	MINIMUM 4.7

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	12.5	11.0	12.0	12.5	11.0	11.5	9.5	8.5	9.0	8.5	7.5	8.0
2	11.5	10.5	11.0	12.5	11.5	12.0	8.5	7.0	8.0	9.0	8.0	8.5
3	12.0	10.0	11.0	13.0	11.5	12.0	8.0	7.0	7.5	10.0	9.0	9.5
4	11.5	11.0	11.0	13.0	11.5	12.0	8.5	7.5	8.0	9.5	7.5	9.0
5	12.0	10.5	11.0	12.5	12.0	12.0	8.5	6.5	8.0	7.5	7.0	7.5
6	11.5	10.0	10.5	12.0	12.0	12.0	7.5	6.5	7.0	7.5	6.0	7.0
7	12.0	9.5	10.5	12.0	10.5	11.5	7.5	6.5	7.0	6.5	6.0	6.0
8	13.0	10.5	11.5	10.5	9.0	10.0	8.0	7.0	7.5	7.0	6.0	6.5
9	13.5	11.0	12.0	10.0	8.5	9.0	8.0	7.0	7.5	6.5	5.5	6.0
10	13.5	11.5	12.5	10.0	8.0	9.0	8.5	7.0	8.0	6.0	5.0	5.5
11	13.5	11.0	12.5	10.0	8.5	9.0	7.0	6.5	7.0	7.0	5.5	6.5
12	13.5	11.0	12.0	11.0	10.0	10.5	7.5	7.0	7.0	7.5	6.5	7.0
13	13.5	11.5	12.5	11.0	8.5	9.5	8.0	7.0	7.5	8.0	6.0	7.5
14	12.5	11.0	11.5	9.5	8.0	8.5	8.0	7.0	7.5	6.5	6.0	6.0
15	12.5	11.0	12.0	10.5	9.0	9.5	8.5	7.5	8.0	6.0	4.0	5.5
16	12.0	10.0	11.0	10.0	9.0	9.5	8.5	8.0	8.5	6.0	4.0	5.0
17	11.5	11.0	11.0	11.0	9.5	10.0	8.5	7.5	8.0	7.0	5.5	6.0
18	11.5	10.0	11.0	10.5	9.5	10.0	8.0	7.0	7.5	7.0	5.5	6.5
19	12.0	10.5	11.0	12.5	10.0	11.0	8.0	7.5	8.0	6.0	5.5	5.5
20	12.0	9.5	10.5	10.0	9.0	10.0	8.0	7.0	7.5	6.5	5.5	6.0
21	13.0	10.5	11.5	11.0	9.0	10.0	8.0	7.0	7.5	6.5	5.0	5.5
22	11.5	10.0	11.0	11.0	9.5	10.0	8.5	7.5	8.0	7.0	5.0	5.5
23	10.0	9.0	9.5	10.5	9.5	10.0	9.0	8.0	8.5	5.5	4.5	5.0
24	11.0	9.0	9.5	11.0	9.0	10.5	8.0	6.5	7.0	6.0	3.5	5.5
25	11.5	9.0	10.0	9.5	8.5	9.0	7.0	6.5	6.5	5.0	3.0	4.0
26	12.5	11.0	11.5	9.5	8.0	9.0	8.0	6.5	7.5	5.5	4.0	5.0
27	12.5	10.5	12.0	10.0	8.5	9.5	8.5	7.5	8.0	6.0	4.5	5.5
28	11.0	9.5	10.5	10.5	9.0	10.0	8.5	7.5	8.0	6.0	4.5	5.0
29	11.0	10.5	10.5	9.0	8.0	8.5	9.0	7.5	8.0	6.0	4.5	5.0
30	11.0	10.0	10.5	9.5	8.0	8.5	8.5	8.0	8.5	5.5	4.5	5.0
31	11.5	10.0	11.0	---	---	---	9.0	8.0	8.5	4.5	3.0	4.0
MONTH	13.5	9.0	11.1	13.0	8.0	10.1	9.5	6.5	7.7	10.0	3.0	6.1

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	6.5	3.5	5.0	8.0	6.0	7.0	9.5	8.5	9.0	14.5	11.5	13.0
2	7.5	4.5	6.0	9.0	5.5	7.0	9.0	8.5	9.0	14.5	12.5	13.0
3	6.0	4.5	5.0	8.5	5.5	6.5	9.5	9.0	9.0	13.0	11.0	11.5
4	7.0	5.0	6.0	8.0	6.5	7.0	9.0	7.0	8.5	12.0	10.0	11.0
5	6.5	5.0	6.0	7.5	7.0	7.5	9.0	6.0	7.5	12.0	10.0	11.0
6	5.5	3.5	4.5	8.5	7.0	8.0	10.0	7.0	8.5	13.0	10.0	11.5
7	5.0	3.5	4.5	9.0	7.0	8.0	11.5	8.5	9.5	13.5	11.5	12.5
8	5.0	2.5	4.0	8.0	6.5	7.0	9.5	8.0	9.0	13.0	11.0	12.0
9	6.5	3.5	5.0	8.0	7.0	7.5	11.0	8.5	9.5	13.5	11.0	12.0
10	6.5	5.0	6.0	8.5	7.0	7.5	11.5	8.0	9.5	14.5	12.0	13.0
11	6.5	4.5	5.5	9.0	6.5	7.5	9.5	8.5	9.0	14.5	12.5	13.0
12	7.0	5.0	6.0	8.0	7.0	7.5	10.0	7.5	9.0	14.5	12.5	13.5
13	6.5	4.5	5.5	8.5	6.5	7.5	8.5	7.5	8.0	15.0	12.5	13.5
14	7.0	4.5	5.5	8.0	6.5	7.5	9.0	7.5	8.5	14.5	13.0	13.5
15	6.0	4.0	5.5	10.0	7.5	8.5	10.5	8.0	9.0	15.5	12.5	14.0
16	5.0	2.0	3.5	8.0	5.5	7.0	11.0	8.0	9.5	14.5	13.0	14.0
17	6.0	2.5	4.5	8.0	6.5	7.0	12.0	9.0	10.5	15.0	12.5	13.5
18	7.0	4.5	5.5	9.0	7.0	7.5	13.0	10.5	11.5	15.0	13.5	14.0
19	7.5	5.0	6.0	8.0	6.0	7.0	13.5	10.5	12.0	14.0	13.0	13.5
20	8.0	5.0	6.0	9.0	5.5	7.0	13.0	11.0	12.0	14.0	13.0	13.0
21	8.0	6.0	7.0	8.0	6.0	7.0	13.0	11.0	12.0	15.0	13.0	13.5
22	6.5	4.5	5.5	7.0	5.0	6.0	13.5	11.5	12.0	15.5	13.5	14.0
23	7.5	4.0	6.0	8.5	5.0	6.5	12.5	11.5	12.0	16.0	13.5	14.5
24	6.5	5.5	6.0	9.5	6.5	8.0	13.5	11.0	12.0	16.0	13.5	14.5
25	6.0	3.5	4.5	9.0	8.0	8.5	11.0	10.5	11.0	15.5	13.0	14.0
26	7.5	3.5	5.5	11.5	8.0	9.5	11.0	10.5	10.5	16.0	13.5	14.0
27	8.0	5.5	6.5	12.0	10.0	10.5	12.0	9.5	10.5	15.5	14.0	14.5
28	8.0	4.5	6.0	12.0	9.0	10.5	11.5	8.5	10.0	15.0	13.5	14.0
29	9.0	4.5	6.5	11.5	8.5	10.0	13.5	9.5	11.5	13.5	12.0	13.0
30	---	---	---	9.5	8.5	9.0	14.0	11.0	12.0	14.5	11.0	12.5
31	---	---	---	10.0	9.0	9.5	---	---	---	13.0	12.5	12.5
MONTH	9.0	2.0	5.5	12.0	5.0	7.8	14.0	6.0	10.1	16.0	10.0	13.1

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	14.5	12.5	13.5	15.5	13.0	14.0	17.5	15.0	16.5	15.5	13.0	14.0
2	14.5	12.0	13.5	16.0	13.0	14.5	19.5	15.5	17.0	15.0	13.0	14.0
3	14.5	12.5	13.5	15.5	13.0	14.5	17.0	16.0	16.5	15.0	13.0	14.0
4	14.0	12.0	13.0	15.0	13.5	14.5	19.0	15.5	16.5	15.5	13.0	14.0
5	13.5	12.5	13.0	17.0	14.5	15.5	17.5	15.5	16.5	14.5	13.5	14.0
6	13.0	12.5	13.0	16.0	14.0	15.0	15.5	14.0	14.5	14.5	13.0	14.0
7	14.5	12.0	13.0	15.5	13.5	14.5	14.5	13.5	14.0	15.5	13.5	14.5
8	15.0	12.5	13.5	16.0	14.0	15.0	15.5	13.0	14.0	15.5	14.0	14.5
9	15.5	13.0	14.0	15.5	13.5	14.5	15.5	13.5	14.5	17.5	14.5	15.5
10	14.0	13.5	14.0	15.5	13.0	14.5	15.5	13.5	14.5	16.0	14.0	15.0
11	13.5	12.5	13.0	16.0	13.5	14.5	16.0	14.0	15.0	15.5	13.5	14.5
12	14.0	12.0	13.0	18.5	14.5	16.5	17.0	14.0	15.0	15.0	13.0	14.0
13	13.5	12.0	12.5	16.5	15.0	15.5	16.5	15.0	16.0	15.5	13.0	14.5
14	14.5	12.5	13.5	17.5	14.5	15.5	15.5	14.5	15.0	15.0	13.5	14.0
15	15.0	13.0	14.0	16.5	15.0	15.5	15.0	14.0	14.5	14.5	13.5	14.0
16	15.0	13.5	14.0	15.5	14.0	15.0	15.0	13.5	14.0	15.0	14.0	14.0
17	16.0	13.5	14.5	15.5	14.0	14.5	15.0	13.5	14.0	16.0	14.0	14.5
18	15.5	13.5	14.5	15.0	14.5	14.5	14.5	13.5	14.0	18.0	14.0	15.5
19	15.0	13.5	14.0	15.0	14.0	14.5	15.0	13.5	14.0	14.0	12.5	13.0
20	14.5	12.0	13.5	15.5	13.5	14.5	16.0	13.5	14.5	13.0	12.0	12.5
21	14.5	12.0	13.5	16.0	13.5	15.0	16.5	14.0	15.5	14.5	12.0	13.0
22	16.0	13.0	14.0	15.5	14.0	14.5	15.0	13.0	14.0	16.5	11.0	13.5
23	15.5	13.5	14.5	16.5	14.0	15.5	15.0	13.0	14.0	14.5	12.5	13.0
24	15.5	13.0	14.0	16.0	14.5	15.5	15.0	13.5	14.5	13.5	12.5	13.0
25	15.5	13.5	14.5	15.5	14.0	14.5	15.0	14.0	14.0	13.5	12.5	13.0
26	15.0	13.5	14.0	15.0	14.0	14.5	15.0	13.5	14.0	13.5	12.5	13.0
27	14.5	12.0	13.5	16.0	14.0	15.0	15.5	14.0	14.5	13.5	12.5	13.0
28	15.0	12.5	13.5	16.0	15.0	15.5	16.0	14.0	14.5	16.0	13.0	14.5
29	15.0	13.0	14.0	16.0	14.0	15.0	16.0	14.0	15.0	15.0	14.0	14.5
30	15.5	12.5	14.0	16.5	14.5	15.0	15.5	14.5	15.0	14.0	13.0	13.5
31	---	---	---	16.5	15.0	15.5	15.0	14.0	14.5	---	---	---
MONTH	16.0	12.0	13.7	18.5	13.0	14.9	19.5	13.0	14.8	18.0	11.0	13.9
YEAR	19.5	2.0	10.8									

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.--No estimated daily discharges. Records fair except those above 638 ft^3/s , which are poor. Other data for this project presented in tables on pages 439-497.

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)
Oct. 27	1745	1,140	3.16	Apr. 13	2300	670	2.50
Oct. 29	1100	966	2.92	May 3	0115	636	2.45
Nov. 19	2330	702	2.55	July 12	1230	2,380	4.56
Dec. 11	1045	1,780	3.92	Sept. 18	0630	*5,310	*a8.16
Dec. 24	1530	708	2.56	Sept. 28	1800	1,190	3.22

a From floodmark.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91	224	144	106	41	59	86	115	87	41	146	49
2	83	183	123	100	40	80	97	143	80	39	92	45
3	76	153	107	99	47	98	80	360	70	37	77	45
4	82	144	98	143	55	99	76	198	63	35	79	42
5	79	149	93	240	45	94	72	172	141	37	89	41
6	70	158	90	157	85	120	68	154	209	35	69	42
7	65	144	82	129	103	109	67	141	122	33	64	40
8	64	116	75	116	69	123	71	126	102	35	60	42
9	62	104	71	108	57	102	77	118	91	31	57	69
10	59	100	94	94	53	92	67	113	84	29	55	52
11	57	98	1070	91	51	86	64	104	87	29	52	42
12	56	105	552	91	48	82	73	99	79	769	107	41
13	54	100	336	88	46	75	297	95	70	234	239	39
14	55	89	258	81	45	70	407	88	67	208	103	37
15	260	81	215	76	43	69	255	91	76	205	84	39
16	106	75	170	69	38	68	200	113	73	131	76	38
17	91	72	179	71	37	67	170	88	75	108	70	40
18	96	69	160	70	37	66	150	110	91	101	66	2710
19	89	220	130	65	38	69	136	90	68	95	65	875
20	81	336	116	62	41	74	123	83	59	83	65	502
21	81	167	105	59	49	107	115	79	56	74	143	350
22	81	135	99	57	50	90	109	76	78	71	85	253
23	77	116	106	52	49	78	115	70	76	98	68	192
24	73	117	370	51	50	77	106	66	58	83	63	151
25	71	135	293	48	45	79	99	65	52	68	61	124
26	71	103	211	48	43	76	241	91	56	64	58	105
27	604	94	175	48	43	75	192	142	49	87	56	93
28	494	177	151	48	44	70	147	88	45	96	61	477
29	638	285	136	46	51	66	133	73	59	71	72	440
30	437	172	133	44	---	64	123	66	46	63	58	240
31	296	---	118	41	---	63	---	74	---	62	56	---
TOTAL	4599	4221	6060	2598	1443	2547	4016	3491	2369	3152	2496	7255
MEAN	148	141	195	83.8	49.8	82.2	134	113	79.0	102	80.5	242
MAX	638	336	1070	240	103	123	407	360	209	769	239	2710
MIN	54	69	71	41	37	59	64	65	45	29	52	37
CFSM	3.43	3.25	4.51	1.94	1.15	1.90	3.09	2.60	1.82	2.35	1.86	5.59
IN.	3.95	3.63	5.21	2.23	1.24	2.19	3.45	3.00	2.04	2.71	2.14	6.23

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2004, BY WATER YEAR (WY)

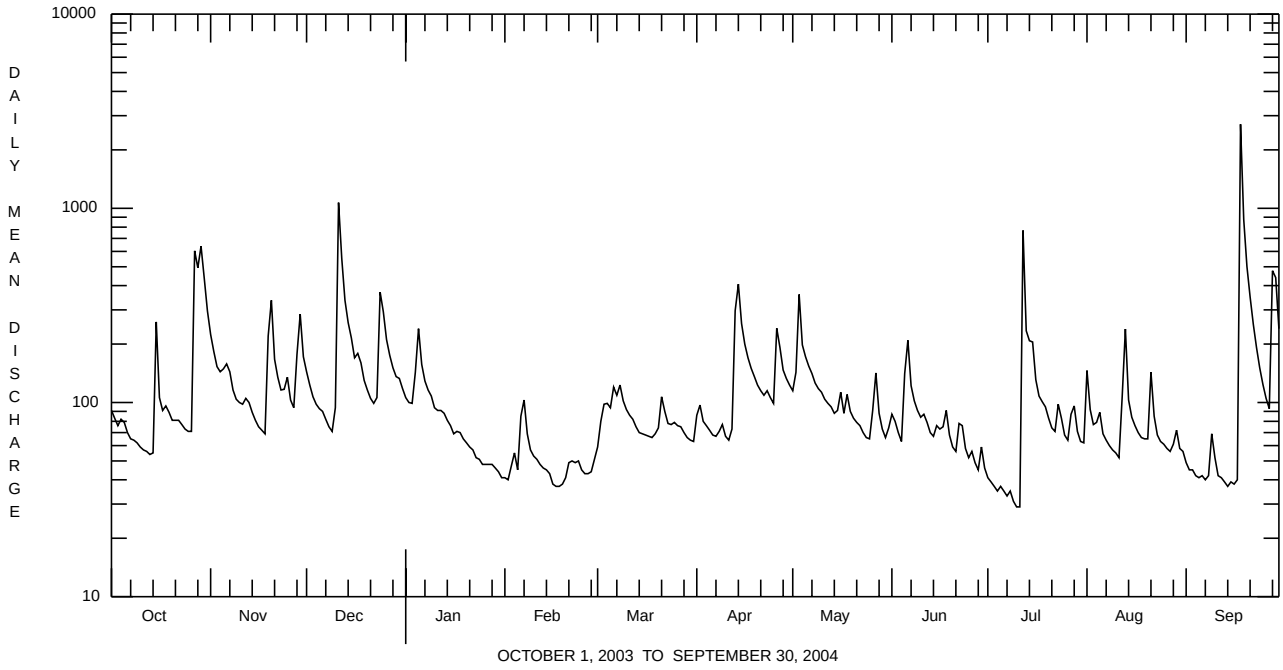
MEAN	58.6	62.8	109	82.3	83.7	136	116	89.7	87.0	47.5	40.6	64.6
MAX	148	143	284	177	196	220	144	181	212	102	101	242
(WY)	2004	1997	1997	1998	1998	2003	1998	1998	2003	2004	2003	2004
MIN	13.2	16.5	11.4	34.3	42.9	82.2	75.4	47.0	18.4	13.5	13.0	15.7
(WY)	2002	1999	1999	2002	2002	2004	1999	1999	1999	1999	2002	1998

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1996 - 2004	
ANNUAL TOTAL	47539		44247			
ANNUAL MEAN	130		121		81.5	
HIGHEST ANNUAL MEAN					121	2004
LOWEST ANNUAL MEAN					44.9	2002
HIGHEST DAILY MEAN	1070	Dec 11	2710	Sep 18	2710	Sep 18 2004
LOWEST DAILY MEAN	31	Jul 31	29	Jul 10,11	9.3	Sep 10 2002
ANNUAL SEVEN-DAY MINIMUM	36	Jul 15	33	Jul 5	10	Dec 14 1998
MAXIMUM PEAK FLOW			**b**5310	Sep 18	**b**5310	Sep 18 2004
MAXIMUM PEAK STAGE			**a**8.16	Sep 18	**a**8.16	Sep 18 2004
INSTANTANEOUS LOW FLOW			27	Jul 12	9.2	Oct 14 2001
ANNUAL RUNOFF (CFSM)	3.01		2.79		1.88	
ANNUAL RUNOFF (INCHES)	40.84		38.01		25.59	
10 PERCENT EXCEEDS	254		208		154	
50 PERCENT EXCEEDS	90		81		58	
90 PERCENT EXCEEDS	48		45		15	

a From floodmark.
b From rating curve extended above 638 ft^3/s based on a straight line extension.



SWATARA CREEK BASIN

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 good except for periods Nov. 12-17 and Aug. 3 to Sept. 10, which are fair, and Oct. 29 to Nov. 4, Nov. 20 to Dec. 10, and Dec. 23-29, which are poor. pH records rated good except for period Sept. 20-24, which is 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 this project presented in tables on pages 439-497. Figure 10 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, 301, microsiemens, Feb. 6; minimum, 63, microsiemens, Sept. 18, 19.
PH: Maximum, 7.3, Aug. 12; minimum, 5.5, Sept. 18, 19.
WATER TEMPERATURE: Maximum, 21.5°C, July 5; minimum, 0.0°C, several days during winter.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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	92	297	13	10.9	100	7.2	6.5
27...	0415	1028	89203	--	--	--	--	--	--	7.2
27...	1030	1028	89203	--	--	--	--	--	--	6.9
27...	1500	1028	89203	934	--	--	--	--	6.8	6.8
27...	1900	1028	89203	911	--	--	--	--	6.6	6.5
28...	0700	1028	89203	446	--	--	--	--	6.8	6.3
28...	0845	1028	89203	417	391	37	11.3	99	6.8	6.3
NOV										
19...	1515	1028	89203	114	--	--	--	--	6.8	6.7
19...	1700	1028	89203	278	--	--	--	--	6.9	6.8
19...	1900	1028	89203	398	--	--	--	--	6.7	6.9
19...	2100	1028	89203	456	--	--	--	--	6.6	5.9
19...	2300	1028	89203	573	--	--	--	--	6.5	6.1
20...	0300	1028	89203	431	--	--	--	--	6.5	4.8
20...	1100	1028	89203	281	--	--	--	--	6.5	5.4
24...	0915	1028	89203	114	276	10	11.6	100	6.4	6.2
DEC										
30...	0915	1028	89203	140	289	15	13.0	100	6.6	6.5
MAR										
01...	0915	1028	89203	66	383	10	13.4	101	6.7	6.5
APR										
12...	2000	1028	89203	92	--	--	--	--	6.8	6.6
13...	0300	1028	89203	281	--	--	--	--	6.6	6.5
13...	1700	1028	89203	171	--	--	--	--	6.5	6.3
13...	2100	1028	89203	456	--	--	--	--	6.7	6.4
14...	1100	1028	89203	324	--	--	--	--	6.4	6.3
20...	0900	1028	89203	114	309	14	11.0	101	6.7	6.3
JUN										
02...	0845	1028	89203	76	286	31	10.4	99	6.8	6.5
JUL										
14...	1145	1028	89203	126	--	--	--	--	6.5	6.7
14...	1600	1028	89203	166	--	--	--	--	6.5	6.3
14...	1900	1028	89203	320	--	--	--	--	6.6	6.3
14...	2100	1028	89203	349	--	--	--	--	6.5	6.1
15...	0100	1028	89203	267	--	--	--	--	6.4	6.4
15...	1300	1028	89203	166	--	--	--	--	6.5	6.4
19...	0915	1028	89203	94	281	12	9.9	100	6.5	6.2
AUG										
12...	1415	1028	89203	74	--	--	--	--	6.8	6.6
12...	1430	1028	89203	65	--	--	--	--	6.8	6.5
12...	1500	1028	89203	66	--	--	--	--	7.0	6.8
12...	1900	1028	89203	150	--	--	--	--	6.7	6.5
13...	0100	1028	89203	209	--	--	--	--	6.7	6.5
13...	0300	1028	89203	297	--	--	--	--	6.8	6.6
13...	0700	1028	89203	289	--	--	--	--	6.6	6.2
SEP										
13...	0900	1028	89203	42	253	6.0	10.4	101	6.7	6.6
17...	2200	1028	89203	50	--	--	--	--	6.9	6.7
18...	0100	1028	89203	106	--	--	--	--	6.8	6.4
18...	0400	1028	89203	5030	--	--	--	--	6.0	6.2
18...	0700	1028	89203	6680	--	--	--	--	5.7	6.0
21...	0830	1028	89203	--	--	--	--	--	--	6.3

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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...	196	11.6	10.8	10.8	8.55	8.55	1.07	1.08	4.65	4.65
27...	--	--	13.5	13.8	9.90	10.1	1.30	1.40	5.50	6.10
27...	--	--	10.8	11.0	6.90	6.90	1.40	1.50	5.70	5.10
27...	98.0	12.3	9.00	9.10	5.40	5.40	1.50	1.50	5.20	5.60
27...	92.0	11.8	8.00	8.30	4.20	4.30	1.50	1.50	6.10	2.20
28...	106	9.80	6.70	6.60	4.10	4.20	1.30	1.30	2.80	3.20
28...	111	9.60	--	--	--	--	--	--	--	--
NOV										
19...	181	12.2	12.0	12.5	8.60	9.00	1.00	1.10	2.70	2.80
19...	170	12.2	11.0	12.2	7.10	7.70	1.00	1.20	2.50	2.80
19...	155	11.6	10.6	11.3	6.20	6.40	1.30	1.40	2.50	2.70
19...	122	11.2	7.70	7.90	4.40	4.60	1.30	1.40	2.00	2.10
19...	123	10.8	7.70	8.20	4.30	4.50	1.30	1.40	2.00	2.10
20...	117	10.2	6.90	7.30	4.00	4.30	1.30	1.40	2.00	2.20
20...	124	9.50	7.40	7.70	5.00	5.20	1.10	1.10	2.10	2.20
24...	178	8.90	10.1	10.0	8.10	8.10	1.00	.900	5.10	4.90
DEC										
30...	177	5.70	10.9	11.0	9.10	9.20	1.20	1.10	5.60	5.60
MAR										
01...	192	3.50	12.7	12.8	9.30	9.40	1.30	1.30	6.50	6.60
APR										
12...	180	7.80	11.7	12.0	8.20	8.30	1.20	1.20	7.90	8.10
13...	149	6.90	10.9	10.5	7.00	6.90	1.20	1.20	8.60	8.30
13...	144	7.40	8.60	8.70	5.40	5.40	1.30	1.30	7.90	7.80
13...	131	7.70	9.00	9.00	5.40	5.60	1.20	1.30	8.00	7.90
14...	125	7.70	7.20	7.30	4.40	4.50	1.30	1.30	7.10	7.20
20...	166	12.0	10.7	10.7	8.10	7.80	1.10	1.10	5.60	5.70
JUN										
02...	188	13.3	12.7	13.1	9.40	9.70	1.50	1.50	6.30	6.70
JUL										
14...	154	16.7	9.50	9.30	6.00	5.90	1.10	1.00	4.40	4.30
14...	139	16.8	9.60	9.70	6.20	6.10	1.00	1.00	4.40	4.10
14...	144	17.1	10.2	10.3	6.40	6.40	1.00	1.00	5.00	4.90
14...	131	17.3	9.80	9.80	6.00	5.90	1.00	1.00	4.70	4.60
15...	125	17.0	9.90	9.70	5.70	5.70	1.00	1.00	4.60	4.50
15...	138	16.9	9.20	8.90	5.70	5.50	1.20	1.10	4.80	4.80
19...	177	16.0	10.8	11.8	8.00	15.5	1.30	.900	5.10	3.40
AUG										
12...	220	17.4	14.6	15.3	11.0	11.3	1.30	1.40	5.80	6.00
12...	216	17.4	16.6	17.0	11.3	11.4	1.50	1.50	6.90	6.90
12...	216	17.8	18.0	20.5	7.70	8.30	1.60	1.80	5.40	5.60
12...	181	18.2	11.3	13.4	5.90	6.30	1.80	3.40	5.20	6.00
13...	166	17.7	12.8	11.8	6.10	6.10	3.30	1.80	5.90	5.30
13...	148	17.7	10.0	10.1	5.10	5.20	1.70	1.70	5.00	5.00
13...	129	17.6	8.50	8.80	4.80	4.90	2.00	2.00	4.40	4.60
SEP										
13...	238	15.2	18.3	19.0	13.7	14.0	1.40	1.50	6.50	6.90
17...	229	16.9	16.7	20.3	11.1	12.3	1.60	1.70	6.70	7.10
18...	186	17.8	12.7	14.4	5.70	6.00	1.90	2.00	5.40	5.30
18...	71.0	17.3	5.80	6.50	2.30	2.40	2.10	2.10	3.70	2.70
18...	63.0	16.7	5.30	5.70	2.20	2.20	2.10	2.10	3.30	2.60
21...	--	--	11.5	11.4	10.0	9.80	1.30	1.20	4.40	4.10

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Silica, water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water unfltrd mg/L (00946)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)
OCT										
01...	7.00	--	7.58	<.010	6.90	6.95	63.9	80.0	.100	<.030
27...	10.8	--	12.4	<.010	--	--	63.9	--	.220	<.030
27...	14.0	--	7.00	<.010	--	--	42.9	--	.240	<.030
27...	11.7	--	6.69	<.010	--	--	34.2	--	.260	<.030
27...	9.40	--	7.36	<.010	--	--	29.0	--	.230	<.030
28...	6.00	--	5.94	<.010	--	--	28.2	--	.190	<.030
28...	--	--	--	--	--	--	--	--	--	--
NOV										
19...	6.40	--	11.0	<.010	--	--	55.1	--	.210	<.030
19...	7.90	--	11.4	<.010	--	--	47.8	--	.210	<.030
19...	5.10	--	9.84	<.010	--	--	42.5	--	.260	<.030
19...	4.50	--	11.3	<.010	--	--	31.1	--	.250	<.030
19...	4.30	--	9.42	<.010	--	--	32.4	--	.260	<.030
20...	1.40	--	11.3	<.010	--	--	29.7	--	.240	<.030
20...	2.30	--	17.5	<.010	--	--	33.5	--	.200	<.030
24...	6.60	--	8.50	<.010	--	--	53.3	--	.110	<.030
DEC										
30...	4.00	--	8.32	<.010	--	--	58.3	--	.150	<.030
MAR										
01...	7.80	--	11.7	--	--	--	60.6	--	--	--
APR										
12...	8.90	--	16.6	<.010	--	--	51.7	--	.330	.060
13...	7.70	--	13.8	<.010	--	--	43.3	--	.390	.040
13...	3.80	--	14.4	<.010	--	--	35.3	--	.340	.030
13...	7.40	--	13.7	<.010	--	--	34.7	--	.330	.040
14...	4.60	--	12.6	<.010	--	--	29.4	--	.330	<.030
20...	5.30	--	9.79	--	--	--	53.3	--	--	--
JUN										
02...	7.20	--	15.1	--	--	--	61.6	--	--	--
JUL										
14...	4.20	--	6.44	--	--	--	35.9	--	.250	--
14...	4.50	--	6.64	--	--	--	38.1	--	.260	--
14...	7.30	--	7.33	--	--	--	37.7	--	.260	--
14...	6.10	--	7.18	--	--	--	34.5	--	.270	--
15...	7.60	--	5.96	--	--	--	33.2	--	.270	--
15...	4.60	--	7.68	--	--	--	33.5	--	.220	--
19...	4.30	--	7.94	--	--	--	47.8	--	.370	--
AUG										
12...	6.90	--	8.91	<.010	--	--	65.6	--	.270	<.030
12...	8.50	--	9.48	<.010	--	--	68.8	--	.320	<.030
12...	19.1	--	7.12	.060	--	--	47.2	--	.510	<.030
12...	7.00	--	9.14	<.010	--	--	43.2	--	.650	.050
13...	6.70	--	7.54	.040	--	--	40.9	--	.380	.030
13...	6.80	--	7.16	<.010	--	--	34.1	--	.360	.060
13...	5.20	--	7.12	<.010	--	--	31.2	--	.280	.060
SEP										
13...	7.70	--	14.8	<.010	--	--	82.1	--	.240	<.030
17...	12.1	--	9.87	--	--	--	67.6	--	--	--
18...	9.20	--	6.66	--	--	--	44.9	--	--	--
18...	6.00	--	5.07	--	--	--	19.1	--	--	--
18...	5.30	--	4.97	--	--	--	19.3	--	--	--
21...	5.30	--	6.83	--	--	--	59.2	--	--	--

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	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)	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)
OCT									
01...	<.020	<.001	<.001	27.0	330	.022	.023	<.200	<.200
27...	<.020	--	--	<100	600	--	--	--	--
27...	<.020	--	--	<100	500	--	--	--	--
27...	<.020	--	--	<100	600	--	--	--	--
27...	<.020	--	--	100	700	--	--	--	--
28...	<.020	--	--	100	400	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
NOV									
19...	<.020	--	--	<100	700	--	--	--	--
19...	<.020	--	--	<100	1800	--	--	--	--
19...	<.020	--	--	<100	1700	--	--	--	--
19...	<.020	--	--	100	800	--	--	--	--
19...	<.020	--	--	<100	600	--	--	--	--
20...	<.020	--	--	300	500	--	--	--	--
20...	<.020	--	--	200	500	--	--	--	--
24...	<.020	--	--	<100	300	--	--	--	--
DEC									
30...	<.020	--	--	<100	400	--	--	--	--
MAR									
01...	--	--	--	<100	400	--	--	--	--
APR									
12...	<.020	--	--	<100	1600	--	--	--	--
13...	<.020	--	--	300	2100	--	--	--	--
13...	<.020	--	--	200	700	--	--	--	--
13...	<.020	--	--	400	1000	--	--	--	--
14...	<.020	--	--	<100	600	--	--	--	--
20...	--	--	--	<100	300	--	--	--	--
JUN									
02...	--	--	--	<100	300	--	--	--	--
JUL									
14...	--	--	--	<100	200	--	--	--	--
14...	--	--	--	<100	200	--	--	--	--
14...	--	--	--	<100	600	--	--	--	--
14...	--	--	--	<100	400	--	--	--	--
15...	--	--	--	<100	500	--	--	--	--
15...	--	--	--	<100	300	--	--	--	--
19...	--	--	--	<100	600	--	--	--	--
AUG									
12...	<.020	--	--	<100	400	--	--	--	--
12...	<.020	--	--	<100	700	--	--	--	--
12...	<.020	--	--	200	1700	--	--	--	--
12...	<.020	--	--	300	1000	--	--	--	--
13...	<.020	--	--	200	600	--	--	--	--
13...	<.020	--	--	<100	500	--	--	--	--
13...	<.020	--	--	200	600	--	--	--	--
SEP									
13...	<.020	--	--	<100	200	--	--	--	--
17...	--	--	--	<100	500	--	--	--	--
18...	--	--	--	<100	3100	--	--	--	--
18...	--	--	--	200	1800	--	--	--	--
18...	--	--	--	300	1400	--	--	--	--
21...	--	--	--	<100	400	--	--	--	--

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	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)	Bromine water unfltrd mg/L (71871)	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)
OCT									
01...	22.5	22.0	.190	.330	<.010	<.010	.060	.140	.140
27...	--	--	--	--	--	--	.040	--	--
27...	--	--	--	--	--	--	.050	--	--
27...	--	--	--	--	--	--	.080	--	--
27...	--	--	--	--	--	--	.080	--	--
28...	--	--	--	--	--	--	.060	--	--
28...	--	--	--	--	--	--	--	--	--
NOV									
19...	--	--	--	--	--	--	.040	--	--
19...	--	--	--	--	--	--	.060	--	--
19...	--	--	--	--	--	--	.080	--	--
19...	--	--	--	--	--	--	.070	--	--
19...	--	--	--	--	--	--	.110	--	--
20...	--	--	--	--	--	--	.100	--	--
20...	--	--	--	--	--	--	.050	--	--
24...	--	--	--	--	--	--	.060	--	--
DEC									
30...	--	--	--	--	--	--	.080	--	--
MAR									
01...	--	--	--	--	--	--	--	--	--
APR									
12...	--	--	--	--	--	--	.030	--	--
13...	--	--	--	--	--	--	.030	--	--
13...	--	--	--	--	--	--	.030	--	--
13...	--	--	--	--	--	--	.030	--	--
14...	--	--	--	--	--	--	.020	--	--
20...	--	--	--	--	--	--	--	--	--
JUN									
02...	--	--	--	--	--	--	--	--	--
JUL									
14...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
AUG									
12...	--	--	--	--	--	--	.070	--	--
12...	--	--	--	--	--	--	.070	--	--
12...	--	--	--	--	--	--	.080	--	--
12...	--	--	--	--	--	--	.080	--	--
13...	--	--	--	--	--	--	.080	--	--
13...	--	--	--	--	--	--	.090	--	--
13...	--	--	--	--	--	--	.060	--	--
SEP									
13...	--	--	--	--	--	--	.050	--	--
17...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	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)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)
OCT										
01...	.510	1.10	.027	.028	<1.00	<1.00	12.0	17.0	1.20	2.10
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
NOV										
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
DEC										
30...	--	--	--	--	--	--	--	--	--	--
MAR										
01...	--	--	--	--	--	--	--	--	--	--
APR										
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
JUN										
02...	--	--	--	--	--	--	--	--	--	--
JUL										
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
AUG										
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
SEP										
13...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Dysprosium, water, fltrd, µg/L (82331)	Dysprosium, water, unfltrd µg/L (82330)	Erbium, water, fltrd, µg/L (50573)	Erbium, water, unfltrd µg/L (01246)	Europium, water, fltrd, µg/L (50574)	Europium, water, unfltrd µg/L (01236)	Gadolinium, water, fltrd, µg/L (50575)	Gadolinium, water, unfltrd µg/L (01219)	Gallium water, fltrd, µg/L (01120)	Gallium water, unfltrd µg/L (01122)
OCT										
01...	.064	.170	.036	.099	.012	.028	.066	.130	<.020	.022
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
NOV										
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
DEC										
30...	--	--	--	--	--	--	--	--	--	--
MAR										
01...	--	--	--	--	--	--	--	--	--	--
APR										
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
JUN										
02...	--	--	--	--	--	--	--	--	--	--
JUL										
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
AUG										
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
SEP										
13...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	German-ium, water, fltrd, µg/L (01125)	German-ium, water, unfltrd µg/L (01127)	Holmium water, fltrd, µg/L (50577)	Holmium water unfltrd µg/L (01247)	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)
OCT										
01...	<.020	<.020	.014	.032	430	1060	.290	.540	.071	.430
27...	--	--	--	--	90.0	2410	--	--	--	--
27...	--	--	--	--	100	1610	--	--	--	--
27...	--	--	--	--	140	1770	--	--	--	--
27...	--	--	--	--	160	1820	--	--	--	--
28...	--	--	--	--	180	750	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
NOV										
19...	--	--	--	--	50.0	2330	--	--	--	--
19...	--	--	--	--	50.0	6950	--	--	--	--
19...	--	--	--	--	80.0	7760	--	--	--	--
19...	--	--	--	--	100	2500	--	--	--	--
19...	--	--	--	--	100	1240	--	--	--	--
20...	--	--	--	--	180	920	--	--	--	--
20...	--	--	--	--	180	1010	--	--	--	--
24...	--	--	--	--	1150	870	--	--	--	--
DEC										
30...	--	--	--	--	450	1110	--	--	--	--
MAR										
01...	--	--	--	--	300	980	--	--	--	--
APR										
12...	--	--	--	--	190	5070	--	--	--	--
13...	--	--	--	--	860	6680	--	--	--	--
13...	--	--	--	--	390	1510	--	--	--	--
13...	--	--	--	--	1040	2790	--	--	--	--
14...	--	--	--	--	90.0	1130	--	--	--	--
20...	--	--	--	--	450	1170	--	--	--	--
JUN										
02...	--	--	--	--	260	1050	--	--	--	--
JUL										
14...	--	--	--	--	210	490	--	--	--	--
14...	--	--	--	--	220	600	--	--	--	--
14...	--	--	--	--	140	1990	--	--	--	--
14...	--	--	--	--	140	1110	--	--	--	--
15...	--	--	--	--	160	1510	--	--	--	--
15...	--	--	--	--	230	650	--	--	--	--
19...	--	--	--	--	230	1880	--	--	--	--
AUG										
12...	--	--	--	--	100	1910	--	--	--	--
12...	--	--	--	--	90.0	3030	--	--	--	--
12...	--	--	--	--	350	8390	--	--	--	--
12...	--	--	--	--	830	5610	--	--	--	--
13...	--	--	--	--	370	1690	--	--	--	--
13...	--	--	--	--	180	1520	--	--	--	--
13...	--	--	--	--	170	1380	--	--	--	--
SEP										
13...	--	--	--	--	330	600	--	--	--	--
17...	--	--	--	--	220	2760	--	--	--	--
18...	--	--	--	--	260	12300	--	--	--	--
18...	--	--	--	--	470	4720	--	--	--	--
18...	--	--	--	--	500	3030	--	--	--	--
21...	--	--	--	--	550	1280	--	--	--	--

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	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)	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)
OCT										
01...	12.0	12.0	646	646	.290	.280	.260	.580	26.5	27.0
27...	--	--	370	610	--	--	--	--	16.0	24.0
27...	--	--	210	260	--	--	--	--	13.0	15.0
27...	--	--	160	220	--	--	--	--	11.0	13.0
27...	--	--	160	250	--	--	--	--	14.0	10.0
28...	--	--	320	380	--	--	--	--	10.0	16.0
28...	--	--	--	--	--	--	--	--	--	--
NOV										
19...	--	--	510	580	--	--	--	--	14.0	20.0
19...	--	--	390	540	--	--	--	--	20.0	19.0
19...	--	--	370	550	--	--	--	--	10.0	16.0
19...	--	--	320	390	--	--	--	--	6.00	14.0
19...	--	--	370	420	--	--	--	--	11.0	19.0
20...	--	--	350	390	--	--	--	--	13.0	14.0
20...	--	--	360	420	--	--	--	--	17.0	17.0
24...	--	--	590	590	--	--	--	--	23.0	25.0
DEC										
30...	--	--	610	610	--	--	--	--	26.0	25.0
MAR										
01...	--	--	700	710	--	--	--	--	25.0	25.0
APR										
12...	--	--	480	590	--	--	--	--	20.0	25.0
13...	--	--	410	530	--	--	--	--	20.0	20.0
13...	--	--	380	400	--	--	--	--	15.0	15.0
13...	--	--	380	400	--	--	--	--	15.0	15.0
14...	--	--	310	350	--	--	--	--	15.0	15.0
20...	--	--	480	560	--	--	--	--	25.0	25.0
JUN										
02...	--	--	560	600	--	--	--	--	20.0	25.0
JUL										
14...	--	--	240	260	--	--	--	--	20.0	20.0
14...	--	--	270	300	--	--	--	--	20.0	20.0
14...	--	--	280	380	--	--	--	--	20.0	25.0
14...	--	--	250	300	--	--	--	--	15.0	20.0
15...	--	--	220	290	--	--	--	--	15.0	20.0
15...	--	--	290	300	--	--	--	--	20.0	20.0
19...	--	--	510	1030	--	--	--	--	23.0	48.0
AUG										
12...	--	--	50.0	230	--	--	--	--	15.0	20.0
12...	--	--	60.0	290	--	--	--	--	15.0	20.0
12...	--	--	20.0	500	--	--	--	--	<5.00	20.0
12...	--	--	210	280	--	--	--	--	15.0	15.0
13...	--	--	30.0	270	--	--	--	--	<5.00	15.0
13...	--	--	120	240	--	--	--	--	15.0	15.0
13...	--	--	140	250	--	--	--	--	15.0	15.0
SEP										
13...	--	--	600	630	--	--	--	--	30.0	25.0
17...	--	--	190	1000	--	--	--	--	15.0	15.0
18...	--	--	50.0	1370	--	--	--	--	<5.00	40.0
18...	--	--	130	900	--	--	--	--	10.0	30.0
18...	--	--	200	670	--	--	--	--	10.0	20.0
21...	--	--	530	520	--	--	--	--	30.0	30.0

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	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)	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)
OCT										
01...	.065	.150	<.020	<.020	1.40	1.40	.053	.140	<.200	<.200
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
NOV										
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
DEC										
30...	--	--	--	--	--	--	--	--	--	--
MAR										
01...	--	--	--	--	--	--	--	--	--	--
APR										
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
JUN										
02...	--	--	--	--	--	--	--	--	--	--
JUL										
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
AUG										
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
SEP										
13...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	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)	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)
OCT										
01...	.078	.024	51.5	50.5	.011	.025	<.050	<.050	<.020	<.020
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
NOV										
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
DEC										
30...	--	--	--	--	--	--	--	--	--	--
MAR										
01...	--	--	--	--	--	--	--	--	--	--
APR										
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
JUN										
02...	--	--	--	--	--	--	--	--	--	--
JUL										
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
AUG										
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
SEP										
13...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	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...	68.5	64.5	.020	.050
27...	63.0	73.0	--	--
27...	21.0	32.0	--	--
27...	31.0	30.0	--	--
27...	21.0	32.0	--	--
28...	43.0	45.0	--	--
28...	--	--	--	--
NOV				
19...	58.0	58.0	--	--
19...	71.0	61.0	--	--
19...	41.0	57.0	--	--
19...	59.0	57.0	--	--
19...	50.0	45.0	--	--
20...	71.0	54.0	--	--
20...	73.0	41.0	--	--
24...	326	74.0	--	--
DEC				
30...	68.0	62.0	--	--
MAR				
01...	50.0	55.0	--	--
APR				
12...	40.0	70.0	--	--
13...	45.0	85.0	--	--
13...	45.0	55.0	--	--
13...	35.0	45.0	--	--
14...	35.0	40.0	--	--
20...	70.0	95.0	--	--
JUN				
02...	40.0	45.0	--	--
JUL				
14...	40.0	45.0	--	--
14...	40.0	45.0	--	--
14...	45.0	85.0	--	--
14...	90.0	120	--	--
15...	20.0	45.0	--	--
15...	85.0	90.0	--	--
19...	61.0	61.0	--	--
AUG				
12...	45.0	70.0	--	--
12...	25.0	60.0	--	--
12...	10.0	110	--	--
12...	25.0	60.0	--	--
13...	15.0	40.0	--	--
13...	15.0	35.0	--	--
13...	40.0	65.0	--	--
SEP				
13...	45.0	50.0	--	--
17...	30.0	515	--	--
18...	15.0	185	--	--
18...	25.0	85.0	--	--
18...	25.0	65.0	--	--
21...	70.0	75.0	--	--

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	200	182	192	---	---	---	159	137	153	186	180	183
2	199	181	191	---	---	---	155	120	129	190	184	187
3	208	180	194	295	192	236	158	120	131	195	187	190
4	209	175	192	205	147	172	177	120	134	189	150	176
5	210	176	193	180	153	168	159	125	136	151	140	145
6	210	185	199	166	149	158	173	124	144	165	149	158
7	204	181	191	170	148	158	165	123	133	170	162	167
8	202	180	193	175	156	167	165	152	160	173	169	171
9	212	182	194	183	163	175	163	153	156	181	171	175
10	229	192	212	183	170	176	223	162	182	193	180	188
11	236	207	219	184	161	174	202	88	114	195	188	191
12	231	206	218	177	157	166	131	108	122	190	183	186
13	237	214	225	177	158	167	147	131	139	190	185	188
14	235	178	221	182	159	170	151	146	149	197	190	193
15	191	119	137	186	163	174	171	151	160	202	176	196
16	190	151	172	189	163	175	170	162	165	206	175	194
17	198	175	188	199	166	188	180	164	169	205	199	202
18	193	172	182	207	199	202	169	161	165	205	196	200
19	199	175	188	206	113	181	171	166	169	206	199	202
20	202	181	192	---	---	---	171	166	169	209	204	206
21	207	181	193	154	124	146	178	168	172	213	206	209
22	202	183	193	163	148	158	183	175	179	210	204	207
23	205	186	194	174	160	167	183	172	179	226	208	217
24	207	187	198	180	163	173	192	134	161	220	214	216
25	213	196	204	174	154	162	153	136	146	224	214	218
26	213	192	204	183	172	176	164	153	159	220	216	217
27	212	90	134	190	169	183	170	164	167	220	214	216
28	127	94	113	193	130	170	173	170	172	217	208	212
29	127	94	109	137	123	131	176	172	174	221	213	215
30	159	114	127	159	133	146	180	172	176	222	218	220
31	---	---	---	---	---	---	185	174	180	226	211	220
MONTH	237	90	185	295	113	171	223	88	156	226	140	196

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	228	216	221	198	190	192	191	165	177	170	163	167
2	237	217	224	191	148	176	171	164	167	176	130	168
3	270	216	228	154	140	147	179	171	175	140	116	126
4	264	217	235	156	151	154	181	176	178	150	139	145
5	226	217	220	157	154	155	185	178	181	159	149	154
6	301	204	232	165	155	159	185	182	184	163	157	160
7	204	178	186	169	156	160	184	179	181	167	161	164
8	201	187	192	166	159	163	197	178	181	175	165	169
9	220	193	206	166	161	164	181	172	175	178	171	174
10	219	202	209	166	163	165	178	174	176	180	173	176
11	219	210	215	165	162	164	186	176	179	185	175	179
12	221	215	218	171	165	167	188	163	181	191	181	185
13	220	214	217	174	170	172	164	117	142	198	184	190
14	220	214	218	176	173	174	133	116	126	199	192	195
15	224	218	220	180	173	175	142	133	137	204	186	197
16	233	217	223	---	---	---	147	142	145	192	176	183
17	227	206	220	203	179	191	153	147	150	205	178	191
18	230	216	223	212	196	204	161	151	156	202	169	180
19	224	216	220	224	206	215	166	158	162	196	185	191
20	224	215	219	225	205	214	171	163	167	198	190	194
21	223	212	218	205	173	184	173	168	170	202	192	195
22	212	204	207	176	171	173	178	171	173	206	197	201
23	210	203	206	180	175	178	178	171	173	208	202	206
24	227	207	217	180	176	178	175	169	171	211	204	207
25	224	215	218	176	167	170	183	172	175	217	210	213
26	220	212	216	173	167	169	179	126	147	218	159	198
27	220	214	217	174	172	173	148	131	141	182	136	164
28	217	205	211	176	173	175	159	147	152	201	181	192
29	206	197	202	186	174	179	164	158	161	213	201	208
30	---	---	---	190	186	188	169	162	165	215	211	212
31	---	---	---	189	184	187	---	---	---	218	191	210
MONTH	301	178	216	225	140	176	197	116	165	218	116	184

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	205	186	191	240	235	237	215	137	164	229	222	225
2	204	181	192	260	238	250	170	145	161	227	223	225
3	210	198	204	265	258	261	196	170	186	235	227	232
4	215	210	213	265	259	262	200	162	193	236	232	234
5	214	134	184	262	250	256	182	164	173	234	229	231
6	164	133	146	270	253	260	211	182	195	239	230	235
7	181	163	173	273	267	270	210	204	206	247	237	241
8	196	181	188	269	264	267	211	205	207	245	230	239
9	202	193	197	270	263	267	225	210	217	237	190	216
10	205	196	201	276	266	270	233	222	226	224	218	221
11	210	191	197	278	271	274	233	225	230	232	223	226
12	209	196	201	277	68	132	237	157	209	242	232	237
13	214	207	209	147	88	118	168	126	139	243	238	240
14	215	209	212	156	120	143	186	154	173	241	237	239
15	214	194	203	145	120	134	199	185	191	246	236	242
16	209	190	198	164	145	155	205	199	201	247	241	245
17	210	167	201	174	164	169	206	201	204	242	214	236
18	191	167	179	173	166	170	213	204	207	216	63	87
19	208	191	199	184	167	176	214	212	213	75	63	69
20	212	206	209	193	183	189	215	202	213	---	---	---
21	220	212	216	235	192	208	207	147	158	---	---	---
22	236	174	212	224	213	216	191	159	177	---	---	---
23	210	181	195	214	152	187	201	191	196	---	---	---
24	237	210	223	188	152	167	213	201	205	---	---	---
25	236	232	234	208	188	201	217	212	214	211	208	210
26	238	226	231	212	207	210	217	214	216	212	209	210
27	240	231	235	211	158	193	223	215	218	223	204	207
28	240	226	238	178	160	165	226	191	219	206	97	157
29	237	210	223	197	178	189	194	167	181	140	105	123
30	239	231	234	207	197	202	211	194	203	154	140	148
31	---	---	---	216	207	212	222	211	218	---	---	---
MONTH	240	133	205	278	68	207	237	126	197	247	63	207
YEAR	301	63	188									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		FEBRUARY			MARCH			APRIL			MAY	
1	6.8	6.8	6.8	6.8	6.7	6.7	6.8	6.6	6.7	6.6	6.5	6.5
2	6.8	6.8	6.8	6.8	6.6	6.7	6.6	6.5	6.6	7.1	6.5	6.5
3	6.8	6.8	6.8	6.8	6.6	6.8	6.6	6.5	6.5	6.6	6.3	6.4
4	6.8	6.8	6.8	6.8	6.7	6.7	6.5	6.5	6.5	6.6	6.5	6.5
5	6.8	6.8	6.8	6.8	6.7	6.8	6.6	6.5	6.6	6.5	6.4	6.5
6	6.8	6.6	6.8	6.8	6.7	6.8	6.6	6.5	6.6	6.5	6.4	6.5
7	6.7	6.6	6.6	7.0	6.6	6.8	6.8	6.6	6.7	6.6	6.4	6.5
8	6.7	6.7	6.7	6.9	6.7	6.8	6.7	6.7	6.7	6.6	6.5	6.5
9	6.7	6.6	6.7	6.8	6.7	6.7	6.7	6.6	6.7	6.6	6.5	6.6
10	6.9	6.7	6.8	6.7	6.7	6.7	6.8	6.6	6.7	6.7	6.5	6.6
11	6.9	6.8	6.8	6.7	6.7	6.7	6.7	6.7	6.7	6.8	6.6	6.7
12	6.8	6.8	6.8	6.7	6.7	6.7	6.8	6.7	6.7	6.7	6.6	6.7
13	6.9	6.8	6.9	6.7	6.7	6.7	6.8	6.4	6.5	6.8	6.6	6.7
14	6.9	6.9	6.9	6.7	6.7	6.7	6.4	6.3	6.4	6.8	6.7	6.7
15	6.9	6.9	6.9	6.7	6.7	6.7	6.4	6.3	6.3	6.8	6.7	6.7
16	6.9	6.9	6.9	6.7	6.7	6.7	6.3	6.3	6.3	6.8	6.7	6.7
17	6.9	6.8	6.9	6.8	6.7	6.8	6.3	6.3	6.3	6.9	6.7	6.7
18	6.8	6.8	6.8	6.8	6.8	6.8	6.5	6.3	6.5	6.9	6.7	6.7
19	6.9	6.8	6.9	6.9	6.8	6.8	6.7	6.5	6.7	6.7	6.6	6.7
20	6.9	6.8	6.9	6.9	6.8	6.8	6.7	6.6	6.7	6.7	6.7	6.7
21	7.0	6.9	6.9	6.8	6.6	6.7	6.7	6.6	6.7	6.8	6.7	6.7
22	6.9	6.9	6.9	6.7	6.6	6.7	6.7	6.6	6.7	6.8	6.7	6.7
23	6.9	6.9	6.9	6.7	6.7	6.7	6.6	6.5	6.6	6.8	6.7	6.8
24	6.9	6.9	6.9	6.7	6.6	6.7	6.6	6.5	6.5	6.9	6.7	6.8
25	6.9	6.9	6.9	6.7	6.7	6.7	6.6	6.5	6.5	6.8	6.8	6.8
26	6.9	6.8	6.8	6.8	6.7	6.7	6.6	6.4	6.5	7.0	6.2	6.8
27	6.8	6.7	6.8	6.8	6.7	6.8	6.4	6.3	6.4	6.8	6.6	6.7
28	6.8	6.8	6.8	6.9	6.8	6.8	6.4	6.4	6.4	6.8	6.6	6.7
29	6.8	6.8	6.8	6.9	6.4	6.8	6.5	6.3	6.4	6.9	6.8	6.8
30	---	---	---	6.7	6.7	6.7	6.5	6.4	6.5	6.9	6.8	6.9
31	---	---	---	6.7	6.7	6.7	---	---	---	6.9	6.8	6.8
MAX	7.0	6.9	6.9	7.0	6.8	6.8	6.8	6.7	6.7	7.1	6.8	6.9
MIN	6.7	6.6	6.6	6.7	6.4	6.7	6.3	6.3	6.3	6.5	6.2	6.4

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	6.9	6.8	6.8	6.9	6.8	6.8	6.8	6.6	6.6	6.9	6.7	6.8
2	6.9	6.8	6.8	7.0	6.8	6.9	6.8	6.6	6.7	6.9	6.9	6.9
3	6.8	6.8	6.8	7.1	6.9	6.9	6.9	6.7	6.8	6.9	6.8	6.8
4	6.8	6.8	6.8	7.1	6.9	7.0	7.0	6.8	6.8	6.9	6.8	6.8
5	6.9	6.6	6.8	7.1	6.8	7.0	6.9	6.8	6.8	6.9	6.9	6.9
6	6.6	6.6	6.6	7.1	6.9	7.0	6.9	6.7	6.8	6.9	6.8	6.8
7	6.8	6.6	6.7	7.0	6.9	6.9	6.8	6.7	6.8	6.9	6.7	6.8
8	6.8	6.7	6.8	7.1	6.8	6.9	6.9	6.8	6.8	6.9	6.8	6.8
9	6.8	6.7	6.7	7.2	6.9	7.1	6.9	6.8	6.8	7.0	6.8	6.8
10	6.7	6.6	6.7	7.2	7.0	7.0	6.9	6.7	6.8	6.9	6.8	6.8
11	6.7	6.7	6.7	7.1	6.9	7.0	7.0	6.8	6.9	6.9	6.8	6.8
12	6.7	6.6	6.7	7.1	5.7	6.2	7.3	6.4	6.8	6.8	6.7	6.8
13	6.8	6.6	6.7	6.5	6.0	6.4	6.8	6.6	6.7	6.8	6.7	6.7
14	6.8	6.7	6.8	6.7	6.4	6.5	6.8	6.7	6.7	6.9	6.8	6.8
15	6.8	6.7	6.7	6.6	6.4	6.5	6.8	6.7	6.7	6.9	6.7	6.8
16	6.8	6.7	6.7	6.6	6.5	6.5	6.9	6.7	6.8	6.9	6.7	6.8
17	7.1	6.6	6.8	6.6	6.5	6.5	6.9	6.7	6.8	6.9	6.8	6.9
18	6.8	6.6	6.7	6.6	6.5	6.6	6.8	6.8	6.8	6.9	5.5	5.7
19	6.9	6.7	6.9	6.7	6.5	6.6	6.8	6.7	6.7	6.2	5.5	6.0
20	6.9	6.9	6.9	6.7	6.6	6.7	7.0	6.7	6.8	6.4	6.1	6.3
21	6.9	6.8	6.9	6.9	6.7	6.8	6.9	6.7	6.8	6.5	6.4	6.5
22	7.0	6.6	6.8	6.8	6.7	6.7	6.9	6.7	6.8	6.6	6.5	6.5
23	6.9	6.7	6.8	6.8	6.6	6.6	6.9	6.8	6.8	6.6	6.5	6.6
24	6.9	6.8	6.9	6.8	6.6	6.7	6.9	6.8	6.9	6.7	6.5	6.6
25	7.0	6.8	6.9	6.8	6.7	6.7	6.9	6.8	6.8	6.6	6.6	6.6
26	6.9	6.8	6.9	6.8	6.7	6.7	6.9	6.8	6.8	6.6	6.5	6.6
27	6.9	6.8	6.9	6.8	6.7	6.7	6.9	6.8	6.8	6.7	6.6	6.6
28	6.9	6.9	6.9	6.7	6.7	6.7	6.9	6.8	6.8	6.7	6.2	6.6
29	6.9	6.8	6.9	6.7	6.7	6.7	6.8	6.7	6.8	6.4	6.3	6.4
30	6.9	6.8	6.8	6.7	6.7	6.7	6.9	6.7	6.8	6.5	6.4	6.5
31	---	---	---	6.7	6.6	6.7	6.8	6.7	6.8	---	---	---
MAX	7.1	6.9	6.9	7.2	7.0	7.1	7.3	6.8	6.9	7.0	6.9	6.9
MIN	6.6	6.6	6.6	6.5	5.7	6.2	6.8	6.4	6.6	6.2	5.5	5.7

YEAR			
	MAX	MAXIMUM 7.3	MINIMUM 6.2
	MIN	MAXIMUM 7.0	MINIMUM 5.5
	MEDIAN	MAXIMUM 7.1	MINIMUM 5.7

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	12.5	11.5	12.0	12.5	10.0	11.5	7.5	6.0	7.0	6.0	5.0	5.5
2	13.0	10.0	11.0	13.0	11.5	12.5	6.0	4.5	5.5	7.0	5.0	6.0
3	11.0	9.0	10.0	13.5	12.0	13.0	5.0	4.0	4.5	8.0	7.0	7.5
4	10.5	10.0	10.5	13.5	11.5	12.5	5.5	3.5	4.5	8.5	6.5	8.0
5	11.0	9.0	10.0	13.0	12.5	12.5	5.5	3.5	5.0	6.5	6.0	6.0
6	10.5	8.0	9.5	13.0	12.5	12.5	4.0	3.0	3.5	6.0	3.0	5.0
7	11.0	8.0	9.5	12.5	10.0	11.5	4.0	3.0	3.5	3.0	2.0	2.5
8	12.5	9.5	11.0	10.0	7.0	9.0	4.0	2.5	3.5	3.5	2.0	3.0
9	13.5	10.5	12.0	7.5	6.0	6.5	5.0	3.5	4.5	3.0	1.0	2.5
10	14.0	12.0	13.0	7.0	5.0	6.0	6.0	4.5	5.5	1.0	0.5	1.0
11	14.0	12.0	13.0	8.0	6.0	6.5	6.5	6.0	6.5	2.5	1.0	1.5
12	13.5	11.0	12.5	10.0	8.0	9.0	6.0	5.5	6.0	4.0	2.5	3.0
13	14.0	11.5	13.0	10.5	6.5	8.5	5.5	5.0	5.5	5.0	2.5	4.0
14	12.5	11.0	11.5	7.0	5.5	6.5	5.5	4.0	4.5	2.5	1.5	2.0
15	13.0	11.5	12.0	8.5	7.0	7.5	5.5	4.5	5.0	1.5	0.0	1.0
16	11.5	9.5	10.5	8.5	7.0	7.5	5.5	4.5	5.0	0.5	0.0	0.5
17	11.0	10.5	11.0	9.5	8.5	9.0	6.0	5.0	5.5	1.5	0.5	1.0
18	11.0	9.5	10.5	9.5	8.0	8.5	5.0	4.5	4.5	3.0	1.5	2.5
19	11.5	10.0	10.5	12.0	9.5	11.0	5.5	4.5	5.0	2.5	1.5	2.0
20	11.0	8.5	10.0	10.5	8.5	9.5	5.0	4.0	4.5	2.5	1.0	1.5
21	13.0	10.0	11.0	9.5	7.5	8.5	4.5	3.5	4.0	2.0	0.5	1.0
22	12.0	9.5	11.0	9.5	8.0	9.0	5.5	4.0	5.0	3.0	1.0	1.5
23	9.5	7.5	8.5	9.5	7.5	8.5	6.5	5.5	6.0	1.0	0.0	0.5
24	9.0	6.5	8.0	10.0	8.0	9.0	6.5	5.5	6.0	1.0	0.0	0.5
25	9.5	6.5	8.0	8.0	6.5	7.0	5.5	5.0	5.0	0.5	0.0	0.5
26	12.0	9.5	11.0	7.5	6.0	6.5	5.5	4.5	5.0	1.0	0.0	0.5
27	13.0	11.0	12.0	8.0	6.5	7.5	6.0	5.0	5.5	1.0	0.5	1.0
28	11.0	9.5	10.5	10.0	8.0	9.0	6.0	4.5	5.0	1.0	0.5	1.0
29	11.0	10.0	10.5	8.5	6.5	7.0	6.0	4.5	5.0	1.5	0.5	1.0
30	11.0	9.0	10.0	7.5	6.5	7.0	6.0	5.0	5.5	1.0	0.5	0.5
31	11.0	9.0	10.5	---	---	---	6.0	5.0	5.5	1.0	0.0	0.5
MONTH	14.0	6.5	10.8	13.5	5.0	9.0	7.5	2.5	5.0	8.5	0.0	2.4

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	1.5	0.0	0.5	5.5	3.0	4.5	9.0	8.0	8.0	16.5	12.0	14.0
2	1.5	0.5	1.0	7.5	4.5	5.5	8.0	7.5	8.0	15.0	14.0	14.5
3	1.0	0.0	1.0	6.5	4.0	5.5	8.0	7.5	7.5	14.0	11.0	12.0
4	3.0	1.0	2.0	6.0	5.0	5.5	7.5	5.5	7.0	12.5	9.5	11.0
5	2.5	1.0	2.0	6.5	5.5	6.0	7.5	3.5	5.0	12.0	9.5	10.5
6	2.0	1.0	1.5	8.0	6.5	7.0	8.5	3.5	6.0	13.5	9.5	11.5
7	3.0	2.0	2.5	8.0	5.5	6.5	11.0	6.5	8.5	14.5	11.5	13.0
8	2.0	0.5	1.0	6.5	5.5	6.0	8.5	6.5	7.5	14.0	11.5	12.5
9	2.5	0.0	1.0	6.0	4.5	5.5	10.5	7.0	8.5	15.0	11.0	13.0
10	4.5	2.0	3.0	6.5	4.0	5.0	11.0	6.0	8.5	16.0	13.0	14.5
11	4.0	2.0	3.0	7.0	4.0	5.5	8.5	7.0	7.5	17.0	13.5	15.5
12	4.0	1.5	2.5	6.0	4.0	5.0	8.5	7.0	7.5	17.5	14.0	15.5
13	4.5	2.5	3.0	6.0	3.0	4.5	7.5	6.5	7.0	18.0	14.5	16.0
14	3.5	1.5	2.5	5.5	3.0	4.5	8.5	7.5	7.5	17.0	15.0	16.0
15	3.0	0.5	1.5	8.0	4.5	6.0	10.0	6.5	8.0	18.5	14.5	16.5
16	1.0	0.0	0.5	5.5	2.5	4.0	10.5	6.5	8.5	17.5	15.5	16.0
17	1.0	0.0	0.5	5.0	3.0	4.0	12.5	7.5	10.0	17.0	14.0	15.5
18	2.5	0.5	1.5	6.5	3.5	5.0	14.5	10.0	12.0	17.5	15.0	16.0
19	4.5	1.5	3.0	6.0	3.5	4.5	15.0	11.0	13.0	16.0	14.5	15.5
20	5.0	2.0	3.5	7.0	2.5	5.0	14.5	12.0	13.0	15.5	14.0	14.5
21	5.5	3.5	4.5	6.0	4.0	5.5	14.0	11.5	12.5	16.5	14.5	15.5
22	5.0	3.0	3.5	5.0	2.5	4.0	14.5	12.0	13.0	18.5	15.0	16.5
23	5.0	2.0	3.5	6.0	2.0	4.0	13.0	12.0	12.5	19.5	15.5	17.5
24	3.5	2.5	3.5	7.5	3.5	5.5	15.0	11.0	13.0	19.0	16.0	17.5
25	4.0	1.0	2.5	7.5	6.5	6.5	12.0	10.0	11.0	19.0	15.5	17.0
26	4.0	0.5	2.5	10.5	6.5	8.5	10.5	10.0	10.5	16.5	15.5	16.0
27	5.0	2.0	3.5	11.0	9.0	10.0	12.0	9.5	10.5	17.0	15.5	16.0
28	5.5	2.0	3.5	12.0	8.5	10.0	12.0	7.5	9.5	17.5	15.5	16.0
29	6.0	2.0	4.0	11.5	8.0	9.5	14.0	9.0	11.5	16.0	13.0	14.5
30	---	---	---	8.5	7.0	7.5	15.5	11.0	13.0	16.0	11.5	13.5
31	---	---	---	9.0	7.0	8.0	---	---	---	14.5	13.5	13.5
MONTH	6.0	0.0	2.3	12.0	2.0	5.9	15.5	3.5	9.5	19.5	9.5	14.7

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	16.5	13.0	14.5	18.0	14.5	16.5	19.5	18.0	19.0	18.5	15.0	17.0
2	16.5	13.0	15.0	20.0	15.5	17.5	20.5	18.5	19.5	18.0	15.0	16.5
3	17.5	13.5	15.0	19.5	16.0	17.5	20.5	18.0	19.0	18.0	15.5	16.5
4	16.0	12.5	14.5	17.5	16.5	17.0	20.5	17.5	19.0	18.0	15.0	16.5
5	14.5	13.0	13.5	21.5	17.0	19.0	19.0	17.0	18.5	17.0	16.0	16.5
6	14.0	13.0	13.5	20.5	17.5	19.0	17.0	15.0	16.0	17.0	14.5	16.0
7	16.0	13.0	14.5	18.5	16.5	17.5	16.0	14.0	15.0	18.5	16.0	17.5
8	17.5	14.0	15.5	20.0	17.0	18.5	17.0	13.5	15.5	17.5	17.0	17.0
9	18.5	15.0	16.5	18.5	16.5	17.5	18.0	14.5	16.5	19.0	17.5	18.5
10	17.0	15.5	16.0	19.5	15.0	17.5	18.5	15.5	17.0	19.0	16.5	17.5
11	16.0	14.0	15.0	20.0	16.0	18.0	19.0	16.5	17.5	18.5	16.0	17.0
12	16.5	12.5	14.5	19.0	17.5	18.0	18.5	16.5	17.5	17.5	15.0	16.0
13	15.0	13.0	14.0	17.5	17.0	17.0	18.0	17.5	18.0	18.0	15.0	16.5
14	16.5	14.0	15.0	17.5	16.5	17.0	17.5	16.5	17.0	17.0	15.5	16.5
15	18.0	15.5	16.5	17.5	16.0	17.0	18.0	16.5	17.0	17.0	15.5	16.5
16	18.5	16.5	17.5	17.5	15.5	16.5	18.0	15.5	16.5	17.0	16.0	16.5
17	19.0	16.5	18.0	18.0	15.5	17.0	17.5	16.0	16.5	17.0	16.0	16.5
18	19.5	17.0	18.0	17.0	16.5	16.5	18.0	16.0	16.5	18.0	14.5	16.5
19	18.5	16.0	17.5	17.5	16.0	16.5	17.5	16.5	17.0	14.5	13.5	14.0
20	17.5	14.0	15.5	18.5	15.5	17.0	19.5	16.5	18.0	14.0	12.5	13.5
21	17.5	12.5	15.0	19.0	16.0	17.5	18.5	17.0	18.0	14.5	12.5	13.5
22	17.5	15.0	16.0	19.0	16.5	18.0	17.5	15.0	16.0	15.0	13.0	14.0
23	19.0	16.0	17.0	19.0	17.0	18.0	17.5	14.0	16.0	15.5	13.5	14.5
24	19.5	15.5	17.0	19.5	17.5	18.5	18.0	15.5	17.0	15.5	14.0	15.0
25	18.5	16.0	17.0	18.5	16.5	17.5	18.0	16.5	17.0	15.5	14.0	15.0
26	19.0	16.0	17.0	18.0	16.5	17.0	18.0	16.5	17.0	16.0	14.5	15.0
27	17.0	13.5	15.5	17.0	16.5	16.5	19.0	17.0	17.5	15.5	13.5	14.5
28	16.5	14.0	15.5	18.5	16.5	17.5	19.0	17.0	18.0	16.5	15.0	15.5
29	17.5	14.5	16.0	19.0	16.0	17.5	20.0	18.0	19.0	16.0	15.0	15.5
30	18.0	14.0	16.0	18.5	16.5	17.5	19.5	18.0	18.5	15.5	14.0	15.0
31	---	---	---	20.0	18.0	18.5	19.0	17.0	18.0	---	---	---
MONTH	19.5	12.5	15.7	21.5	14.5	17.5	20.5	13.5	17.4	19.0	12.5	15.9
YEAR	21.5	0.0	10.5									

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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Oct. 27	1845	2,030	8.85	July 12	1645	3,160	10.74
Oct. 29	1145	1,940	8.70	Sept. 18	1000	*13,500	*a15.28
Dec. 11	1400	3,480	11.22	Sept. 28	2200	2,470	9.61

a From floodmark in gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	221	529	407	264	e100	184	229	239	177	75	272	108
2	207	431	344	247	e95	221	266	256	155	71	208	98
3	179	370	298	241	e100	277	229	705	133	66	174	93
4	203	328	271	314	e110	276	218	441	116	62	175	86
5	188	325	263	607	e120	264	206	370	304	64	242	82
6	158	347	262	515	e260	330	190	323	621	59	166	81
7	144	329	239	401	e580	308	182	290	388	56	139	78
8	129	273	220	340	e300	329	189	256	279	64	120	80
9	114	248	207	302	e210	281	211	237	222	56	107	120
10	110	238	239	e250	e190	253	178	231	192	52	98	97
11	104	234	2410	e240	e180	235	165	207	213	51	92	78
12	101	255	1520	e230	e150	221	179	191	181	1550	197	72
13	95	246	824	e220	e140	200	562	180	148	1050	1040	70
14	95	217	639	e200	e130	184	977	174	136	706	433	66
15	521	204	570	e190	e120	177	633	251	156	799	272	68
16	251	192	451	e190	e110	178	455	373	156	438	211	67
17	202	184	498	e180	e120	179	373	238	141	301	177	70
18	212	175	492	e170	e110	177	322	289	176	270	157	6790
19	194	351	417	e150	e120	196	286	242	128	242	142	1990
20	176	828	363	e140	e150	216	259	216	109	191	137	888
21	169	534	318	e130	e170	326	242	198	101	159	791	587
22	163	410	296	e120	221	303	227	182	135	140	448	440
23	151	343	300	e110	196	260	234	162	156	214	280	355
24	139	319	659	e120	186	237	216	146	111	187	216	301
25	130	370	724	e130	161	227	197	136	96	137	181	264
26	127	295	547	e140	146	213	426	160	102	123	158	235
27	1070	268	442	e150	141	205	398	292	89	159	142	211
28	1180	371	376	e140	145	190	318	188	80	201	135	994
29	1480	659	337	e130	163	175	282	152	109	143	152	1510
30	1070	491	330	e120	---	168	258	132	84	121	125	763
31	697	---	293	e110	---	166	---	145	---	112	120	---
TOTAL	9980	10364	15556	6791	4924	7156	9107	7602	5194	7919	7307	16742
MEAN	322	345	502	219	170	231	304	245	173	255	236	558
MAX	1480	828	2410	607	580	330	977	705	621	1550	1040	6790
MIN	95	175	207	110	95	166	165	132	80	51	92	66
CFSM	2.78	2.98	4.33	1.89	1.46	1.99	2.62	2.11	1.49	2.20	2.03	4.81
IN.	3.20	3.32	4.99	2.18	1.58	2.29	2.92	2.44	1.67	2.54	2.34	5.37

STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF DAILY RECORD, BY WATER YEAR (WY)

MEAN	137	207	265	264	228	385	325	257	215	126	99.0	122
MAX	361	396	745	683	555	846	874	756	772	378	330	558
(WY)	1997	1993	1997	1996	1998	1994	1993	1989	2003	1989	2003	2004
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

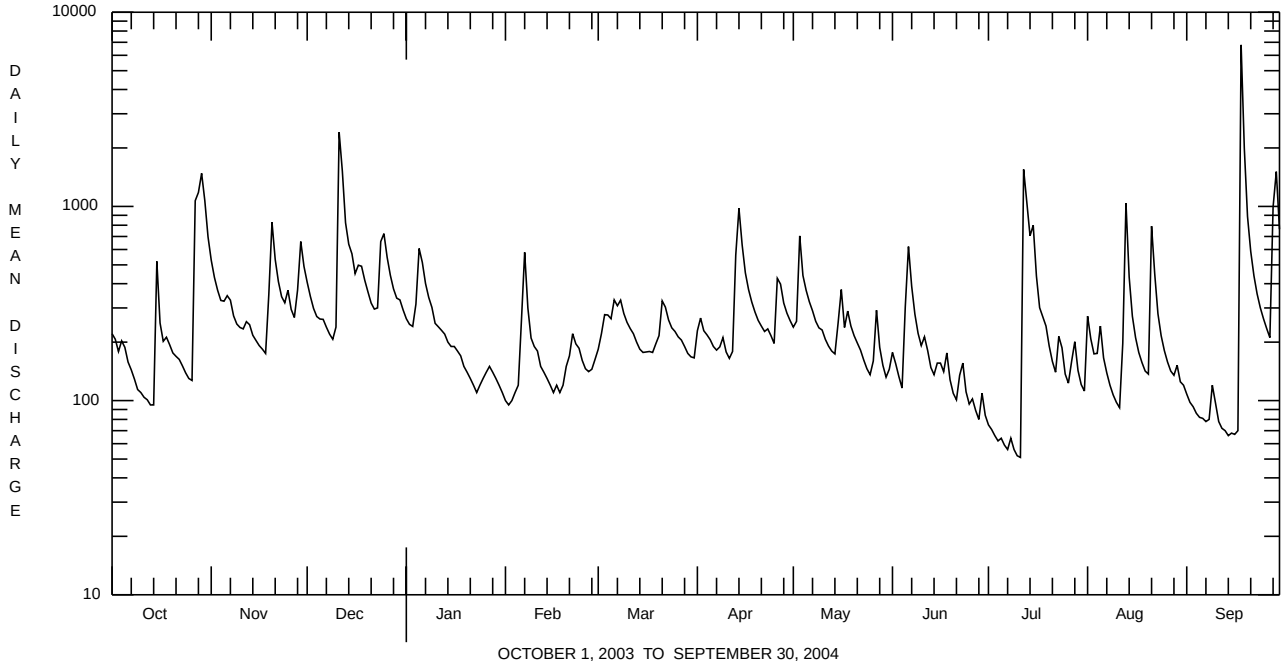
e Estimated.

SWATARA CREEK BASIN

01572025 SWATARA CREEK NEAR PINE GROVE, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	132191		108642			
ANNUAL MEAN	362		297		216	
HIGHEST ANNUAL MEAN					332	2003
LOWEST ANNUAL MEAN					104	2002
HIGHEST DAILY MEAN	2760	Jun 21	6790	Sep 18	6790	Sep 18 2004
LOWEST DAILY MEAN	**e**60	Feb 16	51	Jul 11	14	Aug 7 1999
ANNUAL SEVEN-DAY MINIMUM	**b**66	Feb 12	57	Jul 5	15	Sep 8 2002
MAXIMUM PEAK FLOW			**c**13500	Sep 18	**c**13500	Sep 18 2004
MAXIMUM PEAK STAGE			**a**15.28	Sep 18	**a**15.28	Sep 18 2004
INSTANTANEOUS LOW FLOW			50	Jul 10-12	13	Sep 10 2002**d**
ANNUAL RUNOFF (CFSM)	3.12		2.56		1.87	
ANNUAL RUNOFF (INCHES)	42.39		34.84		25.35	
10 PERCENT EXCEEDS	736		530		444	
50 PERCENT EXCEEDS	260		206		135	
90 PERCENT EXCEEDS	112		100		35	

a From floodmark in gage.
b Computed using estimated daily discharges.
c From rating curve extended above 3,300 ft^3/s on basis of slope-area measurement at gage height 15.28 ft.
d Also Sept. 12, 14, 2002.
e Estimated.



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 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 9.6 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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Oct. 27	2145	2,900	9.04	July 12	2115	4,620	11.44
Oct. 29	1515	2,650	8.63	July 15	0030	2,440	8.38
Dec. 11	2015	4,780	11.63	Sept. 18	1615	*17,300	*19.67
Apr. 14	0400	2,120	7.73	Sept. 29	0145	4,310	11.05

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	317	791	562	407	127	249	340	356	233	115	395	125
2	293	624	474	366	124	296	529	349	208	97	338	111
3	251	512	429	350	137	470	441	1170	172	86	276	103
4	273	436	384	441	e150	460	396	760	144	79	233	97
5	274	408	365	1070	197	433	356	609	359	80	385	90
6	224	454	e350	981	350	549	321	514	1170	73	251	89
7	198	436	e300	739	1310	544	304	442	708	68	201	85
8	185	340	e270	588	751	566	303	372	467	77	171	84
9	159	294	267	508	426	479	351	331	348	66	147	142
10	156	274	281	e350	341	400	292	338	286	59	134	117
11	146	268	3080	e300	324	355	263	291	324	57	125	89
12	137	300	2650	e300	248	324	270	256	294	1900	157	79
13	131	297	1320	e300	213	276	872	236	225	2120	1530	75
14	128	243	986	e250	202	243	1790	213	198	1120	696	69
15	790	224	856	e230	178	233	1130	286	226	1700	390	72
16	423	209	e630	e240	147	232	803	559	213	790	286	70
17	321	198	e680	e230	159	238	647	318	188	494	230	74
18	324	189	729	e225	148	226	544	375	263	391	198	10500
19	289	315	687	e210	146	255	471	327	186	358	178	5490
20	258	1220	607	e195	189	277	420	314	152	276	165	1840
21	243	799	511	e190	254	516	395	268	133	221	1010	1150
22	233	592	459	e165	312	509	368	244	146	194	691	868
23	215	474	458	e155	265	410	362	212	238	313	391	709
24	195	422	1030	e145	249	358	329	183	154	311	285	619
25	181	517	1420	e135	216	332	291	166	126	207	232	561
26	175	398	1050	e130	185	305	587	185	129	177	198	513
27	1290	345	820	144	175	281	690	464	114	215	175	470
28	1930	413	669	150	180	256	522	272	100	332	164	1430
29	2060	905	574	140	208	229	446	200	134	232	183	2910
30	1660	683	549	134	---	213	395	164	109	187	152	1250
31	1050	---	478	127	---	210	---	170	---	166	140	---
TOTAL	14509	13580	23925	9895	7911	10724	15228	10944	7747	12561	10107	29881
MEAN	468	453	772	319	273	346	508	353	258	405	326	996
MAX	2060	1220	3080	1070	1310	566	1790	1170	1170	2120	1530	10500
MIN	128	189	267	127	124	210	263	164	100	57	125	69
CFSM	2.80	2.71	4.62	1.91	1.63	2.07	3.04	2.11	1.55	2.43	1.95	5.96
IN.	3.23	3.03	5.33	2.20	1.76	2.39	3.39	2.44	1.73	2.80	2.25	6.66

STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF DAILY RECORD, BY WATER YEAR (WY)

MEAN	191	291	386	383	329	566	482	371	292	175	135	181
MAX	538	662	1098	987	832	1263	1325	1184	1007	576	512	996
(WY)	1997	1993	1997	1996	1998	1994	1993	1989	2003	1989	2003	2004
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

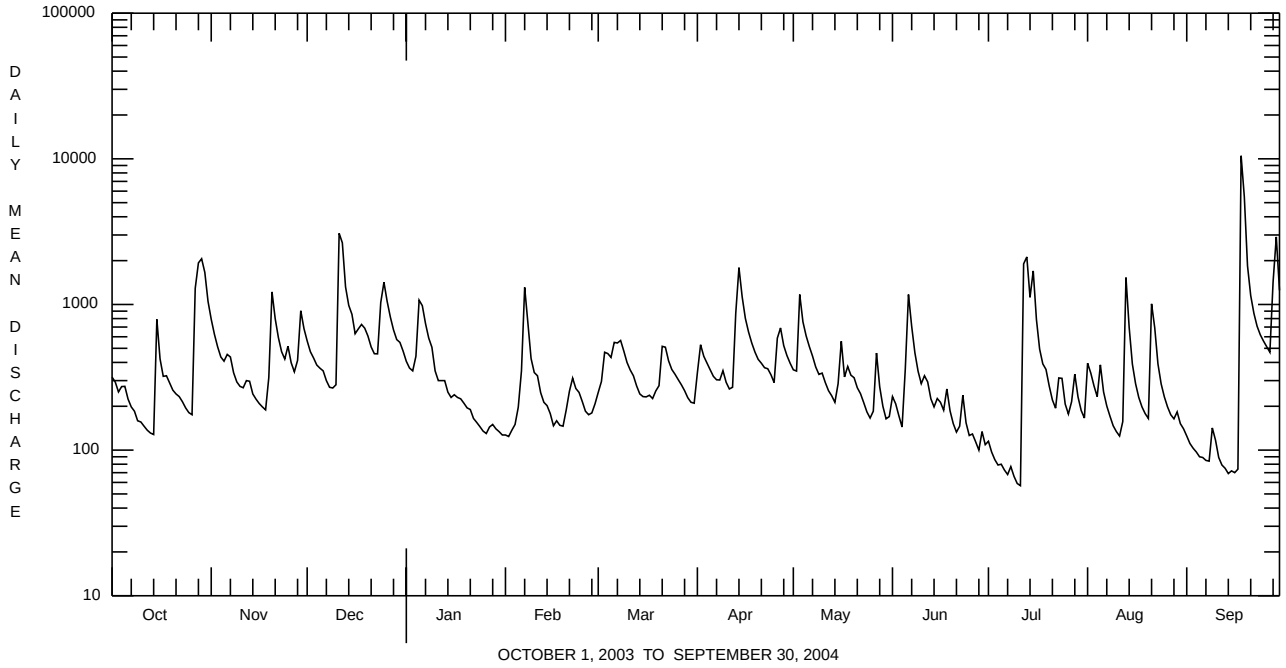
e Estimated.

SWATARA CREEK BASIN

01572190 SWATARA CREEK NEAR INWOOD, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	184508		167012			
ANNUAL MEAN	506		456		311	
HIGHEST ANNUAL MEAN					459	2003
LOWEST ANNUAL MEAN					140	2002
HIGHEST DAILY MEAN	3540	Mar 21	10500	Sep 18	10500	Sep 18 2004
LOWEST DAILY MEAN	85	Jul 21	57	Jul 11	17	Aug 2 1999**a**
ANNUAL SEVEN-DAY MINIMUM	99	Jul 15	69	Jul 5	17	Aug 2 1999
MAXIMUM PEAK FLOW			**b**17300	Sep 18	**b**17300	Sep 18 2004
MAXIMUM PEAK STAGE			19.67	Sep 18	19.67	Sep 18 2004
INSTANTANEOUS LOW FLOW			56	Jul 11	17	Aug 2 1999**c**
ANNUAL RUNOFF (CFSM)	3.03		2.73		1.86	
ANNUAL RUNOFF (INCHES)	41.10		37.20		25.30	
10 PERCENT EXCEEDS	1060		860		681	
50 PERCENT EXCEEDS	340		291		174	
90 PERCENT EXCEEDS	139		129		46	

a Also Aug. 3-8, 12, 13.
b From rating curve extended above 14,500 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.

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, which are poor. 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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Dec. 11	0845	214	3.74	Sept. 28	1800	172	3.45
Sept. 18	0300	*2,520	*a9.31				

a From floodmark in gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.6	29	19	14	e4.0	11	26	18	6.1	8.8	21	5.8
2	6.9	24	18	13	e4.0	14	31	20	5.8	5.9	16	5.1
3	6.4	21	16	12	e7.0	17	25	27	4.9	4.1	13	4.9
4	7.5	19	14	15	e6.0	18	25	19	4.0	3.8	13	4.5
5	6.4	19	14	23	e4.5	17	22	18	13	3.6	14	4.2
6	5.7	19	14	19	14	21	19	17	19	3.1	9.2	4.0
7	5.4	17	12	18	19	18	18	16	11	3.1	7.7	3.7
8	5.2	14	13	18	14	18	18	14	9.1	3.6	6.4	5.5
9	4.8	12	12	17	12	15	17	13	8.2	2.8	5.5	7.9
10	4.6	12	13	14	12	14	13	13	7.1	2.6	5.0	5.0
11	4.4	11	112	e12	11	13	12	11	11	2.5	5.1	3.7
12	4.4	15	62	e11	10	12	16	9.4	8.9	17	21	3.4
13	4.3	13	43	e10	9.2	11	54	8.2	6.7	11	29	3.2
14	10	12	35	e10	8.8	9.4	56	8.7	6.3	18	19	3.1
15	35	11	31	e9.5	8.1	8.7	41	9.0	7.1	17	16	3.0
16	16	10	25	e9.0	7.3	8.8	32	12	5.5	12	13	3.1
17	15	9.8	24	e9.0	6.9	8.4	26	7.1	8.9	9.8	11	4.8
18	15	9.1	21	e8.5	6.7	8.3	19	7.2	10	8.5	9.0	e600
19	13	24	19	e7.5	7.0	9.6	17	10	6.3	7.4	8.2	114
20	12	32	18	e7.0	7.7	11	16	8.4	5.5	6.1	9.2	59
21	12	26	16	e7.0	9.1	17	14	7.2	5.3	5.3	29	36
22	11	23	15	e6.0	9.6	14	13	6.4	8.0	5.2	17	24
23	10	21	15	e6.0	10	13	13	5.6	6.7	13	14	18
24	9.1	21	26	e6.0	11	13	11	5.1	5.0	7.0	12	14
25	8.2	22	23	e5.5	9.9	12	10	4.6	4.5	5.3	10	11
26	8.3	18	22	e5.5	9.2	11	29	5.4	4.2	4.6	8.7	8.6
27	59	16	21	e5.0	9.0	11	24	7.4	3.7	16	7.7	7.0
28	43	20	19	e5.0	9.4	8.7	22	5.2	3.6	14	13	71
29	62	24	18	e4.5	10	8.2	21	4.6	5.1	9.4	12	53
30	44	19	18	e4.0	---	7.6	19	4.3	3.4	7.3	7.9	35
31	35	---	16	e4.0	---	7.6	---	5.0	---	6.5	6.7	---
TOTAL	491.2	542.9	744	315.0	266.4	386.3	679	326.8	213.9	244.3	389.3	1125.5
MEAN	15.8	18.1	24.0	10.2	9.19	12.5	22.6	10.5	7.13	7.88	12.6	37.5
MAX	62	32	112	23	19	21	56	27	19	18	29	600
MIN	4.3	9.1	12	4.0	4.0	7.6	10	4.3	3.4	2.5	5.0	3.0
CFSM	2.89	3.30	4.38	1.85	1.68	2.27	4.13	1.92	1.30	1.44	2.29	6.85
IN.	3.33	3.69	5.05	2.14	1.81	2.62	4.61	2.22	1.45	1.66	2.64	7.64

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2002 - 2004, BY WATER YEAR (WY)

MEAN	11.0	15.4	20.3	12.4	8.00	20.5	19.8	11.5	14.7	6.50	11.5	17.6
MAX	15.8	18.1	24.0	14.6	9.19	28.6	22.6	12.5	22.4	7.88	12.6	37.5
(WY)	2004	2004	2004	2003	2004	2003	2004	2003	2003	2004	2004	2004
MIN	6.08	12.7	16.7	10.2	6.78	12.5	16.9	10.5	7.13	5.13	10.4	1.93
(WY)	2003	2003	2003	2004	2003	2004	2003	2004	2004	2003	2003	2002

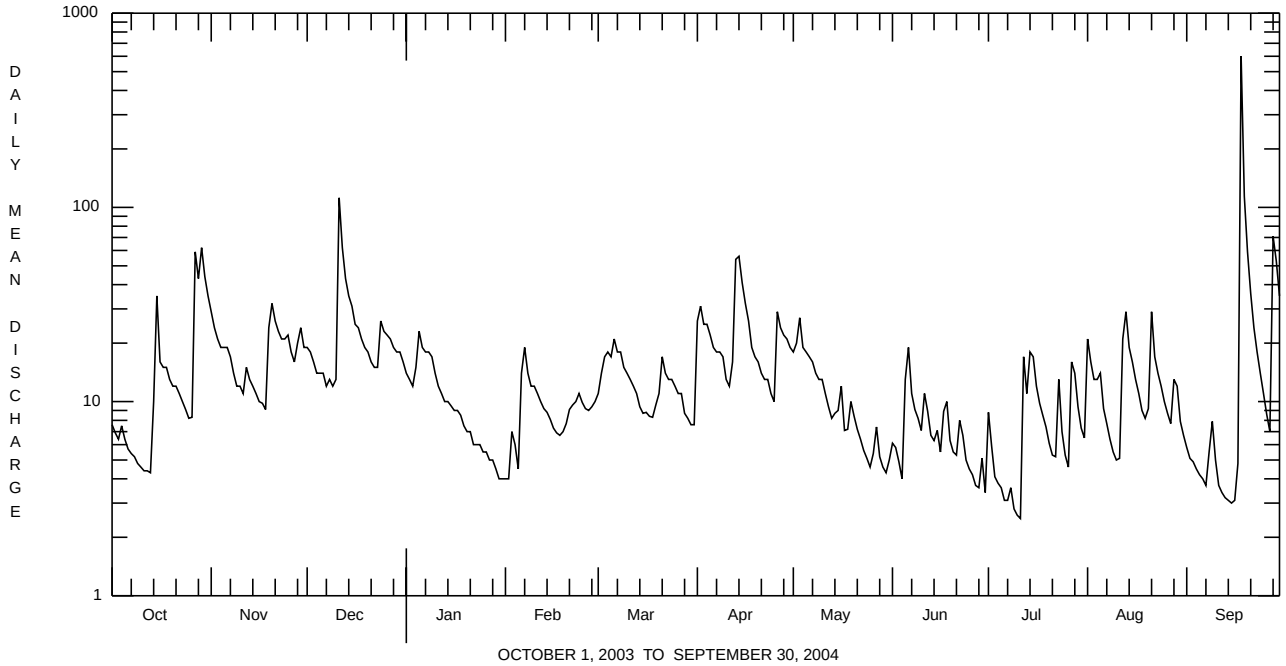
e Estimated.

SWATARA CREEK BASIN

01572950 INDIANTOWN RUN NEAR HARPER TAVERN, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2002 - 2004	
ANNUAL TOTAL	5748.3		5724.6			
ANNUAL MEAN	15.7		15.6		14.7	
HIGHEST ANNUAL MEAN					15.6	2004
LOWEST ANNUAL MEAN					13.9	2003
HIGHEST DAILY MEAN	112	Dec 11	**e**600	Sep 18	**e**600	Sep 18 2004
LOWEST DAILY MEAN	3.1	Jul 17	2.5	Jul 11	0.83	Sep 10 2002
ANNUAL SEVEN-DAY MINIMUM	**b**3.5	Feb 11	3.0	Jul 5	0.88	Sep 5 2002
MAXIMUM PEAK FLOW			**c**2520	Sep 18	**c**2520	Sep 18 2004
MAXIMUM PEAK STAGE			**a**9.31	Sep 18	9.31	Sep 18 2004
INSTANTANEOUS LOW FLOW			2.4	Jul 11,12	0.78	Sep 9 2002
ANNUAL RUNOFF (CFSM)	2.87		2.85		2.69	
ANNUAL RUNOFF (INCHES)	39.02		38.86		36.56	
10 PERCENT EXCEEDS	30		24		26	
50 PERCENT EXCEEDS	13		11		11	
90 PERCENT EXCEEDS	4.4		4.6		4.2	

a From floodmark in gage.
b Computed using estimated daily discharges.
c From rating curve extended above 124 ft^3/s on basis of slope-area measurement of peak flow at gage height 9.31 ft.
e Estimated.



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 11.3 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)
Oct. 29	1945	6,180	8.18	Aug. 21	1730	5,890	7.94
Dec. 12	0145	9,770	10.82	Sept. 19	0230	*25,000	*17.36
July 13	0145	5,210	7.36	Sept. 29	0600	8,690	10.09
Aug. 13	1945	4,990	7.17				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	576	1750	1230	700	e190	e520	774	633	479	335	773	286
2	529	1430	1020	636	e180	e550	1160	606	410	443	721	254
3	448	1180	845	612	e170	e690	896	1760	349	214	493	232
4	499	1010	741	676	e180	e700	814	1200	286	183	416	223
5	554	921	704	1710	e300	e710	741	954	573	178	755	205
6	426	1100	732	1560	e900	e930	617	835	1920	168	469	199
7	371	1080	648	1140	e4400	972	567	734	1170	158	370	193
8	339	821	571	e920	e2750	926	554	647	804	180	323	193
9	307	684	544	e800	e1200	802	718	567	622	156	285	274
10	281	628	573	e580	e950	691	562	587	513	134	259	270
11	269	607	6030	e570	e900	616	483	514	620	129	257	200
12	255	744	6610	e620	e820	573	517	451	635	1260	286	175
13	242	768	2740	e560	e730	504	1870	412	439	3110	3330	165
14	258	602	2020	e480	e670	456	3360	377	385	1820	1680	158
15	2130	524	2020	e420	e530	435	2070	468	475	2640	821	151
16	1040	494	1580	e400	e410	429	1480	798	411	1240	593	156
17	742	471	1630	e390	e370	465	1190	555	427	832	472	160
18	764	442	1850	e360	e380	484	1010	514	606	659	399	14400
19	631	651	1380	e340	e450	650	866	540	400	645	361	16500
20	543	2860	1180	e300	e630	699	754	574	322	506	338	2960
21	492	1740	995	e290	e720	826	680	450	277	403	4220	1800
22	457	1320	881	e270	e800	818	625	412	284	348	2050	1340
23	423	1070	856	e260	e680	687	629	364	453	538	1050	1040
24	380	936	1330	e250	e610	619	597	322	311	693	761	849
25	346	1160	2150	e240	e540	572	509	292	255	400	601	714
26	328	898	1520	e230	e460	542	1130	318	237	339	505	618
27	2150	759	1240	e220	e430	511	1490	1470	228	400	435	533
28	4310	879	1050	e230	e420	478	954	644	201	666	425	2520
29	4720	2190	923	e220	e460	429	797	438	244	442	433	6770
30	3800	1490	899	e210	---	401	705	358	224	352	361	2450
31	2310	---	815	e200	---	391	---	338	---	311	320	---
TOTAL	30920	31209	47307	16394	22230	19076	29119	19132	14560	19882	24562	55988
MEAN	997	1040	1526	529	767	615	971	617	485	641	792	1866
MAX	4720	2860	6610	1710	4400	972	3360	1760	1920	3110	4220	16500
MIN	242	442	544	200	170	391	483	292	201	129	257	151
CFSM	2.96	3.09	4.53	1.57	2.27	1.83	2.88	1.83	1.44	1.90	2.35	5.54
IN.	3.41	3.45	5.22	1.81	2.45	2.11	3.21	2.11	1.61	2.19	2.71	6.18

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1919 - 2004, BY WATER YEAR (WY)

MEAN	337	528	709	678	752	1070	881	675	460	307	253	284
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

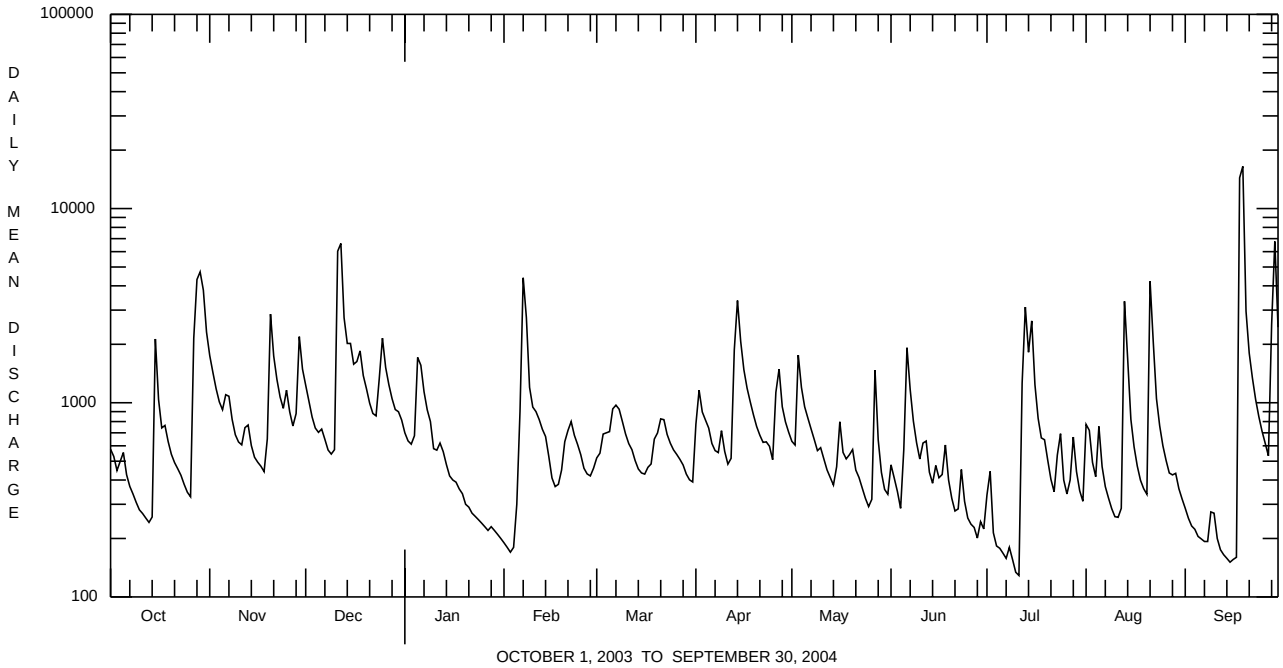
e Estimated.

SWATARA CREEK BASIN

01573000 SWATARA CREEK AT HARPER TAVERN, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1919 - 2004	
ANNUAL TOTAL	379954		330379			
ANNUAL MEAN	1041		903		576	
HIGHEST ANNUAL MEAN					948	1972
LOWEST ANNUAL MEAN					201	1931
HIGHEST DAILY MEAN	7780	Mar 21	16500	Sep 19	42500	Jun 23 1972
LOWEST DAILY MEAN	143	Jul 21	129	Jul 11	6.6	Aug 21 1965
ANNUAL SEVEN-DAY MINIMUM	171	Jul 15	158	Jul 5	10	Sep 19 1932
MAXIMUM PEAK FLOW			25000	Sep 19	**a**66700	Jun 23 1972
MAXIMUM PEAK STAGE			17.36	Sep 19	**b**23.72	Jun 23 1972
INSTANTANEOUS LOW FLOW			126	Jul 11,12	6.0	Aug 21 1965
ANNUAL RUNOFF (CFSM)	3.09		2.68		1.71	
ANNUAL RUNOFF (INCHES)	41.94		36.47		23.23	
10 PERCENT EXCEEDS	2210		1740		1290	
50 PERCENT EXCEEDS	693		574		319	
90 PERCENT EXCEEDS	234		239		66	

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.

