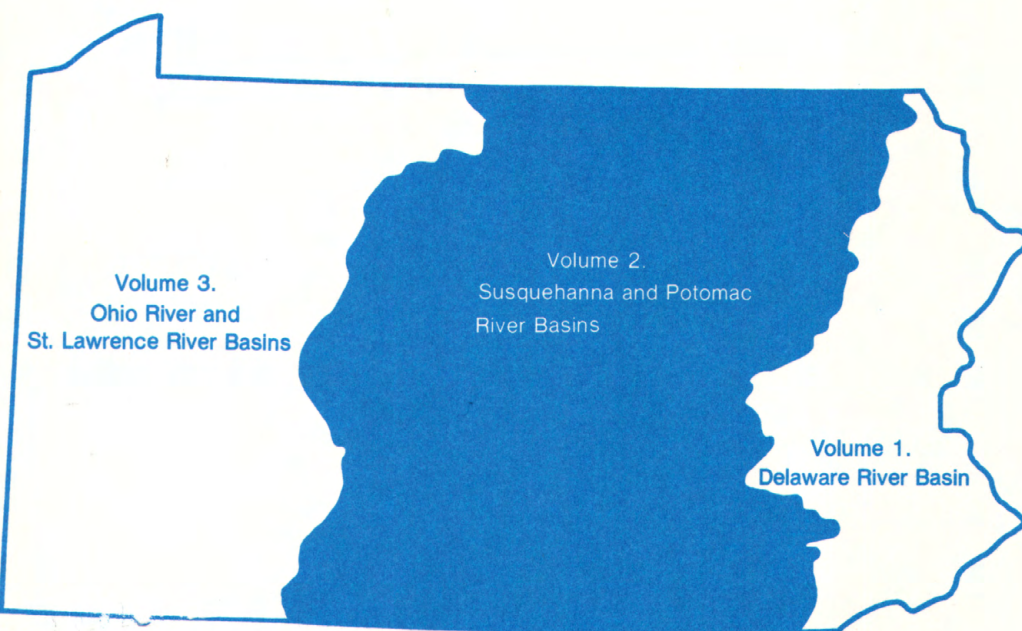
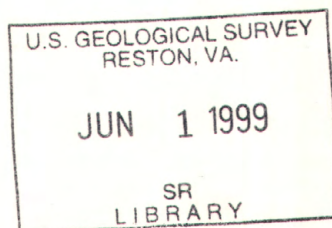


Water Resources Data Pennsylvania Water Year 1998

Volume 2. Susquehanna and Potomac River Basins

Water-Data Report PA-98-2



CALENDAR FOR WATER YEAR 1998

1997

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1998

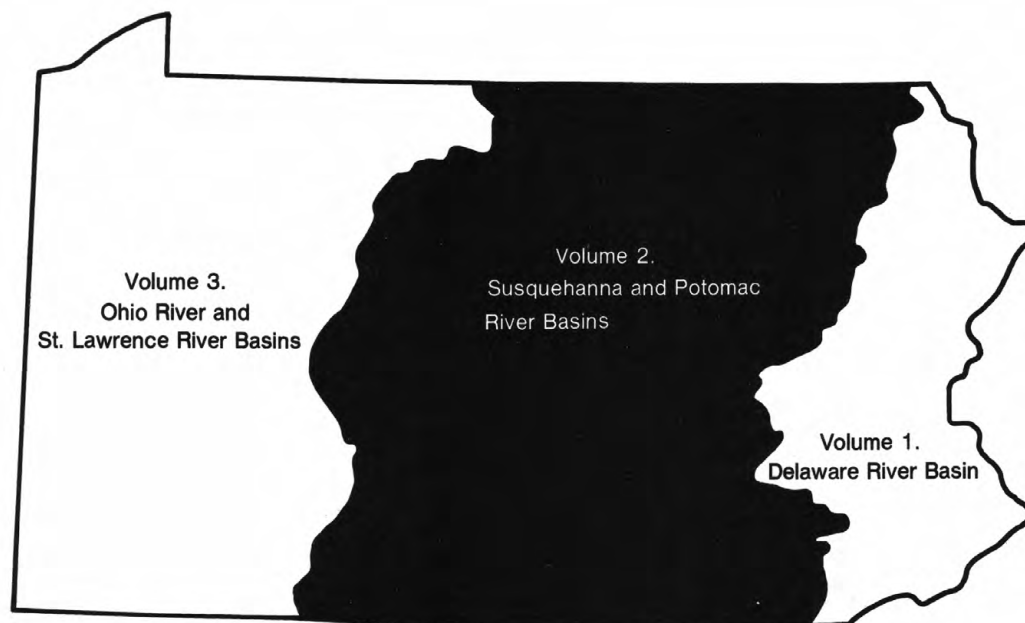
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26	27	28	29	30			24	25	26	27	28	29	30	28	29	30					
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JULY							AUGUST							SEPTEMBER							
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12	13	14	15	16	17	18	9	10	11	12	13	14	15	13	14	15	16	17	18	19	
19	20	21	22	23	24	25	16	17	18	19	20	21	22	20	21	22	23	24	25	26	
26	27	28	29	30	31		23	24	25	26	27	28	29	27	28	29	30				
							30	31													

Water Resources Data Pennsylvania Water Year 1998

Volume 2. Susquehanna and Potomac River Basins

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

Water-Data Report PA-98-2



U.S. DEPARTMENT OF THE INTERIOR

BRUCE BABBITT, Secretary

U.S. GEOLOGICAL SURVEY

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1999

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 River and St. Lawrence River Basins

Volume 2 was prepared in cooperation with the Commonwealth of Pennsylvania and other agencies under the general supervision of Gary N. Paulachok, District Chief, Pennsylvania District; Robert A. Hainly, Assistant District Chief for Hydrologic Surveillance and Data Management; Randall R. Durlin, Chief of the Hydrologic Surveillance Program, Lemoyne District Office, and William P. Schaffstall, Chief, Williamsport Project Office. It is the product of a team effort by dedicated personnel of the U.S. Geological Survey who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines, the following individuals contributed significantly to the collection, processing, and tabulation of the data:

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13. ABSTRACT (Maximum 200 words) Water resources data for the 1998 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 and 16 partial-record stations, and 23 special study and miscellaneous streamflow sites; (2) elevation and contents records for 12 lakes and reservoirs; (3) water-quality records for 13 gaging stations and 80 ungaged streamsites; (4) water-level records for 30 ground-water network observation wells and water-quality analyses of ground water from 8 wells; and (5) water-quality analyses at 34 special study ground-water wells. Site locations are shown in figures throughout the report. Additional water data collected at various sites not involved in the systematic data-collection program are also presented. These data together with the data in Volumes 1 and 3, represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State, local, and Federal agencies in Pennsylvania.				
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SURFACE-WATER STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

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

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

NORTH ATLANTIC SLOPE BASINS--Continued

	Station number	Page
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Yellow Breeches Creek:		
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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, (c) chemical)

GROUND WATER RECORDS

	Page
ADAMS COUNTY	
Well 395846077040601 Local number AD 146 (l)	405
BEDFORD COUNTY	
Well 400217078281901 Local number BD 150 (l)	406
BLAIR COUNTY	
Well 402452078271301 Local number BA 74 (l)	407
BRADFORD COUNTY	
Well 414330076280501 Local number BR 92 (l)	408
CAMERON COUNTY	
Well 412732078034201 Local number CM 13 (l)	409
CENTRE COUNTY	
Well 404518077575501 Local number CE 118 (l)	410
CLINTON COUNTY	
Well 411424077462201 Local number CN 1 (l)	411
CUMBERLAND COUNTY	
Well 400209077183301 Local number CU 2 (l)	412
DAUPHIN COUNTY	
Well 402118076462201 Local number DA 350 (l)	413
FRANKLIN COUNTY	
Well 394731077411701 Local number FR 332 (l)	414
HUNTINGDON COUNTY	
Well 401843078075401 Local number HU 301 (l)	415
JUNIATA COUNTY	
Well 402411077374801 Local number JU 351 (l)	416
LANCASTER COUNTY	
Well 400506076235201 Local number LN 514 (l)	417
Well 395947076145901 Local number LN 2037 (l,c)	418
Well 395947076145902 Local number LN 2038 (l,c)	420
Well 395947076145903 Local number LN 2039 (l,c)	422
Well 395947076145904 Local number LN 2040 (l,c)	424
Well 395957076155201 Local number LN 2041 (l,c)	426
Well 395957076155202 Local number LN 2042 (l,c)	428
Well 395957076155203 Local number LN 2043 (l,c)	430
Well 395957076155204 Local number LN 2044 (l,c)	432
LUZERNE COUNTY	
Well 411756076162701 Local number LU 294 (l)	434
LYCOMING COUNTY	
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MIFFLIN COUNTY	
Well 404140077354001 Local number MF 344 (l)	436
POTTER COUNTY	
Well 414640077493801 Local number PO 72 (l)	437
SNYDER COUNTY	
Well 403939076591001 Local number SN 130 (l)	438
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Well 415323077451301 Local number SQ 61 (l)	440
TIOGA COUNTY	
Well 414513077333701 Local number TI 100 (l)	441
UNION COUNTY	
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GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES

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

DISCONTINUED CONTINUOUS-RECORD SURFACE-WATER DISCHARGE STATIONS

Station name	Station number	Drainage area (mi ²)	Period of record (water years)
SUSQUEHANNA RIVER BASIN			
Anna S mine discharge #1 near Antrim	01548416	mine discharge	1978-81
Antes Creek near Jersey Shore	01549755	53.3	1974-77
Applemans Run above Light Street	01539200	1.72	1972-74
Applemans Run below Light Street	01539210	1.99	1972-74
Aughwick Creek near Orbisonia	01564000	174	1930-38
Bachman Run at Annville	01573095	7.3	1993-95
Bald Eagle Creek near Beech Creek Station	01548005*	562	1910-95
Bald Eagle Creek near Fawn Grove	01577400	.43	1986-89
Beck Creek near Cleona	01573086	7.87	1963-81
Blockhouse Creek at Buttonwood	01549300	22.3	1973-77
Blockhouse Creek tributary at Liberty	01549100	1.08	1973-77
Bowery Run near Quarryville	01578400	5.98	1963-81
Bradley Run near Ashville	01541308	6.77	1968-80
Brush Creek at Gapsville	01561000	36.8	1930-58
Brush Run, Site 2, near McSherrystown	01573810	.38	1985-91
Butler Creek at Gibson	01533800	7.38	1974-79
Cedar Run at Eberlys Mill	01571490	12.6	1993-95
Clark Creek near Carsonville	01568500	22.5	1937-96
Cocalamus Creek near Millerstown	01566500	57.2	1931-58
Codorus Creek at Pleasureville	01575585	267	1985-90
Codorus Creek near York	01575500*	222	1940-96
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	.70	1969-76
Conodoguinet Creek tributary No. 2B near Enola	01570260	.65	1969-76
Conodoguinet Creek tributary No. 3 near Enola	01570300	.38	1969-76

DISCONTINUED CONTINUOUS-RECORD SURFACE-WATER DISCHARGE STATIONS —Continued

Station name	Station number	Drainage area (mi ²)	Period of record (water years)
Crooked Creek at Tioga	01518500	122	1954-74
Dunning Creek at Yount	01560500	191	1930-39
East Branch Chillisquaque Creek near Washingtonville	01553600	9.48	1960-78
East Branch Codorus Creek tributary near Winterstown	01574800	5.17	1969-75
East Mahantango Creek at Klingerstown	01555400	44.7	1992-94
Elk Run near Mainesburg	01517000	10.2	1955-78
Fishing Creek at Bloomsburg	01540000	355	1914-28
Great Trough Creek near Marklesburg	01562500	84.6	1930-57
Hunter Drift discharge near Antrim	01548418	mine discharge	1978-81
Kishacoquillas Creek at Reedsville	01565000*	164	1940-70, 1984-85
Lackawanna River at Moosic	01535500	264	1914-28
Larrys Creek at Cogan House	01549780	6.80	1961-78
Little Conestoga Creek near Churchtown	01576085	5.82	1982-95
Little Conestoga Creek, Site 3A, near Morgantown	0157608335	1.42	1984-91
Little Fishing Creek at Evers Grove	01539500	56.5	1941-58
Little Juniata River at Tipton	01556500	93.7	1946-62
Little Juniata River near Tyrone	01557000	101	1940-45
Little Lost Creek at Oakland Mills	01565700	6.52	1964-81
Little Nescopeck Creek tributary near Freeland	01538510	mine discharge	1974-79
Lower Little Swatara Creek at Pine Grove	01572000	34.3	1920-32, 1981-84
Manada Creek at Manada Gap	01573500	13.5	1938-58
Middle Br. Wyalusing Creek trib. near Birchardsville	01532850	5.67	1965-79
Mitchell Mine discharge #2 near Antrim	01548413	mine discharge	1978-81
Moshannon Creek at Osceola Mills	01542000	68.8	1941-93
Muddy Creek at Castle Fin	01577500	133	1929-38, 1968-71
Nescopeck Creek near St. Johns	01538500	49.0	1920-26
North Bald Eagle Creek at Milesburg	01546000	119	1911-28, 1934
North Branch Mehoopany Creek near Lovelton	01533500	35.2	1941-58
N. Branch Sugar Creek trib. near Columbia Crossroads	01531250	8.83	1963-68
Paxton Creek near Penbrook	01571000‡	11.2	1940-50, 1985-89 1992-95

DISCONTINUED CONTINUOUS-RECORD SURFACE-WATER DISCHARGE STATIONS —Continued

Station name	Station number	Drainage area (mi ²)	Period of record (water years)
Pequea Creek at Martic Forge	01576787	148	1977-81, 1993-95
Pequea Creek tributary near Mt. Nebo	01576788	0.20	1979-86
Pine Creek near Waterville	01549000	750	1909-20
Quittapahilla Creek near Bellegrove	01573160	74.2	1976-94
Raystown Branch Juniata River near Huntingdon	01563000 ^a	957	1947-71
Sand Spring Run near White Deer	01553130	4.93	1968-81
Schell Run at Tyrone	01557100	1.68	1958-62
Shamokin Creek near Shamokin	01554500	54.2	1938-93
Shaver Creek near Petersburg	01558500	46.4	1930-38
Solomon Creek at Wilkes-Barre	01537500	15.7	1940-90
South Branch Codorus Creek near York	01575000	117	1928-95
South Branch Tunkhannock Creek near Montdale	01533950	12.6	1961-78
South Fork Beech Creek near Snow Shoe	01547800	12.2	1969-81
Spring Creek near Bellefonte	01547000	136	1911-19
Standing Stone Creek near Huntingdon	01559500	128	1930-58
Steam Valley Run at Buttonwood	01549350	5.34	1973-77
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
Sulphur Springs Creek near Manns Choice	01559700	5.28	1962-78
Susquehanna River near McCalls Ferry	01577000	26,800	1904-11
Swarr Run near Landisville	01576697	8.67	1985-89
Swatara Creek above highway bridge 895 at Pine Grove	01571919	72.6	1982-84
Swatara Creek below Ravine	01571827	46.3	1985-87
Swatara Creek near Suedberg	01572030	124	1985-87
Toby Creek at Luzerne	01537000	32.4	1941-93
Trexler Run near Ringtown	01540200	1.77	1963-81
Tuscarora Creek near Port Royal	01566000 [*]	214	1911-58
West Branch Susquehanna River at Karthaus	01542500 [*]	1,462	1940-95
White Deer Cr. above Sand Spring Run near White Deer	01553120	17.8	1968-73

DISCONTINUED CONTINUOUS-RECORD SURFACE-WATER DISCHARGE STATIONS —Continued

Station name	Station number	Drainage area (mi ²)	Period of record (water years)
White Deer Creek near White Deer	01553140	40.0	1968-73
Wilson Creek above Sand Run near Antrim	01548408	12.6	1978-82
POTOMAC RIVER BASIN			
Conococheague Creek near Fayetteville	01614090*	5.05	1961-81
Evitts Creek near Centerville	01603500	30.2	1933-82
Licking Creek near Sylvan	01613500*	158	1930-41
Wills Creek below Hyndman	01601000	146	1951-67

‡ 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.

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

The following are used to identify the record type: SC (specific conductance); pH (pH); Temp (water temperature); DO (dissolved oxygen); Turb (turbidity, in JCU); 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				
Applemans Run above Light Street	01539200	1.72	Turb, Sed	1972-74
Applemans Run below Light Street	01539210	1.99	Turb, Sed	1972-74
Bald Eagle Creek at Blanchard	01547500	339	Temp Temp ^b Temp ^a Sed	1957 1967-81 1982-85 1956-58
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
Basswood Run near Antrim	01548417	.57	Sed	1978-80
Beech Creek at Monument	01547950	152	SC ^a , pH ^a , Temp ^a DO ^a	1969-80 1976-78
Bixler Run near Loysville	01567500	15.0	Temp Temp ^b Sed	1957-62 1963-65 1954-71
Blockhouse Creek at Buttonwood	01549300	22.3	Temp ^a , Turb, Sed	1973-77
Blockhouse Creek near English Center	01549500	37.7	Temp ^a , Turb, Sed	1973-77
Blockhouse Creek tributary at Liberty	01549100	1.08	Temp ^a , Turb, Sed	1973-77
Cedar Run at Eberlys Mill	01571490	12.6	SC ^a , Temp ^a	1993-95

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

Station name	Station number	Drainage area (mi ²)	Type of Record	Period of record (water years)
Conestoga River at Lancaster	01576500	324	SC Temp Sed	1948-50, 1964-70, 1974-75 1948-50, 1959-70, 1974-75 1974-75
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
Corey Creek near Mainesburg	01516500	12.2	Temp ^b Temp Sed	1960-61 1959, 1962 1954-67 ^c
Cowanesque River near Lawrenceville	01520000	298	Temp ^a	1972-86
East Mahantango Creek at Klingerstown	01555400	44.7	SC ^a , Temp ^a	1993-95
Elk Run near Mainesburg	01517000	10.2	Temp ^b Temp Sed	1958-59 1957, 1960-62 1955-67
Fishing Creek near Bloomsburg	01539000	274	Sed	1967-69
Juniata River at Huntingdon	01559000	816	Temp	1948-51, 1981-86 ^c
Lackawanna River at Old Forge	01536000	332	Temp	1949-51
Lower Little Swatara Creek at Pine Grove	01572000	34.3	SC Temp, Sed	1981, 1983-84 1981-84
Marsh Creek at Blanchard	01547700	44.1	Temp Sed	1957 1956-58
Muddy Creek at Muddy Creek Forks	01577300	71.9	SC ^a , Temp ^a	1993-95

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

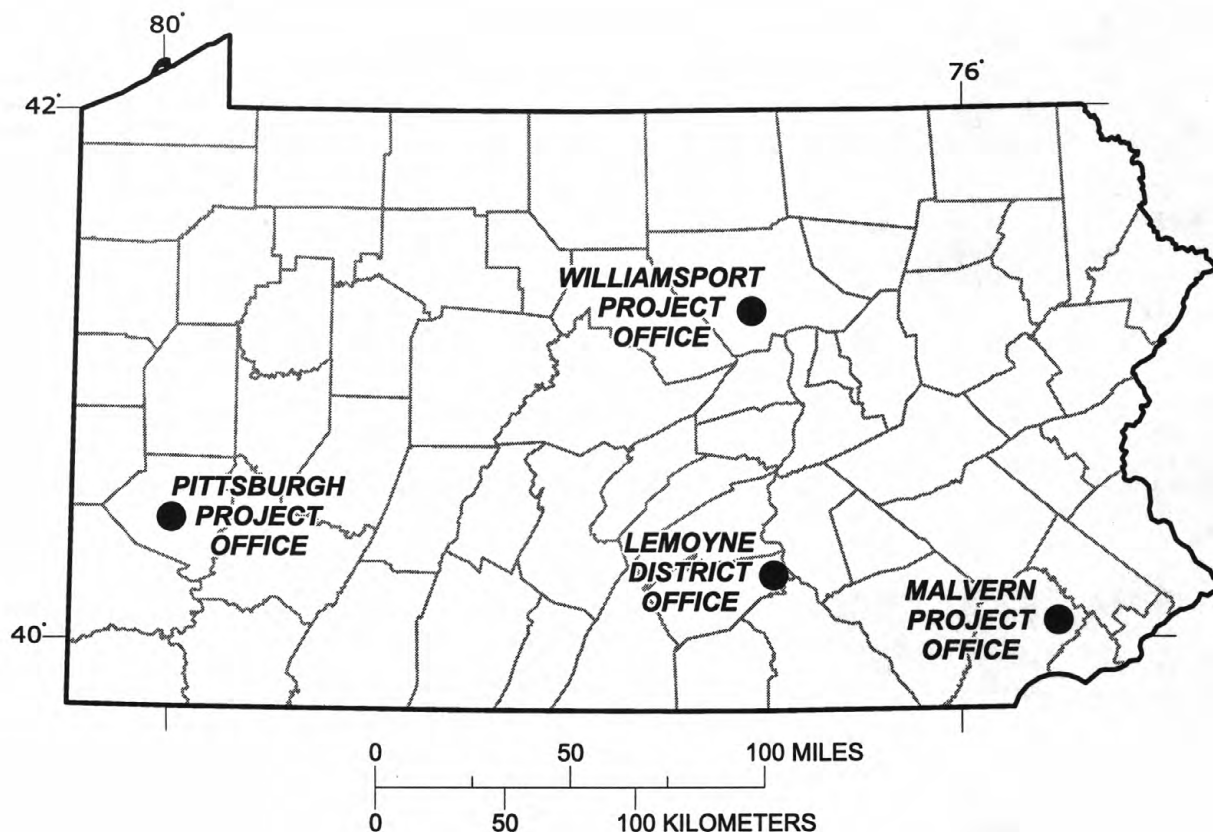
Station name	Station number	Drainage area (mi ²)	Type of Record	Period of record (water years)
Raystown Branch Juniata River below Raystown Dam near Huntingdon	01563200	960	Temp ^a	1978-86 ^c
Raystown Branch Juniata River near Huntingdon	01563000	957	Temp	1947-50
Shamokin Creek near Shamokin	01554500	54.2	Temp	1959-61
Sherman Creek at Shermans Dale	01568000	200	Temp ^b	1954-56
Steam Valley Run at Buttonwood	01549350	5.34	Temp ^a , Turb, Sed	1973-77
Stony Creek at Water Tank Trail near Dauphin	01568750	21.9	Temp ^b	1974-76
Susquehanna River at Danville	01540500	11,220	SC Temp Sed	1946-52, 1963-76 1948-53, 1957-70, 1975-76 1974-76
Susquehanna River at Falls	01534090	9,440	SC Temp	1945-51 1947-53
Susquehanna River at Harrisburg	01570500	24,100	SC ^a , pH ^a , Temp ^a , DO ^a Sed	1974-79 1964-81 ^c
Susquehanna River at Towanda	01531500	7,797	Sed	1951-54
Swatara Creek above Hwy bridge 895 at Pine Grove	01571919	72.6	SC Temp, Sed	1983-84 1982-84
Swatara Creek at Harper Tavern	01573000	337	SC Temp Sed	1977-79 1959-61, 1977-79 1959-60, 1977-79
Tioga River at Tioga Junction	01518700	446	SC ^a , pH ^a , Temp ^a , DO ^a	1977-88
Tioga River near Mansfield	01516350	153	SC ^a , pH ^a , Temp ^a DO ^a	1977-88 ^c 1977-78
West Branch Susquehanna River at Bower	01541000	315	Sed	1964-67
West Branch Susquehanna River at Lewisburg	01553500	6,847	SC, Temp Sed	1944-53 ^c , 1957-58, 1975-76 1975-76

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 Lock Haven	01545800	3,337	SC pH Temp	1946-51, 1959, 1964-72 1963-72 1946-51, 1958-72
West Branch Susquehanna River at Renovo	01545500	2,975	SC ^a , pH ^a , Temp ^a DO	1967-88 ^c 1975-78
West Branch Susquehanna River at Williamsport	01551500	5,682	SC ^a , pH ^a , Temp ^a	1980-88 ^c
Wilson Creek above Sand Run near Antrim	01548408	12.6	Sed	1978-82

^a Max, Min, Mean values.^b Max, Min values.^c Most years.

PENNSYLVANIA DISTRICT OFFICE LOCATIONS AND ADDRESSES



District and Project Offices:
U.S. Geological Survey
Water Resources Division
840 Market Street
Lemoyne, PA 17043-1586
(717) 730-6900
FAX (717) 730-6997

Williamsport Project Office:
U.S. Geological Survey
Water Resources Division
439 Hepburn Street
Williamsport, PA 17701
(570) 323-7127
FAX (570) 323-2137

Pittsburgh Project Office:
U.S. Geological Survey
Water Resources Division
1000 Church Hill Road
Pittsburgh, PA 15205
(412) 490-3800
FAX (412) 490-3828

Malvern Project Office:
U.S. Geological Survey
Water Resources Division
Great Valley Corporate Center
111 Great Valley Parkway
Malvern, PA 19355
(610) 647-9008
FAX (610) 647-4594

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with State, municipal, and Federal agencies, collects a large amount of data pertaining to the water resources of Pennsylvania each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the State. To make these data readily available to interested parties outside the Geological Survey, these data are published annually in this report series entitled "Water Resources Data - Pennsylvania, Volumes 1, 2, and 3." Volume 1 contains data for the Delaware River Basin; Volume 2, the Susquehanna and Potomac River Basins; and Volume 3, the Ohio River and St. Lawrence River Basins.

This report, Volume 2, contains: (1) discharge records for 85 continuous-record streamflow-gaging stations, 16 partial-record stations, and 23 special study and miscellaneous streamflow sites; (2) elevation and contents records for 12 lakes and reservoirs; (3) water-quality records for 13 streamflow gaging stations and 80 partial-record and project stations; and (4) water-level records for 30 ground-water network observation wells and water-quality analyses of ground water from 8 wells; and (5) water-quality analyses at 34 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-98-2." 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, the data were published in two 5-year reports. Data prior to 1961 are included in two reports: "Compilation of Records of Surface Waters of the United States through 1950," and "Compilation of Records of Surface Waters of the United States, October 1950 to September 1960." Data for Pennsylvania are published in Parts 1, 3, and 4. Data on chemical quality, temperature, and suspended sediment for the 1941-70 water years were published annually under the title "Quality of Surface Waters of the United States," and ground-water levels for the 1935-74 water years were published annually under the title "Ground-Water Levels in the United States." The above mentioned Water-Supply Papers may be consulted in the libraries of the principal cities of the United States and may be purchased from the U.S. Geological Survey, Information Services, Box 25286, Denver, CO 80225.

Information for ordering specific reports may be obtained from the Pennsylvania District Office at the address on the back of the title page or by phoning the Scientific and Technical Products Section at (717) 730-6940. Information on the availability of unpublished data or statistical analyses may be obtained from the District Information Specialist (telephone (717) 730-6916) or FAX (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, James M. Seif, Secretary, through the following:
Office of Water Management, Hugh V. Archer, Deputy Secretary;
Bureau of Water Supply Management, Frederick Marrocco, Acting Director;
Bureau of Water Quality Protection, Glenn E. Maurer, Director;
Bureau of Watershed Conservation, Stuart I. Gansell, Director;
Office of Mineral Resources Management, Robert C. Dolence, Deputy Secretary;
Bureau of Mining and Reclamation, Roderick A. Fletcher, Director.
Office of Management and Technical Services, Kenwood Giffhorn, Deputy Secretary;
Bureau of Laboratories, Floyd D. Kefford, Director.
Borough of Chambersburg, Robert P. Morris, Mayor.
City of Sunbury, David L. Persing, Mayor.
City of Williamsport, Steven W. Cappelli, Mayor.

COOPERATION--Continued

Franklin County Watershed Association, Mark Dubin, Director.
Letort Regional Authority, Brian Fischbach, Executive Director.
Luzerne County Emergency Management Agency, James M. Siracuse, Director.
New Oxford Municipal Authority, Earl E. Mummert, Chairman.
Susquehanna River Basin Commission, Paul O. Swartz, Executive Director.
Town of Bloomsburg, Mary Lenzini Howe, Mayor.
Union County Commissioners, Ruth W. Zimmerman, Chairman.
University Area Joint Authority, Cory R. Miller, Executive Director.

Federal Energy Regulatory Commission Licensees:

Susquehanna Electric Company.
Safe Harbor Water Power Corporation.

The following Federal agencies assisted in the data-collection program by providing funds or services:

Corps of Engineers, U.S. Army, Baltimore District, in collecting records for 30 streamflow-gaging stations, 11 reservoir stations, 7 crest-stage gages and operating 42 satellite telemetry units;

National Weather Service, NOAA, U.S. Department of Commerce, in collecting records for 10 partial-record stations and operating 36 satellite telemetry units.

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 mi² (square miles). Most of this area, 20,962 mi², is in central 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 32 selected National Oceanic and Atmospheric Administration climatological sites located in the Susquehanna River Basin in Pennsylvania, indicate the annual precipitation for the Susquehanna River Basin in central Pennsylvania was normal. The basin generally received below normal precipitation for the months of October, August and September. The greatest deficit basinwide, with an average of 1.83 inches below normal, occurred in October and September. The basin generally received above normal precipitation for the months of November, January, February, April, May and June. The greatest surplus basinwide, with an average of 4.13 inches above normal, occurred in June. Basinwide, precipitation totals for the water year averaged 46.2 inches compared to the historical average of 39.5 inches.

As an example, the 1998 monthly precipitation was compared with the 1961-90 mean monthly 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, 1997-98) and National Weather Service records.

Annual streamflow for Susquehanna River Basin streams during the 1998 water year was normal (defined as streamflows between the 25th and 75th percentiles as compared to the annual mean streamflows for 1961-1990). Two U.S. Geological Survey streamflow-gaging stations within the basin were selected as indicators of streamflow conditions basinwide. Figure 2 compares the 1998 water year monthly and annual mean streamflows with the median of the monthly and annual mean streamflows for 1961 through 1990 at the indicator sites. The 1998 water year annual mean streamflow was 120 percent of the 1961-90 median of the mean annual streamflows in the West Branch Susquehanna River at Williamsport, and 105 percent of the 1961-90 median of the mean annual streamflows in the Conestoga River at Lancaster.

Monthly mean streamflows were above normal in the West Branch Susquehanna River for the months of November, January, and February through May; in the Conestoga River for the months of March, May and June. Below normal streamflows were recorded in the West Branch Susquehanna River for the months of June, August and September; in the Conestoga River for the months of October and December (fig. 2). The monthly mean discharge in the Conestoga River during May was the second highest in the last 30 years and the highest since 1989. The monthly mean discharge in the West Branch Susquehanna River during September was the second lowest in the last 30 years and the lowest since 1964.

No major flooding occurred within the basin during the water year. At sites with at least 5 years of continuous record the existing peaks of record were not exceeded.

A drought watch for the entire Susquehanna River Basin, declared on July 17, 1997 by the Susquehanna River Basin Commission, continued into the 1998 water year. This watch was cancelled on February 19, 1998 (Ondrejlik, 1998).

Reservoirs

The combined storage of 12 major reservoirs in the Susquehanna River Basin within Pennsylvania decreased slightly from 674,007 acre-feet (45 percent of total combined capacity) on September 30, 1997, to 668,187 acre-feet (44.6 percent of total combined capacity) on September 30, 1998. Maximum and minimum storage in individual reservoirs varies throughout the year depending on the purpose and capacity of each reservoir.

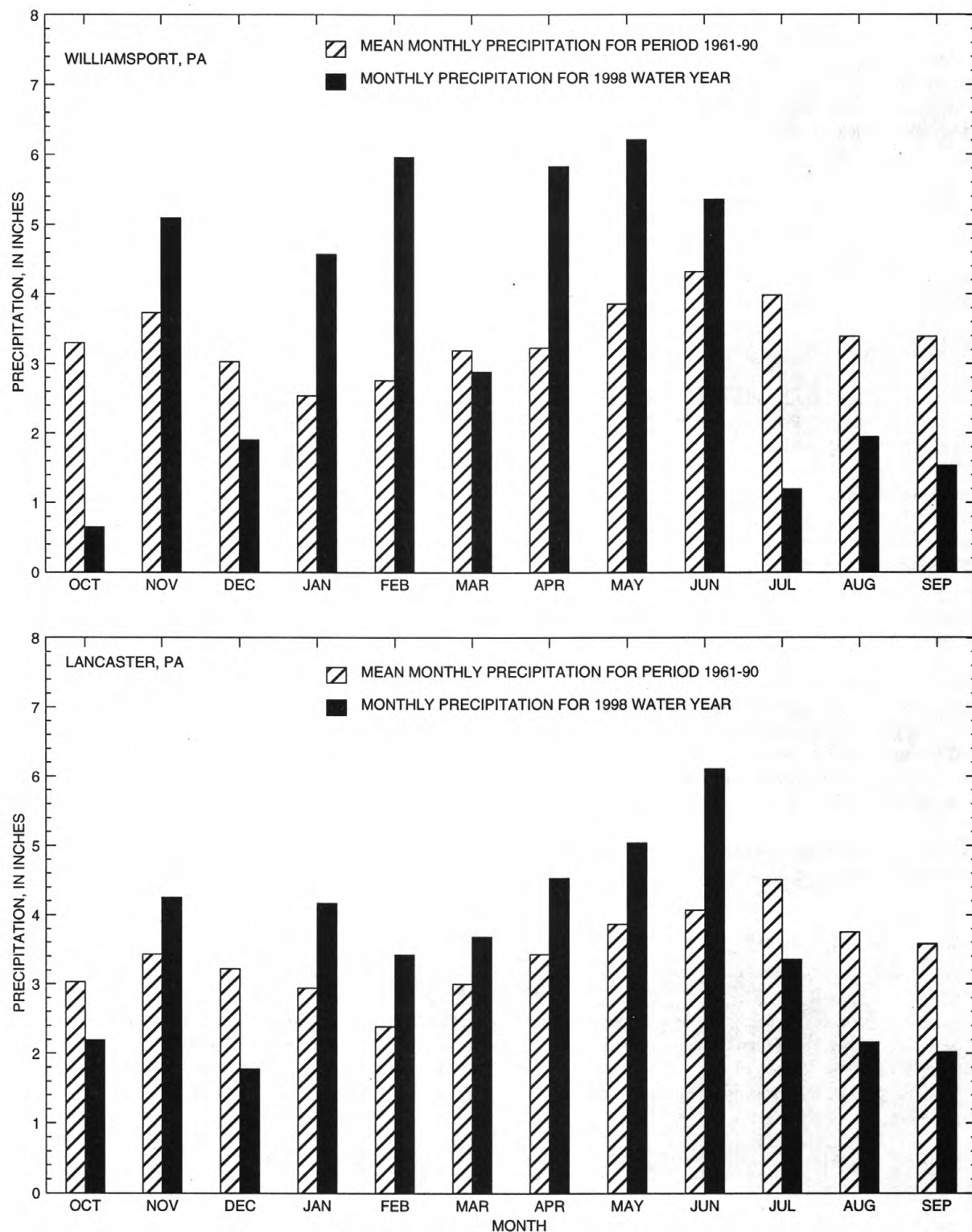


Figure 1.--Comparison of monthly precipitation at two National Oceanic and Atmospheric Administration (NOAA) climatological stations during the 1998 water year and mean monthly precipitation for the period 1961 through 1990.

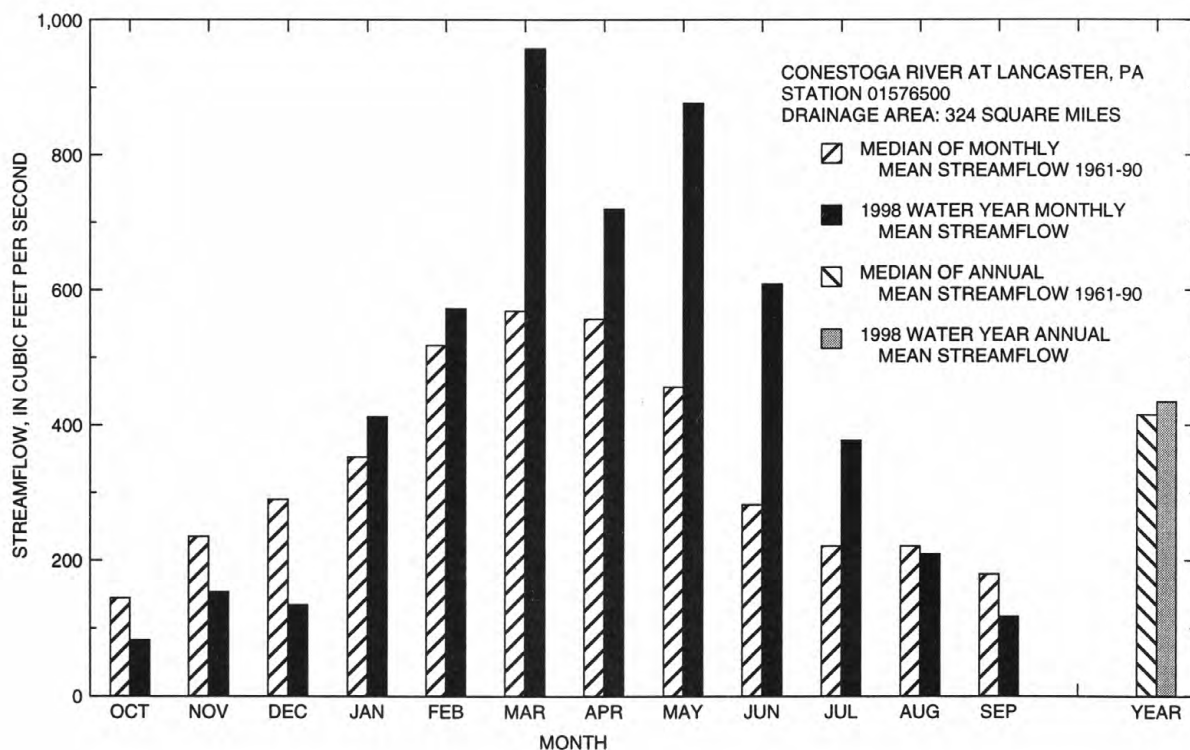
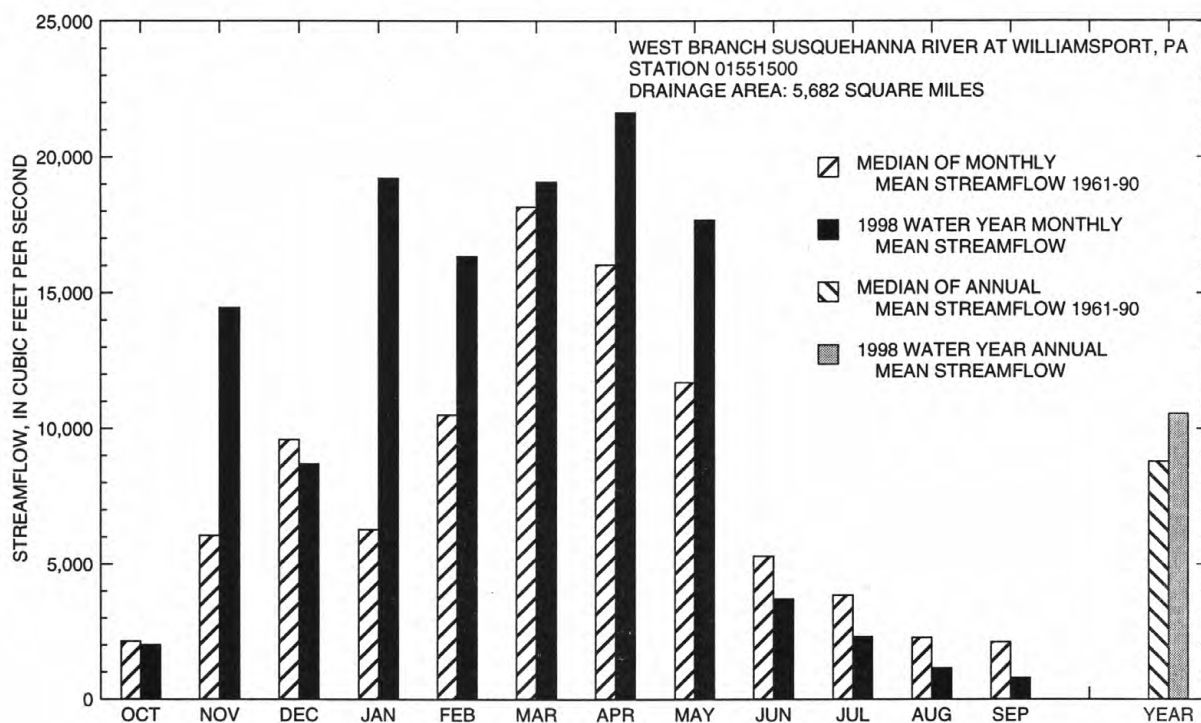


Figure 2.--Comparison of streamflow at two long-term streamflow-gaging stations during the 1998 water year and the median monthly and annual mean streamflow for the period 1961 through 1990.

Ground Water

Ground-water levels, which were generally normal throughout all of the Susquehanna River Basin at the end of the 1997 water year (Durlin and Schaffstall, 1998), continued in the normal range into the fall season of the 1998 water year. During the winter season all of the wells within the Basin, except one, were normal to much-above normal with the majority (14 of 22) much-above normal. Throughout spring and continuing into summer, ground-water levels reflected a gradual falling trend. By the end of summer, water levels had generally returned to within normal levels. The relation between the 1998 water year and long-term seasonal ground-water levels is shown in figure 3. Ground-water levels during the water year generally reflected the seasonal precipitation variations (fig. 1). Annual and seasonal variations in ground-water levels are indicated by the following 1998 water-year conditions: 64 percent of the wells at the normal level in the fall; 86 percent of the wells above to much-above normal in the winter; 95 percent of the wells normal to much-above normal in the spring; and, 77 percent of the wells at the normal to below-normal level in the summer. Four of the wells had new peak high-water levels recorded during the spring and summer seasons. They were in Bedford, Centre, Cumberland, and Tioga counties. No new lowest-ever water levels were recorded this water year.

References

- Durlin, R. R., and Schaffstall W. P., 1998, Water resources data, Pennsylvania, water year 1997: U.S. Geological Survey Water-Data Report PA-97-2, 439 p.
- U.S. Department of Commerce, 1997-98, Climatological Data for Pennsylvania, Volume 102-103: National Oceanic and Atmospheric Administration, National Environmental Satellite, Data, and Information Service.
- Ondrejlik, David J., Monthly Report of River Conditions, February 1998; U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, Hydrologic Service Area (HSA), State College, PA; March 9, 1998, 3 p.

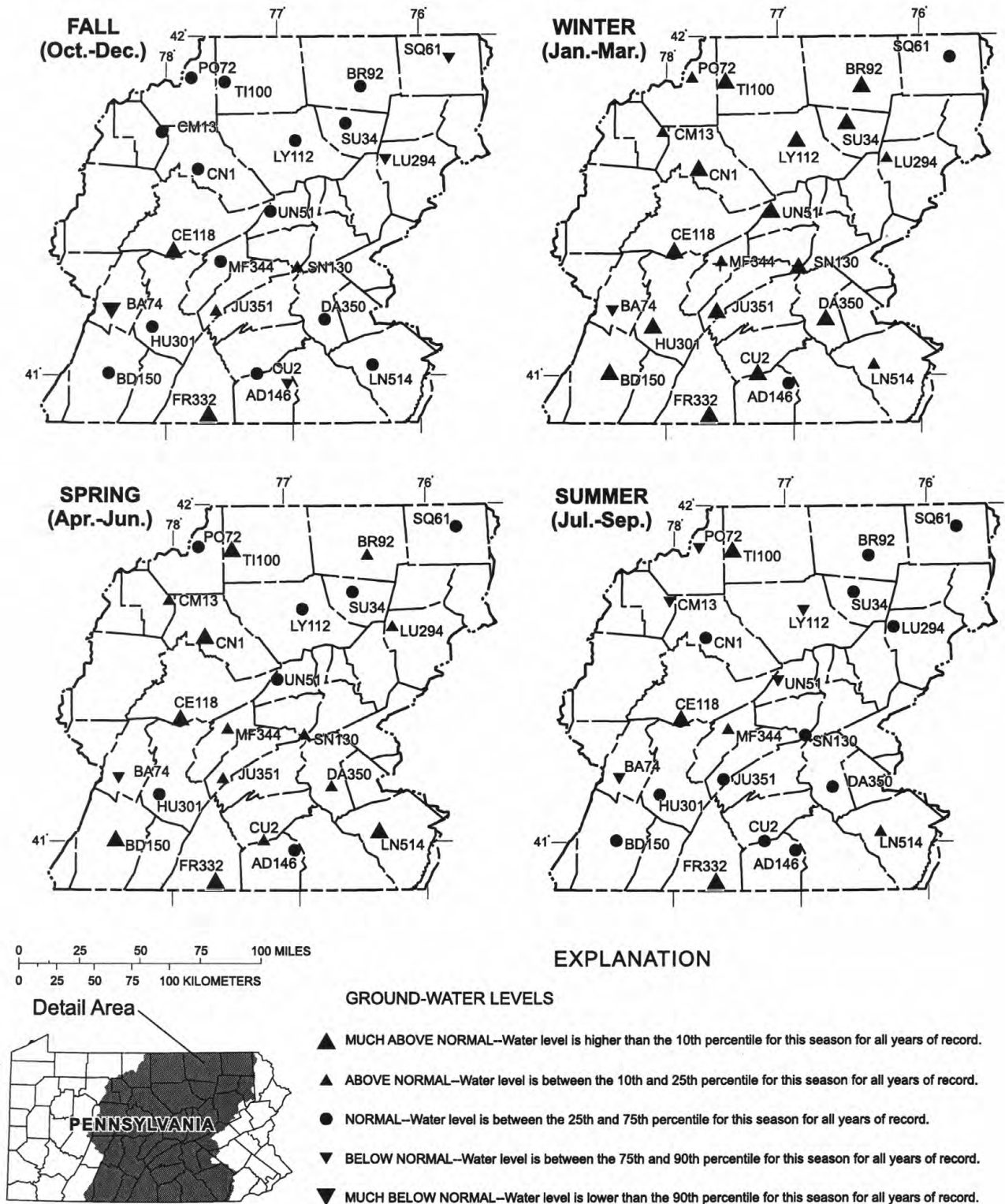


Figure 3.--Relation between 1998 seasonal mean ground-water levels and long-term mean ground-water levels [Seasonal percentile values were determined by ranking the average monthly water levels for each month in the season from highest to lowest for all years of record and averaging the ranks for the three months. A water level that is higher than the seasonal 10th percentile value would be expected to occur only once in a ten-year period. Conversely, a water level that is lower than the seasonal 90th percentile value also would be expected to occur only once during a ten-year period.]

SPECIAL NETWORKS AND PROGRAMS

The **Hydrologic Bench-Mark Network** is a network of 50 sites in small drainage basins throughout the country that provide consistent data on hydrology, water quality, and related factors in representative undeveloped watersheds nationwide. This network also provides analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by human activities. The station operated as part of this program in the Susquehanna River Basin in Pennsylvania is Young Womans Creek near Renovo (01545600). There are no stations in the Potomac River Basin in Pennsylvania participating in this program. Beginning in 1997, the water quality component of the Bench-Mark Network has been temporarily suspended.

The **National Stream-Quality Accounting Network** (NASQAN) monitors the water quality of large rivers within four of the Nation's largest river basins--the Mississippi, Columbia, Colorado, and Rio Grande. The network consists of 39 stations. Samples are collected with sufficient frequency that the flux of a wide range of constituents can be estimated. The objective of NASQAN is to characterize the water quality of these large rivers by measuring concentration and mass transport of a wide range of dissolved and suspended constituents, including nutrients, major ions, dissolved and sediment-bound heavy metals, common pesticides, and inorganic and organic forms of carbon. This information will be used (1) to describe the long-term trends and changes in concentration and transport of these constituents; (2) to test findings of the National Water-Quality Assessment Program (NAWQA); (3) to characterize processes unique to large-river systems such as storage and re-mobilization of sediments and associated contaminants; and (4) to refine existing estimates of off-continent transport of water, sediment, and chemicals for assessing human effects on the world's oceans and for determining global cycles of carbon, nutrients, and other chemicals. There are no stations in the Susquehanna or Potomac River Basins in Pennsylvania currently participating in this program.

The **National Atmospheric Deposition Program/National Trends Network** (NADP/NTN) provides continuous measurement and assessment of the chemical climate of precipitation throughout the United States. As the lead federal agency, the USGS works together with over 100 organizations to accomplish the following objectives; (1) Provide a long-term, spatial and temporal record of atmospheric deposition generated from a network of 191 precipitation chemistry monitoring sites. (2) Provide the mechanism to evaluate the effectiveness of the significant reduction in SO₂ emissions that began in 1995 as implementation of the Clean Air Act Amendments (CAAA) occurred, and (3) Provide the scientific basis and nationwide evaluation mechanism for implementation of the Phase II CAAA emission reductions for SO₂ and NO_x scheduled to begin in year 2000.

Data from the network, as well as information about individual sites, are available through the World Wide Web at [<http://nadp.nrel.colostate.edu/NADP>].

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

Assessment activities are being conducted in 53 study units (major watersheds and aquifer systems) that represent a wide range of environmental settings nationwide and that account for a large percentage of the Nation's water use. A wide array of chemical constituents will be measured in ground water, surface water, streambed sediments, and fish tissues. The coordinated application of comparative hydrologic studies at a wide range of spatial and temporal scales will provide information for decision making by water-resources managers and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

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

EXPLANATION OF THE RECORDS

The surface-water and ground-water records in this report are for the 1998 water year that began October 1, 1997, and ended September 30, 1998. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, water-quality data for surface and ground water, and ground-water-level data. The locations of 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 the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

Each data station in this report, whether 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 indentation in a list of stations in the front of the report. Each indentation represents one rank. This downstream-order system of indentation shows which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

The station-identification number is assigned in downstream order. In assigning station numbers, no distinction is made between partial-record stations and continuous-record stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. A station number can be from 8 to 15 digits in length and normally appears to the left of the station name. For example, an 8-digit number for a station such as 01570500, includes a 2-digit part number "01" plus a 6-digit downstream-order number "570500." The part number designates major river basins; for example, part "01" is the North Atlantic Slope Basin.

Latitude-Longitude System

The identification numbers for wells and miscellaneous surface-water sites are assigned based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote the degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the wells or other sites within a 1-second grid (fig. 4).

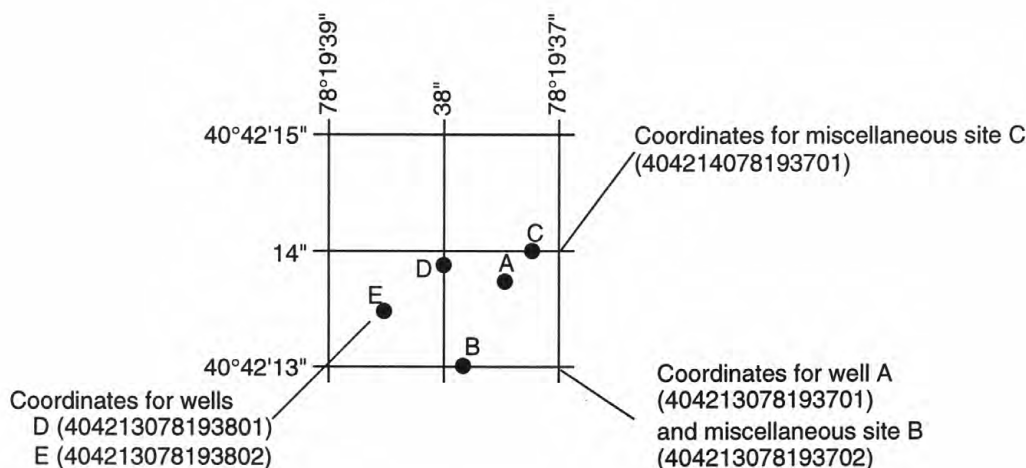


Figure 4.--System for numbering wells and miscellaneous sites (latitude and longitude).

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

Records of Stage and Water Discharge

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

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "*Crest-stage partial-record stations*," or "*Low-flow partial-record stations*." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this report. Location of all continuous-record and partial-record stations for which data are given in this report are shown in figures 5-8.

Data Collection and Computation

The data obtained at a continuous-record gaging station on a stream consist of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relation between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage, with solid-state electronic data loggers, or with data collection platforms (DCP's) that electronically record and transmit the data via satellite to ground receiving stations. Measurements of discharge are made with current meters using methods adopted by the Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, in Water-Supply Paper 2175, and the U.S. Geological Survey Techniques of Water-Resources Investigations (TWRI's), Book 3, Chapter A1 through A19 and Book 8, Chapters A2 and B2. The methods are consistent with the American Society for Testing and Materials (ASTM) standards and generally follow the standards of the International Organization for Standards (ISO).

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

Daily mean discharges are computed by applying each recorded stage value (gage height) to the stage-discharge curves or tables. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on the individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control. For some stations, formation of ice in the winter may so obscure the stage-discharge relation that daily mean discharges must be estimated from other information such as temperature and precipitation records, notes of observations, and records for other stations in the same or nearby basins for comparable periods.

At some stream-gaging stations, the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations, the stage-discharge relation is affected by changing stage; at these stations, the rate of change in stage is used as a factor to compute discharge.

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

For some gaging stations, there are periods when no gage-height data are collected or when the recorded gage height is so imprecise or incorrect that it cannot be used to compute daily mean discharge or end-of-day contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods, the daily discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, "*Data Presentation*" (REMARKS paragraph) and "*Identifying Estimated Daily Discharge*."

Data Presentation

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

Station manuscript

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

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

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

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

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

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

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

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

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

PEAK DISCHARGES FOR CURRENT YEAR.--Peaks given here are similar to those found in the summary statistics table, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and greater than a selected base discharge (see Definition of Terms) are presented under this heading. The peaks greater than the base discharge, excluding the highest one, are referred to as secondary peaks. Peak discharges are not published for streams for which the peaks are subject to substantial control by man. The time of occurrence for peaks is expressed in 24-hour local standard time. For example, 12:30 a.m. is 0030, and 1:30 p.m. is 1330.

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

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

Headings for AVERAGE DISCHARGE, EXTREMES FOR PERIOD OF RECORD, AND EXTREMES FOR CURRENT YEAR have been deleted and the information contained in these paragraphs, except for the listing of secondary instantaneous peak discharges in the PEAK DISCHARGES FOR CURRENT YEAR paragraph, is now presented in the tabular summaries following the discharge table or in the REMARKS paragraph, as appropriate. No changes have been made to the data presentations of lake contents.

Data table of daily mean values

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

Statistics of monthly mean data

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

Summary statistics

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

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

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

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

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

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

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

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

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

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

INSTANTANEOUS PEAK FLOW.--The maximum instantaneous discharge occurring for the water year or for the designated period. Note that secondary instantaneous peak discharges above a selected base discharge are stored in computer files for stations meeting certain criteria. Those discharge values may be obtained by writing to the District Office or from the World Wide Web at [<http://pa.water.usgs.gov/>]. (See address on back of title page of this report.)

INSTANTANEOUS PEAK STAGE.--The maximum instantaneous stage occurring for the water year or for the designated period. If the dates of occurrence for the instantaneous peak flow and instantaneous peak stage differ, the REMARKS paragraph in the manuscript or a footnote may be used to provide further information.

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

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

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

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

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

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

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

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

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

Identifying Estimated Daily Discharge

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

Accuracy of the Records

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

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

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft³/s (cubic foot per second); to the nearest tenth from 1.0 to 10 ft³/s; to whole numbers from 10 to 1,000 ft³/s; and to 3 significant figures when greater than 1,000 ft³/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

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

Other Records Available

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

Information on the availability of unpublished data or statistical analyses may be obtained from the District Information Specialist (telephone (717) 730-6916).

Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies.

Classification of Records

Water-quality data for surface-water sites are grouped into one of three classifications. A continuing-record station is a site where data are collected on a regularly scheduled basis. Specifically, a continuing record station is a site which meets one or all of the following conditions: (1) When chemical samples are collected daily or monthly for 10 or more months during the water year. (2) When water temperature records include observations taken one or more times daily. (3) When sediment discharge records include periods for which sediment loads are computed and are considered to be representative of the runoff for the water year. A partial-record station is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A miscellaneous sampling site is a location other than a continuing or partial-record station, where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.

A careful distinction needs to be made between "*continuing records*" as used in this report and "*continuous recordings*," which refers to a continuous graph or a series of discrete values recorded at short intervals. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Location of stations for which records on the quality of surface water appear in this report are shown in figures 5, 6, and 8.

Arrangement of Records

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

On-site Measurements and Sample Collection

During the collection of water-quality data, assurance that the data obtained represent the in-situ quality of the water is a major concern. Certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are collected. To assure that measurements made in the laboratory also represent the in-situ water quality, carefully prescribed procedures need to be followed when collecting the samples, when treating the samples to prevent changes in quality pending analysis, and when shipping the samples to the laboratory. Procedures for onsite measurements and for collecting, treating, and shipping samples are detailed in the TWRI Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, and A4. These references are listed in the PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS section of this report. These methods are consistent with ASTM standards and generally follow ISO standards. Also, detailed information on collecting, treating, and shipping samples may be obtained from the U.S. Geological Survey District Office.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load. All samples collected for the National Water Quality Assessment Program (see Definition of Terms) are obtained from several verticals. Whether samples are obtained from the centroid of flow or from several verticals, depends on flow conditions and other factors that must be evaluated by the collector.

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

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are determined from data that are recorded at 15-, 30-, or 60-minute intervals by solid-state electronic data loggers, or with Data Collection Platforms (DCP's). More detailed records (hourly values) may be obtained from the U.S. Geological Survey District Office at the address given on the back of the title page of this report.

Water Temperature

Water temperatures are measured at most of the water-quality stations. At stations where recording instruments are used, maximum, minimum, and mean temperatures for each day are published. In addition, water temperatures are measured at the time of discharge measurements for most water-discharge stations and are on file in the District's offices. For stations where water temperature is measured manually once or twice daily, it is usually measured at about the same time each day. Large streams have a small diurnal temperature change; temperatures in shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by heated waste-water discharges.

Sediment

Suspended-sediment concentrations are determined from samples collected by hand or by pump samplers. Hand samples utilize the appropriate sampler (dependent on stream depth and velocity) and are collected using the depth-integrating method at single or multiple verticals in the cross section. Samples collected by pump samplers use an intake set to a fixed location in the cross section. The intake is located at a site that best represents the entire cross section on the basis of simultaneous samples collected at various stages by the pumping sampler and by hand. During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, every 15 minutes). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided-day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge, mean concentration, and the constant 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples were collected, daily discharges of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge. Methods used in the computation of sediment records are described in the TWRI Book 3, Chapters C1 and C3. These methods are consistent with ASTM standards and generally follow ISO standards.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of suspended-sediment discharge, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included for some stations.

Laboratory Measurements

Sediment samples, samples for biochemical-oxygen demand (BOD), samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. The remaining samples are analyzed in the Geological Survey laboratory in Denver, Colorado. If other laboratories are used, they are identified in the "Remarks" or "Cooperation" paragraph of each water-quality station manuscript. Methods used to analyze sediment samples and to compute sediment records are described in TWRI Book 5, Chapter C1. Methods used by the Geological Survey laboratories are given in the TWRI Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, A4 and A5. These methods are consistent with ASTM standards and generally follow ISO standards. Methods used by other laboratories are approved by the U.S. Geological Survey, Water Resources Division.

Data Presentation

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

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

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

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

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

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

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

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

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

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

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

Remark Codes

The following remark codes may appear with the 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.
K	Results based on colony count outside the acceptance range (non-ideal colony count).
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted).
D	Biological organism count equal to or greater than 15 percent (dominant).
&	Biological organism estimated as dominant.
ND	Material specifically analyzed for but not detected.
V	Analyte was detected in both the environmental sample and the associated blanks.

Water quality-control data

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Records of Ground-Water Levels

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

Data Collection and Computation

Water levels are measured in many types of wells under varying conditions, but the methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well ensure that measurements at each well are of consistent accuracy and reliability.

The prime identification number for a given well is the 15-digit number that appears above the station description. The secondary identification number is the local well number, an alphanumeric number, derived from the county location of the well.

Water-level records are obtained from direct measurements with a steel tape, from the graph of a water-level recorder, with solid-state electronic data loggers, or with Data Collection Platforms (DCP's). The water-level measurements in this report are given in feet with reference to land-surface datum (lsd). Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the elevation of the land-surface datum is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels for most wells, especially historical network wells, are reported in feet above or below land surface datum. For some short term project wells the water levels may be reported as elevation (feet above sea level) for convenience of the project work. Water levels are reported daily for all wells equipped with recording gages.

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

Data Presentation

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

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

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

WELL CHARACTERISTICS.--This entry describes the well in terms of depth, diameter, casing depth or screened interval, method of construction, use, and additional information such as casing breaks, collapsed screen, and other changes since construction.

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

DATUM.--This entry describes both the measuring point and the land-surface elevation at the well. The measuring point is described physically (such as top of collar, notch in top of casing, plug in pump base and so on), and in relation to land surface (such as 1.3 ft above land-surface datum). The elevation of the land-surface datum is described in feet above (or below) sea level; it is reported with a precision relative to the method of determination.

REMARKS.--This entry describes factors that may influence the water level in a well or the measurement of the water level. It should identify wells that also are water-quality observation wells, and may be used to acknowledge the assistance of local (non-Survey) observers.

PERIOD OF RECORD.--This entry indicates the period for which there are published records for the well. It reports the month and year of the start of publication of water-level records by the U.S. Geological Survey and the words "*to current year*" if the records are to be continued into the following year. Periods for which water-level records are available, but are not published by the Geological Survey, may be noted.

EXTREMES FOR PERIOD OF RECORD.--This entry contains the highest and lowest values of one daily water-level statistic (maximum, mean, or instantaneous) reported in the data tables for the period of published record with respect to land-surface datum, (or occasionally sea level), and the dates of their occurrence. For example, if the daily maximum depth below land surface is reported in the table of water levels, this paragraph would reflect the highest and lowest of these daily maximum values for the period of record. Depending on the statistic reported in the table of water levels, extremes would be determined from daily maximum, mean, or instantaneous values.

Data table of water-levels

A table of water levels follows the station description for each well. These tables usually report water-level data as maximum depth (in feet) above or below land-surface datum, but may report daily mean or instantaneous values depending upon the method used to obtain the record and how the record was published in the past. If water-level record is obtained from electronic data loggers or DCP's, in addition to data published in the table of water levels, the daily maximum, minimum, and mean water-levels are stored in computer files and available from the District Office as noted in the REMARKS paragraph for that well. The extremes of the water-levels reported in the table for the water year and their dates of occurrence are shown on a line below the table. Missing records are indicated by dashes in place of the water level. A hydrograph showing the last three years of water levels follows each water-level table.

Records of Ground-Water Quality

Records of ground-water quality are obtained at wells and springs included in ground-water projects. Records of ground-water quality in this report may involve a variety of types of data and measurement frequencies. Those wells with a (c) following the well number in the list of ground-water wells on page x, have water-quality data published in the report. Miscellaneous or short-term ground-water data collection projects are published following the basic network data.

Data Collection and Computation

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

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

Data Presentation

Ground-water-quality data are published with ground-water-level data at stations where level data are collected. Data collected at partial-record stations and miscellaneous sites follow the information for continuous ground-water record stations. Data for each section are listed alphabetically by county, and are identified by well number. The prime identification number for wells sampled is the 15-digit number derived from the latitude-longitude locations. No descriptive statements are given for ground-water-quality records; however, the well number, depth of well, date of sampling, and other pertinent data are given in the table containing the chemical analyses of the ground water. The REMARK codes listed for surface-water-quality records are also applicable to ground-water-quality records.

ACCESS TO USGS WATER DATA

The U.S. Geological Survey is the principal Federal water-data agency and, as such, collects and disseminates about 70 percent of the water data currently being used by numerous State, local, private, and other Federal agencies to develop and manage our water resources. The Geological Survey provides near real-time 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 at [<http://water.usgs.gov>].

Some water-quality and ground-water data also are available through the WWW. In addition, data can be provided in various machine-readable formats on magnetic tape or 3-1/2 inch floppy disk. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the Water Resources Division District Offices (See address on the back of the title page.)

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

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

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. See also the table for converting Inch-pound units to International System (SI) Units on the inside of the back cover.

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.

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

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

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

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

Alkalinity is the capacity of solutes in an aqueous system to neutralize acid.

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 measurements in presenting annual runoff data:

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

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

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

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

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

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Escherichia coli are bacteria of the fecal coliform groups. The presence of these organisms in water is indicative of fecal contamination from humans or other warm-blooded animals. Some strains of *E. coli* are themselves pathogens. In the laboratory, these bacteria are defined as organisms that produce yellow or yellow-brown colonies that remain so when placed on a filter pad saturated with urea substrate broth for 15 minutes after resuscitation at 35°C for two hours and incubation for 24 hours at 44.5°C on m-TEC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

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

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

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

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

Benthic invertebrates are invertebrate animals inhabiting the bottoms of lakes, streams and other water bodies. 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 the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m³), and periphyton and benthic organisms in grams per square meter (g/m²).

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

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

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

Bottom material: See Bed material.

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

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

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with BOD or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll *a* and *b* are the two most common green pigments in plants.

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

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Continuing-record station is a specified site which meets one or all conditions listed:

1. When chemical samples are collected daily or monthly for 10 or more months during the water year.
2. When water temperature records include observations taken one or more times daily.
3. When sediment discharge records include periods for which sediment loads are computed and are considered to be representative of the runoff for the water year.

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

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic feet per second per square mile (CFSM) [(ft³/s)/mi²] is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Cubic foot per second (CFS) (ft³/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute.

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

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

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment) that passes a given point within a given period of time.

Annual 7-day minimum is 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.)

Base discharge is an arbitrary instantaneous discharge value, determined for stations meeting certain criteria, that will be exceeded about three times per year.

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

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

Dissolved refers to that material in a representative water sample which passes through a 0.45-micrometer (μm) membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Dissolved-solids concentration of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.492 to reflect the change.

Drainage area of a stream at a specific location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

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

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

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

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations and is expressed as the equivalent concentration of calcium carbonate (CaCO₃).

High tide is the maximum height reached by each rising tide.

The **Hydrologic Bench-Mark Network** is a network of 50 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

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

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

Low tide is the minimum height reached by each falling tide.

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

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 development process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

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

Micrograms per gram ($\mu\text{g/g}$) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

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

Microsiemens per centimeter ($\mu\text{S/cm}$, US/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 solution. Milligrams per liter represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L , and is based on the mass of sediment per liter of water-sediment mixture.

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

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. It 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.

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

The **National Stream Quality Accounting Network** (NASQAN) monitors the water quality of large rivers within four of the Nation's largest river basins--the Mississippi, Columbia, Colorado, and Rio Grande. The network consists of 39 stations. Samples are collected with sufficient frequency that the flux of a wide range of constituents can be estimated. The objective of NASQAN is to characterize the water quality of these large rivers by measuring concentration and mass transport of a wide range of dissolved and suspended constituents, including nutrients, major ions, dissolved and sediment-bound heavy metals, common pesticides, and inorganic and organic forms of carbon. This information will be used (1) to describe the long-term trends and changes in concentration and transport of these constituents; (2) to test findings of the National Water-Quality Assessment Program (NAWQA); (3) to characterize processes unique to large-river systems such as storage and re-mobilization of sediments and associated contaminants; and (4) to refine existing estimates for assessing human effects on the world's oceans and for determining global cycles of carbon, nutrients, and other chemicals.

The **National Atmospheric Deposition Program/National Trends Network** (NADP/NTN) provides continuous measurement and assessment of the chemical climate of precipitation throughout the United States. As the lead federal agency, the USGS works together with over 100 organizations to accomplish the following objectives; (1) Provide a long-term, spatial and temporal record of atmospheric deposition generated from a network of 191 precipitation chemistry monitoring sites. (2) Provide the mechanism to evaluate the effectiveness of the significant reduction in SO₂ emissions that began in 1995 as implementation of the Clean Air Act Amendments (CAAA) occurred. (3) Provide the scientific basis and nationwide evaluation mechanism for implementation of the Phase II CAAA emission reductions for SO₂ and NO_x scheduled to begin in 2000.

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

The **North American Vertical Datum of 1988** (NAVD of 1988) is a geodetic datum derived from the releveling of about 131,000 miles of existing first-order leveling lines to strengthen the network in the conterminous United States. The releveling was correlated with the total network and adjusted by the least squares method. The adjusted network includes about 600,000 permanent benchmarks. The assumption of zero NGVD as being mean sea level at the 26 appointed tide stations produced a distortion in the network. To remove this distortion in the network, a definition that could be reproduced readily at any location was established. This definition is an equipotential surface, that is, the surface represented by a constant value of the acceleration due to gravity.

Organism is any living entity.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per unit area habitat, usually square meters (m²), acres, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

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

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

Parameter Code is a 5-digit number used in the U.S. Geological Survey computerized data system, National Water Information System (NWIS), to uniquely identify a specific constituent. The codes used in NWIS are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle size is the diameter, in millimeters (mm), of a particle determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water collected at the time and point of sampling).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

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

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

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass, or volume.

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

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

Picocurie (PC, pCi) is one trillionth (1×10^{-12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

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

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column, and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area or volume per unit time [$\text{mg C}/(\text{m}^2/\text{time})$] for periphyton and macrophytes and [$\text{mg C}/(\text{m}^3/\text{time})$] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

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

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

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

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

Recurrence interval is the average time interval between occurrences of a hydrological event of a given or greater magnitude, usually expressed in years. May also be called return period.

Runoff (see Annual Runoff)

Sea level: In this report, unless otherwise noted in the GAGE paragraph, "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)--a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Bed load is the sediment that is transported in a stream by rolling, sliding, or skipping along the bed and very close to it. In this report, bed load is considered to consist of particles in transit within 0.25 ft of the streambed.

Bed load discharge (tons per day) is the quantity of bed load measured by dry weight that moves past a section as bed load in a given time.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Suspended-sediment discharge (tons/day) is the rate at which dry mass of sediment passes a section of a stream or is the quantity of sediment, as measured by dry mass or volume, that passes a section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) $\times$ discharge (ft^3/s) $\times$ 0.0027.

Suspended-sediment load is a general term that refers to material in suspension. It is not synonymous with either discharge or concentration.

Total-sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry mass or volume, that passes a section during a given time.

Total-sediment load or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. It is not synonymous with total-sediment discharge.

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

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

Solute is any substance that is dissolved in water.

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

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

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

Substrate is the physical surface upon which an organism lives.

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

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

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

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

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

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 µm membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

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

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

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

Synoptic Studies are short-term investigations of specific water-quality conditions during selected seasonal or hydrologic 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.

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

Kingdom	Animal
Phylum	Arthropoda
Class	Insecta
Order	Ephemeroptera
Family	Ephemeridae
Genus	<u>Hexagenia</u>
Species	<u>Hexagenia Limbata</u>

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

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

Tons per day (T/day) is the quantity of substance in solution or suspension that passes a stream section during a 24-hour period.

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

Total discharge is the total quantity of any individual constituent, as measured by dry mass or volume, that passes through a stream cross-section per unit of time. This term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

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

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

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 man-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 (U.S. Environmental Protection Agency, 1996).

Water year as used in Geological Survey reports, is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1998, is called the "1998 water year."

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

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

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

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

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

The reports listed below are for sale by the U.S. Geological Survey, Branch of Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

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

Book 2. Collection of Environmental Data

Section D. Surface Geophysical Methods

- 2-D1. *Application of surface geophysics to ground-water investigations*, by A.A. R. Zohdy, G.P. Eaton, and D.R. Mabey: USGS–TWRI Book 2, Chapter D1. 1974. 116 pages.
- 2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F.P. Haeni: USGS–TWRI Book 2, Chapter D2. 1988. 86 pages.

Section E. Subsurface Geophysical Methods

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

Section F. Drilling and Sampling Methods

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

Book 3. Applications of Hydraulics

Section A. Surface-Water Techniques

- 3-A1. *General field and office procedures for indirect discharge measurements*, by M.A. Benson and Tate Dalrymple: USGS–TWRI Book 3, Chapter A1. 1967. 30 pages.
- 3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M.A. Benson: USGS–TWRI Book 3, Chapter A2. 1967. 12 pages.
- 3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G.L. Bodhaine: USGS–TWRI Book 3, Chapter A3. 1968. 60 pages.
- 3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H.F. Matthai: USGS–TWRI Book 3, Chapter A4. 1967. 44 pages.
- 3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS–TWRI Book 3. Chapter A5. 1967. 29 pages.
- 3-A6. *General procedure for gaging streams*, by R.W. Carter and Jacob Davidian: USGS–TWRI Book 3, Chapter A6. 1968. 13 pages.

- 3-A7. *Stage measurement at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS-TWRI Book 3, Chapter A7. 1968. 28 pages.
- 3-A8. *Discharge measurements at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS-TWRI Book 3, Chapter A8. 1969. 65 pages.
- 3-A9. *Measurement of time of travel in streams by dye tracing*, by F.A. Kilpatrick and J.F. Wilson, Jr.: USGS-TWRI Book 3, Chapter A9. 1989. 27 pages.
- 3-A10. *Discharge ratings at gaging stations*, by E.J. Kennedy: USGS-TWRI Book 3, Chapter A10. 1984. 59 pages.
- 3-A11. *Measurement of discharge by the moving-boat method*, by G.F. Smoot and C.E. Novak: USGS-TWRI Book 3, Chapter A11. 1969. 22 pages.
- 3-A12. *Fluorometric procedures for dye tracing*, Revised, by J.F. Wilson, Jr., E.D. Cobb, and F.A. Kilpatrick: USGS-TWRI Book 3, Chapter A12. 1986. 41 pages.
- 3-A13. *Computation of continuous records of streamflow*, by E.J. Kennedy: USGS-TWRI Book 3, Chapter A13. 1983. 53 pages.
- 3-A14. *Use of flumes in measuring discharge*, by F.A. Kilpatrick and V.R. Schneider: USGS-TWRI Book 3, Chapter A14. 1983. 46 pages.
- 3-A15. *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS-TWRI Book 3, Chapter A15. 1984. 48 pages.
- 3-A16. *Measurement of discharge using tracers*, by F.A. Kilpatrick and E.D. Cobb: USGS-TWRI Book 3, Chapter A16. 1985. 52 pages.
- 3-A17. *Acoustic velocity meter systems*, by Antonius Laenen: USGS-TWRI Book 3, Chapter A17. 1985. 38 pages.
- 3-A18. *Determination of stream reaeration coefficients by use of tracers*, by F.A. Kilpatrick, R.E. Rathbun, Nobuhiro Yotsukura, G.W. Parker, and L.L. DeLong: USGS-TWRI Book 3, Chapter A18. 1989. 52 pages.
- 3-A19. *Levels at streamflow gaging stations*, by E.J. Kennedy: USGS-TWRI Book 3, Chapter A19. 1990. 31 pages.
- 3-A20. *Simulation of soluble waste transport and buildup in surface waters using tracers*, by F.A. Kilpatrick: USGS-TWRI Book 3, Chapter A20. 1993. 38 pages.
- 3-A21. *Stream-gaging cableways*, by C. Russell Wagner: USGS-TWRI Book 3, Chapter A21. 1995. 56 pages.

Section B. Ground-Water Techniques

- 3-B1. *Aquifer-test design, observation, and data analysis*, by R.W. Stallman: USGS-TWRI Book 3, Chapter B1. 1971. 26 pages.
- 3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G.D. Bennett: USGS-TWRI Book 3, Chapter B2. 1976. 172 pages.
- 3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J.E. Reed: USGS-TWRI Book 3, Chapter B3. 1980. 106 pages.
- 3-B4. *Regression modeling of ground-water flow*, by R.L. Cooley and R.L. Naff: USGS-TWRI Book 3, Chapter B4. 1990. 232 pages.
- 3-B4. *Supplement 1. Regression modeling of ground-water flow --Modifications to the computer code for nonlinear regression solution of steady-state ground-water flow problems*, by R.L. Cooley: USGS-TWRI Book 3, Chapter B4. 1993. 8 pages.
- 3-B5. *Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems—An introduction*, by O.L. Franke, T.E. Reilly, and G.D. Bennett: USGS-TWRI Book 3, Chapter B5. 1987. 15 pages.
- 3-B6. *The principle of superposition and its application in ground-water hydraulics*, by T.E. Reilly, O.L. Franke, and G.D. Bennett: USGS-TWRI Book 3, Chapter B6. 1987. 28 pages.
- 3-B7. *Analytical solutions for one-, two-, and three-dimensional solute transport in ground-water systems with uniform flow*, by E.J. Wexler: USGS-TWRI Book 3, Chapter B7. 1992. 190 pages.

Section C. Sedimentation and Erosion Techniques

- 3-C1. *Fluvial sediment concepts*, by H.P. Guy: USGS-TWRI Book 3, Chapter C1. 1970. 55 pages.
- 3-C2. *Field methods for measurement of fluvial sediment*, by Thomas K. Edwards and G. Douglas Glysson: USGS-TWRI Book 3, Chapter C2. 1988. 80 pages.
- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS-TWRI Book 3, Chapter C3. 1972. 66 pages.

Book 4. Hydrologic Analysis and Interpretation**Section A. Statistical Analysis**

- 4-A1. *Some statistical tools in hydrology*, by H.C. Riggs: USGS-TWRI Book 4, Chapter A1. 1968. 39 pages.
- 4-A2. *Frequency curves*, by H.C. Riggs: USGS-TWRI Book 4, Chapter A2. 1968. 15 pages.

Section B. Surface Water

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

Section D. Interrelated Phases of the Hydrologic Cycle

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

Book 5. Laboratory Analysis**Section A. Water Analysis**

- 5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M.J. Fishman and L.C. Friedman, editors: USGS-TWRI Book 5, Chapter A1. 1989. 545 pages.
- 5-A2. *Determination of minor elements in water by emission spectroscopy*, by P.R. Barnett and E.C. Mallory, Jr.: USGS-TWRI Book 5, Chapter A2. 1971. 31 pages.
- 5-A3. *Methods for the determination of organic substances in water and fluvial sediments*, edited by R.L. Wershaw, M.J. Fishman, R.R. Grabbe, and L.E. Lowe: USGS-TWRI Book 5, Chapter A3. 1987. 80 pages.
- 5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, by L.J. Britton and P.E. Greenson, editors: USGS-TWRI Book 5, Chapter A4. 1989. 363 pages.
- 5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L.L. Thatcher, V.J. Janzer, and K.W. Edwards: USGS-TWRI Book 5, Chapter A5. 1977. 95 pages.
- 5-A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments*, by L.C. Friedman and D.E. Erdmann: USGS-TWRI Book 5, Chapter A6. 1982. 181 pages.

Section C. Sediment Analysis

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

Book 6. Modeling Techniques**Section A. Ground Water**

- 6-A1. *A modular three-dimensional finite-difference ground-water flow model*, by M.G. McDonald and A.W. Harbaugh: USGS-TWRI Book 6, Chapter A1. 1988. 586 pages.
- 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, Chapter A2. 1991. 68 pages.
- 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, Chapter A3. 1993. 136 pages.
- 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, Chapter A4. 1992. 108 pages.
- 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, Chapter A5, 1993. 243 pages.
- 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. 1996. 125 pages.

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, Chapter C1. 1976. 116 pages.
- 7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L.F. Konikow and J.D. Bredehoeft: USGS-TWRI Book 7, Chapter C2. 1978. 90 pages.
- 7-C3. *A model for simulation of flow in singular and interconnected channels*, by R.W. Schaffranek, R.A. Baltzer, and D.E. Goldberg: USGS-TWRI Book 7, Chapter C3. 1981. 110 pages.

Book 8. Instrumentation**Section A. Instruments for Measurement of Water Level**

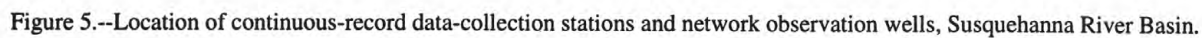
- 8-A1. *Methods of measuring water levels in deep wells*, by M.S. Garber and F.C. Koopman: USGS-TWRI Book 8, Chapter A1. 1968. 23 pages.
- 8-A2. *Installation and service manual for U.S. Geological Survey manometers*, by J.D. Craig: USGS-TWRI Book 8, Chapter A2. 1983. 57 pages.

Section B. Instruments for Measurement of Discharge

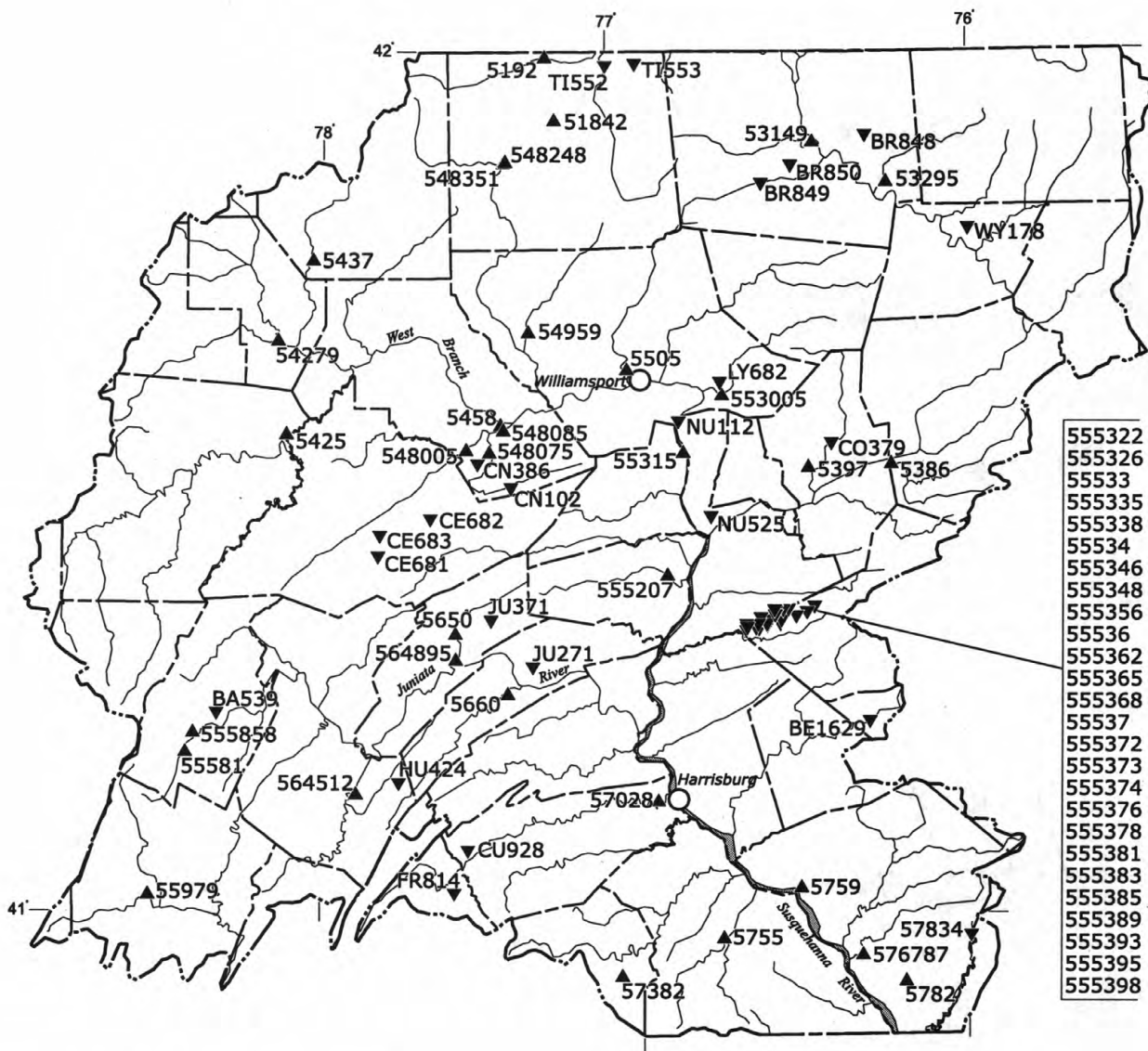
- 8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G.F. Smoot and C.E. Novak: USGS-TWRI Book 8, Chapter B2. 1968. 15 pages.

Book 9. Handbooks for Water-Resources Investigations**Section A. National Field Manual for the Collection of Water-Quality Data**

- 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, Chapter A6. 1998. Variously paginated.
- 9-A7. *National Field Manual for the Collection of Water-Quality Data: Biological Indicators*, by D.N. Myers and F.D. Wilde: USGS-TWRI Book 9, Chapter A7. 1997. 49 pages.
- 9-A8. *National Field Manual for the Collection of Water-Quality Data: Bottom-material samples*, by D.B. Radtke: USGS-TWRI Book 9, Chapter A8. 1998. 48 pages.
- 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, Chapter A9. 1998. 60 pages.



SUSQUEHANNA RIVER BASIN



0 10 20 30 40 50 MILES
0 10 20 30 40 50 KILOMETERS

EXPLANATION

- ▲ 5775 STREAMFLOW STATION AND NUMBER
▼ 57834 WATER-QUALITY STATION AND NUMBER

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).

Detail Area



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

POTOMAC RIVER BASIN

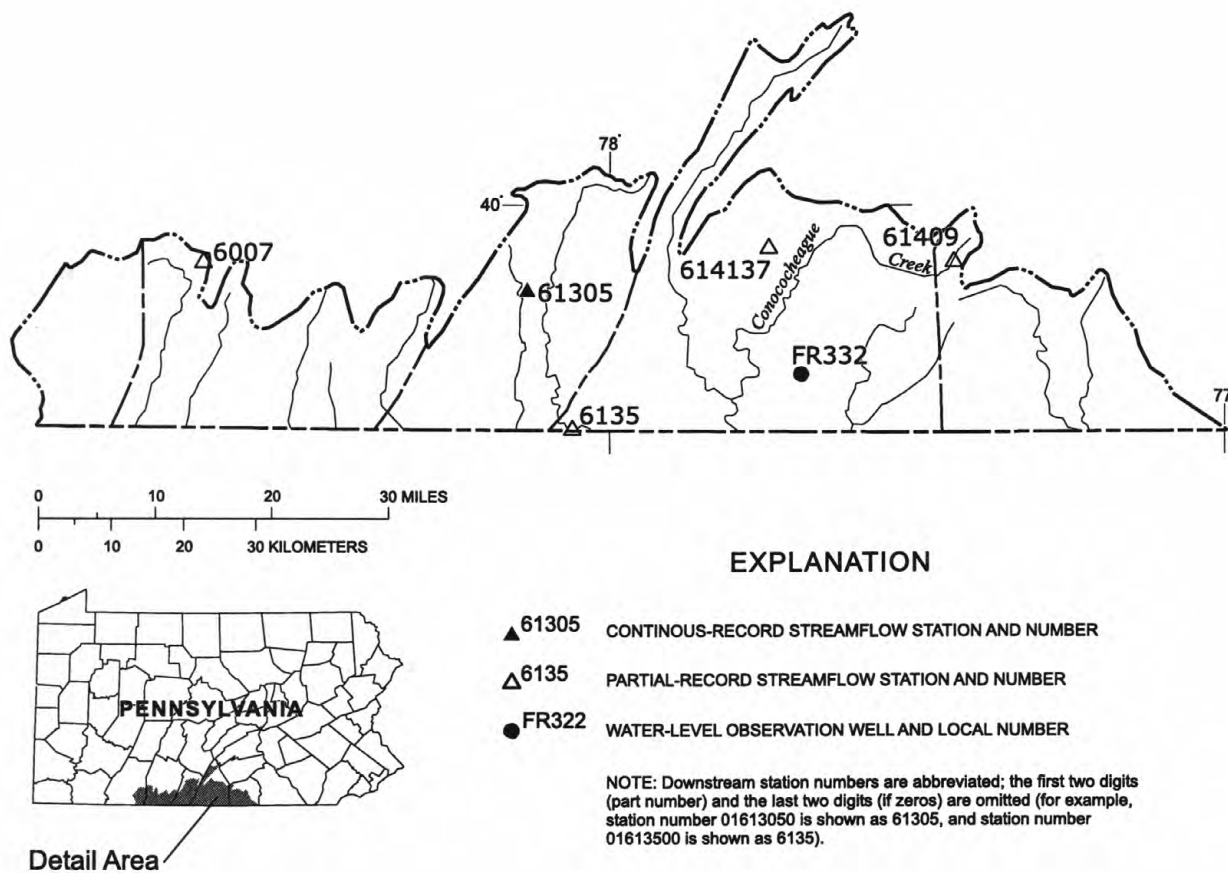


Figure 7.--Location of continuous- and partial-record data-collection stations, Potomac River Basin.

SPECIAL NOTES, REMARK CODES, AND SELECTED CONSTITUENT DEFINITIONS

NOTES--Traditionally, dissolved trace-element concentrations have been reported at the microgram per liter ($\mu\text{G/L}$) 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 $\mu\text{G/L}$ 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:

$$\text{MBASCOR} = \text{M} - 0.0088\text{N} - 0.00019\text{C}$$

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.
K	Results based on colony count outside the acceptance range (non-ideal colony count).
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted).
D	Biological organism count equal to or greater than 15 percent (dominant).
&	Biological organism estimated as dominant.
ND	Material specifically analyzed for but not detected.
V	Analyte was detected in both the environmental sample and the associated blanks.

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

(71999) SAMPLE PURPOSE CODES:

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

(84164) SAMPLER TYPE: (partial list)

110--Sewage sampler
3011--US D-77
3035--DH-76 Trace metal sampler with
teflon gasket and nozzle

(82398) SAMPLE METHOD CODES:

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

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:

1028 --U.S. Geological Survey
42011 --Susquehanna River Basin Commission

(00028) AGENCY ANALYZING SAMPLE CODES:

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

SURFACE-WATER RECORDS
NORTH ATLANTIC SLOPE BASINS
SUSQUEHANNA RIVER BASIN
CHEMUNG RIVER BASIN

01516350 TIOGA RIVER NEAR MANSFIELD, PA

LOCATION.--Lat 41°47'34", long 77°04'44", Tioga County, Hydrologic Unit 02050104, on left bank on Township Route 754, 0.6 mi downstream from Slate Creek, and 1.0 mi south of Mansfield.

DRAINAGE AREA.--153 mi².

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 sea level.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in September 1975 reached an approximate stage of 20.13 ft, from flood-marks, discharge, about 18,000 ft³/s.

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

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 8	1030	*4,700	*14.45	May 11	1145	4,680	14.44
Feb. 18	0500	3,670	13.88	June 30	1830	3,040	13.45
Feb. 28	1745	3,380	13.69				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108	41	484	e140	166	1570	339	243	122	654	30	16
2	89	697	346	e190	171	998	353	281	100	287	29	15
3	80	541	290	e250	166	727	286	306	111	195	28	15
4	69	386	281	e600	160	553	260	265	86	161	27	15
5	61	e320	286	678	161	454	238	273	73	156	25	14
6	58	e250	250	740	150	384	217	312	62	131	24	13
7	52	e230	217	732	144	337	200	266	56	113	23	19
8	48	e580	196	e3400	141	353	190	276	55	123	22	27
9	45	e700	184	1990	141	752	666	600	52	146	25	25
10	43	e550	181	1050	140	848	1210	986	50	113	27	20
11	40	e380	179	696	162	491	693	2750	52	94	40	18
12	39	e320	171	519	397	369	499	2110	205	83	29	15
13	36	e260	164	449	294	326	402	1020	186	71	24	17
14	35	e250	157	356	213	306	347	639	134	59	23	16
15	36	e230	141	300	e160	277	321	476	113	55	22	15
16	36	e210	146	359	e180	248	283	379	105	52	22	14
17	35	e190	144	300	231	227	259	414	144	50	21	14
18	35	181	137	274	2620	239	228	281	202	48	22	13
19	33	170	138	246	1850	269	647	233	127	44	23	12
20	32	175	145	228	1160	295	1490	201	102	61	22	12
21	32	183	137	202	850	586	689	173	89	114	20	13
22	30	308	111	193	627	488	493	154	80	120	19	13
23	30	316	132	194	528	392	406	140	83	79	19	12
24	33	282	125	226	487	372	347	126	124	90	19	12
25	38	213	206	202	454	365	297	117	89	70	18	12
26	42	207	237	177	469	406	378	111	103	52	19	12
27	43	278	194	171	450	480	429	98	105	45	17	13
28	46	245	168	167	1260	421	321	88	84	39	17	16
29	41	265	149	163	---	361	277	86	72	37	16	15
30	37	303	e140	201	---	311	255	86	727	34	17	14
31	34	---	e160	190	---	277	---	77	---	33	16	---
TOTAL	1416	9261	5996	15583	13932	14482	13020	13567	3693	3409	705	457
MEAN	45.7	309	193	503	498	467	434	438	123	110	22.7	15.2
MAX	108	700	484	3400	2620	1570	1490	2750	727	654	40	27
MIN	30	41	111	140	140	227	190	77	50	33	16	12
CFSM	.30	2.02	1.26	3.29	3.25	3.05	2.84	2.86	.80	.72	.15	.10
IN.	.34	2.25	1.46	3.79	3.39	3.52	3.17	3.30	.90	.83	.17	.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 1998, BY WATER YEAR (WY)

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
MEAN	143	222	238	237	259	421	506	255	164	82.6	82.1	55.0											
MAX	653	620	666	943	682	832	1969	630	550	375	839	196											
(WY)	1991	1978	1997	1996	1996	1978	1993	1978	1989	1994	1994	1996											
MIN	13.3	26.9	50.5	36.2	57.2	148	156	84.4	25.1	18.2	16.4	12.6											
(WY)	1983	1983	1989	1981	1987	1981	1988	1987	1991	1993	1995	1980											

e Estimated.

CHEMUNG RIVER BASIN

01516350 TIOGA RIVER NEAR MANSFIELD, PA--Continued

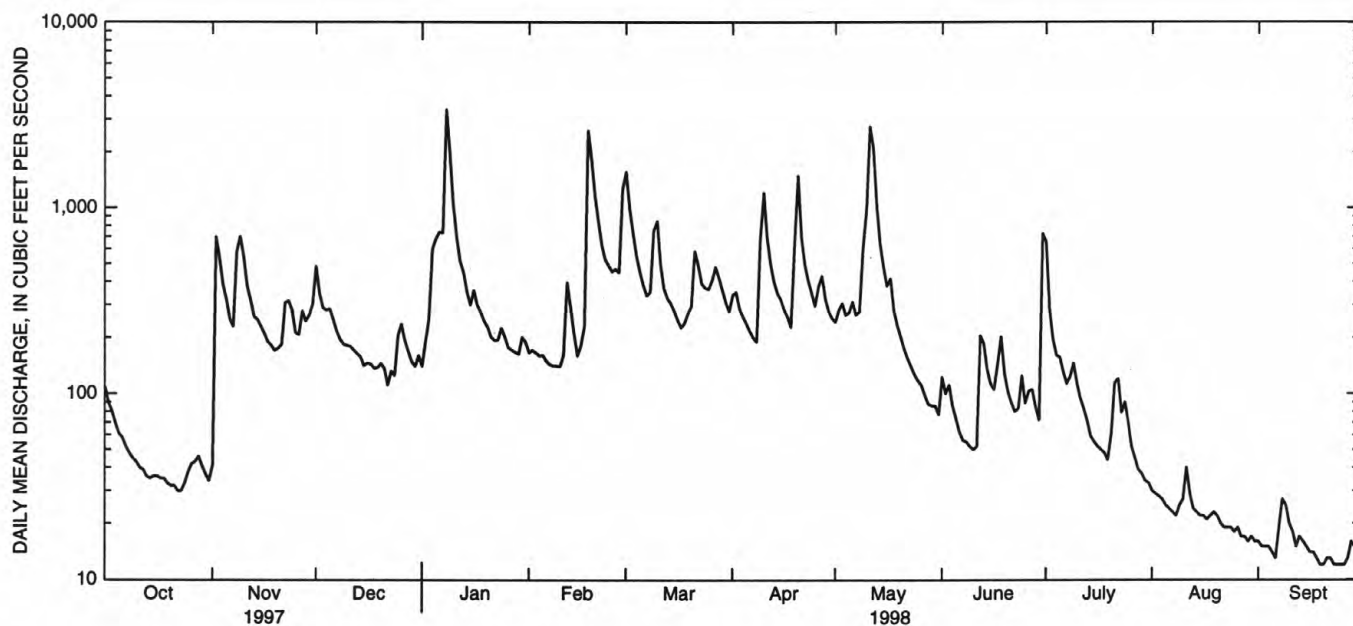
SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1976 - 1998	
ANNUAL TOTAL	53565		95521		221	
ANNUAL MEAN	147		262		388	
HIGHEST ANNUAL MEAN					131	
LOWEST ANNUAL MEAN					1978	
HIGHEST DAILY MEAN	1450	Mar 6	e3400	Jan 8	12200	Aug 18 1994
LOWEST DAILY MEAN	14	Aug 10,11	12	Sep 19a	9.1	Sep 8 1995
ANNUAL SEVEN-DAY MINIMUM	16	Jul 29	12	Sep 19	9.9	Sep 10 1991
INSTANTANEOUS PEAK FLOW			4700	Jan 8	b38900	Jan 19 1996
INSTANTANEOUS PEAK STAGE			14.45	Jan 8	c18.87	Jan 19 1996
ANNUAL RUNOFF (CFSM)	.96		1.71		1.45	
ANNUAL RUNOFF (INCHES)	13.02		23.22		19.65	
10 PERCENT EXCEEDS	322		582		479	
50 PERCENT EXCEEDS	109		164		100	
90 PERCENT EXCEEDS	24		19		23	

a Also Sept. 20, 23-26.

b From rating curve extended above 16,000 ft³/s.

c From floodmark.

e Estimated.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 1,337.50 ft above sea level. Prior to June 28, 1954, nonrecording gage at site 30 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 280 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Feb. 18	0400	393	4.24	May 11	1000	337	4.03
Feb. 28	1745	*493	*4.58				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	2.6	23	e8.0	e10	91	23	17	6.0	23	.89	.46
2	2.2	20	15	e15	e9.0	61	22	20	5.5	11	.90	.47
3	2.0	12	e12	e25	8.7	46	17	21	6.4	6.8	.86	.47
4	1.8	9.8	13	e60	7.6	39	15	17	3.7	5.5	.74	.47
5	1.7	8.7	13	48	8.0	36	13	16	3.0	7.4	.77	.45
6	1.5	6.6	12	42	e7.6	34	11	22	2.8	4.6	.75	.39
7	1.4	6.1	9.8	36	e7.4	29	8.9	8.0	2.3	3.4	.65	.85
8	1.3	18	9.0	132	e7.4	31	8.9	13	2.7	11	.61	1.0
9	1.3	28	8.1	96	e7.2	47	55	40	2.4	9.3	.59	.97
10	1.2	20	8.2	51	e7.0	48	73	81	2.2	5.0	.83	.86
11	1.1	13	8.5	e34	9.1	e29	41	165	3.0	3.4	1.6	.68
12	1.0	10	8.2	e26	29	e23	32	e110	40	2.6	.89	.57
13	1.1	8.4	8.0	e23	14	e19	27	69	16	2.3	.72	.47
14	1.2	9.1	7.6	e20	e9.0	17	23	48	14	2.1	.67	.47
15	1.1	8.1	e7.0	e18	e7.0	e14	21	37	8.7	1.9	.69	.43
16	.97	8.0	e7.6	e20	e10	e12	17	29	7.2	2.3	.65	.46
17	.92	7.7	e7.6	e17	14	e11	15	23	9.0	1.8	.57	.47
18	.91	7.1	e7.0	e16	193	16	12	17	7.4	1.7	.73	.40
19	.96	6.8	6.6	e14	98	20	55	14	5.0	1.3	.79	.35
20	.98	8.3	7.8	e13	65	20	79	12	3.9	1.3	.66	.36
21	.94	11	7.0	e11	49	69	43	8.7	3.5	10	.57	.40
22	.96	24	e5.6	e10	39	42	34	7.6	3.2	4.4	.55	.43
23	.95	22	e6.0	10	35	35	28	6.6	3.8	2.7	.55	.46
24	.98	17	6.1	14	e33	33	22	4.9	4.6	5.3	.49	.43
25	1.4	11	15	10	34	33	18	6.5	3.2	2.4	.52	.41
26	1.5	12	15	e9.0	38	38	30	5.9	6.8	1.8	.61	.39
27	1.3	14	11	e8.0	41	35	28	4.1	4.5	1.5	.57	.38
28	1.2	11	9.2	7.0	122	30	23	3.4	3.0	1.3	.48	.39
29	1.1	11	e7.6	e8.5	---	26	25	7.6	2.4	1.2	.53	.39
30	1.1	14	e8.0	e13	---	21	19	6.8	34	1.1	.56	.39
31	1.1	---	e9.0	11	---	17	---	4.0	---	1.0	.53	---
TOTAL	40.07	365.3	298.5	825.5	919.0	1022	838.8	845.1	220.2	140.4	21.52	15.12
MEAN	1.29	12.2	9.63	26.6	32.8	33.0	28.0	27.3	7.34	4.53	.69	.50
MAX	2.9	28	23	132	193	91	79	165	40	23	1.6	1.0
MIN	.91	2.6	5.6	7.0	7.0	11	8.9	3.4	2.2	1.0	.48	.35
CFSM	.11	1.00	.79	2.18	2.69	2.70	2.29	2.23	.60	.37	.06	.04
IN.	.12	1.11	.91	2.52	2.80	3.12	2.56	2.58	.67	.43	.07	.05

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1998, BY WATER YEAR (WY)

	6.64	11.1	14.6	12.5	16.9	29.2	28.7	14.5	9.53	3.23	3.03	2.85
MEAN	6.64	11.1	14.6	12.5	16.9	29.2	28.7	14.5	9.53	3.23	3.03	2.85
MAX	51.0	45.4	42.7	52.4	52.4	60.4	118	42.7	114	19.9	55.2	44.4
(WY)	1956	1978	1974	1996	1984	1964	1993	1989	1972	1994	1994	1975
MIN	.15	.48	.84	.75	1.71	4.88	8.19	4.08	.69	.10	.074	.000
(WY)	1964	1965	1965	1961	1963	1965	1955	1985	1991	1966	1964	1964

e Estimated.

CHEMUNG RIVER BASIN

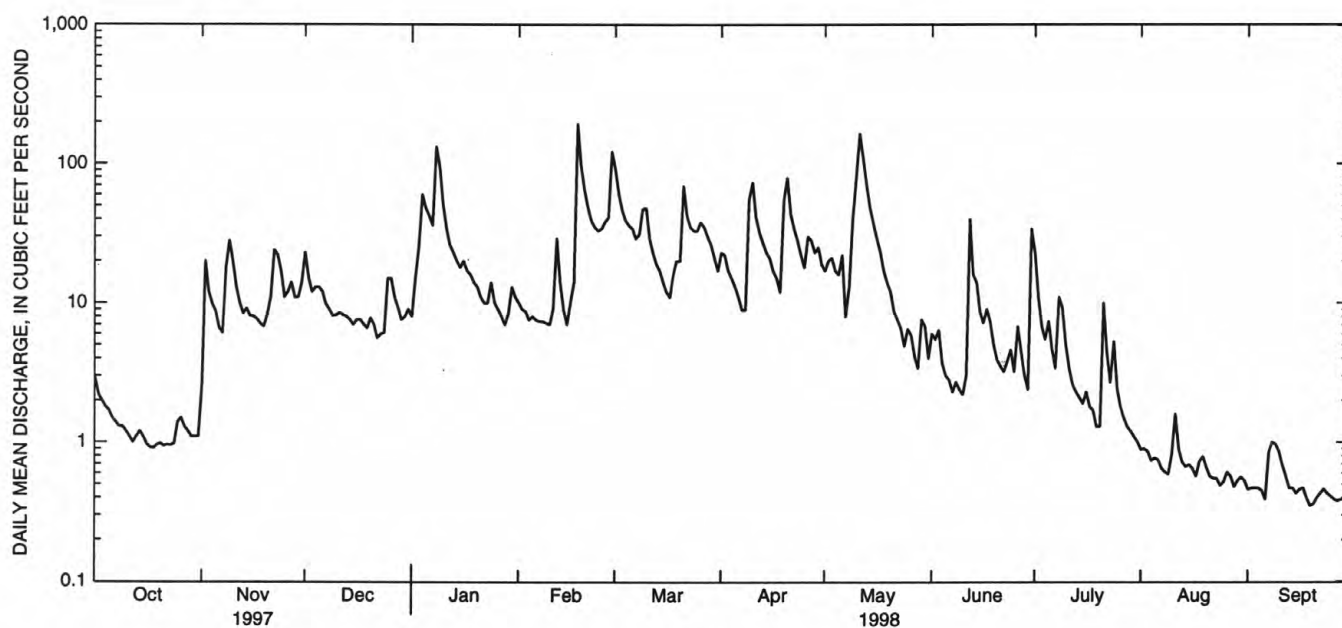
01516500 COREY CREEK NEAR MAINESBURG, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR			FOR 1998 WATER YEAR			WATER YEARS 1954 - 1998	
ANNUAL TOTAL	2426.57			5551.51			12.7	
ANNUAL MEAN	6.65			15.2			24.9	1978
HIGHEST ANNUAL MEAN							4.82	1965
LOWEST ANNUAL MEAN							1910	Jun 22 1972
HIGHEST DAILY MEAN	e40	Feb	5	193	Feb	18		
LOWEST DAILY MEAN	.59	Aug	3	.35	Sep	19	.00	Many days
ANNUAL SEVEN-DAY MINIMUM	.70	Jul	29	.40	Sep	24	.00	Aug 17 1959
INSTANTANEOUS PEAK FLOW				493	Feb	28	a5580	Jun 23 1972
INSTANTANEOUS PEAK STAGE				4.58	Feb	28	b10.44	Jun 23 1972
ANNUAL RUNOFF (CFSM)	.54			1.25			1.04	
ANNUAL RUNOFF (INCHES)	7.40			16.93			14.18	
10 PERCENT EXCEEDS	16			37			28	
50 PERCENT EXCEEDS	4.6			8.0			4.4	
90 PERCENT EXCEEDS	1.0			.58			.50	

a From rating curve extended above 490 ft³/s on basis of slope-area measurement at gage height 7.88 ft and at peak flow.

b From floodmark.

e Estimated.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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 130 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 mi².

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

REVISIONS.--WSP 871: 1938.

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

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	334	53	865	205	411	3510	742	612	255	1660	49	e27
2	150	902	814	224	388	2840	991	597	223	679	49	27
3	42	1370	643	451	386	1950	732	847	228	372	49	27
4	50	639	616	2550	386	1220	583	682	264	251	49	27
5	67	658	558	2580	362	1030	575	669	220	366	49	27
6	86	510	554	2030	299	747	522	732	149	311	43	27
7	86	431	494	2010	255	719	439	728	125	265	30	27
8	86	1470	377	1380	244	1200	431	644	108	449	30	29
9	86	1550	328	1350	224	1360	1140	1780	107	630	30	30
10	78	1260	303	3940	241	1760	3330	2450	108	322	31	30
11	54	836	287	4520	304	1060	2270	3820	107	182	30	30
12	42	624	287	4440	684	588	1300	4600	488	149	e28	29
13	42	438	287	1740	812	614	983	4140	753	114	e27	30
14	42	404	272	772	479	753	849	2390	363	80	e27	29
15	43	404	234	821	349	736	780	1170	262	80	e27	29
16	43	337	202	741	333	577	695	887	218	80	e27	29
17	44	214	203	670	565	472	542	860	219	80	e27	30
18	44	216	203	623	3180	461	441	800	220	93	e27	30
19	44	216	238	567	4780	616	1220	630	220	101	e27	30
20	44	262	273	520	3760	765	3530	407	195	99	e27	30
21	44	335	290	426	2160	1150	2510	322	180	183	e27	30
22	44	625	230	348	1410	1440	1650	298	162	254	e27	30
23	44	718	198	386	1220	895	1120	238	556	145	e27	30
24	44	735	246	454	1210	833	900	226	e1000	123	e27	37
25	64	623	298	489	1140	865	882	223	319	116	e27	33
26	90	518	567	459	1310	1210	1130	260	1230	94	e27	33
27	79	593	605	347	1220	1490	1180	261	448	73	e27	33
28	79	626	472	311	1890	1100	762	196	414	66	e27	33
29	79	542	327	344	---	949	639	184	302	66	e27	33
30	67	621	269	362	---	713	627	184	1160	66	e27	33
31	52	---	221	410	---	635	---	190	---	56	e27	---
TOTAL	2193	18730	11761	36470	30002	34258	33495	32027	10603	7605	980	899
MEAN	70.7	624	379	1176	1072	1105	1117	1033	353	245	31.6	30.0
MAX	334	1550	865	4520	4780	3510	3530	4600	1230	1660	49	37
MIN	42	53	198	205	224	461	431	184	107	56	27	27

e Estimated.

CHEMUNG RIVER BASIN

01518000 TIOGA RIVER AT TIOGA, PA--Continued

REMARKS.--The data in the first set of statistics (1978-98) 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 - 1998, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	281	469	518	525	566	941	1097	550	374	168	172	109
MAX	1454	1684	1377	1709	1716	2161	4544	1433	1404	682	1747	386
(WY)	1991	1978	1997	1996	1981	1979	1993	1989	1989	1994	1994	1996
MIN	36.5	31.2	48.3	22.7	111	238	323	140	41.5	32.5	28.4	20.8
(WY)	1992	1981	1983	1981	1989	1981	1988	1985	1991	1991	1980	1980

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR				FOR 1998 WATER YEAR				WATER YEARS 1978 - 1998			
ANNUAL TOTAL	113140				219023							
ANNUAL MEAN	310				600				480			
HIGHEST ANNUAL MEAN									862			
LOWEST ANNUAL MEAN									256			
HIGHEST DAILY MEAN	3050				Mar 6				8360			
LOWEST DAILY MEAN	31				Sep 9				16			
ANNUAL SEVEN-DAY MINIMUM	36				Aug 6				16			
INSTANTANEOUS PEAK FLOW					a27				16			
INSTANTANEOUS PEAK STAGE					5140				14300			
INSTANTANEOUS LOW FLOW					6.37				Feb 19			
10 PERCENT EXCEEDS	725				1360				1100			
50 PERCENT EXCEEDS	198				333				194			
90 PERCENT EXCEEDS	42				30				40			

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
INSTANTANEOUS PEAK FLOW	f59000	Jun 22 1972
INSTANTANEOUS PEAK STAGE	g19.70	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 Computed using estimated daily discharges.

b Also Aug. 14-Sept. 7.

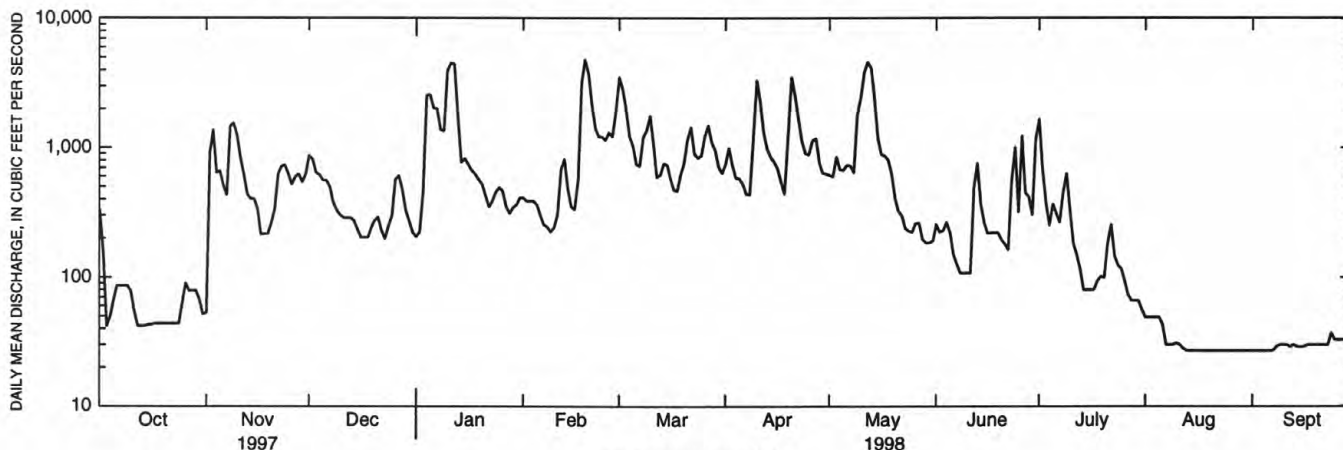
c Result of shutoff at Tioga Dam.

d Also Aug. 29, 1980.

e Estimated.

f From rating curve extended above 8,000 ft³/s on basis of slope-area and contracted-opening measurement at gage height 15.47 ft, and slope-area measurement of peak flow.

g From floodmark.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

CHEMUNG RIVER BASIN

01518700 TIOGA RIVER AT TIOGA JUNCTION, PA

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 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 990.43 ft above sea level.

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 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	375	65	922	e240	459	e4000	837	651	270	e1900	60	37
2	189	657	900	259	438	e3300	1110	632	246	744	60	37
3	55	1520	714	460	432	2360	854	883	274	439	60	37
4	57	651	696	2860	433	1460	651	735	282	291	60	37
5	74	731	619	3210	411	1180	634	693	246	425	60	37
6	99	550	602	2350	351	880	579	760	172	363	58	37
7	99	466	544	2310	293	796	489	756	146	292	42	40
8	99	1410	422	2400	284	1290	459	664	125	498	40	39
9	99	1710	366	1660	261	1660	1320	1860	125	714	40	40
10	93	1360	343	4520	275	2100	4300	2780	125	389	42	40
11	69	900	325	5220	346	1320	2820	5020	127	231	42	40
12	51	682	324	5170	792	668	1530	5610	406	183	41	39
13	62	485	321	2330	953	682	1140	e4800	792	158	41	40
14	78	448	309	841	576	819	936	e3000	415	109	40	40
15	50	446	267	918	407	824	864	e1400	296	105	40	40
16	49	397	236	843	374	640	760	956	245	101	40	40
17	49	256	237	768	596	527	604	907	242	101	40	40
18	49	250	234	716	4150	502	488	847	239	110	42	40
19	49	250	264	652	5910	671	1280	667	236	121	42	40
20	49	290	309	581	4690	838	4530	454	218	119	41	40
21	49	373	326	491	2570	1260	3070	351	199	175	40	41
22	49	673	269	393	1720	1720	1930	330	189	285	40	41
23	51	828	225	431	1410	1050	1310	266	e630	171	40	40
24	51	782	278	503	1420	938	985	251	e1100	143	40	46
25	66	693	351	541	1320	1000	946	249	e450	136	40	43
26	108	575	604	505	1550	1460	1220	275	e1500	115	39	43
27	94	655	663	401	e1400	1860	1360	283	e500	91	38	45
28	94	695	529	348	e2200	1330	858	215	e480	78	37	45
29	94	592	e340	387	---	1100	689	201	e350	77	39	43
30	86	678	e270	416	---	835	672	203	e1300	77	39	43
31	60	---	e250	458	---	700	---	203	---	70	40	---
TOTAL	2596	20068	13059	43182	36021	39770	39225	36902	11925	8811	1363	1210
MEAN	83.7	669	421	1393	1286	1283	1308	1190	398	284	44.0	40.3
MAX	375	1710	922	5220	5910	4000	4530	5610	1500	1900	60	46
MIN	49	65	225	240	261	502	459	201	125	70	37	37

e Estimated.

CHEMUNG RIVER BASIN

01518700 TIOGA RIVER AT TIOGA JUNCTION, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1998, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	278	466	563	519	685	963	1317	623	436	196	194	114
MAX	1515	1626	1632	1975	1837	2009	5667	1723	1619	697	1836	368
(WY)	1991	1997	1997	1996	1981	1994	1993	1989	1989	1994	1994	1996
MIN	41.4	49.0	76.6	29.5	127	259	352	164	51.4	38.4	29.6	26.3
(WY)	1992	1981	1981	1981	1989	1981	1988	1985	1980	1991	1980	1980

SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1980 - 1998

ANNUAL TOTAL	129590	254132	
ANNUAL MEAN	355	696	528
HIGHEST ANNUAL MEAN			842
LOWEST ANNUAL MEAN			310
HIGHEST DAILY MEAN	3820	Mar 6	5910
LOWEST DAILY MEAN	37	Aug 6a	37
ANNUAL SEVEN-DAY MINIMUM	37	Aug 6	37
INSTANTANEOUS PEAK FLOW			b6260
INSTANTANEOUS PEAK STAGE			13.39
10 PERCENT EXCEEDS	811	1590	1220
50 PERCENT EXCEEDS	230	375	210
90 PERCENT EXCEEDS	47	40	52

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

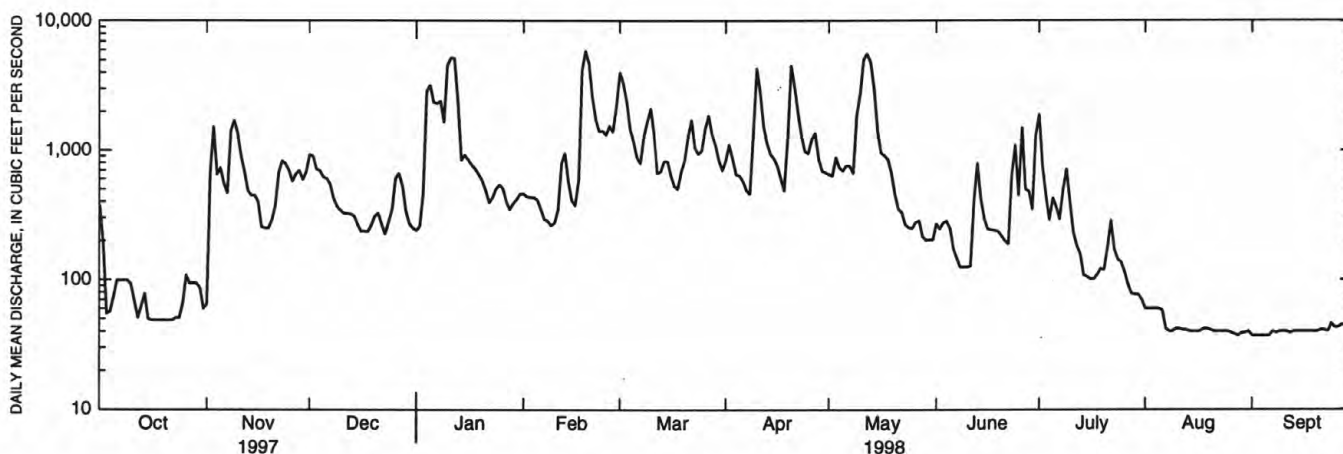
ANNUAL MEAN	643	
HIGHEST ANNUAL MEAN	955	1978
LOWEST ANNUAL MEAN	429	1977
HIGHEST DAILY MEAN	8510	Jan 9 1978
LOWEST DAILY MEAN	28	Sep 11 1977
ANNUAL SEVEN-DAY MINIMUM	32	Sep 7 1977
INSTANTANEOUS PEAK FLOW	cd17900	Feb 25 1977
INSTANTANEOUS PEAK STAGE	f17.20	Jan 26 1978
INSTANTANEOUS LOW FLOW	26	Feb 13, Sep 12, 1977; Feb 3, 1979.
ANNUAL RUNOFF (CFPM)	1.44	
ANNUAL RUNOFF (INCHES)	19.59	
10 PERCENT EXCEEDS	1520	
50 PERCENT EXCEEDS	232	
90 PERCENT EXCEEDS	69	

a Also Aug. 7-11, Sept. 9, 10.

b From rating curve extended above 6,000 ft³/s.c From rating curve extended above 4,000 ft³/s.

d Gage height 16.70 ft.

f Backwater from ice.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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 mi².

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 sea level.

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 1,900 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 8	0415	*4,460	*6.15	May 11	1245	2,340	4.44
Apr. 9	1845	2,540	4.61	June 26	1100	2,340	4.44

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125	105	337	e80	e84	588	190	125	45	216	11	2.9
2	71	455	236	e160	e80	406	171	155	38	131	10	2.8
3	53	230	197	e190	79	315	147	177	61	101	8.8	2.9
4	41	171	218	e600	73	254	134	155	32	84	8.3	3.0
5	105	150	185	562	71	211	119	165	26	77	8.2	3.1
6	60	120	145	609	e68	178	108	141	24	58	7.9	2.7
7	41	116	117	585	e70	154	98	120	21	52	6.9	6.0
8	32	500	102	e2600	e68	199	94	220	22	92	7.1	6.2
9	27	470	92	1900	e70	307	731	374	22	93	6.7	6.9
10	23	287	90	831	e70	272	760	619	18	56	16	5.6
11	20	212	86	469	79	187	387	1440	22	42	14	4.3
12	18	161	79	326	174	167	282	1050	47	35	10	3.6
13	16	122	74	286	114	e150	222	551	43	30	8.9	3.3
14	15	132	67	e200	e94	143	188	359	29	26	8.3	2.9
15	14	115	e66	e170	e80	131	180	262	24	23	8.5	2.6
16	13	109	e68	193	e94	e110	156	203	22	21	7.5	2.9
17	12	99	e64	156	105	111	138	163	20	31	8.0	3.1
18	11	88	e64	135	553	131	113	129	22	27	8.4	2.7
19	11	83	60	119	493	164	503	106	17	19	e7.4	2.9
20	10	94	67	107	356	158	835	88	19	23	e6.0	2.7
21	10	108	e56	e94	301	170	e410	73	22	81	e5.0	2.8
22	9.7	169	83	e90	252	152	301	64	17	48	e4.3	3.6
23	9.1	183	79	e86	221	143	241	57	207	31	e3.6	3.7
24	9.2	168	54	99	208	142	196	49	162	25	e3.7	2.8
25	21	125	110	87	198	168	161	58	73	21	e3.4	2.7
26	20	190	138	e86	206	307	e200	53	440	18	e3.7	3.8
27	23	349	96	85	227	241	e260	40	150	16	e3.2	4.5
28	21	256	e80	e70	609	211	e150	34	102	14	e3.1	8.1
29	20	277	e70	78	---	212	136	30	77	14	e3.0	4.1
30	20	312	e76	107	---	176	128	30	380	13	e3.2	3.4
31	13	---	e100	e88	---	155	---	29	---	12	e3.0	---
TOTAL	894.0	5956	3356	11248	5097	6413	7739	7119	2204	1530	217.1	112.6
MEAN	28.8	199	108	363	182	207	258	230	73.5	49.4	7.00	3.75
MAX	125	500	337	2600	609	588	835	1440	440	216	16	8.1
MIN	9.1	83	54	70	68	110	94	29	17	12	3.0	2.6
CFSM	.32	2.19	1.19	4.00	2.01	2.28	2.85	2.53	.81	.54	.08	.04
IN.	.37	2.45	1.38	4.62	2.09	2.63	3.18	2.92	.90	.63	.09	.05

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1998, BY WATER YEAR (WY)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
MEAN	62.9	118	125	128	137	195	244	126	67.3	37.5	48.9	25.3				
MAX	323	353	278	444	281	300	618	382	361	153	372	111				
(WY)	1991	1997	1991	1996	1984	1997	1993	1996	1989	1984	1994	1992				
MIN	4.36	13.1	13.1	13.6	21.4	91.2	91.3	17.3	7.11	3.19	4.30	2.39				
(WY)	1992	1992	1989	1989	1987	1990	1988	1985	1991	1993	1991	1991				

e Estimated.

CHEMUNG RIVER BASIN

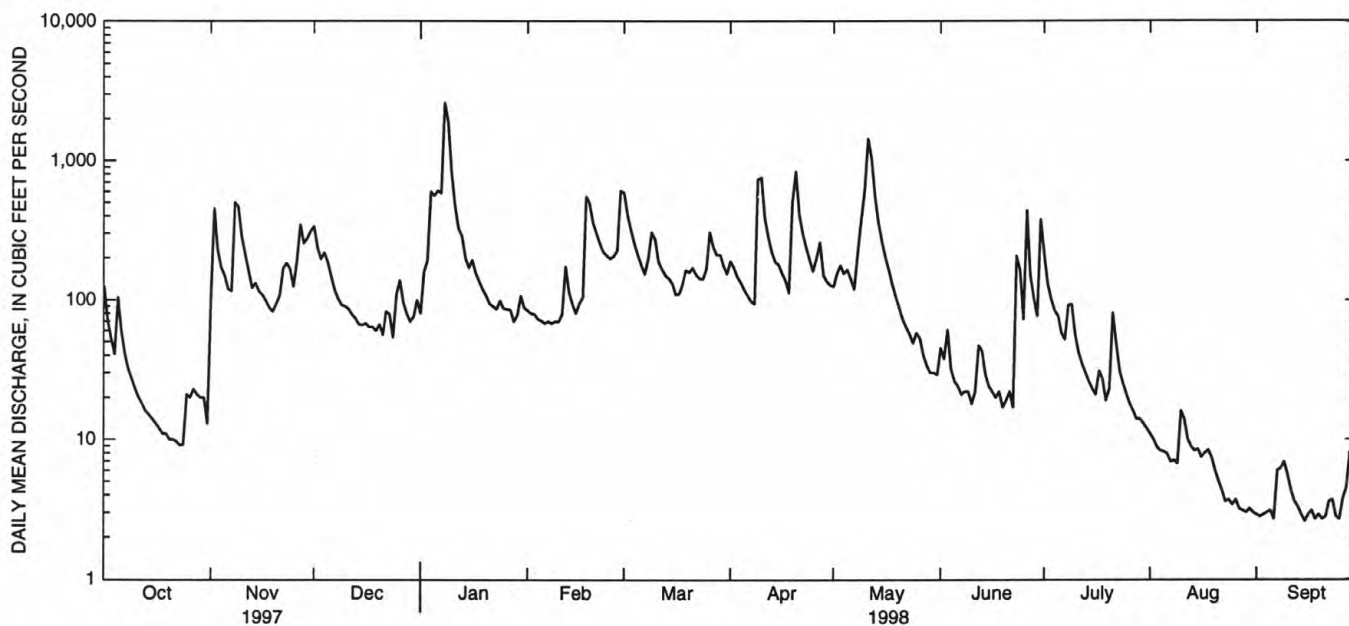
01518862 COWANESQUE RIVER AT WESTFIELD, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1983 - 1998	
ANNUAL TOTAL	35913.8		51885.7		110	
ANNUAL MEAN	98.4		142		177	
HIGHEST ANNUAL MEAN					61.6	
LOWEST ANNUAL MEAN					177	
HIGHEST DAILY MEAN	853	Mar 6	e2600	Jan 8	e5400	Jan 19 1996
LOWEST DAILY MEAN	4.8	Aug 12	2.6	Sep 15	.53	Sep 16 1991
ANNUAL SEVEN-DAY MINIMUM	5.9	Sep 4	2.8	Sep 15	.78	Sep 10 1991
INSTANTANEOUS PEAK FLOW			a4460	Jan 8	a13000	Jan 19 1996
INSTANTANEOUS PEAK STAGE			6.15	Jan 8	b11.10	Jan 19 1996
ANNUAL RUNOFF (CFSM)	1.09		1.57		1.21	
ANNUAL RUNOFF (INCHES)	14.75		21.30		16.42	
10 PERCENT EXCEEDS	232		309		257	
50 PERCENT EXCEEDS	57		84		45	
90 PERCENT EXCEEDS	9.2		5.4		5.4	

a From rating curve extended above 4,000 ft³/s.

b From floodmark.

e Estimated.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

CHEMUNG RIVER BASIN

01520000 COWANESQUE RIVER NEAR LAWRENCEVILLE, PA

LOCATION.--Lat 41°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 mi².

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 sea level. Prior to July 1976 at site 1.1 mi upstream at datum 14.07 ft higher.

REMARKS.--No estimated daily discharges. Records 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 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	27	1120	219	253	2100	514	394	145	1880	30	21
2	58	809	690	218	186	1630	577	368	117	573	29	23
3	86	1000	495	403	238	1020	463	563	190	399	28	20
4	116	495	563	2240	239	773	436	495	149	295	23	28
5	150	431	612	2380	229	622	431	519	90	274	18	50
6	137	383	379	1920	197	584	337	464	68	255	18	43
7	135	285	291	1690	176	529	263	390	61	152	18	45
8	101	979	291	1240	176	607	288	493	61	455	18	44
9	73	1960	291	641	176	858	758	1300	43	972	18	35
10	46	1140	253	4490	176	860	2830	1600	34	307	17	23
11	26	422	319	5070	283	660	1950	3790	47	166	18	21
12	26	395	242	4820	681	415	1400	4580	151	149	18	21
13	26	218	129	3270	385	439	691	3050	281	119	18	21
14	26	380	129	1050	241	467	443	1340	308	78	18	22
15	26	323	129	567	178	458	517	1010	189	78	18	23
16	26	291	129	549	157	349	509	666	122	91	18	23
17	26	271	129	549	338	289	427	498	85	63	18	24
18	26	218	240	441	1250	378	332	376	85	47	18	24
19	26	250	224	362	1870	518	502	321	53	47	19	24
20	26	267	164	309	1530	608	2520	215	34	47	19	24
21	26	330	164	222	1140	636	2480	155	34	111	19	24
22	26	636	123	291	813	563	1480	139	35	178	19	26
23	26	599	109	286	752	495	798	104	332	107	19	25
24	26	591	191	337	730	489	609	135	1240	62	19	24
25	26	451	218	263	741	589	460	139	337	35	19	25
26	26	355	218	157	872	993	572	188	1310	28	19	26
27	26	937	313	157	853	1260	867	157	1630	28	19	28
28	26	1060	363	255	1030	784	520	103	438	28	22	27
29	26	717	236	321	---	715	360	100	261	29	23	26
30	26	752	227	253	---	612	404	116	1740	30	22	26
31	26	---	250	314	---	470	---	62	---	30	21	---
TOTAL	1493	16972	9231	35284	15890	21770	24738	23830	9670	7113	620	816
MEAN	48.2	566	298	1138	568	702	825	769	322	229	20.0	27.2
MAX	150	1960	1120	5070	1870	2100	2830	4580	1740	1880	30	50
MIN	26	27	109	157	157	289	263	62	34	28	17	20

CHEMUNG RIVER BASIN

01520000 COWANESQUE RIVER NEAR LAWRENCEVILLE, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1998, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	167	304	346	322	408	630	740	389	254	104	108	81.2
MAX	1122	1114	864	1198	1027	1527	2773	1115	1222	462	889	315
(WY)	1991	1997	1991	1996	1981	1994	1993	1996	1989	1984	1994	1992
MIN	13.9	14.3	35.9	23.3	57.6	158	231	48.9	17.4	14.1	11.9	5.09
(WY)	1989	1992	1990	1981	1980	1981	1997	1985	1991	1991	1983	1980

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1980 - 1998

ANNUAL TOTAL	92852	167427		
ANNUAL MEAN	254	459	320	
HIGHEST ANNUAL MEAN			498	1984
LOWEST ANNUAL MEAN			194	1985
HIGHEST DAILY MEAN	2260	Mar 6	5070	Jan 11
LOWEST DAILY MEAN	20	Sep 27	17	Aug 10
ANNUAL SEVEN-DAY MINIMUM	22	Sep 22	18	Aug 5
INSTANTANEOUS PEAK FLOW			5420	Jan 10
INSTANTANEOUS PEAK STAGE			11.92	Jan 10
10 PERCENT EXCEEDS	681		1080	793
50 PERCENT EXCEEDS	126		242	109
90 PERCENT EXCEEDS	26		23	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

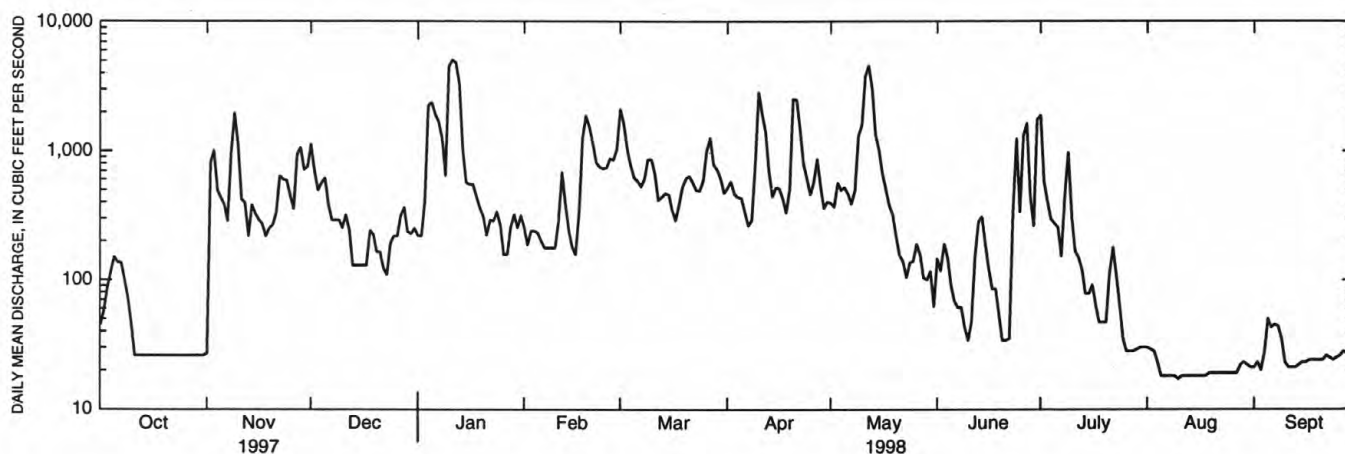
WATER YEARS 1952 - 1979

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
INSTANTANEOUS PEAK FLOW	a43700	Sep 26 1975
INSTANTANEOUS PEAK STAGE	b18.13	Sep 26 1975
INSTANTANEOUS LOW FLOW	c0.8	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 ft³/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.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

CHEMUNG RIVER BASIN

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 mi². 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 1,131.0 ft is 62,000 acre-ft. Recreation lake elevation is 1,081.0 ft, capacity 9,500 acre-ft. Reservoir is used for flood control and recreation. Figures given herein represent total contents. Flow is regulated by two service gates and low-flow by-pass system. Satellite and landline telemetry at station.

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

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

EXTREMES FOR CURRENT YEAR.--Maximum contents, 22,230 acre-ft, Jan. 9, elevation, 1,099.35 ft; minimum, 6,970 acre-ft, May 10, elevation, 1,075.12 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 mi². 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 1,131.0 ft. Storage began in November 1979. Capacity at elevation 1,131.0 ft is 63,000 acre-ft. Recreation lake elevation is 1,086.0 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, 1984, elevation, 1,123.55 ft; minimum, 2,430 acre-ft, Oct. 24, 1980, elevation, 1,074.00 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 16,370 acre-ft, Jan. 10, elevation, 1,095.73 ft; minimum, 8,750 acre-ft, Oct. 24, elevation, 1,085.87 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 mi². 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, 53,870 acre-ft, Jan. 10, elevation, 1,096.98 ft; minimum, 31,040 acre-ft, Sept. 30, elevation, 1,078.58 ft.

CHEMUNG RIVER BASIN

Reservoirs in Chemung River basin--Continued

MONTHEND ELEVATION, IN FEET ABOVE SEA LEVEL, AND CONTENTS AT 2400 HRS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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 Tioqa Lake				01518498 Hammond Lake		
Sept. 30.....	1,081.64	9,810	--	1,086.17	8,950	--
Oct. 31.....	1,081.10	9,550	- 4.2	1,085.96	8,820	- 2.1
Nov. 30.....	1,083.18	10,590	+ 17.5	1,087.03	9,480	+ 11.1
Dec. 31.....	1,083.51	10,750	+ 2.6	1,087.28	9,670	+ 3.1
CAL YR 1997.....	--	--	+ 0.3	--	--	+ 0.2
Jan. 31.....	1,082.18	10,080	- 11.0	1,087.25	9,640	- 0.5
Feb. 28.....	1,084.41	11,200	+ 20.2	1,087.34	9,710	+ 1.3
Mar. 31.....	1,081.43	9,710	- 24.2	1,086.65	9,250	- 7.5
Apr. 30.....	1,075.96	7,300	- 40.5	1,087.09	9,530	+ 4.7
May 31.....	1,081.46	9,720	+ 39.4	1,086.52	9,170	- 5.9
June 30.....	1,081.95	9,960	+ 4.0	1,086.68	9,260	+ 1.5
July 31.....	1,081.12	9,560	- 6.5	1,086.48	9,140	- 2.0
Aug. 31.....	1,080.82	9,420	- 2.3	1,086.37	9,080	- 1.0
Sept. 30.....	1,079.50	8,820	- 10.1	1,086.24	9,000	+ 1.3
WTR YR 1998.....	--	--	- 1.4	--	--	+ 0.1
01519995 Cowanesque Lake						
Sept. 30.....	1,080.54	33,140	--			
Oct. 31.....	1,080.16	32,760	- 6.2			
Nov. 30.....	1,080.35	32,950	+ 3.2			
Dec. 31.....	1,080.19	32,790	- 2.6			
CAL YR 1997.....	--	--	+ 0.2			
Jan. 31.....	1,080.13	32,730	- 1.0			
Feb. 28.....	1,080.92	33,520	+ 14.2			
Mar. 31.....	1,080.08	32,680	- 13.7			
Apr. 30.....	1,080.14	32,740	+ 1.0			
May 31.....	1,080.14	32,740	0			
June 30.....	1,081.45	34,140	+ 23.5			
July 31.....	1,080.25	32,850	- 21.0			
Aug. 31.....	1,079.73	32,300	- 8.9			
Sept. 30.....	1,078.58	31,040	- 21.2			
WTR YR 1998.....	--	--	- 2.9			

SUSQUEHANNA RIVER BASIN

01531500 SUSQUEHANNA RIVER AT TOWANDA, PA

LOCATION.--Lat 41°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 mi².

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 sea level. 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 ft³/s and maximum (*):

<u>Date</u>	<u>Time</u>	<u>Discharge (ft³/s)</u>	<u>Gage height (ft)</u>	<u>Date</u>	<u>Time</u>	<u>Discharge (ft³/s)</u>	<u>Gage height (ft)</u>
Jan. 9	0830	*113,000	*17.88	May 12	0945	69,400	12.77

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2510	1180	13200	e5800	8610	52700	26100	10300	5640	39900	2260	1140
2	2440	1330	15100	5740	7960	53700	29600	9610	7590	23400	2140	1100
3	2240	4850	13200	7260	7580	46200	31300	9580	9280	15400	2010	1050
4	1930	6530	11200	16700	7440	36200	27500	10500	8580	11100	1920	1040
5	1730	4750	10800	33700	7290	28700	23100	e12000	7440	13200	1820	988
6	1650	e4400	11100	43400	7020	23800	19600	12100	6220	12900	1740	956
7	1650	e3800	10300	51300	6560	20300	16900	11000	4960	10300	1670	1020
8	1610	3430	9320	74400	6050	18300	14900	10200	4330	9490	1610	1130
9	1550	6910	8540	109000	5760	24800	16300	11300	3940	35400	1560	1210
10	1440	9680	7940	92500	5600	52600	47500	17100	3640	31400	1520	1230
11	1350	7540	7600	79700	5660	56900	38900	45300	3470	19600	1510	1270
12	1240	6250	7330	66100	7710	46300	25900	65400	4150	13900	1520	1360
13	1150	5600	6820	48600	14700	33600	19800	46700	6430	10700	1960	1430
14	1100	4850	6320	33600	15500	26000	16400	30200	14400	8560	2100	1420
15	1040	4520	5950	26200	12100	21600	14500	20900	13700	7170	2230	1340
16	996	4330	5420	23400	9190	18500	13700	16300	12400	6100	1860	1250
17	982	4160	5350	22100	8220	16100	12900	13600	13000	5420	1610	1230
18	969	3790	5200	19300	21900	14800	11900	11600	15000	5110	1490	1140
19	929	3640	5280	16600	45500	16100	11300	9980	17900	4590	1380	1090
20	923	3590	5360	14700	42100	19400	40200	8730	14400	4210	1360	1050
21	923	3650	5530	13200	33900	27500	51500	7520	11100	3870	1330	1030
22	917	4380	5360	11800	25600	35500	36400	6560	8970	3660	1280	1010
23	900	7410	4810	10900	20500	27700	25800	5970	7780	3910	1250	991
24	893	8800	4660	10200	18500	22500	20200	5370	8880	3810	1230	959
25	938	8440	5310	10400	17700	19900	17000	5100	9140	3790	1170	946
26	993	7310	8240	10400	18000	19800	15100	5080	7770	3580	1140	941
27	1070	7490	10800	9500	18600	30700	16500	4960	12100	3360	1150	966
28	1090	10700	10900	8720	21800	35000	15600	4670	9970	3010	1130	1060
29	1120	10100	9660	8180	---	36100	12800	4250	7860	2750	1160	1230
30	1350	10900	8420	8110	---	35800	11100	4080	10400	2620	1170	1270
31	1340	---	e7400	8490	---	31600	---	3890	---	2520	1170	---
TOTAL	40963	174310	252420	900000	427050	948700	680300	439850	270440	324730	48450	33847
MEAN	1321	5810	8143	29030	15250	30600	22680	14190	9015	10480	1563	1128
MAX	2510	10900	15100	109000	45500	56900	51500	65400	17900	39900	2260	1430
MIN	893	1180	4660	5740	5600	14800	11100	3890	3470	2520	1130	941
CFSM	.17	.75	1.04	3.72	1.96	3.93	2.91	1.82	1.16	1.34	.20	.14
IN.	.20	.83	1.20	4.29	2.04	4.53	3.25	2.10	1.29	1.55	.23	.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1998, BY WATER YEAR (WY)

MEAN	5407	9592	11230	10700	11730	23680	25270	13190	7083	4120	3020	3244
MAX	31270	28940	32550	31200	35700	60780	76640	34770	41150	23840	16210	23200
(WY)	1978	1928	1997	1996	1976	1936	1993	1943	1972	1915	1915	1977
MIN	507	495	1459	1273	1821	8417	4975	3297	1615	783	571	432
(WY)	1965	1965	1931	1931	1920	1981	1946	1985	1939	1962	1964	1964

e Estimated.

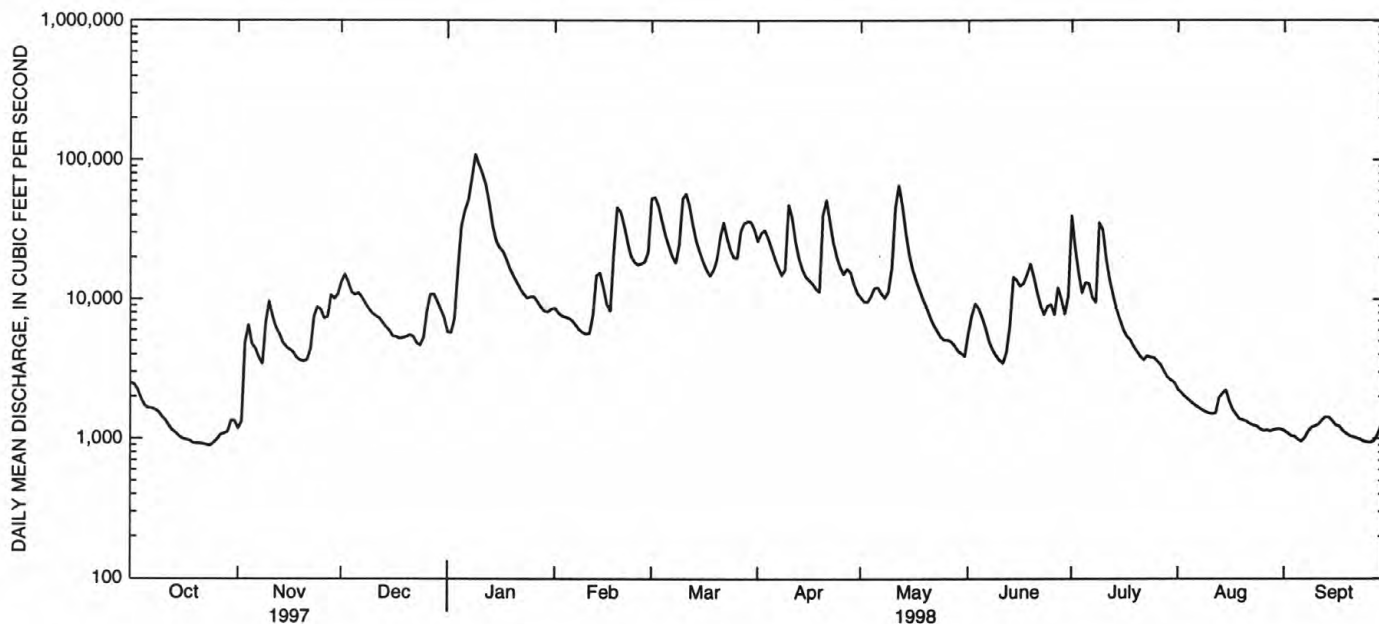
SUSQUEHANNA RIVER BASIN

01531500 SUSQUEHANNA RIVER AT TOWANDA, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1914 - 1998	
ANNUAL TOTAL	2884116		4541060		10670	
ANNUAL MEAN	7902		12440		16610	
HIGHEST ANNUAL MEAN					5104	
LOWEST ANNUAL MEAN					283000	
HIGHEST DAILY MEAN	46800	Feb 28	109000	Jan 9		Jun 23 1972
LOWEST DAILY MEAN	766	Aug 12	893	Oct 24	340	Sep 23 1964
ANNUAL SEVEN-DAY MINIMUM	842	Aug 7	918	Oct 19	348	Sep 18 1964
INSTANTANEOUS PEAK FLOW			113000	Jan 9	a320000	Jun 24 1972
INSTANTANEOUS PEAK STAGE			17.88	Jan 9	b33.43	Jun 24 1972
INSTANTANEOUS LOW FLOW					334	Sep 23,24 1964
ANNUAL RUNOFF (CFSM)	1.01		1.60		1.37	
ANNUAL RUNOFF (INCHES)	13.76		21.67		18.60	
10 PERCENT EXCEEDS	17400		31500		26000	
50 PERCENT EXCEEDS	5420		7600		5500	
90 PERCENT EXCEEDS	985		1140		1250	

a From rating curve extended above 180,000 ft³/s.

b From floodmark.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

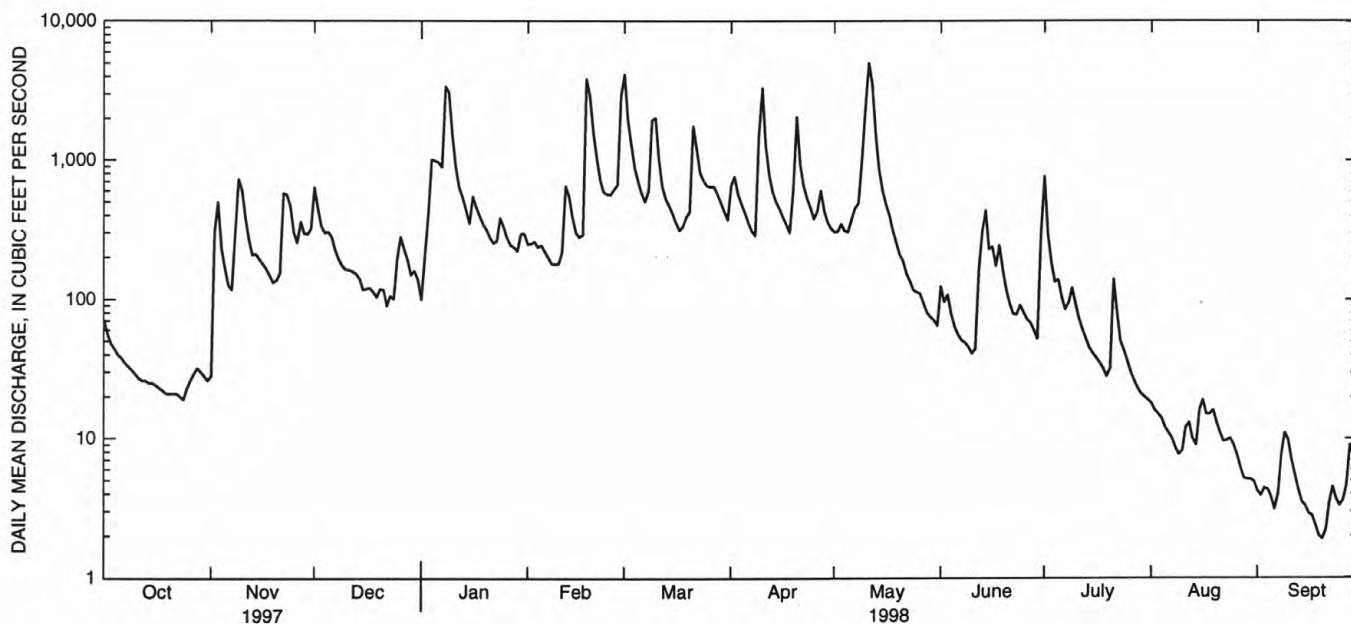
TOWANDA CREEK BASIN

01532000 TOWANDA CREEK NEAR MONROETON, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1914 - 1998	
ANNUAL TOTAL	66022		134027.7		289	
ANNUAL MEAN	181		367		502	
HIGHEST ANNUAL MEAN					111	
LOWEST ANNUAL MEAN					28700	
HIGHEST DAILY MEAN	1610	Mar 6	5020	May 11		Jun 22 1972
LOWEST DAILY MEAN	17	Aug 2,3,10,11	1.9	Sep 20	.70	Sep 21 1932
ANNUAL SEVEN-DAY MINIMUM	19	Jul 29	2.5	Sep 15	.87	Sep 16 1932
INSTANTANEOUS PEAK FLOW			11800	Feb 28	74000	Jun 22 1972
INSTANTANEOUS PEAK STAGE			13.08	Feb 28	a20.86	Jan 19 1996
INSTANTANEOUS LOW FLOW					.70	Sep 15 1932b
ANNUAL RUNOFF (CFSM)	.84		1.71		1.35	
ANNUAL RUNOFF (INCHES)	11.42		23.19		18.28	
10 PERCENT EXCEEDS	464		762		662	
50 PERCENT EXCEEDS	120		174		116	
90 PERCENT EXCEEDS	25		8.8		14	

a From floodmark.

b Also Sept. 17, 21, 22, 1932.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

SUSQUEHANNA RIVER BASIN

01533400 SUSQUEHANNA RIVER AT MESHOPPEN, PA

LOCATION.--Lat 41°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 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 599.76 ft above sea level.

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 ft³/s, from rating curve extended above 220,000 ft³/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 70,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	1530	*135,000	*28.94	May 12	1530	80,900	23.38
Mar. 2	0300	72,500	22.38				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2180	1710	13400	8090	9310	55400	31300	11500	4640	38300	2180	1270
2	2730	1690	17100	6940	9010	67900	33800	10700	7660	33100	2000	1230
3	2680	2680	15500	7910	8550	57900	36200	10300	10900	19600	1900	1190
4	2480	7580	13000	13900	8360	46400	33100	10800	9910	13100	1830	1100
5	2190	6040	11600	31500	8330	36500	27900	e12000	8480	12800	e1800	1070
6	2040	5100	12000	44500	8200	29800	23500	13400	7310	15200	e1700	1010
7	1970	4580	11400	53500	7710	25200	19900	12600	5990	11400	e1700	1000
8	1970	4080	10300	72300	7140	21900	17300	11200	5040	9990	e1600	1100
9	1920	5500	9440	129000	6760	28300	17000	12000	4520	27100	e1600	1200
10	1860	10400	8840	112000	6590	54000	50400	17900	4050	39000	e1600	1280
11	1730	9710	8500	91300	6570	66300	53600	48200	3750	25100	e1600	1310
12	1620	7500	8220	76900	8560	55400	34800	77600	4230	16500	1570	1380
13	1480	6870	7930	58500	14900	42100	25300	60800	7940	12200	1660	1500
14	1410	6150	7370	42300	18500	31600	20300	40200	18400	9510	2200	1580
15	1370	5550	6960	31100	15000	26400	17200	27200	18300	8020	2450	1570
16	1260	5250	6400	27900	11100	22200	15800	20200	15500	6920	2480	1470
17	1210	5000	6140	26800	9420	18900	14800	16200	15000	6090	2180	1360
18	1190	4720	6010	23600	19200	16900	13600	13400	16700	5590	1940	1290
19	1160	4360	5910	20000	52000	17600	12700	11300	19800	5130	1810	1170
20	1120	4230	6110	17300	52500	20600	34300	9720	17700	4630	1700	1110
21	1120	4230	6210	15300	43000	30900	60700	8610	13100	4310	1640	e1100
22	1120	5120	6230	13500	33100	44200	46200	7460	10200	4050	1600	e1100
23	1100	8330	5780	12200	25900	36400	32900	6770	8710	3910	1530	1030
24	1090	10200	5480	11600	22700	29100	25100	6120	8100	4100	1490	985
25	1120	9760	5800	11400	21500	24600	20500	5670	10700	3880	1450	951
26	1170	8910	8210	11300	21600	22900	17600	5670	8500	3770	1400	948
27	1290	8210	11300	10500	22700	29600	18600	5500	9780	3480	1300	948
28	1360	10500	12200	9750	24600	38600	18700	5150	12400	3140	1280	967
29	1380	11200	11000	9080	---	40000	15500	4900	8750	2740	1280	1060
30	1430	11500	9780	8890	---	40000	12900	5010	8590	2490	1280	1280
31	1680	---	8550	9080	---	36700	---	4570	---	2340	1280	---
TOTAL	49430	196660	282670	1017940	502810	1114300	801500	512650	304650	357490	53030	35559
MEAN	1595	6555	9118	32840	17960	35950	26720	16540	10160	11530	1711	1185
MAX	2730	11500	17100	129000	52500	67900	60700	77600	19800	39000	2480	1580
MIN	1090	1690	5480	6940	6570	16900	12700	4570	3750	2340	1280	948
CFSM	.18	.75	1.05	3.77	2.06	4.12	3.06	1.90	1.16	1.32	.20	.14
IN.	.21	.84	1.21	4.34	2.15	4.75	3.42	2.19	1.30	1.53	.23	.15

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1998, BY WATER YEAR (WY)

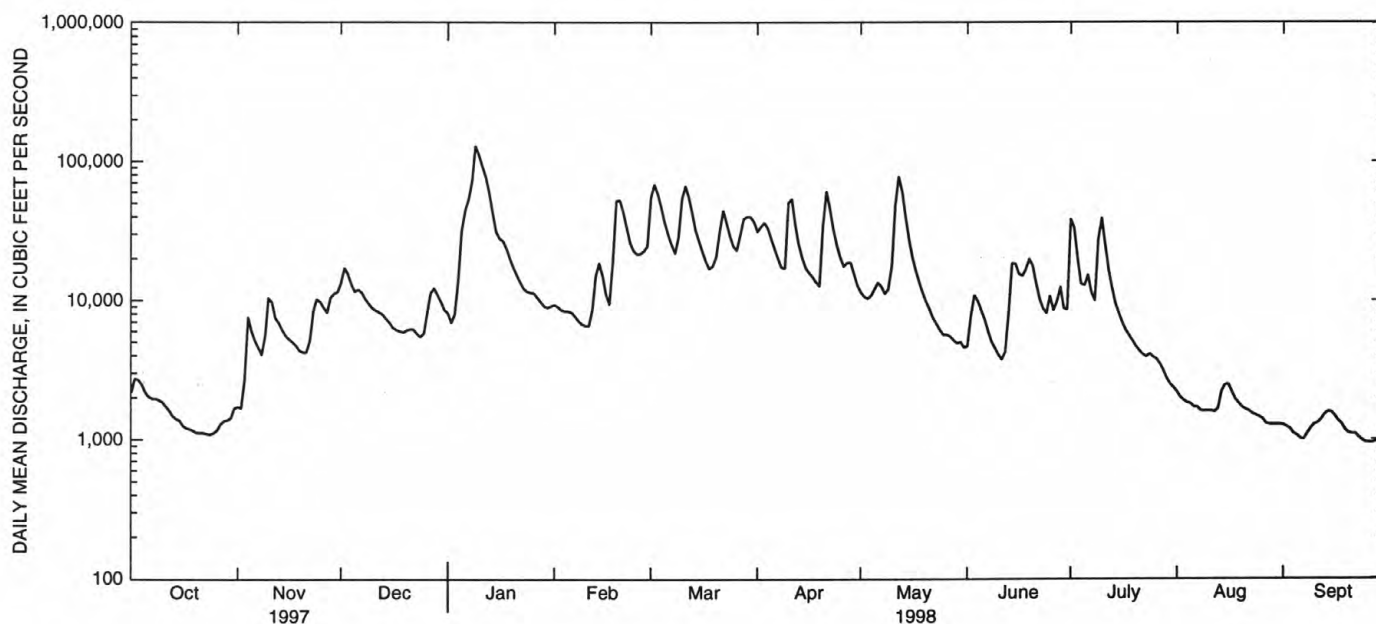
	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
MEAN	7987	11990	14540	13080	14150	25090	28380	14220	7307	4173	3491	3685										
MAX	35100	25890	38090	33960	36100	48830	86470	33200	21470	11530	17530	24900										
(WY)	1978	1997	1997	1996	1981	1979	1993	1996	1989	1998	1994	1977										
MIN	1045	2858	4440	2168	2702	9955	9638	4027	2298	1100	1139	882										
(WY)	1983	1983	1990	1981	1980	1981	1981	1985	1991	1991	1995	1995										

e Estimated.

SUSQUEHANNA RIVER BASIN

01533400 SUSQUEHANNA RIVER AT MESHOPPEN, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1977 - 1998	
ANNUAL TOTAL	3130078		5228689		12320	
ANNUAL MEAN	8576		14330		18930	1978
HIGHEST ANNUAL MEAN					7230	1985
LOWEST ANNUAL MEAN					216000	Jan 20 1996
HIGHEST DAILY MEAN	53400	Mar 7	129000	Jan 9	557	Aug 31 1995
LOWEST DAILY MEAN	867	Aug 12	948	Sep 26, 27	593	Aug 29 1995
ANNUAL SEVEN-DAY MINIMUM	944	Aug 7	984	Sep 23	226000	Jan 20 1996
INSTANTANEOUS PEAK FLOW			135000	Jan 9	36.34	Jan 20 1996
INSTANTANEOUS PEAK STAGE			28.94	Jan 9	1.41	
ANNUAL RUNOFF (CFSM)	.98		1.64		19.20	
ANNUAL RUNOFF (INCHES)	13.35		22.31			
10 PERCENT EXCEEDS	18300		36400		29400	
50 PERCENT EXCEEDS	6010		8550		6500	
90 PERCENT EXCEEDS	1230		1280		1460	



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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.

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, 1945(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 sea level (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 telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 5,700 ft³/s and maximum (*):

<u>Date</u>	<u>Time</u>	<u>Discharge</u> (ft ³ /s)	<u>Gage height</u> (ft)	<u>Date</u>	<u>Time</u>	<u>Discharge</u> (ft ³ /s)	<u>Gage height</u> (ft)
Jan. 9	0400	*8,720	*9.03	July 1	0145	5,700	7.33

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	50	596	e210	390	3650	903	504	257	2830	82	38
2	62	54	430	e280	388	2820	1700	472	215	1080	74	40
3	52	77	324	343	384	2200	1140	520	1070	708	71	50
4	48	85	298	578	375	1650	958	541	542	527	66	51
5	45	71	329	1370	472	1380	837	483	362	990	64	52
6	43	63	347	1720	509	1160	727	463	285	656	62	42
7	45	63	301	1830	426	993	627	408	233	477	59	41
8	56	77	267	3860	382	932	565	374	231	641	56	51
9	58	123	239	6100	365	2160	879	416	204	e1000	54	54
10	55	195	227	2900	359	3080	3920	1020	177	e680	55	52
11	41	140	242	1810	375	1840	1870	2330	173	e500	64	51
12	36	112	236	1330	1290	1310	1370	2090	417	e400	65	47
13	34	97	231	1090	1400	1060	1090	1340	1230	e340	57	44
14	34	100	220	929	941	948	916	993	1870	e280	52	41
15	43	116	170	745	686	846	838	795	1200	240	51	38
16	57	117	e160	1370	616	737	776	652	1040	e220	52	37
17	67	111	e170	1330	593	655	680	549	1020	217	54	36
18	58	101	e170	1070	791	721	606	459	1310	212	59	35
19	51	89	175	925	1350	970	756	387	878	172	62	34
20	47	98	171	827	1190	951	3100	341	661	154	61	34
21	47	92	168	724	1100	1780	1760	292	517	182	52	34
22	47	197	134	641	918	1810	1310	248	414	200	47	59
23	45	431	171	602	820	1430	1070	220	352	160	45	95
24	44	394	170	664	954	1300	914	202	434	151	43	66
25	47	294	222	642	1060	1150	775	209	337	137	41	53
26	54	236	470	527	1140	1080	750	336	297	122	48	49
27	61	295	526	486	1160	1100	976	243	257	111	57	47
28	66	284	437	451	1530	1000	720	190	217	103	48	47
29	64	249	351	405	---	908	604	203	186	97	43	54
30	58	270	381	434	---	796	544	327	e1000	98	42	52
31	54	---	e330	461	---	700	---	228	---	90	41	---
TOTAL	1579	4681	8663	36654	21964	43117	33681	17835	17386	13775	1727	1424
MEAN	50.9	156	279	1182	784	1391	1123	575	580	444	55.7	47.5
MAX	67	431	596	6100	1530	3650	3920	2330	1870	2830	82	95
MIN	34	50	134	210	359	655	544	190	173	90	41	34
CFSM	.13	.41	.73	3.09	2.05	3.63	2.93	1.50	1.51	1.16	.15	.12
IN.	.15	.45	.84	3.56	2.13	4.19	3.27	1.73	1.69	1.34	.17	.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1998, BY WATER YEAR (WY)

MEAN	315	544	624	560	648	1169	1117	636	343	214	172	193
MAX	1772	1934	1919	1978	1682	2910	3202	1806	1939	1007	841	1130
(WY)	1956	1973	1997	1979	1925	1936	1993	1989	1972	1947	1994	1975
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.

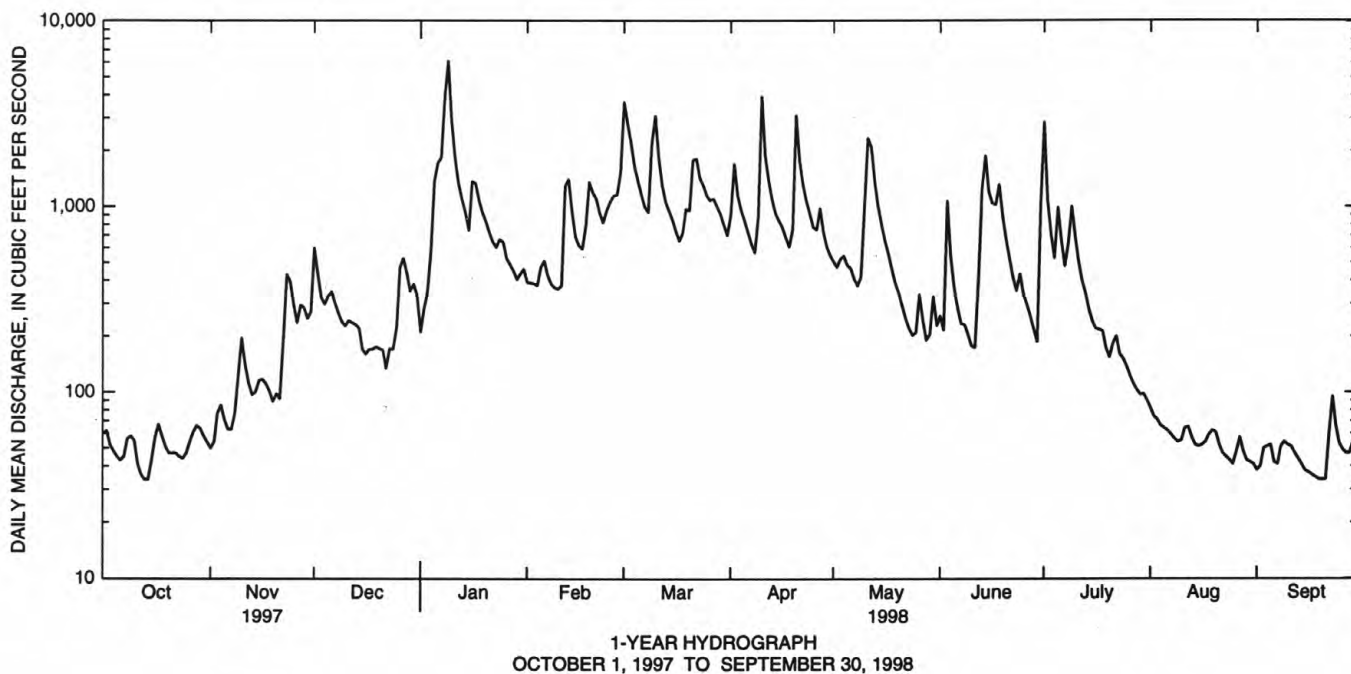
TUNKHANNOCK CREEK BASIN

01534000 TUNKHANNOCK CREEK NEAR TUNKHANNOCK, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1914 - 1998	
ANNUAL TOTAL	112028		202486		542	
ANNUAL MEAN	307		555		897	
HIGHEST ANNUAL MEAN					220	
LOWEST ANNUAL MEAN					22700	
HIGHEST DAILY MEAN	1850	Mar 6	6100	Jan 9		Apr 16 1983
LOWEST DAILY MEAN	29	Aug 3,10,11	34	Oct 13 ^a	6.9	Sep 24 1964
ANNUAL SEVEN-DAY MINIMUM	30	Jul 30	35	Sep 15	7.9	Sep 18 1964
INSTANTANEOUS PEAK FLOW			8720	Jan 9	b30300	Jan 19 1996
INSTANTANEOUS PEAK STAGE			9.03	Jan 9	19.99	Jan 19 1996
INSTANTANEOUS LOW FLOW					6.2	Sep 24 1964
ANNUAL RUNOFF (CFSM)	.80		1.45		1.42	
ANNUAL RUNOFF (INCHES)	10.88		19.67		19.24	
10 PERCENT EXCEEDS	745		1310		1240	
50 PERCENT EXCEEDS	220		327		260	
90 PERCENT EXCEEDS	41		47		50	

a Also Oct. 14, Sept. 19-21.

b From computation of slope-area measurement of peak flow.



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 mi².

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

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

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

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

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

EXTREMES FOR CURRENT YEAR.--Maximum contents, 5,080 acre-ft, Jan. 10, elevation, 1,600.52 ft; minimum, 381 acre-ft, Oct. 13, 14, 23-25, elevation, 1,572.42 ft.

MONTHEND ELEVATION, IN FEET ABOVE SEA LEVEL, AND CONTENTS AT 2400 HRS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

Date	Elevation (feet)	Contents (acre- feet)	Change in contents (equivalent in ft ³ /s)
Sept. 30	1,572.60	397	--
Oct. 31	1,572.63	400	0
Nov. 30	1,574.11	541	+ 2.4
Dec. 31	1,573.25	457	- 1.4
CAL YR 1997	--	--	- 0.2
Jan. 31	1,573.41	473	+ 0.3
Feb. 28	1,574.43	575	+ 1.8
Mar. 31	1,576.12	758	+ 3.0
Apr. 30	1,573.70	501	- 4.3
May 31	1,573.15	448	- 0.9
June 30	1,576.95	854	+ 6.8
July 31	1,572.73	409	- 7.2
Aug. 31	1,572.50	388	- 0.3
Sept. 30	1,572.75	410	+ 0.4
WTR YR 1998	--	--	0

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 mi².

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

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

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.8	4.1	106	34	43	159	168	60	38	128	10	e5.2
2	5.7	9.5	122	34	43	256	228	57	43	251	9.4	e6.2
3	5.2	23	89	36	43	313	217	75	93	161	9.3	e6.0
4	4.6	26	69	47	40	270	177	97	126	82	9.3	e5.8
5	4.2	22	68	99	40	196	144	107	88	86	8.4	e5.6
6	3.7	18	66	139	39	149	121	102	55	95	7.5	e5.4
7	2.8	15	59	174	36	123	101	86	42	81	6.6	e6.6
8	1.9	15	52	55	34	115	88	76	36	74	5.9	e6.2
9	2.0	23	45	33	33	171	93	76	32	96	5.7	e6.2
10	2.3	42	43	320	33	309	244	110	29	103	5.5	e5.6
11	2.3	41	43	700	34	413	293	200	27	95	7.3	e5.6
12	2.2	32	43	774	62	418	217	307	43	72	8.4	e5.4
13	2.0	25	42	733	111	318	158	403	93	53	8.2	e5.4
14	1.8	23	39	528	117	198	148	295	215	44	7.0	e5.2
15	1.9	23	e35	296	110	136	122	182	386	39	6.6	e5.0
16	2.0	22	33	177	96	107	100	128	382	35	6.0	e5.4
17	2.0	19	33	157	75	90	89	98	283	33	5.8	e5.4
18	2.0	18	33	128	72	87	79	76	249	31	6.1	e5.2
19	2.0	15	33	104	100	85	80	64	206	28	7.2	e5.0
20	2.0	15	32	88	142	118	157	56	129	26	7.2	e4.8
21	2.1	15	31	77	167	195	293	49	92	26	6.3	e6.0
22	2.1	24	25	68	158	249	239	44	80	27	5.6	e7.2
23	2.0	53	26	63	138	204	156	40	63	25	5.3	e6.6
24	2.0	62	29	64	120	159	116	36	57	24	5.4	e6.0
25	2.3	54	31	64	101	133	93	35	50	22	5.5	e5.6
26	2.7	47	38	56	96	127	83	46	45	19	5.5	e5.4
27	3.4	56	44	53	91	183	96	43	40	17	e7.2	e6.0
28	3.9	67	44	52	94	279	87	36	36	15	e7.2	e5.6
29	4.6	59	38	46	---	307	74	32	33	14	e6.8	e5.4
30	4.5	64	42	47	---	264	67	32	62	12	e6.0	e5.2
31	4.2	---	39	48	---	202	---	30	---	12	e5.4	---
TOTAL	92.2	931.6	1472	5294	2268	6333	4328	3078	3153	1826	213.6	170.2
MEAN	2.97	31.1	47.5	171	81.0	204	144	99.3	105	58.9	6.89	5.67
MAX	5.8	167	122	774	167	418	293	403	386	251	10	7.2
MIN	1.8	4.1	25	33	33	85	67	30	27	12	5.3	4.8

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 1998, BY WATER YEAR (WY)

MEAN	47.3	76.1	86.8	72.8	77.7	132	170	85.5	54.1	27.7	19.5	27.6
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	25.3	9.64	13.2	40.5	58.8	31.5	11.1	4.67	2.92	1.17
(WY)	1965	1965	1990	1981	1980	1993	1968	1982	1980	1991	1980	1980

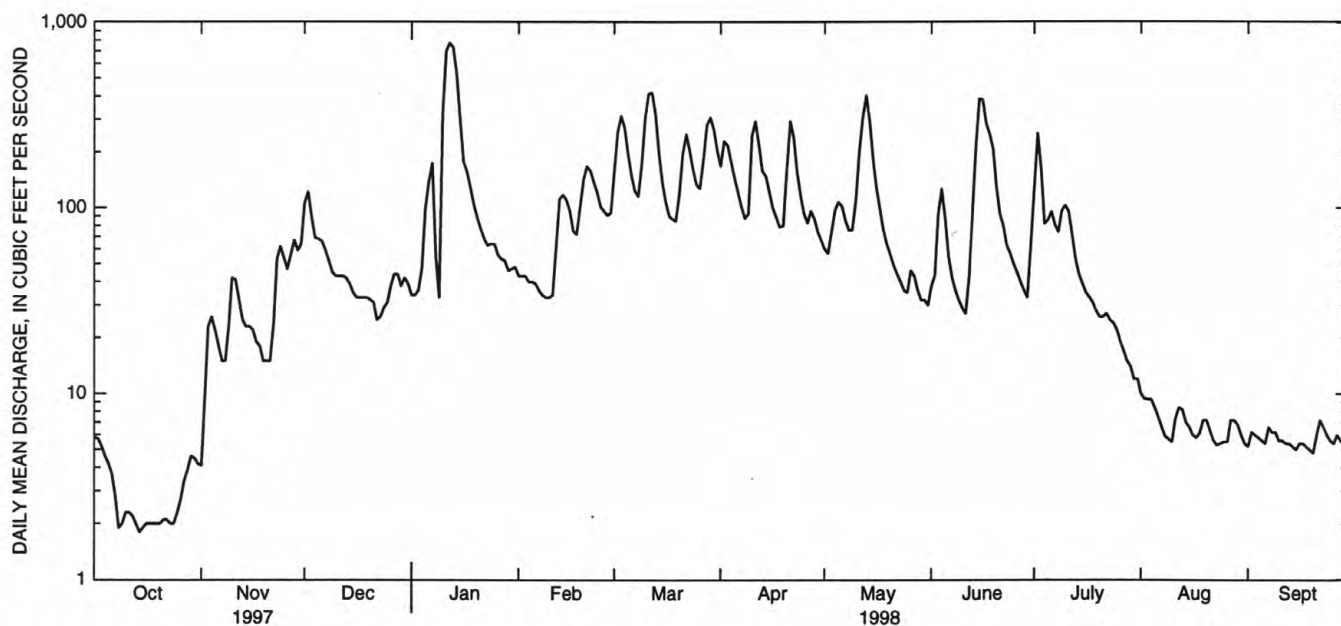
e Estimated.

LACKAWANNA RIVER BASIN

01534300 LACKAWANNA RIVER NEAR FOREST CITY, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1959 - 1998	
ANNUAL TOTAL	16354.9		29159.6		73.0	
ANNUAL MEAN	44.8		79.9		112	
HIGHEST ANNUAL MEAN					1973	
LOWEST ANNUAL MEAN					1965	
HIGHEST DAILY MEAN	296	Feb 23	774	Jan 12	1160	Apr 4 1993
LOWEST DAILY MEAN	1.8	Oct 14	1.8	Oct 14	a.00	Jul 21 1978
ANNUAL SEVEN-DAY MINIMUM	2.0	Oct 13	2.0	Oct 13	.43	Sep 11 1980
INSTANTANEOUS PEAK FLOW			835	Jan 12	bc1390	Jan 22 1959
INSTANTANEOUS PEAK STAGE			4.74	Jan 12	6.41	Jan 22 1959
INSTANTANEOUS LOW FLOW			1.8	Oct 8,14,15	a.00	Jul 21 1978
10 PERCENT EXCEEDS	111		201		173	
50 PERCENT EXCEEDS	32		43		39	
90 PERCENT EXCEEDS	3.6		5.2		6.9	

a Result of shutoff at Stillwater Dam.

b From rating curve extended above 930 ft³/s.c Instantaneous peak since regulation, 1,200 ft³/s, Apr. 3, 1993, gage height, 5.47 ft.

1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

LACKAWANNA RIVER BASIN

01534500 LACKAWANNA RIVER AT ARCHBALD, PA

LOCATION.--Lat 41°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 mi².

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 sea level.

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 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	35	309	75	123	800	462	214	127	e670	47	31
2	29	47	271	106	119	800	552	222	119	e520	45	34
3	29	56	218	119	115	777	476	274	326	379	44	34
4	28	52	190	188	110	651	411	272	247	255	43	32
5	28	49	184	377	117	513	357	273	212	268	42	31
6	27	45	169	691	109	422	311	268	160	237	41	30
7	26	45	151	917	99	368	272	236	132	208	39	33
8	26	47	134	1150	93	397	249	224	120	244	39	33
9	24	88	117	956	88	775	367	232	108	279	37	33
10	25	106	112	764	87	1110	900	480	95	243	39	32
11	25	97	109	1040	91	871	729	878	90	216	41	31
12	25	78	105	1030	343	757	560	915	221	187	40	31
13	24	65	99	977	361	606	443	793	309	155	39	30
14	24	65	93	750	298	452	387	608	551	133	38	29
15	25	61	80	496	257	359	357	442	634	119	37	28
16	25	58	80	445	231	301	313	351	614	109	37	28
17	24	54	78	395	211	265	281	296	507	108	37	28
18	24	51	74	336	253	271	250	242	448	100	38	27
19	24	48	72	288	423	323	330	210	372	85	37	27
20	24	46	71	254	422	340	726	192	284	83	37	27
21	24	46	68	227	435	519	646	171	216	85	36	31
22	24	112	58	206	388	557	547	154	194	81	35	37
23	24	161	64	197	357	470	426	143	172	73	34	32
24	24	173	64	197	377	403	353	129	166	73	33	33
25	27	148	97	190	339	365	300	144	141	66	33	33
26	26	129	129	169	326	389	304	167	127	62	34	32
27	31	157	136	157	315	487	333	138	115	59	32	31
28	32	160	123	150	398	578	281	119	101	56	33	31
29	32	153	107	139	---	577	249	124	92	54	32	30
30	33	189	124	141	---	496	229	136	550	52	32	30
31	32	---	105	137	---	410	---	108	---	50	31	---
TOTAL	825	2621	3791	13264	6885	16409	12401	9155	7550	5309	1162	929
MEAN	26.6	87.4	122	428	246	529	413	295	252	171	37.5	31.0
MAX	33	189	309	1150	435	1110	900	915	634	670	47	37
MIN	24	35	58	75	87	265	229	108	90	50	31	27

e Estimated.

LACKAWANNA RIVER BASIN

01534500 LACKAWANNA RIVER AT ARCHBALD, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1998, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	125	200	230	194	216	366	430	263	164	92.4	68.8	80.8
MAX	578	661	581	541	598	741	1111	610	605	278	234	377
(WY)	1978	1973	1974	1996	1981	1977	1993	1989	1972	1984	1994	1987
MIN	15.8	17.4	77.9	38.2	40.4	143	174	101	47.9	25.6	25.0	18.4
(WY)	1965	1965	1965	1981	1980	1981	1988	1982	1962	1965	1966	1964

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1960 - 1998

ANNUAL TOTAL	46410	80301		
ANNUAL MEAN	127	220		
HIGHEST ANNUAL MEAN			202	1973
LOWEST ANNUAL MEAN			313	1965
HIGHEST DAILY MEAN	643	Apr 4	1150	Jan 8
LOWEST DAILY MEAN	24	Oct 9a	24	Oct 9a
ANNUAL SEVEN-DAY MINIMUM	24	Oct 17	24	Oct 17
INSTANTANEOUS PEAK FLOW			1610	Jun 30
INSTANTANEOUS PEAK STAGE			4.99	Jun 30
10 PERCENT EXCEEDS	283	548	461	
50 PERCENT EXCEEDS	85	132	121	
90 PERCENT EXCEEDS	27	30	35	

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

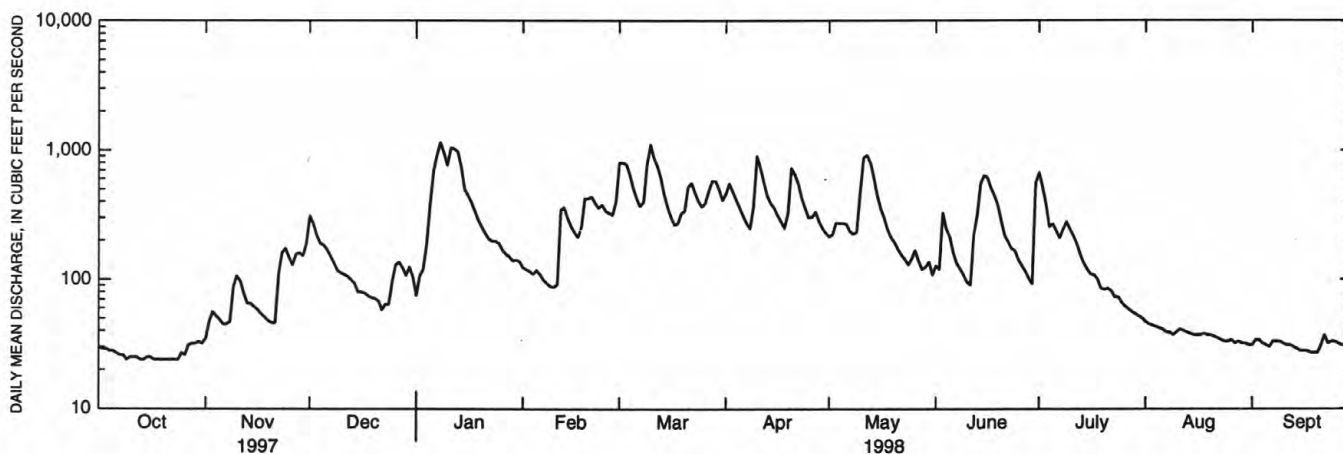
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	113	209	222	203	181	377	455	279	145	112	92.3	78.9
MAX	657	430	420	380	371	691	1113	553	284	373	443	187
(WY)	1956	1946	1951	1949	1951	1945	1940	1947	1946	1947	1955	1945
MIN	27.2	50.1	53.3	56.8	65.2	188	121	85.6	63.4	38.4	31.8	28.8
(WY)	1942	1942	1947	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
INSTANTANEOUS PEAK FLOW	b9510	May 22 1942
INSTANTANEOUS 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 Also Oct. 13, 14, 17-24.

b From rating curve extended above 1,900 ft³/s on basis of slope-area measurement of peak flow.

1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

LACKAWANNA RIVER BASIN

01536000 LACKAWANNA RIVER AT OLD FORGE, PA

LOCATION.--Lat 41°21'33", 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 mi².

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 sea level. 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 fair 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 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	70	581	160	275	1690	1010	535	1110	1480	94	52
2	54	114	463	194	266	1700	1290	547	477	1010	85	114
3	56	119	381	229	255	1550	1100	614	925	726	85	93
4	51	108	334	388	250	1330	976	573	537	486	82	65
5	53	100	339	e700	357	1190	843	528	433	504	80	55
6	49	91	300	e1300	341	1050	720	516	327	421	77	54
7	51	116	261	e2000	286	942	623	467	275	354	72	142
8	53	121	239	e3200	257	956	584	440	283	555	67	97
9	52	190	215	e2900	242	1830	888	463	240	516	65	73
10	52	208	211	1580	234	2880	2350	1020	212	413	88	75
11	46	174	220	1480	236	1760	1680	1720	196	343	120	63
12	41	154	204	1340	853	1380	1300	1620	681	293	78	55
13	41	136	190	1280	1050	1200	1130	1340	940	248	72	51
14	42	148	178	1130	794	1060	994	1160	1120	217	84	50
15	52	148	162	908	623	891	937	968	1130	196	74	49
16	45	134	159	1040	555	743	810	783	1170	180	65	46
17	38	124	154	903	526	643	730	635	1140	220	165	46
18	36	114	156	765	688	676	686	531	1140	189	144	42
19	34	106	154	645	1100	875	931	459	926	153	111	38
20	35	105	149	568	1100	891	2040	401	696	151	77	35
21	36	104	146	491	1100	1250	1420	344	517	282	71	37
22	38	260	129	435	982	1300	1240	292	446	211	64	69
23	36	293	140	433	901	1160	1070	263	515	157	61	64
24	36	307	154	465	1140	1050	929	238	616	157	60	53
25	68	269	257	459	1020	962	775	228	446	141	59	60
26	49	235	e280	386	944	938	809	279	347	124	123	54
27	82	245	e290	348	925	1070	984	231	292	116	67	53
28	64	257	e270	330	1030	1130	758	198	250	110	59	74
29	55	243	e230	304	---	1110	642	219	221	105	55	46
30	54	328	279	307	---	1010	577	279	1150	100	55	46
31	55	---	238	307	---	860	---	270	---	112	55	---
TOTAL	1513	5121	7463	26975	18330	37077	30826	18161	18758	10270	2514	1851
MEAN	48.8	171	241	870	655	1196	1028	586	625	331	81.1	61.7
MAX	82	328	581	3200	1140	2880	2350	1720	1170	1480	165	142
MIN	34	70	129	160	234	643	577	198	196	100	55	35

e Estimated.

LACKAWANNA RIVER BASIN

01536000 LACKAWANNA RIVER AT OLD FORGE, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1998, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	266	417	499	441	502	822	951	614	357	194	144	175
MAX	1276	1223	1414	1521	1198	1767	2712	1658	1488	566	432	978
(WY)	1978	1973	1997	1996	1981	1977	1993	1989	1972	1984	1994	1987
MIN	37.3	45.2	125	61.4	88.7	291	353	199	69.8	46.4	49.5	37.8
(WY)	1965	1965	1965	1981	1980	1981	1985	1962	1962	1965	1964	1964

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1960 - 1998

ANNUAL TOTAL	102815	178859	
ANNUAL MEAN	282	490	
HIGHEST ANNUAL MEAN			448
LOWEST ANNUAL MEAN			712
HIGHEST DAILY MEAN	1810	Apr 4	194
LOWEST DAILY MEAN	29	Aug 10	194
ANNUAL SEVEN-DAY MINIMUM	36	Oct 18	10700
INSTANTANEOUS PEAK FLOW			26
INSTANTANEOUS PEAK STAGE			29
INSTANTANEOUS LOW FLOW			a24000
10 PERCENT EXCEEDS	599		b16.49
50 PERCENT EXCEEDS	205		20
90 PERCENT EXCEEDS	47		66

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

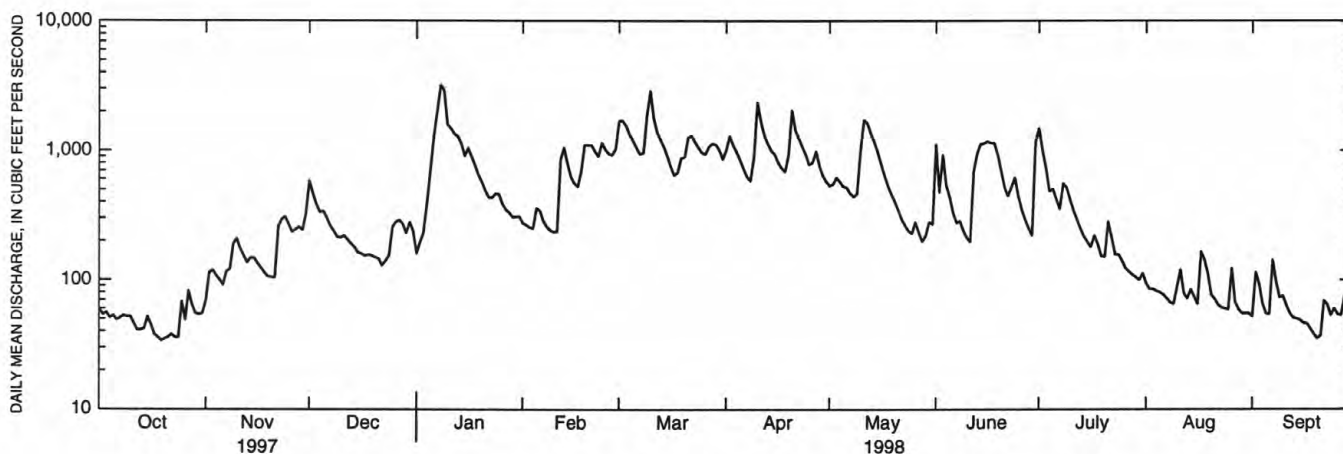
WATER YEARS 1939 - 1959

ANNUAL MEAN	566
HIGHEST ANNUAL MEAN	781
LOWEST ANNUAL MEAN	401
HIGHEST DAILY MEAN	14000
LOWEST DAILY MEAN	73
ANNUAL SEVEN-DAY MINIMUM	87
INSTANTANEOUS PEAK FLOW	a31000
INSTANTANEOUS PEAK STAGE	b20.05
INSTANTANEOUS LOW FLOW	54
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 ft³/s on basis of slope-area measurements at gage heights 15.30 ft, 16.49 ft, and at peak flow.

b From floodmark.

e Estimated.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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 mi².

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).

GAUGE.--Water-stage recorder. Datum of gage is 510.86 ft above sea level, using NAVD 1988 datum. 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 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 ft³/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 82,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	2215	*138,000	*24.79	May 12	2230	87,100	18.08

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1700	2030	15400	9500	12200	54500	37300	15800	7300	31500	3250	1820
2	2490	2190	18700	8090	12000	77700	38600	14800	7750	45900	3050	1900
3	3030	2430	19100	8370	11300	69100	40700	14300	12400	27500	2870	1890
4	2940	4810	16900	12500	10900	57100	39000	14300	14500	19300	2750	1790
5	2690	8220	14900	29600	11100	45300	34000	15100	11700	15800	2660	1720
6	2450	6120	14600	46500	11200	37100	29000	16900	9930	18700	2590	1690
7	2290	5580	14400	56800	10500	31600	25000	16300	8410	16300	2500	1770
8	2210	5060	13200	70300	9680	27700	21700	15100	7000	14100	2440	1750
9	2230	4970	11800	123000	8990	31900	20800	14900	e6200	17700	2390	1740
10	2180	9370	10900	126000	8610	57800	48600	19300	e5400	43400	2420	1810
11	2070	12700	10300	101000	8470	74000	66800	44500	e5200	32900	2370	1860
12	1930	9990	9860	85700	11000	65100	46600	80100	5580	22200	2260	1870
13	1830	8120	9500	69300	17500	52100	33800	76200	8820	e16000	2210	1920
14	1760	7540	8900	52300	22600	39600	27200	52600	18700	e13000	2310	2000
15	1710	6760	8190	37900	20700	32700	23000	36200	24400	e10000	2770	2060
16	1670	6260	7670	33300	16500	27800	20700	27000	21000	e9000	2950	2020
17	1600	5920	7140	32700	13700	24000	19400	21800	19900	8010	2960	1920
18	1560	5620	7000	29300	14700	21500	18200	18300	21400	7310	2760	1840
19	1540	5220	6790	25500	46800	21400	17400	15800	22600	6690	2450	1790
20	1530	4960	6820	22200	59700	23700	32500	13700	23000	6130	2280	1710
21	1490	4870	6960	19800	51200	31200	65400	12100	18300	5860	2180	1670
22	1480	5420	7020	17800	41100	49300	57600	10400	14600	5750	2120	1680
23	1470	8550	6880	16300	32500	45900	42400	9100	12300	5260	2070	1780
24	1480	12000	6460	15800	28900	37000	32400	8310	11900	5190	2020	1680
25	1530	12800	6600	15300	27200	31100	26500	7590	12500	5110	1980	1640
26	1550	11600	8320	15000	26600	28000	22900	7500	12800	4900	2050	1610
27	1680	10400	12500	14400	27600	29900	23000	7350	10800	4670	1930	1590
28	1740	11000	14700	13300	29000	41600	23600	6890	15100	4390	1870	1650
29	1790	14000	14300	12300	---	43700	20800	6540	12500	4020	1870	1600
30	1810	13500	13100	11700	---	43800	17700	6630	12100	3650	1850	1660
31	1830	---	11300	12000	---	41800	---	6500	---	3440	1860	---
TOTAL	59260	228010	340210	1143560	602250	1295000	972600	631910	394090	433680	74040	53430
MEAN	1912	7600	10970	36890	21510	41770	32420	20380	13140	13990	2388	1781
MAX	3030	14000	19100	126000	59700	77700	66800	80100	24400	45900	3250	2060
MIN	1470	2030	6460	8090	8470	21400	17400	6500	5200	3440	1850	1590
CFSM	.19	.76	1.10	3.70	2.16	4.19	3.26	2.05	1.32	1.40	.24	.18
IN.	.22	.85	1.27	4.27	2.25	4.84	3.63	2.36	1.47	1.62	.28	.20

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1899 - 1998, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1899	6955	39860	1978	705	1965
1900	11310	32130	1928	724	1965
1901	14060	44610	1997	1357	1909
1902	14020	40740	1996	1386	1931
1903	14760	43030	1976	2710	1920
1904	30380	80560	1936	10250	1965
1905	31220	100000	1993	6918	1946
1906	16490	39590	1943	3388	1903
1907	8974	54330	1972	2428	1921
1908	5421	29010	1902	1086	1962
1909	3993	19560	1994	853	1964
1910	4242	28680	1975	637	1964

e Estimated.

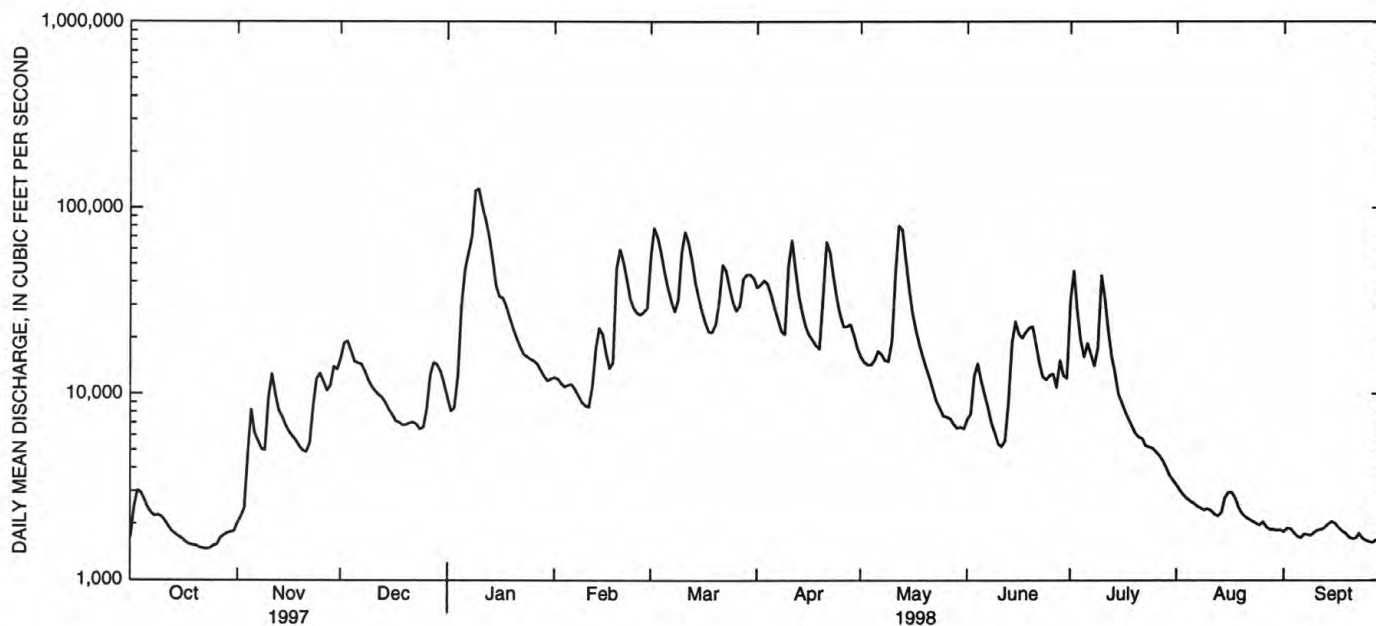
SUSQUEHANNA RIVER BASIN

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

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1899 - 1998	
ANNUAL TOTAL	3798270		6228040		13490	
ANNUAL MEAN	10410		17060		21990	
HIGHEST ANNUAL MEAN					1978	
LOWEST ANNUAL MEAN					1965	
HIGHEST DAILY MEAN	58100	Mar 7	126000	Jan 10	329000	Jun 24 1972
LOWEST DAILY MEAN	1440	Sep 28	1470	Oct 23	532	Sep 27 1964
ANNUAL SEVEN-DAY MINIMUM	1500	Oct 19	1500	Oct 19	546	Sep 21 1964
INSTANTANEOUS PEAK FLOW			138000	Jan 9	a345000	Jun 24 1972
INSTANTANEOUS PEAK STAGE			24.79	Jan 9	b40.91	Jun 24 1972
INSTANTANEOUS LOW FLOW					528	Sep 27 1964
ANNUAL RUNOFF (CFSM)	1.04		1.71		1.35	
ANNUAL RUNOFF (INCHES)	14.19		23.26		18.41	
10 PERCENT EXCEEDS	22800		42800		32400	
50 PERCENT EXCEEDS	7500		11200		7130	
90 PERCENT EXCEEDS	1710		1810		1660	

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

b From floodmark.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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 mi².

