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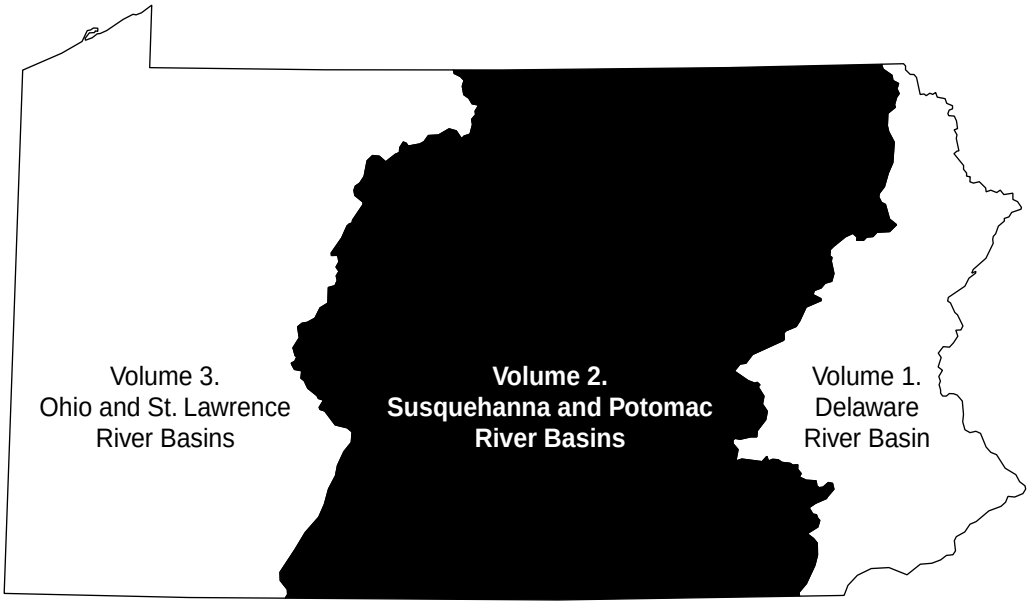
Water Resources Data Pennsylvania Water Year 2002

Volume 2. Susquehanna and Potomac River Basins

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

Water-Data Report PA-02-2



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2003

PREFACE

This volume of the annual hydrologic data report of Pennsylvania is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by State, local, and Federal agencies, and the private sector for developing and managing our Nation's land and water resources. Hydrologic data for Pennsylvania are contained in 3 volumes.

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

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

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13. ABSTRACT *(Maximum 200 words)*

Water resources data for the 2002 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 82 continuous-record streamflow-gaging stations, 13 partial-record stations, 24 special study and miscellaneous streamflow sites, and 33 low-flow miscellaneous streamflow sites; (2) elevation and contents records for 12 lakes and reservoirs; (3) water-quality records for 33 gaging stations and 104 ungaged streamsites; (4) water-level records for 38 network observation wells; (5) water-quality analyses at 32 special study ground-water wells; and (6) miscellaneous water-level measurements at 31 special study ground-water wells. Site locations are shown in figures throughout the report. Additional water data collected at various sites not involved in the systematic data-collection program are also presented. These data together with the data in Volumes 1 and 3, represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State, local, and Federal agencies in Pennsylvania.

14. SUBJECT TERMS

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

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

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	Station number	Page
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Marsh Creek at Blanchard (d)	01547700	129
Beech Creek at Monument (d)	01547950	131
Pine Creek at Cedar Run (d)	01548500	133
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Blockhouse Creek near English Center (d)	01549500	135
Pine Creek below Little Pine Creek near Waterville (d,c)	01549700	137
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Conodoguinet Creek:		
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Yellow Breeches Creek:		
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Lorberry Creek near Lorberry Junction (d,c,sc,pH,t)	01571778	242
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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

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ADAMS COUNTY		
Well 395846077040601	Local number AD 146 (l)	474
BEDFORD COUNTY		
Well 400217078281901	Local number BD 150 (l)	475
Well 400450078303001	Local number BD 654 (l)	476
BLAIR COUNTY		
Well 402452078271301	Local number BA 74 (l)	477
BRADFORD COUNTY		
Well 414330076280501	Local number BR 92 (l)	478
CAMBRIA COUNTY		
Well 403434078302201	Local number CA 459 (l)	479
CAMERON COUNTY		
Well 412732078034201	Local number CM 13 (l)	480
CENTRE COUNTY		
Well 404518077575501	Local number CE 118 (l)	481
Well 404556077525101	Local number CE 686 (l)	482
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Well 410738077262702	Local number CN 398 (l)	487
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Well 410734077262102	Local number CN 419 (l)	489
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Well 402118076462201	Local number DA 350 (l)	494
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JUNIATA COUNTY		
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LANCASTER COUNTY		
Well 401637076071501	Local number LN 1351 (l)	503
LUZERNE COUNTY		
Well 411756076162701	Local number LU 294 (l)	504
LYCOMING COUNTY		
Well 412427076594401	Local number LY 112 (l)	505
MIFFLIN COUNTY		
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MONTOUR COUNTY		
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GROUND-WATER WELLS, BY COUNTY, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

GROUND-WATER RECORDS

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Well 403939076591001 Local number SN 130 (l)	513
SULLIVAN COUNTY	
Well 413026076352901 Local number SU 34 (l)	514
SUSQUEHANNA COUNTY	
Well 415323077451301 Local number SQ 61 (l)	515
TIOGA COUNTY	
Well 414513077333701 Local number TI 100 (l)	516
UNION COUNTY	
Well 405928077115501 Local number UN 51 (l)	517
WYOMING COUNTY	
Well 412826076083301 Local number WY 179 (l)	518
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GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES

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Statewide assessment of methyl-tert-butyl-ether (MTBE) in ground water 524

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

DISCONTINUED CONTINUOUS-RECORD SURFACE-WATER DISCHARGE STATIONS

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

DISCONTINUED CONTINUOUS-RECORD SURFACE-WATER DISCHARGE STATIONS —Continued

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
Anna S mine discharge #1 near Antrim	01548416	mine discharge	1978-81
Hunter Drift discharge near Antrim	01548418	mine discharge	1978-81
Pine Creek near Waterville	01549000	750	1909-20
Blockhouse Creek tributary at Liberty	01549100	1.08	1973-77
Blockhouse Creek at Buttonwood	01549300	22.3	1973-77
Steam Valley Run at Buttonwood	01549350	5.34	1973-77
Antes Creek near Jersey Shore	01549755	53.3	1974-77
Larrys Creek at Cogan House	01549780	6.80	1961-78
White Deer Cr. above Sand Spring Run near White Deer	01553120	17.8	1968-73
Sand Spring Run near White Deer	01553130	4.93	1968-81
White Deer Creek near White Deer	01553140	40.0	1968-73
East Branch Chillisquaque Creek near Washingtonville	01553600	9.48	1960-78
Shamokin Creek near Shamokin	01554500	54.2	1938-93
East Mahantango Creek at Klingerstown	01555400	44.7	1993-95, 1997-2000
Little Juniata River at Tipton	01556500	93.7	1946-62
Little Juniata River near Tyrone	01557000	101	1940-45
Schell Run at Tyrone	01557100	1.68	1958-62
Shaver Creek near Petersburg	01558500	46.4	1930-38
Standing Stone Creek near Huntingdon	01559500	128	1930-58
Sulphur Springs Creek near Manns Choice	01559700	5.28	1962-78
Bobs Creek near Pavia	01559795	16.6	1993-1994, 1997-2000
Dunning Creek at Yount	01560500	191	1930-39
Brush Creek at Gapsville	01561000	36.8	1930-58
Great Trough Creek near Marklesburg	01562500	84.6	1930-57
Raystown Branch Juniata River near Huntingdon	01563000[a]	957	1947-71
Aughwick Creek near Orbisonia	01564000	174	1930-38
Little Lost Creek at Oakland Mills	01565700	6.52	1964-81
Cocalamus Creek near Millerstown	01566500	57.2	1931-58
Clark Creek near Carsonville	01568500	22.5	1937-96

DISCONTINUED CONTINUOUS-RECORD SURFACE-WATER DISCHARGE STATIONS —Continued

Station name	Station number	Drainage area (mi^2)	Period of record (water years)
Stony Cr. above Pump-storage Reservoir near Dauphin	01568700	11.5	1974-80
Stony Creek at Water Tank Trail near Dauphin	01568750	21.9	1974-76, 1985-86
Stony Creek near Dauphin	01569000	33.2	1938-45, 1967-74
Conodoguinet Creek tributary No. 1 near Enola	01570100	.77	1969-76
Conodoguinet Creek tributary No. 2 near Enola	01570200	.76	1969-76
Conodoguinet Creek tributary No. 2A near Enola	01570230	.60	1969-76
Conodoguinet Creek tributary No. 2B near Enola	01570260	.65	1969-76
Conodoguinet Creek tributary No. 3 near Enola	01570300	.38	1969-76
Paxton Creek near Penbrook	01571000‡	11.2	1940-50, 1985-89, 1992-95
Cedar Run at Eberlys Mill	01571490	12.6	1993-95
Swatara Creek below Ravine	01571827	46.3	1985-87
Swatara Creek above highway bridge 895 at Pine Grove	01571919	72.6	1982-84
Lower Little Swatara Creek at Pine Grove	01572000	34.3	1920-32, 1981-84
Swatara Creek near Suedberg	01572030	124	1985-87
Beck Creek near Cleona	01573086	7.87	1963-81
Bachman Run at Annville	01573095	7.3	1993-95
Quittapahilla Creek near Bellegrove	01573160	74.2	1976-94
Manada Creek at Manada Gap	01573500	13.5	1938-58
Brush Run, Site 2, near McSherrystown	01573810	.38	1985-91
East Branch Codorus Creek tributary near Winterstown	01574800	5.17	1969-75
South Branch Codorus Creek near York	01575000	117	1928-95
Codorus Creek near York	01575500*	222	1940-96
Codorus Creek at Pleasureville	01575585	267	1985-90
Little Conestoga Creek, Site 3A, near Morgantown	0157608335	1.42	1984-91
Little Conestoga Creek near Churchtown	01576085	5.82	1982-95
Muddy Run at Weavertown	01576520	6.68	1993-97
Big Spring Run near Willow Street	01576521	1.77	1994-2001
North Fork Unnamed Tributary to Big Spring Run near Lampeter	015765265	.32	1995-2001
North Fork Unnamed Tributary to Big Spring Run at Lampeter	01576527	.36	1994-2001

DISCONTINUED CONTINUOUS-RECORD SURFACE-WATER DISCHARGE STATIONS —Continued

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

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

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

DISCONTINUED CONTINUOUS-RECORD SURFACE-WATER-QUALITY STATIONS

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

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

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

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

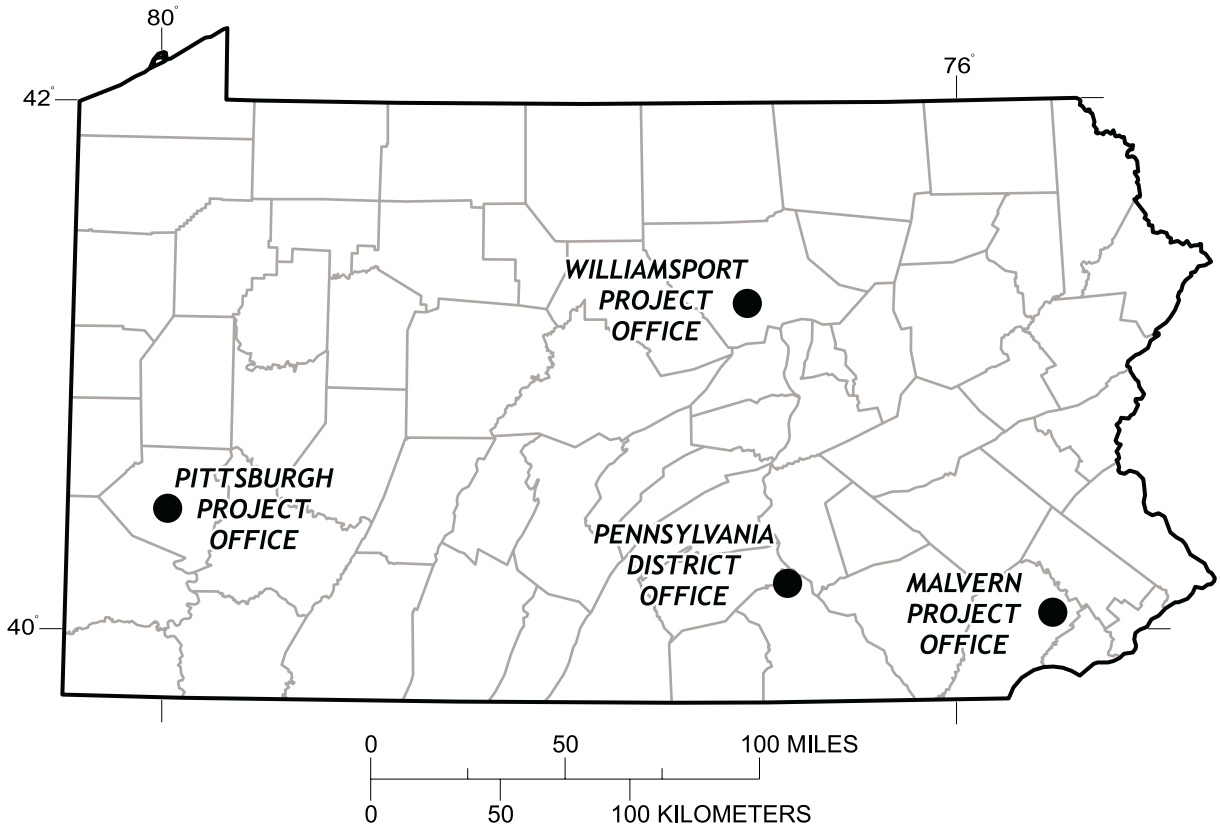
Station name	Station number	Drainage area (mi^2)	Type of Record	Period of record (water years)
East Mahantango Creek at Klingerstown	01555400	44.7	SC[a] Temp	1993-95 1993-95, 1997-2000
Juniata River at Huntingdon	01559000	816	Temp	1948-51, 1981-86[c]
Bobs Creek near Pavia	01559795	16.6	SC[a] Temp[a]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

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

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

[a] Max, Min, Mean values.
[b] Max, Min values.
[c] Most years.

PENNSYLVANIA DISTRICT OFFICE LOCATIONS AND ADDRESSES



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INTRODUCTION

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

This report, Volume 2, contains: (1) discharge records for 82 continuous-record streamflow-gaging stations, 13 partial-record stations, and 24 special study and miscellaneous streamflow sites, and 33 low-flow miscellaneous streamflow sites; (2) elevation and contents records for 12 lakes and reservoirs; (3) water-quality records for 33 streamflow gaging stations and 104 partial-record and project stations; and (4) water-level records for 38 ground-water network observation wells; (5) water-quality analyses at 32 special study ground-water wells; and, (6) miscellaneous water-level measurements at 31 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-02-2." These water-data reports, beginning with the 1971 water year, are for sale as paper copy or microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

The annual series of Water Data Reports for Pennsylvania began with the 1961 water-year report and contained only data relating to quantities of surface water. With the 1964 water year, a companion report (part 2) was introduced that contained only data relating to water quality. Beginning with the 1975 water year the report was changed to three volumes (by river basin), with each volume containing data on quantities of surface water, quality of surface and ground water, and ground-water levels.

Prior to the introduction of this series and for several years concurrent with it, water-resources data for Pennsylvania were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage, and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface-Water Supply of the United States," which was released in numbered parts as determined by natural drainage basins. For the 1961-70 water years, these data were published in two 5-year reports. Data prior to 1961 are included in two reports: "Compilation of Records of Surface Waters of the United States through 1950," and "Compilation of Records of Surface Waters of the United States, October 1950 to September 1960." Data for Pennsylvania are published in Parts 1, 3, and 4. Data on chemical quality, temperature, and suspended sediment for the 1941-70 water years were published annually under the title "Quality of Surface Waters of the United States," and ground-water levels for the 1935-74 water years were published annually under the title "Ground-Water Levels in the United States." The above mentioned Water-Supply Papers may be consulted in the libraries of the principal cities of the United States and may be purchased from the U.S. Geological Survey, Information Services, Box 25286, Denver, CO 80225.

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

COOPERATION

The U.S. Geological Survey (USGS) and organizations of the Commonwealth of Pennsylvania have had cooperative agreements for the systematic collection of surface-water records during the periods 1919-21 and 1931 to date, water-quality records from 1944 to date, and ground-water records from 1925 to date. Organizations that supplied data are acknowledged in station manuscripts. Organizations that assisted in collecting data for this report through cooperative agreements with the USGS are listed below.

The Commonwealth of Pennsylvania, Department of Environmental Protection, David E. Hess, Secretary, through the following:
Office of Water Management, Christine Martin, Deputy Secretary;
- Bureau of Water Supply and Wastewater Management, Frederick Marrocco, Director;
- Bureau of Watershed Management, Stuart I. Gansell, Director;
- Bureau of Waterways Engineering, Michael Conway, Director;

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

Office of Management and Technical Services, Kenwood Giffhorn, Deputy Secretary;
- Bureau of Laboratories, Roger H. Carlson, Director;

Borough of Chambersburg, Robert P. Morris, Mayor;
City of Sunbury Municipal Authority, Danny W. Ramer, General Manager;
City of Williamsport, Michael R. Rafferty, Mayor;

COOPERATION--Continued

Franklin County Watershed Association, Robert Cronauer, Vice President;
Letort Regional Authority, Brian L. Fischbach, Executive Director;
Luzerne County Emergency Management Agency, Albert Bardar, Director;
New Oxford Municipal Authority, Earl E. Mummert, Chairman;
Quittapahilla Watershed Association, David Lasky, Chairman;
Roaring Spring Municipal Authority, Fred L. Beers, Chairman;
Susquehanna River Basin Commission, Paul O. Swartz, Executive Director;
Town of Bloomsburg, Mary Lenzini Howe, Mayor;
Union County Commissioners, W. Max Bossert, Chairman;
University Area Joint Authority, Cory R. Miller, Executive Director.

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

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

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

SUMMARY OF HYDROLOGIC CONDITIONS

Surface Water

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

Precipitation and Streamflow

Data from 34 selected National Oceanic and Atmospheric Administration climatological sites, located within 5 climatic regions in the Susquehanna River Basin in Pennsylvania, indicated the annual precipitation for the Susquehanna River Basin in central Pennsylvania was below normal. The greatest deficit basinwide, with an average of 1.71 inches below normal, occurred in July. The greatest surplus basinwide, with an average of 1.67 inches above normal, occurred in May. Basinwide, precipitation totals for the water year averaged 36.1 inches compared to the historical average of 39.5 inches.

As an example, the 2002 monthly and annual precipitation were compared with the 1961-90 mean monthly and annual precipitation recorded at Lancaster and Williamsport, Pennsylvania (fig. 1). The precipitation data are from the National Oceanic and Atmospheric Administration (U.S. Department of Commerce, 2001-2002) and National Weather Service records.

Two U.S. Geological Survey streamflow-gaging stations within the basin were selected as indicators of basinwide streamflow conditions. Figure 2 compares the 2002 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 2002 water year annual mean streamflow was about 89 percent of the 1961-90 median of the mean annual streamflows in the West Branch Susquehanna River at Williamsport, and about 33 percent of the 1961-90 median of the mean annual streamflows in the Conestoga River at Lancaster.

Monthly mean streamflows exceeded the normal range in the West Branch Susquehanna River in May and June during the 2002 water year (fig. 2). Normal streamflows are defined as those between the 25th and 75th percentiles as compared to the monthly mean streamflows for 1961-90. Monthly mean streamflows were below normal in the West Branch Susquehanna River for the months of November, July, August, and September. In the Conestoga River, monthly mean streamflows were below normal all months except May and June during the 2002 water year (fig. 2).

The Governor of Pennsylvania made several Drought Declarations affecting the Susquehanna River basin during the 2002 water year. The effects of sparse snowfall amounts and below-average precipitation totals for the period October 2001 through February 2002 culminated in the issuance of a drought emergency declaration on February 12 affecting 24 counties, many located in the lower Susquehanna River basin. By June 14th though, improvements in rainfall amounts had returned a majority of Pennsylvania counties to normal status. Rainfall deficiencies over the summer months caused the water year to end with 19 counties in southcentral and southeastern Pennsylvania in a drought emergency status. For the water year, only 12 of Pennsylvania's 67 counties escaped being in some sort of drought status.

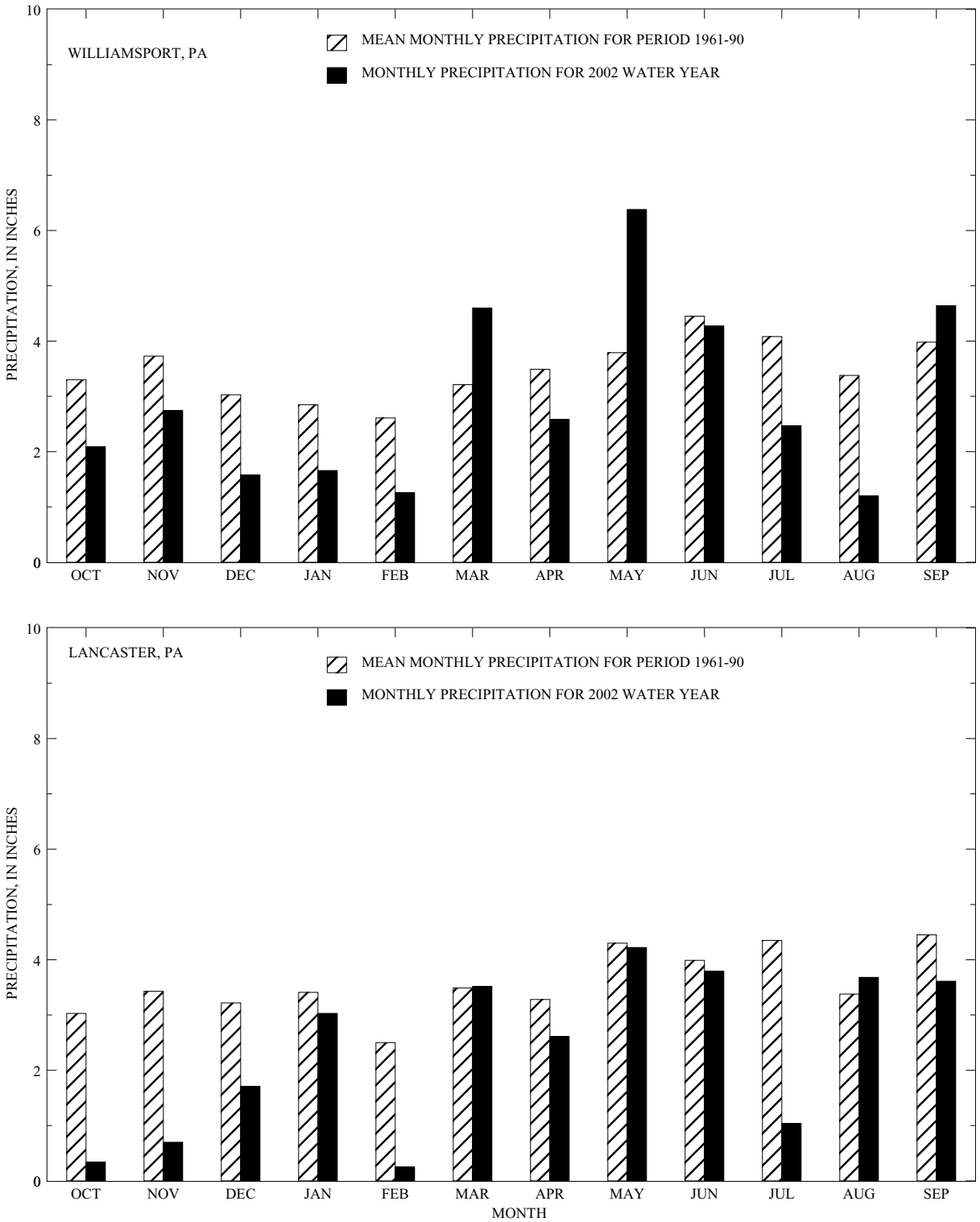
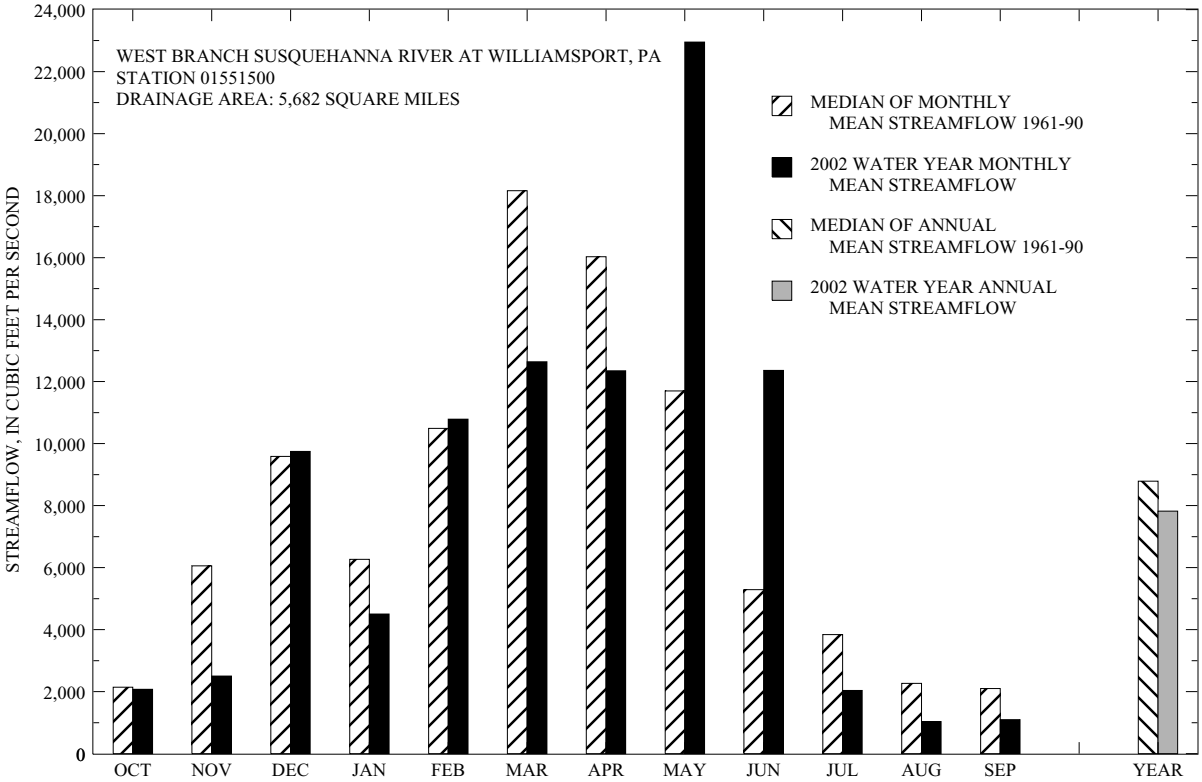


Figure 1.--Comparison of monthly precipitation at two National Oceanic and Atmospheric Administration climatological stations during the 2002 water year and mean monthly precipitation for the period 1961 through 1990.



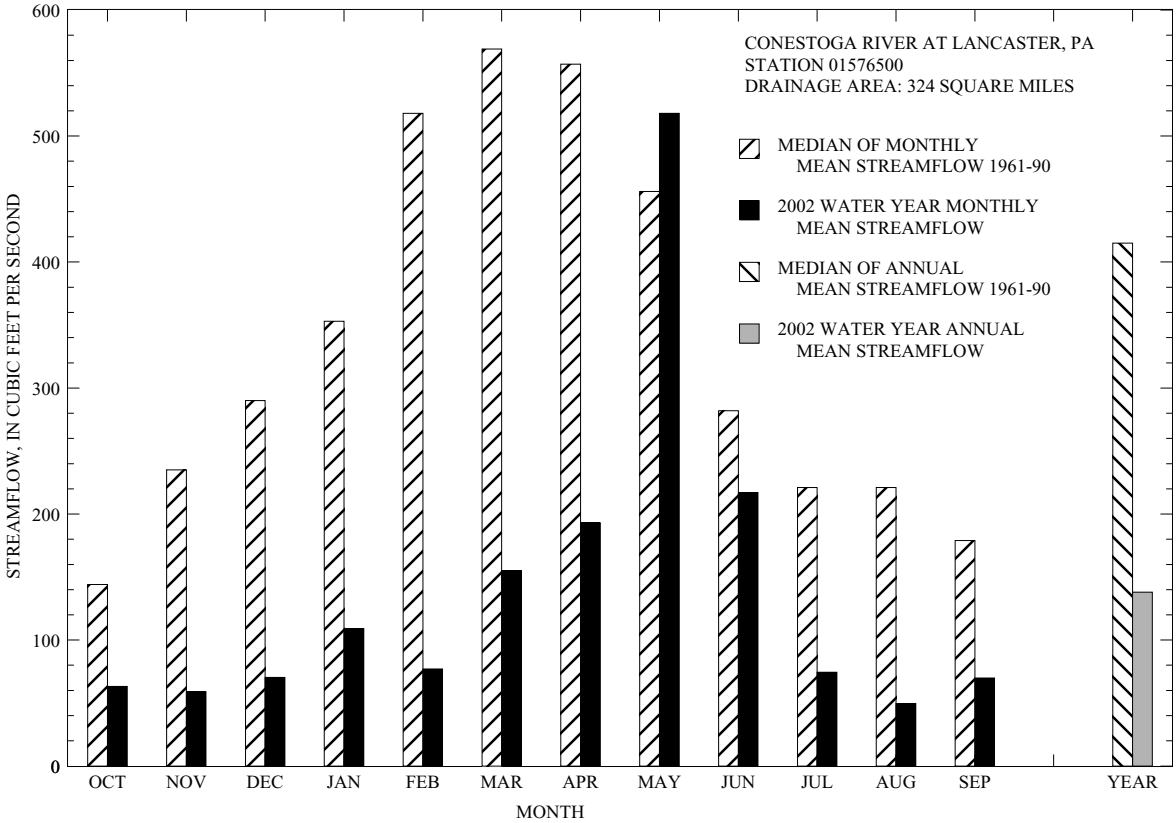


Figure 2.--Comparison of streamflow at two long-term streamflow-gaging stations during the 2002 water year and the median monthly and annual mean streamflow for the period 1961 through 1990.

Reservoirs

The combined storage of 12 major reservoirs in the Susquehanna River Basin decreased from 656,531 acre-feet (44.2 percent of total combined capacity) on September 30, 2001, to 639,835 acre-feet (43.1 percent of total combined capacity) on September 30, 2002. Maximum and minimum storage in individual reservoirs varied throughout the year depending on the purpose and capacity of each reservoir.

Ground Water

Ground-water levels, which were generally at or below normal throughout all of the Susquehanna River basin at the end of the 2001 water year (Durlin and Schaffstall, 2002), continued in that manner through the winter of 2001, and had generally returned to normal levels during the spring season of the 2002 water year (April through June 2002). The water levels in 13 of the 19 observation wells were normal at that time, and at least 9 wells maintained normal levels throughout the summer season as well. Ground-water levels during the water year generally reflected the seasonal precipitation variations (fig. 1). The 2002 water year began with 11 wells either below normal or much below normal and ended with 9 wells in those same categories. A comparison between ground-water levels for the 2002 water year and long-term seasonal ground-water levels is shown in figure 3.

References

Durlin, R. R., and Schaffstall W. P., 2002, Water resources data, Pennsylvania, water year 2001: U.S. Geological Survey Water-Data Report PA-01-2, 441 p.

U.S. Department of Commerce, 2001-2002, Climatological Data for Pennsylvania, Volume 106-107: National Oceanic and Atmospheric Administration, National Environmental Satellite, Data, and Information Service.

Pennsylvania Department of Environmental Protection, 2002, Drought Information Center, accessed many times in 2002, at URL *http://www.dep.state.pa.us/dep/subject/hotopics/drought/drought.htm*

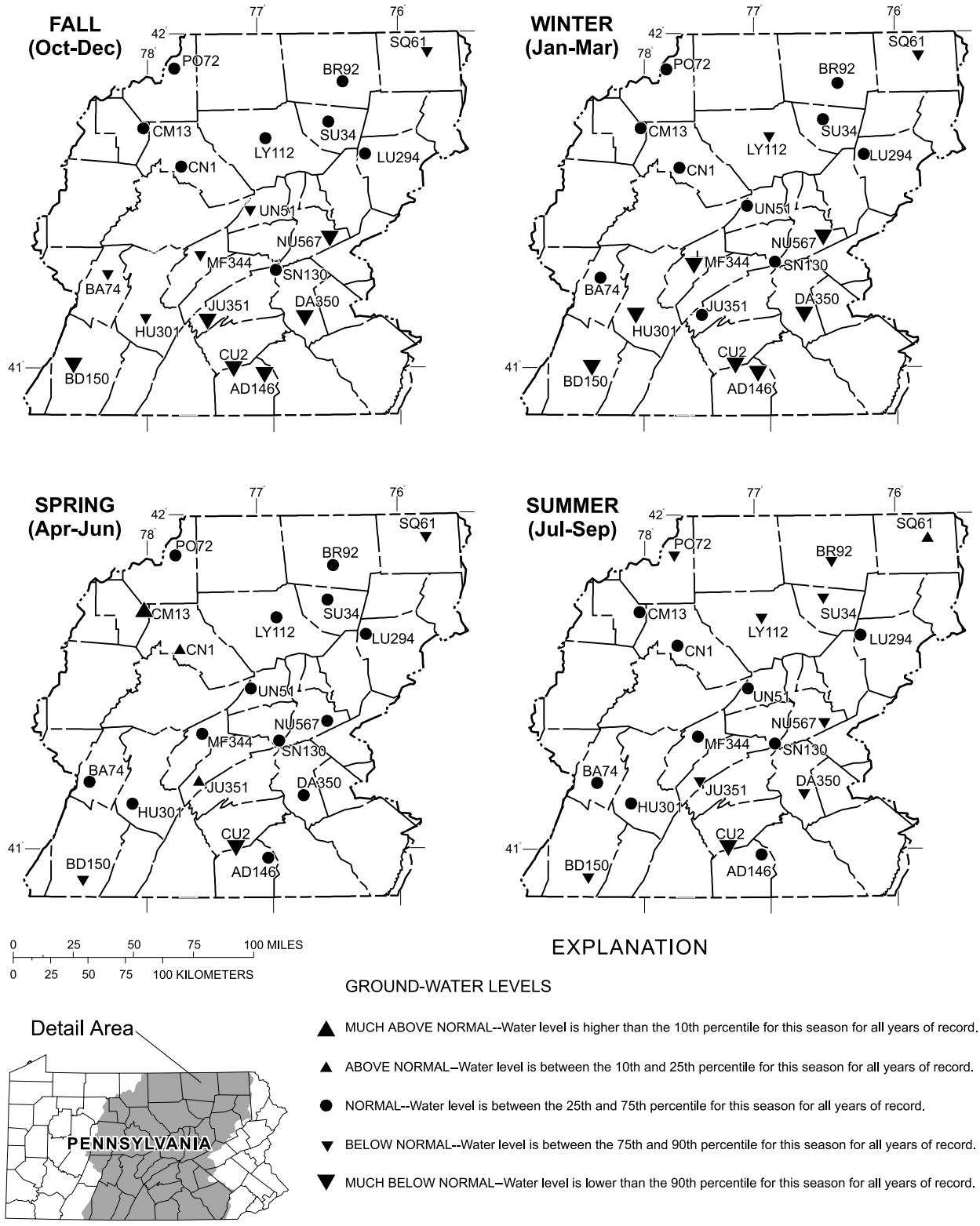


Figure 3.--Relation between 2002 seasonal ground-water levels and long-term ground-water levels *[Seasonal percentile values were determined by ranking the average monthly water levels for each month in the season from highest to lowest for all years of record and averaging the ranks for the three months. A water level that is higher than the seasonal 10th percentile value would be expected to occur only once in a ten-year period. Conversely, a water level that is lower than the seasonal 90th percentile value also would be expected to occur only once during a ten-year period.]*

SPECIAL NETWORKS AND PROGRAMS

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

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

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

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

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

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

EXPLANATION OF THE RECORDS

The surface-water and ground-water records in this report are for the 2002 water year that began October 1, 2001, and ended September 30, 2002. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, water-quality data for streamflow stations, and ground-water-level data. The location of these stations and wells are shown in figures throughout the report. The following sections of the introductory text are presented to provide users with a more detailed explanation of how these hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

Each data station in this report, whether a streamsite or a well, is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations and for ground-water well sites differ, but both are based on geographic location. The "*downstream order*" system is used for regular surface-water stations and the "*latitude-longitude*" system is used for wells and, in Pennsylvania, for some miscellaneous surface-water sites where only random water-quality samples or discharge measurements are made.

Downstream-Order System

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary on which a station is situated with respect to the stream to which it is immediately tributary is indicated by an indention in a list of stations in the front of the report. Each indention represents one rank. This downstream-order system of indention shows which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

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

Latitude-Longitude System

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

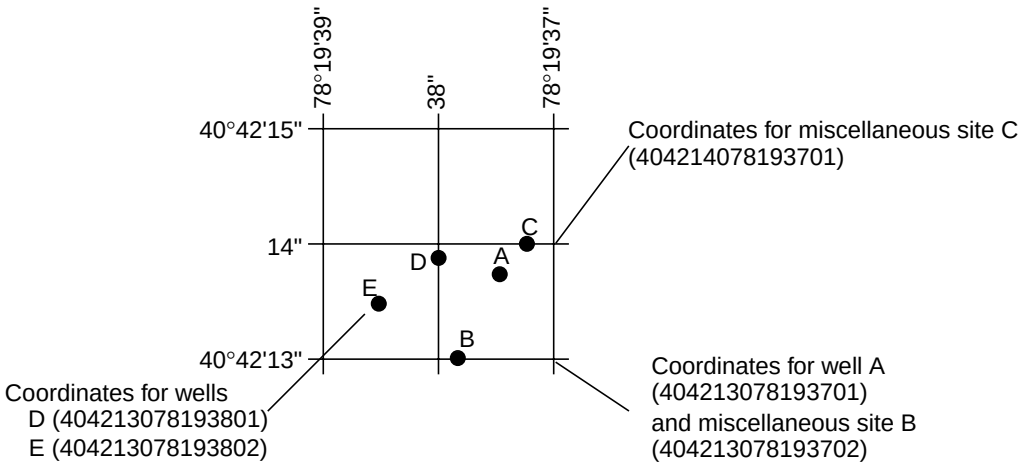


Figure 4.--System for numbering wells and miscellaneous sites (latitude and longitude).

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

Records of Stage and Water Discharge

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

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "*Crest-stage partial-record stations*," or "*Low-flow partial-record stations*." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this report. Location of all continuous-record and partial-record stations for which data are given in this report are shown in figures 5-12.

Data Collection and Computation

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

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

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

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

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

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

Data Presentation

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

Station manuscript

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

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

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

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

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

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

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

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

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

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

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

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

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

Data table of daily mean values

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

Statistics of monthly mean data

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

Summary statistics

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Identifying Estimated Daily Discharge

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

Accuracy of the Records

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

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

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

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

Other Records Available

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

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

Records of Surface-Water Quality

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

Classification of Records

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

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

Arrangement of Records

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

On-site Measurements and Sample Collection

During the collection of water-quality data, assurance that the data obtained represent the in-situ quality of the water is a major concern. Certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are collected. To assure that measurements made in the laboratory also represent the in-situ water quality, carefully prescribed procedures need to be followed when collecting the samples, when treating the samples to prevent changes in quality pending analysis, and when shipping the samples to the laboratory. Procedures for on-site measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," Book 1, Chap. D2; Book 3, Chap. A1, A3, and A4; Book 9, Chap. A1-A9. These references are listed in the PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS section of this report. These methods are consistent with ASTM standards and generally follow ISO standards. Also, detailed information on collecting, treating, and shipping samples may be obtained from the U.S. Geological Survey District Office.

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

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

For chemical-quality stations equipped with digital monitors, the published records consist of daily maximum, minimum, and mean values for each constituent measured and are determined from data that are recorded at 15-, 30-, or 60-minute intervals by solid-state electronic data loggers, or with Data Collection Platforms (DCPs). More detailed records (measured at a frequency greater than daily) may be obtained from the U.S. Geological Survey District Office at the address given on the back of the title page of this report or from *[http://waterdata.usgs.gov/pa/nwis/]*.

Water Temperature

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

Sediment

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

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

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

Laboratory Measurements

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

Data Presentation

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

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

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

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

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

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

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

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

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

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made in the U.S. Geological Survey's distributed data system, NWIS, and subsequently to its web-based National data system, NWISWeb *[http://waterdata.usgs.gov/nwis/]*. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from NWIS or NWISWeb to insure the most recent updates. Updates to NWISWeb are currently made on an annual basis.

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

Accuracy of the Records

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

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

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

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

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

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

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

Remark Codes

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

PRINTED OUTPUT	REMARK
E,e	Estimated value.
>	Actual value is known to be greater than the value shown.
<	Actual value is known to be less than the value shown.
M	Presence of material verified, but not quantified.
N	Presumptive evidence of presence of material.
U	Material specifically analyzed for, but not detected.
A	Value is an average.
V	Analyte was detected in both the environmental sample and the associated blanks.
S	Most probable value.

Dissolved Trace-Element Concentrations

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

Change in National Trends Network Procedures

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

Water Quality-Control Data

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Records of Ground-Water Levels

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

Data Collection and Computation

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

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

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

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

Data Presentation

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

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

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

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

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

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

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

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

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

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

Data table of water levels

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

Records of Ground-Water Quality

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

Data Collection and Computation

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

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

Data Presentation

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

ACCESS TO USGS WATER DATA

The U.S. Geological Survey is the principal Federal water-data agency and, as such, collects and disseminates about 70 percent of the water data currently being used by numerous State, local, private, and other Federal agencies to develop and manage our water resources. The Geological Survey provides near real-time stream stage and discharge, groundwater well water level, and stream water-quality data for many of the stations equipped with the necessary telemetry and historic daily-mean and peak-flow discharge data for most current or discontinued gaging stations through the World Wide Web (WWW). These data may be accessed at *[http://waterdata.usgs.gov/pa/nwis/]*.

Water-quality and ground-water data also are available through the WWW at *[http://waterdata.usgs.gov/pa/nwis/]*. In addition, data can be provided in various machine-readable formats on compact disc or 3-1/2 inch floppy disk. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the Water Resources Division District Offices (See address on the back of the title page.).

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

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

DEFINITION OF TERMS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Blue-green algae (*Cyanophyta*) are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water. Concentrations are expressed as a number of cells per milliliter (cells/mL) of sample. (See also "Phytoplankton")

Bottom material (See "Bed material")

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

Cells/volume refers to the number of cells of any organism that is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample volume, and are generally reported as cells or units per milliliter (mL) or liter (L).

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

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

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

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

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

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

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

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

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

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

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

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

Continuous-record station is a site where data are collected with sufficient frequency to define daily mean values and variations within a day.

Control designates a feature in the channel that physically affects the water-surface elevation and thereby determines the stage-discharge relation at the gage. This feature may be a constriction of the channel, a bedrock outcrop, a gravel bar, an artificial structure, or a uniform cross section over a long reach of the channel.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Dissolved-solids concentration in water is the quantity of dissolved material in a sample of water. It is determined either analytically by the “residue-on-evaporation” method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. In the mathematical calculation, the bicarbonate value, in milligrams per liter, is multiplied by 0.4926 to convert it to carbonate. Alternatively, alkalinity concentration (as mg/L $CaCO_3$) can be converted to carbonate concentration by multiplying by 0.60.

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

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

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

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

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

Dry mass refers to the mass of residue present after drying in an oven at 105 ˚C, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass. (See also “Ash mass,” “Biomass,” and “Wet mass”)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Horizontal datum (See "Datum")

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Micrograms per gram (UG/G, µg/g) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Particle size is the diameter, in millimeters (mm), of a particle determined by sieve or sedimentation methods. The sedimentation method utilizes the principle of Stokes law to calculate sediment particle sizes. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube, sedigraph) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

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

Classification	Size (mm)	Method of analysis
Clay	>0.00024 - 0.004	Sedimentation
Silt	>0.004 - 0.062	Sedimentation
Sand	>0.062 - 2.0	Sedimentation/sieve
Gravel	>2.0 - 64.0	Sieve
Cobble	>64 - 256	Manual measurement
Boulder	>256	Manual measurement

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

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

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

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

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

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

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

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

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

Picocurie (PC, pCi) is one trillionth (1×10^{-12}) of the amount of radioactive nuclide represented by a curie (Ci). A curie is the quantity of radioactive nuclide that yields 3.7×10^{10} radioactive disintegrations per second (dps). A picocurie yields 0.037 dps, or 2.22 dpm (disintegrations per minute).

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

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

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

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

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

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

Primary productivity (carbon method) is expressed as milligrams of carbon per area per unit time [mg C/(m^2/time)] for periphyton and macrophytes or per volume [mg C/(m^3/time)] for phytoplankton. The carbon method defines the amount of carbon dioxide consumed as measured by radioactive carbon (carbon-14). The carbon-14 method is of greater sensitivity than the oxygen light and dark bottle method and is preferred for use with unenriched water samples. Unit time may be either the hour or day, depending on the incubation period. (See also “Primary productivity”)

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

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

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

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

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

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

Return period (See “Recurrence interval”)

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

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

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

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

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

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

Sediment is solid material that originates mostly from disintegrated rocks; when transported by, suspended in, or deposited from water, it is referred to as “fluvial sediment.” Sediment includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are affected by environmental and land-use factors. Some major factors are topography, soil characteristics, land cover, and depth and intensity of pre-cipitation.

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

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

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

Sodium adsorption ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Sodium hazard in water is an index that can be used to evaluate the suitability of water for irrigating crops.

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

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

Specific electrical conductance (conductivity) is a measure of the capacity of water (or other media) to conduct an electrical current. It is expressed in microsiemens per centimeter at 25 °C. Specific electrical conductance is a function of the types and quantity of dissolved substances in water and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is from 55 to 75percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

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

Stage (See “Gage height”)

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

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

Substrate is the physical surface upon which an organism lives.

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

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

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

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

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

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

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

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 foot above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L). The analytical technique uses the mass of all of the sediment and the net weight of the water-sediment mixture in a sample to compute the suspended-sediment concentration. (See also “Sediment” and “Suspended sediment”)

Suspended-sediment discharge (tons/d) is the rate of sediment transport, as measured by dry mass or volume, that passes a cross section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) x discharge (ft^3/s) x 0.0027. (See also “Sediment,” “Suspended sediment,” and “Suspended-sediment concentration”)

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

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

Suspended, total is the total amount of a given constituent in the part of a water-sediment sample that is retained on a 0.45-micrometer membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. Knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as “suspended, total.” Determinations of “suspended, total” constituents are made either by directly analyzing portions of the suspended material collected on the filter or, more commonly, by difference, on the basis of determinations of (1) dissolved and (2) total concentrations of the constituent. (See also “Suspended”)

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

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

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

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

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

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

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

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

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

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

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

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

Total in bottom material is the amount of a given constituent in a representative sample of bottom material. This term is used only

when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total in bottom material."

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

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

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

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

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

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

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

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

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

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

Vertical datum (See "Datum")

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

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

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

Water year in USGS reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 2002, is called the "2002 water year."

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

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

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

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

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

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

TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS OF THE U.S. GEOLOGICAL SURVEY

The USGS publishes a series of manuals titled the "Techniques of Water-Resources Investigations" that describe procedures for planning and conducting specialized work in water-resources investigations. The material in these manuals 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. Each chapter then is limited to a narrow field of the section subject matter. This publication format permits flexibility when revision or printing is required.

Manuals in the Techniques of Water-Resources Investigations series, which are listed below, are available online at http://water.usgs.gov/pubs/twri/. Printed copies are available for sale from the USGS, Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (an authorized agent of the Superintendent of Documents, Government Printing Office). Please telephone "1-888-ASK-USGS" for current prices, and refer to the title, book number, section number, chapter number, and mention the "U.S. Geological Survey Techniques of Water-Resources Investigations." Other products can be viewed online at http://www.usgs.gov/sales.html, or ordered by telephone or by FAX to (303)236-4693. Order forms for FAX requests are available online at http://mac.usgs.gov/isb/pubs/forms/. Prepayment by major credit card or by a check or money order payable to the "U.S. Geological Survey" is required.

Book 1. Collection of Water Data by Direct Measurement

Section D. Water Quality

1–D1. *Water temperature—Influential factors, field measurement, and data presentation*, by H.H. Stevens, Jr., J.F. Ficke, and G.F. Smoot: USGS–TWRI book 1, chap. D1. 1975. 65 p.

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

Book 2. Collection of Environmental Data

Section D. Surface Geophysical Methods

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

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

Section E. Subsurface Geophysical Methods

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

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

Section F. Drilling and Sampling Methods

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

Book 3. Applications of Hydraulics

Section A. Surface-Water Techniques

3–A1. *General field and office procedures for indirect discharge measurements*, by M.A. Benson and Tate Dalrymple: USGS–TWRI book 3, chap. A1. 1967. 30 p.

3–A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M.A. Benson: USGS–TWRI book 3, chap. A2. 1967. 12 p.

3–A3. *Measurement of peak discharge at culverts by indirect methods*, by G.L. Bodhaine: USGS–TWRI book 3, chap. A3. 1968. 60 p.

3–A4. *Measurement of peak discharge at width contractions by indirect methods*, by H.F. Matthai: USGS-TWRI book 3, chap. A4. 1967. 44 p.

3–A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS–TWRI book 3, chap. A5. 1967. 29 p.

3–A6. *General procedure for gaging streams*, by R.W. Carter and Jacob Davidian: USGS–TWRI book 3, chap. A6. 1968. 13 p.

3–A7. *Stage measurement at gaging stations,* by T.J. Buchanan and W.P. Somers: USGS–TWRI book 3, chap. A7. 1968. 28 p.

3–A8. *Discharge measurements at gaging stations,* by T.J. Buchanan and W.P. Somers: USGS–TWRI book 3, chap. A8. 1969. 65 p.

3–A9. *Measurement of time of travel in streams by dye tracing,* by F.A. Kilpatrick and J.F. Wilson, Jr.: USGS–TWRI book 3, chap. A9. 1989. 27 p.

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

3–A11. *Measurement of discharge by the moving-boat method,* by G.F. Smoot and C.E. Novak: USGS–TWRI book 3, chap. A11. 1969. 22 p.

3–A12. *Fluorometric procedures for dye tracing,* Revised, by J.F. Wilson, Jr., E.D. Cobb, and F.A. Kilpatrick: USGS–TWRI book 3, chap. A12. 1986. 34 p.

3–A13. *Computation of continuous records of streamflow,* by E.J. Kennedy: USGS–TWRI book 3, chap. A13. 1983. 53 p.

3–A14. *Use of flumes in measuring discharge,* by F.A. Kilpatrick and V.R. Schneider: USGS–TWRI book 3, chap. A14. 1983. 46 p.

3–A15. *Computation of water-surface profiles in open channels,* by Jacob Davidian: USGS–TWRI book 3, chap. A15. 1984. 48 p.

3–A16. *Measurement of discharge using tracers,* by F.A. Kilpatrick and E.D. Cobb: USGS–TWRI book 3, chap. A16. 1985. 52 p.

3–A17. *Acoustic velocity meter systems,* by Antonius Laenen: USGS–TWRI book 3, chap. A17. 1985. 38 p.

3–A18. *Determination of stream reaeration coefficients by use of tracers,* by F.A. Kilpatrick, R.E. Rathbun, Nobuhiro Yotsukura, G.W. Parker, and L.L. DeLong: USGS–TWRI book 3, chap. A18. 1989. 52 p.

3–A19. *Levels at streamflow gaging stations,* by E.J. Kennedy: USGS–TWRI book 3, chap. A19. 1990. 31 p.

3–A20. *Simulation of soluble waste transport and buildup in surface waters using tracers,* by F.A. Kilpatrick: USGS–TWRI book 3, chap. A20. 1993. 38 p.

3–A21 *Stream-gaging cableways,* by C. Russell Wagner: USGS–TWRI book 3, chap. A21. 1995. 56 p.

Section B. Ground-Water Techniques

3–B1. *Aquifer-test design, observation, and data analysis,* by R.W. Stallman: USGS–TWRI book 3, chap. B1. 1971. 26 p.

3–B2. *Introduction to ground-water hydraulics, a programed text for self-instruction,* by G.D. Bennett: USGS–TWRI book 3, chap. B2. 1976. 172 p.

3–B3. *Type curves for selected problems of flow to wells in confined aquifers,* by J.E. Reed: USGS–TWRI book 3, chap. B3. 1980. 106 p.

3–B4. *Regression modeling of ground-water flow,* by R.L. Cooley and R.L. Naff: USGS–TWRI book 3, chap. B4. 1990. 232 p.

3–B4. *Supplement 1. Regression modeling of ground-water flow—Modifications to the computer code for nonlinear regression solution of steady-state ground-water flow problems,* by R.L. Cooley: USGS–TWRI book 3, chap. B4. 1993. 8 p.

3–B5. *Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems—An introduction,* by O.L. Franke, T.E. Reilly, and G.D. Bennett: USGS–TWRI book 3, chap. B5. 1987. 15 p.

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

3–B7. *Analytical solutions for one-, two-, and three-dimensional solute transport in ground-water systems with uniform flow,* by E.J. Wexler: USGS–TWRI book 3, chap. B7. 1992. 190 p.

3–B8. *System and boundary conceptualization in ground-water flow simulation,* by T.E. Reilly: USGS–TWRI book 3, chap. B8. 2001. 29 p.

Section C. Sedimentation and Erosion Techniques

3–C1. *Fluvial sediment concepts,* by H.P. Guy: USGS–TWRI book 3, chap. C1. 1970. 55 p.

3–C2. *Field methods for measurement of fluvial sediment,* by T.K. Edwards and G.D. Glysson: USGS–TWRI book 3, chap. C2. 1999. 89 p.

3–C3. *Computation of fluvial-sediment discharge,* by George Porterfield: USGS–TWRI book 3, chap. C3. 1972. 66 p.

Book 4. Hydrologic Analysis and Interpretation

Section A. Statistical Analysis

4–A1. *Some statistical tools in hydrology,* by H.C. Riggs: USGS–TWRI book 4, chap. A1. 1968. 39 p.

4–A2. *Frequency curves,* by H.C. Riggs: USGS–TWRI book 4, chap. A2. 1968. 15 p.

4–A3. *Statistical methods in water resources,* by D.R. Helsel and R.M. Hirsch: USGS–TWRI book 4, chap. A3. 1991. Available only online at http://water.usgs.gov/pubs/twri/twri4a3/. (Accessed August 30, 2002.)

Section B. Surface Water

4–B1. *Low-flow investigations,* by H.C. Riggs: USGS–TWRI book 4, chap. B1. 1972. 18 p.

4–B2. *Storage analyses for water supply,* by H.C. Riggs and C.H. Hardison: USGS–TWRI book 4, chap. B2. 1973. 20 p.

4–B3. *Regional analyses of streamflow characteristics,* by H.C. Riggs: USGS–TWRI book 4, chap. B3. 1973. 15 p.

Section D. Interrelated Phases of the Hydrologic Cycle

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

Book 5. Laboratory Analysis

Section A. Water Analysis

5–A1. *Methods for determination of inorganic substances in water and fluvial sediments,* by M.J. Fishman and L.C. Friedman, editors: USGS–TWRI book 5, chap. A1. 1989. 545 p.

5–A2. *Determination of minor elements in water by emission spectroscopy,* by P.R. Barnett and E.C. Mallory, Jr.: USGS–TWRI book 5, chap. A2. 1971. 31 p.

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

5–A4. *Methods for collection and analysis of aquatic biological and microbiological samples,* by L.J. Britton and P.E. Greeson, editors: USGS–TWRI book 5, chap. A4. 1989. 363 p.

5–A5. *Methods for determination of radioactive substances in water and fluvial sediments,* by L.L. Thatcher, V.J. Janzer, and K.W. Edwards: USGS–TWRI book 5, chap. A5. 1977. 95 p.

5–A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments,* by L.C. Friedman and D.E. Erdmann: USGS–TWRI book 5, chap. A6. 1982. 181 p.

Section C. Sediment Analysis

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

Book 6. Modeling Techniques

Section A. Ground Water

6–A1. *A modular three-dimensional finite-difference ground-water flow model*, by M.G. McDonald and A.W. Harbaugh: USGS–TWRI book 6, chap. A1. 1988. 586 p.

6–A2. *Documentation of a computer program to simulate aquifer-system compaction using the modular finite-difference ground-water flow model*, by S.A. Leake and D.E. Prudic: USGS–TWRI book 6, chap. A2. 1991. 68 p.

6–A3. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 1: Model Description and User's Manual*, by L.J. Torak: USGS–TWRI book 6, chap. A3. 1993. 136 p.

6–A4. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 2: Derivation of finite-element equations and comparisons with analytical solutions*, by R.L. Cooley: USGS–TWRI book 6, chap. A4. 1992. 108 p.

6–A5. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 3: Design philosophy and programming details*, by L.J. Torak: USGS–TWRI book 6, chap. A5. 1993. 243 p.

6–A6. *A coupled surface-water and ground-water flow model (MODBRANCH) for simulation of stream-aquifer interaction*, by Eric D. Swain and Eliezer J. Wexler: USGS–TWRI book 6, chap. A6. 1996. 125 p.

6–A7. *User's guide to SEAWAT: A computer program for simulation of three-dimensional variable-density ground-water flow*, by Weixing Guo and Christian D. Langevin: USGS–TWRI book 6, chap. A7. 2002. 77 p.

Book 7. Automated Data Processing and Computations

Section C. Computer Programs

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

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

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

Book 8. Instrumentation

Section A. Instruments for Measurement of Water Level

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

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

Section B. Instruments for Measurement of Discharge

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

Book 9. Handbooks for Water-Resources Investigations

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

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

9–A2. *National field manual for the collection of water-quality data: Selection of equipment for water sampling*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A2. 1998. 94 p.

9–A3. *National field manual for the collection of water-quality data: Cleaning of equipment for water sampling*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A3. 1998. 75 p.

9–A4. *National field manual for the collection of water-quality data: Collection of water samples*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A4. 1999. 156 p.

9–A5. *National field manual for the collection of water-quality data: Processing of water samples*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A5. 1999, 149 p.

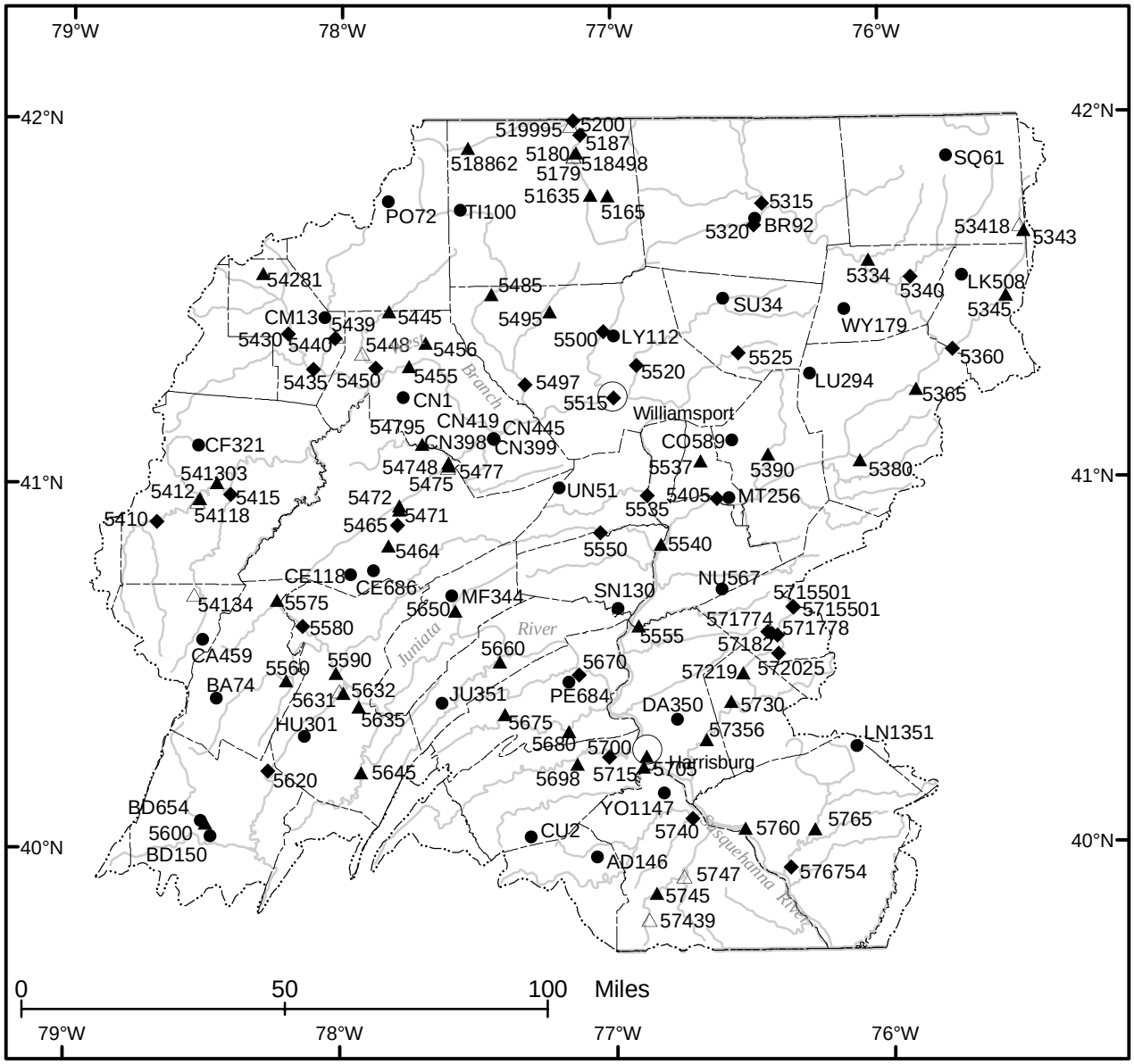
9–A6. *National field manual for the collection of water-quality data: Field measurements*, edited by F.D. Wilde and D.B. Radtke: USGS–TWRI book 9, chap. A6. 1998. Variously paginated.

9–A7. *National field manual for the collection of water-quality data: Biological indicators*, edited by D.N. Myers and F.D. Wilde: USGS–TWRI book 9, chap. A7. 1997 and 1999. Variously paginated.

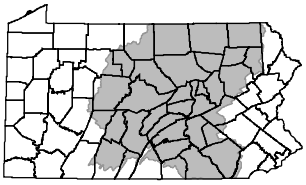
9–A8. *National field manual for the collection of water-quality data: Bottom-material samples*, by D.B. Radtke: USGS–TWRI book 9, chap. A8. 1998. 48 p.

9–A9. *National field manual for the collection of water-quality data: Safety in field activities*, by S.L. Lane and R.G. Fay: USGS–TWRI book 9, chap. A9. 1998. 60 p.

SUSQUEHANNA RIVER BASIN



EXPLANATION



▲ Streamflow station

△ Lake

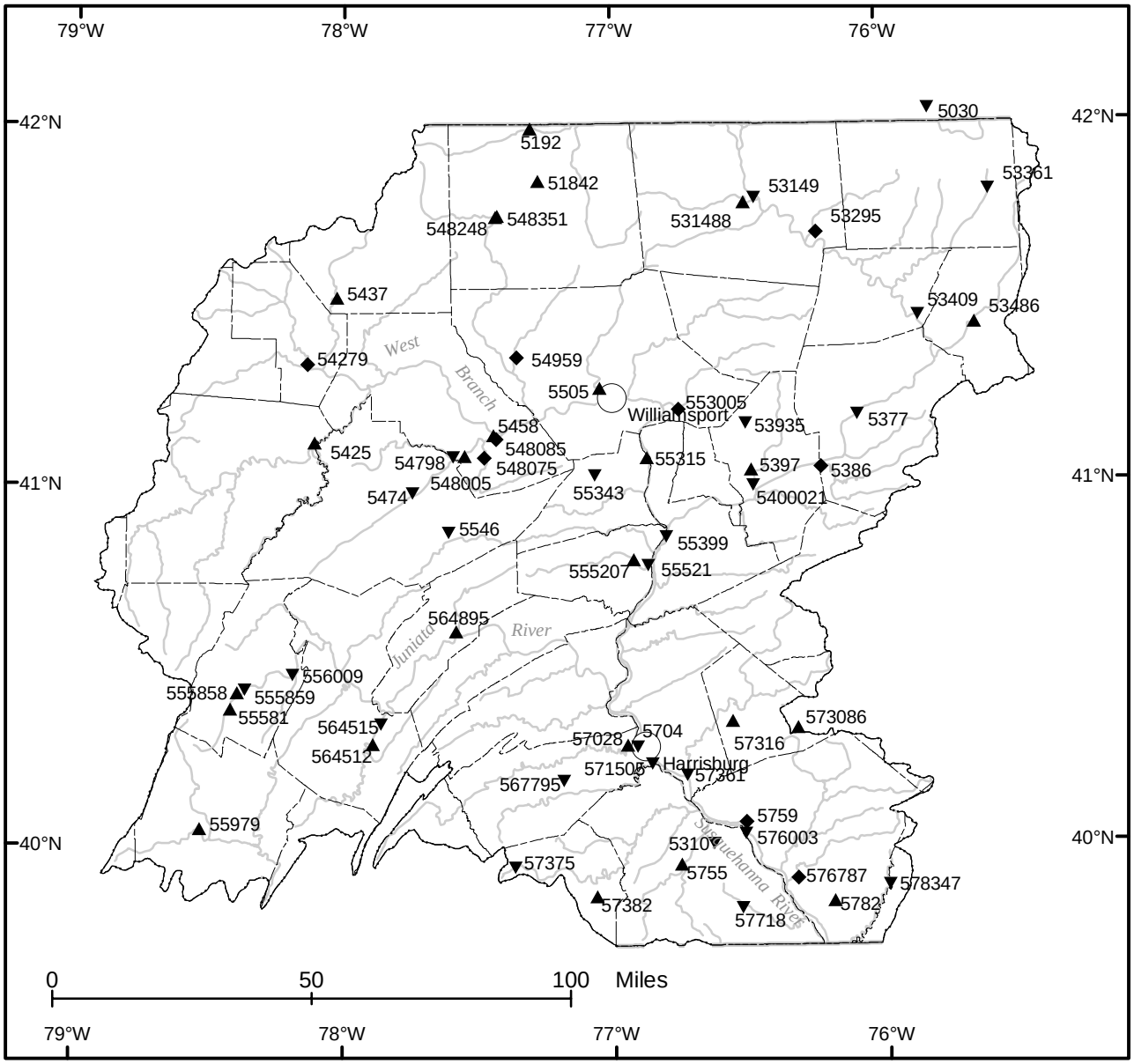
◆ Streamflow and water−quality station

● Observation well

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

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

SUSQUEHANNA RIVER BASIN



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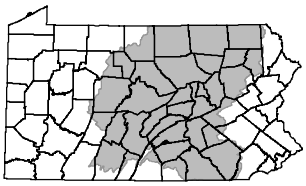


▲ Streamflow station

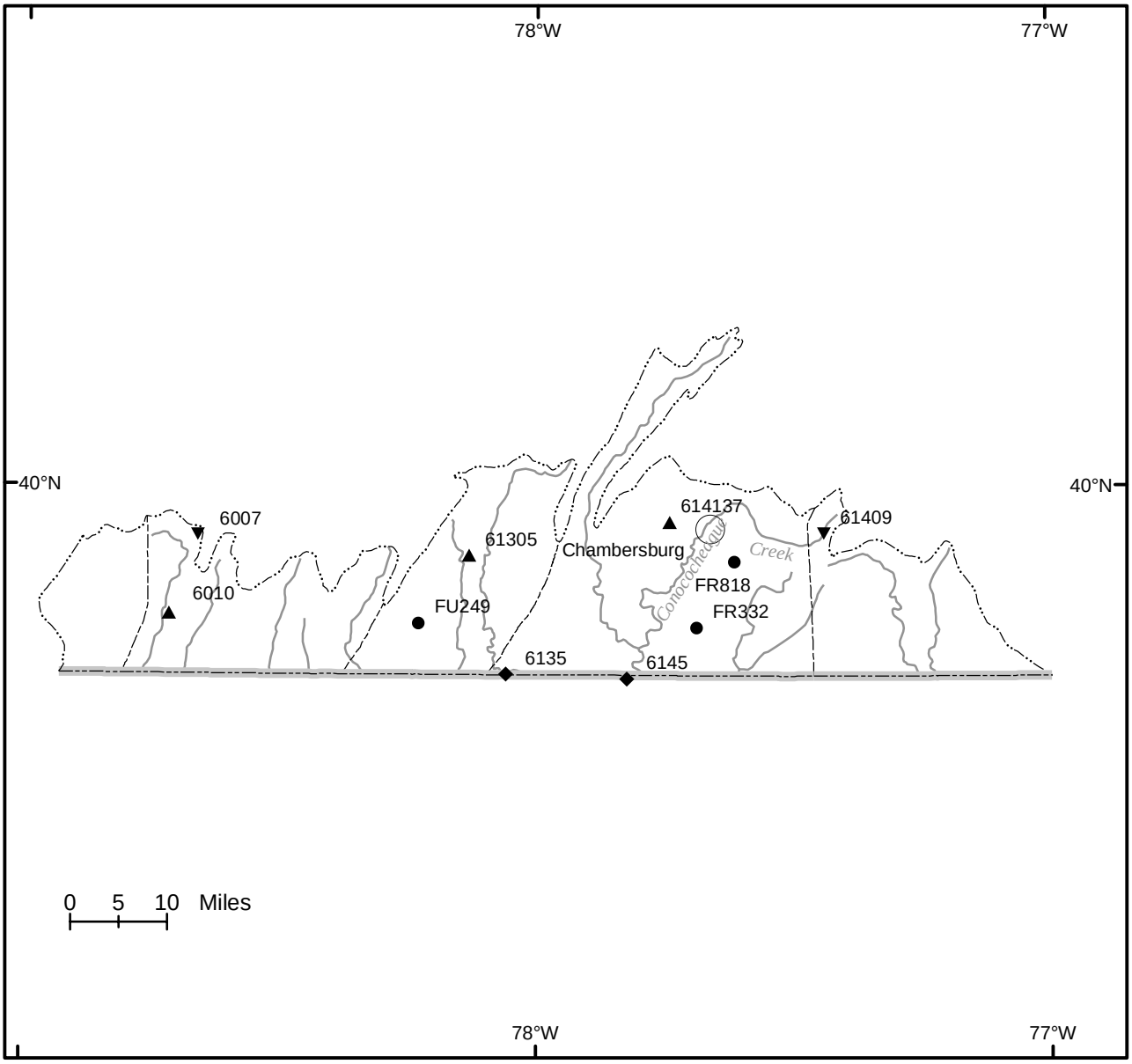
▼ Water −quality station

◆ Streamflow and water −quality station

NOTE: Downstream station numbers are abbreviated; the first two digits (part number) and the last two digits (if zeros) are omitted (for example, station number 01570280 is shown as 57028, and station number 01575500 is shown as 5755).

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

POTOMAC RIVER BASIN



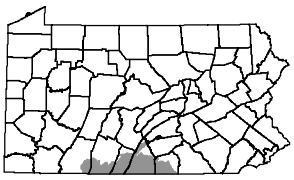
EXPLANATION

▲ Continuous streamflow station

▼ Partial−record streamflow station

◆ Partial−record streamflow and water−quality station

● Observation well



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

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

SPECIAL NOTES, REMARK CODES, AND SELECTED CONSTITUENT DEFINITIONS

****

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

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

--In March 1989 a bias was discovered in the turbidimetric method for sulfate analysis for those samples analyzed by the U.S. Geological Survey National Water-Quality Laboratory indicating that values below 75 mg/L have a median positive bias of 2 mg/L above the true value for the period between 1982 and 1989.

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

$$MBASCOR = M - 0.0088N - 0.00019C$$

where:

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

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

****

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

PRINTED OUTPUT	REMARK
E,e	Estimated value.
>	Actual value is known to be greater than the value shown.
<	Actual value is known to be less than the value shown.
M	Presence of material verified but not quantified.
K	Results based on colony count outside the acceptance range (non-ideal colony count).
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted).
D	Biological organism count equal to or greater than 15 percent (dominant).
ND	Material specifically analyzed for but not detected.
V	Analyte was detected in both the environmental sample and the associated blanks.

****

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

(71999) SAMPLE PURPOSE CODES:

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

(82398) SAMPLE METHOD CODES:

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

(84164) SAMPLER TYPE: (partial list)

110--Sewage sampler

3011--US D-77

3035--DH-76 Trace metal sampler with teflon gasket and nozzle

3039--D-77 Trace metal

3040--D-77 Trace metal modified teflon bag sampler

3045--DH-81 with Teflon cap and nozzle

8010--Other (other than a defined sampler type)

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

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

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

****

(00027) AGENCY COLLECTING SAMPLE CODES:

1028 --U.S. Geological Survey

(00028) AGENCY ANALYZING SAMPLE CODES:

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

SURFACE-WATER RECORDS

NORTH ATLANTIC SLOPE BASINS

SUSQUEHANNA RIVER BASIN

CHEMUNG RIVER BASIN

01516350 TIOGA RIVER NEAR MANSFIELD, PA

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

DRAINAGE AREA.--153 mi^2.

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

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

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

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

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

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

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
June 6	1900	*4,210	*8.04	No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	146	61	414	e100	485	120	350	404	129	65	29	15
2	126	60	275	e90	397	114	297	540	111	60	27	15
3	108	59	228	e100	300	191	263	437	97	56	28	14
4	94	58	200	e90	262	172	230	337	94	52	25	13
5	85	56	179	e80	202	e120	207	293	241	48	30	13
6	86	54	164	e74	197	e140	193	259	2680	45	30	12
7	82	53	150	e78	179	134	177	249	1460	43	25	12
8	72	52	138	e85	168	129	166	224	697	42	23	11
9	68	50	142	e84	156	128	163	257	452	42	22	11
10	62	49	130	e75	269	146	201	297	328	44	20	11
11	58	48	121	e82	847	125	163	215	258	39	19	10
12	55	46	118	81	463	119	144	548	213	36	19	10
13	54	45	145	79	364	116	159	1440	194	35	19	10
14	51	44	200	74	267	114	379	1340	419	34	17	10
15	105	44	311	72	265	109	951	761	728	33	16	18
16	91	43	213	71	251	141	525	546	560	31	16	49
17	138	42	249	69	237	139	399	447	388	29	17	30
18	108	41	742	66	199	128	336	1060	290	28	17	21
19	88	40	469	e56	178	129	297	778	234	31	16	17
20	84	43	361	e70	177	152	271	564	193	49	15	16
21	76	44	295	75	206	186	249	461	164	33	15	15
22	74	42	247	67	186	177	228	382	142	28	15	16
23	74	41	222	67	163	154	208	319	127	37	21	66
24	85	40	230	141	144	155	181	274	114	55	28	41
25	94	128	191	189	139	155	181	238	104	36	26	27
26	85	279	161	139	140	700	192	209	98	31	20	23
27	77	165	e140	128	165	1080	161	183	96	30	17	113
28	73	140	e130	142	136	627	569	177	93	62	16	298
29	68	173	e120	177	---	519	828	180	79	68	16	99
30	66	229	e110	322	---	443	506	155	71	42	16	62
31	62	---	e100	351	---	362	---	140	---	34	15	---
TOTAL	2595	2269	6895	3374	7142	7224	9174	13714	10854	1298	635	1078
MEAN	83.71	75.63	222.4	108.8	255.1	233.0	305.8	442.4	361.8	41.87	20.48	35.93
MAX	146	279	742	351	847	1080	951	1440	2680	68	30	298
MIN	51	40	100	56	136	109	144	140	71	28	15	10
CFSM	0.55	0.49	1.45	0.71	1.67	1.52	2.00	2.89	2.36	0.27	0.13	0.23
IN.	0.63	0.55	1.68	0.82	1.74	1.76	2.23	3.33	2.64	0.32	0.15	0.26

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 2002, BY WATER YEAR (WY)

MEAN	130.5	199.8	223.4	221.6	253.3	405.3	502.5	247.2	164.4	75.67	72.69	59.03
MAX	653	620	666	943	682	832	1968	630	550	375	839	196
(WY)	1991	1978	1997	1996	1996	1978	1993	1978	1989	1994	1994	1996
MIN	13.3	17.5	20.5	36.2	57.2	148	156	77.9	25.1	17.5	12.5	12.6
(WY)	1983	1999	1999	1981	1987	1981	1988	2001	1991	1999	1999	1980

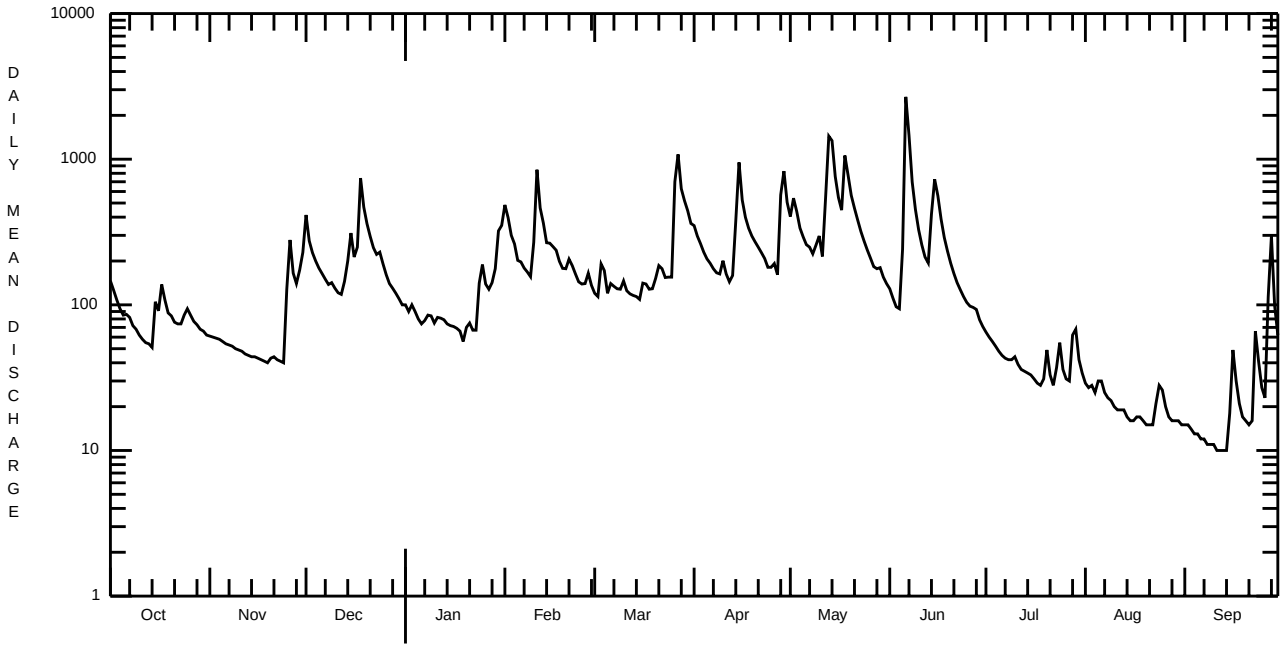
e Estimated.

CHEMUNG RIVER BASIN

01516350 TIOGA RIVER NEAR MANSFIELD, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1976 - 2002	
ANNUAL TOTAL	52062		66252			
ANNUAL MEAN	143		182		212	
HIGHEST ANNUAL MEAN					388	1978
LOWEST ANNUAL MEAN					125	2001
HIGHEST DAILY MEAN	1960	Apr 10	2680	Jun 6	12200	Aug 18 1994
LOWEST DAILY MEAN	11	Aug 15	10	Sep 11-14	8.1	Sep 3 1999
ANNUAL SEVEN-DAY MINIMUM	14	Aug 3	10	Sep 8	8.7	Aug 31 1999
MAXIMUM PEAK FLOW			4210	Jun 6	**a**38900	Jan 19 1996
MAXIMUM PEAK STAGE			8.04	Jun 6	**b**18.87	Jan 19 1996
ANNUAL RUNOFF (CFSM)	0.93		1.19		1.39	
ANNUAL RUNOFF (INCHES)	12.66		16.11		18.84	
10 PERCENT EXCEEDS	342		401		461	
50 PERCENT EXCEEDS	62		118		97	
90 PERCENT EXCEEDS	24		20		20	

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



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

CHEMUNG RIVER BASIN

01516500 COREY CREEK NEAR MAINESBURG, PA

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

DRAINAGE AREA.--12.2 mi^2.

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

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

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

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

Date	Time	Discharge ft^3/s	Gage Height (ft)
June 5	2315	*786	*5.40

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	2.0	12	e5.6	26	e7.6	19	19	12	2.3	0.77	0.19
2	4.6	2.0	9.1	e5.2	19	e6.9	16	25	9.2	2.0	0.60	0.19
3	3.7	2.0	8.2	e4.8	e16	14	14	18	7.7	1.8	0.53	0.18
4	3.1	1.9	7.7	e5.2	e13	e9.7	12	15	7.5	1.5	0.44	0.15
5	2.6	1.9	6.9	7.0	e11	e7.6	11	13	68	1.4	1.2	0.12
6	3.3	1.7	6.3	4.3	e10	e8.4	11	11	338	1.2	0.93	0.11
7	3.0	1.6	5.8	4.9	9.3	8.2	9.8	11	120	1.2	0.64	0.09
8	2.4	1.6	5.2	e4.4	8.8	8.1	9.1	9.8	50	1.1	0.57	0.07
9	2.1	1.5	5.9	4.4	8.3	8.0	9.2	14	30	1.2	0.47	0.07
10	2.0	1.5	5.3	4.1	32	9.0	11	14	22	1.5	0.34	0.06
11	1.8	1.5	4.7	4.1	57	e7.0	8.4	9.5	17	1.0	0.26	0.05
12	1.7	1.4	4.2	3.8	e24	6.7	7.6	48	15	0.93	0.22	0.05
13	1.6	1.4	4.7	3.7	21	6.8	10	115	13	0.82	0.19	0.05
14	1.6	1.3	6.6	e3.6	e18	6.5	22	86	37	0.76	0.15	0.04
15	4.0	1.3	9.4	3.3	e16	5.9	46	43	51	0.69	0.11	0.24
16	2.9	1.3	7.2	3.1	15	8.7	23	29	39	0.63	0.11	1.6
17	5.5	1.3	11	3.0	14	7.5	20	23	28	0.55	0.10	0.62
18	3.6	1.3	48	e2.9	e12	8.7	18	88	21	0.52	0.09	0.37
19	3.0	1.3	25	e2.6	e10	8.3	15	40	17	0.58	0.09	0.31
20	2.7	1.7	20	e2.8	11	12	14	31	13	0.78	0.09	0.30
21	2.5	1.5	16	e3.0	13	13	12	25	11	e0.64	0.08	0.28
22	2.5	1.4	13	3.0	11	e9.6	12	21	9.2	e0.72	0.09	0.46
23	2.7	1.3	12	3.1	9.3	e9.0	11	17	7.9	0.94	0.12	3.8
24	3.4	1.3	12	18	e8.5	9.0	8.9	14	6.8	1.7	0.79	0.87
25	3.5	6.7	e9.0	15	8.3	9.1	9.8	12	5.9	1.1	0.55	0.61
26	2.9	9.3	e8.0	e9.2	8.7	81	9.5	11	5.1	0.95	0.31	0.54
27	2.7	6.3	e6.9	e9.0	10	66	8.0	9.1	4.9	0.91	0.24	9.9
28	2.5	5.7	e6.9	10	e8.3	34	42	23	5.0	3.2	0.22	8.8
29	2.3	7.3	e6.6	12	---	28	35	23	3.6	2.2	0.24	2.5
30	2.2	9.1	e6.0	19	---	24	22	17	2.9	1.3	0.28	1.4
31	2.1	---	e5.6	20	---	19	---	15	---	0.95	0.21	---
TOTAL	90.1	81.4	315.2	204.1	428.5	467.3	476.3	849.4	977.7	37.07	11.03	34.02
MEAN	2.906	2.713	10.17	6.584	15.30	15.07	15.88	27.40	32.59	1.196	0.356	1.134
MAX	5.6	9.3	48	20	57	81	46	115	338	3.2	1.2	9.9
MIN	1.6	1.3	4.2	2.6	8.3	5.9	7.6	9.1	2.9	0.52	0.08	0.04
CFSM	0.24	0.22	0.83	0.54	1.25	1.24	1.30	2.25	2.67	0.10	0.03	0.09
IN.	0.27	0.25	0.96	0.62	1.31	1.42	1.45	2.59	2.98	0.11	0.03	0.10

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2002, BY WATER YEAR (WY)

MEAN	6.268	10.49	14.01	12.01	16.69	28.56	28.82	14.17	9.703	3.065	2.820	2.877
MAX	51.0	45.4	42.7	52.4	52.4	60.4	118	42.7	114	19.9	55.2	44.4
(WY)	1956	1978	1974	1996	1984	1964	1993	1989	1972	1994	1994	1975
MIN	0.15	0.48	0.80	0.75	1.71	4.88	8.19	2.88	0.69	0.10	0.074	0.000
(WY)	1964	1965	1999	1961	1963	1965	1955	1999	1991	1966	1964	1964

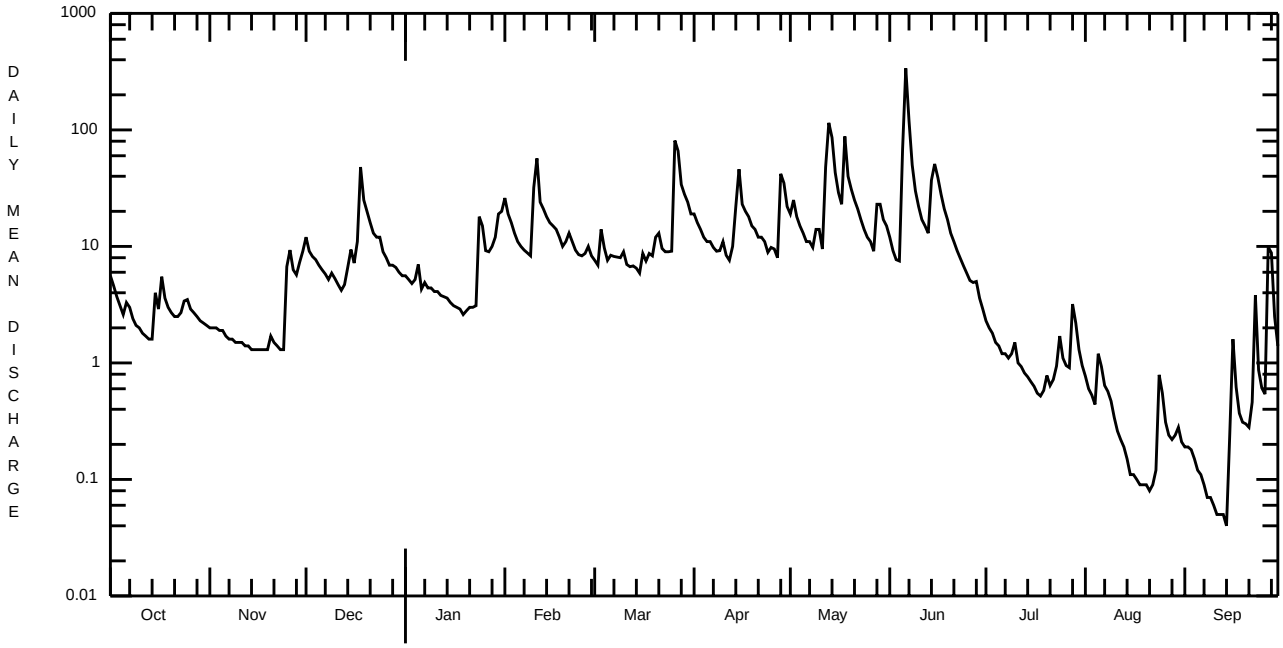
e Estimated.

CHEMUNG RIVER BASIN

01516500 COREY CREEK NEAR MAINESBURG, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1954 - 2002	
ANNUAL TOTAL	2932.39		3972.12			
ANNUAL MEAN	8.03		10.9		12.4	
HIGHEST ANNUAL MEAN					24.9	1978
LOWEST ANNUAL MEAN					4.82	1965
HIGHEST DAILY MEAN	148	Mar 30	338	Jun 6	1910	Jun 22 1972
LOWEST DAILY MEAN	0.11	Aug 15	0.04	Sep 14	0.00	Many days
ANNUAL SEVEN-DAY MINIMUM	0.14	Aug 9	0.06	Sep 8	0.00	Aug 17 1959
MAXIMUM PEAK FLOW			**a**786	Jun 5	**a**5580	Jun 23 1972
MAXIMUM PEAK STAGE			5.40	Jun 5	**b**10.44	Jun 23 1972
ANNUAL RUNOFF (CFSM)	0.66		0.89		1.02	
ANNUAL RUNOFF (INCHES)	8.94		12.11		13.85	
10 PERCENT EXCEEDS	21		23		28	
50 PERCENT EXCEEDS	2.6		5.9		4.3	
90 PERCENT EXCEEDS	0.67		0.31		0.50	

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



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

CHEMUNG RIVER BASIN

01518000 TIOGA RIVER AT TIOGA, PA

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

DRAINAGE AREA.--282 mi^2.

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

REVISED RECORDS.--WSP 871: 1938.

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

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	167	68	595	168	940	261	781	895	304	113	53	32
2	115	68	607	154	996	261	652	1060	268	93	53	32
3	115	68	356	125	661	324	616	865	209	94	40	32
4	115	68	231	115	521	328	513	621	188	94	32	32
5	115	69	274	127	428	270	400	550	1040	68	50	32
6	116	68	306	145	431	239	359	520	4070	53	32	32
7	107	68	266	154	361	253	359	543	5070	53	32	32
8	85	68	246	141	346	240	359	504	3900	53	32	32
9	85	69	246	141	335	225	319	454	1380	65	32	32
10	84	68	215	141	404	227	315	637	732	76	31	32
11	84	69	174	141	1730	237	322	516	561	68	31	32
12	83	68	162	141	798	253	276	1250	472	68	31	32
13	83	68	182	141	657	247	266	3540	438	68	31	32
14	83	68	263	141	476	238	493	4010	708	67	32	32
15	83	68	611	141	501	238	1840	2270	2440	53	32	33
16	84	68	e520	141	558	239	907	1180	2020	41	32	33
17	84	68	e450	137	522	280	695	1010	1080	39	32	32
18	105	68	1690	127	467	288	596	2820	831	39	32	32
19	115	68	1060	115	401	270	554	2180	556	39	33	32
20	115	58	696	108	365	271	474	1110	456	39	32	31
21	115	52	652	122	373	314	e450	871	359	39	32	31
22	115	52	571	147	411	336	e460	899	344	53	32	32
23	114	52	471	163	398	335	e360	775	306	62	32	31
24	115	51	370	201	333	335	316	659	e200	67	32	31
25	115	51	306	453	291	335	309	539	e180	79	32	31
26	115	186	274	330	270	1450	306	436	193	78	32	50
27	94	230	273	268	261	3020	306	346	204	58	32	84
28	81	230	246	278	262	1600	977	356	204	67	32	289
29	81	240	210	317	---	1240	2490	529	170	107	32	291
30	76	291	187	666	---	1140	1160	516	136	81	32	147
31	68	---	167	873	---	1010	---	411	---	53	32	---
TOTAL	3112	2788	12877	6562	14497	16304	18230	32872	29019	2027	1057	1658
MEAN	100.4	92.93	415.4	211.7	517.8	525.9	607.7	1060	967.3	65.39	34.10	55.27
MAX	167	291	1690	873	1730	3020	2490	4010	5070	113	53	291
MIN	68	51	162	108	261	225	266	346	136	39	31	31

e Estimated.

CHEMUNG RIVER BASIN

01518000 TIOGA RIVER AT TIOGA, PA--Continued

REMARKS.--Those data in the first set of statistics (1978-2002) 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 - 2002, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	248.0	411.1	475.8	490.9	553.4	907.3	1087	538.8	376.3	151.4	150.5	110.5
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	34.5	31.2	36.2	22.7	111	238	323	136	41.5	32.5	28.4	20.8
(WY)	1999	1981	1999	1981	1989	1981	1988	2001	1991	1991	1980	1980

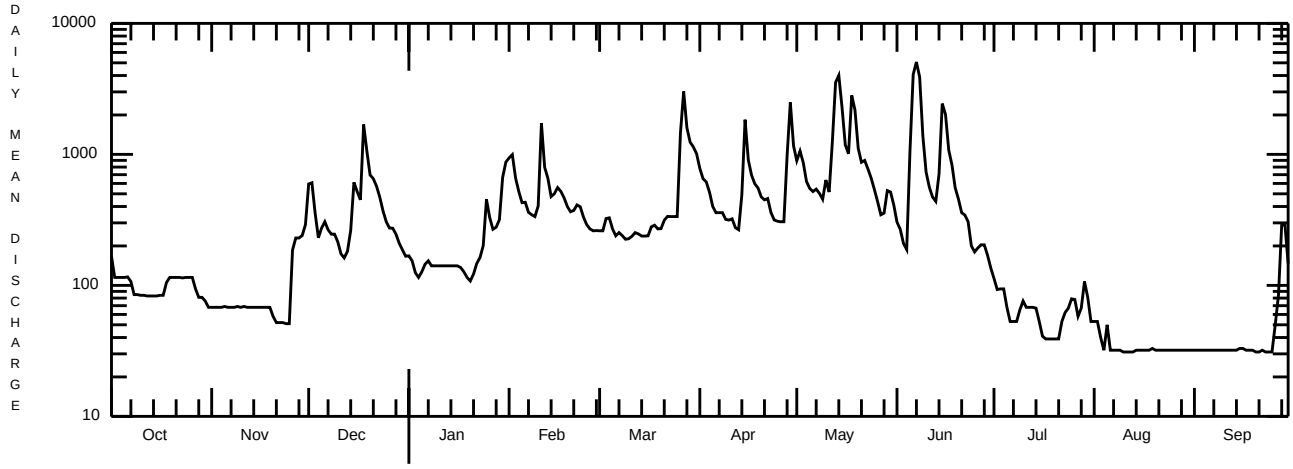
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1978 - 2002	
ANNUAL TOTAL	99601		141003			
ANNUAL MEAN	272.9		386.3		457.3	
HIGHEST ANNUAL MEAN					862	1978
LOWEST ANNUAL MEAN					241	2001
HIGHEST DAILY MEAN	3520	Apr 8	5070	Jun 7	8360	Jan 9 1978
LOWEST DAILY MEAN	30	Aug 11-14	31	Aug 10-13**a**	16	Aug 26-28 1980
ANNUAL SEVEN-DAY MINIMUM	30	Aug 11	31	Sep 19	16	Jan 15 1981
MAXIMUM PEAK FLOW			5210	Jun 7	14300	Nov 4 1977
MAXIMUM PEAK STAGE			6.50	Jun 7	8.84	Nov 4 1977
INSTANTANEOUS LOW FLOW					**b**0.00	Mar 6 1979**c**
10 PERCENT EXCEEDS	687		882		1050	
50 PERCENT EXCEEDS	110		204		179	
90 PERCENT EXCEEDS	52		32		39	

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

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

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

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



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

CHEMUNG RIVER BASIN

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

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

DRAINAGE AREA.--446 mi^2.

WATER-DISCHARGE RECORDS

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

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

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

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	186	78	580	188	979	296	891	976	365	130	61	35
2	122	78	627	e170	1040	293	710	1110	314	101	61	35
3	121	78	391	138	729	355	673	989	e260	99	50	34
4	119	78	248	122	565	362	569	678	224	98	38	34
5	119	78	277	133	477	312	459	597	1180	79	58	34
6	120	78	312	160	462	268	407	556	5250	58	38	34
7	116	78	280	172	410	284	401	578	5920	57	38	34
8	92	77	258	155	380	272	399	544	4510	56	38	34
9	92	77	256	155	373	255	375	495	1540	64	38	34
10	92	77	234	156	377	265	357	681	801	80	37	34
11	91	77	189	158	1820	269	369	551	617	69	36	34
12	92	76	167	157	912	285	319	1210	521	68	36	35
13	92	76	192	157	701	280	311	4020	484	68	36	35
14	95	76	258	158	e530	270	477	4800	705	68	35	35
15	98	76	585	158	528	267	2000	2700	2550	59	36	35
16	98	76	566	158	604	272	999	1350	2390	46	36	40
17	99	76	464	155	569	302	748	1080	1150	43	35	34
18	117	76	1640	142	508	326	639	3190	925	44	35	33
19	132	76	1170	128	448	306	590	2640	623	44	36	33
20	132	69	734	e120	408	315	522	1320	523	43	38	32
21	130	61	690	130	422	364	482	943	409	43	35	32
22	130	61	600	156	454	381	500	959	392	53	36	34
23	130	60	521	183	443	376	413	831	351	67	36	34
24	130	59	416	211	386	376	357	694	252	68	36	33
25	126	65	356	496	337	376	348	593	214	82	35	33
26	126	177	311	388	315	1440	346	489	223	82	35	35
27	110	237	309	311	304	3820	343	399	239	67	35	90
28	92	239	285	319	300	1950	906	395	238	65	35	263
29	92	249	243	355	---	1430	2950	546	202	113	37	312
30	89	302	216	650	---	1310	1360	569	159	97	35	174
31	78	---	e190	904	---	1120	---	481	---	61	35	---
TOTAL	3458	3041	13565	7143	15781	18797	20220	36964	33531	2172	1206	1728
MEAN	111.5	101.4	437.6	230.4	563.6	606.4	674.0	1192	1118	70.06	38.90	57.60
MAX	186	302	1640	904	1820	3820	2950	4800	5920	130	61	312
MIN	78	59	167	120	300	255	311	395	159	43	35	32

e Estimated.

01518700 TIOGA RIVER AT TIOGA JUNCTION, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2002, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	246.1	406.8	513.1	489.1	661.9	940.6	1306	607.9	436.1	174.4	168.2	117.2
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	41.5	29.5	127	259	352	151	51.4	38.4	29.6	26.3
(WY)	1992	1981	1999	1981	1989	1981	1988	2001	1980	1991	1980	1980

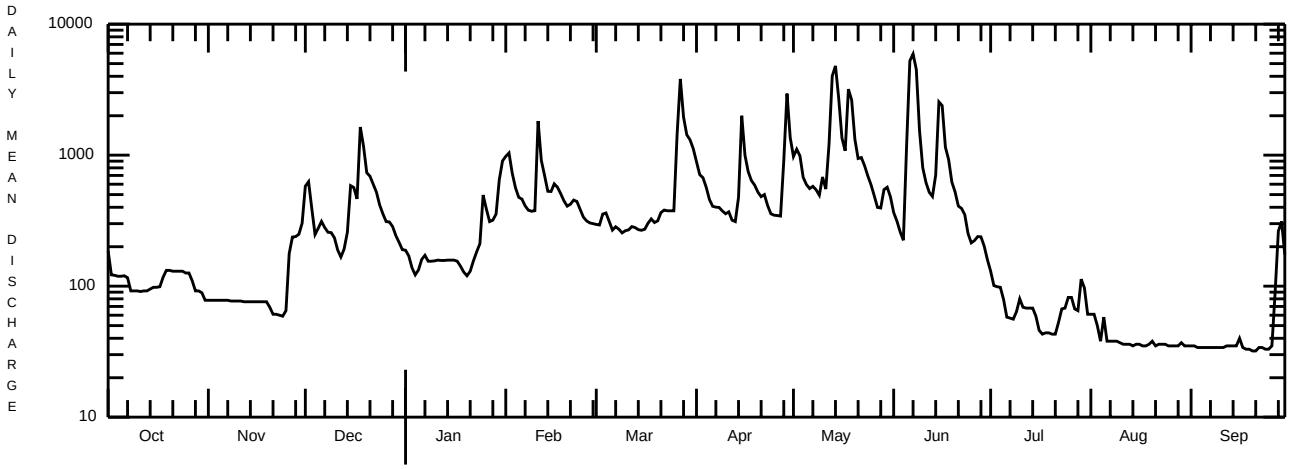
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1980 - 2002	
ANNUAL TOTAL	119687		157606			
ANNUAL MEAN	328		432		504	
HIGHEST ANNUAL MEAN					842	1994
LOWEST ANNUAL MEAN					297	2001
HIGHEST DAILY MEAN	4810	Apr 8	5920	Jun 7	7210	Apr 27 1993
LOWEST DAILY MEAN	35	Aug 13-15	32	Sep 20,21	16	Aug 26-28 1980
ANNUAL SEVEN-DAY MINIMUM	37	Aug 11	33	Sep 18	21	Jan 23 1981
MAXIMUM PEAK FLOW			**a**6280	Jun 6	**a**11200	Aug 18 1994
MAXIMUM PEAK STAGE			6.50	Jun 6	15.42	Aug 18 1994
10 PERCENT EXCEEDS	780		949		1170	
50 PERCENT EXCEEDS	119		237		195	
90 PERCENT EXCEEDS	59		36		48	

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

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

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

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



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

CHEMUNG RIVER BASIN

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

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
APR 2002													
18...	1500	9813	656	30	9.6	6.7	177	14.9	56	15.2	4.3	20	31.3
JUN													
24...	1045	9813	314	30	10.1	7.6	136	19.0	59	17.1	3.9	32	25.6
AUG													
15...	1330	9813	37	30	8.1	7.7	218	25.0	90	25.3	6.5	36	48.1

Date	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
APR 2002													
18...	80	<2	<.020	.33	<.040	.66	.06	.030	2.7	<10	910	<1.0	440
JUN													
24...	136	4	<.020	.34	<.040	.54	.04	.020	3.6	<10	240	<1.0	270
AUG													
15...	152	2	.040	.38	<.040	.58	.01	.030	2.8	<10	120	<1.0	100

Date	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002		
18...	<50	20
JUN		
24...	<50	<10
AUG		
15...	<50	<10

CHEMUNG RIVER BASIN

01518862 COWANESQUE RIVER AT WESTFIELD, PA

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

DRAINAGE AREA.--90.6 mi^2.

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

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

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

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

Date	Time	Discharge ft^3/s	Gage Height (ft)
June 5	2015	*4,650	*6.29

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.8	6.9	115	e30	267	e56	211	179	72	44	8.1	3.5
2	6.1	6.9	72	e26	179	e50	175	220	53	37	6.7	3.0
3	5.6	8.4	56	e28	e140	103	166	162	45	30	6.3	2.8
4	5.2	7.5	45	e24	121	81	136	132	43	26	5.1	2.6
5	4.4	6.6	39	e22	e100	e68	116	114	1940	22	49	2.4
6	5.0	6.0	33	e18	e90	e66	104	100	2420	19	19	2.2
7	5.1	5.7	29	e20	75	65	91	95	1080	16	11	2.3
8	5.5	5.5	26	e18	68	63	83	83	493	15	8.8	2.0
9	5.1	5.6	28	e16	62	62	82	125	291	24	7.2	1.9
10	4.9	5.8	26	e18	72	96	82	132	208	28	6.4	2.1
11	4.6	5.4	23	e20	178	71	66	87	158	17	5.4	2.3
12	4.3	5.1	21	e18	e100	70	59	256	124	13	4.9	2.3
13	4.6	4.9	25	e16	e85	68	85	581	103	11	6.2	2.4
14	4.9	4.7	51	e16	e78	66	142	682	265	11	4.8	2.1
15	10	4.8	85	e16	e76	62	311	404	820	9.3	4.4	2.6
16	9.4	5.1	57	e16	79	71	180	273	459	8.4	4.4	4.2
17	17	4.9	81	e15	75	62	156	230	302	7.5	4.6	3.6
18	14	4.6	258	e14	e60	68	134	683	239	6.9	4.3	3.2
19	11	4.6	138	e13	e56	71	116	330	176	7.0	3.6	3.1
20	9.0	6.2	108	e14	59	93	106	259	133	7.9	4.6	3.1
21	7.8	6.7	89	e14	93	110	95	214	103	6.6	4.5	2.9
22	7.0	6.0	73	e16	81	90	94	173	82	6.2	5.5	3.0
23	7.3	5.8	65	e18	66	e87	80	141	68	11	12	3.2
24	18	6.0	66	e80	e56	89	67	117	64	12	8.8	2.9
25	16	57	e52	e100	58	88	65	99	61	8.0	7.3	2.8
26	13	60	e45	e86	64	272	62	152	60	8.2	5.7	2.8
27	11	35	e40	72	70	407	53	94	191	7.6	4.7	15
28	11	27	e38	73	61	322	301	76	149	36	4.2	26
29	9.1	50	e38	80	---	294	284	68	75	25	4.2	10
30	8.2	123	e32	155	---	282	219	72	56	13	4.1	7.2
31	7.3	---	e34	152	---	232	---	89	---	9.7	3.9	---
TOTAL	259.2	491.7	1888	1224	2569	3685	3921	6422	10333	503.3	239.7	129.5
MEAN	8.361	16.39	60.90	39.48	91.75	118.9	130.7	207.2	344.4	16.24	7.732	4.317
MAX	18	123	258	155	267	407	311	683	2420	44	49	26
MIN	4.3	4.6	21	13	56	50	53	68	43	6.2	3.6	1.9
CFSM	0.09	0.18	0.67	0.44	1.01	1.31	1.44	2.29	3.80	0.18	0.09	0.05
IN.	0.11	0.20	0.78	0.50	1.05	1.51	1.61	2.64	4.24	0.21	0.10	0.05

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2002, BY WATER YEAR (WY)

MEAN	52.80	98.61	110.9	115.1	135.0	183.4	245.5	120.6	81.55	32.13	40.96	21.87
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	6.14	8.99	13.6	21.4	91.2	91.3	17.3	5.18	3.19	1.93	2.40
(WY)	1992	1999	1999	1989	1987	1990	1988	1985	1999	1993	1999	1991

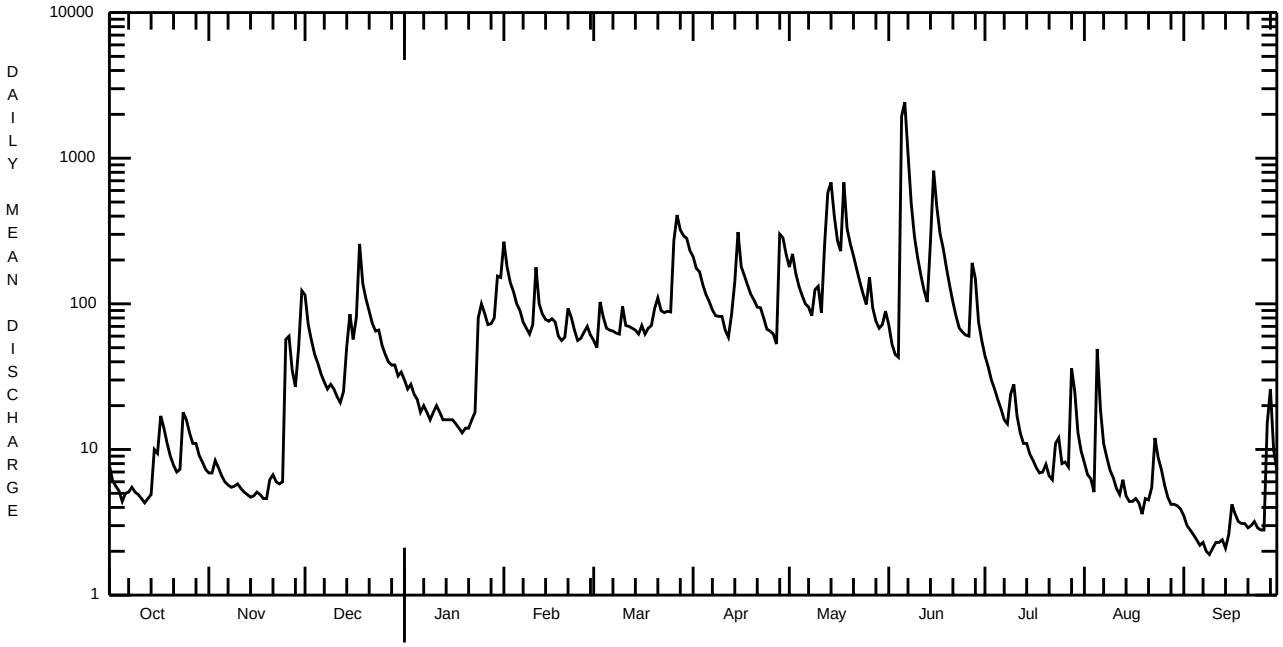
e Estimated.