PERIOD OF RECORD.--September 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 good except those for estimated daily discharges, which are poor. Satellite and landline telemetry at station.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Dec. 11	1145	296	4.80	Sept. 28	1915	246	4.60
Sept. 18	0245	*2,800	*12.09				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	37	26	17	e8.0	16	38	20	8.7	5.8	20	6.4
2	13	31	24	16	e9.0	19	52	22	8.2	5.6	12	6.0
3	12	27	22	15	e13	21	44	37	7.6	5.1	10	5.6
4	14	24	20	19	e11	20	42	25	6.6	5.1	9.7	5.4
5	12	24	19	32	e8.0	19	34	24	16	5.0	9.8	5.2
6	10	24	19	28	e18	25	29	22	18	4.7	7.7	5.2
7	9.8	21	17	25	29	21	27	21	12	4.7	6.7	5.1
8	9.3	18	16	23	21	23	26	19	10	4.9	6.2	5.6
9	8.7	17	15	21	18	19	25	18	9.2	4.2	5.7	8.0
10	8.4	16	17	e19	17	18	21	19	9.0	4.0	6.0	5.8
11	8.2	16	182	e17	16	17	19	16	14	4.0	6.9	5.1
12	8.0	19	93	e15	15	16	24	14	12	14	18	4.8
13	7.8	17	56	e14	14	15	90	12	9.4	8.7	23	4.7
14	11	16	43	e13	14	14	105	14	8.9	13	15	4.5
15	51	15	37	e12	13	13	67	15	9.4	11	12	4.6
16	24	14	30	e12	e12	13	49	17	7.9	7.6	9.9	4.7
17	22	14	31	e11	e11	13	38	12	13	6.6	8.9	6.0
18	22	13	29	e11	11	13	31	12	16	6.5	8.1	1150
19	19	26	26	e10	12	15	27	12	11	6.2	7.8	177
20	17	46	24	e10	13	17	23	11	9.8	5.4	7.6	70
21	16	37	21	e10	15	22	20	11	8.9	5.0	20	44
22	15	32	20	e9.5	16	20	17	10	9.2	5.3	12	33
23	14	28	20	e9.0	17	19	17	9.7	9.0	18	9.8	26
24	13	26	32	e9.0	17	18	16	9.3	7.6	9.8	8.8	22
25	12	29	31	e8.5	16	17	14	8.8	6.9	7.5	8.2	20
26	12	23	29	e8.0	15	16	40	9.3	6.7	6.6	7.6	18
27	72	22	26	e8.0	15	15	33	9.5	6.1	11	7.0	17
28	63	26	24	e7.5	15	14	28	8.8	6.0	11	9.4	97
29	90	33	21	e7.5	15	13	24	8.3	7.3	9.0	9.9	74
30	63	28	21	e7.0	---	12	22	7.7	5.7	8.0	8.2	39
31	47	---	19	e7.0	---	12	---	8.2	---	7.1	7.9	---
TOTAL	718.2	719	1010	431.0	424.0	525	1042	462.6	290.1	230.4	319.8	1879.7
MEAN	23.2	24.0	32.6	13.9	14.6	16.9	34.7	14.9	9.67	7.43	10.3	62.7
MAX	90	46	182	32	29	25	105	37	18	18	23	1150
MIN	7.8	13	15	7.0	8.0	12	14	7.7	5.7	4.0	5.7	4.5
CFSM	2.70	2.79	3.79	1.62	1.70	1.97	4.04	1.74	1.13	0.87	1.20	7.29
IN.	3.11	3.11	4.37	1.87	1.84	2.27	4.51	2.00	1.26	1.00	1.38	8.14

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2002 - 2004, BY WATER YEAR (WY)

MEAN	15.9	20.4	28.3	17.1	12.9	31.7	30.7	17.4	19.7	7.57	12.6	42.7
MAX	23.2	24.0	32.6	20.3	14.6	46.5	34.7	19.9	29.8	7.71	14.8	62.7
(WY)	2004	2004	2004	2003	2004	2003	2004	2003	2003	2003	2003	2004
MIN	8.70	16.8	24.0	13.9	11.2	16.9	26.6	14.9	9.67	7.43	10.3	22.8
(WY)	2003	2003	2003	2004	2003	2004	2003	2004	2004	2004	2004	2003

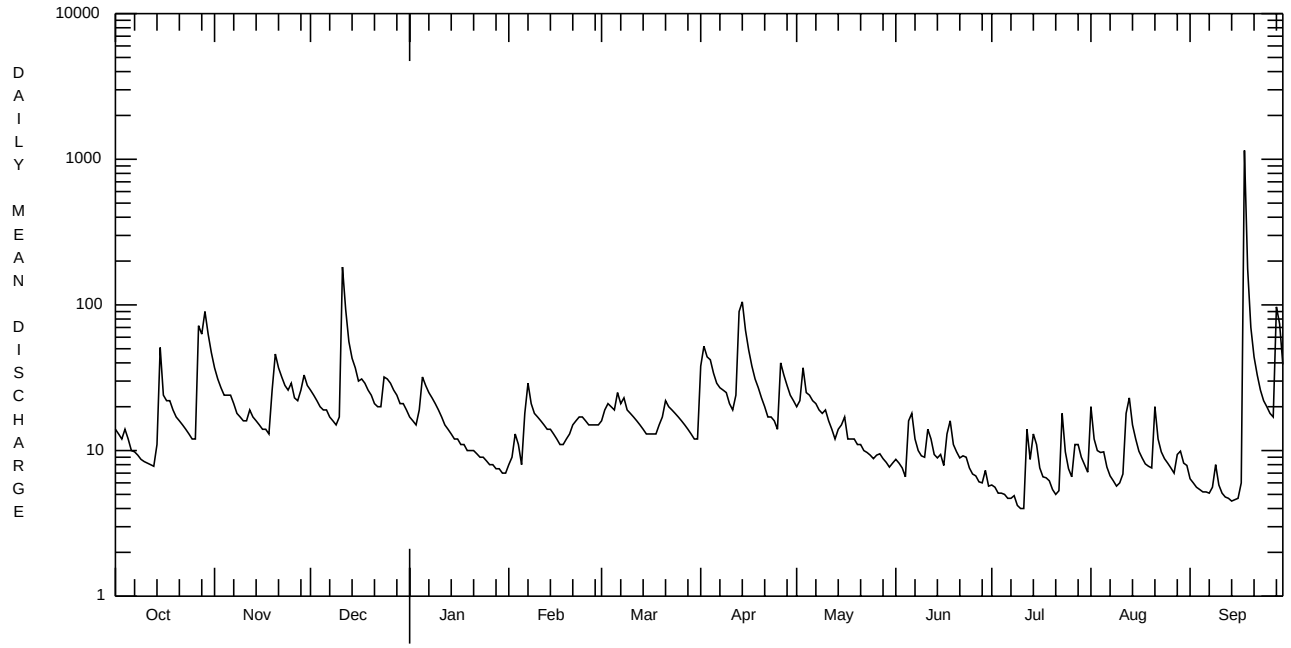
e Estimated.

SWATARA CREEK BASIN

01573482 MANADA CREEK AT MANADA GAP, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2002 - 2004	
ANNUAL TOTAL	8521.3		8051.8			
ANNUAL MEAN	23.3		22.0		21.4	
HIGHEST ANNUAL MEAN					22.0	2004
LOWEST ANNUAL MEAN					20.8	2003
HIGHEST DAILY MEAN	201	Sep 23	1150	Sep 18	1150	Sep 18 2004
LOWEST DAILY MEAN	**e**4.0	Feb 18	4.0	Jul 10,11	0.74	Sep 12 2002
ANNUAL SEVEN-DAY MINIMUM	**a**4.6	Feb 14	4.5	Jul 5	1.1	Sep 12 2002
MAXIMUM PEAK FLOW			**b**2800	Sep 18	**b**2800	Sep 18 2004
MAXIMUM PEAK STAGE			12.09	Sep 18	12.09	Sep 18 2004
INSTANTANEOUS LOW FLOW			3.5	Jul 12	0.58	Sep 11 2002**c**
ANNUAL RUNOFF (CFSM)	2.72		2.56		2.49	
ANNUAL RUNOFF (INCHES)	36.90		34.87		33.84	
10 PERCENT EXCEEDS	43		32		37	
50 PERCENT EXCEEDS	18		15		15	
90 PERCENT EXCEEDS	7.0		6.3		6.1	

a Computed using estimated daily discharges.
b From rating curve extended above 320 ft^3/s on basis of indirect computation of peak flow at gage height 12.09 ft.
c Also Sept. 12, 2002.
e Estimated.



OCTOBER 1, 2003 TO SEPTEMBER 30, 2004

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 11.3 ft^3/s. In addition, water is diverted just upstream from the station for 9 municipalities in Dauphin and Lebanon Counties. Diversion for the year was equivalent to a mean daily discharge of 5.0 ft^3/s. Satellite and landline telemetry at station.

COOPERATION.--Records of daily diversion furnished by Pennsylvania American Water Company.

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)
Dec. 12	0915	9,970	7.51	Sept. 29	1230	8,880	7.01
Sept. 19	1230	*26,000	*14.27				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	791	2350	1680	1030	e360	e750	1170	897	603	322	1480	468
2	724	1910	1370	929	e380	e770	1970	849	539	736	1520	448
3	650	1580	1120	889	e400	e920	1420	2210	479	365	872	393
4	696	1350	962	953	e500	e940	1220	1670	389	301	739	388
5	781	1220	887	2350	e600	e910	1090	1270	691	284	1250	348
6	629	1460	948	2370	e1000	1280	891	1170	2990	271	796	329
7	538	1480	829	1690	e4200	1410	824	1070	1850	268	606	320
8	512	1170	722	1350	e2900	1260	796	949	1140	321	519	323
9	474	995	693	e1100	e1350	1100	945	823	884	263	462	419
10	430	896	704	e900	e1050	940	814	979	702	239	427	450
11	412	883	6430	e850	e1000	861	711	777	916	219	420	357
12	391	1010	8760	1130	e920	789	737	624	1070	721	482	289
13	375	1060	4200	986	e840	726	2990	572	651	4840	3650	272
14	362	820	3100	789	e820	677	4760	541	551	2610	3420	270
15	2620	683	3060	e600	e720	634	3350	604	776	4590	1310	250
16	1580	643	2430	e470	e570	629	2300	1060	771	2190	851	252
17	1120	623	2300	e480	e530	680	1770	809	977	1340	656	273
18	1120	587	2850	e490	e570	696	1450	650	2020	1000	561	17500
19	968	808	2080	e460	e620	923	1200	675	920	955	543	23500
20	820	3900	1790	e430	e900	1020	1030	788	630	777	503	6440
21	745	2640	1500	e400	e1000	1040	914	601	534	583	4320	2570
22	704	1860	1310	e430	e1050	1090	859	561	474	501	3290	1850
23	638	1450	1300	e400	e950	925	847	488	641	1130	1450	1420
24	579	1240	1720	e380	e860	833	823	444	522	1640	1040	1200
25	547	1510	3050	e360	e820	790	740	406	442	772	879	1010
26	513	1210	2200	e370	e710	754	1530	436	410	604	724	929
27	2070	982	1780	e400	e680	714	2290	1810	388	667	665	808
28	4980	1050	1500	e430	e660	686	1280	951	339	1180	603	2830
29	5050	3010	1320	e400	e700	624	1080	574	396	769	675	8160
30	4790	2130	1280	e360	---	593	993	462	393	572	566	3700
31	3020	---	1200	e340	---	575	---	427	---	507	511	---
TOTAL	39629	42510	65075	24516	27660	26539	42794	26147	24088	31537	35790	77766
MEAN	1278	1417	2099	791	954	856	1426	843	803	1017	1155	2592
MAX	5050	3900	8760	2370	4200	1410	4760	2210	2990	4840	4320	23500
MIN	362	587	693	340	360	575	711	406	339	219	420	250
CFSM	2.65	2.93	4.35	1.64	1.97	1.77	2.95	1.75	1.66	2.11	2.39	5.37
IN.	3.05	3.27	5.01	1.89	2.13	2.04	3.30	2.01	1.86	2.43	2.76	5.99

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 2004, BY WATER YEAR (WY)

MEAN	574	728	992	956	954	1408	1217	880	662	446	358	424
MAX	2632	1427	2693	3370	1963	3848	3207	2708	2641	1536	1346	2592
(WY)	1977	1993	1997	1979	1998	1994	1993	1989	2003	1989	2003	2004
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

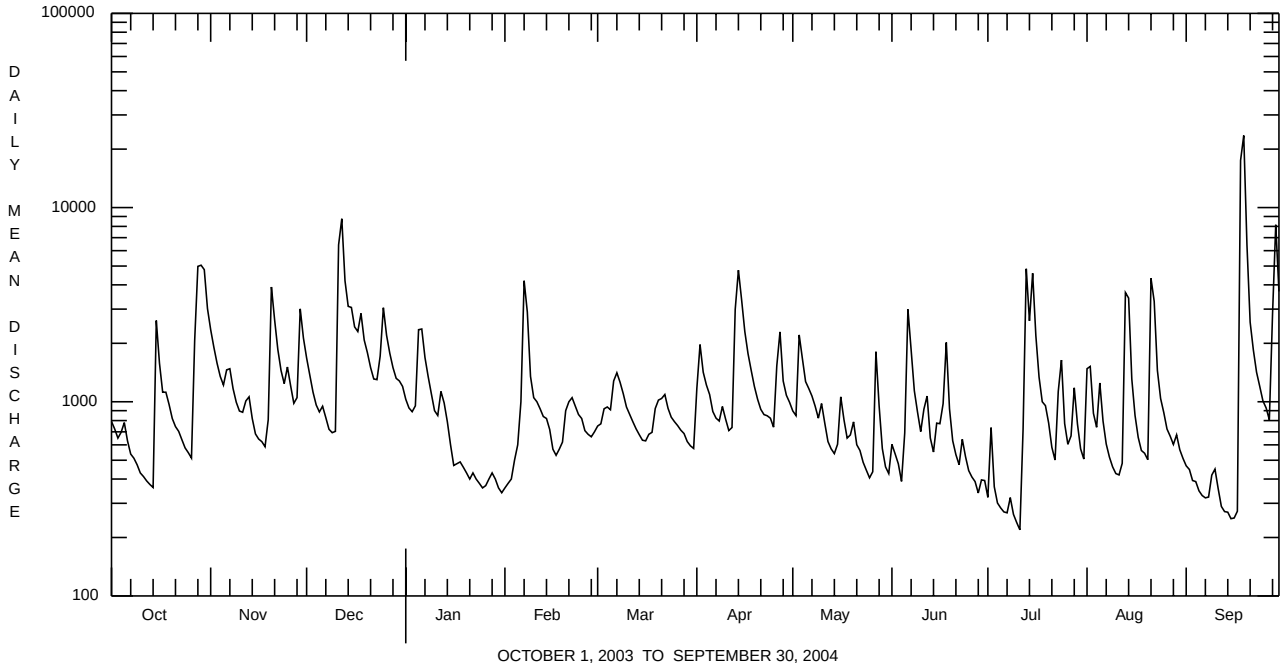
e Estimated.

SWATARA CREEK BASIN

01573560 SWATARA CREEK NEAR HERSHEY, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1976 - 2004	
ANNUAL TOTAL	518882		464051			
ANNUAL MEAN	1422		1268		799	
HIGHEST ANNUAL MEAN					1268	2004
LOWEST ANNUAL MEAN					327	2002
HIGHEST DAILY MEAN	8760	Dec 12	23500	Sep 19	23800	Jan 25 1979
LOWEST DAILY MEAN	109	Feb 17	219	Jul 11	29	Aug 6 2002
ANNUAL SEVEN-DAY MINIMUM	237	Feb 14	266	Jul 5	52	Aug 6 2002
MAXIMUM PEAK FLOW			26000	Sep 19	29400	Sep 27 1975
MAXIMUM PEAK STAGE			14.27	Sep 19	15.36	Sep 27 1975
INSTANTANEOUS LOW FLOW			210	Jul 11,12	24	Aug 5 2002**a**
ANNUAL RUNOFF (CFSM)	2.94		2.63		1.65	
ANNUAL RUNOFF (INCHES)	39.96		35.74		22.48	
10 PERCENT EXCEEDS	3020		2390		1770	
50 PERCENT EXCEEDS	1010		824		454	
90 PERCENT EXCEEDS	397		393		132	

a Also Aug. 6, Sept. 10, 14, 15, 21.



WEST CONEWAGO CREEK BASIN

01573825 WEST CONEWAGO CREEK AT EAST BERLIN, PA

LOCATION.--Lat 39°56'27", long 76°59'27", Adams County, Hydrologic Unit 02050306, on right bank 100 ft downstream from bridge on State Highway 234, 1.4 mi upstream from confluence with Beaver Creek, at East Berlin.

DRAINAGE AREA.--218 mi^2.

PERIOD OF RECORD.--September 2003 to current year.

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 400 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 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)
Nov. 20	0145	4,670	9.28	June 5	2000	6,310	11.01
Dec. 11	1115	*10,400	*15.04	June 15	0545	7,370	12.09
Feb. 7	0015	8,900	13.62	Sept. 18	1300	9,030	13.74
Apr. 13	0430	5,530	10.20	Sept. 29	0030	9,780	14.47

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	---	---	---	---	---	---	---	---	---	---	---	e130
2	---	---	---	---	---	---	---	---	---	---	---	e230
3	---	---	---	---	---	---	---	---	---	---	---	e240
4	---	---	---	---	---	---	---	---	---	---	---	e300
5	---	---	---	---	---	---	---	---	---	---	---	e580
6	---	---	---	---	---	---	---	---	---	---	---	e360
7	---	---	---	---	---	---	---	---	---	---	---	e240
8	---	---	---	---	---	---	---	---	---	---	---	e160
9	---	---	---	---	---	---	---	---	---	---	---	e130
10	---	---	---	---	---	---	---	---	---	---	---	e122
11	---	---	---	---	---	---	---	---	---	---	---	e110
12	---	---	---	---	---	---	---	---	---	---	---	96
13	---	---	---	---	---	---	---	---	---	---	---	104
14	---	---	---	---	---	---	---	---	---	---	---	130
15	---	---	---	---	---	---	---	---	---	---	---	122
16	---	---	---	---	---	---	---	---	---	---	---	299
17	---	---	---	---	---	---	---	---	---	---	---	209
18	---	---	---	---	---	---	---	---	---	---	---	175
19	---	---	---	---	---	---	---	---	---	---	---	628
20	---	---	---	---	---	---	---	---	---	---	---	360
21	---	---	---	---	---	---	---	---	---	---	---	197
22	---	---	---	---	---	---	---	---	---	---	---	150
23	---	---	---	---	---	---	---	---	---	---	---	5130
24	---	---	---	---	---	---	---	---	---	---	---	1310
25	---	---	---	---	---	---	---	---	---	---	---	452
26	---	---	---	---	---	---	---	---	---	---	---	440
27	---	---	---	---	---	---	---	---	---	---	---	333
28	---	---	---	---	---	---	---	---	---	---	---	815
29	---	---	---	---	---	---	---	---	---	---	---	382
30	---	---	---	---	---	---	---	---	---	---	---	273
31	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	14207
MEAN	---	---	---	---	---	---	---	---	---	---	---	474
MAX	---	---	---	---	---	---	---	---	---	---	---	5130
MIN	---	---	---	---	---	---	---	---	---	---	---	96
CFSM	---	---	---	---	---	---	---	---	---	---	---	2.17
IN.	---	---	---	---	---	---	---	---	---	---	---	2.42

e Estimated.

WEST CONEWAGO CREEK BASIN

01573825 WEST CONEWAGO CREEK AT EAST BERLIN, PA

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR **OCTOBER 2003 TO SEPTEMBER 2004**--Continued
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	240	394	391	239	e105	474	973	275	216	110	1410	82
2	232	343	331	230	e105	517	1040	283	240	104	404	67
3	197	308	288	249	e130	609	775	1800	215	102	175	52
4	211	276	263	287	e250	548	517	446	165	95	126	50
5	252	300	280	798	e300	493	422	328	2030	102	103	48
6	187	565	320	545	e1000	1250	328	298	1880	107	93	46
7	161	480	303	312	3830	683	297	270	556	94	74	45
8	160	320	271	243	1140	596	278	303	371	198	70	47
9	160	260	270	e200	507	436	310	233	293	130	66	65
10	154	236	292	e150	406	363	266	210	239	92	57	116
11	155	225	7580	e160	493	327	240	183	657	82	52	73
12	147	665	1840	211	388	301	320	171	1030	104	54	57
13	141	619	798	215	332	263	3320	160	371	139	743	53
14	138	349	633	e170	338	240	2120	148	623	107	218	50
15	1480	282	833	e155	279	235	805	173	3490	113	137	50
16	344	256	705	e150	213	229	552	291	532	88	106	54
17	234	244	836	e150	188	270	452	190	554	72	82	59
18	276	231	853	173	197	306	395	168	652	71	74	4640
19	232	711	467	221	308	575	351	493	348	90	67	693
20	192	2260	396	170	768	455	308	273	274	72	216	310
21	172	579	347	e150	1070	357	283	294	235	63	905	230
22	170	435	325	e130	850	288	266	405	206	60	438	182
23	158	373	450	e135	612	242	262	259	248	71	184	151
24	141	339	744	e115	480	225	456	179	190	123	133	132
25	129	453	686	e110	380	216	267	168	163	82	107	122
26	129	338	409	e100	360	205	1920	856	188	67	94	116
27	985	299	354	e110	325	207	1320	358	158	116	83	108
28	1150	492	311	e115	362	207	465	270	137	328	73	2510
29	2330	1560	285	e110	435	191	355	200	127	131	66	5160
30	882	486	288	e115	---	175	305	171	123	86	64	781
31	487	---	265	e110	---	175	---	155	---	72	83	---
TOTAL	12026	14678	22414	6328	16151	11658	19968	10011	16511	3271	6557	16149
MEAN	388	489	723	204	557	376	666	323	550	106	212	538
MAX	2330	2260	7580	798	3830	1250	3320	1800	3490	328	1410	5160
MIN	129	225	263	100	105	175	240	148	123	60	52	45
CFSM	1.78	2.24	3.32	0.94	2.55	1.73	3.05	1.48	2.52	0.48	0.97	2.47
IN.	2.05	2.50	3.82	1.08	2.76	1.99	3.41	1.71	2.82	0.56	1.12	2.76

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2003 - 2004, BY WATER YEAR (WY)

MEAN	388	489	723	204	557	376	666	323	550	106	212	506
MAX	388	489	723	204	557	376	666	323	550	106	212	538
(WY)	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004
MIN	388	489	723	204	557	376	666	323	550	106	212	474
(WY)	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2003

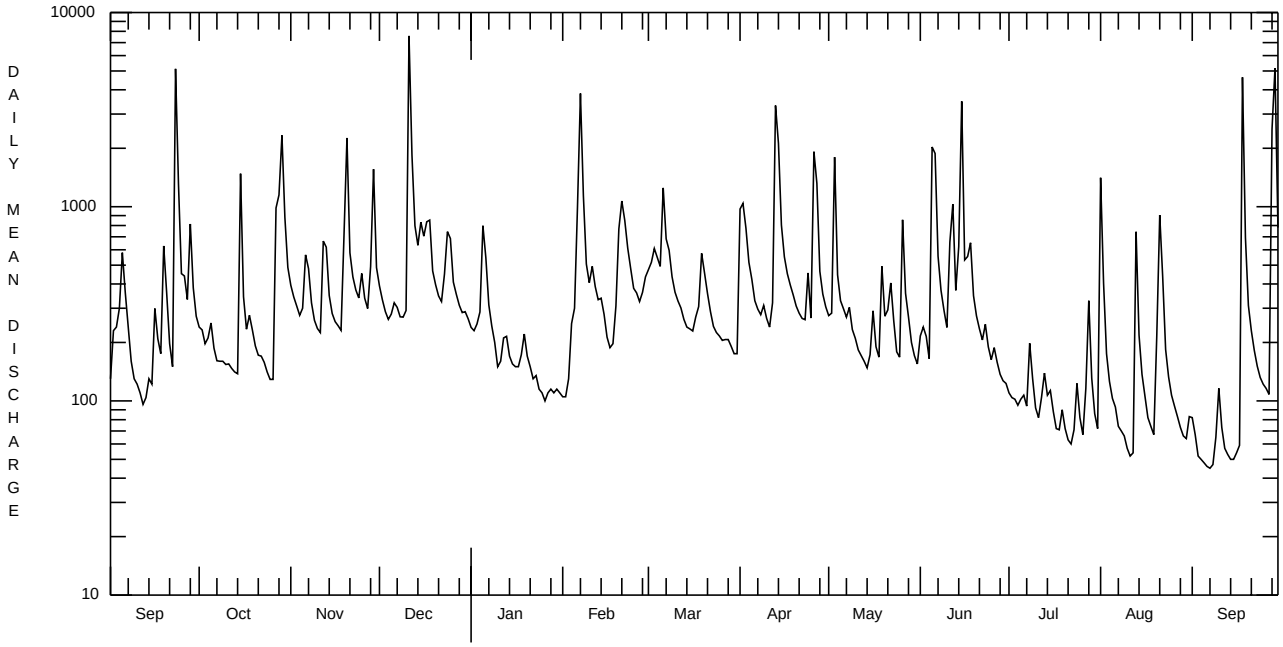
e Estimated.

WEST CONEWAGO CREEK BASIN

01573825 WEST CONEWAGO CREEK AT EAST BERLIN, PA--Continued

SUMMARY STATISTICS	FOR 2004 WATER YEAR		WATER YEARS 2003 - 2004	
ANNUAL TOTAL	155722			
ANNUAL MEAN	425		425	
HIGHEST ANNUAL MEAN			425	2004
LOWEST ANNUAL MEAN			425	2004
HIGHEST DAILY MEAN	7580	Dec 11	7580	Dec 11 2003
LOWEST DAILY MEAN	45	Sep 7	45	Sep 7 2004
ANNUAL SEVEN-DAY MINIMUM	50	Sep 3	50	Sep 3 2004
MAXIMUM PEAK FLOW	**a**10400	Dec 11	**a**10400	Dec 11 2003
MAXIMUM PEAK STAGE	15.04	Dec 11	15.04	Dec 11 2003
INSTANTANEOUS LOW FLOW	44	Sep 6,7	44	Sep 6,7 2004
ANNUAL RUNOFF (CFSM)	1.95		1.95	
ANNUAL RUNOFF (INCHES)	26.57		26.52	
10 PERCENT EXCEEDS	800		800	
50 PERCENT EXCEEDS	254		254	
90 PERCENT EXCEEDS	82		82	

a From rating curve extended above 8,150 ft^3/s on basis of straight-line extension.



SEPTEMBER 1, 2003 TO SEPTEMBER 30, 2004

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 good 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 by backwater from the Susquehanna River on Sept. 18-21. 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)
Dec. 11	2130	15,800	15.40	Sept. 29	0645	15,400	15.15
Sept. 18	1130	*16,300	*15.73				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	663	1150	1150	656	e170	1160	1230	698	304	214	5520	206
2	620	939	943	619	e210	1200	3030	653	405	248	3140	194
3	531	805	788	689	e240	1530	2390	3420	433	216	2000	170
4	499	711	692	714	e300	1300	1750	1760	352	196	696	150
5	589	658	688	1720	e360	1360	1380	1020	516	183	801	136
6	525	1240	776	2080	e1030	2170	995	851	4760	178	495	128
7	412	1470	775	1130	8170	2440	842	828	1530	187	366	125
8	363	1020	705	755	3970	1700	697	861	876	233	291	154
9	332	722	661	e500	1980	1430	682	692	659	341	252	275
10	309	607	695	e320	1330	1060	656	1800	522	215	228	202
11	287	560	9610	e360	1390	892	548	787	650	163	203	291
12	275	708	8260	551	1200	748	609	604	2120	375	340	260
13	261	1650	2650	564	964	656	5760	518	1070	530	1660	233
14	255	1050	1930	e420	944	578	5940	449	657	466	1250	222
15	2590	678	2200	e310	809	546	2720	402	5140	363	520	216
16	1660	584	2200	e260	625	537	1810	594	1800	282	380	216
17	775	537	2010	e290	525	586	1250	631	953	214	582	225
18	663	514	2650	e340	490	692	1030	432	1180	185	564	e11100
19	683	687	1650	e300	620	1250	879	789	833	184	297	e3150
20	530	4610	1330	e270	1670	1800	788	843	558	193	306	e1550
21	447	2070	1130	e230	2340	1140	760	548	449	161	3060	e1450
22	411	1310	1000	e240	2330	908	616	690	396	150	2970	811
23	385	1050	1100	e250	1820	720	598	648	411	288	1040	679
24	347	910	1410	e230	1420	634	865	452	415	337	597	518
25	310	1120	1890	e190	1130	595	734	344	324	251	423	398
26	287	1030	1130	e210	1000	559	2190	774	304	194	350	365
27	872	800	892	e220	873	529	4670	928	326	529	301	332
28	3710	897	787	e240	879	523	1770	494	268	1320	265	3160
29	4660	3270	718	e200	1020	477	1030	393	260	737	239	13000
30	3740	1710	756	e210	---	410	820	307	235	359	214	3120
31	1710	---	784	e190	---	390	---	278	---	257	199	---
TOTAL	29701	35067	53960	15258	39809	30520	49039	24488	28706	9749	29549	43036
MEAN	958	1169	1741	492	1373	985	1635	790	957	314	953	1435
MAX	4660	4610	9610	2080	8170	2440	5940	3420	5140	1320	5520	13000
MIN	255	514	661	190	170	390	548	278	235	150	199	125
CFSM	1.88	2.29	3.41	0.97	2.69	1.93	3.21	1.55	1.88	0.62	1.87	2.81
IN.	2.17	2.56	3.94	1.11	2.90	2.23	3.58	1.79	2.09	0.71	2.16	3.14

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2004, BY WATER YEAR (WY)

MEAN	285	468	685	778	955	1278	986	661	450	254	230	289
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

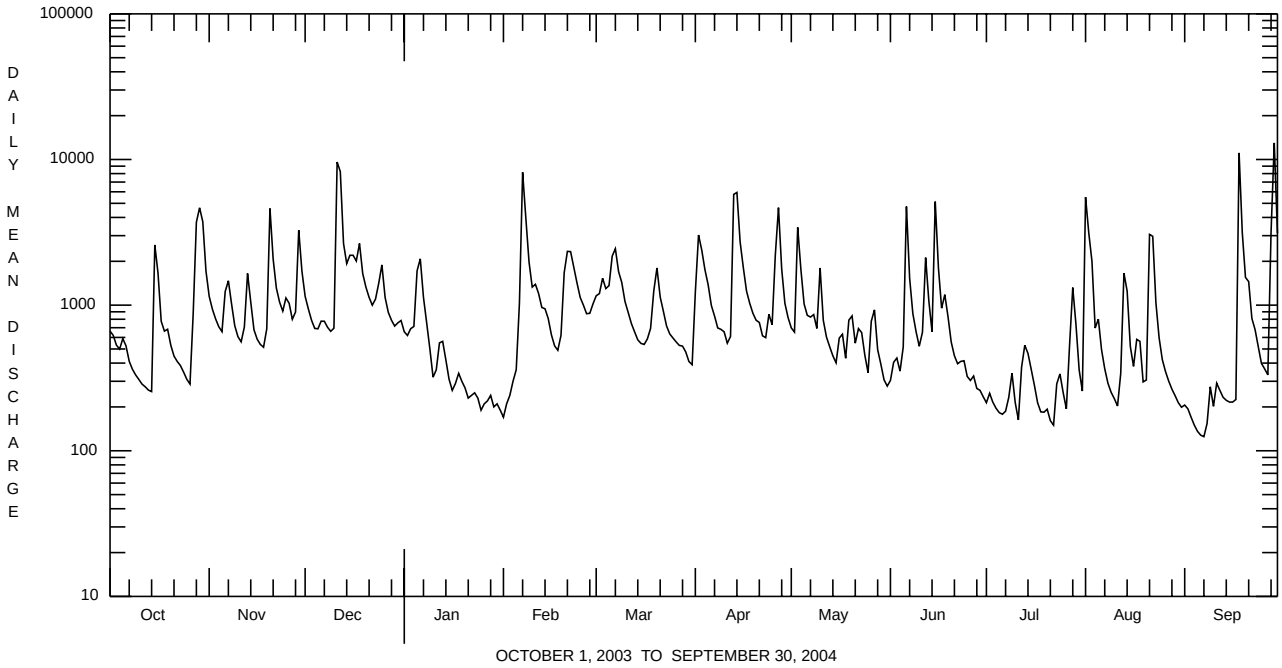
e Estimated.

WEST CONEWAGO CREEK BASIN

01574000 WEST CONEWAGO CREEK NEAR MANCHESTER, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1929 - 2004	
ANNUAL TOTAL	468283		388882			
ANNUAL MEAN	1283		1063		608	
HIGHEST ANNUAL MEAN					1194	2003
LOWEST ANNUAL MEAN					154	1931
HIGHEST DAILY MEAN	10700	Mar 21	13000	Sep 29	64000	Sep 26 1975
LOWEST DAILY MEAN	90	Feb 17	125	Sep 7	2.0	Aug 8 1930
ANNUAL SEVEN-DAY MINIMUM	159	Jul 27	151	Sep 2	3.9	Aug 3 1966
MAXIMUM PEAK FLOW			16300	Sep 18	**a**96200	Sep 26 1975
MAXIMUM PEAK STAGE			15.73	Sep 18	**b**32.11	Sep 26 1975
INSTANTANEOUS LOW FLOW			123	Sep 7	1.9	Oct 13 1941
ANNUAL RUNOFF (CFSM)	2.52		2.08		1.19	
ANNUAL RUNOFF (INCHES)	34.16		28.37		16.20	
10 PERCENT EXCEEDS	3120		2180		1320	
50 PERCENT EXCEEDS	722		658		253	
90 PERCENT EXCEEDS	229		219		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.



WEST CONEWAGO CREEK BASIN

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 359-431.

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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)
OCT 2003													
08...	0830	1028	9813	372	9.8	8.0	8.1	307	310	11.9	130	35.8	9.8
DEC													
17...	0900	1028	9813	1790	12.3	7.4	7.6	252	263	2.7	85	23.4	6.4
FEB 2004													
25...	0900	1028	9813	1160	12.7	7.5	7.7	226	228	2.0	85	23.8	6.2
APR													
12...	0900	1028	9813	519	9.6	8.5	8.5	255	248	9.9	95	26.6	7.0
JUN													
29...	0800	1028	9813	273	6.5	8.1	7.6	276	281	21.2	110	31.5	8.1
AUG													
04...	0830	1028	9813	712	6.3	7.3	7.3	201	207	23.4	75	19.6	6.3

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	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)
OCT 2003													
08...	94	20.8	238	6	<.020	3.06	<.040	.04	.041	3.6	3.5	<200	<10
DEC													
17...	59	18.3	188	8	.030	2.62	<.040	.05	.062	2.8	3.3	290	<10
FEB 2004													
25...	56	16.4	134	6	.200	2.32	<.040	.11	.140	3.0	4.3	340	<10
APR													
12...	66	19.9	154	2	<.020	1.99	<.040	.02	.039	2.4	3.1	<200	<10
JUN													
29...	82	18.3	200	10	<.020	2.11	<.040	.05	.058	2.3	3.1	310	<10
AUG													
04...	57	14.1	148	36	.080	1.86	<.040	.16	.200	2.4	5.8	1700	<10

Date	Iron, water, unfltrd recoverable, µg/L (01045)	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)
OCT 2003					
08...	160	<1.0	10	<50	<10
DEC					
17...	330	<1.0	10	<50	<10
FEB 2004					
25...	380	<1.0	20	<50	<10
APR					
12...	110	<1.0	20	<50	<10
JUN					
29...	250	<1.0	20	<50	<10
AUG					
04...	1510	1.4	70	<50	40

WEST CONEWAGO CREEK BASIN

01574000 WEST CONEWAGO CREEK NEAR MANCHESTER, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

Date	09/11/03
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	1
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Acentrella	2
Baetis	9
Caenidae	
Caenis	2
Heptageniidae	
Stenonema	19
Isonychiidae	
Isonychia	1
Potamanthidae	
Anthopotamus	3
Tricorythidae	
Tricorythodes	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche	15
Hydropsyche	1
Philopotamidae	
Chimarra	10
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus	8
Stenelmis	30
Psephenidae (WATER PENNIES)	
Psephenus	4
Diptera (TRUE FLIES)	
Ceratopogonidae (BITING MIDGES)	
Probezzia	2
Chironomidae (MIDGES)	6
Simuliidae (BLACK FLIES)	
Simulium	1
Total Organisms	115
Total Taxa	17

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.--No estimated daily discharges. Records good. 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	130	121	176	163	73	113	206	134	106	77	201	55
2	126	120	159	164	71	120	173	146	95	69	85	55
3	112	114	146	162	123	119	162	319	87	67	73	54
4	103	105	152	153	154	118	154	163	83	64	67	54
5	96	159	165	156	99	108	132	143	459	64	70	53
6	89	173	167	116	814	214	112	135	382	64	65	52
7	80	152	159	85	751	148	107	146	182	218	62	53
8	77	130	150	78	275	172	103	130	143	146	60	56
9	70	122	148	78	212	130	112	117	130	81	59	73
10	70	121	174	66	225	119	97	114	150	69	60	54
11	67	122	1340	57	232	111	93	106	232	67	59	53
12	61	218	428	60	197	105	133	99	217	101	89	51
13	58	192	322	58	190	95	427	94	155	77	161	51
14	68	152	312	60	185	90	370	91	165	78	75	52
15	225	125	379	71	170	90	234	95	253	68	67	52
16	80	103	293	65	157	99	191	134	154	64	64	53
17	73	98	395	74	150	113	176	97	215	61	62	62
18	80	100	359	99	152	110	164	124	195	70	62	832
19	68	245	284	90	208	157	155	214	156	64	63	155
20	66	359	259	80	252	125	152	121	138	60	81	95
21	64	198	231	79	256	116	156	126	124	59	144	82
22	64	170	220	79	213	102	156	107	143	66	80	73
23	63	155	217	77	186	94	180	93	155	70	64	67
24	60	152	234	79	164	92	218	87	121	70	62	64
25	58	168	220	74	156	90	175	111	120	65	59	64
26	56	141	199	80	144	88	539	250	132	63	57	61
27	231	134	188	82	140	91	372	112	109	69	55	60
28	172	232	180	81	132	87	237	103	97	89	56	396
29	402	340	177	77	117	81	182	91	96	67	58	588
30	195	192	182	77	---	81	145	84	82	62	60	166
31	140	---	170	74	---	82	---	89	---	61	57	---
TOTAL	3304	4913	8185	2794	6198	3460	5813	3975	4876	2370	2337	3636
MEAN	107	164	264	90.1	214	112	194	128	163	76.5	75.4	121
MAX	402	359	1340	164	814	214	539	319	459	218	201	832
MIN	56	98	146	57	71	81	93	84	82	59	55	51
(†)	+12.5	0	-7.2	-6.2	-5.7	+11.1	+10.9	-4.2	-5.6	-15.3	-26.5	-11.9

† 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 - 2004, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	66.5	63.8	80.8	86.7	102	124	118	89.0	91.2	63.0	57.1	69.8
MAX	269	164	270	264	269	492	372	171	699	185	109	360
(WY)	1980	2004	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

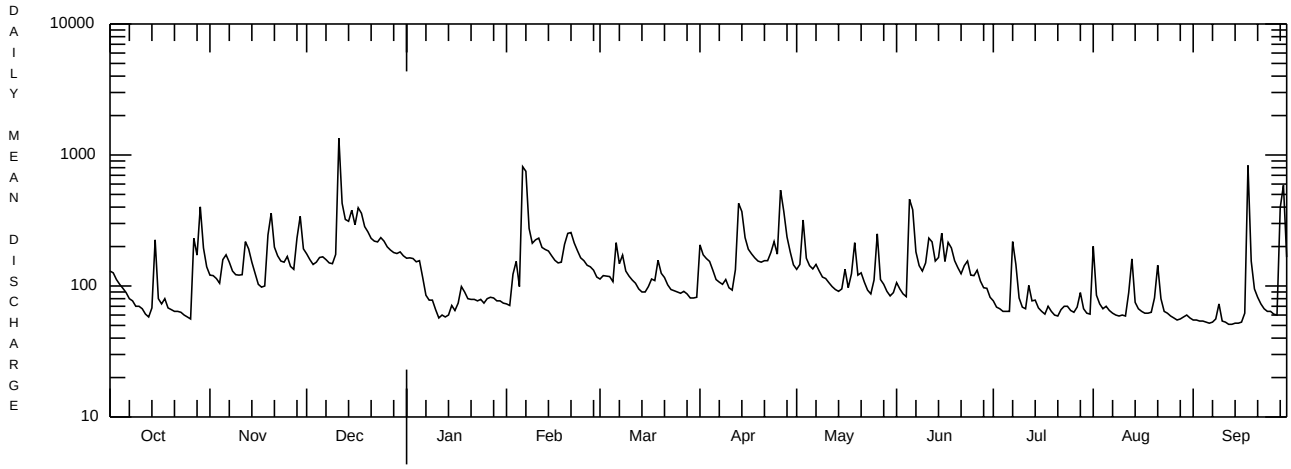
SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1966 - 2004	
ANNUAL TOTAL	51594		51861			
ANNUAL MEAN	141		142		85.4	
HIGHEST ANNUAL MEAN					163	1972
LOWEST ANNUAL MEAN					33.6	1969
HIGHEST DAILY MEAN	1340	Dec 11	1340	Dec 11	11000	Jun 22 1972
LOWEST DAILY MEAN	33	Feb 9,11	51	Sep 12,13	0.60	Sep 4 1966
ANNUAL SEVEN-DAY MINIMUM	36	Feb 6	52	Sep 10	10	Sep 1 1966
MAXIMUM PEAK FLOW			**a**2440	Dec 11	**a**19400	Jun 22 1972
MAXIMUM PEAK STAGE			7.74	Dec 11	**b**15.57	Jun 22 1972
10 PERCENT EXCEEDS	263		232		157	
50 PERCENT EXCEEDS	98		112		55	
90 PERCENT EXCEEDS	46		60		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, 2003 TO SEPTEMBER 30, 2004

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, 47,680 acre-ft, Dec. 11-23, Feb. 7-12, Apr. 14-22, and June 18, elevation, 623.00 ft; minimum, 42,230 acre-ft, Sept. 17, elevation, 619.56 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, 3,160 acre-ft, Sept. 20, elevation, 402.47 ft; minimum, 10.6 acre-ft, Sept. 10, elevation, 372.54 ft.

MONTHEND ELEVATION, IN FEET ABOVE SEA LEVEL, AND CONTENTS AT 2400 HRS, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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)
	01574390 Lake Marburg			01574700 Indian Rock Dam		
Sept. 30	622.19	46,600	---	375.55	28.9	---
Oct. 31	622.77	47,370	+12.5	376.76	39.5	+.17
Nov. 30	622.77	47,370	0.0	377.70	47.4	+.13
Dec. 31	622.44	46,930	-7.2	377.80	48.3	+.01
CAL YR 2003	--	--	+19.8	--	--	+.04
Jan. 31	622.15	46,550	-6.2	376.29	35.5	-.21
Feb. 29	621.90	46,220	-5.7	378.21	55.2	+.34
Mar. 31	622.42	46,900	+11.1	377.10	42.3	-.21
Apr. 30	622.90	47,550	+10.9	378.38	59.5	+.29
May 31	622.71	47,290	-4.2	377.54	46.1	-.22
June 30	622.46	46,960	-5.6	372.95	11.8	-.58
July 31	621.75	46,020	-15.3	372.87	11.6	0
Aug. 31	620.52	44,390	-26.5	372.94	11.8	0
Sept. 30	619.98	43,680	-11.9	374.75	21.7	+.17
WTR YR 2004	--	--	-4.0	--	--	-.01

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 period Jan. 15 to Feb. 17, 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78800	111000	75900	67100	e18000	29500	71800	62700	43700	14500	111000	24700
2	68100	93600	74200	63900	e19000	32400	82000	55300	39500	13900	119000	32000
3	57200	78100	69500	60800	e21000	39900	96400	61200	36400	13500	98400	42400
4	49400	65200	60800	59700	e22000	65700	104000	75000	35300	12800	72300	34300
5	43700	56700	54100	78900	e21000	121000	98600	77300	37500	12300	61700	29100
6	39900	52000	50000	144000	e23000	154000	81500	73400	47200	11800	50500	25100
7	38100	52100	45700	174000	e25000	194000	70800	64200	40700	11800	44700	21900
8	35500	51800	44100	145000	e24000	223000	62100	58700	35700	e12500	39300	20200
9	33800	50000	41800	110000	e26000	194000	56300	56300	31400	e13000	34100	20200
10	32600	45900	39100	85100	e29000	152000	51600	58600	28300	13300	30000	41100
11	30300	42200	68500	68900	e29000	121000	47500	60200	28100	12800	26900	149000
12	27700	40000	181000	61000	e30000	96600	43600	65800	32700	14900	25800	147000
13	25700	39000	232000	54200	e31000	79700	54000	68800	30600	23500	31600	101000
14	23900	36600	198000	47200	e28000	70000	82100	64800	27600	27100	41600	80200
15	28200	35600	148000	e40000	e25000	60900	116000	55700	31000	34500	48100	64400
16	34300	34700	115000	e34000	e22000	53900	157000	54600	29600	33200	50300	48000
17	41500	33900	96500	e35000	e22000	49600	133000	52300	26100	30000	43800	38200
18	43600	33300	88300	e35000	22900	46300	102000	48700	29000	28300	36200	158000
19	44200	32800	78200	e30000	21900	46100	80300	45500	31400	27600	31100	e495000
20	42500	55600	70700	e25000	23500	46800	66800	42700	29600	25800	28400	e497000
21	38500	166000	63800	e26000	24900	47200	58400	42700	27500	28000	35800	297000
22	34400	197000	58000	e27000	26000	61300	52400	46400	25400	31700	41900	184000
23	32400	153000	52500	e22000	29200	74600	49200	53200	24300	33900	39200	140000
24	30900	121000	50000	e19000	31700	76400	47700	70100	23200	31700	64700	117000
25	29400	99200	72500	e15000	31600	68900	48100	64200	21400	27300	55400	100000
26	27500	87800	128000	e15500	30100	60600	55700	54100	19800	28200	44700	85100
27	27600	74700	144000	e15500	29100	60900	70700	55400	18600	30000	37100	68400
28	48200	65400	121000	e16000	29000	69700	80700	65000	16700	42000	31800	63800
29	86100	68400	98200	e15500	28500	76300	81700	58300	16400	131000	28600	104000
30	121000	74000	80800	e15000	---	80400	73100	50600	16100	148000	25900	98700
31	126000	---	72200	e16500	---	76000	---	47600	---	117000	23800	---
TOTAL	1421000	2146600	2772400	1621800	743400	2628700	2275100	1809400	880800	1035900	1453700	3326800
MEAN	45840	71550	89430	52320	25630	84800	75840	58370	29360	33420	46890	110900
MAX	126000	197000	232000	174000	31700	223000	157000	77300	47200	148000	119000	497000
MIN	23900	32800	39100	15000	18000	29500	43600	42700	16100	11800	23800	20200
CFSM	1.76	2.75	3.44	2.01	0.99	3.26	2.92	2.25	1.13	1.29	1.80	4.27
IN.	2.03	3.07	3.97	2.32	1.06	3.76	3.26	2.59	1.26	1.48	2.08	4.76

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 2004, BY WATER YEAR (WY)

MEAN	18010	29860	40020	40200	44510	76290	79180	48920	29150	16080	12710	14380
MAX	81330	71930	114300	116900	109300	229100	235100	103400	190700	61480	47180	110900
(WY)	1977	1978	1997	1996	1984	1936	1993	1989	1972	1972	1994	2004
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

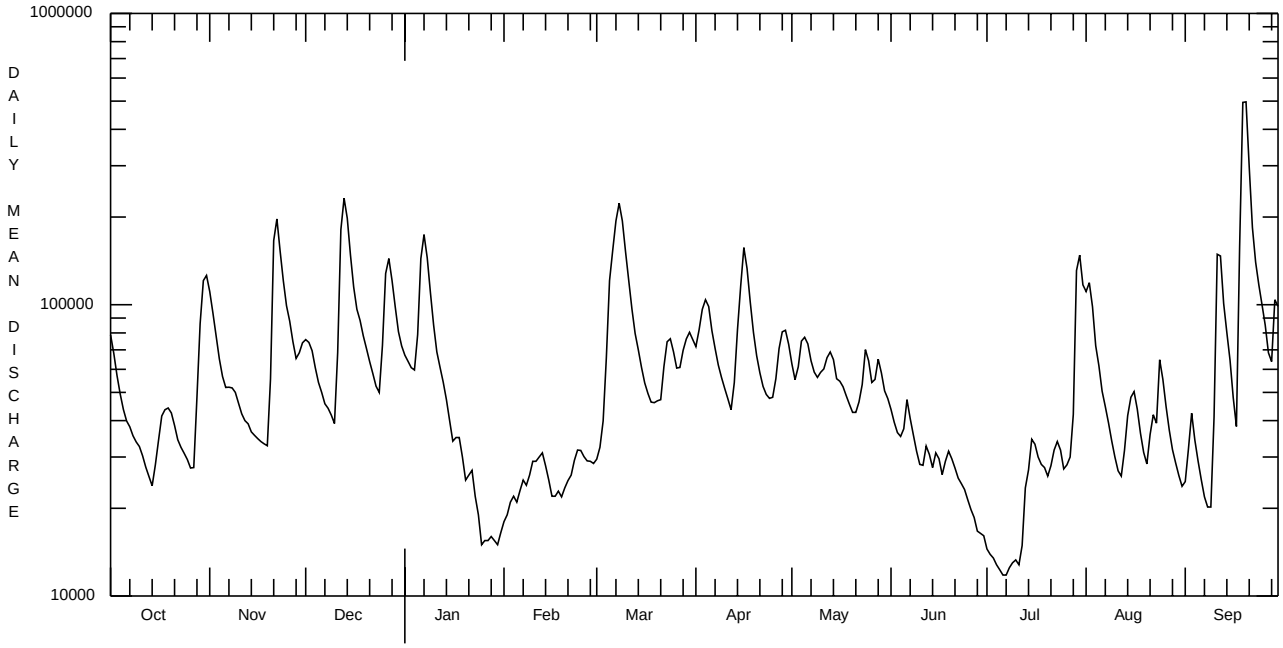
e Estimated.

SUSQUEHANNA RIVER BASIN

01576000 SUSQUEHANNA RIVER AT MARIETTA, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1932 - 2004	
ANNUAL TOTAL	21625100		22115600			
ANNUAL MEAN	59250		60430		37380	
HIGHEST ANNUAL MEAN					60430	2004
LOWEST ANNUAL MEAN					19060	1965
HIGHEST DAILY MEAN	284000	Mar 22	**e**497000	Sep 20	1040000	Jun 24 1972
LOWEST DAILY MEAN	13400	Jul 21	11800	Jul 6,7	1380	Sep 26 1932
ANNUAL SEVEN-DAY MINIMUM	15300	Jul 16	12500	Jul 4	1720	Sep 26 1932
MAXIMUM PEAK FLOW			577000	Sep 20	**a**1080000	Jun 23 1972
MAXIMUM PEAK STAGE			**b**56.28	Sep 20	**b**64.54	Jun 23 1972
INSTANTANEOUS LOW FLOW			11500	Jul 6	618	Sep 26 1932
ANNUAL RUNOFF (CFSM)	2.28		2.32		1.44	
ANNUAL RUNOFF (INCHES)	30.95		31.65		19.54	
10 PERCENT EXCEEDS	116000		118000		84800	
50 PERCENT EXCEEDS	46400		47000		22500	
90 PERCENT EXCEEDS	19300		22000		6010	

a From rating curve extended above 961,000 ft^3/s.
b From floodmarks.
e Estimated.



OCTOBER 1, 2003 TO SEPTEMBER 30, 2004

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 3,800 ft^3/s (revised) and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Dec. 11	2215	5,410	9.18	July 28	0945	*13,500	*14.43
Feb. 7	0400	7,820	11.09	Aug. 1	2015	6,930	10.43
July 13	0530	4,640	8.53	Aug. 13	1345	8,280	11.42
July 15	0900	9,100	11.98	Sept. 19	0115	6,210	9.85
July 24	1000	4,420	8.34	Sept. 29	0900	3,920	7.90

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	525	816	823	620	e275	416	510	604	277	276	3790	561
2	522	713	e720	600	e270	418	679	558	286	488	2600	469
3	488	640	e630	589	e310	432	603	758	240	310	1470	435
4	498	590	592	574	e370	416	604	661	223	264	1170	413
5	551	609	583	820	e780	424	783	543	255	249	1480	396
6	463	889	617	870	e2000	578	531	553	976	240	1030	385
7	422	769	577	613	e6060	704	457	486	545	227	872	372
8	388	613	531	536	2330	541	434	484	361	346	796	365
9	e380	527	504	526	1140	480	471	427	301	272	726	432
10	e370	489	517	457	987	426	432	573	274	227	673	395
11	352	475	e3190	e450	1220	407	401	478	385	210	674	356
12	341	515	2660	e445	861	386	404	417	457	712	781	331
13	320	567	1340	e440	750	366	959	386	323	2670	5750	319
14	314	474	1130	e420	733	350	1250	360	284	861	2460	309
15	1150	428	1620	e380	627	338	856	365	410	5150	1410	302
16	653	405	1260	e340	538	346	670	412	413	1540	1110	304
17	452	392	e1850	e395	502	406	585	365	558	903	960	301
18	524	381	2110	e415	487	420	550	352	1920	833	855	2010
19	450	494	1340	e380	492	640	516	494	734	1370	804	2900
20	389	1920	1130	e370	575	856	487	435	502	825	763	906
21	365	978	987	e360	606	791	459	362	416	661	1060	671
22	351	699	894	e355	617	651	444	336	377	572	1440	574
23	337	608	853	e330	538	537	440	314	387	1030	805	519
24	315	560	1110	e320	504	468	616	295	345	3080	707	474
25	302	679	1300	e300	518	445	467	274	333	1130	651	444
26	296	582	924	e300	465	431	1300	277	377	833	612	423
27	836	516	818	e305	434	417	1900	292	305	987	574	398
28	1710	672	755	e305	420	409	959	287	280	7700	550	595
29	e1980	2080	715	e295	415	375	736	255	282	2410	527	2770
30	1720	1080	694	e290	---	354	649	237	273	1380	500	1200
31	1000	---	663	e280	---	357	---	227	---	1090	690	---
TOTAL	18764	21160	33437	13680	25824	14585	20152	12867	13099	38846	38290	20329
MEAN	605	705	1079	441	890	470	672	415	437	1253	1235	678
MAX	1980	2080	3190	870	6060	856	1900	758	1920	7700	5750	2900
MIN	296	381	504	280	270	338	401	227	223	210	500	301
CFSM	1.87	2.18	3.33	1.36	2.75	1.45	2.07	1.28	1.35	3.87	3.81	2.09
IN.	2.15	2.43	3.84	1.57	2.96	1.67	2.31	1.48	1.50	4.46	4.40	2.33
(†)	14.4	15.2	15.8	17.2	16.3	16.6	14.7	16.7	15.8	14.2	16.3	16.7

† Diversion for municipal supply of city of Lancaster, equivalent in cubic feet per second.
e Estimated.

CONESTOGA RIVER BASIN

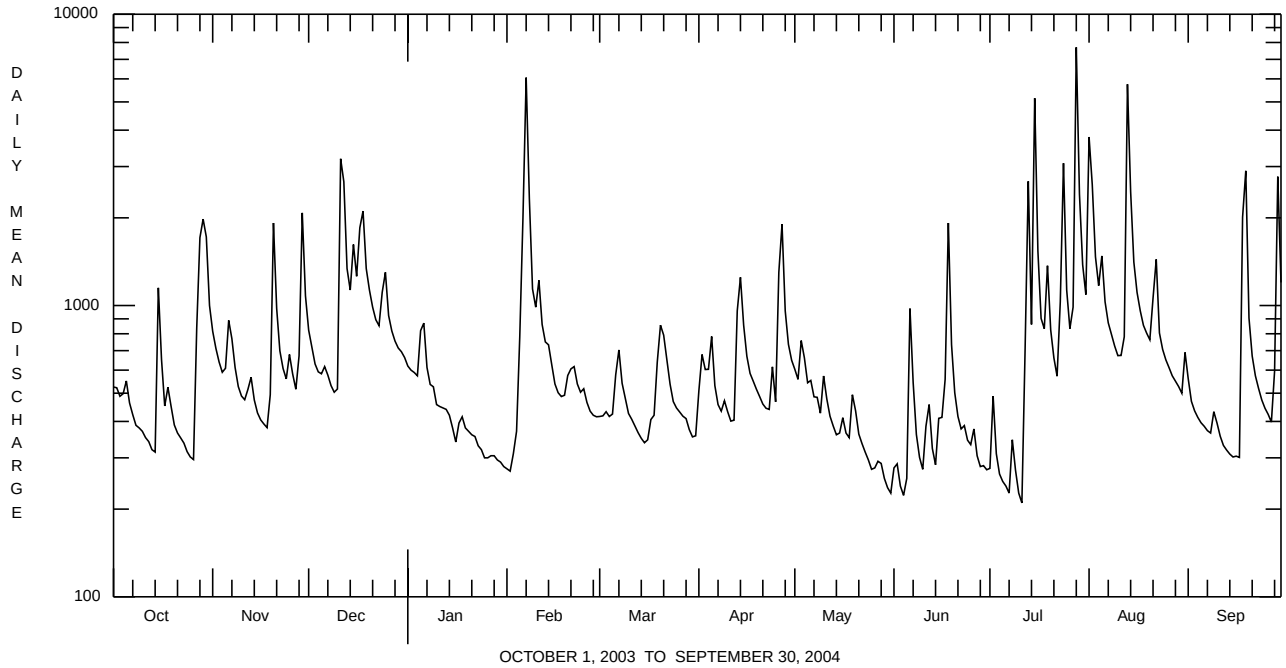
01576500 CONESTOGA RIVER AT LANCASTER, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF DAILY RECORD, BY WATER YEAR (WY)

MEAN	215	284	403	471	548	685	622	456	387	312	246	231
MAX	930	866	1618	1699	1191	2089	1720	1529	3286	1253	1427	908
(WY)	1980	1997	1997	1979	1979	1994	1993	1989	1972	2004	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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	269511		271033			
ANNUAL MEAN	738		741		403	
HIGHEST ANNUAL MEAN					753	1972
LOWEST ANNUAL MEAN					138	2002
HIGHEST DAILY MEAN	6010	Jun 21	7700	Jul 28	47600	Jun 23 1972
LOWEST DAILY MEAN	**e**120	Feb 17	210	Jul 11	7.0	Aug 11 1930
ANNUAL SEVEN-DAY MINIMUM	**a**139	Feb 14	249	May 29	20	Aug 9 1930
MAXIMUM PEAK FLOW			**b**13500	Jul 28	**b**50300	Jun 23 1972
MAXIMUM PEAK STAGE			14.43	Jul 28	**c**27.90	Jun 23 1972
ANNUAL RUNOFF (CFSM)	2.28		2.29		1.24	
ANNUAL RUNOFF (INCHES)	30.94		31.12		16.91	
10 PERCENT EXCEEDS	1360		1310		815	
50 PERCENT EXCEEDS	554		518		261	
90 PERCENT EXCEEDS	245		302		85	

a Computed using estimated daily discharges.
b 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.
c From floodmark.
e Estimated.



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.

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)
Oct. 15	0245	606	8.51	July 12	1900	566	8.27
Oct. 29	1045	534	8.08	Aug. 13	0645	954	10.44
Dec. 11	1115	762	9.40	Aug. 21	1615	517	7.98
Feb. 6	2130	1,020	10.78	Sept. 18	1315	849	9.88
Apr. 26	1415	572	8.31	Sept. 28	2215	812	9.68
June 18	0245	*1,260	*11.99				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	89	87	74	39	52	105	83	40	43	148	53
2	65	81	82	76	35	54	70	79	41	49	62	48
3	62	76	76	74	92	52	66	122	35	49	67	41
4	69	72	71	74	80	57	69	78	33	41	63	42
5	60	108	80	94	54	54	60	74	101	39	84	39
6	56	96	71	79	499	89	55	69	75	37	69	36
7	52	85	77	65	441	66	53	69	46	72	69	37
8	51	79	65	68	136	65	53	66	43	55	60	36
9	50	75	63	e65	99	59	52	61	36	39	49	46
10	48	64	83	e60	114	56	50	65	39	39	47	39
11	47	63	455	e60	112	54	47	56	91	36	52	35
12	44	73	147	57	95	52	64	53	56	180	120	33
13	40	69	117	58	95	48	144	51	45	93	590	31
14	51	56	162	55	93	50	116	51	43	66	129	30
15	223	60	176	e55	86	46	81	51	76	94	105	30
16	68	54	128	e50	75	51	74	74	75	64	90	30
17	63	51	222	e50	69	53	71	51	249	62	82	30
18	63	51	153	e50	63	54	67	55	523	66	77	435
19	54	180	126	e55	65	94	62	72	114	56	82	107
20	50	165	116	e55	68	78	59	57	95	52	84	75
21	48	89	110	e50	72	66	58	53	79	48	180	69
22	46	83	100	e50	66	57	55	48	76	46	104	56
23	44	74	98	44	62	58	80	49	70	93	79	48
24	41	73	145	43	68	54	86	42	64	60	75	45
25	52	83	110	38	63	54	56	38	65	47	62	45
26	52	70	98	38	58	54	318	48	65	42	59	48
27	159	68	97	37	54	53	141	41	55	53	54	46
28	97	143	93	37	55	49	102	38	50	77	47	241
29	267	173	81	36	53	48	90	37	52	49	44	276
30	120	100	81	42	---	47	84	35	43	43	59	101
31	98	---	77	47	---	46	---	35	---	53	60	---
TOTAL	2310	2603	3647	1736	2961	1770	2488	1801	2475	1843	2952	2228
MEAN	74.5	86.8	118	56.0	102	57.1	82.9	58.1	82.5	59.5	95.2	74.3
MAX	267	180	455	94	499	94	318	122	523	180	590	435
MIN	40	51	63	36	35	46	47	35	33	36	44	30
CFSM	1.76	2.05	2.78	1.32	2.41	1.35	1.96	1.37	1.95	1.41	2.25	1.76
IN.	2.03	2.29	3.21	1.53	2.60	1.56	2.19	1.58	2.18	1.62	2.60	1.96

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2003 - 2004, BY WATER YEAR (WY)

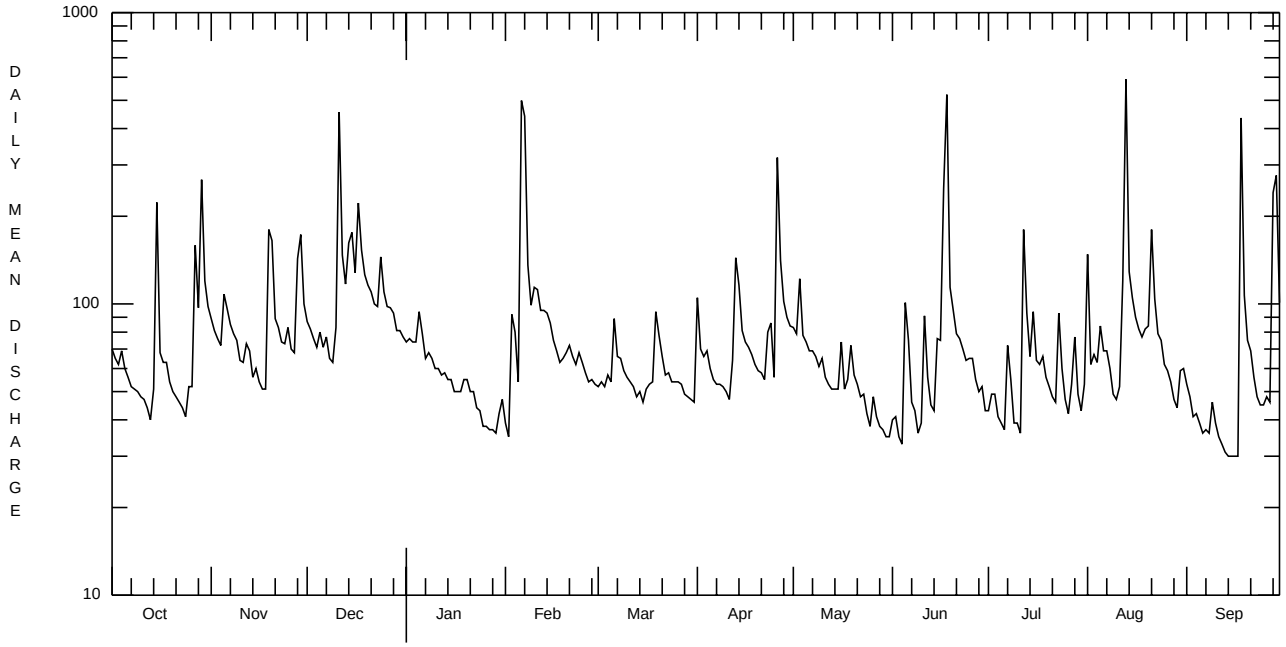
MEAN	74.5	86.8	118	56.0	85.3	93.4	82.1	57.8	96.3	55.4	69.0	84.0
MAX	74.5	86.8	118	56.0	102	130	82.9	58.1	110	59.5	95.2	93.7
(WY)	2004	2004	2004	2004	2004	2003	2004	2004	2003	2004	2004	2003
MIN	74.5	86.8	118	56.0	67.9	57.1	81.3	57.5	82.5	51.4	42.7	74.3
(WY)	2004	2004	2004	2004	2003	2004	2003	2003	2004	2003	2003	2004

e Estimated.

CONESTOGA RIVER BASIN

01576712 LITTLE CONESTOGA CREEK NEAR MILLERSVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2004 WATER YEAR		WATER YEARS 2003 - 2004	
ANNUAL TOTAL	28814			
ANNUAL MEAN	78.7		78.7	
HIGHEST ANNUAL MEAN			78.7	2004
LOWEST ANNUAL MEAN			78.7	2004
HIGHEST DAILY MEAN	590	Aug 13	744	Sep 23 2003
LOWEST DAILY MEAN	30	Sep 14-17	26	Aug 29,31 2003
ANNUAL SEVEN-DAY MINIMUM	31	Sep 11	29	Aug 25 2003
MAXIMUM PEAK FLOW	1260	Jun 18	1290	Sep 23 2003
MAXIMUM PEAK STAGE	11.99	Jun 18	12.14	Sep 23 2003
INSTANTANEOUS LOW FLOW	22	Sep 14	17	Feb 16 2003
ANNUAL RUNOFF (CFSM)	1.86		1.86	
ANNUAL RUNOFF (INCHES)	25.35		25.29	
10 PERCENT EXCEEDS	116		116	
50 PERCENT EXCEEDS	62		62	
90 PERCENT EXCEEDS	41		41	



OCTOBER 1, 2003 TO SEPTEMBER 30, 2004

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 daily 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 6,600 ft^3/s (revised) and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Dec. 12	0100	7,480	7.56	Aug. 2	0015	9,420	8.59
Feb. 7	0600	14,500	11.56	Aug. 13	1645	11,800	9.95
July 15	1415	11,500	9.78	Sept. 19	0400	10,000	8.92
July 28	1400	*15,600	*12.20				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	816	1260	1280	1020	e430	608	827	975	488	455	4340	887
2	778	1150	1160	1010	e430	611	958	917	576	850	3990	715
3	727	1060	1080	988	e480	629	841	1220	469	582	1820	650
4	728	1000	992	968	e700	631	783	1080	432	470	1530	611
5	782	1180	1010	1200	e900	628	1050	901	611	445	1930	587
6	685	1640	1040	1370	e3700	813	753	897	1570	425	1410	567
7	628	1250	997	1000	e10000	1040	650	856	980	462	1190	555
8	601	1070	927	890	3270	786	619	848	656	589	1090	543
9	587	943	880	872	1480	720	652	847	550	522	992	613
10	572	875	907	808	1450	638	628	1040	508	415	921	601
11	552	850	4470	e760	1860	599	578	891	768	389	927	548
12	535	913	4050	786	1240	570	586	812	812	833	1230	506
13	510	1020	1830	788	1120	541	1350	772	606	4190	8730	487
14	507	870	1700	771	1090	525	1690	731	545	1120	3590	474
15	2000	795	2310	e640	952	501	1150	706	749	6820	1860	457
16	1140	757	1800	e550	847	524	911	798	906	1800	1540	460
17	765	739	2480	e680	769	606	807	744	1060	1210	1360	461
18	829	719	2980	e720	735	620	765	668	3630	1100	1220	3140
19	781	1090	1860	e630	791	883	749	880	1130	1820	1170	7240
20	658	2900	1650	e600	874	1160	731	785	856	1140	1130	4800
21	611	1500	1490	e570	888	990	697	663	743	934	1420	986
22	590	1140	1380	e550	893	896	672	602	738	828	2180	813
23	567	1030	1330	e520	795	735	664	576	707	1090	1170	731
24	535	976	1640	e490	757	654	954	538	640	3960	1020	675
25	519	1110	1930	e470	768	632	725	503	592	1450	933	634
26	514	1020	1400	e470	703	616	1670	523	717	1110	880	612
27	1220	907	1270	e480	654	604	2870	529	565	1070	841	587
28	2700	1110	1200	e480	626	594	1410	518	509	10400	810	1100
29	2750	3150	1140	e470	610	555	1140	473	509	2880	776	4030
30	2520	1610	1120	e460	---	519	1030	443	491	1700	746	1580
31	1470	---	1080	e440	---	516	---	430	---	1410	871	---
TOTAL	29177	35634	50383	22451	39812	20944	28910	23166	24113	52469	53617	36650
MEAN	941	1188	1625	724	1373	676	964	747	804	1693	1730	1222
MAX	2750	3150	4470	1370	10000	1160	2870	1220	3630	10400	8730	7240
MIN	507	719	880	440	430	501	578	430	432	389	746	457
CFSM	2.00	2.53	3.46	1.54	2.92	1.44	2.05	1.59	1.71	3.60	3.68	2.60
IN.	2.31	2.82	3.99	1.78	3.15	1.66	2.29	1.83	1.91	4.15	4.24	2.90

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 2004, BY WATER YEAR (WY)

MEAN	422	562	749	764	805	1082	851	725	580	529	403	495
MAX	1183	1348	2339	1887	1373	3145	2508	2148	1736	1693	1730	1318
(WY)	1997	1997	1997	1996	2004	1994	1993	1989	2003	2004	2004	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

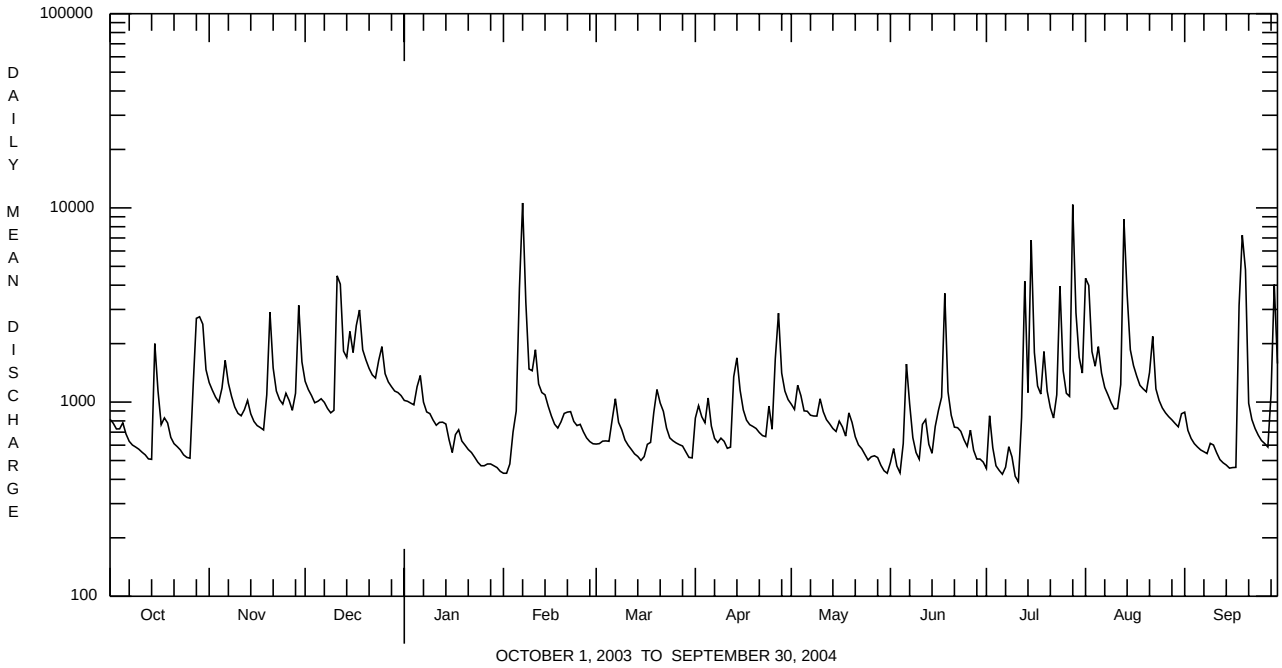
e Estimated.

CONESTOGA RIVER BASIN

01576754 CONESTOGA RIVER AT CONESTOGA, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1985 - 2004	
ANNUAL TOTAL	411708		417326			
ANNUAL MEAN	1128		1140		663	
HIGHEST ANNUAL MEAN					1140	2004
LOWEST ANNUAL MEAN					217	2002
HIGHEST DAILY MEAN	9020	Jun 21	10400	Jul 28	14100	Sep 17 1999
LOWEST DAILY MEAN	**e**220	Feb 17	389	Jul 11	58	Aug 7 1999
ANNUAL SEVEN-DAY MINIMUM	310	Aug 24	**a**456	Jan 27	65	Sep 9 2002
MAXIMUM PEAK FLOW			15600	Jul 28	19000	Sep 9 1987
MAXIMUM PEAK STAGE			12.20	Jul 28	14.37	Sep 9 1987
INSTANTANEOUS LOW FLOW			371	Jul 12	52	Aug 7 1999
ANNUAL RUNOFF (CFSM)	2.40		2.43		1.41	
ANNUAL RUNOFF (INCHES)	32.59		33.03		19.17	
10 PERCENT EXCEEDS	1950		1820		1240	
50 PERCENT EXCEEDS	884		828		458	
90 PERCENT EXCEEDS	428		509		174	

a Computed using estimated daily discharges.
e Estimated.



CONESTOGA RIVER BASIN

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 359-431.

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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)
OCT 2003													
15...	1000	1028	9813	1560	7.9	7.8	8.0	600	597	14.8	230	59.2	19.2
DEC													
15...	1030	1028	9813	2460	11.8	7.8	8.1	552	543	4.5	210	56.8	17.5
FEB 2004													
12...	1130	1028	9813	1280	11.3	7.6	7.8	474	479	3.7	190	52.2	14.3
APR													
07...	1200	1028	9813	648	11.6	7.9	8.2	544	551	10.0	210	58.0	16.1
JUN													
24...	0900	1028	9813	648	7.2	7.8	8.1	670	648	20.7	290	80.7	22.1
AUG													
12...	1115	1028	9813	1160	7.7	7.9	8.0	555	558	21.0	240	64.4	19.0

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	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)
OCT 2003													
15...	171	34.2	428	54	.120	8.73	<.040	.13	.326	11	4.7	1400	<10
DEC													
15...	150	30.9	402	40	.070	8.14	<.040	.08	.160	8.4	2.7	820	<10
FEB 2004													
12...	132	27.7	336	24	.790	6.63	.060	.36	.455	8.2	6.3	1100	<10
APR													
07...	146	36.4	338	20	.070	6.77	.100	.10	.155	7.7	4.2	<200	<10
JUN													
24...	197	41.3	456	42	.040	8.89	.110	.18	.255	9.3	3.0	1200	<10
AUG													
12...	172	32.1	376	16	<.020	9.07	<.040	.08	.119	9.0	2.7	630	<10

Date	Iron, water, unfltrd recoverable, µg/L (01045)	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)
OCT 2003					
15...	1920	4.3	80	<50	230
DEC					
15...	1200	4.1	50	<50	20
FEB 2004					
12...	1080	1.4	50	<50	<10
APR					
07...	250	1.7	30	<50	<10
JUN					
24...	1470	2.6	80	<50	160
AUG					
12...	920	2.1	40	<50	<10

01576754 CONESTOGA RIVER AT CONESTOGA, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.\

Date	09/11/03
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	1
Nematoda (NEMATODES)	1
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia	1
Pleuroceridae	
Elimia	2
Bivalvia (CLAMS)	
Veneroida	
Corbiculidae	
Corbicula fluminea	10
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Tubificida	
Naididae	1
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	1
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	2
Baetis	8
Plauditus	5
Caenidae	
Caenis	1
Heptageniidae	
Stenonema	3
Potamanthidae	
Anthopotamus	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	
Cheumatopsyche	11
Hydropsyche	4
Hydroptilidae	
Hydroptila	1
Lepidoptera (MOTHS AND BUTTERFLIES)	
Pyralidae	
Petrophila	3
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus	1
Stenelmis	73
Psephenidae (WATER PENNIES)	
Psephenus	4
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	14
Total Organisms	148
Total Taxa	21

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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Nov. 19	1500	6,330	7.24	Apr. 3	0130	2,510	4.65
Dec. 11	0430	3,240	5.08	Apr. 13	1930	3,150	5.03
Mar. 2	2130	2,960	4.92	Sept. 8	2330	*7,870	*8.34
Mar. 6	0630	3,580	5.28	Sept. 18	0230	7,200	7.86

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	250	189	246	230	e50	e330	584	271	81	23	195	e48
2	197	169	232	261	e55	e1100	2330	286	64	20	130	e34
3	158	152	213	359	e60	2150	2150	324	65	19	93	e26
4	142	138	198	516	e70	2180	1600	281	53	19	72	22
5	125	150	197	980	e80	2020	910	273	55	25	61	19
6	104	196	188	1040	e140	3030	617	240	53	22	46	18
7	90	231	163	653	e390	1590	471	210	46	19	40	19
8	80	243	147	452	e350	993	392	192	41	21	35	1130
9	72	237	136	354	e240	688	386	162	37	19	29	3850
10	65	215	142	245	e200	525	304	142	34	16	25	1040
11	60	198	2350	e210	e170	422	283	127	45	18	23	477
12	56	556	1190	e200	e150	367	459	125	143	48	44	293
13	53	657	663	e180	e140	299	1930	156	78	54	99	203
14	58	499	491	e150	e130	257	2100	135	67	34	e49	154
15	213	379	375	e130	e120	233	987	118	63	27	e36	139
16	146	307	295	e95	e100	224	611	108	52	23	e36	119
17	138	261	266	e90	e100	204	439	93	51	20	e34	269
18	155	218	233	e85	e95	195	344	124	73	20	e26	4310
19	140	2750	202	e85	e110	262	281	927	60	35	e23	1200
20	134	2760	183	e90	e170	298	240	531	52	25	e26	563
21	130	1060	159	e90	e320	1230	210	395	45	19	e63	352
22	136	628	162	e85	e350	865	196	371	41	22	e79	248
23	132	436	258	e80	e300	557	193	298	40	24	e50	187
24	111	358	1000	e75	e270	407	162	241	33	19	e46	151
25	99	305	1140	e70	e240	343	165	190	37	17	e40	126
26	97	245	686	e75	e210	287	479	186	48	18	e38	106
27	191	211	468	e75	e200	259	633	148	32	123	e40	94
28	275	228	359	e70	e210	228	519	123	28	91	e38	161
29	301	262	300	e65	e250	200	385	103	30	52	e76	172
30	261	239	289	e60	---	187	317	86	26	111	e132	120
31	216	---	249	e55	---	197	---	82	---	308	e77	---
TOTAL	4385	14477	13180	7205	5270	22127	20677	7048	1573	1311	1801	15650
MEAN	141	483	425	232	182	714	689	227	52.4	42.3	58.1	522
MAX	301	2760	2350	1040	390	3030	2330	927	143	308	195	4310
MIN	53	138	136	55	50	187	162	82	26	16	23	18
CFSM	0.97	3.31	2.91	1.59	1.24	4.89	4.72	1.56	0.36	0.29	0.40	3.57
IN.	1.12	3.69	3.36	1.84	1.34	5.64	5.27	1.80	0.40	0.33	0.46	3.99

STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF DAILY RECORD, BY WATER YEAR (WY)

MEAN	50.7	103	155	220	276	614	432	287	131	28.8	29.9	55.1
MAX	311	483	425	549	689	983	762	707	621	59.9	146	522
(WY)	1955	2004	2004	1952	1961	1963	1964	2003	2003	1960	1955	2004
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

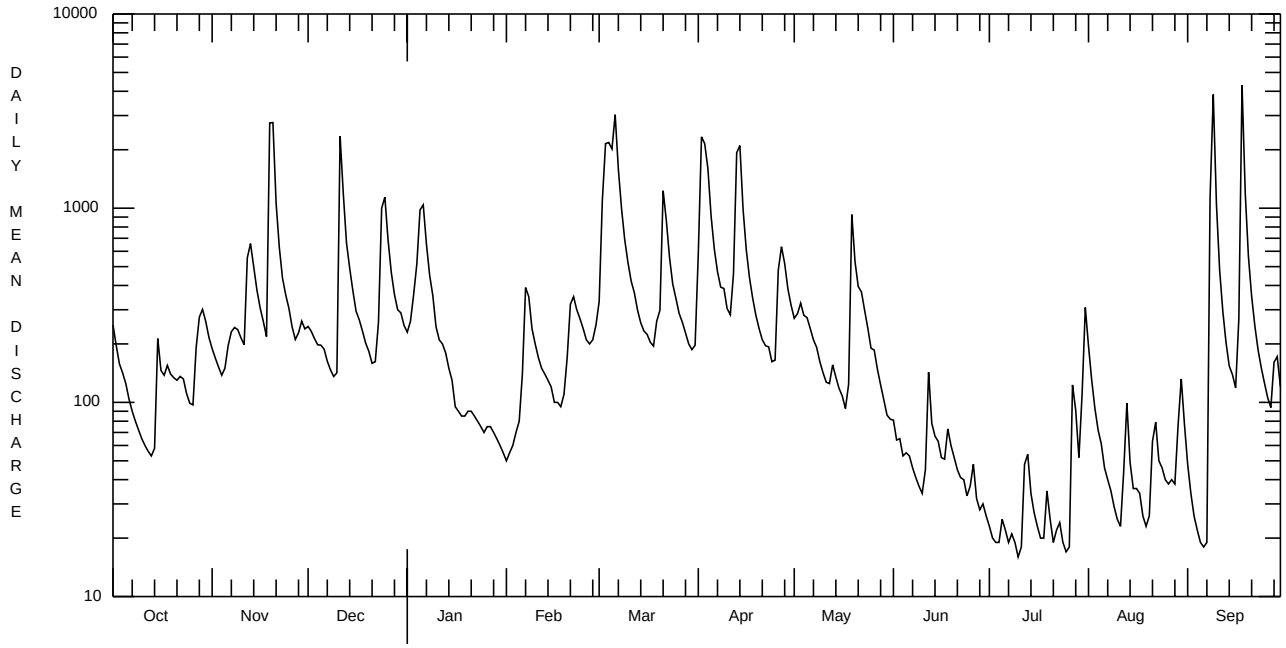
e Estimated.

POTOMAC CREEK BASIN

01601000 WILLS CREEK BELOW HYNDMAN, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	135123.4		114704			
ANNUAL MEAN	370		313		199	
HIGHEST ANNUAL MEAN					325	2003
LOWEST ANNUAL MEAN					80.4	1954
HIGHEST DAILY MEAN	3990	Jun 4	4310	Sep 18	4710	Mar 6 1967
LOWEST DAILY MEAN	5.3	Aug 25	16	Jul 10	0.70	Sep 12 1966
ANNUAL SEVEN-DAY MINIMUM	6.8	Aug 19	20	Jul 5	0.84	Aug 5 1966
MAXIMUM PEAK FLOW			**a**7870	Sep 8	**a**17100	Jun 21 1984
MAXIMUM PEAK STAGE			8.34	Sep 8	13.76	Jun 21 1984
ANNUAL RUNOFF (CFSM)	2.54		2.15		1.36	
ANNUAL RUNOFF (INCHES)	34.43		29.23		18.48	
10 PERCENT EXCEEDS	962		639		499	
50 PERCENT EXCEEDS	193		162		68	
90 PERCENT EXCEEDS	20		31		5.9	

a From rating curve extended above 3,050 ft^3/s.



OCTOBER 1, 2003 TO SEPTEMBER 30, 2004

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)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Nov. 19	1430	194	4.89	Aug. 2	0000	611	6.75
Dec. 11	0715	311	5.46	Sept. 9	0045	497	6.23
Aug. 1	0445	309	5.45	Sept. 18	Unknown	*4,280	*a11.94

a From floodmark.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	17	19	14	e4.9	34	31	20	9.1	2.3	146	2.9
2	23	15	17	13	e5.0	67	60	24	6.8	2.2	115	2.8
3	18	14	15	e12	e5.5	84	56	29	6.0	2.1	38	2.6
4	17	12	13	e11.5	e6.0	70	42	25	5.1	2.3	21	2.5
5	14	14	14	e11.2	e7.0	54	31	22	9.2	3.0	14	2.4
6	12	16	13	e12	e8.5	58	24	19	6.7	2.2	10	2.4
7	10	15	12	e12.5	e10.5	50	21	16	5.5	2.3	8.2	2.7
8	9.5	14	11	e13.8	e11	41	19	14	4.9	2.9	6.9	22
9	8.6	13	10	e15	e13.5	32	18	12	4.5	2.1	6.1	230
10	e8.0	13	13	e19	e16	25	14	11	4.3	1.9	5.6	68
11	7.2	13	218	e16	e13	21	13	9.7	6.2	2.4	5.2	28
12	6.8	22	98	e14	e11.5	18	22	9.2	7.0	22	5.0	16
13	6.4	19	51	e12	e10.5	15	60	9.2	4.9	27	5.6	11
14	11	18	38	e11	e9.5	14	70	8.4	4.5	19	4.7	8.8
15	21	16	29	e11.4	e8.5	13	50	8.1	4.5	12	4.4	13
16	13	15	22	e10	e7.5	13	35	8.2	4.1	8.4	4.1	9.3
17	12	14	21	e9.2	e7.2	12	28	6.8	3.9	6.6	3.8	e110
18	12	12	18	e10	e8.0	13	23	8.9	3.8	6.4	3.7	e900
19	11	91	16	e9.0	e9.0	20	19	19	3.5	5.5	3.7	e70
20	9.8	127	14	e8.5	e10	22	17	15	3.2	4.8	3.9	e40
21	9.6	64	12	e8.2	e13	39	16	28	3.1	4.3	5.4	e30
22	9.7	40	e14	e7.7	34	36	15	27	3.2	4.1	4.2	e25
23	8.9	29	17	e7.2	30	29	15	21	3.1	4.7	3.7	e20
24	8.0	25	56	e6.7	28	23	13	15	2.9	4.0	3.4	e15
25	7.3	21	65	e6.2	24	20	14	25	2.7	3.6	3.2	e10
26	7.1	18	44	e5.7	21	17	55	30	3.0	3.7	3.0	e9.0
27	38	15	32	e5.4	20	15	62	22	2.6	5.5	3.5	e30
28	48	20	25	e5.7	22	14	44	16	2.5	4.8	5.0	e60
29	37	22	21	e6.0	27	12	32	12	3.0	3.8	4.4	27
30	26	20	19	e5.4	---	12	24	9.3	2.4	6.2	3.5	21
31	20	---	15	e5.0	---	13	---	9.2	---	42	3.2	---
TOTAL	481.9	764	982	314.3	401.6	906	943	509.0	136.2	224.1	457.4	1791.4
MEAN	15.5	25.5	31.7	10.1	13.8	29.2	31.4	16.4	4.54	7.23	14.8	59.7
MAX	48	127	218	19	34	84	70	30	9.2	42	146	900
MIN	6.4	12	10	5.0	4.9	12	13	6.8	2.4	1.9	3.0	2.4
CFSM	1.45	2.38	2.96	0.95	1.29	2.73	2.94	1.53	0.42	0.68	1.38	5.58
IN.	1.68	2.66	3.41	1.09	1.40	3.15	3.28	1.77	0.47	0.78	1.59	6.23

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 2004, BY WATER YEAR (WY)

MEAN	6.26	11.7	14.8	14.3	21.0	28.4	24.2	17.6	11.1	4.25	2.38	6.18
MAX	37.7	58.2	43.8	62.1	59.5	78.2	72.4	51.5	85.6	39.7	14.8	59.7
(WY)	1991	1998	1997	1996	1986	1994	1993	1988	1972	1989	2004	2004
MIN	0.13	0.26	0.23	0.54	2.00	5.44	5.19	3.53	0.38	0.06	0.00	0.00
(WY)	1992	1999	1999	1981	2002	1990	1968	1976	1991	1966	1966	1991

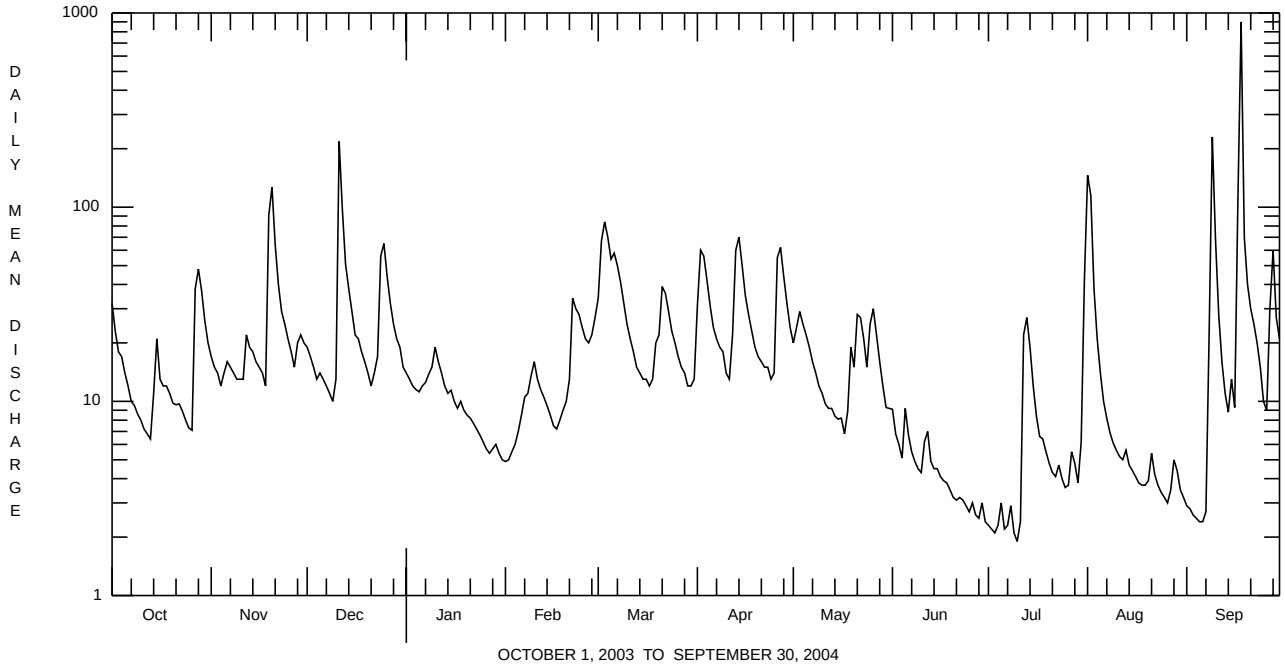
e Estimated.

TONOLOWAY CREEK BASIN

01613050 TONOLOWAY CREEK NEAR NEEDMORE, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1966 - 2004	
ANNUAL TOTAL	10622.06		7910.9			
ANNUAL MEAN	29.1		21.6		13.4	
HIGHEST ANNUAL MEAN					28.3	1996
LOWEST ANNUAL MEAN					4.45	2002
HIGHEST DAILY MEAN	284	Jun 4	**e**900	Sep 18	**e**900	Sep 18 2004
LOWEST DAILY MEAN	0.82	Jul 30	1.9	Jul 10	0.00	Jun 25 1966**b**
ANNUAL SEVEN-DAY MINIMUM	1.0	Jul 25	2.3	Jul 1	0.00	Jul 1 1966
MAXIMUM PEAK FLOW			**c**4280	Sep 18	**c**4280	Sep 18 2004
MAXIMUM PEAK STAGE			**a**11.94	Sep 18	**a**11.94	Sep 18 2004
INSTANTANEOUS LOW FLOW			1.8	Jul 10	0.00	Jul 18 1991**b**
ANNUAL RUNOFF (CFSM)	2.72		2.02		1.25	
ANNUAL RUNOFF (INCHES)	36.93		27.50		17.05	
10 PERCENT EXCEEDS	80		40		33	
50 PERCENT EXCEEDS	15		13		5.1	
90 PERCENT EXCEEDS	3.5		3.6		0.30	

a From floodmark.
b No flow many days throughout period of record.
c From rating curve extended above 540 ft^3/s on basis of contracted-opening measurement at gage height 9.48 ft., and slope-area measurement of peak flow.
e Estimated.



DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the 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 2004

Station name and number	Location and drainage area	Period of Record	Water year 2004 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.	1986-2004	9-09-04	50.14	10,900	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.	1980-2004	9-09-04	26.83	25,000	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≠ 1996-2004	9-18-04	15.22	55,200	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* 1984-2004	9-18-04	12.01	8,590	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.	1975-2004	9-18-04	28.13	111,000	9-18-04	28.13	111,000

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Annual maximum discharge at crest-stage partial-record stations during water year 2004—Continued

Station name and number	Location and drainage area	Period of Record	Water year 2004 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≠ 1996-2004	9-18-04	15.96	13,400	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 1995-2004	9-18-04	15.75	[f]29,500	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.	1989-2004	9-18-04	17.03	[g]11,900	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 1996-2004	9-09-04	12.56	4,010	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.	1990-2004	9-18-04	18.50	34,200	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.	1989-2004	9-19-04	31.68	74,600	9-19-04	31.68	74,600

Annual maximum discharge at crest-stage partial-record stations during water year 2004—Continued

Station name and number	Location and drainage area	Period of Record	Water year 2004 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[h] 1926-32[h] 1940-96≠ 1997-2004	9-18-04	11.69	6,190	6-22-72	[i]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.	1963-2004	6-18-04	7.90	1,350	7-01-84	[j]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 Gage heights and discharge measurements only, in reports of Pennsylvania Department of Forests and Waters.
i From floodmark in gage.
j From floodmark; farm pond failure upstream.

Miscellaneous sites

Discharge measurements made at miscellaneous sites during water year 2004

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	2000-03	10-07-03	48
					11-18-03	72
					4-08-04	207
					5-17-04	142
					7-09-04	25
					8-24-04	162
		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	1989-2003	10-06-03	164
					11-17-03	228
					4-07-04	300
					5-17-04	303
					7-13-04	22
					8-23-04	211
		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	1999-2003	10-08-03	263
					1-08-04	571
					2-24-04	92
					4-13-04	405
					6-03-04	193
					7-14-04	72
					8-25-04	172
		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 1995-2003	10-02-03	399
					11-19-03	255
					3-03-04	532
					4-09-04	261
					5-18-04	297
					7-14-04	212
					8-25-04	279
		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* 1992-2003	10-02-03	53
					11-19-03	49
					1-07-04	327
					3-08-04	426
					4-09-04	49
					5-19-04	254
					7-15-04	96
					8-25-04	81
		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	1975-2003	10-20-03	689
					11-17-03	484
					1-05-04	7,980
					1-05-04	7,660
					4-12-04	474
					5-24-04	2,400
					7-12-04	176
					8-23-04	1,090

Discharge measurements made at miscellaneous sites during water year 2004—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				
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	1989-2003	11-03-03	212
					12-17-03	447
					2-05-04	106
					3-11-04	453
					4-30-04	253
					6-07-04	108
					7-20-04	95
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 1991-2003	12-16-03	4,030
					3-11-04	4,120
					4-30-04	1,770
					6-07-04	645
					7-20-04	976
		PINE CREEK BASIN				
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 1992-2003	10-09-03	177
					12-09-03	246
					1-21-04	150
					3-04-04	807
					4-14-04	1,480
					5-20-04	302
					7-01-04	49
					9-07-04	62
		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	1989-2003	10-04-03	130
					3-22-04	826
					5-10-04	250
					7-06-04	87
					8-30-04	85
		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	1995-2003	10-19-03	74
					3-30-04	140
					4-28-04	242
					6-08-04	60
					9-02-04	43
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	1982-2003	10-09-03	86
					1-20-04	87
					3-30-04	157
					4-27-04	264
					6-08-04	66
					9-02-04	50
		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	1989-2003	10-10-03	389
					1-07-04	1,870
					3-05-04	1,580
					4-20-04	1,090
					5-26-04	493
					7-01-04	348
					9-24-04	1,100

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 2004—Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements: Date	Measurements: Discharge (ft^3/s)
		SUSQUEHANNA RIVER BASIN--Continued				
		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	1995-2003	10-16-03	95
					12-18-03	236
					2-18-04	65
					4-01-04	427
					6-02-04	55
					7-20-04	28
					9-07-04	24
		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	1989-2003	12-29-03	212
					2-27-04	152
					4-12-04	129
					5-11-04	190
					7-01-04	118
					7-30-04	321
					9-23-04	207
		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≠ 1989-2003	10-08-03	196
					12-29-03	338
					2-27-04	195
					4-13-04	333
					5-12-04	249
					7-08-04	192
					9-22-04	161
		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] 1992-2003	11-07-03	259
					11-26-03	344
					1-13-04	197
					3-08-04	676
					4-29-04	409
					6-04-04	96
					7-12-04	50
					9-16-04	132
					9-16-04	136
		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≠ 1998-2003	10-21-03	5.8
					12-19-03	15
					2-12-04	7.1
					3-31-04	8.9
					5-14-04	9.2
					7-13-04	5.0
					9-10-04	4.1

≠ 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 2003 TO SEPTEMBER 2004

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)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, 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)
OCT													
14...	0830	1028	80020	46	10.8	7.3	7.3	286	292	13.1	29.2	11.5	3.46

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419)	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)	Orthophosphate, water, fltrd, mg/L as P (00671)	Boron, water, fltrd, µg/L (01020)	Iron, water, fltrd, µg/L (01046)
OCT											
14...	8.86	55	20.4	5.5	23.1	<.04	8.64	.015	E.01	24	12

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 2003 TO SEPTEMBER 2004
BENTHIC MACROINVERTEBRATES

Date	10/14/03
Benthic macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	27
Mollusca	
Bivalvia (CLAMS)	
Veneroida	
Corbiculidae	
Corbicula fluminea	2
Sphaeriidae	
Pisidium	3
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	3
Tubificida	
Naididae	2
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	4
Crustacea	
Amphipoda (SCUDS)	
Gammaridae	
Gammarus	9
Isopoda (AQUATIC SOWBUGS)	
Asellidae	
Caecidotea	2
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Acentrella	23
Baetis	50
Caenidae	
Caenis	1
Ephemerellidae	
Serratella	47
Heptageniidae	
Stenonema	41
Isonychiidae	
Isonychia	12
Plecoptera (STONEFLIES)	
Capniidae	3
Taeniopterygidae	
Taeniopteryx	7

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 2003 TO SEPTEMBER 2004
BENTHIC MACROINVERTEBRATES

Date	10/14/03
Benthic macroinvertebrate	Count
Trichoptera (CADDISFLIES)	
Brachycentridae	
Brachycentrus	1
Hydropsychidae	
Cheumatopsyche	34
Diplectrona	6
Hydropsyche	78
Hydroptilidae	
Leucotrichia	5
Philopotamidae	
Chimarra	79
Dolophilodes	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus	55
Oulimnius	1
Stenelmis	350
Psephenidae (WATER PENNIES)	
Psephenus	50
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	283
Simuliidae (BLACK FLIES)	
Simulium	31
Tipulidae (CRANE FLIES)	
Antocha	1
Total Organisms	1211
Total Taxa	30

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 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 117 standard stream sites, 22 reference stream sites, and 21 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-04-1 and PA-04-3.

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 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.

Although sites 01520000, 01554600, and 01577180 were discontinued in 2003, the benthic macroinvertebrate data are presented in this report without any chemical data. Chemical data for these sites were published in the 2003 annual report.

Ninety lakes are part of the WQN. Of these 90 lakes, approximately 15-25 are sampled annually during mid-summer stratification for 5 years; and then a different set of 15-25 lakes is sampled for 5 years. Using this schedule, all 90 lakes are sampled over a 30-year period. Lakes are sampled for physical and chemical parameters and chlorophyll-*a*. 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 USGS Pennsylvania Water Science Center, Exton Office, 770 Pennsylvania Drive, Suite 116, Exton, PA 19341; 610-321-2434, (email: agreif@usgs.gov).

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

TABLE 1.--List of stream sites sampled as part of the Pennsylvania Water-Quality Network (WQN).