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 sea level (Penn Central Railroad bench mark). Prior to Mar. 15, 1930, nonrecording gage at same site and 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 580 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	1200	600	4.08	Apr. 20	1900	*639	*4.21
Apr. 10	0100	585	4.03				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	17	84	e45	58	334	153	95	54	45	14	9.8
2	12	38	53	e60	55	244	177	98	36	31	12	20
3	12	41	42	71	55	206	114	109	31	26	12	35
4	11	21	42	89	55	172	99	92	28	24	11	16
5	9.8	15	44	124	226	144	89	84	26	24	11	12
6	9.0	13	44	131	157	122	79	73	24	23	10	11
7	8.2	15	37	157	115	106	73	65	22	21	10	e16
8	8.1	21	35	352	98	95	73	62	25	25	9.3	e60
9	7.9	46	33	468	85	211	146	71	23	29	9.2	e27
10	8.2	45	34	299	76	244	407	152	21	22	24	e15
11	8.4	31	38	210	73	152	228	216	22	e19	35	e14
12	7.2	25	33	159	142	125	169	239	69	e18	18	e13
13	8.5	22	36	136	117	109	141	164	94	17	14	e13
14	8.4	28	32	111	91	104	122	134	136	16	13	e12
15	9.0	35	29	96	e72	93	128	114	86	15	13	e11
16	9.6	34	28	240	e68	82	106	97	84	16	12	11
17	8.8	33	28	156	80	74	97	81	53	16	12	13
18	8.2	29	28	134	188	86	95	71	50	15	22	15
19	8.2	27	26	117	179	130	188	62	42	14	26	12
20	7.6	28	27	105	141	106	432	57	36	16	15	11
21	8.7	28	28	90	125	227	235	51	32	37	13	11
22	9.4	71	e25	81	109	184	185	45	34	29	12	11
23	10	66	30	82	98	147	157	41	54	19	11	12
24	10	48	31	105	219	133	135	39	89	e23	11	11
25	21	39	70	95	198	113	116	38	48	e18	10	10
26	22	37	78	78	207	101	156	37	47	e17	17	12
27	26	36	63	71	207	92	192	32	38	e15	14	11
28	27	32	54	69	244	84	128	31	32	e14	11	12
29	18	32	48	64	---	76	111	34	28	14	10	10
30	15	32	53	69	---	69	102	83	31	14	9.3	9.2
31	15	---	e48	67	---	64	---	37	---	15	9.3	---
TOTAL	366.2	985	1281	4131	3538	4229	4633	2604	1395	647	430.1	456.0
MEAN	11.8	32.8	41.3	133	126	136	154	84.0	46.5	20.9	13.9	15.2
MAX	27	71	84	468	244	334	432	239	136	45	35	60
MIN	7.2	13	25	45	55	64	73	31	21	14	9.2	9.2
CFSM	.27	.75	.94	3.04	2.88	3.11	3.53	1.92	1.06	.48	.32	.35
IN.	.31	.84	1.09	3.51	3.00	3.59	3.93	2.21	1.18	.55	.37	.39

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1920 - 1998, BY WATER YEAR (WY)

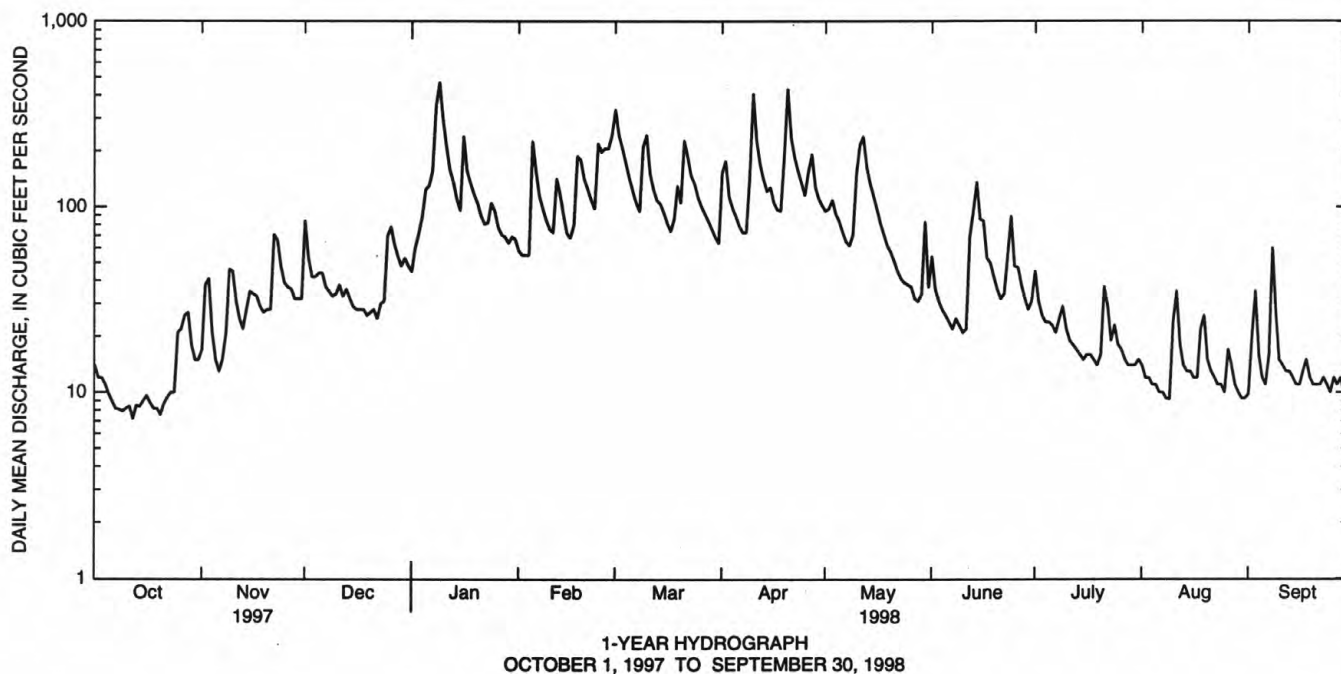
MEAN	38.8	61.7	75.4	71.7	83.4	118	116	87.3	49.2	35.4	25.0	26.8
MAX	202	203	206	284	284	327	362	243	248	172	149	161
(WY)	1956	1927	1997	1979	1981	1936	1993	1947	1972	1947	1933	1987
MIN	4.95	5.35	5.90	6.39	14.9	48.7	47.0	25.8	10.9	5.21	4.46	3.37
(WY)	1964	1931	1931	1931	1940	1981	1955	1955	1962	1955	1953	1936

WAPWALLOPEN CREEK BASIN

01538000 WAPWALLOPEN CREEK NEAR WAPWALLOPEN, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1920 - 1998	
ANNUAL TOTAL	15564.9		24695.3		65.7	
ANNUAL MEAN	42.6		67.7		108	
HIGHEST ANNUAL MEAN					1978	
LOWEST ANNUAL MEAN					30.9	
HIGHEST DAILY MEAN	200	Apr 3	468	Jan 9	e2200	Jan 19 1996
LOWEST DAILY MEAN	7.2	Oct 12	7.2	Oct 12	1.5	Aug 31 1953
ANNUAL SEVEN-DAY MINIMUM	8.1	Oct 7	8.1	Oct 7	1.8	Aug 27 1953
INSTANTANEOUS PEAK FLOW			639	Apr 20	a5410	Jun 22 1972
INSTANTANEOUS PEAK STAGE			4.21	Apr 20	11.04	Jun 22 1972
INSTANTANEOUS LOW FLOW					1.1	Aug 4 1955
ANNUAL RUNOFF (CFSM)	.97		1.54		1.50	
ANNUAL RUNOFF (INCHES)	13.22		20.97		20.37	
10 PERCENT EXCEEDS	86		157		140	
50 PERCENT EXCEEDS	36		38		41	
90 PERCENT EXCEEDS	10		11		8.9	

a From rating curve extended above 1,400 ft³/s on basis of contracted-opening measurement of peak flow.
e Estimated.



NESCOPECK CREEK BASIN

01538510 LITTLE NESCOPECK CREEK TRIBUTARY NEAR FREELAND, PA

LOCATION.--Lat 41°00'19", long 75°59'39", Luzerne County, Hydrologic Unit 02050107, on left bank 60 ft downstream from Jeddo Tunnel outlet, 0.3 mi upstream from confluence with Little Nescopeck Creek, and 5.0 mi west of Freeland.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--December 1973 to October 1979, October 1995 to September 1998 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 1,040 ft above sea level, from topographic map.

REMARKS.--Records good except for period Jan. 20 to Mar. 6, which are fair. No gage height record Nov. 24 to Jan. 21, gage vandalized. Outflow is from mine drainage tunnels and is regulated by mining activity. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 197 ft³/s, Mar. 10, gage height, 3.03 ft; minimum discharge, 26 ft³/s, Nov. 1. Extremes may have been higher or lower during period of missing record.

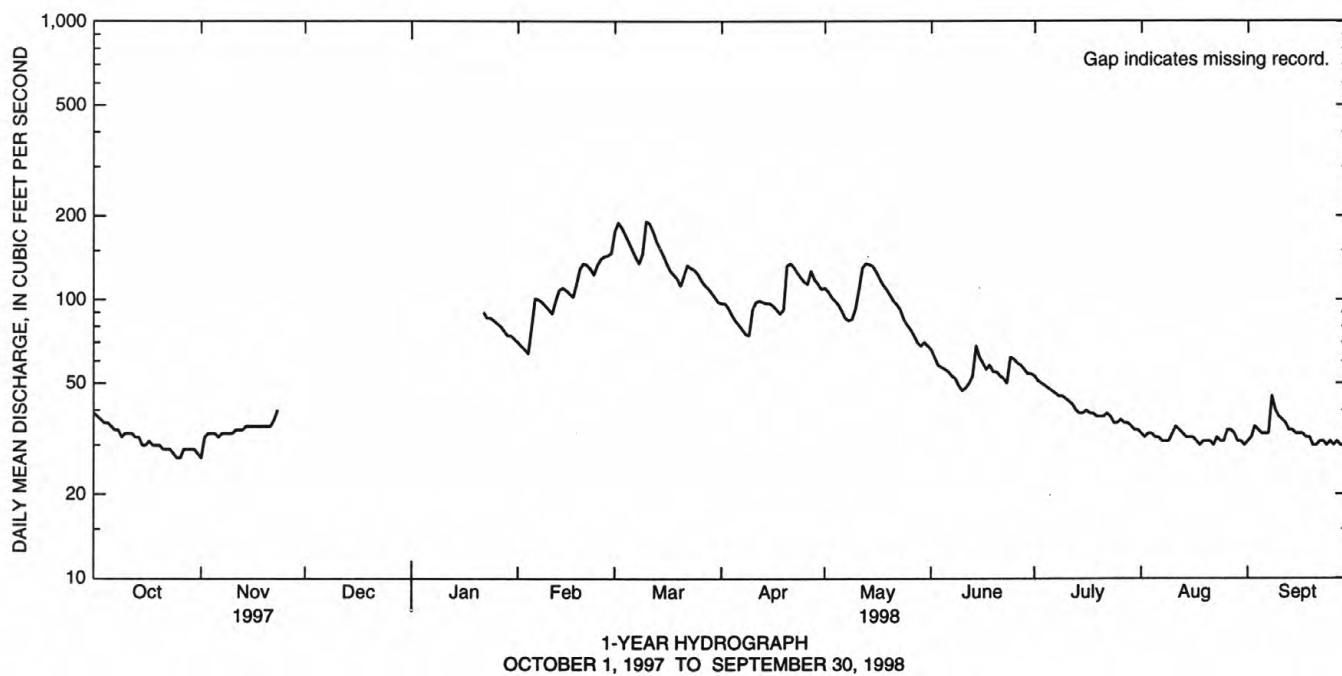
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 482 ft³/s, Nov. 9, 1996, gage height, 3.61 ft; minimum discharge, 20 ft³/s, Aug. 15, 16, 1977, Oct. 13, 1995.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	27	---	---	70	176	97	110	66	53	33	31
2	38	32	---	---	68	189	97	107	62	51	32	32
3	37	33	---	---	66	181	93	102	58	50	33	35
4	36	33	---	---	64	171	88	99	57	49	33	34
5	36	33	---	---	80	161	84	96	56	48	32	33
6	35	32	---	---	101	151	81	91	55	47	32	33
7	34	33	---	---	100	142	78	86	53	46	31	33
8	34	33	---	---	98	135	75	84	52	45	31	45
9	32	33	---	---	95	146	74	85	49	45	31	40
10	33	33	---	---	92	191	92	93	47	44	33	38
11	33	34	---	---	89	188	98	109	48	43	35	37
12	33	34	---	---	99	176	99	130	50	42	34	36
13	32	34	---	---	108	162	98	135	53	40	33	34
14	32	35	---	---	110	153	97	134	68	39	32	34
15	30	35	---	---	108	144	97	132	62	39	32	33
16	30	35	---	---	105	135	95	126	59	40	32	33
17	31	35	---	---	102	127	92	119	56	39	31	33
18	30	35	---	---	114	123	89	113	58	39	30	32
19	30	35	---	---	129	119	92	109	55	38	31	32
20	30	35	---	---	135	112	132	104	55	38	31	30
21	29	35	---	---	133	122	135	99	53	38	31	30
22	29	37	---	90	129	133	131	96	52	39	30	31
23	29	40	---	86	123	130	125	92	50	38	32	31
24	28	---	---	86	133	128	120	85	62	36	31	30
25	27	---	---	84	140	124	116	81	61	36	31	31
26	27	---	---	82	143	118	114	78	59	37	34	30
27	29	---	---	80	144	113	127	74	58	36	34	31
28	29	---	---	77	147	110	118	70	56	36	33	30
29	29	---	---	74	---	106	114	68	54	35	31	30
30	29	---	---	74	---	102	109	70	54	34	31	29
31	28	---	---	72	---	98	---	68	---	34	30	---
TOTAL	978	---	---	---	3025	4366	3057	3045	1678	1274	990	991
MEAN	31.5	---	---	---	108	141	102	98.2	55.9	41.1	31.9	33.0
MAX	39	---	---	---	147	191	135	135	68	53	35	45
MIN	27	---	---	---	64	98	74	68	47	34	30	29

NESCOPECK CREEK BASIN

01538510 LITTLE NESCOPECK CREEK TRIBUTARY NEAR FREELAND, PA--Continued



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 mi².

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 sea level.

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 ft³/s and maximum (*):

<u>Date</u>	<u>Time</u>	<u>Discharge</u> <u>(ft³/s)</u>	<u>Gage height</u> <u>(ft)</u>	<u>Date</u>	<u>Time</u>	<u>Discharge</u> <u>(ft³/s)</u>	<u>Gage height</u> <u>(ft)</u>
Jan. 9	0230	*13,600	*10.37	Apr. 10	0500	5,230	6.73
Mar. 9	2000	5,340	6.79				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	58	479	e230	433	1720	571	596	238	519	63	33
2	70	109	416	e250	413	1500	839	561	210	351	56	64
3	65	263	362	283	401	1270	652	580	176	268	52	88
4	62	201	351	353	393	1050	582	533	152	223	50	70
5	58	159	343	527	859	882	532	630	136	211	43	56
6	54	135	310	940	860	755	483	591	125	187	39	44
7	50	128	275	1460	699	669	440	537	115	165	40	64
8	47	148	248	6790	599	667	417	575	113	244	37	85
9	44	274	227	9260	530	3010	1020	720	106	268	33	71
10	41	298	218	4120	476	3860	4340	997	100	201	55	56
11	39	252	230	2290	446	2140	2300	1750	99	159	82	48
12	39	218	230	1520	930	1470	1550	2110	356	133	61	41
13	39	193	226	1150	991	1130	1170	1620	666	118	50	35
14	38	197	208	911	853	968	955	1200	1090	105	43	34
15	37	217	185	750	703	835	848	947	684	97	44	32
16	37	217	173	1240	622	714	731	776	596	94	44	31
17	37	205	169	1050	626	630	649	669	2120	93	54	34
18	37	182	157	935	1570	614	573	561	1340	88	85	35
19	37	166	157	821	2180	657	865	481	862	82	72	33
20	37	161	151	728	1810	633	2790	423	640	81	58	31
21	37	154	150	635	1420	1350	1790	371	506	105	50	30
22	36	297	127	567	1110	1580	1310	321	409	155	44	30
23	36	476	153	570	953	1270	1040	287	378	128	65	34
24	36	418	171	723	2520	1050	874	259	434	137	51	31
25	43	347	357	672	2100	883	739	239	349	104	48	29
26	51	307	503	588	1740	784	798	229	297	89	56	31
27	58	299	484	545	1400	738	1060	205	264	82	57	35
28	64	275	437	527	1250	711	791	184	230	74	47	33
29	62	253	376	493	---	656	699	183	204	71	41	34
30	61	262	380	487	---	586	641	372	240	67	39	31
31	57	---	318	478	---	529	---	240	---	68	37	---
TOTAL	1485	6869	8571	41893	28887	35311	32049	19747	13235	4767	1596	1303
MEAN	47.9	229	276	1351	1032	1139	1068	637	441	154	51.5	43.4
MAX	76	476	503	9260	2520	3860	4340	2110	2120	519	85	88
MIN	36	58	127	230	393	529	417	183	99	67	33	29
CFSM	.17	.84	1.01	4.93	3.77	4.16	3.90	2.32	1.61	.56	.19	.16
IN.	.20	.93	1.16	5.69	3.92	4.79	4.35	2.68	1.80	.65	.22	.18

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 1998, BY WATER YEAR (WY)

MEAN	291	468	616	513	569	898	907	619	336	203	159	208
MAX	1589	995	1867	1509	1456	1680	2518	1712	2230	835	525	1286
(WY)	1977	1946	1997	1979	1981	1977	1993	1989	1972	1947	1994	1975
MIN	12.5	16.4	112	53.5	128	293	221	127	74.3	30.3	15.5	9.96
(WY)	1965	1965	1965	1981	1940	1981	1946	1941	1939	1964	1964	1964

e Estimated.

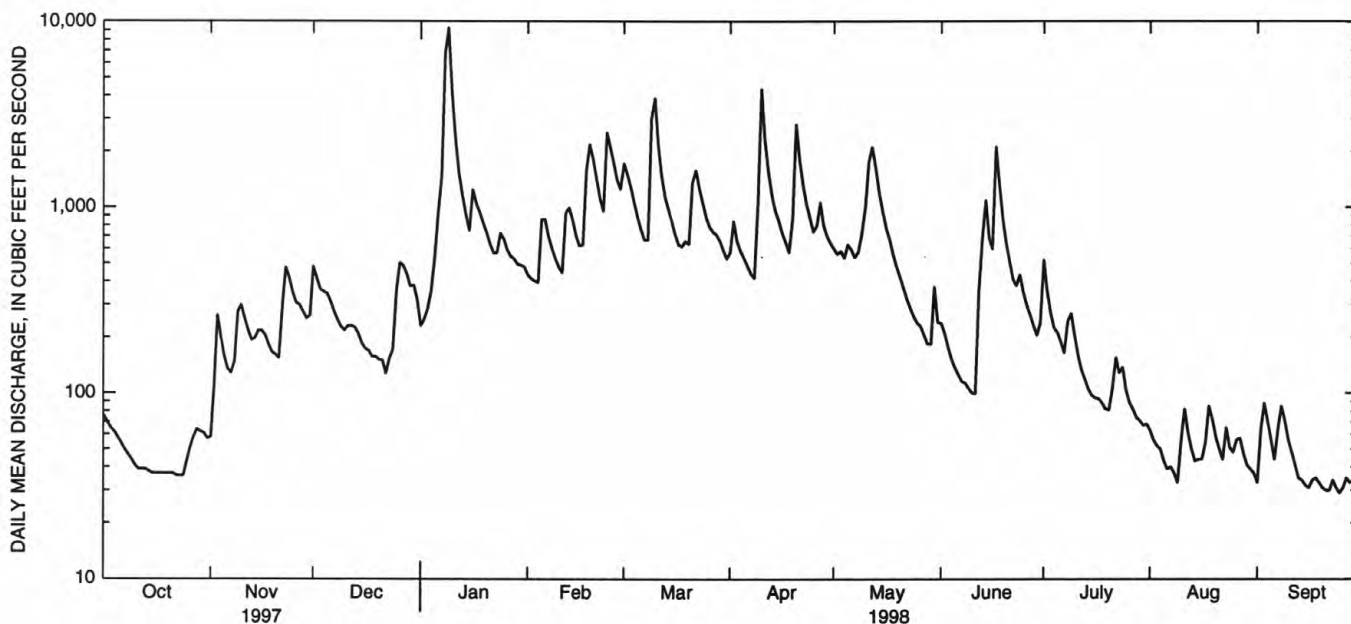
FISHING CREEK BASIN

01539000 FISHING CREEK NEAR BLOOMSBURG, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1938 - 1998	
ANNUAL TOTAL	101569		195713		482	
ANNUAL MEAN	278		536		739	
HIGHEST ANNUAL MEAN					229	
LOWEST ANNUAL MEAN					18500	
HIGHEST DAILY MEAN	1480	Feb 23	9260	Jan 9		Jun 23 1972
LOWEST DAILY MEAN	21	Aug 11,12	29	Sep 25	8.4	Sep 12 1964
ANNUAL SEVEN-DAY MINIMUM	23	Aug 7	31	Sep 20	8.7	Sep 12 1964
INSTANTANEOUS PEAK FLOW			13600	Jan 9	a30900	Jun 22 1972
INSTANTANEOUS PEAK STAGE			10.37	Jan 9	b15.18	Jun 22 1972
INSTANTANEOUS LOW FLOW					7.6	Jul 19 1939
ANNUAL RUNOFF (CFSM)	1.02		1.96		1.76	
ANNUAL RUNOFF (INCHES)	13.79		26.57		23.88	
10 PERCENT EXCEEDS	667		1240		1080	
50 PERCENT EXCEEDS	218		268		271	
90 PERCENT EXCEEDS	37		39		54	

a From rating curve extended above 9,500 ft³/s on basis of contracted-opening measurement at gage height 12.08 ft.

b From floodmark in gage.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

SUSQUEHANNA RIVER BASIN

01540500 SUSQUEHANNA RIVER AT DANVILLE, PA

LOCATION.--Lat 40°57'29", long 76°37'10", Montour County, Hydrologic Unit 02050107, on right bank 200 ft upstream from Mill Street bridge on State Highway 54 at Danville, and 0.8 mi upstream from Mahoning Creek.

DRAINAGE AREA.--11,220 mi².

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 sea level. 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 telemetry at station. Bridge construction caused backwater at the streamgage July 29 to September 30.

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 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1850	1970	14600	10900	13000	41200	39800	18800	7160	15700	e3600	e2000
2	1850	2280	16400	9580	13100	78600	39600	17200	7600	44500	e3400	e2100
3	2400	2770	18500	8470	12700	77500	40800	16400	8620	35000	e3200	e2300
4	3170	2930	18300	9870	12000	66100	41100	15800	13500	23300	e3100	e2100
5	3150	5180	16100	18300	14700	52800	37500	16000	13100	17200	e3000	e2000
6	2950	7570	14700	40500	15800	42400	32200	17900	10900	16100	e2900	e1900
7	2680	6120	14700	53700	14200	35500	27700	18400	9410	18100	e2800	e2000
8	2500	5800	14100	72200	12700	30900	24200	17500	8130	15100	e2700	e2200
9	2400	5940	12800	115000	11500	33100	22900	16800	6900	14000	e2700	e2000
10	2380	6060	11900	138000	10600	54200	43500	18600	6190	30000	e2800	e2000
11	2330	10700	11200	117000	10100	73200	73800	33400	5720	38400	e3000	e2000
12	2240	12100	10700	96300	11400	73600	60700	73400	5680	26800	e2700	e2000
13	2110	9390	10200	80300	16000	61000	42300	89100	7520	19100	e2600	e2100
14	2010	8330	9810	61900	22000	47000	32800	66500	13300	15000	e2800	e2100
15	1980	7850	9110	45300	24100	37400	27800	45700	24100	12100	e3000	e2100
16	1900	7160	8420	38400	20400	31600	24000	33200	23700	10200	e3200	e2200
17	1840	6680	7910	36700	16900	27200	21900	26200	22500	8870	e3300	e2200
18	1770	6320	7480	33900	17800	24100	20600	21600	22400	7820	e3500	e2100
19	1710	6000	7310	30000	31900	22900	20100	18400	22500	7060	e3000	e2000
20	1660	5620	7120	26100	63000	23800	32600	16000	23700	6520	e2700	e1900
21	1620	5350	7180	22900	58800	29300	58300	14000	21300	6110	e2500	e1900
22	1590	5590	7210	20500	48500	45700	68500	12300	16800	6180	e2400	e1900
23	1550	7020	7320	18700	38400	52000	52300	10600	13800	5810	e2500	e1900
24	1540	10100	7240	18400	38700	43600	39100	9520	15300	5440	e2400	e2000
25	1670	12500	7390	17900	36600	35800	31200	8740	12700	5280	e2200	e1900
26	1770	12500	8410	17000	33600	31300	26800	8130	14000	5120	e2300	e1900
27	1850	11600	10500	16400	32300	29400	27000	7950	12200	4900	e2400	e1900
28	1910	10400	14400	15500	32400	36900	26300	7640	11400	4690	e2200	e1800
29	1950	11700	15400	14300	---	43500	25000	7170	15100	e4400	e2100	e1800
30	1950	13500	14800	13400	---	44100	21500	7730	11600	e4100	e2100	e1800
31	1950	---	13300	13000	---	43200	---	7390	---	e3900	e2000	---
TOTAL	64230	227030	354510	1230420	683200	1368900	1081900	698070	406830	436800	85100	60100
MEAN	2072	7568	11440	39690	24400	44160	36060	22520	13560	14090	2745	2003
MAX	3170	13500	18500	138000	63000	78600	73800	89100	24100	44500	3600	2300
MIN	1540	1970	7120	8470	10100	22900	20100	7170	5680	3900	2000	1800
CFSM	.18	.67	1.02	3.54	2.17	3.94	3.21	2.01	1.21	1.26	.24	.18
IN.	.21	.75	1.18	4.08	2.27	4.54	3.59	2.31	1.35	1.45	.28	.20

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1905 - 1998, BY WATER YEAR (WY)

	MEAN	MAX	MIN	(WY)	(WY)	(WY)	(WY)	(WY)	(WY)	(WY)	(WY)	(WY)
MEAN	7816	13060	16160	16220	16830	32760	35090	19450	10560	6343	4638	5077
MAX	43890	38540	49410	44410	46420	91900	106900	44980	62370	28490	23110	30900
(WY)	1978	1927	1997	1996	1976	1936	1993	1943	1972	1915	1915	1975
MIN	868	852	1602	1853	2841	11740	7664	5643	2803	1308	1091	740
(WY)	1965	1965	1909	1931	1920	1965	1946	1941	1939	1965	1964	1964

e Estimated.

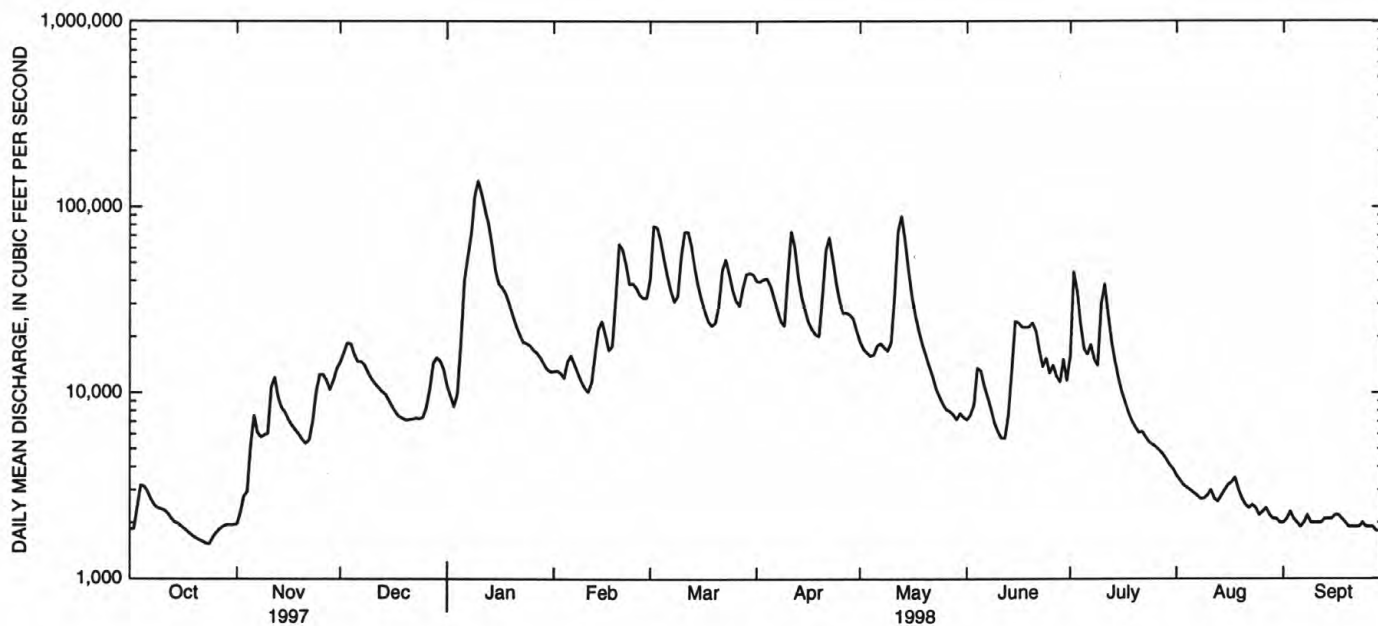
SUSQUEHANNA RIVER BASIN

01540500 SUSQUEHANNA RIVER AT DANVILLE, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1905 - 1998	
ANNUAL TOTAL	4040870		6697090		15320	
ANNUAL MEAN	11070		18350		24670	
HIGHEST ANNUAL MEAN					1978	
LOWEST ANNUAL MEAN					1965	
HIGHEST DAILY MEAN	58300	Mar 8	138000	Jan 10	335000	Jun 25 1972
LOWEST DAILY MEAN	1420	Aug 11, 12	1540	Oct 24	558	Sep 24 1964
ANNUAL SEVEN-DAY MINIMUM	1510	Aug 7	1620	Oct 19	579	Sep 21 1964
INSTANTANEOUS PEAK FLOW			143000	Jan 10	a363000	Jun 25 1972
INSTANTANEOUS PEAK STAGE			20.43	Jan 10	b32.32	Jun 24 1972
INSTANTANEOUS LOW FLOW			1540	Oct 23, 24	508	Sep 27 1964
ANNUAL RUNOFF (CFSM)	.99		1.64		1.37	
ANNUAL RUNOFF (INCHES)	13.40		22.20		18.55	
10 PERCENT EXCEEDS	23300		43500		36200	
50 PERCENT EXCEEDS	8410		12000		8460	
90 PERCENT EXCEEDS	1890		2000		2110	

a From rating curve extended above 250,000 ft³/s.

b Backwater from West Branch Susquehanna River.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

WEST BRANCH SUSQUEHANNA RIVER BASIN

01541000 WEST BRANCH SUSQUEHANNA RIVER AT BOWER, PA

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 mi².

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 sea level. 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 ft³/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 4,400 ft³/s and maximum (*):

<u>Date</u>	<u>Time</u>	<u>Discharge</u> (ft ³ /s)	<u>Gage height</u> (ft)	<u>Date</u>	<u>Time</u>	<u>Discharge</u> (ft ³ /s)	<u>Gage height</u> (ft)
Nov. 8	1915	*15,900	*15.29	Apr. 27	0615	6,330	11.12
Jan. 8	0700	5,670	10.73				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	346	189	1060	e390	609	2860	465	1020	201	155	93	70
2	269	1230	842	e440	570	2060	663	1760	197	139	91	67
3	212	931	704	461	554	1690	487	1490	186	122	85	68
4	177	506	733	625	524	1310	442	1260	167	114	81	67
5	153	377	703	592	543	1060	411	1940	161	114	78	63
6	135	302	616	776	590	874	378	1850	155	109	76	59
7	121	2900	562	1010	512	764	352	1380	149	103	72	60
8	110	14000	516	4920	475	808	340	1480	151	724	69	304
9	103	9610	481	3600	461	1310	660	1420	142	704	67	198
10	100	3350	549	2220	455	1310	1610	1100	140	300	99	133
11	92	1830	1020	1510	469	987	973	1010	167	213	259	110
12	90	1260	858	1130	799	811	763	1850	353	174	134	93
13	87	938	725	987	985	706	647	1400	376	152	99	83
14	86	853	641	853	791	685	662	1100	254	137	87	75
15	84	836	558	700	670	606	2690	892	221	129	139	72
16	82	720	502	695	593	533	1700	738	538	133	143	68
17	78	609	473	696	754	495	1330	636	722	134	120	66
18	76	526	432	649	1350	500	1010	530	442	165	168	71
19	75	481	400	581	2030	567	1750	454	317	127	137	67
20	75	484	396	533	1790	555	3570	402	369	114	106	63
21	73	509	387	464	1470	799	2120	360	267	112	92	81
22	72	938	363	439	1160	1010	1510	323	218	136	86	170
23	71	1130	568	560	975	795	1150	298	206	151	81	268
24	71	946	705	983	1040	715	923	275	192	268	78	133
25	78	770	1010	753	997	629	755	263	173	190	83	106
26	94	694	1090	628	1080	599	2050	256	158	151	142	102
27	143	784	932	579	1140	546	5030	235	147	131	143	93
28	134	1040	793	552	1640	501	2390	218	139	113	96	194
29	106	1360	665	554	---	461	e1500	217	136	107	83	144
30	91	1100	622	791	---	425	1200	291	135	103	79	103
31	85	---	543	719	---	398	---	215	---	98	75	---
TOTAL	3569	51203	20449	30390	25026	27369	39531	26663	7179	5622	3241	3251
MEAN	115	1707	660	980	894	883	1318	860	239	181	105	108
MAX	346	14000	1090	4920	2030	2860	5030	1940	722	724	259	304
MIN	71	189	363	390	455	398	340	215	135	98	67	59
CFSM	.37	5.42	2.09	3.11	2.84	2.80	4.18	2.73	.76	.58	.33	.34
IN.	.42	6.05	2.41	3.59	2.96	3.23	4.67	3.15	.85	.66	.38	.35

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1998, BY WATER YEAR (WY)

MEAN	254	451	632	716	815	1221	939	656	399	278	204	194
MAX	915	1707	1958	2136	1924	3369	2080	1480	2446	1522	850	1349
(WY)	1928	1998	1924	1937	1918	1936	1940	1919	1972	1977	1956	1926
MIN	22.5	27.2	51.0	32.9	120	271	202	116	82.0	49.7	25.7	24.1
(WY)	1931	1931	1931	1931	1934	1969	1925	1926	1949	1965	1930	1939

e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

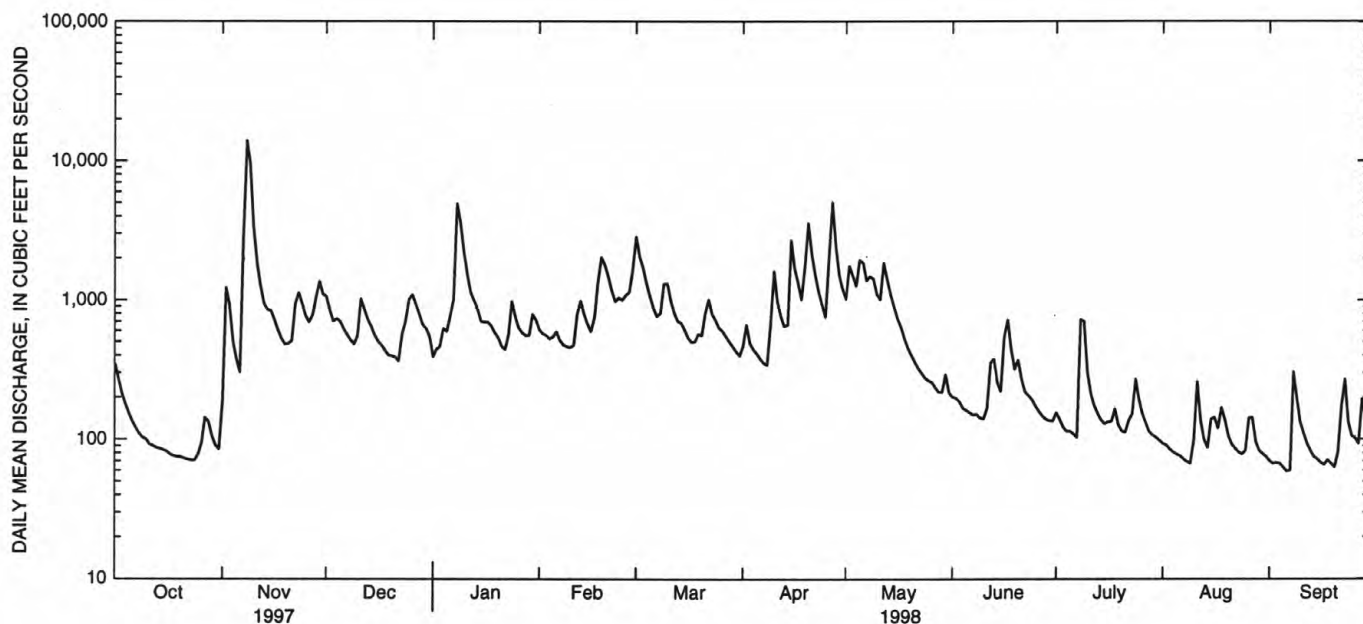
01541000 WEST BRANCH SUSQUEHANNA RIVER AT BOWER, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1914 - 1998	
ANNUAL TOTAL	217860		243493		562	
ANNUAL MEAN	597		667		955	
HIGHEST ANNUAL MEAN					1928	
LOWEST ANNUAL MEAN					294	
HIGHEST DAILY MEAN	14000	Nov 8	14000	Nov 8	23200	Jun 23 1972
LOWEST DAILY MEAN	51	Aug 11	59	Sep 6	16	Aug 29 1939 ^a
ANNUAL SEVEN-DAY MINIMUM	58	Aug 6	65	Sep 1	17	Aug 28 1939
INSTANTANEOUS PEAK FLOW			b15900	Nov 8	b31500	Mar 18 1936
INSTANTANEOUS PEAK STAGE			15.29	Nov 8	c19.74	Mar 18 1936
INSTANTANEOUS LOW FLOW					14	Aug 29 1939
ANNUAL RUNOFF (CFSM)	1.89		2.12		1.78	
ANNUAL RUNOFF (INCHES)	25.73		28.76		24.25	
10 PERCENT EXCEEDS	1200		1370		1310	
50 PERCENT EXCEEDS	370		461		288	
90 PERCENT EXCEEDS	76		83		62	

a Also Aug. 31 to Sept. 2, 1939.

b From rating curve extended above 7,200 ft³/s on basis of slope-area measurements of peak flow.

c From floodmark in gage.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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 mi².

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

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

REMARKS.--Records fair except those below 100 ft³/s and those for estimated daily discharges, 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 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	340	86	1450	650	848	3360	524	1430	286	187	106	e90
2	290	1240	1110	552	787	2690	724	2010	235	203	e90	e84
3	334	1480	932	555	737	2130	770	2080	191	160	e80	e84
4	304	1150	932	734	715	1640	576	1280	241	146	e76	e82
5	215	793	936	860	717	1420	526	2130	264	144	e74	e78
6	164	473	930	916	768	1160	524	2600	218	142	e73	e72
7	149	876	763	1410	745	975	524	1810	186	142	e72	e72
8	144	2840	466	3100	714	977	522	1750	127	351	e72	e90
9	142	4460	377	4190	642	1600	708	1870	133	1150	e72	305
10	141	5550	383	4710	598	1760	1910	1450	184	328	e76	177
11	138	5500	790	3220	638	1360	1480	1280	193	250	217	129
12	135	5540	1010	1700	906	1260	1060	2030	367	186	239	e100
13	133	5510	1010	1300	1360	1070	833	1890	551	152	141	e80
14	128	4970	919	1190	1150	966	910	1490	415	151	101	e80
15	91	3530	758	968	889	962	3080	1230	244	151	101	e79
16	87	2610	607	926	816	952	2400	1050	537	150	101	e78
17	86	1030	560	928	857	843	1710	900	856	149	169	e71
18	84	388	561	926	1550	574	1410	736	615	149	195	e70
19	83	498	560	802	2370	521	1740	636	409	149	181	e69
20	81	635	561	709	2320	528	4300	495	354	148	150	e68
21	80	562	559	657	2010	651	3040	410	269	148	e100	e70
22	79	649	558	599	1590	1250	1840	399	292	e140	e86	80
23	78	1290	656	764	1280	1290	1580	383	e310	e140	e84	205
24	78	1330	854	1170	1390	1030	1290	349	e250	e150	e90	257
25	79	1150	1090	1130	1430	839	973	349	e208	e210	e100	180
26	80	954	1470	798	1420	837	1610	346	e160	e200	e94	141
27	113	854	1370	715	1420	734	5160	290	e150	e170	e86	e100
28	154	1090	1230	814	1740	690	4110	266	e140	e130	e90	e90
29	139	1650	1040	764	---	686	1990	266	e140	124	e100	126
30	119	1600	891	939	---	575	1590	308	147	106	e100	150
31	95	---	802	1010	---	524	---	336	---	107	e100	---
TOTAL	4363	60288	26135	39706	32407	35854	49414	33849	8672	6213	3416	3357
MEAN	141	2010	843	1281	1157	1157	1647	1092	289	200	110	112
MAX	340	5550	1470	4710	2370	3360	5160	2600	856	1150	239	305
MIN	78	86	377	552	598	521	522	266	127	106	72	68

e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

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

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1998, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	352	691	880	759	972	1332	1147	762	499	419	251	301
MAX	950	2010	1865	1749	1847	2532	2911	1593	2074	1650	765	1460
(WY)	1980	1998	1973	1996	1986	1979	1993	1966	1972	1977	1977	1996
MIN	77.4	166	214	209	305	154	437	182	123	54.7	63.8	57.8
(WY)	1986	1992	1990	1977	1980	1969	1976	1986	1991	1966	1966	1968

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1966 - 1998

ANNUAL TOTAL	260736											
ANNUAL MEAN	714											
HIGHEST ANNUAL MEAN									695			
LOWEST ANNUAL MEAN									905			1972
HIGHEST DAILY MEAN				5550	Nov 10		5550	Nov 10	8420		Jun 26	1972
LOWEST DAILY MEAN				e60	Aug 10		e68	Sep 20	19		Aug 16, 17	1966
ANNUAL SEVEN-DAY MINIMUM				a64	Aug 6		a72	Sep 15	36		Aug 11	1966
INSTANTANEOUS PEAK FLOW							5690	Nov 10	8590		Jun 25	1972
INSTANTANEOUS PEAK STAGE							8.49	Nov 10	11.40		Jun 25	1972
10 PERCENT EXCEEDS			1510				1780		1640			
50 PERCENT EXCEEDS			445				560		402			
90 PERCENT EXCEEDS			87				86		105			

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

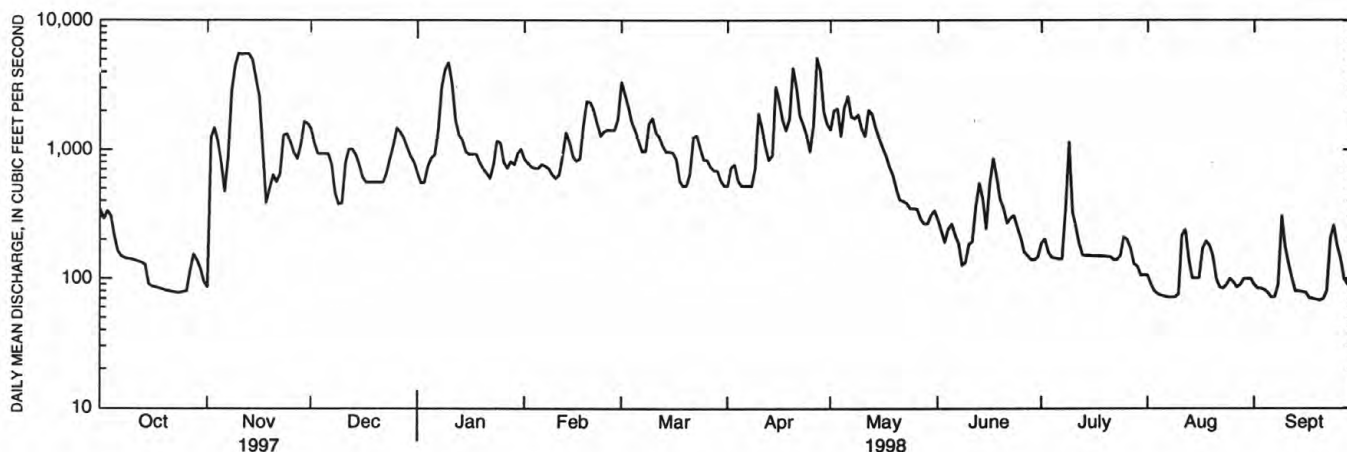
SUMMARY STATISTICS

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						
INSTANTANEOUS PEAK FLOW	15700				Mar 10	1964						
INSTANTANEOUS 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 Computed using estimated daily discharges.

e Estimated.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

WEST BRANCH SUSQUEHANNA RIVER BASIN

01541303 WEST BRANCH SUSQUEHANNA RIVER AT HYDE, PA

LOCATION.--Lat 41°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 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 1,093.90 ft above sea level.

REMARKS.--Records fair 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 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	439	216	1760	e750	955	4160	674	1760	363	231	136	118
2	373	1770	1430	630	868	3550	822	2390	315	261	126	94
3	398	1740	1130	633	827	2770	904	2560	265	215	93	96
4	351	1290	1120	825	793	2160	709	1600	284	193	80	94
5	269	910	1110	1050	805	1770	625	2750	313	197	78	88
6	207	560	1070	1150	833	1500	614	3330	284	189	77	75
7	187	2650	916	1700	823	1210	605	2360	239	186	75	76
8	180	5400	624	4860	775	1280	598	2240	204	230	75	82
9	178	5640	483	5320	726	2040	924	2380	161	1320	75	330
10	176	6180	493	5430	644	2300	2310	1870	226	384	118	250
11	173	5870	793	4040	698	1780	1780	1700	245	293	233	172
12	168	5790	1080	2330	1010	1580	1340	2790	458	237	286	146
13	166	5660	1060	1680	1560	1380	1030	2580	594	180	211	89
14	164	5060	990	1520	1410	1200	1190	2000	519	180	137	88
15	124	3660	815	1230	1050	1160	4110	1620	326	180	140	88
16	119	2920	667	1140	962	1110	3240	1370	556	180	140	86
17	119	1080	596	1120	1050	1020	2310	1180	928	180	182	75
18	117	635	590	1090	1860	736	1850	939	723	180	247	75
19	114	728	585	968	3040	669	2320	789	483	180	222	73
20	113	880	585	813	3120	677	5090	656	415	180	201	72
21	113	779	581	750	2630	886	3890	540	350	180	145	75
22	113	1070	575	690	2160	1530	2480	e520	332	179	95	91
23	113	1730	680	812	1680	1570	2030	e490	390	176	91	191
24	113	1530	895	1290	1770	1340	1680	e450	297	204	110	283
25	114	1360	1290	1300	1770	1050	1270	e450	264	274	164	234
26	125	1130	1690	936	1750	1040	2030	e450	230	268	139	165
27	165	1100	1660	793	1740	936	5740	e380	197	220	99	142
28	207	1460	1430	865	2120	840	4790	e350	189	172	104	86
29	185	2060	1240	855	---	822	2580	348	188	166	128	110
30	159	1900	1040	1000	---	726	1960	375	199	137	128	155
31	136	---	921	1140	---	646	---	404	---	136	128	---
TOTAL	5678	72758	29899	48710	39429	45438	61495	43621	10537	7488	4263	3799
MEAN	183	2425	964	1571	1408	1466	2050	1407	351	242	138	127
MAX	439	6180	1760	5430	3120	4160	5740	3330	928	1320	286	330
MIN	113	216	483	630	644	646	598	348	161	136	75	72

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 1998, BY WATER YEAR (WY)

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
MEAN	402	964	1089	994	1279	1692	1547	954	695	543	341	337
MAX	1264	2425	1944	2092	2302	3377	3648	1831	1663	1497	1084	1819
(WY)	1980	1998	1991	1996	1986	1979	1993	1989	1989	1996	1984	1996
MIN	97.0	181	262	302	392	647	590	307	160	131	98.7	78.1
(WY)	1983	1992	1990	1981	1980	1990	1997	1986	1991	1988	1988	1995

e Estimated.

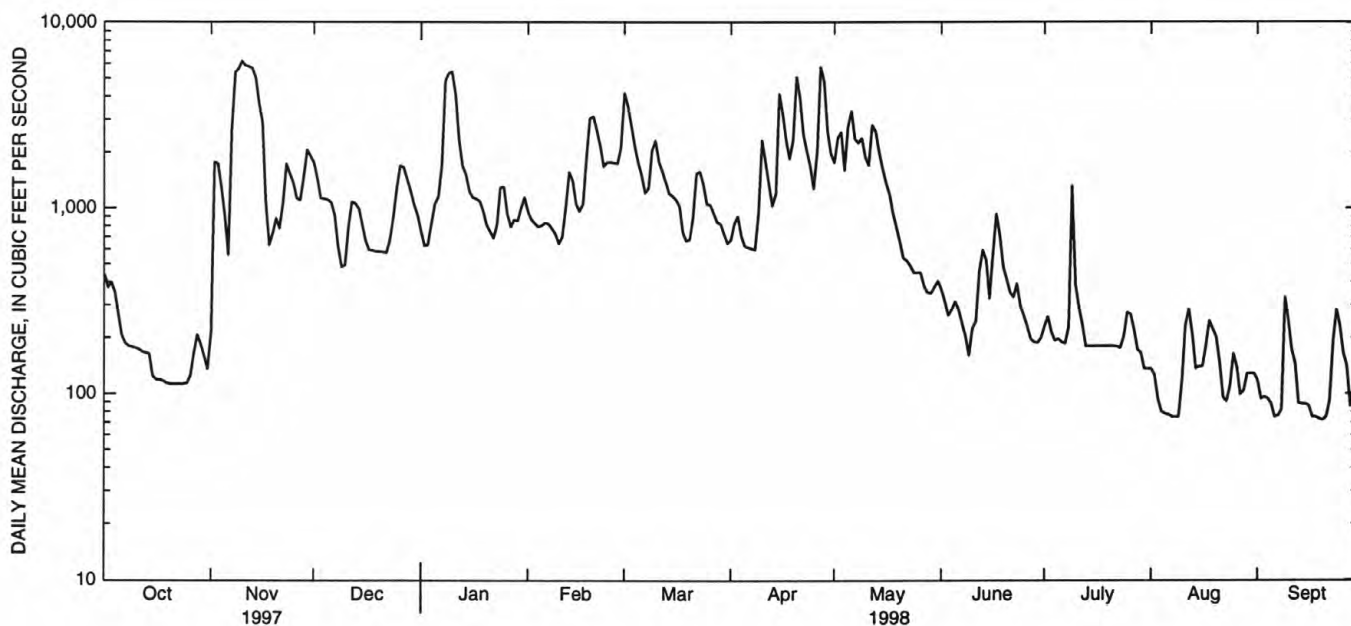
WEST BRANCH SUSQUEHANNA RIVER BASIN

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

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1979 - 1998	
ANNUAL TOTAL	327627		373115		900	
ANNUAL MEAN	898		1022		1146	
HIGHEST ANNUAL MEAN					1994	
LOWEST ANNUAL MEAN					1992	
HIGHEST DAILY MEAN	6180	Nov 10	6180	Nov 10	6850	Mar 8 1979
LOWEST DAILY MEAN	78	Aug 9	72	Sep 20	46	Sep 14 1982
ANNUAL SEVEN-DAY MINIMUM	81	Aug 6	78	Sep 15	53	Oct 6 1983
INSTANTANEOUS PEAK FLOW			6280	Nov 10	a7630	Jan 19 1996
INSTANTANEOUS PEAK STAGE			9.91	Nov 10	b11.45	Feb 18 1981
10 PERCENT EXCEEDS	2040		2340		2140	
50 PERCENT EXCEEDS	560		667		540	
90 PERCENT EXCEEDS	119		114		130	

a From rating curve extended above 6,000 ft³/s; gage height 10.82 ft.

b Backwater from ice.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

WEST BRANCH SUSQUEHANNA RIVER BASIN

01541500 CLEARFIELD CREEK AT DIMELING, PA

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 mi².

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 sea level. 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 October 1 to July 15 except those for estimated daily discharges, which are poor. Records good July 16 to September 30. 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 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	368	125	1010	e400	622	3310	603	1540	313	202	118	80
2	280	942	889	e450	582	e2600	1000	1840	296	182	115	78
3	234	1020	750	e490	575	e2100	713	1770	336	156	103	76
4	199	540	750	578	563	e1600	630	1470	279	145	96	74
5	175	403	741	615	581	e1400	587	2270	257	152	92	69
6	156	332	658	690	651	e1200	535	2330	244	140	88	67
7	141	1470	600	924	587	1140	495	1760	237	130	84	67
8	129	8950	559	3250	545	1100	471	1770	226	441	80	86
9	121	8950	530	3450	526	1490	907	1960	215	1300	79	214
10	113	4020	541	2290	518	1640	2840	1570	210	448	117	133
11	106	2520	826	1770	527	1330	1720	1470	229	319	229	112
12	104	1900	814	1420	950	1100	1330	2660	417	267	154	98
13	102	1520	679	1240	1270	945	1090	2150	535	236	121	88
14	97	1350	608	1080	1010	880	1010	1700	385	e210	105	81
15	95	1230	558	873	860	803	2640	1400	325	e190	136	76
16	90	1050	524	816	759	701	1920	1170	509	187	158	73
17	88	860	503	807	876	641	1570	1210	696	187	136	71
18	87	743	479	754	1680	629	1300	933	490	206	190	71
19	86	642	455	671	2360	674	1710	766	400	183	201	71
20	85	610	446	610	2140	679	3540	661	373	164	141	69
21	82	600	435	550	1870	1070	2400	581	348	180	118	74
22	81	848	417	528	1550	1540	1870	515	299	169	106	105
23	77	1200	463	550	1350	1140	1550	465	285	170	99	195
24	75	981	553	726	1390	985	1300	429	280	233	95	155
25	78	825	833	670	1310	854	1080	422	262	248	93	118
26	90	754	973	581	1340	793	1850	401	228	189	107	109
27	127	772	843	553	1380	718	5190	375	209	173	137	107
28	132	875	738	541	1800	654	2980	351	194	148	114	100
29	116	1100	645	551	---	606	2150	337	175	135	96	146
30	100	957	618	707	---	558	1750	391	174	129	90	122
31	90	---	e540	728	---	521	---	338	---	123	85	---
TOTAL	3904	48089	19978	29863	30172	35401	48731	37005	9426	7342	3683	2985
MEAN	126	1603	644	963	1078	1142	1624	1194	314	237	119	99.5
MAX	368	8950	1010	3450	2360	3310	5190	2660	696	1300	229	214
MIN	75	125	417	400	518	521	471	337	174	123	79	67

e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01541500 CLEARFIELD CREEK AT DIMELING, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1998, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	274	496	645	645	845	1306	1079	749	446	306	205	244
MAX	1024	1603	1693	1549	1708	2578	2786	1800	2522	1189	635	1393
(WY)	1980	1998	1973	1996	1976	1979	1993	1978	1972	1977	1984	1996
MIN	41.1	73.3	68.4	139	154	318	378	248	90.3	46.1	55.3	43.4
(WY)	1964	1965	1961	1961	1963	1969	1968	1976	1965	1965	1965	1964

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR			FOR 1998 WATER YEAR			WATER YEARS 1961 - 1998		
ANNUAL TOTAL	221982			276579					
ANNUAL MEAN	608			758			602		
HIGHEST ANNUAL MEAN							866		
LOWEST ANNUAL MEAN							350		
HIGHEST DAILY MEAN	8950			8950			21100		
LOWEST DAILY MEAN	53			67			30		
ANNUAL SEVEN-DAY MINIMUM	59			72			37		
INSTANTANEOUS PEAK FLOW				11100			a22400		
INSTANTANEOUS PEAK STAGE				12.63			17.56		
10 PERCENT EXCEEDS	1300			1730			1360		
50 PERCENT EXCEEDS	380			535			338		
90 PERCENT EXCEEDS	82			93			84		

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1960, BY WATER YEAR (WY) (PRIOR TO REGULATION)

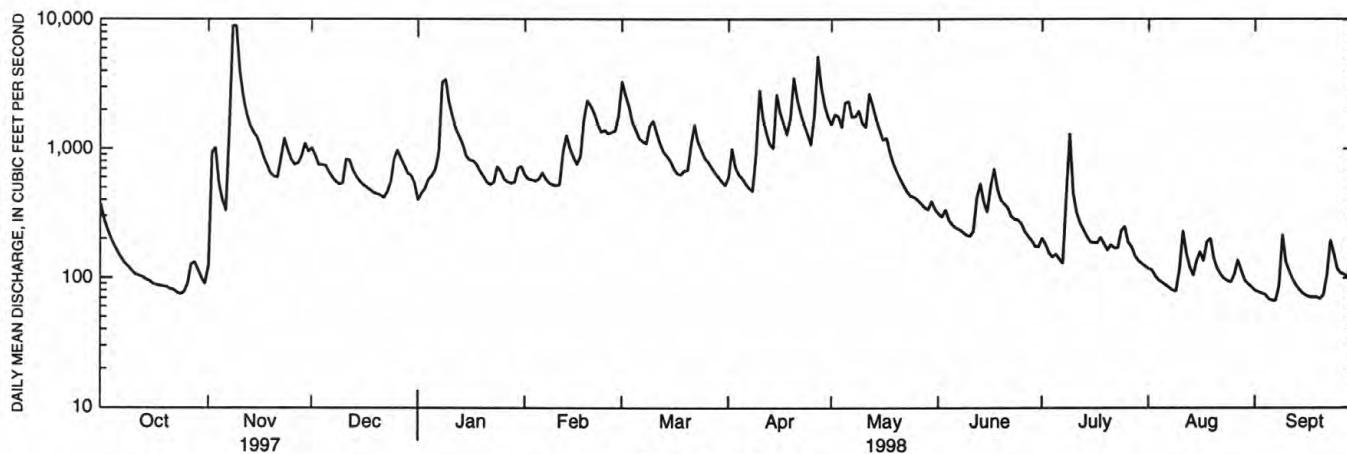
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	253	386	557	764	789	1284	1059	781	457	241	194	152
MAX	876	1355	1533	2152	1996	4153	2470	1656	1931	1233	901	1370
(WY)	1928	1922	1924	1937	1915	1936	1940	1960	1946	1956	1956	1926
MIN	16.9	26.0	55.1	34.3	103	390	245	121	102	68.7	24.9	22.3
(WY)	1931	1931	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
INSTANTANEOUS PEAK FLOW	a30600	Mar 18 1936
INSTANTANEOUS PEAK STAGE	b18.49	Mar 18 1936
INSTANTANEOUS LOW FLOW	6.0	Oct 1, 9 1925
ANNUAL RUNOFF (CFSM)	1.55	
ANNUAL RUNOFF (INCHES)	21.08	
10 PERCENT EXCEEDS	1380	
50 PERCENT EXCEEDS	278	
90 PERCENT EXCEEDS	54	

a From rating curve extended above 15,000 ft³/s.

b From floodmark in gage.

1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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 north-west of Emporium.

DRAINAGE AREA.--5.24 mi².

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 sea level. July 25, 1963, to Aug. 27, 1964, crest-stage gage at same site and 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 100 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 8	1030	*195	*4.98	No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	2.9	17	e5.0	3.6	24	6.3	8.7	e1.9	e2.9	e.13	e.25
2	1.1	14	14	4.7	3.7	25	6.0	8.0	e1.5	e1.3	e.12	e.24
3	1.1	14	10	4.5	3.8	18	6.1	7.1	e1.5	e.96	e.11	e.21
4	.80	8.5	10	13	3.6	13	6.4	6.6	e1.1	e.86	e.09	e.18
5	.86	5.7	9.7	37	3.8	9.6	5.9	14	e.98	e.80	e.08	e.16
6	.69	4.3	9.3	38	3.5	7.5	5.2	25	e.86	e.62	e.08	e.13
7	.60	5.0	8.2	36	3.2	6.4	4.7	19	.79	e.54	e.07	e.14
8	.57	19	6.7	153	3.1	8.3	4.4	15	.72	e.54	e.06	e.94
9	.55	26	5.8	74	3.1	18	15	15	.67	e.60	e.06	e.50
10	.51	15	5.5	35	3.2	27	62	16	.67	e.54	e.15	e.35
11	.47	9.6	5.0	21	3.6	21	32	21	.72	e.45	e.90	e.28
12	.45	7.0	4.4	14	5.3	15	18	50	5.1	e.37	e.42	e.22
13	.43	5.4	4.1	11	7.2	11	12	32	2.9	e.33	e.30	e.20
14	.45	5.2	3.9	8.0	7.8	8.7	11	18	2.3	e.29	e.23	e.17
15	.46	4.3	3.6	6.9	6.7	7.0	12	12	2.1	e.28	e1.1	e.16
16	.43	3.7	3.4	6.8	5.9	5.5	14	8.5	2.3	e.28	e.80	e.14
17	.41	3.2	3.4	5.9	7.3	4.7	13	8.7	1.9	e.40	e.70	e.25
18	.39	2.8	3.3	5.2	15	5.0	10	7.0	1.6	e.49	e.58	e.39
19	.40	2.8	3.2	4.5	25	5.9	14	e6.2	1.4	e.40	e.50	e.27
20	.42	2.9	3.4	3.9	24	8.5	50	e5.0	1.3	e.31	e.40	e.21
21	.41	3.2	3.6	3.5	19	16	38	e4.2	1.1	e.37	e.30	e.25
22	.39	11	3.6	3.2	14	21	22	e3.6	.97	e.40	e.32	e.37
23	.39	15	4.2	3.8	11	17	15	e3.2	1.2	e.37	e.29	e.30
24	.37	13	4.6	4.3	9.7	13	11	e2.9	1.1	e.39	e.25	e.22
25	.75	9.9	13	4.0	7.8	9.7	8.0	e2.8	.79	e.34	e.30	e.20
26	.63	8.5	22	3.4	7.0	8.4	10	e2.3	.69	e.28	e.33	e.18
27	1.1	13	18	3.1	6.9	7.7	18	e2.0	.62	e.24	e.27	e.20
28	.87	16	13	3.2	9.8	7.0	18	e1.7	.57	e.21	e.20	e.25
29	.67	16	9.5	3.4	---	6.8	14	e1.5	.55	e.18	e.17	e.31
30	.59	18	8.3	3.8	---	6.1	11	e1.8	2.3	e.17	e.20	e.25
31	.57	---	e6.4	3.6	---	5.6	---	e1.5	---	e.15	e.25	---
TOTAL	19.33	284.9	240.1	526.7	227.6	367.4	473.0	330.3	42.20	16.36	9.76	7.92
MEAN	.62	9.50	7.75	17.0	8.13	11.9	15.8	10.7	1.41	.53	.31	.26
MAX	1.5	26	22	153	25	27	62	50	5.1	2.9	1.1	.94
MIN	.37	2.8	3.2	3.1	3.1	4.7	4.4	1.5	.55	.15	.06	.13
CFSM	.12	1.81	1.48	3.24	1.55	2.26	3.01	2.03	.27	.10	.06	.05
IN.	.14	2.02	1.70	3.74	1.62	2.61	3.36	2.34	.30	.12	.07	.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1998, BY WATER YEAR (WY)

	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
MEAN	4.78	9.73	11.2	8.57	11.0	17.8	17.1	11.0	6.51	2.91	2.61	3.48																								
MAX	22.1	29.3	27.8	23.8	30.7	33.0	48.3	25.0	31.0	10.2	25.8	15.7																								
(WY)	1982	1986	1973	1996	1976	1979	1970	1984	1972	1994	1994	1987																								
MIN	.10	.31	2.02	.83	.98	4.25	5.34	1.98	.75	.26	.19	.080																								
(WY)	1965	1965	1990	1981	1980	1981	1976	1985	1991	1966	1991	1964																								

e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

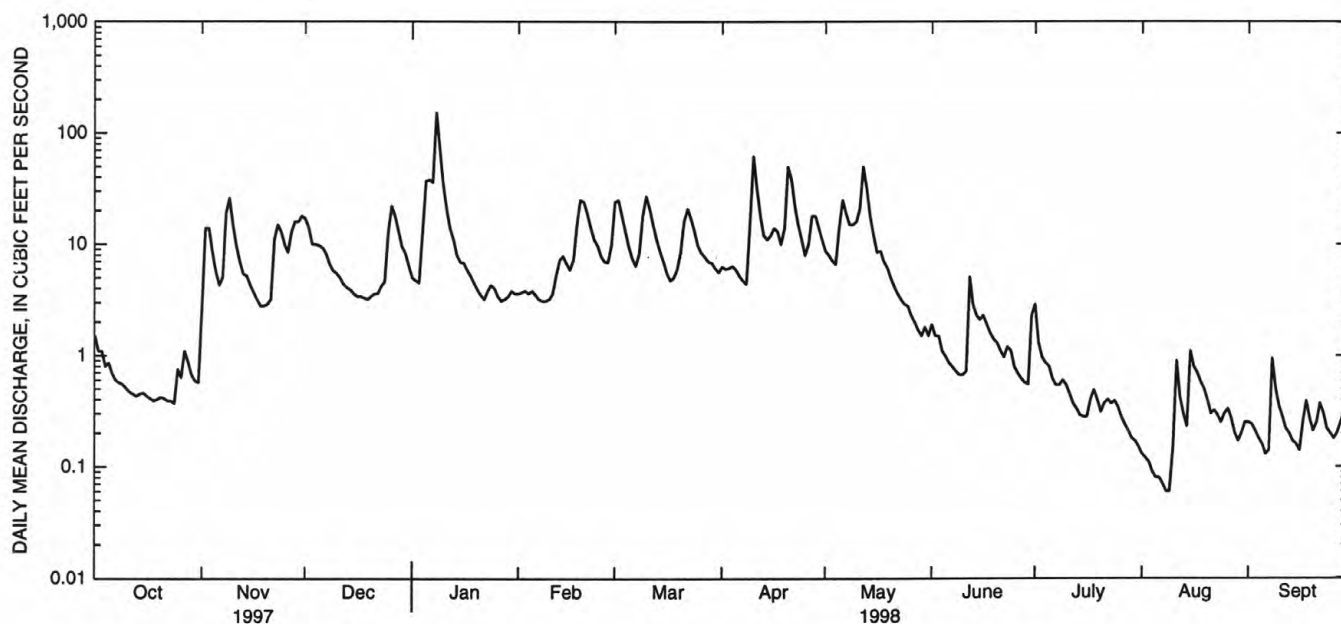
01542810 WALDY RUN NEAR EMPORIUM, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR			WATER YEARS 1964 - 1998	
ANNUAL TOTAL	3127.52		2545.57			8.88	
ANNUAL MEAN	8.57		6.97			14.5	1994
HIGHEST ANNUAL MEAN						5.11	1965
LOWEST ANNUAL MEAN						e300	Jan 19 1996
HIGHEST DAILY MEAN	115	Feb 22	153	Jan 8		.00	Sep 14 1964
LOWEST DAILY MEAN	.29	Sep 28	e.06	Aug 8,9		.01	Sep 13 1964
ANNUAL SEVEN-DAY MINIMUM	.33	Sep 22	a.08	Aug 3		b828	Sep 28 1967
INSTANTANEOUS PEAK FLOW			195	Jan 8		6.32	Sep 28 1967
INSTANTANEOUS PEAK STAGE			4.98	Jan 8		.00	Sep 14 1964
INSTANTANEOUS LOW FLOW						1.69	
ANNUAL RUNOFF (CFSM)	1.64		1.33			23.03	
ANNUAL RUNOFF (INCHES)	22.20		18.07			21	
10 PERCENT EXCEEDS	18		17			3.6	
50 PERCENT EXCEEDS	4.3		3.5			.44	
90 PERCENT EXCEEDS	.52		.25				

a Computed using estimated daily discharges.

b From rating curve extended above 80 ft³/s on basis of slope-area measurements at gage heights 5.09 ft, 5.86 ft, and at peak flow.

e Estimated.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

WEST BRANCH SUSQUEHANNA RIVER BASIN

01543000 DRIFTWOOD BRANCH SINNEMAHOING CREEK AT STERLING RUN, PA

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 mi².

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 sea level. Oct. 1, 1913, to Sept. 30, 1931, nonrecording gage, Oct. 1, 1931, to Sept. 30, 1932, and Oct. 1, 1942, to Oct. 3, 1991, water-stage recorder at site 50 feet upstream on steel-truss bridge at same datum.

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

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 4,700 ft³/s and maximum (*):

<u>Date</u>	<u>Time</u>	<u>Discharge</u> (ft ³ /s)	<u>Gage height</u> (ft)	<u>Date</u>	<u>Time</u>	<u>Discharge</u> (ft ³ /s)	<u>Gage height</u> (ft)
Jan. 8	1330	*7,340	*5.45	No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148	62	925	e300	279	1290	393	619	139	174	10	19
2	106	793	784	e320	289	1320	414	597	104	97	9.0	18
3	94	713	659	e330	294	1080	362	578	103	63	8.4	16
4	83	494	675	532	282	848	352	508	82	51	7.1	14
5	74	373	603	1140	287	670	336	830	71	49	6.1	12
6	71	296	533	1470	266	541	312	1160	66	44	5.8	10
7	60	310	484	1410	239	461	291	1060	61	38	5.3	11
8	53	1030	420	6010	228	488	276	986	58	37	4.8	72
9	47	1320	374	4550	219	832	664	1000	53	42	4.5	38
10	43	978	360	2390	216	1040	2680	948	49	38	17	27
11	39	713	357	1520	219	988	1880	1190	51	32	69	21
12	37	538	320	1080	307	843	1270	2340	314	27	37	17
13	35	424	294	870	381	701	918	1900	288	25	22	15
14	33	411	274	662	384	619	744	1340	159	22	17	13
15	33	352	247	542	356	509	1000	947	121	21	84	12
16	31	313	234	519	346	415	880	692	150	21	61	11
17	29	273	236	457	447	370	852	687	126	30	53	19
18	29	230	219	401	1050	377	705	491	99	38	42	30
19	27	224	e220	353	1360	423	851	396	82	30	37	21
20	26	226	219	318	1390	474	2260	327	75	23	30	16
21	26	240	215	281	1210	759	2050	272	66	29	23	19
22	26	447	198	258	973	1090	1460	229	57	31	24	28
23	25	691	244	274	818	995	1070	198	61	28	22	23
24	24	698	266	355	e750	814	811	174	96	30	19	17
25	30	577	518	309	638	657	624	157	70	26	23	15
26	51	515	887	273	576	581	714	145	56	21	25	14
27	52	767	867	251	540	526	1070	125	49	18	20	15
28	68	809	719	252	649	482	978	110	43	16	15	18
29	55	854	581	258	---	452	848	101	40	14	13	24
30	47	924	537	312	---	404	720	119	67	13	15	19
31	40	---	e400	306	---	370	---	101	---	11	19	---
TOTAL	1542	16595	13869	28303	14993	21419	27785	20327	2856	1139	748.0	604
MEAN	49.7	553	447	913	535	691	926	656	95.2	36.7	24.1	20.1
MAX	148	1320	925	6010	1390	1320	2680	2340	314	174	84	72
MIN	24	62	198	251	216	370	276	101	40	11	4.5	10
CFSM	.18	2.03	1.64	3.36	1.97	2.54	3.41	2.41	.35	.14	.09	.07
IN.	.21	2.27	1.90	3.87	2.05	2.93	3.80	2.78	.39	.16	.10	.08

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1998, BY WATER YEAR (WY)

MEAN	193	413	496	515	548	1000	911	634	330	168	120	127
MAX	838	1918	1394	2027	2047	3366	2310	1758	1783	1308	1294	743
(WY)	1918	1951	1928	1937	1918	1936	1940	1953	1972	1942	1994	1987
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

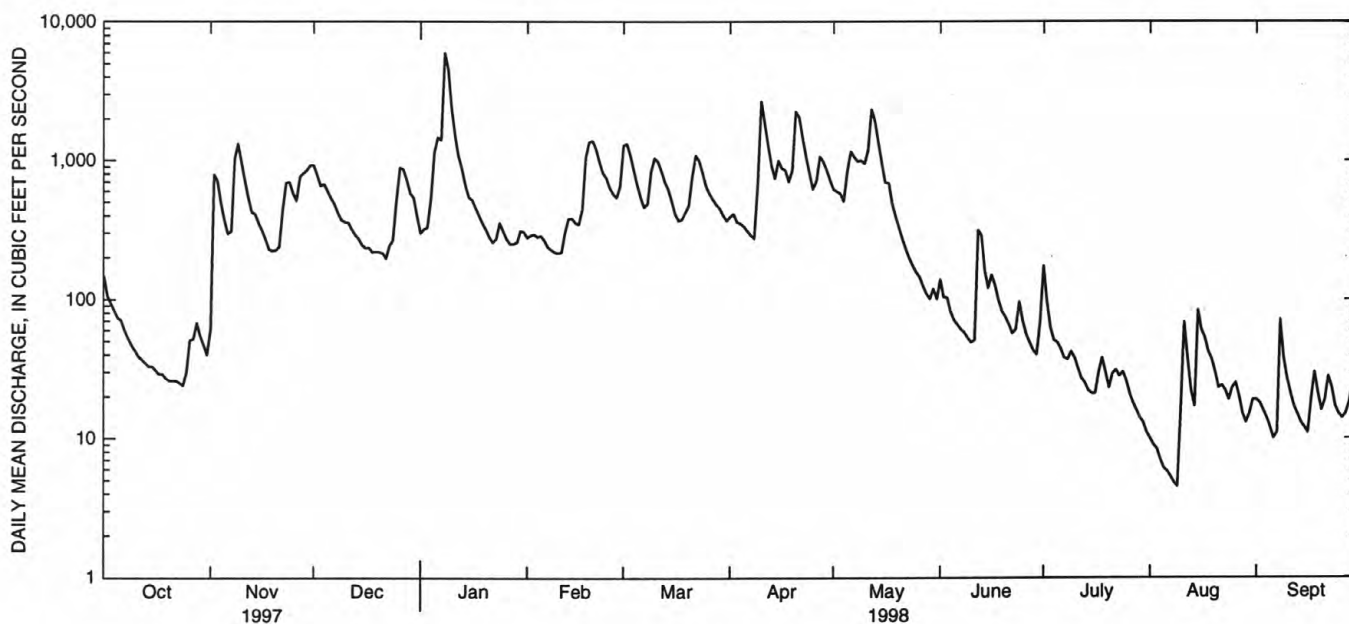
01543000 DRIFTWOOD BRANCH SINNEMAHOING CREEK AT STERLING RUN, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1914 - 1998	
ANNUAL TOTAL	157403		150180.0		454	
ANNUAL MEAN	431		411		735	
HIGHEST ANNUAL MEAN					235	
LOWEST ANNUAL MEAN					18600	
HIGHEST DAILY MEAN	4080	Feb 22	6010	Jan 8		Jun 23 1972
LOWEST DAILY MEAN	19	Aug 11	4.5	Aug 9	.40	Sep 13 1930
ANNUAL SEVEN-DAY MINIMUM	26	Oct 18	6.0	Aug 3	.87	Aug 28 1939
INSTANTANEOUS PEAK FLOW			7340	Jan 8	a47800	Jul 18 1942
INSTANTANEOUS PEAK STAGE			5.45	Jan 8	b14.70	Jul 18 1942
INSTANTANEOUS LOW FLOW					.40	Sep 12 1930 ^c
ANNUAL RUNOFF (CFSM)	1.59		1.51		1.67	
ANNUAL RUNOFF (INCHES)	21.53		20.54		22.68	
10 PERCENT EXCEEDS	945		991		1090	
50 PERCENT EXCEEDS	262		258		207	
90 PERCENT EXCEEDS	37		19		27	

a From rating curve extended above 11,000 ft³/s on basis of slope-area measurement of peak flow.

b From floodmarks.

c Also Sept. 13, 14, 1930.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

WEST BRANCH SUSQUEHANNA RIVER BASIN

01543500 SINNEMAHONING CREEK AT SINNEMAHONING, PA

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 mi².

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 sea level.

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 ft³/s, from rating curve extended above 31,000 ft³/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 ft³/s and maximum (*):

<u>Date</u>	<u>Time</u>	<u>Discharge</u> (ft ³ /s)	<u>Gage height</u> (ft)	<u>Date</u>	<u>Time</u>	<u>Discharge</u> (ft ³ /s)	<u>Gage height</u> (ft)
Jan. 8	1330	*14,600	*9.47	No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	479	145	2250	e780	796	3830	934	1840	363	405	35	40
2	365	1530	1910	e760	789	3700	1100	2020	310	316	31	40
3	293	1690	1620	e810	788	3050	914	2070	291	210	29	42
4	257	1090	1610	1110	763	2420	864	1870	255	172	27	39
5	228	838	1480	1990	782	1960	826	2870	222	162	25	38
6	213	676	1290	2570	751	1590	769	3840	202	149	24	34
7	189	704	1150	2580	674	1350	721	3310	186	128	22	31
8	173	4470	1020	11800	639	1310	686	2950	182	132	20	68
9	160	4930	910	10500	614	2240	1240	2940	175	147	19	110
10	145	3300	874	6230	e600	2570	5900	2640	163	148	46	75
11	133	2320	897	4010	598	2330	4300	2860	163	115	143	52
12	120	1730	822	2850	803	2020	2980	5490	480	95	142	42
13	112	1330	748	2320	1060	1730	2230	4860	790	e83	77	37
14	110	1230	697	1850	1030	1570	1860	3520	454	77	54	32
15	106	1080	637	1490	956	1330	3180	2560	350	71	67	29
16	104	938	586	1400	914	1100	2780	1950	330	69	122	28
17	98	819	595	1280	1080	985	2560	1750	402	69	83	29
18	92	697	564	1120	2470	979	2080	1290	323	118	114	48
19	90	670	554	991	3390	1070	e2300	1030	252	89	93	49
20	87	666	539	897	3570	1160	6210	859	224	72	78	40
21	90	669	526	797	3210	1700	5700	724	201	70	59	37
22	113	1060	482	735	2580	2570	4030	621	176	84	49	44
23	93	1760	553	781	2180	2390	2940	548	217	80	47	49
24	81	1830	647	966	2100	2070	2260	489	398	70	46	44
25	86	1560	1050	864	1830	e1800	1770	443	275	69	46	39
26	119	1400	1790	767	1680	1510	1980	419	212	63	58	36
27	153	1910	e1800	710	1590	1360	3810	372	198	53	56	34
28	195	2010	e1600	698	1810	1220	3060	330	170	46	46	37
29	177	2200	e1400	712	---	1130	2540	298	150	42	40	41
30	148	2250	1290	860	---	1010	2140	309	164	40	39	44
31	120	---	1080	880	---	916	---	284	---	38	39	---
TOTAL	4929	47502	32971	66108	40047	55970	74664	57356	8278	3482	1776	1308
MEAN	159	1583	1064	2133	1430	1805	2489	1850	276	112	57.3	43.6
MAX	479	4930	2250	11800	3570	3830	6210	5490	790	405	143	110
MIN	81	145	482	698	598	916	686	284	150	38	19	28
CFSM	.23	2.31	1.55	3.11	2.09	2.64	3.63	2.70	.40	.16	.08	.06
IN.	.27	2.58	1.79	3.59	2.17	3.04	4.05	3.11	.45	.19	.10	.07</

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1998, BY WATER YEAR (WY)

MEAN	481	995	1295	1267	1458	2482	2324	1614	848	431	309	327
MAX	2186	4836	2883	4349	3732	5608	5500	3771	4066	2134	2596	1706
(WY)	1991	1951	1973	1952	1976	1945	1940	1953	1972	1992	1994	1975
MIN	31.5	52.0	64.1	91.8	257	771	556	313	121	37.9	28.7	29.6
(WY)	1965	1965	1961	1961	1963	1981	1946	1941	1991	1966	1957	1939

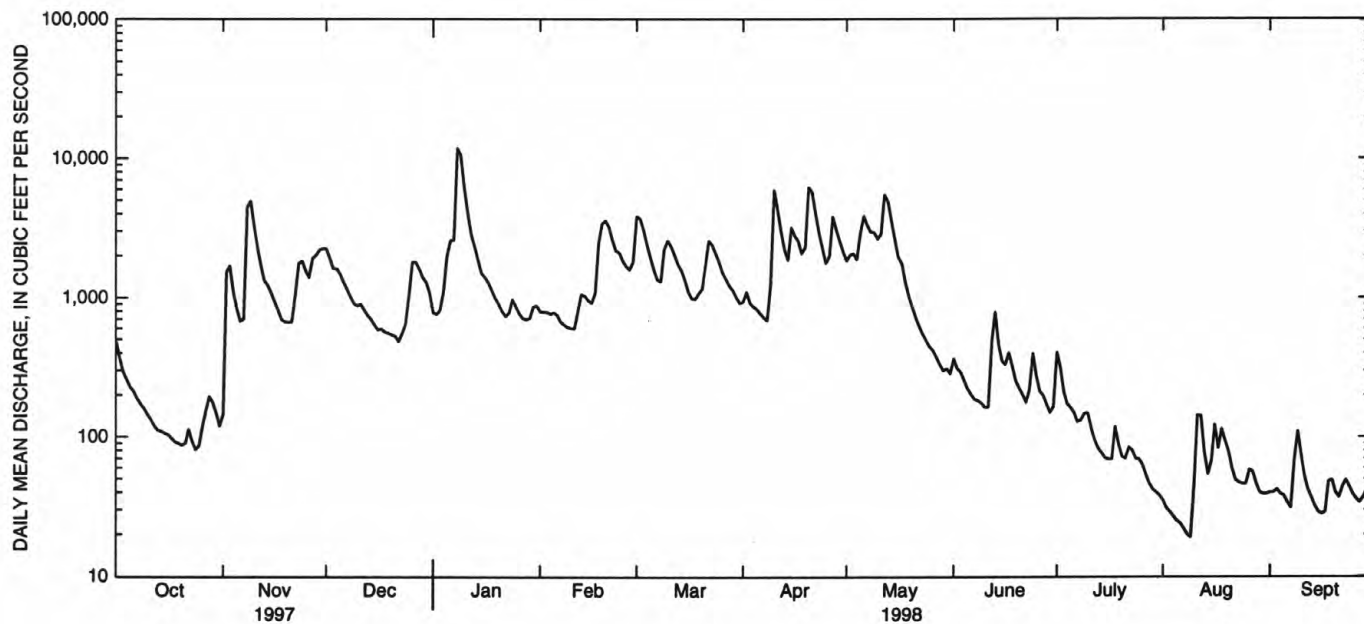
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01543500 SINNEMAHOING CREEK AT SINNEMAHOING, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1939 - 1998	
ANNUAL TOTAL	395032		394391		1151	
ANNUAL MEAN	1082		1081		1798	1951
HIGHEST ANNUAL MEAN					710	1939
LOWEST ANNUAL MEAN					44000	Jun 23 1972
HIGHEST DAILY MEAN	9990	Feb 22	11800	Jan 8	1.4	Sep 3 1939
LOWEST DAILY MEAN	44	Aug 10	19	Aug 9	4.2	Aug 29 1939
ANNUAL SEVEN-DAY MINIMUM	67	Aug 6	24	Aug 3	a60800	Jun 23 1972
INSTANTANEOUS PEAK FLOW			14600	Jan 8	21.78	Jun 23 1972
INSTANTANEOUS PEAK STAGE			9.47	Jan 8	1.2	Sep 4 1939
INSTANTANEOUS LOW FLOW					1.68	
ANNUAL RUNOFF (CFSM)	1.58		1.58		22.82	
ANNUAL RUNOFF (INCHES)	21.45		21.42			
10 PERCENT EXCEEDS	2320		2580		2790	
50 PERCENT EXCEEDS	670		686		570	
90 PERCENT EXCEEDS	106		44		73	

a From rating curve extended above 31,000 ft³/s on basis of slope-area measurement at gage height 21.58 ft.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

WEST BRANCH SUSQUEHANNA RIVER BASIN

01544000 FIRST FORK SINNEMAHONING CREEK NEAR SINNEMAHONING, PA

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 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 878.71 ft above sea level. 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 ft³/s, July 18, 1942, by slope-area measurement.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	164	75	779	293	229	1140	384	510	136	249	16	10
2	161	479	688	261	228	1400	433	462	129	182	15	22
3	161	909	605	304	236	1220	376	496	108	147	14	27
4	141	713	583	304	250	845	314	474	92	112	13	16
5	124	540	536	904	251	676	364	721	69	95	10	15
6	115	366	431	1660	237	543	331	1040	64	92	10	12
7	104	369	395	1740	228	442	295	900	63	86	10	9.8
8	84	405	364	1640	208	444	282	824	62	76	10	31
9	76	e3000	324	1550	202	563	524	885	61	61	9.8	32
10	78	e1000	310	1650	200	884	2430	1010	61	59	17	13
11	73	1400	307	1660	196	972	2050	1130	61	57	46	16
12	72	1600	275	1650	252	866	1080	2260	129	57	59	16
13	50	1320	250	1610	322	692	892	1770	261	57	46	11
14	35	592	237	1560	356	596	696	1190	186	57	32	9.8
15	57	360	223	1510	379	446	639	831	136	47	29	9.8
16	66	336	202	1440	384	364	587	589	116	33	22	10
17	56	302	191	1370	362	330	570	515	105	26	32	11
18	45	234	191	1290	689	342	523	384	94	35	49	11
19	41	215	191	1180	1320	347	574	319	64	41	40	11
20	41	215	172	929	1500	358	1360	225	59	34	28	13
21	41	219	168	536	1160	494	2030	208	59	29	21	15
22	41	290	171	356	905	663	1270	199	59	29	16	16
23	39	446	202	218	828	696	927	181	59	29	13	16
24	36	511	194	242	724	673	718	159	83	30	19	16
25	50	483	288	236	584	523	560	148	65	30	30	16
26	57	442	450	236	545	476	581	153	41	30	29	16
27	59	473	560	200	496	478	682	150	39	30	14	15
28	86	664	560	198	552	452	702	130	38	23	11	16
29	76	660	492	215	---	479	695	129	37	18	11	16
30	55	731	429	245	---	440	640	65	37	18	11	16
31	47	---	388	262	---	384	---	71	---	17	10	---
TOTAL	2331	19349	11156	27449	13823	19228	23509	18128	2573	1886	692.8	464.4
MEAN	75.2	645	360	885	494	620	784	585	85.8	60.8	22.3	15.5
MAX	164	3000	779	1740	1500	1400	2430	2260	261	249	59	32
MIN	35	75	168	198	196	330	282	65	37	17	9.8	9.8

e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

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

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 1998, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	222	407	476	382	469	822	886	518	271	167	123	140
MAX	1033	1162	1051	1131	1452	1820	2300	1037	1334	808	977	837
(WY)	1991	1986	1991	1996	1981	1964	1993	1984	1989	1992	1994	1975
MIN	9.76	17.6	21.3	16.6	77.9	171	320	103	40.5	14.5	14.2	5.31
(WY)	1964	1965	1961	1961	1963	1960	1976	1985	1991	1966	1962	1964

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1956 - 1998

ANNUAL TOTAL	136053	140589.2	
ANNUAL MEAN	373	385	406
HIGHEST ANNUAL MEAN			640
LOWEST ANNUAL MEAN			260
HIGHEST DAILY MEAN	3210	Feb 23	7360
LOWEST DAILY MEAN	17	Aug 11, 12	10
ANNUAL SEVEN-DAY MINIMUM	28	Aug 6	3.6
INSTANTANEOUS PEAK FLOW			10200
INSTANTANEOUS PEAK STAGE			6.60
10 PERCENT EXCEEDS	777	1000	968
50 PERCENT EXCEEDS	219	219	198
90 PERCENT EXCEEDS	46	16	29

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

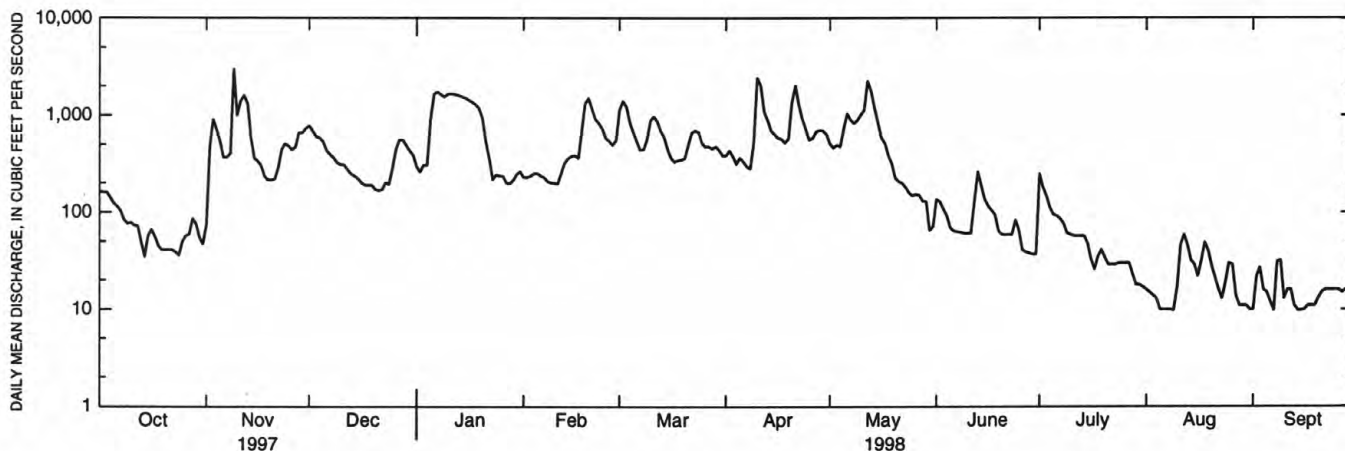
SUMMARY STATISTICS

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
INSTANTANEOUS PEAK FLOW	7000	Mar 1 1954
INSTANTANEOUS 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. 7, 14, 15.

e Estimated.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

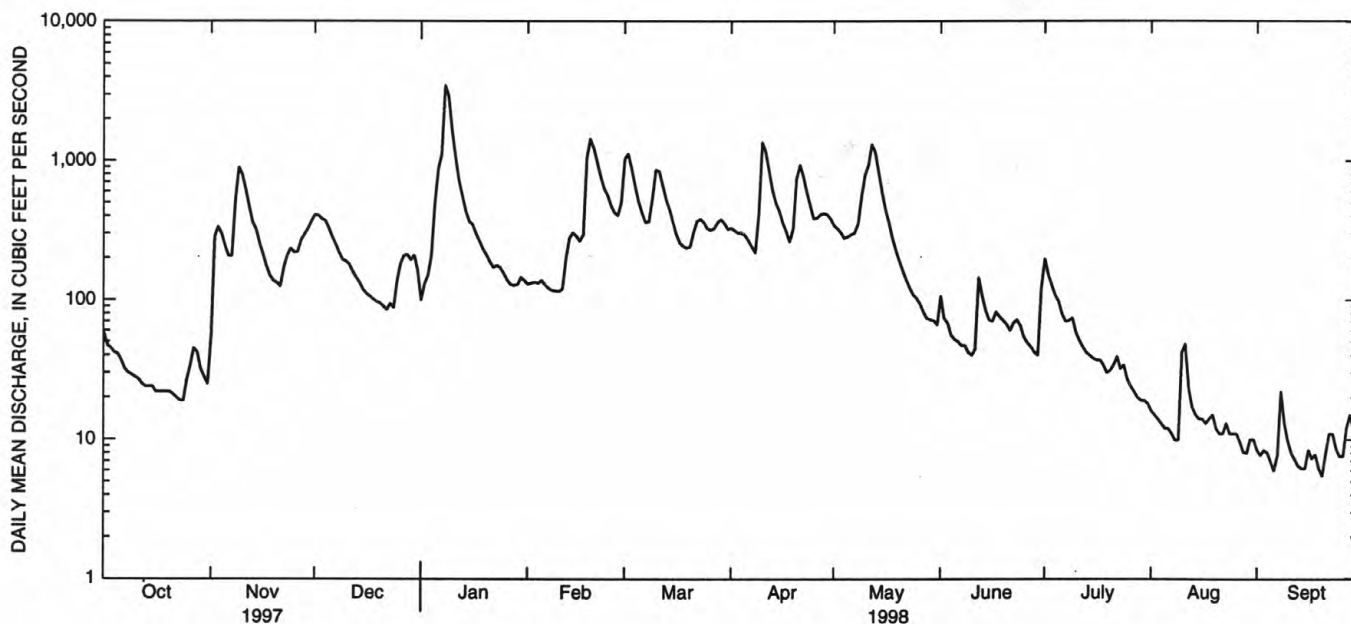
WEST BRANCH SUSQUEHANNA RIVER BASIN

01544500 KETTLE CREEK AT CROSS FORK, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1941 - 1998	
ANNUAL TOTAL	68493		89637.1		229	
ANNUAL MEAN	188		246		351	
HIGHEST ANNUAL MEAN					125	
LOWEST ANNUAL MEAN					10500	
HIGHEST DAILY MEAN	1720	Mar 6	3480	Jan 8		Jun 23 1972
LOWEST DAILY MEAN	11	Jul 21	5.5	Sep 20	1.2	Sep 2-4 1971
ANNUAL SEVEN-DAY MINIMUM	13	Sep 4	6.8	Sep 14	1.4	Sep 1 1971
INSTANTANEOUS PEAK FLOW			4280	Jan 8	a14300	Jun 23 1972
INSTANTANEOUS PEAK STAGE			6.64	Jan 8	b11.76	Jun 23 1972
ANNUAL RUNOFF (CFSM)	1.38		1.81		1.69	
ANNUAL RUNOFF (INCHES)	18.73		24.52		22.90	
10 PERCENT EXCEEDS	384		586		545	
50 PERCENT EXCEEDS	111		130		110	
90 PERCENT EXCEEDS	22		11		17	

a From rating curve extended above 9,200 ft³/s on basis of slope-area measurement of peak flow.

b From floodmark in gage.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

WEST BRANCH SUSQUEHANNA RIVER BASIN

01545000 KETTLE CREEK NEAR WESTPORT, PA

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 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 728.24 ft above sea level. 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 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	115	44	618	e160	209	1520	483	577	132	204	18	20
2	100	357	571	271	e220	1710	476	539	109	175	18	17
3	83	578	536	288	e220	1290	425	549	93	151	18	16
4	62	e520	520	283	e210	1020	427	539	90	132	17	16
5	66	408	484	623	226	787	434	483	74	115	16	15
6	66	334	416	1150	219	633	405	379	58	96	15	13
7	63	332	366	1470	188	537	367	463	61	89	15	13
8	50	563	328	3050	188	570	347	510	62	84	15	12
9	50	1490	291	3910	181	903	623	791	62	85	14	12
10	49	1300	297	3360	163	1340	2610	1160	60	76	18	15
11	44	890	296	1970	202	1380	1960	1350	60	54	39	18
12	37	738	242	1240	259	1090	1450	1940	159	54	51	17
13	39	586	241	976	415	835	981	1800	216	49	45	16
14	41	496	209	737	503	706	823	1350	109	46	33	14
15	41	396	188	559	481	589	700	957	107	44	31	13
16	39	327	179	503	439	473	639	709	97	43	28	12
17	38	279	175	476	469	402	500	603	89	40	22	12
18	e38	232	167	386	1170	380	451	443	101	39	23	11
19	e38	235	159	344	1620	374	572	368	82	39	22	11
20	e38	182	152	324	1780	375	1310	319	83	39	22	11
21	e36	218	158	303	1560	467	1610	254	73	39	22	11
22	35	243	146	270	1240	586	1310	225	67	39	19	12
23	33	263	152	283	1010	696	972	192	94	40	19	12
24	33	398	174	296	910	641	763	159	91	40	19	11
25	33	415	177	224	709	560	630	158	71	38	23	12
26	39	373	273	221	631	514	618	141	59	35	24	15
27	49	422	368	221	649	508	721	122	60	33	23	17
28	64	498	386	198	691	517	737	110	59	32	16	18
29	55	522	356	203	---	557	706	104	54	28	15	17
30	39	558	367	231	---	510	657	104	73	19	14	17
31	39	---	334	234	---	452	---	98	---	19	17	---
TOTAL	1552	14197	9326	24764	16762	22922	24707	17496	2605	2016	691	426
MEAN	50.1	473	301	799	599	739	824	564	86.8	65.0	22.3	14.2
MAX	115	1490	618	3910	1780	1710	2610	1940	216	204	51	20
MIN	33	44	146	160	163	374	347	98	54	19	14	11

e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01545000 KETTLE CREEK NEAR WESTPORT, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1998, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	200	373	429	355	456	745	810	481	278	153	105	126
MAX	1096	1060	954	857	1330	1739	2453	920	1279	677	927	1058
(WY)	1991	1971	1973	1979	1981	1979	1993	1996	1972	1972	1994	1975
MIN	13.5	5.37	61.3	63.8	78.8	167	309	142	42.0	8.06	7.69	13.0
(WY)	1965	1965	1965	1981	1963	1968	1976	1985	1991	1962	1962	1991

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1962 - 1998

ANNUAL TOTAL	107256	137464		
ANNUAL MEAN	294	377		
HIGHEST ANNUAL MEAN			375	
LOWEST ANNUAL MEAN			575	1994
HIGHEST DAILY MEAN	2260	Mar 7	7200	Apr 14 1970
LOWEST DAILY MEAN	17	Jul 18	4.4	Nov 3, 6, 12 1964
ANNUAL SEVEN-DAY MINIMUM	27	Jul 15	11	Sep 18
INSTANTANEOUS PEAK FLOW			3940	Jan 9
INSTANTANEOUS PEAK STAGE			7.48	Jan 9
INSTANTANEOUS LOW FLOW				10.17
10 PERCENT EXCEEDS	611		883	
50 PERCENT EXCEEDS	182		185	
90 PERCENT EXCEEDS	35		32	

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

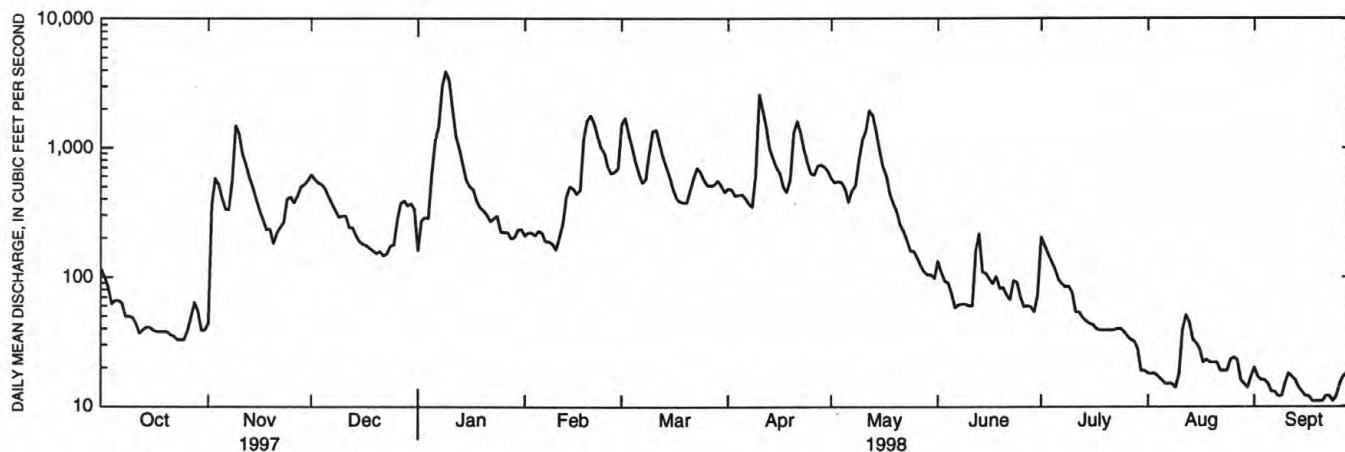
SUMMARY STATISTICS

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
INSTANTANEOUS PEAK FLOW	a7970	Mar 8 1956
INSTANTANEOUS PEAK STAGE	b13.31	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 Gage height 10.48 ft.

b Backwater from ice.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

WEST BRANCH SUSQUEHANNA RIVER BASIN

01545500 WEST BRANCH SUSQUEHANNA RIVER AT RENOV, 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 mi².

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 sea level. Prior to Mar. 17, 1930, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow slightly regulated by 4 flood-control reservoirs which have a combined capacity of 316,000 acre-ft. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known prior to 1895, 27.3 ft, June 1, 1889, from floodmark, discharge, about 211,000 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3440	801	8970	4220	4590	17100	4700	10000	2000	1340	484	383
2	2270	2910	8230	3880	4190	20000	5330	9610	1930	1640	480	381
3	1740	7490	7080	3960	4100	16800	5440	11200	1690	1320	433	383
4	1520	6720	6530	4330	4020	13800	4940	10000	1610	1170	418	400
5	1340	5130	6400	6300	4090	11200	4600	10300	1480	1040	370	362
6	1270	4010	5820	9090	4130	9440	4360	15900	1350	953	375	345
7	1120	3490	5290	10400	4000	7960	3990	14400	1300	932	344	340
8	981	16000	4800	27000	3780	7230	3800	12300	1230	945	331	327
9	892	32300	4180	36100	3570	9690	4900	13700	1180	961	325	372
10	845	25200	3780	28200	3440	12700	20700	13400	1110	2950	392	458
11	806	18800	3930	20800	3340	12400	19800	12800	1060	1530	576	621
12	762	15700	4260	15300	4020	10600	14000	18000	1340	1170	770	587
13	740	13700	4380	11900	5970	9210	10700	20300	2960	1000	850	474
14	714	12200	4050	10200	6840	8080	8890	15800	2730	885	731	426
15	697	10400	3760	8770	6290	7170	12200	12400	2260	800	665	368
16	698	8280	3410	7870	5640	6230	15200	9920	1820	774	663	328
17	673	6980	3140	7540	5680	5590	12500	8530	2080	755	607	339
18	629	5000	2950	6970	10200	5280	10300	7230	2880	737	609	322
19	609	3800	2850	6380	15900	5140	9660	5820	2340	757	666	323
20	593	3790	2790	5840	18200	5130	20600	5010	1780	745	719	327
21	555	3830	2720	4740	16500	6220	24600	4250	1550	723	677	316
22	568	4290	2640	4290	13700	9750	18000	3750	1480	695	606	322
23	596	6310	2670	4020	11500	10400	13700	3330	1360	696	524	333
24	585	7610	3070	4470	10700	9420	11200	3070	1810	682	444	e400
25	589	7070	4080	4960	9910	8090	9070	2770	1620	643	417	e500
26	615	6340	6530	4620	9160	7110	8220	2720	1310	759	435	e600
27	703	6650	7390	4070	8930	6640	17600	2490	1200	784	480	e550
28	787	7120	6980	3760	9270	6130	20400	2240	1080	706	461	453
29	895	8050	6220	3860	---	5740	15000	2010	961	644	430	440
30	858	8860	5800	4130	---	5380	11600	1950	937	549	413	389
31	783	---	5240	4660	---	4840	---	1940	---	478	393	---
TOTAL	29873	268831	149940	282630	211660	280470	346000	267140	49438	29763	16088	12169
MEAN	964	8961	4837	9117	7559	9047	11530	8617	1648	960	519	406
MAX	3440	32300	8970	36100	18200	20000	24600	20300	2960	2950	850	621
MIN	555	801	2640	3760	3340	4840	3800	1940	937	478	325	316
CFSM	.32	3.01	1.63	3.06	2.54	3.04	3.88	2.90	.55	.32	.17	.14
IN.	.37	3.36	1.87	3.53	2.65	3.51	4.33	3.34	.62	.37	.20	.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1908 - 1998, BY WATER YEAR (WY)

MEAN	2211	3953	5049	5759	6241	10980	9898	7110	3941	2131	1408	1477
MAX	10330	16700	13570	19060	16640	34360	25010	16670	18840	8100	7826	9220
(WY)	1912	1951	1928	1937	1915	1936	1940	1919	1972	1928	1994	1975
MIN	139	174	307	196	1078	3141	2456	1436	843	368	166	166
(WY)	1931	1931	1931	1931	1934	1969	1925	1941	1991	1965	1930	1908

e Estimated.

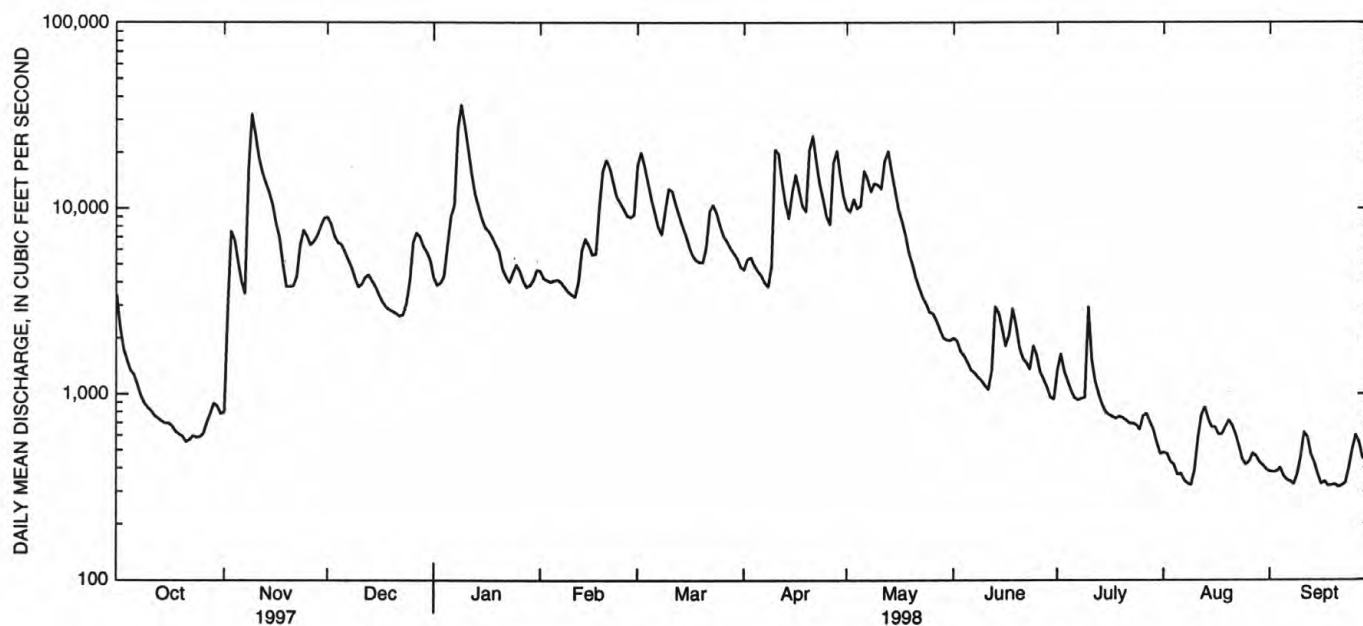
WEST BRANCH SUSQUEHANNA RIVER BASIN

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

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1908 - 1998	
ANNUAL TOTAL	1671120		1944002		5006	
ANNUAL MEAN	4578		5326		7683	
HIGHEST ANNUAL MEAN					2579	
LOWEST ANNUAL MEAN					1951	
HIGHEST DAILY MEAN	32300	Nov 9	36100	Jan 9	201000	Mar 18 1936
LOWEST DAILY MEAN	424	Aug 11	316	Sep 21	80	Dec 6 1908
ANNUAL SEVEN-DAY MINIMUM	501	Aug 6	325	Sep 16	104	Aug 29 1939
INSTANTANEOUS PEAK FLOW			39600	Jan 8	a236000	Mar 18 1936
INSTANTANEOUS PEAK STAGE			11.19	Jan 8	b29.39	Mar 18 1936
INSTANTANEOUS LOW FLOW					80	Dec 6 1908
ANNUAL RUNOFF (CFSM)	1.54		1.79		1.68	
ANNUAL RUNOFF (INCHES)	20.90		24.31		22.86	
10 PERCENT EXCEEDS	10600		13500		11800	
50 PERCENT EXCEEDS	3200		3790		2780	
90 PERCENT EXCEEDS	649		449		480	

a From rating curve extended above 87,000 ft³/s on basis of slope-area measurement of peak flow.

b From floodmark in gage.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

WEST BRANCH SUSQUEHANNA RIVER BASIN

01545600 YOUNG WOMANS CREEK NEAR RENOVO, PA
(Hydrologic Benchmark Station)

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 Laureilly 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 mi².

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 sea level.

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 460 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 8	2115	*900	*3.87	May 12	2030	481	3.18

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	29	128	e41	46	325	113	131	43	20	3.4	1.7
2	29	124	123	e45	46	335	109	123	33	14	3.1	2.0
3	28	147	115	e53	46	291	104	114	29	12	2.8	2.6
4	27	140	113	75	46	237	102	100	25	11	2.8	2.3
5	26	123	107	124	48	190	96	98	23	12	2.6	1.8
6	24	110	96	191	45	155	89	104	22	10	2.6	1.4
7	22	110	85	259	43	133	81	101	21	9.8	2.3	2.3
8	21	200	74	776	42	128	77	126	21	12	2.1	3.5
9	20	309	69	733	42	168	136	237	19	12	2.1	2.8
10	19	300	66	459	42	230	367	297	18	10	7.9	2.5
11	18	258	63	329	44	234	377	344	19	9.2	8.4	2.0
12	17	208	58	253	77	206	310	461	46	8.4	4.7	1.7
13	17	162	54	202	93	170	243	419	34	7.9	3.8	1.6
14	17	141	51	156	98	147	195	306	26	7.4	3.2	1.3
15	17	117	48	129	93	122	169	216	24	7.4	3.4	1.3
16	17	102	46	121	87	105	138	164	24	7.3	3.2	1.1
17	17	85	45	106	94	91	118	134	21	7.7	3.3	1.9
18	16	73	43	93	251	85	102	107	19	7.3	3.9	2.2
19	16	66	42	82	362	83	136	90	19	6.3	4.0	2.4
20	16	62	41	74	384	82	296	77	18	8.2	3.1	1.9
21	15	59	39	67	333	100	342	68	16	8.4	2.6	1.6
22	15	78	37	61	276	111	303	60	18	8.6	3.0	2.6
23	15	87	38	63	236	110	244	53	23	6.9	2.6	2.6
24	14	92	37	60	217	105	193	48	20	7.7	2.6	2.3
25	17	90	54	55	184	99	153	45	16	6.1	2.7	1.9
26	18	91	60	50	161	102	161	e41	15	5.3	2.8	1.7
27	24	107	63	48	147	114	178	37	14	4.6	2.3	1.8
28	20	108	64	47	186	127	168	34	13	4.3	1.9	4.5
29	17	113	62	47	---	126	159	32	12	4.2	1.8	3.2
30	15	120	e60	51	---	116	147	32	17	3.9	2.7	2.5
31	14	---	e54	48	---	106	---	30	---	3.8	2.4	---
TOTAL	600	3811	2035	4898	3769	4733	5406	4229	668	263.7	100.1	65.0
MEAN	19.4	127	65.6	158	135	153	180	136	22.3	8.51	3.23	2.17
MAX	32	309	128	776	384	335	377	461	46	20	8.4	4.5
MIN	14	29	37	41	42	82	77	30	12	3.8	1.8	1.1
CFSM	.42	2.75	1.42	3.42	2.91	3.30	3.90	2.95	.48	.18	.07	.05
IN.	.48	3.07	1.64	3.94	3.03	3.81	4.35	3.41	.54	.21	.08	.05

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1998, BY WATER YEAR (WY)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998		
MEAN	41.0	79.9	84.6	67.6	89.9	138	159	98.7	61.6	35.3	23.3	24.6																								
MAX	181	211	194	164	250	349	447	204	303	162	244	211																								
(WY)	1991	1997	1973	1996	1984	1979	1993	1996	1972	1992	1994	1975																								
MIN	4.05	10.9	9.59	8.25	19.6	44.7	60.9	31.9	9.09	4.64	3.21	2.17																								
(WY)	1983	1992	1965	1981	1987	1969	1988	1985	1991	1966	1966	1998																								

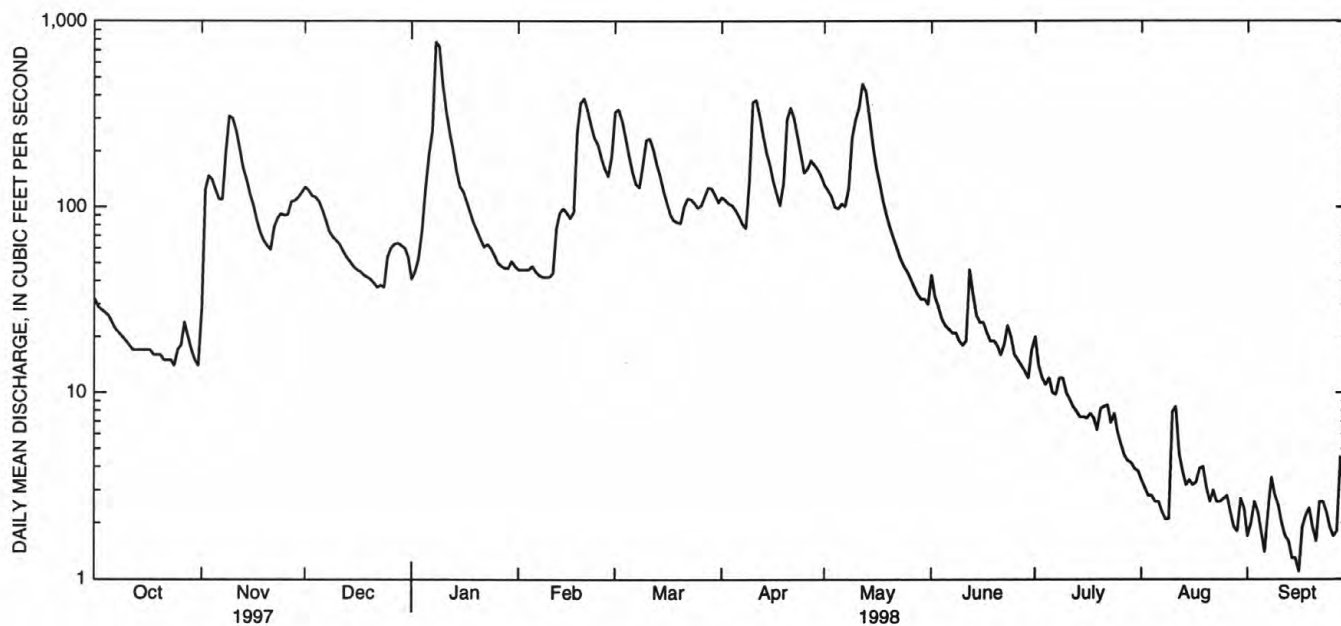
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01545600 YOUNG WOMANS CREEK NEAR RENOVO, PA--Continued
(Hydrologic Benchmark Station)

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1965 - 1998	
ANNUAL TOTAL	22773.8		30577.8		75.8	
ANNUAL MEAN	62.4		83.8		47.2	
HIGHEST ANNUAL MEAN					118	1994
LOWEST ANNUAL MEAN					47.2	1966
HIGHEST DAILY MEAN	406	Mar 6	776	Jan 8	3310	Jun 23 1972
LOWEST DAILY MEAN	3.8	Aug 10	1.1	Sep 16	1.1	Aug 22 1988
ANNUAL SEVEN-DAY MINIMUM	5.4	Aug 6	1.6	Sep 11	1.4	Aug 16 1988
INSTANTANEOUS PEAK FLOW			900	Jan 8	a5370	Jun 23 1972
INSTANTANEOUS PEAK STAGE			3.87	Jan 8	7.98	Jun 23 1972
ANNUAL RUNOFF (CFSM)	1.35		1.81		1.64	
ANNUAL RUNOFF (INCHES)	18.34		24.62		22.28	
10 PERCENT EXCEEDS	132		216		173	
50 PERCENT EXCEEDS	42		47		42	
90 PERCENT EXCEEDS	9.8		2.6		6.7	

a From rating curve extended above 1,000 ft³/s on basis of slope-area measurement of peak flow.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

WEST BRANCH SUSQUEHANNA RIVER BASIN

01545600 YOUNG WOMANS CREEK NEAR RENOVO, PA--Continued
(Hydrologic Benchmark Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1965 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1980 to September 1981.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE LAB (μ S/CM) (90095)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)
NOV 1997									
13...	1028	80020	162	37	7.0	3.4	.86	.67	.63
JAN 1998									
01...	1028	80020	59	--	--	--	--	--	--
06...	1028	80020	172	--	--	--	--	--	--
FEB									
04...	1028	80020	45	40	6.7	3.8	.95	.74	.62
19...	1028	80020	372	--	--	--	--	--	--
MAR									
10...	1028	80020	216	--	--	--	--	--	--
18...	1028	80020	85	--	--	--	--	--	--
30...	1028	80020	119	--	--	--	--	--	--
APR									
13...	1028	80020	220	--	--	--	--	--	--
29...	1028	80020	162	36	7.3	3.5	.94	.64	.65
AUG									
19...	1028	80020	4.2	49	7.3	4.8	1.2	1.4	.90
DATE	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	BROMIDE DIS- SOLVED (MG/L AS BR) (71870)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
NOV 1997									
13...	6.0	6.3	1.4	<.10	--	4.2	30	.204	.029
JAN 1998									
01...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
FEB									
04...	6.4	7.9	1.1	<.10	--	3.9	32	--	<.010
19...	--	--	--	--	--	--	--	--	--
MAR									
10...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
APR									
13...	--	--	--	--	--	--	--	--	--
29...	--	11	.89	.05	<.010	3.9	--	.203	--
AUG									
19...	--	6.5	2.0	.08	.019	3.8	--	.234	--

WEST BRANCH SUSQUEHANNA RIVER BASIN

01545600 YOUNG WOMANS CREEK NEAR RENOVO, PA--Continued
(Hydrologic Benchmark Station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	IRON, DIS- SOLVED (MG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (MG/L AS MN) (01056)	SILVER, TOTAL RECOV- ERABLE (MG/L AS AG) (01077)
NOV 1997									
13...	.233	<.020	<.10	.022	.020	.026	7.2	3.0	--
JAN 1998									
01...	--	--	--	--	<.001	--	--	--	--
06...	--	--	--	--	<.001	--	--	--	--
FEB									
04...	.266	<.020	<.10	.021	<.010	.012	67	5.6	--
19...	--	--	--	--	.001	--	--	--	--
MAR									
10...	--	--	--	--	.002	--	--	--	--
18...	--	--	--	--	.002	--	--	--	--
30...	--	--	--	--	.003	--	--	--	--
APR									
13...	--	--	--	--	.004	--	--	--	--
29...	--	--	--	--	--	<.010	--	--	<1
AUG									
19...	--	--	--	--	--	<.010	--	--	<1

WEST BRANCH SUSQUEHANNA RIVER BASIN

01546400 SPRING CREEK AT HOUSEVILLE, 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 Houseville, 1.3 mi downstream from Slab Cabin Run, and 3.3 mi northeast of State College.

DRAINAGE AREA.--58.5 mi².

PERIOD OF RECORD.--November 1984 to current year.

GAGE.--Water-stage recorder. Datum of gage is 926.63 ft above sea level.

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 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 8	1030	482	5.62	Apr. 19	2315	450	5.48
Jan. 8	2000	576	6.04	Apr. 26	2045	568	6.00
Feb. 28	2215	446	5.46	May 11	2245	423	5.36
Apr. 9	2015	*599	*6.14				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	83	96	61	95	400	174	173	77	56	e39	27
2	47	104	83	62	95	359	138	195	75	52	e38	27
3	45	79	81	70	93	369	124	171	75	51	e37	27
4	45	78	84	86	93	297	119	148	70	52	e36	26
5	44	69	81	90	113	255	114	184	69	51	e35	26
6	45	64	78	109	103	223	109	158	68	50	e34	25
7	44	110	75	113	97	201	106	148	66	63	e32	34
8	44	412	74	369	94	231	105	198	65	76	e30	28
9	44	311	71	447	94	273	261	209	64	57	29	26
10	45	227	75	304	92	254	352	192	63	53	121	25
11	44	168	75	238	100	223	232	252	69	51	55	24
12	44	137	71	195	139	202	199	386	91	49	42	23
13	43	118	69	174	131	185	181	310	86	50	39	23
14	42	118	66	149	124	176	184	261	69	54	37	23
15	42	108	64	138	115	160	228	220	73	54	36	22
16	41	98	63	146	110	146	168	189	77	53	34	23
17	41	89	61	133	132	138	159	166	72	58	40	24
18	41	84	60	123	287	139	146	146	66	55	36	22
19	40	81	59	114	276	133	265	132	63	52	35	21
20	40	79	58	109	242	127	332	124	61	52	33	21
21	40	77	57	101	214	274	253	116	60	55	32	27
22	40	101	57	98	186	218	223	110	62	51	31	28
23	39	92	60	115	178	190	195	104	76	53	30	23
24	39	89	59	119	190	175	173	98	64	50	29	22
25	42	86	75	109	183	157	152	97	58	49	29	22
26	41	86	68	102	181	146	302	93	56	e48	29	22
27	44	83	67	100	183	135	346	87	56	e47	28	22
28	41	87	66	101	296	128	242	85	54	e45	27	21
29	40	82	65	99	---	120	210	84	54	e43	27	21
30	40	90	68	105	---	114	190	82	61	e41	28	20
31	40	---	64	99	---	111	---	78	---	e40	27	---
TOTAL	1316	3490	2150	4378	4236	6259	5982	4996	2020	1611	1135	725
MEAN	42.5	116	69.4	141	151	202	199	161	67.3	52.0	36.6	24.2
MAX	49	412	96	447	296	400	352	386	91	76	121	34
MIN	39	64	57	61	92	111	105	78	54	40	27	20
CFSM	.73	1.99	1.19	2.41	2.59	3.45	3.41	2.75	1.15	.89	.63	.41
IN.	.84	2.22	1.37	2.78	2.69	3.98	3.80	3.18	1.28	1.02	.72	.46

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1998, BY WATER YEAR (WY)

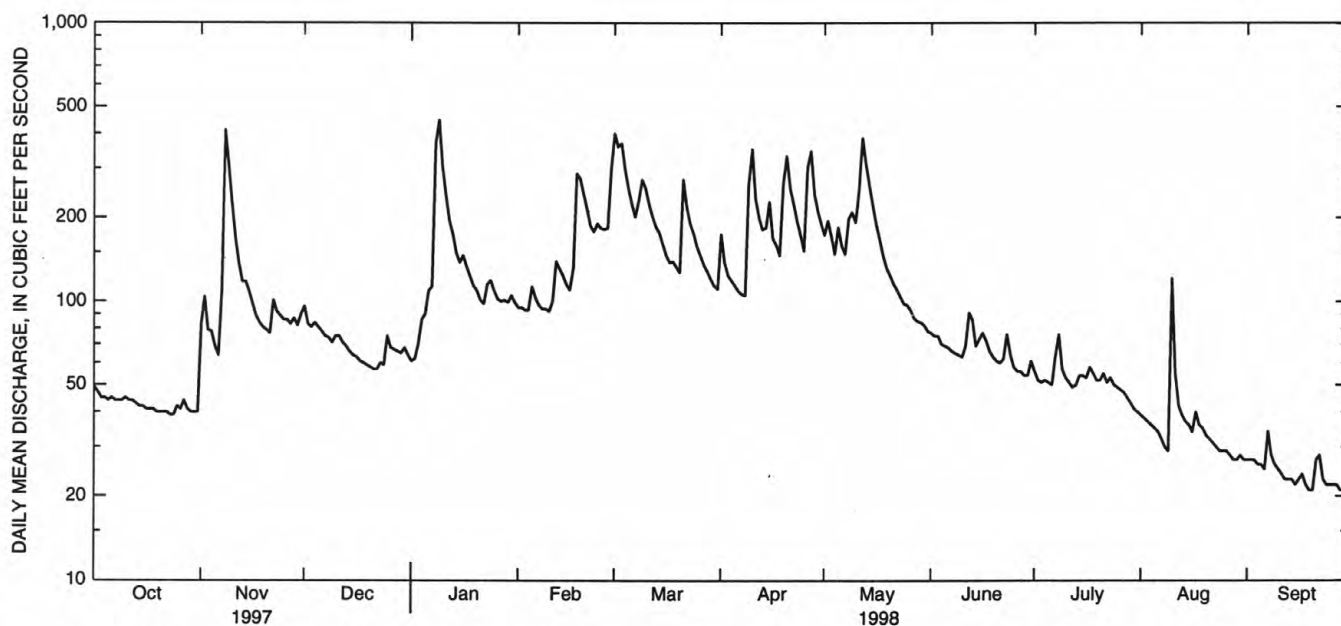
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
MEAN	47.4	60.1	77.6	77.6	79.3	118	128	84.0	59.6	45.1	36.1	41.6		
MAX	210	142	240	191	151	263	404	161	142	94.1	59.8	192		
(WY)	1997	1997	1997	1996	1998	1994	1993	1998	1989	1994	1994	1996		
MIN	18.2	26.4	29.1	34.6	32.2	54.0	49.8	49.6	35.1	26.9	22.1	18.1		
(WY)	1993	1992	1989	1992	1992	1990	1995	1995	1991	1988	1995	1995		

e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN
01546400 SPRING CREEK AT HOUSEVILLE, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR			FOR 1998 WATER YEAR			WATER YEARS 1985 - 1998	
ANNUAL TOTAL	25026			38298			72.0	
ANNUAL MEAN	68.6			105			105	1998
HIGHEST ANNUAL MEAN							42.4	1992
LOWEST ANNUAL MEAN							1130	Jan 19 1996
HIGHEST DAILY MEAN	412	Nov	8	447	Jan	9	14	Oct 16 1993
LOWEST DAILY MEAN	24	Aug	2,3,9,10	20	Sep	30	15	Oct 22 1993a
ANNUAL SEVEN-DAY MINIMUM	26	Jul	28	21	Sep	24	2370	Jan 19 1996
INSTANTANEOUS PEAK FLOW				599	Apr	9	10.05	Jan 19 1996
INSTANTANEOUS PEAK STAGE				6.14	Apr	9	1.23	Jan 19 1996
ANNUAL RUNOFF (CFSM)	1.17			1.79			16.72	
ANNUAL RUNOFF (INCHES)	15.91			24.35			131	
10 PERCENT EXCEEDS	110			223			51	
50 PERCENT EXCEEDS	60			78			24	
90 PERCENT EXCEEDS	33			29				

a Also Sept. 6, 1995.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

WEST BRANCH SUSQUEHANNA RIVER BASIN

01546500 SPRING CREEK NEAR AXEMANN, PA

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 mi².

PERIOD OF RECORD.--October 1940 to current year.

GAGE.--Water-stage recorder. Datum of gage is 788.81 ft above sea level. Prior to Nov. 19, 1940, nonrecording gage at same site and datum. Nonrecording gage Mar. 6 to Sept. 30, 1995.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Occasional regulation at low flow by fish hatchery and Rockview Penitentiary. Several measurements of water temperature were made during the year. Satellite telemetry at station.

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 350 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 8	1430	527	3.62	Apr. 9	2300	597	3.75
Jan. 9	0030	*608	*3.77	Apr. 15	0200	380	3.31
Feb. 18	0500	359	3.26	Apr. 20	0100	452	3.47
Feb. 28	2330	471	3.51	Apr. 26	2400	575	3.71
Mar. 21	1130	355	3.25	May 12	0100	434	3.43
Apr. 1	1630	376	3.30				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	92	147	92	134	438	212	237	122	100	72	54
2	70	168	129	92	133	400	192	253	117	91	71	54
3	65	135	125	100	132	393	171	236	119	90	71	53
4	62	123	129	125	131	333	167	210	112	90	69	52
5	62	107	125	130	151	293	162	240	110	92	68	53
6	62	98	120	147	146	263	156	218	107	90	69	53
7	60	134	117	147	136	242	e153	207	104	90	67	60
8	60	434	113	348	132	257	152	247	103	142	66	60
9	61	373	110	506	131	300	252	263	101	104	65	53
10	59	302	114	354	129	293	408	243	101	98	154	53
11	60	244	117	288	129	262	283	276	106	e95	113	52
12	58	208	109	246	179	245	252	413	135	e92	78	51
13	59	181	105	223	172	230	235	351	129	90	72	51
14	57	179	103	199	165	222	224	311	110	89	69	51
15	57	168	100	185	157	206	283	279	110	88	68	50
16	56	154	99	191	151	194	220	250	121	87	66	53
17	57	143	97	181	163	183	207	228	114	90	72	54
18	56	135	95	168	305	182	193	209	104	90	67	52
19	57	131	93	158	310	177	268	195	100	84	65	51
20	55	126	91	151	284	169	377	182	98	83	62	52
21	55	124	89	143	261	288	304	171	95	87	61	59
22	55	148	88	139	235	258	279	162	101	83	59	59
23	54	144	92	151	224	232	254	156	108	83	60	53
24	54	139	90	163	239	217	231	150	121	81	60	53
25	58	133	109	150	232	203	212	150	98	79	60	52
26	55	132	102	143	234	198	301	143	97	78	59	53
27	60	128	100	140	237	187	411	136	95	79	57	53
28	57	130	99	142	316	180	301	132	93	77	56	55
29	57	125	99	139	---	170	272	129	94	76	56	52
30	53	124	105	145	---	165	253	130	100	76	56	51
31	53	---	98	139	---	160	---	125	---	75	56	---
TOTAL	1819	4962	3309	5625	5348	7540	7385	6632	3225	2749	2144	1602
MEAN	58.7	165	107	181	191	243	246	214	108	88.7	69.2	53.4
MAX	75	434	147	506	316	438	411	413	135	142	154	60
MIN	53	92	88	92	129	160	152	125	93	75	56	50
CFSM	.67	1.90	1.22	2.08	2.19	2.79	2.82	2.45	1.23	1.02	.79	.61
IN.	.78	2.12	1.41	2.40	2.28	3.22	3.15	2.83	1.38	1.17	.91	.68

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 1998, BY WATER YEAR (WY)

	MEAN	60.4	70.3	85.5	93.3	110	151	157	122	98.5	71.3	60.5	57.6
MAX	216	206	251	224	257	335	475	257	369	216	137	208	
(WY)	1997	1978	1997	1996	1984	1994	1993	1978	1972	1972	1984	1996	
MIN	26.1	26.0	22.8	23.3	38.1	36.5	49.6	50.5	41.1	28.0	24.4	24.9	
(WY)	1964	1966	1966	1966	1963	1969	1969	1969	1965	1965	1966	1965	

e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

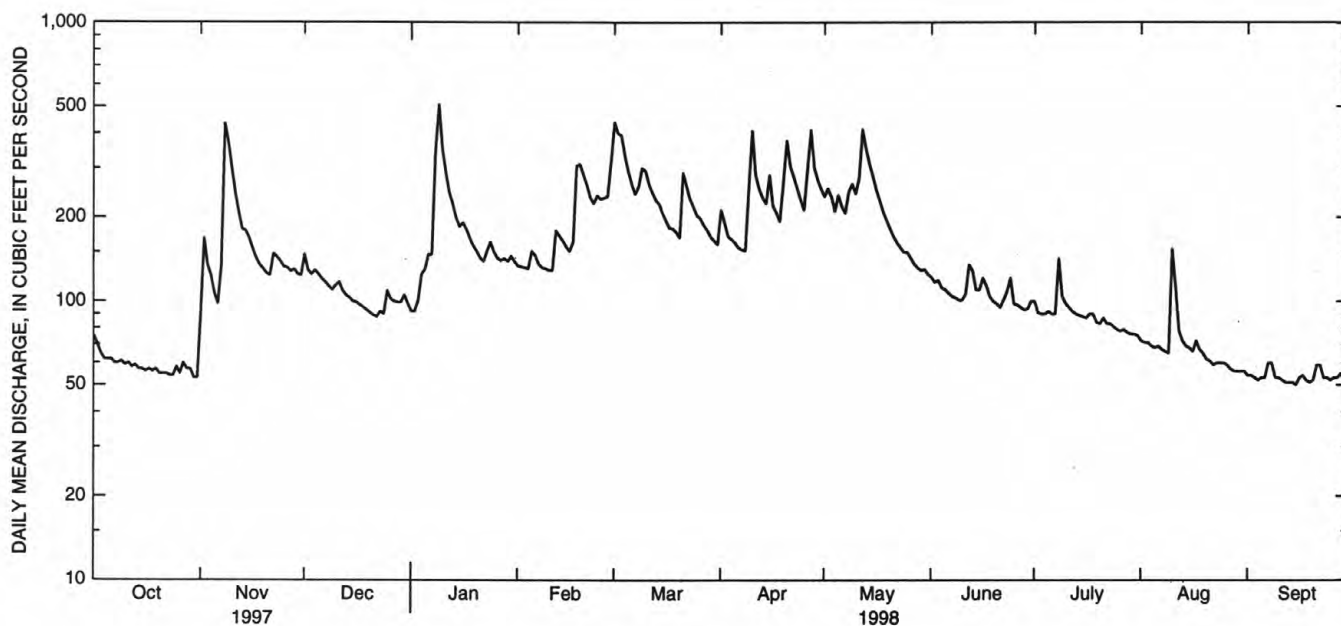
01546500 SPRING CREEK NEAR AXEMANN, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1941 - 1998	
ANNUAL TOTAL	37916		52340		94.8	
ANNUAL MEAN	104		143		161	
HIGHEST ANNUAL MEAN					43.5	
LOWEST ANNUAL MEAN					2910	
HIGHEST DAILY MEAN	434	Nov 8	506	Jan 9	2910	Jun 23 1972
LOWEST DAILY MEAN	51	Sep 23-26	50	Sep 15	20	Dec 20,30 1963a
ANNUAL SEVEN-DAY MINIMUM	52	Sep 22	52	Sep 9	21	Jan 28 1966
INSTANTANEOUS PEAK FLOW			608	Jan 9	b5410	Jun 23 1972
INSTANTANEOUS PEAK STAGE			3.77	Jan 9	c7.47	Jun 23 1972
ANNUAL RUNOFF (CFSM)	1.19		1.64		1.09	
ANNUAL RUNOFF (INCHES)	16.18		22.33		14.76	
10 PERCENT EXCEEDS	156		263		168	
50 PERCENT EXCEEDS	98		124		73	
90 PERCENT EXCEEDS	57		56		40	

a Also Jan. 28, 29, 31, 1966.

b From rating curve extended above 1,400 ft³/s on basis of contracted-opening measurement of peak flow.

c In gage; 8.75 ft from outside floodmark.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

WEST BRANCH SUSQUEHANNA RIVER BASIN

01547100 SPRING CREEK AT MILESBERG, 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 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 696.42 ft above sea level.

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 570 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 8	1315	750	5.07	Apr. 1	1730	670	4.84
Jan. 9	0045	988	5.68	Apr. 10	0030	*1,030	*5.78
Feb. 18	0515	592	4.60	Apr. 15	0330	691	4.90
Mar. 1	0145	852	5.34	Apr. 20	0245	829	5.28
Mar. 9	2145	598	4.62	Apr. 27	0130	943	5.57
Mar. 21	1315	637	4.74	May 12	0315	750	5.07

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	182	191	280	209	269	805	446	479	257	220	168	156
2	173	296	253	212	272	741	431	510	251	206	165	155
3	169	251	244	226	271	711	394	480	251	199	166	154
4	164	240	251	256	268	622	373	434	242	198	166	152
5	162	224	252	270	295	557	351	489	241	199	163	152
6	162	206	245	305	288	509	339	458	236	194	162	151
7	160	252	237	314	276	468	322	431	232	197	160	161
8	160	640	233	647	266	486	318	493	232	255	160	164
9	158	606	231	881	260	556	487	523	229	210	159	154
10	156	516	237	660	257	562	796	491	225	201	251	152
11	155	434	241	544	264	514	603	527	233	200	232	152
12	153	376	233	472	334	482	528	722	286	195	185	149
13	154	339	224	437	328	453	476	659	272	192	175	148
14	152	346	219	392	317	442	462	595	241	189	177	148
15	151	331	215	367	309	411	565	538	237	187	174	147
16	149	306	213	373	301	383	464	490	251	187	169	148
17	150	286	210	358	329	367	438	441	241	191	176	151
18	148	273	210	332	550	363	406	409	229	193	173	146
19	148	266	211	312	571	358	528	387	223	182	169	145
20	148	259	208	301	549	343	746	363	e220	181	167	148
21	146	256	199	285	513	540	641	344	e210	183	167	158
22	145	284	200	283	465	524	576	329	e210	183	165	154
23	146	279	205	302	440	478	519	314	e220	179	163	149
24	145	272	205	316	495	454	471	303	254	180	164	151
25	149	266	230	294	480	424	435	316	219	176	164	149
26	147	265	221	282	475	402	574	295	216	173	163	146
27	150	260	220	287	480	381	756	283	213	174	159	146
28	146	261	219	287	605	367	607	274	207	171	158	150
29	145	254	224	276	---	351	549	267	207	171	158	147
30	140	254	233	289	---	340	513	267	210	170	156	147
31	141	---	222	281	---	329	---	258	---	171	157	---
TOTAL	4754	9289	7025	11050	10527	14723	15114	13169	6995	5907	5291	4530
MEAN	153	310	227	356	376	475	504	425	233	191	171	151
MAX	182	640	280	881	605	805	796	722	286	255	251	164
MIN	140	191	199	209	257	329	318	258	207	170	156	145
CFSM	1.08	2.18	1.60	2.51	2.65	3.34	3.55	2.99	1.64	1.34	1.20	1.06
IN.	1.25	2.43	1.84	2.89	2.76	3.86	3.96	3.45	1.83	1.55	1.39	1.19

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1998, BY WATER YEAR (WY)

MEAN	177	196	230	233	274	338	345	269	242	192	169	163
MAX	411	421	486	455	500	617	825	507	729	434	357	388
(WY)	1997	1978	1997	1996	1984	1994	1993	1978	1972	1972	1984	1996
MIN	102	117	131	122	128	104	149	147	123	118	110	108
(WY)	1970	1972	1983	1981	1969	1969	1969	1969	1969	1969	1968	1969

e Estimated.

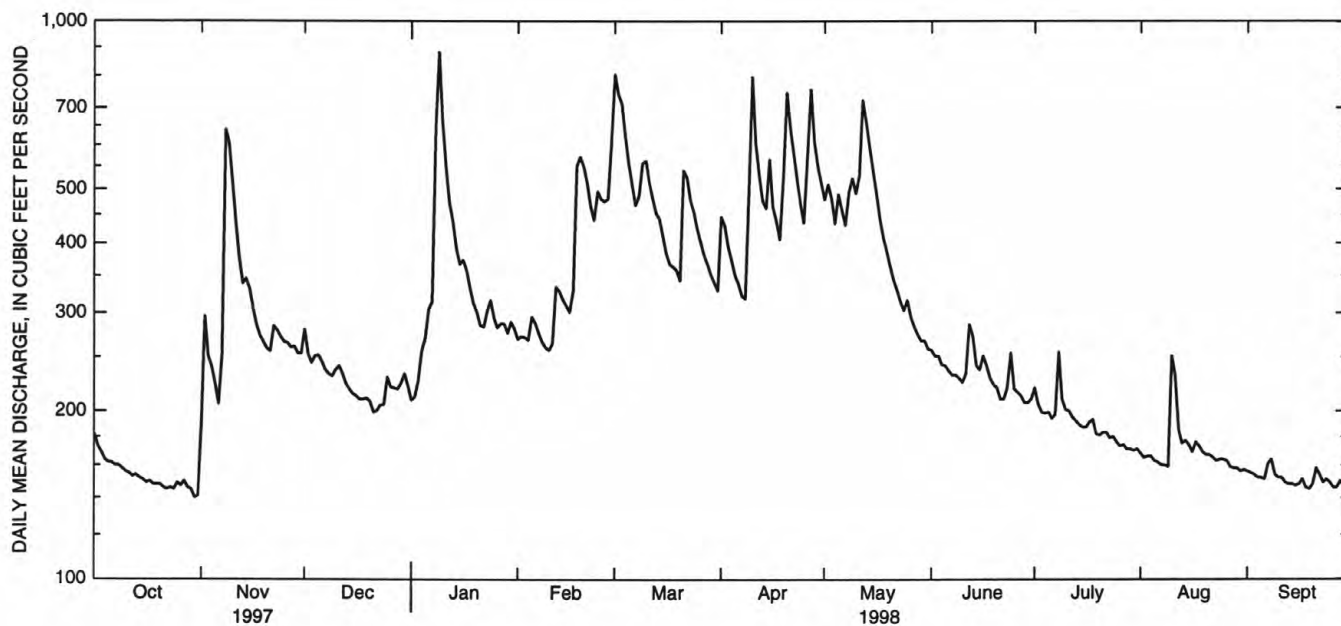
WEST BRANCH SUSQUEHANNA RIVER BASIN

01547100 SPRING CREEK AT MILESBERG, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1967 - 1998	
ANNUAL TOTAL	84703		108374		236	
ANNUAL MEAN	232		297		350	
HIGHEST ANNUAL MEAN					128	
LOWEST ANNUAL MEAN					6000	
HIGHEST DAILY MEAN	640	Nov 8	881	Jan 9		Jun 23 1972
LOWEST DAILY MEAN	140	Oct 30	140	Oct 30	82	Mar 24 1969
ANNUAL SEVEN-DAY MINIMUM	144	Sep 21	145	Oct 25	87	Mar 18 1969
INSTANTANEOUS PEAK FLOW			a1030	Apr 10	a8170	Jun 23 1972
INSTANTANEOUS PEAK STAGE			5.78	Apr 10	b13.20	Jun 23 1972
ANNUAL RUNOFF (CFSM)	1.63		2.09		1.66	
ANNUAL RUNOFF (INCHES)	22.19		28.39		22.57	
10 PERCENT EXCEEDS	331		523		374	
50 PERCENT EXCEEDS	219		251		193	
90 PERCENT EXCEEDS	152		152		130	

a From rating curve extended above 900 ft³/s on basis of flow-over-dam measurement of peak flow.

b From peak-stage indicator.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

WEST BRANCH SUSQUEHANNA RIVER BASIN

01547200 BALD EAGLE CREEK BELOW SPRING CREEK AT MILESBERG, 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 mi².

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 sea level. Prior to Aug. 31, 1956, nonrecording gage at site 130 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. 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 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 8	1100	3,660	4.69	Apr. 20	0200	3,020	4.16
Jan. 8	0915	4,740	5.50	Apr. 26	2230	3,380	4.48
Apr. 9	2230	*5,380	*5.92				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	232	301	557	296	521	1830	994	816	321	272	182	163
2	204	861	458	344	507	1460	915	1130	311	247	179	163
3	191	507	423	409	495	1320	757	1060	315	231	178	161
4	181	410	450	523	483	1090	681	927	300	228	178	158
5	175	345	430	532	558	943	612	1330	291	231	174	158
6	172	291	393	746	587	834	564	1160	283	223	172	156
7	168	564	364	815	524	754	519	964	276	226	170	170
8	166	2660	345	3930	496	878	504	1460	276	353	170	174
9	164	1570	331	2800	489	1280	1850	1610	270	313	168	160
10	160	1100	341	1630	483	1360	2930	1240	264	251	288	158
11	158	810	357	1160	502	1100	1450	1270	279	236	290	157
12	156	639	353	915	823	926	1060	2130	454	226	212	154
13	157	534	330	811	791	810	877	1600	425	219	194	152
14	154	549	314	693	696	763	838	1210	319	215	196	153
15	153	540	298	616	609	688	1540	975	299	211	193	150
16	151	498	290	648	554	611	1060	826	348	212	184	152
17	151	442	289	645	664	566	910	712	336	220	196	155
18	149	404	285	579	1680	569	768	626	296	230	196	149
19	149	388	286	537	1650	580	1390	569	277	211	188	147
20	149	389	283	508	1330	557	2390	523	268	204	183	151
21	147	387	272	467	1090	1870	1510	484	257	206	181	163
22	146	613	266	452	909	1510	1150	455	265	208	178	160
23	147	613	294	498	828	1080	954	430	325	202	175	154
24	146	538	360	587	1160	892	818	409	426	201	175	156
25	153	475	642	528	1160	768	717	431	295	196	177	156
26	152	449	621	484	1120	710	1460	395	273	193	179	151
27	159	441	544	484	1060	648	2130	372	261	193	172	150
28	154	448	475	488	1500	602	1290	355	249	190	169	149
29	152	453	426	481	---	562	1030	342	246	188	168	146
30	145	439	429	580	---	532	902	347	249	186	165	144
31	144	---	372	565	---	504	---	329	---	187	165	---
TOTAL	4985	18658	11878	24751	23269	28597	34570	26487	9054	6909	5795	4670
MEAN	161	622	383	798	831	922	1152	854	302	223	187	156
MAX	232	2660	642	3930	1680	1870	2930	2130	454	353	290	174
MIN	144	291	266	296	483	504	504	329	246	186	165	144
CFSM	.61	2.35	1.45	3.01	3.14	3.48	4.35	3.22	1.14	.84	.71	.59
IN.	.70	2.62	1.67	3.47	3.27	4.01	4.85	3.72	1.27	.97	.81	.66

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 1998, BY WATER YEAR (WY)

	MEAN	263	343	413	391	538	771	712	506	360	249	216	215
MAX	950	811	1035	1049	1227	1489	2001	1162	1689	804	643	986	
(WY)	1977	1978	1997	1996	1984	1994	1993	1978	1972	1972	1956	1996	
MIN	89.8	94.3	103	141	147	255	276	257	131	102	101	84.3	
(WY)	1964	1965	1966	1981	1963	1969	1968	1965	1965	1965	1965	1965	

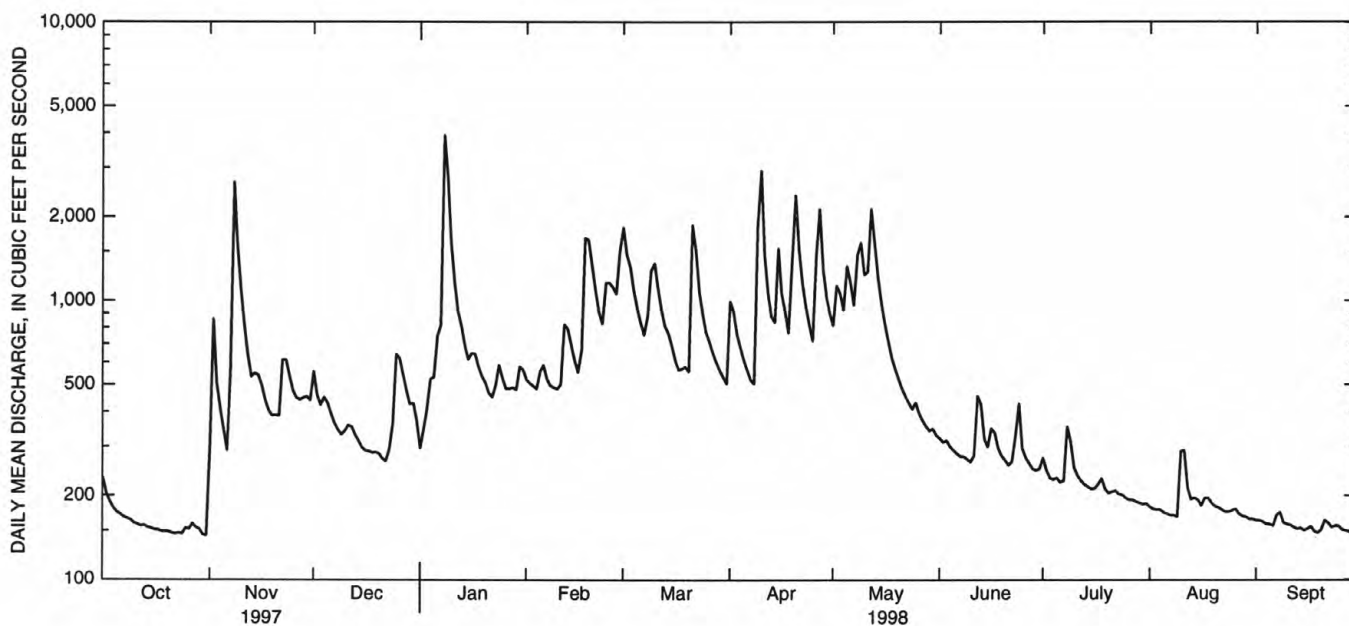
WEST BRANCH SUSQUEHANNA RIVER BASIN

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

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1956 - 1998	
ANNUAL TOTAL	141439		199623		414	
ANNUAL MEAN	388		547		638	
HIGHEST ANNUAL MEAN					213	
LOWEST ANNUAL MEAN					15000	
HIGHEST DAILY MEAN	2660	Nov 8	3930	Jan 8	15000	Jun 23 1972
LOWEST DAILY MEAN	141	Sep 27	144	Oct 31, Sep 30	79	Sep 11 1965
ANNUAL SEVEN-DAY MINIMUM	146	Sep 22	148	Oct 18	80	Sep 17 1965
INSTANTANEOUS PEAK FLOW			5380	Apr 9	a21300	Jun 23 1972
INSTANTANEOUS PEAK STAGE			5.92	Apr 9	b11.67	Jun 23 1972
ANNUAL RUNOFF (CFSM)	1.46		2.06		1.56	
ANNUAL RUNOFF (INCHES)	19.85		28.02		21.22	
10 PERCENT EXCEEDS	711		1160		803	
50 PERCENT EXCEEDS	315		393		267	
90 PERCENT EXCEEDS	154		157		135	

a From rating curve extended above 9,000 ft³/s.

b From floodmark in gage.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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 mi².

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 sea level.

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 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	255	195	727	370	610	1320	610	1220	314	268	162	162
2	226	1240	566	317	589	1480	774	1100	272	268	162	162
3	226	754	463	385	576	1670	771	1100	272	238	162	162
4	226	498	463	576	529	1910	750	1050	272	218	162	162
5	215	377	501	788	543	2130	631	1190	270	218	162	162
6	203	351	525	1040	644	2230	571	1290	268	218	162	162
7	203	539	463	1150	644	2050	488	1080	268	218	162	162
8	203	1940	409	614	553	1700	319	1300	268	346	162	161
9	194	2080	346	379	487	1740	580	1720	290	421	162	159
10	178	2060	377	1700	521	1850	1120	1450	319	644	325	159
11	178	1190	432	2320	583	1840	1910	1590	319	214	421	159
12	178	652	432	2490	947	1200	2060	1950	508	214	277	159
13	178	523	381	2400	1090	547	2020	2240	616	214	219	159
14	178	523	346	2310	846	429	1980	1990	413	181	189	159
15	178	587	343	1890	673	401	1980	1240	314	162	189	159
16	178	629	327	1360	629	374	1790	953	314	162	189	159
17	178	705	299	750	971	377	1240	779	314	162	189	159
18	178	750	299	696	1230	355	1060	674	314	162	189	159
19	178	750	299	630	1750	341	1320	616	314	162	189	159
20	177	745	299	571	1860	342	1650	529	314	163	189	159
21	175	741	299	537	2030	739	1850	481	286	199	189	159
22	175	806	299	487	2330	1160	2020	464	263	255	189	161
23	175	966	360	558	2010	1170	1550	432	330	256	189	162
24	175	927	409	690	1880	1070	1020	432	532	263	189	162
25	175	828	756	567	1940	852	804	437	454	232	189	162
26	175	880	832	517	2040	769	1110	438	272	214	192	162
27	173	837	647	583	2060	699	1950	438	269	182	192	161
28	172	735	536	583	1780	658	2030	405	268	162	192	159
29	172	760	487	548	---	658	1620	384	268	162	192	159
30	172	760	487	547	---	576	1400	380	268	162	176	159
31	172	---	487	644	---	511	---	380	---	162	162	---
TOTAL	5819	25328	13896	28997	32345	33148	38978	29732	9763	7102	6074	4809
MEAN	188	844	448	935	1155	1069	1299	959	325	229	196	160
MAX	255	2080	832	2490	2330	2230	2060	2240	616	644	421	162
MIN	172	195	299	317	487	341	319	380	263	162	162	159

WEST BRANCH SUSQUEHANNA RIVER BASIN

01547500 BALD EAGLE CREEK AT BLANCHARD, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1998, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	430	595	597	540	656	737	705	588	453	335	270	324
MAX	1012	1291	1211	1213	1450	1664	2095	1328	1184	1580	867	1097
(WY)	1980	1978	1997	1996	1984	1979	1993	1978	1972	1972	1984	1996
MIN	165	188	204	133	275	238	208	203	195	162	140	120
(WY)	1983	1988	1990	1981	1993	1990	1976	1995	1991	1991	1995	1995

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1971 - 1998

ANNUAL TOTAL	157056		235991									
ANNUAL MEAN	430		647							518		
HIGHEST ANNUAL MEAN										764		1978
LOWEST ANNUAL MEAN										333		1992
HIGHEST DAILY MEAN				2160	Feb 21		2490	Jan 12		4730		Jun 29 1972
LOWEST DAILY MEAN				149	May 17, 18		159	Sep 9-21, 28-30		5.3		Mar 29 1993a
ANNUAL SEVEN-DAY MINIMUM				164	May 13		159	Sep 9		71		Apr 20 1971
INSTANTANEOUS PEAK FLOW							2560	Jan 11		b4890		Jun 28 1972
INSTANTANEOUS PEAK STAGE							6.52	Jan 11		9.37		Jun 28 1972
INSTANTANEOUS LOW FLOW										c.00		May 12 1976
10 PERCENT EXCEEDS				778			1760			1070		
50 PERCENT EXCEEDS				309			432			339		
90 PERCENT EXCEEDS				178			162			167		

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

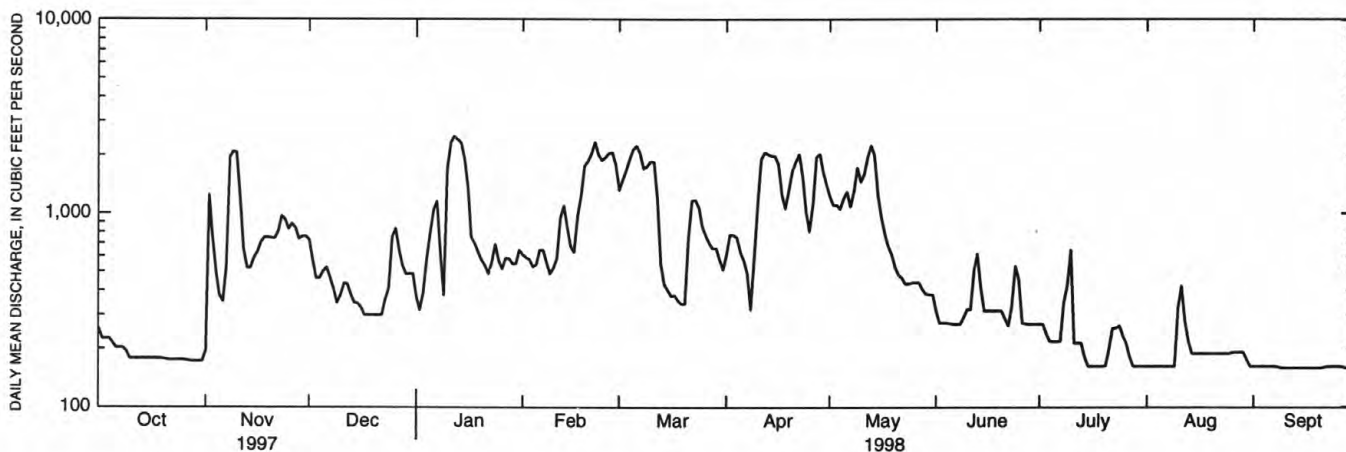
WATER YEARS 1954 - 1970

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							
INSTANTANEOUS PEAK FLOW	b10100			Mar 10	1964							
INSTANTANEOUS PEAK STAGE	11.59			Mar 10	1964							
INSTANTANEOUS LOW FLOW	.00			Jun 16	1970c							
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 ft³/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.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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 mi².

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 sea level. 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 ft³/s and maximum (*):

<u>Date</u>	<u>Time</u>	<u>Discharge</u> (ft ³ /s)	<u>Gage height</u> (ft)	<u>Date</u>	<u>Time</u>	<u>Discharge</u> (ft ³ /s)	<u>Gage height</u> (ft)
Jan. 8	1830	1,150	4.52	Apr. 9	2000	*1,350	*4.72
Feb. 18	0430	538	3.74	Apr. 20	0430	529	3.76
Feb. 28	1800	670	3.94				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	10	61	e35	59	483	97	103	15	11	2.1	1.5
2	14	83	55	e40	58	343	92	122	13	7.9	1.9	1.4
3	11	53	53	51	56	248	83	117	14	6.8	1.7	1.4
4	9.9	51	57	95	55	170	76	116	12	6.1	1.7	1.4
5	8.5	41	52	103	67	127	67	132	11	6.4	1.6	1.4
6	7.3	33	47	154	64	101	59	126	11	5.6	1.5	1.4
7	6.4	55	43	165	57	87	52	112	10	5.3	1.4	1.2
8	5.7	169	39	e900	57	130	50	223	10	8.5	1.4	1.3
9	5.7	198	35	756	55	242	446	401	9.4	7.8	1.4	2.4
10	5.7	154	35	392	53	308	702	336	9.1	5.6	6.8	1.8
11	5.4	103	36	236	55	237	379	322	9.7	4.8	6.6	1.5
12	5.4	73	35	153	88	168	228	416	40	4.3	3.6	1.4
13	5.4	56	33	115	99	123	157	349	25	4.1	2.7	1.2
14	5.7	55	31	85	98	103	132	232	16	3.9	2.3	1.2
15	6.3	51	29	70	83	81	174	157	13	3.7	3.0	1.2
16	5.7	49	28	77	71	66	146	113	17	3.9	3.7	1.1
17	5.5	44	27	69	86	56	135	87	14	3.9	3.1	1.1
18	5.7	40	26	63	446	55	110	66	12	3.7	3.3	1.1
19	5.4	38	26	58	467	54	217	53	9.9	3.3	3.0	1.1
20	5.4	39	26	55	353	52	492	45	9.8	7.5	2.4	1.1
21	5.7	39	25	50	239	279	354	38	8.6	4.9	2.1	1.3
22	5.4	80	24	46	163	330	233	32	9.2	3.8	2.1	2.8
23	5.3	91	27	51	128	233	164	29	13	3.3	2.1	3.4
24	5.3	82	31	59	234	159	122	26	20	3.5	2.1	2.2
25	6.5	69	84	56	213	114	95	25	12	3.1	2.1	1.9
26	7.5	62	93	53	185	94	182	22	12	2.7	2.8	1.9
27	10	56	87	52	162	80	252	20	12	2.5	2.7	1.9
28	10	51	75	54	318	69	207	18	9.3	2.3	2.0	1.8
29	8.3	48	64	54	---	60	159	17	8.6	2.3	1.8	1.6
30	7.2	52	63	64	---	53	126	16	9.0	2.1	1.6	1.5
31	6.8	---	51	61	---	49	---	15	---	2.1	1.5	---
TOTAL	226.1	2025	1398	4272	4069	4754	5788	3886	394.6	146.7	78.1	47.5
MEAN	7.29	67.5	45.1	138	145	153	193	125	13.2	4.73	2.52	1.58
MAX	18	198	93	900	467	483	702	416	40	11	6.8	3.4
MIN	5.3	10	24	35	53	49	50	15	8.6	2.1	1.4	1.1
CFSM	.17	1.53	1.02	3.12	3.30	3.48	4.37	2.84	.30	.11	.06	.04
IN.	.19	1.71	1.18	3.60	3.43	4.01	4.88	3.28	.33	.12	.07	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 1998, BY WATER YEAR (WY)

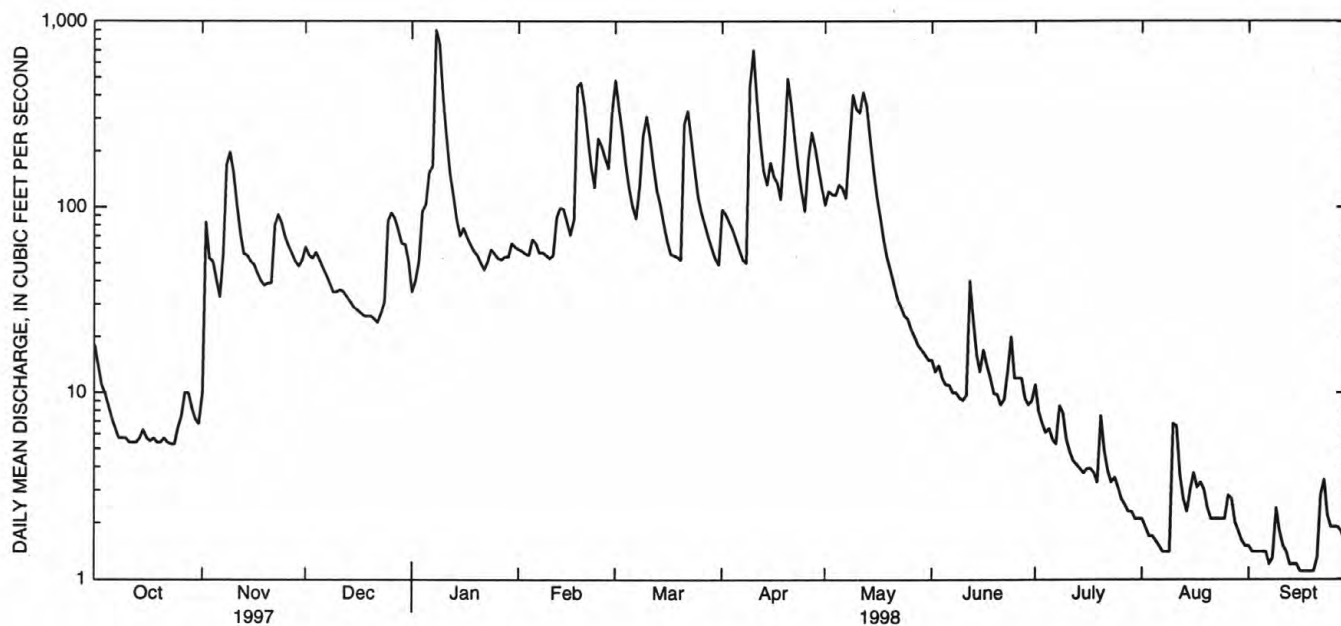
MEAN	29.0	53.8	70.5	57.7	87.9	135	115	73.4	46.7	22.1	16.8	17.6
MAX	154	151	252	193	267	283	337	171	344	170	77.6	110
(WY)	1991	1978	1973	1996	1984	1994	1993	1978	1972	1972	1994	1996
MIN	1.08	1.94	4.72	4.01	14.0	32.5	29.9	20.1	5.37	1.18	.61	.25
(WY)	1965	1965	1966	1981	1963	1969	1968	1977	1991	1965	1966	1964

e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN
01547700 MARSH CREEK AT BLANCHARD, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1956 - 1998	
ANNUAL TOTAL	14980.9		27085.0		60.3	
ANNUAL MEAN	41.0		74.2		102	
HIGHEST ANNUAL MEAN					28.6	
LOWEST ANNUAL MEAN					3800	
HIGHEST DAILY MEAN	403	Feb 22	e900	Jan 8		Jun 23 1972
LOWEST DAILY MEAN	1.6	Aug 9,10	1.1	Sep 16-20	.00	Aug 30 1966
ANNUAL SEVEN-DAY MINIMUM	1.7	Sep 3	1.1	Sep 14	.07	Aug 27 1966
INSTANTANEOUS PEAK FLOW			1350	Apr 9	a6900	Jun 18 1984
INSTANTANEOUS PEAK STAGE			4.72	Apr 9	7.85	Jun 18 1984
ANNUAL RUNOFF (CFSM)	.93		1.68		1.37	
ANNUAL RUNOFF (INCHES)	12.64		22.85		18.58	
10 PERCENT EXCEEDS	93		209		143	
50 PERCENT EXCEEDS	29		38		26	
90 PERCENT EXCEEDS	2.7		1.9		3.9	

a From rating curve extended above 4,900 ft³/s.
e Estimated.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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 mi².

PERIOD OF RECORD.--October 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 741.60 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. 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 ft³/s and maximum (*):

<u>Date</u>	<u>Time</u>	<u>Discharge (ft³/s)</u>	<u>Gage height (ft)</u>	<u>Date</u>	<u>Time</u>	<u>Discharge (ft³/s)</u>	<u>Gage height (ft)</u>
Jan. 8	2200	*2,020	*8.98	Apr. 10	0100	1,510	8.34

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	53	369	234	196	1330	321	579	120	93	25	17
2	67	418	330	232	193	1230	322	596	110	70	24	17
3	60	326	304	215	192	1100	281	537	109	61	24	18
4	56	260	309	298	195	915	270	470	99	59	23	18
5	50	218	293	383	213	778	259	578	93	59	23	16
6	46	185	267	561	212	664	247	608	89	53	22	16
7	43	222	245	671	196	579	234	563	85	51	21	16
8	41	628	222	1710	191	604	229	791	84	79	20	20
9	39	861	205	1920	186	810	609	1160	78	71	21	20
10	37	829	201	1470	182	931	1350	1150	77	58	51	17
11	35	678	193	1100	188	883	1130	1100	78	52	59	16
12	34	535	180	870	297	781	914	1180	156	48	34	15
13	33	423	168	729	367	671	754	1110	127	46	27	14
14	33	383	159	593	384	593	663	963	98	44	25	14
15	33	321	148	497	372	502	801	807	89	43	25	14
16	31	282	141	472	346	424	680	671	95	43	31	13
17	30	244	137	433	376	368	645	565	99	43	31	17
18	30	214	132	376	919	345	563	459	88	43	33	16
19	29	196	128	333	1270	334	726	387	76	38	32	14
20	29	188	126	303	1280	313	1300	332	74	41	25	14
21	28	180	122	273	1090	671	1240	289	68	41	23	14
22	28	246	118	250	906	798	1020	253	77	38	26	17
23	27	299	127	263	784	771	853	225	122	36	25	21
24	27	321	136	268	743	682	709	202	173	39	23	16
25	30	312	237	244	650	580	587	192	101	35	24	15
26	31	317	302	222	603	513	682	175	90	32	23	16
27	43	346	318	207	582	452	902	158	95	30	23	16
28	40	336	319	205	800	403	820	144	76	30	20	16
29	33	343	302	201	---	361	745	141	70	28	19	14
30	30	351	309	222	---	322	661	137	75	27	19	13
31	28	---	268	209	---	295	---	125	---	27	18	---
TOTAL	1185	10515	6815	15964	13913	20003	20517	16647	2871	1458	819	480
MEAN	38.2	351	220	515	497	645	684	537	95.7	47.0	26.4	16.0
MAX	84	861	369	1920	1280	1330	1350	1180	173	93	59	21
MIN	27	53	118	201	182	295	229	125	68	27	18	13
CFSM	.25	2.31	1.45	3.39	3.27	4.25	4.50	3.53	.63	.31	.17	.11
IN.	.29	2.57	1.67	3.91	3.41	4.90	5.02	4.07	.70	.36	.20	.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1998, BY WATER YEAR (WY)

MEAN	153	270	318	258	340	494	504	335	255	160	95.5	108
MAX	620	673	656	585	809	949	1353	709	895	621	410	509
(WY)	1991	1971	1997	1979	1981	1979	1993	1978	1972	1972	1994	1975
MIN	21.8	41.2	71.6	54.9	73.8	167	213	112	48.0	27.8	17.8	16.0
(WY)	1992	1992	1990	1981	1980	1969	1988	1976	1991	1991	1991	1998

WEST BRANCH SUSQUEHANNA RIVER BASIN

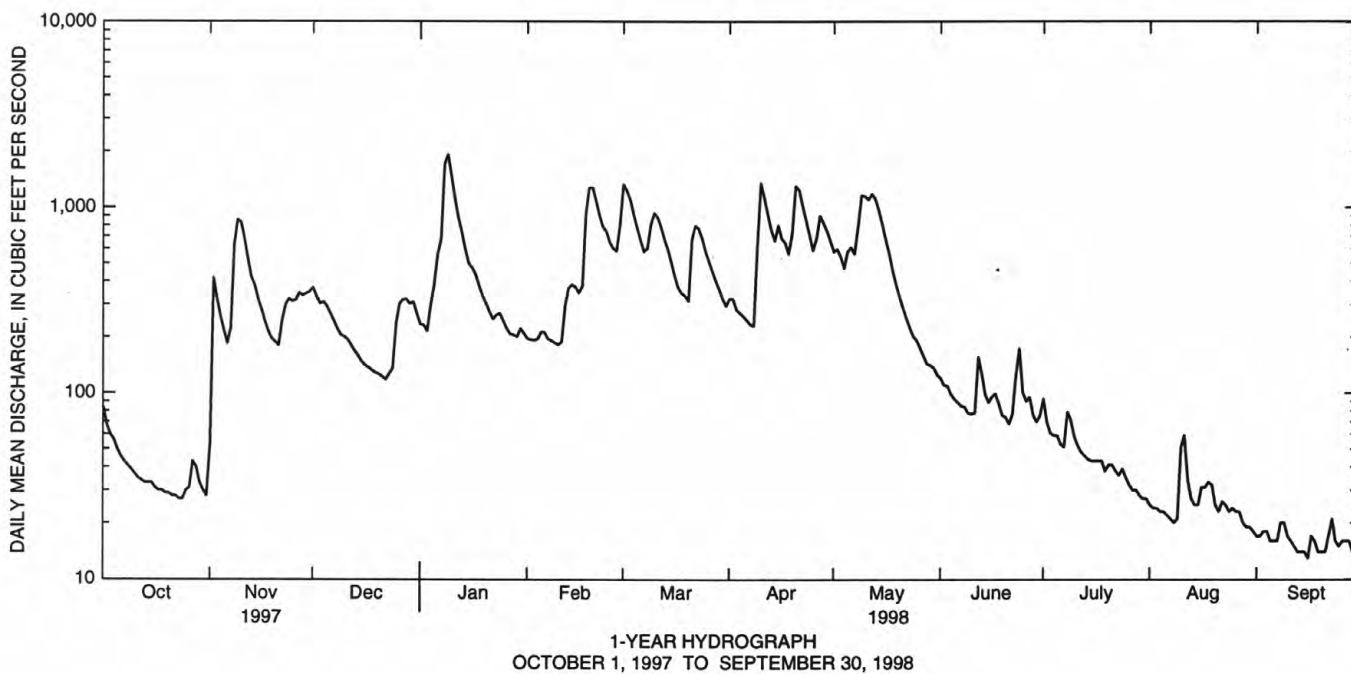
01547950 BEECH CREEK AT MONUMENT, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1969 - 1998	
ANNUAL TOTAL	74898		111187		274	
ANNUAL MEAN	205		305		172	
HIGHEST ANNUAL MEAN					385	
LOWEST ANNUAL MEAN					172	
HIGHEST DAILY MEAN	1190	Feb 23	1920	Jan 9	7490	Jun 23 1972
LOWEST DAILY MEAN	e18	Aug 10	13	Sep 16, 30	8.3	Sep 9 1991
ANNUAL SEVEN-DAY MINIMUM	a21	Aug 6	15	Sep 13	9.9	Aug 29 1991
INSTANTANEOUS PEAK FLOW			b2020	Jan 8	b9740	Jun 23 1972
INSTANTANEOUS PEAK STAGE			8.98	Jan 8	15.22	Jun 23 1972
ANNUAL RUNOFF (CFSM)	1.35		2.00		1.80	
ANNUAL RUNOFF (INCHES)	18.33		27.21		24.46	
10 PERCENT EXCEEDS	434		800		600	
50 PERCENT EXCEEDS	160		193		170	
90 PERCENT EXCEEDS	29		21		41	

a Computed using estimated daily discharges.

b From rating curve extended above 2,000 ft³/s on basis of slope-area measurement of peak flow.

e Estimated.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01548500 PINE CREEK AT CEDAR RUN, PA

LOCATION.--Lat 41°31'18", long 77°26'52", Lycoming County, Hydrologic Unit 02050205, on left bank at upstream side of highway bridge on Township Route 762 at village of Cedar Run, 2,000 ft downstream from Cedar Run, and 1.2 mi upstream from Gamble Run.

DRAINAGE AREA.--604 mi².

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 sea level. 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 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 8	2115	*14,300	*8.12	May 11	2000	7,850	6.30
Apr. 10	0230	6,530	5.83				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	260	125	1700	e460	472	4490	e1200	1220	354	1720	90	48
2	223	1070	1650	e500	476	4100	e1500	1200	296	961	85	50
3	204	1330	1510	701	475	3350	1240	1370	354	723	80	46
4	200	999	1430	1360	461	2630	1160	1230	269	565	75	43
5	187	899	1320	2140	461	2110	1090	1340	220	496	72	41
6	185	708	1130	3010	439	1730	986	1820	199	402	71	38
7	166	629	971	3590	410	1470	892	1650	191	339	68	42
8	153	1720	850	11600	399	1360	789	1810	180	326	63	72
9	143	2690	754	11400	389	2130	1460	e3400	174	401	60	83
10	137	2490	707	6920	390	2460	5570	e3800	157	301	79	78
11	129	1940	691	4490	412	2250	4250	e5000	161	245	138	75
12	123	1530	627	3150	1050	1980	3180	e7400	391	214	117	69
13	119	1220	576	2370	1140	1710	2420	e6000	726	194	83	56
14	116	1120	535	1830	955	1540	1940	e4200	477	179	72	57
15	113	942	487	1470	806	1320	1700	e2900	395	166	68	56
16	109	818	468	1420	791	1110	1420	2040	364	157	67	52
17	105	714	453	1240	836	968	1250	1730	352	151	70	50
18	102	611	415	1080	2510	946	1040	1320	311	169	72	47
19	99	548	404	938	3710	981	1410	1070	271	156	71	52
20	99	533	403	840	3590	1060	4270	881	247	161	68	55
21	96	535	404	724	3220	1230	3880	729	238	210	62	55
22	93	713	362	663	2670	1410	3140	612	216	325	57	60
23	93	915	389	649	2290	1290	2460	535	222	215	54	65
24	110	945	377	673	2100	1250	1970	468	376	192	54	61
25	98	818	483	607	1820	1180	1600	411	293	168	56	52
26	139	761	758	528	1750	1330	1520	379	236	150	55	58
27	141	1020	772	490	1690	1580	1930	336	295	133	51	52
28	151	1040	734	479	2330	1620	1490	300	227	121	50	51
29	133	1150	661	464	---	1630	1380	275	201	112	47	45
30	118	1260	687	534	---	1500	1310	273	837	107	49	45
31	107	---	e620	537	---	e1400	---	257	---	98	50	---
TOTAL	4251	31793	23328	66857	38042	55115	59447	55956	9230	9857	2154	1654
MEAN	137	1060	753	2157	1359	1778	1982	1805	308	318	69.5	55.1
MAX	260	2690	1700	11600	3710	4490	5570	7400	837	1720	138	83
MIN	93	125	362	460	389	946	789	257	157	98	47	38
CFM	.23	1.75	1.25	3.57	2.25	2.94	3.28	2.99	.51	.53	.12	.09
IN.	.26	1.96	1.44	4.12	2.34	3.39	3.66	3.45	.57	.61	.13	.10

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1919 - 1998, BY WATER YEAR (WY)

	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930
MEAN	369	769	847	843	909	1869	1977	1258	619	286	225	207
MAX	2910	3077	2260	2741	3090	6362	5678	3580	3601	1160	2712	2458
(WY)	1991	1951	1928	1937	1981	1936	1993	1919	1972	1928	1994	1975
MIN	28.9	41.3	65.4	47.6	119	590	374	238	90.4	50.2	32.6	19.3
(WY)	1965	1931	1961	1931	1920	1981	1946	1941	1991	1966	1939	1964

e Estimated.

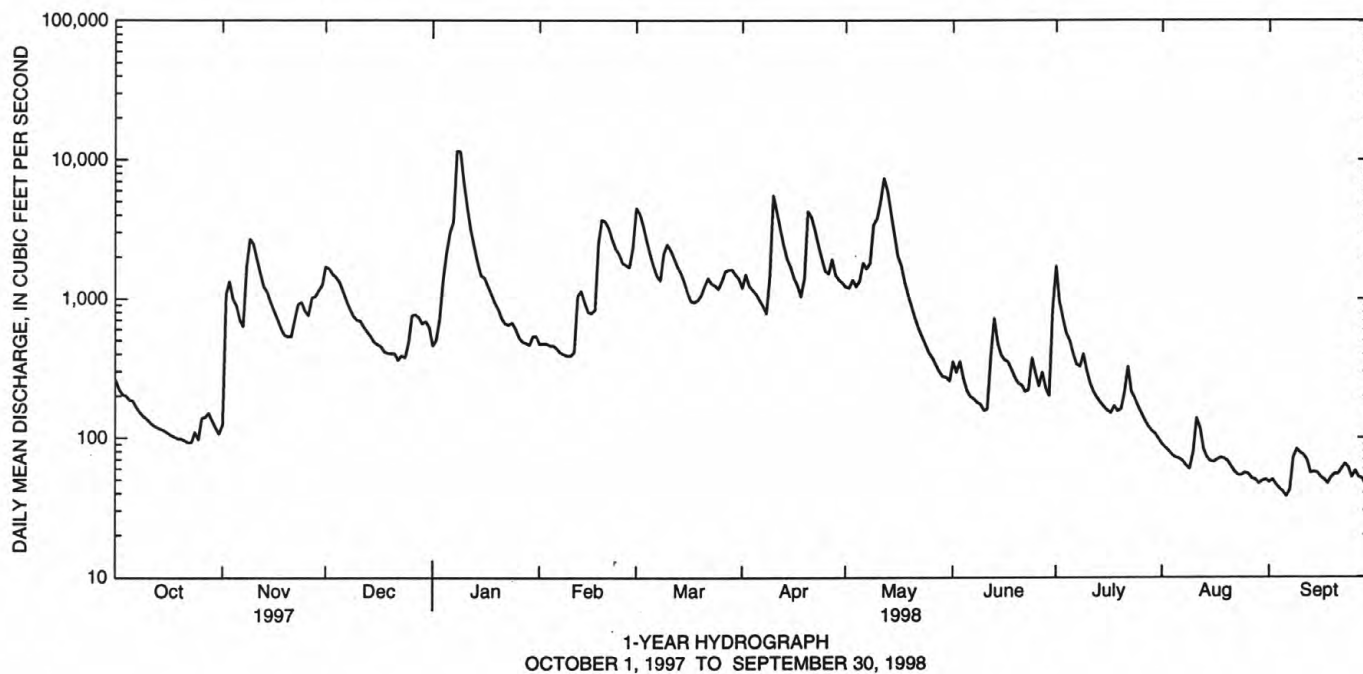
WEST BRANCH SUSQUEHANNA RIVER BASIN

01548500 PINE CREEK AT CEDAR RUN, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1919 - 1998	
ANNUAL TOTAL	248465		357684		847	
ANNUAL MEAN	681		980		1400	
HIGHEST ANNUAL MEAN					444	
LOWEST ANNUAL MEAN					1941	
HIGHEST DAILY MEAN	5020	Mar 6	11600	Jan 8	42600	Jun 23 1972
LOWEST DAILY MEAN	60	Aug 11	38	Sep 6	8.0	Sep 2 1939
ANNUAL SEVEN-DAY MINIMUM	75	Aug 6	44	Sep 1	11	Aug 28 1939
INSTANTANEOUS PEAK FLOW			14300	Jan 8	a66000	Jun 23 1972
INSTANTANEOUS PEAK STAGE			8.12	Jan 8	b16.00	Jun 23 1972
INSTANTANEOUS LOW FLOW					8.0	Sep 1,2 1939
ANNUAL RUNOFF (CFSM)	1.13		1.62		1.40	
ANNUAL RUNOFF (INCHES)	15.30		22.03		19.06	
10 PERCENT EXCEEDS	1520		2310		2050	
50 PERCENT EXCEEDS	440		500		400	
90 PERCENT EXCEEDS	108		63		65	

a From rating curve extended above 16,000 ft³/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 mi².

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 sea level.

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 ft³/s, from rating curve extended above 1,200 ft³/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 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 8	1100	*1,630	*5.49	Feb. 18	0500	1,180	4.89

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	36	87	e45	38	410	68	62	41	57	4.4	2.3
2	32	273	71	e50	38	290	67	70	24	27	4.0	2.4
3	28	179	66	53	39	201	57	62	21	21	3.7	3.1
4	25	142	69	99	38	146	55	56	e17	17	3.6	2.9
5	23	102	65	119	39	114	52	72	14	17	3.5	2.5
6	20	83	58	147	36	92	48	90	13	14	3.2	2.2
7	18	77	51	153	34	78	44	77	12	13	3.0	2.4
8	16	250	47	1070	33	94	43	124	12	13	2.8	6.2
9	15	208	43	664	33	168	181	221	11	15	2.8	3.9
10	14	161	43	343	34	203	319	251	10	12	15	3.0
11	13	121	42	210	39	154	213	534	12	9.6	21	2.6
12	12	97	39	142	111	121	157	545	34	8.4	7.6	2.4
13	11	79	37	115	83	99	120	318	27	7.6	5.2	2.2
14	11	78	35	88	72	87	98	196	21	7.1	4.5	2.1
15	11	66	31	74	e56	74	86	132	17	6.8	4.6	2.1
16	9.8	60	31	91	e54	63	72	98	e19	6.5	4.5	2.0
17	9.4	53	31	72	90	56	63	83	e35	6.3	4.4	2.6
18	9.1	46	29	64	789	56	53	63	33	6.8	5.3	2.4
19	9.0	43	28	57	617	60	149	52	21	5.5	5.0	2.1
20	8.8	44	29	52	397	60	271	45	18	45	4.1	e2.1
21	8.5	44	28	46	272	211	180	39	16	25	3.6	e2.2
22	8.0	89	23	44	188	164	140	34	15	20	3.4	2.7
23	7.8	94	27	47	147	131	111	31	19	12	3.3	2.9
24	7.5	89	26	52	134	108	89	27	24	11	3.1	2.5
25	10	72	52	45	119	89	73	25	16	8.8	3.1	2.3
26	11	70	57	40	119	81	103	23	15	7.6	3.0	2.3
27	14	82	52	38	118	75	98	20	14	6.5	2.8	2.4
28	12	68	48	37	310	69	79	18	12	6.0	2.6	2.7
29	10	67	44	37	---	63	72	20	11	5.5	2.4	3.0
30	9.0	68	e43	44	---	58	67	21	48	5.1	2.5	2.5
31	8.2	---	e40	41	---	54	---	21	---	4.9	2.6	---
TOTAL	442.1	2941	1372	4179	4077	3729	3228	3430	602	428.0	144.6	79.0
MEAN	14.3	98.0	44.3	135	146	120	108	111	20.1	13.8	4.66	2.63
MAX	41	273	87	1070	789	410	319	545	48	57	21	6.2
MIN	7.5	36	23	37	33	54	43	18	10	4.9	2.4	2.0
CFSM	.38	2.60	1.17	3.58	3.86	3.19	2.85	2.93	.53	.37	.12	.07
IN.	.44	2.90	1.35	4.12	4.02	3.68	3.19	3.38	.59	.42	.14	.08

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 1998, BY WATER YEAR (WY)

	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952
MEAN	33.7	62.9	68.0	57.4	69.0	124	125	79.1	41.5	18.9	15.0	15.8
MAX	194	195	184	182	268	260	429	211	303	74.7	204	115
(WY)	1991	1978	1974	1996	1981	1945	1993	1946	1972	1990	1994	1975
MIN	1.36	3.61	6.72	6.18	12.8	16.5	24.8	15.7	5.42	1.98	1.21	.43
(WY)	1965	1965	1965	1981	1941	1969	1946	1941	1991	1955	1966	1964

e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

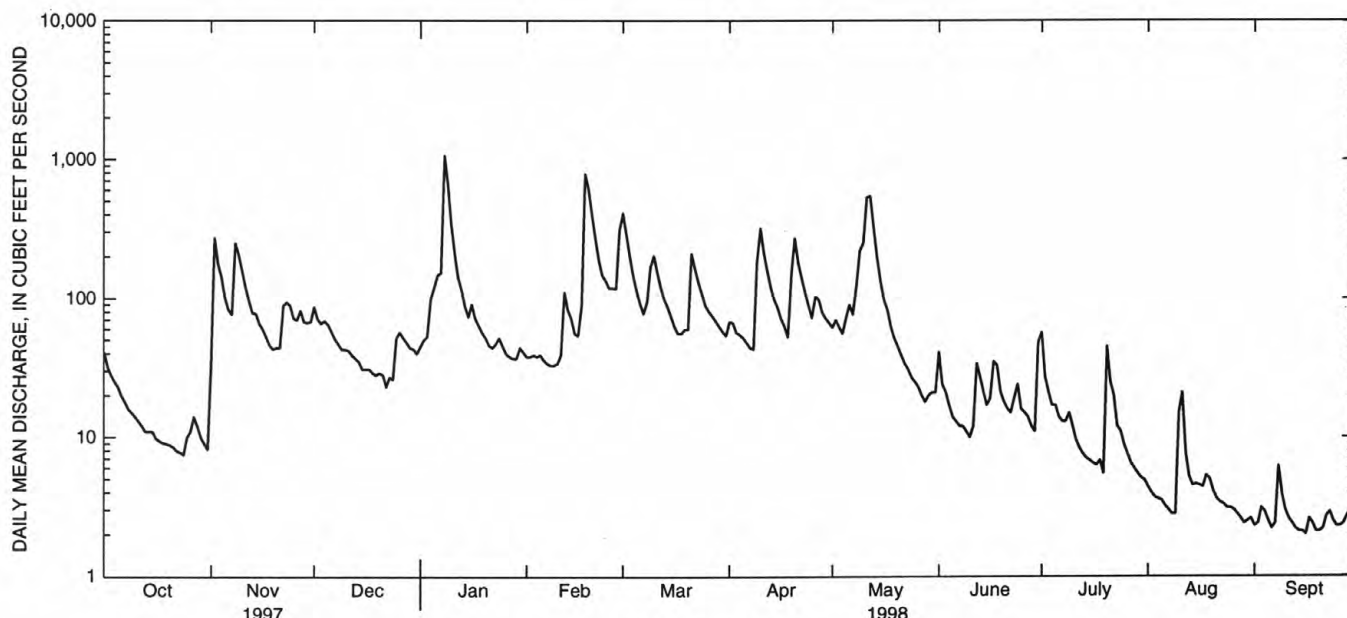
01549500 BLOCKHOUSE CREEK NEAR ENGLISH CENTER, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1941 - 1998	
ANNUAL TOTAL	15606.29		24651.7		59.1	
ANNUAL MEAN	42.8		67.5		26.3	
HIGHEST ANNUAL MEAN					104	
LOWEST ANNUAL MEAN					26.3	
HIGHEST DAILY MEAN	390	Mar 6	1070	Jan 8	3180	Jun 22 1972
LOWEST DAILY MEAN	.83	Aug 11	2.0	Sep 16	.00	Aug 6 1962c
ANNUAL SEVEN-DAY MINIMUM	1.5	Aug 6	a2.2	Sep 14	.19	Aug 29 1962
INSTANTANEOUS PEAK FLOW			1630	Jan 8	b6260	Jun 23 1972
INSTANTANEOUS PEAK STAGE			5.49	Jan 8	9.34	Jun 23 1972
INSTANTANEOUS LOW FLOW					.00	Aug 6,7 1962c
ANNUAL RUNOFF (CFSM)	1.13		1.79		1.57	
ANNUAL RUNOFF (INCHES)	15.40		24.32		21.31	
10 PERCENT EXCEEDS	97		151		134	
50 PERCENT EXCEEDS	28		39		27	
90 PERCENT EXCEEDS	5.0		3.1		3.9	

a Computed using estimated daily discharges.

b From rating curve extended above 1,200 ft³/s on basis of contracted-opening measurement at gage height 8.81 ft.

c Also Aug. 31, Sept. 1, 2, 1962.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

WEST BRANCH SUSQUEHANNA RIVER BASIN

01549700 PINE CREEK BELOW LITTLE PINE CREEK NEAR WATERVILLE, PA

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 mi².

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 sea level. 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 telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 9,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 8	1845	*20,900	*9.09	May 12	1145	12,200	7.21
Apr. 10	0730	11,100	6.94				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	517	180	2290	e780	888	7550	1860	2000	599	2040	135	61
2	402	1230	2310	e800	868	6830	2250	1890	590	1200	125	e66
3	355	2900	2140	e1000	879	5450	1890	2080	543	881	116	75
4	339	1950	2020	1670	866	4230	1760	1850	516	695	109	71
5	325	1740	1900	3100	881	3390	1670	1990	405	608	104	65
6	305	1410	1680	4280	838	2790	1540	3190	361	523	100	62
7	294	1240	1460	5110	775	2340	1400	2950	339	431	95	60
8	259	2140	1250	14900	742	2110	1280	2910	320	400	89	63
9	206	4770	1110	18000	719	3080	1720	5380	306	457	86	96
10	206	4190	1060	11800	718	4230	9330	6040	288	425	118	110
11	211	3210	1050	8070	744	3900	7310	8620	289	332	186	101
12	196	2510	978	5490	1370	3370	5320	11800	416	286	212	95
13	171	2020	900	3730	2070	2880	3960	9240	982	257	157	87
14	168	1810	852	2980	1830	2530	3140	6130	766	237	120	77
15	178	1570	797	2330	1600	2160	2710	4380	615	220	113	72
16	173	1350	721	2210	1460	1820	2280	3260	561	210	134	74
17	163	1210	688	2050	1470	1610	1950	2670	535	204	117	70
18	158	1070	673	1760	4100	1500	1670	2090	504	198	122	68
19	147	930	631	1550	7120	1510	1740	1690	445	215	115	61
20	143	896	620	1400	7170	1600	6630	1420	386	229	107	66
21	139	897	636	1240	6160	2160	6360	1210	360	349	99	81
22	138	1040	588	1140	4680	2960	5050	1010	344	387	93	74
23	136	1530	585	1110	3870	2590	3910	881	349	362	90	73
24	135	1640	600	1150	3500	2360	3120	782	395	285	82	76
25	159	1500	754	1080	3060	2130	2520	698	522	254	79	79
26	153	1370	1200	961	2860	2090	2300	642	379	224	80	72
27	204	1520	1290	886	2750	2330	3220	584	377	199	75	71
28	207	1670	1230	853	3080	2390	2620	515	361	181	70	85
29	219	1730	1130	832	---	2380	2370	465	301	166	66	65
30	186	1860	1160	896	---	2190	2180	469	305	155	63	63
31	166	---	e1000	968	---	1970	---	452	---	147	63	---
TOTAL	6758	53083	35303	104126	67068	90430	95060	89288	13459	12757	3320	2239
MEAN	218	1769	1139	3359	2395	2917	3169	2880	449	412	107	74.6
MAX	517	4770	2310	18000	7170	7550	9330	11800	982	2040	212	110
MIN	135	180	585	780	718	1500	1280	452	288	147	63	60
CFSM	.23	1.87	1.21	3.56	2.54	3.09	3.36	3.05	.48	.44	.11	.08
IN.	.27	2.09	1.39	4.10	2.64	3.56	3.75	3.52	.53	.50	.13	.09

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 1998, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1958	706	4597	1991	46.7	1964
1959	1328	4337	1978	66.3	1965
1960	1526	3860	1974	107	1961
1961	1321	4114	1996	93.7	1961
1962	1696	5148	1981	410	1987
1963	2926	6840	1964	850	1969
1964	3260	9683	1993	1171	1988
1965	1886	3919	1960	446	1985
1966	1136	6070	1972	153	1991
1967	535	2423	1972	73.4	1964
1968	421	4096	1994	51.7	1966
1969	429	4053	1975	30.4	1964

e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

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

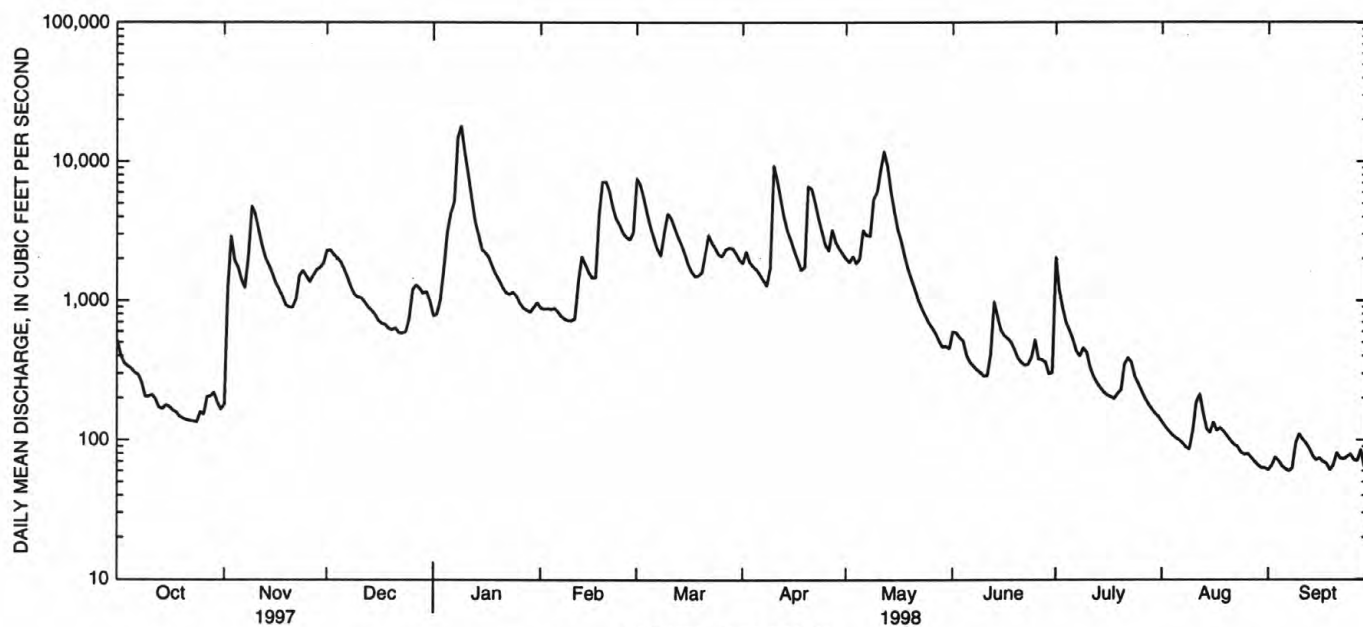
SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1958 - 1998	
ANNUAL TOTAL	401401		572891		1428	
ANNUAL MEAN	1100		1570		2379	
HIGHEST ANNUAL MEAN					1978	
LOWEST ANNUAL MEAN					1965	
HIGHEST DAILY MEAN	e8000	Mar 6	18000	Jan 9	75000	Jun 23 1972
LOWEST DAILY MEAN	88	Aug 11	60	Sep 7	25	Sep 25-27 1964
ANNUAL SEVEN-DAY MINIMUM	116	Jul 30	a66	Sep 1	26	Sep 21 1964
INSTANTANEOUS PEAK FLOW			20900	Jan 8	b104000	Jun 23 1972
INSTANTANEOUS PEAK STAGE			9.09	Jan 8	c22.76	Jun 23 1972
INSTANTANEOUS LOW FLOW					25	Sep 25-27 1964
ANNUAL RUNOFF (CFSM)	1.16		1.66		1.51	
ANNUAL RUNOFF (INCHES)	15.82		22.58		20.55	
10 PERCENT EXCEEDS	2350		3790		3400	
50 PERCENT EXCEEDS	700		879		681	
90 PERCENT EXCEEDS	157		90		115	

a Computed using estimated daily discharges.

b From rating curve extended above 22,000 ft³/s on basis of slope-area measurement of peak flow.

c From floodmark.

e Estimated.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

WEST BRANCH SUSQUEHANNA RIVER BASIN

01550000 LYCOMING CREEK NEAR TROUT RUN, PA

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 mi².