CHEMUNG RIVER BASIN

01518862 COWANESQUE RIVER AT WESTFIELD, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1983 - 2002	
ANNUAL TOTAL	25053.1		31665.4			
ANNUAL MEAN	68.6		86.8		103	
HIGHEST ANNUAL MEAN					177	1996
LOWEST ANNUAL MEAN					58.4	1999
HIGHEST DAILY MEAN	1650	Apr 7	2420	Jun 6	**e**5400	Jan 19 1996
LOWEST DAILY MEAN	**e**1.4	Aug 14	1.9	Sep 9	0.53	Sep 16 1991
ANNUAL SEVEN-DAY MINIMUM	**a**1.6	Aug 9	2.2	Sep 6	0.78	Sep 10 1991
MAXIMUM PEAK FLOW			**b**4650	Jun 5	**b**13000	Jan 19 1996
MAXIMUM PEAK STAGE			6.29	Jun 5	**c**11.10	Jan 19 1996
ANNUAL RUNOFF (CFSM)	0.76		0.96		1.14	
ANNUAL RUNOFF (INCHES)	10.29		13.00		15.46	
10 PERCENT EXCEEDS	150		184		243	
50 PERCENT EXCEEDS	20		39		42	
90 PERCENT EXCEEDS	3.1		4.5		4.9	

a Computed using estimated daily discharges.
b From rating curve extended above 4,000 ft^3/s.
c From floodmark.
e Estimated.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

CHEMUNG RIVER BASIN

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

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

DRAINAGE AREA.--298 mi^2.

WATER-DISCHARGE RECORDS

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

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

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. 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 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	20	290	48	731	123	587	635	189	111	29	22
2	14	20	219	38	642	140	514	648	169	85	29	21
3	14	20	167	39	406	177	453	585	130	74	29	22
4	14	20	144	40	390	218	400	449	126	59	30	22
5	16	20	113	40	298	131	330	379	2710	54	31	20
6	17	20	73	40	193	150	295	337	5290	46	28	19
7	17	20	59	55	210	195	295	311	5580	40	27	18
8	17	18	59	66	177	173	295	242	3070	40	26	19
9	16	17	91	66	195	151	239	394	895	49	26	20
10	16	18	81	66	218	162	217	455	641	48	27	20
11	16	18	56	49	451	189	212	315	498	36	25	20
12	16	18	51	40	426	205	193	568	356	36	25	20
13	16	16	60	40	295	219	257	1700	208	36	26	20
14	17	15	111	40	208	185	511	2420	576	37	27	20
15	18	15	143	40	200	168	867	1270	2700	37	29	20
16	18	15	114	50	268	210	587	884	1810	33	28	20
17	19	13	263	62	239	210	474	709	1120	31	27	20
18	18	13	461	61	219	195	453	2340	811	33	27	20
19	16	13	611	45	176	195	376	1240	611	35	28	20
20	16	13	363	36	155	233	288	965	400	30	e27	20
21	17	13	267	36	226	335	259	710	305	29	e26	20
22	17	13	176	49	285	354	278	540	250	31	e26	21
23	16	13	164	54	218	281	281	466	219	33	e25	20
24	17	13	176	67	182	263	200	411	180	33	23	21
25	16	14	130	285	131	306	169	297	170	33	22	22
26	16	13	66	262	170	530	201	411	186	31	24	22
27	16	53	42	173	199	1290	198	347	171	29	24	24
28	20	150	56	128	156	1220	567	306	402	29	24	22
29	22	180	64	197	---	1160	1110	265	310	29	22	21
30	22	198	64	382	---	1030	723	216	162	29	21	22
31	21	---	63	495	---	779	---	218	---	29	21	---
TOTAL	525	1002	4797	3089	7664	11177	11829	21033	30245	1285	809	618
MEAN	16.94	33.40	154.7	99.65	273.7	360.5	394.3	678.5	1008	41.45	26.10	20.60
MAX	22	198	611	495	731	1290	1110	2420	5580	111	31	24
MIN	14	13	42	36	131	123	169	216	126	29	21	18

e Estimated.

CHEMUNG RIVER BASIN

01520000 COWANESQUE RIVER NEAR LAWRENCEVILLE, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2002, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	145.2	263.2	310.4	295.5	398.0	596.2	741.0	379.4	280.6	91.32	94.11	70.81
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	19.1	23.3	57.6	158	231	48.9	17.4	14.1	11.9	5.09
(WY)	1989	1992	1999	1981	1980	1981	1997	1985	1991	1991	1983	1980

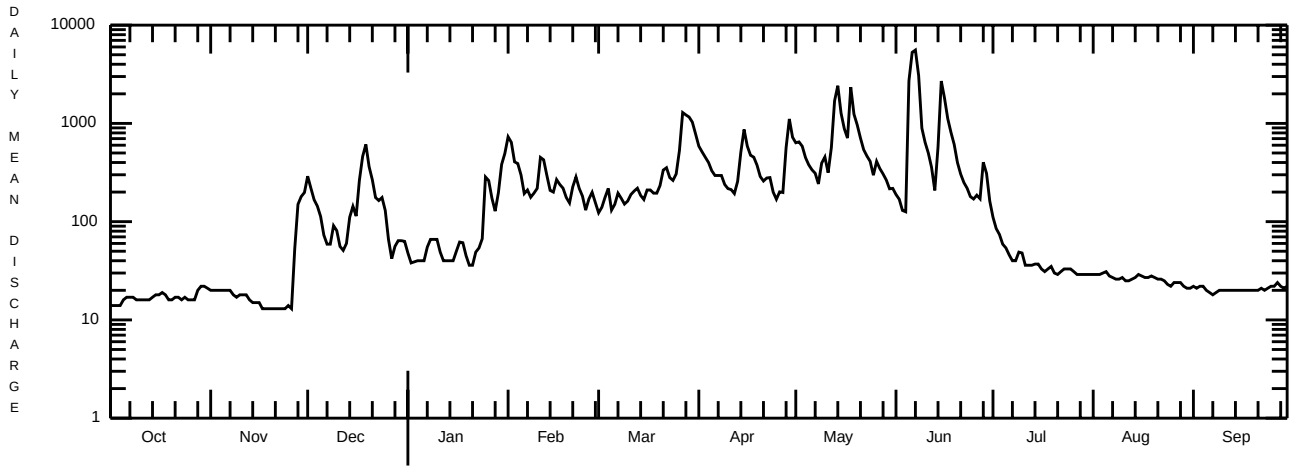
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1980 - 2002	
ANNUAL TOTAL	69437		94073			
ANNUAL MEAN	190		258		304	
HIGHEST ANNUAL MEAN					498	1984
LOWEST ANNUAL MEAN					165	1999
HIGHEST DAILY MEAN	4760	Apr 8	5580	Jun 7	5840	Jan 23 1996
LOWEST DAILY MEAN	10	Aug 24-27**a**	13	Nov 17-24,26	3.4	Sep 13 1980
ANNUAL SEVEN-DAY MINIMUM	10	Aug 24	13	Nov 17	3.9	Sep 10 1980
MAXIMUM PEAK FLOW			5880	Jun 5	6580	Jan 23 1996
MAXIMUM PEAK STAGE			12.12	Jun 5	12.41	Jan 23 1996
10 PERCENT EXCEEDS	465		580		743	
50 PERCENT EXCEEDS	40		73		101	
90 PERCENT EXCEEDS	13		17		17	

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

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

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

a Also Aug. 29, 30.
b From rating curve extended above 6,000 ft^3/s, on basis of slope-area measurement of peak flow.
c From floodmark; site and datum then in use.
d No flow Aug. 22, 1978, during dam construction.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

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

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
APR 2002													
18...	1300	9813	478	30	11.2	7.1	177	14.4	63	18.5	4.2	44	16.9
JUN													
24...	1200	9813	168	30	10.9	8.7	139	23.2	59	17.7	3.6	46	12.3
AUG													
15...	1330	9813	29	30	7.0	8.4	184	25.5	70	20.5	4.5	56	12.9

Date	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
APR 2002													
18...	84	<2	<.020	.46	<.040	.87	.02	.020	3.4	<10	260	<1.0	50
JUN													
24...	110	6	<.020	.36	<.040	.69	.02	.030	5.0	<10	260	<1.0	40
AUG													
15...	122	8	.160	.22	<.040	.82	.02	.050	5.3	<10	170	<1.0	170

Date	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002		
18...	<50	<10
JUN		
24...	<50	<10
AUG		
15...	<50	<10

CHEMUNG RIVER BASIN

LAKES AND RESERVOIRS IN CHEMUNG RIVER BASIN

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

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

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

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

EXTREMES FOR CURRENT YEAR.--Maximum contents, 13,810 acre-ft, June 7, elevation, 1,088.78 ft; minimum, 9,220 acre-ft, May 20, elevation, 1,080.38 ft.

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

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

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

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

EXTREMES FOR CURRENT YEAR.--Maximum contents, 11,840 acre-ft, June 7, elevation, 1,090.24 ft; minimum, 7,560 acre-ft, Sept. 26, elevation, 1,084.16 ft.

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

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

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

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

EXTREMES FOR CURRENT YEAR.--Maximum contents, 39,960 acre-ft, June 6, elevation, 1,086.47 ft; minimum, 31,790 acre-ft, Sept. 26, elevation, 1,079.26 ft.

CHEMUNG RIVER BASIN

Lakes and Reservoirs in Chemung River Basin--Continued

MONTHEND ELEVATION, IN FEET ABOVE SEA LEVEL, AND CONTENTS AT 2400 HRS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)	Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)
	01517900 Tioga Lake			01518498 Hammond Lake		
Sept. 30	1,080.88	9,450	---	1,086.49	9,150	---
Oct. 31	1,081.86	9,920	+7.6	1,086.83	9,360	+3.4
Nov. 30	1,083.03	10,510	+9.9	1,087.54	9,860	+8.4
Dec. 31	1,083.36	10,680	+2.8	1,087.42	9,770	-1.5
CAL YR 2001	--	--	+0.4	--	--	0
Jan. 31	1,082.38	10,180	-8.1	1,087.38	9,740	-0.5
Feb. 28	1,082.30	10,140	-0.7	1,087.51	9,840	+1.8
Mar. 31	1,081.74	9,860	-4.6	1,086.53	9,170	-10.9
Apr. 30	1,081.34	9,670	-3.2	1,086.42	9,110	-1.0
May 31	1,081.06	9,530	-2.3	1,086.51	9,160	+0.8
June 30	1,081.47	9,730	+3.4	1,086.53	9,170	+0.2
July 31	1,081.52	9,760	+0.5	1,086.15	8,940	-3.7
Aug. 31	1,081.27	9,630	-2.1	1,084.95	8,070	-14.1
Sept. 30	1,081.10	9,550	-1.3	1,084.60	7,840	-3.9
WTR YR 2002	--	--	+0.1	--	--	-1.8

	01519995 Cowanesque Lake		
Sept. 30	1,080.27	32,870	---
Oct. 31	1,080.46	33,060	+3.1
Nov. 30	1,080.35	32,950	-1.8
Dec. 31	1,080.31	32,910	-0.7
CAL YR 2001	--	--	0
Jan. 31	1,080.22	32,820	-1.5
Feb. 28	1,080.24	32,840	+0.4
Mar. 31	1,080.12	32,720	-2.0
Apr. 30	1,080.43	33,030	+5.2
May 31	1,080.18	32,780	-4.1
June 30	1,080.43	33,030	+4.2
July 31	1,080.78	33,380	+5.7
Aug. 31	1,080.14	32,740	-10.4
Sept. 30	1,079.44	31,980	-12.8
WTR YR 2002	--	--	-1.2

SUSQUEHANNA RIVER BASIN

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

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

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

WATER-DISCHARGE RECORDS

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

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

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

REMARKS.--No estimated daily discharges. Records good. Flow slightly regulated by 7 flood-control reservoirs which have a combined capacity of 356,800 acre-ft. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 27	2030	*65,600	*11.98

(No peaks above base discharge.)

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2690	1360	4930	3660	25900	10700	28600	21500	14200	8010	1560	953
2	2330	1330	7370	3330	37700	9790	24400	20500	12800	6530	1500	890
3	2020	1320	7010	3270	33700	9050	21400	21100	10800	5490	1420	847
4	1750	1360	5980	3260	25500	9740	19300	18200	8810	4810	1340	809
5	1600	1400	5120	3200	19600	10700	17300	15400	8650	4260	1300	788
6	1310	1430	4570	3090	15500	10300	15100	13200	31000	3870	1220	775
7	1340	1470	4140	3020	13500	9130	13400	11800	62100	3410	1180	765
8	1310	1500	3850	2800	12000	8850	12200	11200	49700	3140	1150	772
9	1300	1470	3700	2940	11000	8600	11200	10900	30600	3000	1120	807
10	1220	1450	3650	2930	10500	8570	10900	12500	20100	2880	1100	801
11	1160	1420	3640	3030	23100	9690	11300	13300	15400	2710	1060	770
12	1140	1400	3360	3190	35000	10100	10500	12600	12500	2520	1010	698
13	1130	1380	3270	3320	30200	9960	9330	20700	10800	2420	974	664
14	1140	1340	3640	3290	21200	9240	10300	53900	10400	2270	932	636
15	1180	1290	5040	3220	16600	8700	20100	56400	17500	2150	900	647
16	1200	1270	6730	3170	15100	8520	27400	44200	38200	2070	880	691
17	1210	1250	6940	3090	14800	8570	22700	31400	39500	2140	860	696
18	1290	1220	13500	3030	13700	8390	18500	34200	28300	1930	839	1110
19	1340	1220	21400	2870	12000	8130	16000	49400	20500	1850	812	1460
20	1390	1230	16600	2460	10700	8570	13500	37300	15400	1790	809	1400
21	1420	1210	13100	2470	10500	10800	12100	28100	12200	1810	805	1290
22	1410	1220	11200	2640	11700	13400	11000	22700	10100	1930	812	1190
23	1380	1210	9450	2850	13300	12500	10400	19400	8670	2000	860	1460
24	1390	1210	8490	3010	12800	11600	9560	16800	8450	1870	940	1670
25	1440	1300	8210	5520	11100	11100	8710	14400	8840	1830	968	4140
26	1480	1660	7680	9610	10100	14300	9420	12700	7950	1720	1000	3360
27	1490	2290	6740	10100	9960	55900	9650	11900	8810	1680	1030	2930
28	1480	2730	5630	9570	10500	58700	10600	11500	18000	1530	1030	3840
29	1440	2810	4890	9670	---	46600	24000	12800	13800	1600	1060	8290
30	1400	3070	4330	11600	---	37400	25400	12100	10400	1380	1070	8680
31	1370	---	3740	19400	---	33400	---	13000	---	1540	1020	---
TOTAL	44750	45820	217900	148610	487260	491000	464270	685100	564480	86140	32561	53829
MEAN	1444	1527	7029	4794	17400	15840	15480	22100	18820	2779	1050	1794
MAX	2690	3070	21400	19400	37700	58700	28600	56400	62100	8010	1560	8680
MIN	1130	1210	3270	2460	9960	8130	8710	10900	7950	1380	805	636
CFSM	0.19	0.20	0.90	0.61	2.23	2.03	1.98	2.83	2.41	0.36	0.13	0.23
IN.	0.21	0.22	1.04	0.71	2.32	2.34	2.22	3.27	2.69	0.41	0.16	0.26

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2002, BY WATER YEAR (WY)

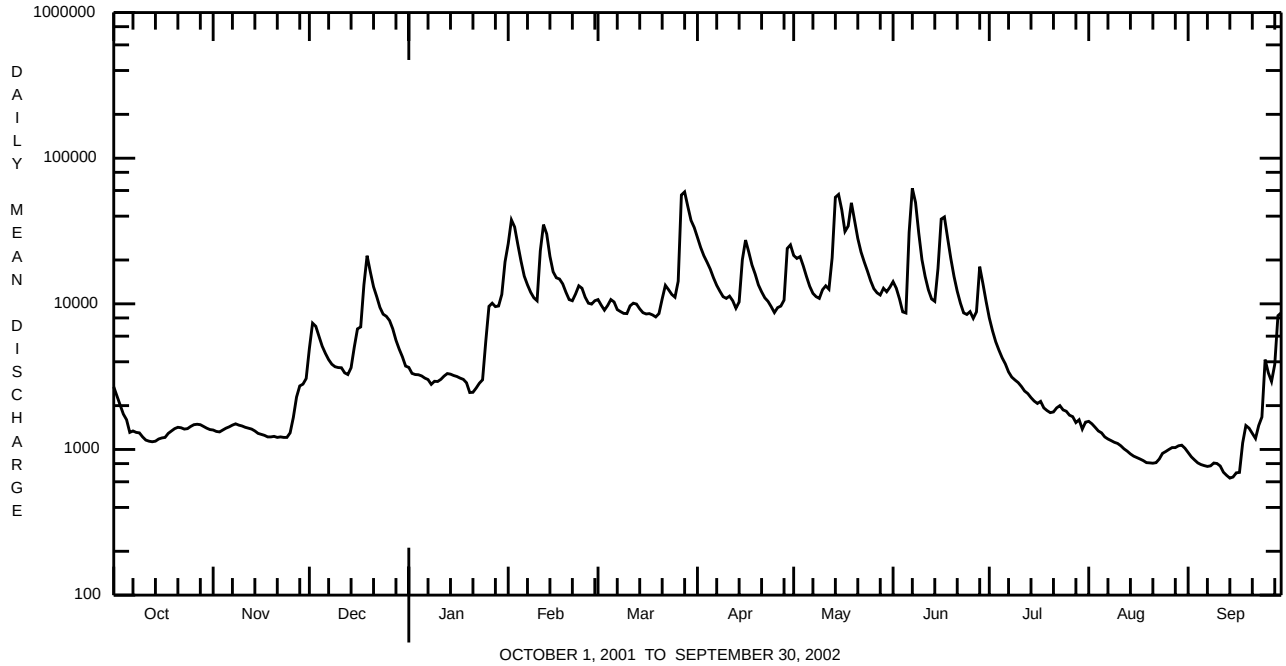
MEAN	5283	9289	11040	10600	11860	23450	25260	13230	7235	4061	2956	3205
MAX	31270	28940	32550	31200	35700	60780	76640	34770	41150	23840	16210	23200
(WY)	1978	1928	1997	1996	1976	1936	1993	1943	1972	1915	1915	1977
MIN	507	495	1459	1273	1821	8417	4975	3297	1381	783	571	432
(WY)	1965	1965	1931	1931	1920	1981	1946	1985	1999	1962	1964	1964

SUSQUEHANNA RIVER BASIN

01531500 SUSQUEHANNA RIVER AT TOWANDA, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1914 - 2002	
ANNUAL TOTAL	2820120		3321720			
ANNUAL MEAN	7726		9101		10610	
HIGHEST ANNUAL MEAN					16610	1978
LOWEST ANNUAL MEAN					5104	1965
HIGHEST DAILY MEAN	84400	Apr 10	62100	Jun 7	283000	Jun 23 1972
LOWEST DAILY MEAN	**e**760	Sep 20	636	Sep 14	340	Sep 23 1964
ANNUAL SEVEN-DAY MINIMUM	**a**807	Sep 18	686	Sep 11	348	Sep 18 1964
MAXIMUM PEAK FLOW			65600	Mar 27	**b**320000	Jun 24 1972
MAXIMUM PEAK STAGE			11.98	Mar 27	**c**33.43	Jun 24 1972
INSTANTANEOUS LOW FLOW					334	Sep 23,24 1964
ANNUAL RUNOFF (CFSM)	0.99		1.17		1.36	
ANNUAL RUNOFF (INCHES)	13.45		15.85		18.48	
10 PERCENT EXCEEDS	17800		21400		25800	
50 PERCENT EXCEEDS	3740		4810		5450	
90 PERCENT EXCEEDS	1100		1060		1240	

a Computed using estimated daily discharges.
b From rating curve extended above 180,000 ft^3/s.
c From floodmark.
e Estimated.



SUSQUEHANNA RIVER BASIN

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

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
APR 2002													
22...	0730	9813	11200	40	8.7	8.8	206	12.5	82	25.3	4.5	62	12.7
JUN													
18...	0845	9813	30000	40	9.5	7.8	149	16.4	61	18.9	3.4	46	9.5
AUG													
05...	0815	9813	1320	40	6.6	8.7	372	26.9	130	38.3	8.2	98	27.9

Date	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
APR 2002													
22...	154	20	<.020	.56	<.040	.89	.02	.040	3.1	<10	420	<1.0	40
JUN													
18...	126	30	<.020	.48	<.040	.88	.04	.070	4.4	<10	1860	1.5	40
AUG													
05...	156	6	.080	.15	<.040	.65	.03	.050	3.4	<10	140	<1.0	50

Date	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002		
22...	<50	<10
JUN		
18...	<50	<10
AUG		
05...	<50	<10

TOWANDA CREEK BASIN

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

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

DRAINAGE AREA.--215 mi^2.

WATER-DISCHARGE RECORDS

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

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

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

REMARKS.--Records good October 1 to July 3; fair, July 4 to September 30, except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 26	1930	*16,100	*14.06

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	178	65	916	e120	978	150	470	469	127	25	e12	5.2
2	149	64	515	e110	786	143	395	569	111	21	e10	4.7
3	126	64	355	e120	510	262	346	524	89	20	e12	e4.8
4	109	62	278	e100	392	246	299	390	77	e19	e9.0	e4.4
5	96	62	233	98	275	168	267	331	79	e18	e10	e4.4
6	90	60	205	93	e240	169	247	289	1140	e17	e16	e4.2
7	86	56	184	96	215	169	225	270	1080	e16	e12	e4.0
8	75	54	165	e100	201	158	209	245	378	e15	10	e3.8
9	67	53	175	e100	183	154	201	272	243	e16	7.9	e3.6
10	63	50	171	93	342	236	224	314	184	e17	e7.0	e3.6
11	60	49	153	104	2360	188	195	243	149	e15	e6.6	e3.4
12	57	47	148	104	1050	171	174	428	130	e14	e6.2	e3.4
13	54	46	167	100	778	167	172	1560	134	e13	e6.0	e3.4
14	52	45	214	e96	507	162	264	1930	165	e13	e5.6	e3.1
15	94	44	506	91	422	153	447	936	328	e12	e5.2	e6.0
16	101	44	294	91	382	307	359	614	294	e11	e5.5	12
17	134	43	304	87	338	276	294	488	208	e11	e5.5	15
18	120	41	1280	84	263	244	264	1390	166	e10	e5.9	11
19	96	40	790	e80	e220	243	246	935	143	e40	e5.8	7.9
20	86	43	551	e80	219	392	239	635	115	e18	e5.8	5.4
21	85	43	391	e82	328	543	227	526	96	e12	e5.6	3.7
22	76	41	297	e78	283	413	214	425	82	e10	e5.4	7.2
23	74	39	256	77	231	322	204	349	74	e14	e7.0	56
24	97	39	253	171	199	306	185	295	65	e19	15	42
25	113	112	218	404	186	285	176	256	57	e14	19	24
26	96	486	e170	236	179	4210	184	225	50	e13	13	18
27	86	234	e160	208	195	3770	163	198	43	e12	8.4	56
28	78	183	e160	228	172	1320	410	204	40	e19	6.2	239
29	73	208	e140	287	---	865	1020	200	36	e20	5.7	80
30	70	341	e130	628	---	653	592	154	30	e18	6.6	47
31	66	---	e120	766	---	511	---	136	---	e14	6.4	---
TOTAL	2807	2758	9899	5112	12434	17356	8912	15800	5913	506	262.3	686.2
MEAN	90.55	91.93	319.3	164.9	444.1	559.9	297.1	509.7	197.1	16.32	8.461	22.87
MAX	178	486	1280	766	2360	4210	1020	1930	1140	40	19	239
MIN	52	39	120	77	172	143	163	136	30	10	5.2	3.1
CFSM	0.42	0.43	1.49	0.77	2.07	2.60	1.38	2.37	0.92	0.08	0.04	0.11
IN.	0.49	0.48	1.71	0.88	2.15	3.00	1.54	2.73	1.02	0.09	0.05	0.12

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2002, BY WATER YEAR (WY)

MEAN	147.1	272.6	310.0	286.8	345.6	654.0	623.3	369.0	185.1	93.79	79.97	85.12
MAX	1092	1326	1117	1542	1169	2287	1838	1262	1922	1376	986	950
(WY)	1991	1927	1997	1996	1984	1936	1993	1946	1972	1915	1915	1975
MIN	6.46	7.84	16.8	10.1	40.4	135	110	54.5	16.0	7.72	3.71	1.76
(WY)	1965	1931	1932	1931	1931	1965	1946	1926	1991	1955	1966	1964

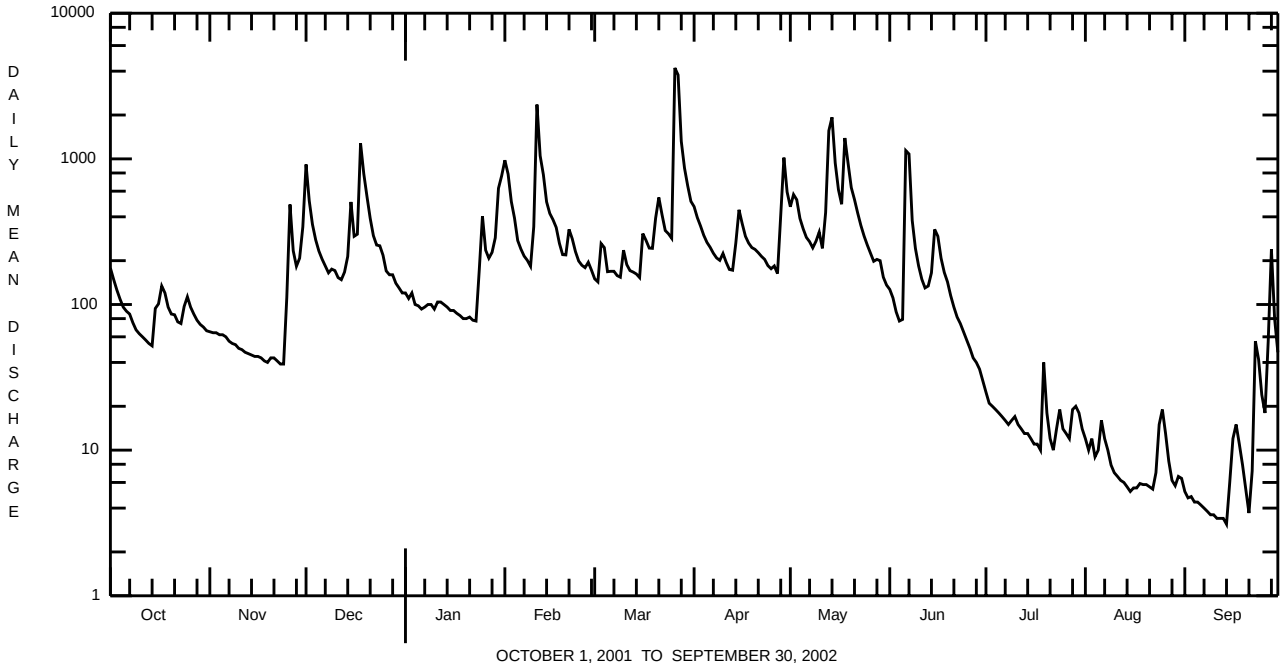
e Estimated.

TOWANDA CREEK BASIN

01532000 TOWANDA CREEK NEAR MONROETON, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1914 - 2002	
ANNUAL TOTAL	85059.3		82445.5			
ANNUAL MEAN	233		226		287	
HIGHEST ANNUAL MEAN					502	1978
LOWEST ANNUAL MEAN					111	1965
HIGHEST DAILY MEAN	4860	Sep 25	4210	Mar 26	28700	Jun 22 1972
LOWEST DAILY MEAN	**e**9.0	Aug 16	**e**3.1	Sep 14	0.70	Sep 21 1932
ANNUAL SEVEN-DAY MINIMUM	**a**11	Aug 10	**a**3.5	Sep 8	0.87	Sep 16 1932
MAXIMUM PEAK FLOW			16100	Mar 26	74000	Jun 22 1972
MAXIMUM PEAK STAGE			14.06	Mar 26	**b**20.86	Jan 19 1996
INSTANTANEOUS LOW FLOW					0.70	Sep 15 1932**c**
ANNUAL RUNOFF (CFSM)	1.08		1.05		1.33	
ANNUAL RUNOFF (INCHES)	14.72		14.26		18.12	
10 PERCENT EXCEEDS	563		495		654	
50 PERCENT EXCEEDS	86		126		115	
90 PERCENT EXCEEDS	31		7.6		14	

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



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

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
APR 2002													
25...	0730	9813	170	30	11.4	7.5	94	8.9	36	10.5	2.4	30	13.0
JUN													
05...	1115	9813	78	30	10.6	8.1	115	18.9	45	13.5	2.8	28	15.2
AUG													
07...	1330	9813	E13	30	9.0	8.1	124	22.9	56	16.8	3.4	38	16.0

Date	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
APR 2002													
25...	72	18	<.020	.19	<.040	.32	.01	.010	1.7	<10	80	<1.0	20
JUN													
05...	68	<2	<.020	.26	<.040	.40	<.01	.020	1.9	40	60	<1.0	20
AUG													
07...	86	2	<.020	.12	<.040	.24	.01	.010	1.7	<10	50	<1.0	20

Date	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002		
25...	<50	20
JUN		
05...	<50	20
AUG		
07...	<50	<10

SUSQUEHANNA RIVER BASIN

01533400 SUSQUEHANNA RIVER AT MESHOPPEN, PA

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

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

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

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

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

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

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

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 28	0330	*74,800	*22.54	May 15	0030	70,100	21.96

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2980	1550	4560	e3900	25800	11300	32200	25000	15100	9390	1750	1060
2	2460	1540	7560	e3400	36700	10800	27600	22700	14700	7490	1720	983
3	2150	1530	8040	3150	36700	10100	23900	23800	12400	6250	1650	914
4	1940	1520	6970	e3400	29600	10200	21300	21200	10400	5440	1560	880
5	1760	1570	5920	3510	22300	11000	19500	18000	8980	4820	1520	834
6	1640	1580	5150	3570	17800	11200	17200	15700	21400	4290	1450	796
7	1440	1610	4580	3030	15300	10200	15400	13800	64000	3790	1350	781
8	1470	1640	4170	3030	13700	9390	14000	12900	57100	3330	1320	770
9	1420	1670	3980	2970	12200	9190	12900	12600	38300	3100	1280	775
10	1400	1630	3880	e3200	11400	9230	12200	13800	23700	3050	1270	805
11	1350	1620	3830	3280	21500	9860	12400	15100	18000	2830	1260	803
12	1310	1590	3670	3230	36200	10600	12000	14500	14700	2660	1220	760
13	1270	1570	3440	3390	34800	10700	10800	25200	12500	2510	1150	718
14	1250	1560	3670	e3400	25700	10200	10500	59100	11300	2390	1080	678
15	1340	1540	4860	3230	19300	9320	16500	65900	15200	2250	1020	663
16	1400	1510	6740	3060	16800	9450	28600	52300	33100	2140	970	713
17	1460	1490	7610	2950	16500	9520	25700	37900	42600	2060	953	727
18	1490	1470	13900	2860	15500	9350	20500	36000	32500	2120	935	730
19	1540	1460	23500	2710	13700	8990	18200	53500	23600	2040	906	1170
20	1550	1480	20800	2500	12100	9260	15500	44400	18000	2130	890	1540
21	1560	1480	15800	2430	11500	11600	13800	33400	14400	2000	876	1470
22	1580	1480	13300	2480	12200	14600	12600	26300	11800	2100	856	1550
23	1550	1480	11200	2510	13700	14800	11600	22100	9930	2330	870	1790
24	1590	1480	9830	2770	14200	13300	11000	19200	9060	2400	982	1850
25	1660	1540	9120	4660	12600	12600	9890	16800	9300	2290	1050	2590
26	1680	2090	8590	9080	11200	15400	9930	14900	9010	2180	1070	3980
27	1680	2480	7550	11400	10700	62000	10600	13500	7960	2040	1080	3500
28	1670	2700	6360	10900	10900	69600	11800	13000	15100	1980	1090	3700
29	1630	2940	5480	10900	---	53800	24300	14300	16300	1830	1100	6110
30	1610	3100	5100	12600	---	42500	30300	13700	12100	1840	1130	9620
31	1560	---	e4400	18700	---	36600	---	13700	---	1630	1130	---
TOTAL	50390	51900	243560	152200	530600	546660	512720	784300	602540	96700	36488	53260
MEAN	1625	1730	7857	4910	18950	17630	17090	25300	20080	3119	1177	1775
MAX	2980	3100	23500	18700	36700	69600	32200	65900	64000	9390	1750	9620
MIN	1250	1460	3440	2430	10700	8990	9890	12600	7960	1630	856	663
CFSM	0.19	0.20	0.90	0.56	2.17	2.02	1.96	2.90	2.30	0.36	0.13	0.20
IN.	0.21	0.22	1.04	0.65	2.26	2.33	2.19	3.35	2.57	0.41	0.16	0.23

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 2002, BY WATER YEAR (WY)

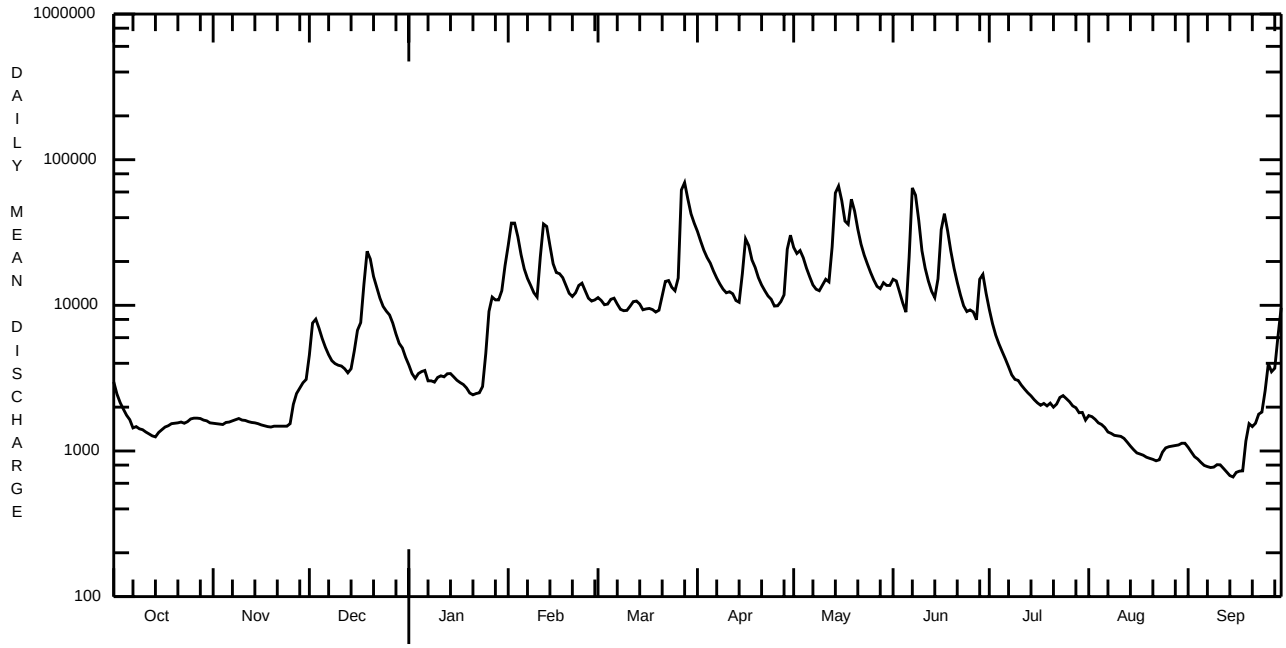
MEAN	7192	10610	13550	12540	14470	24480	28400	14480	7950	4010	3217	3526
MAX	35100	25890	38090	33960	36100	48830	86470	33200	21470	11530	17530	24900
(WY)	1978	1997	1997	1996	1981	1979	1993	1996	1989	1998	1994	1977
MIN	1045	1380	2382	2168	2702	9955	9638	4027	1610	1100	765	882
(WY)	1983	1999	1999	1981	1980	1981	1981	1985	1999	1991	1999	1995

e Estimated.

SUSQUEHANNA RIVER BASIN

01533400 SUSQUEHANNA RIVER AT MESHOPPEN, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1977 - 2002	
ANNUAL TOTAL	3137708		3661318			
ANNUAL MEAN	8596		10030		12010	
HIGHEST ANNUAL MEAN					18930	1978
LOWEST ANNUAL MEAN					7230	1985
HIGHEST DAILY MEAN	90300	Apr 10	69600	Mar 28	216000	Jan 20 1996
LOWEST DAILY MEAN	817	Sep 20	663	Sep 15	557	Aug 31 1995
ANNUAL SEVEN-DAY MINIMUM	856	Sep 18	713	Sep 12	593	Aug 29 1995
MAXIMUM PEAK FLOW			74800	Mar 28	226000	Jan 20 1996
MAXIMUM PEAK STAGE			22.54	Mar 28	36.34	Jan 20 1996
ANNUAL RUNOFF (CFSM)	0.99		1.15		1.38	
ANNUAL RUNOFF (INCHES)	13.39		15.62		18.71	
10 PERCENT EXCEEDS	20600		23800		28600	
50 PERCENT EXCEEDS	4100		4860		6260	
90 PERCENT EXCEEDS	1160		1140		1410	



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

TUNKHANNOCK CREEK BASIN

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

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

DRAINAGE AREA.--383 mi^2.

WATER-DISCHARGE RECORDS

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

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

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

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

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

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 27	0530	6,700	7.95	May 13	2345	*10,600	*9.94

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	166	73	260	e210	1670	267	956	1380	553	173	46	29
2	156	74	240	216	1710	257	822	1500	380	159	40	27
3	144	72	209	193	1120	363	737	1410	306	148	52	26
4	124	77	192	176	924	370	728	1020	262	136	56	40
5	110	104	181	162	e720	259	603	839	344	123	46	62
6	110	103	162	145	e600	264	548	704	1280	110	56	48
7	109	95	151	142	558	263	492	629	2450	101	51	34
8	84	85	142	199	519	254	450	560	1240	95	39	27
9	75	79	161	185	451	245	428	616	833	91	33	25
10	62	78	181	172	441	312	481	690	624	139	28	22
11	58	78	168	170	2440	281	411	518	494	116	25	21
12	57	74	167	172	1470	256	359	735	429	92	24	27
13	54	64	189	163	1170	259	347	4510	438	82	22	30
14	55	58	239	151	866	258	386	6660	613	75	20	28
15	70	58	347	151	793	245	1110	3190	1190	70	19	32
16	100	57	296	e150	737	405	851	1940	1530	64	19	44
17	98	57	317	e150	695	447	674	1500	1050	57	19	47
18	117	56	1590	e150	597	377	575	3200	753	53	19	42
19	104	58	1170	e130	497	369	507	2450	916	77	17	36
20	83	60	838	e130	424	444	471	1660	616	88	17	32
21	80	59	670	e140	468	707	439	1320	475	75	15	32
22	82	58	530	151	458	747	397	1070	396	61	15	223
23	68	54	455	142	401	606	377	885	355	65	20	760
24	127	49	456	228	349	587	336	743	321	134	36	318
25	182	71	421	512	336	541	323	637	278	102	98	178
26	135	359	e340	490	320	901	437	542	274	76	73	133
27	110	238	e290	483	320	4710	346	477	262	66	43	362
28	99	188	e260	539	300	2250	1240	466	247	63	31	889
29	90	182	e240	679	---	1560	2860	536	220	67	28	410
30	79	206	e220	1510	---	1210	1660	420	192	61	32	263
31	77	---	e210	1610	---	973	---	462	---	54	34	---
TOTAL	3065	2924	11292	9801	21354	20987	20351	43269	19321	2873	1073	4247
MEAN	98.87	97.47	364.3	316.2	762.6	677.0	678.4	1396	644.0	92.68	34.61	141.6
MAX	182	359	1590	1610	2440	4710	2860	6660	2450	173	98	889
MIN	54	49	142	130	300	245	323	420	192	53	15	21
CFSM	0.26	0.25	0.95	0.83	1.99	1.77	1.77	3.64	1.68	0.24	0.09	0.37
IN.	0.30	0.28	1.10	0.95	2.07	2.04	1.98	4.20	1.88	0.28	0.10	0.41

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2002, BY WATER YEAR (WY)

MEAN	310.9	528.0	612.7	556.5	658.6	1162	1111	640.6	346.3	209.5	167.6	194.2
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

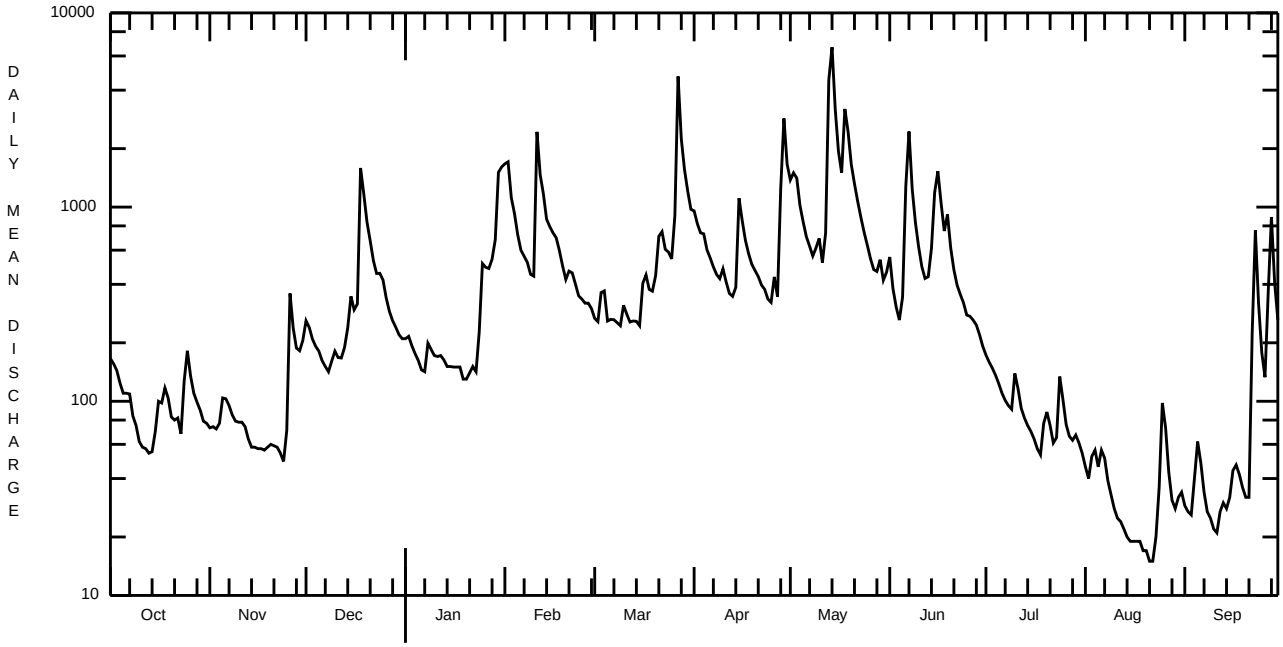
e Estimated.

TUNKHANNOCK CREEK BASIN

01534000 TUNKHANNOCK CREEK NEAR TUNKHANNOCK, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1914 - 2002	
ANNUAL TOTAL	132148		160557			
ANNUAL MEAN	362		440		539	
HIGHEST ANNUAL MEAN					897	1928
LOWEST ANNUAL MEAN					220	1965
HIGHEST DAILY MEAN	3380	Mar 30	6660	May 14	22700	Apr 16 1983
LOWEST DAILY MEAN	31	Aug 2,3	15	Aug 21,22	6.9	Sep 24 1964
ANNUAL SEVEN-DAY MINIMUM	37	Jul 29	17	Aug 16	7.9	Sep 18 1964
MAXIMUM PEAK FLOW			10600	May 13	**a**30300	Jan 19 1996
MAXIMUM PEAK STAGE			9.94	May 13	19.99	Jan 19 1996
INSTANTANEOUS LOW FLOW					6.2	Sep 24 1964
ANNUAL RUNOFF (CFSM)	0.95		1.15		1.41	
ANNUAL RUNOFF (INCHES)	12.84		15.59		19.13	
10 PERCENT EXCEEDS	964		1060		1230	
50 PERCENT EXCEEDS	181		223		259	
90 PERCENT EXCEEDS	50		40		50	

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



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

TUNKHANNOCK CREEK BASIN

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

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
APR 2002													
16...	1300	9813	825	30	10.7	7.8	139	16.5	37	12.1	1.6	26	10.9
JUN													
19...	1430	9813	910	30	9.7	7.9	148	19.1	47	15.9	1.7	34	9.2

Date	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
APR 2002													
16...	106	12	<.020	.27	<.040	.55	.02	.030	3.2	<10	230	<1.0	30
JUN													
19...	96	10	<.020	.25	<.040	.58	.03	.040	4.5	<10	360	<1.0	80

Date	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002		
16...	<50	<10
JUN		
19...	<50	<10

LACKAWANNA RIVER BASIN

01534180 STILLWATER LAKE NEAR FOREST CITY, PA

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

DRAINAGE AREA.--37.1 mi^2.

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

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

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

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

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

EXTREMES FOR CURRENT YEAR.--Maximum contents, 2,260 acre-ft, May 14, elevation, 1,586.81 ft; minimum, 384 acre-ft, Sept. 21, elevation, 1,572.46 ft.

MONTHEND ELEVATION, IN FEET ABOVE SEA LEVEL, AND CONTENTS AT 2400 HRS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)
Sept. 30	1,573.08	441	---
Oct. 31	1,572.68	404	-0.6
Nov. 30	1,573.20	452	+0.8
Dec. 31	1,573.16	448	-0.1
CAL YR 2001	--	--	-0.1
Jan. 31	1,577.41	910	+7.5
Feb. 28	1,573.58	489	-7.6
Mar. 31	1,575.28	665	+2.9
Apr. 30	1,579.68	1,200	+9.0
May 31	1,573.83	514	-11.2
June 30	1,573.43	475	-0.7
July 31	1,572.69	405	-1.1
Aug. 31	1,572.58	395	-0.2
Sept. 30	1,573.23	455	+1.0
WTR YR 2002	--	--	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 mi^2.

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

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

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	7.4	34	25	234	48	169	272	60	34	7.4	6.6
2	16	7.1	39	23	229	44	152	213	56	29	7.0	6.1
3	12	6.9	34	21	207	55	130	177	47	26	7.9	5.9
4	8.2	6.8	30	20	162	72	125	172	40	22	8.4	7.5
5	7.6	7.1	25	20	e110	60	111	107	53	19	8.4	10
6	7.3	7.5	22	21	85	55	96	82	107	17	10	10
7	7.2	8.0	20	24	76	51	83	82	279	17	11	8.7
8	7.1	7.9	18	25	68	46	77	80	328	16	11	7.4
9	8.7	7.9	19	27	63	44	71	80	199	16	8.9	6.2
10	9.4	7.5	19	27	62	52	68	93	126	18	7.3	5.3
11	8.0	7.5	19	27	206	50	62	170	90	22	6.2	4.9
12	6.8	7.0	18	26	304	46	55	104	64	22	5.4	4.3
13	6.2	6.9	19	25	276	44	51	95	41	17	4.7	3.6
14	5.9	6.8	27	23	164	44	57	352	64	14	4.3	3.3
15	6.1	6.8	57	22	120	43	101	635	107	12	4.5	3.2
16	6.6	7.0	65	21	100	51	128	487	119	10	5.7	4.5
17	8.2	6.9	58	20	91	62	127	321	159	8.7	5.6	7.5
18	8.1	6.9	101	20	79	59	121	274	117	7.8	5.0	7.3
19	8.2	6.9	171	18	70	55	108	332	47	7.0	4.5	6.7
20	8.1	7.3	175	18	66	55	86	284	47	6.9	4.4	6.0
21	7.4	7.9	118	20	74	60	67	202	45	6.7	3.9	5.2
22	7.7	8.7	82	20	87	67	61	154	47	6.2	3.6	14
23	8.6	8.9	66	20	79	67	59	118	50	7.5	3.6	42
24	10	8.3	64	22	67	65	53	97	64	33	3.8	41
25	14	10	65	45	61	68	50	84	96	30	5.6	28
26	15	28	56	68	56	74	60	72	67	22	7.2	20
27	13	38	44	68	55	157	58	64	50	17	9.6	25
28	11	34	38	63	52	261	85	61	50	14	12	74
29	9.3	29	35	68	---	245	155	76	47	12	10	61
30	8.3	28	32	109	---	214	232	70	40	9.6	8.6	41
31	7.8	---	28	187	---	190	---	61	---	8.2	7.4	---
TOTAL	288.8	344.9	1598	1143	3303	2504	2858	5471	2706	507.6	212.9	476.2
MEAN	9.316	11.50	51.55	36.87	118.0	80.77	95.27	176.5	90.20	16.37	6.868	15.87
MAX	21	38	175	187	304	261	232	635	328	34	12	74
MIN	5.9	6.8	18	18	52	43	50	61	40	6.2	3.6	3.2

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2002, BY WATER YEAR (WY)

MEAN	46.14	71.96	83.83	71.36	78.22	132.1	168.5	86.89	54.48	26.59	18.74	27.31
MAX	239	264	234	209	245	261	517	232	205	123	122	221
(WY)	1978	1973	1974	1996	1981	1979	1993	1989	1989	1973	1994	1977
MIN	2.45	2.48	14.7	9.64	13.2	40.5	58.8	21.5	11.1	4.67	2.80	1.17
(WY)	1965	1965	1999	1981	1980	1993	1968	2001	1980	1991	1999	1980

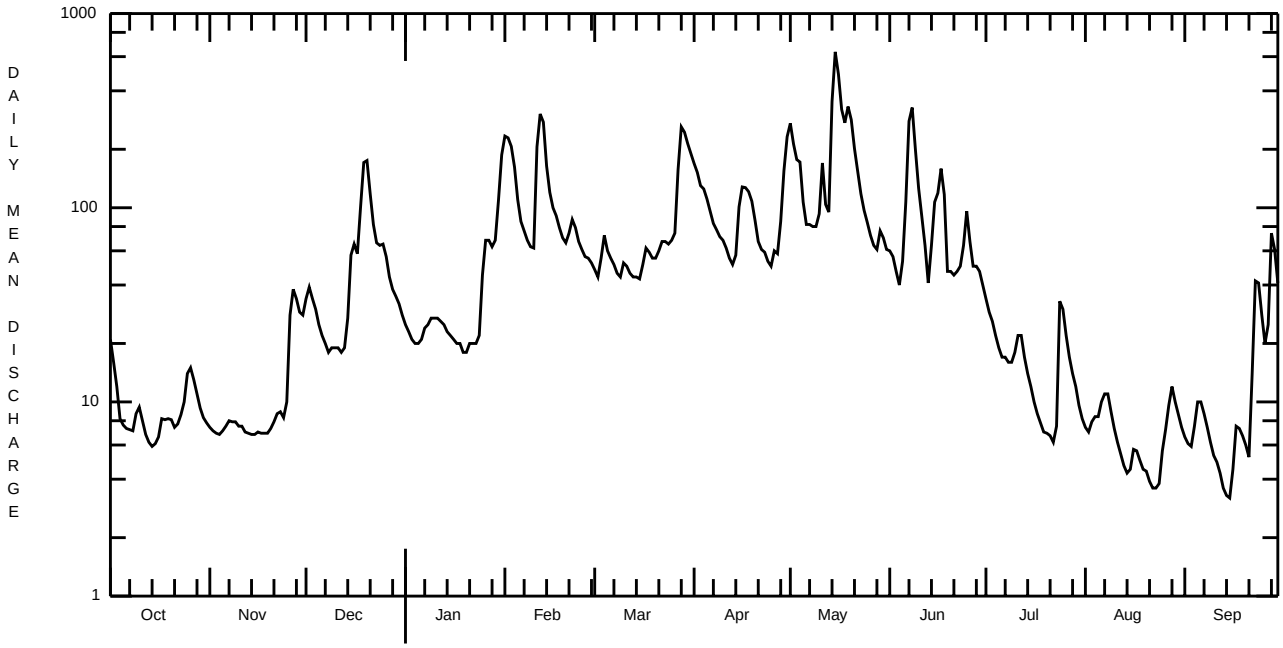
e Estimated.

LACKAWANNA RIVER BASIN

01534300 LACKAWANNA RIVER NEAR FOREST CITY, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1959 - 2002	
ANNUAL TOTAL	17388.3		21413.4			
ANNUAL MEAN	47.6		58.7		72.0	
HIGHEST ANNUAL MEAN					112	1973
LOWEST ANNUAL MEAN					36.3	1965
HIGHEST DAILY MEAN	784	Apr 11	635	May 15	1160	Apr 4 1993
LOWEST DAILY MEAN	3.9	Sep 14	3.2	Sep 15	**b**0.00	Jul 21 1978
ANNUAL SEVEN-DAY MINIMUM	**a**4.5	Aug 5	4.1	Aug 18	0.43	Sep 11 1980
MAXIMUM PEAK FLOW			710	May 14	**cd**1390	Jan 22 1959
MAXIMUM PEAK STAGE			4.45	May 14	6.41	Jan 22 1959
INSTANTANEOUS LOW FLOW					**b**0.00	Jul 21 1978
10 PERCENT EXCEEDS	103		154		170	
50 PERCENT EXCEEDS	25		34		39	
90 PERCENT EXCEEDS	5.5		6.8		6.9	

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



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

LACKAWANNA RIVER BASIN

01534500 LACKAWANNA RIVER AT ARCHBALD, PA

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

DRAINAGE AREA.--108 mi^2.

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

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. Regulation at low flow by mine pumps upstream from station. Flow regulated since December 1959 by Stillwater Dam (station 01534180) about 17 mi upstream. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	31	83	64	526	118	397	607	212	106	40	36
2	43	31	78	63	497	113	340	596	182	96	44	35
3	39	31	75	64	409	133	305	493	159	88	44	33
4	35	30	73	66	341	141	282	431	144	81	41	45
5	33	33	66	65	250	127	250	352	143	76	41	39
6	35	31	61	e60	207	120	226	282	326	72	40	37
7	32	31	58	e62	186	115	203	264	630	70	39	36
8	32	31	56	65	171	109	189	242	572	66	39	34
9	32	31	61	68	157	106	183	250	415	71	37	33
10	33	30	58	69	199	121	189	234	301	74	35	31
11	33	30	57	70	e700	114	168	292	232	66	34	29
12	31	29	57	67	584	108	155	352	206	68	32	29
13	30	29	61	65	521	106	153	1050	165	63	31	28
14	29	28	80	61	360	106	172	1250	297	58	30	27
15	37	29	104	60	284	103	311	1250	477	55	30	31
16	31	28	115	59	249	135	301	895	513	52	30	58
17	35	28	132	58	228	136	285	675	441	49	31	35
18	33	28	296	57	200	130	267	943	400	47	31	34
19	33	28	301	47	180	125	247	814	330	48	30	33
20	33	32	305	55	172	139	220	673	238	47	43	31
21	32	30	228	55	180	161	192	556	202	45	32	30
22	31	30	174	60	185	190	178	449	183	44	33	48
23	32	31	147	58	173	170	168	376	175	46	37	79
24	44	31	147	73	154	167	155	321	163	57	47	72
25	40	41	138	126	144	176	158	278	203	67	41	60
26	40	60	123	141	137	266	170	244	171	59	35	52
27	39	65	106	146	136	756	156	216	145	52	34	120
28	37	61	99	152	127	626	447	227	136	50	37	257
29	35	57	90	183	---	543	720	234	127	47	45	144
30	34	62	80	424	---	469	611	210	114	43	39	107
31	32	---	69	459	---	411	---	218	---	42	35	---
TOTAL	1083	1067	3578	3122	7657	6340	7798	15274	8002	1905	1137	1663
MEAN	34.94	35.57	115.4	100.7	273.5	204.5	259.9	492.7	266.7	61.45	36.68	55.43
MAX	48	65	305	459	700	756	720	1250	630	106	47	257
MIN	29	28	56	47	127	103	153	210	114	42	30	27

e Estimated.

LACKAWANNA RIVER BASIN

01534500 LACKAWANNA RIVER AT ARCHBALD, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2002, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	121.3	188.6	221.8	190.1	218.3	361.6	424.3	264.8	167.7	89.30	66.82	80.08
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	42.6	38.2	40.4	143	174	99.1	47.9	25.6	25.0	18.4
(WY)	1965	1965	1999	1981	1980	1981	1988	2001	1962	1965	1966	1964

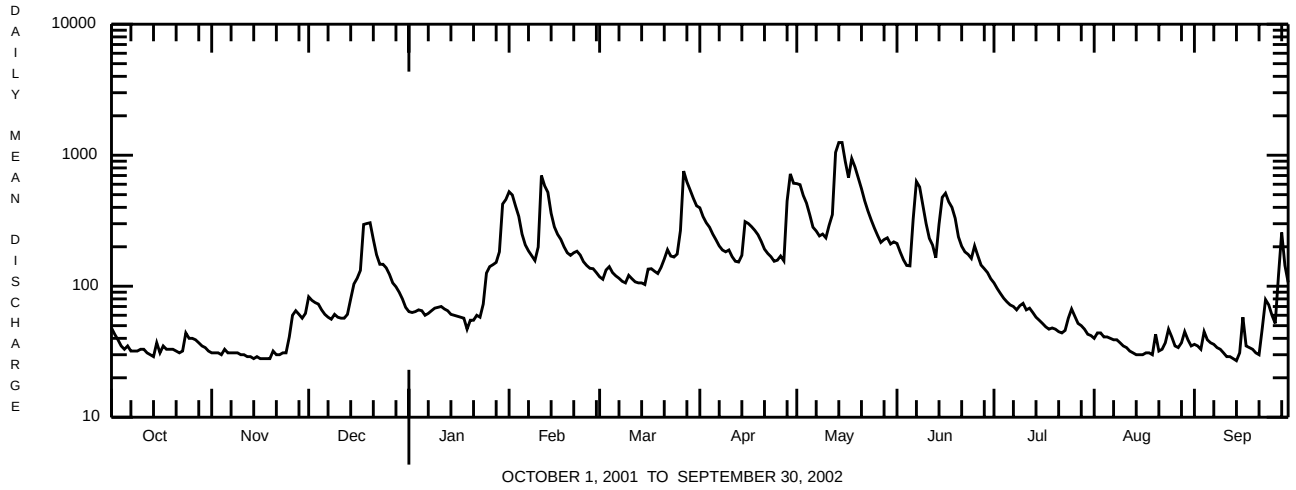
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1960 - 2002	
ANNUAL TOTAL	50842		58626			
ANNUAL MEAN	139		161		199	
HIGHEST ANNUAL MEAN					313	1973
LOWEST ANNUAL MEAN					101	1965
HIGHEST DAILY MEAN	1330	Apr 10	1250	May 14,15	3250	Mar 15 1986
LOWEST DAILY MEAN	26	Sep 13,16	27	Sep 14	13	Nov 1 1964
ANNUAL SEVEN-DAY MINIMUM	28	Sep 11	28	Nov 13	14	Oct 26 1964
MAXIMUM PEAK FLOW			**a**1930	May 13	**a**7190	Jan 19 1996
MAXIMUM PEAK STAGE			5.35	May 13	9.32	Jan 19 1996
10 PERCENT EXCEEDS	301		404		454	
50 PERCENT EXCEEDS	80		80		120	
90 PERCENT EXCEEDS	30		31		34	

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

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

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

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



LACKAWANNA RIVER BASIN

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

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

DRAINAGE AREA.--332 mi^2.

WATER-DISCHARGE RECORDS

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

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

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

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	41	232	e100	1000	190	824	1230	696	167	48	72
2	58	40	150	e97	1000	181	686	1250	507	150	132	77
3	51	45	134	102	824	223	636	1120	406	140	118	64
4	46	38	125	104	694	229	571	943	347	128	68	60
5	39	56	120	103	529	205	493	797	317	119	129	70
6	65	39	109	e95	441	191	443	640	731	109	96	56
7	46	38	95	e100	392	183	400	572	1660	104	72	51
8	41	39	93	114	356	177	368	520	1240	101	65	48
9	40	40	148	111	318	168	403	571	971	103	60	46
10	e42	39	121	118	319	259	546	519	721	121	55	44
11	47	38	106	141	1250	219	396	483	554	101	50	41
12	44	37	102	130	977	200	353	755	501	96	49	36
13	39	37	108	118	882	194	361	2360	453	91	47	36
14	36	36	133	110	609	189	494	2890	802	83	51	34
15	119	35	166	107	491	184	781	2130	1110	81	76	156
16	57	34	185	107	433	276	661	1470	1110	74	103	314
17	89	32	225	104	400	253	584	1230	883	68	53	101
18	56	32	710	100	352	238	531	2240	761	65	48	72
19	49	33	558	87	312	226	533	1790	687	210	49	62
20	45	75	542	89	295	290	557	1370	492	118	156	56
21	45	45	421	94	312	350	480	1200	401	74	64	51
22	48	36	315	102	310	395	442	1040	346	67	54	79
23	46	35	260	104	290	347	407	874	313	80	82	212
24	93	36	267	168	260	333	361	728	284	83	164	120
25	61	149	239	365	241	336	364	622	304	90	133	102
26	53	168	209	349	231	575	396	596	273	82	70	95
27	49	116	177	346	227	1750	350	504	357	73	61	496
28	47	103	165	368	212	1230	993	724	303	74	54	703
29	50	99	144	439	---	1070	1570	1110	221	71	128	270
30	45	153	e110	903	---	897	1250	800	188	60	93	187
31	42	---	e110	974	---	788	---	640	---	53	68	---
TOTAL	1656	1744	6579	6349	13957	12346	17234	33718	17939	3036	2496	3811
MEAN	53.42	58.13	212.2	204.8	498.5	398.3	574.5	1088	598.0	97.94	80.52	127.0
MAX	119	168	710	974	1250	1750	1570	2890	1660	210	164	703
MIN	36	32	93	87	212	168	350	483	188	53	47	34

e Estimated.

LACKAWANNA RIVER BASIN

01536000 LACKAWANNA RIVER AT OLD FORGE, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2002, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	254.5	392.5	477.0	429.0	504.5	810.9	932.4	609.2	365.5	186.5	139.1	175.2
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	76.2	61.4	88.7	291	353	192	69.8	46.4	45.4	37.8
(WY)	1965	1965	1999	1981	1980	1981	1985	2001	1962	1965	1999	1964

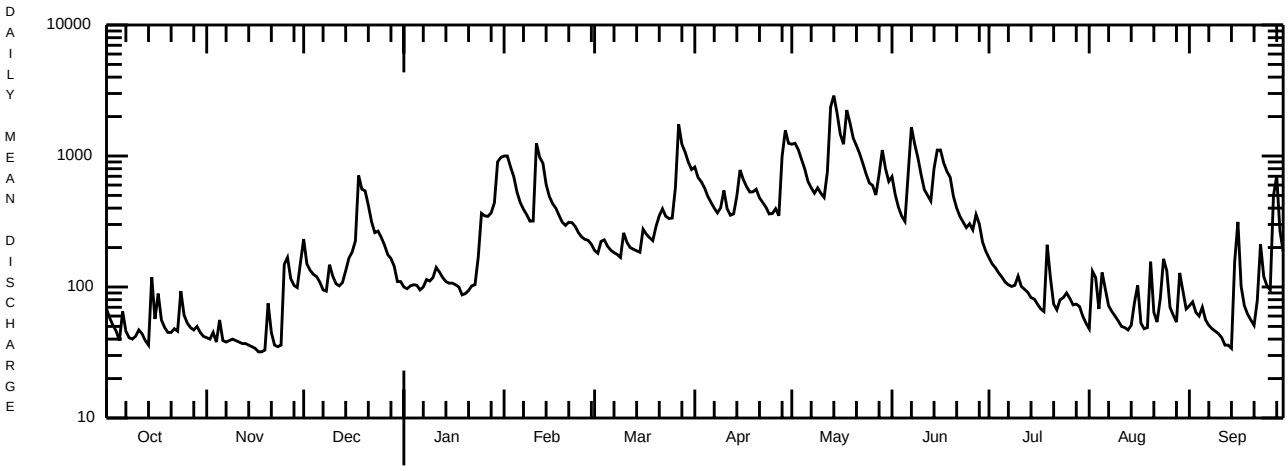
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1960 - 2002	
ANNUAL TOTAL	103233		120865			
ANNUAL MEAN	283		331		439	
HIGHEST ANNUAL MEAN					712	1960
LOWEST ANNUAL MEAN					194	1965
HIGHEST DAILY MEAN	2210	Apr 10	2890	May 14	10700	Jan 19 1996
LOWEST DAILY MEAN	32	Aug 26**a**	32	Nov 17,18	23	Sep 5 1999
ANNUAL SEVEN-DAY MINIMUM	34	Nov 13	34	Nov 13	27	Aug 30 1999
MAXIMUM PEAK FLOW			3690	May 13	**b**24000	Sep 27 1985
MAXIMUM PEAK STAGE			6.23	May 13	**c**16.49	Sep 27 1985
10 PERCENT EXCEEDS	739		844		1050	
50 PERCENT EXCEEDS	143		164		240	
90 PERCENT EXCEEDS	40		45		64	

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

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

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

a Also Aug. 27, Sept. 23, Nov. 17, 18.
b From rating curve extended above 3,800 ft^3/s on basis of slope-area measurements at gage heights 15.30 ft, 16.49 ft, and at peak flow.
c From floodmark.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

LACKAWANNA RIVER BASIN

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

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
APR 2002													
16...	0940	9813	652	40	10.3	7.3	198	14.4	45	10.9	4.3	16	24.9
JUN													
19...	1000	9813	698	40	9.0	6.9	190	16.2	50	12.2	4.7	17	25.7
AUG													
21...	1730	9813	60	40	8.9	7.8	391	25.6	90	20.3	9.6	40	54.1

Date	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055>
APR 2002													
16...	116	28	.100	.55	<.040	.95	.06	.120	2.4	<10	520	2.5	110
JUN													
19...	108	80	.080	.76	<.040	1.2	.22	.210	3.5	<10	3040	1.5	200
AUG													
21...	294	8	.060	2.67	.160	3.3	.64	.750	5.6	<10	120	<1.0	30

Date	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002		
16...	<50	20
JUN		
19...	<50	60
AUG		
21...	<50	20

SUSQUEHANNA RIVER BASIN

01536500 SUSQUEHANNA RIVER AT WILKES-BARRE, PA

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

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

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

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

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

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

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

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

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 28	0815	*78,900	*17.02

Date	Time	Discharge ft^3/s	Gage Height (ft)
(No peaks above base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4570	1870	5200	5000	26300	11000	39900	33500	17500	12100	1760	1340
2	3850	1830	7910	3950	36400	11000	34900	29600	17800	9680	1900	1320
3	3280	1830	10000	4120	41700	10600	30100	30600	15500	8100	2040	1240
4	2850	1790	9390	3990	35500	10400	26600	28100	13200	7000	1820	1170
5	2510	1810	8080	4270	27000	10700	23800	23500	11100	6310	1790	1140
6	2290	1830	7030	4390	20800	11200	21100	20000	14200	5630	1810	1080
7	2100	1820	6270	4060	16700	10800	18700	17400	56400	5150	1610	1040
8	1810	1840	5700	3800	14800	9750	16700	15700	65900	4680	1510	1010
9	1790	1890	5500	3820	13200	9410	15400	e16000	50000	4380	1450	988
10	1740	1880	5260	3860	12200	9620	14700	e16000	32900	4010	1410	978
11	1730	1840	5140	4330	18100	9700	14200	17200	23700	3780	1370	1000
12	1650	1810	5060	4340	36900	10300	14200	17700	18800	3630	1340	987
13	1580	1770	4860	4270	40300	10600	13200	27400	15800	3490	1310	954
14	1520	1740	4920	4220	32300	10500	12400	66100	14600	3340	1250	924
15	1650	1730	5600	4280	22900	9790	15700	76300	16600	3260	1220	1020
16	1610	1700	7390	4150	18600	9480	29700	64000	31400	3200	1250	1250
17	1790	1640	8980	4060	17300	9970	32800	49500	47800	2990	1240	997
18	1780	1610	12200	3990	16500	9730	26500	43800	42000	2950	1140	974
19	1840	1590	25100	3710	14900	9450	22500	57500	32700	3170	1120	955
20	1890	1650	27500	3560	13000	9460	19500	56400	24400	3010	1190	1210
21	1870	1610	21100	3140	12000	11100	17000	44000	18700	2530	1080	1620
22	1880	1590	17000	3260	12100	13900	15300	35300	15200	2280	1060	1740
23	1900	1570	14600	3410	13000	15500	14100	29300	12800	2570	1090	3230
24	1970	1550	12800	3600	14100	14100	13200	25000	11500	2980	1100	3740
25	2090	1670	11600	4620	13300	13200	12100	21500	10800	2950	1290	2700
26	2180	2270	10800	7670	11700	13000	11600	18900	11000	2600	1300	3630
27	2120	3500	9890	11200	10900	53100	12200	16600	10200	2370	1280	5200
28	2040	3700	8540	11800	10800	76900	13600	16200	11700	2140	1270	6610
29	2030	3970	7190	11600	---	63600	26100	17500	20100	2180	1330	6140
30	1980	4390	6830	13100	---	51800	37900	17200	15500	2000	1340	8200
31	1920	---	5690	18000	---	43900	---	15900	---	1970	1330	---
TOTAL	65810	61290	303130	173570	573300	573560	615700	963700	699800	126430	43000	64387
MEAN	2123	2043	9778	5599	20480	18500	20520	31090	23330	4078	1387	2146
MAX	4570	4390	27500	18000	41700	76900	39900	76300	65900	12100	2040	8200
MIN	1520	1550	4860	3140	10800	9410	11600	15700	10200	1970	1060	924
CFSM	0.21	0.21	0.98	0.56	2.06	1.86	2.06	3.12	2.34	0.41	0.14	0.22
IN.	0.25	0.23	1.13	0.65	2.14	2.14	2.30	3.60	2.61	0.47	0.16	0.24

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1899 - 2002, BY WATER YEAR (WY)

MEAN	6837	11030	13900	13920	14910	30150	31260	16580	9147	5365	3928	4215
MAX	39860	32130	44610	40740	43030	80560	100000	39590	54330	29010	19560	28680
(WY)	1978	1928	1997	1996	1976	1936	1993	1943	1972	1902	1994	1975
MIN	705	724	1357	1386	2710	10250	6918	3388	2137	1086	853	637
(WY)	1965	1965	1909	1931	1920	1965	1946	1903	1999	1962	1964	1964

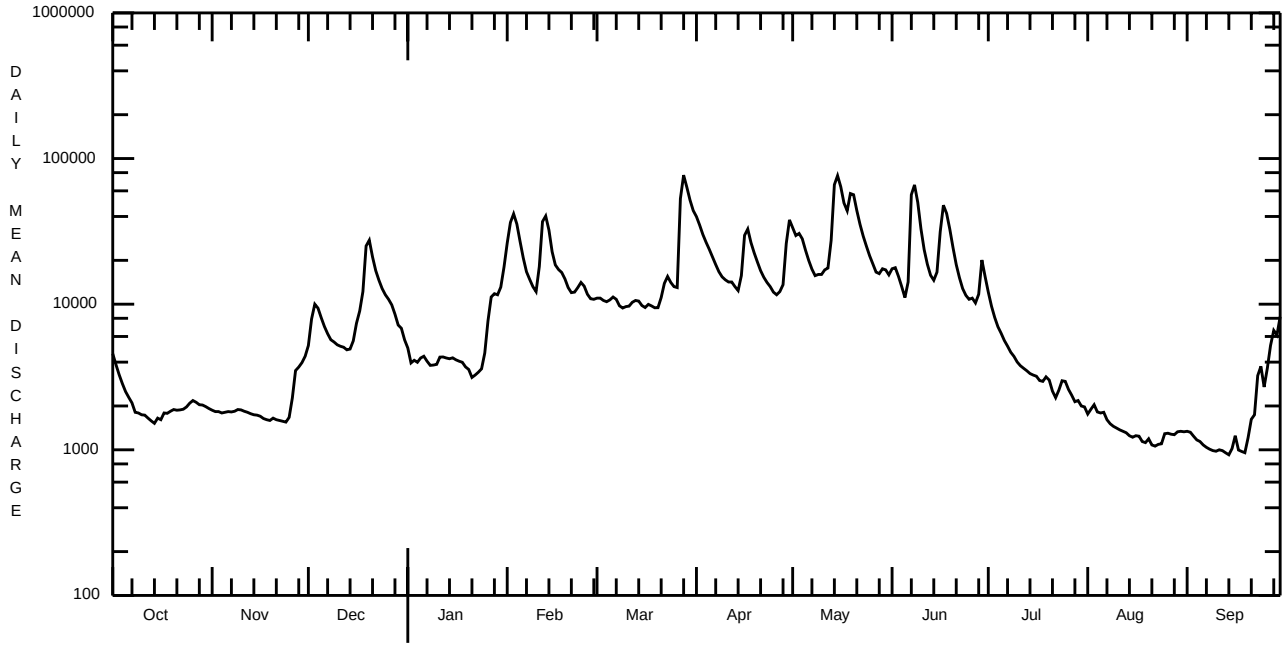
e Estimated.

SUSQUEHANNA RIVER BASIN

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

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1899 - 2002	
ANNUAL TOTAL	3611470		4263677			
ANNUAL MEAN	9894		11680		13440	
HIGHEST ANNUAL MEAN					21990	1978
LOWEST ANNUAL MEAN					6186	1965
HIGHEST DAILY MEAN	94700	Apr 11	76900	Mar 28	329000	Jun 24 1972
LOWEST DAILY MEAN	1100	Sep 12,13	924	Sep 14	532	Sep 27 1964
ANNUAL SEVEN-DAY MINIMUM	1200	Sep 9	977	Sep 8	546	Sep 21 1964
MAXIMUM PEAK FLOW			78900	Mar 28	**a**345000	Jun 24 1972
MAXIMUM PEAK STAGE			17.02	Mar 28	**b**40.91	Jun 24 1972
INSTANTANEOUS LOW FLOW					528	Sep 27 1964
ANNUAL RUNOFF (CFSM)	0.99		1.17		1.35	
ANNUAL RUNOFF (INCHES)	13.49		15.92		18.33	
10 PERCENT EXCEEDS	24700		29600		32300	
50 PERCENT EXCEEDS	5160		6310		7120	
90 PERCENT EXCEEDS	1470		1330		1660	

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



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

WAPWALLOPEN CREEK BASIN

01538000 WAPWALLOPEN CREEK NEAR WAPWALLOPEN, PA

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

DRAINAGE AREA.--43.8 mi^2.

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

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

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

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

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

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
May 18	1200	664	4.28	May 28	2230	*929	*5.04

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	12	31	e19	71	24	90	99	111	24	12	14
2	10	12	21	e19	71	24	72	125	87	23	11	18
3	9.8	12	18	e18	54	49	67	107	71	23	9.9	14
4	9.7	12	16	e18	50	40	61	84	61	21	9.8	12
5	9.6	12	15	e20	e46	31	55	76	58	19	10	11
6	9.6	12	15	e20	e42	28	52	70	145	17	13	10
7	9.9	12	15	e20	39	28	48	66	293	16	11	9.8
8	9.5	12	16	e18	38	27	46	61	133	16	10	9.4
9	9.2	11	34	e20	35	26	45	91	100	15	9.9	9.3
10	9.8	11	29	e20	34	64	45	95	83	15	9.4	9.4
11	9.9	12	22	e22	71	45	40	66	71	14	9.2	8.9
12	11	11	20	e26	50	38	37	119	73	12	9.1	8.8
13	9.8	12	19	e24	43	36	39	255	88	12	9.2	8.9
14	10	11	20	e24	e36	36	69	351	104	11	8.8	8.7
15	17	11	22	e22	e35	33	128	216	114	12	9.0	13
16	15	11	19	e22	35	39	79	163	90	11	18	36
17	20	11	19	e22	35	38	64	135	71	8.7	12	16
18	16	11	64	e20	32	38	59	398	59	8.1	9.9	13
19	12	11	52	e20	31	42	56	248	51	11	9.9	12
20	11	12	37	e30	31	53	56	189	46	12	9.7	11
21	11	13	32	e24	32	82	53	159	42	9.5	9.2	11
22	10	12	28	22	30	60	52	134	37	8.4	9.0	12
23	11	11	26	21	29	52	50	112	33	19	13	21
24	17	11	29	30	27	50	45	96	32	37	15	16
25	16	19	26	55	26	48	46	83	31	17	21	13
26	13	59	e23	42	26	58	52	84	29	14	13	12
27	12	23	e21	37	29	245	43	72	29	14	11	59
28	12	18	e23	40	27	123	130	168	44	14	10	125
29	12	16	e22	45	---	101	149	347	29	15	12	32
30	13	18	e20	67	---	89	97	173	26	13	14	22
31	12	---	e20	67	---	77	---	129	---	12	12	---
TOTAL	368.8	431	774	874	1105	1724	1925	4571	2241	473.7	350.0	576.2
MEAN	11.90	14.37	24.97	28.19	39.46	55.61	64.17	147.5	74.70	15.28	11.29	19.21
MAX	20	59	64	67	71	245	149	398	293	37	21	125
MIN	9.2	11	15	18	26	24	37	61	26	8.1	8.8	8.7
CFSM	0.27	0.33	0.57	0.64	0.90	1.27	1.46	3.37	1.71	0.35	0.26	0.44
IN.	0.31	0.37	0.66	0.74	0.94	1.46	1.63	3.88	1.90	0.40	0.30	0.49

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1920 - 2002, BY WATER YEAR (WY)

MEAN	38.06	59.90	73.51	70.63	82.87	117.2	114.7	86.33	49.74	34.58	24.46	26.97
MAX	202	203	206	284	284	327	362	243	248	172	149	160
(WY)	1956	1927	1997	1979	1981	1936	1993	1947	1972	1947	1933	1987
MIN	4.95	5.35	5.90	6.39	14.9	48.7	47.0	25.8	10.9	5.21	4.46	3.37
(WY)	1964	1931	1931	1931	1940	1981	1955	1955	1962	1955	1953	1936

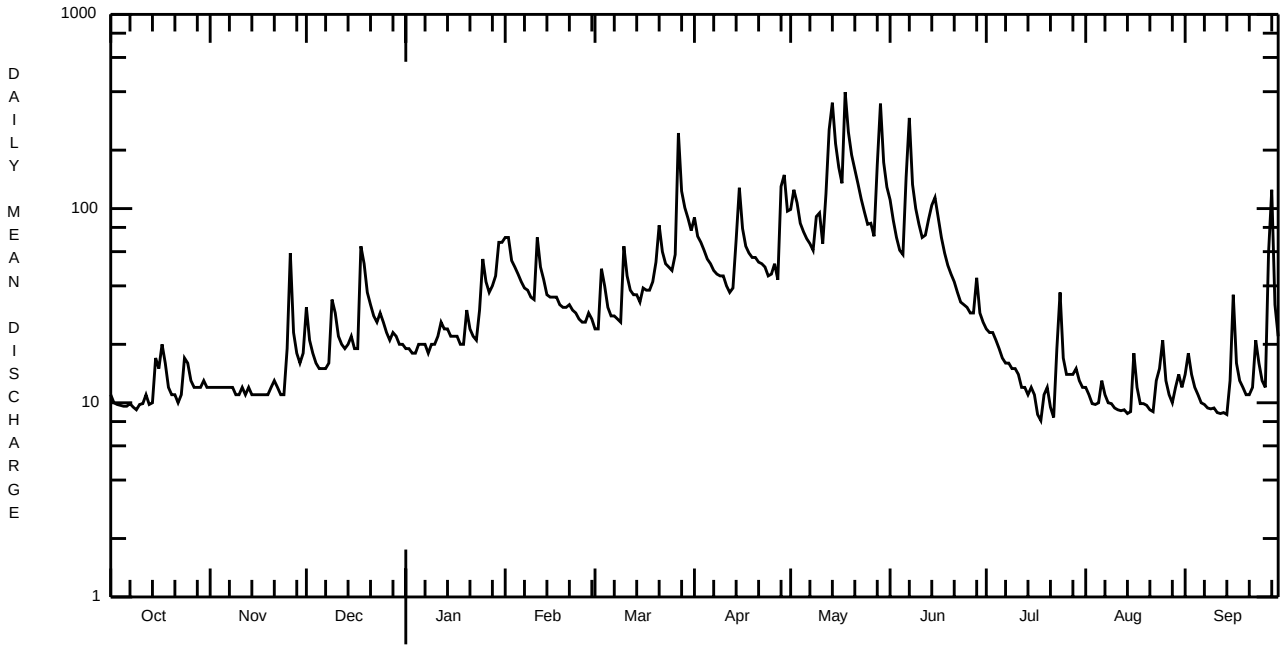
e Estimated.

WAPWALLOPEN CREEK BASIN

01538000 WAPWALLOPEN CREEK NEAR WAPWALLOPEN, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1920 - 2002	
ANNUAL TOTAL	13413.1		15413.7			
ANNUAL MEAN	36.8		42.2		64.8	
HIGHEST ANNUAL MEAN					108	1978
LOWEST ANNUAL MEAN					30.9	1965
HIGHEST DAILY MEAN	238	Mar 30	398	May 18	**e**2200	Jan 19 1996
LOWEST DAILY MEAN	6.5	Sep 9,10	8.1	Jul 18	1.5	Aug 31 1953
ANNUAL SEVEN-DAY MINIMUM	6.8	Sep 7	9.1	Sep 8	1.8	Aug 27 1953
MAXIMUM PEAK FLOW			929	May 28	**a**5410	Jun 22 1972
MAXIMUM PEAK STAGE			5.04	May 28	11.04	Jun 22 1972
INSTANTANEOUS LOW FLOW					1.1	Aug 4 1955
ANNUAL RUNOFF (CFSM)	0.84		0.96		1.48	
ANNUAL RUNOFF (INCHES)	11.39		13.09		20.10	
10 PERCENT EXCEEDS	96		93		138	
50 PERCENT EXCEEDS	20		23		40	
90 PERCENT EXCEEDS	9.3		10		9.0	

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



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

FISHING CREEK BASIN

01539000 FISHING CREEK NEAR BLOOMSBURG, PA

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

DRAINAGE AREA.--274 mi^2.

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

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

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

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

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

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
May 14	0315	*13,200	*10.25	No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	204	79	756	e170	896	209	808	947	390	155	50	29
2	174	80	550	e170	991	200	675	1480	309	142	50	36
3	152	80	442	e160	805	296	599	1480	261	143	46	37
4	137	77	371	e150	707	326	540	1090	233	126	41	33
5	124	76	318	156	569	248	472	890	219	115	40	29
6	114	74	284	155	514	252	431	743	445	106	38	25
7	113	72	258	157	465	248	390	650	976	100	35	23
8	105	71	241	e150	428	230	358	567	569	94	33	22
9	97	69	353	155	380	218	339	811	442	89	31	22
10	92	68	340	152	360	310	350	805	368	88	30	22
11	89	66	287	165	1110	292	306	619	313	81	28	20
12	87	65	265	189	830	264	278	1260	306	74	27	19
13	84	64	272	178	718	255	275	5840	354	71	26	18
14	81	64	346	163	582	250	394	8670	520	68	24	18
15	95	63	399	158	536	238	1080	3040	1230	67	23	20
16	104	62	356	160	501	314	866	1810	1790	63	22	26
17	115	61	374	156	464	336	685	1330	1140	59	22	30
18	122	60	872	156	406	312	576	2070	828	55	22	25
19	107	59	848	137	357	335	512	1720	671	53	21	24
20	98	60	695	141	338	468	551	1310	554	62	22	23
21	91	60	574	144	347	739	472	1080	459	63	22	22
22	87	59	479	145	328	762	441	893	389	58	22	117
23	86	58	421	139	294	654	439	757	333	63	22	876
24	94	57	417	170	267	579	374	652	291	91	30	332
25	111	103	369	298	250	529	359	560	261	72	51	179
26	108	553	313	304	242	642	407	540	233	63	47	132
27	97	338	260	307	257	2270	336	471	232	61	35	459
28	90	259	266	334	235	1550	752	411	253	70	31	1870
29	86	255	238	390	---	1180	1580	410	207	77	28	796
30	83	303	201	654	---	1010	1150	374	174	65	28	488
31	80	---	e180	793	---	859	---	342	---	56	26	---
TOTAL	3307	3415	12345	6856	14177	16375	16795	43622	14750	2550	973	5772
MEAN	106.7	113.8	398.2	221.2	506.3	528.2	559.8	1407	491.7	82.26	31.39	192.4
MAX	204	553	872	793	1110	2270	1580	8670	1790	155	51	1870
MIN	80	57	180	137	235	200	275	342	174	53	21	18
CFSM	0.39	0.42	1.45	0.81	1.85	1.93	2.04	5.14	1.79	0.30	0.11	0.70
IN.	0.45	0.46	1.68	0.93	1.92	2.22	2.28	5.92	2.00	0.35	0.13	0.78

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2002, BY WATER YEAR (WY)

MEAN	286.0	449.0	602.5	509.8	569.4	891.6	895.1	616.3	339.4	197.6	158.8	208.1
MAX	1589	995	1867	1509	1456	1680	2518	1712	2230	835	548	1286
(WY)	1977	1946	1997	1979	1981	1977	1993	1989	1972	1947	2000	1975
MIN	12.5	16.4	87.4	53.5	128	293	221	127	74.3	30.3	15.5	9.96
(WY)	1965	1965	1999	1981	1940	1981	1946	1941	1939	1964	1964	1964

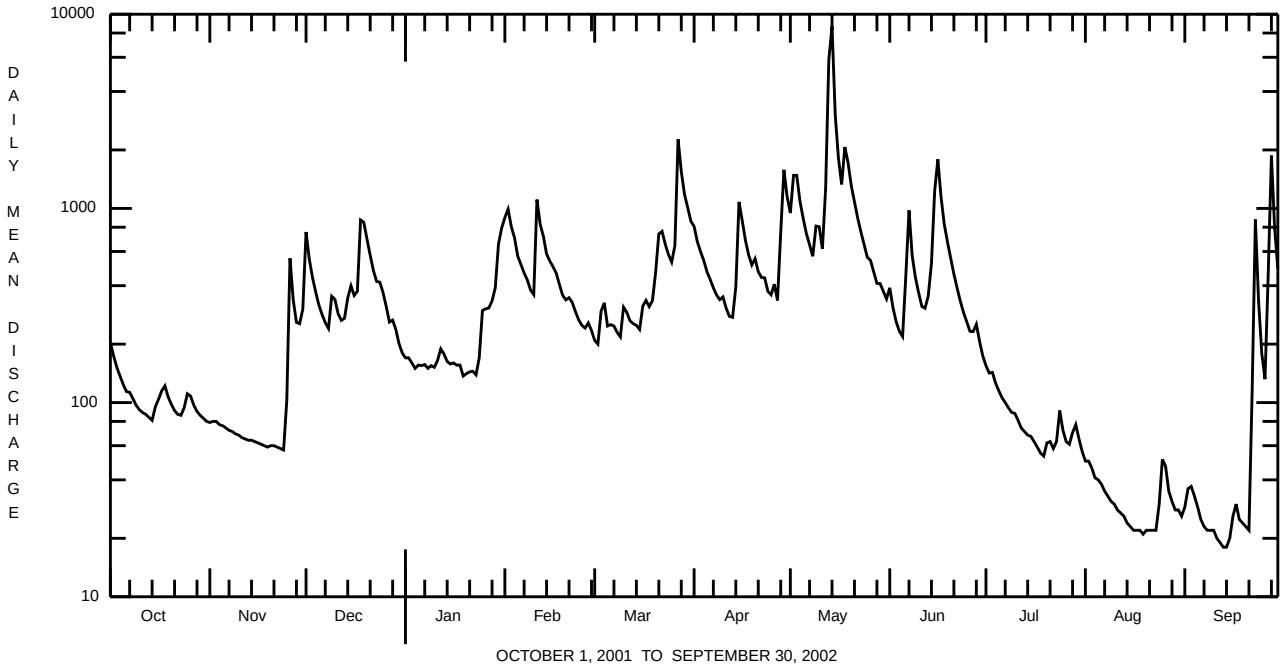
e Estimated.

FISHING CREEK BASIN

01539000 FISHING CREEK NEAR BLOOMSBURG, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1938 - 2002	
ANNUAL TOTAL	115581		140937			
ANNUAL MEAN	317		386		476	
HIGHEST ANNUAL MEAN					739	1960
LOWEST ANNUAL MEAN					229	1965
HIGHEST DAILY MEAN	4470	Jun 23	8670	May 14	18500	Jun 23 1972
LOWEST DAILY MEAN	28	Aug 15,16	18	Sep 13,14	8.4	Sep 12 1964
ANNUAL SEVEN-DAY MINIMUM	31	Aug 10	20	Sep 9	8.7	Sep 12 1964
MAXIMUM PEAK FLOW			**a**13200	May 14	**a**30900	Jun 22 1972
MAXIMUM PEAK STAGE			10.25	May 14	**b**15.18	Jun 22 1972
INSTANTANEOUS LOW FLOW					7.6	Jul 19 1939
ANNUAL RUNOFF (CFSM)	1.16		1.41		1.74	
ANNUAL RUNOFF (INCHES)	15.69		19.13		23.61	
10 PERCENT EXCEEDS	755		837		1070	
50 PERCENT EXCEEDS	170		242		270	
90 PERCENT EXCEEDS	52		31		53	

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



SUSQUEHANNA RIVER BASIN

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

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

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

WATER-DISCHARGE RECORDS

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

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

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

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

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6200	2460	5540	6130	24800	12500	41600	36400	16800	13600	2450	1660
2	5220	2410	6270	6110	32500	12800	36500	32400	17900	10900	2270	1760
3	4520	2390	8390	5360	41400	12900	31700	32100	17000	9000	2290	1750
4	3960	2370	9750	5420	40200	12800	27900	30800	14500	7730	2460	1610
5	3530	2360	9040	5270	33400	12400	24700	26900	12500	6820	2280	1480
6	3200	2330	7970	5570	26700	12800	22400	22700	11900	6160	2310	1390
7	2960	2340	7120	5530	22300	13200	19800	19700	32900	5610	2280	1320
8	2770	2350	6520	e5200	19100	12300	17700	17400	69000	5250	2050	1250
9	2510	2360	6450	4940	17200	11200	16100	16800	57700	4800	1900	1210
10	2420	2380	6270	4750	15300	11500	15300	17100	40200	4500	1840	1170
11	2360	2390	5900	4810	17200	11700	14400	17200	27200	4320	1800	1150
12	2330	2370	5700	5310	30100	11800	14000	18400	21100	4170	1770	1100
13	2270	2330	5590	5270	41100	12500	13700	27000	18300	3910	1740	1120
14	2180	2310	5510	5140	38000	12700	13100	65200	16000	3720	1700	1090
15	2220	2280	5680	5050	29900	12300	14200	83200	17800	3540	1640	1120
16	2330	2260	6260	5150	24000	11600	21100	75500	24300	3350	1710	1300
17	2320	2250	7950	4990	21200	11900	32200	59000	42400	3140	1680	1670
18	2480	2190	10300	4900	20400	12100	29200	49800	46600	3000	1600	1440
19	2450	2150	17500	4780	19000	11900	23800	56800	36400	2890	1600	1220
20	2440	2160	27400	e4500	17100	11800	21500	63700	28000	3100	1440	1170
21	2460	2190	25100	e4300	15200	13500	18400	51500	21500	3340	1420	1190
22	2450	2180	20000	3990	14400	16000	16400	40200	17200	3020	1420	1850
23	2450	2140	16900	4010	14700	18800	15100	32400	14300	2800	1340	3600
24	2490	2110	14600	4250	15900	19100	13800	27500	12400	3110	1430	3970
25	2510	2210	12700	4880	16600	17400	13000	23700	11200	3160	1530	4050
26	2550	3200	11500	6290	15000	16700	12200	20900	10900	3120	1620	3260
27	2680	3440	10700	10200	13500	31300	11900	18400	10800	2970	1620	4690
28	2640	4020	9720	13800	12700	e78000	13000	16500	10500	2900	1590	9610
29	2570	4210	8530	14000	---	72700	20100	19500	14700	2790	1580	9400
30	2550	4420	7280	14800	---	57700	33600	19100	17700	2680	1610	7690
31	2510	---	7080	18400	---	46900	---	17400	---	2520	1670	---
TOTAL	88530	76560	315220	203100	648900	632800	618400	1055200	709700	141920	55640	76290
MEAN	2856	2552	10170	6552	23180	20410	20610	34040	23660	4578	1795	2543
MAX	6200	4420	27400	18400	41400	78000	41600	83200	69000	13600	2460	9610
MIN	2180	2110	5510	3990	12700	11200	11900	16500	10500	2520	1340	1090
CFSM	0.25	0.23	0.91	0.58	2.07	1.82	1.84	3.03	2.11	0.41	0.16	0.23
IN.	0.29	0.25	1.05	0.67	2.15	2.10	2.05	3.50	2.35	0.47	0.18	0.25

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1905 - 2002, BY WATER YEAR (WY)

MEAN	7694	12700	15940	16050	16960	32520	35070	19480	10730	6275	4575	5040
MAX	43890	38540	49410	44410	46420	91900	106900	44980	62370	28490	23110	30900
(WY)	1978	1927	1997	1996	1976	1936	1993	1943	1972	1915	1915	1975
MIN	868	852	1602	1853	2841	11740	7664	5643	2427	1308	1087	740
(WY)	1965	1965	1909	1931	1920	1965	1946	1941	1999	1965	1999	1964

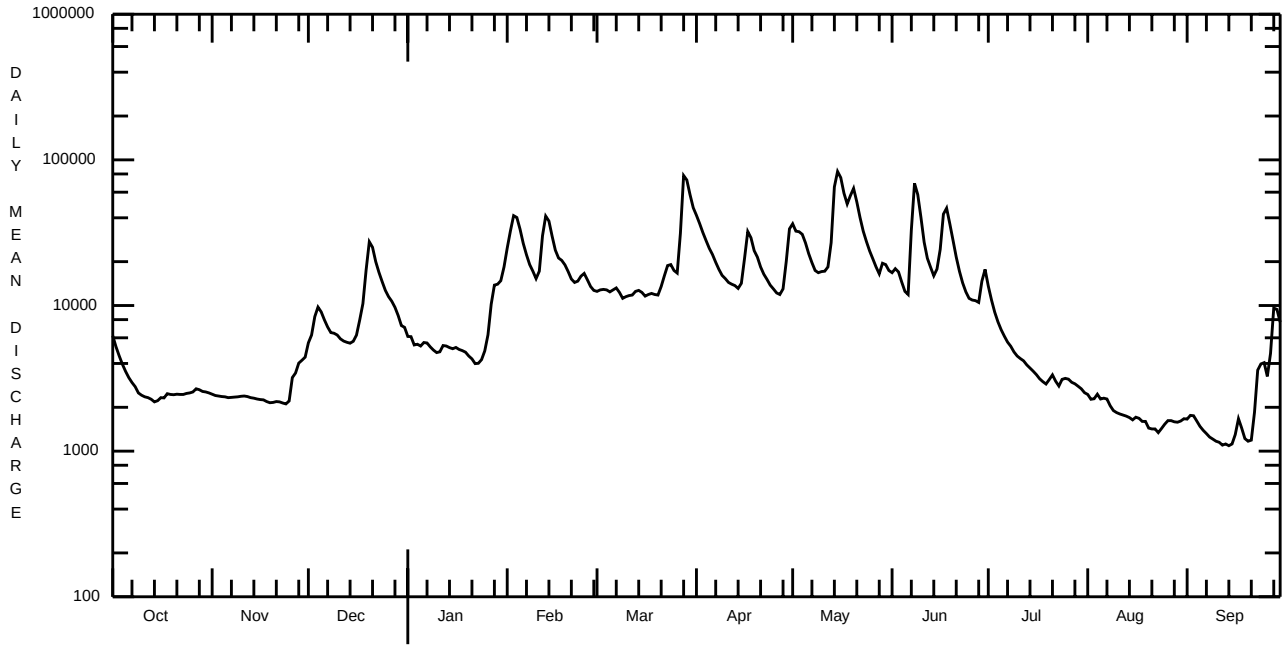
e Estimated.

SUSQUEHANNA RIVER BASIN

01540500 SUSQUEHANNA RIVER AT DANVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1905 - 2002	
ANNUAL TOTAL	4039170		4622260			
ANNUAL MEAN	11070		12660		15240	
HIGHEST ANNUAL MEAN					24670	1978
LOWEST ANNUAL MEAN					6948	1965
HIGHEST DAILY MEAN	97000	Apr 11	83200	May 15	335000	Jun 25 1972
LOWEST DAILY MEAN	1680	Sep 13	1090	Sep 14	558	Sep 24 1964
ANNUAL SEVEN-DAY MINIMUM	1790	Sep 11	1140	Sep 9	579	Sep 21 1964
MAXIMUM PEAK FLOW			84700	May 15	**a**363000	Jun 25 1972
MAXIMUM PEAK STAGE			14.84	May 15	**b**32.32	Jun 24 1972
INSTANTANEOUS LOW FLOW					508	Sep 27 1964
ANNUAL RUNOFF (CFSM)	0.99		1.13		1.36	
ANNUAL RUNOFF (INCHES)	13.39		15.33		18.45	
10 PERCENT EXCEEDS	26100		31000		36100	
50 PERCENT EXCEEDS	5900		6820		8410	
90 PERCENT EXCEEDS	2140		1710		2090	

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



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

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

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
APR 2002													
23...	1400	9813	15000	40	10.2	7.8	201	13.8	73	21.7	4.5	50	20.4
JUN													
19...	1420	9813	35500	40	8.3	7.4	156	18.8	61	18.0	3.9	40	13.5
AUG													
19...	1510	9813	1560	40	9.8	8.9	441	29.8	160	40.2	15.3	72	75.2

Date	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
APR 2002													
23...	144	16	<.020	.55	<.040	.95	.02	.050	3.2	<10	820	<1.0	100
JUN													
19...	98	60	<.020	.51	<.040	.97	.04	.090	4.6	<10	2420	2.0	140
AUG													
19...	298	6	<.020	<.04	<.040	.52	.02	.030	3.5	<10	110	<1.0	80

Date	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)	GROSS ALPHA, WATER, UNFLT, (PCI/L) (01519)	GROSS BETA, WATER, UNFLT, (PCI/L) (85817)
APR 2002				
23...	<50	10	.36	2
JUN				
19...	<50	10	1.48	4
AUG				
19...	<50	<10	1.40	2

WEST BRANCH SUSQUEHANNA RIVER BASIN

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

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

DRAINAGE AREA.--315 mi^2.

WATER-DISCHARGE RECORDS

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

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

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

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

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

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

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 26	2330	*5,880	*10.86

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	57	464	e170	1130	304	996	861	659	203	149	58
2	51	55	303	e170	973	315	830	1380	437	184	110	57
3	49	61	222	e170	740	649	722	1410	328	172	92	58
4	47	65	179	e160	623	673	633	990	297	159	84	57
5	45	59	153	e160	490	490	553	799	368	151	79	53
6	42	56	135	e180	439	499	504	666	1840	141	78	49
7	41	55	127	e180	399	455	457	587	2960	129	79	48
8	41	54	121	e170	372	407	424	553	1340	123	78	47
9	40	53	193	e170	331	367	399	1310	879	128	71	46
10	40	50	203	e160	331	348	381	1810	664	e380	67	44
11	41	49	160	e240	1310	305	331	1090	543	189	65	44
12	42	48	137	e450	938	288	297	1070	470	143	64	42
13	45	47	144	e400	731	279	309	2610	408	127	63	42
14	49	46	178	356	568	267	399	3630	743	120	62	43
15	e85	47	239	320	507	251	830	2420	1710	114	59	59
16	e110	47	197	291	464	962	2120	1600	1150	106	58	180
17	e80	46	778	268	438	852	1440	1200	789	101	56	93
18	70	45	2540	246	373	794	991	2650	614	97	55	64
19	60	45	1230	207	332	783	811	2200	494	101	56	58
20	54	57	786	252	338	1120	768	1500	411	137	57	57
21	53	64	574	238	501	1820	634	1150	351	126	e56	56
22	50	55	431	240	500	1280	632	917	302	99	e53	53
23	49	51	362	208	422	1000	599	753	271	110	72	50
24	224	49	429	494	374	842	489	639	242	167	264	48
25	174	185	361	1030	352	734	458	562	336	112	205	46
26	108	384	290	690	352	2200	431	498	251	101	115	50
27	84	198	e250	553	393	4370	377	440	399	147	86	394
28	75	179	e220	481	345	2280	567	397	477	159	73	488
29	67	421	e210	436	---	1530	978	538	317	124	70	193
30	63	404	e190	630	---	1350	746	402	242	133	66	123
31	61	---	e180	836	---	1030	---	382	---	135	61	---
TOTAL	2094	3032	11986	10556	15066	28844	20106	37014	20292	4418	2603	2700
MEAN	67.55	101.1	386.6	340.5	538.1	930.5	670.2	1194	676.4	142.5	83.97	90.00
MAX	224	421	2540	1030	1310	4370	2120	3630	2960	380	264	488
MIN	40	45	121	160	331	251	297	382	242	97	53	42
CFSM	0.21	0.32	1.23	1.08	1.71	2.95	2.13	3.79	2.15	0.45	0.27	0.29
IN.	0.25	0.36	1.42	1.25	1.78	3.41	2.37	4.37	2.40	0.52	0.31	0.32

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2002, BY WATER YEAR (WY)

MEAN	251.2	439.9	619.1	702.5	812.5	1203	936.0	650.4	396.0	271.3	199.6	189.7
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

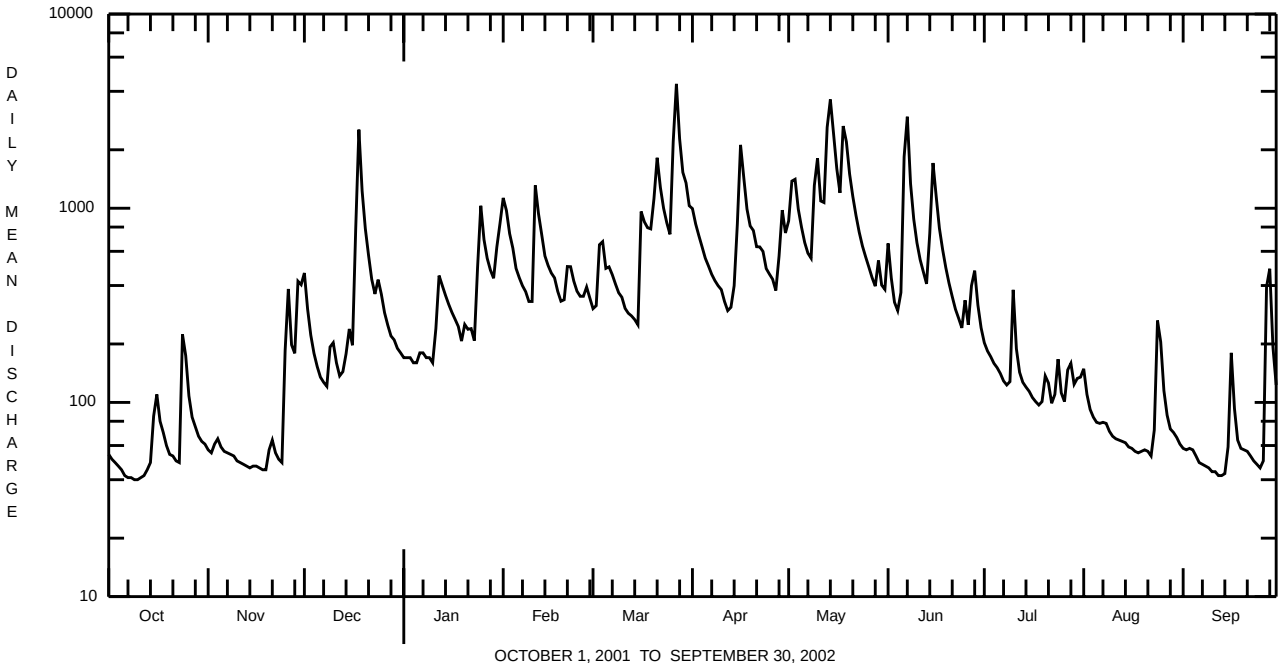
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

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

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1914 - 2002	
ANNUAL TOTAL	125666		158711			
ANNUAL MEAN	344		435		555	
HIGHEST ANNUAL MEAN					955	1928
LOWEST ANNUAL MEAN					294	1931
HIGHEST DAILY MEAN	2590	Feb 10,15	4370	Mar 27	23200	Jun 23 1972
LOWEST DAILY MEAN	40	Oct 9,10	40	Oct 9,10	16	Aug 29 1939**a**
ANNUAL SEVEN-DAY MINIMUM	41	Oct 6	41	Oct 6	17	Aug 28 1939
MAXIMUM PEAK FLOW			5880	Mar 26	**b**31500	Mar 18 1936
MAXIMUM PEAK STAGE			10.86	Mar 26	**c**19.74	Mar 18 1936
INSTANTANEOUS LOW FLOW					14	Aug 29 1939
ANNUAL RUNOFF (CFSM)	1.09		1.38		1.76	
ANNUAL RUNOFF (INCHES)	14.84		18.74		23.93	
10 PERCENT EXCEEDS	928		1010		1290	
50 PERCENT EXCEEDS	170		250		282	
90 PERCENT EXCEEDS	51		50		62	

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



WEST BRANCH SUSQUEHANNA RIVER BASIN

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

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
APR 2002													
30...	0745	9813	715	30	11.9	7.5	245	7.9	91	23.1	8.0	26	70.6
JUN													
25...	0730	9813	369	30	8.5	7.7	460	21.5	200	52.3	17.4	50	161
AUG													
27...	1045	9813	86	30	8.9	8.0	547	21.0	230	59.6	20.4	60	188

Date	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
APR 2002													
30...	166	14	<.020	.47	<.040	.71	.02	.020	2.1	<10	880	<1.0	200
JUN													
25...	364	18	<.020	.49	<.040	.52	.01	.020	1.5	<10	640	<1.0	310
AUG													
27...	390	2	.030	.36	<.040	.50	<.01	<.010	2.2	<10	210	<1.0	50

Date	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002		
30...	<50	<10
JUN		
25...	<50	<10
AUG		
27...	<50	<10

WEST BRANCH SUSQUEHANNA RIVER BASIN

01541200 WEST BRANCH SUSQUEHANNA RIVER AT CURWENSVILLE, PA

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

DRAINAGE AREA.--367 mi^2.