Station number	WQN No.	Location	Latitude	Longitude	Drainage area (mi^2)
01502771	306	Susquehanna River near Great Bend, PA	41° 57’ 48”	75° 44’ 33”	2,086
[a]01518700	324	Tioga River at Tioga Junction, PA	41° 57’ 09”	77° 06’ 56”	446
[a]01520000	320	Cowanesque River near Lawrenceville, PA (biological only)	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 (Reference Station)	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 (Reference Station)	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, PA	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 (Reference Station)	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 (Reference Station) (Biological only)	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

TABLE 1.--List of stream sites sampled as part of the Pennsylvania Water-Quality Network (WQN).--continued.

Station number	WQN No.	Location	Latitude	Longitude	Drainage area (mi^2)
01555859	252	Beaverdam Branch Juniata River near Hollidaysburg, PA	40° 25’ 50”	78° 21’ 50”	75.4
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 (Reference Station)	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 (Reference Station)	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 (Reference Station)	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 (Reference Station) (Biological only)	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 2.--List of lakes sampled as part of the Pennsylvania Water-Quality Network.

Station number	WQN No.	Location	Latitude	Longitude	Drainage area (mi^2)
01534380	L309	Crystal Lake near Dandaff, PA	41° 38’ 08”	75° 31’ 55”	0.56
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

REMARKS.-- Some values for "*dissolved*" parameters exceed values for the corresponding "*total*" parameter. These results are within the limits of analytical precision and methods.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Pressure, osmotic water, unfltrd mosm/kg (82550)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)
01502771 Susquehanna River near Great Bend, PA (LAT 41 57 48N LONG 075 44 33W)													
OCT 2003													
06...	1300	1028	9813	3680	--	12.1	7.6	7.4	145	141	10.1	49	--
DEC													
08...	1245	1028	9813	4100	--	13.5	7.5	7.9	172	180	.1	68	--
APR 2004													
20...	1445	1028	9813	5390	--	11.1	7.7	7.8	163	165	12.2	61	--
JUN													
15...	1445	1028	9813	1690	--	11.3	8.4	8.3	191	185	21.8	69	--
AUG													
24...	1500	1028	9813	5540	--	9.8	7.7	7.4	159	163	19.5	70	--
01531000 Chemung River at Chemung, NY (LAT 42 00 08N LONG 076 38 06W)													
OCT 2003													
07...	0900	1028	9813	2010	--	11.2	7.9	8.0	276	273	10.3	100	--
DEC													
09...	0930	1028	9813	1460	--	12.9	7.5	7.6	284	304	.2	100	--
APR 2004													
08...	0930	1028	9813	4460	--	12.3	7.8	7.4	234	236	6.1	80	--
JUN													
03...	0920	1028	9813	5860	--	9.3	7.7	7.8	246	246	16.6	91	--
AUG													
03...	1445	1028	9813	2900	--	8.4	7.5	7.4	250	227	23.5	100	--
01531490 Sugar Creek near Towanda, PA (LAT 41 47 27N LONG 076 27 45W)													
OCT 2003													
07...	1030	1028	9813	51	--	13.4	8.5	8.4	225	219	8.4	89	--
APR 2004													
08...	1200	1028	9813	211	--	14.1	8.8	8.2	160	161	6.9	59	--
JUN													
03...	1115	1028	9813	159	--	10.8	8.3	8.0	210	209	17.9	78	--
AUG													
03...	1230	1028	9813	270	--	8.6	7.3	7.2	175	160	22.2	67	--
01532950 Wyalusing Creek near Wyalusing, PA (LAT 41 41 49N LONG 076 13 52W)													
OCT 2003													
06...	1030	1028	9813	176	--	13.2	7.7	7.3	103	100	8.9	38	--
DEC													
08...	1045	1028	9813	203	--	13.7	7.7	7.4	95	97	.0	32	--
APR 2004													
21...	0830	1028	9813	271	--	11.2	7.2	7.5	94	93	10.9	30	--
JUN													
21...	0930	1028	9813	62	--	10.2	7.5	7.2	123	121	17.1	46	--
AUG													
25...	1000	1028	9813	217	--	10.9	8.2	7.9	104	101	19.3	37	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Calcium water unfltrd recover -able, mg/L (00916)	Magnes- ium, water, fltrd, mg/L (00925)	Magnes- ium, water, unfltrd recover -able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	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)
01502771 Susquehanna River near Great Bend, PA (LAT 41 57 48N LONG 075 44 33W)													
OCT 2003													
06...	15.4	--	2.6	44	--	--	--	7.3	90	8	<.020	.30	<.040
DEC													
08...	23.1	--	2.5	56	--	--	--	8.9	148	6	<.020	.61	<.040
APR 2004													
20...	20.4	--	2.3	48	--	--	--	7.9	104	14	<.020	.49	<.040
JUN													
15...	23.0	--	2.8	60	--	--	--	8.1	136	6	<.020	.37	<.040
AUG													
24...	24.2	--	2.4	57	--	--	--	5.9	108	26	<.020	.28	<.040
01531000 Chemung River at Chemung, NY (LAT 42 00 08N LONG 076 38 06W)													
OCT 2003													
07...	31.1	--	6.5	82	--	--	--	16.1	188	8	<.020	.61	<.040
DEC													
09...	29.7	--	6.5	79	--	--	--	17.8	188	12	.030	1.02	<.040
APR 2004													
08...	23.7	--	5.0	56	--	--	--	16.4	126	4	<.020	.88	<.040
JUN													
03...	26.1	--	6.1	70	--	--	--	13.1	180	94	.030	.67	<.040
AUG													
03...	30.2	--	6.5	72	--	--	--	15.4	152	30	.030	.55	<.040
01531490 Sugar Creek near Towanda, PA (LAT 41 47 27N LONG 076 27 45W)													
OCT 2003													
07...	27.1	--	5.2	79	--	--	--	12.1	124	2	<.020	.04	<.040
APR 2004													
08...	17.9	--	3.5	44	--	--	--	13.5	86	<2	<.020	.58	<.040
JUN													
03...	23.8	--	4.6	69	--	--	--	11.4	152	10	<.020	.48	<.040
AUG													
03...	20.1	--	4.0	60	--	--	--	10.9	232	14	.030	.84	<.040
01532950 Wyalusing Creek near Wyalusing, PA (LAT 41 41 49N LONG 076 13 52W)													
OCT 2003													
06...	10.4	--	2.9	29	--	--	--	8.4	70	6	<.020	.23	<.040
DEC													
08...	8.6	--	2.5	22	--	--	--	10.3	98	<2	<.020	.60	<.040
APR 2004													
21...	8.2	--	2.3	21	--	--	--	9.7	302	4	<.020	.50	<.040
JUN													
21...	12.8	--	3.4	34	--	--	--	8.4	80	<2	<.020	.30	<.040
AUG													
25...	10.0	--	2.9	31	--	--	--	6.6	66	8	<.020	.12	<.040

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	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)	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45µMF 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)	Cyanide amen-able to chlor-ination wat unf mg/L (00722)
01502771 Susquehanna River near Great Bend, PA (LAT 41 57 48N LONG 075 44 33W)													
OCT 2003													
06...	.02	.025	.54	3.2	--	--	--	260	--	--	--	<10	--
DEC													
08...	.02	.016	.73	2.0	--	--	--	200	--	--	--	<10	--
APR 2004													
20...	.02	.023	.84	2.4	--	--	--	220	--	--	--	<10	--
JUN													
15...	.01	.032	.64	3.1	--	--	--	<200	--	--	--	<10	--
AUG													
24...	.03	.050	.56	4.3	--	--	--	670	--	--	--	20	--
01531000 Chemung River at Chemung, NY (LAT 42 00 08N LONG 076 38 06W)													
OCT 2003													
07...	.03	.032	1.0	3.5	--	--	--	230	--	--	--	<10	--
DEC													
09...	.04	.034	1.2	2.6	--	--	--	310	--	--	--	<10	--
APR 2004													
08...	.03	.032	1.1	2.6	--	--	--	370	--	--	--	<10	--
JUN													
03...	.08	.103	.86	3.8	--	--	--	3100	--	--	--	<10	--
AUG													
03...	.04	.055	.85	3.8	--	--	--	730	--	--	--	<10	--
01531490 Sugar Creek near Towanda, PA (LAT 41 47 27N LONG 076 27 45W)													
OCT 2003													
07...	.01	.019	.36	3.5	--	--	--	<200	--	--	--	<10	--
APR 2004													
08...	.02	.021	.82	2.9	--	--	--	<200	--	--	--	<10	--
JUN													
03...	.04	.043	.84	3.9	--	--	--	320	--	--	--	<10	--
AUG													
03...	.06	.058	1.2	4.9	--	--	--	430	--	--	--	<10	--
01532950 Wyalusing Creek near Wyalusing, PA (LAT 41 41 49N LONG 076 13 52W)													
OCT 2003													
06...	.01	.013	.39	2.5	--	--	--	<200	--	--	--	<10	--
DEC													
08...	.01	.014	.70	1.7	--	--	--	<200	--	--	--	<10	--
APR 2004													
21...	.01	.015	.82	1.9	--	--	--	<200	--	--	--	<10	--
JUN													
21...	.01	.024	1.1	2.8	--	--	--	<200	--	--	--	20	--
AUG													
25...	.01	.022	.40	3.4	--	--	--	<200	--	--	--	<10	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	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)	Zinc, water, unfltrd recover -able, µg/L (01092)	Phen- olic com- pounds, water, unfltrd µg/L (32730)
01502771 Susquehanna River near Great Bend, PA (LAT 41 57 48N LONG 075 44 33W)											
OCT 2003											
06...	--	460	--	<1.0	--	20	--	<50	--	<10	--
DEC											
08...	--	350	--	<1.0	--	10	--	<50	--	<10	--
APR 2004											
20...	--	430	--	<1.0	--	30	--	<50	--	<10	--
JUN											
15...	--	300	--	<1.0	--	40	--	<50	--	80	--
AUG											
24...	--	950	--	<1.0	--	50	--	<50	--	40	--
01531000 Chemung River at Chemung, NY (LAT 42 00 08N LONG 076 38 06W)											
OCT 2003											
07...	--	320	--	<1.0	--	20	--	<50	--	<10	--
DEC											
09...	--	370	--	<1.0	--	30	--	<50	--	<10	--
APR 2004											
08...	--	500	--	<1.0	--	50	--	<50	--	<10	--
JUN											
03...	--	3820	--	3.0	--	140	--	<50	--	10	--
AUG											
03...	--	1210	--	<1.0	--	90	--	<50	--	<10	--
01531490 Sugar Creek near Towanda, PA (LAT 41 47 27N LONG 076 27 45W)											
OCT 2003											
07...	--	130	--	<1.0	--	10	--	<50	--	<10	--
APR 2004											
08...	--	210	--	<1.0	--	20	--	<50	--	<10	--
JUN											
03...	--	480	--	<1.0	--	40	--	<50	--	<10	--
AUG											
03...	--	740	--	<1.0	--	40	--	<50	--	<10	--
01532950 Wyalusing Creek near Wyalusing, PA (LAT 41 41 49N LONG 076 13 52W)											
OCT 2003											
06...	--	140	--	<1.0	--	<10	--	<50	--	<10	--
DEC											
08...	--	130	--	<1.0	--	20	--	<50	--	<10	--
APR 2004											
21...	--	130	--	<1.0	--	10	--	<50	--	<10	--
JUN											
21...	--	280	--	<1.0	--	30	--	<50	--	20	--
AUG											
25...	--	220	--	<1.0	--	10	--	<50	--	<10	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Press- ure, osmotic water, unfltrd mosm/kg (82550)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat unf lab, µS/cm 25 degC (90095)	Specif. conduc- tance, wat unf µS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)
01533610 Unnamed Tributary to Tunkhannock Creek at Gelatt, PA (LAT 41 48 30N LONG 075 34 50W)													
OCT 2003													
08...	0900	1028	9813	8.7	3.0	11.9	7.4	7.6	87	85	7.7	34	--
NOV													
03...	1100	1028	9813	21	3.0	11.4	7.4	7.4	77	76	11.1	27	--
DEC													
10...	1000	1028	9813	12	<1.0	12.5	7.5	7.0	81	84	2.5	30	--
JAN 2004													
07...	0945	1028	9813	22	<1.0	14.6	8.3	7.4	73	75	.0	24	--
MAR													
24...	1015	1028	9813	12	6.0	13.8	8.0	7.3	83	84	2.4	30	--
APR													
19...	1215	1028	9813	15	5.0	10.8	7.3	7.1	81	79	12.3	29	--
MAY													
19...	1100	1028	9813	13	4.0	10.5	7.4	7.3	87	85	14.0	29	--
JUN													
14...	1200	1028	9813	3.4	3.0	9.8	7.5	7.3	115	80	13.9	40	--
JUL													
29...	1130	1028	9813	54	<1.0	9.7	7.0	6.8	68	67	15.5	26	--
AUG													
23...	1200	1028	9813	8.6	<1.0	11.5	7.9	7.0	95	90	15.2	37	--
SEP													
27...	1130	1028	9813	14	<1.0	10.6	7.5	7.1	85	75	12.8	33	--
01534090 Susquehanna River at Falls, PA (LAT 41 27 42N LONG 075 51 15W)													
OCT 2003													
21...	1240	1028	9813	11500	--	11.0	8.1	7.9	190	184	11.2	67	--
DEC													
03...	1250	1028	9813	23300	--	13.4	8.1	7.9	163	149	2.8	63	--
FEB 2004													
18...	1440	1028	9813	5650	--	16.6	8.4	8.0	306	317	.1	100	--
APR													
14...	1300	1028	9813	35000	--	10.2	7.8	7.6	176	179	7.4	65	--
JUN													
23...	1520	1028	9813	5030	--	9.7	8.4	8.2	270	258	23.7	98	--
AUG													
05...	1130	1028	9813	15800	--	7.9	7.7	7.3	190	175	23.0	69	--
01537700 Susquehanna River near Hunlock Creek, PA (LAT 41 11 19N LONG 076 05 13W)													
OCT 2003													
22...	0920	1028	9813	12900	--	10.4	7.5	7.7	218	210	11.2	77	--
DEC													
03...	1540	1028	9813	25700	--	13.6	7.7	7.7	175	157	3.2	67	--
FEB 2004													
19...	0900	1028	9813	5960	--	14.8	8.3	7.2	354	349	.8	120	--
APR													
15...	1240	1028	9813	71800	--	11.9	7.4	7.5	160	153	6.9	67	--
JUN													
23...	1130	1028	9813	5600	--	8.4	7.5	7.6	324	309	22.7	110	--
AUG													
17...	1200	1028	9813	15300	--	11.2	7.5	7.2	192	191	20.6	70	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Calcium water unfltrd recover -able, mg/L (00916)	Magnes- ium, water, fltrd, mg/L (00925)	Magnes- ium, water, unfltrd recover -able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	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)
01533610 Unnamed Tributary to Tunkhannock Creek at Gelatt, PA (LAT 41 48 30N LONG 075 34 50W)													
OCT 2003													
08...	11.6	--	1.3	26	--	4.9	<.2	7.1	76	<2	<.020	.26	<.040
NOV													
03...	9.0	--	1.0	22	--	3.7	<.2	7.2	56	2	<.020	.32	<.040
DEC													
10...	10.1	--	1.1	22	--	4.4	<.2	7.8	44	<2	<.020	.38	<.040
JAN 2004													
07...	8.1	--	1.0	17	--	4.2	<.2	7.8	100	4	<.020	.53	<.040
MAR													
24...	10.1	--	1.1	20	--	6.4	<.2	7.8	88	<2	<.020	.54	<.040
APR													
19...	9.8	--	1.0	24	--	4.5	<.2	7.7	64	<2	<.020	.40	<.040
MAY													
19...	9.9	--	1.1	25	--	4.3	<.2	7.4	64	2	<.020	.35	<.040
JUN													
14...	13.7	--	1.5	34	--	6.0	<.2	7.9	68	<2	<.020	.48	<.040
JUL													
29...	8.7	--	1.1	21	--	3.0	<.2	6.2	72	4	.030	.35	<.040
AUG													
23...	12.5	--	1.3	32	--	5.0	<.2	6.5	70	<2	<.020	.28	<.040
SEP													
27...	11.3	--	1.2	28	--	3.8	<.2	6.6	140	<2	<.020	.39	<.040
01534090 Susquehanna River at Falls, PA (LAT 41 27 42N LONG 075 51 15W)													
OCT 2003													
21...	21.0	--	3.6	57	--	--	--	10.2	108	4	<.020	.41	<.040
DEC													
03...	19.6	--	3.4	49	--	--	--	11.2	124	16	<.020	.61	<.040
FEB 2004													
18...	32.6	--	5.4	78	--	--	--	15.5	214	4	.040	1.34	<.040
APR													
14...	19.5	--	3.9	46	--	--	--	10.5	116	106	.020	.72	<.040
JUN													
23...	30.2	--	5.4	78	--	--	--	13.1	196	6	.030	.54	<.040
AUG													
05...	21.2	--	3.8	59	--	--	--	9.1	140	26	.040	.60	<.040
01537700 Susquehanna River near Hunlock Creek, PA (LAT 41 11 19N LONG 076 05 13W)													
OCT 2003													
22...	22.4	--	5.2	54	--	--	--	21.9	152	<2	<.020	.41	<.040
DEC													
03...	20.1	--	4.0	46	--	--	--	16.0	124	14	.020	.57	<.040
FEB 2004													
19...	33.1	--	8.6	77	--	--	--	35.8	226	<2	.100	1.29	<.040
APR													
15...	17.2	--	5.8	36	--	--	--	10.6	212	368	.030	.57	<.040
JUN													
23...	33.0	--	7.7	78	--	--	--	31.4	246	2	.030	.64	<.040
AUG													
17...	21.2	--	4.1	53	--	--	--	14.2	62	110	.030	.40	<.040

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	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)	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45µMF 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)	Cyanide amen-able to chlor-ination wat unf mg/L (00722)
01533610 Unnamed Tributary to Tunkhannock Creek at Gelatt, PA (LAT 41 48 30N LONG 075 34 50W)													
OCT 2003													
08...	<.01	<.010	.43	--	.5	20	<10	<10	<4.0	<.20	<4	<4	--
NOV													
03...	<.01	.012	.42	--	2.3	30	<10	30	<4.0	<.20	<4	<4	--
DEC													
10...	<.01	.011	.54	--	1.6	20	<10	20	<4.0	<.20	<4	<4	--
JAN 2004													
07...	<.01	<.010	.71	--	.5	40	<10	30	<4.0	<.20	<4	<4	--
MAR													
24...	<.01	<.010	.67	--	1.0	20	<10	<20	<4.0	<.20	<4	<4	--
APR													
19...	.01	.020	.63	--	1.6	<20	10	50	<4.0	<.20	<4	<4	--
MAY													
19...	.01	.016	.33	--	.6	<10	<10	40	<4.0	<.20	<4	<4	--
JUN													
14...	.01	.015	.59	--	1.0	20	<10	10	<4.0	<.20	<4	<4	--
JUL													
29...	.02	.029	.61	--	.9	480	20	200	<4.0	<.20	<4	<4	--
AUG													
23...	<.01	<.010	.36	--	<.2	20	10	30	<4.0	<.20	<4	<4	--
SEP													
27...	.01	.013	.48	--	1.5	20	<10	10	<4.0	<.20	<4	<4	--
01534090 Susquehanna River at Falls, PA (LAT 41 27 42N LONG 075 51 15W)													
OCT 2003													
21...	.02	.032	.71	3.7	--	--	--	240	--	--	--	<10	--
DEC													
03...	.03	.034	.81	2.8	--	--	--	500	--	--	--	<10	--
FEB 2004													
18...	.03	.031	1.6	1.9	--	--	--	<200	--	--	--	<10	--
APR													
14...	.02	.117	1.6	3.4	--	--	--	3000	--	--	--	<10	--
JUN													
23...	.02	.034	.70	3.2	--	--	--	<200	--	--	--	<10	--
AUG													
05...	.04	.055	.86	3.7	--	--	--	920	--	--	--	<10	--
01537700 Susquehanna River near Hunlock Creek, PA (LAT 41 11 19N LONG 076 05 13W)													
OCT 2003													
22...	.02	.027	.84	3.5	--	--	--	<200	--	--	--	<10	--
DEC													
03...	.03	.038	.81	2.7	--	--	--	430	--	--	--	<10	--
FEB 2004													
19...	.04	.036	1.6	1.9	--	--	--	<200	--	--	--	<10	--
APR													
15...	.03	.330	1.4	4.0	--	--	--	10500	--	--	--	10	--
JUN													
23...	.03	.043	.89	3.0	--	--	--	<200	--	--	--	<10	--
AUG													
17...	.02	.056	.69	3.6	--	--	--	550	--	--	--	<10	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	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)	Zinc, water, unfltrd recover -able, µg/L (01092)	Phen-olic com-pounds, water, unfltrd µg/L (32730)
01533610 Unnamed Tributary to Tunkhannock Creek at Gelatt, PA (LAT 41 48 30N LONG 075 34 50W)											
OCT 2003											
08...	<20	20	<1.0	<1.0	<2.0	3.2	<4.0	<4.0	<5.0	<5.0	<5
NOV											
03...	<20	50	<1.0	<1.0	<2.0	8.6	<4.0	<4.0	<5.0	<5.0	<5
DEC											
10...	20	40	<1.0	<1.0	<2.0	4.0	<4.0	<4.0	<5.0	<5.0	<5
JAN 2004											
07...	<20	70	<1.0	<1.0	<2.0	5.9	<4.0	<4.0	<5.0	<5.0	<5
MAR											
24...	<20	20	<1.0	<1.0	<2.0	3.2	<4.0	<4.0	<5.0	<5.0	<5
APR											
19...	<20	60	<1.0	<1.0	2.5	12	<4.0	<4.0	<5.0	<5.0	<5
MAY											
19...	<20	50	<1.0	<1.0	<2.0	9.0	<4.0	<4.0	<5.0	<5.0	<5
JUN											
14...	<20	30	<1.0	<1.0	2.8	5.5	<4.0	<4.0	<5.0	<5.0	<5
JUL											
29...	40	430	<1.0	<1.0	3.3	31	<4.0	<4.0	<5.0	<5.0	<5
AUG											
23...	<20	30	<1.0	<1.0	2.3	3.7	<4.0	<4.0	<5.0	6.5	<5
SEP											
27...	<20	20	<1.0	<1.0	<2.0	3.2	<4.0	<4.0	<5.0	<5.0	<5
01534090 Susquehanna River at Falls, PA (LAT 41 27 42N LONG 075 51 15W)											
OCT 2003											
21...	--	440	--	<1.0	--	30	--	<50	--	<10	--
DEC											
03...	--	650	--	<1.0	--	30	--	<50	--	<10	--
FEB 2004											
18...	--	120	--	<1.0	--	<10	--	<50	--	<10	--
APR											
14...	--	3850	--	3.0	--	200	--	<50	--	20	--
JUN											
23...	--	330	--	<1.0	--	30	--	<50	--	10	--
AUG											
05...	--	1200	--	<1.0	--	70	--	<50	--	<10	--
01537700 Susquehanna River near Hunlock Creek, PA (LAT 41 11 19N LONG 076 05 13W)											
OCT 2003											
22...	--	850	--	<1.0	--	100	--	<50	--	<10	--
DEC											
03...	--	830	--	<1.0	--	70	--	<50	--	<10	--
FEB 2004											
19...	--	780	--	<1.0	--	160	--	<50	--	150	--
APR											
15...	--	18900	--	8.2	--	490	--	<50	--	50	--
JUN											
23...	--	780	--	<1.0	--	120	--	<50	--	10	--
AUG											
17...	--	1130	--	1.1	--	90	--	<50	--	<10	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Pressure, osmotic water, unfltrd mosm/kg (82550)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)
01538600 Nescopeck Creek at Nescopeck, PA (LAT 41 02 49N LONG 076 13 17W)													
OCT 3003													
22...	1040	1028	9813	310	--	10.2	5.3	5.0	281	281	11.3	92	--
DEC													
03...	1700	1028	9813	551	--	16.3	5.7	5.3	228	212	3.7	73	--
FEB 2004													
18...	1640	1028	9813	157	--	16.7	6.1	5.9	325	337	.5	100	--
APR													
15...	1400	1028	9813	561	--	12.4	5.9	6.1	223	219	9.3	58	--
JUN													
23...	0940	1028	9813	423	--	10.1	5.6	5.8	270	253	16.1	87	--
AUG													
16...	1730	1028	9813	448	--	9.7	5.5	5.0	308	304	18.0	100	--
01539350 Little Fishing Creek above Wolfhouse Run near Millville, PA (LAT 41 09 58N LONG 076 30 14W)													
OCT 2003													
21...	1000	1028	9813	26	4.0	11.4	6.5	7.1	60	59	8.4	20	5.2
NOV													
24...	1330	1028	9813	51	4.0	11.4	6.9	6.6	55	54	7.8	20	5.2
DEC													
17...	0830	1028	9813	46	<1.0	10.9	6.1	6.6	55	61	2.4	21	4.6
JAN 2004													
07...	1100	1028	9813	107	3.0	13.2	6.3	7.0	51	50	1.2	17	3.9
FEB													
18...	1145	1028	9813	--	6.0	13.7	7.4	7.2	63	63	.0	20	5.0
MAR													
24...	1045	1028	9813	46	4.0	13.4	6.3	6.9	56	56	2.1	18	4.5
APR													
21...	1500	1028	9813	27	4.0	9.2	7.1	6.8	53	35	15.3	17	4.2
MAY													
12...	1100	1028	9813	41	3.0	10.5	7.4	6.8	55	--	14.4	19	5.0
JUN													
07...	1030	1028	9813	25	2.0	9.6	7.0	6.7	61	61	12.4	21	5.6
JUL													
15...	0945	1028	9813	36	1.0	8.2	7.3	7.0	78	64	16.3	28	7.7
AUG													
17...	1000	1028	9813	30	<1.0	9.0	7.5	6.6	62	61	14.4	23	6.0
SEP													
15...	0945	1028	9813	8.4	<1.0	9.5	7.2	7.2	68	67	15.9	25	6.9
015400021 Fishing Creek near Bloomsburg, PA (LAT 40 59 37N LONG 076 28 33W)													
OCT 2003													
21...	1300	1028	9813	603	--	11.2	7.1	7.2	81	80	10.7	26	7.2
DEC													
17...	1115	1028	9813	1040	--	11.3	5.8	6.7	76	80	2.7	24	6.6
FEB 2004													
18...	1330	1028	9813	193	--	13.4	7.6	7.7	173	187	1.5	58	15.7
APR													
21...	1245	1028	9813	642	--	10.4	8.1	7.0	104	78	14.2	35	10.3
JUN													
07...	1330	1028	9813	587	--	9.9	7.4	6.9	110	87	16.0	36	10.1
AUG													
17...	1315	1028	9813	516	--	9.3	7.6	6.7	97	88	18.1	34	9.1

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Calcium water unfltrd recover -able, mg/L (00916)	Magnes- ium, water, fltrd, mg/L (00925)	Magnes- ium, water, unfltrd recover -able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	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)
01538600 Nescopeck Creek at Nescopeck, PA (LAT 41 02 49N LONG 076 13 17W)													
OCT 2003													
22...	13.4	--	14.2	2	--	--	--	95.0	272	2	.090	1.0	<.040
DEC													
03...	10.9	--	11.2	2	--	--	--	75.8	178	6	.170	.89	<.040
FEB 2004													
18...	15.1	--	15.4	3	--	--	--	96.0	254	2	.640	.80	<.040
APR													
15...	10.6	--	7.7	3	--	--	--	51.5	162	46	.110	1.01	<.040
JUN													
23...	13.5	--	13.0	3	--	--	--	79.8	266	18	.130	1.11	<.040
AUG													
16...	14.5	--	16.3	2	--	--	--	97.2	252	26	.050	.80	<.040
01539350 Little Fishing Creek above Wolfhouse Run near Millville, PA (LAT 41 09 58N LONG 076 30 14W)													
OCT 2003													
21...	5.3	1.7	1.7	12	0	3.3	<.2	6.5	46	<2	<.020	.84	<.040
NOV													
24...	5.3	1.7	1.7	10	0	2.9	<.2	7.2	18	24	.020	.91	<.040
DEC													
17...	5.1	1.7	2.0	9	0	2.8	<.2	7.0	48	<2	<.020	.99	<.040
JAN 2004													
07...	4.1	1.5	1.5	7	0	2.4	<.2	7.7	94	2	<.020	1.04	<.040
FEB													
18...	5.2	1.6	1.7	12	5.0	4.9	<.2	6.1	58	<2	<.020	1.02	<.040
MAR													
24...	4.5	1.6	1.6	8	11	3.5	<.2	7.4	30	<2	<.020	1.09	<.040
APR													
21...	4.5	1.4	1.5	9	13	3.0	<.2	6.8	56	<2	<.020	.77	<.040
MAY													
12...	5.0	1.6	1.6	13	9.6	2.6	<.2	7.0	56	4	<.020	.53	<.040
JUN													
07...	5.8	1.7	1.7	18	16	3.7	<.2	6.4	50	<2	<.020	.73	<.040
JUL													
15...	8.1	1.8	1.9	23	4.8	3.4	<.2	6.9	88	4	<.020	.67	<.040
AUG													
17...	6.1	1.8	1.9	20	5.6	3.0	<.2	6.4	10	44	<.020	.93	<.040
SEP													
15...	6.8	2.0	2.0	18	17	4.3	<.2	5.4	62	<2	<.020	.63	<.040
015400021 Fishing Creek near Bloomsburg, PA (LAT 40 59 37N LONG 076 28 33W)													
OCT 2003													
21...	7.2	2.0	2.0	15	0	--	--	8.6	38	<2	<.020	1.00	<.040
DEC													
17...	6.3	1.9	1.9	11	0	--	--	9.1	76	<2	<.020	1.21	<.040
FEB 2004													
18...	16.1	4.3	4.4	33	--	--	--	13.1	116	10	<.020	1.86	<.040
APR													
21...	9.8	2.5	2.6	20	4.2	--	--	10.3	64	10	<.020	1.28	<.040
JUN													
07...	10.0	2.7	2.7	26	7.8	--	--	9.9	58	38	<.020	1.19	<.040
AUG													
17...	9.3	2.5	2.5	25	--	--	--	8.3	82	4	<.020	1.03	<.040

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	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)	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45µMF 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)	Cyanide amen-able to chlor-ination wat unf mg/L (00722)
01538600 Nescopeck Creek at Nescopeck, PA (LAT 41 02 49N LONG 076 13 17W)													
OCT 2003													
22...	.02	.021	1.4	1.7	--	--	--	1600	--	--	--	<10	--
DEC													
03...	.02	.029	1.2	1.3	--	--	--	1400	--	--	--	<10	--
FEB 2004													
18...	.21	.094	1.8	1.7	--	--	--	1900	--	--	--	<10	--
APR													
15...	<.01	.052	1.4	2.0	--	--	--	1400	--	--	--	<10	--
JUN													
23...	.01	.071	1.3	1.8	--	--	--	1700	--	--	--	10	--
AUG													
16...	.01	.044	1.1	2.2	--	--	--	2600	--	--	--	20	--
01539350 Little Fishing Creek above Wolfhouse Run near Millville, PA (LAT 41 09 58N LONG 076 30 14W)													
OCT 2003													
21...	<.01	.012	1.0	--	.9	<20	<10	20	<4.0	<.20	<4	<4	--
NOV													
24...	<.01	<.010	1.1	--	1.0	20	20	80	<4.0	<.20	<4	<4	--
DEC													
17...	.01	.015	.88	--	1.4	<10	<10	40	<4.0	<.20	<4	<4	--
JAN 2004													
07...	<.01	.012	1.4	--	.6	20	10	90	<4.0	<.20	<4	<4	--
FEB													
18...	<.01	.013	1.1	--	1.1	40	<10	30	<4.0	<.20	<4	<4	--
MAR													
24...	<.01	.012	1.4	--	1.3	<20	<10	50	<4.0	<.20	<4	<4	--
APR													
21...	.01	.017	.93	--	.6	10	10	90	<4.0	<.20	<4	<4	--
MAY													
12...	<.01	.015	.46	--	1.2	160	10	60	<4.0	<.20	<4	<4	--
JUN													
07...	<.01	<.010	.99	--	.7	<20	<10	50	<4.0	<.20	<4	<4	--
JUL													
15...	.02	.021	.86	--	1.5	400	20	170	<4.0	<.20	<4	<4	--
AUG													
17...	<.01	<.010	.98	--	.5	60	<10	50	<4.0	<.20	<4	<4	--
SEP													
15...	<.01	<.010	.65	--	.7	360	<10	30	<4.0	<.20	<4	<4	--
015400021 Fishing Creek near Bloomsburg, PA (LAT 40 59 37N LONG 076 28 33W)													
OCT 2003													
21...	<.01	.019	1.2	--	.8	--	10	30	--	--	<4	<4	--
DEC													
17...	.01	.011	1.1	--	1.6	--	20	70	--	--	<4	<4	--
FEB 2004													
18...	.03	.023	2.0	--	1.4	--	100	310	--	--	<4	<4	--
APR													
21...	.01	.014	1.6	--	.8	--	30	80	--	--	<4	<4	--
JUN													
07...	.01	.014	1.4	--	.8	--	30	90	--	--	<4	<4	--
AUG													
17...	<.01	.014	1.1	--	.7	--	10	70	--	--	<4	<4	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	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)	Zinc, water, unfltrd recover -able, µg/L (01092)	Phen-olic com-pounds, water, unfltrd µg/L (32730)
01538600 Nescopeck Creek at Nescopeck, PA (LAT 41 02 49N LONG 076 13 17W)											
OCT 2003											
22...	--	390	--	<1.0	--	1040	--	52	--	170	--
DEC											
03...	--	460	--	<1.0	--	780	--	<50	--	140	--
FEB 2004											
18...	--	610	--	<1.0	--	1070	--	<50	--	160	--
APR											
15...	--	880	--	1.0	--	570	--	<50	--	100	--
JUN											
23...	--	950	--	1.8	--	940	--	<50	--	160	--
AUG											
16...	--	2010	--	2.8	--	1030	--	<50	--	190	--
01539350 Little Fishing Creek above Wolfhouse Run near Millville, PA (LAT 41 09 58N LONG 076 30 14W)											
OCT 2003											
21...	30	70	<1.0	<1.0	6.5	7.9	<4.0	<4.0	<5.0	<5.0	<5
NOV											
24...	40	110	<1.0	<1.0	5.0	8.9	<4.0	<4.0	<5.0	<5.0	<5
DEC											
17...	40	110	<1.0	<1.0	4.9	6.9	<4.0	<4.0	<5.0	<5.0	<5
JAN 2004											
07...	<20	150	<1.0	<1.0	4.2	9.9	<4.0	<4.0	<5.0	<5.0	<5
FEB											
18...	20	80	<1.0	<1.0	4.7	7.0	<4.0	<4.0	<5.0	<5.0	<5
MAR											
24...	<20	90	<1.0	<1.0	3.9	6.7	<4.0	<4.0	<5.0	<5.0	<5
APR											
21...	20	160	<1.0	<1.0	3.3	9.2	<4.0	<4.0	<5.0	<5.0	<5
MAY											
12...	<20	130	<1.0	<1.0	5.5	8.2	<4.0	<4.0	<5.0	<5.0	<5
JUN											
07...	20	120	<1.0	<1.0	6.1	6.6	<4.0	<4.0	<5.0	<5.0	<5
JUL											
15...	80	390	<1.0	<1.0	8.7	17	<4.0	<4.0	<5.0	<5.0	<5
AUG											
17...	30	140	<1.0	<1.0	7.2	11	<4.0	<4.0	<5.0	<5.0	--
SEP											
15...	50	140	<1.0	1.7	7.4	10	<4.0	<4.0	<5.0	<5.0	<5
015400021 Fishing Creek near Bloomsburg, PA (LAT 40 59 37N LONG 076 28 33W)											
OCT 2003											
21...	20	60	<1.0	<1.0	5.4	6.9	<4.0	<4.0	<5.0	<5.0	--
DEC											
17...	50	140	<1.0	<1.0	6.1	9.7	<4.0	<4.0	<5.0	<5.0	--
FEB 2004											
18...	170	460	<1.0	<1.0	11	24	<4.0	<4.0	<5.0	<5.0	--
APR											
21...	40	120	<1.0	<1.0	7.2	11	<4.0	<4.0	<5.0	<5.0	--
JUN											
07...	70	330	<1.0	<1.0	6.3	12	<4.0	<4.0	<5.0	<5.0	--
AUG											
17...	20	140	<1.0	<1.0	7.7	13	<4.0	<4.0	<5.0	<5.0	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Pressure, osmotic water, unfltrd mosm/kg (82550)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)
01542790 Bennett Branch Sinnemahoning Creek at Driftwood, PA (LAT 41 20 02N LONG 078 08 10W)													
OCT 2003													
22...	1330	1028	9813	590	--	10.9	7.2	6.4	109	103	10.6	37	--
DEC													
23...	1130	1028	9813	622	--	12.7	6.3	6.1	118	126	3.2	43	--
APR 2004													
28...	1100	1028	9813	1960	--	12.0	6.2	6.5	85	81	7.3	28	--
JUN													
30...	1030	1028	9813	136	--	8.8	6.2	6.7	--	119	22.1	40	--
AUG													
18...	1145	1028	9813	170	--	9.3	6.8	6.3	143	142	19.6	50	--
01547400 Bald Eagle Creek near Milesburg, PA (LAT 40 58 31N LONG 077 44 35W)													
OCT 2003													
07...	1200	1028	9813	437	--	10.0	8.4	8.2	415	404	9.3	170	--
DEC													
15...	1230	1028	9813	966	--	12.0	7.8	8.3	479	453	6.3	220	--
FEB 2004													
10...	1045	1028	9813	304	--	14.2	8.1	8.3	472	486	4.2	200	--
APR													
28...	1030	1028	9813	1070	--	12.1	8.1	8.2	317	226	8.0	140	--
JUN													
16...	0945	1028	9813	276	--	9.0	7.9	8.1	458	449	17.4	210	--
AUG													
26...	1200	1028	9813	349	--	11.4	8.4	8.5	450	467	16.6	210	--
01547980 Beech Creek at Beech Creek, PA (LAT 41 04 29N LONG 077 35 30W)													
OCT 2003													
07...	1345	1028	9813	376	--	9.2	5.0	4.9	159	156	8.4	54	--
DEC													
15...	1345	1028	9813	893	--	12.6	4.8	5.0	119	113	4.8	35	--
FEB 2004													
10...	0900	1028	9813	160	--	13.8	4.1	4.5	286	297	.0	99	--
APR													
28...	1220	1028	9813	711	--	8.1	4.8	5.1	114	107	8.0	34	--
JUN													
16...	0830	1028	9813	138	--	8.3	4.3	4.5	249	245	18.9	79	--
AUG													
26...	1330	1028	9813	115	--	8.1	4.9	4.7	244	246	20.6	93	--
01548075 Fishing Creek near Cedar Springs, PA (LAT 41 04 31N LONG 077 28 40W)													
OCT 2003													
16...	1245	1028	9813	304	--	11.4	7.8	8.0	262	250	10.8	120	--
DEC													
16...	0915	1028	9813	856	--	12.2	7.1	7.5	203	203	4.3	93	--
FEB 2004													
09...	1430	1028	9813	187	--	13.6	8.4	8.4	315	307	3.8	150	--
APR													
22...	1030	1028	9813	388	--	10.8	7.9	7.8	235	236	11.6	110	--
JUN													
15...	1330	1028	9813	190	--	10.6	8.2	8.2	296	286	15.4	130	--
AUG													
30...	1330	1028	9813	255	--	11.0	8.3	8.2	276	247	15.7	130	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Calcium water unfltrd recover -able, mg/L (00916)	Magnes- ium, water, fltrd, mg/L (00925)	Magnes- ium, water, unfltrd recover -able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	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)
01542790 Bennett Branch Sinnemahoning Creek at Driftwood, PA (LAT 41 20 02N LONG 078 08 10W)													
OCT 2003													
22...	9.1	--	3.6	5	--	--	--	35.3	66	<2	<.020	.04	<.040
DEC													
23...	10.0	--	4.3	3	--	--	--	44.3	100	<2	<.020	.18	<.040
APR 2004													
28...	6.9	--	2.6	5	--	--	--	25.9	68	6	<.020	.20	<.040
JUN													
30...	10.0	--	3.6	12	--	--	--	33.5	100	4	<.020	.07	<.040
AUG													
18...	12.0	--	4.8	5	--	--	--	46.4	134	8	<.020	.11	<.040
01547400 Bald Eagle Creek near Milesburg, PA (LAT 40 58 31N LONG 077 44 35W)													
OCT 2003													
07...	44.0	--	15.4	142	--	--	--	22.0	298	4	<.020	2.69	<.040
DEC													
15...	58.2	--	17.5	176	--	--	--	25.6	304	22	<.020	3.08	<.040
FEB 2004													
10...	51.6	--	17.5	154	--	--	--	27.3	342	<2	<.020	3.04	<.040
APR													
28...	36.1	--	11.6	99	--	--	--	25.8	210	16	<.020	1.72	<.040
JUN													
16...	51.1	--	19.7	154	--	--	--	23.9	300	10	.020	2.72	<.040
AUG													
26...	52.5	--	19.1	162	--	--	--	23.9	312	4	<.020	2.58	<.040
01547980 Beech Creek at Beech Creek, PA (LAT 41 04 29N LONG 077 35 30W)													
OCT 2003													
07...	10.1	--	7.1	1	--	--	--	64.7	128	6	<.020	.13	<.040
DEC													
15...	6.7	--	4.5	2	--	--	--	45.7	106	10	<.020	.21	<.040
FEB 2004													
10...	18.6	--	12.7	0	--	--	--	123	230	4	.050	.21	<.040
APR													
28...	6.9	--	4.1	2	--	--	--	41.0	90	12	<.020	.22	<.040
JUN													
16...	15.2	--	10.0	0	--	--	--	116	186	2	.020	.17	<.040
AUG													
26...	17.1	--	12.1	1	--	--	--	91.1	248	2	<.020	.13	<.040
01548075 Fishing Creek near Cedar Springs, PA (LAT 41 04 31N LONG 077 28 40W)													
OCT 2003													
16...	33.1	--	9.6	104	--	--	--	13.1	204	10	<.020	2.31	<.040
DEC													
16...	26.1	--	6.8	74	--	--	--	11.5	136	<2	<.020	2.02	<.040
FEB 2004													
09...	39.9	--	12.3	117	--	--	--	15.1	172	2	<.020	3.02	<.040
APR													
22...	28.9	--	8.3	85	--	--	--	12.3	168	6	<.020	2.04	<.040
JUN													
15...	34.2	--	10.5	111	--	--	--	13.9	218	4	.020	2.34	<.040
AUG													
30...	35.2	--	10.1	105	--	--	--	12.4	160	<2	<.020	2.22	<.040

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	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)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coliform, M-FC 0.45µMF col/ 100 mL (31616)	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Cadmium water, fltrd, µg/L (01025)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recoverable, µg/L (01042)	Cyanide amenable to chlorination wat unf mg/L (00722)
01542790 Bennett Branch Sinnemahoning Creek at Driftwood, PA (LAT 41 20 02N LONG 078 08 10W)													
OCT 2003													
22...	<.01	.010	.10	.8	--	--	--	<200	--	--	--	<10	--
DEC													
23...	<.01	<.010	.31	.7	--	--	--	470	--	--	--	<10	--
APR 2004													
28...	<.01	.010	.29	.9	--	--	--	300	--	--	--	<10	--
JUN													
30...	<.01	<.010	<.06	1.2	--	--	--	<200	--	--	--	<10	--
AUG													
18...	<.01	<.010	.10	.9	--	--	--	<200	--	--	--	<10	--
01547400 Bald Eagle Creek near Milesburg, PA (LAT 40 58 31N LONG 077 44 35W)													
OCT 2003													
07...	.02	.026	3.2	1.4	--	--	--	<200	--	--	--	<10	--
DEC													
15...	.02	.031	3.2	1.4	--	--	--	<200	--	--	--	<10	--
FEB 2004													
10...	.01	.022	3.4	2.0	--	--	--	<200	--	--	--	<10	--
APR													
28...	.02	.028	1.9	1.4	--	--	--	300	--	--	--	<10	--
JUN													
16...	.02	.033	3.0	1.7	--	--	--	210	--	--	--	<10	--
AUG													
26...	.02	.027	2.8	1.6	--	--	--	<200	--	--	--	<10	--
01547980 Beech Creek at Beech Creek, PA (LAT 41 04 29N LONG 077 35 30W)													
OCT 2003													
07...	<.01	<.010	.33	.7	--	--	--	1200	--	--	--	<10	--
DEC													
15...	<.01	.011	.24	.8	--	--	--	910	--	--	--	<10	--
FEB 2004													
10...	<.01	<.010	.31	.5	--	--	--	1900	--	--	--	10	--
APR													
28...	<.01	.011	.31	.7	--	--	--	680	--	--	--	<10	--
JUN													
16...	<.01	<.010	.49	.8	--	--	--	1500	--	--	--	<10	--
AUG													
26...	<.01	<.010	.16	.7	--	--	--	1400	--	--	--	<10	--
01548075 Fishing Creek near Cedar Springs, PA (LAT 41 04 31N LONG 077 28 40W)													
OCT 2003													
16...	.01	.019	2.8	2.0	--	--	--	<200	--	--	--	<10	--
DEC													
16...	.02	.031	2.0	1.2	--	--	--	230	--	--	--	<10	--
FEB 2004													
09...	.01	.019	3.1	.9	--	--	--	<200	--	--	--	<10	--
APR													
22...	.01	.020	2.3	1.2	--	--	--	330	--	--	--	<10	--
JUN													
15...	.02	.020	2.5	1.4	--	--	--	490	--	--	--	<10	--
AUG													
30...	.01	.015	2.3	1.5	--	--	--	<200	--	--	--	<10	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	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)	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)											
OCT 2003											
22...	--	140	--	<1.0	--	240	--	<50	--	20	--
DEC											
23...	--	450	--	<1.0	--	300	--	<50	--	30	--
APR 2004											
28...	--	310	--	<1.0	--	150	--	<50	--	<10	--
JUN											
30...	--	70	--	<1.0	--	30	--	<50	--	<10	--
AUG											
18...	--	30	--	<1.0	--	170	--	<50	--	10	--
01547400 Bald Eagle Creek near Milesburg, PA (LAT 40 58 31N LONG 077 44 35W)											
OCT 2003											
07...	--	100	--	<1.0	--	10	--	<50	--	200	--
DEC											
15...	--	240	--	1.1	--	10	--	<50	--	<10	--
FEB 2004											
10...	--	50	--	<1.0	--	<10	--	<50	--	200	--
APR											
28...	--	380	--	<1.0	--	20	--	<50	--	<10	--
JUN											
16...	--	280	--	<1.0	--	30	--	<50	--	10	--
AUG											
26...	--	160	--	<1.0	--	20	--	<50	--	<10	--
01547980 Beech Creek at Beech Creek, PA (LAT 41 04 29N LONG 077 35 30W)											
OCT 2003											
07...	--	260	--	<1.0	--	1440	--	<50	--	140	--
DEC											
15...	--	650	--	<1.0	--	820	--	<50	--	60	--
FEB 2004											
10...	--	180	--	1.1	--	2830	--	70	--	220	--
APR											
28...	--	470	--	<1.0	--	740	--	<50	--	50	--
JUN											
16...	--	150	--	<1.0	--	2330	--	70	--	190	--
AUG											
26...	--	110	--	<1.0	--	2450	--	60	--	110	--
01548075 Fishing Creek near Cedar Springs, PA (LAT 41 04 31N LONG 077 28 40W)											
OCT 2003											
16...	--	110	--	<1.0	--	<10	--	<50	--	<10	--
DEC											
16...	--	270	--	<1.0	--	10	--	<50	--	<10	--
FEB 2004											
09...	--	40	--	<1.0	--	<10	--	<50	--	<10	--
APR											
22...	--	260	--	<1.0	--	20	--	<50	--	<10	--
JUN											
15...	--	150	--	<1.0	--	<10	--	<50	--	80	--
AUG											
30...	--	120	--	<1.0	--	<10	--	<50	--	<10	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Press- ure, osmotic water, unfltrd mosm/kg (82550)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat unf lab, µS/cm 25 degC (90095)	Specif. conduc- tance, wat unf µS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)
01548085 Bald Eagle Creek at Castanea, PA (LAT 41 07 29N LONG 077 26 09W)													
OCT 2003													
16...	1400	1028	9813	1320	--	10.4	7.6	7.6	228	219	11.9	97	--
DEC													
16...	0800	1028	9813	3840	--	13.5	7.0	7.4	208	210	3.0	89	--
FEB 2004													
09...	1345	1028	9813	1200	--	13.5	8.0	8.1	383	383	1.4	170	--
APR													
22...	0830	1028	9813	1040	--	10.3	7.6	7.3	214	216	14.1	90	--
JUN													
15...	1430	1028	9813	681	--	9.3	7.9	8.0	308	300	20.8	130	--
AUG													
30...	1230	1028	9813	670	--	9.7	7.9	8.0	316	286	19.1	140	--
01549590 Little Pine Creek below Reservoir near Waterville, PA (LAT 41 21 12N LONG 077 21 20W)													
OCT 2003													
15...	0930	1028	9813	543	--	11.2	7.4	6.8	109	108	11.6	40	9.6
DEC													
15...	1330	1028	9813	759	--	13.3	7.6	6.8	69	71	2.1	26	6.7
FEB 2004													
11...	0900	1028	9813	90	--	14.6	7.8	6.7	120	124	.3	44	11.1
APR													
22...	0915	1028	9813	344	--	11.0	6.9	6.8	81	81	13.8	30	7.6
JUN													
17...	0945	1028	9813	86	--	8.9	6.9	7.0	120	117	22.1	44	11.9
AUG													
26...	1000	1028	9813	145	--	10.2	7.3	7.2	104	98	18.7	38	10.0
01553005 Muncy Creek near Muncy, PA (LAT 41 12 27N LONG 076 45 09W)													
OCT 2003													
02...	0940	1028	9813	207	--	10.8	7.2	7.5	98	95	11.3	36	11.2
DEC													
03...	1400	1028	9813	423	--	14.3	7.1	7.3	84	79	2.4	30	8.9
APR 2004													
01...	1130	1028	9813	344	--	11.8	7.2	7.3	88	80	7.4	31	9.2
JUN													
01...	1115	1028	9813	400	--	10.4	7.3	7.3	98	93	14.6	36	10.6
AUG													
04...	1430	1028	9813	641	--	8.9	6.8	6.9	95	93	20.3	36	11.0
01553430 Spruce Run above Spruce Run Reservoir near Mazeppa, PA (LAT 41 01 27N LONG 077 03 54W)													
OCT 2003													
16...	1030	1028	9813	11	2.0	10.2	5.7	6.4	20	18	9.0	7	1.3
NOV													
20...	1100	1028	9813	38	5.0	11.1	5.2	6.1	23	21	8.7	7	1.6
DEC													
16...	1200	1028	9813	29	<1.0	12.3	6.7	6.3	19	26	4.9	6	1.1
JAN 2004													
06...	1230	1028	9813	41	<1.0	12.5	5.6	6.4	20	19	5.2	7	1.5
MAR													
24...	1400	1028	9813	17	5.0	12.4	5.8	6.4	19	18	5.4	6	1.2
APR													
22...	1315	1028	9813	17	3.0	10.1	5.8	6.5	19	17	10.8	6	1.4
MAY													
12...	1400	1028	9813	17	2.0	10.4	5.7	6.3	20	17	12.9	7	1.3
JUN													
15...	1130	1028	9813	5.9	1.0	9.0	6.5	6.6	20	19	13.2	9	1.8
JUL													
15...	1300	1028	9813	5.5	<1.0	9.2	6.3	6.4	23	18	15.1	8	1.8
AUG													
30...	1030	1028	9813	4.6	<1.0	8.8	6.9	6.6	20	17	15.8	7	1.4
SEP													
14...	1145	1028	9813	6.5	<1.0	9.9	6.5	6.5	20	19	13.8	7	1.4

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Calcium water unfltrd recover -able, mg/L (00916)	Magnes- ium, water, fltrd, mg/L (00925)	Magnes- ium, water, unfltrd recover -able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	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)
01548085 Bald Eagle Creek at Castanea, PA (LAT 41 07 29N LONG 077 26 09W)													
OCT 2003													
16...	25.8	--	7.8	67	--	--	--	29.7	192	12	<.020	.99	<.040
DEC													
16...	23.8	--	7.2	63	--	--	--	21.7	159	20	.030	1.31	<.040
FEB 2004													
09...	44.3	--	15.0	123	--	--	--	33.4	212	6	<.020	2.46	<.040
APR													
22...	22.8	--	8.0	53	--	--	--	32.5	174	4	<.020	1.10	<.040
JUN													
15...	31.5	--	11.4	89	--	--	--	36.6	244	2	<.020	1.45	<.040
AUG													
30...	36.5	--	12.4	99	--	--	--	30.7	214	<2	.050	1.60	<.040
01549590 Little Pine Creek below Reservoir near Waterville, PA (LAT 41 21 12N LONG 077 21 20W)													
OCT 2003													
15...	9.8	3.7	3.8	16	0	--	--	25.3	86	4	<.020	.33	<.040
DEC													
15...	6.9	2.2	2.2	9	0	--	--	15.4	46	14	<.020	.62	<.040
FEB 2004													
11...	10.5	4.6	4.4	15	23	--	--	32.7	82	<2	.080	.62	<.040
APR													
22...	7.7	2.5	2.6	12	9.8	--	--	17.4	74	4	<.020	.46	<.040
JUN													
17...	11.1	4.1	3.9	18	11	--	--	26.7	126	<2	.020	.28	<.040
AUG													
26...	9.7	3.4	3.4	19	8.8	--	--	20.5	82	<2	<.020	.24	<.040
01553005 Muncy Creek near Muncy, PA (LAT 41 12 27N LONG 076 45 09W)													
OCT 2003													
02...	11.0	2.0	2.0	25	0	--	--	9.2	36	<2	<.020	1.08	<.040
DEC													
03...	8.9	1.9	1.9	17	0	--	--	10.3	76	18	<.020	1.42	<.040
APR 2004													
01...	9.6	1.7	1.8	16	5.6	--	--	9.7	42	<2	<.020	1.35	<.040
JUN													
01...	11.0	2.1	2.1	22	.80	--	--	9.8	72	2	<.020	1.44	<.040
AUG													
04...	11.0	2.0	2.0	24	--	--	--	8.6	52	<2	.040	1.18	<.040
01553430 Spruce Run above Spruce Run Reservoir near Mazeppa, PA (LAT 41 01 27N LONG 077 03 54W)													
OCT 2003													
16...	1.4	.72	.74	5	16	.6	<.2	4.0	20	6	<.020	<.04	<.040
NOV													
20...	1.6	.79	.82	4	6.8	.7	<.2	5.1	38	<2	<.020	<.04	<.040
DEC													
16...	1.2	.65	.67	4	2.4	.6	<.2	4.2	8	4	<.020	<.04	<.040
JAN 2004													
06...	1.6	.83	.84	4	5.0	.6	<.2	4.8	<2	4	<.020	<.04	<.040
MAR													
24...	1.2	.72	.74	4	8.4	.6	<.2	4.6	88	4	<.020	<.04	<.040
APR													
22...	1.3	.78	.76	4	6.8	<.5	<.2	4.0	14	<2	<.020	<.04	<.040
MAY													
12...	1.4	.74	.77	4	5.8	.5	<.2	4.2	10	6	<.020	<.04	<.040
JUN													
15...	1.9	.85	.90	10	1.8	.6	<.2	3.6	32	<2	<.020	.05	<.040
JUL													
15...	1.9	.80	.84	6	6.8	.8	<.2	4.2	38	10	<.020	.04	<.040
AUG													
30...	1.4	.80	.83	7	--	.6	<.2	3.2	22	<2	<.020	<.04	<.040
SEP													
14...	1.5	.84	.84	5	5.0	1.0	<.2	4.1	12	<2	<.020	<.04	<.040

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	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)	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45µMF 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)	Cyanide amen-able to chlor-ination wat unf mg/L (00722)
01548085 Bald Eagle Creek at Castanea, PA (LAT 41 07 29N LONG 077 26 09W)													
OCT 2003													
16...	.01	.025	1.4	2.6	--	--	--	320	--	--	--	<10	--
DEC													
16...	.06	.051	1.4	2.0	--	--	--	1200	--	--	--	<10	--
FEB 2004													
09...	.01	.013	2.6	1.1	--	--	--	230	--	--	--	<10	--
APR													
22...	.01	.017	1.4	1.2	--	--	--	360	--	--	--	<10	--
JUN													
15...	<.01	.016	1.8	1.6	--	--	--	500	--	--	--	<10	--
AUG													
30...	.03	.039	1.8	1.6	--	--	--	<200	--	--	--	<10	--
01549590 Little Pine Creek below Reservoir near Waterville, PA (LAT 41 21 12N LONG 077 21 20W)													
OCT 2003													
15...	.01	.014	.60	--	.7	--	<10	60	--	--	<4	<4	--
DEC													
15...	.01	.047	.71	--	2.5	--	10	90	--	--	<4	<4	--
FEB 2004													
11...	<.01	.011	.76	--	1.0	--	<10	20	--	--	<4	<4	--
APR													
22...	<.01	.011	.76	--	1.1	--	10	50	--	--	<4	<4	--
JUN													
17...	<.01	.014	.53	--	1.1	--	10	50	--	--	<4	<4	--
AUG													
26...	<.01	.010	.32	--	<.2	--	20	80	--	--	<4	<4	--
01553005 Muncy Creek near Muncy, PA (LAT 41 12 27N LONG 076 45 09W)													
OCT 2003													
02...	<.01	.018	1.2	--	.5	--	<10	20	--	--	<4	<4	--
DEC													
03...	.01	.011	1.5	--	1.2	--	<10	30	--	--	<4	<4	--
APR 2004													
01...	.01	.017	1.4	--	.5	--	<10	70	--	--	<4	<4	--
JUN													
01...	.02	.022	1.6	--	.7	--	<10	100	--	--	<4	<4	--
AUG													
04...	.02	.016	1.3	--	1.4	--	10	120	--	--	<4	<4	--
01553430 Spruce Run above Spruce Run Reservoir near Mazeppa, PA (LAT 41 01 27N LONG 077 03 54W)													
OCT 2003													
16...	<.01	<.010	.15	--	1.1	10	40	50	<4.0	<.20	<4	<4	--
NOV													
20...	<.01	.017	.14	--	1.4	<20	110	130	<4.0	<.20	<4	<4	--
DEC													
16...	<.01	.010	<.06	--	1.4	<20	30	40	<4.0	<.20	<4	<4	--
JAN 2004													
06...	<.01	<.010	.12	--	1.1	20	40	60	<4.0	<.20	<4	<4	--
MAR													
24...	<.01	<.010	.12	--	1.0	<20	30	40	<4.0	<.20	<4	<4	--
APR													
22...	<.01	.015	.23	--	.8	<20	20	50	<4.0	<.20	<4	<4	--
MAY													
12...	<.01	.010	<.06	--	1.0	20	20	50	<4.0	<.20	<4	<4	--
JUN													
15...	<.01	<.010	.88	--	.7	<20	20	60	<4.0	<.20	<4	<4	--
JUL													
15...	<.01	<.010	.22	--	1.4	80	30	80	<4.0	<.20	<4	<4	--
AUG													
30...	<.01	<.010	<.06	--	.8	<10	20	30	<4.0	<.20	<4	<4	--
SEP													
14...	<.01	<.010	<.06	--	4.0	<20	20	40	<4.0	<.20	<4	<4	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	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)	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)											
OCT 2003											
16...	--	220	--	<1.0	--	320	--	<50	--	40	--
DEC											
16...	--	970	--	<1.0	--	220	--	<50	--	10	--
FEB 2004											
09...	--	100	--	<1.0	--	220	--	<50	--	20	--
APR											
22...	--	190	--	<1.0	--	400	--	<50	--	20	--
JUN											
15...	--	170	--	<1.0	--	340	--	<50	--	90	--
AUG											
30...	--	80	--	<1.0	--	200	--	<50	--	10	--
01549590 Little Pine Creek below Reservoir near Waterville, PA (LAT 41 21 12N LONG 077 21 20W)											
OCT 2003											
15...	20	120	<1.0	<1.0	80	100	<4.0	5.0	<5.0	6.0	--
DEC											
15...	<20	90	<1.0	<1.0	40	60	<4.0	<4.0	5.4	6.7	--
FEB 2004											
11...	30	150	<1.0	<1.0	130	130	6.8	6.7	8.3	8.4	--
APR											
22...	20	100	<1.0	<1.0	80	100	<4.0	<4.0	<5.0	<5.0	--
JUN											
17...	30	210	<1.0	<1.0	70	110	<4.0	<4.0	<5.0	<5.0	--
AUG											
26...	80	210	<1.0	<1.0	130	140	<4.0	<4.0	<5.0	<5.0	--
01553005 Muncy Creek near Muncy, PA (LAT 41 12 27N LONG 076 45 09W)											
OCT 2003											
02...	30	60	<1.0	<1.0	3.6	5.5	<4.0	<4.0	<5.0	<5.0	--
DEC											
03...	20	50	<1.0	<1.0	6.2	8.9	<4.0	<4.0	<5.0	5.8	--
APR 2004											
01...	<20	90	<1.0	<1.0	4.9	8.0	<4.0	<4.0	<5.0	<5.0	--
JUN											
01...	20	200	<1.0	<1.0	6.2	14	<4.0	<4.0	<5.0	<5.0	--
AUG											
04...	80	220	<1.0	<1.0	10	18	<4.0	<4.0	<5.0	<5.0	--
01553430 Spruce Run above Spruce Run Reservoir near Mazeppa, PA (LAT 41 01 27N LONG 077 03 54W)											
OCT 2003											
16...	20	30	<1.0	<1.0	7.9	8.1	<4.0	<4.0	<5.0	<5.0	<5
NOV											
20...	20	70	<1.0	<1.0	10	17	<4.0	<4.0	5.8	6.2	9
DEC											
16...	<20	<20	<1.0	<1.0	3.7	4.8	<4.0	<4.0	<5.0	<5.0	<5
JAN 2004											
06...	<20	20	<1.0	<1.0	4.0	6.5	<4.0	<4.0	<5.0	<5.0	<5
MAR											
24...	<20	<20	<1.0	<1.0	2.8	3.7	<4.0	<4.0	<5.0	<5.0	<5
APR											
22...	<20	40	<1.0	<1.0	2.1	7.5	<4.0	<4.0	<5.0	<5.0	<5
MAY											
12...	<20	40	<1.0	<1.0	2.6	8.3	<4.0	<4.0	<5.0	<5.0	<5
JUN											
15...	--	--	<1.0	<1.0	2.8	14	<4.0	<4.0	<5.0	<5.0	<5
JUL											
15...	30	90	<1.0	<1.0	3.6	16	<4.0	<4.0	<5.0	<5.0	--
AUG											
30...	<20	40	<1.0	<1.0	2.9	7.2	<4.0	<4.0	<5.0	<5.0	<5
SEP											
14...	20	30	<1.0	<1.0	2.8	8.1	<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 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Pressure, osmotic water, unfltrd mosm/kg (82550)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)
01553990 Susquehanna River above Dam at Sunbury, PA (LAT 40 51 13N LONG 076 48 08W)													
OCT 2003													
23...	1000	1028	9813	22400	--	10.6	7.5	7.1	193	196	10.1	73	--
DEC													
23...	1120	1028	9813	36100	--	15.9	7.5	7.6	193	204	1.7	71	--
FEB 2004													
19...	0830	1028	9813	10100	--	14.2	7.8	7.8	326	333	.4	120	--
APR													
14...	1000	1028	9813	46000	--	11.1	7.0	7.4	189	162	8.4	74	--
JUN													
08...	0945	1028	9813	22100	--	9.1	7.4	7.2	206	213	19.1	76	--
AUG													
16...	0930	1028	9813	39100	--	8.3	7.3	7.3	181	182	20.8	66	--
01555210 Middle Creek near Selinsgrove, PA (LAT 40 46 29N LONG 076 52 11W)													
OCT 2003													
09...	0930	1028	9813	200	--	10.1	7.6	7.8	190	194	11.7	81	--
DEC													
23...	1340	1028	9813	310	--	13.6	7.5	7.8	162	169	4.3	70	--
FEB 2004													
19...	1300	1028	9813	140	--	13.2	8.0	7.9	213	215	1.3	93	--
APR													
14...	1430	1028	9813	1890	--	10.9	7.0	7.2	111	100	8.2	48	--
JUN													
08...	1430	1028	9813	120	--	9.8	8.6	8.3	199	206	22.5	90	--
AUG													
16...	1345	1028	9813	230	--	10.2	8.2	7.8	187	185	20.3	79	--
01555859 Beaverdam Branch Juniata River near Hollidaysburg, PA (LAT 40 25 50N LONG 078 21 50W)													
OCT 2003													
28...	1100	1028	9813	150	--	11.1	7.7	7.6	329	227	8.3	120	--
DEC													
10...	1000	1028	9813	130	--	12.0	7.6	7.3	340	359	3.7	120	--
FEB 2004													
11...	0815	1028	9813	80	--	12.1	7.5	7.2	761	802	1.4	180	--
APR													
27...	1350	1028	9813	320	--	10.7	7.6	7.3	293	283	11.4	97	--
JUN													
03...	1000	1028	9813	110	--	9.2	7.5	7.5	404	398	14.8	140	--
AUG													
18...	1045	1028	9813	45	--	8.3	7.8	7.6	540	538	17.1	200	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Calcium water unfltrd recover -able, mg/L (00916)	Magnes- ium, water, fltrd, mg/L (00925)	Magnes- ium, water, unfltrd recover -able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	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)
01553990 Susquehanna River above Dam at Sunbury, PA (LAT 40 51 13N LONG 076 48 08W)													
OCT 2003													
23...	19.8	--	5.7	39	--	--	--	31.4	190	<2	<.020	.49	<.040
DEC													
23...	20.7	--	4.6	44	--	--	--	22.8	142	4	.040	.82	<.040
FEB 2004													
19...	31.2	--	9.3	60	--	--	--	51.8	206	<2	.090	1.32	<.040
APR													
14...	20.4	--	5.5	36	--	--	--	29.1	208	72	.060	.95	<.040
JUN													
08...	20.7	--	5.8	45	--	--	--	29.7	156	8	<.020	.69	<.040
AUG													
16...	18.9	--	4.6	44	--	--	--	18.2	164	2	<.020	.47	<.040
01555210 Middle Creek near Selinsgrove, PA (LAT 40 46 29N LONG 076 52 11W)													
OCT 2003													
09...	23.5	--	5.5	64	--	--	--	13.7	132	16	<.020	1.64	<.040
DEC													
23...	19.5	--	5.0	51	--	--	--	13.4	96	8	<.020	1.87	<.040
FEB 2004													
19...	26.3	--	6.7	68	--	--	--	15.8	146	2	.040	1.91	<.040
APR													
14...	13.9	--	3.2	30	--	--	--	9.9	76	86	.040	1.57	<.040
JUN													
08...	25.6	--	6.3	71	--	--	--	13.8	126	34	.030	1.28	<.040
AUG													
16...	22.7	--	5.5	62	--	--	--	12.1	148	10	<.020	1.50	<.040
01555859 Beaverdam Branch Juniata River near Hollidaysburg, PA (LAT 40 25 50N LONG 078 21 50W)													
OCT 2003													
28...	33.3	--	10.0	68	--	--	--	57.6	216	2	.040	1.11	<.040
DEC													
10...	33.7	--	9.6	53	--	--	--	59.2	226	<2	.020	1.52	<.040
FEB 2004													
11...	46.5	--	14.2	63	--	--	--	72.0	474	10	.040	1.94	<.200
APR													
27...	25.9	--	7.8	44	--	--	--	50.6	208	8	<.020	1.23	<.040
JUN													
03...	34.9	--	11.5	62	--	--	--	77.2	326	14	.030	1.57	<.040
AUG													
18...	53.8	--	15.9	88	--	--	--	91.3	378	2	<.020	2.87	<.040

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	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)	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45µMF 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)	Cyanide amen-able to chlor-ination wat unf mg/L (00722)
01553990 Susquehanna River above Dam at Sunbury, PA (LAT 40 51 13N LONG 076 48 08W)													
OCT 2003													
23...	.01	.020	.77	2.6	--	--	--	<200	--	--	--	<10	--
DEC													
23...	.02	.021	1.2	1.8	--	--	--	270	--	--	--	<10	--
FEB 2004													
19...	.02	.030	1.6	1.4	--	--	--	<200	--	--	--	<10	--
APR													
14...	.02	.096	1.8	2.9	--	--	--	3100	--	--	--	<10	--
JUN													
08...	.02	.036	1.0	2.5	--	--	--	400	--	--	--	<10	--
AUG													
16...	.03	.061	.80	3.8	--	--	--	1200	--	--	--	<10	--
01555210 Middle Creek near Selinsgrove, PA (LAT 40 46 29N LONG 076 52 11W)													
OCT 2003													
09...	.01	.021	2.0	2.2	--	--	--	<200	--	--	--	<10	--
DEC													
23...	.02	.018	2.2	1.7	--	--	--	<200	--	--	--	<10	--
FEB 2004													
19...	.03	.029	2.2	1.4	--	--	--	<200	--	--	--	<10	--
APR													
14...	.03	.105	2.4	3.5	--	--	--	2500	--	--	--	<10	--
JUN													
08...	.03	.048	1.6	2.6	--	--	--	550	--	--	--	<10	--
AUG													
16...	.03	.042	1.8	3.2	--	--	--	<200	--	--	--	<10	--
01555859 Beaverdam Branch Juniata River near Hollidaysburg, PA (LAT 40 25 50N LONG 078 21 50W)													
OCT 2003													
28...	.04	.053	1.3	2.6	--	--	--	310	--	--	--	<10	--
DEC													
10...	.03	.101	1.8	1.4	--	--	--	460	--	--	--	<10	--
FEB 2004													
11...	.04	.098	2.3	1.9	--	--	--	480	--	--	--	<10	--
APR													
27...	.02	.057	1.6	1.8	--	--	--	610	--	--	--	<10	--
JUN													
03...	.05	.089	1.6	1.7	--	--	--	440	--	--	--	30	--
AUG													
18...	.15	.168	3.0	1.9	--	--	--	<200	--	--	--	<10	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	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)	Zinc, water, unfltrd recover -able, µg/L (01092)	Phen- olic com- pounds, water, unfltrd µg/L (32730)
01553990 Susquehanna River above Dam at Sunbury, PA (LAT 40 51 13N LONG 076 48 08W)											
OCT 2003											
23...	--	540	--	<1.0	--	130	--	<50	--	<10	--
DEC											
23...	--	580	--	<1.0	--	100	--	<50	--	<10	--
FEB 2004											
19...	--	360	--	<1.0	--	240	--	<50	--	10	--
APR											
14...	--	2970	--	2.4	--	240	--	<50	--	30	--
JUN											
08...	--	740	--	<1.0	--	80	--	<50	--	<10	--
AUG											
16...	--	1800	--	1.8	--	120	--	<50	--	10	--
01555210 Middle Creek near Selinsgrove, PA (LAT 40 46 29N LONG 076 52 11W)											
OCT 2003											
09...	--	230	--	<1.0	--	20	--	<50	--	<10	--
DEC											
23...	--	340	--	<1.0	--	20	--	<50	--	<10	--
FEB 2004											
19...	--	300	--	<1.0	--	20	--	<50	--	<10	--
APR											
14...	--	2700	--	2.4	--	120	--	<50	--	20	--
JUN											
08...	--	800	--	<1.0	--	60	--	<50	--	<10	--
AUG											
16...	--	340	--	1.3	--	30	--	<50	--	<10	--
01555859 Beaverdam Branch Juniata River near Hollidaysburg, PA (LAT 40 25 50N LONG 078 21 50W)											
OCT 2003											
28...	--	460	--	<1.0	--	470	--	<50	--	160	--
DEC											
10...	--	630	--	<1.0	--	560	--	<50	--	30	--
FEB 2004											
11...	--	950	--	<1.0	--	760	--	<50	--	50	--
APR											
27...	--	1040	--	<1.0	--	510	--	<50	--	20	--
JUN											
03...	--	580	--	<1.0	--	670	--	<50	--	130	--
AUG											
18...	--	140	--	<1.0	--	540	--	<50	--	140	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Press- ure, osmotic water, unfltrd mosm/kg (82550)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat unf lab, µS/cm 25 degC (90095)	Specif. conduc- tance, wat unf µS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)
01556009 Frankstown Branch Juniata River at RR at Williamsburg, PA (LAT 40 28 19N LONG 078 11 13W)													
OCT 2003													
28...	1200	1028	9813	680	--	10.2	7.7	7.7	264	258	9.5	110	--
DEC													
10...	1115	1028	9813	400	--	13.2	8.1	8.0	348	365	4.0	160	--
FEB 2004													
11...	0945	1028	9813	E240	--	12.1	7.9	7.8	483	497	1.9	170	--
APR													
27...	1530	1028	9813	1000	--	10.4	7.7	7.8	274	264	11.5	110	--
JUN													
03...	1100	1028	9813	350	--	9.1	7.9	7.9	393	388	16.1	140	--
AUG													
18...	1145	1028	9813	164	--	9.3	8.2	8.2	492	491	18.6	190	--
01564515 Aughwick Creek at Aughwick Mills, PA (LAT 40 20 05N LONG 077 51 36W)													
OCT 2003													
22...	1230	1028	9813	360	7.0	9.6	7.4	7.8	140	136	12.1	55	--
NOV													
24...	0900	1028	9813	940	4.0	11.0	7.0	7.0	110	111	8.1	47	--
DEC													
09...	1300	1028	9813	290	1.0	14.1	7.4	7.1	192	194	.6	55	--
JAN 2004													
06...	0845	1028	9813	2810	<1.0	12.3	6.8	7.4	108	107	5.3	38	--
FEB													
02...	1330	1028	9813	240	7.0	13.0	7.5	7.7	180	181	.0	69	--
MAR													
23...	0900	1028	9813	1080	6.0	12.0	7.2	7.4	126	129	2.7	40	--
APR													
27...	1000	1028	9813	3190	5.0	10.1	6.9	7.0	97	91	10.9	33	--
MAY													
13...	0900	1028	9813	500	3.0	7.8	6.9	7.5	105	99	16.4	61	--
JUN													
02...	1300	1028	9813	230	5.0	8.5	7.8	7.5	163	161	19.2	61	--
JUL													
27...	0900	1028	9813	160	<1.0	7.1	7.2	7.1	166	165	20.4	59	--
AUG													
19...	0945	1028	9813	90	<1.0	6.4	7.7	7.4	191	188	21.8	72	--
SEP													
14...	0815	1028	9813	340	1.0	7.9	6.7	7.2	136	137	19.3	48	--
01567795 Letort Spring Run at Bonny Brook near Carlisle, PA (LAT 40 10 39N LONG 077 11 10W)													
OCT 2003													
20...	1000	1028	9813	24	11	9.0	7.5	7.8	547	538	10.3	260	--
NOV													
18...	1430	1028	9813	24	33	9.1	7.5	7.8	531	544	10.7	280	--
DEC													
18...	1430	1028	9813	39	5.0	10.2	7.6	7.8	545	543	10.1	280	--
JAN 2004													
27...	1400	1028	9813	31	12	10.5	7.6	7.8	530	477	9.8	280	--
FEB													
23...	1500	1028	9813	34	13	10.3	7.6	7.8	536	330	11.3	280	--
MAR													
10...	1215	1028	9813	35	11	10.8	7.5	8.0	525	538	10.6	280	--
APR													
08...	1315	1028	9813	32	13	10.1	7.6	7.9	540	501	10.9	290	--
MAY													
06...	0900	1028	9813	35	11	10.5	6.9	7.9	554	544	10.8	300	--
JUN													
23...	0830	1028	9813	34	9.0	9.3	7.3	7.8	544	544	11.5	280	--
JUL													
14...	0900	1028	9813	30	10	8.0	7.3	7.7	551	510	11.6	280	--
AUG													
05...	0815	1028	9813	30	7.0	7.9	7.3	7.8	533	539	11.7	290	--
SEP													
21...	0830	1028	9813	44	8.0	8.9	7.1	7.8	542	540	10.9	280	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Calcium water unfltrd recover -able, mg/L (00916)	Magnes- ium, water, fltrd, mg/L (00925)	Magnes- ium, water, unfltrd recover -able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	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)
01556009 Frankstown Branch Juniata River at RR at Williamsburg, PA (LAT 40 28 19N LONG 078 11 13W)													
OCT 2003													
28...	28.6	--	8.5	77	--	--	--	30.0	166	16	.090	1.27	<.040
DEC													
10...	39.9	--	13.5	99	--	--	--	38.8	232	<2	<.020	2.26	<.040
FEB 2004													
11...	43.1	--	14.8	105	--	--	--	46.9	312	6	.060	2.41	<.200
APR													
27...	29.1	--	8.1	71	--	--	--	30.8	192	18	.030	1.72	<.040
JUN													
03...	35.7	--	12.2	108	--	--	--	43.5	298	4	.040	2.29	<.040
AUG													
18...	50.4	--	16.3	137	--	--	--	53.0	350	<2	<.020	2.39	<.040
01564515 Aughwick Creek at Aughwick Mills, PA (LAT 40 20 05N LONG 077 51 36W)													
OCT 2003													
22...	15.7	--	3.7	42	--	7.8	<.2	11.5	94	<2	<.020	.51	<.040
NOV													
24...	13.2	--	3.4	28	--	6.3	<.2	11.4	60	28	<.020	.96	<.040
DEC													
09...	15.4	--	4.0	37	--	26.3	<.2	12.6	126	10	<.020	.84	<.040
JAN 2004													
06...	10.7	--	2.7	23	--	7.6	<.2	10.9	56	30	<.020	1.02	<.040
FEB													
02...	20.6	--	4.3	46	--	15.0	<.2	13.7	270	<2	<.020	.94	<.040
MAR													
23...	10.9	--	3.2	25	--	13.2	<.2	11.1	86	6	<.020	1.14	<.040
APR													
27...	8.8	--	2.6	26	--	6.2	<.2	9.2	74	<2	.020	.91	<.040
MAY													
13...	15.6	--	5.2	33	--	4.1	<.2	7.4	180	460	.100	.81	<.040
JUN													
02...	17.7	--	4.1	46	--	11.6	<.2	10.9	96	14	.020	.58	<.040
JUL													
27...	17.0	--	4.0	47	--	12.3	<.2	10.6	120	18	.030	.52	<.040
AUG													
19...	20.8	--	4.8	58	--	13.5	<.2	11.7	118	6	<.020	.26	<.040
SEP													
14...	13.6	--	3.5	33	--	10.5	<.2	11.5	122	10	<.020	.80	<.040
01567795 Letort Spring Run at Bonny Brook near Carlisle, PA (LAT 40 10 39N LONG 077 11 10W)													
OCT 2003													
20...	81.1	--	15.2	223	--	11.8	<.2	20.5	388	20	<.020	6.92	<.040
NOV													
18...	84.4	--	15.7	220	--	11.6	<.2	20.8	376	<2	<.020	7.06	<.040
DEC													
18...	83.8	--	16.2	226	--	11.4	<.2	21.3	374	6	<.020	6.86	<.040
JAN 2004													
27...	86.0	--	15.9	225	--	11.9	<.2	21.3	342	<2	<.020	7.30	<.040
FEB													
23...	85.2	--	15.8	223	--	11.6	<.2	20.9	358	2	<.020	7.16	<.040
MAR													
10...	84.4	--	15.7	224	--	11.1	<.2	20.7	382	8	<.020	7.10	<.040
APR													
08...	86.7	--	16.9	224	--	11.2	<.2	20.8	320	<2	<.020	7.12	<.040
MAY													
06...	92.3	--	17.2	226	--	11.4	<.2	22.1	366	<2	<.020	7.32	<.040
JUN													
23...	87.2	--	16.0	225	--	11.6	<.2	20.8	394	4	.020	7.15	<.040
JUL													
14...	86.7	--	16.0	228	--	11.0	<.2	20.6	342	2	<.020	7.13	<.040
AUG													
05...	87.3	--	17.0	227	--	11.7	.2	19.8	376	4	.060	7.00	<.040
SEP													
21...	86.3	--	16.8	234	--	11.6	<.2	20.4	372	4	<.020	7.15	<.040

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	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)	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45µMF 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)	Cyanide amen-able to chlor-ination wat unf mg/L (00722)
01556009 Frankstown Branch Juniata River at RR at Williamsburg, PA (LAT 40 28 19N LONG 078 11 13W)													
OCT 2003													
28...	.06	.093	1.7	4.7	--	--	--	610	--	--	--	<10	--
DEC													
10...	.03	.042	2.4	2.4	--	--	--	<200	--	--	--	<10	--
FEB 2004													
11...	.03	.058	2.8	2.5	--	--	--	<200	--	--	--	<10	--
APR													
27...	.04	.073	2.1	2.6	--	--	--	540	--	--	--	<10	--
JUN													
03...	.07	.096	2.2	2.5	--	--	--	270	--	--	--	<10	--
AUG													
18...	.09	.100	2.5	3.3	--	--	--	<200	--	--	--	<10	--
01564515 Aughwick Creek at Aughwick Mills, PA (LAT 40 20 05N LONG 077 51 36W)													
OCT 2003													
22...	.01	.017	.75	--	1.2	220	<10	50	<4.0	<.20	<4	<4	--
NOV													
24...	.01	.020	1.3	--	1.2	280	30	150	<4.0	<.20	<4	<4	--
DEC													
09...	.01	.010	.89	--	1.6	160	20	80	<4.0	<.20	<4	<4	--
JAN 2004													
06...	.05	.033	1.4	--	1.6	1600	20	560	<4.0	<.20	<4	<4	--
FEB													
02...	<.01	.013	1.0	--	.9	60	<10	60	<4.0	<.20	<4	<4	--
MAR													
23...	.02	.018	1.2	--	.8	140	30	220	<4.0	<.20	<4	<4	--
APR													
27...	.02	.063	1.4	--	1.6	3800	120	1200	<4.0	<.20	<4	<4	--
MAY													
13...	.05	.310	2.3	--	3.6	18000	20	17100	<4.0	<.20	<4	10	--
JUN													
02...	.02	.017	.59	--	.6	620	10	260	<4.0	<.20	<4	<4	--
JUL													
27...	.01	.038	.80	--	1.5	2300	<10	390	<4.0	<.20	<4	<4	--
AUG													
19...	.01	.017	.46	--	1.3	620	10	120	<4.0	<.20	<4	<4	--
SEP													
14...	.02	.021	.91	--	3.2	370	<10	180	<4.0	<.20	<4	<4	--
01567795 Letort Spring Run at Bonny Brook near Carlisle, PA (LAT 40 10 39N LONG 077 11 10W)													
OCT 2003													
20...	<.01	.012	7.3	--	.9	80	<10	20	<4.0	<.20	<4	<4	--
NOV													
18...	.01	.011	8.0	--	.9	<20	<10	30	<4.0	<.20	<4	<4	--
DEC													
18...	<.01	.012	7.7	--	.8	<20	<10	40	<4.0	<.20	<4	<4	--
JAN 2004													
27...	<.01	.020	7.6	--	<.2	<20	<10	60	<4.0	<.20	<4	<4	--
FEB													
23...	<.01	.018	7.5	--	1.4	<20	<10	80	<4.0	<.20	<4	<4	--
MAR													
10...	<.01	.014	7.1	--	1.0	20	<10	40	<4.0	<.20	<4	<4	--
APR													
08...	<.01	.012	7.6	--	<.2	<20	<10	30	<4.0	<.20	<4	<4	--
MAY													
06...	<.01	<.010	7.1	--	.5	80	<10	10	<4.0	<.20	<4	<4	--
JUN													
23...	<.01	.012	7.2	--	<.2	360	<10	20	<4.0	<.20	<4	<4	--
JUL													
14...	<.01	.012	7.2	--	.7	240	<10	20	<4.0	<.20	<4	<4	--
AUG													
05...	<.01	<.010	7.2	--	.7	340	<10	40	<4.0	<.20	<4	<4	--
SEP													
21...	<.01	.013	7.2	--	.9	280	<10	30	<4.0	<.20	<4	<4	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	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)	Zinc, water, unfltrd recover -able, µg/L (01092)	Phen- olic com- pounds, water, unfltrd µg/L (32730)
01556009 Frankstown Branch Juniata River at RR at Williamsburg, PA (LAT 40 28 19N LONG 078 11 13W)											
OCT 2003											
28...	--	810	--	1.0	--	120	--	<50	--	130	--
DEC											
10...	--	170	--	<1.0	--	110	--	<50	--	<10	--
FEB 2004											
11...	--	310	--	<1.0	--	200	--	<50	--	10	--
APR											
27...	--	790	--	1.0	--	150	--	<50	--	10	--
JUN											
03...	--	430	--	<1.0	--	90	--	<50	--	90	--
AUG											
18...	--	120	--	<1.0	--	40	--	<50	--	110	--
01564515 Aughwick Creek at Aughwick Mills, PA (LAT 40 20 05N LONG 077 51 36W)											
OCT 2003											
22...	70	210	<1.0	<1.0	12	16	<4.0	<4.0	<5.0	<5.0	<5
NOV											
24...	50	330	<1.0	<1.0	12	24	<4.0	<4.0	<5.0	<5.0	<5
DEC											
09...	40	190	<1.0	<1.0	20	21	<4.0	<4.0	<5.0	<5.0	<5
JAN 2004											
06...	40	990	<1.0	1.0	9.4	57	<4.0	<4.0	<5.0	6.6	<5
FEB											
02...	40	130	<1.0	<1.0	13	15	<4.0	<4.0	<5.0	<5.0	<5
MAR											
23...	50	280	<1.0	<1.0	11	20	<4.0	<4.0	<5.0	<5.0	<5
APR											
27...	170	2260	<1.0	2.8	21	130	<4.0	4.0	<5.0	12	5
MAY											
13...	80	23500	<1.0	14	15	400	<4.0	16	<5.0	54	6
JUN											
02...	70	450	<1.0	<1.0	17	29	<4.0	<4.0	<5.0	<5.0	<5
JUL											
27...	50	650	<1.0	<1.0	19	60	<4.0	<4.0	<5.0	<5.0	<5
AUG											
19...	50	300	<1.0	<1.0	21	35	<4.0	<4.0	<5.0	<5.0	<5
SEP											
14...	30	410	<1.0	<1.0	16	39	<4.0	<4.0	<5.0	<5.0	<5
01567795 Letort Spring Run at Bonny Brook near Carlisle, PA (LAT 40 10 39N LONG 077 11 10W)											
OCT 2003											
20...	<20	120	<1.0	<1.0	5.1	6.1	<4.0	<4.0	<5.0	<5.0	<5
NOV											
18...	<20	80	<1.0	<1.0	3.8	4.4	<4.0	<4.0	<5.0	7.8	<5
DEC											
18...	<20	100	<1.0	<1.0	4.4	5.7	<4.0	<4.0	<5.0	<5.0	<5
JAN 2004											
27...	<20	120	<1.0	<1.0	5.0	7.2	<4.0	<4.0	<5.0	<5.0	<5
FEB											
23...	<20	130	<1.0	<1.0	7.3	10	<4.0	<4.0	<5.0	<5.0	<5
MAR											
10...	<20	110	<1.0	<1.0	5.4	6.4	<4.0	<4.0	<5.0	<5.0	<5
APR											
08...	20	50	<1.0	<1.0	3.8	4.9	<4.0	<4.0	<5.0	<5.0	<5
MAY											
06...	<20	<20	<1.0	<1.0	3.7	4.2	<4.0	<4.0	<5.0	<5.0	<5
JUN											
23...	<20	40	<1.0	<1.0	3.6	4.3	<4.0	<4.0	<5.0	<5.0	<5
JUL											
14...	<20	50	<1.0	<1.0	3.4	4.5	<4.0	<4.0	<5.0	<5.0	<5
AUG											
05...	20	70	<1.0	<1.0	5.6	6.6	7.5	7.9	<5.0	<5.0	<5
SEP											
21	<20	90	<1.0	<1.0	5.1	6.8	<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 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Pressure, osmotic water, unfltrd mosm/kg (82550)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)
01570400 Conodoguinet Creek at mouth at West Fairview, PA (LAT 40 16 17N LONG 076 54 51W)													
OCT 2003													
14...	1030	1028	9813	310	--	9.1	8.1	8.2	479	468	15.0	200	--
DEC													
11...	1115	1028	9813	5500	--	10.7	7.7	7.9	334	352	5.9	130	--
FEB 2004													
09...	0945	1028	9813	970	--	13.0	8.0	8.0	463	475	.1	160	--
APR													
01...	1100	1028	9813	1000	--	9.9	8.0	8.1	420	399	9.6	170	--
JUN													
09...	1000	1028	9813	590	--	7.8	7.8	8.1	391	338	21.6	160	--
AUG													
03...	1045	1028	9813	1350	--	6.5	7.5	7.6	282	287	22.4	120	--
01571505 Yellow Breeches Creek at New Cumberland, PA (LAT 40 13 27N LONG 076 51 38W)													
OCT 2003													
14...	0845	1028	9813	205	--	9.5	7.9	8.0	348	351	13.8	160	--
DEC													
17...	1030	1028	9813	670	--	12.0	7.6	7.8	255	265	4.9	100	--
FEB 2004													
04...	1045	1028	9813	320	--	13.1	8.0	8.0	390	384	3.0	140	--
APR													
01...	0930	1028	9813	530	--	11.1	7.1	8.0	299	279	9.4	120	--
JUN													
09...	0830	1028	9813	310	--	8.9	7.7	8.0	286	247	18.8	120	--
AUG													
03...	0815	1028	9813	490	--	8.1	7.5	7.7	277	280	20.5	120	--
01573610 Swatara Creek at Harrisburg Airport at Middletown (LAT 40 11 28N LONG 076 43 52W)													
OCT 2003													
08...	1130	1028	9813	610	--	10.1	7.9	8.0	340	347	11.4	140	--
DEC													
17...	1300	1028	9813	2500	--	12.0	7.5	7.7	274	287	4.3	95	--
FEB 2004													
24...	1245	1028	9813	E1000	--	12.4	7.7	7.9	295	271	4.2	110	--
APR													
07...	1400	1028	9813	980	--	13.5	8.4	8.3	294	295	10.2	110	--
JUN													
24...	1230	1028	9813	610	--	8.5	7.9	8.1	349	337	22.2	140	--
AUG													
12...	1315	1028	9813	450	--	7.6	7.8	7.6	385	388	21.3	150	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Calcium water unfltrd recover -able, mg/L (00916)	Magnes- ium, water, fltrd, mg/L (00925)	Magnes- ium, water, unfltrd recover -able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	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)
01570400 Conodoguinet Creek at mouth at West Fairview, PA (LAT 40 16 17N LONG 076 54 51W)													
OCT 2003													
14...	62.3	--	10.9	162	--	--	--	23.6	278	<2	<.020	4.23	<.040
DEC													
11...	42.2	--	6.9	96	--	--	--	17.8	272	188	.070	2.84	<.040
FEB 2004													
09...	51.7	--	7.8	111	--	--	--	19.0	244	6	.050	3.74	<.040
APR													
01...	54.5	--	8.5	125	--	--	--	19.1	264	<2	.030	3.61	<.040
JUN													
09...	50.4	--	8.6	127	--	--	--	18.7	252	24	.040	3.62	<.040
AUG													
03...	36.5	--	7.8	93	--	--	--	14.4	178	66	.080	2.90	.040
01571505 Yellow Breeches Creek at New Cumberland, PA (LAT 40 13 27N LONG 076 51 38W)													
OCT 2003													
14...	44.8	--	11.4	129	--	--	--	16.3	220	4	<.020	2.50	<.040
DEC													
17...	28.9	--	7.0	82	--	--	--	15.4	174	8	<.020	2.01	<.040
FEB 2004													
04...	38.9	--	9.9	108	--	--	--	16.2	270	6	<.020	2.60	<.040
APR													
01...	35.7	--	8.3	93	--	--	--	14.0	202	<2	.050	1.94	.040
JUN													
09...	33.4	--	8.9	99	--	--	--	13.8	196	22	<.020	1.97	<.040
AUG													
03...	32.4	--	8.3	94	--	--	--	14.6	200	32	.050	1.86	<.040
01573610 Swatara Creek at Harrisburg Airport at Middletown (LAT 40 11 28N LONG 076 43 52W)													
OCT 2003													
08...	42.2	--	9.6	93	--	--	--	27.8	228	10	<.020	4.42	<.040
DEC													
17...	26.8	--	6.7	61	--	--	--	22.7	226	2	.040	3.96	<.040
FEB 2004													
24...	32.8	--	7.3	68	--	--	--	20.4	196	<2	.070	3.89	<.040
APR													
07...	31.7	--	7.2	67	--	--	--	22.4	210	<2	<.020	3.62	<.040
JUN													
24...	42.2	--	9.6	90	--	--	--	27.9	264	6	.040	4.44	.040
AUG													
12...	43.3	--	9.8	105	--	--	--	26.7	244	<2	.030	4.90	.050

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	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)	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45µMF 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)	Cyanide amen-able to chlor-ination wat unf mg/L (00722)
01570400 Conodoguinet Creek at mouth at West Fairview, PA (LAT 40 16 17N LONG 076 54 51W)													
OCT 2003													
14...	.02	.034	5.0	2.4	--	--	--	<200	--	--	--	<10	--
DEC													
11...	.04	.247	3.9	4.2	--	--	--	3600	--	--	--	<10	--
FEB 2004													
09...	.03	.036	4.2	2.4	--	--	--	410	--	--	--	<10	--
APR													
01...	.04	.068	4.1	2.5	--	--	--	410	--	--	--	<10	--
JUN													
09...	.04	.065	4.0	3.1	--	--	--	<200	--	--	--	<10	--
AUG													
03...	.08	.153	3.7	5.1	--	--	--	2200	--	--	--	<10	--
01571505 Yellow Breeches Creek at New Cumberland, PA (LAT 40 13 27N LONG 076 51 38W)													
OCT 2003													
14...	.02	.021	3.0	1.6	--	--	--	<200	--	--	--	<10	--
DEC													
17...	.02	.055	2.0	2.1	--	--	--	380	--	--	--	<10	--
FEB 2004													
04...	.02	.026	2.9	1.5	--	--	--	<200	--	--	--	<10	--
APR													
01...	.04	.061	2.6	2.5	--	--	--	790	--	--	--	<10	--
JUN													
09...	.03	.062	2.3	2.2	--	--	--	670	--	--	--	<10	--
AUG													
03...	.05	.093	2.3	4.0	--	--	--	940	--	--	--	<10	--
01573610 Swatara Creek at Harrisburg Airport at Middletown (LAT 40 11 28N LONG 076 43 52W)													
OCT 2003													
08...	.03	.035	5.0	2.1	--	--	--	<200	--	--	--	<10	--
DEC													
17...	.04	.039	4.2	1.9	--	--	--	200	--	--	--	<10	--
FEB 2004													
24...	.04	.060	4.2	2.1	--	--	--	<200	--	--	--	<10	--
APR													
07...	.02	.025	4.0	2.0	--	--	--	<200	--	--	--	<10	--
JUN													
24...	.09	.106	4.6	2.3	--	--	--	340	--	--	--	20	--
AUG													
12...	.05	.067	5.0	2.1	--	--	--	<200	--	--	--	<10	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	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)	Zinc, water, unfltrd recover -able, µg/L (01092)	Phen-olic com-pounds, water, unfltrd µg/L (32730)
01570400 Conodoguinet Creek at mouth at West Fairview, PA (LAT 40 16 17N LONG 076 54 51W)											
OCT 2003											
14...	--	60	--	<1.0	--	<10	--	<50	--	<10	--
DEC											
11...	--	6010	--	7.7	--	340	--	<50	--	210	--
FEB 2004											
09...	--	500	--	<1.0	--	30	--	<50	--	<10	--
APR											
01...	--	540	--	<1.0	--	30	--	<50	--	<10	--
JUN											
09...	--	340	--	<1.0	--	30	--	<50	--	<10	--
AUG											
03...	--	2900	--	2.9	--	140	--	<50	--	60	--
01571505 Yellow Breeches Creek at New Cumberland, PA (LAT 40 13 27N LONG 076 51 38W)											
OCT 2003											
14...	--	110	--	<1.0	--	10	--	<50	--	<10	--
DEC											
17...	--	670	--	2.2	--	50	--	<50	--	10	--
FEB 2004											
04...	--	130	--	<1.0	--	20	--	<50	--	<10	--
APR											
01...	--	1450	--	5.3	--	80	--	<50	--	17000	--
JUN											
09...	--	540	--	<1.0	--	40	--	<50	--	<10	--
AUG											
03...	--	1310	--	1.8	--	70	--	<50	--	60	--
01573610 Swatara Creek at Harrisburg Airport at Middletown (LAT 40 11 28N LONG 076 43 52W)											
OCT 2003											
08...	--	150	--	<1.0	--	30	--	<50	--	<10	--
DEC											
17...	--	320	--	<1.0	--	50	--	<50	--	<10	--
FEB 2004											
24...	--	280	--	<1.0	--	40	--	<50	--	<10	--
APR											
07...	--	160	--	24	--	40	--	<50	--	<10	--
JUN											
24...	--	510	--	<1.0	--	50	--	<50	--	80	--
AUG											
12...	--	200	--	<1.0	--	30	--	<50	--	<10	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Pressure, osmotic water, unfltrd mosm/kg (82550)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)
01573750 Conewago Creek near Arendtsville, PA (LAT 39 56 13N LONG 077 21 58W)													
OCT 2003													
20...	1330	1028	9813	6.3	3.0	10.8	6.7	6.8	69	67	8.6	18	4.3
NOV													
18...	1100	1028	9813	--	4.0	11.4	6.7	6.7	63	60	6.2	17	4.2
DEC													
18...	1130	1028	9813	19	<1.0	12.7	6.7	7.0	62	60	2.8	16	4.1
JAN 2004													
27...	1100	1028	9813	--	5.0	14.3	5.6	6.9	56	50	.0	14	3.3
FEB													
23...	1130	1028	9813	12	6.0	13.6	7.1	6.8	74	58	1.4	18	4.5
MAR													
10...	0900	1028	9813	18	6.0	13.4	6.1	6.9	62	62	3.2	16	3.6
APR													
08...	1000	1028	9813	16	5.0	11.9	6.5	7.0	61	56	6.3	17	4.2
MAY													
06...	1130	1028	9813	14	4.0	11.2	7.0	7.0	58	54	9.7	14	3.7
JUN													
23...	1030	1028	9813	10	3.0	9.3	7.0	6.9	63	61	15.9	17	4.1
JUL													
14...	1015	1028	9813	4.7	1.0	8.5	7.1	6.7	63	57	18.0	16	3.9
AUG													
05...	1045	1028	9813	2.4	<1.0	8.3	7.3	6.8	65	64	19.2	18	4.7
SEP													
21...	1030	1028	9813	6.9	<1.0	10.4	7.4	6.8	78	76	12.5	23	5.9
01575900 Chickies Creek near Marietta, PA (LAT 40 03 46N LONG 076 30 57W)													
OCT 2003													
08...	1000	1028	9813	116	--	9.9	8.0	8.1	553	528	11.7	250	--
DEC													
16...	1130	1028	9813	336	--	13.0	7.8	7.8	505	508	4.5	180	--
FEB 2004													
25...	1230	1028	9813	177	--	13.6	8.0	8.1	466	435	5.1	200	--
APR													
12...	1300	1028	9813	130	--	13.5	8.3	8.3	500	481	10.1	200	--
JUN													
29...	1200	1028	9813	149	--	8.6	8.0	8.0	540	537	17.9	250	--
AUG													
04...	1245	1028	9813	448	--	8.1	7.8	7.9	432	427	20.8	170	--
01576003 Susquehanna River at Columbia, PA (LAT 40 01 42N LONG 076 31 05W)													
OCT 2003													
27...	1000	1028	9813	26400	--	10.8	7.8	7.3	215	219	11.6	82	--
DEC													
16...	0930	1028	9813	118000	--	13.7	7.4	7.1	141	140	1.9	48	--
FEB 2004													
25...	0900	1028	9813	31400	--	13.8	7.7	7.9	281	295	.6	100	--
APR													
12...	1100	1028	9813	43500	--	10.9	7.7	7.8	208	199	9.2	78	--
JUN													
29...	0930	1028	9813	16200	--	7.1	8.1	7.5	276	275	24.2	110	--
AUG													
12...	0900	1028	9813	25400	--	7.4	8.2	7.2	221	213	24.8	82	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Calcium water unfltrd recover -able, mg/L (00916)	Magnes- ium, water, fltrd, mg/L (00925)	Magnes- ium, water, unfltrd recover -able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	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)
01573750 Conewago Creek near Arendtsville, PA (LAT 39 56 13N LONG 077 21 58W)													
OCT 2003													
20...	4.5	1.6	1.6	14	0	4.8	<.2	6.3	66	10	<.020	.63	<.040
NOV													
18...	4.2	1.6	1.6	13	0	4.5	<.2	6.4	36	<2	<.020	.72	<.040
DEC													
18...	4.0	1.5	1.4	10	0	5.0	<.2	7.0	64	4	<.020	.82	<.040
JAN 2004													
27...	3.5	1.3	1.4	10	0	4.3	<.2	6.0	74	4	<.020	.91	<.040
FEB													
23...	4.6	1.6	1.6	12	5.8	7.5	<.2	6.8	50	<2	<.020	1.03	<.040
MAR													
10...	3.9	1.3	1.5	10	4.6	4.7	<.2	6.9	44	<2	<.020	.94	<.040
APR													
08...	4.1	1.6	1.6	11	5.2	4.2	<.2	6.5	28	<2	<.020	.83	<.040
MAY													
06...	3.5	1.4	1.4	11	7.6	3.9	<.2	6.3	14	<2	<.020	.66	<.040
JUN													
23...	4.1	1.5	1.5	16	11	4.3	<.2	5.4	62	<2	.030	.61	<.040
JUL													
14...	4.0	1.5	1.5	16	5.8	4.1	<.2	4.6	56	<2	<.020	.54	<.040
AUG													
05...	4.5	1.7	1.6	21	7.6	4.5	<.2	4.2	58	2	.040	.50	<.040
SEP													
21...	5.8	2.0	2.0	16	15	5.8	<.2	7.5	56	6	<.020	.90	<.040
01575900 Chickies Creek near Marietta, PA (LAT 40 03 46N LONG 076 30 57W)													
OCT 2003													
08...	69.7	--	18.2	163	--	--	--	29.0	408	10	<.020	12.8	<.040
DEC													
16...	50.0	--	14.5	116	--	--	--	25.8	316	14	.060	10.7	<.040
FEB 2004													
25...	54.9	--	15.9	130	--	--	--	25.3	262	6	.050	10.8	.050
APR													
12...	55.3	--	14.8	129	--	--	--	26.1	326	<2	.030	10.7	.060
JUN													
29...	68.5	--	19.4	156	--	--	--	27.5	396	16	<.020	12.7	<.040
AUG													
04...	47.8	--	12.2	113	--	--	--	25.1	294	42	.120	10.7	.080
01576003 Susquehanna River at Columbia, PA (LAT 40 01 42N LONG 076 31 05W)													
OCT 2003													
27...	21.9	--	6.5	47	--	--	--	32.7	174	8	.030	.77	<.040
DEC													
16...	13.3	--	3.5	27	--	--	--	18.1	<2	158	.030	.82	<.040
FEB 2004													
25...	29.3	--	7.7	60	--	--	--	36.4	130	6	.070	1.81	<.040
APR													
12...	22.1	--	5.5	46	--	--	--	26.4	114	6	<.020	1.23	<.040
JUN													
29...	30.6	--	8.3	62	--	--	--	38.8	214	12	<.020	1.28	<.040
AUG													
12...	22.9	--	6.1	55	--	--	--	29.1	150	2	<.020	.82	<.040