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 sea level. 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 ft³/s and maximum (*):

<u>Date</u>	<u>Time</u>	<u>Discharge</u> (ft ³ /s)	<u>Gage height</u> (ft)	<u>Date</u>	<u>Time</u>	<u>Discharge</u> (ft ³ /s)	<u>Gage height</u> (ft)
Jan. 8	0915	5,900	9.14	Feb. 28	2100	4,520	8.17
Feb. 18	0700	*6,250	*9.37	May 12	0715	4,070	7.84

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	133	64	438	e170	193	2300	424	311	182	445	26	e12
2	111	754	360	e190	194	1420	516	323	132	199	23	e14
3	96	687	323	198	190	1020	415	343	129	142	21	e18
4	88	465	320	414	186	779	374	311	109	114	20	e16
5	82	374	313	573	190	634	335	331	97	110	19	e14
6	76	309	288	710	179	521	300	485	91	98	18	e12
7	70	296	261	804	168	442	271	492	86	86	17	e12
8	66	626	243	4630	163	494	254	518	83	85	16	e14
9	63	714	229	3120	160	1160	671	e880	80	101	16	e13
10	60	595	222	1590	161	1260	1600	e1000	76	85	24	e13
11	59	467	222	1040	169	873	1050	e1700	78	71	e42	e13
12	55	389	213	755	406	668	792	e2200	162	62	e34	e12
13	53	333	204	614	379	553	634	e1500	180	57	e27	e12
14	50	327	197	486	298	490	532	e1100	137	51	e23	e11
15	49	297	180	396	247	414	471	e780	122	46	e31	e10
16	48	275	178	473	243	356	399	563	128	42	e40	e9.4
17	46	254	174	405	305	314	350	472	132	39	e29	e11
18	45	234	167	355	4070	305	299	363	164	38	e29	e11
19	43	219	164	313	2880	325	435	296	129	34	e29	e10
20	42	214	164	287	1680	352	1180	255	111	85	e26	e9.6
21	41	209	163	254	1190	954	784	219	101	97	e24	e9.6
22	41	346	150	241	878	877	646	192	92	125	e23	e11
23	40	400	156	239	713	702	548	174	94	76	e22	e10
24	39	383	158	279	686	611	461	157	104	63	e18	e9.2
25	43	323	203	253	604	516	387	143	108	53	e17	e12
26	49	300	256	221	591	478	439	134	102	46	e16	e15
27	55	350	243	208	597	455	551	123	109	39	e16	e13
28	61	318	226	205	1440	408	403	114	100	35	e15	e17
29	56	308	209	197	---	368	359	110	90	32	e14	e13
30	51	314	218	214	---	331	333	119	269	31	e13	e12
31	48	---	201	214	---	299	---	108	---	28	e13	---
TOTAL	1859	11144	7043	20048	19160	20679	16213	15816	3577	2615	701	368.8
MEAN	60.0	371	227	647	684	667	540	510	119	84.4	22.6	12.3
MAX	133	754	438	4630	4070	2300	1600	2200	269	445	42	18
MIN	39	64	150	170	160	299	254	108	76	28	13	9.2
CFSM	.35	2.15	1.31	3.74	3.96	3.86	3.12	2.95	.69	.49	.13	.07
IN.	.40	2.40	1.51	4.31	4.12	4.45	3.49	3.40	.77	.56	.15	.07

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1998, BY WATER YEAR (WY)

MEAN	160	304	310	273	296	592	628	391	206	113	88.6	100
MAX	983	1044	1003	1095	1082	1788	1783	979	1488	674	812	776
(WY)	1991	1927	1997	1996	1981	1936	1993	1919	1972	1915	1994	1975
MIN	7.65	13.4	26.4	20.5	37.8	160	132	74.8	18.0	16.0	10.3	6.25
(WY)	1965	1965	1965	1931	1931	1969	1946	1941	1991	1964	1964	1964

e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01550000 LYCOMING CREEK NEAR TROUT RUN, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1914 - 1998	
ANNUAL TOTAL	76058		119223.8		288	
ANNUAL MEAN	208		327		491	
HIGHEST ANNUAL MEAN					124	
LOWEST ANNUAL MEAN					1978	
HIGHEST DAILY MEAN	1970	Mar 6	4630	Jan 8	e15000	Jan 19 1996
LOWEST DAILY MEAN	13	Aug 3	e9.2	Sep 24	4.0	Sep 19-24 1936a
ANNUAL SEVEN-DAY MINIMUM	21	Jul 29	b10	Sep 18	4.1	Sep 18 1936
INSTANTANEOUS PEAK FLOW			c6250	Feb 18	c32000	Jan 19 1996
INSTANTANEOUS PEAK STAGE			9.37	Feb 18	d22.68	Jan 19 1996
INSTANTANEOUS LOW FLOW					3.2	Sep 27 1936
ANNUAL RUNOFF (CFSM)	1.20		1.89		1.67	
ANNUAL RUNOFF (INCHES)	16.35		25.64		22.63	
10 PERCENT EXCEEDS	462		711		667	
50 PERCENT EXCEEDS	142		193		140	
90 PERCENT EXCEEDS	34		17		25	

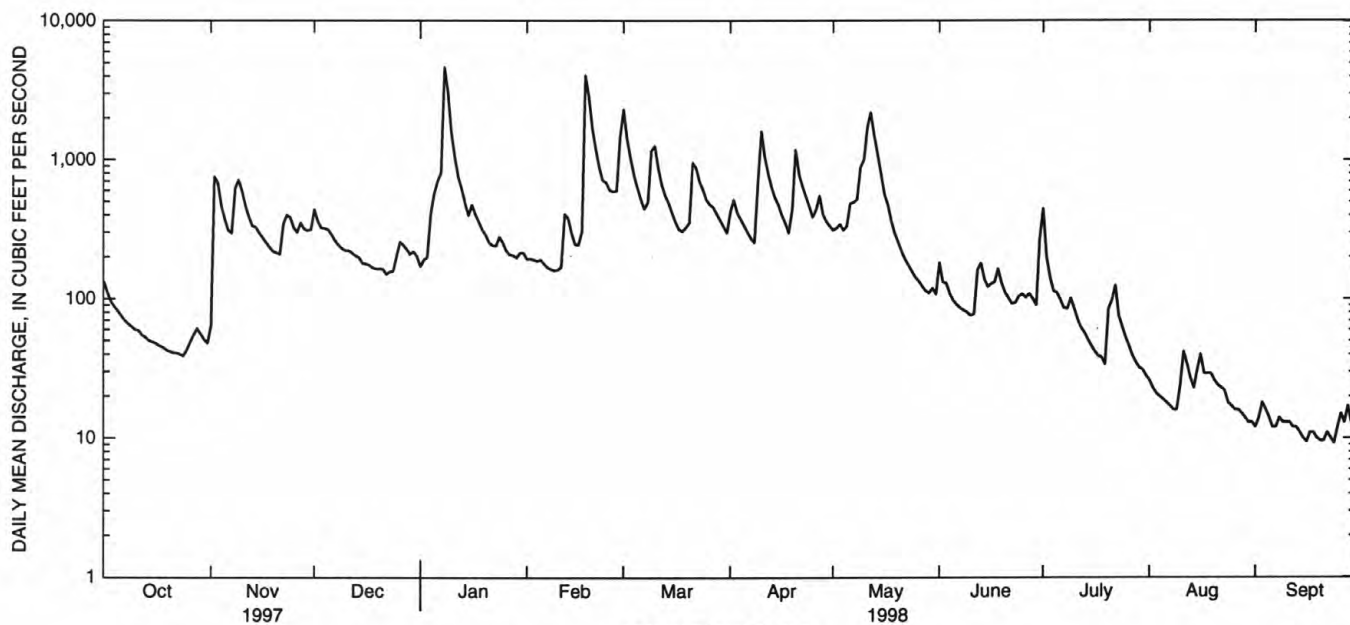
a Also Sept. 27, 28, 1936 and Sept. 1, 1968.

b Computed using estimated daily discharges.

c From rating curve extended above 5,300 ft³/s on basis of slope-area measurement of peak flow.

d From floodmark in gage.

e Estimated.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

WEST BRANCH SUSQUEHANNA RIVER BASIN

01551500 WEST BRANCH SUSQUEHANNA RIVER AT WILLIAMSPORT, PA

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 mi².

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 sea level. Mar. 1, 1895, to Sept. 30, 1928, nonrecording gage at bridge 100 ft downstream at same datum. Prior to July 1980, 100 ft downstream on left bank at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow slightly regulated by 6 flood-control reservoirs, which have a combined capacity of 440,200 acre-ft. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known prior to 1895, 32.4 ft, June 1, 1889, discharge, about 252,000 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6920	1750	15000	8160	8800	33700	10700	18300	4300	3900	1140	e840
2	5150	3510	14700	e6600	8380	41200	12600	16500	4260	4560	1050	e740
3	3840	11800	13400	e7600	8040	36400	12200	17200	3940	4030	1030	e720
4	3200	13600	12200	8520	7910	29900	11600	17600	3650	3340	990	e710
5	2880	11500	11800	11700	8230	24900	10700	15900	3370	2950	934	e710
6	2590	9250	11200	16400	8400	21100	9880	22400	3100	2690	910	e700
7	2460	7940	10200	21200	8160	18300	9230	25100	2860	2410	854	e700
8	2240	9860	9320	43400	7810	16100	8530	22400	2760	2540	833	e700
9	2030	37500	8390	89900	7290	18600	9800	26900	2650	2720	804	e690
10	1830	43000	7680	66200	6970	25900	36100	30600	2580	2750	975	712
11	1690	32400	7450	46500	6910	26400	45000	34300	2580	4370	1530	773
12	1630	25000	7440	35000	8110	23400	33700	44100	3200	2860	1590	861
13	1560	21100	7630	26500	11300	19300	25600	45900	4380	2320	1530	1020
14	1500	18900	7340	21800	13100	16800	20600	37300	6200	2080	1520	957
15	1460	16800	6910	18600	12800	14800	19000	28000	5300	1880	1430	860
16	1400	14500	6450	16600	11600	13100	23300	21800	4770	1720	1340	797
17	1370	12300	5960	15300	11500	11600	21500	17800	4430	1660	1410	790
18	1350	11000	5600	13900	24400	10800	17800	15300	4500	1650	1400	729
19	1300	8570	5340	12800	37600	10400	16100	12700	4990	1550	1270	700
20	1250	7600	5200	11700	40200	10300	28200	11000	4260	1580	1250	684
21	1190	7520	5090	10600	37000	13200	42800	9460	3600	1760	1270	705
22	1170	8330	4950	9320	30500	19700	37100	8220	3190	1950	1290	748
23	1110	10700	4890	8880	26000	21100	28500	7360	3380	2000	1250	706
24	1140	12900	5080	9080	23500	19400	22300	6640	3810	1800	1150	678
25	1230	13400	6210	9510	22500	17100	18400	6140	4200	1700	1040	693
26	1250	12200	9230	9230	20600	15000	16000	5650	3650	1580	1010	731
27	1370	11700	11700	8600	19700	14100	21500	5400	3030	1500	e940	879
28	1420	12300	12000	8010	20100	13400	31000	4970	2800	1550	e900	1020
29	1500	12600	11000	7710	---	12600	27600	4580	2570	1430	e880	929
30	1620	13700	10500	7880	---	11900	21500	4340	2410	1340	e880	811
31	1600	---	9710	8400	---	10900	---	4230	---	1240	e890	---
TOTAL	62250	433230	269570	595600	457410	591400	648840	548090	110720	71410	35290	23293
MEAN	2008	14440	8696	19210	16340	19080	21630	17680	3691	2304	1138	776
MAX	6920	43000	15000	89900	40200	41200	45000	45900	6200	4560	1590	1020
MIN	1110	1750	4890	6600	6910	10300	8530	4230	2410	1240	804	678
CFSM	.35	2.54	1.53	3.38	2.88	3.36	3.81	3.11	.65	.41	.20	.14
IN.	.41	2.84	1.76	3.90	2.99	3.87	4.25	3.59	.72	.47	.23	.15

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1895 - 1998, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1895	4221	20850	1991	416	1931
1896	7157	28330	1951	408	1931
1897	8949	24140	1928	642	1931
1898	9824	30210	1937	423	1931
1899	10630	29100	1981	1965	1931
1900	20100	62970	1936	5559	1969
1901	18360	51090	1993	4633	1946
1902	12400	32030	1919	2766	1941
1903	7144	37400	1972	1733	1991
1904	4092	20080	1902	847	1966
1905	2865	16450	1994	592	1910
1906	2757	20280	1975	425	1932

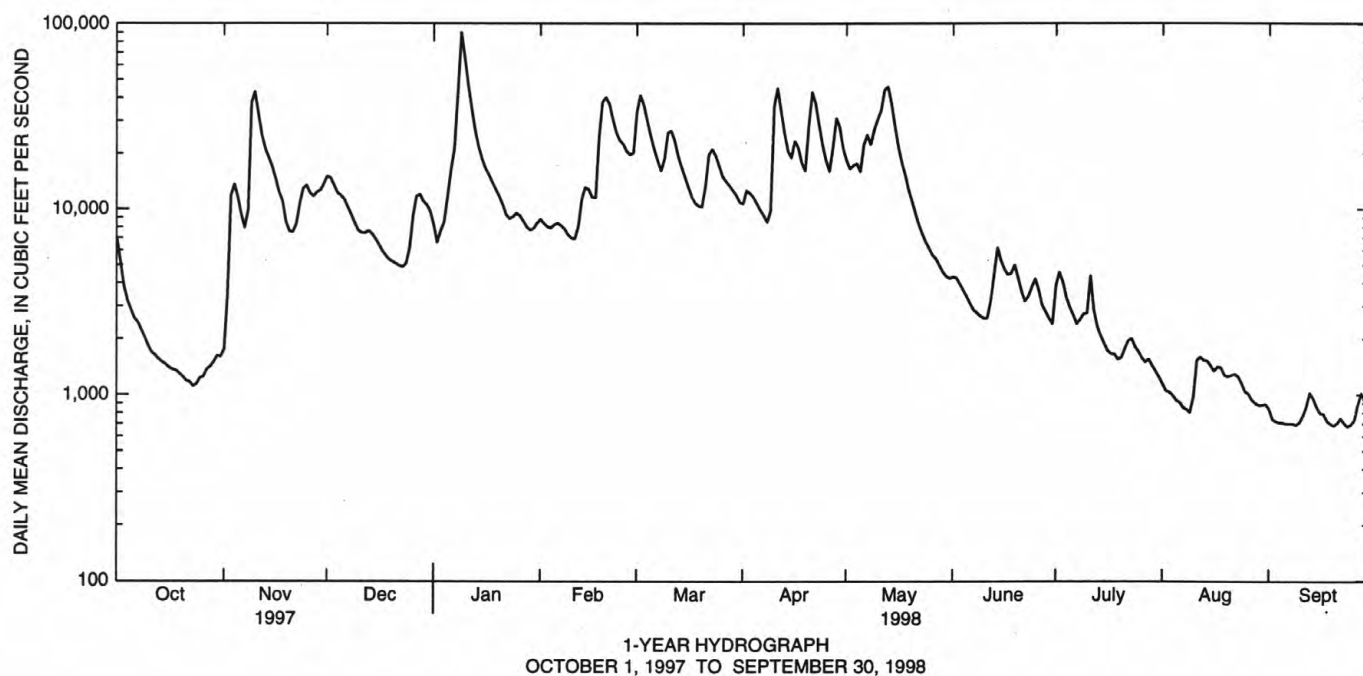
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

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

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1895 - 1998	
ANNUAL TOTAL	2893808		3847103		9042	
ANNUAL MEAN	7928		10540		14010	
HIGHEST ANNUAL MEAN					1928	
LOWEST ANNUAL MEAN					1934	
HIGHEST DAILY MEAN	50400	Feb 23	89900	Jan 9	240000	Jun 23 1972
LOWEST DAILY MEAN	913	Aug 11	678	Sep 24	251	Sep 13 1932
ANNUAL SEVEN-DAY MINIMUM	1030	Aug 6	702	Sep 19	328	Nov 25 1930
INSTANTANEOUS PEAK FLOW			95500	Jan 9	a279000	Jun 23 1972
INSTANTANEOUS PEAK STAGE			17.96	Jan 9	34.75	Jun 23 1972
INSTANTANEOUS LOW FLOW					162	Sep 17 1943
ANNUAL RUNOFF (CFSM)	1.40		1.85		1.59	
ANNUAL RUNOFF (INCHES)	18.95		25.19		21.62	
10 PERCENT EXCEEDS	16600		25700		21100	
50 PERCENT EXCEEDS	5800		7520		5080	
90 PERCENT EXCEEDS	1340		938		1050	

a From rating curve extended above 210,000 ft³/s on basis of slope-area measurement at gage height 33.57 ft.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01552000 LOYALSOCK CREEK AT LOYALSOCKVILLE, PA

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.--443 mi².

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 756: Drainage area. WSP 871: 1938(M). WSP 1051: 1926(M), 1933(M), 1936(M). WSP 1302: 1926-30. WSP 1502: 1932-33, 1935(M), 1937(M).

GAGE.--Water-stage recorder. Datum of gage is 585.63 ft above sea level. 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, 1975, reached a stage of 14.50 ft. from floodmark, discharge, 84,600 ft³/s, from rating curve extended above 16,000 ft³/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 ft³/s and maximum (*):

<u>Date</u>	<u>Time</u>	<u>Discharge</u> (ft ³ /s)	<u>Gage height</u> (ft)	<u>Date</u>	<u>Time</u>	<u>Discharge</u> (ft ³ /s)	<u>Gage height</u> (ft)
Jan. 9	0200	*16,100	*11.05	No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	200	115	1050	e460	552	5040	1160	823	314	850	62	38
2	153	356	983	e520	537	3910	2180	796	324	573	59	41
3	130	688	786	e580	536	3030	1510	824	288	382	56	52
4	118	495	727	792	511	2290	1260	775	267	296	53	44
5	110	392	713	1390	560	1850	1100	757	220	274	50	46
6	105	329	662	e2300	535	1520	956	866	194	264	49	43
7	99	307	587	e2400	484	1310	843	880	174	217	47	41
8	87	433	529	8340	458	1240	766	889	163	204	46	41
9	88	706	489	10600	442	3150	1120	1220	158	225	46	38
10	85	823	467	5310	438	4570	4650	1590	149	216	52	43
11	79	658	474	3230	448	2760	3030	4090	141	177	60	43
12	74	530	458	2270	857	1950	2150	4890	294	152	72	41
13	74	456	436	1760	1230	1530	1660	3230	493	135	66	38
14	72	452	414	1420	962	1340	1380	2200	1160	125	56	36
15	74	447	379	1160	746	1150	1210	1630	822	114	61	35
16	73	416	349	1390	703	996	1060	1290	652	97	73	34
17	76	390	358	1330	767	889	942	1060	697	99	66	37
18	80	359	338	1140	3890	869	820	875	823	96	63	36
19	76	331	331	1020	4790	897	873	736	636	91	64	33
20	72	325	335	927	3390	976	2990	641	502	95	65	33
21	70	319	330	818	2570	2290	2150	567	413	125	62	33
22	69	600	288	760	1970	2650	1620	488	348	235	56	33
23	68	1190	288	738	1620	1930	1360	439	326	186	53	32
24	67	1100	352	852	1630	1630	1170	394	342	138	63	31
25	72	852	438	809	1490	1380	1000	361	312	119	63	41
26	80	705	683	689	1430	1250	993	331	e260	102	57	41
27	109	779	681	646	1400	1200	1430	301	e240	90	51	39
28	124	779	604	616	1980	1140	1120	269	214	80	48	38
29	132	687	526	583	---	1040	970	243	195	75	45	35
30	115	712	e460	604	---	919	894	331	196	71	43	35
31	104	---	e440	615	---	814	---	337	---	66	40	---
TOTAL	2935	16731	15955	56069	36926	57510	44367	34123	11317	5969	1747	1151
MEAN	94.7	558	515	1809	1319	1855	1479	1101	377	193	56.4	38.4
MAX	200	1190	1050	10600	4790	5040	4650	4890	1160	850	73	52
MIN	67	115	288	460	438	814	766	243	141	66	40	31
CFSM	.21	1.26	1.16	4.08	2.98	4.19	3.34	2.48	.85	.43	.13	.09
IN.	.25	1.40	1.34	4.71	3.10	4.83	3.73	2.87	.95	.50	.15	.10

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 1998, BY WATER YEAR (WY)

MEAN	479	868	901	782	824	1486	1579	970	511	282	270	265
MAX	2512	2856	3033	3070	2961	4490	4236	2694	4327	1206	1797	1503
(WY)	1991	1951	1974	1996	1981	1936	1993	1946	1972	1928	1994	1933
MIN	20.2	28.4	80.5	34.1	108	449	363	220	92.4	41.6	31.5	13.8
(WY)	1965	1965	1931	1931	1931	1969	1946	1941	1991	1962	1964	1964

e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

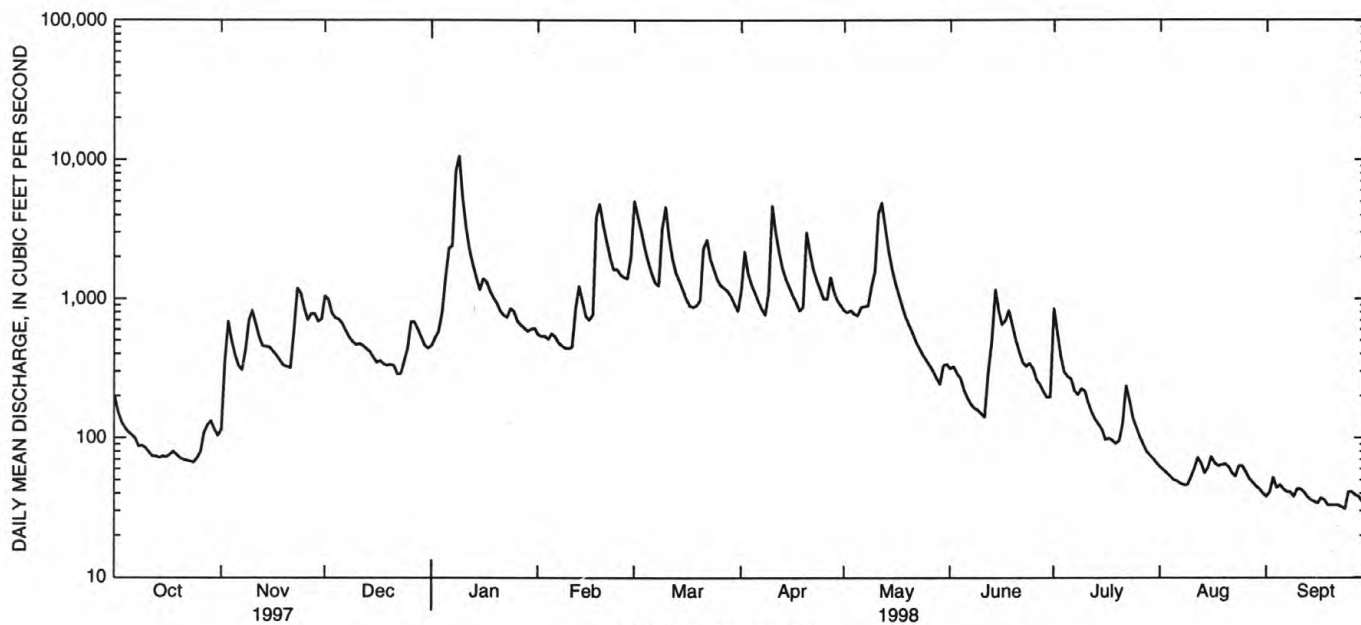
01552000 LOYALSOCK CREEK AT LOYALSOCKVILLE, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1926 - 1998	
ANNUAL TOTAL	167733		284800		767	
ANNUAL MEAN	460		780		1312	
HIGHEST ANNUAL MEAN					1978	
LOWEST ANNUAL MEAN					332	
HIGHEST DAILY MEAN	3430	Feb 22	10600	Jan 9	45000	Jun 23 1972
LOWEST DAILY MEAN	39	Aug 3	31	Sep 24	11	Sep 25,26 1964
ANNUAL SEVEN-DAY MINIMUM	45	Jul 29	33	Sep 18	12	Sep 20 1964
INSTANTANEOUS PEAK FLOW			16100	Jan 9	a88700	Jun 23 1972
INSTANTANEOUS PEAK STAGE			11.05	Jan 9	b17.93	Jan 19 1996
INSTANTANEOUS LOW FLOW					11	Sep 25,26 1964c
ANNUAL RUNOFF (CFSM)	1.04		1.76		1.73	
ANNUAL RUNOFF (INCHES)	14.09		23.92		23.53	
10 PERCENT EXCEEDS	1020		1700		1710	
50 PERCENT EXCEEDS	352		452		402	
90 PERCENT EXCEEDS	72		49		68	

a From rating curve extended above 16,000 ft³/s on basis of slope-area measurement of peak flow; gage height 14.74 ft.

b From floodmark in gage.

c Also Nov. 24, 1964.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

WEST BRANCH SUSQUEHANNA RIVER BASIN

01552500 MUNCY CREEK NEAR SONESTOWN, PA

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 mi².

PERIOD OF RECORD.--October 1940 to current year.

REVISID RECORDS.--WSP 1502: 1941-42.

GAGE.--Water-stage recorder. Datum of gage is 1,025.01 ft above sea level. Prior to Mar. 31, 1941, nonrecording gage at same site and 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.

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 ft³/s and maximum (*):

<u>Date</u>	<u>Time</u>	<u>Discharge</u> <u>(ft³/s)</u>	<u>Gage height</u> <u>(ft)</u>	<u>Date</u>	<u>Time</u>	<u>Discharge</u> <u>(ft³/s)</u>	<u>Gage height</u> <u>(ft)</u>
Jan. 8	2000	*e2,200	a7.43	No other peak greater than base discharge.			
a Ice jam.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	12	68	e32	e31	264	94	48	21	123	3.7	2.8
2	4.3	47	52	e33	30	198	90	46	13	48	e3.5	3.6
3	4.1	36	46	e36	28	153	72	42	11	34	3.3	4.5
4	3.8	27	46	63	28	116	64	39	9.5	28	3.2	3.3
5	3.7	20	44	99	31	94	56	47	e8.5	27	3.2	2.9
6	3.4	17	39	193	e28	77	48	52	7.7	21	3.1	2.8
7	3.2	18	35	203	e28	68	42	45	7.0	18	3.0	3.3
8	3.0	29	32	e1000	e27	78	42	59	7.0	22	2.9	4.2
9	2.9	51	29	915	e27	364	133	65	6.8	20	2.9	3.4
10	2.9	49	28	349	e26	282	233	158	6.2	16	7.5	3.2
11	3.2	39	28	184	26	154	165	272	6.1	13	6.0	2.9
12	3.5	33	26	122	135	e100	122	261	35	11	3.9	2.8
13	4.1	28	24	97	98	e80	97	156	47	9.6	3.4	2.8
14	4.0	29	22	73	74	73	81	108	98	8.3	3.2	2.7
15	5.0	26	e21	61	e64	61	70	82	47	8.2	3.3	2.7
16	4.3	25	20	94	e64	e50	60	65	86	7.4	3.3	2.6
17	3.6	23	e20	70	71	e46	53	53	200	6.9	3.4	3.1
18	3.2	22	e19	62	363	47	45	e44	102	6.1	6.9	3.2
19	2.9	29	17	55	308	56	125	e38	66	5.4	6.9	2.8
20	2.8	19	17	50	199	59	200	32	48	8.0	4.0	2.7
21	2.7	19	17	e43	147	171	126	28	e38	12	3.5	2.7
22	2.6	80	e17	40	112	128	98	24	30	9.9	4.6	3.2
23	2.7	69	e17	47	96	100	81	e21	27	e8.0	8.7	3.9
24	2.7	61	17	57	99	84	68	19	24	e6.0	4.4	2.9
25	6.0	50	40	46	82	70	57	17	20	5.1	3.7	2.8
26	5.7	46	46	e37	77	65	81	16	18	4.7	4.1	3.0
27	13	50	39	37	81	62	78	14	16	4.5	3.5	3.1
28	9.1	43	e33	36	157	59	61	12	14	4.5	3.1	2.9
29	6.1	41	e30	34	---	53	56	16	12	4.3	3.1	2.7
30	5.7	44	e31	37	---	47	52	21	106	4.1	3.1	2.6
31	5.8	---	e30	34	---	43	---	15	---	4.0	3.0	---
TOTAL	135.2	1082	950	4239	2537	3302	2650	1915	1137.8	508.0	125.4	92.1
MEAN	4.36	36.1	30.6	137	90.6	107	88.3	61.8	37.9	16.4	4.05	3.07
MAX	13	80	68	1000	363	364	233	272	200	123	8.7	4.5
MIN	2.6	12	17	32	26	43	42	12	6.1	4.0	2.9	2.6
CFSM	.18	1.52	1.29	5.75	3.81	4.48	3.71	2.60	1.59	.69	.17	.13
IN.	.21	1.69	1.48	6.63	3.97	5.16	4.14	2.99	1.78	.79	.20	.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 1998, BY WATER YEAR (WY)

MEAN	32.7	58.2	62.4	51.3	54.1	86.1	89.6	60.9	30.3	18.6	17.0	21.6
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	12.8	6.60	7.70	25.4	20.9	11.9	4.93	2.50	1.60	.73
(WY)	1965	1965	1990	1981	1987	1981	1946	1941	1991	1993	1957	1964

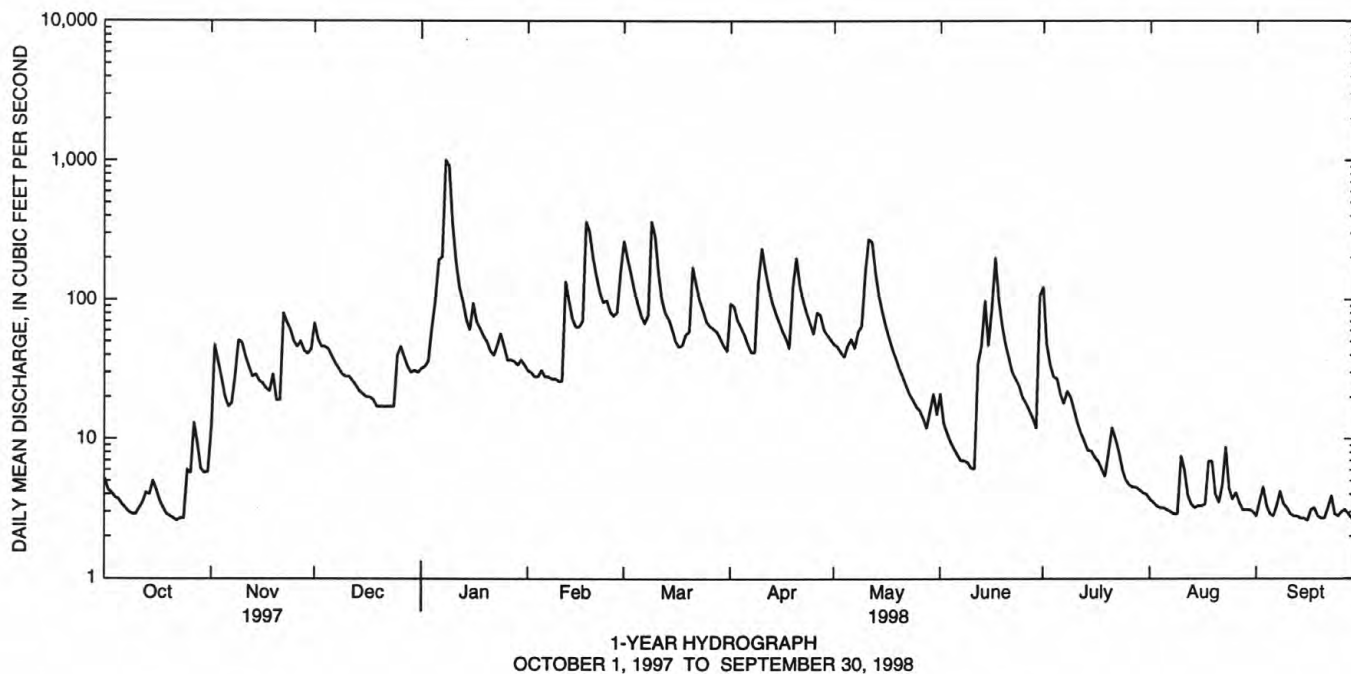
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01552500 MUNCY CREEK NEAR SONESTOWN, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1941 - 1998	
ANNUAL TOTAL	10817.8		18673.5		48.5	
ANNUAL MEAN	29.6		51.2		77.3	
HIGHEST ANNUAL MEAN					1978	
LOWEST ANNUAL MEAN					1965	
HIGHEST DAILY MEAN	297	Feb 22	e1000	Jan 8	3910	Jun 22 1972
LOWEST DAILY MEAN	e1.7	Aug 11,12	2.6	Oct 22 ^c	.20	Sep 11 1964
ANNUAL SEVEN-DAY MINIMUM	b2.1	Aug 6	2.8	Oct 18	.31	Sep 8 1964
INSTANTANEOUS PEAK FLOW			e2200	Jan 8	d8260	Jun 22 1972
INSTANTANEOUS PEAK STAGE			a7.43	Jan 8	8.94	Jun 22 1972
INSTANTANEOUS LOW FLOW					.10	Sep 11 1964
ANNUAL RUNOFF (CFSM)	1.25		2.15		2.04	
ANNUAL RUNOFF (INCHES)	16.91		29.19		27.70	
10 PERCENT EXCEEDS	69		110		103	
50 PERCENT EXCEEDS	22		28		26	
90 PERCENT EXCEEDS	3.2		3.1		4.4	

- a Ice jam.
b Computed using estimated daily discharges.
c Also Sept. 16, 30.
d From rating curve extended above 3,400 ft³/s.
e Estimated.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01553500 WEST BRANCH SUSQUEHANNA RIVER AT LEWISBURG, PA

LOCATION.--Lat 40°58'05", long 76°52'25", 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 mi².

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 sea level. 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 (back-water from Susquehanna River), discharge, 287,000 ft³/s from slope-area measurement at Watsontown, 8.0 mi upstream.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6020	1840	15600	9120	9700	36100	12100	20600	4960	3410	1450	1050
2	6620	3130	16100	8160	9570	46900	15600	18600	4950	6140	1380	1030
3	4540	9200	14700	8060	9100	43800	14900	18100	4740	5250	1280	1080
4	3630	14300	13300	8880	8870	36000	13800	19000	4310	4250	1270	1040
5	3150	12600	12500	11600	10600	29700	12600	17700	4030	3580	1230	1010
6	2820	10300	12100	16800	10500	24700	11500	23200	3630	3260	1170	990
7	2590	8840	11000	23100	9920	21400	10700	27800	3330	3020	1120	1010
8	2440	9170	10100	47400	9320	19000	9880	26300	e3100	2860	1070	1030
9	2250	28400	9240	111000	8760	21900	10600	29800	3040	3160	1040	970
10	2050	43400	8460	92000	8220	32600	36900	34200	2910	3240	1180	939
11	1890	34900	8090	61400	7970	32700	52300	39400	2920	4170	1430	930
12	1790	26800	8090	44300	9210	29100	41200	53000	3490	4150	1810	1000
13	1730	22200	8110	33100	12000	24100	e31000	54700	5210	2920	1750	1100
14	1650	19800	8170	26300	14400	20400	e24000	45400	7030	2580	1740	1240
15	1650	18200	7650	21900	14600	17800	21400	33800	7550	2370	1750	1180
16	1600	16000	7240	20700	13200	15600	23300	26000	6370	2150	1620	1070
17	1540	13500	6830	19000	12500	13600	24000	21000	8510	2030	1660	1040
18	1520	11700	6370	16900	28800	12400	20200	17800	7140	1970	1730	1010
19	1510	9880	6000	15400	45600	11900	18300	15000	6760	1910	1680	973
20	1470	8260	5810	13900	47200	11800	28100	12700	6140	1830	1510	936
21	1420	8050	5600	12600	43200	16100	44200	11100	4950	1890	1490	930
22	1370	8960	5440	10900	36000	23900	43000	9710	4150	2120	1520	991
23	1340	11300	5300	10400	30100	25600	33300	8740	3800	2280	1630	1020
24	1300	13600	5380	11000	31400	23600	26100	7940	5190	2220	1490	963
25	1380	14500	6710	11200	28900	20700	21300	7380	4690	2000	1380	918
26	1460	13500	8880	10900	25300	18000	18500	6900	4870	1890	1350	924
27	1540	12400	11800	10200	23300	16500	21800	6480	3870	1780	1260	977
28	1670	12600	12600	9590	22800	15700	30600	6070	3380	1750	1140	1180
29	1670	12900	11900	9130	---	14800	30700	5520	3230	1750	1140	1280
30	1710	13900	11200	9100	---	13800	24500	5230	2960	1660	1140	1170
31	1780	---	10500	9360	---	12600	---	5020	---	1580	1110	---
TOTAL	69100	444130	290770	723400	541040	702800	726380	634190	141210	85170	43520	30981
MEAN	2229	14800	9380	23340	19320	22670	24210	20460	4707	2747	1404	1033
MAX	6620	43400	16100	111000	47200	46900	52300	54700	8510	6140	1810	1280
MIN	1300	1840	5300	8060	7970	11800	9880	5020	2910	1580	1040	918
CFSM	.33	2.16	1.37	3.41	2.82	3.31	3.54	2.99	.69	.40	.21	.15
IN.	.38	2.41	1.58	3.93	2.94	3.82	3.95	3.45	.77	.46	.24	.17

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1998, BY WATER YEAR (WY)

	5303	9328	11800	11530	13100	22120	22670	15170	8938	4831	3504	3558
MEAN	5303	9328	11800	11530	13100	22120	22670	15170	8938	4831	3504	3558
MAX	24900	32000	28230	30740	33010	49200	62990	28750	46910	20120	18700	24080
(WY)	1991	1951	1973	1952	1981	1945	1993	1978	1972	1972	1994	1975
MIN	659	762	1727	1752	2914	6169	5822	3353	2048	1032	983	601
(WY)	1964	1965	1961	1981	1940	1969	1946	1941	1991	1965	1966	1964

e Estimated.

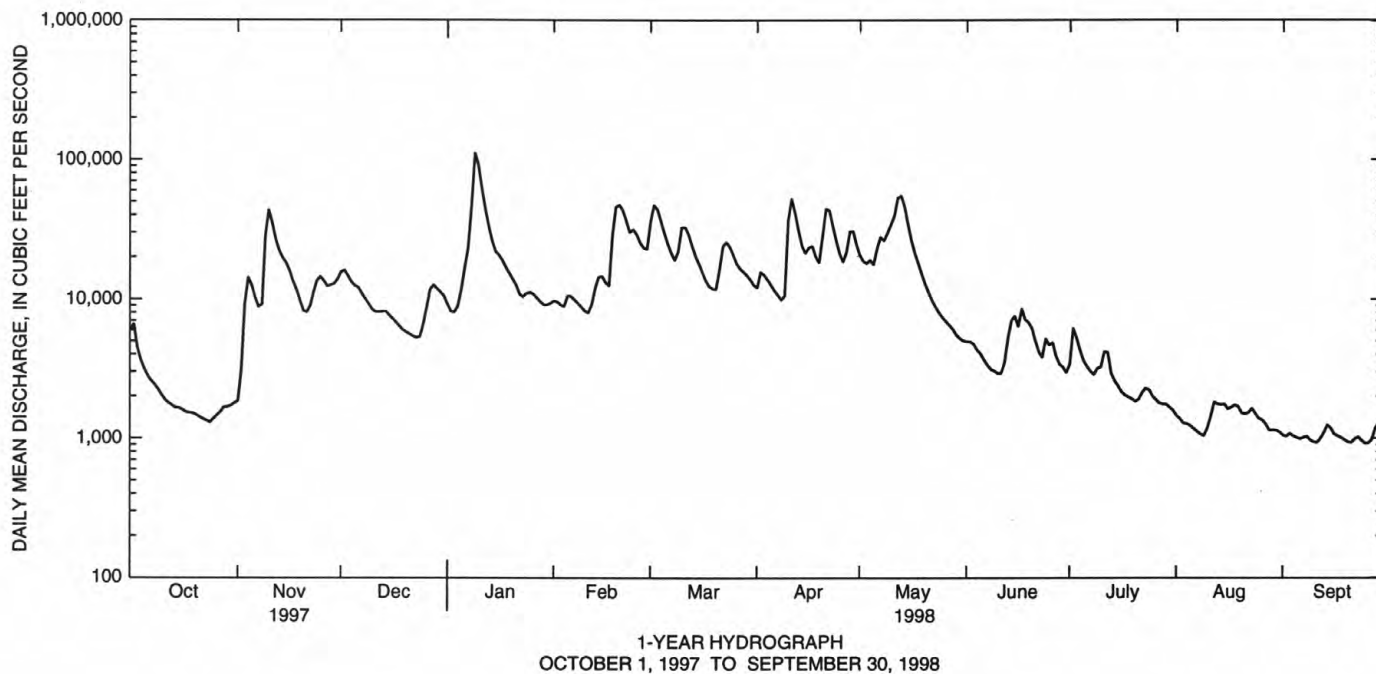
WEST BRANCH SUSQUEHANNA RIVER BASIN

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

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1940 - 1998	
ANNUAL TOTAL	3154170		4432691		10970	
ANNUAL MEAN	8642		12140		16710	
HIGHEST ANNUAL MEAN					1978	
LOWEST ANNUAL MEAN					1965	
HIGHEST DAILY MEAN	51000	Feb 23	111000	Jan 9	285000	Jun 24 1972
LOWEST DAILY MEAN	1100	Aug 11	918	Sep 25	417	Nov 16 1964
ANNUAL SEVEN-DAY MINIMUM	1230	Aug 6	955	Sep 20	511	Sep 15 1964
INSTANTANEOUS PEAK FLOW			118000	Jan 9	a300000	Jun 24 1972
INSTANTANEOUS PEAK STAGE			18.83	Jan 9	b34.23	Jun 24 1972
INSTANTANEOUS LOW FLOW					390	Nov 16 1964
ANNUAL RUNOFF (CFSM)	1.26		1.77		1.60	
ANNUAL RUNOFF (INCHES)	17.14		24.08		21.77	
10 PERCENT EXCEEDS	18600		29700		25000	
50 PERCENT EXCEEDS	6650		8260		6470	
90 PERCENT EXCEEDS	1540		1180		1490	

a About.

b From floodmarks (backwater from Susquehanna River).



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 mi².

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 sea level (Pennsylvania Power and Light Co. benchmark).

REMARKS.--No estimated daily discharges. Records good. 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 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 8	2245	*2,250	*8.56	Feb. 24	0800	1,300	6.38
Feb. 18	0715	1,440	6.76	Apr. 10	0145	1,660	7.29

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	28	133	41	60	183	88	60	21	21	15	18
2	29	65	63	43	58	130	98	66	21	17	15	26
3	33	55	53	49	55	106	66	65	20	16	15	23
4	17	35	55	150	54	88	56	70	19	15	15	19
5	16	31	52	170	419	74	48	114	18	15	15	18
6	15	23	44	198	193	61	41	462	18	15	15	17
7	15	35	39	202	124	54	36	190	19	16	15	21
8	14	130	36	1200	94	109	36	216	19	25	16	27
9	15	208	35	1250	75	454	419	183	18	21	16	19
10	15	123	37	370	63	295	936	269	18	19	21	15
11	15	74	51	187	60	149	209	382	19	18	18	14
12	15	54	69	129	196	101	121	415	66	17	15	14
13	16	43	62	115	117	78	85	201	74	17	15	15
14	16	54	47	92	92	71	66	123	45	16	16	16
15	17	93	37	71	71	62	70	90	36	15	16	17
16	16	97	33	276	61	53	53	74	36	15	16	17
17	16	74	32	161	87	47	49	117	139	15	21	18
18	16	56	30	159	760	53	44	57	75	15	27	19
19	16	49	29	135	501	66	299	44	43	15	27	19
20	15	46	28	104	230	60	526	40	34	15	19	19
21	15	44	27	78	150	410	192	34	28	16	18	19
22	15	194	25	66	109	260	120	30	25	17	18	20
23	15	159	29	137	93	175	88	28	25	16	18	21
24	15	96	34	245	875	122	70	26	23	17	17	21
25	19	66	176	160	295	92	58	26	20	16	16	20
26	19	58	121	109	204	80	148	24	20	16	18	21
27	21	51	98	91	166	70	164	22	20	16	17	21
28	19	43	81	95	149	61	97	21	19	14	18	21
29	18	40	64	91	---	53	78	22	18	14	18	21
30	18	49	65	90	---	46	67	24	19	15	18	20
31	17	---	50	71	---	42	---	22	---	16	18	---
TOTAL	540	2173	1735	6335	5411	3705	4428	3517	975	511	542	576
MEAN	17.4	72.4	56.0	204	193	120	148	113	32.5	16.5	17.5	19.2
MAX	33	208	176	1250	875	454	936	462	139	25	27	27
MIN	14	23	25	41	54	42	36	21	18	14	15	14
CFSM	.34	1.41	1.09	3.98	3.77	2.33	2.88	2.21	.63	.32	.34	.37
IN.	.39	1.58	1.26	4.59	3.92	2.69	3.21	2.55	.71	.37	.39	.42

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 1998, BY WATER YEAR (WY)

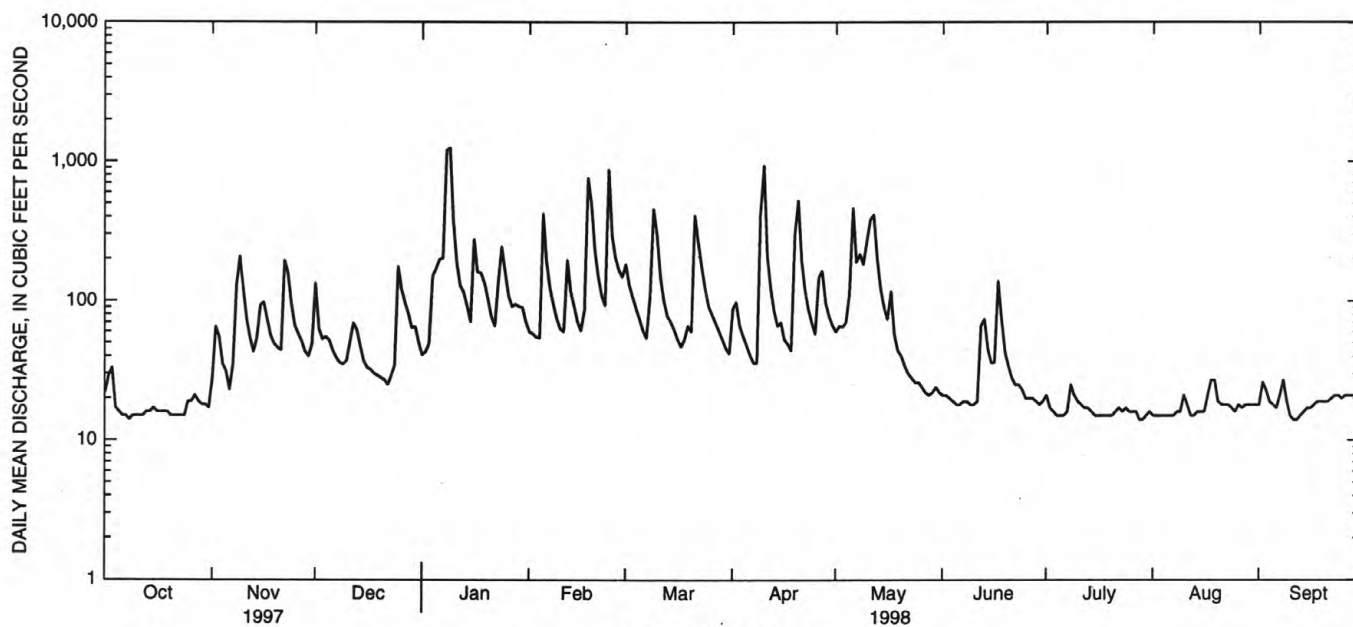
	MEAN	48.1	91.2	96.3	81.6	102	127	114	69.0	52.7	35.2	30.9	32.1
MAX	211	149	274	269	243	336	286	228	221	102	87.0	99.8	
(WY)	1991	1987	1997	1996	1981	1994	1993	1989	1982	1984	1990	1987	
MIN	16.5	34.4	22.2	27.5	25.6	38.3	34.4	20.0	16.0	13.4	17.5	13.0	
(WY)	1983	1981	1990	1981	1993	1981	1997	1987	1991	1991	1998	1995	

WEST BRANCH SUSQUEHANNA RIVER BASIN

01553700 CHILLISQUAQUE CREEK AT WASHINGTONVILLE, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR			FOR 1998 WATER YEAR			WATER YEARS 1979 - 1998	
ANNUAL TOTAL	15985			30448				
ANNUAL MEAN	43.8			83.4			73.1	
HIGHEST ANNUAL MEAN							108	
LOWEST ANNUAL MEAN							52.2	
HIGHEST DAILY MEAN	347	Feb	5	1250	Jan	9	2080	Mar 15 1986
LOWEST DAILY MEAN	14	Oct	8a	14	Oct	8a	6.2	Jul 27 1991
ANNUAL SEVEN-DAY MINIMUM	15	Oct	6	15	Oct	6	11	Sep 26 1995
INSTANTANEOUS PEAK FLOW				2250	Jan	8	b3770	Jan 19 1996
INSTANTANEOUS PEAK STAGE				8.56	Jan	8	11.27	Jan 19 1996
ANNUAL RUNOFF (CFSM)	.85			1.63			1.43	
ANNUAL RUNOFF (INCHES)	11.59			22.08			19.37	
10 PERCENT EXCEEDS	80			185			145	
50 PERCENT EXCEEDS	31			41			36	
90 PERCENT EXCEEDS	17			15			18	

a Also July 28, 29, Sept. 11, 12.

b From rating curve extended above 2,600 ft³/s.

1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

WEST BRANCH SUSQUEHANNA RIVER BASIN

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 mi². 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 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, 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, 46,580 acre-ft, Nov. 10, elevation, 1,192.24 ft; minimum, 4,520 acre-ft, Nov. 17, elevation, 1,154.37 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 mi². 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, 28,500 acre-ft, Apr. 27, elevation, 1,429.00 ft; minimum, 25,410 acre-ft, Sept. 7, elevation, 1,427.07 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 mi². 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, 19,760 acre-ft, Jan. 11, elevation, 967.63 ft; minimum, 1,850 acre-ft, Mar. 15, elevation, 918.49 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 mi². 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, 5,560 acre-ft, Jan. 9, elevation, 856.54 ft; minimum, 1,350 acre-ft, May 5, elevation, 838.19 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 mi². 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 ungated 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, 35,540 acre-ft, Jan. 10, elevation, 633.66 ft; minimum, 6,390 acre-ft, Mar. 12, elevation, 610.14 ft.

WEST BRANCH SUSQUEHANNA RIVER BASIN

Reservoirs in West Branch Susquehanna River basin--Continued

MONTHEND ELEVATION, IN FEET ABOVE SEA LEVEL, AND CONTENTS AT 2400 HRS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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)
<u>01541180 Curwensville Lake</u>				<u>01541340 Glendale Lake</u>		
Sept. 30.....	1,162.11	9,630	--	1,427.55	26,180	--
Oct. 31.....	1,162.05	9,580	- 0.8	1,427.19	25,610	- 9.3
Nov. 30.....	1,158.83	7,230	- 39.5	1,427.79	26,400	+ 13.3
Dec. 31.....	1,161.92	9,480	+ 36.6	1,427.64	26,320	- 1.3
CAL YR 1997.....	--	--	+ 7.9	--	--	+ 0.04
Jan. 31.....	1,162.13	9,650	+ 2.8	1,427.67	26,370	+ 0.8
Feb. 28.....	1,162.26	9,760	+ 2.0	1,428.28	27,350	+ 17.7
Mar. 31.....	1,161.87	9,440	- 5.2	1,427.56	26,200	- 18.7
Apr. 30.....	1,162.15	9,660	+ 3.7	1,428.47	27,650	+ 24.4
May 31.....	1,162.14	9,660	0	1,427.36	25,880	- 28.8
June 30.....	1,162.29	9,780	+ 2.0	1,427.23	25,670	- 3.5
July 31.....	1,162.09	9,610	- 2.8	1,427.21	25,640	- 0.5
Aug. 31.....	1,162.17	9,680	+ 1.1	1,427.18	25,590	- 0.8
Sept. 30.....	1,162.44	9,900	+ 3.7	1,427.38	25,910	+ 5.4
WTR YR 1998.....	--	--	+ 0.4	--	--	- 0.4
<u>01543900 F. F. Sinnemahoning Cr. Reservoir</u>				<u>01544800 Kettle Creek Lake</u>		
Sept. 30.....	921.21	2,320	--	841.51	1,820	--
Oct. 31.....	921.20	2,320	0	841.14	1,770	- 0.8
Nov. 30.....	921.78	2,380	+ 1.0	841.48	1,820	+ 0.8
Dec. 31.....	921.13	2,310	- 1.1	840.82	1,720	- 1.6
CAL YR 1997.....	--	--	- 0.1	--	--	- 0.1
Jan. 31.....	921.19	2,320	+ 0.2	840.81	1,720	0
Feb. 28.....	922.46	2,470	+ 2.7	841.60	1,840	+ 2.2
Mar. 31.....	920.62	2,190	- 4.6	841.30	1,790	- 0.8
Apr. 30.....	920.78	2,230	+ 0.7	840.89	1,730	- 1.0
May 31.....	921.26	2,330	+ 1.6	841.24	1,780	+ 0.8
June 30.....	922.30	2,440	+ 1.8	840.97	1,740	- 0.7
July 31.....	921.22	2,320	- 2.0	841.17	1,770	+ 0.5
Aug. 31.....	921.52	2,350	+ 0.5	841.10	1,760	- 0.2
Sept. 30.....	921.29	2,330	- 0.3	841.09	1,760	0
WTR YR 1998.....	--	--	0	--	--	- 0.1
<u>01547480 Foster Joseph Sayers Lake</u>						
Sept. 30.....	630.49	29,680	--			
Oct. 31.....	630.11	29,000	- 11.1			
Nov. 30.....	625.61	21,910	-119			
Dec. 31.....	625.20	21,340	- 9.3			
CAL YR 1997.....	--	--	+ 0.1			
Jan. 31.....	625.25	21,410	+ 1.1			
Feb. 28.....	619.61	14,430	-126			
Mar. 31.....	621.89	17,000	+ 41.8			
Apr. 30.....	627.89	25,330	+140			
May 31.....	630.07	28,920	+ 58.4			
June 30.....	630.16	29,090	+ 2.9			
July 31.....	630.25	29,250	+ 2.6			
Aug. 31.....	630.19	29,140	- 1.8			
Sept. 30.....	630.22	29,190	+ 0.8			
WTR YR 1998.....	--	--	- 0.7			

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 Fabriadam, and 1.8 mi south of Sunbury.

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.

GAGE.--Water-stage recorder. Datum of gage is 408.61 ft above sea level. 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.--No estimated daily discharges. Records good. 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.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7530	3860	30500	21300	23000	74600	52700	40800	12500	16900	5130	2930
2	8900	5180	33100	18100	23100	122000	55000	36800	12900	45900	4730	3340
3	7110	10600	34300	17300	22300	124000	55900	35000	13100	41600	4440	3630
4	7200	17800	32500	18700	21400	106000	55400	35400	16800	28000	4020	3540
5	6750	17500	29400	27100	25800	87100	51000	34700	17800	21100	3880	3110
6	10900	19100	27400	53800	28500	71100	44300	43300	15200	18800	3640	2830
7	6500	16100	26300	77300	25600	59400	38600	49300	13400	21000	3550	3170
8	5390	15300	24800	114000	23200	51300	34300	46200	12000	18300	3330	3650
9	5050	31400	22800	225000	21300	54800	33300	48600	10700	17300	3160	3720
10	4900	52500	20900	240000	19600	86300	75700	54800	9700	28200	3850	3030
11	4470	47800	19800	183000	18700	107000	124000	72400	9320	42600	4550	2890
12	4210	41200	19300	143000	20700	106000	109000	125000	9620	31700	4500	2970
13	4010	33600	18900	117000	26900	89200	78800	146000	12500	22500	4090	3030
14	3730	29400	18600	92900	35200	71500	60400	119000	18300	18000	3980	3180
15	3670	27400	17500	71900	38900	57600	50900	86500	30000	14900	4020	3210
16	3420	24600	16300	62200	34700	48500	47900	63700	29700	12800	4190	3140
17	3370	21600	15200	58200	30400	41500	47400	49700	30200	11400	4660	3180
18	3290	19300	14300	52900	46400	37000	41900	40200	28700	10300	5300	3050
19	3220	17300	13800	46900	77400	35000	39300	34100	28300	9300	5340	2960
20	3140	14800	13400	41000	111000	35200	61000	27500	28600	8750	4530	2760
21	3090	14100	13200	36400	107000	44000	101000	25300	26400	8260	4170	2700
22	2960	14900	13100	32200	89900	68800	117000	22700	21300	8480	4030	2820
23	2900	18800	13100	29800	73100	82000	91700	20000	17800	8510	4210	2720
24	2850	23300	13200	30200	74600	71200	69900	17900	20100	8020	4070	2650
25	2950	27400	14300	29900	71800	59200	55100	16600	17600	7570	3690	2720
26	3120	27100	17500	28700	62700	50600	46600	15300	18200	7280	3670	2650
27	3400	24900	22100	27200	57900	46100	49800	14500	16700	6800	3550	2620
28	3500	23900	26800	25800	56600	50700	57700	14000	14400	6710	3340	2770
29	3650	24500	27900	24200	---	58500	58700	13200	18000	6400	3180	2840
30	3650	27700	26800	23100	---	58400	48500	13100	15100	5940	3080	2790
31	3760	---	24900	22800	---	56700	---	12900	---	5640	2980	---
TOTAL	142590	692940	662000	1991900	1267700	2111300	185					

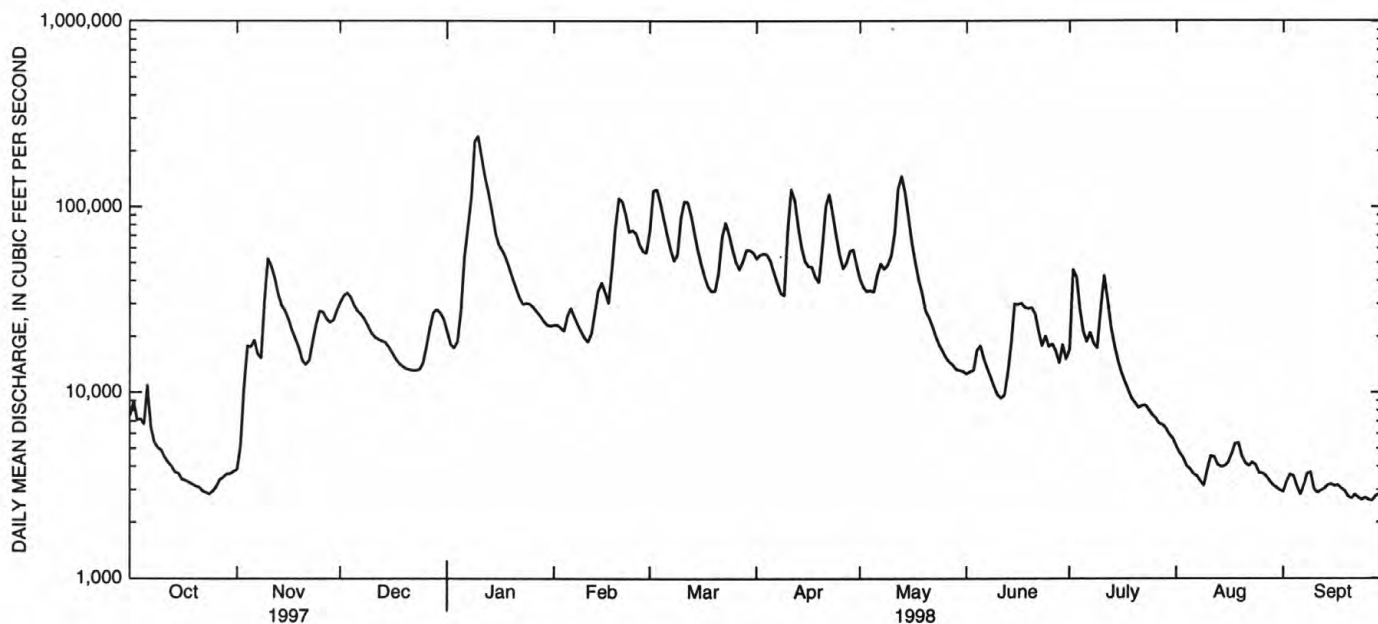
MEAN	13360	22990	29780	28070	32150	54840	59100	35700	20170	10890	7919	8599
MAX	62760	54540	79050	77850	78120	115800	170900	69950	111600	38930	40040	55820
(WY)	1978	1978	1997	1996	1981	1945	1993	1989	1972	1972	1994	1975
MIN	1607	1673	5802	4510	7500	21370	14560	9826	5423	2390	2533	1372
(WY)	1965	1965	1961	1981	1980	1969	1946	1941	1991	1965	1939	1964

SUSQUEHANNA RIVER BASIN

01554000 SUSQUEHANNA RIVER AT SUNBURY, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1938 - 1998	
ANNUAL TOTAL	7316210		11375090		26920	
ANNUAL MEAN	20040		31160		42520	
HIGHEST ANNUAL MEAN					13420	
LOWEST ANNUAL MEAN					609000	
HIGHEST DAILY MEAN	105000	Mar 8	240000	Jan 10	609000	Jun 24 1972
LOWEST DAILY MEAN	2410	Aug 11	2620	Sep 27	1110	Sep 24 1964
ANNUAL SEVEN-DAY MINIMUM	2640	Aug 7	2700	Sep 21	1140	Sep 22 1964
INSTANTANEOUS PEAK FLOW			254000	Jan 9	620000	Jun 24 1972
INSTANTANEOUS PEAK STAGE			23.75	Jan 9	35.80	Jun 24 1972
INSTANTANEOUS LOW FLOW			2400	Sep 24	a964	Oct 16 1971
ANNUAL RUNOFF (CFSM)	1.10		1.70		1.47	
ANNUAL RUNOFF (INCHES)	14.87		23.12		19.98	
10 PERCENT EXCEEDS	43300		72100		61100	
50 PERCENT EXCEEDS	16000		21000		15900	
90 PERCENT EXCEEDS	3540		3220		3780	

a Result of shutoff at Fabridam.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

PENNS CREEK BASIN

01555000 PENNS CREEK AT PENNS CREEK, PA

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 mi².

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. Datum of gage is 506.72 ft above sea level. Prior to Feb. 1, 1930, nonrecording gage at same site and datum.

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

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 3,100 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 8	1930	*6,770	*8.75	May 9	0030	4,070	6.75
Feb. 18	0600	3,620	6.36	May 12	0600	3,490	6.25
Mar. 1	0600	3,140	5.95				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	275	142	633	e320	573	2930	722	1020	273	196	85	66
2	212	445	517	e300	544	2520	957	1110	258	173	80	68
3	182	629	462	e300	528	2230	719	1020	247	153	77	65
4	164	436	463	475	518	1900	680	873	237	146	75	64
5	150	399	465	673	943	1570	648	1130	233	146	74	62
6	138	328	432	750	881	1350	607	1770	224	138	73	59
7	129	347	403	876	723	1190	568	1230	216	132	70	65
8	121	1230	383	4340	654	1250	545	1990	216	151	70	81
9	116	1630	362	5110	616	1840	919	3220	203	170	70	76
10	111	1290	361	3220	586	1840	2190	2380	196	149	200	69
11	106	965	366	2300	594	1560	1630	2430	201	131	266	63
12	102	784	364	1780	1050	1380	1330	3210	265	123	146	60
13	100	663	349	1480	1130	1220	1130	2540	302	119	107	59
14	99	638	325	1210	1030	1120	1010	2030	260	115	103	58
15	102	627	304	1030	903	1000	1270	1650	222	114	104	57
16	98	566	290	1410	803	882	1030	1370	238	116	95	62
17	93	495	282	1180	1030	793	e875	1160	256	114	104	57
18	90	440	271	998	3160	767	e1250	953	213	113	143	54
19	89	414	260	903	2950	757	e1740	824	189	112	115	55
20	86	405	256	817	2470	706	e2320	723	182	105	96	54
21	85	395	250	735	2060	2130	1860	639	176	100	88	55
22	83	646	240	671	e1810	2080	1550	563	167	96	86	65
23	81	752	257	722	e1520	1630	1330	508	215	96	86	71
24	80	666	288	899	2300	1350	1150	460	309	96	81	63
25	93	602	435	788	1790	1150	986	434	275	93	78	64
26	97	565	430	686	1570	1030	1210	425	265	90	79	67
27	107	541	404	644	1470	931	1980	370	224	88	76	64
28	102	502	397	639	1710	842	1450	338	192	87	74	62
29	96	480	377	628	---	767	1250	317	175	84	71	61
30	87	476	e370	672	---	696	1110	308	175	83	69	58
31	83	---	e340	634	---	641	---	294	---	89	68	---
TOTAL	3557	18498	11336	37190	35916	42052	36016	37289	6804	3718	3009	1884
MEAN	115	617	366	1200	1283	1357	1201	1203	227	120	97.1	62.8
MAX	275	1630	633	5110	3160	2930	2320	3220	309	196	266	81
MIN	80	142	240	300	518	641	545	294	167	83	68	54
CFSM	.38	2.05	1.21	3.99	4.26	4.51	3.99	4.00	.75	.40	.32	.21
IN.	.44	2.29	1.40	4.60	4.44	5.20	4.45	4.61	.84	.46	.37	.23

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1998, BY WATER YEAR (WY)

	MEAN	225	368	456	457	541	907	889	623	394	195	153	163
MAX	1355	1567	1359	1627	1697	3093	2855	1793	2845	759	684	1295	
(WY)	1991	1978	1997	1996	1984	1936	1993	1978	1972	1989	1984	1979	
MIN	35.9	34.1	47.9	76.0	108	195	278	179	107	57.2	37.0	36.4	
(WY)	1931	1931	1931	1981	1940	1931	1995	1941	1962	1962	1966	1964	

e Estimated.

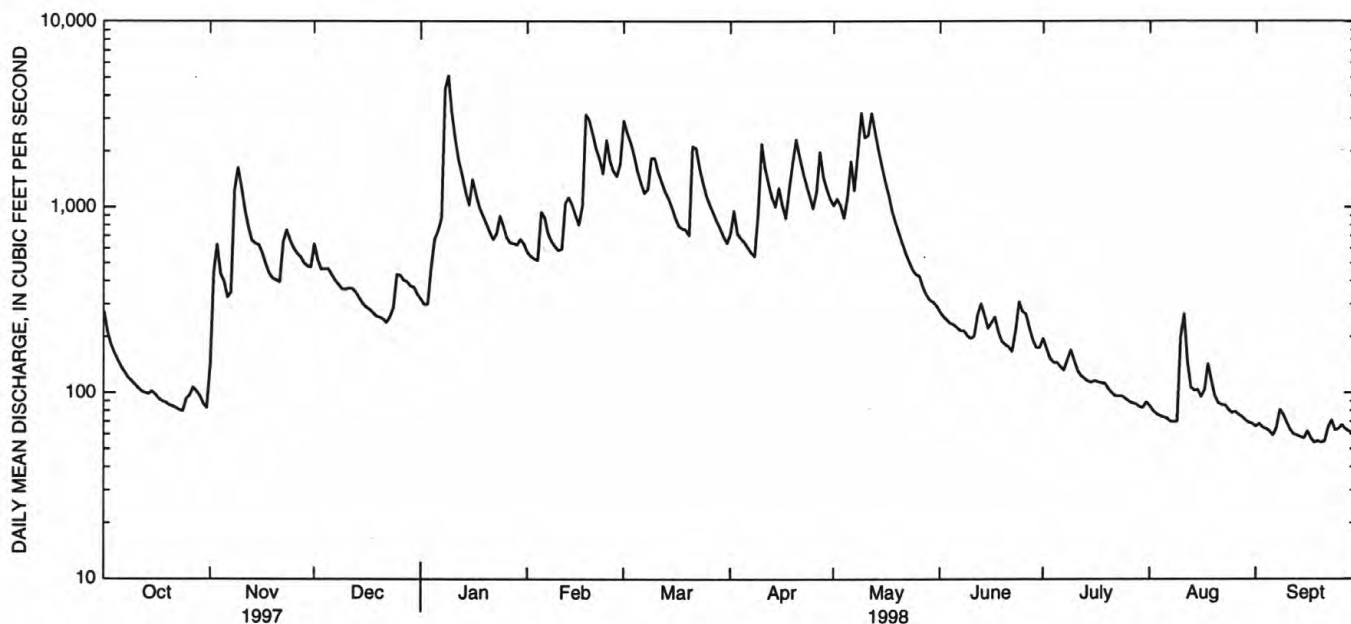
PENNS CREEK BASIN

01555000 PENNS CREEK AT PENNS CREEK, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1930 - 1998	
ANNUAL TOTAL	121665		237269		447	
ANNUAL MEAN	333		650		878	
HIGHEST ANNUAL MEAN					205	
LOWEST ANNUAL MEAN					24600	
HIGHEST DAILY MEAN	1630	Nov 9	5110	Jan 9	21	Jun 23 1972
LOWEST DAILY MEAN	75	Aug 11	54	Sep 18,20	24	Aug 30 1966
ANNUAL SEVEN-DAY MINIMUM	82	Sep 4	56	Sep 15	24	Aug 28 1966
INSTANTANEOUS PEAK FLOW			6770	Jan 8	a34600	Jun 23 1972
INSTANTANEOUS PEAK STAGE			8.75	Jan 8	b14.85	Jun 23 1972
INSTANTANEOUS LOW FLOW			53	Sep 17,18	7.0	Sep 27 1932
ANNUAL RUNOFF (CFSM)	1.11		2.16		1.48	
ANNUAL RUNOFF (INCHES)	15.04		29.32		20.17	
10 PERCENT EXCEEDS	637		1630		990	
50 PERCENT EXCEEDS	275		377		263	
90 PERCENT EXCEEDS	93		74		69	

a From rating curve extended above 6,800 ft³/s on basis of contracted-opening measurement of peak flow.

b From floodmark in gage.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

EAST MAHANTANGO CREEK BASIN

01555400 EAST MAHANTANGO CREEK AT KLINGERSTOWN, PA
(National Water-Quality Assessment station)

LOCATION.--Lat 40°39'48", long 76°41'30", Schuylkill County, Hydrologic Unit 02050301, on left bank at Klingerstown, 400 ft upstream from highway bridge on State Route 4002, and 0.2 mi upstream from Pine Creek.

DRAINAGE AREA.--44.7 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1992 to December 1994, October 1996 to current year.

GAGE.--Water-stage recorder. Datum of gage is 520 ft above sea level, 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 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 8	1830	*1,340	*4.93	June 24	0400	1,240	4.72
Feb. 24	0945	1,040	4.30				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	8.6	120	e40	100	173	73	67	18	56	6.3	3.2
2	9.3	28	106	e40	85	136	101	70	17	36	5.5	4.1
3	8.7	39	81	45	73	126	89	59	18	29	5.4	6.7
4	8.4	26	67	73	75	108	84	53	15	26	5.2	4.7
5	8.1	20	58	179	310	91	72	87	13	24	5.0	3.4
6	7.8	17	48	212	341	79	62	466	13	21	4.2	3.1
7	7.4	27	41	190	234	73	55	269	12	19	3.3	4.0
8	7.3	51	36	805	170	68	50	231	11	72	3.3	9.1
9	7.0	97	32	1020	126	180	96	222	11	60	3.5	5.9
10	7.2	99	35	661	99	300	402	246	11	42	9.3	4.4
11	7.1	78	42	403	85	229	271	395	12	31	18	3.6
12	6.9	57	40	223	127	168	186	823	25	25	8.1	3.4
13	6.9	41	39	168	100	128	136	489	37	22	6.3	3.2
14	7.2	64	40	116	97	108	108	291	54	19	5.6	3.1
15	8.7	103	40	97	85	86	93	199	43	18	5.7	3.0
16	8.6	100	39	226	76	68	73	142	39	17	5.5	3.0
17	7.0	80	36	218	84	59	62	104	39	17	6.2	3.0
18	6.2	60	32	195	376	58	53	78	43	22	8.7	3.0
19	5.6	49	29	158	377	62	169	62	35	14	10	2.9
20	5.3	42	28	137	286	53	522	53	31	13	6.3	2.8
21	5.1	36	25	109	215	249	323	45	27	12	5.3	2.8
22	5.1	58	e23	91	159	256	216	38	23	11	5.1	5.6
23	5.0	57	26	154	139	191	161	34	28	10	6.1	5.2
24	5.1	55	25	292	929	148	120	30	621	10	5.8	4.0
25	14	48	61	243	656	114	91	44	210	8.5	4.9	3.8
26	11	47	67	178	398	96	103	32	158	7.7	5.3	6.3
27	15	42	67	138	272	83	119	27	125	7.7	4.2	4.8
28	13	36	62	143	206	70	89	23	78	7.1	3.7	3.8
29	8.8	33	55	126	---	61	80	21	57	7.2	3.5	3.2
30	7.5	39	62	126	---	54	74	24	54	6.7	3.2	3.1
31	7.0	---	e50	117	---	48	---	19	---	7.1	3.4	---
TOTAL	248.3	1537.6	1512	6923	6280	3723	4133	4743	1878	678.0	181.9	122.2
MEAN	8.01	51.3	48.8	223	224	120	138	153	62.6	21.9	5.87	4.07
MAX	15	103	120	1020	929	300	522	823	621	72	18	9.1
MIN	5.0	8.6	23	40	73	48	50	19	11	6.7	3.2	2.8
CFSM	.18	1.15	1.09	5.00	5.02	2.69	3.08	3.42	1.40	.49	.13	.09
IN.	.21	1.28	1.26	5.76	5.23	3.10	3.44	3.95	1.56	.56	.15	.10

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

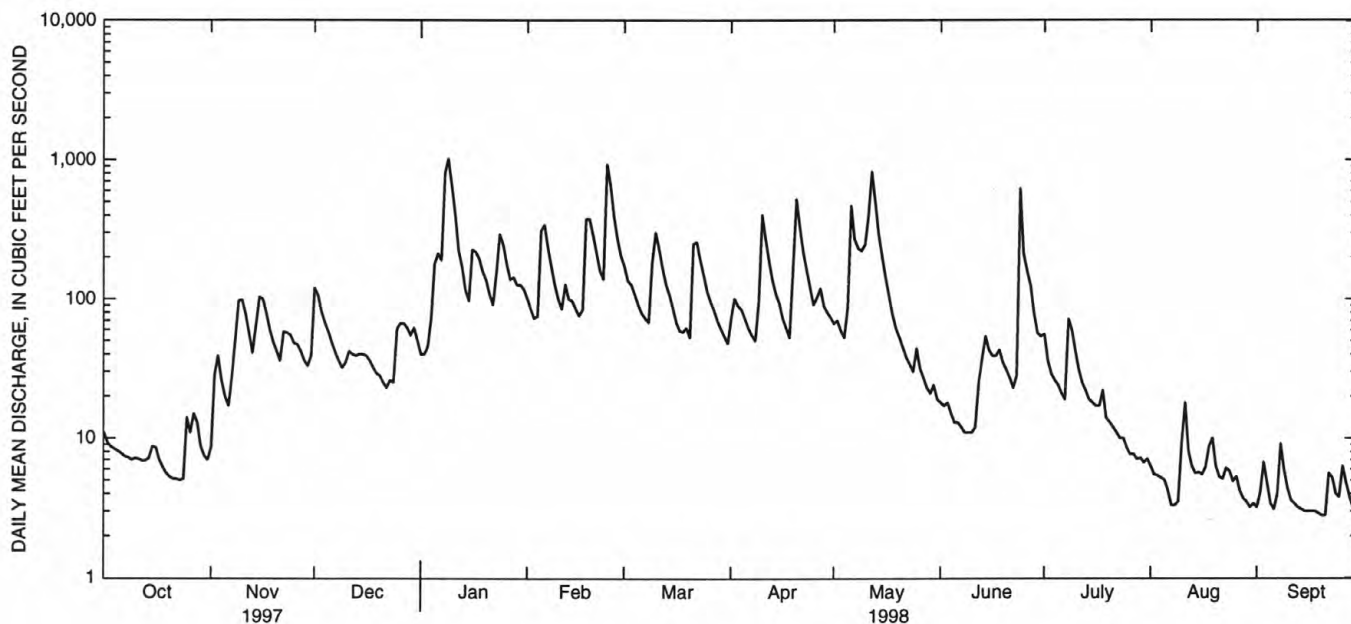
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
MEAN	47.3	97.0	122	98.1	107	189	162	75.1	39.7	19.1	19.3	25.5
MAX	145	133	242	223	224	327	294	153	62.6	24.7	38.5	56.2
(WY)	1997	1993	1997	1998	1998	1994	1993	1998	1998	1994	1994	1994
MIN	8.01	51.3	48.8	20.9	29.2	66.5	43.3	15.1	12.3	8.27	5.87	4.07
(WY)	1998	1998	1998	1994	1993	1997	1997	1997	1993	1993	1998	1998

e Estimated.

EAST MAHANTANGO CREEK BASIN

01555400 EAST MAHANTANGO CREEK AT KLINGERSTOWN, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	15313.1		31968.0		84.7	
ANNUAL MEAN	42.0		87.6		93.6	
HIGHEST ANNUAL MEAN					74.1	
LOWEST ANNUAL MEAN					2290	
HIGHEST DAILY MEAN	348	Jan 25	1020	Jan 9		Nov 28 1993
LOWEST DAILY MEAN	3.8	Jul 18	2.8	Sep 20,21	2.0	Aug 10 1993
ANNUAL SEVEN-DAY MINIMUM	4.4	Jul 15	2.9	Sep 15	2.9	Aug 4 1993
INSTANTANEOUS PEAK FLOW			a1340	Jan 8	a3470	Nov 28 1993
INSTANTANEOUS PEAK STAGE			4.93	Jan 8	9.07	Nov 28 1993
INSTANTANEOUS LOW FLOW			2.6	Sep 17,20,21	1.9	Jul 28 1993
ANNUAL RUNOFF (CFSM)	.94		1.96		1.90	
ANNUAL RUNOFF (INCHES)	12.74		26.60		25.76	
10 PERCENT EXCEEDS	85		220		202	
50 PERCENT EXCEEDS	32		42		38	
90 PERCENT EXCEEDS	8.1		5.1		7.2	

a From rating curve extended above 450 ft³/s.

1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

EAST MAHANTANGO CREEK BASIN

01555400 EAST MAHANTANGO CREEK AT KLINGERSTOWN, PA--Continued
(National Water-Quality Assessment station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1993-95, April to September 1997.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1993 to December 1994.

TEMPERATURE: April 1993 to December 1994, April 1997 to current year.

INSTRUMENTATION.--Daily record measured and collected with in-situ probes and electronic data logger.

REMARKS.--The low intensity water-quality sampling phase (LIP) for the 1991-start National Water Quality Assessment (NAWQA) Program study units began in water year 1997 and will continue until 2000. For this phase of the program, two of the original seven fixed sites were chosen for continued monitoring. East Mahantango Creek was chosen because it is located in an area that is underlain by sandstone and shale bedrock with predominantly agricultural land use. Data from this site can, therefore, be compared to data from Bobs Creek near Pavia (the LIP forested reference site also underlain by sandstone and shale) to assess the effects of land use. From October to March, water-quality samples were collected monthly for nutrients, major ions, and suspended-sediment and from April to September, samples were collected semi-monthly for pesticides and monthly for nutrients, major ions and suspended-sediment. Ecological samples for invertebrates, algae, fish-community, chlorophyll-a, chlorophyll-b, and periphyton ash-free dry weight were collected on June 22. Identifications of invertebrates and algae are not complete and could not be included in this report.

Quality-control data for replicate samples using natural water are shown for June 9, 1998 at 1021 (pesticides) and June 24, 1998 at 1021 (nutrients, major ions, and suspended sediment).

The remark code "E" indicates an estimated value with uncertain accuracy and precision for the analyte. Some values for "dissolved" parameters exceed values for the corresponding "total" parameter. These results are within the limits of analytical precision and methods.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 206 microsiemens, Sept. 20, 1993; minimum, 50 microsiemens, Sept. 17, 1994.

TEMPERATURE: Maximum, 26.0°C, Aug. 7, 28, 1997; minimum, 0.0°C, several days during winters.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 26.0°C, Aug. 7, Aug. 28; minimum, 0.0°C, several days during winter.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	PROJECT NUMBER (00029)	SAMPLE PURPOSE CODE (71999)	SAMPLER TYPE (CODE) (84164)	SAM- PLING METHOD, CODES (82398)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)
OCT											
30...	0850	1028	80020	20703	15	3045	10	7.6	163	7.6	5.7
NOV											
20...	0810	1028	80020	20703	15	3045	10	44	183	7.4	.0
DEC											
18...	0950	1028	80020	20703	15	3045	10	30	165	7.6	5.6
JAN											
27...	0920	1028	80020	20703	15	3045	10	138	151	7.6	1.3
FEB											
26...	1010	1028	80020	20703	15	3039	10	410	143	7.3	9.8
MAR											
24...	0940	1028	80020	20703	15	3045	10	150	135	7.5	5.7
APR											
14...	0950	1028	80020	20703	15	3045	10	108	120	7.5	15.3
28...	0930	1028	80020	20703	15	3045	10	91	129	7.5	8.8
MAY											
12...	0950	1028	80020	20703	15	3045	30	900	142	7.3	12.7
26...	1250	1028	80020	20703	15	3045	10	32	131	7.8	21.7
JUN											
09...	1020	1028	80020	20703	15	3045	10	11	127	7.8	17.3
09...	1021	1028	80020	20703	15	3045	10	--	--	--	--
22...	1030	1028	80020	20703	15	--	--	--	--	--	--
24...	1020	1028	80020	20703	15	3039	10	668	217	7.1	27.2
24...	1021	1028	80020	20703	15	3039	10	--	--	--	--
JUL											
14...	1030	1028	80020	20703	15	3045	10	20	166	7.8	26.8
28...	1000	1028	80020	20703	15	3045	10	7.2	152	7.8	23.0
AUG											
11...	1010	1028	80020	20703	15	3045	10	18	145	7.8	21.7
25...	1000	1028	80020	20703	15	8010	10	4.9	156	7.5	23.1
SEP											
08...	0940	1028	80020	20703	15	3045	10	11	139	7.7	17.1
22...	0930	1028	80020	20703	15	8010	10	3.8	148	7.4	19.9

EAST MAHANTANGO CREEK BASIN

01555400 EAST MAHANTANGO CREEK AT KLINGERSTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE OF (MM HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)
OCT												
30...	4.6	756	12.2	95	58	23	14	5.3	5.5	16	.3	3.0
NOV												
20...	2.0	750	13.7	101	63	47	15	6.3	5.0	14	.3	2.3
DEC												
18...	.1	753	13.8	96	57	42	14	5.6	4.8	15	.3	1.9
JAN												
27...	3.4	758	13.2	100	52	43	12	5.3	4.0	14	.2	1.7
FEB												
26...	5.4	750	12.4	100	49	42	11	5.0	3.5	13	.2	1.7
MAR												
24...	3.8	741	12.8	100	46	37	11	4.6	3.6	14	.2	1.6
APR												
14...	10.5	734	10.9	101	--	--	--	--	--	--	--	--
28...	8.6	746	11.6	102	44	32	10	4.3	3.7	13	.2	8.9
MAY												
12...	11.4	734	10.2	97	--	--	--	--	--	--	--	--
26...	17.1	735	9.5	102	47	30	11	4.6	3.7	14	.2	2.4
JUN												
09...	13.9	742	9.7	96	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--
22...	22.5	--	--	--	--	--	--	--	--	--	--	--
24...	17.5	739	8.9	96	78	64	20	7.1	3.5	8	.2	4.1
24...	--	--	--	--	78	--	20	7.1	3.5	8	.2	4.1
JUL												
14...	21.1	738	8.9	103	--	--	--	--	--	--	--	--
28...	21.4	736	9.7	114	55	25	14	5.2	4.6	15	.3	2.1
AUG												
11...	21.8	734	7.8	92	--	--	--	--	--	--	--	--
25...	22.1	735	8.0	95	58	22	15	5.4	5.7	17	.3	2.5
SEP												
08...	18.3	729	8.4	93	--	--	--	--	--	--	--	--
22...	21.2	735	6.4	75	53	8	13	5.0	5.3	17	.3	3.0
DATE	BICAR- BONATE WAT.DIS FET FIELD HCO3 (MG/L) (29804)	CAR- BONATE WAT.DIS FET FIELD CO3 (MG/L) (29807)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L) (39036)	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	CAR- BONATE WATER DIS IT FIELD (MG/L AS CO3) (00452)	ALKA- LINITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)
OCT												
30...	43	.0	35	42	0	34	12	11	<.10	4.6	98	89
NOV												
20...	22	.0	18	20	0	16	14	11	<.10	6.1	112	108
DEC												
18...	18	.0	15	18	0	15	13	10	<.10	4.2	89	98
JAN												
27...	13	.0	11	12	0	9	14	9.6	<.10	5.7	98	90
FEB												
26...	9.9	.0	8.1	9	0	7	14	7.8	<.10	5.5	95	83
MAR												
24...	12	.0	10	11	0	9	13	7.6	<.10	5.3	80	79
APR												
14...	15	.0	13	14	0	11	--	--	--	--	--	--
28...	17	.0	14	14	0	12	12	7.3	<.10	4.6	78	81
MAY												
12...	18	.0	15	17	0	14	--	--	--	--	--	--
26...	22	.0	18	21	0	17	11	7.2	<.10	5.2	87	74
JUN												
09...	26	.0	21	25	0	20	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
24...	19	.0	16	17	0	14	14	8.1	<.10	5.6	164	127
24...	--	--	--	--	--	--	14	8.2	<.10	5.6	163	130
JUL												
14...	29	.0	24	27	0	22	--	--	--	--	--	--
28...	38	.0	31	37	0	30	10	8.7	<.10	2.8	101	81
AUG												
11...	39	.0	32	37	0	30	--	--	--	--	--	--
25...	47	.0	39	45	0	37	10	10	<.10	2.2	85	81
SEP												
08...	47	.0	39	45	0	37	--	--	--	--	--	--
22...	57	.0	47	55	0	45	8.4	9.4	<.10	.97	86	74

EAST MAHANTANGO CREEK BASIN

01555400 EAST MAHANTANGO CREEK AT KLINGERSTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO3) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2) (71856)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	NITRO- GEN, TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
OCT 30...	.13	1.75	--	--	<.010	--	2.99	<.015	--	--	--	.23
NOV 20...	.15	15.0	8.65	38	.010	.03	8.66	<.020	--	--	--	.19
DEC 18...	.12	8.96	--	--	<.010	--	7.92	<.020	--	--	--	.16
JAN 27...	.13	38.1	--	--	<.010	--	7.23	<.020	--	--	--	.20
FEB 26...	.13	99.5	--	--	<.010	--	6.61	<.020	--	--	--	.30
MAR 24...	.11	33.0	--	--	<.010	--	6.04	.042	.05	.14	.09	.18
APR 14...	--	--	--	--	--	--	--	--	--	--	--	--
28...	.11	21.5	4.93	22	.010	.03	4.94	.044	.06	.11	--	.15
MAY 12...	--	--	--	--	--	--	--	--	--	--	--	--
26...	.12	8.76	3.96	18	.019	.06	3.98	.051	.07	.29	.16	.34
JUN 09...	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
24...	.22	308	12.8	57	.034	.11	12.8	.194	.25	1.4	.74	1.6
24...	.22	--	13.0	58	.034	.11	13.1	.194	.25	1.1	.79	1.3
JUL 14...	--	--	--	--	--	--	--	--	--	--	--	--
28...	.14	1.09	3.52	16	.013	.04	3.53	.037	.05	.23	.19	.26
AUG 11...	--	--	--	--	--	--	--	--	--	--	--	--
25...	.12	.59	1.81	8.0	.016	.05	1.83	.090	.12	.20	.20	.29
SEP 08...	--	--	--	--	--	--	--	--	--	--	--	--
22...	.12	.39	--	--	<.010	--	.378	.036	.05	.38	.32	.42
DATE	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4) (00660)	IRON, DIS- SOLVED (MG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (MG/L AS MN) (01056)	STRON- TIUM, DIS- SOLVED (MG/L AS SR) (01080)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)
OCT 30...	<.20	3.2	--	.011	<.010	<.010	--	38	5.2	75	5	.09
NOV 20...	.28	8.8	8.9	.021	.020	.024	.07	12	10	76	11	1.5
DEC 18...	.16	8.1	8.1	<.010	<.010	<.010	--	10	12	68	6	.60
JAN 27...	.12	7.4	7.4	.015	<.010	.016	.05	<10	16	60	8	3.1
FEB 26...	.17	6.9	6.8	.033	.016	.026	.08	<10	16	55	32	34
MAR 24...	.14	6.2	6.2	.015	<.010	<.010	--	<10	15	53	11	4.5
APR 14...	--	--	--	--	--	--	--	--	--	--	--	--
28...	<.10	5.1	--	<.010	<.010	.017	.05	18	16	53	5	1.4
MAY 12...	--	--	--	--	--	--	--	--	--	--	--	--
26...	.21	4.3	4.2	.039	.018	.015	.05	26	8.9	57	7	.70
JUN 09...	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
24...	.93	14	14	.286	.099	.079	.24	28	44	90	156	293
24...	.98	14	14	.263	.091	.083	.25	27	42	91	148	--
JUL 14...	--	--	--	--	--	--	--	--	--	--	--	--
28...	.23	3.8	3.8	.020	<.010	.028	.09	27	6.0	69	5	.05
AUG 11...	--	--	--	--	--	--	--	--	--	--	--	--
25...	.29	2.1	2.1	.034	.014	.014	.04	25	14	73	11	.08
SEP 08...	--	--	--	--	--	--	--	--	--	--	--	--
22...	.36	.80	.74	.052	.018	.021	.06	58	21	67	38	.17

EAST MAHANTANGO CREEK BASIN

01555400 EAST MAHANTANGO CREEK AT KLINGERSTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	ACETO- CHLOR, WATER FLTRD REC (µG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (µG/L) (46342)	ALPHA BHC DIS- SOLVED (µG/L) (34253)	ATRA- ZINE, WATER, DISS, REC (µG/L) (39632)	BEN- FLUR- ALIN WAT FLD 0.7 µ GF, REC (µG/L) (82673)	BUTYL- ATE, WATER, DISS, REC (µG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 µ GF, REC (µG/L) (82680)	CARBO- FURAN WATER FLTRD 0.7 µ GF, REC (µG/L) (82674)	CHLOR- PYRIFOS DIS- SOLVED (µG/L) (38933)	CYANA- ZINE, WATER, DISS, REC (µG/L) (04041)	DCPA WATER FLTRD 0.7 µ GF, REC (µG/L) (82682)
OCT 30...	38	--	--	--	--	--	--	--	--	--	--	--
NOV 20...	57	--	--	--	--	--	--	--	--	--	--	--
DEC 18...	60	--	--	--	--	--	--	--	--	--	--	--
JAN 27...	77	--	--	--	--	--	--	--	--	--	--	--
FEB 26...	97	--	--	--	--	--	--	--	--	--	--	--
MAR 24...	58	--	--	--	--	--	--	--	--	--	--	--
APR 14...	--	<.0020	<.002	<.0020	.034	<.0020	<.0020	<.0030	<.0030	<.0040	<.0040	<.0020
28...	71	<.0020	.005	<.0020	.099	<.0020	<.0020	E.0028	E.0653	<.0040	.150	<.0020
MAY 12...	--	.0230	.014	<.0020	.739	<.0020	<.0020	E.0074	E.0872	<.0040	.0304	<.0020
26...	84	.277	.011	<.0020	1.39	<.0020	<.0020	E.0470	<.0030	.0116	.114	E.0019
JUN 09...	--	.0199	.007	<.0020	.186	<.0020	<.0020	E.0091	<.0030	<.0040	.0123	<.0020
09...	--	.0242	.008	<.0020	.224	<.0020	<.0020	E.0088	<.0030	<.0040	.0127	<.0020
22...	--	--	--	--	--	--	--	--	--	--	--	--
24...	86	.455	.046	<.0020	3.37	<.0020	<.0020	<.0030	E.111	<.0040	.175	.0228
24...	71	--	--	--	--	--	--	--	--	--	--	--
JUL 14...	--	.0058	.007	<.0020	.366	<.0020	<.0020	<.0030	<.0030	<.0040	.0118	E.0012
28...	80	<.0020	E.004	<.0020	.192	<.0020	<.0020	<.0030	E.0653	<.0040	.0112	<.0020
AUG 11...	--	.0065	.005	<.0020	.176	<.0020	<.0020	E.0100	E.0099	<.0040	.0098	<.0020
25...	66	<.0020	<.002	<.0020	.133	<.0020	<.0020	<.0030	<.0030	<.0040	<.0040	<.0020
SEP 08...	--	.0197	<.002	<.0020	.104	<.0020	<.0020	<.0030	<.0030	<.0040	<.0040	<.0020
22...	77	<.0020	<.002	<.0020	.076	<.0020	<.0020	<.0030	<.0030	<.0040	<.0040	<.0020
DATE	DEETHYL ATRA- ZINE, WATER, DISS, REC (µG/L) (04040)	DI- AZINON, DIS- SOLVED (µG/L) (39572)	DI- ELDRIN DIS- SOLVED (µG/L) (39381)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 µ GF, REC (µG/L) (82660)	DISUL- FOTON WATER FLTRD 0.7 µ GF, REC (µG/L) (82677)	EPTC WATER FLTRD 0.7 µ GF, REC (µG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 µ GF, REC (µG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 µ GF, REC (µG/L) (82672)	FONOFOS WATER DISS REC (µG/L) (04095)	LINDANE DIS- SOLVED (µG/L) (39341)	LIN- URON WATER FLTRD 0.7 µ GF, REC (µG/L) (82666)	MALA- THION, DIS- SOLVED (µG/L) (39532)
OCT 30...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 20...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 18...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 27...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 26...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 24...	--	--	--	--	--	--	--	--	--	--	--	--
APR 14...	E.0881	<.002	<.001	<.0030	<.0170	<.0020	<.0040	<.0030	<.0030	<.004	<.0020	<.005
28...	E.0423	<.002	<.001	<.0030	<.0170	<.0020	<.0040	<.0030	<.0030	<.004	<.0020	<.005
MAY 12...	E.0967	<.002	<.001	<.0030	<.0170	<.0020	<.0040	.0349	<.0030	<.004	.0180	<.005
26...	E.0870	.004	<.001	<.0030	<.0170	<.0020	<.0040	<.0030	.0595	<.004	.0653	<.005
JUN 09...	E.0578	<.002	<.001	<.0030	<.0170	<.0020	<.0040	<.0030	<.0030	<.004	.0058	<.005
09...	E.0620	<.002	<.001	<.0030	<.0170	<.0020	<.0040	<.0030	<.0030	<.004	<.0020	<.005
22...	--	--	--	--	--	--	--	--	--	--	--	--
24...	E.821	<.002	<.001	<.0030	<.0170	.0101	<.0040	.0385	E.0025	<.004	.0508	<.005
24...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 14...	E.204	<.002	<.001	<.0030	<.0170	<.0020	<.0040	<.0030	<.0030	<.004	<.0020	<.005
28...	E.111	<.002	<.001	<.0030	<.0170	<.0020	<.0040	<.0030	<.0030	<.004	<.0020	<.005
AUG 11...	E.0874	<.002	<.001	<.0030	<.0170	<.0020	<.0040	<.0030	<.0030	<.004	<.0020	<.005
25...	E.0874	<.002	<.001	<.0030	<.0170	<.0020	<.0040	<.0030	<.0030	<.004	<.0020	<.005
SEP 08...	E.0720	<.002	<.001	<.0030	<.0170	<.0020	<.0040	<.0030	<.0030	<.004	<.0020	<.005
22...	E.0608	<.002	<.001	<.0030	<.0170	<.0020	<.0040	<.0030	<.0030	<.004	<.0020	<.005

EAST MAHANTANGO CREEK BASIN

01555400 EAST MAHANTANGO CREEK AT KLINGERSTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	METHYL AZIN- PHOS WAT FLT 0.7 µ GF, REC (µG/L) (82686)	METHYL PARA- THION WAT FLT 0.7 µ GF, REC (µG/L) (82667)	METO- LACHLOR WATER DISSOLV (µG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (µG/L) (82630)	MOL- INATE WATER FLTRD 0.7 µ GF, REC (µG/L) (82671)	NAPROP- AMIDE WATER FLTRD 0.7 µ GF, REC (µG/L) (82684)	P, P' DDE DISSOLV (µG/L) (34653)	PARA- THION, DIS- SOLVED (µG/L) (39542)	PEB- ULATE WATER FILTRD 0.7 µ GF, REC (µG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 µ GF, REC (µG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 µ GF, REC (µG/L) (82687)	PHORATE WATER FLTRD 0.7 µ GF, REC (µG/L) (82664)
OCT 30...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 20...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 18...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 27...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 26...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 24...	--	--	--	--	--	--	--	--	--	--	--	--
APR 14...	<.0010	<.0060	.036	<.004	<.0040	<.0030	<.0060	<.004	<.0040	<.0040	<.0050	<.0020
28...	<.0010	<.0060	.258	<.004	<.0040	<.0030	E.0013	<.004	<.0040	<.0040	<.0050	<.0020
MAY 12...	E.0159	<.0060	.677	.019	<.0040	<.0030	<.0060	<.004	<.0040	<.0040	<.0050	<.0020
26...	E.110	<.0060	1.37	.018	<.0040	.0379	<.0060	<.004	<.0040	.0416	<.0050	<.0020
JUN 09...	<.0010	<.0060	.124	<.004	<.0040	<.0030	<.0060	<.004	<.0040	.0116	<.0050	<.0020
09...	<.0010	<.0060	.148	<.004	<.0040	<.0030	<.0060	<.004	<.0040	.0116	<.0050	<.0020
22...	--	--	--	--	--	--	--	--	--	--	--	--
24...	E.0623	<.0060	4.85	.150	<.0040	.0476	<.0060	<.004	<.0040	.114	<.0050	<.0020
24...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 14...	<.0010	<.0060	.252	<.004	<.0040	<.0030	<.0060	<.004	<.0040	<.0040	<.0050	<.0020
28...	<.0010	<.0060	.107	<.004	<.0040	<.0030	<.0060	<.004	<.0040	<.0040	<.0050	<.0020
AUG 11...	<.0010	<.0060	.143	<.004	<.0040	<.0030	<.0060	<.004	<.0040	<.0040	<.0050	<.0020
25...	<.0010	<.0060	.109	<.004	<.0040	<.0030	<.0060	<.004	<.0040	<.0040	<.0050	<.0020
SEP 08...	<.0010	<.0060	.084	<.004	<.0040	<.0030	<.0060	<.004	<.0040	<.0040	<.0050	<.0020
22...	<.0010	<.0060	.047	<.004	<.0040	<.0030	<.0060	<.004	<.0040	<.0040	<.0050	<.0020

DATE	PRO- METON, WATER, DISS, REC (µG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 µ GF, REC (µG/L) (82676)	PROP- CHLOR, WATER, DISS, REC (µG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 µ GF, REC (µG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 µ GF, REC (µG/L) (82685)	SI- MAZINE, WATER, DISS, REC (µG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 µ GF, REC (µG/L) (82670)	TER- BACIL WATER FLTRD 0.7 µ GF, REC (µG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 µ GF, REC (µG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 µ GF, REC (µG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 µ GF, REC (µG/L) (82678)
OCT 30...	--	--	--	--	--	--	--	--	--	--	--
NOV 20...	--	--	--	--	--	--	--	--	--	--	--
DEC 18...	--	--	--	--	--	--	--	--	--	--	--
JAN 27...	--	--	--	--	--	--	--	--	--	--	--
FEB 26...	--	--	--	--	--	--	--	--	--	--	--
MAR 24...	--	--	--	--	--	--	--	--	--	--	--
APR 14...	<.0180	<.0030	<.0070	<.0040	<.0130	.0097	<.0100	<.0070	<.0130	<.0020	<.0010
28...	E.0037	<.0030	<.0070	<.0040	<.0130	.0130	<.0100	E.0055	<.0130	<.0020	<.0010
MAY 12...	<.0180	<.0030	<.0070	<.0040	<.0130	.0455	<.0100	<.0070	<.0130	<.0020	<.0010
26...	.0373	<.0030	<.0070	<.0040	<.0130	.158	<.0100	E.0058	<.0130	<.0020	<.0010
JUN 09...	<.0180	<.0030	<.0070	<.0040	<.0130	.0222	<.0100	<.0070	<.0130	<.0020	<.0010
09...	E.0036	<.0030	<.0070	<.0040	<.0130	.0264	<.0100	<.0070	<.0130	<.0020	<.0010
22...	--	--	--	--	--	--	--	--	--	--	--
24...	<.0180	<.0030	<.0070	<.0040	<.0130	.216	<.0100	<.0070	<.0130	<.0020	<.0010
24...	--	--	--	--	--	--	--	--	--	--	--
JUL 14...	E.0044	<.0030	<.0070	<.0040	<.0130	.0350	<.0100	<.0070	<.0130	<.0020	<.0010
28...	E.0037	<.0030	<.0070	<.0040	<.0130	.0216	<.0100	<.0070	<.0130	<.0020	<.0010
AUG 11...	E.0055	<.0030	<.0070	<.0040	<.0130	.0277	<.0100	<.0070	<.0130	<.0020	<.0010
25...	<.0180	<.0030	<.0070	<.0040	<.0130	.0154	<.0100	<.0070	<.0130	<.0020	<.0010
SEP 08...	E.0049	<.0030	<.0070	<.0040	<.0130	.120	<.0100	<.0070	<.0130	<.0020	<.0010
22...	<.0180	<.0030	<.0070	<.0040	<.0130	.0278	<.0100	<.0070	<.0130	<.0020	<.0010

EAST MAHANTANGO CREEK BASIN

01555400 EAST MAHANTANGO CREEK AT KLINGERSTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TRI- FLUR- ALIN WAT FLT 0.7 μ GF, REC (μ G/L) (82661)	DIAZ- INON D10 SRG WAT FLT 0.7 μ GF, REC PERCENT (91063)	TERBUTH YLAZINE SURROGT WAT FLT 0.7 μ GF, REC PERCENT (91064)	HCH ALPHA D6 SRG WAT FLT 0.7 μ GF, REC PERCENT (91065)	REP- LICATE TYPE (CODE) (99105)	QUALITY ASSUR- ANCE DATA INDICA- TOR CODE (99111)	PERI- PHYTON BIOMASS TOTAL ASH WEIGHT (G/SQ M) (00572)	PERI- PHYTON BIOMASS TOTAL ASH-FREE WEIGHT (G/SQ M) (00573)	PERI- PHYTON BIOMASS TOTAL ASH-FREE WEIGHT (G/SQ M) ()	CHLOR-A PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M ²) (70957)	CHLOR-B PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M ²) (70958)
OCT											
30...	--	--	--	--	--	1	--	--	--	--	--
NOV											
20...	--	--	--	--	--	1	--	--	--	--	--
DEC											
18...	--	--	--	--	--	1	--	--	--	--	--
JAN											
27...	--	--	--	--	--	1	--	--	--	--	--
FEB											
26...	--	--	--	--	--	1	--	--	--	--	--
MAR											
24...	--	--	--	--	--	1	--	--	--	--	--
APR											
14...	<.0020	102	103	95.6	--	1	--	--	--	--	--
28...	<.0020	94.8	106	92.2	--	10	--	--	--	--	--
MAY											
12...	<.0020	129	139	120	--	1	--	--	--	--	--
26...	.0068	102	119	104	--	10	--	--	--	--	--
JUN											
09...	<.0020	111	112	95.4	20.00	100	--	--	--	--	--
09...	<.0020	125	127	111	20.00	--	--	--	--	--	--
22...	--	--	--	--	--	--	408.5	430.7	22.2	50.0	3.50
24...	E.0027	124	108	86.6	20.00	30	--	--	--	--	--
24...	--	--	--	--	20.00	--	--	--	--	--	--
JUL											
14...	<.0020	109	111	100	--	1	--	--	--	--	--
28...	<.0020	83.4	105	91.0	--	1	--	--	--	--	--
AUG											
11...	<.0020	98.3	115	96.3	--	1	--	--	--	--	--
25...	<.0020	79.9	98.3	82.4	--	1	--	--	--	--	--
SEP											
08...	<.0020	117	117	107	--	1	--	--	--	--	--
22...	<.0020	91.8	102	91.3	--	1	--	--	--	--	--

EAST MAHANTANGO CREEK BASIN

01555400 EAST MAHANTANGO CREEK AT KLINGERSTOWN, PA--Continued

REMARKS.--The following analyses are quality control samples processed during the 1998 water year and are defined in the explanation of records section entitled, "Water Quality-Control Data." Explanation of column headings and abbreviations--PEST: pesticide; NUT&ION: nutrient and major ion.

QUALITY-CONTROL DATA. WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	SAMPLE TYPE	AGENCY COLLECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	SAMPLE PURPOSE CODE	SAMPLER TYPE (CODE)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNESIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTASSIUM, DIS-SOLVED (MG/L AS K)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)
			(00027)	(00028)	(71999)	(84164)	(00915)	(00925)	(00930)	(00935)	(00945)	(00940)
APR 1998												
28...	0900	PEST BLANK	1028	80020	15	3045	--	--	--	--	--	--
MAY												
26...	1220	NUT&ION BLANK	1028	80020	15	3045	<.020	<.004	<.10	<.10	<.10	<.10

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	IRON, DIS- SOLVED (µG/L AS FE) (01046)
APR 1998												
28...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
26...	<.10	<.10	<10	<.010	<.050	.029	<.10	<.10	<.010	<.010	<.010	<10

[illegible]

EAST MAHANTANGO CREEK BASIN

01555400 EAST MAHANTANGO CREEK AT KLINGERSTOWN, PA--Continued

QUALITY-CONTROL DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	DCPA WATER FLTRD 0.7 µ GF, REC (µG/L) (82682)	DEETHYL ATRA- ZINE, WATER, DISS, REC (µG/L) (04040)	DI- AZINON, DIS- SOLVED (µG/L) (39572)	DI- ELDRIN DIS- SOLVED (µG/L) (39381)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 µ GF, REC (µG/L) (82660)	DISUL- FOTON WATER FLTRD 0.7 µ GF, REC (µG/L) (82677)	EPTC WATER FLTRD 0.7 µ GF, REC (µG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 µ GF, REC (µG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 µ GF, REC (µG/L) (82672)	FONOFOS WATER DISS REC (µG/L) (04095)	LINDANE DIS- SOLVED (µG/L) (39341)
APR 1998 28...	<.0020	<.0020	<.002	<.001	<.0030	<.0170	<.0020	<.0040	<.0030	<.0030	<.004
MAY 26...	--	--	--	--	--	--	--	--	--	--	--
DATE	LIN- URON WATER FLTRD 0.7 µ GF, REC (µG/L) (82666)	MALA- THION, DIS- SOLVED (µG/L) (39532)	METHYL AZIN- PHOS WAT FLT 0.7 µ GF, REC (µG/L) (82686)	METHYL PARA- THION WAT FLT 0.7 µ GF, REC (µG/L) (82667)	METO- LACHLOR WATER DISSOLV (µG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (µG/L) (82630)	MOL- INATE WATER FLTRD 0.7 µ GF, REC (µG/L) (82671)	NAPROP- AMIDE WATER FLTRD 0.7 µ GF, REC (µG/L) (82684)	P,P' DDE DISSOLV (µG/L) (34653)	PARA- THION, DIS- SOLVED (µG/L) (39542)	PBB- ULATE WATER FILTRD 0.7 µ GF, REC (µG/L) (82669)
APR 1998 28...	<.0020	<.005	<.0010	<.0060	<.002	<.004	<.0040	<.0030	<.0060	<.004	<.0040
MAY 26...	--	--	--	--	--	--	--	--	--	--	--
DATE	PENDI- METH- ALIN WAT FLT 0.7 µ GF, REC (µG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 µ GF, REC (µG/L) (82687)	PHORATE WATER FLTRD 0.7 µ GF, REC (µG/L) (82664)	PRO- METON, WATER, DISS, REC (µG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 µ GF, REC (µG/L) (82676)	PROP- CHLOR, WATER, DISS, REC (µG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 µ GF, REC (µG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 µ GF, REC (µG/L) (82685)	SI- MAZINE, WATER, DISS, REC (µG/L) (04035)	TEBU- THIURON FLTRD 0.7 µ GF, REC (µG/L) (82670)	TER- BACIL WATER FLTRD 0.7 µ GF, REC (µG/L) (82665)
APR 1998 28...	<.0040	<.0050	<.0020	<.0180	<.0030	<.0070	<.0040	<.0130	<.0050	<.0100	<.0070
MAY 26...	--	--	--	--	--	--	--	--	--	--	--
DATE	TER- BUFOS WATER FLTRD 0.7 µ GF, REC (µG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 µ GF, REC (µG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 µ GF, REC (µG/L) (82678)	TRI- FLUR- ALIN WAT FLT 0.7 µ GF, REC (µG/L) (82661)	DIAZ- INON D10 SRG WAT FLT 0.7 µ GF, REC (PERCENT) (91063)	TERBUTH YLAZINE SURROGT WAT FLT 0.7 µ GF, REC (PERCENT) (91064)	HCH ALPHA D6 SRG WAT FLT 0.7 µ GF, REC (PERCENT) (91065)	BLANK, TYPE OF SOLU- TION (CODE) (99100)	BLANK, SOURCE OF SOLU- TION (CODE) (99101)	BLANK, TYPE OF SAMPLE (CODE) (99102)	REF- ERENCE MA- TERIAL/ SPIKE SOURCE (CODE) (99104)
APR 1998 28...	<.0130	<.0020	<.0010	<.0020	91.8	100	87.4	40.00	10.00	100.00	29306
MAY 26...	--	--	--	--	--	--	--	10.00	80.00	100.00	98056

EAST MAHANTANGO CREEK BASIN

01555400 EAST MAHANTANGO CREEK AT KLINGERSTOWN, PA--Continued

REMARKS.--Concentrations of pesticides and herbicides in replicate and spiked replicate from East Mahantango Creek at Klingerstown, Pa., June 9, 1998 and calculated recoveries, in percent; "<" = less than; less-than values were set equal to zero for calculations; E = estimated value.

QUALITY-CONTROL DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

Concentration, in micrograms per liter					
Parameter code	Constituent	Laboratory results		a Calculated concentration in replicate 2 C	Recovery in percent [(B-A)/C] x 100
		Replicate 1 (not spiked)	Replicate 2 (spiked)		
		(6/09/98 at 1021) A	(6/09/98 at 1022) B		
49260	Acetochlor	0.024	0.175	.117	129
46342	Alachlor	0.008	0.161	.117	131
34253	Alpha BHC	<0.002	0.130	.117	111
39632	Atrazine	0.224	0.313	.117	76
82673	Benfluralin	<0.002	0.113	.117	97
04028	Butylate	<0.002	0.120	.117	103
82680	Carbaryl	E0.009	E0.220	.117	180
82674	Carbofuran	<0.003	E0.241	.117	206
38933	Chlorpyrifos	<0.004	0.129	.117	110
04041	Cyanazine	0.013	0.184	.117	146
82682	DCPA	<0.002	0.138	.117	118
04040	Desethyl Atrazine	E0.062	E0.125	.117	54
39572	Diazinon	<0.002	0.127	.117	109
39381	Dieldrin	<0.001	0.123	.117	105
82660	2,6-Diethyl Aniline	<0.003	0.105	.117	90
82677	Disulfoton	<0.017	0.131	.117	112
82668	EPTC	<0.002	0.108	.117	92
82663	Ethalfuralin	<0.004	0.129	.117	110
82672	Ethoprop	<0.003	0.108	.117	92
04095	Fonofos	<0.003	0.134	.117	115
39341	Lindane	<0.004	0.124	.117	106
82666	Linuron	<0.002	0.192	.117	164
39532	Malathion	<0.005	0.153	.117	131
82686	Methyl Azinphos	<0.001	E0.212	.117	181
82667	Methyl Parathion	<0.006	0.160	.117	137
39415	Metolachlor	0.148	0.280	.117	113
82630	Metribuzin	<0.004	0.130	.117	111
82671	Molinate	<0.004	0.120	.117	103
82684	Napropamide	<0.003	0.136	.117	116
34653	P, P' DDE	<0.006	0.076	.117	65
39542	Parathion	<0.004	0.158	.117	135
82669	Pebulate	<0.004	0.116	.117	99
82683	Pendimethalin	0.012	0.147	.117	115
82687	Permethrin	<0.005	0.012	.023	52
82664	Phorate	<0.002	0.119	.117	102
04037	Prometon	E0.004	0.136	.117	113
82676	Pronamide	<0.003	0.134	.117	114
04024	Propachlor	<0.007	0.148	.117	126
82679	Propanil	<0.004	0.156	.117	133
82685	Propargite	<0.013	0.137	.117	117
04035	Simazine	0.026	0.152	.117	108
82670	Tebuthiuron	<0.010	0.148	.117	126
82665	Terbacil	<0.007	E0.164	.117	140
82675	Terbufos	<0.013	0.114	.117	97
82681	Thiobencarb	<0.002	0.142	.117	121
82678	Triallate	<0.001	0.123	.117	105
82661	Trifluralin	<0.002	0.124	.117	106
Mean recovery					115
Standard deviation					29
Median recovery					112

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.

EAST MAHANTANGO CREEK BASIN

01555400 EAST MAHANTANGO CREEK AT KLINGERSTOWN, PA--Continued

ECOLOGICAL SURVEY OF FIXED SITES--FISH SPECIES TAXONOMIC LIST

REMARKS.--A fish-community survey was conducted at East Mahantango Creek at Klingerstown, Pa. (01555400) on June 23, 1998. Fish were collected by electrofishing using a pulsed-DC current. Two electrofishing passes were conducted in an upstream pattern covering the 200 meter reach. Fish were identified, sorted by species, measured for total and standard length, weighed, and checked for external anomalies. Additional information can be obtained from the U.S. Geological Survey, Lemoyne, Pa.

Explanation of table--Fish family names are in uppercase; scientific names are underlined; and common names are in parentheses. Common names follow those of the American Fisheries Society (1991).

FISH SPECIES AND NUMBERS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

Species Name	Number of Fish
CYPRINIDAE (carps and minnows)	
<u>Campostoma anomalum</u> (central stoneroller)	109
<u>Exoglossum maxillina</u> (cutlips minnow)	76
<u>Luxilus cornutus</u> (common shiner)	17
<u>Nocomis micropogon</u> (river chub)	92
<u>Notropis hudsonius</u> (spottail shiner)	54
<u>Notropis rubellus</u> (rosyface shiner)	6
<u>Pimephales notatus</u> (bluntnose minnow)	48
<u>Rhinichthys cataractae</u> (longnose dace)	15
<u>Semotilus atromaculatus</u> (creek chub)	24
<u>Semotilus corporalis</u> (fallfish)	119
CATOSTOMIDAE (suckers)	
<u>Catostomus commersoni</u> (white sucker)	120
<u>Hypentelium nigricans</u> (northern hog sucker)	4
ICTALURIDAE (bullhead catfishes)	
<u>Noturus insignis</u> (marginated madtom)	41
SALMONIDAE (trouts)	
<u>Salmo trutta</u> (brown trout)	2
CENTRARCHIDAE (sunfishes)	
<u>Ambloplites rupestris</u> (rock bass)	28
<u>Lepomis gibbosus</u> (pumpkinseed)	3
<u>Lepomis macrochirus</u> (bluegill)	10
<u>Micropterus dolomieu</u> (smallmouth bass)	3
PERCIDAE (perches)	
<u>Etheostoma olmstedi</u> (tessellated darter)	36
<u>Etheostoma zonale</u> (banded darter)	2
<u>Percina peltata</u> (shield darter)	8

EAST MAHANTANGO CREEK BASIN

01555400 EAST MAHANTANGO CREEK AT KLINGERSTOWN, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, OCTOBER 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	15.0	12.5	14.0	10.5	7.5	9.0	7.0	4.0	6.0	.0	.0	.0
2	12.5	9.5	11.0	11.0	9.5	10.5	4.0	3.0	3.5	.0	.0	.0
3	13.5	11.0	12.5	9.5	7.5	8.5	4.5	2.5	3.5	.0	.0	.0
4	16.0	13.0	14.5	8.5	7.0	8.0	6.5	4.5	5.5	4.5	.0	2.0
5	17.5	15.0	16.0	7.0	5.0	6.0	6.0	4.0	5.5	6.5	4.0	5.0
6	18.0	15.0	16.5	7.0	4.0	5.5	4.0	2.0	3.0	8.0	6.5	7.5
7	18.5	16.0	17.5	7.5	7.0	7.0	3.0	2.0	2.5	10.0	8.0	9.0
8	19.0	17.0	18.0	8.5	7.5	8.0	4.0	2.5	3.0	11.5	10.0	10.5
9	19.0	16.5	18.0	9.0	8.5	8.5	3.0	1.5	2.0	10.5	8.5	10.0
10	20.0	17.5	18.5	8.5	7.5	8.0	3.0	2.0	2.5	8.5	6.5	7.5
11	17.5	14.0	15.5	8.5	7.5	8.0	3.5	2.5	3.0	6.5	5.5	6.0
12	14.5	11.5	13.0	7.5	5.0	6.0	4.0	3.5	4.0	5.5	4.0	5.0
13	15.0	12.0	13.5	5.0	3.0	4.0	3.5	2.5	3.0	6.0	4.0	5.5
14	16.5	14.5	15.5	4.0	3.0	3.5	3.0	2.0	2.5	4.0	2.0	2.5
15	15.5	13.0	14.5	5.5	3.5	5.0	2.0	.5	1.5	3.0	2.0	2.5
16	13.0	10.5	11.5	5.5	4.5	5.0	1.5	.0	1.0	5.0	3.0	4.0
17	11.0	8.5	10.0	4.5	3.5	4.0	2.0	.0	1.0	5.5	5.0	5.5
18	12.5	9.5	11.0	3.5	1.5	2.5	1.0	.0	.5	5.5	4.5	5.0
19	11.0	9.0	10.0	3.0	1.0	2.0	2.0	.5	1.0	5.0	4.5	5.0
20	10.0	7.5	9.0	4.0	2.0	3.0	2.0	.5	1.5	5.0	3.5	4.0
21	9.5	7.0	8.5	5.0	2.0	3.5	2.0	.5	1.5	3.5	2.5	3.0
22	8.0	6.0	7.0	6.5	5.0	6.0	.5	.0	.0	4.0	3.0	3.5
23	6.5	4.5	5.5	7.0	6.0	6.5	1.5	.0	.5	3.5	1.5	2.5
24	7.5	4.5	6.0	6.0	3.0	4.5	3.0	1.5	2.5	5.5	3.5	5.0
25	8.5	7.5	8.0	3.0	1.5	2.5	5.0	3.0	4.0	4.5	3.5	4.0
26	8.0	7.0	7.5	5.0	2.5	3.5	5.0	4.0	4.5	4.0	2.5	3.5
27	9.0	7.0	8.0	5.5	4.5	5.0	4.0	3.0	3.5	4.5	3.5	4.0
28	8.0	6.0	7.0	5.5	4.0	4.5	3.0	1.5	2.5	4.0	3.0	3.5
29	7.0	4.5	5.5	6.0	5.0	5.5	2.0	1.0	1.5	5.0	2.5	3.5
30	7.5	4.5	6.0	7.0	6.0	6.5	1.0	.0	.5	5.5	5.0	5.0
31	8.0	5.0	6.5	---	---	---	.5	.0	.0	5.0	3.5	4.5
MONTH	20.0	4.5	11.5	11.0	1.0	5.7	7.0	.0	2.5	11.5	.0	4.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	4.0	2.0	3.0	9.0	7.5	8.0	17.0	14.5	15.5	14.5	12.5	13.5
2	4.5	2.5	3.5	9.0	6.5	8.0	14.5	12.0	13.5	14.0	13.0	13.5
3	4.5	4.0	4.5	8.5	5.5	7.0	12.5	10.0	11.0	14.5	12.5	13.5
4	4.5	3.0	4.0	6.0	4.5	5.5	11.0	7.5	9.0	15.0	14.0	14.0
5	5.5	3.0	4.5	5.5	4.0	5.0	10.0	6.5	8.0	14.5	13.0	14.0
6	6.0	4.5	5.0	6.5	3.5	5.5	11.5	6.5	9.0	14.0	12.0	13.0
7	5.5	3.5	4.5	8.5	6.0	7.0	12.5	7.5	10.0	16.0	11.5	13.5
8	5.0	3.0	4.0	7.5	6.0	7.0	12.5	10.0	11.0	15.0	12.5	13.5
9	5.0	3.0	4.0	9.0	6.0	7.5	11.5	7.5	9.5	14.0	12.0	13.0
10	5.5	3.0	4.0	9.0	4.5	7.0	10.5	7.5	9.0	13.5	12.5	13.0
11	5.5	3.5	5.0	4.5	2.5	3.5	11.5	6.5	9.0	13.0	12.0	12.5
12	6.5	5.5	6.0	3.0	1.0	2.0	12.0	7.0	10.0	12.5	11.5	12.0
13	5.5	4.0	4.5	4.5	1.0	3.0	13.0	8.0	10.5	14.5	10.5	12.5
14	4.5	2.5	3.5	5.0	3.0	4.0	13.0	10.5	12.0	15.5	10.5	13.0
15	3.0	1.0	2.0	4.5	2.5	3.5	14.0	12.0	13.0	16.5	12.0	14.5
16	3.0	1.0	2.5	6.0	2.5	4.0	14.0	12.0	13.0	18.0	14.0	16.0
17	4.5	3.0	3.5	6.0	3.0	4.5	16.0	13.5	14.5	19.5	16.0	18.0
18	7.0	4.5	6.0	5.5	5.0	5.0	14.5	11.0	13.0	19.0	15.5	17.5
19	7.0	6.5	6.5	7.0	5.0	6.0	13.0	9.5	11.0	19.5	15.5	17.5
20	7.5	6.5	7.0	8.5	6.5	7.5	12.0	9.5	10.5	21.0	17.0	19.0
21	7.0	6.0	6.5	8.0	5.5	6.5	13.5	8.5	11.0	20.5	17.5	19.0
22	7.0	6.0	6.5	5.5	5.0	5.0	13.0	9.5	11.5	17.5	14.5	16.0
23	6.5	3.5	5.5	6.5	3.5	5.0	12.5	10.5	11.5	17.5	12.5	15.0
24	5.5	4.0	4.5	6.5	3.5	5.0	14.0	9.5	12.0	18.5	13.5	16.0
25	7.5	5.0	6.0	7.5	3.5	6.0	15.5	11.5	13.0	17.5	15.0	16.5
26	8.0	5.0	6.5	10.5	6.5	8.5	13.0	9.0	11.0	19.5	15.5	17.5
27	9.0	5.5	7.0	13.5	9.0	11.0	12.5	7.5	10.0	20.5	16.5	18.5
28	9.0	7.5	8.5	16.5	12.5	14.0	13.5	8.5	11.0	22.0	16.5	19.0
29	---	---	---	17.0	13.5	15.0	15.0	9.5	12.0	23.0	18.0	20.5
30	---	---	---	17.5	12.5	15.0	14.0	13.0	13.5	23.5	19.0	21.0
31	---	---	---	18.5	14.0	16.5	---	---	---	24.5	20.5	22.5
MONTH	9.0	1.0	4.9	18.5	1.0	7.0	17.0	6.5	11.3	24.5	10.5	15.8

EAST MAHANTANGO CREEK BASIN

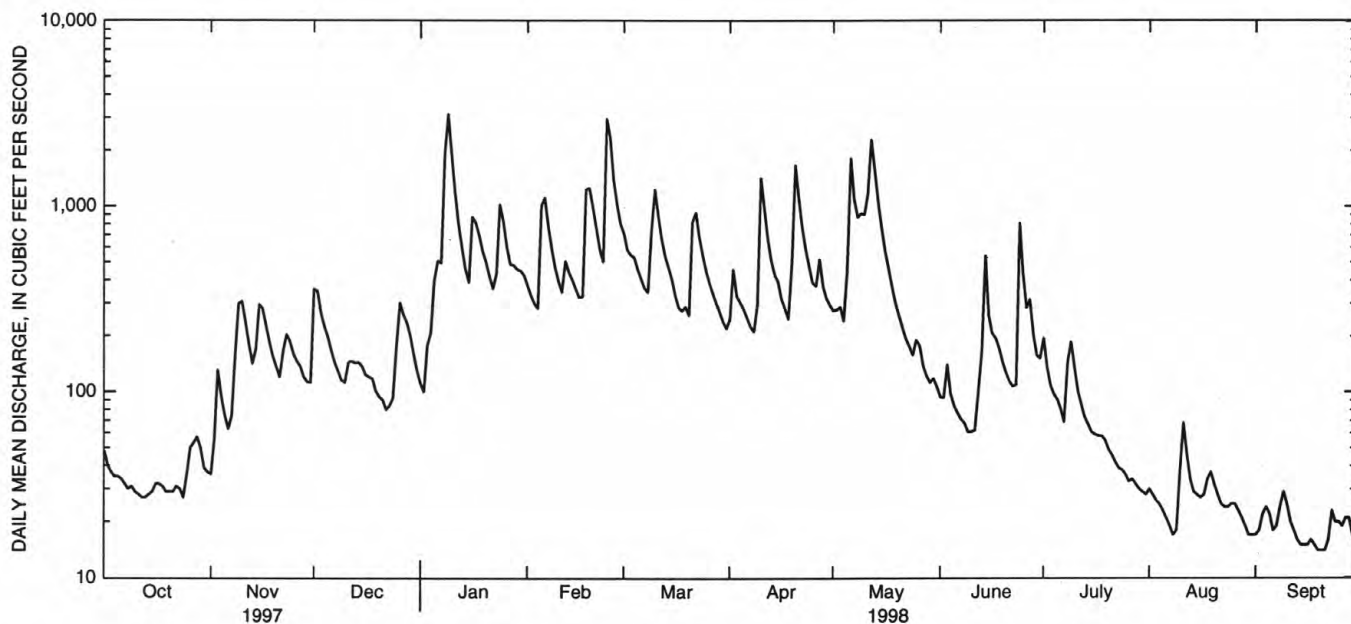
01555500 EAST MAHANTANGO CREEK NEAR DALMATIA, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1930 - 1998	
ANNUAL TOTAL	55540		112362		229	
ANNUAL MEAN	152		308		454	
HIGHEST ANNUAL MEAN					70.7	
LOWEST ANNUAL MEAN					1.5	
HIGHEST DAILY MEAN	864	Jun 3	3120	Jan 9	39000	Jun 22 1972
LOWEST DAILY MEAN	22	Jul 21	14	Sep 19-21	1.7	Sep 21 1932
ANNUAL SEVEN-DAY MINIMUM	24	Jul 16	15	Sep 15	1.7	Sep 16 1932
INSTANTANEOUS PEAK FLOW			3700	Jan 8	a69900	Jun 22 1972
INSTANTANEOUS PEAK STAGE			7.67	Jan 8	b26.62	Jun 22 1972
INSTANTANEOUS LOW FLOW			13	Sep 19	1.3	Oct 7 1957 ^c
ANNUAL RUNOFF (CFSM)	.94		1.90		1.41	
ANNUAL RUNOFF (INCHES)	12.75		25.80		19.20	
10 PERCENT EXCEEDS	300		801		498	
50 PERCENT EXCEEDS	120		157		120	
90 PERCENT EXCEEDS	35		24		23	

a From rating curve extended above 5,000 ft³/s on basis of slope-area measurement of peak flow.

b From floodmark in gage.

c Also Nov. 3, 1964.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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 mi².

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 sea level (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 fair. 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 ft³/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 4,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 8	1100	*15,200	*17.90	Apr. 27	0300	5,070	10.46

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	158	426	1080	e290	518	2190	751	913	229	200	110	94
2	137	1020	768	e300	488	1810	694	1650	211	161	104	84
3	121	497	654	e310	472	1770	559	1320	214	146	103	84
4	116	339	614	e320	456	1310	529	1070	193	142	103	84
5	105	265	549	e350	578	1060	487	1540	186	141	103	82
6	100	224	474	406	683	887	447	1290	183	136	103	81
7	102	2090	421	487	564	775	427	1070	175	131	103	93
8	100	12700	387	2360	498	1010	422	2130	172	433	103	192
9	100	5680	363	2560	491	1900	1180	2350	165	342	102	111
10	99	2210	383	1590	491	1880	2030	1750	167	203	146	105
11	99	1380	560	1110	522	1390	1150	1590	171	167	169	102
12	99	970	500	906	979	1050	884	2470	355	151	108	95
13	96	727	434	843	1010	870	730	1900	269	144	103	87
14	96	810	398	717	829	787	697	1460	243	139	103	85
15	95	870	364	617	695	684	1380	1090	204	135	139	84
16	95	687	342	594	616	596	864	887	411	145	139	81
17	93	562	331	567	778	538	763	774	295	146	154	81
18	93	473	314	534	1520	566	659	611	272	134	171	80
19	95	434	299	469	1730	630	1660	523	238	127	118	79
20	95	410	292	430	1480	555	3070	457	253	123	105	79
21	94	391	283	395	1270	1720	1700	414	201	118	103	88
22	93	799	272	375	1030	1540	1230	377	182	117	103	88
23	92	785	366	446	949	1140	956	342	280	119	103	98
24	91	679	389	663	1510	905	809	316	347	124	99	85
25	125	575	514	529	1460	751	663	304	215	115	99	83
26	125	537	504	457	1470	670	1820	292	190	112	129	84
27	140	556	481	451	1300	620	3320	270	181	108	104	83
28	128	547	461	466	1610	567	1620	253	172	106	101	103
29	111	624	416	480	---	529	1150	239	177	105	100	93
30	105	662	e350	683	---	491	955	231	173	104	99	81
31	102	---	e320	595	---	469	---	219	---	116	99	---
TOTAL	3300	38929	13883	21300	25997	31660	33606	30102	6724	4690	3528	2749
MEAN	106	1298	448	687	928	1021	1120	971	224	151	114	91.6
MAX	158	12700	1080	2560	1730	2190	3320	2470	411	433	171	192
MIN	91	224	272	290	456	469	422	219	165	104	99	79
CFSM	.37	4.46	1.54	2.36	3.19	3.51	3.85	3.34	.77	.52	.39	.31
IN.	.42	4.98	1.77	2.72	3.32	4.05	4.30	3.85	.86	.60	.45	.35

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1917 - 1998, BY WATER YEAR (WY)

	183	285	380	424	558	904	768	526	308	188	144	143
MEAN	183	285	380	424	558	904	768	526	308	188	144	143
MAX	969	1298	1268	1446	1340	3561	2194	1314	1743	824	738	964
(WY)	1977	1998	1973	1937	1971	1936	1993	1924	1972	1989	1956	1996
MIN	45.9	48.0	52.4	61.3	86.0	263	215	127	83.0	49.7	46.9	45.9
(WY)	1931	1931	1931	1918	1934	1990	1925	1934	1965	1965	1966	1932

e Estimated.

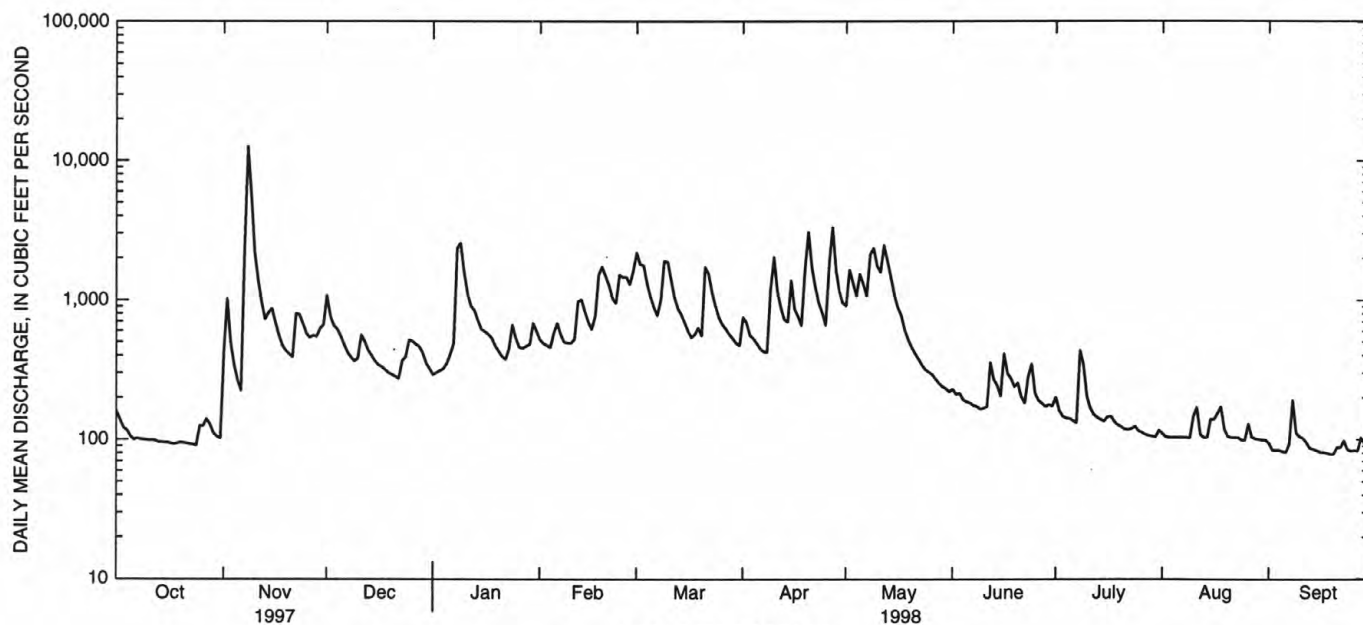
JUNIATA RIVER BASIN

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

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1917 - 1998	
ANNUAL TOTAL	169426		216468		400	
ANNUAL MEAN	464		593		670	
HIGHEST ANNUAL MEAN					200	
LOWEST ANNUAL MEAN					1972	
HIGHEST DAILY MEAN	12700	Nov 8	12700	Nov 8	25000	Mar 18 1936
LOWEST DAILY MEAN	85	Sep 27	79	Sep 19,20	31	Dec 24 1930
ANNUAL SEVEN-DAY MINIMUM	87	Sep 21	81	Sep 14	32	Dec 19 1930
INSTANTANEOUS PEAK FLOW			a15200	Nov 8	ab30000	Mar 18 1936
INSTANTANEOUS PEAK STAGE			17.90	Nov 8	19.35	Jan 19 1996
INSTANTANEOUS LOW FLOW			79	Sep 18-22,30	13	Jul 24 1934
ANNUAL RUNOFF (CFSM)	1.60		2.04		1.37	
ANNUAL RUNOFF (INCHES)	21.66		27.67		18.67	
10 PERCENT EXCEEDS	948		1460		892	
50 PERCENT EXCEEDS	253		383		208	
90 PERCENT EXCEEDS	99		97		72	

a From rating curve extended above 14,000 ft³/s on basis of slope-area measurement of peak flow.

b Gage height 18.58 ft, from floodmark in gage shelter.



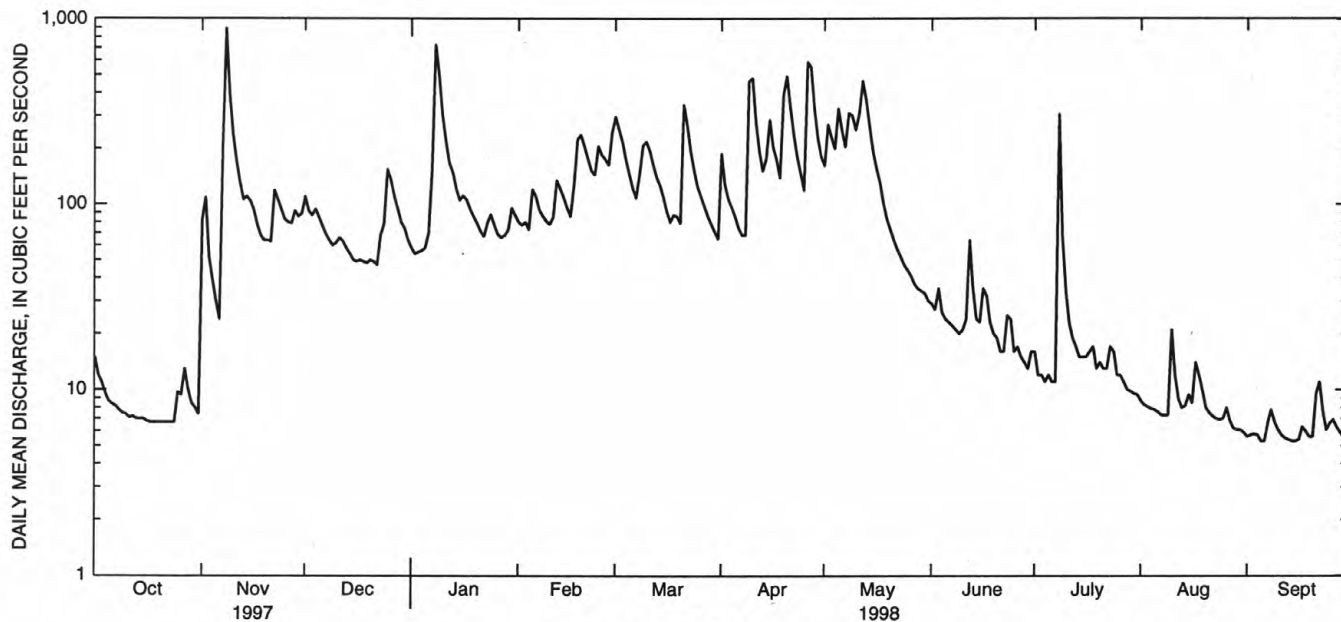
1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

JUNIATA RIVER BASIN

01557500 BALD EAGLE CREEK AT TYRONE, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1945 - 1998	
ANNUAL TOTAL	25722.7		33125.7		76.7	
ANNUAL MEAN	70.5		90.8		133	
HIGHEST ANNUAL MEAN					1951	
LOWEST ANNUAL MEAN					1965	
HIGHEST DAILY MEAN	889	Nov 8	889	Nov 8	2800	Jun 23 1972
LOWEST DAILY MEAN	4.2	Sep 27	5.3	Sep 5,6,14,15	1.4	Sep 13 1973
ANNUAL SEVEN-DAY MINIMUM	4.7	Sep 21	5.5	Sep 10	1.7	Sep 7 1973
INSTANTANEOUS PEAK FLOW			1260	Nov 8, Apr 9	a5140	Nov 25 1950
INSTANTANEOUS PEAK STAGE			4.51	Nov 8	b7.50	Nov 25 1950
INSTANTANEOUS LOW FLOW			5.0	Sep 15	1.4	Sep 12 1973
ANNUAL RUNOFF (CFSM)	1.60		2.06		1.74	
ANNUAL RUNOFF (INCHES)	21.70		27.94		23.63	
10 PERCENT EXCEEDS	155		224		175	
50 PERCENT EXCEEDS	47		63		42	
90 PERCENT EXCEEDS	6.7		6.7		7.8	

a From rating curve extended above 2,100 ft³/s on basis of contracted-opening measurement of peak flow.
b From floodmark, site and datum then in use.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

JUNIATA RIVER BASIN

01558000 LITTLE JUNIATA RIVER AT SPRUCE CREEK, PA

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 mi².

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 sea level.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936 reached a stage of 19.1 ft, from floodmarks 175 ft downstream, discharge, 39,800 ft³/s, from rating curve extended above 5,600 ft³/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 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 8	1115	*10,200	*10.31	Apr. 26	2200	5,760	7.79
Apr. 9	2030	4,250	6.74	July 8	1300	3,650	6.29

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	118	397	581	e280	420	1500	823	882	228	171	131	112
2	94	746	487	e290	403	1320	676	1440	214	148	124	109
3	86	392	454	e300	386	1210	567	1240	222	139	124	110
4	85	284	475	e320	374	984	527	1060	204	138	122	110
5	84	234	443	345	515	831	491	1480	193	138	120	107
6	84	208	403	462	566	717	447	1230	189	134	117	105
7	84	1460	371	545	475	637	415	1040	185	136	117	116
8	83	7210	347	2320	434	728	397	1510	185	1240	116	194
9	82	2890	330	2110	420	1080	1410	1690	175	545	117	103
10	82	1720	339	1450	410	1140	2010	1440	176	341	150	94
11	80	1200	373	1070	431	992	1210	1400	195	264	187	88
12	80	910	367	831	731	848	914	2200	412	232	129	86
13	80	733	331	735	711	740	754	1740	311	211	122	85
14	80	721	316	618	629	683	675	1370	226	199	126	84
15	78	685	292	542	550	598	1410	1070	206	185	130	83
16	79	594	284	542	498	530	945	857	335	188	133	83
17	80	507	280	530	626	479	834	812	299	187	145	86
18	80	445	277	482	1100	492	706	629	250	180	167	86
19	79	414	266	442	1280	496	1450	542	209	163	132	76
20	80	401	269	408	1170	456	2240	491	229	157	123	72
21	78	384	266	371	1030	1200	1520	441	199	159	120	90
22	79	594	257	351	864	1050	1150	396	182	159	118	145
23	77	576	346	389	796	868	918	367	186	165	117	117
24	79	534	383	492	1050	737	765	346	202	188	115	85
25	82	484	575	417	981	641	648	335	173	157	115	84
26	84	460	576	369	992	586	2250	314	165	152	133	86
27	88	469	530	364	919	536	3200	288	165	139	123	82
28	86	486	485	368	1200	501	1740	269	155	134	113	121
29	83	484	430	385	---	463	1290	262	153	135	115	90
30	82	468	e380	504	---	432	1040	265	159	132	114	79
31	81	---	e330	463	---	397	---	238	---	135	113	---
TOTAL	2577	27090	11843	19095	19961	23872	33422	27644	6382	6751	3928	2968
MEAN	83.1	903	382	616	713	770	1114	892	213	218	127	98.9
MAX	118	7210	581	2320	1280	1500	3200	2200	412	1240	187	194
MIN	77	208	257	280	374	397	397	238	153	132	113	72
CFSM	.38	4.10	1.74	2.80	3.24	3.50	5.06	4.05	.97	.99	.58	.45
IN.	.44	4.58	2.00	3.23	3.38	4.04	5.65	4.67	1.08	1.14	.66	.50

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1998, BY WATER YEAR (WY)

MEAN	190	282	370	380	493	786	722	526	340	194	142	150
MAX	816	1092	997	991	1128	1609	1928	1239	2022	623	389	898
(WY)	1991	1951	1973	1949	1976	1979	1993	1978	1972	1956	1956	1996
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.

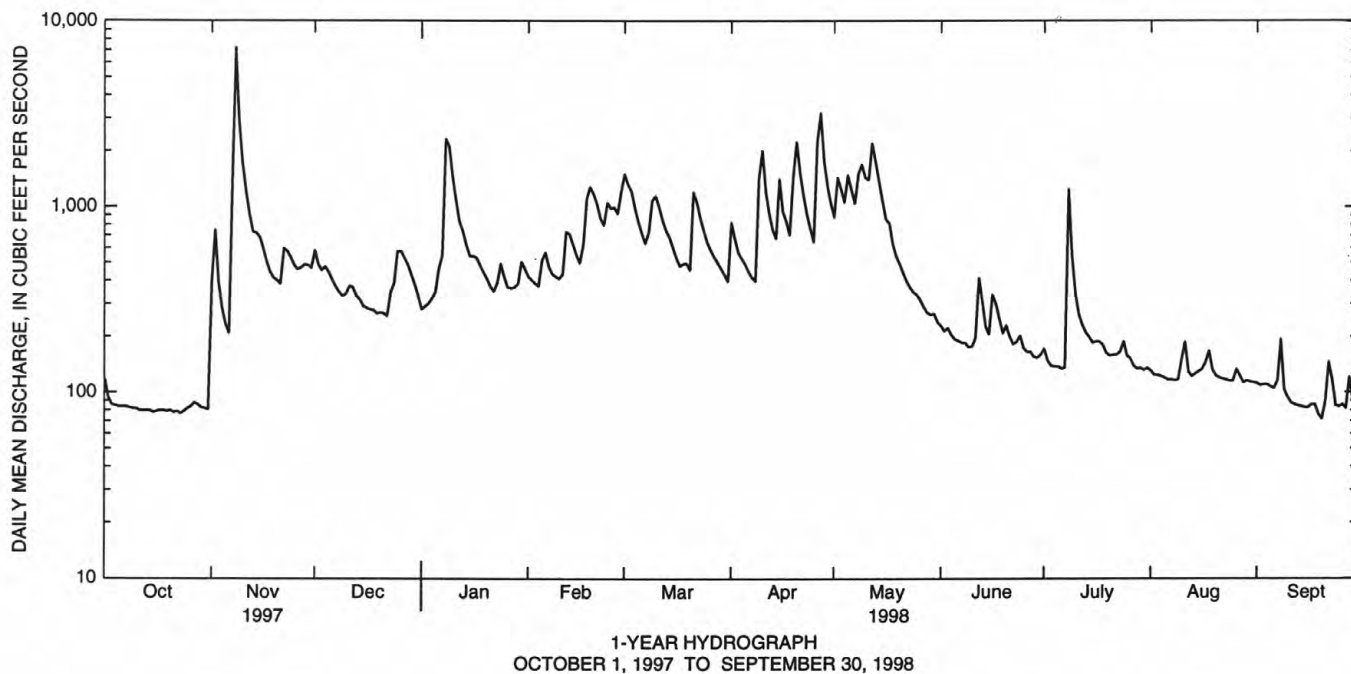
JUNIATA RIVER BASIN

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

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1939 - 1998	
ANNUAL TOTAL	134717		185533		381	
ANNUAL MEAN	369		508		248	
HIGHEST ANNUAL MEAN					630	
LOWEST ANNUAL MEAN					248	
HIGHEST DAILY MEAN	7210	Nov 8	7210	Nov 8	21100	Jun 23 1972
LOWEST DAILY MEAN	77	Oct 23	72	Sep 20	31	Sep 12 1995
ANNUAL SEVEN-DAY MINIMUM	79	Oct 18	79	Oct 18	34	Sep 7 1995
INSTANTANEOUS PEAK FLOW			a10200	Nov 8	a28600	Jun 23 1972
INSTANTANEOUS PEAK STAGE			10.31	Nov 8	16.98	Jun 23 1972
INSTANTANEOUS LOW FLOW			71	Sep 20,21	45	Sep 26 1943b
ANNUAL RUNOFF (CFSM)	1.68		2.31		1.73	
ANNUAL RUNOFF (INCHES)	22.78		31.37		23.50	
10 PERCENT EXCEEDS	732		1200		822	
50 PERCENT EXCEEDS	230		364		224	
90 PERCENT EXCEEDS	103		86		84	

a From rating curve extended above 5,600 ft³/s on basis of slope-area measurement at gage height 15.77 ft.

b Also Oct. 4, 1949.



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 mi².

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 sea level.

REMARKS.--Records good except those for estimated daily discharges, which are fair. 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 ft³/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 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 8	1645	*29,000	*14.23	May 2	1915	5,630	5.83
Jan. 9	----	Unknown	Ice Jam	May 8	2000	5,960	6.02
Apr. 10	0245	8,670	7.46	May 12	1015	7,210	6.71
Apr. 20	0530	8,710	7.48	July 8	1630	6,530	6.34
Apr. 27	0245	11,900	8.94				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	574	427	2280	e900	1570	5030	1840	2690	697	561	414	331
2	487	2790	1920	e920	1480	4370	2360	4100	740	547	428	335
3	360	1880	1720	e980	1440	4240	1790	3920	733	486	416	340
4	356	1180	1670	e1020	1390	3410	1690	3200	680	469	402	334
5	333	986	1580	e1080	1660	2880	1590	4010	657	491	396	322
6	303	823	1440	e1150	2000	2490	1470	3610	639	451	394	316
7	296	2590	1320	e1250	1730	2240	1380	3100	560	452	364	338
8	299	23000	1200	e3000	1520	2270	1320	4310	608	3310	354	791
9	289	13300	1100	e6600	1480	3830	2470	5460	528	2220	379	534
10	256	5680	1110	4460	1460	4230	6300	4420	539	1100	438	377
11	260	3640	1310	3290	1450	3380	3530	3970	577	819	900	328
12	267	2770	1390	2610	2120	2820	2760	6460	1020	686	478	325
13	263	2270	1230	2380	2440	2460	2350	5200	1290	626	397	326
14	286	2160	1090	2110	2200	2270	2140	4130	806	617	402	334
15	243	2390	1020	1880	1970	2080	3600	3270	829	559	398	331
16	254	2030	959	1820	1770	1850	2660	2700	950	577	516	390
17	252	1740	943	1790	1870	1690	2380	2630	992	586	551	485
18	250	1520	930	1680	3470	1680	2130	2110	945	585	615	321
19	250	1400	875	1520	4020	1790	3390	1850	499	518	527	292
20	250	1320	789	1410	3650	1670	7510	1680	759	502	387	231
21	323	1280	862	1310	3270	3410	4690	1490	611	505	376	241
22	427	1750	813	1200	2790	3650	3530	1390	613	533	378	322
23	210	2130	933	1270	2500	2900	2870	1290	722	493	384	495
24	207	1870	1230	1840	3940	2460	2480	1160	1260	535	378	345
25	207	1680	1520	1620	3620	2170	2140	1110	687	507	373	310
26	290	1580	1690	1510	3620	1990	3860	1040	595	469	375	307
27	364	1570	1580	1370	3230	1860	9230	975	589	436	434	324
28	351	1530	e1300	1310	3350	1740	4870	888	524	439	394	335
29	276	1700	e1150	1420	---	1640	3580	863	538	450	363	359
30	253	1620	e1000	1760	---	1540	2990	823	540	445	337	327
31	268	---	e980	1740	---	1420	---	791	---	418	334	---
TOTAL	9304	90606	38934	58200	67010	81460	94900	84640	21727	21392	13282	10746
MEAN	300	3020	1256	1877	2393	2628	3163	2730	724	690	428	358
MAX	574	23000	2280	6600	4020	5030	9230	6460	1290	3310	900	791
MIN	207	427	789	900	1390	1420	1320	791	499	418	334	231
CFSM	.37	3.70	1.54	2.30	2.93	3.22	3.88	3.35	.89	.85	.53	.44
IN.	.42	4.13	1.77	2.65	3.05	3.71	4.33	3.86	.99	.98	.61	.49

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 1998, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)	MEAN	MAX	(WY)	MIN	(WY)	MEAN	MAX	(WY)	MIN	(WY)
1942	559	2114	1991	146	1964	831	3020	1998	233	1964	1099	3100	1973	232	1966
1943	1154	2780	1992	265	1965	1465	3059	1974	379	1966	1154	2780	1975	265	1967
1944	2292	4920	1993	693	1968	2038	5739	1976	747	1969	2292	4920	1977	693	1970
1945	1495	3217	1994	528	1971	1495	3217	1978	528	1972	1495	3217	1979	528	1973
1946	971	5562	1995	313	1974	971	5562	1980	313	1975	971	5562	1981	313	1976
1947	585	1920	1996	201	1977	585	1920	1982	201	1978	585	1920	1983	201	1979
1948	456	1447	1997	163	1980	456	1447	1984	163	1981	456	1447	1985	163	1982
1949	468	2856	1998	143	1983	468	2856	1986	143	1984	468	2856	1987	143	1985

e Estimated.

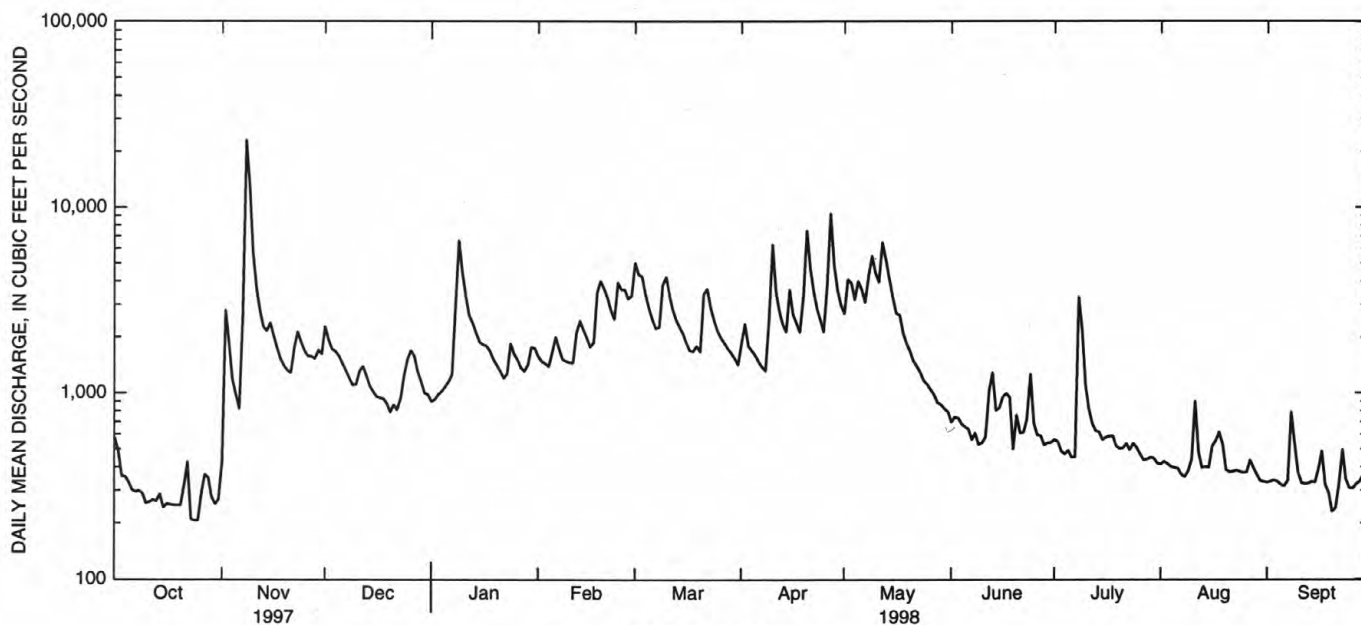
JUNIATA RIVER BASIN

01559000 JUNIATA RIVER AT HUNTINGDON, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1942 - 1998	
ANNUAL TOTAL	444310		592201		1116	
ANNUAL MEAN	1217		1622		1830	
HIGHEST ANNUAL MEAN					1972	
LOWEST ANNUAL MEAN					1969	
HIGHEST DAILY MEAN	23000	Nov 8	23000	Nov 8	50400	Jun 23 1972
LOWEST DAILY MEAN	207	Oct 24,25	207	Oct 24,25	40	Sep 12 1963
ANNUAL SEVEN-DAY MINIMUM	255	Oct 14	255	Oct 14	117	Sep 10 1963
INSTANTANEOUS PEAK FLOW			a29000	Nov 8	a57000	Jun 23 1972
INSTANTANEOUS PEAK STAGE			14.23	Nov 8	20.03	Jun 23 1972
INSTANTANEOUS LOW FLOW			169	Sep 20,21	b14	Feb 8 1948
ANNUAL RUNOFF (CFSM)	1.49		1.99		1.37	
ANNUAL RUNOFF (INCHES)	20.26		27.00		18.57	
10 PERCENT EXCEEDS	2290		3550		2390	
50 PERCENT EXCEEDS	812		1200		670	
90 PERCENT EXCEEDS	305		328		268	

a From rating curve extended above 22,000 ft³/s on basis of computation of peak discharge at dam, slope-conveyance study, and Pennsylvania Department of Environmental Protection step-backwater study.

b Minimum recorded; Also Aug. 2, 1954.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

JUNIATA RIVER BASIN

01559795 BOBS CREEK NEAR PAVIA, PA
(National Water-Quality Assessment station)

LOCATION.--Lat 40°16'21", long 78°35'55", Bedford County, Hydrologic Unit 02050303, on left bank 0.7 mi upstream from highway bridge on SR 869, 0.8 mi upstream from Wallacks Branch, and 1.3 mi northwest of Pavia at Blue Knob State Park.

DRAINAGE AREA.--16.6 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1993 to September 1994, April 1997 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,510 ft above sea level, from topographic map.

REMARKS.--Records good except those for estimated daily discharges and those above 200 ft³/s, which are fair.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 250 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 8	0145	*3,680	*10.63	May 6	0015	424	9.12
Jan. 8	1645	280	8.89	May 9	0630	312	8.95
Mar. 9	1645	318	8.96				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.9	22	87	e22	18	135	47	52	8.3	5.1	1.2	1.0
2	6.7	51	78	e18	18	142	43	86	5.1	2.6	1.0	1.0
3	6.0	40	64	e16	17	113	44	90	4.5	2.0	1.0	1.0
4	5.8	32	55	e20	18	88	42	82	4.0	1.9	1.1	.90
5	5.8	25	45	e25	22	70	38	119	3.8	2.0	1.1	.81
6	5.8	20	38	e35	19	57	33	243	3.6	1.6	1.1	.76
7	5.7	825	33	e50	17	53	29	155	3.1	1.6	1.1	2.3
8	5.9	1820	27	199	16	100	28	250	3.0	21	1.0	5.5
9	5.6	321	24	190	16	239	65	254	2.6	10	1.1	3.2
10	6.1	144	24	117	16	225	94	163	2.9	7.2	1.1	2.6
11	6.1	91	26	81	19	128	83	122	3.1	5.7	2.0	2.2
12	6.0	65	23	62	39	85	67	123	10	4.6	1.1	2.0
13	6.0	50	21	53	48	64	55	120	7.1	3.9	1.0	1.7
14	5.8	46	e19	42	47	54	48	91	4.8	3.7	1.7	1.6
15	5.7	38	e18	36	42	44	51	63	3.7	3.5	4.4	1.5
16	5.4	31	e17	33	38	37	39	45	4.3	4.0	1.9	1.5
17	5.2	26	e16	30	43	32	36	17	5.3	3.3	3.8	1.5
18	5.3	23	e15	26	67	33	33	33	6.2	2.7	2.8	1.6
19	5.1	21	e15	23	114	36	84	29	5.0	2.3	1.5	1.5
20	5.1	20	e14	20	133	41	146	24	5.8	2.2	1.0	1.5
21	5.0	20	e14	18	119	149	115	20	3.9	2.1	1.0	1.7
22	4.9	54	e13	16	97	138	84	16	3.4	2.7	1.0	3.0
23	4.8	68	e20	22	80	97	64	14	3.3	2.2	1.1	2.7
24	5.9	68	25	21	67	72	51	12	2.9	2.6	1.0	2.2
25	7.5	58	39	18	56	58	42	12	2.4	1.8	1.1	2.3
26	6.3	52	47	17	50	51	70	10	2.4	1.5	1.2	2.5
27	7.8	51	51	16	50	50	88	8.5	2.3	1.4	1.0	2.6
28	6.5	58	47	18	72	50	84	7.6	3.5	1.3	1.0	4.0
29	6.0	73	e38	18	---	45	69	6.8	2.6	1.2	1.0	3.0
30	5.5	86	e31	20	---	38	59	6.3	3.8	1.2	1.0	2.6
31	5.3	---	e27	19	---	34	---	5.7	---	1.8	1.2	---
TOTAL	183.5	4299	1011	1301	1358	2558	1831	2279.9	126.7	110.7	43.6	62.27
MEAN	5.92	143	32.6	42.0	48.5	82.5	61.0	73.5	4.22	3.57	1.41	2.08
MAX	8.9	1820	87	199	133	239	146	254	10	21	4.4	5.5
MIN	4.8	20	13	16	16	32	28	5.7	2.3	1.2	1.0	.76
CFSM	.36	8.63	1.96	2.53	2.92	4.97	3.68	4.43	.25	.22	.08	.13
IN.	.41	9.63	2.27	2.92	3.04	5.73	4.10	5.11	.28	.25	.10	.14

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

	5.95	106	39.0	25.5	48.7	109	110	60.6	16.5	3.95	11.0	3.99
MEAN	5.95	106	39.0	25.5	48.7	109	110	60.6	16.5	3.95	11.0	3.99
MAX	5.98	143	45.3	42.0	48.9	136	159	73.5	37.9	4.68	35.1	5.70
(WY)	1994	1998	1994	1998	1994	1994	1994	1998	1997	1994	1994	1994
MIN	5.92	69.0	32.6	9.03	48.5	82.5	61.0	36.0	4.22	3.34	1.41	2.08
(WY)	1998	1994	1998	1994	1998	1998	1998	1994	1998	1997	1998	1998

e Estimated.

JUNIATA RIVER BASIN

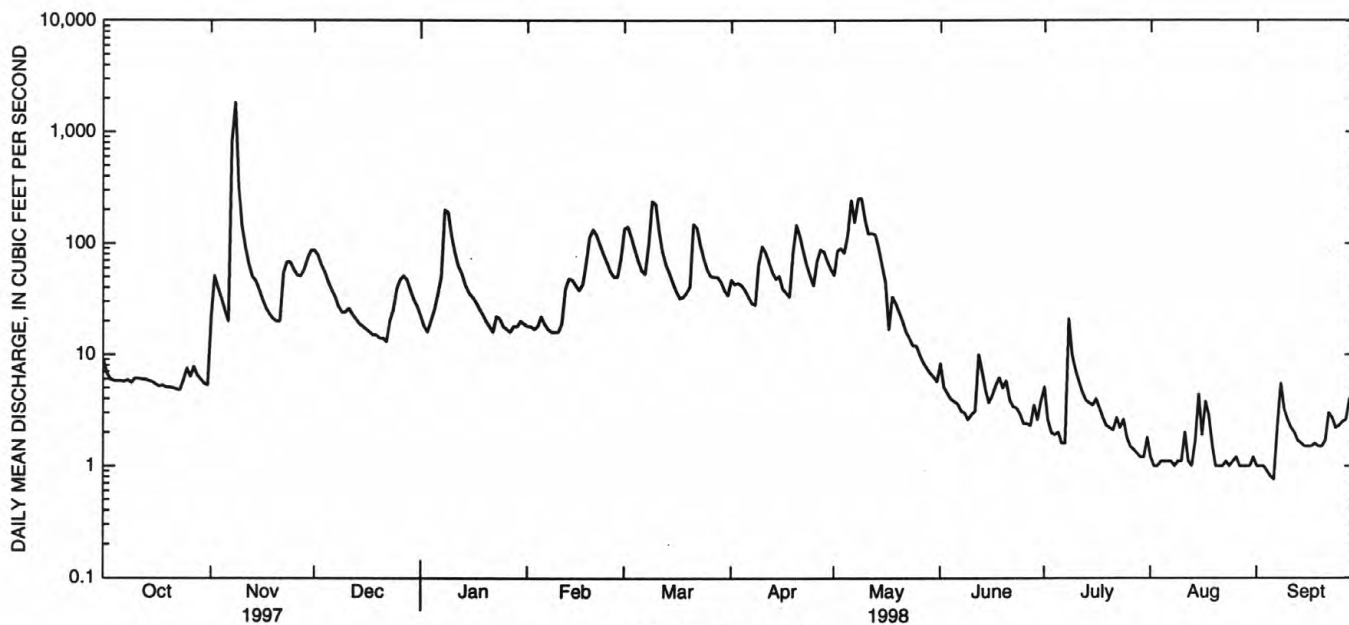
01559795 BOBS CREEK NEAR PAVIA, PA--Continued

SUMMARY STATISTICS

FOR 1998 WATER YEAR

PERIOD OF DAILY RECORD

ANNUAL TOTAL	15164.67				
ANNUAL MEAN	41.5			44.1	
HIGHEST ANNUAL MEAN				46.6	1994
LOWEST ANNUAL MEAN				41.5	1998
HIGHEST DAILY MEAN	1820	Nov 8		1820	Nov 8 1997
LOWEST DAILY MEAN	.76	Sep 6		.76	Sep 6 1998
ANNUAL SEVEN-DAY MINIMUM	.95	Aug 31		.95	Aug 31 1998
INSTANTANEOUS PEAK FLOW	a3680	Nov 8		a3680	Nov 8 1997
INSTANTANEOUS PEAK STAGE	10.63	Nov 8		10.63	Nov 8 1997
INSTANTANEOUS LOW FLOW	.74	Sep 5-7		.74	Sep 5-7 1998
ANNUAL RUNOFF (CFSM)	2.50			2.65	
ANNUAL RUNOFF (INCHES)	33.98			36.06	
10 PERCENT EXCEEDS	89			82	
50 PERCENT EXCEEDS	18			10	
90 PERCENT EXCEEDS	1.5			1.9	

a From rating curve extended above 200 ft³/s.

1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

JUNIATA RIVER BASIN

01559795 BOBS CREEK NEAR PAVIA, PA--Continued
(National Water-Quality Assessment station)

WATER-QUALITY RECORDS

PERIOD OF RECORD: April 1993 to September 1995. April 1997 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1993 to September 1995.

WATER TEMPERATURE: December 1993 to September 1995. April 1997 to current year.

INSTRUMENTATION.--Daily record measured and collected with in-situ probes and electronic data logger.

REMARKS.--The low intensity water-quality sampling phase (LIP) for the 1991-start National Water-Quality Assessment (NAWQA) Program study units began in 1997 and will continue until 2000. For this phase of the program, two of the original seven fixed sites were chosen for continued monitoring. Bobs Creek was chosen because it is the LIP forested reference site located in an area that is underlain by sandstone and shale bedrock to which data from the other LIP site, East Mahantango Creek at Klingerstown, can be compared to assess the effects of land use. From October 1997 to March 1998, water-quality samples were collected monthly for nutrients, major ions, and suspended sediment, and from April 1998 to September 1998, water-quality samples were collected monthly for nutrients, major ions, suspended sediment, and pesticides. Invertebrate, algal, and fish community data also were collected.

The remark code "E" indicates an estimated value with uncertain accuracy and precision for the analyte. Some values for "dissolved" parameters exceed values for the corresponding "total" parameter. These results are within the limits of analytical precision and methods.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 94 microsiemens, Feb. 28, 1995; minimum, 51 microsiemens, Aug. 17, 1994.

WATER TEMPERATURE: Maximum, 22.5°C, July 20, 1994; minimum, 0.0°C, many days during winter periods.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	PROJECT NUMBER (00029)	SAMPLE PURPOSE CODE (71999)	SAMPLER TYPE (CODE) (84164)	SAM- PLING METHOD, CODES (82398)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)
OCT											
16...	1030	1028	80020	20703	15	3045	10	5.3	81	7.2	8.9
NOV											
06...	1020	1028	80020	20703	15	3045	10	20	77	7.4	4.4
DEC											
04...	1030	1028	80020	20703	15	3045	10	57	66	7.3	6.2
JAN											
07...	1010	1028	80020	20703	15	3045	10	61	78	7.0	11.9
FEB											
03...	1000	1028	80020	20703	15	3045	10	17	78	7.3	1.8
MAR											
05...	1045	1028	80020	20703	15	3045	10	70	70	7.4	.5
APR											
01...	1010	1028	80020	20703	15	3045	10	39	73	7.1	15.2
MAY											
06...	1100	1028	80020	20703	15	3045	70	247	58	7.2	14.2
JUN											
03...	1020	1028	80020	20703	15	3045	10	4.7	70	7.7	12.3
15...	1400	1028	80020	20703	15	--	--	--	--	--	--
17...	0910	1028	80020	20703	15	3045	10	5.0	73	7.5	16.4
JUL											
08...	1000	1028	80020	20703	15	3045	10	37	63	6.8	18.0
08...	1001	1028	80020	20703	15	3045	10	--	--	--	--
AUG											
05...	1020	1028	80020	20703	15	3045	10	1.0	76	7.5	19.5
SEP											
02...	1120	1028	80020	20703	15	3045	10	1.0	77	7.4	19.1

JUNIATA RIVER BASIN

01559795 BOBS CREEK NEAR PAVIA, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE OF (MM HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)
OCT 16...	8.2	731	11.0	97	28	15	6.4	2.8	2.8	18	.2	1.1
NOV 06...	4.4	732	12.0	96	26	19	6.0	2.7	2.7	17	.2	1.1
DEC 04...	5.7	715	11.6	99	21	16	5.1	2.1	2.0	16	.2	.90
JAN 07...	7.2	724	11.7	102	22	16	5.2	2.2	3.5	25	.3	.90
FEB 03...	1.8	728	13.7	103	24	18	5.7	2.4	3.3	22	.3	.81
MAR 05...	3.9	723	12.3	99	21	16	4.9	2.1	2.7	21	.3	.91
APR 01...	11.2	706	10.2	100	20	13	4.8	2.0	2.4	19	.2	.91
MAY 06...	9.5	711	10.9	102	19	15	4.5	1.9	1.8	16	.2	.83
JUN 03...	11.1	706	10.0	98	23	14	5.5	2.3	2.5	18	.2	1.0
15...	15.0	--	--	--	--	--	--	--	--	--	--	--
17...	15.1	710	9.2	98	24	14	5.8	2.4	2.7	18	.2	1.1
JUL 08...	16.8	708	8.8	98	21	12	5.0	2.1	2.2	17	.2	1.4
08...	--	--	--	--	22	--	5.3	2.2	2.3	17	.2	1.3
AUG 05...	16.6	750	9.1	95	25	12	5.9	2.4	2.8	19	.2	1.1
SEP 02...	16.8	706	8.9	99	25	12	6.0	2.5	3.1	20	.3	1.2

DATE	BICAR- BONATE WAT.DIS FET FIELD HCO3 (MG/L) (29804)	CAR- BONATE WAT.DIS FET FIELD CO3 (MG/L) (29807)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L) (39036)	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	CAR- BONATE WATER DIS IT FIELD (MG/L AS CO3) (00452)	ALKA- LINITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)
OCT 16...	17	.0	14	16	0	13	9.0	5.7	<.10	3.5	47	40
NOV 06...	9.6	.0	7.9	8	0	7	11	4.8	<.10	5.3	44	43
DEC 04...	8.0	.0	6.6	7	0	6	12	4.1	<.10	5.3	41	40
JAN 07...	7.8	.0	6.4	7	0	6	11	7.2	<.10	4.7	45	43
FEB 03...	9.8	.0	8.0	8	0	7	11	6.9	<.10	4.4	46	43
MAR 05...	7.3	.0	6.0	6	0	5	--	--	--	4.7	--	--
APR 01...	11	.0	8.8	9	0	7	10	4.2	<.10	4.2	34	36
MAY 06...	7.0	.0	5.7	5	0	4	11	2.5	<.10	4.9	42	32
JUN 03...	13	.0	10	11	0	9	10	4.1	<.10	5.2	44	40
15...	--	--	--	--	--	--	--	--	--	--	--	--
17...	14	.0	12	12	0	10	9.8	4.1	<.10	5.0	47	40
JUL 08...	13	.0	11	12	0	9	8.5	3.3	<.10	4.5	45	37
08...	--	--	--	--	--	--	8.5	3.6	<.10	4.6	44	39
AUG 05...	16	.0	13	15	0	12	9.7	4.8	<.10	4.7	47	42
SEP 02...	17	.0	14	16	0	13	10	4.8	<.10	4.3	46	42

JUNIATA RIVER BASIN

01559795 BOBS CREEK NEAR PAVIA, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO3) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2) (71856)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
OCT 16...	.06	.67	--	--	<.010	--	.242	.023	.03	--	--	<.20
NOV 06...	.06	2.38	1.05	4.7	.022	.07	1.07	<.020	--	--	--	<.10
DEC 04...	.06	6.31	--	--	<.010	--	1.07	<.020	--	--	--	<.10
JAN 07...	.06	7.41	--	--	<.010	--	.998	<.020	--	--	--	<.10
FEB 03...	.06	2.11	--	--	<.010	--	.907	<.020	--	--	--	.15
MAR 05...	--	--	--	--	<.010	--	.951	<.020	--	--	--	<.10
APR 01...	.05	3.58	--	--	<.010	--	.667	.037	.05	.07	--	.11
MAY 06...	.06	28.0	--	--	<.010	--	.468	.037	.05	.13	--	.17
JUN 03...	.06	.56	.710	3.1	.019	.06	.729	.053	.07	--	--	<.10
15...	--	--	--	--	--	--	--	--	--	--	--	--
17...	.06	.63	--	--	<.010	--	.702	.033	.04	--	--	<.10
JUL 08...	.06	4.50	--	--	<.010	--	.816	.083	.11	.32	.06	.40
08...	.06	--	--	--	<.010	--	.834	.061	.08	.28	.12	.34
AUG 05...	.06	.13	--	--	<.010	--	.594	<.020	--	--	--	.19
SEP 02...	.06	.12	--	--	<.010	--	.433	<.020	--	--	--	<.10

DATE	NITRO- GEN,AM- MONIA + ORGANIC DIS- (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4) (00660)	IRON, DIS- SOLVED (MG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (MG/L AS MN) (01056)	STRON- TIUM, DIS- SOLVED (MG/L AS SR) (01080)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)
OCT 16...	<.20	--	--	<.010	<.010	<.010	--	6.2	6.4	33	6	.09
NOV 06...	.15	--	1.2	<.010	<.010	<.010	--	7.5	4.0	31	3	.16
DEC 04...	<.10	--	--	<.010	<.010	<.010	--	<10	<4.0	24	4	.62
JAN 07...	<.10	--	--	.031	.018	.010	.03	<10	<4.0	26	3	.49
FEB 03...	<.10	1.1	--	<.010	<.010	.015	.05	<10	<4.0	28	2	.09
MAR 05...	<.10	--	--	<.050	.027	.012	.04	<10	<4.0	22	4	.76
APR 01...	<.10	.78	--	.020	.011	.018	.06	<10	<4.0	23	6	.63
MAY 06...	<.10	.64	--	.014	<.010	.017	.05	<10	7.1	21	16	11
JUN 03...	<.10	--	--	.020	.019	.027	.08	<10	<4.0	27	4	.05
15...	--	--	--	--	--	--	--	--	--	--	--	--
17...	<.10	--	--	.042	.016	.016	.05	12	<4.0	29	5	.07
JUL 08...	.14	1.2	.96	.062	.039	.026	.08	18	8.1	25	52	5.2
08...	.18	1.2	1.0	.065	.038	.026	.08	19	7.3	26	38	--
AUG 05...	<.10	.79	--	<.010	.018	.019	.06	<10	5.7	30	3	.01
SEP 02...	<.10	--	--	<.010	<.010	.019	.06	<10	7.7	31	7	.02

JUNIATA RIVER BASIN

01559795 BOBS CREEK NEAR PAVIA, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	ACETO- CHLOR, WATER FLTRD REC (µG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (µG/L) (46342)	ALPHA BHC DIS- SOLVED (µG/L) (34253)	ATRA- ZINE, WATER, DISS, REC (µG/L) (39632)	BEN- FLUR- ALIN WAT FLD 0.7 µ GF, REC (µG/L) (82673)	BUTYL- ATE, WATER, DISS, REC (µG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 µ GF, REC (µG/L) (82680)	CARBO- FURAN WATER FLTRD 0.7 µ GF, REC (µG/L) (82674)	CHLOR- PYRIFOS DIS- SOLVED (µG/L) (38933)	CYANA- ZINE, WATER, DISS, REC (µG/L) (04041)	DCPA WATER FLTRD 0.7 µ GF, REC (µG/L) (82682)
OCT 16...	88	--	--	--	--	--	--	--	--	--	--	--
NOV 06...	50	--	--	--	--	--	--	--	--	--	--	--
DEC 04...	80	--	--	--	--	--	--	--	--	--	--	--
JAN 07...	60	--	--	--	--	--	--	--	--	--	--	--
FEB '03...	43	--	--	--	--	--	--	--	--	--	--	--
MAR 05...	9	--	--	--	--	--	--	--	--	--	--	--
APR 01...	64	<.0020	<.002	<.0020	.007	<.0020	<.0020	<.0030	<.0030	<.0040	<.0040	<.0020
MAY 06...	67	<.0020	<.002	<.0020	.008	<.0020	<.0020	<.0030	<.0030	<.0040	<.0040	<.0020
JUN 03...	64	<.0020	<.002	<.0020	.017	<.0020	<.0020	<.0030	<.0030	<.0040	<.0040	<.0020
15...	--	--	--	--	--	--	--	--	--	--	--	--
17...	67	<.0020	<.002	<.0020	.018	<.0020	<.0020	<.0030	<.0030	<.0040	<.0040	<.0020
JUL 08...	52	<.0020	<.002	<.0020	.034	<.0020	<.0020	<.0030	<.0030	<.0040	<.0040	<.0020
08...	83	<.0020	<.002	<.0020	.041	<.0020	<.0020	<.0030	<.0030	<.0040	<.0040	<.0020
AUG 05...	70	<.0020	<.002	<.0020	.008	<.0020	<.0020	<.0030	<.0030	<.0040	<.0040	<.0020
SEP 02...	53	<.0020	<.002	<.0020	<.001	<.0020	<.0020	<.0030	<.0030	<.0040	<.0040	<.0020

DATE	DEETHYL ATRA- ZINE, WATER, DISS, REC (µG/L) (04040)	DI- AZINON, DIS- SOLVED (µG/L) (39572)	DI- ELDRIN DIS- SOLVED (µG/L) (39381)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 µ GF, REC (µG/L) (82660)	DISUL- FOTON WATER FLTRD 0.7 µ GF, REC (µG/L) (82677)	EPTC WATER FLTRD 0.7 µ GF, REC (µG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 µ GF, REC (µG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 µ GF, REC (µG/L) (82672)	FONOFOS WATER DISS REC (µG/L) (04095)	LINDANE DIS- SOLVED (µG/L) (39341)	LIN- URON WATER FLTRD 0.7 µ GF, REC (µG/L) (82666)	MALA- THION, DIS- SOLVED (µG/L) (39532)
OCT 16...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 06...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 04...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 07...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 03...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 05...	--	--	--	--	--	--	--	--	--	--	--	--
APR 01...	E.0094	<.002	<.001	<.0030	<.0170	<.0020	<.0040	<.0030	<.0030	<.004	<.0020	<.005
MAY 06...	E.0057	<.002	<.001	<.0030	<.0170	<.0020	<.0040	<.0030	<.0030	<.004	<.0020	<.005
JUN 03...	E.0104	<.002	<.001	<.0030	<.0170	<.0020	<.0040	<.0030	<.0030	<.004	<.0020	<.005
15...	--	--	--	--	--	--	--	--	--	--	--	--
17...	E.0123	<.002	<.001	<.0030	<.0170	<.0020	<.0040	<.0030	<.0030	<.004	<.0020	<.005
JUL 08...	E.0157	<.002	<.001	<.0030	<.0170	<.0020	<.0040	<.0030	<.0030	<.004	<.0020	<.005
08...	E.0197	<.002	<.001	<.0030	<.0170	<.0020	<.0040	<.0030	<.0030	<.004	<.0020	<.005
AUG 05...	E.0101	<.002	<.001	<.0030	<.0170	<.0020	<.0040	<.0030	<.0030	<.004	<.0020	<.005
SEP 02...	E.0093	<.002	<.001	<.0030	<.0170	<.0020	<.0040	<.0030	<.0030	<.004	<.0020	<.005

JUNIATA RIVER BASIN

01559795 BOBS CREEK NEAR PAVIA, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	METHYL AZIN- PHOS WAT FLT 0.7 µ GF, REC (µG/L) (82686)	METHYL PARA- THION WAT FLT 0.7 µ GF, REC (µG/L) (82667)	METO- LACHLOR WATER (µG/L) (39415)	METRI- BUZIN WATER (µG/L) (82630)	MOL- INATE WATER FLTRD (µG/L) (82671)	NAPROP- AMIDE WATER FLTRD (µG/L) (82684)	P, P' DDE (µG/L) (34653)	PARA- THION, DIS- (µG/L) (39542)	PEB- ULATE WATER FILTRD (µG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 µ GF, REC (µG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 µ GF, REC (µG/L) (82687)	PHORATE WATER FLTRD (µG/L) (82664)
OCT 16...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 06...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 04...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 07...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 03...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 05...	--	--	--	--	--	--	--	--	--	--	--	--
APR 01...	<.0010	<.0060	E.004	<.004	<.0040	<.0030	E.0005	<.004	<.0040	<.0040	<.0050	<.0020
MAY 06...	<.0010	<.0060	E.002	<.004	<.0040	<.0030	<.0060	<.004	<.0040	<.0040	<.0050	<.0020
JUN 03...	<.0010	<.0060	E.003	<.004	<.0040	<.0030	<.0060	<.004	<.0040	<.0040	<.0050	<.0020
15...	--	--	--	--	--	--	--	--	--	--	--	--
17...	<.0010	<.0060	.005	<.004	<.0040	<.0030	<.0060	<.004	<.0040	<.0040	<.0050	<.0020
JUL 08...	<.0010	<.0060	.005	<.004	<.0040	<.0030	<.0060	<.004	<.0040	<.0040	<.0050	<.0020
08...	<.0010	<.0060	<.002	<.004	<.0040	<.0030	<.0060	<.004	<.0040	<.0040	<.0050	<.0020
AUG 05...	<.0010	<.0060	<.002	<.004	<.0040	<.0030	<.0060	<.004	<.0040	<.0040	<.0050	<.0020
SEP 02...	<.0010	<.0060	<.002	<.004	<.0040	<.0030	<.0060	<.004	<.0040	<.0040	<.0050	<.0020

DATE	PRO- METON, WATER, DISS, REC (µG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 µ GF, REC (µG/L) (82676)	PROP- CHLOR, WATER, DISS, REC (µG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 µ GF, REC (µG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 µ GF, REC (µG/L) (82685)	SI- MAZINE, WATER, DISS, REC (µG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 µ GF, REC (µG/L) (82670)	TER- BACIL WATER FLTRD 0.7 µ GF, REC (µG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 µ GF, REC (µG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 µ GF, REC (µG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 µ GF, REC (µG/L) (82678)
OCT 16...	--	--	--	--	--	--	--	--	--	--	--
NOV 06...	--	--	--	--	--	--	--	--	--	--	--
DEC 04...	--	--	--	--	--	--	--	--	--	--	--
JAN 07...	--	--	--	--	--	--	--	--	--	--	--
FEB 03...	--	--	--	--	--	--	--	--	--	--	--
MAR 05...	--	--	--	--	--	--	--	--	--	--	--
APR 01...	<.0180	<.0030	<.0070	<.0040	<.0130	<.0050	<.0100	<.0070	<.0130	<.0020	<.0010
MAY 06...	<.0180	<.0030	<.0070	<.0040	<.0130	<.0050	<.0100	<.0070	<.0130	<.0020	<.0010
JUN 03...	<.0180	<.0030	<.0070	<.0040	<.0130	.0084	<.0100	<.0070	<.0130	<.0020	<.0010
15...	--	--	--	--	--	--	--	--	--	--	--
17...	<.0180	<.0030	<.0070	<.0040	<.0130	.0073	<.0100	<.0070	<.0130	<.0020	<.0010
JUL 08...	<.0180	<.0030	<.0070	<.0040	<.0130	E.0048	<.0100	<.0070	<.0130	<.0020	<.0010
08...	<.0180	<.0030	<.0070	<.0040	<.0130	<.0050	<.0100	<.0070	<.0130	<.0020	<.0010
AUG 05...	<.0180	<.0030	<.0070	<.0040	<.0130	<.0050	<.0100	<.0070	<.0130	<.0020	<.0010
SEP 02...	<.0180	<.0030	<.0070	<.0040	<.0130	<.0050	<.0100	<.0070	<.0130	<.0020	<.0010

JUNIATA RIVER BASIN

01559795 BOBS CREEK NEAR PAVIA, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TRI- FLUR- ALIN WAT FLT 0.7 μ GF, REC (μ G/L) (82661)	DIAZ- INON D10 SRG WAT FLT 0.7 μ GF, REC PERCENT (91063)	TERBUTH YLAZINE SURROGT WAT FLT 0.7 μ GF, REC PERCENT (91064)	HCH ALPHA D6 SRG WAT FLT 0.7 μ GF, REC PERCENT (91065)	REP- LICATE TYPE (CODE) (99105)	QUALITY ASSUR- ANCE DATA INDICA- TOR CODE (99111)	PERI- PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	CHLOR-A PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M ²) (70957)	CHLOR-B PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M ²) (70958)
OCT 16...	--	--	--	--	--	1	--	--	--	--
NOV 06...	--	--	--	--	--	1	--	--	--	--
DEC 04...	--	--	--	--	--	1	--	--	--	--
JAN 07...	--	--	--	--	--	1	--	--	--	--
FEB 03...	--	--	--	--	--	1	--	--	--	--
MAR 05...	--	--	--	--	--	1	--	--	--	--
APR 01...	<.0020	98.4	111	102	--	10	--	--	--	--
MAY 06...	<.0020	121	125	114	--	10	--	--	--	--
JUN 03...	<.0020	100	118	100	20.00	40	--	--	--	--
15...	--	--	--	--	--	--	440.2	460.2	8.20	1.10
17...	<.0020	106	128	96.9	--	1	--	--	--	--
JUL 08...	<.0020	113	119	101	20.00	30	--	--	--	--
08...	<.0020	111	121	99.3	20.00	--	--	--	--	--
AUG 05...	<.0020	99.9	114	89.9	--	1	--	--	--	--
SEP 02...	<.0020	98.4	90.8	90.7	--	1	--	--	--	--

JUNIATA RIVER BASIN

01559795 BOBS CREEK NEAR PAVIA, PA--Continued

REMARKS.--The following analyses are quality control samples processed during the 1998 water year and are defined in the explanation of records section entitled, "Water Quality-Control Data". Explanation of column headings and abbreviations--NUT&ION: nutrient and major ion.

QUALITY-CONTROL DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	SAMPLE TYPE	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	SAMPLE PURPOSE CODE (71999)	SAMPLER TYPE (CODE) (84164)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
APR 01...	1400	NUT&ION	1028	80020	15	3045	<.020	<.004	<.10	<.10	<.10
MAY 06...	1040	NUT&ION	1028	80020	15	3045	<.020	<.004	<.10	<.10	<.10
DATE		CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
APR 01...	<.10	<.10	<.10	<10	<.010	<.050	.029	<.10	<.10	<.010	
MAY 06...	<.10	<.10	<.10	<10	<.010	<.050	.025	<.10	<.10	<.010	
DATE		PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	STRON-TIUM, DIS-SOLVED (µG/L AS SR) (01080)	BLANK, TYPE OF SOLUTION (CODE) (99100)	BLANK, SOURCE OF SOLUTION (CODE) (99101)	BLANK, TYPE OF SAMPLE (CODE) (99102)	REF-ERENCE MATERIAL SPIKE SOURCE (CODE) (99104)
APR 01...	<.010	.012	.04	<10	<4.0	<1.0	10.00	80.00	100.00	93356	
MAY 06...	<.010	<.010	--	<10	<4.0	<1.0	10.00	80.00	100.00	98058	

JUNIATA RIVER BASIN

01559795 BOBS CREEK NEAR PAVIA, PA--Continued

REMARKS.--Concentrations of pesticides and herbicides in replicate and spiked replicate from Bobs Creek near Pavia, Pa., June 3, 1998 and calculated recoveries, in percent; "<" = less than; less-than values were set equal to zero for calculations; E = estimated value.

QUALITY-CONTROL DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998--Continued

Parameter code	Constituent	Concentration, in micrograms per liter			
		Laboratory results		a Calculated concentration in replicate 2	Recovery in percent [(B-A)/C] x 100
		Replicate 1 (not spiked) (06/03/98 @ 1020) A	Replicate 2 (spiked) (06/03/98 @ 1022) B		
49260	Acetochlor	<0.002	0.127	.117	108
46342	Alachlor	<0.002	0.123	.117	105
34253	Alpha BHC	<0.002	0.107	.117	91
39632	Atrazine	0.017	0.139	.117	104
82673	Benfluralin	<0.002	0.090	.117	77
04028	Butylate	<0.002	0.116	.117	99
82680	Carbaryl	<0.003	E0.226	.117	193
82674	Carbofuran	<0.003	E0.159	.117	136
38933	Chlorpyrifos	<0.004	0.098	.117	84
04041	Cyanazine	<0.004	0.128	.117	109
82682	DCPA	<0.002	0.123	.117	105
04040	Desethyl Atrazine	E0.010	E0.081	.117	61
39572	Diazinon	<0.002	0.102	.117	87
39381	Dieldrin	<0.001	0.099	.117	85
82660	2,6-Diethyl Aniline	<0.003	0.111	.117	95
82677	Disulfoton	<0.017	0.087	.117	74
82668	EPTC	<0.002	0.114	.117	97
82663	Ethalfuralin	<0.004	0.102	.117	87
82672	Ethoprop	<0.003	0.149	.117	127
04095	Fonofos	<0.003	0.101	.117	86
39341	Lindane	<0.004	0.109	.117	93
82666	Linuron	<0.002	0.116	.117	99
39532	Malathion	<0.005	0.104	.117	89
82686	Methyl Azinphos	<0.001	E0.116	.117	99
82667	Methyl Parathion	<0.006	0.115	.117	98
39415	Metolachlor	E0.003	0.137	.117	114
82630	Metribuzin	<0.004	0.096	.117	82
82671	Molinate	<0.004	0.115	.117	98
82684	Napropamide	<0.003	0.115	.117	98
34653	P, P' DDE	<0.006	0.072	.117	62
39542	Parathion	<0.004	0.124	.117	106
82669	Pebulate	<0.004	0.118	.117	101
82683	Pendimethalin	<0.004	0.097	.117	83
82687	Permethrin	<0.005	0.014	.023	61
82664	Phorate	<0.002	0.086	.117	74
04037	Prometon	<0.018	0.110	.117	94
82676	Pronamide	<0.003	0.114	.117	97
04024	Propachlor	<0.007	0.136	.117	116
82679	Propanil	<0.004	0.137	.117	117
82685	Propargite	<0.013	0.140	.117	120
04035	Simazine	0.008	0.135	.117	108
82670	Tebuthiuron	<0.010	0.163	.117	139
82665	Terbacil	<0.007	E0.123	.117	105
82675	Turbufos	<0.013	0.095	.117	81
82681	Thiobencarb	<0.002	0.129	.117	110
82678	Triallate	<0.001	0.108	.117	92
82661	Trifluralin	<0.002	0.095	.117	81
Mean recovery					98
Standard deviation					22
Median recovery					98

a Calculated concentration of spike in sample (replicate 2) equals the concentration of the spike solution, in micrograms per milliliter x amount of spike added, in milliliters, divided by the volume of the spiked sample, in liters.

JUNIATA RIVER BASIN

01559795 BOBS CREEK NEAR PAVIA, PA--Continued

ECOLOGICAL SURVEY OF FIXED SITES--FISH SPECIES TAXONOMIC LIST

REMARKS.--A fish-community survey was conducted at Bobs Creek near Pavia, Pa. (01559795) on June 16, 1998. Fish were collected by electrofishing using a pulsed-DC current. Two electrofishing passes were conducted in an upstream pattern covering the 208-meter reach. Fish were identified, sorted by species, measured for total and standard length, weighed, and checked for external anomalies. Additional information can be obtained from the U.S. Geological Survey, Lemoyne, Pa.

Explanation of table--Fish family names are in uppercase; scientific names are underlined; and common names are in parentheses. Common names follow those of the American Fisheries Society (1991).

FISH SPECIES AND NUMBERS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

Species Name	Number of Fish
CYPRINIDAE (carps and minnows)	
<u>Exoglossum maxillina</u> (cutlips minnow)	8
<u>Rhinichthys atratulus</u> (blacknose dace)	326
<u>Rhinichthys cataractae</u> (longnose dace)	99
CATOSTOMIDAE (suckers)	
<u>Catostomus commersoni</u> (white sucker)	16
SALMONIDAE (trouts)	
<u>Salmo trutta</u> (brown trout)	113
<u>Salvelinus fontinalis</u> (brook trout)	39
COTTIDAE (sculpins)	
<u>Cottus</u> spp. (sculpin)	1,212

JUNIATA RIVER BASIN

01559795 BOBS CREEK NEAR PAVIA, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, FEBRUARY 1998 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	6.5	4.5	5.0	12.5	10.5	11.5	11.5	9.5	10.5
2	---	---	---	6.5	4.5	5.5	11.5	8.0	10.0	11.0	10.0	10.5
3	---	---	---	5.0	4.5	4.5	10.0	7.0	8.5	11.5	9.5	10.5
4	---	---	---	5.0	4.0	4.5	8.0	6.0	7.0	12.5	10.0	11.0
5	---	---	---	5.0	3.5	4.0	9.5	5.0	7.0	12.5	10.0	11.0
6	---	---	---	5.5	2.0	4.0	9.5	4.5	7.0	10.5	9.5	10.0
7	---	---	---	7.5	4.0	5.5	10.0	4.5	7.5	11.5	9.0	10.0
8	---	---	---	5.5	4.5	5.0	10.0	7.0	8.5	11.0	10.0	10.5
9	---	---	---	7.0	4.5	6.0	9.0	7.0	8.0	11.0	9.5	10.0
10	---	---	---	5.5	2.5	4.0	9.5	6.5	7.5	10.5	9.5	10.0
11	---	---	---	4.0	2.0	2.5	9.5	5.0	7.0	10.0	9.5	10.0
12	---	---	---	3.0	1.0	2.0	10.5	5.0	7.5	10.0	9.5	10.0
13	---	---	---	4.0	.5	2.5	11.0	5.5	8.5	12.5	9.0	10.5
14	---	---	---	4.5	2.5	3.0	10.5	8.0	9.0	12.5	9.0	10.5
15	---	---	---	4.0	1.5	2.5	12.5	9.0	10.5	14.0	9.5	11.5
16	---	---	---	4.5	1.0	2.5	12.0	9.0	10.5	14.5	11.0	13.0
17	---	---	---	4.5	1.5	3.0	12.5	9.0	10.5	15.0	12.5	13.5
18	---	---	---	3.5	2.5	3.0	11.5	7.0	9.0	15.0	11.5	13.0
19	---	---	---	6.0	3.5	4.5	10.0	8.0	8.5	16.0	12.0	14.0
20	5.5	4.5	5.0	5.5	4.0	4.5	10.0	7.0	8.5	17.0	13.5	15.0
21	4.5	4.5	4.5	5.5	4.5	5.0	10.5	6.5	8.5	16.0	13.5	15.0
22	5.0	4.0	4.5	4.5	3.5	4.5	10.0	7.5	8.5	13.5	11.0	12.5
23	4.5	1.0	3.5	6.0	3.5	4.5	9.5	7.0	8.5	14.0	11.0	12.0
24	3.0	1.0	2.0	6.0	3.0	4.0	12.0	7.0	9.5	12.5	10.5	11.5
25	5.5	2.5	4.0	7.0	2.0	4.5	12.5	8.0	10.0	15.0	12.0	13.5
26	6.0	3.0	4.5	10.0	4.5	7.0	10.5	8.0	9.5	15.0	12.5	14.0
27	5.0	3.5	4.5	11.5	7.0	9.0	11.0	6.5	8.5	15.5	12.5	14.0
28	5.0	4.0	4.5	13.0	8.0	10.5	11.0	6.0	8.5	15.0	12.5	14.0
29	---	---	---	14.0	9.5	11.5	12.0	6.5	9.5	17.0	13.0	15.0
30	---	---	---	14.0	9.0	11.5	11.0	9.5	10.0	18.0	14.5	16.0
31	---	---	---	14.0	9.5	12.0	---	---	---	18.0	15.0	16.5
MONTH	6.0	1.0	4.1	14.0	.5	5.2	12.5	4.5	8.8	18.0	9.0	12.2

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	17.0	14.0	15.5	18.5	16.0	17.0	19.0	15.0	17.0	20.0	14.5	16.5
2	16.0	12.5	14.5	18.0	15.0	16.5	18.5	14.0	16.0	19.5	16.0	17.0
3	15.0	13.0	14.0	18.0	15.0	16.5	19.0	14.5	16.5	20.0	11.5	15.5
4	14.0	12.0	13.0	17.0	15.5	16.0	19.5	15.0	17.0	18.5	14.5	16.0
5	13.0	11.0	12.0	18.5	15.0	16.5	20.5	16.0	17.5	18.5	14.0	16.0
6	13.0	10.5	11.5	18.0	14.5	16.5	21.5	15.5	17.5	19.5	14.5	16.5
7	12.0	10.0	11.0	18.0	15.5	17.0	21.0	15.0	17.5	18.5	17.0	18.0
8	12.0	10.0	11.0	18.0	17.0	17.0	20.0	17.5	18.5	18.0	14.5	16.0
9	11.5	9.5	10.5	19.0	16.0	17.5	20.5	18.5	19.0	14.5	13.0	14.0
10	12.0	11.0	11.5	18.5	16.0	17.5	20.0	19.0	19.5	15.0	11.5	13.5
11	12.5	12.0	12.0	17.0	14.0	16.0	19.5	18.0	18.5	16.0	12.5	14.0
12	15.5	12.5	14.0	17.0	13.5	15.5	20.5	17.0	18.5	18.0	14.0	15.5
13	15.5	14.0	14.5	18.0	14.0	16.5	20.5	16.0	18.0	19.0	15.5	17.0
14	16.0	14.0	14.5	18.5	16.5	17.5	19.0	17.0	18.0	19.5	15.5	17.0
15	15.0	13.5	14.5	18.0	17.0	17.5	19.0	17.5	18.0	20.5	16.5	18.0
16	17.5	14.0	15.5	18.0	17.0	17.5	20.0	18.0	19.0	20.5	18.0	19.0
17	16.5	14.5	15.5	20.0	17.5	18.0	19.5	18.5	19.0	20.0	18.0	19.0
18	17.5	14.5	16.0	19.5	16.5	18.0	19.5	17.5	18.5	20.0	17.0	18.5
19	16.5	15.0	15.5	19.5	16.0	17.5	19.0	15.5	17.0	19.0	17.5	18.0
20	18.5	15.0	16.5	19.5	18.0	18.5	17.5	13.5	15.5	20.0	17.0	18.5
21	18.5	15.0	17.0	20.5	17.5	18.5	19.0	14.5	16.0	19.5	17.5	18.5
22	17.0	16.0	16.5	20.5	18.5	19.5	20.0	16.5	18.0	19.0	18.0	18.5
23	18.0	16.0	17.0	20.0	18.5	19.5	22.0	17.5	19.0	18.0	13.5	15.5
24	19.5	16.5	18.0	20.0	17.5	18.5	19.5	18.0	18.5	14.5	10.5	12.5
25	19.5	16.5	18.0	18.5	15.5	17.0	19.0	17.5	18.5	16.0	13.5	14.5
26	20.0	17.5	19.0	18.5	16.0	17.5	21.0	17.5	19.0	18.0	14.0	15.5
27	19.5	18.0	19.0	18.5	16.0	17.0	22.5	16.5	18.5	19.0	16.0	17.5
28	19.0	17.5	18.0	19.0	16.0	17.5	20.5	16.0	18.0	18.5	16.5	17.5
29	19.0	17.0	18.0	19.5	17.0	18.0	19.5	17.0	18.5	16.5	13.0	15.0
30	19.0	17.0	17.5	19.0	16.5	18.0	21.5	16.5	18.5	17.5	13.5	15.0
31	---	---	---	19.0	17.0	18.0	20.0	17.5	18.5	---	---	---
MONTH	20.0	9.5	15.0	20.5	13.5	17.4	22.5	13.5	18.0	20.5	10.5	16.5

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 mi².