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

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

REMARKS.--Records fair except those below 100 ft^3/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 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125	66	617	169	1280	343	1330	900	561	266	145	55
2	147	45	548	195	1220	318	1170	1410	612	263	170	60
3	156	78	330	206	992	501	903	1750	610	240	145	66
4	162	96	199	191	855	827	759	1220	506	203	91	67
5	160	90	199	169	661	746	758	999	430	185	72	61
6	160	71	238	167	578	643	586	850	2120	185	74	56
7	159	51	240	229	527	643	475	764	4180	158	75	56
8	154	46	246	239	488	556	569	619	2570	140	75	56
9	150	47	238	201	395	489	568	1280	1110	140	75	57
10	150	48	196	138	322	438	439	2050	995	420	75	57
11	81	48	196	280	1290	348	388	1300	696	296	75	58
12	e40	48	223	487	1440	322	388	1050	625	129	76	61
13	e40	49	235	487	959	322	388	2750	525	111	64	61
14	e40	49	306	399	782	320	390	3890	550	110	55	61
15	41	49	312	381	617	319	734	3410	1540	108	56	62
16	44	49	278	372	576	952	2310	2100	1650	109	56	181
17	47	49	710	323	576	1090	2000	1490	1060	108	56	175
18	48	49	3140	285	532	736	1140	2610	792	125	56	121
19	44	49	1790	239	436	861	1020	2990	563	133	56	87
20	42	64	1090	198	411	1150	1010	1760	469	131	61	74
21	40	71	816	185	493	2110	732	1390	407	129	66	75
22	38	69	569	227	670	1600	673	1140	304	129	67	76
23	37	68	503	272	586	1210	729	882	272	130	82	69
24	40	85	504	489	439	1030	611	757	269	129	156	63
25	127	160	506	1010	404	943	549	755	305	130	244	63
26	130	407	463	1040	460	1690	522	582	343	128	199	92
27	77	557	365	749	485	4980	470	517	604	166	127	454
28	126	377	278	643	429	3630	515	452	850	221	128	598
29	148	489	252	617	---	1950	1200	542	389	162	97	311
30	101	682	252	837	---	1580	915	483	270	130	59	168
31	101	---	199	1110	---	1340	---	410	---	130	54	---
TOTAL	2955	4106	16038	12534	18903	33987	24241	43102	26177	5144	2887	3501
MEAN	95.3	137	517	404	675	1096	808	1390	873	166	93.1	117
MAX	162	682	3140	1110	1440	4980	2310	3890	4180	420	244	598
MIN	37	45	196	138	322	318	388	410	269	108	54	55

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 - 2002, BY WATER YEAR (WY) (SINCE REGULATION)

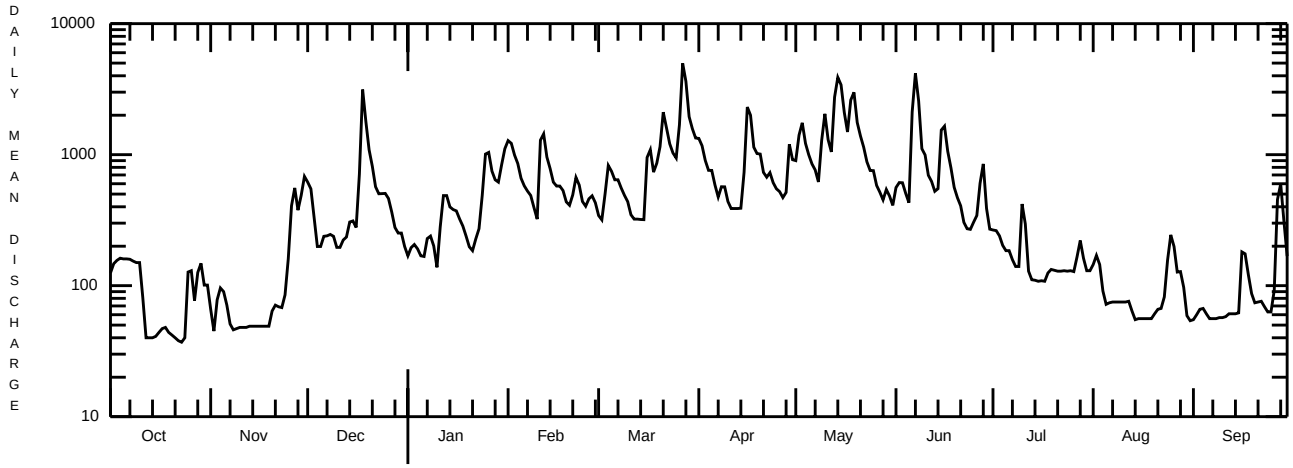
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	338	643	830	738	968	1296	1139	746	493	389	236	281
MAX	950	2010	1865	1749	1847	2532	2911	1593	2074	1650	765	1460
(WY)	1980	1998	1973	1996	1986	1979	1993	1966	1972	1977	1977	1996
MIN	77.4	82.5	183	209	305	154	437	182	119	54.7	63.8	57.8
(WY)	1986	1999	1999	1977	1980	1969	1976	1986	1999	1966	1966	1968

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1966 - 2002	
ANNUAL TOTAL	158007		193575			
ANNUAL MEAN	433		530		673	
HIGHEST ANNUAL MEAN					905	1972
LOWEST ANNUAL MEAN					450	1999
HIGHEST DAILY MEAN	3140	Dec 18	4980	Mar 27	8420	Jun 26 1972
LOWEST DAILY MEAN	34	Sep 7	37	Oct 23	19	Aug 16,17 1966
ANNUAL SEVEN-DAY MINIMUM	41	Oct 18	41	Oct 18	36	Aug 11 1966
MAXIMUM PEAK FLOW			5610	Mar 27	8590	Jun 25 1972
MAXIMUM PEAK STAGE			8.42	Mar 27	11.40	Jun 25 1972
10 PERCENT EXCEEDS	1140		1220		1600	
50 PERCENT EXCEEDS	242		311		386	
90 PERCENT EXCEEDS	49		56		96	

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

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

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



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

WEST BRANCH SUSQUEHANNA RIVER BASIN

01541303 WEST BRANCH SUSQUEHANNA RIVER AT HYDE, PA

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

DRAINAGE AREA.--474 mi^2.

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

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

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

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	118	123	860	e290	1750	482	1900	1170	726	372	188	66
2	155	89	678	e320	1750	443	1690	1700	761	356	213	67
3	159	105	506	e330	1380	729	1350	2190	735	328	201	80
4	166	140	317	e320	1210	1070	1100	1590	682	280	129	80
5	166	136	302	e290	946	999	1060	1290	594	242	102	78
6	166	127	307	e290	786	846	894	1130	2930	235	103	66
7	165	102	330	e360	727	835	710	989	4960	214	99	66
8	163	84	301	444	665	755	760	854	3430	183	96	65
9	157	84	339	290	585	651	795	1530	1670	191	95	65
10	155	85	281	240	509	604	652	2580	1400	419	94	64
11	135	81	270	292	1590	506	568	1840	1000	452	93	64
12	66	82	278	553	1910	459	550	1560	899	178	93	64
13	65	79	310	547	1270	454	570	3700	798	151	90	64
14	76	78	362	486	1060	444	642	4800	763	149	71	65
15	88	78	442	421	834	438	1220	4320	1800	146	69	85
16	81	78	373	440	762	966	2580	2850	2050	143	69	308
17	81	78	744	381	748	1450	2650	2140	1390	141	68	248
18	76	78	4000	357	690	908	1560	3110	1020	149	68	151
19	72	78	2550	288	586	1020	1350	3740	778	167	68	104
20	69	92	1570	274	545	1390	1330	2420	612	165	69	85
21	67	109	1180	230	639	2490	1060	1880	551	164	79	82
22	67	106	841	274	821	2020	906	1580	424	161	82	82
23	72	104	717	310	764	1570	966	1250	364	e170	94	79
24	219	105	730	563	581	1320	828	1050	369	e170	160	69
25	204	222	688	1250	530	1240	738	1020	411	166	297	68
26	192	448	635	1330	582	2230	711	852	443	165	261	75
27	151	564	529	996	626	5670	636	704	932	200	154	516
28	142	462	435	841	573	4560	749	665	1270	283	138	827
29	172	536	380	828	---	2650	1500	681	624	234	136	412
30	139	823	e370	1080	---	2410	1270	677	398	170	80	229
31	136	---	e330	1570	---	1970	---	602	---	168	68	---
TOTAL	3940	5356	21955	16485	25419	43579	33295	56464	34784	6712	3627	4374
MEAN	127	179	708	532	908	1406	1110	1821	1159	217	117	146
MAX	219	823	4000	1570	1910	5670	2650	4800	4960	452	297	827
MIN	65	78	270	230	509	438	550	602	364	141	68	64

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 2002, BY WATER YEAR (WY)

MEAN	379	853	997	942	1265	1623	1529	929	678	483	311	306
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	97.2	216	289	392	647	590	307	154	130	98.7	78.1
(WY)	1983	1999	1999	2001	1980	1990	1997	1986	1999	1999	1988	1995

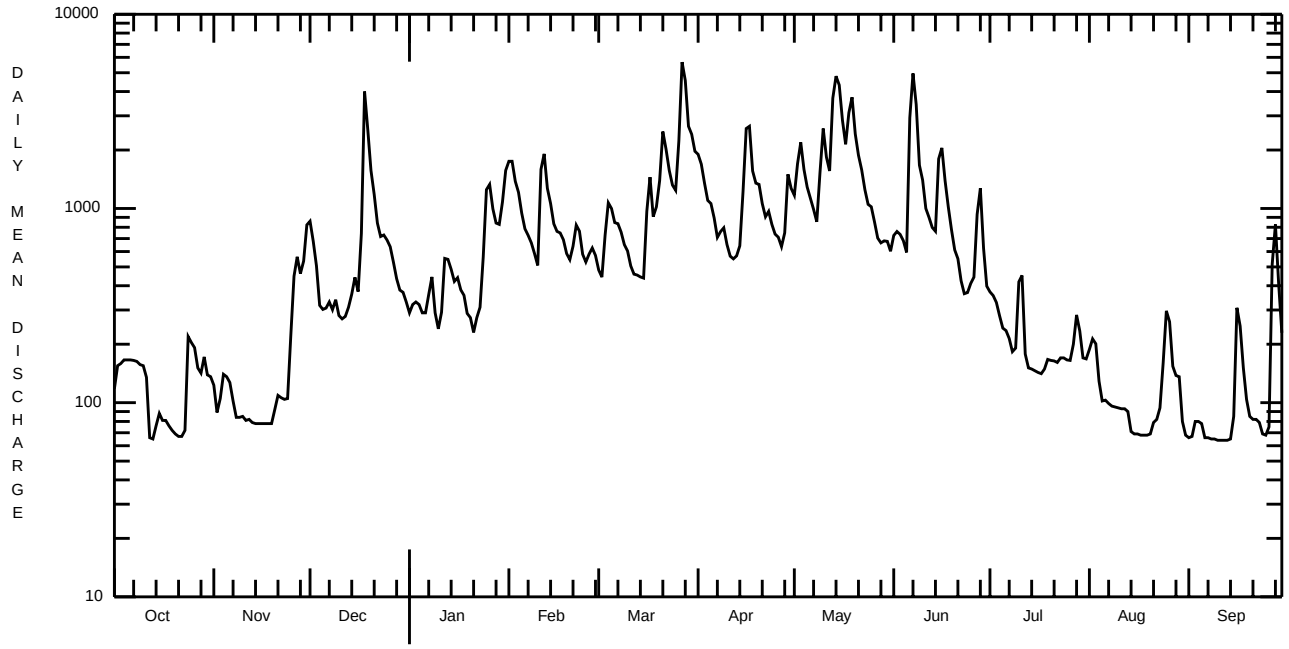
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

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

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1979 - 2002	
ANNUAL TOTAL	204086		255990			
ANNUAL MEAN	559		701		855	
HIGHEST ANNUAL MEAN					1146	1994
LOWEST ANNUAL MEAN					576	1999
HIGHEST DAILY MEAN	4000	Dec 18	5670	Mar 27	6850	Mar 8 1979
LOWEST DAILY MEAN	65	Oct 13	64	Sep 10-13	46	Sep 14 1982
ANNUAL SEVEN-DAY MINIMUM	72	Oct 17	64	Sep 8	53	Oct 6 1983
MAXIMUM PEAK FLOW			**a**6220	Mar 27	**a**7630	Jan 19 1996
MAXIMUM PEAK STAGE			9.94	Mar 27	**b**11.45	Feb 18 1981
10 PERCENT EXCEEDS	1510		1620		2030	
50 PERCENT EXCEEDS	281		424		500	
90 PERCENT EXCEEDS	85		78		118	

a From rating curve extended above 6,000 ft^3/s; gage height 10.82 ft.
b Backwater from ice.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

WEST BRANCH SUSQUEHANNA RIVER BASIN

01541500 CLEARFIELD CREEK AT DIMELING, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 40°58'18", long 78°24'22", Clearfield County, Hydrologic Unit 02050201, on right bank at downstream side of highway bridge on SR 2024 at Dimeling, 600 ft downstream from Little Clearfield Creek, and 4.0 mi southeast of Clearfield.

DRAINAGE AREA.--371 mi^2.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 756: Drainage area. WSP 891: 1936-39. WSP 1302: 1915-17, 1918-19(M). WSP 1502: 1939. WDR PA-87-2: 1986(M).

GAGE.--Water-stage recorder. Datum of gage is 1,146.08 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 17, 1928, nonrecording gage, and Oct. 17, 1928, to Oct. 25, 1967, water-stage recorder at site 200 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated since December 1960 by Glendale Dam (station 01541340) about 25 mi upstream. Several measurements of water temperature were made during the year. Satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	71	319	e210	734	283	1200	802	954	309	112	61
2	65	69	294	e210	683	287	1020	1130	626	279	104	60
3	65	71	219	e200	574	388	853	1530	449	273	93	60
4	61	71	185	e200	505	561	741	1080	418	256	87	59
5	60	71	166	e200	419	381	652	905	697	223	85	60
6	58	71	153	e220	386	390	590	779	2130	204	86	55
7	54	67	145	e210	372	378	538	697	3900	189	77	51
8	52	66	142	e200	350	358	496	638	1910	179	80	50
9	51	64	191	e190	329	340	464	1470	1320	181	76	48
10	51	62	257	e190	324	333	438	1810	992	253	72	47
11	52	61	209	e270	841	308	392	1250	805	230	69	45
12	54	61	180	e360	864	287	363	1200	705	182	67	44
13	56	61	177	e330	642	281	358	2740	611	162	66	43
14	62	59	190	e310	527	274	422	3960	738	153	62	42
15	106	59	207	e290	479	264	1070	2880	2070	147	60	51
16	141	59	209	e260	448	664	1370	2090	1740	139	59	89
17	125	59	275	e240	428	813	1170	1660	1170	130	59	81
18	107	59	1270	e220	390	705	879	2890	910	125	59	68
19	94	58	936	e200	347	800	762	3030	742	124	59	58
20	81	61	602	e210	343	984	743	2070	620	126	61	55
21	73	62	482	e250	388	1920	655	1650	534	125	58	54
22	69	61	391	e240	412	1410	639	1360	464	120	60	54
23	68	60	343	e210	365	1150	680	1130	410	125	79	55
24	125	59	336	e250	330	973	550	949	389	150	147	54
25	150	95	317	644	311	845	500	818	374	130	195	60
26	126	289	272	531	312	1580	469	713	379	116	124	58
27	100	228	e240	425	338	4480	418	623	558	127	95	177
28	87	166	e230	388	318	2610	515	550	640	145	80	289
29	80	238	e220	366	---	1890	926	609	444	131	72	184
30	76	297	e210	459	---	1560	734	507	365	114	68	115
31	73	---	e210	592	---	1260	---	500	---	123	65	---
TOTAL	2492	2835	9577	9075	12759	28757	20607	44020	28064	5270	2536	2227
MEAN	80.39	94.50	308.9	292.7	455.7	927.6	686.9	1420	935.5	170.0	81.81	74.23
MAX	150	297	1270	644	864	4480	1370	3960	3900	309	195	289
MIN	51	58	142	190	311	264	358	500	365	114	58	42

e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01541500 CLEARFIELD CREEK AT DIMELING, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2002, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	265.8	466.5	612.7	620.7	836.2	1265	1071	734.9	444.0	288.7	195.7	229.4
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

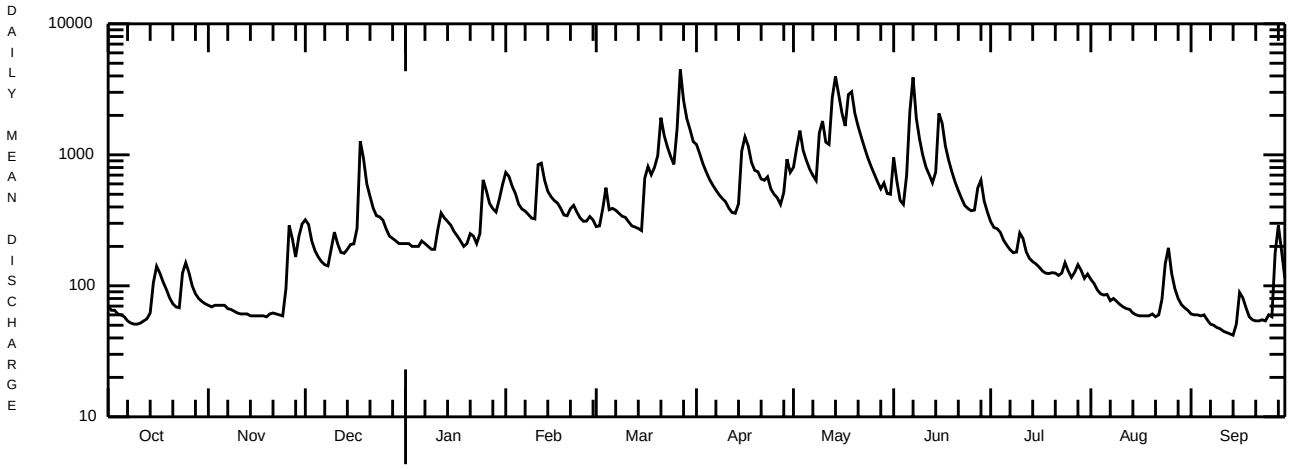
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1961 - 2002	
ANNUAL TOTAL	134586		168219			
ANNUAL MEAN	369		461		584	
HIGHEST ANNUAL MEAN					866	1972,1978
LOWEST ANNUAL MEAN					350	1969
HIGHEST DAILY MEAN	2400	Apr 17	4480	Mar 27	21100	Jun 23 1972
LOWEST DAILY MEAN	51	Oct 9,10	42	Sep 14	30	Aug 17 1988
ANNUAL SEVEN-DAY MINIMUM	53	Oct 7	46	Sep 8	37	Aug 12 1988
MAXIMUM PEAK FLOW			4840	Mar 27	**a**22400	Jun 23 1972
MAXIMUM PEAK STAGE			8.80	Mar 27	17.56	Jun 23 1972
10 PERCENT EXCEEDS	975		1130		1320	
50 PERCENT EXCEEDS	200		256		325	
90 PERCENT EXCEEDS	64		59		82	

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

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	253	386	557	764	789	1284	1059	781	457	241	194	152
MAX	876	1355	1533	2152	1996	4153	2470	1656	1931	1233	901	1370
(WY)	1928	1922	1924	1937	1915	1936	1940	1960	1946	1956	1956	1926
MIN	16.9	26.0	55.1	34.3	103	390	245	121	102	68.7	24.9	22.3
(WY)	1931	1931	1931	1931	1934	1915	1925	1926	1949	1936	1930	1932

SUMMARY STATISTICS	WATER YEARS 1914 - 1960	
ANNUAL MEAN	576	
HIGHEST ANNUAL MEAN	921	1928
LOWEST ANNUAL MEAN	309	1931
HIGHEST DAILY MEAN	27100	Mar 18 1936
LOWEST DAILY MEAN	7.1	Oct 1 1925
ANNUAL SEVEN-DAY MINIMUM	13	Oct 4 1925
MAXIMUM PEAK FLOW	**a**30600	Mar 18 1936
MAXIMUM PEAK STAGE	**b**18.49	Mar 18 1936
INSTANTANEOUS LOW FLOW	6.0	Oct 1,9 1925
ANNUAL RUNOFF (CFSM)	1.55	
ANNUAL RUNOFF (INCHES)	21.08	
10 PERCENT EXCEEDS	1380	
50 PERCENT EXCEEDS	278	
90 PERCENT EXCEEDS	54	

a From rating curve extended above 15,000 ft^3/s.
b From floodmark in gage.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

01541500 CLEARFIELD CREEK AT DIMELING, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
APR 2002													
30...	0900	9813	729	30	11.4	7.1	337	9.2	140	30.5	14.6	12	122
JUN													
19...	1330	9813	735	30	10.4	7.1	340	10.3	160	35.5	16.5	15	159
AUG													
27...	1330	9813	93	30	8.6	7.3	805	24.5	400	90.1	43.3	7	411

Date	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
APR 2002													
30...	220	18	<.020	.42	<.040	.64	<.01	.020	2.2	<10	100	<1.0	1400
JUN													
19...	288	16	<.020	.44	<.040	.62	.01	.010	1.7	<10	1840	<1.0	1750
AUG													
27...	726	4	.040	.24	<.040	.29	<.01	<.010	1.3	<10	230	<1.0	4040

Date	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002		
30...	<50	60
JUN		
19...	57	50
AUG		
27...	83	40

WEST BRANCH SUSQUEHANNA RIVER BASIN

01542810 WALDY RUN NEAR EMPORIUM, PA

LOCATION.--Lat 41°34'44", long 78°17'34", Cameron County, Hydrologic Unit 02050202, on left bank 15 ft downstream from highway bridge on Township Route 318 at North Creek Chapel, 0.1 mi upstream from mouth, and 5.5 mi northwest of Emporium.

DRAINAGE AREA.--5.24 mi^2.

PERIOD OF RECORD.--Occasional discharge measurements and annual maximum, water years 1963-64. September 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,263.62 ft above National Geodetic Vertical Datum of 1929. July 25, 1963, to Aug. 27, 1964, crest-stage gage at same site and datum.

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

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 100 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
May 13	1500	*144	*4.62	June 6	2100	105	4.44

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.36	1.1	21	e4.4	41	e4.5	23	21	9.0	1.6	0.45	0.21
2	0.34	1.1	14	e5.0	44	e4.3	15	24	7.4	1.5	0.39	0.21
3	0.31	1.9	8.9	e6.2	26	8.4	12	28	5.9	1.3	0.50	0.21
4	0.27	1.5	6.5	2.9	17	12	8.5	21	5.2	1.2	0.35	0.20
5	0.26	1.5	5.3	2.4	10	13	7.5	15	9.5	1.2	0.32	0.19
6	0.26	1.3	4.4	2.2	7.7	11	7.0	11	78	1.0	0.28	0.18
7	0.30	1.2	3.7	2.2	6.4	8.9	6.4	9.0	73	0.90	0.23	0.16
8	0.30	1.2	3.1	2.0	5.4	7.2	7.1	7.2	31	0.81	0.21	0.15
9	0.26	1.2	3.0	1.9	4.5	6.5	9.2	12	17	0.97	0.20	0.14
10	0.25	0.95	2.7	2.1	4.7	6.6	11	35	11	1.2	0.19	0.14
11	0.24	0.85	2.4	2.0	e7.0	5.8	13	28	7.4	0.78	0.19	0.14
12	0.25	0.76	2.2	2.0	10	5.9	12	64	5.6	0.66	0.18	0.13
13	0.31	0.67	2.7	2.0	11	5.8	16	131	4.5	0.65	0.18	0.12
14	0.73	0.65	4.3	1.8	e8.0	5.7	42	102	18	0.63	0.17	0.13
15	1.9	0.65	9.9	1.8	7.6	5.2	86	60	44	0.51	0.18	3.0
16	1.4	0.65	12	1.8	6.9	5.3	45	34	37	0.45	0.56	2.5
17	1.8	0.59	19	1.8	6.1	4.5	25	22	23	0.40	0.67	0.86
18	1.2	0.53	74	1.7	e4.4	5.0	17	34	15	0.39	0.36	0.45
19	0.89	0.58	40	e1.5	e4.0	5.6	13	44	9.6	0.42	0.28	0.50
20	0.81	1.1	22	e1.6	4.4	8.4	11	28	6.8	0.47	0.24	0.52
21	0.72	0.77	14	e1.6	5.5	13	8.7	18	5.2	0.37	0.20	0.33
22	0.68	0.67	9.5	e1.7	5.6	15	7.8	12	4.5	0.32	3.5	0.31
23	0.71	0.65	7.8	e1.7	6.4	13	6.4	9.2	3.8	1.6	2.4	0.25
24	3.7	0.60	7.1	5.4	6.7	10	5.3	7.6	3.1	1.0	1.2	0.21
25	2.5	7.8	5.8	19	6.8	8.7	5.2	6.0	2.6	0.60	0.71	0.21
26	1.8	11	5.0	17	7.0	28	4.7	7.3	2.4	0.70	0.42	0.21
27	1.8	7.3	4.8	12	6.4	66	4.2	5.4	3.3	0.66	0.32	5.2
28	1.7	5.2	4.4	11	5.5	36	41	5.0	3.2	1.1	0.28	4.1
29	1.3	6.4	4.0	12	---	28	67	6.2	2.1	1.3	0.26	1.8
30	1.2	13	3.3	20	---	37	35	9.5	1.8	0.91	0.24	1.2
31	1.2	---	e3.4	23	---	34	---	11	---	0.62	0.22	---
TOTAL	29.75	73.37	330.2	173.7	286.0	428.3	572.0	827.4	449.9	26.22	15.88	23.96
MEAN	0.960	2.446	10.65	5.603	10.21	13.82	19.07	26.69	15.00	0.846	0.512	0.799
MAX	3.7	13	74	23	44	66	86	131	78	1.6	3.5	5.2
MIN	0.24	0.53	2.2	1.5	4.0	4.3	4.2	5.0	1.8	0.32	0.17	0.12
CFSM	0.18	0.47	2.03	1.07	1.95	2.64	3.64	5.09	2.86	0.16	0.10	0.15
IN.	0.21	0.52	2.34	1.23	2.03	3.04	4.06	5.87	3.19	0.19	0.11	0.17

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2002, BY WATER YEAR (WY)

MEAN	4.391	8.945	10.81	8.337	11.01	17.31	17.12	11.07	6.522	2.688	2.386	3.182
MAX	22.1	29.3	27.8	23.8	30.7	33.0	48.3	26.7	30.9	10.2	25.8	15.7
(WY)	1982	1986	1973	1996	1976	1979	1970	2002	1972	1994	1994	1987
MIN	0.10	0.31	2.02	0.83	0.98	4.25	5.34	1.95	0.50	0.26	0.19	0.080
(WY)	1965	1965	1990	1981	1980	1981	1976	1999	1999	1966	1991	1964

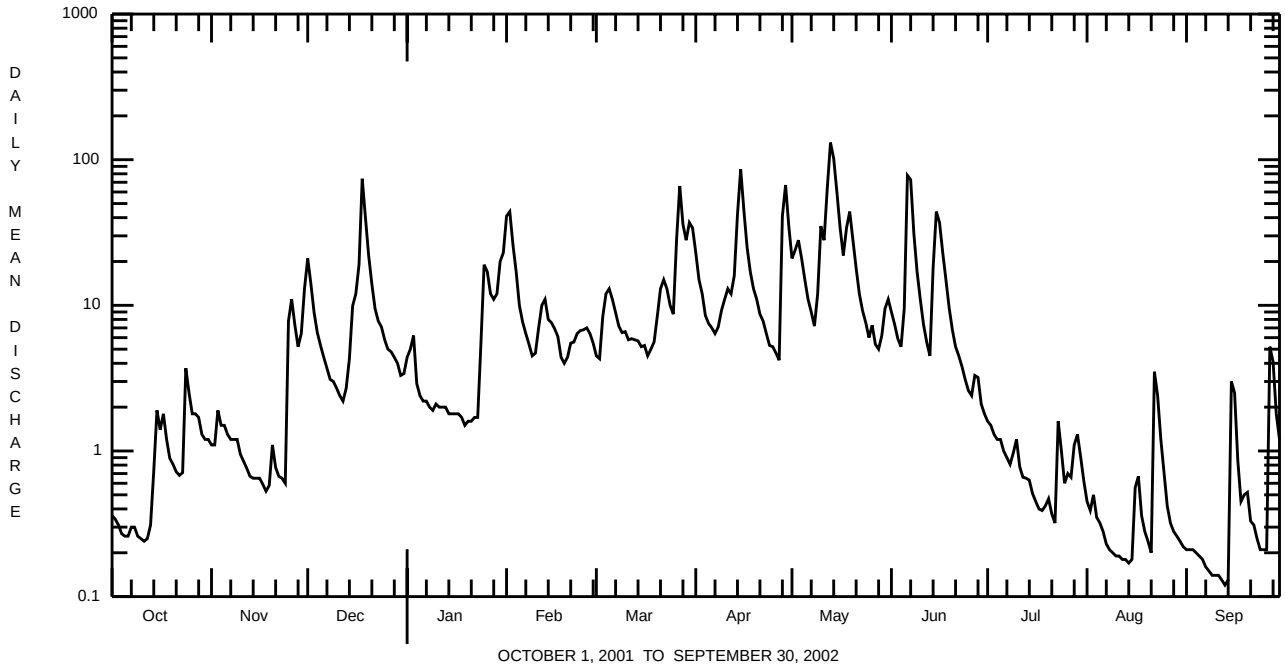
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01542810 WALDY RUN NEAR EMPORIUM, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1964 - 2002	
ANNUAL TOTAL	2130.81		3236.68			
ANNUAL MEAN	5.84		8.87		8.63	
HIGHEST ANNUAL MEAN					14.5	1994
LOWEST ANNUAL MEAN					5.11	1965
HIGHEST DAILY MEAN	80	May 27	131	May 13	**e**300	Jan 19 1996
LOWEST DAILY MEAN	0.18	Sep 12	0.12	Sep 13	0.00	Sep 14 1964
ANNUAL SEVEN-DAY MINIMUM	0.20	Sep 6	0.14	Sep 8	0.01	Sep 13 1964
MAXIMUM PEAK FLOW			**a**144	May 13	**a**828	Sep 28 1967
MAXIMUM PEAK STAGE			4.62	May 13	6.32	Sep 28 1967
INSTANTANEOUS LOW FLOW					0.00	Sep 14 1964
ANNUAL RUNOFF (CFSM)	1.11		1.69		1.65	
ANNUAL RUNOFF (INCHES)	15.13		22.98		22.39	
10 PERCENT EXCEEDS	15		23		21	
50 PERCENT EXCEEDS	1.9		4.0		3.5	
90 PERCENT EXCEEDS	0.30		0.26		0.41	

a From rating curve extended above 80 ft^3/s on basis of slope-area measurements at gage heights 5.09 ft, 5.86 ft, and at peak flow.
e Estimated.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01543000 DRIFTWOOD BRANCH SINNEMAHONING CREEK AT STERLING RUN, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 41°24'48", long 78°11'50", Cameron County, Hydrologic Unit 02050202, on left bank at downstream side of highway bridge on SR 3002 at village of Sterling Run, and 300 ft upstream from Sterling Run.

DRAINAGE AREA.--272 mi^2.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1272: Drainage area. WSP 1502: 1933(M), 1934-38, 1939(M).

GAGE.--Water-stage recorder. Datum of gage is 894.84 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1913, to Sept. 30, 1931, nonrecording gage, Oct. 1, 193l, to Sept. 30, 1932, and Oct. 1, 1942, to Oct. 3, 1991, water-stage recorder at site 50 feet upstream on steel-truss bridge at same datum.

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

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 4,700 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
May 13	2130	*8,640	*6.06

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	87	881	e200	1550	278	1210	1150	290	125	150	11
2	33	83	711	e210	1770	260	895	1400	239	112	70	9.9
3	29	132	550	e190	1390	e300	746	1450	210	106	48	9.8
4	25	120	435	e190	1020	e460	571	1190	189	96	38	9.7
5	22	108	349	e170	704	e500	457	911	211	85	29	9.6
6	20	100	290	e160	562	e500	415	683	1700	74	39	9.3
7	19	93	251	164	469	470	367	552	2400	67	27	8.6
8	19	87	218	151	393	402	356	436	1450	62	19	8.2
9	19	86	214	e140	323	352	371	594	884	58	16	7.8
10	18	80	200	135	297	388	450	1210	584	74	14	7.3
11	17	75	173	149	662	318	410	1110	408	60	13	6.7
12	17	69	158	135	627	299	410	2160	316	48	13	5.8
13	17	63	171	130	626	288	506	7250	261	41	15	5.7
14	22	59	225	e130	e510	277	966	6340	649	38	14	5.6
15	103	58	442	124	495	257	2470	3750	1890	34	11	17
16	84	57	450	122	456	278	2030	2230	1620	30	13	193
17	114	54	732	119	401	246	1390	1540	1130	26	17	73
18	94	50	2740	e110	321	251	969	1890	776	23	26	37
19	71	48	2030	e75	274	283	737	2000	532	23	16	24
20	62	66	1360	e100	265	356	622	1600	376	33	13	19
21	54	74	932	e110	392	578	505	1150	292	29	12	20
22	53	63	669	e120	369	624	423	823	244	21	10	17
23	60	57	551	e120	336	607	359	619	285	26	77	15
24	295	53	539	e160	329	557	305	488	217	103	54	13
25	217	341	434	697	328	514	299	392	191	48	47	12
26	154	586	348	684	352	1030	275	383	159	33	30	11
27	137	390	e320	605	372	2870	234	309	174	32	19	86
28	128	318	296	550	322	1920	899	265	305	55	15	329
29	111	381	e250	538	---	1490	2130	259	177	73	13	112
30	103	594	228	788	---	1580	1620	360	146	58	13	72
31	93	---	e190	1030	---	1460	---	333	---	40	11	---
TOTAL	2250	4432	17337	8306	15915	19993	23397	44827	18305	1733	902	1165.0
MEAN	72.58	147.7	559.3	267.9	568.4	644.9	779.9	1446	610.2	55.90	29.10	38.83
MAX	295	594	2740	1030	1770	2870	2470	7250	2400	125	150	329
MIN	17	48	158	75	265	246	234	259	146	21	10	5.6
CFSM	0.27	0.54	2.06	0.99	2.09	2.37	2.87	5.32	2.24	0.21	0.11	0.14
IN.	0.31	0.61	2.37	1.14	2.18	2.73	3.20	6.13	2.50	0.24	0.12	0.16

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2002, BY WATER YEAR (WY)

MEAN	187.7	400.1	489.4	506.8	549.6	984.1	910.9	632.5	329.0	163.0	116.0	122.9
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

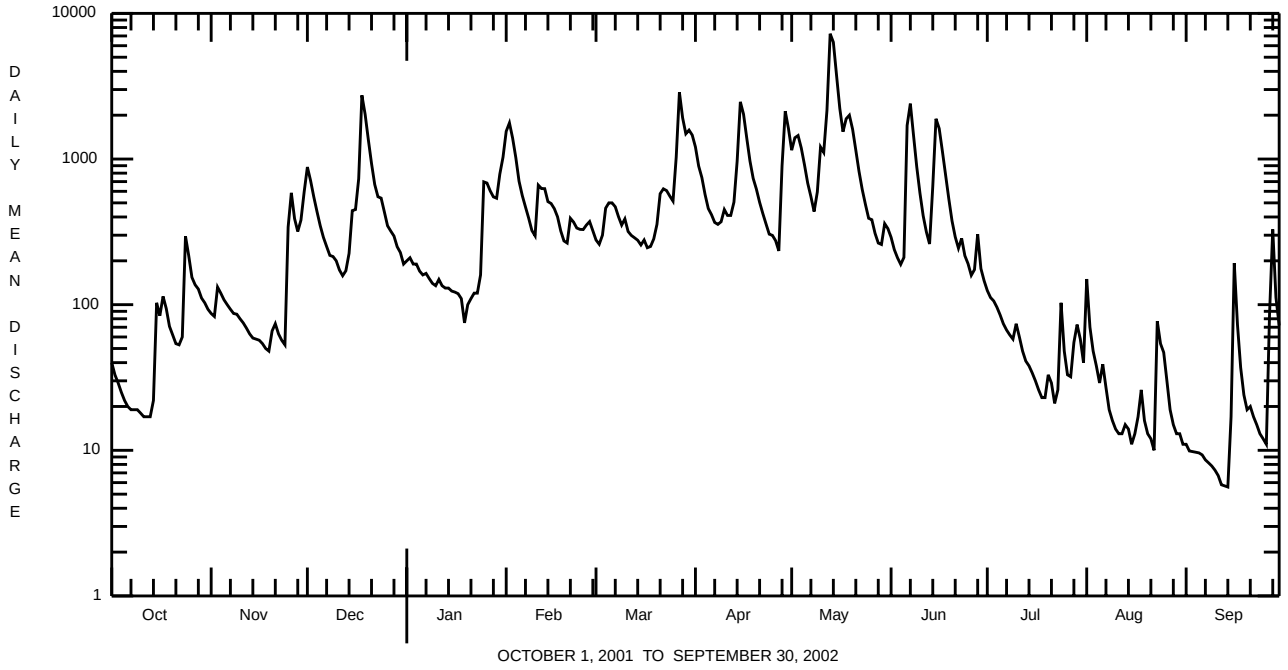
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

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

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1914 - 2002	
ANNUAL TOTAL	103811.6		158562.0			
ANNUAL MEAN	284		434		449	
HIGHEST ANNUAL MEAN					735	1994
LOWEST ANNUAL MEAN					235	1934
HIGHEST DAILY MEAN	3050	Mar 22	7250	May 13	18600	Jun 23 1972
LOWEST DAILY MEAN	9.7	Aug 15	5.6	Sep 14	0.40	Sep 13 1930
ANNUAL SEVEN-DAY MINIMUM	11	Aug 10	6.7	Sep 8	0.87	Aug 28 1939
MAXIMUM PEAK FLOW			8640	May 13	**a**47800	Jul 18 1942
MAXIMUM PEAK STAGE			6.06	May 13	**b**14.70	Jul 18 1942
INSTANTANEOUS LOW FLOW					0.40	Sep 12 1930**c**
ANNUAL RUNOFF (CFSM)	1.05		1.60		1.65	
ANNUAL RUNOFF (INCHES)	14.20		21.69		22.41	
10 PERCENT EXCEEDS	751		1150		1070	
50 PERCENT EXCEEDS	120		217		204	
90 PERCENT EXCEEDS	20		17		26	

a From rating curve extended above 11,000 ft^3/s on basis of slope-area measurement of peak flow.
b From floodmarks.
c Also Sept. 13, 14, 1930.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01543000 DRIFTWOOD BRANCH SINNEMAHONING CREEK AT STERLING RUN, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)
APR 2002													
30...	1200	9813	1590	30	12.0	7.4	50	7.5	17	4.50	4.6	1.38	1.4
JUN													
19...	1045	9813	546	30	11.2	7.6	50	13.4	21	5.90	5.8	1.72	1.7
AUG													
27...	1600	9813	18	30	10.2	9.2	114	25.7	37	9.88	10.5	2.34	2.5

Date	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)
APR 2002													
30...	.0	8	9.9	34	<2	<.020	.32	<.040	.49	.01	.016	.7	<4
JUN													
19...	4.2	11	9.8	6	10	<.020	.25	<.040	.36	.01	.018	1.0	<4
AUG													
27...	.0	22	12.4	96	<2	.080	.05	<.040	.27	.01	.014	1.1	<4

Date	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002											
30...	<4	<20	180	<1.0	<1.0	7.2	20	<4.0	<4.0	<5.0	<5.0
JUN											
19...	<4	20	270	<1.0	<1.0	10	20	<4.0	<4.0	<5.0	<5.0
AUG											
27...	<4	40	140	<1.0	<1.0	10	20	<4.0	<4.0	9.7	<5.0

WEST BRANCH SUSQUEHANNA RIVER BASIN

01543500 SINNEMAHONING CREEK AT SINNEMAHONING, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 41°19'02", long 78°06'12", Cameron County, Hydrologic Unit 02050202, on left bank 0.2 mi upstream from Grove Run, and 0.7 mi upstream from Penn Central Railroad bridge at Sinnemahoning.

DRAINAGE AREA.--685 mi^2.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 769.36 ft above National Geodetic Vertical Datum of 1929.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 21.94 ft, Mar. 18, 1936, from floodmark, discharge, 61,200 ft^3/s, from rating curve extended above 31,000 ft^3/s on basis of slope-area measurement at gage height 21.58 ft.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 8,400 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 27	0330	8,580	7.19	May 13	2330	*16,800	*10.27

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	198	2160	e600	3350	e720	2980	2610	922	303	283	27
2	72	187	1700	e560	3900	731	2390	3120	756	268	199	25
3	65	261	1320	e500	3230	1300	2040	3300	633	240	122	23
4	56	325	1070	601	2560	e1400	1660	2770	563	214	95	22
5	51	258	893	558	1920	e1300	1370	2260	685	192	82	22
6	48	230	768	518	1520	e1300	1240	1830	3000	167	74	23
7	44	210	682	531	1280	1260	1110	1550	5730	148	71	21
8	43	197	607	483	1130	1110	1030	1300	3540	137	53	18
9	43	185	595	e450	962	992	992	1570	2380	130	45	17
10	42	176	575	435	865	1010	1080	3320	1720	153	41	16
11	41	161	510	450	1860	881	956	2770	1290	156	38	15
12	41	145	463	434	1720	809	909	4120	1040	117	34	14
13	42	134	473	414	1660	774	967	14700	905	99	33	13
14	48	126	612	393	1400	744	1690	13900	1290	92	44	13
15	155	122	1100	383	1310	693	5330	9220	3400	87	36	18
16	228	119	1080	372	1210	735	4680	5810	3020	78	33	670
17	231	116	1480	357	1110	718	3380	4060	2250	69	46	260
18	232	107	6720	348	933	669	2540	4780	1700	63	53	123
19	161	102	5070	e320	804	726	2030	4900	1280	60	58	79
20	125	120	3420	e380	769	782	1750	3990	996	81	42	60
21	108	180	2430	e420	1010	1320	1490	3040	809	78	35	55
22	101	157	1820	e380	1050	1350	1290	2340	678	62	30	51
23	117	133	1470	e360	931	1340	1130	1860	688	66	61	43
24	828	122	1450	e420	877	1290	963	1530	546	218	110	39
25	750	628	1230	1460	862	1240	903	1300	492	145	124	35
26	455	1700	1030	1530	884	2160	882	1150	425	90	90	32
27	360	1010	929	1400	961	7450	755	974	392	82	61	79
28	319	867	865	1310	854	4980	1510	842	684	83	45	858
29	269	976	e760	1270	---	3890	3970	810	462	119	39	343
30	236	1360	e700	1790	---	3770	3290	1030	356	155	34	192
31	214	---	e620	2410	---	3370	---	1020	---	111	30	---
TOTAL	5609	10612	44602	21837	40922	50814	56307	107776	42632	4063	2141	3206
MEAN	180.9	353.7	1439	704.4	1462	1639	1877	3477	1421	131.1	69.06	106.9
MAX	828	1700	6720	2410	3900	7450	5330	14700	5730	303	283	858
MIN	41	102	463	320	769	669	755	810	356	60	30	13
CFSM	0.26	0.52	2.10	1.03	2.13	2.39	2.74	5.08	2.07	0.19	0.10	0.16
IN.	0.30	0.58	2.42	1.19	2.22	2.76	3.06	5.85	2.32	0.22	0.12	0.17

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2002, BY WATER YEAR (WY)

MEAN	461.6	953.3	1270	1239	1458	2429	2318	1602	845.5	413.7	295.8	313.2
MAX	2186	4836	2883	4349	3732	5608	5500	3771	4066	2134	2596	1706
(WY)	1991	1951	1973	1952	1976	1945	1940	1953	1972	1992	1994	1975
MIN	31.5	52.0	64.1	91.8	257	771	556	313	97.3	37.9	28.7	29.6
(WY)	1965	1965	1961	1961	1963	1981	1946	1941	1999	1966	1957	1939

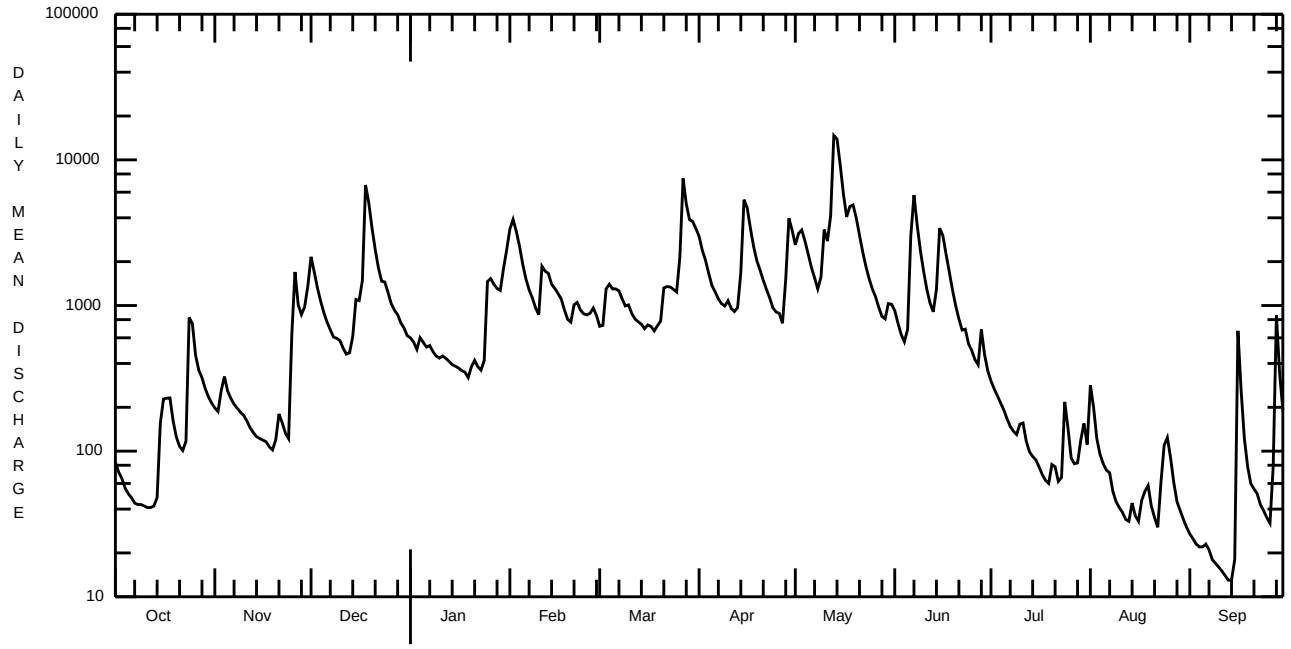
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01543500 SINNEMAHONING CREEK AT SINNEMAHONING, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1939 - 2002	
ANNUAL TOTAL	272624		390521			
ANNUAL MEAN	747		1070		1131	
HIGHEST ANNUAL MEAN					1798	1951
LOWEST ANNUAL MEAN					705	1999
HIGHEST DAILY MEAN	6720	Dec 18	14700	May 13	44000	Jun 23 1972
LOWEST DAILY MEAN	31	Sep 13	13	Sep 13,14	1.4	Sep 3 1939
ANNUAL SEVEN-DAY MINIMUM	36	Aug 10	15	Sep 8	4.2	Aug 29 1939
MAXIMUM PEAK FLOW			16800	May 13	**a**60800	Jun 23 1972
MAXIMUM PEAK STAGE			10.27	May 13	21.78	Jun 23 1972
INSTANTANEOUS LOW FLOW					1.2	Sep 4 1939
ANNUAL RUNOFF (CFSM)	1.09		1.56		1.65	
ANNUAL RUNOFF (INCHES)	14.81		21.21		22.43	
10 PERCENT EXCEEDS	1980		2770		2740	
50 PERCENT EXCEEDS	357		628		560	
90 PERCENT EXCEEDS	51		43		70	

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



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

01543500 SINNEMAHONING CREEK AT SINNEMAHONING, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
APR 2002													
24...	1445	9813	941	30	12.2	7.1	77	11.1	28	7.0	2.5	7	22.2
JUN													
17...	1615	9813	2140	30	11.2	7.4	59	14.0	23	5.9	2.0	7	14.9
AUG													
14...	1030	9813	48	30	8.0	7.7	168	26.9	61	15.6	5.3	15	45.6

Date	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
APR 2002													
17...	<2	62	<.02	.18	<.040	.22	<.01	.010	.9	<10	140	<1.0	93
JUN													
26...	66	6	<.02	.23	<.040	.27	.01	.010	1.3	<10	174	<1.0	58
AUG													
14...	118	<2	<.02	<.04	<.040	.13	.01	<.010	1.6	<10	23	<1.0	21

Date	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002		
17...	<50	17
JUN		
26...	<50	<10
AUG		
14...	<50	<10

WEST BRANCH SUSQUEHANNA RIVER BASIN

01544000 FIRST FORK SINNEMAHONING CREEK NEAR SINNEMAHONING, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 41°24'06", long 78°01'28", Cameron County, Hydrologic Unit 02050202, on right bank on Township Route 357, 350 ft downstream from Woodrock Run, 1,500 ft upstream from Roaring Run, 0.8 mi downstream from George B. Stevenson Dam (First Fork Sinnemahoning Creek Reservoir), and 7.5 mi northeast of Sinnemahoning.

DRAINAGE AREA.--245 mi^2.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 878.71 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 1, 1954, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since Jan. 31, 1956 by George B. Stevenson Dam (station 01543900). Several measurements of water temperature were made during the year. Satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge known, 80,000 ft^3/s, July 18, 1942, by slope-area measurement.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	113	1780	172	1180	282	1030	1250	239	78	50	21
2	59	109	1350	161	1570	255	890	1180	235	87	25	23
3	53	109	712	161	1490	391	620	1170	213	95	24	11
4	53	140	758	161	1070	501	607	1100	187	93	24	10
5	53	135	640	177	749	564	938	835	187	89	24	10
6	44	110	374	165	550	580	985	728	909	65	23	10
7	30	90	392	154	480	495	608	614	1920	42	22	9.9
8	22	86	303	154	425	457	383	490	1390	41	21	9.8
9	22	90	232	137	353	406	345	483	1010	41	24	9.8
10	23	96	269	129	285	322	334	822	670	40	25	9.8
11	23	96	240	133	499	360	422	1000	505	57	25	9.8
12	26	81	192	133	732	313	384	1210	356	85	24	9.8
13	28	67	183	133	774	285	417	1170	372	59	24	9.8
14	30	67	230	129	647	285	543	1190	341	48	24	9.8
15	77	67	454	123	534	266	1230	4470	1050	34	24	11
16	122	67	565	111	501	258	1660	4520	1700	30	23	11
17	76	67	781	101	472	258	1300	4250	1400	29	21	10
18	85	60	1700	101	358	239	901	3450	961	28	22	11
19	102	52	2070	90	299	231	767	1780	794	28	23	11
20	113	53	1500	72	300	271	675	1640	516	28	23	22
21	117	53	988	95	335	401	509	1130	423	28	22	28
22	97	53	720	128	343	497	446	926	367	28	22	26
23	87	53	557	140	311	524	403	715	253	27	22	18
24	128	53	502	127	313	546	325	591	252	25	23	13
25	393	242	464	433	311	468	323	481	228	25	23	13
26	183	1040	360	594	309	547	319	436	184	25	21	13
27	217	803	285	630	353	2100	243	386	154	25	21	29
28	201	751	324	575	358	1310	476	310	169	25	21	254
29	161	414	288	522	---	424	1800	285	178	79	21	134
30	151	630	208	608	---	1380	1790	316	111	133	21	32
31	133	---	191	964	---	1120	---	302	---	106	21	---
TOTAL	2989	5847	19612	7513	15901	16336	21673	39230	17274	1623	733	799.5
MEAN	96.42	194.9	632.6	242.4	567.9	527.0	722.4	1265	575.8	52.35	23.65	26.65
MAX	393	1040	2070	964	1570	2100	1800	4520	1920	133	50	254
MIN	22	52	183	72	285	231	243	285	111	25	21	9.8

WEST BRANCH SUSQUEHANNA RIVER BASIN

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

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 2002, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	209.1	385.7	467.3	375.7	471.8	798.0	881.6	518.3	276.4	157.4	115.2	131.4
MAX	1033	1162	1051	1131	1452	1820	2300	1265	1334	808	977	837
(WY)	1991	1986	1991	1996	1981	1964	1993	2002	1989	1992	1994	1975
MIN	9.76	17.6	21.3	16.6	77.9	171	320	103	39.5	14.5	14.2	5.31
(WY)	1964	1965	1961	1961	1963	1960	1976	1985	1999	1966	1962	1964

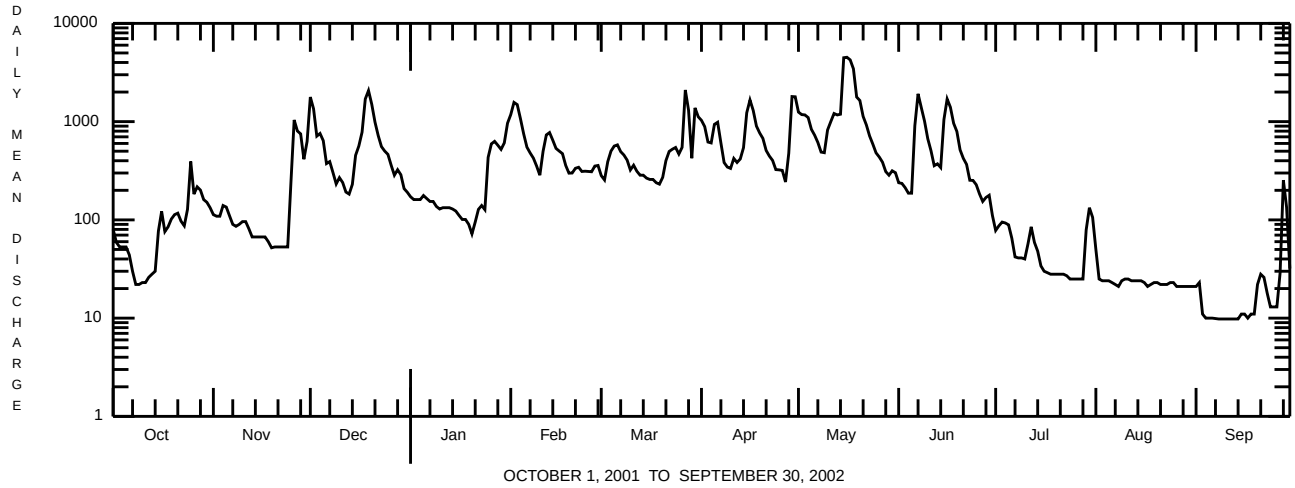
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1956 - 2002	
ANNUAL TOTAL	100367		149530.5			
ANNUAL MEAN	275		410		398	
HIGHEST ANNUAL MEAN					640	1994
LOWEST ANNUAL MEAN					236	1999
HIGHEST DAILY MEAN	2250	Apr 10	4520	May 16	7360	Mar 10 1956
LOWEST DAILY MEAN	13	Jul 25**a**	9.8	Sep 8-14	0.10	Aug 8 1975
ANNUAL SEVEN-DAY MINIMUM	13	Aug 10	9.8	Sep 8	3.6	Oct 23 1963
MAXIMUM PEAK FLOW			4620	May 15	10200	Mar 1 1956
MAXIMUM PEAK STAGE			3.85	May 15	6.60	Mar 1 1956
10 PERCENT EXCEEDS	726		1060		957	
50 PERCENT EXCEEDS	121		230		192	
90 PERCENT EXCEEDS	23		22		27	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1955, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	55.2	101	374	394	467	1277	699	391	177	30.6	44.6	20.4
MAX	96.7	132	509	503	631	1672	936	626	260	38.9	74.4	23.4
(WY)	1955	1955	1955	1955	1954	1955	1954	1954	1954	1954	1955	1955
MIN	13.7	70.0	239	285	304	883	462	156	93.4	22.3	14.9	17.4
(WY)	1954	1954	1954	1954	1955	1954	1955	1955	1955	1955	1954	1954

SUMMARY STATISTICS	WATER YEARS 1954 - 1955	
ANNUAL MEAN	336	
HIGHEST ANNUAL MEAN	339	1955
LOWEST ANNUAL MEAN	332	1954
HIGHEST DAILY MEAN	5020	Mar 2 1954
LOWEST DAILY MEAN	5.6	Sep 22 1955
ANNUAL SEVEN-DAY MINIMUM	8.3	Sep 6 1954
MAXIMUM PEAK FLOW	7000	Mar 1 1954
MAXIMUM PEAK STAGE	5.64	Mar 1 1954
ANNUAL RUNOFF (CFSM)	1.37	
ANNUAL RUNOFF (INCHES)	18.63	
10 PERCENT EXCEEDS	980	
50 PERCENT EXCEEDS	103	
90 PERCENT EXCEEDS	14	

a Also Aug. 11-16, 22-25.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01544000 FIRST FORK SINNEMAHONING CREEK NEAR SINNEMAHONING, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)
APR 2002													
29...	0900	9813	1700	30	11.3	7.1	55	11.0	20	5.44	5.4	1.53	1.5
JUN													
17...	1400	9813	1230	30	11.5	6.8	47	12.6	18	4.87	4.9	1.42	1.4
AUG													
13...	1015	9813	24	30	7.9	7.4	77	23.9	26	7.10	7.0	2.07	2.0

Date	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)
APR 2002													
29...	.0	12	8.3	68	<2	<.020	.34	<.040	.58	.04	.037	1.6	<4
JUN													
17...	.0	10	8.7	62	<2	<.020	.35	<.040	.39	.02	.013	.8	<4
AUG													
13...	.0	22	7.1	36	28	.200	.08	<.040	.44	.02	.037	1.8	<4

Date	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002											
29...	<4	60	450	<1.0	<1.0	30	50	<4.0	<4.0	<5.0	<5.0
JUN											
17...	<4	30	140	<1.0	<1.0	20	20	<4.0	<4.0	<5.0	<5.0
AUG											
13...	<4	120	480	<1.0	<1.0	40	100	<4.0	<4.0	<5.0	<5.0

WEST BRANCH SUSQUEHANNA RIVER BASIN

01544500 KETTLE CREEK AT CROSS FORK, PA

LOCATION.--Lat 41°28'33", long 77°49'34", Clinton County, Hydrologic Unit 02050203, on right bank just upstream from abutment of former highway bridge on Township Route 318, 0.2 mi downstream from Potter-Clinton County line, and 0.7 mi southeast of Cross Fork.

DRAINAGE AREA.--136 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 1,027.12 ft above National Geodetic Vertical Datum of 1929.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, about 14.0 ft, Mar. 18, 1936, from information by local residents, discharge, about 20,000 ft^3/s, from rating curve extended above 9,200 ft^3/s on basis of slope-area measurement of peak flow.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 2,400 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
May 13	2345	*2,480	*5.18	No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	146	126	820	e120	530	e125	503	611	120	67	22	7.5
2	126	121	779	e110	664	124	425	617	106	61	20	7.2
3	109	122	614	e110	652	171	369	607	96	56	21	7.3
4	95	108	481	e120	552	e160	309	568	90	51	17	6.9
5	83	101	385	e120	433	e160	268	488	97	46	16	6.3
6	76	94	318	115	352	e200	243	406	221	41	16	5.9
7	69	89	269	116	298	205	215	347	329	38	14	5.7
8	61	85	234	e100	255	196	195	288	296	36	13	5.4
9	54	82	215	e100	216	187	187	298	257	36	13	5.2
10	51	78	185	94	215	188	176	292	219	41	12	5.1
11	48	75	165	89	380	167	155	280	187	32	11	4.9
12	46	70	150	79	433	159	148	486	164	29	11	4.7
13	45	65	164	76	445	154	163	1620	144	27	11	4.8
14	46	63	192	72	392	148	195	2210	214	26	11	4.9
15	93	62	307	70	349	140	424	1440	693	24	9.8	21
16	67	60	383	67	311	142	510	958	963	23	11	e100
17	103	57	473	67	271	127	466	702	738	22	12	e40
18	91	53	813	64	227	129	405	704	551	21	11	e15
19	93	53	916	e66	197	127	355	728	413	23	10	12
20	95	61	756	e90	182	153	312	708	314	26	9.4	11
21	93	54	582	e110	199	197	267	596	248	21	8.9	9.9
22	93	50	452	e90	171	227	239	481	203	18	8.9	10
23	96	48	375	e76	155	246	208	391	174	30	11	24
24	167	46	330	93	144	251	181	326	153	41	12	16
25	183	192	276	151	141	244	178	270	132	23	19	12
26	192	401	236	190	149	439	160	229	114	21	12	11
27	193	413	212	210	152	1080	141	193	115	20	10	82
28	172	373	194	218	141	923	256	169	114	66	8.8	154
29	156	363	174	227	---	749	676	150	87	70	8.9	66
30	144	444	156	296	---	655	731	144	76	37	8.9	45
31	133	---	e140	382	---	563	---	138	---	26	8.2	---
TOTAL	3219	4009	11746	3888	8606	8736	9060	17445	7628	1099	387.8	710.7
MEAN	103.8	133.6	378.9	125.4	307.4	281.8	302.0	562.7	254.3	35.45	12.51	23.69
MAX	193	444	916	382	664	1080	731	2210	963	70	22	154
MIN	45	46	140	64	141	124	141	138	76	18	8.2	4.7
CFSM	0.76	0.98	2.79	0.92	2.26	2.07	2.22	4.14	1.87	0.26	0.09	0.17
IN.	0.88	1.10	3.21	1.06	2.35	2.39	2.48	4.77	2.09	0.30	0.11	0.19

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2002, BY WATER YEAR (WY)

MEAN	107.2	209.9	245.5	221.8	259.2	477.8	503.9	319.8	163.0	81.78	56.30	62.67
MAX	700	868	552	663	800	1055	1303	721	797	436	581	699
(WY)	1991	1951	1973	1952	1981	1945	1993	1946	1972	1992	1994	1975
MIN	6.23	9.53	18.8	18.4	52.1	132	112	63.8	22.1	12.8	7.07	6.32
(WY)	1965	1965	1961	1961	1963	1981	1946	1941	1991	1962	1971	1964

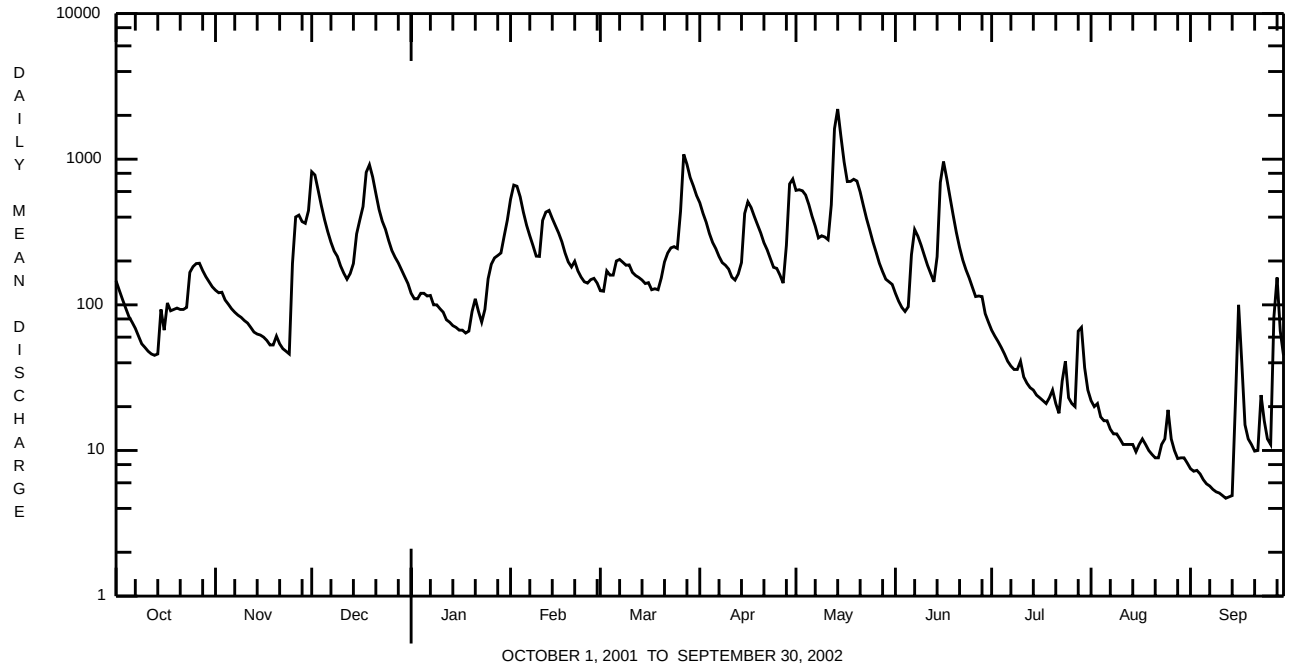
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01544500 KETTLE CREEK AT CROSS FORK, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1941 - 2002	
ANNUAL TOTAL	60223.2		76534.5			
ANNUAL MEAN	165		210		225	
HIGHEST ANNUAL MEAN					351	1951
LOWEST ANNUAL MEAN					125	1941
HIGHEST DAILY MEAN	1490	Apr 10	2210	May 14	10500	Jun 23 1972
LOWEST DAILY MEAN	7.1	Aug 15	4.7	Sep 12	1.2	Sep 2-4 1971
ANNUAL SEVEN-DAY MINIMUM	8.3	Aug 9	5.0	Sep 8	1.4	Sep 1 1971
MAXIMUM PEAK FLOW			2480	May 13	**a**14300	Jun 23 1972
MAXIMUM PEAK STAGE			5.18	May 13	**b**11.76	Jun 23 1972
ANNUAL RUNOFF (CFSM)	1.21		1.54		1.66	
ANNUAL RUNOFF (INCHES)	16.47		20.93		22.52	
10 PERCENT EXCEEDS	404		506		535	
50 PERCENT EXCEEDS	87		141		108	
90 PERCENT EXCEEDS	23		12		16	

a From rating curve extended above 9,200 ft^3/s on basis of slope-area measurement of peak flow.
b From floodmark in gage.



WEST BRANCH SUSQUEHANNA RIVER BASIN

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

LOCATION.--Lat 41°19'10", long 77°52'27", Clinton County, Hydrologic Unit 02050203, on left bank on SR 4001, 0.4 mi upstream from Short Bond Run, 3.5 mi upstream from mouth and Westport, and 5.0 mi downstream from Alvin R. Bush Dam (Kettle Creek Lake).

DRAINAGE AREA.--233 mi^2.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 728.24 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 14, 1956, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated since February 1962 by Alvin R. Bush Dam (station 01544800). Several measurements of water temperature were made during the year. Satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	194	163	1230	e190	840	208	860	1020	205	111	37	7.3
2	172	155	1250	e170	1090	207	731	1060	178	106	30	7.1
3	142	159	934	e180	1060	241	609	1070	191	87	21	7.0
4	121	150	714	e170	937	300	482	1020	154	87	20	6.9
5	115	136	568	191	682	324	411	834	168	78	25	6.0
6	105	123	473	166	549	355	392	665	367	64	29	5.9
7	93	118	388	160	476	361	362	565	660	64	20	5.6
8	85	113	343	141	400	326	334	471	589	59	15	5.6
9	78	108	335	e130	351	308	305	484	465	52	13	5.6
10	65	108	275	152	314	313	303	496	392	63	12	5.6
11	65	103	241	152	556	265	273	482	324	60	13	5.5
12	68	98	233	133	677	246	274	757	279	47	13	5.4
13	64	93	229	118	740	246	304	2640	239	38	8.2	5.4
14	58	88	272	e120	627	231	390	3660	301	38	8.1	4.4
15	112	88	449	128	541	220	1050	3440	914	38	8.1	5.7
16	115	88	634	109	494	226	1190	1930	1620	38	8.3	102
17	119	79	778	103	440	209	958	1290	1250	35	9.4	95
18	122	75	1420	107	359	201	748	1180	828	33	9.4	31
19	116	81	1680	e110	311	211	649	1310	628	33	9.2	15
20	113	81	1330	e100	297	232	527	1280	476	32	9.3	18
21	116	81	962	115	304	357	494	1040	378	31	8.8	23
22	123	80	691	113	278	456	397	784	309	29	6.9	29
23	118	71	598	120	232	460	350	629	272	24	9.8	13
24	230	70	522	121	238	453	296	525	230	53	32	6.6
25	267	190	428	208	227	437	285	448	225	57	22	6.4
26	263	680	358	296	238	659	287	353	185	41	13	15
27	264	681	324	336	250	2170	237	301	164	36	11	94
28	237	567	305	349	224	1780	329	287	183	34	8.6	212
29	204	533	266	348	---	1430	1050	258	145	126	7.5	105
30	190	633	217	456	---	1150	1250	234	118	74	7.7	84
31	178	---	e210	587	---	961	---	252	---	45	7.4	---
TOTAL	4312	5793	18657	5879	13732	15543	16127	30765	12437	1713	452.7	938.0
MEAN	139.1	193.1	601.8	189.6	490.4	501.4	537.6	992.4	414.6	55.26	14.60	31.27
MAX	267	681	1680	587	1090	2170	1250	3660	1620	126	37	212
MIN	58	70	210	100	224	201	237	234	118	24	6.9	4.4

e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01545000 KETTLE CREEK NEAR WESTPORT, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 2002, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	186.5	348.1	416.4	345.0	451.8	724.1	804.8	477.7	274.9	143.2	97.74	119.3
MAX	1096	1060	954	857	1330	1739	2453	992	1278	677	927	1058
(WY)	1991	1971	1973	1979	1981	1979	1993	2002	1972	1972	1994	1975
MIN	13.5	5.37	55.4	63.8	78.8	167	309	141	39.8	8.06	7.69	13.0
(WY)	1965	1965	1999	1981	1963	1968	1976	1999	1999	1962	1962	1991

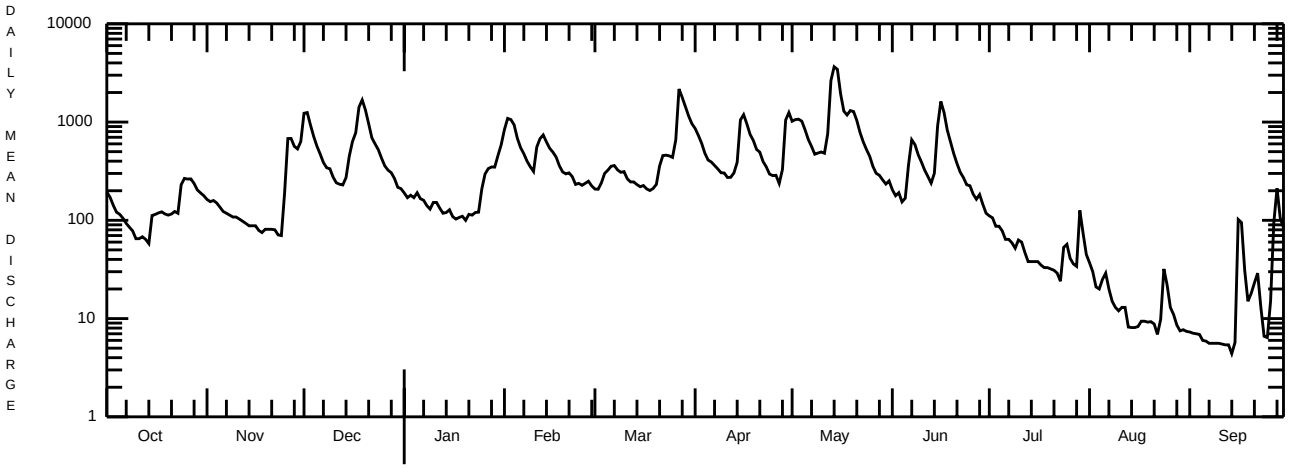
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1962 - 2002	
ANNUAL TOTAL	94311		126348.7			
ANNUAL MEAN	258		346		365	
HIGHEST ANNUAL MEAN					575	1994
LOWEST ANNUAL MEAN					203	2001
HIGHEST DAILY MEAN	2120	Apr 10	3660	May 14	7200	Apr 14 1970
LOWEST DAILY MEAN	13	Aug 13-15	4.4	Sep 14	4.4	Nov 3 1964**a**
ANNUAL SEVEN-DAY MINIMUM	15	Aug 9	5.4	Sep 8	4.6	Nov 2 1964
MAXIMUM PEAK FLOW			3860	May 14	7540	Apr 13 1970
MAXIMUM PEAK STAGE			7.31	May 14	10.17	Apr 13 1970
INSTANTANEOUS LOW FLOW					3.0	Dec 6 1964
10 PERCENT EXCEEDS	651		882		866	
50 PERCENT EXCEEDS	127		211		180	
90 PERCENT EXCEEDS	45		13		29	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 1961, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	192	247	373	297	387	837	1066	541	204	131	120	72.8
MAX	709	647	708	564	713	1373	1496	1103	631	318	276	177
(WY)	1956	1960	1957	1959	1961	1955	1958	1960	1960	1958	1956	1958
MIN	23.7	41.3	27.0	27.6	127	394	411	151	63.9	25.1	16.9	24.3
(WY)	1958	1961	1961	1961	1958	1960	1955	1955	1955	1955	1957	1957

SUMMARY STATISTICS	WATER YEARS 1955 - 1961	
ANNUAL MEAN	372	
HIGHEST ANNUAL MEAN	492	1956
LOWEST ANNUAL MEAN	266	1955
HIGHEST DAILY MEAN	5970	Mar 8 1956
LOWEST DAILY MEAN	8.9	Sep 10 1957
ANNUAL SEVEN-DAY MINIMUM	10	Sep 24 1959
MAXIMUM PEAK FLOW	**b**7970	Mar 8 1956
MAXIMUM PEAK STAGE	**c**13.31	Jan 22 1959
INSTANTANEOUS LOW FLOW	8.9	Sep 9,10 1957
ANNUAL RUNOFF (CFSM)	1.60	
ANNUAL RUNOFF (INCHES)	21.69	
10 PERCENT EXCEEDS	942	
50 PERCENT EXCEEDS	160	
90 PERCENT EXCEEDS	26	

a Also Nov. 6, 12, 1964, Sept. 14, 2002.
b Gage height 10.48 ft.
c Backwater from ice.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

WEST BRANCH SUSQUEHANNA RIVER BASIN

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

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)
APR 2002													
24...	1100	9813	295	30	12.3	7.2	49	10.7	19	5.19	5.3	1.41	1.4
JUN													
17...	1100	9813	1240	30	11.1	7.5	44	13.3	17	4.85	4.9	1.23	1.3
AUG													
13...	1230	9813	8.1	30	10.0	8.7	94	27.2	35	9.62	9.6	2.57	2.6

Date	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)
APR 2002													
24...	.0	10	10.8	46	<2	<.020	.22	<.040	.36	<.01	.015	.5	<4
JUN													
17...	.0	10	8.7	56	<2	<.020	.28	<.040	.37	.02	.012	.9	<4
AUG													
13...	.0	17	19.6	72	<2	<.020	<.04	<.040	.13	<.01	<.010	1.2	<4

Date	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002											
24...	<4	20	160	<1.0	<1.0	40	40	<4.0	<4.0	<5.0	<5.0
JUN											
17...	<4	30	170	<1.0	<1.0	20	40	<4.0	<4.0	<5.0	5.2
AUG											
13...	<4	<20	30	<1.0	<1.0	8.1	10	<4.0	<4.0	<5.0	5.5

WEST BRANCH SUSQUEHANNA RIVER BASIN

01545500 WEST BRANCH SUSQUEHANNA RIVER AT RENOVO, PA

LOCATION.--Lat 41°19'28", long 77°45'03", Clinton County, Hydrologic Unit 02050203, on right bank at abandoned Eighth Street bridge abutment at South Renovo, and 1.0 mi upstream from Paddy Run.

DRAINAGE AREA.--2,975 mi^2.

PERIOD OF RECORD.--October 1907 to current year. Gage height records collected July 1895 to December 1903 and October 1905 to September 1974 are contained in reports of U.S. Weather Bureau.

REVISED RECORDS.--WSP 756: Drainage area. WSP 1302: 1908-10, 1912-13, 1914-15(M). WSP 2103: 1968 (monthly mean). WDR PA-88-2: 1987.

GAGE.--Water-stage recorder. Datum of gage is 634.19 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 17, 1930, nonrecording gage at same site and datum.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known prior to 1895, 27.3 ft, June 1, 1889, from floodmark, discharge, about 211,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	802	1080	7800	e2200	9410	3290	11900	9720	4690	2220	788	370
2	716	997	7700	e2200	11800	3010	10500	9640	4750	1920	935	312
3	636	991	6080	e2100	10800	3450	8840	12000	4190	1780	763	291
4	608	1080	4880	e2100	9260	5000	7550	11300	3630	1680	695	268
5	602	1040	4300	2270	7540	5270	6840	9240	4240	1550	649	250
6	589	971	3330	2030	6170	5200	6390	7910	8020	1360	569	256
7	567	902	3090	1970	5360	4880	5750	7020	26000	1220	498	252
8	525	860	2880	1840	4880	4520	4850	6190	21100	1140	487	246
9	494	810	2560	1780	4340	4210	4690	6320	13500	1060	433	226
10	482	783	2580	1770	3920	3900	4660	11900	9700	1110	403	207
11	473	752	2470	1850	5530	3710	4280	11900	7890	1190	396	191
12	469	723	2250	1890	8060	3400	3950	11200	6280	1510	380	188
13	478	688	2110	2240	7950	3160	3900	31200	5700	1130	e360	190
14	460	651	2440	2280	6760	3060	4940	38000	5370	921	337	184
15	616	648	3430	2130	6020	2940	10800	35200	9720	845	355	210
16	924	645	4280	1920	5420	3030	e14000	25900	14500	782	342	602
17	1030	637	4580	1880	5120	4290	e14000	20000	11700	734	318	1320
18	991	608	13200	1790	4590	4730	10400	18700	8840	653	326	870
19	913	600	18300	1650	4020	4210	8350	21500	7070	680	317	668
20	791	595	12800	1380	3660	4590	7460	17900	5890	687	324	512
21	742	621	9400	1500	3780	6880	6870	13900	4700	731	298	429
22	710	666	7320	1630	4200	8980	5950	11400	4190	695	286	425
23	711	648	5980	1650	4050	7950	5440	9230	3620	696	299	462
24	1470	627	5380	1740	3810	7280	5030	7920	3230	759	442	418
25	3090	769	4990	3260	3480	6780	4550	6810	3010	915	617	337
26	2240	4240	4360	5600	3380	7190	4370	6150	2870	807	761	316
27	1780	4360	3810	5580	3610	25100	4000	5430	2650	743	804	519
28	1650	4080	3530	5090	3640	25400	4220	4740	3810	778	661	1790
29	1390	3790	3200	4770	---	16800	10000	4880	4170	891	511	2690
30	1230	4290	2890	5330	---	15400	11900	4900	2880	1020	443	1540
31	1170	---	2370	7230	---	13500	---	5080	---	938	430	---
TOTAL	29349	40152	164290	82650	160560	221110	216380	403180	217910	33145	15227	16539
MEAN	946.7	1338	5300	2666	5734	7133	7213	13010	7264	1069	491.2	551.3
MAX	3090	4360	18300	7230	11800	25400	14000	38000	26000	2220	935	2690
MIN	460	595	2110	1380	3380	2940	3900	4740	2650	653	286	184
CFSM	0.32	0.45	1.78	0.90	1.93	2.40	2.42	4.37	2.44	0.36	0.17	0.19
IN.	0.37	0.50	2.05	1.03	2.01	2.76	2.71	5.04	2.72	0.41	0.19	0.21

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1908 - 2002, BY WATER YEAR (WY)

MEAN	2166	3849	4977	5651	6232	10820	9864	7046	3935	2082	1379	1442
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	659	368	166	166
(WY)	1931	1931	1931	1931	1934	1969	1925	1941	1999	1965	1930	1908

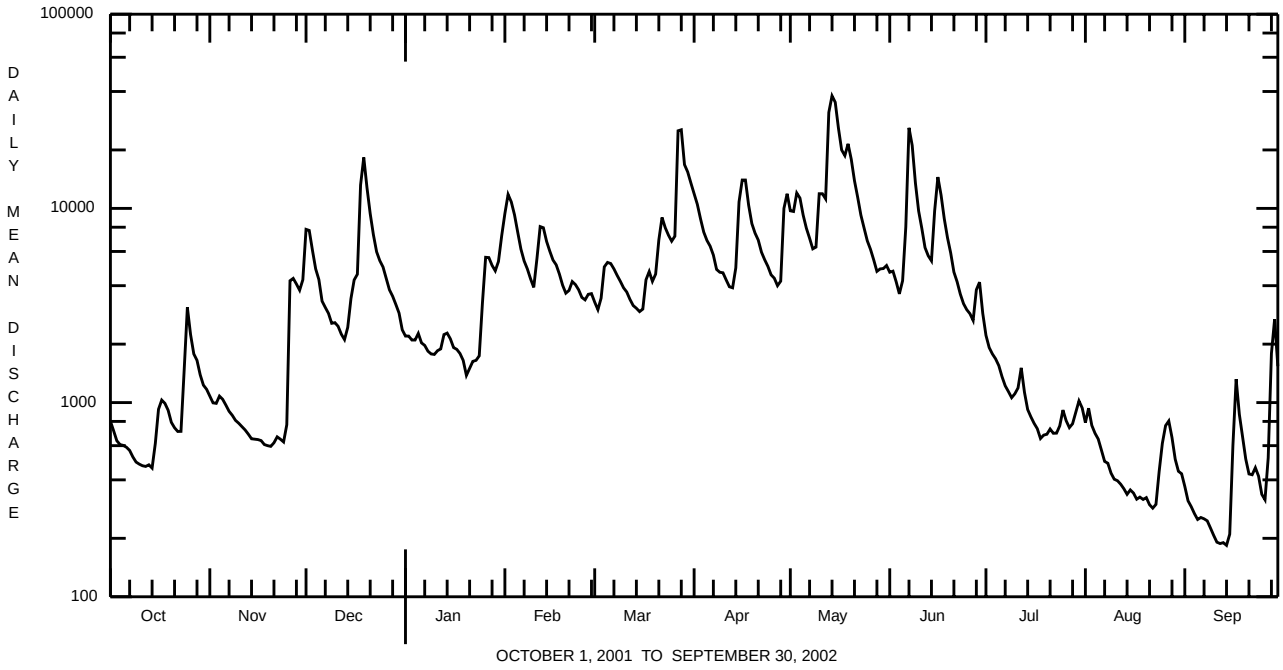
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

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

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1908 - 2002	
ANNUAL TOTAL	1157520		1600492			
ANNUAL MEAN	3171		4385		4946	
HIGHEST ANNUAL MEAN					7683	1951
LOWEST ANNUAL MEAN					2579	1934
HIGHEST DAILY MEAN	18300	Mar 23,Dec 19	38000	May 14	201000	Mar 18 1936
LOWEST DAILY MEAN	351	Sep 13	184	Sep 14	80	Dec 6 1908
ANNUAL SEVEN-DAY MINIMUM	406	Sep 8	199	Sep 9	104	Aug 29 1939
MAXIMUM PEAK FLOW			40100	May 14	**a**236000	Mar 18 1936
MAXIMUM PEAK STAGE			11.26	May 14	**b**29.39	Mar 18 1936
INSTANTANEOUS LOW FLOW					80	Dec 6 1908
ANNUAL RUNOFF (CFSM)	1.07		1.47		1.66	
ANNUAL RUNOFF (INCHES)	14.47		20.01		22.59	
10 PERCENT EXCEEDS	8550		10400		11700	
50 PERCENT EXCEEDS	1650		2890		2720	
90 PERCENT EXCEEDS	496		438		475	

a From rating curve extended above 87,000 ft^3/s on basis of slope-area measurement of peak flow.
b From floodmark in gage.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01545600 YOUNG WOMANS CREEK NEAR RENOVO, PA

LOCATION.--Lat 41°23'22", long 77°41'28", Clinton County, Hydrologic Unit 02050203, on left bank on SR 4005, 0.3 mi downstream from Laurelly Fork, 1.5 mi upstream from Left Branch Young Womans Creek, 3.7 mi upstream from mouth, and 5.0 mi northeast of Renovo.

DRAINAGE AREA.--46.2 mi^2.

PERIOD OF RECORD.--December 1964 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 780.41 ft above National Geodetic Vertical Datum of 1929.

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

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 460 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
May 14	0845	*604	*3.49	No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	36	177	e42	146	39	180	176	45	23	6.6	1.9
2	30	34	168	e42	180	36	153	202	40	21	7.3	2.0
3	26	35	142	e42	180	51	131	201	36	19	8.3	1.9
4	24	31	117	41	160	49	110	188	34	18	6.2	1.7
5	21	29	100	35	131	e50	96	165	34	16	5.8	1.5
6	20	27	88	33	110	50	88	142	81	15	6.3	1.4
7	19	26	78	33	96	50	78	123	95	15	4.6	1.3
8	17	25	70	29	85	49	70	105	82	14	4.2	1.2
9	16	24	67	28	73	48	71	105	74	14	3.8	1.1
10	16	23	59	29	76	51	73	102	66	14	3.5	1.0
11	15	22	52	29	120	47	64	89	58	13	3.1	1.0
12	15	21	49	27	116	45	63	127	52	11	2.9	1.1
13	15	19	56	26	117	44	72	376	47	11	2.7	1.2
14	18	19	66	25	109	43	99	590	63	10	2.5	1.2
15	43	18	89	24	101	42	357	474	94	9.5	2.4	8.1
16	28	18	95	23	94	46	354	343	97	8.8	2.7	40
17	40	17	115	24	86	42	282	267	97	7.9	2.4	9.6
18	35	16	194	23	74	43	224	267	88	7.6	2.2	5.2
19	32	16	219	21	65	43	183	245	76	7.5	2.1	3.6
20	32	17	197	22	61	58	154	227	65	10	2.1	3.1
21	30	15	162	23	63	80	126	195	55	7.5	1.9	2.9
22	30	15	131	22	55	89	108	161	49	6.6	2.0	3.9
23	31	15	111	21	50	97	92	133	44	13	2.7	19
24	56	14	101	29	46	99	79	112	42	13	4.6	8.1
25	51	43	87	38	43	95	77	95	40	8.3	3.5	5.5
26	53	58	75	39	45	177	68	81	35	8.1	2.7	4.6
27	52	54	68	41	46	372	60	69	35	7.8	2.3	55
28	47	54	62	45	42	332	106	62	35	15	2.2	66
29	43	66	56	51	---	276	184	56	28	15	2.4	33
30	40	97	49	77	---	238	190	52	25	9.9	2.4	23
31	37	---	44	100	---	204	---	50	---	7.6	2.1	---
TOTAL	966	904	3144	1084	2570	2985	3992	5580	1712	377.1	110.5	310.1
MEAN	31.16	30.13	101.4	34.97	91.79	96.29	133.1	180.0	57.07	12.16	3.565	10.34
MAX	56	97	219	100	180	372	357	590	97	23	8.3	66
MIN	15	14	44	21	42	36	60	50	25	6.6	1.9	1.0
CFSM	0.67	0.65	2.20	0.76	1.99	2.08	2.88	3.90	1.24	0.26	0.08	0.22
IN.	0.78	0.73	2.53	0.87	2.07	2.40	3.21	4.49	1.38	0.30	0.09	0.25

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 2002, BY WATER YEAR (WY)

MEAN	38.06	73.69	81.24	64.93	88.50	134.9	159.7	97.15	59.36	32.80	21.39	23.18
MAX	181	211	194	164	250	349	447	204	303	162	244	211
(WY)	1991	1997	1973	1996	1984	1979	1993	1996	1972	1992	1994	1975
MIN	4.05	4.65	8.63	8.25	19.6	44.7	60.9	31.8	9.09	4.64	2.47	2.17
(WY)	1983	1999	1999	1981	1987	1969	1988	1999	1991	1966	1999	1998

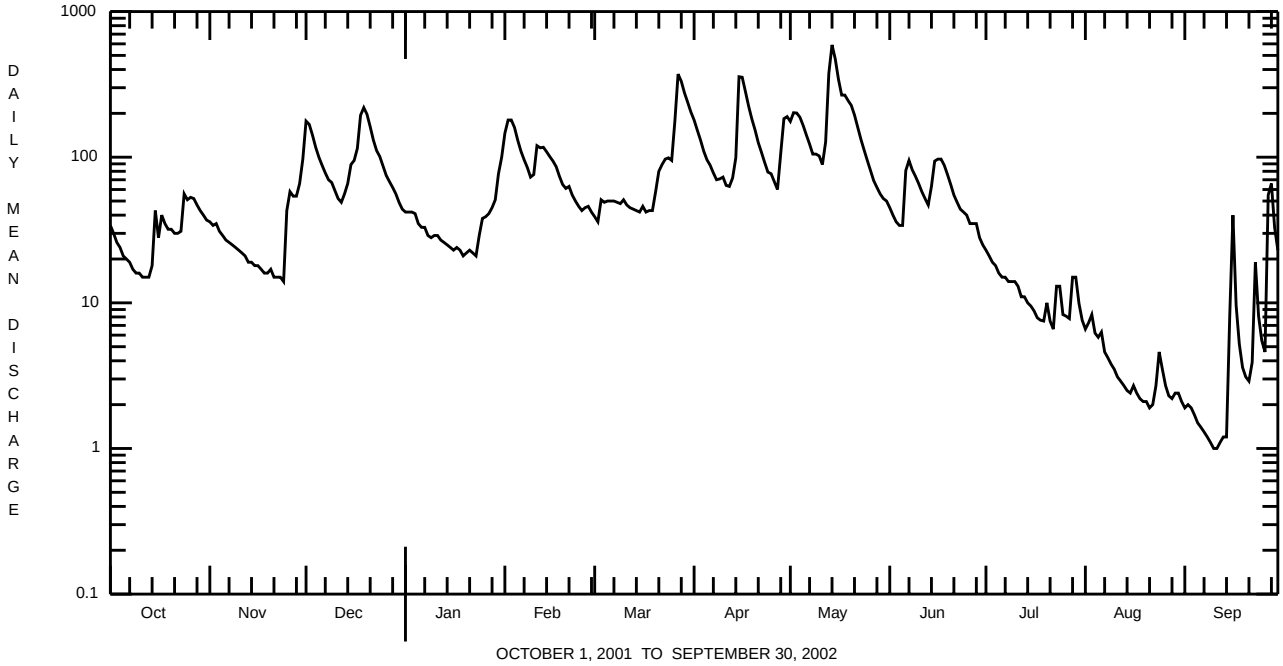
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01545600 YOUNG WOMANS CREEK NEAR RENOVO, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1965 - 2002	
ANNUAL TOTAL	17213.3		23734.7			
ANNUAL MEAN	47.2		65.0		73.3	
HIGHEST ANNUAL MEAN					118	1994
LOWEST ANNUAL MEAN					37.4	2001
HIGHEST DAILY MEAN	298	Apr 9	590	May 14	3310	Jun 23 1972
LOWEST DAILY MEAN	2.2	Aug 9,15	1.0	Sep 10,11	0.53	Sep 4 1999
ANNUAL SEVEN-DAY MINIMUM	3.4	Aug 3	1.1	Sep 8	0.92	Aug 30 1999
MAXIMUM PEAK FLOW			604	May 14	**a**5370	Jun 23 1972
MAXIMUM PEAK STAGE			3.49	May 14	7.98	Jun 23 1972
ANNUAL RUNOFF (CFSM)	1.02		1.41		1.59	
ANNUAL RUNOFF (INCHES)	13.86		19.11		21.56	
10 PERCENT EXCEEDS	121		161		170	
50 PERCENT EXCEEDS	28		43		41	
90 PERCENT EXCEEDS	6.7		3.5		6.2	

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



WEST BRANCH SUSQUEHANNA RIVER BASIN

01546400 SPRING CREEK AT HOUSERVILLE, PA

LOCATION.--Lat 40°50'01", long 77°49'40", Centre County, Hydrologic Unit 02050204, on right bank 15 ft upstream from bridge on Township Route 365, 0.7 mi north of Houserville, 1.3 mi downstream from Slab Cabin Run, and 3.3 mi northeast of State College.

DRAINAGE AREA.--58.5 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 926.63 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records 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 400 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 26	1645	469	5.54	June 6	2115	*795	*6.98
May 13	1400	566	5.98	June 27	1915	467	5.53
June 5	0245	621	6.23				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	19	29	21	32	28	102	60	80	69	31	21
2	22	19	25	20	29	29	86	79	71	66	30	22
3	21	18	25	20	28	40	79	65	66	62	31	22
4	20	18	23	20	28	29	73	61	97	58	31	23
5	20	18	23	20	27	27	68	60	262	55	34	22
6	20	18	22	21	27	27	65	60	369	53	e32	20
7	19	17	21	21	27	27	63	60	550	52	e30	20
8	20	17	23	20	27	27	62	57	313	51	e29	20
9	19	17	25	20	26	27	66	84	232	53	e27	20
10	19	16	23	22	39	30	63	68	185	50	e28	20
11	19	16	22	22	51	28	57	59	174	49	e28	19
12	18	16	21	22	40	27	55	82	173	45	e32	21
13	18	16	22	22	40	27	63	279	154	44	35	21
14	29	15	23	21	38	27	81	295	163	43	28	21
15	29	15	22	21	37	27	86	227	223	42	26	25
16	29	15	21	22	36	36	68	174	154	40	25	24
17	25	15	28	22	35	29	65	147	127	38	25	23
18	22	15	34	21	33	40	64	299	113	38	24	21
19	21	15	29	21	32	36	63	210	102	48	23	21
20	20	14	29	21	32	58	66	178	93	38	23	21
21	19	14	28	21	33	60	62	153	87	36	22	21
22	19	14	27	21	31	57	61	131	83	35	31	39
23	19	14	26	21	29	54	57	114	78	39	31	37
24	25	14	27	24	28	52	53	102	75	36	32	29
25	20	46	25	26	29	50	55	92	75	34	26	27
26	19	24	25	26	32	212	53	84	70	34	24	34
27	19	21	23	27	31	271	51	77	145	35	23	71
28	18	21	23	27	29	177	70	78	109	33	23	36
29	18	21	22	27	---	142	67	82	79	32	23	30
30	18	40	21	29	---	119	62	98	72	33	22	28
31	18	---	21	31	---	106	---	105	---	32	21	---
TOTAL	645	558	758	700	906	1926	1986	3720	4574	1373	850	779
MEAN	20.8	18.6	24.5	22.6	32.4	62.1	66.2	120	152	44.3	27.4	26.0
MAX	29	46	34	31	51	271	102	299	550	69	35	71
MIN	18	14	21	20	26	27	51	57	66	32	21	19
CFSM	0.36	0.32	0.42	0.39	0.55	1.06	1.13	2.05	2.61	0.76	0.47	0.44
IN.	0.41	0.35	0.48	0.45	0.58	1.22	1.26	2.37	2.91	0.87	0.54	0.50

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 2002, BY WATER YEAR (WY)

MEAN	41.8	51.1	66.7	68.3	71.8	108	118	80.9	61.7	42.4	34.4	37.8
MAX	210	142	240	191	151	263	404	161	152	94.1	59.8	192
(WY)	1997	1997	1997	1996	1998	1994	1993	1998	2002	1989	1994	1996
MIN	18.2	18.6	15.0	22.6	32.2	54.0	49.8	46.2	31.0	24.2	22.1	18.1
(WY)	1993	2002	1999	2002	1992	1990	1995	2001	1999	1999	1995	1995

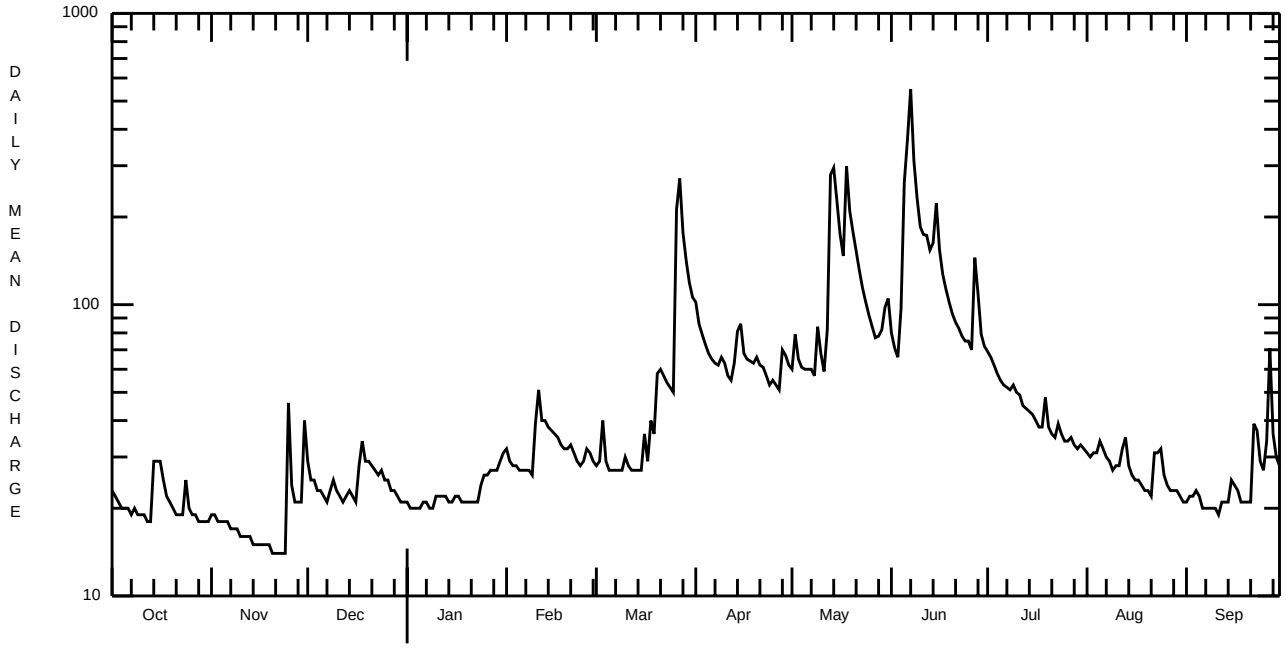
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01546400 SPRING CREEK AT HOUSERVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1985 - 2002	
ANNUAL TOTAL	13833		18775			
ANNUAL MEAN	37.9		51.4		65.5	
HIGHEST ANNUAL MEAN					105	1998
LOWEST ANNUAL MEAN					38.9	2001
HIGHEST DAILY MEAN	177	Apr 16	550	Jun 7	1130	Jan 19 1996
LOWEST DAILY MEAN	14	Nov 20-24	14	Nov 20-24	13	Dec 31 1998**a**
ANNUAL SEVEN-DAY MINIMUM	14	Nov 18	14	Nov 18	**b**13	Jan 5 1999
MAXIMUM PEAK FLOW			795	Jun 6	2370	Jan 19 1996
MAXIMUM PEAK STAGE			6.98	Jun 6	10.05	Jan 19 1996
ANNUAL RUNOFF (CFSM)	0.65		0.88		1.12	
ANNUAL RUNOFF (INCHES)	8.80		11.94		15.22	
10 PERCENT EXCEEDS	80		102		120	
50 PERCENT EXCEEDS	28		29		46	
90 PERCENT EXCEEDS	19		19		21	

a Also Jan. 1, 5-8, 10, 11, 1999.
b Computed using estimated daily discharges.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

WEST BRANCH SUSQUEHANNA RIVER BASIN

01546500 SPRING CREEK NEAR AXEMANN, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 40°53'23", long 77°47'40", Centre County, Hydrologic Unit 02050204, on right bank at upstream side of bridge on SR 3001, 1.6 mi west of Axemann, 1.8 mi southwest of Bellefonte, and 2.5 mi upstream from Logan Branch.

DRAINAGE AREA.--87.2 mi^2.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 788.81 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 19, 1940, nonrecording gage at same site and datum. Nonrecording gage Mar. 6 to Sept. 30, 1995.