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	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)	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45µMF 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)	Cyanide amen-able to chlor-ination wat unf mg/L (00722)
01573750 Conewago Creek near Arendtsville, PA (LAT 39 56 13N LONG 077 21 58W)													
OCT 2003													
20...	<.01	<.010	.86	--	1.2	20	30	40	<4.0	<.20	<4	<4	--
NOV													
18...	<.01	.010	.91	--	.9	20	20	30	<4.0	<.20	<4	<4	--
DEC													
18...	<.01	.012	1.1	--	1.2	20	40	70	<4.0	<.20	<4	<4	--
JAN 2004													
27...	<.01	.013	1.0	--	.3	<20	20	50	<4.0	<.20	<4	<4	--
FEB													
23...	<.01	<.010	1.4	--	1.2	60	20	60	<4.0	<.20	<4	<4	--
MAR													
10...	<.01	<.010	1.0	--	1.6	20	30	70	<4.0	<.20	<4	<4	--
APR													
08...	<.01	<.010	1.1	--	<.2	<20	20	50	<4.0	20	<4	<4	--
MAY													
06...	<.01	.015	.67	--	.5	40	20	60	<4.0	<.20	<4	<4	--
JUN													
23...	<.01	.014	.70	--	<.2	170	50	110	<4.0	<.20	<4	<4	--
JUL													
14...	<.01	.015	.76	--	1.0	80	20	50	<4.0	<.20	<4	<4	--
AUG													
05...	<.01	.010	.62	--	.3	140	30	53	<4.0	<.20	<4	<4	--
SEP													
21...	.01	.024	1.1	--	.6	120	30	120	<4.0	<.20	<4	<4	--
01575900 Chickies Creek near Marietta, PA (LAT 40 03 46N LONG 076 30 57W)													
OCT 2003													
08...	.03	.044	14	2.4	--	--	--	<200	--	--	--	<10	--
DEC													
16...	.05	.058	11	2.5	--	--	--	270	--	--	--	<10	--
FEB 2004													
25...	.04	.052	11	1.9	--	--	--	<200	--	--	--	<10	--
APR													
12...	.03	.046	11	2.2	--	--	--	<200	--	--	--	<10	--
JUN													
29...	.04	.059	13	2.1	--	--	--	320	--	--	--	<10	--
AUG													
04...	.12	.153	11	3.0	--	--	--	1400	--	--	--	<10	--
01576003 Susquehanna River at Columbia, PA (LAT 40 01 42N LONG 076 31 05W)													
OCT 2003													
27...	.01	.023	.96	2.2	--	--	--	<200	--	--	--	<10	--
DEC													
16...	.07	.072	.99	2.8	--	--	--	1600	--	--	--	<10	--
FEB 2004													
25...	.03	.043	2.1	2.1	--	--	--	<200	--	--	--	<10	--
APR													
12...	.02	.022	1.5	1.7	--	--	--	270	--	--	--	<10	--
JUN													
29...	.02	.036	1.4	2.5	--	--	--	240	--	--	--	<10	--
AUG													
12...	.02	.034	1.1	2.6	--	--	--	260	--	--	--	<10	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	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)	Zinc, water, unfltrd recover -able, µg/L (01092)	Phen- olic com- pounds, water, unfltrd µg/L (32730)
01573750 Conewago Creek near Arendtsville, PA (LAT 39 56 13N LONG 077 21 58W)											
OCT 2003											
20...	70	130	<1.0	<1.0	7.8	11	<4.0	<4.0	<5.0	<5.0	<5
NOV											
18...	70	110	<1.0	<1.0	7.3	9.6	<4.0	<4.0	<5.0	<5.0	<5
DEC											
18...	50	100	<1.0	<1.0	6.4	9.1	<4.0	<4.0	<5.0	<5.0	<5
JAN 2004											
27...	30	70	<1.0	<1.0	4.4	6.5	<4.0	<4.0	<5.0	<5.0	<5
FEB											
23...	40	70	<1.0	<1.0	6.3	7.6	<4.0	<4.0	<5.0	<5.0	<5
MAR											
10...	30	90	<1.0	<1.0	7.4	10	<4.0	<4.0	<5.0	5.0	<5
APR											
08...	30	100	<1.0	<1.0	5.1	7.9	<4.0	<4.0	<5.0	<5.0	<5
MAY											
06...	40	100	<1.0	<1.0	6.6	10	<4.0	<4.0	<5.0	<5.0	<5
JUN											
23...	100	260	<1.0	<1.0	7.5	18	<4.0	<4.0	<5.0	<5.0	<5
JUL											
14...	80	170	<1.0	<1.0	5.5	12	<4.0	<4.0	<5.0	<5.0	<5
AUG											
05...	110	170	<1.0	<1.0	7.9	14	<4.0	<4.0	<5.0	<5.0	<5
SEP											
21...	80	240	<1.0	<1.0	11	16	<4.0	<4.0	<5.0	<5.0	<5
01575900 Chickies Creek near Marietta, PA (LAT 40 03 46N LONG 076 30 57W)											
OCT 2003											
08...	--	160	--	<1.0	--	20	--	<50	--	<10	--
DEC											
16...	--	380	--	<1.0	--	40	--	<50	--	<10	--
FEB 2004											
25...	--	230	--	<1.0	--	20	--	<50	--	<10	--
APR											
12...	--	100	--	<1.0	--	20	--	<50	--	<10	--
JUN											
29...	--	340	--	<1.0	--	40	--	<50	--	<10	--
AUG											
04...	--	1600	--	3.2	--	70	--	<50	--	80	--
01576003 Susquehanna River at Columbia, PA (LAT 40 01 42N LONG 076 31 05W)											
OCT 2003											
27...	--	290	--	<1.0	--	50	--	<50	--	70	--
DEC											
16...	--	2250	--	1.8	--	160	--	<50	--	10	--
FEB 2004											
25...	--	290	--	<1.0	--	90	--	<50	--	<10	--
APR											
12...	--	440	--	<1.0	--	70	--	<50	--	10	--
JUN											
29...	--	290	--	<1.0	--	50	--	<50	--	<10	--
AUG											
12...	--	440	--	<1.0	--	70	--	<50	--	<10	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Pressure, osmotic water, unfltrd mosm/kg (82550)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)
01576787 Pequea Creek at Martic Forge, PA (LAT 39 54 21N LONG 076 19 43W)													
OCT 2003													
15...	1200	1028	9813	845	--	8.4	7.5	7.7	340	347	14.2	160	--
DEC													
15...	1200	1028	9813	805	--	11.8	7.9	8.1	447	440	4.2	190	--
FEB 2004													
12...	0930	1028	9813	355	--	11.9	7.7	7.7	382	383	3.3	170	--
APR													
07...	1000	1028	9813	239	--	12.8	8.1	8.3	442	450	8.8	200	--
JUN													
24...	1030	1028	9813	243	--	8.2	7.9	8.2	478	461	19.6	240	--
AUG													
04...	1115	1028	9813	765	--	7.6	7.9	8.1	497	494	22.6	210	--
01613500 Licking Creek near Sylvan, PA (LAT 39 43 23N LONG 078 03 38W)													
OCT 2003													
22...	1000	1028	9813	130	--	9.4	7.7	8.1	231	225	12.4	110	--
DEC													
09...	1030	1028	9813	155	--	13.4	7.9	7.6	203	204	1.2	89	--
FEB 2004													
02...	1030	1028	9813	78	--	13.5	7.8	8.0	260	260	.1	130	--
APR													
26...	1200	1028	9813	363	--	9.3	7.5	7.6	174	159	13.6	77	--
JUN													
02...	1030	1028	9813	125	--	8.3	7.7	7.8	216	213	18.0	95	--
AUG													
11...	1245	1028	9813	33	--	8.0	8.1	7.7	257	260	22.6	120	--
01614500 Conococheague Creek at Fairview, MD (LAT 39 42 59N LONG 077 49 29W)													
OCT 2003													
22...	0800	1028	9813	468	--	9.2	7.9	8.2	409	392	12.5	180	--
DEC													
12...	0800	1028	9813	8790	--	12.7	8.1	7.9	354	369	2.3	170	--
FEB 2004													
02...	0830	1028	9813	439	--	13.7	7.8	8.1	441	444	.1	220	--
APR													
26...	1000	1028	9813	1690	--	9.2	7.5	7.9	311	289	12.9	160	--
JUN													
02...	0900	1028	9813	553	--	8.1	7.6	8.0	393	394	16.8	180	--
AUG													
11...	0930	1028	9813	288	--	7.6	8.1	8.1	456	461	20.7	220	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Calcium water unfltrd recover -able, mg/L (00916)	Magnes- ium, water, fltrd, mg/L (00925)	Magnes- ium, water, unfltrd recover -able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	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)
01576787 Pequea Creek at Martic Forge, PA (LAT 39 54 21N LONG 076 19 43W)													
OCT 2003													
15...	37.6	--	17.2	104	--	--	--	21.4	262	510	.270	5.68	.110
DEC													
15...	46.7	--	17.9	128	--	--	--	25.3	268	56	.140	7.52	<.040
FEB 2004													
12...	42.5	--	14.6	115	--	--	--	21.7	272	38	.930	6.63	<.040
APR													
07...	51.3	--	17.9	136	--	--	--	28.7	300	10	<.020	8.37	.050
JUN													
24...	60.6	--	20.3	151	--	--	--	29.1	414	20	.050	8.42	.050
AUG													
04...	54.5	--	18.7	162	--	--	--	27.0	362	30	.050	8.48	.070
01613500 Licking Creek near Sylvan, PA (LAT 39 43 23N LONG 078 03 38W)													
OCT 2003													
22...	27.3	--	9.2	91	--	--	--	11.1	166	<2	<.020	1.50	<.040
DEC													
09...	22.0	--	8.2	72	--	--	--	11.2	134	6	<.020	1.69	<.040
FEB 2004													
02...	31.9	--	11.4	98	--	--	--	12.5	234	<2	<.020	2.37	<.040
APR													
26...	19.5	--	6.8	64	--	--	--	9.5	114	24	<.020	1.35	<.040
JUN													
02...	24.4	--	8.4	81	--	--	--	10.2	112	24	<.020	1.51	<.040
AUG													
11...	30.3	--	11.0	102	--	--	--	11.8	312	6	<.020	1.44	<.040
01614500 Conococheague Creek at Fairview, MD (LAT 39 42 59N LONG 077 49 29W)													
OCT 2003													
22...	56.1	--	10.6	152	--	--	--	17.6	296	<2	<.020	4.43	<.040
DEC													
12...	52.0	--	10.5	135	--	--	--	17.3	216	18	<.020	4.44	<.040
FEB 2004													
02...	64.2	--	13.6	161	--	--	--	18.7	466	<2	<.020	5.55	<.040
APR													
26...	48.6	--	9.1	113	--	--	--	14.2	200	110	.080	3.38	<.040
JUN													
02...	55.2	--	11.0	145	--	--	--	16.5	268	50	.030	4.56	<.040
AUG													
11...	64.7	--	14.5	175	--	--	--	19.0	340	22	<.020	4.87	<.040

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
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WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	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)	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45µMF 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)	Cyanide amen-able to chlor-ination wat unf mg/L (00722)
01576787 Pequea Creek at Martic Forge, PA (LAT 39 54 21N LONG 076 19 43W)													
OCT 2003													
15...	.46	1.38	9.2	13.0	--	--	--	15000	--	--	--	20	--
DEC													
15...	.14	.239	7.9	3.2	--	--	--	1800	--	--	--	<10	--
FEB 2004													
12...	.42	.567	8.5	8.0	--	--	--	1800	--	--	--	<10	--
APR													
07...	.04	.057	8.9	2.2	--	--	--	<200	--	--	--	<10	--
JUN													
24...	.13	.253	8.9	2.6	--	--	--	2600	--	--	--	<10	--
AUG													
04...	.15	.199	9.0	2.7	--	--	--	1100	--	--	--	<10	--
01613500 Licking Creek near Sylvan, PA (LAT 39 43 23N LONG 078 03 38W)													
OCT 2003													
22...	.01	.011	1.6	2.3	--	--	--	<200	--	--	--	<10	--
DEC													
09...	.01	.011	1.8	1.5	--	--	--	<200	--	--	--	<10	--
FEB 2004													
02...	.02	.027	2.5	1.2	--	--	--	<200	--	--	--	<10	--
APR													
26...	.03	.039	1.8	2.4	--	--	--	310	--	--	--	<10	--
JUN													
02...	.03	.024	1.4	1.9	--	--	--	310	--	--	--	<10	--
AUG													
11...	.05	.053	1.5	2.1	--	--	--	<200	--	--	--	<10	--
01614500 Conococheague Creek at Fairview, MD (LAT 39 42 59N LONG 077 49 29W)													
OCT 2003													
22...	.04	.047	5.2	2.6	--	--	--	<200	--	--	--	<10	--
DEC													
12...	.02	.031	4.5	1.8	--	--	--	<200	--	--	--	<10	--
FEB 2004													
12...	.03	.031	5.6	1.5	--	--	--	<200	--	--	--	<10	--
APR													
26...	.05	.162	4.3	3.8	--	--	--	2100	--	--	--	<10	--
JUN													
02...	.06	.106	4.5	2.1	--	--	--	940	--	--	--	<10	--
AUG													
11...	.07	.088	4.9	2.0	--	--	--	520	--	--	--	<10	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
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WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	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)	Zinc, water, unfltrd recover -able, µg/L (01092)	Phen- olic com- pounds, water, unfltrd µg/L (32730)
01576787 Pequea Creek at Martic Forge, PA (LAT 39 54 21N LONG 076 19 43W)											
OCT 2003											
15...	--	22900	--	17	--	490	--	<50	--	210	--
DEC											
15...	--	2250	--	2.1	--	70	--	<50	--	<10	--
FEB 2004											
12...	--	2050	--	1.5	--	60	--	<50	--	10	--
APR											
07...	--	280	--	<1.0	--	30	--	<50	--	<10	--
JUN											
24...	--	3720	--	2.9	--	110	--	<50	--	120	--
AUG											
04...	--	1410	--	1.5	--	50	--	<50	--	80	--
01613500 Licking Creek near Sylvan, PA (LAT 39 43 23N LONG 078 03 38W)											
OCT 2003											
22...	--	100	--	<1.0	--	10	--	<50	--	10	--
DEC											
09...	--	130	--	<1.0	--	<10	--	<50	--	<10	--
FEB 2004											
02...	--	80	--	<1.0	--	<10	--	<50	--	<10	--
APR											
26...	--	400	--	<1.0	--	50	--	<50	--	<10	--
JUN											
02...	--	420	--	<1.0	--	30	--	<50	--	<10	--
AUG											
11...	--	260	--	<1.0	--	20	--	<50	--	<10	--
01614500 Conococheague Creek at Fairview, MD (LAT 39 42 59N LONG 077 49 29W)											
OCT 2003											
22...	--	180	--	<1.0	--	13	--	<50	--	<10	--
DEC											
12...	--	270	--	<1.0	--	25	--	<50	--	<10	--
FEB 2004											
02...	--	90	--	<1.0	--	<10	--	<50	--	<10	--
APR											
26...	--	2700	--	3.2	--	140	--	<50	--	10	--
JUN											
02...	--	1160	--	1.4	--	64	--	<50	--	<10	--
AUG											
11...	--	930	--	1.0	--	52	--	<50	--	<10	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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, 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 Crystal Lake near Dundaff, PA (LAT 41 38 08N LONG 075 31 55W)													
JUL 2004													
15...	1120	1028	9813	19.0	--	5.2	7.0	119	6.0	26	8.9	.9	22
15...	1140	1028	9813	1.0	4.50	8.5	8.0	101	21.6	26	8.9	.9	22
01543896 George B. Stevenson Lake near First Fork, PA (LAT 41 24 35N LONG 078 01 15W)													
JUL 2004													
21...	1100	1028	9813	1.0	--	10.7	7.9	58	20.0	23	6.4	1.6	15
21...	1130	1028	9813	7.0	3.05	9.2	6.9	59	15.8	22	5.9	1.6	16
01544800 Kettle Creek Lake at Kettle Creek Dam, PA (LAT 41 21 37N LONG 077 55 27W)													
JUL 2004													
21...	1530	1028	9813	1.0	3.10	10.3	8.0	52	21.3	19	5.5	1.4	14
01552070 Rose Valley Lake near Bodines, PA (LAT 41 23 12N LONG 076 59 54W)													
AUG 2004													
02...	1030	1028	9813	1.0	1.70	9.9	8.1	56	24.3	19	5.9	1.0	20
02...	1100	1028	9813	5.0	--	.2	6.0	62	20.7	21	6.6	1.1	21
01553650 Lake Chillisquaque near White Hall, PA (LAT 41 06 08N LONG 076 39 41W)													
JUL 2004													
19...	1350	1028	9813	1.0	1.37	10.8	8.9	153	25.3	60	16.6	4.4	36
19...	1430	1028	9813	9.0	--	.1	6.5	190	11.6	62	17.3	4.5	68
01555124 Faylor Lake at Beaver Springs, PA (LAT 40 45 47N LONG 077 12 51W)													
JUL 2004													
20...	1100	1028	9813	1.0	.81	12.5	8.9	161	24.0	77	23.7	4.3	50
20...	1130	1028	9813	3.0	--	4.7	7.1	195	19.7	91	27.4	5.4	60
01555142 Walker Lake at Troxelville, PA (LAT 40 47 48N LONG 077 11 47W)													
JUL 2004													
20...	1430	1028	9813	1.0	.56	13.5	9.3	129	20.6	65	19.4	4.1	47
20...	1500	1028	9813	7.0	--	1.4	6.9	173	16.8	61	18.0	3.9	60
01564950 Laurel Creek Reservoir near Milroy, PA (LAT 40 43 48N LONG 077 37 45W)													
JUL 2004													
22...	1100	1028	9813	1.0	7.37	10.1	7.8	64	22.9	15	3.6	1.4	13
22...	1130	1028	9813	30.0	--	8.7	5.8	85	6.0	16	3.9	1.6	8

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
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WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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)	Chloro-phyll a phyto-plank-ton, uncorr, µg/L (32230)	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)
01534380 Crystal Lake near Dundaff, PA (LAT 41 38 08N LONG 075 31 55W)													
JUL 2004													
15...	7.0	<2	.050	<.010	.35	2.6	--	<10	<10	<4	<4	<20	30
15...	7.0	<2	<.020	.012	.66	3.0	.000	<10	<10	<4	<4	<20	20
01543896 George B. Stevenson Lake near First Fork, PA (LAT 41 24 35N LONG 078 01 15W)													
JUL 2004													
21...	7.5	12	<.020	.015	1.38	1.8	--	<10	28	<4	<4	--	--
21...	7.6	<2	.040	.016	.72	1.7	.000	<10	61	<4	5	80	260
01544800 Kettle Creek Lake at Kettle Creek Dam, PA (LAT 41 21 37N LONG 077 55 27W)													
JUL 2004													
21...	6.7	<2	<.020	.015	.64	1.5	.005	19	26	<4	<4	80	120
01552070 Rose Valley Lake near Bodines, PA (LAT 41 23 12N LONG 076 59 54W)													
AUG 2004													
02...	5.4	<2	.030	.017	.28	3.0	.018	<10	12	<4	<4	<20	90
02...	5.2	<2	.050	.031	.28	3.3	--	<10	11	<4	<4	60	560
01553650 Lake Chillisquaque near White Hall, PA (LAT 41 06 08N LONG 076 39 41W)													
JUL 2004													
19...	27.3	2	<.020	.022	.55	4.2	.010	28	36	<4	<4	20	70
19...	8.8	14	1.91	.079	2.3	5.2	--	14	500	<4	<4	3910	6410
01555124 Faylor Lake at Beaver Springs, PA (LAT 40 45 47N LONG 077 12 51W)													
JUL 2004													
20...	11.3	8	<.020	.086	2.7	7.6	.048	16	100	<4	<4	180	590
20...	11.6	14	.310	.056	2.9	4.7	--	<10	300	<4	<4	110	930
01555142 Walker Lake at Troxelville, PA (LAT 40 47 48N LONG 077 11 47W)													
JUL 2004													
20...	9.4	10	<.020	.042	.86	5.3	.045	19	100	<4	<4	70	380
20...	5.0	40	1.27	.256	1.7	5.3	--	23	800	<4	<4	5370	6910
01564950 Laurel Creek Reservoir near Milroy, PA (LAT 40 43 48N LONG 077 37 45W)													
JUL 2004													
22...	5.9	<2	.020	<.010	.63	1.5	.005	15	25	<4	<4	30	40
22...	6.5	<2	.040	.019	.06	1.3	--	15	400	<4	<4	30	940

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MISCELLANEOUS LAKE ANALYSES

Date	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)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover -able, µg/L (01092)
01534380 Crystal Lake near Dundaff, PA (LAT 41 38 08N LONG 075 31 55W)						
JUL 2004						
15...	<1.0	<1.0	<2.0	30	<5.0	<5.0
15...	<1.0	<1.0	--	--	<5.0	<5.0
01543896 George B. Stevenson Lake near First Fork, PA (LAT 41 24 35N LONG 078 01 15W)						
JUL 2004						
21...	<1.0	<1.0	<2.0	19	<5.0	<5.0
21...	<1.0	<1.0	30	40	<5.0	<5.0
01544800 Kettle Creek Lake at Kettle Creek Dam, PA (LAT 41 21 37N LONG 077 55 27W)						
JUL 2004						
21...	<1.0	<1.0	8.3	20	<5.0	<5.0
01552070 Rose Valley Lake near Bodines, PA (LAT 41 23 12N LONG 076 59 54W)						
AUG 2004						
02...	<1.0	<1.0	<2.0	30	<5.0	<5.0
02...	<1.0	<1.0	240	480	<5.0	5.9
01553650 Lake Chillisquaque near White Hall, PA (LAT 41 06 08N LONG 076 39 41W)						
JUL 2004						
19...	<1.0	<1.0	<2.0	30	<5.0	<5.0
19...	<1.0	<1.0	3130	3220	<5.0	<5.0
01555124 Faylor Lake at Beaver Springs, PA (LAT 40 45 47N LONG 077 12 51W)						
JUL 2004						
20...	<1.0	<1.0	2.2	70	<5.0	<5.0
20...	<1.0	<1.0	250	280	<5.0	<5.0
01555142 Walker Lake at Troxelville, PA (LAT 40 47 48N LONG 077 11 47W)						
JUL 2004						
20...	<1.0	<1.0	<2.0	20	<5.0	<5.0
20...	<1.0	1.4	800	830	<5.0	6.3
01564950 Laurel Creek Reservoir near Milroy, PA (LAT 40 43 48N LONG 077 37 45W)						
JUL 2004						
22...	<1.0	<1.0	10	20	<5.0	<5.0
22...	<1.0	<1.0	90	310	<5.0	9.4

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
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WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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, 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)
01569200 Letterkenny Reservoir near Roxbury, PA (LAT 40 06 52N LONG 077 41 18W)													
JUL 2004													
14...	0928	1028	9813	1.0	.90	8.6	7.6	65	21.9	27	7.8	1.9	25
14...	0934	1028	9813	9.0	--	1.2	4.3	59	11.9	23	6.6	1.7	22
01569765 Opossum Lake near Plainfield, PA (LAT 40 13 32N LONG 077 16 32W)													
JUL 2004													
14...	1110	1028	9813	1.0	.80	8.0	8.6	117	23.0	38	8.1	4.4	32
14...	1115	1028	9813	6.0	--	1.2	4.9	135	10.4	44	9.8	4.7	45
01603700 Lake Koon near Cooks Mills, PA (LAT 39 45 52N LONG 078 39 54W)													
JUL 2004													
13...	1250	1028	9813	1.0	4.00	10.0	6.2	151	26.7	72	23.0	3.6	62
13...	1300	1028	9813	11.0	--	4.3	--	151	6.3	69	22.1	3.4	52
01603800 Lake Gordon near Cooks Mills, PA (LAT 39 44 52N LONG 078 40 34W)													
JUL 2004													
13...	1128	1028	9813	1.0	2.75	8.3	--	162	24.9	78	25.0	3.8	63
13...	1136	1028	9813	15.0	--	6.2	--	167	22.0	78	25.2	3.7	64

Date	Sulfate water, fltrd, mg/L (00945)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Chlorophyll a phytoplankton, uncorr, µg/L (32230)	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)
01569200 Letterkenny Reservoir near Roxbury, PA (LAT 40 06 52N LONG 077 41 18W)													
JUL 2004													
14...	5.2	2	.030	.022	.63	4.0	.012	23	200	<4	<4	100	420
14...	5.2	6	.140	.016	.78	3.8	--	15	100	<4	<4	130	450
01569765 Opossum Lake near Plainfield, PA (LAT 40 13 32N LONG 077 16 32W)													
JUL 2004													
14...	9.5	10	.060	.059	1.8	5.8	.024	17	400	<4	<4	100	730
14...	9.1	14	.420	.043	1.0	3.8	--	<10	78	<4	<4	150	470
01603700 Lake Koon near Cooks Mills, PA (LAT 39 45 52N LONG 078 39 54W)													
JUL 2004													
13...	10.7	<2	<.020	.010	.67	3.0	.000	15	22	<4	<4	<20	70
13...	12.6	10	<.020	.018	.99	2.6	--	<10	50	<4	<4	20	120
01603800 Lake Gordon near Cooks Mills, PA (LAT 39 44 52N LONG 078 40 34W)													
JUL 2004													
13...	11.5	4	.030	.016	.59	2.8	.000	<10	21	<4	<4	<20	40
13...	11.6	<2	.050	.022	.68	2.6	--	<10	12	<4	<4	<20	60

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MISCELLANEOUS LAKE ANALYSES

Date	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)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover -able, µg/L (01092)
01569200 Letterkenny Reservoir near Roxbury, PA (LAT 40 06 52N LONG 077 41 18W)						
JUL 2004						
14...	<1.0	<1.0	20	60	<5.0	<5.0
14...	<1.0	<1.0	520	630	<5.0	<5.0
01569765 Opossum Lake near Plainfield, PA (LAT 40 13 32N LONG 077 16 32W)						
JUL 2004						
14...	<1.0	<1.0	30	170	<5.0	<5.0
14...	<1.0	<1.0	3520	3620	<5.0	<5.0
01603700 Lake Koon near Cooks Mills, PA (LAT 39 45 52N LONG 078 39 54W)						
JUL 2004						
13...	<1.0	<1.0	3.4	5.2	<5.0	<5.0
13...	<1.0	<1.0	140	200	<5.0	<5.0
01603800 Lake Gordon near Cooks Mills, PA (LAT 39 44 52N LONG 078 40 34W)						
JUL 2004						
13...	<1.0	<1.0	9.3	70	<5.0	<5.0
13...	<1.0	<1.0	40	260	<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 animal (approximate) subsamples.

BIOLOGICAL DATA, **WATER YEARS OCTOBER 2002 TO SEPTEMBER 2004**
BENTHIC MACROINVERTEBRATES

Station number	01502771	01531000	01531490	01532950	01534090	01537700	01538600
Date	10/06/03	10/07/03	10/07/03	10/06/03	08/20/03	10/24/03	08/20/03
Benthic macroinvertebrate	Count	Count	Count	Count	Count	Count	Count
Platyhelminthes							
Turbellaria (FLATWORMS)							
Tricladida							
Planariidae	3	--	--	--	1	--	--
Nematoda (NEMATODES)	--	--	--	--	--	--	--
Nemertea (PROBOSCIS WORMS)							
Enopla							
Hoplonemertea							
Tetrastemmatidae							
Prostoma	--	--	--	--	--	--	--
Mollusca							
Gastropoda (SNAILS)							
Basommatophora							
Ancylidae							
Ferrissia	1	5	--	--	--	--	--
Pleuroceridae							
Leptoxis carinata	3	--	--	--	--	--	--
Bivalvia (CLAMS)							
Veneroida							
Corbiculidae							
Corbicula fluminea	--	--	--	--	--	--	--
Sphaeriidae							
Sphaerium	4	25	--	--	11	1	--
Annelida							
Hirudinea (LEECHES)							
Arhynchobdellida							
Erpobdellidae							
Erpobdella punctata	--	1	--	--	--	--	--
Oligochaeta (AQUATIC EARTHWORMS)							
Lumbricina	--	1	--	--	--	--	--
Lumbriculida							
Lumbriculidae	6	--	--	11	2	12	--
Tubificida							
Enchytraeidae	--	--	--	--	--	--	--
Naididae	--	--	7	--	--	--	--
Tubificidae	--	4	--	--	--	--	--
Arthropoda							
Acariformes							
Hydrachnidia (WATER MITES)	--	--	1	1	--	--	2
Crustacea							
Amphipoda (SCUDS)							
Crangonyctidae							
Crangonyx	--	--	--	--	--	--	--
Gammaridae							
Gammarus	--	--	--	--	--	34	1

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
BENTHIC MACROINVERTEBRATES

015400021	01542790	01547400	01547980	01548075	01548085	01549590	Station number
10/21/03	10/21/03	10/07/03	10/07/03	10/16/03	10/16/03	10/15/03	Date
Count	Count	Count	Count	Count	Count	Count	Benthic macroinvertebrate
							Platyhelminthes
							Turbellaria (FLATWORMS)
							Tricladida
1	--	2	--	7	1	--	Planariidae
2	1	--	4	--	1	--	Nematoda (NEMATODES)
							Nemertea (PROBOSCIS WORMS)
							Enopla
							Hoplonemertea
							Tetrastemmatidae
--	--	--	--	--	--	1	*Prostoma*
							Mollusca
							Gastropoda (SNAILS)
							Basommatophora
							Ancylidae
--	--	1	--	--	2	--	*Ferrissia*
							Pleuroceridae
--	--	--	--	--	--	--	*Leptoxis carinata*
							Bivalvia (CLAMS)
							Veneroida
							Corbiculidae
--	--	--	--	--	3	--	*Corbicula fluminea*
							Sphaeriidae
--	--	--	--	--	2	9	*Sphaerium*
							Annelida
							Hirudinea (LEECHES)
							Arhynchobdellida
							Erpobdellidae
--	--	--	--	--	--	--	*Erpobdella punctata*
							Oligochaeta (AQUATIC EARTHWORMS)
--	--	--	--	--	4	--	Lumbricina
							Lumbriculida
55	--	--	4	7	--	3	Lumbriculidae
							Tubificida
--	2	--	24	--	2	--	Enchytraeidae
--	50	1	--	--	6	1	Naididae
4	--	--	1	7	3	--	Tubificidae
							Arthropoda
							Acariformes
1	1	--	1	3	1	--	Hydrachnidia (WATER MITES)
							Crustacea
							Amphipoda (SCUDS)
							Crangonyctidae
--	--	--	--	--	17	--	*Crangonyx*
							Gammaridae
2	--	1	--	59	--	--	*Gammarus*

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, **WATER YEARS OCTOBER 2002 TO SEPTEMBER 2004**
BENTHIC MACROINVERTEBRATES

Station number	01502771	01531000	01531490	01532950	01534090	01537700	01538600
Date	10/06/03	10/07/03	10/07/03	10/06/03	08/20/03	10/24/03	08/20/03
Benthic macroinvertebrate	Count	Count	Count	Count	Count	Count	Count
Crustacea							
Isopoda (AQUATIC SOWBUGS)							
Asellidae							
Caecidotea	--	--	--	--	--	5	--
Decapoda							
Cambaridae (CRAYFISH)							
Orconectes	--	--	--	--	--	--	--
Insecta							
Ephemeroptera (MAYFLIES)							
Baetidae	--	--	--	--	--	--	--
Acentrella	--	--	--	1	--	--	--
Baetis	2	1	1	7	--	--	--
Centroptilum	--	--	--	--	--	1	--
Plauditus	--	1	--	--	--	--	--
Caenidae							
Caenis	--	1	--	--	--	1	--
Ephemerellidae							
Dannella	--	--	--	--	1	--	--
Ephemerella	--	19	--	2	--	--	--
Eurylophella	--	--	--	--	--	--	1
Serratella	3	7	6	2	--	2	2
Ephemeridae							
Ephemera	--	--	--	--	4	--	--
Hexagenia	--	--	--	--	--	3	--
Heptageniidae	1	--	1	1	--	4	1
Epeorus	1	--	--	1	--	--	--
Leucrocuta	7	--	60	30	--	--	--
Rhithrogena	--	--	--	--	1	--	--
Stenacron	--	2	--	--	--	1	--
Stenonema	10	12	9	7	9	4	--
Isonychiidae							
Isonychia	6	23	17	21	5	2	--
Leptophlebiidae	--	--	--	--	--	--	--
Leptophlebia	--	--	--	--	--	--	--
Paraleptophlebia	1	--	1	2	--	2	--
Polymitarcyidae							
Ephoron	--	--	--	--	3	--	--
Potamanthidae							
Anthopotamus	5	9	--	1	--	--	--
Odonata (DRAGONFLIES AND DAMSELFLIES)							
Coenagrionidae	--	--	2	--	--	--	--
Argia	--	1	--	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
BENTHIC MACROINVERTEBRATES

015400021	01542790	01547400	01547980	01548075	01548085	01549590	Station number
10/21/03	10/21/03	10/07/03	10/07/03	10/16/03	10/16/03	10/15/03	Date
Count	Count	Count	Count	Count	Count	Count	Benthic macroinvertebrate
							Crustacea
							Isopoda (AQUATIC SOWBUGS)
							Asellidae
--	--	16	1	1	33	4	*Caecidotea*
							Decapoda
							Cambaridae (CRAYFISH)
--	--	--	--	--	1	--	*Orconectes*
							Insecta
							Ephemeroptera (MAYFLIES)
--	--	1	--	--	--	--	Baetidae
4	--	2	--	--	--	--	*Acentrella*
--	--	--	--	2	--	--	*Baetis*
--	--	--	--	--	--	--	*Centroptilum*
1	--	1	--	--	--	--	*Plauditus*
							Caenidae
--	--	1	--	--	2	1	*Caenis*
							Ephemerellidae
--	--	--	--	--	--	--	*Dannella*
15	--	33	--	2	1	3	*Ephemerella*
--	7	--	--	--	--	--	*Eurylophella*
--	--	4	--	--	--	--	*Serratella*
							Ephemeridae
--	--	--	--	--	--	--	*Ephemera*
--	--	--	--	--	--	--	*Hexagenia*
2	--	--	--	1	--	--	Heptageniidae
4	--	--	--	--	--	--	*Epeorus*
21	--	2	--	--	--	3	*Leucrocuta*
--	--	--	--	--	--	--	*Rhithrogena*
--	--	11	--	--	12	55	*Stenacron*
6	--	10	--	2	10	12	*Stenonema*
							Isonychiidae
4	--	2	1	--	--	33	*Isonychia*
--	--	--	--	3	--	--	Leptophlebiidae
--	1	--	--	--	--	--	*Leptophlebia*
7	--	--	--	--	--	8	*Paraleptophlebia*
							Polymitarcyidae
--	--	--	--	--	--	--	*Ephoron*
							Potamanthidae
--	1	1	--	--	--	--	*Anthopotamus*
							Odonata (DRAGONFLIES AND DAMSELFLIES)
--	--	--	--	--	--	--	Coenagrionidae
--	--	--	--	--	--	--	*Argia*

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, **WATER YEARS OCTOBER 2002 TO SEPTEMBER 2004**
BENTHIC MACROINVERTEBRATES

Station number	01502771	01531000	01531490	01532950	01534090	01537700	01538600
Date	10/06/03	10/07/03	10/07/03	10/06/03	08/20/03	10/24/03	08/20/03
Benthic macroinvertebrate	Count	Count	Count	Count	Count	Count	Count
Plecoptera (STONEFLIES)							
Chloroperlidae							
Haploperla	--	--	--	--	--	--	1
Leuctridae							
Leuctra	--	--	--	--	--	--	--
Peltoperlidae							
Tallaperla	--	--	--	--	--	--	4
Perlidae	--	--	--	1	--	--	--
Acroneuria	--	--	2	1	--	--	1
Agnetina	4	1	--	1	4	--	--
Perlodidae	--	--	--	--	--	--	--
Taeniopterygidae							
Taenionema	--	--	--	--	--	--	--
Taeniopteryx	6	--	6	27	--	10	--
Megaloptera							
Corydalidae (FISHFLIES AND DOBSONFLIES)							
Corydalus	--	--	--	--	1	--	--
Nigronia	--	--	--	--	--	--	2
Sialidae (ALDERFLIES)							
Sialis	--	--	--	--	--	--	--
Trichoptera (CADDISFLIES)							
Apataniidae							
Apatania	1	--	--	--	--	--	1
Brachycentridae							
Brachycentrus	--	--	--	--	--	--	--
Glossosomatidae	--	--	--	--	5	--	1
Hydropsychidae							
Cheumatopsyche	4	33	6	1	26	1	14
Diplectrona	--	--	--	--	--	--	--
Hydropsyche	--	8	38	12	10	--	3
Macrostemum	--	--	--	--	1	--	--
Hydroptilidae							
Hydroptila	--	--	--	--	--	--	--
Leucotrichia	--	--	3	--	--	--	--
Lepidostomatidae							
Lepidostoma	1	--	--	--	2	1	--
Leptoceridae							
Oecetis	--	--	--	--	--	--	--
Limnephilidae							
Pycnopsyche	--	--	--	--	--	--	--
Philopotamidae							
Chimarra	5	8	38	22	4	--	1
Dolophilodes	--	--	--	--	--	--	1
Polycentropodidae							
Neureclipsis	--	--	--	--	--	--	--
Psychomyiidae							
Psychomyia	--	2	--	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
BENTHIC MACROINVERTEBRATES

015400021	01542790	01547400	01547980	01548075	01548085	01549590	Station number
10/21/03	10/21/03	10/07/03	10/07/03	10/16/03	10/16/03	10/15/03	Date
Count	Count	Count	Count	Count	Count	Count	Benthic macroinvertebrate
							Plecoptera (STONEFLIES)
							Chloroperlidae
--	--	--	--	--	--	--	*Haploperla*
							Leuctridae
3	2	--	1	--	--	--	*Leuctra*
							Peltoperlidae
--	--	--	--	--	--	--	*Tallaperla*
--	--	--	--	--	--	--	Perlidae
--	--	--	--	--	--	--	*Acroneuria*
--	--	--	--	--	--	--	*Agnetina*
--	1	--	--	--	--	--	Perlodidae
							Taeniopterygidae
1	--	--	--	--	--	--	*Taenionema*
21	--	--	1	--	8	--	*Taeniopteryx*
							Megaloptera
							Corydalidae (FISHFLIES AND DOBSONFLIES)
--	--	--	--	--	--	--	*Corydalus*
--	--	--	--	--	--	--	*Nigronia*
							Sialidae (ALDERFLIES)
--	1	--	20	--	--	1	*Sialis*
							Trichoptera (CADDISFLIES)
							Apataniidae
--	--	--	--	--	--	--	*Apatania*
							Brachycentridae
--	--	1	--	--	2	--	*Brachycentrus*
--	--	--	--	--	--	--	Glossosomatidae
							Hydropsychidae
4	--	4	--	10	9	--	*Cheumatopsyche*
--	--	--	1	--	--	--	*Diplectrona*
2	3	8	1	1	8	--	*Hydropsyche*
--	--	--	--	--	--	--	*Macrostemum*
							Hydroptilidae
--	--	--	--	--	2	--	*Hydroptila*
--	--	--	--	--	--	--	*Leucotrichia*
							Lepidostomatidae
1	--	--	--	--	--	--	*Lepidostoma*
							Leptoceridae
--	--	--	--	--	1	--	*Oecetis*
							Limnephilidae
--	2	--	--	--	--	--	*Pycnopsyche*
							Philopotamidae
2	--	--	1	--	--	1	*Chimarra*
--	--	--	--	--	--	--	*Dolophilodes*
							Polycentropodidae
--	--	--	4	--	--	1	*Neureclipsis*
							Psychomyiidae
--	--	--	--	--	--	--	*Psychomyia*

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, **WATER YEARS OCTOBER 2002 TO SEPTEMBER 2004**
BENTHIC MACROINVERTEBRATES

Station number	01502771	01531000	01531490	01532950	01534090	01537700	01538600
Date	10/06/03	10/07/03	10/07/03	10/06/03	08/20/03	10/24/03	08/20/03
Benthic macroinvertebrate	Count	Count	Count	Count	Count	Count	Count
Trichoptera (CADDISFLIES)							
Rhyacophilidae							
Rhyacophila	--	--	1	--	--	--	--
Uenoidae							
Neophylax	--	--	--	--	--	1	--
Coleoptera (BEETLES)							
Elmidae (RIFFLE BEETLES)							
Optioservus	20	3	4	7	2	--	--
Oulimnius	--	--	--	--	--	--	--
Promoresia	--	--	--	--	--	--	2
Stenelmis	15	5	9	2	37	1	3
Psephenidae (WATER PENNIES)							
Psephenus	23	1	1	2	6	--	--
Diptera (TRUE FLIES)							
Ceratopogonidae (BITING MIDGES)	--	--	--	--	--	--	1
Probezzia	--	--	--	--	--	--	--
Chironomidae (MIDGES)	4	32	42	10	7	24	19
Empididae (DANCE FLIES)							
Chelifera	1	--	--	--	--	--	--
Hemerodromia	--	--	4	--	--	--	--
Simuliidae (BLACK FLIES)							
Prosimulium	--	--	--	--	--	--	1
Simulium	--	2	--	--	--	--	--
Tipulidae (CRANE FLIES)							
Antocha	1	--	3	--	--	--	--
Hexatoma	--	1	--	--	--	--	--
Total Organisms	138	208	262	173	142	110	62
Total Taxa	26	26	23	24	21	19	20

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
BENTHIC MACROINVERTEBRATES

015400021	01542790	01547400	01547980	01548075	01548085	01549590	Station number
10/21/03	10/21/03	10/07/03	10/07/03	10/16/03	10/16/03	10/15/03	Date
Count	Count	Count	Count	Count	Count	Count	Benthic macroinvertebrate
							Trichoptera (CADDISFLIES)
							Rhyacophilidae
--	--	--	--	--	--	--	*Rhyacophila*
							Uenoidae
--	--	--	--	--	--	--	*Neophylax*
							Coleoptera (BEETLES)
							Elmidae (RIFFLE BEETLES)
9	--	7	1	12	3	1	*Optioservus*
--	--	--	--	1	--	--	*Oulimnius*
--	--	--	--	--	--	--	*Promoresia*
--	--	1	--	--	--	--	*Stenelmis*
							Psephenidae (WATER PENNIES)
2	--	--	--	--	--	--	*Psephenus*
							Diptera (TRUE FLIES)
--	--	--	--	--	--	--	Ceratopogonidae (BITING MIDGES)
--	--	--	7	--	--	--	*Probezzia*
3	106	6	18	4	5	5	Chironomidae (MIDGES)
							Empididae (DANCE FLIES)
--	--	--	--	--	--	--	*Chelifera*
--	6	--	13	1	2	--	*Hemerodromia*
							Simuliidae (BLACK FLIES)
--	--	--	--	--	--	--	*Prosimulium*
--	--	--	--	--	--	--	*Simulium*
							Tipulidae (CRANE FLIES)
1	--	3	--	--	--	--	*Antocha*
--	--	--	1	--	--	--	*Hexatoma*
178	184	119	105	123	141	142	Total Organisms
26	14	23	19	17	26	17	Total Taxa

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, **WATER YEARS OCTOBER 2002 TO SEPTEMBER 2004**
BENTHIC MACROINVERTEBRATES

Station number	01553005	01553990	01555210	01555859	01556009	01570400	01571505
Date	10/21/03	10/23/03	10/09/03	09/16/03	09/16/03	09/12/03	09/12/03
Benthic macroinvertebrate	Count	Count	Count	Count	Count	Count	Count
Platyhelminthes							
Turbellaria (FLATWORMS)							
Tricladida							
Planariidae	--	--	--	4	9	19	1
Nematoda (NEMATODES)	--	--	--	2	--	--	1
Nemertea (PROBOSCIS WORMS)							
Enopla							
Hoplonemertea							
Tetrastemmatidae							
Prostoma	--	--	--	--	--	--	--
Mollusca							
Gastropoda (SNAILS)							
Basommatophora							
Ancylidae							
Ferrissia	--	--	--	2	1	1	--
Hydrobiidae	--	--	--	--	--	1	--
Amnicola	--	--	--	--	--	--	--
Planorbidae							
Gyraulus	--	--	--	--	--	1	--
Pleuroceridae							
Elimia	--	--	--	--	--	--	--
Leptoxis carinata	--	--	--	--	--	68	--
Bivalvia (CLAMS)							
Veneroida							
Corbiculidae							
Corbicula fluminea	--	2	--	--	--	10	26
Sphaeriidae							
Sphaerium	1	1	--	--	--	3	--
Annelida							
Hirudinea (LEECHES)							
Arhynchobdellida							
Erpobdellidae	--	--	--	--	--	1	--
Oligochaeta (AQUATIC EARTHWORMS)							
Branchiobdellida							
Branchiobdellidae	--	--	--	--	1	--	--
Lumbricina	--	--	--	--	--	--	--
Lumbriculida							
Lumbriculidae	3	--	--	1	5	--	16
Tubificida							
Naididae	--	--	--	1	--	--	--
Tubificidae	--	3	1	1	--	1	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, **WATER YEARS OCTOBER 2002 TO SEPTEMBER 2004**
BENTHIC MACROINVERTEBRATES

01573610	01575900	01576003	01576787	01613500	01614500	Station number
10/10/03	09/05/03	10/24/03	09/11/03	09/18/03	09/18/03	Date
Count	Count	Count	Count	Count	Count	Benthic macroinvertebrate
						Platyhelminthes
						Turbellaria (FLATWORMS)
						Tricladida
4	1	2	2	--	2	Planariidae
2	--	--	2	2	4	Nematoda (NEMATODES)
						Nemertea (PROBOSCIS WORMS)
						Enopla
						Hoplonemertea
						Tetrastemmatidae
--	--	--	--	2	--	*Prostoma*
						Mollusca
						Gastropoda (SNAILS)
						Basommatophora
						Ancylidae
--	6	2	--	--	5	*Ferrissia*
--	--	--	--	--	--	Hydrobiidae
--	--	1	--	--	--	*Amnicola*
						Planorbidae
--	--	--	--	--	--	*Gyraulus*
						Pleuroceridae
--	1	--	--	--	--	*Elimia*
--	--	--	--	6	17	*Leptoxis carinata*
						Bivalvia (CLAMS)
						Veneroida
						Corbiculidae
7	21	1	11	1	4	*Corbicula fluminea*
						Sphaeriidae
1	--	--	--	--	--	*Sphaerium*
						Annelida
						Hirudinea (LEECHES)
						Arhynchobdellida
--	--	--	--	--	--	Erpobdellidae
						Oligochaeta (AQUATIC EARTHWORMS)
						Branchiobdellida
--	--	--	--	--	--	Branchiobdellidae
--	--	1	--	--	--	Lumbricina
						Lumbriculida
--	--	--	--	--	--	Lumbriculidae
						Tubificida
1	--	--	--	--	--	Naididae
2	--	2	--	--	--	Tubificidae

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, **WATER YEARS OCTOBER 2002 TO SEPTEMBER 2004**
BENTHIC MACROINVERTEBRATES

Station number	01553005	01553990	01555210	01555859	01556009	01570400	01571505
Date	10/21/03	10/23/03	10/09/03	09/16/03	09/16/03	09/12/03	09/12/03
Benthic macroinvertebrate	Count	Count	Count	Count	Count	Count	Count
Arthropoda							
Acariformes							
Hydrachnidia (WATER MITES)	--	--	2	24	--	1	2
Crustacea							
Amphipoda (SCUDS)							
Crangonyctidae							
Crangonyx	--	--	--	--	2	--	--
Gammaridae							
Gammarus	--	7	--	--	--	9	4
Isopoda (AQUATIC SOWBUGS)							
Asellidae							
Caecidotea	--	--	--	2	--	--	1
Decapoda							
Cambaridae (CRAYFISH)							
Orconectes	--	--	--	--	--	--	--
Insecta							
Ephemeroptera (MAYFLIES)							
Baetidae	--	--	--	--	--	--	--
Acentrella	18	--	--	--	2	--	--
Baetis	4	--	--	2	6	--	8
Heterocloeon	--	--	--	--	--	--	--
Caenidae							
Caenis	1	2	1	--	1	16	1
Ephemerellidae							
Ephemerella	3	--	3	--	--	--	--
Eurylophella	--	--	--	1	1	--	--
Serratella	2	4	13	--	30	--	2
Ephemeridae							
Ephemera	--	1	--	--	--	--	--
Heptageniidae	--	--	--	--	--	--	--
Epeorus	2	--	--	--	--	--	--
Leucrocuta	7	--	6	--	1	--	1
Stenacron	--	3	--	--	3	1	--
Stenonema	20	12	50	1	23	4	12
Isonychiidae							
Isonychia	30	7	3	--	--	--	--
Potamanthidae							
Anthopotamus	--	4	--	--	--	4	--
Tricorythidae							
Tricorythodes	--	--	2	--	--	8	--
Odonata (DRAGONFLIES AND DAMSEL-FLIES)							
Coenagrionidae	--	--	1	--	--	--	--
Argia	--	--	--	--	--	--	--
Plecoptera (STONEFLIES)							
Perlidae							
Agnetina	--	2	--	--	--	--	--
Neoperla	--	3	--	--	--	--	--
Taeniopterygidae							
Taeniopteryx	--	14	9	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, **WATER YEARS OCTOBER 2002 TO SEPTEMBER 2004**
BENTHIC MACROINVERTEBRATES

01573610	01575900	01576003	01576787	01613500	01614500	Station number
10/10/03	09/05/03	10/24/03	09/11/03	09/18/03	09/18/03	Date
Count	Count	Count	Count	Count	Count	Benthic macroinvertebrate
						Arthropoda
						Acariformes
1	2	--	1	3	1	Hydrachnidia (WATER MITES)
						Crustacea
						Amphipoda (SCUDS)
						Crangonyctidae
--	2	--	--	--	--	*Crangonyx*
						Gammaridae
--	1	30	--	--	--	*Gammarus*
						Isopoda (AQUATIC SOWBUGS)
						Asellidae
--	2	1	--	--	--	*Caecidotea*
						Decapoda
						Cambaridae (CRAYFISH)
--	1	--	--	--	--	*Orconectes*
						Insecta
						Ephemeroptera (MAYFLIES)
--	5	--	--	--	1	Baetidae
--	--	--	--	--	--	*Acentrella*
1	22	1	50	9	18	*Baetis*
--	--	--	--	--	1	*Heterocloeon*
						Caenidae
--	34	2	--	6	2	*Caenis*
						Ephemerellidae
1	--	--	--	--	--	*Ephemerella*
--	--	--	--	--	--	*Eurylophella*
--	2	--	--	5	5	*Serratella*
						Ephemeridae
--	1	--	--	--	--	*Ephemera*
--	14	--	--	--	4	Heptageniidae
--	--	--	--	--	--	*Epeorus*
--	3	2	3	--	1	*Leucrocuta*
--	4	2	--	--	--	*Stenacron*
5	59	19	8	12	15	*Stenonema*
						Isonychiidae
--	6	--	1	9	4	*Isonychia*
						Potamanthidae
2	--	3	1	--	8	*Anthopotamus*
						Tricorythidae
--	--	--	1	--	1	*Tricorythodes*
						Odonata (DRAGONFLIES AND DAMSEL-FLIES)
--	--	--	--	--	--	Coenagrionidae
--	1	3	--	--	--	*Argia*
						Plecoptera (STONEFLIES)
						Perlidae
--	--	1	--	--	--	*Agnetina*
--	--	--	--	--	--	*Neoperla*
						Taeniopterygidae
12	--	4	--	--	--	*Taeniopteryx*

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, **WATER YEARS OCTOBER 2002 TO SEPTEMBER 2004**
BENTHIC MACROINVERTEBRATES

Station number	01553005	01553990	01555210	01555859	01556009	01570400	01571505
Date	10/21/03	10/23/03	10/09/03	09/16/03	09/16/03	09/12/03	09/12/03
Benthic macroinvertebrate	Count	Count	Count	Count	Count	Count	Count
Megaloptera							
Corydalidae (FISHFLIES AND DOBSONFLIES)							
Corydalus	--	--	1	--	--	--	--
Nigronia	--	--	--	--	--	--	--
Trichoptera (CADDISFLIES)							
Apataniidae							
Apatania	1	--	--	--	--	--	--
Brachycentridae							
Brachycentrus	--	--	--	--	--	--	1
Glossosomatidae							
Glossosoma	1	--	--	--	--	--	--
Protoptila	--	--	--	--	--	--	--
Helicopsychidae							
Helicopsyche	--	--	--	--	--	--	1
Hydropsychidae	--	--	--	--	3	--	--
Cheumatopsyche	9	22	15	16	--	--	16
Hydropsyche	13	--	1	49	9	--	20
Macrostemum	--	1	--	--	--	--	--
Hydroptilidae							
Hydroptila	--	--	--	--	--	1	--
Leucotrichia	--	--	--	--	4	--	--
Lepidostomatidae							
Lepidostoma	2	--	1	--	--	--	--
Leptoceridae							
Ceraclea	--	--	--	--	--	2	--
Oecetis	--	--	--	--	--	--	--
Philopotamidae							
Chimarra	3	1	5	--	--	--	3
Psychomyiidae							
Psychomyia	--	--	--	--	--	--	3
Lepidoptera (MOTHS AND BUTTERFLIES)							
Pyralidae							
Petrophila	--	--	--	--	--	1	--
Coleoptera (BEETLES)							
Elmidae (RIFFLE BEETLES)							
Dubiraphia	--	--	--	--	--	3	--
Optioservus	8	--	13	1	6	5	49
Promoresia	--	--	--	--	--	--	7
Stenelmis	--	5	9	2	19	27	8
Hydrophilidae							
Berosus	--	--	--	--	--	--	--
Psephenidae (WATER PENNIES)							
Psephenus	5	--	8	3	11	--	14

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, **WATER YEARS OCTOBER 2002 TO SEPTEMBER 2004**
BENTHIC MACROINVERTEBRATES

01573610	01575900	01576003	01576787	01613500	01614500	Station number
10/10/03	09/05/03	10/24/03	09/11/03	09/18/03	09/18/03	Date
Count	Count	Count	Count	Count	Count	Benthic macroinvertebrate
						Megaloptera
						Corydalidae (FISHFLIES AND DOBSONFLIES)
--	--	--	1	--	--	*Corydalus*
--	--	--	--	1	--	*Nigronia*
						Trichoptera (CADDISFLIES)
						Apataniidae
--	--	--	--	--	--	*Apatania*
						Brachycentridae
--	--	--	--	--	--	*Brachycentrus*
						Glossosomatidae
--	--	--	--	--	--	*Glossosoma*
--	--	--	--	3	--	*Protoptila*
						Helicopsychidae
--	--	1	--	--	--	*Helicopsyche*
--	1	--	--	--	--	Hydropsychidae
4	18	9	5	11	11	*Cheumatopsyche*
4	22	--	10	10	4	*Hydropsyche*
--	--	--	--	1	--	*Macrostemum*
						Hydroptilidae
--	--	--	--	--	--	*Hydroptila*
--	--	--	1	--	--	*Leucotrichia*
						Lepidostomatidae
--	--	--	--	--	1	*Lepidostoma*
						Leptoceridae
--	--	--	--	--	--	*Ceraclea*
--	--	1	--	--	--	*Oecetis*
						Philopotamidae
--	--	--	1	10	--	*Chimarra*
						Psychomyiidae
--	--	--	--	--	--	*Psychomyia*
						Lepidoptera (MOTHS AND BUTTERFLIES)
						Pyralidae
--	--	--	--	--	--	*Petrophila*
						Coleoptera (BEETLES)
						Elmidae (RIFFLE BEETLES)
--	--	--	--	--	--	*Dubiraphia*
22	21	6	1	32	9	*Optioservus*
1	5	--	--	--	--	*Promoresia*
33	65	10	42	19	25	*Stenelmis*
						Hydrophilidae
--	--	1	--	--	--	*Berosus*
						Psephenidae (WATER PENNIES)
--	9	3	1	12	6	*Psephenus*

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, **WATER YEARS OCTOBER 2002 TO SEPTEMBER 2004**
BENTHIC MACROINVERTEBRATES

Station number	01553005	01553990	01555210	01555859	01556009	01570400	01571505
Date	10/21/03	10/23/03	10/09/03	09/16/03	09/16/03	09/12/03	09/12/03
Benthic macroinvertebrate	Count	Count	Count	Count	Count	Count	Count
Diptera (TRUE FLIES)							
Ceratopogonidae (BITING MIDGES)							
Probezzia	--	1	--	--	--	--	--
Chironomidae (MIDGES)	11	41	3	21	7	4	21
Empididae (DANCE FLIES)							
Hemerodromia	--	--	--	8	--	--	2
Psychodidae							
Pericoma	--	--	--	1	--	--	--
Simuliidae (BLACK FLIES)							
Simulium	--	--	--	--	--	--	2
Tipulidae (CRANE FLIES)							
Antocha	1	--	--	--	--	--	6
Total Organisms	145	136	147	142	144	191	228
Total Taxa	21	20	20	19	20	23	26

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

BIOLOGICAL DATA, **WATER YEARS OCTOBER 2002 TO SEPTEMBER 2004**
BENTHIC MACROINVERTEBRATES

01573610	01575900	01576003	01576787	01613500	01614500	Station number
10/10/03	09/05/03	10/24/03	09/11/03	09/18/03	09/18/03	Date
Count	Count	Count	Count	Count	Count	Benthic macroinvertebrate
						Diptera (TRUE FLIES)
						Ceratopogonidae (BITING MIDGES)
--	--	--	--	--	--	*Probezzia*
25	11	22	1	1	6	Chironomidae (MIDGES)
						Empididae (DANCE FLIES)
2	1	1	1	3	1	*Hemerodromia*
						Psychodidae
--	--	--	--	--	--	*Pericoma*
						Simuliidae (BLACK FLIES)
--	--	--	1	1	--	*Simulium*
						Tipulidae (CRANE FLIES)
--	2	--	3	2	1	*Antocha*
130	343	131	148	161	157	Total Organisms
18	30	26	22	23	26	Total Taxa

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK
(Reference Stations)

BIOLOGICAL DATA, WATER YEAR **OCTOBER 2002 TO SEPTEMBER 2003**
BENTHIC MACROINVERTEBRATES

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 200 animal (approximate) subsamples.

Station number	01533610	01539350	01553430	01554600
Date	12/10/02	12/17/02	12/17/02	12/16/02
Benthic macroinvertebrate	Count	Count	Count	Count
Mollusca				
Gastropoda (SNAILS)				
Basommatophora				
Physidae				
Physa	1	--	--	--
Bivalvia (CLAMS)				
Veneroida				
Sphaeriidae				
Sphaerium	--	--	--	2
Annelida				
Oligochaeta (AQUATIC EARTHWORMS)				
Lumbricina	--	1	1	--
Lumbriculida				
Lumbriculidae	--	2	3	--
Tubificida				
Naididae	--	2	--	--
Tubificidae	--	--	--	1
Arthropoda				
Acariformes				
Hydrachnidia (WATER MITES)	3	--	1	1
Crustacea				
Amphipoda (SCUDS)				
Gammaridae				
Gammarus	--	--	--	7
Insecta				
Ephemeroptera (MAYFLIES)				
Baetidae				
Baetis	10	--	--	--
Ephemerellidae				
Ephemerella	21	3	25	16
Eurylophella	2	3	3	--
Serratella	--	2	3	5

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK
(Reference Stations)

BIOLOGICAL DATA, WATER YEAR **OCTOBER 2002 TO SEPTEMBER 2003**
BENTHIC MACROINVERTEBRATES

Station number	01533610	01539350	01553430	01554600
Date	12/10/02	12/17/02	12/17/02	12/16/02
Benthic macroinvertebrate	Count	Count	Count	Count
Ephemeroptera (MAYFLIES)				
Ephemeridae				
Ephemera	--	1	--	--
Heptageniidae	--	1	--	--
Epeorus	42	4	13	--
Leucrocuta	--	4	--	--
Rhithrogena	4	--	--	--
Stenacron	--	7	--	--
Stenonema	5	1	7	5
Isonychiidae				
Isonychia	2	1	1	--
Leptophlebiidae				
Paraleptophlebia	28	13	14	--
Tricorythidae				
Tricorythodes	--	--	--	2
Odonata				
Cordulegastridae				
Cordulegaster	--	--	1	--
Gomphidae				
Lanthus	--	4	2	--
Plecoptera (STONEFLIES)				
Capniidae				
Allocapnia	--	12	--	--
Paracapnia	7	1	1	--
Chloroperlidae				
Alloperla	4	--	--	--
Sweltsa	7	--	1	--
Leuctridae				
Leuctra	1	--	--	--
Nemouridae	--	--	1	--
Perlidae				
Acroneuria	--	3	3	--
Agnetina	2	--	--	--
Perlodidae	1	--	--	--
Isoperla	11	--	--	2
Malirekus	--	--	1	--
Pteronarcyidae				
Pteronarcys	--	--	1	--
Taeniopterygidae				
Taenionema	3	--	19	--
Taeniopteryx	--	8	1	--
Megaloptera				
Corydalidae				
Nigronia	--	1	3	--
Sialidae (ALDERFLIES)				
Sialis	--	--	1	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK
(Reference Stations)

BIOLOGICAL DATA, WATER YEAR **OCTOBER 2002 TO SEPTEMBER 2003**
BENTHIC MACROINVERTEBRATES

Station number	01533610	01539350	01553430	01554600
Date	12/10/02	12/17/02	12/17/02	12/16/02
Benthic macroinvertebrate	Count	Count	Count	Count
Trichoptera (CADDISFLIES)				
Apataniidae				
Apatania	--	2	1	--
Brachycentridae				
Adicrophleps	--	--	2	--
Brachycentrus	--	--	1	--
Micrasema	--	--	4	--
Glossosomatidae				
Glossosoma	--	1	--	--
Helicopsychidae				
Helicopsyche	--	6	--	--
Hydropsychidae				
Cheumatopsyche	2	1	2	1
Diplectrona	--	--	14	--
Hydropsyche	12	1	--	15
Hydroptilidae				
Hydroptila	--	--	6	--
Lepidostomatidae				
Lepidostoma	1	7	3	--
Goeridae	1	--	--	--
Goera	--	--	--	1
Limnephilidae	1	--	--	--
Philopotamidae				
Chimarra	--	11	--	--
Dolophilodes	1	--	5	--
Polycentropodidae				
Nyctiophylax	--	--	1	--
Rhyacophilidae				
Rhyacophila	3	--	7	1
Uenoidae				
Neophylax	6	--	--	1
Coleoptera (BEETLES)				
Elmidae (RIFFLE BEETLES)				
Optioservus	1	2	2	84
Oulimnius	1	--	11	--
Promoresia	--	--	51	--
Stenelmis	--	1	--	--
Psephenidae (WATER PENNIES)				
Psephenus	--	8	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK
(Reference Stations)

BIOLOGICAL DATA, WATER YEAR **OCTOBER 2002 TO SEPTEMBER 2003**
BENTHIC MACROINVERTEBRATES

Station number	01533610	01539350	01553430	01554600
Date	12/10/02	12/17/02	12/17/02	12/16/02
Benthic macroinvertebrate	Count	Count	Count	Count
Diptera (TRUE FLIES)				
Ceratopogonidae (BITING MIDGES)				
Probezzia	1	--	2	3
Chironomidae (MIDGES)	18	34	72	57
Simuliidae (BLACK FLIES)				
Prosimulium	--	37	12	1
Simulium	--	--	--	2
Tipulidae (CRANE FLIES)				
Antocha	11	--	--	--
Dicranota	--	--	3	--
Hexatoma	3	--	--	--
Total Organisms	215	185	305	207
Total Taxa	31	32	40	19

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK
(Reference Stations)

BIOLOGICAL DATA, WATER YEAR **OCTOBER 2002 TO SEPTEMBER 2003**
BENTHIC MACROINVERTEBRATES

Station number	01564515	01567795	01573750	01577180
Date	12/16/02	12/12/02	12/12/02	12/19/02
Benthic macroinvertebrate	Count	Count	Count	Count
Mollusca				
Gastropoda (SNAILS)				
Basommatophora				
Ancylidae				
Ferrissia	4	--	--	--
Lymnaeidae				
Fossaria	--	3	--	1
Physidae				
Physa	--	14	1	--
Planorbidae				
Planorbula	1	--	--	--
Bivalvia (CLAMS)				
Veneroida				
Corbiculidae				
Corbicula fluminea	6	--	--	--
Sphaeriidae				
Pisidium	--	5	--	--
Sphaerium	4	--	--	1
Annelida				
Oligochaeta (AQUATIC EARTHWORMS)				
Lumbricina	--	--	3	4
Lumbriculida				
Lumbriculidae	--	--	2	2
Tubificida				
Enchytraeidae	--	--	--	1
Naididae	--	--	--	1
Tubificidae	1	14	--	--
Arthropoda				
Acariformes				
Hydrachnidia (WATER MITES)	1	--	--	--
Crustacea				
Amphipoda (SCUDS)				
Gammaridae				
Gammarus	--	84	--	--
Talitridae				
Hyallela	1	--	--	--
Isopoda (AQUATIC SOWBUGS)				
Asellidae				
Lirceus	--	47	--	--
Decapoda				
Cambaridae (CRAYFISH)	1	--	--	--
Insecta				
Ephemeroptera (MAYFLIES)				
Caenidae				
Caenis	15	--	--	--
Ephemerellidae				
Ephemerella	--	--	1	--
Eurylophella	--	--	3	--
Serratella	3	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK
(Reference Stations)

BIOLOGICAL DATA, WATER YEAR **OCTOBER 2002 TO SEPTEMBER 2003**
BENTHIC MACROINVERTEBRATES

Station number	01564515	01567795	01573750	01577180
Date	12/16/02	12/12/02	12/12/02	12/19/02
Benthic macroinvertebrate	Count	Count	Count	Count
Ephemeroptera (MAYFLIES)				
Heptageniidae				
Epeorus	--	--	2	--
Leucrocuta	2	--	--	--
Stenacron	4	--	--	--
Stenonema	23	--	9	10
Isonychiidae				
Isonychia	4	--	6	2
Leptophlebiidae				
Leptophlebia	1	--	--	--
Paraleptophlebia	2	--	9	--
Odonata				
Coenagrionidae				
Argia	9	--	--	--
Gomphidae				
Lanthus	--	--	4	2
Plecoptera (STONEFLIES)				
Capniidae				
Allocapnia	6	--	7	29
Nemouridae	--	--	--	8
Peltoperlidae				
Tallaperla	--	--	1	--
Perlidae				
Acroneuria	3	--	4	3
Agnetina	3	--	--	--
Perlodidae				
Isoperla	1	--	--	--
Taeniopterygidae				
Strophopteryx	--	--	--	2
Taeniopteryx	21	--	7	--
Megaloptera				
Corydalidae				
Nigronia	--	--	4	4

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK
(Reference Stations)

BIOLOGICAL DATA, WATER YEAR **OCTOBER 2002 TO SEPTEMBER 2003**
BENTHIC MACROINVERTEBRATES

Station number	01564515	01567795	01573750	01577180
Date	12/16/02	12/12/02	12/12/02	12/19/02
Benthic macroinvertebrate	Count	Count	Count	Count
Trichoptera (CADDISFLIES)				
Glossosomatidae				
Glossosoma	--	16	--	--
Hydropsychidae				
Cheumatopsyche	13	--	4	5
Diplectrona	--	--	1	--
Hydropsyche	3	--	--	3
Lepidostomatidae				
Lepidostoma	--	--	2	--
Limnephilidae				
Pycnopsyche	2	--	--	--
Philopotamidae				
Chimarra	6	--	--	--
Dolophilodes	--	--	--	3
Polycentropodidae				
Psychomyiidae				
Psychomyia	--	1	2	--
Uenoidae				
Neophylax	--	--	1	2
Coleoptera (BEETLES)				
Elmidae (RIFFLE BEETLES)				
Dubiraphia	--	--	--	1
Optioservus	16	43	--	1
Oulimnius	--	--	2	--
Promoresia	2	--	1	1
Stenelmis	26	--	--	--
Psephenidae (WATER PENNIES)				
Psephenus	4	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK
(Reference Stations)

BIOLOGICAL DATA, WATER YEAR **OCTOBER 2002 TO SEPTEMBER 2003**
BENTHIC MACROINVERTEBRATES

Station number	01564515	01567795	01573750	01577180
Date	12/16/02	12/12/02	12/12/02	12/19/02
Benthic macroinvertebrate	Count	Count	Count	Count
Diptera (TRUE FLIES)				
Chironomidae (MIDGES)	13	3	17	62
Empididae (DANCE FLIES)				
Clinocera	--	1	--	--
Hemerodromia	1	--	--	--
Simuliidae (BLACK FLIES)	--	--	--	1
Prosimulium	--	--	2	2
Simulium	--	--	--	1
Tipulidae (CRANE FLIES)				
Hexatoma	--	--	1	--
Tipula	--	--	1	2
Total Organisms	202	231	97	154
Total Taxa	32	11	26	26

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
WATER-QUALITY AND FIELD MEASUREMENTS NEAR SHIPPENSBURG, PENNSYLVANIA

The following pages contain data collected from 20 streams and 46 wells near Shippensburg, Pennsylvania. The measurements were made to provide data for simulation of ground water flow, which is being used to determine contributing areas to the Shippensburg Municipal Supply wells. Continuous water-level measurements were also collected at well CU970 for a period of 9 months. For additional information, contact Bruce Lindsey at the USGS Pennsylvania Water Science Center, 215 Limekiln Road, New Cumberland, PA 19070; 717-730-6964, (email: blindsey@usgs.gov).

TABLE 3.--Shippensburg project surface-water-quality station list.

SITE-ID	STATION NAME	LATITUDE	LONGITUDE	LAT/LONG DATUM	DRAINAGE AREA
015693102	Furnace Run US Shirley Run near Mainsville, PA	395951.6	0773031.5	NAD83	2.55
015693103	Shirley Run near Mainsville, PA	395956.2	0773021.3	NAD83	1.24
015693104	Furnace Run at Mainsville, PA	400038.9	0773113.0	NAD83	7.13
015693108	Furnace Run near Mainsville, PA	400140.8	0773132.0	NAD83	8.03
015693112	Middle Spring Creek at Shippensburg, PA	400241.2	0773109.2	NAD27	18.3
015693116	Gum Run near County Line near Mainsville, PA	400039.8	0772831.4	NAD83	.74
015693120	Gum Run US Interstate 81 near Mainsville, PA	400102.7	0772924.1	NAD83	1.38
015693122	Unnamed tributary to Gum Run near Mainsville, PA	400100.5	0772930.4	NAD83	--
015693124	Gum Run at Interstate 81 near Shippensburg, PA	400157.5	0773004.6	NAD83	4.12
015693128	Mains Run at Michaux State Forest nr Mainsville	395959.1	0772917.3	NAD83	--
015693132	Mains Run near Mainsville, PA	400043.0	0772957.9	NAD83	1.41
015693136	Mains Run DS intermittent trib at Mainsville, PA	400131.9	0773034.1	NAD83	2.19
015693158	Middle Spring Cr ab Burd Run bl Shippensburg, PA	400342	0773158	NAD27	20.7
015693165	Thomson Creek at Long Mountain nr Cleversburg, PA	400128.1	0772659.6	NAD83	2.76
015693168	Thomson Creek near Cleversburg, PA	400225.9	0772657.5	NAD83	3.62
015693170	Thomson Creek at Cleversburg Junction, PA	400300	0772738	NAD27	5.05
015693182	Reservoir Hollow near Cleversburg, PA	400054.2	0772738.2	NAD83	3.98
015693186	Reservoir Hollow at Cleversburg, PA	400210.7	0772802.1	NAD83	4.77
015693190	Reservoir Hollow at RR Bridge near Cleversburg, PA	400258.2	0772838.9	NAD83	5.76
015693195	Burd Run at Shippensburg Univ. at Shippensburg, PA	400356.0	0773107.3	NAD83	19.0

TABLE 4.--Shippensburg project ground-water-quality station list.

SITE-ID	LOCAL WELL NUMBER	LATITUDE	LONGITUDE	LAT/LONG DATUM	DEPTH OF WELL (FEET)
400102077292201	CU 604	400102	0772922	NAD27	235
400200077300101	CU 605	400200	0773001	NAD27	110
400152077293301	CU 612	400152	0772933	NAD27	125
400252077272101	CU 907	400253.4	0772720.0	NAD83	129
400249077281601	CU 952	400249.48	0772816.23	NAD83	273
400240077281201	CU 953	400240.42	0772811.78	NAD83	285
400214077290701	CU 954	400213.82	0772906.89	NAD83	198
400110077292801	CU 955	400109.64	0772928.02	NAD83	273
400313077282901	CU 957	400312.77	0772828.88	NAD83	180
400137077292301	CU 958	400136.89	0772922.95	NAD83	73
400226077275201	CU 959	400226.41	0772751.87	NAD83	252
400236077264901	CU 960	400236.02	0772648.86	NAD83	250
400145077285501	CU 961	400145.33	0772854.81	NAD83	246
400303077282501	CU 963	400302.52	0772824.84	NAD83	248
400159077292601	CU 968	400159.01	0772925.61	NAD83	200

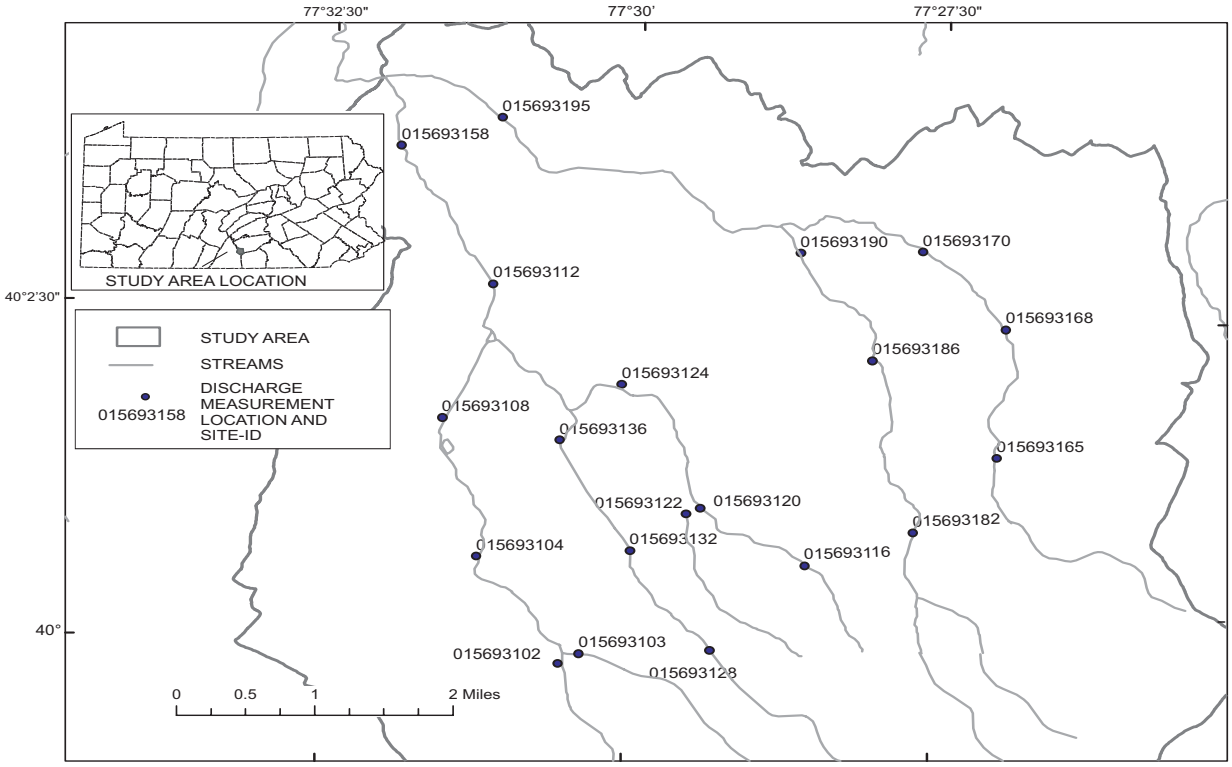


Figure 8.--Locations of stream sites where water-quality samples were collected for the Shippensburg project.

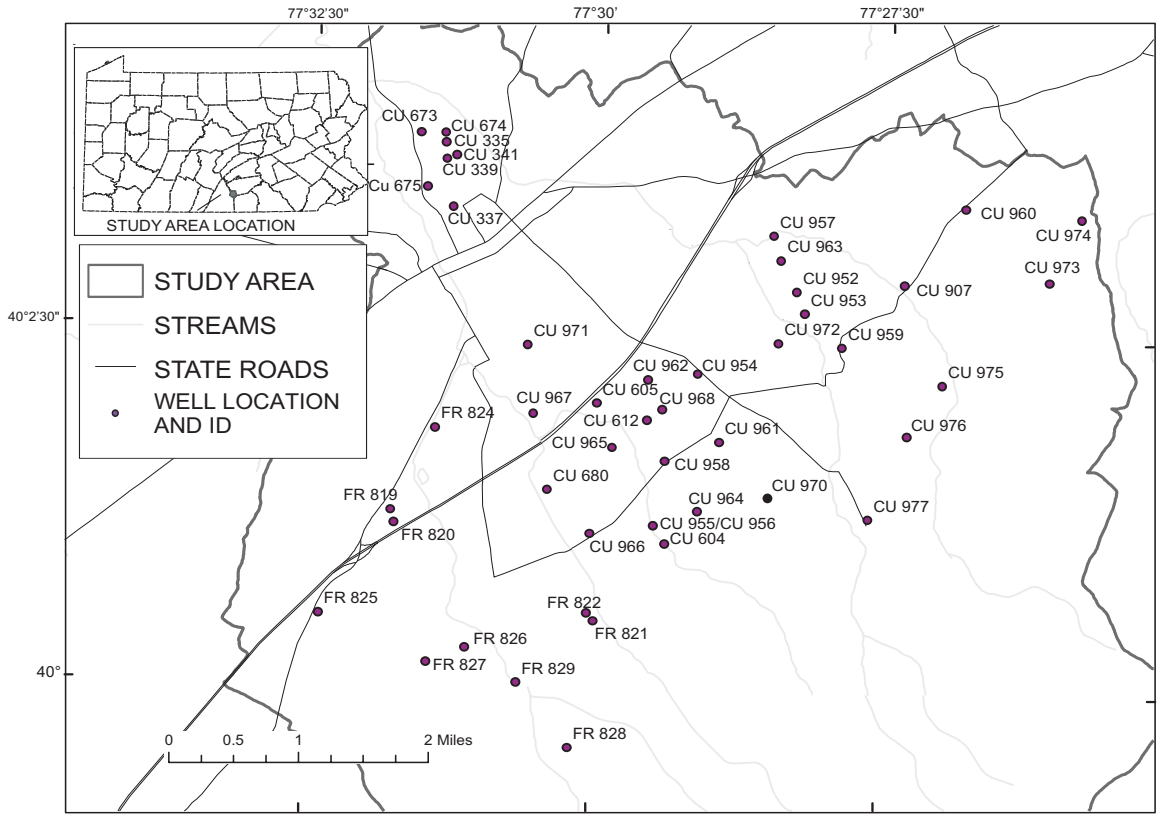


Figure 9.--Locations of wells where water levels were measured or water-quality samples were collected for the Shippensburg project.

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
WATER-QUALITY AND FIELD MEASUREMENTS NEAR SHIPPENSBURG, PENNSYLVANIA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf µS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)
015693102	Furnace Run US Shirley Run near Mainsville, PA							
NOV 2003								
17...	1300	1028	1028	1.7	5.5	30	10.0	.0
015693103	Shirley Run near Mainsville, PA							
NOV 2003								
14...	1441	1028	1028	.92	4.9	31	7.5	.0
015693104	Furnace Run at Mainsville, PA							
NOV 2003								
14...	1542	1028	1028	2.5	6.4	37	7.3	2
015693108	Furnace Run near Mainsville, PA							
NOV 2003								
14...	1646	1028	1028	1.5	6.7	39	6.8	2
015693112	Middle Spring Creek at Shippensburg, PA							
NOV 2003								
17...	1128	1028	1028	4.3	7.7	352	10.5	120
015693116	Gum Run near County Line near Mainsville, PA							
NOV 2003								
17...	1233	1028	1028	.53	4.2	33	9.3	.0
015693120	Gum Run US Interstate 81 near Mainsville, PA							
NOV 2003								
17...	1333	1028	1028	.43	4.5	26	11.3	.0
015693122	Unnamed tributary to Gum Run near Mainsville, PA							
NOV 2003								
17...	1200	1028	1028	.20	6.2	58	11.6	8
015693124	Gum Run at Interstate 81 near Shippensburg, PA							
NOV 2003								
17...	1400	1028	1028	.28	7.1	313	10.3	107
015693128	Mains Run at Michaux State Forest nr Mainsville, PA							
NOV 2003								
17...	1326	1028	1028	1.4	5.0	34	7.3	.0
015693132	Mains Run near Mainsville, PA							
NOV 2003								
14...	1214	1028	1028	1.4	5.5	33	7.1	.0
015693136	Mains Run DS intermittent trib at Mainsville, PA							
NOV 2003								
14...	1052	1028	1028	1.1	7.2	41	5.7	2
015693158	Middle Spring Cr ab Burd Run bl Shippensburg, PA							
NOV 2003								
17...	1019	1028	1028	14.0	8.0	487	11.5	122

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
WATER-QUALITY AND FIELD MEASUREMENTS NEAR SHIPPENSBURG, PENNSYLVANIA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency col-lecting sample, code (00027)	Agency ana-lyzing sample, code (00028)	Instan-taneous dis-charge, cfs (00061)	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unf µS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)
015693165	Thomson Creek at Long Mountain nr Cleversburg, PA							
NOV 2003								
14...	1215	1028	1028	1.4	4.0	34	7.6	.0
015693168	Thomson Creek near Cleversburg, PA							
NOV 2003								
14...	1033	1028	1028	2.5	4.5	30	6.5	1
015693170	Thomson Creek at Cleversburg Junction, PA							
NOV 2003								
14...	0932	1028	1028	1.9	5.1	31	5.2	.0
015693182	Reservoir Hollow near Cleversburg, PA							
NOV 2003								
14...	1305	1028	1028	7.2	5.1	37	7.0	1
015693186	Reservoir Hollow at Cleversburg, PA							
NOV 2003								
14...	1349	1028	1028	6.9	6.0	46	7.5	5
015693190	Reservoir Hollow at RR Bridge near Cleversburg, PA							
NOV 2003								
14...	1434	1028	1028	5.5	6.5	49	7.4	6
015693195	Burd Run at Shippensburg Univ. at Shippensburg, PA							
NOV 2003								
17...	0830	1028	1028	9.3	7.9	498	10.6	190

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
WATER-QUALITY AND FIELD MEASUREMENTS NEAR SHIPPENSBURG, PENNSYLVANIA

REMARKS.--NAD27: North American Datum of 1927; NAD83: North American Datum of 1983; Geologic codes: 377ANTM, Antietam Formation; 377TMSN, Tomstown Formation; 377WSBR, Waynesboro Formation; 371ELBK, Elbrook Formation; 371ZLGR, Zullinger Formation; 367RCKR, Rockdale Run Formation;111CLVM, Colluvium.

WATER-LEVEL MEASUREMENTS AT GROUND-WATER WELLS

Date	Station Number	Local Identifier		Latitude	Longitude	Datum	Geologic Unit	Well Depth	Water Level
6-Jan-2004	400350077312201	CU	335	400350.0	773122.0	NAD27	367RCKR	68	9.3
6-Jan-2004	400322077311701	CU	337	400322.0	773117.0	NAD27	367RCKR	142	14.9
6-Jan-2004	400342077312101	CU	339	400342.0	773121.0	NAD27	367RCKR	105	22.6
6-Jan-2004	400344077311701	CU	341	400344.0	773117.0	NAD27	367RCKR	105	29.9
21-Nov-2003	400102077292201	CU	604	400102.0	772922.0	NAD27	377TMSN	235	106
24-Nov-2003	400200077300101	CU	605	400200.0	773001.0	NAD27	371ELBK	110	26.1
21-Nov-2003	400152077293301	CU	612	400152.0	772933.0	NAD27	371ELBK	125	35.4
23-Jan-2004	400353077313501	CU	673	400353.0	773135.0	NAD27	367RCKR	144	34.0
23-Jan-2004	400353077312201	CU	674	400353.0	773122.0	NAD27	367RCKR	60	9.0
23-Jan-2004	400330077313001	CU	675	400330.1	773130.9	NAD83	367RCKR	150	9.3
5-Dec-2003	400123077302501	CU	680	400123.0	773025.0	NAD27	367RCKR	97	9.3
5-Dec-2003	400252077272101	CU	907	400253.4	772720.0	NAD83	371ELBK	129	48.9
24-Nov-2003	400249077281601	CU	952	400249.5	772816.2	NAD83	371ELBK	273	60.8
24-Nov-2003	400240077281201	CU	953	400240.4	772811.8	NAD83	371ELBK	285	57.8
21-Nov-2003	400214077290701	CU	954	400213.8	772906.9	NAD83	371ELBK	198	79.1
21-Nov-2003	400110077292801	CU	955	400109.6	772928.0	NAD83	377WSBR	273	80.3
21-Nov-2003	400110077292802	CU	956	400109.7	772928.0	NAD83	111CLVM	30	10.5
21-Nov-2003	400313077282901	CU	957	400312.8	772828.9	NAD83	371ZLGR	180	10.9
24-Nov-2003	400137077292301	CU	958	400136.9	772923.0	NAD83	371ELBK	73	22.9
24-Nov-2003	400226077275201	CU	959	400226.4	772751.9	NAD83	371ELBK	252	115.4
24-Nov-2003	400236077264901	CU	960	400236.0	772648.9	NAD83	371ELBK	250	87.9
24-Nov-2003	400145077285501	CU	961	400145.3	772854.8	NAD83	377WSBR	246	149
3-Dec-2003	400211077293301	CU	962	400211.0	772932.7	NAD83	371ELBK	100	66.3
21-Nov-2003	400303077282501	CU	963	400302.5	772824.8	NAD83	371ZLGR	248	38.0
17-Nov-2003	400116077290601	CU	964	400116.0	772906.1	NAD83	377WSBR	248	129.5
5-Dec-2003	400142077295101	CU	965	400142.0	772950.5	NAD83	371ELBK	181	21.3
5-Dec-2003	400106077300101	CU	966	400105.6	773001.2	NAD83	377WSBR	180	81.4
5-Dec-2003	400156077303201	CU	967	400155.7	773032.2	NAD83	371ELBK	120	21.0
21-Nov-2003	400159077292601	CU	968	400159.0	772925.6	NAD83	371ELBK	200	62.0
1-Jul-2003	400122077282801	CU	970	400122.5	772828.4	NAD83	377TMSN	395	148.6
23-Feb-2003	400225077303601	CU	971	400224.5	773036.3	NAD83	371ELBK	148	25.2
10-Mar-2003	400028077282501	CU	972	400027.6	772825.2	NAD83	371ELBK	170	57.2
10-Mar-2004	400256077260401	CU	973	400255.7	772604.3	NAD83	377TMSN	273	145.9
10-Mar-2004	400323077254801	CU	974	400322.7	772548.2	NAD83	377WSBR	240	156.7
23-Feb-2004	400211077265901	CU	975	400211.4	772658.8	NAD83	377TMSN	448	157.1
25-Feb-2004	400150077271701	CU	976	400149.5	772716.8	NAD83	377ANTM	475	264.1
6-Apr-2004	400114077273601	CU	977	400114.1	772736.4	NAD83	377ANTM	480	245.2
5-Dec-2003	400114077314601	FR	819	400113.7	773145.5	NAD83	371ELBK	68	44.7
5-Dec-2003	400111077314501	FR	820	400110.7	773145.1	NAD83	371ELBK	109	44.9
5-Dec-2003	400029077295801	FR	821	400028.7	772958.2	NAD83	377TMSN	302	118.9
5-Dec-2003	400030077295801	FR	822	400030.3	772957.7	NAD83	377TMSN	200	115.1
10-Mar-2004	400149077312301	FR	824	400148.7	773123.5	NAD83	371ELBK	62	32.3
10-Mar-2004	400030077322201	FR	825	400029.6	773221.8	NAD83	371ELBK	140	15.5
22-Feb-2004	400017077310601	FR	826	400016.9	773105.6	NAD83	377WSBR	180	19.9
23-Feb-2004	400010077312601	FR	827	400010.2	773125.9	NAD83	377WSBR	140	9.0
6-Apr-2004	400002077303801	FR	829	400002.1	773037.5	NAD83	377TMSN	315	90.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
WATER-QUALITY AND FIELD MEASUREMENTS NEAR SHIPPENSBURG, PENNSYLVANIA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

MISCELLANEOUS STATION ANALYSES

Date	Time	Depth to water level, feet below LSD (72019)	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unf µS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)
400102077292201 CU 604						
NOV 2003						
21...	0900	106.40	4.0	6.5	222	11.6
400110077292801 CU 955						
NOV 2003						
21...	0800	80.30	3.5	7.3	210	11.3
400137077292301 CU 958						
NOV 2003						
24...	1600	22.90	2.6	7.0	314	12.2
400145077285501 CU 961						
NOV 2003						
24...	1500	149.00	4.5	7.0	572	--
400152077293301 CU 612						
NOV 2003						
21...	1200	35.40	2.5	7.1	599	12.1
400159077292601 CU 968						
NOV 2003						
21...	1400	62.00	4.6	7.2	448	11.7
400200077300101 CU 605						
NOV 2003						
24...	0900	26.10	5.8	7.4	255	11.5
400214077290701 CU 954						
NOV 2003						
21...	1400	79.10	3.2	7.2	454	12.1
400226077275201 CU 959						
NOV 2003						
24...	1200	115.40	4.3	7.2	232	11.6
400236077264901 CU 960						
NOV 2003						
24...	1230	87.90	3.8	7.4	242	--
400240077281201 CU 953						
NOV 2003						
24...	1100	57.80	2.1	7.4	192	11.9
400249077281601 CU 952						
NOV 2003						
24...	0900	60.80	6.6	7.0	264	12.2
400252077272101 CU 907						
NOV 2003						
17...	1100	48.95	--	7.0	269	--
400303077282501 CU 963						
NOV 2003						
21...	1600	36.40	2.1	7.6	211	11.8
400313077282901 CU 957						
NOV 2003						
21...	1600	10.90	2.1	7.3	363	13.7

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
WATER-QUALITY AND FIELD MEASUREMENTS NEAR SHIPPENSBURG, PENNSYLVANIA

CUMBERLAND COUNTY

400122077282801. Local number, CU 970.

LOCATION.--Lat 40°01'22", long 77°28'28", Hydrologic Unit 02050305.
Owner: Shippensburg Borough Authority.
AQUIFER.--Tomstown Formation.
WELL CHARACTERISTICS.--Drilled observation well, diameter 12 in., depth 395 ft, cased to 250 ft, open hole.
INSTRUMENTATION.--Electronic data logger with 60-minute recording interval.
DATUM.--Elevation of land surface is 870 ft above National Geodetic Vertical Datum of 1929, from topographic map.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels are also available from the USGS Pennsylvania Water Science Center.
PERIOD OF RECORD.--October 1, 2003 to May 4, 2004. (Discontinued)
EXTREMES FOR CURRENT YEAR.--The extremes are based on the instantaneous depth below land-surface datum. Highest water level, 134.91 ft below land-surface datum, May 5; lowest, 151.31 ft below land-surface datum, Oct. 25, 30, 31.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	150.99	151.10	149.54	145.09	143.35	142.90	139.46	135.56	---	---	---	---
2	150.94	151.00	149.80	144.72	143.40	142.76	139.47	135.20	---	---	---	---
3	150.92	150.89	150.02	144.47	143.17	142.73	139.31	135.22	---	---	---	---
4	150.64	150.87	149.91	144.29	143.44	142.40	139.08	135.21	---	---	---	---
5	150.67	150.83	149.62	144.12	143.67	142.01	139.16	---	---	---	---	---
6	150.70	150.80	149.54	144.28	143.22	141.53	---	---	---	---	---	---
7	150.73	150.84	149.56	144.25	142.97	141.38	138.92	---	---	---	---	---
8	150.74	151.02	149.82	144.13	143.38	141.10	138.78	---	---	---	---	---
9	150.78	151.11	149.91	144.00	143.29	141.25	138.79	---	---	---	---	---
10	150.83	150.87	149.60	143.99	143.12	141.25	138.71	---	---	---	---	---
11	150.77	150.73	149.23	143.81	143.22	140.96	138.57	---	---	---	---	---
12	150.56	150.48	149.64	143.51	143.21	140.73	138.45	---	---	---	---	---
13	150.69	150.34	149.53	143.51	143.15	140.93	138.08	---	---	---	---	---
14	150.54	150.59	148.76	143.53	143.00	140.70	137.94	---	---	---	---	---
15	150.45	150.69	148.33	143.58	143.11	140.64	138.11	---	---	---	---	---
16	150.78	150.78	148.17	143.62	143.37	140.56	138.09	---	---	---	---	---
17	150.89	150.78	147.62	143.52	143.44	140.41	137.81	---	---	---	---	---
18	150.83	150.77	147.35	142.96	143.21	140.55	137.61	---	---	---	---	---
19	150.76	150.30	147.24	143.06	142.97	140.65	137.30	---	---	---	---	---
20	150.85	150.43	147.22	143.31	142.79	140.44	137.12	---	---	---	---	---
21	150.48	150.52	147.16	143.36	142.63	140.12	136.90	---	---	---	---	---
22	150.52	150.57	146.81	143.03	142.91	140.32	136.83	---	---	---	---	---
23	150.68	150.51	146.54	143.13	143.01	140.44	136.70	---	---	---	---	---
24	151.03	150.26	146.21	143.04	142.89	140.46	136.64	---	---	---	---	---
25	151.20	150.44	146.06	143.23	143.06	140.43	136.49	---	---	---	---	---
26	150.96	150.31	145.89	143.13	143.22	140.32	136.08	---	---	---	---	---
27	150.65	150.15	145.82	142.91	143.24	140.15	135.88	---	---	---	---	---
28	150.73	149.50	145.72	142.91	143.14	140.12	136.03	---	---	---	---	---
29	150.81	149.37	145.41	143.01	142.96	140.07	135.94	---	---	---	---	---
30	151.22	149.51	145.15	142.91	---	140.00	135.79	---	---	---	---	---
31	151.19	---	145.21	143.10	---	139.77	---	---	---	---	---	---
MEAN	150.79	150.55	147.95	143.60	143.16	140.91	137.73	135.30	---	---	---	---
MAX	151.22	151.11	150.02	145.09	143.67	142.90	139.47	135.56	---	---	---	---
MIN	150.45	149.37	145.15	142.91	142.63	139.77	135.79	135.20	---	---	---	---

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. 10). 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 1995-2004, 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.

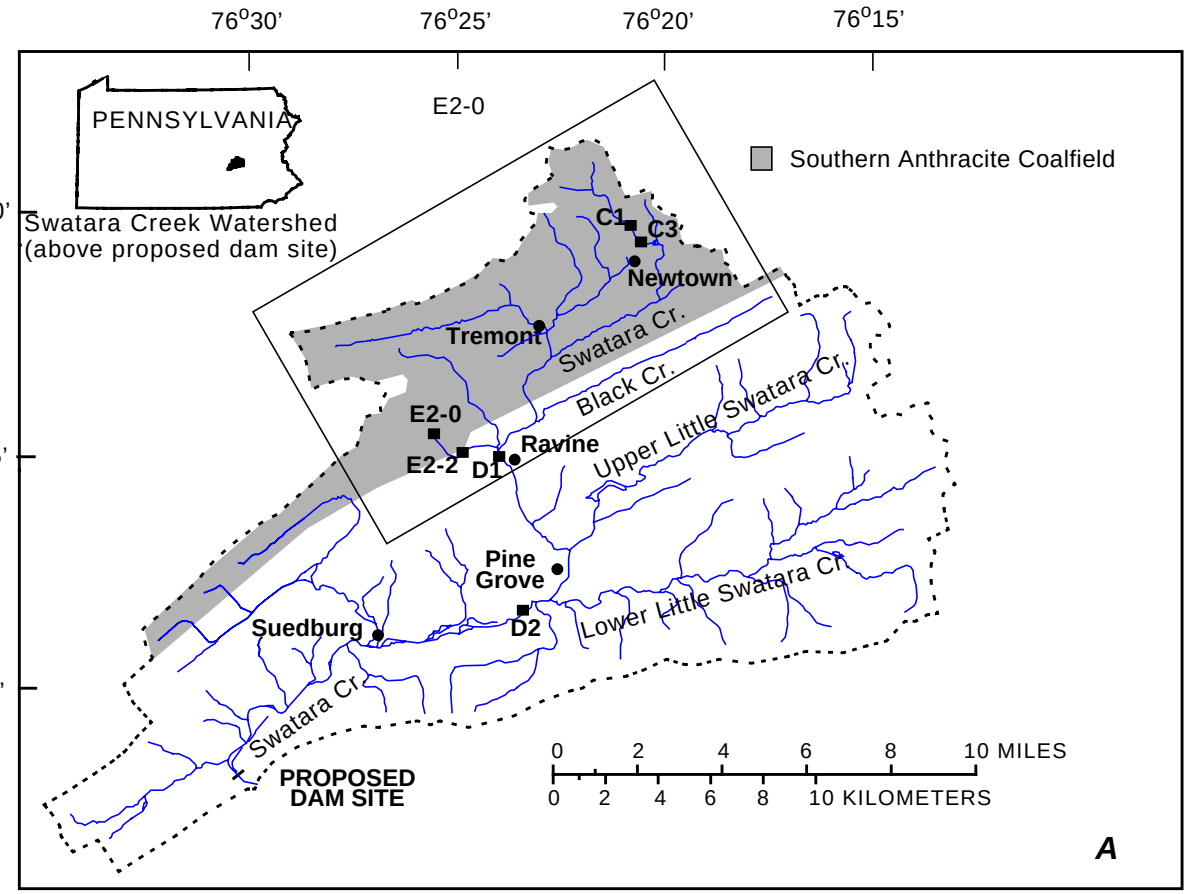
Limestone sand dosing and open limestone channels are the simplest treatment systems where limestone is added directly to the stream channel semiannually or less frequently. Limestone sand, which can dissolve rapidly because of its small size (<1/8 inch), was dumped into Coal Run (14 tons) between stations C4 and C6 on September 4, 1996, and into Lorberry Creek (150 tons) below station E2 on February 13-14, 1997 (fig. 10). An open limestone channel was constructed within a 110-ft long segment of Swatara Creek at station B2 (fig. 10) 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. 10).

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. 10); 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 254-310. For additional information, contact Charles Cravotta at the USGS Pennsylvania Water Science Center, 215 Limekiln Road, New Cumberland, PA 17070; 717-730-6963 (email: cravotta@usgs.gov).