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 sea level.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 17.8 ft, Mar. 18, 1936, from floodmarks (backwater from Raystown Branch Juniata River), discharge, about 16,900 ft³/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 2,300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 8	0845	*10,600	*12.14	Apr. 20	0130	3,580	8.09
Nov. 9	1730	2,590	6.91	May 6	0700	5,550	9.77
Jan. 8	2315	3,350	7.83	May 8	Unknown	Unknown	Unknown

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	176	1320	e160	343	1270	215	444	164	104	32	26
2	50	657	856	e160	312	1100	225	729	81	74	28	23
3	42	390	606	e150	292	993	183	661	68	63	26	21
4	38	237	490	e140	279	700	182	572	61	58	25	21
5	36	161	387	e160	541	547	175	1550	57	57	24	21
6	34	123	307	e190	678	429	157	4030	56	52	24	20
7	33	2290	257	e270	531	358	144	1630	52	48	23	20
8	32	8830	220	2100	418	530	139	e3700	51	131	23	21
9	31	3610	189	2330	378	1410	555	e5000	48	115	22	26
10	32	1290	200	1130	364	1470	1370	e2700	49	74	24	24
11	32	792	331	714	400	919	854	e1600	51	61	26	23
12	33	535	280	500	768	614	560	e1300	163	54	26	22
13	33	389	239	405	782	453	406	e1900	154	51	24	21
14	33	587	218	311	636	390	327	e1300	161	46	23	21
15	33	650	192	261	478	309	337	e1000	94	43	40	22
16	33	451	e170	275	394	252	256	e800	102	48	121	21
17	33	347	e155	276	591	216	223	e560	90	49	57	21
18	32	285	e140	258	1140	245	189	e400	95	42	67	21
19	32	249	e130	211	1340	319	1330	e270	223	37	40	21
20	32	229	e125	187	1190	290	2650	174	227	35	31	21
21	32	212	e120	161	982	1750	1190	146	161	33	28	22
22	32	511	e115	151	752	1460	731	127	129	32	26	22
23	32	609	e130	241	620	883	511	115	549	35	25	22
24	33	534	e160	466	986	596	382	104	329	33	24	22
25	56	409	e250	349	1080	439	294	115	134	32	23	22
26	56	347	306	292	956	357	430	100	103	30	24	23
27	54	387	320	283	827	310	944	87	95	29	24	23
28	55	543	e250	303	942	284	610	75	122	28	22	23
29	45	727	e230	328	---	250	477	70	102	27	21	22
30	41	951	e200	477	---	212	394	67	86	29	21	22
31	39	---	e190	412	---	187	---	64	---	40	23	---
TOTAL	1185	27508	9083	13651	19000	19542	16440	31390	3857	1590	967	660
MEAN	38.2	917	293	440	679	630	548	1013	129	51.3	31.2	22.0
MAX	56	8830	1320	2330	1340	1750	2650	5000	549	131	121	26
MIN	31	123	115	140	279	187	139	64	48	27	21	20
CFM	.22	5.33	1.70	2.56	3.95	3.67	3.19	5.89	.75	.30	.18	.13
IN.	.26	5.95	1.96	2.95	4.11	4.23	3.56	6.79	.83	.34	.21	.14

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1998, BY WATER YEAR (WY)

MEAN	98.3	175	257	262	364	562	441	286	172	93.9	56.7	60.9
MAX	798	917	859	664	825	1408	1370	1013	1015	740	214	547
(WY)	1977	1998	1973	1952	1971	1994	1993	1998	1972	1989	1979	1996
MIN	14.0	18.3	20.0	45.8	65.2	129	112	45.7	25.6	8.96	8.05	9.86
(WY)	1970	1954	1944	1981	1963	1990	1946	1941	1965	1966	1966	1985

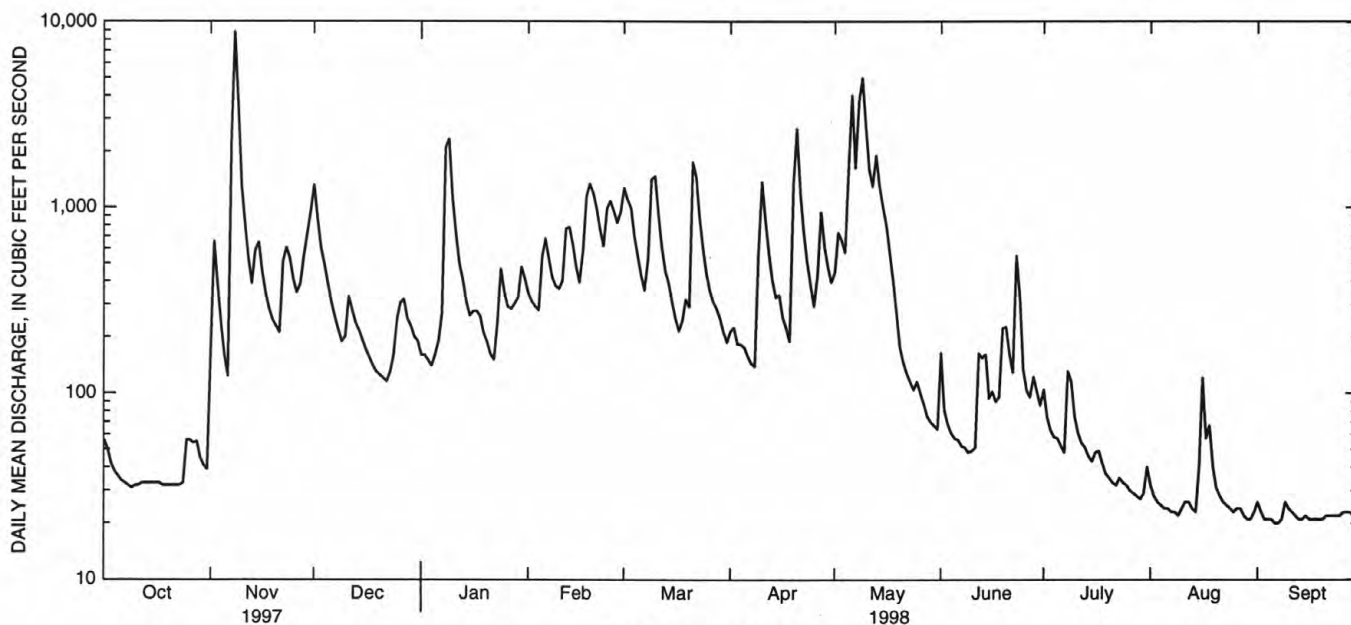
e Estimated.

JUNIATA RIVER BASIN

01560000 DUNNING CREEK AT BELDEN, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR			FOR 1998 WATER YEAR			WATER YEARS 1940 - 1998	
ANNUAL TOTAL	108041			144873				
ANNUAL MEAN	296			397			235	
HIGHEST ANNUAL MEAN							397	
LOWEST ANNUAL MEAN							107	
HIGHEST DAILY MEAN	8830	Nov	8	8830	Nov	8	9140	Jun 23 1972
LOWEST DAILY MEAN	17	Aug	9-11a	20	Sep	6,7	6.4	Sep 6 1964
ANNUAL SEVEN-DAY MINIMUM	17	Sep	2	21	Sep	2	6.7	Aug 5 1966
INSTANTANEOUS PEAK FLOW				b10600	Nov	8	b19400	Jul 20 1977
INSTANTANEOUS PEAK STAGE				12.14	Nov	8	14.15	Jul 20 1977
INSTANTANEOUS LOW FLOW				20	Sep	6,7	2.6	Sep 6 1964
ANNUAL RUNOFF (CFSM)	1.72			2.31			1.37	
ANNUAL RUNOFF (INCHES)	23.37			31.33			18.57	
10 PERCENT EXCEEDS	735			966			576	
50 PERCENT EXCEEDS	112			175			100	
90 PERCENT EXCEEDS	21			24			20	

a Also Sept. 2-9, 22-27.

b From rating curve extended above 9,200 ft³/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.

1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

JUNIATA RIVER BASIN

01562000 RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, PA

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 mi².

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 sea level. 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 fair. 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 ft³/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 7,700 ft³/s and maximum (*):

<u>Date</u>	<u>Time</u>	<u>Discharge (ft³/s)</u>	<u>Gage height (ft)</u>	<u>Date</u>	<u>Time</u>	<u>Discharge (ft³/s)</u>	<u>Gage height (ft)</u>
Nov. 8	0730	*26,800	*15.79	Apr. 20	1000	10,600	10.10
Jan. 9	0830	9,330	9.34				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	354	223	3750	e700	1960	4310	998	1900	487	420	189	121
2	221	1270	3250	e640	1690	4430	1090	2410	699	445	241	119
3	171	1740	2450	e700	1570	4100	994	2460	464	354	191	118
4	150	995	1920	e760	1530	3380	847	2140	394	308	167	118
5	135	681	1660	e800	2120	2720	880	3150	382	292	153	114
6	124	483	1370	e900	3900	2300	802	5890	357	280	145	111
7	117	3690	1090	e980	3240	1960	726	5250	343	271	138	112
8	110	24900	1040	3950	2520	1880	690	4560	330	323	134	118
9	107	15200	835	8490	2230	3640	921	6520	311	488	133	118
10	104	5730	801	5320	2020	5450	3830	4930	310	499	137	115
11	102	3410	1040	3570	2010	4210	4070	3760	317	350	148	112
12	99	2420	1240	2690	2910	3140	2840	3850	445	292	154	112
13	98	1780	1050	2090	4000	2400	2170	4380	529	259	149	112
14	96	1710	e850	1790	3370	2120	1690	3610	655	244	143	112
15	98	2710	e790	1460	2710	1810	1590	2890	595	231	158	108
16	94	2230	e740	1340	2170	1470	1440	2260	485	232	316	104
17	94	1700	e680	1440	2190	1360	1200	1820	600	236	347	102
18	94	1300	e640	1390	4560	1190	1080	1470	540	270	292	103
19	94	1160	e600	1260	5530	1560	2010	1180	496	245	319	102
20	94	987	e570	1070	5050	1560	9370	1040	1400	214	252	102
21	94	916	e540	1040	4320	3050	5710	869	1000	198	200	102
22	94	989	e540	890	3540	5460	3700	779	715	188	175	136
23	94	1540	635	978	2950	3950	2770	720	698	189	161	272
24	93	1420	721	1990	3320	2960	2170	625	1470	198	152	157
25	119	1280	829	2160	3940	2350	1730	599	918	196	144	129
26	125	1130	1170	1840	4450	1880	1650	615	579	183	141	121
27	151	1040	1100	1520	3950	1630	2890	552	479	176	133	118
28	168	1090	e1000	1610	3740	1440	2460	491	433	168	129	120
29	147	1480	e940	1680	---	1340	2020	454	450	164	129	117
30	144	1710	e880	2010	---	1200	1740	430	446	161	127	114
31	131	---	e800	2290	---	1080	---	414	---	181	123	---
TOTAL	3916	86914	35521	59348	87490	81330	66078	72018	17327	8255	5520	3619
MEAN	126	2897	1146	1914	3125	2624	2203	2323	578	266	178	121
MAX	354	24900	3750	8490	5530	5460	9370	6520	1470	499	347	272
MIN	93	223	540	640	1530	1080	690	414	310	161	123	102
CFSM	.17	3.83	1.52	2.53	4.13	3.47	2.91	3.07	.76	.35	.24	.16

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1912 - 1998, BY WATER YEAR (WY)

MEAN	431	620	874	1033	1449	2129	1732	1243	740	408	268	276
MAX	3561	2897	3254	3477	4817	7669	5811	3425	4625	2847	851	2357
(WY)	1977	1998	1973	1937	1979	1936	1993	1924	1972	1989	1915	1996
MIN	59.5	65.3	93.6	132	138	459	338	211	134	66.6	55.1	57.6
(WY)	1964	1931	1931	1981	1934	1990	1915	1926	1965	1966	1966	1963

e Estimated.

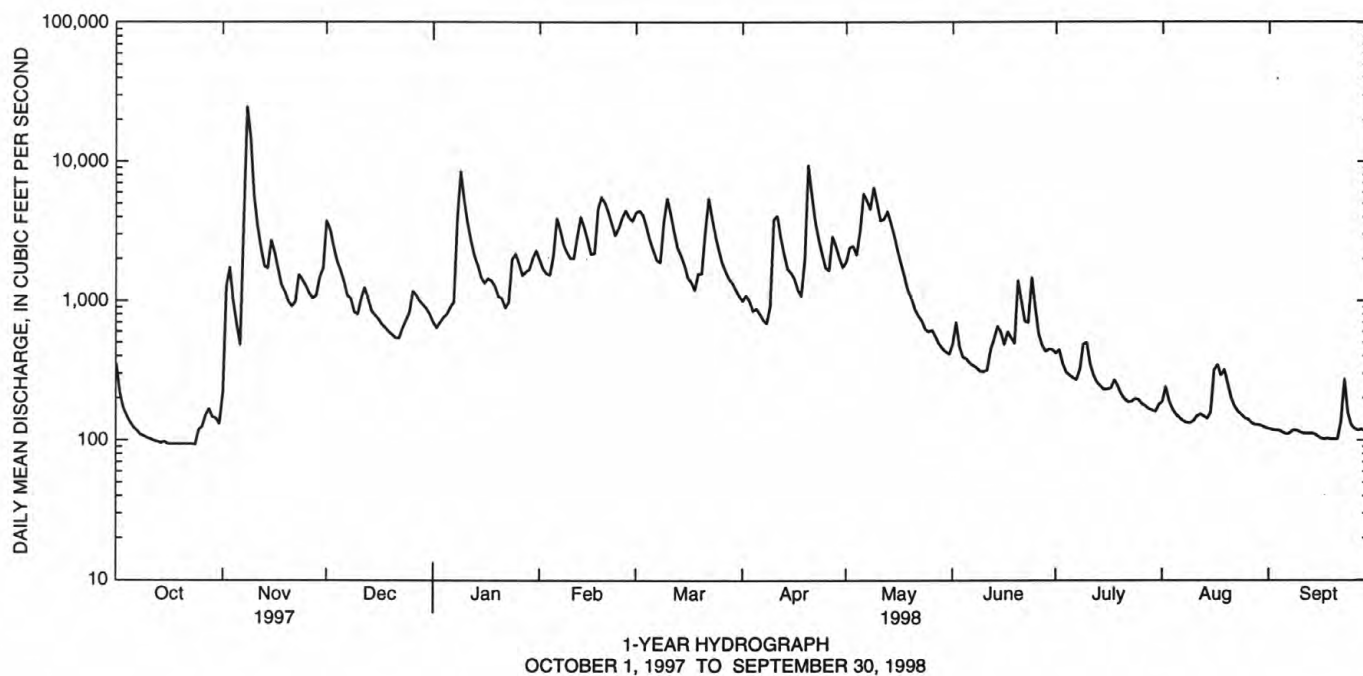
JUNIATA RIVER BASIN

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

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1912 - 1998	
ANNUAL TOTAL	368023		527336		931	
ANNUAL MEAN	1008		1445		1575	
HIGHEST ANNUAL MEAN					1996	
LOWEST ANNUAL MEAN					1969	
HIGHEST DAILY MEAN	24900	Nov 8	24900	Nov 8	58300	Mar 18 1936
LOWEST DAILY MEAN	93	Oct 24	93	Oct 24	39	Sep 12 1966
ANNUAL SEVEN-DAY MINIMUM	94	Oct 18	94	Oct 18	41	Sep 7 1966
INSTANTANEOUS PEAK FLOW			a26800	Nov 8	a80500	Mar 18 1936
INSTANTANEOUS PEAK STAGE			15.79	Nov 8	b24.54	Mar 18 1936
INSTANTANEOUS LOW FLOW			92	Oct 23,24	39	Sep 6 1966
ANNUAL RUNOFF (CFSM)	1.33		1.91		1.23	
ANNUAL RUNOFF (INCHES)	18.11		25.95		16.72	
10 PERCENT EXCEEDS	2380		3720		2200	
50 PERCENT EXCEEDS	483		829		430	
90 PERCENT EXCEEDS	123		118		120	

a From rating curve extended above 21,000 ft³/s on basis of slope-area measurement of peak flow.

b From floodmark in gage.



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 mi².

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum is given in feet above sea level (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, 601,000 acre-ft, Nov. 9, elevation, 796.05 ft; minimum, 507,000 acre-ft, Sept. 30, elevation, 785.24 ft.

MONTHEND ELEVATION, IN FEET ABOVE SEA LEVEL, AND CONTENTS AT 2400 HRS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

Date	Elevation (feet)	Contents (acre- feet)	Change in contents (equivalent in ft ³ /s)
Sept. 30	785.99	513,910	--
Oct. 31	785.45	509,220	- 76
Nov. 30	786.89	521,570	+208
Dec. 31	786.57	518,850	- 44
CAL YR 1997.....	--	--	+ 3.5
Jan. 31	786.51	518,340	- 8.3
Feb. 28	785.97	513,740	- 83
Mar. 31	786.12	515,020	+ 21
Apr. 30	786.32	516,720	+ 29
May 31	786.26	516,210	- 8.3
June 30	786.60	519,100	+ 49
July 31	786.38	517,230	- 30
Aug. 31	786.04	514,340	- 47
Sept. 30	785.24	507,390	-117
WTR YR 1998.....	--	--	- 9.0

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 mi².

PERIOD OF RECORD.--January 1946 to current year. Prior to October 1946 monthly discharge only, published in WSP 1302. Prior to Oct. 1, 1969, published as Raystown Branch Juniata River near Huntingdon.

GAGE.--Water-stage recorder. Datum of gage is 597.36 ft above sea level (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.--No estimated daily discharges. Records good. 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 ft³/s, at previous site and datum, by computation of peak discharge at dam.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	199	204	3140	1080	2630	4630	903	1950	480	387	209	210
2	202	205	4760	1080	2020	5070	1140	2610	478	438	209	210
3	202	284	2990	1080	1680	6500	1310	3730	476	384	209	211
4	202	618	1590	1080	1680	5150	1160	3320	395	290	210	211
5	202	824	1580	1080	2260	2830	1060	3290	341	252	210	212
6	202	755	1580	1080	4140	2560	957	6010	341	251	208	212
7	199	2920	1580	1290	4970	3100	913	7560	340	242	211	210
8	201	4380	1570	3870	3320	1990	924	6320	334	415	211	212
9	201	6320	1570	9650	2660	3400	1140	6850	314	700	210	213
10	202	13900	1130	8470	2400	6330	3160	6790	300	539	220	213
11	202	14000	973	5390	2230	6400	4540	5590	300	482	204	213
12	202	13900	1150	3830	2630	4140	3350	4730	373	318	204	213
13	202	11800	1300	2610	3840	2880	2590	6560	474	253	204	212
14	201	4610	1170	2240	4090	2620	2590	4620	594	214	205	212
15	202	2010	1090	1620	4090	2530	2520	3760	684	215	204	212
16	202	2280	934	1620	2830	1640	2010	4120	683	215	205	209
17	202	1900	822	1610	2420	1630	1870	2620	691	215	243	207
18	202	1600	823	1610	4540	1630	1440	1650	696	216	205	208
19	202	1580	735	1620	6740	1630	2260	1500	695	214	206	208
20	202	1570	679	1620	7150	1630	8860	1150	700	214	207	208
21	202	1270	680	1300	6550	2210	11500	1010	933	211	207	208
22	202	1210	681	1090	4950	6190	5990	906	1010	208	207	207
23	242	1470	681	1300	3910	7560	2220	836	876	209	209	234
24	199	1570	681	2200	5060	3280	2420	836	1320	208	209	207
25	199	1570	855	2590	5120	2610	2610	748	1430	208	209	206
26	199	1570	1060	2340	5360	2310	2630	617	953	210	209	206
27	199	1570	1100	1840	6030	1640	3870	593	837	208	211	206
28	198	1270	1260	1620	5200	1640	4590	536	605	209	209	206
29	199	1080	1460	1620	---	1640	2960	484	362	208	209	205
30	199	1380	1530	2100	---	1640	1660	483	310	209	209	205
31	199	---	1260	2630	---	1190	---	482	---	209	209	---
TOTAL	6268	99620	42414	74160	110500	100200	85147	92261	18325	8751	6491	6306
MEAN	202	3321	1368	2392	3946	3232	2838	2976	611	282	209	210
MAX	242	14000	4760	9650	7150	7560	11500	7560	1430	700	243	234
MIN	198	204	679	1080	1680	1190	903	482	300	208	204	205

JUNIATA RIVER BASIN

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

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1998, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	803	1094	1359	1333	1864	2527	2282	1472	822	553	349	457
MAX	4616	3778	4204	4768	3999	7104	8605	3438	2241	3484	802	3007
(WY)	1977	1974	1973	1996	1984	1994	1993	1978	1989	1989	1979	1996
MIN	150	125	215	208	440	360	370	18.6	59.1	133	118	134
(WY)	1975	1975	1981	1981	1992	1974	1974	1973	1973	1973	1973	1973

SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1973 - 1998

ANNUAL TOTAL	443280	650443	
ANNUAL MEAN	1214	1782	1239
HIGHEST ANNUAL MEAN			1989
LOWEST ANNUAL MEAN			525
HIGHEST DAILY MEAN	14000	Nov 11	15400
LOWEST DAILY MEAN	198	Jul 15, Sep 25	5.0
ANNUAL SEVEN-DAY MINIMUM	199	Sep 19	8.3
INSTANTANEOUS PEAK FLOW			16200
INSTANTANEOUS PEAK STAGE			14.33
10 PERCENT EXCEEDS	2970		2930
50 PERCENT EXCEEDS	487		531
90 PERCENT EXCEEDS	199		199

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1972, BY WATER YEAR (WY) (PRIOR TO REGULATION)

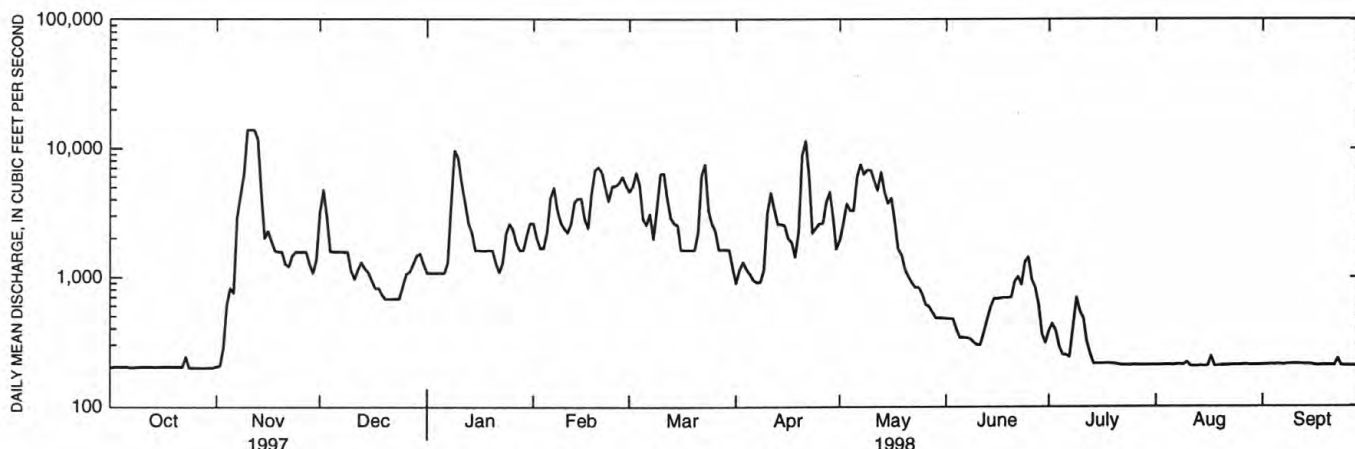
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	343	651	985	1195	1649	2695	2132	1500	875	442	303	229
MAX	1587	2796	2877	2915	4150	4481	4632	3346	5740	1722	925	648
(WY)	1955	1971	1951	1949	1971	1963	1970	1960	1972	1972	1956	1950
MIN	64.7	65.3	131	220	317	754	683	482	180	80.1	66.0	67.6
(WY)	1964	1958	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
INSTANTANEOUS PEAK FLOW	a24500	Nov 25 1950
INSTANTANEOUS PEAK STAGE	b18.54	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 ft³/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.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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 mi².

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 sea level.

REMARKS.--Records good except those for estimated daily discharges, which are fair. 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 ft³/s from rating curve extended above 39,000 ft³/s on basis of runoff comparison with upstream and downstream stations.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	906	809	5760	2250	4840	11600	3040	5420	1490	1210	721	644
2	800	3230	7250	e2300	4240	10800	4240	8140	1530	1280	747	644
3	696	2680	5500	e2400	3720	11700	3630	9470	1520	1130	725	645
4	687	2070	3590	e2500	3670	9970	3360	7880	1430	977	712	643
5	657	2100	3480	e2500	4790	6980	3090	8150	1270	956	699	632
6	611	1830	3290	e2500	6790	5790	2880	10100	1270	911	691	621
7	624	4920	3150	e3000	7500	6120	2680	11100	1220	838	670	639
8	589	33300	3030	10400	5650	5190	2640	11800	1160	4030	637	914
9	604	24100	2920	19500	4800	7810	3730	13600	1170	4290	681	885
10	569	22200	2590	14800	4550	11400	11400	12200	1060	2150	720	714
11	535	19300	2530	9860	4340	10600	9190	10700	1150	1730	1380	641
12	562	17700	2750	7490	5500	7950	7160	13400	1670	1370	915	632
13	558	15100	2810	5820	7100	6220	5700	13200	2460	1200	722	627
14	571	8040	2580	5230	6990	5640	5410	10100	1830	1050	717	645
15	567	4990	2340	4190	6610	5380	7120	8000	1970	1010	732	639
16	531	4910	2190	4190	5400	4180	5600	7700	1920	1020	811	658
17	546	4190	2000	4210	4910	3910	5090	6320	2150	991	906	749
18	539	3480	1970	4010	9220	3910	4310	4500	2040	1060	919	659
19	539	3290	1860	3830	12000	4060	6240	4030	1630	931	897	598
20	539	3200	1750	3670	11700	3890	18900	3450	1880	895	714	574
21	561	2920	1700	3280	10700	6770	17100	3010	1850	880	685	494
22	740	3390	1680	2840	8730	10700	11100	2770	2080	871	683	679
23	544	4300	1810	3150	7160	11300	6170	2530	2020	872	687	773
24	474	3930	2140	4860	9900	6710	5660	2410	3230	906	678	701
25	509	3640	2650	5040	10400	5500	5460	2270	2770	871	680	631
26	567	3480	3150	4600	10200	5080	7050	2070	2050	845	688	616
27	667	3420	3030	4060	10400	4150	16300	1920	1790	782	712	625
28	695	3130	3050	3550	9900	3980	10800	1790	1560	770	706	651
29	623	3020	3100	3750	---	3830	7860	1650	1220	784	680	651
30	549	3220	3160	4490	---	3690	5610	1650	1080	777	647	656
31	573	---	2870	5090	---	3210	---	1590	---	769	645	---
TOTAL	18732	215889	91680	159360	201710	208020	208520	202920	51470	38156	23207	19880
MEAN	604	7196	2957	5141	7204	6710	6951	6546	1716	1231	749	663
MAX	906	33300	7250	19500	12000	11700	18900	13600	3230	4290	1380	914
MIN	474	809	1680	2250	3670	3210	2640	1590	1060	769	637	494

e Estimated.

JUNIATA RIVER BASIN

01563500 JUNIATA RIVER AT MAPLETON DEPOT, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1998, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1725	2417	3087	2950	3997	5547	5057	3445	2091	1378	938	1158
MAX	7397	7196	8006	8972	8159	14040	15970	7725	5274	6123	2020	6926
(WY)	1977	1998	1973	1996	1984	1994	1993	1978	1989	1989	1979	1996
MIN	494	579	872	481	1269	1612	1781	1309	679	608	528	484
(WY)	1992	1979	1981	1981	1993	1990	1997	1976	1991	1988	1974	1995

SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1973 - 1998

ANNUAL TOTAL	1005656	1439544	
ANNUAL MEAN	2755	3944	2808
HIGHEST ANNUAL MEAN			4119
LOWEST ANNUAL MEAN			1360
HIGHEST DAILY MEAN	33300	Nov 8	33300
LOWEST DAILY MEAN	474	Oct 24	474
ANNUAL SEVEN-DAY MINIMUM	520	Sep 21	546
INSTANTANEOUS PEAK FLOW			37000
INSTANTANEOUS PEAK STAGE			17.79
10 PERCENT EXCEEDS	5980		10100
50 PERCENT EXCEEDS	1700		2650
90 PERCENT EXCEEDS	570		640

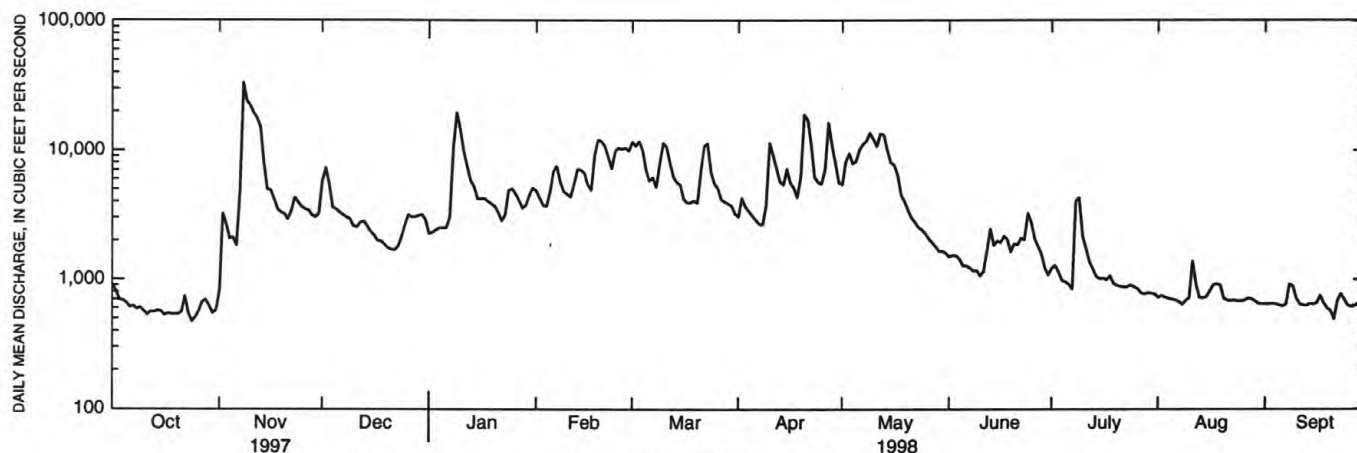
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 1972, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	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
INSTANTANEOUS PEAK FLOW	125000	Jun 23 1972
INSTANTANEOUS 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 ft³/s on basis of runoff comparison with upstream and downstream stations.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

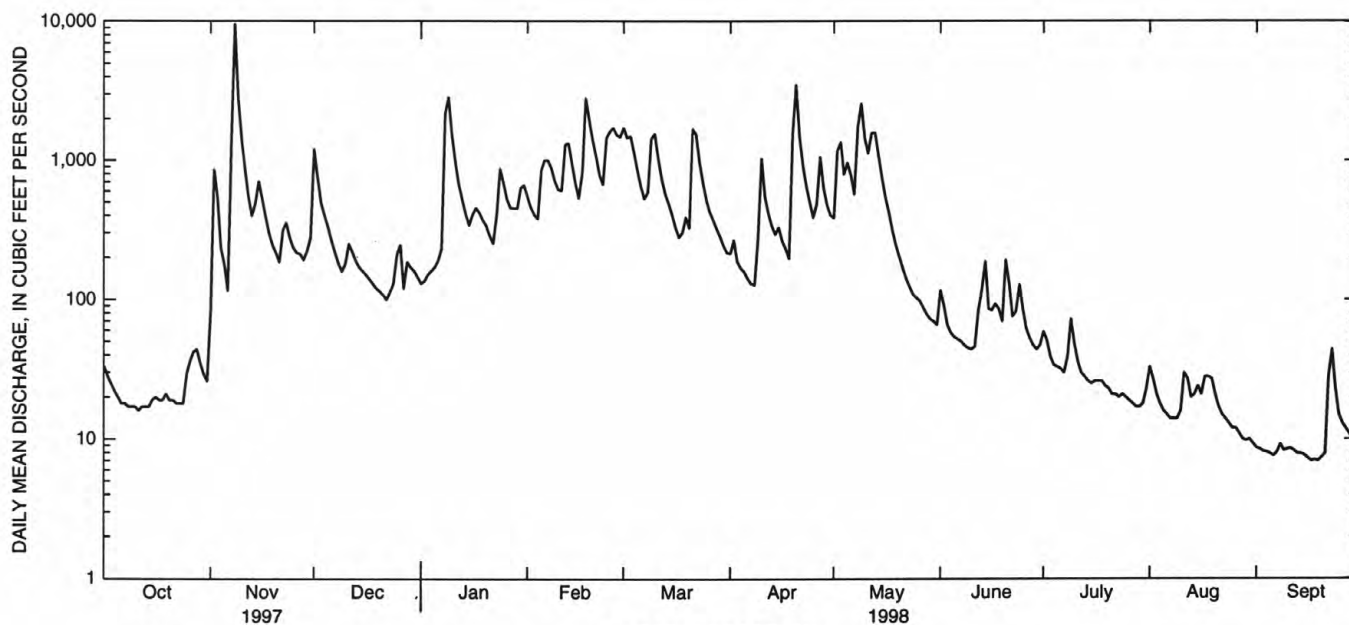
JUNIATA RIVER BASIN

01564500 AUGHWICK CREEK NEAR THREE SPRINGS, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1938 - 1998	
ANNUAL TOTAL	81800		146372.3			
ANNUAL MEAN	224		401		250	
HIGHEST ANNUAL MEAN					486	
LOWEST ANNUAL MEAN					105	
HIGHEST DAILY MEAN	9610	Nov 8	9610	Nov 8	18700	Jun 23 1972
LOWEST DAILY MEAN	15	Sep 5-9	7.0	Sep 17,19	.80	Sep 3 1966
ANNUAL SEVEN-DAY MINIMUM	15	Sep 3	7.3	Sep 14	1.2	Aug 29 1966
INSTANTANEOUS PEAK FLOW			a14200	Nov 8	a32600	Jan 19 1996
INSTANTANEOUS PEAK STAGE			15.84	Nov 8	20.85	Jan 19 1996
INSTANTANEOUS LOW FLOW			7.0	Sep 17-20	.80	Sep 2 1966b
10 PERCENT EXCEEDS	492		1130		590	
50 PERCENT EXCEEDS	109		160		101	
90 PERCENT EXCEEDS	19		14		15	

a From rating curve extended above 7,100 ft³/s on basis of contracted-opening measurement at gage height 18.04 ft.

b Also Sept. 3, 4, 11-13, 1966.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

JUNIATA RIVER BASIN

01567000 JUNIATA RIVER AT NEWPORT, PA

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 mi².

PERIOD OF RECORD.--April 1899 to current year.

REVISED RECORDS.--WSP 756: Drainage area. WSP 781: 1902(M). WSP 1302: 1915-17. WSP 1502: 1899-1908, 1914, 1924, 1936. WSP 1722: 1916.

GAGE.--Water-stage recorder. Datum of gage is 363.93 ft above sea level. Prior to July 16, 1929, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. 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 ft³/s, from rating curve extended above 100,000 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3030	894	5900	4300	8170	18200	5230	8810	2440	2010	1130	937
2	1730	2350	9630	3760	7470	19200	5110	8860	2330	1850	1110	949
3	1330	7090	10300	3590	6690	18300	5790	14800	2420	1820	1050	943
4	1210	5570	8170	4040	5800	19600	5310	14400	2250	1720	1070	925
5	1080	4170	5790	4750	8520	15200	4950	12400	2230	1590	1050	925
6	1040	3690	5320	4850	14800	11500	4620	15300	2010	1450	1010	925
7	996	3380	4930	4870	14600	9660	4370	15200	1950	1390	985	951
8	945	28800	4640	12600	12700	9650	4090	16800	1880	2370	975	997
9	923	53600	4430	34200	9870	12000	4270	25300	1850	6900	959	1090
10	888	31400	4260	32000	8220	17900	9660	24400	1820	5950	975	1220
11	878	26300	4220	21600	7500	18700	16500	20500	1780	3540	1650	1200
12	841	22600	4110	15200	8050	15900	12900	25500	2270	2670	1550	1030
13	790	20700	4190	11800	10300	12200	10200	25000	3740	2200	1700	942
14	808	17400	4220	9470	11600	9970	8340	21400	4220	1870	1270	924
15	834	11300	4050	8260	10700	8880	8190	16000	3420	1690	1150	899
16	841	8520	3770	7920	9730	8080	9850	12800	3190	1590	1140	908
17	835	7780	3620	8340	8430	6690	7990	11500	3310	1550	1140	904
18	803	6620	3430	7790	15400	6000	7020	9430	3500	1510	1510	899
19	802	5490	3310	7040	22700	5950	8060	7020	3160	1500	1540	964
20	802	5060	3240	6450	21500	6090	25800	6130	2840	1460	1380	976
21	802	4800	3140	5930	18900	13200	29700	5380	2960	1370	1270	885
22	789	4820	3040	5460	16100	20600	23800	4750	3010	1330	1110	915
23	796	5700	3020	5030	13000	19300	14600	4340	3560	1290	1050	866
24	943	6650	3020	6700	18700	16700	10200	3980	3820	1290	1030	1010
25	896	5960	3380	9250	22700	11100	9000	3760	4190	1280	1020	1120
26	903	5440	4090	8700	19400	9150	8690	3560	4010	1290	1020	1130
27	934	5140	4630	7550	18400	8280	17600	3290	3160	1260	1020	1010
28	982	4940	4640	6910	17600	6880	21000	3010	2530	1220	1010	959
29	1020	4780	4500	6500	---	6280	15100	2840	2450	1150	998	941
30	1020	4520	4490	6690	---	5860	11300	2620	1960	1130	1000	936
31	948	---	4520	7560	---	5530	---	2510	---	1130	970	---
TOTAL	31439	325464	144000	289110	367550	372550	329240	351590	84260	60370	35842	29280
MEAN	1014	10850	4645	9326	13130	12020	10970	11340	2809	1947	1156	976
MAX	3030	53600	10300	34200	22700	20600	29700	25500	4220	6900	1700	1220
MIN	789	894	3020	3590	5800	5530	4090	2510	1780	1130	959	866

JUNIATA RIVER BASIN

01567000 JUNIATA RIVER AT NEWPORT, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1998, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2775	3864	5350	5070	6614	8964	8360	5690	3461	2305	1520	1955
MAX	11610	10850	13770	15810	15070	23500	25780	13940	8510	12080	3637	13220
(WY)	1977	1998	1973	1996	1984	1994	1993	1978	1982	1989	1979	1996
MIN	730	871	1262	495	1779	2576	2898	2363	1084	864	774	586
(WY)	1992	1979	1990	1981	1980	1990	1995	1977	1991	1988	1995	1986

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR			FOR 1998 WATER YEAR			WATER YEARS 1973 - 1998		
ANNUAL TOTAL	1570547			2420695					
ANNUAL MEAN	4303			6632					
HIGHEST ANNUAL MEAN							4649		
LOWEST ANNUAL MEAN							7166		
HIGHEST DAILY MEAN	53600			Nov 9			92300		
LOWEST DAILY MEAN	722			Sep 9			450		
ANNUAL SEVEN-DAY MINIMUM	756			Sep 4			461		
INSTANTANEOUS PEAK FLOW							a103000		
INSTANTANEOUS PEAK STAGE							18.74		
10 PERCENT EXCEEDS	9350			17500			10500		
50 PERCENT EXCEEDS	3000			4220			2780		
90 PERCENT EXCEEDS	868			944			850		

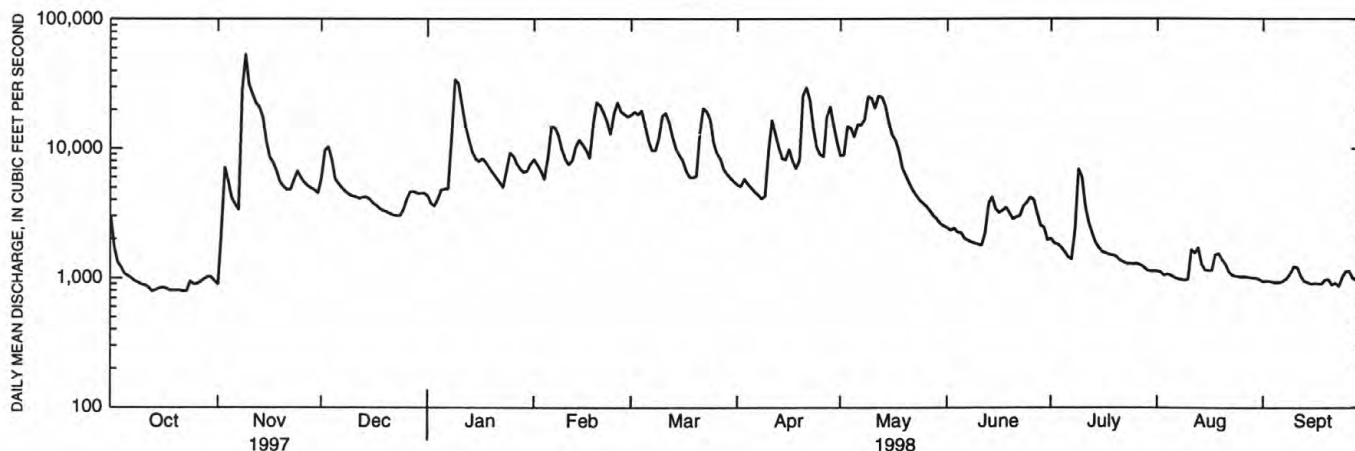
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1899 - 1972, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	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
INSTANTANEOUS PEAK FLOW	a190000	Mar 19 1936
INSTANTANEOUS PEAK STAGE	b34.24	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 ft³/s, on basis of slope-area measurement of peak flow.
b From floodmark in gage.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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 mi².

REVISÉD RECORDS.--WDR PA-90-2: 1989 (M) .

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

GAGE.--Water-stage recorder. Datum of gage is 601.22 ft above sea level. Prior to May 14, 1954, nonrecording gage and crest-stage gage 400 ft downstream at same datum.

REMARKS.--Records 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 ft³/s and maximum (*):

<u>Date</u>	<u>Time</u>	<u>Discharge</u> (ft ³ /s)	<u>Gage height</u> (ft)	<u>Date</u>	<u>Time</u>	<u>Discharge</u> (ft ³ /s)	<u>Gage height</u> (ft)
Nov. 8	0700	616	6.68	Mar. 9	1330	265	5.46
Jan. 8	1745	*702	*6.91	Mar. 21	0345	664	6.81
Feb. 18	0615	351	5.82	Apr. 19	2215	338	5.72
Feb. 24	0315	362	5.85	May 11	2100	305	5.57

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.7	33	46	14	39	55	39	39	15	15	7.4	6.1
2	7.9	63	32	14	35	47	33	53	14	11	7.1	7.4
3	7.5	30	28	20	32	65	29	40	14	9.6	7.1	6.4
4	7.2	29	27	34	39	53	28	36	13	9.3	6.9	6.1
5	6.9	20	24	29	129	48	25	45	13	9.2	6.4	5.9
6	6.9	16	21	27	86	43	24	47	12	8.2	6.1	5.7
7	7.0	135	19	38	60	41	23	40	12	8.0	6.0	9.3
8	7.7	336	18	280	48	56	23	95	12	42	6.0	10
9	8.8	103	17	230	41	151	59	130	11	21	6.5	7.2
10	10	61	18	104	35	102	54	96	11	14	25	6.4
11	9.6	44	19	68	35	72	41	166	12	12	13	5.9
12	9.4	35	18	50	43	58	35	203	40	10	8.4	5.9
13	9.4	30	17	43	32	51	32	114	e35	9.9	7.6	5.9
14	9.4	51	15	34	29	47	30	81	e16	9.6	9.3	5.9
15	10	40	14	34	26	41	37	62	e20	9.4	10	5.9
16	9.4	34	14	60	25	37	29	51	24	9.6	8.1	5.8
17	9.1	29	13	44	71	34	27	44	24	9.2	9.4	5.7
18	9.0	25	13	41	150	38	25	38	17	8.4	11	5.7
19	8.8	23	12	36	91	36	179	33	16	7.9	9.3	5.6
20	8.7	22	12	31	63	36	168	30	15	8.6	7.6	5.7
21	8.7	20	12	27	50	336	83	27	13	8.1	7.2	5.7
22	8.3	36	11	25	41	134	61	25	15	7.8	7.0	7.4
23	8.1	26	13	48	52	85	51	23	16	10	6.7	5.9
24	8.3	23	13	59	226	65	44	22	19	9.1	6.6	5.4
25	13	21	27	47	100	54	38	21	13	7.9	6.7	5.8
26	11	22	19	40	72	49	79	19	12	12	7.0	5.8
27	14	24	19	36	61	44	69	18	11	8.3	6.5	5.6
28	10	22	18	43	61	41	51	17	10	8.0	6.1	5.2
29	9.4	20	16	47	---	37	44	17	10	7.5	6.1	5.2
30	9.4	42	18	51	---	34	40	16	18	7.5	6.1	5.2
31	8.9	---	16	43	---	32	---	15	---	9.1	6.2	---
TOTAL	280.5	1415	579	1697	1772	2022	1500	1663	483	337.2	250.4	185.7
MEAN	9.05	47.2	18.7	54.7	63.3	65.2	50.0	53.6	16.1	10.9	8.08	6.19
MAX	14	336	46	280	226	336	179	203	40	42	25	10
MIN	6.9	16	11	14	25	32	23	15	10	7.5	6.0	5.2
CFSM	.60	3.14	1.25	3.65	4.22	4.35	3.33	3.58	1.07	.73	.54	.41
IN.	.70	3.51	1.44	4.21	4.39	5.01	3.72	4.12	1.20	.84	.62	.46

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1998, BY WATER YEAR (WY)

MEAN	10.9	15.9	19.8	19.5	29.0	40.4	33.3	23.7	17.6	11.9	6.84	7.97
MAX	48.6	61.9	66.8	80.9	91.0	135	122	81.2	172	112	32.3	55.9
(WY)	1977	1957	1997	1996	1984	1994	1993	1978	1972	1989	1955	1996
MIN	2.07	2.96	2.70	3.51	6.67	9.77	10.4	6.79	4.12	2.62	2.28	2.38
(WY)	1964	1966	1966	1981	1992	1990	1963	1969	1965	1966	1966	1963

e Estimated.

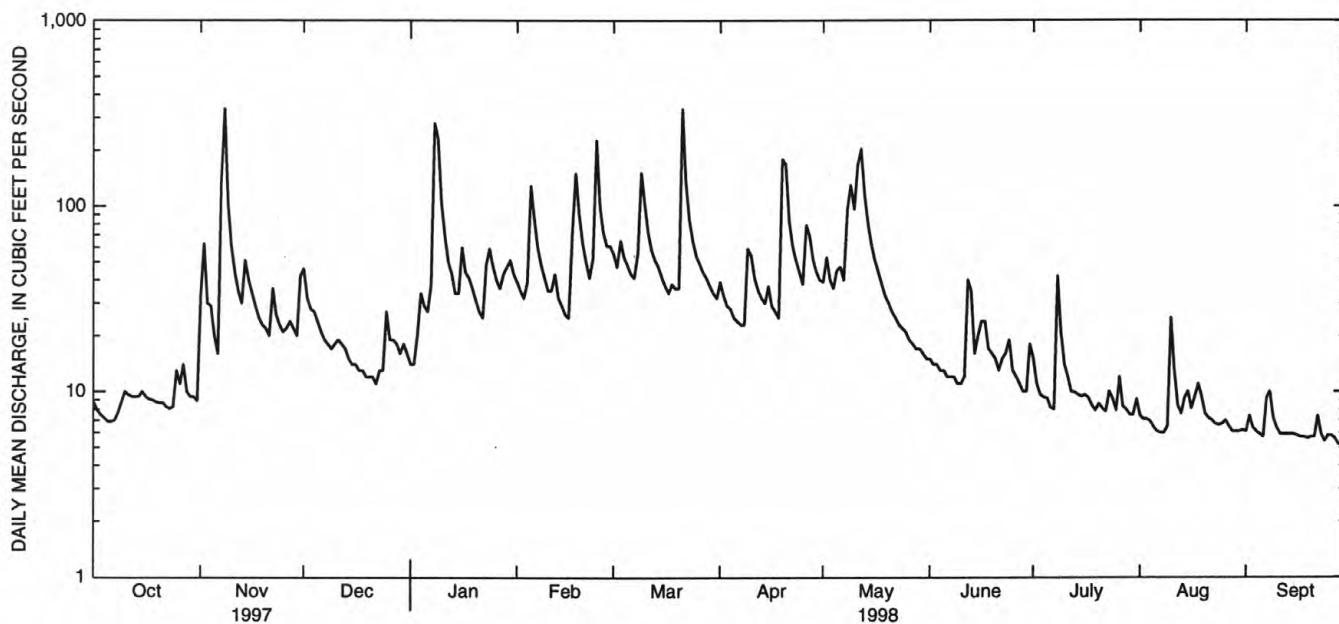
SHERMAN CREEK BASIN

01567500 BIXLER RUN NEAR LOYSVILLE, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1954 - 1998	
ANNUAL TOTAL	6744.7		12184.8		19.8	
ANNUAL MEAN	18.5		33.4		42.6	
HIGHEST ANNUAL MEAN					7.59	
LOWEST ANNUAL MEAN					1972	
HIGHEST DAILY MEAN	336	Nov 8	336	Nov 8, Mar 21	2120	Jun 22 1972
LOWEST DAILY MEAN	2.7	Sep 2	5.2	Sep 28-30	1.9	Sep 1 1966
ANNUAL SEVEN-DAY MINIMUM	2.9	Aug 30	5.5	Sep 24	1.9	Sep 6 1966
INSTANTANEOUS PEAK FLOW			702	Jan 8	a16000	Jun 20 1989
INSTANTANEOUS PEAK STAGE			6.91	Jan 8	b12.90	Jun 20 1989
INSTANTANEOUS LOW FLOW					1.5	Feb 2 1959
ANNUAL RUNOFF (CFSM)	1.23		2.23		1.32	
ANNUAL RUNOFF (INCHES)	16.73		30.22		17.94	
10 PERCENT EXCEEDS	34		63		40	
50 PERCENT EXCEEDS	12		20		9.6	
90 PERCENT EXCEEDS	4.6		6.7		3.6	

a From rating curve extended above 2,700 ft³/s on basis of contracted-opening and flow-over-road measurement of peak flow.

b From outside floodmark; 12.19 ft in gage well.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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 mi².

PERIOD OF RECORD.--October 1929 to current year. Prior to October 1962, published as "at Shermendale".

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 sea level. 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 ft³/s.

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

<u>Date</u>	<u>Time</u>	<u>Discharge (ft³/s)</u>	<u>Gage height (ft)</u>	<u>Date</u>	<u>Time</u>	<u>Discharge (ft³/s)</u>	<u>Gage height (ft)</u>
Nov. 8	1230	*7,790	*10.06	Mar. 21	1045	6,190	8.98
Jan. 8	2400	7,310	9.75	Apr. 20	0115	4,730	7.84
Feb. 18	0345	3,630	6.87	May 5	1715	4,390	7.55
Feb. 24	0645	4,190	7.38	May 8	2100	3,700	6.94
Mar. 9	1415	3,660	6.90	May 12	0500	4,020	7.23

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	105	94	730	e160	596	1230	474	547	167	144	69	41
2	87	919	453	e180	530	1030	502	806	157	104	63	42
3	81	660	382	285	492	1190	392	800	145	87	56	40
4	76	403	357	455	491	1090	363	635	132	82	53	40
5	71	322	328	426	1620	895	337	1540	125	81	50	38
6	66	235	289	386	1670	761	311	1390	123	77	49	37
7	62	835	259	440	1050	687	291	890	117	74	48	41
8	59	6300	235	3970	812	870	280	2190	114	165	48	58
9	57	2260	218	4750	672	2670	521	3170	108	224	46	65
10	59	1190	237	2180	585	2230	1110	1940	104	119	73	54
11	58	820	299	1330	559	1310	686	2210	113	91	199	45
12	54	639	283	977	1080	1000	551	3400	314	81	94	41
13	52	521	260	794	898	830	471	1990	423	76	62	39
14	51	693	233	644	731	733	424	1330	405	73	64	38
15	54	752	212	577	609	628	510	1000	198	71	90	37
16	54	568	201	1130	531	543	409	801	225	73	83	37
17	50	458	196	976	789	482	366	661	326	78	76	37
18	49	397	189	856	2890	493	333	547	206	72	77	37
19	46	357	180	690	1860	534	1520	468	160	67	76	37
20	44	329	173	599	1300	460	3230	408	169	67	63	37
21	42	299	169	510	1050	4650	1370	361	135	66	52	38
22	40	474	160	453	840	2350	952	320	119	63	52	53
23	40	444	171	683	820	1340	769	296	202	68	51	55
24	41	360	193	1140	3370	1000	651	272	160	78	49	53
25	73	318	464	916	2010	807	545	253	134	69	49	50
26	88	303	418	696	1440	700	704	235	115	65	52	44
27	98	284	351	607	1160	624	1330	216	106	66	43	40
28	88	257	328	628	1110	556	780	199	95	59	43	35
29	65	255	281	628	---	500	646	186	93	57	43	30
30	56	281	300	742	---	450	568	197	102	56	43	27
31	50	---	268	700	---	412	---	180	---	64	42	---
TOTAL	1916	22027	8817	29508	31565	33055	21396	29438	5092	2617	1958	1266
MEAN	61.8	734	284	952	1127	1066	713	950	170	84.4	63.2	42.2
MAX	105	6300	730	4750	3370	4650	3230	3400	423	224	199	65
MIN	40	94	160	160	491	412	280	180	93	56	42	27
CFSM	.30	3.55	1.37	4.60	5.45	5.15	3.45	4.59	.82	.41	.31	.20
IN.	.34	3.96	1.58	5.30	5.67	5.94	3.85	5.29	.92	.47	.35	.23

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1998, BY WATER YEAR (WY)

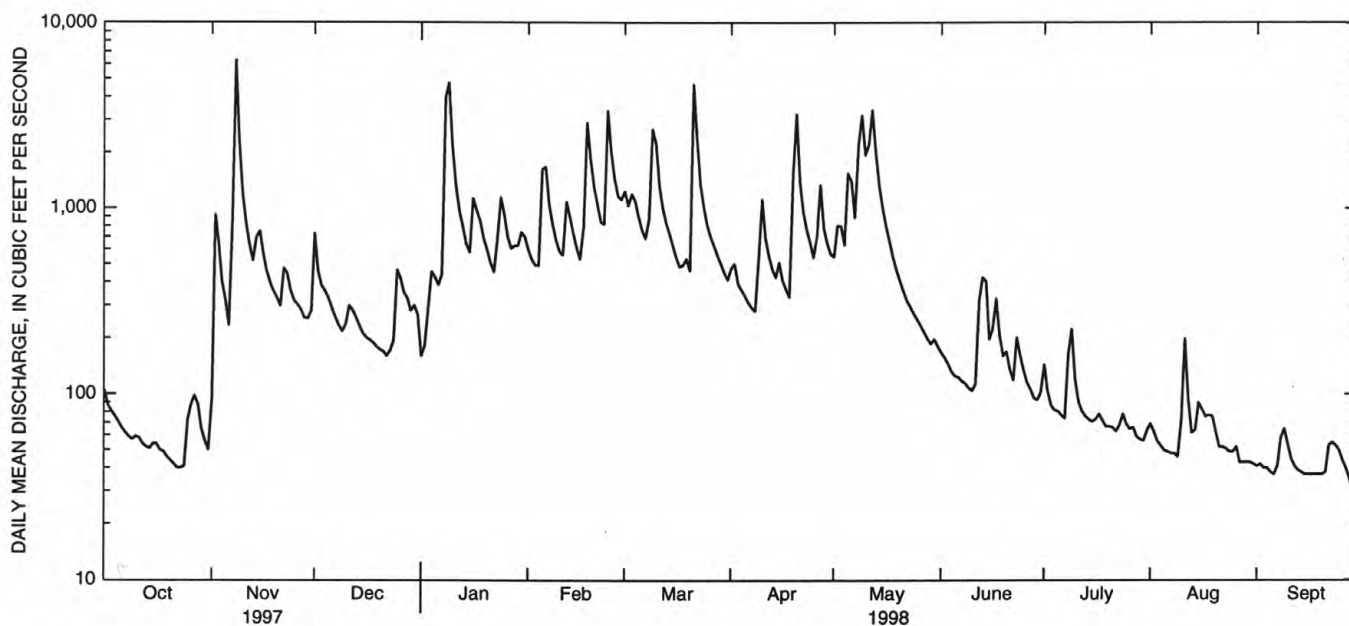
MEAN	146	253	318	326	411	613	547	399	211	119	100	99.7
MAX	905	924	968	1144	1253	1941	1675	1196	1969	1187	777	954
(WY)	1977	1971	1997	1996	1984	1936	1993	1978	1972	1989	1933	1996
MIN	18.5	22.1	22.7	22.0	54.3	133	161	88.8	48.4	18.9	18.1	18.6
(WY)	1964	1931	1931	1981	1931	1931	1997	1941	1965	1966	1930	1930

e Estimated.

SHERMAN CREEK BASIN

01568000 SHERMAN CREEK AT SHERMANS DALE, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR			FOR 1998 WATER YEAR			WATER YEARS 1930 - 1998	
ANNUAL TOTAL	94100			188655			295	
ANNUAL MEAN	258			517			544	1972
HIGHEST ANNUAL MEAN							122	1931
LOWEST ANNUAL MEAN							18300	Jun 23 1972
HIGHEST DAILY MEAN	6300	Nov	8	6300	Nov	8	10	Dec 24 1930
LOWEST DAILY MEAN	34	Sep	8, 9	27	Sep	30	11	Dec 19 1930
ANNUAL SEVEN-DAY MINIMUM	36	Sep	3	37	Sep	14	a27500	Jun 23 1972
INSTANTANEOUS PEAK FLOW				7790	Nov	8	18.09	Jun 23 1972
INSTANTANEOUS PEAK STAGE				10.06	Nov	8	3.9	Dec 1 1930
INSTANTANEOUS LOW FLOW				26	Sep	30	1.42	
ANNUAL RUNOFF (CFSM)	1.25			2.50			19.34	
ANNUAL RUNOFF (INCHES)	16.91			33.90				
10 PERCENT EXCEEDS	516			1170			658	
50 PERCENT EXCEEDS	155			281			143	
90 PERCENT EXCEEDS	46			48			31	

a From rating curve extended above 18,000 ft³/s.

1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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 mi².

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

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 410 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records good. 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 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 8	0800	184	4.65	Mar. 21	0500	*257	*4.96
Feb. 18	0400	216	4.80	Apr. 19	1915	192	4.70
Feb. 24	0200	212	4.78	May 5	1830	218	4.81

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	43	50	42	74	88	89	75	79	58	47	34
2	34	43	46	41	71	84	78	85	66	55	44	36
3	34	37	46	41	69	95	75	74	67	54	43	34
4	33	36	45	41	76	86	73	72	63	54	42	33
5	33	34	44	40	139	82	71	120	62	53	41	33
6	32	33	44	42	107	80	69	107	61	51	41	33
7	31	66	43	44	96	78	68	96	61	51	41	41
8	30	132	42	95	89	90	69	124	59	83	40	48
9	30	87	42	97	84	126	91	115	58	62	41	38
10	32	73	46	79	81	106	80	108	59	58	83	37
11	30	66	43	72	82	94	73	125	61	55	55	36
12	29	61	42	67	86	89	70	144	103	53	47	36
13	29	57	42	64	77	85	68	122	100	52	44	35
14	29	70	41	61	76	83	67	110	82	51	43	35
15	33	61	40	67	73	80	69	103	76	50	44	35
16	30	58	40	84	72	77	65	98	73	50	42	35
17	29	56	40	74	89	75	65	94	71	49	55	34
18	29	54	40	75	145	81	63	89	67	48	45	34
19	29	52	39	70	112	80	130	85	67	47	42	34
20	28	51	38	67	94	77	116	82	64	50	41	34
21	28	50	38	65	87	180	93	80	63	47	40	33
22	27	58	38	62	82	130	86	77	62	45	39	54
23	27	51	39	92	102	112	82	76	62	47	39	36
24	28	49	38	90	158	101	78	74	61	45	38	36
25	38	48	51	85	117	95	75	73	59	44	37	36
26	36	47	42	79	102	91	102	71	59	48	37	35
27	35	46	45	76	95	88	92	69	57	44	36	35
28	33	46	44	91	94	85	81	68	57	43	36	34
29	31	44	43	85	---	82	77	68	56	42	36	34
30	30	50	44	80	---	79	74	67	61	48	35	34
31	29	---	42	77	---	77	---	66	---	58	34	---
TOTAL	963	1659	1317	2145	2629	2856	2389	2817	1996	1595	1328	1082
MEAN	31.1	55.3	42.5	69.2	93.9	92.1	79.6	90.9	66.5	51.5	42.8	36.1
MAX	38	132	51	97	158	180	130	144	103	83	83	54
MIN	27	33	38	40	69	75	63	66	56	42	34	33
CFSM	1.44	2.56	1.97	3.20	4.35	4.27	3.69	4.21	3.08	2.38	1.98	1.67
IN.	1.66	2.86	2.27	3.69	4.53	4.92	4.11	4.85	3.44	2.75	2.29	1.86

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 1998, BY WATER YEAR (WY)

MEAN	35.4	36.8	43.0	45.6	51.0	60.4	62.5	53.8	45.8	40.7	35.3	34.3
MAX	79.6	62.2	94.5	92.0	93.9	123	126	90.9	71.3	68.3	54.5	68.4
(WY)	1977	1997	1997	1979	1998	1994	1993	1998	1996	1996	1989	1996
MIN	20.0	23.0	22.4	24.2	22.3	30.4	29.3	32.9	28.9	23.4	20.7	21.7
(WY)	1993	1992	1982	1989	1989	1989	1989	1982	1991	1987	1992	1992

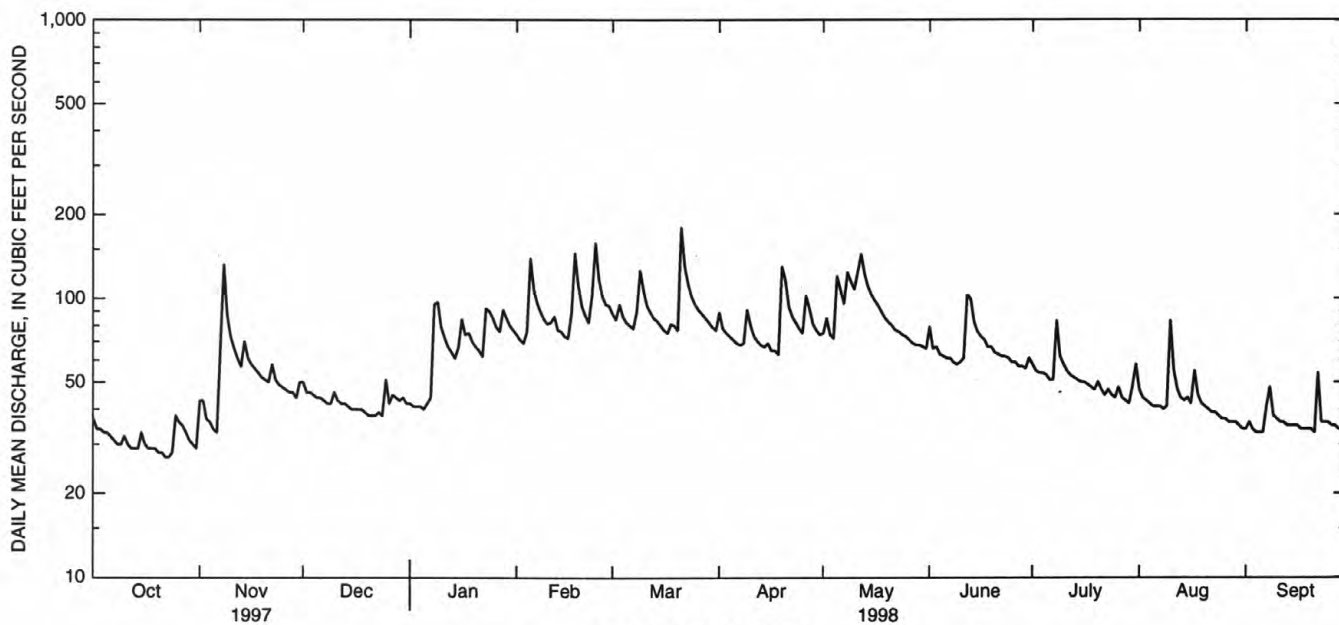
CONODOGUINET CREEK BASIN

01569800 LETORT SPRING RUN NEAR CARLISLE, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1976 - 1998	
ANNUAL TOTAL	18101		22776			
ANNUAL MEAN	49.6		62.4		45.3	
HIGHEST ANNUAL MEAN					62.4	
LOWEST ANNUAL MEAN					28.3	
HIGHEST DAILY MEAN	160	Sep 11	180	Mar 21	452	Jan 24 1979
LOWEST DAILY MEAN	27	Oct 22,23	27	Oct 22,23	10	Aug 14 1976
ANNUAL SEVEN-DAY MINIMUM	28	Oct 18	28	Oct 18	18	Aug 30 1992
INSTANTANEOUS PEAK FLOW			257	Mar 21	a1400	Jan 24 1979
INSTANTANEOUS PEAK STAGE			4.96	Mar 21	6.53	Jan 24 1979
INSTANTANEOUS LOW FLOW			26	Oct 24	.00	Aug 15 1976b
ANNUAL RUNOFF (CFSM)	2.30		2.89		2.10	
ANNUAL RUNOFF (INCHES)	31.17		39.23		28.50	
10 PERCENT EXCEEDS	68		95		73	
50 PERCENT EXCEEDS	46		58		39	
90 PERCENT EXCEEDS	33		34		24	

a From rating curve extended above 680 ft³/s on basis of slope-area measurement at gage height 6.43 ft.

b Part of day.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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 mi².

WATER-DISCHARGE RECORDS

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 sea level. 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.--No estimated daily discharges. Records good. 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 ft³/s. Satellite and landline telemetry at station.

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

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 9	1030	*8,290	*9.39	Mar. 22	1200	7,370	8.87
Jan. 9	2200	7,960	9.21	Apr. 20	2045	5,450	7.59
Feb. 25	0815	7,050	8.66	May 9	2200	5,750	7.82
Mar. 10	1015	4,980	7.25	May 12	1215	4,280	6.69

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	323	168	896	490	1380	2080	963	1000	510	405	289	157
2	238	553	964	426	1180	1870	1200	1290	561	381	281	162
3	198	1370	799	473	1060	1910	984	2650	488	339	236	159
4	182	915	710	627	1000	2250	864	1940	436	323	219	152
5	172	698	648	820	2530	1850	812	1950	410	314	209	155
6	162	529	575	773	3680	1580	757	2640	400	297	202	152
7	150	570	514	771	2540	1390	713	1790	396	287	195	161
8	143	5370	472	2510	1880	1350	687	2280	385	410	195	210
9	143	7880	439	6680	1530	3110	792	5320	378	533	195	174
10	149	3010	435	6290	1300	4680	1660	4230	365	447	325	166
11	143	1770	551	2850	1170	2950	1350	3090	372	365	424	160
12	136	1330	586	2000	1500	2140	1060	4120	579	326	363	153
13	134	1060	569	1570	1480	1730	920	3800	1040	300	266	150
14	135	1100	535	1310	1270	1510	845	2770	1210	286	234	147
15	143	1450	494	1120	1130	1330	852	2120	887	276	240	144
16	139	1240	458	1840	1020	1160	829	1710	730	279	245	140
17	136	999	427	1890	1070	1040	749	1440	853	280	269	139
18	132	835	406	1740	3550	1030	694	1220	768	275	270	137
19	133	740	377	1440	3370	1180	1130	1050	612	259	256	136
20	130	667	364	1230	2510	1110	4860	935	578	250	226	137
21	127	607	349	1060	2040	4280	3620	857	672	241	205	139
22	125	731	334	941	1650	7060	2110	787	553	239	201	185
23	121	967	342	1180	1540	3700	1640	730	531	240	196	173
24	122	830	360	2270	5120	2410	1380	686	507	245	186	185
25	166	711	666	2280	6520	1910	1170	643	525	234	182	165
26	186	636	940	1770	3280	1610	1130	613	443	231	182	160
27	231	601	811	1430	2410	1420	1900	579	411	225	177	157
28	222	547	741	1540	2030	1270	1500	544	380	216	171	151
29	190	525	638	2290	---	1150	1180	524	360	214	171	146
30	168	531	606	1960	---	1040	1050	520	373	208	172	144
31	155	---	589	1660	---	962	---	507	---	257	164	---
TOTAL	5034	38940	17595	55231	60740	64062	39401	54335	16713	9182	7146	4696
MEAN	162	1298	568	1782	2169	2067	1313	1753	557	296	231	157
MAX	323	7880	964	6680	6520	7060	4860	5320	1210	533	424	210
MIN	121	168	334	426	1000	962	687	507	360	208	164	136
CFSM	.35	2.76	1.21	3.79	4.62	4.40	2.79	3.73	1.19	.63	.49	.33
IN.	.40	3.08	1.39	4.37	4.81	5.07	3.12	4.30	1.32	.73	.57	.37

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

	353	489	657	714	819	1086	940	693	490	331	304	309
MEAN	353	489	657	714	819	1086	940	693	490	331	304	309
MAX	1838	1436	1940	1850	2257	3463	2693	1753	3120	1184	1584	1684
(WY)	1977	1971	1997	1996	1984	1994	1993	1998	1972	1989	1915	1996
MIN	55.1	53.4	57.3	83.5	150	287	268	194	148	98.0	86.5	68.0
(WY)	1931	1931	1931	1931	1931	1931	1915	1941	1991	1930	1932	1932

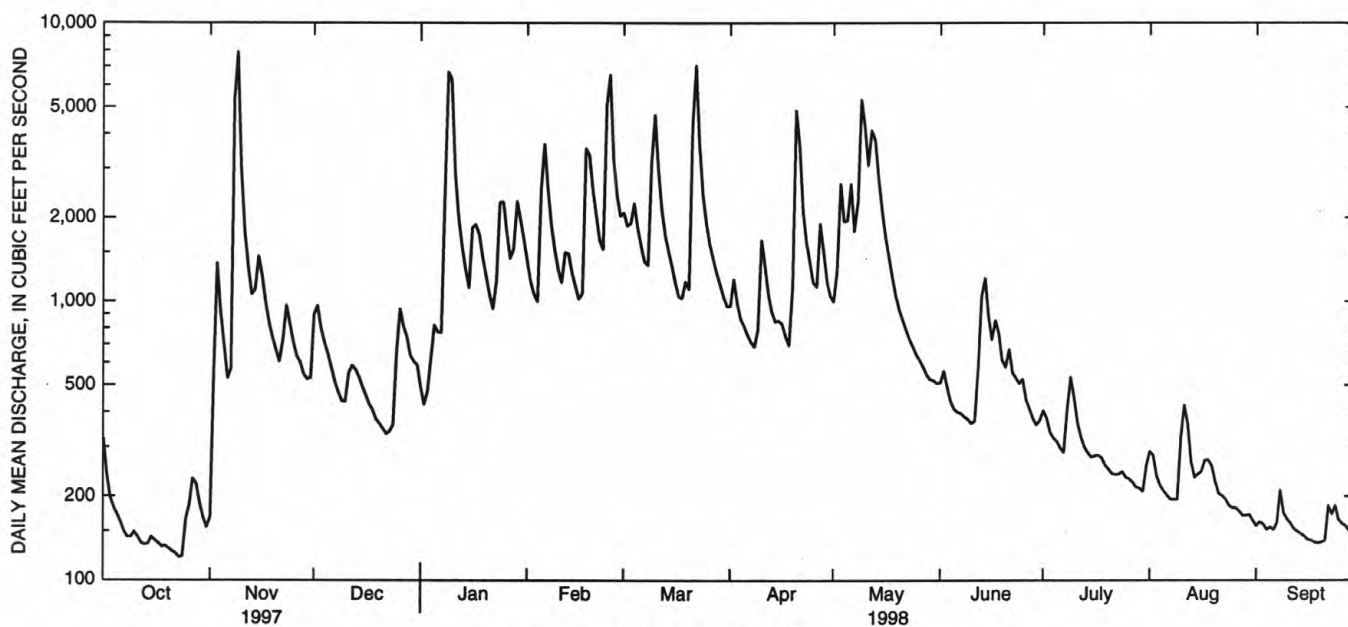
CONODOGUINET CREEK BASIN

01570000 CONODOGUINET CREEK NEAR HOGESTOWN, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR			FOR 1998 WATER YEAR			FOR PERIOD OF DAILY RECORD		
ANNUAL TOTAL	202130			373075					
ANNUAL MEAN	554			1022			598		
HIGHEST ANNUAL MEAN							1045		
LOWEST ANNUAL MEAN							234		
HIGHEST DAILY MEAN	7880	Nov	9	7880	Nov	9	24500	Jun	23 1972
LOWEST DAILY MEAN	114	Sep	8	121	Oct	23	26	Dec	23 1930
ANNUAL SEVEN-DAY MINIMUM	121	Sep	3	127	Oct	18	27	Dec	19 1930
INSTANTANEOUS PEAK FLOW				8290	Nov	9	a33700	Jun	23 1972
INSTANTANEOUS PEAK STAGE				9.39	Nov	9	b17.01	Jun	23 1972
INSTANTANEOUS LOW FLOW				117	Oct	24	24	Dec	16 1930
ANNUAL RUNOFF (CFSM)	1.18			2.17			1.27		
ANNUAL RUNOFF (INCHES)	16.00			29.53			17.29		
10 PERCENT EXCEEDS	1060			2280			1270		
50 PERCENT EXCEEDS	360			607			348		
90 PERCENT EXCEEDS	143			157			120		

a From rating curve extended above 27,100 ft³/s.

b From floodmark in gage.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

CONODOGUINET CREEK BASIN

01570000 CONODOGUINET CREEK NEAR HOGESTOWN, PA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1962, 1965, 1967-68, 1971-72, 1974, 1996 to current year.

REMARKS.--The data in the following table were collected as part of a Chesapeake Bay Watershed project to document nutrient and suspended-sediment concentrations, nutrient loads, and trends in nutrient loading.

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 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	SAMPLE PURPOSE CODE (71999)	SAMPLER TYPE (CODE) (84164)	SAM- PLING METHOD, CODES (82398)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
OCT											
09...	0900	1028	80020	10	3045	10	146	440	7.9	16.5	18.1
NOV											
08...	1130	1028	80020	10	3039	10	5730	196	7.7	--	8.4
13...	0900	1028	80020	10	3039	10	1030	298	8.0	--	6.9
13...	0901	1028	80020	10	3039	10	1030	--	--	--	--
DEC											
17...	1100	1028	80020	10	3045	10	403	370	8.6	16.0	3.0
JAN											
08...	1150	1028	80020	10	3039	10	1700	280	7.7	--	10.4
15...	1020	1028	80020	10	3039	10	1050	302	8.0	4.0	3.8
28...	1540	1028	80020	10	3039	10	1610	317	8.0	--	4.2
FEB											
05...	1420	1028	80020	10	3039	10	2800	301	7.8	2.5	4.2
10...	1340	1028	80020	10	3039	10	1240	336	8.0	14.4	5.9
10...	1341	1028	80020	10	3039	10	1240	--	--	--	--
MAR											
12...	1030	1028	80020	10	3039	10	2140	264	8.0	-2.0	3.6
21...	1045	1028	80020	10	3039	10	4370	216	8.2	5.0	7.0
APR											
07...	1100	1028	80020	10	3045	10	673	390	8.3	13.3	10.7
21...	0920	1028	80020	10	3039	10	3640	200	7.8	12.4	12.0
MAY											
07...	0940	1028	80020	10	3039	10	1770	281	7.6	17.8	15.1
07...	0941	1028	80020	10	3039	10	1770	--	--	--	--
11...	1050	1028	80020	10	3039	10	2880	232	7.9	13.7	14.0
JUN											
04...	0920	1028	80020	10	3045	10	416	439	7.8	18.5	17.1
JUL											
08...	0830	1028	80020	10	3045	10	342	446	8.1	16.8	20.5
AUG											
06...	0820	1028	80020	10	3045	10	190	478	7.9	20.6	21.7
SEP											
09...	0940	1028	80020	10	3045	10	170	465	7.9	17.2	17.0

CONODOGUINET CREEK BASIN

01570000 CONODOGUINET CREEK NEAR HOGESTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS TOTAL (MG/L AS CAC03) (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L) (00904)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)
OCT 09...	764	8.6	91	190	69	59	11	14	13	.4
NOV 08...	749	11.1	96	--	--	--	--	--	--	--
13...	759	11.8	97	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
DEC 17...	754	15.6	117	--	--	--	--	--	--	--
JAN 08...	745	10.8	99	110	48	33	6.2	9.1	15	.4
15...	760	13.1	100	--	--	--	--	--	--	--
28...	750	13.2	103	--	--	--	--	--	--	--
FEB 05...	744	14.1	111	--	--	--	--	--	--	--
10...	761	14.2	114	140	33	44	7.1	8.0	11	.3
10...	--	--	--	140	--	44	7.1	8.0	11	.3
MAR 12...	761	13.9	105	--	--	--	--	--	--	--
21...	735	12.4	106	--	--	--	--	--	--	--
APR 07...	742	13.0	120	170	44	56	8.5	8.3	9	.3
21...	745	11.0	104	--	--	--	--	--	--	--
MAY 07...	740	9.2	94	--	--	--	--	--	--	--
07...	740	--	--	--	--	--	--	--	--	--
11...	735	9.6	97	--	--	--	--	--	--	--
JUN 04...	738	8.3	89	--	--	--	--	--	--	--
JUL 08...	740	7.6	87	200	54	62	10	10	10	.3
AUG 06...	734	5.9	70	--	--	--	--	--	--	--
SEP 09...	739	7.4	79	--	--	--	--	--	--	--

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE WAT.DIS FET FIELD HCO3 (MG/L) (29804)	CAR-BONATE WAT.DIS FET FIELD CO3 (MG/L) (29807)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3) (00452)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CAC03) (39086)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT 09...	2.8	150	.0	120	149	0	122	24	25	.15
NOV 08...	--	51	.0	42	49	0	40	--	--	--
13...	--	92	.0	75	94	0	77	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
DEC 17...	--	130	.0	110	128	0	105	--	--	--
JAN 08...	2.1	71	.0	59	68	0	56	16	16	<.10
15...	--	91	.0	75	93	0	76	--	--	--
28...	--	87	.0	71	87	0	71	--	--	--
FEB 05...	--	110	.0	89	109	0	89	--	--	--
10...	1.6	130	.0	110	129	0	106	18	14	<.10
10...	1.7	--	--	--	--	--	--	17	14	.11
MAR 12...	--	99	.0	81	100	0	82	--	--	--
21...	--	87	.0	71	85	0	70	--	--	--
APR 07...	1.6	160	.0	130	160	0	131	19	15	<.10
21...	--	76	.0	62	76	0	62	--	--	--
MAY 07...	--	110	.0	92	113	0	93	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
11...	--	93	.0	76	93	0	76	--	--	--
JUN 04...	--	190	.0	160	187	0	153	--	--	--
JUL 08...	1.9	180	.0	140	176	0	144	21	18	.10
AUG 06...	--	190	.0	160	--	0	--	--	--	--
SEP 09...	--	180	.0	150	183	0	150	--	--	--

CONODOGUINET CREEK BASIN

01570000 CONODOGUINET CREEK NEAR HOGESTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO3) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2) (71856)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)
OCT										
09...	.53	240	227	.33	94.3	3.81	17	.015	.05	3.83
NOV										
08...	--	--	--	--	--	1.60	7.1	.024	.08	1.63
13...	--	--	--	--	--	3.88	17	.022	.07	3.91
13...	--	--	--	--	--	--	--	--	--	--
DEC										
17...	--	--	--	--	--	--	--	<.010	--	3.88
JAN										
08...	6.0	170	135	.23	778	2.60	12	.014	.05	2.61
15...	--	--	--	--	--	3.60	16	.012	.04	3.62
28...	--	--	--	--	--	--	--	<.010	--	3.60
FEB										
05...	--	--	--	--	--	--	--	<.010	--	2.96
10...	6.8	193	180	.26	646	--	--	<.010	--	3.88
10...	6.8	191	185	.26	639	--	--	<.010	--	3.82
MAR										
12...	--	--	--	--	--	--	--	<.010	--	2.64
21...	--	--	--	--	--	--	--	<.010	--	2.08
APR										
07...	3.1	219	206	.30	398	3.48	15	.019	.06	3.50
21...	--	--	--	--	--	2.02	9.0	.014	.05	2.04
MAY										
07...	--	--	--	--	--	2.34	10	.011	.04	2.35
07...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	<.010	--	2.06
JUN										
04...	--	--	--	--	--	3.77	17	.014	.05	3.78
JUL										
08...	3.0	265	232	.36	245	4.10	18	.014	.05	4.11
AUG										
06...	--	--	--	--	--	4.09	18	.025	.08	4.12
SEP										
09...	--	--	--	--	--	4.16	18	.018	.06	4.17
DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N) (00623)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)
OCT										
09...	<.015	--	--	--	.27	.28	4.1	4.1	.015	.010
NOV										
08...	<.020	--	--	--	1.6	.52	3.3	2.2	.315	.046
13...	<.020	--	--	--	.22	.19	4.1	4.1	.029	.022
13...	--	--	--	--	--	--	--	--	--	--
DEC										
17...	<.020	--	--	--	.11	.18	4.0	4.1	<.010	<.010
JAN										
08...	<.020	--	--	--	.72	.26	3.3	2.9	.104	.021
15...	<.020	--	--	--	.13	.11	3.7	3.7	.010	<.010
28...	<.020	--	--	--	<.10	<.10	--	--	.027	<.010
FEB										
05...	.034	.04	.36	.17	.39	.20	3.4	3.2	.061	.020
10...	.028	.04	.14	.08	.17	.11	4.0	4.0	.016	<.010
10...	.021	.03	.16	.09	.19	.11	4.0	3.9	.016	<.010
MAR										
12...	<.020	--	--	--	.14	<.10	2.8	--	<.010	.017
21...	.051	.07	.96	.12	1.0	.17	3.1	2.3	.216	.018
APR										
07...	.034	.04	.09	.15	.13	.18	3.6	3.7	.016	<.010
21...	.051	.07	.46	.22	.51	.27	2.5	2.3	.079	.038
MAY										
07...	.060	.08	.41	.17	.47	.23	2.8	2.6	.046	<.010
07...	--	--	--	--	--	--	--	--	--	--
11...	.054	.07	.25	.13	.30	.18	2.4	2.2	.048	<.010
JUN										
04...	<.020	--	--	--	.28	.17	4.1	3.9	<.010	.020
JUL										
08...	.072	.09	.24	.17	.32	.25	4.4	4.4	.010	<.010
AUG										
06...	.047	.06	.25	.19	.30	.23	4.4	4.4	<.010	<.010
SEP										
09...	.034	.04	.24	.20	.28	.23	4.4	4.4	.021	.019

CONODOGUINET CREEK BASIN

01570000 CONODOGUINET CREEK NEAR HOGESTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4) (00660)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	SEDI- MENT, DIS- SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	REP- LICATE TYPE (CODE) (99105)	QUALITY ASSUR- ANCE DATA INDICA- TOR CODE (99111)
OCT									
09...	<.010	--	20	4.4	3	1.2	33	--	1
NOV									
08...	.049	.15	--	--	223	3450	78	--	1
13...	.044	.13	--	--	12	34	74	30	30
13...	--	--	--	--	9	25	61	30	--
DEC									
17...	<.010	--	--	--	4	4.4	43	--	1
JAN									
08...	.019	.06	36	7.6	63	288	91	--	1
15...	.017	.05	--	--	8	23	69	--	1
28...	.011	.03	--	--	19	82	75	--	1
FEB									
05...	.026	.08	--	--	35	265	92	--	1
10...	.021	.06	<10	4.5	8	27	89	20	30
10...	.023	.07	<10	<4.0	--	--	--	20	--
MAR									
12...	<.010	--	--	--	13	75	90	--	1
21...	.026	.08	--	--	207	2440	96	--	1
APR									
07...	.010	.03	17	<4.0	7	13	39	--	1
21...	.025	.08	--	--	35	344	94	--	1
MAY									
07...	.014	.04	--	--	25	119	94	30	30
07...	--	--	--	--	18	86	87	30	--
11...	.013	.04	--	--	27	210	89	--	1
JUN									
04...	<.010	--	--	--	9	10	59	--	1
JUL									
08...	.021	.06	12	9.3	12	11	49	--	10
AUG									
06...	.019	.06	--	--	12	6.2	39	--	1
SEP									
09...	<.010	--	--	--	7	3.3	58	--	1

CONODOGUINET CREEK BASIN

01570000 CONODOGUINET CREEK NEAR HOGESTOWN, PA--Continued

REMARKS.--The following analyses are quality control samples processed during the 1998 water year and are defined in the explanation of records section entitled, "Water Quality-Control Data". Explanation of column headings and abbreviations--NUT&ION: nutrient and major ion.

QUALITY-CONTROL DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	SAMPLE TYPE	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	SAMPLE PURPOSE CODE (71999)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	
JUL 08...	0810	NUT&ION BLANK	1028	80020	10	.027	.009	<.10	<.10	<.10	
DATE		CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA + ORGANIC DIS-SOLVED (MG/L AS N) (00625)	NITRO-GEN, AMMONIA + ORGANIC DIS-SOLVED (MG/L AS N) (00623)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
JUL 08...	<.10	<.10	<.10	<10	<.010	<.050	.051	<.10	<.10	<.010	
DATE		PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	IRON, DIS-SOLVED (MG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (MG/L AS MN) (01056)	BLANK, TYPE OF SOLUTION (CODE) (99100)	BLANK, SOURCE OF SOLUTION (CODE) (99101)	BLANK, TYPE OF SAMPLE (CODE) (99102)	REF-ERENCE MATERIAL/SPIKE SOURCE (CODE) (99104)	
JUL 08...	<.010	.017	.05	17	<4.0	10.00	80.00	100.00	98056		

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 mi².

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 sea level. 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.--No estimated daily discharges. Records good. 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 ft³/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 180,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 10	0600	*316,000	*17.27	May 13	0915	198,000	12.66

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9870	5900	37700	30000	37600	88100	63000	58200	16900	18100	7540	4550
2	10300	6520	44000	24300	36500	131000	61800	52700	16300	23900	7150	4670
3	11000	12700	46500	22900	35000	160000	64600	55100	16700	52300	6670	4550
4	9060	19500	45200	22900	32800	147000	63400	55700	16900	38200	6320	4910
5	8760	23500	39600	27300	39100	121000	60900	54700	20300	28200	6040	5000
6	8390	22400	36100	42400	56700	96200	54800	73400	20300	22200	5730	4730
7	11400	23100	33500	72300	52500	79300	48800	77000	17800	20700	5510	4570
8	8650	40800	31900	111000	46400	70300	43900	75400	16300	24200	5340	4610
9	7270	87400	29900	253000	40100	72700	41200	90100	15000	24200	5230	4990
10	6840	87200	27900	309000	35200	103000	64300	94000	13800	25500	5440	5310
11	6580	83800	26500	248000	32400	131000	138000	96600	13000	40400	6300	5100
12	6360	72000	25200	188000	33800	137000	146000	151000	13800	42700	7950	4590
13	6060	61100	24900	151000	39600	118000	107000	196000	16400	31400	7260	4370
14	5910	52800	24300	121000	48000	95300	80800	175000	20000	23800	6850	4350
15	5900	45900	23700	95700	53800	77600	67500	130000	26400	19700	6160	4490
16	5670	39100	22000	82100	52500	65600	62200	95100	36600	17000	6210	4490
17	5550	35000	20600	80300	47200	56000	60300	74900	33900	15000	6420	4520
18	5450	30500	19300	73100	63900	49900	55400	60900	33900	13600	6770	4510
19	5410	26700	18300	65000	105000	46900	52200	50100	33100	12500	7670	4490
20	5300	23700	17700	57500	136000	45600	88600	43200	32400	11600	7680	4480
21	5200	21200	17100	51100	145000	61300	128000	36000	32800	10800	6810	4350
22	5090	21000	16800	46100	124000	95200	155000	32300	29500	10200	6080	4270
23	5060	24400	16800	42900	102000	111000	130000	29100	25400	10400	5760	4220
24	4940	29100	16900	46700	113000	103000	96000	26000	22900	10400	5690	4240
25	5430	33000	18600	49600	129000	83100	75400	23800	26100	9890	5690	4230
26	5470	35500	22200	47100	104000	69500	64000	22400	23000	9460	5520	4360
27	5630	33500	26000	43300	90300	61300	69900	20700	23400	9120	5240	4320
28	5680	31200	30600	41400	84300	57400	81900	19500	20100	8570	5150	4100
29	5740	30200	34300	40000	---	65300	81200	18600	18000	8290	5010	4010
30	5750	31600	34500	38200	---	67200	71200	17700	21000	8090	4760	4120
31	5790	---	32800	37600	---	65600	---	17500	---	8030	4630	---
TOTAL	209510	1090320	861400	2560800	1915700	2731400	2377300	2022700	674000	608450	190580	135500
MEAN	6758	36340	27790	82610	68420	88110	79240	65250	22470	19630	6148	4517
MAX	11400	87400	46500	309000	145000	160000	155000	196000	36600	52300	7950	5310
MIN	4940	5900	16800	22900	32400	45600	41200	17500	13000	8030	4630	4010
CFSM	.28	1.51	1.15	3.43	2.84	3.66	3.29	2.71	.93	.81	.26	.19
IN.	.32	1.68	1.33	3.95	2.96	4.22	3.67	3.12	1.04	.94	.29	.21

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1891 - 1998, BY WATER YEAR (WY)

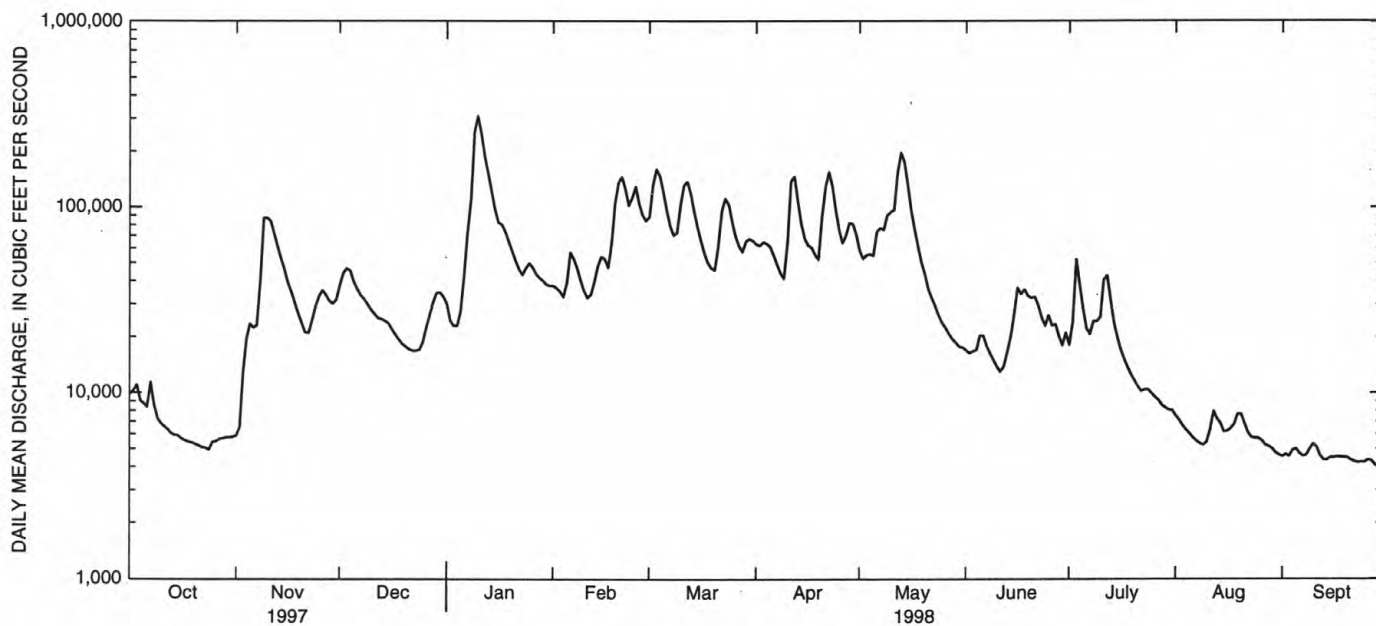
	MEAN	17400	26830	34620	37210	40920	74500	72610	45110	26140	15390	11700	11520
MAX	75150	83540	98870	103100	153500	216100	217000	103900	166800	71450	44960	69050	
(WY)	1977	1927	1997	1996	1891	1936	1993	1894	1972	1902	1994	1975	
MIN	2356	2303	3835	3876	9123	27460	20380	12750	7328	3315	2878	2066	
(WY)	1931	1931	1931	1931	1931	1960	1946	1941	1962	1965	1930	1964	

SUSQUEHANNA RIVER BASIN

01570500 SUSQUEHANNA RIVER AT HARRISBURG, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1891 - 1998	
ANNUAL TOTAL	9674220		15377660		34450	
ANNUAL MEAN	26500		42130		53040	
HIGHEST ANNUAL MEAN					16940	
LOWEST ANNUAL MEAN					954000	
HIGHEST DAILY MEAN	131000	Mar 8	309000	Jan 10	954000	Jun 24 1972
LOWEST DAILY MEAN	4640	Aug 12	4010	Sep 29	1700	Nov 29 1930
ANNUAL SEVEN-DAY MINIMUM	4940	Aug 8	4200	Sep 24	1790	Sep 17 1964
INSTANTANEOUS PEAK FLOW			316000	Jan 10	1020000	Jun 24 1972
INSTANTANEOUS PEAK STAGE			17.27	Jan 10	a32.57	Jun 24 1972
INSTANTANEOUS LOW FLOW			3940	Sep 28	b1600	Nov 29 1930
ANNUAL RUNOFF (CFSM)	1.10		1.75		1.43	
ANNUAL RUNOFF (INCHES)	14.93		23.74		19.42	
10 PERCENT EXCEEDS	57300		96400		79800	
50 PERCENT EXCEEDS	21800		28200		20200	
90 PERCENT EXCEEDS	5750		5180		5500	

a From floodmark.

b Result of freezeup. Minimum daily discharge since construction of sanitary dam and not affected by freezeup, 1,700 ft³/s, Sept. 18, 1964.

1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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 mi².

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 Olmsted's Mill".

REVISED RECORDS.--WSP 1302: 1910, 1912-13, 1914(M), 1916.

GAGE.--Water-stage recorder. Datum of gage is 307.49 ft above sea level. March 1909 to December 1919, nonrecording gage at site 50 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. The Mechanicsburg Water Co. diverts water about 4 mi upstream from station for municipal supply. Diversion for the year was equivalent to a mean daily discharge of 3.0 ft³/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 ft³/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 1,250 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 8	1130	1,510	4.75	Mar. 22	0415	2,340	6.56
Jan. 8	2045	2,070	5.98	Apr. 9	2315	1,420	4.56
Jan. 23	2115	1,260	4.20	Apr. 20	0345	2,040	5.90
Feb. 5	1145	2,070	5.98	Apr. 27	0215	1,300	4.30
Feb. 18	1030	2,380	6.64	May 5	2230	1,920	5.64
Feb. 24	0745	*2,480	*6.85	May 9	0515	1,590	4.92
Mar. 9	1430	1,930	5.66	May 12	2215	1,850	5.48

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	146	142	287	229	540	951	590	562	430	260	228	145
2	140	247	267	225	506	869	619	788	381	240	195	145
3	137	245	239	232	485	1010	536	766	364	235	187	145
4	135	182	231	258	483	1050	508	630	332	232	183	143
5	133	155	229	268	1660	901	486	910	320	228	178	140
6	131	145	222	256	1360	787	461	1320	312	224	173	137
7	129	186	216	262	902	732	453	871	300	218	170	154
8	128	1190	212	1020	758	783	442	995	301	552	167	187
9	125	952	208	1500	676	1580	650	1440	288	431	165	161
10	127	539	217	968	616	1700	1000	1140	283	296	194	149
11	126	411	255	705	589	1270	607	1280	298	259	321	143
12	123	349	247	590	850	1010	520	1740	527	243	216	141
13	123	309	231	523	720	868	492	1700	569	233	186	138
14	126	350	221	467	642	794	480	1340	687	228	194	137
15	129	394	213	441	595	724	479	1080	413	222	185	135
16	131	330	208	810	557	657	463	918	365	221	184	133
17	127	292	206	701	571	609	463	806	387	222	212	133
18	126	267	204	644	1940	621	448	709	326	216	241	131
19	125	254	201	556	1680	846	757	647	324	207	197	131
20	122	246	198	505	1180	703	1800	598	315	203	179	131
21	120	239	196	462	980	1900	1080	556	291	202	171	131
22	118	276	193	432	829	2110	841	522	277	198	168	148
23	116	298	204	713	858	1410	741	494	387	204	166	150
24	116	258	212	1100	2250	1070	674	469	442	203	164	139
25	137	240	367	805	1700	900	608	451	303	195	158	138
26	144	234	347	657	1160	801	658	435	286	206	158	138
27	152	231	277	586	989	746	1050	412	275	200	157	138
28	144	225	267	701	919	693	678	396	261	193	153	135
29	130	223	252	775	---	653	585	380	255	188	151	133
30	124	234	258	665	---	616	554	371	267	183	149	131
31	123	---	253	599	---	584	---	360	---	241	146	---
TOTAL	4013	9643	7338	18655	26995	29948	19723	25086	10566	7383	5696	4240
MEAN	129	321	237	602	964	966	657	809	352	238	184	141
MAX	152	1190	367	1500	2250	2110	1800	1740	687	552	321	187
MIN	116	142	193	225	483	584	442	360	255	183	146	131
CFSM	.60	1.49	1.10	2.79	4.46	4.47	3.04	3.75	1.63	1.10	.85	.65
IN.	.69	1.66	1.26	3.21	4.65	5.16	3.40	4.32	1.82	1.27	.98	.73

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

	188	215	274	309	389	501	475	374	291	206	187	188
MEAN	188	215	274	309	389	501	475	374	291	206	187	188
MAX	620	419	824	815	964	1335	1353	809	1639	486	573	1012
(WY)	1977	1997	1997	1996	1998	1994	1993	1998	1972	1989	1915	1975
MIN	98.6	99.4	97.2	92.4	153	221	216	167	123	81.2	80.6	94.7
(WY)	1964	1966	1966	1981	1989	1911	1966	1969	1966	1966	1966	1965

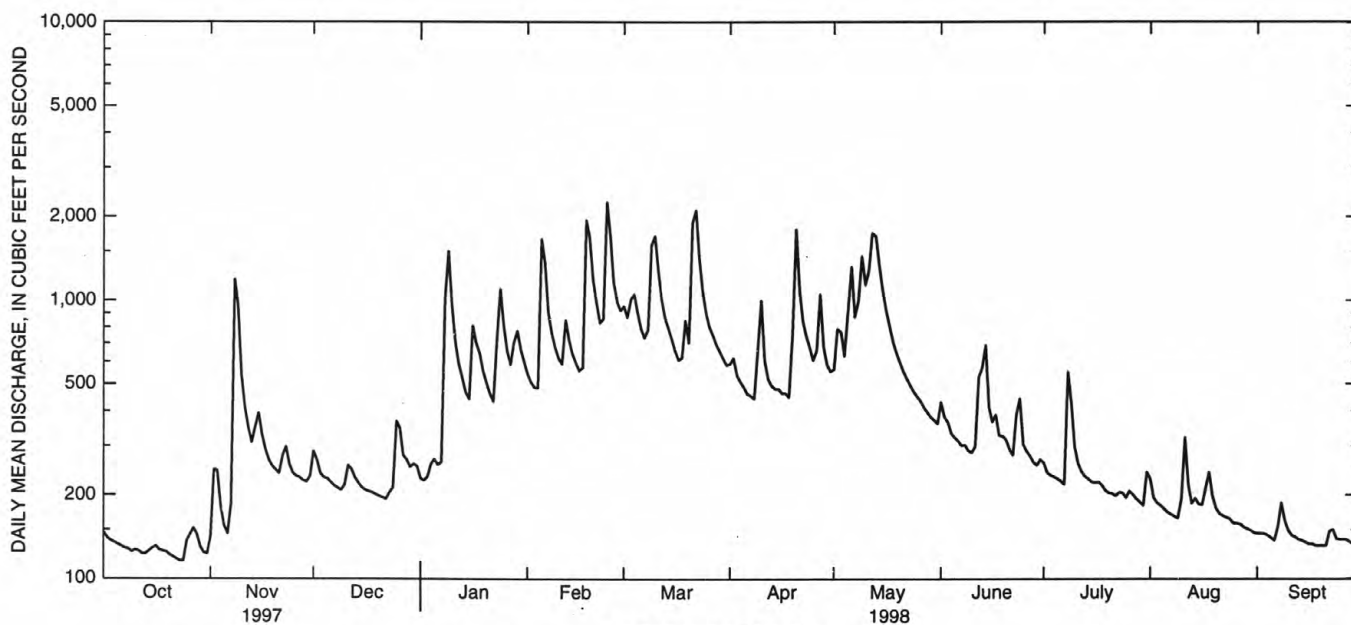
YELLOW BREECHES CREEK BASIN

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

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	97147		169286		300	
ANNUAL MEAN	266		464		500	
HIGHEST ANNUAL MEAN					1972	
LOWEST ANNUAL MEAN					1966	
HIGHEST DAILY MEAN	1190	Nov 8	2250	Feb 24	12400	Jun 22 1972
LOWEST DAILY MEAN	116	Oct 23,24	116	Oct 23,24	67	Sep 13 1966
ANNUAL SEVEN-DAY MINIMUM	120	Oct 18	120	Oct 18	70	Sep 7 1966
INSTANTANEOUS PEAK FLOW			2480	Feb 24	a19300	Sep 26 1975
INSTANTANEOUS PEAK STAGE			6.85	Feb 24	b18.77	Sep 26 1975
INSTANTANEOUS LOW FLOW			112	Oct 23	23	Sep 12 1966
ANNUAL RUNOFF (CFSM)	1.23		2.15		1.39	
ANNUAL RUNOFF (INCHES)	16.73		29.15		18.87	
10 PERCENT EXCEEDS	412		984		540	
50 PERCENT EXCEEDS	238		291		217	
90 PERCENT EXCEEDS	137		137		118	

a From rating curve extended above 16,000 ft³/s.

b From floodmark.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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 mi².

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.--Interruptions in the record were due to malfunctions of the instrumentation. Fixed-time, base flow, and stormflow samples collected. 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, Nov. 14, 1995, is 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 346-400. Figure 8 shows the location of sites sampled as part of the Swatara Creek Project.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 272 microsiemens, Aug. 12, 1997; minimum, 42 microsiemens, Nov. 8, 1996.

pH: Maximum, 7.7, Mar. 21, 1997; minimum, 3.3, Jan. 1, 1997.

WATER TEMPERATURE: Maximum, 21.0°C, July 15-18, Aug. 16, 1997, Aug. 11, 1998; minimum, 0.0°C, many days during winters.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 213 microsiemens, Sept. 19, 20; minimum, 59 microsiemens, Jan. 8.

pH: Maximum, 6.8, Oct. 1, 2; minimum, 4.6, Jan. 10.

WATER TEMPERATURE: Maximum, 21.0°C, Aug. 11; minimum 0.0°C, Dec. 31, Jan. 1.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, INST- CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
OCT											
31...	1100	1028	9813	1.2	161	5.7	5.4	446	7.4	10.0	85
NOV											
20...	1000	1028	9813	3.0	121	5.6	5.5	439	3.9	13.0	97
DEC											
17...	1015	1028	9813	2.4	133	5.7	5.2	530	3.2	13.0	99
JAN											
07...	1300	1028	9813	8.6	117	5.2	5.0	510	8.3	12.0	100
09...	1020	1028	9813	44	129	4.9	4.7	--	9.8	11.0	100
FEB											
19...	1415	1028	9813	13	101	5.3	4.9	427	6.3	12.0	97
MAR											
31...	1715	1028	9813	4.7	128	5.4	5.1	469	14.0	10.0	100
APR											
22...	1445	1028	9813	9.8	119	5.1	5.0	461	10.8	10.0	90
MAY											
21...	1115	1028	9813	5.0	111	5.6	5.4	459	14.4	9.8	96
JUN											
29...	1530	1028	9813	4.7	105	6.0	5.9	358	15.9	9.9	100
JUL											
23...	0930	1028	9813	1.0	165	6.0	6.2	361	17.9	8.7	92
AUG											
25...	1350	1028	9813	.40	188	5.7	5.8	305	18.8	8.2	88
SEP											
28...	1030	1028	9813	.35	212	5.5	5.5	445	17.0	6.9	71

SWATARA CREEK BASIN

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	ACIDITY TOTAL HEATED (MG/L AS CACO3) (70508)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD (MG/L AS CACO3) (00410)
OCT 31...	5.0	9.2	8.4	6.8	6.2	5.4	5.0	.9	.78	--
NOV 20...	2.0	6.6	6.6	4.1	4.1	5.2	5.1	.8	.71	--
DEC 17...	7.4	6.9	6.5	5.3	5.1	4.6	4.3	.7	.57	--
JAN 07...	--	5.3	5.2	3.6	3.4	4.5	4.4	2.1	1.1	--
09...	8.4	5.6	5.7	5.6	5.7	3.8	3.8	2.6	2.0	--
FEB 19...	6.8	5.5	5.2	4.0	3.7	5.1	4.6	1.4	1.4	2
MAR 31...	7.0	8.6	8.6	6.0	6.0	6.0	6.0	.9	.95	2
APR 22...	7.4	6.2	6.8	5.2	5.5	5.0	5.0	.6	.56	1
MAY 21...	6.6	7.5	7.5	5.0	4.8	5.2	5.0	.8	.74	1
JUN 29...	5.0	6.4	6.4	3.7	3.7	4.9	4.9	1.0	1.0	--
JUL 23...	3.8	11	11	7.0	6.8	5.3	5.2	1.1	.96	--
AUG 25...	2.0	14	14	9.2	9.2	6.2	6.2	1.2	1.1	--
SEP 28...	4.0	17	17	9.7	9.7	5.9	5.9	<1.0	<1.0	--

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, TOTAL (MG/L AS F) (00951)	SILICA TOTAL (MG/L- SIO2) (00956)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT 31...	3	47	9.3	<.2	6.3	<2	<.040	<.020	.12	<.020
NOV 20...	3	36	10	<.2	5.2	4	<.040	<.020	.11	<.020
DEC 17...	3	41	8.8	<.2	5.9	2	<.040	.050	.12	<.020
JAN 07...	2	36	9.1	<.2	14	36	.090	.050	.33	.020
09...	2	43	6.9	<.2	9.0	24	.070	.080	.39	.020
FEB 19...	2	33	8.9	<.2	5.3	14	.050	.020	.19	<.020
MAR 31...	3	42	8.5	<.2	6.4	<2	.040	<.020	.16	<.020
APR 22...	3	40	7.4	<.2	4.5	<2	<.040	<.020	.17	<.020
MAY 21...	3	40	8.8	<.2	6.0	<2	.080	.030	.24	<.020
JUN 29...	4	29	7.4	<.2	5.5	2	.180	.030	.35	<.020
JUL 23...	5	53	8.5	<.2	6.7	4	.100	<.020	.24	<.020
AUG 25...	4	68	8.5	<.2	7.6	<2	.110	<.020	.21	<.020
SEP 28...	3	76	9.0	<.2	7.2	4	.050	<.020	.19	<.020

SWATARA CREEK BASIN

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	ALUM- INUM, TOTAL RECOV- ERABLE ($\mu\text{G/L}$ AS AL) (01105)	ALUM- INUM, DIS- SOLVED ($\mu\text{G/L}$ AS AL) (01106)	ARSENIC TOTAL ($\mu\text{G/L}$ AS AS) (01002)	ARSENIC DIS- SOLVED ($\mu\text{G/L}$ AS AS) (01000)	BARIUM, TOTAL RECOV- ERABLE ($\mu\text{G/L}$ AS BA) (01007)	BARIUM, DIS- SOLVED ($\mu\text{G/L}$ AS BA) (01005)	CADMIUM WATER UNFLTRD TOTAL ($\mu\text{G/L}$ AS CD) (01027)	CADMIUM DIS- SOLVED ($\mu\text{G/L}$ AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE ($\mu\text{G/L}$ AS CR) (01034)	CHRO- MIUM, DIS- SOLVED ($\mu\text{G/L}$ AS CR) (01030)
OCT										
31...	380	<200	<4	<4	26	24	<10	<10	<50	<50
NOV										
20...	660	<200	<4	<4	31	30	<10	<10	<50	<50
DEC										
17...	820	260	<4	<4	55	54	<50	<50	<50	<50
JAN										
07...	4200	240	<4	<4	52	29	<10	<10	<50	<50
09...	2300	840	<4	<4	47	38	16	<10	<50	<50
FEB										
19...	910	220	<4	<4	36	33	<10	<10	<50	<50
MAR										
31...	760	340	<4	<4	39	39	<10	<10	<50	<50
APR										
22...	900	630	<4	<4	38	38	<10	<10	<50	<50
MAY										
21...	620	<200	<40	<40	33	33	<10	<10	<50	<50
JUN										
29...	640	<200	<40	<40	31	31	<10	<10	<50	<50
JUL										
23...	540	<200	<40	<40	38	38	<10	<10	<50	<50
AUG										
25...	<200	270	<40	<40	33	32	<10	<10	<50	<50
SEP										
28...	<200	<200	<4	<4	33	31	<10	<10	<50	<50
DATE	COBALT, TOTAL RECOV- ERABLE ($\mu\text{G/L}$ AS CO) (01037)	COBALT, DIS- SOLVED ($\mu\text{G/L}$ AS CO) (01035)	COPPER, TOTAL RECOV- ERABLE ($\mu\text{G/L}$ AS CU) (01042)	COPPER, DIS- SOLVED ($\mu\text{G/L}$ AS CU) (01040)	IRON, TOTAL RECOV- ERABLE ($\mu\text{G/L}$ AS FE) (01045)	IRON, DIS- SOLVED ($\mu\text{G/L}$ AS FE) (01046)	LEAD, TOTAL RECOV- ERABLE ($\mu\text{G/L}$ AS PB) (01051)	LEAD, DIS- SOLVED ($\mu\text{G/L}$ AS PB) (01049)	LITHIUM TOTAL RECOV- ERABLE ($\mu\text{G/L}$ AS LI) (01132)	LITHIUM DIS- SOLVED ($\mu\text{G/L}$ AS LI) (01130)
OCT										
31...	<50	<50	<10	<10	210	130	<1	<1.0	<30	<25
NOV										
20...	<50	<50	<10	<10	200	130	<1	<1.0	<30	<25
DEC										
17...	<50	<50	27	27	280	180	<1	<1.0	30	30
JAN										
07...	<50	<50	<10	<10	1700	60	4	<1.0	<30	<30
09...	<50	<50	27	16	1600	340	2	<1.0	<30	<30
FEB										
19...	<50	<50	<10	<10	650	340	<1	<1.0	<30	<25
MAR										
31...	<50	<50	23	22	500	180	<1	<1.0	<30	<30
APR										
22...	<50	<50	42	42	510	430	<1	<1.0	<30	<10
MAY										
21...	<50	<50	<10	<10	690	240	<10	<10	<30	<25
JUN										
29...	<50	<50	<10	<10	430	73	<10	<10	<30	<25
JUL										
23...	<50	<50	11	<10	260	100	<10	<10	<30	<25
AUG										
25...	<50	<50	<10	<10	200	200	<10	<10	<30	<25
SEP										
28...	<50	<50	<10	<10	40	39	<1	<1.0	<30	<30

SWATARA CREEK BASIN

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SELE- NIUM, TOTAL (µG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	STRON- TIUM, TOTAL RECOV- ERABLE (µG/L AS SR) (01082)	STRON- TIUM, DIS- SOLVED (µG/L AS SR) (01080)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)
OCT 31...	360	330	<50	<50	<7	<7	30	30	70	72
NOV 20...	300	300	<50	<50	<7	<7	20	22	50	52
DEC 17...	390	360	51	<50	7	<7	50	45	90	87
JAN 07...	300	290	<50	<50	<7	<7	20	22	80	77
09...	430	430	<50	<50	<7	<7	40	32	90	91
FEB 19...	320	290	<50	<50	<7	<7	30	23	60	58
MAR 31...	440	440	<50	<50	<7	<7	30	35	90	94
APR 22...	360	440	<50	<50	<7	<7	30	31	70	78
MAY 21...	420	420	<50	<50	<70	<70	30	29	70	62
JUN 29...	260	250	<50	<50	<70	<70	20	19	40	43
JUL 23...	320	300	<50	<50	<70	<70	40	36	70	56
AUG 25...	380	380	<50	<50	<70	<70	50	53	60	60
SEP 28...	480	490	<50	<50	<7	<7	60	62	60	56

SWATARA CREEK BASIN

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

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	175	137	152	158	102	137	120	101	111	133	124	129
2	170	141	155	109	91	100	120	114	117	134	126	130
3	175	141	158	123	98	111	118	115	117	131	111	122
4	176	144	160	125	120	122	122	116	118	114	109	112
5	180	144	162	127	123	125	123	118	120	117	111	115
6	184	138	165	128	124	126	126	120	124	115	107	111
7	189	144	166	127	114	118	128	124	126	113	64	106
8	187	145	169	120	101	110	132	124	129	98	59	78
9	185	154	171	108	99	104	133	129	131	137	98	127
10	192	150	173	116	107	111	133	125	129	140	136	138
11	191	151	172	110	106	109	132	128	130	137	129	133
12	192	144	174	110	107	109	134	129	131	131	125	128
13	194	160	175	111	106	109	135	131	133	127	121	124
14	193	158	174	109	102	105	137	132	135	125	121	123
15	196	156	171	114	105	110	139	135	137	125	111	120
16	183	153	168	114	109	112	140	135	138	111	90	101
17	188	158	173	119	113	116	139	133	136	116	107	113
18	188	153	174	121	117	119	140	133	137	117	112	115
19	192	158	175	123	118	121	141	136	138	116	111	114
20	191	163	175	123	117	120	138	134	136	116	111	113
21	195	158	176	131	117	121	141	133	137	116	113	115
22	195	163	179	120	102	109	144	137	141	121	116	118
23	194	164	178	119	113	116	140	133	136	122	87	106
24	180	172	177	119	115	116	134	127	131	114	93	107
25	173	124	138	119	114	116	129	100	109	123	111	118
26	152	126	144	119	115	116	111	107	109	129	122	125
27	126	98	108	123	114	118	110	105	108	130	126	128
28	138	116	128	124	119	121	112	105	109	129	124	127
29	145	136	141	125	119	122	115	110	113	131	125	129
30	150	144	147	126	100	119	119	109	114	129	125	127
31	158	148	153	---	---	---	127	117	122	131	127	129
MONTH	196	98	162	158	91	116	144	100	126	140	59	119

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	130	125	129	121	116	119	120	75	104	107	103	106
2	129	124	127	121	118	119	107	89	101	103	96	100
3	128	124	126	124	114	118	109	106	108	105	101	103
4	129	91	121	119	114	116	112	107	109	104	76	95
5	111	85	97	118	113	116	114	109	111	94	82	91
6	125	109	116	119	113	116	115	111	113	96	73	91
7	127	120	124	117	113	115	117	113	115	97	84	92
8	127	123	126	118	98	111	118	113	116	101	86	94
9	128	123	126	101	66	85	115	71	103	103	88	95
10	126	120	124	123	92	110	102	75	90	106	91	100
11	124	93	120	125	120	123	118	102	111	107	81	96
12	105	85	96	125	120	122	121	117	118	115	88	101
13	110	104	107	122	117	120	120	117	119	120	115	118
14	113	107	111	121	115	118	120	116	118	121	116	118
15	115	112	113	120	117	118	117	113	115	117	114	116
16	117	113	115	120	115	118	117	114	116	115	111	114
17	117	89	110	118	114	116	116	113	115	114	110	112
18	103	75	92	117	106	111	118	114	116	116	111	113
19	110	98	103	110	102	106	117	75	97	116	111	113
20	117	109	113	113	106	110	102	79	92	117	111	114
21	121	114	118	107	75	90	113	101	108	119	113	116
22	122	119	120	110	97	104	114	111	113	120	116	118
23	122	76	117	111	107	109	114	111	113	122	118	120
24	109	68	92	114	108	111	117	112	114	126	120	122
25	120	109	115	116	111	114	116	113	114	126	101	114
26	128	117	123	117	113	115	116	88	105	123	112	117
27	129	121	125	116	113	115	108	90	101	129	121	124
28	125	115	122	116	113	115	108	105	106	133	125	128
29	---	---	---	118	114	116	108	105	107	134	120	130
30	---	---	---	119	115	117	108	104	106	132	114	122
31	---	---	---	119	116	118	---	---	---	138	130	132
MONTH	130	68	115	125	66	113	121	71	109	138	73	110

SWATARA CREEK BASIN

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

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	140	132	136	109	95	102	179	168	174	206	198	201
2	142	97	133	116	108	111	184	176	180	205	156	176
3	134	109	125	121	113	116	188	180	183	170	153	160
4	141	133	136	123	116	120	190	183	185	182	167	175
5	144	140	142	127	118	121	192	184	188	189	179	185
6	151	142	145	132	122	126	196	188	191	195	187	191
7	151	146	148	130	124	127	196	190	193	196	122	182
8	152	147	149	128	78	102	199	191	194	153	118	137
9	158	146	151	113	101	107	200	192	195	172	153	164
10	154	149	152	128	112	119	198	121	160	181	168	177
11	152	144	149	134	125	128	155	121	138	189	178	184
12	148	77	100	140	132	135	171	152	163	192	182	188
13	---	---	---	144	138	140	182	169	175	197	190	193
14	---	---	---	147	142	144	187	154	177	199	192	195
15	---	---	---	150	142	145	177	171	175	202	193	198
16	---	---	---	174	143	146	182	175	179	204	195	200
17	---	---	---	149	145	147	185	164	175	206	195	202
18	122	117	120	150	136	141	169	109	154	208	198	203
19	124	118	120	157	148	151	152	108	135	213	203	206
20	125	118	121	158	154	156	166	150	159	213	202	207
21	129	122	125	162	154	158	173	165	169	212	203	207
22	129	120	126	164	159	162	178	172	175	211	189	202
23	124	91	118	167	159	164	177	169	173	199	187	191
24	101	65	87	169	164	166	182	174	178	204	195	200
25	110	100	104	174	166	168	188	178	183	206	165	192
26	110	79	98	174	167	171	188	181	184	175	161	167
27	104	90	100	178	170	173	191	183	187	189	173	182
28	108	101	104	177	171	174	196	186	191	195	187	192
29	108	104	106	180	173	176	196	189	193	203	192	199
30	107	95	103	182	175	178	199	192	195	206	199	202
31	---	---	---	180	165	170	201	193	198	---	---	---
MONTH	158	65	124	182	78	143	201	108	177	213	118	189
YEAR	213	59	134									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	6.8	6.8	6.8	6.2	5.7	5.8	5.5	5.3	5.4	5.5	5.4	5.4
2	6.8	6.7	6.8	6.0	5.6	5.7	5.4	5.4	5.4	5.5	5.5	5.5
3	6.7	6.6	6.7	6.2	5.6	5.8	5.4	5.4	5.4	5.5	5.4	5.5
4	6.6	6.4	6.5	6.0	5.9	6.0	5.4	5.4	5.4	5.5	5.4	5.5
5	6.5	6.1	6.4	6.0	5.9	5.9	5.4	5.4	5.4	5.4	5.4	5.4
6	---	---	---	5.9	5.9	5.9	5.4	5.4	5.4	5.5	5.3	5.4
7	6.0	5.8	5.9	6.0	5.8	5.9	5.4	5.3	5.4	5.9	5.3	5.4
8	5.9	5.7	5.8	6.1	5.7	5.9	5.4	5.3	5.3	6.6	5.0	5.7
9	5.7	5.6	5.7	5.8	5.6	5.7	5.5	5.3	5.4	5.1	4.7	4.8
10	5.6	5.3	5.5	5.8	5.6	5.7	5.6	5.5	5.5	4.7	4.6	4.7
11	5.7	5.6	5.6	5.8	5.8	5.8	5.6	5.5	5.5	4.9	4.7	4.8
12	5.6	5.5	5.6	5.9	5.8	5.8	5.6	5.6	5.6	5.0	4.9	5.0
13	5.6	5.5	5.5	5.9	5.8	5.9	5.6	5.6	5.6	5.1	5.0	5.1
14	5.5	5.2	5.5	5.9	5.8	5.9	5.6	5.6	5.6	5.2	5.1	5.2
15	5.6	5.5	5.5	5.9	5.7	5.8	5.6	5.6	5.6	5.3	5.2	5.3
16	5.6	5.4	5.5	5.7	5.7	5.7	5.6	5.6	5.6	5.3	5.2	5.2
17	5.5	5.4	5.5	5.7	5.6	5.6	5.6	5.6	5.6	5.3	5.2	5.3
18	5.5	5.4	5.4	5.6	5.6	5.6	5.6	5.6	5.6	5.3	5.2	5.3
19	5.4	5.4	5.4	5.6	5.6	5.6	5.6	5.6	5.6	5.3	5.2	5.2
20	5.4	5.4	5.4	5.6	5.5	5.6	5.6	5.6	5.6	5.3	5.2	5.3
21	5.4	5.3	5.4	5.6	5.5	5.5	5.6	5.6	5.6	5.4	5.3	5.3
22	5.4	5.4	5.4	5.5	5.4	5.5	5.6	5.6	5.6	5.7	5.4	5.5
23	5.4	5.4	5.4	5.4	5.4	5.4	5.6	5.6	5.6	5.7	5.4	5.6
24	5.5	5.4	5.4	5.4	5.4	5.4	5.6	5.5	5.5	5.7	5.4	5.5
25	6.1	5.4	5.7	5.5	5.4	5.4	5.8	5.5	5.6	5.6	5.4	5.5
26	5.8	5.5	5.6	5.5	5.4	5.4	5.5	5.5	5.5	5.4	5.3	5.3
27	6.0	5.7	5.9	5.4	5.4	5.4	5.5	5.5	5.5	5.3	5.3	5.3
28	5.8	5.7	5.7	5.4	5.4	5.4	5.6	5.5	5.5	5.3	5.3	5.3
29	5.7	5.7	5.7	5.4	5.4	5.4	5.5	5.5	5.5	5.4	5.3	5.4
30	5.7	5.7	5.7	5.5	5.4	5.4	5.5	5.4	5.5	5.4	5.4	5.4
31	5.7	5.7	5.7	---	---	---	5.5	5.4	5.4	5.5	5.4	5.5
MONTH	6.8	5.2	5.8	6.2	5.4	5.7	5.8	5.3	5.5	6.6	4.6	5.3

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	5.5	5.5	5.5	5.0	4.9	5.0	5.7	5.3	5.4	5.5	5.4	5.4
2	5.5	5.5	5.5	5.2	5.0	5.1	5.4	5.3	5.4	5.5	5.4	5.4
3	5.5	5.5	5.5	5.8	5.2	5.4	5.4	5.4	5.4	5.4	5.4	5.4
4	5.6	5.4	5.5	5.4	5.4	5.4	5.4	5.4	5.4	5.5	5.4	5.4
5	5.5	5.3	5.4	5.5	5.4	5.5	5.4	5.4	5.4	5.4	5.4	5.4
6	5.4	5.1	5.2	5.5	5.5	5.5	5.4	5.4	5.4	5.5	5.4	5.4
7	5.1	5.1	5.1	5.5	5.5	5.5	5.5	5.4	5.4	5.7	5.2	5.5
8	5.1	5.1	5.1	5.5	5.3	5.5	5.4	5.4	5.4	5.5	5.1	5.2
9	5.2	5.1	5.2	5.8	5.3	5.4	5.6	5.4	5.4	5.6	5.1	5.4
10	5.3	5.2	5.2	5.3	4.8	5.0	5.4	5.2	5.3	5.3	5.0	5.5
11	5.4	5.2	5.3	4.8	4.8	4.8	5.2	5.0	5.1	5.7	5.0	5.3
12	5.4	5.2	5.2	5.0	4.8	5.0	5.1	5.0	5.0	5.5	4.8	5.2
13	5.3	5.2	5.3	5.2	5.0	5.1	5.1	5.0	5.1	4.9	4.7	4.8
14	5.3	5.3	5.3	5.3	5.2	5.2	5.2	5.1	5.1	4.8	4.7	4.8
15	5.4	5.3	5.4	5.4	5.3	5.4	5.2	5.2	5.2	5.0	4.8	4.9
16	5.4	5.4	5.4	5.5	5.4	5.4	5.3	5.2	5.3	5.2	5.0	5.1
17	5.5	5.3	5.5	5.5	5.5	5.5	5.4	5.3	5.3	5.3	5.2	5.3
18	5.5	5.3	5.4	5.6	5.5	5.5	5.4	5.3	5.4	5.4	5.3	5.4
19	5.4	5.2	5.3	5.5	5.5	5.5	5.6	5.3	5.4	5.5	5.4	5.4
20	5.2	5.1	5.2	5.5	5.5	5.5	5.6	5.3	5.5	5.5	5.5	5.5
21	5.2	5.1	5.1	5.6	5.4	5.5	5.3	5.1	5.2	5.6	5.5	5.5
22	5.3	5.2	5.2	5.5	5.4	5.5	5.1	5.1	5.1	5.7	5.6	5.6
23	5.5	5.3	5.3	5.4	5.3	5.4	5.2	5.1	5.1	5.7	5.6	5.7
24	5.5	5.0	5.2	5.4	5.3	5.3	5.2	5.2	5.2	5.8	5.7	5.8
25	5.0	4.9	4.9	5.4	5.3	5.3	5.3	5.2	5.3	5.9	5.7	5.8
26	4.9	4.8	4.9	5.4	5.3	5.4	5.4	5.3	5.3	5.8	5.7	5.7
27	4.9	4.8	4.8	5.4	5.3	5.4	5.4	5.3	5.4	5.8	5.8	5.8
28	4.9	4.8	4.9	5.4	5.3	5.4	5.4	5.4	5.4	5.9	5.8	5.8
29	---	---	---	5.4	5.3	5.4	5.5	5.4	5.4	5.9	5.8	5.9
30	---	---	---	5.4	5.3	5.4	5.5	5.4	5.4	5.9	5.8	5.8
31	---	---	---	5.4	5.3	5.4	---	---	---	5.9	5.8	5.8
MONTH	5.6	4.8	5.2	5.8	4.8	5.3	5.7	5.0	5.3	5.9	4.7	5.4
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	5.9	5.8	5.8	6.0	5.8	5.9	6.1	5.8	5.9	5.5	5.4	5.4
2	5.9	5.7	5.8	6.1	6.0	6.0	5.8	5.8	5.8	6.0	5.3	5.7
3	6.0	5.8	5.9	6.2	6.1	6.1	5.8	5.7	5.7	6.1	5.9	6.0
4	6.0	5.9	5.9	6.2	6.1	6.1	5.7	5.6	5.7	5.9	5.7	5.8
5	6.0	5.9	5.9	6.2	6.1	6.2	5.6	5.6	5.6	5.7	5.6	5.7
6	5.9	5.9	5.9	6.2	6.2	6.2	5.6	5.6	5.6	5.6	5.5	5.6
7	5.9	5.9	5.9	6.2	6.2	6.2	5.6	5.5	5.6	6.6	5.2	5.6
8	5.9	5.8	5.8	6.4	5.8	6.1	5.5	5.5	5.5	6.6	6.1	6.3
9	5.8	5.7	5.8	6.3	6.1	6.2	5.5	5.5	5.5	6.1	5.9	6.0
10	5.8	5.7	5.7	6.3	6.2	6.2	6.3	5.4	5.8	5.9	5.7	5.8
11	5.7	5.7	5.7	6.3	6.3	6.3	6.3	6.1	6.2	5.7	5.7	5.7
12	6.2	5.6	5.9	6.3	6.3	6.3	6.1	6.0	6.1	5.7	5.6	5.6
13	---	---	---	6.3	6.3	6.3	6.0	5.8	5.9	5.6	5.5	5.6
14	---	---	---	6.3	6.3	6.3	6.0	5.7	5.8	5.6	5.5	5.5
15	---	---	---	6.3	6.3	6.3	6.1	6.0	6.0	5.5	5.5	5.5
16	---	---	---	6.3	6.2	6.2	6.0	5.8	5.9	5.5	5.5	5.5
17	---	---	---	6.3	6.2	6.2	6.3	5.8	5.9	5.5	5.4	5.5
18	5.6	5.3	5.4	6.3	6.2	6.3	6.7	6.0	6.2	5.5	5.4	5.5
19	5.8	5.6	5.7	6.2	6.2	6.2	6.4	6.1	6.2	5.5	5.4	5.4
20	6.0	5.8	5.8	6.2	6.1	6.2	6.1	5.9	6.0	5.4	5.4	5.4
21	6.1	5.9	6.0	6.2	6.1	6.1	5.9	5.9	5.9	5.4	5.4	5.4
22	6.1	6.0	6.0	6.1	6.1	6.1	5.9	5.8	5.8	5.5	5.4	5.4
23	6.1	5.8	6.0	6.2	6.1	6.1	6.0	5.8	5.9	5.7	5.5	5.6
24	6.5	5.6	6.1	6.1	6.0	6.1	6.0	5.8	5.9	5.6	5.5	5.6
25	6.2	6.0	6.1	6.1	5.9	6.0	5.8	5.7	5.7	6.0	5.4	5.5
26	6.3	5.7	6.0	6.0	5.9	5.9	5.8	5.7	5.7	6.1	5.8	6.0
27	6.2	5.8	6.1	6.0	5.8	5.9	5.7	5.6	5.7	5.8	5.6	5.7
28	6.0	5.9	5.9	5.9	5.8	5.9	5.6	5.6	5.6	5.6	5.6	5.6
29	6.0	5.9	5.9	5.9	5.8	5.8	5.6	5.5	5.5	5.6	5.5	5.6
30	6.3	5.8	5.9	5.8	5.8	5.8	5.5	5.5	5.5	5.5	5.5	5.5
31	---	---	---	6.2	5.8	6.0	5.5	5.5	5.5	---	---	---
MONTH	6.5	5.3	5.9	6.4	5.8	6.1	6.7	5.4	5.8	6.6	5.2	5.6
YEAR	6.8	4.6	5.6									

SWATARA CREEK BASIN

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

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	12.0	9.0	11.0	11.0	7.5	9.5	6.5	3.5	5.0	1.0	.0	.5
2	10.5	7.5	9.0	10.5	7.5	10.0	4.0	3.0	3.5	3.0	.5	2.0
3	12.0	9.0	10.5	9.0	6.5	7.5	5.5	3.0	4.0	5.0	3.0	4.0
4	14.0	11.0	12.5	8.5	5.5	7.5	7.0	5.0	6.0	6.0	4.0	5.0
5	15.0	12.0	13.5	7.5	4.5	6.0	6.0	3.5	5.0	6.0	4.5	5.5
6	16.5	12.5	14.5	7.5	4.5	6.0	4.0	2.5	3.5	8.0	5.5	7.0
7	16.0	13.5	14.5	8.0	6.5	7.0	4.0	2.5	3.5	9.0	7.5	8.0
8	16.0	13.5	14.5	8.5	7.5	8.0	5.0	3.0	4.0	10.0	8.0	9.5
9	16.5	13.0	14.5	8.5	7.0	8.0	4.0	2.0	3.5	10.0	8.0	9.5
10	17.0	13.5	15.0	7.0	6.5	7.0	4.0	1.5	3.0	8.0	6.5	7.5
11	14.0	11.0	12.5	7.5	5.5	6.5	4.0	3.0	3.5	7.0	6.0	6.5
12	13.0	9.0	11.0	6.0	4.0	5.0	4.5	3.5	4.0	6.0	5.0	5.5
13	13.0	10.0	11.5	4.5	3.0	4.0	3.5	2.5	3.0	6.5	4.5	6.0
14	14.5	12.0	13.0	4.0	2.5	3.5	3.5	2.0	3.0	4.5	3.0	4.0
15	13.0	10.0	11.5	4.5	4.0	4.5	3.0	1.5	2.0	4.5	3.0	4.0
16	11.5	8.0	9.5	4.5	3.0	3.5	4.0	1.5	3.0	5.0	4.5	5.0
17	10.5	7.0	9.0	3.5	2.0	3.0	4.5	2.5	3.0	5.5	4.5	5.0
18	11.5	9.0	10.0	3.5	1.0	2.0	3.5	1.5	2.5	5.0	4.5	5.0
19	10.0	8.0	9.0	3.5	1.0	2.5	4.5	2.0	3.5	5.0	4.5	5.0
20	10.5	7.0	8.5	5.0	3.0	3.5	4.5	3.0	3.5	5.0	3.5	4.5
21	9.5	7.0	8.0	5.5	2.5	4.0	3.5	1.0	2.5	4.0	3.0	3.5
22	8.0	6.0	7.0	6.5	5.5	6.0	1.5	.5	1.0	4.5	3.0	4.0
23	7.0	4.5	5.5	6.0	5.0	6.0	3.5	1.5	3.0	4.0	2.0	3.5
24	8.0	4.5	6.5	5.0	3.0	4.0	4.0	3.0	3.5	5.0	3.5	4.5
25	8.5	7.5	8.0	4.0	2.0	3.0	5.0	3.5	4.0	4.5	3.5	4.0
26	8.0	6.0	6.5	6.0	3.5	5.0	5.0	4.0	4.5	5.0	3.5	4.0
27	9.5	6.5	8.0	6.0	4.5	5.0	4.5	3.5	4.0	5.0	4.0	4.5
28	7.5	5.0	6.5	6.5	4.5	5.0	3.5	2.0	3.0	4.5	3.5	4.0
29	7.5	4.0	5.5	6.5	5.0	6.0	3.5	1.5	2.5	5.5	3.5	4.5
30	8.5	5.0	6.5	6.5	6.0	6.5	3.0	1.5	2.5	5.5	4.5	5.0
31	9.0	5.0	7.0	---	---	---	2.0	.0	1.0	5.0	3.5	4.0
MONTH	17.0	4.0	10.0	11.0	1.0	5.5	7.0	.0	3.3	10.0	.0	5.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	5.0	2.5	3.5	8.0	6.5	7.0	12.5	11.0	11.5	12.0	10.0	11.0
2	5.0	3.0	4.0	8.0	6.0	7.0	11.5	8.5	10.5	11.5	10.5	11.0
3	5.0	4.0	4.5	7.0	5.0	6.0	10.5	8.0	9.0	12.0	9.5	11.0
4	4.5	3.5	4.0	6.5	4.5	5.5	8.0	6.0	7.5	12.5	10.5	11.5
5	4.5	4.0	4.0	6.0	4.5	5.0	8.5	5.5	7.0	12.0	11.0	11.5
6	5.5	4.0	4.5	6.5	3.5	5.0	9.5	5.0	7.0	12.5	11.0	11.5
7	5.5	4.0	4.5	7.5	5.0	6.0	10.0	5.5	7.5	12.5	10.5	11.5
8	5.5	3.5	4.5	6.0	5.5	6.0	10.0	7.5	8.5	11.5	11.0	11.5
9	5.5	3.0	4.0	7.5	5.5	6.5	9.0	6.5	7.5	12.0	11.0	11.5
10	6.0	3.5	4.5	7.0	4.5	6.0	8.0	6.0	7.0	12.0	11.0	11.5
11	6.0	4.0	5.0	5.0	3.5	4.0	9.0	5.5	7.5	11.5	10.5	11.0
12	6.0	5.0	5.5	4.0	2.5	3.5	10.0	6.0	8.0	11.0	10.0	10.5
13	5.0	4.0	4.5	5.0	2.5	3.5	10.5	6.0	8.5	11.5	9.5	10.5
14	4.0	3.0	3.5	5.5	3.5	4.0	11.5	7.5	9.0	12.5	9.0	11.0
15	3.5	1.5	2.5	5.5	3.5	4.0	11.5	9.5	10.0	13.5	10.5	12.0
16	4.0	2.0	3.0	5.5	3.0	4.0	11.5	9.0	10.5	14.5	11.5	13.0
17	4.5	3.5	4.0	6.0	2.5	4.0	13.0	9.5	11.0	15.0	12.5	13.5
18	5.5	4.5	5.0	5.0	4.5	4.5	11.5	7.5	9.5	15.0	11.5	13.0
19	6.5	5.5	6.0	6.0	4.5	5.5	9.5	8.5	9.0	15.5	12.0	13.5
20	6.5	5.5	6.0	7.5	5.5	6.5	10.0	8.0	9.0	16.0	12.5	14.5
21	7.0	6.0	6.0	6.5	4.0	5.0	11.0	7.0	9.0	15.0	12.0	13.5
22	6.5	5.5	6.0	5.0	4.0	4.5	11.0	8.0	9.5	13.0	10.5	11.5
23	6.0	4.5	5.0	6.0	3.5	4.5	10.0	8.5	9.5	13.0	9.0	11.0
24	4.5	3.5	4.0	6.0	3.5	4.5	12.0	8.0	10.0	14.0	9.0	11.5
25	6.0	4.5	5.0	7.0	3.0	5.0	12.0	8.5	10.0	14.0	11.5	12.5
26	6.5	5.0	5.5	9.0	5.0	7.0	9.0	8.0	8.5	15.0	12.0	13.5
27	7.5	5.0	6.5	12.0	7.0	9.5	10.0	7.0	8.0	15.0	12.0	13.5
28	7.5	6.5	7.0	13.0	9.0	10.5	10.5	6.0	8.0	15.5	12.0	14.0
29	---	---	---	13.5	9.5	11.0	12.0	6.5	9.0	17.0	13.0	15.0
30	---	---	---	14.0	9.0	11.5	11.5	9.5	10.5	17.5	14.0	15.5
31	---	---	---	14.5	10.0	12.0	---	---	---	18.5	14.5	16.5
MONTH	7.5	1.5	4.7	14.5	2.5	6.1	13.0	5.0	8.9	18.5	9.0	12.4

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 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1996 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 900 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records fair. Other data for this project presented in tables on pages 346-400. Diversion upstream from station by limestone treatment system used to aid in the remediation efforts of acid mine drainage.

PEAK DISCHARGES FOR PERIOD OF RECORD.--Peak discharges greater than a base discharge of 50 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 8	1230	69	2.14	June 13	1645	*162	*2.65

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	1.4	5.3	3.6	5.6	12	7.9	5.5	1.5	4.7	.69	.21
2	1.4	2.7	3.1	3.2	5.3	11	7.3	6.5	2.0	3.5	.61	.81
3	1.3	1.9	3.0	3.7	4.8	10	6.1	5.5	1.9	3.1	.58	.78
4	1.2	1.4	3.1	5.6	5.5	9.6	5.9	7.6	1.4	2.8	.51	.46
5	1.1	1.3	3.1	5.1	13	8.9	5.6	8.7	1.3	2.6	.47	.32
6	1.1	1.2	2.9	5.6	10	8.1	5.1	9.6	1.2	2.3	.36	.27
7	1.1	1.5	2.7	8.2	9.7	7.6	4.7	11	1.1	2.1	.33	.67
8	1.1	2.2	2.5	43	8.8	8.1	4.3	15	1.1	5.3	.33	1.5
9	1.0	3.3	2.4	37	7.9	25	8.8	18	1.0	3.5	.32	.66
10	1.1	2.5	2.5	24	7.3	19	16	20	.98	2.5	1.3	.48
11	1.0	2.2	2.3	17	7.4	15	11	25	1.0	2.1	1.2	.39
12	1.0	2.2	2.2	14	12	13	10	30	5.4	1.8	.62	.33
13	1.0	2.1	2.1	12	9.0	11	8.8	21	34	1.7	.50	.30
14	1.0	2.4	2.0	9.8	8.4	10	7.9	16	22	1.6	.59	.30
15	1.1	2.4	1.8	8.9	7.8	8.8	7.4	13	13	1.6	.61	.23
16	1.1	2.3	1.8	14	7.2	7.8	6.4	11	10	1.5	.50	.24
17	1.0	2.1	1.8	10	8.2	7.0	5.7	9.4	8.1	1.5	.67	.24
18	1.0	2.0	1.7	9.2	16	7.0	4.9	7.8	6.7	1.5	1.2	.21
19	1.0	2.0	1.6	8.6	14	7.1	11	6.7	5.2	1.3	1.2	.20
20	1.0	2.1	1.6	7.9	12	6.2	16	5.7	4.3	1.2	.67	.23
21	1.0	2.1	1.6	7.1	11	12	11	4.8	3.7	1.1	.52	.23
22	1.0	3.9	1.5	6.7	9.6	9.8	10	4.0	3.5	1.1	.52	.42
23	1.0	2.8	1.6	9.2	9.8	9.3	9.1	3.5	3.8	1.0	.58	.41
24	1.0	2.5	1.7	11	22	8.7	8.2	3.1	14	.95	.44	.28
25	2.0	2.4	5.5	9.4	16	7.9	7.2	3.6	5.5	.88	.40	.57
26	1.5	2.4	3.9	8.6	15	7.2	8.8	2.9	8.3	.84	.40	.68
27	2.3	2.4	3.7	7.9	14	6.9	8.7	2.4	6.8	.80	.34	.39
28	1.1	2.4	3.6	7.8	13	6.2	6.9	2.0	4.9	.77	.32	.34
29	.91	2.3	3.6	7.2	---	5.5	6.2	1.9	4.6	.71	.31	.28
30	.78	3.7	4.0	6.9	---	5.1	5.8	2.0	4.9	.68	.28	.29
31	.73	---	3.5	6.3	---	4.6	---	1.6	---	.90	.23	---
TOTAL	35.42	68.1	83.7	338.5	290.3	295.4	242.7	284.8	183.18	57.93	17.60	12.72
MEAN	1.14	2.27	2.70	10.9	10.4	9.53	8.09	9.19	6.11	1.87	.57	.42
MAX	2.3	3.9	5.5	43	22	25	16	30	34	5.3	1.3	1.5
MIN	.73	1.2	1.5	3.2	4.8	4.6	4.3	1.6	.98	.68	.23	.20

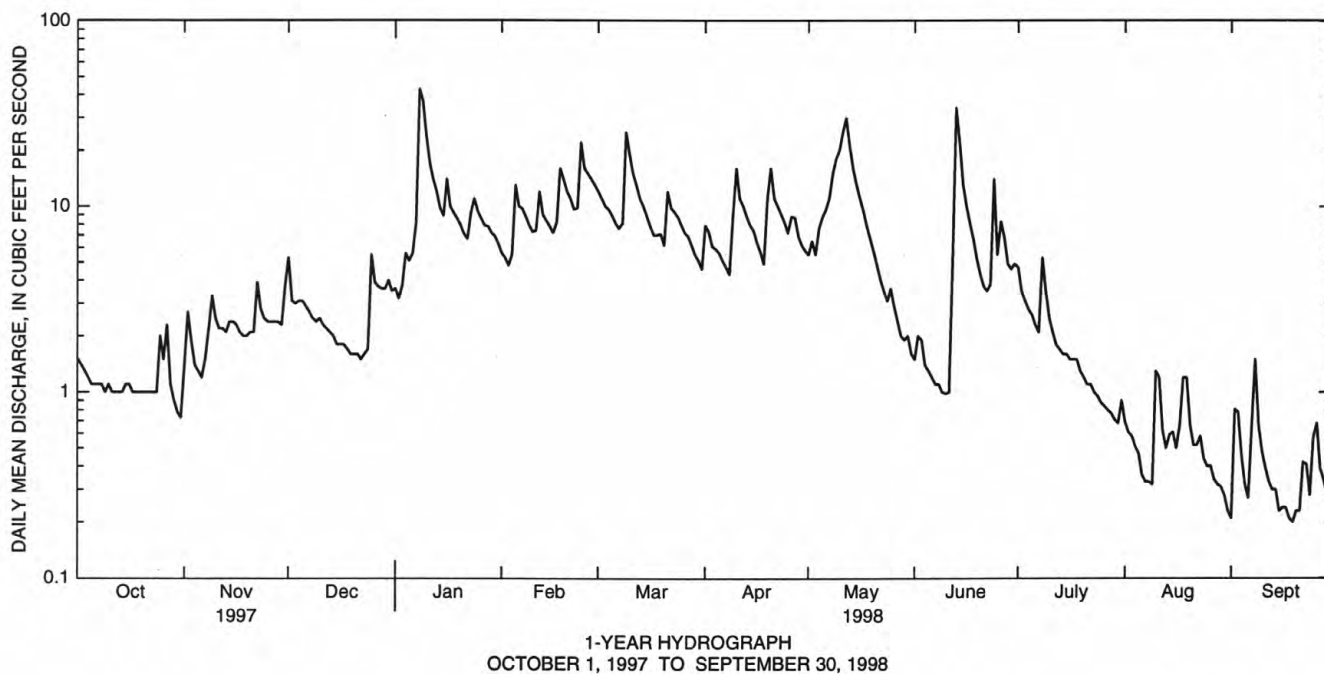
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 1998, BY WATER YEAR (WY)

	1996	1997	1998	1997	1998	1997	1998	1997	1998	1997	1998	1997	1998
MEAN	4.48	5.33	9.01	7.50	8.10	7.99	6.19	6.22	5.18	2.46	1.38	1.39	
MAX	7.81	8.40	15.3	10.9	10.4	9.53	8.09	9.19	6.11	3.61	1.88	2.19	
(WY)	1997	1997	1997	1998	1998	1998	1998	1998	1998	1996	1997	1997	
MIN	1.14	2.27	2.70	4.08	5.84	6.45	4.29	3.25	4.25	1.87	.57	.42	
(WY)	1998	1998	1998	1997	1997	1997	1997	1997	1997	1998	1998	1998	

SWATARA CREEK BASIN

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

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1996 - 1998	
ANNUAL TOTAL	1216.98		1910.35		5.35	
ANNUAL MEAN	3.33		5.23		5.48	
HIGHEST ANNUAL MEAN					5.23	
LOWEST ANNUAL MEAN					51	
HIGHEST DAILY MEAN	19	Jul 24	43	Jan 8	51	Oct 19 1996
LOWEST DAILY MEAN	.27	Jul 20,21	.20	Sep 19	.20	Sep 19 1998
ANNUAL SEVEN-DAY MINIMUM	.35	Jul 15	.23	Sep 15	.23	Sep 15 1998
INSTANTANEOUS PEAK FLOW			a162	Jun 13	a162	Jun 13 1998
INSTANTANEOUS PEAK STAGE			2.65	Jun 13	2.65	Jun 13 1998
INSTANTANEOUS LOW FLOW			.01	Aug 12	.01	Aug 12 1998
10 PERCENT EXCEEDS	6.6		12		10	
50 PERCENT EXCEEDS	2.6		3.1		3.3	
90 PERCENT EXCEEDS	1.0		.49		.73	

a From rating curve extended above 44 ft³/s.

SWATARA CREEK BASIN

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 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.--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 346-400. Figure 8 shows the location of sites sampled as part of the Swatara Creek Project.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 227 microsiemens, Sept. 19, 1998; minimum, 51 microsiemens, July 24, 1997.

pH: Maximum, 7.9, July 23, 1997; minimum, 3.6, Oct. 21-23, 25, Dec. 3, 1996.

WATER TEMPERATURE: Maximum, 22.5°C, July 15, 1997; minimum, 0.0°C, many days during winters.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 227 microsiemens, Sept. 19; minimum, 66 microsiemens, Mar. 9.

pH: Maximum, 7.7, Aug. 19, Sept. 8; minimum, 4.2, Jan. 9, 10.

WATER TEMPERATURE: Maximum, 20.5°C, July 29, Aug. 11, 23, 24, 27, 28, 31; minimum 0.0°C, Dec. 31, Jan. 1.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
OCT											
01...	1030	1028	9813	1.5	168	7.1	6.7	--	11.5	9.7	90
31...	1000	1028	9813	.73	170	6.4	6.1	462	6.0	11.0	89
NOV											
01...	1800	1028	9813	2.1	144	6.9	7.0	--	11.0	--	--
01...	2215	1028	9813	2.7	126	7.1	6.9	--	11.0	--	--
02...	0240	1028	9813	2.4	120	6.9	6.9	--	10.5	--	--
02...	0730	--	--	1.9	125	6.7	7.0	--	10.5	--	--
20...	0915	1028	9813	2.0	134	6.6	7.0	410	3.2	13.0	97
DEC											
17...	0930	1028	9813	1.8	143	6.3	6.1	410	2.6	13.0	99
JAN											
07...	1230	1028	9813	6.1	118	5.4	5.0	474	8.1	12.0	100
08...	1620	1028	9813	57	88	5.5	5.9	--	10.0	--	--
08...	1735	1028	9813	57	90	5.3	5.9	--	10.0	--	--
08...	1905	1028	9813	52	94	5.1	5.8	--	9.8	--	--
08...	2100	1028	9813	44	99	4.9	5.6	--	9.7	--	--
09...	0750	1028	9813	42	127	5.1	4.7	--	9.8	12.0	100
FEB											
17...	1930	1028	9813	10	111	5.6	6.0	--	4.2	--	--
17...	2230	1028	9813	12	96	5.4	5.7	--	4.5	--	--
18...	0300	1028	9813	21	85	5.4	5.9	--	4.5	--	--
18...	0430	1028	9813	23	81	5.4	5.7	--	4.3	--	--
18...	0900	1028	9813	17	91	5.2	5.4	--	4.6	--	--
18...	1800	1028	9813	13	106	5.3	5.5	--	5.5	--	--
19...	0300	1028	9813	15	104	5.3	5.4	--	5.5	--	--
19...	1300	1028	9813	13	109	5.6	5.2	397	6.3	12.0	97
MAR											
31...	1600	1028	9813	4.4	128	5.8	5.7	379	14.5	11.0	100
APR											
22...	1415	1028	9813	9.8	120	5.6	6.1	383	10.9	9.9	90
30...	2015	1028	9813	5.8	115	6.6	6.5	322	11.1	10.4	99
MAY											
04...	1700	1028	9813	8.1	115	6.1	6.4	--	12.3	--	--
04...	1800	1028	9813	11	102	6.1	6.4	--	12.4	--	--
04...	1930	1028	9813	14	87	6.0	6.3	--	12.2	--	--
04...	2100	1028	9813	13	84	5.8	6.1	--	12.1	--	--
04...	2230	1028	9813	12	88	5.9	6.1	--	12.0	--	--
05...	0730	1028	9813	8.9	98	6.6	6.0	--	11.5	--	--
06...	1230	1028	9813	7.6	107	6.5	6.0	--	11.6	--	--
21...	0915	1028	9813	4.9	126	6.7	6.7	435	13.7	9.9	95
JUN											
29...	1345	1028	9813	4.7	111	6.0	5.9	278	15.7	9.8	99
JUL											
23...	0900	--	--	1.0	174	6.2	6.2	366	17.9	9.1	--
AUG											
25...	1300	1028	9813	.40	196	6.6	6.3	325	19.2	8.1	88
SEP											
28...	0915	1028	9813	.35	213	6.4	6.3	430	17.3	7.1	75

SWATARA CREEK BASIN

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CACO3) (70508)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD (MG/L AS CACO3) (00410)
OCT											
01...	.0	.00	16	15	7.1	7.1	6.9	6.9	1.0	1.0	--
31...	--	3.6	12	9.8	6.7	6.5	5.5	5.2	.9	.86	--
NOV											
01...	.0	.00	14	12	5.0	4.6	5.9	5.7	1.5	1.4	--
01...	.0	.00	12	10	3.7	3.4	5.5	5.1	1.4	1.3	--
02...	.0	.00	10	10	3.6	3.6	5.3	5.3	1.3	1.3	--
02...	.0	.00	12	10	4.0	3.8	5.2	5.0	1.3	1.2	--
20...	--	.00	19	11	4.9	4.8	6.0	6.0	.8	.79	--
DEC											
17...	--	3.0	14	9.2	5.4	5.0	4.6	4.5	.6	.64	--
JAN											
07...	--	11	5.8	5.6	3.8	3.6	4.6	4.5	2.3	1.2	--
08...	--	4.8	6.1	4.9	2.5	2.0	.6	<.20	4.0	2.1	--
08...	--	5.8	5.2	4.8	2.5	2.2	.4	<.20	3.3	2.6	--
08...	--	5.2	5.1	4.5	2.8	2.4	.3	<.20	3.5	2.4	--
08...	--	5.4	5.0	4.5	3.2	2.9	.3	<.20	3.0	2.6	--
09...	--	7.6	5.9	5.7	5.2	5.1	3.8	3.8	3.1	2.4	--
FEB											
17...	--	2.6	7.2	6.1	3.8	3.5	4.7	4.4	1.1	.97	--
17...	--	4.2	5.3	5.0	3.0	2.9	4.6	4.2	1.0	.80	--
18...	--	3.2	6.2	5.4	2.8	2.5	4.3	4.5	1.9	1.2	--
18...	--	5.6	5.6	4.9	2.6	2.2	4.4	3.9	2.0	1.2	--
18...	--	5.0	5.1	4.8	2.8	2.5	6.0	5.6	1.7	1.5	--
18...	--	3.4	5.8	5.6	3.4	3.2	6.4	6.2	1.3	1.2	--
19...	--	3.6	5.7	5.4	3.5	3.2	6.3	6.0	1.4	1.1	--
19...	--	4.0	5.6	5.6	3.8	3.8	4.9	4.9	1.4	1.3	1
MAR											
31...	--	5.4	9.1	9.1	5.6	5.6	6.1	6.1	.9	.92	3
APR											
22...	--	1.0	9.5	8.6	6.7	5.2	5.0	5.0	.7	.67	3
30...	--	.00	9.5	8.5	4.2	4.1	5.4	5.3	1.1	.80	7
MAY											
04...	--	.00	19	10	4.1	3.7	6.6	5.8	.9	.89	--
04...	--	.00	15	9.2	3.8	3.2	5.0	4.2	1.5	1.0	--
04...	--	.00	11	7.6	3.1	2.6	4.5	3.9	1.8	1.1	--
04...	--	2.8	8.0	6.9	2.9	2.6	4.6	4.3	1.7	1.2	--
04...	--	2.2	7.6	6.5	3.0	2.6	4.7	4.2	2.0	1.2	--
05...	--	1.8	7.9	7.7	3.5	3.4	5.2	5.2	1.6	1.4	--
06...	--	5.0	7.9	6.9	3.9	3.5	5.2	4.7	1.7	1.7	--
21...	--	.00	14	9.0	5.0	4.8	5.4	5.2	.9	.64	10
JUN											
29...	--	6.0	7.0	6.4	3.9	3.6	5.0	4.8	.6	.60	--
JUL											
23...	--	1.8	12	11	7.2	7.0	5.6	5.4	1.2	1.0	--
AUG											
25...	--	.00	16	15	8.7	8.6	6.5	6.4	1.3	1.1	--
SEP											
28...	--	.00	18	18	8.6	8.3	7.2	6.2	<1.0	<1.0	--

SWATARA CREEK BASIN

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, TOTAL (MG/L AS F) (00951)	SILICA TOTAL (MG/L- SIO2) (00956)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT										
01...	16	44	10	<.2	7.1	36	.060	<.020	.11	<.020
31...	4	48	9.8	<.2	6.1	<2	<.040	<.020	.12	<.020
NOV										
01...	14	41	9.5	<.2	6.1	250	<.040	<.020	.21	<.020
01...	13	32	9.7	<.2	5.7	140	<.040	<.020	.21	<.020
02...	12	30	10	<.2	5.4	140	<.040	<.020	.19	<.020
02...	13	30	10	<.2	5.4	44	<.040	<.020	.15	<.020
20...	15	37	10	<.2	6.5	16	<.040	<.020	.12	<.020
DEC										
17...	8	43	8.9	<.2	5.6	4	<.040	.050	.11	<.020
JAN										
07...	2	36	9.3	<.2	18	54	.060	.040	.40	.030
08...	6	22	8.3	<.2	9.3	150	.100	.130	.75	.050
08...	6	23	8.2	<.2	8.5	86	.100	.120	.65	.040
08...	4	25	7.9	<.2	7.3	98	.100	.120	.65	.030
08...	3	27	7.9	<.2	7.0	76	.090	.110	.59	.030
09...	2	42	7.2	<.2	10	32	.070	.080	.44	.020
FEB										
17...	4	33	8.8	<.2	5.4	26	.070	.030	.23	<.020
17...	3	27	8.8	<.2	5.9	24	.060	.030	.21	<.020
18...	4	23	8.4	<.2	14	64	.080	.030	.37	.020
18...	3	22	8.7	<.2	12	56	.090	.030	.37	.020
18...	3	24	10	<.2	8.3	32	.070	.030	.27	.020
18...	3	29	11	<.2	5.6	16	.050	.020	.23	<.020
19...	3	29	10	<.2	5.7	22	.060	.020	.21	<.020
19...	3	32	9.4	<.2	4.8	16	.060	.020	.21	<.020
MAR										
31...	3	41	8.9	<.2	6.4	4	<.040	<.020	.20	<.020
APR										
22...	6	38	7.8	<.2	6.5	6	<.040	<.020	.21	<.020
30...	8	35	8.8	<.2	5.6	<2	<.040	<.020	.17	<.020
MAY										
04...	14	34	8.3	<.2	5.8	40	.070	.050	.32	.020
04...	14	30	8.0	<.2	8.6	82	.090	.050	.48	.020
04...	11	24	7.6	<.2	13	80	.110	.040	.48	.020
04...	8	23	7.8	<.2	10	50	.110	.030	.43	.020
04...	7	24	7.8	<.2	10	40	.120	.040	.41	.020
05...	7	27	8.5	<.2	7.7	38	.120	.040	.41	<.020
06...	6	31	8.8	<.2	6.2	30	.080	.030	.28	<.020
21...	11	38	9.0	<.2	6.1	<2	.080	.030	.24	<.020
JUN										
29...	4	31	7.7	<.2	5.9	4	.170	.020	.32	<.020
JUL										
23...	6	55	9.2	<.2	6.8	<2	.100	<.020	.24	<.020
AUG										
25...	7	68	9.7	<.2	7.6	<2	.110	<.020	.21	<.020
SEP										
28...	10	66	12	<.2	7.2	14	.080	<.020	.20	<.020

SWATARA CREEK BASIN

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	ALUM- INUM, TOTAL, RECOV- ERABLE (µG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (µG/L AS AL) (01106)	ARSENIC TOTAL (µG/L AS AS) (01002)	ARSENIC DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, TOTAL, RECOV- ERABLE (µG/L AS BA) (01007)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, TOTAL, RECOV- ERABLE (µG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)
OCT										
01...	470	<200	<4	<4	30	30	<10	<10	<50	<50
31...	240	<200	<4	<4	25	24	<10	<10	<50	<50
NOV										
01...	820	<200	<4	<4	27	23	<10	<10	<50	<50
01...	810	<200	<4	<4	26	22	<10	<10	<50	<50
02...	460	<200	<4	<4	27	26	<10	<10	<50	<50
02...	280	<200	<4	<4	26	24	<10	<10	<50	<50
20...	570	<200	<4	<4	33	32	<10	<10	<50	<50
DEC										
17...	660	<200	<4	<4	35	32	<10	<10	<50	<50
JAN										
07...	5500	220	<4	<4	60	28	<10	<10	<50	<50
08...	3600	<200	<4	<4	46	22	<10	<50	<50	<50
08...	2500	<200	<4	<4	38	24	<50	<50	<50	<50
08...	2400	<200	<4	<4	39	25	<50	<10	<50	<50
08...	2000	<200	<4	<4	38	29	<10	<10	<50	<50
09...	2900	750	<4	<4	42	31	<10	<10	<50	<50
FEB										
17...	1000	<200	<4	<4	32	27	<10	<10	<50	<50
17...	1400	<200	<4	<4	35	28	<10	<10	<50	<50
18...	4400	<200	<4	<4	51	28	<10	<10	<50	<50
18...	3600	<200	<4	<4	48	28	<10	<10	<50	<50
18...	2300	500	<4	<4	40	31	<10	<10	<50	<50
18...	1200	470	<4	<4	35	33	<10	<10	<50	<50
19...	1200	550	<4	<4	37	34	<10	<10	50	<50
19...	800	<200	<4	<4	33	31	<10	<10	<50	<50
MAR										
31...	730	<200	<4	<4	36	36	12	<10	<50	<50
APR										
22...	880	600	<4	<4	36	36	<10	<10	<50	<50
30...	660	<200	<4	<4	34	32	<10	<10	<50	<50
MAY										
04...	1200	<200	<4	<4	29	19	<10	<10	<50	<50
04...	3200	<200	<4	<4	44	22	<10	<10	<50	<50
04...	4500	<200	<4	<4	53	23	<10	<10	<50	<50
04...	2900	<200	<4	<4	46	27	<10	<10	<50	<50
04...	3200	<200	<4	<4	47	27	<10	<10	<50	<50
05...	1800	<200	<4	<4	41	33	<10	<10	<50	<50
06...	920	<200	<4	<4	37	31	<10	<10	<50	<50
21...	620	<200	<40	<40	33	32	<10	<10	<50	<50
JUN										
29...	620	<200	<40	<40	34	32	<10	<10	<50	<50
JUL										
23...	370	<200	<40	<40	32	30	<10	<10	<50	<50
AUG										
25...	<200	<200	<40	<40	31	31	<10	<10	<50	<50
SEP										
28...	<200	<200	<4	<4	29	27	<10	<10	<50	<50

SWATARA CREEK BASIN

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	COBALT, TOTAL RECOV- ERABLE (μG/L AS CO) (01037)	COBALT, DIS- SOLVED (μG/L AS CO) (01035)	COPPER, TOTAL RECOV- ERABLE (μG/L AS CU) (01042)	COPPER, DIS- SOLVED (μG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (μG/L AS FE) (01045)	IRON, DIS- SOLVED (μG/L AS FE) (01046)	LEAD, TOTAL RECOV- ERABLE (μG/L AS PB) (01051)	LEAD, DIS- SOLVED (μG/L AS PB) (01049)	LITHIUM TOTAL RECOV- ERABLE (μG/L AS LI) (01132)	LITHIUM DIS- SOLVED (μG/L AS LI) (01130)
OCT										
01...	20	23	<10	<10	260	95	<1	<1.0	<30	<30
31...	<50	<50	<10	<10	120	79	<1	<1.0	<30	<25
NOV										
01...	<50	<50	<10	<10	390	44	<1	<1.0	<30	<25
01...	<50	<50	<10	<10	420	84	<1	<1.0	<30	<25
02...	<50	<50	<10	<10	230	36	<1	<1.0	<30	<25
02...	<50	<50	<10	<10	170	26	<1	<1.0	<30	<25
20...	<50	<50	<10	<10	190	48	<1	<1.0	<30	<30
DEC										
17...	<50	<50	<10	<10	220	59	<1	<1.0	<50	<25
JAN										
07...	<50	<50	<10	<10	2300	55	5	<1.0	<30	<10
08...	<50	<50	12	14	6200	140	5	<1.0	<30	<30
08...	<50	<50	12	<10	3400	120	3	<1.0	<30	<30
08...	<50	<50	<10	63	3700	120	4	<1.0	<30	<30
08...	<20	<50	<10	<10	3100	99	3	<1.0	<30	<30
09...	<50	<50	16	<10	2400	260	3	<1.0	<30	<30
FEB										
17...	<50	<50	<10	<10	880	240	1	<1.0	<30	<25
17...	<50	<50	<10	<10	1000	210	1	<1.0	<30	<25
18...	<50	<50	<10	<10	3700	100	2	<1.0	<30	<30
18...	<50	<50	10	<10	3500	89	3	<1.0	<30	<30
18...	<50	<50	<10	<10	1300	130	1	<1.0	<30	<30
18...	<50	<50	<10	<10	560	190	<1	<1.0	<30	<30
19...	<50	<50	<10	<10	620	220	<1	<1.0	<30	<30
19...	<50	<50	<10	<10	540	300	<1	<1.0	<30	<25
MAR										
31...	<50	<50	23	19	540	360	<1	<1.0	<30	<30
APR										
22...	<50	<50	<180	<10	1400	520	<4	<1.0	<30	<30
30...	<50	<50	<10	<10	510	210	<1	<1.0	<30	<25
MAY										
04...	<50	<50	<10	<10	1100	<20	2	<1.0	<30	<25
04...	<50	<50	10	<10	3100	<20	4	<1.0	<30	<25
04...	<50	<50	10	<10	4400	<20	4	<1.0	<30	<25
04...	<50	<50	<10	<10	2600	36	3	<1.0	<30	<25
04...	<50	<50	<10	<10	2700	34	2	<1.0	<30	<25
05...	<50	<50	<10	<10	1400	35	2	<1.0	<30	<25
06...	<50	<50	<10	<10	640	44	<1	<1.0	<30	<25
21...	<50	<50	<10	<10	670	220	<10	<10	<30	<25
JUN										
29...	<50	<50	<10	<10	470	73	<10	<10	<30	<25
JUL										
23...	<50	<50	<10	<10	230	75	<10	<10	<30	<25
AUG										
25...	<50	<50	<10	<10	150	93	<10	<10	<30	<25
SEP										
28...	<50	<50	<10	<10	50	<20	<1	<1.0	<30	<30

SWATARA CREEK BASIN

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	MANGA- NESE, TOTAL RECOV- ERABLE (μ G/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (μ G/L AS MN) (01056)	NICKEL, TOTAL RECOV- ERABLE (μ G/L AS NI) (01067)	NICKEL, DIS- SOLVED (μ G/L AS NI) (01065)	SELE- NIUM, TOTAL (μ G/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (μ G/L AS SE) (01145)	STRON- TIUM, TOTAL RECOV- ERABLE (μ G/L AS SR) (01082)	STRON- TIUM, DIS- SOLVED (μ G/L AS SR) (01080)	ZINC, TOTAL RECOV- ERABLE (μ G/L AS ZN) (01092)	ZINC, DIS- SOLVED (μ G/L AS ZN) (01090)
OCT										
01...	420	420	<25	51	<7	<7	40	39	50	43
31...	360	350	<50	<50	<7	<7	40	33	60	57
NOV										
01...	320	290	<50	<50	<7	<7	50	41	40	21
01...	280	240	<50	<50	<7	<7	30	29	40	18
02...	270	270	<25	<50	<7	<7	30	26	40	27
02...	290	270	<50	<50	<7	<7	30	25	40	28
20...	340	340	<50	<50	<7	<7	30	29	50	46
DEC										
17...	360	340	<50	<50	<7	<7	30	30	60	52
JAN										
07...	310	290	<50	<50	<7	<7	30	22	80	77
08...	340	190	<50	<50	<7	<7	20	15	60	22
08...	280	220	<50	<50	<7	<7	20	16	50	27
08...	320	240	<50	<50	<7	<7	20	16	60	72
08...	330	280	<50	<50	<7	<7	20	18	70	47
09...	430	400	<50	<50	<7	<7	30	25	90	86
FEB										
17...	290	260	<50	<50	<7	<7	30	24	60	41
17...	250	230	<50	<50	<7	<7	20	20	50	42
18...	280	220	<50	<50	<7	<7	20	20	70	43
18...	280	220	<50	<50	<7	<7	20	18	60	37
18...	270	230	<50	<50	<7	<7	30	23	40	43
18...	280	260	<50	<50	<7	<7	30	27	50	48
19...	280	260	<50	<50	<7	<7	30	27	60	54
19...	300	300	<50	<50	<7	<7	20	24	50	51
MAR										
31...	420	420	<50	<50	<7	<7	30	32	70	60
APR										
22...	380	750	<50	<50	<7	<7	30	35	70	130
30...	320	320	<50	<50	<7	<7	30	28	60	51
MAY										
04...	330	260	<50	<50	<7	<7	40	26	50	<10
04...	340	230	<50	<50	<7	<7	30	24	70	<10
04...	300	200	<50	<50	<7	<7	30	21	70	<10
04...	280	220	<50	<50	<7	<7	20	21	50	12
04...	280	230	<50	<50	<7	<7	30	21	50	49
05...	290	280	<50	<50	<7	<7	30	25	50	21
06...	320	280	<50	<50	<7	<7	30	25	60	29
21...	410	390	<50	<50	<70	<70	30	29	50	30
JUN										
29...	290	270	<50	<50	<70	<70	30	23	50	38
JUL										
23...	340	330	<50	<50	<70	<70	40	38	50	52
AUG										
25...	350	340	<50	<50	<70	<70	50	53	50	44
SEP										
28...	240	240	<50	<50	<7	<7	60	55	60	33

SWATARA CREEK BASIN

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

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	171	157	164	171	122	154	125	107	116	139	122	134
2	174	164	169	129	104	117	123	116	120	140	131	135
3	174	165	170	138	109	125	122	116	120	136	114	127
4	177	168	172	142	131	136	127	118	121	118	110	116
5	180	168	175	141	134	138	128	122	124	124	114	118
6	185	171	178	142	135	139	130	125	128	121	109	115
7	187	175	181	141	125	131	133	127	130	142	91	116
8	189	175	181	134	110	121	136	129	132	114	88	96
9	193	178	183	121	110	115	138	132	134	138	114	128
10	192	178	185	127	117	122	140	126	133	143	134	138
11	192	179	186	122	115	119	137	129	133	141	132	136
12	190	181	185	120	115	118	139	132	135	133	123	127
13	189	176	183	120	113	117	139	132	136	128	120	123
14	187	176	182	132	108	113	139	133	136	125	119	123
15	186	173	179	121	113	117	144	135	139	124	114	120
16	190	173	179	121	114	118	151	140	144	117	86	97
17	185	175	181	125	118	122	147	142	144	106	98	102
18	186	176	180	127	123	126	148	140	145	113	100	106
19	187	176	181	134	124	128	148	141	145	118	109	114
20	187	177	182	135	129	132	145	139	142	121	114	118
21	188	178	183	142	126	133	146	136	141	120	114	117
22	189	178	184	127	107	115	147	138	144	128	118	124
23	190	180	185	123	117	120	147	138	141	131	91	111
24	190	181	185	123	117	119	140	126	132	121	96	111
25	184	141	156	123	118	121	134	112	118	129	117	123
26	168	148	160	124	116	120	120	113	116	132	125	129
27	149	113	123	123	116	120	116	105	109	138	127	130
28	151	128	140	129	118	122	115	108	111	138	128	132
29	159	148	153	127	120	124	119	110	115	134	128	131
30	167	153	161	127	105	120	121	111	116	135	125	130
31	170	156	165	---	---	---	132	118	124	138	131	135
MONTH	193	113	173	171	104	124	151	105	130	143	86	121

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	137	130	134	124	119	122	131	78	112	121	115	118
2	139	133	136	125	121	123	101	84	95	117	110	113
3	138	131	134	130	118	123	102	100	101	118	114	116
4	142	100	129	127	119	121	103	99	101	118	84	109
5	119	94	105	124	118	122	104	101	103	104	89	99
6	131	118	125	121	114	119	109	101	104	108	81	101
7	134	129	132	122	114	118	111	108	110	109	90	101
8	136	131	134	121	101	115	128	109	123	113	90	103
9	137	129	133	105	66	91	126	76	113	107	91	98
10	132	126	129	127	99	114	99	76	90	112	91	102
11	133	107	129	129	124	127	115	99	108	115	85	101
12	111	92	103	126	103	107	120	115	117	117	91	105
13	115	108	112	106	101	105	122	118	120	120	116	119
14	121	114	118	107	104	105	123	120	121	119	115	117
15	123	119	122	108	105	106	123	117	120	118	114	116
16	124	118	121	108	103	106	121	117	119	118	113	115
17	121	96	115	104	101	103	123	116	118	119	113	115
18	109	81	98	106	98	103	126	119	121	121	115	118
19	119	101	109	100	95	97	125	79	104	128	119	123
20	125	114	121	105	97	101	106	81	97	135	124	129
21	130	121	126	102	72	86	116	106	112	135	127	131
22	131	126	129	103	88	95	122	115	118	133	125	130
23	135	86	127	105	100	103	122	119	120	135	129	131
24	121	75	103	108	104	106	124	120	121	140	131	135
25	130	120	125	110	106	108	123	119	121	142	116	129
26	133	124	129	112	104	108	120	93	111	142	124	132
27	133	124	129	114	109	111	115	96	108	145	135	141
28	129	119	126	114	109	112	118	114	115	149	142	144
29	---	---	---	125	108	118	121	115	117	150	140	146
30	---	---	---	128	121	124	118	115	117	146	130	137
31	---	---	---	132	123	127	---	---	---	151	139	144
MONTH	142	75	123	132	66	111	131	76	112	151	81	120

SWATARA CREEK BASIN

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

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	155	145	149	115	100	107	185	174	180	219	208	212
2	156	98	149	122	111	116	190	178	183	217	137	192
3	152	133	143	128	117	122	192	181	186	198	170	182
4	156	146	150	133	122	127	195	185	189	206	192	199
5	157	150	154	137	124	129	196	186	190	207	196	201
6	158	149	154	145	132	136	198	188	193	213	198	205
7	162	154	157	145	135	140	201	190	195	213	148	196
8	164	154	159	143	87	116	201	190	195	175	134	155
9	166	157	162	128	109	117	201	191	197	196	171	183
10	164	156	160	139	123	130	202	130	166	201	190	196
11	165	152	158	140	132	136	164	129	146	208	194	201
12	157	83	109	161	136	141	185	161	174	213	202	206
13	---	---	---	157	144	151	188	174	182	217	206	210
14	---	---	---	160	149	155	190	159	183	220	204	211
15	---	---	---	159	150	154	200	180	186	216	205	211
16	---	---	---	159	148	154	193	180	187	221	209	215
17	---	---	---	157	149	153	194	173	183	225	212	218
18	127	120	124	154	140	146	185	130	170	225	214	218
19	127	120	123	158	148	154	172	129	153	227	215	220
20	128	120	123	163	156	159	183	163	175	224	214	219
21	132	121	126	167	157	163	197	177	185	225	215	219
22	133	125	129	170	161	166	218	185	192	222	203	214
23	127	101	120	177	163	169	194	183	188	210	198	204
24	109	70	92	176	168	172	200	186	193	216	205	210
25	120	106	112	180	170	176	202	191	196	215	178	202
26	121	82	105	183	174	178	203	191	197	191	172	180
27	110	94	105	185	176	180	205	195	199	204	187	196
28	113	104	108	186	175	180	207	193	202	212	198	204
29	114	107	110	186	176	181	210	199	204	215	204	210
30	114	102	110	189	179	183	210	199	206	217	208	213
31	---	---	---	186	171	176	214	203	209	---	---	---
MONTH	166	70	132	189	87	151	218	129	187	227	134	203
YEAR	227	66	141									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	7.6	7.1	7.3	7.1	5.7	6.3	6.1	5.7	5.9	5.1	4.9	5.0
2	7.3	7.0	7.1	7.2	6.6	6.9	6.1	5.6	5.8	5.1	5.0	5.0
3	7.0	6.9	7.0	7.0	6.1	6.4	5.6	5.4	5.6	5.1	5.0	5.0
4	6.9	6.7	6.8	6.3	6.1	6.2	5.6	5.4	5.5	5.3	4.9	5.1
5	6.9	6.7	6.8	6.4	6.1	6.2	5.6	5.2	5.4	5.4	5.2	5.3
6	6.9	6.4	6.7	6.4	6.1	6.3	5.3	5.2	5.3	5.4	5.3	5.4
7	7.0	6.6	6.9	6.6	6.3	6.4	5.3	5.2	5.3	---	---	---
8	7.0	6.8	6.9	6.7	6.5	6.6	5.3	5.2	5.2	6.1	4.7	5.3
9	6.9	6.7	6.8	6.6	6.2	6.4	5.4	5.1	5.2	4.7	4.2	4.4
10	6.8	6.6	6.7	6.3	5.9	6.1	5.3	5.2	5.2	4.3	4.2	4.3
11	6.6	6.4	6.5	6.0	5.8	5.9	5.3	5.2	5.3	4.5	4.3	4.4
12	6.4	6.2	6.3	6.1	5.8	5.9	5.3	5.2	5.3	5.0	4.5	4.7
13	6.2	6.1	6.2	5.8	5.7	5.7	5.5	5.2	5.3	---	---	---
14	6.2	5.9	6.1	5.8	5.6	5.8	5.4	5.2	5.3	5.3	5.1	5.2
15	6.1	5.9	6.0	5.7	5.5	5.6	5.5	5.3	5.3	5.3	5.1	5.2
16	6.1	5.9	6.0	5.6	5.4	5.5	6.2	5.3	5.6	5.2	5.1	5.1
17	6.0	5.6	5.7	5.5	5.3	5.4	6.3	6.1	6.1	5.2	5.1	5.2
18	5.6	5.5	5.5	5.4	5.2	5.3	6.2	6.0	6.1	5.2	5.1	5.2
19	5.5	5.4	5.4	6.4	5.2	5.6	6.1	5.9	6.0	5.1	5.0	5.1
20	5.4	5.2	5.4	6.8	6.4	6.5	5.9	5.7	5.8	5.3	5.0	5.1
21	5.3	5.2	5.2	6.8	6.0	6.4	5.8	5.5	5.6	5.3	5.1	5.2
22	5.2	5.1	5.2	6.7	5.5	6.3	5.6	5.5	5.5	7.0	5.3	5.8
23	5.2	4.9	5.1	5.5	5.4	5.4	5.6	5.4	5.5	7.1	6.1	6.6
24	5.0	4.8	4.9	5.5	5.3	5.4	5.5	5.3	5.4	6.3	5.9	6.1
25	6.2	5.0	5.9	5.6	5.3	5.5	6.4	5.4	6.1	5.9	5.4	5.6
26	6.2	5.4	5.8	5.6	5.4	5.5	6.2	6.0	6.1	5.5	5.4	5.4
27	6.4	5.7	6.1	5.6	5.4	5.5	6.0	5.3	5.7	5.6	5.3	5.4
28	6.1	5.9	6.0	6.3	5.4	5.8	5.4	5.2	5.3	5.4	5.3	5.4
29	6.0	5.8	5.9	6.1	5.7	5.9	5.2	5.0	5.1	5.6	5.4	5.5
30	5.9	5.7	5.8	6.2	5.6	5.8	5.1	5.0	5.0	5.6	5.4	5.6
31	5.8	5.7	5.8	---	---	---	5.1	4.9	5.0	5.7	5.4	5.6
MONTH	7.6	4.8	6.1	7.2	5.2	5.9	6.4	4.9	5.5	7.1	4.2	5.2

SWATARA CREEK BASIN

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

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	5.8	5.7	5.8	5.3	5.2	5.3	6.6	5.6	5.8	6.8	6.1	6.4
2	5.8	5.7	5.8	5.4	5.3	5.3	7.3	6.6	7.2	6.8	6.6	6.8
3	6.0	5.7	5.8	5.9	5.4	5.6	7.3	7.2	7.2	6.6	6.5	6.5
4	6.0	5.9	6.0	6.0	5.5	5.7	7.2	7.0	7.2	6.6	5.8	6.3
5	5.9	5.7	5.8	6.2	6.0	6.1	7.0	6.9	7.0	6.7	6.1	6.6
6	5.7	5.5	5.6	6.3	6.1	6.2	7.4	6.8	7.0	6.6	5.5	6.4
7	5.5	5.4	5.5	6.2	6.1	6.2	7.5	7.4	7.4	6.4	5.7	6.0
8	5.5	5.4	5.4	6.1	5.7	6.0	7.4	6.2	6.7	6.4	5.1	5.7
9	5.5	5.1	5.4	5.8	5.5	5.6	6.7	5.0	6.3	5.5	5.0	5.3
10	5.3	5.1	5.2	5.5	5.1	5.3	5.3	4.9	5.1	5.0	4.8	4.9
11	5.8	5.3	5.5	5.3	5.1	5.2	5.6	5.2	5.3	5.6	4.8	5.1
12	5.7	5.3	5.4	5.3	5.1	5.2	5.6	5.5	5.6	5.4	4.7	5.0
13	5.6	5.4	5.5	5.4	5.2	5.2	5.6	5.5	5.5	5.2	4.6	4.9
14	5.6	5.5	5.6	5.5	5.3	5.3	5.6	5.5	5.5	5.2	5.2	5.2
15	5.7	5.5	5.6	5.4	5.2	5.3	5.8	5.4	5.6	5.7	5.2	5.5
16	5.8	5.7	5.7	5.4	5.3	5.3	5.9	5.8	5.8	5.7	5.6	5.7
17	6.0	5.6	5.9	5.5	5.3	5.4	5.9	5.7	5.8	6.0	5.6	5.7
18	5.7	5.5	5.7	5.6	5.4	5.5	5.9	5.6	5.7	6.1	5.9	6.0
19	5.7	5.3	5.5	5.5	5.3	5.4	6.0	4.7	5.7	6.2	5.9	6.1
20	6.2	5.3	5.7	5.5	5.4	5.4	4.7	4.5	4.6	6.8	6.1	6.4
21	6.3	6.1	6.2	5.5	5.2	5.4	5.3	4.5	4.8	---	---	---
22	6.1	5.9	6.0	5.6	5.4	5.6	5.6	5.3	5.5	7.1	6.9	7.0
23	5.9	5.8	5.9	5.5	5.3	5.4	5.6	5.4	5.5	7.1	6.8	6.9
24	5.8	5.3	5.4	5.4	5.2	5.3	5.6	5.5	5.6	6.8	6.7	6.7
25	5.3	5.1	5.2	5.4	5.4	5.4	5.7	5.6	5.6	6.7	6.4	6.5
26	5.5	5.1	5.3	5.5	5.3	5.3	5.7	5.3	5.6	6.9	6.4	6.5
27	5.4	5.2	5.3	5.4	5.3	5.4	5.6	5.2	5.4	6.9	6.8	6.9
28	5.3	5.2	5.2	5.3	5.2	5.3	5.6	5.4	5.5	6.8	6.6	6.7
29	---	---	---	5.6	5.2	5.4	6.5	5.4	5.7	6.8	6.5	6.6
30	---	---	---	5.6	5.5	5.6	6.5	6.2	6.3	6.8	6.3	6.6
31	---	---	---	---	---	---	---	---	---	6.7	6.3	6.4
MONTH	6.3	5.1	5.6	6.3	5.1	5.5	7.5	4.5	5.9	7.1	4.6	6.1
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	6.6	6.4	6.5	5.9	5.8	5.8	6.3	6.2	6.2	6.8	6.6	6.7
2	6.9	6.2	6.5	6.0	5.9	6.0	6.2	6.2	6.2	6.9	6.5	6.8
3	7.0	6.2	6.7	6.1	6.0	6.0	6.2	6.1	6.2	7.3	6.7	6.9
4	6.3	6.1	6.2	6.2	6.0	6.1	6.2	6.1	6.2	7.0	6.7	6.8
5	6.1	6.0	6.1	6.4	6.1	6.2	6.2	6.1	6.1	6.7	6.6	6.6
6	6.1	5.9	6.0	6.5	6.3	6.4	6.2	6.1	6.2	6.6	6.6	6.6
7	6.0	5.9	5.9	6.5	6.5	6.5	6.2	6.2	6.2	7.2	6.4	6.6
8	5.9	5.8	5.9	6.5	6.0	6.3	6.2	6.1	6.2	7.7	7.2	7.5
9	5.9	5.8	5.8	6.8	6.3	6.4	6.2	6.1	6.2	7.5	7.1	7.3
10	5.9	5.7	5.8	7.0	6.8	6.9	6.5	5.8	6.3	7.1	6.9	7.0
11	6.1	5.8	5.8	7.0	6.6	6.9	6.5	6.3	6.4	6.9	6.8	6.9
12	7.3	5.8	6.8	6.8	6.5	6.6	6.6	6.2	6.4	6.8	6.7	6.8
13	---	---	---	6.9	6.8	6.8	6.5	6.4	6.4	6.7	6.6	6.7
14	---	---	---	6.9	6.4	6.7	6.4	6.3	6.4	6.6	6.4	6.6
15	---	---	---	6.4	6.3	6.4	6.6	6.4	6.4	6.6	6.5	6.5
16	---	---	---	6.3	6.2	6.2	6.5	6.3	6.4	6.6	6.5	6.5
17	---	---	---	6.3	6.2	6.3	6.6	6.3	6.4	6.6	6.5	6.6
18	5.6	5.3	5.5	6.4	6.2	6.3	7.5	6.4	6.7	6.6	6.5	6.6
19	5.8	5.6	5.7	6.3	6.2	6.2	7.7	7.4	7.5	6.5	6.5	6.5
20	5.9	5.8	5.9	6.3	6.1	6.2	7.4	7.2	7.3	6.5	6.4	6.4
21	6.0	5.9	6.0	6.3	6.2	6.2	7.2	7.1	7.2	6.4	6.3	6.4
22	6.1	6.0	6.0	6.2	6.2	6.2	7.1	6.9	7.0	6.4	6.3	6.3
23	6.0	5.8	6.0	6.3	6.2	6.2	7.0	6.8	6.9	6.4	6.3	6.4
24	6.4	5.6	6.1	6.2	6.2	6.2	6.8	6.7	6.7	6.4	6.4	6.4
25	6.2	6.0	6.1	6.2	6.1	6.1	6.8	6.6	6.7	6.4	6.3	6.4
26	6.2	5.7	6.0	6.1	6.1	6.1	6.8	6.7	6.7	6.5	6.4	6.4
27	6.2	5.8	6.1	6.1	6.1	6.1	6.7	6.7	6.7	6.4	6.3	6.4
28	6.0	6.0	6.0	6.1	6.1	6.1	6.8	6.7	6.7	6.4	6.2	6.4
29	6.0	5.9	6.0	6.1	6.1	6.1	6.7	6.6	6.7	6.4	6.4	6.4
30	6.2	5.8	5.9	6.1	6.1	6.1	6.7	6.6	6.7	6.4	6.4	6.4
31	---	---	---	6.3	6.0	6.2	6.8	6.6	6.7	---	---	---
MONTH	7.3	5.3	6.1	7.0	5.8	6.3	7.7	5.8	6.5	7.7	6.2	6.6
YEAR	7.7	4.2	6.0									

SWATARA CREEK BASIN

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

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	12.5	9.5	11.5	11.0	8.0	9.5	6.5	3.5	5.0	.5	.0	.5
2	10.5	7.5	9.0	10.5	7.5	10.0	4.0	2.5	3.5	3.0	.5	2.0
3	12.5	9.5	11.0	9.0	6.5	8.0	5.0	3.0	4.0	5.0	3.0	4.0
4	14.0	11.0	12.5	8.5	6.0	7.5	7.0	5.0	6.0	6.0	4.0	5.0
5	15.5	12.5	13.5	7.5	4.5	6.0	6.0	3.5	5.0	6.0	4.5	5.0
6	16.5	12.5	14.5	7.5	4.5	6.0	4.0	2.5	3.0	8.0	5.5	7.0
7	16.0	13.5	15.0	8.0	7.0	7.5	4.0	2.5	3.5	9.0	7.5	8.0
8	16.5	14.0	15.0	8.5	7.5	8.0	5.0	3.0	4.0	10.0	8.0	9.5
9	16.5	13.0	14.5	8.5	7.0	8.0	4.0	2.0	3.0	10.0	8.0	9.5
10	17.0	13.5	15.5	7.5	6.5	7.0	4.0	1.5	3.0	8.0	6.5	7.5
11	14.0	11.5	12.5	7.5	5.5	6.5	4.0	3.0	3.5	7.0	5.5	6.5
12	13.0	9.5	11.0	6.0	4.0	5.0	4.5	3.5	4.0	6.0	5.0	5.5
13	13.0	10.5	11.5	4.5	3.0	4.0	3.5	2.5	3.0	6.5	4.5	6.0
14	15.0	12.0	13.5	4.0	2.5	3.5	3.5	2.0	3.0	4.5	3.0	3.5
15	13.0	10.0	11.5	5.0	4.0	4.5	3.0	1.5	2.0	4.5	3.0	3.5
16	11.5	8.5	10.0	4.5	3.0	3.5	4.0	1.5	2.5	5.0	4.5	5.0
17	11.0	7.5	9.0	3.5	2.0	3.0	4.5	2.0	3.0	5.5	4.5	5.0
18	11.5	9.5	10.0	3.5	1.0	2.0	3.5	1.5	2.5	5.0	4.5	5.0
19	10.0	8.0	9.0	4.0	1.0	2.5	4.5	2.0	3.0	5.0	4.5	4.5
20	11.0	7.0	9.0	5.0	3.0	3.5	4.5	3.0	3.5	5.0	3.5	4.5
21	9.5	7.0	8.5	5.5	2.5	4.0	3.5	1.0	2.5	4.0	2.5	3.5
22	8.0	6.0	7.0	6.5	5.5	6.0	1.5	.5	1.0	4.5	3.0	3.5
23	7.0	4.5	5.5	6.0	5.0	6.0	3.5	1.5	3.0	4.0	2.0	3.0
24	8.0	4.5	6.5	5.0	2.5	4.0	4.0	3.0	3.5	5.0	3.0	4.5
25	8.5	7.5	8.0	4.0	2.0	3.0	5.0	3.5	4.0	4.5	3.5	3.5
26	8.0	6.0	7.0	6.0	3.5	5.0	5.0	3.5	4.5	5.0	3.0	4.0
27	9.5	7.0	8.0	6.0	4.0	5.0	4.0	3.5	3.5	5.0	3.5	4.0
28	7.5	5.5	6.5	6.0	4.5	5.0	3.5	2.0	3.0	4.0	3.5	4.0
29	7.5	4.0	6.0	6.5	5.0	6.0	3.5	1.5	2.5	5.5	3.5	4.5
30	8.5	5.0	6.5	6.5	6.0	6.5	3.0	1.5	2.5	5.0	4.5	5.0
31	9.0	5.0	7.0	---	---	---	2.0	.0	1.0	4.5	3.0	4.0
MONTH	17.0	4.0	10.2	11.0	1.0	5.5	7.0	.0	3.3	10.0	.0	4.9

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	5.0	2.5	3.5	8.5	6.5	7.0	12.5	11.0	11.5	12.0	10.0	11.0
2	5.0	2.5	4.0	8.0	6.0	7.0	12.0	8.5	10.5	11.5	10.5	11.0
3	5.0	4.0	4.5	7.0	5.0	6.0	10.5	8.0	9.0	12.0	10.0	11.0
4	4.5	3.5	4.0	6.5	4.5	5.5	8.0	6.0	7.5	12.5	11.0	11.5
5	4.5	4.0	4.0	6.0	4.5	5.0	8.5	6.0	7.0	12.0	11.5	11.5
6	5.5	4.0	4.5	6.5	3.5	5.0	9.5	5.0	7.5	12.5	11.0	11.5
7	5.5	3.5	4.5	7.5	5.0	6.0	10.5	5.5	8.0	13.0	10.5	11.5
8	5.5	3.0	4.0	6.0	5.5	5.5	10.0	7.5	9.0	11.5	11.5	11.5
9	5.5	3.0	4.0	7.5	5.5	6.5	9.0	6.5	7.5	12.5	11.0	11.5
10	6.0	3.5	4.5	7.0	4.5	6.0	8.5	6.5	7.0	12.0	11.0	11.5
11	5.5	3.5	4.5	5.0	3.0	4.0	9.5	5.5	7.5	11.5	10.5	11.0
12	6.0	4.5	5.5	4.0	2.5	3.5	10.0	6.0	8.0	11.0	10.0	10.5
13	5.0	4.0	4.5	5.0	2.5	3.5	11.0	6.0	8.5	12.0	9.5	11.0
14	4.0	2.5	3.5	5.5	3.5	4.0	11.5	7.5	9.5	13.0	9.5	11.0
15	3.5	1.5	2.5	5.5	3.0	4.0	12.0	9.5	10.5	14.0	10.5	12.5
16	4.0	1.5	3.0	5.5	3.0	4.0	12.0	9.0	10.5	15.0	11.5	13.5
17	4.5	3.5	4.0	6.0	2.5	4.0	13.5	10.0	11.5	15.5	12.5	14.0
18	5.5	4.5	5.0	5.0	4.5	4.5	12.0	8.0	9.5	15.0	12.0	13.5
19	6.5	5.5	6.0	6.0	4.5	5.5	9.5	8.5	9.0	15.5	12.0	14.0
20	6.5	5.5	6.0	8.0	5.5	6.5	10.0	8.0	9.0	16.5	13.0	14.5
21	6.5	6.0	6.0	6.5	4.0	5.0	11.0	7.0	9.0	15.5	12.5	14.0
22	6.5	5.5	6.0	5.0	4.0	4.5	11.0	8.0	9.5	13.0	11.0	12.0
23	6.0	4.0	5.0	6.0	3.5	4.5	10.5	8.5	9.5	13.0	9.5	11.5
24	4.5	3.5	4.0	6.5	3.5	4.5	12.5	8.0	10.0	14.0	9.5	12.0
25	6.5	4.5	5.0	7.0	3.0	5.0	12.0	8.5	10.0	14.5	12.0	13.0
26	7.0	5.0	5.5	9.0	5.0	7.0	9.0	8.0	8.5	15.0	12.0	13.5
27	7.5	5.0	6.5	12.5	7.0	9.5	10.5	7.0	8.5	15.5	12.0	13.5
28	7.5	6.5	7.0	13.0	9.0	10.5	11.0	6.5	8.5	16.0	12.0	14.0
29	---	---	---	13.5	9.5	11.0	12.5	6.5	9.5	17.5	13.0	15.0
30	---	---	---	14.5	9.0	11.5	11.5	9.5	10.5	17.5	14.0	16.0
31	---	---	---	15.0	10.0	12.5	---	---	---	18.5	14.5	16.5
MONTH	7.5	1.5	4.7	15.0	2.5	6.1	13.5	5.0	9.1	18.5	9.5	12.6

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 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1996 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 590 ft above sea level, from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Other data for this project presented in tables on pages 346-400.

PEAK DISCHARGES FOR PERIOD OF RECORD.--Peak discharges greater than a base discharge of 600 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 8	1300	*1,120	*3.29	May 6	2030	620	2.60
Mar. 21	0700	676	2.69	May 11	1815	620	2.60

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	29	85	48	102	e180	150	105	63	e71	e25	16
2	22	62	52	49	97	e160	139	119	70	e48	e22	32
3	22	46	45	53	92	e170	114	112	77	e44	e21	25
4	21	31	46	70	100	e160	108	133	61	e40	e21	19
5	21	24	45	75	259	e140	104	152	55	e38	e23	18
6	20	22	42	73	176	e130	98	233	53	e35	e21	17
7	21	29	39	97	149	e120	95	246	51	e35	e19	19
8	20	53	38	700	134	e120	92	265	49	e90	e19	25
9	20	68	37	632	125	e440	153	307	47	e80	e22	20
10	21	52	39	406	116	e430	265	336	47	e60	e49	17
11	21	41	41	287	115	357	173	411	47	e45	e50	16
12	19	36	41	216	198	285	151	521	121	e38	e29	15
13	19	33	42	179	134	236	137	369	e500	e34	e23	15
14	20	42	39	145	123	210	129	291	e420	e32	28	15
15	19	43	35	136	113	179	129	242	e200	e30	31	13
16	17	43	33	229	108	155	116	205	e135	e29	25	13
17	18	38	33	164	122	138	110	181	e145	e28	27	13
18	18	35	32	154	296	142	100	153	e100	e26	35	14
19	18	32	31	139	e270	154	214	134	e85	e26	34	12
20	20	31	31	124	e220	133	311	122	e77	e25	28	12
21	17	30	31	110	e190	403	199	112	e72	e26	31	12
22	16	52	30	103	e150	255	174	101	e66	e29	36	15
23	15	46	38	169	e150	217	156	95	e69	e29	44	12
24	15	37	40	196	e660	192	141	90	e171	e28	31	11
25	28	33	94	164	e500	165	126	118	e91	e26	22	13
26	25	34	71	143	e350	153	142	92	e103	e27	20	14
27	45	32	61	132	e250	146	158	82	e100	e26	19	14
28	30	28	57	132	e200	136	120	75	e74	e25	23	11
29	24	27	52	123	---	126	110	72	e68	e25	18	11
30	21	43	63	121	---	119	108	72	e73	e23	17	12
31	19	---	56	111	---	110	---	66	---	e31	16	---
TOTAL	657	1152	1419	5480	5499	6061	4322	5612	3290	1149	829	471
MEAN	21.2	38.4	45.8	177	196	196	144	181	110	37.1	26.7	15.7
MAX	45	68	94	700	660	440	311	521	500	90	50	32
MIN	15	22	30	48	92	110	92	66	47	23	16	11
CFSM	.49	.89	1.06	4.08	4.54	4.52	3.33	4.18	2.53	.86	.62	.36
IN.	.56	.99	1.22	4.71	4.72	5.21	3.71	4.82	2.83	.99	.71	.40

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 1998, BY WATER YEAR (WY)

	1996	1997	1998	1997	1998	1997	1998	1997	1998	1997	1998	1997	1998
MEAN	78.1	90.8	165	128	147	154	113	121	93.7	50.5	33.5	27.5	
MAX	135	143	284	177	196	196	144	181	110	64.2	39.9	38.5	
(WY)	1997	1997	1997	1998	1998	1998	1998	1998	1998	1996	1996	1996	
MIN	21.2	38.4	45.8	79.0	97.3	112	81.6	60.5	77.8	37.1	26.7	15.7	
(WY)	1998	1998	1998	1997	1997	1997	1997	1997	1997	1998	1998	1998	

e Estimated.