REMARKS.--No estimated daily discharges. Records good. Occasional regulation at low flow by fish hatchery and Rockview Penitentiary. Several measurements of water temperature were made during the year. Satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 1936 reached a stage of 8.6 ft, from information by local residents, discharge not determined.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
May 13	1645	569	3.70	June 7	0015	*905	*4.23
June 5	0515	631	3.81				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	38	58	39	53	48	133	80	126	100	53	38
2	40	41	47	39	51	46	115	100	110	99	52	38
3	38	39	45	39	51	59	106	88	103	95	50	39
4	37	38	44	39	51	48	100	80	102	87	49	40
5	37	38	43	38	50	45	93	79	318	80	49	39
6	36	36	42	40	49	45	89	79	345	78	50	37
7	35	36	41	42	49	45	86	80	661	76	47	36
8	35	36	42	39	49	45	83	76	363	75	46	36
9	35	35	48	38	47	45	85	96	283	77	44	36
10	34	35	45	42	51	50	86	100	237	76	44	36
11	34	35	43	44	83	50	77	80	209	74	44	35
12	33	35	41	42	63	50	73	96	191	69	46	35
13	34	35	43	43	62	49	79	274	175	68	79	36
14	36	35	43	42	60	49	91	361	179	67	50	37
15	62	35	42	41	59	49	123	287	230	66	46	39
16	45	35	40	41	58	63	93	229	178	64	45	38
17	51	35	45	41	56	54	89	199	153	63	43	35
18	42	34	61	40	55	64	88	333	141	62	43	34
19	38	35	52	40	53	61	88	267	129	70	42	33
20	38	34	52	40	52	81	90	232	121	64	41	33
21	37	33	50	40	54	91	85	207	115	60	42	32
22	38	32	48	39	51	87	83	183	111	59	42	34
23	38	32	47	38	49	83	78	164	108	63	64	65
24	45	32	49	42	48	79	73	151	107	61	55	34
25	40	65	45	46	48	77	74	139	105	57	48	32
26	39	49	44	46	50	184	71	130	102	57	44	32
27	40	40	44	47	51	313	68	122	147	59	43	85
28	39	39	43	48	49	208	82	116	149	58	41	58
29	39	43	42	47	---	172	92	125	110	56	40	40
30	39	54	40	49	---	149	80	123	103	57	40	37
31	38	---	40	53	---	132	---	153	---	55	39	---
TOTAL	1214	1139	1409	1304	1502	2621	2653	4829	5511	2152	1461	1179
MEAN	39.16	37.97	45.45	42.06	53.64	84.55	88.43	155.8	183.7	69.42	47.13	39.30
MAX	62	65	61	53	83	313	133	361	661	100	79	85
MIN	33	32	40	38	47	45	68	76	102	55	39	32
CFSM	0.45	0.44	0.52	0.48	0.62	0.97	1.01	1.79	2.11	0.80	0.54	0.45
IN.	0.52	0.49	0.60	0.56	0.64	1.12	1.13	2.06	2.35	0.92	0.62	0.50

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2002, BY WATER YEAR (WY)

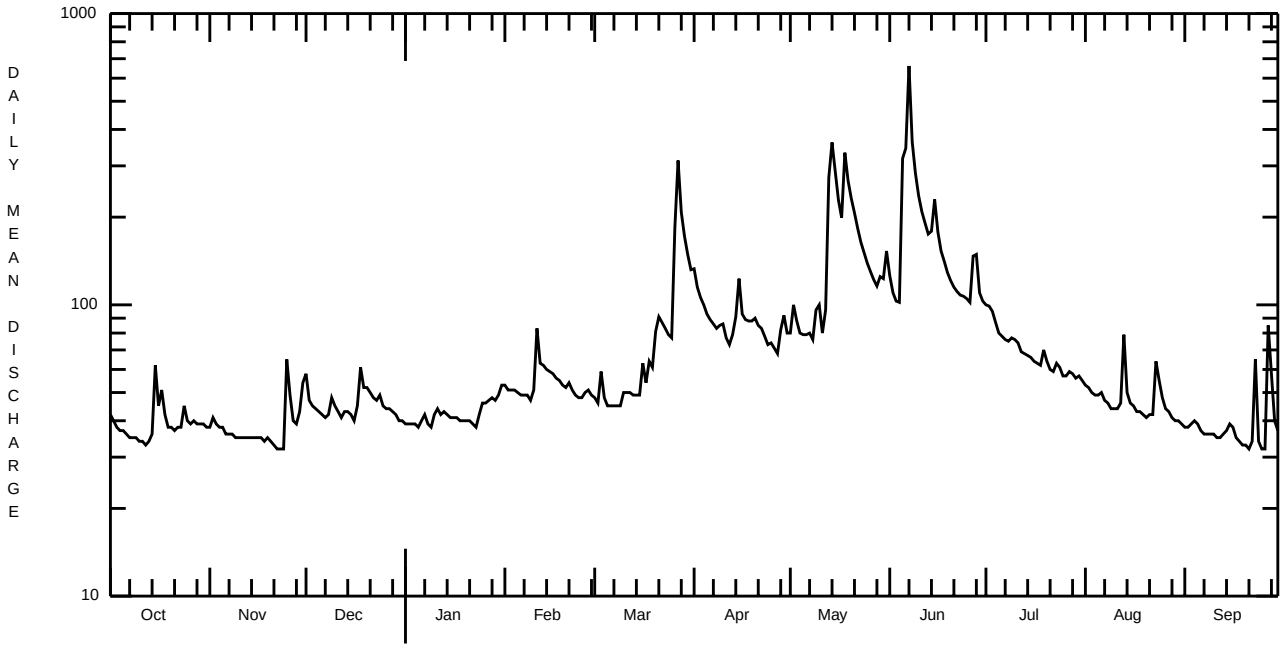
MEAN	59.54	68.88	83.41	91.10	107.7	147.9	154.1	121.0	98.42	70.69	60.07	57.06
MAX	216	206	251	224	257	335	475	257	369	216	137	208
(WY)	1997	1978	1997	1996	1984	1994	1993	1978	1972	1972	1984	1996
MIN	26.1	26.0	22.8	23.3	38.1	36.5	49.6	50.5	41.1	28.0	24.4	24.9
(WY)	1964	1966	1966	1966	1963	1969	1969	1969	1965	1965	1966	1965

WEST BRANCH SUSQUEHANNA RIVER BASIN

01546500 SPRING CREEK NEAR AXEMANN, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1941 - 2002	
ANNUAL TOTAL	22421		26974			
ANNUAL MEAN	61.4		73.9		93.2	
HIGHEST ANNUAL MEAN					161	1978
LOWEST ANNUAL MEAN					43.5	1965
HIGHEST DAILY MEAN	212	Apr 16	661	Jun 7	2910	Jun 23 1972
LOWEST DAILY MEAN	32	Nov 22-24	32	Nov 22-24**a**	20	Dec 20-30 1963**b**
ANNUAL SEVEN-DAY MINIMUM	33	Nov 18	33	Nov 18	21	Jan 28 1966
MAXIMUM PEAK FLOW			905	Jun 7	**c**5410	Jun 23 1972
MAXIMUM PEAK STAGE			4.23	Jun 7	**d**7.47	Jun 23 1972
ANNUAL RUNOFF (CFSM)	0.70		0.85		1.07	
ANNUAL RUNOFF (INCHES)	9.56		11.51		14.52	
10 PERCENT EXCEEDS	112		132		165	
50 PERCENT EXCEEDS	51		50		72	
90 PERCENT EXCEEDS	38		36		40	

a Also Sept. 21, 25, 26.
b Also Jan 28, 29, 31, 1966.
c From rating curve extended above 1,400 ft^3/s on basis of contracted-opening measurement of peak flow.
d In gage; 8.75 ft from outside floodmark.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

WEST BRANCH SUSQUEHANNA RIVER BASIN

01546500 SPRING CREEK NEAR AXEMANN, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
APR 2002													
17...	1130	9813	86	30	10.8	8.2	490	16.2	230	59.4	20.6	176	24.5
JUN													
26...	1100	9813	100	30	10.4	8.0	549	17.1	270	66.3	24.5	202	23.2
AUG													
14...	0820	9813	48	30	7.8	7.8	534	18.4	260	63.6	24.0	184	25.6

Date	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
APR 2002													
17...	356	20	.040	3.59	.060	4.1	.03	.040	2.1	<10	250	<1.0	10
JUN													
26...	354	<2	.040	4.14	<.040	4.2	.02	.030	1.5	<10	390	<1.0	<10
AUG													
14...	350	10	.060	3.96	.090	4.7	.02	.030	2.5	<10	120	<1.0	<10

Date	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002		
17...	<50	<10
JUN		
26...	<50	<10
AUG		
14...	<50	<10

WEST BRANCH SUSQUEHANNA RIVER BASIN

01547100 SPRING CREEK AT MILESBURG, PA

LOCATION.--Lat 40°55'54", long 77°47'13", Centre County, Hydrologic Unit 02050204, on left bank 60 ft downstream from privately-owned bridge, 400 ft west of State Highway 144, and 0.8 mi upstream from mouth and Milesburg.

DRAINAGE AREA.--142 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 696.42 ft above National Geodetic Vertical Datum of 1929.

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

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

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
May 13	1830	963	5.46	June 7	0145	*1,400	*6.33

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	118	108	144	112	140	126	287	189	e260	203	143	119
2	117	111	121	112	138	126	254	230	e240	200	139	119
3	114	108	119	111	136	143	238	216	e230	191	137	119
4	113	106	116	111	137	130	226	204	e220	186	136	119
5	111	106	114	111	134	123	216	199	e510	181	136	118
6	110	104	116	114	132	124	209	196	674	178	136	116
7	109	104	114	119	131	122	201	193	1090	175	136	115
8	109	104	116	113	130	123	195	186	661	173	132	114
9	109	104	121	115	128	123	193	247	517	178	126	115
10	109	103	117	122	136	125	194	250	441	171	126	116
11	110	104	114	121	184	123	184	216	391	165	126	e110
12	109	103	112	121	157	124	177	244	364	160	129	e110
13	108	103	114	120	156	122	185	569	337	157	146	e110
14	119	103	116	120	152	121	212	766	348	157	127	e110
15	143	104	114	118	150	121	268	618	436	156	125	e120
16	127	104	112	117	147	165	232	494	361	152	124	121
17	133	103	121	117	146	145	224	421	322	148	122	115
18	118	103	151	114	141	152	218	615	299	148	121	112
19	114	103	137	114	139	153	214	536	278	156	122	110
20	112	102	136	114	138	181	214	469	258	160	121	111
21	112	100	133	114	140	208	207	419	243	154	120	112
22	113	99	126	114	135	204	206	383	237	151	120	e120
23	113	100	125	112	132	197	193	349	234	159	e140	e140
24	124	99	127	116	129	191	180	317	226	155	137	117
25	115	145	122	124	129	186	185	302	e210	151	130	113
26	110	129	120	120	131	369	181	283	e200	152	126	120
27	112	112	120	122	132	652	176	e260	248	152	124	180
28	110	111	119	123	128	472	198	e250	296	150	122	151
29	109	115	117	124	---	383	213	e250	219	146	120	127
30	109	124	115	130	---	332	191	e260	208	147	120	124
31	109	---	114	138	---	294	---	314	---	143	119	---
TOTAL	3548	3224	3763	3653	3908	6160	6271	10445	10558	5055	3988	3603
MEAN	114	107	121	118	140	199	209	337	352	163	129	120
MAX	143	145	151	138	184	652	287	766	1090	203	146	180
MIN	108	99	112	111	128	121	176	186	200	143	119	110
CFSM	0.81	0.76	0.85	0.83	0.98	1.40	1.47	2.37	2.48	1.15	0.91	0.85
IN.	0.93	0.84	0.99	0.96	1.02	1.61	1.64	2.74	2.77	1.32	1.04	0.94

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2002, BY WATER YEAR (WY)

MEAN	172	189	220	224	262	326	336	265	239	188	166	160
MAX	411	421	486	455	500	617	825	507	729	434	357	388
(WY)	1997	1978	1997	1996	1984	1994	1993	1978	1972	1972	1984	1996
MIN	102	107	121	118	128	104	149	147	123	118	110	108
(WY)	1970	2002	2002	2002	1969	1969	1969	1969	1969	1969	1968	1969

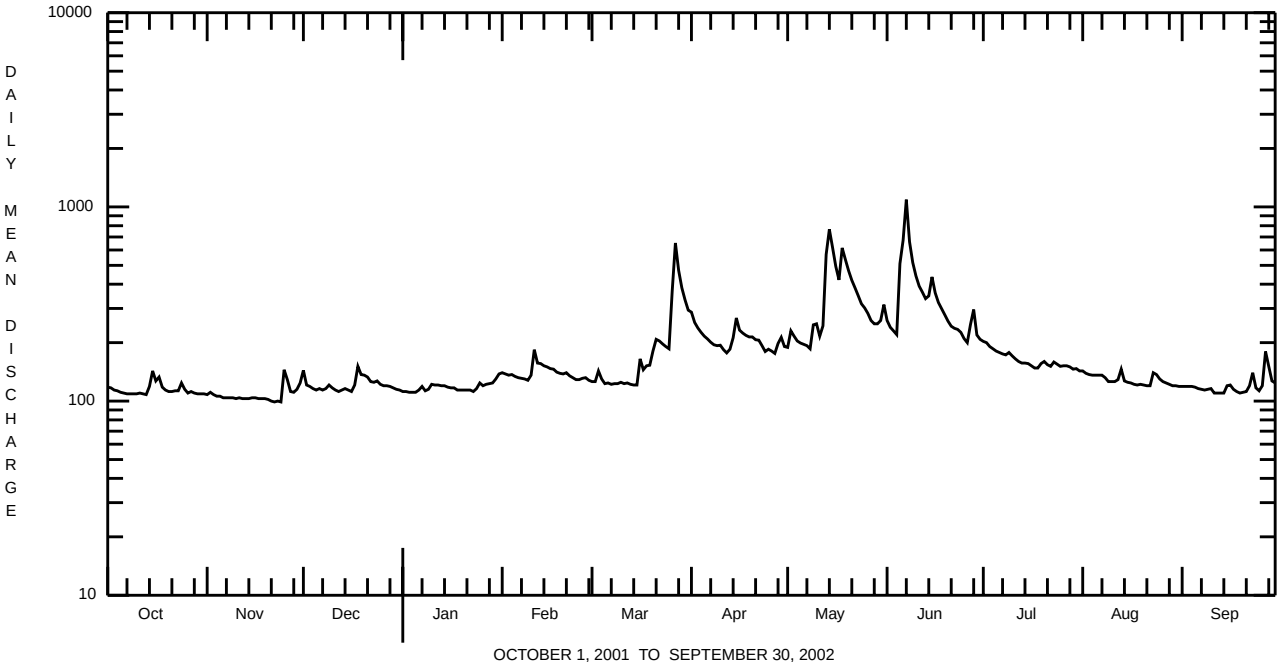
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01547100 SPRING CREEK AT MILESBURG, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1967 - 2002	
ANNUAL TOTAL	57090		64176			
ANNUAL MEAN	156		176		229	
HIGHEST ANNUAL MEAN					350	1978
LOWEST ANNUAL MEAN					128	1969
HIGHEST DAILY MEAN	422	Apr 16	1090	Jun 7	6000	Jun 23 1972
LOWEST DAILY MEAN	99	Nov 22,24	99	Nov 22,24	82	Mar 24 1969
ANNUAL SEVEN-DAY MINIMUM	101	Nov 18	101	Nov 18	87	Mar 18 1969
MAXIMUM PEAK FLOW			**a**1400	Jun 7	**a**8170	Jun 23 1972
MAXIMUM PEAK STAGE			6.33	Jun 7	**b**13.20	Jun 23 1972
ANNUAL RUNOFF (CFSM)	1.10		1.24		1.61	
ANNUAL RUNOFF (INCHES)	14.96		16.81		21.90	
10 PERCENT EXCEEDS	258		285		363	
50 PERCENT EXCEEDS	133		132		187	
90 PERCENT EXCEEDS	111		110		127	

a From rating curve extended above 900 ft^3/s on basis of flow-over-dam measurement of peak flow.
b From peak-stage indicator.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01547200 BALD EAGLE CREEK BELOW SPRING CREEK AT MILESBURG, PA

LOCATION.--Lat 40°56'35", long 77°47'12", Centre County, Hydrologic Unit 02050204, on right bank 130 ft downstream from bridge on State Highway 144 at Milesburg, and 250 ft downstream from Spring Creek.

DRAINAGE AREA.--265 mi^2.

PERIOD OF RECORD.--October 1955 to current year. Prior to October 1967, published as North Bald Eagle Creek below Spring Creek at Milesburg.

GAGE.--Water-stage recorder. Datum of gage is 682.49 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 31, 1956, nonrecording gage at site 130 ft upstream at same datum.

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

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

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 26	2130	*5,840	*6.21	June 6	2330	5,760	6.16
May 13	2000	3,560	4.63				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	123	115	384	147	469	181	571	473	501	263	149	124
2	122	117	271	145	434	183	475	774	402	254	e140	124
3	118	115	225	139	379	294	423	681	357	237	142	124
4	117	112	201	139	345	260	380	548	349	228	139	122
5	114	111	187	139	291	219	349	467	1500	218	139	122
6	112	109	179	138	267	240	332	411	2770	211	139	119
7	110	108	173	146	250	232	312	e390	3180	207	140	118
8	110	108	165	143	236	223	297	e350	1410	204	135	116
9	110	107	165	141	219	215	291	1040	932	209	129	117
10	111	107	195	168	262	221	289	1130	715	209	128	117
11	112	107	190	253	769	207	264	753	591	195	127	115
12	112	107	179	251	523	201	248	777	535	186	132	114
13	111	107	178	230	435	197	271	2230	475	183	158	114
14	124	106	199	206	356	195	431	2360	589	182	137	115
15	218	107	239	198	320	190	846	1570	1130	180	132	121
16	163	107	217	189	298	632	580	1080	780	174	132	122
17	169	107	245	180	279	464	482	826	602	170	130	116
18	144	106	598	171	250	494	425	1550	507	e170	128	115
19	131	106	391	150	232	476	392	1170	436	e170	e130	114
20	125	e110	319	167	226	889	394	924	384	176	e130	114
21	122	e110	277	165	236	1130	369	753	347	166	e130	114
22	121	e100	238	166	223	745	360	634	325	162	125	125
23	121	e100	220	163	208	569	331	545	311	167	151	160
24	138	e100	215	197	197	475	295	477	293	171	147	131
25	136	e220	206	265	192	417	296	434	296	163	139	122
26	124	317	180	229	195	2170	286	396	269	163	133	127
27	122	221	175	220	206	2940	266	365	357	167	130	212
28	119	194	177	217	191	1300	410	356	525	163	128	211
29	118	187	167	216	---	903	536	361	316	e160	127	154
30	116	247	147	266	---	716	463	447	280	155	126	140
31	116	---	146	361	---	586	---	676	---	150	124	---
TOTAL	3909	3975	7048	5905	8488	18164	11664	24948	21464	5813	4176	3859
MEAN	126.1	132.5	227.4	190.5	303.1	585.9	388.8	804.8	715.5	187.5	134.7	128.6
MAX	218	317	598	361	769	2940	846	2360	3180	263	158	212
MIN	110	100	146	138	191	181	248	350	269	150	124	114
CFSM	0.48	0.50	0.86	0.72	1.14	2.21	1.47	3.04	2.70	0.71	0.51	0.49
IN.	0.55	0.56	0.99	0.83	1.19	2.55	1.64	3.50	3.01	0.82	0.59	0.54

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 2002, BY WATER YEAR (WY)

MEAN	253.6	327.7	395.5	376.8	523.4	753.9	699.5	497.2	358.5	241.6	210.6	208.1
MAX	950	811	1035	1049	1227	1489	2001	1162	1689	804	643	986
(WY)	1977	1978	1997	1996	1984	1994	1993	1978	1972	1972	1956	1996
MIN	89.8	94.3	103	141	147	255	276	235	131	102	101	84.3
(WY)	1964	1965	1966	1981	1963	1969	1968	2001	1965	1965	1965	1965

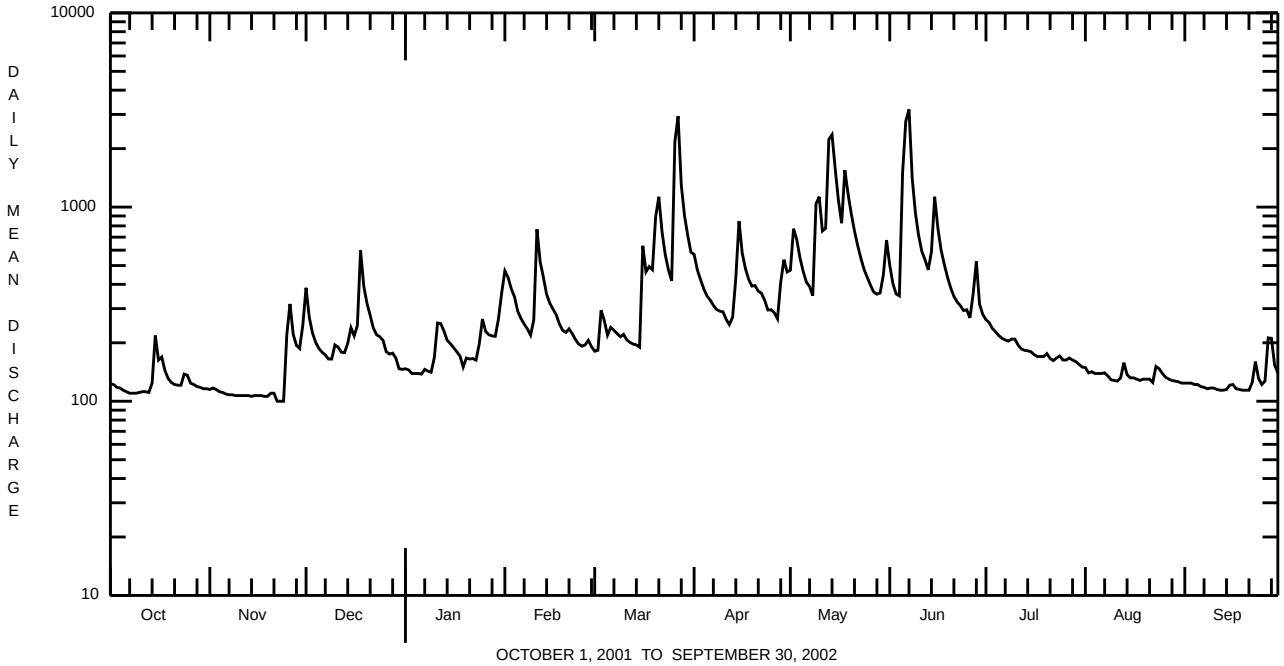
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

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

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1956 - 2002	
ANNUAL TOTAL	91234		119413			
ANNUAL MEAN	250		327		403	
HIGHEST ANNUAL MEAN					638	1978
LOWEST ANNUAL MEAN					213	1965
HIGHEST DAILY MEAN	1660	Mar 22	3180	Jun 7	15000	Jun 23 1972
LOWEST DAILY MEAN	**e**100	Nov 22-24	**e**100	Nov 22-24	79	Sep 11 1965
ANNUAL SEVEN-DAY MINIMUM	**a**105	Nov 18	**a**105	Nov 18	80	Sep 17 1965
MAXIMUM PEAK FLOW			5840	Mar 26	**b**21300	Jun 23 1972
MAXIMUM PEAK STAGE			6.21	Mar 26	**c**11.67	Jun 23 1972
ANNUAL RUNOFF (CFSM)	0.94		1.23		1.52	
ANNUAL RUNOFF (INCHES)	12.81		16.76		20.66	
10 PERCENT EXCEEDS	534		614		784	
50 PERCENT EXCEEDS	167		201		258	
90 PERCENT EXCEEDS	112		115		133	

a Computed using estimated daily discharges.
b From rating curve extended above 9,000 ft^3/s.
c From floodmark in gage.
e Estimated.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01547500 BALD EAGLE CREEK AT BLANCHARD, PA

LOCATION.--Lat 41°03'06", long 77°36'17", Centre County, Hydrologic Unit 02050204, on left bank 0.4 mi downstream from Foster Joseph Sayers Dam, 0.7 mi upstream from Marsh Creek, and 0.9 mi south of Blanchard.

DRAINAGE AREA.--339 mi^2.

PERIOD OF RECORD.--May 1954 to current year. Prior to October 1967, published as North Bald Eagle Creek at Blanchard.

REVISED RECORDS.--WSP 1903: 1956(M).

GAGE.--Water-stage recorder. Datum of gage is 579.79 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since March 1971 by Foster Joseph Sayers Dam (station 01547480). Several measurements of water temperature were made during the year. Satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	143	192	315	143	606	429	715	559	743	256	159	129
2	145	192	314	150	584	475	623	825	515	228	160	129
3	146	192	465	152	474	506	517	812	418	228	160	129
4	146	192	547	151	432	636	340	639	402	228	160	129
5	146	192	444	146	372	531	210	545	1370	228	160	129
6	146	247	385	147	340	446	150	506	1530	228	159	129
7	146	276	319	146	315	444	150	472	1300	228	158	129
8	144	276	231	146	263	312	150	399	2320	228	157	129
9	143	276	193	146	243	237	151	1010	2800	226	157	129
10	143	276	189	168	271	235	254	1540	3000	220	157	129
11	143	276	189	287	806	215	269	1050	1930	220	158	129
12	143	276	189	335	831	203	195	737	750	220	158	129
13	143	275	189	258	593	203	196	15	574	220	157	129
14	144	272	189	195	534	204	196	494	584	204	157	129
15	143	272	189	194	650	205	268	1480	1290	192	157	129
16	143	272	189	195	710	208	272	2220	1190	172	157	129
17	141	272	292	208	707	211	213	2400	890	160	157	129
18	140	272	501	239	650	473	216	1920	685	160	157	129
19	141	238	601	212	602	686	220	2650	528	160	157	129
20	140	218	552	195	597	671	219	2710	435	160	157	129
21	140	218	321	194	592	958	343	1990	371	160	157	129
22	175	218	243	192	588	1050	475	1120	371	160	160	129
23	196	218	222	192	583	793	408	645	377	160	160	129
24	196	218	202	192	556	549	328	589	377	160	160	129
25	194	217	189	224	475	518	304	468	360	160	160	129
26	194	347	189	281	438	488	323	411	324	160	160	129
27	195	352	185	281	435	766	324	411	324	160	160	129
28	196	314	185	281	432	1520	406	446	560	160	160	129
29	194	314	155	265	---	1570	653	666	436	160	160	129
30	193	314	140	272	---	1400	616	601	275	159	139	129
31	193	---	141	418	---	935	---	1530	---	159	129	---
TOTAL	4935	7684	8654	6605	14679	18077	9704	31860	27029	5924	4864	3870
MEAN	159	256	279	213	524	583	323	1028	901	191	157	129
MAX	196	352	601	418	831	1570	715	2710	3000	256	160	129
MIN	140	192	140	143	243	203	150	15	275	159	129	129

WEST BRANCH SUSQUEHANNA RIVER BASIN

01547500 BALD EAGLE CREEK AT BLANCHARD, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 2002, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	398	559	555	507	657	716	675	573	450	315	257	303
MAX	1012	1291	1211	1213	1450	1664	2095	1328	1184	1580	867	1096
(WY)	1980	1978	1997	1996	1984	1979	1993	1978	1972	1972	1984	1996
MIN	159	188	160	133	275	238	208	203	167	139	140	120
(WY)	2002	1988	1999	1981	1993	1990	1976	1995	1999	1999	1995	1995

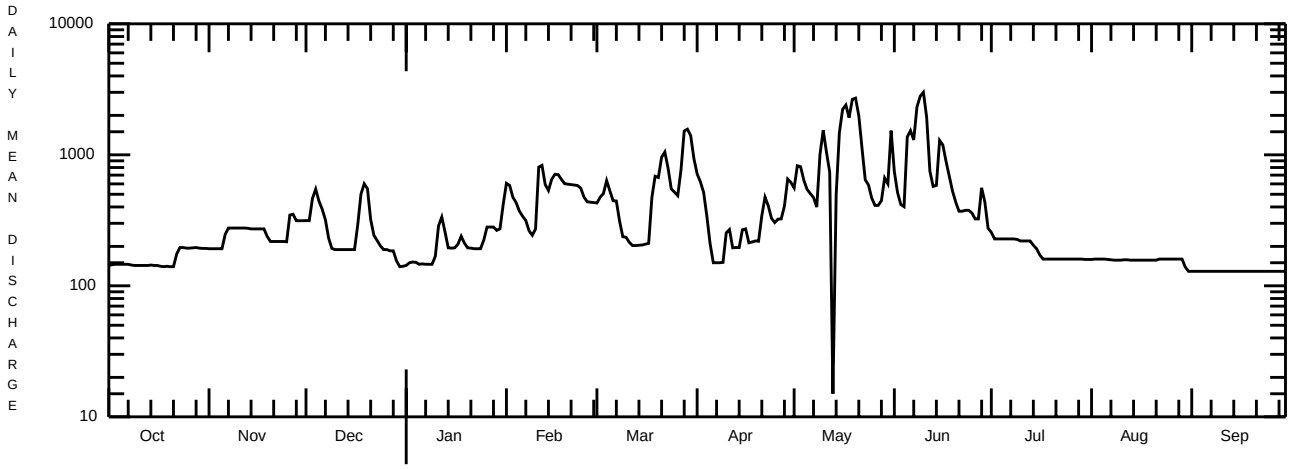
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1971 - 2002	
ANNUAL TOTAL	107877		143885			
ANNUAL MEAN	296		394		496	
HIGHEST ANNUAL MEAN					764	1978
LOWEST ANNUAL MEAN					300	2001
HIGHEST DAILY MEAN	1400	Feb 17	3000	Jun 10	4730	Jun 29 1972
LOWEST DAILY MEAN	140	Oct 18**a**	15	May 13	5.3	Mar 29 1993**b**
ANNUAL SEVEN-DAY MINIMUM	141	Oct 15	129	Aug 31	71	Apr 20 1971
MAXIMUM PEAK FLOW			3080	Jun 10	**c**4890	Jun 28 1972
MAXIMUM PEAK STAGE			7.16	Jun 10	9.37	Jun 28 1972
INSTANTANEOUS LOW FLOW					**d**0.00	May 12 1976
10 PERCENT EXCEEDS	642		739		1030	
50 PERCENT EXCEEDS	192		224		322	
90 PERCENT EXCEEDS	147		140		160	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1970, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	224	287	330	318	506	855	797	547	289	212	201	178
MAX	534	557	686	547	909	1376	1392	1053	561	478	623	437
(WY)	1956	1960	1957	1960	1956	1964	1957	1960	1968	1956	1956	1956
MIN	105	102	109	161	158	304	318	289	137	105	100	99.8
(WY)	1965	1965	1966	1966	1963	1969	1968	1955	1965	1965	1966	1965

SUMMARY STATISTICS	WATER YEARS 1954 - 1970	
ANNUAL MEAN	395	
HIGHEST ANNUAL MEAN	555	1956
LOWEST ANNUAL MEAN	247	1965
HIGHEST DAILY MEAN	7010	Mar 10 1964
LOWEST DAILY MEAN	90	Sep 11,13 1966
ANNUAL SEVEN-DAY MINIMUM	93	Sep 7 1966
MAXIMUM PEAK FLOW	**c**10100	Mar 10 1964
MAXIMUM PEAK STAGE	11.59	Mar 10 1964
INSTANTANEOUS LOW FLOW	.00	Jun 16 1970**d**
ANNUAL RUNOFF (CFSM)	1.16	
ANNUAL RUNOFF (INCHES)	15.82	
10 PERCENT EXCEEDS	834	
50 PERCENT EXCEEDS	235	
90 PERCENT EXCEEDS	124	

a Also Oct. 20, 21, Dec. 30.
b Also Mar. 31 and Apr. 1.
c From rating curve extended above 4,100 ft^3/s.
d No flow parts of June 16, Nov. 10, 1970, due to construction of dam; May 12, 18, 19, 1976; Mar. 6, 1979, result of shutoff at dam.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

WEST BRANCH SUSQUEHANNA RIVER BASIN

01547700 MARSH CREEK AT BLANCHARD, PA

LOCATION.--Lat 41°03'34", long 77°36'22", Centre County, Hydrologic Unit 02050204, on right bank 20 ft downstream from highway bridge on SR 1002, 0.5 mi southwest of Blanchard, 0.6 mi downstream from bridge on State Highway 150, and 0.6 mi upstream from mouth.

DRAINAGE AREA.--44.1 mi^2.

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

REVISED RECORDS.--WDR PA-72-1: 1971 (runoff in CFSM and inches).

GAGE.--Water-stage recorder. Datum of gage is 586.16 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 31, 1956, nonrecording gage at site 20 ft upstream at same datum.

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

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 450 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 26	2100	*1,440	*4.96	May 13	1530	1,070	4.58
May 9	0800	525	3.80	June 6	2000	1,230	4.76
May 12	1745	1,160	4.68				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	4.4	74	e11	114	e18	109	98	135	13	3.3	0.62
2	3.7	4.4	47	e11	128	e17	88	131	104	12	3.1	0.59
3	3.4	4.3	35	e10	119	30	76	114	80	12	2.5	0.59
4	3.0	3.9	27	12	101	26	64	106	65	11	2.2	0.70
5	2.9	3.7	22	12	78	e22	56	95	73	9.5	2.0	0.64
6	2.9	3.6	20	11	64	e25	52	82	514	8.4	3.4	0.53
7	2.9	3.3	17	12	57	28	45	73	606	7.8	2.8	0.44
8	2.9	3.3	15	11	49	27	42	62	312	7.7	1.9	0.39
9	3.0	3.3	19	11	41	27	41	234	183	7.3	1.5	0.39
10	3.2	3.2	19	16	56	31	38	215	121	8.8	1.4	0.39
11	3.2	3.1	16	26	134	27	32	172	87	6.5	1.0	0.45
12	3.5	3.1	16	26	114	26	29	461	69	5.7	0.85	0.51
13	3.4	2.9	21	25	102	26	33	808	56	5.5	0.75	0.52
14	3.6	2.9	27	22	83	26	42	659	68	5.5	0.68	0.54
15	16	2.9	34	21	72	26	66	379	157	5.4	0.60	0.59
16	7.6	2.8	30	20	65	54	64	242	112	4.7	0.64	0.62
17	10	2.8	47	19	58	51	65	175	91	4.2	1.2	0.62
18	7.7	2.8	103	18	48	60	64	232	75	4.1	1.1	0.62
19	6.5	2.8	83	13	40	64	62	188	60	4.7	0.80	0.62
20	6.1	2.8	69	17	38	120	58	169	50	6.1	0.67	0.66
21	5.9	2.8	56	16	39	192	54	136	41	4.4	0.60	0.71
22	5.5	2.8	45	17	34	175	51	106	36	3.9	0.54	0.96
23	5.5	2.8	38	16	29	137	44	86	31	4.0	0.60	3.3
24	11	2.8	37	25	26	107	38	72	29	5.5	2.5	3.6
25	9.5	28	31	35	24	88	38	61	26	3.8	3.0	1.7
26	6.7	29	e24	34	24	547	34	52	22	3.8	2.0	1.3
27	5.9	15	e21	35	25	646	30	43	22	9.9	1.3	11
28	5.6	13	e21	37	22	349	73	43	23	6.8	0.96	11
29	5.1	24	e17	38	---	228	108	40	18	5.1	0.92	4.5
30	4.9	52	e12	50	---	169	109	89	15	4.0	0.98	3.0
31	4.5	---	e11	67	---	127	---	181	---	3.5	0.81	---
TOTAL	169.7	238.5	1054	694	1784	3496	1705	5604	3281	204.6	46.60	52.10
MEAN	5.47	7.95	34.0	22.4	63.7	113	56.8	181	109	6.60	1.50	1.74
MAX	16	52	103	67	134	646	109	808	606	13	3.4	11
MIN	2.9	2.8	11	10	22	17	29	40	15	3.5	0.54	0.39
CFSM	0.12	0.18	0.77	0.51	1.44	2.56	1.29	4.10	2.48	0.15	0.03	0.04
IN.	0.14	0.20	0.89	0.59	1.50	2.95	1.44	4.73	2.77	0.17	0.04	0.04

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 2002, BY WATER YEAR (WY)

MEAN	26.9	49.9	66.3	54.4	85.5	133	114	72.4	46.4	20.6	15.7	16.4
MAX	154	151	252	193	267	283	337	181	344	170	77.6	110
(WY)	1991	1978	1973	1996	1984	1994	1993	2002	1972	1972	1994	1996
MIN	1.08	1.94	2.06	4.01	14.0	32.5	29.9	20.1	5.37	1.18	0.61	0.25
(WY)	1965	1965	1999	1981	1963	1969	1968	1977	1991	1965	1966	1964

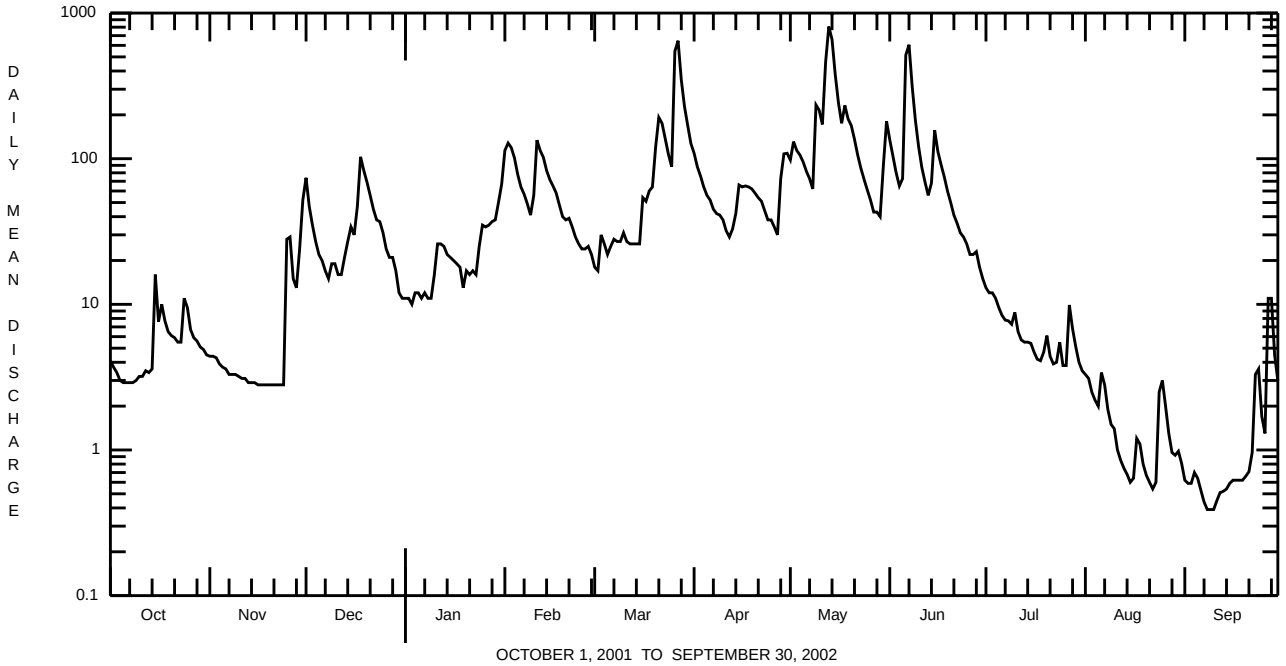
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01547700 MARSH CREEK AT BLANCHARD, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1956 - 2002	
ANNUAL TOTAL	11451.2		18329.50			
ANNUAL MEAN	31.4		50.2		58.3	
HIGHEST ANNUAL MEAN					102	1972
LOWEST ANNUAL MEAN					28.6	1965
HIGHEST DAILY MEAN	416	Mar 22	808	May 13	3800	Jun 23 1972
LOWEST DAILY MEAN	1.6	Aug 9**a**	0.39	Sep 8-10	0.00	Aug 30 1966
ANNUAL SEVEN-DAY MINIMUM	2.2	Sep 13	0.44	Sep 7	0.07	Aug 27 1966
MAXIMUM PEAK FLOW			1440	Mar 26	**b**6900	Jun 18 1984
MAXIMUM PEAK STAGE			4.96	Mar 26	7.85	Jun 18 1984
ANNUAL RUNOFF (CFSM)	0.71		1.14		1.32	
ANNUAL RUNOFF (INCHES)	9.66		15.46		17.96	
10 PERCENT EXCEEDS	88		114		140	
50 PERCENT EXCEEDS	12		21		25	
90 PERCENT EXCEEDS	2.8		0.99		3.4	

a Also Sept. 13, 19.
b From rating curve extended above 4,900 ft^3/s.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01547950 BEECH CREEK AT MONUMENT, PA

LOCATION.--Lat 41°06'42", long 77°42'09", Centre County, Hydrologic Unit 02050204, on right bank 800 ft downstream from bridge at Monument, 850 ft downstream from Monument Run, 0.6 mi upstream from Twin Run, and 8.7 mi upstream from mouth.

DRAINAGE AREA.--152 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 741.60 ft above National Geodetic Vertical Datum of 1929.

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

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

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
May 13	2345	*2,250	*9.26	June 7	0115	1,600	8.45

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	76	338	e120	368	132	585	429	264	109	34	16
2	49	72	308	e110	414	126	492	488	232	102	31	16
3	46	70	275	114	425	201	430	453	211	95	29	16
4	42	67	242	129	415	184	370	415	200	89	28	15
5	40	63	214	e120	361	169	327	391	253	83	27	14
6	38	60	194	117	319	e170	298	362	707	76	31	e13
7	37	58	178	120	288	171	271	338	1420	73	27	e12
8	35	56	165	107	263	169	251	303	1050	69	25	e11
9	34	54	162	e100	234	165	238	677	780	70	24	e10
10	33	52	152	110	234	171	221	791	590	77	22	e9.7
11	34	51	141	121	387	161	199	726	466	64	21	e9.6
12	32	49	134	118	335	154	186	1050	390	59	23	e9.5
13	32	47	153	114	335	153	186	2030	334	57	19	e9.5
14	39	46	184	108	316	150	209	2040	382	54	18	e9.4
15	111	45	224	106	300	146	376	1570	672	52	19	e11
16	75	45	215	103	287	195	327	1180	675	49	34	26
17	94	44	252	101	270	191	319	953	582	46	23	21
18	78	42	453	99	239	188	308	1030	491	44	22	16
19	69	41	473	92	215	203	295	882	407	50	19	14
20	65	42	452	e94	204	299	278	799	340	49	19	14
21	61	41	394	99	205	453	261	687	290	43	17	e13
22	59	41	336	98	192	469	251	574	252	40	16	e15
23	60	40	299	94	175	452	229	490	221	44	19	38
24	146	39	284	115	161	413	207	427	205	51	30	25
25	142	163	249	162	152	374	208	372	183	40	29	18
26	125	233	221	161	151	668	198	326	163	40	23	18
27	117	165	203	170	151	1270	181	286	155	50	19	64
28	105	152	189	184	143	1080	275	266	153	52	17	79
29	95	195	175	195	---	916	446	258	133	42	18	37
30	88	233	155	233	---	783	445	235	120	39	18	26
31	82	---	e130	269	---	654	---	283	---	35	17	---
TOTAL	2116	2382	7544	3983	7539	11030	8867	21111	12321	1843	718	605.7
MEAN	68.26	79.40	243.4	128.5	269.2	355.8	295.6	681.0	410.7	59.45	23.16	20.19
MAX	146	233	473	269	425	1270	585	2040	1420	109	34	79
MIN	32	39	130	92	143	126	181	235	120	35	16	9.4
CFSM	0.45	0.52	1.60	0.85	1.77	2.34	1.94	4.48	2.70	0.39	0.15	0.13
IN.	0.52	0.58	1.85	0.97	1.85	2.70	2.17	5.17	3.02	0.45	0.18	0.15

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 2002, BY WATER YEAR (WY)

MEAN	139.8	244.9	296.9	242.4	331.0	484.9	497.3	330.5	249.2	147.6	88.17	99.13
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	21.0	17.3	19.3	54.9	73.8	167	213	112	48.0	27.8	17.8	16.0
(WY)	1999	1999	1999	1981	1980	1969	1988	1976	1991	1991	1991	1998

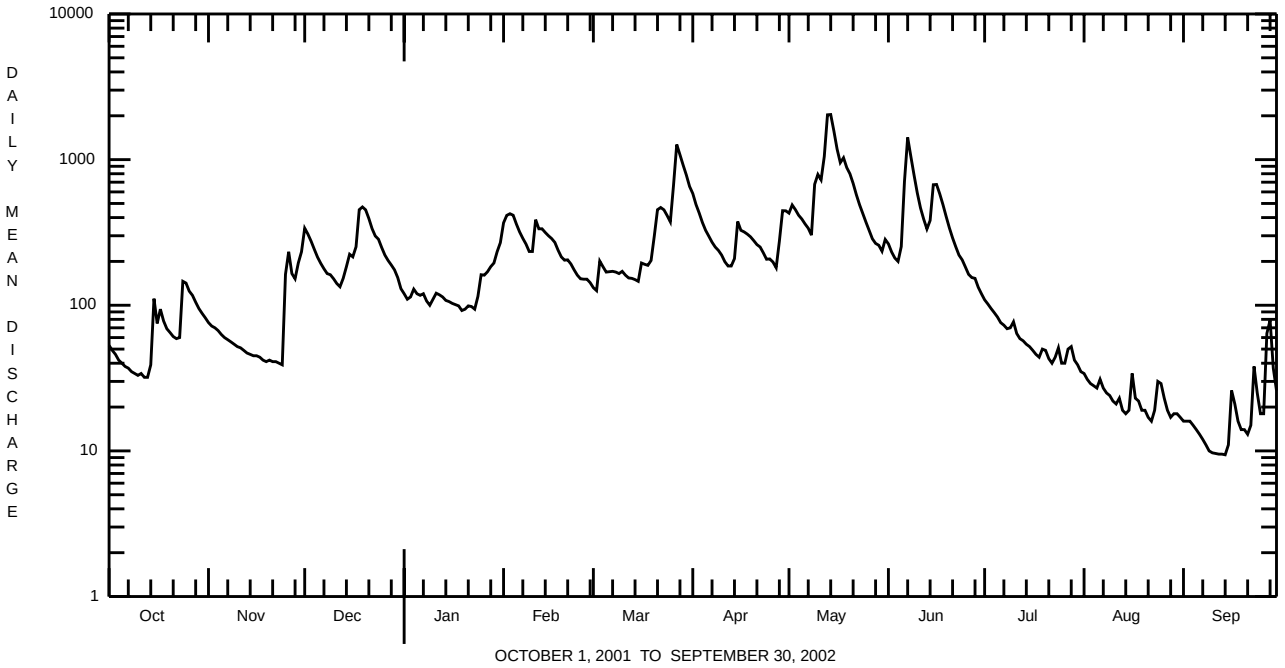
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01547950 BEECH CREEK AT MONUMENT, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1969 - 2002	
ANNUAL TOTAL	60004		80059.7			
ANNUAL MEAN	164		219		262	
HIGHEST ANNUAL MEAN					385	1978
LOWEST ANNUAL MEAN					147	1999
HIGHEST DAILY MEAN	1040	Mar 22	2040	May 14	7490	Jun 23 1972
LOWEST DAILY MEAN	22	Aug 9	**e**9.4	Sep 14	8.3	Sep 9 1991
ANNUAL SEVEN-DAY MINIMUM	26	Aug 3	**a**9.8	Sep 8	**a**9.8	Sep 8 2002
MAXIMUM PEAK FLOW			**b**2250	May 13	**b**9740	Jun 23 1972
MAXIMUM PEAK STAGE			9.26	May 13	15.22	Jun 23 1972
ANNUAL RUNOFF (CFSM)	1.08		1.44		1.72	
ANNUAL RUNOFF (INCHES)	14.69		19.59		23.42	
10 PERCENT EXCEEDS	439		458		578	
50 PERCENT EXCEEDS	95		151		161	
90 PERCENT EXCEEDS	32		21		35	

a Computed using estimated daily discharges.
b From rating curve extended above 2,000 ft^3/s on basis of slope-area measurement of peak flow.
e Estimated.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01548500 PINE CREEK AT CEDAR RUN, PA

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

DRAINAGE AREA.--604 mi^2.

PERIOD OF RECORD.--July 1918 to current year. Prior to October 1918 monthly discharge only, published in WSP 1302.

GAGE.--Water-stage recorder. Datum of gage is 780.36 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 13, 1930, nonrecording gage at same site and datum.

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

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 5,900 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
May 14	0145	*8,430	*6.49	No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	290	230	2440	e380	1920	496	1950	2180	556	279	120	39
2	257	225	2000	e360	2140	468	1670	2290	470	256	104	39
3	231	228	1620	e340	1990	651	1450	2050	410	234	96	38
4	208	228	1300	e360	1770	725	1220	1760	379	215	87	38
5	190	211	1060	e380	1410	e580	1030	1580	653	196	86	35
6	180	202	889	372	1200	e700	923	1370	3620	176	185	33
7	178	195	759	353	1020	691	822	1230	4260	165	114	31
8	166	190	653	318	899	652	740	1060	3060	156	92	30
9	151	186	617	317	775	620	700	1120	2140	150	85	29
10	145	182	557	318	722	687	742	1360	1580	180	76	28
11	155	179	488	327	1780	607	612	1160	1230	164	71	27
12	132	174	448	310	1430	563	551	1860	980	133	66	24
13	118	166	473	296	1360	552	562	5510	812	123	63	23
14	131	160	602	282	e1100	543	884	7610	1050	116	68	23
15	241	160	1210	275	1110	516	2590	5270	2230	109	65	50
16	254	157	1080	268	1040	539	2290	3530	2680	102	64	177
17	284	151	1240	260	954	517	1980	2610	2360	94	65	140
18	289	145	2740	254	806	487	1670	3320	1890	89	65	83
19	254	142	2730	e220	696	517	1420	3150	1510	89	60	66
20	239	150	2360	e240	660	534	1230	2740	1190	104	53	58
21	230	167	1880	303	746	737	1080	2320	946	96	48	52
22	221	153	1490	323	718	721	952	1900	769	85	48	52
23	219	144	1250	280	615	725	845	1570	694	88	51	103
24	254	136	1140	313	558	765	718	1320	565	109	59	94
25	335	233	961	612	544	762	678	1110	500	115	71	65
26	292	1160	784	615	551	1450	668	1040	437	92	61	56
27	282	838	e690	644	628	3870	563	892	441	98	52	203
28	276	756	653	701	552	3160	1110	754	452	216	47	753
29	261	805	e550	768	---	2730	3020	675	366	540	45	280
30	247	1040	e510	1060	---	2390	2600	637	311	219	44	164
31	238	---	e430	1350	---	2100	---	589	---	149	42	---
TOTAL	6948	9093	35604	13199	29694	31055	37270	65567	38541	4937	2253	2833
MEAN	224.1	303.1	1149	425.8	1060	1002	1242	2115	1285	159.3	72.68	94.43
MAX	335	1160	2740	1350	2140	3870	3020	7610	4260	540	185	753
MIN	118	136	430	220	544	468	551	589	311	85	42	23
CFSM	0.37	0.50	1.90	0.70	1.76	1.66	2.06	3.50	2.13	0.26	0.12	0.16
IN.	0.43	0.56	2.19	0.81	1.83	1.91	2.30	4.04	2.37	0.30	0.14	0.17

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1919 - 2002, BY WATER YEAR (WY)

MEAN	358.8	745.2	837.1	826.1	909.6	1839	1975	1245	620.3	279.0	218.2	203.8
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

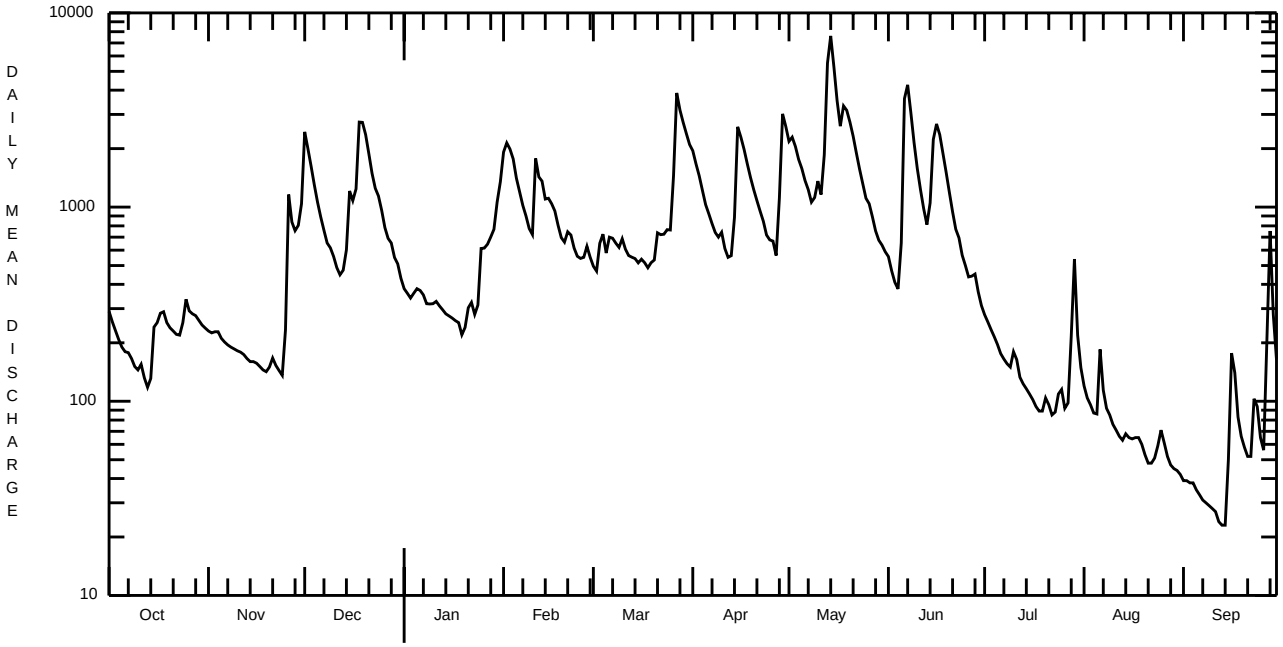
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01548500 PINE CREEK AT CEDAR RUN, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1919 - 2002	
ANNUAL TOTAL	207207		276994			
ANNUAL MEAN	568		759		837	
HIGHEST ANNUAL MEAN					1400	1978
LOWEST ANNUAL MEAN					444	1941
HIGHEST DAILY MEAN	8120	Apr 10	7610	May 14	42600	Jun 23 1972
LOWEST DAILY MEAN	40	Aug 9,15	23	Sep 13,14	8.0	Sep 2 1939
ANNUAL SEVEN-DAY MINIMUM	47	Aug 4	26	Sep 8	11	Aug 28 1939
MAXIMUM PEAK FLOW			8430	May 14	**a**66000	Jun 23 1972
MAXIMUM PEAK STAGE			6.49	May 14	**b**16.00	Jun 23 1972
INSTANTANEOUS LOW FLOW					8.0	Sep 1,2 1939
ANNUAL RUNOFF (CFSM)	0.94		1.26		1.39	
ANNUAL RUNOFF (INCHES)	12.76		17.06		18.83	
10 PERCENT EXCEEDS	1470		1960		2030	
50 PERCENT EXCEEDS	242		487		394	
90 PERCENT EXCEEDS	92		65		65	

a From rating curve extended above 16,000 ft^3/s on basis of slope-area measurement of peak flow.
b From floodmark.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

WEST BRANCH SUSQUEHANNA RIVER BASIN

01549500 BLOCKHOUSE CREEK NEAR ENGLISH CENTER, PA

LOCATION.--Lat 41°28'25", long 77°13'52", Lycoming County, Hydrologic Unit 02050205, on right bank just downstream from bridge on State Highway 284, 0.7 mi upstream from Blacks Creek, 1.7 mi upstream from confluence with Texas Creek, and 5.0 mi northeast of English Center.

DRAINAGE AREA.--37.7 mi^2.

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

REVISED RECORDS.--WSP 951: 1941. WSP 1031: 1942-44(M). WSP 1502: 1942. WDR PA-75-2: 1973(P), 1974(P).

GAGE.--Water-stage recorder. Datum of gage is 1,041.85 ft above National Geodetic Vertical Datum of 1929.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936 reached a stage of 9.0 ft, from floodmark, discharge, 5,780 ft^3/s, from rating curve extended above 1,200 ft^3/s on basis of contracted-opening measurement at gage height 8.81 ft.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 1,100 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 26	1915	*784	*4.21

Date	Time	Discharge ft^3/s	Gage Height (ft)
(No peaks above base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	17	148	e26	121	e26	100	99	28	12	4.7	e2.0
2	28	17	117	e24	110	e24	81	130	24	11	4.7	e2.3
3	25	17	92	e23	e90	e52	71	105	21	11	4.6	e2.2
4	22	16	75	e23	e72	e40	61	93	20	9.8	4.1	e2.0
5	20	15	63	25	e63	e36	55	86	20	9.4	e4.4	e1.9
6	18	15	55	25	61	e34	50	80	70	8.6	e5.4	e1.8
7	17	14	49	25	55	36	46	75	64	8.1	e5.2	e1.8
8	15	13	44	e22	49	35	43	66	34	7.7	e4.8	e1.7
9	13	13	45	22	44	35	43	71	27	7.6	e4.1	e1.6
10	13	12	40	23	76	38	47	72	25	9.0	e3.4	e1.6
11	12	12	37	24	175	33	38	57	23	7.4	e2.8	e1.8
12	11	11	35	23	e95	32	35	117	21	6.6	e2.6	e1.9
13	11	11	43	23	e85	32	42	336	21	6.0	3.0	e1.9
14	12	11	57	21	e72	32	71	415	35	5.6	3.2	e2.0
15	34	11	78	21	70	30	202	251	74	5.3	3.2	e3.4
16	22	11	64	20	64	43	140	159	57	4.9	3.2	14
17	35	10	81	19	59	37	121	117	43	4.4	3.6	6.8
18	24	9.9	173	19	49	37	106	176	38	4.3	2.8	4.0
19	20	9.7	131	e17	44	39	93	121	38	4.1	2.9	3.1
20	19	11	114	e16	43	50	84	101	31	5.3	2.8	2.7
21	18	10	92	e15	44	65	76	89	27	4.7	2.5	2.4
22	17	9.7	74	e16	41	62	70	76	25	4.0	2.4	3.2
23	18	9.3	66	17	37	61	62	66	23	7.0	2.4	25
24	27	9.1	66	32	33	60	55	58	26	13	3.6	9.7
25	26	72	55	45	32	58	56	50	24	6.2	4.4	6.1
26	23	71	e44	37	33	277	53	44	20	5.2	3.0	5.0
27	21	52	e40	38	36	368	47	39	19	5.5	e2.3	43
28	20	47	e36	41	e28	233	104	35	18	14	e2.3	52
29	19	60	e32	47	---	169	140	33	15	13	e2.2	17
30	18	104	e30	75	---	133	106	31	14	7.9	e2.2	10
31	17	---	e28	85	---	108	---	30	---	5.7	e2.1	---
TOTAL	627	700.7	2104	889	1781	2315	2298	3278	925	234.3	104.9	233.9
MEAN	20.23	23.36	67.87	28.68	63.61	74.68	76.60	105.7	30.83	7.558	3.384	7.797
MAX	35	104	173	85	175	368	202	415	74	14	5.4	52
MIN	11	9.1	28	15	28	24	35	30	14	4.0	2.1	1.6
CFSM	0.54	0.62	1.80	0.76	1.69	1.98	2.03	2.80	0.82	0.20	0.09	0.21
IN.	0.62	0.69	2.08	0.88	1.76	2.28	2.27	3.23	0.91	0.23	0.10	0.23

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2002, BY WATER YEAR (WY)

MEAN	32.68	60.58	66.43	56.14	68.42	122.8	124.5	77.63	40.74	18.25	14.30	16.08
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	3.25	4.34	6.18	12.8	16.5	24.8	15.7	5.42	1.98	1.21	0.43
(WY)	1965	1999	1999	1981	1941	1969	1946	1941	1991	1955	1966	1964

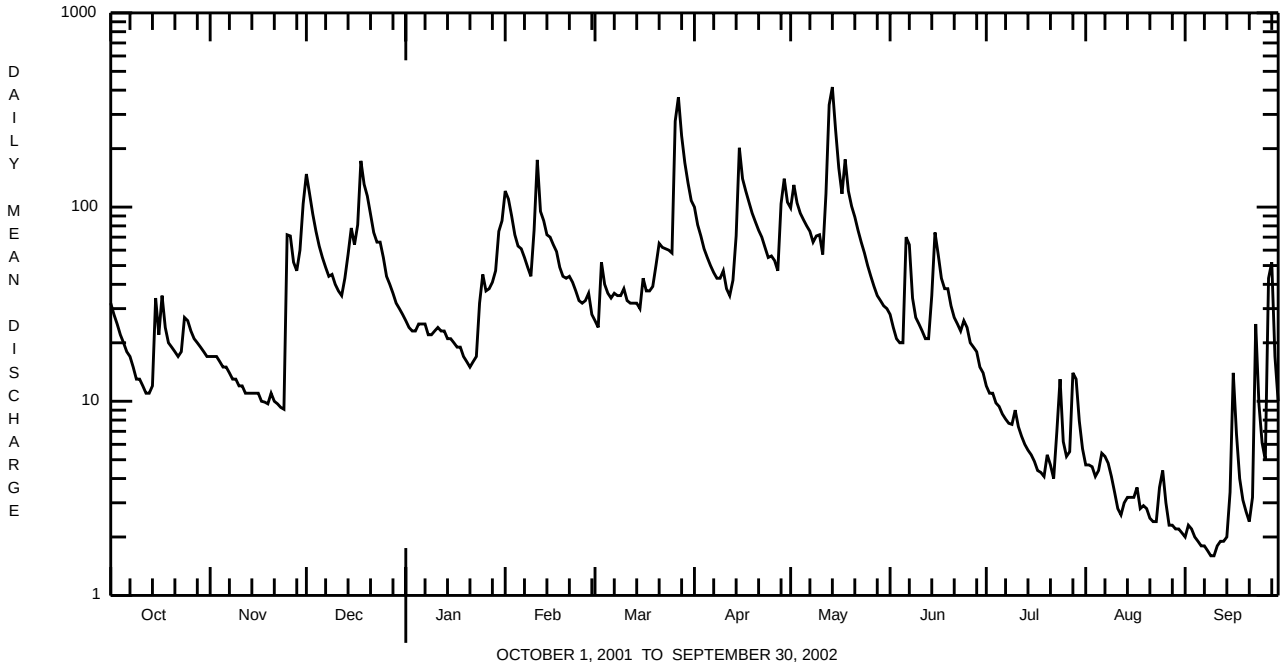
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01549500 BLOCKHOUSE CREEK NEAR ENGLISH CENTER, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1941 - 2002		
ANNUAL TOTAL	13436.0		15490.8				
ANNUAL MEAN	36.8		42.4		58.1		
HIGHEST ANNUAL MEAN					104		1978
LOWEST ANNUAL MEAN					26.3		1965
HIGHEST DAILY MEAN	445	Sep 25	415	May 14	3180	Jun 22	1972
LOWEST DAILY MEAN	**e**1.1	Aug 16	**e**1.6	Sep 9,10	0.00	Aug 6	1962**c**
ANNUAL SEVEN-DAY MINIMUM	**a**1.4	Aug 10	**a**1.7	Sep 5	0.19	Aug 29	1962
MAXIMUM PEAK FLOW			784	Mar 26	**b**6260	Jun 23	1972
MAXIMUM PEAK STAGE			4.21	Mar 26	9.34	Jun 23	1972
INSTANTANEOUS LOW FLOW					0.00	Aug 6	1962**c**
ANNUAL RUNOFF (CFSM)	0.98		1.13		1.54		
ANNUAL RUNOFF (INCHES)	13.26		15.29		20.94		
10 PERCENT EXCEEDS	91		94		131		
50 PERCENT EXCEEDS	17		27		27		
90 PERCENT EXCEEDS	4.2		3.3		3.7		

a Computed using estimated daily discharges.
b From rating curve extended above 1,200 ft^3/s on basis of contracted-opening measurement at gage height 8.81 ft.
c Also Aug. 31, Sept. 1, 2, 1962.
e Estimated.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01549700 PINE CREEK BELOW LITTLE PINE CREEK NEAR WATERVILLE, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 41°16'25", long 77°19'28", Lycoming County, Hydrologic Unit 02050205, on left bank on State Highway 44, on abutment of abandoned bridge 0.9 mi downstream from Ramsey Run, 4.0 mi downstream from Little Pine Creek, 4.0 mi south of Waterville, and 9.2 mi upstream from mouth.

DRAINAGE AREA.--944 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1957 to current year.

REVISED RECORDS.--WDR PA-72-1: 1964(P).

GAGE.--Water-stage recorder. Datum of gage is 570.62 ft above National Geodetic Vertical Datum of 1929. Prior to June 16, 1982, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flood flows subject to regulation by Little Pine Dam 8.5 mi upstream, capacity 24,900 acre-ft. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 9,200 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
May 14	0630	*13,300	*7.48

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	524	354	3050	e680	2480	793	3000	3360	961	447	201	62
2	449	346	2880	e640	3200	746	2630	3260	838	407	166	61
3	394	344	2390	e600	2980	868	2280	3350	728	374	150	59
4	347	342	1970	e620	2730	1150	1960	2830	656	342	137	58
5	309	321	1650	e660	2260	935	1700	2530	666	311	125	54
6	282	309	1410	676	1920	1050	1530	2230	2960	282	146	51
7	273	298	1230	682	1670	1060	1390	1990	5690	260	202	48
8	257	289	1080	567	1490	1010	1260	1770	3920	246	142	46
9	235	280	1020	529	1310	969	1180	1700	2850	233	118	45
10	218	273	950	551	1210	1000	1260	2010	2180	239	108	43
11	206	265	848	559	2550	989	1110	1780	1750	266	98	41
12	214	259	782	550	2510	892	966	1940	1440	223	92	41
13	190	248	786	520	2310	870	943	7690	1230	195	93	40
14	186	240	950	496	1980	861	1350	12400	1220	183	84	39
15	293	235	1650	471	1870	833	4000	9000	2430	174	83	43
16	419	234	1730	455	1730	857	4050	5830	3590	160	85	131
17	417	232	1790	438	1590	897	3350	4240	3120	149	82	247
18	474	225	3500	424	1390	825	2800	4500	2570	138	81	173
19	436	217	4060	427	1200	851	2380	4840	2100	134	79	115
20	344	220	3540	484	1110	920	2070	4080	1710	142	75	92
21	347	229	2910	409	1130	1290	1840	3540	1400	153	70	81
22	331	237	2340	483	1180	1410	1630	2970	1170	140	65	74
23	331	221	1960	419	1020	1400	1470	2490	1030	143	67	96
24	400	212	1800	455	919	1430	1270	2130	929	176	79	169
25	496	294	1580	762	866	1410	1180	1830	821	179	89	138
26	486	1400	1340	e930	861	1880	1180	1590	713	173	101	102
27	448	1270	e1100	967	927	7280	1020	1520	667	145	88	137
28	435	1130	1090	1020	890	5670	1180	1290	684	259	76	979
29	409	1150	e960	1110	---	4510	4300	1170	624	619	70	628
30	385	1380	e860	1420	---	3830	3890	1070	507	427	67	328
31	369	---	e700	1890	---	3310	---	1020	---	264	65	---
TOTAL	10904	13054	53906	20894	47283	51796	60169	101950	51154	7583	3184	4221
MEAN	351.7	435.1	1739	674.0	1689	1671	2006	3289	1705	244.6	102.7	140.7
MAX	524	1400	4060	1890	3200	7280	4300	12400	5690	619	202	979
MIN	186	212	700	409	861	746	943	1020	507	134	65	39
CFSM	0.37	0.46	1.84	0.71	1.79	1.77	2.12	3.48	1.81	0.26	0.11	0.15
IN.	0.43	0.51	2.12	0.82	1.86	2.04	2.37	4.02	2.02	0.30	0.13	0.17

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 2002, BY WATER YEAR (WY)

MEAN	665.3	1247	1480	1278	1673	2849	3228	1856	1121	508.4	393.8	410.5
MAX	4597	4337	3860	4114	5148	6840	9683	3919	6070	2423	4096	4053
(WY)	1991	1978	1974	1996	1981	1964	1993	1960	1972	1972	1994	1975
MIN	46.7	66.3	107	93.7	410	850	1171	446	153	73.4	51.7	30.4
(WY)	1964	1965	1961	1961	1987	1969	1988	1985	1991	1964	1966	1964

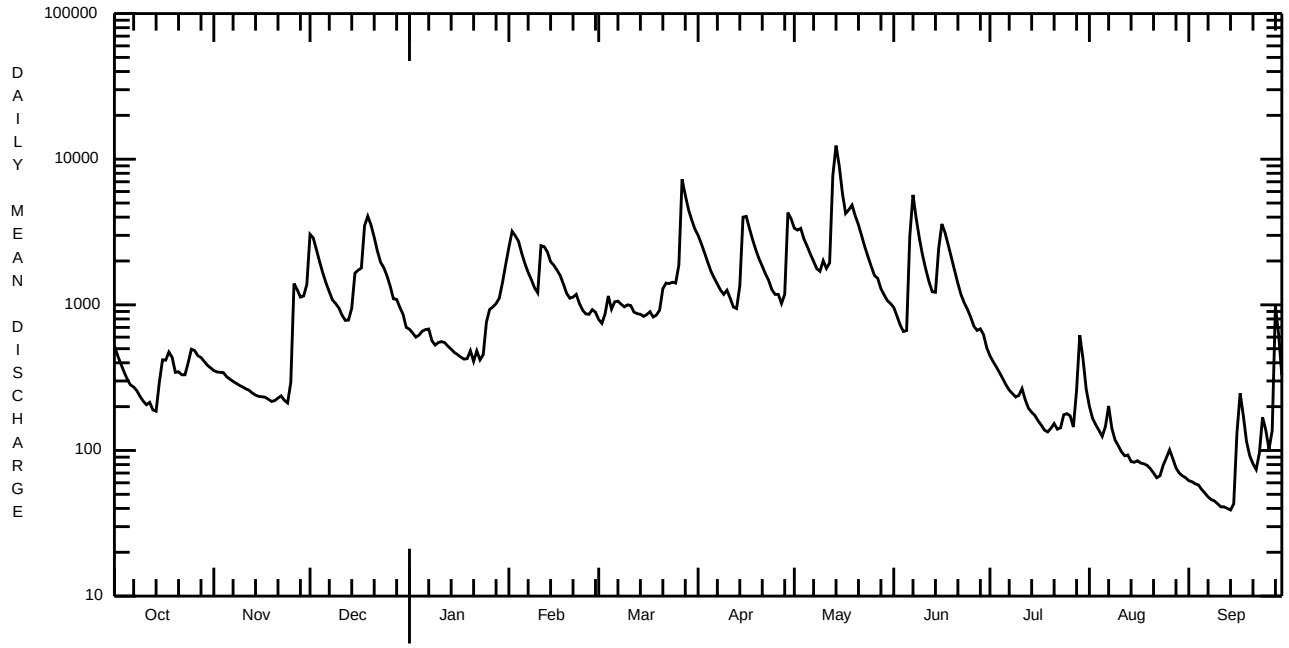
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

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

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1958 - 2002	
ANNUAL TOTAL	331865		426098			
ANNUAL MEAN	909		1167		1389	
HIGHEST ANNUAL MEAN					2379	1978
LOWEST ANNUAL MEAN					739	1965
HIGHEST DAILY MEAN	10900	Apr 10	12400	May 14	75000	Jun 23 1972
LOWEST DAILY MEAN	64	Aug 9,16	39	Sep 14	23	Sep 5 1999
ANNUAL SEVEN-DAY MINIMUM	74	Aug 5	42	Sep 9	26	Sep 21 1964
MAXIMUM PEAK FLOW			13300	May 14	**a**104000	Jun 23 1972
MAXIMUM PEAK STAGE			7.48	May 14	**b**22.76	Jun 23 1972
ANNUAL RUNOFF (CFSM)	0.96		1.24		1.47	
ANNUAL RUNOFF (INCHES)	13.08		16.79		19.99	
10 PERCENT EXCEEDS	2390		2890		3340	
50 PERCENT EXCEEDS	510		782		660	
90 PERCENT EXCEEDS	146		93		109	

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



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

01549700 PINE CREEK BELOW LITTLE PINE CREEK NEAR WATERVILLE, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)
APR 2002													
10...	0900	9813	1210	30	11.6	8.1	75	8.0	28	7.75	7.9	2.04	2.1
JUN													
03...	0730	9813	742	30	8.9	7.7	86	17.1	31	8.57	8.7	2.25	2.3
AUG													
12...	1030	9813	92	30	7.3	7.6	136	23.9	52	15.0	15.2	3.43	3.4

Date	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)
APR 2002													
10...	.0	13	14.5	46	4	<.020	.25	<.040	.46	<.01	<.010	1.3	<4
JUN													
03...	.0	18	16.0	76	2	.030	.04	<.040	.16	.01	.013	1.4	<4
AUG													
12...	.0	32	20.4	94	4	<.020	<.04	<.040	.24	.01	.015	.4	<4

Date	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002											
10...	<4	20	60	<1.0	<1.0	20	30	<4.0	<4.0	<5.0	<5.0
JUN											
03...	<4	50	90	<1.0	<1.0	20	30	<4.0	<4.0	<5.0	<5.0
AUG											
12...	<4	30	70	<1.0	<1.0	30	50	<4.0	<4.0	<5.0	<5.0

WEST BRANCH SUSQUEHANNA RIVER BASIN

01550000 LYCOMING CREEK NEAR TROUT RUN, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 41°25'06", long 77°01'59", Lycoming County, Hydrologic Unit 02050206, on right bank 150 ft upstream from bridge on Township Route 840, 0.5 mi downstream from Grays Run, and 2.6 mi northeast of Trout Run.

DRAINAGE AREA.--173 mi^2.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 756: Drainage area. WSP 921: 1933, 1934(M), 1935-39. WSP 1302: 1914-16, 1922(M), 1932-25, 1926(M), 1927-28, 1930, 1931(M). WSP 1502: 1920-21(M), 1932(M), 1933.

GAGE.--Water-stage recorder. Datum of gage is 693.95 ft above National Geodetic Vertical Datum of 1929. Prior to June 1, 1939, nonrecording gage at site 150 ft downstream at same datum.

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

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 2,900 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 26	2100	*4,880	*8.62

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	192	120	1020	e150	588	177	500	401	200	103	40	12
2	161	117	689	e140	577	172	433	500	177	96	31	12
3	138	115	546	e140	e450	257	386	467	157	88	29	12
4	119	110	457	141	e380	249	342	400	146	79	26	11
5	105	107	398	141	e310	e190	312	365	143	77	27	10
6	98	103	355	138	302	199	290	335	276	72	34	10
7	96	98	321	142	274	202	270	320	461	65	33	9.6
8	86	95	291	135	253	194	255	291	259	59	30	9.2
9	81	91	290	130	229	190	243	306	205	53	25	8.6
10	79	86	276	129	271	218	265	324	177	61	20	8.1
11	73	84	254	133	1200	200	233	273	159	57	17	8.7
12	70	81	245	133	694	189	217	407	147	49	15	9.7
13	68	81	264	129	571	187	216	1530	145	42	22	9.9
14	69	76	313	123	433	186	329	1970	170	38	16	10
15	166	73	476	119	398	178	513	1190	295	35	15	23
16	149	72	376	116	368	215	428	826	316	34	14	48
17	209	69	391	112	339	226	382	645	233	33	46	38
18	176	68	782	108	295	210	349	893	198	30	29	32
19	144	66	608	102	266	214	324	745	245	28	16	31
20	131	67	527	e95	254	241	302	593	204	32	15	31
21	123	68	452	101	278	323	288	520	177	44	13	29
22	118	66	387	100	265	344	274	462	160	36	13	34
23	117	66	348	97	238	309	259	411	148	38	13	145
24	174	65	340	115	217	305	233	368	137	77	16	99
25	194	292	304	217	207	296	226	329	142	72	19	65
26	171	512	264	186	201	1450	237	299	158	57	16	57
27	157	327	238	176	215	2570	213	270	147	49	15	212
28	147	277	231	187	197	1310	302	246	145	61	14	437
29	139	324	212	214	---	892	638	229	131	81	14	193
30	132	554	197	362	---	677	437	216	115	77	14	133
31	124	---	e160	431	---	535	---	204	---	56	13	---
TOTAL	4006	4330	12012	4742	10270	13105	9696	16335	5773	1779	660	1747.8
MEAN	129.2	144.3	387.5	153.0	366.8	422.7	323.2	526.9	192.4	57.39	21.29	58.26
MAX	209	554	1020	431	1200	2570	638	1970	461	103	46	437
MIN	68	65	160	95	197	172	213	204	115	28	13	8.1
CFSM	0.75	0.83	2.24	0.88	2.12	2.44	1.87	3.05	1.11	0.33	0.12	0.34
IN.	0.86	0.93	2.58	1.02	2.21	2.82	2.08	3.51	1.24	0.38	0.14	0.38

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2002, BY WATER YEAR (WY)

MEAN	157.6	296.1	308.0	271.2	296.1	587.6	624.8	385.9	203.7	110.9	86.17	103.2
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

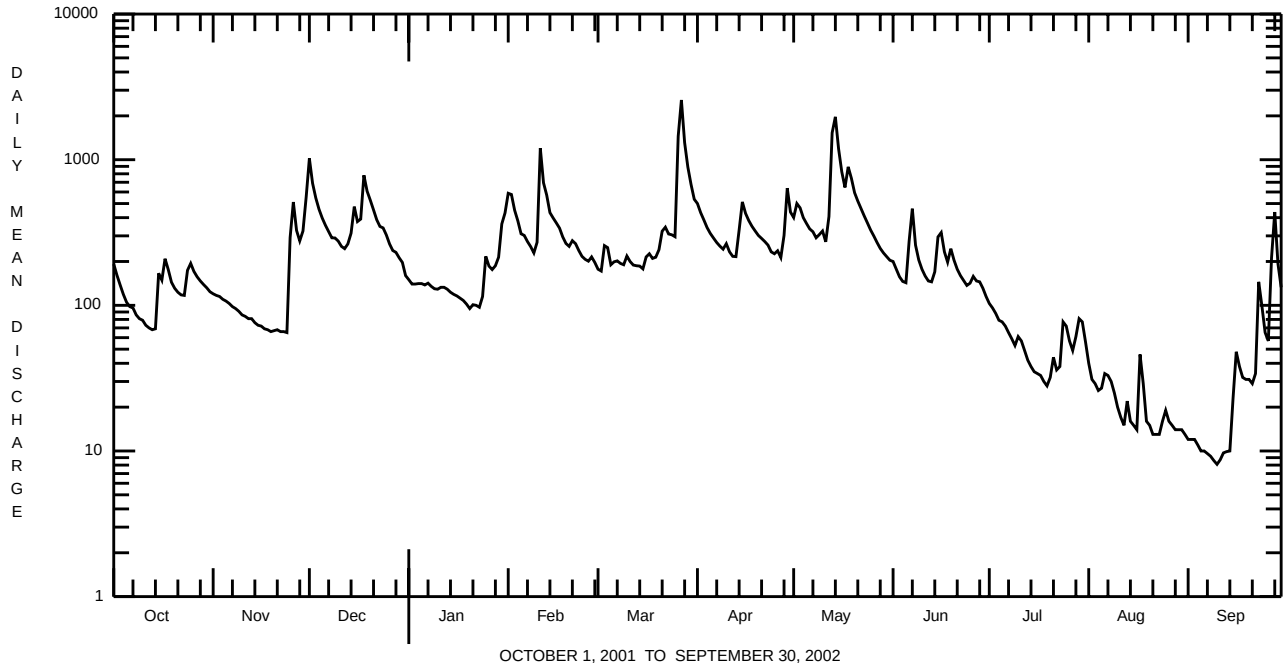
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01550000 LYCOMING CREEK NEAR TROUT RUN, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1914 - 2002	
ANNUAL TOTAL	74672		84455.8			
ANNUAL MEAN	205		231		286	
HIGHEST ANNUAL MEAN					491	1978
LOWEST ANNUAL MEAN					124	1965
HIGHEST DAILY MEAN	2840	Sep 25	2570	Mar 27	15000	Jan 19 1996
LOWEST DAILY MEAN	13	Aug 9	8.1	Sep 10	4.0	Sep 19-24 1936**a**
ANNUAL SEVEN-DAY MINIMUM	16	Aug 5	9.1	Sep 7	4.1	Sep 18 1936
MAXIMUM PEAK FLOW			4880	Mar 26	**b**32000	Jan 19 1996
MAXIMUM PEAK STAGE			8.62	Mar 26	**c**22.68	Jan 19 1996
INSTANTANEOUS LOW FLOW					3.2	Sep 27 1936
ANNUAL RUNOFF (CFSM)	1.18		1.34		1.65	
ANNUAL RUNOFF (INCHES)	16.06		18.16		22.42	
10 PERCENT EXCEEDS	478		459		662	
50 PERCENT EXCEEDS	98		176		140	
90 PERCENT EXCEEDS	43		26		24	

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



WEST BRANCH SUSQUEHANNA RIVER BASIN

01550000 LYCOMING CREEK NEAR TROUT RUN, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
APR 2002													
08...	1145	9813	257	30	12.4	7.9	53	5.6	21	6.1	1.3	10	10.7
MAY													
06...	1015	9813	338	30	12.3	7.3	54	9.6	20	5.9	1.3	11	10.2
JUN													
04...	1315	9813	146	30	11.2	7.4	62	14.7	25	7.4	1.7	12	11.4
JUL													
10...	1030	9813	61	30	9.1	7.1	81	19.2	29	8.6	1.7	19	12.3
AUG													
08...	1315	9813	30	30	9.6	8.1	74	21.8	34	10.5	2.0	20	13.3
SEP													
10...	1245	9813	8.3	30	8.6	7.5	96	17.6	37	11.5	2.0	24	12.3

Date	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
APR 2002												
08...	10	<2	<.020	.49	<.040	.61	.01	<.010	<4	<20	<1.0	20
MAY												
06...	16	<2	<.020	.29	<.040	.51	<.01	<.010	<4	160	<1.0	20
JUN												
04...	74	4	<.020	.33	<.040	.45	<.01	<.010	<4	60	<1.0	<10
JUL												
10...	42	2	<.020	.40	<.040	.47	<.01	<.010	<4	<20	<1.0	10
AUG												
08...	38	12	<.020	.29	<.040	.33	<.01	<.010	<4	30	<1.0	10
SEP												
10...	38	<2	.090	.41	<.040	.38	.01	<.010	<4	40	<1.0	20

Date	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002		
08...	<4.0	<5.0
MAY		
06...	<4.0	7.0
JUN		
04...	<4.0	<5.0
JUL		
10...	<4.0	<5.0
AUG		
08...	<4.0	<5.0
SEP		
10...	<4.0	<5.0

WEST BRANCH SUSQUEHANNA RIVER BASIN

01551500 WEST BRANCH SUSQUEHANNA RIVER AT WILLIAMSPORT, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 41°14'10", long 76°59'49", Lycoming County, Hydrologic Unit 02050206, on right bank 100 ft upstream from Market Street bridge at South Williamsport, and 350 ft upstream from Hagermans Run.

DRAINAGE AREA.--5,682 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1895 to current year.

REVISED RECORDS.--WSP 756: Drainage area. WSP 1302: 1925-28. WSP 1502: 1895-1904, 1912-13, 1919.

GAGE.--Water-stage recorder. Datum of gage is 494.98 ft above National Geodetic Vertical Datum of 1929. Mar. 1, 1895, to Sept. 30, 1928, nonrecording gage at bridge 100 ft downstream at same datum. Prior to July 1980, 100 ft downstream on left bank at same datum.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known prior to 1895, 32.4 ft, June 1, 1889, discharge, about 252,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2760	2310	12000	e5200	14100	5990	21800	18900	9130	4310	1670	840
2	2350	2180	15400	4100	18300	5520	19400	17000	7900	3600	1480	819
3	2080	2060	13200	3640	19400	5750	16800	19500	7250	3210	1480	770
4	1860	2000	11000	3660	17300	6870	14200	19600	6400	2950	1410	735
5	1670	1990	9350	3740	14700	8030	12200	17200	6010	2770	1300	684
6	1570	1960	8060	e4100	12200	7900	11200	14700	10700	2580	1290	654
7	1430	1890	6790	4040	10600	7940	10400	13100	30900	2380	1230	632
8	1360	1870	6150	3850	9370	7560	9230	11700	37500	2220	1140	625
9	1290	1740	5830	3490	8430	e7000	8330	11500	27600	2120	1050	619
10	1210	1690	5360	3440	7800	e6600	8130	14900	20300	2080	995	605
11	1160	1620	5080	3630	11900	6410	8050	19200	16200	2030	938	579
12	1130	1580	4770	3910	14900	6040	7250	18300	12200	2050	911	537
13	1110	1520	4600	3930	15700	5680	6870	38800	9980	2220	951	532
14	1160	1480	4890	3960	13700	5420	7560	73400	9310	2040	941	531
15	1480	1420	5990	3950	12100	5310	12200	65800	12000	1760	854	570
16	1770	1400	7800	3660	11200	5520	22300	50200	21600	1600	839	614
17	2110	1380	8560	3410	10400	6020	21200	36900	21300	1490	855	775
18	2300	1350	12300	e3200	9500	7390	19500	32400	17000	1400	883	1570
19	2210	1320	26700	3140	8390	7580	15200	35000	13700	1340	813	1430
20	2050	1260	24700	2830	7610	8040	13200	33400	11400	1450	796	1160
21	1830	1210	18500	2590	7340	10300	12000	27500	9280	1440	779	993
22	1720	1230	14400	2690	7520	14000	11100	21700	7820	1400	772	986
23	1710	1270	11900	3090	7480	14400	9900	17600	6920	1370	771	1290
24	2080	1280	10400	3070	7070	13000	9000	14800	6230	1420	816	1270
25	3050	1690	9410	3650	6600	12000	8250	12700	5770	1470	837	1090
26	4630	4190	8420	6110	e6100	15300	7790	11000	5240	1540	979	971
27	3780	8080	7360	8300	6110	39300	7310	9930	4860	1540	1080	1260
28	3230	7400	6670	8180	6210	49300	7350	8720	4690	1640	1220	2490
29	3020	7240	6190	7920	---	37600	13000	8320	6070	1860	1140	3540
30	2690	7520	e5400	8420	---	28500	19900	8330	5560	2000	1010	3720
31	2440	---	e5000	10600	---	25700	---	9210	---	1830	893	---
TOTAL	64240	75130	302180	139500	302030	391970	370620	711310	370820	63110	32123	32891
MEAN	2072	2504	9748	4500	10790	12640	12350	22950	12360	2036	1036	1096
MAX	4630	8080	26700	10600	19400	49300	22300	73400	37500	4310	1670	3720
MIN	1110	1210	4600	2590	6100	5310	6870	8320	4690	1340	771	531
CFSM	0.36	0.44	1.72	0.79	1.90	2.23	2.17	4.04	2.18	0.36	0.18	0.19
IN.	0.42	0.49	1.98	0.91	1.98	2.57	2.43	4.66	2.43	0.41	0.21	0.22

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1895 - 2002, BY WATER YEAR (WY)

MEAN	4146	6992	8848	9679	10630	19870	18300	12330	7135	4011	2809	2718
MAX	20850	28330	24140	30210	29100	62970	51090	32030	37400	20080	16450	20280
(WY)	1991	1951	1928	1937	1981	1936	1993	1919	1972	1902	1994	1975
MIN	416	408	642	423	1965	5559	4633	2766	1501	847	592	425
(WY)	1931	1931	1931	1931	1931	1969	1946	1941	1999	1966	1910	1932

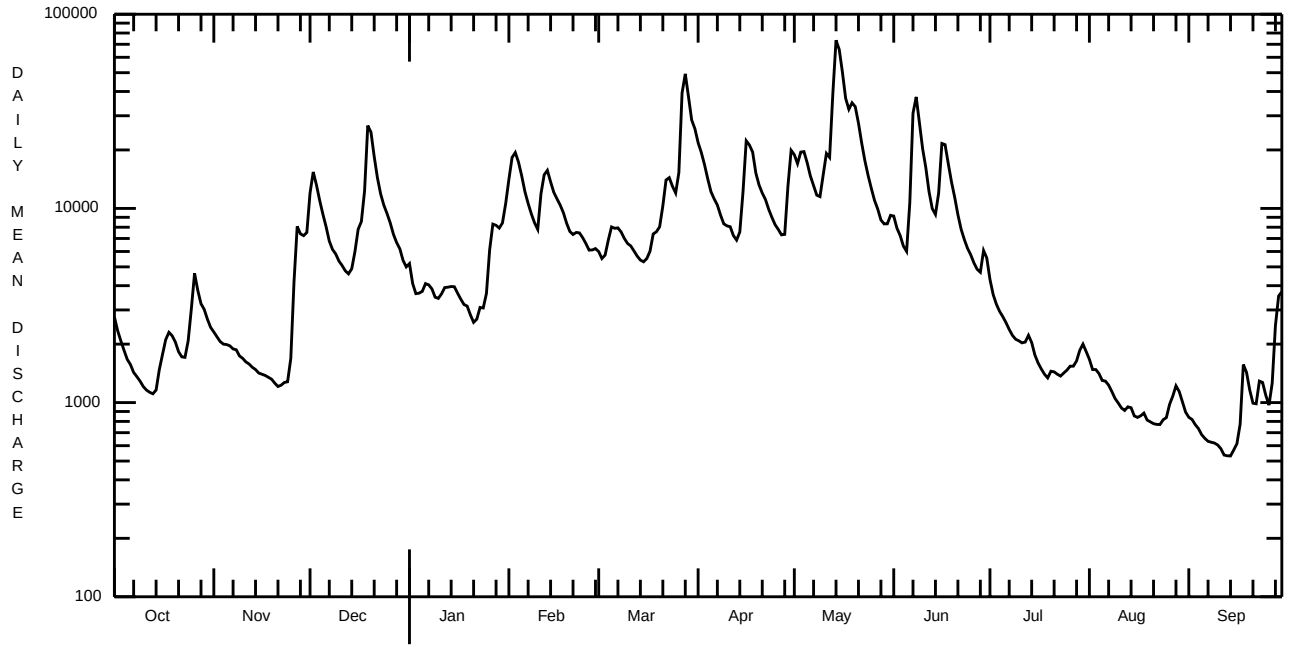
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

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

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1895 - 2002	
ANNUAL TOTAL	2120277		2855924			
ANNUAL MEAN	5809		7824		8953	
HIGHEST ANNUAL MEAN					14010	1928
LOWEST ANNUAL MEAN					5357	1934
HIGHEST DAILY MEAN	32000	Mar 23	73400	May 14	240000	Jun 23 1972
LOWEST DAILY MEAN	704	Aug 10	531	Sep 14	251	Sep 13 1932
ANNUAL SEVEN-DAY MINIMUM	737	Aug 6	567	Sep 10	328	Nov 25 1930
MAXIMUM PEAK FLOW			75800	May 14	**a**279000	Jun 23 1972
MAXIMUM PEAK STAGE			15.84	May 14	34.75	Jun 23 1972
INSTANTANEOUS LOW FLOW					162	Sep 17 1943
ANNUAL RUNOFF (CFSM)	1.02		1.38		1.58	
ANNUAL RUNOFF (INCHES)	13.88		18.70		21.41	
10 PERCENT EXCEEDS	15300		18300		20900	
50 PERCENT EXCEEDS	3360		5310		5010	
90 PERCENT EXCEEDS	1090		990		1050	

a From rating curve extended above 210,000 ft^3/s on basis of slope-area measurement at gage height 33.57 ft.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

01551500 WEST BRANCH SUSQUEHANNA RIVER AT WILLIAMSPORT, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
APR 2002													
10...	1400	9813	8130	40	12.0	7.3	185	10.4	74	17.9	7.2	12	58.8
JUN													
03...	1215	9813	7260	40	9.5	7.5	225	20.7	87	21.3	8.2	16	71.1
AUG													
12...	1300	9813	909	40	8.2	7.7	384	25.9	170	40.4	16.6	38	118

Date	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
APR 2002													
10...	126	12	<.020	.51	<.040	.69	<.01	.010	.9	<10	380	<1.0	560
JUN													
03...	58	6	<.020	.41	<.040	.49	.01	<.010	1.2	<10	200	<1.0	490
AUG													
12...	340	6	<.020	.63	<.040	.77	<.01	.010	1.4	<10	50	<1.0	70

Date	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002		
10...	<50	<10
JUN		
03...	<50	50
AUG		
12...	<50	<10

WEST BRANCH SUSQUEHANNA RIVER BASIN

01552000 LOYALSOCK CREEK AT LOYALSOCKVILLE, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 41°19'30", long 76°54'46", Lycoming County, Hydrologic Unit 02050206, on right bank 30 ft downstream from bridge on State Highway 973 at Loyalsockville, 2.5 mi downstream from Wallis Run, and 7.3 mi upstream from mouth.

DRAINAGE AREA.--435 mi^2 .

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1925 to September 1974, October 1975 to current year. Prior to October 1925, monthly discharge only, published in WSP 1302. Prior to October 1969, published as "at Loyalsock".

REVISED RECORDS.--WSP 871: 1938(M). WSP 1051: 1926(M), 1933(M), 1936(M). WSP 1302: 1926-30. WSP 1502: 1932-33, 1935(M), 1937(M). WDR PA-99-2: Drainage area, 1972(M).

GAGE.--Water-stage recorder. Datum of gage is 586.33 ft above National Geodetic Vertical Datum of 1929 (revised). August 1925 to Sept. 16, 1926, nonrecording gage, and Sept. 17, 1926, to June 13, 1988, water-stage recorder at site 500 feet downstream on left bank at same datum.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 26, l975, reached a stage of 14.50 ft, from floodmark, discharge, 46,000 ft^3/s (revised), from rating curve extended above 16,000 ft^3/s on basis of slope-area measurement of peak flow.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 6,400 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 26	2330	*14,700	*9.76	May 13	2215	11,700	8.92

REVISIONS.--The maximum discharges for water years 1926-95 have been revised from review of historical data. The updated maximum discharges are available at the U.S. Geological Survey Home Page at *[http://waterdata.usgs.gov/pa/nwis/peak]*.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	627	296	2120	e460	1740	451	1300	959	448	234	81	42
2	532	e290	1490	e420	1870	430	1120	1090	408	212	75	44
3	459	e280	1160	491	1360	628	973	1240	344	196	68	45
4	404	e270	963	471	1160	820	859	995	306	180	66	57
5	356	e260	837	423	e900	596	761	875	294	165	68	49
6	328	e250	744	e350	841	575	698	784	680	150	64	41
7	309	e240	672	382	755	574	643	731	1830	141	64	36
8	288	e230	616	343	695	534	599	669	995	122	60	32
9	265	221	633	339	633	511	576	749	690	122	54	29
10	244	213	629	326	661	676	659	789	560	119	49	28
11	230	206	565	328	3210	706	604	678	478	114	44	28
12	219	201	549	333	2030	602	528	733	425	105	42	28
13	210	192	595	322	1530	572	520	4510	447	98	41	26
14	216	181	785	307	1130	556	679	7970	497	92	40	24
15	353	179	995	294	1030	531	1090	3710	1030	88	39	34
16	358	178	873	291	925	627	1110	2270	1570	84	38	59
17	407	173	844	279	845	820	905	1690	1060	80	38	67
18	409	165	1430	273	738	691	796	2540	811	75	37	63
19	340	159	1480	249	644	666	728	2610	1530	74	37	50
20	311	160	1200	224	623	732	682	1810	1160	150	44	42
21	293	164	1030	272	718	1000	662	1470	821	196	41	38
22	279	164	879	269	706	1070	626	1220	660	124	37	49
23	276	157	785	258	615	942	601	1040	557	112	38	737
24	440	153	786	283	549	879	547	900	483	147	48	535
25	536	395	730	512	519	824	516	786	427	165	64	271
26	448	1720	635	555	504	3430	525	695	378	123	66	179
27	399	1100	546	518	529	8830	482	626	338	101	67	426
28	362	834	e520	556	512	3860	599	558	320	102	54	1630
29	343	826	e480	650	---	2450	1350	510	299	106	48	760
30	326	984	e470	1150	---	1870	1070	482	262	111	45	450
31	308	---	e460	1460	---	1460	---	448	---	94	41	---
TOTAL	10875	10841	26501	13388	27972	38913	22808	46137	20108	3982	1598	5899
MEAN	350.8	361.4	854.9	431.9	999.0	1255	760.3	1488	670.3	128.5	51.55	196.6
MAX	627	1720	2120	1460	3210	8830	1350	7970	1830	234	81	1630
MIN	210	153	460	224	504	430	482	448	262	74	37	24
CFSM	0.81	0.83	1.97	0.99	2.30	2.89	1.75	3.42	1.54	0.30	0.12	0.45
IN.	0.93	0.93	2.27	1.14	2.39	3.33	1.95	3.95	1.72	0.34	0.14	0.50

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 2002, BY WATER YEAR (WY)

MEAN	473.0	840.3	890.2	773.4	825.2	1472	1561	958.2	512.4	275.6	264.4	272.6
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

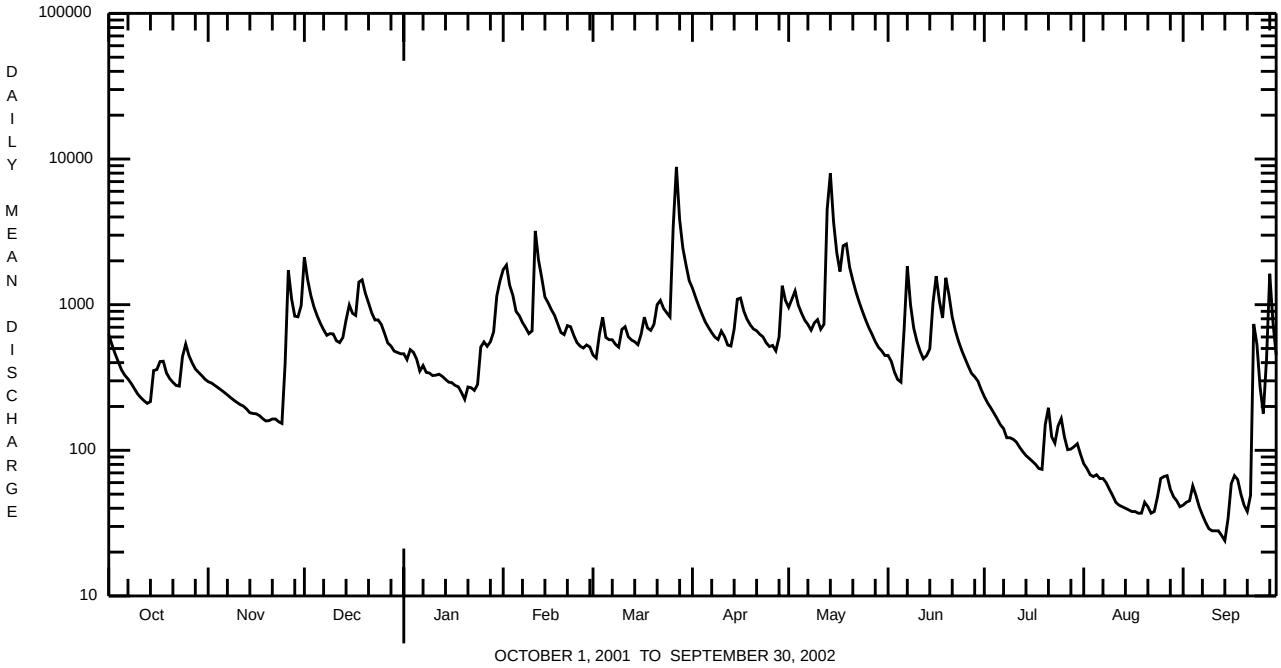
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01552000 LOYALSOCK CREEK AT LOYALSOCKVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1926 - 2002	
ANNUAL TOTAL	202461		229022			
ANNUAL MEAN	555		628		759	
HIGHEST ANNUAL MEAN					1312	1978
LOWEST ANNUAL MEAN					332	1965
HIGHEST DAILY MEAN	8710	Sep 25	8830	Mar 27	45000	Jun 23 1972
LOWEST DAILY MEAN	42	Aug 16	24	Sep 14	11	Sep 25,26 1964
ANNUAL SEVEN-DAY MINIMUM	49	Aug 10	28	Sep 8	12	Sep 20 1964
MAXIMUM PEAK FLOW			**a**14700	Mar 26	**a**55800	Jan 19 1996
MAXIMUM PEAK STAGE			9.76	Mar 26	**b**17.93	Jan 19 1996
INSTANTANEOUS LOW FLOW					11	Sep 25,26 1964**c**
ANNUAL RUNOFF (CFSM)	1.28		1.44		1.74	
ANNUAL RUNOFF (INCHES)	17.31		19.59		23.71	
10 PERCENT EXCEEDS	1200		1180		1680	
50 PERCENT EXCEEDS	296		478		400	
90 PERCENT EXCEEDS	122		52		68	

a From rating curve extended above 11,000 ft^3/s on basis of slope-area measurement of peak flow.
b From floodmark in gage.
c Also Nov. 24, 1964.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01552000 LOYALSOCK CREEK AT LOYALSOCKVILLE, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)
APR 2002													
08...	1330	9813	601	30	12.4	7.7	53	6.8	23	6.94	7.1	1.18	1.2
JUN													
03...	1045	9813	346	30	10.5	7.8	65	17.8	22	7.01	6.9	1.15	1.1
AUG													
08...	1500	9813	59	30	10.0	8.7	66	22.8	29	9.46	9.3	1.44	1.4

Date	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)
APR 2002													
08...	.0	11	9.2	22	<2	<.020	.36	<.040	.46	.01	<.010	<.2	<4
JUN													
03...	.0	15	8.8	58	6	<.020	.18	<.040	.30	.01	<.010	4.1	<4
AUG													
08...	.0	20	8.8	36	4	<.020	.21	<.040	.28	<.01	<.010	1.7	<4

Date	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002									
08...	<4	<20	30	<1.0	<1.0	<4.0	<4.0	<5.0	<5.0
JUN									
03...	<4	<20	20	<1.0	<1.0	<4.0	<4.0	<5.0	<5.0
AUG									
08...	<4	<20	20	<1.0	<1.0	<4.0	<4.0	<5.0	<5.0

WEST BRANCH SUSQUEHANNA RIVER BASIN

01552500 MUNCY CREEK NEAR SONESTOWN, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 41°21'25", long 76°32'06", Sullivan County, Hydrologic Unit 02050206, on right bank 150 ft downstream from Slip Run, 185 ft downstream from bridge on SR 2002, and 1.2 mi east of Sonestown.

DRAINAGE AREA.--23.8 mi^2.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1502: 1941-42; WDR PA-00-2: 1942, 1946, 1951-52, 1959, 1964, 1972, 1975, 1977-79, 1984, 1986, 1988, 1991, 1993-94, 1996-97(P).

GAGE.--Water-stage recorder. Datum of gage is 1,025.01 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 31, 1941, nonrecording gage at same site and datum.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1936 reached a stage of about 9.3 ft, discharge not determined.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 1,100 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
May 13	1430	*1,650	*5.57	No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	13	112	e20	123	e25	76	57	23	12	4.3	2.7
2	17	13	81	e19	101	e25	62	95	19	11	4.1	5.6
3	15	13	65	e18	78	91	55	74	17	11	4.9	2.9
4	13	13	54	e17	66	56	45	63	16	11	3.7	2.3
5	11	12	46	e16	e52	e50	40	55	37	11	4.0	2.0
6	12	11	41	e18	44	e46	36	47	179	8.5	6.1	1.9
7	11	11	37	e18	38	40	33	43	150	8.0	3.8	1.8
8	9.6	11	34	e16	35	37	31	38	82	7.1	3.3	1.7
9	9.1	10	41	e17	31	36	32	56	59	6.9	2.9	1.6
10	9.1	9.8	36	19	53	93	39	45	44	8.0	2.7	1.5
11	8.6	9.6	33	19	150	55	30	37	36	6.4	2.6	1.5
12	8.6	9.1	32	18	81	50	28	86	39	5.8	2.4	1.5
13	8.4	8.8	45	17	67	46	30	662	41	5.7	2.4	1.4
14	8.3	8.6	51	16	e58	42	52	497	67	5.3	2.2	1.4
15	22	8.6	56	15	49	38	133	202	180	5.0	2.1	6.2
16	15	8.6	47	15	43	89	84	126	175	4.5	2.0	7.0
17	27	8.4	57	14	39	64	69	98	112	4.3	2.0	3.3
18	17	7.9	121	14	33	60	58	209	80	4.1	2.3	2.4
19	16	7.7	89	e22	e31	57	51	135	66	37	2.2	2.2
20	14	9.0	75	e17	29	72	46	106	51	24	2.2	2.2
21	13	8.4	62	15	35	92	41	86	40	9.0	2.1	3.2
22	13	7.8	51	13	30	83	39	69	33	6.7	2.0	57
23	14	7.5	45	14	27	68	37	57	29	14	2.7	141
24	29	7.7	50	23	24	62	32	48	25	15	4.4	24
25	22	131	40	31	23	59	32	40	22	8.3	5.1	13
26	19	121	35	25	25	225	31	35	20	7.0	2.9	10
27	18	75	e34	26	32	282	28	31	19	6.7	2.3	107
28	16	56	e30	32	e26	157	71	28	18	7.8	2.0	108
29	16	57	e28	47	---	118	76	26	15	7.7	2.0	48
30	15	88	e24	97	---	101	63	24	13	6.0	2.2	32
31	14	---	e22	96	---	82	---	26	---	5.1	2.1	---
TOTAL	459.7	762.5	1574	764	1423	2401	1480	3201	1707	289.9	92.0	596.3
MEAN	14.83	25.42	50.77	24.65	50.82	77.45	49.33	103.3	56.90	9.352	2.968	19.88
MAX	29	131	121	97	150	282	133	662	180	37	6.1	141
MIN	8.3	7.5	22	13	23	25	28	24	13	4.1	2.0	1.4
CFSM	0.62	1.07	2.13	1.04	2.14	3.25	2.07	4.34	2.39	0.39	0.12	0.84
IN.	0.72	1.19	2.46	1.19	2.22	3.75	2.31	5.00	2.67	0.45	0.14	0.93

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2002, BY WATER YEAR (WY)

MEAN	31.98	55.99	61.24	50.80	54.00	85.20	88.15	60.02	30.83	18.10	16.71	21.79
MAX	127	140	161	167	236	168	220	156	240	93.0	95.3	167
(WY)	1977	1973	1974	1976	1981	1964	1993	1946	1972	1972	1994	1975
MIN	1.44	2.62	8.57	6.60	7.70	25.4	20.9	11.9	4.93	2.21	1.60	0.73
(WY)	1965	1965	1999	1981	1987	1981	1946	1941	1991	1999	1957	1964

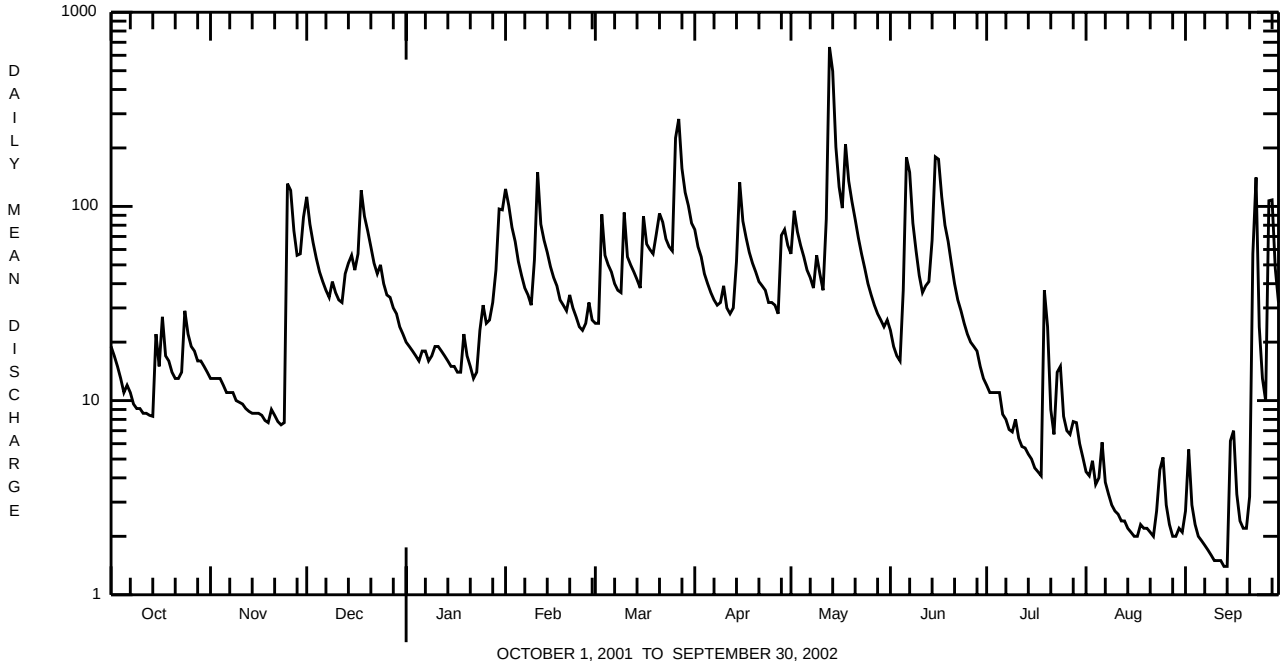
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01552500 MUNCY CREEK NEAR SONESTOWN, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1941 - 2002	
ANNUAL TOTAL	11672.0		14750.4			
ANNUAL MEAN	32.0		40.4		47.8	
HIGHEST ANNUAL MEAN					77.3	1978
LOWEST ANNUAL MEAN					22.1	1965
HIGHEST DAILY MEAN	247	Sep 25	662	May 13	3910	Jun 22 1972
LOWEST DAILY MEAN	2.0	Aug 15	1.4	Sep 13,14	0.20	Sep 11 1964
ANNUAL SEVEN-DAY MINIMUM	2.7	Aug 9	1.5	Sep 8	0.31	Sep 8 1964
MAXIMUM PEAK FLOW			**a**1650	May 13	**a**4630	Jun 22 1972
MAXIMUM PEAK STAGE			5.57	May 13	8.94	Jun 22 1972
INSTANTANEOUS LOW FLOW					0.10	Sep 11 1964
ANNUAL RUNOFF (CFSM)	1.34		1.70		2.01	
ANNUAL RUNOFF (INCHES)	18.24		23.06		27.31	
10 PERCENT EXCEEDS	76		89		101	
50 PERCENT EXCEEDS	18		26		25	
90 PERCENT EXCEEDS	4.3		2.9		4.3	

a From rating curve extended above 900 ft^3/s.