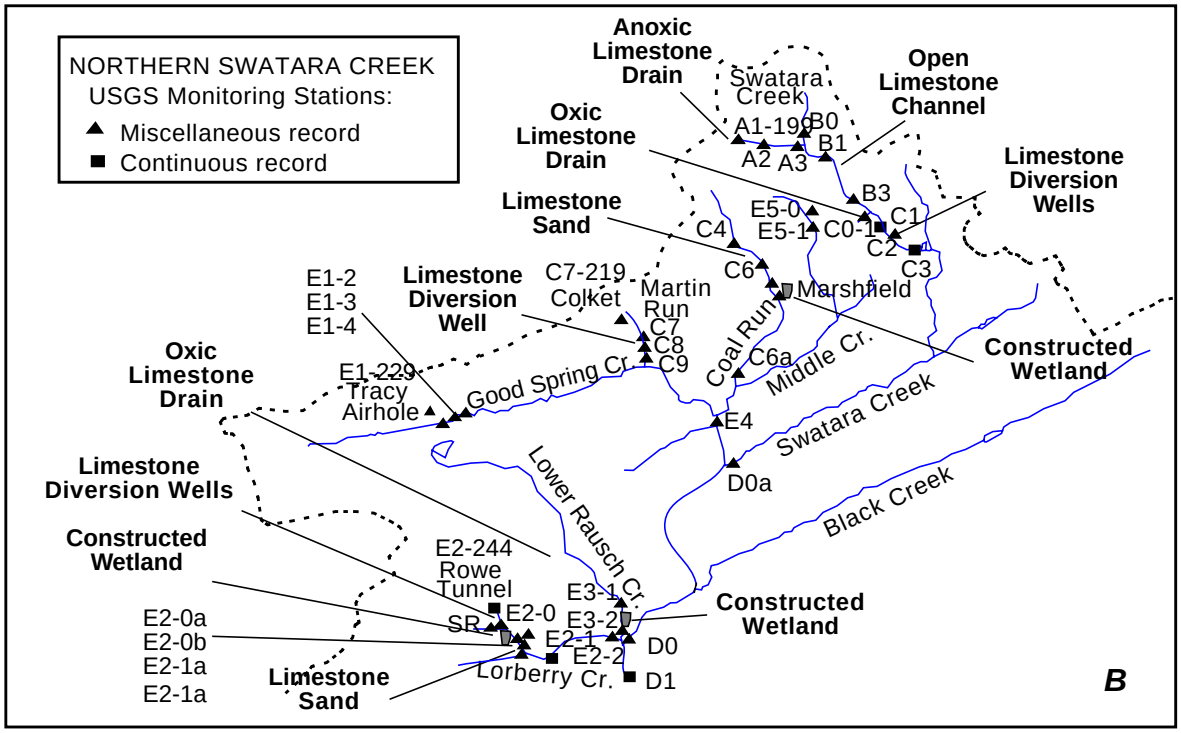


Figure 10.--Locations of water-quality and streamflow monitoring stations in the Swatara Creek Basin, Lebanon and Schuylkill Counties, Pennsylvania: *A*, continuous monitoring stations on Swatara Creek above the proposed dam for Swatara State Park Reservoir; B, monitoring stations within the Southern 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
		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
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"	
	0157177614	LORBERRY CR WETLANDS CELL 2 OUTFLOW AT LORBERRY	40°35′28"	76°26′20"	
	0157177618	LORBERRY CR WETLANDS CELL 4 OUTFLOW AT LORBERRY	40°35′27"	76°26′19"	
	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.
	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 2003 TO SEPTEMBER 2004

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										
29...	1315	1028	89203	.01	388	.0	.3	3	4.9	4.9
JAN										
05...	1330	1028	89203	.02	213	.0	2.2	20	4.9	4.8
MAR										
04...	1315	1028	89203	.01	155	.0	1.6	14	4.6	5.0
APR										
21...	1315	1028	89203	.02	408	.0	1.2	11	5.0	5.0
JUN										
03...	1245	1028	89203	.02	400	.8	1.1	10	5.1	4.9
JUL										
21...	1245	1028	89203	.02	404	16	2.5	25	5.0	4.9
SEP										
08...	1215	1028	89203	.01	389	.0	1.7	16	5.1	4.9

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										
29...	206	10.9	3.60	3.60	7.20	7.40	1.40	1.40	12.9	13.1
JAN										
05...	212	9.30	3.80	3.90	8.00	8.20	1.50	1.50	11.7	12.0
MAR										
04...	201	9.60	3.60	3.30	6.40	6.40	1.30	1.30	10.9	11.3
APR										
21...	223	9.60	4.00	3.90	7.40	7.50	1.40	1.40	11.6	11.5
JUN										
03...	208	9.90	3.90	3.90	7.50	7.60	1.50	1.50	12.1	11.8
JUL										
21...	206	10.5	3.50	3.70	6.50	6.80	1.30	1.30	10.6	11.0
SEP										
08...	191	11.2	3.70	3.60	6.90	6.80	1.50	1.40	12.2	11.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

404032076222901 -- WM Carl Buck Mtn Mine, Site A1-199, nr Newtown, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
29...	3.60	14.9	<.010	59.7	.010	<.030	<.020	500	500	.060
JAN										
05...	3.10	16.6	<.010	62.4	.010	<.030	<.020	500	500	.070
MAR										
04...	3.60	15.1	--	56.8	--	--	--	400	400	--
APR										
21...	4.10	17.2	--	70.0	--	--	--	500	500	--
JUN										
03...	3.30	17.9	--	63.8	--	--	--	500	500	--
JUL										
21...	3.30	16.3	--	39.0	.040	--	--	400	400	--
SEP										
08...	3.80	17.8	<.010	57.9	.030	<.030	<.020	300	300	.060

Date	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								
29...	11300	11700	1190	1220	80.0	76.0	168	165
JAN								
05...	11100	11400	1260	1300	88.0	89.0	208	207
MAR								
04...	9890	9910	1170	1170	70.0	70.0	160	160
APR								
21...	12300	12700	1070	1060	85.0	85.0	180	185
JUN								
03...	11800	11900	1190	1200	85.0	85.0	175	175
JUL								
21...	8280	8670	1140	1180	80.0	82.0	92.0	103
SEP								
08...	13200	12700	1180	1140	70.0	70.0	150	140

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 2003 TO SEPTEMBER 2004

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										
29...	1330	1028	89203	.11	272	.0	.4	3	6.4	6.6
JAN										
05...	1315	1028	89203	.07	79	29	1.8	17	6.3	6.7
MAR										
04...	1300	1028	89203	.03	52	.0	.8	7	6.0	6.8
APR										
21...	1300	1028	89203	.07	277	.0	.6	5	6.8	6.5
JUN										
03...	1230	1028	89203	.04	256	.8	.8	7	6.8	6.9
JUL										
21...	1230	1028	89203	.13	266	.0	1.0	9	6.5	6.5
SEP										
08...	1200	1028	89203	.02	224	.0	.8	8	6.7	6.7

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										
29...	288	13.3	30.7	31.7	6.20	6.40	1.60	1.60	14.3	14.3
JAN										
05...	280	11.0	31.4	31.9	6.20	6.30	1.50	1.50	11.7	12.1
MAR										
04...	295	9.60	33.3	33.0	5.30	5.30	1.40	1.40	11.9	11.9
APR										
21...	311	9.36	33.0	33.3	6.20	6.20	1.50	1.50	12.6	12.4
JUN										
03...	290	9.38	34.9	36.0	6.00	6.20	1.50	1.50	12.1	12.6
JUL										
21...	290	10.1	36.7	35.4	5.50	5.40	1.40	1.40	12.0	11.7
SEP										
08...	275	11.7	37.0	36.1	5.50	5.30	1.50	1.50	12.2	12.1

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157154970 -- NW Trib to Swatara Cr, Site A2, near Newtown, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
29...	7.50	16.7	<.010	47.7	.020	<.030	<.020	<100	<100	.050
JAN										
05...	65.3	15.6	<.010	48.7	.010	<.030	<.020	100	100	.070
MAR										
04...	76.0	16.3	--	44.4	--	--	--	200	200	--
APR										
21...	6.50	17.6	--	56.0	--	--	--	<100	<100	--
JUN										
03...	17.0	17.4	--	48.9	--	--	--	<100	<100	--
JUL										
21...	7.50	13.7	--	43.1	.080	--	--	<100	<100	--
SEP										
08...	69.0	18.3	<.010	41.4	.050	<.030	<.020	<100	<100	.050

Date	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								
29...	8200	8430	1160	1200	51.0	65.0	140	147
JAN								
05...	8040	8260	1100	1130	60.0	58.0	137	138
MAR								
04...	5980	5950	1060	1050	50.0	50.0	110	110
APR								
21...	8750	8850	1040	1010	65.0	65.0	145	150
JUN								
03...	6930	7170	1080	1090	55.0	60.0	120	125
JUL								
21...	4960	4670	1090	1070	55.0	54.0	73.0	73.0
SEP								
08...	7260	6960	1030	1000	50.0	45.0	105	95.0

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 2003 TO SEPTEMBER 2004

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										
29...	1300	1028	89203	8.4	318	340	10.8	97	6.4	6.4
JAN										
05...	1300	1028	89203	5.2	163	73	10.4	83	6.1	6.7
MAR										
04...	1230	1028	89203	1.1	139	16	12.4	98	5.6	6.8
APR										
21...	1200	1028	89203	.82	254	5.1	11.2	100	7.3	6.6
JUN										
03...	1200	1028	89203	1.1	213	19	10.0	93	7.2	6.6
JUL										
21...	1200	1028	89203	1.1	217	42	10.4	101	6.2	6.7
SEP										
08...	1130	1028	89203	1.1	291	100	10.3	100	6.6	7.3

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										
29...	116	10.7	7.90	7.90	3.10	3.20	2.00	2.00	7.60	7.70
JAN										
05...	127	6.00	8.70	8.80	3.40	3.50	1.60	1.60	5.90	5.90
MAR										
04...	141	5.30	12.3	12.1	3.70	3.70	1.50	1.50	7.00	6.70
APR										
21...	217	10.4	16.3	16.4	6.00	5.90	1.40	1.30	10.8	10.6
JUN										
03...	199	12.1	17.3	17.9	6.00	6.10	1.40	1.40	10.1	10.0
JUL										
21...	209	14.1	17.7	18.0	5.50	5.60	1.40	1.50	9.60	9.80
SEP										
08...	212	14.1	21.5	21.4	6.10	6.10	1.50	1.60	11.3	11.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157154972 -- NW Trib to Swatara Cr, Site A3, near Newtown, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
29...	11.0	8.40	<.010	25.3	.110	<.030	<.020	<100	700	.125
JAN										
05...	10.7	8.03	<.010	29.1	.260	<.030	<.020	100	300	.030
MAR										
04...	17.0	9.22	--	30.7	--	--	--	200	300	--
APR										
21...	14.4	15.2	--	53.9	--	--	--	<100	200	--
JUN										
03...	7.00	15.3	--	49.5	--	--	--	<100	200	--
JUL										
21...	17.2	13.6	--	43.2	.080	--	--	<100	200	--
SEP										
08...	26.8	16.2	<.010	49.3	.170	<.030	<.020	<100	200	.040

Date	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								
29...	1330	2320	590	610	25.0	15.0	64.0	77.0
JAN								
05...	2040	2380	560	580	23.0	26.0	82.0	90.0
MAR								
04...	1210	1330	660	650	25.0	25.0	70.0	70.0
APR								
21...	3160	4140	820	800	55.0	55.0	100	115
JUN								
03...	1670	3490	830	830	50.0	50.0	65.0	90.0
JUL								
21...	710	2510	800	820	47.0	49.0	31.0	53.0
SEP								
08...	260	7190	760	790	40.0	45.0	30.0	95.0

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 2003 TO SEPTEMBER 2004

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										
29...	1245	1028	89203	8.4	512	23	10.9	96	4.2	4.4
JAN										
05...	1245	1028	89203	4.9	271	5.0	10.2	80	4.2	4.4
MAR										
04...	1215	1028	89203	3.4	278	1.0	12.8	98	4.2	4.4
APR										
21...	1145	1028	89203	2.1	506	1.2	11.2	100	4.3	4.5
JUN										
03...	1145	1028	89203	3.0	462	3.3	9.6	92	4.4	4.4
JUL										
21...	1145	1028	89203	.45	454	2.7	9.8	100	4.3	4.2
SEP										
08...	1115	1028	89203	2.1	511	10	9.3	96	4.3	4.2

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										
29...	70.0	9.90	.900	.800	.700	.700	1.00	1.00	5.60	5.70
JAN										
05...	85.0	5.00	1.20	1.20	1.00	1.00	.700	.700	6.00	6.00
MAR										
04...	77.0	4.00	1.10	1.10	1.00	1.00	.500	.500	6.00	5.70
APR										
21...	82.0	10.5	1.20	1.20	1.10	1.10	.500	.500	5.50	5.40
JUN										
03...	79.0	13.4	1.20	1.10	1.10	1.10	.500	.500	6.00	6.00
JUL										
21...	85.0	16.5	1.00	1.00	1.00	1.00	.300	.300	5.80	5.90
SEP										
08...	77.0	16.9	1.10	1.00	1.20	1.20	.500	.500	5.50	5.40

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157154960 -- Swatara Creek, ab NW Trib, Site B0, nr Newtown, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
29...	.000	6.60	<.010	9.67	.060	<.030	<.020	700	800	.060
JAN										
05...	.000	10.2	<.010	11.4	.140	<.030	<.020	600	600	.060
MAR										
04...	.000	9.79	--	10.6	--	--	--	700	700	--
APR										
21...	.200	9.66	--	11.7	--	--	--	700	700	--
JUN										
03...	.000	11.6	--	10.2	--	--	--	900	900	--
JUL										
21...	.000	10.6	--	10.9	.050	--	--	900	1000	--
SEP										
08...	.000	10.8	.020	9.99	.060	<.030	<.020	600	600	.070

Date	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								
29...	210	290	150	150	<5.00	9.00	29.0	27.0
JAN								
05...	140	180	200	210	6.00	<5.00	36.0	33.0
MAR								
04...	140	160	200	200	<5.00	10.0	35.0	35.0
APR								
21...	110	160	150	150	10.0	10.0	40.0	45.0
JUN								
03...	140	180	190	190	10.0	10.0	40.0	40.0
JUL								
21...	110	190	190	190	9.00	10.0	24.0	25.0
SEP								
08...	150	330	230	230	10.0	10.0	35.0	35.0

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 2003 TO SEPTEMBER 2004

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										
29...	1230	1028	89203	17	479	110	11.0	98	4.9	5.0
JAN										
05...	1230	1028	89203	10	230	24	10.1	79	5.2	5.2
MAR										
04...	1200	1028	89203	4.5	245	6.0	12.8	99	5.0	5.3
APR										
21...	1100	1028	89203	2.9	389	6.2	11.4	101	6.2	6.1
JUN										
03...	1115	1028	89203	1.9	334	13	9.8	94	6.6	6.1
JUL										
21...	1130	1028	89203	1.5	308	24	9.8	100	6.3	6.3
SEP										
08...	1100	1028	89203	.99	379	16	9.8	100	6.5	6.4

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)
OCT										
29...	68.0	10.0	2.70	2.70	1.60	1.30	1.30	1.30	5.80	5.90
JAN										
05...	80.0	5.10	3.00	3.20	1.60	1.70	.900	1.00	6.00	5.80
MAR										
04...	73.0	4.30	3.10	3.00	1.50	1.40	.700	.700	6.10	6.20
APR										
21...	100	10.5	5.10	5.20	2.40	2.40	.700	.700	6.80	6.90
JUN										
03...	99.0	13.6	5.90	6.00	2.50	2.50	.700	.700	7.10	7.00
JUL										
21...	116	16.3	7.50	7.50	2.80	2.80	.700	.700	7.40	7.20
SEP										
08...	128	16.1	10.3	10.2	3.50	3.40	.900	.900	8.50	8.10

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157154984 -- Swatara Cr, bl NW Trib, Site B3, near Newtown, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
29...	3.00	6.73	<.010	14.0	.070	<.030	<.020	600	800	.050
JAN										
05...	1.90	9.31	<.010	17.3	.180	<.030	<.020	300	500	.040
MAR										
04...	2.30	9.35	--	16.1	--	--	--	500	600	--
APR										
21...	3.90	11.1	--	22.8	--	--	--	<100	600	--
JUN										
03...	4.00	12.3	--	21.9	--	--	--	200	700	--
JUL										
21...	4.50	11.5	--	23.8	.090	--	--	<100	700	--
SEP										
08...	8.70	13.2	.020	29.9	.090	<.030	<.020	200	400	.070

Date	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								
29...	450	850	270	270	11.0	<5.00	44.0	42.0
JAN								
05...	530	730	290	310	10.0	11.0	49.0	50.0
MAR								
04...	220	340	290	280	10.0	10.0	45.0	45.0
APR								
21...	820	1180	320	310	20.0	20.0	60.0	60.0
JUN								
03...	470	1100	360	370	20.0	25.0	50.0	55.0
JUL								
21...	210	1040	420	430	23.0	24.0	26.0	35.0
SEP								
08...	110	1030	410	410	20.0	20.0	30.0	40.0

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 2003 TO SEPTEMBER 2004

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										
29...	1200	1028	89203	2.8	542	1.0	10.7	96	3.6	3.7
JAN										
05...	1200	1028	89203	.30	375	2.0	9.0	80	3.6	3.8
MAR										
04...	1130	1028	89203	.22	380	1.0	10.5	92	3.7	3.8
APR										
21...	1045	1028	89203	.39	581	.0	11.0	98	3.5	3.8
JUN										
03...	1045	1028	89203	.15	511	.0	10.2	90	3.9	3.7
JUL										
21...	1045	1028	89203	.22	500	.0	11.3	100	3.6	3.6
SEP										
08...	1045	1028	89203	.19	541	1.0	10.8	96	3.8	4.3

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										
29...	442	10.1	7.90	7.90	28.7	28.9	1.60	1.60	5.10	5.10
JAN										
05...	387	10.1	6.80	7.00	24.9	25.8	1.60	1.60	4.60	4.70
MAR										
04...	433	9.60	7.40	7.40	26.9	26.8	1.60	1.70	5.80	6.00
APR										
21...	432	10.0	7.50	7.60	26.9	26.8	1.70	1.60	6.00	6.10
JUN										
03...	414	10.1	7.40	7.50	27.5	28.5	1.70	1.70	6.30	6.20
JUL										
21...	461	10.2	8.70	8.70	34.0	34.9	1.70	1.70	4.60	4.60
SEP										
08...	379	10.2	--	--	--	--	--	--	--	--

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 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
29...	.000	4.72	<.010	164	.080	<.030	<.020	4300	4200	.100
JAN										
05...	.000	5.01	<.010	143	.070	<.030	<.020	2700	2700	.130
MAR										
04...	.000	5.98	--	161	--	--	--	3500	3500	--
APR										
21...	.000	7.04	--	160	--	--	--	3400	3300	--
JUN										
03...	.000	6.91	--	162	--	--	--	4800	4800	--
JUL										
21...	.000	4.48	--	173	.060	--	--	5200	5200	--
SEP										
08...	.000	--	--	--	--	--	--	--	--	--

Date	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								
29...	620	250	1340	1350	117	120	293	288
JAN								
05...	130	140	1160	1200	98.0	102	267	279
MAR								
04...	170	180	1500	1500	115	115	305	305
APR								
21...	210	210	1080	1030	110	110	295	300
JUN								
03...	170	170	1280	1310	120	120	315	325
JUL								
21...	120	120	1570	1550	146	146	213	219
SEP								
08...	--	--	--	--	--	--	--	--

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 2003 TO SEPTEMBER 2004

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										
29...	1145	1028	89203	2.8	525	3.0	11.0	98	4.1	4.2
JAN										
05...	1145	1028	89203	.30	288	.0	9.3	81	4.3	4.4
MAR										
04...	1115	1028	89203	.22	313	.0	11.0	95	4.2	4.4
APR										
21...	1030	1028	89203	.39	522	.0	11.3	101	4.1	4.3
JUN										
03...	1030	1028	89203	.15	452	.6	10.4	94	4.7	4.4
JUL										
21...	1030	1028	89203	.22	470	.0	11.5	100	4.2	4.1
SEP										
08...	1030	1028	89203	.19	451	1.0	11.1	101	4.7	3.6

Date	Specif. conductance, 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)
OCT										
29...	382	10.1	11.8	11.3	29.3	27.7	1.50	1.70	5.20	4.90
JAN										
05...	333	9.40	10.6	11.2	24.3	25.8	1.60	1.70	4.30	5.00
MAR										
04...	374	9.10	11.0	11.1	26.3	26.1	1.60	1.60	5.60	5.90
APR										
21...	379	10.1	11.4	11.4	26.2	27.2	1.70	1.60	6.00	5.90
JUN										
03...	340	10.7	12.5	12.8	27.8	28.2	1.70	1.70	6.30	6.30
JUL										
21...	394	10.9	12.6	13.0	33.3	34.7	1.70	1.70	4.60	4.50
SEP										
08...	326	11.1	13.2	12.8	30.6	29.9	1.80	1.70	6.30	6.40

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 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
29...	.000	4.39	<.010	160	.100	<.030	<.020	4400	4100	.110
JAN										
05...	.000	4.89	<.010	140	.070	<.030	<.020	2500	2700	.110
MAR										
04...	.000	5.80	--	157	--	--	--	3400	3400	--
APR										
21...	.000	6.98	--	160	--	--	--	3300	3300	--
JUN										
03...	.000	6.71	--	158	--	--	--	4400	4500	--
JUL										
21...	.000	4.39	--	169	.100	--	--	5100	5200	--
SEP										
08...	.000	6.84	<.010	170	.110	<.030	<.020	3300	3300	.110

Date	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								
29...	220	320	1350	1290	115	110	296	279
JAN								
05...	100	90.0	1110	1160	95.0	101	255	272
MAR								
04...	90.0	140	1420	1430	110	110	300	295
APR								
21...	150	160	1040	1020	105	105	285	290
JUN								
03...	90.0	80.0	1220	1240	115	120	305	320
JUL								
21...	110	110	1510	1530	141	147	209	223
SEP								
08...	90.0	120	1370	1340	120	115	320	315

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 2003 TO SEPTEMBER 2004

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										
29...	1100	1028	89203	.06	461	74	8.5	76	5.4	5.5
JAN										
05...	1030	1028	89203	.06	192	7.0	8.1	64	5.5	5.5
MAR										
04...	1045	1028	89203	.13	245	9.0	11.8	91	5.3	5.5
APR										
21...	0945	1028	89203	.07	434	3.3	9.9	88	5.5	5.4
JUN										
03...	0945	1028	89203	.00	--	--	--	--	--	--
JUL										
21...	0945	1028	89203	.09	409	14	9.7	97	5.3	5.2
SEP										
08...	1000	1028	--	.00	301	36	5.8	60	6.5	--

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										
29...	82.0	10.6	4.40	4.40	3.00	3.00	1.20	1.20	4.70	5.00
JAN										
05...	97.0	5.30	5.20	5.20	3.10	3.10	.900	.900	5.40	5.00
MAR										
04...	94.0	4.60	4.90	4.80	3.30	3.30	.900	.900	5.20	4.90
APR										
21...	129	10.0	6.50	6.50	5.10	5.00	.800	.800	6.00	5.70
JUN										
03...	--	--	--	--	--	--	--	--	--	--
JUL										
21...	164	15.2	8.90	8.70	8.20	8.10	.900	.900	5.60	5.80
SEP										
08...	170	16.6	10.1	10.0	8.40	8.10	1.00	.900	6.40	6.20

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157155012 -- Swatara Creek, Site C2, at Newtown, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
29...	4.70	7.87	<.010	19.1	.060	<.030	<.020	300	700	.040
JAN										
05...	4.40	12.1	<.010	17.0	.110	<.030	<.020	200	300	.050
MAR										
04...	3.00	9.69	--	22.9	--	--	--	300	500	--
APR										
21...	2.90	11.4	--	36.1	--	--	--	400	600	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
JUL										
21...	1.70	8.65	--	48.5	.060	--	--	400	900	--
SEP										
08...	--	10.2	<.010	53.0	.120	<.030	<.020	<100	600	.050

Date	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								
29...	220	630	240	250	16.0	12.0	43.0	42.0
JAN								
05...	230	340	180	180	8.00	9.00	33.0	34.0
MAR								
04...	130	240	260	260	15.0	15.0	50.0	45.0
APR								
21...	340	570	280	290	25.0	25.0	70.0	75.0
JUN								
03...	--	--	--	--	--	--	--	--
JUL								
21...	70.0	390	460	460	37.0	36.0	51.0	54.0
SEP								
08...	60.0	330	340	330	30.0	30.0	70.0	70.0

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 2003 TO SEPTEMBER 2004

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										
29...	1000	1028	89203	16	407	110	10.8	97	6.3	6.4
JAN										
05...	0945	1028	89203	15	156	84	10.3	83	6.5	5.4
MAR										
04...	1000	1028	89203	15	212	20	12.6	100	6.2	6.4
APR										
21...	0915	1028	89203	15	311	12	11.1	101	7.2	6.5
JUN										
03...	0915	1028	89203	15	268	15	9.9	95	7.2	6.4
JUL										
21...	0900	1028	89203	15	254	10	10.4	100	6.9	6.2
SEP										
08...	0900	1028	89203	14	240	7.0	9.9	100	7.1	6.8

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										
29...	119	10.2	7.90	7.90	4.60	4.60	2.90	3.00	6.00	6.10
JAN										
05...	207	6.00	12.9	13.5	9.30	9.80	2.30	2.40	8.00	8.40
MAR										
04...	220	5.60	13.3	13.4	9.20	9.40	1.60	1.60	9.50	9.90
APR										
21...	245	11.0	16.2	16.2	11.8	11.7	1.60	1.50	8.50	8.40
JUN										
03...	280	13.5	20.2	20.7	15.9	16.2	2.00	2.00	9.40	9.40
JUL										
21...	278	15.0	20.1	20.4	15.1	15.0	1.80	1.80	8.40	8.50
SEP										
08...	299	15.9	24.2	24.0	18.6	18.7	1.80	1.80	8.90	8.80

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 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
29...	9.00	7.64	<.010	29.7	.240	<.030	<.020	200	1000	.080
JAN										
05...	2.10	13.5	<.010	58.4	.280	<.030	<.020	<100	600	.070
MAR										
04...	7.20	17.6	--	61.2	--	--	--	<100	600	--
APR										
21...	6.90	14.8	--	81.1	--	--	--	<100	400	--
JUN										
03...	12.5	16.4	--	97.3	--	--	--	<100	300	--
JUL										
21...	8.20	13.6	--	88.2	.180	--	--	<100	500	--
SEP										
08...	10.9	14.3	<.010	118	.180	.050	<.020	<100	200	.090

Date	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								
29...	410	3590	410	540	22.0	24.0	33.0	45.0
JAN								
05...	560	2150	620	680	20.0	23.0	58.0	67.0
MAR								
04...	870	1620	750	770	25.0	25.0	60.0	60.0
APR								
21...	720	1630	750	780	35.0	30.0	75.0	100
JUN								
03...	490	1260	980	1000	35.0	35.0	90.0	65.0
JUL								
21...	420	1000	1020	1030	40.0	38.0	46.0	48.0
SEP								
08...	700	1210	1090	1080	35.0	35.0	85.0	85.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571552 -- Swatara Creek at Tremont, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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...	1345	1028	1028	15	349	13	10.7	99	6.8	6.9
29...	0945	1028	89203	55	457	51	10.5	93	5.4	5.3
JAN										
05...	0930	1028	89203	40	490	21	10.4	82	5.7	5.8
MAR										
04...	0945	1028	89203	27	464	21	12.9	98	6.0	6.1
APR										
21...	0900	1028	89203	40	353	6.7	10.8	100	7.0	6.4
JUN										
03...	0900	1028	89203	24	301	5.4	9.3	93	7.0	6.7
JUL										
21...	0845	1028	89203	26	349	5.8	9.6	101	6.9	6.0
SEP										
08...	0845	1028	89203	13	373	4.0	9.4	98	7.4	6.6

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...	268	11.9	16.1	15.8	12.7	12.5	1.60	1.60	7.00	6.90
29...	78.0	10.1	5.30	5.30	3.20	3.30	1.00	.900	2.60	2.60
JAN										
05...	97.0	5.20	6.50	6.80	3.80	4.00	.800	.800	2.60	3.20
MAR										
04...	103	3.80	6.90	6.90	4.10	4.10	.800	.800	3.30	3.60
APR										
21...	135	11.6	9.40	9.70	5.70	5.70	.900	.900	4.20	4.10
JUN										
03...	141	14.9	11.2	11.4	6.70	6.90	1.10	1.00	4.60	4.50
JUL										
21...	152	17.4	11.5	11.3	7.00	6.90	.800	.800	3.10	3.30
SEP										
08...	201	17.3	16.8	16.9	9.80	9.90	1.50	1.50	6.40	6.40

Date	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, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Silica, water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water unfltrd mg/L (00946)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)
OCT										
01...	11.3	--	12.6	<.010	6.96	7.16	92.4	120	.010	<.030
29...	2.60	--	3.52	<.010	--	--	23.7	--	.120	<.030
JAN										
05...	2.90	--	5.39	<.010	--	--	29.0	--	.240	<.030
MAR										
04...	4.30	--	6.62	--	--	--	30.6	--	--	--
APR										
21...	5.70	--	7.01	--	--	--	41.6	--	--	--
JUN										
03...	5.30	--	10.0	--	--	--	46.4	--	--	--
JUL										
21...	3.60	--	5.25	--	--	--	45.3	--	.310	--
SEP										
08...	8.70	--	9.97	.040	--	--	63.0	--	1.19	<.030

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571552 -- Swatara Creek at Tremont, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	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)	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)
OCT									
01...	<.020	<.001	<.001	13.5	460	.024	.027	<.200	<.200
29...	<.020	--	--	400	1100	--	--	--	--
JAN									
05...	<.020	--	--	100	700	--	--	--	--
MAR									
04...	--	--	--	200	600	--	--	--	--
APR									
21...	--	--	--	<100	400	--	--	--	--
JUN									
03...	--	--	--	<100	200	--	--	--	--
JUL									
21...	--	--	--	<100	200	--	--	--	--
SEP									
08...	.040	--	--	<100	<100	--	--	--	--

Date	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)	Bromine water unfltrd mg/L (71871)	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)
OCT									
01...	27.0	27.5	.160	.370	<.010	<.010	.060	.180	.200
29...	--	--	--	--	--	--	.070	--	--
JAN									
05...	--	--	--	--	--	--	.080	--	--
MAR									
04...	--	--	--	--	--	--	--	--	--
APR									
21...	--	--	--	--	--	--	--	--	--
JUN									
03...	--	--	--	--	--	--	--	--	--
JUL									
21...	--	--	--	--	--	--	--	--	--
SEP									
08...	--	--	--	--	--	--	.080	--	--

Date	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)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)
OCT										
01...	.750	1.50	.043	.048	<1.00	<1.00	19.0	17.0	1.30	3.60
29...	--	--	--	--	--	--	--	--	--	--
JAN										
05...	--	--	--	--	--	--	--	--	--	--
MAR										
04...	--	--	--	--	--	--	--	--	--	--
APR										
21...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
JUL										
21...	--	--	--	--	--	--	--	--	--	--
SEP										
08...	--	--	--	--	--	--	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571552 -- Swatara Creek at Tremont, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Dysprosium, water, fltrd, µg/L (82331)	Dysprosium, water, unfltrd µg/L (82330)	Erbium, water, fltrd, µg/L (50573)	Erbium, water, unfltrd µg/L (01246)	Europium, water, fltrd, µg/L (50574)	Europium, water, unfltrd µg/L (01236)	Gadolinium, water, fltrd, µg/L (50575)	Gadolinium, water, unfltrd µg/L (01219)	Gallium water, fltrd, µg/L (01120)	Gallium water, unfltrd µg/L (01122)
OCT										
01...	.060	.220	.042	.140	.013	.039	.071	.190	<.020	.020
29...	--	--	--	--	--	--	--	--	--	--
JAN										
05...	--	--	--	--	--	--	--	--	--	--
MAR										
04...	--	--	--	--	--	--	--	--	--	--
APR										
21...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
JUL										
21...	--	--	--	--	--	--	--	--	--	--
SEP										
08...	--	--	--	--	--	--	--	--	--	--

Date	Germanium, water, fltrd, µg/L (01125)	Germanium, water, unfltrd µg/L (01127)	Holmium water, fltrd, µg/L (50577)	Holmium water unfltrd µg/L (01247)	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)
OCT										
01...	<.020	<.020	.014	.047	555	1450	.440	.760	<.050	.450
29...	--	--	--	--	210	840	--	--	--	--
JAN										
05...	--	--	--	--	170	550	--	--	--	--
MAR										
04...	--	--	--	--	150	350	--	--	--	--
APR										
21...	--	--	--	--	110	500	--	--	--	--
JUN										
03...	--	--	--	--	60.0	230	--	--	--	--
JUL										
21...	--	--	--	--	60.0	210	--	--	--	--
SEP										
08...	--	--	--	--	20.0	100	--	--	--	--

Date	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)	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)
OCT										
01...	15.0	14.5	884	893	.098	.072	.350	.800	32.0	29.0
29...	--	--	430	450	--	--	--	--	22.0	7.00
JAN										
05...	--	--	450	480	--	--	--	--	17.0	19.0
MAR										
04...	--	--	510	520	--	--	--	--	20.0	15.0
APR										
21...	--	--	390	450	--	--	--	--	25.0	25.0
JUN										
03...	--	--	500	520	--	--	--	--	25.0	30.0
JUL										
21...	--	--	590	590	--	--	--	--	31.0	31.0
SEP										
08...	--	--	500	510	--	--	--	--	25.0	25.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571552 -- Swatara Creek at Tremont, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	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)	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)
OCT										
01...	.087	.210	<.020	<.020	1.80	1.90	.064	.180	<.200	<.200
29...	--	--	--	--	--	--	--	--	--	--
JAN										
05...	--	--	--	--	--	--	--	--	--	--
MAR										
04...	--	--	--	--	--	--	--	--	--	--
APR										
21...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
JUL										
21...	--	--	--	--	--	--	--	--	--	--
SEP										
08...	--	--	--	--	--	--	--	--	--	--

Date	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)	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)
OCT										
01...	.072	.019	82.5	84.0	.010	.036	<.050	<.050	<.020	<.020
29...	--	--	--	--	--	--	--	--	--	--
JAN										
05...	--	--	--	--	--	--	--	--	--	--
MAR										
04...	--	--	--	--	--	--	--	--	--	--
APR										
21...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
JUL										
21...	--	--	--	--	--	--	--	--	--	--
SEP										
08...	--	--	--	--	--	--	--	--	--	--

Date	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)	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)
OCT										
01...	.006	.018	.050	.039	<.100	<.100	.036	.110	.370	.920
29...	--	--	--	--	--	--	--	--	--	--
JAN										
05...	--	--	--	--	--	--	--	--	--	--
MAR										
04...	--	--	--	--	--	--	--	--	--	--
APR										
21...	--	--	--	--	--	--	--	--	--	--
JUN										
03...	--	--	--	--	--	--	--	--	--	--
JUL										
21...	--	--	--	--	--	--	--	--	--	--
SEP										
08...	--	--	--	--	--	--	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571552 -- Swatara Creek at Tremont, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	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...	66.0	72.0	.017	.063
29...	44.0	47.0	--	--
JAN				
05...	55.0	63.0	--	--
MAR				
04...	50.0	50.0	--	--
APR				
21...	60.0	100	--	--
JUN				
03...	55.0	60.0	--	--
JUL				
21...	34.0	36.0	--	--
SEP				
08...	60.0	60.0	--	--

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 2003 TO SEPTEMBER 2004

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										
28...	1415	1028	89203	1.1	420	39	9.8	91	5.2	--
NOV										
24...	1415	1028	89203	1.0	440	32	11.0	93	5.2	--
DEC										
30...	1445	1028	89203	.85	375	27	9.5	87	5.6	--
MAR										
01...	1430	1028	89203	.90	384	18	10.7	99	5.6	--
APR										
20...	1330	1028	89203	.94	394	48	10.2	95	5.3	--
JUN										
02...	1400	1028	89203	.86	327	13	10.0	93	6.3	--
JUL										
19...	1450	1028	89203	.78	348	11	10.4	98	5.9	--
SEP										
13...	1415	1028	--	.78	326	12	10.5	99	6.1	--

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										
28...	333	11.7	--	--	--	--	--	--	--	--
NOV										
24...	258	11.9	--	--	--	--	--	--	--	--
DEC										
30...	260	11.6	--	--	--	--	--	--	--	--
MAR										
01...	333	12.0	--	--	--	--	--	--	--	--
APR										
20...	266	12.1	--	--	--	--	--	--	--	--
JUN										
02...	260	12.2	--	--	--	--	--	--	--	--
JUL										
19...	340	12.3	--	--	--	--	--	--	--	--
SEP										
13...	315	12.4	--	--	--	--	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571773 -- Lorberry Cr Div Wells Outflow nr Lorberry, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
28...	--	--	--	--	--	--	--	--	--	--
NOV										
24...	--	--	--	--	--	--	--	--	--	--
DEC										
30...	--	--	--	--	--	--	--	--	--	--
MAR										
01...	--	--	--	--	--	--	--	--	--	--
APR										
20...	--	--	--	--	--	--	--	--	--	--
JUN										
02...	--	--	--	--	--	--	--	--	--	--
JUL										
19...	--	--	--	--	--	--	--	--	--	--
SEP										
13...	--	--	--	--	--	--	--	--	--	--

Date	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								
28...	--	--	--	--	--	--	--	--
NOV								
24...	--	--	--	--	--	--	--	--
DEC								
30...	--	--	--	--	--	--	--	--
MAR								
01...	--	--	--	--	--	--	--	--
APR								
20...	--	--	--	--	--	--	--	--
JUN								
02...	--	--	--	--	--	--	--	--
JUL								
19...	--	--	--	--	--	--	--	--
SEP								
13...	--	--	--	--	--	--	--	--

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 2003 TO SEPTEMBER 2004

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										
28...	1345	1028	89203	5.0	400	35	10.8	100	5.8	5.3
NOV										
24...	1400	1028	89203	7.9	424	32	10.9	100	5.5	5.1
DEC										
30...	1430	1028	89203	10	370	26	10.9	101	5.4	6.0
MAR										
01...	1415	1028	89203	2.9	353	10	11.0	101	6.2	5.7
APR										
20...	1315	1028	89203	--	355	28	10.8	102	5.9	5.8
JUN										
02...	1345	1028	89203	8.1	218	15	10.6	99	7.0	6.5
JUL										
19...	1445	1028	89203	4.3	262	11	10.8	100	5.9	5.9
SEP										
13...	1400	1028	89203	2.4	246	15	10.9	104	6.4	6.3

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										
28...	294	11.7	12.1	12.6	24.3	24.2	1.30	1.30	4.00	4.20
NOV										
24...	247	11.7	9.40	9.20	16.6	16.3	.900	.900	4.90	4.40
DEC										
30...	251	11.2	9.90	9.60	18.3	17.8	1.20	1.10	2.80	3.10
MAR										
01...	316	11.5	14.2	14.6	23.0	23.4	1.30	1.30	3.40	3.50
APR										
20...	257	12.4	11.4	11.6	18.4	18.8	1.20	1.20	3.80	3.70
JUN										
02...	252	12.6	10.3	10.4	20.2	20.4	1.10	1.20	3.30	3.30
JUL										
19...	328	12.7	14.6	15.3	25.8	27.3	1.20	1.30	3.10	3.50
SEP										
13...	310	12.9	16.7	16.7	25.6	25.6	1.30	1.30	3.50	3.50

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571774 -- Lorberry Creek, Site E2-0, at Lorberry, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
28...	2.50	3.50	<.010	127	.050	<.030	<.020	200	1200	.040
NOV										
24...	1.80	3.38	<.010	100	.030	<.030	<.020	400	700	.100
DEC										
30...	3.40	3.36	<.010	105	.010	<.030	<.020	400	700	.100
MAR										
01...	2.90	3.69	--	134	--	--	--	200	800	--
APR										
20...	5.00	3.65	--	105	--	--	--	<100	700	--
JUN										
02...	10.8	3.45	--	104	--	--	--	<100	700	--
JUL										
19...	4.50	3.24	--	135	.010	--	--	<100	1030	--
SEP										
13...	4.80	3.37	.010	136	.050	<.030	<.020	<100	800	.060

Date	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								
28...	4110	6170	1560	1580	76.0	81.0	159	164
NOV								
24...	2330	3740	1470	1450	63.0	64.0	200	168
DEC								
30...	2510	4020	1540	1510	70.0	68.0	195	189
MAR								
01...	4030	4990	1900	1900	70.0	70.0	175	180
APR								
20...	3690	5300	1390	1400	70.0	75.0	195	205
JUN								
02...	6010	6790	1640	1630	55.0	55.0	110	110
JUL								
19...	4020	4970	1760	1890	81.0	86.0	100	110
SEP								
13...	5120	6350	2050	2030	75.0	75.0	180	185

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571776 -- Stumps Run at Lorberry, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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										
28...	1330	1028	89203	4.9	391	5.0	10.9	99	6.0	6.1
NOV										
24...	1345	1028	89203	2.3	400	1.0	11.4	99	6.0	6.2
DEC										
30...	1415	1028	89203	2.9	327	.0	12.4	97	6.4	5.1
MAR										
01...	1400	1028	89203	.56	334	2.0	12.7	100	6.2	6.1
APR										
20...	1300	1028	89203	1.1	372	4.0	10.6	101	6.0	6.2
JUN										
02...	1330	1028	89203	.44	366	4.0	9.6	96	6.5	6.2
JUL										
19...	1430	1028	89203	.22	352	3.5	9.5	97	6.2	3.9
SEP										
13...	1345	1028	89203	.14	365	1.0	9.6	98	6.0	6.1

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										
28...	42.0	11.1	3.40	3.40	1.90	1.90	.900	.900	.600	.600
NOV										
24...	45.0	9.5	3.00	2.90	2.00	1.90	.500	.400	2.80	1.30
DEC										
30...	46.0	5.0	3.40	3.20	2.40	2.20	.600	.500	.800	.100
MAR										
01...	42.0	5.1	3.30	3.20	2.20	2.20	.500	.500	.700	.900
APR										
20...	44.0	13.1	3.40	3.40	2.10	2.10	.600	.600	.900	.800
JUN										
02...	42.0	15.4	3.20	3.40	2.10	2.20	.600	.600	.600	.700
JUL										
19...	43.0	16.3	3.20	15.3	1.90	27.3	.400	1.20	.600	3.50
SEP										
13...	36.0	16.3	2.70	2.70	1.70	1.70	.500	.400	.900	.700

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571776 -- Stumps Run at Lorberry, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
28...	3.20	.720	<.010	15.0	.010	<.030	<.020	<100	<100	.040
NOV										
24...	3.30	.570	<.010	16.2	.030	<.030	<.020	<100	<100	.040
DEC										
30...	2.20	.500	<.010	15.4	.030	<.030	<.020	<100	<100	.030
MAR										
01...	4.70	.490	--	15.1	--	--	--	<100	<100	--
APR										
20...	2.90	.610	--	14.4	--	--	--	<100	<100	--
JUN										
02...	4.30	.730	--	14.2	--	--	--	<100	<100	--
JUL										
19...	4.00	.670	--	13.6	.050	--	--	<100	<100	--
SEP										
13...	4.90	.990	<.010	9.26	.080	<.030	<.020	<100	<100	.020

Date	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								
28...	130	110	80.0	90.0	35.0	6.00	25.0	27.0
NOV								
24...	30.0	50.0	40.0	50.0	7.00	6.00	71.0	32.0
DEC								
30...	50.0	50.0	60.0	50.0	7.00	6.00	29.0	26.0
MAR								
01...	<10.0	60.0	50.0	40.0	10.0	<5.00	25.0	20.0
APR								
20...	80.0	130	30.0	50.0	<5.00	<5.00	25.0	25.0
JUN								
02...	80.0	140	40.0	60.0	<5.00	10.0	20.0	20.0
JUL								
19...	50.0	90.0	30.0	50.0	<5.00	<5.00	9.00	11.0
SEP								
13...	60.0	100	20.0	30.0	<5.00	<5.00	25.0	25.0

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 2003 TO SEPTEMBER 2004

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										
28...	1325	1028	89203	1.9	418	42	10.7	99	5.4	5.3
NOV										
24...	1330	1028	89203	1.3	428	58	10.4	95	5.4	5.0
DEC										
30...	1405	1028	89203	.85	396	26	9.8	90	5.4	5.2
MAR										
01...	1350	1028	89203	.90	266	19	10.1	94	8.2	5.5
APR										
20...	1250	1028	89203	.94	385	25	10.5	99	5.5	5.5
JUN										
02...	1320	1028	89203	.86	332	12	10.4	97	6.2	6.0
JUL										
19...	1420	1028	89203	.78	337	11	10.5	99	5.9	5.8
SEP										
13...	1330	1028	89203	.78	355	12	10.5	100	5.7	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										
28...	338	12.0	14.0	14.0	29.0	28.9	1.20	1.30	3.80	3.80
NOV										
24...	259	11.8	9.70	9.50	17.5	16.6	1.00	.900	3.70	4.10
DEC										
30...	263	11.6	10.4	10.3	19.6	19.1	1.20	1.20	3.60	3.30
MAR										
01...	367	12.1	14.9	14.8	24.6	24.4	1.30	1.30	2.80	3.60
APR										
20...	267	12.9	11.6	12.1	18.8	19.3	1.20	1.20	3.70	3.50
JUN										
02...	261	12.3	10.3	11.0	20.8	21.1	1.20	1.20	3.10	3.20
JUL										
19...	340	12.5	15.7	15.7	27.1	28.1	1.30	1.30	3.40	3.40
SEP										
13...	320	12.7	16.6	17.5	25.5	26.6	1.30	1.30	3.90	3.50

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177610 -- Lorberry Creek Wetlands Inflow at Lorberry, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
28...	5.00	3.24	<.010	151	<.010	<.030	<.020	700	1400	.050
NOV										
24...	2.40	3.43	<.010	105	<.010	<.030	<.020	600	800	.070
DEC										
30...	3.30	3.40	<.010	109	.020	<.030	<.020	600	800	.100
MAR										
01...	3.70	3.06	--	141	--	--	--	400	800	--
APR										
20...	.800	3.62	--	108	--	--	--	400	800	--
JUN										
02...	11.4	3.45	--	107	--	--	--	200	700	--
JUL										
19...	6.00	3.19	--	139	<.010	--	--	200	1060	--
SEP										
13...	5.70	3.37	<.010	140	.070	<.030	<.020	200	800	.050

Date	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								
28...	5210	6910	1930	1950	93.0	77.0	194	197
NOV								
24...	2560	3920	1590	1530	68.0	65.0	229	185
DEC								
30...	2760	4410	1670	1620	77.0	73.0	211	202
MAR								
01...	4520	5390	2060	2040	75.0	75.0	190	185
APR								
20...	3860	5470	1490	1480	75.0	75.0	205	210
JUN								
02...	6550	7300	1710	1750	60.0	60.0	115	115
JUL								
19...	4340	5150	1920	1990	85.0	89.0	109	114
SEP								
13...	5370	6650	2090	2160	75.0	80.0	185	195

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 2003 TO SEPTEMBER 2004

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										
28...	1315	1028	89203	1.4	400	21	10.7	104	5.5	5.4
NOV										
24...	1315	1028	89203	1.1	414	20	12.3	112	5.6	5.6
DEC										
30...	1355	1028	89203	1.2	397	16	11.1	97	5.8	5.7
MAR										
01...	1340	1028	89203	1.5	367	1.0	10.8	103	7.3	7.3
APR										
20...	1240	1028	89203	1.2	387	8.0	10.2	109	5.9	5.9
JUN										
02...	1310	1028	89203	.95	256	6.8	9.4	110	6.5	6.6
JUL										
19...	1410	1028	89203	1.2	372	13	9.8	106	5.8	5.9
SEP										
13...	1310	1028	89203	1.3	384	1.0	10.1	113	5.4	5.4

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)
OCT										
28...	338	14.3	13.9	13.8	28.7	28.6	1.20	1.40	3.50	3.60
NOV										
24...	258	11.3	11.1	10.5	17.3	16.5	.900	.900	4.90	3.40
DEC										
30...	257	9.50	11.7	11.3	19.2	18.7	1.20	1.20	3.50	3.10
MAR										
01...	350	13.0	26.9	27.2	23.0	23.4	1.30	1.30	3.00	2.90
APR										
20...	266	18.8	12.5	12.7	18.5	19.0	1.20	1.20	3.70	3.70
JUN										
02...	262	22.7	12.0	12.0	20.6	20.4	1.10	1.10	3.00	3.20
JUL										
19...	340	19.5	14.5	15.1	27.1	28.4	1.20	1.20	3.20	3.40
SEP										
13...	319	20.9	17.0	17.8	25.4	26.5	1.30	1.30	3.90	4.10

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177614 -- Lorberry Cr Wetlands Cell 2 Outflow at Lorberry,PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
28...	3.20	3.14	<.010	151	<.010	<.030	<.020	300	1000	.060
NOV										
24...	3.00	3.39	<.010	106	<.010	<.030	<.020	200	500	.060
DEC										
30...	3.50	3.36	<.010	107	.020	<.030	<.020	<100	500	.100
MAR										
01...	21.1	3.11	--	140	--	--	--	200	200	--
APR										
20...	4.40	3.75	--	108	--	--	--	<100	300	--
JUN										
02...	12.0	3.42	--	107	--	--	--	<100	300	--
JUL										
19...	4.50	3.29	--	136	.010	--	--	<100	190	--
SEP										
13...	2.50	3.37	<.010	134	.040	<.030	<.020	<100	<100	.050

Date	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								
28...	4060	5300	1850	1860	85.0	80.0	201	196
NOV								
24...	1650	2740	1580	1500	70.0	64.0	227	189
DEC								
30...	1640	3120	1640	1590	75.0	73.0	222	215
MAR								
01...	50.0	500	1290	1340	25.0	30.0	10.0	25.0
APR								
20...	1990	2550	1430	1420	75.0	80.0	225	230
JUN								
02...	3490	4190	1700	1680	60.0	55.0	110	120
JUL								
19...	1740	2030	1790	1890	77.0	85.0	89.0	102
SEP								
13...	430	580	1890	1940	75.0	80.0	180	195

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 2003 TO SEPTEMBER 2004

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										
28...	1305	1028	89203	2.5	385	4.0	10.5	104	5.8	5.7
NOV										
24...	1300	1028	89203	2.3	407	20	12.2	111	5.7	5.6
DEC										
30...	1345	1028	89203	2.1	405	6.0	11.3	97	5.8	6.0
MAR										
01...	1330	1028	89203	2.0	367	.0	11.1	106	6.6	6.9
APR										
20...	1230	1028	89203	2.0	324	2.0	9.9	110	6.2	5.9
JUN										
02...	1300	1028	89203	1.9	268	7.0	8.3	101	6.6	6.7
JUL										
19...	1400	1028	89203	1.9	354	.0	9.7	109	6.0	6.0
SEP										
13...	1300	1028	89203	1.7	369	.0	9.5	110	5.8	5.8

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										
28...	318	14.9	13.6	13.3	27.8	28.4	1.30	1.20	3.50	3.60
NOV										
24...	252	11.1	10.7	10.9	16.6	16.8	.900	.900	3.60	3.50
DEC										
30...	254	8.30	11.8	11.0	19.2	18.1	1.20	1.10	3.50	3.30
MAR										
01...	353	13.0	26.5	26.8	22.6	22.7	1.30	1.30	3.20	3.40
APR										
20...	263	20.5	12.4	12.9	18.4	19.0	1.20	1.20	3.70	3.80
JUN										
02...	258	25.4	12.3	12.4	20.4	20.8	1.10	1.10	3.00	2.90
JUL										
19...	338	21.0	13.6	14.6	27.3	28.3	1.20	1.20	3.20	3.30
SEP										
13...	315	22.4	16.8	17.2	25.1	26.1	1.30	1.30	3.90	3.70

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177618 -- Lorberry Cr Wetlands Cell 4 Outflow at Lorberry, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
28...	4.30	3.12	<.010	141	<.010	<.030	<.020	<100	200	.050
NOV										
24...	2.70	3.36	<.010	104	.020	<.030	<.020	<100	300	.070
DEC										
30...	3.60	3.33	<.010	105	.020	<.030	<.020	<100	200	.080
MAR										
01...	20.4	3.03	--	138	--	--	--	<100	200	--
APR										
20...	3.00	3.59	--	107	--	--	--	<100	<100	--
JUN										
02...	16.0	3.37	--	108	--	--	--	<100	<100	--
JUL										
19...	2.90	3.31	--	134	<.010	--	--	<100	<100	--
SEP										
13...	3.60	3.42	<.010	130	.060	<.030	<.020	<100	<100	.020

Date	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								
28...	2320	2730	1790	1840	98.0	79.0	189	191
NOV								
24...	1100	1600	1510	1520	68.0	68.0	244	187
DEC								
30...	1130	1830	1600	1530	74.0	70.0	231	220
MAR								
01...	70.0	110	1250	1260	25.0	30.0	10.0	15.0
APR								
20...	1400	1680	1410	1430	75.0	80.0	225	240
JUN								
02...	790	1100	1580	1640	55.0	55.0	90.0	95.0
JUL								
19...	480	390	1700	1740	71.0	78.0	91.0	90.0
SEP								
13...	100	100	1450	1430	75.0	75.0	175	185

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 2003 TO SEPTEMBER 2004

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										
28...	1230	1028	89203	9.9	332	16	10.7	100	5.8	5.6
NOV										
24...	1200	1028	89203	10	362	23	10.9	99	5.5	5.3
DEC										
30...	1330	1028	89203	14	383	21	10.9	98	5.4	5.3
MAR										
01...	1245	1028	89203	4.5	317	6.0	11.1	101	5.9	6.2
APR										
20...	1130	1028	89203	11	335	19	10.6	100	6.0	5.8
JUN										
02...	1200	1028	89203	4.7	209	8.0	9.9	99	7.0	6.8
JUL										
19...	1300	1028	89203	5.3	259	7.7	10.5	101	6.2	6.3
SEP										
13...	1215	1028	89203	4.3	253	7.0	10.4	102	6.2	6.1

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										
28...	259	12.3	12.2	10.7	21.3	20.3	1.20	1.20	3.60	3.30
NOV										
24...	237	11.3	11.8	9.00	16.0	14.9	.900	.900	4.20	2.80
DEC										
30...	236	10.3	9.40	9.20	16.9	16.7	1.10	1.10	2.60	2.80
MAR										
01...	301	11.1	13.5	14.5	19.9	20.1	1.20	1.20	3.20	3.30
APR										
20...	246	13.3	10.9	11.0	16.9	17.0	1.10	1.10	3.50	3.50
JUN										
02...	237	15.4	10.4	10.0	18.6	18.3	1.10	1.10	2.90	2.80
JUL										
19...	316	14.8	13.8	13.8	24.5	24.4	1.20	1.10	3.20	3.10
SEP										
13...	303	14.5	15.7	15.9	24.0	24.4	1.30	1.20	3.90	3.80

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177620 -- Lorberry Creek below Wetlands at Lorberry, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
28...	3.10	2.97	<.010	107	.030	<.030	<.020	200	800	.040
NOV										
24...	2.50	3.14	<.010	94.9	.010	<.030	<.020	400	600	.060
DEC										
30...	2.20	3.29	<.010	113	.030	<.030	<.020	400	600	.080
MAR										
01...	5.40	3.17	--	119	--	--	--	<100	600	--
APR										
20...	2.60	3.44	--	98.9	--	--	--	<100	600	--
JUN										
02...	15.0	3.27	--	95.3	--	--	--	<100	600	--
JUL										
19...	4.70	3.11	--	125	.040	--	--	<100	800	--
SEP										
13...	5.20	3.24	.010	131	.070	<.030	<.020	<100	600	.040

Date	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								
28...	5020	4120	1380	1290	79.0	55.0	138	136
NOV								
24...	5440	3220	1450	1320	62.0	64.0	232	177
DEC								
30...	2390	3830	1390	1370	65.0	62.0	179	178
MAR								
01...	3110	3480	1570	1550	55.0	55.0	140	130
APR								
20...	3490	4700	1270	1270	70.0	65.0	190	185
JUN								
02...	5780	6120	1500	1480	50.0	50.0	100	100
JUL								
19...	3640	3750	1650	1670	74.0	74.0	88.0	92.0
SEP								
13...	4280	4970	1900	1900	70.0	75.0	170	185

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 2003 TO SEPTEMBER 2004

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										
28...	1215	1028	89203	.01	310	.0	.5	4	4.3	4.4
NOV										
24...	1145	1028	89203	.01	317	.0	.7	7	4.2	4.1
DEC										
30...	1315	1028	89203	.01	342	.0	.7	7	4.3	4.5
MAR										
01...	1230	1028	89203	.00	355	7.0	1.6	15	4.2	4.4
APR										
20...	1115	1028	89203	.01	290	1.0	.8	7	4.6	4.6
JUN										
02...	1130	1028	89203	.01	307	1.8	.9	9	4.5	4.4
JUL										
19...	1245	1028	89203	.00	245	.0	.9	8	4.6	4.9
SEP										
13...	1145	1028	89203	.00	259	3.0	1.0	9	4.5	4.5

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										
28...	1960	12.5	232	225	77.6	79.9	4.10	4.20	2.20	2.30
NOV										
24...	1900	12.5	215	195	73.7	66.5	4.60	4.10	3.30	2.90
DEC										
30...	1870	12.3	215	213	69.5	69.7	5.00	4.90	2.30	2.10
MAR										
01...	1690	12.2	185	188	56.7	58.2	4.90	5.00	1.90	2.00
APR										
20...	1870	12.2	225	229	64.8	68.1	5.40	5.50	2.30	2.60
JUN										
02...	1560	12.3	205	203	58.1	57.1	5.60	5.60	2.10	2.10
JUL										
19...	1610	12.5	220	224	59.7	58.7	5.40	5.00	2.10	1.90
SEP										
13...	1070	12.4	210	218	52.6	54.0	5.50	5.70	2.00	2.20

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 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
28...	.000	1.66	<1.00	1300	<1.00	<3.00	<2.00	4000	4000	<1.00
NOV										
24...	.000	1.02	<.050	1240	<.050	<.150	<.100	4300	3700	.100
DEC										
30...	.400	1.21	<.050	1240	<.050	<.150	<.100	4100	4100	.130
MAR										
01...	.000	.995	--	1040	--	--	--	4600	4600	--
APR										
20...	2.20	2.09	--	1240	--	--	--	2800	2900	--
JUN										
02...	.000	1.58	--	1080	--	--	--	4400	4400	--
JUL										
19...	4.30	1.09	--	991	<.040	--	--	3300	3210	--
SEP										
13...	.700	.955	<.040	990	.065	<.120	<.080	3700	4000	.115

Date	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								
28...	251000	244000	10200	9920	<5.00	<5.00	224	229
NOV								
24...	224000	205000	9630	8920	150	136	313	254
DEC								
30...	204000	204000	8860	8790	129	127	216	214
MAR								
01...	167000	171000	8310	8510	145	145	245	250
APR								
20...	189000	197000	8070	8260	125	130	215	220
JUN								
02...	157000	157000	6830	6780	135	135	220	215
JUL								
19...	154000	15400	7270	7300	132	134	108	118
SEP								
13...	165000	182000	7000	7130	135	140	240	255

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 2003 TO SEPTEMBER 2004

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										
28...	1130	1028	89203	13	433	18	11.0	100	5.1	5.2
NOV										
24...	1100	1028	89203	13	435	25	11.0	99	5.1	5.2
DEC										
30...	1230	1028	89203	16	348	19	11.0	97	5.0	5.2
MAR										
01...	1145	1028	89203	6.3	386	7.0	11.6	101	6.2	6.3
APR										
20...	1030	1028	89203	13	352	23	11.0	100	6.2	5.6
JUN										
02...	1045	1028	89203	6.3	212	9.3	10.4	99	7.2	6.5
JUL										
19...	1200	1028	89203	4.0	330	16	10.6	101	6.2	5.9
SEP										
13...	1100	1028	89203	4.3	257	9.0	10.4	101	6.6	6.0

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										
28...	222	11.1	11.1	11.2	16.2	16.4	1.10	1.10	2.90	2.90
NOV										
24...	225	10.9	10.0	9.20	15.2	14.1	.900	.800	4.10	3.70
DEC										
30...	227	9.80	9.60	9.50	15.7	15.4	1.10	1.00	3.00	2.40
MAR										
01...	277	9.20	15.2	15.1	18.6	18.6	1.10	1.10	3.20	3.10
APR										
20...	231	12.1	11.0	10.9	15.7	15.6	1.10	1.10	3.20	3.20
JUN										
02...	220	13.0	10.5	10.4	16.7	16.7	1.00	1.00	2.70	2.70
JUL										
19...	273	13.8	14.0	13.9	21.3	21.2	1.10	1.06	3.00	2.80
SEP										
13...	275	13.6	16.1	16.4	22.4	23.1	1.20	1.20	3.60	3.40

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571777 -- Lorberry Cr ab Panther Head Disch nr Lorberry Jct, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
28...	2.00	2.69	<.010	93.1	.100	<.030	<.020	300	800	.050
NOV										
24...	2.60	2.90	<.010	90.8	.040	<.030	<.020	300	700	.070
DEC										
30...	2.20	3.06	<.010	93.4	.020	<.030	<.020	300	600	.100
MAR										
01...	4.50	3.57	--	113	--	--	--	<100	600	--
APR										
20...	2.10	3.42	--	95.8	--	--	--	<100	700	--
JUN										
02...	8.50	3.15	--	92.5	--	--	--	<100	600	--
JUL										
19...	3.20	3.25	--	114	.060	--	--	<100	870	--
SEP										
13...	3.80	3.45	<.010	126	.070	<.030	<.020	<100	700	.050

Date	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								
28...	2560	5170	1070	1080	45.0	37.0	111	112
NOV								
24...	2130	3220	1360	1260	55.0	53.0	240	165
DEC								
30...	2010	3350	1310	1290	62.0	60.0	173	167
MAR								
01...	2300	3140	1460	1470	50.0	50.0	115	120
APR								
20...	2730	4170	1170	1170	65.0	65.0	175	180
JUN								
02...	3670	4460	1350	1350	50.0	50.0	100	100
JUL								
19...	2510	3360	1470	1490	67.0	68.0	79	82
SEP								
13...	3690	4870	1800	1830	70.0	70.0	165	170

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 2003 TO SEPTEMBER 2004

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										
28...	1145	1028	89203	.67	526	.0	9.5	86	3.4	3.6
NOV										
24...	1115	1028	89203	.22	529	.0	9.3	82	3.4	3.2
DEC										
30...	1245	1028	89203	.11	371	.0	10.5	87	3.4	3.6
MAR										
01...	1200	1028	89203	.04	510	.0	11.1	86	4.4	3.8
APR										
20...	1045	1028	89203	.33	642	.0	10.5	92	3.9	3.5
JUN										
02...	1100	1028	89203	.67	607	.3	7.5	70	3.5	3.5
JUL										
19...	1215	1028	89203	.14	521	.0	8.0	78	3.5	3.4
SEP										
13...	1115	1028	89203	.01	587	.0	4.9	49	3.4	3.5

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										
28...	288	10.6	5.10	5.00	4.60	4.60	.900	.800	.800	.900
NOV										
24...	315	9.80	6.20	5.90	6.20	6.00	.700	.700	3.60	2.30
DEC										
30...	328	7.20	7.00	7.10	7.10	7.20	.900	.900	.500	.700
MAR										
01...	197	4.60	4.40	4.40	4.20	4.20	.600	.700	.700	1.00
APR										
20...	304	9.40	6.50	6.60	6.40	6.40	.800	.800	1.20	1.20
JUN										
02...	269	12.4	6.80	6.80	6.80	6.90	.800	.800	1.00	1.00
JUL										
19...	303	13.9	6.10	6.20	6.30	6.20	.700	.700	1.00	0.90
SEP										
13...	308	15.3	9.60	9.80	8.70	8.90	.900	.900	1.20	1.50

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177780 -- Panther Head Disch to Lorberry Cr nr Lorberry Jct, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
28...	.000	1.16	<.010	63.9	.010	<.030	<.020	2600	2700	.040
NOV										
24...	.000	1.03	<.010	82.1	<.010	<.030	<.020	3200	3000	.100
DEC										
30...	.000	.940	<.010	89.7	.010	<.030	<.020	3400	3400	.070
MAR										
01...	.000	1.00	--	51.7	--	--	--	2100	2100	--
APR										
20...	.000	.970	--	82.1	--	--	--	3000	3000	--
JUN										
02...	.000	.990	--	87.1	--	--	--	4500	4600	--
JUL										
19...	.000	.910	--	73.4	.010	--	--	3800	3600	--
SEP										
13...	.000	1.28	<.010	99.1	.050	<.030	<.020	4200	4200	.050

Date	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								
28...	580	700	900	890	99.0	88.0	232	232
NOV								
24...	770	680	1180	1120	127	121	405	326
DEC								
30...	700	710	1280	1290	139	140	371	375
MAR								
01...	270	300	850	850	75.0	75.0	200	200
APR								
20...	610	610	930	940	125	125	335	340
JUN								
02...	730	710	1230	1250	140	140	350	355
JUL								
19...	470	450	1250	1240	136	137	181	195
SEP								
13...	1290	1350	1970	2000	170	170	435	445

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 2003 TO SEPTEMBER 2004

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										
28...	1200	1028	89203	9.0	468	3.0	11.4	99	4.5	4.8
NOV										
24...	1130	1028	89203	5.7	433	1.0	11.4	96	4.7	4.9
DEC										
30...	1300	1028	89203	6.9	357	1.0	13.2	98	4.8	5.1
MAR										
01...	1215	1028	89203	.08	478	.0	13.9	100	5.2	5.4
APR										
20...	1100	1028	89203	7.4	488	6.0	10.8	98	5.0	5.1
JUN										
02...	1115	1028	89203	1.7	475	5.9	9.6	93	5.3	5.2
JUL										
19...	1230	1028	89203	4.1	435	4.3	9.3	96	5.0	5.0
SEP										
13...	1130	1028	89203	16	427	7.0	9.2	94	5.3	5.0

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										
28...	25.0	9.10	1.00	.900	.600	.600	.600	.600	.700	.700
NOV										
24...	20.0	8.00	.700	.700	.500	.500	.300	.300	.500	<.100
DEC										
30...	20.0	3.20	.900	.800	.500	.500	.400	.300	.500	.200
MAR										
01...	16.0	1.70	.800	.800	.500	.500	.400	.400	.800	.600
APR										
20...	16.0	11.0	1.00	.900	.600	.600	.400	.400	.700	.800
JUN										
02...	15.0	14.0	.800	.800	.500	.500	.300	.300	.600	.500
JUL										
19...	17.0	16.6	.700	.700	.400	.400	.300	.300	.500	.600
SEP										
13...	16.0	16.0	1.00	1.00	.500	.500	.400	.400	.900	1.20

Date	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, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Silica, water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water unfltrd mg/L (00946)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)
OCT										
28...	2.00	--	1.14	<.010	--	--	4.30	--	<.010	<.030
NOV										
24...	1.10	--	.970	<.010	--	--	4.25	--	.010	<.030
DEC										
30...	1.70	--	.900	<.010	--	--	5.11	--	.030	<.030
MAR										
01...	2.10	--	1.02	--	--	--	3.45	--	--	--
APR										
20...	1.70	--	.920	--	--	--	3.94	--	--	--
JUN										
02...	2.00	--	1.01	--	--	--	2.55	--	--	--
JUL										
19...	1.10	--	.880	--	--	--	2.21	--	.020	--
SEP										
13...	1.00	--	1.74	.010	--	--	1.62	--	.100	.030

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177790 -- Unnamed Trib to Lorberry Cr nr Lorberry Jct, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	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)	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)
OCT									
28...	<.020	--	--	200	200	--	--	--	--
NOV									
24...	<.020	--	--	<100	<100	--	--	--	--
DEC									
30...	<.020	--	--	<100	<100	--	--	--	--
MAR									
01...	--	--	--	<100	<100	--	--	--	--
APR									
20...	--	--	--	<100	200	--	--	--	--
JUN									
02...	--	--	--	300	300	--	--	--	--
JUL									
19...	--	--	--	200	200	--	--	--	--
SEP									
13...	<.020	--	--	200	300	--	--	--	--

Date	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)	Bromine water unfltrd mg/L (71871)	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)
OCT									
28...	--	--	--	--	--	--	.020	--	--
NOV									
24...	--	--	--	--	--	--	.030	--	--
DEC									
30...	--	--	--	--	--	--	.020	--	--
MAR									
01...	--	--	--	--	--	--	--	--	--
APR									
20...	--	--	--	--	--	--	--	--	--
JUN									
02...	--	--	--	--	--	--	--	--	--
JUL									
19...	--	--	--	--	--	--	--	--	--
SEP									
13...	--	--	--	--	--	--	<.010	--	--

Date	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)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)
OCT										
28...	--	--	--	--	--	--	--	--	--	--
NOV										
24...	--	--	--	--	--	--	--	--	--	--
DEC										
30...	--	--	--	--	--	--	--	--	--	--
MAR										
01...	--	--	--	--	--	--	--	--	--	--
APR										
20...	--	--	--	--	--	--	--	--	--	--
JUN										
02...	--	--	--	--	--	--	--	--	--	--
JUL										
19...	--	--	--	--	--	--	--	--	--	--
SEP										
13...	--	--	--	--	--	--	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177790 -- Unnamed Trib to Lorberry Cr nr Lorberry Jct, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Dysprosium, water, fltrd, µg/L (82331)	Dysprosium, 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)	Gallium water, fltrd, µg/L (01120)	Gallium water, unfltrd µg/L (01122)
OCT										
28...	--	--	--	--	--	--	--	--	--	--
NOV										
24...	--	--	--	--	--	--	--	--	--	--
DEC										
30...	--	--	--	--	--	--	--	--	--	--
MAR										
01...	--	--	--	--	--	--	--	--	--	--
APR										
20...	--	--	--	--	--	--	--	--	--	--
JUN										
02...	--	--	--	--	--	--	--	--	--	--
JUL										
19...	--	--	--	--	--	--	--	--	--	--
SEP										
13...	--	--	--	--	--	--	--	--	--	--

Date	German-ium, water, fltrd, µg/L (01125)	German-ium, water, unfltrd µg/L (01127)	Holmium water, fltrd, µg/L (50577)	Holmium water unfltrd µg/L (01247)	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)
OCT										
28...	--	--	--	--	210	420	--	--	--	--
NOV										
24...	--	--	--	--	130	120	--	--	--	--
DEC										
30...	--	--	--	--	80	90	--	--	--	--
MAR										
01...	--	--	--	--	130	110	--	--	--	--
APR										
20...	--	--	--	--	120	190	--	--	--	--
JUN										
02...	--	--	--	--	320	360	--	--	--	--
JUL										
19...	--	--	--	--	280	340	--	--	--	--
SEP										
13...	--	--	--	--	540	640	--	--	--	--

Date	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)	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)
OCT										
28...	--	--	80.0	70.0	--	--	--	--	6.00	<5.00
NOV										
24...	--	--	40.0	40.0	--	--	--	--	<5.00	<5.00
DEC										
30...	--	--	40.0	40.0	--	--	--	--	<5.00	<5.00
MAR										
01...	--	--	30.0	30.0	--	--	--	--	<5.00	<5.00
APR										
20...	--	--	30.0	30.0	--	--	--	--	<5.00	<5.00
JUN										
02...	--	--	40.0	40.0	--	--	--	--	<5.00	<5.00
JUL										
19...	--	--	40.0	40.0	--	--	--	--	<5.00	<5.00
SEP										
13...	--	--	40.0	40.0	--	--	--	--	<5.00	<5.00

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177790 -- Unnamed Trib to Lorberry Cr nr Lorberry Jct, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	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)	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)
OCT										
28...	--	--	--	--	--	--	--	--	--	--
NOV										
24...	--	--	--	--	--	--	--	--	--	--
DEC										
30...	--	--	--	--	--	--	--	--	--	--
MAR										
01...	--	--	--	--	--	--	--	--	--	--
APR										
20...	--	--	--	--	--	--	--	--	--	--
JUN										
02...	--	--	--	--	--	--	--	--	--	--
JUL										
19...	--	--	--	--	--	--	--	--	--	--
SEP										
13...	--	--	--	--	--	--	--	--	--	--

Date	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)	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)
OCT										
28...	--	--	--	--	--	--	--	--	--	--
NOV										
24...	--	--	--	--	--	--	--	--	--	--
DEC										
30...	--	--	--	--	--	--	--	--	--	--
MAR										
01...	--	--	--	--	--	--	--	--	--	--
APR										
20...	--	--	--	--	--	--	--	--	--	--
JUN										
02...	--	--	--	--	--	--	--	--	--	--
JUL										
19...	--	--	--	--	--	--	--	--	--	--
SEP										
13...	--	--	--	--	--	--	--	--	--	--

Date	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)	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)
OCT										
28...	--	--	--	--	--	--	--	--	--	--
NOV										
24...	--	--	--	--	--	--	--	--	--	--
DEC										
30...	--	--	--	--	--	--	--	--	--	--
MAR										
01...	--	--	--	--	--	--	--	--	--	--
APR										
20...	--	--	--	--	--	--	--	--	--	--
JUN										
02...	--	--	--	--	--	--	--	--	--	--
JUL										
19...	--	--	--	--	--	--	--	--	--	--
SEP										
13...	--	--	--	--	--	--	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177790 -- Unnamed Trib to Lorberry Cr nr Lorberry Jct, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	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				
28...	17.0	14.0	--	--
NOV				
24...	61.0	19.0	--	--
DEC				
30...	14.0	12.0	--	--
MAR				
01...	10.0	10.0	--	--
APR				
20...	15.0	15.0	--	--
JUN				
02...	15.0	15.0	--	--
JUL				
19...	25.0	6.0	--	--
SEP				
13...	30.0	20.0	--	--

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 2003 TO SEPTEMBER 2004

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...	1230	1028	1028	18	447	21	10.9	101	6.0	5.7
28...	0915	1028	89203	33	420	13	11.4	100	5.6	5.3
NOV										
24...	1000	1028	89203	22	391	20	11.2	100	5.6	5.3
DEC										
30...	1030	1028	89203	26	383	15	10.1	99	5.6	5.3
MAR										
01...	0945	1028	89203	7.3	388	8.0	12.5	100	6.2	6.3
APR										
20...	0930	1028	89203	29	353	20	11.1	101	6.4	5.8
JUN										
02...	0915	1028	89203	9.2	270	11	10.6	100	7.0	6.3
JUL										
19...	0945	1028	89203	9.5	306	11	10.4	100	6.5	5.5
SEP										
13...	0945	1028	89203	5.8	264	11	10.4	100	6.6	6.2

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...	200	11.9	8.25	8.40	12.2	12.0	.875	.875	2.50	2.55
28...	147	9.70	7.70	7.50	9.50	9.00	.900	.900	3.00	2.90
NOV										
24...	180	10.2	8.20	7.80	11.5	10.8	.800	.700	3.90	3.60
DEC										
30...	177	8.30	8.10	8.20	11.8	12.2	.900	.900	2.70	3.00
MAR										
01...	217	6.00	11.8	11.9	13.4	13.6	1.00	1.00	3.30	3.30
APR										
20...	187	11.4	9.10	9.40	11.7	11.8	.900	.900	3.40	3.20
JUN										
02...	177	12.6	8.80	9.00	12.1	12.5	.900	.900	3.20	3.30
JUL										
19...	200	14.3	11.4	11.8	15.8	15.5	1.00	.900	3.40	3.40
SEP										
13...	251	13.8	14.8	15.2	18.6	19.3	1.10	1.20	4.20	4.40

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 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
01...	3.20	3.41	<.010	81.4	.030	<.030	<.020	49.0	550	.080
28...	2.40	3.22	<.010	55.1	.090	<.030	<.020	200	600	.070
NOV										
24...	1.90	3.26	<.010	69.1	.060	<.030	<.020	300	500	.060
DEC										
30...	2.20	3.50	<.010	69.2	.060	<.030	<.020	200	500	.070
MAR										
01...	4.10	5.12	--	83.0	--	--	--	<100	400	--
APR										
20...	2.30	4.06	--	73.5	--	--	--	<100	500	--
JUN										
02...	6.60	4.71	--	70.9	--	--	--	<100	400	--
JUL										
19...	2.10	4.52	--	85.4	.070	--	--	<100	600	--
SEP										
13...	3.40	5.27	<.010	105	.100	<.030	<.020	<100	500	.040

Date	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								
01...	1300	2500	970	985	46.0	49.0	119	124
28...	1270	2000	640	630	35.0	39.0	74.0	75.0
NOV								
24...	1460	2090	1000	950	53.0	41.0	286	141
DEC								
30...	1230	2330	970	1010	46.0	49.0	137	138
MAR								
01...	990	1680	1030	1030	40.0	40.0	90.0	90.0
APR								
20...	1630	2950	860	910	50.0	50.0	135	160
JUN								
02...	1290	2170	930	960	35.0	35.0	70.0	75.0
JUL								
19...	1260	1880	1040	1030	50.0	48.0	65.0	60.0
SEP								
13...	1740	2800	1380	1420	55.0	55.0	120	130

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 2003 TO SEPTEMBER 2004

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										
28...	1000	1028	89203	11	276	31	11.2	100	6.9	6.8
NOV										
24...	1030	1028	89203	18	299	17	11.2	99	6.8	6.4
DEC										
30...	1100	1028	89203	7.3	345	26	11.6	98	6.8	6.5
MAR										
01...	1030	1028	89203	3.8	312	13	12.4	101	6.8	6.7
APR										
20...	1000	1028	89203	7.5	227	15	11.2	102	7.0	6.6
JUN										
02...	1015	1028	89203	5.4	225	18	10.6	99	7.5	6.8
JUL										
19...	1015	1028	89203	5.2	222	12	10.5	100	7.2	6.6
SEP										
13...	1015	1028	89203	3.8	217	15	10.3	100	7.3	6.7

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										
28...	199	10.5	15.2	15.4	8.70	8.90	1.60	1.50	9.70	9.90
NOV										
24...	281	10.1	21.1	19.7	13.0	12.1	1.70	1.50	11.4	9.70
DEC										
30...	309	8.30	25.0	24.8	14.7	14.8	2.30	2.30	10.8	10.9
MAR										
01...	347	6.50	25.9	26.4	14.8	15.3	2.50	2.60	14.0	14.0
APR										
20...	296	11.1	22.4	22.9	12.9	13.0	2.00	2.00	10.5	10.7
JUN										
02...	326	12.7	25.8	26.9	14.9	15.5	2.80	2.90	12.9	13.6
JUL										
19...	330	14.0	26.0	25.6	14.6	14.6	2.60	2.50	14.9	14.5
SEP										
13...	382	14.1	34.9	35.4	19.6	19.9	3.10	3.10	16.5	16.8

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571758 -- Lower Rausch Creek near Lorberry Junction, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
28...	13.0	9.23	<.010	62.2	.150	<.030	<.020	<100	400	.070
NOV										
24...	9.00	10.5	<.010	95.5	.080	<.030	<.020	<100	500	.090
DEC										
30...	23.0	13.4	<.010	108	.110	<.030	<.020	<100	700	.100
MAR										
01...	13.0	19.5	--	110	--	--	--	<100	500	--
APR										
20...	14.0	15.5	--	99.4	--	--	--	<100	400	--
JUN										
02...	15.0	17.0	--	116	--	--	--	<100	600	--
JUL										
19...	15.0	16.3	--	104	.080	--	--	<100	530	--
SEP										
13...	24.0	17.4	<.010	141	.140	<.030	<.020	<100	400	.080

Date	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								
28...	670	1540	550	610	38.0	33.0	43.0	54.0
NOV								
24...	1360	1910	980	930	36.0	33.0	128	81.0
DEC								
30...	930	2040	1170	1190	42.0	43.0	74.0	87.0
MAR								
01...	840	1900	1170	1220	35.0	40.0	55.0	65.0
APR								
20...	1220	2100	880	900	40.0	40.0	70.0	80.0
JUN								
02...	760	1780	1000	1050	35.0	40.0	45.0	70.0
JUL								
19...	850	1550	1000	1010	39.0	39.0	85.0	34.0
SEP								
13...	230	2060	1240	1270	40.0	40.0	30.0	50.0

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 2003 TO SEPTEMBER 2004

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										
28...	0930	1028	89203	12	332	18	11.3	100	6.7	6.8
NOV										
24...	1015	1028	89203	7.5	347	12	11.3	100	6.4	6.4
DEC										
30...	1045	1028	89203	9.3	338	17	11.8	99	6.4	6.8
MAR										
01...	1000	1028	89203	3.5	355	13	12.9	102	6.5	6.8
APR										
20...	0945	1028	89203	7.3	274	12	11.2	103	7.1	6.5
JUN										
02...	0945	1028	89203	5.4	236	17	10.5	101	7.3	6.8
JUL										
19...	1000	1028	89203	5.1	235	9.8	10.3	100	7.0	6.6
SEP										
13...	1000	1028	89203	3.0	304	10	9.8	100	7.2	6.7

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										
28...	199	10.0	13.9	14.6	8.80	8.90	1.60	1.50	10.6	11.1
NOV										
24...	273	9.80	20.8	19.0	12.8	11.6	1.70	1.50	11.3	9.50
DEC										
30...	301	7.60	23.0	23.7	14.2	14.7	2.10	2.20	10.9	11.1
MAR										
01...	343	5.30	25.1	25.4	14.6	14.7	2.40	2.40	13.0	13.1
APR										
20...	295	11.8	22.2	22.6	12.7	12.7	2.00	2.00	10.7	10.5
JUN										
02...	327	13.6	26.7	27.6	14.8	15.2	3.00	3.00	13.6	13.6
JUL										
19...	327	15.1	25.7	26.5	14.7	14.6	2.70	2.60	14.3	14.1
SEP										
13...	343	16.3	35.6	35.3	19.9	19.6	3.10	3.00	16.0	16.1

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571760 -- Lower Rausch Creek at Lorberry Junction, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
28...	15.0	9.62	<.010	60.9	.170	<.030	<.020	<100	300	.050
NOV										
24...	16.0	11.6	<.010	93.0	.090	<.030	<.020	<100	400	.070
DEC										
30...	15.0	13.5	<.010	103	.100	<.030	<.020	<100	600	.090
MAR										
01...	19.0	19.7	--	109	--	--	--	<100	400	--
APR										
20...	10.0	15.9	--	99.3	--	--	--	<100	300	--
JUN										
02...	15.0	17.1	--	115	--	--	--	<100	400	--
JUL										
19...	15.0	15.8	--	104	.080	--	--	<100	400	--
SEP										
13...	24.0	16.9	.020	141	.130	<.030	<.020	<100	300	.070

Date	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								
28...	510	1010	550	570	33.0	20.0	40.0	52.0
NOV								
24...	1000	1390	940	870	36.0	34.0	125	72.0
DEC								
30...	730	1850	1130	1150	39.0	42.0	75.0	81.0
MAR								
01...	580	1650	1150	1150	35.0	40.0	55.0	60.0
APR								
20...	850	1670	840	860	35.0	40.0	65.0	80.0
JUN								
02...	360	1210	980	1020	35.0	40.0	45.0	55.0
JUL								
19...	470	1180	1020	1000	37.0	38.0	92.0	30.0
SEP								
13...	90	940	1100	1100	35.0	35.0	25.0	35.0

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 2003 TO SEPTEMBER 2004

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										
28...	0900	1028	89203	317	393	39	11.3	98	6.3	6.5
NOV										
24...	0930	1028	89203	66	309	7.0	11.6	100	6.8	6.2
DEC										
30...	1015	1028	89203	81	352	13	13.2	101	6.8	6.6
MAR										
01...	0930	1028	89203	53	397	10	13.5	100	6.5	6.5
APR										
20...	0915	1028	89203	76	334	13	10.8	100	6.9	6.5
JUN										
02...	0900	1028	89203	61	344	32	10.3	99	7.2	6.7
JUL										
19...	0930	1028	89203	75	326	10	9.8	100	7.0	6.3
SEP										
13...	0930	1028	89203	31	332	4.0	10.3	104	7.2	6.4

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)
OCT										
28...	99.0	9.30	6.70	7.00	4.20	4.40	1.40	1.40	4.00	4.00
NOV										
24...	161	8.50	10.5	9.80	7.90	7.30	1.00	.900	5.50	5.00
DEC										
30...	168	5.00	10.7	10.9	8.60	8.60	1.10	1.00	4.60	5.00
MAR										
01...	188	2.90	11.8	11.8	8.20	8.20	1.30	1.30	6.60	6.60
APR										
20...	158	12.3	10.3	10.4	6.90	7.10	1.10	1.10	5.70	5.50
JUN										
02...	180	13.6	12.4	12.9	8.70	9.20	1.50	1.50	6.20	6.80
JUL										
19...	152	16.4	10.1	10.0	6.90	6.8	1.20	1.00	4.60	4.60
SEP										
13...	221	15.4	<.100	18.2	<.100	12.2	<.100	1.30	4.50	6.30

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571798 -- Swatara Creek at Lorberry Junction, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Sulfate water, fltrd, mg/L (00945)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Bromine water unfltrd mg/L (71871)
OCT										
28...	7.20	5.50	<.010	28.6	.190	<.030	<.020	200	500	.060
NOV										
24...	5.50	7.10	<.010	48.9	.120	<.030	<.020	<100	300	.050
DEC										
30...	12.0	8.14	<.010	53.1	.200	<.030	<.020	<100	400	.080
MAR										
01...	7.50	12.1	--	53.4	--	--	--	<100	400	--
APR										
20...	4.90	10.0	--	46.5	--	--	--	<100	300	--
JUN										
02...	9.00	11.2	--	55.5	--	--	--	<100	300	--
JUL										
19...	5.50	8.64	--	41.7	.680	--	--	<100	300	--
SEP										
13...	7.10	11.3	.010	73.0	.300	.030	<.020	<100	<100	<.010

Date	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								
28...	220	860	380	470	15.0	16.0	33.0	39.0
NOV								
24...	430	650	550	510	17.0	21.0	146	58.0
DEC								
30...	360	980	530	530	20.0	20.0	53.0	52.0
MAR								
01...	200	830	630	620	25.0	20.0	45.0	45.0
APR								
20...	150	810	390	420	20.0	20.0	50.0	65.0
JUN								
02...	250	850	490	550	20.0	25.0	35.0	45.0
JUL								
19...	100	400	450	470	21.0	22.0	49.0	24.0
SEP								
13...	<10.0	220	<10.0	470	10.0	20.0	<5.00	35.0

ANALYSIS OF DATA COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA FLUVIAL GEOMORPHIC REFERENCE REACH NETWORK

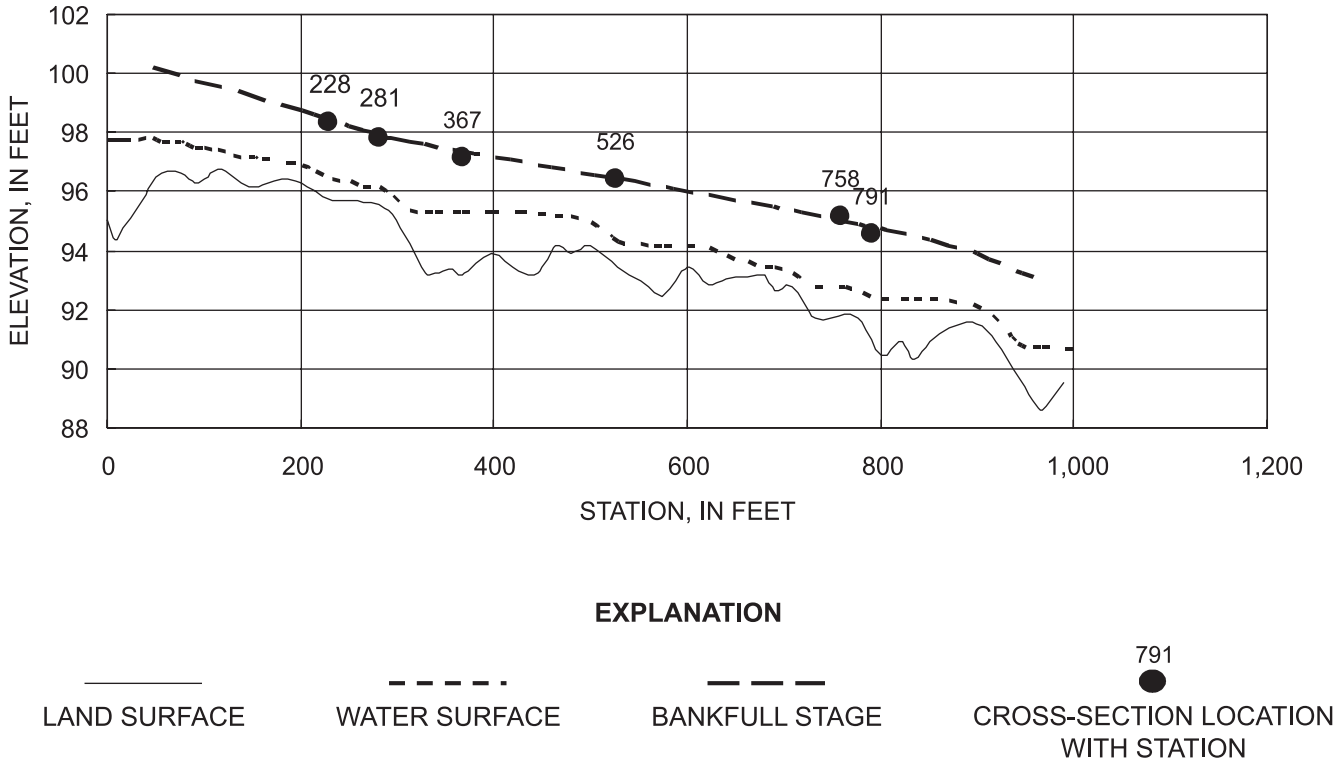
Fluvial geomorphic reference reaches provide long-term data and a basis on which to model stream stabilization and other fluvial-geomorphology based projects. The Pennsylvania Fluvial Geomorphic Reference Reach Network was established in 2004. Geomorphic data collected from stations in the network will be reported annually. It is expected that these data will be used by watershed managers and engineers in support of stream restoration efforts and to promote research in the area of fluvial geomorphology.

Fluvial geomorphic reference reaches are characterized by the pattern, profile, and dimension of the bankfull stream channel. These data are obtained through surveys of the longitudinal profile of the stream, numerous cross-section surveys, and quantification of the particle distribution of bottom material within the stream reach.

The longitudinal profile survey is a survey along the length of the stream displayed as if viewed from the side, or in profile. There are three components to the longitudinal profile; the bankfull surface; the water surface; and the streambed along the line of maximum depth and velocity, or thalweg. Locations of surveyed cross sections are plotted on the longitudinal profile along with their respective distance along the reach (station).

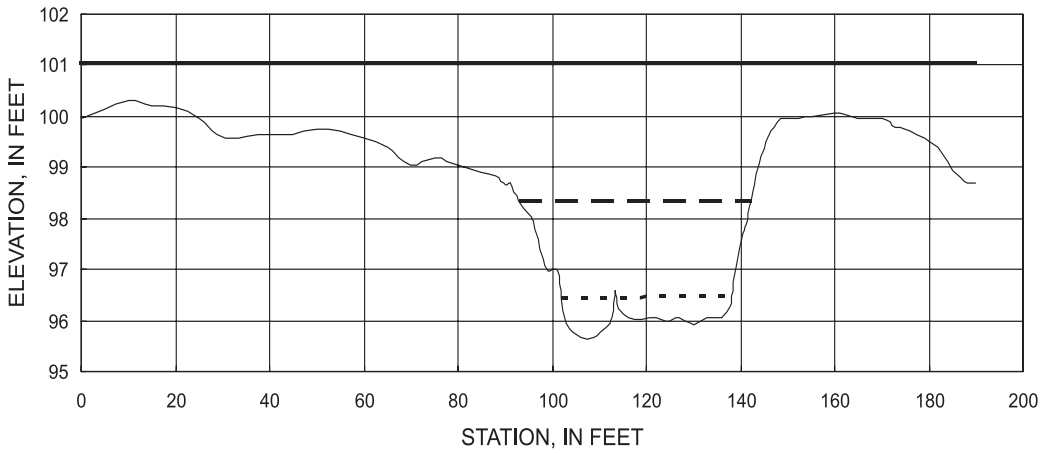
Cross-section surveys are surveyed perpendicular to the stream channel and are displayed as if looking in the downstream direction with station zero being located in the left overbank area. There are four components to the cross-section survey; the land surface of the streambed, streambanks, and overbank areas; the water surface on the day of the survey; the bankfull-water surface; and the water surface at two times the maximum bankfull water depth, or flood-prone width.

The data presented on the following pages were collected in a reach of Bermudian Creek near the USGS streamgaging station located near Heidlersburg, PA (USGS station number 01573849). Streamflow data collected at this station also are presented in this report. The Bermudian Creek station is the first reference reach established within the network. The slope of the water surface assigned to the longitudinal profile along the Bermudian Creek reach is 0.00652 feet per foot. For additional information, contact Pete Cinotto at the USGS Pennsylvania Water Science Center, Exton Office, 770 Pennsylvania Drive, Suite 116, Exton, PA 19341; 610-321-2434 (email pcinotto@usgs.gov).



ANALYSIS OF DATA COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA FLUVIAL GEOMORPHIC REFERENCE REACH NETWORK

BERMUDIAN CREEK CROSS SECTION STATION 228



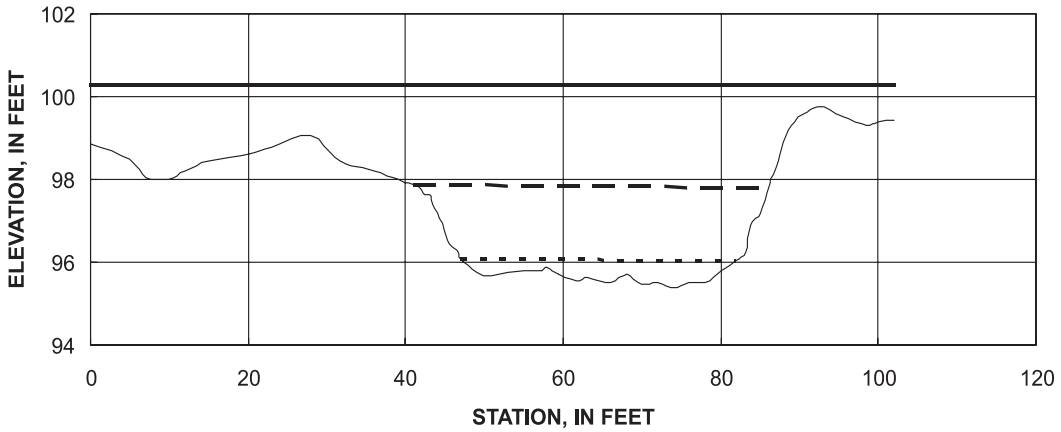
EXPLANATION

LAND SURFACE — WATER SURFACE — BANKFULL STAGE — TWICE BANKFULL STAGE

Cross-section station	Cross-section type	Bankfull area	Bankfull mean depth	Bankfull width	Stream type [1]	D_{50} [2]	D_{84} [3]
228	Riffle	96.3	2.0	49.3	C4	54.6	113.4

[1] Rosgen, 1996 (Stream only classified in riffle sections)
[2] D_{50}, particle size larger than 50 percent of the cumulative sample
[3] D_{84}, particle size larger than 84 percent of the cumulative sample

BERMUDIAN CREEK CROSS SECTION STATION 281



EXPLANATION

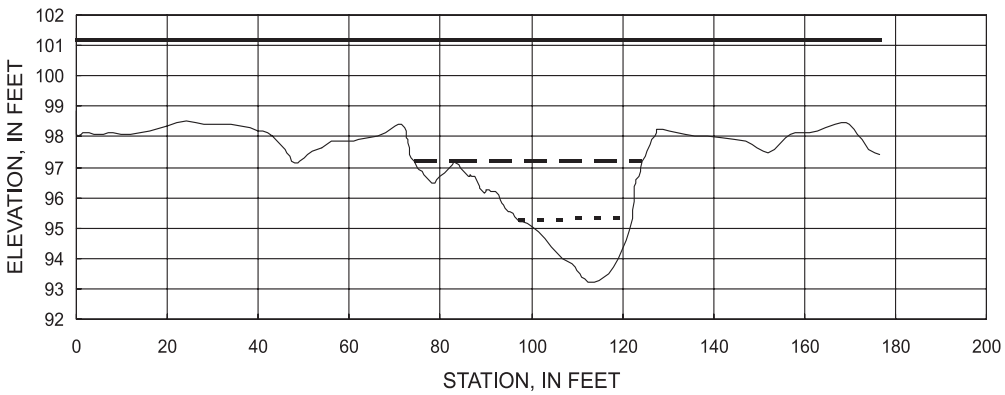
LAND SURFACE — WATER SURFACE — BANKFULL STAGE — TWICE BANKFULL STAGE

Cross-section station	Cross-section type	Bankfull area	Bankfull mean depth	Bankfull width	Stream type [1]	D_{50} [2]	D_{84} [3]
281	Riffle	84.6	1.9	45.0	C4	41.5	110.9

[1] Rosgen, 1996 (Stream only classified in riffle sections)
[2] D_{50}, particle size larger than 50 percent of the cumulative sample
[3] D_{84}, particle size larger than 84 percent of the cumulative sample

ANALYSIS OF DATA COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA FLUVIAL GEOMORPHIC REFERENCE REACH NETWORK

BERMUDIAN CREEK CROSS SECTION STATION 367



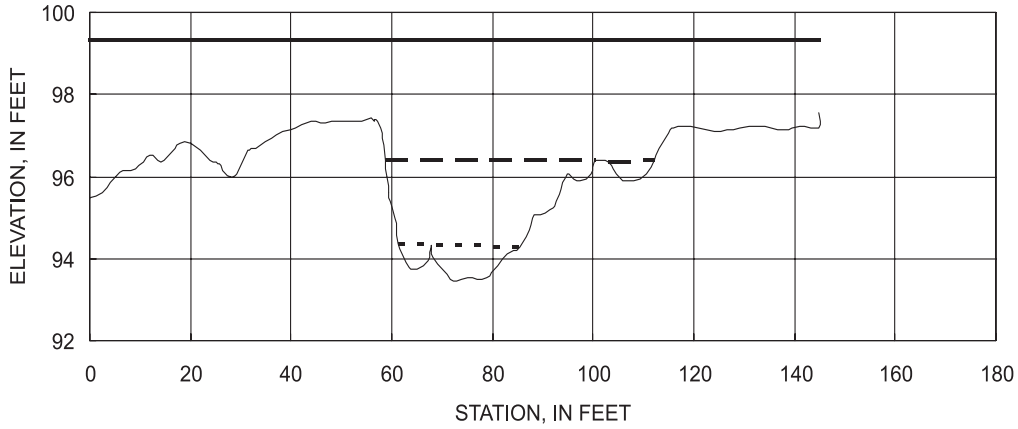
EXPLANATION

LAND SURFACE — WATER SURFACE — BANKFULL STAGE — TWICE BANKFULL STAGE

Cross-section station	Cross-section type	Bankfull area	Bankfull mean depth	Bankfull width	Stream type [1]	D_{50}	D_{84}
367	Pool	94.5	1.3	50.4	N/A	52.6	111.7

[1] Rosgen, 1996 (Stream only classified in riffle sections)
[2] D_{50}, particle size larger than 50 percent of the cumulative sample
[3] D_{84}, particle size larger than 84 percent of the cumulative sample

BERMUDIAN CREEK CROSS SECTION STATION 526



EXPLANATION

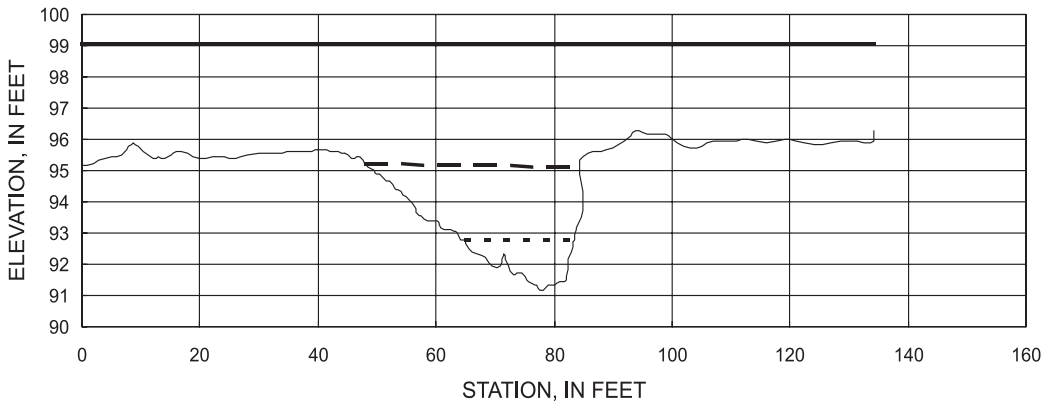
LAND SURFACE — WATER SURFACE — BANKFULL STAGE — TWICE BANKFULL STAGE

Cross-section station	Cross-section type	Bankfull area	Bankfull mean depth	Bankfull width	Stream type [1]	D_{50}	D_{84}
526	Riffle	83.6	1.1	50.8	C4	33.8	99.9

[1] Rosgen, 1996 (Stream only classified in riffle sections)
[2] D_{50}, particle size larger than 50 percent of the cumulative sample
[3] D_{84}, particle size larger than 84 percent of the cumulative sample

ANALYSIS OF DATA COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA FLUVIAL GEOMORPHIC REFERENCE REACH NETWORK

BERMUDIAN CREEK CROSS SECTION STATION 758



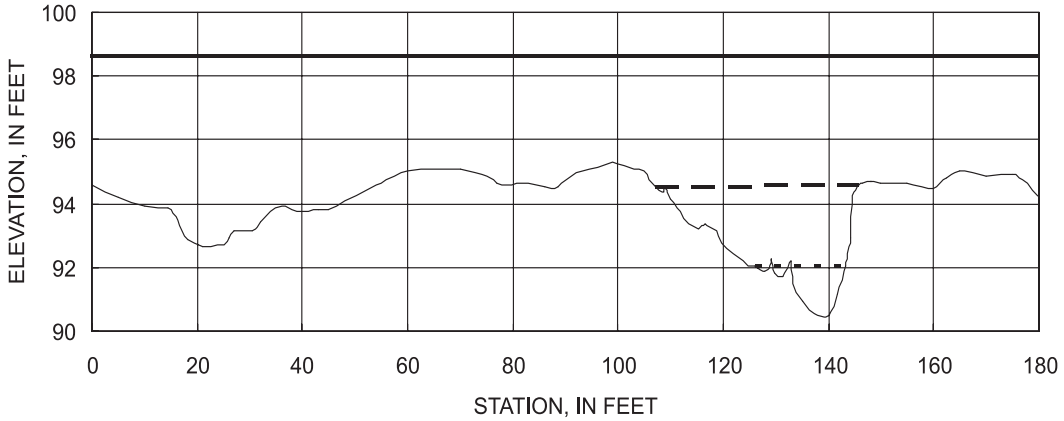
EXPLANATION

LAND SURFACE — WATER SURFACE — BANKFULL STAGE — TWICE BANKFULL STAGE

Cross-section station	Cross-section type	Bankfull area	Bankfull mean depth	Bankfull width	Stream type [1]	D_{50}	D_{84}
758	Run	83.5	2.3	36.3	N/A	64.0	126.0

[1] Rosgen, 1996 (Stream only classified in riffle sections)
[2] D_{50}, particle size larger than 50 percent of the cumulative sample
[3] D_{84}, particle size larger than 84 percent of the cumulative sample

BERMUDIAN CREEK CROSS SECTION STATION 791



EXPLANATION

LAND SURFACE — WATER SURFACE — BANKFULL STAGE — TWICE BANKFULL STAGE

Cross-section station	Cross-section type	Bankfull area	Bankfull mean depth	Bankfull width	Stream type [1]	D_{50}	D_{84}
791	Run	83.1	2.2	38.7	N/A	61.0	146.5

[1] Rosgen, 1996 (Stream only classified in riffle sections)
[2] D_{50}, particle size larger than 50 percent of the cumulative sample
[3] D_{84}, particle size larger than 84 percent of the cumulative sample

SPECIAL NOTES, REMARK CODES, AND SELECTED CONSTITUENT DEFINITIONS

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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.
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.