SWATARA CREEK BASIN

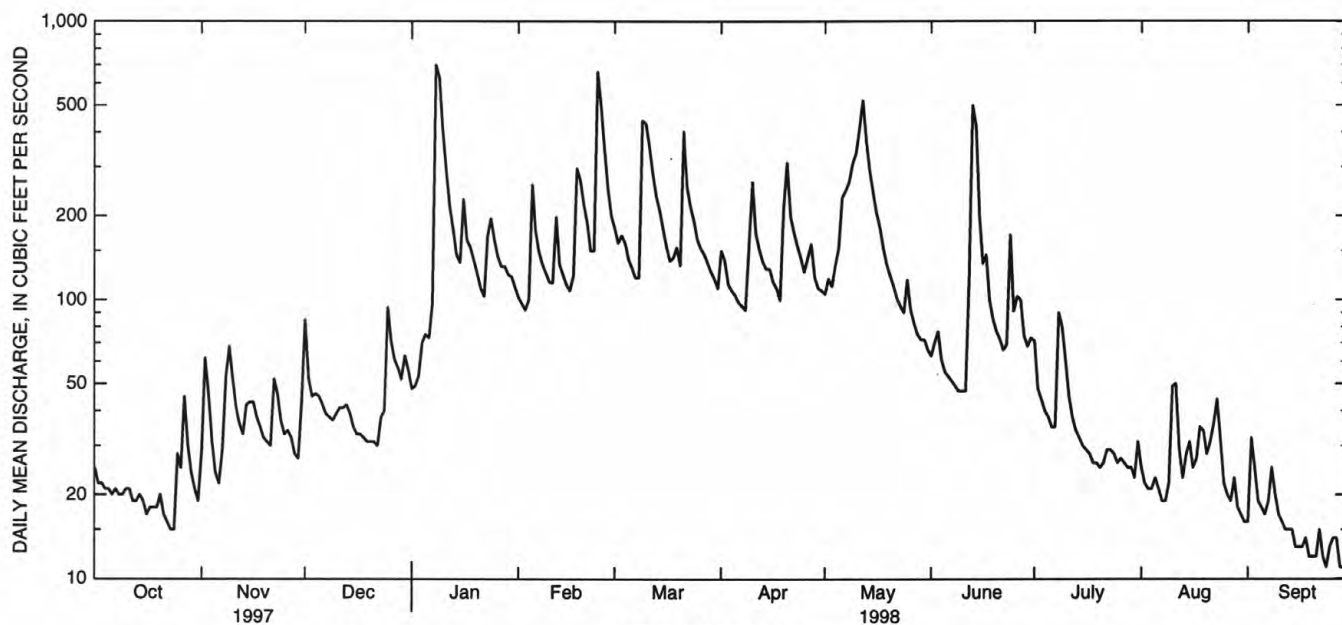
01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1996 - 1998	
ANNUAL TOTAL	21978		35941			
ANNUAL MEAN	60.2		98.5		98.6	
HIGHEST ANNUAL MEAN					98.7	
LOWEST ANNUAL MEAN					98.5	
HIGHEST DAILY MEAN	454	Jul 24	700	Jan 8	1180	Oct 19 1996
LOWEST DAILY MEAN	15	Oct 23,24	11	Sep 24a	11	Sep 24 1998a
ANNUAL SEVEN-DAY MINIMUM	17	Oct 18	12	Sep 23	12	Sep 23 1998
INSTANTANEOUS PEAK FLOW			b1120	Jan 8	b1740	Oct 19 1996
INSTANTANEOUS PEAK STAGE			3.29	Jan 8	3.92	Oct 19 1996
INSTANTANEOUS LOW FLOW			11	Sep 23-25c	11	Sep 23-25 1998c
ANNUAL RUNOFF (CFSM)	1.39		2.27		2.28	
ANNUAL RUNOFF (INCHES)	18.88		30.88		30.93	
10 PERCENT EXCEEDS	107		215		180	
50 PERCENT EXCEEDS	53		57		62	
90 PERCENT EXCEEDS	21		19		22	

a Also Sept. 28, 29.

b From rating curve extended above 502 ft³/s based on a straight line extension.

c Also Sept. 28-30.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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.--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 346-400. Figure 8 shows the location of sites sampled as part of the Swatara Creek Project. Abbreviations used: E, estimated.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 374 microsiemens, Oct. 17, 1997; minimum, 27 microsiemens, June 11, 1997.

pH: Maximum, 8.1, June 18, 19, 1997; minimum, 4.7, June 13, 1998.

WATER TEMPERATURE: Maximum, 23.0°C, July 16, 18, 1997; minimum, 0.0°C, Jan. 17-19, 1997.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 374 microsiemens, Oct. 17; minimum, 71 microsiemens, May 6.

pH: Maximum, 7.6, Sept. 28, 30; minimum, 4.7, June 13.

WATER TEMPERATURE: Maximum, 22.0°C, Aug. 27, 28; minimum, 0.5°C, Jan. 1.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
OCT											
01...	1500	1028	9813	25	281	7.0	6.0	--	14.0	9.8	95
30...	1100	1028	9813	22	283	7.0	6.3	336	7.3	11.0	91
NOV											
02...	1415	1028	9813	81	196	6.8	6.7	--	11.0	--	--
02...	1800	1028	9813	90	192	6.8	6.8	--	10.5	--	--
02...	2100	1028	9813	74	177	6.6	6.7	--	9.5	--	--
19...	1100	1028	9813	31	225	7.0	6.1	--	2.4	14.0	100
DEC											
18...	1100	1028	9813	31	222	6.8	6.1	390	2.8	14.0	100
JAN											
07...	1000	1028	9813	79	177	6.7	6.1	371	7.8	12.0	110
08...	1630	1028	9813	934	98	5.8	5.9	--	9.5	--	--
08...	1845	1028	9813	881	101	5.8	5.9	--	9.6	--	--
08...	2120	1028	9813	781	102	5.7	5.8	--	9.5	--	--
09...	0020	1028	9813	725	108	5.7	5.8	--	9.5	--	--
09...	0300	1028	9813	669	113	5.7	5.7	--	9.6	--	--
09...	0515	1028	9813	639	114	5.7	5.9	--	9.8	--	--
09...	0700	1028	9813	721	116	5.8	5.9	--	9.8	--	--
09...	1440	1028	9813	670	117	6.3	5.9	--	9.5	11.0	100
FEB											
17...	2030	1028	9813	155	176	6.3	6.0	--	5.3	--	--
18...	0001	1028	9813	188	169	6.1	6.0	--	5.3	--	--
18...	0800	1028	9813	367	124	6.1	6.1	--	4.9	--	--
18...	2000	1028	9813	229	143	6.1	6.0	--	6.0	--	--
19...	0400	1028	9813	E239	143	6.1	6.0	--	6.1	--	--
19...	1110	1028	9813	E225	144	6.5	6.0	527	6.3	12.0	100
19...	1112	1028	9813	E225	144	6.5	6.0	527	6.3	12.0	100
MAR											
31...	0945	1028	9813	112	193	6.5	6.1	331	12.0	13.0	120
APR											
22...	1600	1028	9813	174	145	6.4	6.1	384	12.2	9.9	92
30...	1900	1028	9813	110	158	6.6	6.3	341	12.0	10.5	98
MAY											
04...	1645	1028	9813	197	140	6.4	6.0	--	13.1	--	--
04...	1800	1028	9813	163	134	6.9	6.3	--	13.4	--	--
04...	2215	1028	9813	182	128	6.4	6.0	--	12.6	--	--
05...	0200	1028	9813	166	126	6.3	6.0	--	12.4	--	--
05...	0600	1028	9813	158	129	6.4	6.0	--	12.3	--	--
05...	1215	1028	9813	147	131	6.4	6.0	--	12.2	--	--
21...	1430	1028	9813	112	191	6.5	6.2	362	15.9	9.5	96
JUN											
30...	1015	1028	9813	E65	215	6.4	5.9	320	16.5	9.5	97
JUL											
24...	1030	1028	9813	E28	256	6.6	6.2	325	18.8	9.1	98
AUG											
25...	1115	1028	9813	23	280	6.7	6.4	275	18.8	12.0	130
SEP											
28...	1500	1028	9813	11	280	6.9	6.5	419	16.6	8.7	91

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CACO3) (70508)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD (MG/L AS CACO3) (00410)
OCT											
01...	.0	3.4	19	18	15	13	6.1	6.0	1.5	1.5	--
30...	.0	.00	22	22	17	17	6.9	6.8	1.4	1.4	--
NOV											
02...	.0	.00	15	14	9.1	8.3	6.0	5.8	2.8	1.9	--
02...	.0	.00	18	15	8.3	7.0	5.4	4.7	3.0	1.8	--
02...	--	.00	14	12	7.6	6.8	5.2	4.7	2.0	1.9	--
19...	.0	.00	17	16	13	12	6.3	5.9	1.3	1.3	--
DEC											
18...	.0	.80	14	14	9.7	9.7	5.3	5.3	1.0	.98	--
JAN											
07...	--	.00	9.9	8.9	6.3	5.7	6.2	5.7	1.3	1.2	--
08...	--	2.8	5.3	4.6	3.2	2.8	1.4	1.1	2.5	1.5	--
08...	--	4.8	5.1	4.5	3.2	2.8	1.2	.83	2.3	1.3	--
08...	--	5.2	5.1	4.7	3.4	3.1	1.2	.83	1.9	1.2	--
09...	--	4.8	6.8	5.8	3.9	3.2	4.9	4.6	1.7	1.3	--
09...	--	2.8	6.4	6.4	3.7	3.7	4.9	4.9	2.0	1.5	--
09...	--	4.2	7.2	7.1	4.2	4.2	4.7	4.7	1.7	1.2	--
09...	--	3.2	7.5	6.8	4.3	3.8	5.0	4.8	1.7	1.2	--
09...	--	2.0	6.8	6.5	4.5	4.2	4.9	4.7	1.8	1.4	--
FEB											
17...	--	3.2	11	7.7	8.4	5.4	6.5	5.8	1.2	.96	--
18...	--	2.2	10	9.3	7.4	6.5	6.0	5.1	1.3	1.1	--
18...	--	2.6	8.8	7.8	5.0	4.5	5.4	4.8	1.6	1.2	--
18...	--	.20	8.9	7.7	6.3	5.5	5.1	4.6	1.4	1.1	--
19...	--	1.4	9.0	8.2	6.5	5.9	5.4	4.9	1.3	1.1	--
19...	--	.60	8.2	8.2	5.8	5.8	5.8	5.8	1.6	1.6	3
19...	--	2.0	8.7	8.1	6.2	5.8	5.3	5.0	1.4	1.4	--
MAR											
31...	--	3.0	12	9.9	9.8	8.1	4.5	3.9	1.0	.90	6
APR											
22...	--	.40	10	10	7.2	7.2	4.4	4.4	.9	.92	4
30...	--	1.6	11	11	8.5	8.2	4.4	4.4	1.1	1.1	5
MAY											
04...	--	6.8	12	9.4	7.9	6.6	4.4	3.8	1.9	1.1	--
04...	.0	.00	16	13	7.7	6.2	4.2	3.9	1.9	1.1	--
04...	--	3.2	9.9	8.2	6.6	5.3	4.2	3.4	1.2	.78	--
05...	--	4.0	9.6	9.2	6.2	5.9	3.8	3.7	1.3	.99	--
05...	--	5.4	9.8	9.5	6.5	6.3	4.0	3.8	1.3	.98	--
05...	--	4.4	9.4	8.4	6.4	5.7	4.0	3.6	1.3	1.3	--
21...	--	2.4	13	13	12	11	4.2	4.1	1.0	1.0	6
JUN											
30...	--	2.2	17	16	14	13	5.5	5.4	1.4	1.4	--
JUL											
24...	--	3.2	20	20	16	16	5.8	5.7	1.6	1.6	--
AUG											
25...	.0	.00	23	23	19	19	6.7	6.5	1.4	1.4	--
SEP											
28...	.0	.00	24	24	17	17	6.6	6.4	1.1	<1.0	--

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, TOTAL (MG/L AS F) (00951)	SILICA TOTAL (MG/L- SIO2) (00956)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT										
01...	9	100	9.8	<.2	7.6	30	.190	.020	.23	<.020
30...	8	100	10	<.2	9.7	<2	.130	.040	.32	<.020
NOV										
02...	13	64	8.8	<.2	15	52	.220	<.020	2.1	.390
02...	15	59	8.5	<.2	16	150	.280	<.020	1.6	.280
02...	10	56	8.5	<.2	8.1	80	.190	<.020	.97	.150
19...	10	77	11	<.2	7.0	<2	.120	.080	.30	<.020
DEC										
18...	10	76	9.7	<.2	6.6	16	.130	.100	.28	<.020
JAN										
07...	8	53	12	<.2	6.1	150	.160	.060	.33	.020
08...	5	24	8.5	<.2	10	150	.160	.020	.80	.060
08...	4	25	8.6	<.2	9.8	140	.160	<.020	.75	.060
08...	4	26	8.4	<.2	8.1	76	.160	.020	.61	.050
09...	4	29	8.3	<.2	7.8	74	.150	.030	.53	.040
09...	3	30	8.2	<.2	6.3	62	.150	.020	.47	.030
09...	4	31	8.2	<.2	7.3	72	.150	.020	.55	.040
09...	5	31	8.1	<.2	8.3	68	.160	.030	.52	.030
09...	4	34	8.2	<.2	7.2	18	.150	.030	.47	.030
FEB										
17...	6	58	9.6	<.2	8.6	26	.110	.070	.39	.030
18...	5	49	9.9	<.2	8.9	2	.100	.060	.36	.020
18...	6	35	9.1	<.2	13	72	.120	.030	.49	.040
18...	5	44	8.7	<.2	5.9	32	.130	.050	.36	.020
19...	5	45	9.0	<.2	6.2	18	.110	.040	.31	<.020
19...	6	44	9.2	<.2	5.6	20	.120	.040	.29	<.020
19...	5	44	9.3	<.2	6.0	6	.110	.040	.31	<.020
MAR										
31...	6	72	6.8	<.2	6.8	6	.080	.060	.27	<.020
APR										
22...	6	50	6.3	<.2	7.3	<2	.090	.020	.27	<.020
30...	6	62	6.4	<.2	6.8	<2	.090	.040	.27	<.020
MAY										
04...	7	50	6.0	<.2	14	130	.120	.030	.37	.040
04...	18	43	5.3	<.2	14	180	.140	.050	.87	.100
04...	7	41	5.6	<.2	8.9	30	.150	.030	.52	.040
05...	7	45	5.8	<.2	7.9	44	.120	.030	.45	.030
05...	7	45	5.7	<.2	7.6	12	.110	.030	.39	.020
05...	7	47	6.2	<.2	6.9	10	.110	.030	.35	.020
21...	7	74	5.9	<.2	7.2	4	.070	.070	.31	<.020
JUN										
30...	8	77	7.5	<.2	8.1	10	.100	.060	.29	<.020
JUL										
24...	10	97	7.8	<.2	8.1	8	.200	<.020	.39	<.020
AUG										
25...	9	110	8.9	<.2	8.5	4	.270	<.020	.43	.020
SEP										
28...	11	100	9.7	<.2	7.1	12	.120	<.020	.29	<.020

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	ALUM- INUM, TOTAL, RECOV- ERABLE (µG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (µG/L AS AL) (01106)	ARSENIC TOTAL (µG/L AS AS) (01002)	ARSENIC DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, TOTAL RECOV- ERABLE (µG/L AS BA) (01007)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)
OCT										
01...	<200	<200	<4	<4	20	19	<10	<10	<50	<50
30...	240	<200	<4	<4	24	24	<10	<10	<50	<50
NOV										
02...	6300	<200	<4	<4	55	17	<10	<10	<50	<50
02...	5400	<200	<4	<4	58	15	<10	<10	<50	<50
02...	1400	<200	<4	<4	28	16	<10	<10	<50	<50
19...	<200	<200	<4	<4	23	21	<10	<10	<50	<50
DEC										
18...	240	<200	<4	<4	21	20	<10	<10	<50	<50
JAN										
07...	450	<200	<4	<4	20	17	<10	<10	<50	<50
08...	3500	<200	<4	<4	46	19	20	<10	<50	<50
08...	3000	<200	<4	<4	41	20	<10	<10	<50	<50
08...	2200	<200	<4	<4	35	21	<10	<10	<50	<50
09...	1800	<200	<4	<4	17	<10	<10	<10	<50	<50
09...	1200	<200	<4	<4	<10	<10	<10	<10	<50	<50
09...	1500	<200	<4	<4	12	<10	<10	<10	<50	<50
09...	2100	<200	<4	<4	12	<10	<10	<10	<50	<50
09...	1400	<200	<4	<4	30	23	<10	<10	<50	<50
FEB										
17...	900	510	<4	<4	29	29	<10	<10	<50	<50
18...	1600	<200	<4	<4	36	24	<10	<10	<50	<50
18...	3500	<200	<4	<4	43	21	<10	<10	<50	<50
18...	460	<200	<4	<4	27	22	<10	<10	<10	<50
19...	600	<200	<4	<4	25	22	<10	<10	<50	<50
19...	530	<200	<4	<4	22	20	<10	<10	<50	<50
19...	550	<200	<4	<4	200	22	<10	<10	<50	<50
MAR										
31...	480	<200	<4	<4	23	19	<10	<10	<50	<50
APR										
22...	580	<200	<4	<4	23	22	<10	<10	<10	<50
30...	400	<200	<4	<4	22	20	<10	<10	<50	<50
MAY										
04...	4100	<200	<4	<4	44	23	<10	<10	<50	<50
04...	5200	<200	<4	<4	62	19	<10	<10	<50	<50
04...	1700	<200	<4	<4	29	17	<10	<10	<50	<50
05...	1400	<200	<4	<4	27	21	<10	<10	<50	<50
05...	840	<200	<4	<4	25	22	<10	<10	<50	<50
05...	540	<200	<4	<4	23	20	<10	<10	<50	<50
21...	440	<200	<40	<40	21	20	<10	<10	<50	<50
JUN										
30...	220	<200	<4	<4	26	25	<10	<10	<50	<50
JUL										
24...	<200	<200	<4	<4	22	21	<10	<10	<50	<50
AUG										
25...	280	<200	<40	<40	24	22	<10	<10	<50	<50
SEP										
28...	<200	<200	<4	<4	19	18	<10	<10	<50	<50

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	COBALT, TOTAL RECOV- ERABLE (μG/L AS CO) (01037)	COBALT, DIS- SOLVED (μG/L AS CO) (01035)	COPPER, TOTAL RECOV- ERABLE (μG/L AS CU) (01042)	COPPER, DIS- SOLVED (μG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (μG/L AS FE) (01045)	IRON, DIS- SOLVED (μG/L AS FE) (01046)	LEAD, TOTAL RECOV- ERABLE (μG/L AS PB) (01051)	LEAD, DIS- SOLVED (μG/L AS PB) (01049)	LITHIUM TOTAL RECOV- ERABLE (μG/L AS LI) (01132)	LITHIUM DIS- SOLVED (μG/L AS LI) (01130)
OCT										
01...	<30	<25	<10	<10	910	360	<1	<1.0	<30	<25
30...	<50	<50	<10	<10	920	580	<1	<1.0	<30	<30
NOV										
02...	<50	<50	34	<10	18000	190	10	<1.0	<30	<25
02...	<50	<50	26	<10	11000	210	8	<1.0	<30	<25
02...	<50	<50	12	<10	3800	180	3	<1.0	<30	<25
19...	<50	<50	<10	<10	1100	700	<1	<1.0	<30	<25
DEC										
18...	<50	<50	<10	<10	1200	620	<1	<1.0	<30	<25
JAN										
07...	<50	<50	<10	13	960	140	<1	<1.0	<30	<30
08...	<50	<50	13	<10	8500	130	7	<1.0	<30	<30
08...	<50	<50	13	<10	7600	130	5	<1.0	<30	<30
08...	<50	<50	<10	<10	5200	110	4	<1.0	<30	<30
09...	<50	<50	<10	<10	4900	93	3	<1.0	<30	<25
09...	<50	<50	<10	<10	3200	110	2	<1.0	<30	<25
09...	<50	<50	<10	<10	4000	110	13	<1.0	<30	<25
09...	<50	<50	<10	<10	5400	82	7	<1.0	<30	<25
09...	<50	<50	<10	<10	2700	360	3	<1.0	<30	<30
FEB										
17...	<50	<50	<10	<10	3400	130	2	<1.0	<30	<30
18...	<50	<50	11	<10	2600	50	1	<1.0	<30	<30
18...	<50	<50	15	<10	5300	42	3	<1.0	<30	<30
18...	<50	<50	<10	<10	990	100	<1	<1.0	<30	<25
19...	<50	<50	<10	<10	1200	140	1	<1.0	<30	<25
19...	<50	<50	<10	<10	1100	410	<1	<1.0	<30	<25
19...	<50	<50	<10	<10	1100	230	<1	<1.0	<30	<25
MAR										
31...	<50	<50	<10	<10	1200	300	<1	<1.0	<30	<25
APR										
22...	<50	<50	<10	<10	1200	280	<1	<1.0	<30	<30
30...	<50	<50	<10	<10	970	380	<1	<1.0	<30	<25
MAY										
04...	<50	<50	11	<10	6200	<20	7	<1.0	<30	<25
04...	<50	<50	24	<10	12000	60	29	<1.0	<30	<25
04...	<50	<50	<10	<10	2500	32	3	<1.0	<30	<25
05...	<50	<50	<10	<10	2200	67	3	<1.0	<30	<30
05...	<50	<50	<10	<10	1500	82	1	<1.0	<30	<30
05...	<50	<50	<10	<10	1100	150	1	<1.0	<30	<30
21...	<50	<50	10	<10	1100	330	<10	<10	<30	<25
JUN										
30...	<50	<50	<10	<10	1100	330	<1	<1.0	<30	<30
JUL										
24...	<50	<50	<10	<10	620	190	<1	<1.0	<30	<50
AUG										
25...	<50	<50	<10	<10	1000	320	<10	<10	<30	<25
SEP										
28...	<50	<50	<10	<10	300	300	<1	<1.0	<30	<30

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SELE- NIUM, TOTAL (µG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	STRON- TIUM, TOTAL RECOV- ERABLE (µG/L AS SR) (01082)	STRON- TIUM, DIS- SOLVED (µG/L AS SR) (01080)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)
OCT										
01...	910	890	43	32	<7	<7	80	79	60	52
30...	1100	1000	<50	<50	<7	<7	100	97	70	70
NOV										
02...	2200	340	58	<50	<7	<7	70	62	180	16
02...	1700	320	<50	<50	<7	<7	80	59	120	17
02...	860	390	<50	<50	<7	<7	60	51	60	18
19...	800	760	<50	<50	<7	<7	70	65	50	44
DEC										
18...	720	720	<50	<50	<7	<7	60	64	50	43
JAN										
07...	500	440	<50	<50	<7	<7	50	43	70	60
08...	720	250	<50	<50	<7	<7	30	23	70	29
08...	620	280	<50	<50	<7	<7	30	22	70	33
08...	560	320	<50	<50	<7	<7	30	24	60	38
09...	560	320	<50	<50	<7	<7	10	<10	30	<10
09...	460	370	<50	<50	<7	<7	<10	<10	20	10
09...	470	350	<50	<50	<7	<7	<10	<10	40	<10
09...	520	330	<50	<50	<7	<7	<10	<10	30	<10
09...	470	390	<50	<50	<7	<7	30	29	80	78
FEB										
17...	620	400	59	<50	<7	<7	60	39	90	49
18...	570	490	<50	<50	<7	<7	50	41	80	48
18...	470	340	<50	<50	<7	<7	40	33	70	39
18...	480	410	<50	<50	<7	<7	40	35	60	42
19...	490	430	<50	<50	<7	<7	40	37	60	50
19...	440	400	<50	<50	<7	<7	40	36	50	40
19...	470	430	<50	<50	<7	<7	40	36	60	52
MAR										
31...	620	510	<50	<50	<7	<7	50	46	80	58
APR										
22...	520	500	<50	<50	<7	<7	50	45	70	53
30...	560	550	<50	<50	<7	<7	50	50	60	57
MAY										
04...	660	350	<50	<50	<7	<7	50	42	80	37
04...	610	280	<50	<50	<7	<7	80	59	110	15
04...	510	320	<50	<50	<7	<7	50	38	60	26
05...	460	390	<50	<50	<7	<7	40	42	60	36
05...	460	410	<50	<50	<7	<7	50	44	50	38
05...	440	380	<50	<50	<7	<7	40	39	50	37
21...	650	600	<50	<50	<70	<70	60	53	70	57
JUN										
30...	670	620	<50	<50	<7	<7	70	70	70	58
JUL										
24...	520	490	<50	<50	<7	<7	90	90	40	30
AUG										
25...	640	620	<50	<50	<70	<70	100	99	50	42
SEP										
28...	250	240	170	<50	<7	<7	100	98	20	14

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	279	247	264	281	240	262	171	144	156	229	208	215
2	308	274	282	249	176	211	190	164	179	218	198	209
3	288	270	281	215	183	195	197	182	190	216	198	206
4	282	266	274	217	193	206	204	187	195	214	188	201
5	283	265	274	230	204	215	209	198	204	190	175	180
6	290	250	274	241	223	232	213	199	207	191	172	180
7	293	264	280	245	224	236	214	198	205	186	149	178
8	296	277	287	239	183	217	213	202	208	149	95	114
9	292	277	285	213	192	200	222	205	214	128	106	118
10	303	276	290	225	187	211	227	210	217	141	122	133
11	311	290	300	244	221	233	243	221	233	152	137	144
12	309	284	298	250	233	241	237	221	228	163	146	156
13	296	279	288	252	237	246	235	213	221	172	157	165
14	294	279	286	314	245	271	237	223	228	181	164	173
15	291	257	275	275	225	247	244	219	231	202	176	184
16	291	268	278	247	219	231	233	220	227	194	143	159
17	374	283	302	250	230	241	238	220	228	175	155	165
18	309	284	293	236	212	228	235	224	230	186	167	175
19	317	281	296	226	214	220	238	224	231	178	166	173
20	315	296	304	231	216	222	236	226	231	182	171	176
21	312	292	301	230	218	224	237	224	231	188	170	182
22	299	284	291	226	178	201	251	228	237	193	182	187
23	300	285	293	194	173	183	278	241	262	223	183	197
24	298	282	290	209	192	198	261	219	241	183	160	171
25	289	242	269	220	201	209	235	149	182	180	154	172
26	267	245	257	226	213	218	181	150	169	182	167	175
27	249	220	233	227	210	219	196	175	184	185	174	179
28	258	221	232	219	206	213	191	182	186	215	180	196
29	319	254	271	219	208	214	192	171	182	200	183	192
30	285	270	280	220	169	207	227	186	198	194	184	190
31	280	264	272	---	---	---	214	191	202	194	182	187
MONTH	374	220	281	314	169	222	278	144	211	229	95	175

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	203	185	194	---	---	---	195	146	178	164	156	160
2	204	191	199	---	---	---	175	146	161	158	145	152
3	205	190	197	---	---	---	184	169	178	161	146	152
4	219	189	199	---	---	---	186	176	181	163	125	150
5	200	142	158	---	---	---	187	177	182	148	124	132
6	176	152	161	---	---	---	191	182	186	161	71	129
7	173	156	165	---	---	---	197	183	191	122	82	106
8	179	161	170	---	---	---	201	188	193	123	105	117
9	181	167	175	---	---	---	194	121	178	118	102	109
10	184	173	179	---	---	---	151	116	130	118	99	108
11	183	166	179	157	144	150	156	143	151	115	96	108
12	168	136	148	167	153	160	160	148	156	112	96	103
13	174	151	165	175	160	169	168	155	163	124	109	116
14	179	169	173	181	170	175	174	164	168	138	120	129
15	180	169	175	188	176	182	177	163	171	149	135	142
16	182	173	178	194	183	188	180	169	174	158	145	151
17	186	165	179	197	185	191	185	174	178	166	150	158
18	169	124	140	197	183	189	194	179	185	172	160	166
19	---	---	---	187	177	181	193	110	163	178	165	171
20	---	---	---	191	180	186	131	106	119	185	173	178
21	---	---	---	183	117	139	142	124	133	192	179	185
22	---	---	---	163	140	151	149	133	143	195	184	189
23	---	---	---	166	154	159	155	146	151	196	184	190
24	---	---	---	169	159	164	162	151	155	201	191	195
25	---	---	---	175	164	170	161	152	156	201	158	180
26	---	---	---	180	171	174	163	130	153	198	179	188
27	---	---	---	185	175	180	153	124	136	212	193	203
28	---	---	---	186	174	180	158	149	153	219	205	211
29	---	---	---	189	177	183	160	152	156	225	203	216
30	---	---	---	194	182	188	161	152	156	224	204	215
31	---	---	---	197	186	193	---	---	---	229	217	224
MONTH	219	124	174	197	117	174	201	106	163	229	71	159

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	231	219	224	210	191	200	291	272	281	291	260	276
2	236	191	223	225	203	213	294	272	283	299	174	247
3	230	184	213	233	218	225	284	264	274	260	230	245
4	239	224	232	231	218	225	283	265	276	271	252	262
5	246	231	238	234	213	225	295	264	280	294	261	274
6	252	236	244	241	222	231	301	278	288	296	260	276
7	260	244	252	246	231	237	291	268	280	276	235	262
8	258	245	250	239	156	188	293	271	280	277	240	258
9	262	249	254	199	155	179	297	275	285	283	247	264
10	268	249	259	224	195	210	301	217	270	288	258	271
11	267	248	258	235	218	227	261	234	250	275	262	268
12	252	168	193	237	222	229	278	250	266	278	261	269
13	189	116	144	242	226	233	298	266	280	292	262	274
14	162	126	146	253	232	242	297	209	282	301	282	291
15	171	160	165	250	237	244	276	232	261	286	267	275
16	178	165	172	248	234	240	284	265	275	284	268	274
17	192	174	183	251	231	241	287	239	267	323	267	283
18	198	188	193	261	234	249	286	204	263	311	285	295
19	204	192	198	259	241	251	260	239	249	297	271	279
20	210	196	203	257	241	248	270	254	262	282	268	276
21	220	204	211	258	241	249	288	269	280	282	268	276
22	221	205	213	270	244	257	284	237	268	301	266	286
23	221	204	213	267	252	258	269	204	247	298	273	282
24	216	149	172	278	245	261	277	248	260	285	270	276
25	206	178	195	282	262	272	285	265	277	284	254	274
26	212	178	198	289	266	280	279	255	267	294	259	276
27	203	173	187	291	268	281	278	259	268	296	274	288
28	220	197	209	281	261	271	291	260	273	285	251	276
29	226	212	220	280	263	273	294	266	283	284	269	276
30	226	194	213	281	266	273	278	262	270	304	264	280
31	---	---	---	288	256	272	278	259	271	---	---	---
MONTH	268	116	209	291	155	241	301	204	271	323	174	274
YEAR	374	71	215									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	6.9	6.7	6.8	7.2	7.0	7.1	6.8	6.5	6.6	6.7	6.5	6.6
2	7.4	6.9	6.9	7.3	6.9	7.1	6.8	6.5	6.6	6.8	6.6	6.7
3	7.0	6.9	6.9	7.1	6.9	7.0	6.7	6.5	6.6	6.8	6.7	6.7
4	7.0	6.9	6.9	7.1	6.9	7.0	6.6	6.5	6.6	6.9	6.6	6.8
5	7.0	6.8	6.9	7.1	6.9	7.0	6.5	6.4	6.5	6.7	6.5	6.6
6	6.9	6.6	6.8	7.1	6.9	7.0	6.5	6.4	6.4	6.8	6.5	6.7
7	7.0	6.5	6.9	7.0	6.8	6.9	6.6	6.5	6.5	6.8	6.5	6.6
8	7.0	6.6	6.9	7.0	6.8	6.9	6.6	6.5	6.6	6.8	5.8	6.1
9	7.0	6.6	6.9	7.0	6.8	6.9	6.7	6.5	6.6	6.1	5.8	5.9
10	6.9	6.4	6.8	7.0	6.8	6.9	6.7	6.6	6.6	5.9	5.8	5.9
11	6.7	6.6	6.7	7.0	6.9	6.9	6.8	6.7	6.7	5.9	5.8	5.9
12	6.9	6.6	6.8	7.0	6.8	6.9	6.8	6.7	6.7	6.1	5.8	6.0
13	7.0	6.9	6.9	7.0	6.8	6.9	6.7	6.6	6.6	6.2	6.0	6.1
14	7.0	6.7	6.9	7.0	6.8	7.0	6.7	6.6	6.7	6.3	6.1	6.2
15	7.0	6.9	6.9	7.0	6.9	7.0	6.7	6.6	6.7	6.4	6.2	6.3
16	6.9	6.8	6.9	7.0	6.9	6.9	6.8	6.6	6.7	6.3	6.0	6.1
17	7.1	6.8	6.9	6.9	6.8	6.8	7.0	6.7	6.8	6.2	6.1	6.2
18	7.1	6.9	7.0	6.9	6.7	6.8	6.8	6.7	6.7	6.3	6.1	6.2
19	6.9	6.7	6.8	7.0	6.8	6.9	6.8	6.7	6.8	6.3	6.2	6.2
20	6.7	6.6	6.6	7.1	6.9	6.9	6.8	6.7	6.8	6.4	6.2	6.3
21	6.8	6.6	6.7	7.0	6.9	7.0	6.8	6.7	6.7	6.4	6.3	6.4
22	6.9	6.8	6.8	7.0	6.8	6.9	6.8	6.7	6.8	6.5	6.3	6.4
23	7.0	6.9	6.9	6.8	6.7	6.7	6.8	6.7	6.7	6.5	6.3	6.4
24	7.0	6.8	6.9	6.7	6.6	6.7	6.8	6.7	6.7	6.3	6.3	6.3
25	7.0	6.9	7.0	6.7	6.6	6.7	6.8	6.4	6.6	6.3	6.2	6.3
26	7.0	6.8	6.9	6.7	6.5	6.6	6.5	6.4	6.4	6.3	6.1	6.2
27	7.0	6.8	7.0	6.7	6.6	6.6	6.4	6.4	6.4	6.3	6.1	6.2
28	6.9	6.9	6.9	6.7	6.6	6.6	6.6	6.3	6.5	6.3	6.2	6.2
29	7.4	6.8	7.0	6.7	6.6	6.7	6.6	6.5	6.5	6.3	6.2	6.2
30	7.2	7.0	7.0	6.9	6.6	6.7	6.6	6.5	6.6	6.3	6.2	6.3
31	7.1	7.0	7.1	---	---	---	6.6	6.5	6.6	6.4	6.3	6.3
MONTH	7.4	6.4	6.9	7.3	6.5	6.9	7.0	6.3	6.6	6.9	5.8	6.3

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	6.4	6.3	6.3	---	---	---	6.8	6.4	6.6	6.7	6.5	6.6
2	6.4	6.3	6.3	---	---	---	6.6	6.4	6.5	6.7	6.5	6.6
3	6.5	6.3	6.4	---	---	---	6.6	6.4	6.5	6.6	6.3	6.5
4	6.5	6.4	6.4	---	---	---	6.5	6.3	6.4	7.0	6.2	6.4
5	6.5	6.0	6.2	---	---	---	6.5	6.4	6.4	6.5	6.3	6.4
6	6.2	6.1	6.1	---	---	---	6.5	6.4	6.4	6.7	5.8	6.4
7	6.2	6.1	6.2	---	---	---	6.5	6.2	6.4	6.3	5.9	6.1
8	6.2	6.1	6.2	---	---	---	6.5	6.3	6.4	6.3	6.1	6.2
9	6.2	6.1	6.2	---	---	---	6.6	6.4	6.5	6.3	6.0	6.1
10	6.5	6.2	6.3	---	---	---	6.4	6.2	6.3	6.2	6.0	6.1
11	6.5	6.4	6.5	6.3	6.2	6.2	6.3	6.1	6.2	6.2	5.9	6.0
12	6.5	6.3	6.4	6.4	6.2	6.3	6.4	6.2	6.3	6.1	5.8	6.0
13	6.5	6.4	6.5	6.5	6.3	6.4	6.5	6.2	6.3	6.1	5.8	5.9
14	6.6	6.4	6.5	6.5	6.4	6.4	6.5	6.3	6.4	6.1	5.8	5.9
15	6.6	6.5	6.6	6.5	6.4	6.5	6.5	6.2	6.4	6.2	5.9	6.1
16	6.8	6.5	6.6	6.6	6.5	6.5	6.6	6.3	6.5	6.4	6.1	6.2
17	6.8	6.5	6.7	6.7	6.5	6.6	6.7	6.5	6.6	6.3	6.2	6.3
18	6.8	6.5	6.6	6.7	6.6	6.6	6.7	6.5	6.6	6.5	6.2	6.3
19	---	---	---	6.7	6.5	6.6	6.7	6.4	6.6	6.6	6.2	6.4
20	---	---	---	6.6	6.5	6.6	6.5	6.3	6.3	6.6	6.2	6.5
21	---	---	---	6.7	6.3	6.4	6.4	6.3	6.3	6.6	6.4	6.5
22	---	---	---	6.5	6.4	6.4	6.5	6.2	6.4	6.7	6.5	6.6
23	---	---	---	6.4	6.2	6.3	6.6	6.4	6.5	6.7	6.5	6.6
24	---	---	---	6.4	6.2	6.3	6.7	6.5	6.6	6.6	6.4	6.5
25	---	---	---	6.4	6.2	6.3	6.8	6.5	6.7	7.0	5.4	6.6
26	---	---	---	6.5	6.3	6.4	6.7	6.6	6.6	6.8	6.4	6.6
27	---	---	---	6.5	6.3	6.4	6.6	6.4	6.5	6.7	6.4	6.6
28	---	---	---	6.6	6.3	6.5	6.7	6.5	6.6	6.8	6.5	6.6
29	---	---	---	6.6	6.4	6.5	6.7	6.5	6.6	6.8	6.3	6.7
30	---	---	---	6.6	6.4	6.5	6.7	6.5	6.6	6.8	6.6	6.7
31	---	---	---	6.7	6.4	6.5	---	---	---	6.7	6.4	6.6
MONTH	6.8	6.0	6.4	6.7	6.2	6.4	6.8	6.1	6.5	7.0	5.4	6.4

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	6.8	6.2	6.7	6.6	6.2	6.5	6.7	6.5	6.6	7.3	6.5	7.0
2	7.0	6.4	6.7	6.6	6.3	6.5	6.7	6.5	6.6	7.3	6.7	7.0
3	6.7	6.5	6.6	6.5	6.3	6.4	6.9	6.4	6.8	7.3	6.5	7.1
4	6.8	6.5	6.7	6.6	6.3	6.5	6.9	6.4	6.8	7.3	6.7	7.1
5	6.8	6.4	6.7	6.7	6.5	6.6	6.9	6.2	6.7	7.2	6.7	7.0
6	6.8	6.6	6.7	6.7	6.4	6.6	6.7	6.3	6.6	7.1	6.7	

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	14.0	10.5	12.5	11.5	8.5	10.0	7.0	4.0	5.5	1.5	.5	1.0
2	12.0	8.0	10.0	11.5	8.5	10.5	4.5	3.0	4.0	3.5	1.0	2.5
3	13.5	10.0	11.5	9.5	7.0	8.5	5.5	3.0	4.5	5.0	3.5	4.5
4	15.0	11.5	13.0	9.0	6.5	8.0	7.0	5.0	6.0	6.5	4.5	5.5
5	16.5	13.0	14.5	8.0	5.0	6.5	6.5	4.5	6.0	6.0	4.5	5.5
6	17.0	13.0	14.5	8.0	4.5	6.5	4.5	3.5	4.0	7.5	6.0	7.0
7	17.0	13.5	15.5	8.5	7.5	8.0	5.0	3.0	4.0	9.0	7.5	8.0
8	17.0	14.5	15.5	9.0	8.5	8.5	5.5	4.0	5.0	9.5	8.0	9.0
9	17.0	13.5	15.0	9.0	8.0	8.5	4.5	3.0	4.0	10.0	8.5	9.5
10	18.0	14.5	16.0	8.0	7.5	8.0	4.5	3.0	4.0	8.5	7.0	7.5
11	15.0	11.5	13.0	8.5	6.5	7.5	4.5	4.0	4.5	7.5	6.5	7.0
12	13.5	9.0	11.5	7.0	5.0	6.0	5.5	4.5	5.0	6.5	5.5	6.0
13	13.5	10.0	11.5	5.0	3.5	4.5	4.5	3.5	4.0	7.0	5.5	6.5
14	15.5	12.5	14.0	5.0	3.5	4.5	4.5	3.0	4.0	5.5	4.5	5.0
15	13.5	11.0	12.5	6.0	4.5	5.0	4.0	2.5	3.5	5.0	4.0	4.5
16	12.0	8.5	10.5	5.5	4.0	4.5	4.5	2.0	3.0	5.5	5.0	5.5
17	11.0	7.5	9.5	5.0	3.5	4.0	4.5	2.5	3.5	6.0	5.5	5.5
18	12.5	10.0	11.0	4.5	2.0	3.0	4.0	2.0	3.0	6.0	5.5	5.5
19	10.5	8.5	9.5	4.0	1.5	3.0	5.0	2.5	3.5	6.0	5.5	5.5
20	11.5	7.0	9.5	5.0	2.5	4.0	4.5	3.0	4.0	5.5	5.0	5.5
21	10.5	7.5	9.0	6.0	3.0	4.5	4.5	2.0	3.5	5.0	4.0	4.5
22	8.5	6.0	7.5	7.0	6.0	6.5	3.0	1.0	2.0	5.5	4.0	5.0
23	7.5	4.5	6.0	6.5	6.0	6.5	5.0	3.0	4.0	5.0	3.5	4.0
24	8.5	5.0	7.0	6.0	3.5	4.5	5.0	4.0	4.5	5.5	4.5	5.0
25	9.0	8.5	9.0	4.5	2.5	3.5	5.0	4.5	5.0	5.0	4.0	4.5
26	8.5	7.0	7.5	6.5	4.0	5.0	5.5	4.5	5.0	5.5	4.0	4.5
27	10.5	7.5	9.0	6.5	5.0	6.0	4.5	4.0	4.0	5.5	4.5	5.0
28	8.5	6.5	7.5	6.5	4.5	5.5	4.0	2.5	3.5	5.0	4.5	5.0
29	8.5	5.0	6.5	7.5	6.0	6.5	3.5	2.0	3.0	6.0	4.5	5.0
30	9.5	5.5	7.0	7.5	6.5	7.0	3.5	2.5	3.0	6.0	5.5	5.5
31	9.5	5.5	7.5	---	---	---	3.0	1.0	2.0	6.0	4.5	5.0
MONTH	18.0	4.5	10.8	11.5	1.5	6.2	7.0	1.0	4.0	10.0	.5	5.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	5.5	3.5	4.5	---	---	---	13.5	12.0	12.5	13.0	11.0	12.0
2	6.0	4.0	5.0	---	---	---	13.0	10.0	11.5	12.5	11.5	12.0
3	6.0	5.0	5.5	---	---	---	12.0	9.5	10.5	13.0	11.0	12.0
4	5.5	4.5	5.0	---	---	---	9.5	7.5	9.0	13.5	12.0	12.5
5	5.0	4.5	5.0	---	---	---	10.0	7.0	8.0	12.5	12.0	12.5
6	5.5	4.5	5.0	---	---	---	11.0	6.5	8.5	14.0	12.0	12.5
7	5.5	4.0	5.0	---	---	---	11.5	7.0	9.0	13.5	11.5	12.5
8	5.5	3.5	4.5	---	---	---	11.5	9.0	10.0	13.0	12.0	12.5
9	6.0	3.5	5.0	---	---	---	10.5	8.0	9.0	13.0	12.0	12.5
10	6.5	4.0	5.0	---	---	---	9.5	7.5	8.5	12.5	12.0	12.0
11	6.5	4.5	5.5	5.5	4.5	5.0	10.5	6.5	8.5	12.0	11.5	12.0
12	6.5	5.5	6.0	5.0	3.5	4.5	11.0	7.0	9.0	12.0	11.0	11.5
13	6.0	5.0	5.5	6.0	3.5	5.0	12.0	7.5	9.5	13.0	10.5	11.5
14	5.5	4.0	5.0	6.5	5.0	5.5	12.0	9.0	10.5	13.5	10.0	12.0
15	5.0	3.0	4.0	6.5	4.5	5.5	12.5	10.5	11.5	14.5	11.0	13.0
16	5.0	3.0	4.0	7.0	4.5	5.5	12.0	10.5	11.5	15.5	12.5	14.0
17	5.5	4.5	5.0	7.0	4.0	5.5	14.5	11.5	12.5	16.0	13.5	14.5
18	6.0	5.0	5.5	6.5	6.0	6.0	13.0	9.5	11.0	16.0	12.5	14.5
19	---	---	---	7.0	6.0	6.5	11.0	9.5	10.0	16.5	13.0	14.5
20	---	---	---	8.0	7.0	7.5	11.0	9.5	10.0	17.0	13.5	15.0
21	---	---	---	7.5	5.0	6.0	12.0	8.0	10.0	16.5	13.5	15.0
22	---	---	---	6.0	5.0	5.5	12.0	9.0	10.5	15.0	12.5	13.5
23	---	---	---	7.0	4.5	5.5	11.5	10.0	10.5	14.5	11.0	12.5
24	---	---	---	7.0	4.5	5.5	13.0	9.5	11.0	15.5	11.0	13.0
25	---	---	---	8.0	4.5	6.0	13.5	10.0	11.5	14.5	12.5	13.5
26	---	---	---	10.0	6.5	8.0	11.0	9.0	10.0	16.0	13.0	14.5
27	---	---	---	12.5	8.0	10.0	11.5	8.5	9.5	16.5	13.0	14.5
28	---	---	---	13.5	10.0	11.5	12.0	8.0	10.0	17.0	13.0	15.0
29	---	---	---	14.5	10.5	12.0	13.5	8.0	10.5	18.0	14.0	15.5
30	---	---	---	14.5	10.5	12.5	12.0	11.0	11.5	18.0	14.5	16.5
31	---	---	---	15.0	11.0	13.0	---	---	---	19.0	15.0	17.0
MONTH	6.5	3.0	5.0	15.0	3.5	7.2	14.5	6.5	10.2	19.0	10.0	13.4

SWATARA CREEK BASIN

01572025 SWATARA CREEK NEAR PINE GROVE, PA
(Swatara Creek Project)

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 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1988 to January 1991, October 1991 to current year.

REVISED RECORDS.--WDR PA-90-2: 1989.

GAGE.--Water-stage recorder. Elevation of gage is 490 ft above sea level, 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 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 8	1900	2,440	9.59	May 12	0500	1,650	8.13
Feb. 24	1000	2,110	9.01	June 13	1930	*2,750	*10.11
Mar. 9	1200	1,770	8.38				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	47	206	e115	281	497	322	211	116	171	44	31
2	37	109	146	120	259	422	326	261	156	130	39	80
3	35	97	127	126	241	466	256	250	237	114	37	58
4	32	67	120	171	248	427	240	327	128	104	37	44
5	31	56	112	203	974	370	224	386	107	101	35	37
6	29	50	100	197	762	336	211	487	97	91	33	35
7	29	60	90	236	529	310	199	579	89	87	31	37
8	28	104	83	1630	419	327	190	604	83	242	30	52
9	27	144	83	1620	354	1210	297	826	79	199	30	41
10	27	128	93	967	309	1170	735	948	77	139	80	36
11	27	103	101	665	289	759	511	1140	80	111	95	31
12	26	86	103	487	593	575	406	1450	271	96	53	30
13	26	75	107	396	430	475	343	1010	1430	89	42	27
14	27	103	99	324	372	421	307	726	1010	83	55	28
15	28	121	87	302	321	366	297	564	502	81	58	28
16	28	119	73	658	289	320	260	461	368	79	46	27
17	29	105	72	517	311	286	239	388	399	73	104	27
18	27	92	70	488	801	298	215	324	284	69	108	27
19	27	82	68	418	720	352	431	282	228	64	89	26
20	32	78	66	365	581	306	835	250	198	62	63	24
21	30	80	64	314	482	1000	560	225	167	60	55	25
22	27	130	61	280	402	816	445	199	148	58	49	28
23	27	114	75	506	420	602	380	182	144	57	63	28
24	27	98	83	781	1870	490	331	169	280	52	53	24
25	54	89	261	622	1260	409	286	236	182	48	47	25
26	49	87	224	478	837	364	312	187	287	46	44	28
27	81	82	195	400	648	334	373	153	260	46	41	27
28	58	75	173	396	546	303	272	137	185	45	37	25
29	45	74	147	365	---	274	245	126	160	43	36	24
30	38	93	179	346	---	251	233	124	161	42	33	24
31	34	---	151	314	---	233	---	113	---	50	33	---
TOTAL	1064	2748	3619	14807	15548	14769	10281	13325	7913	2732	1600	984
MEAN	34.3	91.6	117	478	555	476	343	430	264	88.1	51.6	32.8
MAX	81	144	261	1630	1870	1210	835	1450	1430	242	108	80
MIN	26	47	61	115	241	233	190	113	77	42	30	24
CFSM	.30	.79	1.01	4.12	4.79	4.11	2.95	3.71	2.27	.76	.44	.28
IN.	.34	.88	1.16	4.75	4.99	4.74	3.30	4.27	2.54	.88	.51	.32

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

	139	248	279	304	259	407	351	297	192	137	78.2	70.1
MEAN	139	248	279	304	259	407	351	297	192	137	78.2	70.1
MAX	361	396	745	683	555	846	874	756	317	378	155	143
(WY)	1997	1993	1997	1996	1998	1994	1993	1989	1989	1994	1994	1994
MIN	34.3	91.6	77.8	91.9	104	185	135	110	81.4	58.7	34.7	26.1
(WY)	1998	1998	1990	1992	1993	1990	1995	1995	1993	1993	1993	1995

e Estimated.

SWATARA CREEK BASIN

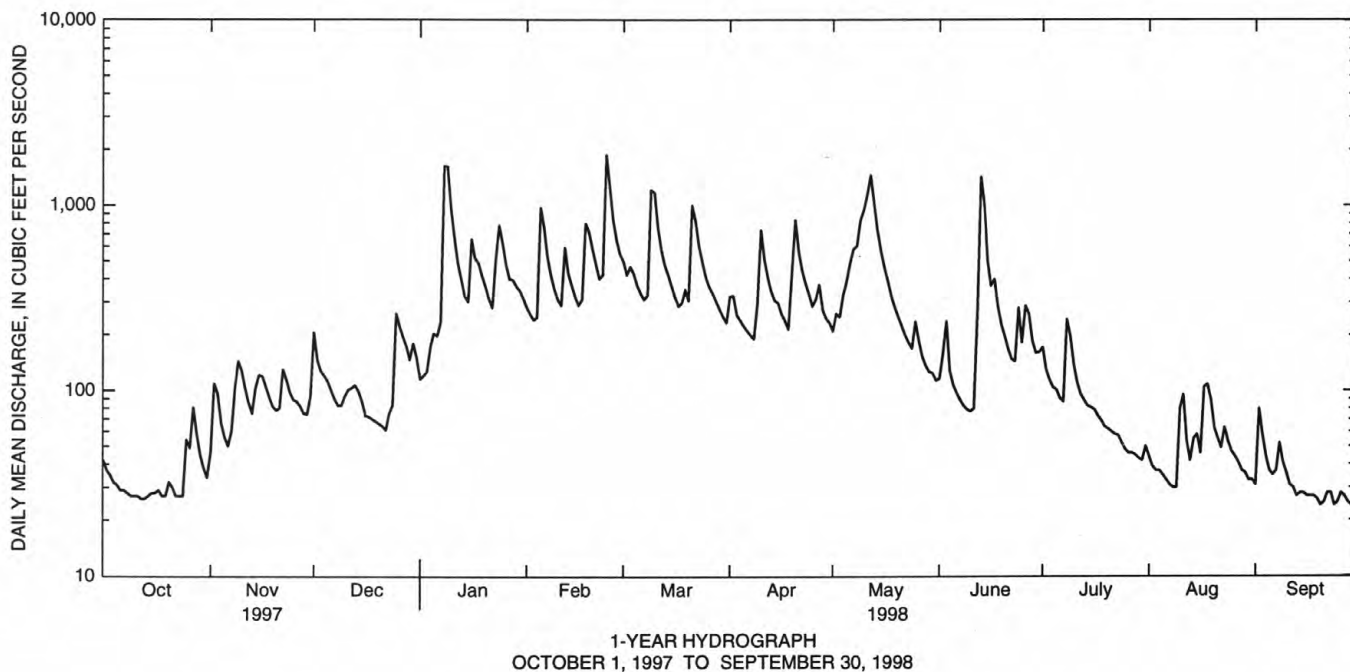
01572025 SWATARA CREEK NEAR PINE GROVE, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	53149		89390			
ANNUAL MEAN	146		245		226	
HIGHEST ANNUAL MEAN					273	
LOWEST ANNUAL MEAN					157	
HIGHEST DAILY MEAN	1060	Jul 24	1870	Feb 24	4130	Nov 28 1993
LOWEST DAILY MEAN	26	Oct 12,13	24	Sep 20a	18	Oct 18 1988
ANNUAL SEVEN-DAY MINIMUM	27	Oct 8	25	Sep 24	22	Sep 3 1995
INSTANTANEOUS PEAK FLOW			2750	Jun 13	b5880	Nov 28 1993
INSTANTANEOUS PEAK STAGE			10.11	Jun 13	14.17	Nov 28 1993
INSTANTANEOUS LOW FLOW			24	Sep 20c	18	Oct 4 1991
ANNUAL RUNOFF (CFSM)	1.26		2.11		1.95	
ANNUAL RUNOFF (INCHES)	17.04		28.67		26.51	
10 PERCENT EXCEEDS	272		568		482	
50 PERCENT EXCEEDS	116		128		140	
90 PERCENT EXCEEDS	41		30		44	

a Also Sept. 24, 29, 30.

b From rating curve extended above 3,300 ft³/s on basis of step-backwater analysis.

c Also Sept. 21, 24, 25, 29, 30.



SWATARA CREEK BASIN

01572025 SWATARA CREEK NEAR PINE GROVE, PA--Continued
(Swatara Creek Project)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1996 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.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (000027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (000028)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (000061)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM) (000095)	PH WATER WHOLE FIELD (STAND- ARDS) UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARDS) UNITS) (00403)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (000090)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
OCT											
30...	1000	1028	9813	38	232	6.7	6.5	452	6.3	11.0	91
NOV											
02...	2000	1028	9813	148	--	--	6.7	--	--	--	--
04...	1045	1028	9813	67	--	--	6.9	--	--	--	--
19...	0930	1028	9813	82	170	6.8	6.3	--	1.4	13.0	95
DEC											
18...	0930	1028	9813	67	182	6.5	6.2	421	1.5	14.0	98
JAN											
07...	0915	1028	9813	205	141	6.7	6.3	356	7.4	12.0	100
08...	1540	1028	9813	2120	--	--	6.1	--	--	--	--
08...	1900	1028	9813	2440	--	--	6.1	--	--	--	--
08...	2000	1028	9813	2400	--	--	6.1	--	--	--	--
09...	0001	1028	9813	2120	--	--	6.1	--	--	--	--
09...	0400	1028	9813	1810	--	--	6.1	--	--	--	--
09...	0800	1028	9813	1810	--	--	6.5	--	--	--	--
09...	1200	1028	9813	1580	--	--	6.3	--	--	--	--
09...	1540	1028	9813	1540	100	6.8	6.2	--	9.8	11.0	96
09...	2000	1028	9813	1380	--	--	6.2	--	--	--	--
10...	0600	1028	9813	1060	--	--	6.2	--	--	--	--
FEB											
17...	2000	1028	9813	364	--	--	6.2	--	--	--	--
18...	0300	1028	9813	697	--	--	6.3	--	--	--	--
18...	0600	1028	9813	1020	--	--	6.3	--	--	--	--
18...	1800	1028	9813	738	--	--	6.2	--	--	--	--
19...	0600	1028	9813	786	--	--	6.2	--	--	--	--
19...	0910	1028	9813	754	100	6.2	6.2	389	5.7	12.0	100
20...	1200	1028	9813	580	--	--	6.2	--	--	--	--
MAR											
31...	0900	1028	9813	236	128	6.3	6.2	401	12.5	12.0	110
APR											
22...	1700	1028	9813	425	104	6.9	6.4	429	13.2	10.0	96
30...	1815	1028	9813	230	120	6.7	6.5	340	13.4	10.4	100
MAY											
04...	1200	1028	9813	289	--	--	6.2	--	--	--	--
04...	1645	1028	9813	338	--	--	6.2	--	--	--	--
04...	1800	1028	9813	375	--	--	6.2	--	--	--	--
05...	0001	1028	9813	427	--	--	6.2	--	--	--	--
05...	0600	1028	9813	394	--	--	6.2	--	--	--	--
05...	1800	1028	9813	370	--	--	6.2	--	--	--	--
JUN											
30...	0930	1028	9813	151	140	6.3	6.1	293	18.6	8.8	94
JUL											
24...	0900	1028	9813	53	197	6.5	6.4	333	20.8	8.7	97
AUG											
25...	1000	1028	9813	46	192	6.8	6.8	358	20.8	9.1	100
SEP											
28...	0845	1028	9813	25	250	6.9	6.5	405	18.8	6.2	65

SWATARA CREEK BASIN

01572025 SWATARA CREEK NEAR PINE GROVE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CACO3) (70508)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD (MG/L AS CACO3) (00410)
OCT											
30...	--	.00	17	17	12	11	9.5	9.9	2.0	2.0	--
NOV											
02...	--	.00	13	12	6.8	6.3	6.1	5.9	3.0	2.0	--
04...	--	.00	12	10	6.8	5.7	7.3	6.0	2.2	1.7	--
19...	.0	.00	12	12	6.1	5.6	7.0	6.6	1.6	1.6	--
DEC											
18...	--	5.4	11	10	6.4	6.0	6.8	6.5	1.3	1.3	--
JAN											
07...	--	1.4	7.9	7.8	4.3	4.3	5.7	5.6	1.8	1.8	--
08...	--	1.2	6.7	5.8	3.2	2.5	4.4	4.1	3.2	1.9	--
08...	--	1.2	6.5	6.5	2.9	2.9	4.2	4.2	2.0	1.9	--
08...	--	2.4	6.7	5.8	3.2	2.9	4.2	4.0	3.0	1.8	--
09...	--	1.2	6.2	5.8	3.0	2.8	4.1	3.9	2.0	1.8	--
09...	--	1.0	6.7	6.4	3.4	3.2	4.1	4.0	2.2	1.8	--
09...	--	.00	6.9	6.8	3.6	3.4	4.1	4.1	2.3	1.7	--
09...	--	.60	7.3	6.9	3.8	3.4	4.2	4.1	2.4	1.8	--
09...	.0	.40	6.6	6.7	3.6	3.6	4.0	4.0	2.2	1.8	--
09...	--	.00	7.5	7.2	4.3	4.0	4.4	4.3	1.7	1.2	--
10...	--	--	7.5	7.2	4.4	4.2	4.4	4.3	1.6	1.4	--
FEB											
17...	--	.00	9.1	9.1	5.1	4.8	4.9	4.9	1.3	1.1	--
18...	--	.00	7.8	6.9	4.6	4.0	4.8	4.3	1.8	1.2	--
18...	--	.00	8.1	6.7	4.2	3.4	4.7	4.1	2.3	1.2	--
18...	--	6.0	6.8	6.2	3.8	3.5	4.2	3.8	1.3	1.2	--
19...	--	4.6	6.8	6.1	4.0	3.6	4.1	3.7	1.4	1.1	--
19...	--	.00	5.9	5.6	3.4	3.2	3.8	3.6	1.4	1.2	6
20...	--	5.0	6.3	6.0	3.9	3.7	3.8	3.5	1.1	1.1	--
MAR											
31...	--	.00	8.0	8.0	5.5	5.5	4.0	3.9	1.0	1.0	9
APR											
22...	.0	.00	7.6	7.6	4.5	4.5	4.2	4.0	1.0	.82	8
30...	.0	.00	8.2	8.2	5.3	5.3	6.1	6.0	1.1	.85	7
MAY											
04...	--	.00	8.4	6.8	4.9	4.0	4.3	3.5	1.1	1.0	--
04...	--	.00	8.4	7.5	4.7	4.1	4.2	3.8	1.3	1.1	--
04...	--	.00	8.0	7.7	4.6	4.3	4.0	3.9	1.4	1.0	--
05...	--	.00	7.9	7.1	4.4	3.9	4.0	3.5	1.2	.88	--
05...	--	.00	7.5	7.1	4.1	3.9	3.7	3.7	1.4	1.4	--
05...	--	.00	7.5	7.2	4.2	4.0	4.0	3.8	1.3	1.1	--
JUN											
30...	--	.00	10	10	6.1	6.3	4.6	4.6	1.3	1.3	--
JUL											
24...	--	.00	15	14	9.3	9.3	8.0	8.0	1.6	1.6	--
AUG											
25...	.0	.00	14	14	8.7	8.6	8.2	8.2	2.0	2.0	--
SEP											
28...	.0	.00	.00	17	.00	9.4	.0	8.4	.0	2.0	--

SWATARA CREEK BASIN

01572025 SWATARA CREEK NEAR PINE GROVE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, TOTAL (MG/L AS F) (00951)	SILICA TOTAL (MG/L- SIO2) (00956)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	RESIDUE SETTLE- ABLE (MG/L) (00545)	NITRO- GEN, NITRATE (MG/L AS N) (00620)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT											
30...	20	59	11	<.2	8.2	2	--	.530	.210	1.3	.020
NOV											
02...	18	41	9.0	<.2	9.8	140	1	.530	.060	2.0	.270
04...	22	40	10	<.2	9.1	150	2	.680	.110	2.4	.300
19...	19	38	11	<.2	6.1	<2	<.00	1.40	.170	2.2	<.020
DEC											
18...	17	44	11	<.2	5.6	10	<.00	1.30	.230	1.9	.020
JAN											
07...	12	28	11	<.2	5.4	24	<.00	1.80	.130	2.3	.020
08...	10	15	8.0	<.2	14	88	<.00	1.20	.050	2.3	.140
08...	9	15	7.5	<.2	5.7	230	2	1.40	.060	2.0	.050
08...	9	16	7.6	<.2	11	120	1	1.40	.050	2.2	.080
09...	9	17	7.5	<.2	5.4	22	<.00	1.60	.050	2.1	.030
09...	8	18	7.4	<.2	7.3	22	<.00	1.70	.050	2.2	.030
09...	8	19	7.3	<.2	9.6	88	<.00	1.50	.050	2.3	.070
09...	8	20	7.4	<.2	8.7	52	.00	1.60	.040	2.2	.040
09...	8	21	7.3	<.2	9.7	210	<.00	1.50	.040	2.0	.050
09...	8	22	7.4	<.2	9.2	40	<.00	1.50	.050	2.1	.030
10...	7	24	7.5	<.2	8.3	38	<.00	1.60	.040	2.0	.020
FEB											
17...	9	30	7.9	<.2	7.0	16	<.00	1.20	.050	1.5	.020
18...	10	25	8.0	<.2	12	48	<.00	.970	.050	1.4	.040
18...	11	24	8.0	<.2	19	94	<.00	.880	.050	1.5	.060
18...	9	22	7.1	<.2	6.7	10	<.00	1.20	.060	1.7	.030
19...	9	22	7.2	<.2	6.6	20	<.00	1.40	.050	1.8	.020
19...	8	22	7.0	<.2	5.4	14	<.00	1.30	.050	1.8	.020
20...	8	24	7.2	<.2	5.2	12	<.00	1.40	.050	1.8	.020
MAR											
31...	8	37	6.0	<.2	5.9	<2	<.00	.980	.100	1.4	<.020
APR											
22...	9	26	5.6	<.2	5.6	<2	<2	.900	.050	1.3	.020
30...	11	33	8.8	<.2	5.8	4	<.00	.640	.090	1.0	.020
MAY											
04...	12	28	5.8	<.2	7.3	22	--	.660	.100	1.2	.020
04...	13	27	5.5	<.2	9.3	60	--	.650	.160	1.3	.040
04...	12	26	5.4	<.2	12	86	--	.650	.130	1.4	.060
05...	11	25	5.2	<.2	9.9	56	--	.630	.110	1.2	.040
05...	11	24	5.2	<.2	7.8	44	--	.690	.100	1.2	.030
05...	11	25	5.6	<.2	6.9	34	--	.790	.080	1.2	.020
JUN											
30...	14	35	6.4	<.2	6.8	20	<.00	1.00	.030	1.4	.020
JUL											
24...	16	56	8.2	<.2	5.7	2	<.00	.830	.170	1.4	<.020
AUG											
25...	20	52	8.5	<.2	5.9	4	<.00	.750	<.020	1.2	.030
SEP											
28...	20	62	9.5	<.2	.00	14	--	.690	.030	1.2	.040

SWATARA CREEK BASIN

01572025 SWATARA CREEK NEAR PINE GROVE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	ALUM- INUM, TOTAL RECOV- ERABLE (µG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (µG/L AS AL) (01106)	ARSENIC TOTAL (µG/L AS AS) (01002)	ARSENIC DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, TOTAL RECOV- ERABLE (µG/L AS BA) (01007)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	CADMIUM WATER UNFLTRD (µG/L AS CD) (01027)	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)
OCT										
30...	<200	<200	<4	<4	26	26	<10	<10	<50	<50
NOV										
02...	3000	<200	<4	<4	48	18	<10	<10	<50	<50
04...	2200	<200	<4	<4	47	17	<10	<10	<50	<50
19...	<200	<200	<4	<4	26	23	<10	<10	<50	<50
DEC										
18...	<200	<200	<4	<4	24	22	<10	<10	<50	<50
JAN										
07...	290	<200	<4	<4	26	24	<10	<10	<50	<50
08...	5000	<200	<4	<4	79	<10	<10	<10	<50	<50
08...	570	<200	<4	<4	<10	<10	<10	<10	<50	<50
08...	3400	<200	<4	<4	35	<10	<10	<10	<50	<50
09...	420	<200	<4	<4	<10	<10	<10	<10	<50	<50
09...	1200	<200	<4	<4	16	<10	<10	<10	<50	<50
09...	2300	<200	<4	<4	26	<10	<10	<10	<50	<50
09...	1700	<200	<4	<4	20	<10	<10	<10	<50	<50
09...	1800	<200	<4	<4	39	27	<10	<10	<50	<50
09...	1600	<200	<4	<4	43	31	<10	<10	<50	<50
10...	1200	<200	<4	<4	40	32	<10	<10	<50	<50
FEB										
17...	700	<200	<4	<4	30	25	<10	<10	<50	<50
18...	2600	<200	<4	<4	42	22	<10	<10	<50	<50
18...	5500	<200	<4	<4	61	20	<10	<10	<50	<50
18...	700	<200	<4	<4	32	23	<10	<10	<50	<50
19...	670	<200	<4	<4	34	25	<10	<10	<50	<50
19...	320	<200	<4	<4	26	23	<10	<10	<50	<50
20...	270	<200	<4	<4	26	23	<10	<10	<50	<50
MAR										
31...	280	<200	<4	<4	26	24	<10	<10	<50	<50
APR										
22...	320	<200	<4	<4	26	23	<10	<10	<50	<50
30...	<200	<200	<4	<4	22	21	<10	<10	<50	<50
MAY										
04...	510	<200	<4	<4	29	25	<10	<10	<50	<50
04...	1400	<200	<4	<4	33	20	<10	<10	<50	<50
04...	2400	<200	<4	<4	44	22	<10	<10	<50	<50
05...	1800	<200	<4	<4	37	21	<10	<10	<50	<50
05...	1100	<200	<4	<4	31	22	<10	<10	<50	<50
05...	480	<200	<4	<4	27	24	<10	<10	<50	<50
JUN										
30...	<200	<200	<4	<4	29	29	<10	<10	<50	<50
JUL										
24...	<200	<200	<4	<4	24	23	<10	<10	<50	<50
AUG										
25...	<200	<200	<40	<40	26	25	<10	<10	<50	<50
SEP										
28...	0	<200	0	<4	--	24	0	<10	0	<50

SWATARA CREEK BASIN

01572025 SWATARA CREEK NEAR PINE GROVE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	COBALT, TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LITHIUM TOTAL RECOV- ERABLE (µG/L AS LI) (01132)	LITHIUM DIS- SOLVED (µG/L AS LI) (01130)
OCT										
30...	<50	<50	<10	<10	240	130	<1	<1.0	<30	<30
NOV										
02...	<50	<50	16	<10	7800	140	8	<1.0	<50	<25
04...	<50	<50	18	<10	5200	130	9	<1.0	<30	<25
19...	<50	<50	<10	<10	320	140	<1	<1.0	<30	<25
DEC										
18...	<50	<50	<10	<10	310	110	<1	<1.0	<30	<25
JAN										
07...	<50	<50	<10	<10	530	64	<1	<1.0	<30	<30
08...	<50	<50	<10	<10	11000	130	9	<1.0	<30	<25
08...	<50	<50	<10	<10	1000	120	1	<1.0	<30	<25
08...	<50	<50	<10	<10	6600	120	6	<1.0	<30	<25
09...	<50	<50	<10	<10	650	100	<1	<1.0	<30	<25
09...	<50	<50	<10	<10	1900	120	2	<1.0	<30	<25
09...	<50	<50	<10	<10	3900	85	4	<1.0	<30	<25
09...	<50	<50	<10	<10	3100	100	3	<1.0	<30	<25
09...	<50	<50	<10	<10	2000	130	2	<1.0	<30	<30
09...	<50	<50	<10	<10	2300	130	2	<1.0	<30	<25
10...	<50	<50	<10	<10	1800	96	2	<1.0	<30	<25
FEB										
17...	<50	<50	<10	<10	1100	270	1	<1.0	<30	<25
18...	<50	<50	<10	<10	3200	200	2	<1.0	<30	<25
18...	<50	<50	13	<10	6300	73	3	<1.0	<30	<25
18...	<50	<50	<10	<10	1000	75	1	<1.0	<30	<25
19...	<50	<50	<10	<10	900	75	1	<1.0	<30	<25
19...	<50	<50	<10	<10	470	140	<1	<1.0	<30	<25
20...	<30	<50	<10	<10	450	84	<1	<1.0	<30	<25
MAR										
31...	<50	<50	<10	<10	570	64	<1	<1.0	<30	<25
APR										
22...	<50	<50	<10	<10	530	130	<1	<1.0	<30	<30
30...	<50	<50	<10	<10	350	1400	<1	<1.0	<30	<25
MAY										
04...	<50	<50	<10	<10	790	65	<1	<1.0	<30	<30
04...	<50	<50	<10	<10	2200	52	4	<1.0	<30	<30
04...	<50	<50	<10	<10	3200	55	5	<1.0	<30	<30
05...	<50	<50	<10	<10	2700	73	3	<1.0	<30	<30
05...	<50	<50	<10	<10	1900	89	2	<1.0	<30	<30
05...	<50	<50	<10	<10	750	75	<1	<1.0	<30	<30
JUN										
30...	<50	<50	<10	<10	380	42	<1	<1.0	<30	<30
JUL										
24...	<50	<50	<10	<10	200	52	<1	<1.0	<50	<25
AUG										
25...	<50	<50	160	<10	250	140	<10	<10	<30	<25
SEP										
28...	0	<50	0	<10	0	41	0	<1.0	0	<25

SWATARA CREEK BASIN

01572025 SWATARA CREEK NEAR PINE GROVE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SELE- NIUM, TOTAL (µG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	STRON- TIUM, TOTAL RECOV- ERABLE (µG/L AS SR) (01082)	STRON- TIUM, DIS- SOLVED (µG/L AS SR) (01080)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)
OCT										
30...	410	410	<50	<50	<7	<7	90	93	50	50
NOV										
02...	1700	48	<50	<50	<7	<7	70	59	100	19
04...	1500	92	<50	<25	<7	<7	70	57	90	30
19...	300	270	<50	<50	<7	<7	60	57	30	24
DEC										
18...	330	310	<50	<50	<7	<7	60	58	30	23
JAN										
07...	210	190	<50	<50	<7	<7	50	45	50	47
08...	820	59	<50	<50	<7	<7	20	<10	50	<10
08...	92	65	<50	<50	<7	<7	<10	<10	<10	<10
08...	490	78	<50	<50	<7	<7	<10	<10	20	<10
09...	100	73	<50	<50	<7	<7	<10	<10	<10	<10
09...	190	100	<50	<50	<7	<7	<10	<10	<10	<10
09...	360	120	<50	<50	<7	<7	<10	<10	10	<10
09...	290	140	<50	<50	<7	<7	10	<10	10	<10
09...	240	200	<50	<50	<7	<7	30	32	40	37
09...	290	180	<50	<50	<7	<7	40	35	40	23
10...	280	220	<50	<50	<7	<7	40	35	40	25
FEB										
17...	270	260	<50	<50	<7	<7	40	37	40	25
18...	260	180	<50	<50	<7	<7	40	33	40	18
18...	320	150	<50	<50	<7	<7	40	30	50	12
18...	190	140	<50	<50	<7	<7	30	30	20	17
19...	180	150	<50	<50	<7	<7	30	30	30	18
19...	170	150	<50	<50	<7	<7	30	29	20	29
20...	180	170	<50	<50	<7	<7	30	29	30	20
MAR										
31...	280	270	<50	<50	<7	<7	40	39	40	32
APR										
22...	220	210	<50	<50	<7	<7	40	37	30	24
30...	260	340	<50	<50	<7	<7	40	42	30	31
MAY										
04...	230	160	<50	<50	<7	<7	50	42	30	34
04...	230	110	<50	<50	<7	<7	40	38	40	20
04...	300	92	<50	<50	<7	<7	40	39	50	17
05...	260	110	<50	<50	<7	<7	40	36	40	17
05...	230	130	<50	<50	<7	<7	40	37	30	18
05...	180	140	<50	<50	<7	<7	40	37	30	19
JUN										
30...	220	210	<50	<50	<7	<7	50	53	20	21
JUL										
24...	120	120	<50	<50	<7	<7	80	76	30	27
AUG										
25...	150	120	<50	<50	<70	<70	80	83	110	18
SEP										
28...	0	45	0	<50	0	<7	0	83	0	21

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 mi².

PERIOD OF RECORD.--October 1988 to January 1991, October 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 430 ft above sea level, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are fair. 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 9.8 ft³/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 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 8	2115	*3,710	*10.22	May 12	0745	2,370	8.08
Feb. 24	1230	2,910	9.00	June 13	2245	2,940	9.04
Mar. 9	1530	2,740	8.71				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	49	224	e140	426	797	428	312	145	216	54	37
2	47	105	173	e145	389	659	548	378	128	161	47	90
3	45	127	153	152	361	686	382	387	316	138	43	77
4	43	88	145	182	350	661	350	432	161	125	43	55
5	41	72	135	223	1240	548	323	555	133	120	42	46
6	39	63	124	222	1140	486	301	694	121	110	41	43
7	39	75	114	254	836	444	284	974	111	105	39	41
8	39	126	105	2220	659	457	267	976	105	240	36	57
9	39	171	99	2690	536	1780	382	1350	99	269	36	48
10	38	162	110	1590	458	1880	1140	1390	96	172	48	42
11	37	135	120	1080	414	1190	830	1610	98	134	134	37
12	36	117	121	816	888	922	646	2170	309	115	65	35
13	36	101	127	642	691	762	526	1570	1460	105	51	33
14	37	121	117	503	569	658	462	1130	1510	100	61	32
15	39	151	112	444	482	548	442	897	699	96	70	33
16	38	144	96	966	425	469	381	723	468	94	56	32
17	37	132	93	859	426	413	345	584	501	89	78	32
18	38	119	90	792	1220	417	304	472	354	83	144	31
19	36	108	87	678	1150	494	576	401	273	76	107	30
20	37	100	85	574	947	437	1340	348	237	72	75	29
21	39	97	81	483	795	1340	922	308	199	73	63	29
22	36	138	77	425	644	1250	728	266	174	70	57	32
23	35	143	90	673	595	943	601	241	168	68	65	33
24	34	122	106	1210	2510	780	507	224	335	63	61	29
25	61	113	269	1010	1980	634	428	275	238	57	55	28
26	64	110	283	.800	1300	545	452	253	337	56	52	33
27	92	102	235	654	1010	491	587	199	397	55	48	33
28	81	97	210	626	862	440	409	179	244	54	44	30
29	60	94	178	579	---	394	359	161	197	52	43	27
30	52	99	207	531	---	352	339	158	186	50	39	26
31	46	---	183	480	---	327	---	144	---	57	38	---
TOTAL	1394	3381	4349	22643	23303	22204	15589	19761	9799	3275	1835	1160
MEAN	45.0	113	140	730	832	716	520	637	327	106	59.2	38.7
MAX	92	171	283	2690	2510	1880	1340	2170	1510	269	144	90
MIN	34	49	77	140	350	327	267	144	96	50	36	26
CFSM	.27	.67	.84	4.37	4.98	4.29	3.11	3.82	1.96	.63	.35	.23
IN.	.31	.75	.97	5.04	5.19	4.95	3.47	4.40	2.18	.73	.41	.26

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

	198	356	404	447	377	609	526	438	267	191	99.6	92.6
MAX	538	662	1098	987	832	1263	1325	1184	471	576	192	189
(WY)	1997	1993	1997	1996	1998	1994	1993	1989	1989	1989	1994	1994
MIN	45.0	113	114	108	149	271	165	127	97.2	77.6	42.5	32.7
(WY)	1998	1998	1989	1992	1992	1990	1995	1995	1993	1993	1993	1995

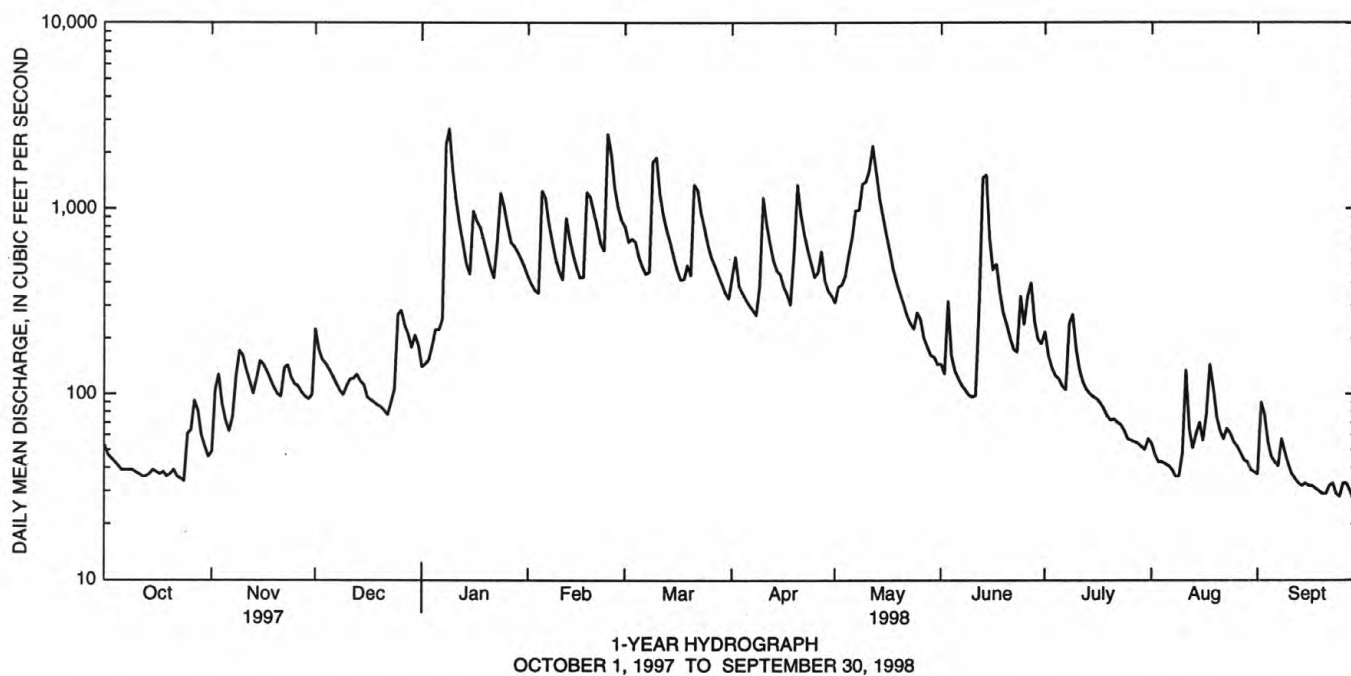
e Estimated.

SWATARA CREEK BASIN

01572190 SWATARA CREEK NEAR INWOOD, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	71689		128693			
ANNUAL MEAN	196		353		328	
HIGHEST ANNUAL MEAN					394	1994
LOWEST ANNUAL MEAN					225	1992
HIGHEST DAILY MEAN	1340	Mar 15	2690	Jan 9	6200	Jan 20 1996
LOWEST DAILY MEAN	34	Jul 20, 21a	26	Sep 30	26	Oct 4 1991
ANNUAL SEVEN-DAY MINIMUM	36	Oct 18	29	Sep 24	26	Sep 2 1995
INSTANTANEOUS PEAK FLOW			3710	Jan 8	b9510	Nov 28 1993
INSTANTANEOUS PEAK STAGE			10.22	Jan 8	16.20	Nov 28 1993
INSTANTANEOUS LOW FLOW			26	Sep 30	25	Sep 2 1993
ANNUAL RUNOFF (CFSM)	1.18		2.11		1.97	
ANNUAL RUNOFF (INCHES)	15.97		28.67		26.70	
10 PERCENT EXCEEDS	393		907		762	
50 PERCENT EXCEEDS	137		161		183	
90 PERCENT EXCEEDS	47		38		55	

a Also Oct. 24.

b From rating curve extended above 4,500 ft³/s.

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 mi².

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 sea level. Prior to July 16, 1931, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. The Pennsylvania American Water Company diverts water upstream from station for municipal supply of city of Lebanon. Diversion for the year was equivalent to a mean daily discharge of 10.8 ft³/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 ft³/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 4,800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	0045	*6,620	*8.55	Mar. 9	2000	6,130	8.14
Feb. 24	1700	5,470	7.56	June 14	0230	5,080	7.20

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	73	499	280	800	1440	738	615	280	529	112	69
2	69	130	382	335	720	1190	1130	795	255	393	89	399
3	62	220	292	339	664	1500	719	937	402	322	81	291
4	61	156	264	373	651	1430	635	978	303	284	77	144
5	58	116	250	410	2540	1120	587	1100	245	264	76	112
6	54	98	221	412	2100	978	543	1220	220	239	72	95
7	52	122	197	479	1510	883	508	1450	201	221	69	111
8	51	361	179	3400	1210	929	483	1860	188	795	67	173
9	47	390	165	5060	1010	3910	682	2510	177	843	64	128
10	48	330	172	2730	863	3900	2400	2410	171	462	170	96
11	46	249	219	1810	785	2260	1510	2890	179	339	603	83
12	45	202	242	1350	1840	1710	1160	4230	811	280	188	76
13	43	169	246	1070	1310	1410	953	2890	2790	249	126	70
14	45	236	222	862	1060	1230	828	2060	3250	230	116	67
15	52	344	199	757	898	1050	800	1620	1390	218	144	66
16	52	278	176	2410	784	903	694	1320	975	215	127	66
17	51	240	163	1700	776	787	638	1080	1050	207	192	65
18	51	206	155	1660	2490	835	601	889	748	184	420	63
19	51	187	148	1410	2210	1410	965	749	556	162	333	60
20	50	171	145	1160	1730	1090	2650	654	478	152	188	57
21	50	158	136	954	1450	3560	1630	579	410	147	146	56
22	52	238	125	821	1180	2790	1270	507	360	154	130	64
23	49	305	154	1470	1140	2000	1060	461	419	141	117	68
24	47	236	208	2830	4540	1600	909	423	1350	130	127	61
25	82	200	730	1980	3860	1310	765	433	664	115	108	55
26	122	184	713	1520	2380	1130	839	501	723	105	109	60
27	150	180	504	1240	1830	1010	1450	386	1790	100	101	62
28	157	162	451	1280	1530	894	852	341	674	95	89	59
29	99	158	375	1290	---	793	707	317	510	93	81	55
30	79	191	472	1060	---	703	651	323	477	88	76	69
31	71	---	449	929	---	642	---	288	---	107	71	---
TOTAL	2028	6290	8853	43381	43861	46397	29357	36816	22046	7863	4469	2900
MEAN	65.4	210	286	1399	1566	1497	979	1188	735	254	144	96.7
MAX	157	390	730	5060	4540	3910	2650	4230	3250	843	603	399
MIN	43	73	125	280	651	642	483	288	171	88	64	55
CFSM	.19	.62	.85	4.15	4.65	4.44	2.90	3.52	2.18	.75	.43	.29
IN.	.22	.69	.98	4.79	4.84	5.12	3.24	4.06	2.43	.87	.49	.32

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1919 - 1998, BY WATER YEAR (WY)

	MEAN	331	538	710	689	767	1074	886	688	445	310	244	260
MAX	2104	1753	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	

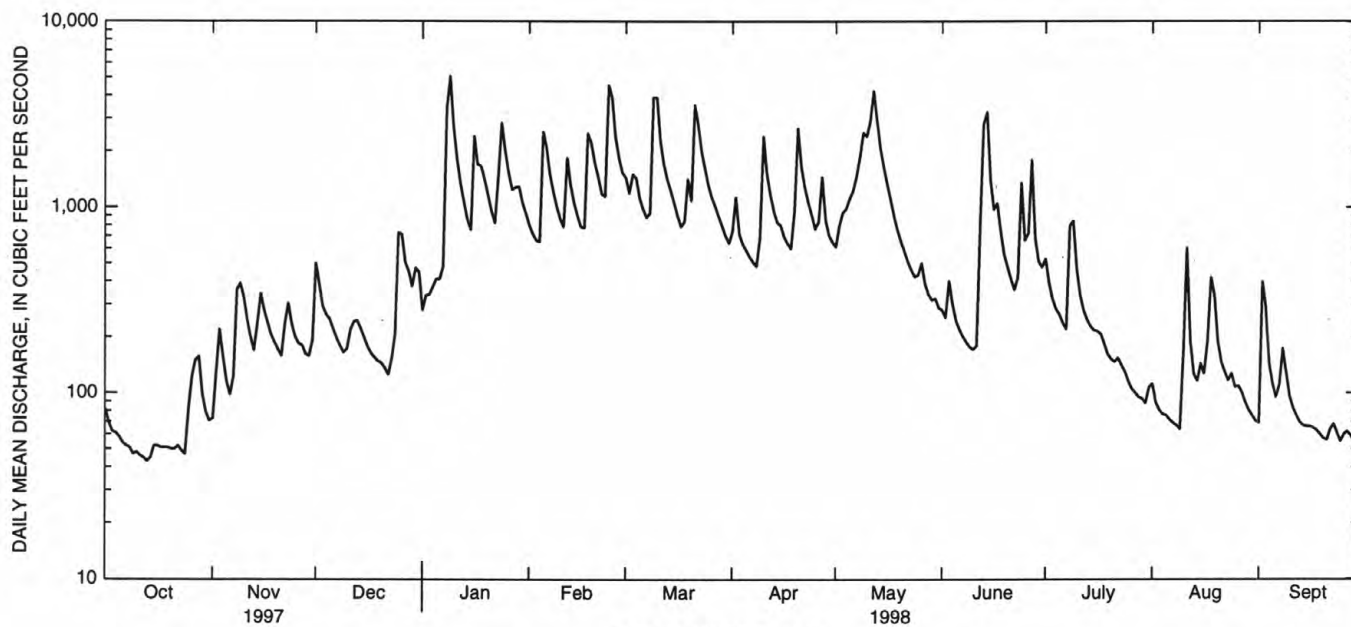
SWATARA CREEK BASIN

01573000 SWATARA CREEK AT HARPER TAVERN, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1919 - 1998	
ANNUAL TOTAL	136040		254261		577	
ANNUAL MEAN	373		697		948	
HIGHEST ANNUAL MEAN					201	
LOWEST ANNUAL MEAN					1931	
HIGHEST DAILY MEAN	2960	Mar 15	5060	Jan 9	42500	Jun 23 1972
LOWEST DAILY MEAN	43	Oct 13	43	Oct 13	6.6	Aug 21 1965
ANNUAL SEVEN-DAY MINIMUM	46	Oct 8	46	Oct 8	10	Sep 19 1932
INSTANTANEOUS PEAK FLOW			6620	Jan 9	a66700	Jun 23 1972
INSTANTANEOUS PEAK STAGE			8.55	Jan 9	b23.72	Jun 23 1972
INSTANTANEOUS LOW FLOW			43	Oct 12-14	6.0	Aug 21 1965
ANNUAL RUNOFF (CFSM)	1.11		2.07		1.71	
ANNUAL RUNOFF (INCHES)	15.02		28.07		23.26	
10 PERCENT EXCEEDS	782		1700		1290	
50 PERCENT EXCEEDS	244		360		320	
90 PERCENT EXCEEDS	67		66		66	

a From rating curve extended above 25,000 ft³/s on basis of slope-area measurement of peak flow.

b From floodmark in gage.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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 mi².

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder and gated concrete control. Datum of gage is 325.94 ft above sea level (levels by Susquehanna River Basin Commission).

REMARKS.--Records fair except those for estimated daily discharges, which are poor. No diversion by Hershey Chocolate U.S.A. Satellite and landline telemetry at station.

COOPERATION.--Records of daily diversion furnished by Hershey Chocolate U.S.A., a division of Hershey Foods Corporation.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 6,900 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	0745	*6,680	*5.94	(No peak above base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e250	119	601	370	1090	1870	1040	971	493	760	227	133
2	e120	171	527	377	967	1560	1520	1240	440	605	200	401
3	e100	263	397	493	899	1870	1060	1420	529	468	184	485
4	e95	226	363	479	859	1930	970	1410	494	435	168	235
5	e90	174	341	504	2940	1520	922	1590	394	405	175	195
6	e90	148	305	511	2700	1340	826	2040	349	365	166	172
7	e90	173	280	566	1970	1240	801	1920	347	343	148	181
8	e90	589	259	3280	1580	1240	752	2510	330	999	140	285
9	e85	595	238	5890	1340	3970	968	3440	303	1360	153	231
10	e95	473	240	3400	1160	4950	2930	3010	281	748	210	177
11	e90	366	297	2250	1040	2910	2070	3610	307	547	813	160
12	e80	293	330	1690	2170	2200	1580	5270	921	459	338	138
13	e75	258	324	1350	1690	1870	1320	3860	2810	417	236	130
14	e85	337	309	1110	1390	1670	1170	2790	3930	387	224	158
15	e95	459	276	972	1190	1450	1130	2190	1810	363	227	140
16	e90	391	251	2730	1040	1240	1030	1840	1320	361	241	129
17	e90	340	231	2160	1030	1100	965	1560	1310	335	294	125
18	e85	292	226	2040	3110	1120	932	1300	1040	307	558	125
19	e85	271	220	1760	2840	1770	1360	1110	786	280	438	124
20	e90	254	212	1460	2240	1540	3380	996	633	256	305	129
21	e95	239	211	1250	1900	4230	2210	868	574	243	240	128
22	e100	319	191	1070	1590	3760	1730	779	526	265	222	132
23	e90	398	223	1720	1490	2690	1480	686	756	242	216	136
24	e85	327	280	3450	4820	2130	1270	641	1830	249	200	127
25	139	276	807	2500	4700	1810	1120	623	1090	240	186	124
26	177	252	983	1940	2980	1580	1240	737	860	229	191	122
27	226	249	674	1600	2290	1410	2110	600	2110	230	184	131
28	205	237	603	1640	1960	1310	1330	551	992	219	174	119
29	166	239	495	1720	---	1150	1110	485	750	202	149	114
30	132	265	567	1400	---	1030	1010	481	665	193	154	119
31	126	---	588	1260	---	964	---	452	---	230	145	---
TOTAL	3511	8993	11849	52942	54975	60424	41336	50980	28980	12742	7506	5105
MEAN	113	300	382	1708	1963	1949	1378	1645	966	411	242	170
MAX	250	595	983	5890	4820	4950	3380	5270	3930	1360	813	485
MIN	75	119	191	370	859	964	752	452	281	193	140	114
CFSM	.23	.62	.79	3.54	4.06	4.04	2.85	3.40	2.00	.85	.50	.35
IN.	.27	.69	.91	4.08	4.23	4.65	3.18	3.93	2.23	.98	.58	.39

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 1998, BY WATER YEAR (WY)

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
MEAN	586	780	1011	1010	1013	1427	1250	935	606	449	314	321												
MAX	2632	1427	2693	3370	1963	3848	3207	2708	1959	1536	1036	1320												
(WY)	1977	1993	1997	1979	1998	1994	1993	1989	1982	1989	1978	1987												
MIN	85.3	152	111	79.9	226	459	420	329	166	143	106	73.0												
(WY)	1981	1982	1981	1981	1980	1985	1995	1995	1991	1987	1987	1980												

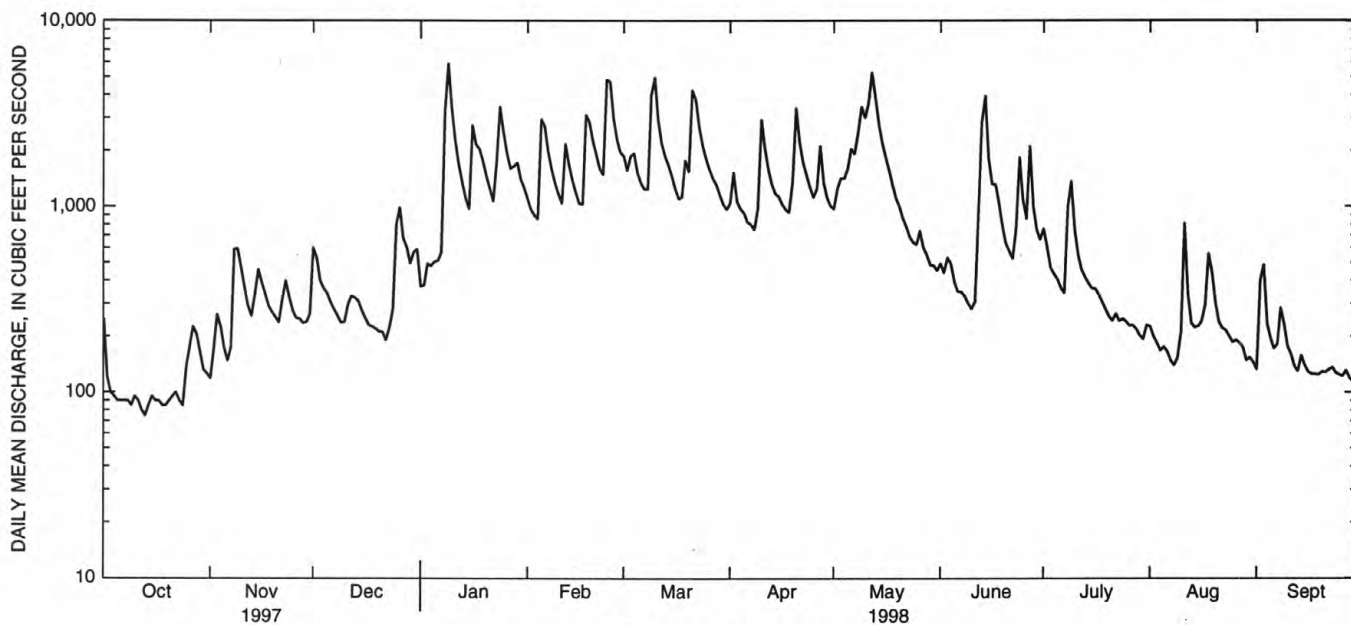
e Estimated.

SWATARA CREEK BASIN

01573560 SWATARA CREEK NEAR HERSHEY, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1976 - 1998	
ANNUAL TOTAL	194013		339343			
ANNUAL MEAN	532		930		808	
HIGHEST ANNUAL MEAN					1225	
LOWEST ANNUAL MEAN					380	
HIGHEST DAILY MEAN	3610	Mar 15	5890	Jan 9	23800	Jan 25 1979
LOWEST DAILY MEAN	e75	Oct 13	e75	Oct 13	59	Sep 21 1985
ANNUAL SEVEN-DAY MINIMUM	a86	Oct 8	a86	Oct 8	63	Sep 18 1985
INSTANTANEOUS PEAK FLOW			6680	Jan 9	b29400	Sep 27 1975
INSTANTANEOUS PEAK STAGE			5.94	Jan 9	15.36	Sep 27 1975
INSTANTANEOUS LOW FLOW					59	Sep 21 1985
ANNUAL RUNOFF (CFSM)	1.10		1.92		1.67	
ANNUAL RUNOFF (INCHES)	14.94		26.14		22.72	
10 PERCENT EXCEEDS	1130		2180		1800	
50 PERCENT EXCEEDS	360		495		450	
90 PERCENT EXCEEDS	126		129		137	

a Computed using estimated daily discharges.
b From rating curve extended above 12,200 ft³/s.
e Estimated.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

WEST CONEWAGO CREEK BASIN

01574000 WEST CONEWAGO CREEK NEAR MANCHESTER, PA

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 mi².

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 sea level.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Occasional slight regulation since October 1959 by Conewago Lake about 13 miles upstream, capacity, 3,570 acre-ft. Gage height record affected at times by backwater from the Susquehanna River. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 10,800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 9	0500	13,300	13.77	Feb. 24	1300	13,000	13.60
Feb. 18	1515	12,500	13.22	Mar. 21	1715	*13,400	*13.85

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	81	70	226	320	1220	1620	741	652	298	199	226	56
2	79	82	298	265	972	1350	1180	2100	322	180	202	60
3	61	234	255	325	813	2030	933	2530	274	159	124	60
4	55	287	222	403	755	3060	718	1800	230	137	98	54
5	50	152	217	450	6570	1810	646	2550	211	132	91	52
6	47	112	214	379	5230	1440	545	6160	201	125	81	51
7	45	144	161	368	2160	1210	493	2290	190	124	70	51
8	43	2650	148	4000	1580	1310	464	2390	194	657	66	81
9	42	2550	154	9730	1270	6970	932	3830	191	1180	64	61
10	41	941	175	4050	1030	e4600	5160	2290	181	462	82	54
11	39	516	171	1870	871	e2100	1880	2810	179	278	1090	54
12	37	352	259	1220	2280	1600	1250	6440	392	213	389	49
13	38	273	236	915	1680	1300	979	5790	1230	185	188	45
14	37	294	213	786	1120	1150	816	2710	1300	168	124	44
15	39	926	188	689	908	1030	761	1750	691	149	100	46
16	40	665	171	3450	775	877	713	1370	408	137	92	47
17	40	400	168	2350	752	772	644	1130	483	135	268	42
18	48	295	153	1910	8200	758	646	939	456	127	394	42
19	50	265	143	1560	4380	3010	811	792	331	119	278	42
20	50	272	139	1130	2310	2310	5250	674	286	115	182	41
21	51	255	149	901	1830	9620	2050	581	274	110	136	39
22	52	276	135	758	1390	6250	1330	513	233	101	110	68
23	52	460	142	2180	1340	3310	1060	453	239	93	100	49
24	52	402	175	6550	10400	2160	888	425	1270	100	94	61
25	62	311	800	2780	5060	1670	732	392	653	93	87	64
26	69	264	1440	1920	2490	1430	706	377	349	99	84	54
27	104	240	681	1480	1810	1270	1340	351	272	84	78	52
28	117	207	559	2890	1520	1110	1010	321	223	80	74	52
29	122	198	499	4900	---	988	711	294	212	75	69	53
30	99	194	454	2060	---	881	613	278	198	72	65	55
31	77	---	447	1540	---	784	---	266	---	152	60	---
TOTAL	1819	14287	9392	64129	70716	69780	36002	55248	11971	6040	5166	1579
MEAN	58.7	476	303	2069	2526	2251	1200	1782	399	195	167	52.6
MAX	122	2650	1440	9730	10400	9620	5250	6440	1300	1180	1090	81
MIN	37	70	135	265	752	758	464	266	179	72	60	39
CFSM	.12	.93	.59	4.06	4.95	4.41	2.35	3.49	.78	.38	.33	.10
IN.	.13	1.04	.69	4.68	5.16	5.09	2.63	4.03	.87	.44	.38	.12

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1998, BY WATER YEAR (WY)

	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
MEAN	276	471	681	794	979	1279	990	668	434	262	225	259
MAX	1783	1535	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	86.3	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

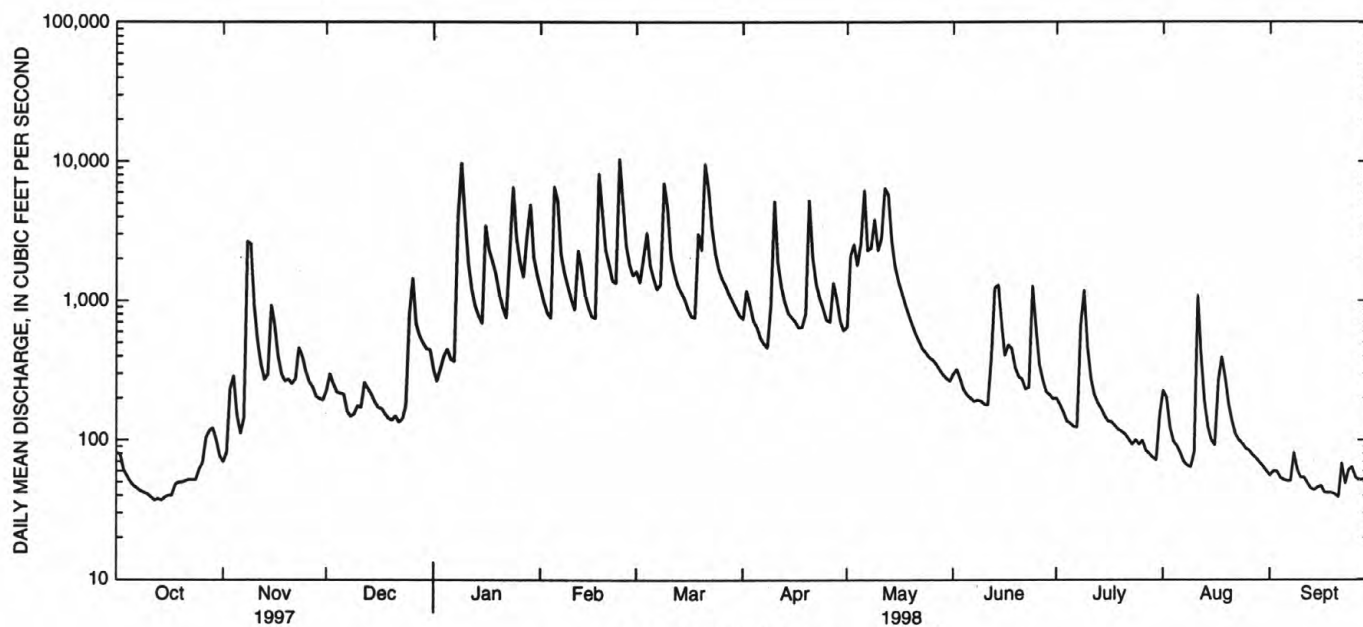
01574000 WEST CONEWAGO CREEK NEAR MANCHESTER, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1929 - 1998	
ANNUAL TOTAL	142000		346129		608	
ANNUAL MEAN	389		948		1117	
HIGHEST ANNUAL MEAN					154	
LOWEST ANNUAL MEAN					1931	
HIGHEST DAILY MEAN	6270	Mar 15	10400	Feb 24	64000	Sep 26 1975
LOWEST DAILY MEAN	34	Sep 9	37	Oct 12,14	2.0	Aug 8 1930
ANNUAL SEVEN-DAY MINIMUM	39	Oct 11	39	Oct 11	3.9	Aug 3 1966
INSTANTANEOUS PEAK FLOW			13400	Mar 21	b96200	Sep 26 1975
INSTANTANEOUS PEAK STAGE			13.85	Mar 21	c32.11	Sep 26 1975
INSTANTANEOUS LOW FLOW			37	Oct 11-15a	1.9	Oct 13 1941
ANNUAL RUNOFF (CFSM)	.76		1.86		1.19	
ANNUAL RUNOFF (INCHES)	10.36		25.25		16.19	
10 PERCENT EXCEEDS	887		2330		1310	
50 PERCENT EXCEEDS	198		311		252	
90 PERCENT EXCEEDS	46		53		46	

a Also Sept. 21, 22.

b From rating curve extended above 45,000 ft³/s on basis of slope-area computation at gage height 30.26 ft.

c From floodmark.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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 mi².

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 sea level. 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 fair. Daily discharges include water diverted around station by waste treatment plant of P.H. Glatfelter Company. Flow regulated by dam on Lake Marburg (station 01574390) about 20 miles upstream. Several measurements of water temperature were made during the year. Satellite telemetry at station.

COOPERATION.--Records of change in lake contents and daily diversion furnished by P.H. Glatfelter Company.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	53	52	50	87	126	259	110	87	88	68	48
2	42	62	44	50	78	108	244	204	63	69	62	60
3	44	46	40	55	72	234	185	183	63	65	60	51
4	44	43	36	56	80	192	179	163	60	62	51	50
5	45	39	37	51	341	165	173	170	56	60	47	48
6	42	38	38	47	181	136	156	191	56	52	44	47
7	41	124	37	45	121	123	128	146	55	50	43	49
8	44	231	37	364	101	173	123	182	55	197	44	49
9	45	73	41	173	89	482	280	170	62	94	49	49
10	46	48	46	90	80	303	281	165	65	78	87	45
11	44	51	49	67	77	195	157	216	62	71	94	41
12	49	42	46	56	150	154	133	461	111	65	54	44
13	46	45	44	50	90	133	121	423	149	69	52	41
14	45	68	42	43	78	126	116	315	150	64	55	44
15	48	64	37	53	70	111	113	259	93	63	52	47
16	44	45	39	156	65	100	104	224	96	61	50	51
17	43	44	39	85	83	93	102	191	128	64	115	49
18	50	39	39	83	428	109	101	165	92	61	72	51
19	45	39	40	66	189	352	137	149	80	57	59	53
20	40	42	45	59	136	191	252	138	73	59	47	53
21	41	42	47	52	117	811	131	129	69	59	43	50
22	40	70	52	48	98	374	115	119	64	60	45	73
23	40	48	63	252	184	271	107	108	232	77	44	49
24	40	38	62	190	560	256	106	98	1090	71	45	43
25	59	43	113	124	265	241	106	93	220	61	51	41
26	46	43	76	93	175	234	102	90	158	61	52	46
27	56	40	68	81	145	219	109	78	136	62	50	45
28	39	39	67	315	129	209	96	71	110	62	50	46
29	41	41	63	210	---	196	91	67	99	61	49	46
30	41	45	62	131	---	186	96	70	94	59	48	48
31	40	---	56	103	---	180	---	63	---	111	47	---
TOTAL	1372	1685	1557	3298	4269	6783	4403	5211	3928	2193	1729	1457
MEAN	44.3	56.2	50.2	106	152	219	147	168	131	70.7	55.8	48.6
MAX	59	231	113	364	560	811	281	461	1090	197	115	73
MIN	39	38	36	43	65	93	91	63	55	50	43	41

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. Gladfelter Co. Instantaneous data reflect actual streamflow past gage and do not include diverted streamflow.

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1998, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	67.9	63.5	78.7	90.4	105	128	123	91.8	88.8	63.8	56.2	66.6
MAX	269	159	270	264	269	492	372	171	699	185	109	360
(WY)	1980	1997	1997	1996	1971	1994	1993	1975	1972	1970	1996	1975
MIN	18.1	15.8	16.9	19.5	25.7	33.0	31.2	28.8	21.4	17.4	17.1	19.2
(WY)	1967	1966	1966	1966	1969	1969	1969	1969	1966	1966	1966	1966

SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1966 - 1998

ANNUAL TOTAL	27157	37885	
ANNUAL MEAN	74.4	104	86.6
HIGHEST ANNUAL MEAN			163
LOWEST ANNUAL MEAN			33.6
HIGHEST DAILY MEAN	340	Mar 14	1090
LOWEST DAILY MEAN	36	Dec 4	36
ANNUAL SEVEN-DAY MINIMUM	38	Dec 3	38
INSTANTANEOUS PEAK FLOW			a2460
INSTANTANEOUS PEAK STAGE			8.65
10 PERCENT EXCEEDS	135	200	156
50 PERCENT EXCEEDS	54	65	55
90 PERCENT EXCEEDS	42	42	33

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	c74.1	
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
INSTANTANEOUS PEAK FLOW	a11200	Aug 23 1933
INSTANTANEOUS PEAK STAGE	d11.84	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 1,400 ft³/s on basis of computation of peak discharge at dam at gage height 6.80 ft and at peak flow.

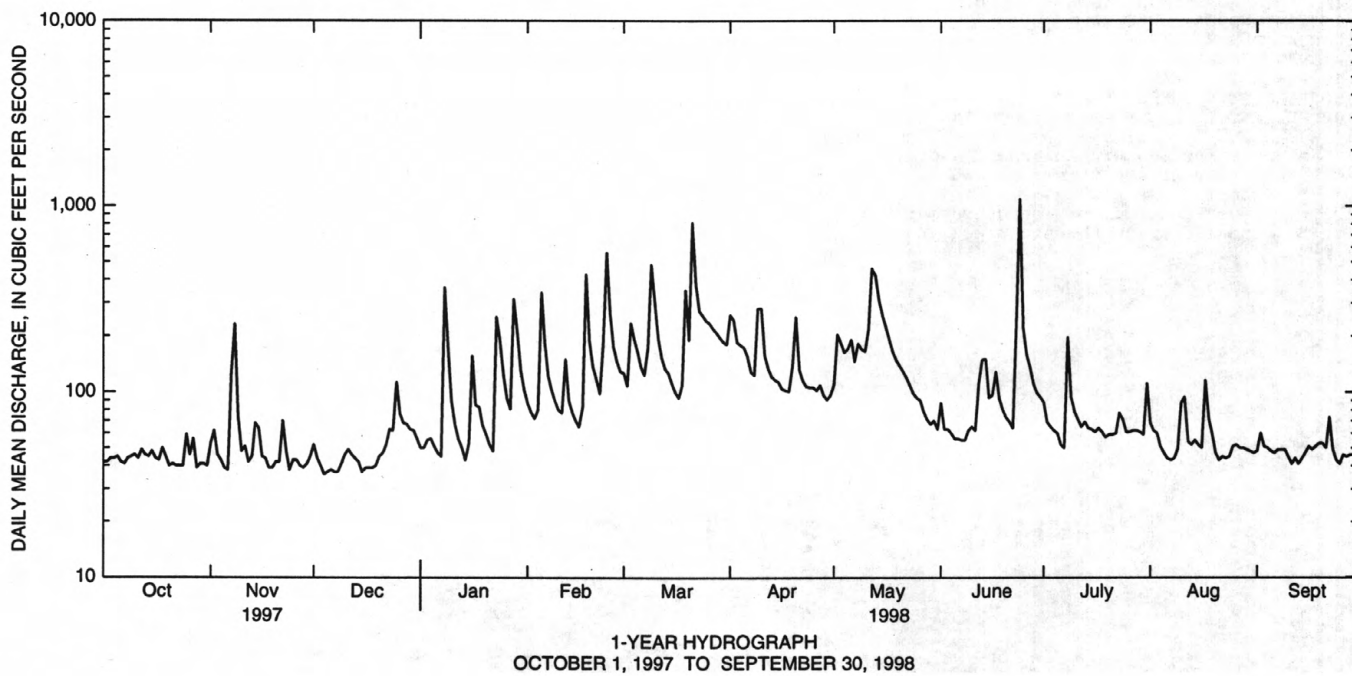
b From floodmark in gage.

c Adjusted for diversion since March 1961.

d Site and datum then in use.

CODORUS CREEK BASIN

01574500 CODORUS CREEK AT SPRING GROVE, PA--Continued



CODORUS CREEK BASIN

RESERVOIRS IN CODORUS CREEK BASIN

01574390 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 mi². 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 sea level.

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, 32,190 acre-ft, Feb. 13, 14, 15, 1989, elevation, 608.79 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 48,010 acre-ft, June 24, elevation, 623.25 ft; minimum, 34,850 acre-ft, Jan. 6, elevation, 611.54 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 mi². 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 1942; 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, 1,200 acre-ft, June 24, elevation, 393.26 ft; minimum, 7.7 acre-ft, October 29, elevation, 371.63 ft.

MONTHEND ELEVATION, IN FEET ABOVE SEA LEVEL, AND CONTENTS AT 2400 HRS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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)
<u>01574390 LAKE MARBURG</u>				<u>01574700 INDIAN ROCK DAM</u>		
Sept. 30.....	614.80	38,160	--	372.21	9.6	--
Oct. 31.....	612.80	36,130	- 33.0	371.84	8.4	- 0.02
Nov. 30.....	612.80	36,130	0	372.12	9.4	+ 0.02
Dec. 31.....	611.70	35,010	- 18.2	372.25	9.8	+ 0.01
CAL YR 1997.....	--	--	- 14.9	--	--	- 0.05
Jan. 31.....	614.54	37,890	+ 46.8	374.48	19.3	+ 0.15
Feb. 28.....	618.54	42,140	+ 76.5	375.78	31.0	+ 0.21
Mar. 31.....	622.35	46,810	+ 76.0	377.26	43.7	+ 0.21
Apr. 30.....	623.00	47,680	- 14.6	375.74	30.7	- 0.22
May 31.....	622.95	47,610	- 1.1	375.11	25.0	- 0.09
June 30.....	622.93	47,590	- 0.3	376.43	36.7	+ 0.20
July 31.....	621.95	46,280	- 21.3	376.06	33.5	- 0.05
Aug. 31.....	620.66	44,570	- 27.8	374.14	16.3	- 0.28
Sept. 30.....	618.80	42,420	- 36.1	374.27	17.4	+ 0.02
WTR YR 1998.....	--	--	+ 5.9	--	--	+ 0.01

SUSQUEHANNA RIVER BASIN

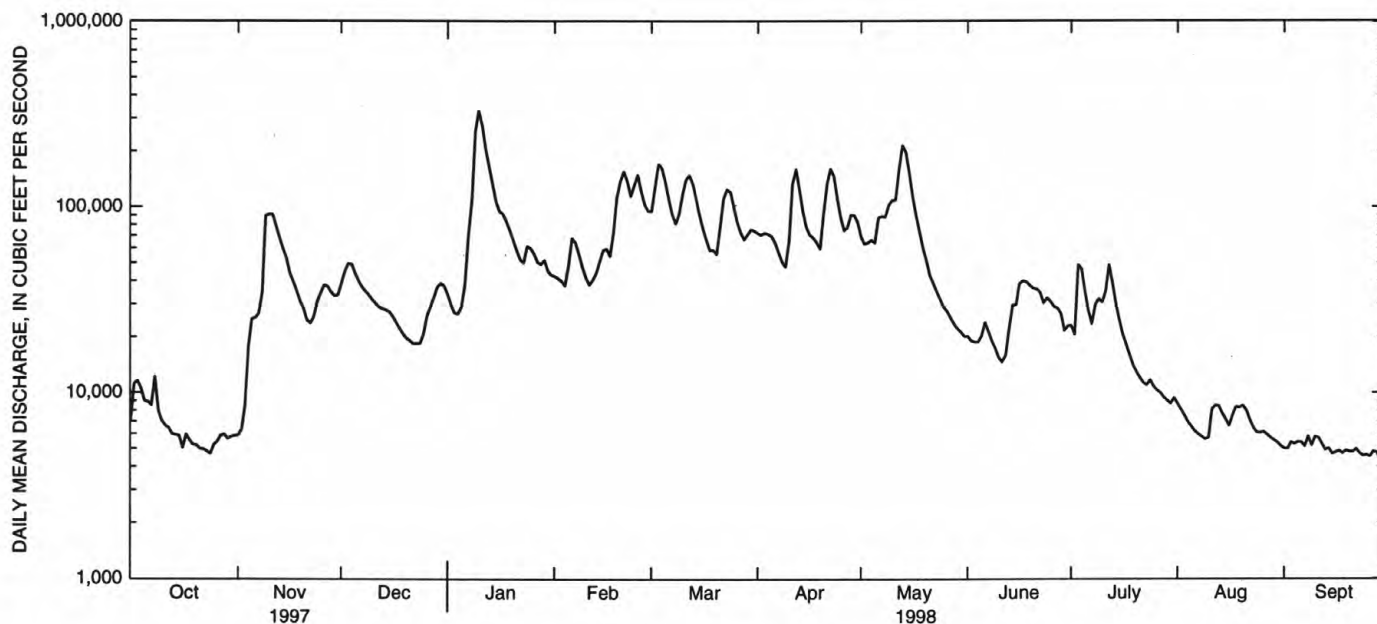
01576000 SUSQUEHANNA RIVER AT MARIETTA, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1932 - 1998	
ANNUAL TOTAL	10640010		17206350		37370	
ANNUAL MEAN	29150		47140		59900	
HIGHEST ANNUAL MEAN					19060	
LOWEST ANNUAL MEAN					1040000	
HIGHEST DAILY MEAN	136000	Mar 8	330000	Jan 10	1040000	Jun 24 1972
LOWEST DAILY MEAN	4540	Aug 13	4330	Sep 29	1380	Sep 26 1932
ANNUAL SEVEN-DAY MINIMUM	4910	Aug 9	4570	Sep 24	1720	Sep 26 1932
INSTANTANEOUS PEAK FLOW			336000	Jan 10	a1080000	Jun 23 1972
INSTANTANEOUS PEAK STAGE			50.17	Jan 10	b64.54	Jun 23 1972
INSTANTANEOUS LOW FLOW			3710	Oct 16	c618	Sep 26 1932
ANNUAL RUNOFF (CFSM)	1.12		1.81		1.44	
ANNUAL RUNOFF (INCHES)	15.23		24.63		19.53	
10 PERCENT EXCEEDS	64600		111000		84800	
50 PERCENT EXCEEDS	24700		32400		22300	
90 PERCENT EXCEEDS	5830		5430		6030	

a From rating curve extended above 961,000 ft³/s.

b From floodmarks.

c York Haven powerplant shut down to obtain current-meter measurements of low flow.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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 mi².

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 and concrete control. Datum of gage is 245.63 ft above sea level. Prior to May 1, 1933, at site 600 ft upstream at different datum, excluding small tributary.

REMARKS.--Records fair. Regulation at low flow by water plant and mill above station. Diversion upstream for municipal supply of city of Lancaster. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

COOPERATION.--Records of diversion provided by city of Lancaster.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 2,800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 21	1430	4,900	8.59	June 13	Unknown	*e6,200	*a9.8
Apr. 10	0415	3,610	7.41	July 8	2145	3,650	7.44

a About.

e Estimated.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	93	79	120	158	428	571	651	513	489	469	255	127
2	84	124	142	152	384	524	977	845	412	349	210	120
3	68	162	112	141	364	904	643	721	379	305	193	132
4	63	130	104	140	354	1030	577	713	355	291	182	131
5	66	103	104	139	640	703	549	619	327	280	180	126
6	68	94	104	133	864	605	504	628	317	269	168	117
7	60	124	102	133	512	563	472	794	312	250	157	113
8	65	294	96	600	429	573	456	898	293	1310	152	192
9	60	306	93	870	394	1700	610	1300	282	1280	156	184
10	60	236	93	410	369	1840	2260	1740	273	646	195	136
11	54	163	117	291	356	992	928	1850	278	502	439	125
12	72	132	146	244	963	826	715	2620	1040	436	242	115
13	57	117	124	227	611	771	659	1830	e2600	388	195	104
14	60	144	113	213	469	723	613	1330	e2700	359	177	106
15	70	338	108	199	407	669	588	1130	820	342	184	105
16	72	203	100	668	376	605	555	1030	704	334	176	115
17	66	161	98	465	369	562	527	920	630	323	225	87
18	99	135	95	404	667	577	544	827	532	320	324	109
19	111	117	93	389	662	1430	568	755	471	294	529	110
20	85	111	88	320	527	939	1530	693	438	279	240	97
21	75	114	89	281	474	2950	760	640	418	264	192	101
22	65	148	80	256	424	1820	636	584	374	274	183	252
23	65	217	81	529	429	1300	572	546	380	274	175	129
24	62	155	116	1350	1520	1080	545	524	733	266	160	95
25	92	141	329	691	1060	968	505	500	493	247	154	87
26	148	126	319	541	732	888	497	482	465	240	162	84
27	164	109	202	456	643	830	1380	453	616	231	160	84
28	160	107	188	574	594	777	670	429	399	215	148	76
29	108	106	168	764	---	716	573	407	350	207	147	80
30	89	103	204	560	---	661	529	439	401	202	141	73
31	89	---	237	478	---	615	---	416	---	241	134	---
TOTAL	2550	4599	4165	12776	16021	29712	21593	27176	18281	11687	6335	3512
MEAN	82.3	153	134	412	572	958	720	877	609	377	204	117
MAX	164	338	329	1350	1520	2950	2260	2620	2700	1310	529	252
MIN	54	79	80	133	354	524	456	407	273	202	134	73
CFSM	.25	.47	.41	1.27	1.77	2.96	2.22	2.71	1.88	1.16	.63	.36
IN.	.29	.53	.48	1.47	1.84	3.41	2.48	3.12	2.10	1.34	.73	.40
(†)	14.2	12.6	13.9	13.2	12.8	12.1	12.1	10.6	13.0	15.4	14.4	16.9

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

	207	282	398	474	552	684	629	463	381	307	240	213
MEAN	207	282	398	474	552	684	629	463	381	307	240	213
MAX	930	866	1618	1699	1191	2089	1720	1529	3286	944	1427	908
(WY)	1980	1997	1997	1979	1979	1994	1993	1989	1972	1984	1933	1987
MIN	33.2	41.1	71.0	61.3	166	159	166	148	92.0	63.4	30.3	40.9
(WY)	1931	1931	1931	1981	1931	1981	1985	1965	1965	1963	1957	1957

† 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

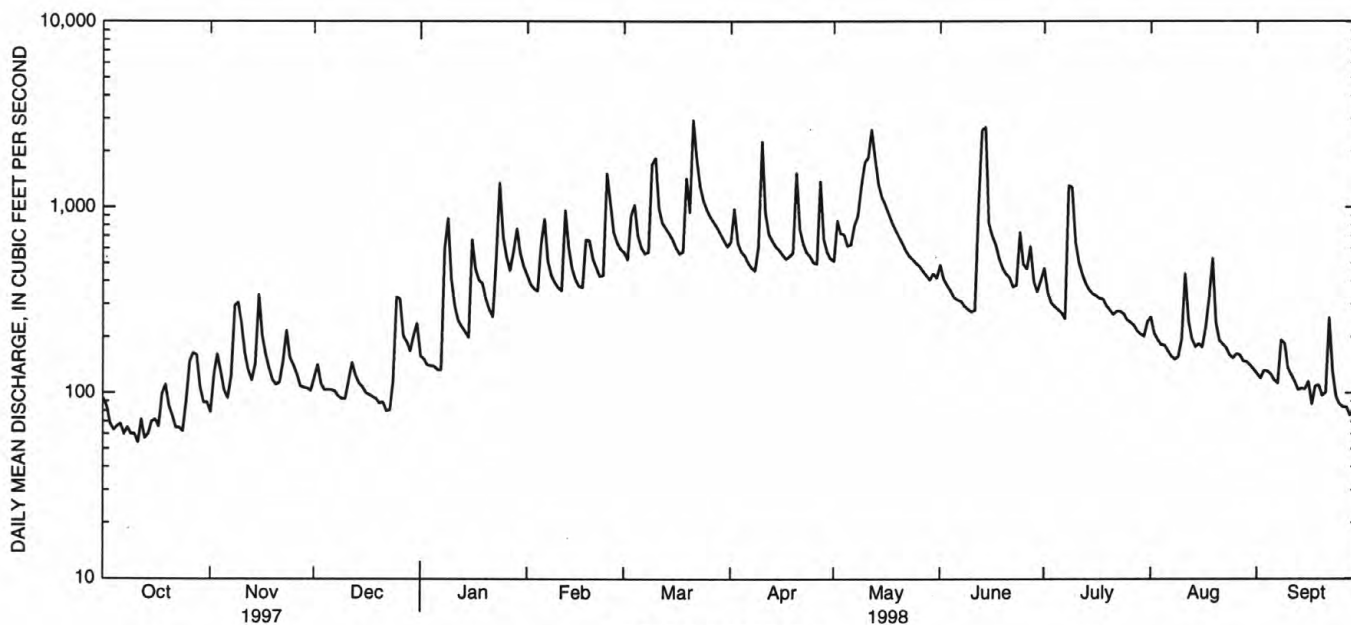
SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	115112		158407		400	
ANNUAL MEAN	315		434		753	
HIGHEST ANNUAL MEAN					143	
LOWEST ANNUAL MEAN					7.0	
HIGHEST DAILY MEAN	2830	Jan 28	2950	Mar 21	47600	Jun 23 1972
LOWEST DAILY MEAN	54	Oct 11	54	Oct 11	20	Aug 11 1930
ANNUAL SEVEN-DAY MINIMUM	61	Oct 7	61	Oct 7	20	Aug 9 1930
INSTANTANEOUS PEAK FLOW			e6200	Jun 13	b50300	Jun 23 1972
INSTANTANEOUS PEAK STAGE			a9.8	Jun 13	c27.90	Jun 23 1972
ANNUAL RUNOFF (CFSM)	.97		1.34		1.24	
ANNUAL RUNOFF (INCHES)	13.22		18.19		16.79	
10 PERCENT EXCEEDS	615		892		810	
50 PERCENT EXCEEDS	219		306		259	
90 PERCENT EXCEEDS	89		93		86	

a About.

b From rating curve extended above 13,000 ft³/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.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

LOCATION.--Lat 39°59'35", long 76°15'46", Lancaster County, Hydrologic Unit 02050306, 0.2 mi north of U.S. Route 222 and 150 ft west of Gypsy Hill Road, and 1.1 mi northeast of Willow Street.

PERIOD OF RECORD.--May 1996 to current year.

REMARKS.--Land surface elevation is 315 ft, from topographic map.

[illegible]

CONESTOGA RIVER BASIN

01576519 BIG SPRING RUN BELOW WILLOW BRANCH NEAR WILLOW STREET, PA--Continued

BIOLOGICAL DATA, MAY 1996 TO SEPTEMBER 1998

BENTHIC MACROINVERTEBRATES

REMARKS.--Rapid bioassessments for benthic macroinvertebrates were conducted from May 1996 through September 1998.
 Samples represent counts per 200-organism (approximate) subsamples.

Benthic Macroinvertebrate	May 1996	Sept 1996	May 1997	Sept 1997	May 1998	Sept 1998
Platyhelminthes	--	--	--	--	--	--
Turbellaria (PLATWORMS)	--	--	--	--	--	--
Tricladida	--	--	--	--	--	--
Planariidae	--	--	--	--	--	27
Annelida	--	--	--	--	--	--
Oligochaeta (AQUATIC EARTHWORMS)	--	--	--	--	--	--
Lubriculida	--	--	--	--	--	--
Lumbriculidae	3	--	--	--	--	--
Haplotaxida	--	--	--	--	--	--
Tubificidae	--	--	1	7	1	--
<u>Isochaetides curvisetosus</u>	--	1	--	--	--	--
<u>Limnodrilus</u> sp	1	--	--	--	--	--
Naididae	--	--	--	--	1	--
<u>Nais elinguis</u>	--	--	2	--	--	--
<u>Nais</u> sp	--	--	--	--	2	--
Mollusca	--	--	--	--	--	--
Gastropoda (SNAILS)	--	--	--	--	--	--
Basommatophora	--	--	--	--	--	--
Physidae	1	--	--	--	--	--
Arthropoda	--	--	--	--	--	--
Crustacea	--	--	--	--	--	--
Amphipoda (SCUDS)	--	--	--	--	--	--
Gammaridae	--	--	--	1	--	--
<u>Gammarus pseudolimnaeus</u>	49	159	22	187	178	114
<u>Gammarus</u> sp	--	--	134	--	--	--
Arachnoidea	--	--	--	--	--	--
Hydracarina (WATER MITES)	--	--	--	--	--	--
Hygrobatidae	--	--	--	--	--	--
<u>Hygrobates</u> sp	--	1	1	--	--	--
Lebertiidae	--	--	--	--	--	--
<u>Lebertia</u> sp	--	1	--	--	1	1
Insecta	--	--	--	--	--	--
Collembola (SPRINGTAILS)	--	--	--	--	--	--
Isotomidae	--	--	--	--	--	--
<u>Isotomurus</u> sp	--	3	--	1	--	--
Ephemeroptera (MAYFLIES)	--	--	--	--	--	--
Baetidae	--	--	--	--	--	--
<u>Baetis flavistriga</u>	--	17	13	--	--	12
<u>Baetis</u> sp	--	--	2	--	--	--
Odonata	--	--	--	--	--	--
Aeschnidae (DRAGONFLIES)	--	--	--	--	--	--
<u>Boyeria vinosa</u>	--	--	--	1	--	--
Hemiptera (TRUE BUGS)	--	--	--	--	--	--
Corixidae (WATER BOATMEN)	--	--	--	--	--	--
<u>Sigara</u> sp	--	--	--	2	--	--
<u>Trichocorixa</u> sp	--	2	--	--	--	--
Coleoptera (BEETLES)	--	--	--	--	--	--
Haliplidae (CRAWLING WATER BEETLES)	--	--	--	--	--	--
<u>Haliphus</u> sp	--	--	--	--	--	1
Dytiscidae (PREDACEOUS DIVING BEETLES)	--	--	--	--	--	--
<u>Agabus</u> sp	--	--	--	--	1	--
Elmidae	--	--	--	1	--	--
<u>Dubiraphia</u> sp	3	--	1	--	--	--
<u>Optioservus</u> sp	1	1	1	7	--	3
<u>Stenelmis</u> sp	3	2	5	1	2	8
Trichoptera (CADDIS FLIES)	--	--	--	--	--	--
Hydropsychidae	--	--	--	--	--	--
<u>Cheumatopsyche</u> sp	1	2	--	1	--	--
<u>Hydropsyche</u> sp	--	1	1	1	--	--

CONESTOGA RIVER BASIN

01576519 BIG SPRING RUN BELOW WILLOW BRANCH NEAR WILLOW STREET, PA--Continued

BIOLOGICAL DATA, MAY 1996 TO SEPTEMBER 1998

BENTHIC MACROINVERTEBRATES--Continued

Benthic Macroinvertebrate	May 1996	Sept 1996	May 1997	Sept 1997	May 1998	Sept 1998
Diptera	--	--	--	--	--	--
Tipulidae (CRANE FLIES)	--	--	--	--	--	--
<u>Pseudolimnophila</u> sp	--	--	--	--	1	--
Simuliidae (BLACK FLIES)	--	--	--	--	--	--
<u>Simulium vittatum</u> gr	--	--	2	--	--	--
<u>Simulium</u> sp	--	9	5	--	1	2
Muscidae (HOUSE FLIES)	--	1	--	1	--	1
Chironomidae (MIDGES)	--	--	--	--	--	--
Tanypodinae	--	--	--	--	--	--
<u>Conchapelopia</u> sp	--	4	--	--	--	--
<u>Thienemannimyia</u> gr sp	--	--	--	--	--	4
Diamesinae	--	--	--	--	--	--
<u>Pagastia</u> sp	1	--	--	--	--	--
Prodiamesinae	--	--	--	--	--	--
<u>Prodiamesa</u> sp	1	--	--	1	1	1
Orthocladiinae	--	--	1	--	--	--
<u>Cricotopus bicinctus</u>	1	3	--	--	--	2
<u>Cricotopus trifascia</u> gr	--	--	2	--	2	--
<u>Cricotopus</u> sp	9	8	2	--	3	2
<u>Eukiefferiella claripennis</u>	--	1	--	--	--	--
<u>Orthocladus</u> sp	120	3	8	1	6	12
<u>Parametriocnemus</u> sp	3	--	1	--	--	3
<u>Pseudosmittia</u> sp	1	--	--	--	--	--
<u>Ivetenia bavarica</u> gr	--	--	--	1	1	2
Chironominae	--	--	--	--	--	--
<u>Chironomus</u> sp	1	1	--	--	--	--
<u>Dicrotendipes neomodestus</u>	--	--	--	--	3	--
<u>Dicrotendipes</u> sp	6	1	3	2	--	6
<u>Harnischia</u> sp	--	--	--	--	--	1
<u>Micropsectra</u> sp	--	1	--	--	1	--
<u>Microtendipes</u> sp	--	--	1	--	--	--
<u>Paratendipes</u> sp	--	1	--	--	--	--
<u>Phaenopsectra</u> sp	--	--	1	--	--	--
<u>Polypedilum convictum</u>	--	10	2	--	--	--
<u>Rheotanytarsus</u> sp	--	1	--	--	--	--
<u>Stictochironomus</u> sp	1	--	--	--	--	--
<u>Tanytarsus</u> sp	--	--	--	--	--	1
Total organisms	206	234	211	216	205	203

CONESTOGA RIVER BASIN

01576520 MUDDY RUN AT WEAVERTOWN, PA

LOCATION.--Lat 40°02'51", long 76°09'43", Lancaster County, Hydrologic Unit 02050306, on left bank 200 feet upstream from bridge on North Harvest Road (Township Route 692), 0.9 mi northeast of Weavertown, 1.3 mi south of Mascot, 2.0 mi west of Intercourse, and 2.0 mi upstream from mouth.

DRAINAGE AREA.--6.68 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1992 to October 1998 (discontinued).

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 350 ft above sea level, from topographic map.

REMARKS.--Records poor; accuracy affected by bypass flow for water wheel. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 180 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 21	0530	*82	*3.67	(No peaks greater than base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	2.6	2.8	e2.0	4.9	6.9	14	7.1	8.2	7.6	5.7	3.8
2	1.4	2.9	2.7	e2.5	4.7	6.6	14	8.2	7.4	7.4	5.6	3.9
3	1.4	1.9	2.7	2.5	4.7	13	11	7.9	7.4	7.3	5.3	4.0
4	1.4	1.5	2.9	2.2	5.0	10	11	7.7	7.1	7.2	5.3	3.8
5	1.4	1.6	2.7	2.6	6.1	8.7	10	7.2	6.9	6.9	5.2	3.6
6	1.4	1.5	2.5	2.6	5.2	8.2	9.9	13	6.4	6.8	5.1	3.5
7	1.8	2.7	2.5	2.7	4.9	7.9	9.6	9.7	6.2	6.8	5.0	4.1
8	2.4	5.4	2.4	6.6	4.8	9.1	9.8	11	6.1	19	5.0	5.8
9	2.4	4.0	2.4	4.0	4.7	17	15	11	6.2	9.3	5.0	3.8
10	2.1	2.9	2.5	3.6	4.6	11	13	12	6.5	8.1	6.4	3.7
11	1.8	2.3	2.9	3.4	5.0	10	12	15	6.8	7.8	5.8	3.7
12	1.6	1.7	2.9	3.3	8.5	9.4	11	18	18	7.1	5.0	3.6
13	1.5	1.5	2.8	3.3	5.7	9.2	11	14	22	7.0	4.8	3.6
14	1.5	2.8	2.7	3.1	5.3	9.1	10	12	12	6.9	4.9	3.6
15	1.8	2.9	2.7	3.8	5.1	8.7	10	12	11	7.0	4.9	3.4
16	1.6	2.7	3.0	5.6	5.0	8.3	10	11	10	6.9	4.7	3.4
17	1.7	2.4	2.9	3.8	5.5	8.2	9.8	11	9.9	6.8	5.1	3.3
18	3.2	2.6	2.8	3.9	6.6	8.8	9.6	10	9.3	6.6	4.9	2.9
19	1.9	1.8	2.8	3.7	6.6	14	11	9.9	9.2	6.4	4.8	2.6
20	2.1	1.9	2.9	3.7	5.9	11	12	9.8	8.9	6.3	4.7	2.7
21	2.6	1.7	2.8	3.5	5.6	26	9.3	9.3	8.8	6.2	4.6	2.9
22	1.7	3.7	2.7	3.5	5.4	16	8.4	8.8	7.5	6.1	4.5	3.2
23	1.5	3.3	3.3	9.5	7.8	14	8.2	8.6	7.9	6.2	4.4	3.0
24	1.5	2.9	3.0	6.6	11	13	7.8	8.6	9.3	6.0	4.2	2.3
25	2.7	2.8	5.1	5.6	8.7	12	7.5	8.9	7.5	6.0	4.1	2.1
26	2.3	2.7	3.5	5.0	7.6	12	8.0	8.9	12	5.9	4.2	2.2
27	3.1	2.7	3.4	5.1	7.2	12	7.7	8.3	8.6	5.7	3.9	2.7
28	2.4	2.6	3.0	7.3	7.0	11	7.3	8.5	7.5	5.7	4.0	2.7
29	1.9	2.7	2.8	6.0	---	10	7.1	8.4	8.1	5.6	4.0	2.1
30	1.9	2.7	3.3	5.4	---	10	7.1	8.2	8.7	5.6	3.9	2.1
31	1.9	---	e2.5	5.1	---	10	---	7.9	---	8.8	3.9	---
TOTAL	59.3	77.4	89.9	131.5	169.1	341.1	302.1	311.9	271.4	223.0	148.9	98.1
MEAN	1.91	2.58	2.90	4.24	6.04	11.0	10.1	10.1	9.05	7.19	4.80	3.27
MAX	3.2	5.4	5.1	9.5	11	26	15	18	22	19	6.4	5.8
MIN	1.4	1.5	2.4	2.0	4.6	6.6	7.1	7.1	6.1	5.6	3.9	2.1
CFSM	.29	.39	.43	.64	.90	1.65	1.51	1.51	1.35	1.08	.72	.49
IN.	.33	.43	.50	.73	.94	1.90	1.68	1.74	1.51	1.24	.83	.55

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1998, BY WATER YEAR (WY)

	1992	1993	1994	1995	1996	1997	1998
MEAN	6.26	7.85	10.1	11.9	10.1	17.1	12.8
MAX	17.6	19.6	25.5	21.2	16.9	40.3	21.5
(WY)	1997	1997	1997	1996	1994	1993	1993
MIN	1.91	2.58	2.90	4.24	4.13	10.2	6.42
(WY)	1998	1998	1998	1998	1993	1995	1995

e Estimated.

CONESTOGA RIVER BASIN

01576520 MUDDY RUN AT WEAVERTOWN, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1992 - 1998	
ANNUAL TOTAL	2510.8		2223.7		9.15	
ANNUAL MEAN	6.88		6.09		13.0	1994
HIGHEST ANNUAL MEAN					5.47	1995
LOWEST ANNUAL MEAN					236	Jan 28 1994
HIGHEST DAILY MEAN	80	Jan 25	26	Mar 21	1.4	Sep 22 1997a
LOWEST DAILY MEAN	1.4	Sep 22-28,30	1.4	Oct 1-6	1.4	Sep 22 1997
ANNUAL SEVEN-DAY MINIMUM	1.4	Sep 22	1.5	Oct 1	1.4	Sep 22 1997
INSTANTANEOUS PEAK FLOW			b82	Mar 21	b857	Jan 28 1994
INSTANTANEOUS PEAK STAGE			3.67	Mar 21	6.49	Jan 28 1994
INSTANTANEOUS LOW FLOW			1.4	Oct 1-6	.43	Feb 1 1993
ANNUAL RUNOFF (CFSM)	1.03		.91		1.37	
ANNUAL RUNOFF (INCHES)	13.98		12.38		18.62	
10 PERCENT EXCEEDS	13		11		15	
50 PERCENT EXCEEDS	4.8		5.3		6.4	
90 PERCENT EXCEEDS	1.8		2.2		3.0	

a Several days.

b From rating curve extended above 60 ft³/s.

CONESTOGA RIVER BASIN

01576520 MUDDY RUN AT WEAVERTOWN, PA--Continued

PEAK DISCHARGES FOR CURRENT YEAR.--Maximum discharge during October.

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 9	2315	*51	*3.47	(No peaks greater than base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	---	---	---	---	---	---	---	---	---	---	---
2	2.5	---	---	---	---	---	---	---	---	---	---	---
3	2.8	---	---	---	---	---	---	---	---	---	---	---
4	3.5	---	---	---	---	---	---	---	---	---	---	---
5	3.1	---	---	---	---	---	---	---	---	---	---	---
6	3.1	---	---	---	---	---	---	---	---	---	---	---
7	3.1	---	---	---	---	---	---	---	---	---	---	---
8	12	---	---	---	---	---	---	---	---	---	---	---
9	10	---	---	---	---	---	---	---	---	---	---	---
10	12	---	---	---	---	---	---	---	---	---	---	---
11	4.2	---	---	---	---	---	---	---	---	---	---	---
12	2.9	---	---	---	---	---	---	---	---	---	---	---
13	2.6	---	---	---	---	---	---	---	---	---	---	---
14	2.5	---	---	---	---	---	---	---	---	---	---	---
15	2.2	---	---	---	---	---	---	---	---	---	---	---
16	2.0	---	---	---	---	---	---	---	---	---	---	---
17	1.8	---	---	---	---	---	---	---	---	---	---	---
18	2.3	---	---	---	---	---	---	---	---	---	---	---
19	3.3	---	---	---	---	---	---	---	---	---	---	---
20	3.3	---	---	---	---	---	---	---	---	---	---	---
21	3.3	---	---	---	---	---	---	---	---	---	---	---
22	3.2	---	---	---	---	---	---	---	---	---	---	---
23	3.2	---	---	---	---	---	---	---	---	---	---	---
24	3.2	---	---	---	---	---	---	---	---	---	---	---
25	3.2	---	---	---	---	---	---	---	---	---	---	---
26	3.2	---	---	---	---	---	---	---	---	---	---	---
27	3.1	---	---	---	---	---	---	---	---	---	---	---
28	3.2	---	---	---	---	---	---	---	---	---	---	---
29	3.1	---	---	---	---	---	---	---	---	---	---	---
30	3.1	---	---	---	---	---	---	---	---	---	---	---
31	3.1	---	---	---	---	---	---	---	---	---	---	---
TOTAL	116.2	---	---	---	---	---	---	---	---	---	---	---
MEAN	3.75	---	---	---	---	---	---	---	---	---	---	---
MAX	12	---	---	---	---	---	---	---	---	---	---	---
MIN	1.8	---	---	---	---	---	---	---	---	---	---	---
CFSM	.56	---	---	---	---	---	---	---	---	---	---	---
IN.	.65	---	---	---	---	---	---	---	---	---	---	---

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1999, BY WATER YEAR (WY)

	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	5.90	7.85	10.1	11.9	10.1	17.1	12.8	9.21
MAX	17.6	19.6	25.5	21.2	16.9	40.3	21.5	11.3
(WY)	1997	1997	1997	1996	1994	1994	1993	1996
MIN	1.91	2.58	2.90	4.24	4.13	10.2	6.42	5.03
(WY)	1998	1998	1998	1998	1993	1995	1995	1995

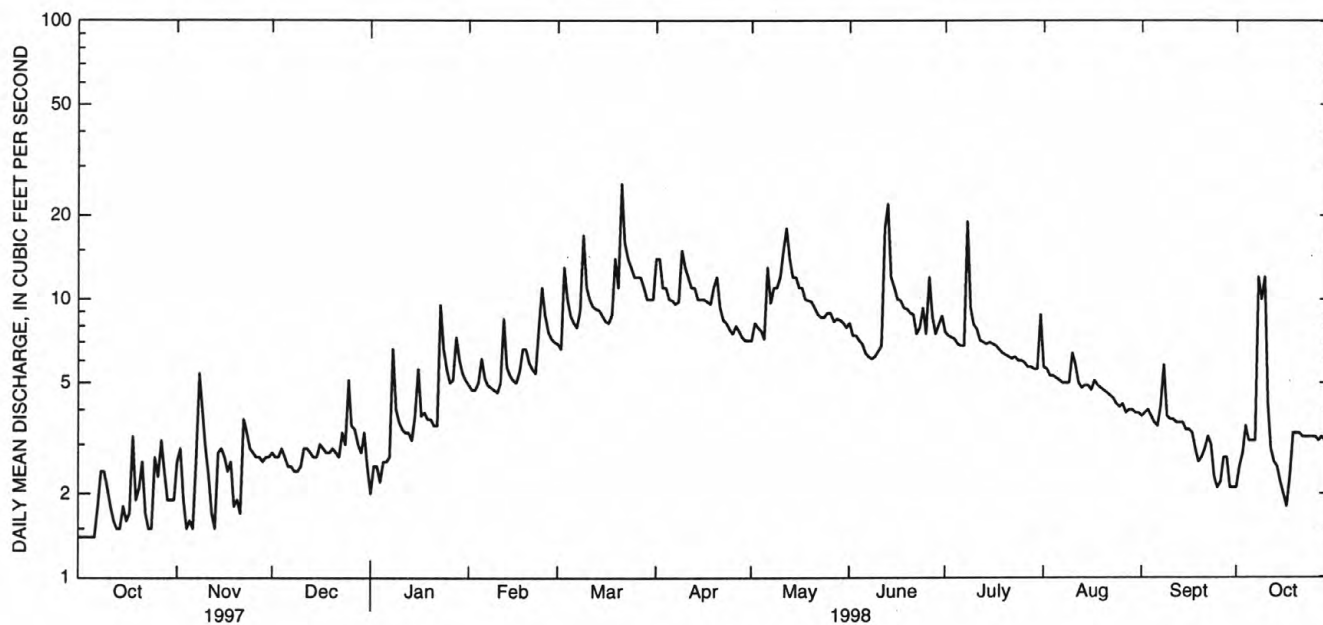
CONESTOGA RIVER BASIN

01576520 MUDDY RUN AT WEAVERTOWN, PA--Continued

SUMMARY STATISTICS

WATER YEARS 1992 - 1999

ANNUAL MEAN	9.15	
HIGHEST ANNUAL MEAN	13.0	1994
LOWEST ANNUAL MEAN	5.47	1995
HIGHEST DAILY MEAN	236	Jan 28 1994
LOWEST DAILY MEAN	1.4	Sep 22 1997 ^a
ANNUAL SEVEN-DAY MINIMUM	1.4	Sep 22 1997
INSTANTANEOUS PEAK FLOW	b857	Jan 28 1994
INSTANTANEOUS PEAK STAGE	6.49	Jan 28 1994
INSTANTANEOUS LOW FLOW	.43	Feb 1 1993
ANNUAL RUNOFF (CFSM)	1.37	
ANNUAL RUNOFF (INCHES)	18.62	
10 PERCENT EXCEEDS	14	
50 PERCENT EXCEEDS	6.4	
90 PERCENT EXCEEDS	3.0	

^a Several days.^b From rating curve extended above 60 ft³/s.

OCTOBER 1, 1997 TO OCTOBER 31, 1998

CONESTOGA RIVER BASIN

01576520 MUDDY RUN AT WEAVERTOWN, PA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1992 to September 1998 (discontinued).

REMARKS.--Operated as part of the Mill Creek project. The following water-quality data were collected and analyzed by the Pennsylvania Department of Environmental Protection. Stormflow samples collected by the U.S. Geological Survey. Some values for "dissolved" parameters exceed values for the corresponding "total" parameter. These results are within the limits of analytical precision and methods. The value for total suspended residue in the sample at 0950 on Mar. 9 is improbable but agrees with the reported analytical value.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE D (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L) AS N (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L) AS N (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L) AS N (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L) AS N (00608)
OCT									
16...	1020	9813	9813	1.6	2	8.22	8.15	.270	.270
NOV									
12...	1015	9813	9813	1.7	<2	9.83	9.83	.130	.120
DEC									
15...	1005	9813	9813	2.6	18	10.5	10.4	.190	.190
JAN									
12...	1015	9813	9813	3.2	14	13.4	12.3	.180	.170
23...	1100	1028	9813	7.4	222	9.77	--	.350	--
23...	1200	1028	9813	11	118	9.55	--	.360	--
23...	1300	1028	9813	12	126	8.82	--	1.00	--
23...	1600	1028	9813	19	264	5.24	--	1.27	--
23...	2200	1028	9813	12	164	5.20	--	.970	--
FEB									
09...	1010	9813	9813	4.7	16	11.3	11.0	.100	.090
23...	2000	1028	9813	17	256	9.01	--	.390	--
23...	2300	1028	9813	12	278	5.81	--	1.57	--
MAR									
09...	0900	1028	9813	28	516	6.30	--	.620	--
09...	0950	9813	9813	30	<2	5.28	5.02	.640	.630
09...	1000	1028	9813	30	310	5.25	--	.700	--
09...	1300	1028	9813	19	184	5.33	--	.550	--
APR									
02...	1040	9813	9813	12	72	9.78	--	.280	--
09...	1600	1028	9813	12	--	10.9	--	.080	--
09...	1900	1028	9813	34	--	7.55	--	.440	--
09...	2000	1028	9813	34	--	5.48	--	.480	--
09...	2300	1028	9813	19	--	5.12	--	.420	--
MAY									
06...	1700	1028	9813	39	1010	6.69	--	.820	--
06...	1800	1028	9813	45	2140	4.61	--	1.53	--
06...	2000	1028	9813	24	784	4.69	--	1.26	--
06...	2200	1028	9813	17	286	5.05	--	1.03	--
14...	1030	9813	9813	12	<2	12.4	12.4	.130	.120
JUN									
08...	1030	9813	9813	6.1	14	10.8	10.8	.020	<.020
12...	1000	1028	9813	30	162	6.37	--	.870	--
12...	1100	1028	9813	52	334	5.48	--	1.11	--
12...	1200	1028	9813	40	224	3.83	--	1.10	--
12...	1300	1028	9813	28	114	3.82	--	.830	--
13...	0900	1028	9813	32	426	6.06	--	.940	--
13...	1000	1028	9813	25	722	5.21	--	1.11	--
13...	1100	1028	9813	50	614	3.34	--	1.17	--
JUL									
08...	1000	1028	9813	24	438	8.26	--	.380	--
08...	1100	1028	9813	66	730	5.69	--	.630	--
08...	1200	1028	9813	72	610	3.34	--	.830	--
08...	1400	1028	9813	32	222	3.48	--	.630	--
08...	1600	1028	9813	19	114	4.50	--	.530	--
20...	1025	9813	9813	6.4	28	11.1	11.0	.080	.080
AUG									
12...	1015	9813	9813	5.1	<2	9.65	9.64	.170	.170
SEP									
03...	1050	9813	9813	4.0	20	9.02	8.88	.190	--
07...	2300	1028	9813	9.0	100	--	--	.260	--
07...	2400	1028	9813	13	120	--	--	.470	--
08...	0100	1028	9813	15	60	--	--	.730	--
08...	0400	1028	9813	7.8	66	--	--	.970	--
08...	0500	1028	9813	6.6	56	--	--	.870	--

CONESTOGA RIVER BASIN

01576520 MUDDY RUN AT WEAVERTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLI- FORM, FECAL, 0.45 µM-MF (COLS./ 100 ML) (31616)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT								
16...	<1.0	<1.0	.200	.094	.094	600	300	380
NOV								
12...	<1.0	<1.0	.140	.097	.134	2800	1600	880
DEC								
15...	<1.0	<1.0	.080	.046	.074	--	--	--
JAN								
12...	<1.0	<1.0	.100	.062	.091	3200	3200	1100
23...	<1.0	--	.650	--	--	--	--	--
23...	1.4	--	.530	--	--	--	--	--
23...	2.6	--	1.09	--	--	--	--	--
23...	3.0	--	2.03	--	--	--	--	--
23...	2.0	--	2.02	--	--	--	--	--
FEB								
09...	<1.0	<1.0	.070	.050	.063	1300	700	580
23...	1.6	--	.880	--	--	--	--	--
23...	3.6	--	1.79	--	--	--	--	--
MAR								
09...	2.7	--	1.91	--	--	--	--	--
09...	2.5	2.1	1.91	.730	.970	70000	62000	230000
09...	2.8	--	1.96	--	--	--	--	--
09...	2.1	--	1.45	--	--	--	--	--
APR								
02...	<1.0	--	.420	--	--	--	--	--
09...	<1.0	--	.230	--	--	--	--	--
09...	1.7	--	1.40	--	--	--	--	--
09...	3.2	--	1.60	--	--	--	--	--
09...	1.7	--	1.14	--	--	--	--	--
MAY								
06...	2.5	--	3.93	--	--	--	--	--
06...	2.1	--	4.49	--	--	--	--	--
06...	4.3	--	3.22	--	--	--	--	--
06...	2.5	--	2.25	--	--	--	--	--
14...	<1.0	<1.0	.120	.080	.114	2500	1100	750
JUN								
08...	--	--	.050	.055	.054	3900	3400	650
12...	1.5	--	1.45	--	--	--	--	--
12...	5.8	--	2.49	--	--	--	--	--
12...	3.1	--	2.30	--	--	--	--	--
12...	2.5	--	1.48	--	--	--	--	--
13...	2.6	--	1.85	--	--	--	--	--
13...	2.7	--	2.65	--	--	--	--	--
13...	2.7	--	2.61	--	--	--	--	--
JUL								
08...	1.8	--	1.50	--	--	--	--	--
08...	2.8	--	2.73	--	--	--	--	--
08...	2.7	--	2.71	--	--	--	--	--
08...	2.4	--	1.76	--	--	--	--	--
08...	1.8	--	1.34	--	--	--	--	--
20...	<1.0	<1.0	.100	.047	.085	60000	34000	11000
AUG								
12...	<1.0	<1.0	.090	.055	.100	26000	18000	8100
SEP								
03...	1.1	1.0	.180	.096	.108	21000	20000	8000
07...	--	--	.390	--	--	--	--	--
07...	--	--	.760	--	--	--	--	--
08...	--	--	1.10	--	--	--	--	--
08...	--	--	1.01	--	--	--	--	--
08...	--	--	--	--	--	--	--	--

CONESTOGA RIVER BASIN

01576521 BIG SPRING RUN NEAR WILLOW STREET, PA

LOCATION.--Lat 39°59'53", Long 76°15'55", Lancaster County, Hydrologic Unit 02050306, on left bank 300 ft upstream of Long Rifle Road bridge near the intersection with Gypsy Hill Road, and 1.5 mi northeast of Willow Street.

DRAINAGE AREA.--1.77 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1993 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 292.16 ft above sea level.

REMARKS.--No estimated daily discharges. Records fair except those for daily discharges above 20 ft³/s, which are poor.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 21	0530	*154	*6.20	(No peaks greater than base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.45	.63	1.1	1.0	1.9	2.5	8.9	3.0	3.4	1.9	1.5	.91
2	.45	1.0	.76	1.0	1.8	2.5	4.5	3.0	2.5	1.7	1.4	.96
3	.45	.57	.76	1.0	1.8	8.2	3.3	3.9	2.3	1.7	1.3	.95
4	.45	.47	.81	.98	2.3	4.0	3.0	2.9	2.3	1.6	1.3	.94
5	.46	.42	.70	.98	6.6	3.2	2.8	2.4	2.3	1.6	1.2	.90
6	.47	.40	.67	.98	2.9	2.8	2.7	3.7	2.2	1.5	1.2	.89
7	.47	1.8	.69	1.5	2.3	2.6	2.6	2.7	2.2	1.5	1.1	.95
8	.45	8.7	.69	6.4	2.1	4.5	2.8	5.7	2.2	13	1.1	1.2
9	.47	2.6	.69	2.3	2.0	13	11	5.0	2.1	3.2	1.1	.84
10	.51	1.3	1.2	1.5	1.9	4.2	4.7	5.4	2.1	2.6	2.0	.79
11	.54	1.0	.93	1.3	2.6	3.4	3.3	6.7	2.4	2.3	1.4	.76
12	.57	.91	.77	1.1	4.5	3.0	2.9	12	8.2	2.2	1.2	.76
13	.61	.79	.73	1.1	2.3	2.9	2.8	5.6	8.2	2.1	1.1	.80
14	.64	3.2	.69	1.0	2.1	2.8	2.7	4.5	3.6	2.0	1.1	.85
15	1.3	1.4	.69	2.7	2.0	2.7	2.7	4.2	3.4	2.0	1.0	.87
16	.61	1.1	.69	3.7	1.9	2.5	2.7	3.9	5.9	1.9	1.0	.87
17	.50	.98	.69	1.7	2.5	2.5	2.6	3.8	4.0	1.9	1.7	.90
18	1.8	.89	.68	1.7	3.7	3.2	2.5	3.7	3.0	1.8	1.2	.84
19	.50	.84	.67	1.4	3.3	7.2	8.1	3.5	2.8	1.7	1.1	.82
20	.48	.81	.67	1.3	2.5	4.0	5.0	3.4	2.6	1.7	1.0	.81
21	.45	1.2	.63	1.2	2.2	25	3.2	3.2	2.5	1.6	.98	.80
22	.45	2.5	.71	1.1	2.1	7.2	2.8	3.1	2.5	1.6	.96	.98
23	.45	1.1	1.5	10	5.4	5.0	2.7	3.0	2.6	1.7	.96	.75
24	.46	.97	.79	3.6	8.2	4.0	2.6	3.0	2.9	1.5	.96	.72
25	1.7	.89	3.6	2.7	3.8	3.5	2.5	3.0	2.3	1.4	.96	.75
26	1.3	.89	1.3	2.1	3.0	3.4	2.9	2.9	7.8	1.4	.96	.73
27	.90	.80	1.2	2.0	2.7	3.2	2.6	2.8	2.5	1.4	.98	.70
28	.46	.82	1.2	7.3	2.6	3.1	2.4	2.8	2.0	1.4	.96	.67
29	.42	.78	1.1	3.2	---	3.0	2.3	3.0	1.9	1.4	.97	.69
30	.42	.86	2.1	2.4	---	2.8	2.3	2.9	2.5	1.4	.96	.69
31	.42	---	1.2	2.1	---	2.7	---	2.7	---	3.4	.93	---
TOTAL	19.61	40.62	30.61	72.34	83.0	144.6	107.9	121.4	97.2	68.1	35.58	25.09
MEAN	.63	1.35	.99	2.33	2.96	4.66	3.60	3.92	3.24	2.20	1.15	.84
MAX	1.8	8.7	3.6	10	8.2	25	11	12	8.2	13	2.0	1.2
MIN	.42	.40	.63	.98	1.8	2.5	2.3	2.4	1.9	1.4	.93	.67
CFSM	.36	.76	.56	1.32	1.67	2.64	2.03	2.21	1.83	1.24	.65	.47
IN.	.41	.85	.64	1.52	1.74	3.04	2.27	2.55	2.04	1.43	.75	.53

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1994 - 1998, BY WATER YEAR (WY)

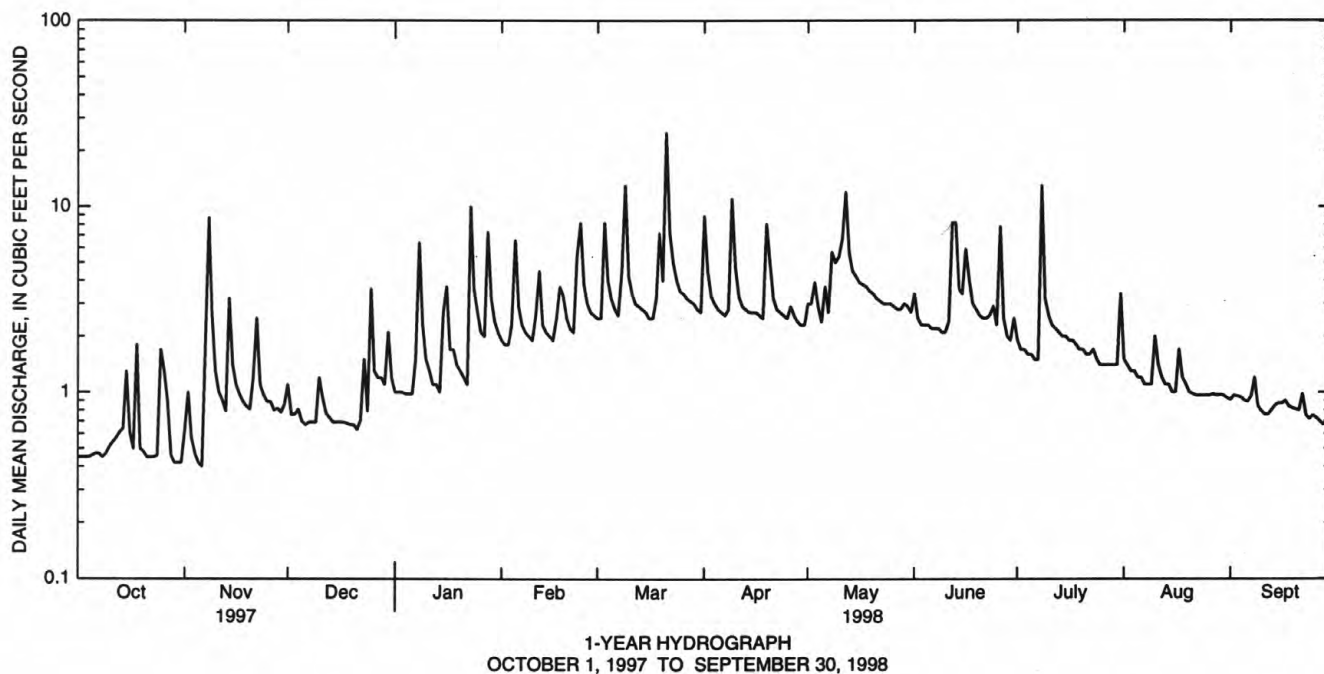
	1994	1995	1996	1997	1998
MEAN	2.59	3.20	3.61	4.27	3.47
MAX	5.66	4.92	7.08	7.96	5.00
(WY)	1997	1997	1997	1994	1994
MIN	.63	1.35	.99	2.33	2.61
(WY)	1998	1998	1998	1998	1995

CONESTOGA RIVER BASIN

01576521 BIG SPRING RUN NEAR WILLOW STREET, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1994 - 1998
ANNUAL TOTAL	681.03	846.05	
ANNUAL MEAN	1.87	2.32	3.20
HIGHEST ANNUAL MEAN			4.21 1996
LOWEST ANNUAL MEAN			2.29 1995
HIGHEST DAILY MEAN	15 Jan 25	25 Mar 21	82 Jan 19 1996
LOWEST DAILY MEAN	.40 Nov 6	.40 Nov 6	.40 Nov 6 1997
ANNUAL SEVEN-DAY MINIMUM	.46 Sep 30	.46 Oct 1	.46 Sep 30 1997
INSTANTANEOUS PEAK FLOW		154 Mar 21	b357 Sep 26 1994
INSTANTANEOUS PEAK STAGE		6.20 Mar 21	7.48 Sep 26 1994
INSTANTANEOUS LOW FLOW		.38 Oct 31a	.34 Jan 7 1996
ANNUAL RUNOFF (CFSM)	1.05	1.31	1.81
ANNUAL RUNOFF (INCHES)	14.31	17.78	24.54
10 PERCENT EXCEEDS	3.5	4.0	4.9
50 PERCENT EXCEEDS	1.3	1.8	2.3
90 PERCENT EXCEEDS	.49	.68	.81

a Also Nov. 6.

b From rating curve extended above 100 ft³/s on basis of step-backwater computation, at gage height 7.30 ft and at peak flow.

CONESTOGA RIVER BASIN

01576521 BIG SPRING RUN NEAR WILLOW STREET, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	PERI- PHYTON BIOMASS ASH WEIGHT (G/SQ M) (00572)	PERI- PHYTON TOTAL DRY WEIGHT (G/SQ M) (00573)	CHLOR-A PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M ²) (70957)	CHLOR-B PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M ²) (70958)
OCT 1997												
07...	11.2	.037	<.20	<.20	.041	.018	.024	8	--	--	--	--
17...	11.4	.041	.22	<.20	.024	.017	.026	15	--	--	--	--
OCT												
18-18	2.40	.060	1.9	.50	.544	.148	.120	229	--	--	--	--
OCT												
25-25	2.87	.103	.75	.53	.154	.120	.119	159	--	--	--	--
27...	9.10	.034	.26	.14	.040	.025	.043	4	--	--	--	--
NOV												
06...	11.1	<.020	.14	.11	.017	.017	.024	9	--	--	--	--
NOV												
07-07	4.35	<.020	1.2	.54	.249	.050	.075	280	--	--	--	--
NOV												
08-08	1.87	.184	2.3	.82	.789	.385	.366	595	--	--	--	--
NOV												
08-08	1.81	.182	2.2	.78	.935	.382	.356	551	--	--	--	--
NOV												
14-14	2.77	.075	1.2	.47	.347	.130	.099	139	--	--	--	--
17...	10.1	<.020	.12	.13	.030	.011	.026	3	--	--	--	--
NOV												
22-22	2.07	.022	1.2	.53	.321	.176	.045	104	--	--	--	--
DEC												
15...	10.3	<.020	<.10	.10	.014	.012	.113	5	--	--	--	--
JAN 1998												
08-08	2.52	.155	1.6	.88	.507	.219	.205	562	--	--	--	--
14...	9.85	<.020	<.10	.12	.040	.019	.027	25	--	--	--	--
JAN												
23-23	2.92	.245	1.4	.82	.459	.226	.227	553	--	--	--	--
JAN												
28-28	3.53	.348	1.4	.93	.399	.271	.282	195	--	--	--	--
FEB												
05-05	3.53	.215	1.8	.73	.494	.179	.182	133	--	--	--	--
11...	9.17	.026	.12	.13	.019	.013	.023	7	--	--	--	--
FEB												
11-12	3.24	.202	1.3	.68	.367	.123	.108	178	--	--	--	--
FEB												
23-24	3.40	.101	1.1	.56	.316	.163	.153	252	--	--	--	--
MAR												
03-03	4.31	.300	1.2	.76	.260	.126	.121	89	--	--	--	--
MAR												
09-09	2.51	.236	1.4	.73	.537	.252	.209	1370	--	--	--	--
16...	9.88	<.020	.21	.12	.018	<.010	.022	17	--	--	--	--
MAR												
18-19	4.81	.104	1.7	.69	.504	.133	.107	217	--	--	--	--
MAR												
18-19	5.01	.138	1.5	.61	.430	.130	.117	200	--	--	--	--
APR												
01-01	3.25	.222	1.4	1.2	.257	.177	.153	907	--	--	--	--
APR												
09-09	2.63	.250	2.4	.91	.893	.245	.212	877	--	--	--	--
10...	8.04	.059	.58	.45	.142	.091	.080	19	--	--	--	--
APR												
19-20	2.60	.229	2.0	.87	.643	.254	.236	553	--	--	--	--
21...	8.25	.054	.28	.24	.058	.045	.045	47	--	--	--	--
30...	9.33	.033	.21	.14	<.010	<.010	<.010	22	--	--	--	--
MAY												
09-09	4.15	.163	1.2	.73	.267	.102	.099	94	--	--	--	--
MAY												
10-10	4.90	.148	.89	.73	.192	.104	.099	51	--	--	--	--
MAY												
11-11	5.20	.194	1.0	.85	.236	.198	.174	60	--	--	--	--
12...	--	--	--	--	--	--	--	--	571.4	588.6	56.0	2.20
12...	6.15	.127	.96	.64	.239	.160	.138	54	--	--	--	--
20...	8.49	.041	.43	.22	.094	<.010	.023	39	--	--	--	--
JUN												
01-01	4.18	.233	1.1	.68	.134	.075	.063	183	--	--	--	--
01...	8.60	.091	.40	.49	.052	.042	.045	37	--	--	--	--
09...	8.97	<.020	.24	.21	.021	.031	.018	22	--	--	--	--
JUN												
12-12	2.67	.382	1.9	.92	.462	.157	.159	247	--	--	--	--

CONESTOGA RIVER BASIN

01576521 BIG SPRING RUN NEAR WILLOW STREET, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY	AGENCY	DIS-	DIS-	SPE-	PH	TEMPER-	TUR-	OXYGEN,	STREP-	NITRO-	
		COL- LECTING SAMPLE (CODE NUMBER) (00027)	ANA- LYZING SAMPLE (CODE NUMBER) (00028)	CHARGE, IN CUBIC FEET PER SECOND (00060)	CHARGE, INST. CUBIC FEET PER SECOND (00061)	CIFIC CON- DUCT- ANCE (μS/CM) (00095)	WATER WHOLE FIELD (STAND- ARD UNITS) (00400)				TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	
JUN 1998													
13-13	0752	1028	80020	17	--	--	--	--	--	--	--	.198	
JUN													
16-17	2037	1028	80020	20	--	--	--	--	--	--	--	.101	
18...	0920	1028	80020	--	3.0	661	7.2	17.1	9.5	10.1	1100	.049	
29...	1315	1028	80020	--	2.0	658	7.7	19.6	9.5	10.3	--	.042	
JUL													
08-08	0752	1028	80020	36	--	--	--	--	--	--	--	.067	
09...	0855	1028	80020	--	3.2	611	7.5	16.0	7.0	7.0	--	.032	
21...	0835	1028	80020	--	1.7	591	6.7	15.6	3.5	9.5	800	.030	
29...	1010	1028	80020	--	1.4	530	7.9	16.7	4.5	10.6	--	.023	
AUG													
06...	0935	1028	80020	--	1.2	662	7.7	15.2	4.5	10.5	--	.023	
AUG													
10-10	1837	1028	80020	7.7	--	--	--	--	--	--	--	.080	
19...	0830	1028	80020	--	1.1	664	7.8	13.4	3.0	9.4	2000	.022	
31...	1015	1028	80020	--	.97	580	7.6	16.5	12	9.7	--	.032	
SEP													
08...	0815	1028	80020	--	.97	--	--	--	7.5	--	--	.028	
08...	0945	1028	80020	--	.97	--	--	--	--	--	--	--	
10...	1045	1028	1028	--	.82	627	7.6	15.1	--	10.2	--	--	
17...	0840	1028	80020	--	.97	612	7.7	15.1	3.5	8.8	4100	.033	
28...	1015	1028	80020	--	.69	677	6.8	15.6	3.5	12.7	--	.032	
DATE		NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	PERI- PHYTON BIOMASS ASH WEIGHT (G/SQ M) (00572)	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT (G/SQ M) (00573)	CHLOR-A PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M²) (70957)	CHLOR-B PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M²) (70958)
JUN 1998													
13-13	5.18	.832	5.7	1.8	2.13	.375	.369	1060	--	--	--	--	--
JUN													
16-17	3.63	.208	2.6	1.1	1.02	.294	.230	1290	--	--	--	--	--
18...	10.3	.052	.32	.41	.090	.057	.057	25	--	--	--	--	--
29...	8.97	.020	.52	.39	.304	.069	.050	62	--	--	--	--	--
JUL													
08-08	1.95	.195	2.2	--	.953	.214	.025	875	--	--	--	--	--
09...	8.00	.026	.46	.43	.100	.079	.065	16	--	--	--	--	--
21...	9.99	.025	.22	.16	.029	<.010	.027	15	--	--	--	--	--
29...	9.71	.025	.35	.25	.047	.022	<.010	32	--	--	--	--	--
AUG													
06...	10.9	.042	.15	.14	<.010	<.010	.019	28	--	--	--	--	--
AUG													
10-10	3.79	.162	2.7	.95	.627	.128	.119	287	--	--	--	--	--
19...	11.3	.060	.23	.25	.046	.026	.024	41	--	--	--	--	--
31...	11.2	.094	.37	.19	.061	.070	.029	74	--	--	--	--	--
SEP													
08...	9.84	.069	.42	.30	.056	.027	.037	21	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	439.9	459.7	50.0	3.70	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
17...	10.9	.038	.21	.20	.035	.031	.033	38	--	--	--	--	--
28...	11.7	.043	.24	.21	.033	.033	.011	10	--	--	--	--	--

CONESTOGA RIVER BASIN

01576521 BIG SPRING RUN NEAR WILLOW STREET, PA--Continued

BIOLOGICAL DATA, SEPTEMBER 1993 TO SEPTEMBER 1998

BENTHIC MACROINVERTEBRATES

REMARKS.--Rapid bioassessments for benthic macroinvertebrates were conducted from September 1993 through September 1998. September 1993 data represent counts per a 100-organism (approximate) subsample. All other samples represent counts per 200-organism (approximate) subsamples. Two sub-samples were identified in September 1994 and in May 1998.

Benthic Macroinvertebrate	Sept 1993	May 1994	Sept 1994	Sept 1994	May 1995	Sept 1995	May 1996	Sept 1996	May 1997	Sept 1997	May 1998	May 1998	Sept 1998
Platyhelminthes	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbellaria (PLATWORMS)	--	--	--	--	--	--	--	--	--	--	--	--	--
Tricladida	--	--	--	--	--	--	--	--	--	--	--	--	--
Planariidae	--	--	--	--	--	1	--	--	1	1	--	1	--
<u>Cura</u> sp	--	--	6	12	--	--	--	--	--	--	--	--	--
<u>Phagocata</u> sp	5	--	--	--	--	--	--	--	--	--	--	--	--
Annelida	--	--	--	--	--	--	--	--	--	--	--	--	--
Oligochaeta (AQUATIC EARTHWORMS)	--	--	--	--	--	--	--	--	--	--	--	--	--
Lumbriculida	--	--	--	--	--	--	--	--	--	--	--	--	--
Lumbriculidae	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Lumbriculus</u> sp	--	--	--	--	--	--	--	--	--	--	1	--	--
Haplotaxida	--	--	--	--	--	--	--	--	--	--	--	--	--
Enchytraeidae	--	--	1	--	--	1	1	--	--	--	--	--	--
Tubificidae	1	--	--	1	3	19	5	--	5	--	9	14	24
<u>Limnodrilus hoffmeisteri</u>	--	--	--	--	--	1	5	--	1	1	--	--	--
<u>Limnodrilus</u> sp	1	--	--	--	--	--	3	--	--	14	6	11	--
<u>Tubifex tubifex</u>	--	--	--	--	--	--	--	--	--	2	--	--	--
<u>Tubifex</u> sp	--	--	--	--	--	--	--	--	--	35	--	--	--
Naididae	--	--	--	--	--	1	--	--	1	--	--	--	3
<u>Nais bretscheri</u>	--	1	--	1	--	--	--	--	1	--	--	--	--
<u>Nais</u> sp	--	6	--	--	--	--	--	--	9	--	--	4	--
<u>Ophidonais serpentina</u>	--	--	--	--	--	--	--	--	1	--	--	--	--
<u>Pristina</u> sp	--	--	--	--	--	--	--	--	--	--	--	--	1
Hirudinea (LEECHES)	--	--	--	--	--	--	--	--	--	--	--	--	--
Pharyngobdellida	--	--	--	--	--	--	--	--	--	--	--	--	--
Erpobdellidae	2	--	--	--	--	--	--	--	--	--	--	--	--
<u>Erpobdella punctata punctata</u>	--	--	--	--	--	--	--	1	--	--	--	--	--
<u>Erpobdella</u> sp	--	--	1	2	--	--	--	--	--	--	--	--	--
Branchiobdellida	--	--	1	--	--	--	--	--	--	--	--	--	--
Mollusca	--	--	--	--	--	--	--	--	--	--	--	--	--
Pelecypoda (CLAMS)	--	--	--	--	--	--	--	--	--	--	--	--	--
Veneroida	--	--	--	--	--	--	--	--	--	--	--	--	--
Sphaeriidae	--	--	--	--	--	--	--	--	--	2	--	--	1
Arthropoda	--	--	--	--	--	--	--	--	--	--	--	--	--
Crustacea	--	--	--	--	--	--	--	--	--	--	--	--	--
Ostracoda (SEED SHRIMPS)	--	1	--	--	--	1	--	--	--	--	--	--	--
Isopoda (AQUATIC SOWBUGS)	--	--	--	--	--	--	--	--	--	--	--	--	--
Asellidae	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Caecidotea</u> sp	3	--	1	3	--	--	--	--	--	--	--	1	2
Amphipoda (SCUDS)	--	--	--	--	--	--	--	--	--	--	--	--	--
Gammaridae	--	--	--	--	--	--	--	--	--	1	--	--	--
<u>Gammarus pseudolimnaeus</u>	--	50	--	--	--	--	37	46	31	30	123	34	11
<u>Gammarus</u> sp	7	--	25	21	106	86	--	--	80	--	45	51	1
Arachnoidea	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydracarina (WATER MITES)	--	--	--	--	--	--	--	--	--	--	--	--	--
Hygrobatidae	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Hygrobatas</u> sp	--	1	5	1	4	3	--	--	11	6	1	2	4
Lebertiidae	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Lebertia</u> sp	--	1	--	--	--	--	--	--	--	3	--	--	1
Insecta	--	--	--	--	--	--	--	--	--	--	--	--	--
Ephemeroptera (MAYFLIES)	--	--	--	--	--	--	--	--	--	--	--	--	--
Baetidae	1	--	3	2	--	--	--	3	--	--	--	--	--
<u>Baetis flavistriga</u>	1	1	5	6	5	21	5	18	5	3	7	3	15
<u>Baetis</u> sp	--	--	--	2	4	--	--	--	2	3	--	--	--
Odonata	--	--	--	--	--	--	--	--	--	--	--	--	--
Coenagrionidae (DAMSELFLIES)	--	--	--	--	--	--	--	--	--	--	--	--	1
Coleoptera (BEETLES)	--	--	--	--	--	--	--	--	--	--	--	--	--
Dytiscidae (PREDACEOUS DIVING BEETLES)	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Aqabus</u> sp	--	2	--	--	--	--	1	--	--	--	--	--	--
Elmidae	--	--	--	--	--	5	--	--	--	1	--	--	2
<u>Dubiraphia</u> sp	7	--	--	--	2	3	3	--	--	1	--	--	1
<u>Optioservus</u> sp	5	1	18	19	14	25	3	9	1	--	2	1	17
<u>Promoresia</u> sp	1	--	--	--	2	--	--	--	--	--	--	--	--
<u>Stenelmis</u> sp	2	1	5	3	5	7	--	9	2	1	--	--	4

CONESTOGA RIVER BASIN

01576521 BIG SPRING RUN NEAR WILLOW STREET, PA--Continued

BIOLOGICAL DATA, SEPTEMBER 1993 TO SEPTEMBER 1998

BENTHIC MACROINVERTEBRATES--Continued

Benthic Macroinvertebrate	Sept 1993	May 1994	Sept 1994	Sept 1994	May 1995	Sept 1995	May 1996	Sept 1996	May 1997	Sept 1997	May 1998	May 1998	Sept 1998
Trichoptera (CADDIS FLIES)	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydropsychidae	--	--	7	8	--	--	--	--	--	3	--	--	4
<u>Cheumatopsyche</u> sp	--	--	2	5	1	12	--	9	--	2	1	--	3
<u>Hydropsyche</u> sp	--	--	15	15	3	8	--	15	1	2	4	--	13
Hydroptilidae	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Hydroptila</u> sp	--	2	10	6	--	--	2	--	3	2	1	--	2
Diptera	--	--	--	--	--	--	--	--	--	--	--	--	1
Tipulidae (CRANE FLIES)	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Antocha</u> sp	--	--	--	--	--	--	--	--	--	--	--	--	1
<u>Dicranota</u> sp	--	--	--	--	--	--	--	--	--	--	--	--	1
Psychodidae (MOTH FLIES)	--	--	--	--	--	--	--	--	--	1	--	--	--
Simuliidae (BLACK FLIES)	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Simulium vittatum</u> complex	--	--	--	--	--	--	--	--	--	--	2	4	--
<u>Simulium</u> sp	5	22	25	22	3	--	3	38	2	8	5	3	5
Empididae (DANCE FLIES)	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Hemerodromia</u> sp	--	--	1	1	--	--	--	--	--	--	--	--	1
Chironomidae (MIDGES)	--	--	--	--	--	--	--	--	--	--	--	--	--
Tanypodinae	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Ablabesmyia mallochi</u>	--	--	--	--	--	--	--	1	--	--	--	--	--
<u>Conchapelopia</u> sp	--	1	--	--	--	--	1	--	--	--	1	--	--
<u>Thienemannimyia</u> sp	--	--	--	--	--	--	--	5	--	--	--	--	--
<u>Thienemannimyia</u> gr sp	--	--	--	2	2	--	--	--	--	5	--	--	4
Diametinae	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Diametia</u> sp	--	1	--	--	--	--	--	--	--	--	--	1	--
<u>Paqastia</u> sp	--	--	--	--	--	--	6	--	--	--	--	--	--
Prodiamesinae	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Prodiamesia</u> sp	--	--	--	--	4	--	7	--	--	--	2	--	--
Orthoclaadiinae	--	2	--	--	--	1	--	--	--	--	--	--	--
<u>Cricotopus bicinctus</u>	--	2	--	--	--	3	1	--	--	3	4	5	2
<u>Cricotopus trifascia</u>	--	16	--	--	--	--	--	--	--	--	--	--	--
<u>Cricotopus trifascia</u> gr	--	--	--	--	--	--	--	--	1	--	--	--	--
<u>Cricotopus</u> sp	--	1	11	2	6	1	6	5	--	5	1	3	--
<u>Eukiefferiella claripennis</u>	--	--	--	--	1	--	--	1	--	--	--	--	--
<u>Eukiefferiella claripennis</u> gr	--	--	--	--	--	--	--	--	1	--	3	1	1
<u>Eukiefferiella devonica</u>	--	--	--	--	--	1	--	1	--	--	--	--	--
<u>Eukiefferiella devonica</u> gr	--	--	1	1	1	--	--	--	--	--	--	--	1
<u>Orthocladus annectens</u>	--	--	--	1	1	--	--	--	--	--	1	--	5
<u>Orthocladus</u> sp	--	41	22	19	2	--	45	--	14	14	15	21	21
<u>Parakiefferiella</u> sp	4	2	--	--	--	--	--	--	--	--	--	--	--
<u>Parametriochnemus</u> sp	2	--	--	1	2	1	--	3	1	3	4	4	14
<u>Psectrocladius</u> sp	--	--	--	--	--	--	--	--	--	--	1	1	--
<u>Thienemanniella</u> sp	--	--	--	--	--	--	--	1	--	5	--	--	--
<u>Tvetenia bavarica</u>	--	--	--	2	4	--	--	1	--	--	--	--	--
<u>Tvetenia bavarica</u> gr	--	--	--	--	--	--	--	--	--	21	--	1	8
Chironominae	--	--	--	--	--	--	--	1	1	3	--	--	--
<u>Chironomus</u> sp	--	--	--	--	--	--	5	3	--	--	1	--	--
<u>Cryptochironomus</u> sp	--	--	--	--	--	--	--	--	--	2	--	--	--
<u>Diclotendipes fumidus</u>	--	--	--	--	15	--	--	--	--	--	--	--	--
<u>Diclotendipes neomodestus</u>	--	--	--	--	--	--	--	--	--	--	3	5	--
<u>Diclotendipes</u> sp	--	13	2	3	--	5	59	4	9	8	--	--	4
<u>Microsetra</u> sp	2	9	4	3	21	--	2	--	4	--	13	11	--
<u>Microsetra</u> sp	--	--	--	--	--	--	--	--	--	--	--	2	1
<u>Paracladopelma nais</u>	--	--	--	--	--	--	1	--	--	2	--	--	--
<u>Paracladopelma</u> sp	--	--	--	--	1	--	--	--	--	--	--	--	--
<u>Paratanytarsus</u> sp	--	1	--	--	--	--	--	--	--	--	--	--	--
<u>Paratendipes albimanus</u>	--	--	--	--	--	--	--	--	--	--	--	--	3
<u>Paratendipes</u> sp	--	2	--	--	9	--	3	--	--	1	--	--	--
<u>Phaenopsectra</u> sp	--	--	1	--	--	--	--	--	--	--	5	2	--
<u>Polypedilum convictum</u>	--	--	--	--	1	1	--	10	4	--	--	--	--
<u>Polypedilum</u> sp	--	2	4	3	--	--	--	--	--	--	--	--	--
<u>Rheotanytarsus</u> sp	51	--	12	19	--	3	--	6	--	--	--	--	4
<u>Stictochironomus</u> sp	--	--	--	--	--	--	6	1	--	--	--	--	--
<u>Tanytarsus</u> sp	--	--	--	1	--	3	--	2	--	3	2	--	--
<u>Tribelos</u> sp	--	--	--	--	--	1	--	--	--	--	--	--	--
<u>Zavrelia</u> sp	--	1	--	--	--	--	--	--	--	--	--	--	--
Total organisms	100	183	188	187	222	214	210	193	192	197	263	186	187

CONESTOGA RIVER BASIN

01576525 SOUTH FORK UNNAMED TRIBUTARY TO BIG SPRING RUN AT LAMPETER, PA

LOCATION.--Lat 39°59'23", long 76°14'55", Lancaster County, Hydrologic Unit 02050306, 40 ft upstream of culvert on SR 741, and 0.5 mi west of Lampeter.

DRAINAGE AREA.--0.33 mi².

PERIOD OF RECORD.--June 1993 to current year.

REMARKS.--Land surface elevation is 361 ft, from topographic map. 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 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 1997										
07...	1010	1028	80020	.08	528	7.6	13.1	3.8	10.1	370
17...	1010	1028	80020	.09	500	7.6	11.5	2.0	--	--
27...	1155	1028	80020	.12	511	7.6	11.7	8.0	9.5	--
NOV										
06...	1140	1028	80020	.11	531	7.6	10.7	2.0	9.7	120
17...	1050	1028	80020	.13	581	7.8	7.6	5.0	10.4	--
DEC										
15...	0840	1028	80020	.09	533	7.3	7.7	1.0	9.7	64
JAN 1998										
14...	1120	1028	80020	.15	--	--	--	--	--	30
FEB										
11...	1055	1028	80020	.28	575	7.4	8.4	1.5	10.9	32
MAR										
16...	0815	1028	80020	.41	520	7.0	7.3	2.5	10.9	60
APR										
10...	1050	1028	80020	.67	584	7.3	10.3	46	9.8	--
21...	1050	1028	80020	.53	602	7.3	12.1	10	10.0	1100
30...	0930	1028	80020	.48	571	7.1	12.4	3.0	9.4	--
MAY										
12...	1340	1028	80020	2.0	500	7.6	12.6	66	8.9	--
20...	1020	1028	80020	.57	521	7.2	14.7	5.0	8.7	1700
JUN										
01...	1130	1028	80020	.41	535	7.5	14.9	2.5	6.9	--
09...	1100	1028	80020	.41	585	7.1	13.7	3.5	11.2	--
18...	1050	1028	80020	.44	594	7.4	15.2	5.0	9.5	2800
29...	1220	1028	80020	.47	563	7.2	15.4	4.0	10.0	--
JUL										
09...	1025	1028	80020	.49	535	7.4	14.5	10	--	--
21...	1040	1028	80020	.30	495	7.2	15.6	1.0	9.4	1900
29...	1215	1028	80020	.32	459	7.5	15.8	3.5	9.8	--
AUG										
06...	1100	1028	80020	.26	553	7.4	14.7	4.0	9.9	--
19...	1045	1028	80020	.22	549	7.5	13.7	2.5	9.4	520
31...	1135	1028	80020	.19	482	7.5	15.3	9.0	10.6	--
31...	1136	1028	80020	--	--	--	--	--	--	--
SEP										
08...	0955	1028	80020	.16	--	--	--	3.0	--	--
10...	1015	1028	1028	--	511	7.2	12.9	--	8.8	--
17...	1035	1028	80020	.16	496	7.5	14.5	3.5	9.4	2200
28...	1245	1028	80020	.16	535	7.2	14.6	3.5	11.8	--

CONESTOGA RIVER BASIN

01576525 SOUTH FORK UNNAMED TRIBUTARY TO BIG SPRING RUN AT LAMPETER, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDEDED (MG/L) (80154)
OCT 1997									
07...	.067	11.8	.051	<.20	<.20	.015	<.010	.013	16
17...	.063	11.6	.043	.26	<.20	.027	.015	.019	9
27...	.054	10.4	.103	.93	.32	.084	<.010	.012	8
NOV									
06...	.045	11.9	<.020	.12	.14	<.010	<.010	.015	6
17...	.029	11.7	<.020	.27	.20	.025	<.010	.011	8
DEC									
15...	.032	12.3	<.020	.11	.11	.029	<.010	.019	2
JAN 1998									
14...	.034	11.9	<.020	.26	.12	.017	<.010	.016	20
FEB									
11...	<.010	11.9	.027	.26	.17	.019	<.010	.019	36
MAR									
16...	.054	12.5	<.020	.19	.11	<.010	<.010	.018	20
APR									
10...	.053	7.72	.123	.88	.64	.145	.040	.039	45
21...	.049	10.5	.034	.52	.21	.078	.022	.016	17
30...	.046	11.4	.028	.46	.10	.025	<.010	<.010	9
MAY									
12...	.053	6.68	.224	1.9	1.2	.395	.152	.142	153
20...	.085	11.2	.072	.27	.20	.030	<.010	.011	15
JUN									
01...	.096	11.9	.073	.26	.21	.038	<.010	.018	12
09...	.079	10.7	<.020	.27	.22	.015	<.010	<.010	11
18...	.093	10.5	.086	.38	.40	.029	.024	.021	10
29...	.056	10.6	.025	.52	.41	<.010	.019	.011	20
JUL									
09...	.059	10.2	<.020	1.3	.47	.194	.024	.019	25
21...	.063	11.0	.052	.42	.18	.033	<.010	.012	21
29...	.059	10.6	.051	.37	.24	.029	<.010	.010	25
AUG									
06...	.060	11.6	.060	.29	.17	<.010	<.010	.012	17
19...	.068	12.2	.076	.45	.23	.030	.010	.011	13
31...	.070	11.9	.125	.32	.27	.032	.021	.021	31
31...	.067	11.7	.120	.34	.19	.050	.032	.023	16
SEP									
08...	.071	14.1	.077	.40	.25	.032	.030	.025	12
10...	--	--	--	--	--	--	--	--	--
17...	.077	12.2	.087	.23	.19	.031	.039	.028	14
28...	.071	12.3	.063	.25	.22	.025	.021	<.010	8

CONESTOGA RIVER BASIN

01576525 SOUTH FORK UNNAMED TRIBUTARY TO BIG SPRING RUN AT LAMPETER, PA--Continued

BIOLOGICAL DATA, SEPTEMBER 1993

BENTHIC MACROINVERTEBRATES

REMARKS.--A rapid bioassessment for benthic macroinvertebrates was conducted in September 1993. Data represent counts per 100-organism (approximate) subsample.

Benthic Macroinvertebrate	Sept 1993
Mollusca	--
Pelecypoda (CLAMS)	--
Veneroida	--
Sphaeriidae	2
Arthropoda	--
Crustacea	--
Amphipoda (SCUDS)	--
Gammaridae	--
<u>Gammarus</u> sp	103
Total organisms	105

LOCATION.--Lat 39°59'44", long 76°15'06", Lancaster County, Hydrologic Unit 02050306, 0.4 mi north of culvert on SR 741, 0.5 mi northwest of Lampeter, and 1.5 mi northeast of Willow Street.

PERIOD OF RECORD.--September 1993 to current year.

REMARKS.--Land surface elevation is 335 ft, from topographic map.

[illegible]

BIOLOGICAL DATA, SEPTEMBER 1993 TO SEPTEMBER 1998

REMARKS.--Rapid bioassessments for benthic macroinvertebrates were conducted from September 1993 through September 1998. September 1993 data represent counts per 100-organism (approximate) subsample. All other samples represent counts per 200-organism (approximate) subsamples. May 1998 data represents organisms counted in one-half the area of all other samples. Two sub-samples were identified in September 1995.