WEST BRANCH SUSQUEHANNA RIVER BASIN

01552500 MUNCY CREEK NEAR SONESTOWN, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)
APR 2002													
08...	0930	9813	31	30	12.8	8.0	51	3.9	19	6.48	6.2	.88	.8
MAY													
06...	0800	9813	48	30	12.1	7.4	56	8.0	21	6.73	7.0	.92	1.0
JUN													
04...	1045	9813	16	30	11.5	7.6	63	13.1	25	8.21	8.3	1.06	1.1
JUL													
10...	0815	9813	8.5	30	8.9	7.3	76	18.0	29	9.37	9.6	1.12	1.2
AUG													
08...	1015	9813	3.3	30	9.9	7.8	73	16.7	33	--	11.0	--	1.3
SEP													
10...	0800	9813	1.6	30	9.7	7.9	101	15.8	39	13.0	13.3	1.42	1.5

Date	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, TOTAL (MG/L AS F) (00951)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
APR 2002													
08...	.0	10	3.4	<.2	8.1	26	10	<.020	.34	<.040	.43	.01	<.010
MAY													
06...	.0	12	3.1	<.2	8.2	10	<2	<.020	.24	<.040	.29	<.01	<.010
JUN													
04...	.0	17	3.1	<.2	7.7	86	2	<.020	.13	<.040	.18	<.01	<.010
JUL													
10...	.0	22	3.3	<.2	7.0	106	8	<.020	.34	<.040	.39	<.01	<.010
AUG													
08...	--	28	4.4	<.2	7.0	54	4	<.020	.20	<.040	.26	<.01	<.010
SEP													
10...	.0	32	5.2	<.2	7.2	34	<2	.130	.23	<.040	.25	.02	.012

WEST BRANCH SUSQUEHANNA RIVER BASIN

01552500 MUNCY CREEK NEAR SONESTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	FECAL COLI-FORM, MFC MF, WATER (COL/ 100 ML) (31616)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)
APR 2002													
08...	1.8	40	<4	<4	<20	<20	<1.0	<1.0	<2.0	<2	<4.0	<4.0	<5.0
MAY													
06...	1.0	20	<4	<4	<20	80	<1.0	<1.0	<2.0	<2	<4.0	<4.0	<5.0
JUN													
04...	1.0	<20	<4	<4	<20	<20	<1.0	<1.0	<2.0	<2	<4.0	<4.0	<5.0
JUL													
10...	1.0	80	<4	<4	<20	<20	<1.0	<1.0	2.1	3.1	<4.0	<4.0	<5.0
AUG													
08...	1.3	20	<4	<4	<20	<20	<1.0	<1.0	3.7	4.2	<4.0	<4.0	<5.0
SEP													
10...	1.0	20	<4	<4	<20	<20	<1.0	<1.0	3.4	3.9	<4.0	<4.0	<5.0

Date	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)	PHENOLS TOTAL (µG/L) (32730)
APR 2002		
08...	<5.0	<5
MAY		
06...	<5.0	<5
JUN		
04...	<5.0	<5
JUL		
10...	<5.0	<5
AUG		
08...	<5.0	<5
SEP		
10...	<5.0	<5

WEST BRANCH SUSQUEHANNA RIVER BASIN

01553500 WEST BRANCH SUSQUEHANNA RIVER AT LEWISBURG, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 40°58'03", long 76°52'36", Northumberland County, Hydrologic Unit 02050206, at downstream side of left abutment of Market Street bridge on State Highway 45 at Lewisburg, 0.2 mi downstream from Buffalo Creek, and 7.4 mi upstream from mouth.

DRAINAGE AREA.--6,847 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1939 to current year. September 1913 to August 1923 (gage heights only), are contained in reports of Water Supply Commission of Pennsylvania or Pennsylvania Department of Forests and Waters.

GAGE.--Water-stage recorder. Datum of gage is 428.20 ft above National Geodetic Vertical Datum of 1929. Sept. 21, 1913, to Aug. 31, 1923, Dec. 7, 1939, to July 2, 1940, and Oct. 20, 1987, to Sept. 30, 1988, nonrecording gage at same site and datum. Since Oct. 1, 1942, water-stage recorder for Susquehanna River at Sunbury (station 01553990) used as an auxiliary gage.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 19, 1936, reached a stage of 32.1 ft, from floodmarks (backwater from Susquehanna River), discharge, 287,000 ft^3/s from slope-area measurement at Watsontown, 8.0 mi upstream.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4210	2920	11700	e4700	14700	6680	24700	20900	11400	5740	2200	1100
2	3570	2810	16600	e4500	19200	6250	21700	19300	9800	4790	1980	1060
3	3160	2700	15400	e4200	21200	6580	19100	20900	8850	4240	1810	1050
4	2850	2610	12800	e4100	19600	7310	16300	21300	8020	3870	1830	976
5	2580	2550	10700	e4100	17000	8490	14000	19600	7260	3580	1710	e900
6	2360	2540	9310	4420	14200	8620	12500	16800	10900	3360	1610	e880
7	2210	2490	7880	4290	12000	8650	11500	14800	27700	3130	1590	e850
8	2100	2420	7030	e4300	10700	8320	10600	13200	41700	2920	1510	e820
9	1970	2390	6890	e4100	9580	7810	9390	13300	33000	2770	1380	e820
10	1850	2250	6550	4010	8680	7760	9010	15200	24100	2710	1280	e800
11	1770	2210	6060	4190	12800	7350	8950	19800	19300	2580	1220	e800
12	1720	2140	5720	4410	16900	7000	8240	20000	15600	2560	1170	e780
13	1700	2080	5490	4620	17600	6550	7650	36800	12400	2600	1130	e720
14	1660	2020	5680	4480	16200	6260	8020	82700	11800	2730	1200	e700
15	2030	1980	6560	4570	13900	6070	11300	75900	14300	2410	1180	e720
16	2350	1950	8060	4390	12700	6470	21100	59300	23200	2160	1070	e780
17	2670	1950	9240	4150	11600	7050	22900	43300	25600	2000	1080	857
18	2990	1890	12000	3960	10800	7650	21200	37800	21200	1890	1100	1080
19	2960	1840	23600	3790	9630	8980	17500	38700	17100	1840	1120	2070
20	2790	1840	27300	e3600	8630	9290	14800	38300	14700	1890	1030	1750
21	2570	1790	21400	3340	8220	12100	13200	32300	12200	2000	985	1480
22	2400	1760	16800	3230	8230	14800	12200	25900	10100	1900	956	1760
23	2320	1760	13600	3570	8300	16700	11100	21200	8880	1870	956	2930
24	2480	1780	11800	3730	7830	15100	9990	17700	7890	1890	1010	2860
25	3130	2010	10600	4200	7390	13800	9170	15300	7390	1930	1080	2110
26	4670	4770	9570	5490	6880	14400	8630	13200	6720	1900	1110	1730
27	4830	7930	8420	8350	6760	44400	8140	11900	6370	2020	1280	2060
28	3930	8590	7530	8890	6810	54200	7980	10600	5990	2090	1410	4620
29	3660	7910	6990	8650	---	45200	11300	10000	6260	2330	1550	5150
30	3400	8170	e6500	9100	---	33200	19700	10100	7470	2440	1420	5380
31	3100	---	e5600	11300	---	28700	---	11400	---	2410	1260	---
TOTAL	85990	92050	333380	154730	338040	441740	401870	807500	437200	82550	41217	49593
MEAN	2774	3068	10750	4991	12070	14250	13400	26050	14570	2663	1330	1653
MAX	4830	8590	27300	11300	21200	54200	24700	82700	41700	5740	2200	5380
MIN	1660	1760	5490	3230	6760	6070	7650	10000	5990	1840	956	700
CFSM	0.41	0.45	1.57	0.73	1.76	2.08	1.96	3.80	2.13	0.39	0.19	0.24
IN.	0.47	0.50	1.81	0.84	1.84	2.40	2.18	4.39	2.38	0.45	0.22	0.27

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2002, BY WATER YEAR (WY)

MEAN	5152	8939	11520	11240	13000	21730	22410	14950	8886	4681	3398	3508
MAX	24900	32000	28230	30740	33010	49200	62990	28750	46900	20120	18700	24080
(WY)	1991	1951	1973	1952	1981	1945	1993	1978	1972	1972	1994	1975
MIN	659	762	1727	1752	2914	6169	5822	3353	1807	1032	983	601
(WY)	1964	1965	1961	1981	1940	1969	1946	1941	1999	1965	1966	1964

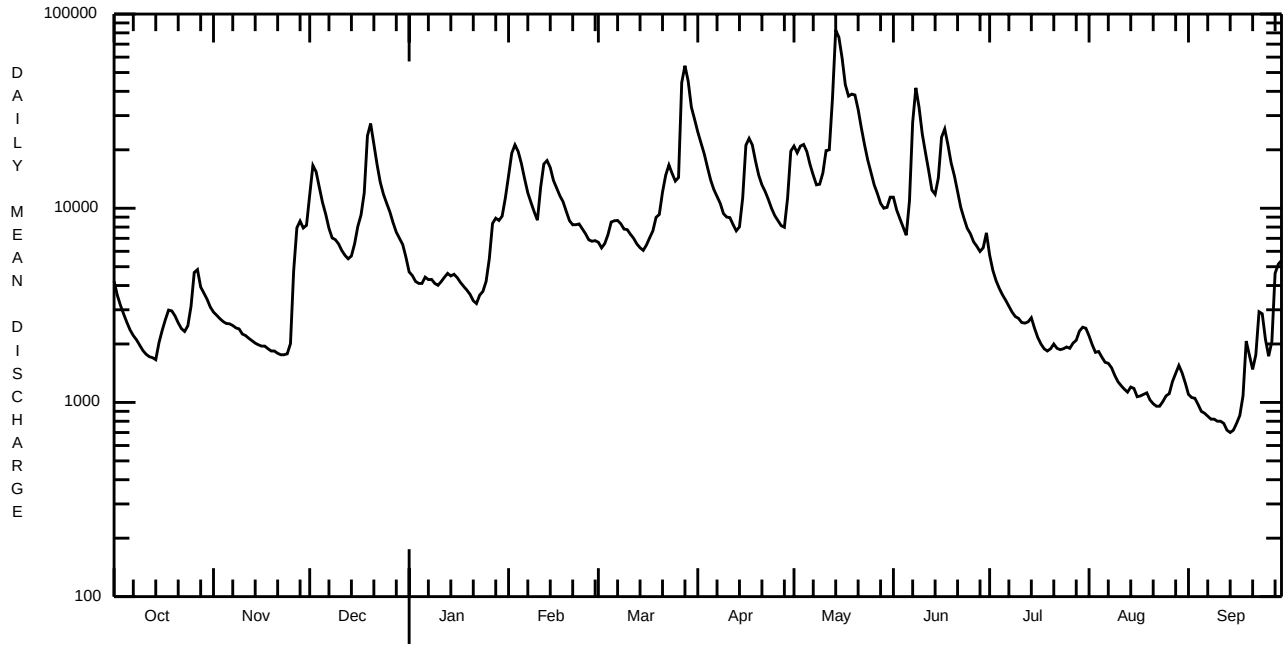
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

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

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1940 - 2002	
ANNUAL TOTAL	2466020		3265860			
ANNUAL MEAN	6756		8948		10770	
HIGHEST ANNUAL MEAN					16710	1978
LOWEST ANNUAL MEAN					6158	1965
HIGHEST DAILY MEAN	33000	Mar 23	82700	May 14	285000	Jun 24 1972
LOWEST DAILY MEAN	1050	Aug 11	**e**700	Sep 14	417	Nov 16 1964
ANNUAL SEVEN-DAY MINIMUM	1100	Aug 7	**a**757	Sep 10	511	Sep 15 1964
MAXIMUM PEAK FLOW			85800	May 14	**b**300000	Jun 24 1972
MAXIMUM PEAK STAGE			15.69	May 14	**c**34.23	Jun 24 1972
INSTANTANEOUS LOW FLOW					390	Nov 16 1964
ANNUAL RUNOFF (CFSM)	0.99		1.31		1.57	
ANNUAL RUNOFF (INCHES)	13.40		17.74		21.36	
10 PERCENT EXCEEDS	17100		19900		24400	
50 PERCENT EXCEEDS	3820		6250		6350	
90 PERCENT EXCEEDS	1590		1280		1460	

a Computed using estimated daily discharges.
b About.
c From floodmarks (backwater from Susquehanna River).
e Estimated.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

01553500 WEST BRANCH SUSQUEHANNA RIVER AT LEWISBURG, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
APR 2002													
24...	1100	9813	10000	40	10.8	7.1	146	11.3	57	14.8	5.0	19	42.2
JUN													
20...	1115	9813	14800	40	8.8	6.9	149	18.4	62	15.5	5.7	17	42.1
AUG													
20...	1150	9813	1030	40	7.3	8.0	376	27.5	150	39.2	13.2	56	98.7

Date	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
APR 2002													
24...	108	<2	.040	.49	<.040	.64	<.01	.010	1.3	<10	270	<1.0	210
JUN													
20...	102	28	<.020	.46	<.040	.56	.02	.030	1.9	<10	1270	1.2	400
AUG													
20...	260	6	.030	.89	<.040	1.2	.02	.030	2.2	<10	70	<1.0	40

Date	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002		
24...	<50	<10
JUN		
20...	<50	30
AUG		
20...	<50	<10

WEST BRANCH SUSQUEHANNA RIVER BASIN

01553700 CHILLISQUAQUE CREEK AT WASHINGTONVILLE, PA

LOCATION.--Lat 41°03'42", long 76°40'50", Montour County, Hydrologic Unit 02050206, on left bank 60 ft upstream from bridge on State Highway 54, and 0.7 mi north of U.S. Post Office in Washingtonville.

DRAINAGE AREA.--51.3 mi^2.

PERIOD OF RECORD.--May 1979 to current year.

REVISED RECORDS.--WDR PA-82-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 503.70 ft above National Geodetic Vertical Datum of 1929 (Pennsylvania Power and Light Co. benchmark).

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow includes diversion from West Branch Susquehanna River. Several measurements of water temperature were made during the year. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 1,200 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 26	2315	1,210	5.80	May 13	1745	*3,220	*9.81

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	19	122	18	199	19	77	68	37	19	18	15
2	20	19	65	19	139	18	56	298	29	18	17	15
3	19	18	47	19	101	45	49	207	25	17	16	15
4	16	17	38	19	86	33	41	115	22	16	16	14
5	16	17	33	20	60	24	36	84	21	18	19	14
6	18	17	30	21	50	24	34	64	205	18	19	14
7	17	19	28	25	48	24	30	54	322	18	17	14
8	19	20	32	22	44	22	29	44	93	18	16	15
9	19	22	113	21	39	22	28	255	59	17	15	15
10	19	23	61	21	51	33	28	148	45	17	15	14
11	18	18	48	25	353	25	24	91	38	15	15	15
12	18	16	40	28	128	24	21	454	35	15	14	15
13	e18	17	41	29	100	25	22	1650	35	15	14	15
14	e20	18	45	28	74	25	33	1230	88	16	15	14
15	e26	16	64	29	64	23	296	389	367	16	15	15
16	22	15	40	32	61	78	166	184	263	15	14	16
17	23	17	74	33	52	55	91	98	107	15	14	15
18	21	17	225	35	42	56	68	492	69	14	14	15
19	21	17	128	29	37	58	59	206	51	16	13	15
20	19	17	86	e28	36	201	53	127	41	16	14	16
21	18	16	61	27	37	222	46	91	35	15	14	17
22	17	16	47	26	32	126	44	73	30	15	13	36
23	17	16	41	27	28	e100	39	62	27	19	14	98
24	20	16	43	58	25	e90	36	52	25	22	16	27
25	19	53	35	100	23	e80	38	45	25	17	15	20
26	19	73	30	86	23	342	38	42	22	16	14	48
27	20	38	27	77	27	663	34	38	25	19	14	141
28	20	31	e24	71	22	208	65	34	31	23	14	178
29	19	36	e22	75	---	124	116	52	22	22	14	57
30	19	62	e20	157	---	93	80	41	20	19	14	37
31	19	---	e18	204	---	72	---	38	---	18	14	---
TOTAL	597	716	1728	1409	1981	2954	1777	6826	2214	534	466	955
MEAN	19.26	23.87	55.74	45.45	70.75	95.29	59.23	220.2	73.80	17.23	15.03	31.83
MAX	26	73	225	204	353	663	296	1650	367	23	19	178
MIN	16	15	18	18	22	18	21	34	20	14	13	14
CFSM	0.38	0.47	1.09	0.89	1.38	1.86	1.15	4.29	1.44	0.34	0.29	0.62
IN.	0.43	0.52	1.25	1.02	1.44	2.14	1.29	4.95	1.61	0.39	0.34	0.69

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 2002, BY WATER YEAR (WY)

MEAN	45.15	80.71	90.60	78.97	100.5	125.7	108.4	70.15	56.01	32.41	28.77	34.43
MAX	211	149	274	269	243	336	286	228	221	102	87.0	99.8
(WY)	1991	1987	1997	1996	1981	1994	1993	1989	1982	1984	1990	1987
MIN	16.5	23.4	22.2	20.7	25.6	38.3	34.4	17.8	16.0	12.9	15.0	13.0
(WY)	1983	2001	1990	2001	1993	1981	1997	2001	1991	1999	2002	1995

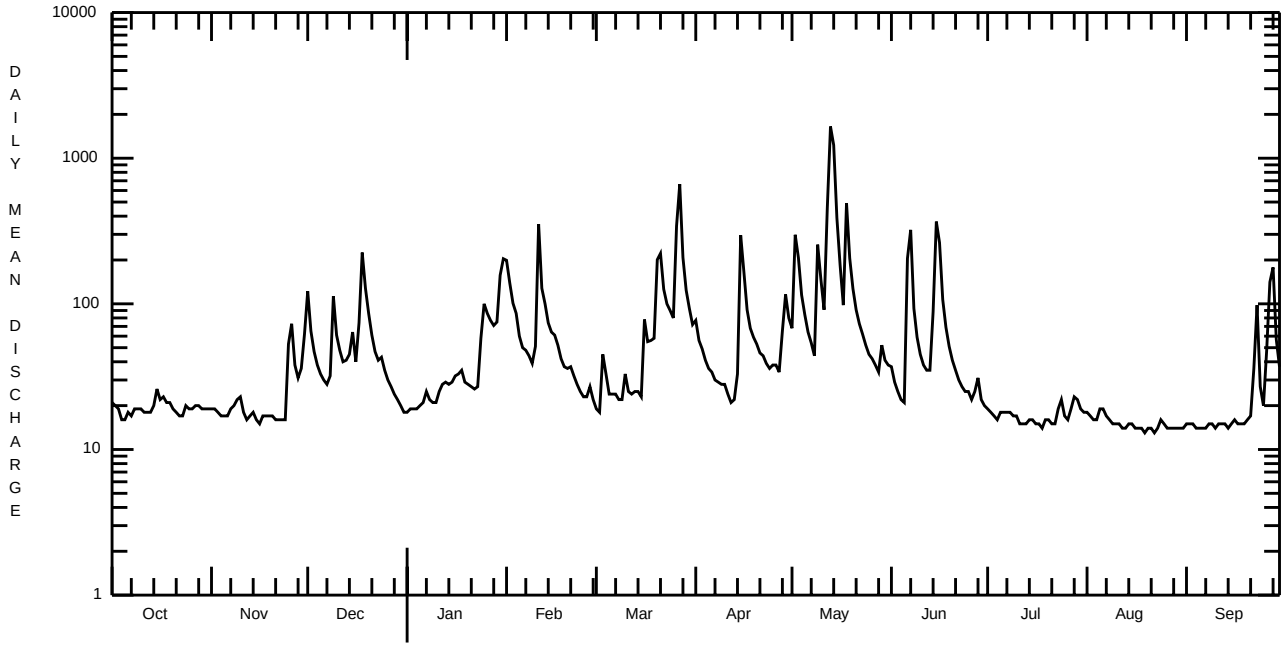
e Estimated.

WEST BRANCH SUSQUEHANNA RIVER BASIN

01553700 CHILLISQUAQUE CREEK AT WASHINGTONVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1979 - 2002	
ANNUAL TOTAL	17131		22157			
ANNUAL MEAN	46.9		60.7		70.8	
HIGHEST ANNUAL MEAN					108	1984
LOWEST ANNUAL MEAN					48.1	2001
HIGHEST DAILY MEAN	620	Jun 23	1650	May 13	2080	Mar 15 1986
LOWEST DAILY MEAN	13	May 16,17**a**	13	Aug 19,22	6.2	Jul 27 1991
ANNUAL SEVEN-DAY MINIMUM	14	Aug 21	14	Aug 16	7.6	Jul 27 1999
MAXIMUM PEAK FLOW			**b**3220	May 13	**b**3770	Jan 19 1996
MAXIMUM PEAK STAGE			9.81	May 13	11.27	Jan 19 1996
ANNUAL RUNOFF (CFSM)	0.91		1.18		1.38	
ANNUAL RUNOFF (INCHES)	12.42		16.07		18.74	
10 PERCENT EXCEEDS	107		118		142	
50 PERCENT EXCEEDS	20		26		35	
90 PERCENT EXCEEDS	15		15		17	

a Also Aug. 9, 14, 15, 24-27.
b From rating curve extended above 2,600 ft^3/s.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

WEST BRANCH SUSQUEHANNA RIVER BASIN

LAKES AND RESERVOIRS IN WEST BRANCH SUSQUEHANNA RIVER BASIN

01541180 CURWENSVILLE LAKE.--Lat 40°57'13", long 78°31'40", Clearfield County, Hydrologic Unit 02050201, at Curwensville Dam on West Branch Susquehanna River, 0.7 mi upstream from State Highway 453, 1.2 mi south of Curwensville, and 2.5 mi upstream from Anderson Creek. DRAINAGE AREA, 365 mi^2. PERIOD OF RECORD, November 1965 to current year. GAGE, water-stage recorder (U.S. Army Corps of Engineers datum).

REMARKS.--Reservoir formed by earthfill dam with excavated chute spillway and concrete control sill at elevation 1,228.00 ft. Storage began in November 1965. Capacity at elevation 1,228.00 ft is 124,200 acre-ft. Conservation pool elevation is 1,155.00 ft, capacity, 4,870 acre-ft. Reservoir is used for flood control, recreation and study of water quality. Figures given herein represent total contents. Flow regulated by three gates and low-flow bypass system. Satellite and landline telemetry at station.

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 87,650 acre-ft, June 25, 1972, elevation, 1,214.11 ft; minimum, 252 acre-ft, Nov. 6, 1968, elevation, 1,136.70 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 12,670 acre-ft, Mar. 27, elevation, 1,165.63 ft; minimum, 8,290 acre-ft, Oct. 11, elevation, 1,160.35 ft.

01541340 GLENDALE LAKE.--Lat 40°41'50", long 78°32'15", Cambria County, Hydrologic Unit 02050201, at Glendale Dam on Beaverdam Run, 1.0 mi upstream from Dutch Run, 1.3 mi southwest of Flinton, 1.9 mi above mouth, and 3.4 mi south of Coalport. DRAINAGE AREA, 41.9 mi^2. PERIOD OF RECORD, January 1963 to current year. GAGE, water-stage recorder. Datum of gage is sea level.

REMARKS.--Reservoir formed by an earth and rockfill dam with ungated concrete spillway at elevation 1,435.00 ft. Storage began Dec. 1, 1960. Capacity at elevation 1,435.00 ft is 41,200 acre-ft of which 15,900 acre-ft is controlled storage above elevation 1,427.00 ft. Dead storage is 25,300 acre-ft. Reservoir is used for flood control and recreation. Figures given herein represent total contents. Outflow is controlled by 72-inch gate and an 8-inch bypass valve. Satellite telemetry at station.

COOPERATION.--Records provided by Pennsylvania Department of Environmental Protection.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 33,390 acre-ft, June 24, 1972, elevation, 1,431.63 ft; minimum, 10,640 acre-ft, Nov. 16, 1965, elevation, 1,415.53 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 28,120 acre-ft, May 18, 19, elevation, 1,428.76 ft; minimum, 24,850 acre-ft, Sept. 14, 15, elevation, 1,426.70 ft

01543900 FIRST FORK SINNEMAHONING CREEK RESERVOIR.--Lat 41°24'25", long 78°01'10", Cameron County, Hydrologic Unit 02050202, at control tower of George B. Stevenson Dam on First Fork Sinnemahoning Creek, 8.0 mi northeast of Sinnemahoning, and 8.0 mi upstream from mouth. DRAINAGE AREA, 243 mi^2. PERIOD OF RECORD, January 1956 to current year. GAGE, water-stage recorder. Datum of gage is sea level.

REMARKS.--Reservoir is formed by an earthfill dam. Storage began Jan. 31, 1956. Capacity, 75,800 acre-ft between elevations 890.00 ft (sill of outlet gates) and 1,026.00 ft (crest of spillway). No dead storage. Ordinary minimum (conservation) pool elevation is 920.00 ft, capacity, 2,000 acre-ft. Reservoir is used for flood control and recreation. Figures given herein represent total contents. Satellite telemetry at station.

COOPERATION.--Records provided by Pennsylvania Department of Environmental Protection.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 62,030 acre-ft, June 26, 1972, elevation, 1,015.87 ft; minimum, (after first filling), 37 acre-ft many days in October 1973, elevation, 891.84 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 20,410 acre-ft, May 15, elevation, 968.74 ft; minimum, 1,810 acre-ft, Sept. 15, elevation, 918.14 ft.

01544800 KETTLE CREEK LAKE (formerly published as Alvin R. Bush Reservoir).--Lat 41°21'37", long 77°55'27", Clinton County, Hydrologic Unit 02050203, at control tower of dam on Kettle Creek, 1.1 mi downstream from Sugar Camp Run, and 8.5 mi upstream from mouth and Westport. DRAINAGE AREA, 226 mi^2. PERIOD OF RECORD, February 1962 to current year. GAGE, water-stage recorder (U.S. Army Corps of Engineers datum).

REMARKS.--Reservoir formed by an earthfill embankment, rock faced, with ungated concrete spillway at elevation 937.00 ft. Storage began Feb. 7, 1962; water in reservoir first reached conservation pool elevation in March 1962. Total capacity at elevation 937.00 ft is 75,000 acre-ft. No dead storage. Ordinary minimum (conservation) pool elevation is 840.00 ft, capacity, 1,590 acre-ft. Reservoir is used for flood control and recreation. Figures given herein represent total contents. Storage is regulated by three gates and low-flow bypass system. Satellite and landline telemetry at station.

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 52,960 acre-ft, Apr. 2, 1993, elevation, 920.23 ft; minimum, no storage, June 7, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 3,770 acre-ft, May 14, elevation, 850.43 ft; minimum, 1,690 acre-ft, Sept. 14, 15, elevation, 840.63 ft.

01547480 FOSTER JOSEPH SAYERS LAKE.--Lat 41°02'53", long 77°36'35", Centre County, Hydrologic Unit 02050204, at Foster Joseph Sayers Dam on Bald Eagle Creek, 1.0 mi upstream from Marsh Creek, and 1.2 mi south of Blanchard. DRAINAGE AREA, 339 mi^2. PERIOD OF RECORD, March 1971 to current year. GAGE, water-stage recorder (U.S. Army Corps of Engineers datum).

REMARKS.--Reservoir formed by an earthfill dam with ungaged concrete ogee weir at elevation 657.00 ft with abutting concrete gravity walls and partially paved exit channel. Storage began in March 1971. Capacity at elevation 657.00 ft is 99,100 acre-ft. Dead storage is 25 acre-ft. Ordinary minimum (conservation) pool elevation is 610.0 ft, capacity, 6,300 acre-ft. Reservoir used for flood control and recreation. Figures given herein represent total contents. Regulation is accomplished by two gates. Satellite and landline telemetry at station.

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 103,900 acre-ft, June 25, 1972, elevation, 658.41 ft; minimum, 3,250 acre-ft, Oct. 27, 1987, elevation, 604.45 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 41,480 acre-ft, May 15, elevation, 636.57 ft; minimum, 9,720 acre-ft, Mar. 8, elevation, 614.67 ft.

WEST BRANCH SUSQUEHANNA RIVER BASIN

Lakes and Reservoirs in West Branch Susquehanna River Basin--Continued

MONTHEND ELEVATION, IN FEET ABOVE SEA LEVEL, AND CONTENTS AT 2400 HRS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)	Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)
	01541180 Curwensville Lake			01541340 Glendale Lake		
Sept. 30	1,162.43	9,900	--	1,427.10	25,460	--
Oct. 31	1,162.34	9,820	-1.3	1,427.10	25,460	0
Nov. 30	1,162.26	9,760	-1.0	1,427.33	25,830	+7.2
Dec. 31	1,162.23	9,730	-0.5	1,427.36	25,880	+0.81
CAL YR 2001	--	--	0	--	--	-0.41
Jan. 31	1,161.92	9,480	-4.1	1,427.45	26,020	+2.3
Feb. 28	1,162.24	9,740	+4.7	1,427.47	26,050	+0.54
Mar. 31	1,162.99	10,360	+10.1	1,428.07	27,010	+16
Apr. 30	1,162.43	9,900	-7.7	1,427.70	26,420	-9.9
May 31	1,162.61	10,050	+2.4	1,427.57	26,210	-3.4
June 30	1,162.60	10,040	-0.2	1,427.41	25,960	-4.2
July 31	1,162.57	10,010	-0.5	1,427.08	25,410	-8.9
Aug. 31	1,162.53	9,980	-0.5	1,426.89	25,140	-4.4
Sept. 30	1,162.41	9,880	-1.7	1,426.91	25,170	+0.5
WTR YR 2002	--	--	0	--	--	-0.4

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)	Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)
	01543900 F.F. Sinnemahoning Cr. Reservoir			01544800 Kettle Creek Lake		
Sept. 30	921.51	2,350	--	841.43	1,810	--
Oct. 31	921.24	2,320	-0.5	841.03	1,750	-1.0
Nov. 30	923.12	2,570	+4.2	840.84	1,720	-0.5
Dec. 31	921.49	2,350	-3.6	841.14	1,770	+0.8
CAL YR 2001	--	--	0	--	--	0
Jan. 31	922.01	2,400	+0.8	841.10	1,760	-0.2
Feb. 28	921.34	2,330	-1.3	841.20	1,780	+0.4
Mar. 31	934.73	4,880	+41.5	841.80	1,870	+1.5
Apr. 30	922.10	2,420	-41.3	841.21	1,780	-1.5
May 31	921.09	2,310	-1.8	841.22	1,780	0
June 30	921.43	2,340	+0.5	841.34	1,800	+0.3
July 31	921.20	2,320	-0.3	841.15	1,770	-0.5
Aug. 31	919.40	1,940	-6.2	841.18	1,770	0
Sept. 30	921.52	2,350	+6.9	841.09	1,760	-0.2
WTR YR 2002	--	--	0	--	--	-0.1

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)
	01547480 Foster Joseph Sayers Lake		
Sept. 30	630.66	29,980	--
Oct. 31	630.25	29,250	-11.9
Nov. 30	626.78	23,650	-94.1
Dec. 31	625.13	21,240	-39.2
CAL YR 2001	--	--	-0.3
Jan. 31	625.33	21,520	+4.6
Feb. 28	618.35	13,120	-151
Mar. 31	625.27	21,440	+135
Apr. 30	630.19	29,140	+129
May 31	630.15	29,070	-1.1
June 30	630.26	29,270	+3.4
July 31	630.68	30,020	+12.2
Aug. 31	629.85	28,550	-23.9
Sept. 30	630.08	28,940	+6.6
WTR YR 2002	--	--	-1.3

SUSQUEHANNA RIVER BASIN

01554000 SUSQUEHANNA RIVER AT SUNBURY, PA

LOCATION.--Lat 40°51'15", long 76°48'21", Snyder County, Hydrologic Unit 02050301, on right bank in borough of Shamokin Dam, on grounds of Pennsylvania Power and Light Company generating plant, 1.0 mi downstream from Shamokin Creek, 1.5 mi downstream from Sunbury Fabridam, and 1.8 mi south of Sunbury.

DRAINAGE AREA.--18,300 mi^2, approximately (excluding that of Shamokin Creek).

PERIOD OF RECORD.--October 1937 to current year. June 1918 to September 1918 (gage heights only), in reports of Pennsylvania Department of Forests and Waters.

REVISED RECORDS.--WSP 891: 1936(M). WDR PA-79-2: 1978(M).

GAGE.--Water-stage recorder. Datum of gage is 408.61 ft above National Geodetic Vertical Datum of 1929. See WSP 1903 for history of changes prior to Dec. 13, 1937. Dec. 13, 1937, to Mar. 23, 1967, water-stage recorder at site 1.7 mi upstream at datum 11.05 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow slightly regulated by 14 flood-control reservoirs which have a capacity of about 809,000 acre-ft, and during low flow by Fabridam. Satellite and landline telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10500	5430	16800	10700	38500	19300	70300	61300	29600	20800	4610	2980
2	8720	5270	23800	10100	52200	19100	62600	55300	29100	16800	4300	2950
3	7520	5150	25000	9140	64500	19500	54700	56100	27100	13600	4000	3010
4	6600	5020	23900	9020	63400	20100	47600	55700	24000	12000	4180	2890
5	5850	4920	21100	9150	54000	21000	41800	50500	20900	10500	3970	2670
6	5230	4840	18500	9780	43500	21500	37600	43200	23100	9490	3850	2500
7	4740	4830	16000	e9760	35900	22000	33900	37600	55400	8760	3800	2410
8	4400	4790	14300	e9870	30600	21200	30500	33400	113000	8200	3600	2350
9	9270	4730	13800	e9690	27300	19600	27500	32200	96400	7670	3370	2270
10	4710	4650	13500	e9430	24500	19300	25800	34600	69800	7240	3150	2230
11	4220	4550	12400	9250	28800	19500	24900	39200	49900	6840	3080	2180
12	3990	4480	11700	9610	44900	19000	23700	40800	39500	6710	2980	2050
13	4080	4400	11300	9910	60600	19000	22800	61500	32800	6550	2880	2050
14	3890	4300	11300	9640	58100	19000	22300	143000	29300	6550	2890	2060
15	4010	4220	12100	9540	47100	18700	26100	164000	33700	6080	3020	2200
16	4590	4130	14200	9560	38500	18100	41300	141000	48100	5630	2850	2350
17	5050	4100	17100	9190	33800	18900	57400	109000	68500	5260	2860	2560
18	5510	4030	22100	8840	31600	19800	54200	92600	71400	5020	2820	2740
19	5500	3930	38600	8620	29200	21400	45300	97700	57200	4920	2860	3380
20	5270	3860	56900	8090	26200	21300	39400	106000	46200	4990	2690	3250
21	5110	3890	50100	7870	23700	26000	34400	89800	35700	5340	2520	3000
22	4890	3830	39200	7440	22700	30700	30900	71800	29400	5060	2620	3590
23	4780	3800	31800	7460	22900	36300	28200	58200	24800	4780	2540	6520
24	4870	3780	27200	7960	23300	35800	25400	49100	21400	4870	2600	6930
25	5390	4090	24200	8780	23800	32300	23900	42600	19200	5010	2780	6440
26	6790	6590	21900	10900	22200	31000	22300	37300	18200	5040	2830	5420
27	7660	10800	19800	17400	20400	69600	21200	33000	17900	5020	3010	6420
28	6760	12900	18000	22500	19600	131000	21700	28700	17400	5100	3060	14200
29	6320	12400	16100	22900	---	124000	30300	29700	19500	5110	3240	15300
30	6010	12800	14100	23500	---	96500	53000	29900	27200	5070	3130	13500
31	5690	---	12700	28500	---	80300	---	29800	---	4970	3100	---
TOTAL	177920	166510	669500	354100	1011800	1090800	1081000	1954600	1195700	228980	99190	132400
MEAN	5739	5550	21600	11420	36140	35190	36030	63050	39860	7386	3200	4413
MAX	10500	12900	56900	28500	64500	131000	70300	164000	113000	20800	4610	15300
MIN	3890	3780	11300	7440	19600	18100	21200	28700	17400	4780	2520	2050
CFSM	0.31	0.30	1.18	0.62	1.97	1.92	1.97	3.45	2.18	0.40	0.17	0.24
IN.	0.36	0.34	1.36	0.72	2.06	2.22	2.20	3.97	2.43	0.47	0.20	0.27

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2002, BY WATER YEAR (WY)

MEAN	13010	22030	29060	27530	32110	54110	58760	35500	20340	10640	7725	8504
MAX	62760	54540	79050	77850	78120	115800	170900	69950	111600	38930	40040	55820
(WY)	1978	1978	1997	1996	1981	1945	1993	1989	1972	1972	1994	1975
MIN	1607	1673	4608	4510	7500	21370	14560	9826	4386	2390	2533	1372
(WY)	1965	1965	1999	1981	1980	1969	1946	1941	1999	1965	1939	1964

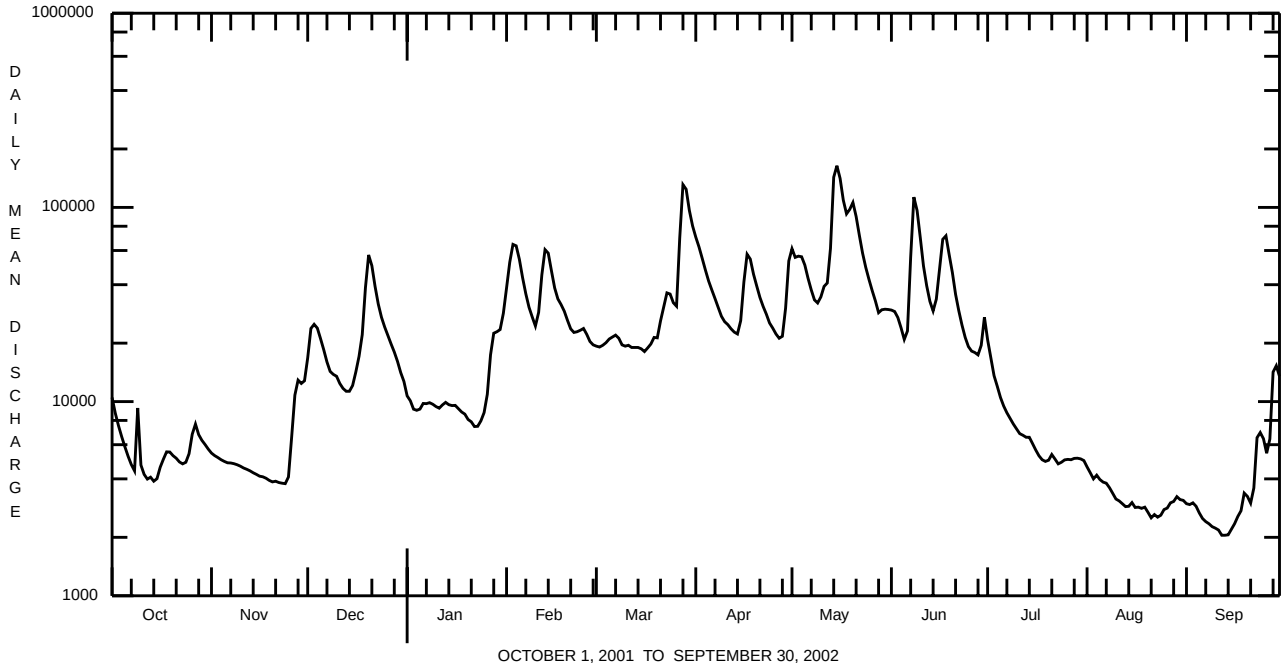
e Estimated.

SUSQUEHANNA RIVER BASIN

01554000 SUSQUEHANNA RIVER AT SUNBURY, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1938 - 2002	
ANNUAL TOTAL	6415590		8162500			
ANNUAL MEAN	17580		22360		26560	
HIGHEST ANNUAL MEAN					42520	1978
LOWEST ANNUAL MEAN					13420	1965
HIGHEST DAILY MEAN	129000	Apr 11	164000	May 15	609000	Jun 24 1972
LOWEST DAILY MEAN	2440	Sep 13,14	2050	Sep 12,13	1110	Sep 24 1964
ANNUAL SEVEN-DAY MINIMUM	2630	Sep 9	2150	Sep 9	1140	Sep 22 1964
MAXIMUM PEAK FLOW			169000	May 14	620000	Jun 24 1972
MAXIMUM PEAK STAGE			19.71	May 14	35.80	Jun 24 1972
INSTANTANEOUS LOW FLOW			1850	Sep 11	**a**964	Oct 16 1971
ANNUAL RUNOFF (CFSM)	0.96		1.22		1.45	
ANNUAL RUNOFF (INCHES)	13.04		16.59		19.72	
10 PERCENT EXCEEDS	45400		54400		60500	
50 PERCENT EXCEEDS	10400		13800		15600	
90 PERCENT EXCEEDS	3180		3070		3720	

a Result of shutoff at Fabridam.



PENNS CREEK BASIN

01555000 PENNS CREEK AT PENNS CREEK, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 40°52'00", long 77°02'55", Union County, Hydrologic Unit 02050301, on left bank 200 ft downstream from bridge on State Highway 104, 2.9 mi upstream from Sweitzers Run, and 0.8 mi northeast of Penns Creek, Pa.

DRAINAGE AREA.--301 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1929 to current year. Prior to October 1965, published as Penn Creek at Penns Creek.

REVISED RECORDS.--WSP 891: 1934(M). WSP 1502: 1933(M), 1934, 1936(M). WDR PA-72-1: 1933-34(M), 1936(M), 1940(M), 1951(M). WDR PA-79-2: 1978.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 506.72 ft, datum of 1912; 507.38 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 1, 1930, nonrecording gage at same site and datum.

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

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 3,100 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 27	0630	3,200	6.00	June 7	0600	3,110	5.92
May 14	0145	*3,710	*6.44				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90	59	308	e161	384	211	933	542	615	282	111	69
2	85	59	257	e158	390	203	795	682	513	265	107	71
3	80	59	212	e156	363	330	701	741	446	251	103	71
4	75	59	189	e153	356	329	625	625	410	234	99	68
5	71	58	175	e147	339	256	563	590	430	221	99	63
6	68	57	163	e142	314	244	536	555	1030	209	108	60
7	65	57	154	e147	312	250	503	534	2670	200	101	58
8	63	57	153	e147	301	240	468	499	1620	196	95	59
9	62	57	184	e136	275	237	452	617	1160	190	91	58
10	62	56	196	e156	267	261	457	816	937	194	89	57
11	61	55	177	e164	492	247	408	629	791	183	86	55
12	62	54	160	e178	482	231	378	665	718	170	84	53
13	62	54	168	e172	416	228	370	1450	687	163	83	53
14	61	54	187	e167	380	227	443	3170	643	159	88	53
15	104	54	207	e161	362	222	707	2280	934	156	86	57
16	104	54	185	e158	355	247	580	1690	870	148	84	64
17	105	54	191	e156	342	283	528	1360	649	140	82	63
18	98	54	331	e158	321	293	504	2100	571	140	85	61
19	87	53	350	e147	297	330	488	1910	519	147	80	58
20	78	53	312	e145	286	518	484	1530	469	234	79	58
21	73	53	286	e158	286	884	481	1290	433	178	76	58
22	69	52	265	e153	277	785	449	1100	400	146	73	168
23	67	55	247	e153	261	696	420	956	373	151	76	210
24	68	57	257	179	245	633	387	847	356	175	87	128
25	69	138	242	266	234	573	373	753	385	144	89	89
26	67	328	217	274	232	822	364	683	343	133	84	80
27	64	204	e200	248	244	2740	342	616	335	144	77	223
28	63	150	e214	248	231	1880	403	564	491	159	74	291
29	60	144	e195	257	---	1430	721	608	375	143	77	169
30	59	181	e181	281	---	1170	556	541	312	127	76	116
31	60	---	e164	334	---	982	---	768	---	117	72	---
TOTAL	2262	2479	6727	5660	9044	17982	15419	31711	20485	5499	2701	2741
MEAN	73.0	82.6	217	183	323	580	514	1023	683	177	87.1	91.4
MAX	105	328	350	334	492	2740	933	3170	2670	282	111	291
MIN	59	52	153	136	231	203	342	499	312	117	72	53
CFSM	0.24	0.27	0.72	0.61	1.07	1.93	1.71	3.40	2.27	0.59	0.29	0.30
IN.	0.28	0.31	0.83	0.70	1.12	2.22	1.91	3.92	2.53	0.68	0.33	0.34

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2002, BY WATER YEAR (WY)

MEAN	219	355	443	447	531	895	880	617	392	192	151	162
MAX	1355	1567	1359	1627	1697	3093	2855	1793	2845	759	684	1295
(WY)	1991	1978	1997	1996	1984	1936	1993	1978	1972	1989	1984	1979
MIN	35.9	34.1	46.3	76.0	108	195	278	179	107	57.2	37.0	36.4
(WY)	1931	1931	1999	1981	1940	1931	1995	1941	1962	1962	1966	1964

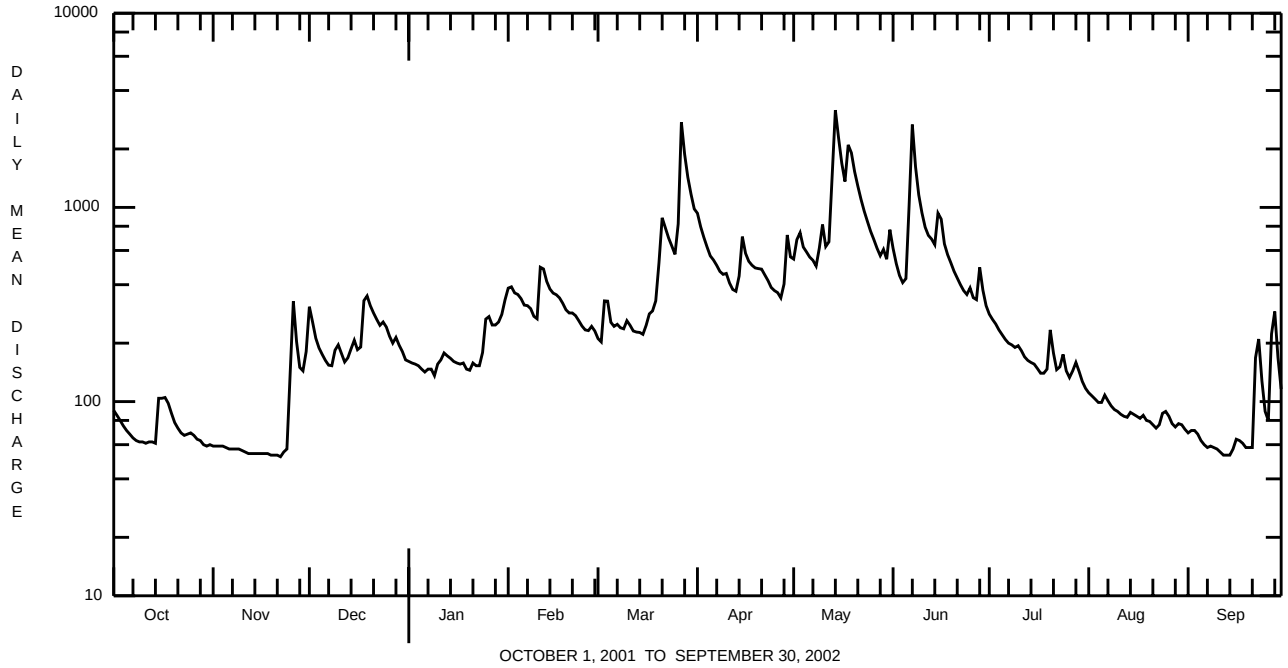
e Estimated.

PENNS CREEK BASIN

01555000 PENNS CREEK AT PENNS CREEK, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1930 - 2002	
ANNUAL TOTAL	96139		122710			
ANNUAL MEAN	263		336		439	
HIGHEST ANNUAL MEAN					878	1978
LOWEST ANNUAL MEAN					205	1965
HIGHEST DAILY MEAN	1830	Mar 22	3170	May 14	24600	Jun 23 1972
LOWEST DAILY MEAN	52	Nov 22	52	Nov 22	21	Aug 30 1966
ANNUAL SEVEN-DAY MINIMUM	53	Nov 16	53	Nov 16	24	Aug 28 1966
MAXIMUM PEAK FLOW			3710	May 14	**a**34600	Jun 23 1972
MAXIMUM PEAK STAGE			6.44	May 14	**b**14.85	Jun 23 1972
INSTANTANEOUS LOW FLOW			52	Nov 22**c**	7.0	Sep 27 1932
ANNUAL RUNOFF (CFSM)	0.88		1.12		1.46	
ANNUAL RUNOFF (INCHES)	11.88		15.17		19.84	
10 PERCENT EXCEEDS	735		711		970	
50 PERCENT EXCEEDS	175		203		259	
90 PERCENT EXCEEDS	62		59		68	

a From rating curve extended above 6,800 ft^3/s on basis of contracted-opening measurement of peak flow.
b From floodmark in gage.
c Also Nov. 23, Sept. 12-14.



PENNS CREEK BASIN

01555000 PENNS CREEK AT PENNS CREEK, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
APR 2002													
24...	1245	9813	385	30	13.1	8.6	160	11.6	79	25.3	3.7	66	10.2
JUN													
20...	1245	9813	465	30	11.8	8.7	215	19.5	110	36.0	4.9	88	11.0
AUG													
20...	1330	9813	78	30	8.5	8.6	234	25.8	110	31.5	7.4	94	12.6

Date	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
APR 2002													
24...	92	6	<.020	.83	<.040	.97	.01	.010	1.8	<10	140	<1.0	<10
JUN													
20...	182	10	<.020	1.45	<.040	1.5	.02	.020	2.2	<10	370	<1.0	20
AUG													
20...	152	10	<.020	.59	<.040	1.0	.02	.030	2.9	<10	130	<1.0	20

Date	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002		
24...	<50	<10
JUN		
20...	<50	<10
AUG		
20...	<50	<10

EAST MAHANTANGO CREEK BASIN

01555500 EAST MAHANTANGO CREEK NEAR DALMATIA, PA

LOCATION.--Lat 40°36'40", long 76°54'44", Northumberland County, Hydrologic Unit 02050301, on right bank at bridge on SR 3017, 2.0 mi upstream from mouth, and 3.2 mi south of Dalmatia.

DRAINAGE AREA.--162 mi^2.

PERIOD OF RECORD.--October 1929 to current year. Prior to October 1945, published as Mahantango Creek East near Dalmatia.

REVISED RECORDS.--WSP 891: 1933(M). WSP 1302: 1930(M), 1938(M).

GAGE.--Water-stage recorder. Datum of gage is 401.22 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1929, to Feb. 11, 1930, nonrecording gage, and Feb. 12, 1930, to Nov. 18, 1973, water-stage recorder at present site at datum 0.72 ft lower. Nov. 19, 1973, to June 18, 1974, nonrecording gage at site 2 mi upstream at different datum.

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

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

Date	Time	Discharge ft^3/s	Gage Height (ft)
May 18	1900	*1,320	*4.56

Date	Time	Discharge ft^3/s	Gage Height (ft)
(No peaks above base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	20	71	e37	101	44	341	217	117	58	13	17
2	34	21	84	e37	109	43	277	364	109	52	13	16
3	30	21	65	e38	96	156	240	512	97	48	12	16
4	28	21	54	e40	94	225	212	384	89	43	11	17
5	26	21	46	e38	e84	151	188	323	87	36	12	15
6	25	20	45	e39	e77	142	181	279	97	32	11	12
7	23	19	43	e50	e76	127	166	251	149	30	10	10
8	22	19	44	e46	e77	116	151	226	111	29	11	9.4
9	21	19	67	e42	71	107	148	234	89	31	11	9.0
10	20	19	84	e41	67	160	174	228	81	47	8.7	8.4
11	20	18	69	e50	116	161	151	183	75	44	7.9	7.5
12	21	18	60	e57	124	135	132	166	71	34	8.3	6.8
13	22	18	56	e86	112	133	131	193	86	30	8.7	6.2
14	21	18	56	e75	e92	129	150	225	120	29	8.8	6.0
15	25	18	67	e67	e88	121	387	204	190	27	8.6	7.3
16	47	18	64	e62	91	117	417	170	163	27	9.7	22
17	38	18	58	e59	86	110	350	158	128	23	11	51
18	35	18	136	e58	76	131	302	792	105	20	20	32
19	33	17	250	e58	67	185	268	890	92	21	16	22
20	29	19	190	e69	68	237	252	567	78	24	13	18
21	27	19	141	e62	69	532	227	433	69	23	11	17
22	26	20	111	e58	66	430	209	350	62	22	9.4	21
23	25	19	93	e55	58	337	185	293	57	20	11	90
24	24	19	e80	e70	53	283	162	254	55	21	12	82
25	23	25	e69	e192	51	241	151	222	54	29	13	43
26	23	150	e56	e166	50	233	151	197	51	24	14	33
27	22	89	e50	e143	53	866	134	183	53	21	14	162
28	21	55	e44	124	50	658	151	162	145	21	12	682
29	21	44	e40	110	---	486	272	153	93	27	12	317
30	21	45	e39	105	---	394	213	138	69	24	15	171
31	20	---	e38	104	---	326	---	125	---	17	18	---
TOTAL	809	865	2370	2238	2222	7516	6473	9076	2842	934	366.1	1926.6
MEAN	26.1	28.8	76.5	72.2	79.4	242	216	293	94.7	30.1	11.8	64.2
MAX	47	150	250	192	124	866	417	890	190	58	20	682
MIN	20	17	38	37	50	43	131	125	51	17	7.9	6.0
CFSM	0.16	0.18	0.47	0.45	0.49	1.50	1.33	1.81	0.58	0.19	0.07	0.40
IN.	0.19	0.20	0.54	0.51	0.51	1.73	1.49	2.08	0.65	0.21	0.08	0.44

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2002, BY WATER YEAR (WY)

MEAN	124	206	280	275	307	425	366	278	175	98.6	74.7	97.0
MAX	1025	553	852	1259	831	1212	1160	986	2361	504	585	1112
(WY)	1977	1951	1997	1996	1981	1994	1993	1989	1972	1947	1933	1975
MIN	5.14	8.65	14.0	12.4	54.3	111	126	67.5	29.7	13.5	9.36	3.98
(WY)	1931	1931	1931	1981	1934	1931	1965	1941	1965	1965	1957	1932

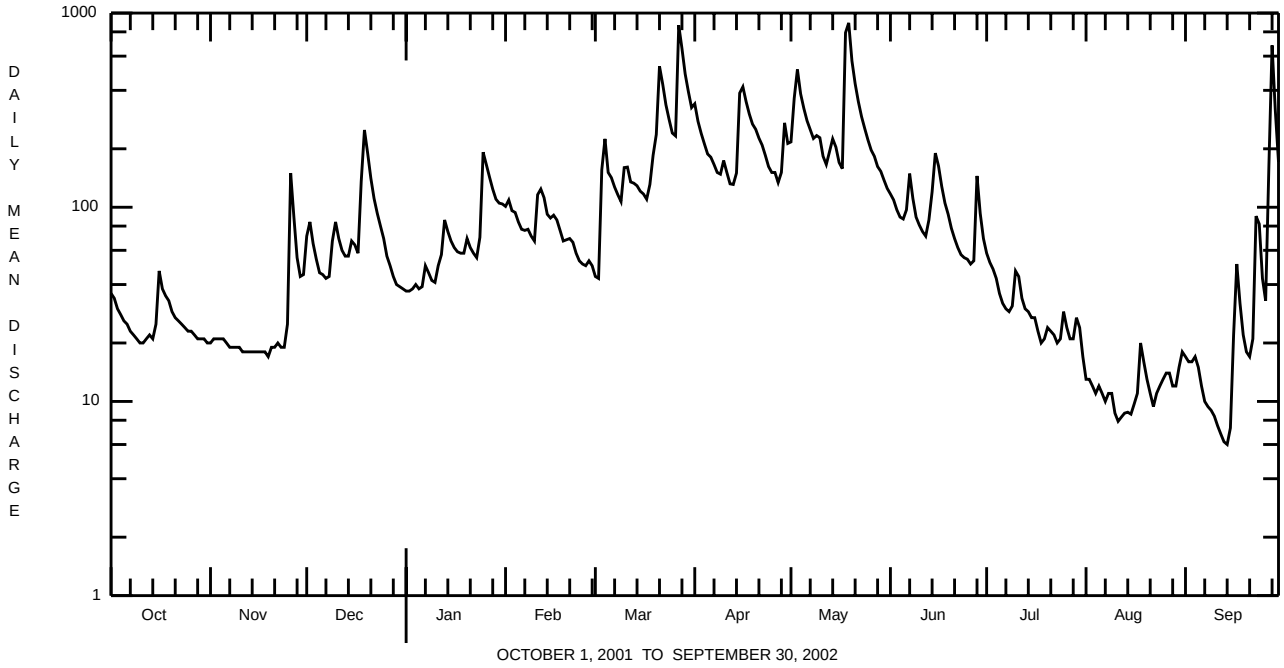
e Estimated.

EAST MAHANTANGO CREEK BASIN

01555500 EAST MAHANTANGO CREEK NEAR DALMATIA, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1930 - 2002	
ANNUAL TOTAL	47189		37637.7			
ANNUAL MEAN	129		103		225	
HIGHEST ANNUAL MEAN					454	1972
LOWEST ANNUAL MEAN					70.7	1931
HIGHEST DAILY MEAN	728	Mar 31	890	May 19	39000	Jun 22 1972
LOWEST DAILY MEAN	16	Sep 18,19	6.0	Sep 14	1.5	Sep 21 1932
ANNUAL SEVEN-DAY MINIMUM	17	Sep 13	7.3	Sep 9	1.7	Sep 16 1932
MAXIMUM PEAK FLOW			1320	May 18	**a**69900	Jun 22 1972
MAXIMUM PEAK STAGE			4.56	May 18	**b**26.62	Jun 22 1972
INSTANTANEOUS LOW FLOW			5.7	Sep 15	1.3	Oct 7 1957**c**
ANNUAL RUNOFF (CFSM)	0.80		0.64		1.39	
ANNUAL RUNOFF (INCHES)	10.84		8.64		18.87	
10 PERCENT EXCEEDS	332		238		489	
50 PERCENT EXCEEDS	75		58		118	
90 PERCENT EXCEEDS	21		14		23	

a From rating curve extended above 5,000 ft^3/s on basis of slope-area measurement of peak flow.
b From floodmark in gage.
c Also Nov. 3, 1964.



BEAR CREEK BASIN

01555539 BEAR CREEK (BC2) AT LYKENS, PA
(Bear Creek Watershed Project)

LOCATION.--Lat 40°34'45", long 76°41'58", Dauphin County, Hydrologic Unit 02050301, on left side of channel, 0.7 mi upstream of confluence with Wiconisco Creek.

DRAINAGE AREA.--4.44 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 3, 1999 to current year (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 820 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records poor. Other data for this project can be found on pages 336-349.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e2.8	2.3	2.5	1.5	5.7	1.7	e11	9.0	12	4.6	4.2	4.2
2	e2.7	2.1	1.9	2.0	3.8	2.6	e9.2	15	10	4.8	4.1	4.5
3	e2.8	1.8	1.9	2.4	4.6	8.6	e8.6	13	5.9	4.7	3.8	5.4
4	e2.6	2.0	1.6	1.8	4.1	4.9	e8.2	11	6.0	4.5	4.0	5.9
5	e2.6	1.7	1.7	1.6	2.7	3.6	e7.8	10	7.6	3.9	5.2	4.4
6	e2.7	1.6	2.3	2.8	2.7	4.3	e7.5	11	7.4	4.1	4.5	4.0
7	e2.5	1.6	2.1	2.2	3.7	3.5	e7.3	11	5.9	4.1	4.0	3.6
8	e2.5	1.9	2.1	1.4	2.8	2.9	e7.1	9.7	6.1	4.5	3.9	3.7
9	e2.6	1.5	2.0	2.2	2.4	3.8	e7.1	11	6.8	5.0	3.9	4.1
10	e2.5	2.1	2.1	1.6	4.4	4.2	e8.3	11	6.2	4.1	4.2	10
11	e2.5	1.5	1.7	1.8	6.2	3.3	e7.1	10	6.5	3.8	4.7	17
12	e2.5	1.6	1.3	2.1	5.1	4.1	e6.8	13	6.1	4.2	4.8	4.5
13	e2.4	1.8	2.0	2.0	3.2	4.3	e6.9	21	5.2	4.2	4.6	4.0
14	e2.6	2.1	2.8	1.6	2.9	3.4	e6.2	16	5.8	4.1	5.0	4.0
15	e4.5	2.3	1.4	2.8	4.1	4.2	16	11	5.9	4.4	4.5	4.4
16	e3.1	2.0	1.4	3.2	4.5	3.2	14	11	5.7	4.2	4.8	4.8
17	e3.1	1.5	5.6	4.3	3.0	2.1	9.0	11	5.2	4.4	5.8	4.4
18	e2.8	1.8	7.2	2.8	1.8	3.2	7.2	27	4.8	4.6	7.0	4.2
19	e1.6	2.6	2.2	3.2	2.2	4.3	8.3	22	4.7	4.5	5.8	4.2
20	1.5	1.7	1.9	2.4	3.1	8.9	e8.9	15	4.7	3.8	4.4	4.4
21	1.5	1.2	1.5	3.2	2.9	9.8	e8.6	13	4.9	3.8	3.9	4.7
22	1.7	1.2	1.6	2.1	2.0	e6.1	e8.6	12	5.0	4.2	4.4	4.8
23	2.5	1.3	2.7	3.0	1.8	e4.7	e8.2	12	5.0	4.2	5.0	4.1
24	3.3	1.7	2.9	4.2	1.9	e4.0	e7.7	13	4.7	3.7	7.2	3.7
25	4.6	2.2	1.7	6.0	2.7	e8.2	e7.7	9.1	4.9	3.8	4.7	3.6
26	1.7	1.7	2.6	7.0	3.4	e13	e7.4	9.3	5.3	4.2	4.1	3.9
27	1.4	2.4	1.8	6.0	2.9	e21	e7.1	9.4	5.1	4.7	3.9	6.0
28	1.5	2.0	1.5	5.7	1.7	e13	e12	10	4.3	4.8	3.8	5.8
29	1.7	2.6	1.3	5.0	---	e12	e12	10	4.0	4.8	4.0	6.8
30	1.7	3.4	1.3	4.2	---	e11	9.7	10	4.4	4.4	3.8	5.9
31	1.9	---	1.4	4.8	---	e10	---	14	---	4.1	3.8	---
TOTAL	76.4	57.2	68.0	96.9	92.3	193.9	261.5	390.5	176.1	133.2	141.8	155.0
MEAN	2.46	1.91	2.19	3.13	3.30	6.25	8.72	12.6	5.87	4.30	4.57	5.17
MAX	4.6	3.4	7.2	7.0	6.2	21	16	27	12	5.0	7.2	17
MIN	1.4	1.2	1.3	1.4	1.7	1.7	6.2	9.0	4.0	3.7	3.8	3.6

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 2002, BY WATER YEAR (WY)

MEAN	4.99	4.86	7.74	5.58	9.81	14.1	13.5	10.9	10.4	5.51	4.71	5.81
MAX	6.46	6.78	11.0	7.43	13.3	20.8	18.6	14.0	21.5	7.99	5.34	8.49
(WY)	2001	2000	2001	2000	2000	2000	2000	2000	2000	2000	2000	1999
MIN	2.46	1.91	2.19	3.13	3.30	6.25	8.72	5.90	5.87	4.30	3.85	3.37
(WY)	2002	2002	2002	2002	2002	2002	2002	1999	2002	2002	2001	2001

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1999 - 2003	
ANNUAL TOTAL	2695.7		1842.8			
ANNUAL MEAN	7.39		5.05		8.44	
HIGHEST ANNUAL MEAN					11.5	2000
LOWEST ANNUAL MEAN					5.05	2002
HIGHEST DAILY MEAN	24	Apr 24	27	May 18	108	Dec 17 2000
LOWEST DAILY MEAN	1.2	Nov 21	1.2	Nov 21,22	1.2	Nov 21,22 2001
ANNUAL SEVEN-DAY MINIMUM	1.6	Nov 20	1.5	Dec 27	1.5	Dec 27 2001
MAXIMUM PEAK FLOW			40	May 13	179	Dec 17 2000
MAXIMUM PEAK STAGE			19.26	May 13	20.06	Dec 17 2000
INSTANTANEOUS LOW FLOW			1.1	Nov 20-22	1.1	Nov 20 2001**a**
10 PERCENT EXCEEDS	16		10		17	
50 PERCENT EXCEEDS	5.6		4.2		5.9	
90 PERCENT EXCEEDS	1.8		1.7		2.7	

a Also Nov. 21, 22, 2001.
e Estimated.

BEAR CREEK BASIN

01555539 BEAR CREEK (BC2) AT LYKENS, PA--Continued

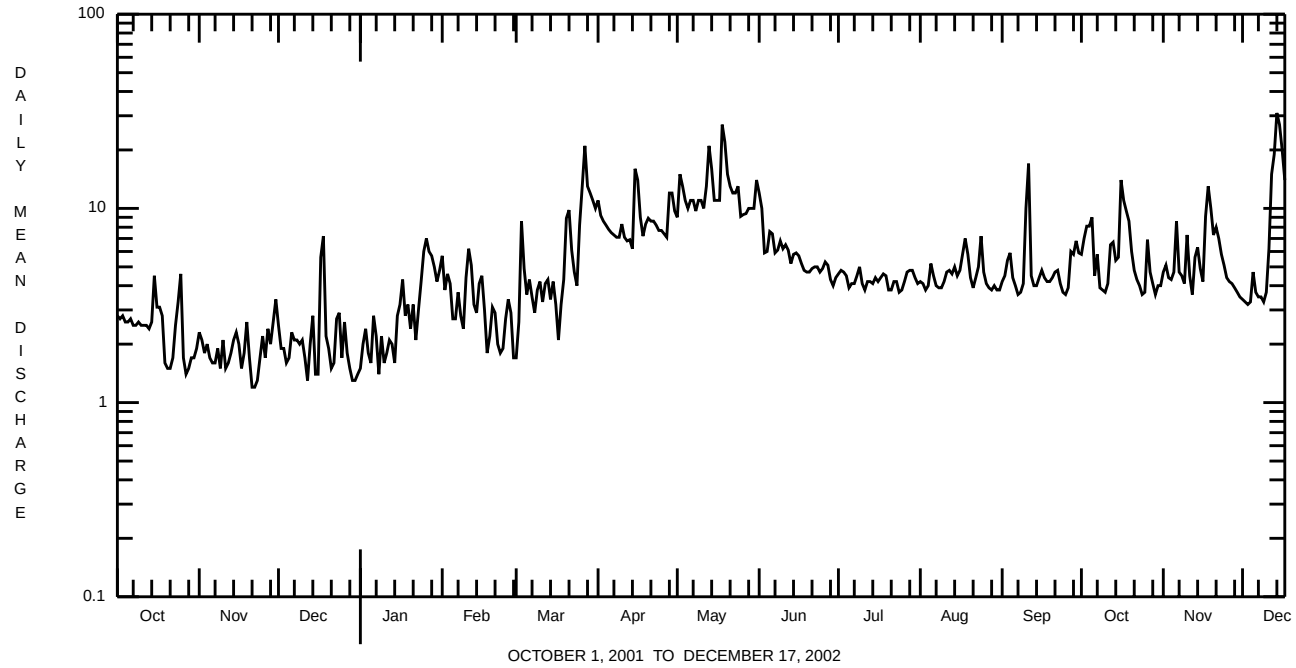
DISCHARGE, CUBIC FEET PER SECOND, **WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003**
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.8	4.7	e3.4	---	---	---	---	---	---	---	---	---
2	7.0	5.1	e3.3	---	---	---	---	---	---	---	---	---
3	8.1	4.4	3.2	---	---	---	---	---	---	---	---	---
4	8.1	4.3	3.3	---	---	---	---	---	---	---	---	---
5	9.0	4.7	4.7	---	---	---	---	---	---	---	---	---
6	4.5	8.6	3.7	---	---	---	---	---	---	---	---	---
7	5.8	4.7	3.5	---	---	---	---	---	---	---	---	---
8	3.9	4.5	3.5	---	---	---	---	---	---	---	---	---
9	3.8	4.1	3.3	---	---	---	---	---	---	---	---	---
10	3.7	7.3	3.7	---	---	---	---	---	---	---	---	---
11	4.1	4.5	6.2	---	---	---	---	---	---	---	---	---
12	6.5	3.6	15	---	---	---	---	---	---	---	---	---
13	6.7	5.6	19	---	---	---	---	---	---	---	---	---
14	5.4	6.3	31	---	---	---	---	---	---	---	---	---
15	5.6	4.9	27	---	---	---	---	---	---	---	---	---
16	14	4.2	20	---	---	---	---	---	---	---	---	---
17	11	9.1	14	---	---	---	---	---	---	---	---	---
18	9.7	13	---	---	---	---	---	---	---	---	---	---
19	8.6	10	---	---	---	---	---	---	---	---	---	---
20	6.0	7.3	---	---	---	---	---	---	---	---	---	---
21	4.8	e8.0	---	---	---	---	---	---	---	---	---	---
22	4.3	e7.0	---	---	---	---	---	---	---	---	---	---
23	4.0	5.8	---	---	---	---	---	---	---	---	---	---
24	3.6	5.1	---	---	---	---	---	---	---	---	---	---
25	3.7	4.4	---	---	---	---	---	---	---	---	---	---
26	6.9	4.2	---	---	---	---	---	---	---	---	---	---
27	4.7	4.1	---	---	---	---	---	---	---	---	---	---
28	4.1	3.9	---	---	---	---	---	---	---	---	---	---
29	3.6	e3.7	---	---	---	---	---	---	---	---	---	---
30	4.0	e3.5	---	---	---	---	---	---	---	---	---	---
31	4.0	---	---	---	---	---	---	---	---	---	---	---
TOTAL	185.0	170.6	---	---	---	---	---	---	---	---	---	---
MEAN	5.97	5.69	---	---	---	---	---	---	---	---	---	---
MAX	14	13	---	---	---	---	---	---	---	---	---	---
MIN	3.6	3.5	---	---	---	---	---	---	---	---	---	---

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 2003, BY WATER YEAR (WY)

MEAN	5.23	5.07	7.74	5.58	9.81	14.1	13.5	10.9	10.4	5.51	4.71	5.81
MAX	6.46	6.78	11.0	7.43	13.3	20.8	18.6	14.0	21.5	7.99	5.34	8.49
(WY)	2001	2000	2001	2000	2000	2000	2000	2000	2000	2000	2000	1999
MIN	2.46	1.91	2.19	3.13	3.30	6.25	8.72	5.90	5.87	4.30	3.85	3.37
(WY)	2002	2002	2002	2002	2002	2002	2002	1999	2002	2002	2001	2001

e Estimated.



01555539 BEAR CREEK (BC2) AT LYKENS, PA--Continued
(Bear Creek Watershed Project)

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- March 3, 1999 to current year (discontinued).

REMARKS.--Hydrologic event codes used: 9 - routine sample, J - storm.

WATER-QUALITY DATA, OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Hydro-logic event	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)
OCT 2001													
23...	1130	9	1028	9813	2.8	9.0	87	7.0	323	13.2	5.3	.0	90
NOV													
30...	1200	9	1028	9813	3.2	9.1	88	7.0	291	13.1	4.2	.0	78
DEC													
18...	1100	9	1028	9813	3.6	8.7	78	7.0	243	10.8	3.6	.0	68
JAN 2002													
24...	1230	9	1028	9813	3.8	7.3	65	6.9	234	9.5	3.2	.0	60
25...	1315	J	1028	9813	5.7	8.7	71	6.9	162	6.6	2.5	.0	38
FEB													
15...	1105	9	1028	9813	3.6	8.5	74	6.6	250	9.3	--	--	--
21...	1015	9	1028	9813	3.0	8.3	76	6.9	218	11.2	4.8	.0	80
MAR													
21...	1130	J	1028	9813	9.6	8.6	72	6.9	103	7.7	1.9	.0	30
APR													
29...	1130	9	1028	9813	13	8.2	75	6.9	164	11.6	2.4	.0	42
MAY													
02...	1330	J	1028	9813	18	8.0	74	6.8	160	11.6	2.4	16	40
09...	1230	J	1028	9813	11	8.0	75	7.0	228	12.0	3.2	.0	62
30...	1215	9	1028	9813	10	7.6	73	6.9	244	13.3	3.9	.0	68
JUN													
19...	1130	9	1028	9813	4.9	8.2	78	6.8	285	13.3	4.2	.0	80
JUL													
18...	1130	9	1028	9813	4.3	8.9	85	6.8	294	13.4	4.6	.0	90
18...	1131	9	1028	80020	4.3	8.9	85	6.8	294	13.4	--	--	--
AUG													
21...	1100	9	1028	9813	3.8	8.5	81	7.0	298	13.5	5.1	.0	90
SEP													
16...	1045	9	1028	9813	4.6	8.6	83	6.8	324	13.7	5.1	.0	92
23...	1200	9	1028	9813	3.8	8.2	79	7.0	322	13.5	5.2	.0	88

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON FERROUS WATER FLTRD (µG/L) (01047)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
OCT 2001								
23...	78.1	78	<200	16000	6800	16900	2490	2420
NOV								
30...	62.9	<2	<200	12000	7000	15100	1840	1840
DEC								
18...	55.1	54	<200	8740	7600	20100	1490	1560
JAN 2002								
24...	54.8	18	<200	9050	4000	16400	1510	1480
25...	33.3	26	300	5850	900	20100	1030	1100
FEB								
15...	--	--	--	--	--	--	--	--
21...	60.1	22	<200	11600	3500	12500	1830	1860
MAR								
21...	26.5	20	200	4060	1200	8640	760	800
APR								
29...	34.2	20	200	5510	1000	8370	880	900
MAY								
02...	32.1	16	300	5390	<500	9210	890	910
09...	48.3	36	<200	16500	1200	10200	2120	1280
30...	48.7	18	<200	9160	3000	10800	1460	1450
JUN								
19...	57.7	24	<200	12400	2200	12600	1650	1690
JUL								
18...	59.6	26	<200	12600	2100	14500	1830	1880
18...	62.1	--	40	11800	2100	13100	1750	1790
AUG								
21...	62.4	12	<200	13400	3500	14500	1970	2030
SEP								
16...	90.9	26	<200	14100	3800	15200	1970	1990
23...	64.6	22	<200	13900	3300	16800	1970	2050

BEAR CREEK BASIN

01555539 BEAR CREEK (BC2) AT LYKENS, PA--Continued
(Bear Creek Watershed Project)

WATER-QUALITY DATA, **OCTOBER 2002 TO DECEMBER 2002**

Date	Time	Hydro-logic event	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT													
22...	1100	9	1028	9813	4.3	8.5	79	6.8	287	11.8	4.2	.0	78
NOV													
21...	1130	9	1028	9813	8.2	9.4	82	7.0	202	9.4	3.2	.0	50
DEC													
18...	1200	9	1028	9813	11	10.2	85	6.9	206	7.5	2.9	.0	48

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON FERROUS WATER FLTRD (µG/L) (01047)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
OCT								
22...	62.7	26	<200	12100	4100	12500	1750	1680
NOV								
21...	44.4	8	<200	7780	3800	8750	1210	1240
DEC								
18...	44.9	22	<200	8150	4800	9780	1130	1170

JUNIATA RIVER BASIN

01556000 FRANKSTOWN BRANCH JUNIATA RIVER AT WILLIAMSBURG, PA

LOCATION.--Lat 40°27'47", long 78°12'00", Blair County, Hydrologic Unit 02050302, on left bank 10 ft downstream from highway bridge on SR 2015 at Williamsburg, and 2.5 mi upstream from Clover Creek.

DRAINAGE AREA.--291 mi^2.

PERIOD OF RECORD.--October 1916 to current year.

REVISED RECORDS.--WSP 756: Drainage area. WDR PA-71-1: 1954(M), 1960(M), 1961(M). WDR PA-77-2: 1936-39(M).

GAGE.--Water-stage recorder. Datum of gage is 831.78 ft above National Geodetic Vertical Datum of 1929 (Penn Central Railroad bench mark). Prior to Aug. 14, 1928, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Some regulation at low flow by mill upstream. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1889, reached a stage of 19.1 ft, from floodmark, discharge, about 35,500 ft^3/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 4,200 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 27	0130	4,650	10.05	May 18	1445	*5,190	*10.57

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	64	234	82	220	121	643	768	733	135	64	56
2	59	64	140	79	221	128	483	831	327	129	67	57
3	60	68	113	77	196	384	430	670	261	122	65	58
4	56	68	101	80	195	329	385	542	237	117	62	56
5	55	65	95	80	168	258	351	481	228	113	60	52
6	54	63	85	78	174	260	330	421	674	104	75	50
7	53	61	84	91	165	237	302	406	977	100	67	50
8	53	61	84	88	158	217	279	375	438	97	61	49
9	54	60	177	84	145	195	268	1530	355	97	58	48
10	54	59	130	146	144	196	280	1360	315	160	56	48
11	56	59	107	246	466	172	240	873	270	109	55	47
12	57	58	96	221	358	168	221	736	248	95	55	46
13	57	59	95	187	311	160	220	1370	239	90	75	46
14	58	58	110	157	256	159	284	1370	876	87	63	46
15	207	59	138	148	232	150	528	1170	873	88	58	48
16	98	60	113	134	219	154	758	888	589	84	59	60
17	106	59	114	127	205	149	649	723	452	81	58	57
18	84	59	289	119	187	324	560	3520	384	78	59	52
19	77	59	227	112	167	393	845	2130	326	79	58	50
20	68	61	175	109	165	1280	546	1360	281	90	61	63
21	65	59	148	114	164	1620	477	973	248	80	59	59
22	63	59	129	108	158	907	856	753	228	75	57	61
23	63	58	119	110	145	639	631	621	207	73	71	157
24	75	58	124	145	139	501	536	522	199	77	134	82
25	74	191	116	291	129	413	484	446	187	73	94	63
26	65	238	103	221	133	1450	426	402	181	84	73	63
27	63	117	101	207	155	2970	375	358	172	96	64	352
28	62	102	98	190	135	1320	880	334	200	85	61	286
29	61	154	96	182	---	889	1110	309	187	76	61	136
30	62	165	82	195	---	678	800	296	149	68	59	99
31	63	---	78	211	---	552	---	350	---	65	57	---
TOTAL	2142	2425	3901	4419	5510	17373	15177	26888	11041	2907	2026	2397
MEAN	69.1	80.8	126	143	197	560	506	867	368	93.8	65.4	79.9
MAX	207	238	289	291	466	2970	1110	3520	977	160	134	352
MIN	53	58	78	77	129	121	220	296	149	65	55	46
CFSM	0.24	0.28	0.43	0.49	0.68	1.93	1.74	2.98	1.26	0.32	0.22	0.27
IN.	0.27	0.31	0.50	0.56	0.70	2.22	1.94	3.44	1.41	0.37	0.26	0.31

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1917 - 2002, BY WATER YEAR (WY)

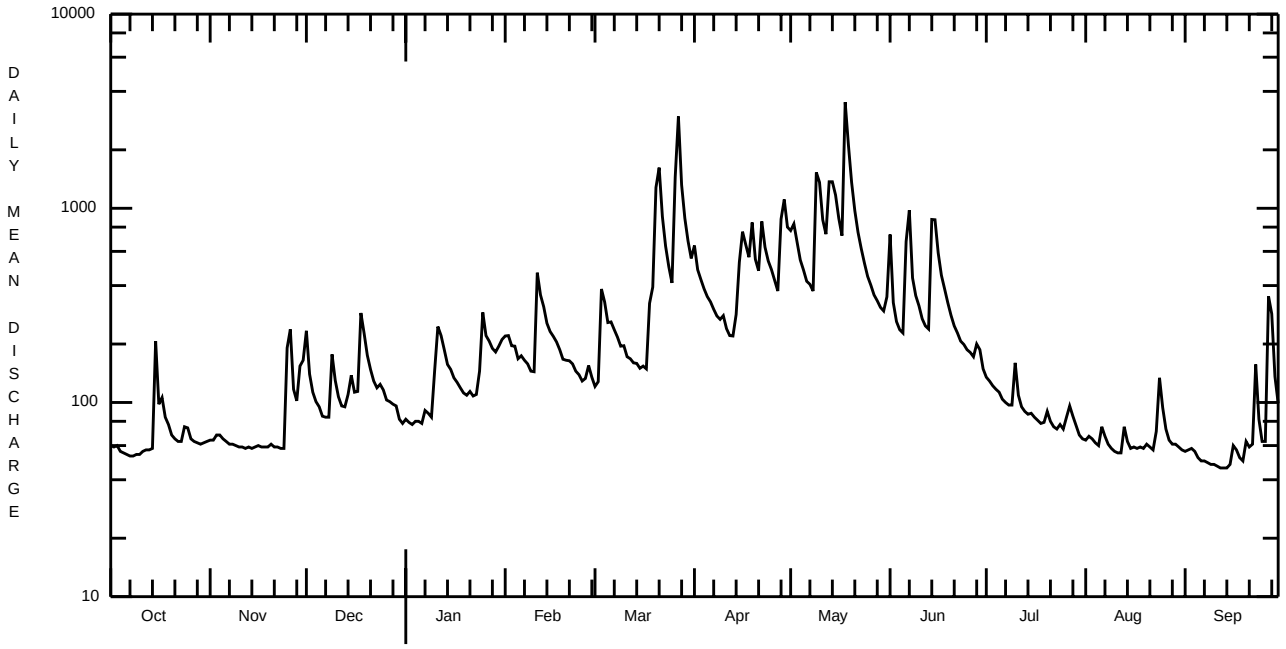
MEAN	180	278	370	413	550	889	767	521	306	184	142	140
MAX	969	1298	1268	1446	1340	3561	2194	1314	1743	824	738	964
(WY)	1977	1998	1973	1937	1971	1936	1993	1924	1972	1989	1956	1996
MIN	45.9	48.0	52.4	61.3	86.0	263	215	127	83.0	49.7	46.9	45.9
(WY)	1931	1931	1931	1918	1934	1990	1925	1934	1965	1965	1966	1932

JUNIATA RIVER BASIN

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

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1917 - 2002	
ANNUAL TOTAL	90630		96206			
ANNUAL MEAN	248		264		394	
HIGHEST ANNUAL MEAN					670	1972
LOWEST ANNUAL MEAN					200	1969
HIGHEST DAILY MEAN	3080	Apr 16	3520	May 18	25000	Mar 18 1936
LOWEST DAILY MEAN	53	Oct 7,8	46	Sep 12-14	31	Dec 24 1930
ANNUAL SEVEN-DAY MINIMUM	54	Oct 4	47	Sep 9	32	Dec 19 1930
MAXIMUM PEAK FLOW			5190	May 18	**ab**30000	Mar 18 1936
MAXIMUM PEAK STAGE			10.57	May 18	19.35	Jan 19 1996
INSTANTANEOUS LOW FLOW			44	Sep 12	13	Jul 24 1934
ANNUAL RUNOFF (CFSM)	0.85		0.91		1.35	
ANNUAL RUNOFF (INCHES)	11.59		12.30		18.40	
10 PERCENT EXCEEDS	645		657		874	
50 PERCENT EXCEEDS	124		130		204	
90 PERCENT EXCEEDS	59		58		72	

a From rating curve extended above 14,000 ft^3/s on basis of slope-area measurement of peak flow.
b Gage height 18.58 ft, from floodmark in gage shelter.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

JUNIATA RIVER BASIN

01557500 BALD EAGLE CREEK AT TYRONE, PA

LOCATION.--Lat 40°41'01", long 78°14'02", Blair County, Hydrologic Unit 02050302, on left bank 0.2 mi upstream from highway bridge on SR 220 at Tyrone, 0.2 mi upstream from Laurel Run, and 1.3 mi upstream from mouth.

DRAINAGE AREA.--44.1 mi^2.

PERIOD OF RECORD.--October 1944 to current year. Prior to October 1967, published as South Bald Eagle Creek at Tyrone.

REVISED RECORDS.--WSP 1903: 1954(M). WDR PA-75-2: 1974.

GAGE.--Water-stage recorder. Datum of gage is 921.80 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1944, to Nov. 15, 1950, water-stage recorder, and Nov. 16, 1950, to Nov. 30, 1952, nonrecording gage at site 0.5 mi downstream at datum 17.99 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Prior to Nov. 30, 1952, daily discharges were affected by West Virginia Pulp and Paper Company diversion. Several measurements of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, about 15 ft, Mar. 17 or 18, 1936, site and datum in use prior to Dec. 1, 1952.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 940 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 26	1800	*1,580	*4.85	May 13	1200	1,170	4.31

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.8	5.8	66	e16	61	36	147	126	60	26	10	5.5
2	4.7	5.8	40	e14	57	31	118	253	46	24	9.7	5.9
3	4.6	6.0	31	e16	55	79	104	199	41	22	9.3	6.0
4	4.3	5.9	25	e18	57	52	93	157	39	21	9.0	5.3
5	4.2	5.6	22	e15	56	61	86	132	41	20	8.7	4.6
6	4.1	5.1	21	e18	50	52	79	115	228	19	10	4.5
7	4.2	5.1	19	e18	48	48	74	106	193	18	8.9	4.0
8	4.2	5.1	22	e25	45	46	69	95	131	17	8.5	3.7
9	4.4	5.3	44	36	41	43	66	353	110	17	8.2	3.6
10	4.6	5.1	34	75	97	43	61	336	89	19	7.7	3.4
11	4.7	5.0	27	58	213	39	54	232	74	15	7.3	3.1
12	4.7	4.9	23	46	131	38	50	297	66	15	7.1	2.8
13	4.7	4.8	31	42	106	37	65	708	59	14	6.7	2.9
14	17	4.7	36	37	83	36	154	610	118	14	6.6	2.9
15	35	4.7	38	36	74	35	234	379	183	13	6.3	3.8
16	14	4.7	31	33	68	80	156	264	134	13	6.6	6.1
17	16	4.7	89	31	64	60	124	201	113	12	6.5	4.5
18	11	4.7	178	29	54	118	110	415	90	12	6.2	3.9
19	9.0	4.7	101	e21	49	120	103	282	75	12	6.0	3.7
20	8.2	4.7	78	e16	47	380	96	222	65	12	6.0	4.0
21	7.8	4.6	62	e18	49	350	89	179	56	11	5.2	4.0
22	7.6	4.5	52	e18	44	225	91	147	48	10	5.1	4.7
23	7.7	4.5	47	26	40	166	79	123	43	9.9	12	9.3
24	16	4.5	46	39	37	132	70	108	39	10	14	5.0
25	12	63	e39	43	35	112	69	94	38	9.9	12	4.3
26	9.7	40	e34	39	38	676	63	84	35	12	7.8	5.4
27	9.7	21	e32	39	38	636	57	74	48	12	6.8	31
28	9.1	19	e23	40	34	323	112	67	46	11	6.5	19
29	8.8	40	e21	40	---	230	110	66	33	9.9	6.7	9.0
30	7.5	71	e14	41	---	182	123	57	29	9.9	6.2	6.8
31	5.8	---	e16	49	---	153	---	61	---	10	5.9	---
TOTAL	270.1	374.5	1342	992	1771	4619	2906	6542	2370	450.6	243.5	182.7
MEAN	8.71	12.5	43.3	32.0	63.2	149	96.9	211	79.0	14.5	7.85	6.09
MAX	35	71	178	75	213	676	234	708	228	26	14	31
MIN	4.1	4.5	14	14	34	31	50	57	29	9.9	5.1	2.8
CFSM	0.20	0.28	0.98	0.73	1.43	3.38	2.20	4.79	1.79	0.33	0.18	0.14
IN.	0.23	0.32	1.13	0.84	1.49	3.90	2.45	5.52	2.00	0.38	0.21	0.15

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2002, BY WATER YEAR (WY)

MEAN	33.0	55.4	75.0	78.7	103	164	145	109	62.8	30.4	20.4	23.2
MAX	178	216	217	226	251	364	399	304	377	138	99.8	157
(WY)	1991	1951	1973	1952	1981	1945	1993	1978	1972	1956	1956	1996
MIN	4.10	5.95	6.43	10.9	15.9	48.1	34.0	23.8	11.9	5.41	4.15	3.59
(WY)	1964	1954	1966	1981	1963	1990	1946	1976	1999	1965	1966	1965

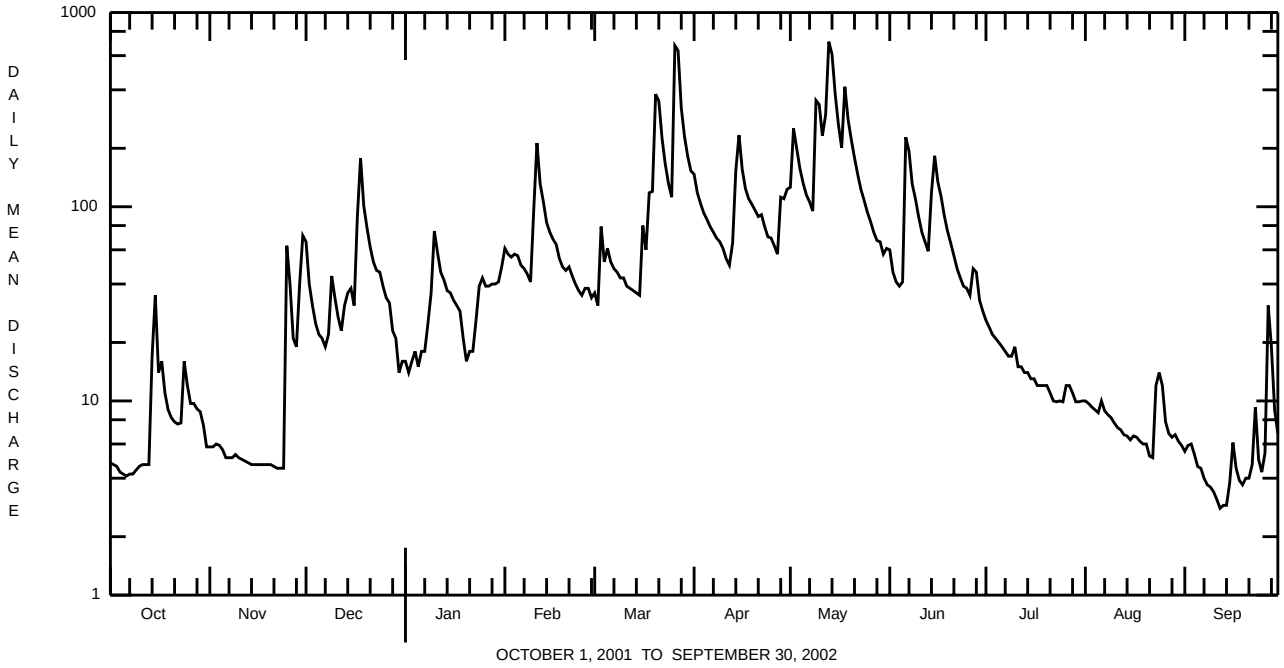
e Estimated.

JUNIATA RIVER BASIN

01557500 BALD EAGLE CREEK AT TYRONE, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1945 - 2002	
ANNUAL TOTAL	15645.8		22063.4			
ANNUAL MEAN	42.9		60.4		74.8	
HIGHEST ANNUAL MEAN					133	1951
LOWEST ANNUAL MEAN					42.8	1999
HIGHEST DAILY MEAN	334	Apr 16	708	May 13	2800	Jun 23 1972
LOWEST DAILY MEAN	3.5	Sep 13,19	2.8	Sep 12	1.4	Sep 13 1973
ANNUAL SEVEN-DAY MINIMUM	3.9	Sep 7	3.2	Sep 8	1.7	Sep 7 1973
MAXIMUM PEAK FLOW			1580	Mar 26	**a**5140	Nov 25 1950
MAXIMUM PEAK STAGE			4.85	Mar 26	**b**7.50	Nov 25 1950
INSTANTANEOUS LOW FLOW			2.8	Sep 11-15	1.4	Sep 12 1973
ANNUAL RUNOFF (CFSM)	0.97		1.37		1.70	
ANNUAL RUNOFF (INCHES)	13.20		18.61		23.05	
10 PERCENT EXCEEDS	117		139		171	
50 PERCENT EXCEEDS	20		34		40	
90 PERCENT EXCEEDS	4.7		4.7		7.4	

a From rating curve extended above 2,100 ft^3/s on basis of contracted-opening measurement of peak flow.
b From floodmark, site and datum then in use.



JUNIATA RIVER BASIN

01558000 LITTLE JUNIATA RIVER AT SPRUCE CREEK, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 40°36'45", long 78°08'27", Huntingdon County, Hydrologic Unit 02050302, on right bank on SR 4006, 150 ft downstream from Penn Central Railroad bridge, 0.5 mi northwest of village of Spruce Creek, and 0.5 mi upstream from Spruce Creek.

DRAINAGE AREA.--220 mi^2.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 751.15 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--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 of Mar. 18, 1936 reached a stage of 19.1 ft, from floodmarks 175 ft downstream, discharge, 39,800 ft^3/s, from rating curve extended above 5,600 ft^3/s on basis of slope-area measurement of peak flow.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 26	2100	*6,150	*8.04	May 18	0900	3,100	5.83
May 13	1615	3,380	6.07				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	71	301	130	269	171	686	504	392	163	72	64
2	71	69	172	129	268	167	559	1060	300	155	71	64
3	71	72	144	118	249	387	501	871	266	171	68	65
4	71	71	127	123	257	294	450	693	248	143	67	64
5	70	69	116	118	238	248	407	590	248	136	66	62
6	72	69	109	122	230	265	386	517	802	125	73	62
7	71	70	104	130	225	261	359	484	964	122	70	60
8	72	67	108	124	214	244	332	441	597	116	67	60
9	74	65	203	116	199	231	319	1380	501	117	67	60
10	77	66	166	198	246	232	298	1250	425	156	65	59
11	75	65	136	266	824	213	268	904	377	121	65	54
12	77	64	123	233	519	204	245	1030	345	105	65	51
13	78	64	133	203	440	202	261	2390	334	104	64	51
14	94	66	148	186	365	196	420	2300	676	100	64	51
15	226	65	165	173	333	189	925	1600	917	100	63	55
16	110	63	141	166	312	271	658	1180	697	94	66	70
17	118	61	216	156	302	247	551	963	575	89	64	57
18	98	61	582	152	265	396	494	2110	485	88	62	55
19	87	60	400	140	242	448	459	1530	417	89	62	55
20	84	62	344	145	232	1250	426	1220	364	100	64	56
21	81	60	287	140	240	1450	393	997	330	90	66	56
22	78	60	249	142	223	956	435	830	296	85	62	59
23	79	59	227	139	205	794	382	711	273	87	81	136
24	94	58	225	170	192	668	335	620	251	88	158	65
25	98	207	204	241	187	579	319	546	243	84	88	57
26	85	217	187	210	189	2240	304	490	222	94	67	58
27	83	119	174	203	211	2740	281	432	224	100	68	241
28	81	109	168	206	183	1480	447	398	249	94	67	188
29	81	189	162	203	---	1060	494	398	203	83	67	96
30	79	217	141	208	---	833	455	354	176	82	66	78
31	74	---	126	227	---	684	---	352	---	77	65	---
TOTAL	2682	2615	6088	5217	7859	19600	12849	29145	12397	3358	2180	2209
MEAN	86.5	87.2	196	168	281	632	428	940	413	108	70.3	73.6
MAX	226	217	582	266	824	2740	925	2390	964	171	158	241
MIN	70	58	104	116	183	167	245	352	176	77	62	51
CFSM	0.39	0.40	0.89	0.76	1.28	2.87	1.95	4.27	1.88	0.49	0.32	0.33
IN.	0.45	0.44	1.03	0.88	1.33	3.31	2.17	4.93	2.10	0.57	0.37	0.37

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2002, BY WATER YEAR (WY)

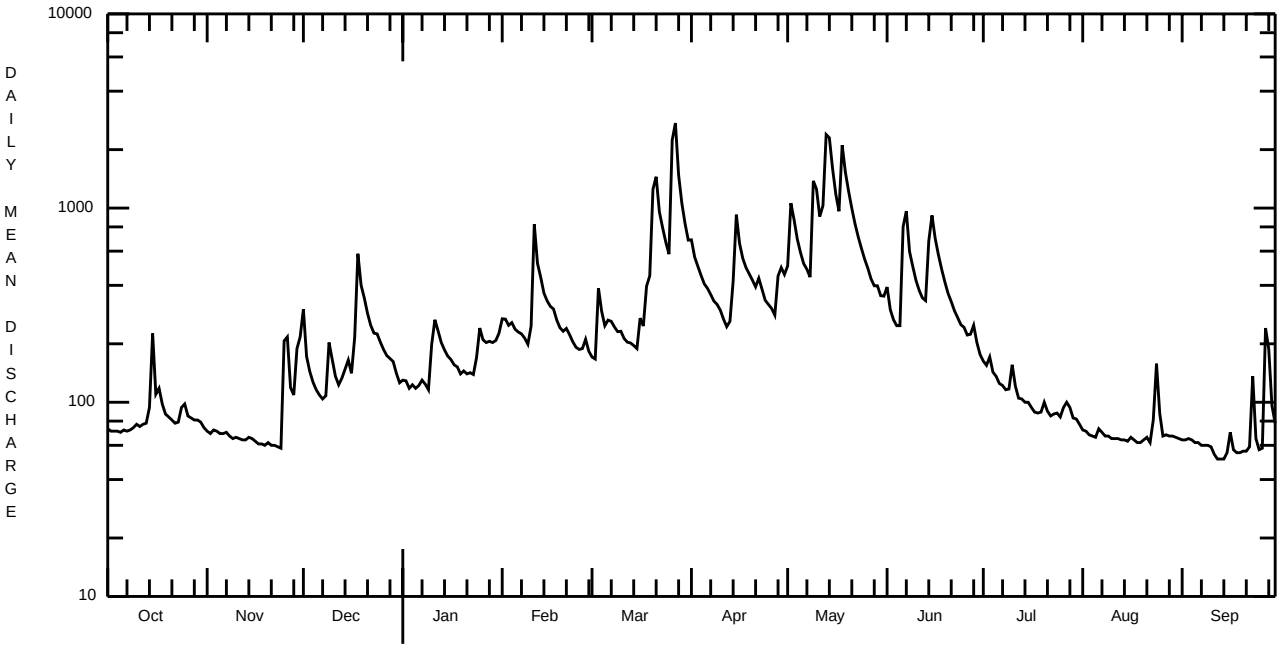
MEAN	185	273	358	369	486	773	716	520	335	188	139	146
MAX	816	1092	997	991	1128	1609	1928	1239	2022	623	389	898
(WY)	1991	1951	1973	1949	1976	1979	1993	1978	1972	1956	1956	1996
MIN	64.7	71.3	73.2	90.5	138	261	228	150	104	70.4	56.9	50.8
(WY)	1964	1939	1966	1940	1963	1990	1946	1976	1965	1965	1966	1995

JUNIATA RIVER BASIN

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

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1939 - 2002	
ANNUAL TOTAL	88043		106199			
ANNUAL MEAN	241		291		373	
HIGHEST ANNUAL MEAN					630	1972
LOWEST ANNUAL MEAN					248	1966
HIGHEST DAILY MEAN	1770	Apr 16	2740	Mar 27	21100	Jun 23 1972
LOWEST DAILY MEAN	58	Nov 24	51	Sep 12-14	31	Sep 12 1995
ANNUAL SEVEN-DAY MINIMUM	60	Nov 18	54	Sep 9	34	Sep 7 1995
MAXIMUM PEAK FLOW			6150	Mar 26	**a**28600	Jun 23 1972
MAXIMUM PEAK STAGE			8.04	Mar 26	16.98	Jun 23 1972
INSTANTANEOUS LOW FLOW			50	Sep 12-15	45	Sep 26 1943**b**
ANNUAL RUNOFF (CFSM)	1.10		1.32		1.70	
ANNUAL RUNOFF (INCHES)	14.89		17.96		23.04	
10 PERCENT EXCEEDS	590		671		805	
50 PERCENT EXCEEDS	136		171		219	
90 PERCENT EXCEEDS	71		64		83	

a From rating curve, then in use, extended above 5,600 ft^3/s on basis of slope-area measurement at gage height 15.77 ft.
b Also Oct. 4, 1949.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

01558000 LITTLE JUNIATA RIVER AT SPRUCE CREEK, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
APR 2002													
16...	1415	9813	650	30	12.0	8.8	183	15.1	67	18.0	5.5	48	18.9
JUN													
25...	1345	9813	240	30	10.6	8.3	260	19.6	110	26.9	9.3	78	19.2
AUG													
13...	1530	9813	64	30	11.1	8.7	305	19.8	160	38.0	15.0	122	21.5

Date	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
APR 2002													
16...	130	20	<.020	.68	<.040	.94	.04	.070	2.6	<10	440	<1.0	20
JUN													
25...	178	<2	<.020	1.67	<.040	1.7	.05	.070	1.5	<10	240	<1.0	60
AUG													
13...	222	6	<.020	2.88	<.040	3.1	.16	.220	1.9	<10	100	1.6	10

Date	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002		
16...	<50	<10
JUN		
25...	<50	<10
AUG		
13...	<50	<10

JUNIATA RIVER BASIN

01559000 JUNIATA RIVER AT HUNTINGDON, PA

LOCATION.--Lat 40°29'05", long 78°01'09", Huntingdon County, Hydrologic Unit 02050302, on right bank 170 ft downstream from Smithfield Bridge on State Highway 26 at Huntingdon, and 0.8 mi upstream from Standing Stone Creek.

DRAINAGE AREA.--816 mi^2.

PERIOD OF RECORD.--October 1941 to current year. Gage-height records collected in this vicinity for the period May 1895 to December 1938 are contained in reports of U.S. Weather Bureau. Prior to October 1950, published as Frankstown Branch Juniata River at Huntingdon.

REVISED RECORDS.--WDR PA-73-1: 1936(M). WDR PA-80-2: 1972(M). WDR PA-84-2: 1936(M) 1972(M).