****

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

(71999) SAMPLE PURPOSE CODES:

10--Routine
15--NAWQA
20--NASQAN
30--Benchmark
50--GW Network

(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
4040--Submersible pump

(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: (partial listing)

1028 --U.S. Geological Survey

(00028) AGENCY ANALYZING SAMPLE CODES: (partial listing)

1028 --U.S. Geological Survey
80020 --U.S. Geological Survey, National Water-Quality Laboratory, Denver, Colorado
9813 --Pennsylvania Department of Environmental Protection
83613 --USGS Water Science Center, Water-Quality Laboratory, Troy, New York

MEDIUM CODES: (partial listing)

9-- Surface water.
6--Ground water.
R-- Quality-control sample. Surface water.
S--Quality-control sample, Ground water.
Q-- Quality-control sample. Artificial.

GROUND-WATER-LEVEL AND GROUND-WATER-QUALITY STATION RECORDS

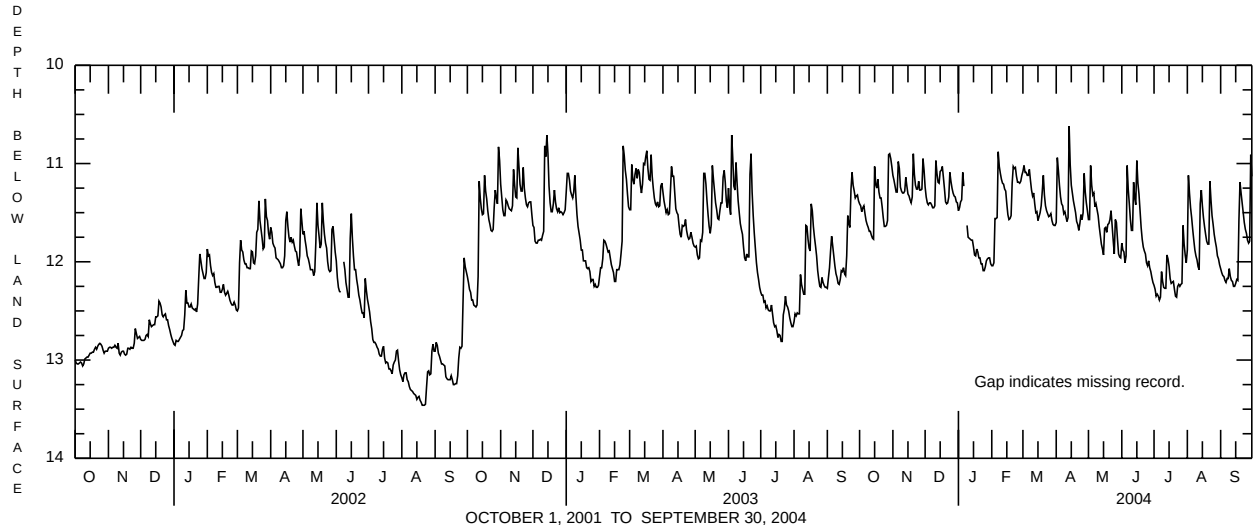
ADAMS COUNTY

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 USGS Pennsylvania Water Science Center. 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 USGS Pennsylvania Water Science Center.
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, 9.51 ft below land-surface datum, Dec. 11, 2003; lowest, 14.02 ft below land-surface datum, July 16-18, 1988.
EXTREMES FOR CURRENT YEAR.--Highest water level, 9.51 ft below land-surface datum, Dec. 11; lowest, 12.39 ft below land-surface datum, July 6.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.41	11.12	11.24	11.48	12.04	11.08	11.60	11.57	11.81	12.24	11.88	12.07
2	11.43	11.17	11.34	11.45	12.04	11.02	10.94	11.57	11.88	12.28	11.12	12.11
3	11.49	11.23	11.40	11.39	12.01	11.09	11.07	11.02	11.90	12.35	11.30	12.14
4	11.45	11.29	11.42	11.37	11.56	11.09	11.22	11.22	12.01	12.33	11.45	12.15
5	11.43	11.29	11.40	11.09	11.56	11.12	11.34	11.32	11.94	12.35	11.55	12.19
6	11.51	10.98	11.40	11.23	11.55	11.12	11.41	11.30	11.02	12.39	11.67	12.21
7	11.58	11.05	11.42	---	10.88	11.06	11.43	11.44	11.26	12.36	11.78	12.17
8	11.62	11.24	11.45	---	11.03	11.17	11.51	11.41	11.41	12.10	11.88	12.17
9	11.65	11.28	11.45	11.63	11.10	11.27	11.49	11.47	11.57	12.20	11.94	12.07
10	11.69	11.30	11.43	11.75	11.16	11.33	11.54	11.53	11.68	12.26	11.98	12.15
11	11.69	11.30	10.97	11.76	11.20	11.30	11.59	11.64	11.68	12.27	12.05	12.19
12	11.73	11.28	11.10	11.77	11.21	11.41	11.55	11.73	11.19	12.27	12.08	12.20
13	11.76	11.14	11.19	11.78	11.26	11.50	10.62	11.82	11.35	11.93	11.41	12.25
14	11.77	11.23	11.20	11.78	11.28	11.49	11.01	11.87	11.42	11.97	11.27	12.25
15	11.03	11.31	11.08	11.85	11.41	11.58	11.22	11.93	10.97	12.05	11.43	12.22
16	11.21	11.33	11.07	11.93	11.52	11.54	11.30	11.66	11.20	12.17	11.55	12.18
17	11.25	11.37	11.03	11.94	11.57	11.50	11.38	11.65	11.31	12.22	11.64	12.19
18	11.16	11.40	11.14	11.87	11.56	11.43	11.44	11.70	11.48	12.21	11.72	11.58
19	11.29	11.34	11.26	11.90	11.53	11.28	11.50	11.62	11.65	12.20	11.79	11.19
20	11.35	10.90	11.39	11.96	11.20	11.12	11.59	11.61	11.77	12.28	11.82	11.30
21	11.35	11.11	11.41	11.96	11.03	11.32	11.62	11.57	11.85	12.35	11.82	11.40
22	11.44	11.22	11.40	12.02	11.05	11.43	11.68	11.48	11.89	12.36	11.18	11.50
23	11.55	11.26	11.34	12.02	11.04	11.48	11.61	11.63	11.92	12.25	11.37	11.60
24	11.64	11.26	11.09	12.09	11.13	11.51	11.52	11.78	12.01	12.23	11.53	11.67
25	11.64	11.18	11.18	12.09	11.19	11.54	11.57	11.92	12.04	12.25	11.62	11.71
26	11.63	11.27	11.25	12.05	11.19	11.53	11.50	11.57	11.99	12.23	11.72	11.78
27	11.58	11.27	11.30	11.99	11.20	11.51	11.10	11.60	12.06	12.22	11.79	11.81
28	10.91	11.26	11.33	11.97	11.18	11.58	11.29	11.77	12.10	11.63	11.85	11.79
29	10.90	10.95	11.34	11.96	11.12	11.62	11.40	11.92	12.16	11.82	11.94	10.91
30	10.95	11.07	11.39	11.96	---	11.63	11.48	11.95	12.21	11.93	11.97	11.13
31	11.03	---	11.40	12.02	---	11.63	---	11.96	---	12.01	12.03	---
MEAN	11.42	11.21	11.28	11.80	11.34	11.36	11.38	11.62	11.69	12.18	11.68	11.88
MAX	11.77	11.40	11.45	12.09	12.04	11.63	11.68	11.96	12.21	12.39	12.08	12.25
MIN	10.90	10.90	10.97	11.09	10.88	11.02	10.62	11.02	10.97	11.63	11.12	10.91



OCTOBER 1, 2001 TO SEPTEMBER 30, 2004

ADAMS COUNTY

394430077225001. Local number, AD 808.

LOCATION.--Lat 39°44'30", long 77°22'50", Hydrologic Unit 02050306, on lot P-176 in Carroll Valley, Adams County.
Owner: Carroll Valley Borough.
AQUIFER.--Metabasalt.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 234 ft, cased to 20 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 790 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of steel shelf, 2.82 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 USGS Pennsylvania Water Science Center.
PERIOD OF RECORD.--September 2003 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 74.50 ft below land-surface datum, Apr. 28, 2004; lowest, 108.22 ft below land-surface datum, Sept. 11, 2003.
EXTREMES FOR CURRENT YEAR.--Highest water level, 74.50 ft below land-surface datum, Apr. 28; lowest, 108.02 ft below land-surface datum, Sept. 15.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), **WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003**
MEAN VALUES

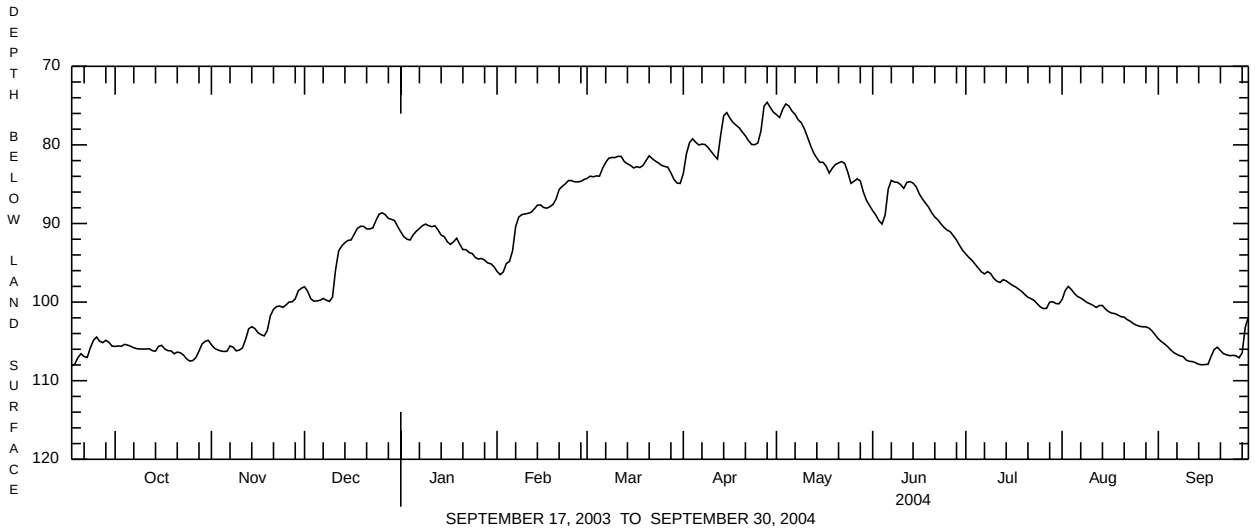
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	108.08
18	---	---	---	---	---	---	---	---	---	---	---	107.89
19	---	---	---	---	---	---	---	---	---	---	---	107.05
20	---	---	---	---	---	---	---	---	---	---	---	106.57
21	---	---	---	---	---	---	---	---	---	---	---	106.93
22	---	---	---	---	---	---	---	---	---	---	---	107.04
23	---	---	---	---	---	---	---	---	---	---	---	105.82
24	---	---	---	---	---	---	---	---	---	---	---	104.87
25	---	---	---	---	---	---	---	---	---	---	---	104.44
26	---	---	---	---	---	---	---	---	---	---	---	104.98
27	---	---	---	---	---	---	---	---	---	---	---	105.16
28	---	---	---	---	---	---	---	---	---	---	---	104.86
29	---	---	---	---	---	---	---	---	---	---	---	105.12
30	---	---	---	---	---	---	---	---	---	---	---	105.60
31	---	---	---	---	---	---	---	---	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	106.03
MAX	---	---	---	---	---	---	---	---	---	---	---	108.08
MIN	---	---	---	---	---	---	---	---	---	---	---	104.44

ADAMS COUNTY

394430077225001. Local number, AD 808--Continued.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), **WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004**
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	105.64	105.42	98.05	91.07	96.09	84.26	83.64	76.15	88.37	93.89	99.68	104.67
2	105.58	105.87	98.63	91.68	96.51	83.98	81.14	76.52	88.93	94.33	98.53	105.03
3	105.62	106.08	99.57	92.00	96.18	84.06	79.72	75.48	89.64	94.70	98.01	105.32
4	105.38	106.21	99.89	92.10	95.09	83.95	79.23	74.79	90.07	95.18	98.41	105.67
5	105.47	106.28	99.85	91.45	94.83	83.98	79.67	75.04	88.93	95.68	98.92	106.09
6	105.62	106.26	99.77	90.98	93.49	82.98	80.01	75.69	85.62	96.14	99.29	106.43
7	105.81	105.58	99.54	90.63	90.40	82.23	79.90	76.12	84.52	96.42	99.48	106.65
8	105.93	105.74	99.75	90.27	89.18	81.69	79.95	76.80	84.72	96.12	99.75	106.84
9	105.96	106.20	99.92	90.08	88.87	81.60	80.35	77.18	84.77	96.38	100.04	106.94
10	105.97	106.11	99.38	90.28	88.79	81.61	80.85	77.96	85.05	96.98	100.22	107.38
11	105.97	105.84	95.87	90.41	88.71	81.45	81.36	79.01	85.53	97.34	100.41	107.53
12	105.94	104.77	93.47	90.28	88.56	81.47	81.79	80.10	84.77	97.51	100.68	107.57
13	106.18	103.40	92.85	90.83	88.15	82.12	78.87	81.03	84.67	97.15	100.44	107.72
14	106.24	103.13	92.44	91.47	87.67	82.40	76.30	81.68	84.86	97.30	100.43	107.91
15	105.62	103.37	92.15	91.68	87.64	82.62	75.89	82.22	85.32	97.59	100.90	107.98
16	105.50	103.88	92.09	92.32	87.96	82.93	76.60	82.21	86.23	97.86	101.22	107.94
17	105.97	104.14	91.36	92.66	88.06	82.77	77.14	82.72	86.87	98.07	101.40	107.92
18	106.18	104.30	90.63	92.33	87.87	82.88	77.50	83.59	87.41	98.35	101.47	106.89
19	106.20	103.62	90.36	91.88	87.59	82.62	77.82	82.96	87.92	98.64	101.64	106.03
20	106.57	101.73	90.36	92.65	86.91	82.00	78.36	82.49	88.63	99.04	101.86	105.74
21	106.36	100.92	90.68	93.32	85.69	81.39	78.85	82.29	89.17	99.38	101.92	106.16
22	106.45	100.57	90.70	93.33	85.27	81.75	79.46	82.12	89.54	99.57	102.23	106.56
23	106.73	100.50	90.55	93.70	84.96	82.05	79.94	82.37	90.06	99.79	102.45	106.71
24	107.22	100.67	89.63	93.81	84.54	82.30	79.98	83.51	90.50	100.22	102.74	106.82
25	107.50	100.38	88.81	94.32	84.55	82.60	79.76	84.89	90.85	100.61	102.95	106.77
26	107.44	100.00	88.64	94.52	84.70	82.74	78.23	84.62	91.06	100.83	103.08	106.83
27	107.06	99.96	88.88	94.45	84.71	82.84	75.09	84.33	91.57	100.79	103.14	107.09
28	106.24	99.59	89.36	94.66	84.64	83.56	74.58	84.58	92.11	100.01	103.15	106.46
29	105.32	98.55	89.47	95.02	84.41	84.40	75.23	86.00	92.81	99.96	103.31	103.20
30	104.99	98.23	89.63	95.12	---	84.86	75.83	87.06	93.43	100.18	103.68	101.90
31	104.86	---	90.39	95.49	---	84.90	---	87.73	---	100.22	104.18	---
MEAN	106.05	103.24	93.63	92.41	88.69	82.81	78.77	80.94	88.13	97.94	101.15	106.42
MAX	107.50	106.28	99.92	95.49	96.51	84.90	83.64	87.73	93.43	100.83	104.18	107.98
MIN	104.86	98.23	88.64	90.08	84.41	81.39	74.58	74.79	84.52	93.89	98.01	101.90



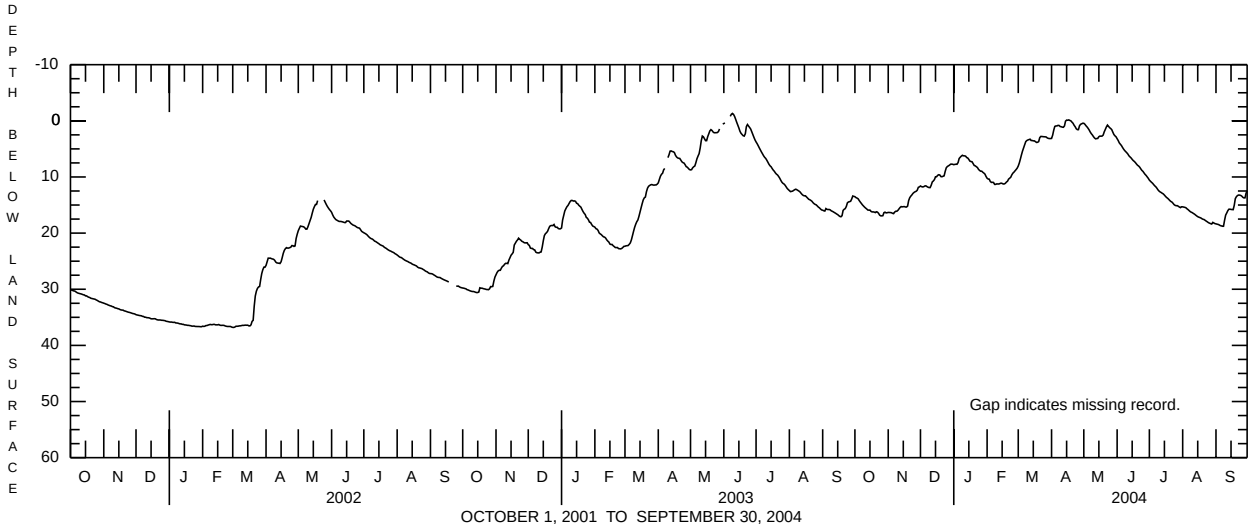
BEDFORD COUNTY

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 USGS Pennsylvania Water Science Center.
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, 0.23 ft above land-surface datum, Apr. 17; lowest, 18.78 ft below land-surface datum, Sept. 8.

DEPTH ABOVE (-) AND BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.51	16.32	11.61	7.81	10.23	8.05	3.14	0.44	3.19	10.56	15.32	18.35
2	13.68	16.33	11.72	7.76	10.36	7.49	2.56	0.61	3.51	10.76	15.37	18.41
3	13.77	16.34	11.78	7.73	10.39	6.79	1.68	0.87	3.92	10.95	15.41	18.45
4	13.89	16.37	11.74	7.74	10.81	6.05	1.00	1.08	4.17	11.12	15.48	18.54
5	14.20	16.48	11.61	7.43	10.97	5.37	0.91	1.34	4.40	11.36	15.67	18.66
6	14.47	16.53	11.58	6.71	10.95	4.80	0.91	1.64	4.73	11.58	15.81	18.71
7	14.72	16.25	11.71	6.49	10.98	4.24	0.81	2.00	5.03	11.75	15.99	18.78
8	14.97	16.11	11.82	6.29	11.32	3.70	0.83	2.29	5.29	12.00	16.16	18.78
9	15.18	16.11	11.89	6.14	11.32	3.51	1.02	2.53	5.49	12.29	16.28	17.71
10	15.38	15.95	11.89	6.23	11.23	3.41	1.05	2.82	5.69	12.51	16.36	16.79
11	15.55	15.69	11.47	6.24	11.25	3.34	1.13	3.06	5.92	12.66	16.51	16.42
12	15.70	15.44	10.89	6.29	11.25	3.27	1.15	3.21	6.23	12.77	16.62	16.01
13	15.89	15.28	10.71	6.54	11.17	3.51	0.91	3.16	6.43	12.91	16.78	15.75
14	15.91	15.32	10.46	6.62	11.10	3.51	0.06	3.14	6.61	13.02	16.93	15.74
15	15.90	15.29	9.97	6.88	11.15	3.57	-0.13	2.83	6.86	13.23	17.07	15.78
16	16.14	15.28	9.96	7.18	11.25	3.57	-0.10	2.72	7.08	13.45	17.16	15.81
17	16.23	15.35	9.71	7.25	11.24	3.71	-0.17	2.74	7.23	13.65	17.23	15.82
18	16.22	15.36	9.60	7.29	11.13	3.85	-0.07	2.72	7.44	13.79	17.31	15.04
19	16.26	15.20	9.65	7.62	10.91	3.82	0.01	2.54	7.69	13.98	17.45	13.86
20	16.34	14.21	9.93	7.95	10.76	3.70	0.24	1.97	7.91	14.19	17.54	13.51
21	16.20	13.70	9.96	8.02	10.38	3.00	0.44	1.54	8.05	14.36	17.59	13.31
22	16.26	13.42	9.88	8.17	10.22	2.78	0.80	1.09	8.26	14.47	17.74	13.22
23	16.48	13.20	9.80	8.32	10.05	2.79	1.06	0.76	8.55	14.68	17.87	13.23
24	16.80	12.93	9.02	8.64	9.63	2.82	1.42	0.98	8.82	14.92	18.00	13.29
25	16.92	12.76	8.37	8.84	9.32	2.84	1.57	1.22	9.00	15.06	18.14	13.41
26	16.93	12.63	8.14	8.97	9.14	2.85	1.57	1.37	9.27	15.12	18.23	13.62
27	16.90	12.55	8.02	8.97	8.91	2.88	0.88	1.57	9.53	15.11	18.32	13.73
28	16.36	12.36	7.90	9.16	8.68	3.05	0.62	2.01	9.73	15.23	18.38	13.72
29	16.27	11.85	7.73	9.31	8.43	3.13	0.53	2.44	9.99	15.37	18.09	12.90
30	16.40	11.77	7.71	9.49	---	3.16	0.43	2.67	10.24	15.46	18.19	12.47
31	16.37	---	7.74	9.90	---	3.16	---	2.85	---	15.31	18.31	---
MEAN	15.67	14.75	10.13	7.68	10.50	3.93	0.88	2.01	6.88	13.34	17.01	15.66
MAX	16.93	16.53	11.89	9.90	11.32	8.05	3.14	3.21	10.24	15.46	18.38	18.78
MIN	13.51	11.77	7.71	6.14	8.43	2.78	-0.17	0.44	3.19	10.56	15.32	12.47



OCTOBER 1, 2001 TO SEPTEMBER 30, 2004

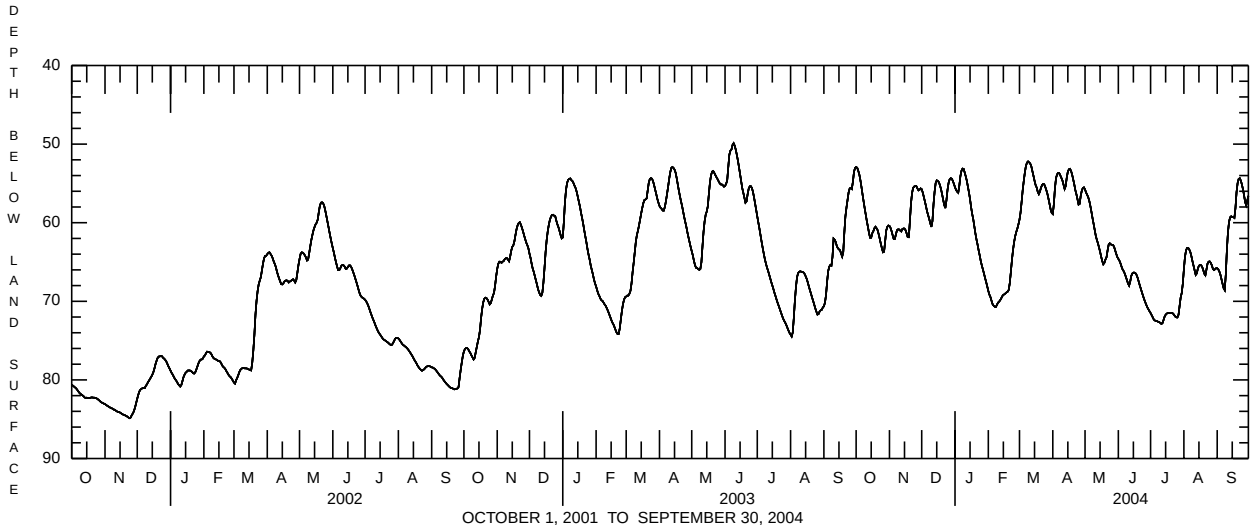
BEDFORD COUNTY

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 USGS Pennsylvania Water Science Center.
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, 52.18 ft below land-surface datum, Mar. 9; lowest, 72.89 ft below land-surface datum, July 11, 12.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52.92	60.41	55.74	55.49	68.68	59.61	58.89	55.78	64.60	71.49	65.92	65.80
2	53.01	60.66	56.17	55.83	69.15	58.70	57.63	56.17	64.83	71.76	64.36	65.94
3	53.41	61.08	56.73	56.05	69.46	57.34	55.63	56.45	65.17	72.03	63.51	66.21
4	53.89	61.61	57.30	56.19	69.94	55.87	54.32	56.78	65.60	72.32	63.21	66.62
5	54.63	62.09	57.91	55.31	70.37	54.67	53.85	57.25	65.96	72.44	63.20	67.20
6	55.50	62.07	58.56	54.10	70.56	53.62	53.67	57.90	66.17	72.50	63.41	67.79
7	56.44	61.49	59.04	53.40	70.69	52.78	53.69	58.64	66.49	72.53	63.74	68.34
8	57.35	60.96	59.53	53.12	70.72	52.35	53.99	59.44	66.89	72.60	64.27	68.57
9	58.21	60.85	60.07	53.15	70.46	52.21	54.30	60.16	67.30	72.65	64.91	66.57
10	59.02	60.86	60.53	53.60	70.17	52.33	54.64	60.91	67.73	72.74	65.49	63.49
11	59.83	61.00	59.79	54.11	70.05	52.47	55.17	61.67	68.00	72.87	66.07	61.23
12	60.56	61.11	57.66	54.67	69.87	52.82	55.70	62.18	67.53	72.80	66.64	59.89
13	61.32	60.81	56.08	55.41	69.63	53.43	55.34	62.61	66.79	72.41	66.45	59.32
14	61.91	60.74	54.96	56.17	69.35	54.02	54.25	63.13	66.46	71.97	65.83	59.19
15	61.90	60.75	54.61	57.01	69.17	54.66	53.51	63.69	66.35	71.71	65.48	59.26
16	61.34	60.96	54.69	58.05	69.11	55.21	53.21	64.31	66.35	71.57	65.37	59.29
17	61.08	61.36	54.85	58.90	68.98	55.52	53.15	64.87	66.44	71.49	65.41	59.39
18	60.70	61.84	55.24	59.58	68.86	56.07	53.41	65.28	66.66	71.51	65.62	58.12
19	60.52	61.85	55.74	60.47	68.78	56.36	53.89	65.11	67.03	71.51	66.01	56.09
20	60.71	59.86	56.38	61.37	68.54	56.05	54.49	64.69	67.52	71.47	66.49	54.95
21	60.95	57.59	57.10	62.15	67.65	55.56	55.14	64.39	68.00	71.48	66.69	54.43
22	61.49	56.26	57.76	62.79	66.23	55.22	55.87	63.52	68.43	71.57	65.96	54.35
23	62.07	55.58	58.13	63.52	64.74	55.07	56.39	62.79	68.88	71.76	65.20	54.65
24	62.70	55.40	57.20	64.18	63.46	55.11	57.03	62.62	69.32	71.95	64.96	55.15
25	63.26	55.35	55.85	64.90	62.47	55.45	57.69	62.76	69.73	72.04	64.93	55.76
26	63.76	55.34	54.95	65.46	61.73	55.86	57.60	62.81	70.10	72.05	65.11	56.52
27	63.69	55.63	54.49	65.96	61.18	56.33	56.58	62.83	70.45	71.71	65.42	57.37
28	62.38	55.88	54.34	66.49	60.76	56.97	55.92	63.05	70.77	70.58	65.87	57.79
29	60.99	55.81	54.40	67.05	60.23	57.63	55.57	63.50	71.02	69.52	66.02	57.20
30	60.53	55.64	54.69	67.55	---	58.31	55.51	63.94	71.27	68.94	65.92	56.59
31	60.36	---	55.07	68.11	---	58.75	---	64.36	---	67.75	65.79	---
MEAN	59.56	59.36	56.63	59.36	67.62	55.37	55.20	61.73	67.59	71.67	65.27	60.44
MAX	63.76	62.09	60.53	68.11	70.72	59.61	58.89	65.28	71.27	72.87	66.69	68.57
MIN	52.92	55.34	54.34	53.12	60.23	52.21	53.15	55.78	64.60	67.75	63.20	54.35



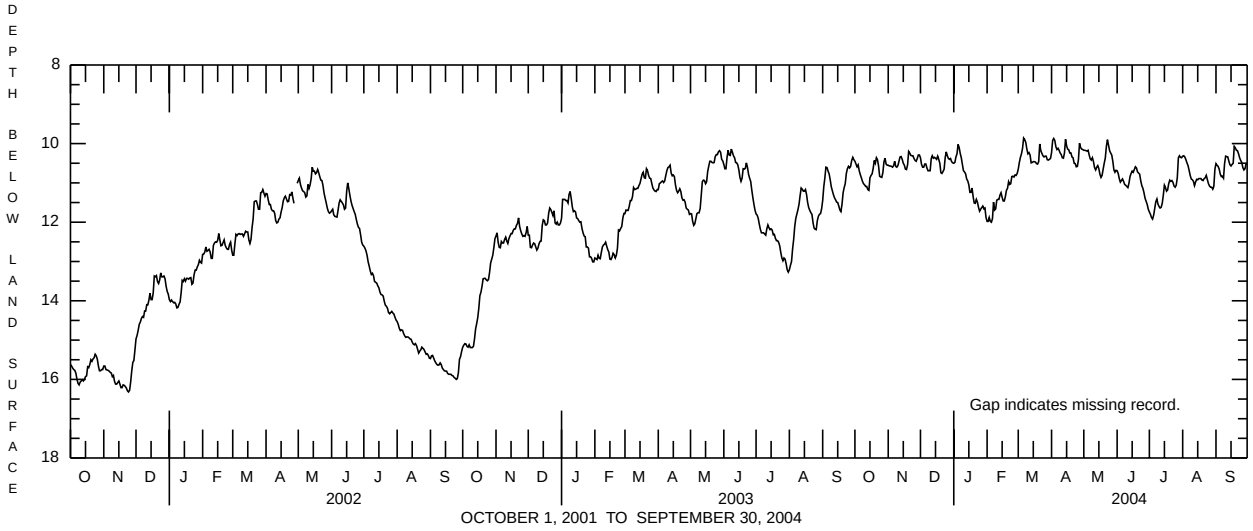
BLAIR COUNTY

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 USGS Pennsylvania Water Science Center.
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, 9.68 ft below land-surface datum, Mar. 6; lowest, 12.00 ft below land-surface datum, Feb. 5.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.45	10.55	10.36	10.50	11.98	10.65	10.23	10.17	10.69	11.74	10.32	10.51
2	10.52	10.57	10.53	10.48	11.98	10.48	9.92	10.17	10.76	11.80	10.31	10.55
3	10.59	10.57	10.60	10.34	11.88	10.35	9.87	10.18	10.89	11.88	10.34	10.58
4	10.54	10.58	10.60	10.26	11.98	10.26	9.92	10.19	10.98	11.92	10.41	10.65
5	10.69	10.60	10.52	10.02	12.00	10.12	10.08	10.17	10.94	11.82	10.49	10.78
6	10.79	10.56	10.52	10.10	11.91	9.86	10.15	10.29	10.90	11.65	10.56	10.84
7	10.87	10.45	10.62	10.25	11.49	9.90	10.12	10.39	10.96	11.48	10.68	10.83
8	10.96	10.58	10.69	10.36	11.69	9.97	10.17	10.42	11.04	11.41	10.81	10.88
9	11.02	10.60	10.69	10.53	11.66	10.14	10.24	10.36	11.06	11.54	10.90	10.51
10	11.05	10.56	10.69	10.69	11.44	10.26	10.28	10.46	11.09	11.60	10.92	10.32
11	11.09	10.45	10.39	10.72	11.42	10.23	10.36	10.61	11.12	11.64	10.96	10.33
12	11.09	10.34	10.31	10.77	11.42	10.29	10.37	10.67	11.01	11.62	11.07	10.34
13	11.17	10.33	10.37	10.90	11.31	10.49	10.24	10.60	10.84	11.52	10.98	10.45
14	11.19	10.40	10.35	10.95	11.25	10.48	9.89	10.56	10.76	11.31	10.91	10.54
15	10.87	10.50	10.37	11.05	11.37	10.46	10.06	10.64	10.70	11.06	10.92	10.57
16	10.81	10.55	10.40	11.24	11.46	10.46	10.14	10.78	10.73	11.12	10.89	10.53
17	10.77	10.65	10.32	11.24	11.46	10.47	10.16	10.86	10.66	11.21	10.89	10.50
18	10.63	10.66	10.40	11.13	11.35	10.51	10.24	10.81	10.59	11.18	10.89	10.07
19	10.43	10.54	10.50	11.35	11.19	10.52	10.24	10.65	10.62	11.02	10.93	10.11
20	10.50	10.20	10.74	11.51	11.14	10.46	10.34	10.50	10.72	10.93	10.94	10.17
21	10.36	10.24	10.76	11.52	10.97	10.01	10.36	10.37	10.75	10.96	10.89	10.18
22	10.41	10.30	10.71	11.42	11.04	10.18	10.50	10.07	10.78	10.94	10.87	10.26
23	10.57	10.31	10.65	11.49	11.02	10.25	10.51	9.90	10.95	10.99	10.81	10.36
24	10.83	10.31	10.36	11.62	10.84	10.31	10.59	10.04	11.07	11.08	10.92	10.43
25	10.85	10.38	10.21	11.72	10.83	10.34	10.58	10.18	11.14	11.11	11.02	10.48
26	10.86	10.43	10.31	11.67	10.85	10.32	10.41	10.24	11.25	11.06	11.08	10.61
27	10.74	10.45	10.38	11.63	10.80	10.32	9.99	10.29	11.39	10.87	11.11	10.67
28	10.47	10.38	10.40	11.59	10.81	10.41	10.10	10.45	11.47	10.36	11.11	10.64
29	10.37	10.29	10.38	11.66	10.76	10.42	10.14	10.67	11.55	10.31	11.16	10.51
30	10.52	10.29	10.46	11.64	---	10.40	10.15	10.73	11.67	10.35	11.09	10.51
31	10.55	---	10.49	11.88	---	10.38	---	10.68	---	10.36	10.65	---
MEAN	10.73	10.45	10.49	11.04	11.36	10.31	10.21	10.42	10.97	11.22	10.83	10.49
MAX	11.19	10.66	10.76	11.88	12.00	10.65	10.59	10.86	11.67	11.92	11.16	10.88
MIN	10.36	10.20	10.21	10.02	10.76	9.86	9.87	9.90	10.59	10.31	10.31	10.07



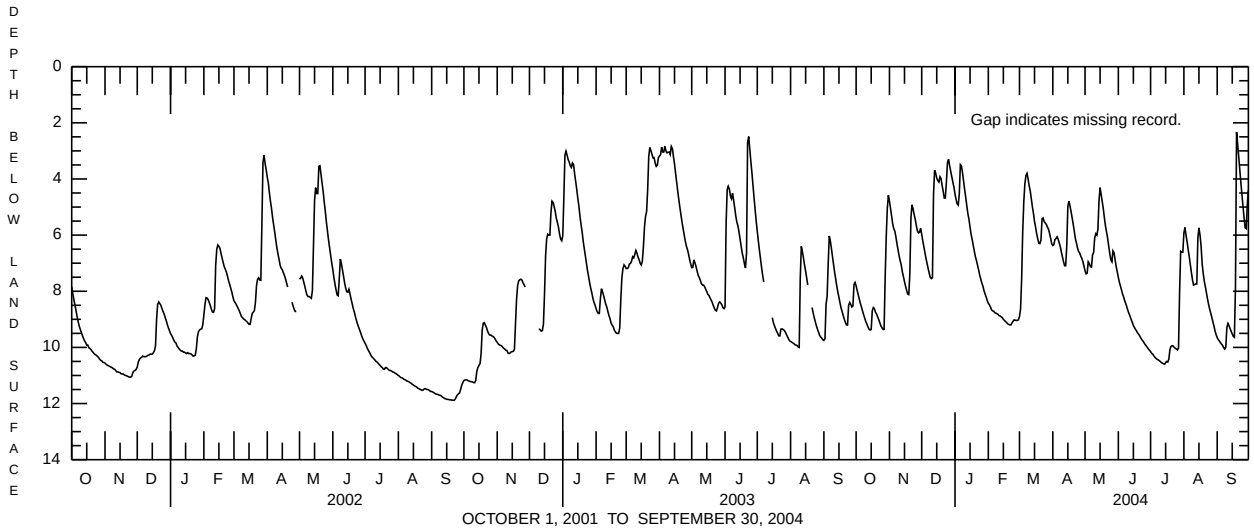
BRADFORD COUNTY

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 USGS Pennsylvania Water Science Center.
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, 1.87 ft below land-surface datum, Sept. 18, 19; lowest, 10.60 ft below land-surface datum, July 14.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.81	4.80	5.97	4.54	8.43	8.90	6.37	7.27	7.51	10.15	5.92	9.65
2	7.98	5.05	6.20	4.73	8.48	8.63	6.34	7.38	7.68	10.21	5.73	9.72
3	8.13	5.32	6.41	4.89	8.56	7.58	6.16	7.36	7.82	10.24	6.01	9.77
4	8.29	5.60	6.62	4.93	8.66	5.90	6.12	6.95	7.96	10.30	6.24	9.83
5	8.44	5.77	6.83	4.53	8.70	4.82	6.06	7.01	8.11	10.35	6.52	9.88
6	8.57	5.86	7.01	3.49	8.71	4.18	6.14	7.12	8.21	10.39	6.77	9.93
7	8.71	6.06	7.19	3.54	8.76	3.88	6.28	7.14	8.35	10.42	7.06	10.01
8	8.84	6.31	7.36	3.78	8.78	3.80	6.42	6.70	8.45	10.44	7.33	10.06
9	8.96	6.53	7.51	4.08	8.80	4.00	6.61	6.62	8.57	10.47	7.59	9.99
10	9.08	6.74	7.55	4.38	8.82	4.24	6.78	6.10	8.70	10.50	7.78	9.29
11	9.17	6.92	7.52	4.66	8.87	4.42	6.95	5.95	8.80	10.54	7.76	9.15
12	9.27	7.07	4.56	4.96	8.88	4.70	7.09	6.00	8.90	10.56	7.74	9.23
13	9.35	7.31	3.69	5.24	8.91	4.99	7.09	5.79	9.01	10.58	7.74	9.33
14	9.38	7.48	3.79	5.44	8.94	5.22	6.38	4.79	9.11	10.60	6.11	9.43
15	9.36	7.66	3.97	5.72	9.00	5.52	4.98	4.31	9.22	10.54	5.74	9.52
16	8.70	7.82	4.06	5.98	9.04	5.72	4.79	4.55	9.29	10.50	6.00	9.61
17	8.58	7.97	4.11	6.16	9.08	5.95	4.96	4.80	9.36	10.52	6.39	9.64
18	8.62	8.10	3.92	6.37	9.11	6.13	5.16	5.06	9.42	10.42	7.02	7.87
19	8.75	8.12	3.99	6.58	9.16	6.29	5.38	5.38	9.49	10.08	7.37	2.33
20	8.81	7.35	4.23	6.77	9.18	6.30	5.61	5.67	9.54	9.97	7.65	2.75
21	8.91	5.36	4.44	6.91	9.20	6.18	5.86	5.88	9.60	9.94	7.84	3.19
22	9.01	4.92	4.68	7.08	9.20	5.42	6.12	6.10	9.67	9.95	8.06	3.66
23	9.12	5.07	4.68	7.24	9.13	5.39	6.28	6.38	9.73	10.00	8.28	4.12
24	9.23	5.27	4.11	7.43	9.07	5.52	6.46	6.64	9.78	10.03	8.47	4.55
25	9.30	5.44	3.41	7.57	9.02	5.57	6.58	6.88	9.84	10.06	8.64	4.97
26	9.36	5.66	3.30	7.71	9.03	5.62	6.64	6.95	9.90	10.09	8.78	5.38
27	9.36	5.85	3.52	7.82	9.04	5.71	6.74	6.56	9.95	10.02	8.93	5.74
28	7.55	5.92	3.73	7.98	9.04	5.79	6.83	6.63	10.00	8.02	9.09	5.77
29	6.06	5.90	3.92	8.10	9.02	5.94	6.94	6.88	10.06	6.58	9.24	4.92
30	5.05	5.76	4.11	8.20	---	6.12	7.10	7.12	10.10	6.61	9.42	4.39
31	4.58	---	4.29	8.33	---	6.30	---	7.31	---	6.61	9.55	---
MEAN	8.46	6.30	5.05	5.97	8.92	5.64	6.24	6.30	9.07	9.86	7.51	7.46
MAX	9.38	8.12	7.55	8.33	9.20	8.90	7.10	7.38	10.10	10.60	9.55	10.06
MIN	4.58	4.80	3.30	3.49	8.43	3.80	4.79	4.31	7.51	6.58	5.73	2.33



OCTOBER 1, 2001 TO SEPTEMBER 30, 2004

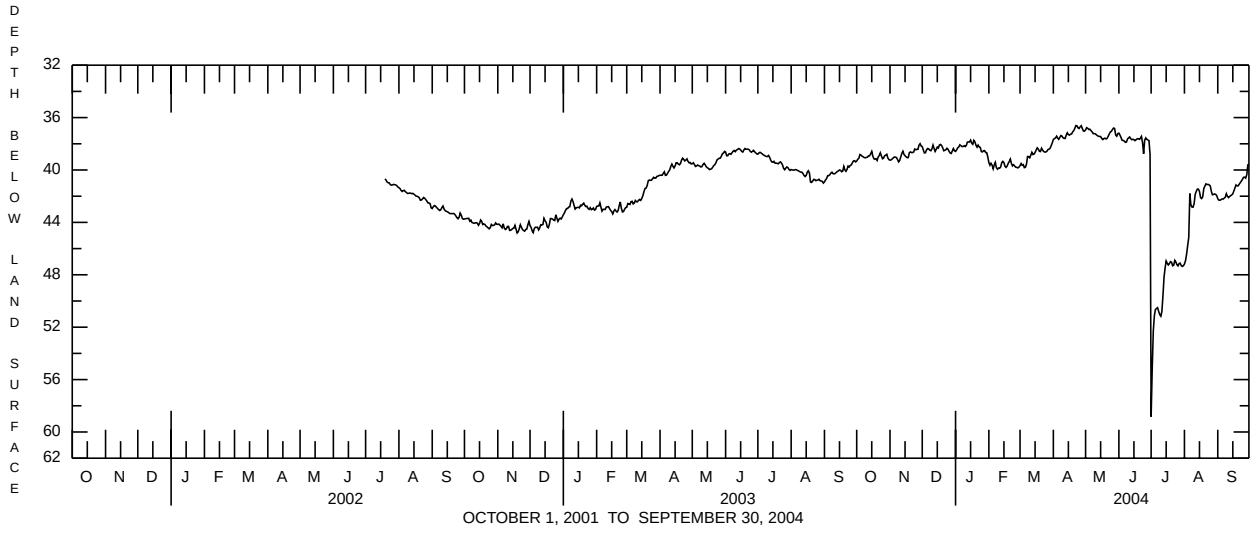
CAMBRIA COUNTY

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.--Cause of large water-level fluctuations during July and August 2004 are unknown, but could be related to nearby mining operations. In addition to the daily mean water level table shown below, daily maximum and minimum water levels are available from the USGS Pennsylvania Water Science Center.
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, 36.57 ft below land-surface datum, Apr. 22, 2004; lowest, 61.05 ft below land-surface datum, July 1, 2004.
EXTREMES FOR CURRENT YEAR.--Highest water level, 36.57 ft below land-surface datum, Apr. 22; lowest, 61.05 ft below land-surface datum, July 1.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39.31	39.25	38.22	38.58	39.43	39.67	37.68	36.94	37.19	58.83	47.18	42.19
2	39.18	39.23	38.47	38.46	39.64	39.51	37.60	36.77	37.34	55.16	46.92	42.30
3	39.11	39.16	38.70	38.31	39.49	39.64	37.56	36.82	37.53	52.31	46.42	42.31
4	38.82	39.08	38.68	38.24	39.63	39.59	37.42	36.91	37.73	51.12	45.77	42.27
5	38.86	39.01	38.46	38.08	39.91	39.82	37.56	36.89	37.75	50.65	45.15	42.21
6	38.95	39.02	38.36	38.15	39.61	39.79	37.66	36.99	37.79	50.57	41.80	42.22
7	38.99	39.05	38.39	38.21	39.42	39.55	37.52	37.08	37.89	50.51	42.66	42.15
8	39.05	39.20	38.49	38.21	39.82	38.97	37.37	37.22	37.87	50.79	42.83	42.08
9	39.07	39.38	38.53	38.15	39.94	38.98	37.41	37.22	37.64	51.04	42.84	41.81
10	39.04	39.27	38.39	38.21	39.85	39.07	37.54	37.24	37.55	51.16	42.57	42.01
11	39.02	39.00	38.10	38.13	39.87	38.87	37.59	37.31	37.48	50.81	41.87	42.11
12	38.92	38.74	38.35	37.87	39.76	38.65	37.59	37.38	37.61	49.62	41.63	42.02
13	38.92	38.57	38.58	37.86	39.44	38.82	37.33	37.42	37.69	48.17	41.46	41.96
14	38.76	38.81	38.42	37.86	39.34	38.79	37.16	37.44	37.66	47.48	41.46	41.90
15	38.58	38.91	38.25	37.72	39.44	38.66	37.30	37.45	37.68	46.95	41.64	41.82
16	38.94	39.00	38.32	37.96	39.72	38.48	37.34	37.59	37.76	47.12	42.11	41.60
17	39.14	39.06	38.09	38.04	39.80	38.31	37.27	37.68	37.70	47.25	42.18	41.37
18	39.18	39.05	38.05	37.74	39.70	38.40	37.25	37.61	37.62	47.15	42.05	41.14
19	39.14	38.68	38.13	37.85	39.49	38.57	37.09	37.57	37.61	47.00	41.42	41.21
20	39.27	38.62	38.30	38.11	39.35	38.59	36.99	37.63	37.66	47.04	41.23	41.21
21	39.01	38.67	38.53	38.26	39.17	38.34	36.82	37.59	37.59	47.31	41.06	41.08
22	38.89	38.67	38.50	38.10	39.51	38.48	36.61	37.43	37.44	47.27	41.11	40.96
23	38.69	38.63	38.45	38.24	39.69	38.59	36.63	37.26	37.91	46.90	41.10	40.84
24	38.93	38.40	38.34	38.28	39.60	38.63	36.79	37.10	38.76	47.02	41.14	40.71
25	39.14	38.45	38.42	38.59	39.69	38.63	36.83	37.05	37.73	47.23	41.21	40.56
26	39.10	38.43	38.58	38.62	39.79	38.57	36.70	36.91	37.55	47.32	41.62	40.55
27	38.91	38.42	38.71	38.53	39.80	38.44	36.62	36.80	37.66	47.14	41.89	40.62
28	38.87	38.10	38.74	38.52	39.84	38.41	36.84	36.83	37.71	47.11	41.87	40.36
29	38.80	37.99	38.54	38.66	39.78	38.34	37.03	37.33	37.76	47.30	41.83	39.61
30	39.08	38.17	38.36	38.68	---	38.14	37.03	37.42	38.84	47.36	41.86	39.56
31	39.21	---	38.54	39.00	---	37.93	---	37.22	---	47.31	41.95	---
MEAN	39.00	38.80	38.42	38.23	39.64	38.81	37.20	37.23	37.72	49.03	42.51	41.42
MAX	39.31	39.38	38.74	39.00	39.94	39.82	37.68	37.68	38.84	58.83	47.18	42.31
MIN	38.58	37.99	38.05	37.72	39.17	37.93	36.61	36.77	37.19	46.90	41.06	39.56



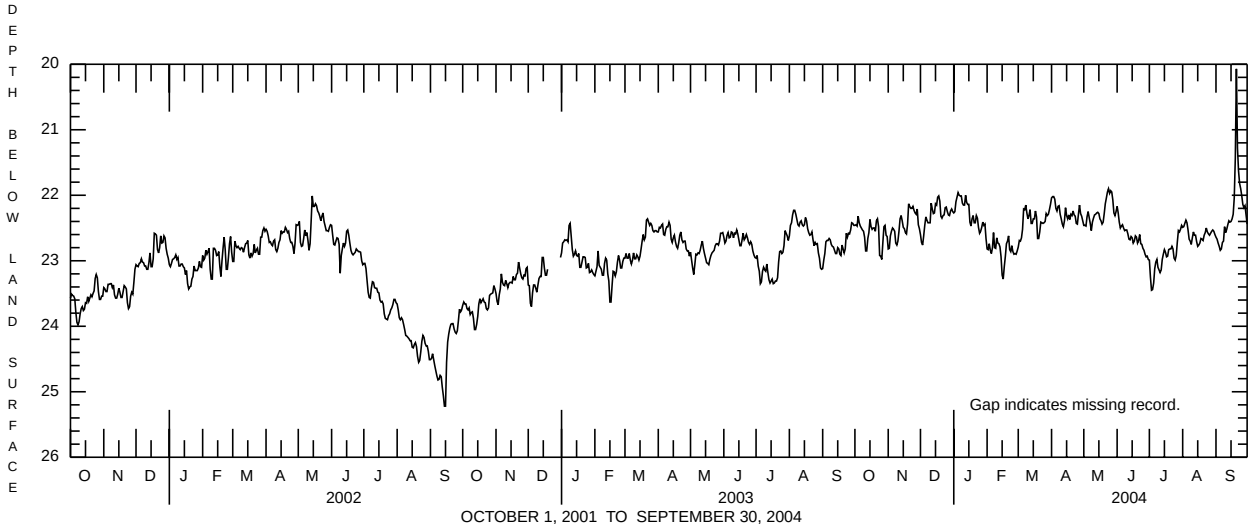
CAMERON COUNTY

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 USGS Pennsylvania Water Science Center.
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, 18.74 ft below land-surface datum, Sept. 19; lowest, 23.45 ft below land-surface datum, July 3.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.46	22.82	22.60	22.27	22.82	22.79	22.04	22.46	22.17	22.99	22.49	22.64
2	22.45	22.81	22.72	22.25	22.83	22.69	22.02	22.46	22.27	23.25	22.48	22.67
3	22.47	22.62	22.76	22.10	22.74	22.70	22.02	22.47	22.41	23.45	22.43	22.73
4	22.32	22.55	22.62	22.03	22.84	22.65	22.06	22.33	22.50	23.44	22.38	22.78
5	22.42	22.50	22.46	21.96	22.89	22.52	22.20	22.25	22.47	23.34	22.42	22.84
6	22.47	22.52	22.33	22.00	22.80	22.21	22.24	22.34	22.45	23.12	22.53	22.82
7	22.50	22.55	22.38	22.01	22.57	22.22	22.17	22.43	22.50	23.02	22.67	22.72
8	22.53	22.73	22.42	22.01	22.80	22.15	22.16	22.54	22.54	22.98	22.70	22.70
9	22.55	22.76	22.42	22.12	22.81	22.27	22.29	22.41	22.53	23.10	22.75	22.48
10	22.64	22.70	22.42	22.15	22.65	22.36	22.36	22.35	22.53	23.14	22.65	22.57
11	22.85	22.55	22.12	22.15	22.73	22.31	22.44	22.30	22.59	23.18	22.56	22.52
12	22.85	22.36	22.21	22.00	22.74	22.22	22.48	22.29	22.67	23.14	22.61	22.45
13	22.66	22.31	22.28	22.11	22.79	22.43	22.39	22.27	22.68	22.98	22.61	22.39
14	22.57	22.39	22.27	22.14	22.94	22.43	22.19	22.26	22.63	22.90	22.71	22.41
15	22.37	22.49	22.13	22.14	23.22	22.36	22.31	22.28	22.65	22.83	22.78	22.40
16	22.48	22.51	22.15	22.41	23.28	22.36	22.36	22.36	22.73	22.87	22.76	22.36
17	22.52	22.57	22.03	22.47	23.09	22.24	22.30	22.39	22.70	22.94	22.73	22.29
18	22.50	22.59	22.01	22.36	22.93	22.33	22.37	22.44	22.62	22.93	22.66	22.04
19	22.50	22.44	22.09	22.31	22.74	22.66	22.29	22.41	22.64	22.83	22.67	21.43
20	22.55	22.13	22.32	22.42	22.70	22.66	22.31	22.28	22.73	22.82	22.69	20.07
21	22.39	22.17	22.35	22.42	22.62	22.56	22.24	22.13	22.69	22.82	22.61	21.28
22	22.36	22.20	22.31	22.31	22.83	22.41	22.30	22.04	22.60	22.78	22.57	21.63
23	22.48	22.20	22.30	22.35	22.86	22.42	22.32	21.95	22.74	22.82	22.50	21.82
24	22.92	22.17	22.19	22.49	22.77	22.43	22.43	21.90	22.75	22.96	22.56	21.90
25	22.93	22.23	22.18	22.58	22.86	22.42	22.44	21.97	22.81	22.99	22.59	22.01
26	22.98	22.27	22.25	22.55	22.90	22.40	22.29	21.93	22.84	22.92	22.61	22.14
27	22.72	22.29	22.30	22.49	22.89	22.28	22.15	21.95	22.90	22.72	22.58	22.19
28	22.48	22.21	22.31	22.41	22.90	22.31	22.28	22.07	22.94	22.54	22.55	22.16
29	22.46	22.45	22.24	22.46	22.85	22.29	22.32	22.27	22.93	22.56	22.53	22.30
30	22.61	22.51	22.21	22.44	---	22.22	22.39	22.31	22.98	22.52	22.55	22.44
31	22.63	---	22.25	22.66	---	22.14	---	22.25	---	22.46	22.60	---
MEAN	22.57	22.45	22.31	22.28	22.84	22.40	22.27	22.26	22.64	22.95	22.60	22.24
MAX	22.98	22.82	22.76	22.66	23.28	22.79	22.48	22.54	22.98	23.45	22.78	22.84
MIN	22.32	22.13	22.01	21.96	22.57	22.14	22.02	21.90	22.17	22.46	22.38	20.07



OCTOBER 1, 2001 TO SEPTEMBER 30, 2004

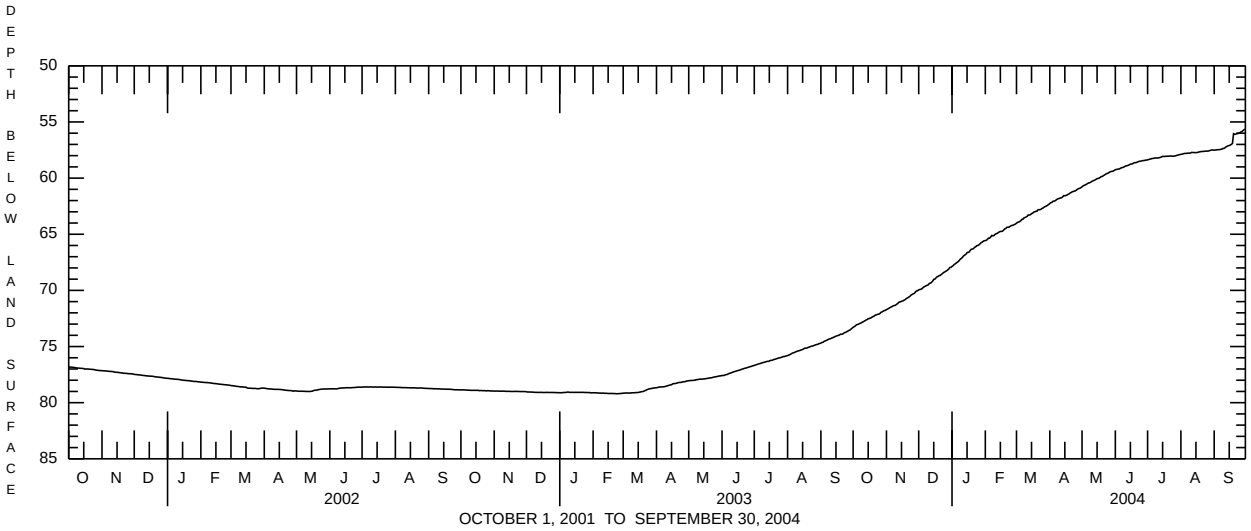
CENTRE COUNTY

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 USGS Pennsylvania Water Science Center.
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, 55.61 ft below land-surface datum, Sept. 30; lowest, 73.29 ft below land-surface datum, Oct. 1.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73.29	71.71	69.95	67.87	65.57	64.02	62.26	60.77	59.25	58.37	57.88	57.51
2	73.23	71.67	69.92	67.80	65.54	63.94	62.19	60.69	59.23	58.35	57.87	57.50
3	73.17	71.61	69.90	67.70	65.45	63.92	62.16	60.65	59.21	58.31	57.84	57.49
4	73.07	71.55	69.86	67.63	65.35	63.87	62.06	60.60	59.19	58.30	57.81	57.47
5	73.04	71.50	69.76	67.56	65.35	63.80	62.05	60.56	59.17	58.25	57.80	57.47
6	73.00	71.45	69.68	67.49	65.24	63.68	62.02	60.49	59.11	58.25	57.80	57.46
7	72.95	71.39	69.64	67.42	65.11	63.66	61.94	60.43	59.07	58.23	57.78	57.44
8	72.92	71.35	69.58	67.30	65.14	63.54	61.87	60.42	59.05	58.20	57.78	57.42
9	72.86	71.34	69.54	67.20	65.12	63.51	61.83	60.37	59.01	58.21	57.78	57.36
10	72.81	71.28	69.50	67.13	65.01	63.46	61.81	60.30	58.95	58.21	57.76	57.36
11	72.76	71.20	69.37	67.02	64.95	63.40	61.77	60.25	58.91	58.20	57.71	57.30
12	72.70	71.12	69.35	66.91	64.93	63.28	61.75	60.21	58.89	58.18	57.72	57.22
13	72.64	71.03	69.28	66.84	64.86	63.28	61.67	60.17	58.87	58.15	57.72	57.16
14	72.60	71.02	69.17	66.78	64.79	63.26	61.56	60.11	58.81	58.11	57.73	57.12
15	72.52	70.97	69.02	66.63	64.75	63.16	61.57	60.05	58.76	58.06	57.73	57.10
16	72.51	70.95	69.00	66.62	64.75	63.13	61.55	60.03	58.75	58.07	57.72	57.05
17	72.47	70.89	68.89	66.58	64.72	63.03	61.51	60.00	58.72	58.07	57.70	57.00
18	72.43	70.85	68.80	66.42	64.64	63.00	61.45	59.93	58.66	58.06	57.67	56.91
19	72.35	70.77	68.75	66.34	64.52	62.96	61.41	59.86	58.63	58.05	57.65	56.05
20	72.32	70.70	68.69	66.32	64.49	62.96	61.32	59.85	58.62	58.05	57.64	56.10
21	72.25	70.65	68.67	66.28	64.38	62.82	61.28	59.77	58.60	58.05	57.62	56.08
22	72.19	70.58	68.58	66.17	64.38	62.81	61.21	59.72	58.55	58.03	57.63	56.05
23	72.16	70.51	68.51	66.12	64.37	62.81	61.19	59.65	58.51	58.03	57.60	56.03
24	72.13	70.41	68.42	66.02	64.30	62.76	61.15	59.60	58.50	58.05	57.60	56.00
25	72.11	70.35	68.37	66.00	64.24	62.69	61.13	59.57	58.48	58.05	57.60	55.94
26	72.05	70.30	68.31	65.95	64.21	62.65	61.04	59.51	58.45	58.04	57.59	55.88
27	71.95	70.26	68.25	65.86	64.19	62.57	60.98	59.45	58.44	58.01	57.58	55.84
28	71.91	70.14	68.18	65.76	64.14	62.52	60.93	59.41	58.43	57.98	57.54	55.75
29	71.85	70.05	68.09	65.71	64.09	62.48	60.90	59.40	58.40	57.96	57.51	55.68
30	71.80	70.03	67.96	65.63	---	62.41	60.85	59.38	58.40	57.92	57.49	55.65
31	71.77	---	67.94	65.57	---	62.35	---	59.31	---	57.91	57.50	---
MEAN	72.51	70.92	69.00	66.67	64.78	63.15	61.55	60.02	58.79	58.12	57.69	56.75
MAX	73.29	71.71	69.95	67.87	65.57	64.02	62.26	60.77	59.25	58.37	57.88	57.51
MIN	71.77	70.03	67.94	65.57	64.09	62.35	60.85	59.31	58.40	57.91	57.49	55.65



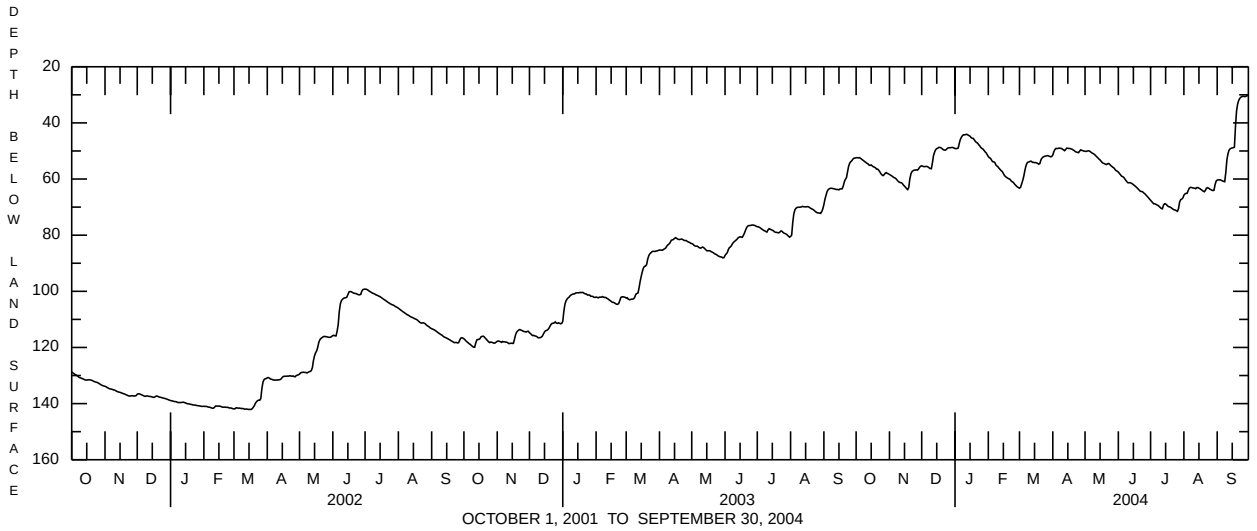
CENTRE COUNTY

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 USGS Pennsylvania Water Science Center.
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, 30.17 ft below land-surface datum, Sept. 29, 2004; lowest, 142.15 ft below land-surface datum, Mar. 14, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level, 30.17 ft below land-surface datum, Sept. 29; lowest, 71.61 ft below land-surface datum, July 26.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52.41	58.36	55.29	49.14	51.99	63.26	51.45	50.10	57.54	67.57	65.77	60.38
2	52.39	58.62	55.44	49.17	52.42	62.96	50.24	50.18	57.99	68.00	65.30	60.28
3	52.48	58.86	55.59	49.13	52.60	61.75	49.47	50.03	58.49	68.45	65.12	60.28
4	52.37	59.15	55.57	48.94	53.25	60.56	49.08	49.96	58.96	68.82	65.08	60.32
5	52.59	59.44	55.50	47.26	53.81	58.99	49.14	50.00	59.16	68.84	64.10	60.50
6	52.91	59.58	55.53	45.86	53.86	56.98	49.10	50.28	59.40	69.01	63.27	60.68
7	53.19	59.86	55.72	45.08	54.10	55.33	48.97	50.57	59.95	69.25	62.98	60.84
8	53.49	60.32	56.05	44.50	54.96	54.31	49.03	50.84	60.49	69.41	63.00	60.94
9	53.79	60.78	56.28	44.21	55.35	53.96	49.12	51.02	60.98	69.78	63.15	57.64
10	54.07	61.09	56.31	44.26	55.64	53.90	49.33	51.33	61.34	70.13	63.20	53.21
11	54.38	61.25	54.15	44.14	56.19	53.67	49.64	51.70	61.32	70.50	63.28	51.04
12	54.59	61.31	51.62	44.07	56.60	53.67	49.90	52.11	61.32	70.60	63.44	49.74
13	55.02	61.58	50.43	44.30	57.00	54.03	49.50	52.48	61.46	69.31	63.04	49.25
14	55.15	62.14	49.53	44.52	57.37	54.07	48.99	52.89	61.71	68.83	63.06	49.02
15	54.98	62.54	49.18	44.77	58.03	54.15	49.04	53.20	62.01	68.87	63.25	48.92
16	55.33	62.95	49.00	45.23	58.71	54.15	49.11	53.66	62.32	69.22	63.46	48.84
17	55.63	63.41	48.71	45.48	59.13	54.24	49.12	54.13	62.62	69.65	63.77	48.65
18	55.77	63.76	48.73	45.52	59.43	54.46	49.28	54.38	62.98	69.87	64.02	41.37
19	56.01	62.95	48.90	46.07	59.67	54.71	49.40	54.51	63.37	69.98	64.33	35.74
20	56.45	59.88	49.18	46.63	59.90	54.45	49.67	54.73	63.77	70.18	64.53	33.31
21	56.47	58.13	49.53	46.98	60.03	53.15	49.88	54.85	64.20	70.48	64.08	31.99
22	56.89	57.34	49.70	47.18	60.55	52.52	50.25	54.54	64.42	70.78	63.26	31.29
23	57.40	57.04	49.71	47.75	60.91	52.14	50.39	54.46	64.45	70.98	63.08	30.85
24	58.08	56.82	49.44	48.16	61.13	51.95	50.51	54.78	64.69	71.06	63.26	30.63
25	58.53	56.79	49.01	48.77	61.58	51.85	50.60	55.20	65.08	71.27	63.52	30.51
26	58.78	56.73	48.88	49.09	62.03	51.75	50.05	55.51	65.36	71.49	63.77	30.59
27	58.48	56.81	48.84	49.32	62.44	51.65	49.60	55.84	65.82	70.54	63.98	30.65
28	57.95	56.46	48.84	49.79	62.80	51.77	49.78	56.09	66.25	68.21	64.11	30.48
29	57.71	55.82	48.75	50.31	63.04	51.94	49.92	56.63	66.66	67.34	64.02	30.22
30	57.99	55.45	48.77	50.68	---	52.06	50.02	57.01	67.13	67.15	62.03	30.29
31	58.14	---	48.94	51.36	---	51.97	---	57.22	---	66.77	60.76	---
MEAN	55.47	59.51	51.52	47.02	57.74	54.72	49.65	53.23	62.37	69.43	63.65	45.28
MAX	58.78	63.76	56.31	51.36	63.04	63.26	51.45	57.22	67.13	71.49	65.77	60.94
MIN	52.37	55.45	48.71	44.07	51.99	51.65	48.97	49.96	57.54	66.77	60.76	30.22



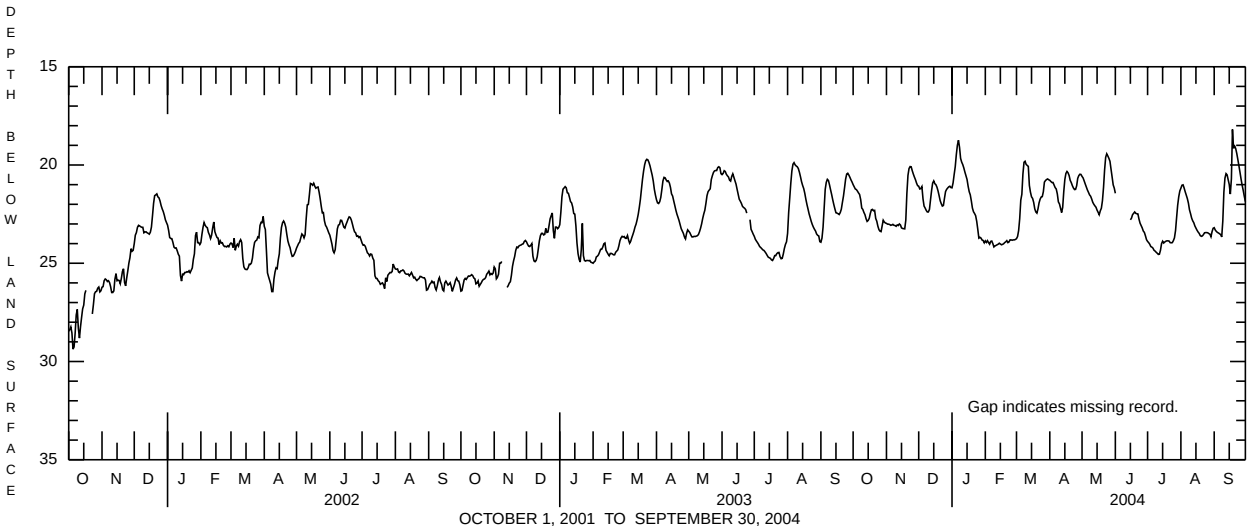
CLEARFIELD COUNTY

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 USGS Pennsylvania Water Science Center.
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, 15.56 ft below land-surface datum, Sept. 18, 2004; lowest, 34.66 ft below land-surface datum, Sept. 21, 22, 2001.
EXTREMES FOR CURRENT YEAR.--Highest water level, 15.56 ft below land-surface datum, Sept. 18; lowest recorded, 24.56 ft below land-surface datum, July 11, 12.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.00	22.97	21.08	21.16	23.86	23.75	20.78	20.58	21.44	23.89	21.18	23.19
2	21.11	23.01	21.22	20.91	23.94	23.64	20.84	20.66	---	23.95	21.03	23.31
3	21.22	23.01	21.20	20.49	23.85	23.34	20.89	20.81	---	24.03	21.01	23.38
4	21.25	23.03	21.10	20.09	23.95	22.74	20.89	20.97	---	24.15	21.17	23.43
5	21.33	23.07	21.72	19.48	24.03	21.79	21.02	21.12	---	24.18	21.36	23.46
6	21.42	23.05	22.09	19.00	23.89	21.49	21.15	21.27	---	24.23	21.53	23.50
7	21.50	23.02	22.19	18.74	23.87	20.46	21.22	21.39	---	24.34	21.71	23.54
8	21.76	23.07	22.31	19.10	24.00	19.86	21.47	21.52	---	24.38	21.94	23.66
9	22.19	23.08	22.39	19.66	24.17	19.81	21.88	21.59	---	24.44	22.28	22.85
10	22.26	23.12	22.39	19.85	24.12	19.97	21.98	21.73	---	24.49	22.48	21.38
11	22.41	23.05	22.26	19.98	24.09	20.02	22.20	21.90	---	24.55	22.70	20.67
12	22.53	23.08	21.77	20.15	24.06	20.07	22.42	22.00	---	24.54	22.84	20.44
13	22.73	23.00	21.30	20.36	24.03	21.04	22.16	22.08	---	24.34	22.94	20.50
14	22.87	23.05	20.92	20.55	23.98	21.38	21.35	22.15	---	24.00	23.10	20.75
15	22.82	23.20	20.81	20.74	24.02	21.62	20.74	22.30	22.79	23.88	23.21	20.99
16	22.71	23.23	20.95	21.08	24.06	21.70	20.43	22.41	22.71	23.97	23.32	21.48
17	22.46	23.24	21.00	21.36	24.04	21.90	20.33	22.53	22.53	23.92	23.41	20.70
18	22.28	23.25	21.13	21.52	24.01	22.23	20.40	22.33	22.46	23.88	23.48	18.19
19	22.26	22.81	21.32	21.83	23.95	22.39	20.54	22.20	22.39	23.86	23.59	19.15
20	22.33	21.46	21.56	22.19	23.91	22.45	20.78	21.82	22.46	23.86	23.63	19.04
21	22.31	20.53	21.82	22.38	23.85	22.24	20.90	21.14	22.48	23.87	23.61	19.16
22	22.72	20.18	21.97	22.47	23.95	21.93	21.05	20.25	22.49	23.95	23.54	19.41
23	22.86	20.08	22.09	22.58	23.92	21.74	21.17	19.61	22.75	23.96	23.45	19.72
24	23.11	20.09	22.06	22.87	23.81	21.63	21.25	19.43	22.96	23.95	23.44	20.04
25	23.29	20.29	21.69	23.28	23.81	21.61	21.24	19.54	23.08	23.85	23.44	20.37
26	23.37	20.46	21.35	23.72	23.83	21.36	21.06	19.66	23.20	23.71	23.45	20.72
27	23.39	20.61	21.24	23.68	23.81	20.87	20.68	19.81	23.36	23.34	23.49	21.03
28	23.10	20.75	21.17	23.72	23.81	20.79	20.54	20.22	23.43	22.68	23.52	21.29
29	22.81	20.92	21.11	23.82	23.79	20.74	20.47	20.61	23.60	22.05	23.65	21.59
30	22.90	21.05	21.08	23.84	---	20.71	20.48	21.01	23.80	21.62	23.39	21.86
31	22.95	---	21.15	23.96	---	20.75	---	21.18	---	21.32	23.22	---
MEAN	22.36	22.16	21.53	21.44	23.95	21.48	21.08	21.16	22.82	23.78	22.78	21.29
MAX	23.39	23.25	22.39	23.96	24.17	23.75	22.42	22.53	23.80	24.55	23.65	23.66
MIN	21.00	20.08	20.81	18.74	23.79	19.81	20.33	19.43	21.44	21.32	21.01	18.19



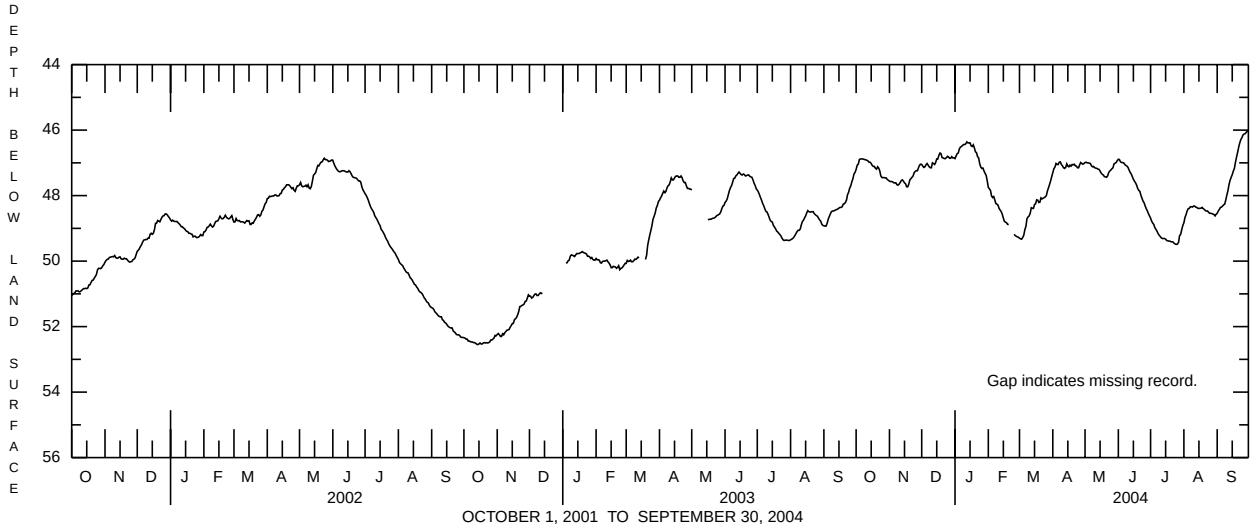
CLINTON COUNTY

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 USGS Pennsylvania Water Science Center.
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, 46.00 ft below land-surface datum, Sept. 30; lowest, 49.49 ft below land-surface datum, July 25.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47.20	47.56	47.05	46.87	47.75	49.30	47.30	46.99	46.89	48.69	48.83	48.54
2	47.07	47.57	47.10	46.79	47.79	49.32	47.18	46.98	46.90	48.78	48.67	48.47
3	47.04	47.57	47.14	46.72	47.84	49.33	47.13	47.00	46.97	48.84	48.58	48.42
4	46.90	47.58	47.12	46.70	48.01	49.28	47.02	47.00	46.99	48.88	48.47	48.36
5	46.88	47.61	47.06	46.58	48.06	49.21	47.05	47.01	46.99	48.98	48.40	48.35
6	46.88	47.61	47.02	46.52	48.03	49.04	47.05	47.02	47.00	49.03	48.39	48.32
7	46.88	47.61	47.07	46.50	48.13	48.94	46.98	47.09	47.05	49.09	48.34	48.28
8	46.89	47.67	47.12	46.47	48.24	48.70	46.97	47.12	47.08	49.16	48.34	48.26
9	46.90	47.68	47.15	46.44	48.26	48.65	47.05	47.11	47.10	49.21	48.35	48.13
10	46.91	47.65	47.15	46.44	48.29	48.62	47.09	47.15	47.14	49.25	48.32	47.98
11	46.92	47.60	47.00	46.42	48.39	48.54	47.15	47.16	47.22	49.29	48.32	47.85
12	46.94	47.54	47.02	46.36	48.44	48.37	47.17	47.17	47.29	49.31	48.35	47.66
13	46.98	47.52	47.05	46.39	48.49	48.39	47.14	47.19	47.34	49.31	48.36	47.53
14	46.98	47.56	46.99	46.39	48.57	48.39	47.03	47.20	47.42	49.31	48.39	47.44
15	47.02	47.61	46.88	46.39	48.69	48.27	47.10	47.25	47.50	49.33	48.39	47.36
16	47.08	47.64	46.88	46.48	48.79	48.25	47.12	47.31	47.56	49.37	48.39	47.25
17	47.11	47.73	46.77	46.50	48.81	48.13	47.07	47.35	47.61	49.38	48.38	47.17
18	47.11	47.73	46.70	46.45	48.83	48.14	47.10	47.37	47.68	49.39	48.36	46.98
19	47.17	47.65	46.72	46.54	48.88	48.21	47.05	47.42	47.78	49.39	48.40	46.82
20	47.19	47.52	46.84	46.66	48.88	48.20	47.06	47.43	47.84	49.41	48.42	46.68
21	47.12	47.48	46.85	46.69	---	48.07	47.04	47.44	47.87	49.41	48.46	46.52
22	47.16	47.44	46.87	46.81	---	48.10	47.09	47.40	47.99	49.42	48.47	46.39
23	47.25	47.40	46.87	46.85	---	48.08	47.10	47.30	48.08	49.46	48.47	46.29
24	47.40	47.30	46.84	47.03	---	48.06	47.15	47.25	48.17	49.48	48.51	46.23
25	47.45	47.26	46.80	47.13	49.18	48.04	47.15	47.22	48.22	49.49	48.54	46.15
26	47.45	47.24	46.82	47.17	49.22	48.00	47.06	47.18	48.32	49.48	48.54	46.12
27	47.45	47.24	46.86	47.16	49.24	47.86	46.99	47.15	48.40	49.43	48.55	46.11
28	47.46	47.15	46.86	47.25	49.26	47.76	47.02	47.03	48.47	49.22	48.56	46.07
29	47.46	47.07	46.81	47.32	49.27	47.66	47.04	47.01	48.55	49.18	48.58	46.03
30	47.51	47.04	46.85	47.38	---	47.55	47.02	46.99	48.62	49.04	48.62	46.03
31	47.53	---	46.85	47.55	---	47.42	---	46.93	---	48.91	48.57	---
MEAN	47.14	47.49	46.94	46.74	48.53	48.38	47.08	47.17	47.60	49.22	48.46	47.26
MAX	47.53	47.73	47.15	47.55	49.27	49.33	47.30	47.44	48.62	49.49	48.83	48.54
MIN	46.88	47.04	46.70	46.36	47.75	47.42	46.97	46.93	46.89	48.69	48.32	46.03



OCTOBER 1, 2001 TO SEPTEMBER 30, 2004

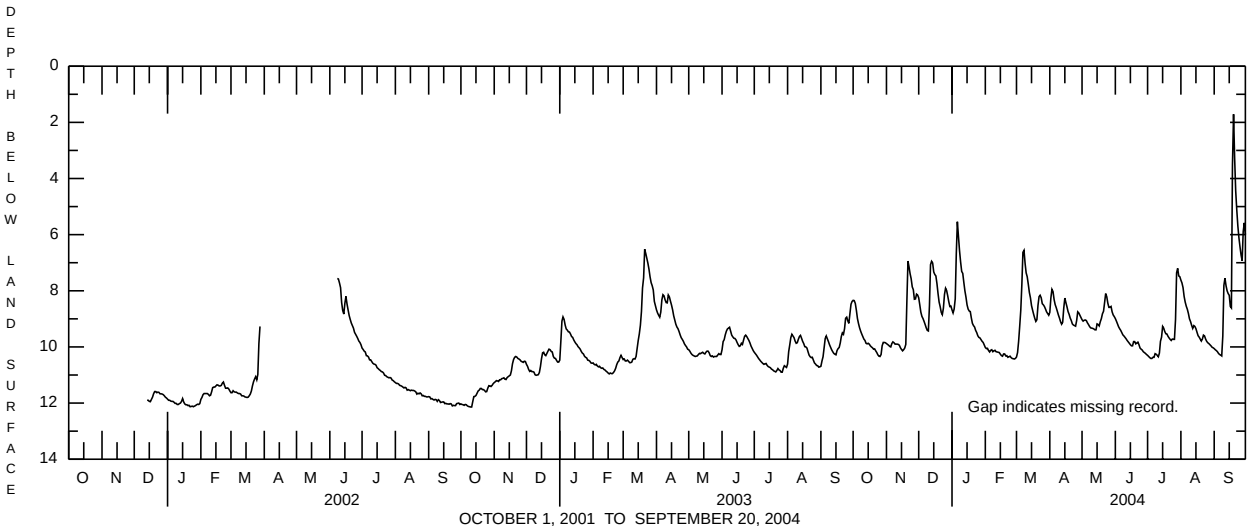
CLINTON COUNTY

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, 2.20 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 USGS Pennsylvania Water Science Center.
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, 1.54 ft below land-surface datum, Sept. 19, 2004; lowest, 12.23 ft below land-surface datum, Oct. 9, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level 1.54 ft below land-surface datum, Sept. 19; lowest 10.44 ft below land-surface datum, Feb. 27, 28.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.34	9.88	8.25	8.68	10.02	10.36	8.77	9.03	8.99	10.30	7.62	10.06
2	8.35	9.91	8.50	8.79	10.06	10.20	8.26	9.08	9.08	10.34	7.72	10.10
3	8.45	9.94	8.76	8.65	10.05	9.80	7.95	9.05	9.18	10.38	7.89	10.13
4	8.69	9.98	8.91	8.29	10.13	9.27	8.03	9.04	9.28	10.41	8.20	10.17
5	8.99	10.00	8.99	6.67	10.18	8.69	8.31	9.06	9.35	10.41	8.40	10.23
6	9.17	9.88	9.09	5.54	10.12	7.78	8.49	9.14	9.41	10.37	8.55	10.27
7	9.32	9.82	9.20	6.07	10.10	6.63	8.60	9.20	9.49	10.37	8.66	10.29
8	9.44	9.85	9.32	6.57	10.17	6.56	8.73	9.27	9.57	10.24	8.81	10.32
9	9.54	9.90	9.41	6.97	10.14	7.02	8.86	9.32	9.61	10.26	9.00	9.61
10	9.63	9.90	9.43	7.31	10.12	7.36	8.97	9.33	9.66	10.30	9.10	7.81
11	9.72	9.90	8.53	7.38	10.17	7.50	9.10	9.34	9.71	10.35	9.23	7.55
12	9.77	9.91	7.07	7.70	10.18	7.77	9.19	9.36	9.77	10.22	9.34	7.82
13	9.87	9.94	6.95	8.00	10.19	8.06	9.12	9.39	9.82	9.80	9.24	8.00
14	9.89	10.03	7.01	8.23	10.20	8.25	8.61	9.39	9.87	9.65	9.27	8.10
15	9.87	10.09	7.33	8.50	10.26	8.53	8.26	9.18	9.92	9.27	9.35	8.16
16	9.90	10.14	7.42	8.65	10.31	8.69	8.42	9.20	9.96	9.33	9.48	8.56
17	9.96	10.10	7.47	8.72	10.33	8.84	8.57	9.25	9.96	9.45	9.60	8.61
18	10.0	10.04	7.75	8.74	10.25	8.98	8.74	9.10	9.81	9.53	9.65	3.52
19	10.03	9.91	8.10	8.97	10.25	9.09	8.84	8.99	9.81	9.54	9.72	1.71
20	10.08	8.39	8.40	9.16	10.32	9.03	8.97	8.82	9.89	9.62	9.79	3.26
21	10.07	6.94	8.57	9.24	10.31	8.52	9.06	8.73	9.86	9.68	9.72	4.44
22	10.14	7.15	8.77	9.29	10.37	8.21	9.18	8.42	9.83	9.73	9.58	5.11
23	10.20	7.39	8.85	9.41	10.35	8.16	9.22	8.10	9.92	9.77	9.61	5.69
24	10.28	7.57	8.62	9.49	10.33	8.25	9.24	8.21	10.04	9.72	9.72	6.11
25	10.33	7.86	8.13	9.60	10.38	8.46	9.26	8.44	10.08	9.73	9.80	6.43
26	10.34	7.96	7.91	9.66	10.41	8.50	9.06	8.59	10.11	9.73	9.85	6.73
27	10.27	8.30	7.99	9.68	10.42	8.56	8.75	8.59	10.17	9.02	9.88	6.93
28	9.96	8.29	8.18	9.74	10.43	8.65	8.79	8.56	10.20	7.36	9.92	5.89
29	9.84	8.12	8.39	9.80	10.41	8.75	8.87	8.75	10.23	7.20	9.96	5.58
30	9.84	8.15	8.56	9.84	---	8.81	8.95	8.86	10.27	7.47	10.01	6.00
31	9.85	---	8.55	9.93	---	8.87	---	8.92	---	7.50	10.03	---
MEAN	9.68	9.17	8.34	8.49	10.24	8.46	8.77	8.96	9.76	9.58	9.25	7.44
MAX	10.34	10.14	9.43	9.93	10.43	10.36	9.26	9.39	10.27	10.41	10.03	10.32
MIN	8.34	6.94	6.95	5.54	10.02	6.56	7.95	8.10	8.99	7.20	7.62	1.71



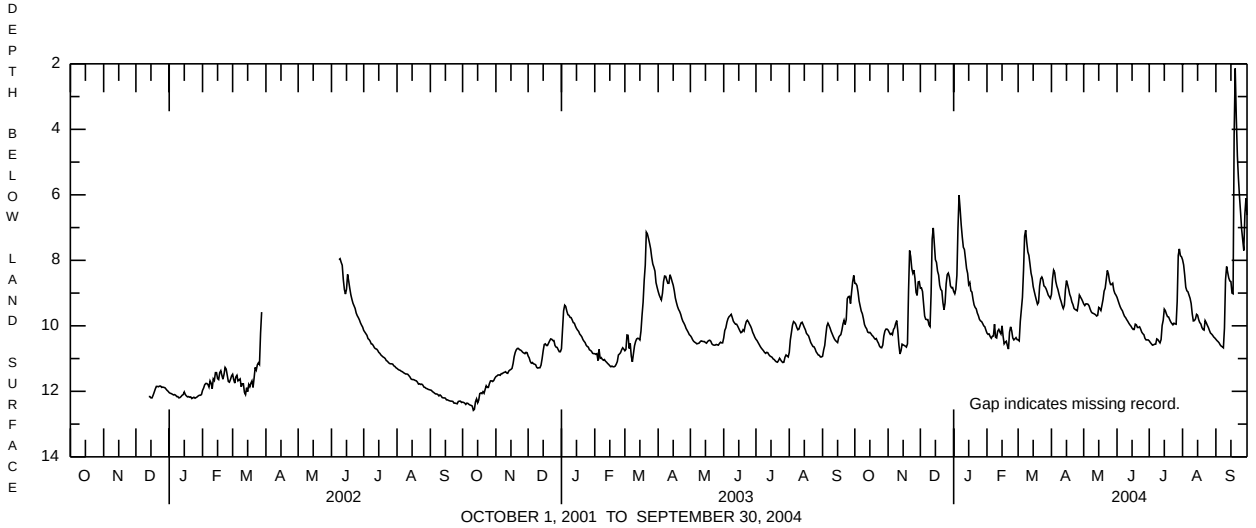
CLINTON COUNTY

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 USGS Pennsylvania Water Science Center.
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, 1.99 ft below land-surface datum, Sept. 19, 2004; lowest, 12.75 ft below land-surface datum, Oct. 11, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level, 1.99 ft below land-surface datum, Sept. 19; lowest, 10.94 ft below land-surface datum, Nov. 12.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.70	10.13	8.85	8.95	10.22	10.43	9.04	9.33	9.13	10.46	7.98	10.41
2	8.71	10.20	8.84	9.02	10.26	10.46	8.56	9.38	9.23	10.51	8.14	10.45
3	8.77	10.26	8.95	8.88	10.25	9.86	8.30	9.33	9.33	10.55	8.45	10.48
4	8.97	10.23	9.33	8.46	10.33	9.50	8.37	9.33	9.42	10.59	8.82	10.52
5	9.24	10.27	9.70	7.03	10.38	9.13	8.64	9.34	9.49	10.58	8.93	10.58
6	9.40	10.11	9.80	6.01	10.32	8.31	8.79	9.39	9.54	10.56	8.96	10.62
7	9.55	10.06	9.81	6.43	10.31	7.26	8.89	9.49	9.63	10.56	9.06	10.64
8	9.63	9.93	9.81	6.91	9.95	7.08	9.03	9.57	9.71	10.40	9.16	10.67
9	9.78	9.84	9.97	7.29	10.35	7.45	9.16	9.61	9.75	10.42	9.32	10.07
10	9.96	10.15	10.02	7.60	10.37	7.74	9.26	9.62	9.81	10.47	9.63	8.59
11	10.04	10.57	9.01	7.67	10.16	7.85	9.38	9.64	9.86	10.52	9.85	8.19
12	10.09	10.86	7.35	7.96	10.11	8.11	9.47	9.66	9.92	10.42	9.84	8.37
13	10.19	10.76	7.01	8.25	10.19	8.39	9.37	9.70	9.97	9.99	9.79	8.54
14	10.21	10.56	7.50	8.40	10.25	8.54	8.90	9.68	10.01	9.83	9.65	8.63
15	10.20	10.58	7.98	8.74	10.0	8.80	8.62	9.44	10.07	9.49	9.68	8.65
16	10.24	10.60	8.06	8.68	10.32	8.95	8.74	9.47	10.11	9.54	9.81	9.00
17	10.29	10.62	8.33	8.93	10.55	9.09	8.88	9.53	10.11	9.64	9.90	9.02
18	10.32	10.65	8.45	8.97	10.50	9.22	9.04	9.37	9.95	9.72	9.94	4.17
19	10.37	10.55	8.76	9.19	10.47	9.34	9.13	9.19	9.97	9.73	10.05	2.14
20	10.41	8.93	8.89	9.36	10.61	9.28	9.27	8.94	10.05	9.81	10.11	3.62
21	10.39	7.70	8.93	9.44	10.71	8.78	9.35	8.85	10.05	9.88	10.13	4.81
22	10.47	7.88	9.29	9.48	10.19	8.56	9.47	8.58	10.03	9.93	9.84	5.50
23	10.53	8.25	9.51	9.61	10.03	8.51	9.50	8.31	10.10	9.97	9.90	6.06
24	10.62	8.39	9.30	9.69	10.15	8.59	9.52	8.41	10.19	9.92	9.98	6.55
25	10.66	8.30	8.72	9.80	10.37	8.78	9.54	8.63	10.24	9.94	10.05	7.06
26	10.67	8.55	8.44	9.85	10.43	8.81	9.33	8.74	10.27	9.95	10.14	7.38
27	10.59	8.98	8.39	9.87	10.40	8.87	9.06	8.74	10.38	9.26	10.22	7.70
28	10.31	9.07	8.51	9.93	10.36	8.96	9.12	8.70	10.43	7.85	10.25	6.58
29	10.16	8.66	8.78	10.0	10.42	9.06	9.18	8.91	10.43	7.65	10.29	6.11
30	10.10	8.65	8.84	10.03	---	9.11	9.25	9.01	10.43	7.86	10.34	6.62
31	10.10	---	8.83	10.13	---	9.16	---	9.06	---	7.89	10.37	---
MEAN	9.99	9.68	8.84	8.73	10.31	8.77	9.07	9.19	9.92	9.80	9.63	7.92
MAX	10.67	10.86	10.02	10.13	10.71	10.46	9.54	9.70	10.43	10.59	10.37	10.67
MIN	8.70	7.70	7.01	6.01	9.95	7.08	8.30	8.31	9.13	7.65	7.98	2.14



OCTOBER 1, 2001 TO SEPTEMBER 30, 2004

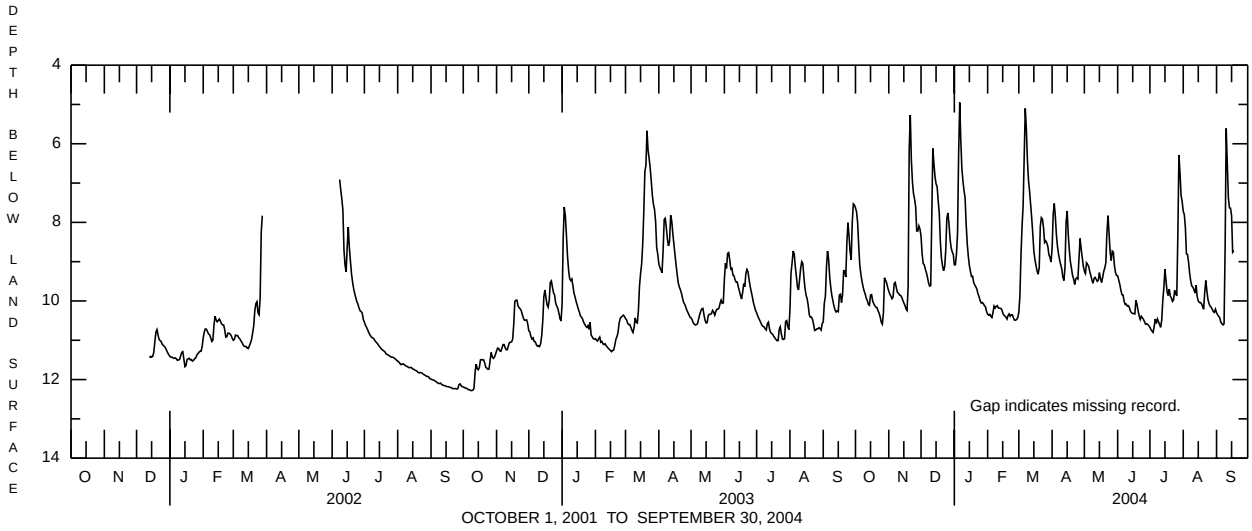
CLINTON COUNTY

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 USGS Pennsylvania Water Science Center. Well inundated by flood waters of Bald Eagle Creek on Sept. 18, 2004.
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 recorded, 0.95 ft above land-surface datum, Sept. 18, 2004; lowest, 12.29 ft below land-surface datum, Oct. 9, 10, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level recorded, 0.95 ft above land-surface datum, Sept. 18; lowest, 10.81 ft below land-surface datum, July 4.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.63	9.75	8.35	9.08	10.34	10.29	8.66	9.24	9.36	10.67	7.72	10.30
2	7.73	9.83	8.79	9.08	10.36	9.89	7.79	9.30	9.47	10.73	7.80	10.35
3	8.00	9.88	9.05	8.80	10.34	8.84	7.52	9.03	9.58	10.77	8.13	10.39
4	8.59	9.94	9.08	8.26	10.39	8.11	7.86	9.07	9.73	10.80	8.80	10.43
5	9.09	9.90	9.19	6.27	10.42	7.59	8.32	9.12	9.84	10.64	8.82	10.54
6	9.31	9.56	9.28	4.95	10.29	6.32	8.62	9.25	9.85	10.46	9.02	10.58
7	9.49	9.53	9.40	5.90	10.13	5.10	8.81	9.35	10.01	10.57	9.30	10.61
8	9.63	9.66	9.54	6.62	10.18	5.60	8.96	9.46	10.09	10.46	9.50	10.58
9	9.74	9.78	9.62	6.95	10.14	6.41	9.08	9.55	10.08	10.53	9.62	8.62
10	9.82	9.80	9.61	7.19	10.12	6.93	9.19	9.43	10.13	10.60	9.65	5.61
11	9.93	9.85	7.87	7.37	10.18	7.20	9.40	9.40	10.12	10.67	9.71	6.51
12	9.99	9.86	6.12	8.04	10.18	7.54	9.48	9.45	10.18	10.48	9.80	7.37
13	10.09	9.90	6.51	8.54	10.19	7.89	9.13	9.50	10.27	9.98	9.60	7.63
14	10.11	9.98	6.83	8.86	10.21	8.29	8.00	9.47	10.30	9.66	9.89	7.64
15	9.85	10.05	7.02	9.10	10.30	8.73	7.71	9.28	10.32	9.19	10.0	7.83
16	9.84	10.11	7.09	9.25	10.36	8.95	8.31	9.43	10.32	9.50	10.04	8.76
17	10.00	10.20	7.46	9.38	10.38	9.10	8.71	9.53	10.33	9.77	10.04	8.72
18	10.07	10.24	7.78	9.37	10.41	9.24	9.00	9.41	9.98	9.86	10.07	---
19	10.12	9.65	8.49	9.53	10.46	9.32	9.17	9.25	10.09	9.70	10.14	---
20	10.16	6.15	8.92	9.59	10.37	9.15	9.35	9.16	10.25	9.88	10.21	---
21	10.17	5.27	9.10	9.64	10.33	8.10	9.44	9.03	10.38	9.92	9.79	---
22	10.25	6.40	9.23	9.70	10.39	7.88	9.58	8.26	10.47	10.01	9.48	---
23	10.31	6.97	9.13	9.82	10.35	7.92	9.44	7.83	10.39	9.97	9.74	---
24	10.41	7.27	8.71	9.89	10.35	8.14	9.41	8.29	10.43	9.73	9.96	---
25	10.54	7.41	7.91	9.99	10.43	8.51	9.44	8.76	10.47	9.82	10.07	---
26	10.59	7.60	7.76	10.05	10.49	8.47	8.91	8.97	10.53	9.87	10.13	---
27	10.31	8.22	8.03	10.04	10.49	8.52	8.41	8.73	10.59	8.31	10.16	---
28	9.41	8.22	8.42	10.07	10.47	8.61	8.67	8.76	10.58	6.29	10.21	---
29	9.48	8.09	8.64	10.12	10.42	8.82	8.89	9.11	10.60	6.75	10.27	---
30	9.54	8.17	8.75	10.15	---	8.89	9.11	9.28	10.63	7.31	10.29	---
31	9.66	---	8.81	10.27	---	9.01	---	9.35	---	7.47	10.21	---
MEAN	9.67	8.91	8.40	8.77	10.33	8.17	8.81	9.13	10.18	9.69	9.62	8.97
MAX	10.59	10.24	9.62	10.27	10.49	10.29	9.58	9.55	10.63	10.80	10.29	10.61
MIN	7.63	5.27	6.12	4.95	10.12	5.10	7.52	7.83	9.36	6.29	7.72	5.61