Benthic Macroinvertebrate	Sept 1993	May 1994	Sept 1994	May 1995	Sept 1995	Sept 1995	May 1996	Sept 1996	May 1997	Sept 1997	May 1998	Sept 1998
Cnidaria	--	--	--	--	--	--	--	--	--	--	--	--
Hydrozoa	--	--	--	--	--	--	--	--	--	--	--	--
Hydroida (HYDROIDS)	--	--	1	--	--	--	--	--	--	--	--	--
Platyhelminthes	--	--	--	--	--	--	--	--	--	--	--	--
Turbellaria (FLATWORMS)	--	--	--	--	--	--	--	--	--	--	--	--
Tricladida	--	--	--	--	--	--	--	--	--	--	--	--
Planariidae	--	--	--	--	3	--	--	--	--	--	--	--
<u>Cura</u> sp	--	--	7	--	--	--	--	--	--	--	--	--
<u>Dugesia/Cura</u>	--	2	--	--	--	--	--	--	--	--	--	--
<u>Phagocata</u> sp	1	--	--	--	--	--	--	--	--	--	--	--
Annelida	--	--	--	--	--	--	--	--	--	--	--	--
Oligochaeta (AQUATIC EARTHWORMS)	--	6	--	--	--	--	--	--	--	--	--	--
Haplotaxida	--	--	--	--	--	--	--	--	--	--	--	--
Enchytraeidae	--	3	--	3	--	--	--	--	--	--	--	--
Tubificidae	--	--	13	2	17	23	5	--	5	17	1	6
<u>Ilvodrillus templetoni</u>	--	18	--	--	--	--	--	--	--	--	--	--
<u>Limnodrilus hoffmeisteri</u>	1	--	--	--	--	--	--	--	--	--	--	--
<u>Limnodrilus udekemianus</u>	--	2	--	--	--	--	--	--	--	--	--	--
<u>Limnodrilus</u> sp	45	4	--	--	--	--	2	--	--	--	10	--
<u>Tubifex</u> sp	10	--	--	--	--	--	--	--	--	--	--	--
Naididae	--	--	--	--	--	--	--	--	--	--	--	--
<u>Chaetogaster</u> sp	--	--	--	--	--	--	--	--	--	1	--	--
<u>Nais bretscheri</u>	--	1	--	--	--	--	--	--	--	--	--	--
<u>Nais</u> sp	--	10	--	45	--	--	--	--	22	--	5	--
<u>Ophidonais serpentina</u>	--	--	--	--	--	--	1	--	--	--	--	--
<u>Pristinella</u> sp	--	1	--	--	--	--	--	--	--	--	--	--
Hirudinea (LEECHES)	--	--	--	--	--	--	--	--	--	--	--	--
Pharyngobdellida	--	--	--	--	--	--	--	--	--	--	--	--
Erpobdellidae	--	--	--	--	--	--	--	--	--	--	--	--
<u>Erpobdella punctata punctata</u>	--	--	1	--	2	--	1	1	--	--	--	--
<u>Erpobdella</u> sp	1	--	--	--	--	--	--	--	--	--	--	--
<u>Mooreobdella</u> sp	--	--	--	--	--	--	--	--	2	--	--	--
Rhynchobdellida	--	--	--	--	--	--	--	--	--	--	--	--
Glossiphoniidae	--	--	--	--	--	--	--	--	--	--	--	--
<u>Helobdella stagnalis</u>	4	--	1	--	--	--	--	--	--	--	--	--
Mollusca	--	--	--	--	--	--	--	--	--	--	--	--
Gastropoda (SNAILS)	--	--	--	--	--	--	--	--	--	--	--	--
Basommatophora	--	--	--	--	--	--	--	--	--	--	--	--
Physidae	2	--	--	--	--	--	--	--	--	1	--	--
<u>Physinae</u> sp	--	--	--	--	--	--	--	--	--	--	1	2
<u>Physella</u> sp	--	--	--	--	--	--	1	--	--	--	--	--
Lymnaeidae	--	--	--	--	--	--	--	--	--	--	--	--
<u>Pseudosuccinea columella</u>	--	--	--	--	--	--	--	--	--	--	--	1
Pelecypoda (CLAMS)	--	--	--	--	--	--	--	--	--	--	--	--
Veneroida	--	--	--	--	--	--	--	--	--	--	--	--
Sphaeriidae	--	--	3	--	--	--	--	--	--	--	1	--
<u>Pisidium</u> sp	--	--	--	--	--	--	--	--	--	2	--	--
Arthropoda	--	--	--	--	--	--	--	--	--	--	--	--
Crustacea	--	--	--	--	--	--	--	--	--	--	--	--
Ostracoda (SEED SHRIMPS)	--	1	3	13	--	--	--	--	--	--	--	--
Copepoda (COPEPODS)	--	--	--	--	--	--	--	--	--	--	--	--
Cyclopoida	--	--	--	--	--	--	--	--	--	--	--	--
Cyclopidae	--	--	2	--	--	--	--	--	--	--	--	--

CONESTOGA RIVER BASIN

01576526 NORTH FORK UNNAMED TRIBUTARY TO BIG SPRING RUN NEAR WILLOW STREET, PA--Continued

BIOLOGICAL DATA, SEPTEMBER 1993 TO SEPTEMBER 1998

BENTHIC MACROINVERTEBRATES--Continued

Benthic Macroinvertebrate	Sept 1993	May 1994	Sept 1994	May 1995	Sept 1995	Sept 1995	May 1996	Sept 1996	May 1996	Sept 1997	May 1997	Sept 1998	Sept 1998
Isopoda (AQUATIC SOWBUGS)	--	--	--	--	--	--	--	--	--	--	--	--	--
Asellidae	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Caecidotea</u> sp	--	--	--	--	--	--	--	--	--	1	--	4	--
Amphipoda (SCUDS)	--	--	--	--	--	--	--	--	--	--	--	--	--
Gammaridae	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Gammarus pseudolimnaeus</u>	--	15	--	--	--	--	122	40	4	7	103	69	--
<u>Gammarus</u> sp	12	--	3	--	6	13	--	--	44	1	--	56	--
Arachnoidea	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydracarina (WATER MITES)	--	--	--	--	--	--	--	--	--	--	--	--	--
Hygrobatidae	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Hygrobatas</u> sp	--	--	1	3	10	12	--	--	1	--	--	--	--
Lebertiidae	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Lebertia</u> sp	--	--	--	--	1	--	--	--	--	--	--	--	--
Sperchonidae	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Sperchon</u> sp	--	--	--	--	--	--	--	--	1	--	--	--	--
Insecta	--	--	--	--	--	--	--	--	--	--	--	--	--
Collembola (SPRINGTAILS)	--	--	--	--	1	1	--	--	--	--	--	--	--
Entomobryoidea	--	--	--	--	--	--	--	--	--	--	--	--	--
Isotomidae	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Isotomurus</u> sp	--	--	--	1	--	--	1	--	--	3	--	--	--
Ephemeroptera (MAYFLIES)	--	--	--	--	--	--	--	--	--	--	--	--	--
Siphonuridae	--	--	1	--	--	--	--	--	--	--	--	--	--
<u>Siphonurus</u> sp	3	--	1	--	--	--	--	--	--	1	--	--	--
Baetidae	--	--	2	--	1	1	--	3	--	--	--	--	--
<u>Acentrella</u> sp	--	--	--	--	1	--	--	3	--	--	--	--	--
<u>Baetis flavistriga</u>	5	1	17	--	2	2	--	62	14	--	1	3	--
<u>Baetis</u> sp	--	--	--	--	--	--	1	5	3	--	--	--	--
<u>Callibaetis floridanus</u>	--	--	--	--	--	--	--	--	--	--	--	1	--
<u>Centroptilum</u> sp	--	--	--	--	--	--	--	--	--	4	--	--	--
<u>Cloeon</u> sp	--	--	--	--	4	--	--	--	--	--	--	--	--
Odonata	--	--	--	--	--	--	--	--	--	--	--	--	--
Coenagrionidae (DAMSELFLIES)	--	--	2	--	2	4	--	--	--	7	--	--	--
<u>Argia</u> sp	--	--	--	--	--	2	--	--	--	1	--	--	--
<u>Enallagma</u> sp	--	--	--	--	2	3	--	--	--	--	--	--	--
<u>Ischnura</u> sp	--	--	--	--	--	--	--	--	--	2	--	--	--
Hemiptera (TRUE BUGS)	--	--	--	--	--	--	--	--	--	--	--	--	--
Corixidae (WATER BOATMEN)	--	--	--	--	13	11	--	--	--	--	--	--	--
<u>Sigara</u> sp	--	--	--	--	4	9	--	--	--	--	--	--	--
<u>Trichocorixa</u> sp	--	--	--	--	1	2	--	--	--	--	--	--	--
Coleoptera (BEETLES)	--	--	--	--	--	--	--	--	--	--	--	--	1
Halipilidae (CRAWLING WATER BEETLES)	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Peltodytes</u> sp	3	--	--	--	--	--	--	--	--	--	--	--	--
Dytiscidae (PREDACEOUS DIVING BEETLES)	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Aqabus</u> sp	--	1	--	1	--	--	2	--	--	--	1	--	--
Hydrophilidae (WATER SCAVENGER BEETLES)	--	--	--	--	--	--	--	--	--	--	--	1	--
<u>Berosus</u> sp	--	--	--	--	3	--	--	2	--	4	--	--	--
<u>Hydrobius</u> sp	--	--	--	--	--	1	--	--	--	--	--	--	--
Elmidae	--	--	--	--	--	--	--	--	--	2	--	--	--
<u>Dubiraphia</u> sp	2	--	--	3	17	14	8	3	--	15	5	2	--
<u>Optioservus</u> sp	4	--	--	1	2	2	6	1	2	--	2	8	--
<u>Promoresia</u> sp	--	--	--	--	1	1	--	1	--	3	--	1	--
<u>Stenelmis</u> sp	2	--	2	1	4	5	3	3	--	3	--	8	--
Trichoptera (CADDIS FLIES)	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydropsychidae	--	--	--	--	--	--	--	4	--	1	--	1	--
<u>Cheumatopsyche</u> sp	--	--	--	--	6	11	--	4	--	--	--	6	--
<u>Hydropsyche</u> sp	--	--	--	--	--	--	2	30	1	1	--	3	--
Hydroptilidae	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Hydroptila</u> sp	--	--	--	--	1	1	--	2	--	--	--	1	--

CONESTOGA RIVER BASIN

01576526 NORTH FORK UNNAMED TRIBUTARY TO BIG SPRING RUN NEAR WILLOW STREET, PA--Continued

BIOLOGICAL DATA, SEPTEMBER 1993 TO SEPTEMBER 1998

BENTHIC MACROINVERTEBRATES--Continued

Benthic Macroinvertebrate	Sept 1993	May 1994	Sept 1994	May 1995	Sept 1995	Sept 1995	May 1996	Sept 1996	May 1997	Sept 1997	May 1998	Sept 1998
Diptera	--	--	--	--	--	--	--	--	--	--	--	--
Culicidae	--	--	--	--	--	--	--	--	--	--	--	--
Culicinae (MOSQUITOES)	--	--	--	--	--	--	--	--	--	--	--	--
<u>Anopheles</u> sp	--	--	--	--	2	--	--	--	--	2	--	--
<u>Culex</u> sp	--	--	--	--	--	--	--	--	--	1	--	--
Ceratopogonidae (BITING MIDGES)	--	--	--	--	--	--	--	--	--	--	--	--
<u>Probezzia</u> sp	--	--	--	1	--	--	2	--	--	1	1	--
Simuliidae (BLACK FLIES)	--	--	--	--	--	--	--	--	--	--	--	--
<u>Simulium vittatum</u> gr	--	--	--	--	--	--	--	--	1	--	--	--
<u>Simulium</u> sp	1	45	--	1	4	--	1	5	--	--	8	--
Empididae (DANCE FLIES)	--	--	--	--	--	--	--	--	--	--	--	--
<u>Hemerodromia</u> sp	--	--	--	3	--	--	--	--	2	--	--	--
Chironomidae (MIDGES)	--	--	--	--	--	--	--	--	--	--	--	--
Tanypodinae	--	--	--	--	--	--	--	--	--	--	--	--
<u>Conchapelopia</u> sp	--	--	--	--	--	--	1	1	--	--	--	--
<u>Natarsia</u> sp	--	--	1	--	--	--	--	--	--	--	--	--
<u>Paramerina</u> sp	--	--	--	--	--	--	--	--	5	--	--	--
<u>Procladius</u> sp	--	--	2	--	--	--	--	--	1	--	--	1
<u>Thienemannimyia</u> gr sp	--	--	6	1	--	--	--	--	1	--	--	2
Diamesinae	--	--	--	--	--	--	--	--	--	--	--	--
<u>Diamesa</u> sp	--	3	--	--	--	--	--	--	2	--	1	--
<u>Paqastia</u> sp	--	--	--	--	--	--	3	--	--	--	--	--
Prodiamesinae	--	--	--	--	--	--	--	--	--	--	--	--
<u>Prodiamesa</u> sp	--	--	--	--	--	--	--	--	--	--	1	--
Orthoclaadiinae	--	--	--	--	--	--	--	--	1	1	--	--
<u>Corynoneura</u> sp	--	--	--	--	--	--	--	--	--	--	--	3
<u>Cricotopus bicinctus</u>	3	1	--	--	10	6	5	3	8	2	1	1
<u>Cricotopus trifascia</u>	1	7	--	--	--	--	--	--	--	--	--	--
<u>Cricotopus vierriensis</u>	--	--	--	2	--	--	--	--	6	--	--	4
<u>Cricotopus</u> sp	--	20	1	2	6	11	17	9	1	7	14	--
<u>Eukiefferiella</u> sp	--	2	--	--	--	--	--	--	--	--	--	--
<u>Nanocladius</u> sp	--	--	--	--	--	--	--	--	--	--	--	1
<u>Orthocladus annectens</u>	--	8	4	--	1	--	--	--	--	--	--	--
<u>Orthocladus</u> sp	--	44	7	--	23	16	57	1	65	6	5	2
<u>Parakiefferiella</u> sp	--	1	2	2	3	--	--	--	4	--	--	--
<u>Parametriocnemus</u> sp	--	--	--	--	--	1	3	--	1	--	--	1
<u>Rheocricotopus</u> sp	--	--	--	--	--	--	--	--	1	--	--	--
<u>Thienemanniella</u> sp	--	--	--	--	--	--	--	--	--	1	--	--
<u>Tvetenia bavarica</u>	--	1	--	--	--	--	--	1	--	--	--	--
<u>Tvetenia bavarica</u> gr	--	--	--	--	--	--	--	--	1	--	2	--
Chironominae	--	--	--	1	--	--	--	--	--	2	--	1
<u>Chironomus</u> sp	--	--	2	--	--	--	--	4	--	28	1	9
<u>Cladotanytarsus</u> sp	--	--	--	--	--	--	--	1	--	--	--	--
<u>Cryptochironomus</u> sp	1	--	--	--	--	1	--	1	--	3	--	--
<u>Dicrotendipes fumidus</u>	--	--	--	111	--	--	--	--	--	--	--	--
<u>Dicrotendipes neomodestus</u>	--	--	--	--	--	--	--	--	--	--	5	--
<u>Dicrotendipes</u> sp	--	1	58	--	27	36	4	4	--	8	--	--
<u>Micropsectra</u> sp	--	--	3	14	--	--	12	--	--	--	41	--
<u>Paracladopelma nais</u>	--	--	--	--	1	1	--	--	--	3	--	1
<u>Paratanytarsus</u> sp	--	--	--	1	--	--	--	--	--	3	--	--
<u>Paratendipes albianus</u>	--	--	--	--	--	--	--	--	--	--	--	9
<u>Paratendipes</u> sp	--	--	--	1	--	--	1	--	--	2	--	--
<u>Phaenopsectra</u> sp	--	--	--	--	--	--	--	1	--	--	--	--
<u>Polypedilum convictum</u>	--	--	--	--	2	7	--	12	1	--	--	--
<u>Polypedilum illinoense</u>	--	--	--	--	--	--	--	2	--	--	--	--
<u>Polypedilum illinoense</u> gr	--	--	--	--	--	--	--	--	--	2	--	--
<u>Polypedilum</u> sp	--	--	2	--	--	--	--	--	--	2	2	1
<u>Pseudochironomus</u> sp	--	--	--	--	--	--	--	1	--	--	--	--
<u>Rheotanytarsus</u> sp	2	--	2	--	5	3	1	6	--	1	--	2
<u>Stictochironomus</u> sp	--	--	--	--	--	--	1	--	--	--	--	--
<u>Sublettea coffmani</u>	--	--	--	--	--	--	--	--	--	2	1	--
<u>Tanytarsus</u> sp	--	--	1	--	2	2	--	--	--	4	--	--
Total organisms	103	198	182	213	190	202	262	217	191	167	214	211

CONESTOGA RIVER BASIN

015765265 NORTH FORK UNNAMED TRIBUTARY TO BIG SPRING RUN NEAR LAMPETER, PA

LOCATION.--Lat 39°59'54", long 76°14'50", Lancaster County, Hydrologic Unit 02050306, on left bank 1000 ft downstream of Lampeter Road, and 0.7 mi northwest of Lampeter.

DRAINAGE AREA.--0.32 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1995 to current year.

GAGE.--Water-stage recorder and wooden weir. Datum of gage is 360.24 ft above sea level.

REMARKS.--No estimated daily discharges. Records poor.

PEAK DISCHARGES FOR CURRENT PERIOD.--Peak discharges greater than a base discharge of 30 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 21	0345	*48	*5.43	June 13	0805	31	5.17

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.04	.07	.11	.24	.27	2.2	.33	.30	.13	.03	.00
2	.00	.08	.01	.10	.22	.27	.76	.25	.11	.11	.02	.01
3	.00	.00	.00	.08	.21	1.8	.39	.50	.11	.10	.01	.00
4	.00	.00	.03	.07	.29	.74	.32	.28	.10	.10	.01	.00
5	.00	.00	.00	.06	1.8	.43	.27	.21	.10	.09	.00	.00
6	.00	.00	.00	.06	.49	.33	.25	.23	.10	.07	.00	.00
7	.00	.28	.00	.15	.32	.29	.23	.19	.10	.07	.00	.07
8	.00	2.1	.00	1.6	.26	.85	.27	.68	.09	2.6	.00	.03
9	.00	.46	.00	.45	.22	3.7	3.0	.86	.09	.24	.00	.00
10	.00	.13	.13	.25	.20	.70	.95	1.1	.09	.17	.24	.00
11	.00	.08	.04	.20	.43	.42	.45	1.9	.27	.13	.02	.00
12	.00	.05	.00	.17	.86	.32	.34	3.8	1.3	.12	.02	.00
13	.00	.03	.00	.16	.30	.28	.30	.85	1.8	.10	.00	.00
14	.00	.72	.00	.12	.24	.27	.28	.48	.34	.09	.00	.00
15	.13	.33	.00	.68	.21	.23	.25	.35	.31	.09	.00	.00
16	.00	.13	.00	.87	.19	.22	.23	.31	.85	.08	.00	.00
17	.01	.09	.00	.33	.34	.20	.24	.25	.33	.07	.15	.00
18	.36	.07	.00	.34	.69	.40	.20	.22	.21	.07	.01	.00
19	.00	.05	.00	.24	.61	1.7	2.1	.20	.18	.06	.00	.00
20	.00	.04	.00	.21	.36	.77	.93	.19	.15	.07	.00	.00
21	.00	.20	.00	.18	.28	7.9	.40	.17	.14	.05	.00	.00
22	.00	.47	.03	.16	.24	1.7	.32	.16	.13	.05	.00	.00
23	.00	.13	.18	3.0	1.4	.78	.29	.15	.21	.09	.00	.00
24	.00	.09	.10	.87	2.6	.54	.25	.14	.17	.04	.00	.00
25	.30	.07	.78	.62	.72	.39	.23	.14	.11	.03	.00	.00
26	.19	.06	.16	.37	.41	.35	.34	.13	1.6	.03	.00	.00
27	.06	.05	.18	.33	.32	.31	.23	.12	.21	.02	.00	.00
28	.00	.04	.15	2.1	.32	.28	.19	.12	.15	.03	.00	.00
29	.00	.01	.18	.66	---	.25	.18	.25	.16	.02	.00	.00
30	.00	.08	.38	.41	---	.23	.18	.13	.26	.08	.00	.00
31	.00	---	.16	.30	---	.22	---	.12	---	.36	.00	---
TOTAL	1.05	5.88	2.58	15.25	14.77	27.14	16.57	14.81	10.07	5.36	0.51	0.11
MEAN	.034	.20	.083	.49	.53	.88	.55	.48	.34	.17	.016	.004
MAX	.36	2.1	.78	3.0	2.6	7.9	3.0	3.8	1.8	2.6	.24	.07
MIN	.00	.00	.00	.06	.19	.20	.18	.12	.09	.02	.00	.00
CF5M	.11	.61	.26	1.54	1.65	2.74	1.73	1.49	1.05	.54	.05	.01
IN.	.12	.68	.30	1.77	1.72	3.16	1.93	1.72	1.17	.62	.06	.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 1998, BY WATER YEAR (WY)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
MEAN	.49	.60	.58	.96	.50	.69	.47	.32	.33	.27	.13	.072
MAX	1.08	.80	1.51	1.95	.53	.88	.64	.48	.61	.51	.47	.18
(WY)	1997	1996	1997	1996	1998	1998	1996	1998	1996	1996	1996	1996
MIN	.034	.20	.083	.43	.47	.56	.22	.17	.16	.076	.016	.004
(WY)	1998	1998	1998	1997	1997	1997	1997	1997	1995	1997	1998	1998

CONESTOGA RIVER BASIN

015765265 NORTH FORK UNNAMED TRIBUTARY TO BIG SPRING RUN NEAR LAMPETER, PA--Continued

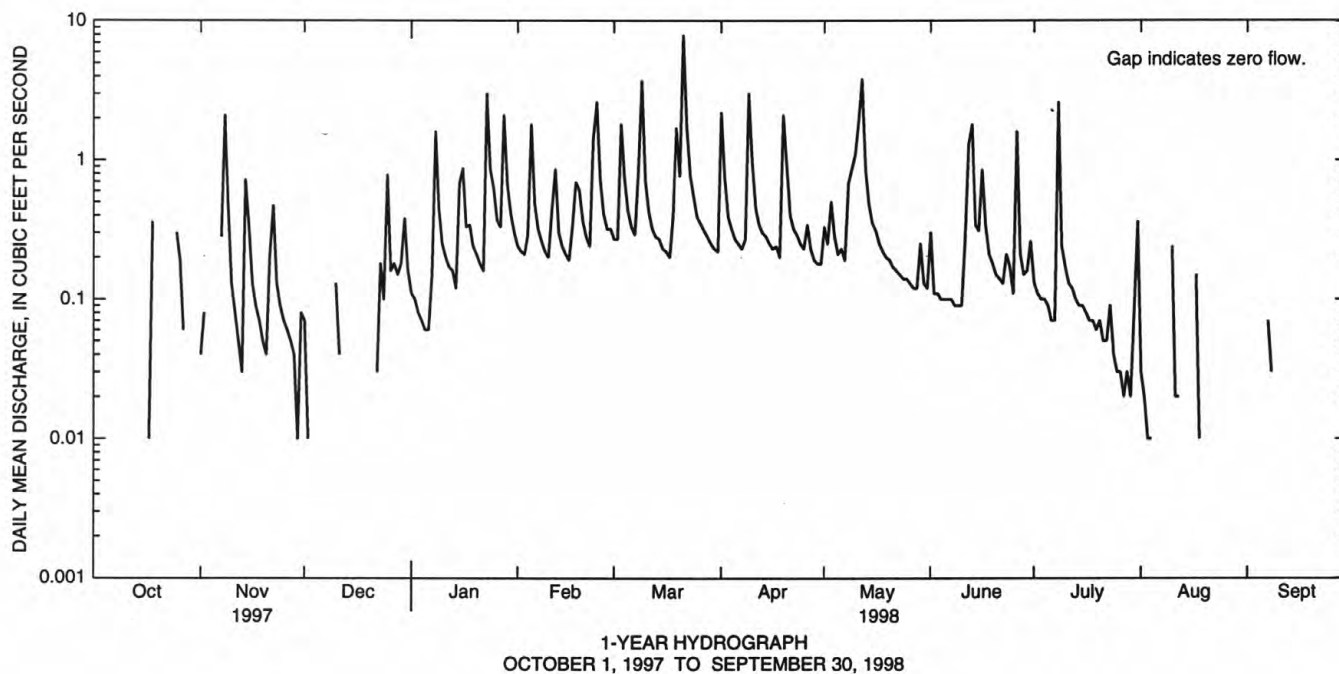
SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1995 - 1998	
ANNUAL TOTAL	76.68		114.10			
ANNUAL MEAN	.21		.31		.46	
HIGHEST ANNUAL MEAN					.60	
LOWEST ANNUAL MEAN					.31	
HIGHEST DAILY MEAN	3.0	Jan 28	7.9	Mar 21	28	Jan 19 1996
LOWEST DAILY MEAN	e.00	Jul 6a	.00	Oct 1a	.00	May 20 1995a
ANNUAL SEVEN-DAY MINIMUM	.00	Jul 11b	.00	Oct 1b	.00	Aug 15 1995b
INSTANTANEOUS PEAK FLOW			48	Mar 21	c122	Jun 19 1996
INSTANTANEOUS PEAK STAGE			5.43	Mar 21	6.35	Jun 19 1996
INSTANTANEOUS LOW FLOW			.00	Oct 1a	.00	Sep 28 1995a
ANNUAL RUNOFF (CFSM)	.66		.98		1.44	
ANNUAL RUNOFF (INCHES)	8.91		13.26		19.61	
10 PERCENT EXCEEDS	.45		.73		.77	
50 PERCENT EXCEEDS	.09		.13		.15	
90 PERCENT EXCEEDS	.00		.00		.00	

a Many days.

b First occurrence.

c From rating curve extended above 26 ft³/s on basis of slope-area measurements at gage heights 5.50 and 6.05 ft.

e Estimated.



CONESTOGA RIVER BASIN

015765265 NORTH FORK UNNAMED TRIBUTARY TO BIG SPRING RUN NEAR LAMPETER, PA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1995 to current year.

INSTRUMENTATION.--Automatic pumping sampler for stormflow since May 1995, nutrient and sediment samples since January 1995.

REMARKS.--Fixed-time, base flow, and stormflow samples collected at streamflow control. Constituent values for stormflow water quality are for discharge-weighted composited samples. Samples with two dates are composited samples; sample time is the composite start time, discharge is the mean for the composited period. 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 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)
OCT 1997										
15-15	0902	1028	80020	.62	--	--	--	--	--	--
OCT 18-18	0215	1028	80020	1.4	--	--	--	--	--	--
OCT 25-25	0140	1028	80020	1.3	--	--	--	--	--	--
27...	1235	1028	80020	--	.02	339	7.7	12.4	6.0	8.4
NOV 07-07	0132	1028	80020	1.3	--	--	--	--	--	--
NOV 08-08	0122	1028	80020	5.5	--	--	--	--	--	--
NOV 14-14	0545	1028	80020	1.3	--	--	--	--	--	--
17...	1130	1028	80020	--	.08	606	8.1	4.8	1.5	12.1
JAN 1998										
08-08	1145	1028	80020	2.5	--	--	--	--	--	--
14...	1010	1028	80020	--	.12	666	7.7	2.6	1.0	12.6
FEB 11...	1000	1028	80020	--	.20	619	7.5	6.0	1.0	13.1
MAR 09-09	0657	1028	80020	10	--	--	--	--	--	--
16...	0740	1028	80020	--	.21	581	--	4.2	1.0	12.4
MAR 18-19	2345	1028	80020	2.8	--	--	--	--	--	--
APR 01-01	1357	1028	80020	5.3	--	--	--	--	--	--
APR 09-09	1512	1028	80020	8.6	--	--	--	--	--	--
10...	1010	1028	80020	--	1.0	452	7.2	9.5	25	10.5
APR 19-19	1817	1028	80020	7.7	--	--	--	--	--	--
21...	0940	1028	80020	--	.42	618	7.5	10.7	6.0	11.2
30...	1005	1028	80020	--	.19	665	7.3	12.5	4.5	10.1
MAY 09-09	0515	1028	80020	1.6	--	--	--	--	--	--
12...	1115	1028	80020	--	2.8	396	7.5	12.7	21	8.5
20...	0930	1028	80020	--	.20	591	7.1	15.0	3.0	8.0
JUN 01...	0950	1028	80020	--	.15	473	7.2	17.4	4.0	7.9
09...	0950	1028	80020	--	.09	685	6.5	13.2	1.0	9.3
JUN 11-12	2152	1028	80020	1.2	--	--	--	--	--	--
18...	1000	1028	80020	--	.21	669	7.5	16.6	3.5	8.8
JUN 23-24	2252	1028	80020	.74	--	--	--	--	--	--
29...	0955	1028	80020	--	.33	612	6.7	18.3	6.0	--
JUL 08-08	0657	1028	80020	7.3	--	--	--	--	--	--
09...	0945	1028	80020	--	.25	594	7.6	17.3	5.0	6.5
21...	1000	1028	80020	--	.06	605	7.3	19.4	1.0	7.3
29...	1125	1028	80020	--	.03	556	7.7	20.4	2.0	7.7
JUL 30-31	2145	1028	80020	.82	--	--	--	--	--	--
AUG 10-10	1812	1028	80020	1.5	--	--	--	--	--	--
SEP 07-08	2232	1028	80020	.70	--	--	--	--	--	--

CONESTOGA RIVER BASIN

015765265 NORTH FORK UNNAMED TRIBUTARY TO BIG SPRING RUN NEAR LAMPETER, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDEED (MG/L) (80154)
OCT 1997										
15-15	--	.033	2.13	.160	1.2	.79	.276	.173	.145	45
OCT										
18-18	--	.016	.849	.065	.50	.20	.153	.105	.090	14
OCT										
25-25	--	.010	1.21	.024	.41	.28	.132	.096	.087	15
27...	--	.012	3.17	.023	.33	.19	.054	.036	.045	5
NOV										
07-07	--	.038	2.12	.042	.62	.32	.139	.078	.099	28
NOV										
08-08	--	.024	1.14	<.020	.96	.34	.340	.150	.172	147
NOV										
14-14	--	<.010	1.90	<.020	.41	.26	.103	.055	.053	27
17...	--	<.010	12.0	.027	.19	.17	.024	.021	.025	1
JAN 1998										
08-08	--	.012	2.73	.044	1.1	.84	.279	.169	.155	114
14...	430	<.010	13.6	<.020	.11	.14	<.010	.014	.029	4
FEB										
11...	60	<.010	12.6	.021	.13	.18	<.010	<.010	.021	37
MAR										
09-09	--	<.010	1.76	.054	1.6	.57	.600	.259	.222	358
16...	1500	.049	12.9	<.020	.22	.15	<.010	<.010	.017	10
MAR										
18-19	--	.012	3.03	.055	1.1	.48	.266	.099	.091	91
APR										
01-01	--	<.010	1.83	.097	.87	.65	.139	.075	.067	522
APR										
09-09	--	.080	1.62	.122	1.1	.54	.419	.159	.153	278
10...	--	.014	7.08	.042	.63	.48	.147	.091	.085	17
APR										
19-19	--	.010	1.20	.131	1.3	.48	.343	.090	.085	298
21...	440	.023	10.1	.066	.27	.30	.037	.027	.024	19
30...	--	.018	11.8	.023	.20	.14	<.010	<.010	<.010	8
MAY										
09-09	--	.032	3.72	.050	.84	.68	.142	.098	.061	26
12...	--	.021	5.02	.049	.91	.83	.349	.270	.240	30
20...	580	.021	11.6	.051	.18	.27	<.010	<.010	.016	6
JUN										
01...	--	.048	8.40	.098	.38	.36	.014	<.010	.028	11
09...	--	.022	11.8	.023	.16	.18	<.010	.012	.010	3
JUN										
11-12	--	.035	2.87	.293	.99	.81	.138	.053	.055	44
18...	1700	.026	12.3	.099	.27	.34	.034	.039	.034	5
JUN										
23-24	--	.105	4.62	.051	.88	.95	.086	.063	<.010	65
29...	--	.052	10.4	.036	.73	.63	.068	.064	<.010	27
JUL										
08-08	--	.013	.930	.021	1.2	.55	.412	.177	.116	196
09...	--	.015	9.81	<.020	.47	.45	.032	.060	.047	15
21...	6300	.014	11.5	<.020	.20	.26	.018	.011	.020	10
29...	--	.014	11.4	.025	.21	.25	.014	<.010	.019	9
JUL										
30-31	--	.059	3.67	.282	1.2	.97	.156	.065	.073	49
AUG										
10-10	--	.043	1.95	.157	1.2	.68	.224	.093	.093	88
SEP										
07-08	--	.034	2.18	.216	1.4	.78	.275	.116	.126	82

CONESTOGA RIVER BASIN

01576527 NORTH FORK UNNAMED TRIBUTARY TO BIG SPRING RUN AT LAMPETER, PA

LOCATION.--Lat 39°59'47", long 76°14'59", Lancaster County, Hydrologic unit 02050306, on right bank 30 ft upstream of box culvert on Mentzer Road, and 0.5 mi northwest of Lampeter.

DRAINAGE AREA.--0.36 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1993 to current year.

GAGE.--Water-stage recorder and wooden weir control. Datum of gage is 344.19 ft above sea level.

REMARKS.--No estimated daily discharges. Records poor.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 30 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 21	0340	*44	*2.65	June 26	1525	37	2.55
June 13	0810	38	2.56				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.01	.13	.16	.37	.48	2.8	.50	.62	.21	.08	.00
2	.00	.08	.09	.16	.35	.47	1.3	.45	.20	.18	.07	.00
3	.00	.02	.08	.16	.32	2.6	.66	.88	.20	.17	.06	.00
4	.00	.01	.09	.15	.44	1.4	.55	.47	.19	.17	.06	.00
5	.00	.00	.08	.14	2.5	.83	.46	.29	.19	.15	.05	.00
6	.00	.00	.08	.14	.88	.61	.43	.33	.18	.16	.05	.00
7	.00	.26	.07	.23	.53	.52	.38	.28	.18	.16	.04	.03
8	.00	2.3	.06	2.0	.42	1.3	.48	1.0	.18	3.3	.04	.05
9	.00	.51	.06	.61	.36	4.8	3.8	1.3	.16	.30	.04	.00
10	.00	.17	.17	.33	.32	1.3	1.6	1.7	.16	.21	.53	.00
11	.00	.12	.10	.27	.52	.81	.82	2.8	.49	.18	.09	.00
12	.00	.10	.08	.24	1.4	.62	.59	5.6	3.3	.17	.08	.00
13	.00	.08	.08	.24	.47	.53	.49	1.6	3.0	.15	.05	.00
14	.00	.76	.07	.20	.38	.51	.46	.95	.62	.15	.04	.00
15	.05	.37	.06	.85	.32	.44	.41	.64	.53	.16	.03	.00
16	.00	.16	.06	1.2	.31	.40	.36	.56	1.3	.15	.03	.00
17	.00	.13	.06	.42	.56	.36	.35	.43	.61	.13	.30	.00
18	.28	.12	.05	.44	1.1	.65	.31	.39	.33	.13	.05	.00
19	.00	.10	.05	.31	1.0	2.5	2.6	.37	.29	.13	.04	.00
20	.00	.09	.05	.28	.59	1.3	1.5	.33	.26	.13	.03	.00
21	.00	.23	.04	.25	.45	8.8	.61	.32	.26	.11	.02	.00
22	.00	.56	.05	.24	.38	2.6	.48	.29	.24	.10	.02	.00
23	.00	.16	.23	3.7	1.8	1.5	.43	.27	.35	.14	.02	.00
24	.00	.13	.15	1.3	3.5	1.0	.37	.27	.37	.10	.02	.00
25	.25	.12	.95	.92	1.3	.73	.34	.27	.20	.09	.02	.00
26	.13	.12	.19	.53	.77	.64	.52	.26	2.5	.09	.02	.00
27	.08	.10	.20	.47	.59	.56	.37	.23	.51	.08	.00	.00
28	.01	.10	.19	2.7	.58	.49	.31	.23	.37	.08	.00	.00
29	.00	.09	.20	1.1	---	.45	.29	.45	.30	.08	.00	.00
30	.00	.12	.46	.64	---	.41	.28	.25	.38	.15	.00	.00
31	.00	---	.19	.45	---	.39	---	.22	---	.87	.00	---
TOTAL	0.80	7.12	4.42	20.83	22.51	40.00	24.35	23.93	18.47	8.38	1.88	0.08
MEAN	.026	.24	.14	.67	.80	1.29	.81	.77	.62	.27	.061	.003
MAX	.28	2.3	.95	3.7	3.5	8.8	3.8	5.6	3.3	3.3	.53	.05
MIN	.00	.00	.04	.14	.31	.36	.28	.22	.16	.08	.00	.00
CFM	.07	.66	.40	1.87	2.23	3.58	2.25	2.14	1.71	.75	.17	.01
IN.	.08	.74	.46	2.15	2.33	4.13	2.52	2.47	1.91	.87	.19	.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1994 - 1998, BY WATER YEAR (WY)

	1994	1995	1996	1997	1998
MEAN	.44	.62	.81	.81	.98
MAX	1.10	1.04	1.88	1.90	2.27
(WY)	1997	1997	1996	1995	1994
MIN	.026	.24	.11	.29	.56
(WY)	1998	1998	1996	1994	1997

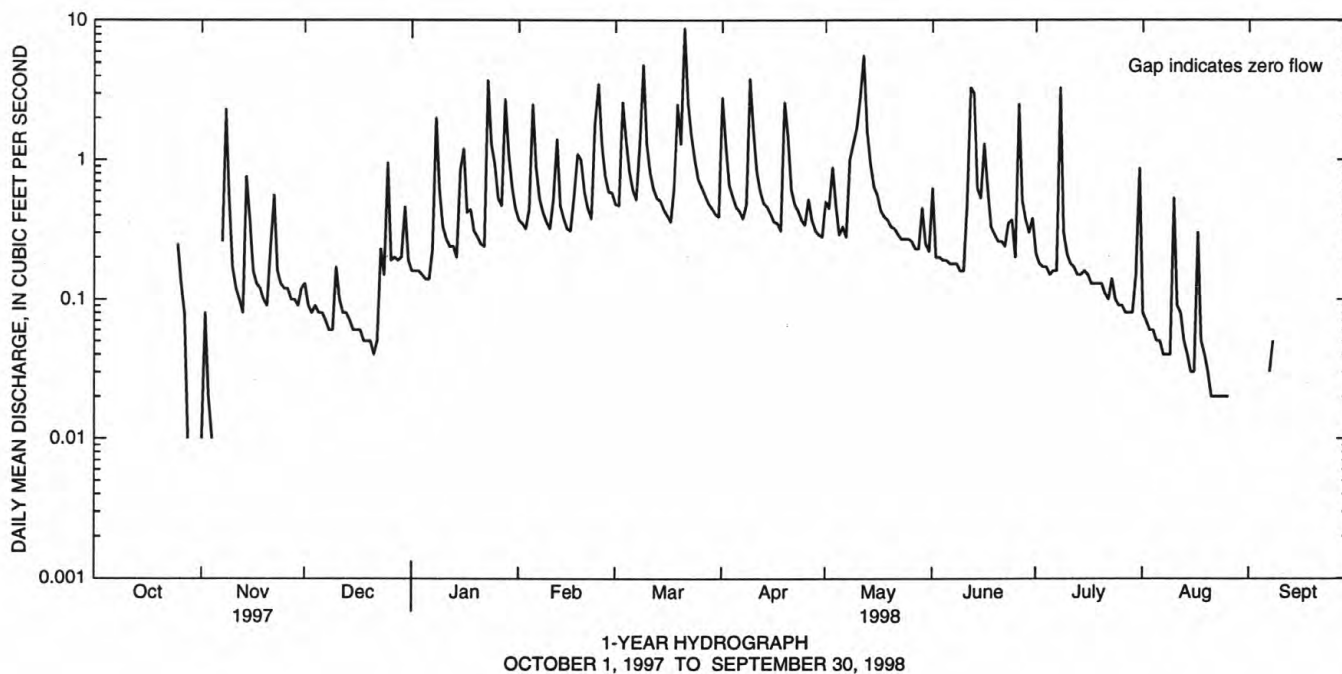
CONESTOGA RIVER BASIN

01576527 NORTH FORK UNNAMED TRIBUTARY TO BIG SPRING RUN AT LAMPETER, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1994 - 1998	
ANNUAL TOTAL	92.68		172.77			
ANNUAL MEAN	.25		.47		.54	
HIGHEST ANNUAL MEAN					.66	
LOWEST ANNUAL MEAN					.46	
HIGHEST DAILY MEAN	3.4	Jun 3	8.8	Mar 21	27	Feb 6 1995
LOWEST DAILY MEAN	.00	Jul 18a	.00	Oct 1a	.00	Aug 29 1995a
ANNUAL SEVEN-DAY MINIMUM	.00	Aug 8b	.00	Oct 1b	.00	Aug 29 1995b
INSTANTANEOUS PEAK FLOW			c44	Mar 21	c157	Jun 19 1996
INSTANTANEOUS PEAK STAGE			2.65	Mar 21	4.25	Jun 19 1996
INSTANTANEOUS LOW FLOW			.00	Oct 1a	.00	Aug 28 1995a
ANNUAL RUNOFF (CFSM)	.71		1.31		1.50	
ANNUAL RUNOFF (INCHES)	9.58		17.85		20.39	
10 PERCENT EXCEEDS	.54		1.2		1.1	
50 PERCENT EXCEEDS	.14		.21		.22	
90 PERCENT EXCEEDS	.00		.00		.03	

a Many days.

b First occurrence.

c From rating curve extended above 24 ft³/s.

CONESTOGA RIVER BASIN

01576527 NORTH FORK UNNAMED TRIBUTARY TO BIG SPRING RUN AT LAMPETER, PA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--June 1993 to current year.

INSTRUMENTATION.--Automatic pumping sampler since March 1994.

REMARKS.--Fixed-time, base flow, and stormflow samples collected at streamflow control. Constituent values for stormflow water quality are for discharge-weighted composite samples. Samples with two dates are composited samples; sample time is the composite start time, discharge is the mean for the composited period. 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 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, IN CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 1997											
15-15	1037	1028	80020	.26	--	--	--	--	--	--	--
OCT 18-18	0245	1028	80020	1.2	--	--	--	--	--	--	--
OCT 25-25	0247	1028	80020	1.2	--	--	--	--	--	--	--
27...	1055	1028	80020	--	.06	341	7.7	12.5	2.5	8.0	--
NOV 07-07	0245	1028	80020	1.2	--	--	--	--	--	--	--
NOV 08-08	0157	1028	80020	6.3	--	--	--	--	--	--	--
NOV 14-14	0657	1028	80020	1.3	--	--	--	--	--	--	--
17...	1015	1028	80020	--	.12	652	7.6	6.2	1.0	11.7	--
DEC 15...	1145	1028	80020	--	.07	609	8.1	5.7	5.5	13.1	K42000
JAN 1998 08-08	1215	1028	80020	3.3	--	--	--	--	--	--	--
14...	1035	1028	80020	--	.19	682	7.5	3.9	1.0	12.4	4200
JAN 23-23	0945	1028	80020	5.9	--	--	--	--	--	--	--
JAN 28-28	1045	1028	80020	4.5	--	--	--	--	--	--	--
FEB 05-05	0257	1028	80020	3.6	--	--	--	--	--	--	--
11...	0940	1028	80020	--	.31	635	7.5	6.3	1.0	13.5	K180
MAR 09-09	0645	1028	80020	12	--	--	--	--	--	--	--
16...	1108	1028	80020	--	.40	584	7.6	8.6	1.0	12.4	86
MAR 18-19	2345	1028	80020	3.6	--	--	--	--	--	--	--
APR 01-01	1412	1028	80020	6.6	--	--	--	--	--	--	--
APR 09-09	1527	1028	80020	10	--	--	--	--	--	--	--
10...	0930	1028	80020	--	1.8	474	6.9	9.2	20	10.6	--
APR 19-20	1842	1028	80020	9.5	--	--	--	--	--	--	--
21...	1005	1028	80020	--	.60	638	7.3	11.9	4.0	10.3	4600
21...	1006	1028	80020	--	.60	--	--	--	--	--	--
30...	0905	1028	80020	--	.28	694	7.1	12.4	1.5	8.6	--
MAY 09-09	0515	1028	80020	2.7	--	--	--	--	--	--	--
MAY 10-10	0815	1028	80020	3.1	--	--	--	--	--	--	--
MAY 11-11	1115	1028	80020	4.1	--	--	--	--	--	--	--
12...	0810	1028	80020	--	3.5	427	7.5	12.6	20	8.0	--
20...	0905	1028	80020	--	.35	609	6.8	15.1	2.0	6.8	810
JUN 01-01	0145	1028	80020	2.5	--	--	--	--	--	--	--
01...	1035	1028	80020	--	.28	512	7.2	17.9	1.5	5.6	--
09...	1020	1028	80020	--	.19	726	6.8	14.6	1.5	6.9	--
JUN 11-12	2152	1028	80020	3.0	--	--	--	--	--	--	--
JUN 16-17	2037	1028	80020	4.8	--	--	--	--	--	--	--
18...	0945	1028	80020	--	.35	683	7.4	17.0	2.5	6.8	1100
JUN 23-24	2327	1028	80020	1.3	--	--	--	--	--	--	--
29...	1140	1028	80020	--	.52	588	7.0	19.2	2.5	5.3	--
JUL 08-08	0727	1028	80020	10	--	--	--	--	--	--	--
09...	0925	1028	80020	--	.28	602	7.4	17.6	2.0	2.6	--
21...	0930	1028	80020	--	.14	645	7.1	19.6	1.0	5.4	14000
29...	1045	1028	80020	--	.10	610	7.3	19.5	2.0	1.9	--
JUL 30-31	2242	1028	80020	1.3	--	--	--	--	--	--	--
AUG 06...	1000	1028	80020	--	.08	742	7.3	18.3	1.5	1.9	--

CONESTOGA RIVER BASIN

01576527 NORTH FORK UNNAMED TRIBUTARY TO BIG SPRING RUN AT LAMPETER, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	ALKA- LITY WAT DIS TOT IT LAB (MG/L AS CACO3) (39087)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
OCT 1997										
15-15	--	.079	3.36	.222	1.7	1.1	.502	.419	.358	14
OCT 18-18	--	.024	1.10	.043	.63	.36	.314	.240	.209	7
OCT 25-25	--	.020	1.68	.061	.60	.27	.279	.181	.219	6
27...	--	<.010	2.66	.026	.31	.27	.115	.122	.103	1
NOV 07-07	--	.054	2.50	<.020	.73	.43	.240	.178	.191	17
NOV 08-08	--	.031	1.62	.052	.77	.51	.438	.346	.343	43
NOV 14-14	--	.014	2.22	<.020	.41	.33	.153	.124	.087	10
17...	--	<.010	9.44	<.020	.18	.18	.042	.039	.042	4
DEC 15...	234	.016	8.59	.345	2.3	.66	.672	.211	.192	40
JAN 1998 08-08	--	.017	2.91	.022	1.1	.88	.321	.188	.168	80
14...	222	.011	10.8	<.020	.18	.20	.027	.025	.033	15
JAN 23-23	--	.017	2.68	.085	1.3	1.1	.412	.312	.296	97
JAN 28-28	--	.020	3.45	.053	.75	.50	.329	.252	.268	42
FEB 05-05	--	<.010	2.94	.038	.70	.40	.259	.130	.165	33
11...	218	<.010	9.92	<.020	.16	.35	.024	<.010	.020	25
MAR 09-09	--	<.010	2.28	.046	1.3	.55	.576	.297	.255	254
16...	219	.064	11.4	<.020	.26	.16	.016	<.010	.022	5
MAR 18-19	--	.016	3.43	.048	1.0	.50	.308	.153	.145	67
APR 01-01	--	.013	1.96	.094	.87	.67	.202	.148	.129	246
APR 09-09	--	.074	1.96	.127	1.3	.63	.532	.239	.225	206
10...	--	.042	2.77	.293	1.7	.50	.357	.087	.082	17
APR 19-20	--	.025	1.70	.153	1.1	.59	.378	.187	.183	212
21...	202	.014	8.96	.037	.55	.36	.143	.079	.089	24
21...	--	.015	9.13	.043	.51	.34	.136	.087	.092	12
30...	--	.032	9.40	.025	.24	.20	<.010	<.010	.013	10
MAY 09-09	--	.027	3.12	.080	1.0	.72	.158	.067	.055	16
MAY 10-10	--	.037	3.45	.080	.75	.61	.138	.085	.083	17
MAY 11-11	--	.022	3.55	.055	1.0	.90	.294	.221	.197	25
12...	--	.023	4.75	.043	1.1	1.0	.427	.379	.336	22
20...	228	.040	8.83	.050	.28	.34	.049	.010	.025	7
JUN 01-01	--	.152	3.40	.318	1.0	1.0	.137	.082	.075	12
01...	--	.089	5.47	.098	.46	.45	.043	.039	.042	5
09...	--	.081	7.82	.039	.35	.34	.076	.086	.054	3
JUN 11-12	--	.074	3.91	.221	1.1	.92	.199	.184	.112	6
JUN 16-17	--	.061	3.20	.198	1.8	.74	.634	.204	.168	226
18...	212	.058	10.3	.132	.33	.34	.066	.056	.061	7
JUN 23-24	--	.539	5.12	.068	1.0	1.2	.189	.168	.011	34
29...	--	.110	8.56	<.020	.64	.60	.095	.089	.071	9
JUL 08-08	--	.043	1.51	.093	1.0	.71	.359	.253	.232	108
09...	--	.057	8.29	.034	.51	.44	.081	.066	.065	6
21...	246	.223	6.85	<.020	.60	.49	.250	.200	.138	4
29...	--	.294	3.99	.229	.77	.69	.285	.290	.240	31
JUL 30-31	--	.183	3.60	.158	1.1	.93	.212	.168	.149	4
AUG 06...	--	.247	2.46	.385	.91	.87	.379	.356	.311	28

CONESTOGA RIVER BASIN

01576527 NORTH FORK UNNAMED TRIBUTARY TO BIG SPRING RUN AT LAMPETER, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, IN CUBIC FEET PER SECOND	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (μ S/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
		(00027)	(00028)	(00060)	(00061)	(00095)	(00400)	(00010)	(00076)	(00300)	(31673)
AUG 1998											
10-10	1845	1028	80020	2.4	--	--	--	--	--	--	--
19...	0930	1028	80020	--	.07	744	7.3	17.3	1.5	.4	3000
SEP											
07-08	2332	1028	80020	.28	--	--	--	--	--	--	--
08...	0850	1028	80020	--	.02	--	--	--	4.0	--	--

DATE	ALKA- LINITY WAT DIS TOT IT LAB (MG/L AS CACO3) (39087)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDEDED (MG/L) (80154)
AUG 1998										
10-10	--	.234	2.95	.218	1.8	1.1	.357	.241	.216	34
19...	272	.118	2.35	.721	1.2	1.1	.299	.288	.251	82
SEP										
07-08	--	.324	9.74	1.01	4.1	3.3	.793	.682	.595	18
08...	--	.112	1.24	1.70	3.8	2.9	.589	.380	.340	5

LOCATION.--Lat 39°59'49", long 76°15'20", Lancaster County, Hydrologic Unit 02050306, 100 ft below pond, 0.7 mi northwest of Lampeter, and 1.5 mi northeast of Willow Street.

PERIOD OF RECORD.--September 1993 to current year.

REMARKS.--Land surface elevation is 325 ft, from topographic map.

[illegible]

CONESTOGA RIVER BASIN

01576528 UNNAMED TRIBUTARY TO BIG SPRING RUN NEAR WILLOW STREET, PA--Continued

BIOLOGICAL DATA, SEPTEMBER 1993 TO SEPTEMBER 1998

BENTHIC MACROINVERTEBRATES

REMARKS.--Rapid bioassessments for benthic macroinvertebrates were conducted from September 1993 through September 1998. September 1993 data represent counts per 100-organism (approximate) subsample. All other samples represent counts per 200-organism (approximate) subsamples. Two sub-samples were identified in May 1995.

[illegible]

CONESTOGA RIVER BASIN

01576528 UNNAMED TRIBUTARY TO BIG SPRING RUN NEAR WILLOW STREET, PA--Continued

BIOLOGICAL DATA, SEPTEMBER 1993 TO SEPTEMBER 1998

BENTHIC MACROINVERTEBRATES--Continued

Benthic Macroinvertebrate	Sept 1993	May 1994	Sept 1994	May 1995	May 1995	Sept 1995	May 1996	Sept 1996	May 1996	Sept 1997	May 1997	Sept 1998	Sept 1998
Amphipoda (SCUDS)	--	--	--	--	--	--	--	--	--	--	--	--	--
Talitridae	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Hyalolella azteca</u>	--	--	--	--	--	--	--	--	--	--	--	--	32
Gammaridae	--	--	--	--	--	--	--	--	--	--	1	--	--
<u>Gammarus pseudolimnaeus</u>	--	9	--	--	--	--	4	7	--	21	--	75	--
<u>Gammarus</u> sp	1	--	2	1	1	--	--	--	2	--	44	--	--
Arachnoidea	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydracarina (WATER MITES)	--	--	--	--	--	--	--	--	--	--	--	--	--
Hygrobatidae	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Hygrobatas</u> sp	--	--	--	--	2	--	--	--	--	--	--	--	--
Lebertiidae	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Lebertia</u> sp	--	--	--	--	--	--	--	--	--	2	--	--	--
Insecta	--	--	--	--	--	--	--	--	--	--	--	--	--
Ephemeroptera (MAYFLIES)	--	--	--	--	--	--	--	--	--	--	--	--	--
Baetidae	--	--	--	--	--	--	--	5	--	--	--	--	--
<u>Baetis flavistriga</u>	7	5	3	--	--	--	4	38	12	--	1	1	--
<u>Baetis</u> sp	--	--	--	--	--	--	--	6	--	--	--	--	--
<u>Callibaetis</u> sp	--	--	--	--	--	--	--	--	--	6	--	--	--
Caenidae	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Caenis</u> sp	--	--	--	--	--	--	--	--	--	--	--	1	--
Siphonuridae	--	--	--	--	--	--	--	--	--	--	--	1	--
<u>Siphonurus</u> sp	--	--	--	--	--	--	--	--	--	--	--	--	1
Odonata	--	--	--	--	--	--	--	--	--	--	--	--	--
Coenagrionidae (DAMSELFLIES)	--	--	--	--	--	--	--	--	--	3	--	--	11
<u>Argia</u> sp	--	--	--	--	--	--	--	--	--	--	--	--	1
<u>Enallagma</u> sp	--	--	--	--	--	3	--	--	--	--	1	2	--
<u>Ischnura</u> sp	--	--	--	--	--	--	--	--	--	--	--	--	2
Hemiptera (TRUE BUGS)	--	--	--	--	--	--	--	--	--	--	--	--	--
Corixidae (WATER BOATMEN)	--	--	--	--	--	2	--	--	--	6	2	2	--
<u>Dasycorixa</u> sp	--	--	--	--	--	--	--	--	--	2	--	--	--
<u>Sigara</u> sp	--	--	--	--	--	--	--	--	--	--	--	1	--
<u>Trichocorixa</u> sp	--	--	--	--	--	--	--	--	--	3	--	1	--
Coleoptera (BEETLES)	--	--	--	--	--	--	--	--	--	--	--	--	--
Haliplidae (CRAWLING WATER BEETLES)	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Peltodytes</u> sp	1	--	--	--	--	--	--	--	--	--	--	--	--
Dytiscidae (PREDACEOUS DIVING BEETLES)	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Agabates</u> sp	1	--	--	--	--	--	--	--	--	--	--	--	--
<u>Agabus</u> sp	--	1	--	--	--	--	--	--	--	--	--	--	--
<u>Laccophilus</u> sp	--	--	--	--	--	1	--	--	--	--	--	--	--
Hydrophilidae (WATER SCAVENGER BEETLES)	--	--	--	--	--	--	--	--	--	--	--	--	1
<u>Berosus</u> sp	--	--	1	--	--	3	--	--	--	2	--	3	--
Scirtidae	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Scirtes</u> sp	--	--	--	--	--	--	--	--	--	--	--	1	--
Elmidae	--	--	--	--	--	--	--	5	--	--	--	--	--
<u>Dubiraphia</u> sp	--	1	--	1	3	7	2	1	4	10	4	9	--
<u>Optioservus</u> sp	--	--	--	--	--	2	1	--	--	4	1	--	--
<u>Stenelmis</u> sp	2	--	2	--	2	8	3	2	1	12	3	6	--
Trichoptera (CADDIS FLIES)	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydropsychidae	--	--	5	--	--	--	--	16	--	1	--	--	--
<u>Cheumatopsyche</u> sp	--	--	1	--	--	3	--	28	--	5	--	2	--
<u>Hydropsyche</u> sp	--	--	3	--	--	3	1	37	--	--	1	--	--
Hydroptilidae	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Hydroptila</u> sp	--	--	1	--	--	--	2	1	1	2	1	--	--
<u>Oxyethira</u> sp	--	--	--	--	--	1	--	--	--	--	--	--	--

CONESTOGA RIVER BASIN

01576528 UNNAMED TRIBUTARY TO BIG SPRING RUN NEAR WILLOW STREET, PA--Continued

BIOLOGICAL DATA, SEPTEMBER 1993 TO SEPTEMBER 1998

BENTHIC MACROINVERTEBRATES--Continued

Benthic Macroinvertebrate	Sept 1993	May 1994	Sept 1994	May 1995	May 1995	Sept 1995	May 1996	Sept 1996	May 1997	Sept 1997	May 1998	Sept 1998
Diptera	--	--	--	--	--	--	--	--	--	--	--	--
Tipulidae (CRANE FLIES)	--	--	--	--	--	--	--	--	--	--	--	--
Antocha sp	--	--	--	--	--	--	--	1	--	--	--	--
Culicidae	--	--	--	--	--	--	--	--	--	--	--	--
Culicinae (MOSQUITOES)	--	--	--	--	--	--	--	--	--	--	--	--
Anopheles sp	--	--	--	--	--	--	--	1	--	--	--	1
Psychodidae (MOTH FLIES)	--	--	--	--	--	1	--	--	--	--	--	--
Ceratopogonidae (BITING MIDGES)	--	--	--	--	--	--	--	--	--	--	--	--
Bezzia sp	--	--	--	--	--	--	--	--	--	1	--	--
Probezzia sp	1	--	--	--	2	5	--	--	--	--	--	--
Simuliidae (BLACK FLIES)	--	--	--	--	--	--	--	--	--	--	--	--
Simulium sp	22	135	53	3	3	7	2	28	--	--	11	--
Tabanidae (HORSEFLIES)	--	--	--	--	--	--	--	--	--	2	--	--
Empididae (DANCE FLIES)	--	--	--	--	--	--	--	--	--	--	--	--
Hemerodromia sp	--	--	--	1	--	--	--	--	--	--	--	--
Ephydriidae (SHORE FLIES)	1	--	--	--	--	--	--	--	--	2	--	--
Muscidae (HOUSE FLIES)	--	1	--	--	--	--	--	--	--	1	--	--
Chironomidae (MIDGES)	--	--	--	--	--	--	--	--	--	--	--	--
Tanypodinae	--	--	--	--	--	--	--	--	--	--	1	--
Ablabesmyia sp	--	--	1	--	--	--	--	--	--	--	--	--
Conchapelopia sp	3	--	--	--	--	--	--	--	--	--	--	--
Natarsia sp	--	--	--	--	--	--	--	--	--	2	1	1
Paramerina sp	--	--	--	--	--	--	--	--	--	1	--	--
Procladius sp	--	--	2	--	--	--	1	--	--	5	--	--
Psectrotanypus sp	1	--	--	--	--	--	--	--	--	--	--	--
Tanypus neopunctipennis	--	--	--	--	--	--	--	--	--	1	--	--
Tanypus sp	--	--	1	--	--	--	--	--	--	--	--	--
Thienemannimyia sp	--	--	--	--	--	--	--	9	--	--	--	--
Thienemannimyia gr sp	2	--	3	1	2	--	--	--	--	7	--	6
Diamesinae	--	--	--	--	--	--	--	--	--	--	--	--
Diamesa sp	--	--	--	--	--	--	1	--	--	--	--	--
Pagastia sp	--	--	--	--	--	--	6	--	--	--	--	--
Orthoclaadiinae	--	1	--	--	--	--	--	--	--	--	--	1
Cardiocladius sp	--	--	--	--	--	--	--	1	--	--	--	--
Corynoneura sp	--	--	1	--	--	--	--	--	--	--	--	2
Cricotopus bicinctus	2	1	--	--	--	12	23	--	3	1	21	--
Cricotopus sylvestris	--	1	--	--	--	--	--	--	--	--	--	--
Cricotopus trifascia	--	--	--	--	--	--	2	--	--	--	--	--
Cricotopus trifascia gr	--	--	--	--	--	--	--	--	--	--	1	--
Cricotopus vierriensis	--	--	--	--	--	--	--	--	1	--	--	--
Cricotopus/Orthoclaadius	2	--	--	--	--	--	--	--	--	--	--	--
Cricotopus sp	--	4	--	5	13	--	69	1	--	2	--	--
Eukiefferiella claripennis	--	--	--	1	--	--	--	--	--	--	--	--
Eukiefferiella claripennis gr	--	--	--	--	--	--	--	--	1	--	1	--
Eukiefferiella sp	--	2	--	--	--	--	--	--	--	--	--	--
Nanocladius sp	--	--	--	--	--	--	--	--	--	--	--	1
Orthoclaadius annectens	--	3	--	1	--	7	--	--	--	--	--	--
Orthoclaadius sp	--	29	--	2	4	--	48	--	22	2	10	2
Parakiefferiella sp	--	1	--	11	11	--	1	--	1	2	--	--
Parametriocnemus sp	--	--	--	--	--	--	--	--	--	1	--	--
Thienemanniella sp	2	--	--	--	--	--	1	--	--	3	1	1
Tvetenia bavarica	--	1	1	--	--	--	--	2	--	--	--	--
Tvetenia bavarica gr	--	--	--	--	--	--	--	--	--	--	2	--
Chironominae	--	--	--	--	--	--	--	--	--	--	--	--
Chironomus sp	--	1	1	1	--	19	3	6	--	26	2	--
Cladotanytarsus sp	--	--	--	--	--	2	--	--	--	--	--	--
Cryptochironomus sp	1	--	--	--	--	--	--	1	--	--	1	--
Cryptotendipes sp	--	--	--	--	--	--	--	--	--	1	--	--
Dicrotendipes fumidus	--	--	--	86	92	--	--	--	--	--	--	--
Dicrotendipes neomodestus	--	--	--	--	--	--	--	--	--	--	13	--
Dicrotendipes sp	--	4	23	--	--	15	2	25	2	31	--	1
Micropsectra sp	1	--	2	9	10	1	5	--	--	--	38	--
Microtendipes sp	--	--	--	--	--	--	--	--	--	1	--	--
Paratanytarsus sp	--	--	--	--	--	--	--	--	--	3	5	2
Paratendipes albimanus	--	--	--	--	--	--	--	--	--	--	--	2
Paratendipes sp	--	--	--	--	--	--	--	--	--	1	--	--
Phaenopsectra sp	--	--	--	--	--	2	--	1	--	--	--	--
Polypedilum convictum	--	--	--	--	2	1	7	27	--	--	--	1
Polypedilum sp	9	1	15	--	--	--	--	--	--	--	--	--
Rheotanytarsus sp	19	--	66	--	--	56	6	3	--	2	1	3
Stictochironomus sp	--	1	--	--	--	--	1	1	--	--	4	--
Tanytarsus sp	--	--	--	--	--	5	--	4	--	12	--	1
Tribelos sp	--	--	--	--	--	--	--	--	--	--	--	1
Total organisms	92	210	214	203	203	172	214	258	213	216	199	199

CONESTOGA RIVER BASIN

01576529 UNNAMED TRIBUTARY TO BIG SPRING RUN NEAR LAMPETER, PA

LOCATION.--Lat 39°59'57", long 76°15'52", Lancaster County, Hydrologic Unit 02050306, on left bank 70 ft upstream from bridge on Morningside Drive near the intersection with Long Rifle Road and Gypsy Hill Road, and 1.0 mi northwest of Lampeter.

DRAINAGE AREA.--1.42 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1993 to current year.

GAGE.--Water-stage recorder. Datum of gage is 290.25 ft above sea level.

REMARKS.--No estimated daily discharges. Records fair. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 140 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 21	0415	*87	*3.99	(No peaks greater than base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.14	.16	.40	.54	1.3	1.7	5.2	1.6	2.4	1.4	.83	.31
2	.14	.32	.31	.53	1.2	1.6	3.5	1.9	1.4	1.2	.70	.35
3	.14	.22	.28	.53	1.1	4.6	2.4	2.2	1.4	1.1	.70	.36
4	.14	.17	.27	.50	1.2	2.7	2.2	1.7	1.3	1.1	.70	.32
5	.14	.17	.27	.52	4.2	2.1	2.1	1.6	1.3	1.1	.65	.31
6	.14	.16	.27	.52	1.9	1.8	2.0	1.6	1.2	.99	.63	.29
7	.13	.74	.27	.58	1.6	1.7	1.9	1.5	1.1	.92	.58	.30
8	.11	4.9	.27	3.5	1.4	2.5	2.0	2.3	1.1	7.7	.57	.46
9	.14	1.4	.27	1.3	1.3	8.9	6.8	2.6	1.1	1.8	.53	.30
10	.12	.64	.35	.84	1.3	3.3	3.8	3.0	1.1	1.5	.73	.29
11	.12	.42	.34	.72	1.3	2.4	2.6	4.1	1.3	1.3	.41	.29
12	.12	.36	.29	.63	2.8	2.1	2.3	7.2	4.3	1.3	.23	.29
13	.14	.32	.29	.60	1.5	1.9	2.2	3.5	6.1	1.2	.20	.29
14	.12	1.4	.27	.52	1.3	1.9	2.1	2.7	2.2	1.2	.21	.29
15	.22	.87	.25	1.2	1.2	1.8	2.0	2.4	1.8	1.2	.27	.29
16	.13	.48	.24	2.3	1.2	1.7	1.9	2.3	2.9	1.2	.38	.29
17	.10	.35	.24	1.0	1.3	1.7	1.8	2.1	2.7	1.1	.70	.29
18	.67	.32	.24	1.0	2.1	1.9	1.7	2.0	1.8	1.0	.50	.28
19	.16	.29	.24	.87	2.2	4.8	4.5	1.9	1.6	.98	.43	.27
20	.13	.27	.24	.78	1.6	2.7	3.6	1.8	1.5	.98	.39	.27
21	.12	.32	.24	.71	1.5	17	2.2	1.8	1.4	.95	.37	.27
22	.12	1.2	.25	.67	1.4	5.2	2.0	1.7	1.2	.90	.37	.30
23	.12	.54	.44	5.8	3.3	3.6	1.9	1.6	1.2	.93	.37	.24
24	.12	.43	.29	2.4	5.9	3.0	1.8	1.6	1.4	.94	.36	.22
25	.68	.37	1.5	1.7	2.8	2.6	1.7	1.6	1.1	.82	.37	.23
26	.35	.37	.56	1.4	2.1	2.5	1.8	1.6	6.0	.80	.37	.24
27	.53	.31	.55	1.2	1.9	2.4	1.8	1.6	2.1	.80	.38	.24
28	.18	.31	.55	4.4	1.7	2.3	1.6	1.6	1.6	.78	.36	.21
29	.16	.31	.51	2.1	---	2.2	1.5	1.8	1.5	.73	.37	.19
30	.15	.33	1.0	1.6	---	2.0	1.5	2.0	1.5	.70	.39	.20
31	.15	---	.65	1.4	---	1.9	---	1.8	---	1.7	.36	---
TOTAL	5.93	18.45	12.14	42.36	53.6	98.5	74.4	68.7	58.6	40.32	14.41	8.48
MEAN	.19	.62	.39	1.37	1.91	3.18	2.48	2.22	1.95	1.30	.46	.28
MAX	.68	4.9	1.5	5.8	5.9	17	6.8	7.2	6.1	7.7	.83	.46
MIN	.10	.16	.24	.50	1.1	1.6	1.5	1.5	1.1	.70	.20	.19
CFSM	.13	.43	.28	.96	1.35	2.24	1.75	1.56	1.38	.92	.33	.20
IN.	.16	.48	.32	1.11	1.40	2.58	1.95	1.80	1.54	1.06	.38	.22

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1994 - 1998, BY WATER YEAR (WY)

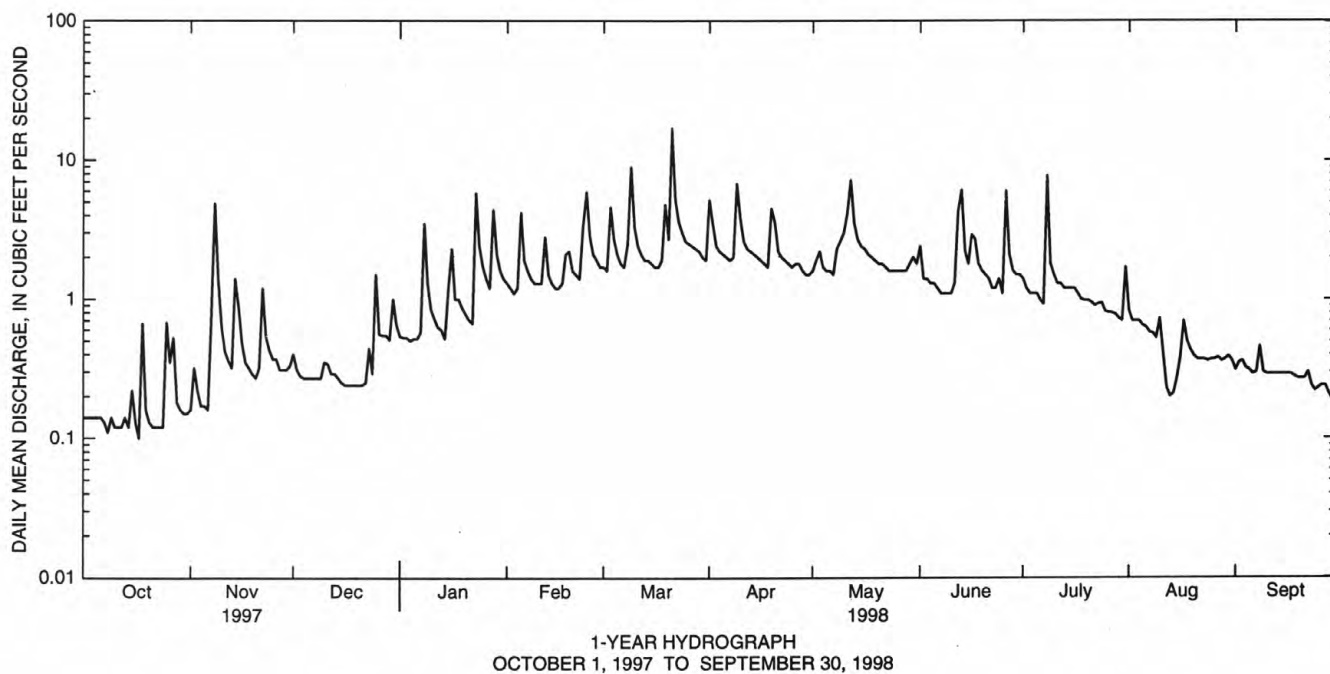
	1994	1995	1996	1997	1998
MEAN	1.42	1.98	2.32	2.38	2.17
MAX	3.90	3.51	4.89	5.02	2.54
MIN	.19	.62	.39	1.20	1.83
WY	1997	1997	1997	1996	1994
WY	1998	1998	1998	1994	1995

CONESTOGA RIVER BASIN

01576529 UNNAMED TRIBUTARY TO BIG SPRING RUN NEAR LAMPETER, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1994 - 1998	
ANNUAL TOTAL	391.79		495.89			
ANNUAL MEAN	1.07		1.36		1.91	
HIGHEST ANNUAL MEAN					2.58	
LOWEST ANNUAL MEAN					1.15	
HIGHEST DAILY MEAN	8.0	Jan 28	17	Mar 21	54	Jan 19 1996
LOWEST DAILY MEAN	.10	Oct 17	.10	Oct 17	.07	Aug 24 1995
ANNUAL SEVEN-DAY MINIMUM	.12	Oct 8	.12	Oct 8	.08	Sep 10 1995
INSTANTANEOUS PEAK FLOW			87	Mar 21	a430	Jun 12 1994
INSTANTANEOUS PEAK STAGE			3.99	Mar 21	6.31	Jun 12 1994
INSTANTANEOUS LOW FLOW			.09	Oct 17	.05	Aug 25 1995
ANNUAL RUNOFF (CFSM)	.76		.96		1.34	
ANNUAL RUNOFF (INCHES)	10.26		12.99		18.27	
10 PERCENT EXCEEDS	2.0		2.6		3.1	
50 PERCENT EXCEEDS	.77		1.1		1.3	
90 PERCENT EXCEEDS	.15		.22		.30	

a From rating curve extended above 140 ft³/s on basis of calculation of flow through culvert at gage heights 4.60, 5.30, 6.00 and 6.65 ft.



CONESTOGA RIVER BASIN

01576529 UNNAMED TRIBUTARY TO BIG SPRING RUN NEAR LAMPETER, PA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--June 1993 to current year.

INSTRUMENTATION.--Automatic pumping sampler since December 1993.

REMARKS.--Fixed-time, base flow, and stormflow samples collected at streamflow control. Constituent values for stormflow water quality are for discharge-weighted composite samples. Samples with two dates are composited samples; sample time is the composite start time, discharge is the mean for the composited period. 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 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)
OCT 1997									
07...	0755	1028	80020	--	.14	599	7.2	15.1	2.2
07...	0756	1028	80020	--	.14	--	--	--	--
17...	0830	1028	80020	--	.11	594	8.0	9.1	2.5
OCT									
18-18	0537	1028	80020	2.3	--	--	--	--	--
OCT									
18-18	0538	1028	80020	2.3	--	--	--	--	--
OCT									
25-25	0537	1028	80020	2.2	--	--	--	--	--
27...	1000	1028	80020	--	.42	422	7.5	12.1	6.0
NOV									
06...	0850	1028	80020	--	.15	619	6.1	5.4	1.0
NOV									
07-07	0507	1028	80020	2.2	--	--	--	--	--
NOV									
08-08	0307	1028	80020	11	--	--	--	--	--
NOV									
14-14	0752	1028	80020	2.5	--	--	--	--	--
17...	1200	1028	80020	--	.37	618	8.3	5.8	2.5
NOV									
22-22	0322	1028	80020	2.8	--	--	--	--	--
DEC									
15...	1010	1028	80020	--	.24	581	7.8	2.0	1.0
JAN 1998									
08-08	0937	1028	80020	5.8	--	--	--	--	--
14...	0845	1028	80020	--	.53	678	6.7	1.4	1.0
14...	0846	1028	80020	--	.53	--	--	--	--
JAN									
23-23	0937	1028	80020	9.3	--	--	--	--	--
JAN									
23-23	0938	1028	80020	9.3	--	--	--	--	--
JAN									
28-28	1037	1028	80020	7.1	--	--	--	--	--
FEB									
05-05	0337	1028	80020	6.0	--	--	--	--	--
11...	0850	1028	80020	--	1.2	623	7.0	5.1	2.0
FEB									
11-12	2322	1028	80020	4.4	--	--	--	--	--
FEB									
23-24	1752	1028	80020	7.1	--	--	--	--	--
FEB									
23-24	1753	1028	80020	7.1	--	--	--	--	--
MAR									
03-03	0537	1028	80020	4.6	--	--	--	--	--
MAR									
09-09	0637	1028	80020	21	--	--	--	--	--
16...	0935	1028	80020	--	1.7	564	7.4	6.3	3.0
16...	0936	1028	80020	--	1.7	--	--	--	--
APR									
01-01	1452	1028	80020	10	--	--	--	--	--
APR									
09-09	1552	1028	80020	16	--	--	--	--	--
APR									
09-09	1553	1028	80020	16	--	--	--	--	--
10...	0830	1028	80020	--	4.2	538	6.2	8.7	19
APR									
19-20	2007	1028	80020	14	--	--	--	--	--
21...	0810	1028	80020	--	2.3	635	6.1	9.5	3.5
30...	0825	1028	80020	--	1.5	643	6.1	12.3	1.5
MAY									
09-09	0645	1028	80020	4.1	--	--	--	--	--
MAY									
10-10	1007	1028	80020	3.8	--	--	--	--	--
MAY									
11-11	1137	1028	80020	5.1	--	--	--	--	--
12...	0830	1028	80020	--	6.0	--	--	--	--
12...	0915	1028	80020	--	5.6	478	7.5	12.4	15
20...	0750	1028	80020	--	1.8	573	6.3	14.5	3.0

CONESTOGA RIVER BASIN

01576529 UNNAMED TRIBUTARY TO BIG SPRING RUN NEAR LAMPETER, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	OXYGEN, DIS- SOLVED (MG/L) (00300)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA- LINITY WAT DIS TOT IT LAB (MG/L AS CACO3) (39087)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)
OCT 1997								
07...	9.4	950	218	.035	8.38	.034	.34	.26
07...	--	--	--	.039	8.68	.033	.34	.22
17...	14.8	--	--	.029	8.90	.028	.35	.27
OCT								
18-18	--	--	--	.102	5.87	.235	2.2	1.3
OCT								
18-18	--	--	--	.108	6.20	.243	2.3	1.5
OCT								
25-25	--	--	--	.099	6.68	.189	1.4	1.1
27...	10.2	--	--	.044	5.18	.069	.75	.55
NOV								
06...	11.6	220	228	.047	10.1	<.020	.27	.21
NOV								
07-07	--	--	--	.100	7.63	.051	1.0	.85
NOV								
08-08	--	--	--	.062	1.83	.808	3.1	1.7
NOV								
14-14	--	--	--	.061	4.56	.342	1.5	1.1
17...	13.0	--	--	.030	10.4	<.020	.24	.22
NOV								
22-22	--	--	--	.080	5.02	.030	2.0	1.4
DEC								
15...	15.0	96	230	.023	11.0	<.020	.18	.16
JAN 1998								
08-08	--	--	--	.064	3.19	.482	2.2	1.7
14...	12.8	200	228	.022	10.9	<.020	.19	.22
14...	--	--	--	.023	11.1	<.020	.18	.18
JAN								
23-23	--	--	--	.025	3.35	.400	1.8	1.4
JAN								
23-23	--	--	--	.024	3.39	.408	1.8	1.4
JAN								
28-28	--	--	--	.027	3.98	.379	1.6	1.0
FEB								
05-05	--	--	--	.018	3.46	.290	2.1	.96
11...	12.5	94	222	.011	10.9	<.020	.19	.26
FEB								
11-12	--	--	--	.035	4.98	.294	1.3	.93
FEB								
23-24	--	--	--	.016	4.12	.176	1.6	.79
FEB								
23-24	--	--	--	.018	4.34	.197	1.5	.85
MAR								
03-03	--	--	--	.020	5.01	.180	1.2	.96
MAR								
09-09	--	--	--	.012	2.89	.336	1.6	1.1
16...	13.5	K31	220	.054	11.9	<.020	.23	.13
16...	--	--	--	.060	10.7	<.020	.20	.22
APR								
01-01	--	--	--	.056	3.81	.317	1.8	1.3
APR								
09-09	--	--	--	.098	3.00	.294	3.4	.98
APR								
09-09	--	--	--	.102	2.96	.299	1.3	1.0
10...	10.9	--	--	.039	8.04	.087	.73	.57
APR								
19-20	--	--	--	.061	2.83	.402	1.7	1.1
21...	11.4	300	208	.031	9.73	.040	.28	.28
30...	10.4	--	--	.035	10.3	.021	.25	.15
MAY								
09-09	--	--	--	.108	6.01	.254	1.7	1.2
MAY								
10-10	--	--	--	.054	5.67	.104	1.0	.92
MAY								
11-11	--	--	--	.046	4.90	.117	1.3	1.0
12...	--	--	--	--	--	--	--	--
12...	9.0	--	--	.048	5.49	.092	.92	.84
20...	9.7	710	216	.069	9.73	.028	.33	.28

CONESTOGA RIVER BASIN

01576529 UNNAMED TRIBUTARY TO BIG SPRING RUN NEAR LAMPETER, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	PERI-PHYTON BIOMASS ASH WEIGHT (G/SQ M) (00572)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT (G/SQ M) (00573)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M ²) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M ²) (70958)
OCT 1997								
07...	.039	.027	.029	6	--	--	--	--
07...	.040	.027	.027	7	--	--	--	--
17...	.046	.039	.043	5	--	--	--	--
OCT 18-18	.586	.398	.318	46	--	--	--	--
OCT 18-18	.608	.425	.331	38	--	--	--	--
OCT 25-25	.411	.286	.277	27	--	--	--	--
27...	.212	.180	.177	5	--	--	--	--
NOV 06...	.030	.030	.038	3	--	--	--	--
NOV 07-07	.262	.181	.214	29	--	--	--	--
NOV 08-08	1.63	.983	1.02	292	--	--	--	--
NOV 14-14	.419	.287	.286	29	--	--	--	--
17...	.057	.041	.058	5	--	--	--	--
NOV 22-22	.485	.330	.217	60	--	--	--	--
DEC 15...	.042	.014	.040	1	--	--	--	--
JAN 1998								
08-08	.833	.592	.540	256	--	--	--	--
14...	.036	.038	.042	1	--	--	--	--
14...	.042	.034	.047	6	--	--	--	--
JAN 23-23	.660	.492	.451	314	--	--	--	--
JAN 23-23	.657	.480	.459	330	--	--	--	--
JAN 28-28	.619	.387	.406	136	--	--	--	--
FEB 05-05	.626	.293	.299	99	--	--	--	--
11...	.028	.012	.012	66	--	--	--	--
FEB 11-12	.399	.262	.228	108	--	--	--	--
FEB 23-24	.568	.321	.291	177	--	--	--	--
FEB 23-24	.583	.331	.299	184	--	--	--	--
MAR 03-03	.405	.231	.197	44	--	--	--	--
MAR 09-09	.719	.436	.364	737	--	--	--	--
16...	.020	.015	.023	10	--	--	--	--
16...	.021	.010	.018	9	--	--	--	--
APR 01-01	.431	.303	.262	437	--	--	--	--
APR 09-09	1.27	.350	.316	537	--	--	--	--
APR 09-09	.536	.347	.324	539	--	--	--	--
10...	.166	.107	.089	16	--	--	--	--
APR 19-20	.479	.318	.300	326	--	--	--	--
21...	.054	.039	.041	8	--	--	--	--
30...	<.010	<.010	.012	5	--	--	--	--
MAY 09-09	.456	.315	.266	28	--	--	--	--
MAY 10-10	.263	.215	.190	16	--	--	--	--
MAY 11-11	.307	.241	.221	31	--	--	--	--
12...	--	--	--	--	547.8	569.3	92.0	12.0
12...	.307	.249	.223	21	--	--	--	--
20...	.043	<.010	<.010	11	--	--	--	--

CONESTOGA RIVER BASIN

01576529 UNNAMED TRIBUTARY TO BIG SPRING RUN NEAR LAMPETER, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)
JUN 1998									
01-01	0352	1028	80020	4.3	--	--	--	--	--
01...	1315	1028	80020	--	2.1	521	8.5	22.3	1.5
09...	1330	1028	80020	--	1.2	619	8.1	19.6	1.5
JUN									
12-12	0907	1028	80020	9.0	--	--	--	--	--
JUN									
12-12	0908	1028	80020	9.0	--	--	--	--	--
JUN									
13-13	0752	1028	80020	13	--	--	--	--	--
JUN									
16-17	2122	1028	80020	9.0	--	--	--	--	--
18...	0810	1028	80020	--	1.9	655	6.6	16.8	4.5
29...	1355	1028	80020	--	1.6	634	7.9	21.3	7.5
JUL									
08-08	0852	1028	80020	22	--	--	--	--	--
09...	0830	1028	80020	--	1.8	582	7.3	16.8	8.0
21...	0810	1028	80020	--	1.0	571	5.9	18.4	1.5
29...	0945	1028	80020	--	.75	517	8.1	19.4	2.0
AUG									
06...	0910	1028	80020	--	.70	631	8.0	17.9	2.5
06...	0911	1028	80020	--	.70	--	--	--	--
AUG									
10-10	2137	1028	80020	3.4	--	--	--	--	--
19...	0815	1028	80020	--	.42	588	7.9	17.9	3.0
31...	0950	1028	80020	--	.39	536	7.9	22.0	2.0
SEP									
08...	0800	1028	80020	--	.57	--	--	--	4.0
08...	0900	1028	80020	--	.46	--	--	--	--
10...	1055	1028	1028	--	.29	450	7.8	16.8	--
17...	0815	1028	80020	--	.29	510	7.7	20.9	3.5
28...	0930	1028	80020	--	.22	434	--	19.1	2.5

DATE	OXYGEN, DIS- SOLVED (MG/L) (00300)	STREP- TOCOC- FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA- LINITY WAT DIS TOT IT LAB (MG/L AS CACO3) (39087)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)
JUN 1998								
01-01	--	--	--	.165	8.53	.166	1.1	.91
01...	--	--	--	.080	8.10	.099	.84	.65
09...	14.6	--	--	.047	9.35	<.020	.36	.30
JUN								
12-12	--	--	--	.108	3.58	.848	3.5	2.6
JUN								
12-12	--	--	--	.113	3.62	.872	3.0	2.5
JUN								
13-13	--	--	--	.135	3.55	.672	3.9	1.8
JUN								
16-17	--	--	--	.079	4.07	.280	2.1	1.2
18...	10.4	1900	216	.074	8.90	.060	.55	.92
29...	10.1	--	--	.063	9.53	.025	.52	.48
JUL								
08-08	--	--	--	.088	2.25	.282	3.7	1.4
09...	7.3	--	--	.043	8.41	.024	.66	.51
21...	9.1	1600	218	.069	9.05	<.020	.33	.34
29...	10.4	--	--	.024	9.03	<.020	.33	.26
AUG								
06...	10.3	--	--	.024	9.11	.042	.29	.27
06...	--	--	--	.024	9.17	.056	.28	.27
AUG								
10-10	--	--	--	.095	8.35	.099	1.1	.71
19...	7.8	2400	186	.048	6.84	.069	.68	.51
31...	8.4	--	--	.037	6.36	.083	.49	.35
SEP								
08...	--	--	--	.076	7.44	.056	.92	.55
08...	--	--	--	--	--	--	--	--
10...	10.1	--	--	--	--	--	--	--
17...	6.6	1000	182	.029	5.16	<.020	1.1	.35
28...	--	--	--	.026	6.29	.035	.67	.41

CONESTOGA RIVER BASIN

01576529 UNNAMED TRIBUTARY TO BIG SPRING RUN NEAR LAMPETER, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	PERI-PHYTON BIOMASS ASH WEIGHT (G/SQ M) (00572)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT (G/SQ M) (00573)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M ²) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M ²) (70958)
JUN 1998								
01-01	.098	.061	.079	8	--	--	--	--
01...	.056	.052	.068	3	--	--	--	--
09...	.043	.033	.040	2	--	--	--	--
JUN								
12-12	.887	.670	.540	46	--	--	--	--
JUN								
12-12	.717	.632	.532	49	--	--	--	--
JUN								
13-13	1.89	.617	.496	589	--	--	--	--
JUN								
16-17	.870	.321	.278	324	--	--	--	--
18...	.066	.062	.066	11	--	--	--	--
29...	.121	.090	.056	43	--	--	--	--
JUL								
08-08	1.40	.431	.369	535	--	--	--	--
09...	.070	.051	.056	19	--	--	--	--
21...	.037	<.010	.014	8	--	--	--	--
29...	.043	.019	.019	9	--	--	--	--
AUG								
06...	.036	<.010	.018	28	--	--	--	--
06...	.026	<.010	.020	9	--	--	--	--
AUG								
10-10	.175	.093	.103	34	--	--	--	--
19...	.058	.025	.025	37	--	--	--	--
31...	.066	.045	.047	4	--	--	--	--
SEP								
08...	.193	.091	.080	5	--	--	--	--
08...	--	--	--	--	485.6	509.1	43.0	3.40
10...	--	--	--	--	--	--	--	--
17...	.206	.012	.013	4	--	--	--	--
28...	.087	.037	<.010	4	--	--	--	--

CONESTOGA RIVER BASIN

01576529 UNNAMED TRIBUTARY TO BIG SPRING RUN NEAR LAMPETER, PA--Continued

BIOLOGICAL DATA, SEPTEMBER 1993 TO SEPTEMBER 1998

BENTHIC MACROINVERTEBRATES

REMARKS.--Rapid bioassessments for benthic macroinvertebrates were conducted from September 1993 through September 1998. Samples represent counts per 200-organism (approximate) subsamples. May 1998 data represents organisms counted in one-half the area of all other samples. Two sub-samples were identified in May 1994, May 1997, September 1997, and September 1998.

Benthic Macroinvertebrate	Sept 1993	May 1994	May 1994	Sept 1994	May 1995	Sept 1995	May 1996	Sept 1996	May 1997	May 1997	Sept 1997	Sept 1997	May 1998	Sept 1998	Sept 1998
Cnidaria	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydrozoa	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroida (HYDROIDS)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydridae	--	--	--	--	--	1	--	--	--	--	--	--	--	1	--
Platyhelminthes	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbellaria (FLATWORMS)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tricladida	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Planariidae	--	--	--	--	--	3	1	1	--	--	1	9	3	8	9
<u>Cura</u> sp	--	--	--	2	--	--	--	--	--	--	--	--	--	--	--
Annelida	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Oligochaeta (AQUATIC EARTHWORMS)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Haplotaxida	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Enchytraeidae	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--
Tubificidae	--	--	--	9	22	48	9	--	--	1	--	1	--	7	6
<u>Ilyodrilus templetoni</u>	--	4	6	--	--	--	--	--	--	--	--	--	--	--	--
<u>Limnodrilus cervix</u>	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--
<u>Limnodrilus hoffmeisteri</u>	1	2	5	--	--	3	6	--	--	--	--	--	--	--	--
<u>Limnodrilus profundicola</u>	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--
<u>Limnodrilus udekemianus</u>	--	2	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Limnodrilus</u> sp	1	8	7	--	--	--	18	--	--	--	--	--	--	--	--
Naididae	2	--	--	--	--	1	--	--	--	--	--	--	--	--	--
<u>Nais bretscheri</u>	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--
<u>Nais</u> sp	--	--	--	--	79	1	--	13	7	--	--	--	--	--	--
<u>Ophidonais serpentina</u>	--	--	--	--	--	--	--	95	58	--	--	--	--	--	--
Hirudinea (LEECHES)	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--
Pharyngobdellida	--	--	--	--	--	2	--	--	--	--	--	--	2	--	--
Erpobdellidae	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Erpobdella punctata</u>	--	--	--	--	--	--	--	--	--	12	2	--	--	--	--
<u>Erpobdella punctata punctata</u>	2	1	--	--	--	--	1	--	--	--	--	--	--	--	--
<u>Erpobdella</u> sp	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1
Rhynchobdellida	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Glossiphoniidae	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Helobdella stagnalis</u>	1	--	--	--	--	--	--	--	--	3	--	--	--	--	--
Mollusca	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gastropoda (SNAILS)	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--
Basommatophora	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Physidae	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Physinae</u> sp	--	--	--	--	--	--	--	--	2	--	--	3	1	2	--
<u>Physella integra</u>	--	--	--	--	--	--	--	--	--	65	87	--	--	--	--
Pelecypoda (CLAMS)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Veneroida	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sphaeriidae	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Pisidium</u> sp	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--
Arthropoda	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Crustacea	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Isopoda (AQUATIC SOWBUGS)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Asellidae	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Caecidotea</u> sp	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1
Amphipoda (SCUDS)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gammaridae	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Gammarus pseudolimnaeus</u>	--	--	--	--	--	--	1	--	--	--	--	--	3	--	--
<u>Gammarus</u> sp	--	--	--	--	--	--	--	--	1	--	--	--	6	--	--
Talitridae	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Hyalella azteca</u>	76	--	--	--	--	--	--	--	--	12	12	--	19	6	--
Arachnoidea	--	--	--	--	--	--	--	--	--	--	--	--	2	--	--
Hydracarina (WATER MITES)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hygrobatidae	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Hygrobatas</u> sp	--	--	1	2	7	--	--	1	4	2	--	--	--	--	2
Lebertiidae	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Lebertia</u> sp	--	--	--	2	2	2	--	--	--	--	--	--	--	--	5
Sperchonidae	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Sperchon</u> sp	--	--	--	--	--	--	--	1	1	--	--	--	--	--	--
Oribatei (BEETLE OR BOX MITES)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydrozetidae	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Hydrozetes</u> sp	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--

CONESTOGA RIVER BASIN

01576529 UNNAMED TRIBUTARY TO BIG SPRING RUN NEAR LAMPETER, PA--Continued

BIOLOGICAL DATA, SEPTEMBER 1993 TO SEPTEMBER 1998

BENTHIC MACROINVERTEBRATES--Continued

Benthic Macroinvertebrate	Sept 1993	May 1994	May 1994	Sept 1994	May 1995	Sept 1995	May 1996	Sept 1996	May 1997	May 1997	Sept 1997	Sept 1997	May 1998	Sept 1998	Sept 1998
Insecta	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Collembola (SPRINGTAILS)	--	--	--	--	--	3	--	--	--	--	--	--	--	--	--
Ephemeroptera (MAYFLIES)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Siphonuridae	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Siphonurus</u> sp	2	--	--	--	--	--	--	--	--	--	1	--	--	--	--
Baetidae	--	--	--	2	--	2	--	--	--	2	3	4	1	--	--
<u>Baetis flavistriga</u>	5	6	4	42	--	4	13	63	23	30	10	3	11	24	34
<u>Baetis intercalaris</u>	--	--	--	--	--	--	--	46	--	--	--	--	--	--	1
<u>Baetis</u> sp	11	--	--	7	--	6	--	3	--	5	5	5	--	--	1
<u>Callibaetis</u> sp	--	--	--	--	--	--	--	--	--	--	21	7	--	--	--
<u>Centroptilum</u> sp	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--
<u>Cloeon</u> sp	--	--	--	--	--	3	--	--	--	--	--	--	--	--	--
Heptageniidae	--	--	--	--	--	--	--	--	--	--	2	--	--	--	1
<u>Stenacron interpunctatum</u>	--	--	--	--	--	--	--	--	--	--	--	--	--	2	1
<u>Stenonema mediopunctatum</u>	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--
Caenidae	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Caenis</u> sp	--	--	--	1	--	1	--	--	--	2	1	--	--	--	--
Odonata	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Coenagrionidae (DAMSELFLIES)	--	--	--	--	--	5	--	--	--	--	--	4	--	1	2
<u>Argia</u> sp	--	--	--	--	--	1	1	1	1	--	6	1	--	--	--
<u>Enallagma</u> sp	2	--	--	--	--	1	--	--	--	--	4	--	--	1	--
Hemiptera (TRUE BUGS)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Corixidae (WATER BOATMEN)	11	--	--	--	--	8	--	4	--	--	--	4	--	--	--
<u>Dasycorixa</u> sp	--	--	--	--	--	--	--	--	--	--	2	1	--	--	--
<u>Palmarcorixa</u> sp	--	--	--	--	--	--	--	--	--	--	6	5	--	--	--
<u>Sigara</u> sp	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--
<u>Trichocorixa</u> sp	2	--	--	--	--	1	--	--	--	--	4	8	--	--	--
Coleoptera (BEETLES)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1
Halplidae (CRAWLING WATER BEETLES)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Peltodytes</u> sp	6	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dytiscidae (PREDACEOUS DIVING BEETLES)	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--
<u>Agabus</u> sp	--	2	--	--	--	--	2	--	--	--	--	--	1	--	--
<u>Deronectes</u> sp	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydrophilidae (WATER SCAVENGER BEETLES)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Berosus</u> sp	--	--	--	1	--	1	--	--	--	--	2	1	--	--	--
Psephenidae (RIFLE BEETLES)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Ectopria nervosa</u>	--	--	--	--	--	--	--	--	--	--	--	--	--	3	4
<u>Ectopria</u> sp	1	--	--	--	--	--	--	--	--	--	1	1	--	--	--
<u>Psephenus herricki</u>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1
Scirtidae	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Scirtes</u> sp	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1
Elmidae	--	--	--	--	--	--	--	2	--	--	2	--	--	--	--
<u>Dubiraphia</u> sp	6	1	1	1	5	3	1	--	1	1	--	1	1	1	6
<u>Optioservus</u> sp	--	--	--	--	2	1	--	--	--	--	1	2	--	11	9
<u>Promoresia</u> sp	--	--	1	--	--	--	--	--	--	1	--	--	--	1	--
<u>Stenelmis</u> sp	13	--	2	13	8	19	15	5	4	2	5	7	12	47	33
Megaloptera	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sialidae (ALDERFLIES)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Sialis</u> sp	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--
Trichoptera (CADDIS FLIES)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydropsychidae	1	--	--	2	--	--	--	5	--	--	1	--	--	7	10
<u>Cheumatopsyche</u> sp	--	--	--	2	--	7	1	25	--	--	9	12	3	5	6
<u>Hydropsyche</u> sp	--	1	--	5	1	--	6	16	--	--	1	3	--	3	6
Hydroptilidae	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<u>Hydroptila</u> sp	--	--	--	14	--	--	--	--	--	--	1	4	1	2	2

CONESTOGA RIVER BASIN

01576529 UNNAMED TRIBUTARY TO BIG SPRING RUN NEAR LAMPETER, PA--Continued

BIOLOGICAL DATA, SEPTEMBER 1993 TO SEPTEMBER 1998

BENTHIC MACROINVERTEBRATES--Continued

Benthic Macroinvertebrate	Sept 1993	May 1994	May 1994	Sept 1994	May 1995	Sept 1995	May 1996	Sept 1996	May 1997	May 1997	Sept 1997	Sept 1997	May 1998	Sept 1998	Sept 1998
Diptera	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tipulidae (CRANE FLIES)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antocha sp	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--
Lipsothrix sp	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--
Raphidolabina sp	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--
Tipula sp	--	--	--	--	--	--	--	--	--	--	1	--	--	--	2
Culicidae	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Culicinae (MOSQUITOES)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Anopheles sp	--	--	--	--	--	1	--	--	--	--	1	--	--	--	--
Ceratopogonidae (BITING MIDGES)	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bezzia sp	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--
Ceratopogon sp	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--
Probezzia sp	--	--	--	--	--	2	--	--	--	--	--	--	2	1	--
Simuliidae (BLACK FLIES)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Simulium sp	6	50	30	2	2	--	10	20	--	1	5	1	6	1	--
Empididae (DANCE FLIES)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hemerodromia sp	--	--	--	--	2	--	--	--	--	--	--	--	1	1	--
Chironomidae (MIDGES)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tanypodinae	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--
Clinotanytus sp	1	--	--	--	--	--	--	--	--	--	1	1	1	--	--
Coelotanytus sp	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--
Conchapelopia sp	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--
Procladius sp	--	--	--	--	--	--	--	--	--	--	7	--	--	1	--
Tanytus neopunctipennis	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--
Thienemannimyia sp	--	--	--	--	--	--	4	--	--	--	--	--	--	--	--
Thienemannimyia gr sp	--	1	--	2	1	--	--	--	--	2	7	5	--	1	2
Orthoclaudiinae	--	1	--	1	--	--	--	--	--	--	--	--	--	--	--
Cardiocladius sp	--	2	--	--	--	--	--	--	--	--	--	--	--	--	--
Cricotopus bicinctus	1	3	6	8	--	3	13	4	3	2	3	2	3	--	1
Cricotopus trifascia	--	4	2	2	2	--	--	--	--	--	--	--	--	--	--
Cricotopus trifascia gr	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--
Cricotopus sp	--	2	--	22	24	6	62	3	7	9	10	4	15	--	--
Eukiefferiella devonica gr	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--
Eukiefferiella sp	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--
Nanocladius sp	2	--	--	1	--	--	--	--	--	--	--	1	--	1	1
Orthocladus annectens	--	5	7	3	1	--	--	--	--	--	--	--	2	--	--
Orthocladus sp	--	85	93	14	9	--	41	--	18	47	--	--	6	1	2
Parakiefferiella sp	6	15	10	--	14	--	5	--	16	20	--	--	4	--	--
Parametriocnemus sp	--	1	1	--	--	--	2	1	--	--	--	--	10	1	3
Smittia sp	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--
Thienemanniella sp	--	--	1	2	--	2	1	--	--	--	--	--	1	2	1
Tvetenia bavarica	--	--	--	--	2	--	1	1	--	--	--	--	--	--	--
Tvetenia bavarica gr	--	--	--	--	--	--	--	--	--	--	--	--	7	1	--
Tvetenia vitracies	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--
Chironominae	--	--	--	--	--	--	--	--	--	--	1	1	--	--	--
Chironomus sp	--	--	1	8	--	22	7	2	--	--	1	--	--	7	5
Cladotanytarsus sp	1	--	--	2	--	--	--	--	--	--	--	--	--	1	1
Cryptochironomus sp	--	1	1	1	--	--	--	2	--	--	--	1	--	1	--
Dicrotendipes fumidus	--	--	--	--	18	--	--	--	--	--	--	--	--	--	--
Dicrotendipes neomodestus	--	--	--	--	--	--	--	--	--	--	--	--	19	--	--
Dicrotendipes sp	1	5	4	2	--	16	5	3	17	10	9	8	--	--	1
Micropsectra sp	--	--	2	--	7	1	5	--	--	1	--	--	44	--	--
Micropsectra sp	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--
Paracaladopolma sp	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--
Paratanytarsus sp	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--
Paratendipes albimanus	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1
Paratendipes sp	1	2	--	1	1	--	--	1	--	--	--	--	--	--	--
Phaenopsectra sp	--	1	--	--	--	--	--	1	--	--	--	--	3	--	--
Polypedilum aviceps	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--
Polypedilum convictum	--	--	--	--	2	3	22	10	--	--	5	1	--	8	4
Polypedilum illinoense	--	--	--	--	--	--	--	2	--	--	--	--	--	--	--
Polypedilum sp	1	2	5	3	--	--	--	--	--	--	1	2	12	--	--
Rheotanytarsus exiguus gr	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--
Rheotanytarsus sp	27	--	--	4	--	26	9	3	--	--	--	--	3	13	13
Stictochironomus sp	--	--	1	--	--	--	1	--	--	--	--	--	--	--	--
Sublettea coffmani	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--
Sublettea sp	--	--	--	--	--	--	1	1	--	--	--	--	--	--	--
Tanytarsus sp	4	--	--	3	--	2	--	3	--	--	2	1	--	--	1
Tribelos sp	--	--	--	--	2	--	--	--	--	--	--	--	--	--	--

Total organisms	196	210	192	189	215	210	262	236	206	210	240	218	186	193	189
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CONESTOGA RIVER BASIN

01576540 MILL CREEK AT ESHELMAN MILL ROAD NEAR LYNDON, PA

LOCATION.--Lat 40°00'36", long 76°16'39", Lancaster County, Hydrologic Unit 02050306, on right bank 200 ft downstream from bridge on Eshelman Mill Road (Township Route 476), 0.8 mi east of Lyndon, 2.2 mi southeast of Lancaster, and 4.2 mi upstream from mouth.

DRAINAGE AREA.--54.2 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1992 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 250 ft above sea level, from topographic map.

REMARKS.--Records poor. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 21	0515	*940	*24.95	(No peak above base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	21	18	e15	43	52	116	62	63	58	50	35
2	16	26	16	e20	41	48	145	75	57	49	37	39
3	15	26	15	25	40	125	92	75	56	47	35	46
4	13	22	15	24	40	118	88	70	54	47	35	45
5	10	21	15	22	85	73	85	64	53	46	34	42
6	11	20	14	22	59	64	82	110	58	46	35	40
7	12	38	14	23	46	61	79	114	60	46	35	38
8	13	72	14	80	43	70	78	98	59	235	35	57
9	14	36	13	64	41	213	143	110	57	88	37	30
10	15	27	15	36	39	104	171	112	54	58	49	24
11	17	22	19	32	39	71	93	146	49	54	66	23
12	14	20	15	29	94	63	85	247	185	50	36	22
13	15	18	14	29	51	57	81	156	311	48	29	21
14	15	33	14	28	44	55	80	117	137	48	28	22
15	20	34	13	32	41	54	77	106	85	50	30	24
16	22	24	12	73	39	52	75	99	83	49	29	23
17	18	21	13	40	41	49	73	92	81	48	40	24
18	30	20	13	39	62	53	72	87	68	47	45	25
19	23	19	13	37	62	137	100	84	64	43	33	24
20	17	18	13	34	50	78	147	80	60	42	30	24
21	18	18	12	32	45	426	82	77	58	42	29	24
22	17	34	12	32	42	174	76	74	55	39	29	32
23	18	25	18	107	66	132	73	73	55	39	28	27
24	18	20	16	107	142	115	71	71	72	37	28	25
25	32	18	36	59	94	108	67	68	55	36	28	26
26	27	18	24	49	65	103	66	67	86	37	32	25
27	31	17	18	44	58	99	75	65	80	41	35	25
28	25	16	19	92	53	96	64	63	54	42	35	25
29	22	16	17	79	---	92	62	62	51	41	37	23
30	21	15	23	54	---	88	61	67	54	40	37	24
31	20	---	19	47	---	85	---	61	---	81	38	---
TOTAL	576	735	502	1406	1565	3115	2659	2852	2314	1674	1104	884
MEAN	18.6	24.5	16.2	45.4	55.9	100	88.6	92.0	77.1	54.0	35.6	29.5
MAX	32	72	36	107	142	426	171	247	311	235	66	57
MIN	10	15	12	15	39	48	61	61	49	36	28	21
CFSM	.34	.45	.30	.84	1.03	1.85	1.64	1.70	1.42	1.00	.66	.54
IN.	.40	.50	.34	.97	1.07	2.14	1.82	1.96	1.59	1.15	.76	.61

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1998, BY WATER YEAR (WY)

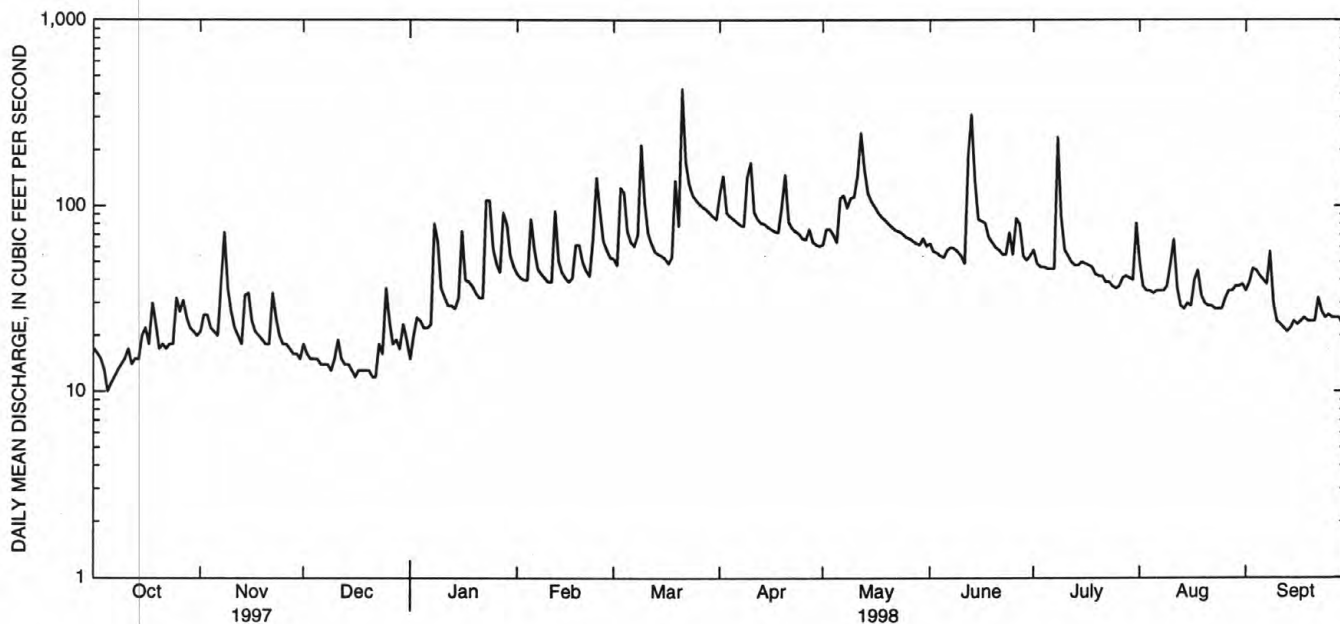
	1992	1993	1994	1995	1996	1997	1998
MEAN	59.6	73.4	98.7	108	83.8	147	108
MAX	172	169	252	221	133	334	192
(WY)	1997	1997	1997	1996	1994	1994	1993
MIN	18.6	24.5	16.2	44.6	39.7	85.7	50.0
(WY)	1998	1998	1998	1993	1993	1997	1995

e Estimated.

CONESTOGA RIVER BASIN

01576540 MILL CREEK AT ESHELMAN MILL ROAD NEAR LYNDON, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1992 - 1998	
ANNUAL TOTAL	17678		19386		80.5	
ANNUAL MEAN	48.4		53.1		114	
HIGHEST ANNUAL MEAN					53.1	
LOWEST ANNUAL MEAN					2450	
HIGHEST DAILY MEAN	534	Jan 25	426	Mar 21	2450	Jan 19 1996
LOWEST DAILY MEAN	10	Oct 5	10	Oct 5	5.6	Jul 17 1993
ANNUAL SEVEN-DAY MINIMUM	13	Oct 3	13	Oct 3	13	Oct 3 1997
INSTANTANEOUS PEAK FLOW			a940	Mar 21	a5600	Jan 19 1996
INSTANTANEOUS PEAK STAGE			24.95	Mar 21	30.21	Jan 19 1996
INSTANTANEOUS LOW FLOW			9.8	Oct 4,5	4.9	Jul 17 1993
ANNUAL RUNOFF (CFSM)	.89		.98		1.49	
ANNUAL RUNOFF (INCHES)	12.13		13.31		20.19	
10 PERCENT EXCEEDS	91		97		131	
50 PERCENT EXCEEDS	34		42		53	
90 PERCENT EXCEEDS	14		16		21	

a From rating curve extended above 600 ft³/s.

1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

CONESTOGA RIVER BASIN

01576540 MILL CREEK AT ESHELMAN MILL ROAD NEAR LYNDON, PA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1992 to September 1998 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1993 to September 1994.

TEMPERATURE: April 1993 to September 1994.

REMARKS.--The data in the following table were collected as part of the Mill Creek project. 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 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)
OCT									
16...	1145	9813	9813	22	2	7.23	7.15	.040	.030
NOV									
12...	1130	9813	9813	20	<2	5.91	5.77	.090	.090
DEC									
15...	1115	9813	9813	13	12	9.44	9.48	.050	.050
JAN									
12...	1145	9813	9813	30	--	--	--	--	--
23...	1300	1028	9813	115	160	6.45	--	.270	--
23...	1500	1028	9813	188	498	5.67	--	.200	--
23...	1600	1028	9813	211	524	5.59	--	.170	--
23...	2000	1028	9813	181	172	6.28	--	.120	--
23...	2400	1028	9813	183	134	6.08	--	.140	--
24...	0400	1028	9813	159	50	8.08	--	.120	--
24...	1200	1028	9813	90	52	7.38	--	.200	--
28...	1300	1028	9813	126	26	6.43	--	.260	--
28...	1700	1028	9813	146	142	6.42	--	.160	--
28...	2100	1028	9813	126	96	6.88	--	.140	--
29...	0900	1028	9813	79	64	8.08	--	.140	--
FEB									
09...	1130	9813	9813	40	4	9.70	9.60	.040	.030
12...	0500	1028	9813	104	88	7.19	--	.090	--
12...	0900	1028	9813	100	40	7.89	--	.070	--
12...	1030	1028	9813	119	60	7.68	--	.060	--
12...	1300	1028	9813	119	46	7.87	--	.080	--
12...	1700	1028	9813	94	32	8.79	--	.070	--
12...	2100	1028	9813	71	20	9.29	--	.070	--
23...	2000	1028	9813	140	310	6.57	--	.080	--
23...	2100	1028	9813	166	354	6.50	--	.070	--
24...	0100	1028	9813	128	92	7.32	--	.050	--
24...	0500	1028	9813	164	132	7.74	--	.140	--
24...	0900	1028	9813	183	118	6.79	--	.100	--
24...	1700	1028	9813	115	62	7.03	--	.150	--
MAR									
09...	0900	1028	9813	321	1100	5.27	--	.180	--
09...	1000	1028	9813	349	1030	5.39	--	.180	--
09...	1115	9813	9813	321	28	5.95	5.92	.140	.140
09...	1210	1028	9813	283	288	6.42	--	.110	--
09...	1700	1028	9813	268	190	6.28	--	.110	--
09...	2100	1028	9813	205	130	6.48	--	.200	--
APR									
01...	1700	1028	9813	159	142	7.52	--	.200	--
01...	2200	1028	9813	208	366	6.61	--	.260	--
01...	2300	1028	9813	232	804	6.13	--	.150	--
02...	0300	1028	9813	169	98	6.53	--	.160	--
02...	1100	1028	9813	153	76	7.90	--	.120	--
02...	1125	9813	9813	147	56	8.03	--	.150	--
09...	1800	1028	9813	258	--	5.74	--	.180	--
09...	1900	1028	9813	353	--	4.73	--	.190	--
09...	2000	1028	9813	345	--	6.19	--	.120	--
10...	0200	1028	9813	294	--	6.34	--	.130	--
10...	0850	1028	9813	170	--	5.92	--	.210	--
MAY									
06...	1900	1028	9813	367	4360	7.90	--	.050	--
06...	2000	1028	9813	307	1100	6.05	--	.200	--
06...	2100	1028	9813	232	1170	5.15	--	.420	--
07...	0300	1028	9813	181	336	5.24	--	.360	--
14...	1125	9813	9813	117	4	8.97	8.90	.110	.090
JUN									
08...	1135	9813	9813	59	24	8.26	8.17	.020	.020
12...	1100	1028	9813	188	376	6.26	--	.220	--
12...	1200	1028	9813	226	418	6.55	--	.160	--
12...	1300	1028	9813	220	290	6.40	--	.160	--
13...	1300	1028	9813	338	532	3.49	--	.390	--
13...	1600	1028	9813	511	764	4.64	--	.310	--
13...	1900	1028	9813	364	628	3.73	--	.420	--

CONESTOGA RIVER BASIN

01576540 MILL CREEK AT ESHELMAN MILL ROAD NEAR LYNDON, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLI- FORM, FECAL, 0.45 μM-MF (COLS./ 100 ML) (31616)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT								
16...	<1.0	<1.0	.150	.131	.131	53000	48000	38000
NOV								
12...	<1.0	<1.0	.270	.209	.249	2200	820	920
DEC								
15...	<1.0	<1.0	.050	.043	.049	500	20	20
JAN								
12...	--	--	--	--	--	2200	1200	80
23...	<1.0	--	.440	--	--	--	--	--
23...	<1.0	--	1.00	--	--	--	--	--
23...	<1.0	--	1.33	--	--	--	--	--
23...	<1.0	--	.470	--	--	--	--	--
23...	<1.0	--	.420	--	--	--	--	--
24...	<1.0	--	.320	--	--	--	--	--
24...	1.1	--	.380	--	--	--	--	--
28...	<1.0	--	.360	--	--	--	--	--
28...	1.2	--	.290	--	--	--	--	--
28...	1.2	--	.220	--	--	--	--	--
29...	<1.0	--	.170	--	--	--	--	--
FEB								
09...	<1.0	<1.0	.070	.060	.077	500	160	80
12...	<1.0	--	.290	--	--	--	--	--
12...	<1.0	--	.140	--	--	--	--	--
12...	<1.0	--	.150	--	--	--	--	--
12...	<1.0	--	.170	--	--	--	--	--
12...	<1.0	--	.140	--	--	--	--	--
12...	<1.0	--	.140	--	--	--	--	--
23...	<1.0	--	.660	--	--	--	--	--
23...	<1.0	--	.800	--	--	--	--	--
24...	1.1	--	.240	--	--	--	--	--
24...	<1.0	--	.360	--	--	--	--	--
24...	<1.0	--	.340	--	--	--	--	--
24...	<1.0	--	.270	--	--	--	--	--
MAR								
09...	1.4	--	1.43	--	--	--	--	--
09...	1.4	--	1.47	--	--	--	--	--
09...	<1.0	<1.0	.690	.067	.119	33000	7100	29000
09...	<1.0	--	.580	--	--	--	--	--
09...	<1.0	--	.460	--	--	--	--	--
09...	<1.0	--	.470	--	--	--	--	--
APR								
01...	<1.0	--	.470	--	--	--	--	--
01...	<1.0	--	.850	--	--	--	--	--
01...	<1.0	--	1.00	--	--	--	--	--
02...	<1.0	--	.350	--	--	--	--	--
02...	<1.0	--	.260	--	--	--	--	--
02...	1.1	--	.230	--	--	--	--	--
09...	<1.0	--	.920	--	--	--	--	--
09...	<1.0	--	1.37	--	--	--	--	--
09...	<1.0	--	.870	--	--	--	--	--
10...	<1.0	--	.460	--	--	--	--	--
10...	1.2	--	.530	--	--	--	--	--
MAY								
06...	<1.0	--	1.16	--	--	--	--	--
06...	<1.0	--	.820	--	--	--	--	--
06...	2.1	--	1.42	--	--	--	--	--
07...	<1.0	--	.770	--	--	--	--	--
14...	<1.0	<1.0	.160	.124	.146	1400	720	360
JUN								
08...	<1.0	<1.0	.070	.060	.075	1300	800	380
12...	1.5	--	.670	--	--	--	--	--
12...	1.3	--	.670	--	--	--	--	--
12...	<1.0	--	.510	--	--	--	--	--
13...	1.5	--	1.26	--	--	--	--	--
13...	1.6	--	1.35	--	--	--	--	--
13...	1.7	--	1.45	--	--	--	--	--

CONESTOGA RIVER BASIN

01576540 MILL CREEK AT ESHELMAN MILL ROAD NEAR LYNDON, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)
JUL									
08...	1000	1028	9813	258	578	6.04	--	.090	--
08...	1100	1028	9813	472	816	4.14	--	.150	--
08...	1200	1028	9813	538	612	5.81	--	.090	--
08...	1800	1028	9813	451	420	6.20	--	.130	--
08...	2200	1028	9813	245	212	5.17	--	.220	--
20...	1130	9813	9813	42	2	10.0	9.93	.040	.040
AUG									
12...	1120	9813	9813	37	22	8.15	7.90	.080	.080
SEP									
03...	1145	9813	9813	46	8	8.12	8.12	.040	--
07...	2400	1028	9813	64	26	--	--	.080	--
08...	0200	1028	9813	140	126	--	--	.060	--
08...	0300	1028	9813	65	106	--	--	.060	--
08...	0700	1028	9813	53	56	--	--	.080	--
08...	1100	1028	9813	57	30	--	--	.090	--

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLI- FORM, FECAL, 0.45 μM-MF (COLS./ 100 ML) (31616)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
JUL								
08...	<1.0	--	1.38	--	--	--	--	--
08...	<1.0	--	1.74	--	--	--	--	--
08...	<1.0	--	1.36	--	--	--	--	--
08...	1.8	--	.880	--	--	--	--	--
08...	1.8	--	.810	--	--	--	--	--
20...	<1.0	<1.0	.120	.107	.126	1300	380	180
AUG								
12...	<1.0	<1.0	.120	.112	.163	2300	460	340
SEP								
03...	--	--	.160	.136	.156	1000	220	340
07...	--	--	.220	--	--	--	--	--
08...	--	--	.390	--	--	--	--	--
08...	--	--	.310	--	--	--	--	--
08...	--	--	.240	--	--	--	--	--
08...	--	--	.190	--	--	--	--	--

CONESTOGA RIVER BASIN

01576754 CONESTOGA RIVER AT CONESTOGA, PA

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 mi².

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 sea level.

REMARKS.--No estimated daily discharges. Records good. Several measurements of water temperature were made during the year. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 21	1845	6,650	7.12	June 14	0230	*7,510	*7.58

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	165	167	209	292	688	880	1100	752	717	745	409	188
2	156	184	223	241	615	822	1520	1070	705	595	348	187
3	146	239	205	236	583	1210	1100	1160	606	499	312	183
4	125	225	190	226	568	1800	923	1120	583	470	296	191
5	122	192	182	226	980	1140	874	968	535	454	285	186
6	129	173	179	219	1330	963	817	1120	520	440	274	175
7	130	244	176	224	843	886	765	1390	517	414	258	169
8	121	709	170	425	691	932	751	1460	498	1490	246	311
9	126	528	166	1520	638	2360	1010	1950	478	2320	240	266
10	120	359	174	683	595	2990	2860	2130	462	981	262	219
11	119	288	200	467	566	1650	1550	2460	455	781	606	192
12	122	230	222	391	1190	1330	1130	3760	1130	655	438	183
13	125	211	213	355	1070	1210	1000	2810	2990	599	313	172
14	122	283	188	339	731	1120	927	1990	4430	553	280	160
15	129	410	182	331	643	1060	882	1690	1360	525	270	180
16	151	348	174	879	592	971	849	1520	1140	511	271	171
17	143	264	171	820	592	898	804	1370	1020	498	375	175
18	202	234	167	586	1020	898	807	1250	865	484	462	153
19	194	217	163	600	1140	1920	866	1160	759	463	607	174
20	181	198	159	503	876	1650	2070	1070	711	435	420	165
21	145	187	157	443	764	4410	1240	989	674	419	297	157
22	143	303	163	405	690	3030	962	916	627	407	263	329
23	126	324	171	873	747	2040	860	848	607	424	255	312
24	128	276	182	2050	2000	1650	812	811	947	415	242	198
25	210	224	382	1130	1770	1460	768	782	856	392	231	181
26	229	221	587	856	1190	1340	744	759	805	371	252	175
27	283	195	346	703	1000	1260	1570	728	997	361	237	168
28	260	190	301	1070	914	1180	1070	688	676	350	226	164
29	212	190	280	1280	---	1110	835	653	591	336	209	158
30	176	187	317	897	---	1030	775	717	641	324	206	159
31	163	---	373	768	---	964	---	669	---	452	197	---
TOTAL	4903	8000	6972	20038	25026	46164	32241	40760	27902	18163	9587	5801
MEAN	158	267	225	646	894	1489	1075	1315	930	586	309	193
MAX	283	709	587	2050	2000	4410	2860	3760	4430	2320	607	329
MIN	119	167	157	219	566	822	744	653	455	324	197	153
CFSM	.34	.57	.48	1.38	1.90	3.17	2.29	2.80	1.98	1.25	.66	.41
IN.	.39	.63	.55	1.59	1.98	3.65	2.55	3.23	2.21	1.44	.76	.46

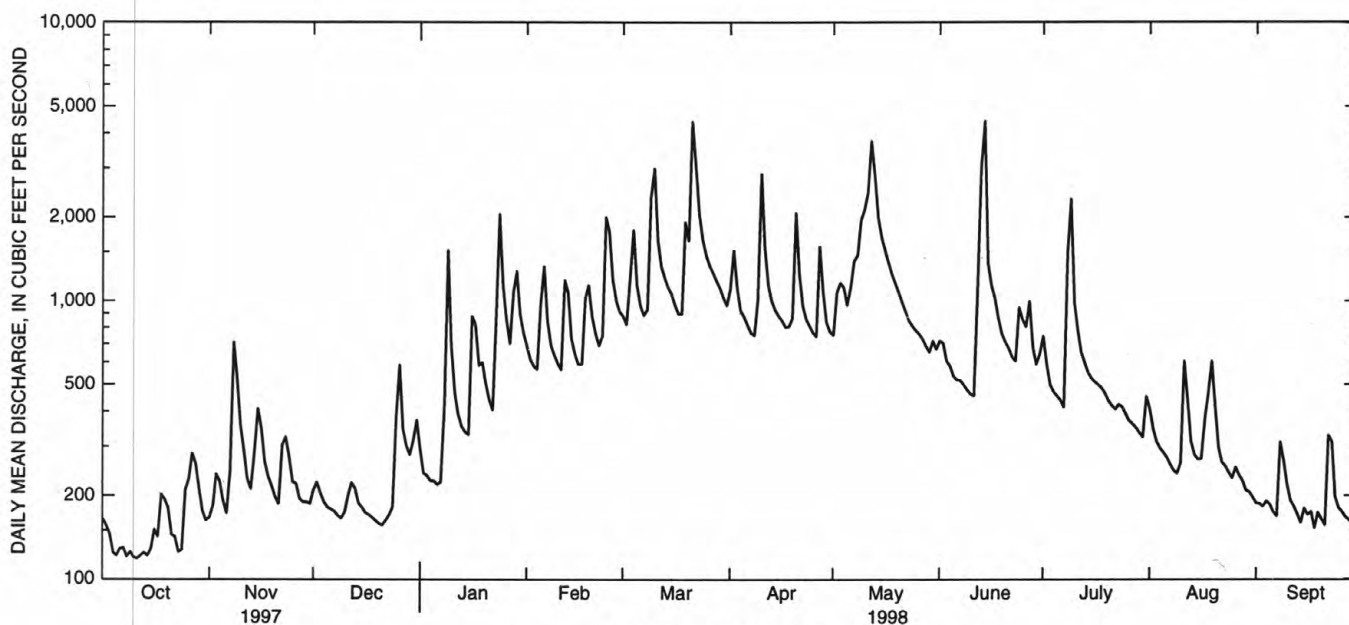
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1998, BY WATER YEAR (WY)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
MEAN	401	592	769	807	825	1117	889	790	527	524	372	388		
MAX	1183	1348	2339	1887	1264	3145	2508	2148	1277	1202	659	1252		
(WY)	1997	1997	1997	1996	1986	1994	1993	1989	1989	1988	1986	1987		
MIN	158	257	225	343	323	366	275	397	223	192	191	166		
(WY)	1998	1992	1998	1992	1992	1985	1985	1991	1991	1991	1987	1995		

CONESTOGA RIVER BASIN

01576754 CONESTOGA RIVER AT CONESTOGA, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1985 - 1998	
ANNUAL TOTAL	179159		245557		666	
ANNUAL MEAN	491		673		993	
HIGHEST ANNUAL MEAN					1994	
LOWEST ANNUAL MEAN					1992	
HIGHEST DAILY MEAN	3230	Mar 15	4430	Jun 14	13500	Sep 9 1987
LOWEST DAILY MEAN	119	Oct 11	119	Oct 11	89	Sep 23 1985
ANNUAL SEVEN-DAY MINIMUM	122	Oct 8	122	Oct 8	106	Sep 20 1985
INSTANTANEOUS PEAK FLOW			7510	Jun 14	19000	Sep 9 1987
INSTANTANEOUS PEAK STAGE			7.58	Jun 14	14.37	Sep 9 1987
INSTANTANEOUS LOW FLOW			103	Oct 5, 11	82	Aug 22 1987
ANNUAL RUNOFF (CFSM)	1.04		1.43		1.42	
ANNUAL RUNOFF (INCHES)	14.18		19.44		19.26	
10 PERCENT EXCEEDS	958		1350		1250	
50 PERCENT EXCEEDS	352		478		454	
90 PERCENT EXCEEDS	162		168		203	



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

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 mi².

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 sea level. 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 fair. Several measurements of water temperature were made during the year.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 8	Unknown	*745	*a7.30	Apr. 19	2130	226	4.98
Jan. 8	1730	305	5.35	May 8	1600	176	4.77
Feb. 5	1530	154	4.68				

a From floodmark in gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	4.6	e37	e10	33	38	14	17	4.8	1.8	1.4	.09
2	.78	10	e53	e10	28	34	12	25	2.9	1.1	.89	.08
3	.67	9.2	e40	e11	23	39	10	25	2.6	.89	.68	e.07
4	.59	7.3	e30	e13	24	35	10	24	2.4	.89	.54	e.07
5	.53	5.2	e20	e14	123	30	9.5	23	2.2	.98	.43	e.06
6	.43	4.0	e15	e16	110	25	8.7	22	2.3	.73	.31	e.06
7	.38	e12	11	25	68	21	8.3	18	1.9	.65	.21	e.05
8	.32	e190	9.5	227	49	44	9.0	108	1.8	4.9	.21	e.05
9	.34	e745	9.0	184	41	91	40	123	1.7	2.6	.20	e.05
10	.34	e240	12	85	37	83	60	65	2.3	1.6	1.3	e.05
11	.34	e135	15	50	39	51	46	45	2.5	1.2	1.1	e.05
12	.36	e60	13	34	62	36	33	50	4.8	.97	.62	e.05
13	.41	e24	12	27	61	27	25	49	3.1	.76	.46	e.04
14	.46	e34	12	21	44	23	21	41	2.6	.69	5.8	e.04
15	e1.8	e43	11	18	31	19	19	30	2.2	.68	4.1	e.04
16	e1.6	e30	10	21	25	15	16	22	2.7	1.1	2.2	e.04
17	.64	e23	9.5	19	40	13	14	17	3.0	1.6	2.6	e.04
18	.51	e18	8.8	18	91	17	12	13	3.0	.81	2.4	e.04
19	.46	e14	8.3	17	81	18	117	11	3.1	.52	1.6	e.04
20	.46	e12	7.7	16	62	19	167	8.9	2.8	.47	1.2	e.04
21	.48	9.3	7.1	15	44	117	77	7.0	2.0	.38	.99	.05
22	.45	e15	6.8	13	33	90	45	6.1	1.7	.42	.91	.33
23	.47	e20	8.0	27	37	51	32	5.4	1.9	.45	.75	.19
24	.53	e16	8.2	38	113	35	24	4.9	2.1	.46	.63	.14
25	1.8	12	15	34	93	26	19	5.0	1.5	.23	.65	.18
26	1.3	e11	e14	29	61	22	21	4.1	1.3	.12	.58	.44
27	1.9	e11	e13	25	47	19	23	3.7	1.2	.11	.46	.27
28	1.2	e10	e12	32	43	17	17	3.4	1.5	.10	.30	.22
29	.98	10	e11	37	---	15	16	3.1	1.4	.10	.21	.12
30	.91	11	e11	49	---	13	15	2.9	1.7	1.4	.16	.10
31	.95	---	e10	43	---	12	---	2.7	---	5.0	.13	---
TOTAL	23.39	1745.6	459.9	1178	1543	1095	940.5	785.2	71.0	33.71	34.02	3.09
MEAN	.75	58.2	14.8	38.0	55.1	35.3	31.4	25.3	2.37	1.09	1.10	.10
MAX	1.9	745	53	227	123	117	167	123	4.8	5.0	5.8	.44
MIN	.32	4.0	6.8	10	23	12	8.3	2.7	1.2	.10	.13	.04

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1998, BY WATER YEAR (WY)

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
MEAN	6.42	12.3	15.6	15.2	22.7	28.2	23.5	17.6	10.8	4.57	2.09	3.93																						
MAX	37.7	58.2	43.8	62.1	59.5	78.2	72.4	51.5	85.6	39.7	9.93	50.0																						
(WY)	1991	1998	1997	1996	1986	1994	1993	1988	1972	1989	1989	1996																						
MIN	.13	.65	1.35	.54	3.89	5.44	5.19	3.53	.38	.065	.000	.002																						
(WY)	1992	1983	1981	1981	1980	1990	1968	1976	1991	1966	1966	1991																						

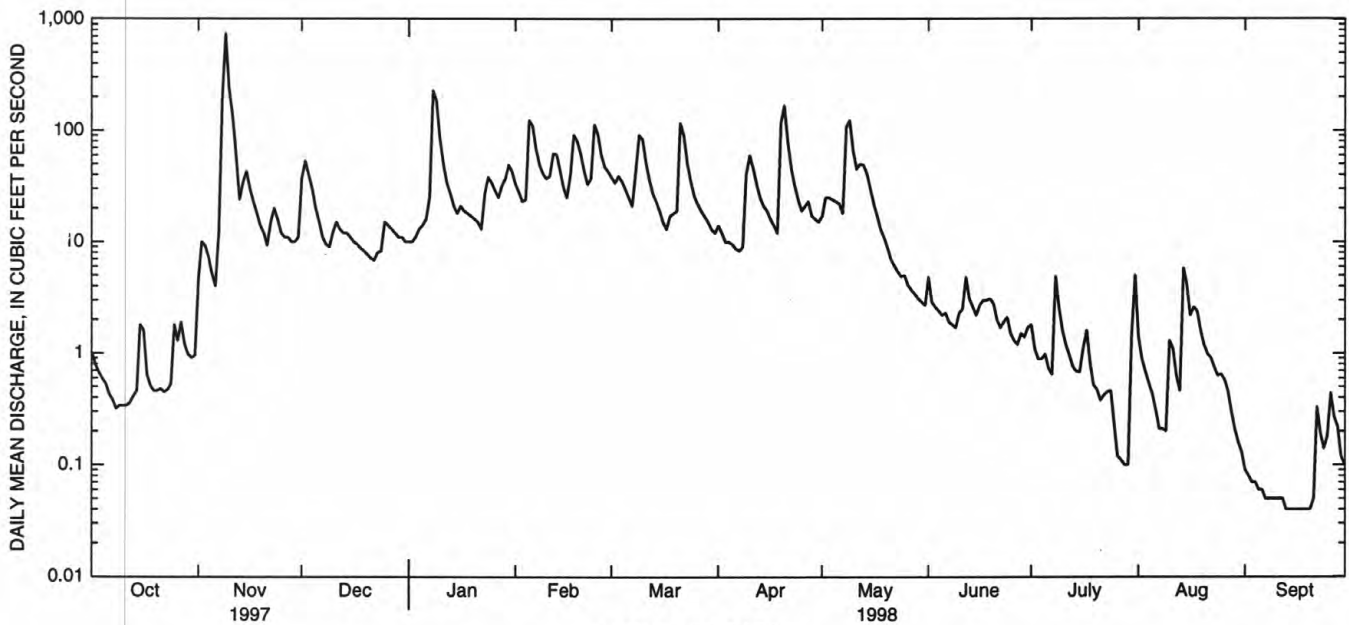
e Estimated.

TONOLOWAY CREEK BASIN

01613050 TONOLOWAY CREEK NEAR NEEDMORE, PA--Continued

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1966 - 1998	
ANNUAL TOTAL	5154.81		7912.41		13.5	
ANNUAL MEAN	14.1		21.7		28.3	
HIGHEST ANNUAL MEAN					5.21	
LOWEST ANNUAL MEAN					868	
HIGHEST DAILY MEAN	e745	Nov 9	e745	Nov 9	Jun 22 1972	1996
LOWEST DAILY MEAN	.07	Sep 5-9	e.04	Sep 13-20	Jun 25 1966b	
ANNUAL SEVEN-DAY MINIMUM	.08	Sep 3	c.04	Sep 13	Jul 1 1966	
INSTANTANEOUS PEAK FLOW			de745	Nov 8	Jun 22 1972	
INSTANTANEOUS PEAK STAGE			a7.30	Nov 8	Jan 19 1996	
INSTANTANEOUS LOW FLOW			e.04	Sep 13-20	Jul 18 1991b	
10 PERCENT EXCEEDS	31		49		33	
50 PERCENT EXCEEDS	5.4		9.5		5.1	
90 PERCENT EXCEEDS	.34		.22		.34	

- a From floodmark in gage.
b No flow many days throughout period of record.
c Computed using estimated discharges.
d From rating curve extended above 540 ft³/s on basis of contracted-opening and slope-area measurement of peak flow.
e Estimated.
f Gage height 9.17 ft.



1-YEAR HYDROGRAPH
OCTOBER 1, 1997 TO SEPTEMBER 30, 1998

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at 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 1998

Annual maximum discharge at crest-stage partial-record stations during water year 1998								
Station name and number	Location and drainage area	Period of Record	Water year 1998 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft ³ /s)	Date	Gage height (ft)	Dis- charge (ft ³ /s)
<u>SUSQUEHANNA RIVER BASIN</u>								
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 .	1986-98	1-08-98	44.93	3,240	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 .	1980-98	1-08-98	25.12	11,600	1-19-96	30.20	28,000
WEST BRANCH SUSQUEHANNA RIVER BASIN								
West Branch Susquehanna River at Karthauss, Pa. (01542500)	Lat 41°07'03", long 78°06'33", Clearfield County, Hydrologic Unit 02050201, at steel-truss bridge on State Highway 879 at Karthauss. Drainage area is 1,462 mi ² .	1918-1920b 1940-1995† 1996-98	11-09-97	10.23	23,700	6-23-72	18.57	84,300
First Fork Sinnema- honing Creek at Wharton, Pa. (01543700)	Lat 41°31'08", long 78°01'40", Potter County, Hydrologic Unit 02050202, 50 ft up- stream from bridge on State Highway 872, and 0.8 mi southwest of Wharton. Drainage area is 182 mi ² .	1968-80* 1982* 1984-98	1-08-98	10.46	5,100	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 .	1975-98	1-09-98	15.40	47,200	1-20-96	25.76	93,900

† Operated as a continuous-record station.

* Operated as a low-flow partial-record station.

a From floodmark.

b Gage heights only, in reports of Water Supply Commission of Pennsylvania.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Crest-stage partial-record stations

Annual maximum discharge at crest-stage partial-record stations during water year 1998--Continued

Station name and number	Location and drainage area	Period of Record	Water year 1998 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft ³ /s)	Date	Gage height (ft)	Dis- charge (ft ³ /s)
<u>SUSQUEHANNA RIVER BASIN--Continued</u>								
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 sea level, from topographic map.	1910-95† 1996-98	1-08-98	10.80	4,260	3-18-36	c14.42	25,600
Lycoming Creek near Williams- port, Pa. (01550500)	Lat 41°16'01", long 77°02'49", Lycoming County, Hydrologic Unit 02050206, 150 ft down- stream from concrete bridge on U.S. Highway 15, 1.2 mi down- stream from Beautys Run, and 3.4 mi upstream from mouth. Datum of gage is 530.12 ft above sea level. Drainage area is 268 mi ² .	1908-13d 1982-87* 1988-90 1995-98	2-18-98	9.29	8,120	1-19-96	18.69	45,000f
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 .	1989-98	1-09-98	17.87	19,200	1-19-96	20.57	43,000g
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 1996-98	11-08-97	12.09	3,560	1-19-96	16.97	9,340
Aughwick Creek near Shirleys- burg, 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 .	1990-98	11-08-97	15.29	17,000	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 bridge on U.S. Highway 103, and 0.4 mi upstream from Kishaco- quillas Creek. Datum of gage is 443.83 ft above sea level. Drainage area is 2,519 mi ² .	1989-98	11-08-97	23.55	46,400	1-20-96	h31.64	74,400

† Operated as a continuous-record station.

* Operated as a low-flow partial-record station.

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 ft³/s.g From rating curve extended above 9,000 ft³/s.

h From peak-stage indicator.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Crest-stage partial-record stations

Annual maximum discharge at crest-stage partial-record stations during water year 1998--Continued

Station name and number	Location and drainage area	Period of Record	Water year 1998 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft ³ /s)	Date	Gage height (ft)	Dis- charge (ft ³ /s)
<u>SUSQUEHANNA RIVER BASIN--Continued</u>								
JUNIATA RIVER BASIN--Continued								
Kishacoquillas Creek at Reedsville, Pa. (01565000)	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, and 1.0 mi southeast of Reeds- ville. Datum of gage is 551.23 ft above sea level. Drainage area is 164 mi ² .	1940-70† 1984-85† 1982-87* 1989-98	1-08-98	7.87	2,450	1-19-96	114.20	12,400
Tuscarora Creek near Port Royal Pa. (01566000)	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. Datum of gage is 420.47 ft above sea level. Drainage area is 214 mi ² .	1911-58† 1982-87* 1988-90 1992-95j 1996-98k	11-08-97	15.30	10,700	9-07-96	21.27	25,000
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 Avenue (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 sea level.	1915-23m 1926-32m 1940-96† 1997-98	3-21-98	8.91	3,610	6-22-72	n26.36	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 .	1963-98	7-08-98	6.31	507	7-01-84	o13.50	6,200
<u>POTOMAC RIVER BASIN</u>								
NORTH BRANCH POTOMAC RIVER BASIN								
CONOCOCHIEGUE CREEK BASIN								
Dennis Creek near Chambersburg (01614137)	Lat 39°56'51", long 77°44'26", Franklin County, Hydrologic Unit 02070004, on left bank, 160 ft upstream from bridge on Township Route 458, 250 ft upstream from Back Creek, and 4.2 mi west of Chambersburg. Datum of gage is 540 ft above sea level, from topographic map. Drainage area is 13.2 mi ² .	1998k	2-18-98	5.97	960	2-18-98	5.97	960

† Operated as a continuous-record station.

* Operated as a low-flow partial-record station.

i From inside floodmark. Flood of 1936 reached a stage of about 14.1 ft, discharge, 11,500 ft³/s; flood of June 23, 1972 reached 16.17 ft from floodmarks, discharge, 16,400 ft³/s.

j Operated as a miscellaneous site.

k Also a miscellaneous site.

m Gage heights and discharge measurements only, in reports of Pennsylvania Department of Forests and Waters.

n From floodmark in gage.

o From floodmark; farm pond failure upstream.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Miscellaneous sites

Discharge measurements made at miscellaneous sites during water year 1998

Discharge measurements made at miscellaneous sites during water year 1998						
Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
SUSQUEHANNA RIVER BASIN						
SUGAR CREEK BASIN						
01531490 Sugar Creek	Susquehanna River	Lat 41°47'27", long 76°27'45", Bradford County, Hydrologic Unit 02050106, at steel-truss bridge in North Towanda, and 0.8 mi upstream from mouth.	188	1989-97	10-20-97	7.2
					11-24-97	284
					3-26-98	512
					4-14-98	258
					5-21-98	93
					8-06-98	6.6
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	1989-97	10-21-97	18
					11-25-97	282
					3-26-98	516
					4-14-98	414
					5-21-98	127
					8-05-98	17
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 1995-97	10-20-97	65
					12-12-97	185
					4-20-98	1,500
					6-15-98	296
					7-28-98	78
FISHING CREEK BASIN						
01539700 Little Fishing Creek	Fishing Creek	Lat 41°02'25", long 76°29'01", Columbia County, Hydrologic Unit 02050107, 100 ft upstream from covered bridge on Township Route 493, 1.6 mi upstream from mouth, and 2.8 mi northwest of Bloomsburg.	66.5	1991* 1992-97	12-04-97	93
					4-28-98	171
					6-30-98	26
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 1000 ft upstream from mouth.	365	1975-97	11-19-97	406
					3-04-98	1,290
					4-08-98	380
					5-18-98	626
					7-01-98	281
					8-28-98	23
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	1989-97	1-07-98	269
					2-27-98	496
					6-03-98	126
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 1012 at Castanea, and 2.0 mi upstream from mouth.	768	1988-89 1991-97	2-26-98	3,630
					6-03-98	611
PINE CREEK BASIN						
01548248 Pine Creek	West Branch Susquehanna River	Lat 41°44'37", long 77°26'03", Tioga County, Hydrologic Unit 02050205, at concrete bridge on forest road at Ansonia, 1,500 ft upstream from mouth, and 7.0 mi west of Wellsboro.	274	1989-97	10-16-97	71
					11-19-97	315
					3-04-98	1,310
					4-08-98	388
					7-30-98	68
01548351 Marsh Creek	Pine Creek	Lat 41°44'48", long 77°25'40", Tioga County, Hydrologic Unit 02050205, at bridge on State Highway 6 at Ansonia, 1,300 ft upstream from mouth, and 7.0 mi west of Wellsboro.	81.6	1989-97	10-16-97	6.2
					11-19-97	54
					4-08-98	102
					5-14-98	565
					7-30-98	13

* Operated as a low-flow partial-record station.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

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Miscellaneous sites

Discharge measurements made at miscellaneous sites during water year 1998

Discharge measurements made at miscellaneous sites during water year 1998						
Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
SUSQUEHANNA RIVER BASIN--Continued						
PINE CREEK BASIN--Continued						
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 1992-97	11-24-97 1-14-98 5-11-98 6-18-98 8-03-98	435 533 1,500 98 19
WHITE DEER CREEK BASIN						
01553150 White Deer Creek	West Branch Susquehanna River	Lat 41°04'29", long 76°52'22", Union County, Hydrologic Unit 02050206, at concrete bridge on SR 1011 at White Deer, and 0.5 mi upstream from mouth.	46.9	1945 1989-95 1997	11-25-97 3-19-98 4-06-98 6-01-98 6-10-98 6-18-98 7-29-98	86 120 96 46 21 41 5.7
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	1989-97	10-07-97 11-17-97 1-12-98 3-02-98 5-21-98 7-02-98 8-18-98	29 272 874 842 222 70 165
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 of McDonald Run, and 3.4 mi south of Duncansville.	84.3	1995-97	10-17-97 12-10-97 2-04-98 4-02-98 5-28-98 7-21-98 9-16-98	14 108 132 149 67 32 14
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.	83.0	1982-97	10-17-97 12-10-97 2-05-98 4-01-98 5-28-98 7-20-98 9-16-98	20 98 112 472 49 23 13
a01566000 Tuscarora Creek	Juniata River	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. Datum of gage is 420.47 ft above sea level.	214	1911-58† 1982-91* 1988-90c 1992-97	10-03-97 1-13-98 7-14-98 8-14-98	64 653 88 35
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 sea level.	501	1989-97	10-01-97 11-24-97 1-22-98 3-05-98 4-22-98 6-11-98 7-23-98 9-03-98	425 882 946 1,970 2,390 391 255 166
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 sea level, from topographic map.	65.8	1995-97	10-02-97 11-19-97 1-13-98 3-02-98 4-16-98 6-04-98 8-06-98 9-02-98	8.5 20 68 120 82 28 13 18

† Operated as a continuous-record gaging station.

* Operated as a low-flow partial-record station.

a Also a crest-stage partial-record station.

b Most years during period.

c Operated as a crest-stage partial-record station.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Miscellaneous sites

Discharge measurements made at miscellaneous sites during water year 1998

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
<u>SUSQUEHANNA RIVER BASIN--Continued</u>						
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 feet downstream from Little Chickies Creek, and 1.2 mi east of Marietta.	108	1989-97	10-09-97	21
					12-08-97	43
					2-04-98	184
					3-06-98	282
					4-29-98	216
					6-08-98	89
					7-20-98	96
9-09-98	52					
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† 1989-97	10-06-97	44
					12-05-97	64
					2-04-98	109
					3-06-98	197
					6-08-98	138
					7-19-98	252
<u>POTOMAC RIVER BASIN</u>						
NORTH BRANCH POTOMAC RIVER BASIN						
WILLS CREEK BASIN						
01600700 Little Wills Creek	Wills Creek	Lat 39°55'35", long 78°39'40", Bedford County, Hydrologic Unit 02070002, at double-span concrete bridge on State Highway 96 at Bard, 2.5 mi upstream from Wolf Camp Run, 9.5 mi upstream from mouth, and 11 mi southwest of Bedford. Datum of gage is 1264.20 ft above sea level.	10.2	1961-81c 1970-91*d 1992-97	12-08-97	7.3
					1-26-98	21
					3-31-98	8.3
					5-19-98	5.5
					9-03-98	.08
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 up- stream from mouth.	158	1930-41† 1983-91*d 1992-97	12-09-97	95
					1-27-98	384
					3-30-98	212
					5-18-98	253
					7-13-98	35
8-31-98	14					
CONOCOCHIEGUE CREEK BASIN						
01614090 Conoco- cheague 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 1132.76 ft above sea level.	5.0	1960-81†	7-01-98	3.0
					7-29-98	1.6
					9-01-98	.81
01614137 Dennis Creek	Back Creek	Lat 39°56'51", long 77°44'26", Franklin County, Hydrologic Unit 02070004, on left bank, 160 ft upstream from bridge on Township Route 458, 250 ft upstream from Back Creek, and 4.2 mi west of Chambersburg. Datum of gage is 540 ft above sea level, from topographic map.	13.2	1997c	10-03-97	2.8
					11-12-97	34
					1-12-98	58
					1-21-98	31
					2-27-98	66
					4-07-98	19
					4-21-98	115
					6-03-98	13
					7-22-98	5.2
					9-02-98	2.9

† Operated as a continuous-record gaging station.

* Operated as a low-flow partial-record station.

c Operated as a crest-stage partial-record station.

d Most years during period.

ANALYSIS OF STREAMFLOW SAMPLES COLLECTED AT PARTIAL-RECORD STATIONS

Water-quality partial-record stations are particular sites where chemical-quality, biological, or sediment data are collected systematically over a period of years for use in hydrologic analyses. The data are usually collected less than quarterly.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

OCTORARO CREEK BASIN

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)
01578340		EAST BRANCH OCTORARO CREEK AT CHRISTIANA, PA (LAT 39 56 57N LONG 075 59 38W)					
OCT 1997 31...	0930	1028	80020	4.5	320	6.7	7.0

DATE	OXYGEN, DIS- SOLVED (MG/L) (00300)	ANC WATER UNFLTRD IT FIELD (MG/L AS CACO3) (00419)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
01578340	EAST BRANCH OCTORARO CREEK AT CHRISTIANA, PA (LAT 39 56 57N LONG 075 59 38W)						
OCT 1997 31...	10.6	83	21	.045	8.98	<.020	.024

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

CHESAPEAKE BAY ECOSYSTEM PROJECT

EAST MAHANTANGO CREEK WATERSHED

TABLE 1.--CHESAPEAKE BAY ECOSYSTEM PROJECT STATION LIST.

STATION NUMBER	LATITUDE	LONGITUDE	STATION NAME
01555322	40°43'01"	76°28'06"	UNNAMED TRIBUTARY TO MAHANTANGO CREEK NEAR HAAS, PA
01555326	40°42'14"	76°29'31"	MAHANTANGO CREEK AT HAAS, PA
01555330	40°41'42"	76°31'29"	UNNAMED TRIBUTARY TO MAHANTANGO CREEK AT KEHLER, PA
01555335	40°40'35"	76°34'27"	MAHANTANGO CREEK NEAR HEPLER, PA
01555338	40°41'12"	76°34'16"	UNNAMED TRIBUTARY TO MAHANTANGO CREEK AT HEPLER, PA
01555340	40°40'38"	76°34'29"	UNNAMED TRIBUTARY TO MAHANTANGO CREEK NEAR HEPLER, PA
01555346	40°40'38"	76°36'30"	UNNAMED TRIBUTARY TO MAHANTANGO CREEK NEAR KLINGERSTOWN, PA
01555348	40°40'35"	76°36'38"	MAHANTANGO CREEK ABOVE CONFLUENCE WITH LITTLE MAHANTANGO CREEK AT ROUGH AND READY, PA
01555356	40°42'41"	76°32'54"	LITTLE MAHANTANGO CREEK NEAR PITMAN, PA
01555360	40°42'42"	76°32'55"	UNNAMED TRIBUTARY TO LITTLE MAHANTANGO CREEK AT LINE MOUNTAIN, PA
01555362	40°42'41"	76°32'57"	LITTLE MAHANTANGO CREEK AT LINE MOUNTAIN, PA
01555365	40°42'35"	76°33'58"	UNNAMED TRIBUTARY TO LITTLE MAHANTANGO CREEK ABOVE COUNTY LINE AT LINE MOUNTAIN, PA
01555368	40°41'51"	76°35'22"	LITTLE MAHANTANGO CREEK NEAR HEPLER, PA
01555370	40°42'33"	76°35'32"	UNNAMED TRIBUTARY TO UNNAMED TRIBUTARY TO MAHANTANGO CREEK NEAR HEPLER, PA
01555372	40°42'24"	76°35'20"	UNNAMED TRIBUTARY TO LITTLE MAHANTANGO CREEK NEAR HEPLER, PA
01555373	40°41'50"	76°35'26"	LITTLE MAHANTANGO CREEK AT HEPLER, PA
01555374	40°41'10"	76°36'43"	UNNAMED TRIBUTARY TO LITTLE MAHANTANGO CREEK NEAR ROUGH AND READY, PA
01555376	40°40'36"	76°37'01"	LITTLE MAHANTANGO CREEK NEAR MOUTH AT ROUGH AND READY, PA
01555378	40°40'22"	76°36'55"	MAHANTANGO CREEK AT ROUGH AND READY, PA
01555381	40°41'28"	76°38'05"	UNNAMED TRIBUTARY TO MAHANTANGO CREEK AT ROUGH AND READY, PA
01555383	40°40'35"	76°38'34"	UNNAMED TRIBUTARY TO UNNAMED TRIBUTARY TO MAHANTANGO CREEK AT ROUGH AND READY, PA
01555385	40°39'58"	76°38'26"	UNNAMED TRIBUTARY TO MAHANTANGO CREEK NEAR ROUGH AND READY, PA
01555389	40°40'05"	76°38'59"	UNNAMED TRIBUTARY TO MAHANTANGO CREEK NEAR KLINGERSTOWN, PA
01555393	40°40'34"	76°40'46"	UNNAMED TRIBUTARY TO MAHANTANGO CREEK ABOVE COUNTY LINE NEAR KLINGERSTOWN, PA
01555395	40°40'08"	76°40'39"	UNNAMED TRIBUTARY TO MAHANTANGO CREEK ON COUNTY LINE AT KLINGERSTOWN, PA
01555398	40°39'41"	76°40'48"	UNNAMED TRIBUTARY TO MAHANTANGO CREEK AT KLINGERSTOWN, PA
404233076353202	40°42'33"	76°35'32"	NU 526
404233076353203	40°42'33"	76°35'32"	NU 527
404233076353204	40°42'33"	76°35'32"	NU 528
404233076353205	40°42'33"	76°35'32"	NU 529
404233076353206	40°42'33"	76°35'32"	NU 530
404233076353207	40°42'33"	76°35'32"	NU 531
404233076353208	40°42'33"	76°35'32"	NU 532
404233076353209	40°42'33"	76°35'32"	NU 533
404233076353210	40°42'33"	76°35'32"	NU 534
404233076353211	40°42'33"	76°35'32"	NU 535
404233076353212	40°42'33"	76°35'32"	NU 536
404233076353213	40°42'33"	76°35'32"	NU 537

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

CHESAPEAKE BAY ECOSYSTEM PROJECT

EAST MAHANTANGO CREEK WATERSHED--Continued

REMARKS.--The following table contains streamflow and water-quality data from streams sampled as a part of the Chesapeake Bay Ecosystem Project. The analyses of flow and water chemistry in streams was conducted to assess where the stream was gaining water under base flow conditions. This was done to collect background information for an ongoing assessment of ground-water residence time in the Chesapeake Bay Basin. The study was conducted in cooperation with the Agricultural Research Service. Analyses for total nitrate (parameter code 00620) were performed at the Agricultural Research Service laboratory at University Park, Pa.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STATION NUMBER	DATE	TIME	DRAIN- AGE AREA (SQ. MI.) (81024)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD) (72000)
01555322	07-14-98	1133	1.46	1028	504	860
01555326	07-14-98	1026	5.56	1028	504	854
01555330	07-14-98	0925	.60	1028	504	792
01555335	07-13-98	1405	14.8	1028	504	669
01555338	07-13-98	1323	.47	1028	504	751
01555340	07-13-98	1357	1.39	1028	504	670
01555346	07-14-98	1505	.67	1028	80020	630
01555348	07-14-98	1425	19.1	1028	504	640
01555356	07-13-98	1032	3.47	1028	504	765
01555360	07-13-98	1025	1.26	1028	504	765
01555362	07-13-98	1015	4.74	1028	504	765
01555365	07-13-98	1216	.96	1028	504	763
01555368	07-14-98	1227	9.12	1028	504	670
01555372	07-13-98	0950	2.71	504	504	710
01555373	07-14-98	1234	12.2	1028	504	682
01555374	07-14-98	1359	1.04	1028	504	654
01555376	07-14-98	1245	15.0	1028	504	610
01555378	07-14-98	1340	34.4	1028	504	621
01555381	07-14-98	1140	1.04	1028	504	700
01555383	07-14-98	1055	.53	1028	504	633
01555385	07-14-98	1005	3.33	1028	80020	570
01555389	07-13-98	1500	.98	1028	80020	590
01555393	07-13-98	1430	.36	1028	504	677
01555395	07-13-98	1330	.66	1028	504	604
01555398	07-13-98	1200	1.40	1028	80020	550
01555400	07-13-98	1100	44.7	1028	504	520

DATE	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)
07-14-98	.20	38	21.9	.200	--	--
07-14-98	2.3	98	21.4	3.54	--	--
07-14-98	.28	212	17.4	11.2	--	--
07-13-98	7.9	129	21.7	4.50	--	--
07-13-98	.28	180	20.5	6.72	--	--
07-13-98	.63	207	21.9	10.4	--	--
07-14-98	.26	200	24.8	8.97	.021	7.52
07-14-98	9.8	141	22.8	5.38	--	--
07-13-98	1.4	199	20.7	7.06	--	--
07-13-98	.75	165	19.7	6.74	--	--
07-13-98	1.9	189	19.8	6.98	--	--
07-13-98	.52	152	17.5	5.56	--	--
07-14-98	3.8	181	22.9	6.51	--	--
07-13-98	1.6	148	15.5	6.84	--	--
07-14-98	5.9	177	22.8	6.46	--	--
07-14-98	.43	197	20.6	10.4	--	--
07-14-98	7.7	182	23.3	6.82	--	--
07-14-98	16	160	23.3	6.08	--	--
07-14-98	.48	165	22.8	4.49	--	--
07-14-98	.31	210	24.5	6.87	--	--
07-14-98	1.2	219	19.9	8.34	.028	6.99
07-13-98	.64	--	24.0	9.06	.039	7.81
07-13-98	.32	--	18.5	10.9	--	--
07-13-98	.42	173	20.7	9.99	--	--
07-13-98	.91	183	17.1	9.88	.014	8.55
07-13-98	26	167	19.0	6.70	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

CHESAPEAKE BAY ECOSYSTEM PROJECT

EAST MAHANTANGO CREEK WATERSHED--Continued

REMARKS.--The following table contains water-quality data from wells sampled as a part of the Chesapeake Bay Ecosystem Project. The wells in this study were sampled as a part of an ongoing assessment of ground-water residence time in the Chesapeake Bay Basin. Shallow wells in an area where ground water was discharging to a stream were selected for sampling. The first site listed is for the sample collected from the stream. In addition to the analyses listed below, age dating analyses such as Chlorofluorocarbon (CFC) analyses were conducted for each site. The results of the CFC analyses are not yet available.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STATION NUMBER	DATE	TIME	TEMPER- ATURE WATER (DEG C) (00010)	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM) (00095)	OXYGEN, DIS- SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)
01555370	06-15-98	1700	16.5	1028	80020	73	7.4	7.2	.040
404233076353210	06-16-98	1550	17.8	1028	80020	205	.8	7.6	.020
404233076353211	06-15-98	1720	14.5	1028	80020	205	.7	8.0	<.020
404233076353212	06-17-98	1120	14.8	1028	80020	199	.2	6.8	.037
404233076353213	06-18-98	0930	14.1	1028	80020	159	6.1	5.7	<.020
404233076353205	06-16-98	1420	14.1	1028	80020	150	8.1	6.1	.026
404233076353206	06-17-98	1020	14.1	1028	80020	153	7.4	5.0	.023
404233076353207	06-16-98	1630	14.3	1028	80020	149	6.4	6.4	.038
404233076353208	06-17-98	1430	16.9	1028	80020	159	4.2	6.0	<.020
404233076353209	06-18-98	1015	19.3	1028	80020	149	4.3	6.1	<.020
404233076353202	06-16-98	1130	16.7	1028	80020	157	5.2	5.8	<.020
404233076353203	06-17-98	1300	14.1	1028	80020	167	9.3	5.4	<.020
404233076353204	06-17-98	1700	14.4	1028	80020	165	5.9	6.3	.026

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N) (00623)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD) (72000)	DEPTH OF HOLE, TOTAL (FEET) (72001)	DEPTH OF WELL, TOTAL (FEET) (72008)	DRAIN- AGE AREA (SQ. MI.) (81024)
06-15-98	.012	.25	6.10	<.010	.012	--	--	--	1.75
06-16-98	<.010	<.10	.170	.070	.086	727	10	13.95	--
06-15-98	<.010	.10	<.050	.033	<.010	720	20	22.92	--
06-17-98	<.010	<.10	.068	.024	.029	720	30	32.69	--
06-18-98	.011	<.10	2.85	<.010	<.010	727	45	40.00	--
06-16-98	<.010	<.10	9.83	<.010	.010	724	10	18.11	--
06-17-98	<.010	<.10	9.36	<.010	<.010	723	20	24.40	--
06-16-98	<.010	<.10	7.51	<.010	<.010	724	30	35.06	--
06-17-98	.013	<.10	7.03	<.010	<.010	724	45	45.21	--
06-18-98	<.010	<.10	7.41	<.010	<.010	724	60	65.11	--
06-16-98	<.010	.16	9.71	<.010	<.010	727	10	12.72	--
06-17-98	<.010	<.10	11.8	<.010	<.010	727	45	46.77	--
06-17-98	.029	<.10	7.26	<.010	<.010	727	60	53.92	--

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 mi² northern Swatara Creek Basin. To neutralize the AMD, with a goal of remediating approximately 25 miles (67 percent) of degraded streams in the basin, a variety of limestone treatment systems have been constructed (fig. 8). Most of the limestone treatment systems were installed during fall 1996 and spring 1997. The type and size of the treatment system was based on streamflow rates and chemistry determined by preliminary monitoring and field trials. The treatments, which include limestone-sand dosing, open limestone channels, anoxic and oxic limestone drains, and limestone diversion wells, were constructed by the Schuylkill County Conservation District and the 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 1995-98, data on discharge rate and water quality at 48 stations in the Swatara Creek basin and 5 stations in adjacent watersheds (table 2) were collected to characterize untreated mine drainage, treatment-system performance, and cumulative downstream effects. In spring-summer 1996, two streamflow stations on Swatara Creek, Site C3, at Newtown (station 0157155014) and Swatara Creek near Ravine (station 01571820) were installed for continuous streamflow and water-quality monitoring. The data for these stations indicate cumulative effects of AMD remediation throughout the northern Swatara Creek basin.

Limestone sand dosing and open limestone channels are the simplest treatment systems where limestone is added directly to the stream channel semiannually or less frequently. Limestone sand, which can dissolve rapidly because of its small size (<1/8 inch), was dumped into Coal Run (14 tons) between stations C4 and C6 on September 4, 1996, and into Lorberry Creek (150 tons) below station E2 on February 13-14, 1997 (fig. 8). An open limestone channel was constructed within a 110-ft long segment of Swatara Creek at station B2 (fig. 8) on March 21, 1997. A total of 44 tons of sand-size fragments and 70 tons of larger fragments (1-4 inches) were installed as a series of alternating berms extending part way across the 15-ft-wide channel from opposite sides of the stream.

A limestone drain is another relatively simple treatment method, which involves the burial of limestone in air-tight trenches that intercept acidic discharge water. Keeping oxygen out of contact with the discharge water minimizes the potential for oxidation of ferrous iron and the consequent precipitation of ferric-iron armoring as iron hydroxides. Furthermore, keeping carbon dioxide within the drain can enhance limestone dissolution and alkalinity production. Limestone drains were constructed on March 15, 1995, at station E3 to treat a small acidic discharge (10-30 gpm, oxic inflow; 44 tons limestone) along Lower Rausch Creek and on May 21, 1997, at station A1 to treat a larger discharge (50-200 gpm, anoxic inflow; 400 tons limestone) at the headwaters of Swatara Creek (fig. 8).

In a limestone diversion well, acidic water is diverted from upstream points and the hydraulic force of the piped flow is deflected upward through limestone fragments inside 4-ft diameter "wells." Hydraulic churning abrades limestone forming fine particles and preventing the buildup of iron or aluminum hydroxides armoring. On November 14, 1995, a pair of diversion wells were installed to treat water diverted from Swatara Creek at station C2, and on July 13, 1997, a single diversion well was installed to treat water from Martin Run at station C8 (fig. 8). Approximately 1 ton of limestone is consumed weekly by each operating diversion well.

For additional information, contact Charles Cravotta at the U.S. Geological Survey, 840 Market Street, Lemoyne, PA 17043; 717-730-6963 (email: cravotta@usgs.gov)

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

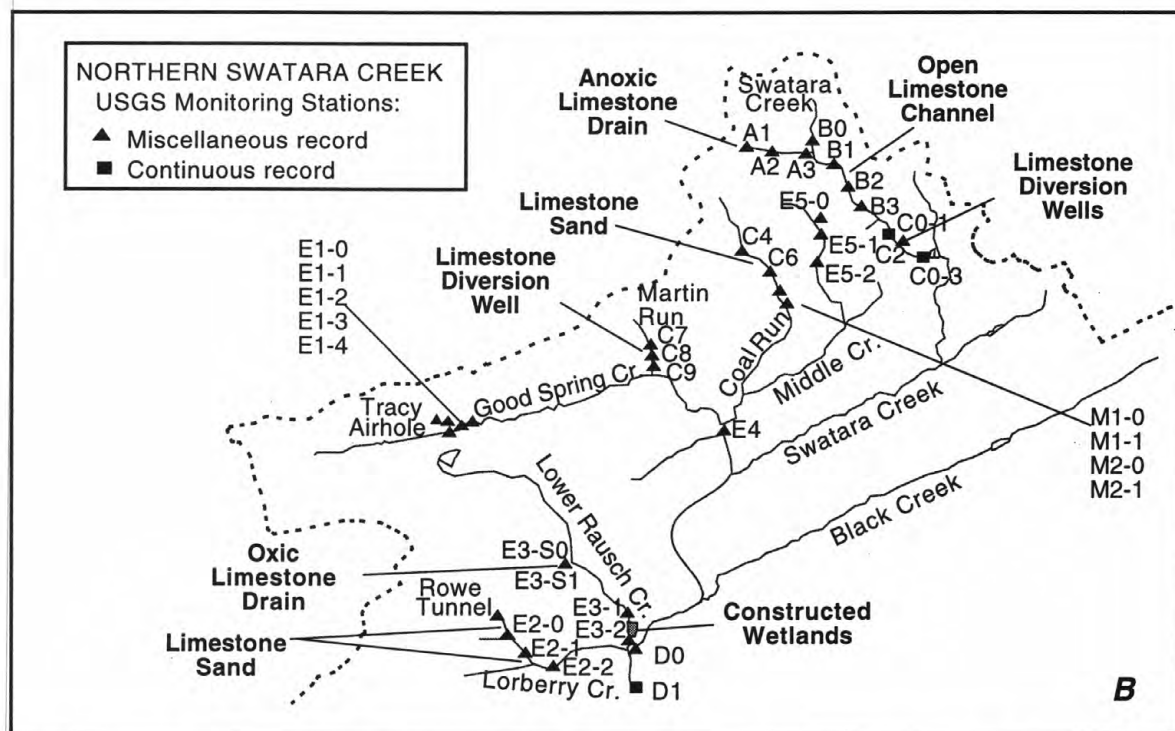
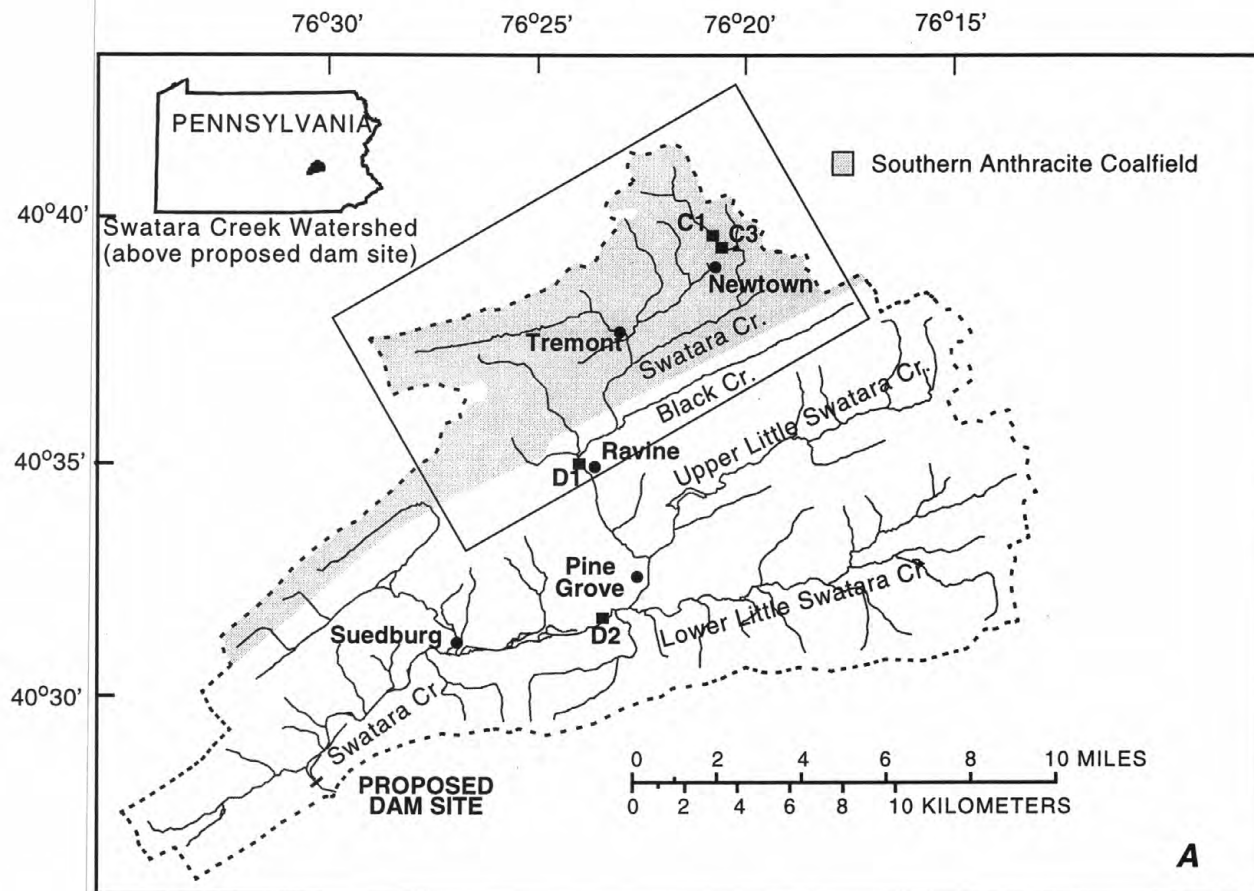


Figure 8. Locations of water-quality and streamflow monitoring stations in the Swatara Creek Basin, Lebanon and Schuylkill Counties, Pennsylvania: A, continuous monitoring stations on Swatara Creek above the proposed dam for Swatara State Park Reservoir; B, monitoring stations within the Southern Anthracite Coalfield, above Ravine (area denoted in A).

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

TABLE 2.--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; ALD-anoxic limestone drain; OLD-oxic limestone drain; OLC-open limestone channel; LS-limestone sand; LDW-limestone diversion well.

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"	6°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
D1	01571820	SWATARA CREEK BL SR125 BRIDGE AT RAVINE, PA	40°34'50"	76°24'18"	43.3
D2	01572025	SWATARA CREEK NEAR PINE GROVE, PA	40°31'57"	76°24'09"	116
MISCELLANEOUS-RECORD STATIONS					
A2	0157154970	NORTHWEST TRIBUTARY TO SWATARA CREEK, SITE A2, AT ALD OUTFLOW, NEAR NEWTOWN, PA	40°40'32"	76°22'25"	.25
A3	0157154972	NORTHWEST TRIBUTARY 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
B1	0157154980	SWATARA CREEK, BELOW NORTHWEST TRIBUTARY, SITE B1, 50 FT ABOVE OLC, NEAR NEWTOWN, PA	40°40'22"	76°21'41"	1.75
B2	0157154982	SWATARA CREEK, BELOW NORTHWEST TRIBUTARY, SITE B2, AT OLC, NEAR NEWTOWN, PA	40°40'22"	76°21'39"	1.77
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.
C0-3	403939076205901	HEGINS WHITE SEEP, SITE C0-3, AT NEWTOWN, PA	40°39'39"	76°20'59"	n.a.
C2	0157155012	SWATARA CREEK, SITE C2, AT LDW OUTFLOW, AT NEWTOWN, PA	40°39'31"	76°20'47"	2.65
E5-0	403853076222301	MIDDLE CREEK MINE DISCHARGE, SITE E5-0, NEAR NEWTOWN, PA	40°38'52"	76°22'19"	n.a.
E5-1	0157157010	MIDDLE CREEK, SITE E5-1, 600 FT BELOW DISCHARGE, AT TR571, NEAR NEWTOWN, PA	40°38'48"	76°22'18"	1.63
E5-2	0157157012	MIDDLE CREEK, SITE E5-2, 1400 FT BELOW DISCHARGE, NEAR NEWTOWN, PA	40°38'42"	76°22'16"	1.74
C4	0157158010	COAL RUN, SITE C4, 50 FT ABOVE LS, NEAR TREMONT, PA	40°38'33"	76°22'47"	.26
C6	0157158014	COAL RUN, SITE C6, 150 FT BELOW LS, NEAR TREMONT, PA	40°38'32"	76°22'46"	.29
M1-0	403828076224201	MARSHFIELD NO. 1 DISCHARGE, SITE M1-0, NEAR TREMONT, PA	40°38'28"	76°22'42"	n.a.
M1-1	0157158016	MARSHFIELD 1, SITE M1-1, 50 FT BELOW DISCHARGE, AT COAL RUN NEAR TREMONT, PA	40°38'26"	76°22'46"	.31
M2-0	403822076224401	MARSHFIELD NO. 2 DISCHARGE, SITE M2-0, NEAR TREMONT, PA	40°38'22"	76°22'44"	n.a.
M2-1	0157158018	MARSHFIELD 2, SITE M2-1, 100 FT BELOW DISCHARGE, AT COAL RUN NEAR TREMONT, PA	40°38'23"	76°22'46"	.32
C7-219	403825076242301	COLKET MINE TUNNEL, SITE C7-219, AT DONALDSON, PA	40°38'25"	76°24'23"	n.a.
C7	0157156010	MARTIN RUN, SITE C7, 100 FT ABOVE LDW, AT DONALDSON, PA	40°38'19"	76°24'19"	.48
C8	0157156012	MARTIN RUN, SITE C8, AT LDW OUTFLOW, AT DONALDSON, PA	40°38'17"	76°24'19"	.51
C9	0157156014	MARTIN RUN, SITE C9, 50 FT BELOW LDW, AT DONALDSON, PA	40°38'16"	76°24'19"	.53
E1-229	403745076271901	TRACY AIRHOLE, SITE E1-229, NEAR DONALDSON, PA	40°37'45"	76°27'19"	n.a.
E1-0	0157156209	TRACY AIRHOLE, SITE E1-0, 30 FT BELOW DISCHARGE, NEAR DONALDSON, PA	40°37'44"	76°27'19"	.07
E1-1	0157156210	TRACY AIRHOLE, SITE E1-1, 650 FT BELOW DISCHARGE, AT SR125 NEAR DONALDSON, PA	40°37'45"	76°27'16"	.10
E1-2	0157156212	TRACY AIRHOLE, SITE E1-2, 1100 FT BELOW DISCHARGE, ABOVE GOOD SPRING CREEK	40°37'40"	76°27'09"	.20
E1-3	0157156520	GOOD SPRING CREEK ABOVE TRACY TRIBUTARY NEAR DONALDSON, PA	40°37'40"	76°27'09"	.23
E1-4	0157156521	GOOD SPRING CREEK BELOW TRACY TRIBUTARY NEAR DONALDSON, PA	40°37'39"	76°27'05"	2.59
E4	01571593	GOOD SPRING CREEK BELOW MIDDLE CREEK AT TREMONT, PA	40°37'35"	76°23'15"	14.0
E3-S0	403626076253001	ORCHARD MINE, SITE E3-S0, NEAR JOLIETT, PA	40°36'26"	76°25'30"	n.a.
E3-S1	403626076252901	ORCHARD MINE, SITE E3-S1, 300 FT BELOW DISCHARGE, NEAR JOLIETT, PA	40°36'26"	76°25'29"	n.a.
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
E2-244	403542076263201	ROWE DRAINAGE TUNNEL, SITE E2-244, NEAR JOLIETT, PA	40°35'42"	76°26'32"	n.a.
E2-0	01571774	LORBERRY CREEK, SITE E2-0, AT LORBERRY, PA	40°35'32"	76°26'22"	1.15

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

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SWATARA CREEK PROJECT--Continued

TABLE 2.--SWATARA CREEK PROJECT STATION LIST--Continued.

LOCAL ID	STATION NUMBER	STATION NAME	LATITUDE	LONGITUDE	DRAINAGE AREA
MISCELLANEOUS-RECORD STATIONS--Continued					
SR	01571776	STUMPS RUN AT LORBERRY, PA	40°35'30"	76°26'23"	.65
	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
E2-1	01571778	LORBERRY CREEK ABOVE TR625 BRIDGE NEAR LORBERRY JUNCTION, PA	40°35'15"	76°25'35"	3.59
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
D2-0	01572010	SWATARA CREEK BELOW STATE ROUTE 645 HIGHWAY BRIDGE AT PINE GROVE, PA	40°32'12"	76°21'59"	110
MISCELLANEOUS-RECORD STATIONS IN NEARBY WATERSHEDS					
	404619076321901	BIG MOUNTAIN MINE NUMBER 1 SLOPE	40°46'19"	76°32'19"	n.a.
	0155444050	BIG MOUNTAIN MINE NUMBER 1 SLOPE, 1000 FT BELOW DISCHARGE, NEAR SHAMOKIN, PA	40°46'28"	76°32'21"	1.34
	0155444052	BIG MOUNTAIN MINE NUMBER 1 SLOPE, 2000 FT BELOW DISCHARGE, NEAR SHAMOKIN, PA	40°46'36"	76°32'23"	1.48
	403650076330701	VALLEY VIEW TUNNEL NEAR VALLEY VIEW, PA	40°36'56"	76°33'04"	n.a.
	403709076330201	MARKSON COLUMWAY NEAR VALLEY VIEW, PA	40°37'09"	76°33'02"	n.a.

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

TABLE 3.--FIELD WATER-QUALITY ANALYTICAL TECHNIQUES.

REMARKS.--Field analysis conducted on unfiltered samples following methods of Wood (1976, "Guidelines for the Collection and Field Analysis of Ground-Water Samples for Selected Unstable Constituents") and Buchanan and Somers (1969, "Discharge Measurements at Gaging Stations").

CONSTITUENT	UNITS	PARAMETER CODE	TECHNIQUE
Acidity, total as CaCO ₃	mg/L	00435	Titrimetric
Alkalinity, as CaCO ₃ (ANC)	mg/L	00410	Titrimetric
Discharge, instantaneous	ft ³ /s	00061	Current meter
Flow rate, instantaneous	gal/min	00059	Volumetric
Oxidation reduction potential, Eh	mV	00090	Electrometric
Oxygen, dissolved	mg/L	00300	Electrometric
pH	pH units	00400	Electrometric
Specific conductance	μS/cm	00095	Electrometric
Temperature, water	°C	00010	Thermometric

TABLE 4.--LABORATORY WATER-QUALITY ANALYTICAL TECHNIQUES, STANDARD ANALYSIS CODE 414.

REMARKS.--Laboratory analysis conducted by Pennsylvania Department of Environmental Protection using the following methods: EPA (U.S. Environmental Protection Agency, 1979, "Methods for Chemical Analysis of Water and Waste") and STM (Greenberg, Connors, and Jenkins, 1986, "Standard Methods for the Examination of Water and Wastewater"); USGS (Fishman and Friedman, 1989, "Methods for the Determination of Inorganic Substances in Water and Fluvial Sediments"); and n.a for not applicable. Samples stored in 125 and 500 ml polyethylene bottles: RU, raw, unpreserved, 500 ml; RA, raw, acidified with 1:1 HNO₃, 125 ml; FA, filtered, acidified with 1:1 HNO₃, 125 ml. Acidified samples stored only in acid-rinsed bottles. Some values for "dissolved" parameters exceed values for the corresponding "total" parameter. These results are within the limits of analytical precision and methods.