GAGE.--Water-stage recorder. Datum of gage is 599.69 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Flow regulated September 1941 to June 1972, and since December 15, 1985 by Warrior Ridge Hydroelectric Plant 4 mi upstream (reservoir capacity 400 acre-ft). Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936, reached a stage of 21.87 ft, from floodmark, discharge, 81,000 ft^3/s, from rating curve extended on basis of computation of peak discharge at dam and runoff comparison with downstream station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 5,500 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 27	0345	*10,900	*8.45	May 18	1630	8,960	7.48
May 13	2000	6,510	6.23				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	224	205	725	e253	566	379	1890	1790	1450	421	208	200
2	215	202	467	e243	614	367	1540	2470	908	398	204	200
3	214	207	363	e243	545	694	1340	2390	713	374	205	203
4	212	208	314	e232	537	855	1190	1850	635	374	201	202
5	207	203	298	e243	499	617	1070	1590	664	321	201	192
6	200	198	278	e264	485	620	988	1370	1270	316	207	184
7	192	198	265	e253	477	595	911	1310	3450	312	216	182
8	187	197	269	286	461	552	837	1160	1550	304	197	179
9	186	193	392	272	439	521	811	3040	1170	307	189	177
10	192	190	428	328	423	496	810	3470	996	386	190	176
11	197	192	346	600	1350	474	697	2510	878	332	187	293
12	201	188	307	591	1180	444	629	2260	791	291	182	281
13	204	189	306	503	950	437	652	4770	756	283	189	136
14	207	190	335	449	775	427	902	5230	1340	277	218	131
15	450	196	374	414	674	419	1900	4060	2810	273	189	134
16	367	196	355	405	652	441	1780	3020	1870	266	185	130
17	258	193	347	328	617	507	1670	2460	1390	253	189	152
18	276	191	974	332	561	635	1550	6410	1120	246	187	185
19	243	195	870	315	507	1110	2060	5440	967	248	187	181
20	231	193	668	321	485	2130	1560	3690	839	253	190	176
21	221	196	554	321	493	4240	1350	2820	727	261	204	194
22	215	190	488	321	476	2620	1620	2260	659	239	190	214
23	212	191	444	319	445	1950	1570	1860	619	236	202	390
24	225	190	434	350	418	1580	1310	1580	573	239	337	424
25	246	256	423	584	376	1360	1130	1360	563	236	328	302
26	220	729	361	557	387	2970	1070	1200	527	245	249	153
27	211	371	340	499	428	8150	947	1030	503	285	215	297
28	206	293	e328	483	408	4060	1320	973	573	272	208	819
29	206	362	e307	468	---	2900	2300	929	527	240	213	440
30	205	442	e286	465	---	2280	1720	817	460	222	210	284
31	205	---	e253	505	---	1840	---	1130	---	213	205	---
TOTAL	7035	7144	12899	11747	16228	46670	39124	76249	31298	8923	6482	7211
MEAN	227	238	416	379	580	1505	1304	2460	1043	288	209	240
MAX	450	729	974	600	1350	8150	2300	6410	3450	421	337	819
MIN	186	188	253	232	376	367	629	817	460	213	182	130
CFSM	0.28	0.29	0.51	0.46	0.71	1.84	1.60	3.01	1.28	0.35	0.26	0.29
IN.	0.32	0.33	0.59	0.54	0.74	2.13	1.78	3.48	1.43	0.41	0.30	0.33

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 2002, BY WATER YEAR (WY)

MEAN	545	804	1059	1116	1438	2246	2025	1474	960	568	447	454
MAX	2114	3020	3100	2780	3059	4920	5739	3217	5562	1920	1447	2856
(WY)	1991	1998	1973	1996	1971	1994	1993	1978	1972	1989	1956	1996
MIN	146	233	232	265	379	693	747	528	312	201	163	143
(WY)	1964	1964	1966	1981	1963	1969	1946	1976	1965	1966	1966	1963

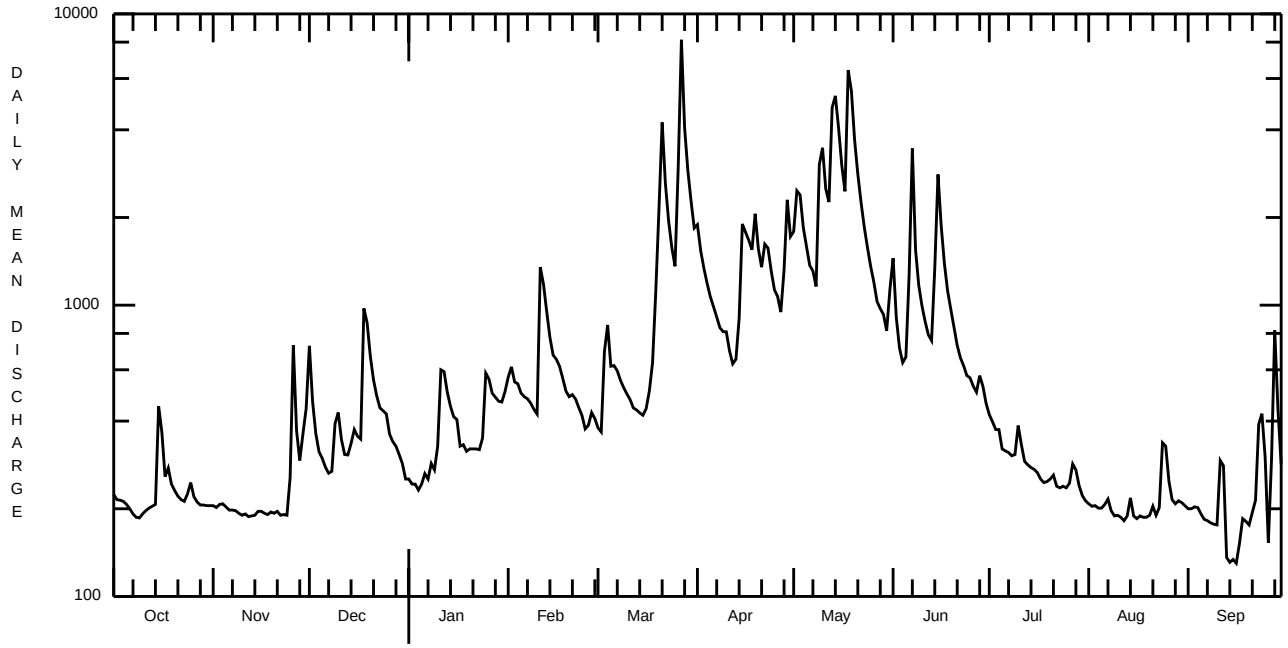
e Estimated.

JUNIATA RIVER BASIN

01559000 JUNIATA RIVER AT HUNTINGDON, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1942 - 2002	
ANNUAL TOTAL	263677		271010			
ANNUAL MEAN	722		742		1093	
HIGHEST ANNUAL MEAN					1830	1972
LOWEST ANNUAL MEAN					595	1969
HIGHEST DAILY MEAN	5460	Apr 17	8150	Mar 27	50400	Jun 23 1972
LOWEST DAILY MEAN	182	Sep 18,19	130	Sep 16	40	Sep 12 1963
ANNUAL SEVEN-DAY MINIMUM	190	Sep 13	150	Sep 13	117	Sep 10 1963
MAXIMUM PEAK FLOW			10900	Mar 27	**a**57000	Jun 23 1972
MAXIMUM PEAK STAGE			8.45	Mar 27	20.03	Jun 23 1972
INSTANTANEOUS LOW FLOW			130	Sep 14-17	**b**14	Feb 8 1948
ANNUAL RUNOFF (CFSM)	0.89		0.91		1.34	
ANNUAL RUNOFF (INCHES)	12.02		12.35		18.19	
10 PERCENT EXCEEDS	1830		1780		2340	
50 PERCENT EXCEEDS	370		379		651	
90 PERCENT EXCEEDS	201		192		264	

a From rating curve extended above 22,000 ft^3/s on basis of computation of peak discharge at dam, slope-conveyance study, and Pennsylvania Department of Environmental Protection step-backwater study.
b Minimum recorded; Also Aug. 2, 1954.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

JUNIATA RIVER BASIN

01560000 DUNNING CREEK AT BELDEN, PA

LOCATION.--Lat 40°04'18", long 78°29'34", Bedford County, Hydrologic Unit 02050303, on left bank 10 ft upstream from highway bridge on SR 1014, 0.8 mi southeast of Belden, 3.8 mi north of Bedford, and 4.3 mi upstream from mouth.

DRAINAGE AREA.--172 mi^2.

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

REVISED RECORDS.--WSP 971: 1940(M). WSP 1502: 1940-41. WDR PA-72-1: 1967(M).

GAGE.--Water-stage recorder. Datum of gage is 1,051.16 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records 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.--Maximum stage known, 17.8 ft, Mar. 18, 1936, from floodmarks (backwater from Raystown Branch Juniata River), discharge, about 16,900 ft^3/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 2,300 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 20	2245	2,390	6.85	May 18	1245	2,330	6.75
May 9	1300	*3,950	*8.61				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	20	52	e27	91	47	400	540	122	38	15	9.8
2	17	22	45	e26	87	54	275	477	87	35	14	10
3	14	20	38	e25	80	139	239	371	72	34	15	11
4	14	22	34	e25	79	163	211	286	67	31	17	10
5	14	21	32	e24	73	174	185	243	63	29	15	9.5
6	16	20	30	e24	76	176	166	210	202	25	18	8.4
7	16	19	29	e24	74	140	148	194	397	23	19	7.9
8	16	18	30	e24	70	120	135	174	161	22	14	7.7
9	18	18	41	e28	65	104	129	2640	127	21	12	7.7
10	20	18	41	e39	60	94	144	1800	110	22	10	7.7
11	22	17	35	e76	120	81	116	912	95	22	9.9	8.2
12	23	16	32	85	134	76	103	594	83	20	8.8	8.7
13	24	15	32	77	145	72	101	616	82	19	8.3	9.2
14	25	15	40	71	129	70	116	592	161	21	8.0	9.2
15	45	16	52	66	118	66	239	513	187	20	8.0	11
16	27	15	45	61	107	66	246	419	164	19	7.9	13
17	18	15	43	56	97	68	280	346	142	16	8.7	12
18	15	15	82	e48	83	189	267	1470	125	17	11	11
19	14	15	94	e42	74	293	273	1200	108	22	8.6	13
20	13	14	79	e40	71	1250	231	751	90	20	10	20
21	14	14	69	e40	69	1770	208	511	79	18	9.8	15
22	14	14	58	e43	66	854	273	376	70	16	11	14
23	15	15	e52	44	60	519	220	288	63	17	10	46
24	17	14	e45	60	55	371	195	232	58	21	28	27
25	17	33	e40	139	54	282	189	191	52	19	24	16
26	16	83	e37	126	54	521	171	160	49	28	18	18
27	18	45	e34	115	56	1620	148	135	50	34	14	134
28	18	39	e33	103	52	908	784	121	55	27	12	164
29	19	39	e30	93	---	573	1070	117	48	21	11	64
30	19	43	e28	85	---	410	709	102	41	16	11	40
31	20	---	e28	91	---	312	---	99	---	13	9.7	---
TOTAL	574	690	1360	1827	2299	11582	7971	16680	3210	706	396.7	743.0
MEAN	18.5	23.0	43.9	58.9	82.1	374	266	538	107	22.8	12.8	24.8
MAX	45	83	94	139	145	1770	1070	2640	397	38	28	164
MIN	13	14	28	24	52	47	101	99	41	13	7.9	7.7
CFSM	0.11	0.13	0.26	0.34	0.48	2.17	1.54	3.13	0.62	0.13	0.07	0.14
IN.	0.12	0.15	0.29	0.40	0.50	2.50	1.72	3.61	0.69	0.15	0.09	0.16

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2002, BY WATER YEAR (WY)

MEAN	94.3	167	245	254	358	553	446	283	168	89.9	55.4	58.8
MAX	798	917	859	664	825	1408	1370	1013	1015	740	214	547
(WY)	1977	1998	1973	1952	1971	1994	1993	1998	1972	1989	1979	1996
MIN	14.0	18.3	18.8	45.8	65.2	129	112	45.7	25.6	8.96	8.05	9.86
(WY)	1970	1954	1999	1981	1963	1990	1946	1941	1965	1966	1966	1985

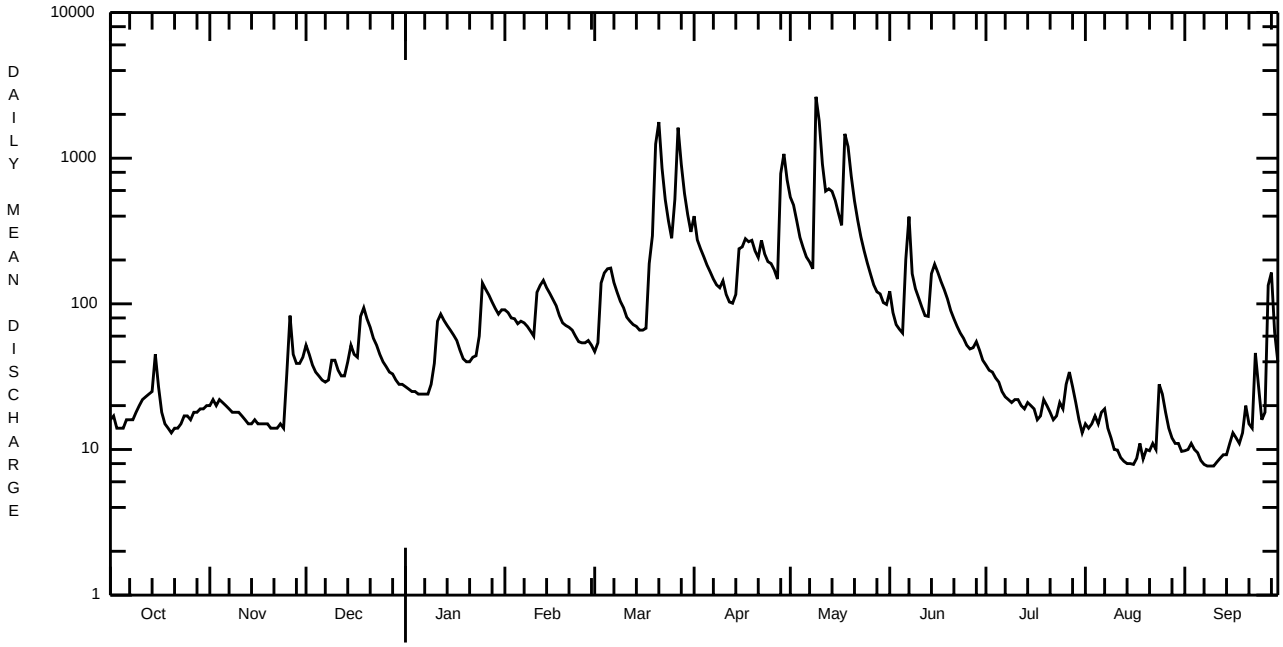
e Estimated.

JUNIATA RIVER BASIN

01560000 DUNNING CREEK AT BELDEN, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1940 - 2002	
ANNUAL TOTAL	56100		48038.7			
ANNUAL MEAN	154		132		230	
HIGHEST ANNUAL MEAN					397	1998
LOWEST ANNUAL MEAN					107	1954
HIGHEST DAILY MEAN	3070	Apr 16	2640	May 9	9140	Jun 23 1972
LOWEST DAILY MEAN	11	Sep 7,8	7.7	Sep 8-10	6.4	Sep 6 1964
ANNUAL SEVEN-DAY MINIMUM	12	Sep 5	8.0	Sep 6	6.7	Aug 5 1966
MAXIMUM PEAK FLOW			3950	May 9	**a**19400	Jul 20 1977
MAXIMUM PEAK STAGE			8.61	May 9	14.15	Jul 20 1977
INSTANTANEOUS LOW FLOW			6.5	Aug 13	2.6	Sep 6 1964
ANNUAL RUNOFF (CFSM)	0.89		0.77		1.34	
ANNUAL RUNOFF (INCHES)	12.13		10.39		18.20	
10 PERCENT EXCEEDS	443		284		565	
50 PERCENT EXCEEDS	47		45		97	
90 PERCENT EXCEEDS	15		13		20	

a From rating curve extended above 9,200 ft^3/s on basis of contracted-opening measurement at gage height 12.67 ft and contracted-opening and flow-over-road measurement at gage height 13.03 ft.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

JUNIATA RIVER BASIN

01562000 RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 40°12'57", long 78°15'56", Bedford County, Hydrologic Unit 02050303, on left bank 500 ft downstream from bridge on State Highway 913, 0.5 mi west of Saxton, and 1.5 mi upstream from Shoup Run.

DRAINAGE AREA.--756 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1911 to current year. Monthly discharge only for September 1911 published in WSP 1302.

REVISED RECORDS.--WSP 1302: 1912-13(M), 1914-15. WSP 1502: 1934, 1936.

GAGE.--Water-stage recorder. Datum of gage is 795.77 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1931, nonrecording gage at site 0.8 mi downstream at datum 4.82 ft lower.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1889, reached a stage of 23.0 ft at present site and datum, from floodmarks, discharge, about 71,300 ft^3/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 7,700 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
May 19	0045	*6,270	*7.36

(No peaks above base discharge.)

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	93	235	e122	272	151	1320	2240	479	176	96	70
2	81	94	212	e114	281	147	1460	1770	452	152	87	70
3	77	96	196	e114	266	199	1040	1810	380	138	81	69
4	75	93	177	e108	e228	316	925	1430	332	126	80	68
5	73	93	160	e106	e204	437	834	1050	305	120	82	65
6	71	93	150	e106	e185	360	666	902	402	112	84	62
7	69	92	146	e109	e157	391	646	796	1150	107	81	59
8	69	90	148	e116	e169	350	526	811	984	103	144	55
9	68	89	172	e123	e173	313	495	1990	568	100	122	53
10	68	87	187	e136	e169	285	583	4830	447	102	98	51
11	71	86	191	e158	193	259	513	3230	385	98	85	49
12	74	84	183	e187	185	237	436	2210	341	93	79	46
13	76	84	159	288	279	221	424	1970	329	89	78	45
14	82	83	150	260	279	215	401	2310	357	97	69	44
15	104	83	160	e227	277	210	697	2040	669	103	64	47
16	111	84	174	e205	259	212	1110	1760	598	105	62	51
17	117	84	197	e184	250	214	892	1340	475	98	62	52
18	142	83	203	e158	235	298	895	2980	391	94	74	53
19	133	82	197	e147	219	789	1290	4830	341	101	65	59
20	114	83	288	e144	199	1420	1120	3250	305	338	70	77
21	105	81	276	e145	187	4450	965	2380	270	219	65	71
22	101	80	260	e142	186	3200	967	1720	241	146	61	86
23	99	79	237	e152	181	2040	1220	1360	219	121	72	106
24	99	77	226	171	174	1370	990	1110	200	105	98	176
25	97	101	e202	230	163	1070	880	986	185	96	122	146
26	90	207	e180	368	154	902	791	868	175	107	159	126
27	89	337	e156	354	154	2330	694	667	179	141	115	180
28	90	279	e148	313	150	2600	1020	606	188	146	97	426
29	90	231	e142	286	---	1830	3460	657	213	151	92	616
30	89	225	e137	267	---	1330	2940	689	209	131	82	340
31	92	---	e127	265	---	1040	---	514	---	110	73	---
TOTAL	2801	3453	5776	5805	5828	29186	30200	55106	11769	3925	2699	3418
MEAN	90.4	115	186	187	208	941	1007	1778	392	127	87.1	114
MAX	142	337	288	368	281	4450	3460	4830	1150	338	159	616
MIN	68	77	127	106	150	147	401	514	175	89	61	44
CFSM	0.12	0.15	0.25	0.25	0.28	1.25	1.33	2.35	0.52	0.17	0.12	0.15
IN.	0.14	0.17	0.28	0.29	0.29	1.44	1.49	2.71	0.58	0.19	0.13	0.17

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1912 - 2002, BY WATER YEAR (WY)

MEAN	418	602	849	1004	1422	2099	1738	1230	728	397	263	270
MAX	3561	2897	3254	3477	4817	7669	5811	3425	4624	2847	851	2356
(WY)	1977	1998	1973	1937	1979	1936	1993	1924	1972	1989	1915	1996
MIN	59.5	65.3	93.6	132	138	459	338	211	134	66.6	55.1	57.6
(WY)	1964	1931	1931	1981	1934	1990	1915	1926	1965	1966	1966	1963

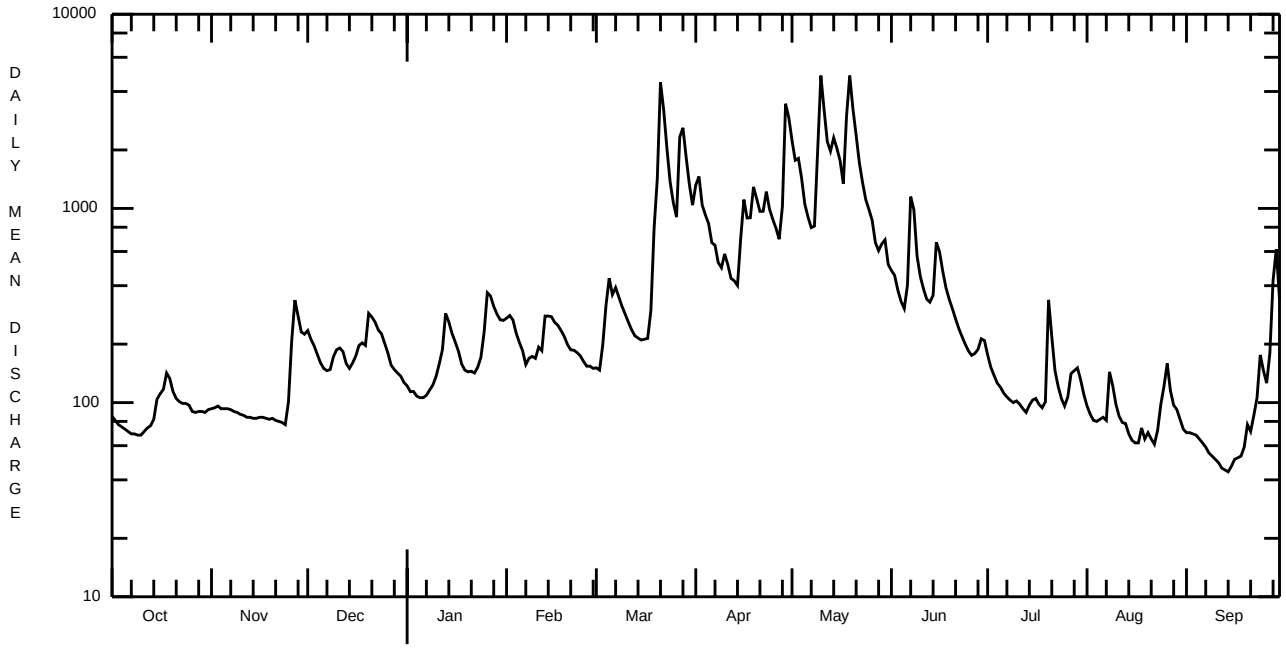
e Estimated.

JUNIATA RIVER BASIN

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

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1912 - 2002	
ANNUAL TOTAL	205689		159966			
ANNUAL MEAN	564		438		915	
HIGHEST ANNUAL MEAN					1575	1996
LOWEST ANNUAL MEAN					402	1969
HIGHEST DAILY MEAN	7140	Apr 17	4830	May 10,19	58300	Mar 18 1936
LOWEST DAILY MEAN	61	Sep 13	44	Sep 14	39	Sep 12 1966
ANNUAL SEVEN-DAY MINIMUM	64	Sep 11	48	Sep 10	41	Sep 7 1966
MAXIMUM PEAK FLOW			6270	May 19	**a**80500	Mar 18 1936
MAXIMUM PEAK STAGE			7.36	May 19	**b**24.54	Mar 18 1936
INSTANTANEOUS LOW FLOW			41	Sep 12	39	Sep 6 1966
ANNUAL RUNOFF (CFSM)	0.75		0.58		1.21	
ANNUAL RUNOFF (INCHES)	10.12		7.87		16.45	
10 PERCENT EXCEEDS	1590		1110		2170	
50 PERCENT EXCEEDS	221		174		419	
90 PERCENT EXCEEDS	82		73		117	

a From rating curve extended above 21,000 ft^3/s on basis of slope-area measurement of peak flow.
b From floodmark in gage.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

JUNIATA RIVER BASIN

01562000 RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
APR 2002													
16...	0945	9813	1140	40	8.8	7.7	216	17.7	80	21.5	6.3	52	24.4
JUN													
25...	0945	9813	184	40	6.6	7.7	284	25.2	130	33.6	11.3	90	30.8
AUG													
13...	0840	9813	84	40	5.5	7.8	328	24.0	170	37.6	18.2	114	43.7

Date	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
APR 2002													
16...	132	44	<.020	.65	<.040	1.1	.03	.040	2.9	<10	860	1.1	90
JUN													
25...	212	14	<.020	1.25	<.040	1.4	.01	.030	2.5	<10	360	<1.0	70
AUG													
13...	278	52	<.020	.88	<.040	1.3	.02	.020	2.9	<10	200	1.4	60

Date	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002		
16...	<50	10
JUN		
25...	<50	<10
AUG		
13...	<50	<10

JUNIATA RIVER BASIN

01563100 RAYSTOWN LAKE NEAR HUNTINGDON, PA

LOCATION.--Lat 40°26'06", long 78°00'25", Huntingdon County, Hydrologic Unit 02050303, at Raystown Dam on Raystown Branch Juniata River, 3.5 mi south of Huntingdon, and 5.7 mi upstream from mouth.

DRAINAGE AREA.--959 mi^2.

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum is given in feet above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Reservoir is formed by earthfill dam with a gated spillway in right abutment at elevation 768.6 ft (capacity, 383,500 acre-ft), and an ungated spillway separate from embankment at elevation 812.0 ft (capacity, 762,000 acre-ft). Storage began November 1972. Conservation pool elevation is 786.0 ft, capacity 514,000 acre-ft. Lake is used for flood control, low-flow augmentation, and recreation. Figures given herein represent total contents. Satellite telemetry at station.

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 667,010 acre-ft, Apr. 3, 1993, elevation, 802.89 ft; minimum, 2,240 acre-ft, March 2, 1973, elevation, 628.80 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 529,810 acre-ft, May 1, elevation, 787.86 ft; minimum, 419,000 acre-ft, Mar. 2, elevation, 773.98 ft.

MONTHEND ELEVATION, IN FEET ABOVE SEA LEVEL, AND CONTENTS AT 2400 HRS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)
Sept. 30	783.88	495,790	---
Oct. 31	782.61	485,200	-172
Nov. 30	780.65	469,330	-267
Dec. 31	777.98	448,660	-336
CAL YR 2001	--	--	-69
Jan. 31	775.63	431,200	-284
Feb. 28	774.04	419,690	-207
Mar. 31	781.56	476,640	+926
Apr. 30	787.85	529,730	+892
May 31	786.88	521,480	-134
June 30	786.55	518,680	-47
July 31	785.79	512,170	-106
Aug. 31	784.71	502,840	-152
Sept. 30	784.11	497,740	-86
WTR YR 2002	--	--	+2.7

JUNIATA RIVER BASIN

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

LOCATION.--Lat 40°25'44", long 77°59'29", Huntingdon County, Hydrologic Unit 02050303, on left bank 1.0 mi downstream from Raystown Dam on Township Route 430, 4.0 mi south of Huntingdon, and 4.7 mi upstream from mouth.

DRAINAGE AREA.--960 mi^2.

PERIOD OF RECORD.--January 1946 to current year. Prior to October 1946 monthly discharge only, published in WSP 1302. Prior to Oct. 1, l969, published as Raystown Branch Juniata River near Huntingdon.

GAGE.--Water-stage recorder. Datum of gage is 597.36 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers benchmark). Prior to Oct. 1, 1969, water-stage recorder at site 4.3 mi upstream at datum 22.72 ft higher.

REMARKS.--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 ft^3/s, at previous site and datum, by computation of peak discharge at dam.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	217	210	493	493	486	204	226	3080	973	204	207	206
2	218	203	494	491	486	206	223	2980	1100	203	207	206
3	217	209	492	484	484	207	223	2040	756	203	207	206
4	224	209	490	493	484	206	224	1610	512	203	206	206
5	232	208	494	490	484	204	224	1600	519	202	208	206
6	228	209	488	493	483	202	223	1330	695	202	207	206
7	213	208	489	491	484	206	222	1110	1960	202	207	206
8	210	207	490	490	484	207	221	1270	2010	202	207	206
9	210	207	490	514	484	206	221	2890	970	203	207	205
10	210	208	488	503	485	209	221	5550	544	202	207	206
11	210	207	488	491	485	208	219	4310	540	201	207	207
12	210	207	487	487	484	207	217	1650	537	201	206	206
13	210	207	488	488	484	208	217	3070	537	202	207	207
14	211	207	496	486	484	209	219	3990	536	197	205	206
15	210	374	502	487	483	210	222	3220	785	203	207	205
16	210	502	503	488	485	210	216	2290	970	207	206	206
17	210	498	500	487	484	210	226	2080	715	208	206	205
18	210	497	501	486	484	210	226	3020	537	207	207	205
19	210	502	500	485	484	205	384	5490	537	202	206	205
20	210	498	500	484	484	218	488	5090	414	218	207	205
21	210	494	488	485	485	218	488	3210	332	218	207	205
22	209	494	499	484	484	212	493	2430	331	215	207	202
23	209	493	489	484	424	211	904	1930	332	208	207	213
24	209	493	496	485	300	216	1360	1610	282	203	207	203
25	209	495	498	486	221	217	1090	1550	212	206	207	201
26	209	493	495	486	206	227	897	1600	204	206	207	202
27	209	493	496	485	205	231	895	954	205	206	207	204
28	209	493	493	485	204	224	1180	498	205	206	207	202
29	210	492	494	485	---	226	1600	669	206	206	207	202
30	210	492	480	485	---	225	1890	818	204	206	206	213
31	210	---	493	485	---	224	---	818	---	206	207	---
TOTAL	6583	10709	15294	15146	12214	6583	15659	73757	18660	6358	6410	6163
MEAN	212	357	493	489	436	212	522	2379	622	205	207	205
MAX	232	502	503	514	486	231	1890	5550	2010	218	208	213
MIN	209	203	480	484	204	202	216	498	204	197	205	201

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

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 2002, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	735	998	1243	1222	1710	2370	2264	1437	786	512	336	424
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	436	212	370	18.6	59.1	133	118	134
(WY)	1975	1975	1981	1981	2002	2002	1974	1973	1973	1973	1973	1973

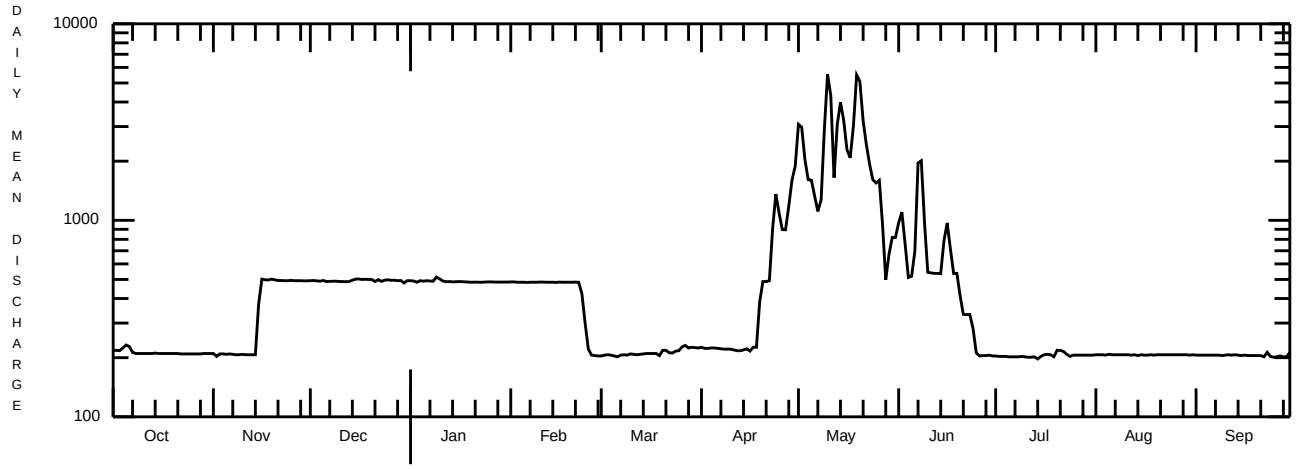
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1973 - 2002	
ANNUAL TOTAL	254307		193536			
ANNUAL MEAN	697		530		1166	
HIGHEST ANNUAL MEAN					1989	1996
LOWEST ANNUAL MEAN					525	1992
HIGHEST DAILY MEAN	10000	Apr 17	5550	May 10	15400	Apr 7 1993
LOWEST DAILY MEAN	198	May 17-19	197	Jul 14	5.0	May 18 1973
ANNUAL SEVEN-DAY MINIMUM	207	Nov 8	201	Jul 8	8.3	May 18 1973
MAXIMUM PEAK FLOW			6490	May 10	16200	Apr 6 1993
MAXIMUM PEAK STAGE			9.87	May 10	15.12	Apr 6 1993
10 PERCENT EXCEEDS	1600		970		2770	
50 PERCENT EXCEEDS	488		224		500	
90 PERCENT EXCEEDS	210		205		201	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1972, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	343	651	985	1195	1649	2695	2132	1500	875	442	303	229
MAX	1587	2796	2877	2915	4150	4481	4632	3346	5740	1722	925	648
(WY)	1955	1971	1951	1949	1971	1963	1970	1960	1972	1972	1956	1950
MIN	64.7	65.3	131	220	317	754	683	482	180	80.1	66.0	67.6
(WY)	1964	1958	1966	1954	1954	1969	1968	1969	1965	1966	1966	1963

SUMMARY STATISTICS	WATER YEARS 1947 - 1972	
ANNUAL MEAN	1080	
HIGHEST ANNUAL MEAN	1960	1972
LOWEST ANNUAL MEAN	497	1969
HIGHEST DAILY MEAN	22200	Apr 3 1970
LOWEST DAILY MEAN	5.0	Oct 30 1957
ANNUAL SEVEN-DAY MINIMUM	7.7	Nov 3 1957
MAXIMUM PEAK FLOW	**a**24500	Nov 25 1950
MAXIMUM PEAK STAGE	**b**18.54	Apr 3 1970
INSTANTANEOUS LOW FLOW	4.3	Oct 31 1957
ANNUAL RUNOFF (CFSM)	1.13	
ANNUAL RUNOFF (INCHES)	15.29	
10 PERCENT EXCEEDS	2580	
50 PERCENT EXCEEDS	475	
90 PERCENT EXCEEDS	114	

a From rating curve extended above 16,000 ft^3/s on basis of computation of peak discharge at dam, gage height, 16.74 ft, site and datum then in use.
b Present site and datum.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

JUNIATA RIVER BASIN

01563500 JUNIATA RIVER AT MAPLETON DEPOT, PA

LOCATION.--Lat 40°23'32", long 77°56'07", Huntingdon County, Hydrologic Unit 02050304, on right bank 0.2 mi downstream from Scrub Run, and 0.3 mi downstream from bridge on State Highway 655 at Mapleton Depot.

DRAINAGE AREA.--2,030 mi^2.

PERIOD OF RECORD.--October 1937 to current year.

REVISED RECORDS.--WDR PA-73-1: 1936(M).

GAGE.--Water-stage recorder. Datum of gage is 557.31 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated since October 1972 by Raystown Dam (station 01563100) 12 mi upstream. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936, reached a stage of 38.2 ft, from floodmark, discharge, 165,000 ft^3/s from rating curve extended above 39,000 ft^3/s on basis of runoff comparison with upstream and downstream stations.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	458	426	1500	e871	1360	725	2670	5360	3050	864	502	459
2	449	421	1270	e889	1400	711	2290	6070	2680	820	496	460
3	441	421	1060	e871	1330	1030	2010	5430	2110	784	494	461
4	439	424	978	e871	1300	1440	1810	4170	1550	770	490	462
5	444	427	952	e880	1240	1060	1660	3860	1610	709	493	451
6	433	416	918	e917	1220	1030	1560	3360	2410	676	524	441
7	407	414	897	933	1220	1030	1480	2930	7110	668	504	433
8	398	415	901	943	1190	970	1400	2880	4780	660	488	432
9	398	414	1020	951	1160	929	1360	5840	3110	659	460	428
10	401	408	1170	973	1140	906	1400	9440	2160	723	462	425
11	409	412	1030	1320	2120	891	1250	7550	1960	766	460	472
12	413	406	965	1410	2170	835	1110	4450	1840	599	455	643
13	416	405	953	1300	1820	822	1130	8110	1770	613	455	391
14	428	409	999	1200	1620	809	1490	11100	2150	603	479	374
15	643	505	1080	1140	1470	798	2730	8450	4710	590	494	381
16	789	795	1080	1110	1450	796	2600	6270	3950	589	448	375
17	520	786	1040	1050	1410	918	2460	5130	2910	565	461	377
18	526	785	1660	992	1330	1060	2260	11300	2250	556	460	439
19	499	791	1790	977	1250	1700	3030	12600	2020	675	457	431
20	470	784	1490	981	1220	2580	2660	9850	1760	697	460	431
21	454	780	1330	985	1220	5580	2340	7010	1490	641	472	439
22	442	778	1250	986	1210	3550	2630	5540	1350	580	459	472
23	434	778	1170	985	1110	2670	3000	4630	1300	590	471	730
24	449	775	1150	1070	943	2220	3280	3960	1200	615	607	796
25	470	868	1140	1410	782	1930	2870	3640	1150	572	691	678
26	456	1430	1080	1430	737	3250	2450	3520	1040	576	553	430
27	432	1120	985	1280	789	11300	2300	2760	979	641	497	574
28	428	941	e953	1250	790	5480	2860	1970	1240	631	476	1460
29	424	970	e917	1220	---	3950	4640	2290	1070	582	475	883
30	425	1130	e899	1230	---	3160	4190	2290	945	536	470	691
31	423	---	e862	1260	---	2610	---	2760	---	515	463	---
TOTAL	14218	19834	34489	33685	36001	66740	68920	174520	67654	20065	15176	15919
MEAN	459	661	1113	1087	1286	2153	2297	5630	2255	647	490	531
MAX	789	1430	1790	1430	2170	11300	4640	12600	7110	864	691	1460
MIN	398	405	862	871	737	711	1110	1970	945	515	448	374

e Estimated.

01563500 JUNIATA RIVER AT MAPLETON DEPOT, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 2002, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1590	2215	2840	2733	3754	5292	5009	3368	2030	1282	899	1074
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	459	578	872	481	1269	1612	1781	1309	679	557	490	484
(WY)	2002	1979	1981	1981	1993	1990	1997	1976	1991	1999	2002	1995

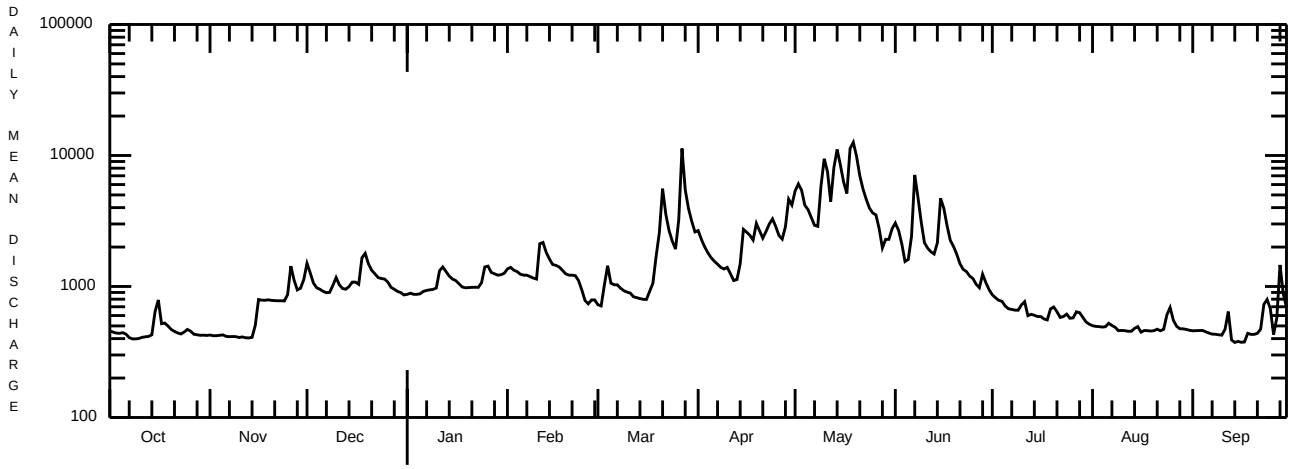
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1973 - 2002	
ANNUAL TOTAL	595818		567221			
ANNUAL MEAN	1632		1554		2667	
HIGHEST ANNUAL MEAN					4119	1996
LOWEST ANNUAL MEAN					1360	1992
HIGHEST DAILY MEAN	17400	Apr 17	12600	May 19	37300	Jan 20 1996
LOWEST DAILY MEAN	398	Oct 8,9	374	Sep 14	374	Sep 14 2002
ANNUAL SEVEN-DAY MINIMUM	406	Oct 7	395	Sep 13	395	Sep 13 2002
MAXIMUM PEAK FLOW			15500	May 18	**a**57600	Jan 20 1996
MAXIMUM PEAK STAGE			11.45	May 18	22.47	Jan 20 1996
10 PERCENT EXCEEDS	4030		3260		5880	
50 PERCENT EXCEEDS	978		953		1510	
90 PERCENT EXCEEDS	431		432		555	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 1972, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	925	1473	2124	2500	3303	5542	4766	3324	2215	1058	812	664
MAX	3136	6057	6058	6342	8327	8641	9845	7044	14450	3864	2638	3073
(WY)	1938	1951	1951	1949	1971	1967	1940	1960	1972	1972	1956	1945
MIN	245	377	374	610	826	1763	1697	849	540	317	244	262
(WY)	1964	1958	1966	1940	1963	1969	1968	1941	1965	1966	1966	1964

SUMMARY STATISTICS	WATER YEARS 1938 - 1972	
ANNUAL MEAN	2387	
HIGHEST ANNUAL MEAN	4479	1972
LOWEST ANNUAL MEAN	1329	1969
HIGHEST DAILY MEAN	115000	Jun 23 1972
LOWEST DAILY MEAN	101	Aug 21 1966
ANNUAL SEVEN-DAY MINIMUM	203	Sep 7 1964
MAXIMUM PEAK FLOW	**a**125000	Jun 23 1972
MAXIMUM PEAK STAGE	33.07	Jun 23 1972
INSTANTANEOUS LOW FLOW	68	Sep 13 1964
ANNUAL RUNOFF (CFSM)	1.18	
ANNUAL RUNOFF (INCHES)	15.97	
10 PERCENT EXCEEDS	5520	
50 PERCENT EXCEEDS	1210	
90 PERCENT EXCEEDS	393	

a From rating curve extended above 39,000 ft^3/s on basis of runoff comparison with upstream and downstream stations.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

JUNIATA RIVER BASIN

01564500 AUGHWICK CREEK NEAR THREE SPRINGS, PA

LOCATION.--Lat 40°12'45", long 77°55'32", Huntingdon County, Hydrologic Unit 02050304, on right bank 10 ft downstream from bridge on State Highway 994, 300 ft upstream from East Broad Top Railroad bridge, 350 ft upstream from Three Springs Creek, and 3.5 mi northeast of Three Springs. Records include flow of Three Springs Creek.

DRAINAGE AREA.--205 mi^2, includes that of Three Springs Creek.

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

GAGE.--Water-stage recorder. Datum of gage is 618.65 ft above National Geodetic Vertical Datum of 1929.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1889, reached a stage of about 19.3 ft, discharge, about 24,000 ft^3/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 2,100 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
May 18	1545	*3,310	*8.85	No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	14	24	e9.3	57	20	298	460	121	24	11	8.2
2	19	9.7	27	e8.7	54	19	253	400	111	20	8.9	8.1
3	19	11	25	e8.8	48	46	222	355	84	17	7.4	7.5
4	18	11	20	e8.5	44	123	193	264	72	15	6.5	7.0
5	17	11	18	e8.4	37	63	166	226	72	14	8.3	6.8
6	17	10	16	e8.0	33	54	149	201	179	12	13	6.3
7	17	9.8	15	e8.6	41	58	135	185	481	11	9.7	5.7
8	17	9.8	16	e8.9	34	47	120	177	212	10	8.5	4.7
9	17	9.7	22	e12	32	42	114	392	146	9.6	7.7	4.0
10	17	9.7	25	e13	30	39	144	503	115	11	6.3	3.9
11	17	9.3	27	e30	30	38	128	345	95	10	5.3	3.6
12	17	9.5	23	e90	30	36	105	316	80	10	4.6	3.3
13	23	9.7	20	e60	29	35	102	409	77	9.4	4.7	3.0
14	21	9.6	21	e48	26	36	119	458	103	10	4.5	2.7
15	24	9.4	27	e41	23	36	259	364	127	12	4.2	3.2
16	34	9.4	33	e36	24	36	285	277	102	15	3.9	5.9
17	24	8.8	29	e31	26	39	248	228	76	14	3.9	7.3
18	25	8.8	28	e25	24	82	235	2010	60	11	3.8	8.6
19	18	8.9	27	e23	21	257	482	1350	52	9.8	3.7	9.3
20	14	8.7	26	24	20	735	393	743	45	11	4.6	10
21	13	8.5	24	27	22	1230	340	529	39	27	4.7	13
22	12	8.7	21	25	22	541	416	404	35	21	4.4	16
23	11	8.7	18	25	21	346	408	323	31	14	7.5	21
24	12	8.7	e18	59	20	257	331	268	28	15	10	36
25	13	20	e16	177	19	205	285	225	25	15	21	26
26	12	51	e16	97	19	193	250	195	23	16	20	19
27	12	49	e15	68	20	369	208	222	23	21	15	50
28	13	30	e14	56	20	287	498	176	28	45	11	148
29	13	23	e13	47	---	238	849	152	43	37	10	81
30	13	22	e12	43	---	208	573	134	34	20	9.0	43
31	14	---	e11	47	---	185	---	116	---	14	8.6	---
TOTAL	533	427.4	647	1173.2	826	5900	8308	12407	2719	500.8	251.7	572.1
MEAN	17.2	14.2	20.9	37.8	29.5	190	277	400	90.6	16.2	8.12	19.1
MAX	34	51	33	177	57	1230	849	2010	481	45	21	148
MIN	11	8.5	11	8.0	19	19	102	116	23	9.4	3.7	2.7

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2002, BY WATER YEAR (WY)

MEAN	107	186	259	253	378	567	472	313	184	81.6	60.4	62.8
MAX	656	946	890	1062	1399	1612	1296	798	1985	848	355	978
(WY)	1977	1951	1973	1996	1984	1994	1993	1960	1972	1989	1967	1996
MIN	6.59	12.3	12.6	14.2	29.5	93.0	103	55.0	25.0	8.40	3.25	5.08
(WY)	1964	1999	1999	1981	2002	1990	1971	1941	1991	1966	1966	1964

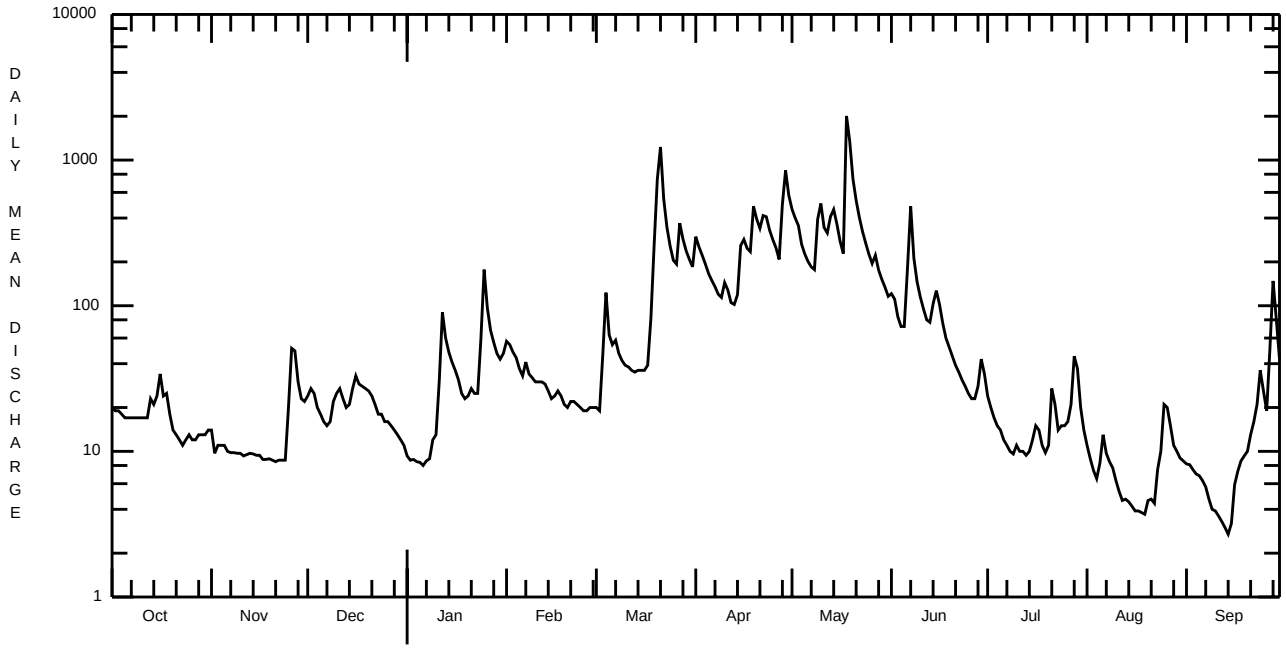
e Estimated.

JUNIATA RIVER BASIN

01564500 AUGHWICK CREEK NEAR THREE SPRINGS, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1938 - 2002	
ANNUAL TOTAL	44883.5		34265.2			
ANNUAL MEAN	123		93.9		243	
HIGHEST ANNUAL MEAN					486	1972
LOWEST ANNUAL MEAN					93.9	2002
HIGHEST DAILY MEAN	1570	Mar 22	2010	May 18	18700	Jun 23 1972
LOWEST DAILY MEAN	3.9	Sep 8	2.7	Sep 14	0.80	Sep 3 1966
ANNUAL SEVEN-DAY MINIMUM	4.4	Sep 7	3.4	Sep 9	1.2	Aug 29 1966
MAXIMUM PEAK FLOW			3310	May 18	**a**32600	Jan 19 1996
MAXIMUM PEAK STAGE			8.85	May 18	20.85	Jan 19 1996
INSTANTANEOUS LOW FLOW			2.6	Sep 14	0.80	Sep 2 1966**b**
10 PERCENT EXCEEDS	379		272		575	
50 PERCENT EXCEEDS	32		24		97	
90 PERCENT EXCEEDS	7.9		8.4		14	

a From rating curve extended above 7,100 ft^3/s on basis of contracted-opening measurement at gage height 18.04 ft.
b Also Sept. 3, 4, 11-13, 1966.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

JUNIATA RIVER BASIN

01565000 KISHACOQUILLAS CREEK AT REEDSVILLE, PA

LOCATION.--Lat 40°39'17", long 77°35'00", Mifflin County, Hydrologic Unit 02050304, on left bank 150 ft downstream from bridge on old U.S. Highway 322, 1.0 mi southeast of Reedsville, and 1.0 mi downstream from Honey Creek.

DRAINAGE AREA.--164 mi^2.

PERIOD OF RECORD.--October 2001 to current year. October 1939 to September 1970, monthly discharge only for October, November 1939, published in WSP 1302; October 1983 to September 1985; October 1988 to September 2001, crest-stage partial-record station.

GAGE.--Water-stage recorder. Datum of gage is 551.23 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1936 reached a stage about 14.1 ft, discharge not determined. Flood of June 23, 1972 reached a stage of 16.17 ft from floodmarks, discharge 16,400 ft^3/s from rating curve extended above 10,000 ft^3/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 1,100 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 26	2230	1,290	5.97	June 6	2145	*1,710	*6.67
May 18	1000	1,490	6.33	June 15	1130	1,220	5.85
May 28	2130	1,290	5.97				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	28	149	54	102	75	392	257	514	155	63	36
2	37	28	88	53	103	74	312	400	409	e142	60	37
3	36	27	78	52	95	123	276	358	337	e134	57	36
4	35	27	72	52	94	109	242	316	302	124	54	34
5	33	26	67	52	84	84	221	300	402	118	54	33
6	32	26	63	53	92	92	206	279	779	111	61	32
7	31	26	60	52	90	87	194	264	1050	106	53	32
8	31	26	61	53	88	84	182	243	754	101	51	31
9	31	26	88	52	84	82	177	344	601	98	49	31
10	30	26	79	57	86	91	190	306	501	98	47	30
11	27	25	68	72	147	82	164	244	429	90	46	29
12	e25	25	62	87	118	82	153	287	377	85	45	28
13	e25	25	63	82	109	81	157	702	330	81	51	28
14	e26	25	68	75	101	79	203	891	368	78	46	28
15	e64	25	82	73	101	78	382	794	731	76	46	30
16	46	25	71	73	102	81	287	649	527	72	48	31
17	48	25	72	71	100	80	276	555	423	69	44	29
18	43	25	122	70	95	100	272	1110	365	67	43	28
19	38	25	112	65	91	120	293	912	321	122	41	28
20	35	25	102	65	90	208	299	789	286	204	41	28
21	33	24	96	64	89	314	265	664	256	107	39	28
22	32	24	91	63	90	274	261	558	234	91	39	51
23	31	24	87	63	88	253	238	482	218	97	45	121
24	32	24	92	75	83	234	215	419	223	111	50	55
25	31	69	86	99	81	215	211	364	250	87	44	44
26	29	105	77	88	80	463	201	323	198	82	41	43
27	28	53	e71	84	89	876	185	282	215	80	40	117
28	28	47	72	84	80	645	230	430	257	89	39	160
29	28	48	68	86	---	543	306	499	188	75	40	85
30	28	63	57	91	---	464	249	482	168	70	38	71
31	28	---	56	95	---	395	---	794	---	66	37	---
TOTAL	1039	997	2480	2155	2652	6568	7239	15297	12013	3086	1452	1394
MEAN	33.5	33.2	80.0	69.5	94.7	212	241	493	400	99.5	46.8	46.5
MAX	64	105	149	99	147	876	392	1110	1050	204	63	160
MIN	25	24	56	52	80	74	153	243	168	66	37	28
CFSM	0.20	0.20	0.49	0.42	0.58	1.29	1.47	3.01	2.44	0.61	0.29	0.28
IN.	0.24	0.23	0.56	0.49	0.60	1.49	1.64	3.47	2.72	0.70	0.33	0.32

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

MEAN	73.3	138	183	200	255	433	441	334	193	84.5	67.8	52.5
MAX	277	678	719	557	849	680	782	616	516	182	253	170
(WY)	1956	1951	1951	1952	1984	1945	1970	1942	1946	1967	1967	1956
MIN	19.2	18.8	22.1	27.7	45.0	105	174	90.3	57.1	27.2	22.1	17.4
(WY)	1965	1965	1940	1940	1940	1969	1966	1941	1965	1965	1966	1965

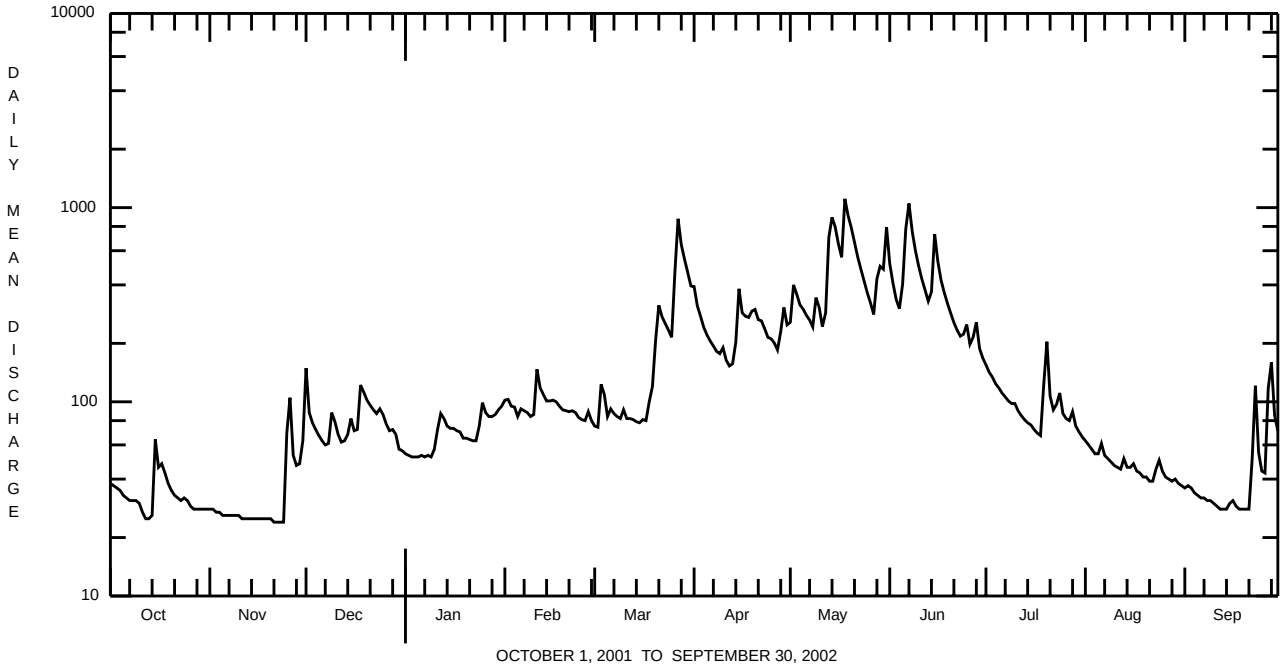
e Estimated.

JUNIATA RIVER BASIN

01565000 KISHACOQUILLAS CREEK AT REEDSVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	56372			
ANNUAL MEAN	154		204	
HIGHEST ANNUAL MEAN			383	1951
LOWEST ANNUAL MEAN			99.3	1965
HIGHEST DAILY MEAN	1110	May 18	5310	Nov 25 1950
LOWEST DAILY MEAN	24	Nov 21-24	14	Jan 9 1940**a**
ANNUAL SEVEN-DAY MINIMUM	24	Nov 18	14	Jan 6 1940
MAXIMUM PEAK FLOW	1710	Jun 6	**b**12400	Jan 19 1996
MAXIMUM PEAK STAGE	6.67	Jun 6	14.20	Jan 19 1996
INSTANTANEOUS LOW FLOW	24	Oct 12**c**		
ANNUAL RUNOFF (CFSM)	0.94		1.25	
ANNUAL RUNOFF (INCHES)	12.79		16.92	
10 PERCENT EXCEEDS	386		474	
50 PERCENT EXCEEDS	82		114	
90 PERCENT EXCEEDS	28		30	

a Also Jan. 12, 1940, Sept. 2, 3, 1966.
b From rating curve extended above 3,900 ft^3/s on basis of slope-area measurement at gage height 13.12 ft.
c Also Nov. 18-24.



JUNIATA RIVER BASIN

01566000 TUSCARORA CREEK NEAR PORT ROYAL, PA

LOCATION.--Lat 40°30'55", long 77°25'10", Juniata County, Hydrologic Unit 02050304, at single-span bridge on SR 3008, 2.0 mi southwest of Port Royal, and 3.5 mi upstream from mouth.

DRAINAGE AREA.--214 mi^2.

PERIOD OF RECORD.--October 2001 to current year. October 1910 to September 1958; October 1981 to September 1987, low-flow partial record; October 1987 to September 1990, crest-stage partial-record; October 1991 to September 1995, miscellaneous measurements; October 1995 to September 2001, crest-stage partial-record and miscellaneous measurements.

GAGE.--Water-stage recorder. Datum of gage is 420.47 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known prior to 1911, 20.5 ft, June 1, 1889 (backwater from Juniata River). Flood of June 23, 1972, reached a stage of 25.10 ft, discharge not determined.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
May 18	2000	*3,690	*9.44	(No peaks above base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	25	31	e10	58	35	224	437	141	38	12	e10
2	11	26	35	e9.0	60	33	198	437	138	35	10	e9.5
3	10	27	35	e9.0	51	76	164	387	103	33	8.7	e9.0
4	10	27	30	e10	45	179	143	262	91	31	e8.8	e8.0
5	10	26	27	e11	e34	105	121	218	94	29	e8.8	e7.0
6	9.9	26	25	e11	e35	89	110	187	140	26	e11	e6.5
7	10	25	22	e12	e44	80	100	167	580	25	e11	e6.0
8	10	25	20	e16	e51	72	90	149	237	24	e9.8	e5.0
9	11	25	25	e15	47	64	87	221	153	26	e8.6	e4.0
10	11	27	37	e22	44	63	115	527	119	52	e7.1	e3.5
11	13	27	40	57	56	60	102	344	100	33	e6.3	e3.3
12	16	26	31	165	63	56	81	260	86	25	e5.2	e3.0
13	20	25	26	175	e57	53	77	546	80	23	e5.0	e2.7
14	28	25	27	97	51	54	89	892	126	23	e4.9	e2.5
15	63	24	34	83	44	56	495	670	272	23	e4.8	e2.6
16	88	26	40	e50	45	54	389	438	250	21	e4.7	e2.7
17	62	25	39	e35	46	54	270	330	148	20	e4.6	e2.9
18	45	25	46	e25	44	85	213	2320	110	19	e4.5	e3.0
19	36	25	62	e23	40	290	397	1850	91	18	e4.5	e4.0
20	30	25	58	e23	38	517	275	882	78	22	e5.2	e7.0
21	29	25	42	e27	39	1200	219	595	67	27	e5.6	e12
22	24	25	34	e27	38	493	352	447	60	27	e5.4	e16
23	23	24	30	e30	37	286	408	355	54	21	e8.1	e20
24	23	24	29	54	35	212	292	297	52	28	e16	e34
25	24	34	30	181	33	167	250	253	60	24	e22	e26
26	22	92	e21	131	33	154	232	226	49	18	e21	e21
27	21	92	e17	87	36	355	179	229	48	23	e16	e37
28	21	45	e14	68	36	268	239	185	61	21	e14	138
29	21	31	e12	58	---	218	962	211	49	31	e12	77
30	22	27	e11	53	---	188	608	168	42	25	e11	43
31	24	---	e10	50	---	160	---	141	---	16	e10	---
TOTAL	759.9	931	940	1624.0	1240	5776	7481	14631	3679	807	286.6	526.2
MEAN	24.5	31.0	30.3	52.4	44.3	186	249	472	123	26.0	9.25	17.5
MAX	88	92	62	181	63	1200	962	2320	580	52	22	138
MIN	9.9	24	10	9.0	33	33	77	141	42	16	4.5	2.5
CFSM	0.11	0.15	0.14	0.24	0.21	0.87	1.17	2.21	0.57	0.12	0.04	0.08
IN.	0.13	0.16	0.16	0.28	0.22	1.00	1.30	2.54	0.64	0.14	0.05	0.09

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1911 - 2002, BY WATER YEAR (WY)

MEAN	124	206	239	287	357	574	493	373	168	102	79.4	77.7
MAX	832	934	829	746	1016	2347	1071	1052	1141	438	363	357
(WY)	1928	1951	1951	1915	1915	1936	1937	1919	1916	1928	1933	1934
MIN	7.51	10.1	10.8	21.1	44.3	135	107	64.4	46.3	26.0	8.15	6.53
(WY)	1931	1931	1931	1931	2002	1931	1925	1941	1957	2002	1930	1930

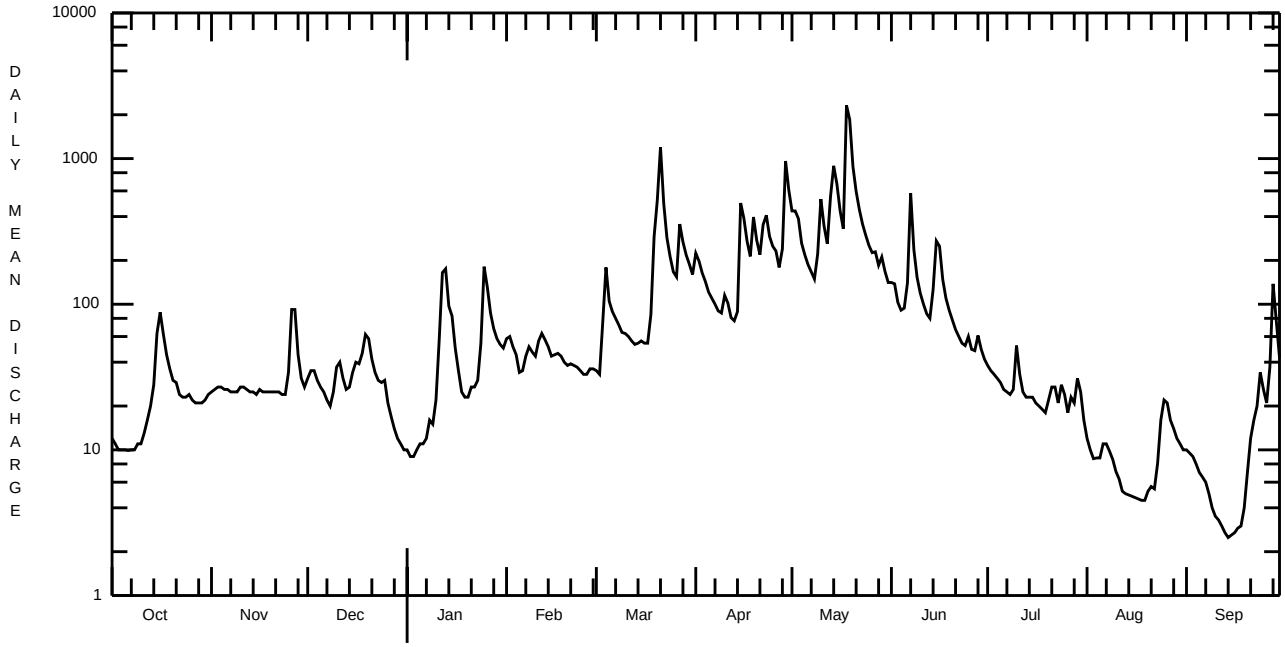
e Estimated.

JUNIATA RIVER BASIN

01566000 TUSCARORA CREEK NEAR PORT ROYAL, PA--Continued

SUMMARY STATISTICS	FOR 2002 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	38681.7			
ANNUAL MEAN	106		256	
HIGHEST ANNUAL MEAN			448	1928
LOWEST ANNUAL MEAN			106	2002
HIGHEST DAILY MEAN	2320	May 18	12000	Mar 18 1936
LOWEST DAILY MEAN	**e**2.5	Sep 14	2.2	Sep 29 1930
ANNUAL SEVEN-DAY MINIMUM	**a**2.8	Sep 12	**a**2.8	Sep 12 2002
MAXIMUM PEAK FLOW	3690	May 18	**bc**25000	Sep 7 1996
MAXIMUM PEAK STAGE	9.44	May 18	**d**21.60	Mar 19 1936
ANNUAL RUNOFF (CFSM)	0.50		1.19	
ANNUAL RUNOFF (INCHES)	6.72		16.23	
10 PERCENT EXCEEDS	264		588	
50 PERCENT EXCEEDS	35		112	
90 PERCENT EXCEEDS	9.0		24	

a Computed using estimated daily discharges.
b Gage height 21.27 ft.
c From rating curve extended above 5,000 ft^3/s.
d From floodmark, backwater from Juniata River, discharge 14,400 ft^3/s.
e Estimated.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

JUNIATA RIVER BASIN

01567000 JUNIATA RIVER AT NEWPORT, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 40°28'42", long 77°07'46", Perry County, Hydrologic Unit 02050304, on right bank at downstream side of bridge on State Highway 34 at Newport, and 1,000 ft upstream from Little Buffalo Creek.

DRAINAGE AREA.--3,354 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1899 to current year.

REVISED RECORDS.--WSP 756: Drainage area. WSP 781: 1902(M). WSP 1302: 1915-17. WSP 1502: 1899-1908, 1914, 1924, 1936. WSP 1722: 1916.

GAGE.--Water-stage recorder. Datum of gage is 363.93 ft above National Geodetic Vertical Datum of 1929. Prior to July 16, 1929, nonrecording gage at same site and datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Flow regulated since October 1972 by Raystown Dam (station 01563100) about 75 mi upstream. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1889, reached a stage of 35.9 ft, from floodmarks, discharge, about 209,000 ft^3/s, from rating curve extended above 100,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	650	620	1290	828	e1620	e978	4160	6360	4130	1450	772	e643
2	639	629	1470	e962	e1750	e952	4080	7950	4150	1330	712	e625
3	629	647	1590	e974	e1690	e1180	3700	9070	3750	1240	681	e593
4	618	657	1310	e993	e1590	1430	3190	7410	3220	1190	663	e593
5	606	622	1180	e1020	e1530	1760	2870	5730	2610	1110	648	e576
6	595	627	1110	e1030	e1530	1670	2590	5190	2710	1060	641	e565
7	586	639	1080	e1040	e1430	1440	2400	4640	6310	997	663	e556
8	572	e587	1060	e1060	e1380	1400	2240	4080	9880	966	671	e549
9	561	572	1110	e1100	e1350	1360	2120	4240	6480	977	643	e544
10	546	565	1170	e1200	e1330	1350	2160	8600	4640	1050	643	e540
11	553	564	1270	1330	e1330	1260	2170	11900	3390	1060	e625	e522
12	570	558	1270	1570	e1650	1220	2030	9060	3070	1020	e634	e508
13	590	565	1170	1910	e2440	1200	1790	6680	2810	1030	e652	e508
14	603	562	1150	1740	e2030	1160	1820	14300	2750	890	e634	e674
15	755	562	1190	1580	e1910	1150	3140	14800	3600	907	e639	e544
16	868	568	1220	1460	e1690	1130	4520	11300	6560	904	e643	e503
17	986	589	1280	1390	e1620	1120	4290	8540	5230	886	e634	e499
18	1060	854	1390	1340	e1600	1240	3970	12800	4070	896	e625	e523
19	802	856	1590	1220	e1500	1640	3910	23700	3270	889	e607	e535
20	718	858	2080	1210	e1400	2930	4620	18200	2830	1300	e598	e531
21	693	857	1760	1190	e1380	6550	4290	13800	2570	1490	e580	e551
22	658	848	1560	1200	e1370	8930	4000	10100	2160	1120	e597	e721
23	634	842	1430	1190	e1330	5580	4350	8110	1910	1030	e670	e944
24	627	848	1380	1250	e1280	4250	4530	6660	1840	1050	e742	e1150
25	624	952	1330	1500	e1160	3520	4590	5620	2100	1050	e815	e1070
26	607	1340	1290	1790	e1040	3170	4250	5100	1740	956	e887	e981
27	597	1350	1250	2000	e1000	7500	3590	4930	1640	980	e751	e1310
28	612	1560	1190	1700	e1000	13200	3520	4240	1670	936	e751	e1330
29	604	1240	1140	1570	---	7450	5100	3660	1610	988	e724	e1630
30	605	1140	1120	1560	---	5560	7450	3590	1650	934	e688	e1870
31	605	---	939	1540	---	4580	---	4150	---	857	e670	---
TOTAL	20373	23678	40369	41447	41930	97860	107440	264510	104350	32543	20903	22688
MEAN	657	789	1302	1337	1498	3157	3581	8533	3478	1050	674	756
MAX	1060	1560	2080	2000	2440	13200	7450	23700	9880	1490	887	1870
MIN	546	558	939	828	1000	952	1790	3590	1610	857	580	499

e Estimated.

JUNIATA RIVER BASIN

01567000 JUNIATA RIVER AT NEWPORT, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 2002, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2571	3518	4900	4684	6165	8556	8191	5532	3350	2148	1459	1816
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	657	789	1045	495	1498	2576	2898	2258	1084	864	674	586
(WY)	2002	2002	1999	1981	2002	1990	1995	2001	1991	1988	2002	1986

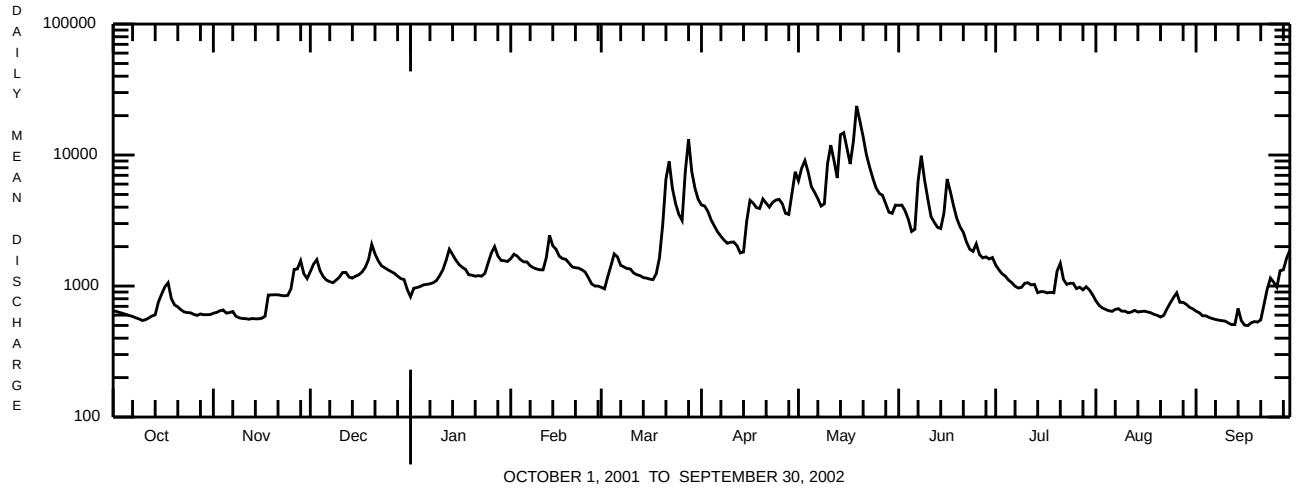
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1973 - 2002	
ANNUAL TOTAL	912783		818091			
ANNUAL MEAN	2501		2241		4396	
HIGHEST ANNUAL MEAN					7166	1996
LOWEST ANNUAL MEAN					2241	2002
HIGHEST DAILY MEAN	21500	Apr 18	23700	May 19	92300	Jan 20 1996
LOWEST DAILY MEAN	520	Sep 12	**e**499	Sep 17	450	Jan 13 1981
ANNUAL SEVEN-DAY MINIMUM	542	Sep 8	**a**527	Sep 15	461	Jan 9 1981
MAXIMUM PEAK FLOW			25300	May 19	**b**103000	Jan 20 1996
MAXIMUM PEAK STAGE			11.37	May 19	24.69	Jan 20 1996
10 PERCENT EXCEEDS	5940		5100		9850	
50 PERCENT EXCEEDS	1440		1240		2590	
90 PERCENT EXCEEDS	604		594		830	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1899 - 1972, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1820	2658	3649	4621	5570	9856	8097	5797	3612	2072	1563	1419
MAX	8108	10880	11310	13300	16160	33600	17160	14870	25050	7865	4605	6890
(WY)	1928	1951	1902	1937	1915	1936	1940	1908	1972	1972	1905	1911
MIN	351	418	471	841	943	2340	2026	1319	890	455	327	370
(WY)	1964	1931	1931	1931	1934	1931	1915	1941	1965	1966	1966	1964

SUMMARY STATISTICS	WATER YEARS 1899 - 1972	
ANNUAL MEAN	4228	
HIGHEST ANNUAL MEAN	7403	1972
LOWEST ANNUAL MEAN	2166	1969
HIGHEST DAILY MEAN	172000	Mar 19 1936
LOWEST DAILY MEAN	207	Jul 27 1966
ANNUAL SEVEN-DAY MINIMUM	269	Aug 3 1966
MAXIMUM PEAK FLOW	**b**190000	Mar 19 1936
MAXIMUM PEAK STAGE	**c**34.24	Mar 19 1936
INSTANTANEOUS LOW FLOW	195	Jul 27 1966
ANNUAL RUNOFF (CFSM)	1.26	
ANNUAL RUNOFF (INCHES)	17.13	
10 PERCENT EXCEEDS	9360	
50 PERCENT EXCEEDS	2300	
90 PERCENT EXCEEDS	680	

a Computed using estimated daily discharges.
b From rating curve extended above 100,000 ft^3/s, on basis of slope-area measurement of peak flow.
c From floodmark in gage.
e Estimated.



JUNIATA RIVER BASIN

01567000 JUNIATA RIVER AT NEWPORT, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
APR 2002													
08...	1150	9813	2240	40	11.7	8.0	236	9.2	96	26.4	7.3	62	22.4
JUN													
11...	1200	9813	3370	40	9.0	8.1	219	23.1	90	24.9	6.8	64	19.8
AUG													
22...	1520	9813	E730	40	10.8	9.2	320	27.8	130	31.9	13.0	92	30.9

Date	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
APR 2002													
08...	142	10	<.020	1.19	<.040	1.5	.04	.070	2.2	<10	270	<1.0	30
JUN													
11...	146	28	<.020	1.33	<.040	1.9	.03	.060	3.1	<10	560	<1.0	30
AUG													
22...	210	<2	<.020	.30	<.040	.66	.03	.050	4.0	<10	100	<1.0	20

Date	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002		
08...	<50	<10
JUN		
11...	<50	<10
AUG		
22...	<50	<10

SHERMAN CREEK BASIN

01567500 BIXLER RUN NEAR LOYSVILLE, PA

LOCATION.--Lat 40°22'15", long 77°24'09", Perry County, Hydrologic Unit 02050305, on right bank 400 ft upstream from bridge on State Highway 850 at Bixler, 2.3 mi upstream from mouth, and 3.6 mi west of Loysville.

DRAINAGE AREA.--15.0 mi^2.

REVISED RECORDS.--WDR PA-90-2: 1989 (M). WDR PA-01-2: 1957, 1972, 1977-79, 1981, 1984, 1989, 1991, 1994, 1995 (P).

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

GAGE.--Water-stage recorder. Datum of gage is 601.22 ft above National Geodetic Vertical Datum of 1929. Prior to May 14, 1954, nonrecording gage and crest-stage gage 400 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records poor. Several measurements of water temperature were made during the year. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 250 ft^3/s and maximum (*).

Date	Time	Discharge ft^3/s	Gage Height (ft)
May 18	0615	*225	*5.28

Date	Time	Discharge ft^3/s	Gage Height (ft)
(No peaks above base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	4.1	4.8	3.7	5.3	3.7	13	17	8.2	3.4	2.5	2.3
2	4.7	4.0	3.5	3.8	5.0	4.3	9.2	22	7.0	3.2	2.5	2.6
3	4.7	3.9	3.5	3.8	4.6	24	8.3	16	6.1	3.1	2.5	2.3
4	4.8	3.7	3.4	3.7	4.6	9.1	7.2	13	6.0	2.9	2.6	2.1
5	4.9	3.8	3.4	3.6	3.8	5.9	6.7	12	6.2	3.0	2.6	1.9
6	5.3	3.9	3.3	3.7	3.9	5.4	6.4	11	12	2.7	2.7	1.9
7	5.4	3.9	3.3	4.5	4.2	4.9	5.9	10	11	3.0	2.6	1.7
8	5.5	3.9	4.1	3.9	3.8	4.4	5.8	9.3	6.9	3.0	2.7	1.6
9	6.2	4.0	5.4	4.0	3.5	4.4	6.1	22	6.0	3.4	2.6	1.6
10	6.5	3.9	3.9	6.1	3.8	7.4	7.0	20	5.6	4.0	2.6	1.6
11	6.4	3.9	3.8	12	6.0	4.9	5.6	14	5.2	2.9	2.6	1.7
12	6.4	3.9	3.5	8.2	4.4	4.6	5.3	15	4.9	2.8	2.5	2.0
13	5.9	3.9	3.8	6.1	4.1	4.7	5.5	22	5.0	2.8	2.4	2.2
14	6.9	4.1	5.2	5.1	3.7	4.8	6.5	24	8.7	2.9	2.4	2.3
15	9.8	4.1	5.1	4.8	3.7	4.4	15	19	13	2.8	2.4	3.6
16	6.3	3.9	4.1	4.5	3.8	4.9	9.1	16	7.5	2.6	2.6	3.6
17	6.1	3.9	4.2	4.2	3.8	4.5	8.0	14	6.0	2.5	2.4	2.6
18	5.7	3.9	6.3	3.9	3.5	16	7.4	121	5.6	2.5	2.4	2.6
19	5.7	4.1	5.6	3.8	3.4	16	8.0	54	5.1	2.7	2.1	2.6
20	6.0	4.2	5.1	3.8	3.6	47	7.4	36	4.8	2.7	2.1	2.7
21	6.2	4.0	4.9	3.8	3.6	31	7.1	27	4.5	2.5	1.8	2.8
22	6.6	4.1	4.7	4.0	3.4	18	13	21	4.2	2.5	2.0	3.8
23	5.4	4.0	4.8	4.6	3.4	13	9.3	18	4.0	2.9	3.2	4.8
24	5.5	4.4	5.3	8.4	3.3	10	8.2	15	3.8	3.4	2.9	2.6
25	5.7	11	5.0	7.6	3.4	8.7	8.6	13	3.9	2.9	2.6	2.4
26	5.6	6.9	4.8	5.5	3.6	16	7.5	12	3.8	2.9	2.2	3.3
27	5.6	4.6	4.6	4.8	4.0	23	6.6	12	4.1	2.9	2.1	11
28	5.2	4.1	4.7	4.4	3.7	15	25	15	4.6	3.0	2.3	6.6
29	5.0	4.0	4.7	4.2	---	13	29	10	3.7	2.8	2.6	3.0
30	4.9	4.9	4.2	4.2	---	11	20	9.2	3.5	2.5	2.3	2.6
31	4.3	---	3.9	4.7	---	10	---	8.4	---	2.5	2.2	---
TOTAL	177.8	131.0	136.9	153.4	110.9	354.0	287.7	647.9	180.9	89.7	76.0	88.4
MEAN	5.74	4.37	4.42	4.95	3.96	11.4	9.59	20.9	6.03	2.89	2.45	2.95
MAX	9.8	11	6.3	12	6.0	47	29	121	13	4.0	3.2	11
MIN	4.3	3.7	3.3	3.6	3.3	3.7	5.3	8.4	3.5	2.5	1.8	1.6
CFSM	0.38	0.29	0.29	0.33	0.26	0.76	0.64	1.39	0.40	0.19	0.16	0.20
IN.	0.44	0.32	0.34	0.38	0.28	0.88	0.71	1.61	0.45	0.22	0.19	0.22

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2002, BY WATER YEAR (WY)

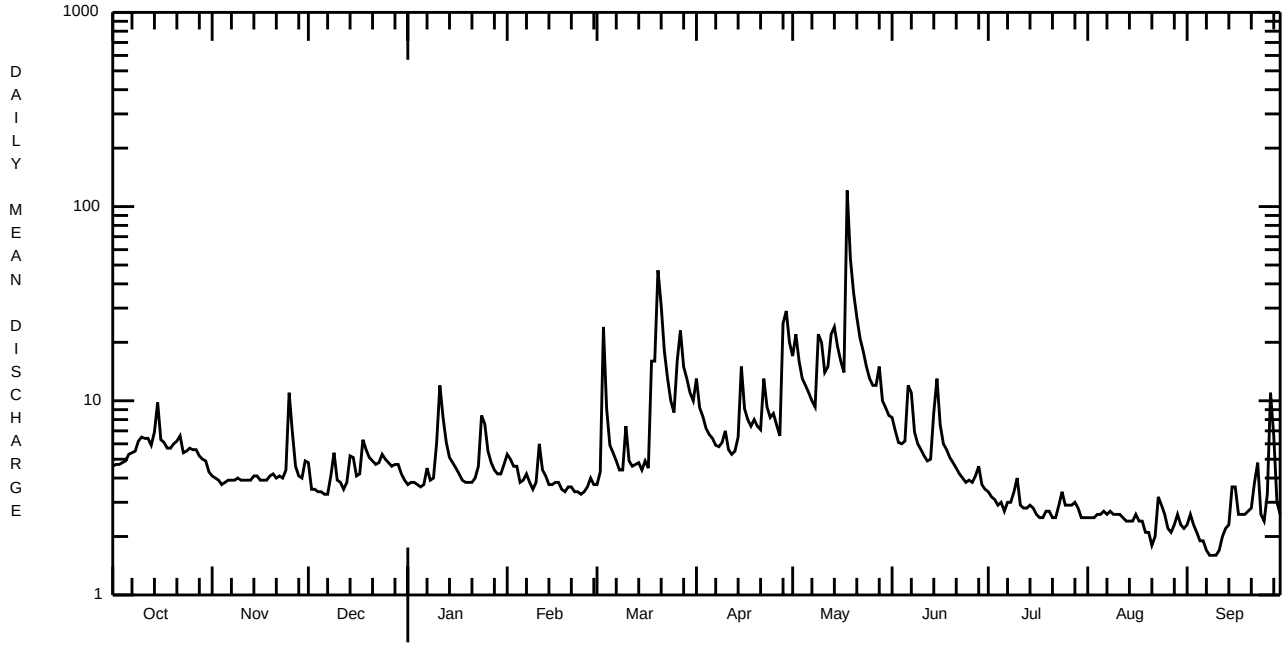
MEAN	10.7	15.2	18.9	18.9	27.7	39.1	32.7	23.1	17.3	11.4	6.81	7.92
MAX	48.6	61.9	66.8	80.9	91.0	135	122	81.2	172	112	32.3	55.9
(WY)	1977	1957	1997	1996	1984	1994	1993	1978	1972	1989	1955	1996
MIN	2.07	2.96	2.70	3.51	3.96	9.77	9.59	6.79	4.12	2.62	2.28	2.38
(WY)	1964	1966	1966	1981	2002	1990	2002	1969	1965	1966	1966	1963

SHERMAN CREEK BASIN

01567500 BIXLER RUN NEAR LOYSVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1954 - 2002	
ANNUAL TOTAL	4655.0		2434.6			
ANNUAL MEAN	12.8		6.67		19.2	
HIGHEST ANNUAL MEAN					42.6	1972
LOWEST ANNUAL MEAN					6.67	2002
HIGHEST DAILY MEAN	167	Jun 22	121	May 18	2120	Jun 22 1972
LOWEST DAILY MEAN	3.3	Dec 6,7	1.6	Sep 8-10	1.6	Jul 21 1999
ANNUAL SEVEN-DAY MINIMUM	3.5	Dec 2	1.7	Sep 5	1.7	Sep 5 2002
MAXIMUM PEAK FLOW			225	May 18	**a**7100	Jun 20 1989
MAXIMUM PEAK STAGE			5.28	May 18	**b**12.90	Jun 20 1989
INSTANTANEOUS LOW FLOW			1.6	Sep 7-11	1.5	Feb 2 1959
ANNUAL RUNOFF (CFSM)	0.85		0.44		1.28	
ANNUAL RUNOFF (INCHES)	11.54		6.04		17.39	
10 PERCENT EXCEEDS	29		13		38	
50 PERCENT EXCEEDS	6.9		4.4		9.5	
90 PERCENT EXCEEDS	4.1		2.5		3.6	

a From rating curve extended above 2,700 ft^3/s on basis of contracted-opening and flow-over-road measurement of peak flow.
b From outside floodmark; 12.19 ft in gage well.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

SHERMAN CREEK BASIN

01568000 SHERMAN CREEK AT SHERMANS DALE, PA

LOCATION.--Lat 40°19'24", long 77°10'09", Perry County, Hydrologic Unit 02050305, on left bank on downstream side of bridge on State Highway 34 at Shermans Dale, and 1.2 mi upstream from Fishing Run.

DRAINAGE AREA.--207 mi^2.

PERIOD OF RECORD.--October 1929 to current year. Prior to October 1962, published as "*at Shermandale*".

REVISED RECORDS.--WSP 1302: 1930(M). WSP 1502: 1933, 1934(M), 1935-36. WDR PA-97-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 422.63 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 29, 1930, nonrecording gage at same site and datum.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 22, 1927, reached a stage of 20.34 ft, from floodmark, discharge, about 44,000 ft^3/s.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)
May 18	1500	*3,110	*6.36

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	32	55	e28	75	45	326	442	207	47	21	20
2	19	34	55	e23	85	45	256	428	179	44	18	20
3	19	35	44	e24	73	196	223	378	149	41	18	19
4	19	35	35	e26	67	216	199	281	134	38	17	17
5	18	35	31	e27	64	115	180	246	166	35	16	16
6	17	32	29	e28	69	104	170	223	293	32	14	15
7	16	31	29	e32	70	92	160	209	493	31	13	14
8	16	32	33	e30	64	84	150	194	241	31	12	13
9	16	31	63	e38	59	79	147	286	180	34	12	12
10	16	31	61	e40	57	95	159	394	154	39	11	11
11	16	31	49	e85	77	100	141	254	134	35	11	11
12	17	31	38	e150	78	84	125	235	120	31	11	11
13	19	31	36	e110	71	80	125	400	113	29	11	11
14	24	32	45	e70	61	83	132	502	172	30	10	11
15	71	32	64	e65	65	82	257	394	199	30	9.9	13
16	80	32	57	e55	59	80	224	312	166	29	10	17
17	49	34	48	e50	57	82	182	269	121	27	10	23
18	36	33	60	e45	54	148	185	2050	104	26	11	23
19	31	32	63	e40	50	312	226	1240	123	25	11	21
20	30	33	57	e45	51	850	194	741	92	29	10	20
21	29	34	46	e50	52	1110	175	556	82	26	10	19
22	25	31	39	e45	51	544	311	446	74	24	10	25
23	27	31	36	e45	48	376	338	371	68	24	15	84
24	25	32	37	e90	47	297	252	320	64	26	18	38
25	27	57	e36	e120	45	246	234	277	61	24	21	27
26	26	174	e35	108	45	268	223	267	59	22	21	26
27	29	79	e33	79	48	683	187	310	56	23	18	135
28	29	47	e36	67	47	420	365	308	58	29	18	186
29	27	38	e34	61	---	338	943	343	57	27	20	73
30	28	41	e30	58	---	291	549	260	51	25	19	44
31	29	---	e27	63	---	253	---	220	---	24	19	---
TOTAL	849	1213	1341	1797	1689	7798	7338	13156	4170	937	445.9	975
MEAN	27.4	40.4	43.3	58.0	60.3	252	245	424	139	30.2	14.4	32.5
MAX	80	174	64	150	85	1110	943	2050	493	47	21	186
MIN	16	31	27	23	45	45	125	194	51	22	9.9	11
CFSM	0.13	0.20	0.21	0.28	0.29	1.22	1.18	2.05	0.67	0.15	0.07	0.16
IN.	0.15	0.22	0.24	0.32	0.30	1.40	1.32	2.36	0.75	0.17	0.08	0.18

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2002, BY WATER YEAR (WY)

MEAN	144	245	308	318	401	605	541	392	209	116	97.3	99.3
MAX	905	924	968	1144	1253	1941	1675	1196	1969	1187	777	954
(WY)	1977	1971	1997	1996	1984	1936	1993	1978	1972	1989	1933	1996
MIN	18.5	22.1	22.7	22.0	54.2	133	161	88.8	48.4	18.9	14.4	18.6
(WY)	1964	1931	1931	1981	1931	1931	1997	1941	1965	1966	2002	1930

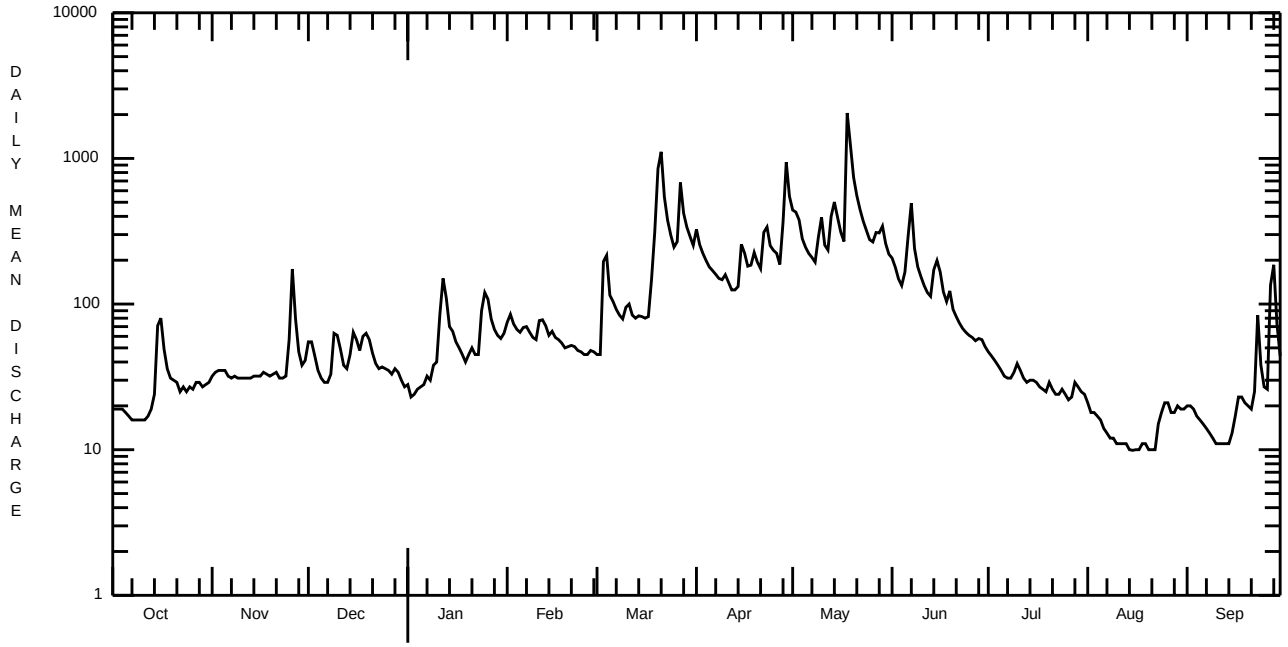
e Estimated.

SHERMAN CREEK BASIN

01568000 SHERMAN CREEK AT SHERMANS DALE, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1930 - 2002	
ANNUAL TOTAL	67404		41708.9			
ANNUAL MEAN	185		114		289	
HIGHEST ANNUAL MEAN					544	1972
LOWEST ANNUAL MEAN					114	2002
HIGHEST DAILY MEAN	2270	Mar 30	2050	May 18	18300	Jun 23 1972
LOWEST DAILY MEAN	16	Sep 8,9	9.9	Aug 15	9.9	Aug 15 2002
ANNUAL SEVEN-DAY MINIMUM	16	Oct 6	10	Aug 14	10	Aug 14 2002
MAXIMUM PEAK FLOW			3110	May 18	**a**27500	Jun 23 1972
MAXIMUM PEAK STAGE			6.36	May 18	18.09	Jun 23 1972
INSTANTANEOUS LOW FLOW			9.6	Aug 15,21,22	3.9	Dec 1 1930
ANNUAL RUNOFF (CFSM)	0.89		0.55		1.40	
ANNUAL RUNOFF (INCHES)	12.11		7.50		18.97	
10 PERCENT EXCEEDS	496		288		645	
50 PERCENT EXCEEDS	83		47		140	
90 PERCENT EXCEEDS	22		17		31	

a From rating curve extended above 18,000 ft^3/s.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

CONODOGUINET CREEK BASIN

01569800 LETORT SPRING RUN NEAR CARLISLE, PA

LOCATION.--Lat 40°14'05", long 77°08'23", Cumberland County, Hydrologic Unit 02050305, on right bank 320 ft downstream from bridge on U.S. Highway 11, 0.2 mi upstream from mouth, 3.1 mi west of New Kingstown, and 3.7 mi east of Carlisle.

DRAINAGE AREA.--21.6 mi^2.

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

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 402.05 ft above North American Vertical Datum of 1988.

REMARKS.--No estimated daily discharges. Records fair. Several measurements of water temperature were made during the year. Satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1936 reached a stage of 8.8 ft, discharge not determined, and flood in June 1972 reached a stage of 8.4 ft, from information by local resident, discharge not determined.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 180 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
May 18	0600	*136	*4.43	(No peaks above base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	15	18	16	18	15	27	23	27	18	14	14
2	19	15	18	16	18	18	24	31	22	18	19	14
3	19	15	17	16	18	33	22	24	22	17	22	13
4	18	15	17	16	17	18	21	23	21	17	16	13
5	18	15	17	16	17	18	22	23	21	17	16	13
6	18	15	17	17	17	17	22	22	29	17	15	12
7	18	16	17	17	17	17	21	22	26	17	15	12
8	18	16	22	16	17	17	20	21	22	16	15	12
9	17	16	20	16	17	17	21	39	21	16	15	12
10	16	17	18	17	18	18	23	26	20	18	15	12
11	16	17	18	20	19	16	20	23	20	16	14	11
12	17	17	18	19	17	16	20	27	19	16	14	10
13	17	16	18	18	17	18	20	28	20	16	14	9.8
14	17	16	24	18	16	16	23	26	23	17	13	11
15	18	17	19	17	16	16	34	23	23	16	13	13
16	17	17	18	17	16	17	23	22	20	16	15	14
17	17	16	20	17	16	17	21	21	19	15	15	13
18	16	16	20	17	16	23	22	69	25	15	14	13
19	16	16	18	17	15	18	21	40	22	15	13	13
20	16	17	18	17	16	36	22	36	19	16	13	13
21	15	16	17	17	16	26	21	32	19	15	13	14
22	15	17	17	17	16	24	32	30	18	15	13	17
23	15	17	17	17	16	23	22	28	17	22	24	49
24	16	17	18	25	15	22	20	27	17	18	16	19
25	15	29	17	20	16	21	21	26	17	16	14	18
26	15	19	17	19	16	40	21	25	17	16	13	23
27	15	18	16	18	16	33	20	27	26	16	13	41
28	15	18	17	18	15	28	36	25	27	16	14	26
29	15	18	17	18	---	28	25	25	19	15	15	22
30	15	20	16	19	---	26	24	24	18	15	14	20
31	15	---	16	19	---	28	---	25	---	14	13	---
TOTAL	513	509	557	547	464	680	691	863	636	507	462	496.8
MEAN	16.5	17.0	18.0	17.6	16.6	21.9	23.0	27.8	21.2	16.4	14.9	16.6
MAX	19	29	24	25	19	40	36	69	29	22	24	49
MIN	15	15	16	16	15	15	20	21	17	14	13	9.8
CFSM	0.77	0.79	0.83	0.82	0.77	1.02	1.07	1.29	0.98	0.76	0.69	0.77
IN.	0.88	0.88	0.96	0.94	0.80	1.17	1.19	1.49	1.10	0.87	0.80	0.86

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 2002, BY WATER YEAR (WY)

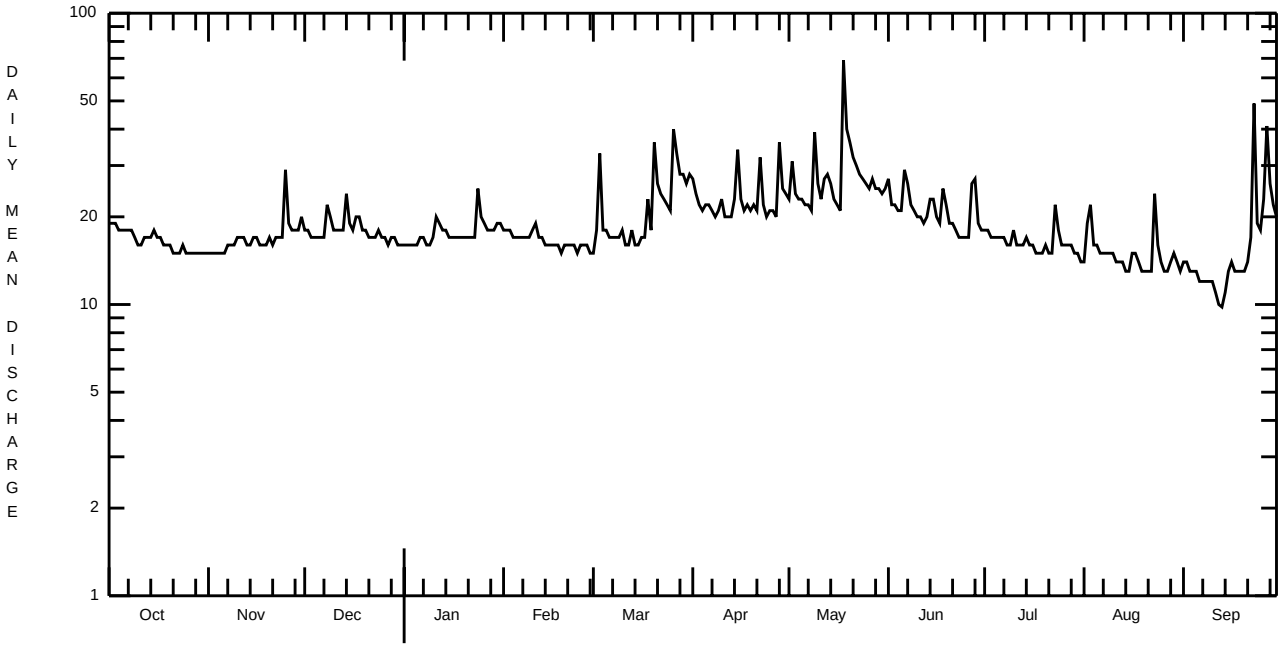
MEAN	34.2	34.7	40.4	43.1	48.1	57.4	59.8	51.1	43.4	38.4	33.4	32.9
MAX	79.6	62.2	94.5	92.0	93.9	123	126	90.9	71.3	68.3	54.5	68.4
(WY)	1977	1997	1997	1979	1998	1994	1993	1998	1996	1996	1989	1996
MIN	16.5	17.0	18.0	17.6	16.6	21.9	23.0	27.8	21.2	16.4	14.9	16.6
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002

CONODOGUINET CREEK BASIN

01569800 LETORT SPRING RUN NEAR CARLISLE, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1976 - 2002	
ANNUAL TOTAL	10999		6925.8			
ANNUAL MEAN	30.1		19.0		43.0	
HIGHEST ANNUAL MEAN					62.4	1998
LOWEST ANNUAL MEAN					19.0	2002
HIGHEST DAILY MEAN	101	Mar 30	69	May 18	452	Jan 24 1979
LOWEST DAILY MEAN	15	Oct 21-23**a**	9.8	Sep 13	9.8	Sep 13 2002
ANNUAL SEVEN-DAY MINIMUM	15	Oct 25	11	Sep 8	11	Sep 8 2002
MAXIMUM PEAK FLOW			136	May 18	**b**1400	Jan 24 1979
MAXIMUM PEAK STAGE			4.43	May 18	6.53	Jan 24 1979
INSTANTANEOUS LOW FLOW			8.5	Sep 12	0.00	Aug 15 1976**c**
ANNUAL RUNOFF (CFSM)	1.40		0.88		1.99	
ANNUAL RUNOFF (INCHES)	18.94		11.93		27.05	
10 PERCENT EXCEEDS	48		26		70	
50 PERCENT EXCEEDS	29		17		37	
90 PERCENT EXCEEDS	17		14		23	

a Also Oct. 25-31, Nov. 1-6.
b From rating curve extended above 680 ft^3/s on basis of slope-area measurement at gage height 6.43 ft.
c Part of day.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

CONODOGUINET CREEK BASIN

01570000 CONODOGUINET CREEK NEAR HOGESTOWN, PA

LOCATION.--Lat 40°15'08", long 77°01'17", Cumberland County, Hydrologic Unit 02050305, on left bank 1,000 ft upstream from highway bridge on Township Route 596 (Sample Bridge Road), 0.4 mi downstream from Hogestown Run, and 1.0 mi northeast of Hogestown.

DRAINAGE AREA.--470 mi^2.

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 National Geodetic Vertical Datum of 1929. Prior to December 1919, nonrecording gage at site 2 mi downstream at different datum. Oct. 1, 1929, to Aug. 3, 1931, nonrecording gage at site 1,000 ft downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Since June 1969 the Pennsylvania American Water Co. has diverted water upstream from station for municipal supply. Diversion for the year was equivalent to a mean daily discharge of 7.5 ft^3/s. Satellite and landline telemetry at station.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)
May 19	0230	*2,630	*5.16

Date	Time	Discharge ft^3/s	Gage Height (ft)
(No peaks above base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79	64	91	e72	179	87	575	789	470	110	60	69
2	76	67	84	e73	206	89	596	719	405	100	58	68
3	76	68	86	e74	223	203	472	701	316	94	102	61
4	74	69	81	e72	207	284	402	535	265	88	86	57
5	73	68	78	e72	e173	327	348	431	243	84	72	55
6	72	65	74	e73	e145	226	308	368	267	77	70	53
7	71	66	72	e77	147	199	280	337	502	73	61	51
8	70	52	78	e82	160	175	258	316	462	71	55	49
9	68	64	102	e85	138	159	242	393	326	76	55	46
10	67	67	97	e90	134	159	261	678	264	78	55	44
11	66	69	102	e116	147	151	262	572	226	72	53	43
12	69	68	94	e151	148	148	229	453	200	68	51	42
13	69	70	90	197	150	140	213	477	186	70	53	38
14	71	70	99	171	131	140	224	592	243	74	49	40
15	77	69	113	149	123	136	493	582	306	76	47	46
16	74	67	119	144	115	134	719	462	281	71	47	50
17	95	70	122	129	117	137	557	377	233	70	51	49
18	86	69	131	119	113	201	456	1160	206	69	52	47
19	71	70	124	e99	103	345	402	2260	242	68	50	48
20	69	74	126	e93	102	699	382	1300	219	69	52	49
21	64	70	115	e88	99	1890	361	931	186	64	51	49
22	66	71	103	e103	100	1360	482	723	162	64	49	56
23	65	67	97	115	97	858	576	579	145	71	67	174
24	61	69	93	169	95	633	459	487	128	117	69	177
25	61	87	89	279	90	496	386	421	122	70	65	133
26	62	114	87	358	91	479	364	370	114	71	58	99
27	61	114	e83	276	92	1110	320	439	133	80	63	202
28	64	111	e78	217	92	1140	398	738	185	81	61	378
29	64	91	e75	185	---	801	1200	746	129	77	69	361
30	64	85	e72	171	---	633	1030	832	115	69	66	240
31	69	---	e70	174	---	524	---	549	---	64	62	---
TOTAL	2174	2225	2925	4273	3717	14063	13255	20317	7281	2386	1859	2874
MEAN	70.13	74.17	94.35	137.8	132.8	453.6	441.8	655.4	242.7	76.97	59.97	95.80
MAX	95	114	131	358	223	1890	1200	2260	502	117	102	378
MIN	61	52	70	72	90	87	213	316	114	64	47	38
CFSM	0.15	0.16	0.20	0.29	0.28	0.97	0.94	1.39	0.52	0.16	0.13	0.20
IN.	0.17	0.18	0.23	0.34	0.29	1.11	1.05	1.61	0.58	0.19	0.15	0.23

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

MEAN	348.3	470.6	635.4	694.4	797.3	1073	932.3	678.8	482.4	322.5	294.5	303.0
MAX	1838	1436	1940	1850	2257	3463	2693	1753	3120	1184	1584	1684
(WY)	1977	1971	1997	1996	1984	1994	1993	1998	1972	1989	1915	1996
MIN	55.1	53.4	57.3	83.5	133	287	268	194	148	77.0	60.0	68.0
(WY)	1931	1931	1931	1931	2002	1931	1915	1941	1991	2002	2002	1932

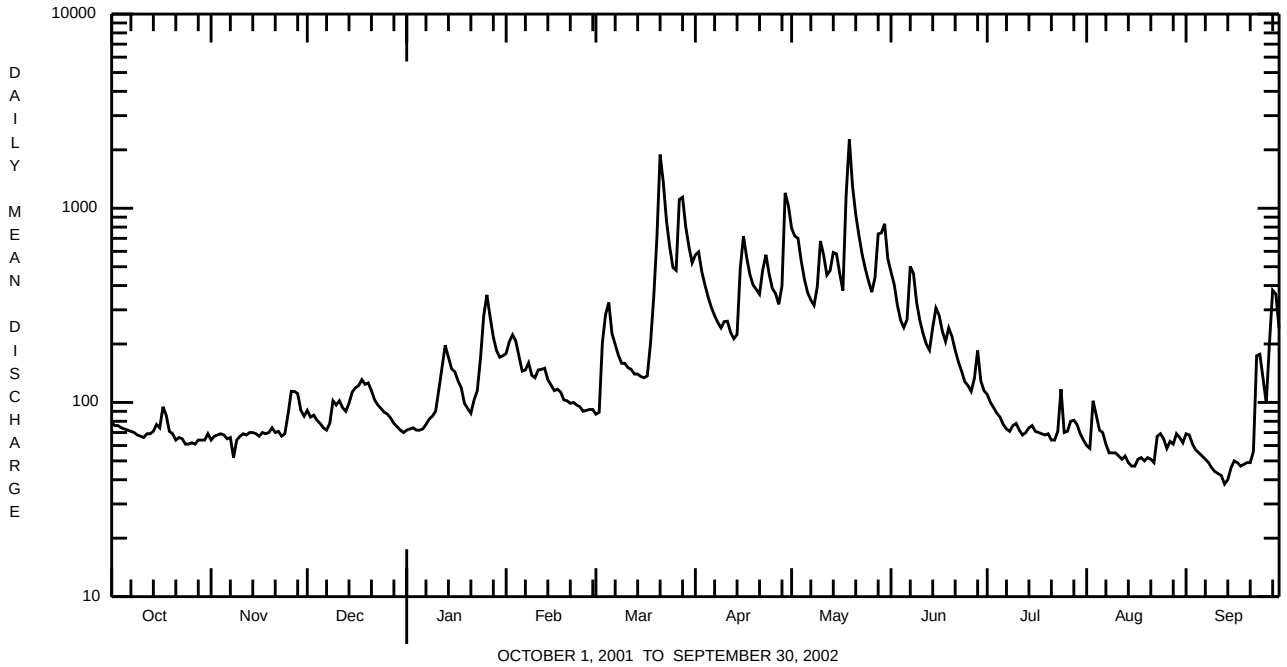
e Estimated.