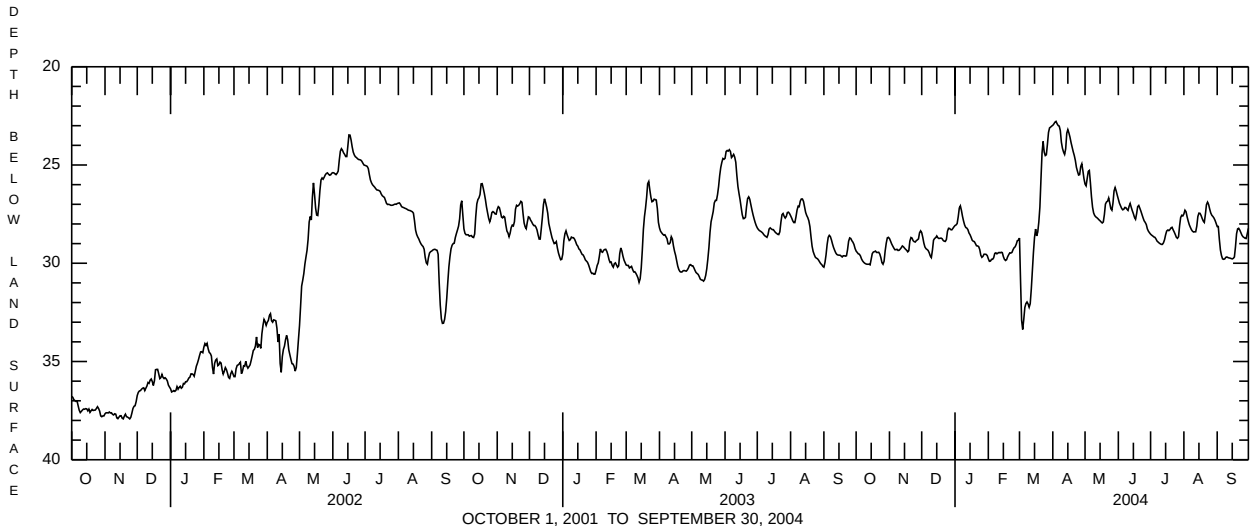
COLUMBIA COUNTY

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 USGS Pennsylvania Water Science Center.
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, 22.76 ft below land-surface datum, Apr. 4, 2004; lowest, 38.01 ft below land-surface datum, Sept. 17, 2001.
EXTREMES FOR CURRENT YEAR.--Highest water level, 22.76 ft below land-surface datum, Apr. 4; lowest, 33.46 ft below land-surface datum, Mar. 4.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.38	28.74	28.44	28.08	29.77	28.72	22.98	25.97	26.74	28.52	27.49	28.13
2	29.45	28.87	28.68	28.05	29.90	30.92	22.91	26.06	26.94	28.57	27.30	28.13
3	29.52	29.01	28.97	27.98	29.89	32.91	22.82	25.69	27.07	28.61	27.38	28.79
4	29.54	29.12	29.17	27.63	29.80	33.37	22.78	25.33	27.20	28.66	27.64	29.33
5	29.63	29.22	29.26	27.19	29.80	32.85	22.90	25.28	27.28	28.68	27.85	29.61
6	29.78	29.31	29.30	27.08	29.72	32.25	22.99	25.90	27.26	28.76	28.04	29.78
7	29.88	29.31	29.35	27.32	29.50	32.05	23.02	26.61	27.16	28.87	28.17	29.80
8	29.95	29.29	29.47	27.62	29.47	31.97	23.25	27.15	27.17	28.92	28.29	29.78
9	30.00	29.35	29.63	27.86	29.52	32.07	23.84	27.44	27.25	28.97	28.37	29.70
10	30.03	29.34	29.71	28.06	29.48	32.24	24.15	27.57	27.31	29.01	28.41	29.68
11	30.05	29.28	29.33	28.18	29.45	32.06	24.34	27.64	27.10	29.04	28.40	29.71
12	30.05	29.21	28.83	28.21	29.47	31.31	24.46	27.68	26.96	29.04	28.40	29.73
13	30.05	29.12	28.74	28.29	29.44	30.38	24.18	27.73	27.15	28.96	28.11	29.74
14	30.08	29.16	28.70	28.46	29.46	29.45	23.38	27.79	27.33	28.80	27.62	29.76
15	29.79	29.23	28.61	28.55	29.66	28.68	23.20	27.84	27.48	28.55	27.45	29.78
16	29.51	29.29	28.70	28.68	29.80	28.26	23.37	27.90	27.66	28.36	27.46	29.75
17	29.43	29.34	28.74	28.83	29.86	28.61	23.58	27.95	27.76	28.31	27.57	29.68
18	29.41	29.42	28.73	28.88	29.82	28.41	23.86	27.90	27.48	28.34	27.72	29.17
19	29.38	29.36	28.72	28.90	29.67	27.90	24.09	27.53	27.12	28.29	27.85	28.50
20	29.45	28.87	28.75	29.00	29.56	27.14	24.32	26.99	27.06	28.20	27.92	28.25
21	29.45	28.69	28.84	29.11	29.47	25.73	24.52	26.88	27.20	28.17	27.51	28.22
22	29.44	28.72	28.88	29.12	29.48	24.37	24.77	26.84	27.35	28.30	27.02	28.31
23	29.53	28.85	28.89	29.15	29.45	23.80	25.12	26.68	27.52	28.41	26.89	28.44
24	29.71	28.90	28.79	29.30	29.31	24.34	25.33	26.93	27.69	28.54	27.01	28.57
25	29.97	28.92	28.37	29.59	29.21	24.52	25.51	27.22	27.84	28.68	27.24	28.65
26	30.05	28.85	28.22	29.70	29.16	24.48	25.49	27.30	27.92	28.73	27.44	28.69
27	29.90	28.81	28.23	29.65	29.03	23.95	25.08	26.94	28.03	28.65	27.56	28.73
28	29.38	28.76	28.29	29.54	28.85	23.34	24.94	26.32	28.25	28.09	27.62	28.74
29	28.98	28.45	28.30	29.54	28.83	23.11	25.29	26.15	28.37	27.67	27.70	28.49
30	28.71	28.35	28.23	29.55	---	23.07	25.69	26.32	28.45	27.56	27.82	28.23
31	28.68	---	28.15	29.61	---	23.02	---	26.54	---	27.59	27.97	---
MEAN	29.62	29.04	28.81	28.60	29.51	28.23	24.07	26.91	27.44	28.51	27.72	29.06
MAX	30.08	29.42	29.71	29.70	29.90	33.37	25.69	27.95	28.45	29.04	28.41	29.80
MIN	28.68	28.35	28.15	27.08	28.83	23.02	22.78	25.28	26.74	27.56	26.89	28.13



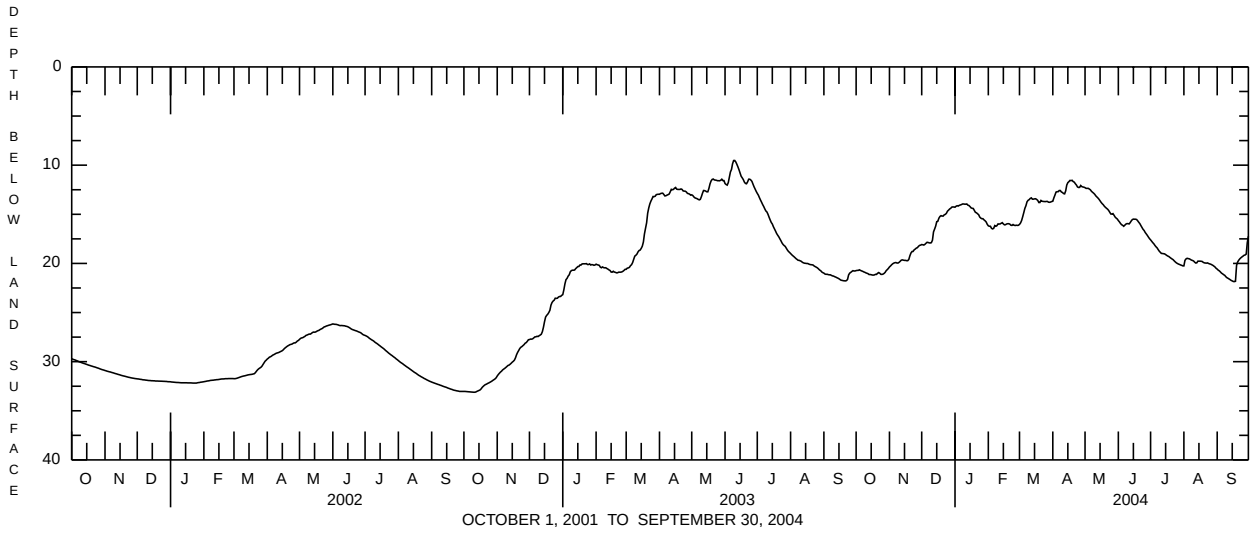
CUMBERLAND COUNTY

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 USGS Pennsylvania Water Science Center.
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, 11.46 ft below land-surface datum, Apr. 19; lowest, 21.85 ft below land-surface datum, Sept. 17.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.73	20.36	18.08	14.28	16.17	16.03	13.67	12.29	15.64	17.60	20.25	20.58
2	20.71	20.26	18.10	14.18	16.22	15.88	13.33	12.36	15.77	17.74	19.69	20.69
3	20.71	20.14	18.13	14.13	16.22	15.63	13.05	12.36	15.93	17.88	19.54	20.76
4	20.65	20.04	18.06	14.16	16.43	15.25	12.74	12.36	16.06	18.00	19.48	20.87
5	20.71	19.97	17.95	14.09	16.49	14.83	12.70	12.43	16.12	18.16	19.51	20.99
6	20.76	19.93	17.85	14.05	16.43	14.40	12.70	12.51	16.22	18.30	19.53	21.06
7	20.80	19.91	17.87	14.01	16.15	14.13	12.58	12.66	16.11	18.41	19.59	21.15
8	20.86	19.96	17.91	13.95	16.22	13.73	12.58	12.76	16.00	18.58	19.66	21.21
9	20.90	19.96	17.92	13.95	16.16	13.58	12.73	12.85	15.95	18.74	19.70	21.35
10	20.96	19.89	17.89	13.97	15.98	13.51	12.78	12.96	15.95	18.86	19.75	21.45
11	21.00	19.78	17.64	13.97	15.99	13.39	12.89	13.12	15.98	18.98	19.87	21.51
12	21.04	19.67	16.79	13.95	15.98	13.33	12.92	13.23	15.85	18.99	19.96	21.58
13	21.13	19.64	16.51	14.07	15.91	13.46	12.62	13.34	15.68	19.01	19.94	21.65
14	21.13	19.67	16.21	14.11	15.85	13.46	12.02	13.47	15.54	19.03	19.77	21.73
15	21.15	19.69	15.75	14.22	15.98	13.43	11.78	13.63	15.49	19.10	19.77	21.78
16	21.18	19.69	15.71	14.35	16.07	13.42	11.68	13.79	15.50	19.18	19.77	21.84
17	21.19	19.72	15.40	14.39	16.06	13.49	11.55	13.92	15.50	19.25	19.78	21.85
18	21.17	19.72	15.22	14.41	15.99	13.59	11.57	14.03	15.53	19.30	19.80	21.82
19	21.11	19.60	15.14	14.61	15.96	13.80	11.54	14.18	15.66	19.39	19.89	20.21
20	21.12	19.23	15.18	14.80	15.96	13.80	11.67	14.29	15.81	19.47	19.94	19.86
21	21.00	18.94	15.18	14.85	16.00	13.59	11.73	14.39	15.95	19.55	19.96	19.68
22	20.93	18.79	15.05	14.95	16.11	13.67	11.89	14.48	16.15	19.62	19.97	19.54
23	21.00	18.78	15.01	15.04	16.13	13.69	12.02	14.61	16.34	19.74	19.95	19.43
24	21.11	18.62	14.90	15.28	16.04	13.70	12.22	14.79	16.53	19.85	20.01	19.34
25	21.12	18.54	14.68	15.39	16.11	13.71	12.27	14.97	16.65	19.94	20.05	19.26
26	21.09	18.44	14.58	15.45	16.14	13.69	12.26	14.98	16.85	20.01	20.08	19.17
27	21.02	18.40	14.46	15.45	16.11	13.69	12.07	14.93	17.00	20.07	20.14	19.14
28	20.91	18.26	14.39	15.57	16.13	13.77	12.18	15.10	17.15	20.11	20.20	19.05
29	20.73	18.17	14.27	15.66	16.12	13.78	12.22	15.28	17.32	20.16	20.28	17.89
30	20.63	18.14	14.25	15.78	---	13.75	12.24	15.39	17.48	20.20	20.37	17.24
31	20.51	---	14.26	16.02	---	13.70	---	15.48	---	20.25	20.50	---
MEAN	20.94	19.40	16.14	14.62	16.11	13.96	12.34	13.77	16.12	19.14	19.89	20.46
MAX	21.19	20.36	18.13	16.02	16.49	16.03	13.67	15.48	17.48	20.25	20.50	21.85
MIN	20.51	18.14	14.25	13.95	15.85	13.33	11.54	12.29	15.49	17.60	19.48	17.24



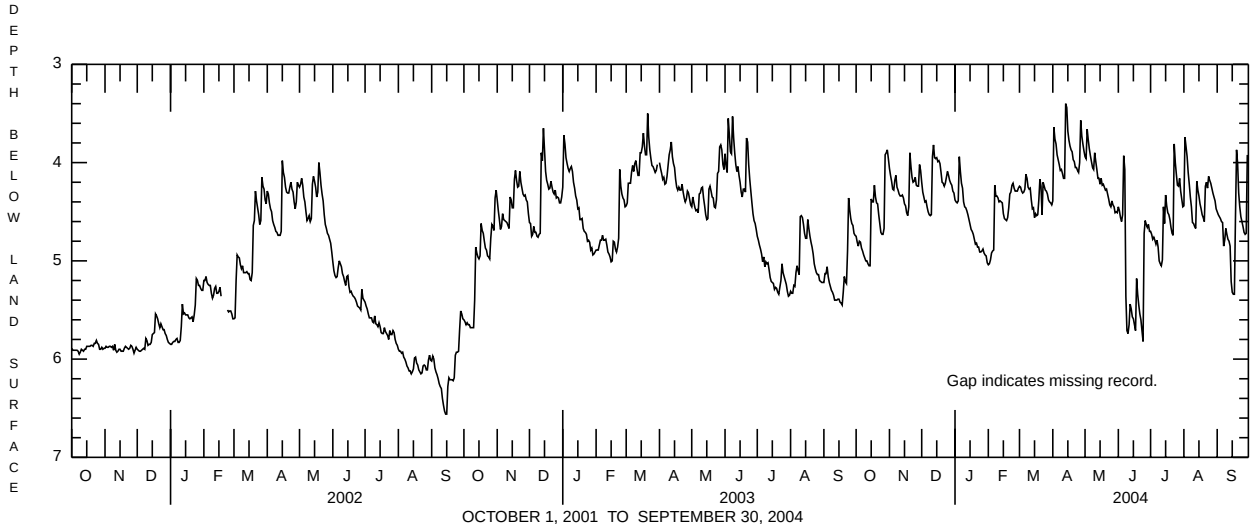
DAUPHIN COUNTY

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 USGS Pennsylvania Water Science Center.
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, 1.82 ft below land-surface datum, Sept. 18; lowest, 5.82 ft below land-surface datum, (result of nearby pumping), June 24.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.75	4.06	4.20	4.38	5.04	4.24	4.39	3.94	4.45	4.70	4.44	4.50
2	4.81	4.13	4.30	4.40	5.03	4.25	3.64	3.96	4.49	4.73	3.74	4.53
3	4.85	4.19	4.35	4.41	4.99	4.29	3.76	3.66	4.56	4.78	3.84	4.55
4	4.80	4.27	4.40	4.39	4.92	4.31	3.81	3.77	4.60	4.76	3.94	4.57
5	4.81	4.28	4.39	3.94	4.90	4.30	3.92	3.86	4.53	4.79	4.10	4.60
6	4.87	4.18	4.45	4.09	4.89	4.27	3.97	3.93	3.93	4.83	4.22	4.61
7	4.90	4.13	4.50	4.21	4.23	4.12	4.02	3.99	4.07	4.79	4.35	4.85
8	4.94	4.25	4.53	4.26	4.34	4.16	4.08	4.05	5.36	4.86	4.45	4.79
9	4.97	4.28	4.54	4.40	4.34	4.25	4.07	4.07	5.71	5.00	4.61	4.67
10	5.00	4.32	4.53	4.45	4.36	4.27	4.11	3.90	5.74	5.03	4.62	4.73
11	5.00	4.34	3.94	4.46	4.40	4.26	4.16	3.99	5.65	5.05	4.65	4.78
12	5.03	4.34	3.82	4.49	4.39	4.38	4.16	4.07	5.44	4.99	4.67	4.80
13	5.05	4.33	3.95	4.53	4.40	4.47	3.40	4.16	5.49	4.45	4.19	4.85
14	5.05	4.36	3.96	4.58	4.41	4.46	3.44	4.16	5.57	4.62	4.28	5.21
15	4.37	4.42	3.95	4.63	4.52	4.56	3.68	4.22	5.59	4.33	4.34	5.32
16	4.40	4.44	3.99	4.68	4.57	4.52	3.77	4.16	5.65	4.44	4.42	5.34
17	4.40	4.51	3.98	4.70	4.58	4.54	3.83	4.23	5.71	4.51	4.47	5.34
18	4.23	4.54	4.01	4.73	4.59	4.53	3.87	4.22	5.18	4.53	4.53	4.56
19	4.35	4.45	4.10	4.78	4.56	4.38	3.89	4.25	5.34	4.58	4.56	3.87
20	4.41	3.90	4.20	4.83	4.46	4.17	3.97	4.28	5.45	4.66	4.60	4.01
21	4.42	4.04	4.21	4.82	4.32	4.24	3.99	4.27	5.54	4.72	4.24	4.31
22	4.53	4.15	4.24	4.86	4.30	4.53	4.05	4.32	5.60	4.74	4.20	4.45
23	4.62	4.20	4.21	4.86	4.23	4.20	4.05	4.37	5.71	3.81	4.26	4.55
24	4.71	4.19	4.15	4.91	4.21	4.24	4.08	4.43	5.82	4.00	4.14	4.60
25	4.73	4.15	4.09	4.91	4.26	4.28	4.10	4.45	4.72	4.12	4.18	4.65
26	4.73	4.23	4.13	4.90	4.29	4.29	4.00	4.39	4.59	4.23	4.21	4.71
27	4.67	4.24	4.18	4.88	4.29	4.32	3.57	4.43	4.63	4.24	4.26	4.73
28	3.92	4.24	4.21	4.92	4.29	4.38	3.73	4.45	4.66	4.16	4.31	4.72
29	3.90	4.02	4.23	4.94	4.26	4.40	3.81	4.51	4.63	4.29	4.35	3.93
30	3.87	4.08	4.29	4.95	---	4.41	3.88	4.50	4.70	4.37	4.39	3.93
31	3.96	---	4.31	5.02	---	4.43	---	4.51	---	4.45	4.47	---
MEAN	4.61	4.24	4.20	4.62	4.50	4.34	3.91	4.18	5.10	4.57	4.32	4.64
MAX	5.05	4.54	4.54	5.02	5.04	4.56	4.39	4.51	5.82	5.05	4.67	5.34
MIN	3.87	3.90	3.82	3.94	4.21	4.12	3.40	3.66	3.93	3.81	3.74	3.87



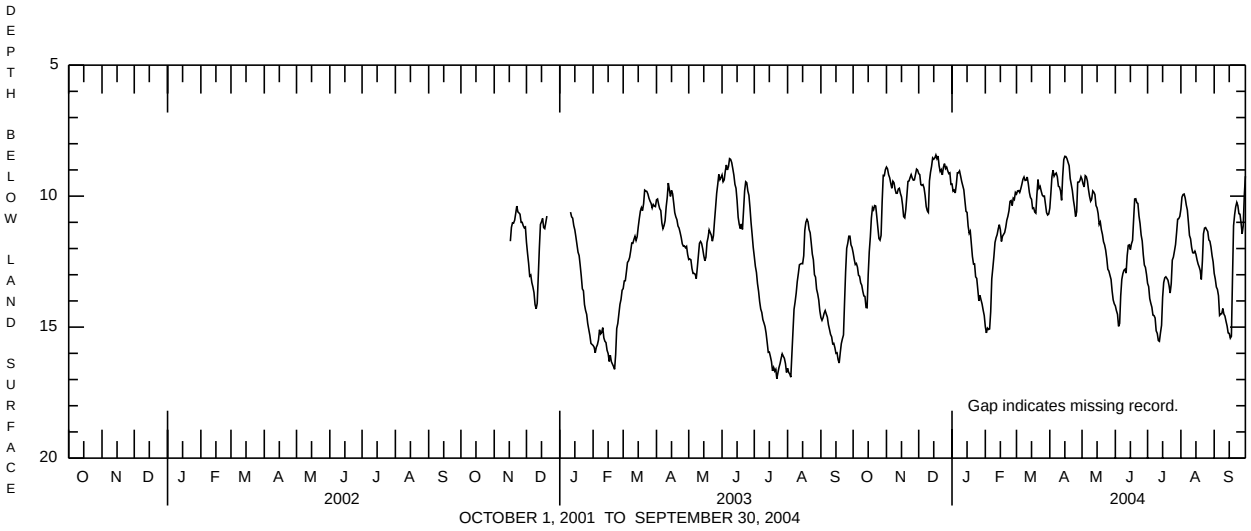
DAUPHIN COUNTY

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 USGS Pennsylvania Water Science Center. Water level affected by pumping.
PERIOD OF RECORD.--November 15, 2002 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land-surface datum. Highest water level, 8.15 ft below land-surface datum, Dec. 15, 2003; lowest, 17.64 ft below land-surface datum, July 22, 2003.
EXTREMES FOR CURRENT YEAR.--Highest water level, 8.15 ft below land-surface datum, Dec. 15; lowest, 16.00 ft below land-surface datum, July 12.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.16	8.89	9.14	9.54	14.98	9.92	10.46	9.36	14.19	13.33	10.50	12.95
2	12.41	8.96	9.18	9.81	15.22	9.80	9.89	9.54	14.37	13.45	10.04	13.16
3	12.61	9.18	9.56	9.77	15.04	9.79	9.26	9.65	14.51	13.91	9.94	13.47
4	12.57	9.30	9.59	9.88	15.09	9.86	9.01	9.22	14.97	14.09	9.92	13.56
5	12.71	9.51	9.56	9.56	15.07	9.72	9.24	9.26	14.86	14.24	10.07	13.80
6	13.02	9.70	9.69	9.11	14.41	9.55	9.16	9.42	13.81	14.54	10.34	14.55
7	13.06	9.43	9.98	9.11	13.16	9.36	9.12	9.74	13.18	14.56	10.53	14.50
8	13.31	9.49	10.40	9.04	12.74	9.27	9.26	10.01	12.96	14.65	11.00	14.49
9	13.40	9.73	10.56	9.23	12.30	9.40	9.62	10.19	12.83	15.14	11.50	14.29
10	13.63	9.89	10.62	9.44	11.77	9.39	9.65	10.11	12.79	15.24	11.63	14.50
11	13.81	9.89	9.42	9.60	11.59	9.27	9.80	9.80	12.94	15.51	11.96	14.58
12	13.83	9.73	9.09	9.76	11.47	9.53	10.16	9.85	12.28	15.54	12.16	14.78
13	14.25	9.70	8.86	10.17	11.25	9.86	9.25	9.94	11.88	15.22	12.17	14.96
14	14.26	9.90	8.54	10.58	11.09	10.05	8.61	10.36	11.86	14.93	12.10	15.22
15	13.00	10.03	8.59	10.62	11.28	10.12	8.48	10.45	12.04	13.86	12.22	15.24
16	12.12	10.34	8.54	11.14	11.73	10.47	8.49	10.67	11.82	13.30	12.43	15.42
17	11.56	10.78	8.43	11.42	11.53	10.45	8.57	11.08	11.69	13.12	12.59	15.35
18	10.83	10.83	8.57	11.34	11.46	10.61	8.71	10.99	10.90	13.08	12.70	13.20
19	10.44	10.51	8.47	11.82	11.39	10.65	8.84	11.28	10.11	13.14	12.84	11.13
20	10.52	9.99	8.84	12.30	11.19	9.95	9.33	11.46	10.10	13.21	13.18	10.71
21	10.36	9.44	9.06	12.59	10.92	9.37	9.56	11.74	10.25	13.42	12.49	10.41
22	10.38	9.42	8.99	12.59	10.77	9.70	9.79	11.86	10.28	13.70	11.44	10.24
23	10.78	9.29	9.19	13.08	10.56	9.63	10.15	12.06	10.75	13.35	11.22	10.36
24	11.20	9.18	8.90	13.14	10.20	9.81	10.42	12.38	11.05	12.44	11.20	10.67
25	11.62	9.31	8.76	13.56	10.17	9.96	10.78	12.79	11.48	12.33	11.28	10.69
26	11.68	9.39	8.95	14.00	10.36	10.01	10.60	12.86	11.71	12.10	11.35	11.03
27	11.50	9.38	8.89	13.79	10.08	10.00	9.47	13.02	12.24	11.85	11.67	11.44
28	10.22	9.18	9.03	13.96	10.13	10.32	9.47	13.18	12.63	11.39	11.72	11.14
29	9.21	8.97	9.14	14.12	9.86	10.63	9.41	13.62	12.72	10.88	11.94	9.97
30	9.22	9.01	9.11	14.35	---	10.72	9.26	13.96	12.99	10.86	12.27	9.24
31	8.99	---	9.55	14.56	---	10.68	---	14.11	---	10.77	12.51	---
MEAN	11.89	9.61	9.20	11.39	11.96	9.93	9.46	11.10	12.34	13.46	11.58	12.84
MAX	14.26	10.83	10.62	14.56	15.22	10.72	10.78	14.11	14.97	15.54	13.18	15.42
MIN	8.99	8.89	8.43	9.04	9.86	9.27	8.48	9.22	10.10	10.77	9.92	9.24



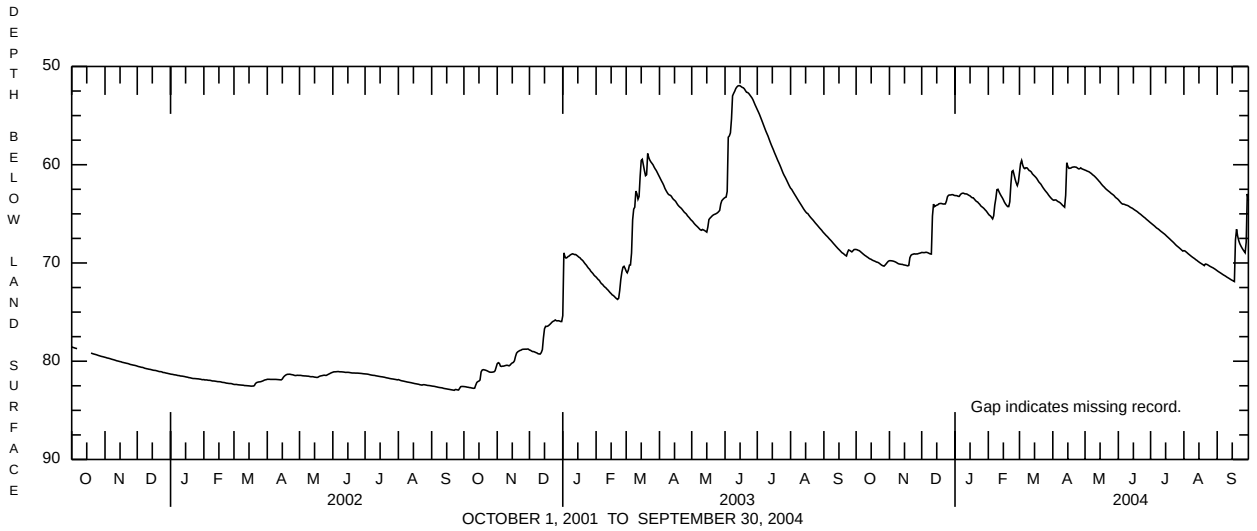
FRANKLIN COUNTY

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 USGS Pennsylvania Water Science Center.
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, 59.08 ft below land-surface datum, Mar. 2; lowest, 71.92 ft below land-surface datum, Sept. 18.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68.63	69.77	68.93	63.14	65.01	60.80	63.57	60.55	63.56	65.91	68.75	70.79
2	68.66	69.77	68.94	63.14	65.14	59.89	63.62	60.59	63.69	66.00	68.78	70.87
3	68.72	69.78	68.95	63.16	65.21	59.57	63.58	60.65	63.82	66.09	68.87	70.94
4	68.75	69.80	68.94	63.22	65.36	60.03	63.59	60.69	63.94	66.18	68.96	71.01
5	68.85	69.83	68.91	63.22	65.51	60.32	63.68	60.74	64.01	66.27	69.06	71.08
6	68.94	69.87	68.93	63.04	65.20	60.40	63.76	60.83	64.01	66.38	69.15	71.16
7	69.04	69.92	68.97	62.94	64.11	60.31	63.81	60.90	64.05	66.47	69.24	71.23
8	69.13	69.99	69.03	62.90	63.44	60.32	63.89	61.02	64.10	66.53	69.33	71.29
9	69.22	70.06	69.08	62.90	62.54	60.45	64.00	61.09	64.13	66.62	69.41	71.36
10	69.29	70.10	69.09	62.96	62.50	60.59	64.12	61.19	64.17	66.72	69.49	71.44
11	69.37	70.12	65.22	62.97	62.76	60.64	64.22	61.30	64.24	66.81	69.56	71.50
12	69.44	70.14	64.01	62.98	62.98	60.74	64.32	61.42	64.32	66.89	69.66	71.57
13	69.53	70.14	64.26	63.05	63.18	60.93	63.11	61.54	64.38	66.98	69.73	71.64
14	69.59	70.19	64.18	63.12	63.36	61.04	59.80	61.67	64.43	67.06	69.82	71.71
15	69.63	70.21	64.12	63.17	63.57	61.15	60.17	61.79	64.51	67.16	69.90	71.77
16	69.71	70.23	64.08	63.28	63.81	61.26	60.37	61.94	64.59	67.27	69.98	71.83
17	69.76	70.26	63.98	63.36	63.99	61.39	60.36	62.07	64.66	67.37	70.05	71.89
18	69.80	70.29	63.95	63.37	64.14	61.57	60.33	62.19	64.73	67.47	70.12	67.65
19	69.85	70.25	63.94	63.50	64.26	61.75	60.26	62.29	64.81	67.57	70.19	66.57
20	69.91	69.47	63.97	63.63	64.26	61.87	60.24	62.42	64.91	67.68	70.27	67.25
21	69.93	69.22	64.00	63.74	63.77	61.99	60.22	62.52	64.99	67.78	70.11	67.71
22	69.99	69.14	64.00	63.79	62.00	62.18	60.24	62.61	65.07	67.88	70.13	68.03
23	70.07	69.11	63.99	63.92	60.69	62.35	60.26	62.70	65.17	67.99	70.18	68.26
24	70.16	69.07	63.71	64.03	60.60	62.50	60.35	62.78	65.26	68.11	70.25	68.46
25	70.24	69.09	63.25	64.19	61.03	62.65	60.42	62.89	65.35	68.22	70.32	68.64
26	70.29	69.08	63.11	64.28	61.49	62.78	60.41	62.97	65.43	68.31	70.38	68.81
27	70.32	69.08	63.08	64.36	61.86	62.91	60.32	63.05	65.54	68.40	70.44	68.96
28	70.21	69.04	63.08	64.46	62.12	63.08	60.41	63.14	65.63	68.49	70.49	67.87
29	70.08	69.01	63.05	64.59	61.75	63.22	60.46	63.28	65.72	68.59	70.56	62.97
30	69.94	68.98	63.05	64.70	---	63.35	60.50	63.38	65.82	68.69	70.63	63.62
31	69.82	---	63.11	64.85	---	63.47	---	63.46	---	68.79	70.71	---
MEAN	69.58	69.70	65.45	63.55	63.30	61.47	61.81	61.92	64.63	67.31	69.82	69.60
MAX	70.32	70.29	69.09	64.85	65.51	63.47	64.32	63.46	65.82	68.79	70.71	71.89
MIN	68.63	68.98	63.05	62.90	60.60	59.57	59.80	60.55	63.56	65.91	68.75	62.97



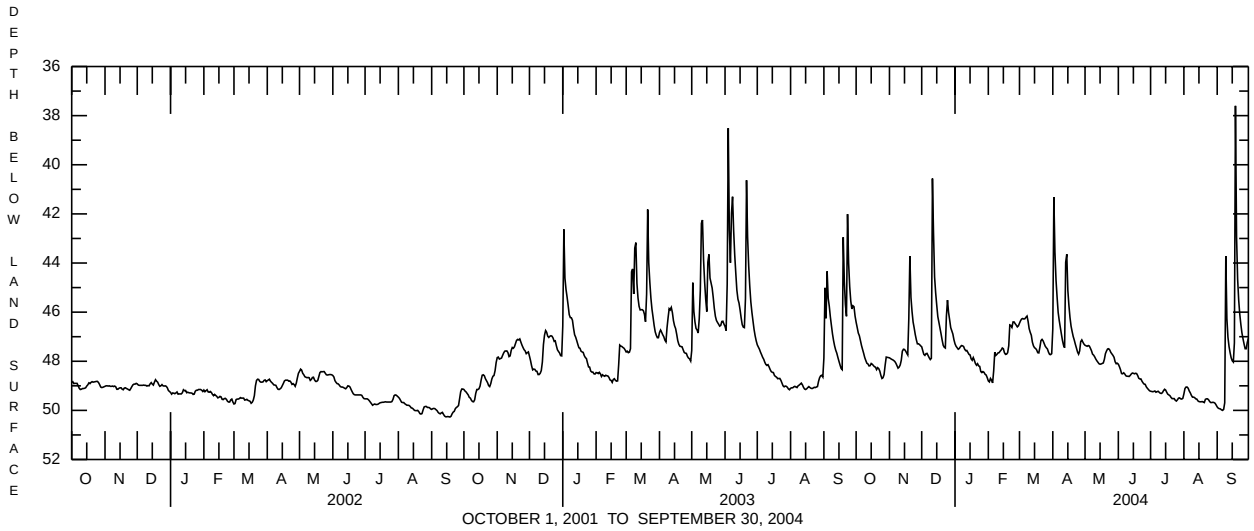
FULTON COUNTY

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 USGS Pennsylvania Water Science Center.
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, 34.98 ft below land-surface datum, Sept. 18, 2004; lowest, 50.27 ft below land-surface datum, Sept. 15, 17-19, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level, 34.98 ft below land-surface datum, Sept. 18; lowest, 50.02 ft below land-surface datum, Sept. 6.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46.41	47.86	47.41	47.29	48.80	46.45	46.68	47.35	48.12	49.22	49.33	49.86
2	46.63	47.89	47.57	47.39	48.84	46.35	41.32	47.37	48.22	49.23	49.11	49.91
3	46.85	47.92	47.72	47.45	48.70	46.28	43.56	47.39	48.34	49.24	49.05	49.93
4	46.96	47.94	47.76	47.51	48.77	46.26	44.70	47.36	48.50	49.23	49.05	49.94
5	47.16	47.97	47.69	47.48	48.88	46.28	45.39	47.38	48.51	49.21	49.10	49.98
6	47.36	48.01	47.68	47.41	48.39	46.27	46.01	47.47	48.47	49.26	49.21	50.00
7	47.52	48.08	47.77	47.36	47.63	46.21	46.34	47.57	48.52	49.24	49.29	49.96
8	47.68	48.18	47.86	47.37	47.76	46.16	46.62	47.71	48.59	49.22	49.39	49.69
9	47.85	48.28	47.93	47.40	47.72	46.37	46.89	47.75	48.61	49.26	49.46	43.72
10	47.97	48.24	47.88	47.51	47.66	46.67	47.15	47.82	48.61	49.30	49.46	46.26
11	48.08	48.15	40.56	47.57	47.65	46.82	47.35	47.91	48.62	49.31	49.48	47.02
12	48.11	47.96	42.79	47.56	47.59	46.94	47.45	47.98	48.58	49.28	49.53	47.40
13	48.19	47.59	44.57	47.64	47.54	47.22	43.97	48.04	48.52	49.20	49.54	47.65
14	48.18	47.51	45.21	47.72	47.46	47.37	43.64	48.10	48.48	49.14	49.61	47.86
15	48.09	47.52	45.72	47.74	47.49	47.45	45.11	48.12	48.49	49.17	49.64	47.98
16	48.12	47.58	46.18	47.90	47.65	47.48	45.72	48.11	48.51	49.26	49.65	48.03
17	48.17	47.66	46.41	47.96	47.72	47.54	46.21	48.09	48.49	49.34	49.65	47.25
18	48.22	47.74	46.65	47.85	47.71	47.65	46.57	48.07	48.50	49.37	49.64	37.60
19	48.24	46.27	46.88	47.96	47.65	47.66	46.79	47.92	48.58	49.40	49.66	42.93
20	48.34	43.72	47.13	48.09	47.37	47.43	46.99	47.69	48.69	49.47	49.68	44.65
21	48.26	45.40	47.35	48.16	46.52	47.16	47.14	47.58	48.72	49.52	49.55	45.51
22	48.30	45.97	47.43	48.10	46.54	47.11	47.31	47.50	48.72	49.52	49.53	46.08
23	48.40	46.40	47.46	48.19	46.62	47.17	47.46	47.49	48.81	49.52	49.53	46.50
24	48.57	46.64	46.17	48.21	46.40	47.28	47.62	47.54	48.88	49.59	49.57	46.84
25	48.70	46.91	45.51	48.42	46.40	47.39	47.71	47.64	48.93	49.62	49.64	47.08
26	48.67	47.12	46.01	48.46	46.47	47.45	47.58	47.70	48.94	49.57	49.68	47.30
27	48.54	47.29	46.31	48.42	46.53	47.50	47.20	47.76	49.04	49.50	49.68	47.49
28	48.16	47.29	46.63	48.45	46.60	47.63	47.13	47.84	49.10	49.49	49.67	47.49
29	47.83	47.32	46.76	48.53	46.56	47.72	47.22	48.02	49.15	49.53	49.68	47.23
30	47.84	47.37	46.89	48.56	---	47.73	47.30	48.10	49.20	49.54	49.71	47.07
31	47.85	---	47.12	48.67	---	47.69	---	48.08	---	49.51	49.78	---
MEAN	47.91	47.33	46.55	47.88	47.50	47.05	46.27	47.76	48.65	49.36	49.50	47.21
MAX	48.70	48.28	47.93	48.67	48.88	47.73	47.71	48.12	49.20	49.62	49.78	50.00
MIN	46.41	43.72	40.56	47.29	46.40	46.16	41.32	47.35	48.12	49.14	49.05	37.60



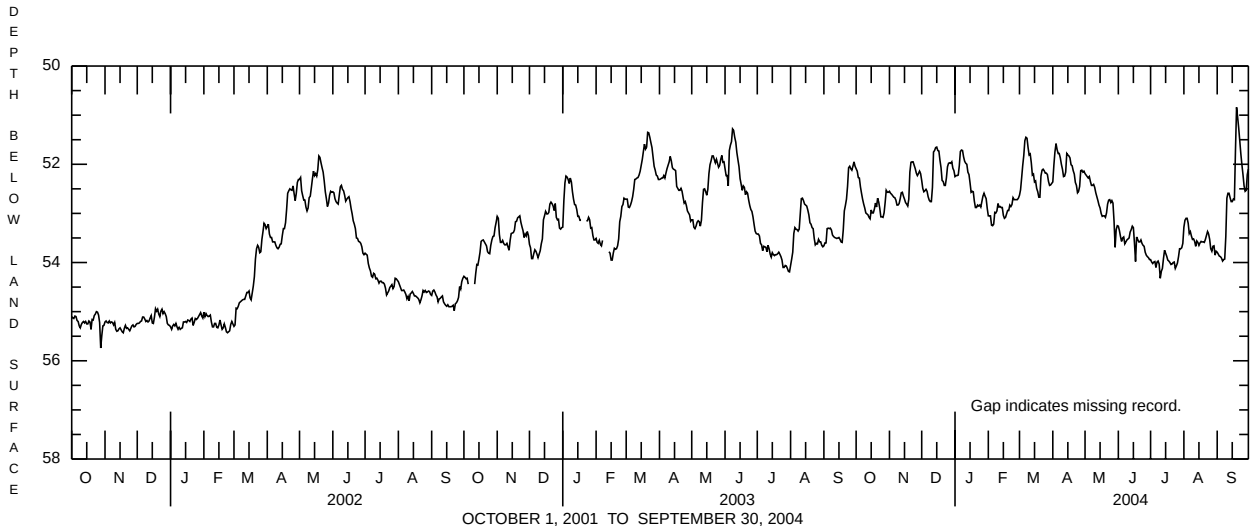
HUNTINGDON COUNTY

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 USGS Pennsylvania Water Science Center.
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, 50.52 ft below land-surface datum, Sept. 18; lowest, 54.32 ft below land-surface datum, July 10.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52.09	52.55	52.33	52.25	53.05	52.63	52.36	52.19	53.26	53.94	53.28	53.79
2	52.14	52.59	52.49	52.23	53.05	52.52	52.02	52.22	53.35	53.99	53.14	53.83
3	52.27	52.61	52.56	52.23	53.05	52.28	51.75	52.25	53.47	54.02	53.10	53.87
4	52.28	52.64	52.54	52.22	53.24	52.03	51.58	52.28	53.57	53.99	53.10	53.88
5	52.46	52.67	52.51	52.03	53.25	51.82	51.70	52.25	53.50	53.98	53.20	53.91
6	52.59	52.68	52.55	51.74	53.22	51.52	51.78	52.35	53.48	54.10	53.41	53.97
7	52.71	52.73	52.66	51.71	52.98	51.45	51.78	52.43	53.62	53.99	53.37	53.94
8	52.81	52.83	52.73	51.72	52.99	51.47	51.87	52.43	53.58	53.97	53.46	53.93
9	52.89	52.83	52.76	51.85	52.95	51.66	52.00	52.41	53.54	54.03	53.53	53.47
10	52.99	52.80	52.76	51.94	52.80	51.81	52.10	52.47	53.52	54.32	53.52	52.69
11	53.01	52.70	52.47	51.98	52.87	51.79	52.25	52.58	53.50	54.18	53.57	52.59
12	53.03	52.58	51.75	52.00	52.86	51.97	52.24	52.66	53.38	54.12	53.67	52.59
13	53.08	52.57	51.72	52.16	52.88	52.22	52.16	52.74	53.33	53.92	53.56	52.68
14	53.11	52.65	51.66	52.21	52.88	52.20	51.78	52.83	53.26	53.75	53.59	52.76
15	52.93	52.71	51.65	52.38	53.04	52.36	51.81	52.89	53.29	53.81	53.65	52.76
16	52.99	52.78	51.72	52.57	53.10	52.34	51.83	53.00	53.60	53.87	53.60	52.71
17	52.99	52.81	51.73	52.55	53.08	52.49	51.87	53.06	53.98	53.95	53.57	52.72
18	52.91	52.85	51.92	52.56	53.01	52.56	52.01	53.05	53.48	53.97	53.58	51.72
19	52.79	52.71	52.07	52.75	52.94	52.67	52.03	53.05	53.53	54.00	53.58	50.84
20	52.87	52.16	52.33	52.88	52.94	52.67	52.13	53.08	53.58	54.04	53.59	51.04
21	52.69	51.96	52.35	52.88	52.83	52.24	52.20	52.99	53.58	54.03	53.53	51.26
22	52.77	51.95	52.43	52.83	52.86	52.12	52.37	52.81	53.54	54.00	53.45	51.52
23	52.90	51.95	52.43	52.85	52.82	52.10	52.43	52.73	53.61	53.99	53.37	51.79
24	53.07	52.02	52.28	52.83	52.68	52.13	52.58	52.72	53.65	54.12	53.42	52.01
25	53.07	52.09	52.05	52.87	52.72	52.18	52.55	52.78	53.67	54.07	53.53	52.21
26	53.08	52.18	51.98	52.76	52.72	52.18	52.45	52.74	53.79	54.01	53.72	52.44
27	52.99	52.23	51.97	52.65	52.72	52.21	52.13	52.79	53.85	53.88	53.77	52.55
28	52.78	52.19	51.98	52.59	52.72	52.35	52.12	53.16	53.88	53.72	53.67	52.53
29	52.53	52.14	51.95	52.65	52.69	52.43	52.16	53.69	53.90	53.72	53.66	52.21
30	52.57	52.19	52.08	52.70	---	52.42	52.14	53.33	53.94	53.70	53.85	52.10
31	52.57	---	52.13	52.90	---	52.39	---	53.25	---	53.61	53.77	---
MEAN	52.77	52.48	52.21	52.40	52.93	52.17	52.07	52.75	53.57	53.96	53.51	52.68
MAX	53.11	52.85	52.76	52.90	53.25	52.67	52.58	53.69	53.98	54.32	53.85	53.97
MIN	52.09	51.95	51.65	51.71	52.68	51.45	51.58	52.19	53.26	53.61	53.10	50.84



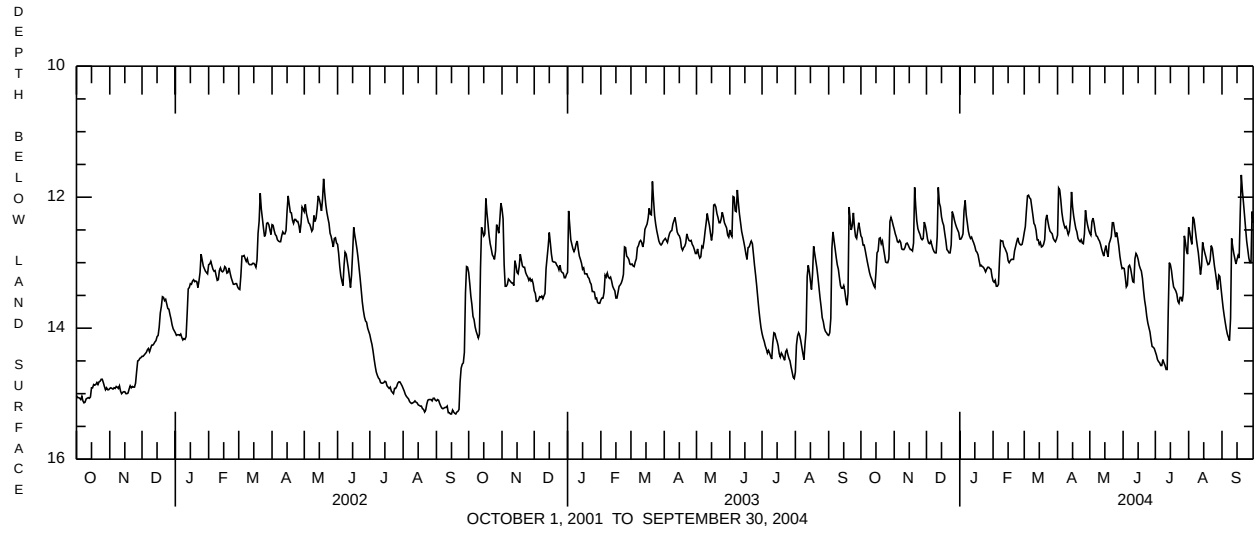
JUNIATA COUNTY

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 USGS Pennsylvania Water Science Center.
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, 10.90 ft below land-surface datum, Sept. 18; lowest, 14.63 ft below land-surface datum, July 11, 12.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.59	12.49	12.53	12.64	13.28	12.54	12.58	12.55	13.08	14.36	12.46	13.53
2	12.62	12.56	12.64	12.64	13.30	12.45	11.86	12.58	13.09	14.41	12.53	13.68
3	12.73	12.61	12.70	12.61	13.27	12.21	11.89	12.37	13.22	14.48	12.64	13.80
4	12.73	12.68	12.71	12.56	13.36	11.98	12.04	12.32	13.37	14.51	12.72	13.91
5	12.81	12.69	12.67	12.20	13.36	11.97	12.23	12.40	13.34	14.53	12.30	14.01
6	12.90	12.66	12.73	12.05	13.33	12.01	12.35	12.52	13.06	14.57	12.34	14.09
7	12.99	12.69	12.79	12.27	12.95	12.03	12.42	12.59	13.04	14.57	12.48	14.14
8	13.07	12.79	12.83	12.39	12.66	12.15	12.47	12.60	13.09	14.48	12.62	14.19
9	13.15	12.80	12.85	12.52	12.67	12.27	12.45	12.64	13.19	14.53	12.74	13.85
10	13.21	12.80	12.85	12.59	12.67	12.40	12.51	12.67	13.29	14.57	12.85	12.63
11	13.25	12.77	12.60	12.63	12.75	12.43	12.57	12.72	13.30	14.63	13.01	12.76
12	13.30	12.71	11.85	12.61	12.78	12.51	12.52	12.79	12.94	14.63	13.18	12.86
13	13.35	12.70	12.09	12.66	12.82	12.65	12.33	12.85	12.86	13.73	13.05	12.94
14	13.38	12.73	12.15	12.70	12.86	12.65	11.92	12.90	12.89	13.00	12.69	13.02
15	13.15	12.77	12.30	12.75	12.97	12.72	12.15	12.81	12.95	13.03	12.78	12.95
16	12.85	12.80	12.38	12.82	13.00	12.69	12.29	12.74	13.04	13.12	12.85	12.89
17	12.82	12.80	12.43	12.84	12.97	12.76	12.39	12.84	13.09	13.26	12.91	12.93
18	12.63	12.82	12.55	12.88	12.95	12.75	12.48	12.91	13.13	13.37	12.98	12.23
19	12.62	12.70	12.66	12.97	12.95	12.72	12.53	12.71	13.24	13.40	13.03	11.66
20	12.71	11.85	12.80	13.05	12.95	12.65	12.63	12.66	13.42	13.43	13.02	11.90
21	12.67	12.14	12.82	13.04	12.82	12.35	12.66	12.60	13.57	13.48	12.96	12.08
22	12.78	12.36	12.85	13.06	12.75	12.27	12.68	12.39	13.68	13.59	12.74	12.28
23	12.88	12.48	12.85	13.07	12.68	12.37	12.65	12.39	13.82	13.62	12.78	12.48
24	12.99	12.53	12.73	13.10	12.62	12.46	12.70	12.50	13.92	13.53	12.91	12.67
25	13.00	12.57	12.22	13.14	12.69	12.52	12.71	12.61	13.99	13.53	13.05	12.80
26	13.00	12.63	12.27	13.10	12.72	12.54	12.56	12.54	14.06	13.59	13.16	12.93
27	12.94	12.65	12.35	13.07	12.73	12.56	12.20	12.63	14.18	13.47	13.28	13.00
28	12.37	12.63	12.41	13.07	12.72	12.63	12.34	12.75	14.28	12.59	13.41	13.00
29	12.31	12.38	12.46	13.09	12.64	12.66	12.43	12.90	14.29	12.69	13.19	12.22
30	12.36	12.44	12.50	13.10	---	12.68	12.50	13.01	14.31	12.82	13.21	12.39
31	12.43	---	12.54	13.21	---	12.64	---	13.09	---	12.87	13.37	---
MEAN	12.86	12.61	12.55	12.79	12.90	12.46	12.40	12.66	13.42	13.75	12.88	12.99
MAX	13.38	12.82	12.85	13.21	13.36	12.76	12.71	13.09	14.31	14.63	13.41	14.19
MIN	12.31	11.85	11.85	12.05	12.62	11.97	11.86	12.32	12.86	12.59	12.30	11.66



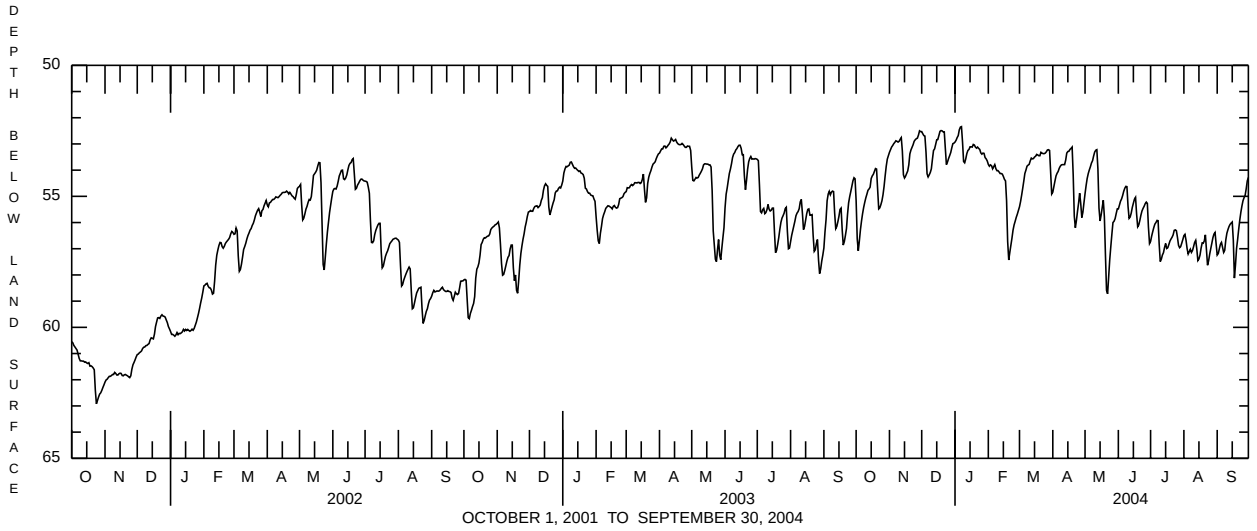
LACKAWANNA COUNTY

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 USGS Pennsylvania Water Science Center.
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, 52.30 ft below land-surface datum, Jan. 7, 2004; lowest, 62.96 ft below land-surface datum, Oct. 24, 2001.
EXTREMES FOR CURRENT YEAR.--Highest water level, 52.30 ft below land-surface datum, Jan. 7; lowest, 58.93 ft below land-surface datum, May 21.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55.17	53.32	52.53	52.93	53.78	55.40	54.84	54.90	55.48	56.72	56.50	57.24
2	56.62	53.22	52.61	52.86	53.85	55.20	54.63	54.59	55.34	56.52	56.45	57.18
3	57.08	53.12	52.68	52.76	53.80	54.96	54.42	54.32	55.19	56.35	56.68	57.00
4	56.70	53.06	52.70	52.68	53.83	54.70	54.22	54.13	55.10	56.19	57.00	56.83
5	56.27	52.99	53.31	52.46	53.95	54.42	54.12	53.99	54.97	56.06	57.20	56.76
6	55.94	52.94	54.14	52.36	53.87	54.13	54.05	53.87	54.81	56.00	57.11	56.95
7	55.66	52.88	54.26	52.34	53.79	54.00	53.93	53.73	54.69	55.92	57.02	57.14
8	55.42	52.90	54.18	52.93	53.94	53.85	53.85	53.64	54.62	55.93	57.14	57.06
9	55.23	52.93	54.09	53.67	54.02	53.81	53.80	53.46	54.63	56.82	57.07	56.66
10	55.06	52.90	53.95	53.72	54.02	53.78	53.79	53.31	55.38	57.49	56.92	56.41
11	54.92	52.82	53.58	53.57	54.07	53.65	53.79	53.24	55.84	57.40	56.76	56.27
12	54.77	52.76	53.25	53.37	54.13	53.54	53.79	53.22	55.79	57.24	56.68	56.15
13	54.72	53.27	53.19	53.25	54.13	53.57	53.62	53.96	55.64	57.15	57.01	56.07
14	54.65	54.18	53.02	53.21	54.15	53.56	53.35	55.45	55.42	56.95	57.45	56.02
15	54.32	54.30	52.84	53.11	54.24	53.50	53.29	55.94	55.26	56.80	57.39	55.98
16	54.22	54.23	52.83	53.11	54.35	53.47	53.28	55.71	55.11	56.99	57.24	56.69
17	54.16	54.13	52.68	53.12	54.41	53.40	53.21	55.43	55.04	56.96	56.98	58.12
18	54.05	54.03	52.52	53.02	55.17	53.42	53.17	55.15	55.68	56.84	56.78	57.63
19	53.94	53.80	52.49	53.04	56.72	53.45	53.12	55.78	56.16	56.71	56.79	56.99
20	53.96	53.38	52.50	53.12	57.43	53.45	54.18	57.23	56.09	56.63	56.70	56.65
21	54.73	53.23	52.54	53.16	57.14	53.32	55.76	58.59	55.92	56.56	56.47	56.26
22	55.48	53.13	52.54	53.12	56.87	53.35	56.20	58.72	55.72	56.47	57.04	55.91
23	55.44	53.03	53.17	53.17	56.60	53.37	55.92	58.07	55.56	56.30	57.63	55.61
24	55.32	52.90	53.79	53.21	56.29	53.37	55.57	57.42	55.46	56.28	57.46	55.37
25	55.17	52.84	53.69	53.34	56.09	53.35	55.26	56.91	55.38	56.31	57.21	55.17
26	54.94	52.80	53.56	53.39	55.95	53.30	54.88	56.44	55.28	56.56	57.00	55.05
27	54.62	52.78	53.45	53.35	55.80	53.23	55.27	56.00	55.22	56.87	56.79	54.96
28	54.22	52.66	53.33	53.36	55.68	53.22	55.81	55.95	55.27	56.96	56.58	54.71
29	53.85	52.50	53.15	53.52	55.54	53.25	55.61	55.85	56.17	56.92	56.44	54.41
30	53.58	52.53	52.99	53.57	---	54.08	55.25	55.66	56.80	56.79	56.38	54.28
31	53.45	---	52.97	53.65	---	54.91	---	55.48	---	56.65	56.82	---
MEAN	54.96	53.19	53.18	53.14	54.95	53.81	54.40	55.36	55.43	56.66	56.93	56.25
MAX	57.08	54.30	54.26	53.72	57.43	55.40	56.20	58.72	56.80	57.49	57.63	58.12
MIN	53.45	52.50	52.49	53.34	53.78	53.22	53.12	53.22	54.62	55.92	56.38	54.28



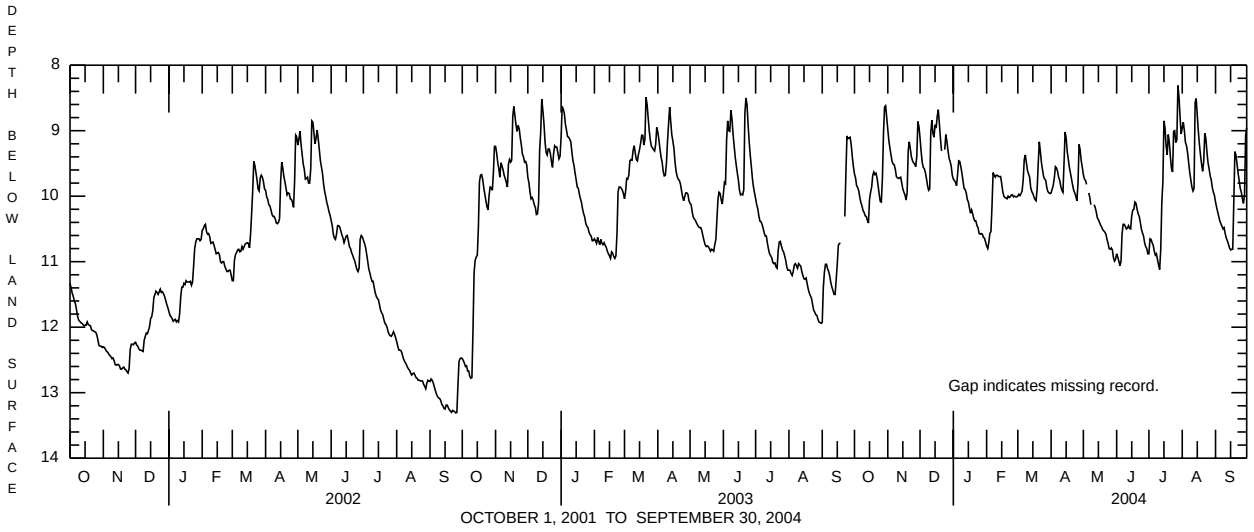
LANCASTER COUNTY

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 USGS Pennsylvania Water Science Center.
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, 8.28 ft below land-surface datum, July 28, 2004; lowest, 13.32 ft below land-surface datum, Sept. 25, 26, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level, 8.28 ft below land-surface datum, July 28; lowest, 11.15 ft below land-surface datum, July 11, 12.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.66	8.98	9.11	9.74	10.76	10.00	9.95	9.67	10.88	10.88	8.96	10.09
2	9.72	9.15	9.31	9.76	10.80	9.97	9.89	9.74	10.93	10.65	8.87	10.17
3	9.84	9.27	9.48	9.79	10.71	9.99	9.83	9.76	10.99	10.66	9.00	10.24
4	9.87	9.37	9.56	9.84	10.57	9.96	9.72	9.82	11.06	10.71	9.18	10.31
5	9.92	9.47	9.58	9.66	10.54	9.92	9.55	---	11.00	10.75	9.23	10.38
6	10.02	9.51	9.64	9.46	10.14	9.75	9.57	9.95	10.58	10.84	9.34	10.42
7	10.10	9.52	9.73	9.47	9.64	9.44	9.62	10.02	10.43	10.90	9.49	10.46
8	10.15	9.59	9.84	9.55	9.68	9.37	9.71	10.13	10.43	10.88	9.64	10.50
9	10.22	9.70	9.91	9.65	9.71	9.49	9.76	---	10.46	10.97	9.75	10.48
10	10.25	9.72	9.89	9.77	9.68	9.61	9.85	---	10.50	11.05	9.86	10.57
11	10.30	9.73	9.03	9.88	9.68	9.66	9.91	10.13	10.49	11.12	9.92	10.64
12	10.31	9.72	8.84	9.90	9.70	9.71	9.94	10.17	10.45	10.81	9.88	10.68
13	10.37	9.71	9.04	9.95	9.70	9.87	9.50	10.24	10.49	10.10	8.57	10.73
14	10.41	9.80	9.10	10.05	9.70	9.93	9.02	10.33	10.50	9.78	8.51	10.79
15	10.05	9.89	8.91	10.09	9.81	9.96	9.11	10.36	10.30	8.85	8.77	10.82
16	9.94	9.94	8.96	10.18	9.93	10.01	9.32	10.40	10.21	8.96	9.01	10.81
17	9.86	9.98	8.78	10.26	10.0	10.05	9.44	10.44	10.20	9.23	9.21	10.81
18	9.68	10.06	8.68	10.21	10.02	10.07	9.56	10.47	10.09	9.37	9.37	10.08
19	9.63	9.95	8.89	10.27	10.03	9.89	9.65	10.51	10.11	9.06	9.51	9.32
20	9.67	9.30	9.12	10.34	10.04	9.50	9.74	10.53	10.20	9.18	9.62	9.37
21	9.65	9.17	9.31	10.38	10.0	9.17	9.83	10.55	10.27	9.40	9.47	9.51
22	9.72	9.28	---	10.38	10.02	9.32	9.91	10.58	10.31	9.58	9.04	9.65
23	9.84	9.40	---	10.45	10.01	9.49	9.95	10.66	10.40	9.63	9.12	9.76
24	9.97	9.46	9.29	10.48	9.98	9.60	10.0	10.72	10.50	9.01	9.32	9.88
25	10.08	9.49	9.06	10.57	9.98	9.70	10.07	10.80	10.56	9.00	9.49	9.94
26	10.09	9.51	9.16	10.58	10.01	9.74	9.81	10.81	10.61	9.18	9.58	10.04
27	9.72	9.55	9.30	10.57	10.00	9.76	9.21	10.79	10.71	9.14	9.69	10.11
28	9.04	9.39	9.42	10.58	10.01	9.87	9.29	10.82	10.77	8.31	9.75	9.98
29	8.64	8.86	9.47	10.63	10.01	9.93	9.46	10.94	10.80	8.49	9.87	9.07
30	8.62	8.94	9.54	10.64	---	9.95	9.56	10.99	10.88	8.79	9.94	8.96
31	8.80	---	9.68	10.70	---	9.96	---	10.96	---	9.05	9.99	---
MEAN	9.81	9.51	9.30	10.12	10.03	9.76	9.66	10.40	10.54	9.82	9.39	10.15
MAX	10.41	10.06	9.91	10.70	10.80	10.07	10.07	10.99	11.06	11.12	9.99	10.82
MIN	8.62	8.86	8.68	9.46	9.64	9.17	9.02	9.67	10.09	8.31	8.51	8.96



OCTOBER 1, 2001 TO SEPTEMBER 30, 2004

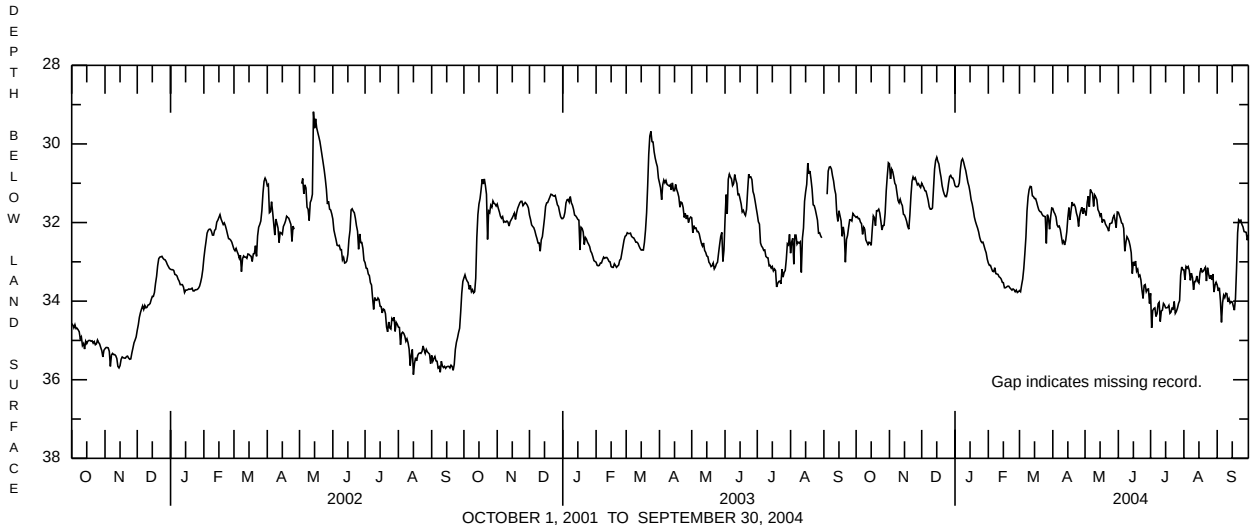
LUZERNE COUNTY

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 USGS Pennsylvania Water Science Center.
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, 30.20 ft below land-surface datum, Dec. 14, 15; lowest, 34.68 ft below land-surface datum, July 2.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31.87	30.51	31.00	31.06	33.03	33.73	31.64	31.74	31.74	33.80	33.20	33.59
2	31.85	30.89	31.06	31.09	33.09	33.76	31.73	31.82	31.82	34.68	33.46	33.74
3	31.90	30.64	31.11	31.09	33.09	33.59	31.78	31.49	31.90	34.24	33.12	33.66
4	31.90	30.70	31.19	31.08	33.17	33.44	31.86	31.33	32.01	34.19	33.16	33.99
5	31.99	30.84	31.20	30.99	33.24	33.17	32.06	31.60	32.03	34.17	33.12	34.54
6	32.03	31.00	31.31	30.65	33.25	32.79	32.11	31.16	32.15	34.39	33.22	34.04
7	32.30	31.05	31.43	30.43	33.15	32.37	32.09	31.22	32.73	34.32	33.47	33.85
8	32.12	31.25	31.60	30.38	33.30	31.70	32.18	31.26	32.51	34.07	33.29	33.91
9	32.17	31.44	31.66	30.46	33.31	31.35	32.35	31.59	32.36	34.03	33.40	33.80
10	32.44	31.50	31.66	30.58	33.32	31.16	32.52	31.30	32.41	34.52	33.71	33.81
11	32.50	31.41	31.63	30.68	33.38	31.08	32.47	31.35	32.48	34.25	33.50	34.02
12	32.56	31.51	31.13	30.83	33.40	31.09	32.57	31.42	32.60	34.23	33.50	33.94
13	32.50	31.57	30.64	30.98	33.44	31.32	32.46	31.67	32.77	34.06	33.36	34.05
14	32.52	31.79	30.42	31.08	33.52	31.34	32.24	31.73	33.30	34.10	33.50	34.01
15	32.58	31.81	30.34	31.23	33.53	31.39	31.88	31.83	33.00	34.17	33.54	34.02
16	32.17	31.88	30.44	31.42	33.66	31.39	31.62	31.76	33.10	34.17	33.27	34.13
17	31.83	31.97	30.51	31.53	33.66	31.48	31.93	32.00	32.98	34.16	33.16	34.23
18	31.88	32.10	30.70	31.68	33.64	31.59	31.69	31.93	33.24	34.11	33.26	33.93
19	32.08	32.17	30.85	31.86	33.62	31.68	31.48	31.94	33.19	34.31	33.24	33.16
20	31.70	31.81	31.06	31.97	33.62	31.72	31.56	32.04	33.37	34.28	33.19	32.26
21	31.70	31.31	31.19	32.06	33.66	31.73	31.54	32.09	33.34	34.18	33.14	31.93
22	31.66	30.95	31.28	32.14	33.69	31.79	31.61	32.14	33.46	34.20	33.49	31.96
23	31.76	30.84	31.34	32.24	33.72	31.83	31.76	32.22	33.72	34.01	33.15	31.94
24	31.96	30.90	31.34	32.38	33.69	31.84	31.86	32.03	33.93	34.31	33.31	32.05
25	32.19	30.86	31.21	32.47	33.71	31.85	32.10	32.02	33.60	34.26	33.43	32.11
26	32.08	30.95	31.00	32.51	33.76	32.53	31.83	32.01	33.58	34.18	33.34	32.23
27	32.07	31.04	30.83	32.50	33.72	31.80	31.70	31.88	33.76	34.06	33.46	32.24
28	31.76	31.01	30.80	32.59	33.78	31.89	31.61	31.82	33.70	33.99	33.31	32.25
29	31.19	31.07	30.86	32.69	33.76	32.17	31.78	31.95	33.69	33.34	33.77	32.45
30	30.81	31.11	30.87	32.77	---	31.86	31.64	32.13	34.06	33.13	33.59	32.31
31	30.48	---	30.94	32.93	---	31.63	---	31.73	---	33.20	33.52	---
MEAN	31.95	31.26	31.05	31.56	33.48	32.00	31.92	31.75	32.95	34.10	33.36	33.27
MAX	32.58	32.17	31.66	32.93	33.78	33.76	32.57	32.22	34.06	34.68	33.77	34.54
MIN	30.48	30.51	30.34	30.38	33.03	31.08	31.48	31.16	31.74	33.13	33.12	31.93



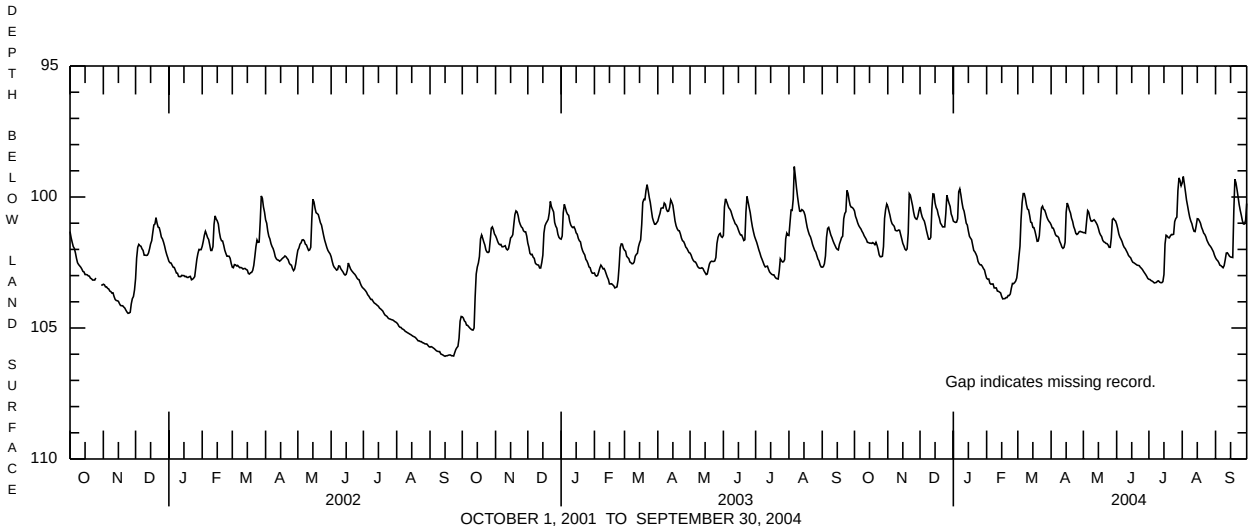
LYCOMING COUNTY

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 USGS Pennsylvania Water Science Center. 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, 98.59 ft below land-surface datum, Sept. 18; lowest, 103.89 ft below land-surface datum, Feb. 16.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100.53	100.36	100.38	100.92	103.10	102.75	101.06	101.36	101.04	103.14	99.46	102.32
2	100.74	100.53	100.60	100.95	103.14	102.30	101.18	101.36	101.21	103.15	99.22	102.39
3	100.85	100.70	100.76	100.97	103.13	101.88	101.19	101.38	101.41	103.19	99.50	102.43
4	100.99	100.90	100.85	100.96	103.29	100.86	101.30	100.93	101.53	103.21	99.80	102.50
5	101.09	101.02	100.92	100.83	103.33	100.22	101.43	100.52	101.61	103.24	100.12	102.60
6	101.16	101.07	101.08	99.80	103.32	99.87	101.49	100.58	101.70	103.28	100.34	102.62
7	101.22	101.12	101.28	99.69	103.32	99.87	101.50	100.77	101.83	103.27	100.57	102.66
8	101.31	101.27	101.45	99.91	103.47	100.04	101.55	100.91	101.92	103.26	100.78	102.70
9	101.38	101.29	101.61	100.20	103.47	100.29	101.70	100.93	101.97	103.21	100.92	102.62
10	101.48	101.29	101.61	100.43	103.47	100.46	101.79	100.90	102.05	103.20	101.02	102.40
11	101.55	101.26	101.54	100.54	103.59	100.49	101.91	100.87	102.13	103.25	101.19	102.14
12	101.62	101.27	100.47	100.76	103.60	100.70	101.96	100.92	102.23	103.27	101.31	102.13
13	101.73	101.44	99.88	101.00	103.63	100.96	101.92	100.99	102.28	103.27	101.32	102.19
14	101.74	101.60	99.89	101.07	103.66	100.98	101.73	101.07	102.32	103.23	101.10	102.26
15	101.76	101.77	100.23	101.30	103.80	101.16	100.58	101.20	102.42	102.96	100.83	102.29
16	101.76	101.87	100.40	101.50	103.89	101.17	100.23	101.36	102.49	101.79	100.84	102.30
17	101.77	101.99	100.49	101.57	103.88	101.31	100.34	101.45	102.51	101.46	100.91	102.31
18	101.74	102.03	100.68	101.63	103.88	101.49	100.50	101.51	102.54	101.49	101.00	100.54
19	101.77	101.98	100.81	101.84	103.84	101.69	100.61	101.65	102.57	101.55	101.16	99.32
20	101.82	101.37	101.00	102.04	103.84	101.68	100.81	101.71	102.60	101.56	101.26	99.46
21	101.73	99.87	101.06	102.09	103.76	101.48	100.93	101.73	102.61	101.48	101.38	99.72
22	101.84	99.93	101.14	102.17	103.76	100.93	101.13	101.77	102.62	101.43	101.43	100.00
23	102.00	100.13	101.14	102.27	103.70	100.42	101.24	101.78	102.68	101.44	101.52	100.29
24	102.21	100.32	101.14	102.46	103.48	100.35	101.39	101.83	102.72	101.42	101.65	100.51
25	102.28	100.57	100.63	102.54	103.30	100.47	101.43	101.92	102.77	100.94	101.74	100.70
26	102.28	100.76	99.93	102.59	103.31	100.50	101.40	101.92	102.84	100.82	101.82	100.91
27	102.26	100.83	100.10	102.59	103.27	100.62	101.33	101.56	102.90	100.77	101.87	101.03
28	101.89	100.85	100.24	102.65	103.21	100.76	101.31	100.86	102.96	99.75	101.93	101.03
29	100.82	100.74	100.36	102.73	103.09	100.86	101.33	100.82	103.03	99.27	102.01	100.88
30	100.48	100.53	100.65	102.79	---	100.93	101.34	100.88	103.11	99.38	102.09	100.25
31	100.27	---	100.76	102.96	---	100.98	---	100.92	---	99.57	102.22	---
MEAN	101.49	101.02	100.74	101.48	103.50	100.92	101.25	101.24	102.29	102.01	101.04	101.52
MAX	102.28	102.03	101.61	102.96	103.89	102.75	101.96	101.92	103.11	103.28	102.22	102.70
MIN	100.27	99.87	99.88	99.69	103.09	99.87	100.23	100.52	101.04	99.27	99.22	99.32



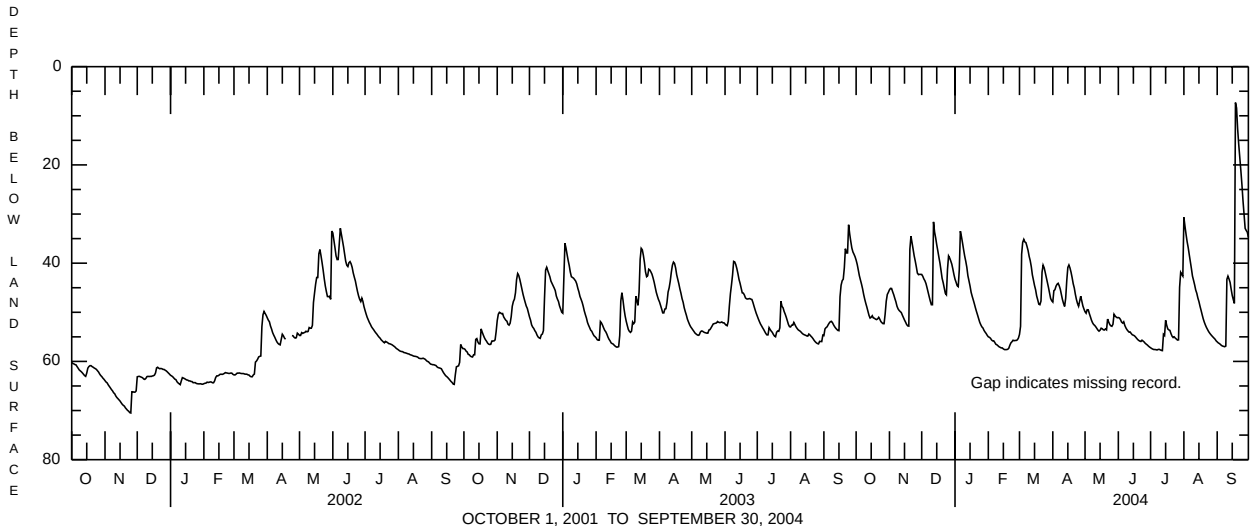
MIFFLIN COUNTY

4041400773540001. 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 USGS Pennsylvania Water Science Center.
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, 4.25 ft below land-surface datum, Sept. 18, 2004; lowest, 77.13 ft below land-surface datum, Oct. 11, 1983.
EXTREMES FOR CURRENT YEAR.--Highest water level, 4.25 ft below land-surface datum, Sept. 18; lowest, 57.80 ft below land-surface datum, July 12.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39.38	45.41	42.30	43.26	54.99	54.50	47.91	49.89	51.07	57.22	30.68	56.02
2	40.26	45.13	42.66	43.88	55.09	52.86	45.61	50.19	51.16	57.37	32.46	56.23
3	41.39	45.16	43.20	44.57	55.28	38.18	45.40	49.48	51.49	57.49	34.12	56.36
4	42.55	45.84	43.58	44.77	55.63	35.77	44.68	49.50	52.00	57.58	35.62	56.54
5	43.43	46.44	44.16	41.27	55.82	35.16	44.28	50.26	52.19	57.58	36.81	56.76
6	44.27	47.18	45.02	33.48	55.81	35.68	44.10	50.91	51.93	57.61	38.29	56.87
7	45.22	47.86	45.93	34.60	56.13	35.82	44.61	51.60	52.67	57.67	39.70	56.94
8	46.39	48.76	46.85	35.89	56.51	36.59	45.32	52.13	53.16	57.57	41.11	57.01
9	47.35	49.30	47.72	37.25	56.62	37.42	46.38	52.48	53.53	57.54	42.63	56.88
10	48.19	49.62	48.46	38.56	56.82	38.61	47.41	52.67	53.81	57.65	43.51	43.29
11	48.96	49.85	48.46	39.61	57.02	39.48	48.21	52.96	54.04	57.76	44.42	42.64
12	49.82	50.05	31.59	40.83	57.13	40.73	48.81	53.29	54.01	57.80	45.46	43.23
13	50.65	50.58	33.66	42.55	57.25	42.39	47.15	53.62	54.32	54.48	46.13	43.93
14	51.17	51.08	34.84	43.61	57.25	43.44	43.53	53.84	54.58	54.73	47.09	45.31
15	51.01	51.58	36.27	44.67	57.46	44.55	40.87	53.64	54.66	51.63	47.81	46.57
16	50.70	52.01	37.48	45.93	57.59	45.42	40.37	53.24	54.79	52.65	48.78	47.45
17	51.15	52.48	38.77	46.76	57.60	46.67	40.97	53.34	55.02	53.39	49.61	48.18
18	51.21	52.77	40.01	47.49	57.59	47.49	41.87	53.56	55.29	53.58	50.49	7.31
19	51.40	52.81	41.51	48.26	57.54	48.36	42.96	53.61	55.54	53.69	51.33	8.40
20	51.48	37.18	43.08	49.09	57.34	48.46	44.18	53.39	55.73	54.34	52.02	12.62
21	51.35	34.50	43.99	49.86	56.73	47.71	45.06	53.57	55.87	54.87	52.59	15.73
22	51.02	35.82	45.07	50.56	56.24	41.81	46.34	51.38	55.94	55.14	53.09	18.42
23	51.40	37.13	46.13	51.29	55.99	40.41	47.39	51.97	55.68	55.00	53.51	21.13
24	51.88	38.49	46.42	52.03	55.69	40.96	48.22	52.48	55.85	55.26	53.92	23.98
25	52.13	39.57	41.28	52.54	55.78	41.94	48.76	52.76	56.04	55.44	54.24	27.25
26	52.31	40.74	38.53	52.96	55.74	42.94	47.74	52.85	56.31	55.65	54.52	30.11
27	52.31	42.02	38.93	53.20	55.73	43.94	46.72	52.44	56.49	55.62	54.78	32.92
28	50.37	42.34	39.53	53.69	55.61	44.98	47.72	50.40	56.66	44.91	55.02	33.34
29	47.75	42.28	40.19	54.03	55.26	46.09	48.71	50.74	56.88	41.88	55.25	33.69
30	46.37	42.28	41.19	54.32	---	47.19	49.34	50.97	57.07	42.29	55.48	34.72
31	45.94	---	42.33	54.70	---	47.66	---	51.11	---	42.64	55.81	---
MEAN	48.35	45.54	41.91	45.98	56.39	43.01	45.69	52.07	54.46	54.13	46.98	38.99
MAX	52.31	52.81	48.46	54.70	57.60	54.50	49.34	53.84	57.07	57.80	55.81	57.01
MIN	39.38	34.50	31.59	33.48	54.99	35.16	40.37	49.48	51.07	41.88	30.68	7.31



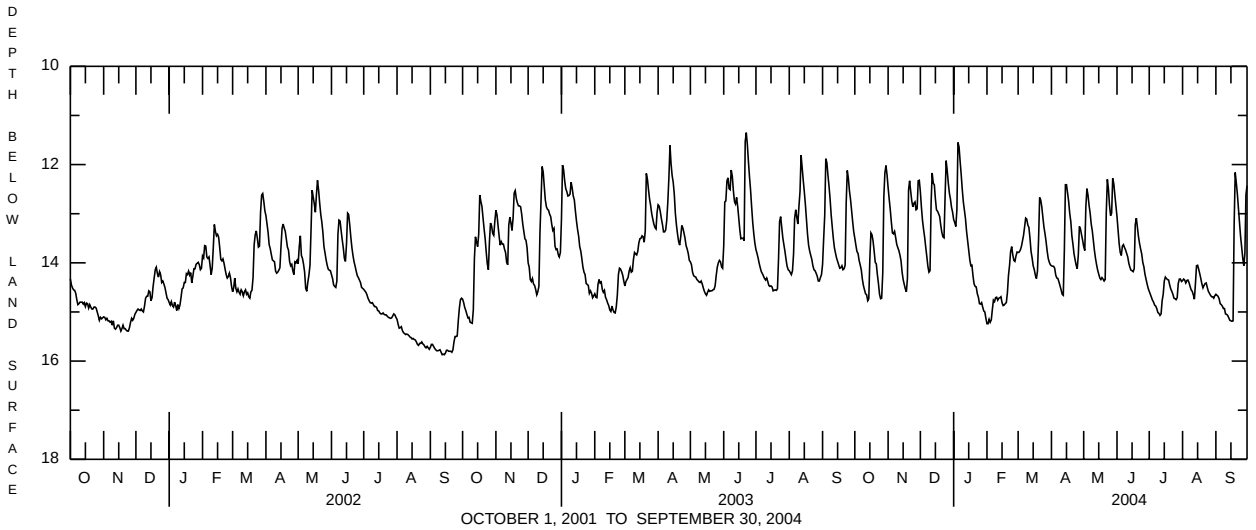
MONTOUR COUNTY

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 USGS Pennsylvania Water Science Center.
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, 11.32 ft below land-surface datum, Jan. 5; lowest, 15.26 ft below land-surface datum, Feb. 1, 2.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.50	12.47	12.55	13.12	15.24	13.79	14.06	13.67	13.06	14.58	14.36	14.64
2	13.64	12.70	12.87	13.18	15.24	13.78	14.07	13.75	13.34	14.64	14.33	14.66
3	13.77	12.92	13.14	13.26	15.15	13.74	14.07	12.86	13.61	14.70	14.35	14.68
4	13.81	13.17	13.32	12.92	15.21	13.67	14.11	12.49	13.79	14.76	14.41	14.73
5	13.95	13.39	13.48	11.55	15.16	13.56	14.25	12.62	13.85	14.80	14.36	14.83
6	14.04	13.41	13.68	11.64	14.95	13.44	14.31	12.83	13.66	14.86	14.35	14.85
7	14.14	13.36	13.87	11.93	14.76	13.27	14.32	12.99	13.63	14.88	14.40	14.88
8	14.33	13.48	14.07	12.20	14.79	13.09	14.39	13.21	13.69	14.93	14.48	14.93
9	14.46	13.62	14.19	12.51	14.71	13.11	14.47	13.35	13.74	15.01	14.55	14.93
10	14.55	13.69	14.16	12.76	14.70	13.23	14.55	13.55	13.81	15.03	14.58	15.04
11	14.63	13.75	12.78	12.93	14.76	13.28	14.64	13.75	13.88	15.07	14.65	15.05
12	14.65	13.84	12.17	13.10	14.72	13.49	14.66	13.91	14.01	15.04	14.74	15.07
13	14.77	13.96	12.38	13.36	14.71	13.77	13.74	14.04	14.09	14.77	14.42	15.12
14	14.73	14.19	12.41	13.55	14.69	13.90	12.41	14.15	14.15	14.64	14.06	15.17
15	13.92	14.34	12.70	13.74	14.81	14.06	12.41	14.23	14.16	14.37	14.05	15.18
16	13.39	14.44	12.92	13.94	14.87	14.14	12.58	14.31	14.18	14.29	14.13	15.19
17	13.43	14.53	12.95	14.06	14.86	14.25	12.75	14.34	14.12	14.32	14.22	15.18
18	13.56	14.59	13.00	14.05	14.83	14.32	12.99	14.30	13.22	14.34	14.32	13.22
19	13.76	14.31	13.06	14.27	14.81	14.17	13.16	14.33	13.09	14.35	14.43	12.16
20	13.99	12.52	13.24	14.43	14.61	13.52	13.45	14.37	13.28	14.45	14.51	12.37
21	14.02	12.33	13.38	14.48	14.26	12.67	13.62	14.34	13.47	14.53	14.46	12.60
22	14.24	12.54	13.47	14.49	14.05	12.72	13.82	12.99	13.61	14.58	14.42	12.89
23	14.42	12.74	13.49	14.63	13.77	12.86	13.94	12.30	13.72	14.64	14.41	13.18
24	14.64	12.86	12.66	14.70	13.67	13.07	14.05	12.49	13.82	14.72	14.50	13.46
25	14.73	12.79	11.92	14.83	13.84	13.27	14.12	12.82	13.99	14.73	14.58	13.68
26	14.72	12.76	12.12	14.84	13.95	13.41	13.83	13.04	14.08	14.75	14.62	13.90
27	14.21	12.92	12.38	14.81	13.97	13.57	13.26	12.99	14.23	14.71	14.66	14.06
28	12.66	12.90	12.58	14.90	13.86	13.76	13.31	12.28	14.33	14.42	14.69	13.81
29	12.17	12.33	12.70	14.98	13.78	13.91	13.43	12.39	14.43	14.33	14.69	12.61
30	12.02	12.32	12.87	15.00	---	13.99	13.54	12.62	14.52	14.33	14.72	12.43
31	12.21	---	12.97	15.13	---	14.04	---	12.84	---	14.38	14.67	---
MEAN	13.91	13.31	13.02	13.72	14.58	13.58	13.74	13.36	13.82	14.64	14.46	14.15
MAX	14.77	14.59	14.19	15.13	15.24	14.32	14.66	14.37	14.52	15.07	14.74	15.19
MIN	12.02	12.32	11.92	11.55	13.67	12.67	12.41	12.28	13.06	14.29	14.05	12.16



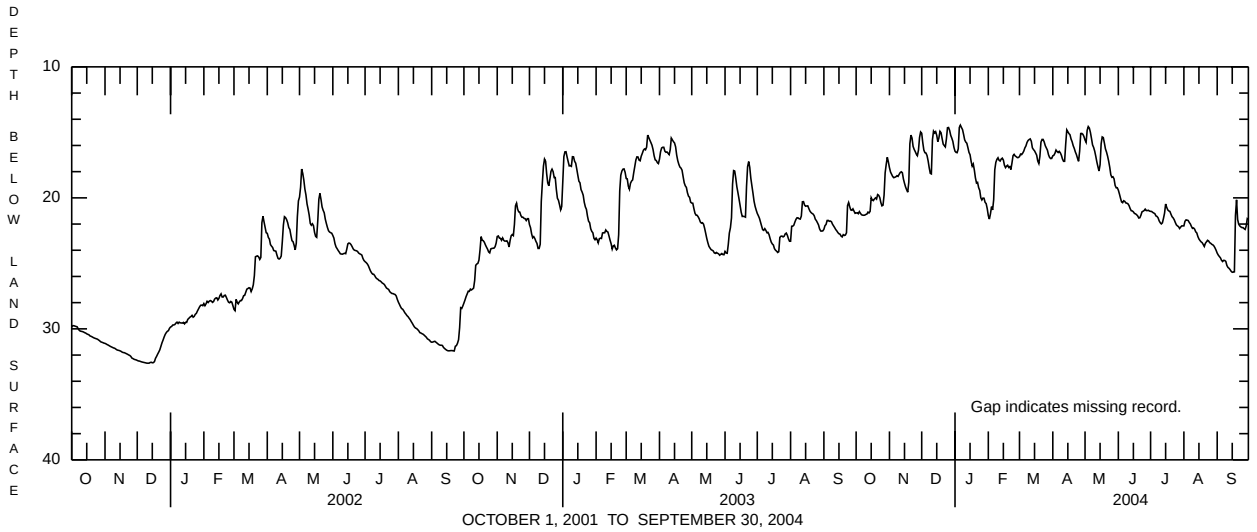
NORTHUMBERLAND COUNTY

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 USGS Pennsylvania Water Science Center. 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, 14.32 ft below land-surface datum, Jan. 5, 2004; lowest, 32.65 ft below land-surface datum, Dec. 11, 12, 2001.
EXTREMES FOR CURRENT YEAR.--Highest water level, 14.32 ft below land-surface datum, Jan. 5; lowest, 25.70 ft below land-surface datum, Sept. 15.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.16	17.70	15.07	16.44	21.36	16.85	16.79	15.59	19.41	21.03	22.14	24.22
2	21.14	18.03	15.78	16.53	21.62	16.66	16.75	15.76	19.70	21.04	21.79	24.37
3	21.21	18.20	16.35	16.55	21.22	16.70	16.60	14.84	20.02	21.11	21.68	24.48
4	21.05	18.37	16.55	16.26	20.67	16.59	16.35	14.56	20.31	21.16	21.70	24.58
5	21.18	18.46	16.58	14.63	20.92	16.43	16.47	14.67	20.37	21.21	21.73	24.76
6	21.29	18.43	16.78	14.45	20.14	16.19	16.54	15.00	20.22	21.38	21.88	24.86
7	21.32	18.39	17.18	14.63	17.86	16.04	16.45	15.46	20.27	21.42	21.99	24.77
8	21.33	18.31	17.71	14.79	17.29	15.77	16.56	15.96	20.39	21.53	22.18	24.78
9	21.32	18.36	18.13	15.16	17.06	15.62	16.75	16.15	20.41	21.76	22.33	24.85
10	21.27	18.21	18.17	15.57	16.94	15.55	17.03	16.43	20.46	21.90	22.30	25.16
11	21.24	18.07	15.56	15.74	17.13	15.50	17.21	16.83	20.60	21.99	22.39	25.31
12	21.09	18.01	14.91	15.83	17.19	15.68	17.21	17.26	20.82	21.91	22.59	25.38
13	21.15	18.08	15.05	16.16	17.04	16.18	15.92	17.62	20.98	21.57	22.68	25.48
14	21.03	18.57	14.95	16.53	16.97	16.31	14.81	17.95	21.00	21.17	22.95	25.61
15	19.99	18.89	15.23	16.71	17.11	16.41	14.95	17.47	21.07	20.47	23.14	25.68
16	20.16	19.17	15.71	17.21	17.51	16.57	15.09	15.87	21.19	20.72	23.26	25.67
17	20.21	19.38	15.43	17.58	17.69	16.74	15.18	15.35	21.22	20.92	23.36	25.65
18	20.09	19.57	14.92	17.42	17.57	17.19	15.51	15.40	21.29	21.00	23.42	21.35
19	20.00	18.80	15.03	17.88	17.51	17.38	15.72	15.81	21.38	21.04	23.56	20.15
20	20.09	15.87	15.47	18.47	17.68	16.83	16.02	16.26	21.54	21.25	23.71	21.65
21	19.75	15.21	15.90	18.87	17.62	15.75	16.23	16.51	21.52	21.44	23.47	22.01
22	19.81	15.44	16.01	18.82	17.84	15.54	16.50	16.82	21.33	21.53	23.36	22.14
23	19.98	16.07	16.11	19.22	17.35	15.54	16.70	17.20	21.07	21.67	23.24	22.22
24	20.36	16.30	15.51	19.43	16.78	15.73	16.98	17.66	21.02	21.88	23.29	22.27
25	20.61	16.47	14.65	19.99	16.68	16.02	17.21	18.24	20.97	22.06	23.42	22.27
26	20.56	16.66	14.63	20.16	16.80	16.19	16.43	18.43	20.86	22.14	23.47	22.35
27	19.79	16.78	14.85	20.02	16.86	16.36	15.09	18.39	20.97	22.20	23.55	22.41
28	18.09	16.36	15.23	20.03	16.93	16.71	15.08	18.55	20.97	22.34	23.59	22.14
29	17.43	15.39	15.44	20.34	16.92	16.91	15.15	19.05	20.95	22.23	23.68	21.58
30	16.90	14.97	15.69	20.44	---	17.00	15.32	19.23	21.01	22.14	23.83	21.64
31	17.26	---	16.14	20.83	---	16.99	---	19.23	---	22.14	24.01	---
MEAN	20.25	17.55	15.83	17.51	18.01	16.32	16.15	16.76	20.78	21.53	22.89	23.66
MAX	21.33	19.57	18.17	20.83	21.62	17.38	17.21	19.23	21.54	22.34	24.01	25.68
MIN	16.90	14.97	14.63	14.45	16.68	15.50	14.81	14.56	19.41	20.47	21.68	20.15



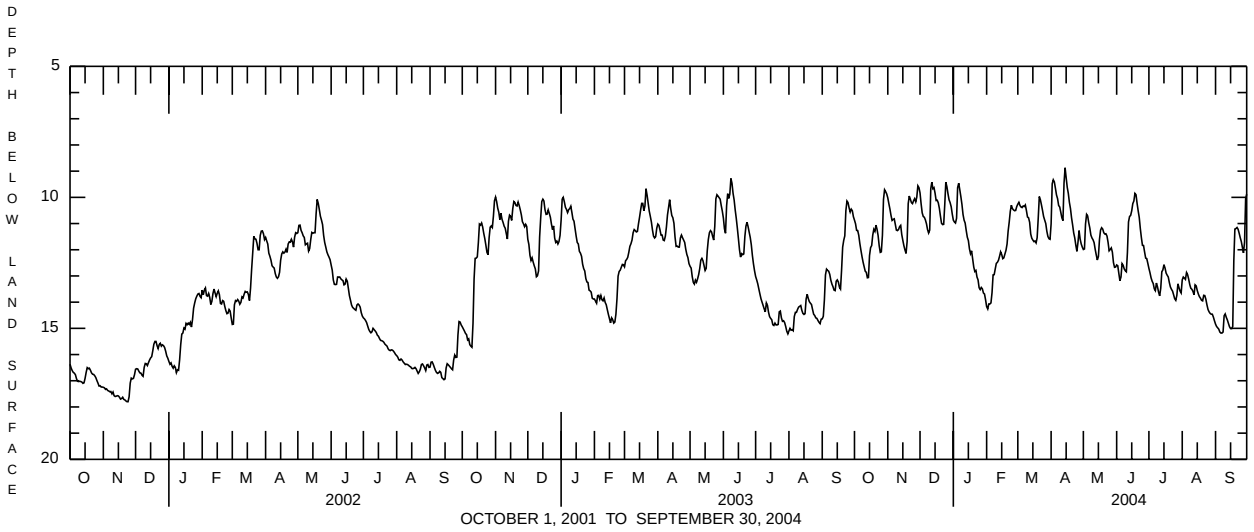
PERRY COUNTY

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 USGS Pennsylvania Water Science Center.
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, 8.74 ft below land-surface datum, Apr. 14, 2004; lowest, 17.83 ft below land-surface datum, Nov. 24, 2001.
EXTREMES FOR CURRENT YEAR.--Highest water level, 8.74 ft below land-surface datum, Apr. 14; lowest, 15.24 ft below land-surface datum, Sept. 8.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.87	10.02	9.83	10.87	14.17	10.26	11.01	11.99	12.58	12.71	13.15	14.84
2	11.01	10.24	10.24	10.94	14.26	10.19	9.48	11.97	12.61	12.88	13.04	14.93
3	11.26	10.45	10.59	10.98	14.07	10.31	9.33	11.02	12.90	13.07	13.08	14.98
4	11.27	10.69	10.73	10.80	14.07	10.37	9.41	10.65	13.18	13.20	13.13	15.03
5	11.45	10.88	10.76	9.63	14.03	10.39	9.65	10.71	13.04	13.29	12.87	15.14
6	11.76	10.84	10.86	9.46	13.64	10.33	9.91	10.97	12.53	13.49	12.95	15.18
7	12.02	10.82	11.01	9.71	12.96	10.35	10.05	11.17	12.59	13.56	13.12	15.18
8	12.26	11.03	11.23	9.97	12.95	10.29	10.31	11.44	12.73	13.27	13.33	15.14
9	12.47	11.25	11.36	10.27	12.73	10.50	10.37	11.55	12.80	13.42	13.47	14.52
10	12.65	11.27	11.25	10.65	12.52	10.75	10.57	11.62	12.84	13.62	13.51	14.45
11	12.82	11.23	9.67	10.87	12.48	10.78	10.78	11.73	12.11	13.76	13.59	14.58
12	12.86	11.12	9.42	10.98	12.40	10.95	10.89	11.98	10.94	13.47	13.72	14.68
13	13.07	11.07	9.67	11.27	12.25	11.40	9.45	12.20	10.73	12.84	13.34	14.81
14	13.06	11.42	9.63	11.52	12.08	11.56	8.87	12.39	10.69	12.77	13.38	14.94
15	12.22	11.64	9.84	11.65	12.18	11.63	9.25	12.26	10.51	12.57	13.56	15.01
16	11.92	11.85	10.12	11.97	12.34	11.69	9.62	11.60	10.24	12.70	13.69	15.01
17	11.84	12.01	10.11	12.15	12.31	11.67	9.85	11.25	10.14	12.89	13.79	14.93
18	11.44	12.14	10.21	12.04	12.16	11.74	10.19	11.16	9.85	12.97	13.85	12.42
19	11.22	11.69	10.42	12.36	12.02	11.54	10.43	11.21	9.90	13.04	13.93	11.21
20	11.30	10.24	10.72	12.66	11.78	10.79	10.78	11.35	10.23	13.25	13.95	11.19
21	11.06	9.95	10.99	12.83	11.29	9.97	11.05	11.40	10.51	13.42	13.74	11.15
22	11.22	10.07	11.04	12.79	10.94	10.09	11.36	11.39	10.77	13.51	13.75	11.22
23	11.46	10.20	11.03	13.04	10.53	10.29	11.55	11.48	11.19	13.58	13.89	11.37
24	11.85	10.24	10.29	13.15	10.30	10.50	11.83	11.72	11.54	13.72	14.10	11.54
25	12.10	10.13	9.42	13.45	10.43	10.73	12.06	12.04	11.83	13.87	14.28	11.69
26	12.08	10.05	9.59	13.52	10.48	10.87	11.71	11.99	11.84	13.93	14.37	11.91
27	11.45	10.17	9.86	13.44	10.51	11.00	11.27	11.93	12.09	13.74	14.43	12.12
28	10.08	9.99	10.09	13.49	10.50	11.29	11.59	12.09	12.32	13.30	14.46	11.71
29	9.71	9.56	10.20	13.65	10.35	11.49	11.78	12.49	12.34	13.45	14.46	10.06
30	9.78	9.63	10.36	13.69	---	11.58	11.90	12.67	12.52	13.58	14.57	9.88
31	9.87	---	10.64	13.91	---	11.60	---	12.66	---	13.65	14.71	---
MEAN	11.59	10.73	10.36	11.86	12.16	10.87	10.54	11.68	11.67	13.31	13.72	13.36
MAX	13.07	12.14	11.36	13.91	14.26	11.74	12.06	12.67	13.18	13.93	14.71	15.18
MIN	9.71	9.56	9.42	9.46	10.30	9.97	8.87	10.65	9.85	12.57	12.87	9.88