CONSTITUENT	UNITS	PARAMETER CODE DISSOLVED	PARAMETER CODE WHOLE	ANALYTICAL METHOD	ANALYTICAL TECHNIQUE	SAMPLE
Acidity, total as CaCO ₃	mg/L	n.a.	70508	STM 16 402	Titrimetric	RU
Alkalinity, as CaCO ₃ (ANC)	mg/L	n.a.	00417	EPA 310.1	Titrimetric	RU
Aluminum	μg/L	01106	01105	EPA 200.7	ICP-MS	FA+RA
Arsenic	μg/L	01000	01002	EPA 200.8	ICP	FA+RA
Barium	μg/L	01005	01007	EPA 200.8	ICP	FA+RA
Cadmium	μg/L	01025	01027	EPA 200.7	ICP	FA+RA
Calcium	mg/L	00915	00916	EPA 200.7	ICP	FA+RA
Chloride	mg/L	n.a.	00940	EPA 325.2	IC	RU
Chromium	μg/L	01030	01034	EPA 200.7	ICP	FA+RA
Cobalt	μg/L	01035	01037	EPA 200.7	ICP	FA+RA
Copper	μg/L	01040	01042	EPA 200.7	ICP	FA+RA
Iron	μg/L	01046	01045	EPA 200.7	ICP	FA+RA
Fluoride	mg/L	n.a.	00951	EPA 375.2	IC	RU
Lead	μg/L	01049	01051	EPA 200.7	ICP-MS	FA+RA
Lithium	μg/L	01130	01132	EPA 200.7	ICP	FA+RA
Magnesium	mg/L	00925	00927	EPA 200.7	ICP	FA+RA
Manganese	μg/L	01056	01055	EPA 200.7	ICP	FA+RA
Nickel	μg/L	01065	01067	EPA 200.7	ICP	RU
Nitrogen, total, as N	mg/L	n.a.	00600	EPA 351.2	Colorimetric	RU
Nitrogen, ammonia, total as N	mg/L	n.a.	00610	EPA 350.1	Colorimetric	RU
Nitrogen, nitrate, total as N	mg/L	n.a.	00620	EPA 353.2	Colorimetric	RU
pH	pH units	n.a.	00403	EPA 150.1	Electrometric	RU
Phosphorus, total, as P	mg/L	n.a.	00665	EPA 365.3	Colorimetric	RU
Potassium	mg/L	00935	00937	EPA 200.7	ICP	FA+RA
Selenium	μg/L	01145	01147	EPA 200.8	ICP-MS	FA+RA
Silica, as SiO ₂	mg/L	00956	n.a.	EPA 200.7	ICP	FA+RA
Sodium	mg/L	00930	00929	EPA 200.7	ICP	FA+RA
Solids, suspended	mg/L	n.a.	00530	EPA 160.5	Gravimetric	RU
Strontium	μg/L	01080	01082	EPA 200.7	ICP	FA+RA
Sulfate, as SO ₄	mg/L	n.a.	00945	EPA 375.2	Colorimetric	RU
Zinc	μg/L	01090	01092	EPA 200.7	ICP	FA+RA

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
0157154970 NW TRIB TO SWATARA CR, SITE A2, NEAR NEWTOWN, PA (LAT 40 40 32N LONG 076 22 25W)											
OCT 1997											
30...	1240	1028	9813	.06	311	6.9	6.7	243	11.0	2.3	21
NOV											
20...	1230	1028	9813	.20	273	6.5	6.5	313	10.5	.2	2
DEC											
17...	1300	1028	9813	.12	70	6.6	6.3	492	9.9	.2	2
JAN 1998											
07...	1515	1028	9813	.10	262	6.5	6.4	134	9.7	.2	2
09...	1205	1028	9813	.19	215	6.2	6.2	--	9.7	.1	1
FEB											
20...	1200	1028	9813	.13	233	6.2	6.2	365	8.5	.2	2
MAR											
31...	1520	1028	9813	.16	218	6.0	6.3	270	8.2	.5	4
APR											
22...	1200	1028	9813	1.3	213	6.0	6.2	315	8.3	.5	5
MAY											
21...	1300	1028	9813	1.6	202	6.0	6.2	385	8.8	.3	3
JUN											
03...	1050	1028	9813	.31	260	6.4	6.3	294	9.7	5.4	--
29...	1000	1028	9813	.93	204	5.8	6.3	295	10.5	4.8	43
29...	1005	1028	9813	.93	198	5.9	6.3	290	10.0	.60	5.2
29...	1010	1028	9813	.06	204	5.8	6.4	290	11	5	40
JUL											
23...	1420	1028	9813	.01	227	6.3	6.4	290	11.0	.2	2
23...	1430	1028	9813	.21	277	6.5	6.7	222	11.0	4.1	38
AUG											
25...	1600	1028	9813	.07	276	7.1	6.7	251	12.0	4.9	46
SEP											
28...	1530	1028	9813	.20	319	6.8	6.8	270	14.0	.9	8
0157154972 NW TRIB TO SWATARA CR, SITE A3, NEAR NEWTOWN, PA (LAT 40 40 32N LONG 076 21 59W)											
OCT 1997											
31...	1400	1028	9813	.16	209	7.2	6.9	435	8.0	11.0	94
NOV											
20...	1200	1028	9813	.49	174	6.8	6.8	452	6.3	12.0	97
DEC											
17...	1145	1028	9813	.46	188	7.1	6.4	508	5.4	12.0	97
JAN 1998											
07...	1430	1028	9813	1.8	156	6.7	6.5	399	8.9	11.0	98
09...	1318	1028	9813	8.3	126	6.9	6.2	--	9.8	11.0	98
FEB											
19...	1615	1028	9813	2.4	143	6.8	6.2	397	6.5	12.0	96
MAR											
31...	1415	1028	9813	1.0	163	7.1	6.4	330	13.0	11.0	110
APR											
22...	1045	1028	9813	1.6	151	6.5	6.4	204	9.2	11.0	94
MAY											
21...	1245	1028	9813	1.4	157	6.7	6.4	321	12.6	10.1	95
JUN											
29...	1230	1028	9813	1.5	158	6.8	6.5	298	13.0	10.3	98
JUL											
23...	1345	1028	9813	.37	194	6.4	6.8	448	16.0	8.3	84
AUG											
25...	1500	1028	9813	.12	200	7.5	6.6	317	16.6	8.9	92

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CACO3) (70508)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD (MG/L AS CACO3) (00410)
0157154970 NW TRIB TO SWATARA CR, SITE A2, NEAR NEWTOWN, PA (LAT 40 40 32N LONG 076 22 25W)											
OCT 1997											
30...	.000	.000	45	45	4.4	4.6	9.5	9.8	1.1	1.0	--
NOV											
20...	--	.000	34	34	4.4	4.4	8.4	8.3	1.3	1.3	--
DEC											
17...	--	.000	37	36	4.5	4.5	8.4	8.5	1.1	.96	75
JAN 1998											
07...	--	.000	29	28	4.1	4.1	7.3	7.1	1.3	1.2	--
09...	--	.000	19	19	4.5	4.4	8.1	8.0	1.2	1.1	--
FEB											
20...	--	.000	22	19	5.3	5.1	8.1	7.7	1.4	1.4	--
MAR											
31...	--	.000	21	21	4.7	4.5	8.8	8.6	1.0	1.0	45
APR											
22...	--	.000	19	19	4.2	4.2	8.8	8.8	.9	.86	43
MAY											
21...	--	.000	19	19	4.2	4.1	9.0	9.0	1.4	1.1	35
JUN											
03...	--	.000	18	18	3.9	3.9	10	10	1.7	1.6	--
29...	--	.000	21	21	3.8	3.8	8.8	8.8	2.1	1.8	--
29...	--	.000	24	24	4.2	4.0	9.3	9.0	2.0	2.0	--
29...	--	.000	22	22	3.8	3.7	8.7	8.6	2.0	2.0	--
JUL											
23...	--	.000	27	27	3.8	3.8	8.8	8.8	1.7	1.7	--
23...	--	.000	38	38	4.2	4.2	9.5	9.5	1.5	1.5	--
AUG											
25...	--	.000	45	45	3.8	3.8	8.6	8.6	1.3	1.5	--
SEP											
28...	--	.000	70	70	3.3	3.1	6.6	6.6	<1.0	<1.0	--
0157154972 NW TRIB TO SWATARA CR, SITE A3, NEAR NEWTOWN, PA (LAT 40 40 32N LONG 076 21 59W)											
OCT 1997											
31...	.000	.000	26	24	3.5	3.3	7.4	6.9	1	.94	--
NOV											
20...	.000	.000	21	21	3.4	3.4	6.8	6.7	1.0	.97	--
DEC											
17...	.000	.000	24	23	3.7	3.7	7.3	7.1	.8	.71	--
JAN 1998											
07...	--	.000	16	15	3.0	2.8	5.3	5.0	1.3	1.2	--
09...	.000	.000	9.6	9.6	3.0	3.0	5.8	5.8	2.2	1.4	--
FEB											
19...	.000	.000	12	10	3.4	3.0	6.5	6.0	1.5	1.0	15
MAR											
31...	.000	.000	16	15	3.9	3.7	7.8	7.6	1	.97	20
APR											
22...	--	.000	14	14	3.2	2.9	7.6	7.2	.8	.65	16
MAY											
21...	.000	.000	14	14	3.5	3.4	8.1	7.9	1.1	1.1	17
JUN											
29...	.000	.000	17	17	3.2	3.2	8.0	8.0	1.4	1.4	--
JUL											
23...	--	.000	24	22	3.9	3.7	9.0	8.7	1.2	1.2	--
AUG											
25...	--	.000	22	21	3.9	3.8	8.8	8.3	1.2	<1.0	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, TOTAL (MG/L AS F) (00951)	SILICA TOTAL (MG/L- SIO2) (00956)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
0157154970	NW TRIB TO SWATARA CR, SITE A2, NEAR NEWTOWN, PA (LAT 40 40 32N LONG 076 22 25W)									
OCT 1997										
30...	88	37	14	<.2	7.9	<2	<.040	.080	.19	<.020
NOV										
20...	80	41	13	<.2	7.8	4	<.040	.080	.15	<.020
DEC										
17...	80	42	12	<.2	7.9	<2	<.040	.190	.16	<.020
JAN 1998										
07...	74	42	11	<.2	6.4	18	<.040	.110	.16	<.020
09...	38	46	12	<.2	7.6	26	<.040	.110	.17	<.020
FEB										
20...	44	49	12	<.2	6.9	12	<.040	.110	.20	.020
MAR										
31...	46	41	13	<.2	7.2	18	<.040	.120	.21	<.020
APR										
22...	44	39	14	<.2	6.4	6	<.040	.100	.21	<.020
MAY										
21...	38	35	18	<.2	6.3	<2	.240	.160	.56	<.020
JUN										
03...	46	31	20	<.2	5.9	<2	.040	.260	.40	<.020
29...	--	32	14	<.2	6.7	6	<.040	.320	.44	<.020
29...	42	38	15	<.2	7.6	14	<.040	.220	.36	<.020
29...	46	33	14	<.2	6.8	<2	<.040	.310	.43	<.020
JUL										
23...	60	33	14	<.2	6.6	16	<.040	.310	.44	<.020
23...	74	40	15	<.2	6.7	10	<.040	.270	.43	<.020
AUG										
25...	100	34	14	<.2	6.6	16	<.040	.260	.37	<.020
SEP										
28...	160	21	12	<.2	6.3	28	<.040	.230	.37	<.020
0157154972	NW TRIB TO SWATARA CR, SITE A3, NEAR NEWTOWN, PA (LAT 40 40 32N LONG 076 21 59W)									
OCT 1997										
31...	32	42	12	<.2	4.5	<2	<.040	.030	.21	.020
NOV										
20...	28	38	11	<.2	5.5	4	<.040	.040	.15	<.020
DEC										
17...	30	40	11	<.2	5.7	8	<.040	.070	.13	<.020
JAN 1998										
07...	22	35	8.9	<.2	4.8	50	.090	.090	.23	<.020
09...	9	30	8.9	<.2	9.2	4	.080	.070	.33	.020
FEB										
19...	16	31	11	<.2	6.9	22	.050	.070	.23	<.020
MAR										
31...	20	35	12	<.2	6.3	<2	<.040	.070	.19	<.020
APR										
22...	17	31	13	<.2	5.7	<2	.070	.070	.24	<.020
MAY										
21...	18	32	14	<.2	5.7	170	.210	.110	.48	<.020
JUN										
29...	22	30	12	<.2	6.1	4	.430	.150	.76	<.020
JUL										
23...	30	40	14	<.2	5.5	16	.130	.100	.37	<.020
AUG										
25...	28	45	13	<.2	5.4	<2	.080	.060	.25	<.020

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ALUM- INUM, TOTAL RECOV- ERABLE (µG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (µG/L AS AL) (01106)	ARSENIC TOTAL (µG/L AS AS) (01002)	ARSENIC DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, TOTAL RECOV- ERABLE (µG/L AS BA) (01007)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)
0157154970	NW TRIB TO SWATARA CR, SITE A2, NEAR NEWTOWN, PA (LAT 40 40 32N LONG 076 22 25W)									
OCT 1997										
30...	<200	<200	<4	<4	23	24	<10	<10	<50	<50
NOV										
20...	<200	<200	<4	<4	23	23	<10	<10	<50	<50
DEC										
17...	<200	<200	<4	<4	23	23	<10	<10	<50	<50
JAN 1998										
07...	<200	<200	<4	<4	20	20	<10	<10	<50	<50
09...	220	<200	<4	<4	<10	<10	<10	<10	<50	<50
FEB										
20...	250	<200	<4	<4	27	26	<10	<10	<50	<50
MAR										
31...	<200	<200	<4	<4	24	24	<10	<10	<50	<50
APR										
22...	<200	<200	<4	<4	23	23	<10	<10	<50	<50
MAY										
21...	<200	<200	<40	<40	26	26	<10	<10	<50	<50
JUN										
03...	<200	<200	<4	<4	31	31	<10	<10	<50	<50
29...	<200	<200	<40	<40	31	31	<10	<10	<50	<50
29...	230	<200	<40	<40	30	28	<10	<10	<50	<50
29...	<200	<200	<40	<40	31	29	<10	<10	<50	<50
JUL										
23...	<200	<200	<40	<40	29	29	<10	<10	<50	<50
23...	<200	<200	<40	<40	28	28	<10	<10	<50	<50
AUG										
25...	<200	<200	<4	<4	29	29	<10	<10	<50	<50
SEP										
28...	320	<200	<4	<4	30	29	<10	<10	<50	<50
0157154972	NW TRIB TO SWATARA CR, SITE A3, NEAR NEWTOWN, PA (LAT 40 40 32N LONG 076 21 59W)									
OCT 1997										
31...	<200	<200	<4	<4	19	18	<10	<10	<50	<50
NOV										
20...	<200	<200	<4	<4	27	26	11	<10	<50	<50
DEC										
17...	<200	<200	<4	<4	27	25	<10	<10	<50	<50
JAN 1998										
07...	220	<200	<4	<4	26	24	<10	<10	<50	<50
09...	2600	<200	<4	<4	17	<10	<10	<10	<50	<50
FEB										
19...	1100	<200	<4	<4	36	30	<10	<10	<50	<50
MAR										
31...	310	<200	<4	<4	34	32	<10	<10	<50	<50
APR										
22...	400	<200	<4	<4	33	28	<10	<10	<50	<50
MAY										
21...	<200	<200	<40	<40	30	28	<10	<10	<50	<50
JUN										
29...	240	<200	<40	<40	37	37	<10	<10	<50	<50
JUL										
23...	<200	<200	<40	<40	27	27	<10	<10	<50	<50
AUG										
25...	<200	<200	<4	<4	23	22	<10	<10	<50	<50

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	COBALT, TOTAL, RECOV- ERABLE ($\mu\text{G/L}$ AS CO) (01037)	COBALT, DIS- SOLVED ($\mu\text{G/L}$ AS CO) (01035)	COPPER, TOTAL, RECOV- ERABLE ($\mu\text{G/L}$ AS CU) (01042)	COPPER, DIS- SOLVED ($\mu\text{G/L}$ AS CU) (01040)	IRON, TOTAL, RECOV- ERABLE ($\mu\text{G/L}$ AS FE) (01045)	IRON, DIS- SOLVED ($\mu\text{G/L}$ AS FE) (01046)	LEAD, TOTAL, RECOV- ERABLE ($\mu\text{G/L}$ AS PB) (01051)	LEAD, DIS- SOLVED ($\mu\text{G/L}$ AS PB) (01049)	LITHIUM TOTAL, RECOV- ERABLE ($\mu\text{G/L}$ AS LI) (01132)	LITHIUM DIS- SOLVED ($\mu\text{G/L}$ AS LI) (01130)
0157154970	NW TRIB TO SWATARA CR, SITE A2, NEAR NEWTOWN, PA (LAT 40 40 32N LONG 076 22 25W)									
OCT 1997										
30...	<50	<50	<10	<10	6000	6200	<1	<1.0	<30	<30
NOV										
20...	<50	<50	100	<10	9800	9700	<1	<1.0	<30	<30
DEC										
17...	<50	<50	<10	<10	12000	12000	<1	<1.0	<30	<30
JAN 1998										
07...	<50	<50	<10	<10	9100	8900	<1	<1.0	<30	<25
09...	<50	<50	<10	<10	15000	15000	<1	<1.0	<30	<25
FEB										
20...	50	<50	<10	<10	9400	8900	<1	<1.0	<30	<25
MAR										
31...	60	<50	16	16	9600	9000	<1	<1.0	<30	<30
APR										
22...	<50	<50	<10	<10	9500	9500	<1	<1.0	<30	<25
MAY										
21...	<50	<50	<10	<10	8400	7900	<10	<10	<30	<25
JUN										
03...	<50	<50	<10	<10	5800	5600	<1	<1.0	<30	<25
29...	<50	<50	<10	<10	6400	6400	<10	<10	<30	<30
29...	<50	<50	<10	<10	8000	7100	<10	<10	<30	<30
29...	<50	<50	<10	<10	6600	6400	<10	<10	<30	<30
JUL										
23...	<50	<50	<10	<10	7000	6800	<10	<10	<30	<25
23...	<50	<50	<10	<10	8200	8200	<10	<10	<30	<25
AUG										
25...	<50	<50	<10	<10	6800	6500	<1	<1.0	<30	<30
SEP										
28...	<50	<50	<10	<10	4600	4000	1	<1.0	<30	<30
0157154972	NW TRIB TO SWATARA CR, SITE A3, NEAR NEWTOWN, PA (LAT 40 40 32N LONG 076 21 59W)									
OCT 1997										
31...	<50	<50	<10	<10	180	130	<1	<1.0	<30	<25
NOV										
20...	<50	<50	<10	<10	230	110	<1	<1.0	<30	<30
DEC										
17...	<50	<50	<10	<10	260	120	<1	<1.0	<30	<30
JAN 1998										
07...	<50	<50	<10	<10	890	560	1	<1.0	<30	<25
09...	<50	<50	<10	<10	5500	2200	3	<1.0	<30	<25
FEB										
19...	<50	<50	<10	<10	3200	2200	1	<1.0	<30	<25
MAR										
31...	<50	<50	<10	<10	3000	940	<1	<1.0	<30	<30
APR										
22...	<50	<50	<10	<10	3400	2300	<1	<1.0	<30	<25
MAY										
21...	<50	<50	<10	<10	3400	1800	<10	<10	<30	<25
JUN										
29...	<50	<50	<10	<10	2500	1300	<10	<10	<30	<30
JUL										
23...	<50	<50	<10	<10	1200	69	<10	<10	<30	<25
AUG										
25...	<50	<50	<10	<10	760	43	3	<1.0	<30	<30

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SELE- NIUM, TOTAL (µG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	STRON- TIUM, TOTAL RECOV- ERABLE (µG/L AS SR) (01082)	STRON- TIUM, DIS- SOLVED (µG/L AS SR) (01080)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)
0157154970	NW TRIB TO SWATARA CR, SITE A2, NEAR NEWTOWN, PA (LAT 40 40 32N LONG 076 22 25W)									
OCT 1997										
30...	600	620	60	<50	<7	<7	50	50	40	39
NOV										
20...	640	640	<50	<50	<7	<7	40	40	70	64
DEC										
17...	640	640	<50	<50	<7	<7	40	41	60	56
JAN 1998										
07...	550	550	<50	<50	<7	<7	30	33	80	82
09...	680	660	<50	<50	<7	<7	<10	<10	60	61
FEB										
20...	690	660	<50	<50	<7	<7	30	31	80	75
MAR										
31...	670	640	53	<50	<7	<7	30	29	70	71
APR										
22...	630	630	<50	<50	<7	<7	30	28	70	66
MAY										
21...	620	610	<50	<50	<70	<70	30	26	70	64
JUN										
03...	580	580	<50	<50	<7	<7	30	30	60	54
29...	570	570	<50	<50	<70	<70	30	28	70	67
29...	600	580	<50	<50	<70	<70	30	31	80	68
29...	570	560	<50	<50	<70	<70	30	28	70	65
JUL										
23...	590	590	<50	<50	<70	<70	30	32	60	56
23...	640	640	<50	<50	<70	<70	40	40	60	55
AUG										
25...	580	570	<50	<50	<7	<7	50	47	40	36
SEP										
28...	540	520	<50	<50	<7	<7	60	54	40	31
0157154972	NW TRIB TO SWATARA CR, SITE A3, NEAR NEWTOWN, PA (LAT 40 40 32N LONG 076 21 59W)									
OCT 1997										
31...	240	220	<50	<50	<7	<7	30	27	10	11
NOV										
20...	310	310	<50	<50	<7	<7	30	29	20	15
DEC										
17...	330	320	<50	<50	<7	<7	30	30	20	18
JAN 1998										
07...	310	290	<50	<50	<7	<7	20	22	50	48
09...	430	420	<50	<50	<7	<7	<10	<10	50	69
FEB										
19...	410	370	<50	<50	<7	<7	20	21	40	36
MAR										
31...	470	450	<50	<50	<7	<7	30	28	40	25
APR										
22...	420	380	<50	<50	<7	<7	20	20	40	31
MAY										
21...	460	450	<50	<50	<70	<70	20	23	40	26
JUN										
29...	430	430	<50	<50	<70	<70	30	26	40	29
JUL										
23...	350	340	<50	<50	<70	<70	30	29	20	17
AUG										
25...	230	220	<50	<50	<7	<7	30	30	<10	<10

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
0157154960 SWATARA CREEK, AB NW TRIB, SITE B0, NR NEWTOWN, PA (LAT 40 40 34N LONG 076 21 57W)											
OCT 1997											
31...	1345	1028	9813	.84	83	4.5	4.4	596	7.5	10.0	85
NOV											
20...	1150	1028	9813	2.9	84	4.3	4.3	617	4.7	13.0	98
DEC											
17...	1130	1028	9813	1.4	81	4.4	4.4	609	3.8	13.0	98
JAN 1998											
07...	1420	1028	9813	2.8	84	4.3	4.3	481	7.4	12.0	97
09...	1155	1028	9813	18	81	4.2	4.2	--	9.4	11.0	97
FEB											
19...	1630	1028	9813	6.7	81	4.3	4.3	499	4.4	12.0	98
MAR											
31...	1425	1028	9813	2.7	76	4.3	4.4	531	12.5	11.0	100
APR											
22...	1050	1028	9813	5.1	74	4.3	4.4	445	8.8	11.0	98
MAY											
21...	1300	1028	9813	2.7	73	4.3	4.3	529	14.3	9.6	94
JUN											
29...	1245	1028	9813	3.2	77	4.2	4.3	416	15.4	9.7	96
JUL											
23...	1330	1028	9813	.49	83	4.2	4.4	605	18.9	7.6	81
AUG											
25...	1445	1028	9813	.14	80	4.3	4.3	585	18.6	8.3	88
SEP											
28...	1335	1028	9813	.02	60	4.2	4.4	417	16.2	7.9	81
0157154980 SWATARA CR, BL NW TRIB, SITE B1, NR NEWTOWN, PA (LAT 40 40 22N LONG 076 21 41W)											
OCT 1997											
31...	1245	1028	9813	.55	106	6.8	7.2	456	7.5	10.0	87
NOV											
20...	1130	1028	9813	2.2	92	6.6	6.0	408	4.9	12.0	97
DEC											
17...	1100	1028	9813	1.8	93	6.7	6.0	559	3.9	13.0	98
JAN 1998											
07...	1400	1028	9813	5.4	83	6.0	5.6	425	7.9	12.0	98
09...	1105	1028	9813	26	77	5.2	5.0	--	9.8	11.0	99
FEB											
19...	1455	1028	9813	10	81	5.8	5.4	463	5.5	12.0	98
MAR											
31...	1335	1028	9813	4.0	86	6.5	6.0	--	13.0	11.0	110
APR											
22...	0930	1028	9813	6.7	76	6.2	5.8	340	8.4	11.6	99
MAY											
21...	1230	1028	9813	4.1	90	6.6	6.1	390	13.9	9.9	96
JUN											
29...	1115	1028	9813	4.6	82	6.4	5.9	339	14.8	9.9	98
JUL											
23...	1245	1028	9813	.86	119	6.9	6.6	330	18.4	8.1	86
AUG											
25...	1540	1028	9813	.26	132	7.3	6.3	415	18.3	8.3	88
SEP											
28...	1420	1028	9813	.10	101	6.8	6.3	--	16.8	8.0	84
0157154982 SWATARA CR, BL NW TRIB, SITE B2, NEAR NEWTOWN, PA (LAT 40 40 22N LONG 076 21 39W)											
OCT 1997											
31...	1230	1028	9813	.72	107	6.9	6.4	416	7.6	10.0	88
NOV											
20...	1120	1028	9813	2.2	92	6.7	6.1	368	4.8	13.0	100
DEC											
17...	1045	1028	9813	1.8	93	6.8	5.9	559	3.9	13.0	98
JAN 1998											
07...	1345	1028	9813	5.4	85	6.0	5.6	435	7.9	12.0	98
09...	1055	1028	9813	26	77	5.3	5.5	--	9.8	11.0	99

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CACO3) (70508)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD (MG/L AS CACO3) (00410)
0157154960 SWATARA CREEK, AB NW TRIB, SITE B0, NR NEWTOWN, PA (LAT 40 40 34N LONG 076 21 57W)											
OCT 1997											
31...	--	11	1.1	1.1	1.2	1.2	5.2	5.1	.6	.61	.00
NOV											
20...	--	8.0	1.1	1.2	1.2	1.2	6.4	6.3	.6	.58	.00
DEC											
17...	--	12	.96	1.2	1.0	.98	4.8	4.7	<.5	<.50	.00
JAN 1998											
07...	--	12	1.1	1.1	.91	.86	5.7	5.5	.7	.71	.00
09...	--	11	1.2	1.2	.89	.89	5.0	5.0	.9	.74	.00
FEB											
19...	--	9.8	1.0	1.0	.90	.85	6.2	5.6	.6	.60	.00
MAR											
31...	--	11	1.6	1.6	1.0	1.1	5.2	5.5	.6	.51	.00
APR											
22...	--	7.8	1.0	1.0	.85	.85	5.0	5.0	<.5	<.50	.00
MAY											
21...	--	13	1.2	1.2	1.0	1.0	4.5	4.3	.6	<.50	.00
JUN											
29...	--	12	1.0	1.9	.93	1.0	4.9	4.9	.6	<.50	.00
JUL											
23...	--	13	1.0	1.8	1.2	1.2	5.4	5.4	.6	.64	.00
AUG											
25...	--	12	1.1	1.0	1.3	1.2	5.3	5.3	<1.0	<1.0	.00
SEP											
28...	--	8.6	1.0	1.0	1.2	1.2	4.2	4.2	<1.0	<1.0	.00
0157154980 SWATARA CR, BL NW TRIB, SITE B1, NR NEWTOWN, PA (LAT 40 40 22N LONG 076 21 41W)											
OCT 1997											
31...	.00	.00	7.8	7.4	2.0	1.8	6.1	5.6	.8	.76	--
NOV											
20...	--	.00	6.6	6.6	1.8	1.8	6.5	6.4	.8	.77	--
DEC											
17...	--	4.0	6.0	5.6	1.7	1.6	5.1	4.8	<.5	<.50	--
JAN 1998											
07...	--	7.0	4.9	4.5	1.6	1.4	5.6	5.3	.9	.78	--
09...	--	6.4	4.2	4.2	1.7	1.7	5.1	5.0	1.5	1.1	--
FEB											
19...	--	5.4	3.8	3.7	1.6	1.5	5.7	5.5	.8	.72	2
MAR											
31...	--	5.2	5.6	4.9	1.8	1.7	5.8	5.2	.8	.75	3
APR											
22...	--	4.0	4.2	4.1	1.5	1.5	5.7	5.6	.6	<.50	2
MAY											
21...	--	6.6	5.8	5.5	2.0	1.9	5.7	5.5	.7	.73	5
JUN											
29...	--	5.8	4.8	5.6	1.6	1.6	5.4	5.3	<.5	<.50	--
JUL											
23...	.00	.00	10	9.2	2.3	2.2	6.7	6.3	.8	.78	--
AUG											
25...	.00	.00	--	12	--	2.6	--	7.1	--	<1.0	--
SEP											
28...	.00	2.4	9.0	9.0	2.5	2.5	6.4	6.4	1.1	<1.0	--
0157154982 SWATARA CR, BL NW TRIB, SITE B2, NEAR NEWTOWN, PA (LAT 40 40 22N LONG 076 21 39W)											
OCT 1997											
31...	.00	1.8	8.0	7.5	2.0	1.8	5.9	5.6	.6	.63	--
NOV											
20...	.00	.00	6.8	6.8	1.8	1.8	6.6	6.6	.7	.66	--
DEC											
17...	.00	3.8	6.9	6.7	1.9	1.9	6.1	6.0	.5	<.50	--
JAN 1998											
07...	--	5.6	4.4	4.3	1.4	1.4	5.3	5.2	.8	.73	--
09...	--	6.2	12	4.1	1.8	1.6	4.9	4.9	1.6	1.0	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, TOTAL (MG/L AS F) (00951)	SILICA TOTAL (MG/L- SiO2) (00956)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
0157154960	SWATARA CREEK, AB NW TRIB, SITE B0, NR NEWTOWN, PA (LAT 40 40 34N LONG 076 21 57W)									
OCT 1997										
31...	.00	19	11	<.2	4.8	<2	<.040	<.020	.16	<.020
NOV										
20...	.00	13	12	<.2	4.3	2	<.040	<.020	.11	<.020
DEC										
17...	.00	14	11	<.2	4.5	<2	<.040	.040	.12	<.020
JAN 1998										
07...	.00	14	11	<.2	4.2	44	.040	.020	.15	<.020
09...	.00	13	8.4	<.2	4.2	14	<.040	<.020	.25	<.020
FEB										
19...	.00	13	11	<.2	3.9	12	<.040	<.020	.19	<.020
MAR										
31...	.00	13	9.0	<.2	4.7	<2	<.040	<.020	.16	<.020
APR										
22...	.00	13	9.0	<.2	3.5	<2	<.040	.020	.16	<.020
MAY										
21...	.00	14	7.4	<.2	4.5	<2	<.040	<.020	.17	<.020
JUN										
29...	.00	18	7.5	<.2	5.0	<2	.100	<.020	.29	.020
JUL										
23...	.00	28	10	<.2	5.1	<2	.040	<.020	.20	<.020
AUG										
25...	.00	30	10	<.2	5.3	<2	.040	<.020	.20	<.020
SEP										
28...	.00	19	9.2	<.2	4.5	10	.050	<.020	.17	<.020
0157154980	SWATARA CR, BL NW TRIB, SITE B1, NR NEWTOWN, PA (LAT 40 40 22N LONG 076 21 41W)									
OCT 1997										
31...	12	21	11	<.2	4.9	<2	<.040	.020	.13	<.020
NOV										
20...	5	21	12	<.2	5.4	2	<.040	<.020	.11	<.020
DEC										
17...	6	22	10	<.2	4.5	6	<.040	.050	.12	<.020
JAN 1998										
07...	3	20	10	<.2	4.4	42	.050	.040	.17	<.020
09...	2	20	8.3	<.2	6.3	32	.050	.040	.31	<.020
FEB										
19...	3	19	11	<.2	4.2	50	.040	.030	.17	<.020
MAR										
31...	4	20	10	<.2	5.2	10	<.040	.020	.17	<.020
APR										
22...	3	17	9.8	<.2	4.5	4	<.040	.020	.19	<.020
MAY										
21...	5	21	10	<.2	5.0	<2	.090	.050	.29	<.020
JUN										
29...	4	18	8.9	<.2	4.9	8	.210	.050	.39	<.020
JUL										
23...	11	24	12	<.2	5.3	2	.070	.050	.28	<.020
AUG										
25...	12	29	12	<.2	5.2	<2	.080	.020	.23	<.020
SEP										
28...	7	28	11	<.2	4.6	16	.040	<.020	.21	<.020
0157154982	SWATARA CR, BL NW TRIB, SITE B2, NEAR NEWTOWN, PA (LAT 40 40 22N LONG 076 21 39W)									
OCT 1997										
31...	7	20	11	<.2	4.9	<2	<.040	<.020	.17	<.020
NOV										
20...	5	20	12	<.2	5.5	<2	<.040	<.020	.12	<.020
DEC										
17...	6	21	11	<.2	5.2	14	<.040	.060	.12	<.020
JAN 1998										
07...	3	19	10	<.2	4.1	30	.050	.030	.16	<.020
09...	3	19	8.3	<.2	11	26	.050	.030	.27	<.020

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ALUM- INUM, TOTAL RECOV- ERABLE (μG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (μG/L AS AL) (01106)	ARSENIC TOTAL (μG/L AS AS) (01002)	ARSENIC DIS- SOLVED (μG/L AS AS) (01000)	BARIUM, TOTAL RECOV- ERABLE (μG/L AS BA) (01007)	BARIUM, DIS- SOLVED (μG/L AS BA) (01005)	CADMIUM WATER UNFLTRD TOTAL (μG/L AS CD) (01027)	CADMIUM DIS- SOLVED (μG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (μG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (μG/L AS CR) (01030)
0157154960	SWATARA CREEK, AB NW TRIB, SITE B0, NR NEWTOWN, PA (LAT 40 40 34N LONG 076 21 57W)									
OCT 1997										
31...	670	660	<4	<4	37	37	<10	<10	<50	<50
NOV										
20...	860	<200	<4	<4	45	45	<10	<10	<50	<50
DEC										
17...	780	710	<4	<4	41	38	<10	<10	<50	<50
JAN 1998										
07...	810	690	<4	<4	43	43	<10	<10	<50	<50
09...	1000	910	<4	<4	13	13	<10	<10	<50	<50
FEB										
19...	850	750	<4	<4	39	35	<10	<10	<50	<50
MAR										
31...	970	830	<4	<4	45	44	<10	<10	<50	<50
APR										
22...	810	740	<4	<4	35	34	<10	<10	<50	<50
MAY										
21...	800	740	<40	<40	42	40	<10	<10	<50	<50
JUN										
29...	870	720	<40	<40	45	43	<10	<10	<50	<50
JUL										
23...	740	600	<40	<40	39	38	<10	<10	<50	<50
AUG										
25...	590	500	<4	<4	37	35	<10	<10	<50	<50
SEP										
28...	340	320	<4	<4	25	25	<10	<10	<50	<50
0157154980	SWATARA CR, BL NW TRIB, SITE B1, NR NEWTOWN, PA (LAT 40 40 22N LONG 076 21 41W)									
OCT 1997										
31...	460	<200	<4	<4	34	30	<10	<10	<50	<50
NOV										
20...	620	<200	<4	<4	39	39	<10	<10	<50	<50
DEC										
17...	660	<200	<4	<4	34	31	<10	<10	<50	<50
JAN 1998										
07...	690	<200	<4	<4	39	36	<10	<10	<50	<50
09...	1600	490	<4	<4	16	10	<10	<10	<50	<50
FEB										
19...	800	<200	<4	<4	36	34	<10	<10	<50	<50
MAR										
31...	990	<200	<4	<4	40	33	14	<10	<50	<50
APR										
22...	670	<200	<4	<4	34	33	<10	<10	<50	<50
MAY										
21...	540	<200	<40	<40	37	35	<10	<10	<50	<50
JUN										
29...	630	<200	<40	<40	39	35	<10	<10	<50	<50
JUL										
23...	380	<200	<40	<40	33	31	<10	<10	<50	<50
AUG										
25...	--	<200	--	<4	--	29	--	<10	--	<50
SEP										
28...	<200	<200	<4	<4	24	24	<10	<10	<50	<50
0157154982	SWATARA CR, BL NW TRIB, SITE B2, NEAR NEWTOWN, PA (LAT 40 40 22N LONG 076 21 39W)									
OCT 1997										
31...	420	<200	<4	<4	32	30	<10	<10	<50	<50
NOV										
20...	640	<200	<4	<4	40	39	<10	<10	<50	<50
DEC										
17...	748	<200	<4	<4	40	38	<10	<10	<50	<50
JAN 1998										
07...	660	<200	<4	<4	33	32	<10	<10	<50	<50
09...	3100	410	<4	<4	600	33	<10	<10	<50	<50

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	COBALT, TOTAL, RECOV- ERABLE (μG/L AS CO) (01037)	COBALT, DIS- SOLVED (μG/L AS CO) (01035)	COPPER, TOTAL, RECOV- ERABLE (μG/L AS CU) (01042)	COPPER, DIS- SOLVED (μG/L AS CU) (01040)	IRON, TOTAL, RECOV- ERABLE (μG/L AS FE) (01045)	IRON, DIS- SOLVED (μG/L AS FE) (01046)	LEAD, TOTAL, RECOV- ERABLE (μG/L AS PB) (01051)	LEAD, DIS- SOLVED (μG/L AS PB) (01049)	LITHIUM TOTAL, RECOV- ERABLE (μG/L AS LI) (01132)	LITHIUM DIS- SOLVED (μG/L AS LI) (01130)
0157154960	SWATARA CREEK, AB NW TRIB, SITE B0, NR NEWTOWN, PA (LAT 40 40 34N LONG 076 21 57W)									
OCT 1997										
31...	<50	<50	<10	<10	190	130	<1	<1.0	<30	<25
NOV										
20...	<50	<50	<10	<10	230	180	<1	<1.0	<30	<30
DEC										
17...	<50	<50	<10	<10	150	180	<1	<1.0	<30	<25
JAN 1998										
07...	<50	<50	<10	<10	170	120	<1	<1.0	<30	<25
09...	<50	<50	<10	<10	340	150	1	1.5	<30	<25
FEB										
19...	<50	<50	<10	<10	150	95	<1	<1.0	<30	<25
MAR										
31...	<50	<50	22	12	160	120	<1	<1.0	<30	<30
APR										
22...	<50	<50	<10	<10	200	200	<1	<1.0	<30	<25
MAY										
21...	<50	<50	11	<10	150	110	<10	<10	<30	<25
JUN										
29...	<50	<50	17	1.1	270	240	<10	<10	<30	<30
JUL										
23...	<50	<50	<10	<10	490	140	<10	<10	<30	<25
AUG										
25...	<50	<50	<10	<10	340	200	<1	<1.0	<30	<25
SEP										
28...	<50	<50	<10	<10	200	150	<1	<1.0	<30	<30
0157154980	SWATARA CR, BL NW TRIB, SITE B1, NR NEWTOWN, PA (LAT 40 40 22N LONG 076 21 41W)									
OCT 1997										
31...	<50	<50	<10	<10	180	39	<1	<1.0	<30	<25
NOV										
20...	<50	<50	<10	<10	220	140	<1	<1.0	<30	<30
DEC										
17...	<50	<50	<10	<10	200	33	<1	<1.0	<30	<25
JAN 1998										
07...	<50	<50	<10	<10	320	97	<1	<1.0	<30	<25
09...	<50	<50	<10	<10	2400	800	2	<1.0	<30	<25
FEB										
19...	<50	<50	<10	<10	900	620	<1	<1.0	<30	<25
MAR										
31...	<50	<50	<10	<10	1300	380	<1	<1.0	<30	<30
APR										
22...	<50	<50	<10	<10	1000	730	<1	<1.0	<30	<25
MAY										
21...	<50	<50	<10	<10	1400	760	<10	<10	<30	<25
JUN										
29...	<50	<50	<10	<10	860	860	<10	<10	<30	<25
JUL										
23...	<50	<50	<10	<10	640	28	<10	<10	<30	<25
AUG										
25...	--	<50	--	<10	--	130	--	<1.0	--	<25
SEP										
28...	<50	<50	<10	<10	230	100	<1	<1.0	<30	<25
0157154982	SWATARA CR, BL NW TRIB, SITE B2, NEAR NEWTOWN, PA (LAT 40 40 22N LONG 076 21 39W)									
OCT 1997										
31...	<50	<50	<10	<10	160	56	<1	<1.0	<30	<25
NOV										
20...	<50	<50	<10	<10	230	52	<1	<1.0	<30	<30
DEC										
17...	<50	<50	<10	<10	270	35	1	1	<30	<30
JAN 1998										
07...	<50	<50	<10	<10	290	84	<1	<1.0	<30	<30
09...	<50	<50	<10	<10	4400	710	3	<1.0	<30	<30

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	MANGA- NESE, TOTAL RECOV- ERABLE (μ G/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (μ G/L AS MN) (01056)	NICKEL, TOTAL RECOV- ERABLE (μ G/L AS NI) (01067)	NICKEL, DIS- SOLVED (μ G/L AS NI) (01065)	SELE- NIUM, TOTAL (μ G/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (μ G/L AS SE) (01145)	STRON- TIUM, TOTAL RECOV- ERABLE (μ G/L AS SR) (01082)	STRON- TIUM, DIS- SOLVED (μ G/L AS SR) (01080)	ZINC, TOTAL RECOV- ERABLE (μ G/L AS ZN) (01092)	ZINC, DIS- SOLVED (μ G/L AS ZN) (01090)
0157154960	SWATARA CREEK, AB NW TRIB, SITE B0, NR NEWTOWN, PA (LAT 40 40 34N LONG 076 21 57W)									
OCT 1997										
31...	220	220	<50	<50	<7	<7	10	11	40	36
NOV										
20...	210	210	<50	<50	<7	<7	10	13	40	45
DEC										
17...	170	170	<50	<50	<7	<7	10	12	40	37
JAN 1998										
07...	160	160	<50	<50	<7	<7	10	11	40	34
09...	160	160	<50	<50	<7	<7	<10	<10	50	57
FEB										
19...	150	140	<50	<50	<7	<7	10	11	40	35
MAR										
31...	180	180	<50	<50	<7	<7	10	13	40	39
APR										
22...	140	140	<50	<50	<7	<7	<10	<10	30	32
MAY										
21...	160	160	<50	<50	<70	<70	10	12	30	33
JUN										
29...	150	170	<50	<50	<70	<70	10	13	50	42
JUL										
23...	220	220	<50	<50	<70	<70	10	13	40	36
AUG										
25...	250	240	<50	<50	<7	<7	10	12	30	27
SEP										
28...	240	250	<50	<50	<7	<7	<10	<10	20	21
0157154980	SWATARA CR, BL NW TRIB, SITE B1, NR NEWTOWN, PA (LAT 40 40 22N LONG 076 21 41W)									
OCT 1997										
31...	230	220	<50	<50	<7	<7	20	16	30	28
NOV										
20...	230	230	<50	<50	<7	<7	20	17	30	27
DEC										
17...	200	190	<50	<50	<7	<7	20	14	30	23
JAN 1998										
07...	200	180	<50	<50	<7	<7	20	15	70	63
09...	270	260	<50	<50	<7	<7	<10	<10	20	22
FEB										
19...	210	210	<50	<50	<7	<7	10	14	40	38
MAR										
31...	250	220	<50	<50	<7	<7	20	16	50	40
APR										
22...	220	210	<50	<50	<7	<7	10	10	30	33
MAY										
21...	270	260	<50	<50	<70	<70	20	16	40	28
JUN										
29...	230	250	<50	<50	<70	<70	20	15	30	34
JUL										
23...	270	250	<50	<50	<70	<70	20	19	20	19
AUG										
25...	--	180	--	<50	--	<7	--	23	--	<10
SEP										
28...	170	170	<50	<50	<7	<7	20	18	20	16
0157154982	SWATARA CR, BL NW TRIB, SITE B2, NEAR NEWTOWN, PA (LAT 40 40 22N LONG 076 21 39W)									
OCT 1997										
31...	230	220	<50	<50	<7	<7	20	16	30	28
NOV										
20...	240	230	<50	<50	<7	<7	20	18	40	28
DEC										
17...	220	224	<50	<50	<7	<7	19	18	40	<36
JAN 1998										
07...	200	200	<50	<50	<7	<7	20	14	70	62
09...	340	270	<50	<50	<7	<7	20	14	70	51

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
0157154984 SWATARA CR, BL NW TRIB, SITE B3, NEAR NEWTOWN, PA (LAT 40 40 22N LONG 076 21 36W)											
OCT 1997											
31...	1215	1028	9813	.72	107	6.9	6.4	461	7.6	11.0	90
NOV											
20...	1100	1028	9813	2.2	92	6.7	6.1	449	4.7	12.0	97
DEC											
17...	1030	1028	9813	1.8	95	6.7	6.0	409	3.8	13.0	97
JAN 1998											
07...	1330	1028	9813	5.4	85	6.0	5.7	435	7.9	12.0	99
09...	1110	1028	9813	26	77	5.5	5.1	--	9.8	11.0	99
FEB											
19...	1305	1028	9813	10	81	5.9	5.4	403	5.5	12.0	97
MAR											
31...	1345	1028	9813	4.0	86	6.6	6.0	--	13.0	11.0	110
APR											
22...	0915	1028	9813	6.7	78	6.5	5.7	325	8.4	12.0	100
MAY											
21...	1215	1028	9813	4.1	89	6.6	6.1	424	14.2	9.9	97
JUN											
29...	1110	1028	9813	4.6	83	6.4	6.0	314	14.9	9.9	98
JUL											
23...	1230	1028	9813	.86	122	7.0	6.6	334	19.3	8.1	88
AUG											
25...	1530	1028	9813	.26	132	7.4	6.4	355	18.8	8.5	92
SEP											
28...	1445	1028	9813	.10	104	6.9	6.4	--	17.5	7.8	84
403939076205901 HEGINS WHITE SEEP, SITE C0-3, AT NEWTOWN, PA (LAT 40 39 39N LONG 076 20 59W)											
OCT 1997											
16...	1630	1028	9813	--	502	6.9	6.7	271	12.0	7.0	66
403955076211801 HEGINS MINE DISCHARGE SITE C0-1, AT NEWTOWN, PA (LAT 40 39 55N LONG 076 21 18W)											
MAY 1998											
01...	1000	1028	9813	--	407	3.5	3.7	623	10.0	11.4	100
JUL											
23...	1120	1028	9813	--	414	3.5	3.8	487	11.6	10.4	96
0157155012 SWATARA CREEK, SITE C2, AT NEWTOWN, PA (LAT 40 39 31N LONG 076 20 47W)											
OCT 1997											
31...	1030	1028	9813	.72	163	5.6	5.9	477	6.8	11.0	90
NOV											
20...	0945	1028	9813	.88	127	7.5	7.6	449	3.5	13.0	97
DEC											
17...	1000	1028	9813	.96	138	6.3	6.2	420	2.9	13.0	99
JAN 1998											
07...	1245	1028	9813	.40	114	5.3	5.0	495	8.2	12.0	98
09...	1010	1028	9813	.08	123	5.6	4.9	--	9.6	11.0	97
FEB											
19...	1410	1028	9813	.56	102	5.8	6.1	382	6.3	12.0	98
MAR											
31...	1700	1028	9813	.78	119	6.0	6.5	460	14.0	10.0	100
APR											
22...	1515	1028	9813	1.5	111	6.0	7.0	408	10.7	10.0	90
MAY											
21...	1100	1028	9813	2.7	119	6.9	7.5	440	14.1	10.1	99
JUN											
29...	1500	1028	9813	.18	84	6.2	6.1	338	15.8	9.8	99
AUG											
25...	1415	1028	9813	.10	190	6.7	6.3	485	18.9	8.9	96

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CACO3) (70508)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD (MG/L AS CACO3) (00410)
0157154984 SWATARA CR, BL NW TRIB, SITE B3, NEAR NEWTOWN, PA (LAT 40 40 22N LONG 076 21 36W)											
OCT 1997											
31...	.00	2.0	7.6	7.4	1.9	1.8	5.8	5.6	.7	.67	--
NOV											
20...	--	.00	6.4	6.4	1.7	1.7	6.1	6.1	.8	.63	--
DEC											
17...	.00	4.2	5.9	5.8	1.7	1.6	5.2	5.1	.6	<.50	--
JAN 1998											
07...	--	5.8	4.5	4.4	1.5	1.4	5.2	5.2	1.3	.71	--
09...	--	7.2	4.6	3.8	1.6	1.5	4.7	4.6	1.6	1.0	--
FEB											
19...	--	4.4	4.2	4.0	1.7	1.6	6.5	6.3	.8	.80	3
MAR											
31...	--	5.6	6.0	5.7	1.9	1.8	6.3	5.8	.7	.65	3
APR											
22...	--	4.6	4.5	4.5	1.6	1.6	6.1	5.8	.6	<.00	2
MAY											
21...	--	5.4	5.8	5.6	2.0	1.9	5.7	5.5	.7	.74	5
JUN											
29...	--	7.2	5.4	5.2	1.7	1.6	5.7	5.6	.6	<.50	--
JUL											
23...	.00	.00	10	9.5	2.4	2.2	6.9	6.1	.9	.75	--
AUG											
25...	.00	.00	13	13	2.6	2.6	7.3	7.2	<1.0	<1.0	--
SEP											
28...	.00	.40	9.4	9.4	2.4	2.4	6.2	6.2	<1.0	<1.0	--
403939076205901 HEGINS WHITE SEEP, SITE C0-3, AT NEWTOWN, PA (LAT 40 39 39N LONG 076 20 59W)											
OCT 1997											
16...	.00	.00	59	53	31	28	7.1	6.8	2.0	1.8	--
403955076211801 HEGINS MINE DISCHARGE SITE C0-1, AT NEWTOWN, PA (LAT 40 39 55N LONG 076 21 18W)											
MAY 1998											
01...	38	42	6.5	6.5	26	26	4.5	4.5	1.5	1.5	.00
JUL											
23...	--	40	7.6	7.6	31	31	4.9	4.9	1.8	1.8	.00
0157155012 SWATARA CREEK, SITE C2, AT NEWTOWN, PA (LAT 40 39 31N LONG 076 20 47W)											
OCT 1997											
31...	--	5.2	9.1	8.6	6.4	6.2	5.1	4.9	.9	.90	--
NOV											
20...	.00	.00	67	10	5.0	4.7	5.9	5.8	.9	.83	--
DEC											
17...	--	.00	26	9.0	5.2	4.8	4.6	4.2	.7	.60	--
JAN 1998											
07...	--	11	5.4	5.4	3.7	3.6	4.6	4.6	1.8	1.2	--
09...	--	6.6	6.4	6.4	5.2	5.2	3.8	3.8	2.5	2.1	--
FEB											
19...	--	.00	7.7	5.6	3.5	3.4	4.8	4.8	1.3	1.2	5
MAR											
31...	--	.00	10	8.2	5.3	5.1	5.5	5.4	1	.98	7
APR											
22...	--	.00	19	8.9	4.9	4.9	4.8	4.8	.6	.55	22
MAY											
21...	.00	.00	27	9.6	4.7	4.5	5.0	5.0	1.2	.88	37
JUN											
29...	--	4.2	6.6	6.2	3.6	3.4	4.6	4.5	.7	<.50	--
AUG											
25...	--	.40	16	15	9.2	9.2	6.0	6.0	1.3	1.2	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, TOTAL (MG/L AS F) (00951)	SILICA TOTAL (MG/L- SIO2) (00956)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
0157154984 SWATARA CR, BL NW TRIB, SITE B3, NEAR NEWTOWN, PA (LAT 40 40 22N LONG 076 21 36W)										
OCT 1997										
31...	8	20	11	<.2	4.7	<2	<.040	<.020	.23	<.020
NOV										
20...	5	20	12	<.2	3.3	<2	<.040	<.020	.12	<.020
DEC										
17...	6	21	11	<.2	4.5	4	<.040	.040	.12	<.020
JAN 1998										
07...	3	20	11	<.2	9.8	52	.050	.040	.27	.020
09...	2	19	8.3	<.2	8.6	24	.040	.030	.31	.020
FEB										
19...	3	18	11	<.2	5.0	18	.040	.020	.16	<.020
MAR										
31...	4	20	10	<.2	5.3	12	<.040	.030	.17	<.020
APR										
22...	3	17	9.8	<.2	4.8	6	<.040	<.020	<.05	<.020
MAY										
21...	5	21	10	<.2	4.9	<2	.090	.050	.29	<.020
JUN										
29...	4	18	8.8	<.2	5.0	8	.200	.050	.39	<.020
JUL										
23...	11	24	12	<.2	5.2	8	.090	.040	.27	<.020
AUG										
25...	14	29	12	<.2	5.2	<2	.090	.030	.24	<.020
SEP										
28...	7	27	11	<.2	4.7	8	.040	<.020	.21	<.020
403939076205901 HEGINS WHITE SEEP, SITE C0-3, AT NEWTOWN, PA (LAT 40 39 39N LONG 076 20 59W)										
OCT 1997										
16...	58	180	7.5	<.2	16	96	<.040	<.020	.73	.080
403955076211801 HEGINS MINE DISCHARGE SITE C0-1, AT NEWTOWN, PA (LAT 40 39 55N LONG 076 21 18W)										
MAY 1998										
01...	.00	160	5.6	<.2	12	<2	.060	<.020	.15	<.020
JUL										
23...	.00	290	4.8	<.2	14	<2	<.040	<.020	.13	<.020
0157155012 SWATARA CREEK, SITE C2, AT NEWTOWN, PA (LAT 40 39 31N LONG 076 20 47W)										
OCT 1997										
31...	4	47	9.4	<.2	5.9	<2	<.040	<.020	.24	<.020
NOV										
20...	16	36	10	<.2	6.5	82	<.040	<.020	.12	<.020
DEC										
17...	11	42	9.1	<.2	5.5	<2	<.040	.040	.12	<.020
JAN 1998										
07...	2	34	9.1	<.2	13	16	.050	.040	.31	.020
09...	2	40	7.0	<.2	8.4	32	.080	.070	.35	<.020
FEB										
19...	7	29	8.8	<.2	5.0	8	.050	.030	.20	<.020
MAR										
31...	8	37	8.3	<.2	6.6	8	.040	<.020	.17	<.020
APR										
22...	15	34	7.3	<.2	6.5	12	<.040	<.020	.17	<.020
MAY										
21...	15	35	8.6	<.2	5.9	14	.080	.030	.24	<.020
JUN										
29...	5	30	7.4	<.2	5.5	6	.170	.030	.35	<.020
AUG										
25...	6	67	8.6	<.2	7.9	<2	.120	<.020	.24	<.020

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ALUM- INUM, TOTAL RECOV- ERABLE (µG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (µG/L AS AL) (01106)	ARSENIC TOTAL (µG/L AS AS) (01002)	ARSENIC DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, TOTAL RECOV- ERABLE (µG/L AS BA) (01007)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)
0157154984	SWATARA CR, BL NW TRIB, SITE B3, NEAR NEWTOWN, PA (LAT 40 40 22N LONG 076 21 36W)									
OCT 1997										
31...	440	<200	<4	<4	31	30	<10	<10	<50	<50
NOV										
20...	630	<200	<4	<4	42	39	<10	<10	<50	<50
DEC										
17...	580	<200	<4	<4	37	35	<10	<10	<50	<50
JAN 1998										
07...	2900	<200	<4	<4	48	30	<10	<10	<50	<50
09...	2400	410	<4	<4	42	31	<10	<10	<50	<50
FEB										
19...	980	<200	<4	<4	41	38	<10	<10	<50	<50
MAR										
31...	1000	<200	<4	<4	44	38	<10	<10	<50	<50
APR										
22...	650	<200	<4	<4	50	--	<10	<10	<50	<50
MAY										
21...	520	<200	<40	<40	36	34	<10	<10	<50	<50
JUN										
29...	670	<200	<40	<40	37	36	<10	<10	<50	<50
JUL										
23...	350	<200	<40	<40	46	39	<20	<20	<50	<50
AUG										
25...	210	<200	<40	<40	31	28	<10	<10	<50	<50
SEP										
28...	<200	<200	<4	<4	23	23	<10	<10	<50	<50
403939076205901	HEGINS WHITE SEEP, SITE C0-3, AT NEWTOWN, PA (LAT 40 39 39N LONG 076 20 59W)									
OCT 1997										
16...	75000	<200	<4	<4	22	17	<10	<10	<50	<50
403955076211801	HEGINS MINE DISCHARGE SITE C0-1, AT NEWTOWN, PA (LAT 40 39 55N LONG 076 21 18W)									
MAY 1998										
01...	3100	3100	<4	<4	18	18	<10	<10	<50	<50
JUL										
23...	3600	3600	<40	<40	19	19	<10	<10	<50	<50
0157155012	SWATARA CREEK, SITE C2, AT NEWTOWN, PA (LAT 40 39 31N LONG 076 20 47W)									
OCT 1997										
31...	290	<200	<4	<4	24	24	<10	<10	<50	<50
NOV										
20...	650	<200	<4	<4	33	33	<10	<10	<50	<50
DEC										
17...	700	<200	<4	<4	45	36	<50	<50	<50	<50
JAN 1998										
07...	3600	280	<4	<4	50	30	<10	<10	<50	<50
09...	1900	490	<4	<4	42	35	11	<10	<50	<50
FEB										
19...	880	<200	<4	<4	35	34	<10	<10	<50	<50
MAR										
31...	810	<200	<4	<4	37	35	<10	<10	<50	<50
APR										
22...	940	<200	<4	<4	37	37	<10	<10	<50	<50
MAY										
21...	680	<200	<40	<40	34	32	<10	<10	<50	<50
JUN										
29...	660	<200	<40	40	32	31	<10	<10	<50	<50
AUG										
25...	510	<200	<40	<40	32	32	<10	<10	<50	<50

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	COBALT, TOTAL RECOV- ERABLE (μ G/L AS CO) (01037)	COBALT, DIS- SOLVED (μ G/L AS CO) (01035)	COPPER, TOTAL RECOV- ERABLE (μ G/L AS CU) (01042)	COPPER, DIS- SOLVED (μ G/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (μ G/L AS FE) (01045)	IRON, DIS- SOLVED (μ G/L AS FE) (01046)	LEAD, TOTAL RECOV- ERABLE (μ G/L AS PB) (01051)	LEAD, DIS- SOLVED (μ G/L AS PB) (01049)	LITHIUM TOTAL RECOV- ERABLE (μ G/L AS LI) (01132)	LITHIUM DIS- SOLVED (μ G/L AS LI) (01130)
0157154984 SWATARA CR, BL NW TRIB, SITE B3, NEAR NEWTOWN, PA (LAT 40 40 22N LONG 076 21 36W)										
OCT 1997										
31...	<50	<50	<10	<10	190	82	<1	<1.0	<30	<25
NOV										
20...	<50	<50	<10	<10	220	46	<1	<1.0	<30	<25
DEC										
17...	<50	<50	<10	<10	170	35	<1	<1.0	<30	<25
JAN 1998										
07...	<50	<50	<10	<10	1300	69	<1	3.0	<30	<30
09...	<50	<50	<40	<10	2400	650	3	<1.0	<30	<30
FEB										
19...	<50	<50	<10	<10	1000	670	<1	<1.0	<30	<25
MAR										
31...	<50	<50	58	<10	1400	380	<1	<1.0	<30	<30
APR										
22...	<50	<50	<10	<10	1100	760	<1	<1.0	<30	<25
MAY										
21...	<50	<50	<10	<10	1300	720	<10	<10	<30	<25
JUN										
29...	<50	<50	<10	<10	880	450	<10	<10	<30	<25
JUL										
23...	<50	<50	23	16	500	22	<10	<10	<30	<25
AUG										
25...	<50	<50	<10	<10	350	120	<10	<10	<30	<25
SEP										
28...	<50	<50	<10	<10	310	100	<1	<1.0	<10	<30
403939076205901 HEGINS WHITE SEEP, SITE C0-3, AT NEWTOWN, PA (LAT 40 39 39N LONG 076 20 59W)										
OCT 1997										
16...	30	<50	180	<10	7400	34	4	<1.0	<30	<25
403955076211801 HEGINS MINE DISCHARGE SITE C0-1, AT NEWTOWN, PA (LAT 40 39 55N LONG 076 21 18W)										
MAY 1998										
01...	80	74	32	24	160	150	4	3.9	<30	<25
JUL										
23...	90	88	25	25	210	130	<10	<10	<30	<25
0157155012 SWATARA CREEK, SITE C2, AT NEWTOWN, PA (LAT 40 39 31N LONG 076 20 47W)										
OCT 1997										
31...	<50	<50	<10	<10	150	110	<1	<1.0	<30	<25
NOV										
20...	<50	<50	11	10	270	54	<1	<1.0	<30	<30
DEC										
17...	<50	<50	20	<10	240	240	<1	<1.0	<30	<25
JAN 1998										
07...	<50	<50	<10	28	1400	73	3	2.0	<30	<30
09...	<50	<50	16	11	1400	220	2	<1.0	<30	<30
FEB										
19...	<50	<50	<10	<10	600	310	3	<1.0	<30	<25
MAR										
31...	<50	<50	12	<10	580	130	<1	<1.0	40	<30
APR										
22...	<50	<50	<10	13	560	190	<1	<1.0	<30	<30
MAY										
21...	<50	<50	<10	<10	740	120	<10	<10	<30	<25
JUN										
29...	<50	<50	<10	<10	400	85	<10	<10	<30	<25
AUG										
25...	<50	<50	<10	<10	400	120	<10	<10	<30	<25

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SELE- NIUM, TOTAL (µG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	STRON- TIUM, TOTAL RECOV- ERABLE (µG/L AS SR) (01082)	STRON- TIUM, DIS- SOLVED (µG/L AS SR) (01080)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)
0157154984	SWATARA CR, BL NW TRIB, SITE B3, NEAR NEWTOWN, PA (LAT 40 40 22N LONG 076 21 36W)									
OCT 1997										
31...	220	210	<50	<50	<7	<7	20	16	30	24
NOV										
20...	220	220	<50	<50	<7	<7	20	18	40	25
DEC										
17...	200	190	<50	<50	<7	<7	20	17	30	31
JAN 1998										
07...	210	200	<50	<50	<7	<7	20	14	70	58
09...	280	250	<50	<50	<7	<7	20	--	50	50
FEB										
19...	230	220	<50	<50	<7	<7	20	15	40	42
MAR										
31...	260	250	<50	<50	<7	<7	20	16	50	37
APR										
22...	240	230	<50	<50	<7	<7	20	19	50	43
MAY										
21...	270	260	<50	<50	<70	<70	20	16	30	27
JUN										
29...	240	230	<50	<50	<70	<70	10	13	40	32
JUL										
23...	260	230	<50	<50	<70	<70	30	26	20	16
AUG										
25...	150	150	<50	<50	<70	<70	20	23	<10	<10
SEP										
28...	150	140	<50	<50	<7	<7	20	17	20	14
403939076205901	HEGINS WHITE SEEP, SITE C0-3, AT NEWTOWN, PA (LAT 40 39 39N LONG 076 20 59W)									
OCT 1997										
16...	1200	1000	59	52	<7	<7	430	390	450	72
403955076211801	HEGINS MINE DISCHARGE SITE C0-1, AT NEWTOWN, PA (LAT 40 39 55N LONG 076 21 18W)									
MAY 1998										
01...	1100	1100	110	110	<7	<7	50	52	270	270
JUL										
23...	1500	1500	130	130	<70	<70	60	57	340	340
0157155012	SWATARA CREEK, SITE C2, AT NEWTOWN, PA (LAT 40 39 31N LONG 076 20 47W)									
OCT 1997										
31...	330	320	<50	<50	<7	<7	30	30	60	56
NOV										
20...	340	330	<50	<50	<7	<7	50	28	70	18
DEC										
17...	350	320	<50	<50	<7	<7	50	33	70	38
JAN 1998										
07...	300	290	<50	<50	<7	<7	20	22	80	120
09...	390	380	<50	<50	<7	<7	30	26	80	75
FEB										
19...	270	270	<50	<50	<7	<7	20	20	50	46
MAR										
31...	360	350	<50	<50	<7	<7	30	28	70	58
APR										
22...	340	340	<50	<50	<7	<7	30	28	70	47
MAY										
21...	340	320	<50	<50	<70	<70	30	26	50	<10
JUN										
29...	250	240	<50	<50	<70	<70	20	21	40	39
AUG										
25...	360	350	<50	<50	<70	<70	50	52	80	63

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARDS) UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARDS) UNITS) (00403)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	
403853076222301 MIDDLE CR MINE DISCHARGE, SITE E5-0, NR NEWTOWN, PA (LAT 40 38 52N LONG 076 22 19W)												
OCT 1997	16...	1800	1028	9813	1.1	256	5.1	5.0	497	11.5	1.5	14
0157157010 MIDDLE CREEK, SITE E5-1, NEAR NEWTOWN, PA (LAT 40 38 48N LONG 076 22 18W)												
OCT 1997	16...	1730	1028	9813	1.1	249	5.6	5.2	412	11.5	10.0	97
0157157012 MIDDLE CREEK, SITE E5-2, NEAR NEWTOWN, PA (LAT 40 38 42N LONG 076 22 16W)												
OCT 1997	16...	1715	1028	9813	1.1	246	5.7	5.4	382	12.0	11.0	99
0157158010 COAL RUN, SITE C4, NEAR TREMONT, PA (LAT 40 38 33N LONG 076 22 47W)												
NOV 1997	19...	1345	1028	9813	2.0	240	6.4	6.1	--	10.0	10.0	92
0157158014 COAL RUN, SITE C6, NEAR TREMONT, PA (LAT 40 38 32N LONG 076 22 46W)												
NOV 1997	19...	1400	1028	9813	2.0	235	6.6	6.2	--	10.0	11.0	93
403828076224201 MARSHFIELD NO. 1 DISCH, SITE M1-0, NR TREMONT, PA (LAT 40 38 28N LONG 076 22 42W)												
MAR 1998	10...	0930	1028	9813	--	383	6.4	6.4	314	9.8	.3	98
0157158016 MARSHFIELD 1 DISCH, SITE M1-1, AT COAL RUN NR TREMONT, PA (LAT 40 38 26N LONG 076 22 46W)												
MAR 1998	10...	1000	1028	9813	.79	317	6.2	6.4	300	8.5	5.0	98
403822076224401 MARSHFIELD NO. 2 DISCH, SITE M2-0, NR TREMONT, PA (LAT 40 38 22N LONG 076 22 44W)												
MAR 1998	10...	1100	1028	9813	--	329	6.3	6.3	283	10.5	.4	98
0157158018 MARSHFIELD 2 DISCH, SITE M2-1, AT COAL RUN NR TREMONT, PA (LAT 40 38 23N LONG 076 22 46W)												
MAR 1998	10...	1030	1028	9813	.86	416	6.7	6.4	315	8.5	8.9	98
403825076242301 COLKET MINE TUNNEL, SITE C7-219, AT DONALDSON, PA (LAT 40 38 25N LONG 076 24 23W)												
OCT 1997	17...	1300	1028	9813	--	417	5.8	6.0	462	11.5	4.5	42
0157156010 MARTIN RUN, SITE C7, AT DONALDSON, PA (LAT 40 38 19N LONG 076 24 19W)												
NOV 1997	19...	1315	1028	9813	.92	225	5.2	4.9	--	8.3	11.0	95
JAN 1998	07...	1100	1028	9813	2.5	170	5.3	4.8	434	9.9	11.0	100
MAR	31...	1150	1028	9813	2.0	184	4.8	4.6	--	15.5	11.0	110
JUN	30...	1215	1028	9813	1.5	192	4.6	4.8	469	15.9	9.0	91
SEP	28...	1715	1028	9813	.45	157	6.1	5.9	--	16.3	5.0	58
0157156012 MARTIN RUN, SITE C8, AT DONALDSON, PA (LAT 40 38 17N LONG 076 24 19W)												
NOV 1997	19...	1300	1028	9813	.39	227	6.8	6.6	--	8.5	11.0	95
JAN 1998	07...	1110	1028	9813	.04	171	5.3	4.9	424	9.9	12.0	100
MAR	31...	1140	1028	9813	.13	181	5.5	5.3	418	15.5	11.0	110
JUN	30...	1230	1028	9813	.06	189	5.2	5.0	363	15.6	8.9	89
SEP	28...	1720	1028	9813	.44	246	5.9	6.2	--	15.3	8.4	85

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CACO3) (70508)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	MAGNE- SIUM, TOTAL DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	SODIUM, TOTAL DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	POTAS- SIUM, TOTAL DIS- SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD (MG/L AS CACO3) (00410)
403853076222301 MIDDLE CR MINE DISCHARGE, SITE E5-0 NR NEWTOWN, PA (LAT 40 38 52N LONG 076 22 19W)											
OCT 1997 16...	--	24	14	14	16	16	8.0	8.5	1.2	1.2	--
0157157010 MIDDLE CREEK, SITE E5-1, NEAR NEWTOWN, PA (LAT 40 38 48N LONG 076 22 18W)											
OCT 1997 16...	--	7.6	13	12	16	15	7.5	7.4	1.2	.99	--
0157157012 MIDDLE CREEK, SITE E5-2, NEAR NEWTOWN, PA (LAT 40 38 42N LONG 076 22 16W)											
OCT 1997 16...	--	5.6	13	12	15	14	7.4	6.9	1.2	1.1	--
0157158010 COAL RUN, SITE C4, NEAR TREMONT, PA (LAT 40 38 33N LONG 076 22 47W)											
NOV 1997 19...	--	.00	16	15	14	13	6.8	6.8	.9	.93	--
0157158014 COAL RUN, SITE C6, NEAR TREMONT, PA (LAT 40 38 32N LONG 076 22 46W)											
NOV 1997 19...	--	.00	15	15	14	14	6.7	6.6	1.0	1.0	--
403828076224201 MARSHFIELD NO. 1 DISCH, SITE M1-0, NR TREMONT, PA (LAT 40 38 28N LONG 076 22 42W)											
MAR 1998 10...	--	.00	42	38	23	21	4.1	3.8	.8	.76	--
0157158016 MARSHFIELD 1 DISCH, SITE M1-1, AT COAL RUN NR TREMONT, PA (LAT 40 38 26N LONG 076 22 46W)											
MAR 1998 10...	--	.00	36	34	20	20	3.8	3.6	.8	.77	--
403822076224401 MARSHFIELD NO. 2 DISCH, SITE M2-0, NR TREMONT, PA (LAT 40 38 22N LONG 076 22 44W)											
MAR 1998 10...	--	.00	50	48	26	25	5.0	4.8	.9	.82	--
0157158018 MARSHFIELD 2 DISCH, SITE M2-1, AT COAL RUN NR TREMONT, PA (LAT 40 38 23N LONG 076 22 46W)											
MAR 1998 10...	--	.00	30	28	18	17	3.7	3.6	1	.72	--
403825076242301 COLKET MINE TUNNEL, SITE C7-219, AT DONALDSON, PA (LAT 40 38 25N LONG 076 24 23W)											
OCT 1997 17...	--	48	28	28	24	24	2.1	2.3	1.2	--	--
0157156010 MARTIN RUN, SITE C7, AT DONALDSON, PA (LAT 40 38 19N LONG 076 24 19W)											
NOV 1997 19...	--	4.8	13	13	11	11	7.4	7.2	.9	.87	--
JAN 1998 07...	--	11	6.8	6.8	5.9	5.9	7.7	7.7	.9	.80	--
MAR 31...	--	13	9.9	9.9	8.1	8.1	7.1	7.1	1	.98	1
JUN 30...	--	12	12	11	8.2	8.1	7.2	7.0	.6	.53	--
SEP 28...	--	.20	27	27	17	18	3.7	3.6	<1.0	<1.0	--
0157156012 MARTIN RUN, SITE C8, AT DONALDSON, PA (LAT 40 38 17N LONG 076 24 19W)											
NOV 1997 19...	.00	.00	41	19	11	11	7.4	7.5	1.0	.82	--
JAN 1998 07...	--	11	6.6	6.5	5.8	5.7	7.8	7.6	1.0	.97	--
MAR 31...	--	9.0	9.7	9.6	7.3	7.3	6.7	6.6	.9	.88	2
JUN 30...	--	11	12	13	8.3	8.3	7.3	7.3	.6	<.50	--
SEP 28...	--	1.6	25	26	19	19	2.6	2.7	<1.0	<1.0	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, TOTAL (MG/L AS F) (00951)	SILICA TOTAL (MG/L- SIO2) (00956)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
403853076222301 MIDDLE CR MINE DISCHARGE, SITE E5-0 NR NEWTOWN, PA (LAT 40 38 52N LONG 076 22 19W)										
OCT 1997 16...	4	93	12	<.2	9.2	590	.040	.080	.15	<.020
0157157010 MIDDLE CREEK, SITE E5-1, NEAR NEWTOWN, PA (LAT 40 38 48N LONG 076 22 18W)										
OCT 1997 16...	3	92	13	<.2	8.7	4	.040	.080	.15	<.020
0157157012 MIDDLE CREEK, SITE E5-2, NEAR NEWTOWN, PA (LAT 40 38 42N LONG 076 22 16W)										
OCT 1997 16...	3	90	12	<.2	8.9	<2	.040	.060	.13	<.020
0157158010 COAL RUN, SITE C4, NEAR TREMONT, PA (LAT 40 38 33N LONG 076 22 47W)										
NOV 1997 19...	17	78	12	<.2	7.3	<2	<.040	.050	.09	<.020
0157158014 COAL RUN, SITE C6, NEAR TREMONT, PA (LAT 40 38 32N LONG 076 22 46W)										
NOV 1997 19...	17	76	12	<.2	7.4	<2	<.040	.040	.12	<.020
403828076224201 MARSHFIELD NO. 1 DISCH, SITE M1-0, NR TREMONT, PA (LAT 40 38 28N LONG 076 22 42W)										
MAR 1998 10...	88	120	1.4	<.2	7.9	4	<.040	.090	.16	<.020
0157158016 MARSHFIELD 1 DISCH, SITE M1-1, AT COAL RUN NR TREMONT, PA (LAT 40 38 26N LONG 076 22 46W)										
MAR 1998 10...	66	110	1.5	<.2	8.0	580	<.040	.080	.15	<.020
403822076224401 MARSHFIELD NO. 2 DISCH, SITE M2-0, NR TREMONT, PA (LAT 40 38 22N LONG 076 22 44W)										
MAR 1998 10...	86	140	1.8	<.2	10	12	<.040	.100	.15	<.020
0157158018 MARSHFIELD 2 DISCH, SITE M2-1, AT COAL RUN NR TREMONT, PA (LAT 40 38 23N LONG 076 22 46W)										
MAR 1998 10...	56	110	1.8	<.2	7.3	4	<.040	.080	.16	<.020
403825076242301 COLKET MINE TUNNEL, SITE C7-219, AT DONALDSON, PA (LAT 40 38 25N LONG 076 24 23W)										
OCT 1997 17...	36	160	1.9	<.2	12	2	<.040	.190	.24	.020
0157156010 MARTIN RUN, SITE C7, AT DONALDSON, PA (LAT 40 38 19N LONG 076 24 19W)										
NOV 1997 19...	3	80	13	<.2	8.5	<2	<.040	.020	.11	<.020
JAN 1998 07...	2	50	15	<.2	6.5	18	.040	.020	.15	<.020
MAR 31...	1	61	12	<.2	9.2	<2	<.040	.020	.16	<.020
JUN 30...	2	72	12	<.2	9.6	<2	<.040	.030	.15	<.020
SEP 28...	8	110	6.5	<.2	9.4	18	.050	<.020	.39	.020
0157156012 MARTIN RUN, SITE C8, AT DONALDSON, PA (LAT 40 38 17N LONG 076 24 19W)										
NOV 1997 19...	15	81	14	<.2	9.0	54	<.040	.030	.13	<.020
JAN 1998 07...	2	51	16	<.2	6.3	2	.050	.030	.13	<.020
MAR 31...	3	61	12	<.2	8.1	20	<.040	.020	.15	<.020
JUN 30...	2	64	12	<.2	9.4	<2	<.040	.030	.19	<.020
SEP 28...	7	120	3.6	<.2	9.8	12	.040	.020	.17	<.020

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SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ALUM- INUM, TOTAL RECOV- ERABLE (µG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (µG/L AS AL) (01106)	ARSENIC TOTAL (µG/L AS AS) (01002)	ARSENIC DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, TOTAL RECOV- ERABLE (µG/L AS BA) (01007)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)
403853076222301	MIDDLE CR MINE DISCHARGE, SITE E5-0 NR NEWTOWN, PA (LAT 40 38 52N LONG 076 22 19W)									
OCT 1997 16...	850	400	<4	<4	34	34	<10	<10	<50	<50
0157157010	MIDDLE CREEK, SITE E5-1, NEAR NEWTOWN, PA (LAT 40 38 48N LONG 076 22 18W)									
OCT 1997 16...	650	270	<4	<4	31	31	<10	<10	<50	<50
0157157012	MIDDLE CREEK, SITE E5-2, NEAR NEWTOWN, PA (LAT 40 38 42N LONG 076 22 16W)									
OCT 1997 16...	570	140	<4	<4	31	29	<10	<10	<10	<50
0157158010	COAL RUN, SITE C4, NEAR TREMONT, PA (LAT 40 38 33N LONG 076 22 47W)									
NOV 1997 19...	<200	<200	<4	<4	22	22	<10	<10	<50	<50
0157158014	COAL RUN, SITE C6, NEAR TREMONT, PA (LAT 40 38 32N LONG 076 22 46W)									
NOV 1997 19...	<200	<200	<4	<4	23	23	<10	<10	<50	<50
403828076224201	MARSHFIELD NO. 1 DISCH, SITE M1-0, NR TREMONT, PA (LAT 40 38 28N LONG 076 22 42W)									
MAR 1998 10...	<200	<200	<4	<4	23	21	<10	<10	<50	<50
0157158016	MARSHFIELD 1 DISCH, SITE M1-1, AT COAL RUN NR TREMONT, PA (LAT 40 38 26N LONG 076 22 46W)									
MAR 1998 10...	<200	<200	<4	<4	21	20	<10	<10	<50	<50
403822076224401	MARSHFIELD NO. 2 DISCH, SITE M2-0, NR TREMONT, PA (LAT 40 38 22N LONG 076 22 44W)									
MAR 1998 10...	<200	<200	<4	<4	20	20	15	<20	<50	<50
0157158018	MARSHFIELD 2 DISCH, SITE M2-1, AT COAL RUN NR TREMONT, PA (LAT 40 38 23N LONG 076 22 46W)									
MAR 1998 10...	<200	<200	<4	<4	15	14	<10	<10	<50	<50
403825076242301	COLKET MINE TUNNEL, SITE C7-219, AT DONALDSON, PA (LAT 40 38 25N LONG 076 24 23W)									
OCT 1997 17...	290	<200	<4	<4	19	19	<10	<10	<50	<50
0157156010	MARTIN RUN, SITE C7, AT DONALDSON, PA (LAT 40 38 19N LONG 076 24 19W)									
NOV 1997 19...	340	260	<4	<4	25	25	<10	<10	<50	<50
JAN 1998 07...	320	<200	<4	<4	25	25	<10	<10	<50	<50
MAR 31...	290	260	<4	<4	30	29	<10	<10	<50	<50
JUN 30...	300	220	<4	5	28	28	<10	<10	<50	<50
SEP 28...	<200	<200	<4	<4	27	27	<10	<10	<50	<50
0157156012	MARTIN RUN, SITE C8, AT DONALDSON, PA (LAT 40 38 17N LONG 076 24 19W)									
NOV 1997 19...	620	<200	<4	<4	27	23	<10	<10	<50	<50
JAN 1998 07...	290	<200	<4	<4	25	24	<10	<10	<50	<50
MAR 31...	340	<200	<4	<4	28	27	<10	<10	<50	<50
JUN 30...	250	<200	5	5	28	28	<10	<10	<50	<50
SEP 28...	340	<200	<4	<4	21	25	<10	<10	<50	<50

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	COBALT, TOTAL RECOV- ERABLE (μ G/L AS CO) (01037)	COBALT, DIS- SOLVED (μ G/L AS CO) (01035)	COPPER, TOTAL RECOV- ERABLE (μ G/L AS CU) (01042)	COPPER, DIS- SOLVED (μ G/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (μ G/L AS FE) (01045)	IRON, DIS- SOLVED (μ G/L AS FE) (01046)	LEAD, TOTAL RECOV- ERABLE (μ G/L AS PB) (01051)	LEAD, DIS- SOLVED (μ G/L AS PB) (01049)	LITHIUM TOTAL RECOV- ERABLE (μ G/L AS LI) (01132)	LITHIUM DIS- SOLVED (μ G/L AS LI) (01130)
403853076222301	MIDDLE CR MINE DISCHARGE, SITE E5-0 NR NEWTOWN, PA (LAT 40 38 52N LONG 076 22 19W)									
OCT 1997 16...	40	35	14	14	2900	910	<1	<1.0	<30	<25
0157157010	MIDDLE CREEK, SITE E5-1, NEAR NEWTOWN, PA (LAT 40 38 48N LONG 076 22 18W)									
OCT 1997 16...	<50	<50	14	<10	2100	730	<1	<1.0	<30	<25
0157157012	MIDDLE CREEK, SITE E5-2, NEAR NEWTOWN, PA (LAT 40 38 42N LONG 076 22 16W)									
OCT 1997 16...	40	32	<10	<10	1700	580	<1	<1.0	<30	<25
0157158010	COAL RUN, SITE C4, NEAR TREMONT, PA (LAT 40 38 33N LONG 076 22 47W)									
NOV 1997 19...	<50	<50	<10	<10	1900	1800	<1	<1.0	<30	<25
0157158014	COAL RUN, SITE C6, NEAR TREMONT, PA (LAT 40 38 32N LONG 076 22 46W)									
NOV 1997 19...	<50	<50	<10	<10	1900	1700	<1	<1.0	<30	<25
403828076224201	MARSHFIELD NO. 1 DISCH, SITE M1-0, NR TREMONT, PA (LAT 40 38 28N LONG 076 22 42W)									
MAR 1998 10...	<50	<50	<10	<10	7100	6800	<1	<1.0	<30	<25
0157158016	MARSHFIELD 1 DISCH, SITE M1-1, AT COAL RUN NR TREMONT, PA (LAT 40 38 26N LONG 076 22 46W)									
MAR 1998 10...	<50	<50	<10	<10	4400	99	<1	<1.0	<30	<25
403822076224401	MARSHFIELD NO. 2 DISCH, SITE M2-0, NR TREMONT, PA (LAT 40 38 22N LONG 076 22 44W)									
MAR 1998 10...	<50	<50	<10	<10	13000	12000	<1	<1.0	<30	<30
0157158018	MARSHFIELD 2 DISCH, SITE M2-1, AT COAL RUN NR TREMONT, PA (LAT 40 38 23N LONG 076 22 46W)									
MAR 1998 10...	<50	<50	<10	<10	7400	6700	<1	<1.0	<30	<25
403825076242301	COLKET MINE TUNNEL, SITE C7-219, AT DONALDSON, PA (LAT 40 38 25N LONG 076 24 23W)									
OCT 1997 17...	<50	<50	<10	<10	26000	25000	<1	<1.0	<30	<25
0157156010	MARTIN RUN, SITE C7, AT DONALDSON, PA (LAT 40 38 19N LONG 076 24 19W)									
NOV 1997 19...	<50	<50	<10	<10	1100	950	<1	<1.0	<30	<25
JAN 1998 07...	<50	<50	<10	<10	2100	810	1	<1.0	<30	<30
MAR 31...	<50	<50	<10	<10	2700	2500	2	2.0	<30	<30
JUN 30...	<50	<50	<10	<10	2400	2000	<1	<1.0	<30	<30
SEP 28...	<50	<50	<10	<10	100	57	<1	<1.0	<30	<30
0157156012	MARTIN RUN, SITE C8, AT DONALDSON, PA (LAT 40 38 17N LONG 076 24 19W)									
NOV 1997 19...	<50	<50	<10	<10	3000	<10	1	<1.0	<30	<25
JAN 1998 07...	<50	<50	<10	<10	2000	820	<1	<1.0	<30	<30
MAR 31...	<50	<50	<10	<10	2400	2100	<1	<1.0	<30	<25
JUN 30...	<50	<50	<10	<10	1800	1600	<1	<1.0	<30	<30
SEP 28...	<50	<50	<10	<10	780	600	<1	<1.0	<30	<30

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	MANGA- NESE, TOTAL RECOV- ERABLE (μ G/L AS MN) (01055)	MANGA- NESE, TOTAL RECOV- ERABLE (μ G/L AS MN) (01056)	NICKEL, TOTAL RECOV- ERABLE (μ G/L AS NI) (01067)	NICKEL, DIS- SOLVED (μ G/L AS NI) (01065)	SELE- NIUM, TOTAL (μ G/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (μ G/L AS SE) (01145)	STRON- TIUM, TOTAL RECOV- ERABLE (μ G/L AS SR) (01082)	STRON- TIUM, DIS- SOLVED (μ G/L AS SR) (01080)	ZINC, TOTAL RECOV- ERABLE (μ G/L AS ZN) (01092)	ZINC, DIS- SOLVED (μ G/L AS ZN) (01090)
403853076222301 MIDDLE CR MINE DISCHARGE, SITE E5-0 NR NEWTOWN, PA (LAT 40 38 52N LONG 076 22 19W)										
OCT 1997										
16...	1200	1200	66	66	<7	<7	100	96	150	150
0157157010	MIDDLE CREEK, SITE E5-1, NEAR NEWTOWN, PA (LAT 40 38 48N LONG 076 22 18W)									
OCT 1997										
16...	1100	1100	58	63	<7	<7	80	82	130	130
0157157012	MIDDLE CREEK, SITE E5-2, NEAR NEWTOWN, PA (LAT 40 38 42N LONG 076 22 16W)									
OCT 1997										
16...	1100	990	59	58	<7	<7	80	77	130	120
0157158010	COAL RUN, SITE C4, NEAR TREMONT, PA (LAT 40 38 33N LONG 076 22 47W)									
NOV 1997										
19...	1100	1100	<50	<50	<7	<7	120	120	60	62
0157158014	COAL RUN, SITE C6, NEAR TREMONT, PA (LAT 40 38 32N LONG 076 22 46W)									
NOV 1997										
19...	1100	1100	<50	<50	<7	<7	120	120	60	58
403828076224201 MARSHFIELD NO. 1 DISCH, SITE M1-0, NR TREMONT, PA (LAT 40 38 28N LONG 076 22 42W)										
MAR 1998										
10...	1500	1400	<50	<50	<7	<7	360	330	<10	<10
0157158016	MARSHFIELD 1 DISCH, SITE M1-1, AT COAL RUN NR TREMONT, PA (LAT 40 38 26N LONG 076 22 46W)									
MAR 1998										
10...	1300	1300	<50	<50	<7	<7	320	310	<10	<10
403822076224401 MARSHFIELD NO. 2 DISCH, SITE M2-0, NR TREMONT, PA (LAT 40 38 22N LONG 076 22 44W)										
MAR 1998										
10...	2400	2300	<50	<50	<7	<7	420	400	20	22
0157158018	MARSHFIELD 2 DISCH, SITE M2-1, AT COAL RUN NR TREMONT, PA (LAT 40 38 23N LONG 076 22 46W)									
MAR 1998										
10...	1600	1600	<50	<50	<7	<7	280	270	10	14
403825076242301 COLKET MINE TUNNEL, SITE C7-219, AT DONALDSON, PA (LAT 40 38 25N LONG 076 24 23W)										
OCT 1997										
17...	1700	1700	58	61	<7	<7	140	140	40	64
0157156010	MARTIN RUN, SITE C7, AT DONALDSON, PA (LAT 40 38 19N LONG 076 24 19W)									
NOV 1997										
19...	810	790	<50	<50	<7	<7	60	56	40	50
JAN 1998										
07...	520	520	<50	<50	<7	<7	30	34	70	72
MAR										
31...	680	680	61	<50	<7	<7	50	47	70	73
JUN										
30...	700	680	<50	<50	<7	<7	50	51	60	60
SEP										
28...	370	410	<50	<50	<7	<7	90	88	30	30
0157156012	MARTIN RUN, SITE C8, AT DONALDSON, PA (LAT 40 38 17N LONG 076 24 19W)									
NOV 1997										
19...	900	790	<50	<50	<7	<7	70	60	60	<10
JAN 1998										
07...	520	510	<50	<50	<7	<7	30	33	70	70
MAR										
31...	610	610	<50	<50	<7	<7	40	43	60	61
JUN										
30...	700	700	<50	<50	<7	<7	50	53	60	56
SEP										
28...	1100	1100	<50	<50	<7	<7	90	100	40	47

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SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
0157156014 MARTIN RUN, SITE C9, AT DONALDSON, PA (LAT 40 38 16N LONG 076 24 19W)											
NOV 1997											
19...	1245	1028	9813	.92	223	5.8	5.6	--	8.3	11.0	96
19...	1320	1028	9813	.92	231	6.9	6.3	--	8.4	11.0	96
JAN 1998											
07...	1120	1028	9813	2.5	172	5.6	5.7	419	9.9	12.0	100
MAR											
31...	1130	1028	9813	2.0	181	5.2	4.9	408	15.5	11.0	110
JUN											
30...	1245	1028	9813	1.5	190	4.9	4.8	440	16.1	8.9	90
SEP											
28...	1730	1028	9813	.45	242	6.0	6.4	--	15.5	8.9	90

DATE	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CACO3) (70508)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD (MG/L AS CACO3) (00410)
0157156014 MARTIN RUN, SITE C9, AT DONALDSON, PA (LAT 40 38 16N LONG 076 24 19W)											
NOV 1997											
19...	--	.40	14	14	11	11	7.3	7.4	.9	.88	--
19...	.00	.00	27	21	13	13	8.8	8.8	.9	.75	--
JAN 1998											
07...	--	8.2	7.8	7.4	5.8	5.8	7.6	7.8	1.2	1.2	--
MAR											
31...	--	9.0	9.4	9.4	7.4	7.4	6.5	6.5	1	.96	1
JUN											
30...	--	11	12	12	8.3	8.3	7.3	7.3	.9	.55	--
SEP											
28...	--	.00	27	26	19	18	2.7	2.8	<1.0	<1.0	--

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, TOTAL (MG/L AS F) (00951)	SILICA TOTAL (MG/L- SIO2) (00956)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
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0157156014 MARTIN RUN, SITE C9, AT DONALDSON, PA (LAT 40 38 16N LONG 076 24 19W)										
NOV 1997										
19...	3	80	14	<.2	8.3	<2	<.040	.030	.13	<.020
19...	14	81	14	<.2	9.8	12	<.040	.020	.13	<.020
JAN 1998										
07...	3	50	16	<.2	6.2	88	.050	.030	.13	<.020
MAR										
31...	2	61	12	<.2	8.1	6	<.040	.020	.15	<.020
JUN										
30...	2	65	12	<.2	9.9	10	.040	.030	.13	<.020
SEP										
28...	9	120	3.7	<.2	11	50	.040	.020	.19	<.020

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ALUM- INUM, TOTAL RECOV- ERABLE (μG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (μG/L AS AL) (01106)	ARSENIC TOTAL (μG/L AS AS) (01002)	ARSENIC DIS- SOLVED (μG/L AS AS) (01000)	BARIUM, TOTAL RECOV- ERABLE (μG/L AS BA) (01007)	BARIUM, DIS- SOLVED (μG/L AS BA) (01005)	CADMIUM WATER UNFLTRD TOTAL (μG/L AS CD) (01027)	CADMIUM DIS- SOLVED (μG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (μG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (μG/L AS CR) (01030)
0157156014 MARTIN RUN, SITE C9, AT DONALDSON, PA (LAT 40 38 16N LONG 076 24 19W)										
NOV 1997										
19...	780	<200	<4	<4	24	24	<10	<10	<50	<50
19...	660	<200	<4	<4	33	29	<10	<10	<50	<50
JAN 1998										
07...	280	<200	<4	<4	25	24	<10	<10	<50	<50
MAR										
31...	<200	310	<4	<4	28	28	<10	<10	<50	<50
JUN										
30...	280	<200	<4	4	29	29	<10	<10	<50	<50
SEP										
28...	440	<200	<4	<4	22	22	<10	<10	<50	<50
DATE	COBALT, TOTAL RECOV- ERABLE (μG/L AS CO) (01037)	COBALT, DIS- SOLVED (μG/L AS CO) (01035)	COPPER, TOTAL RECOV- ERABLE (μG/L AS CU) (01042)	COPPER, DIS- SOLVED (μG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (μG/L AS FE) (01045)	IRON, DIS- SOLVED (μG/L AS FE) (01046)	LEAD, TOTAL RECOV- ERABLE (μG/L AS PB) (01051)	LEAD, DIS- SOLVED (μG/L AS PB) (01049)	LITHIUM TOTAL RECOV- ERABLE (μG/L AS LI) (01132)	LITHIUM DIS- SOLVED (μG/L AS LI) (01130)
0157156014 MARTIN RUN, SITE C9, AT DONALDSON, PA (LAT 40 38 16N LONG 076 24 19W)										
NOV 1997										
19...	<50	<50	<10	<10	1200	980	<1	<1.0	<30	<25
19...	<50	<50	<10	<10	2700	13	<1	<1.0	<30	<25
JAN 1998										
07...	<50	<50	<10	<10	1800	700	<1	<1.0	<30	<30
MAR										
31...	<50	<50	46	<10	2000	2400	<1	<1.0	<30	<25
JUN										
30...	<50	<50	<10	<10	2100	1800	<1	<1.0	<30	<30
SEP										
28...	<50	<50	<10	<10	1000	450	<1	<1.0	<30	<30
DATE	MANGA- NESE, TOTAL RECOV- ERABLE (μG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (μG/L AS MN) (01056)	NICKEL, TOTAL RECOV- ERABLE (μG/L AS NI) (01067)	NICKEL, DIS- SOLVED (μG/L AS NI) (01065)	SELE- NIUM, TOTAL (μG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (μG/L AS SE) (01145)	STRON- TIUM, TOTAL RECOV- ERABLE (μG/L AS SR) (01082)	STRON- TIUM, DIS- SOLVED (μG/L AS SR) (01080)	ZINC, TOTAL RECOV- ERABLE (μG/L AS ZN) (01092)	ZINC, DIS- SOLVED (μG/L AS ZN) (01090)
0157156014 MARTIN RUN, SITE C9, AT DONALDSON, PA (LAT 40 38 16N LONG 076 24 19W)										
NOV 1997										
19...	800	810	<50	<50	<7	<7	60	58	40	45
19...	920	860	<50	<50	<7	<7	80	77	60	<10
JAN 1998										
07...	510	500	<50	<50	<7	<7	40	35	70	66
MAR										
31...	610	610	<50	<50	<7	<7	40	43	60	60
JUN										
30...	690	690	<50	<50	<7	<7	50	53	60	59
SEP										
28...	1100	1000	<50	<50	<7	<7	100	95	50	37

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
403745076271901 TRACY AIRHOLE, SITE E1-229, NEAR DONALDSON, PA (LAT 40 37 45N LONG 076 27 19W)											
OCT 1997											
17...	1215	1028	9813	1.9	619	6.0	6.0	282	11.0	.2	2
MAR 1998											
23...	0930	1028	9813	7.3	580	5.9	5.8	273	11.0	1.6	14
APR											
03...	1550	1028	9813	--	580	5.9	5.8	333	10.7	1.5	13
0157156209 TRACY AIRHOLE, SITE E1-0, NEAR DONALDSON, PA (LAT 40 37 44N LONG 076 27 19W)											
MAR 1998											
23...	0930	1028	9813	7.3	576	5.9	5.8	303	10.7	1.4	13
23...	1300	1028	9813	7.3	574	6.0	5.9	353	10.7	3.4	30
23...	1550	1028	9813	7.3	569	5.9	5.8	373	10.7	5.4	48
0157156210 TRACY AIRHOLE, SITE E1-1, NEAR DONALDSON, PA (LAT 40 37 45N LONG 076 27 16W)											
OCT 1997											
17...	1200	1028	9813	1.9	609	6.3	6.2	297	11.5	6.0	55
MAR 1998											
23...	1030	1028	9813	7.3	574	6.1	6.1	403	11.0	5.3	50
23...	1315	1028	9813	--	572	6.2	6.0	328	11.0	6.4	57
23...	1600	1028	9813	--	568	6.1	6.0	368	11.0	7.9	71
0157156212 TRACY AIRHOLE, SITE E1-2, NEAR DONALDSON, PA (LAT 40 37 40N LONG 076 27 09W)											
OCT 1997											
17...	1145	1028	9813	1.9	603	6.6	6.3	292	11.5	8.2	76
MAR 1998											
23...	1100	1028	9813	5.8	571	6.2	6.0	393	11.0	9.3	85
23...	1330	1028	9813	--	570	6.2	6.0	333	11.0	8.5	77
23...	1615	1028	9813	--	566	6.2	6.0	293	10.5	12.0	110
0157156520 GOOD SPRING CR AB TRACY TRIB NR DONALDSON, PA (LAT 40 37 40N LONG 076 27 09W)											
MAR 1998											
23...	1400	1028	9813	3.5	133	6.7	6.3	--	3.9	12.8	97
0157156521 GOOD SPRING CR BL TRACY TRIB NR DONALDSON, PA (LAT 40 37 39N LONG 076 27 05W)											
MAR 1998											
23...	1345	1028	9813	9.3	438	6.4	6.1	329	9.0	9.9	86
01571593 GOOD SPRING CREEK BL MIDDLE CREEK AT TREMONT, PA (LAT 40 37 35N LONG 076 23 15W)											
OCT 1997											
01...	1300	1028	9813	10	311	7.2	6.1	--	12.0	9.8	92
SEP 1998											
28...	1130	1028	9813	--	339	6.4	6.3	--	16.9	8.1	84
403626076253001 ORCHARD MINE, SITE E3-S0, NR JOLIETT, PA (LAT 40 36 26N LONG 076 25 30W)											
OCT 1997											
06...	1645	1028	9813	.02	537	3.6	3.6	677	11.5	1.6	15
30...	1600	1028	9813	.02	283	3.5	3.5	663	10.5	4.2	38
MAR 1998											
27...	1315	1028	9813	.04	242	3.6	3.6	732	11.5	2.8	26
MAY											
01...	1400	1028	9813	.04	236	3.5	3.7	683	10.2	2.6	23
403626076252901 ORCHARD MINE, SITE E3-S1, NEAR JOLIETT, PA (LAT 40 36 26N LONG 076 25 29W)											
MAR 1998											
27...	0930	1028	9813	.01	255	3.6	3.7	712	12.0	11.0	110

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CACO3) (70508)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD (MG/L AS CACO3) (00410)
403745076271901 TRACY AIRHOLE, SITE E1-229, NEAR DONALDSON, PA (LAT 40 37 45N LONG 076 27 19W)											
OCT 1997											
17...	--	7.0	43	42	47	47	5.5	5.5	1.8	1.8	--
MAR 1998											
23...	--	.00	41	40	47	47	8.0	7.8	2.3	6.2	--
APR											
03...	--	.00	37	37	41	40	8.5	8.2	1.8	1.8	--
0157156209 TRACY AIRHOLE, SITE E1-0, NEAR DONALDSON, PA (LAT 40 37 44N LONG 076 27 19W)											
MAR 1998											
23...	--	.00	42	40	48	47	8.2	8.2	2.0	1.4	--
23...	--	.00	41	36	47	40	9.0	8.5	2.1	<.50	--
23...	--	.00	39	38	49	49	9.3	9.2	2.0	1.8	--
0157156210 TRACY AIRHOLE, SITE E1-1, NEAR DONALDSON, PA (LAT 40 37 45N LONG 076 27 16W)											
OCT 1997											
17...	--	28	44	42	48	46	5.7	5.7	1.8	--	--
MAR 1998											
23...	--	.00	42	42	49	49	8.6	8.6	2.2	2.2	--
23...	--	.00	40	40	46	46	8.6	8.6	2.1	1.9	--
23...	--	.00	37	36	48	47	9.0	8.8	2.1	2.0	--
0157156212 TRACY AIRHOLE, SITE E1-2, NEAR DONALDSON, PA (LAT 40 37 40N LONG 076 27 09W)											
OCT 1997											
17...	--	15	40	38	44	42	5.7	5.7	1.8	--	--
MAR 1998											
23...	--	.00	41	41	48	47	8.6	8.5	2.0	1.9	--
23...	--	.00	38	38	48	48	8.9	8.8	2.2	2.2	--
23...	--	.00	36	36	47	47	8.9	8.9	2.1	2.0	--
0157156520 GOOD SPRING CR AB TRACY TRIB NR DONALDSON, PA (LAT 40 37 40N LONG 076 27 09W)											
MAR 1998											
23...	--	.00	13	13	5.2	5.2	5.2	5.2	1	.72	--
0157156521 GOOD SPRING CR BL TRACY TRIB NR DONALDSON, PA (LAT 40 37 39N LONG 076 27 05W)											
MAR 1998											
23...	--	.00	32	32	34	34	7.7	7.7	1.8	1.8	--
01571593 GOOD SPRING CREEK BL MIDDLE CREEK AT TREMONT, PA (LAT 40 37 35N LONG 076 23 15W)											
OCT 1997											
01...	.00	.00	25	25	20	20	7.7	7.7	1.7	1.7	--
SEP 1998											
28...	--	.00	30	30	22	22	6.6	6.6	1.1	<1.0	--
403626076253001 ORCHARD MINE, SITE E3-S0, NR JOLIETT, PA (LAT 40 36 26N LONG 076 25 30W)											
OCT 1997											
06...	--	64	26	26	28	29	1.0	.99	1.0	.86	.00
30...	--	64	28	28	31	31	.9	.95	1.1	.86	.00
MAR 1998											
27...	--	28	9.0	9.0	7.8	7.5	.6	.60	1.1	.93	.00
MAY											
01...	41	22	7.6	7.6	7.8	7.5	.6	.96	.9	.85	.00
403626076252901 ORCHARD MINE, SITE E3-S1, NEAR JOLIETT, PA (LAT 40 36 26N LONG 076 25 29W)											
MAR 1998											
27...	--	24	7.7	7.7	8.5	8.5	.7	.67	.6	.59	.00

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, TOTAL (MG/L AS F) (00951)	SILICA TOTAL (MG/L- SIO2) (00956)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, NITRATE (MG/L AS N) (00620)	NITRO- GEN, AMMONIA (MG/L AS N) (00610)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
403745076271901 TRACY AIRHOLE, SITE E1-229, NEAR DONALDSON, PA (LAT 40 37 45N LONG 076 27 19W)										
OCT 1997										
17...	46	240	9.5	<.2	8.6	<2	<.040	.230	.32	<.020
MAR 1998										
23...	30	240	14	<.2	15	150	<.040	.140	.39	.060
APR										
03...	26	240	14	<.2	8.2	26	<.040	.160	.36	<.020
0157156209 TRACY AIRHOLE, SITE E1-0, NEAR DONALDSON, PA (LAT 40 37 44N LONG 076 27 19W)										
MAR 1998										
23...	34	240	14	<.2	7.7	12	<.040	.150	.24	<.020
23...	32	240	14	<.2	9.1	40	<.040	.150	.24	<.020
23...	34	240	14	<.2	8.9	32	<.040	.150	.23	<.020
0157156210 TRACY AIRHOLE, SITE E1-1, NEAR DONALDSON, PA (LAT 40 37 45N LONG 076 27 16W)										
OCT 1997										
17...	44	230	9.3	<.2	9.2	20	<.040	.220	.29	<.020
MAR 1998										
23...	34	240	14	<.2	8.2	20	<.040	.150	.24	<.020
23...	34	230	14	<.2	8.2	32	<.040	.150	.28	<.020
23...	36	240	14	<.2	8.2	22	<.040	.150	.24	<.020
0157156212 TRACY AIRHOLE, SITE E1-2, NEAR DONALDSON, PA (LAT 40 37 40N LONG 076 27 09W)										
OCT 1997										
17...	40	230	8.8	<.2	8.9	<2	<.040	.210	.28	<.020
MAR 1998										
23...	34	240	14	<.2	8.3	14	<.040	.150	.24	<.020
23...	34	240	14	<.2	9.5	24	<.040	.150	.25	<.020
23...	34	240	14	<.2	8.5	26	<.040	.150	.23	<.020
0157156520 GOOD SPRING CR AB TRACY TRIB NR DONALDSON, PA (LAT 40 37 40N LONG 076 27 09W)										
MAR 1998										
23...	15	33	9.0	<.2	5.2	8	.100	<.020	.23	<.020
0157156521 GOOD SPRING CR BL TRACY TRIB NR DONALDSON, PA (LAT 40 37 39N LONG 076 27 05W)										
MAR 1998										
23...	28	170	12	<.2	8.1	22	.040	.100	.25	<.020
01571593 GOOD SPRING CREEK BL MIDDLE CREEK AT TREMONT, PA (LAT 40 37 35N LONG 076 23 15W)										
OCT 1997										
01...	13	110	11	<.2	8.9	34	.170	.020	.20	<.020
SEP 1998										
28...	15	130	10	<.2	7.0	4	.110	<.020	.23	<.020
403626076253001 ORCHARD MINE, SITE E3-S0, NR JOLIETT, PA (LAT 40 36 26N LONG 076 25 30W)										
OCT 1997										
06...	.00	240	.39	<.2	9.9	12	<.040	.030	<.05	<.020
30...	.00	240	<.50	<.2	7.6	12	<.040	.030	.16	<.020
MAR 1998										
27...	.00	74	<.50	<.2	6.7	2	<.040	.020	.13	<.020
MAY										
01...	.00	73	<.50	<.2	7.6	<2	<.040	<.020	.09	<.020
403626076252901 ORCHARD MINE, SITE E3-S1, NEAR JOLIETT, PA (LAT 40 36 26N LONG 076 25 29W)										
MAR 1998										
27...	.00	76	<.50	<.2	7.8	8	<.040	<.020	.07	<.020

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ALUM- INUM, TOTAL RECOV- ERABLE (µG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (µG/L AS AL) (01106)	ARSENIC TOTAL (µG/L AS AS) (01002)	ARSENIC DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, TOTAL RECOV- ERABLE (µG/L AS BA) (01007)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	CADMIUM WATER UNFLTRD (µG/L AS CD) (01027)	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)
403745076271901 TRACY AIRHOLE, SITE E1-229, NEAR DONALDSON, PA (LAT 40 37 45N LONG 076 27 19W)										
OCT 1997										
17...	<200	<200	<4	<4	18	18	<10	<10	<50	<50
MAR 1998										
23...	1900	<200	18	<4	28	21	<10	<10	<50	<50
APR										
03...	<200	<200	<4	<4	21	21	<10	<10	<50	<50
0157156209 TRACY AIRHOLE, SITE E1-0, NEAR DONALDSON, PA (LAT 40 37 44N LONG 076 27 19W)										
MAR 1998										
23...	<200	<200	<4	<4	22	22	<10	<10	<50	<50
23...	<200	<200	<4	<4	25	22	<10	<10	<50	<50
23...	250	<200	<4	<4	25	24	<10	<10	<50	<50
0157156210 TRACY AIRHOLE, SITE E1-1, NEAR DONALDSON, PA (LAT 40 37 45N LONG 076 27 16W)										
OCT 1997										
17...	<200	<200	<4	<4	19	18	<10	<10	<50	<50
MAR 1998										
23...	<200	<200	<4	<4	23	23	<10	<10	<50	<50
23...	<200	<200	<4	<4	21	21	<10	<10	<50	<50
23...	<200	<200	<4	<4	23	23	<10	<10	<50	<50
0157156212 TRACY AIRHOLE, SITE E1-2, NEAR DONALDSON, PA (LAT 40 37 40N LONG 076 27 09W)										
OCT 1997										
17...	<200	<200	<4	<4	18	18	<10	<10	<50	<50
MAR 1998										
23...	<200	<200	<4	<4	22	21	<10	<10	<50	<10
23...	550	<200	<4	<4	26	24	<10	<10	<50	<50
23...	250	<200	<4	<4	24	23	<10	<10	<50	<50
0157156520 GOOD SPRING CR AB TRACY TRIB NR DONALDSON, PA (LAT 40 37 40N LONG 076 27 09W)										
MAR 1998										
23...	<200	<200	<4	<4	27	25	<10	<10	<50	<50
0157156521 GOOD SPRING CR BL TRACY TRIB NR DONALDSON, PA (LAT 40 37 39N LONG 076 27 05W)										
MAR 1998										
23...	<200	<200	<4	<4	25	26	<10	<10	<50	<50
01571593 GOOD SPRING CREEK BL MIDDLE CREEK AT TREMONT, PA (LAT 40 37 35N LONG 076 23 15W)										
OCT 1997										
01...	230	<200	<4	<4	27	27	<10	<10	<50	<50
SEP 1998										
28...	<200	<200	<4	<4	22	22	<10	<10	<50	<50
403626076253001 ORCHARD MINE, SITE E3-S0, NR JOLIETT, PA (LAT 40 36 26N LONG 076 25 30W)										
OCT 1997										
06...	930	1100	<4	<4	22	22	<10	<10	<50	<50
30...	880	1000	<4	<4	19	19	<10	<10	<50	<50
MAR 1998										
27...	670	230	<4	<4	20	20	<10	<10	<50	<50
MAY										
01...	480	430	<4	<4	20	20	<10	<10	<50	<50
403626076252901 ORCHARD MINE, SITE E3-S1, NEAR JOLIETT, PA (LAT 40 36 26N LONG 076 25 29W)										
MAR 1998										
27...	390	380	<4	<4	19	19	<10	<10	<50	<50

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	COBALT, TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	COBALT, DIS- SOLVED (µG/L AS CU) (01035)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LITHIUM TOTAL RECOV- ERABLE (µG/L AS LI) (01132)	LITHIUM DIS- SOLVED (µG/L AS LI) (01130)
403745076271901 TRACY AIRHOLE, SITE E1-229, NEAR DONALDSON, PA (LAT 40 37 45N LONG 076 27 19W)										
OCT 1997										
17...	--	--	<10	<10	22000	20000	<1	<1.0	30	32
MAR 1998										
23...	<50	<50	<10	<10	12000	7100	6	<1.0	<30	<30
APR										
03...	50	50	<10	25	11000	11000	<1	<1.0	30	26
0157156209 TRACY AIRHOLE, SITE E1-0, NEAR DONALDSON, PA (LAT 40 37 44N LONG 076 27 19W)										
MAR 1998										
23...	<50	<50	<10	<10	9100	7500	<1	<1.0	<30	<30
23...	<50	<50	<10	<10	12000	7600	<1	<1.0	<30	<30
23...	<50	<50	<10	<10	13000	7500	<1	<1.0	30	<25
0157156210 TRACY AIRHOLE, SITE E1-1, NEAR DONALDSON, PA (LAT 40 37 45N LONG 076 27 16W)										
OCT 1997										
17...	--	--	<10	<10	20000	20000	<1	<1.0	30	33
MAR 1998										
23...	<50	<50	<10	<10	9400	6600	<1	<1.0	<30	<30
23...	<50	<50	<10	<10	7000	6700	<1	<1.0	<30	<30
23...	<50	<50	<10	<10	12000	6800	1	<1.0	30	25
0157156212 TRACY AIRHOLE, SITE E1-2, NEAR DONALDSON, PA (LAT 40 37 40N LONG 076 27 09W)										
OCT 1997										
17...	--	--	<10	<10	18000	15000	<1	<1.0	30	33
MAR 1998										
23...	50	<50	<10	<10	9600	7200	<1	<1.0	50	45
23...	<50	<50	<10	<10	15000	5700	<1	<1.0	30	<25
23...	<50	<50	<10	<10	12000	7000	<1	<1.0	<30	<25
0157156520 GOOD SPRING CR AB TRACY TRIB NR DONALDSON, PA (LAT 40 37 40N LONG 076 27 09W)										
MAR 1998										
23...	<50	<50	<10	<10	90	56	<1	<1.0	<30	<30
0157156521 GOOD SPRING CR BL TRACY TRIB NR DONALDSON, PA (LAT 40 37 39N LONG 076 27 05W)										
MAR 1998										
23...	20	<50	<10	<10	8100	4300	<1	<1.0	<30	<30
01571593 GOOD SPRING CREEK BL MIDDLE CREEK AT TREMONT, PA (LAT 40 37 35N LONG 076 23 15W)										
OCT 1997										
01...	30	<20	<10	<10	730	120	<1	<1.0	<30	<30
SEP 1998										
28...	<50	<50	<10	<10	170	170	<1	<1.0	<30	<30
403626076253001 ORCHARD MINE, SITE E3-S0, NR JOLIETT, PA (LAT 40 36 26N LONG 076 25 30W)										
OCT 1997										
06...	90	91	<10	<10	6700	3800	2	<1.0	<30	<25
30...	70	66	<10	<10	5600	3800	3	2.7	<30	<25
MAR 1998										
27...	<50	<50	<10	<10	2100	230	2	<1.0	<30	<25
MAY										
01...	<50	<50	14	14	1800	780	2	2.3	<30	<25
403626076252901 ORCHARD MINE, SITE E3-S1, NEAR JOLIETT, PA (LAT 40 36 26N LONG 076 25 29W)										
MAR 1998										
27...	<50	<50	14	14	450	450	2	2.0	<30	<30

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	MANGA- NESE, TOTAL RECOV- ERABLE (μ G/L AS MN) (01055)	MANGA- NESE, TOTAL DIS- SOLVED (μ G/L AS MN) (01056)	NICKEL, TOTAL RECOV- ERABLE (μ G/L AS NI) (01067)	NICKEL, TOTAL DIS- SOLVED (μ G/L AS NI) (01065)	SELE- NIUM, TOTAL (μ G/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (μ G/L AS SE) (01145)	STRON- TIUM, TOTAL RECOV- ERABLE (μ G/L AS SR) (01082)	STRON- TIUM, DIS- SOLVED (μ G/L AS SR) (01080)	ZINC, TOTAL RECOV- ERABLE (μ G/L AS ZN) (01092)	ZINC, TOTAL DIS- SOLVED (μ G/L AS ZN) (01090)
403745076271901 TRACY AIRHOLE, SITE E1-229, NEAR DONALDSON, PA (LAT 40 37 45N LONG 076 27 19W)										
OCT 1997										
17...	2800	2800	63	63	<7	<7	160	160	30	40
MAR 1998										
23...	2100	2000	<100	70	<7	<7	120	120	120	51
APR										
03...	2300	2200	56	84	<7	<7	130	120	70	50
0157156209 TRACY AIRHOLE, SITE E1-0, NEAR DONALDSON, PA (LAT 40 37 44N LONG 076 27 19W)										
MAR 1998										
23...	2100	2100	51	51	<7	<7	120	120	70	69
23...	2300	2200	80	58	<7	<7	140	130	80	78
23...	2300	2200	73	65	<7	<7	130	130	70	66
0157156210 TRACY AIRHOLE, SITE E1-1, NEAR DONALDSON, PA (LAT 40 37 45N LONG 076 27 16W)										
OCT 1997										
17...	3000	2900	69	69	<7	<7	170	160	50	32
MAR 1998										
23...	2200	2200	55	48	<7	<7	130	130	70	65
23...	2200	2200	69	69	<7	<7	120	120	60	60
23...	2200	2100	64	64	7	<7	120	120	60	59
0157156212 TRACY AIRHOLE, SITE E1-2, NEAR DONALDSON, PA (LAT 40 37 40N LONG 076 27 09W)										
OCT 1997										
17...	3000	3000	67	74	<7	<7	160	160	30	39
MAR 1998										
23...	2200	2200	54	54	<7	<7	130	130	70	62
23...	2200	2200	71	71	<7	<7	130	120	80	50
23...	2200	2200	68	68	<7	<7	120	120	70	59
0157156520 GOOD SPRING CR AB TRACY TRIB NR DONALDSON, PA (LAT 40 37 40N LONG 076 27 09W)										
MAR 1998										
23...	47	61	<50	<50	<7	<7	60	59	20	15
0157156521 GOOD SPRING CR BL TRACY TRIB NR DONALDSON, PA (LAT 40 37 39N LONG 076 27 05W)										
MAR 1998										
23...	1600	1500	61	<50	<7	<7	110	110	50	54
01571593 GOOD SPRING CREEK BL MIDDLE CREEK AT TREMONT, PA (LAT 40 37 35N LONG 076 23 15W)										
OCT 1997										
01...	1100	1100	<50	46	<7	<7	130	130	60	57
SEP 1998										
28...	660	660	<50	<50	<7	<7	140	140	20	23
403626076253001 ORCHARD MINE, SITE E3-S0, NR JOLIETT, PA (LAT 40 36 26N LONG 076 25 30W)										
OCT 1997										
06...	3500	3500	120	120	<7	<7	70	71	130	130
30...	2800	2800	89	89	<7	<7	60	61	110	110
MAR 1998										
27...	1100	1000	58	53	<7	<7	20	21	150	150
MAY										
01...	1000	940	69	59	<7	<7	20	20	120	120
403626076252901 ORCHARD MINE, SITE E3-S1, NEAR JOLIETT, PA (LAT 40 36 26N LONG 076 25 29W)										
MAR 1998										
27...	1100	1100	74	67	<7	<7	20	22	150	150

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, (PER- CENT SATUR- ATION) (00301)
01571758 LOWER RAUSCH CREEK, SITE E3-1, NEAR LORBERRY JUNCTION, PA (LAT 40 35 34N LONG 076 24 40W)											
JUN 1998 01...	1045	1028	9813	7.3	392	7.0	6.5	390	14.0	11.1	110
01571760 LOWER RAUSCH CREEK, SITE E3-2, AT LORBERRY JUNCTION, PA (LAT 40 35 22N LONG 076 24 42W)											
DEC 1997 18...	1245	1028	9813	2.5	389	7.0	6.1	366	6.8	13.0	100
FEB 1998 05...	0915	1028	9813	16	400	5.7	6.3	--	5.7	12.0	99
JUN 01...	1030	1028	9813	2.7	382	7.0	6.5	396	17.5	10	100
DATE	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CACO3) (70508)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	
01571758 LOWER RAUSCH CREEK, SITE E3-1, NEAR LORBERRY JUNCTION, PA (LAT 40 35 34N LONG 076 24 40W)											
JUN 1998 01...	.00	--	30	29	22	21	8.3	7.5	2.3	2.3	
01571760 LOWER RAUSCH CREEK, SITE E3-2, AT LORBERRY JUNCTION, PA (LAT 40 35 22N LONG 076 24 42W)											
DEC 1997 18...	.00	1.2	27	26	20	19	8.8	8.8	1.6	1.6	
FEB 1998 05...	--	3.6	22	.99	14	.64	40	.71	1.6	.59	
JUN 01...	.00	.00	30	28	21	20	7.8	7.8	2.3	2.2	
DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, TOTAL (MG/L AS F) (00951)	SILICA TOTAL (MG/L- SIO2) (00956)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	
01571758 LOWER RAUSCH CREEK, SITE E3-1, NEAR LORBERRY JUNCTION, PA (LAT 40 35 34N LONG 076 24 40W)											
JUN 1998 01...	13	160	9.9	<.2	9.7	16	.050	.080	.21	<.020	
01571760 LOWER RAUSCH CREEK, SITE E3-2, AT LORBERRY JUNCTION, PA (LAT 40 35 22N LONG 076 24 42W)											
DEC 1997 18...	12	150	15	<.2	7.8	6	.080	.100	.23	<.020	
FEB 1998 05...	9	89	61	<.2	3.4	48	.180	.050	.35	<.020	
JUN 01...	15	150	10	<.2	8.5	<2	.060	.070	.23	<.020	

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ALUM- INUM, TOTAL RECOV- ERABLE (µG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (µG/L AS AL) (01106)	ARSENIC TOTAL (µG/L AS AS) (01002)	ARSENIC DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, TOTAL RECOV- ERABLE (µG/L AS BA) (01007)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)
01571758 JUN 1998 01...	LOWER RAUSCH CREEK, SITE E3-1, NEAR LORBERRY JUNCTION, PA (LAT 40 35 34N LONG 076 24 40W)									
	930	<200	<40	<40	24	21	<10	<10	<50	<50
01571760	LOWER RAUSCH CREEK, SITE E3-2, AT LORBERRY JUNCTION, PA (LAT 40 35 22N LONG 076 24 42W)									
DEC 1997 18...	340	<200	<4	<4	22	22	<10	<10	<50	<50
FEB 1998 05...	<200	<200	<4	<4	32	18	<10	<10	<50	<50
JUN 01...	400	<200	<40	<40	23	23	<10	<10	<50	<50
DATE	COBALT, TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LITHIUM TOTAL RECOV- ERABLE (µG/L AS LI) (01132)	LITHIUM DIS- SOLVED (µG/L AS LI) (01130)
01571758 JUN 1998 01...	LOWER RAUSCH CREEK, SITE E3-1, NEAR LORBERRY JUNCTION, PA (LAT 40 35 34N LONG 076 24 40W)									
	60	52	<10	<10	2800	1000	<10	<10	40	43
01571760	LOWER RAUSCH CREEK, SITE E3-2, AT LORBERRY JUNCTION, PA (LAT 40 35 22N LONG 076 24 42W)									
DEC 1997 18...	<50	<50	<10	<10	3000	2400	<1	<1.0	<30	<25
FEB 1998 05...	<50	<50	<10	<10	1220	108	<1	<1.0	<30	<25
JUN 01...	50	45	<10	<10	1400	310	<10	<10	50	43
DATE	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SELE- NIUM, TOTAL (µG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	STRON- TIUM, TOTAL RECOV- ERABLE (µG/L AS SR) (01082)	STRON- TIUM, DIS- SOLVED (µG/L AS SR) (01080)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)
01571758 JUN 1998 01...	LOWER RAUSCH CREEK, SITE E3-1, NEAR LORBERRY JUNCTION, PA (LAT 40 35 34N LONG 076 24 40W)									
	1900	1700	76	71	<70	<70	140	120	130	98
01571760	LOWER RAUSCH CREEK, SITE E3-2, AT LORBERRY JUNCTION, PA (LAT 40 35 22N LONG 076 24 42W)									
DEC 1997 18...	1400	1400	50	<50	<7	<7	100	100	70	67
FEB 1998 05...	1050	50	<50	<50	<7	<7	86	<10	86	14
JUN 01...	1600	1700	69	66	<70	<70	130	130	140	92

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA (LAT 40 35 42N LONG 076 26 32W)											
NOV 1997											
20...	1515	1028	9813	--	241	6.4	6.2	432	11.5	9.9	91
DEC											
18...	1500	1028	9813	3.9	234	6.4	6.1	272	11.5	7.5	69
FEB 1998											
05...	1530	1028	9813	8.2	265	5.1	4.8	--	12.0	9.3	86
MAR											
25...	1230	1028	9813	12	224	4.9	4.6	532	11.5	9.8	90
JUN											
01...	1430	1028	9813	5.9	237	5.3	4.9	392	11.9	10.9	100
AUG											
05...	1450	1028	9813	3.5	324	4.8	4.6	441	12.2	3.0	28
01571774 LORBERRY CREEK, SITE E2-0, AT LORBERRY, PA (LAT 40 35 32N LONG 076 26 22W)											
NOV 1997											
20...	1430	1028	9813	2.6	237	7.0	6.2	317	11.0	11.0	96
DEC											
18...	1445	1028	9813	3.9	230	7.1	6.1	272	11.0	11.0	99
FEB 1998											
05...	1200	1028	9813	9.5	248	5.5	5.0	--	11.0	11.0	98
MAR											
25...	1530	1028	9813	12	216	5.4	4.6	542	11.5	12.0	110
JUN											
01...	1415	1028	9813	5.9	231	5.8	5.1	411	12.2	12.0	110
AUG											
05...	1410	1028	9813	3.5	318	5.1	4.7	431	12.9	5.0	47
01571776 STUMPS RUN AT LORBERRY, PA (LAT 40 35 30N LONG 076 26 23W)											
NOV 1997											
20...	1445	1028	9813	.22	51	6.6	5.9	447	6.6	12.0	97
FEB 1998											
05...	1150	1028	9813	3.7	51	6.0	5.9	--	4.0	13.0	98
MAR											
25...	1520	1028	9813	1.2	60	6.3	5.6	595	7.8	13.0	110
JUN											
01...	1400	1028	9813	.54	47	6.0	6.0	437	16.3	10.5	110
AUG											
05...	1400	1028	9813	.15	23	6.0	5.9	392	16.2	5.7	58
403521076260601 SHADLE MINE SHAFT AT LORBERRY, PA (LAT 40 35 21N LONG 076 26 06W)											
FEB 1998											
05...	1400	1028	9813	.06	3200	3.2	3.3	--	13.6	.3	3
APR											
03...	1645	1028	9813	--	2960	3.2	3.4	325	13.6	.6	5
MAY											
01...	1100	1028	9813	--	2930	3.2	3.4	335	13.5	1.3	13
JUN											
01...	1330	1028	9813	.03	2820	3.2	3.4	590	13.6	2.9	28
15...	1145	1028	9813	.01	2920	3.2	3.4	275	13.7	.6	6
JUL											
14...	0835	1028	9813	--	2540	3.2	3.4	400	13.6	.8	8
01571777 LORBERRY CR AB PANTHER HEAD DISCH NR LORBERRY JUNCTION (LAT 40 35 11N LONG 076 25 55W)											
FEB 1998											
05...	1330	1028	9813	--	215	4.6	4.7	--	8.5	11.5	98
AUG											
05...	1150	1028	9813	4.5	315	4.6	4.7	450	13.6	5.8	55
0157177780 PANTHER HEAD DISCH TO LORBERRY CR NR LORBERRY JUNCTION (LAT 40 35 10N LONG 076 25 56W)											
FEB 1998											
05...	1415	1028	9813	.19	600	3.2	3.2	--	6.3	11.2	91

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CACO3) (70508)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD (MG/L AS CACO3) (00410)
403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA (LAT 40 35 42N LONG 076 26 32W)											
NOV 1997											
20...	--	5.8	12	12	16	16	3.6	3.6	1.4	1.4	--
DEC 18...	--	28	8.5	8.5	15	15	2.6	2.6	1.2	1.1	26
FEB 1998											
05...	--	24	14	13	21	18	2.8	2.7	1.5	1.5	2
MAR 25...	--	22	9.4	9.5	18	17	3.5	3.4	1.5	1.3	.00
JUN 01...	--	19	9.3	8.4	18	17	2.6	2.4	1.2	1.2	--
AUG 05...	--	24	20	20	28	28	3.5	3.5	1.3	1.3	--
01571774 LORBERRY CREEK, SITE E2-0, AT LORBERRY, PA (LAT 40 35 32N LONG 076 26 22W)											
NOV 1997											
20...	.00	8.4	12	12	16	16	3.6	3.5	1.3	1.3	--
DEC 18...	.00	15	8.8	8.3	14	14	2.7	2.6	1	.97	--
FEB 1998											
05...	--	18	10	9.8	15	15	2.8	2.7	1.3	1.3	--
MAR 25...	--	18	9.6	9.6	18	18	3.4	3.4	1.4	1.1	.500
JUN 01...	--	16	9.1	8.6	17	15	2.5	2.3	1.1	1.1	--
AUG 05...	--	22	19	19	27	27	3.2	3.2	1.3	1.3	--
01571776 STUMPS RUN AT LORBERRY, PA (LAT 40 35 30N LONG 076 26 23W)											
NOV 1997											
20...	--	2.2	4.2	4.2	2.6	2.6	.8	.76	.7	.70	--
FEB 1998											
05...	--	3.6	3.4	3.4	2.4	2.4	.5	.49	.7	.65	--
MAR 25...	--	4.8	4.7	4.7	3.2	3.2	1.0	1.0	1	.92	1
JUN 01...	--	3.6	3.7	4.2	2.7	2.7	.7	.62	.9	.93	--
AUG 05...	--	.00	1.5	1.5	1.0	.97	.6	.57	<.5	<.50	--
403521076260601 SHADLE MINE SHAFT AT LORBERRY, PA (LAT 40 35 21N LONG 076 26 06W)											
FEB 1998											
05...	--	1200	190	180	150	150	2.0	1.9	2.0	2.0	.00
APR 03...	--	1100	180	180	120	120	2.0	1.8	1.7	1.6	.00
MAY 01...	1000	1200	180	170	160	140	1.7	1.7	1.9	1.9	.00
JUN 01...	--	1100	150	140	140	130	1.6	1.6	1.7	1.5	.00
15...	--	1100	--	170	--	150	--	2.2	--	1.8	.00
JUL 14...	--	910	170	170	170	160	1.5	1.5	1.8	1.8	.00
01571777 LORBERRY CR AB PANTHER HEAD DISCH NR LORBERRY JUNCTION (LAT 40 35 11N LONG 076 25 55W)											
FEB 1998											
05...	--	17	12	11	13	13	2.1	1.8	1.3	1.2	--
AUG 05...	--	24	14	14	22	22	3.0	3.0	1.2	1.1	--
015717780 PANTHER HEAD DISCH TO LORBERRY CR NR LORBERRY JUNCTION (LAT 40 35 10N LONG 076 25 56W)											
FEB 1998											
05...	--	170	14	13	13	13	1	.95	1.2	1.2	.00

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, TOTAL (MG/L AS F) (00951)	SILICA TOTAL (MG/L- SIO2) (00956)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, NITRATE (MG/L AS N) (00620)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA (LAT 40 35 42N LONG 076 26 32W)										
NOV 1997										
20...	22	90	3.1	<.2	12	2	<.040	.090	.13	<.020
DEC										
18...	26	83	3.3	<.2	8.5	6	<.040	.120	.17	<.020
FEB 1998										
05...	2	120	2.7	<.2	12	32	<.040	.130	.20	<.020
MAR										
25...	1	96	3.3	<.2	12	14	<.040	.060	.20	<.020
JUN										
01...	2	110	2.9	<.2	9.9	16	<.040	.070	.17	<.020
AUG										
05...	1	250	2.6	<.2	11	20	<.040	.120	.23	.030
01571774 LORBERRY CREEK, SITE E2-0, AT LORBERRY, PA (LAT 40 35 32N LONG 076 26 22W)										
NOV 1997										
20...	16	89	3.1	<.2	11	32	<.040	.080	.13	<.020
DEC										
18...	18	82	3.2	<.2	8.8	18	<.040	.120	.13	<.020
FEB 1998										
05...	2	110	3.0	<.2	10	36	.040	.110	.20	<.020
MAR										
25...	1	92	3.2	<.2	12	<2	<.040	.060	.20	<.020
JUN										
01...	2	110	2.7	<.2	9.3	18	<.040	.070	.17	<.020
AUG										
05...	2	230	2.7	<.2	11	10	<.040	.120	.20	.020
01571776 STUMPS RUN AT LORBERRY, PA (LAT 40 35 30N LONG 076 26 23W)										
NOV 1997										
20...	5	17	<.50	<.2	6.9	6	<.040	<.020	.08	<.020
FEB 1998										
05...	4	19	<.50	<.2	4.6	30	<.040	<.020	.15	<.020
MAR										
25...	4	22	.55	<.2	6.8	6	<.040	<.020	.19	<.020
JUN										
01...	4	18	.63	<.2	7.0	14	<.040	<.020	.13	<.020
AUG										
05...	7	5.0	.50	<.2	5.8	<2	.050	.040	.15	<.020
403521076260601 SHADLE MINE SHAFT AT LORBERRY, PA (LAT 40 35 21N LONG 076 26 06W)										
FEB 1998										
05...	.00	2500	6.0	<.2	43	4	<.040	1.10	1.1	<.020
APR										
03...	.00	2200	.89	.2	55	8	<.040	1.00	1.1	<.020
MAY										
01...	.00	2200	--	.2	53	<2	<.040	.850	.96	<.020
JUN										
01...	.00	2500	3.0	.3	47	<2	<.040	1.00	1.1	<.020
15...	.00	2200	3.4	.3	--	6	<.040	.990	.81	<.020
JUL										
14...	.00	2800	.80	.2	52	12	<.040	.870	1.1	<.020
01571777 LORBERRY CR AB PANTHER HEAD DISCH NR LORBERRY JUNCTION (LAT 40 35 11N LONG 076 25 55W)										
FEB 1998										
05...	2	94	2.4	<.2	9.7	20	.040	.080	.19	<.020
AUG										
05...	2	280	2.6	<.2	10	6	<.040	.120	.19	<.020
0157177780 PANTHER HEAD DISCH TO LORBERRY CR NR LORBERRY JUNCTION (LAT 40 35 10N LONG 076 25 56W)										
FEB 1998										
05...	.00	290	1.1	<.2	12	26	<.040	.030	.13	<.020

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ALUM- INUM, TOTAL RECOV- ERABLE (µG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (µG/L AS AL) (01106)	ARSENIC TOTAL (µG/L AS AS) (01002)	ARSENIC DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, TOTAL RECOV- ERABLE (µG/L AS BA) (01007)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	CADMIUM WATER UNFLTRD (µG/L AS CD) (01027)	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)
403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA (LAT 40 35 42N LONG 076 26 32W)										
NOV 1997										
20...	690	<200	<4	<4	32	32	<10	<10	<50	<50
DEC										
18...	420	<200	<4	<4	27	27	<10	<10	<50	<50
FEB 1998										
05...	1400	800	<4	<4	31	31	<10	<10	<50	<50
MAR										
25...	1500	1300	<4	<4	28	29	<10	<10	<50	<50
JUN										
01...	1200	540	<40	<40	24	22	<10	<10	<50	<50
AUG										
05...	1200	670	<4	<4	27	27	<10	<10	<50	<50
01571774 LORBERRY CREEK, SITE E2-0, AT LORBERRY, PA (LAT 40 35 32N LONG 076 26 22W)										
NOV 1997										
20...	640	<200	<4	<4	32	32	<10	<10	<50	<50
DEC										
18...	400	<200	<4	<4	27	26	<10	<10	<50	<50
FEB 1998										
05...	1100	420	<4	<4	24	24	<10	<10	<50	<50
MAR										
25...	1200	950	<4	<4	28	28	<10	<10	<50	<50
JUN										
01...	990	<200	<40	<40	22	20	<10	<10	<50	<50
AUG										
05...	1100	540	<4	<4	26	26	<10	<10	<50	<50
01571776 STUMPS RUN AT LORBERRY, PA (LAT 40 35 30N LONG 076 26 23W)										
NOV 1997										
20...	<200	<200	<4	<4	15	14	<10	<10	<50	<50
FEB 1998										
05...	<200	<200	<4	<4	18	17	<10	<10	<50	<50
MAR										
25...	<200	<200	<4	<4	22	22	<10	<10	<50	<50
JUN										
01...	<200	<200	<40	<40	18	18	<10	<10	<50	<50
AUG										
05...	<200	<200	<4	<4	<10	<10	<10	<10	<50	<50
403521076260601 SHADLE MINE SHAFT AT LORBERRY, PA (LAT 40 35 21N LONG 076 26 06W)										
FEB 1998										
05...	30000	30000	7	6	13	13	<10	50	<50	<50
APR										
03...	32000	31000	5	5	14	14	55	51	<50	<50
MAY										
01...	31000	30000	8	6	13	12	41	39	<50	<50
JUN										
01...	26000	26000	<40	<40	12	12	12	11	<50	<50
15...	--	24000	--	<40	--	11	--	12	--	<50
JUL										
14...	24000	24000	<40	<40	13	13	39	13	<50	<50
01571777 LORBERRY CR AB PANTHER HEAD DISCH NR LORBERRY JUNCTION (LAT 40 35 11N LONG 076 25 55W)										
FEB 1998										
05...	1200	780	<4	<4	29	27	<10	<10	<50	<50
AUG										
05...	1200	590	<40	<40	25	25	<10	<10	52	52
0157177780 PANTHER HEAD DISCH TO LORBERRY CR NR LORBERRY JUNCTION (LAT 40 35 10N LONG 076 25 56W)										
FEB 1998										
05...	17000	16000	<4	<4	37	37	<10	<10	<50	<50

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	COBALT, TOTAL RECOV- ERABLE ($\mu\text{G/L}$ AS CO) (01037)	COBALT, DIS- SOLVED ($\mu\text{G/L}$ AS CU) (01035)	COPPER, TOTAL RECOV- ERABLE ($\mu\text{G/L}$ AS CU) (01042)	COPPER, DIS- SOLVED ($\mu\text{G/L}$ AS CU) (01040)	IRON, TOTAL RECOV- ERABLE ($\mu\text{G/L}$ AS FE) (01045)	IRON, DIS- SOLVED ($\mu\text{G/L}$ AS FE) (01046)	LEAD, TOTAL RECOV- ERABLE ($\mu\text{G/L}$ AS PB) (01051)	LEAD, DIS- SOLVED ($\mu\text{G/L}$ AS PB) (01049)	LITHIUM TOTAL RECOV- ERABLE ($\mu\text{G/L}$ AS LI) (01132)	LITHIUM DIS- SOLVED ($\mu\text{G/L}$ AS LI) (01130)
403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA (LAT 40 35 42N LONG 076 26 32W)										
NOV 1997										
20...	50	<50	29	<10	11000	10000	<1	<1.0	30	32
DEC										
18...	<50	<50	<10	<10	8600	8600	<1	<1.0	<30	<25
FEB 1998										
05...	70	72	<10	<10	8200	5800	2	<1.0	<30	<30
MAR										
25...	70	74	<10	<10	4600	2200	2	1.1	<30	<30
JUN										
01...	60	57	<10	<10	5500	3100	<10	<10	<30	<25
AUG										
05...	70	67	<10	<10	8000	6300	3	1.2	<30	<30
01571774 LORBERRY CREEK, SITE E2-0, AT LORBERRY, PA (LAT 40 35 32N LONG 076 26 22W)										
NOV 1997										
20...	<50	<50	<10	<10	9900	9200	<1	<1.0	<30	<30
DEC										
18...	<50	<50	<10	<10	8100	7400	<1	<1.0	<30	<25
FEB 1998										
05...	60	62	<10	<10	6600	4500	2	<1.0	<30	<25
MAR										
25...	70	70	<10	<10	4100	2000	<1	1.7	<30	<30
JUN										
01...	60	55	<10	<10	4900	2700	<10	<10	<30	<25
AUG										
05...	60	61	<10	<10	7600	5700	3	1.2	<30	<30
01571776 STUMPS RUN AT LORBERRY, PA (LAT 40 35 30N LONG 076 26 23W)										
NOV 1997										
20...	<50	<50	<10	<10	50	45	<1	<1.0	<30	<30
FEB 1998										
05...	<50	<50	<10	<10	170	170	<1	<1.0	<30	<25
MAR										
25...	<50	<50	<10	<10	80	80	<1	<1.0	<30	<30
JUN										
01...	<50	<50	<10	<10	90	510	<10	<10	<30	<25
AUG										
05...	<50	<50	<10	<10	70	<20	<1	<1.0	<30	<30
403521076260601 SHADLE MINE SHAFT AT LORBERRY, PA (LAT 40 35 21N LONG 076 26 06W)										
FEB 1998										
05...	1300	1300	<10	<10	520000	510000	12	12	160	150
APR										
03...	1200	1200	26	<10	430000	430000	12	10	150	140
MAY										
01...	1100	1000	<10	<10	520000	460000	11	11	120	100
JUN										
01...	1100	1000	<10	<10	470000	420000	<10	<10	130	130
15...	--	840	--	<100	--	480000	--	<10	--	110
JUL										
14...	910	910	<10	<10	500000	490000	<10	<10	120	120
01571777 LORBERRY CR AB PANTHER HEAD DISCH NR LORBERRY JUNCTION (LAT 40 35 11N LONG 076 25 55W)										
FEB 1998										
05...	60	56	<10	<10	5800	3600	1	<1.0	<30	<30
AUG										
05...	60	62	10	10	7700	5800	<10	<10	<30	<25
0157177780 PANTHER HEAD DISCH TO LORBERRY CR NR LORBERRY JUNCTION (LAT 40 35 10N LONG 076 25 56W)										
FEB 1998										
05...	310	300	240	240	9300	9100	19	19	<30	<25

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	MANGA- NESE, TOTAL RECOV- ERABLE (μ G/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (μ G/L AS MN) (01056)	NICKEL, TOTAL RECOV- ERABLE (μ G/L AS NI) (01067)	NICKEL, DIS- SOLVED (μ G/L AS NI) (01065)	SELE- NIUM, TOTAL (μ G/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (μ G/L AS SE) (01145)	STRON- TIUM, TOTAL RECOV- ERABLE (μ G/L AS SR) (01082)	STRON- TIUM, DIS- SOLVED (μ G/L AS SR) (01080)	ZINC, TOTAL RECOV- ERABLE (μ G/L AS ZN) (01092)	ZINC, DIS- SOLVED (μ G/L AS ZN) (01090)
403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA (LAT 40 35 42N LONG 076 26 32W)										
NOV 1997										
20...	2100	2100	<50	<50	<7	<7	50	47	100	99
DEC										
18...	1600	1600	<50	<50	<7	<7	40	36	60	62
FEB 1998										
05...	2100	2000	110	100	<7	<7	40	44	240	240
MAR										
25...	1700	1700	100	100	<7	<7	40	37	250	260
JUN										
01...	1700	1500	83	78	<70	<70	30	30	200	190
AUG										
05...	2300	2300	99	99	<7	<7	50	45	220	220
01571774 LORBERRY CREEK, SITE E2-0, AT LORBERRY, PA (LAT 40 35 32N LONG 076 26 22W)										
NOV 1997										
20...	2000	2000	63	51	<7	<7	50	47	90	91
DEC										
18...	1600	1500	<50	<50	<7	<7	40	35	60	55
FEB 1998										
05...	1700	1600	85	85	<7	<7	40	34	200	190
MAR										
25...	1600	1600	74	<50	<7	<7	40	37	240	240
JUN										
01...	1500	1400	80	70	<70	<70	30	29	190	180
AUG										
05...	2100	2100	96	96	<7	<7	40	43	210	210
01571776 STUMPS RUN AT LORBERRY, PA (LAT 40 35 30N LONG 076 26 23W)										
NOV 1997										
20...	90	90	<30	<50	<7	<7	20	16	<10	<10
FEB 1998										
05...	130	130	<50	<50	<7	<7	20	15	30	33
MAR										
25...	91	87	<50	<50	<7	<7	20	20	40	35
JUN										
01...	55	150	<50	<50	<70	<70	20	17	20	80
AUG										
05...	12	<10	<50	<50	<7	<7	<10	<10	<10	<10
403521076260601 SHADLE MINE SHAFT AT LORBERRY, PA (LAT 40 35 21N LONG 076 26 06W)										
FEB 1998										
05...	32000	31000	1400	1400	<7	<7	670	660	2200	2200
APR										
03...	31000	30000	1300	1300	<7	<7	630	630	2300	2200
MAY										
01...	34000	32000	1200	1100	<7	<7	630	570	1800	1700
JUN										
01...	28000	28000	1000	1000	<70	<70	600	580	1800	1700
15...	--	28000	--	870	--	<70	--	610	--	1400
JUL										
14...	29000	29000	900	900	<70	<70	610	610	1600	1600
01571777 LORBERRY CR AB PANTHER HEAD DISCH NR LORBERRY JUNCTION (LAT 40 35 11N LONG 076 25 55W)										
FEB 1998										
05...	1400	1400	81	78	<7	<7	40	37	190	180
AUG										
05...	2200	2200	95	86	<70	<70	40	41	200	200
0157177780 PANTHER HEAD DISCH TO LORBERRY CR NR LORBERRY JUNCTION (LAT 40 35 10N LONG 076 25 56W)										
FEB 1998										
05...	3000	2900	460	460	<7	<7	50	49	2000	2000

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
0157177790 UNNAMED TRIB TO LORBERRY CR NR LORBERRY JCT, PA (LAT 40 35 07N LONG 076 25 48W)											
FEB 1998											
05...	1300	1028	9813	13	23	4.8	4.6	--	3.1	13.3	99
JUN											
01...	1240	1028	9813	.89	16	5.0	5.3	428	15.6	9.8	99
AUG											
05...	1200	1028	9813	.30	20	5.4	5.4	387	16.2	5.3	54
01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA (LAT 40 35 15N LONG 076 25 35W)											
NOV 1997											
20...	1415	1028	9813	2.8	223	6.9	6.1	324	9.1	11.0	99
DEC											
18...	1430	1028	9813	--	215	7.0	6.0	335	8.4	12.0	100
FEB 1998											
05...	1100	1028	9813	26	150	4.9	4.8	--	6.5	12.0	99
MAR											
25...	1445	1028	9813	18	179	4.7	4.5	599	8.9	13.0	110
JUN											
01...	1130	1028	9813	7.8	203	5.0	4.7	430	13.5	11.0	110
AUG											
05...	1100	1028	9813	3.9	293	5.0	4.2	355	13.5	8.6	83
01571780 LORBERRY CREEK AT LORBERRY JUNCTION, PA (LAT 40 35 20N LONG 076 24 43W)											
NOV 1997											
20...	1345	1028	9813	4.6	215	6.9	6.1	335	8.1	12.0	99
DEC											
18...	1230	1028	9813	5.7	213	6.9	6.0	366	7.3	12.0	100
FEB 1998											
05...	0900	1028	9813	31	190	5.7	5.0	--	6.3	12.0	99
MAR											
25...	1410	1028	9813	22	160	5.3	4.7	554	9.1	12.0	110
JUN											
01...	1000	1028	9813	11	208	5.8	4.8	392	13.9	11.0	100
AUG											
05...	0930	1028	9813	4.8	285	5.8	5.0	319	14.5	11.2	110
01571798 SWATARA CREEK AT LORBERRY JUNCTION, PA (LAT 40 35 18N LONG 076 24 37W)											
DEC 1997											
18...	1315	1028	9813	24	209	7.0	6.1	370	2.8	14.2	100
01572010 SWATARA CR BL SR 645 HWY BRIDGE AT PINE GROVE, PA (LAT 40 32 12N LONG 076 21 59W)											
OCT 1997											
30...	1030	1028	9813	--	248	7.0	6.5	367	6.6	11.0	92
NOV											
19...	1015	1028	9813	81	190	7.0	6.3	--	2.1	13.0	98
DEC											
18...	1000	1028	9813	--	200	6.8	6.2	401	2.1	14.0	100
JAN 1998											
07...	0930	1028	9813	190	161	6.7	6.3	371	7.2	12.0	100
09...	1515	1028	9813	1500	110	6.6	6.2	--	9.7	12.0	100
FEB											
19...	1035	1028	9813	--	120	6.7	6.2	367	5.8	12.0	99
MAR											
31...	0930	1028	9813	--	160	6.6	6.3	401	12.5	12.0	110
MAY											
21...	1600	1028	9813	--	162	6.7	6.4	430	18.7	9.0	97
JUN											
30...	1145	1028	9813	66	183	6.6	6.2	357	19.1	8.6	92
JUL											
24...	0945	1028	9813	--	228	6.9	6.4	333	20.8	8.4	94
AUG											
25...	1030	--	--	46	230	7.0	6.7	193	21.1	8.7	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ACIDITY (MG/L AS CACO3) (00435)	ACIDITY TOTAL HEATED (MG/L AS CACO3) (70508)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD (MG/L AS CACO3) (00410)
015717790	UNNAMED TRIB TO LORBERRY CR NR LORBERRY JCT, PA (LAT 40 35 07N LONG 076 25 48W)										
FEB 1998											
05...	--	6.4	18	.88	12	.55	34	.42	1.7	<.50	--
JUN 01...	--	8.4	1.0	.74	.64	.40	.7	.61	<.5	<.50	--
AUG 05...	--	6.0	.82	.82	.38	.46	.9	.85	.6	.64	--
01571778	LORBERRY CREEK NEAR LORBERRY JUNCTION, PA (LAT 40 35 15N LONG 076 25 35W)										
NOV 1997											
20...	.00	7.8	14	14	14	14	3.2	3.1	1.1	1.1	--
DEC 18...	.00	17	10	10	13	12	2.4	2.4	1	.96	--
FEB 1998											
05...	--	14	6.7	6.3	7.6	7.2	1.8	1.5	1.7	1.1	--
MAR 25...	--	18	8.7	8.5	12	12	2.4	2.4	1.0	.93	.400
JUN 01...	--	20	9.2	8.6	14	13	2.0	1.9	.9	.87	--
AUG 05...	--	26	14	13	20	20	3.0	3.0	1.1	.98	--
01571780	LORBERRY CREEK AT LORBERRY JUNCTION, PA (LAT 40 35 20N LONG 076 24 43W)										
NOV 1997											
20...	.00	5.8	14	14	14	14	3.9	3.9	1.1	1.1	--
DEC 18...	.00	9.0	9.3	9.3	10	10	2.7	2.6	1	.96	--
FEB 1998											
05...	--	12	6.4	6.3	6.5	6.4	2.8	2.8	1.1	1.1	--
MAR 25...	--	15	8.3	8.4	9.8	9.7	2.9	2.9	1.1	1.0	1
JUN 01...	--	16	9.4	9.2	13	12	2.3	2.2	1	.98	--
AUG 05...	--	15	14	14	20	20	3.0	3.0	1.0	.82	--
01571798	SWATARA CREEK AT LORBERRY JUNCTION, PA (LAT 40 35 18N LONG 076 24 37W)										
DEC 1997											
18...	--	2.4	13	13	7.9	7.8	5.3	5.3	1	.93	--
01572010	SWATARA CR BL SR 645 HWY BRIDGE AT PINE GROVE, PA (LAT 40 32 12N LONG 076 21 59W)										
OCT 1997											
30...	.00	.00	19	19	13	13	9.9	9.9	1.8	1.7	--
NOV 19...	.00	.00	14	13	7.1	7.1	7.6	7.6	1.6	1.6	--
DEC 18...	.00	4.6	12	12	7.4	7.4	6.9	6.6	1.1	1.1	--
JAN 1998											
07...	.00	2.0	11	11	5.9	5.9	7.4	7.4	1.5	1.5	--
09...	--	1.4	6.9	6.8	3.9	3.8	4.4	4.4	2.0	1.7	--
FEB 19...	--	.00	7.6	7.5	4.8	4.7	4.7	4.6	1.4	1.4	7
MAR 31...	--	.00	10	9.4	7.5	7.0	4.5	4.2	1	.96	9
MAY 21...	.00	.00	12	12	8.4	8.0	4.5	4.5	1.3	1.3	9
JUN 30...	--	.00	12	12	7.5	7.5	4.5	4.5	1.6	1.3	--
JUL 24...	.00	.00	17	17	12	12	7.7	7.4	1.5	1.4	--
AUG 25...	.00	.00	19	19	10	10	8.6	8.6	2.0	1.7	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, TOTAL (MG/L AS F) (00951)	SILICA TOTAL (MG/L- SIO2) (00956)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	RESIDUE SETTLE- ABLE (MG/L) (00545)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
015717790 UNNAMED TRIB TO LORBERRY CR NR LORBERRY JCT, PA (LAT 40 35 07N LONG 076 25 48W)											
FEB 1998											
05...	1	10	.87	<.2	7.9	20	--	<.040	<.020	.19	<.020
JUN											
01...	3	6.3	1.2	<.2	4.3	<2	--	<.040	<.020	.36	<.020
AUG											
05...	3	1.7	1.4	<.2	6.7	<2	--	.100	.040	.52	<.020
01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA (LAT 40 35 15N LONG 076 25 35W)											
NOV 1997											
20...	9	91	2.8	<.2	11	14	--	<.040	.060	.13	<.020
DEC											
18...	9	86	2.9	<.2	8.5	24	--	<.040	.100	.15	<.020
FEB 1998											
05...	2	62	2.1	<.2	7.1	<2	--	.040	.050	.20	<.020
MAR											
25...	.00	73	2.4	<.2	9.5	<2	--	<.040	.040	.20	<.020
JUN											
01...	1	94	2.3	<.2	8.3	22	--	<.040	.050	.19	<.020
AUG											
05...	.00	330	4.9	<.2	11	24	--	<.040	.100	.21	<.020
01571780 LORBERRY CREEK AT LORBERRY JUNCTION, PA (LAT 40 35 20N LONG 076 24 43W)											
NOV 1997											
20...	8	85	3.6	<.2	10	2	--	.040	.060	.15	<.020
DEC											
18...	9	80	3.6	<.2	7.8	14	--	.040	.090	.17	<.020
FEB 1998											
05...	2	54	4.3	<.2	6.5	38	--	<.040	.050	.25	<.020
MAR											
25...	2	67	2.9	<.2	8.9	4	--	<.040	.040	.25	<.020
JUN											
01...	2	85	2.6	<.2	8.7	8	--	.040	.050	.20	<.020
AUG											
05...	3	170	2.9	<.2	10	<2	--	.050	.110	.24	<.020
01571798 SWATARA CREEK AT LORBERRY JUNCTION, PA (LAT 40 35 18N LONG 076 24 37W)											
DEC 1997											
18...	11	68	10	<.2	5.9	8	--	.170	.170	.41	<.020
01572010 SWATARA CR BL SR 645 HWY BRIDGE AT PINE GROVE, PA (LAT 40 32 12N LONG 076 21 59W)											
OCT 1997											
30...	19	69	9.0	<.2	8.4	<2	--	.270	.280	1.1	<.020
NOV											
19...	20	49	11	<.2	6.4	<2	<.200	.760	.240	1.4	<.020
DEC											
18...	17	55	10	<.2	6.0	<2	<.200	.790	.240	1.4	<.020
JAN 1998											
07...	12	38	12	<.2	6.6	16	<.200	1.10	.200	1.7	.020
09...	8	25	7.9	<.2	8.6	6	<.200	1.10	.040	1.7	.060
FEB											
19...	8	29	7.8	<.2	6.2	28	<.200	1.00	.070	1.4	.020
MAR											
31...	9	52	6.4	<.2	6.4	<2	<.200	.650	.150	1.0	<.020
MAY											
21...	11	55	5.7	<.2	6.9	<2	<.200	.410	.130	.85	<.020
JUN											
30...	13	46	6.8	<.2	6.4	4	<.200	.830	.040	1.4	<.020
JUL											
24...	17	70	8.0	<.2	6.2	6	<.200	.520	.260	1.2	<.020
AUG											
25...	22	72	8.6	<.2	6.2	<2	<.200	.420	<.020	.75	.020

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ALUM- INUM, TOTAL RECOV- ERABLE (µG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (µG/L AS AL) (01106)	ARSENIC TOTAL (µG/L AS AS) (01002)	ARSENIC DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, TOTAL RECOV- ERABLE (µG/L AS BA) (01007)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)
015717790 UNNAMED TRIB TO LORBERRY CR NR LORBERRY JCT, PA (LAT 40 35 07N LONG 076 25 48W)										
FEB 1998										
05...	1100	<200	<4	<4	35	18	<10	<10	<50	<50
JUN										
01...	290	220	<40	<40	13	11	<10	<10	<50	<50
AUG										
05...	200	<200	<40	<40	<10	<10	<10	<10	<50	<50
01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA (LAT 40 35 15N LONG 076 25 35W)										
NOV 1997										
20...	900	<200	<4	<4	27	27	<10	<10	<50	<50
DEC										
18...	990	<200	<4	<4	23	23	<10	<10	<50	<50
FEB 1998										
05...	1000	540	<4	<4	22	20	<10	<10	<50	<50
MAR										
25...	1400	1000	<4	<4	25	24	<10	<10	<50	<50
JUN										
01...	980	240	<40	<40	19	18	<10	<10	<50	<50
AUG										
05...	1300	620	<4	<4	25	25	<10	<10	52	50
01571780 LORBERRY CREEK AT LORBERRY JUNCTION, PA (LAT 40 35 20N LONG 076 24 43W)										
NOV 1997										
20...	650	<200	<4	<4	26	26	<10	<10	<50	<50
DEC										
18...	690	<200	<4	<4	23	23	<10	<10	<50	<50
FEB 1998										
05...	770	230	<4	<4	21	20	<10	<10	<50	<50
MAR										
25...	1000	520	<4	<4	24	23	<10	<10	<50	<50
JUN										
01...	870	<200	<40	<40	22	20	<10	<10	<50	<50
AUG										
05...	1000	<200	<40	<40	24	24	<10	<10	<50	<50
01571798 SWATARA CREEK AT LORBERRY JUNCTION, PA (LAT 40 35 18N LONG 076 24 37W)										
DEC 1997										
18...	<200	<200	<4	<4	19	18	<10	<10	<50	<50
01572010 SWATARA CR BL SR 645 HWY BRIDGE AT PINE GROVE, PA (LAT 40 32 12N LONG 076 21 59W)										
OCT 1997										
30...	<200	<200	<4	<4	26	25	<10	<10	<50	<50
NOV										
19...	<200	<200	<4	<4	24	24	<10	<10	<50	<50
DEC										
18...	<200	<200	<4	<4	23	22	<10	<10	<50	<50
JAN 1998										
07...	370	<200	<4	<4	30	27	<10	<10	<50	<50
09...	1700	<200	<4	<4	45	30	<10	<10	<50	<50
FEB										
19...	520	<200	<4	<4	28	25	<10	<10	<50	<50
MAR										
31...	350	<200	<4	<4	25	22	<10	<10	<50	<50
MAY										
21...	240	<200	<40	<40	22	21	<10	<10	<50	<50
JUN										
30...	<200	<200	<4	5	22	21	<10	<10	<50	<50
JUL										
24...	<200	<200	<4	<4	23	21	<10	<10	<50	<50
AUG										
25...	420	<200	<40	<40	25	22	<10	<10	<50	<50

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	COBALT, TOTAL RECOV- ERABLE ($\mu\text{G/L}$ AS CO) (01037)	COBALT, DIS- SOLVED ($\mu\text{G/L}$ AS CO) (01035)	COPPER, TOTAL RECOV- ERABLE ($\mu\text{G/L}$ AS CU) (01042)	COPPER, DIS- SOLVED ($\mu\text{G/L}$ AS CU) (01040)	IRON, TOTAL RECOV- ERABLE ($\mu\text{G/L}$ AS FE) (01045)	IRON, DIS- SOLVED ($\mu\text{G/L}$ AS FE) (01046)	LEAD, TOTAL RECOV- ERABLE ($\mu\text{G/L}$ AS PB) (01051)	LEAD, DIS- SOLVED ($\mu\text{G/L}$ AS PB) (01049)	LITHIUM TOTAL RECOV- ERABLE ($\mu\text{G/L}$ AS LI) (01132)	LITHIUM DIS- SOLVED ($\mu\text{G/L}$ AS LI) (01130)
0157177790	UNNAMED TRIB TO LORBERRY CR NR LORBERRY JCT, PA (LAT 40 35 07N LONG 076 25 48W)									
FEB 1998										
05...	<50	<50	<10	<10	2300	120	<1	<1.0	<30	<25
JUN										
01...	<50	<50	<10	<10	1200	580	<10	<10	<30	<25
AUG										
05...	<50	<50	<10	<10	430	390	<10	<10	<30	<25
01571778	LORBERRY CREEK NEAR LORBERRY JUNCTION, PA (LAT 40 35 15N LONG 076 25 35W)									
NOV 1997										
20...	<50	<50	<10	<10	7400	5300	<1	<1.0	<30	<30
DEC										
18...	<50	<50	<10	<10	6800	4700	<1	<1.0	<30	<25
FEB 1998										
05...	<50	<50	<10	<10	3900	2000	1	<1.0	<30	<25
MAR										
25...	50	<50	<10	<10	3700	1600	1	1.2	<30	<30
JUN										
01...	<50	<50	<10	<10	4200	2200	<10	<10	<30	<25
AUG										
05...	80	77	11	11	7500	5500	2	1.1	<30	<25
01571780	LORBERRY CREEK AT LORBERRY JUNCTION, PA (LAT 40 35 20N LONG 076 24 43W)									
NOV 1997										
20...	60	<50	<10	<10	5300	3700	<1	<1.0	20	<30
DEC										
18...	<50	<50	<10	<10	4800	3200	<1	<1.0	<30	<25
FEB 1998										
05...	<50	<50	<10	<10	2900	1600	1	<1.0	<30	<25
MAR										
25...	<50	<50	<10	<10	2900	1200	<1	<1.0	<30	<30
JUN										
01...	<50	<50	<10	<10	3700	1700	<10	<10	<30	<25
AUG										
05...	70	67	<10	<10	6400	3800	<10	<10	<30	<25
01571798	SWATARA CREEK AT LORBERRY JUNCTION, PA (LAT 40 35 18N LONG 076 24 37W)									
DEC 1997										
18...	<50	<50	<10	<10	310	64	<1	<1.0	<30	<25
01572010	SWATARA CR BL SR 645 HWY BRIDGE AT PINE GROVE, PA (LAT 40 32 12N LONG 076 21 59W)									
OCT 1997										
30...	<50	<50	<10	<10	270	120	<1	<1.0	<30	<30
NOV										
19...	<50	<50	<10	<10	470	250	<1	<1.0	<30	<25
DEC										
18...	<50	<50	<10	<10	450	140	<1	<1.0	<30	<25
JAN 1998										
07...	<50	<50	<10	<10	800	95	<1	<1.0	<30	<25
09...	<50	<50	<10	<10	2400	180	3	<1.0	<30	<30
FEB										
19...	<50	<50	<10	<10	840	210	1	1.0	<30	<25
MAR										
31...	<50	<50	<10	<10	790	95	<1	<1.0	<30	<25
MAY										
21...	<50	<50	15	<10	520	22	<10	<10	<30	<25
JUN										
30...	<50	<50	<10	<10	420	75	<1	<1.0	<30	<25
JUL										
24...	<50	<50	<10	<10	200	43	<1	<1.0	<30	<25
AUG										
25...	<50	<50	<10	<10	1000	260	<10	<10	<30	<25

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	MANGA- NESE, TOTAL RECOV- ERABLE (μG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (μG/L AS MN) (01056)	NICKEL, TOTAL RECOV- ERABLE (μG/L AS NI) (01067)	NICKEL, DIS- SOLVED (μG/L AS NI) (01065)	SELE- NIUM, TOTAL SOLVED (μG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (μG/L AS SE) (01145)	STRON- TIUM, TOTAL RECOV- ERABLE (μG/L AS SR) (01082)	STRON- TIUM, DIS- SOLVED (μG/L AS SR) (01080)	ZINC, TOTAL RECOV- ERABLE (μG/L AS ZN) (01092)	ZINC, DIS- SOLVED (μG/L AS ZN) (01090)
015717790	UNNAMED TRIB TO LORBERRY CR NR LORBERRY JCT, PA (LAT 40 35 07N LONG 076 25 48W)									
FEB 1998										
05...	970	46	<50	<50	<7	<7	80	<10	90	16
JUN										
01...	85	33	<50	<50	<70	<70	<10	<10	10	11
AUG										
05...	30	38	<50	<50	<70	<70	<10	<10	<10	23
01571778	LORBERRY CREEK NEAR LORBERRY JUNCTION, PA (LAT 40 35 15N LONG 076 25 35W)									
NOV 1997										
20...	1900	1900	59	<50	<7	<7	50	47	100	90
DEC										
18...	1500	1500	<50	<50	<7	<7	40	36	90	77
FEB 1998										
05...	860	800	<50	<50	<7	<7	30	24	140	120
MAR										
25...	1100	1100	72	71	<7	<7	30	32	220	210
JUN										
01...	1200	1200	68	63	<70	<70	30	28	170	160
AUG										
05...	2100	2100	110	110	<7	<7	40	40	410	220
01571780	LORBERRY CREEK AT LORBERRY JUNCTION, PA (LAT 40 35 20N LONG 076 24 43W)									
NOV 1997										
20...	1700	1700	<50	<50	<7	<7	50	46	90	80
DEC										
18...	1300	1300	<50	<50	<7	<7	40	36	80	71
FEB 1998										
05...	700	690	<50	<50	<7	<7	20	23	110	110
MAR										
25...	970	940	58	55	<7	<7	30	31	180	180
JUN										
01...	1200	1100	65	58	<70	<70	30	33	160	150
AUG										
05...	1900	1900	85	76	<70	<70	40	39	190	210
01571798	SWATARA CREEK AT LORBERRY JUNCTION, PA (LAT 40 35 18N LONG 076 24 37W)									
DEC 1997										
18...	490	480	<50	<50	<7	<7	60	62	30	26
01572010	SWATARA CR BL SR 645 HWY BRIDGE AT PINE GROVE, PA (LAT 40 32 12N LONG 076 21 59W)									
OCT 1997										
30...	550	540	<50	<50	<7	<7	100	100	50	48
NOV										
19...	460	450	<50	<50	<7	<7	70	70	30	29
DEC										
18...	460	450	<50	<50	<7	<7	70	65	30	31
JAN 1998										
07...	330	320	<50	<50	<7	<7	60	56	30	22
09...	370	280	<50	<50	<7	<7	40	38	60	65
FEB										
19...	290	260	<50	<50	<7	<7	40	37	40	34
MAR										
31...	420	390	<50	<50	<7	<7	50	46	60	48
MAY										
21...	440	420	<50	<50	<70	<70	50	52	40	34
JUN										
30...	300	300	<50	<50	<7	<7	50	51	30	27
JUL										
24...	190	190	<50	<50	<7	<7	90	82	40	33
AUG										
25...	360	230	<50	<50	<70	<70	100	95	27	20

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXID- ATION RED- UCTION POTEN- TIAL (MV) (00090)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
404619076321901 BIG MOUNTAIN MINE NUMBER 1 SLOPE (LAT 40 46 19N LONG 076 32 19W)											
OCT 1997 15...	1630	1028	9813	E.69	827	4.0	4.0	477	11.1	.5	7
0155444050 BIG MOUNTAIN MINE, NO. 1 SLOPE, NEAR SHAMOKIN, PA (LAT 40 46 28N LONG 076 32 21W)											
OCT 1997 15...	1600	1028	9813	E.69	827	3.4	3.6	622	11.3	9.6	88
0155444052 BIG MOUNTAIN MINE, NO. 1 SLOPE, NEAR SHAMOKIN, PA (LAT 40 46 36N LONG 076 32 23W)											
OCT 1997 15...	1530	1028	9813	.69	827	3.2	3.5	681	12.2	9.1	85
403650076330701 VALLEY VIEW TUNNEL NEAR VALLEY VIEW, PA (LAT 40 36 56N LONG 076 33 04W)											
OCT 1997 17...	1030	1028	9813	--	238	6.0	6.0	292	11.0	7.3	67
403709076330201 MARKSON COLUMWAY NEAR VALLEY VIEW, PA (LAT 40 37 09N LONG 076 33 02W)											
OCT 1997 17...	1000	1028	9813	--	804	3.4	3.3	593	11.0	.3	3
DATE	ACIDITY TOTAL HEATED (MG/L AS CACO3) (70508)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K) (00937)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD (MG/L AS CACO3) (00410)	
404619076321901 BIG MOUNTAIN MINE NUMBER 1 SLOPE (LAT 40 46 19N LONG 076 32 19W)											
OCT 1997 15...	140	37	36	66	66	2.6	2.6	1.6	1.6	.00	
0155444050 BIG MOUNTAIN MINE, NO. 1 SLOPE, NEAR SHAMOKIN, PA (LAT 40 46 28N LONG 076 32 21W)											
OCT 1997 15...	92	41	41	66	58	2.5	2.5	1.7	1.4	.00	
0155444052 BIG MOUNTAIN MINE, NO. 1 SLOPE, NEAR SHAMOKIN, PA (LAT 40 46 36N LONG 076 32 23W)											
OCT 1997 15...	84	.00	--	54.0	--	3.90	--	1.5	--	.00	
403650076330701 VALLEY VIEW TUNNEL NEAR VALLEY VIEW, PA (LAT 40 36 56N LONG 076 33 04W)											
OCT 1997 17...	28	11	10	13	12	.7	.70	1	--	--	
403709076330201 MARKSON COLUMWAY NEAR VALLEY VIEW, PA (LAT 40 37 09N LONG 076 33 02W)											
OCT 1997 17...	110	47	42	47	42	2.4	2.2	1.6	--	.00	

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, TOTAL (MG/L AS F) (00951)	SILICA TOTAL (MG/L- SiO2) (00956)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
404619076321901 BIG MOUNTAIN MINE NUMBER 1 SLOPE (LAT 40 46 19N LONG 076 32 19W)										
OCT 1997 15...	.00	500	2.8	<.2	18	<2	<.040	.310	.32	<.020
0155444050 BIG MOUNTAIN MINE, NO. 1 SLOPE, NEAR SHAMOKIN, PA (LAT 40 46 28N LONG 076 32 21W)										
OCT 1997 15...	.00	500	3.1	<.2	17	<2	<.040	.290	.31	<.020
0155444052 BIG MOUNTAIN MINE, NO. 1 SLOPE, NEAR SHAMOKIN, PA (LAT 40 46 36N LONG 076 32 23W)										
OCT 1997 15...	.00	490	2.0	<.2	14.0	2	.040	.170	.29	<.020
403650076330701 VALLEY VIEW TUNNEL NEAR VALLEY VIEW, PA (LAT 40 36 56N LONG 076 33 04W)										
OCT 1997 17...	30	97	.51	<.2	8.8	14	<.040	.110	.16	<.020
403709076330201 MARKSON COLUMWAY NEAR VALLEY VIEW, PA (LAT 40 37 09N LONG 076 33 02W)										
OCT 1997 17...	.00	510	2.0	<.2	13	<2	<.040	.150	.21	<.020
DATE	ALUM- INUM, TOTAL RECOV- ERABLE (µG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (µG/L AS AL) (01106)	ARSENIC TOTAL (µG/L AS AS) (01002)	ARSENIC DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, TOTAL RECOV- ERABLE (µG/L AS BA) (01007)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)
404619076321901 BIG MOUNTAIN MINE NUMBER 1 SLOPE (LAT 40 46 19N LONG 076 32 19W)										
OCT 1997 15...	6600	6500	<4	<4	18	18	<10	<10	<50	<50
0155444050 BIG MOUNTAIN MINE, NO. 1 SLOPE, NEAR SHAMOKIN, PA (LAT 40 46 28N LONG 076 32 21W)										
OCT 1997 15...	6200	6200	<4	<4	17	16	<20	<10	<50	<50
0155444052 BIG MOUNTAIN MINE, NO. 1 SLOPE, NEAR SHAMOKIN, PA (LAT 40 46 36N LONG 076 32 23W)										
OCT 1997 15...	5800	--	<4	--	16	--	<10.0	--	<50.0	--
403650076330701 VALLEY VIEW TUNNEL NEAR VALLEY VIEW, PA (LAT 40 36 56N LONG 076 33 04W)										
OCT 1997 17...	<200	<200	<4	<4	22	21	<20	<10	<50	<50
403709076330201 MARKSON COLUMWAY NEAR VALLEY VIEW, PA (LAT 40 37 09N LONG 076 33 02W)										
OCT 1997 17...	1900	1400	<4	<4	17	16	<10	<10	<50	<50

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

SWATARA CREEK PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

MISCELLANEOUS STATION ANALYSES

DATE	COBALT, TOTAL RECOV- ERABLE (µG/L AS CO) (01037)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU) (01042)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LITHIUM TOTAL RECOV- ERABLE (µG/L AS LI) (01132)	LITHIUM DIS- SOLVED (µG/L AS LI) (01130)
404619076321901 BIG MOUNTAIN MINE NUMBER 1 SLOPE (LAT 40 46 19N LONG 076 32 19W)										
OCT 1997 15...	220	220	<10	<10	28000	27000	1	1.2	60	52
0155444050 BIG MOUNTAIN MINE, NO. 1 SLOPE, NEAR SHAMOKIN, PA (LAT 40 46 28N LONG 076 32 21W)										
OCT 1997 15...	210	200	<10	<10	22000	22000	1	1.2	50	48
0155444052 BIG MOUNTAIN MINE, NO. 1 SLOPE, NEAR SHAMOKIN, PA (LAT 40 46 36N LONG 076 32 23W)										
OCT 1997 15...	180	--	<10.0	--	740	--	20	3.9	50.0	--
403650076330701 VALLEY VIEW TUNNEL NEAR VALLEY VIEW, PA (LAT 40 36 56N LONG 076 33 04W)										
OCT 1997 17...	<50	<50	<10	<10	15000	13000	<1	<1.0	<30	<25
403709076330201 MARKSON COLUMWAY NEAR VALLEY VIEW, PA (LAT 40 37 09N LONG 076 33 02W)										
OCT 1997 17...	--	--	<10	11	23000	20000	2	1.9	40	34
DATE	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SELE- NIUM, TOTAL SOLVED (µG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	STRON- TIUM, TOTAL RECOV- ERABLE (µG/L AS SR) (01082)	STRON- TIUM, DIS- SOLVED (µG/L AS SR) (01080)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)
404619076321901 BIG MOUNTAIN MINE NUMBER 1 SLOPE (LAT 40 46 19N LONG 076 32 19W)										
OCT 1997 15...	6900	6800	330	330	<7	<7	140	130	450	450
0155444050 BIG MOUNTAIN MINE, NO. 1 SLOPE, NEAR SHAMOKIN, PA (LAT 40 46 28N LONG 076 32 21W)										
OCT 1997 15...	6300	6300	320	310	<7	<7	130	130	430	430
0155444052 BIG MOUNTAIN MINE, NO. 1 SLOPE, NEAR SHAMOKIN, PA (LAT 40 46 36N LONG 076 32 23W)										
OCT 1997 15...	5700	--	260	--	<7	<7	130	--	380	--
403650076330701 VALLEY VIEW TUNNEL NEAR VALLEY VIEW, PA (LAT 40 36 56N LONG 076 33 04W)										
OCT 1997 17...	1800	1700	<50	<50	<7	<7	60	60	30	30
403709076330201 MARKSON COLUMWAY NEAR VALLEY VIEW, PA (LAT 40 37 09N LONG 076 33 02W)										
OCT 1997 17...	5900	5200	210	180	<7	<7	130	120	320	310

SPECIAL NOTES, REMARK CODES, AND SELECTED CONSTITUENT DEFINITIONS

NOTES--Traditionally, dissolved trace-element concentrations have been reported at the microgram per liter ($\mu\text{G/L}$) 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 $\mu\text{G/L}$ 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:

$$\text{MBASCOR} = \text{M} - 0.0088\text{N} - 0.00019\text{C}$$

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.
K	Results based on colony count outside the acceptance range (non-ideal colony count).
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted).
D	Biological organism count equal to or greater than 15 percent (dominant).
&	Biological organism estimated as dominant.
ND	Material specifically analyzed for but not detected.
V	Analyte was detected in both the environmental sample and the associated blanks.

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

(71999) SAMPLE PURPOSE CODES:

(84164) SAMPLER TYPE: (partial list)

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

110--Sewage sampler
3011--US D-77
3035--DH-76 Trace metal sampler with
teflon gasket and nozzle

(82398) SAMPLE METHOD CODES:

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

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
42011 --Susquehanna River Basin Commission

(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 --District Water-Quality Laboratory, Troy, New York

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 sea level, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

REMARKS.--Water-quality records for 1973-75 are available in files of the District Office. In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.

PERIOD OF RECORD.--January 1968 to current year.

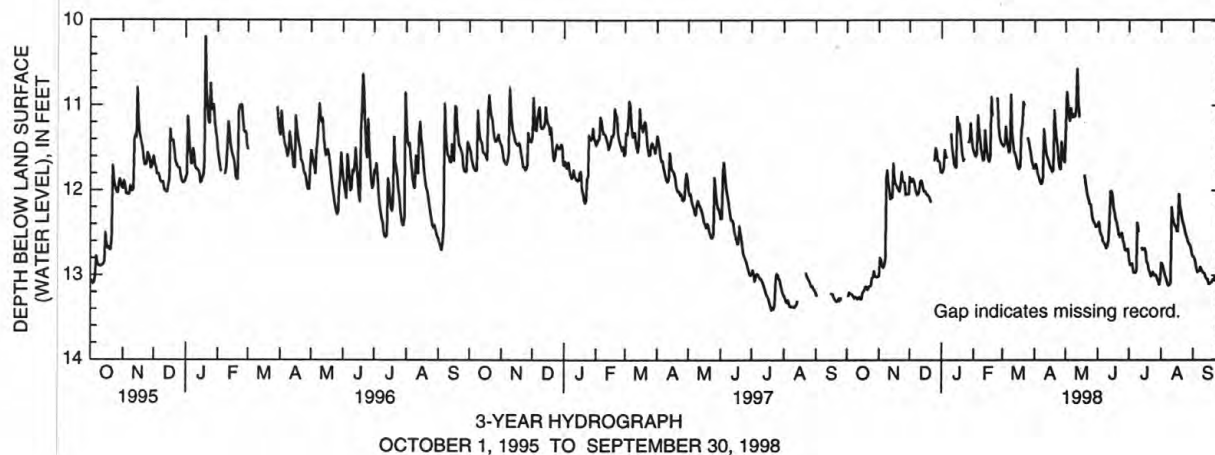
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily maximum depth below land surface for the period of record indicated above.

Highest water level, 9.87 ft below land-surface datum, June 21, 1972; lowest, 14.02 ft below land-surface datum, July 16-18, 1988.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	13.00	11.84	11.79	11.54	11.46	11.74	11.29	12.40	12.82	12.85	12.78
2	13.25	12.79	11.89	11.78	11.58	11.48	11.69	10.84	12.37	12.88	12.87	12.79
3	13.20	12.82	11.90	11.73	11.60	11.45	11.74	10.96	12.49	12.88	12.92	12.84
4	13.21	12.89	11.86	11.52	11.57	11.25	11.81	11.10	12.52	12.86	12.97	12.91
5	13.22	12.91	11.89	11.60	11.11	11.40	11.84	11.18	12.54	12.96	13.01	12.96
6	13.23	12.88	11.95	11.62	11.26	11.48	11.89	11.03	12.61	12.97	13.05	12.95
7	13.25	12.81	12.02	---	11.38	11.55	11.92	11.14	12.62	12.97	13.10	12.95
8	13.27	11.85	12.05	---	11.50	11.54	11.92	11.14	12.65	12.95	13.12	12.90
9	13.25	11.76	12.05	---	11.58	10.87	11.85	11.10	12.68	12.38	13.11	12.93
10	13.26	11.90	12.01	11.33	11.64	11.31	11.28	11.13	12.65	12.49	13.08	12.96
11	13.28	12.00	11.90	11.49	11.64	11.43	11.43	11.03	12.58	---	12.20	12.97
12	13.26	12.10	11.88	11.58	11.29	11.54	11.54	10.57	12.39	---	12.32	12.98
13	13.25	12.09	11.91	11.69	11.43	11.57	11.60	10.96	12.01	12.67	12.38	13.02
14	13.28	12.08	11.99	11.72	11.56	11.62	11.63	11.14	12.01	12.70	12.41	13.04
15	13.28	11.68	12.01	11.73	11.63	11.69	11.68	---	12.07	12.69	12.43	13.04
16	13.20	11.85	12.01	11.13	11.66	11.73	11.72	---	12.21	12.68	12.48	13.10
17	13.19	11.92	12.04	11.22	11.60	11.75	11.75	---	12.26	12.73	12.48	13.10
18	13.16	11.94	12.05	11.21	10.90	11.71	11.78	---	12.35	12.84	12.04	13.08
19	13.13	11.97	12.06	11.32	11.13	11.31	11.76	11.82	12.37	12.86	12.17	13.08
20	13.15	11.99	12.08	11.47	---	11.21	11.06	11.91	12.44	12.94	12.26	13.05
21	13.17	12.01	12.13	11.58	---	10.96	11.27	12.00	12.52	12.96	12.33	13.06
22	13.13	11.93	12.13	11.65	---	11.00	11.39	12.07	12.55	13.01	12.39	13.01
23	13.13	11.78	---	11.62	---	---	11.48	12.11	12.52	12.99	12.42	13.06
24	13.12	11.89	---	---	10.91	---	11.64	12.16	12.50	12.96	12.48	13.07
25	13.03	11.90	11.65	---	11.25	11.38	11.73	12.17	12.58	13.00	12.53	13.05
26	13.03	11.91	11.50	---	11.36	11.41	11.75	12.27	12.63	12.99	12.56	12.93
27	12.95	12.05	11.53	11.44	11.42	11.49	11.43	12.34	12.70	13.00	12.61	12.96
28	13.01	12.04	11.65	11.42	11.45	11.55	11.57	12.37	12.71	13.04	12.63	12.96
29	13.02	12.04	11.65	11.21	---	11.65	11.64	12.39	12.69	13.07	12.65	12.96
30	13.02	12.04	11.67	11.38	---	11.69	11.67	12.43	12.69	13.11	12.70	12.95
31	13.02	---	11.78	11.50	---	11.74	---	12.42	---	13.04	12.77	---
MEAN	13.16	12.16	11.90	11.51	11.42	11.46	11.64	11.60	12.48	12.88	12.62	12.98
MAX	13.28	13.00	12.13	11.79	11.66	11.75	11.92	12.43	12.71	13.11	13.12	13.10
MIN	12.95	11.68	11.50	11.13	10.90	10.87	11.06	10.57	12.01	12.38	12.04	12.78

WTR YR 1998: HIGHEST 10.57, MAY 12; LOWEST 13.28, OCTOBER 11, 14, 15.



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.--Continuous strip-chart recorder.

DATUM.--Elevation of land surface is 1,160 ft above sea level, from topographic map. Measuring point: Top of casing, 3.1 ft above land-surface datum.

PERIOD OF RECORD.--July 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily maximum depth below land surface for the period of record indicated above.

Highest water level, 2.42 ft above land-surface datum, May 8, 1998 (may have been higher May 9-17, 1998);

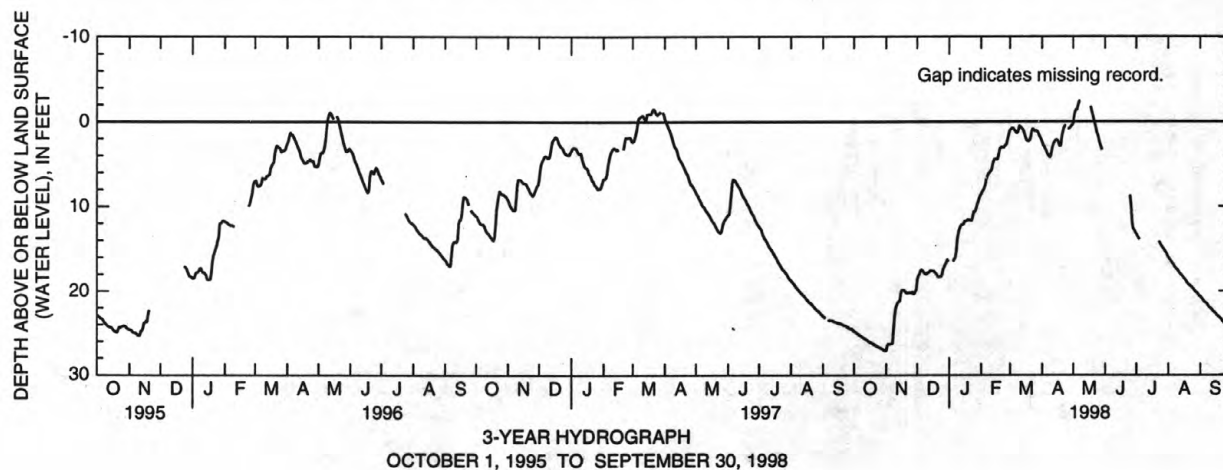
lowest, 41.42 ft below land-surface datum, Feb. 12, 13, 1966.

DEPTH ABOVE (-) OR BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.82	27.12	18.64	---	8.53	1.00	2.39	.25	---	13.26	16.00	20.64
2	24.90	26.51	18.23	---	8.28	.90	2.77	-1.60	---	13.48	16.20	20.80
3	24.98	26.33	18.00	---	8.08	.76	2.94	-1.20	---	13.71	16.35	20.94
4	25.07	26.35	17.60	---	7.86	.77	3.21	-1.38	---	13.89	16.53	21.14
5	25.16	26.34	17.49	16.46	7.45	1.00	3.50	-1.40	---	---	16.71	21.30
6	25.25	26.32	17.51	16.19	6.80	1.11	3.80	-1.94	---	---	16.90	21.37
7	25.35	26.27	17.78	15.98	6.44	1.30	4.00	-2.39	---	---	17.10	21.44
8	25.42	24.64	17.90	15.17	6.18	1.35	4.18	-2.42	---	---	17.28	21.63
9	25.50	23.10	17.99	13.77	6.00	1.10	4.19	---	---	---	17.39	21.84
10	25.60	22.10	17.99	13.08	5.87	.51	3.62	---	---	---	17.49	21.96
11	25.69	21.69	17.81	12.66	5.71	.60	3.01	---	---	---	17.70	22.06
12	25.74	21.38	17.80	12.38	5.13	.74	2.61	---	---	---	17.91	22.19
13	25.81	21.25	17.67	12.16	4.70	.88	2.40	---	---	---	18.03	22.34
14	25.94	21.18	17.56	12.17	4.42	1.08	2.17	---	---	---	18.14	22.46
15	26.02	20.31	17.59	12.05	4.42	1.51	2.15	---	---	---	18.30	22.59
16	26.10	19.91	17.60	11.75	4.42	1.90	2.19	---	---	---	18.49	22.72
17	26.15	19.89	17.63	11.75	4.42	2.19	2.57	---	---	---	18.60	22.86
18	26.20	19.90	17.75	11.70	3.76	2.30	2.89	-1.78	---	---	18.77	22.97
19	26.28	19.99	17.90	11.58	3.23	2.30	2.89	-1.30	---	---	19.00	23.07
20	26.40	20.20	18.03	11.58	3.10	2.14	1.79	-.82	---	---	19.13	23.21
21	26.41	20.25	18.29	11.63	3.01	1.80	1.20	-.30	---	---	19.26	23.30
22	26.53	20.24	18.32	11.69	3.07	1.00	.75	.20	---	---	19.36	23.48
23	26.60	20.17	18.28	11.64	3.05	.85	.50	.70	---	14.12	19.48	23.66
24	26.65	20.23	18.30	11.04	2.83	1.00	.49	1.30	---	14.37	19.58	23.77
25	26.73	20.23	18.00	10.60	2.80	1.10	---	1.63	8.70	14.60	19.71	23.81
26	26.78	20.10	17.41	10.62	2.38	1.08	.86	2.15	10.11	14.78	19.90	23.90
27	26.82	20.32	17.21	10.29	1.82	1.11	.83	2.60	11.93	14.93	20.04	23.99
28	26.92	20.31	16.85	9.86	1.32	1.22	.72	3.01	12.66	15.15	20.13	24.14
29	27.00	20.02	16.70	9.49	---	1.58	.56	3.35	12.80	15.33	20.28	24.22
30	27.09	19.80	16.27	9.08	---	1.80	.42	---	13.06	15.50	20.41	24.31
31	27.11	---	16.48	8.71	---	2.09	---	---	---	15.80	20.57	---
MEAN	26.03	22.08	17.70	12.04	4.82	1.29	2.26	-.02	11.54	14.53	18.41	22.60
MAX	27.11	27.12	18.64	16.46	8.53	2.30	4.19	3.35	13.06	15.80	20.57	24.31
MIN	24.82	19.80	16.27	8.71	1.32	.51	.42	-2.42	8.70	13.26	16.00	20.64

WTR YR 1998: HIGHEST RECORDED -2.42a, MAY 8; LOWEST 27.12, NOVEMBER 1.

a May have been higher May 9-17.



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.--Continuous strip-chart recorder.

DATUM.--Elevation of land surface is 1,130 ft above sea level, from topographic map. Measuring point: Top of casing, 1.8 ft above land-surface datum.

PERIOD OF RECORD.--August 1969 to current year.

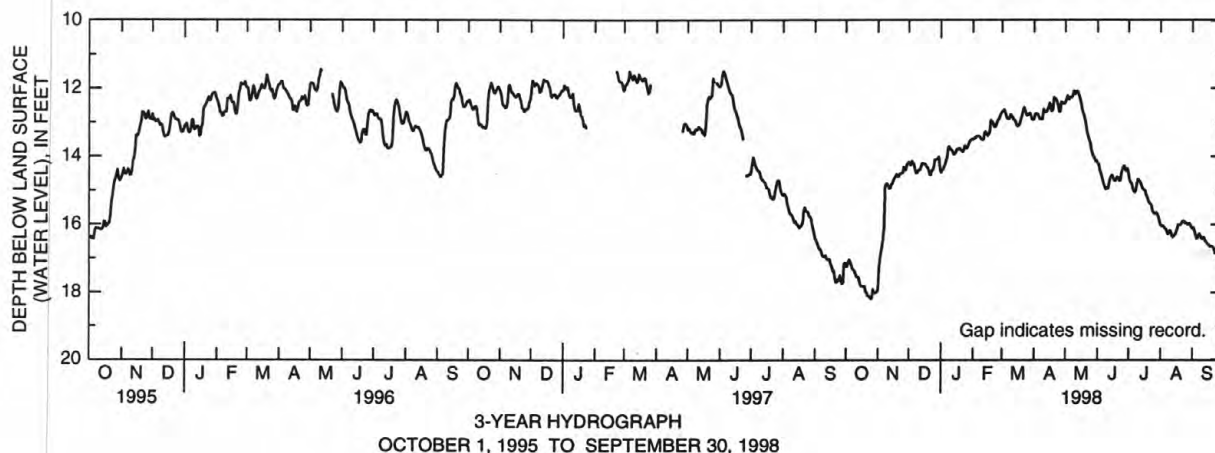
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily maximum depth below land surface for the period of record indicated above.

Highest water level, 9.65 ft below land-surface datum, May 11, 1989; lowest, 18.65 ft below land-surface datum, Oct. 29, 30, 1969.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.24	17.88	14.17	14.47	13.50	12.69	12.90	12.41	14.20	14.54	16.02	16.12
2	17.24	17.30	14.22	14.39	13.46	12.67	12.75	12.32	14.21	14.71	16.05	16.09
3	17.11	17.01	14.26	14.39	13.47	12.62	12.74	12.22	14.40	14.77	16.04	16.19
4	17.04	16.81	14.14	14.29	13.41	12.71	12.75	12.31	14.49	14.79	16.07	16.30
5	17.10	16.64	14.19	14.24	13.40	12.83	12.80	12.31	14.58	14.95	16.11	16.42
6	17.18	16.41	14.23	14.10	13.40	12.88	12.88	12.26	14.71	15.02	16.13	16.40
7	17.29	16.08	14.40	14.01	13.40	12.89	12.90	12.27	14.81	15.05	16.20	16.30
8	17.33	14.90	14.49	13.72	13.45	12.89	12.90	12.23	14.91	15.00	16.28	16.28
9	17.36	14.81	14.49	13.71	13.50	12.77	12.90	12.08	14.97	14.80	16.26	16.36
10	17.44	14.80	14.41	13.79	13.50	12.80	12.61	12.10	14.92	14.67	16.18	16.41
11	17.52	14.86	14.39	13.81	13.50	12.86	12.66	12.17	14.95	14.70	16.21	16.43
12	17.55	14.94	14.39	13.83	13.30	12.91	12.70	12.08	14.82	14.74	16.34	16.38
13	17.55	14.93	14.27	13.94	13.27	12.94	12.69	12.10	14.64	14.80	16.37	16.46
14	17.68	14.81	14.20	13.94	13.32	12.99	12.61	12.20	14.60	14.90	16.33	16.51
15	17.79	14.80	14.22	13.90	13.39	13.09	12.52	12.30	14.55	14.97	16.29	16.54
16	17.81	14.70	14.22	13.80	13.34	13.10	12.43	12.44	14.63	14.98	16.22	16.59
17	17.80	14.64	14.23	13.80	13.29	13.09	12.60	12.61	14.70	15.00	16.14	16.60
18	17.83	14.60	14.30	13.77	12.93	13.02	12.67	12.72	14.72	15.13	16.00	16.65
19	17.81	14.52	14.32	13.76	12.99	12.90	12.63	12.80	14.66	15.20	16.01	16.64
20	17.99	14.59	14.40	13.81	12.99	12.80	12.27	12.92	14.60	15.30	16.02	16.65
21	17.99	14.59	14.53	13.84	13.10	12.68	12.30	13.10	14.65	15.35	15.99	16.67
22	18.10	14.52	14.55	13.87	13.13	12.55	12.33	13.29	14.71	15.40	15.93	16.73
23	18.11	14.51	14.41	13.80	13.10	12.64	12.40	13.41	14.70	15.41	15.90	16.85
24	18.13	14.49	14.41	13.68	13.00	12.75	12.51	13.52	14.47	15.59	15.90	16.85
25	18.18	14.48	14.30	13.75	12.92	12.80	12.68	13.60	14.38	15.64	15.97	16.82
26	18.18	14.31	14.10	13.76	12.90	12.78	12.68	13.80	14.29	15.68	15.95	16.85
27	17.90	14.40	14.10	13.70	12.80	12.74	12.39	13.92	14.28	15.68	16.00	16.83
28	18.01	14.40	14.08	13.60	12.75	12.72	12.42	14.00	14.42	15.65	16.00	16.94
29	18.01	14.24	14.07	13.55	---	12.84	12.44	14.04	14.41	15.71	15.97	17.00
30	18.00	14.21	14.02	13.50	---	12.91	12.45	14.13	14.36	15.79	16.02	16.94
31	17.98	---	14.36	13.49	---	12.92	---	14.12	---	15.94	16.09	---
MEAN	17.69	15.14	14.29	13.87	13.23	12.83	12.62	12.83	14.59	15.16	16.10	16.56
MAX	18.18	17.88	14.55	14.47	13.50	13.10	12.90	14.13	14.97	15.94	16.37	17.00
MIN	17.04	14.21	14.02	13.49	12.75	12.55	12.27	12.08	14.20	14.54	15.90	16.09

WTR YR 1998: HIGHEST 12.08, MAY 9, 12; LOWEST 18.18, OCTOBER 25, 26.



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 sea level, from topographic map. Measuring point: Top of casing, 3.0 ft above land-surface datum.

REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since September 1998, are also available from the District Office.

PERIOD OF RECORD.--May 1966 to current year.

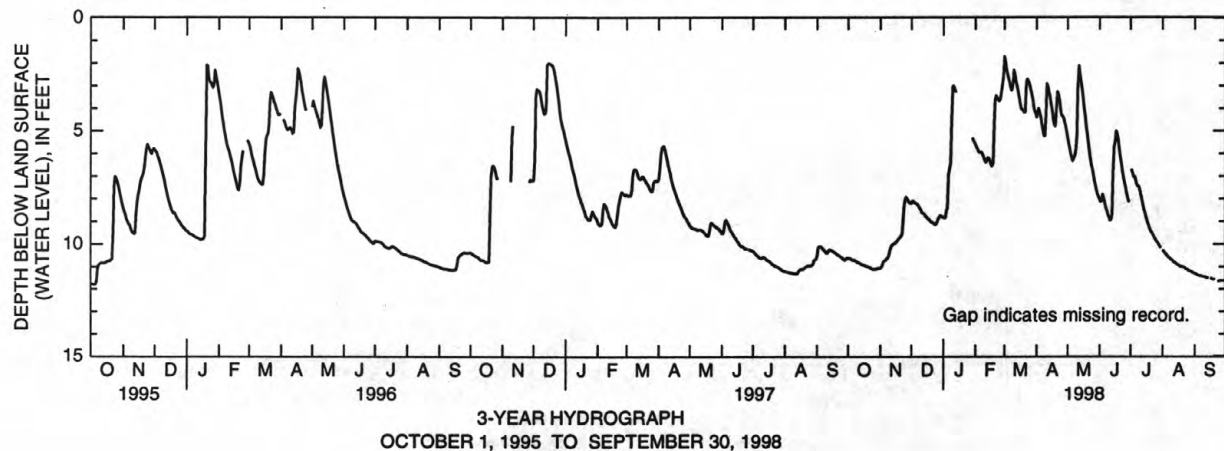
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily maximum depth below land surface for the period of record indicated above.

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.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.62	11.06	8.20	8.81	5.60	1.70	4.40	5.30	8.03	---	10.28	11.30
2	10.62	11.02	8.11	8.84	5.71	1.99	4.19	5.60	8.13	6.70	10.31	11.32
3	10.63	10.90	8.11	8.84	5.80	2.29	4.00	5.81	8.10	6.88	10.39	11.35
4	10.67	10.76	8.16	8.51	5.90	2.51	4.20	6.02	7.81	7.03	10.42	11.38
5	10.70	10.72	8.20	8.40	5.96	2.70	4.41	6.22	7.99	7.01	10.50	11.40
6	10.70	10.70	8.20	6.91	5.93	2.89	4.69	6.33	8.20	7.18	10.53	11.40
7	10.71	10.63	8.26	6.68	5.95	3.10	4.99	6.18	8.38	7.37	10.60	11.42
8	10.73	10.60	8.33	6.41	6.05	3.20	5.20	6.10	8.52	7.44	10.62	11.43
9	10.76	10.52	8.41	4.50	6.19	3.01	5.23	5.80	8.70	7.45	10.68	11.44
10	10.80	10.30	8.49	3.02	6.30	2.30	4.30	5.20	8.80	7.64	10.70	11.45
11	10.81	10.13	8.60	3.00	6.39	2.50	2.90	3.10	8.94	7.85	10.75	11.47
12	10.84	10.05	8.63	3.13	6.33	2.80	3.08	2.10	8.94	8.06	10.80	11.48
13	10.86	10.01	8.65	3.28	6.19	3.00	3.30	2.49	8.70	8.27	10.81	11.50
14	10.90	9.98	8.71	---	6.20	3.21	3.51	2.80	6.90	8.49	10.87	11.51
15	10.91	9.97	8.78	---	6.32	3.50	3.83	3.12	5.71	8.63	10.90	---
16	10.92	9.91	8.80	---	6.50	3.75	4.10	3.50	5.51	8.81	10.92	11.52
17	10.94	9.86	8.88	---	6.55	3.99	4.47	3.97	5.00	8.98	10.95	11.54
18	10.96	9.80	8.90	---	6.42	4.06	4.72	4.32	5.14	9.12	10.99	11.56
19	10.99	9.73	8.96	---	4.70	4.10	4.80	4.80	5.40	9.24	11.00	11.57
20	11.00	9.69	9.01	---	3.61	4.17	4.08	5.11	5.80	9.39	11.00	11.59
21	11.01	9.64	9.03	---	3.42	4.17	3.25	5.52	6.10	9.46	11.02	---
22	11.03	9.53	9.04	---	3.56	2.88	3.39	5.90	6.42	9.53	11.03	---
23	11.07	8.86	9.11	---	3.62	2.70	3.62	6.25	6.75	9.61	11.08	11.66
24	11.08	8.25	9.14	---	3.67	2.79	4.00	6.50	7.04	9.71	11.10	11.65
25	11.10	8.03	9.11	---	3.57	2.91	4.30	6.70	7.25	9.79	11.12	11.63
26	11.10	7.92	9.00	---	3.28	3.10	4.35	6.96	7.47	9.88	11.18	11.63
27	11.09	8.01	8.85	---	2.91	3.31	4.40	7.21	7.70	9.92	11.19	11.63
28	11.10	8.10	8.82	---	2.60	3.52	4.63	7.42	7.90	10.00	11.20	11.63
29	11.06	8.17	8.73	5.31	---	3.85	4.80	7.63	8.10	10.09	11.22	11.64
30	11.07	8.19	8.79	5.42	---	4.10	5.06	7.80	8.12	10.16	11.26	11.63
31	11.07	---	8.81	5.50	---	4.21	---	7.92	---	---	11.29	---
MEAN	10.90	9.70	8.67	6.03	5.19	3.17	4.21	5.47	7.39	8.61	10.86	11.51
MAX	11.10	11.06	9.14	8.84	6.55	4.21	5.23	7.92	8.94	10.16	11.29	11.66
MIN	10.62	7.92	8.11	3.00	2.60	1.70	2.90	2.10	5.00	6.70	10.28	11.30

WTR YR 1998: HIGHEST 1.70, MARCH 1; LOWEST 11.66, SEPTEMBER 23.



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 sea level, from topographic map. Measuring point: Top of casing, 3.0 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 levels shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.

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

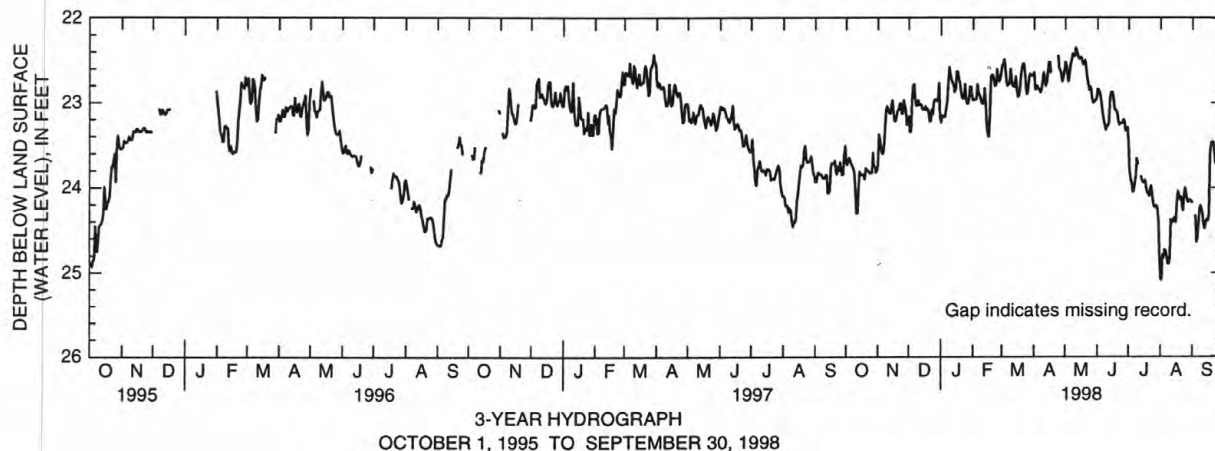
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily maximum depth below land surface for the period of record indicated above.

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.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.71	23.73	23.16	23.23	22.97	22.56	22.64	22.52	22.84	23.49	25.07	24.18
2	23.73	23.37	23.34	23.15	22.96	22.54	22.84	22.56	22.85	23.80	25.09	---
3	23.67	23.44	23.34	23.16	22.96	22.49	22.84	22.68	22.88	23.91	24.79	---
4	23.65	23.55	22.97	23.17	22.96	22.61	22.80	22.75	22.94	23.93	24.83	24.32
5	23.69	23.60	22.80	23.16	22.78	22.74	22.84	22.65	23.02	24.05	24.73	24.64
6	23.72	23.60	22.78	23.06	22.88	22.80	22.84	22.54	23.13	24.04	24.74	24.58
7	23.75	23.48	22.96	22.98	22.91	22.78	22.88	22.50	23.20	23.96	24.81	24.43
8	23.78	23.26	23.03	22.74	22.94	22.78	22.84	22.42	23.27	23.86	24.89	24.24
9	23.83	23.08	23.03	22.58	23.00	22.60	22.75	22.45	23.32	23.66	24.90	24.21
10	24.06	23.04	22.97	22.68	23.01	22.72	22.64	22.45	23.27	23.73	24.84	24.26
11	24.30	23.09	23.02	22.73	23.01	22.80	22.72	22.35	23.27	---	24.38	24.31
12	24.30	23.12	23.02	22.76	22.83	22.80	22.80	22.39	23.23	---	24.38	24.45
13	23.98	23.13	23.02	22.79	23.00	22.82	22.76	22.44	22.94	23.86	24.41	24.48
14	23.81	23.02	23.07	22.87	23.26	22.69	22.64	22.48	22.88	23.91	24.36	24.41
15	23.85	22.97	23.08	22.84	23.37	22.85	22.52	22.48	22.87	23.94	24.35	24.37
16	23.85	23.12	23.08	22.63	23.40	22.93	22.53	22.46	22.92	23.94	24.41	24.39
17	23.84	23.21	23.04	22.63	23.16	22.92	22.65	22.50	23.05	23.91	24.18	24.31
18	23.86	23.22	23.09	22.73	22.70	22.84	---	22.55	23.09	23.99	24.04	23.62
19	23.90	23.16	23.07	22.75	22.67	22.68	---	22.53	23.09	24.06	24.09	23.47
20	23.77	23.09	23.11	22.86	22.67	22.58	---	22.50	23.13	24.05	24.14	23.48
21	23.79	23.09	23.22	22.93	22.74	22.54	---	22.60	23.21	24.10	24.11	23.46
22	23.80	23.02	23.22	22.95	22.80	22.54	---	22.71	23.26	24.01	24.22	23.53
23	23.81	23.00	23.08	22.95	22.79	22.66	---	22.78	23.24	23.98	24.27	23.70
24	23.83	23.13	23.14	22.78	22.60	22.83	22.44	22.85	23.24	24.10	24.08	23.72
25	23.82	23.13	22.99	22.95	22.72	22.90	22.60	22.81	23.24	24.19	24.00	23.69
26	23.83	22.97	22.96	23.01	22.75	22.85	22.61	22.88	23.20	24.23	24.08	23.73
27	23.59	23.03	22.96	23.01	22.72	22.70	22.67	22.97	23.22	24.23	24.15	23.69
28	23.74	23.10	22.98	22.94	22.64	22.66	22.75	23.00	23.33	24.21	24.17	23.71
29	23.76	23.26	22.98	22.81	---	22.68	22.70	22.98	23.33	24.25	24.14	23.76
30	23.82	23.25	22.77	22.81	---	22.68	22.62	22.97	23.29	24.40	24.15	23.70
31	23.80	---	23.17	22.94	---	22.68	---	22.96	---	24.79	24.16	---
MEAN	23.83	23.21	23.05	22.89	22.90	22.72	22.70	22.64	23.13	24.02	24.42	24.03
MAX	24.30	23.73	23.34	23.23	23.40	22.93	22.88	23.00	23.33	24.79	25.09	24.64
MIN	23.59	22.97	22.77	22.58	22.60	22.49	22.44	22.35	22.84	23.49	24.00	23.46

WTR YR 1998: HIGHEST 22.35, MAY 11; LOWEST 25.09, AUGUST 2.



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.--Continuous strip-chart recorder.

DATUM.--Elevation of land surface is 1,150 ft above sea level, from topographic map. Measuring point: Top of casing, 2.9 ft above land-surface datum.

PERIOD OF RECORD.--January 1968 to June 1981, July 1984 to current year.

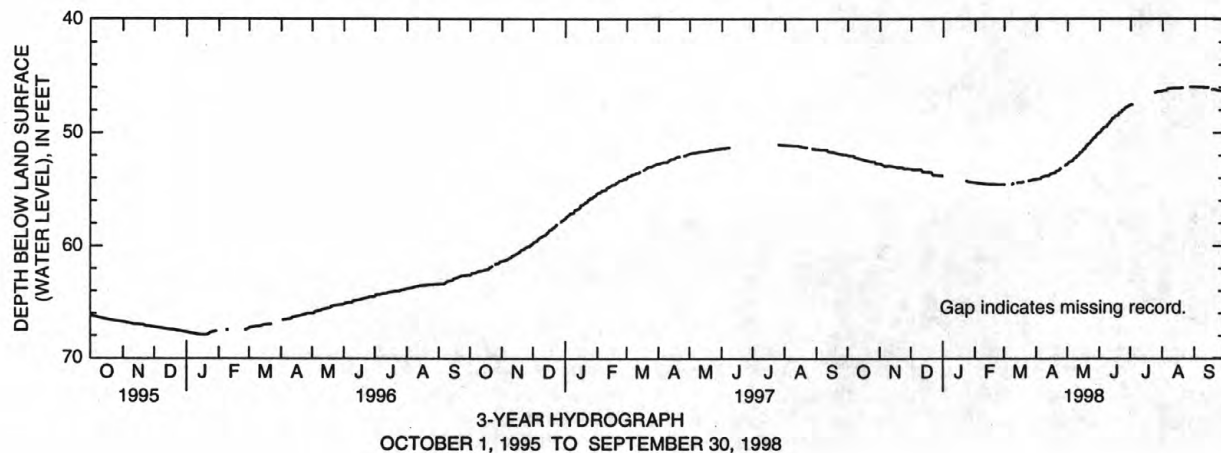
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily maximum depth below land surface for the period of record indicated above.

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.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51.98	52.72	53.20	53.79	54.40	54.58	54.09	52.77	49.94	47.53	46.29	45.95
2	52.00	52.73	53.24	---	54.42	54.57	54.09	52.59	49.94	47.55	46.25	45.95
3	52.00	52.81	53.25	---	54.44	---	54.09	52.57	49.70	47.45	46.25	45.95
4	52.02	52.83	53.25	---	54.44	---	54.06	52.53	49.69	---	46.25	45.95
5	52.03	52.93	53.25	---	54.44	---	54.06	52.50	49.53	---	46.25	45.97
6	52.03	52.93	53.25	---	54.46	---	53.89	52.48	49.49	---	46.08	45.97
7	52.04	52.93	53.25	---	54.48	---	53.89	52.27	49.47	---	46.08	45.97
8	52.19	52.93	53.25	---	54.50	54.57	53.87	52.22	49.44	---	46.08	45.97
9	52.20	52.93	53.25	---	54.52	54.54	53.82	52.22	49.22	---	46.08	45.98
10	52.22	52.91	53.25	---	54.52	54.43	53.81	52.02	49.19	---	46.07	45.99
11	52.25	52.92	53.25	---	54.52	---	53.81	51.99	49.01	---	46.06	45.99
12	52.25	52.93	53.44	---	54.53	---	53.81	51.95	48.97	---	46.06	45.99
13	52.27	52.94	53.44	---	54.54	54.43	53.81	51.73	48.72	---	46.05	45.99
14	52.32	52.97	53.45	---	54.55	54.40	53.65	51.70	48.69	---	46.04	46.00
15	52.35	52.97	53.46	---	54.56	54.38	53.63	51.70	48.69	---	46.04	46.00
16	52.37	53.01	53.46	---	54.56	54.39	53.60	51.47	48.51	---	46.04	---
17	52.39	53.04	53.47	---	54.56	54.39	53.56	51.43	48.48	---	46.04	46.18
18	52.42	53.04	53.47	---	54.56	54.39	53.56	51.43	48.47	---	46.04	46.18
19	52.45	53.04	53.47	---	54.56	54.34	53.56	51.18	48.44	---	46.03	46.18
20	52.46	53.04	53.50	---	54.56	54.30	53.38	51.17	48.21	---	46.03	46.18
21	52.47	53.05	53.50	---	54.56	---	53.38	50.96	48.20	---	46.03	46.18
22	52.51	53.05	53.73	---	54.57	---	53.32	50.95	48.20	---	---	46.22
23	52.54	53.06	53.73	54.24	54.57	---	53.32	50.91	47.99	---	---	46.26
24	52.54	53.18	53.73	54.24	54.58	54.24	53.16	50.67	47.98	46.44	---	46.27
25	52.54	53.18	53.73	54.30	54.58	54.24	53.13	50.65	47.90	46.44	---	46.27
26	52.54	53.18	53.74	54.32	54.58	54.24	---	50.47	47.78	46.41	---	46.27
27	52.54	53.15	53.74	54.34	54.58	54.20	---	50.42	47.72	46.36	45.95	46.27
28	52.70	53.16	53.77	54.35	54.58	54.16	52.89	50.40	47.70	46.35	45.95	46.31
29	52.70	53.17	53.77	54.36	---	54.13	52.89	50.16	47.62	46.33	45.95	46.34
30	52.72	53.17	53.78	54.38	---	54.13	52.79	50.12	47.55	46.33	45.95	46.34
31	52.72	---	53.79	54.40	---	54.13	---	50.03	---	46.33	45.95	---
MEAN	52.35	53.00	53.48	54.27	54.53	54.34	53.60	51.47	48.68	46.68	46.07	46.11
MAX	52.72	53.18	53.79	54.40	54.58	54.58	54.09	52.77	49.94	47.55	46.29	46.34
MIN	51.98	52.72	53.20	53.79	54.40	54.13	52.79	50.03	47.55	46.33	45.95	45.95

WTR YR 1998: HIGHEST 45.95, AUGUST 27-31, SEPTEMBER 1-4; LOWEST 54.58, FEBRUARY 24-28, MARCH 1.



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 sea level, from topographic map. Measuring point: Top of platform, 3.2 ft above land-surface datum.

REMARKS.--In addition to the daily maximum water level shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.

PERIOD OF RECORD.--August 1950 to current year.

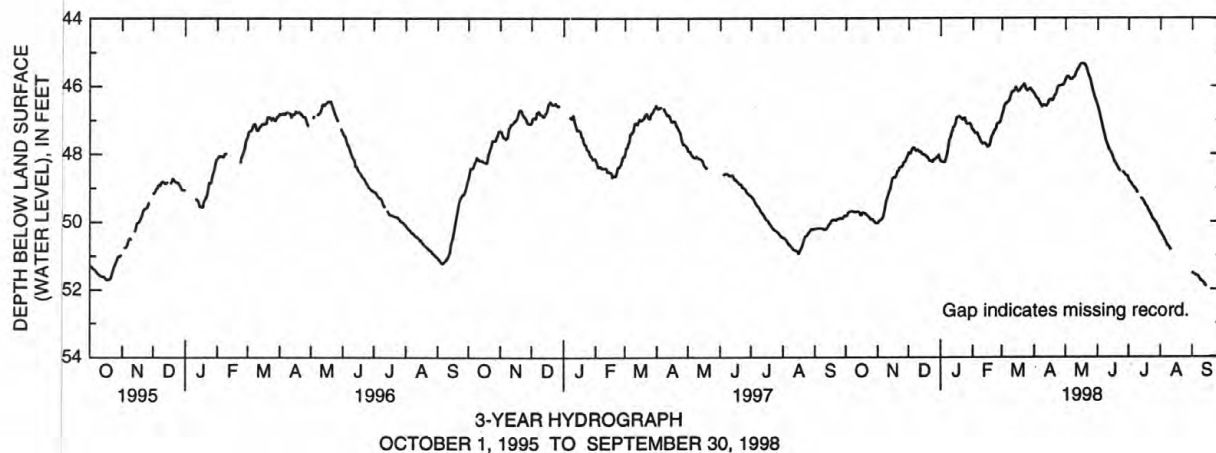
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily maximum depth below land surface for the period of record indicated above.

Highest water level, 44.00 ft below land-surface datum, Jan. 13, 1951; lowest, 57.24 ft below land-surface datum, Dec. 21, 1964.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49.83	50.04	47.96	48.21	47.29	46.83	46.25	45.80	46.62	48.77	50.30	51.51
2	49.82	49.97	47.98	48.23	47.33	46.74	46.29	45.73	46.71	48.81	50.36	51.53
3	49.73	49.96	47.98	48.23	47.39	46.60	46.35	45.71	46.86	48.85	50.41	51.55
4	49.70	49.93	47.86	48.25	47.38	46.53	46.37	45.73	46.98	48.88	50.46	51.57
5	49.70	49.91	47.82	48.23	47.37	46.50	46.43	45.79	47.10	48.95	50.53	51.59
6	49.68	49.85	47.80	48.12	47.47	46.49	46.49	45.79	47.26	48.97	50.57	51.59
7	49.68	49.71	47.85	48.02	47.51	46.44	46.55	45.79	47.37	49.01	50.66	51.63
8	49.70	49.57	47.91	47.81	47.59	46.42	46.61	45.76	47.51	49.05	50.71	51.67
9	49.70	49.38	47.89	47.59	47.65	46.28	46.59	45.73	47.61	49.11	50.73	51.73
10	49.71	49.29	47.87	47.53	47.69	46.17	46.55	45.69	47.70	49.15	50.78	51.75
11	49.71	49.19	47.93	47.43	47.69	46.17	46.57	45.60	47.78	---	50.84	51.77
12	49.69	49.08	47.93	47.34	47.67	46.15	46.59	45.53	47.86	---	---	51.79
13	49.70	49.03	47.93	47.21	47.69	46.11	46.57	45.49	47.92	49.29	---	51.85
14	49.71	48.84	48.01	47.19	47.73	46.03	46.50	45.43	47.97	49.33	---	51.89
15	49.80	48.73	48.01	47.11	47.79	46.09	46.41	45.37	48.03	49.37	---	51.91
16	49.80	48.69	48.03	46.96	47.77	46.15	46.41	45.33	48.13	49.41	---	---
17	49.72	48.69	48.03	46.91	47.75	46.15	46.39	45.33	48.23	49.49	---	---
18	49.73	48.69	48.07	46.89	47.58	46.11	46.43	45.35	48.27	49.53	---	---
19	49.73	48.62	48.09	46.89	47.47	46.05	46.41	45.34	48.31	49.57	---	---
20	49.77	48.51	48.12	46.93	47.43	46.01	46.29	45.39	48.37	49.65	---	---
21	49.78	48.50	48.20	46.95	47.33	45.99	46.27	45.45	48.43	49.69	---	---
22	49.82	48.41	48.20	46.99	47.31	45.93	46.19	45.57	48.49	49.75	---	---
23	49.84	48.39	48.20	46.98	47.25	46.01	46.06	45.67	48.51	49.81	---	---
24	49.88	48.37	48.24	46.93	47.11	46.09	45.99	45.74	---	49.89	---	---
25	49.92	48.37	48.16	47.05	47.09	46.13	45.99	45.84	48.53	49.93	---	---
26	49.94	48.25	48.16	47.11	47.09	46.11	45.99	45.99	48.55	49.96	---	---
27	49.92	48.24	48.15	47.11	47.05	46.07	45.97	46.10	48.58	50.01	---	---
28	49.98	48.19	48.10	47.11	46.97	46.07	45.97	46.22	48.63	50.05	---	---
29	50.00	48.11	48.10	47.09	---	46.11	45.95	46.34	48.65	50.13	---	---
30	50.04	48.05	48.02	47.15	---	46.16	45.87	46.42	48.65	50.17	---	52.29
31	50.04	---	48.16	47.27	---	46.19	---	46.50	---	50.27	---	---
MEAN	49.80	48.95	48.02	47.38	47.44	46.22	46.31	45.73	47.92	49.48	50.58	51.73
MAX	50.04	50.04	48.24	48.25	47.79	46.83	46.61	46.50	48.65	50.27	50.84	52.29
MIN	49.68	48.05	47.80	46.89	46.97	45.93	45.87	45.33	46.62	48.77	50.30	51.51

WTR YR 1998: HIGHEST 45.33, MAY 16, 17; LOWEST 52.29, SEPTEMBER 30.