CONODOGUINET CREEK BASIN

01570000 CONODOGUINET CREEK NEAR HOGESTOWN, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	118702		77349			
ANNUAL MEAN	325.2		211.9		585.2	
HIGHEST ANNUAL MEAN					1045	1972
LOWEST ANNUAL MEAN					212	2002
HIGHEST DAILY MEAN	3240	Jun 23	2260	May 19	24500	Jun 23 1972
LOWEST DAILY MEAN	52	Nov 8	38	Sep 13	26	Dec 23 1930
ANNUAL SEVEN-DAY MINIMUM	62	Oct 24	43	Sep 9	27	Dec 19 1930
MAXIMUM PEAK FLOW			2630	May 19	**a**33700	Jun 23 1972
MAXIMUM PEAK STAGE			5.16	May 19	**b**17.01	Jun 23 1972
INSTANTANEOUS LOW FLOW			31	Dec 31**c**	24	Dec 16 1930
ANNUAL RUNOFF (CFSM)	0.69		0.45		1.25	
ANNUAL RUNOFF (INCHES)	9.40		6.12		16.92	
10 PERCENT EXCEEDS	803		498		1250	
50 PERCENT EXCEEDS	163		100		340	
90 PERCENT EXCEEDS	70		58		116	

a From rating curve extended above 27,100 ft^3/s.
b From floodmark in gage.
c Result of freeze-up.



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.--These 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 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)
OCT 2001													
23...	1015	1028	80020	69	10	745	--	--	8.0	567	15.0	13.4	--
NOV													
23...	1405	1028	80020	67	10	751	14.9	120	8.4	577	14.8	5.4	47
26...	1202	1028	80020	115	10	751	11.4	104	--	530	11.4	10.4	--
DEC													
18...	1522	1028	80020	135	10	739	13.6	118	8.3	492	7.0	7.8	--
JAN 2002													
23...	1545	1028	1028	115	10	746	14.2	113	8.4	510	11.6	4.8	--
25...	1057	1028	1028	242	10	750	12.1	94	8.0	505	6.0	4.0	--
FEB													
14...	1010	1028	80020	132	10	758	13.0	91	8.1	456	--	.6	44
MAR													
04...	1155	1028	80020	293	10	--	9.4	--	8.2	427	2.6	3.9	--
04...	1156	1028	80020	293	10	--	9.4	--	8.2	427	2.6	3.9	--
18...	1115	1028	80020	196	10	754	12.2	95	7.8	437	3.9	4.2	--
21...	1130	1028	80020	2190	10	745	11.2	95	--	280	11.5	7.2	--
APR													
15...	1142	1028	80020	538	10	--	7.8	--	7.9	327	23.0	17.1	--
18...	0910	1028	80020	472	10	750	7.1	80	7.6	304	22.2	20.4	--
MAY													
14...	1100	1028	80020	565	10	--	--	--	8.1	296	--	15.6	--
JUN													
26...	1027	1028	80020	113	10	747	--	--	8.0	420	--	25.9	--
28...	1230	1028	80020	199	10	--	--	--	8.0	408	25.8	25.2	--
28...	1231	1028	80020	199	--	--	--	--	--	--	--	--	--

Date	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SODIUM AD-SORP-TION RATIO (00931)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L) (39036)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	BICAR-BONATE WAT.DIS FET FIELD (MG/L HCO3) (29804)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT 2001													
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
NOV													
23...	230	70.2	12.6	3.56	.7	25.5	19	--	179	--	218	1	45.3
26...	220	68.6	11.7	3.36	.6	19.2	16	--	--	--	--	--	32.7
DEC													
18...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN 2002													
23...	--	--	--	--	--	--	--	--	148	--	181	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
14...	170	53.1	9.96	2.60	.6	19.4	19	130	130	158	158	--	35.3
MAR													
04...	160	48.1	8.88	2.70	.7	19.8	21	--	--	--	--	--	35.8
04...	160	48.6	8.96	2.60	.7	19.7	21	--	--	--	--	--	35.8
18...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	98	29.1	6.05	2.60	.6	12.9	22	--	--	--	--	--	21.6
APR													
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
14...	110	34.0	6.67	2.09	.5	11.6	18	--	--	--	--	--	17.8
JUN													
26...	--	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--	--

CONODOGUINET CREEK BASIN

01570000 CONODOGUINET CREEK NEAR HOGESTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN DIS-SOLVED (MG/L AS N) (00602)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)
OCT 2001													
23...	--	--	--	--	--	--	--	<.04	.24	.33	--	3.9	3.65
NOV													
23...	.2	.86	28.4	.42	58.6	310	316	<.04	.21	.25	--	4.9	--
26...	.1	2.34	26.9	--	--	296	--	<.04	.24	.27	--	4.6	4.35
DEC													
18...	--	--	--	--	--	--	--	<.04	.21	.19	--	4.0	--
JAN 2002													
23...	--	--	--	--	--	--	--	<.04	.24	.23	--	4.1	3.86
25...	--	--	--	--	--	--	--	E.02	.27	.37	--	4.0	--
FEB													
14...	.2	2.60	27.6	.34	88.4	248	245	<.04	.19	.26	--	4.0	--
MAR													
04...	.2	3.19	27.5	--	--	234	--	<.04	.35	.42	--	3.4	3.06
04...	.2	3.21	27.6	--	--	232	--	E.03	.29	.38	--	3.4	3.10
18...	--	--	--	--	--	--	--	<.04	.19	.33	--	2.8	2.58
21...	E.1	7.04	21.1	--	--	163	--	.06	.37	1.6	.07	2.9	2.57
APR													
15...	--	--	--	--	--	--	--	<.04	.33	.53	--	2.3	1.96
18...	--	--	--	--	--	--	--	<.04	.32	.52	--	2.2	1.86
MAY													
14...	E.1	4.25	18.3	--	--	167	--	<.04	.30	.37	--	2.4	2.09
JUN													
26...	--	--	--	--	--	--	--	E.02	.38	.42	--	2.9	2.50
28...	--	--	--	--	--	--	--	E.04	.33	.44	--	3.2	2.84
28...	--	--	--	--	--	--	--	E.04	.30	.42	--	3.1	2.82

Date	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS NO3) (71851)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS NO2) (71856)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)
OCT 2001													
23...	16.2	3.66	.046	.014	--	--	4.0	--	.008	<.02	.011	--	--
NOV													
23...	--	4.67	--	E.005	--	--	4.9	--	E.004	<.02	.007	E9	E2.6
26...	19.3	4.36	.043	.013	--	--	4.6	--	.006	<.02	.010	14	4.8
DEC													
18...	--	3.75	--	E.006	--	--	3.9	--	.005	<.02	.011	--	--
JAN 2002													
23...	17.1	3.87	.030	.009	--	--	4.1	--	.009	<.02	.014	--	--
25...	--	3.78	--	E.004	--	--	4.1	--	.010	<.02	.025	--	--
FEB													
14...	--	3.76	--	E.007	--	--	4.0	--	.012	<.02	.018	19	9.5
MAR													
04...	13.5	3.07	.043	.013	--	--	3.5	--	.011	<.02	.043	21	22.3
04...	13.7	3.11	.043	.013	--	--	3.5	--	.011	<.02	.034	21	22.0
18...	11.4	2.59	.026	.008	--	--	2.9	--	.013	<.02	.024	--	--
21...	11.4	2.58	.030	.009	.31	1.6	4.2	--	.025	<.02	1.01	34	32.1
APR													
15...	8.66	1.97	.030	.009	--	--	2.5	--	.017	<.02	.045	--	--
18...	8.22	1.87	.033	.010	--	--	2.4	--	.022	E.01	.043	--	--
MAY													
14...	9.24	2.10	.036	.011	--	--	2.5	--	.021	E.01	.040	44	11.4
JUN													
26...	11.1	2.53	.076	.023	--	--	2.9	--	.027	E.01	.045	--	--
28...	12.6	2.87	.082	.025	--	--	3.3	.095	.046	.03	.073	--	--
28...	12.5	2.85	.082	.025	--	--	3.3	.092	.046	.03	.074	--	--

CONODOGUINET CREEK BASIN

01570000 CONODOGUINET CREEK NEAR HOGESTOWN, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	QUALITY ASSUR-ANCE DATA INDICA-TOR CODE (99111)	REP-LICATE TYPE (CODE) (99105)	SAMPLE PURPOSE CODE (71999)	SAMPLER TYPE (CODE) (84164)
OCT 2001							
23...	--	4.3	.81	--	--	10.00	3045
NOV							
23...	--	2.7	.51	--	--	10.00	3045
26...	--	2.2	.71	--	--	10.00	3045
DEC							
18...	--	2.5	.92	--	--	10.00	3045
JAN 2002							
23...	--	6.7	2.0	--	--	10.00	3045
25...	80	18	12.0	--	--	10.00	3045
FEB							
14...	--	11	3.9	--	--	10.00	3045
MAR							
04...	73	22	17.7	30	--	10.00	3045
04...	--	--	--	--	30.00	10.00	3045
18...	--	7.4	3.9	--	--	10.00	3045
21...	89	298	1760	--	--	10.00	3039
APR							
15...	88	30	43.6	--	--	10.00	3045
18...	--	9.1	11.6	--	--	10.00	3045
MAY							
14...	--	15	23.5	--	--	10.00	3045
JUN							
26...	--	7.9	2.4	--	--	10.00	3045
28...	--	20	10.5	30	--	10.00	3045
28...	--	--	--	--	30.00	--	--

SUSQUEHANNA RIVER BASIN

01570500 SUSQUEHANNA RIVER AT HARRISBURG, PA

LOCATION.--Lat 40°15'17", long 76°53'11", Dauphin County, Hydrologic Unit 02050305, on east bank of City Island, 60 ft downstream from Market Street bridge in Harrisburg, 3,670 ft upstream from sanitary dam, and 1.7 mi upstream from Paxton Creek.

DRAINAGE AREA.--24,100 mi^2.

PERIOD OF RECORD.--October 1890 to current year.

REVISED RECORDS.--WSP 711: 1929. WSP 1502: 1891-1923, 1926(M), 1928. WSP 1702: 1953 (total runoff in inches), 1958 (1957 calendar year mean discharge).

GAGE.--Water-stage recorder. Concrete control since Aug. 29, 1916. Datum of gage is 290.01 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1928, nonrecording gage at Walnut Street Bridge 600 ft upstream, and Oct. 1, 1928, to Aug. 31, 1975, water-stage recorder at site 3,170 ft downstream, all gages at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow slightly regulated by 15 flood-control reservoirs which have a combined capacity of 1,571,000 acre-ft. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known during period 1786 to 1890, 26.8 ft at Walnut Street bridge, June 2, 1889, discharge, 654,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13500	6380	14400	e10100	31500	20800	82300	68500	35600	28200	6170	4030
2	11400	6120	18700	e10300	44900	20500	72600	68100	35500	21800	5870	4010
3	9730	5940	24600	e10100	59400	21500	64300	67600	34200	18100	5540	3880
4	8560	5790	24900	e10000	67000	22600	56700	67400	31200	15100	5170	3760
5	7690	5540	23300	e9900	60700	23200	50800	62200	27800	13600	5080	3710
6	6900	5450	20700	e9950	52100	24200	45100	55700	25200	12100	5220	3560
7	6290	5390	18500	e9950	42900	24200	40700	49300	36500	11200	4960	3330
8	5860	5400	16800	e9800	36000	24400	36700	43000	102000	10500	4840	3140
9	5540	5260	15600	e10100	31900	23200	33600	39700	118000	9890	4820	2980
10	8540	5270	15200	e11400	28900	21600	31300	43000	90200	9620	4570	2860
11	6310	5200	14900	e12800	27100	21500	29800	51000	64000	8870	4280	2600
12	5040	5170	14200	e12900	35300	21200	28500	53700	50700	8340	4090	2540
13	4740	5130	13500	e13000	55900	21000	27200	55300	40900	8070	4000	2560
14	4620	5070	13200	e13500	62900	21000	26500	119000	35900	7950	3880	2420
15	4970	4960	13100	e13300	56100	20700	29200	190000	34700	7780	3730	2700
16	5000	4890	13800	e12200	46200	20300	38200	172000	45900	7390	3820	2980
17	5300	4830	15700	e11900	38800	20100	57600	137000	63600	6920	3980	3090
18	5810	4810	18800	e11100	35100	21700	63200	116000	78600	6450	3750	3070
19	6220	5030	25100	e10700	33300	23600	57400	128000	69100	6310	3750	3210
20	6370	4960	47200	e10100	30600	27300	50200	131000	56400	6200	3560	3350
21	6070	4910	54400	e9600	27800	34600	45300	120000	46200	6660	3600	3900
22	5870	4850	44800	e9500	25600	43400	40100	95500	36300	6770	3430	4070
23	5630	4880	35900	9450	24700	44200	37000	76400	30800	6590	3390	4840
24	5450	4860	30200	9620	25000	45300	34600	63000	26800	6300	3570	7450
25	5330	5170	26400	10700	25400	41500	32000	55200	23900	6280	3550	8620
26	5420	5660	23900	12100	25400	38000	30500	49000	21700	6310	3460	8120
27	6340	7700	21700	14400	23300	50600	28200	43800	20600	6330	3670	8260
28	8080	12700	19800	20200	21400	128000	27600	39100	21200	6490	3890	9660
29	7540	14500	e18000	24000	---	149000	31700	34500	19900	6470	4080	18200
30	6930	14000	e15100	24000	---	119000	49500	37100	23800	6570	4060	17900
31	6690	---	e12400	25400	---	95200	---	35800	---	6310	4100	---
TOTAL	207740	185820	684800	392070	1075200	1233400	1278400	2366900	1347200	295470	131880	154800
MEAN	6701	6194	22090	12650	38400	39790	42610	76350	44910	9531	4254	5160
MAX	13500	14500	54400	25400	67000	149000	82300	190000	118000	28200	6170	18200
MIN	4620	4810	12400	9450	21400	20100	26500	34500	19900	6200	3390	2420
CFSM	0.28	0.26	0.92	0.52	1.59	1.65	1.77	3.17	1.86	0.40	0.18	0.21
IN.	0.32	0.29	1.06	0.61	1.66	1.90	1.97	3.65	2.08	0.46	0.20	0.24

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1891 - 2002, BY WATER YEAR (WY)

MEAN	17140	26190	34140	36700	40780	73720	72350	44910	26180	15160	11510	11430
MAX	75150	83540	98870	103100	153500	216100	217000	103900	166800	71450	44960	69050
(WY)	1977	1927	1997	1996	1891	1936	1993	1894	1972	1902	1994	1975
MIN	2356	2303	3835	3876	9122	27460	20380	12750	6226	3315	2878	2066
(WY)	1931	1931	1931	1931	1931	1960	1946	1941	1999	1965	1930	1964

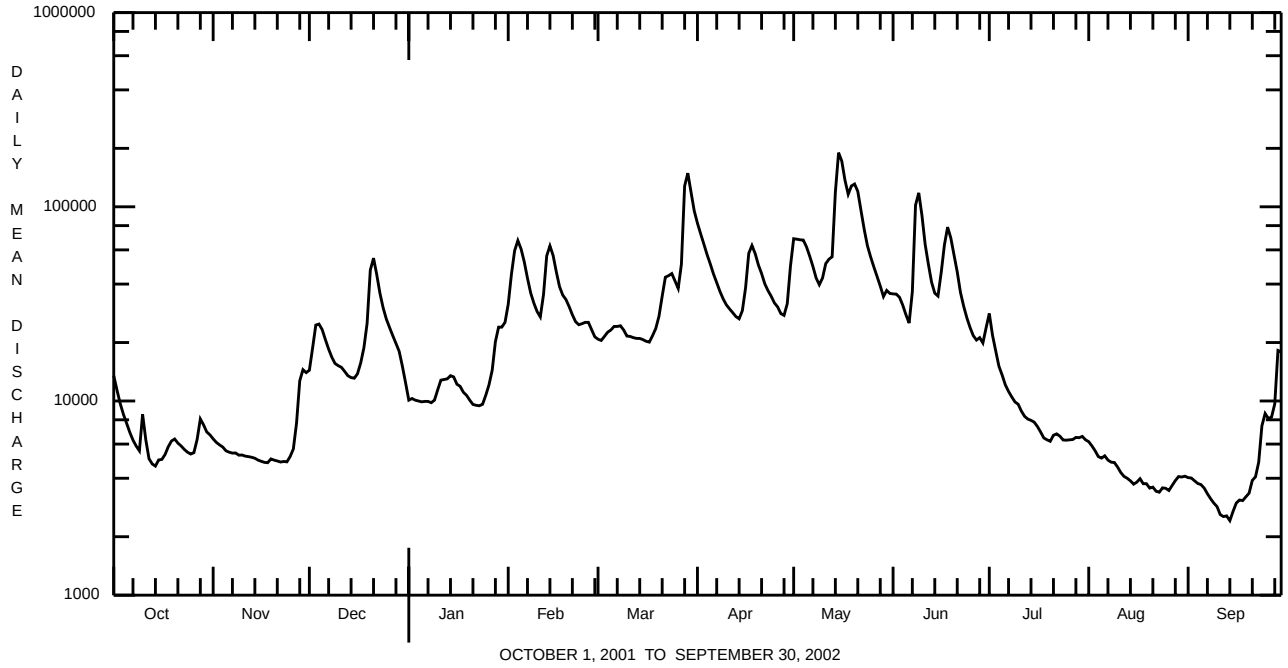
e Estimated.

SUSQUEHANNA RIVER BASIN

01570500 SUSQUEHANNA RIVER AT HARRISBURG, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1891 - 2002	
ANNUAL TOTAL	7845450		9353680			
ANNUAL MEAN	21490		25630		34140	
HIGHEST ANNUAL MEAN					53040	1972
LOWEST ANNUAL MEAN					16940	1965
HIGHEST DAILY MEAN	146000	Apr 12	190000	May 15	954000	Jun 24 1972
LOWEST DAILY MEAN	3550	Sep 15	2420	Sep 14	1700	Nov 29 1930
ANNUAL SEVEN-DAY MINIMUM	3720	Sep 11	2670	Sep 9	1790	Sep 17 1964
MAXIMUM PEAK FLOW			194000	May 15	1020000	Jun 24 1972
MAXIMUM PEAK STAGE			12.48	May 15	**a**32.57	Jun 24 1972
INSTANTANEOUS LOW FLOW			2390	Sep 11	**b**1600	Nov 29 1930
ANNUAL RUNOFF (CFSM)	0.89		1.06		1.42	
ANNUAL RUNOFF (INCHES)	12.11		14.44		19.25	
10 PERCENT EXCEEDS	54000		57500		78700	
50 PERCENT EXCEEDS	13100		15100		20100	
90 PERCENT EXCEEDS	4660		4020		5420	

a From floodmark.
b Result of freezeup. Minimum daily discharge since construction of sanitary dam and not affected by freezeup, 1,700 ft^3/s, Sept. 18, 1964.



YELLOW BREECHES CREEK BASIN

01571500 YELLOW BREECHES CREEK NEAR CAMP HILL, PA

LOCATION.--Lat 40°13'29", long 76°53'54", Cumberland County, Hydrologic Unit 02050305, on left bank 50 ft downstream from single-span highway bridge on Green Lane Drive, 150 ft downstream from Olmsted Mill dam, 1.0 mi southeast of Camp Hill, and 3.1 mi upstream from mouth.

DRAINAGE AREA.--216 mi^2.

PERIOD OF RECORD.--April 1909 to December 1919, July 1954 to current year. Prior to January 1910 monthly discharge only, published in WSP 1302. Prior to June 1954, published as "*at Olmsteds Mill*".

REVISED RECORDS.--WSP 1302: 1910, 1912-13, 1914(M), 1916.

GAGE.--Water-stage recorder. Datum of gage is 307.49 ft above National Geodetic Vertical Datum of 1929. March 1909 to December 1919, nonrecording gage at site 50 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. 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 3.8 ft^3/s. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 22, 1953, reached a stage of 9.4 ft, from floodmarks, discharge, about 3,940 ft^3/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 1,250 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 27	0345	*730	*2.91

Date	Time	Discharge ft^3/s	Gage Height (ft)
(No peaks above base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	95	95	108	e79	126	91	200	207	150	107	87	85
2	93	94	107	e82	121	94	184	219	149	103	82	85
3	93	94	102	94	113	188	167	225	139	101	83	85
4	92	93	99	93	111	185	161	200	136	98	84	84
5	91	92	99	92	106	132	152	184	133	94	85	82
6	90	90	98	93	103	118	145	178	143	88	82	79
7	88	90	99	106	104	114	141	184	187	87	80	79
8	89	91	103	97	103	111	137	181	162	90	78	78
9	88	91	120	95	101	108	137	220	146	94	77	79
10	88	90	115	96	100	122	147	211	139	97	78	78
11	89	92	108	116	107	115	143	182	131	94	81	76
12	90	92	102	136	108	109	133	175	127	93	83	73
13	90	91	101	123	104	111	135	199	123	92	80	73
14	93	89	112	112	100	117	156	208	172	94	83	72
15	104	90	119	107	99	112	486	187	165	96	81	75
16	100	91	113	104	98	111	287	167	146	93	83	79
17	103	90	111	102	99	110	220	160	131	89	82	79
18	97	90	126	100	98	131	196	392	129	88	79	78
19	96	90	128	98	97	144	185	344	123	87	78	76
20	95	90	118	101	96	218	175	243	118	87	77	76
21	96	90	109	99	97	300	169	220	111	89	76	77
22	95	90	104	98	96	202	199	208	109	89	76	85
23	95	90	103	97	94	161	187	200	107	90	82	174
24	95	91	107	140	94	147	166	191	105	95	87	122
25	95	116	105	190	94	141	162	180	103	93	85	92
26	92	178	102	140	94	170	162	180	104	91	84	95
27	94	129	101	120	96	488	151	193	118	92	81	175
28	94	109	98	114	93	266	200	183	152	101	82	186
29	94	103	e86	110	---	212	278	170	143	95	89	127
30	94	104	e82	109	---	189	230	161	115	91	89	105
31	94	---	e76	117	---	176	---	155	---	88	86	---
TOTAL	2902	2925	3261	3360	2852	4993	5591	6307	4016	2886	2540	2809
MEAN	93.6	97.5	105	108	102	161	186	203	134	93.1	81.9	93.6
MAX	104	178	128	190	126	488	486	392	187	107	89	186
MIN	88	89	76	79	93	91	133	155	103	87	76	72
CFSM	0.43	0.45	0.49	0.50	0.47	0.75	0.86	0.94	0.62	0.43	0.38	0.43
IN.	0.50	0.50	0.56	0.58	0.49	0.86	0.96	1.09	0.69	0.50	0.44	0.48

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1910 - 2002, BY WATER YEAR (WY)

MEAN	185	209	267	301	377	490	466	365	282	201	182	185
MAX	620	419	824	815	964	1335	1353	809	1639	486	573	1012
(WY)	1977	1997	1997	1996	1998	1994	1993	1998	1972	1989	1915	1975
MIN	93.6	97.5	97.2	92.4	102	161	186	167	122	81.2	80.6	93.6
(WY)	2002	2002	1966	1981	2002	2002	2002	1969	1966	1966	1966	2002

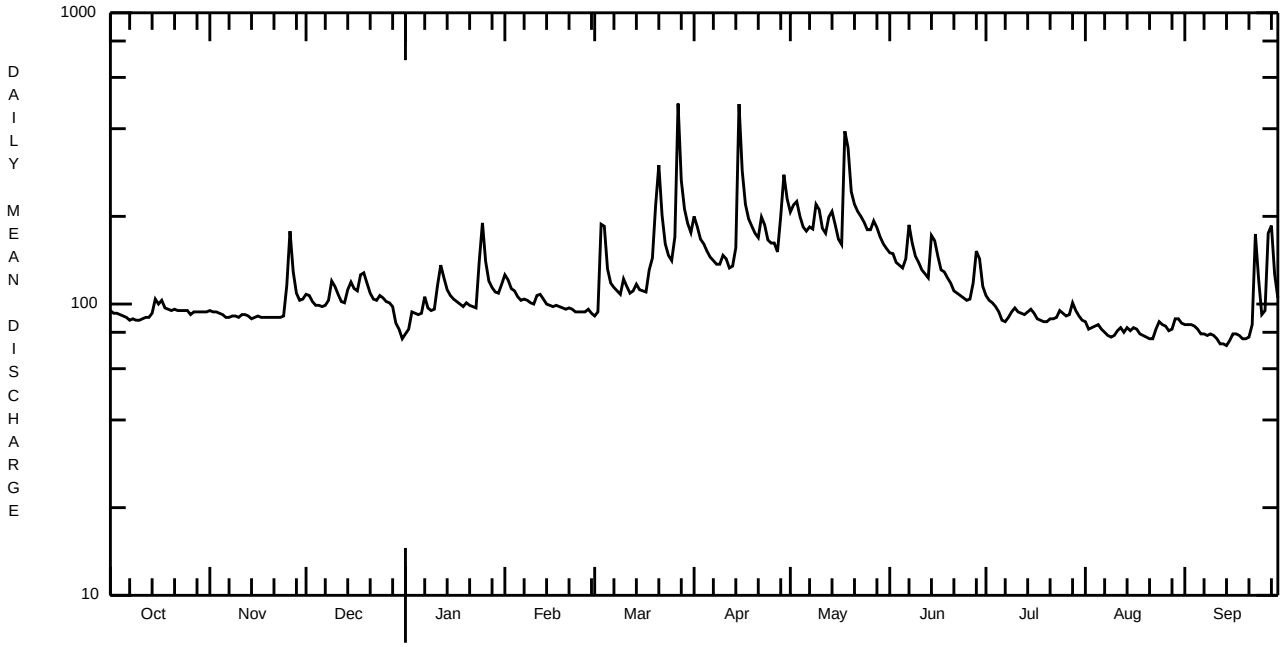
e Estimated.

YELLOW BREECHES CREEK BASIN

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

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1910 - 2002	
ANNUAL TOTAL	68430		44442			
ANNUAL MEAN	187		122		293	
HIGHEST ANNUAL MEAN					500	1972
LOWEST ANNUAL MEAN					122	2002
HIGHEST DAILY MEAN	1170	Mar 30	488	Mar 27	12400	Jun 22 1972
LOWEST DAILY MEAN	**e**76	Dec 31	72	Sep 14	67	Sep 13 1966
ANNUAL SEVEN-DAY MINIMUM	87	Sep 7	75	Sep 9	70	Sep 7 1966
MAXIMUM PEAK FLOW			730	Mar 27	**a**19300	Sep 26 1975
MAXIMUM PEAK STAGE			2.91	Mar 27	**b**18.77	Sep 26 1975
INSTANTANEOUS LOW FLOW			**c**68	Jan 1	23	Sep 12 1966
ANNUAL RUNOFF (CFSM)	0.87		0.56		1.35	
ANNUAL RUNOFF (INCHES)	11.79		7.65		18.40	
10 PERCENT EXCEEDS	357		187		527	
50 PERCENT EXCEEDS	133		102		212	
90 PERCENT EXCEEDS	90		82		116	

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



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

SWATARA CREEK BASIN

0157155010 SWATARA CREEK, SITE C1, AT NEWTOWN, PA
(Swatara Creek Project)

LOCATION.--Lat 40°39'34", long 76°20'50", Schuylkill County, Hydrologic Unit 02050305, on left bank 500 ft upstream from bridge on U.S. Highway 209, 0.5 mi north of Newtown.

DRAINAGE AREA.--2.58 mi^2.

PERIOD OF RECORD.--August 1995 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1996 to current year.
pH: October 1996 to current year.
WATER TEMPERATURE: October 1996 to current year.

INSTRUMENTATION.--Water-quality monitor (in situ system).

REMARKS.--Specific conductance records rated fair except for periods Mar. 12 to Apr. 2, Apr. 22 to May 6, and Sept. 12-30, which is poor. pH records rated good except for period Oct. 1 to Mar. 11, which is fair. Water temperature records rated good. Interruptions in the record were due to malfunctions of the instrumentation. Analytical data from samples are used to determine effectiveness of various limestone treatment systems used to aid in the remediation efforts of acid mine drainage. Data collected prior to construction dates of upstream treatment, May 1997, are considered untreated water. Some values for "*dissolved*" parameters exceed values for the corresponding "*total*" parameter. These results are within the limits of analytical precision and methods. Other data for this project presented in tables on pages 350-412. Figure 9 shows the location of sites sampled as part of the Swatara Creek Project.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 414 microsiemens, Aug. 13, 1999; minimum, 42 microsiemens, Nov. 8, 1996.
pH: Maximum, 7.7, Mar. 21, 1997; minimum, 3.3, Jan. 1, 1997.
WATER TEMPERATURE: Maximum, 22.5°C, July 4, 2002; minimum, 0.0°C, many days during winters.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum recorded, 310 microsiemens, Sept. 14; minimum, 60 microsiemens, Sept. 27.
pH: Maximum, 7.3, Oct. 1, 2; minimum, 4.8, Nov. 25.
WATER TEMPERATURE: Maximum, 22.5°C, July 4; minimum 0.0°C, several days during winter.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
29...	0915	1028	9813	2.2	450	11	94	5.7	5.9	137
JAN										
30...	1000	1028	9813	2.8	430	12	95	5.8	5.4	141
MAR										
26...	1045	1028	9813	5.1	470	12	95	5.5	4.9	175
MAY										
28...	1230	1028	9813	3.8	450	10	99	5.2	5.0	164
JUL										
30...	1015	1028	9813	.62	400	8.4	91	5.5	5.4	237

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
29...	9.40	8.9	8.6	4.5	4.3	9.5	9.2	37	4.0	14
JAN										
30...	6.80	7.8	8.1	5.0	5.3	7.5	7.7	51	3.0	11
MAR										
26...	4.80	8.1	8.2	7.0	7.1	7.2	7.2	40	2.0	9.6
MAY										
28...	14.3	8.0	8.1	6.9	7.0	6.9	7.0	76	2.0	10
JUL										
30...	19.4	16	16	13	13	8.9	9.2	28	2.0	11

SWATARA CREEK BASIN

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
NOV								
29...	34	6.0	<200	400	100	330	370	360
JAN								
30...	39	<2.0	<200	800	200	820	400	420
MAR								
26...	54	8.0	730	1200	680	1000	570	570
MAY								
28...	55	<2.0	510	1000	650	1100	520	540
JUL								
30...	87	16	<200	500	140	300	420	430

SWATARA CREEK BASIN

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

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	223	214	218	217	207	212	---	---	---	202	182	190
2	224	216	221	217	209	213	---	---	---	194	184	189
3	230	219	226	219	207	215	---	---	---	192	185	189
4	233	224	230	223	211	217	---	---	---	190	185	188
5	238	229	233	228	216	220	---	---	---	190	183	187
6	242	230	235	226	216	222	---	---	---	191	173	185
7	243	231	237	226	217	223	---	---	---	182	171	176
8	247	233	239	228	221	224	---	---	---	188	179	183
9	245	236	240	231	218	225	---	---	---	187	178	183
10	246	236	240	235	223	227	---	---	---	182	168	178
11	245	233	240	236	222	227	---	---	---	172	127	152
12	243	232	239	235	224	230	---	---	---	164	146	158
13	244	236	240	237	227	230	---	---	---	171	160	165
14	245	144	234	237	226	229	---	---	---	---	---	---
15	162	101	132	231	220	228	---	---	---	---	---	---
16	183	161	173	232	225	229	---	---	---	---	---	---
17	174	141	158	237	226	231	---	---	---	---	---	---
18	187	172	180	237	223	233	---	---	---	---	---	---
19	196	186	190	240	228	233	---	---	---	---	---	---
20	206	189	194	236	218	225	---	---	---	---	---	---
21	205	193	199	230	218	225	152	144	148	---	---	---
22	206	195	203	234	226	230	157	150	153	---	---	---
23	210	200	204	234	227	231	160	153	157	---	---	---
24	209	202	206	239	181	225	161	151	156	---	---	---
25	213	205	209	181	64	118	168	158	164	---	---	---
26	218	209	213	125	95	113	172	166	169	---	---	---
27	220	210	214	132	124	128	176	154	170	---	---	---
28	218	206	213	136	130	134	178	172	175	---	---	---
29	217	206	212	---	---	---	181	175	177	---	---	---
30	215	209	212	---	---	---	195	161	179	---	---	---
31	218	208	213	---	---	---	196	183	189	---	---	---
MONTH	247	101	213	240	64	211	196	144	167	202	127	179

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	---	---	---	189	178	184	154	137	145	139	124	132
2	---	---	---	189	163	183	160	152	157	140	91	110
3	---	---	---	163	96	118	160	152	157	126	103	115
4	---	---	---	152	132	144	162	154	159	142	124	133
5	---	---	---	158	135	150	164	160	162	150	139	145
6	---	---	---	157	151	154	173	160	164	157	148	154
7	154	150	152	159	153	155	167	162	164	158	153	156
8	157	151	155	161	155	158	168	162	164	163	156	159
9	162	155	160	166	133	158	168	138	162	163	136	146
10	163	117	155	146	117	131	152	124	138	155	142	149
11	141	110	125	154	144	150	164	150	156	162	150	158
12	150	141	146	155	145	151	166	157	161	161	145	154
13	155	147	150	150	144	147	166	153	159	149	106	139
14	160	149	154	151	144	147	156	122	149	130	98	119
15	157	152	154	153	146	150	123	91	107	136	129	133
16	156	151	154	153	148	150	130	119	123	137	132	136
17	160	153	156	156	150	154	148	129	139	142	134	138
18	165	157	162	154	120	134	153	146	149	137	78	98
19	167	161	165	134	123	129	157	148	153	134	110	123
20	168	160	165	134	89	115	160	153	155	145	133	141
21	166	159	163	112	94	106	160	155	157	152	145	148
22	171	163	166	131	109	121	160	153	157	157	149	152
23	175	167	171	141	129	136	167	153	162	158	152	155
24	177	171	174	144	138	142	168	162	165	161	154	157
25	180	173	176	147	142	144	170	153	161	164	157	160
26	183	169	176	148	68	130	166	155	161	164	159	162
27	177	167	173	104	69	89	169	158	166	167	160	163
28	183	176	180	123	104	114	164	96	128	171	162	167
29	---	---	---	133	121	128	126	97	114	176	167	170
30	---	---	---	144	133	138	132	123	127	176	167	172
31	---	---	---	150	140	146	---	---	---	177	168	174
MONTH	183	110	161	189	68	141	173	91	151	177	78	146

SWATARA CREEK BASIN

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

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	181	166	172	204	195	200	257	245	251	270	242	255
2	187	178	181	209	198	205	257	249	254	262	248	254
3	189	183	186	214	202	210	262	254	258	263	255	259
4	193	184	188	217	209	214	266	255	261	269	257	264
5	193	184	188	223	212	218	269	234	260	271	262	267
6	188	140	177	226	215	222	259	238	252	276	264	270
7	167	127	150	228	220	224	267	257	261	281	268	274
8	179	166	172	230	221	225	269	261	265	285	271	276
9	186	177	181	230	176	218	274	264	269	284	273	279
10	196	185	188	212	195	202	277	267	272	294	274	281
11	197	186	191	225	210	217	281	270	275	289	278	282
12	199	77	156	230	220	224	284	270	277	308	275	284
13	143	107	130	230	223	226	286	275	279	292	280	286
14	147	96	118	231	221	227	287	276	281	310	283	294
15	132	114	124	233	223	227	290	235	277	300	143	235
16	149	131	139	238	225	231	266	241	255	145	101	118
17	157	146	150	239	214	231	271	257	265	182	141	162
18	161	151	156	238	226	232	276	264	271	198	180	189
19	164	150	156	240	230	234	280	271	275	211	195	201
20	168	160	164	240	231	235	284	273	278	220	210	215
21	174	162	169	244	231	238	286	273	280	219	210	214
22	181	171	175	246	237	240	289	259	280	221	203	217
23	190	175	181	250	135	223	273	244	265	203	134	155
24	190	176	185	225	187	204	278	254	263	196	172	185
25	188	176	183	232	219	225	270	259	264	201	191	196
26	197	181	190	238	226	232	277	265	270	208	166	198
27	199	139	182	240	231	235	282	270	275	168	60	91
28	181	162	171	240	231	235	283	270	277	114	71	93
29	192	180	186	243	234	237	277	229	247	130	113	122
30	199	189	195	246	237	242	258	243	251	143	128	136
31	---	---	---	251	241	247	269	253	261	---	---	---
MONTH	199	77	169	251	135	225	290	229	267	310	60	218
YEAR	310	60	190									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	7.3	7.2	7.3	6.4	6.4	6.4	---	---	---	5.7	5.6	5.7
2	7.3	7.2	7.2	6.4	6.4	6.4	---	---	---	5.7	5.6	5.7
3	7.2	7.1	7.2	6.4	6.3	6.4	---	---	---	5.7	5.7	5.7
4	7.1	7.1	7.1	6.3	6.3	6.3	---	---	---	5.7	5.6	5.7
5	7.1	7.0	7.1	6.3	6.3	6.3	---	---	---	5.6	5.6	5.6
6	7.0	7.0	7.0	6.3	5.9	6.1	---	---	---	5.6	5.6	5.6
7	7.0	7.0	7.0	6.1	6.1	6.1	---	---	---	5.7	5.6	5.6
8	7.0	7.0	7.0	6.1	6.1	6.1	---	---	---	5.7	5.6	5.6
9	7.0	6.9	7.0	6.1	6.0	6.1	---	---	---	5.7	5.6	5.6
10	6.9	6.9	6.9	6.1	6.0	6.0	---	---	---	6.0	5.6	5.6
11	6.9	6.9	6.9	6.1	6.0	6.0	---	---	---	6.2	5.7	6.0
12	6.9	6.8	6.9	6.0	6.0	6.0	---	---	---	6.0	5.7	5.9
13	6.9	6.8	6.8	6.0	6.0	6.0	---	---	---	6.0	6.0	6.0
14	7.1	6.7	6.8	6.0	6.0	6.0	---	---	---	---	---	---
15	7.1	6.1	6.3	6.0	6.0	6.0	---	---	---	---	---	---
16	7.0	6.5	6.8	6.0	6.0	6.0	---	---	---	---	---	---
17	7.1	6.7	6.8	6.0	6.0	6.0	---	---	---	---	---	---
18	6.9	6.8	6.9	6.0	6.0	6.0	---	---	---	---	---	---
19	6.9	6.8	6.8	6.0	6.0	6.0	---	---	---	---	---	---
20	6.9	6.8	6.8	6.0	5.9	6.0	---	---	---	---	---	---
21	6.8	6.8	6.8	6.0	5.9	6.0	5.6	5.6	5.6	---	---	---
22	6.8	6.8	6.8	6.0	5.9	5.9	5.6	5.6	5.6	---	---	---
23	6.8	6.7	6.8	5.9	5.9	5.9	5.6	5.6	5.6	---	---	---
24	6.7	6.7	6.7	5.9	5.9	5.9	5.6	5.5	5.6	---	---	---
25	6.7	6.7	6.7	6.0	4.8	5.7	5.6	5.6	5.6	---	---	---
26	6.7	6.7	6.7	5.4	4.9	5.2	5.6	5.6	5.6	---	---	---
27	6.7	6.6	6.7	5.6	5.4	5.6	5.7	5.6	5.6	---	---	---
28	6.6	6.6	6.6	5.7	5.6	5.7	5.7	5.6	5.6	---	---	---
29	6.6	6.5	6.5	---	---	---	5.7	5.6	5.6	---	---	---
30	6.5	6.4	6.5	---	---	---	5.7	5.6	5.7	---	---	---
31	6.4	6.4	6.4	---	---	---	5.7	5.6	5.6	---	---	---
MAX	7.3	7.2	7.3	6.4	6.4	6.4	5.7	5.6	5.7	6.2	6.0	6.0
MIN	6.4	6.1	6.3	5.4	4.8	5.2	5.6	5.5	5.6	5.6	5.6	5.6

SWATARA CREEK BASIN

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

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	---	---	---	5.9	5.8	5.9	5.3	5.3	5.3	5.4	5.3	5.4
2	---	---	---	5.9	5.8	5.9	5.5	5.3	5.4	6.1	5.0	5.2
3	---	---	---	6.1	5.5	5.6	5.5	5.4	5.5	5.2	5.1	5.1
4	---	---	---	5.8	5.7	5.8	5.5	5.4	5.5	5.2	5.1	5.1
5	---	---	---	5.8	5.8	5.8	5.5	5.4	5.5	5.2	5.1	5.1
6	---	---	---	5.8	5.8	5.8	5.5	5.4	5.5	5.2	5.1	5.2
7	5.6	5.6	5.6	5.8	5.7	5.7	5.5	5.4	5.5	5.2	5.2	5.2
8	5.6	5.6	5.6	5.8	5.7	5.7	5.5	5.4	5.5	5.3	5.2	5.2
9	5.7	5.6	5.6	5.7	5.7	5.7	5.4	5.3	5.3	5.3	5.2	5.2
10	5.8	5.6	5.7	5.8	5.5	5.6	5.4	5.2	5.3	5.3	5.2	5.3
11	5.7	5.4	5.5	5.7	5.7	5.7	5.5	5.3	5.4	5.3	5.3	5.3
12	5.6	5.5	5.6	5.7	5.6	5.7	5.5	5.5	5.5	5.3	5.3	5.3
13	5.6	5.6	5.6	5.7	5.7	5.7	5.5	5.4	5.5	5.5	5.2	5.3
14	5.7	5.6	5.6	5.7	5.6	5.7	5.5	5.2	5.4	5.4	5.1	5.2
15	5.7	5.6	5.6	5.7	5.6	5.7	6.0	5.2	5.2	5.3	5.3	5.3
16	5.6	5.6	5.6	5.7	5.6	5.7	5.3	5.3	5.3	5.4	5.2	5.3
17	5.6	5.6	5.6	5.8	5.7	5.7	5.3	5.2	5.2	5.4	5.3	5.3
18	5.7	5.6	5.6	6.0	5.7	5.8	5.2	5.1	5.2	6.0	5.0	5.1
19	5.7	5.6	5.6	5.7	5.7	5.7	5.2	5.1	5.2	5.2	5.1	5.2
20	5.6	5.6	5.6	5.9	5.5	5.7	5.2	5.2	5.2	5.2	5.1	5.1
21	5.7	5.6	5.7	5.6	5.5	5.5	5.3	5.2	5.3	5.2	5.2	5.2
22	5.8	5.7	5.8	5.6	5.5	5.5	5.4	5.3	5.3	5.3	5.2	5.2
23	5.8	5.8	5.8	5.5	5.4	5.4	5.4	5.3	5.4	5.3	5.2	5.3
24	5.9	5.8	5.8	5.5	5.4	5.4	5.4	5.3	5.4	5.3	5.2	5.2
25	5.9	5.8	5.8	5.4	5.4	5.4	5.4	5.4	5.4	5.2	5.2	5.2
26	5.9	5.8	5.8	5.9	5.1	5.4	5.4	5.3	5.4	5.2	5.2	5.2
27	5.9	5.8	5.8	5.4	5.1	5.3	5.5	5.3	5.4	5.2	5.2	5.2
28	5.9	5.8	5.9	5.4	5.3	5.3	5.6	5.3	5.5	5.2	5.2	5.2
29	---	---	---	5.4	5.3	5.3	5.4	5.3	5.3	5.2	5.2	5.2
30	---	---	---	5.3	5.3	5.3	5.5	5.4	5.4	5.4	5.2	5.3
31	---	---	---	5.4	5.3	5.3	---	---	---	5.4	5.3	5.4
MAX	5.9	5.8	5.9	6.1	5.8	5.9	6.0	5.5	5.5	6.1	5.3	5.4
MIN	5.6	5.4	5.5	5.3	5.1	5.3	5.2	5.1	5.2	5.2	5.0	5.1

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	5.4	5.3	5.4	6.0	6.0	6.0	5.4	5.3	5.4	5.5	5.4	5.5
2	5.4	5.3	5.4	6.0	6.0	6.0	5.4	5.3	5.3	5.5	5.5	5.5
3	5.5	5.4	5.4	6.0	5.9	6.0	5.3	5.3	5.3	5.5	5.4	5.5
4	5.5	5.4	5.4	5.9	5.9	5.9	5.3	5.3	5.3	5.5	5.4	5.5
5	5.5	5.4	5.4	5.9	5.9	5.9	5.3	5.2	5.3	5.5	5.5	5.5
6	5.9	5.4	5.5	5.9	5.9	5.9	5.4	5.3	5.4	5.5	5.5	5.5
7	5.8	5.4	5.5	5.9	5.8	5.9	5.4	5.3	5.3	5.6	5.5	5.5
8	5.6	5.5	5.6	5.8	5.8	5.8	5.4	5.3	5.3	5.6	5.5	5.5
9	5.7	5.6	5.6	5.9	5.6	5.8	5.4	5.3	5.4	5.6	5.5	5.6
10	5.7	5.6	5.7	6.0	5.9	5.9	5.4	5.3	5.4	5.6	5.5	5.6
11	5.8	5.7	5.7	5.9	5.8	5.8	5.4	5.3	5.3	5.6	5.4	5.6
12	6.4	4.9	5.7	5.8	5.7	5.8	5.4	5.3	5.3	5.6	5.2	5.5
13	5.7	5.2	5.5	5.7	5.7	5.7	5.4	5.2	5.3	5.5	5.4	5.5
14	6.4	5.4	5.7	5.7	5.7	5.7	5.4	5.3	5.3	5.5	5.3	5.5
15	5.7	5.5	5.7	5.7	5.7	5.7	5.4	5.1	5.3	6.2	5.2	5.3
16	5.9	5.7	5.8	5.7	5.6	5.6	5.4	5.2	5.4	6.0	5.3	5.4
17	6.0	5.9	5.9	5.7	5.4	5.6	5.4	5.3	5.4	6.0	5.3	5.4
18	6.1	6.0	6.0	5.7	5.6	5.6	5.4	5.3	5.4	6.2	6.0	6.1
19	6.1	5.9	6.0	5.6	5.5	5.6	5.4	5.3	5.4	6.1	5.8	6.0
20	6.1	6.0	6.0	5.5	5.5	5.5	5.4	5.3	5.4	6.1	5.8	6.0
21	6.1	6.0	6.0	5.5	5.5	5.5	5.4	5.3	5.4	6.1	5.9	6.0
22	6.1	6.0	6.1	5.5	5.4	5.5	5.5	5.2	5.4	5.9	5.8	5.8
23	6.1	6.0	6.1	6.4	5.0	5.4	5.4	5.2	5.3	6.9	5.9	6.2
24	6.1	6.1	6.1	5.7	5.5	5.6	5.4	5.3	5.3	6.6	6.4	6.5
25	6.1	6.0	6.1	5.5	5.5	5.5	5.4	5.4	5.4	6.6	6.5	6.6
26	6.1	6.0	6.1	5.5	5.5	5.5	5.5	5.4	5.4	6.9	6.6	6.6
27	6.2	5.9	6.1	5.5	5.5	5.5	5.5	5.4	5.4	7.0	5.3	5.9
28	6.2	6.0	6.0	5.5	5.5	5.5	5.4	5.4	5.4	6.6	5.4	6.0
29	6.0	6.0	6.0	5.6	5.5	5.5	5.6	5.4	5.5	6.8	6.6	6.7
30	6.0	6.0	6.0	5.5	5.4	5.5	5.6	5.5	5.5	6.8	6.8	6.8
31	---	---	---	5.4	5.4	5.4	5.5	5.4	5.5	---	---	---
MAX	6.4	6.1	6.1	6.4	6.0	6.0	5.6	5.5	5.5	7.0	6.8	6.8
MIN	5.4	4.9	5.4	5.4	5.0	5.4	5.3	5.1	5.3	5.5	5.2	5.3

YEAR			
	MAX	MAXIMUM 7.3	MINIMUM 5.2
	MIN	MAXIMUM 7.2	MINIMUM 4.8
	MEDIAN	MAXIMUM 7.3	MINIMUM 5.1

SWATARA CREEK BASIN

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

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	12.5	10.0	11.0	10.0	6.0	8.0	---	---	---	0.0	0.0	0.0
2	14.0	10.0	12.0	12.5	8.5	10.5	---	---	---	0.5	0.0	0.0
3	15.5	11.5	13.5	12.5	8.5	11.0	---	---	---	0.5	0.0	0.0
4	15.5	12.0	14.0	10.5	7.0	9.0	---	---	---	1.0	0.0	0.5
5	15.5	12.0	13.5	8.0	6.0	7.0	---	---	---	1.5	0.5	1.0
6	13.5	10.5	13.0	8.0	5.5	6.5	---	---	---	1.5	0.0	1.0
7	10.5	8.0	9.0	9.5	6.0	7.5	---	---	---	1.5	0.0	1.0
8	9.0	6.5	7.5	9.5	6.0	8.0	---	---	---	1.5	0.0	0.5
9	9.0	5.0	7.0	9.0	5.5	7.5	---	---	---	2.0	0.5	1.0
10	11.0	6.5	8.5	8.0	5.0	6.5	---	---	---	3.0	1.5	2.0
11	12.5	8.0	10.0	7.0	4.0	6.0	---	---	---	2.5	2.0	2.5
12	13.5	9.5	11.5	6.0	2.5	4.5	---	---	---	3.5	2.0	2.5
13	15.0	11.5	13.0	6.0	2.5	4.5	---	---	---	3.0	1.5	2.5
14	14.5	13.0	13.5	7.0	3.0	5.0	---	---	---	---	---	---
15	14.0	10.5	12.5	9.0	5.5	7.0	---	---	---	---	---	---
16	12.0	8.5	10.0	10.0	6.5	8.0	---	---	---	---	---	---
17	10.0	7.5	9.0	8.0	5.5	7.0	---	---	---	---	---	---
18	9.5	6.0	7.5	7.5	5.0	6.0	---	---	---	---	---	---
19	10.0	5.5	7.5	7.5	4.5	6.0	---	---	---	---	---	---
20	12.0	8.0	9.5	7.0	4.0	6.0	---	---	---	---	---	---
21	12.5	8.0	10.0	5.0	2.5	4.0	4.5	3.0	4.0	---	---	---
22	13.0	10.0	11.5	6.0	2.5	4.0	3.5	2.5	3.0	---	---	---
23	13.0	10.0	11.5	6.5	3.0	4.5	5.0	2.5	3.5	---	---	---
24	15.5	12.0	13.5	9.0	4.5	6.5	5.0	2.5	4.0	---	---	---
25	14.0	10.5	12.5	11.0	9.0	10.0	2.5	1.5	2.0	---	---	---
26	10.5	7.0	9.0	9.5	8.0	9.0	1.5	0.5	1.0	---	---	---
27	8.5	6.5	7.5	9.0	7.0	8.0	1.0	0.0	0.5	---	---	---
28	8.0	5.0	6.5	10.0	8.5	9.0	2.0	0.0	1.0	---	---	---
29	8.0	4.0	6.0	---	---	---	2.0	0.0	1.0	---	---	---
30	9.5	6.0	7.5	---	---	---	0.5	0.0	0.0	---	---	---
31	7.5	6.0	7.0	---	---	---	0.0	0.0	0.0	---	---	---
MONTH	15.5	4.0	10.2	12.5	2.5	7.0	5.0	0.0	1.8	3.5	0.0	1.1

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	---	---	---	4.0	0.0	2.0	9.5	6.5	8.0	11.5	7.0	9.0
2	---	---	---	4.5	1.0	2.5	9.0	6.0	7.5	11.5	9.0	10.0
3	---	---	---	7.0	3.0	5.5	10.0	6.0	8.0	11.0	8.5	9.5
4	---	---	---	3.0	0.0	1.5	8.0	5.0	6.0	11.5	7.0	9.0
5	---	---	---	1.5	0.0	0.5	6.0	4.0	5.0	12.5	8.0	10.0
6	---	---	---	5.0	0.5	3.0	7.0	4.0	5.0	13.0	9.0	11.0
7	4.0	2.5	3.0	6.0	2.5	4.5	7.5	3.0	5.0	14.0	10.5	12.0
8	4.5	2.5	3.5	7.5	3.0	5.5	9.0	5.5	6.5	13.5	11.0	12.0
9	5.0	2.5	3.5	9.0	5.5	7.5	10.0	8.0	9.0	12.0	10.5	11.0
10	6.0	3.5	4.5	9.0	2.0	4.5	11.0	8.0	9.5	13.5	10.5	11.5
11	6.0	1.5	3.5	4.0	1.5	2.5	11.5	6.0	8.5	12.5	9.0	11.0
12	3.0	1.0	2.0	6.0	2.5	4.0	9.0	7.0	8.0	12.0	10.5	11.0
13	3.5	0.5	2.5	5.5	4.0	5.0	11.0	9.0	10.0	12.0	11.5	11.5
14	2.0	0.0	1.0	9.5	5.0	7.0	13.5	9.0	11.0	11.5	9.0	10.0
15	4.0	1.0	2.5	9.0	6.5	7.5	14.0	11.0	12.5	12.0	8.5	10.0
16	5.5	3.0	4.0	9.0	5.0	8.0	15.5	11.0	13.0	13.5	8.5	11.0
17	4.5	2.0	3.5	5.0	3.0	4.0	16.0	11.0	13.0	14.0	11.5	12.5
18	3.5	1.0	2.0	4.5	2.5	4.0	15.5	12.0	13.5	11.5	9.0	10.0
19	4.5	0.5	2.5	5.5	4.0	5.0	16.5	12.0	13.5	10.0	8.5	9.0
20	6.0	3.5	5.0	5.0	2.0	4.0	13.0	11.0	12.0	9.5	8.0	8.5
21	7.5	5.5	6.5	7.0	4.0	5.0	11.0	8.5	9.5	10.0	7.5	8.5
22	6.0	4.0	5.0	4.5	2.5	3.5	10.0	8.0	8.5	11.0	7.0	9.0
23	5.0	2.0	3.5	6.0	2.5	4.0	10.0	6.5	8.0	12.5	8.0	10.0
24	5.0	1.0	3.0	6.5	4.0	5.5	11.0	5.5	8.0	14.0	9.5	12.0
25	6.0	2.0	4.0	6.0	5.0	5.5	9.0	7.0	8.0	13.0	10.5	12.0
26	7.0	3.0	5.0	5.0	4.5	5.0	10.5	6.0	8.0	13.0	11.5	12.0
27	4.5	1.5	3.0	6.0	5.0	5.5	11.5	6.0	8.5	14.0	12.0	13.0
28	3.5	0.5	1.5	7.5	4.5	6.0	11.5	9.0	9.5	15.0	12.5	13.5
29	---	---	---	9.0	5.5	7.5	10.5	7.5	9.0	15.5	13.0	14.0
30	---	---	---	10.0	7.5	8.5	10.0	7.0	8.5	16.0	13.0	14.5
31	---	---	---	9.5	7.5	8.5	---	---	---	16.5	13.0	15.0
MONTH	7.5	0.0	3.4	10.0	0.0	4.9	16.5	3.0	9.0	16.5	7.0	11.1

SWATARA CREEK BASIN

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

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	17.0	13.5	15.0	19.5	16.0	17.5	22.0	19.0	20.5	17.0	15.5	16.0
2	16.0	13.0	14.5	21.0	16.5	18.5	22.5	19.0	20.5	17.0	15.5	16.0
3	14.5	11.0	12.5	22.0	18.0	20.0	22.0	19.5	21.0	18.5	15.0	16.5
4	13.5	11.5	13.0	22.5	18.5	20.0	22.0	19.0	20.5	19.5	17.5	18.5
5	16.5	13.0	14.5	20.5	17.5	19.0	21.0	19.5	20.0	18.0	16.0	17.0
6	15.5	14.0	14.5	19.0	15.5	17.0	20.0	17.0	18.5	17.5	14.5	16.0
7	15.0	13.0	14.0	18.5	14.5	16.5	18.0	15.0	16.5	17.5	14.0	16.0
8	15.0	12.0	13.5	20.0	15.0	17.5	17.5	14.5	16.5	17.5	14.0	16.0
9	17.0	12.5	14.5	20.0	16.5	18.0	18.5	14.5	16.5	18.0	14.0	16.0
10	17.0	14.0	15.5	20.0	16.0	18.0	19.0	15.0	17.0	18.5	15.5	17.0
11	18.5	14.5	16.0	17.5	13.5	15.5	19.5	16.0	18.0	17.5	15.5	16.5
12	20.0	15.5	17.0	18.0	13.0	15.0	20.5	17.5	19.0	16.0	14.0	15.0
13	17.5	15.0	16.0	17.5	13.5	15.5	21.0	18.5	20.0	16.0	12.5	14.5
14	15.0	14.0	14.5	17.0	15.5	16.0	21.5	18.5	20.0	17.0	14.5	16.0
15	14.0	13.5	13.5	20.0	15.0	17.5	22.0	19.0	20.5	18.5	16.5	17.5
16	15.5	12.5	14.0	19.5	16.0	18.0	21.5	19.0	20.0	19.5	17.5	19.0
17	15.5	12.5	14.0	20.5	15.5	18.0	21.5	19.5	20.5	18.0	15.0	16.5
18	15.0	11.5	13.5	20.0	17.5	18.5	22.0	19.5	21.0	17.5	14.0	15.5
19	16.0	12.5	14.0	21.0	17.5	19.0	21.0	19.5	20.5	16.5	14.5	15.5
20	17.0	13.5	15.0	20.5	17.5	19.0	21.0	18.5	20.0	18.0	15.5	17.0
21	17.5	14.0	15.5	20.0	17.0	18.5	20.0	17.0	18.5	18.0	17.5	17.5
22	18.0	14.0	16.0	21.5	17.5	19.5	21.0	18.0	19.5	18.5	17.5	18.0
23	19.0	15.0	17.0	22.0	18.5	20.0	20.5	19.5	20.0	18.0	16.0	16.5
24	19.5	16.0	17.5	20.5	17.5	18.5	20.0	19.0	19.5	16.0	12.0	14.0
25	20.0	16.5	18.0	19.5	17.5	18.5	20.0	18.5	19.0	15.5	12.5	14.0
26	19.5	17.0	18.0	18.0	16.5	17.0	19.0	16.5	18.0	14.5	14.0	14.0
27	20.0	17.0	18.0	18.0	16.5	17.5	19.0	16.5	18.0	17.5	13.0	14.5
28	19.5	17.0	18.0	21.0	17.0	18.5	18.5	17.0	17.5	16.5	15.0	15.5
29	19.0	15.5	17.0	22.0	18.5	20.0	17.0	15.5	16.5	14.0	11.5	13.0
30	19.5	15.5	17.5	21.5	19.0	20.0	17.0	16.0	16.0	15.0	12.5	13.5
31	---	---	---	21.5	18.0	20.0	17.5	15.0	16.5	---	---	---
MONTH	20.0	11.0	15.4	22.5	13.0	18.1	22.5	14.5	18.9	19.5	11.5	15.9
YEAR	22.5	0.0	10.9									

SWATARA CREEK BASIN

0157155014 SWATARA CREEK, SITE C3, AT NEWTOWN, PA
(Swatara Creek Project)

LOCATION.--Lat 40°39'28", long 76°20'43", Schuylkill County, Hydrologic Unit 02050305, on left bank 500 ft downstream from bridge on U.S. Highway 209. Located on Swatara Coal Company property.

DRAINAGE AREA.--2.92 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1996 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 900 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair except those below 10 ft^3/s, which are poor. Other data for this project presented in tables on pages 350-412. Diversion upstream from station by limestone treatment system used to aid in the remediation efforts of acid mine drainage.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 50 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 26	2145	54	2.01	Sept. 27	2115	*91	*2.29

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	1.1	3.3	e1.5	3.4	e1.8	7.7	5.0	2.8	1.2	0.52	0.38
2	1.5	1.0	2.6	e1.5	3.1	1.9	6.2	12	2.5	1.2	0.49	0.38
3	1.4	0.98	2.4	1.7	2.9	5.7	5.5	8.7	2.3	1.1	0.46	0.31
4	1.3	0.89	2.3	1.6	2.9	3.1	5.0	7.6	2.2	1.1	0.43	0.24
5	1.3	0.95	2.3	1.6	e2.6	e2.8	4.6	6.9	2.1	1.0	0.50	0.20
6	1.3	0.96	2.2	e1.4	2.8	2.8	4.3	6.2	2.5	0.97	0.58	0.15
7	1.3	0.93	2.2	1.7	2.7	2.8	4.1	5.6	2.9	0.91	0.47	0.15
8	1.3	0.93	2.3	1.5	2.6	2.6	3.8	5.0	2.1	0.89	0.44	0.11
9	1.3	0.90	3.3	1.5	2.5	2.8	3.8	5.8	1.9	0.99	0.40	0.07
10	1.3	0.88	2.6	1.7	2.9	4.2	5.0	5.1	1.7	1.1	0.31	0.05
11	1.3	0.89	2.3	2.6	4.4	3.1	3.7	4.4	1.6	0.88	0.29	0.04
12	1.3	0.92	2.2	2.1	3.1	3.0	3.5	4.5	6.4	0.83	0.27	0.04
13	1.3	0.87	2.3	1.9	2.9	3.0	3.5	5.8	3.2	0.79	0.23	0.04
14	1.6	0.86	2.9	1.7	e2.8	3.0	3.9	7.9	5.1	0.79	0.21	0.06
15	4.3	0.86	2.7	1.7	2.8	2.8	10	5.5	3.6	0.79	0.29	1.4
16	1.7	0.84	2.4	1.6	2.8	2.8	6.5	5.3	2.9	0.70	0.47	6.0
17	2.1	0.79	2.6	1.6	2.7	2.7	6.3	5.1	2.5	0.65	0.28	1.1
18	1.6	0.79	4.5	1.6	2.6	4.1	5.8	19	2.3	0.67	0.24	0.87
19	1.5	0.79	3.2	1.6	2.5	4.1	5.3	12	2.3	0.66	0.22	0.77
20	1.4	1.0	3.0	e1.5	2.4	7.5	5.0	9.8	2.1	0.65	0.20	0.71
21	1.4	0.90	2.9	1.5	2.4	8.9	4.6	8.6	1.9	0.62	0.13	0.67
22	1.3	0.80	2.7	1.5	2.3	7.7	4.5	7.2	1.7	0.61	0.10	e0.70
23	1.3	0.75	2.7	1.5	2.2	7.0	4.1	6.4	1.6	1.1	0.24	e3.1
24	1.2	1.0	2.8	3.0	2.1	6.4	3.8	5.6	1.5	0.94	0.33	e1.7
25	1.2	11	2.5	3.2	2.0	5.7	3.8	4.9	1.5	0.70	0.27	e1.0
26	1.2	4.3	2.4	2.5	2.1	13	3.6	4.5	1.4	0.66	0.21	1.0
27	1.2	2.6	e2.2	2.5	2.1	16	3.3	4.1	1.7	0.67	0.21	15
28	1.2	2.3	2.2	2.6	2.0	12	6.1	3.8	1.8	0.69	0.20	7.3
29	1.2	2.3	2.1	2.6	---	9.6	5.8	3.5	1.4	0.62	0.55	3.0
30	1.1	3.5	e2.0	2.7	---	8.3	5.0	3.2	1.3	0.58	0.38	2.4
31	1.1	---	e1.8	2.8	---	7.3	---	3.0	---	0.51	0.28	---
TOTAL	45.0	47.58	79.9	60.0	74.6	168.5	148.1	202.0	70.8	25.57	10.20	48.94
MEAN	1.45	1.59	2.58	1.94	2.66	5.44	4.94	6.52	2.36	0.82	0.33	1.63
MAX	4.3	11	4.5	3.2	4.4	16	10	19	6.4	1.2	0.58	15
MIN	1.1	0.75	1.8	1.4	2.0	1.8	3.3	3.0	1.3	0.51	0.10	0.04

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2002, BY WATER YEAR (WY)

MEAN	2.87	2.89	5.38	4.92	5.20	7.03	5.66	4.49	3.45	1.81	1.05	1.73
MAX	7.81	8.40	15.3	10.9	10.4	9.63	8.09	9.19	6.11	3.61	1.88	3.92
(WY)	1997	1997	1997	1998	1998	2000	1998	1998	1998	1996	1997	1999
MIN	1.10	0.86	0.71	1.94	2.66	5.44	3.95	2.05	0.89	0.10	0.26	0.42
(WY)	1999	1999	1999	2002	2002	2002	1999	1999	1999	1999	1999	1998

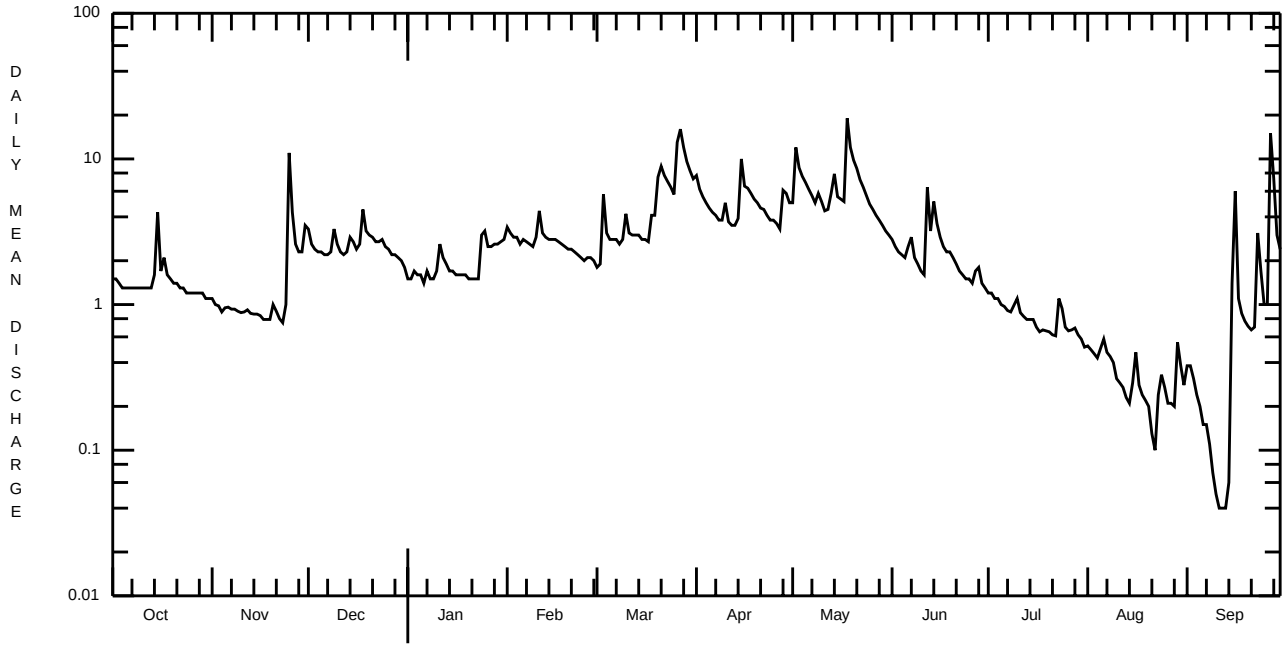
e Estimated.

SWATARA CREEK BASIN

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

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1996 - 2002	
ANNUAL TOTAL	1049.62		981.19			
ANNUAL MEAN	2.88		2.69		3.84	
HIGHEST ANNUAL MEAN					5.48	1997
LOWEST ANNUAL MEAN					2.61	1999
HIGHEST DAILY MEAN	15	Mar 30	19	May 18	**a**64	Dec 17 2000
LOWEST DAILY MEAN	0.75	Nov 23	0.04	Sep 11-13	0.00	Jul 27 1999**b**
ANNUAL SEVEN-DAY MINIMUM	0.83	Nov 13	0.06	Sep 8	0.00	Jul 29 1999
MAXIMUM PEAK FLOW			**a**91	Sep 27	**a**162	Jun 13 1998
MAXIMUM PEAK STAGE			2.29	Sep 27	2.65	Jun 13 1998
INSTANTANEOUS LOW FLOW			0.02	Sep 11	0.00	Jul 27 1999**b**
10 PERCENT EXCEEDS	6.1		5.8		8.1	
50 PERCENT EXCEEDS	2.2		2.1		2.5	
90 PERCENT EXCEEDS	1.0		0.44		0.59	

a From rating curve extended above 44 ft^3/s.
b Several days.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

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.--Specific conductance records rated fair except for periods Mar. 12 to Apr. 2, Apr. 11 to May 6, May 16-30, and Sept. 12-25, which are poor. pH records rated fair except for period June 7-28, which is poor. The pH probe is subject to fowling from precipitation of iron, adhesion of lime on electrodes, and occasional burial by sediment. Water temperature records rated good. Interruptions in the record were due to malfunctions of the instrumentation. Some values for "*dissolved*" parameters exceed values for the corresponding "*total*" parameter. These results are within the limits of analytical precision and methods. Other data for the Swatara Creek Project presented in tables on pages 350-412. Figure 9 shows the location of sites sampled as part of the Swatara Creek Project.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 438 microsiemens, Aug. 13, 1999; minimum, 51 microsiemens, July 24, 1997.
pH: Maximum, 8.2, Aug. 20, 2001; minimum, 3.6, Oct. 21-23, 25, Dec. 3, 1996.
WATER TEMPERATURE: Maximum, 23.5°C, July 5, 6, 1999; minimum, 0.0°C, many days during winters.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 325 microsiemens, Sept. 15; minimum, 67 microsiemens, Sept. 27.
pH: Maximum, 7.6, June 19, 20; minimum, 4.8, May 2.
WATER TEMPERATURE: Maximum, 23.0°C, Aug. 15; minimum 0.0°C, many days during winter.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
OCT										
01...	1645	1028	--	1.5	--	--	--	7.4	--	230
NOV										
29...	0815	1028	9813	2.1	420	11	96	6.5	5.9	148
JAN										
30...	0915	1028	9813	2.8	370	12	97	7.4	6.8	167
MAR										
26...	1015	1028	9813	5.1	440	12	95	6.1	5.2	179
MAY										
28...	1200	1028	9813	3.8	420	10	100	5.4	5.1	164
JUL										
30...	0945	1028	9813	.62	340	8.5	94	6.5	6.6	263

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT										
01...	12.2	--	--	--	--	--	--	--	--	--
NOV										
29...	9.40	8.9	9.0	4.5	4.5	9.2	9.3	44	4.0	15
JAN										
30...	6.60	11	15	5.1	5.6	7.1	7.9	.00	12	12
MAR										
26...	4.70	9.8	10	7.3	7.4	7.4	7.6	39	3.0	10
MAY										
28...	14.1	8.6	9.1	6.8	7.1	7.1	7.7	62	3.0	11
JUL										
30...	19.9	20	20	12	13	9.6	9.9	.00	6.0	13

SWATARA CREEK BASIN

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
OCT								
01...	--	--	--	--	--	--	--	--
NOV								
29...	36	4.0	<200	300	120	290	370	380
JAN								
30...	41	4.0	<200	800	110	780	380	420
MAR								
26...	55	14	430	1100	580	920	590	600
MAY								
28...	57	8.0	350	900	550	970	530	560
JUL								
30...	91	4.0	<200	300	100	230	530	550

SWATARA CREEK BASIN

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

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	233	228	230	229	228	228	133	114	125	202	188	194
2	235	231	234	232	228	230	140	133	137	197	189	193
3	239	234	237	234	232	233	142	140	142	197	193	194
4	243	237	240	236	232	234	149	141	143	195	192	193
5	245	242	244	240	234	236	166	142	148	194	191	193
6	244	238	242	238	236	237	156	153	154	194	187	192
7	245	241	242	238	236	237	156	152	154	189	182	185
8	245	243	244	239	237	238	159	144	156	195	188	192
9	247	243	245	240	237	239	144	131	134	194	190	192
10	244	241	243	244	239	240	149	135	144	193	185	190
11	254	241	243	244	239	241	157	149	153	189	152	172
12	244	242	243	245	240	241	168	156	159	179	166	174
13	245	241	243	245	240	243	159	156	158	185	178	181
14	246	150	239	245	239	242	161	132	149	195	185	189
15	171	101	137	243	238	240	145	133	139	191	188	190
16	194	171	185	246	238	241	147	145	146	191	188	189
17	184	128	167	246	240	242	147	130	144	192	189	191
18	196	181	190	249	242	243	133	112	121	194	190	192
19	220	196	202	252	242	245	143	131	139	199	191	194
20	209	205	207	247	230	236	146	143	145	197	188	191
21	215	209	212	237	231	233	149	145	147	191	187	189
22	218	214	216	240	234	237	154	149	152	190	187	188
23	221	217	219	240	236	238	158	154	155	190	186	189
24	223	219	221	245	204	235	159	152	155	187	138	165
25	228	221	224	210	100	140	164	159	162	174	152	167
26	230	226	228	151	109	129	171	164	168	177	169	173
27	230	228	229	151	141	145	174	171	173	176	164	172
28	229	227	228	153	145	147	181	173	174	171	162	167
29	229	225	228	149	140	146	178	175	176	169	163	166
30	228	226	227	141	110	130	192	178	185	170	158	164
31	229	227	228	---	---	---	197	189	193	163	155	159
MONTH	254	101	223	252	100	218	197	112	153	202	138	183

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	156	143	151	202	195	199	165	147	156	170	160	166
2	163	148	158	204	184	200	168	165	167	170	109	139
3	167	162	165	184	110	130	168	165	167	152	134	144
4	166	161	163	152	140	148	171	168	170	158	152	156
5	172	163	167	158	151	155	174	169	171	163	158	161
6	168	166	167	163	157	158	172	169	170	164	162	163
7	169	167	168	164	158	161	174	172	173	165	163	164
8	170	167	169	168	163	166	173	171	172	168	164	166
9	173	170	172	171	150	168	171	150	168	168	144	154
10	174	130	170	154	128	141	156	132	145	163	150	156
11	154	121	137	162	154	160	167	156	162	167	162	165
12	161	154	160	164	158	161	171	167	168	166	149	159
13	164	161	163	160	157	158	171	161	167	153	111	144
14	173	163	166	162	155	159	161	132	156	138	105	126
15	167	165	166	163	161	162	137	92	114	142	138	141
16	166	165	166	163	160	162	130	123	126	145	142	143
17	170	165	167	167	163	165	146	130	135	148	144	146
18	173	170	172	164	133	148	146	139	143	144	81	103
19	175	173	174	161	135	142	151	145	148	132	113	123
20	174	173	174	149	106	131	158	151	154	143	130	137
21	179	171	175	130	111	123	163	157	160	152	143	147
22	183	178	180	147	125	138	167	161	164	159	151	155
23	185	182	184	149	144	147	166	163	164	159	152	156
24	188	185	187	154	149	152	169	164	167	163	156	159
25	190	187	189	158	153	156	170	159	165	163	161	162
26	191	183	189	159	74	143	171	162	167	164	161	162
27	190	183	186	121	80	107	174	170	172	168	164	165
28	196	189	194	141	121	132	172	132	151	172	168	169
29	---	---	---	148	137	142	165	132	153	176	171	173
30	---	---	---	157	147	152	170	159	166	177	167	174
31	---	---	---	167	149	161	---	---	---	177	160	169
MONTH	196	121	171	204	74	152	174	92	159	177	81	153

SWATARA CREEK BASIN

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

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	187	146	165	221	211	214	271	268	269	299	279	290
2	197	187	191	220	215	219	275	270	272	294	285	290
3	200	196	198	231	220	225	279	274	277	317	292	298
4	206	200	203	231	227	230	283	279	281	295	291	294
5	209	202	206	236	230	233	283	261	279	297	293	295
6	208	167	199	237	235	236	273	261	268	297	292	294
7	190	153	175	237	235	236	280	273	277	299	295	297
8	194	189	191	239	236	237	284	280	282	301	297	299
9	201	193	196	241	200	233	291	283	287	305	299	302
10	214	201	205	226	214	219	295	288	291	310	304	306
11	215	206	210	237	226	232	293	289	292	314	306	309
12	216	94	171	241	235	238	298	293	295	314	310	312
13	159	115	144	242	239	240	300	296	298	318	312	315
14	163	101	129	243	240	241	305	299	302	323	316	318
15	142	123	134	242	240	241	308	257	298	325	156	264
16	159	142	150	245	240	242	279	261	273	156	95	117
17	167	159	162	248	237	245	289	279	286	174	144	163
18	171	164	167	249	247	248	296	289	293	185	172	179
19	181	165	174	252	249	251	301	295	298	193	184	188
20	184	179	181	254	251	252	306	299	304	204	192	196
21	189	183	184	257	254	255	309	305	307	213	203	207
22	195	189	191	261	256	258	308	279	303	---	---	---
23	199	194	196	262	162	238	303	278	289	---	---	---
24	204	194	200	239	209	223	296	280	286	---	---	---
25	205	196	199	250	239	245	295	283	290	---	---	---
26	208	200	205	255	250	252	305	294	299	215	170	208
27	211	153	198	256	255	255	306	301	304	170	67	100
28	196	176	186	259	254	256	303	297	301	156	82	123
29	205	196	202	265	258	260	297	254	270	184	156	171
30	212	205	210	268	263	265	286	267	277	200	184	193
31	---	---	---	273	268	270	297	286	292	---	---	---
MONTH	216	94	184	273	162	242	309	254	288	325	67	243
YEAR	325	67	197									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	7.5	7.4	7.5	6.5	6.5	6.5	5.6	5.4	5.5	6.4	6.2	6.3
2	7.4	7.3	7.3	6.5	6.5	6.5	5.7	5.6	5.7	6.3	6.2	6.2
3	7.3	7.2	7.2	6.5	6.5	6.5	5.8	5.7	5.7	6.4	6.3	6.3
4	7.2	7.1	7.2	6.6	6.5	6.5	6.1	5.7	5.8	6.4	6.1	6.3
5	7.1	6.9	7.1	6.6	6.5	6.5	6.6	5.9	6.0	6.1	6.0	6.1
6	6.9	6.7	6.8	6.6	6.5	6.6	6.5	6.3	6.5	6.3	6.0	6.0
7	6.8	6.7	6.7	6.6	6.5	6.5	6.6	6.4	6.5	6.3	6.1	6.1
8	6.7	6.6	6.7	6.6	6.5	6.5	6.8	6.4	6.4	6.1	6.1	6.1
9	6.6	6.6	6.6	6.6	6.5	6.5	6.8	6.4	6.7	6.1	6.0	6.1
10	6.6	6.4	6.5	6.6	6.5	6.5	6.6	6.4	6.5	6.6	6.1	6.1
11	6.7	6.4	6.5	6.6	6.5	6.6	6.4	6.4	6.4	7.3	6.6	6.9
12	6.5	6.4	6.5	6.6	6.5	6.5	6.6	6.4	6.4	7.3	6.7	6.8
13	6.4	6.4	6.4	6.5	6.5	6.5	6.4	6.1	6.4	6.8	6.6	6.6
14	6.5	6.2	6.3	6.5	6.5	6.5	6.7	6.3	6.5	6.9	6.5	6.6
15	6.7	6.4	6.6	6.5	6.5	6.5	6.5	6.1	6.2	7.0	6.8	6.9
16	6.8	6.4	6.7	6.6	6.5	6.5	6.3	6.1	6.2	6.9	6.8	6.9
17	6.6	6.4	6.4	6.6	6.5	6.6	6.6	6.2	6.3	6.8	6.8	6.8
18	6.5	6.4	6.5	6.6	6.5	6.5	6.6	6.2	6.4	6.8	6.6	6.7
19	6.9	6.5	6.5	6.6	6.5	6.6	6.6	6.5	6.5	6.6	6.6	6.6
20	6.6	6.5	6.6	6.6	6.4	6.4	6.7	6.1	6.3	6.8	6.5	6.6
21	6.7	6.5	6.6	6.5	6.4	6.5	6.3	6.1	6.1	6.5	6.5	6.5
22	6.8	6.6	6.6	6.5	6.5	6.5	6.4	6.1	6.3	6.5	6.4	6.5
23	6.8	6.6	6.6	6.5	6.5	6.5	6.2	6.1	6.1	6.4	6.3	6.4
24	6.9	6.7	6.8	6.5	6.4	6.5	6.2	6.2	6.2	6.9	6.4	6.6
25	6.9	6.5	6.6	6.8	5.0	6.5	6.2	6.1	6.1	7.4	6.4	7.0
26	6.6	6.5	6.5	5.8	5.2	5.6	6.6	6.1	6.1	7.2	6.8	6.9
27	6.5	6.5	6.5	6.0	5.8	5.9	6.6	6.4	6.5	7.4	7.1	7.2
28	6.5	6.5	6.5	6.1	6.0	6.0	6.6	6.3	6.5	7.4	7.3	7.3
29	6.5	6.5	6.5	6.1	5.9	5.9	6.5	6.4	6.4	7.4	7.2	7.3
30	6.5	6.5	6.5	5.9	5.4	5.9	6.6	6.2	6.4	7.4	7.3	7.4
31	6.5	6.5	6.5	---	---	---	6.5	6.2	6.3	7.5	7.3	7.4
MAX	7.5	7.4	7.5	6.8	6.5	6.6	6.8	6.5	6.7	7.5	7.3	7.4
MIN	6.4	6.2	6.3	5.8	5.0	5.6	5.6	5.4	5.5	6.1	6.0	6.0

SWATARA CREEK BASIN

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

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.4	7.0	7.3	6.8	6.5	6.7	5.4	5.3	5.4	5.2	5.1	5.1
2	7.2	7.0	7.1	6.9	6.6	6.7	5.9	5.4	5.5	5.6	4.8	5.1
3	7.3	7.1	7.1	7.0	6.3	6.5	6.3	5.8	6.1	5.6	5.2	5.4
4	7.1	6.8	7.1	6.6	6.5	6.5	6.3	6.2	6.3	5.4	5.3	5.4
5	7.2	6.6	7.1	6.7	6.5	6.6	6.7	6.2	6.6	5.4	5.2	5.2
6	7.1	6.9	7.0	7.2	6.6	6.7	6.7	6.6	6.6	5.4	5.2	5.4
7	7.2	6.9	7.1	7.2	7.0	7.1	6.6	6.5	6.5	5.5	5.4	5.4
8	7.1	6.8	6.8	7.0	6.9	7.0	6.5	6.2	6.4	6.1	5.4	5.6
9	6.8	6.7	6.7	7.0	6.9	7.0	6.2	6.1	6.2	5.8	5.6	5.7
10	6.9	6.6	6.7	6.9	6.3	6.4	6.1	5.9	6.0	6.0	5.7	5.8
11	7.2	6.5	6.9	6.6	6.5	6.6	---	---	---	5.9	5.5	5.7
12	7.1	6.4	6.5	6.7	6.4	6.6	---	---	---	5.5	5.5	5.5
13	6.5	6.4	6.5	6.9	6.7	6.8	---	---	---	5.7	5.5	5.5
14	6.9	6.4	6.6	7.1	6.8	7.0	---	---	---	5.6	5.3	5.4
15	6.7	6.5	6.5	7.2	7.0	7.1	---	---	---	5.4	5.4	5.4
16	6.6	6.4	6.5	7.2	7.1	7.2	---	---	---	5.5	5.4	5.4
17	6.5	6.4	6.5	7.2	7.1	7.1	---	---	---	5.4	5.4	5.4
18	6.4	6.2	6.4	7.1	6.8	7.0	---	---	---	5.9	5.1	5.2
19	6.3	6.1	6.2	7.3	6.8	6.8	---	---	---	5.3	5.2	5.3
20	6.2	6.1	6.2	7.3	6.4	7.2	---	---	---	5.3	5.2	5.2
21	7.2	6.2	6.2	6.5	6.1	6.3	---	---	---	5.3	5.3	5.3
22	7.2	7.0	7.1	6.2	6.1	6.2	---	---	---	5.3	5.3	5.3
23	7.1	6.8	7.0	6.1	6.0	6.1	5.9	5.8	5.8	5.3	5.3	5.3
24	6.9	6.7	6.8	6.0	6.0	6.0	5.9	5.7	5.8	5.3	5.2	5.3
25	6.9	6.7	6.8	6.0	6.0	6.0	5.8	5.6	5.7	5.3	5.2	5.2
26	6.9	6.7	6.8	6.1	5.0	6.0	5.7	5.6	5.6	5.3	5.3	5.3
27	6.9	6.7	6.8	5.3	5.0	5.3	5.7	5.6	5.6	5.3	5.3	5.3
28	6.8	6.6	6.7	5.3	5.3	5.3	5.6	5.3	5.5	5.4	5.3	5.4
29	---	---	---	5.3	5.3	5.3	5.3	5.2	5.2	5.5	5.4	5.4
30	---	---	---	5.3	5.3	5.3	5.3	5.2	5.3	5.5	5.3	5.4
31	---	---	---	5.4	5.3	5.4	---	---	---	5.4	5.4	5.4
MAX	7.4	7.1	7.3	7.3	7.1	7.2	6.7	6.6	6.6	6.1	5.7	5.8
MIN	6.2	6.1	6.2	5.3	5.0	5.3	5.3	5.2	5.2	5.2	4.8	5.1

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	5.4	5.4	5.4	6.8	6.5	6.5	6.7	6.6	6.6	6.9	6.5	6.6
2	5.5	5.4	5.5	6.6	6.5	6.5	6.6	6.5	6.6	6.6	6.5	6.6
3	5.6	5.5	5.6	6.6	6.4	6.5	6.7	6.6	6.6	6.9	6.6	6.7
4	5.7	5.6	5.7	6.6	6.5	6.5	6.7	6.6	6.6	6.8	6.7	6.7
5	5.8	5.7	5.8	6.6	6.5	6.6	6.7	6.4	6.6	6.8	6.7	6.8
6	5.9	5.8	5.9	6.6	6.5	6.6	6.6	6.4	6.6	6.8	6.7	6.8
7	6.5	5.6	5.9	6.6	6.5	6.5	6.6	6.6	6.6	6.8	6.8	6.8
8	6.6	6.5	6.6	6.6	6.5	6.5	6.6	6.5	6.6	6.9	6.8	6.8
9	6.6	6.6	6.6	6.6	6.5	6.5	6.7	6.6	6.6	6.9	6.8	6.9
10	6.8	6.6	6.7	6.6	6.5	6.6	6.7	6.6	6.6	6.9	6.9	6.9
11	7.1	6.7	6.7	6.5	6.5	6.5	6.7	6.6	6.7	6.9	6.8	6.9
12	6.8	4.9	6.7	6.5	6.4	6.5	6.8	6.7	6.7	6.9	6.8	6.8
13	7.0	6.2	6.8	6.5	6.4	6.4	6.8	6.7	6.7	6.9	6.8	6.8
14	7.1	6.0	6.3	6.4	6.4	6.4	6.8	6.7	6.8	6.9	6.8	6.9
15	6.7	6.3	6.5	6.5	6.4	6.4	6.8	6.4	6.8	6.9	6.2	6.6
16	6.8	6.7	6.7	6.5	6.5	6.5	6.7	6.4	6.6	6.5	5.4	6.0
17	6.8	6.6	6.7	6.5	6.3	6.4	6.7	6.6	6.7	6.8	6.5	6.8
18	6.8	6.6	6.7	6.4	6.3	6.4	6.8	6.7	6.7	6.9	6.8	6.9
19	7.6	6.8	7.5	6.5	6.3	6.4	6.8	6.7	6.8	6.9	6.8	6.9
20	7.6	7.5	7.5	6.5	6.4	6.5	6.8	6.8	6.8	6.9	6.9	6.9
21	7.5	7.3	7.4	6.5	6.4	6.5	6.8	6.8	6.8	6.9	6.7	6.8
22	7.4	7.3	7.3	6.6	6.4	6.5	6.9	6.6	6.9	---	---	---
23	7.4	7.3	7.3	6.6	5.9	6.5	6.7	6.6	6.7	---	---	---
24	7.3	7.2	7.3	6.5	6.3	6.5	6.7	6.5	6.6	---	---	---
25	7.3	7.2	7.2	6.5	6.4	6.5	6.7	6.6	6.6	---	---	---
26	7.2	7.1	7.2	6.6	6.5	6.5	6.7	6.7	6.7	6.8	6.7	6.7
27	7.1	6.8	7.0	6.6	6.5	6.5	6.8	6.7	6.7	6.8	5.4	6.0
28	6.8	6.5	6.6	6.5	6.4	6.5	6.8	6.7	6.8	6.6	5.4	6.1
29	6.6	6.5	6.6	6.5	6.5	6.5	6.7	6.4	6.5	6.8	6.6	6.7
30	6.6	6.5	6.5	6.6	6.5	6.5	6.6	6.5	6.6	6.8	6.8	6.8
31	---	---	---	6.6	6.5	6.6	6.6	6.5	6.6	---	---	---
MAX	7.6	7.5	7.5	6.8	6.5	6.6	6.9	6.8	6.9	6.9	6.9	6.9
MIN	5.4	4.9	5.4	6.4	5.9	6.4	6.6	6.4	6.5	6.5	5.4	6.0

YEAR			
	MAX	MAXIMUM 7.6	MINIMUM 5.2
	MIN	MAXIMUM 7.5	MINIMUM 4.8
	MEDIAN	MAXIMUM 7.5	MINIMUM 5.1

SWATARA CREEK BASIN

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

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	12.5	10.0	11.0	10.0	6.0	8.0	11.5	8.0	10.0	0.0	0.0	0.0
2	14.0	10.0	12.0	12.0	8.5	10.5	8.5	6.0	7.5	0.5	0.0	0.0
3	15.0	11.5	13.5	12.5	9.0	11.0	7.0	5.0	6.0	0.0	0.0	0.0
4	15.5	12.0	14.0	10.5	7.5	9.0	8.0	5.0	6.5	0.5	0.0	0.5
5	15.0	12.0	13.5	8.5	6.0	7.5	10.0	7.5	9.0	1.0	0.5	0.5
6	14.0	11.0	13.0	8.0	5.5	6.5	10.0	8.0	9.0	1.5	0.0	0.5
7	11.0	8.5	9.5	9.5	6.0	7.5	10.0	7.0	9.0	1.0	0.0	0.5
8	9.0	6.5	8.0	9.5	6.0	8.0	7.0	4.5	5.5	1.0	0.0	0.5
9	9.0	5.0	7.0	9.0	6.0	7.5	6.0	4.0	5.5	1.5	0.0	1.0
10	10.5	7.0	8.5	8.0	5.0	6.5	5.0	3.0	4.0	3.0	1.5	2.0
11	12.0	8.0	10.0	7.5	4.5	6.5	7.0	4.5	5.5	2.5	2.0	2.5
12	13.0	10.0	11.5	6.0	3.0	4.5	6.0	3.5	4.5	3.5	2.0	2.5
13	15.0	11.5	13.5	6.0	2.5	4.5	8.0	6.0	7.0	3.0	1.5	2.5
14	14.5	13.0	14.0	6.5	3.0	5.0	9.0	8.0	8.5	3.0	1.0	2.0
15	14.0	10.5	12.5	9.0	5.5	7.0	9.0	4.5	6.5	3.5	2.5	3.0
16	12.0	8.5	10.5	9.5	6.5	8.0	5.0	3.0	4.5	3.0	2.0	2.5
17	10.0	8.0	9.5	8.0	5.5	7.0	6.5	5.0	5.5	3.5	1.5	2.5
18	9.5	6.0	8.0	7.5	5.0	6.0	7.0	5.5	6.5	2.0	0.0	1.5
19	10.0	6.0	8.0	7.0	5.0	6.0	6.5	5.5	6.0	0.5	0.0	0.0
20	12.0	8.0	10.0	7.0	4.0	6.0	5.5	4.0	5.0	0.5	0.0	0.5
21	12.0	8.0	10.0	5.0	3.0	4.0	4.5	3.0	4.0	1.5	0.0	1.0
22	13.0	10.0	11.5	5.5	2.5	4.0	3.5	2.5	3.0	3.0	1.0	2.0
23	13.0	10.5	12.0	6.0	3.0	4.5	5.0	2.5	3.5	3.5	1.0	2.5
24	15.5	12.0	13.5	9.0	5.0	6.5	5.0	2.5	4.0	3.5	2.5	3.0
25	14.5	11.0	13.0	11.0	9.0	10.0	2.5	1.5	2.0	3.5	2.0	3.0
26	11.0	7.5	9.0	9.5	8.0	9.0	1.5	0.0	1.0	4.0	1.5	2.5
27	8.5	7.0	7.5	9.0	7.0	8.0	1.0	0.0	0.5	4.5	1.5	3.0
28	8.0	5.5	7.0	10.0	8.5	9.5	2.0	0.0	1.0	5.5	2.5	4.0
29	8.0	4.0	6.5	9.5	9.5	9.5	2.0	0.0	1.0	7.0	3.5	5.0
30	9.0	6.5	7.5	12.0	9.5	11.0	0.5	0.0	0.0	7.5	6.0	7.0
31	8.0	6.5	7.0	---	---	---	0.0	0.0	0.0	6.0	5.0	5.0
MONTH	15.5	4.0	10.4	12.5	2.5	7.3	11.5	0.0	4.9	7.5	0.0	2.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	6.0	4.0	5.0	4.0	0.0	1.5	10.0	6.5	8.0	12.0	7.0	9.5
2	4.0	2.0	3.0	4.5	0.5	2.5	9.5	6.0	7.5	11.5	9.0	10.0
3	3.5	1.5	2.5	7.0	3.5	5.5	10.5	6.0	8.0	11.0	8.5	9.5
4	3.5	0.0	2.0	3.5	0.0	2.0	8.0	5.0	6.0	11.5	7.0	9.0
5	0.5	0.0	0.5	1.5	0.0	0.5	6.5	4.0	5.0	12.5	8.0	10.0
6	2.5	0.5	1.5	5.0	0.5	3.0	7.0	4.0	5.0	13.0	9.0	11.0
7	4.0	2.0	3.0	6.0	2.5	4.5	8.0	3.0	5.0	14.0	11.0	12.5
8	5.0	2.0	3.0	7.5	3.0	5.5	9.0	5.5	6.5	14.0	11.0	12.5
9	5.0	2.0	3.5	9.0	5.5	7.5	10.5	8.0	9.0	12.5	10.5	11.0
10	6.0	3.5	4.5	9.0	2.0	5.0	11.5	8.0	9.5	13.5	10.5	11.5
11	6.0	1.0	3.5	4.5	1.5	2.5	11.5	6.0	8.5	13.0	9.5	11.0
12	3.0	0.5	2.0	6.0	2.5	4.0	9.0	6.5	8.0	12.0	10.5	11.5
13	3.5	0.5	2.5	5.5	4.0	5.0	11.5	9.0	10.0	12.0	11.5	12.0
14	2.0	0.0	1.0	9.5	5.0	7.0	13.5	9.0	11.5	11.5	9.0	10.5
15	4.0	0.5	2.5	9.0	6.5	7.5	14.5	11.0	12.5	12.0	8.5	10.0
16	5.5	3.0	4.0	9.0	5.0	8.0	15.5	11.0	13.0	13.5	8.5	11.0
17	4.5	2.0	3.5	5.0	3.0	4.0	16.5	11.5	13.5	14.5	11.5	12.5
18	3.5	1.0	2.0	4.5	2.5	4.0	16.0	12.5	13.5	11.5	9.0	10.0
19	4.5	0.5	2.5	6.0	4.0	5.0	17.0	12.0	14.0	10.5	8.5	9.0
20	6.0	3.5	5.0	5.0	2.5	4.0	13.0	11.0	12.5	9.5	8.0	9.0
21	7.5	5.5	6.5	7.0	4.0	5.0	11.0	8.5	9.5	10.0	7.5	8.5
22	6.0	4.0	5.0	4.5	2.5	3.5	10.5	8.0	9.0	11.0	7.0	9.0
23	5.5	2.0	3.5	6.0	2.0	4.0	10.5	6.5	8.5	12.5	8.0	10.0
24	5.0	1.0	3.0	6.5	3.5	5.5	11.5	5.5	8.5	14.0	9.5	12.0
25	6.0	2.0	4.0	5.5	5.0	5.0	9.0	7.0	8.0	13.0	10.5	12.0
26	7.0	3.0	5.0	5.0	4.5	4.5	11.0	6.0	8.5	13.5	11.5	12.0
27	4.5	1.0	3.0	6.0	4.5	5.5	11.5	6.0	8.5	14.5	12.0	13.0
28	4.0	0.5	1.5	7.5	4.5	6.0	11.0	9.0	10.0	15.0	12.5	13.5
29	---	---	---	9.0	5.5	7.0	10.5	7.5	9.0	15.5	13.0	14.0
30	---	---	---	10.0	7.5	8.5	10.0	7.0	8.5	16.5	13.0	14.5
31	---	---	---	9.5	7.5	8.5	---	---	---	17.0	13.5	15.0
MONTH	7.5	0.0	3.2	10.0	0.0	4.9	17.0	3.0	9.2	17.0	7.0	11.2

SWATARA CREEK BASIN

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

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	17.0	14.0	15.5	19.5	16.0	18.0	22.0	19.5	21.0	17.0	16.0	16.0
2	16.0	13.5	14.5	21.0	17.0	19.0	22.5	19.0	21.0	17.5	16.0	16.5
3	14.5	11.5	13.0	22.0	18.5	20.0	22.5	19.5	21.0	19.0	15.0	17.0
4	14.0	11.5	13.0	22.5	18.5	20.5	22.5	19.5	21.0	20.0	17.5	18.5
5	17.0	13.5	15.0	20.5	18.0	19.0	21.5	19.5	20.5	18.5	16.0	17.0
6	15.5	14.0	15.0	19.0	16.0	17.5	20.5	17.0	19.0	18.0	14.5	16.0
7	15.0	13.0	14.0	18.5	15.0	16.5	18.0	15.0	16.5	18.0	14.0	16.0
8	15.0	12.5	13.5	19.5	15.0	17.5	18.0	14.5	16.5	18.0	13.5	16.0
9	17.0	12.5	14.5	20.0	16.5	18.5	18.5	14.5	17.0	19.0	13.5	16.5
10	17.0	14.0	15.5	19.5	16.5	18.5	19.0	15.0	17.5	19.5	15.5	17.0
11	18.5	14.5	16.5	17.5	14.0	16.0	20.0	16.5	18.5	17.5	15.5	16.5
12	20.0	15.5	17.0	17.5	13.0	15.5	21.0	17.5	19.5	16.5	13.5	15.0
13	17.5	15.5	16.0	17.5	13.5	15.5	22.0	18.5	20.0	17.0	11.5	14.5
14	15.5	14.0	14.5	17.0	16.0	16.5	22.5	19.0	20.5	18.0	13.5	16.0
15	14.5	13.5	14.0	19.5	15.5	17.5	23.0	19.5	21.0	18.5	17.5	18.0
16	15.5	13.0	14.0	19.5	16.5	18.0	21.5	19.5	20.5	19.5	17.0	19.0
17	15.5	12.5	14.0	20.5	15.5	18.0	22.5	19.5	21.0	18.0	15.0	16.5
18	15.0	11.5	13.5	20.0	18.0	19.0	22.5	20.0	21.0	17.0	14.5	16.0
19	16.0	13.0	14.5	21.0	18.0	19.5	22.0	19.5	21.0	16.5	15.0	15.5
20	17.0	13.5	15.5	20.5	18.0	19.5	21.5	18.5	20.5	18.0	16.0	17.0
21	17.5	14.0	16.0	20.0	17.5	19.0	20.5	17.0	19.0	18.5	17.5	18.0
22	18.0	14.0	16.0	21.5	18.0	20.0	22.0	18.5	20.0	---	---	---
23	19.0	15.0	17.0	22.0	19.0	20.5	21.0	20.0	20.5	---	---	---
24	19.5	16.0	17.5	20.0	17.5	19.0	20.0	19.5	19.5	---	---	---
25	20.0	16.5	18.0	19.0	18.0	18.5	20.5	18.5	19.5	---	---	---
26	20.0	17.0	18.5	18.0	17.0	17.5	19.5	16.5	18.0	14.5	13.5	14.0
27	20.0	17.0	18.5	18.5	17.0	17.5	19.5	16.5	18.5	17.5	13.0	14.5
28	19.5	17.0	18.0	21.0	17.5	19.0	18.5	17.0	18.0	16.5	14.0	15.5
29	19.0	15.5	17.5	22.0	19.0	20.5	17.0	16.0	16.5	14.5	11.5	13.0
30	19.5	16.0	17.5	21.5	19.5	20.5	17.0	16.0	16.5	15.0	12.5	13.5
31	---	---	---	21.5	18.5	20.0	18.0	15.0	16.5	---	---	---
MONTH	20.0	11.5	15.6	22.5	13.0	18.5	23.0	14.5	19.3	20.0	11.5	16.1
YEAR	23.0	0.0	10.2									

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA
(Swatara Creek Project)

LOCATION.--Lat 40°35'42", long 76°26'32", Schuylkill County, Hydrologic Unit 02050305, on left bank above weir, 350 ft downstream from drainage tunnel. Located on Schuylkill County property.