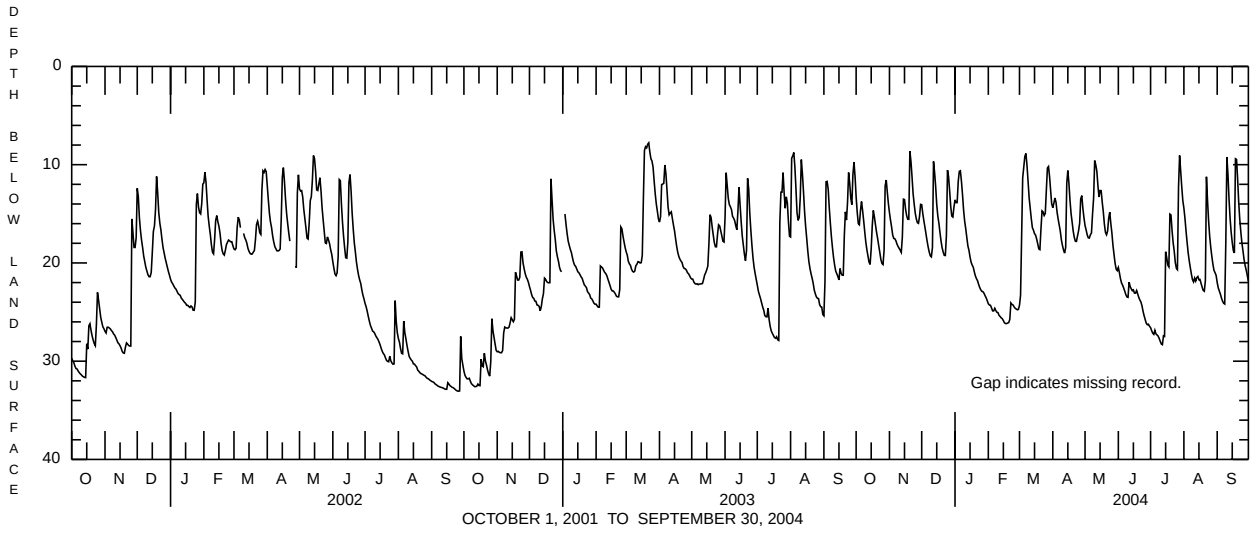
POTTER COUNTY

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 USGS Pennsylvania Water Science Center.
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, 7.73 ft below land-surface datum, Sept. 18; lowest, 28.32 ft below land-surface datum, July 12.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.27	14.89	14.07	13.58	24.15	24.31	14.38	16.19	20.47	26.59	14.42	22.00
2	14.85	15.66	14.96	13.86	24.28	23.28	13.92	16.63	21.00	26.89	15.46	22.55
3	15.99	16.34	15.70	13.86	24.31	17.28	13.39	17.13	21.61	27.15	16.77	22.87
4	16.11	17.16	16.34	11.70	24.58	11.33	13.83	17.44	22.05	27.27	17.92	23.19
5	14.70	17.50	17.05	10.68	24.88	10.23	14.85	17.47	22.27	26.86	18.99	23.58
6	13.75	17.54	17.75	10.62	24.88	9.15	15.55	17.13	22.56	27.22	19.82	23.90
7	14.65	17.74	18.37	11.71	24.62	8.86	16.15	16.95	22.89	27.33	20.50	24.10
8	15.71	18.08	18.90	13.07	24.85	10.09	16.79	15.00	23.23	27.44	21.15	24.18
9	16.83	18.32	19.27	14.63	25.02	11.71	17.66	13.38	23.46	27.68	21.70	17.91
10	17.88	18.51	19.38	15.75	25.06	13.38	18.22	9.58	23.50	27.99	21.93	9.22
11	18.65	18.70	18.43	16.54	25.34	14.44	18.69	10.02	21.95	28.25	21.54	10.96
12	19.30	18.92	9.67	17.42	25.45	15.50	19.00	10.68	22.39	28.32	21.84	13.52
13	19.92	17.37	10.79	18.27	25.59	16.41	18.42	12.13	22.63	27.42	21.49	15.48
14	20.15	13.51	12.21	18.73	25.68	16.66	11.87	13.29	22.83	27.48	21.38	16.89
15	18.56	13.55	14.06	19.41	25.87	17.02	10.60	12.63	22.75	18.86	21.71	17.92
16	16.19	14.54	15.21	19.93	26.09	17.17	11.88	12.64	23.07	19.43	21.69	18.75
17	14.66	15.17	15.95	20.22	26.17	17.57	13.59	13.80	23.07	20.22	22.09	18.98
18	15.31	15.55	16.90	20.44	26.17	18.07	14.97	14.80	22.81	20.40	22.47	9.40
19	16.13	15.56	17.77	20.92	26.12	18.58	15.85	16.04	23.15	15.03	22.80	9.47
20	16.88	8.62	18.45	21.33	26.07	18.65	16.76	16.88	23.50	15.12	22.88	11.47
21	17.51	9.66	18.90	21.61	25.74	16.55	17.40	17.13	23.77	16.73	21.79	13.79
22	18.24	11.23	19.23	21.82	24.07	14.70	17.79	16.76	23.97	17.93	11.23	15.55
23	18.91	12.95	19.24	22.19	24.22	14.81	17.81	15.48	24.36	18.79	13.72	16.87
24	19.64	13.99	17.26	22.50	24.28	15.17	17.25	14.83	24.93	19.96	15.73	17.98
25	20.05	14.94	10.55	22.74	24.47	14.96	16.72	15.99	25.38	20.54	17.28	18.78
26	20.16	15.52	11.22	22.89	24.62	12.61	15.95	16.95	25.77	20.68	18.40	19.66
27	18.74	15.90	12.65	22.93	24.69	10.35	13.47	18.21	26.15	12.26	19.34	20.27
28	12.16	15.97	14.25	23.09	24.77	10.19	13.15	19.16	26.29	9.06	20.12	20.73
29	11.56	15.24	15.23	23.34	24.73	11.22	14.45	20.06	26.24	10.62	20.75	21.27
30	12.80	14.04	15.33	23.55	---	12.64	15.39	20.63	26.44	12.22	21.00	21.86
31	13.95	---	14.34	23.85	---	14.00	---	20.78	---	13.67	21.27	---
MEAN	16.56	15.42	15.79	18.49	25.06	14.74	15.53	15.67	23.48	21.46	19.65	18.10
MAX	20.16	18.92	19.38	23.85	26.17	24.31	19.00	20.78	26.44	28.32	22.88	24.18
MIN	11.56	8.62	9.67	10.62	24.07	8.86	10.60	9.58	20.47	9.06	11.23	9.22



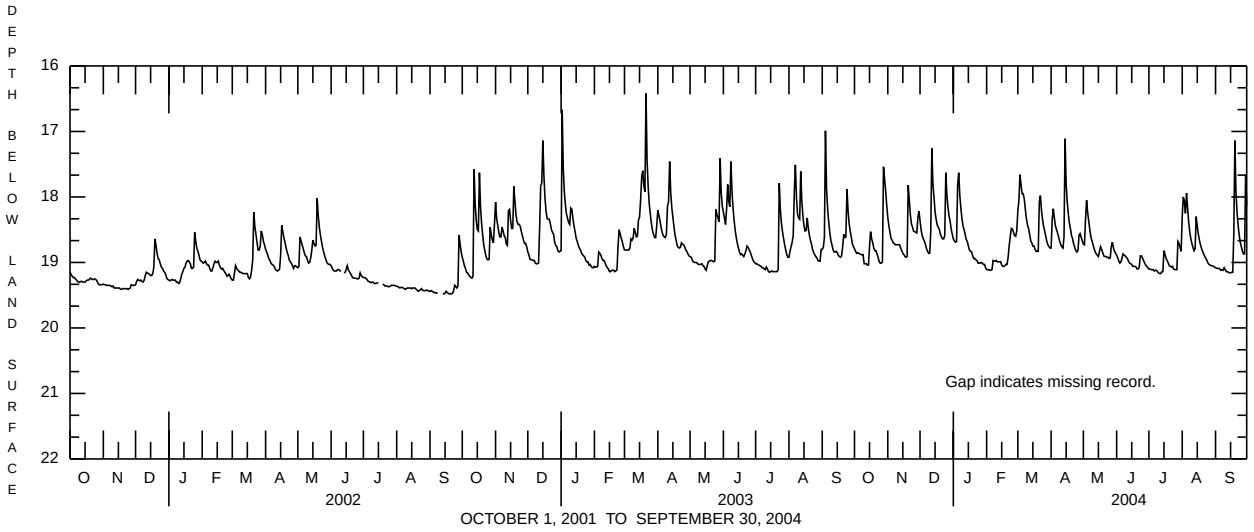
SNYDER COUNTY

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 USGS Pennsylvania Water Science Center.
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, 11.00 ft below land-surface datum, Sept. 18, 2004; lowest, 19.63 ft below land-surface datum, Jan. 1, 2, 1999.
EXTREMES FOR CURRENT YEAR.--Highest water level, 11.00 ft below land-surface datum, Sept. 18; lowest, 19.17 ft below land-surface datum, July 11, 12.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.79	18.31	18.36	18.64	19.11	18.22	18.78	18.72	18.89	19.10	18.29	19.08
2	18.83	18.44	18.50	18.67	19.11	18.06	18.34	18.73	18.93	19.10	18.00	19.09
3	18.86	18.54	18.59	18.69	19.11	17.66	18.18	18.34	18.98	19.11	18.06	19.09
4	18.85	18.63	18.64	18.68	19.12	17.81	18.32	18.05	19.01	19.11	18.25	19.09
5	18.86	18.66	18.67	17.82	19.12	17.95	18.44	18.24	18.99	19.11	17.94	19.10
6	18.87	18.70	18.72	17.63	19.11	17.95	18.50	18.37	18.93	19.13	18.17	19.12
7	18.88	18.71	18.79	17.97	18.97	18.03	18.55	18.50	18.87	19.12	18.38	19.11
8	18.88	18.73	18.83	18.17	18.98	18.19	18.61	18.61	18.89	19.12	18.53	19.12
9	18.88	18.73	18.86	18.33	18.98	18.33	18.68	18.67	18.90	19.14	18.64	19.08
10	19.02	18.73	18.86	18.44	18.97	18.43	18.73	18.73	18.92	19.16	18.71	19.11
11	19.02	18.73	18.53	18.50	18.99	18.48	18.76	18.79	18.94	19.17	18.77	19.14
12	19.02	18.73	17.26	18.57	18.99	18.57	18.78	18.84	18.98	19.17	18.82	19.14
13	19.04	18.78	17.81	18.65	18.99	18.67	18.61	18.87	19.01	19.14	18.79	19.15
14	19.04	18.82	18.00	18.68	18.99	18.70	17.11	18.89	19.02	19.14	18.30	19.16
15	18.76	18.86	18.23	18.75	19.04	18.75	17.81	18.91	19.03	18.82	18.45	19.16
16	18.53	18.88	18.34	18.81	19.06	18.75	18.08	18.83	19.06	18.88	18.57	19.15
17	18.64	18.91	18.43	18.83	19.06	18.80	18.26	18.76	19.06	18.94	18.66	19.15
18	18.70	18.92	18.46	18.84	19.05	18.83	18.40	18.80	19.06	18.97	18.73	18.56
19	18.78	18.91	18.50	18.90	19.03	18.83	18.49	18.85	19.07	19.01	18.79	17.14
20	18.82	17.82	18.57	18.94	19.03	18.83	18.59	18.90	19.10	19.05	18.83	17.92
21	18.82	18.05	18.61	18.94	18.92	18.08	18.64	18.91	19.10	19.06	18.87	18.23
22	18.87	18.27	18.64	18.96	18.74	17.98	18.72	18.91	19.07	19.07	18.91	18.43
23	18.92	18.41	18.64	18.97	18.60	18.20	18.77	18.92	18.90	19.06	18.94	18.58
24	18.99	18.46	18.59	19.01	18.48	18.34	18.82	18.92	18.90	19.10	18.97	18.69
25	19.01	18.52	17.63	19.01	18.49	18.45	18.84	18.94	18.93	19.11	19.01	18.76
26	19.01	18.53	17.97	19.01	18.54	18.52	18.82	18.93	18.97	19.11	19.03	18.83
27	18.99	18.54	18.16	19.00	18.59	18.60	18.58	18.76	19.01	19.11	19.04	18.87
28	17.54	18.55	18.29	19.01	18.60	18.68	18.56	18.69	19.04	18.68	19.05	18.87
29	17.72	18.32	18.37	19.03	18.52	18.73	18.62	18.78	19.06	18.71	19.05	17.66
30	17.90	18.22	18.49	19.03	---	18.76	18.67	18.83	19.08	18.77	19.06	18.13
31	18.13	---	18.57	19.08	---	18.78	---	18.86	---	18.83	19.07	---
MEAN	18.74	18.58	18.42	18.70	18.91	18.42	18.50	18.74	18.99	19.04	18.67	18.79
MAX	19.04	18.92	18.86	19.08	19.12	18.83	18.84	18.94	19.10	19.17	19.07	19.16
MIN	17.54	17.82	17.26	17.63	18.48	17.66	17.11	18.05	18.87	18.68	17.94	17.14



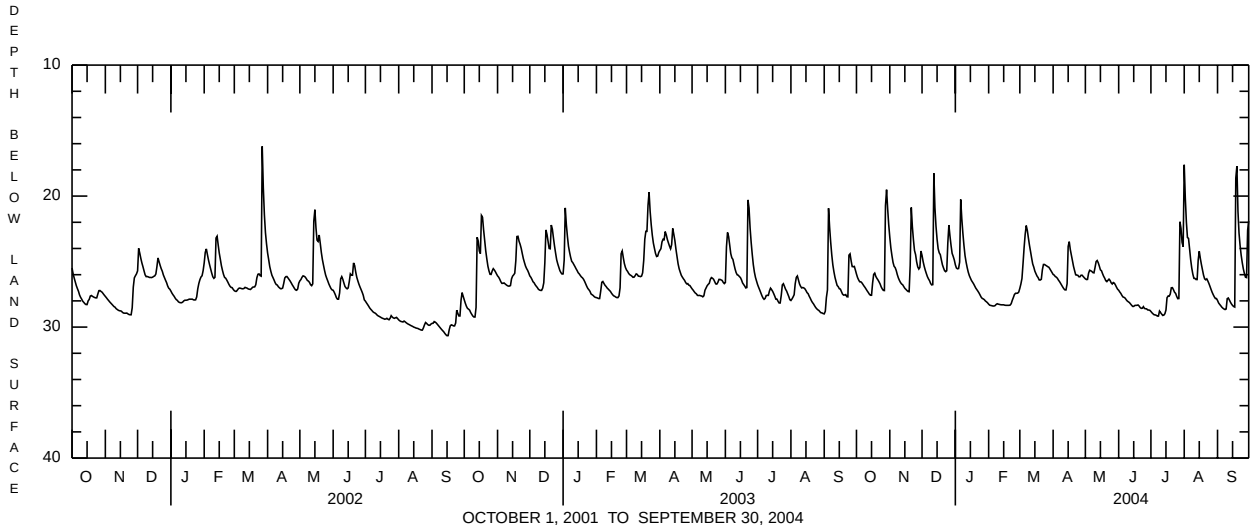
SULLIVAN COUNTY

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 USGS Pennsylvania Water Science Center.
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, 7.75 ft below land-surface datum, Sept. 18; lowest, 29.16 ft below land-surface datum, July 7, 8.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.95	23.14	24.53	25.24	28.25	27.04	25.98	26.32	27.19	28.81	17.61	27.97
2	26.22	23.96	24.99	25.49	28.33	26.71	26.03	26.37	27.32	28.91	20.13	28.16
3	26.40	24.54	25.35	25.55	28.35	26.29	26.14	26.36	27.43	28.99	21.99	28.27
4	26.54	25.06	25.65	25.53	28.37	25.16	26.19	25.88	27.58	29.06	23.16	28.37
5	26.54	25.36	25.91	25.04	28.39	23.92	26.28	25.66	27.70	29.07	23.23	28.48
6	26.62	25.46	26.15	20.26	28.39	22.91	26.42	25.70	27.73	29.10	24.05	28.56
7	26.74	25.68	26.32	21.73	28.36	22.25	26.53	25.75	27.79	29.16	24.86	28.62
8	26.87	26.00	26.46	22.82	28.27	22.63	26.67	25.84	27.91	29.16	25.49	28.66
9	26.98	26.25	26.67	23.75	28.22	23.21	26.81	25.86	28.01	28.78	25.95	28.62
10	27.11	26.44	26.78	24.54	28.25	23.76	26.95	25.46	28.07	28.90	26.28	27.83
11	27.24	26.60	26.76	25.04	28.27	24.23	27.08	25.00	28.13	29.01	26.29	27.78
12	27.36	26.71	18.26	25.45	28.29	24.73	27.16	24.92	28.23	29.11	26.37	27.93
13	27.49	26.77	20.88	25.80	28.30	25.18	27.16	25.09	28.33	29.09	26.37	28.10
14	27.57	26.91	22.29	26.07	28.30	25.42	26.69	25.35	28.42	28.98	24.88	28.24
15	27.57	27.04	23.30	26.26	28.30	25.73	23.84	25.63	28.42	28.70	24.21	28.35
16	26.64	27.12	24.02	26.44	28.33	25.92	23.48	25.70	28.35	27.76	24.77	28.43
17	25.98	27.21	24.33	26.57	28.34	26.10	24.08	25.92	28.34	27.63	25.23	28.47
18	25.88	27.28	24.47	26.70	28.34	26.22	24.52	26.12	28.34	27.64	25.64	18.63
19	26.13	27.30	24.87	26.86	28.34	26.40	24.94	26.27	28.31	27.48	26.04	17.71
20	26.28	25.28	25.25	27.02	28.34	26.41	25.37	26.46	28.39	27.00	26.32	21.16
21	26.40	20.87	25.49	27.14	28.32	26.35	25.70	26.53	28.51	26.99	26.39	22.83
22	26.55	22.33	25.70	27.26	28.21	25.62	26.01	26.43	28.57	27.15	26.32	23.78
23	26.71	23.33	25.77	27.39	27.95	25.22	26.03	26.34	28.56	27.34	26.49	24.52
24	26.93	24.15	25.70	27.55	27.74	25.22	26.05	26.44	28.44	27.43	26.68	25.08
25	27.09	24.47	23.56	27.71	27.51	25.28	26.16	26.62	28.58	27.66	26.90	25.55
26	27.20	25.02	22.21	27.81	27.42	25.33	26.16	26.71	28.60	27.83	27.13	25.92
27	27.21	25.40	23.04	27.85	27.42	25.39	26.04	26.60	28.61	27.82	27.35	26.19
28	20.73	25.57	23.77	27.91	27.41	25.43	26.04	26.65	28.69	21.96	27.53	26.22
29	19.51	25.45	24.37	28.01	27.33	25.56	26.14	26.79	28.70	22.46	27.69	22.60
30	20.95	24.19	24.60	28.07	---	25.70	26.23	26.96	28.72	23.54	27.82	21.90
31	22.17	---	24.87	28.15	---	25.84	---	27.11	---	23.86	27.82	---
MEAN	25.99	25.36	24.59	26.03	28.13	25.20	25.96	26.09	28.20	27.63	25.39	26.10
MAX	27.57	27.30	26.78	28.15	28.39	27.04	27.16	27.11	28.72	29.16	27.82	28.66
MIN	19.51	20.87	18.26	20.26	27.33	22.25	23.48	24.92	27.19	21.96	17.61	17.71



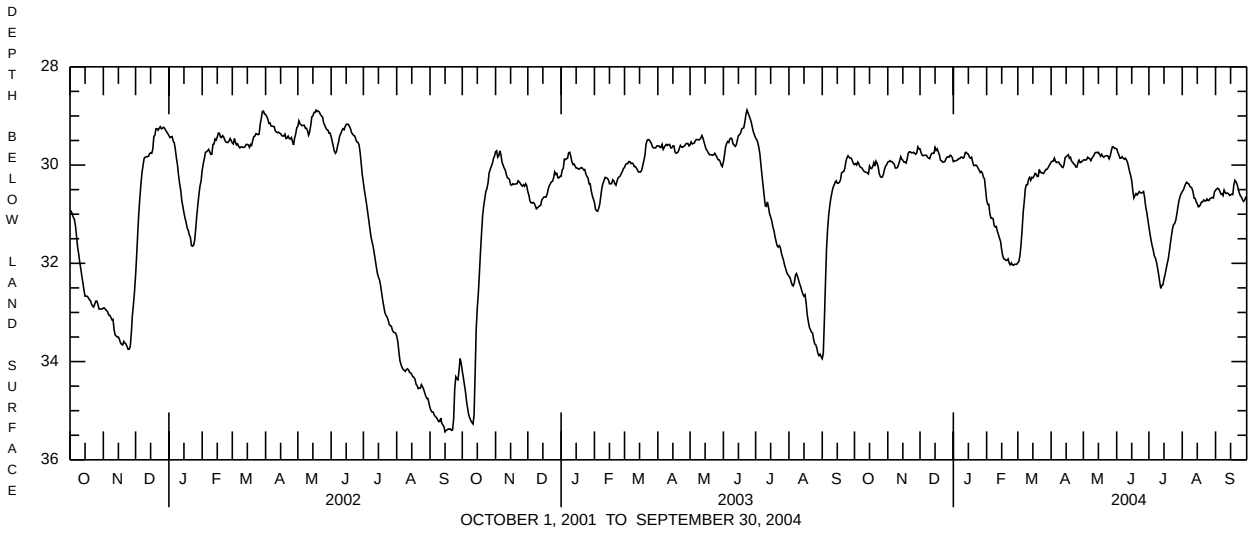
SUSQUEHANNA COUNTY

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 USGS Pennsylvania Water Science Center.
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, 29.50 ft below land-surface datum, Nov. 24; lowest, 32.51 ft below land-surface datum, July 12.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.99	29.94	29.67	29.93	30.71	31.99	29.94	29.90	29.67	31.26	30.54	30.51
2	29.97	29.93	29.75	29.92	30.80	31.96	29.92	29.89	29.74	31.40	30.51	30.49
3	30.00	29.91	29.80	29.91	30.80	31.84	29.92	29.90	29.79	31.53	30.45	30.47
4	29.94	29.93	29.81	29.91	30.99	31.62	29.86	29.89	29.86	31.64	30.39	30.49
5	29.97	29.93	29.80	29.89	31.08	31.32	29.92	29.84	29.86	31.73	30.35	30.53
6	30.03	29.96	29.80	29.87	31.08	30.96	29.95	29.86	29.83	31.85	30.37	30.59
7	30.05	29.98	29.80	29.87	31.09	30.74	29.94	29.87	29.86	31.89	30.38	30.58
8	30.06	30.06	29.84	29.84	31.23	30.48	29.94	29.91	29.88	31.97	30.43	30.62
9	30.10	30.06	29.86	29.84	31.26	30.40	29.98	29.86	29.86	32.09	30.45	30.51
10	30.13	30.05	29.87	29.86	31.25	30.40	30.00	29.83	29.89	32.22	30.47	30.56
11	30.14	29.99	29.80	29.84	31.35	30.29	30.04	29.79	29.94	32.37	30.54	30.58
12	30.15	29.92	29.76	29.75	31.42	30.25	30.05	29.75	30.03	32.51	30.67	30.57
13	30.16	29.83	29.76	29.74	31.49	30.31	29.99	29.74	30.13	32.45	30.68	30.58
14	30.18	29.88	29.76	29.77	31.56	30.25	29.85	29.75	30.21	32.44	30.75	30.62
15	30.02	29.90	29.64	29.78	31.73	30.26	29.83	29.74	30.32	32.32	30.79	30.61
16	30.07	29.94	29.70	29.84	31.85	30.23	29.81	29.78	30.52	32.23	30.85	30.59
17	30.07	29.94	29.67	29.86	31.91	30.17	29.79	29.82	30.67	32.12	30.84	30.60
18	30.03	29.96	29.73	29.84	31.92	30.18	29.86	29.78	30.62	32.01	30.80	30.41
19	29.95	29.88	29.79	29.94	31.94	30.23	29.84	29.82	30.58	31.91	30.75	30.31
20	30.02	29.76	29.90	30.01	31.94	30.23	29.92	29.84	30.61	31.76	30.75	30.34
21	29.92	29.73	29.91	30.01	31.91	30.09	29.94	29.82	30.58	31.59	30.71	30.39
22	29.96	29.73	29.94	30.00	32.00	30.15	29.98	29.81	30.54	31.44	30.73	30.47
23	30.03	29.75	29.94	30.02	32.03	30.15	29.99	29.81	30.56	31.29	30.73	30.56
24	30.17	29.75	29.93	30.06	31.99	30.17	30.04	29.82	30.57	31.21	30.69	30.62
25	30.23	29.74	29.88	30.10	32.03	30.17	30.04	29.87	30.56	31.19	30.72	30.65
26	30.25	29.76	29.84	30.15	32.04	30.13	29.95	29.81	30.54	31.12	30.72	30.70
27	30.24	29.78	29.83	30.13	32.02	30.09	29.90	29.71	30.66	31.00	30.68	30.74
28	30.18	29.75	29.84	30.16	32.02	30.09	29.95	29.63	30.85	30.85	30.67	30.72
29	30.08	29.63	29.80	30.25	32.02	30.06	29.94	29.63	30.96	30.72	30.66	30.66
30	30.02	29.67	29.81	30.28	---	30.02	29.92	29.66	31.11	30.64	30.67	30.67
31	29.99	---	29.85	30.50	---	29.98	---	29.66	---	30.58	30.55	---
MEAN	30.07	29.87	29.81	29.96	31.57	30.49	29.93	29.80	30.29	31.66	30.62	30.56
MAX	30.25	30.06	29.94	30.50	32.04	31.99	30.05	29.91	31.11	32.51	30.85	30.74
MIN	29.92	29.63	29.64	29.74	30.71	29.98	29.79	29.63	29.67	30.58	30.35	30.31



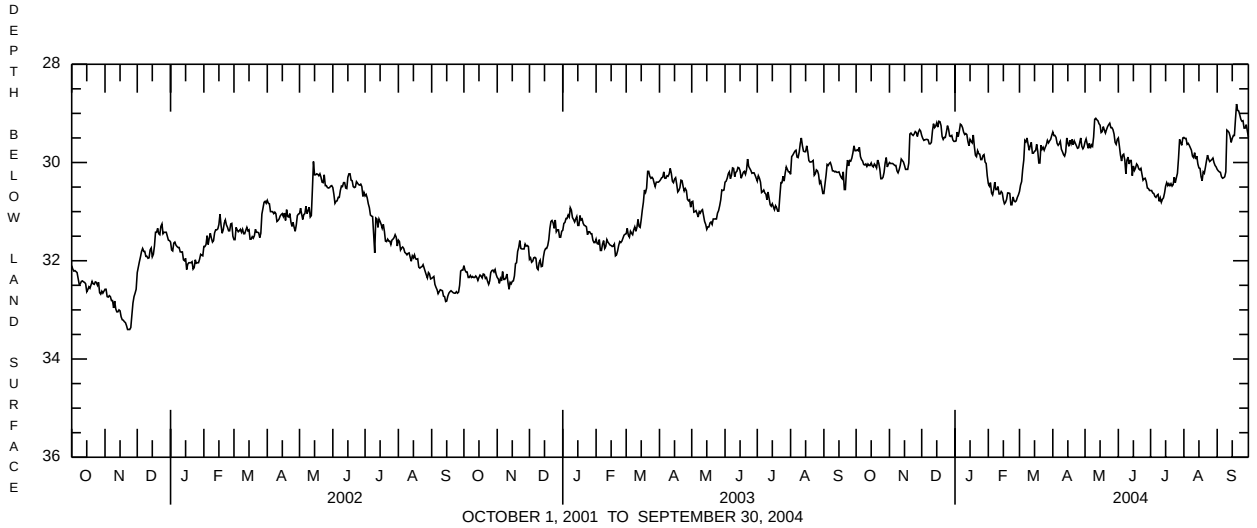
TIOGA COUNTY

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 USGS Pennsylvania Water Science Center.
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, 28.65 ft below land-surface datum, Sept. 18, 2004; lowest, 35.88 ft below land-surface datum, Oct. 11, 1988.
EXTREMES FOR CURRENT YEAR.--Highest water level, 28.65 ft below land-surface datum, Sept. 18; lowest, 30.86 ft below land-surface datum, Feb. 22, 23.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.76	30.00	29.45	29.57	30.43	30.59	29.38	29.58	29.50	30.57	29.49	30.14
2	29.74	30.02	29.51	29.56	30.48	30.46	29.45	29.52	29.67	30.57	29.51	30.17
3	29.76	30.02	29.55	29.38	30.41	30.39	29.45	29.62	29.85	30.62	29.51	30.19
4	29.69	30.02	29.54	29.47	30.62	30.14	29.49	29.71	29.97	30.63	29.63	30.20
5	29.88	30.04	29.53	29.36	30.66	29.95	29.61	29.61	29.85	30.69	29.61	30.29
6	29.94	30.06	29.53	29.22	30.56	29.55	29.65	29.71	29.83	30.71	29.65	30.32
7	29.97	30.06	29.54	29.24	30.40	29.58	29.62	29.64	29.95	30.67	29.70	30.31
8	30.04	30.17	29.62	29.29	30.55	29.50	29.57	29.67	30.23	30.65	29.75	30.29
9	30.05	30.21	29.62	29.38	30.55	29.63	29.73	29.48	29.95	30.79	29.87	30.19
10	30.03	30.15	29.59	29.43	30.49	29.75	29.78	29.12	29.89	30.72	29.90	29.34
11	30.08	30.06	29.36	29.41	30.64	29.66	29.84	29.10	30.03	30.81	29.80	29.36
12	30.03	29.93	29.21	29.43	30.64	29.59	29.87	29.13	29.96	30.75	29.93	29.39
13	30.06	29.96	29.29	29.57	30.59	29.81	29.79	29.15	29.96	30.72	29.87	29.47
14	30.06	29.99	29.26	29.66	30.62	29.81	29.50	29.21	30.27	30.62	30.03	29.59
15	30.01	30.06	29.19	29.53	30.76	29.77	29.60	29.24	30.07	30.48	30.11	29.51
16	30.07	30.14	29.28	29.57	30.84	29.76	29.67	29.39	30.16	30.41	30.12	29.45
17	30.09	30.14	29.16	29.60	30.81	29.63	29.55	29.37	30.11	30.47	30.29	29.45
18	30.03	30.14	29.17	29.44	30.75	29.77	29.62	29.27	30.03	30.43	30.37	29.12
19	30.06	30.01	29.25	29.67	30.62	30.01	29.53	29.34	30.06	30.47	30.19	28.81
20	30.11	29.42	29.47	29.85	30.62	30.01	29.64	29.40	30.13	30.43	30.22	28.94
21	29.95	29.40	29.53	29.88	30.63	29.65	29.56	29.33	30.15	30.48	30.10	28.95
22	30.01	29.43	29.49	29.76	30.86	29.73	29.61	29.27	30.12	30.45	29.97	29.03
23	30.13	29.45	29.49	29.82	30.86	29.69	29.66	29.23	30.24	30.30	29.85	29.12
24	30.33	29.42	29.38	29.83	30.70	29.75	29.71	29.20	30.36	30.41	29.93	29.16
25	30.33	29.37	29.25	29.94	30.78	29.69	29.70	29.29	30.33	30.31	29.98	29.15
26	30.30	29.39	29.32	29.94	30.80	29.64	29.60	29.29	30.32	30.22	29.96	29.30
27	30.20	29.47	29.46	29.86	30.78	29.55	29.50	29.33	30.39	29.91	29.94	29.30
28	30.01	29.38	29.47	29.84	30.71	29.60	29.67	29.42	30.52	29.53	29.91	29.23
29	29.90	29.33	29.45	29.99	30.66	29.56	29.72	29.59	30.53	29.59	30.00	29.35
30	30.09	29.36	29.54	30.02	---	29.53	29.68	29.63	30.57	29.65	30.06	29.48
31	30.04	---	29.57	30.27	---	29.45	---	29.53	---	29.50	30.09	---
MEAN	30.02	29.82	29.42	29.64	30.65	29.78	29.62	29.40	30.10	30.41	29.91	29.55
MAX	30.33	30.21	29.62	30.27	30.86	30.59	29.87	29.71	30.57	30.81	30.37	30.32
MIN	29.69	29.33	29.16	29.22	30.40	29.45	29.38	29.10	29.50	29.50	29.49	28.81



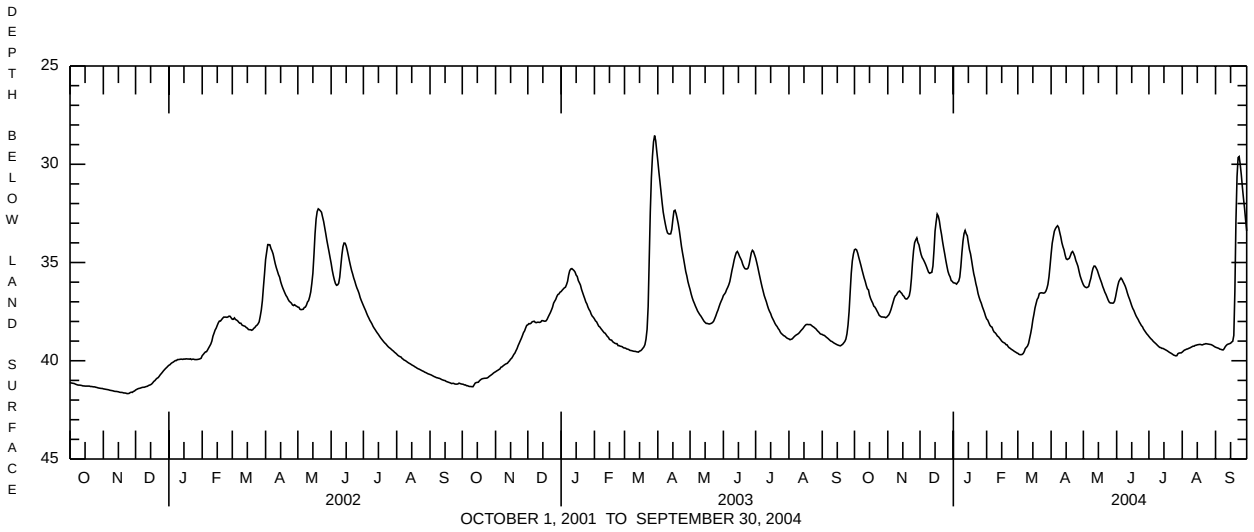
UNION COUNTY

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 USGS Pennsylvania Water Science Center.
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, 29.40 ft below land-surface datum, Sept. 22; lowest, 39.75 ft below land-surface datum, July 26.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34.35	37.72	34.36	36.03	37.87	39.62	34.57	36.13	36.45	38.76	39.56	39.31
2	34.32	37.66	34.59	36.04	37.93	39.67	34.02	36.22	36.18	38.83	39.51	39.33
3	34.36	37.54	34.75	36.06	38.06	39.69	33.71	36.26	35.97	38.89	39.46	39.35
4	34.52	37.39	34.84	36.10	38.19	39.69	33.41	36.28	35.87	38.94	39.44	39.37
5	34.74	37.20	34.95	36.02	38.26	39.68	33.28	36.26	35.79	39.01	39.41	39.41
6	34.94	37.01	35.07	35.95	38.29	39.63	33.19	36.21	35.86	39.06	39.40	39.42
7	35.15	36.82	35.21	35.74	38.44	39.53	33.13	35.99	35.98	39.11	39.37	39.44
8	35.37	36.70	35.36	35.21	38.54	39.38	33.22	35.80	36.09	39.16	39.35	39.45
9	35.58	36.65	35.50	34.48	38.58	39.32	33.47	35.51	36.21	39.22	39.32	39.39
10	35.79	36.55	35.55	33.90	38.65	39.25	33.70	35.29	36.37	39.27	39.29	39.29
11	35.96	36.48	35.52	33.52	38.74	39.12	33.99	35.18	36.56	39.32	39.26	39.22
12	36.17	36.45	35.50	33.37	38.78	38.86	34.20	35.19	36.73	39.33	39.26	39.17
13	36.34	36.52	35.18	33.54	38.85	38.60	34.36	35.29	36.87	39.37	39.22	39.15
14	36.39	36.57	34.38	33.64	38.92	38.30	34.61	35.40	37.03	39.37	39.21	39.13
15	36.66	36.67	33.40	34.01	39.00	37.92	34.81	35.57	37.20	39.40	39.19	39.11
16	36.83	36.72	32.93	34.35	39.05	37.63	34.85	35.74	37.34	39.43	39.18	39.05
17	36.96	36.82	32.54	34.56	39.08	37.31	34.82	35.89	37.44	39.46	39.17	39.01
18	37.07	36.86	32.64	34.89	39.11	37.09	34.78	36.04	37.58	39.49	39.17	38.71
19	37.22	36.85	32.88	35.25	39.18	36.88	34.64	36.22	37.71	39.53	39.19	36.47
20	37.27	36.78	33.27	35.57	39.19	36.79	34.49	36.36	37.81	39.57	39.19	32.87
21	37.36	36.69	33.57	35.80	39.28	36.58	34.44	36.51	37.90	39.60	39.16	30.63
22	37.47	36.41	33.94	36.08	39.34	36.55	34.55	36.62	38.02	39.63	39.15	29.66
23	37.57	35.81	34.27	36.30	39.37	36.54	34.69	36.76	38.11	39.67	39.13	29.61
24	37.69	35.01	34.57	36.58	39.42	36.55	34.90	36.90	38.21	39.71	39.14	30.01
25	37.73	34.39	34.89	36.77	39.45	36.56	35.04	37.01	38.27	39.73	39.15	30.55
26	37.77	33.99	35.18	36.94	39.49	36.54	35.20	37.06	38.39	39.75	39.16	31.17
27	37.77	33.85	35.45	37.07	39.53	36.47	35.45	37.06	38.47	39.74	39.17	31.73
28	37.78	33.75	35.62	37.25	39.56	36.33	35.68	37.07	38.55	39.64	39.18	32.25
29	37.78	33.98	35.73	37.40	39.60	36.12	35.85	37.06	38.63	39.61	39.21	32.85
30	37.81	34.10	35.92	37.55	---	35.73	36.00	36.97	38.69	39.60	39.24	33.39
31	37.78	---	35.96	37.73	---	35.17	---	36.74	---	39.60	39.28	---
MEAN	36.47	36.20	34.63	35.60	38.89	37.84	34.44	36.21	37.21	39.38	39.26	36.25
MAX	37.81	37.72	35.96	37.73	39.60	39.69	36.00	37.07	38.69	39.75	39.56	39.45
MIN	34.32	33.75	32.54	33.37	37.87	35.17	33.13	35.18	35.79	38.76	39.13	29.61



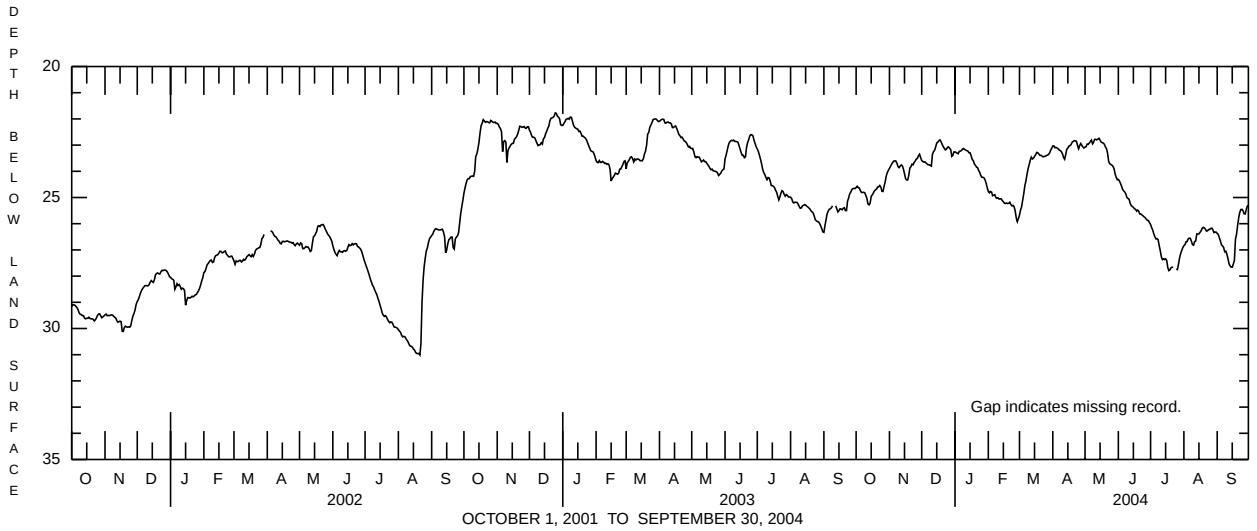
WYOMING COUNTY

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 USGS Pennsylvania Water Science Center.
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, 22.71 ft below land-surface datum, May 14; lowest, 28.16 ft below land-surface datum, July 17.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.62	23.89	23.59	23.26	24.77	25.67	23.03	23.08	24.31	26.03	26.84	26.37
2	24.57	23.81	23.62	23.28	24.82	25.48	23.03	23.06	24.37	26.15	26.80	26.41
3	24.62	23.73	23.65	23.31	24.77	25.35	23.10	22.96	24.46	26.24	26.69	26.54
4	24.64	23.66	23.64	23.33	24.79	25.10	23.09	22.97	24.57	26.39	26.68	26.66
5	24.74	23.61	23.68	23.24	24.93	24.85	23.11	22.92	24.69	26.50	26.58	26.81
6	24.81	23.60	23.72	23.23	24.91	24.55	23.14	22.87	24.75	26.58	26.55	26.85
7	24.81	23.61	23.75	23.21	24.89	24.37	23.19	22.81	24.79	26.57	26.56	26.91
8	24.80	23.70	23.75	23.15	25.00	24.12	23.21	22.95	24.87	26.61	26.67	27.07
9	24.82	23.82	23.78	23.13	25.03	23.90	23.25	22.88	25.00	26.83	26.80	27.05
10	24.92	23.86	23.80	23.17	25.01	23.75	23.33	22.78	25.04	27.03	26.82	27.16
11	25.03	23.80	23.35	23.19	25.06	23.58	23.47	22.78	25.07	27.26	26.68	27.33
12	25.25	23.76	23.25	23.21	25.05	23.46	23.54	22.80	25.22	27.37	26.66	27.53
13	25.28	23.79	23.20	23.23	25.05	23.53	23.37	22.77	25.31	27.34	26.39	27.61
14	25.22	23.92	23.07	23.29	25.12	23.50	23.16	22.74	25.34	27.37	26.40	27.66
15	24.96	24.09	22.92	23.29	25.16	23.43	23.11	22.81	25.38	27.34	26.39	27.66
16	24.90	24.28	22.89	23.40	25.22	23.37	23.04	22.88	25.43	27.40	26.33	27.54
17	24.83	24.33	22.83	23.55	25.23	23.28	23.02	22.91	25.45	27.67	26.27	27.40
18	24.75	24.33	22.80	23.59	25.21	23.29	22.98	22.92	25.52	27.79	26.18	26.59
19	24.71	24.15	22.87	23.72	25.23	23.34	22.89	22.97	25.48	27.76	26.14	26.40
20	24.68	23.88	22.97	23.77	25.22	23.39	22.86	23.07	25.53	27.68	26.16	26.06
21	24.60	23.82	23.05	23.84	25.18	23.39	22.83	23.14	25.63	27.66	26.21	25.78
22	24.59	23.73	23.12	23.86	25.27	23.42	22.84	23.32	25.63	27.66	26.28	25.57
23	24.54	23.75	23.18	23.97	25.32	23.45	22.85	23.62	25.67	---	26.27	25.46
24	24.60	23.66	23.16	24.04	25.30	23.43	23.01	23.71	25.70	---	26.22	25.45
25	24.76	23.61	23.08	24.16	25.35	23.43	23.14	23.74	25.74	27.73	26.22	25.50
26	24.77	23.53	23.07	24.23	25.51	23.40	23.02	23.76	25.77	27.75	26.18	25.62
27	24.57	23.51	23.12	24.23	25.78	23.38	22.94	23.81	25.83	27.54	26.17	25.63
28	24.41	23.41	23.17	24.25	25.92	23.36	23.01	23.90	25.87	27.30	26.24	25.47
29	24.18	23.35	23.43	24.33	25.80	23.30	23.07	24.10	25.88	27.14	26.34	25.33
30	24.05	23.47	23.39	24.46	---	23.20	23.11	24.23	25.96	27.02	26.32	25.30
31	23.96	---	23.26	24.63	---	23.12	---	24.32	---	26.91	26.32	---
MEAN	24.71	23.78	23.30	23.63	25.17	23.81	23.09	23.21	25.28	27.12	26.43	26.49
MAX	25.28	24.33	23.80	24.63	25.92	25.67	23.54	24.32	25.96	27.79	26.84	27.66
MIN	23.96	23.35	22.80	23.13	24.77	23.12	22.83	22.74	24.31	26.03	26.14	25.30



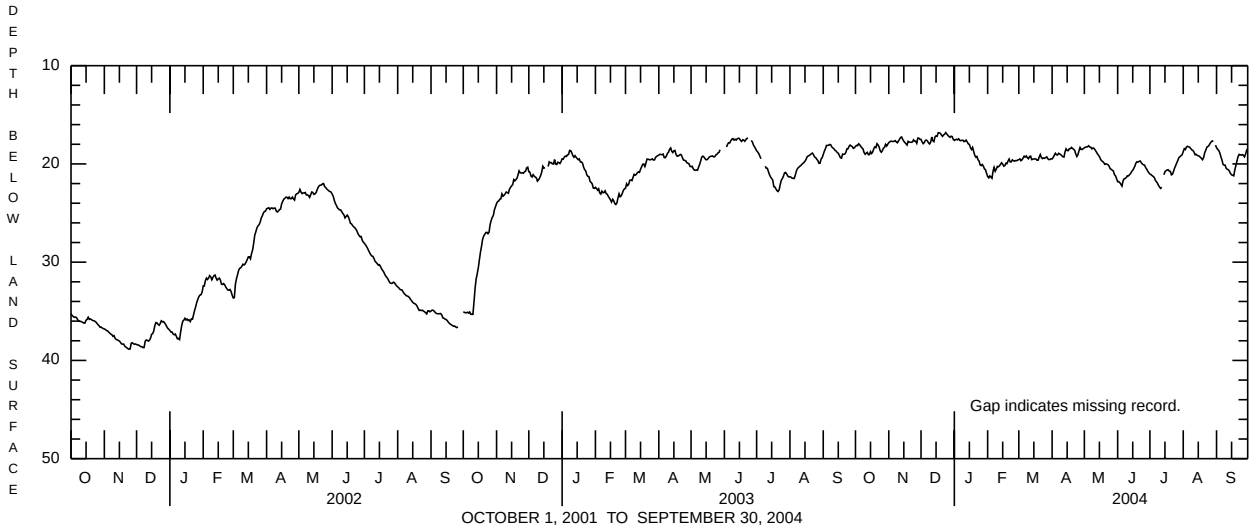
YORK COUNTY

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 USGS Pennsylvania Water Science Center.
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, 16.70 ft below land-surface datum, Dec. 24, 2003; lowest, 38.90 ft below land-surface datum, Sept. 24, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level, 16.70 ft below land-surface datum, Dec. 24; lowest, 22.55 ft below land-surface datum, July 11, 12.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.21	17.83	17.50	17.61	21.28	19.57	19.49	18.37	21.81	21.03	18.75	18.34
2	18.11	17.75	17.76	17.54	21.42	19.49	19.34	18.29	21.80	21.09	18.45	18.51
3	18.14	17.68	17.94	17.49	21.22	19.67	19.12	18.28	21.91	21.19	18.54	18.62
4	17.95	17.70	17.84	17.55	21.33	19.58	18.92	18.25	22.07	21.27	18.28	18.87
5	18.06	17.73	17.61	17.44	21.46	19.40	19.07	18.15	22.25	21.37	18.21	19.25
6	18.23	17.69	17.57	17.60	20.75	19.21	19.09	18.29	21.73	21.65	18.26	19.58
7	18.37	17.63	17.67	17.63	20.36	19.30	18.92	18.30	21.51	21.81	18.30	20.03
8	18.47	17.76	17.87	17.60	20.75	19.19	18.98	18.47	21.48	21.95	18.44	20.12
9	18.84	17.85	17.97	17.59	20.54	19.37	19.05	18.38	21.39	22.19	18.57	20.13
10	19.02	17.67	17.78	17.73	20.26	19.47	19.17	18.42	21.21	22.36	18.63	20.46
11	18.90	17.49	17.26	17.69	20.29	19.25	19.27	18.58	21.22	22.49	18.79	20.55
12	18.82	17.31	17.64	17.57	20.20	19.21	19.30	18.75	21.10	22.37	19.06	20.59
13	19.06	17.26	17.73	17.77	20.03	19.56	18.78	18.94	20.98	---	19.02	20.74
14	19.05	17.52	17.25	17.96	19.88	19.53	18.47	19.10	20.78	21.10	19.13	20.98
15	18.75	17.69	17.14	18.02	20.03	19.49	18.63	19.25	20.65	20.80	19.17	21.11
16	18.94	17.83	17.19	18.35	20.23	19.49	18.65	19.51	20.45	20.68	19.22	21.16
17	18.79	17.95	16.82	18.53	20.17	19.50	18.45	19.67	20.23	20.62	19.33	21.21
18	18.46	18.08	16.83	18.32	19.93	19.63	18.44	19.75	19.91	20.59	19.44	20.62
19	18.27	17.70	16.89	18.74	19.97	19.62	18.32	19.86	19.78	20.74	19.57	20.17
20	18.34	17.78	17.06	19.12	19.70	19.29	18.42	20.04	19.81	20.76	19.35	19.70
21	17.94	17.80	17.20	19.31	19.50	19.05	18.51	20.00	19.74	21.11	18.86	19.26
22	18.06	17.80	17.05	19.24	19.80	19.35	18.63	20.02	19.70	21.05	18.61	19.03
23	18.28	17.76	16.97	19.57	19.79	19.46	18.99	20.09	19.88	20.75	18.29	19.07
24	18.66	17.55	16.81	19.70	19.59	19.40	19.24	20.22	20.01	20.42	18.23	19.11
25	18.81	17.69	16.96	20.10	19.67	19.43	19.07	20.48	20.09	20.16	18.11	19.05
26	18.67	17.68	17.09	20.17	19.72	19.36	18.66	20.55	20.12	19.89	17.91	19.11
27	18.40	17.90	17.21	20.06	19.66	19.28	18.33	20.65	20.37	19.63	17.76	19.28
28	18.31	17.37	17.29	20.22	19.67	19.48	18.52	20.72	20.52	19.36	17.66	19.00
29	18.01	17.38	17.18	20.50	19.60	19.56	18.53	21.09	20.74	19.26	17.71	18.62
30	18.18	17.50	17.22	20.60	---	19.55	18.43	21.21	20.90	19.15	---	18.47
31	18.00	---	17.50	20.95	---	19.48	---	21.51	---	19.07	18.09	---
MEAN	18.45	17.68	17.35	18.65	20.23	19.43	18.83	19.46	20.80	20.86	18.59	19.69
MAX	19.06	18.08	17.97	20.95	21.46	19.67	19.49	21.51	22.25	22.49	19.57	21.21
MIN	17.94	17.26	16.81	17.44	19.50	19.05	18.32	18.15	19.70	19.07	17.66	18.34



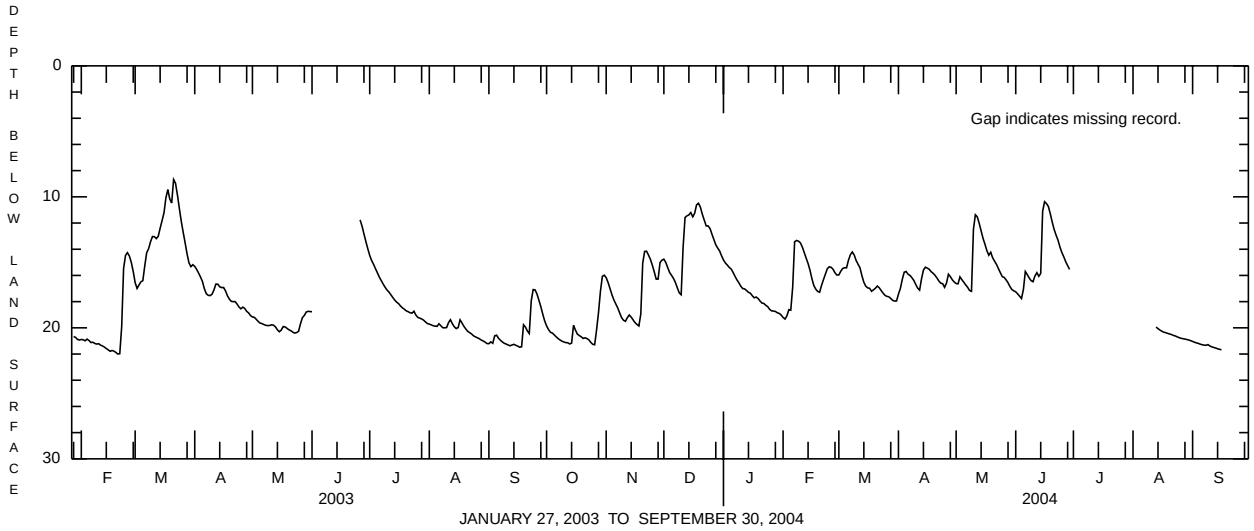
YORK COUNTY

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 USGS Pennsylvania Water Science Center.
PERIOD OF RECORD.--January 27, 2003 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, 8.51 ft below land-surface datum, Mar. 21, 2003; lowest, 22.05 ft below land-surface datum, Feb. 20, 2003.
EXTREMES FOR CURRENT YEAR.--Highest recorded water level, 10.34 ft below land-surface datum, June 16; lowest recorded, 21.69 ft below land-surface datum, Sept. 16, 17.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.85	16.17	14.76	14.82	19.21	15.96	17.43	16.62	17.25	---	---	21.04
2	20.13	16.55	15.01	15.05	19.33	15.68	16.99	16.64	17.41	---	---	21.10
3	20.34	17.01	15.41	15.21	19.08	15.47	16.30	16.11	17.58	---	---	21.15
4	20.40	17.48	15.78	15.39	18.61	15.41	15.75	16.33	17.76	---	---	21.19
5	20.54	17.87	16.00	15.51	18.65	15.42	15.70	16.52	17.07	---	---	21.25
6	20.69	18.18	16.23	15.77	16.89	14.84	15.91	16.73	15.70	---	---	21.29
7	20.82	18.48	16.54	16.07	13.43	14.42	16.00	16.91	15.93	---	---	21.32
8	20.93	18.86	16.95	16.34	13.33	14.21	16.17	17.15	16.19	---	---	21.33
9	21.02	19.22	17.33	16.56	13.38	14.44	16.38	17.21	16.40	---	---	21.28
10	21.08	19.42	17.47	16.82	13.51	14.86	16.69	12.48	16.48	---	---	21.39
11	21.13	19.50	13.86	17.00	13.83	15.14	16.97	11.37	16.04	---	---	21.45
12	21.14	19.22	11.58	17.03	14.25	15.42	17.12	11.53	15.79	---	---	21.50
13	21.23	19.02	11.45	17.15	14.68	16.02	16.26	12.02	16.07	---	19.94	21.54
14	21.17	19.18	11.38	17.29	15.09	16.52	15.59	12.60	15.85	---	20.06	21.60
15	19.81	19.40	11.20	17.36	15.61	16.82	15.37	13.17	11.11	---	20.17	21.64
16	20.17	19.60	11.52	17.55	16.25	16.95	15.44	13.62	10.37	---	20.26	21.67
17	20.48	19.74	11.26	17.71	16.77	16.98	15.53	14.11	10.51	---	20.33	---
18	20.59	19.86	10.61	17.65	17.05	17.21	15.71	14.46	10.74	---	20.37	---
19	20.68	18.95	10.49	17.76	17.22	17.10	15.83	14.23	11.31	---	20.42	---
20	20.81	15.06	10.79	17.95	17.28	16.98	15.98	14.65	11.94	---	20.47	---
21	20.76	14.17	11.33	18.11	16.76	16.81	16.19	14.91	12.50	---	20.51	---
22	20.82	14.15	11.78	18.14	16.32	16.94	16.42	15.16	12.93	---	20.58	---
23	20.92	14.45	12.22	18.28	15.90	17.15	16.59	15.48	13.31	---	20.62	---
24	21.11	14.77	12.22	18.38	15.49	17.35	16.63	15.79	13.83	---	20.69	---
25	21.26	15.22	12.42	18.59	15.34	17.52	16.91	16.09	14.25	---	20.75	---
26	21.29	15.73	12.85	18.70	15.38	17.60	16.58	16.15	14.58	---	20.80	---
27	20.15	16.28	13.26	18.72	15.53	17.63	15.91	16.34	14.95	---	20.83	---
28	18.84	16.28	13.66	18.75	15.80	17.76	16.09	16.56	15.25	---	20.86	---
29	17.22	15.02	13.91	18.85	15.97	17.90	16.33	16.85	15.54	---	20.89	---
30	16.07	14.83	14.13	18.90	---	17.96	16.50	17.07	---	---	20.93	---
31	15.98	---	14.50	19.02	---	17.95	---	17.18	---	---	20.98	---
MEAN	20.24	17.32	13.48	17.30	16.07	16.40	16.24	15.23	14.64	---	20.55	21.36
MAX	21.29	19.86	17.47	19.02	19.33	17.96	17.43	17.21	17.76	---	20.98	21.67
MIN	15.98	14.15	10.49	14.82	13.33	14.21	15.37	11.37	10.37	---	19.94	21.04



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 second 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 Eastern Lake hydrogeologic setting in Erie County 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 predominantly 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 at: 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. Samples are identified by network in the third column heading within the table: Baseline Trends = BT, Hot-Spot Trends Quality Assurance = HST-QA, and Hot-Spot Trends = HST. Well locations are shown in figures 11 and 12. The following analytical methods were used to determine results for the samples listed: PA Department of Environmental Protection Laboratory (PADEP)(Analyzing Agency Code 9813), pesticides - SAC USGS2 (EPA 525.2) solid phase extraction gas chromatography/mass spectrometry; nitrate/nitrite - colorimetry (cadmium reduction), total coliform and E. coli bacteria - Colilert Quantitray. Pesticides analyzed for this study are identified in the table which follows quality-control data. Other data for this project can be found in the annual Water Data Report PA-04-1 (Delaware River Basin) and PA-04-3 (Ohio and St. Lawrence River Basins). For additional information, contact Connie Loper at the USGS Pennsylvania Water Science Center, 215 Limekiln Road, New Cumberland, PA 17070; 717-730-6976 (email caloper@usgs.gov).

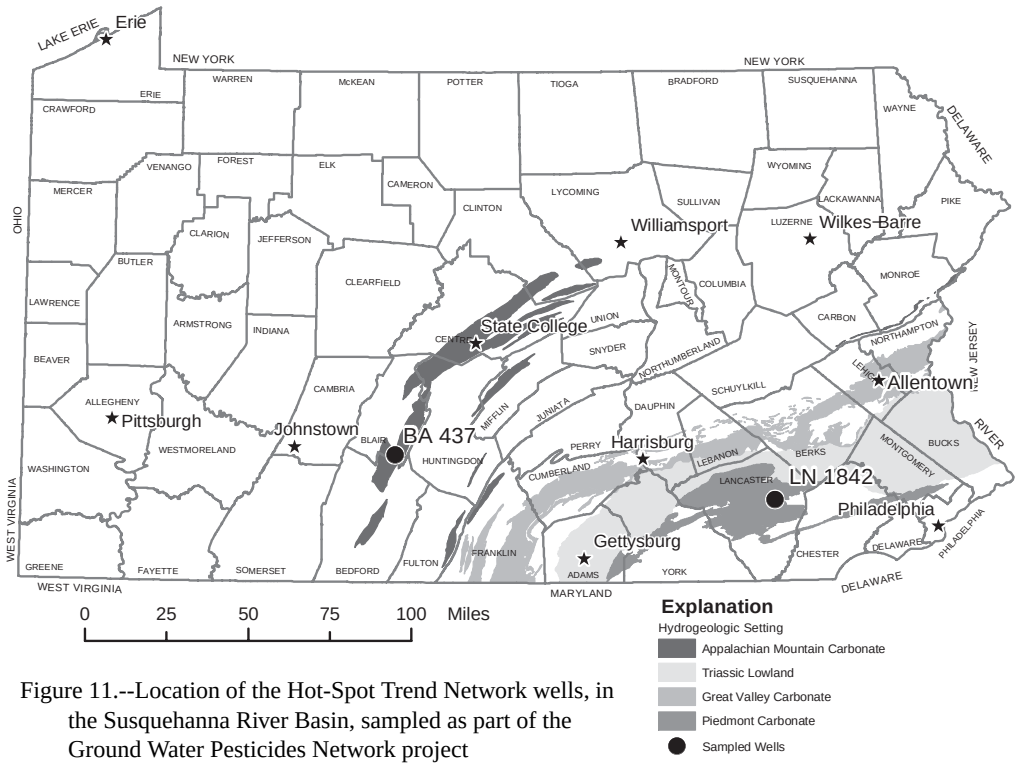


Figure 11.--Location of the Hot-Spot Trend Network wells, in the Susquehanna River Basin, sampled as part of the Ground Water Pesticides Network project

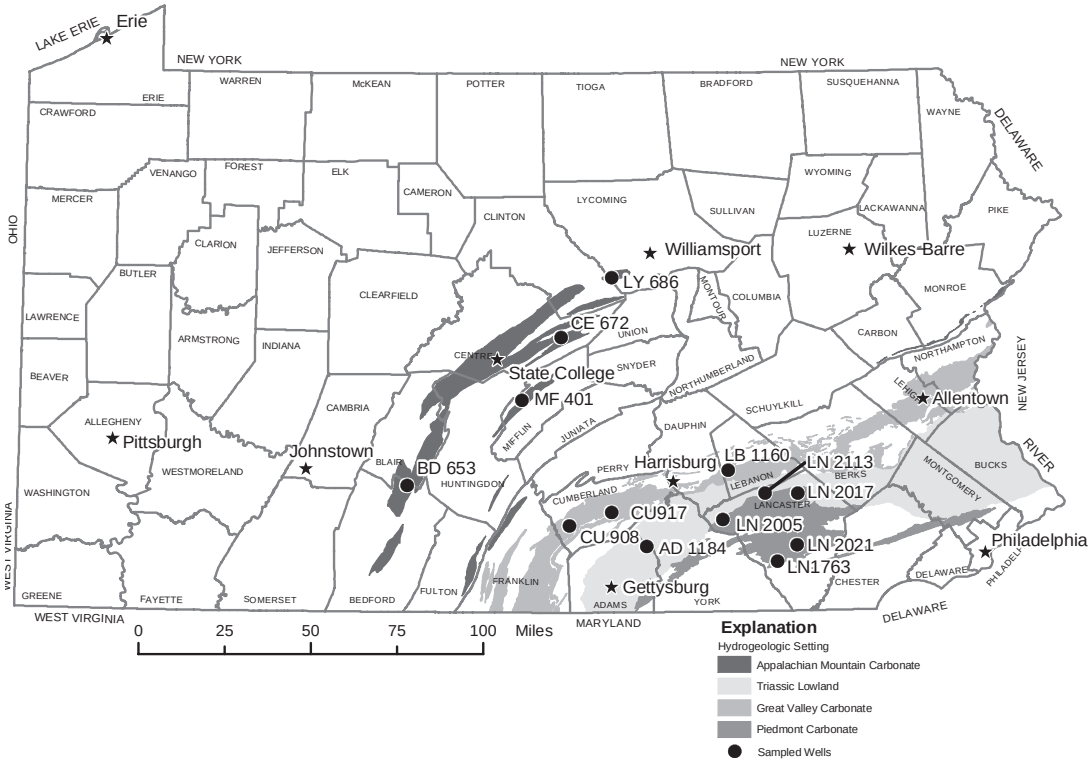


Figure 12.--Location of the Baseline Trend Network wells, in the Susquehanna River Basin, sampled as part of the Ground Water Pesticides Network project.

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

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; 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; “>” = more than; "E" = estimated; Network Identifier Baseline Trends = BT, Hot-Spot Trends = HST, or Hot-Spot Trends Quality Assurance = HST-QA. Quality-control data for replicate samples are shown for Local Well ID BA 437 (bacteria) on April 20, 2004 at 0911 and 0913.

WATER-QUALITY DATA, WATER YEARS OCTOBER 2003 TO SEPTEMBER 2004

Station number	Local Well ID	Network Identi-fier	Date	Time	Agency col-lecting sample, code (00027)	Agency ana-lyzing sample, code (00028)	Depth of well, feet below LSD (72008)	Depth to water level, feet below LSD (72019)	Alti-tude of land surface feet (72000)	Pump or flow period prior to sam-pling, minutes (72004)	Sam-pling method, code (82398)	Tur-bidity, water, unfltrd field, NTU (61028)
					ADAMS COUNTY							
395955077020801	AD 1184	BT	04-08-04	1310	1028	9813	180	11.60	500	65	4040	4.0
					BEDFORD COUNTY							
401525078213801	BD 653	BT	04-26-04	0940	1028	9813	170	47.42	1370	45	4040	.5
					BLAIR COUNTY							
401724078195801	BA 437	HST	10-07-03	1155	1028	9813	105	20.65	1435.00	70	4040	.4
	BA 437	HST	12-02-03	1045	1028	9813	105	19.24	1435.00	80	4040	--
	BA 437	HST	04-20-04	0910	1028	9813	105	15.12	1435.00	60	4040	.5
	BA 437	HST-QA	04-20-04	0911	1028	9813	105	--	1435.00	60	--	--
	BA 437	HST-QA	04-20-04	0913	1028	9813	105	--	1435.00	60	--	--
	BA 437	HST	07-20-04	0950	1028	9813	105	25.90	1435.00	65	4040	--
					CENTRE COUNTY							
405253077301501	CE 672	BT	04-29-04	1215	1028	9813	200	96.45	1190	50	4040	6.8
					CUMBERLAND COUNTY							
400514077274501	CU 908	BT	04-15-04	0900	1028	9813	182	28.12	650	55	4040	.3
400835077134401	CU 917	BT	04-28-04	0950	1028	9813	200	35.25	585	55	4040	.5
					LANCASTER COUNTY							
395542076185301	LN 1763	BT	03-31-04	0955	1028	9813	250	36.00	435	45	4040	.2
400456076065701	LN 1842	HST	10-06-03	1005	1028	9813	65	33.08	440	50	4040	.0
	LN 1842	HST	12-03-03	1435	1028	9813	65	31.10	440	50	4040	--
	LN 1842	HST	04-21-04	0940	1028	9813	65	34.48	440	40	4040	1.6
	LN 1842	HST	07-21-04	1340	1028	9813	65	35.20	440	40	4040	--
400629076365201	LN 2005	BT	03-31-04	1430	1028	9813	100	9.10	390	45	4040	4.0
401254076114701	LN 2017	BT	04-01-04	1105	1028	9813	160	47.80	410	55	4040	.0
395951076122301	LN 2021	BT	03-30-04	1105	1028	9813	150	23.75	370	55	4040	1.4
401307076224301	LN 2113	BT	04-06-04	1000	1028	9813	200	36.50	500	45	4040	.0
					LEBANON COUNTY							
401856076345101	LB 1160	BT	04-12-04	0945	1028	9813	180	--	440	50	4040	.5
					LYCOMING COUNTY							
410805077131401	LY 686	BT	04-27-04	1100	1028	9813	175	82.20	765	40	4040	1.4

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

WATER-QUALITY DATA, WATER YEARS OCTOBER 2003 TO SEPTEMBER 2004

Date	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, 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, Defined Substr. Tech., water, MPN/ 100 mL (50468)
ADAMS COUNTY													
04-08-04	744	.6	5	7.5	497	12.1	11.0	--	--	.370	--	<.010	<1
BEDFORD COUNTY													
04-26-04	725	9.2	87	7.2	752	15.2	10.7	--	--	16.6	--	<.010	<1
BLAIR COUNTY													
10-07-03	727	.6	6	6.9	2170	13.1	12.3	329	74.4	74.4	.066	.020	5
12-02-03	728	1.2	12	7.0	2090	14.7	12.0	--	--	65.7	--	<.010	2
04-20-04	728	1.6	15	7.0	1920	16.7	11.5	--	--	56.6	--	<.010	<1
04-20-04	--	--	--	--	--	--	--	--	--	--	--	--	<1
04-20-04	--	--	--	--	--	--	--	--	--	--	--	--	<1
07-20-04	726	.3	3	6.9	1800	21.1	12.3	--	--	55.0	--	<.010	2
CENTRE COUNTY													
04-29-04	739	7.7	72	7.0	611	20.1	10.8	28.3	6.40	6.42	.066	.020	3
CUMBERLAND COUNTY													
04-15-04	749	9.2	85	7.2	619	6.1	11.1	--	--	10.0	--	<.010	170
04-28-04	753	9.8	91	7.4	548	7.9	11.5	--	--	9.32	--	<.010	<1
LANCASTER COUNTY													
03-31-04	750	8.6	82	7.2	679	9.6	12.5	--	--	11.1	--	<.010	<1
10-06-03	754	7.2	70	7.1	1120	11.2	13.5	--	--	39.9	--	<.010	<1
12-03-03	762	7.1	67	7.1	1050	9.7	12.4	--	--	41.5	--	<.010	<1
04-21-04	754	7.4	72	7.2	1040	15.9	13.5	--	--	32.5	--	<.010	<1
07-21-04	753	6.3	62	7.1	992	26.8	14.3	--	--	31.1	--	<.010	<1
03-31-04	750	2.4	22	7.2	654	14.5	11.0	--	--	21.6	--	<.010	10
04-01-04	740	7.6	73	7.3	672	9.2	12.1	--	--	11.1	--	<.010	<1
03-30-04	758	7.9	75	7.1	818	9.4	12.8	--	--	7.26	--	<.010	<1
04-06-04	749	3.2	31	7.2	571	2.0	12.7	--	--	11.4	--	<.010	<1
LEBANON COUNTY													
04-12-04	757	6.0	58	7.3	660	10.5	13.1	--	--	5.29	--	<.010	<1
LYCOMING COUNTY													
04-27-04	736	9.6	89	7.4	641	12.6	10.4	--	--	9.00	--	<.010	<1

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

WATER-QUALITY DATA, WATER YEARS OCTOBER 2003 TO SEPTEMBER 2004

Date	Total coli-form, Defined Tech., MPN/ 100 mL (50569)	Aceto-chlor, water, fltrd, µg/L (49260)	Ala-chlor, water, fltrd, µg/L (46342)	Atra-zine, water, fltrd, µg/L (39632)	Chloro-thalo-nil, water, fltrd 0.7µ GF µg/L (49306)	Chlor-pyrifos water, fltrd, µg/L (38933)	Dichlo-benil, water, fltrd, µg/L (63009)	Fen-propa-thrin, water, fltrd, µg/L (64044)	Hexa-chloro-cyclo-penta-diene, wat unf µg/L (34386)	Metola-chlor, water, fltrd, µg/L (39415)	Metri-buzin, water, fltrd, µg/L (82630)	Pendi-meth-alin, water, fltrd 0.7µ GF µg/L (82683)	Phosmet water, fltrd, µg/L (61601)
ADAMS COUNTY													
04-08-04	<1	<.100	<.10	<.10	<.10	<.10	--	--	<.10	<.10	<.10	<.100	--
BEDFORD COUNTY													
04-26-04	<1	<.100	<.10	<.10	<.10	<.10	--	--	<.10	<.10	<.10	<.100	--
BLAIR COUNTY													
10-07-03	41	<.110	.25	<.10	<.11	<.11	--	--	<.11	46.0	<.10	<.110	--
12-02-03	34	<.110	.20	<.11	<.11	<.11	--	--	<.11	47.1	<.11	<.110	--
04-20-04	1	<.100	.15	<.10	<.10	<.10	--	--	<.10	E19.6	<.10	<.100	--
04-20-04	2	--	--	--	--	--	--	--	--	--	--	--	--
04-20-04	<1	--	--	--	--	--	--	--	--	--	--	--	--
07-20-04	45	<.100	.21	.74	<.10	<.10	<.10	<.10	<.10	E39.7	<.10	<.100	<.100
CENTRE COUNTY													
04-29-04	27	<.100	<.10	<.10	<.10	<.10	--	--	<.10	<.10	<.10	<.100	--
CUMBERLAND COUNTY													
04-15-04	>200	<.100	<.10	<.10	<.10	<.10	--	--	<.10	<.10	<.10	<.100	--
04-28-04	10	<.100	<.10	<.10	<.10	<.10	--	--	<.10	<.10	<.10	<.100	--
LANCASTER COUNTY													
03-31-04	1	<.250	<.25	<.25	<.25	<.25	--	--	<.25	<.25	<.25	<.250	--
10-06-03	<1	.440	1.40	<.10	<.10	<.10	--	--	<.10	160	<.10	<.100	--
12-03-03	<1	.530	1.76	<.10	<.10	<.10	--	--	<.10	159	<.10	<.100	--
04-21-04	<1	.220	.91	<.10	<.10	<.10	--	--	<.10	E53.5	<.10	<.100	--
07-21-04	1	.290	1.05	.25	<.10	<.10	<.10	<.10	<.10	E72.3	<.10	<.100	<.100
03-31-04	78	<.250	<.25	.30	<.25	<.25	--	--	<.25	E.24	<.25	<.250	--
04-01-04	<1	<.250	<.25	<.25	<.25	<.25	--	--	<.25	<.25	<.25	<.250	--
03-30-04	<1	<.250	<.25	<.25	<.25	<.25	--	--	<.25	<.25	<.25	<.250	--
04-06-04	<1	<.250	E.19	<.25	<.25	<.25	--	--	<.25	<.25	<.25	<.250	--
LEBANON COUNTY													
04-12-04	59	<.100	<.10	<.10	<.10	<.10	--	--	<.10	<.10	<.10	<.100	--
LYCOMING COUNTY													
04-27-04	4	<.100	<.10	<.10	<.10	<.10	--	--	<.10	<.10	<.10	<.100	--

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

WATER-QUALITY DATA, WATER YEARS OCTOBER 2003 TO SEPTEMBER 2004

Date	Sima-zine, water, fltrd, µg/L (04035)	Purpose site visit, code (50280)	Sample purpose code (71999)	Sam-pling condi-tion, code (72006)	Type of sample related QA data, code (99111)	Type of repli-cate, code (99105)	County	Data base number	Medium code
				ADAMS COUNTY					
04-08-04	<.10	2001	50.00	8.00	1	--	001	01	6
				BEDFORD COUNTY					
04-26-04	<.10	2001	50.00	8.00	1	--	009	01	6
				BLAIR COUNTY					
10-07-03	<.10	2001	50.00	8.00	1	--	013	01	6
12-02-03	<.11	2001	50.00	8.00	1	--	013	01	6
04-20-04	<.10	2001	50.00	8.00	30	--	013	01	6
04-20-04	--	2098	50.00	8.00	--	20.00	013	02	S
04-20-04	--	2098	50.00	8.00	--	20.00	013	02	S
07-20-04	<.10	2001	50.00	8.00	1	--	013	01	6
				CENTRE COUNTY					
04-29-04	<.10	2001	50.00	8.00	1	--	027	01	6
				CUMBERLAND COUNTY					
04-15-04	<.10	2001	50.00	8.00	1	--	041	01	6
04-28-04	<.10	2001	50.00	8.00	1	--	041	01	6
				LANCASTER COUNTY					
03-31-04	<.25	2001	50.00	8.00	1	--	071	01	6
10-06-03	<.10	2001	50.00	8.00	1	--	071	01	6
12-03-03	<.10	2001	50.00	8.00	1	--	071	01	6
04-21-04	<.10	2001	50.00	8.00	100	--	071	01	6
07-21-04	<.10	2001	50.00	8.00	40	--	071	01	6
03-31-04	<.25	2001	50.00	8.00	1	--	071	01	6
04-01-04	<.25	2001	50.00	8.00	1	--	071	01	6
03-30-04	<.25	2001	50.00	8.00	100	--	071	01	6
04-06-04	<.25	2001	50.00	8.00	1	--	071	01	6
				LEBANON COUNTY					
04-12-04	<.10	2001	50.00	8.00	1	--	075	01	6
				LYCOMING COUNTY					
04-27-04	<.10	2001	50.00	8.00	1	--	081	01	6

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

WATER-QUALITY DATA, WATER YEARS OCTOBER 2003 TO SEPTEMBER 2004

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, unfltrd field, NTU (61028)
					MIFFLIN COUNTY							
403706077432801	MF401	BT	04-13-04	0925	1028	9813	120	12.25	870	50	4040	1.0

Date	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, 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, Defined Substr. Tech., water, MPN/100 mL (50468)
						MIFFLIN COUNTY							
04-13-04	738	3.1	30	7.0	918	6.5	11.6	66.3	15.0	15.1	.329	.100	88

Date	Total coliform, Defined Tech., MPN/100 mL (50569)	Acetochlor, water, fltrd, µg/L (49260)	Alachlor, water, fltrd, µg/L (46342)	Atrazine, water, fltrd, µg/L (39632)	Chlorothalonil, water, fltrd 0.7µ GF µg/L (49306)	Chlorpyrifos water, fltrd, µg/L (38933)	Hexachlorocyclopentadiene, wat unf µg/L (34386)	Metolachlor, water, fltrd, µg/L (39415)	Metribuzin, water, fltrd, µg/L (82630)	Pendimethalin, water, fltrd 0.7µ GF µg/L (82683)	Simazine, water, fltrd, µg/L (04035)	Purpose site visit, code (50280)	Sample purpose code (71999)
						MIFFLIN COUNTY							
04-13-04	200	<.100	<.10	<.10	<.10	<.10	<.10	<.10	<.10	<.100	<.10	2001	50.00

Date	Sampling condition, code (72006)	Type of sample related QA data, code (99111)	County	Data base number	Medium code
		MIFFLIN COUNTY			
04-13-04	8.00	1	087	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 2004 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).

QUALITY-CONTROL DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Station number	Local well ID	Quality assurance sample type	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, Defined Substr. Tech., water, MPN/ 100 mL (50468)	Total coliform, Defined Tech., MPN/ 100 mL (50569)
401435076540910	--	E. blk	03-02-04	1100	1028	9813	--	--	--	--	<1	<1
401435076540910	--	E. blk	03-02-04	1130	1028	9813	--	--	<.040	<.010	--	--
401435076540910	--	E. blk	03-02-04	1210	1028	9813	--	--	--	--	--	--
395951076122301	LN 2021	F. blk	03-30-04	1000	1028	9813	150	370	--	--	<1	<1
395951076122301	LN 2021	F. blk	03-30-04	1130	1028	9813	150	370	<.040	<.010	--	--
401435076540910	--	E. blk	05-10-04	1530	1028	9813	--	--	<.040	<.010	--	--
420042080174901	ER 1405	F. blk	06-23-04	0841	1028	9813	45	784	.200	<.010	--	--
415437080242301	ER 295	F. blk	07-29-04	1035	1028	9813	80	915	--	--	--	--
415845080203301	ER 3505	F. blk	08-04-04	1121	1028	9813	89	840	--	--	--	--
421503079462201	ER 3508	F. blk	08-05-04	0701	1028	9813	20	710	--	--	<1	<1
420854079564001	ER 3511	F. blk	08-18-04	1226	1028	9813	39	885	<.040	<.010	--	--

Date	Acetochlor, water, fltrd, µg/L (49260)	Alachlor, water, fltrd, µg/L (46342)	Atrazine, water, fltrd, µg/L (39632)	Azinphosmethyl, water, fltrd 0.7µ GF µg/L (82686)	Captan, water, fltrd, µg/L (61582)	Carbaryl, water, fltrd 0.7µ GF µg/L (82680)	Chlorothalonil, water, fltrd 0.7µ GF µg/L (49306)	Chlorpyrifos water, fltrd, µg/L (38933)	Dichlobenil, water, fltrd, µg/L (63009)	Diuron, water, fltrd 0.7µ GF µg/L (49300)	Fenpropathrin, water, fltrd, µg/L (64044)	Hexachlorocyclopentadiene, wat unf µg/L (34386)	Methomyl, water, fltrd 0.7µ GF µg/L (49296)
03-02-04	--	--	--	--	--	--	--	--	--	--	--	--	--
03-02-04	--	--	--	--	--	--	--	--	--	--	--	--	--
03-02-04	<.100	<.10	<.10	--	--	--	<.10	<.01	--	--	--	<.10	--
03-30-04	--	--	--	--	--	--	--	--	--	--	--	--	--
03-30-04	--	--	--	--	--	--	--	--	--	--	--	--	--
05-10-04	--	--	--	--	--	--	--	--	--	--	--	--	--
06-23-04	--	--	--	--	--	--	--	--	--	--	--	--	--
07-29-04	<.100	<.10	<.10	<.100	<.10	<2.00	<.10	<.10	<.10	<.10	<.10	<1	<2.00
08-04-04	<.100	<.10	<.10	<.100	<.10	<2.00	<.10	<.10	<.10	<.10	<.10	<1	<2.00
08-05-04	--	--	--	--	--	--	--	--	--	--	--	--	--
08-18-04	--	--	--	--	--	--	--	--	--	--	--	--	--

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

QUALITY-CONTROL DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Methyl parathion, water, fltrd 0.7µ GF µg/L (82667)	Metolachlor, water, fltrd, µg/L (39415)	Metribuzin, water, fltrd, µg/L (82630)	Oxamyl, water, fltrd 0.7µ GF µg/L (38866)	Pendimethalin, water, fltrd 0.7µ GF µg/L (82683)	Phosmet water, fltrd, µg/L (61601)	Phosphamidon, water, fltrd, µg/L (63736)	Simazine, water, fltrd, µg/L (04035)	Terbacil, water, fltrd 0.7µ GF µg/L (82665)	Trifluralin, water, fltrd, µg/L (04023)	Purpose site visit, code (50280)	Sample purpose code (71999)	Source of blank solution, code (99101)
03-02-04	--	--	--	--	--	--	--	--	--	--	2098	50.00	80.00
03-02-04	--	--	--	--	--	--	--	--	--	--	2098	50.00	80.00
03-02-04	--	<.10	<.10	--	<.100	--	--	<.10	--	--	2098	50.00	10.00
03-30-04	--	--	--	--	--	--	--	--	--	--	2098	50.00	80.00
03-30-04	--	--	--	--	--	--	--	--	--	--	2098	50.00	80.00
05-10-04	--	--	--	--	--	--	--	--	--	--	2098	15.00	80.00
06-23-04	--	--	--	--	--	--	--	--	--	--	2098	50.00	80.00
07-29-04	<.100	<.10	<.10	<2.00	<.100	<.100	<.25	<.10	<.100	<.10	2098	50.00	10.00
08-04-04	<.100	<.10	<.10	<2.00	<.100	<.100	<.25	<.10	<.100	<.10	2098	50.00	10.00
08-05-04	--	--	--	--	--	--	--	--	--	--	2098	50.00	--
08-18-04	--	--	--	--	--	--	--	--	--	--	2098	50.00	80.00

Date	Reference material or spike lot number (99104)	Type of blank sample, code (99102)	Type of blank solution, code (99100)
03-02-04	--	200.00	200.00
03-02-04	3267	200.00	10.00
03-02-04	80201	200.00	40.00
03-30-04	--	100.00	200.00
03-30-04	2330	100.00	10.00
05-10-04	3267	200.00	10.00
06-23-04	3267	100.00	10.00
07-29-04	80301	100.00	40.00
08-04-04	80301	100.00	40.00
08-05-04	--	100.00	200.00
08-18-04	3267	100.00	10.00

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
GROUND WATER PESTICIDES NETWORK PROJECT

401435076540910 - 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 April 21, 2004 at 09:00, 09:05, and 09:10 to create triplicate quality-assurance samples (2 1-liter bottles for EPA 525.2 per sample). 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; "<" = less than.

QUALITY-CONTROL DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

		Concentration, in micrograms per liter			
Parameter code	Constituent	Assumed concentration of blank A	Laboratory results for spiked sample (04/21/04 at 0900) B	Calculated concentration[a] in spiked sample C	Recovery in percent [(B-A)/C] x 100
49260	Acetochlor	<0.10	0.29	.40	72
46342	Alachlor	<0.10	0.30	.40	75
39632	Atrazine	<0.10	0.34	.40	85
49306	Chlorothalonil	<0.10	0.25	.40	62
38933	Chlorpyrifos (Dursban)	<0.10	0.32	.40	80
34386	Hexachlorocyclopentadiene	<0.10	0.10	.40	25
39415	Metolachlor	<0.10	0.34	.40	85
82630	Metribuzin	<0.10	0.31	.40	78
82683	Pendimethalin	<0.10	0.28	.40	70
04035	Simazine	<0.10	0.31	.40	78

Parameter code	Constituent	Assumed concentration of blank A	Laboratory results for spiked sample (04/21/04 at 0905) B	Calculated concentration[a] in spiked sample C	Recovery in percent [(B-A)/C] x 100
49260	Acetochlor	<0.10	0.35	.40	88
46342	Alachlor	<0.10	0.34	.40	85
39632	Atrazine	<0.10	0.30	.40	75
49306	Chlorothalonil	<0.10	0.27	.40	68
38933	Chlorpyrifos (Dursban)	<0.10	0.33	.40	82
34386	Hexachlorocyclopentadiene	<0.10	0.11	.40	28
39415	Metolachlor	<0.10	0.36	.40	90
82630	Metribuzin	<0.10	0.32	.40	80
82683	Pendimethalin	<0.10	0.28	.40	70
04035	Simazine	<0.10	0.32	.40	80

Parameter code	Constituent	Assumed concentration of blank A	Laboratory results for spiked sample (04/21/04 at 0910) B	Calculated concentration[a] in spiked sample C	Recovery in percent [(B-A)/C] x 100
49260	Acetochlor	<0.10	0.33	.40	82
46342	Alachlor	<0.10	0.31	.40	78
39632	Atrazine	<0.10	0.34	.40	85
49306	Chlorothalonil	<0.10	0.25	.40	62
38933	Chlorpyrifos (Dursban)	<0.10	0.30	.40	75
34386	Hexachlorocyclopentadiene	<0.10	0.10	.40	25
39415	Metolachlor	<0.10	0.33	.40	82
82630	Metribuzin	<0.10	0.29	.40	72
82683	Pendimethalin	<0.10	0.26	.40	65
04035	Simazine	<0.10	0.29	.40	72

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 - 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 April 7, 2004 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 Pennsylvania Department of Environmental Protection Laboratory.

QUALITY-CONTROL DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004--Continued

	Concentration, in milligrams per liter								
	Assumed concentration of blank		Laboratory results for spiked sample			Calculated[a] concentration in spiked sample		Recovery in percent	
Sample Time	Nitrate + Nitrite-N	Nitrite	Nitrate + Nitrite-N	Nitrate-N	Nitrite-N	Nitrate-N	Nitrite-N	Nitrate-N	Nitrite-N
	A	A		B	B	C	C	[(B-A)/C] x 100	
1130	<0.06	<0.008	8.20	7.42	0.78	7.50	0.75	99	104
1131	<0.06	<0.008	7.90	7.12	0.78	7.50	0.75	95	104
1132	<0.06	<0.008	7.81	7.03	0.78	7.50	0.75	94	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

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 = 0.03 mg/L
RSD Nitrite-N = 0.0 mg/L

Compounds analyzed at the Pennsylvania Department of Environmental Protection Laboratory

Pesticide Schedule Used for Baseline Trends and Hot-Spot Trends Networks (SAC USGS2)	
Analyte	NWIS Parameter Code
EPA 525.2	
Acetochlor	49260
Alachlor	46342
Atrazine	39632
Chlorothalonil	49306
Chlorpyriphos (Dursban)	38933
Dichlobenil (added after April 2004)	63009
Fenpropathrin (added after April 2004)	64044
Hexachlorocyclopentadiene	34386
Metolachlor	39415
Metribuzin	82630
Pendimethalin	82683
Phosmet (added after April 2004)	61601
Simazine	04035

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
CHESTER COUNTY GROUND-WATER-QUALITY MONITORING PROGRAM

Ground-water samples were collected from selected wells in Chester County in August through November 2003 as part of the Chester County Ground-Water-Quality Monitoring Program. The monitoring program began in 1980 with objectives that include providing data on ground-water quality (1) near suspected sources of contamination; (2) in areas of different land use or different underlying geology; (3) for specific contaminants or constituents countywide; and (4) in watersheds as part of a regional assessment. Samples typically are collected each summer. In water years 2003 and 2004, 5 of a total of 17 wells sampled in the county were in the Susquehanna River Basin. Other data for this project can be found in the annual Water Data Report PA-04-1 (Delaware River Basin). For additional information, contact Lisa Senior at the USGS Pennsylvania Water Science Center, Exton Office, Suite 116, 770 Pennsylvania Drive, Exton, PA 19341; 610-321-2434; (email lasenior@usgs.gov).

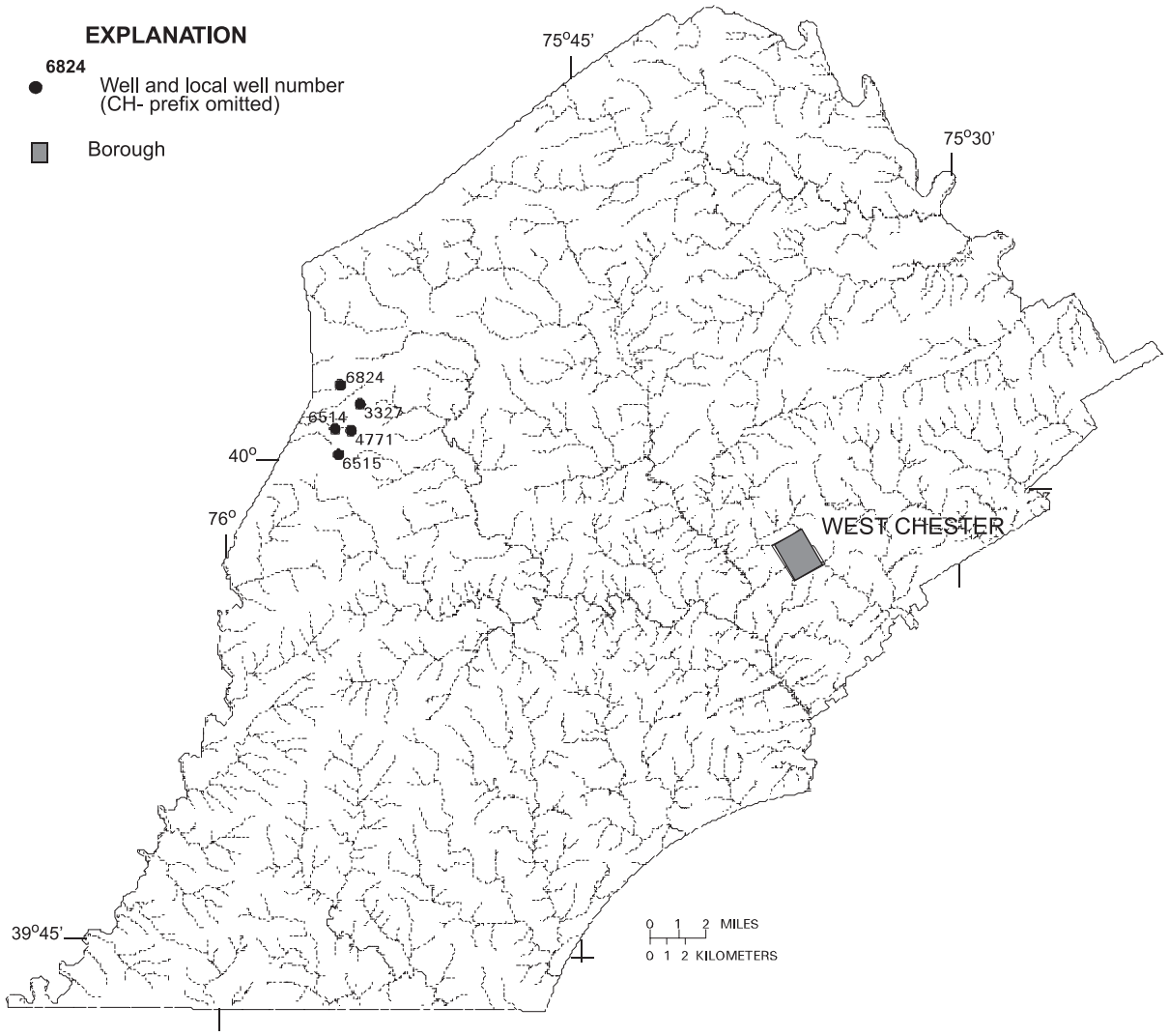


Figure 13.--Locations of selected wells sampled as part of the Chester County ground-water-quality monitoring program.

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
CHESTER COUNTY GROUND-WATER-QUALITY MONITORING PROGRAM

REMARKS.--Some values for "*dissolved*" parameters exceed values for the corresponding "*total*" parameter. These results are within the limits of analytical precision and methods. Replicate samples at one well (CH-3327) were collected for quality assurance (QA) purposes.

WATER-QUALITY DATA, **WATER YEARS OCTOBER 2002 TO SEPTEMBER 2004**

Local well number	QA sample type	Station number	Latitude	Longitude	Date	Time	Agency col-lecting sample, code (00027)	Agency ana-lyzing sample, code (00028)	Depth of well, feet below LSD (72008)	Depth to water level, feet below LSD (72019)
CH 3327	replicate	400212075541101	40 02 12 N	075 54 11 W	10-28-03	1250	1028	80020	195	--
CH 3327	replicate	400212075541101	40 02 12 N	075 54 11 W	10-28-03	1251	1028	80020	195	--
CH 4771		400122075543201	40 01 22 N	075 54 32 W	11-04-03	1050	1028	80020	210	66.41
CH 6514		400126075551001	40 01 25 N	075 55 09 W	08-11-03	0920	1028	80020	130	40.91
CH 6515		400037075550101	40 00 37 N	075 55 00 W	08-12-03	1300	1028	80020	100	27.01
CH 6824		400247075545901	40 02 47 N	075 54 59 W	10-30-03	1040	1028	80020	--	23.90

Local well number	Date	Alti-tude of land surface feet (72000)	Flow rate, instan-taneous gal/min (00059)	Pump or flow period prior to sam-pling, minutes (72004)	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)	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unf lab, µS/cm 25 degC (90095)	Specif. conduc-tance, wat unf µS/cm 25 degC (00095)
CH 3327	10-28-03	908	4.7	64	737	9.7	93	4.5	4.6	78	81
CH 3327	10-28-03	908	4.7	64	737	9.7	93	4.5	4.6	76	81
CH 4771	11-04-03	785	2.5	63	740	6.0	56	5.7	E6.5	116	114
CH 6514	08-11-03	680	3.8	--	740	8.4	83	5.2	5.2	110	109
CH 6515	08-12-03	810	1.0	--	741	8.4	88	4.7	5.0	472	479
CH 6824	10-30-03	840	5.2	60	746	9.3	88	5.4	E6.0	203	207

Local well number	Date	Temper-ature, air, deg C (00020)	Temper-ature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	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)
CH 3327	10-28-03	14.0	12.1	1.74	3.32	2.02	2.66	4.99	<.2	6.8	20.5
CH 3327	10-28-03	14.0	12.1	1.70	3.26	1.97	2.62	4.89	<.2	6.8	22.1
CH 4771	11-04-03	17.5	12.2	1.05	2.11	2.47	17.4	16.5	<.2	10.7	.9
CH 6514	08-11-03	24.0	13.7	3.95	6.42	2.92	2.69	8.03	<.2	12.8	7.0
CH 6515	08-12-03	28.0	16.5	9.96	10.0	2.28	62.7	113	<.2	8.7	24.7
CH 6824	10-30-03	11.0	12.8	5.27	4.80	2.84	23.6	42.9	<.2	11.3	4.2

Local well number	Date	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-phos-phate, water, fltrd, mg/L as P (00671)	Arsenic water, fltrd, µg/L (01000)	Boron, water, fltrd, µg/L (01020)	Iron, water, fltrd, µg/L (01046)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover -able, µg/L (01051)	Mangan-ese, water, fltrd, µg/L (01056)
CH 3327	10-28-03	<.04	1.27	<.008	<.18	<.2	13	E5	1.66	1.51	65.2
CH 3327	10-28-03	<.04	1.27	<.008	<.18	<.2	14	E4	1.79	1.51	64.8
CH 4771	11-04-03	<.04	1.56	<.008	<.02	<.2	7.8	133	1.28	19.9	134
CH 6514	08-11-03	<.04	5.81	<.008	<.02	<.3	11	E4	2.10	3.84	6.8
CH 6515	08-12-03	<.04	4.13	<.008	<.02	<.3	55	285	3.80	3.69	49.9
CH 6824	10-30-03	<.04	3.12	<.008	E.01	<.2	18	E4	2.54	1.90	3.1

Local well number	Date	Gross alpha 30 day recount wat unf Th-230, pCi/L (63016)	Gross alpha radioac 72 hr, wat unf Th-230, pCi/L (63014)	Gross beta 30 day recount wat unf Cs-137, pCi/L (63017)	Gross beta radioac 72 hr, wat unf Cs-137, pCi/L (63015)	Pb-210, water, unfltrd pCi/L (17501)	Rn-222 2-sigma water unfltrd pCi/L (76002)	Rn-222, water, unfltrd pCi/L (82303)
CH 3327	10-28-03	71	474	46	95	M	34	1180
CH 3327	10-28-03	60	436	41	95	M	33	1100
CH 4771	11-04-03	5	2	3	3	1	69	5300
CH 6514	08-11-03	M	1	4	3	1	57	3850
CH 6515	08-12-03	27	40	21	24	2	69	5340
CH 6824	10-30-03	12	22	5	5	3	120	15400

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2003

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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			

2004

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
29						

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 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)	1.233×10^{3}	cubic meter (m^3)
	1.233×10^{-3}	cubic hectometer (hm^3)
	1.233×10^{-6}	cubic kilometer (km^3)
	Flow	
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)	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 x ˚C) + 32