CUMBERLAND COUNTY

400209077183301. Local number, CU 2.

LOCATION.--Lat 40°02'09", long 77°18'33", 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.--Continuous strip-chart recorder.

DATUM.--Elevation of land surface is 955 ft above sea level, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.

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

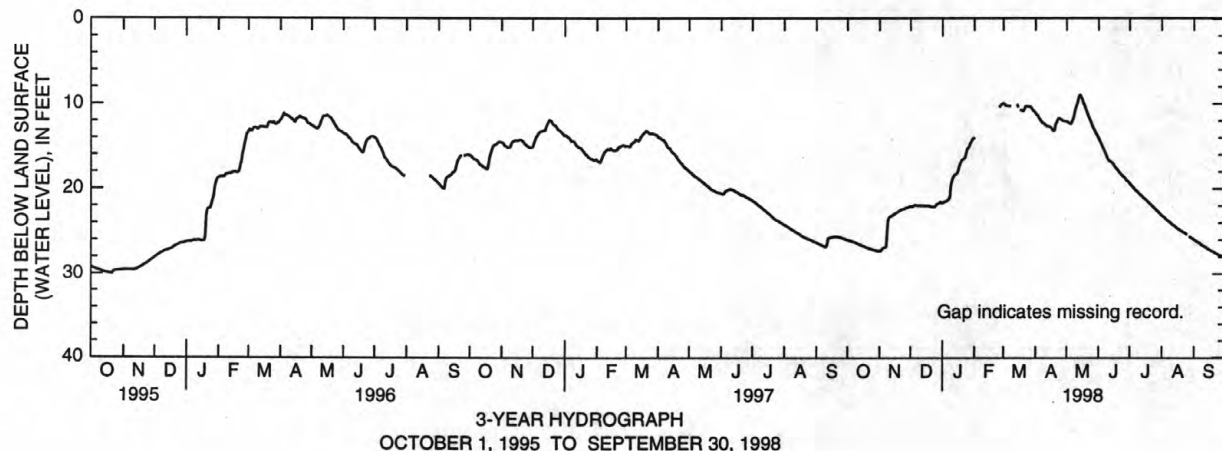
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily maximum depth below land surface for the period of record indicated above.

Highest water level, 8.96 ft below land-surface datum, May 14, 1998; lowest, 33.50 ft below land-surface datum, Feb. 3, 1955.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.03	27.31	22.04	21.66	14.00	9.99	11.12	12.09	14.08	19.40	23.14	25.97
2	26.06	27.30	22.08	21.55	---	10.00	11.32	12.16	14.35	19.55	23.24	26.07
3	26.09	27.10	22.08	21.50	---	10.19	11.38	12.25	14.64	19.66	23.31	26.14
4	26.11	26.98	21.97	21.49	---	10.21	11.64	12.33	14.89	19.79	23.45	26.22
5	26.16	26.91	21.90	21.41	---	10.26	11.82	12.39	15.17	19.96	23.58	26.31
6	26.20	26.86	21.90	21.30	---	10.25	12.04	12.18	15.43	20.09	23.67	26.32
7	26.25	26.79	21.94	21.21	---	10.25	12.17	11.86	15.70	20.19	23.79	26.47
8	26.30	25.20	21.99	20.95	---	10.25	12.30	11.51	15.96	20.30	23.81	26.58
9	26.35	23.72	21.95	19.61	---	---	12.30	10.84	16.31	20.42	23.98	26.64
10	26.41	23.35	21.92	19.02	---	---	12.47	10.42	16.56	20.56	24.09	26.72
11	26.48	23.24	21.99	18.70	---	---	12.58	10.14	16.72	20.67	24.19	26.79
12	26.52	23.19	21.98	18.53	---	---	12.66	9.68	16.79	20.77	24.30	26.82
13	26.57	23.16	21.95	18.31	---	---	12.68	9.18	16.86	20.88	24.31	26.95
14	26.62	23.01	22.00	18.30	---	10.09	12.68	8.96	16.95	21.01	24.46	27.02
15	26.69	22.99	22.00	18.20	---	10.41	12.79	9.18	17.10	21.13	24.57	27.10
16	26.72	22.86	21.99	17.90	---	---	12.86	9.44	17.32	21.21	24.65	27.16
17	26.78	22.81	21.99	17.35	---	10.70	13.10	9.86	17.49	21.34	24.74	27.24
18	26.82	22.74	22.00	17.07	---	10.76	13.17	10.14	17.65	21.46	24.81	27.30
19	26.88	22.63	22.00	16.80	---	10.80	13.17	10.42	17.77	21.57	24.91	27.32
20	26.92	22.55	22.04	16.61	---	10.86	12.46	10.72	17.91	21.71	24.98	27.43
21	26.99	22.50	22.10	16.54	---	10.64	12.21	11.12	18.10	21.82	25.06	27.51
22	27.02	22.40	22.10	16.44	---	10.30	11.93	11.44	18.23	21.93	25.12	27.59
23	27.08	22.39	22.10	16.30	---	10.28	11.72	11.76	18.36	22.07	25.20	27.65
24	27.10	22.34	22.12	15.70	---	10.29	11.72	12.00	18.50	22.17	25.27	27.72
25	27.14	22.34	22.01	15.31	10.39	10.33	11.84	12.32	18.60	22.30	25.36	27.77
26	27.17	22.21	21.83	15.20	10.22	10.33	11.88	12.63	18.70	22.41	---	27.81
27	27.20	22.20	21.75	14.97	10.10	10.35	12.00	12.92	18.88	22.53	25.59	27.82
28	27.24	22.20	21.70	14.61	9.98	10.53	12.05	13.13	19.03	22.64	25.65	27.90
29	27.27	22.12	21.66	14.43	---	10.72	12.05	13.39	19.09	22.78	25.73	27.96
30	27.30	22.10	21.51	14.20	---	10.85	12.08	13.60	19.22	22.89	25.82	28.02
31	27.31	---	21.65	14.09	---	11.00	---	13.83	---	23.04	25.89	---
MEAN	26.70	23.78	21.94	17.91	10.94	10.43	12.21	11.42	17.08	21.23	24.56	27.08
MAX	27.31	27.31	22.12	21.66	14.00	11.00	13.17	13.83	19.22	23.04	25.89	28.02
MIN	26.03	22.10	21.51	14.09	9.98	9.99	11.12	8.96	14.08	19.40	23.14	25.97

WTR YR 1998: HIGHEST 8.96, MAY 14; LOWEST 28.02, SEPTEMBER 30.



DAUPHIN COUNTY

402118076462201. Local number, DA 350.

LOCATION.--Lat 40°21'18", long 76°46'22", Hydrologic Unit 02050305, at R. D. 1, Linglestown.

Owner: William R. Miller.

AQUIFER.--Hamburg sequence, Early-Middle Ordovician age.

WELL CHARACTERISTICS.--Drilled unused 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 sea level, from topographic map. Measuring point: Top of casing, 1.3 ft above land-surface datum.

REMARKS.--In addition to the daily maximum water level shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.

PERIOD OF RECORD.--September 1964 to current year.

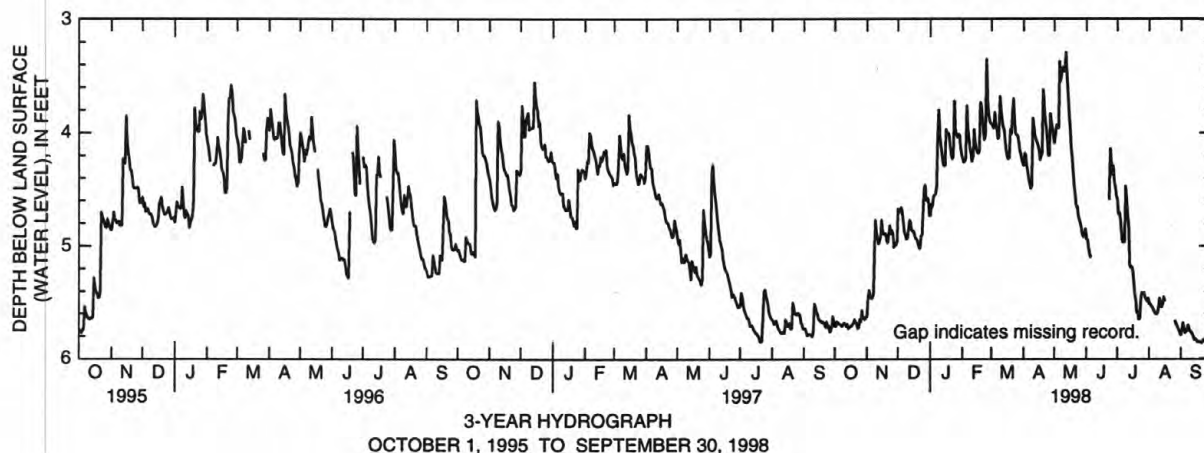
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily maximum depth below land surface for the period of record indicated above.

Highest water level, 1.15 ft below land-surface datum, June 22, 1972; lowest, 6.95 ft below land-surface datum, Sept. 11, 1966.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.71	5.62	4.67	4.73	4.23	3.92	4.29	4.09	4.94	4.58	5.51	5.79
2	5.71	5.46	4.70	4.63	4.26	3.94	4.18	4.00	4.94	4.72	5.51	5.75
3	5.67	5.39	4.70	4.65	4.25	3.96	4.19	3.93	5.02	4.70	5.53	5.68
4	5.68	5.45	4.66	4.56	4.23	3.82	4.29	3.93	5.07	4.76	5.54	5.72
5	5.69	5.46	4.71	4.55	3.76	3.93	4.34	3.96	5.10	4.89	5.56	5.77
6	5.69	5.46	4.78	4.54	3.96	3.98	4.41	3.37	---	4.96	5.58	5.76
7	5.70	5.42	4.88	4.47	4.04	4.05	4.45	3.54	---	4.97	5.60	5.75
8	5.71	5.04	4.90	4.02	4.13	4.04	4.49	3.48	---	4.96	5.60	5.70
9	5.69	4.77	4.94	3.80	4.19	3.68	4.47	3.42	5.26	4.47	5.60	5.74
10	5.68	4.87	4.93	4.02	4.25	3.78	3.87	3.45	---	4.60	5.55	5.76
11	5.69	4.92	4.86	4.11	4.21	3.88	3.94	3.46	---	4.72	5.46	5.76
12	5.71	4.98	4.77	4.17	3.97	3.95	4.02	3.29	---	4.83	5.52	5.78
13	5.69	4.96	4.79	4.27	4.07	3.97	4.06	3.49	---	5.16	5.54	5.80
14	5.73	4.92	4.86	4.29	4.14	4.07	4.08	3.65	---	5.19	5.52	5.83
15	5.72	4.77	4.87	4.29	4.17	4.16	4.11	3.81	---	5.18	5.45	5.82
16	5.71	4.86	4.87	3.97	4.18	4.21	4.15	3.95	---	5.21	5.49	5.83
17	5.71	4.89	4.91	4.01	4.16	4.23	4.24	4.12	---	5.32	---	5.85
18	5.69	4.90	4.93	4.00	3.73	4.22	4.20	4.22	---	5.42	---	5.85
19	5.68	4.89	4.94	4.02	3.76	3.97	4.18	4.35	---	5.48	---	5.85
20	5.65	4.95	4.97	4.12	3.85	4.01	3.62	4.46	---	5.59	---	5.85
21	5.68	4.97	5.01	4.19	3.99	3.83	3.77	4.56	---	5.58	---	5.86
22	5.68	4.90	5.02	4.23	4.06	3.70	3.89	4.65	---	5.65	---	5.85
23	5.73	4.82	4.91	4.20	4.02	3.87	3.96	4.65	4.59	5.64	---	5.83
24	5.72	4.89	4.90	3.72	3.35	4.00	4.08	4.73	4.14	5.45	---	5.84
25	5.65	4.86	4.67	3.97	3.71	4.02	4.20	4.77	4.26	5.41	---	5.82
26	5.67	4.89	4.48	4.02	3.83	4.02	4.20	4.80	4.37	5.42	5.66	5.78
27	5.57	5.01	4.46	4.04	3.89	4.07	3.83	4.84	4.29	5.41	5.69	5.77
28	5.64	4.97	4.60	4.01	3.92	4.14	3.91	4.90	4.43	5.46	5.70	5.85
29	5.63	4.99	4.57	4.02	---	4.19	3.96	4.92	4.48	5.47	5.73	5.85
30	5.65	4.96	4.59	4.13	---	4.23	4.04	4.91	4.56	5.49	5.74	5.83
31	5.63	---	4.73	4.19	---	4.27	---	4.85	---	5.46	5.77	---
MEAN	5.68	5.04	4.79	4.19	4.01	4.00	4.11	4.15	4.67	5.17	5.58	5.80
MAX	5.73	5.62	5.02	4.73	4.26	4.27	4.49	4.92	5.26	5.65	5.77	5.86
MIN	5.57	4.77	4.46	3.72	3.35	3.68	3.62	3.29	4.14	4.47	5.45	5.68

WTR YR 1998: HIGHEST 3.29, MAY 12; LOWEST 5.86, SEPTEMBER 21.



FRANKLIN COUNTY

394731077411701. Local number, FR 332.

LOCATION.--Lat 39°47'31", long 77°41'17", Hydrologic Unit 02070004, near Greencastle.

Owner: Borough of Greencastle.

AQUIFER.--Stonehenge Formation, Early Ordovician age.

WELL CHARACTERISTICS.--Drilled unused well, diameter 8 in., depth 296 ft, cased to 92 ft, open hole.

INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.

DATUM.--Elevation of land surface is 730 ft above sea level, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum.

REMARKS.--In addition to the daily maximum water level shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.

PERIOD OF RECORD.--March 1975 to current year.

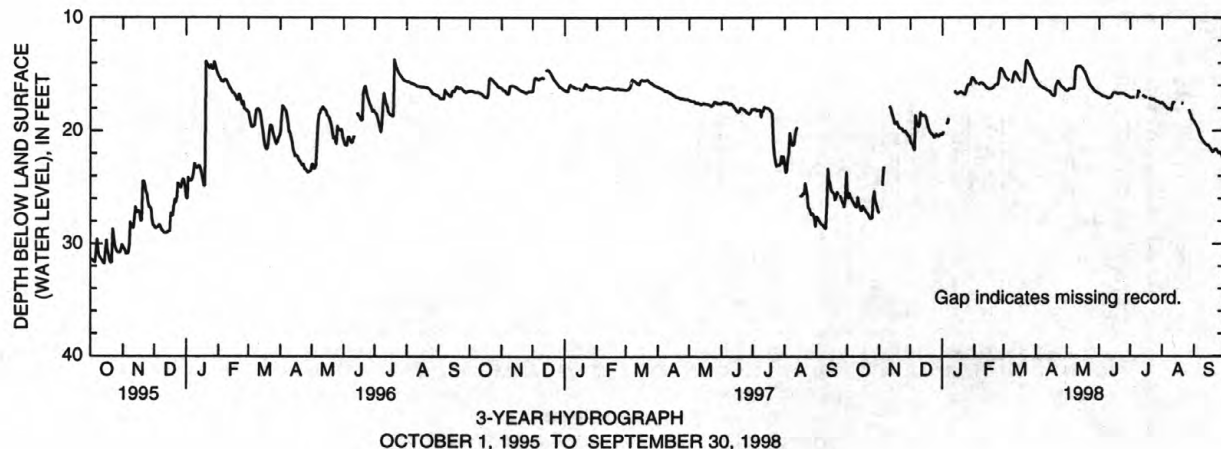
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily maximum depth below land surface for the period of record indicated above.

Highest water level, 12.30 ft below land-surface datum, Sept. 27, 1975; lowest, 36.68 ft below land-surface datum, Sept. 6, 1976.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.42	27.24	20.83	20.35	15.56	14.84	15.52	16.44	16.69	17.08	17.49	19.13
2	25.95	---	21.10	20.09	15.69	15.12	15.72	16.44	16.77	17.08	17.63	19.33
3	25.51	---	21.14	---	15.83	15.27	15.83	16.28	16.83	17.06	17.69	19.51
4	25.86	24.82	21.48	---	---	15.39	15.96	16.28	16.90	17.06	17.86	19.67
5	26.00	23.26	21.69	19.36	15.92	15.46	16.04	16.29	16.96	17.06	17.89	19.88
6	26.19	23.32	18.62	19.30	15.80	15.56	16.08	16.27	16.96	---	18.04	20.20
7	26.33	---	19.30	18.90	15.74	---	16.14	16.28	16.98	17.04	18.09	20.55
8	26.57	---	19.52	---	15.74	---	16.22	16.25	17.06	17.04	18.04	20.64
9	26.70	---	19.63	---	15.83	15.74	16.24	14.71	17.10	16.47	18.07	20.81
10	26.75	---	19.42	---	15.93	15.30	16.31	14.34	17.11	16.64	18.18	20.95
11	25.86	17.82	18.38	---	15.99	14.91	16.38	14.32	17.12	---	17.63	21.03
12	26.43	18.02	18.62	---	16.12	14.81	16.43	14.33	17.08	---	17.46	21.17
13	26.69	18.39	18.67	16.47	16.22	14.92	16.45	14.29	17.00	16.86	17.56	21.24
14	27.03	18.70	18.59	16.66	16.26	15.09	16.52	14.33	16.73	16.94	---	21.28
15	27.04	18.98	18.67	16.72	16.31	15.32	16.64	14.39	16.65	17.01	---	21.30
16	26.63	19.38	18.73	16.72	16.26	15.43	16.81	14.51	16.62	17.04	---	21.46
17	26.85	19.38	19.13	16.63	16.27	15.59	16.83	14.69	16.64	17.11	---	21.61
18	26.95	19.21	19.47	16.60	16.25	---	16.90	14.82	16.70	---	---	21.71
19	27.15	19.49	19.83	16.54	16.16	---	16.91	15.02	16.73	17.15	---	21.87
20	27.23	19.71	20.04	16.63	16.04	15.75	16.03	15.26	16.73	17.16	17.56	21.84
21	27.35	19.74	20.22	16.69	15.91	15.34	15.81	15.50	16.67	17.21	17.61	21.65
22	27.54	19.79	20.29	16.77	15.90	13.91	15.60	15.75	16.70	17.23	---	21.65
23	27.73	19.81	20.38	16.78	15.90	13.78	15.72	15.95	16.71	17.23	---	21.65
24	27.73	20.06	20.57	16.37	15.57	13.90	15.89	16.08	16.71	17.23	---	21.88
25	27.70	20.06	20.53	16.06	14.74	14.08	16.03	16.17	16.74	17.32	---	21.94
26	25.92	20.01	20.28	15.87	14.48	14.25	16.12	16.31	16.78	17.37	---	21.87
27	25.36	20.15	20.39	15.90	14.55	14.46	16.19	16.40	16.88	17.43	18.15	21.97
28	26.20	20.28	20.47	15.90	14.72	14.72	16.27	16.50	16.92	17.43	18.44	22.13
29	26.51	20.44	20.47	15.39	---	15.01	16.39	16.58	16.94	17.47	18.67	22.37
30	26.81	20.44	20.29	15.27	---	15.23	16.44	16.65	17.00	17.58	18.94	22.37
31	27.15	---	20.35	15.38	---	15.42	---	16.69	---	17.58	19.06	---
MEAN	26.62	20.35	19.91	16.97	15.77	14.99	16.21	15.62	16.85	17.14	18.00	21.16
MAX	27.73	27.24	21.69	20.35	16.31	15.75	16.91	16.69	17.12	17.58	19.06	22.37
MIN	25.36	17.82	18.38	15.27	14.48	13.78	15.52	14.29	16.62	16.47	17.46	19.13

WTR YR 1998: HIGHEST 13.78, MARCH 22; LOWEST 27.73, OCTOBER 23, 24.



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 sea level, from topographic map. Measuring point: Top of casing, 3.6 ft above land-surface datum.

REMARKS.--In addition to the daily maximum water level shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.

PERIOD OF RECORD.--August 1969 to current year.

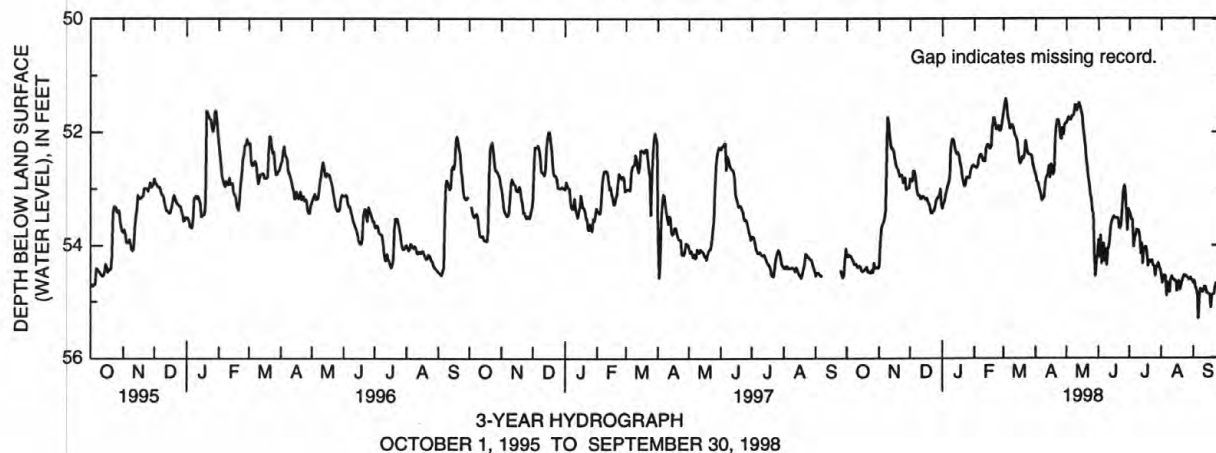
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily maximum depth below land surface for the period of record indicated above.

Highest water level, 48.82 ft below land-surface datum, June 23, 1972; lowest, 55.96 ft below land-surface datum, Aug. 28, 30, 1981.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54.19	54.37	52.82	53.35	52.61	51.63	52.75	51.84	53.90	53.40	54.53	54.67
2	54.20	53.97	52.86	53.25	52.61	51.49	52.86	51.77	54.20	53.46	54.67	54.63
3	54.16	53.72	52.87	53.23	52.63	51.41	52.88	51.73	53.82	53.54	54.53	54.75
4	54.18	53.63	52.68	53.11	52.60	51.53	52.96	51.78	54.32	53.55	54.53	54.77
5	54.20	53.60	52.69	53.03	52.46	51.73	53.03	51.78	53.98	54.02	54.55	54.91
6	54.24	53.53	52.79	52.94	52.41	51.81	53.11	51.72	53.96	53.88	54.89	55.30
7	54.27	53.40	52.98	52.90	52.39	51.93	53.20	51.72	54.28	53.82	54.65	54.87
8	54.33	52.53	53.08	52.77	52.42	51.93	53.17	51.68	54.06	53.72	54.71	54.77
9	54.34	51.74	53.12	52.29	52.50	51.86	53.15	51.52	54.34	53.74	54.83	54.79
10	54.33	51.83	53.11	52.13	52.51	51.89	52.92	51.52	54.06	53.74	54.61	54.83
11	54.38	52.06	53.17	52.12	52.51	51.98	52.80	51.62	54.02	53.84	54.55	54.79
12	54.39	52.23	53.17	52.16	52.29	52.06	52.78	51.52	53.86	54.14	54.59	54.73
13	54.36	52.29	53.13	52.29	52.23	52.09	52.70	51.48	53.64	53.96	54.61	54.75
14	54.38	52.30	53.14	52.35	52.21	52.15	52.59	51.54	53.56	54.32	54.63	54.85
15	54.44	52.35	53.17	52.39	52.27	52.34	52.80	51.62	53.52	54.04	54.63	54.85
16	54.46	52.48	53.19	52.36	52.29	52.49	52.56	51.70	53.48	54.04	54.81	54.87
17	54.45	52.57	53.16	52.42	52.25	52.55	52.64	51.92	53.52	54.02	54.71	54.87
18	54.43	52.63	53.23	52.55	51.92	52.51	52.75	52.08	53.52	54.14	54.63	55.11
19	54.41	52.65	53.26	52.61	51.76	52.43	52.69	52.24	53.51	54.36	54.79	54.89
20	54.38	52.72	53.32	52.77	51.74	52.47	52.11	52.46	53.52	54.26	54.71	54.87
21	54.47	52.78	53.43	52.87	51.87	52.41	51.87	52.62	53.69	54.28	54.63	54.87
22	54.45	52.75	53.43	52.95	51.95	52.15	51.78	52.80	53.70	54.30	54.57	54.75
23	54.49	52.76	53.39	52.95	51.95	52.23	51.78	52.92	53.62	54.26	54.53	54.67
24	54.49	52.89	53.38	52.80	51.88	52.35	51.89	53.10	53.30	54.36	54.53	54.67
25	54.43	52.89	53.29	52.79	51.97	52.39	52.08	53.18	53.04	54.36	54.55	54.65
26	54.48	52.80	53.19	52.81	51.97	52.39	52.12	53.40	52.94	54.54	54.57	54.61
27	54.31	53.01	53.18	52.81	51.87	52.41	51.92	53.42	53.04	54.40	54.59	54.55
28	54.40	53.01	53.13	52.69	51.75	52.41	52.04	54.18	53.42	54.35	54.61	54.63
29	54.40	52.98	53.14	52.63	---	52.55	51.86	54.54	53.73	54.31	54.57	54.67
30	54.39	52.99	53.00	52.59	---	52.63	51.84	54.28	53.35	54.39	54.61	54.61
31	54.40	---	53.27	52.58	---	52.71	---	54.14	---	54.43	54.63	---
MEAN	54.36	52.85	53.12	52.69	52.21	52.16	52.52	52.38	53.70	54.06	54.63	54.78
MAX	54.49	54.37	53.43	53.35	52.63	52.71	53.20	54.54	54.34	54.54	54.89	55.30
MIN	54.16	51.74	52.68	52.12	51.74	51.41	51.78	51.48	52.94	53.40	54.53	54.55

WTR YR 1998: HIGHEST 51.41, MARCH 3; LOWEST 55.30, SEPTEMBER 6.



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.--Brallier 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.--Continuous strip-chart recorder.

DATUM.--Elevation of land surface is 635 ft above sea level, from topographic map. Measuring point: Top of plywood cover, 3.6 ft above land-surface datum.

REMARKS.--This well shows significant response to Earth tides.

PERIOD OF RECORD.--June 1968 to current year.

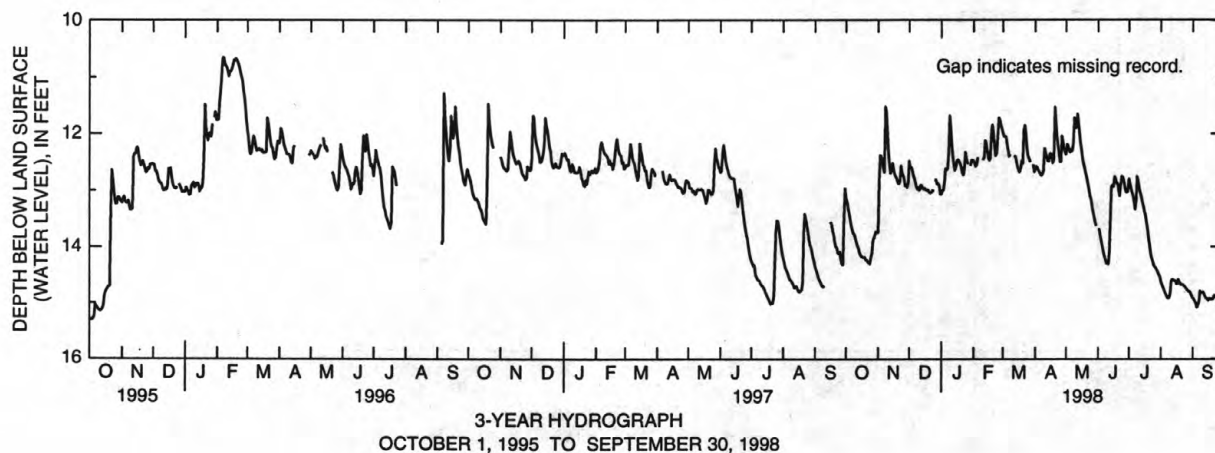
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily maximum depth below land surface for the period of record indicated above.

Highest water level, 10.65 ft below land-surface datum, Feb. 7, 1996; lowest, 16.62 ft below land-surface datum, June 10, 1994.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.14	13.75	12.48	13.07	12.48	11.98	12.63	12.37	---	12.80	14.63	14.92
2	13.21	12.85	12.59	13.00	12.53	12.05	12.58	12.19	13.68	12.88	14.68	14.93
3	13.31	12.38	12.59	13.00	12.58	12.04	12.60	12.22	13.81	12.96	14.72	14.98
4	13.42	12.39	12.64	12.86	12.55	12.06	12.65	12.30	13.89	13.04	14.77	15.01
5	13.52	12.52	12.74	12.62	12.42	12.20	12.68	12.33	13.98	13.11	14.82	15.08
6	13.62	12.61	12.78	12.64	---	12.30	12.72	12.28	14.08	13.22	14.86	15.04
7	13.70	12.68	12.87	12.62	---	12.40	12.74	12.31	14.16	13.34	14.90	14.98
8	13.76	11.52	12.94	12.34	---	12.37	12.72	12.18	14.22	13.19	14.92	14.79
9	13.78	11.62	12.98	11.68	---	---	12.66	11.72	14.29	12.76	14.91	14.82
10	13.84	12.02	12.95	11.94	12.46	---	12.26	11.81	14.30	12.84	14.84	14.82
11	13.92	12.33	13.00	12.20	12.41	---	12.33	11.90	14.31	12.97	14.61	14.81
12	13.98	12.58	12.91	12.39	12.12	12.39	12.42	11.65	14.10	13.05	14.59	14.84
13	14.02	12.70	12.91	12.56	12.16	12.41	12.48	11.80	13.44	13.11	14.60	14.89
14	14.11	12.64	12.97	12.65	12.31	12.50	12.49	12.00	12.94	13.20	14.61	14.92
15	14.14	12.52	12.98	12.59	12.43	12.60	12.36	12.18	12.91	13.28	14.61	14.92
16	14.17	12.64	12.96	12.48	12.47	12.65	12.35	12.31	12.94	13.37	14.66	14.96
17	14.18	12.72	13.00	12.46	12.44	12.68	12.42	12.45	12.76	13.44	14.66	14.92
18	14.19	12.76	13.00	12.49	11.94	12.61	12.52	12.55	12.79	13.57	14.59	14.93
19	14.18	12.80	12.99	12.52	11.84	12.48	12.46	12.62	12.88	13.69	14.64	14.94
20	14.23	12.87	13.03	12.59	12.00	12.53	11.53	12.70	12.88	13.84	14.67	14.93
21	14.23	12.88	13.05	12.68	12.24	11.94	11.83	12.79	13.00	13.99	14.68	14.93
22	14.27	12.84	13.04	12.73	12.39	11.85	12.06	12.88	13.10	14.12	14.68	14.87
23	14.28	12.57	13.03	12.63	12.34	12.03	12.22	12.98	12.92	14.20	14.69	14.90
24	14.30	12.70	12.99	12.33	12.06	12.26	12.36	13.09	12.76	14.26	14.71	14.88
25	14.18	12.73	---	12.44	11.72	12.40	12.50	13.16	12.76	14.33	14.73	14.88
26	14.12	12.79	12.81	12.52	11.75	12.43	12.50	13.27	12.84	14.36	14.76	14.88
27	13.88	12.92	12.82	12.53	11.86	12.50	12.04	13.37	12.93	14.38	14.78	14.87
28	13.84	12.91	12.89	---	11.91	---	12.15	13.47	13.03	14.42	14.80	14.90
29	13.78	12.95	12.88	12.56	---	---	12.26	13.55	13.04	14.46	14.80	14.93
30	13.73	12.86	12.92	12.47	---	12.55	12.33	13.63	13.02	14.51	14.84	14.93
31	13.75	---	13.07	12.47	---	12.68	---	---	---	14.54	14.88	---
MEAN	13.90	12.63	12.89	12.54	12.23	12.34	12.40	12.54	13.37	13.59	14.73	14.91
MAX	14.30	13.75	13.07	13.07	12.58	12.68	12.74	13.63	14.31	14.54	14.92	15.08
MIN	13.14	11.52	12.48	11.68	11.72	11.85	11.53	11.65	12.76	12.76	14.59	14.79

WTR YR 1998: HIGHEST 11.52, NOVEMBER 8; LOWEST 15.08, SEPTEMBER 5.



LANCASTER COUNTY

400506076235201. Local number, LN 514.

LOCATION.--Lat 40°05'06", long 76°23'52", Hydrologic Unit 02050306, near Landisville.

Owner: Benjamin Landis.

AQUIFER.--Kinzers Formation, Early Cambrian age.

WELL CHARACTERISTICS.--Drilled unused well, diameter 6 in., depth 260 ft, casing information not available.

INSTRUMENTATION.--Continuous strip-chart recorder.

DATUM.--Elevation of land surface is 415 ft above sea level, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.

PERIOD OF RECORD.--January 1964 to current year.

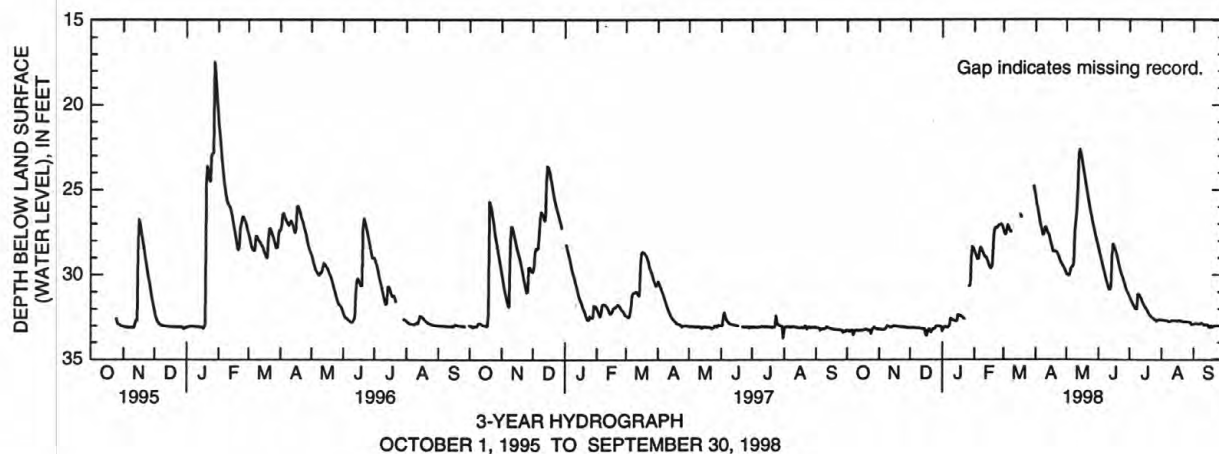
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily maximum depth below land surface for the period of record indicated above.

Highest water level, 16.89 ft below land-surface datum, Mar. 28, 1994; lowest, 35.47 ft below land-surface datum, Nov. 15, 1967.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33.28	33.20	33.12	33.33	28.60	27.36	25.38	29.95	28.44	31.26	32.65	32.92
2	33.27	33.20	33.14	33.15	28.75	27.56	25.81	30.02	28.66	31.43	32.66	32.87
3	33.34	33.21	33.14	33.07	28.95	27.63	26.07	30.05	28.96	31.55	32.68	32.87
4	33.35	33.23	33.12	33.07	29.08	27.32	26.39	30.00	29.20	31.67	32.68	32.88
5	33.27	33.23	33.13	33.08	29.05	27.06	26.78	29.67	29.44	31.80	32.70	32.90
6	33.26	33.22	33.14	33.10	28.53	27.24	27.11	29.56	29.72	31.92	32.70	32.90
7	33.55	33.20	33.15	33.09	28.38	27.39	27.36	29.50	29.95	32.00	32.71	32.90
8	33.35	33.10	33.15	32.96	28.48	27.47	27.64	29.36	30.21	32.00	32.76	32.86
9	33.27	32.99	33.16	32.55	28.65	27.46	27.64	27.40	30.43	31.15	32.76	32.86
10	33.26	33.02	33.15	32.60	28.82	---	27.25	26.81	30.65	31.14	32.72	32.87
11	33.26	33.06	33.17	32.65	28.94	---	27.19	26.20	30.83	31.24	32.68	32.96
12	33.30	33.09	33.18	32.67	28.95	---	27.38	24.80	30.87	31.37	32.70	32.96
13	33.28	33.09	33.18	32.71	29.07	---	27.57	22.90	30.75	31.51	32.70	32.95
14	33.27	33.05	33.19	32.74	29.25	---	27.62	22.63	28.95	31.66	32.70	32.95
15	33.27	33.00	33.18	32.74	29.44	---	27.93	22.89	28.20	31.80	32.71	32.95
16	33.27	33.02	33.55	32.35	29.59	---	28.17	23.22	28.30	31.90	32.73	33.10
17	33.26	33.03	33.59	32.36	29.62	26.40	28.39	23.63	28.50	31.97	32.72	33.06
18	33.22	33.03	33.30	32.39	29.45	26.60	28.62	24.01	28.70	32.07	32.68	32.99
19	33.22	33.03	33.21	32.41	28.27	26.60	28.65	24.36	28.95	32.21	32.70	33.09
20	33.21	33.05	33.20	32.46	27.42	---	28.60	24.75	29.19	32.33	32.73	33.06
21	33.28	33.06	33.40	32.53	27.23	---	28.65	25.12	29.46	32.40	32.74	33.00
22	33.26	33.05	33.29	32.58	27.23	---	28.72	25.52	29.75	32.47	32.76	33.00
23	33.25	33.06	33.20	32.56	27.23	---	28.87	25.86	29.95	32.52	32.75	32.99
24	33.48	33.09	33.20	---	27.10	---	29.02	26.20	30.10	32.57	32.76	33.00
25	33.23	33.07	33.15	---	27.08	---	29.22	26.51	30.30	32.62	32.77	33.00
26	33.18	33.09	33.02	30.66	27.05	---	29.32	26.85	30.52	32.64	32.76	33.00
27	33.09	33.11	33.02	30.67	27.02	---	29.43	27.10	30.72	32.74	32.77	33.00
28	33.16	33.12	33.03	30.61	27.15	---	29.55	27.39	30.88	32.68	32.78	33.14
29	33.18	33.14	33.03	28.91	---	---	29.66	27.65	31.01	32.64	32.80	33.12
30	33.20	33.13	33.03	28.35	---	24.75	29.80	27.93	31.13	32.64	32.94	33.05
31	33.21	---	33.05	28.44	---	25.11	---	28.16	---	32.64	32.93	---
MEAN	33.27	33.10	33.18	32.10	28.37	26.85	27.99	26.65	29.76	32.02	32.74	32.97
MAX	33.55	33.23	33.59	33.33	29.62	27.63	29.80	30.05	31.13	32.74	32.94	33.14
MIN	33.09	32.99	33.02	28.35	27.02	24.75	25.38	22.63	28.20	31.14	32.65	32.86

WTR YR 1998: HIGHEST 22.63, MAY 14; LOWEST 33.59, DECEMBER 17.



LANCASTER COUNTY

395947076145901. Local number, LN 2037.

LOCATION.--Lat 39°59'47", long 76°14'59", Hydrologic Unit 02050306, 50 ft upstream from box culvert on Mentzer Road, 0.2 mi north of the intersection with SR 741, and 0.5 mi northwest of Lampeter.
Owner: U.S. Geological Survey.
AQUIFER.--Quaternary age alluvium.

WATER-LEVEL RECORDS

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in. PVC, depth 6 ft, cased to 6 ft, closed end, screened from 3.5 to 4.5 ft.

INSTRUMENTATION.--Pressure transducer and data logger with 60-minute recording interval.

DATUM.--Land-surface datum is 347.97 ft (revised) above sea level. Measuring point: Top of casing, 1.45 ft above land-surface datum.

REMARKS.--In addition to the daily mean water levels shown below, daily maximum and minimum water levels are also available from the District Office.

PERIOD OF RECORD.--June 1994 to current year.

REVISIONS.--Daily mean elevations published for water years 1994, 1995, 1996, and 1997 have been revised. Revised records are available from the District Office.

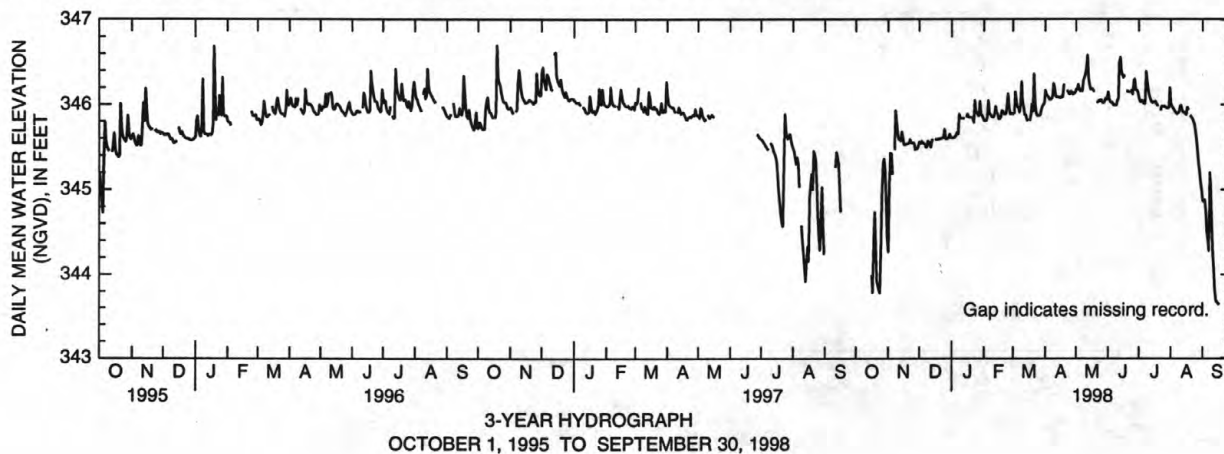
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily mean water level elevation for the period of record indicated above.

Highest water level, 346.70 ft, Oct. 19, 1996; lowest water level, 343.64 ft, Sept. 17, 1998. May have been lower Oct. 1-15 or Sept. 18-30.

ELEVATION (FEET ABOVE SEA LEVEL), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	344.27	345.56	345.61	345.81	345.89	346.17	346.18	346.15	346.08	346.02	344.87
2	---	345.05	345.54	345.61	345.81	345.90	346.12	346.18	346.07	346.04	345.98	344.86
3	---	345.43	345.57	345.61	345.81	346.15	346.10	346.24	346.03	346.03	345.96	344.88
4	---	345.42	345.55	345.62	345.85	346.04	346.09	346.18	346.02	346.05	345.94	344.76
5	---	345.18	345.54	345.64	346.05	345.97	346.06	346.16	346.03	346.02	345.92	344.51
6	---	---	345.54	345.67	345.89	345.97	346.06	346.18	346.00	346.01	345.90	344.42
7	---	345.47	345.50	345.65	345.89	345.91	346.07	346.16	345.99	346.01	345.89	344.28
8	---	345.93	345.50	345.89	345.86	346.00	346.10	346.28	346.00	346.39	345.90	345.20
9	---	345.79	345.57	345.84	345.85	346.27	346.25	346.32	345.99	346.28	345.91	345.06
10	---	345.66	345.56	345.84	345.85	346.03	346.19	346.36	346.05	346.18	345.98	344.63
11	---	345.59	345.52	345.84	345.89	345.97	346.10	346.42	346.07	346.11	345.99	344.28
12	---	345.59	345.50	345.84	345.98	345.88	346.09	346.58	346.49	346.07	345.93	344.05
13	---	345.57	345.58	345.84	345.90	345.88	346.09	346.32	346.56	346.04	345.91	343.82
14	---	345.68	345.59	---	345.89	345.82	346.09	346.23	346.39	346.02	345.91	343.69
15	---	345.60	---	345.85	345.83	345.81	346.08	346.18	346.35	346.03	345.89	343.67
16	344.00	345.53	345.59	345.89	345.83	---	346.08	346.19	346.32	346.03	345.88	343.66
17	343.79	345.53	345.59	345.85	345.85	345.81	346.10	346.18	346.35	346.04	345.97	343.64
18	344.40	345.53	345.59	345.85	345.93	345.88	346.09	346.16	---	346.01	345.94	---
19	344.73	345.54	345.59	345.85	345.92	346.01	346.23	346.16	346.16	345.99	---	---
20	344.28	345.54	345.60	345.85	345.89	345.92	346.23	---	346.16	345.99	345.87	---
21	343.92	345.55	345.60	345.84	345.89	346.36	---	346.02	346.15	---	345.85	---
22	343.87	345.59	345.60	345.79	345.89	346.01	346.16	346.03	346.15	345.93	345.83	---
23	343.81	345.55	345.61	346.05	346.00	345.90	346.16	346.05	346.15	345.98	345.80	---
24	343.78	345.55	345.61	345.90	346.13	345.87	346.13	346.04	346.17	345.98	345.77	---
25	344.34	345.55	345.71	345.91	345.96	345.87	346.12	346.06	346.12	345.98	345.67	---
26	344.95	345.54	345.60	345.87	345.89	345.87	346.16	346.03	346.28	345.98	345.58	---
27	345.31	345.47	345.60	345.87	345.89	345.88	346.14	346.02	346.30	345.97	345.43	---
28	345.36	345.48	345.60	346.04	345.90	345.94	346.12	346.02	346.17	345.96	345.31	---
29	345.21	345.48	345.61	345.88	---	345.98	346.14	346.06	346.17	345.96	345.20	---
30	344.86	345.52	345.65	345.87	---	346.00	346.14	346.08	346.15	345.96	345.08	---
31	344.44	---	345.61	345.84	---	346.02	---	346.06	---	346.20	344.99	---
MEAN	344.44	345.49	345.58	345.82	345.90	345.96	346.13	346.17	346.17	346.04	345.77	344.37
MAX	345.36	345.93	345.71	346.05	346.13	346.36	346.25	346.58	346.56	346.39	346.02	345.20
MIN	343.78	344.27	345.50	345.61	345.81	345.81	346.06	346.02	345.99	345.93	344.99	343.64

WTR YR 1998: HIGHEST 346.58, MAY 12; LOWEST RECORDED 343.64, SEPTEMBER 17.



LANCASTER COUNTY

395947076145901. Local number, LN 2037--Continued

WATER-QUALITY RECORDS

REMARKS.--Samples collected with peristaltic pump from recovery water after well pumped dry. Some concentrations for dissolved orthophosphorus (mg/L as P) exceed values for the corresponding concentrations of dissolved phosphorus (mg/L as P). These results are within the limits of analytical precision and methods. From November 1993 through September 1997, total alkalinity data were published as parameter code 90430. Due to a change in the parameter code description, total alkalinity data are now published as parameter code 39087. The analytical method to measure total alkalinity has not changed for the period of record.

PERIOD OF RECORD.--November 1993 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY	AGENCY	DEPTH	SPE-	PH	OXYGEN,	TEMPER-	
		COL- LECTING SAMPLE (CODE NUMBER) (00027)	ANA- LYZING SAMPLE (CODE NUMBER) (00028)	BELOW LAND SURFACE (WATER LEVEL) (FEET) (72019)	CIFIC CON- DUCT- ANCE (μS/CM) (00095)	WATER WHOLE FIELD (STAND- ARD UNITS) (00400)			DIS- SOLVED (MG/L) (00300)
NOV 1997									
06...	1030	1028	80020	3.06	737	7.5	8.7	11.4	
DEC									
15...	1130	1028	80020	2.38	688	7.7	4.9	7.9	
JAN 1998									
14...	1010	1028	80020	2.20	822	7.3	5.1	7.1	
FEB									
11...	0945	1028	80020	2.14	749	7.1	4.7	6.7	
MAR									
16...	1105	1028	80020	2.16	685	7.2	3.2	7.2	
APR									
21...	0935	1028	80020	1.81	772	7.1	3.4	11.0	
MAY									
20...	0915	1028	1028	1.78	697	6.8	2.1	13.4	
JUN									
18...	1005	1028	80020	1.74	800	7.2	2.4	15.7	
JUL									
21...	0930	1028	80020	1.96	705	6.8	2.2	18.6	
AUG									
19...	0935	1028	80020	2.06	778	7.1	2.7	19.4	
DATE		STREP- TOCOCCEI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA- LITY WAT DIS TOT IT LAB (MG/L AS CACO3) (39087)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
NOV 1997									
06...	6000	236	--	10.2	--	--	--	--	--
DEC									
15...	190	254	--	17.1	--	--	--	--	--
JAN 1998									
14...	K3500	244	.021	20.8	<.020	.36	<.010	.020	
FEB									
11...	3600	238	--	18.2	--	--	--	--	--
MAR									
16...	250	246	--	15.9	--	--	--	--	--
APR									
21...	460	260	.022	11.4	.028	.29	<.010	.014	
MAY									
20...	K20	274	--	--	--	--	--	--	--
JUN									
18...	54	260	--	9.71	--	--	--	--	--
JUL									
21...	K7	273	.020	8.88	<.020	.28	<.010	.018	
AUG									
19...	260	278	--	5.53	--	--	--	--	--

LANCASTER COUNTY

395947076145902. Local number, LN 2038.

LOCATION.--Lat 39°59'47", long 76°14'59", Hydrologic Unit 02050306, 50 ft upstream from box culvert on Mentzer Road, 0.2 mi north of the intersection with SR 741, and 0.5 mi northwest of Lampeter.
Owner: U.S. Geological Survey.
AQUIFER.--Quaternary age alluvium.

WATER-LEVEL RECORDS

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in. PVC, depth 6.6 ft, cased to 6.6 ft, closed end, screened from 4 to 5 ft.

INSTRUMENTATION.--Pressure transducer and data logger with 60-minute recording interval.

DATUM.--Land-surface datum is 347.84 (revised) ft above sea level. Measuring point: Top of casing, 1.6 ft above land-surface datum.

REMARKS.--In addition to the daily mean water levels shown below, daily maximum and minimum water levels are also available from the District Office.

PERIOD OF RECORD.--June 1994 to current year.

REVISIONS.--Daily mean elevations published for water years 1994, 1995, 1996, and 1997 have been revised. Revised records are available from the District Office.

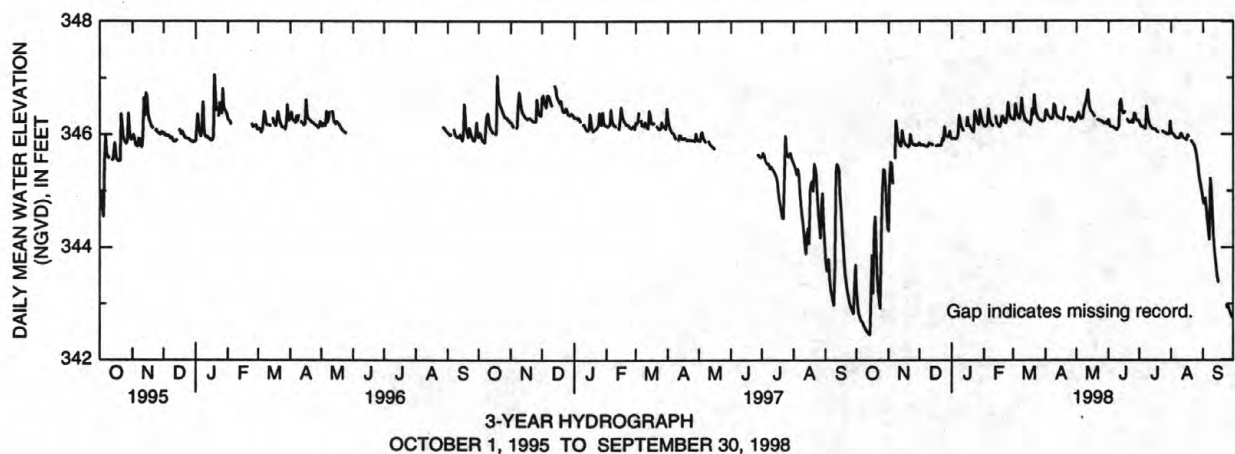
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily mean water level elevation for the period of record indicated above.

Highest water level, 347.06 ft, Jan. 19, 1996; lowest water level, 342.45 ft, Oct. 14, 1997.

ELEVATION (FEET ABOVE SEA LEVEL), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	343.24	344.29	345.85	345.92	346.16	346.27	346.43	346.27	346.26	346.21	346.06	344.82
2	342.98	345.26	345.81	345.92	346.14	346.26	346.43	346.33	346.17	346.16	346.01	344.77
3	342.84	345.51	345.81	345.93	346.15	346.54	346.34	346.39	346.13	346.14	346.00	344.87
4	342.77	345.48	345.82	345.92	346.18	346.41	346.32	346.33	346.14	346.14	345.98	344.72
5	342.72	345.13	345.81	345.92	346.45	346.34	346.30	346.27	346.13	346.12	345.95	344.50
6	342.69	---	345.80	345.93	346.29	346.30	346.28	346.30	346.12	346.11	345.94	344.32
7	342.67	345.57	345.79	346.00	346.22	346.28	346.27	346.28	346.11	346.10	345.93	344.14
8	342.61	346.24	345.79	346.34	346.18	346.39	346.30	346.44	346.09	346.49	345.93	345.22
9	342.58	346.11	345.79	346.25	346.16	346.64	346.53	346.51	346.08	346.34	345.93	345.03
10	342.54	345.92	345.85	346.14	346.15	346.42	346.50	346.57	346.11	346.23	346.00	344.61
11	342.51	345.85	345.84	346.11	---	346.34	346.37	346.65	346.14	346.17	346.01	344.25
12	342.49	345.82	345.83	346.07	346.33	346.28	346.32	346.79	346.56	346.13	345.95	343.97
13	342.46	345.79	345.82	346.07	346.21	346.24	346.30	346.55	346.62	346.11	345.93	343.79
14	342.45	346.07	345.81	---	346.18	346.24	346.30	346.46	346.45	346.09	345.93	343.63
15	343.15	345.95	---	346.14	346.15	346.20	346.28	346.41	346.38	346.10	345.91	343.49
16	343.86	345.87	345.80	346.30	346.13	---	346.28	346.39	346.37	346.09	345.90	343.38
17	343.19	345.83	345.80	346.16	346.20	346.16	346.27	346.36	346.41	346.08	345.99	---
18	344.32	345.81	345.80	346.16	346.32	346.24	346.25	346.33	---	346.05	345.95	---
19	344.54	345.80	345.81	346.12	346.32	346.45	346.43	346.31	346.27	346.04	---	---
20	344.00	345.78	345.81	346.09	346.25	346.35	346.48	---	346.24	346.04	345.89	---
21	343.50	345.81	345.80	346.06	346.21	346.70	---	346.27	346.21	---	345.87	---
22	343.22	346.00	345.81	346.04	346.20	346.48	346.31	346.25	346.21	---	345.84	---
23	343.04	345.88	345.93	346.41	346.34	346.37	346.30	346.25	346.21	346.06	345.82	---
24	342.92	345.84	345.89	346.33	346.56	346.32	346.27	346.24	346.26	346.05	345.78	342.99
25	344.30	345.82	346.14	346.27	346.38	346.28	346.24	346.24	346.20	346.03	345.69	342.93
26	344.99	345.83	345.97	346.19	346.31	346.26	346.29	346.22	346.37	346.03	345.59	342.95
27	345.38	345.80	345.97	346.17	346.28	346.25	346.29	346.21	346.36	346.02	345.45	342.89
28	345.37	345.81	345.96	346.43	346.27	346.24	346.24	346.19	346.25	346.00	345.28	342.83
29	345.10	345.81	345.96	346.31	---	346.23	346.22	346.19	346.24	346.00	345.16	342.79
30	344.69	345.84	346.06	346.24	---	346.24	346.23	346.22	346.25	346.00	345.06	342.75
31	344.36	---	345.95	346.18	---	346.24	---	346.18	---	346.23	344.95	---
MEAN	343.47	345.74	345.86	346.14	346.25	346.33	346.32	346.35	346.25	346.12	345.79	343.90
MAX	345.38	346.24	346.14	346.43	346.56	346.70	346.53	346.79	346.62	346.49	346.06	345.22
MIN	342.45	344.29	345.79	345.92	346.13	346.16	346.22	346.18	346.08	346.00	344.95	342.75

WTR YR 1998: HIGHEST 346.79, MAY 12; LOWEST 342.45, OCTOBER 14.



LANCASTER COUNTY

395947076145902. Local number, LN 2038--Continued

WATER-QUALITY RECORDS

REMARKS.--Samples collected with peristaltic pump from recovery water after well pumped dry. Some concentrations for dissolved orthophosphorus (mg/L as P) exceed values for the corresponding concentrations of dissolved phosphorus (mg/L as P). These results are within the limits of analytical precision and methods. From November 1993 through September 1997, total alkalinity data were published as parameter code 90430. Due to a change in the parameter code description, total alkalinity data are now published as parameter code 39087. The analytical method to measure total alkalinity has not changed for the period of record.

PERIOD OF RECORD.--November 1993 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET) (72019)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	OXYGEN, DIS- SOLVED (MG/L) (00300)	TEMPER- ATURE WATER (DEG C) (00010)
NOV 1997								
06...	1050	1028	80020	2.98	597	7.4	4.3	12.1
DEC								
15...	1140	1028	80020	2.04	655	7.6	2.4	8.3
JAN 1998								
14...	1015	1028	80020	1.84	809	7.2	1.8	7.6
FEB								
11...	0950	1028	80020	1.70	731	7.1	1.6	6.7
MAR								
16...	1115	1028	80020	1.66	652	7.1	1.5	6.9
APR								
21...	0940	1028	80020	1.47	745	7.0	1.3	10.6
MAY								
20...	0925	1028	1028	1.51	652	6.8	1.0	13.8
JUN								
18...	1010	1028	80020	1.53	782	7.1	1.0	15.0
JUL								
21...	0940	1028	80020	1.78	700	6.7	.6	17.5
AUG								
19...	0940	1028	80020	1.90	752	7.0	1.6	19.4
SEP								
17...	0940	1028	80020	4.54	745	6.9	.1	21.3

DATE		STREP- TOCOCCEI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA- LINITY WAT DIS TOT IT LAB (MG/L AS CACO3) (39087)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
NOV 1997									
06...	500	206	--	4.08	--	--	--	--	--
DEC									
15...	39	232	--	15.7	--	--	--	--	--
JAN 1998									
14...	600	226	.030	21.8	<.020	.34	<.010	.034	
FEB									
11...	3900	222	--	19.8	--	--	--	--	--
MAR									
16...	K34	228	--	14.9	--	--	--	--	--
APR									
21...	380	236	.080	10.2	.028	.34	.012	.016	
MAY									
20...	K11	238	--	--	--	--	--	--	--
JUN									
18...	92	262	--	8.20	--	--	--	--	--
JUL									
21...	K0	260	.123	9.83	.022	.26	<.010	.027	
AUG									
19...	K130	257	--	7.30	--	--	--	--	--
SEP									
17...	57	280	--	10.4	--	--	--	--	--

LANCASTER COUNTY

395947076145903. Local number, LN 2039.

LOCATION.--Lat 39°59'47", long 76°14'59", Hydrologic Unit 02050306, 50 ft upstream from box culvert on Mentzer Road, 0.2 mi north of the intersection with SR 741, and 0.5 mi northwest of Lampeter.
Owner: U.S. Geological Survey.

AQUIFER.--Limestone of the Cambro-Ordovician age Conestoga Formation.

WATER-LEVEL RECORDS

WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in. steel, depth 63 ft, cased to 19 ft, open hole.

INSTRUMENTATION.--Pressure transducer and data logger with 60-minute recording interval.

DATUM.--Land-surface datum is 348.18 ft (revised) above sea level. Measuring point: Top of casing, 3.3 ft above land-surface datum.

REMARKS.--In addition to the daily mean water levels shown below, daily maximum and minimum water levels are also available from the District Office.

PERIOD OF RECORD.--June 1994 to current year.

REVISIONS.--Daily mean elevations published for water years 1994, 1995, 1996, and 1997 have been revised. Revised records are available from the District Office.

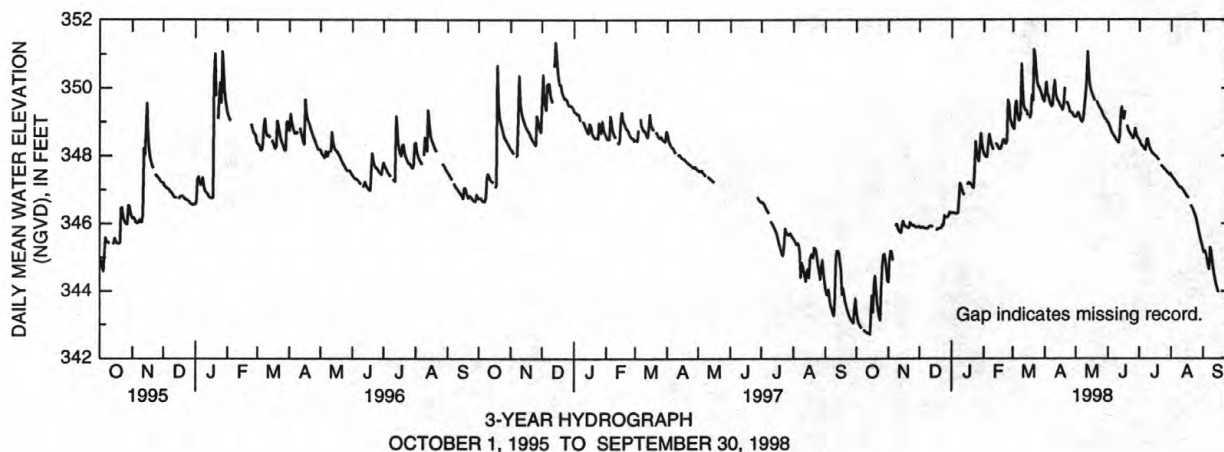
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily mean water level elevation for the period of record indicated above.

Highest water level, 351.35 ft, Dec. 14, 1996; lowest water level, 342.71 ft, Oct. 14, 1997.

ELEVATION (FEET ABOVE SEA LEVEL), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	343.41	344.28	345.92	346.31	348.05	348.83	349.87	349.14	348.97	348.45	347.41	345.21
2	343.18	344.98	345.88	346.33	348.00	348.79	350.18	349.23	348.89	348.37	347.37	345.15
3	343.05	345.20	345.89	346.33	347.97	349.44	349.81	349.28	348.80	348.32	347.33	345.20
4	342.98	345.18	345.91	346.31	347.97	349.62	349.77	349.20	348.72	348.29	347.29	345.09
5	342.94	344.92	345.89	346.30	348.37	349.25	349.61	349.08	348.66	348.24	347.24	344.92
6	342.90	---	345.88	346.31	348.64	349.10	349.52	349.02	348.61	348.21	347.20	344.78
7	---	---	345.86	346.32	348.49	349.04	349.46	349.00	348.56	348.17	347.15	344.65
8	342.84	345.94	345.86	346.76	348.36	349.19	349.51	349.14	348.51	348.46	347.11	345.30
9	342.81	346.00	345.87	347.19	348.25	350.72	349.98	349.48	348.45	348.50	347.08	345.21
10	342.79	345.87	345.91	347.08	348.19	350.00	350.23	349.79	348.42	348.34	347.06	344.92
11	342.77	345.80	345.93	346.98	---	349.50	349.85	350.19	348.38	348.23	347.05	344.67
12	342.75	345.76	345.92	346.90	348.36	349.38	349.71	351.09	348.59	348.16	347.00	344.48
13	342.73	345.73	345.92	346.85	348.35	349.34	349.63	350.51	349.25	348.11	346.96	344.32
14	342.71	345.99	345.92	---	348.30	349.33	349.60	350.12	349.44	348.07	346.91	344.19
15	343.29	346.07	---	---	348.23	349.19	349.52	349.97	349.18	348.04	346.86	344.07
16	343.87	345.98	---	347.15	348.20	---	349.46	349.87	349.09	348.01	346.80	343.97
17	343.37	345.93	345.83	347.22	348.22	349.11	349.42	349.78	349.32	347.99	346.78	---
18	344.20	345.92	345.83	347.21	348.31	349.22	349.35	349.69	---	347.94	346.77	---
19	344.45	345.90	345.85	347.18	348.44	349.79	349.53	349.63	348.89	347.91	---	---
20	344.07	345.88	345.87	347.14	348.49	349.62	350.02	---	348.81	347.87	346.54	---
21	343.66	345.89	345.87	347.09	348.42	351.14	---	349.62	348.72	---	346.48	---
22	343.42	346.04	345.88	347.05	348.35	350.95	349.59	349.51	348.66	347.72	346.42	---
23	343.24	345.99	345.97	347.58	348.43	350.53	349.52	349.46	348.61	347.69	346.34	---
24	343.13	345.96	345.95	348.42	349.65	350.22	349.43	349.40	348.57	347.66	346.27	343.55
25	344.16	345.94	346.24	348.11	349.50	350.06	349.30	349.36	348.51	347.62	346.17	343.50
26	344.74	345.95	346.20	347.94	349.13	350.03	349.28	349.28	348.62	347.59	346.03	343.50
27	345.09	345.90	346.19	347.84	348.98	349.94	349.28	349.20	348.81	347.55	345.88	343.44
28	345.11	345.91	346.20	348.21	348.89	349.85	349.20	349.14	348.62	347.52	345.73	---
29	344.91	345.90	346.23	348.66	---	349.74	349.16	349.10	348.54	347.48	345.59	---
30	344.60	345.92	346.35	348.37	---	349.66	349.14	349.06	348.51	347.44	345.47	343.27
31	344.32	---	346.33	348.17	---	349.60	---	349.00	---	347.48	345.34	---
MEAN	343.58	345.74	345.98	347.22	348.46	349.67	349.58	349.51	348.75	347.98	346.65	344.45
MAX	345.11	346.07	346.35	348.66	349.65	351.14	350.23	351.09	349.44	348.50	347.41	345.30
MIN	342.71	344.28	345.83	346.30	347.97	348.79	349.14	349.00	348.38	347.44	345.34	343.27

WTR YR 1998: HIGHEST 351.14, MARCH 21; LOWEST 342.71, OCTOBER 14.



LANCASTER COUNTY

395947076145903. Local number, LN 2039--Continued

WATER-QUALITY RECORDS

REMARKS.--Samples collected with submersible pump from recovery water after well was pumped more than 3 times casing volume. Some concentrations for dissolved orthophosphorus (mg/L as P) exceed values for the corresponding concentrations of dissolved phosphorus (mg/L as P). From November 1993 through September 1997, total alkalinity data were published as parameter code 90430. Due to a change in the parameter code description, total alkalinity data are now published as parameter code 39087. The analytical method to measure total alkalinity has not changed for the period of record.

PERIOD OF RECORD.--November 1993 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET) (72019)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	OXYGEN, DIS- SOLVED (MG/L) (00300)	TEMPER- ATURE WATER (DEG C) (00010)
OCT 1997								
07...	0935	1028	80020	5.31	832	7.1	7.8	12.1
NOV								
06...	1100	1028	80020	3.47	775	7.1	4.9	12.3
DEC								
15...	1155	1028	80020	2.29	695	7.4	5.3	12.3
JAN 1998								
14...	1035	1028	80020	1.40	--	--	--	--
FEB								
11...	1005	1028	80020	.01	775	6.6	8.0	11.8
MAR								
16...	1135	1028	80020	-.94	703	6.3	8.4	11.9
APR								
21...	1000	1028	80020	-1.59	800	6.5	7.6	12.0
21...	1001	1028	80020	--	--	--	--	--
MAY								
20...	0940	1028	1028	-1.39	719	6.8	6.9	12.1
JUN								
18...	0955	1028	80020	-1.01	836	7.1	7.5	12.1
JUL								
21...	1000	1028	80020	.35	753	6.9	6.7	12.1
AUG								
19...	0955	1028	80020	1.45	851	6.9	6.4	12.1
SEP								
17...	0935	1028	80020	4.29	795	6.9	6.9	12.1

DATE		STREP- TOCOCCEI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA- LINITY WAT DIS TOT IT LAB (MG/L AS CACO3) (39087)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N) (00623)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
OCT 1997									
07...	K0	262	<.010	17.9	.019	<.20	<.010	<.010	
NOV									
06...	K2	262	--	17.9	--	--	--	--	--
DEC									
15...	K0	252	--	18.3	--	--	--	--	--
JAN 1998									
14...	K0	283	<.010	22.2	<.020	.12	<.010	.011	
FEB									
11...	K0	254	--	27.0	--	--	--	--	--
MAR									
16...	K0	256	--	24.2	--	--	--	--	--
APR									
21...	K1	258	<.010	19.0	.030	<.10	<.010	<.010	
21...	--	--	<.010	18.8	.027	<.10	<.010	<.010	
MAY									
20...	K0	254	--	--	--	--	--	--	--
JUN									
18...	K2	258	--	17.8	--	--	--	--	--
JUL									
21...	K3	268	<.010	18.1	<.020	.12	<.010	.014	
AUG									
19...	K1	270	--	9.25	--	--	--	--	--
SEP									
17...	K4	274	--	12.4	--	--	--	--	--

LANCASTER COUNTY

395947076145904. Local number, LN 2040.

LOCATION.--Lat 39°59'47", long 76°14'59", Hydrologic Unit 02050306, 50 ft upstream from box culvert on Mentzer Road, 0.2 mi north of the intersection with SR 741, and 0.5 mi northwest of Lampeter.
 Owner: U.S. Geological Survey.
 AQUIFER.--Quaternary age alluvium.

WATER-LEVEL RECORDS

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in. PVC, depth 7.6 ft, cased to 7.6 ft, closed end, screened from 5 to 6 ft.

INSTRUMENTATION.--Pressure transducer and data logger with 60-minute recording interval.

DATUM.--Land-surface datum is 348.26 (revised) ft above sea level. Measuring point: Top of casing, 1.63 ft above land-surface datum.

REMARKS.--In addition to the daily mean water levels shown below, daily maximum and minimum water levels are also available from the District Office.

PERIOD OF RECORD.--June 1994 to current year.

REVISIONS.--Daily mean elevations published for water years 1994, 1995, 1996, and 1997 have been revised. Revised records are available from the District Office.

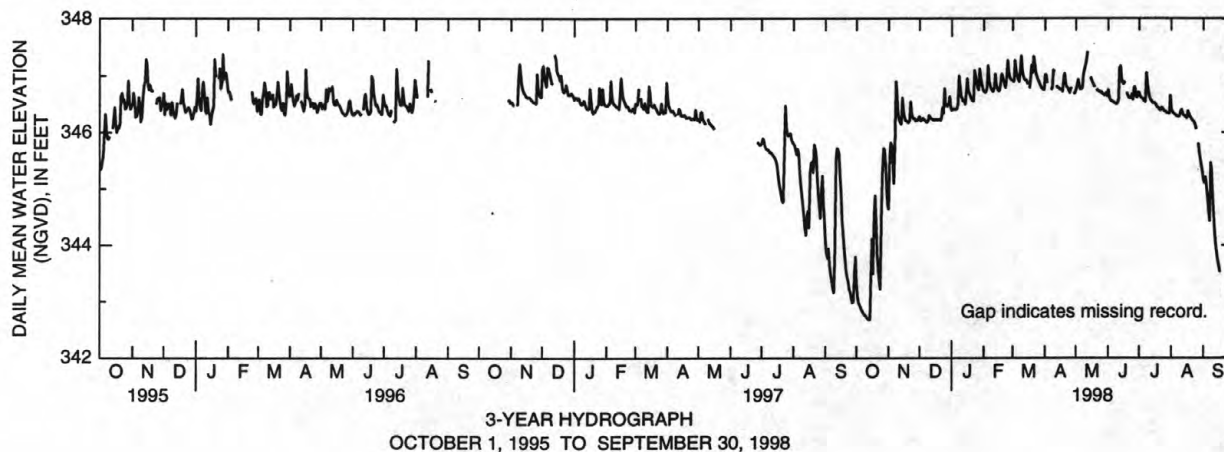
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily mean water level elevation for the period of record indicated above.

Highest water level, 347.42 ft, May 12, 1998; lowest water level, 342.68 ft, Oct. 13, 1997.

ELEVATION (FEET ABOVE SEA LEVEL), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	343.33	344.64	346.28	346.39	346.72	346.91	347.02	346.75	346.75	346.70	346.42	345.16
2	343.08	345.60	346.20	346.40	346.71	346.90	347.02	346.84	346.62	346.63	346.36	345.11
3	342.98	345.82	346.22	346.42	346.71	347.27	346.87	346.93	346.57	346.61	346.34	345.21
4	342.93	345.77	346.25	346.40	346.79	347.08	---	346.84	346.55	346.60	346.32	345.06
5	342.89	345.40	346.23	346.40	347.18	346.99	---	346.76	346.55	346.57	346.31	344.85
6	342.85	345.10	346.21	346.42	346.92	346.93	---	346.79	346.53	346.55	346.29	344.64
7	342.81	345.89	346.19	346.50	346.83	346.90	346.75	346.77	346.52	346.54	346.28	344.43
8	342.78	346.90	346.18	347.00	346.77	347.09	346.80	347.01	346.51	347.05	346.28	345.46
9	342.76	346.65	346.20	346.82	346.74	347.35	347.10	347.11	346.50	346.86	346.29	345.34
10	342.74	346.34	346.30	346.64	346.72	347.09	347.07	347.18	346.52	346.71	346.37	344.94
11	342.71	346.22	346.27	346.60	346.79	346.99	---	347.27	346.58	346.62	346.40	344.58
12	342.69	346.18	346.24	346.55	347.03	346.94	346.82	347.42	347.13	346.57	346.33	344.25
13	342.68	346.15	346.24	346.56	346.83	346.92	346.79	---	347.17	346.55	346.30	344.03
14	342.68	346.61	346.22	346.50	346.77	346.93	346.79	---	346.94	346.52	346.29	343.87
15	343.45	346.41	346.21	346.71	346.73	346.85	346.76	346.97	346.87	346.52	346.27	343.74
16	344.11	346.28	346.23	346.95	346.73	---	346.76	346.92	346.85	346.52	346.25	343.63
17	343.49	346.21	346.23	346.72	346.85	346.78	346.75	346.87	346.90	346.49	346.38	343.52
18	344.58	346.20	346.21	346.70	347.03	346.95	346.72	346.83	---	346.45	346.33	---
19	344.88	346.19	346.23	346.64	346.99	347.19	346.98	346.80	346.70	346.44	346.28	---
20	344.35	346.17	346.23	346.59	346.91	347.05	347.04	---	346.65	346.42	346.25	---
21	343.84	346.21	346.21	346.56	346.83	347.34	346.85	346.76	346.61	346.39	346.22	---
22	343.55	346.54	346.24	346.55	346.79	347.19	346.80	346.73	346.60	346.39	346.20	---
23	343.35	346.33	346.43	347.09	347.00	347.05	346.78	346.73	346.61	346.44	346.18	---
24	343.22	346.26	346.33	347.00	347.27	346.99	346.74	346.71	346.68	346.41	346.13	343.22
25	344.55	346.24	346.77	346.90	347.06	346.93	346.70	346.72	346.58	346.38	346.06	343.16
26	345.29	346.25	346.47	346.78	346.97	346.90	346.78	346.69	346.80	346.38	---	343.16
27	345.72	346.20	346.49	346.75	346.93	346.84	346.77	346.68	346.79	346.36	345.81	343.11
28	345.69	346.22	346.46	347.12	346.92	346.81	---	346.66	346.63	346.34	345.65	---
29	345.43	346.21	346.47	346.96	---	346.77	346.68	346.66	346.62	346.34	345.52	---
30	345.00	346.27	346.63	346.85	---	346.76	346.70	346.70	346.71	346.33	345.42	342.96
31	344.71	---	346.44	346.76	---	346.75	---	346.64	---	346.65	345.30	---
MEAN	343.71	346.12	346.31	346.68	346.88	346.98	346.83	346.85	346.69	346.53	346.16	344.25
MAX	345.72	346.90	346.77	347.12	347.27	347.35	347.10	347.42	347.17	347.05	346.42	345.46
MIN	342.68	344.64	346.18	346.39	346.71	346.75	346.68	346.64	346.50	346.33	345.30	342.96

WTR YR 1998: HIGHEST 347.42, MAY 12; LOWEST 342.68, OCTOBER 13, 14.



LANCASTER COUNTY

395947076145904. Local number, LN 2040--Continued

WATER-QUALITY RECORDS

REMARKS.--Samples collected with peristaltic pump from recovery water after well was pumped more than 3 times casing volume. Some concentrations for dissolved orthophosphorus (mg/L as P) exceed values for the corresponding concentrations of dissolved phosphorus (mg/L as P). These results are within the limits of analytical precision and methods. From November 1993 through September 1997, total alkalinity data were published as parameter code 90430. Due to a change in the parameter code description, total alkalinity data are now published as parameter code 39087. The analytical method to measure total alkalinity has not changed for the period of record.

PERIOD OF RECORD.--November 1993 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY	AGENCY	DEPTH	SPE-	PH	OXYGEN,	TEMPER-
		COL- LECTING SAMPLE (CODE NUMBER) (00027)	ANA- LYZING SAMPLE (CODE NUMBER) (00028)	BELOW LAND SURFACE (WATER LEVEL) (FEET) (72019)	CIFIC CON- DUCT- ANCE (μS/CM) (00095)	WATER WHOLE FIELD (STAND- ARD UNITS) (00400)		
OCT 1997								
07...	0930	1028	80020	5.45	787	7.0	5.7	17.2
NOV								
06...	1045	1028	80020	3.13	703	7.1	4.4	13.9
DEC								
15...	1145	1028	80020	2.05	718	7.4	2.0	8.8
JAN 1998								
14...	1020	1028	80020	1.80	847	7.1	1.9	7.4
FEB								
11...	1000	1028	80020	1.56	752	6.9	1.2	6.3
MAR								
16...	1125	1028	80020	1.45	676	7.0	2.1	6.7
APR								
21...	0950	1028	80020	1.37	767	7.0	1.1	10.5
MAY								
20...	0930	1028	1028	1.44	691	6.7	.3	13.3
JUN								
18...	1000	1028	80020	1.49	797	7.0	.9	15.0
JUL								
21...	0955	1028	80020	1.82	717	6.9	1.1	19.0
AUG								
19...	0950	1028	80020	1.96	802	6.9	1.4	19.8
SEP								
17...	0945	1028	80020	4.72	760	6.9	2.7	19.3
		</						

LANCASTER COUNTY

395957076155201. Local number, LN 2041.

LOCATION.--Lat 39°59'57", long 76°15'52", Hydrologic Unit 02050306, 40 ft upstream from bridge at intersection of Gypsy Hill Road and Long Rifle Road, and 1.5 mi north of Willow Street.

Owner: U.S. Geological Survey.

AQUIFER.--Quaternary age alluvium.

WATER-LEVEL RECORDS

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in. PVC, depth 6 ft, cased to 6 ft, closed end, screened from 3.5 to 4.5 ft.

INSTRUMENTATION.--Pressure transducer and data logger with 60-minute recording interval.

DATUM.--Land-surface datum is 294.78 ft above sea level. Measuring point: Top of casing, 1.7 ft above land-surface datum.

REMARKS.--In addition to the daily mean water levels shown below, daily maximum and minimum water levels are also available from the District Office.

PERIOD OF RECORD.--November 1993 to September 1997, August 1998 to current year.

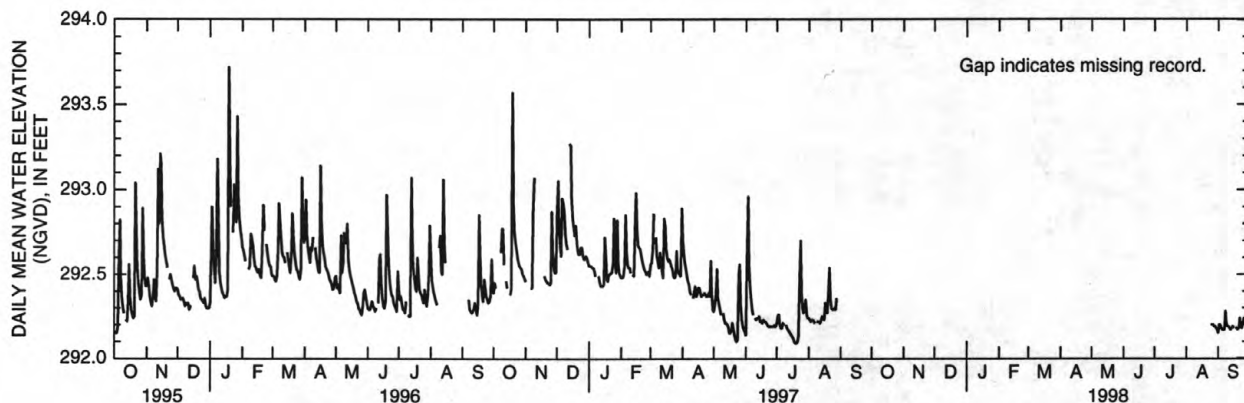
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily mean water level elevation for the period of record indicated above.

Highest water level, 293.72 ft, Jan. 19, 1996; lowest water level, 291.94 ft, Sept. 2,3,4,6,7,8, 1995.

ELEVATION (FEET ABOVE SEA LEVEL), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	292.15
2	---	---	---	---	---	---	---	---	---	---	---	292.20
3	---	---	---	---	---	---	---	---	---	---	---	292.20
4	---	---	---	---	---	---	---	---	---	---	---	292.18
5	---	---	---	---	---	---	---	---	---	---	---	292.17
6	---	---	---	---	---	---	---	---	---	---	---	292.17
7	---	---	---	---	---	---	---	---	---	---	---	292.17
8	---	---	---	---	---	---	---	---	---	---	---	292.28
9	---	---	---	---	---	---	---	---	---	---	---	292.21
10	---	---	---	---	---	---	---	---	---	---	---	292.19
11	---	---	---	---	---	---	---	---	---	---	---	292.19
12	---	---	---	---	---	---	---	---	---	---	---	292.18
13	---	---	---	---	---	---	---	---	---	---	---	292.17
14	---	---	---	---	---	---	---	---	---	---	---	292.18
15	---	---	---	---	---	---	---	---	---	---	---	292.19
16	---	---	---	---	---	---	---	---	---	---	---	292.18
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	292.18
19	---	---	---	---	---	---	---	---	---	---	---	292.18
20	---	---	---	---	---	---	---	---	---	---	---	292.17
21	---	---	---	---	---	---	---	---	---	---	---	292.18
22	---	---	---	---	---	---	---	---	---	---	---	292.24
23	---	---	---	---	---	---	---	---	---	---	---	292.19
24	---	---	---	---	---	---	---	---	---	---	---	292.18
25	---	---	---	---	---	---	---	---	---	---	292.20	292.21
26	---	---	---	---	---	---	---	---	---	---	292.20	292.24
27	---	---	---	---	---	---	---	---	---	---	292.20	292.21
28	---	---	---	---	---	---	---	---	---	---	292.19	292.20
29	---	---	---	---	---	---	---	---	---	---	292.19	292.19
30	---	---	---	---	---	---	---	---	---	---	292.18	292.21
31	---	---	---	---	---	---	---	---	---	---	292.17	---
MEAN	---	---	---	---	---	---	---	---	---	---	292.19	292.19
MAX	---	---	---	---	---	---	---	---	---	---	292.20	292.28
MIN	---	---	---	---	---	---	---	---	---	---	292.17	292.15

WTR YR 1998: HIGHEST RECORDED 292.28, SEPTEMBER 8; LOWEST RECORDED 292.15, SEPTEMBER 1.



3-YEAR HYDROGRAPH
OCTOBER 1, 1995 TO SEPTEMBER 30, 1998

LANCASTER COUNTY

395957076155201. Local number, LN 2041--Continued

WATER-QUALITY RECORDS

REMARKS.--Samples collected with peristaltic pump from recovery water after well pumped dry. The water-quality data for this well may be affected by problems associated with the initial construction of the well. Data are anomalous relative to other ground-water wells within the vicinity. The analytical values were verified, indicating that the data reflect actual values. From November 1993 through September 1997, total alkalinity data were published as parameter code 90430. Due to a change in the parameter code description, total alkalinity data are now published as parameter code 39087. The analytical method to measure total alkalinity has not changed for the period of record.

PERIOD OF RECORD.--November 1993 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET) (72019)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	OXYGEN, DIS- SOLVED (MG/L) (00300)	TEMPER- ATURE WATER (DEG C) (00010)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA- LINITY WAT DIS TOT IT LAB (MG/L AS CACO3) (39087)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
OCT 1997											
07...	0800	1028	80020	2.55	707	6.7	4.7	15.4	230	318	<.010
NOV											
06...	0910	1028	80020	2.42	1430	6.5	3.6	10.8	K15000	444	--
DEC											
15...	1020	1028	80020	2.50	1100	7.3	8.6	6.4	K30000	394	--
JAN 1998											
14...	0850	1028	80020	2.38	480	6.5	2.3	7.0	6300	396	.079
DATE		NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N) (00623)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SILICA, DIS- SOLVED (MG/L AS SiO2) (00955)	ALUM- INUM, DIS- SOLVED (μ G/L AS AL) (01106)
OCT 1997											
07...		.301	.595	.97	.214	.208	95	16	24	14	15
NOV											
06...		3.26	--	--	--	--	--	--	--	--	--
DEC											
15...		.433	--	--	--	--	--	--	--	--	--
JAN 1998											
14...		12.5	<.020	2.8	2.01	1.89	--	--	--	--	--

LANCASTER COUNTY

395957076155202. Local number, LN 2042.

LOCATION.--Lat 39°59'57", long 76°15'52", Hydrologic Unit 02050306, 40 ft upstream from bridge at intersection of Gypsy Hill Road and Long Rifle Road, and 1.5 mi north of Willow Street.

Owner: U.S. Geological Survey.

AQUIFER.--Quaternary age alluvium.

WATER-LEVEL RECORDS

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in. PVC, depth 12 ft, cased to 12 ft, closed end, screened from 9 to 10 ft.

INSTRUMENTATION.--Pressure transducer and data logger with 60-minute recording interval.

DATUM.--Land-surface datum is 294.75 ft above sea level. Measuring point: Top of casing, 1.85 ft above land-surface datum.

REMARKS.--In addition to the daily mean water levels shown below, daily maximum and minimum water levels are also available from the District Office.

PERIOD OF RECORD.--November 1993 to current year.

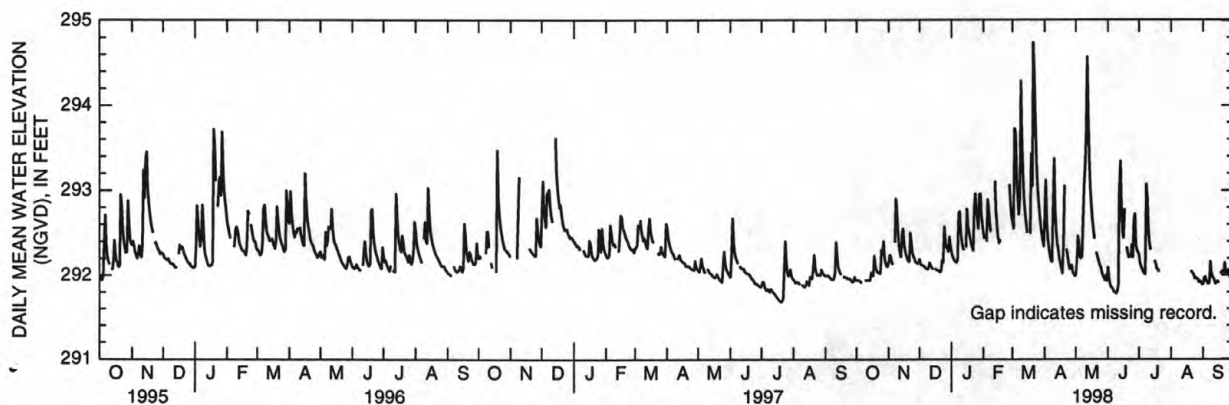
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily mean water level elevation for the period of record indicated above.

Highest water level, 294.74 ft, Mar. 21, 1998; lowest water level, 291.67 ft, Sept. 7, 8, 1995.

ELEVATION (FEET ABOVE SEA LEVEL), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	291.94	292.16	292.19	292.27	292.49	292.63	292.72	292.00	292.09	292.24	---	291.89
2	291.94	292.24	292.13	292.23	292.43	292.55	293.12	292.18	291.97	292.14	---	291.97
3	291.94	292.23	292.12	292.20	---	293.73	292.62	292.46	291.89	292.10	---	291.98
4	291.93	292.15	292.12	292.17	292.40	293.66	292.43	292.39	291.86	292.07	---	291.94
5	291.92	292.13	292.11	292.16	292.89	293.16	292.31	292.21	291.85	292.04	---	291.91
6	291.92	---	292.10	292.15	292.79	292.89	292.24	292.20	291.83	292.02	---	291.90
7	---	292.39	292.08	292.20	292.61	292.72	292.17	292.22	291.80	292.01	---	291.91
8	---	292.90	292.08	292.73	292.51	292.88	292.16	292.64	291.80	293.07	---	292.16
9	291.94	292.77	292.07	292.75	---	294.29	292.79	293.07	291.78	292.92	---	292.03
10	291.94	292.52	292.10	292.51	292.27	293.65	293.37	293.29	291.81	292.53	---	291.98
11	291.94	292.36	292.15	292.41	---	293.19	292.77	293.65	291.88	292.38	---	291.97
12	291.94	292.27	292.11	292.34	293.11	292.92	292.52	294.57	292.98	292.30	---	291.93
13	291.94	292.22	292.09	292.30	292.76	292.74	292.38	293.93	293.34	---	---	291.90
14	291.94	292.51	292.07	---	292.57	292.63	292.30	293.34	292.83	---	---	291.92
15	292.03	292.55	---	292.33	292.45	292.50	292.20	293.02	292.52	---	---	291.93
16	292.01	292.38	292.08	292.78	292.38	---	292.13	292.80	292.44	292.17	---	291.91
17	291.99	292.29	292.07	292.57	292.42	---	292.08	292.64	292.78	292.14	---	---
18	292.23	292.24	292.06	292.51	---	292.49	292.02	292.52	---	292.08	---	292.02
19	292.12	292.20	292.06	292.44	---	293.43	292.36	292.43	292.33	292.07	---	292.04
20	292.07	292.17	292.05	292.37	---	293.05	293.06	---	292.27	292.04	292.05	292.05
21	292.04	292.16	292.04	292.33	---	294.74	---	292.27	292.21	---	292.04	292.02
22	292.03	292.50	292.05	292.29	---	294.31	292.31	292.21	292.22	---	292.02	292.15
23	292.03	292.38	292.18	292.79	---	293.82	292.23	292.17	292.22	---	292.00	292.06
24	292.02	292.27	292.15	292.96	---	293.34	292.14	292.12	292.36	---	291.96	292.02
25	292.30	292.22	292.57	292.78	---	293.05	292.07	292.10	292.21	---	291.97	292.06
26	292.26	292.20	292.41	292.64	293.07	292.88	292.08	292.04	292.65	---	291.96	292.06
27	292.40	292.16	292.33	292.55	292.84	292.72	292.12	292.00	292.72	---	291.95	291.99
28	292.20	292.15	292.32	292.95	292.69	292.60	292.03	291.97	292.37	---	291.92	291.95
29	292.14	292.14	292.28	292.96	---	292.49	292.01	291.94	292.29	---	291.93	291.94
30	292.11	292.15	292.45	292.72	---	292.41	291.99	292.00	292.27	---	291.92	291.96
31	292.10	---	292.36	292.58	---	292.34	---	291.93	---	---	291.89	---
MEAN	292.05	292.31	292.17	292.50	292.63	293.10	292.37	292.54	292.26	292.25	291.97	291.98
MAX	292.40	292.90	292.57	292.96	293.11	294.74	293.37	294.57	293.34	293.07	292.05	292.16
MIN	291.92	292.13	292.04	292.15	292.27	292.34	291.99	291.93	291.78	292.01	291.89	291.89

WTR YR 1998: HIGHEST 294.74, MARCH 21; LOWEST 291.78, JUNE 9.



3-YEAR HYDROGRAPH
OCTOBER 1, 1995 TO SEPTEMBER 30, 1998

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1993 to current year.

DATE	TIME	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET) (72019)	SPE-CIFIC CON-DUCT-ANCE (μS/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	OXYGEN, DIS-SOLVED (MG/L) (00300)	TEMPER-ATURE WATER (DEG C) (00010)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA-LINITY WAT DIS TOT IT LAB (MG/L AS CAC03) (39087)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)
OCT 1997											
07...	0810	1028	80020	2.81	635	6.9	3.8	15.7	K0	266	<.010
NOV											
06...	0915	1028	80020	2.64	595	7.0	1.5	13.3	K0	267	--
DEC											
15...	1030	1028	80020	2.69	531	7.5	3.1	10.7	K4	270	--
JAN 1998											
14...	0900	1028	80020	2.50	595	7.3	5.8	8.8	K0	260	<.010
FEB											
11...	0825	1028	80020	2.37	570	6.5	2.8	8.4	K0	268	--
MAR											
16...	1005	1028	80020	2.33	546	7.2	3.9	8.5	K0	268	--
APR											
21...	0810	1028	80020	2.22	635	6.4	3.6	10.0	K0	267	<.010
MAY											
20...	0755	1028	1028	2.36	551	6.4	2.0	13.0	K1	254	--
JUN											
18...	0820	1028	80020	2.29	645	6.5	2.4	13.1	K2	256	--
JUL											
21...	0810	1028	80020	2.67	571	5.9	.9	14.7	110	266	<.010
AUG											
19...	0815	1028	80020	2.70	637	7.3	5.2	16.3	190	252	--
SEP											
17...	0810	1028	80020	2.77	598	7.1	.5	16.3	K1	272	--

[illegible]

LANCASTER COUNTY

395957076155203. Local number, LN 2043.

LOCATION.--Lat 39°59'57", long 76°15'52", Hydrologic Unit 02050306, 40 ft upstream from bridge at intersection of Gypsy Hill Road and Long Rifle Road, and 1.5 mi north of Willow Street.

Owner: U.S. Geological Survey.

AQUIFER.--Limestone of the Cambro-Ordovician age Conestoga Formation.

WATER-LEVEL RECORDS

WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in. steel, depth 100 ft, cased to 17 ft, open hole.

INSTRUMENTATION.--Pressure transducer and data logger with 60-minute recording interval.

DATUM.--Land-surface datum is 295.59 ft above sea level. Measuring point: Top of casing, 2.95 ft above land-surface datum.

REMARKS.--In addition to the daily mean water levels shown below, daily maximum and minimum water levels are also available from the District Office.

PERIOD OF RECORD.--November 1993 to current year.

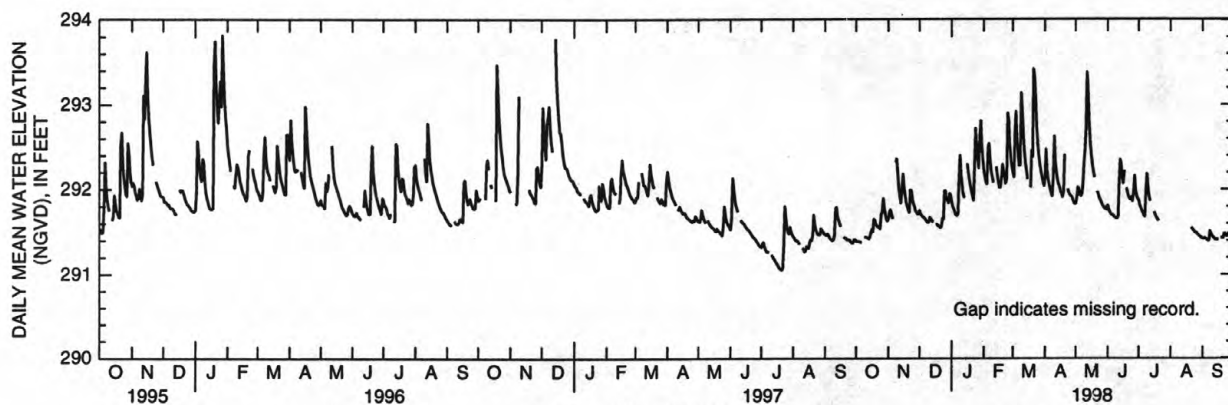
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily mean water level elevation for the period of record indicated above.

Highest water level, 293.82 ft, Jan. 27, 1996; lowest water level, 291.05 ft, July 21, 1997.

ELEVATION (FEET ABOVE SEA LEVEL), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	291.39	291.65	291.75	291.85	292.22	292.20	292.13	291.83	291.81	291.87	---	291.42
2	291.39	291.74	291.71	291.80	292.14	292.14	292.47	291.90	291.76	291.81	---	291.42
3	291.39	291.76	291.69	291.77	292.08	292.67	292.22	292.02	291.73	291.78	---	291.43
4	291.39	291.71	291.68	291.73	292.06	292.92	292.12	292.01	291.71	291.75	---	291.42
5	291.38	291.66	291.67	291.70	292.49	292.61	292.05	291.94	291.70	291.72	---	291.41
6	291.38	---	291.66	291.69	292.54	292.40	292.00	291.92	291.70	291.69	---	291.40
7	---	---	291.64	291.71	292.34	292.28	291.95	291.94	291.68	291.68	---	291.40
8	---	292.32	291.62	292.15	292.22	292.28	291.92	292.07	291.67	292.01	---	291.51
9	291.44	292.36	291.61	292.40	292.14	293.14	292.12	292.32	291.66	292.18	---	291.48
10	291.44	292.19	291.62	292.16	292.08	292.96	292.63	292.45	291.66	292.01	---	291.46
11	291.44	292.02	291.67	292.05	---	292.65	292.35	292.69	291.68	291.92	---	291.44
12	291.43	291.91	291.65	291.95	---	292.45	292.20	293.38	292.05	291.86	---	291.43
13	291.42	291.84	291.63	291.90	292.26	292.30	292.12	293.19	292.35	---	---	291.41
14	291.44	292.03	291.62	---	292.16	292.22	292.06	292.79	292.30	---	---	291.41
15	291.49	292.18	---	---	292.08	292.12	292.03	292.56	292.13	---	---	291.41
16	291.53	292.03	---	292.30	292.02	---	291.97	292.41	292.07	291.73	---	291.41
17	291.50	291.93	291.59	292.19	292.02	---	291.95	292.29	292.22	291.70	---	---
18	291.65	291.85	291.59	292.11	292.15	292.02	291.91	292.21	---	291.67	---	---
19	291.64	291.80	291.57	292.04	292.29	292.46	291.97	292.14	292.01	291.65	---	291.43
20	291.59	291.76	291.57	291.98	292.22	292.38	292.41	---	291.97	291.63	---	291.43
21	291.57	291.73	291.55	291.92	292.14	293.42	---	---	291.92	---	291.55	291.43
22	291.56	291.99	291.56	291.87	292.07	293.32	---	291.97	291.89	---	291.53	291.48
23	291.56	291.98	291.66	292.28	292.12	293.08	292.00	291.93	291.88	---	291.52	291.48
24	291.54	291.89	291.65	292.72	292.90	292.75	291.96	291.89	291.91	---	291.50	291.45
25	291.71	291.83	291.98	292.49	292.80	292.53	291.94	291.87	291.86	---	291.49	291.45
26	291.73	291.80	291.98	292.35	292.52	292.41	291.92	291.84	291.97	---	291.49	291.48
27	291.89	291.75	291.88	292.25	292.36	292.29	291.92	291.81	292.16	---	291.47	291.47
28	291.78	291.73	291.87	292.62	292.26	292.22	291.88	291.79	291.99	---	291.46	291.45
29	291.71	291.71	291.84	292.81	---	292.15	291.85	291.77	291.92	---	291.45	291.44
30	291.65	291.71	291.95	292.53	---	292.09	291.83	291.79	291.89	---	291.44	291.44
31	291.63	---	291.93	292.35	---	292.04	---	291.76	---	---	291.43	---
MEAN	291.54	291.89	291.70	292.13	292.26	292.50	292.07	292.15	291.91	291.80	291.48	291.44
MAX	291.89	292.36	291.98	292.81	292.90	293.42	292.63	293.38	292.35	292.18	291.55	291.51
MIN	291.38	291.65	291.55	291.69	292.02	292.02	291.83	291.76	291.66	291.63	291.43	291.40

WTR YR 1998: HIGHEST 293.42, MARCH 21; LOWEST 291.38, OCTOBER 5, 6.



3-YEAR HYDROGRAPH
OCTOBER 1, 1995 TO SEPTEMBER 30, 1998

LANCASTER COUNTY

395957076155203. Local number, LN 2043--Continued

WATER-QUALITY RECORDS

REMARKS.--Samples collected with submersible pump from recovery water after well pumped dry. Some concentrations for dissolved orthophosphorus (mg/L as P) exceed values for the corresponding concentrations of dissolved phosphorus (mg/L as P). From November 1993 through September 1997, total alkalinity data were published as parameter code 90430. Due to a change in the parameter code description, total alkalinity data are now published as parameter code 39087. The analytical method to measure total alkalinity has not changed for the period of record.

PERIOD OF RECORD.--November 1993 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET) (72019)	SPE-CIFIC CON-DUCT-ANCE (μS/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	OXYGEN, DIS-SOLVED (MG/L) (00300)	TEMPER-ATURE WATER (DEG C) (00010)
OCT 1997								
07...	0850	1028	80020	4.20	898	6.3	3.1	13.7
NOV								
06...	0950	1028	80020	3.94	781	6.9	2.2	13.8
DEC								
15...	1050	1028	80020	3.99	711	7.4	1.3	12.9
JAN 1998								
14...	0930	1028	80020	3.73	799	6.9	1.1	12.7
FEB								
11...	0900	1028	80020	3.55	767	6.6	3.7	12.7
MAR								
16...	1035	1028	80020	3.54	797	7.2	2.8	12.4
APR								
21...	0835	1028	80020	3.38	1030	6.5	.6	12.6
MAY								
20...	0825	1028	1028	3.50	943	6.8	.9	12.8
JUL								
21...	0835	1028	80020	3.97	842	6.4	2.5	14.1
AUG								
19...	0845	1028	80020	4.03	907	7.5	5.9	13.7
SEP								
17...	0840	1028	80020	4.17	874	7.1	1.3	14.2

DATE		STREP-TOCOCCEI, FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA-LINITY WAT DIS TOT IT LAB (MG/L AS CACO3) (39087)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)
OCT 1997									
07...	K3	332	<.010	1.63	.025	<.20	<.010	<.010	
NOV									
06...	K4	312	--	1.37	--	--	--	--	--
DEC									
15...	K0	322	--	2.44	--	--	--	--	--
JAN 1998									
14...	K0	320	<.010	3.13	<.020	.13	<.010	.014	
FEB									
11...	K0	286	--	4.21	--	--	--	--	--
MAR									
16...	K0	274	--	7.26	--	--	--	--	--
APR									
21...	K4	320	.010	9.44	.063	.25	<.010	<.010	
MAY									
20...	K0	320	--	--	--	--	--	--	--
JUL									
21...	K1	320	<.010	7.91	.262	.58	<.010	.013	
AUG									
19...	K2	318	--	3.36	--	--	--	--	--
SEP									
17...	K3	330	--	2.79	--	--	--	--	--

LANCASTER COUNTY

395957076155204. Local number, LN 2044.

LOCATION.--Lat 39°59'57", long 76°15'52", Hydrologic Unit 02050306, 40 ft upstream from bridge at intersection of Gypsy Hill Road and Long Rifle Road, and 1.5 mi north of Willow Street.

Owner: U.S. Geological Survey.

AQUIFER.--Quaternary age alluvium.

WATER-LEVEL RECORDS

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in. PVC, depth 8 ft, cased to 8 ft, closed end, screened from 5 to 6 ft.

INSTRUMENTATION.--Pressure transducer and data logger with 60-minute recording interval.

DATUM.--Land-surface datum is 296.84 ft above sea level. Measuring point: Top of casing, 1.95 ft above land-surface datum.

REMARKS.--In addition to the daily mean water levels shown below, daily maximum and minimum water levels are also available from the District Office.

PERIOD OF RECORD.--November 1993 to current year.

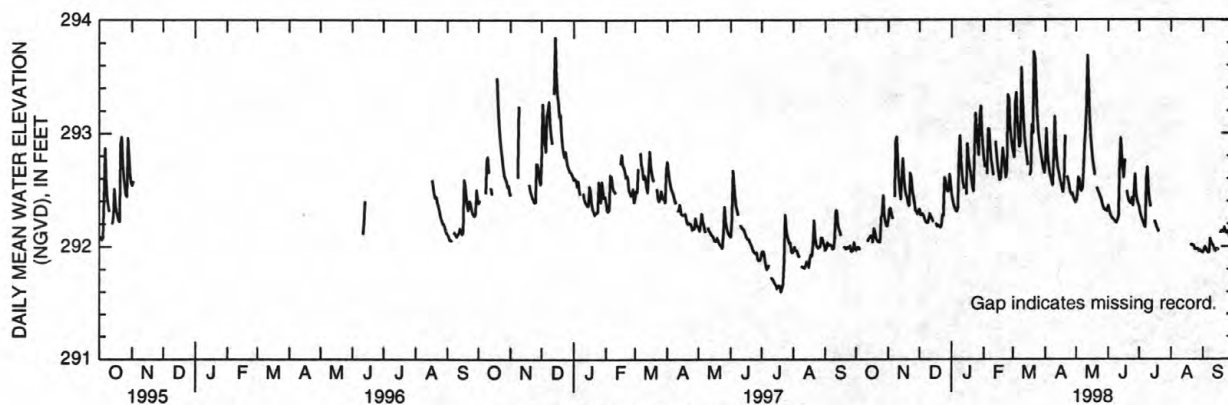
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily mean water level elevation for the period of record indicated above.

Highest water level, 293.85 ft, Dec. 14, 1996; lowest water level, 291.60 ft, July 20, 1997.

ELEVATION (FEET ABOVE SEA LEVEL), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	291.97	292.24	292.33	292.46	292.77	292.84	292.76	292.39	292.36	292.35	---	291.95
2	291.99	292.33	292.28	292.41	292.70	292.79	293.04	292.46	292.32	292.30	---	291.97
3	292.00	292.34	292.28	292.37	---	293.27	292.82	292.61	292.28	292.26	---	292.00
4	291.98	292.29	292.29	292.34	292.64	293.36	292.73	292.60	292.26	292.24	---	291.98
5	291.98	292.25	292.27	292.32	293.04	293.11	292.65	292.51	292.25	292.21	---	291.96
6	---	---	292.24	292.31	293.04	292.97	292.61	292.49	292.24	292.18	---	291.95
7	---	292.44	292.22	292.34	292.88	292.88	292.57	292.51	292.23	292.17	---	291.95
8	---	292.93	292.21	292.80	292.77	292.92	292.54	292.66	292.22	292.61	---	292.07
9	---	292.97	292.21	292.98	292.70	293.58	292.77	292.91	292.21	292.70	---	292.04
10	---	292.76	292.25	292.75	292.63	293.35	293.15	293.04	292.24	292.50	---	292.02
11	---	292.59	292.29	292.64	---	293.12	292.90	293.23	292.27	292.41	---	292.01
12	292.05	292.49	292.26	292.56	292.93	292.97	292.77	293.69	292.69	292.35	---	291.98
13	292.07	292.42	292.25	292.51	292.83	292.87	292.69	293.44	292.96	---	---	291.96
14	292.08	292.66	292.22	---	292.72	292.80	292.65	293.14	292.83	---	---	291.98
15	292.10	292.78	---	292.46	292.64	292.72	292.59	292.97	292.68	---	---	291.98
16	292.10	292.61	---	292.91	292.59	---	292.56	292.85	292.61	292.23	---	291.97
17	292.04	292.51	292.21	292.79	292.60	292.63	292.51	292.76	292.77	292.20	---	---
18	292.16	292.46	292.18	292.72	292.76	292.67	292.48	292.69	---	292.17	---	292.12
19	292.14	292.43	292.19	292.66	292.87	293.08	292.58	292.63	292.49	292.15	---	292.14
20	292.08	292.38	292.18	292.59	292.78	293.00	292.98	---	292.44	292.13	292.01	292.14
21	292.06	292.36	292.17	292.53	292.68	293.72	---	292.52	292.40	---	292.02	292.13
22	292.05	292.65	292.18	292.49	292.61	293.66	292.62	292.49	292.39	---	292.01	292.17
23	292.04	292.61	292.28	292.87	292.68	293.43	292.58	292.47	292.38	---	292.01	292.14
24	292.04	292.50	292.27	293.18	293.34	293.18	292.53	292.44	292.43	---	291.98	292.12
25	292.26	292.45	292.61	293.03	293.30	293.03	292.48	292.42	292.36	---	291.98	292.13
26	292.28	292.39	292.59	292.90	293.08	292.94	292.46	292.38	292.50	---	291.98	292.14
27	292.45	292.32	292.52	292.81	292.96	292.86	292.47	292.35	292.64	---	291.98	292.09
28	292.28	292.31	292.49	293.14	292.88	292.80	292.43	292.33	292.47	---	291.96	292.06
29	292.22	292.29	292.49	293.24	---	292.74	292.41	292.32	292.41	---	291.97	292.07
30	292.19	292.32	292.64	293.02	---	292.69	292.39	292.33	292.38	---	291.96	292.08
31	292.18	---	292.56	292.87	---	292.65	---	292.31	---	---	291.95	---
MEAN	292.11	292.49	292.32	292.70	292.82	293.02	292.65	292.66	292.44	292.30	291.98	292.04
MAX	292.45	292.97	292.64	293.24	293.34	293.72	293.15	293.69	292.96	292.70	292.02	292.17
MIN	291.97	292.24	292.17	292.31	292.59	292.63	292.39	292.31	292.21	292.13	291.95	291.95

WTR YR 1998: HIGHEST 293.72, MARCH 21; LOWEST 291.95, AUGUST 31, SEPTEMBER 1, 6, 7.



3-YEAR HYDROGRAPH
OCTOBER 1, 1995 TO SEPTEMBER 30, 1998

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1993 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET) (72019)	SPECIFIC CONDUCTANCE (μS/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	OXYGEN, DISSOLVED (MG/L) (00300)	TEMPERATURE WATER (DEG C) (00010)	STREPTOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKALINITY, WATER DIS TOT IT LAB (MG/L AS CaCO3) (39087)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)
OCT 1997											
07...	0820	1028	80020	4.84	660	6.9	3.0	16.7	K1	268	<.010
07...	0821	1028	80020	--	--	--	--	--	--	--	<.010
NOV											
06...	0945	1028	80020	4.59	595	7.1	5.0	14.6	K8	262	--
DEC											
15...	1035	1028	80020	4.64	532	7.4	4.2	10.1	K0	266	--
JAN 1998											
14...	0910	1028	80020	4.39	600	7.1	4.1	8.9	K1	264	<.010
14...	0911	1028	80020	--	--	--	--	--	--	--	<.010
FEB											
11...	0830	1028	80020	4.24	574	6.8	4.2	7.7	K0	260	--
MAR											
16...	1020	1028	80020	4.18	556	7.2	4.5	8.2	K0	258	--
APR											
21...	0820	1028	80020	4.07	678	6.9	4.9	9.9	K1	258	.013
MAY											
20...	0805	1028	1028	4.24	618	6.8	1.7	12.0	K2	238	--
JUN											
18...	0810	1028	80020	4.19	737	6.6	1.8	14.2	K12	289	--
JUL											
21...	0815	1028	80020	4.69	646	6.1	1.0	16.8	K1200	282	<.010
AUG											
19...	0825	1028	80020	4.73	712	7.1	2.0	17.7	K13	290	--
SEP											
17...	0820	1028	80020	4.83	649	7.0	.2	18.5	K0	276	--

[illegible]

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.--Continuous strip-chart recorder.

DATUM.--Elevation of land surface is 1,245 ft above sea level, from topographic map. Measuring point: Top of casing, 2.7 ft above land-surface datum.

REMARKS.--Well levels effected by nearby intermittent pumpage.

PERIOD OF RECORD.--November 1994 to current year.

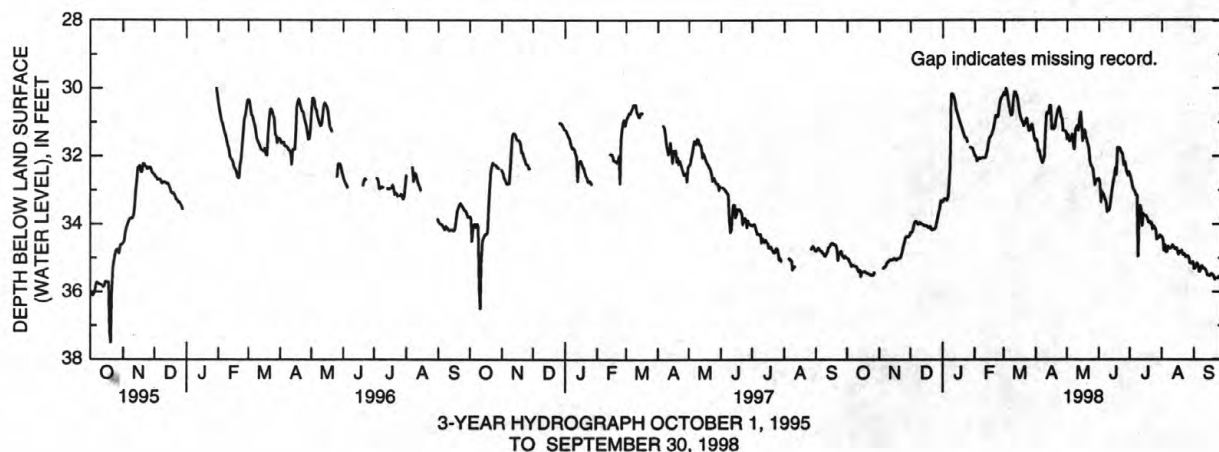
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are the extremes of the daily maximum depth below land-surface for the period of record indicated above.

Highest water level, 29.98 ft below land-surface datum, Jan. 30, 1996; lowest, 37.51 ft below land-surface datum, Oct. 20, 1995.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35.00	---	34.24	33.35	31.98	30.11	31.50	31.50	32.67	32.56	34.39	35.32
2	35.02	---	34.25	33.28	32.01	30.20	31.57	31.36	32.80	32.65	34.43	35.30
3	35.10	---	34.20	33.25	32.15	30.00	31.85	31.55	33.35	32.80	34.78	35.25
4	35.15	35.29	34.05	33.26	32.11	30.15	31.82	31.56	33.05	32.96	34.61	35.15
5	35.25	35.30	33.95	33.30	32.05	30.35	32.00	31.47	33.09	33.00	34.82	35.21
6	35.21	35.26	33.92	33.20	32.08	30.55	32.11	31.35	33.17	33.05	34.82	35.40
7	35.21	35.24	33.94	32.85	32.07	30.70	32.20	31.70	33.27	33.15	34.65	35.39
8	35.24	35.16	34.00	32.32	32.05	30.80	32.12	31.80	33.35	33.15	34.71	35.24
9	35.25	35.11	34.00	30.18	32.05	30.75	32.00	31.23	33.65	34.95	34.71	35.23
10	35.25	35.10	33.95	30.15	32.05	30.35	31.20	31.15	33.55	33.57	34.71	35.30
11	35.35	35.05	33.98	30.20	32.06	30.10	30.75	31.10	33.60	33.45	34.62	35.31
12	35.40	35.05	34.00	30.27	31.95	30.10	30.70	31.25	33.45	33.60	34.65	35.33
13	35.35	35.06	34.00	30.45	31.82	30.20	30.75	30.87	33.16	34.05	34.70	35.40
14	35.55	35.05	34.05	30.65	31.60	30.30	30.51	30.70	32.95	33.69	34.74	35.50
15	35.40	35.00	34.05	30.73	31.45	30.53	30.50	31.03	32.75	33.74	34.70	35.50
16	35.42	35.01	34.04	30.85	31.43	30.73	31.20	31.55	32.60	33.76	34.80	35.53
17	35.40	35.06	34.06	30.95	31.37	30.84	31.10	31.32	32.35	33.76	34.89	35.50
18	35.40	35.05	34.10	31.06	31.26	30.95	31.20	31.23	32.55	33.84	34.80	35.46
19	35.44	35.00	34.10	31.12	31.16	31.00	31.16	31.45	31.75	33.95	34.83	35.49
20	35.45	35.00	34.06	31.23	30.99	31.10	30.95	31.51	31.75	33.92	34.78	35.52
21	35.45	35.00	34.15	31.32	30.80	31.05	30.76	31.65	31.75	33.99	34.89	35.63
22	35.47	34.92	34.18	31.45	30.85	30.93	30.65	31.76	31.85	33.96	34.91	35.60
23	35.50	34.80	34.15	31.45	30.85	30.88	30.55	32.15	31.89	34.15	34.88	35.59
24	35.50	34.65	34.15	31.49	30.64	31.10	30.65	32.27	31.97	34.06	34.97	35.60
25	35.50	34.55	34.10	31.60	30.41	31.25	30.85	32.31	32.27	34.10	34.96	35.55
26	35.51	34.40	33.95	---	30.30	31.25	30.90	32.37	32.17	34.17	34.94	35.55
27	35.41	34.37	33.82	31.72	30.25	31.10	31.25	32.60	32.32	34.45	34.99	35.53
28	---	34.37	33.65	31.75	30.20	31.06	31.26	32.85	32.48	34.42	35.15	35.60
29	---	34.37	33.55	31.75	---	31.24	31.26	32.74	32.57	34.39	35.16	35.69
30	---	34.35	33.31	31.80	---	31.42	31.30	32.68	32.47	34.33	35.15	36.15
31	---	---	33.30	31.90	---	31.55	---	32.72	---	34.34	35.11	---
MEAN	35.34	34.91	33.98	31.63	31.43	30.73	31.22	31.70	32.69	33.74	34.81	35.46
MAX	35.55	35.30	34.25	33.35	32.15	31.55	32.20	32.85	33.65	34.95	35.16	36.15
MIN	35.00	34.35	33.30	30.15	30.20	30.00	30.50	30.70	31.75	32.56	34.39	35.15

WTR YR 1998: HIGHEST 30.00, MARCH 3; LOWEST 36.15, SEPTEMBER 30.



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 sea level, from topographic map. Measuring point: Top of recorder shelf, 3.0 ft above land-surface datum.

REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since September 1995, are also available from the District Office.

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

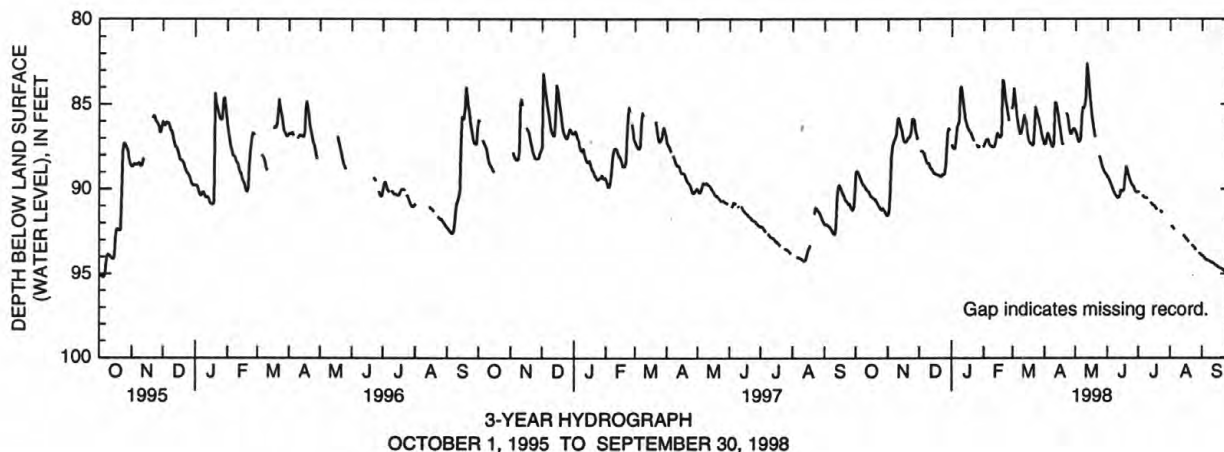
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily maximum water level elevation for the period of record indicated above.

Highest water level, 76.10 ft below land-surface datum, June 23, 1972; lowest, 95.63 ft below land-surface datum, Nov. 20, 1991 (may have been affected by pumping during well test).

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	89.03	91.55	---	87.37	87.46	85.07	87.37	86.60	89.31	90.16	---	93.93
2	88.95	91.34	87.75	87.57	87.26	84.09	87.33	86.81	89.35	90.18	92.15	93.96
3	89.04	90.20	87.78	87.62	87.11	84.60	86.91	87.08	89.52	---	92.21	94.04
4	89.19	88.20	87.77	87.61	87.07	85.19	86.71	87.22	89.66	---	92.29	94.10
5	89.35	87.55	87.90	87.02	87.07	85.78	86.86	87.17	89.80	90.36	92.38	94.18
6	89.51	87.30	88.03	86.37	87.34	86.19	87.09	86.98	89.97	90.45	---	94.19
7	89.65	87.08	88.28	86.17	87.42	86.55	87.31	85.68	90.11	90.51	---	94.20
8	89.76	86.99	88.45	86.06	87.46	86.74	87.46	85.18	90.26	90.52	92.64	94.24
9	89.82	86.76	88.51	84.10	87.51	86.73	87.51	85.23	90.36	90.53	---	94.29
10	89.93	85.94	88.49	83.97	87.53	86.42	87.29	85.04	90.44	90.54	---	94.32
11	90.03	85.81	88.70	84.43	87.51	85.96	84.89	84.60	90.54	---	---	94.35
12	90.10	86.08	88.80	84.91	87.30	85.65	84.94	82.60	90.50	---	---	94.37
13	90.15	86.35	88.86	85.43	86.97	85.83	85.27	83.10	90.37	90.78	---	94.43
14	90.27	86.52	89.00	85.94	86.70	86.16	85.58	83.88	90.07	90.86	92.72	94.48
15	90.39	86.90	89.09	86.13	86.85	86.68	86.11	84.55	90.08	90.94	92.78	94.52
16	90.47	87.17	89.11	86.37	86.95	87.04	86.47	85.17	90.13	90.97	92.87	94.58
17	90.52	87.23	89.16	86.48	86.95	87.20	86.92	85.79	90.03	91.01	92.94	94.62
18	90.57	87.23	89.18	86.60	86.77	87.29	87.31	86.24	89.35	91.13	93.01	94.66
19	90.59	87.13	89.18	86.65	83.57	87.34	87.38	86.60	88.69	91.20	93.11	94.68
20	90.70	86.97	89.19	86.81	83.63	87.42	---	86.95	88.78	---	---	94.71
21	90.75	86.97	89.27	86.98	84.25	87.39	---	---	89.09	---	---	94.75
22	90.89	86.86	89.28	87.12	84.79	86.43	85.52	---	89.32	91.28	93.28	94.81
23	90.99	86.57	89.13	87.12	85.10	85.16	85.65	---	89.48	91.29	93.34	94.86
24	91.09	85.89	89.17	---	85.53	85.42	86.03	88.05	89.66	91.39	93.41	94.88
25	91.19	85.87	89.09	87.36	85.97	85.68	86.51	88.22	89.77	---	93.49	94.91
26	91.24	85.97	88.68	87.52	---	85.84	86.74	88.48	89.81	---	93.58	94.93
27	91.14	86.53	87.63	87.52	---	86.15	86.74	88.69	89.97	---	---	94.95
28	91.25	86.79	86.64	87.46	85.26	86.40	86.52	88.85	90.13	---	---	95.02
29	91.34	87.07	86.43	---	---	86.77	86.44	88.97	90.19	91.77	93.75	95.06
30	91.47	---	86.54	---	---	87.02	86.46	89.11	90.17	---	93.81	95.10
31	91.55	---	---	87.50	---	87.26	---	89.14	---	---	93.88	---
MEAN	90.35	87.20	88.45	86.51	86.44	86.24	86.55	86.50	89.83	90.84	93.03	94.54
MAX	91.55	91.55	89.28	87.62	87.53	87.42	87.51	89.14	90.54	91.77	93.88	95.10
MIN	88.95	85.81	86.43	83.97	83.57	84.09	84.89	82.60	88.69	90.16	92.15	93.93

WTR YR 1998: HIGHEST 82.60, MAY 12; LOWEST 95.10, SEPTEMBER 30.



MIFFLIN COUNTY

404140077354001. Local number, MF 344.

LOCATION.--Lat 40°41'40", long 77°35'48", Hydrologic Unit 02050304, at Roseann.

Owner: Ira Huron.

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.--Continuous strip-chart recorder; electronic data logger recording at 60-minute interval since July 1998.

DATUM.--Elevation of land surface is 800 ft above sea level, from topographic map. Measuring point: Top of shelter platform, 1.0 ft above land-surface datum.

REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since August 1998, are also available from the District Office.

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

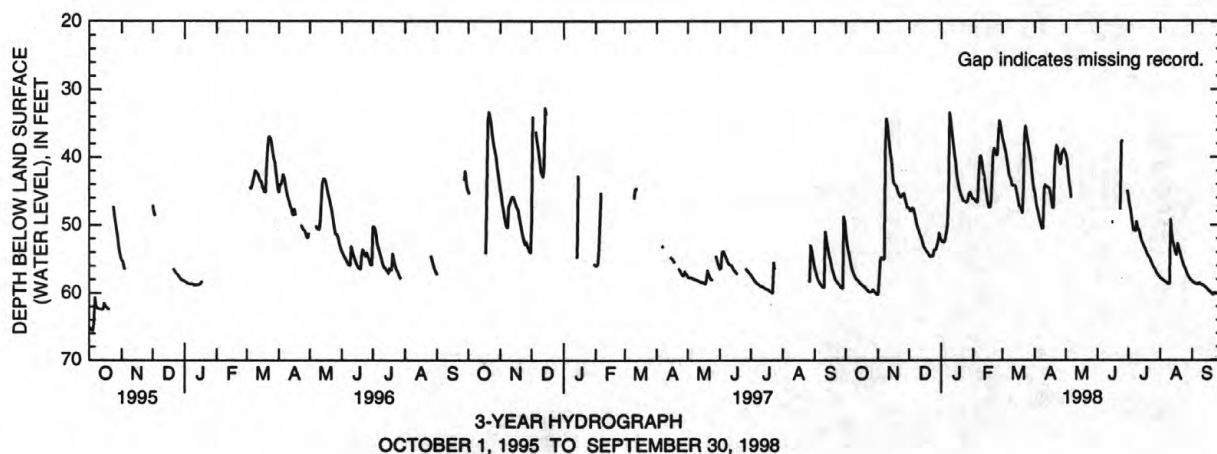
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily maximum depth below land surface for the period of record indicated above.

Highest water level, 13.54 ft below land-surface datum, Apr. 28, 1993; lowest, 77.13 ft below land-surface datum, Oct. 11, 1983.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51.30	60.20	47.52	52.20	46.14	37.30	45.20	39.70	---	45.91	57.80	58.27
2	52.72	58.22	47.89	52.46	46.21	37.90	46.50	40.50	---	47.07	57.92	58.41
3	53.53	55.25	47.89	52.52	46.49	38.58	47.42	42.10	---	47.70	58.03	58.51
4	54.23	54.77	47.48	52.52	46.61	39.31	48.01	43.70	---	48.87	58.15	58.58
5	55.06	54.84	47.60	51.91	46.62	40.30	48.78	44.57	---	49.92	58.26	58.68
6	55.90	55.02	48.20	51.00	43.00	41.30	49.41	46.00	---	50.92	58.33	58.69
7	56.52	55.00	48.98	49.97	40.10	42.40	50.02	---	---	---	58.46	58.70
8	57.00	38.60	49.72	45.90	39.82	42.91	50.52	---	---	51.00	58.58	58.54
9	57.32	34.31	50.42	33.40	40.61	43.30	50.52	---	---	49.56	58.65	58.68
10	57.70	35.20	50.68	34.48	41.90	44.10	44.59	---	---	50.50	58.65	58.79
11	57.94	36.70	51.24	35.87	42.53	44.20	44.13	---	---	50.66	49.22	58.82
12	58.10	38.20	51.60	37.09	43.60	44.14	44.31	---	49.10	51.11	51.00	58.89
13	58.23	39.50	52.01	38.56	44.70	44.20	44.42	---	---	51.77	52.31	59.02
14	58.42	40.60	52.65	39.80	45.90	44.70	44.52	---	---	52.33	52.83	59.15
15	58.60	42.60	53.12	40.92	46.81	45.60	44.63	---	49.60	52.69	53.60	59.30
16	58.72	43.70	53.41	42.60	47.40	46.39	45.43	---	49.60	53.05	54.19	59.43
17	58.89	44.02	53.70	43.60	47.42	47.21	46.53	---	---	53.38	54.39	59.64
18	59.01	44.18	53.85	44.40	46.59	47.44	47.42	---	---	53.75	52.73	59.74
19	59.10	44.41	54.10	44.99	42.70	47.70	47.53	---	---	54.12	53.42	59.85
20	59.32	45.09	54.31	45.60	39.40	48.21	41.72	---	---	54.52	53.97	60.03
21	59.43	45.45	54.60	45.88	38.70	44.90	39.14	---	---	54.69	54.52	60.20
22	59.63	45.76	54.66	46.40	39.33	36.60	38.29	---	---	54.97	55.07	60.21
23	59.79	45.89	54.50	46.46	39.70	35.40	38.85	---	47.72	55.32	55.53	59.96
24	59.88	45.70	54.59	46.51	39.64	36.50	39.75	---	37.80	55.73	56.06	60.05
25	59.80	45.47	53.67	46.68	36.40	37.50	40.85	---	37.54	56.07	56.30	60.11
26	59.82	45.36	53.67	46.59	34.60	38.45	41.02	---	---	56.32	56.74	60.02
27	59.52	46.18	53.51	46.03	35.52	39.40	39.46	---	---	56.51	57.14	60.13
28	59.73	46.71	52.90	45.31	36.43	40.45	39.09	---	---	56.96	57.47	60.40
29	59.87	47.40	52.38	45.19	---	42.19	38.81	---	---	57.16	57.72	60.59
30	60.05	47.44	51.20	45.70	---	43.70	39.26	---	44.90	57.39	57.96	60.77
31	60.20	---	51.91	46.10	---	44.92	---	---	---	57.58	58.16	---
MEAN	57.91	46.06	51.74	45.05	42.32	42.17	44.20	42.76	45.18	52.92	55.91	59.41
MAX	60.20	60.20	54.66	52.52	47.42	48.21	50.52	46.00	49.60	57.58	58.65	60.77
MIN	51.30	34.31	47.48	33.40	34.60	35.40	38.29	39.70	37.54	45.91	49.22	58.27

WTR YR 1998: HIGHEST 33.40, JANUARY 9; LOWEST 60.77, SEPTEMBER 30.



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 sea level, from topographic map. Measuring point: Top of plywood cover, 1.8 ft above land-surface datum. Well casing extended June 26, 1996. New measuring point: Top of metal shelf, 3.7 ft above land-surface datum.

REMARKS.--In addition to the daily maximum water level shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.

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

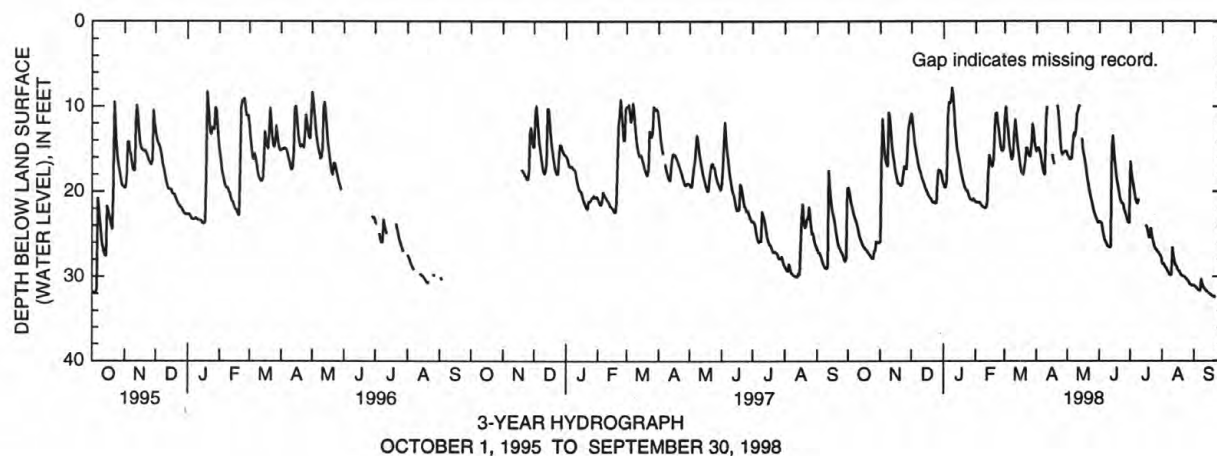
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily maximum depth below land surface for the period of record indicated above.

Highest water level, 5.20 ft below land-surface datum, Mar. 23, 1968; lowest, 39.12 ft below land-surface datum, Dec. 11, 1987.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.57	25.91	10.87	19.15	21.22	11.44	15.30	15.74	23.51	16.52	28.51	31.01
2	20.05	16.95	11.84	19.49	21.23	10.04	14.84	15.97	23.67	17.71	28.47	31.15
3	20.85	11.51	13.08	19.49	21.29	11.73	14.87	16.22	23.67	18.72	28.61	31.27
4	21.60	13.63	14.23	18.61	21.29	12.55	15.27	16.25	24.34	19.27	28.93	31.41
5	21.95	15.43	15.14	11.24	21.29	14.16	15.89	16.06	25.03	20.14	29.00	31.53
6	22.53	16.37	15.80	9.53	21.52	15.12	16.63	14.47	25.62	20.83	29.33	31.62
7	22.97	16.83	16.55	9.63	21.68	15.96	17.34	13.15	25.86	21.26	29.49	31.64
8	23.35	17.02	17.12	9.28	21.77	16.25	17.82	13.52	26.16	21.40	29.74	30.35
9	23.72	10.70	17.54	7.81	21.89	15.71	18.00	12.73	26.42	20.88	29.83	30.79
10	24.25	11.43	17.87	8.92	21.93	13.12	11.64	10.79	26.50	---	29.84	31.18
11	24.87	12.90	18.45	10.44	21.89	11.58	10.00	10.57	26.55	---	26.59	31.37
12	25.35	14.64	18.76	12.34	21.23	12.75	---	9.89	26.55	---	27.54	31.54
13	25.70	15.65	19.07	13.95	18.05	14.07	---	9.99	14.74	---	28.27	31.68
14	26.02	16.41	19.53	15.13	15.75	15.10	---	---	13.44	---	28.68	31.81
15	26.32	17.31	19.82	15.78	16.35	16.16	---	13.75	15.19	---	28.78	31.92
16	26.52	17.98	20.07	16.44	16.91	17.07	15.64	15.28	16.51	23.96	29.19	32.00
17	26.69	18.51	20.34	17.20	17.05	17.64	16.22	15.79	17.80	24.14	29.32	32.09
18	26.83	19.03	20.58	17.88	16.32	17.95	16.80	16.54	18.71	24.60	29.44	32.20
19	26.98	19.07	20.74	18.36	13.68	18.02	---	17.30	19.33	25.34	29.73	32.29
20	27.16	19.25	20.92	18.92	10.95	17.15	---	18.23	20.07	25.41	29.88	32.36
21	27.33	19.33	21.21	19.42	10.73	16.21	9.86	19.00	20.81	24.33	29.96	32.36
22	27.51	19.07	21.27	19.78	11.72	14.85	10.78	19.77	21.13	25.19	30.00	32.36
23	27.71	17.78	21.25	19.82	12.62	14.93	12.48	20.39	21.42	25.76	30.06	---
24	27.88	17.05	21.40	19.94	13.62	15.56	14.19	20.93	21.42	26.27	30.18	---
25	27.88	17.33	21.31	20.43	14.69	15.86	15.39	21.43	22.13	26.64	30.35	32.58
26	27.03	17.40	18.92	20.75	15.18	15.90	15.69	22.07	22.49	26.82	30.47	---
27	26.96	15.19	17.47	20.90	15.25	14.32	15.39	22.49	22.86	26.96	30.67	32.67
28	25.90	12.44	17.51	20.97	14.86	12.07	15.41	22.82	23.30	27.14	30.88	---
29	25.96	12.04	17.64	21.08	---	12.89	15.25	23.11	23.63	27.34	30.98	32.48
30	26.00	11.10	18.02	20.87	---	14.16	15.28	23.51	23.69	27.53	31.07	32.57
31	26.00	---	18.79	21.15	---	15.04	---	23.68	---	27.74	31.07	---
MEAN	25.14	16.18	18.16	16.60	17.57	14.69	14.83	17.05	22.08	23.68	29.51	31.78
MAX	27.88	25.91	21.40	21.15	21.93	18.02	18.00	23.68	26.55	27.74	31.07	32.67
MIN	19.57	10.70	10.87	7.81	10.73	10.04	9.86	9.89	13.44	16.52	26.59	30.35

WTR YR 1998: HIGHEST 7.81, JANUARY 9; LOWEST RECORDED 32.67, SEPTEMBER 27.



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, casing 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 sea level, from topographic map. Measuring point: Top of plywood cover, 3.6 ft above land-surface datum.

REMARKS.--In addition to the daily maximum water level shown below, daily minimum and mean water levels, since October 1997, are also available from the District Office.

PERIOD OF RECORD.--June 1968 to current year.

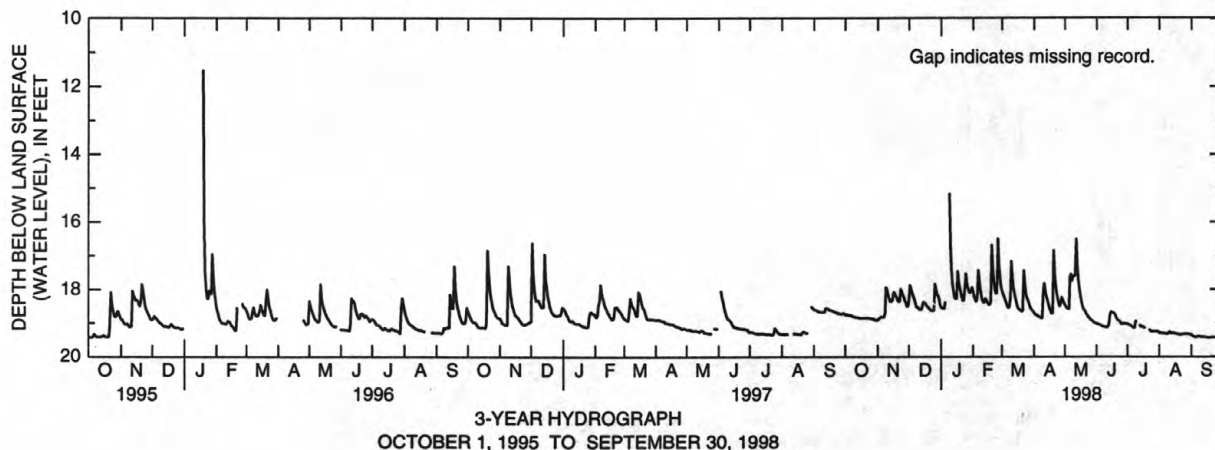
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily maximum depth below land surface for the period of record indicated above.

Highest water level, 11.51 ft below land-surface datum, Jan. 19, 1996 (may have been higher during period of no record, Jan. 1-18.); lowest, 19.57 ft below land-surface datum, Nov. 23, 1980.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.76	18.92	18.28	18.53	18.08	18.05	18.70	18.46	19.02	19.03	19.30	19.35
2	18.76	18.88	17.88	18.56	18.22	18.13	18.75	18.52	19.04	19.05	19.30	19.39
3	18.76	18.86	18.00	18.57	18.30	18.21	18.77	18.56	19.05	19.07	19.30	19.41
4	18.76	18.82	18.11	18.57	18.36	18.30	18.77	18.58	19.06	19.08	19.31	19.41
5	18.78	18.83	18.20	18.37	18.25	18.39	18.81	18.59	19.07	19.10	19.31	19.43
6	18.78	18.83	18.28	---	17.43	18.50	18.81	17.62	19.09	19.12	19.31	19.42
7	18.78	18.83	18.40	---	17.78	18.54	18.85	17.55	19.10	19.15	19.32	19.40
8	18.82	18.69	18.52	---	18.01	18.54	18.85	17.74	19.11	19.15	19.33	19.40
9	18.82	17.94	18.54	15.15	18.21	18.28	18.87	17.59	19.12	18.97	19.33	19.40
10	18.82	18.04	18.54	16.77	18.33	17.17	18.02	17.60	19.13	18.95	19.30	19.42
11	18.84	18.18	18.60	17.44	18.39	17.66	17.82	17.60	19.13	---	19.27	19.42
12	18.84	18.28	18.60	17.81	18.39	17.96	18.08	16.51	19.12	---	19.31	19.42
13	18.84	18.36	18.60	18.05	18.27	18.14	18.22	17.24	19.03	19.06	19.31	19.42
14	18.86	18.36	18.46	18.25	18.33	18.27	18.33	17.71	18.76	19.11	19.30	19.42
15	18.86	18.33	18.38	18.28	18.40	18.42	18.44	17.98	18.68	19.11	19.30	19.43
16	18.86	18.11	18.39	18.28	18.45	18.53	18.58	18.20	18.70	19.11	19.32	19.44
17	18.86	18.09	18.44	17.46	18.46	18.58	18.64	18.34	18.70	19.13	19.32	19.44
18	18.86	18.18	18.49	17.73	18.35	18.61	18.72	18.48	18.71	19.17	19.32	19.44
19	18.86	18.23	18.53	17.92	16.68	18.63	18.72	18.58	18.77	---	19.34	19.44
20	18.86	18.31	18.56	18.08	17.31	18.66	16.85	18.62	18.85	---	19.35	19.43
21	18.86	18.36	18.60	18.23	17.75	18.65	17.55	18.66	18.89	---	19.36	19.43
22	18.86	18.36	18.62	18.33	18.00	17.44	17.90	18.74	18.93	19.23	19.34	19.43
23	18.86	17.99	18.64	18.33	18.12	17.83	18.14	18.78	18.95	19.21	19.34	19.43
24	18.86	18.06	18.64	17.95	18.10	18.11	18.28	18.84	18.98	19.26	19.34	19.43
25	18.88	18.16	18.63	17.54	16.50	18.26	18.41	18.86	19.04	19.26	19.33	19.43
26	18.88	18.22	17.84	17.85	17.25	18.32	18.50	18.90	19.04	19.26	19.33	19.43
27	18.87	18.34	17.98	17.97	17.64	18.41	18.41	18.92	19.02	19.26	19.33	19.43
28	18.90	18.40	18.16	18.07	17.90	18.52	18.24	18.95	19.02	19.26	19.33	19.43
29	18.90	18.50	18.18	18.09	---	18.58	18.32	18.97	19.03	19.26	19.33	19.43
30	18.92	18.50	18.28	18.07	---	18.62	18.40	19.00	19.03	19.26	19.34	19.43
31	18.92	---	18.47	17.94	---	18.66	---	19.01	---	19.26	19.35	---
MEAN	18.84	18.40	18.38	17.94	17.97	18.29	18.39	18.31	18.97	19.15	19.32	19.42
MAX	18.92	18.92	18.64	18.57	18.46	18.66	18.87	19.01	19.13	19.26	19.36	19.44
MIN	18.76	17.94	17.84	15.15	16.50	17.17	16.85	16.51	18.68	18.95	19.27	19.35

WTR YR 1998: HIGHEST 15.15, JANUARY 9; LOWEST 19.44, SEPTEMBER 16-19.



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 sea level, from topographic map. Measuring point: Top of casing, 1.7 ft above land-surface datum.

REMARKS.--In addition to the daily maximum water level shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.

PERIOD OF RECORD.--April 1965 to current year.

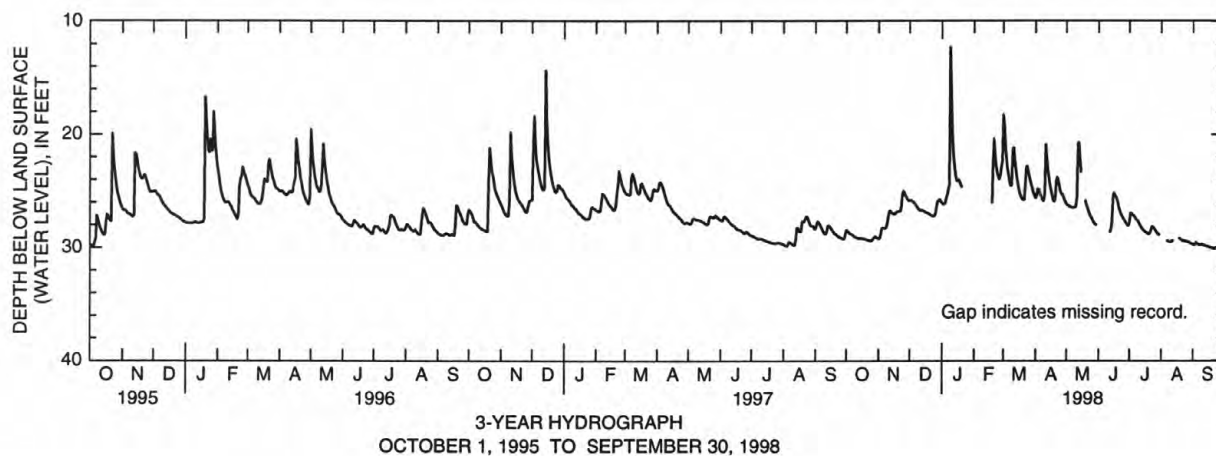
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily maximum depth below land surface for the period of record indicated above.

Highest water level, 7.42 ft below land-surface datum, June 23, 1972; lowest, 31.12 ft below land-surface datum, Sept. 4, 1966.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.45	29.20	25.86	26.06	---	18.25	25.62	26.17	---	27.73	---	29.72
2	28.53	29.19	25.80	26.16	---	19.27	25.42	26.25	---	26.95	---	29.76
3	28.63	28.78	25.84	26.16	---	21.11	24.82	26.29	---	26.96	---	29.73
4	28.73	28.34	25.93	26.10	---	22.26	24.86	26.37	---	27.13	---	29.54
5	28.77	28.24	26.01	25.68	---	23.08	25.14	26.42	---	27.15	---	29.64
6	28.83	28.28	26.11	25.34	---	23.68	25.44	26.46	---	27.27	29.36	29.72
7	28.87	28.31	26.25	24.94	---	24.26	25.65	26.46	---	27.45	29.40	29.76
8	28.97	28.25	26.41	24.42	---	24.54	25.83	26.48	---	27.55	29.46	29.76
9	29.03	27.97	26.55	12.26	---	24.50	25.89	26.46	---	27.62	29.48	29.72
10	29.09	27.43	26.63	16.98	---	21.27	25.25	26.31	---	27.79	29.50	29.73
11	29.13	26.91	26.71	20.13	---	21.16	20.87	25.66	---	27.99	29.48	29.77
12	29.17	26.73	26.71	21.75	---	22.32	22.21	20.76	28.66	28.15	29.32	29.81
13	29.19	26.83	26.71	22.83	---	23.14	23.17	20.72	28.35	28.28	---	29.85
14	29.19	26.95	26.73	23.57	---	23.86	23.87	22.26	27.68	28.41	---	29.87
15	29.19	27.01	26.81	24.07	---	24.46	24.51	23.34	25.62	28.49	---	29.89
16	29.19	27.03	26.87	24.13	---	24.91	24.95	---	25.16	28.59	---	29.93
17	29.19	27.03	26.89	24.01	---	25.29	25.39	---	25.45	28.64	---	29.95
18	29.23	26.87	26.93	24.21	26.06	25.53	25.77	---	25.52	28.71	29.24	29.97
19	29.25	26.82	26.97	24.45	22.40	25.71	25.93	25.79	25.79	28.79	29.18	30.01
20	29.27	26.81	27.03	24.67	20.37	25.81	25.72	26.17	26.17	28.81	29.27	30.05
21	29.33	26.81	27.11	---	21.83	25.81	24.04	26.44	26.55	28.67	29.36	30.07
22	29.33	26.81	27.17	---	22.75	24.43	23.79	26.75	26.87	28.42	29.42	30.07
23	29.37	26.24	27.20	---	23.37	22.91	24.13	27.01	27.09	28.12	29.42	30.07
24	29.39	25.32	27.20	---	23.78	22.81	24.55	27.22	27.26	28.20	29.40	29.97
25	29.39	25.00	27.18	---	23.94	23.33	25.01	27.38	27.42	28.30	29.48	29.95
26	29.31	25.20	26.82	---	23.64	23.73	25.28	27.56	27.57	28.46	29.48	29.95
27	29.17	25.40	26.23	---	22.87	24.16	25.28	27.74	27.72	28.61	29.46	29.95
28	29.08	25.58	25.90	---	22.34	24.50	25.54	27.88	27.88	28.75	29.54	29.94
29	29.04	25.76	25.80	---	---	24.88	25.77	27.97	28.01	28.82	29.60	29.91
30	29.12	25.86	25.76	---	---	25.20	26.01	27.96	28.05	28.94	29.64	29.88
31	29.18	---	25.94	---	---	25.48	---	---	---	---	29.66	---
MEAN	29.08	27.03	26.52	23.40	23.03	23.60	24.86	26.01	26.99	28.13	29.44	29.86
MAX	29.39	29.20	27.20	26.16	26.06	25.81	26.01	27.97	28.66	28.94	29.66	30.07
MIN	28.45	25.00	25.76	12.26	20.37	18.25	20.87	20.72	25.16	26.95	29.18	29.54

WTR YR 1998: HIGHEST 12.26, JANUARY 9; LOWEST 30.07, SEPTEMBER 21-23.



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 sea level, from topographic map. Measuring point: Top of casing, 3.0 ft above land-surface datum.

REMARKS.--In addition to the daily maximum water level shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.

PERIOD OF RECORD.--July 1972 to current year.

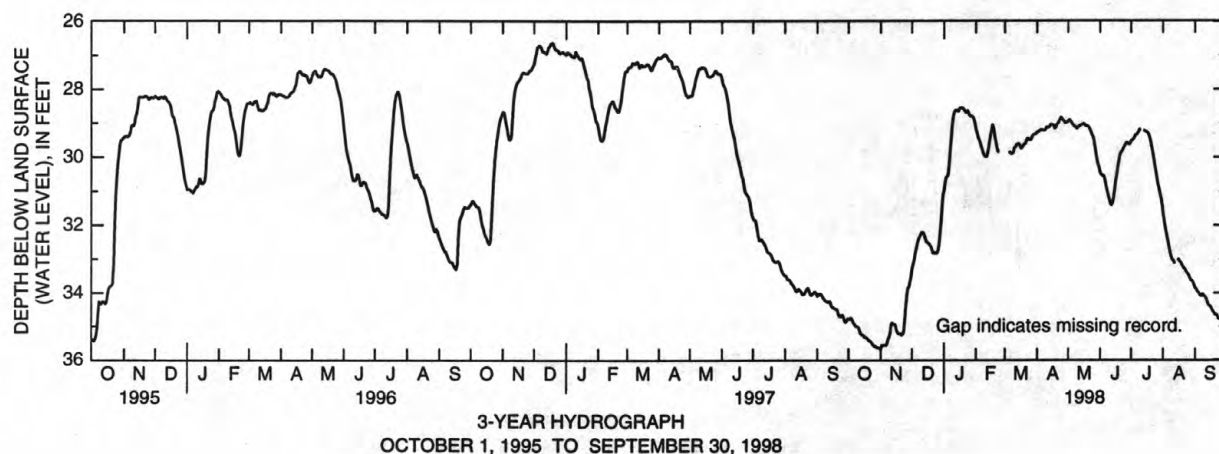
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily maximum depth below land surface for the period of record indicated above.

Highest water level, 21.49 ft below land-surface datum, Apr. 3, 1978; lowest, 37.24 ft below land-surface datum, Aug. 30, 1982.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34.78	35.67	33.27	30.97	29.19	---	29.26	28.94	30.46	29.51	31.67	33.86
2	34.79	35.56	33.16	30.73	29.30	---	29.26	28.90	30.51	29.50	31.88	33.88
3	34.75	35.58	33.02	30.60	29.43	---	29.24	28.94	30.54	29.48	32.07	33.95
4	34.78	35.56	32.82	30.56	29.48	---	29.21	28.98	30.54	29.43	32.23	33.98
5	34.85	35.57	32.69	30.50	29.58	29.84	29.20	29.03	30.59	29.35	32.38	34.03
6	34.91	35.57	32.55	30.16	29.69	29.88	29.21	29.07	30.73	29.35	32.54	34.08
7	34.95	35.49	32.43	29.76	29.78	29.90	29.22	29.10	30.88	29.31	32.70	34.09
8	35.00	35.38	32.36	29.39	29.88	29.90	29.22	29.11	31.02	29.27	32.84	34.03
9	35.01	35.32	32.29	29.02	29.96	29.86	29.20	29.16	31.14	29.20	32.96	34.07
10	35.01	35.19	32.22	28.79	29.98	29.71	29.12	29.16	31.26	29.18	33.03	34.10
11	35.07	34.94	32.20	28.67	29.99	29.71	29.13	29.10	31.38	---	33.04	34.12
12	35.18	34.89	32.23	28.63	29.91	29.64	29.13	29.09	31.41	---	33.14	34.20
13	35.24	34.93	32.30	28.62	29.76	29.63	29.11	29.07	31.35	29.22	---	34.30
14	35.25	34.93	32.42	28.64	29.55	29.60	29.04	29.06	31.20	29.23	---	34.37
15	35.25	34.96	32.49	28.66	29.36	29.63	29.05	29.04	30.95	29.25	33.04	34.39
16	35.31	35.10	32.51	28.57	29.20	29.72	29.06	29.02	30.69	29.26	33.00	34.41
17	35.33	35.18	32.53	28.55	29.05	29.74	29.07	29.05	30.50	29.28	33.08	34.49
18	35.33	35.22	32.58	28.55	29.15	29.69	29.16	29.08	30.28	29.34	33.09	34.54
19	35.37	35.22	32.62	28.55	29.38	29.63	29.14	29.08	30.10	29.44	33.16	34.59
20	35.40	35.21	32.70	28.58	29.52	29.62	29.03	29.09	29.94	29.56	33.22	34.64
21	35.44	35.26	32.81	28.63	29.70	29.58	29.02	29.12	29.87	29.73	33.27	34.66
22	35.44	35.24	32.83	28.68	29.83	29.47	28.95	29.19	29.83	29.88	33.29	34.66
23	35.48	35.15	32.80	28.67	29.85	29.45	28.88	29.25	29.77	30.05	33.36	34.74
24	35.53	34.81	32.83	28.63	---	29.49	28.83	29.34	29.70	30.26	33.40	34.78
25	35.57	34.42	32.82	28.72	---	29.49	28.89	29.40	29.66	30.43	33.44	34.79
26	35.60	34.06	32.76	28.79	---	29.49	28.91	29.51	29.59	30.63	33.49	34.78
27	35.59	33.86	32.61	28.79	---	29.41	28.95	29.70	29.57	30.80	33.58	34.82
28	35.63	33.82	32.26	28.79	---	29.36	29.00	29.91	29.60	30.93	33.63	34.76
29	35.63	33.66	31.95	28.82	---	29.33	28.99	30.09	29.63	31.08	33.64	34.69
30	35.64	33.50	31.47	28.88	---	29.33	28.98	30.22	29.61	31.22	33.69	34.66
31	35.67	---	31.10	29.04	---	29.31	---	30.31	---	31.41	33.78	---
MEAN	35.25	34.97	32.50	29.13	29.59	29.61	29.08	29.26	30.41	29.81	33.02	34.38
MAX	35.67	35.67	33.27	30.97	29.99	29.90	29.26	30.31	31.41	31.41	33.78	34.82
MIN	34.75	33.50	31.10	28.55	29.05	29.31	28.83	28.90	29.57	29.18	31.67	33.86

WTR YR 1998: HIGHEST 28.55, JANUARY 17-19; LOWEST 35.67, OCTOBER 31, NOVEMBER 1.



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 6 in., depth 77 ft, cased to 67 ft, open hole.

INSTRUMENTATION.--Continuous strip-chart recorder.

DATUM.--Elevation of land surface is 1,310 ft above sea level, from topographic map. Measuring point: Top of casing, 4.0 ft above land-surface datum.

PERIOD OF RECORD.--July 1972 to current year.

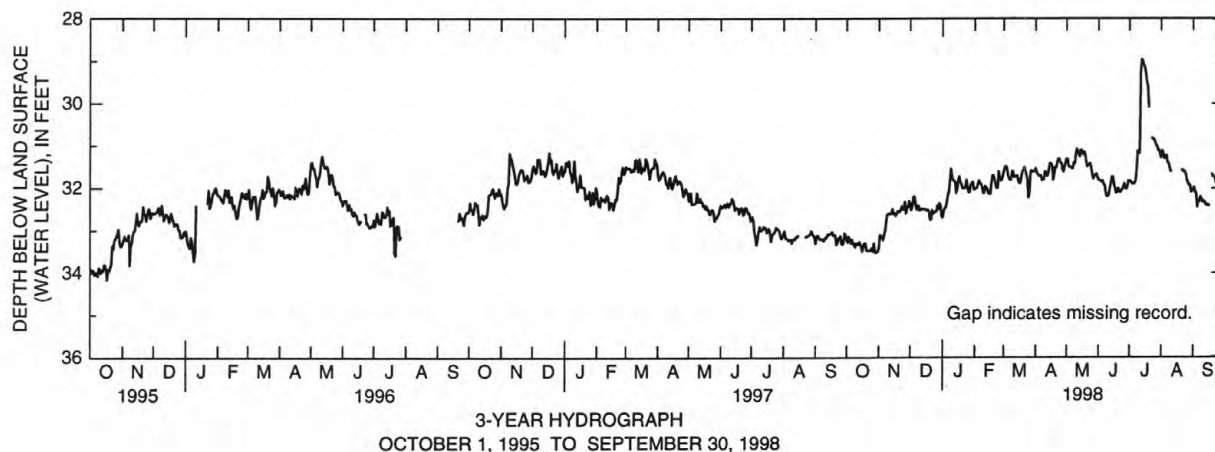
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily maximum depth below land surface for the period of record indicated above.

Highest water level, 28.95 ft below land-surface datum, July 13, 1998; lowest, 35.88 ft below land-surface datum, Oct. 11, 1988.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33.22	33.40	32.40	32.69	32.02	31.61	31.53	31.30	31.80	31.83	31.28	32.02
2	33.28	33.10	32.51	32.55	32.00	31.50	31.62	31.31	31.82	31.83	31.11	31.98
3	33.14	33.11	32.42	32.48	32.00	31.48	31.67	31.49	31.83	31.88	31.18	32.10
4	33.21	33.14	32.21	32.45	31.89	31.52	31.70	31.50	31.85	31.89	31.30	32.12
5	33.30	33.22	32.19	32.34	31.82	31.70	31.70	31.50	31.82	31.89	31.30	32.44
6	33.21	33.11	32.36	32.16	31.88	31.77	31.70	31.53	31.91	31.88	31.22	32.30
7	33.29	32.98	32.50	32.10	31.90	31.80	31.81	31.53	31.93	31.83	31.40	32.31
8	33.34	32.79	32.50	31.82	31.98	31.80	31.78	31.39	32.12	31.55	31.40	32.20
9	33.39	32.62	32.41	31.54	32.11	31.60	31.79	31.42	32.19	31.12	31.52	32.25
10	33.30	32.61	32.52	31.73	32.11	31.60	31.61	31.20	32.19	31.15	31.60	32.33
11	33.30	32.60	32.51	31.80	31.95	31.74	31.62	31.07	32.15	31.17	31.59	32.30
12	33.33	32.61	32.48	31.83	31.99	31.72	31.71	31.12	32.00	29.26	---	32.32
13	33.27	32.60	32.49	31.84	32.00	31.72	31.68	31.19	31.87	28.95	---	32.39
14	33.31	32.49	32.50	32.11	32.12	31.70	31.50	31.25	31.73	28.99	---	32.40
15	33.40	32.60	32.50	32.01	32.13	31.83	31.41	31.10	31.73	29.10	---	32.38
16	33.49	32.60	32.49	31.81	32.14	31.88	31.42	31.11	31.90	29.12	---	32.41
17	33.35	32.65	32.53	31.72	31.90	31.88	31.50	31.21	32.00	29.29	---	32.41
18	33.29	32.60	32.51	31.86	31.70	31.71	31.80	31.14	32.11	29.49	---	---
19	33.30	32.54	32.55	31.89	31.70	31.60	31.66	31.20	32.10	29.60	---	31.65
20	33.47	32.55	32.74	32.00	31.79	31.57	31.50	31.36	32.00	30.10	---	31.72
21	33.47	32.56	32.74	32.01	31.91	31.50	31.51	31.49	32.04	---	31.55	31.72
22	33.48	32.50	32.51	32.00	31.99	31.61	31.38	31.45	32.10	---	31.60	31.75
23	33.46	32.42	32.60	31.96	31.99	31.69	31.30	31.45	32.06	30.80	31.58	31.87
24	33.47	32.50	32.57	31.80	31.61	31.80	31.30	31.41	32.03	30.86	31.62	31.85
25	33.41	32.50	32.56	32.00	31.76	32.22	31.40	31.55	31.97	30.83	31.67	31.80
26	33.49	32.32	32.55	32.10	31.82	32.10	31.40	31.68	31.89	30.91	31.81	32.00
27	33.30	32.59	32.41	32.10	31.80	31.63	31.56	31.78	32.00	30.99	31.88	31.82
28	33.51	32.46	32.50	31.91	31.70	31.58	31.61	31.70	32.02	31.00	31.93	31.92
29	33.52	32.43	32.35	31.90	---	31.61	31.51	31.68	31.95	31.11	31.93	32.02
30	33.51	32.30	32.40	31.84	---	31.60	31.38	31.66	31.83	31.10	32.09	31.92
31	33.49	---	32.66	32.03	---	31.60	---	31.74	---	31.22	32.07	---
MEAN	33.36	32.68	32.49	32.01	31.92	31.70	31.57	31.40	31.96	30.72	31.57	32.09
MAX	33.52	33.40	32.74	32.69	32.14	32.22	31.81	31.78	32.19	31.89	32.09	32.44
MIN	33.14	32.30	32.19	31.54	31.61	31.48	31.30	31.07	31.73	28.95	31.11	31.65

WTR YR 1998: HIGHEST 28.95, JULY 13; LOWEST 33.52, OCTOBER 29.



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 sea level, from topographic map. Measuring point: Top of recorder shelf, 3.5 ft above land-surface datum.

REMARKS.--In addition to the daily maximum water level shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.

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

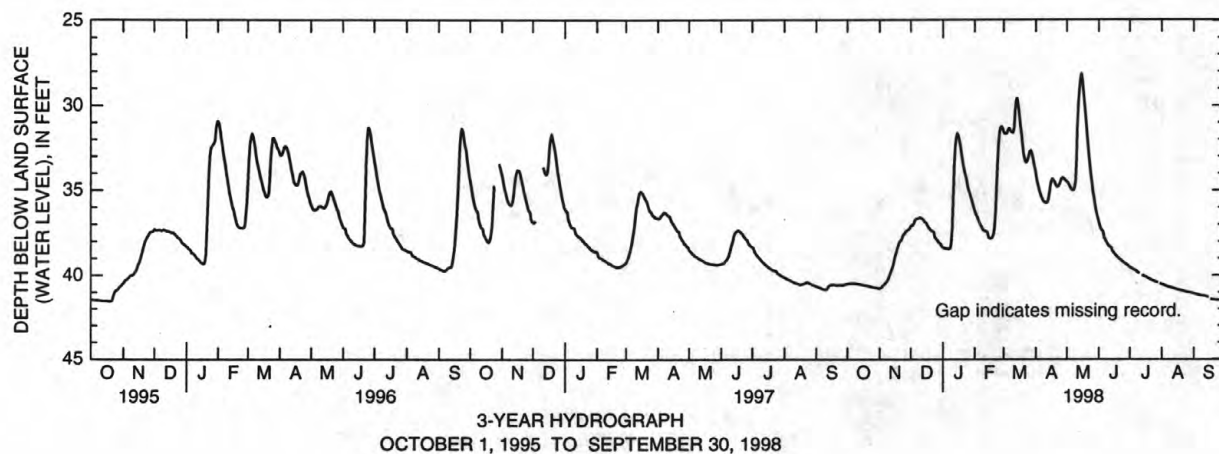
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the daily maximum depth below land surface for the period of record indicated above.

Highest water level, 25.26 ft below land-surface datum, Apr. 10, 1978; lowest, 42.24 ft below land-surface datum, Jan. 29 to Feb. 1, 1981.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40.50	40.77	37.08	38.36	36.23	31.59	34.14	34.52	36.91	39.54	40.53	41.08
2	40.50	40.74	37.06	38.39	36.40	31.67	34.47	34.59	37.11	39.57	40.56	41.11
3	40.48	40.69	37.03	38.41	36.55	31.67	34.72	34.71	37.27	39.60	40.58	41.12
4	40.48	40.60	36.93	38.42	36.65	31.64	34.99	34.83	37.37	39.65	40.60	41.14
5	40.48	40.55	36.75	38.43	36.82	31.46	35.18	34.94	37.41	39.69	40.63	41.15
6	40.48	40.49	36.70	38.44	36.99	31.34	35.37	35.00	37.77	39.71	40.65	41.17
7	40.48	40.42	36.66	38.44	37.09	31.44	35.51	35.00	37.90	39.72	40.68	41.19
8	40.48	40.34	36.66	38.40	37.22	31.55	35.64	34.91	38.02	39.82	40.70	41.19
9	40.48	40.22	36.63	38.10	37.33	31.58	35.68	34.48	38.14	39.85	40.72	41.20
10	40.50	40.08	36.60	37.21	37.37	31.61	35.75	33.29	38.22	39.89	40.72	41.21
11	40.51	39.91	36.65	35.33	37.39	31.33	35.75	31.25	38.30	---	40.75	41.22
12	40.52	39.72	36.68	33.56	37.41	30.33	35.72	29.91	38.34	---	40.77	41.24
13	40.52	39.58	36.73	32.39	37.42	29.66	35.49	29.12	38.37	39.99	40.78	41.26
14	40.55	39.37	36.83	31.89	37.74	29.58	35.09	28.42	38.57	40.03	40.80	41.28
15	40.56	39.09	36.89	31.65	37.81	30.05	34.66	28.14	38.64	40.06	40.82	41.30
16	40.57	38.84	36.95	31.81	37.83	30.58	34.41	28.56	38.73	40.08	40.84	---
17	40.58	38.63	37.07	32.08	37.83	31.14	34.35	29.23	38.80	40.12	40.85	41.42
18	40.58	38.41	37.17	32.38	37.74	31.68	34.45	29.93	38.87	40.16	40.87	41.43
19	40.59	38.21	37.24	32.82	37.58	32.28	34.50	30.64	38.93	40.18	40.88	41.44
20	40.62	38.03	37.33	33.24	37.17	32.85	34.70	31.34	39.00	40.21	40.90	41.44
21	40.62	37.96	37.38	33.60	36.19	33.15	34.79	32.15	39.06	40.25	40.92	41.45
22	40.65	37.91	37.40	33.93	34.68	33.36	34.80	32.88	39.10	40.28	40.93	41.46
23	40.66	37.68	37.42	34.17	33.22	33.36	34.74	33.49	39.16	40.31	40.95	41.47
24	40.68	37.57	37.74	34.43	32.13	33.24	34.59	34.06	39.22	40.34	40.97	41.49
25	40.70	37.55	37.82	34.78	31.51	32.97	34.43	34.58	39.25	40.36	40.99	41.49
26	40.71	37.40	37.91	35.03	31.29	32.73	34.30	35.09	39.29	40.38	40.99	41.48
27	40.71	37.37	37.97	35.20	31.25	32.66	34.27	35.38	39.35	40.40	41.00	41.49
28	40.73	37.34	38.08	35.41	31.39	32.82	34.33	35.85	39.39	40.43	41.01	41.50
29	40.75	37.28	38.10	35.59	---	33.13	34.40	36.17	39.41	---	41.03	41.51
30	40.76	37.21	38.21	35.83	---	33.45	34.47	36.43	39.48	40.48	41.04	41.52
31	40.77	---	38.33	36.06	---	33.75	---	36.67	---	40.52	41.06	---
MEAN	40.59	39.00	37.23	35.28	35.94	31.92	34.86	33.08	38.51	40.06	40.82	41.33
MAX	40.77	40.77	38.33	38.44	37.83	33.75	35.75	36.67	39.48	40.52	41.06	41.52
MIN	40.48	37.21	36.60	31.65	31.25	29.58	34.14	28.14	36.91	39.54	40.53	41.08

WTR YR 1998: HIGHEST 28.14, MAY 15; LOWEST 41.52, SEPTEMBER 30.



ANALYSES OF GROUND-WATER SAMPLES COLLECTED AT SPECIAL-STUDY SITES

HYDROGEOLOGIC FRAMEWORK AND SAMPLING DESIGN

AGRICULTURAL LAND USE--GROUND-WATER QUALITY IN WELLS

TABLE 5.--PESTICIDES ANALYZED IN GROUND WATER.

REMARKS.--Water from each of 11 wells in this study was tested for pesticides by the U.S. Geological Survey's National Water Quality Laboratory in Arvada, Colorado. The table below lists the 47 pesticides on this schedule, the unit of measure (micrograms per liter, $\mu\text{G/L}$), the U.S. Geological Survey National Water Information System parameter code, and the method detection level. This schedule includes selected pesticides and metabolites that are efficiently partitioned from a water sample by solid-phase extraction and are sufficiently volatile and thermally stable for analysis by gas chromatography. This schedule is suitable for compounds dissolved in water. This pesticide schedule and associated detection levels are applicable only to samples analyzed during the 1998 water year. Results of the pesticide analyses are listed in the water-quality table on pages 446-452.

ACETOCHLOR ($\mu\text{G/L}$) (49260)	ALACHLOR ($\mu\text{G/L}$) (46342)	ALPHA BHC ($\mu\text{G/L}$) (34253)	ATRAZINE ($\mu\text{G/L}$) (39632)	BENFLURALIN ($\mu\text{G/L}$) (82673)	BUTYLATE ($\mu\text{G/L}$) (04028)
0.002	0.002	0.002	0.001	0.002	0.002
CARBARYL ($\mu\text{G/L}$) (82680)	CARBOFURAN ($\mu\text{G/L}$) (82674)	CHLOR- PYRIFOS ($\mu\text{G/L}$) (38933)	CYANAZINE ($\mu\text{G/L}$) (04041)	DCPA ($\mu\text{G/L}$) (82682)	DESETHYL ATRAZINE ($\mu\text{G/L}$) (04040)
0.003	0.003	0.004	0.004	0.002	0.002
DIAZINON ($\mu\text{G/L}$) (39572)	DIELDRIN ($\mu\text{G/L}$) (39381)	DIETHYL- ANILINE-2,6 ($\mu\text{G/L}$) (82660)	DISULFOTON ($\mu\text{G/L}$) (82677)	EPTC ($\mu\text{G/L}$) (82668)	ETHAL- FLURALIN ($\mu\text{G/L}$) (82663)
0.002	0.001	0.003	0.017	0.002	0.004
ETHOPROP ($\mu\text{G/L}$) (82672)	FONOFOS ($\mu\text{G/L}$) (04095)	LINDANE ($\mu\text{G/L}$) (39341)	LINURON ($\mu\text{G/L}$) (82666)	MALATHION ($\mu\text{G/L}$) (39532)	METHYL- AZINPHOS ($\mu\text{G/L}$) (82686)
0.003	0.003	0.004	0.002	0.005	0.001
METHYL- PARATHION ($\mu\text{G/L}$) (82667)	METOLACHLOR ($\mu\text{G/L}$) (39415)	METRIBUZIN ($\mu\text{G/L}$) (82630)	MOLINATE ($\mu\text{G/L}$) (82671)	NAPROP- AMIDE ($\mu\text{G/L}$) (82684)	P, P-DDE ($\mu\text{G/L}$) (34653)
0.006	0.002	0.004	0.004	0.003	0.006
ETHYL- PARATHION ($\mu\text{G/L}$) (39542)	PEBULATE ($\mu\text{G/L}$) (82669)	PENDI- METHALIN ($\mu\text{G/L}$) (82683)	CIS- PERMETHRIN ($\mu\text{G/L}$) (82687)	PHORATE ($\mu\text{G/L}$) (82664)	PROMETON ($\mu\text{G/L}$) (04037)
0.004	0.004	0.004	0.005	0.002	0.018
PRONAMIDE ($\mu\text{G/L}$) (82676)	PROPACHLOR ($\mu\text{G/L}$) (04024)	PROPANIL ($\mu\text{G/L}$) (82679)	PROPARGITE ($\mu\text{G/L}$) (82685)	SIMAZINE ($\mu\text{G/L}$) (04035)	TEBUTHIURON ($\mu\text{G/L}$) (82670)
0.003	0.007	0.004	0.013	0.005	0.010
TERBACIL ($\mu\text{G/L}$) (82665)	TERBUFOS ($\mu\text{G/L}$) (82675)	THIOBENCARB ($\mu\text{G/L}$) (82681)	TRIALATE ($\mu\text{G/L}$) (82678)	TRIFLURALIN ($\mu\text{G/L}$) (82661)	
0.007	0.013	0.002	0.001	0.002	

ANALYSES OF GROUND-WATER SAMPLES COLLECTED AT SPECIAL-STUDY SITES

HYDROGEOLOGIC FRAMEWORK AND SAMPLING DESIGN

AGRICULTURAL LAND USE--GROUND-WATER QUALITY IN WELLS--Continued

TABLE 6.--PESTICIDE SCHEDULE FOR GROUND-WATER WELLS.

REMARKS.--Water from each of 20 wells in this study was tested for pesticides by the Pennsylvania Department of Environmental Protection (DEP) Laboratory in Harrisburg, Pa. The table below lists the 9 pesticides analyzed, the unit of measure (micrograms per liter, $\mu\text{g/L}$), the associated U.S. Geological Survey National Water Information System parameter code, and the method reporting level. This schedule includes selected pesticides and metabolites that are efficiently partitioned from a water sample by solid-phase extraction and are sufficiently volatile and thermally stable for analysis by gas chromatography. A summary of the results of the pesticides analyzed by the Pennsylvania DEP laboratory is listed in the water-quality table on pages 446-452.

ALACHLOR ($\mu\text{G/L}$) (77825)	ATRAZINE ($\mu\text{G/L}$) (39630)	CHLORO- THALONIL ($\mu\text{G/L}$) (70314)	CHLOR- PYRIFOS ($\mu\text{G/L}$) (39832)	CYANAZINE $\mu\mu\text{G/L}$ (81757)	METOLACHLOR ($\mu\text{G/L}$) (82612)
0.1	0.1	0.1	0.1	0.1	0.1
METRIBUZIN ($\mu\text{G/L}$) (82611)	PENDI- METHALIN ($\mu\text{G/L}$) (79190)	SIMAZINE ($\mu\text{G/L}$) (39055)			
0.1	0.1	0.1			

ANALYSES OF GROUND-WATER SAMPLES COLLECTED AT SPECIAL-STUDY SITES

HYDROGEOLOGIC FRAMEWORK AND SAMPLING DESIGN

AGRICULTURAL LAND USE--GROUND-WATER QUALITY IN WELLS--Continued

REMARKS.--The following tables contain water-level and water-quality data from a network of privately-owned wells used to supply water to rural homes and businesses throughout the state of Pennsylvania. The network was established as part of a U.S. Geological Survey hydrogeologic framework and sampling design project done in cooperation with the Pennsylvania Department of Agriculture. Water samples were analyzed for nutrients, bacteria, and pesticides as part of the Pennsylvania Pesticides and Ground Water Strategy. Analyses were performed by the Pennsylvania Department of Environmental Protection Laboratory in Harrisburg, Pa. and/or the U.S. Geological Survey National Water-Quality Laboratory in Arvada, Colorado. Data collected as part of this study are being used to help assess the ground-water quality of the State and to develop guidelines for prioritizing a sampling plan to assess areas of the State which have not been adequately characterized.

Additional data collected as part of this study can be found in Water Data Reports PA-98-1 and PA-98-3.

Explanation of column headings--SITE IDENTIFIER: 15-digit unique identifier based on site latitude (first six digits), longitude (digits seven through thirteen), and a 2-digit sequence number suffix; ELEVATION OF LAND SURFACE: Land surface at well site in feet above sea level, from topographic map; G/M: gallons per minute; μ S/CM: microsiemens per centimeter at 25 degrees Celsius; DEG.C: degrees Celsius; MG/L: milligrams per liter; μ G/L: micrograms per liter; COL/100 ML: colonies per 100 milliliters. The remark code "E" indicates an estimated value with uncertain accuracy and precision for the analyte.

WATER QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

SITE IDENTIFIER	LOCAL WELL NUMBER	LOCATION	DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)	DEPTH OF WELL, TOTAL (FEET)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD)	FLOW RATE (G/M)	SPECIFIC CONDUCTANCE (μ S/CM)
400307077350901	FR 814	Shippensburg	07-22-98	1200	9813	24.3	125	680	2.0	369
400906077323601	CU 928	Newburg	07-22-98	1400	9813	41.6	150	630	6.0	295
402700076180101	BE 1629	Myerstown	07-21-98	1100	9813	26.0	197	540	2.0	230
402815078191501	BA 539	Holidaysburg	07-29-98	1500	80020	35.3	110	1000	1.9	419
			07-29-98	1501	9813	35.3	110	1000	1.9	419
401829077453101	HU 424	Blairs Mills	07-29-98	1000	80020	60.4	140	980	3.6	349
			07-29-98	1001	9813	60.4	140	980	3.6	349
404113077281801	JU 371	Lewistown	07-27-98	1330	9813	127.4	250	740	3.0	573
403443077202901	JU 271	Mifflintown	07-27-98	1130	9813	38.6	160	540	2.0	1310
405538076471701	NU 525	Northumberland	07-30-98	1200	80020	--	280	570	2.5	482
			07-30-98	1201	9813	--	280	570	2.5	482
405002077493001	CE 681	State College	08-03-98	1400	80020	14.0	290	960	4.8	714
			08-03-98	1401	9813	14.0	290	960	4.8	714
405257077491001	CE 683	Bellefonte	08-04-98	1100	80020	189.9	299	1100	--	630
			08-04-98	1101	9813	189.9	299	1100	--	630
405518077394101	CE 682	Bellefonte	08-03-98	1130	80020	22.9	290	1070	3.1	631
			08-03-98	1131	9813	22.9	290	1070	3.1	631
410259077305201	CN 386	Mill Hall	08-04-98	1330	80020	113.6	220	820	5.4	585
			08-04-98	1331	9813	113.6	220	820	5.4	585
405939077243301	CN 102	Loganton	08-04-98	1500	80020	124.1	220	1230	3.6	444
			08-04-98	1501	9813	124.1	220	1230	3.6	444
415823077011001	TI 553	Lawrenceville	08-11-98	1500	9813	26.7	62.3	1000	5.0	506
414416076315401	BR 850	Towanda	08-12-98	1100	9813	80.1	170	1300	--	--
414823076174701	BR 848	Wyalusing	08-12-98	1330	9813	--	365	1300	2.7	414
413521075582901	WY 178	Tunkhannock	08-19-98	1500	9813	192.8	345	1115	5.0	292
415808077064601	TI 552	Lawrenceville	08-11-98	1400	80020	5.3	25	1000	2.8	256
			08-11-98	1401	9813	5.3	25	1000	2.8	256
410852076531501	NU 112	Watsonstown	08-10-98	1430	80020	--	36	475	3.6	233
			08-10-98	1431	9813	--	36	475	3.6	233
411416076453101	LY 682	Pennsdales	08-20-98	1200	9813	89.9	180	600	5.0	80
414146076373101	BR 849	Monroeton	08-12-98	0900	80020	23.6	45	960	3.6	352
410546076243801	CO 379	Orangeville	08-10-98	1130	80020	--	45	580	3.3	121
			08-10-98	1131	9813	--	45	580	3.3	121

ANALYSES OF GROUND-WATER SAMPLES COLLECTED AT SPECIAL-STUDY SITES

HYDROGEOLOGIC FRAMEWORK AND SAMPLING DESIGN

AGRICULTURAL LAND USE--GROUND-WATER QUALITY IN WELLS--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

LOCAL WELL NUMBER	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLI- FORM, CON- FIRMED (MPN) (31505)	E. COLI WATER WHOLE TOTAL UREASE (COL / 100 ML) (31633)	E. COLI ONPG- MUG, AUTO AN (COLO- NIES/ 100 ML) (50468)	NITRO- GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	ACETO- CHLOR, WATER FLTRD REC (µG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (µG/L) (46342)	ALA- CHLOR TOTAL RECOVER (µG/L) (77825)
FR 814	6.7	13.5	.5	--	4	--	0	<.010	<.040	--	--	<.100
CU 928	7.2	13.0	.7	--	0	--	0	<.010	<.040	--	--	<.100
BE 1629	6.1	16.0	--	--	0	--	0	<.010	<.040	--	--	<.100
BA 539	7.4	19.4	1.2	--	--	--	--	--	--	<.002	<.002	--
	7.4	19.4	1.2	--	0	--	0	<.010	<.040	--	--	--
HU 424	8.3	16.8	1.1	--	--	--	--	--	--	<.002	<.002	--
	8.3	16.8	1.1	--	4	--	0	<.010	.060	--	--	--
JU 371	7.5	12.0	8.8	--	0	--	0	<.010	4.35	--	--	<.100
JU 271	7.1	13.0	.6	--	0	--	0	<.010	.970	--	--	<.100
NU 525	7.3	11.0	2.6	--	--	--	--	--	--	<.002	<.002	--
	7.3	11.0	2.6	--	53	--	19	<.010	7.40	--	--	--
CE 681	7.1	11.7	5.3	--	--	--	--	--	--	<.002	<.002	--
	7.1	11.7	5.3	--	0	--	0	<.010	3.81	--	--	--
CE 683	7.4	11.5	10.5	--	--	--	--	--	--	<.002	<.002	--
	7.4	11.5	10.5	--	0	--	0	<.010	4.58	--	--	--
CE 682	7.4	11.7	3.0	--	--	--	--	--	--	<.002	<.002	--
	7.4	11.7	3.0	--	6	--	0	<.010	1.04	--	--	--
CN 386	7.2	13.1	9.1	--	--	--	--	--	--	<.002	<.002	--
	7.2	13.1	9.1	--	29	--	0	.010	4.17	--	--	--
CN 102	8.0	13.3	1.5	--	--	--	--	--	--	<.002	<.002	--
	8.0	13.3	1.5	--	200	--	0	<.010	.230	--	--	--
TI 553	7.4	11.5	.2	--	12	--	0	.080	2.18	--	--	<.100
BR 850	--	--	--	--	2	--	0	<.010	<.040	--	--	<.100
BR 848	7.5	11.9	1.3	--	0	--	0	<.010	.480	--	--	<.100
WY 178	6.8	10.9	7.4	<1	0	<1	0	<.010	5.68	--	--	--
TI 552	7.5	11.9	.1	--	--	--	--	--	--	<.002	<.002	--
	7.5	11.9	.1	--	0	--	0	<.010	<.040	--	--	<.100
NU 112	6.8	12.1	.2	--	--	--	--	--	--	<.002	<.002	--
	6.8	12.1	.2	--	0	--	0	.040	<.040	--	--	--
LY 682	6.8	13.4	9.7	--	0	--	0	<.010	6.68	--	--	<.100
BR 849	6.8	11.3	4.5	--	15	--	0	<.010	8.35	--	--	<.100
CO 379	6.5	11.4	8.8	--	--	--	--	--	--	<.002	<.002	--
	6.5	11.4	8.8	--	1	--	0	<.010	5.64	--	--	--

AGRICULTURAL LAND USE--GROUND-WATER QUALITY IN WELLS--Continued

[illegible]

ANALYSES OF GROUND-WATER SAMPLES COLLECTED AT SPECIAL-STUDY SITES

HYDROGEOLOGIC FRAMEWORK AND SAMPLING DESIGN

AGRICULTURAL LAND USE--GROUND-WATER QUALITY IN WELLS--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

AGRICULTURAL LAND USE--GROUND-WATER QUALITY IN WELLS--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

LOCAL WELL NUMBER		LIN-URON WATER FLTRD	MALA-THION, DIS-SOLVED	METHYL AZIN-PHOS WAT FLT	METHYL PARA-THION WAT FLT	METO-LACHLOR WATER DISSOLV	METOLA-CHLOR WATER WHOLE	METRI-BUZIN SENCOR WATER	METRI-BUZIN WATER WHOLE	MOL-INATE WATER FLTRD	NAPROP-AMIDE WATER FLTRD	P, P' DDE DISSOLV
		0.7 µ GF, REC (µG/L) (82666)	(µG/L) (39532)	0.7 µ GF, REC (µG/L) (82686)	0.7 µ GF, REC (µG/L) (82667)	(µG/L) (39415)	(µG/L) (82612)	(µG/L) (82630)	(µG/L) (82611)	0.7 µ GF, REC (µG/L) (82671)	0.7 µ GF, REC (µG/L) (82684)	(µG/L) (34653)
FR	814	--	--	--	--	--	<.100	--	<.100	--	--	--
CU	928	--	--	--	--	--	<.100	--	<.100	--	--	--
BE	1629	--	--	--	--	--	<.100	--	<.100	--	--	--
BA	539	<.002	<.005	<.001	<.006	<.002	--	<.004	--	<.004	<.003	<.006
		--	--	--	--	--	--	--	--	--	--	--
HU	424	<.002	<.005	<.001	<.006	<.002	--	<.004	--	<.004	<.003	<.006
		--	--	--	--	--	--	--	--	--	--	--
JU	371	--	--	--	--	--	<.100	--	<.100	--	--	--
JU	271	--	--	--	--	--	<.100	--	<.100	--	--	--
NU	525	<.002	<.005	<.001	<.006	<.002	--	<.004	--	<.004	<.003	<.006
		--	--	--	--	--	--	--	--	--	--	--
CE	681	<.002	<.005	<.001	<.006	<.002	--	<.004	--	<.004	<.003	<.006
		--	--	--	--	--	--	--	--	--	--	--
CE	683	<.002	<.005	<.001	<.006	.008	--	<.004	--	<.004	<.003	<.006
		--	--	--	--	--	--	--	--	--	--	--
CE	682	<.002	<.005	<.001	<.006	<.002	--	<.004	--	<.004	<.003	<.006
		--	--	--	--	--	--	--	--	--	--	--
CN	386	<.002	<.005	<.001	<.006	<.002	--	<.004	--	<.004	<.003	<.006
		--	--	--	--	--	--	--	--	--	--	--
CN	102	<.002	<.005	<.001	<.006	<.002	--	<.004	--	<.004	<.003	<.006
		--	--	--	--	--	--	--	--	--	--	--
TI	553	--	--	--	--	--	<.100	--	<.100	--	--	--
BR	850	--	--	--	--	--	<.100	--	<.100	--	--	--
BR	848	--	--	--	--	--	<.100	--	<.100	--	--	--
WY	178	--	--	--	--	--	--	--	--	--	--	--
TI	552	<.002	<.005	<.001	<.006	<.002	--	<.004	--	<.004	<.003	<.006
		--	--	--	--	--	<.100	--	<.100	--	--	--
NU	112	<.002	<.005	<.001	<.006	<.002	--	<.004	--	<.004	<.003	<.006
		--	--	--	--	--	--	--	--	--	--	--
LY	682	--	--	--	--	--	<.100	--	<.100	--	--	--
		--	--	--	--	--	--	--	--	--	--	--
BR	849	--	--	--	--	--	<.100	--	<.100	--	--	--
CO	379	<.002	<.005	<.001	<.006	<.002	--	<.004	--	<.004	<.003	<.006

AGRICULTURAL LAND USE--GROUND-WATER QUALITY IN WELLS--Continued

		PARA- THION, DIS- SOLVED (µG/L) (39542)	PEB- ULATE WATER FLTRD GF, REC (µG/L) (82669)	PENDI- METH- ALIN WAT FLT GF, REC (µG/L) (82683)	PENDI- METH- ALIN TOTAL (µG/L) (79190)	PER- METHRIN CIS WAT FLT GF, REC (µG/L) (82687)	PHORATE WATER FLTRD GF, REC (µG/L) (82664)	PRO- METON, WATER, DISS, REC (µG/L) (04037)	PRON- AMIDE WATER FLTRD GF, REC (µG/L) (82676)	PROP- CHLOR, WATER, DISS, REC (µG/L) (04024)	PRO- PANIL WATER FLTRD GF, REC (µG/L) (82679)	PRO- PARGITE WATER FLTRD GF, REC (µG/L) (82685)
FR	814	--	--	--	<.10	--	--	--	--	--	--	--
CU	928	--	--	--	<.10	--	--	--	--	--	--	--
BE	1629	--	--	--	<.10	--	--	--	--	--	--	--
BA	539	<.004	<.004	<.004	--	<.005	<.002	<.018	<.003	<.007	<.004	<.013
HU	424	<.004	<.004	<.004	--	<.005	<.002	<.018	<.003	<.007	<.004	<.013
JU	371	--	--	--	<.10	--	--	--	--	--	--	--
JU	271	--	--	--	<.10	--	--	--	--	--	--	--
NU	525	<.004	<.004	<.004	--	<.005	<.002	<.018	<.003	<.007	<.004	<.013
CE	681	<.004	<.004	<.004	--	<.005	<.002	.042	<.003	<.007	<.004	<.013
CE	683	<.004	<.004	<.004	--	<.005	<.002	<.018	<.003	<.007	<.004	<.013
CE	682	<.004	<.004	<.004	--	<.005	<.002	<.018	<.003	<.007	<.004	<.013
CN	386	<.004	<.004	<.004	--	<.005	<.002	<.018	<.003	<.007	<.004	<.013
CN	102	<.004	<.004	<.004	--	<.005	<.002	<.018	<.003	<.007	<.004	<.013
TI	553	--	--	--	<.10	--	--	--	--	--	--	--
BR	850	--	--	--	<.10	--	--	--	--	--	--	--
BR	848	--	--	--	<.10	--	--	--	--	--	--	--
WY	178	--	--	--	--	--	--	--	--	--	--	--
TI	552	<.004	<.004	<.004	--	<.005	<.002	<.018	<.003	<.007	<.004	<.013
NU	112	<.004	<.004	<.004	--	<.005	<.002	<.018	<.003	<.007	<.004	<.013
LY	682	--	--	--	<.10	--	--	--	--	--	--	--
BR	849	--	--	--	<.10	--	--	--	--	--	--	--
CO	379	<.004	<.004	<.004	--	<.005	<.002	<.018	<.003	<.007	<.004	<.013

AGRICULTURAL LAND USE--GROUND-WATER QUALITY IN WELLS--Continued

LOCAL WELL NUMBER		SI-		TEBU-	TER-	TER-	THIO-	TRIAL-	TRI-	DIAZ-	TERBUTH	HCH
		MAZINE,		THIURON	BACIL	BUFOS	BENCARB	LATE	FLUR-	INON	YLAZINE	ALPHA
		WATER,	SIMA-	WATER	WATER	WATER	WATER	WATER	ALIN	SURROGT		D6
	DISS,	ZINE	FLTRD	FLTRD	FLTRD	FLTRD	FLTRD	FLTRD	WAT FLT	WAT FLT	WAT FLT	SRG
	REC	TOTAL	0.7 µ	0.7 µ	0.7 µ	0.7 µ	0.7 µ	0.7 µ	0.7 µ	0.7 µ	0.7 µ	0.7 µ
	(µG/L)	(µG/L)	GF, REC	GF, REC	GF, REC	GF, REC	GF, REC	GF, REC	GF, REC	GF, REC	GF, REC	GF, REC
	(04035)	(39055)	(82670)	(82665)	(82675)	(82681)	(82678)	(82661)	(91063)	(91064)	(91065)	(91065)
FR	814	--	<.100	--	--	--	--	--	--	--	--	--
CU	928	--	<.100	--	--	--	--	--	--	--	--	--
BE	1629	--	<.100	--	--	--	--	--	--	--	--	--
BA	539	<.005	--	<.010	<.007	<.013	<.002	<.001	<.002	86.6	111	89.1
		--	--	--	--	--	--	--	--	--	--	--
HU	424	<.005	--	<.010	<.007	<.013	<.002	<.001	<.002	80.0	106	90.0
		--	--	--	--	--	--	--	--	--	--	--
JU	371	--	<.100	--	--	--	--	--	--	--	--	--
JU	271	--	<.100	--	--	--	--	--	--	--	--	--
NU	525	<.005	--	<.010	<.007	<.013	<.002	<.001	<.002	94.7	104	89.7
		--	--	--	--	--	--	--	--	--	--	--
CE	681	.012	--	<.010	<.007	<.013	<.002	<.001	<.002	100	116	95.2
		--	--	--	--	--	--	--	--	--	--	--
CE	683	.020	--	<.010	<.007	<.013	<.002	<.001	<.002	94.2	99.1	81.5
		--	--	--	--	--	--	--	--	--	--	--
CE	682	.007	--	<.010	<.007	<.013	<.002	<.001	<.002	99.0	109	97.9
		--	--	--	--	--	--	--	--	--	--	--
CN	386	<.005	--	<.010	<.007	<.013	<.002	<.001	<.002	100	107	89.9
		--	--	--	--	--	--	--	--	--	--	--
CN	102	<.005	--	<.010	<.007	<.013	<.002	<.001	<.002	99.0	102	89.3
		--	--	--	--	--	--	--	--	--	--	--
TI	553	--	<.100	--	--	--	--	--	--	--	--	--
BR	850	--	<.100	--	--	--	--	--	--	--	--	--
BR	848	--	<.100	--	--	--	--	--	--	--	--	--
WY	178	--	--	--	--	--	--	--	--	--	--	--
TI	552	<.005	--	<.010	<.007	<.013	<.002	<.001	<.002	101	121	84.8
		--	<.100	--	--	--	--	--	--	--	--	--
NU	112	<.005	--	<.010	<.007	<.013	<.002	<.001	<.002	102	114	95.0
		--	--	--	--	--	--	--	--	--	--	--
LY	682	--	<.100	--	--	--	--	--	--	--	--	--
BR	849	--	<.100	--	--	--	--	--	--	--	--	--
CO	379	<.005	--	<.010	<.007	<.013						

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CONVERSION FACTORS AND VERTICAL DATUM

Multiply	By	To obtain
<i>Length</i>		
inch (in.)	2.54×10^1	millimeter
	2.54×10^{-2}	meter
foot (ft)	3.048×10^{-1}	meter
mile (mi)	1.609×10^0	kilometer
<i>Area</i>		
acre	4.047×10^3	square meter
	4.047×10^{-1}	square hectometer
	4.047×10^{-3}	square kilometer
square mile (mi ²)	2.590×10^0	square kilometer
<i>Volume</i>		
gallon (gal)	3.785×10^0	liter
	3.785×10^0	cubic decimeter
	3.785×10^{-3}	cubic meter
million gallons (Mgal)	3.785×10^3	cubic meter
	3.785×10^{-3}	cubic hectometer
cubic foot (ft ³)	2.832×10^1	cubic decimeter
	2.832×10^{-2}	cubic meter
cubic-foot-per-second day [(ft ³ /s) d]	2.447×10^3	cubic meter
	2.447×10^{-3}	cubic hectometer
acre-foot (acre-ft)	1.233×10^3	cubic meter
	1.233×10^{-3}	cubic hectometer
	1.233×10^{-6}	cubic kilometer
<i>Flow</i>		
cubic foot per second (ft ³ /s)	2.832×10^1	liter per second
	2.832×10^1	cubic decimeter per second
	2.832×10^{-2}	cubic meter per second
gallon per minute (gal/min)	6.309×10^{-2}	liter per second
	6.309×10^{-2}	cubic decimeter per second
	6.309×10^{-5}	cubic meter per second
million gallons per day (Mgal/d)	4.381×10^1	cubic decimeter per second
	4.381×10^{-2}	cubic meter per second
<i>Mass</i>		
ton (short)	9.072×10^{-1}	megagram or metric ton

Sea level: In this report “sea level” refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment for the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

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