DRAINAGE AREA.--Indeterminate.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 2000 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,000 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Outflow is from mine drainage tunnel and is regulated by mining activity. Other data for this project presented in tables on pages 350-412.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	2.4	e1.8	3.2	3.6	3.8	11	8.7	7.3	2.4	2.4	0.87
2	1.3	0.90	e1.1	4.4	3.2	3.2	12	10	8.0	4.2	2.0	1.4
3	2.7	0.89	e1.2	2.9	4.9	5.0	9.8	9.4	7.2	2.7	0.93	1.9
4	1.4	2.3	e1.8	3.3	3.7	3.4	10	11	6.2	2.7	2.5	0.87
5	1.2	0.78	e0.90	4.2	3.4	3.3	9.9	11	7.6	4.0	1.4	1.1
6	2.7	0.85	e1.3	2.8	5.0	5.0	8.6	11	5.7	2.3	0.88	1.7
7	1.1	2.3	e1.9	3.4	3.5	3.6	10	12	6.3	3.2	2.5	0.75
8	1.2	0.75	e1.5	3.8	3.7	4.0	8.4	10	6.2	3.3	0.98	1.2
9	2.4	0.86	e2.7	2.6	4.8	4.5	8.3	11	4.9	1.9	1.0	1.6
10	1.1	2.3	e2.4	3.4	3.9	3.6	8.7	11	6.4	3.1	2.5	0.76
11	1.4	0.75	e1.5	3.5	4.5	4.3	7.1	10	4.9	2.3	1.1	1.2
12	2.1	0.91	e2.0	2.5	4.8	4.0	8.5	8.9	4.6	1.8	1.5	1.4
13	0.88	1.9	e2.6	3.6	3.8	3.4	7.2	10	5.7	3.6	2.6	0.59
14	1.5	0.75	e2.7	2.7	4.7	4.6	7.1	8.7	5.5	1.8	1.2	1.1
15	2.1	0.97	e3.3	2.4	4.5	3.6	8.0	8.7	4.2	2.3	1.7	1.4
16	0.95	1.8	e3.2	3.5	4.2	3.4	6.7	9.3	5.4	3.1	2.3	0.81
17	1.6	0.64	e2.0	3.3	5.4	4.9	8.6	8.1	4.3	1.8	1.2	1.2
18	1.7	0.88	e3.6	2.0	4.4	3.1	8.6	10	3.9	2.7	1.8	1.4
19	0.88	1.6	2.7	2.5	4.2	4.0	8.9	10	5.2	2.5	1.9	0.68
20	1.7	0.64	2.0	3.3	5.9	4.7	10	12	3.4	1.6	0.99	1.3
21	1.6	0.93	3.2	1.9	4.2	4.1	8.9	14	4.4	3.0	1.5	1.5
22	0.88	1.7	3.1	2.5	4.7	5.1	9.8	13	4.4	2.0	1.3	0.69
23	1.9	0.59	2.8	2.9	5.4	6.1	9.6	14	3.4	1.6	0.78	1.5
24	1.4	0.91	4.2	2.1	4.0	6.3	10	13	4.7	3.4	1.6	1.5
25	0.77	1.7	3.5	2.9	4.7	8.6	9.2	12	3.3	1.6	1.2	0.67
26	1.7	0.71	3.0	2.8	4.8	7.7	9.1	13	3.5	1.9	0.75	1.3
27	1.2	1.1	4.6	2.1	3.9	8.0	9.7	10	4.4	3.0	1.7	1.9
28	0.78	e1.8	3.3	3.3	4.6	10	8.3	11	2.8	1.5	1.1	1.5
29	2.0	e0.80	3.3	3.1	---	11	9.5	9.9	3.9	1.9	0.75	1.9
30	0.97	e1.4	4.9	2.5	---	13	8.6	9.1	3.5	2.3	1.8	1.7
31	0.88	---	3.0	4.0	---	12	---	9.6	---	1.2	1.0	---
TOTAL	46.19	36.81	81.10	93.4	122.4	171.3	270.1	329.4	151.2	76.7	46.86	37.39
MEAN	1.49	1.23	2.62	3.01	4.37	5.53	9.00	10.6	5.04	2.47	1.51	1.25
MAX	2.7	2.4	4.9	4.4	5.9	13	12	14	8.0	4.2	2.6	1.9
MIN	0.77	0.59	0.90	1.9	3.2	3.1	6.7	8.1	2.8	1.2	0.75	0.59

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2002, BY WATER YEAR (WY)

MEAN	2.11	1.83	4.95	3.55	4.43	6.00	9.07	7.64	4.69	3.41	2.00	1.78
MAX	2.74	2.43	7.29	4.10	4.49	6.47	9.13	10.6	5.04	4.35	2.49	2.08
(WY)	2001	2001	2001	2001	2001	2001	2001	2002	2002	2001	2001	2000
MIN	1.49	1.23	2.62	3.01	4.37	5.53	9.00	4.65	4.34	2.47	1.51	1.25
(WY)	2002	2002	2002	2002	2002	2002	2002	2001	2001	2002	2002	2002

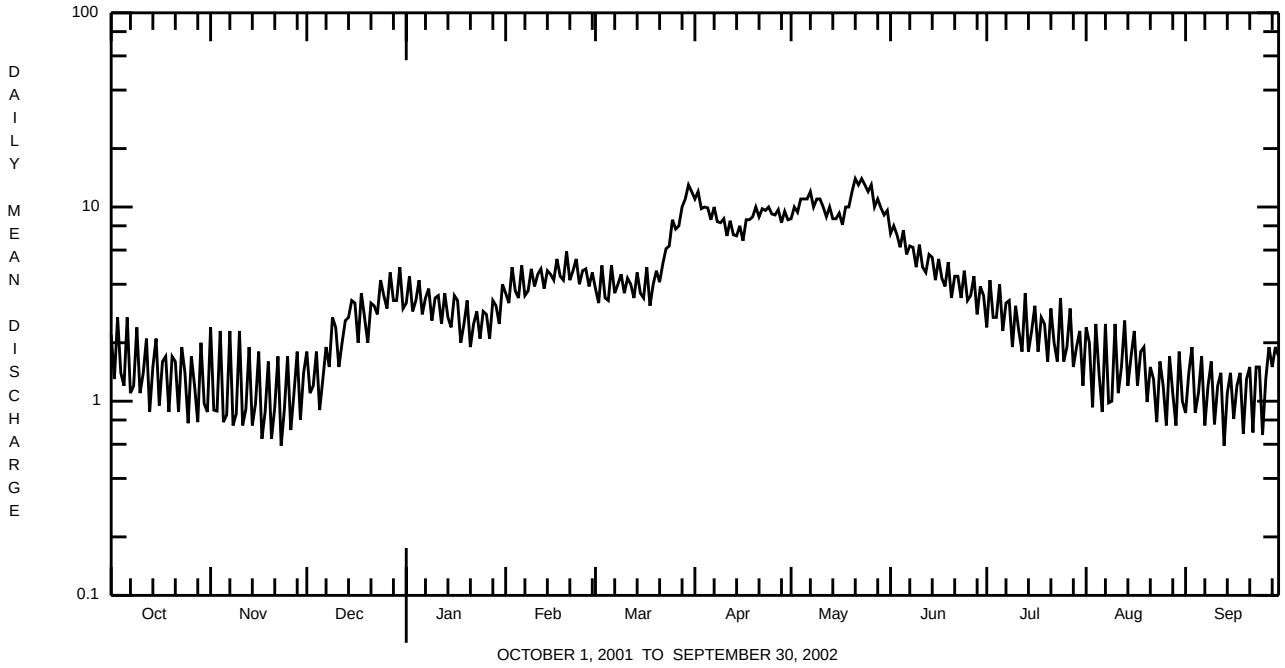
e Estimated.

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 2000 - 2002	
ANNUAL TOTAL	1438.50		1462.85			
ANNUAL MEAN	3.94		4.01		4.28	
HIGHEST ANNUAL MEAN					4.54	2001
LOWEST ANNUAL MEAN					4.01	2002
HIGHEST DAILY MEAN	11	Apr 4	14	May 21,23	19	Dec 19 2000
LOWEST DAILY MEAN	0.59	Nov 23	0.59	Nov 23**a**	0.59	Nov 23 2001**a**
ANNUAL SEVEN-DAY MINIMUM	1.00	Nov 17	1.00	Nov 17	1.00	Nov 17 2001
MAXIMUM PEAK FLOW			14	Mar 30**b**	20	Dec 20 2000
MAXIMUM PEAK STAGE			1.74	May 21	1.99	Dec 20 2000
INSTANTANEOUS LOW FLOW			0.59	Nov 17**c**	0.59	Nov 17 2001**c**
10 PERCENT EXCEEDS	7.9		9.6		9.0	
50 PERCENT EXCEEDS	3.2		3.1		3.3	
90 PERCENT EXCEEDS	1.3		0.92		1.4	

a Also Sept. 13, 2002.
b Also May 20, 21, 23, 24.
c Also Nov. 18, 20-24, 2001, Sept. 12-15, 19, 2002.



SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued
(Swatara Creek Project)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1996 to current year.
PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1999 to current year.
pH: April 1999 to current year.
WATER TEMPERATURE: April 1999 to current year.
INSTRUMENTATION.--Water-quality monitor (in situ system).
REMARKS.--Specific conductance records rated fair. pH records rated fair except for periods Oct. 1 to Nov. 6, Jan. 8 to Feb. 4, and Sept. 12-30, which are poor. The pH probe is subject to fowling from precipitation of iron, adhesion of lime on electrodes, and occasional burial by sediment. Water temperature records rated good. Interruptions in the record were due to malfunctions of the instrumentation. Some values for "*dissolved*" parameters exceed values for the corresponding "*total*" parameter. These results are within the limits of analytical precision and methods. Instantaneous discharge data provided by the Pottsville Mining office of the Pennsylvania Department of Environmental Protection. Other data for this project presented in tables on pages 350-412. Figure 9 shows the location of sites sampled as part of the Swatara Creek Project. Abbreviations used: E, estimated.
EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 904 microsiemens, Sept. 28, 2002; minimum, 141 microsiemens, Aug. 13, 1999.
pH: Maximum, 7.0, June 26, 27, 1999; minimum, 3.4, Sept. 8, 17, 1999.
WATER TEMPERATURE: Maximum, 14.5°C, Sept. 30, 1999; minimum, 10.0°C, Dec. 17, 2000.
EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 904 microsiemens, Sept. 28; minimum, 230 microsiemens, Sept. 16.
pH: Maximum, 6.6, Oct. 23, 26, 31; minimum, 3.5, Sept. 12, 26.
WATER TEMPERATURE: Maximum, 13.5°C, Sept. 27; minimum 10.5°C, Oct. 28, 29, Nov. 11, 12, 20, 21, 23.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
28...	1530	1028	930	2.1	630	8.1	76	4.0	3.8	476
DEC										
18...	1530	1028	930	3.8	570	10	98	4.8	3.8	399
JAN										
08...	1115	1028	930	4.5	440	9.6	89	5.5	4.7	326
24...	1430	1028	930	2.3	--	--	--	5.8	6.4	266
24...	1530	1028	930	2.3	--	--	--	5.8	6.4	267
24...	1730	1028	930	2.3	--	--	--	5.8	6.3	266
24...	1930	1028	930	1.9	--	--	--	5.8	6.0	271
24...	2130	1028	930	1.9	--	--	--	5.8	5.8	280
24...	2330	1028	930	1.9	--	--	--	5.8	5.9	284
25...	0130	1028	930	1.9	--	--	--	5.8	6.1	284
25...	0330	1028	930	1.9	--	--	--	5.8	5.9	284
25...	0530	1028	930	1.9	--	--	--	5.8	5.9	284
25...	0730	1028	930	1.9	--	--	--	6.0	5.9	284
25...	0930	1028	930	1.9	--	--	--	6.0	6.1	285
25...	1130	1028	930	1.9	--	--	--	6.0	5.9	287
29...	1730	1028	930	2.4	270	9.6	89	5.7	5.7	302
FEB										
10...	1200	1028	930	3.8	--	--	--	6.3	6.5	286
10...	2000	1028	930	4.0	--	--	--	6.3	6.1	282
11...	1400	1028	930	3.8	--	--	--	6.3	6.2	287
11...	1600	1028	930	5.4	--	--	--	5.3	4.3	356
11...	2000	1028	930	5.6	--	--	--	5.4	4.4	348
MAR										
02...	1300	1028	930	3.2	--	--	--	6.1	6.1	267
02...	2300	1028	930	3.6	--	--	--	6.1	6.2	263
03...	0500	1028	930	5.4	--	--	--	5.8	4.6	297
04...	0100	1028	930	5.1	--	--	--	5.2	6.0	324
04...	0700	1028	930	3.2	--	--	--	5.3	6.3	301
11...	0500	1028	930	3.8	--	--	--	6.5	4.2	296
11...	0830	1028	930	3.8	--	--	--	6.5	4.1	298
11...	1200	1028	930	4.2	--	--	--	6.5	4.7	299
11...	1530	1028	930	4.9	--	--	--	5.5	5.2	361
12...	0530	1028	930	4.9	--	--	--	5.9	6.2	337
12...	0900	1028	930	4.9	--	--	--	6.0	6.0	336
12...	1245	1028	930	3.2	--	--	--	6.4	6.2	298
12...	1615	1028	930	3.2	--	--	--	6.5	6.2	296
13...	0245	1028	930	3.2	--	--	--	6.5	6.2	295
13...	1600	1028	930	3.6	400	9.8	90	6.4	4.1	293
APR										
13...	0100	1028	930	8.7	--	--	--	5.6	5.5	314
13...	0400	1028	930	8.7	--	--	--	5.6	5.5	314
13...	0700	1028	930	6.8	--	--	--	6.0	5.7	285
14...	1300	1028	930	6.6	--	--	--	6.0	4.5	284
14...	1900	1028	930	8.4	--	--	--	5.3	4.6	331
23...	1445	1028	930	10	430	9.1	85	5.7	4.4	309
MAY										
29...	1530	1028	930	9.0	440	9.2	86	5.5	5.1	287
JUN										
19...	1530	1028	930	5.6	440	10	97	5.5	4.1	320
JUL										
31...	1500	1028	930	1.2	120	9.0	84	6.1	5.5	301
AUG										
19...	1430	1028	930	1.0	--	9.7	91	4.9	4.7	343

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
28...	12.5	22	21	34	32	1.5	1.5	3.7	3.5	12
DEC										
18...	12.0	20	20	32	31	1.4	1.5	4.0	4.0	26
JAN										
08...	11.9	18	17	26	25	1.5	1.4	3.8	3.5	<5.0
24...	11.7	14	14	21	21	1.1	1.3	3.5	3.6	--
24...	11.7	14	14	21	20	1.1	1.2	3.6	3.4	--
24...	11.7	14	13	22	20	1.3	1.2	3.8	3.6	--
24...	11.7	14	13	23	23	1.1	1.2	3.7	3.6	--
24...	11.6	14	13	24	23	1.3	1.2	3.9	3.7	--
24...	11.6	14	14	24	23	1.2	1.2	3.9	3.7	--
25...	11.5	14	14	23	22	1.2	1.5	3.8	3.7	--
25...	11.4	14	13	23	23	1.2	1.2	3.8	3.7	--
25...	11.3	14	14	23	23	1.1	1.2	3.8	3.7	--
25...	11.2	14	14	24	22	1.2	1.2	3.8	3.7	--
25...	11.4	14	14	23	23	1.1	1.2	3.7	3.6	--
25...	11.3	15	14	24	23	1.2	1.2	3.9	3.7	--
29...	11.9	13	12	24	23	1.2	1.2	3.7	3.6	--
FEB										
10...	11.8	14	13	19	18	1.2	1.2	3.5	3.4	--
10...	11.9	13	12	19	18	1.1	1.1	3.5	3.4	--
11...	11.5	12	12	20	19	1.3	1.1	3.6	3.5	--
11...	11.9	17	16	25	24	1.4	1.4	3.7	3.7	110
11...	11.9	17	16	24	23	1.4	1.3	3.7	3.5	110
MAR										
02...	11.7	13	13	19	19	1.2	1.3	3.7	3.7	--
02...	11.7	13	13	19	18	1.3	1.2	3.6	3.6	--
03...	12.1	18	18	26	25	1.5	1.4	3.8	3.7	24
04...	12.0	13	13	21	21	1.2	1.3	3.7	3.8	--
04...	11.3	15	15	19	18	1.3	1.2	3.4	3.5	--
11...	11.4	17	16	26	25	1.3	1.3	3.6	3.6	27
11...	11.5	16	16	26	25	1.3	1.3	3.5	3.5	29
11...	11.6	16	16	25	24	1.2	1.4	3.4	3.4	15
11...	12.0	16	15	24	23	1.3	1.3	3.3	3.3	21
12...	12.1	12	12	21	20	1.2	1.1	3.5	3.5	--
12...	12.1	12	12	20	20	1.1	1.1	3.5	3.5	--
12...	11.9	12	12	21	20	1.1	1.1	3.5	3.5	--
12...	11.9	12	12	20	19	1.1	1.1	3.5	3.5	--
13...	11.8	12	12	20	20	1.1	1.1	3.5	3.4	--
13...	11.8	16	16	25	24	1.4	1.4	3.8	3.7	<5.0
APR										
13...	12.2	11	11	20	19	1.1	1.1	3.4	3.3	6.8
13...	12.2	11	11	20	20	1.1	1.1	3.3	3.3	6.7
13...	12.0	11	11	20	19	1.1	1.1	3.3	3.2	5.3
14...	12.1	15	14	25	25	1.3	1.2	3.4	3.3	18
14...	12.2	15	14	24	23	1.2	1.2	3.4	3.2	14
23...	12.0	13	13	23	22	1.2	1.2	3.8	3.6	19
MAY										
29...	11.9	10	9.6	20	19	1.1	1.1	3.2	3.0	11
JUN										
19...	12.4	15	15	24	23	1.3	1.3	3.3	3.1	23
JUL										
31...	12.3	12	12	21	21	1.0	1.2	3.6	3.6	19
AUG										
19...	12.3	13	12	21	20	1.2	1.2	4.0	3.7	8.9

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV										
28...	--	210	1400	1700	<40	<40	30	31	<3.0	<3.0
DEC										
18...	--	200	1200	1800	<40	<40	29	29	<3.0	<3.0
JAN										
08...	--	160	350	1100	<40	<40	33	33	<3.0	<3.0
24...	9.9	110	<20	13000	<40	<40	31	56	<3.0	<3.0
24...	10	110	<20	12000	<40	<40	33	54	<3.0	<3.0
24...	5.2	120	<20	5500	<40	<40	31	40	<3.0	<3.0
24...	5.2	120	<20	7100	<40	<40	28	36	<3.0	<3.0
24...	<5.0	130	<20	4500	<40	<40	31	38	<3.0	<3.0
24...	5.2	130	<20	4400	<40	<40	29	37	<3.0	<3.0
25...	16	120	<20	22000	<40	<40	30	63	<3.0	3.0
25...	6.4	130	<20	7200	<40	<40	30	41	<3.0	<3.0
25...	5.6	130	<20	5200	<40	<40	29	39	<3.0	<3.0
25...	5.0	130	<20	3800	<40	<40	29	37	<3.0	<3.0
25...	5.2	130	<20	4100	<40	<40	29	37	<3.0	<3.0
25...	5.2	130	<20	5400	<40	<40	29	39	<3.0	<3.0
29...	<5.0	130	100	1100	<40	<40	30	33	<3.0	<3.0
FEB										
10...	6.4	110	<20	2700	<40	<40	30	42	<3.0	<3.0
10...	<5.0	100	<20	1700	<40	<40	30	35	<3.0	<3.0
11...	<5.0	110	<20	2500	<40	<40	31	37	<3.0	<3.0
11...	--	160	90	2300	<40	<40	31	36	<3.0	<3.0
11...	--	150	60	2400	<40	<40	32	36	<3.0	<3.0
MAR										
02...	<5.0	100	<20	2400	<40	<40	30	32	<3.0	<3.0
02...	5.2	100	<20	2600	<40	<40	30	34	<3.0	<3.0
03...	--	160	140	3300	<40	<40	31	33	<3.0	<3.0
04...	<5.0	120	<20	2200	<40	<40	30	32	<3.0	<3.0
04...	9.5	100	20	4000	<40	<40	28	32	<3.0	<3.0
11...	--	160	200	1300	<40	<40	30	30	<3.0	<3.0
11...	--	160	190	1300	<40	<40	30	30	<3.0	<3.0
11...	--	150	60	1200	<40	<40	30	31	<3.0	<3.0
11...	--	140	<20	1000	<40	<40	31	32	<3.0	<3.0
12...	<5.0	110	<20	840	<40	<40	31	31	<3.0	<3.0
12...	<5.0	110	<20	810	<40	<40	31	31	<3.0	<3.0
12...	<5.0	110	<20	900	<40	<40	30	31	<3.0	<3.0
12...	<5.0	110	<20	790	<40	<40	31	31	<3.0	<3.0
13...	<5.0	110	<20	840	<4.0	<3.0	30	31	1.0	1.0
13...	<5.0	160	600	1300	<80	<40	27	27	<6.0	<3.0
APR										
13...	--	110	<20	1600	<40	<40	29	33	<3.0	<3.0
13...	--	110	50	1000	<40	<40	29	32	<3.0	<3.0
13...	--	110	70	960	<40	<40	29	33	<3.0	<3.0
14...	--	150	130	1300	<40	<40	30	32	<3.0	<3.0
14...	--	140	130	1200	<40	<40	29	32	<3.0	<3.0
23...	--	140	710	1300	<40	<40	28	29	<3.0	<3.0
MAY										
29...	--	110	440	980	<40	<40	26	27	<3.0	<3.0
JUN										
19...	--	150	400	1200	<40	<40	29	29	<3.0	<3.0
JUL										
31...	--	120	50	910	<40	<40	29	29	<3.0	<3.0
AUG										
19...	--	120	<20	730	<40	<40	28	29	<3.0	<3.0

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)
NOV										
28...	<3.0	<3.0	74	71	<3.0	<3.0	5600	5800	<40	<40
DEC										
18...	<3.0	<3.0	73	73	<3.0	<3.0	6500	9000	<40	<40
JAN										
08...	<3.0	<3.0	65	63	<3.0	<3.0	7600	8600	<40	<40
24...	<3.0	<3.0	35	54	<3.0	15	2400	160000	<40	<40
24...	<3.0	<3.0	36	53	<3.0	13	3000	150000	<40	<40
24...	<3.0	<3.0	38	43	<3.0	5.0	5000	65000	<40	<40
24...	<3.0	<3.0	40	45	<3.0	20	5200	49000	<40	<40
24...	<3.0	<3.0	42	44	<3.0	<3.0	5800	67000	<40	<40
24...	<3.0	<3.0	39	43	<3.0	<3.0	5500	73000	<40	<40
25...	<3.0	<3.0	38	59	<3.0	40	3400	350000	<40	51
25...	<3.0	<3.0	39	45	<3.0	4.0	5500	110000	<40	<40
25...	<3.0	<3.0	40	46	<3.0	<3.0	5700	83000	<40	<40
25...	<3.0	<3.0	40	42	<3.0	<3.0	6300	56000	<40	<40
25...	<3.0	<3.0	40	44	<3.0	<3.0	6000	55000	<40	<40
25...	<3.0	<3.0	40	46	<3.0	<3.0	5800	68000	<40	<40
29...	<3.0	<3.0	41	39	<3.0	<3.0	11000	11000	<40	<40
FEB										
10...	<3.0	<3.0	38	42	<3.0	9.0	2900	36000	<40	<40
10...	<3.0	<3.0	38	38	<3.0	<3.0	5100	24000	<40	<40
11...	<3.0	<3.0	39	38	<3.0	5.0	6000	32000	<40	<40
11...	<3.0	<3.0	66	64	<3.0	9.0	6300	27000	<40	<40
11...	<3.0	<3.0	65	62	<3.0	5.0	6400	28000	<40	<40
MAR										
02...	<3.0	<3.0	38	39	<3.0	<3.0	5200	29000	<40	<40
02...	<3.0	<3.0	36	37	<3.0	<3.0	5300	32000	<40	<40
03...	<3.0	<3.0	65	63	<3.0	<3.0	4600	34000	<40	<40
04...	<3.0	<3.0	40	41	4.0	<3.0	8200	26000	<40	<40
04...	<3.0	<3.0	36	38	<3.0	<3.0	3300	46000	<40	<40
11...	<3.0	<3.0	66	63	<3.0	<3.0	7600	10000	<40	<40
11...	<3.0	<3.0	65	63	<3.0	<3.0	7500	11000	<40	<40
11...	<3.0	<3.0	61	59	<3.0	<3.0	7600	9500	<40	<40
11...	<3.0	<3.0	57	55	<3.0	<3.0	7700	8900	<40	<40
12...	<3.0	<3.0	40	38	<3.0	<3.0	7600	10000	<40	<40
12...	<3.0	<3.0	39	37	<3.0	<3.0	6700	9900	<40	<40
12...	<3.0	<3.0	39	39	<3.0	<3.0	8900	11000	<40	<40
12...	<3.0	<3.0	39	38	<3.0	<3.0	9000	10000	<40	<40
13...	<4.0	<4.0	40	39	<8.0	<5.0	9800	11000	<10	<10
13...	<6.0	<3.0	61	59	<6.0	<3.0	6900	8400	<80	<40
APR										
13...	<3.0	<3.0	43	41	<3.0	<3.0	1900	16000	<40	<40
13...	<3.0	<3.0	42	41	<3.0	<3.0	3300	10000	<40	<40
13...	<3.0	<3.0	42	41	<3.0	<3.0	4000	9500	<40	<40
14...	<3.0	<3.0	61	58	<3.0	<3.0	5600	9200	<40	<40
14...	<3.0	<3.0	60	58	<3.0	<3.0	6100	8500	<40	<40
23...	<3.0	<3.0	61	59	<3.0	<3.0	6200	8100	<40	<40
MAY										
29...	<3.0	<3.0	50	48	<3.0	<3.0	5500	7200	<40	<40
JUN										
19...	<3.0	<3.0	60	58	<3.0	<3.0	6100	7600	<40	<40
JUL										
31...	<3.0	5.0	39	40	<3.0	<3.0	10000	11000	<40	<40
AUG										
19...	19	<3.0	41	39	<3.0	<3.0	11000	11000	<40	<40

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	MANGANESE, DISSOLVED (µG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (µG/L AS MN) (01055)	NICKEL, DISSOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOVERABLE (µG/L AS NI) (01067)	SELENIUM, DISSOLVED (µG/L AS SE) (01145)	SELENIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DISSOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOVERABLE (µG/L AS ZN) (01092)
NOV								
28...	2500	2400	120	110	<100	<100	280	260
DEC								
18...	2700	2700	120	120	<100	<100	280	270
JAN								
08...	2300	2300	97	91	<100	<100	250	220
24...	2300	2500	42	61	<100	<100	47	180
24...	2300	2500	45	57	<100	<100	40	170
24...	2200	2200	53	60	<100	<100	110	150
24...	2200	2200	55	61	<100	<100	150	310
24...	2100	2100	57	59	<100	<100	85	160
24...	2200	2200	55	59	<100	<100	72	130
25...	2300	2500	49	74	<100	<100	42	250
25...	2200	2200	55	59	<100	<100	63	160
25...	2300	2500	55	60	<100	<100	68	140
25...	2200	2200	55	58	<100	<100	73	140
25...	2200	2200	56	60	<100	<100	74	150
25...	2200	2300	55	61	<100	<100	85	160
29...	2000	2000	62	56	<100	<100	100	130
FEB								
10...	2100	2200	50	51	<100	<100	68	140
10...	2200	2200	47	48	<100	<100	64	120
11...	2100	2000	51	52	<100	<100	75	130
11...	2500	2400	96	93	<100	<100	230	270
11...	2600	2500	92	86	<100	<100	220	280
MAR								
02...	2100	2100	50	53	<100	<100	71	92
02...	2100	2100	50	48	<100	<100	67	88
03...	2700	2600	92	92	<100	<100	210	220
04...	2100	2000	65	58	<100	<100	100	110
04...	2100	2100	47	49	<100	<100	59	91
11...	2400	2400	98	92	<100	<100	230	220
11...	2500	2500	94	92	<100	<100	240	230
11...	2300	2300	85	85	<100	<100	210	200
11...	2200	2200	79	78	<100	<100	180	170
12...	2000	1900	53	54	<100	<100	94	88
12...	2000	1900	54	52	<100	<100	98	86
12...	2000	2300	53	52	<100	<100	84	93
12...	2000	1900	52	52	<100	<100	88	100
13...	2000	1900	53	52	6.0	<6	84	84
13...	2300	2300	95	93	<200	<100	220	220
APR								
13...	1900	1900	58	58	<100	<100	110	150
13...	1900	1900	60	59	<100	<100	110	150
13...	1900	1900	60	56	<100	<100	110	160
14...	2100	2100	89	87	<100	<100	230	230
14...	2100	2100	89	85	<100	<100	250	230
23...	2100	2100	92	89	<100	<100	210	200
MAY								
29...	1700	1700	71	68	<100	<100	160	150
JUN								
19...	2100	2000	87	85	<100	<100	220	220
JUL								
31...	1900	1900	54	57	<100	<100	84	91
AUG								
19...	2000	1900	76	58	<100	<100	85	96

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	494	473	481	482	369	450	---	---	---	289	265	267
2	473	460	467	431	359	376	---	---	---	323	289	316
3	510	457	484	360	353	357	---	---	---	307	267	278
4	460	442	448	463	359	440	---	---	---	312	267	272
5	442	426	435	415	367	375	---	---	---	325	302	320
6	481	426	462	400	341	363	---	---	---	302	268	280
7	445	424	430	---	---	---	---	---	---	323	268	278
8	466	421	426	---	---	---	---	---	---	335	277	312
9	480	428	458	---	---	---	---	---	---	277	273	275
10	428	409	417	---	---	---	---	---	---	363	274	308
11	460	403	413	---	---	---	---	---	---	341	271	305
12	468	407	442	---	---	---	---	---	---	272	268	270
13	407	394	398	---	---	---	---	---	---	355	267	311
14	452	395	412	---	---	---	---	---	---	337	272	288
15	457	433	445	---	---	---	---	---	---	273	269	271
16	440	430	434	---	---	---	---	---	---	342	271	315
17	544	432	477	---	---	---	---	---	---	341	287	321
18	521	447	475	---	---	---	---	---	---	287	275	279
19	447	437	444	---	---	---	372	324	346	341	271	289
20	535	434	480	---	---	---	324	315	320	339	283	323
21	494	422	450	---	---	---	389	313	347	284	273	276
22	423	414	419	---	---	---	352	297	319	345	275	294
23	521	413	468	---	---	---	297	284	292	345	284	323
24	472	401	426	---	---	---	349	284	320	292	273	279
25	402	396	399	---	---	---	323	276	293	366	291	319
26	515	397	463	---	---	---	276	267	271	362	310	341
27	464	398	420	---	---	---	320	267	306	310	304	306
28	402	392	399	---	---	---	311	266	285	361	303	329
29	509	392	466	---	---	---	267	263	264	353	305	331
30	445	380	396	---	---	---	318	264	307	305	298	301
31	381	370	377	---	---	---	310	266	279	352	298	328
MONTH	544	370	439	482	341	394	389	263	304	366	265	300

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	341	290	311	337	282	305	309	276	284	328	293	303
2	291	287	289	282	278	281	310	281	303	325	296	313
3	341	287	324	367	274	335	284	281	282	300	296	298
4	327	293	303	342	308	317	319	281	303	325	294	310
5	299	292	295	310	305	306	311	286	300	305	278	291
6	367	291	344	359	310	344	323	284	287	309	276	284
7	291	286	288	345	307	318	323	309	315	305	279	298
8	360	286	299	379	305	323	310	282	289	279	274	276
9	356	289	332	365	287	332	325	281	298	309	274	291
10	289	280	285	298	292	296	319	284	306	307	276	290
11	356	280	309	370	293	326	289	284	285	302	276	292
12	344	286	317	345	295	317	333	285	317	277	274	275
13	289	281	286	296	292	294	316	283	293	311	275	301
14	337	277	307	361	291	333	334	284	298	314	283	291
15	331	289	315	334	287	301	356	308	328	331	290	305
16	290	282	285	287	281	284	314	307	311	324	290	309
17	333	282	311	349	281	334	344	303	325	291	284	288
18	329	283	299	316	275	279	322	288	302	376	279	339
19	291	283	286	339	273	287	334	270	293	339	311	326
20	363	290	343	337	303	320	321	293	312	323	294	308
21	293	289	290	327	319	323	294	286	291	316	284	304
22	366	289	306	356	317	334	318	277	294	284	278	281
23	359	292	331	342	290	316	303	274	286	306	276	295
24	293	290	291	290	281	284	310	292	301	294	273	283
25	360	288	318	315	279	304	308	281	289	303	272	281
26	345	286	315	304	266	281	321	281	293	301	273	293
27	286	276	280	330	272	310	317	280	304	273	269	271
28	350	276	318	328	286	314	289	277	279	306	269	292
29	---	---	---	286	277	280	333	289	321	295	270	282
30	---	---	---	299	276	291	326	298	309	296	257	274
31	---	---	---	296	276	286	---	---	---	299	274	296
MONTH	367	276	306	379	266	308	356	270	300	376	257	295

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	275	272	273	305	295	298	403	300	348	309	285	295
2	318	272	297	335	295	321	368	301	328	401	284	337
3	304	274	288	333	313	322	304	301	302	410	374	389
4	320	273	277	382	313	327	408	301	363	374	312	333
5	320	298	306	371	322	357	363	293	316	360	308	315
6	299	268	275	325	321	323	301	298	299	378	360	375
7	326	275	299	390	322	349	406	298	376	376	324	353
8	313	280	298	370	322	347	368	295	306	372	310	323
9	283	280	281	324	314	321	409	294	297	384	372	380
10	328	280	315	389	320	362	415	296	379	375	319	343
11	309	275	284	367	321	336	296	285	289	397	309	334
12	279	276	277	337	317	320	380	277	295	415	289	356
13	333	277	311	382	337	372	382	302	357	289	283	286
14	321	281	303	364	316	322	302	279	286	467	282	344
15	285	280	282	364	312	323	375	276	302	450	257	363
16	338	284	315	370	343	365	378	289	351	453	230	392
17	319	287	299	343	300	318	289	274	279	493	385	427
18	344	285	297	383	300	335	355	271	300	487	403	442
19	337	291	326	354	304	327	356	288	335	412	404	409
20	293	289	291	310	306	308	288	278	281	500	406	438
21	343	289	313	395	308	356	442	275	341	518	397	448
22	331	286	310	355	309	323	410	291	342	402	354	395
23	287	282	285	311	309	310	299	291	296	510	356	463
24	330	282	320	400	309	374	439	295	372	510	487	497
25	323	283	295	359	308	314	400	295	334	487	464	478
26	321	281	288	391	306	322	296	292	294	519	459	480
27	327	307	323	393	308	364	441	292	379	617	407	529
28	307	290	293	309	297	302	404	289	327	904	617	831
29	332	291	308	397	296	329	290	281	285	870	656	755
30	332	305	324	375	300	336	397	281	359	736	626	682
31	---	---	---	302	300	301	385	309	341	---	---	---
MONTH	344	268	298	400	295	332	442	271	324	904	230	426
YEAR	904	230	333									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	5.6	4.3	5.4	6.6	4.7	4.8	---	---	---	---	---	---
2	5.7	5.6	5.7	6.3	4.9	6.0	---	---	---	---	---	---
3	5.7	4.1	4.3	6.5	6.3	6.4	---	---	---	---	---	---
4	5.5	4.4	5.4	6.5	4.9	5.0	---	---	---	---	---	---
5	5.4	5.3	5.4	6.4	5.2	6.0	---	---	---	---	---	---
6	5.3	4.3	4.5	---	---	---	---	---	---	---	---	---
7	5.8	4.5	5.7	---	---	---	---	---	---	---	---	---
8	5.8	4.6	5.8	---	---	---	---	---	---	---	---	---
9	5.0	4.2	4.5	---	---	---	---	---	---	6.3	6.3	6.3
10	5.6	5.0	5.5	---	---	---	---	---	---	6.4	4.6	6.3
11	5.7	4.6	5.5	---	---	---	---	---	---	6.4	5.2	5.6
12	5.4	4.5	4.6	---	---	---	---	---	---	6.4	6.4	6.4
13	5.8	5.4	5.8	---	---	---	---	---	---	6.4	4.8	5.2
14	5.8	5.0	5.7	---	---	---	---	---	---	6.4	5.3	6.4
15	5.3	4.8	4.9	---	---	---	---	---	---	6.4	6.4	6.4
16	6.2	5.3	5.9	---	---	---	---	---	---	6.4	4.9	5.0
17	6.2	3.9	6.2	---	---	---	---	---	---	6.2	5.1	5.5
18	6.1	4.0	4.2	---	---	---	---	---	---	6.3	6.2	6.2
19	6.3	6.1	6.3	---	---	---	6.1	4.7	5.8	6.2	5.1	6.2
20	6.3	4.0	4.3	---	---	---	6.2	6.1	6.1	5.8	5.1	5.3
21	6.3	4.3	5.3	---	---	---	6.1	4.9	5.1	5.9	5.8	5.9
22	6.5	6.3	6.3	---	---	---	---	---	---	5.9	5.1	5.8
23	6.6	4.2	4.4	---	---	---	---	---	---	5.9	5.2	5.4
24	6.4	4.4	6.1	---	---	---	---	---	---	5.9	5.8	5.8
25	6.5	6.4	6.4	---	---	---	---	---	---	6.0	5.2	5.8
26	6.6	4.4	4.5	---	---	---	---	---	---	5.8	5.2	5.4
27	6.4	4.6	5.9	---	---	---	---	---	---	5.8	5.8	5.8
28	6.4	6.4	6.4	---	---	---	---	---	---	6.0	5.3	5.4
29	6.4	4.5	4.7	---	---	---	---	---	---	5.7	5.3	5.6
30	6.4	4.8	6.2	---	---	---	---	---	---	5.8	5.7	5.8
31	6.6	6.4	6.6	---	---	---	---	---	---	5.8	5.5	5.6
MAX	6.6	6.4	6.6	6.6	6.3	6.4	6.2	6.1	6.1	6.4	6.4	6.4
MIN	5.0	3.9	4.2	6.3	4.7	4.8	6.1	4.7	5.1	5.7	4.6	5.0

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	5.6	5.6	5.6	6.1	5.1	5.8	5.6	5.4	5.6	5.7	5.1	5.7
2	5.8	5.6	5.6	6.1	6.1	6.1	5.9	5.4	5.6	5.5	5.0	5.2
3	5.8	5.8	5.8	6.1	5.2	5.2	6.0	5.9	5.9	5.5	5.4	5.5
4	6.3	5.8	6.2	5.7	5.2	5.5	6.0	5.5	5.6	5.4	5.0	5.1
5	6.3	6.3	6.3	5.8	5.7	5.7	6.0	5.6	5.6	5.3	5.0	5.2
6	6.3	5.2	5.6	5.8	5.3	5.4	6.1	5.5	6.0	5.7	5.2	5.3
7	6.4	6.3	6.4	5.6	5.3	5.4	5.6	5.5	5.6	5.6	5.2	5.4
8	6.4	5.4	6.3	6.4	5.3	5.6	6.1	5.6	6.0	5.6	5.6	5.6
9	6.4	5.4	5.7	6.5	5.5	5.9	6.0	5.3	6.0	5.7	5.1	5.3
10	6.4	6.3	6.3	6.5	6.4	6.5	6.1	5.5	5.6	5.6	5.1	5.2
11	6.3	5.3	6.3	6.5	5.4	6.5	6.1	6.0	6.0	5.5	5.2	5.2
12	6.4	5.6	5.8	6.5	5.8	6.2	6.0	5.3	5.5	5.6	5.4	5.5
13	6.4	6.3	6.4	6.5	6.4	6.4	6.0	5.6	6.0	5.4	4.8	5.0
14	6.3	5.4	5.6	6.4	5.4	5.7	6.0	5.3	6.0	5.5	5.0	5.4
15	6.2	5.6	6.1	6.5	5.9	6.4	5.9	5.3	5.5	5.4	4.6	5.3
16	6.2	6.1	6.1	6.4	6.3	6.4	5.9	5.8	5.9	5.6	4.7	4.8
17	6.2	5.5	5.6	6.3	5.4	5.6	5.8	5.1	5.2	5.6	5.6	5.6
18	6.0	5.5	6.0	6.2	5.7	6.2	5.7	5.3	5.6	5.6	4.7	5.0
19	6.3	6.0	6.0	6.2	5.5	6.2	5.6	5.0	5.6	5.5	5.2	5.5
20	6.3	5.3	5.6	5.7	5.3	5.4	5.3	5.0	5.1	5.5	5.0	5.5
21	6.3	6.1	6.3	5.8	5.7	5.8	5.4	5.3	5.4	5.5	5.0	5.2
22	6.3	5.3	6.3	5.8	5.4	5.8	6.5	4.9	5.4	5.5	5.4	5.5
23	6.3	5.4	5.7	5.6	5.4	5.4	6.4	5.6	6.2	5.5	5.0	5.2
24	6.3	6.2	6.3	5.7	5.6	5.7	6.0	5.6	5.7	5.5	5.3	5.5
25	6.2	5.2	6.2	5.8	5.6	5.7	6.0	5.7	6.0	5.5	5.1	5.5
26	6.1	5.3	5.5	5.6	5.6	5.6	6.0	5.3	5.9	5.4	5.1	5.2
27	6.1	6.0	6.1	5.8	5.6	5.7	5.9	5.3	5.5	5.5	5.4	5.5
28	6.0	5.0	5.1	5.8	5.6	5.7	5.9	5.8	5.9	5.6	5.1	5.2
29	---	---	---	5.6	5.6	5.6	5.8	5.2	5.3	5.5	5.2	5.3
30	---	---	---	5.6	5.6	5.6	5.7	5.3	5.7	5.7	5.1	5.5
31	---	---	---	5.6	5.5	5.6	---	---	---	5.5	5.0	5.1
MAX	6.4	6.3	6.4	6.5	6.4	6.5	6.5	6.0	6.2	5.7	5.6	5.7
MIN	5.6	5.0	5.1	5.6	5.1	5.2	5.3	4.9	5.1	5.3	4.6	4.8

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	5.6	5.5	5.6	6.3	6.2	6.2	6.2	3.8	4.3	5.2	5.1	5.2
2	5.7	4.8	5.1	6.2	5.7	5.7	6.1	4.4	6.0	5.2	3.9	4.6
3	5.8	5.2	5.3	6.1	5.7	6.0	6.1	6.1	6.1	4.3	3.8	3.8
4	5.8	4.8	5.8	6.2	4.6	6.1	6.1	3.8	4.2	4.9	4.3	4.7
5	5.4	4.8	5.2	6.1	4.6	5.3	6.0	4.5	6.0	5.0	3.8	4.9
6	5.9	5.4	5.9	6.3	6.1	6.2	6.0	5.9	6.0	4.1	3.6	3.7
7	5.9	4.9	5.8	6.3	4.6	6.2	6.0	3.7	4.1	4.6	4.1	4.5
8	5.8	5.2	5.3	6.2	5.1	5.4	6.2	4.5	5.9	4.8	3.8	4.7
9	5.9	5.7	5.8	6.3	6.2	6.3	6.3	4.0	6.2	4.1	3.6	3.8
10	5.9	4.9	5.1	6.2	4.7	5.2	6.0	3.8	4.2	4.5	4.1	4.4
11	5.8	5.2	5.8	6.4	5.3	6.3	6.2	6.0	6.2	4.7	3.6	4.6
12	6.0	5.8	5.9	6.3	6.1	6.3	6.2	3.8	6.2	6.5	3.5	4.6
13	6.0	4.6	4.9	6.1	4.7	5.2	6.0	3.8	4.3	6.5	6.2	6.3
14	5.9	5.0	5.3	6.3	5.3	6.2	6.1	6.0	6.1	6.5	3.7	6.3
15	6.1	5.9	6.0	6.3	5.0	6.2	6.2	3.7	6.1	6.3	3.7	4.1
16	6.1	4.9	5.3	5.8	4.9	5.2	5.9	3.7	4.3	6.3	5.9	6.1
17	6.1	5.4	6.1	6.2	5.8	6.0	6.0	5.9	5.9	6.3	3.9	6.1
18	6.3	4.9	6.1	6.2	4.1	5.8	5.9	3.8	5.9	5.6	4.0	4.2
19	6.2	4.9	5.4	6.1	4.7	5.2	5.5	3.9	4.2	5.8	5.6	5.7
20	6.3	6.2	6.2	6.3	6.1	6.2	5.6	5.5	5.5	5.9	4.1	5.8
21	6.3	5.1	6.0	6.2	4.1	4.7	5.6	3.6	5.4	5.3	4.2	4.4
22	6.3	5.4	5.7	6.2	4.9	6.2	6.1	3.8	5.9	5.6	5.3	5.4
23	6.4	6.3	6.3	6.2	6.1	6.2	6.1	6.1	6.1	5.6	4.5	5.4
24	6.4	5.2	5.5	6.2	4.0	4.5	6.1	3.6	3.9	5.2	4.5	4.6
25	6.4	5.6	6.4	6.2	4.9	6.1	5.9	3.9	5.8	5.6	5.1	5.3
26	6.5	5.3	6.4	6.2	4.1	6.1	6.0	5.9	5.9	5.6	3.5	5.6
27	6.2	5.2	5.6	6.1	4.1	4.8	5.9	3.6	3.8	4.8	3.7	3.9
28	6.4	6.2	6.4	6.2	6.1	6.2	5.6	3.8	5.5	4.8	4.5	4.6
29	6.4	5.4	5.9	6.2	3.8	6.1	5.6	5.6	5.6	4.7	3.8	4.1
30	6.2	5.5	5.6	6.1	4.0	4.8	5.6	3.7	3.8	4.6	3.9	4.3
31	---	---	---	6.2	6.1	6.1	5.1	3.8	4.9	---	---	---
MAX	6.5	6.3	6.4	6.4	6.2	6.3	6.3	6.1	6.2	6.5	6.2	6.3
MIN	5.4	4.6	4.9	5.8	3.8	4.5	5.1	3.6	3.8	4.1	3.5	3.7

YEAR			
	MAX	MAXIMUM 6.6	MINIMUM 4.1
	MIN	MAXIMUM 6.4	MINIMUM 3.5
	MEDIAN	MAXIMUM 6.6	MINIMUM 3.7

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	12.5	12.0	12.0	12.5	11.5	12.5	---	---	---	12.0	11.0	11.5
2	12.0	12.0	12.0	12.5	12.0	12.0	---	---	---	12.0	11.5	12.0
3	12.5	12.0	12.5	12.0	11.5	12.0	---	---	---	11.5	11.5	11.5
4	12.5	12.0	12.0	12.5	11.5	12.5	---	---	---	12.0	11.5	11.5
5	12.0	12.0	12.0	12.0	11.0	11.0	---	---	---	12.0	11.5	12.0
6	12.5	12.0	12.5	11.5	11.0	11.0	---	---	---	11.5	11.0	11.5
7	12.5	11.0	11.5	12.5	11.5	12.5	---	---	---	12.0	11.5	11.5
8	12.0	11.0	11.5	12.0	11.0	11.5	---	---	---	12.0	11.0	11.5
9	12.5	11.5	12.0	12.0	11.0	11.5	---	---	---	11.5	11.0	11.5
10	12.0	11.5	11.5	12.5	11.5	12.0	---	---	---	12.0	11.5	12.0
11	12.5	11.5	12.0	11.5	10.5	11.0	---	---	---	12.0	11.5	12.0
12	12.5	12.0	12.5	11.5	10.5	11.0	---	---	---	11.5	11.5	11.5
13	12.0	12.0	12.0	12.5	11.0	12.0	---	---	---	12.0	11.5	11.5
14	12.5	12.0	12.0	11.5	11.0	11.0	---	---	---	12.0	11.5	11.5
15	12.5	11.5	12.5	12.0	11.5	11.5	---	---	---	11.5	11.5	11.5
16	12.0	11.5	11.5	12.5	11.5	12.5	---	---	---	12.0	11.5	12.0
17	12.0	11.5	12.0	11.5	11.0	11.5	---	---	---	12.0	11.5	12.0
18	12.5	11.5	12.0	12.0	11.0	11.5	---	---	---	11.5	11.0	11.0
19	11.5	11.0	11.5	12.5	11.5	12.0	12.0	11.5	12.0	12.0	11.0	11.0
20	12.5	11.5	12.0	11.5	10.5	11.0	11.5	11.5	11.5	12.0	11.0	11.5
21	12.5	12.0	12.0	12.0	10.5	11.0	12.0	11.5	11.5	11.5	11.0	11.5
22	12.0	11.5	12.0	12.5	11.0	12.0	12.0	11.5	11.5	12.0	11.0	11.5
23	12.5	11.5	12.0	11.5	10.5	11.0	11.5	11.5	11.5	12.0	11.5	12.0
24	12.5	12.0	12.5	12.5	11.0	11.5	12.0	11.5	12.0	11.5	11.5	11.5
25	12.0	11.5	12.0	12.5	11.5	12.5	12.0	11.5	11.5	12.0	11.0	11.5
26	12.0	11.5	12.0	11.5	11.5	11.5	11.5	11.5	11.5	12.0	11.5	12.0
27	12.0	11.0	11.5	12.0	11.0	11.5	12.0	11.5	11.5	12.0	11.5	11.5
28	11.0	10.5	11.0	---	---	---	12.0	11.5	11.5	12.5	11.5	12.0
29	12.5	10.5	12.0	---	---	---	11.5	11.5	11.5	12.5	12.0	12.0
30	12.5	11.0	11.5	---	---	---	12.0	11.5	12.0	12.0	11.5	12.0
31	11.5	11.0	11.5	---	---	---	11.5	11.0	11.5	12.0	11.5	12.0
MONTH	12.5	10.5	11.9	12.5	10.5	11.6	12.0	11.0	11.6	12.5	11.0	11.7

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	12.0	11.5	12.0	12.0	11.5	11.5	12.0	12.0	12.0	12.0	12.0	12.0
2	11.5	11.5	11.5	11.5	11.5	11.5	12.0	12.0	12.0	12.0	12.0	12.0
3	12.0	11.5	12.0	12.5	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0
4	12.0	11.0	11.5	12.0	11.0	11.5	12.0	12.0	12.0	12.0	11.5	12.0
5	11.5	11.0	11.5	12.0	11.0	11.5	12.0	11.5	12.0	12.0	12.0	12.0
6	12.0	11.5	12.0	12.0	11.5	12.0	12.0	11.5	11.5	12.0	12.0	12.0
7	12.0	11.5	11.5	12.0	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0
8	12.0	11.5	12.0	12.0	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0
9	12.0	11.5	12.0	12.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
10	12.0	11.5	12.0	12.0	11.5	11.5	12.5	12.0	12.0	12.0	12.0	12.0
11	12.0	11.5	11.5	12.0	11.5	11.5	12.0	12.0	12.0	12.0	12.0	12.0
12	12.0	11.5	12.0	12.0	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0
13	11.5	11.5	11.5	12.0	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0
14	12.0	11.5	11.5	12.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
15	12.0	11.5	12.0	12.5	12.0	12.0	12.5	12.0	12.0	12.0	11.5	12.0
16	12.0	11.5	12.0	12.0	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0
17	12.0	11.5	12.0	12.0	11.5	12.0	12.5	12.0	12.0	12.0	12.0	12.0
18	12.0	11.5	11.5	12.0	11.5	11.5	12.0	12.0	12.0	12.0	12.0	12.0
19	12.0	11.5	11.5	12.0	11.5	12.0	12.0	12.0	12.0	12.0	11.5	12.0
20	12.5	12.0	12.0	12.0	11.5	12.0	12.0	12.0	12.0	12.0	11.5	12.0
21	12.0	12.0	12.0	12.0	11.5	11.5	12.0	12.0	12.0	12.0	11.5	12.0
22	12.0	11.5	12.0	12.0	11.5	11.5	12.0	12.0	12.0	12.0	11.5	12.0
23	12.0	11.5	12.0	12.0	11.5	12.0	12.0	11.5	12.0	12.0	11.5	12.0
24	12.0	11.5	11.5	12.0	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0
25	12.0	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
26	12.5	11.5	12.0	12.0	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0
27	11.5	11.5	11.5	12.0	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0
28	12.0	11.5	11.5	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
29	---	---	---	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
30	---	---	---	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
31	---	---	---	12.0	12.0	12.0	---	---	---	12.0	12.0	12.0
MONTH	12.5	11.0	11.8	12.5	11.0	11.9	12.5	11.5	12.0	12.0	11.5	12.0

SWATARA CREEK BASIN

403542076263201 ROWE DRAINAGE TUNNEL, SITE E2-244, NR JOLIETT, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	12.0	12.0	12.0	12.0	12.0	12.0	12.5	12.0	12.5	12.0	12.0	12.0
2	12.0	12.0	12.0	12.5	12.0	12.5	12.5	12.0	12.5	12.5	12.0	12.5
3	12.5	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0	13.0	12.0	12.5
4	12.0	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.5	12.5	12.0	12.0
5	12.5	12.0	12.0	12.5	12.0	12.5	12.5	12.0	12.5	12.5	12.0	12.0
6	12.0	12.0	12.0	12.0	12.0	12.0	12.5	12.0	12.0	13.0	12.0	12.5
7	12.0	12.0	12.0	12.5	12.0	12.0	13.0	12.0	12.5	12.5	12.0	12.0
8	12.5	12.0	12.0	12.5	12.0	12.5	12.5	12.0	12.0	12.5	12.0	12.0
9	12.0	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0	13.0	12.0	12.5
10	12.5	12.0	12.0	12.5	12.0	12.5	13.0	12.0	12.5	12.5	12.0	12.0
11	12.0	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0
12	12.0	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0	13.0	12.0	12.5
13	12.0	12.0	12.0	12.5	12.0	12.5	13.0	12.0	12.5	12.5	12.0	12.0
14	12.5	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.5
15	12.0	12.0	12.0	12.5	12.0	12.0	13.0	12.0	12.5	13.0	12.0	12.5
16	12.5	12.0	12.0	13.0	12.0	12.5	13.0	12.0	12.5	13.0	12.0	12.0
17	12.5	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0
18	12.0	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.5	13.0	12.0	12.5
19	12.5	12.0	12.5	12.5	12.0	12.5	13.0	12.0	12.5	12.0	12.0	12.0
20	12.0	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.5
21	12.5	12.0	12.0	12.5	12.0	12.5	12.5	12.0	12.5	13.0	12.0	12.5
22	12.5	12.0	12.0	12.5	12.0	12.5	13.0	12.0	12.5	12.5	12.0	12.0
23	12.0	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.0
24	12.5	12.0	12.5	12.5	12.0	12.5	12.5	12.0	12.5	13.0	12.0	12.5
25	12.5	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.5	12.0	12.0	12.0
26	12.5	12.0	12.0	12.5	12.0	12.0	12.0	12.0	12.0	12.5	12.0	12.0
27	12.5	12.0	12.5	12.5	12.0	12.5	12.5	12.0	12.5	13.5	12.0	12.5
28	12.0	12.0	12.0	12.5	12.0	12.0	12.5	12.0	12.5	12.0	11.5	11.5
29	12.5	12.0	12.0	12.5	12.0	12.0	12.0	12.0	12.0	12.5	11.5	12.0
30	12.5	12.0	12.0	13.0	12.0	12.5	12.5	12.0	12.5	12.5	12.0	12.0
31	---	---	---	12.5	12.0	12.0	12.5	12.0	12.5	---	---	---
MONTH	12.5	12.0	12.1	13.0	12.0	12.2	13.0	12.0	12.3	13.5	11.5	12.2
YEAR	13.5	10.5	12.0									

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA
(Swatara Creek Project)

LOCATION.--Lat 40°35'15", long 76°25'35", Schuylkill County, Hydrologic Unit 02050301, on left bank 100 ft downstream from bridge on SR 4011, 0.75 mi west of Lorberry Junction.

DRAINAGE AREA.--3.59 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1999 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 740 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records fair. Other data for this project presented in tables on pages 350-412.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 26	2115	*52	*1.85	(No peaks above base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	3.7	3.7	2.8	6.4	4.6	18	14	9.7	3.0	2.2	1.5
2	2.5	2.7	2.3	4.0	5.3	4.3	16	22	10	3.7	2.2	1.7
3	3.4	2.5	2.3	2.7	6.9	15	13	18	9.4	2.8	1.7	2.2
4	2.7	3.8	2.8	2.9	5.7	6.6	12	18	8.0	2.7	2.3	1.3
5	2.4	2.5	2.0	3.6	4.5	4.9	12	18	9.8	3.4	2.0	1.4
6	3.6	2.4	2.3	2.8	6.6	7.0	10	18	9.3	2.5	1.6	2.1
7	2.4	3.8	3.0	3.7	4.7	4.9	11	18	10	2.8	2.3	1.2
8	2.3	2.4	2.5	3.9	5.0	5.0	9.5	15	8.8	3.0	1.7	1.4
9	3.6	2.3	3.9	2.8	6.6	6.0	10	17	7.2	2.5	1.5	2.0
10	2.3	3.7	3.6	3.5	5.8	6.5	11	15	8.4	3.1	2.4	1.2
11	2.6	2.3	2.5	4.4	8.2	6.0	8.6	13	6.7	2.6	1.5	1.5
12	3.6	2.3	3.0	3.3	6.6	5.7	8.9	12	5.9	2.3	1.5	1.9
13	2.4	3.4	3.7	3.9	5.4	4.8	8.4	15	7.0	3.1	2.3	1.2
14	3.4	2.0	3.7	3.2	6.2	6.1	8.7	14	8.3	2.4	1.4	1.5
15	4.9	2.4	4.4	3.1	6.0	5.3	16	12	6.6	2.4	1.9	2.7
16	2.9	3.6	4.2	4.0	5.3	4.7	10	11	7.2	3.0	2.2	3.0
17	3.5	2.2	3.3	4.2	6.7	6.1	12	9.9	5.9	2.1	1.5	1.9
18	3.4	2.4	4.9	2.9	5.6	7.1	11	28	5.6	2.6	1.8	2.2
19	2.5	3.5	4.0	3.4	5.3	7.0	14	22	6.9	2.7	2.0	1.4
20	3.1	2.3	2.9	4.3	7.3	16	16	21	5.0	2.1	1.4	1.8
21	3.1	2.4	3.7	3.0	5.4	14	13	22	5.2	2.7	1.8	2.1
22	2.4	3.4	3.5	3.4	5.4	12	14	19	5.1	2.3	1.9	1.7
23	3.1	2.2	3.1	4.2	6.5	13	12	20	4.2	2.0	1.4	3.3
24	3.0	2.6	4.4	6.6	4.7	12	11	18	5.0	2.9	2.0	2.4
25	2.6	8.0	3.7	7.1	5.4	15	11	17	3.9	2.0	1.8	1.6
26	3.6	4.7	3.1	5.6	5.9	21	11	17	4.0	2.0	1.3	2.3
27	3.0	2.9	4.2	4.1	4.6	24	11	14	5.1	2.8	1.9	12
28	2.5	3.1	3.3	5.0	5.3	20	16	14	3.8	2.0	1.6	8.2
29	3.7	2.1	2.9	4.8	---	19	16	12	4.0	2.2	1.5	3.7
30	2.8	3.2	4.3	4.2	---	19	14	11	3.6	2.6	2.1	3.1
31	2.5	---	2.8	5.7	---	18	---	12	---	1.9	1.6	---
TOTAL	92.7	90.8	104.0	123.1	163.3	320.6	365.1	506.9	199.6	80.2	56.3	75.5
MEAN	2.99	3.03	3.35	3.97	5.83	10.3	12.2	16.4	6.65	2.59	1.82	2.52
MAX	4.9	8.0	4.9	7.1	8.2	24	18	28	10	3.7	2.4	12
MIN	2.3	2.0	2.0	2.7	4.5	4.3	8.4	9.9	3.6	1.9	1.3	1.2

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2002, BY WATER YEAR (WY)

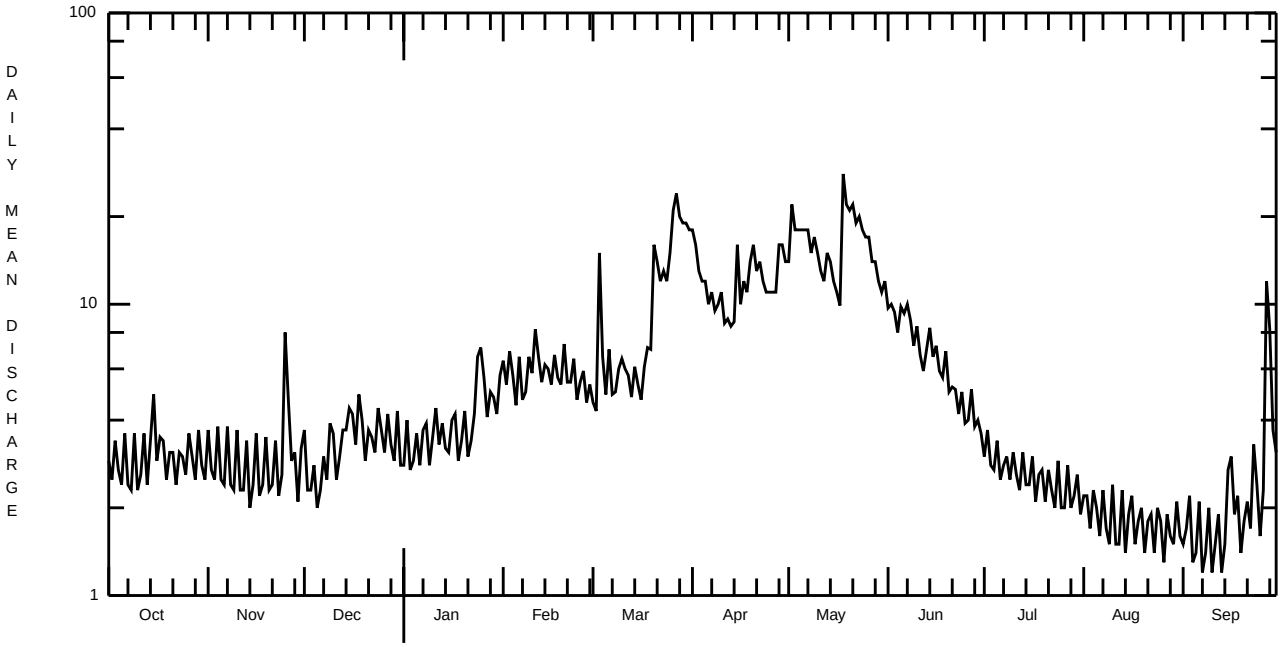
MEAN	3.30	3.43	8.02	6.47	7.87	15.4	14.7	11.1	8.95	4.89	3.18	3.12
MAX	3.61	3.82	11.9	8.19	9.82	24.7	19.5	16.4	10.9	6.20	4.14	3.59
(WY)	2001	2001	2001	2000	2001	2000	2000	2002	2000	2001	2000	2000
MIN	2.99	3.03	3.35	3.97	5.83	10.3	12.2	7.30	6.65	2.59	1.82	2.52
(WY)	2002	2002	2002	2002	2002	2002	2002	2001	2002	2002	2002	2002

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA
(Swatara Creek Project)

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 2000 - 2002	
ANNUAL TOTAL	2409.9		2178.1			
ANNUAL MEAN	6.60		5.97		6.71	
HIGHEST ANNUAL MEAN					7.45	2001
LOWEST ANNUAL MEAN					5.97	2002
HIGHEST DAILY MEAN	**e**23	Mar 30**a**	28	May 18	92	Dec 17 2000
LOWEST DAILY MEAN	2.0	Nov 14,Dec 5	1.2	Sep 7	1.2	Sep 7 2002
ANNUAL SEVEN-DAY MINIMUM	2.5	Dec 2	1.5	Sep 7,10,13	1.5	Sep 7 2002
MAXIMUM PEAK FLOW			52	Mar 26	**e**92	Dec 17 2000
MAXIMUM PEAK STAGE			1.85	Mar 26	**b**2.17	Mar 21 2000
10 PERCENT EXCEEDS	12		14		13	
50 PERCENT EXCEEDS	5.4		3.7		4.9	
90 PERCENT EXCEEDS	2.5		1.9		2.3	

a Also June 22.
b Discharge 86 ft^3/s.
e Estimated.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued
(Swatara Creek Project)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1996 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1996 to current year.
pH: July 1996 to current year.
WATER TEMPERATURE: July 1996 to current year.

INSTRUMENTATION.--Water-quality monitor (in situ system). Automatic pumping sampler for stormflow samples since July 1996.

REMARKS.--Specific conductance records rated fair. pH records rated fair except for period Oct. 1-15, which is poor. Water temperature records rated good. Interruptions in the record were due to malfunctions of the instrumentation. Some values for "*dissolved*" parameters exceed values for the corresponding "*total*" parameter. These results are within the limits of analytical precision and methods. Other data for the Swatara Creek Project presented in tables on pages 350-412. Figure 9 shows the location of sites sampled as part of the Swatara Creek Project.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 526, microsiemens, Sept. 29, 2002; minimum, 51, microsiemens, July 24, 1997.
pH: Maximum, 8.1, Aug. 14, 1999; minimum, 3.6, Oct. 21-23, 25, Dec. 3, 1996.
WATER TEMPERATURE: Maximum, 23.5°C, July 5, 6, 1999; minimum, 0.0°C, many days during winters.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 526, microsiemens, Sept. 29; minimum 84, microsiemens, Mar. 26.
pH: Maximum, 7.2, Mar. 11; minimum, 4.1, Sept. 22.
WATER TEMPERATURE: Maximum, 23.0°C, Aug. 15; minimum 2.0°C, Jan. 6.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
28...	1030	1028	930	3.3	570	10	92	5.1	4.1	369
JAN										
24...	1200	1028	930	10	--	--	--	6.2	5.6	205
24...	1400	1028	930	10	--	--	--	6.3	5.6	181
24...	1600	1028	930	9.5	--	--	--	6.3	5.8	178
24...	1800	1028	930	8.7	--	--	--	6.3	5.6	180
24...	2200	1028	930	8.0	--	--	--	6.3	5.8	182
25...	0200	1028	930	7.7	--	--	--	6.4	6.0	183
25...	0600	1028	930	7.0	--	--	--	6.4	6.0	187
25...	1200	1028	930	5.8	--	--	--	6.5	6.1	202
29...	1230	1028	930	3.9	400	12	100	5.5	4.5	281
MAR										
03...	0030	1028	930	11	--	--	--	6.3	6.1	180
03...	0400	1028	930	24	--	--	--	6.2	6.0	124
03...	0600	1028	930	22	--	--	--	6.1	--	149
03...	2000	1028	930	11	--	--	--	5.8	5.0	211
04...	0200	1028	930	9.5	--	--	--	6.0	5.3	220
04...	0400	1028	930	7.3	--	--	--	6.0	5.1	214
13...	1130	1028	930	4.8	250	11	96	7.0	4.4	208
APR										
15...	0045	1028	930	19	--	--	--	6.0	5.2	177
15...	0200	1028	930	24	--	--	--	5.8	4.8	150
15...	0400	1028	930	21	--	--	--	5.7	4.8	138
15...	0600	1028	930	20	--	--	--	5.6	4.7	157
15...	1400	1028	930	15	--	--	--	5.8	4.7	184
23...	1015	1028	930	12	320	11	96	6.6	5.4	196
MAY										
29...	1115	1028	930	13	430	10	98	5.2	4.4	228
JUN										
19...	1030	1028	930	7.0	420	10	100	5.6	4.2	260
JUL										
31...	1015	1028	930	1.9	190	9.3	95	6.4	4.4	280
AUG										
19...	0945	1028	930	2.4	350	9.9	99	5.3	4.0	347

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
28...	10.5	20	19	26	25	1.4	1.4	3.5	3.3	<5.0
JAN										
24...	5.50	10	10	11	11	1.1	1.4	7.7	7.4	--
24...	5.40	7.8	7.8	7.8	7.8	.93	1.1	8.8	8.8	--
24...	5.80	7.9	7.9	8.3	8.1	.88	.9	6.7	6.6	--
24...	5.90	8.1	8.0	8.5	8.4	.86	.9	6.2	6.1	--
24...	6.10	8.5	8.5	9.3	9.2	.87	.9	5.0	5.0	--
25...	5.80	8.8	8.9	9.9	9.7	.91	1.2	4.4	5.4	--
25...	5.20	9.0	8.8	10	10	.86	.9	3.9	3.8	--
25...	5.30	9.7	9.6	12	11	.93	.9	3.9	3.8	--
29...	9.50	15	14	18	17	1.1	1.1	3.0	2.9	18
MAR										
03...	7.20	9.1	8.8	10	9.7	1.1	1.3	5.2	5.1	--
03...	5.90	6.2	6.1	5.9	5.8	.98	1.2	5.4	5.3	--
03...	6.30	7.6	7.4	8.1	7.9	1.0	1.0	4.2	4.2	--
03...	7.00	11	11	13	13	1.1	1.1	3.3	3.2	11
04...	5.90	12	12	14	14	1.1	1.1	3.2	3.3	9.6
04...	5.50	12	11	14	14	1.1	1.0	3.2	3.1	22
13...	7.90	9.5	9.2	12	11	.90	.90	4.1	4.2	<5.0
APR										
15...	12.0	7.6	7.3	8.9	8.6	.87	1.3	3.2	3.2	13
15...	11.5	7.3	6.8	8.1	7.9	.84	1.0	2.8	2.8	14
15...	11.2	7.3	7.0	8.6	8.2	.80	.8	2.6	2.5	13
15...	11.0	7.8	7.5	10	9.5	.81	.8	2.5	2.4	13
15...	13.5	8.9	8.8	12	11	.80	.9	2.5	2.4	13
23...	9.60	9.4	9.2	13	13	.86	.90	2.7	2.8	10
MAY										
29...	13.1	10	10	16	15	.97	1.0	2.6	2.5	14
JUN										
19...	13.9	13	13	18	18	1.0	1.1	2.8	2.7	20
JUL										
31...	15.9	14	14	19	18	1.1	1.1	3.1	3.1	19
AUG										
19...	15.3	20	20	24	23	1.3	1.3	3.5	3.4	26

Date	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV										
28...	--	170	1500	1700	<40	<40	27	28	<3.0	<3.0
JAN										
24...	<5.0	71	<20	5000	<40	<40	24	37	<3.0	<3.0
24...	<5.0	49	50	1600	<40	<40	26	35	<3.0	<3.0
24...	<5.0	52	40	810	<40	<40	25	30	<3.0	<3.0
24...	<5.0	54	30	670	<40	<40	25	29	<3.0	<3.0
24...	<5.0	59	50	600	<40	<40	24	27	<3.0	<3.0
25...	<5.0	62	40	1900	<40	<40	24	33	<3.0	<3.0
25...	<5.0	65	40	570	<40	<40	24	27	<3.0	<3.0
25...	<5.0	72	30	580	<40	<40	24	27	<3.0	<3.0
29...	--	120	100	810	<40	<40	25	28	<3.0	<3.0
MAR										
03...	<5.0	63	<20	2800	<40	<40	22	29	<3.0	<3.0
03...	<5.0	37	60	2200	<40	<40	23	30	<3.0	<3.0
03...	--	52	60	980	<40	<40	26	28	<3.0	<3.0
03...	--	84	50	620	<40	<40	25	26	<3.0	<3.0
04...	--	91	30	640	<40	<40	26	26	<3.0	<3.0
04...	--	88	30	790	<40	<40	26	26	<3.0	<3.0
13...	<5.0	77	290	790	<80	<40	23	23	<6.0	<3.0
APR										
15...	--	57	650	3000	<40	<40	26	38	<3.0	<3.0
15...	--	53	250	1300	<40	<40	25	31	<3.0	<3.0
15...	--	56	150	910	<40	<40	25	29	<3.0	<3.0
15...	--	63	170	810	<40	<40	25	28	<3.0	<3.0
15...	--	73	100	750	<40	<40	25	30	<3.0	<3.0
23...	--	80	50	800	<40	<40	23	24	<3.0	<3.0
MAY										
29...	--	97	270	950	<40	<40	23	23	<3.0	<3.0
JUN										
19...	--	120	180	1100	<40	<40	24	25	<3.0	<3.0
JUL										
31...	--	120	<20	600	<40	<40	26	26	<3.0	<3.0
AUG										
19...	--	160	570	910	<40	<40	29	29	<3.0	<3.0

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)
NOV										
28...	<3.0	<3.0	56	53	<3.0	<3.0	2800	3400	<40	<40
JAN										
24...	<3.0	<3.0	21	24	<3.0	10	1900	25000	<40	<40
24...	<3.0	<3.0	14	15	<3.0	<3.0	1600	6500	<40	<40
24...	<3.0	<3.0	16	15	<3.0	<3.0	1800	4500	<40	<40
24...	<3.0	<3.0	17	17	<3.0	<3.0	2000	4400	<40	<40
24...	<3.0	3.0	17	18	<3.0	<3.0	2200	3900	<40	<40
25...	<3.0	14	19	17	<3.0	21	2400	4400	<40	<40
25...	<3.0	<3.0	19	20	<3.0	<3.0	2600	3800	<40	<40
25...	3.0	<3.0	22	21	<3.0	<3.0	2800	4200	<40	<40
29...	<3.0	<3.0	38	37	<3.0	<3.0	4000	5300	<40	<40
MAR										
03...	<3.0	4.0	20	20	<3.0	8.0	890	13000	<40	<40
03...	<3.0	17	11	13	<3.0	15	700	12000	<40	<40
03...	<3.0	<3.0	17	18	<3.0	7.0	1300	6300	<40	<40
03...	<3.0	<3.0	29	30	<3.0	<3.0	2700	4200	<40	<40
04...	<3.0	<3.0	33	33	<3.0	<3.0	3000	4400	<40	<40
04...	<3.0	<3.0	31	31	<3.0	5.0	2900	4800	<40	<40
13...	<6.0	<3.0	29	27	7.0	<3.0	2700	3900	<80	<40
APR										
15...	<3.0	<3.0	22	25	<3.0	6.0	2900	9900	<40	<40
15...	<3.0	<3.0	20	21	<3.0	3.0	1400	4700	<40	<40
15...	<3.0	<3.0	22	21	<3.0	<3.0	1400	3700	<40	<40
15...	<3.0	<3.0	23	23	<3.0	<3.0	1600	3500	<40	<40
15...	<3.0	<3.0	27	27	<3.0	<3.0	2100	3600	<40	<40
23...	<3.0	<3.0	30	30	<3.0	<3.0	3100	4400	<40	<40
MAY										
29...	<3.0	<3.0	42	41	<3.0	<3.0	3000	4600	<40	<40
JUN										
19...	<3.0	<3.0	45	44	<3.0	<3.0	3700	5500	<40	<40
JUL										
31...	<3.0	<3.0	36	35	<3.0	<3.0	4500	6200	<40	<40
AUG										
19...	<3.0	<3.0	60	59	<3.0	<3.0	4300	5600	<40	<40

Date	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	SELE-NIUM, DIS-SOLVED (µG/L AS SE) (01145)	SELE-NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
NOV								
28...	2000	2000	92	87	<100	<100	230	210
JAN								
24...	1000	1100	30	31	<100	<100	71	120
24...	690	700	19	21	<100	<100	52	110
24...	720	730	23	22	<100	<100	49	96
24...	750	750	22	24	<100	<100	62	80
24...	810	820	27	28	<100	<100	54	80
25...	850	870	24	32	<100	<100	58	150
25...	890	880	28	27	<100	<100	62	89
25...	980	980	36	33	<100	<100	64	120
29...	1500	1500	57	55	<100	<100	140	170
MAR								
03...	970	990	30	34	<100	<100	70	80
03...	550	600	31	38	<100	<100	45	65
03...	750	770	29	30	<100	<100	73	80
03...	1200	1200	46	46	<100	<100	120	120
04...	1300	1200	51	48	<100	<100	120	120
04...	1200	1200	47	51	<100	<100	120	120
13...	1100	1000	46	44	<200	<100	130	110
APR								
15...	850	900	37	40	<100	<100	100	190
15...	740	760	35	36	<100	<100	110	120
15...	770	770	36	35	<100	<100	97	150
15...	820	820	39	38	<100	<100	100	130
15...	980	970	42	44	<100	<100	110	160
23...	1200	1200	46	47	<100	<100	92	97
MAY								
29...	1300	1300	64	62	<100	<100	160	150
JUN								
19...	1500	1500	68	67	<100	<100	170	170
JUL								
31...	1700	1700	51	51	<100	<100	80	92
AUG								
19...	2200	2100	94	91	<100	<100	230	220

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	460	415	436	412	348	384	338	289	317	292	271	277
2	426	415	420	402	358	379	307	293	300	321	267	303
3	470	414	447	360	339	355	375	306	320	277	242	252
4	442	408	419	396	336	377	388	341	375	265	241	244
5	408	399	403	388	343	360	341	320	328	343	265	318
6	448	399	430	344	331	337	363	314	325	308	256	281
7	420	393	399	427	332	401	371	337	359	325	264	281
8	396	389	392	397	333	354	337	205	298	344	304	332
9	439	392	427	333	328	330	306	197	235	304	271	278
10	415	380	387	427	330	404	341	300	326	328	270	288
11	405	371	375	393	334	348	300	281	285	346	246	296
12	428	400	418	334	328	330	350	282	298	247	241	245
13	400	371	377	431	333	410	361	306	340	324	246	276
14	384	279	367	389	286	322	306	211	250	328	263	295
15	368	268	334	334	306	310	325	214	251	263	253	257
16	345	287	331	394	334	383	338	288	320	330	253	290
17	422	281	338	388	332	360	288	225	265	334	292	323
18	422	369	397	368	316	323	286	172	222	292	267	274
19	369	359	364	392	368	386	303	264	284	314	264	274
20	437	359	389	383	327	350	270	262	265	348	309	330
21	428	373	397	368	312	321	339	270	301	309	268	279
22	373	359	363	397	368	389	340	286	316	322	268	279
23	432	353	390	386	310	359	287	242	267	345	289	329
24	416	359	385	338	302	327	309	240	274	289	178	224
25	359	352	355	346	187	291	317	272	292	276	183	218
26	431	352	391	250	187	217	272	268	270	294	244	275
27	417	362	387	346	250	273	333	268	313	244	235	238
28	362	359	360	381	326	363	329	277	298	297	236	263
29	420	357	393	326	290	305	277	268	274	300	246	278
30	407	357	377	294	200	269	337	271	320	246	230	237
31	357	349	351	---	---	---	331	281	296	288	230	261
MONTH	470	268	387	431	187	344	388	172	296	348	178	277

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	286	213	246	298	241	272	208	169	183	208	173	185
2	230	215	224	241	189	235	214	199	211	210	133	172
3	289	230	272	224	131	188	202	196	199	185	165	176
4	286	237	255	229	204	210	228	201	217	212	185	202
5	264	239	243	219	210	215	232	209	222	211	196	204
6	298	241	288	275	219	267	216	207	209	216	194	199
7	287	235	247	255	222	229	240	216	237	219	211	216
8	287	236	242	271	222	231	237	213	219	217	199	201
9	297	260	289	284	197	266	239	212	221	210	183	199
10	273	202	248	206	173	185	231	210	221	227	190	206
11	263	197	215	258	197	223	213	205	208	226	203	219
12	273	234	261	261	219	242	242	205	233	204	188	197
13	234	228	230	220	207	214	238	194	215	214	172	202
14	287	232	258	269	211	246	231	190	201	193	173	184
15	288	235	265	264	216	235	196	135	170	235	191	210
16	235	232	233	216	211	213	194	166	186	236	206	228
17	289	233	270	268	213	257	231	181	210	207	196	204
18	287	240	259	258	160	187	226	197	210	196	104	147
19	241	238	240	229	165	184	203	132	188	186	172	179
20	292	238	282	234	124	178	219	192	206	210	179	191
21	280	233	242	169	136	156	205	192	201	216	197	210
22	285	232	241	214	169	190	216	193	203	197	191	195
23	294	259	285	214	186	201	220	193	203	206	186	200
24	259	241	245	186	175	183	225	203	219	204	192	198
25	297	241	259	232	173	216	225	196	207	217	192	199
26	297	238	279	229	84	182	228	198	207	219	214	216
27	238	230	232	181	95	141	229	205	225	214	199	202
28	298	232	266	194	179	189	205	126	156	231	202	219
29	---	---	---	182	177	179	196	134	177	228	212	221
30	---	---	---	206	179	197	200	170	186	240	209	215
31	---	---	---	207	170	196	---	---	---	242	239	240
MONTH	298	197	254	298	84	210	242	126	205	242	104	201

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	239	214	219	260	250	255	348	264	296	295	224	256
2	258	216	238	309	255	290	351	319	343	305	250	280
3	254	225	242	304	268	280	319	281	288	350	291	332
4	230	221	223	312	259	265	361	269	313	345	285	316
5	258	230	254	320	303	312	359	281	334	313	264	271
6	251	160	213	310	271	280	284	278	281	368	296	345
7	244	171	206	316	264	280	364	275	325	349	283	313
8	244	223	237	320	295	315	361	284	327	319	270	279
9	228	219	223	295	242	271	284	273	277	370	308	352
10	268	224	256	324	242	284	365	266	337	354	267	301
11	262	222	238	322	278	301	356	285	317	318	246	265
12	231	224	228	278	266	270	317	272	280	357	286	340
13	271	227	255	333	270	313	366	315	348	339	265	297
14	271	203	229	328	274	293	353	289	311	316	243	265
15	207	199	203	315	268	276	300	216	280	344	205	287
16	265	207	244	339	299	327	355	300	343	304	146	224
17	263	234	247	299	273	285	339	279	296	351	303	320
18	254	211	231	319	263	283	335	266	286	371	346	363
19	273	245	261	322	287	315	358	335	352	346	334	337
20	245	232	238	287	266	271	340	280	293	378	333	345
21	289	237	260	332	261	298	364	274	298	390	355	381
22	288	254	277	331	285	313	370	316	358	357	244	340
23	256	244	250	285	269	274	316	270	282	363	186	253
24	305	249	286	341	263	314	354	255	291	379	356	369
25	296	259	270	340	286	307	354	308	340	368	353	360
26	287	234	256	308	275	280	310	267	276	367	258	349
27	300	206	270	337	308	328	357	255	296	258	104	185
28	240	217	230	327	275	291	357	292	337	380	129	267
29	296	237	264	315	268	282	292	246	261	526	380	447
30	296	260	283	343	315	338	355	253	299	459	402	438
31	---	---	---	334	279	290	354	294	331	---	---	---
MONTH	305	160	244	343	242	293	370	216	310	526	104	316
YEAR	526	84	278									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	5.8	5.2	5.3	---	---	---	4.8	4.3	4.4	6.6	6.4	6.5
2	6.1	5.8	5.9	---	---	---	4.8	4.3	4.5	6.5	5.8	5.9
3	6.3	5.5	5.6	---	---	---	5.4	4.7	5.1	6.6	6.0	6.6
4	6.4	5.7	6.1	---	---	---	4.7	4.4	4.5	6.6	6.3	6.6
5	6.4	6.3	6.3	---	---	---	5.1	4.4	4.7	6.3	5.7	5.8
6	6.4	5.2	5.3	---	---	---	5.6	4.9	5.3	6.6	6.3	6.5
7	5.9	5.2	5.6	---	---	---	4.9	4.4	4.6	6.6	6.2	6.5
8	6.1	5.9	6.0	---	---	---	5.8	4.4	5.2	6.5	5.4	5.7
9	6.0	5.3	5.3	---	---	---	6.0	5.2	5.8	6.7	6.5	6.7
10	5.8	5.3	5.7	---	---	---	5.2	4.6	4.7	6.7	6.0	6.6
11	6.0	5.8	5.8	---	---	---	5.5	4.6	5.3	6.3	5.5	5.7
12	5.8	5.3	5.3	---	---	---	5.9	5.2	5.7	6.7	6.3	6.6
13	5.7	5.3	5.7	---	---	---	5.2	4.7	4.7	6.6	5.7	6.6
14	5.7	5.5	5.7	---	---	---	6.0	4.9	5.9	6.3	5.4	5.8
15	5.6	5.5	5.5	---	---	---	6.1	5.3	6.0	6.5	6.3	6.5
16	---	---	---	---	---	---	5.4	4.9	5.0	6.5	5.5	6.3
17	---	---	---	---	---	---	6.1	5.4	6.0	5.6	5.4	5.4
18	---	---	---	---	---	---	6.4	5.3	6.1	6.1	5.6	6.0
19	---	---	---	---	---	---	6.3	5.2	5.4	6.3	6.1	6.2
20	---	---	---	---	---	---	6.6	6.3	6.5	6.1	5.5	5.5
21	---	---	---	---	---	---	6.7	5.4	6.6	6.4	5.7	6.4
22	---	---	---	---	---	---	6.6	5.3	5.5	6.4	6.2	6.4
23	---	---	---	---	---	---	6.7	6.6	6.6	6.2	5.6	5.6
24	---	---	---	---	---	---	6.6	5.9	6.3	6.4	6.0	6.3
25	---	---	---	---	---	---	6.6	5.9	6.4	6.5	5.8	6.4
26	---	---	---	---	---	---	6.6	6.5	6.6	6.0	5.4	5.5
27	---	---	---	---	---	---	6.5	6.0	6.3	6.3	6.0	6.3
28	---	---	---	---	---	---	6.5	6.0	6.4	6.4	5.6	6.3
29	---	---	---	4.8	4.4	4.5	6.5	6.5	6.5	6.3	5.5	5.6
30	---	---	---	5.6	4.8	5.2	6.5	5.9	6.0	6.5	6.3	6.5
31	---	---	---	---	---	---	6.5	5.9	6.5	6.6	5.8	6.4
MAX	6.4	6.3	6.3	5.6	4.8	5.2	6.7	6.6	6.6	6.7	6.5	6.7
MIN	5.6	5.2	5.3	4.8	4.4	4.5	4.7	4.3	4.4	5.6	5.4	5.4

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		FEBRUARY			MARCH			APRIL			MAY	
1	6.5	5.8	6.2	6.4	6.1	6.2	6.8	6.2	6.7	6.3	5.6	6.3
2	6.6	6.5	6.5	6.4	6.3	6.4	6.7	6.2	6.3	5.8	5.5	5.5
3	6.6	6.0	6.0	6.3	5.8	5.9	6.8	6.7	6.8	5.9	5.8	5.9
4	6.8	6.0	6.7	6.5	5.9	6.4	6.8	6.0	6.3	5.9	5.2	5.3
5	6.8	6.8	6.8	6.5	6.4	6.5	6.7	6.2	6.2	5.7	5.3	5.3
6	6.8	6.3	6.4	6.5	5.8	6.0	6.8	6.7	6.7	6.1	5.3	5.7
7	6.7	6.3	6.6	6.4	6.1	6.4	6.8	6.0	6.1	5.4	5.2	5.3
8	6.6	6.4	6.6	7.0	6.3	6.4	6.7	6.2	6.7	6.1	5.4	6.0
9	6.4	6.2	6.2	6.9	6.7	6.8	6.7	5.9	6.7	6.0	5.1	5.3
10	6.7	6.4	6.6	7.1	6.4	7.0	6.6	6.0	6.1	6.0	5.1	5.7
11	6.6	6.4	6.6	7.2	6.7	7.1	6.7	6.6	6.6	5.9	5.2	5.3
12	6.5	6.4	6.4	7.0	6.7	6.8	6.8	5.9	6.1	6.1	5.9	6.0
13	6.6	6.5	6.6	7.0	7.0	7.0	6.7	6.1	6.6	6.0	5.1	5.2
14	6.6	6.2	6.5	7.0	6.6	6.8	6.7	6.0	6.6	5.8	5.2	5.7
15	6.5	6.2	6.3	7.0	6.8	7.0	6.3	5.6	5.8	5.8	5.0	5.8
16	6.5	6.4	6.5	7.0	6.9	7.0	6.5	6.3	6.4	6.0	5.0	5.1
17	6.5	6.1	6.3	7.0	6.7	6.8	6.6	5.8	6.0	6.4	6.0	6.2
18	6.5	6.2	6.4	6.9	6.8	6.9	6.5	6.0	6.4	6.3	5.0	5.1
19	6.8	6.5	6.5	7.0	6.8	7.0	6.4	5.7	6.4	5.6	5.0	5.3
20	6.8	6.4	6.5	6.8	6.3	6.5	6.0	5.6	5.7	5.8	5.1	5.6
21	6.6	6.4	6.6	6.7	6.5	6.6	6.1	6.0	6.1	5.4	5.0	5.1
22	6.6	6.4	6.6	6.7	6.2	6.6	6.5	5.5	6.1	6.0	5.4	5.7
23	6.5	6.3	6.3	6.8	6.2	6.5	6.6	5.9	6.6	6.0	5.1	5.1
24	6.6	6.5	6.5	6.8	6.8	6.8	6.5	5.8	6.0	5.8	5.1	5.2
25	6.5	6.2	6.5	6.8	6.4	6.6	6.6	6.2	6.5	6.0	5.2	5.9
26	6.4	6.2	6.3	6.9	6.4	6.8	6.6	5.8	6.6	5.2	5.1	5.1
27	6.5	6.4	6.5	6.7	6.2	6.5	6.5	5.8	6.0	6.0	5.2	5.9
28	6.5	6.1	6.3	6.5	6.1	6.2	6.5	6.2	6.3	6.1	5.1	5.2
29	---	---	---	6.7	6.5	6.6	6.3	5.5	5.7	6.0	5.1	5.2
30	---	---	---	6.7	6.1	6.3	6.3	5.7	6.2	6.2	5.2	6.1
31	---	---	---	6.7	6.3	6.7	---	---	---	5.3	5.0	5.1
MAX	6.8	6.8	6.8	7.2	7.0	7.1	6.8	6.7	6.8	6.4	6.0	6.3
MIN	6.4	5.8	6.0	6.3	5.8	5.9	6.0	5.5	5.7	5.2	5.0	5.1

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	6.4	5.3	6.3	6.6	6.1	6.5	6.5	5.2	6.3	5.2	4.7	5.1
2	6.6	5.2	5.5	6.8	5.8	6.1	5.2	5.0	5.0	5.5	4.9	5.2
3	6.5	5.3	5.6	6.4	5.8	6.0	6.2	5.1	6.1	5.1	4.6	4.7
4	6.6	6.5	6.6	6.4	6.1	6.4	6.3	5.0	6.1	4.7	4.6	4.6
5	6.6	5.4	5.6	6.1	5.3	5.5	5.6	4.9	5.0	5.0	4.7	5.0
6	6.6	5.7	6.4	6.3	5.3	6.3	6.1	5.6	6.0	5.1	4.6	4.7
7	6.5	5.4	6.5	6.4	5.8	6.4	6.2	5.0	6.0	4.8	4.5	4.6
8	6.3	5.5	5.6	6.0	5.4	5.5	6.1	4.8	5.0	5.4	4.8	5.2
9	6.5	6.3	6.4	6.4	6.0	6.3	6.6	6.1	6.4	5.4	4.5	4.7
10	6.5	5.6	5.6	6.4	5.2	6.2	6.5	5.0	5.3	4.9	4.4	4.6
11	6.5	5.6	6.3	6.1	5.2	5.5	6.1	5.0	5.1	6.0	4.9	5.6
12	6.7	6.5	6.6	6.4	6.1	6.3	6.4	6.1	6.3	6.0	4.4	4.6
13	6.7	5.2	5.6	6.3	5.3	5.8	6.3	5.1	5.2	4.8	4.4	4.6
14	6.3	5.2	5.5	6.4	5.4	6.0	6.3	5.0	5.5	5.7	4.8	5.3
15	6.7	6.3	6.6	6.4	6.2	6.4	6.6	5.8	6.5	5.4	4.5	4.7
16	6.8	5.4	5.8	6.2	5.4	5.5	6.4	5.3	5.4	5.0	4.6	4.7
17	6.7	5.5	6.3	---	---	---	6.2	5.3	5.9	5.0	4.6	4.7
18	6.8	6.3	6.7	---	---	---	6.4	5.9	6.3	4.9	4.3	4.5
19	6.3	5.6	5.7	---	---	---	5.9	5.2	5.3	4.5	4.3	4.3
20	6.7	6.0	6.6	---	---	---	6.1	5.3	5.9	4.6	4.5	4.5
21	6.8	5.6	6.7	---	---	---	6.4	5.0	6.0	4.5	4.2	4.3
22	6.5	5.6	5.7	---	---	---	5.0	4.8	4.9	4.5	4.1	4.2
23	6.6	6.4	6.6	---	---	---	6.1	4.9	5.9	4.8	4.4	4.6
24	6.7	5.6	5.7	---	---	---	6.3	5.1	6.1	4.4	4.2	4.3
25	6.4	5.6	6.1	---	---	---	5.1	4.9	5.0	4.4	4.2	4.3
26	6.6	6.0	6.5	---	---	---	5.9	5.0	5.7	4.9	4.4	4.5
27	6.0	5.6	5.8	---	---	---	6.1	4.9	5.9	5.4	4.6	4.7
28	6.5	6.0	6.4	---	---	---	5.0	4.8	4.9	5.0	4.5	4.6
29	6.7	5.6	6.5	---	---	---	5.7	4.9	5.7	4.7	4.5	4.6
30	6.1	5.6	5.7	6.2	5.0	5.0	6.0	4.8	5.8	4.5	4.3	4.4
31	---	---	---	6.4	5.0	6.2	4.8	4.7	4.7	---	---	---
MAX	6.8	6.5	6.7	6.8	6.2	6.5	6.6	6.1	6.5	6.0	4.9	5.6
MIN	6.0	5.2	5.5	6.0	5.0	5.0	4.8	4.7	4.7	4.4	4.1	4.2

YEAR			
	MAX	MAXIMUM 7.2	MINIMUM 4.4
	MIN	MAXIMUM 7.0	MINIMUM 4.1
	MEDIAN	MAXIMUM 7.1	MINIMUM 4.2

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	12.5	11.0	11.5	12.0	8.0	10.0	12.0	9.0	11.0	5.5	3.5	4.5
2	14.0	11.0	12.0	13.5	10.5	12.0	9.5	7.0	8.5	7.5	5.0	6.0
3	14.0	11.5	13.0	13.0	10.0	12.0	8.5	5.5	7.0	6.0	4.5	5.0
4	14.5	12.0	13.0	12.0	9.0	10.5	11.0	7.5	9.0	6.5	4.5	5.5
5	14.0	11.5	13.0	10.5	7.5	8.5	11.5	9.0	10.5	8.0	6.0	7.0
6	13.0	11.0	12.5	8.5	6.0	8.0	11.5	9.0	10.0	6.5	2.0	5.5
7	11.0	9.0	9.5	12.0	8.0	10.0	11.5	8.5	10.5	6.5	4.0	6.0
8	9.5	8.0	8.5	11.0	8.0	9.5	8.5	6.5	7.0	7.5	5.0	6.0
9	11.0	8.0	9.5	10.5	7.0	9.0	8.0	6.5	7.5	7.5	4.5	6.0
10	12.0	8.0	10.0	10.5	7.0	9.0	8.5	6.0	7.0	9.0	6.0	7.5
11	13.0	9.5	11.0	9.5	6.0	8.0	9.5	6.5	8.0	8.0	6.0	7.5
12	14.0	11.0	12.5	8.0	5.0	6.5	9.0	5.0	7.0	7.5	5.5	6.5
13	14.5	12.0	13.0	10.0	6.5	8.0	10.5	9.0	9.5	7.0	6.0	6.5
14	14.5	12.5	13.5	8.5	5.0	7.0	10.5	10.0	10.0	7.5	5.5	6.5
15	13.5	10.5	12.5	10.5	7.5	9.0	10.0	7.0	8.0	7.5	6.0	6.5
16	12.0	9.0	10.5	12.5	9.0	10.5	8.0	6.5	7.5	7.5	5.5	6.5
17	10.5	9.5	10.0	10.5	7.5	8.5	8.5	7.0	7.5	8.5	6.0	7.5
18	11.0	8.5	9.5	8.5	6.5	7.5	9.0	7.5	8.0	6.0	4.0	5.0
19	11.0	7.5	9.0	10.5	7.5	8.5	9.0	7.5	8.0	5.0	3.5	4.0
20	12.5	9.5	11.0	9.0	6.0	8.0	7.5	6.0	7.0	7.5	5.0	6.0
21	13.0	10.0	11.5	6.5	4.0	5.5	8.0	5.5	7.0	6.0	4.5	5.5
22	13.5	11.0	12.0	9.5	6.0	7.5	7.5	6.0	7.0	7.5	5.0	6.5
23	13.0	10.5	12.0	8.5	5.0	6.5	8.0	6.0	7.0	8.5	6.5	7.5
24	15.0	12.5	13.5	11.0	7.0	8.5	8.5	7.0	8.0	7.0	5.5	6.0
25	13.5	10.5	12.5	12.0	10.0	11.0	7.5	5.5	6.5	7.0	4.5	6.0
26	10.5	9.0	10.0	10.5	9.0	9.5	6.5	5.0	5.5	8.0	5.5	6.5
27	9.5	8.0	9.0	10.5	8.0	9.0	7.0	4.5	6.0	8.5	4.5	6.0
28	9.0	6.5	8.0	12.0	10.0	11.0	7.0	5.5	6.0	9.5	5.0	7.0
29	10.5	6.0	8.5	11.0	10.5	10.5	7.0	4.5	5.5	10.5	7.5	8.5
30	11.0	8.5	10.0	12.5	10.5	11.5	6.0	4.5	5.5	10.0	8.5	9.0
31	9.5	7.5	8.5	---	---	---	5.5	3.5	4.5	8.5	7.5	8.0
MONTH	15.0	6.0	11.0	13.5	4.0	9.0	12.0	3.5	7.6	10.5	2.0	6.4

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	8.5	6.0	8.0	9.0	5.5	7.0	10.5	9.0	9.5	12.0	9.5	10.5
2	6.5	5.0	6.0	8.0	5.5	7.0	11.0	9.0	10.0	12.0	10.5	11.0
3	8.0	5.5	7.0	8.5	6.0	7.0	11.5	8.5	10.0	11.5	10.0	10.5
4	7.5	4.0	6.0	6.0	3.5	5.0	10.5	8.0	9.0	12.5	9.0	10.5
5	6.0	3.5	4.5	6.0	3.0	4.5	9.5	8.0	8.5	13.0	10.0	11.5
6	8.5	5.0	7.0	10.0	4.5	7.5	9.5	8.0	8.5	13.0	10.5	11.5
7	8.5	6.5	7.5	10.0	6.0	8.0	10.5	7.5	9.0	13.5	11.5	12.5
8	9.0	6.5	7.5	11.0	6.5	8.5	11.0	8.5	9.5	13.5	11.5	12.5
9	10.0	7.0	8.5	11.0	9.0	10.0	11.5	10.0	11.0	12.5	11.5	11.5
10	9.0	7.5	8.0	10.0	5.0	7.0	12.5	9.5	10.5	13.5	11.5	12.0
11	8.0	5.5	6.5	8.5	5.0	6.5	12.5	8.5	10.5	13.0	11.0	12.0
12	8.0	6.0	6.5	9.0	7.0	8.0	11.0	9.0	10.0	12.5	11.5	12.0
13	7.0	5.0	6.5	8.5	7.5	8.0	12.0	11.0	11.5	12.5	12.0	12.0
14	8.0	4.0	6.0	12.0	8.0	10.0	13.5	10.0	12.0	12.0	10.5	11.0
15	8.5	6.5	7.5	11.0	9.0	10.0	13.5	11.0	12.0	12.5	10.0	11.5
16	9.5	7.0	8.0	10.5	7.5	10.0	15.5	11.5	13.0	14.0	10.5	12.0
17	9.0	6.5	7.5	8.0	7.0	7.5	16.0	12.0	13.5	14.0	12.0	13.0
18	8.0	5.5	6.5	7.5	6.5	7.0	15.0	12.5	13.5	12.0	10.5	11.0
19	9.5	5.0	7.0	8.5	7.0	7.5	16.0	12.5	13.5	11.5	10.0	10.5
20	10.5	8.0	9.5	8.0	6.0	6.5	13.5	12.0	12.5	11.0	9.5	10.5
21	10.0	8.5	9.5	9.0	5.5	7.0	12.0	10.5	11.0	11.5	9.5	10.5
22	9.0	8.0	8.5	7.0	4.5	5.5	11.5	10.0	10.5	12.0	9.5	10.5
23	9.5	6.5	8.0	8.5	5.5	6.5	12.0	9.0	10.0	13.0	10.0	11.5
24	9.5	5.5	7.0	9.0	6.0	7.5	12.5	9.0	10.5	13.5	11.0	12.5
25	10.5	6.0	8.0	9.0	8.0	8.5	11.0	9.5	10.0	13.0	11.5	12.0
26	11.0	7.5	9.0	8.5	5.5	7.5	12.0	9.0	10.5	13.0	12.0	12.5
27	8.0	5.0	6.5	7.5	6.0	7.0	12.5	9.0	11.0	14.0	12.0	13.0
28	8.5	4.5	6.5	9.5	7.0	8.0	12.0	10.5	11.0	14.0	12.0	13.0
29	---	---	---	10.5	7.5	9.0	11.0	10.0	10.5	14.0	12.5	13.0
30	---	---	---	11.5	9.5	10.0	11.0	9.5	10.0	15.0	12.5	13.5
31	---	---	---	11.0	9.5	10.0	---	---	---	15.0	12.5	13.5
MONTH	11.0	3.5	7.3	12.0	3.0	7.7	16.0	7.5	10.8	15.0	9.0	11.8

SWATARA CREEK BASIN

01571778 LORBERRY CREEK NEAR LORBERRY JUNCTION, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	15.5	12.5	14.0	18.5	14.0	16.0	20.0	16.5	18.0	17.0	14.5	15.0
2	14.5	12.5	13.5	18.5	14.0	16.0	21.5	14.5	17.5	17.0	14.0	15.0
3	14.5	11.5	13.0	20.0	15.0	17.5	21.0	16.0	18.5	18.5	13.0	15.5
4	14.0	11.5	13.0	20.0	15.5	17.5	20.0	15.5	18.0	19.5	16.0	17.5
5	15.5	13.0	14.0	17.5	14.5	16.0	20.0	15.0	17.0	18.5	15.0	16.5
6	14.0	13.0	13.5	18.0	14.0	15.5	18.5	15.5	17.0	17.5	12.5	15.0
7	14.5	13.0	13.5	17.0	13.0	15.0	17.0	13.0	15.0	18.0	12.5	15.0
8	15.0	12.0	13.5	19.5	13.0	15.5	18.0	12.5	15.0	19.0	12.5	15.0
9	16.0	12.0	14.0	19.0	14.5	16.5	19.0	13.0	15.5	18.5	12.5	15.5
10	15.5	13.0	14.0	17.5	15.0	16.0	19.0	12.5	15.5	19.5	14.0	16.5
11	16.5	13.0	14.5	17.5	12.0	14.5	20.5	14.0	17.0	18.0	14.5	16.0
12	16.0	13.5	15.0	18.0	11.5	14.5	20.0	15.5	17.5	16.5	12.5	14.0
13	14.0	13.5	13.5	16.5	12.0	14.5	20.0	15.0	17.0	17.0	11.0	14.0
14	13.5	13.0	13.5	16.5	14.0	15.0	21.5	16.0	18.5	19.0	13.5	15.5
15	14.0	13.0	13.5	20.0	13.5	16.0	23.0	16.5	18.5	18.5	16.0	17.0
16	15.0	12.5	13.5	17.0	14.0	15.5	19.5	15.0	17.0	18.5	16.0	17.0
17	16.5	12.0	14.0	21.0	13.5	16.5	21.5	16.5	18.5	18.5	14.0	15.5
18	16.0	11.5	13.5	19.0	16.0	17.0	21.5	17.0	18.5	17.5	12.5	15.0
19	16.0	12.5	14.0	20.0	14.5	16.5	20.0	15.0	17.5	16.0	14.0	15.0
20	17.0	13.0	15.0	20.0	15.0	17.5	19.5	17.5	18.5	18.5	15.0	16.0
21	16.5	13.0	14.5	18.5	14.5	16.0	19.0	14.5	16.5	17.5	15.5	16.0
22	17.5	13.0	15.0	21.0	14.5	17.5	21.0	14.5	17.5	18.5	16.5	17.0
23	18.0	13.5	15.5	20.5	16.0	18.0	20.0	17.5	18.5	17.5	13.0	16.0
24	17.5	14.0	15.5	18.0	14.5	16.0	18.5	16.0	17.0	16.0	11.0	13.5
25	18.5	14.0	16.0	18.5	15.5	16.5	19.5	15.0	17.0	15.5	12.0	13.5
26	18.0	14.0	16.0	17.5	14.5	15.5	18.0	14.5	16.5	14.5	13.5	14.0
27	18.0	14.0	15.5	16.0	14.0	15.0	18.0	14.5	16.0	17.5	13.5	14.5
28	18.0	15.0	16.0	20.5	15.0	17.0	16.0	14.5	15.5	16.0	13.5	15.0
29	17.0	13.5	15.0	21.5	16.5	18.0	15.5	14.0	15.0	15.5	11.5	13.0
30	18.0	13.5	15.5	20.5	15.5	17.5	16.0	14.0	15.0	15.5	12.0	13.5
31	---	---	---	21.5	15.5	18.0	18.0	13.0	15.0	---	---	---
MONTH	18.5	11.5	14.3	21.5	11.5	16.3	23.0	12.5	16.9	19.5	11.0	15.2
YEAR	23.0	2.0	11.2									

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA
(Swatara Creek Project)

LOCATION.--Lat 40°34'50", long 76°24'18", Schuylkill County, Hydrologic Unit 02050305, on right bank 800 ft downstream of Adam's Run, 1,000 ft downstream from State Highway 125 bridge crossing Swatara Creek and 0.4 mi north of Ravine.

DRAINAGE AREA.--43.3 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1996 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 590 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair except those for period Oct. 1 to Mar. 8, which are poor. Other data for this project presented in tables on pages 350-412.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 600 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 26	2230	*626	*2.61	No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	14	39	e19	57	32	122	107	59	28	13	15
2	13	13	28	e20	54	33	100	198	56	28	14	15
3	14	13	24	21	49	107	92	152	53	25	12	14
4	12	14	23	23	46	64	86	133	50	24	13	12
5	12	13	22	23	e41	53	81	121	53	24	14	12
6	13	13	21	e20	43	53	77	110	61	21	14	12
7	11	14	24	25	42	50	74	104	73	22	14	10
8	10	13	25	23	41	49	71	95	54	22	12	10
9	12	12	46	22	39	51	71	111	48	22	13	11
10	10	13	35	24	42	69	88	99	46	25	13	9.3
11	10	12	29	35	73	57	72	87	43	21	12	9.4
12	11	11	26	37	55	53	68	87	44	19	12	12
13	9.6	13	28	34	48	52	69	101	49	20	13	10
14	12	11	34	31	44	52	75	134	60	19	11	10
15	37	12	40	30	44	51	181	99	58	19	15	25
16	18	14	33	31	43	50	114	90	49	19	17	62
17	19	12	32	31	43	49	103	85	43	17	13	23
18	15	12	62	e30	39	76	96	294	40	17	12	17
19	13	14	49	e28	37	78	103	172	47	18	12	13
20	13	14	40	e29	38	132	101	140	44	18	12	13
21	12	12	36	27	38	137	92	126	37	18	11	13
22	12	14	33	28	37	109	92	112	35	18	11	13
23	13	11	31	30	37	98	86	102	33	20	13	51
24	12	13	33	66	34	92	80	94	33	23	15	22
25	12	86	30	76	34	86	80	86	32	18	14	15
26	12	68	28	56	35	152	76	83	31	16	11	18
27	11	33	27	49	35	261	72	77	44	17	12	141
28	11	25	26	49	34	155	132	73	53	17	12	128
29	12	23	26	47	---	133	135	69	35	15	16	50
30	12	31	24	49	---	120	109	65	31	14	15	37
31	11	---	21	51	---	111	---	63	---	13	13	---
TOTAL	409.6	573	975	1064	1202	2665	2798	3469	1394	617	404	802.7
MEAN	13.2	19.1	31.5	34.3	42.9	86.0	93.3	112	46.5	19.9	13.0	26.8
MAX	37	86	62	76	73	261	181	294	73	28	17	141
MIN	9.6	11	21	19	34	32	68	63	31	13	11	9.3
CFSM	0.31	0.44	0.73	0.79	0.99	1.99	2.15	2.58	1.07	0.46	0.30	0.62
IN.	0.35	0.49	0.84	0.91	1.03	2.29	2.40	2.98	1.20	0.53	0.35	0.69

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2002, BY WATER YEAR (WY)

MEAN	43.6	45.5	91.8	79.1	93.6	130	110	87.3	67.5	39.1	26.3	32.2
MAX	135	143	284	177	196	196	144	181	110	64.2	39.9	70.7
(WY)	1997	1997	1997	1998	1998	1998	1998	1998	1998	1996	1996	1999
MIN	13.2	16.5	11.4	34.3	42.9	86.0	75.4	47.0	18.4	13.5	13.0	15.7
(WY)	2002	1999	1999	2002	2002	2002	1999	1999	1999	1999	2002	1998

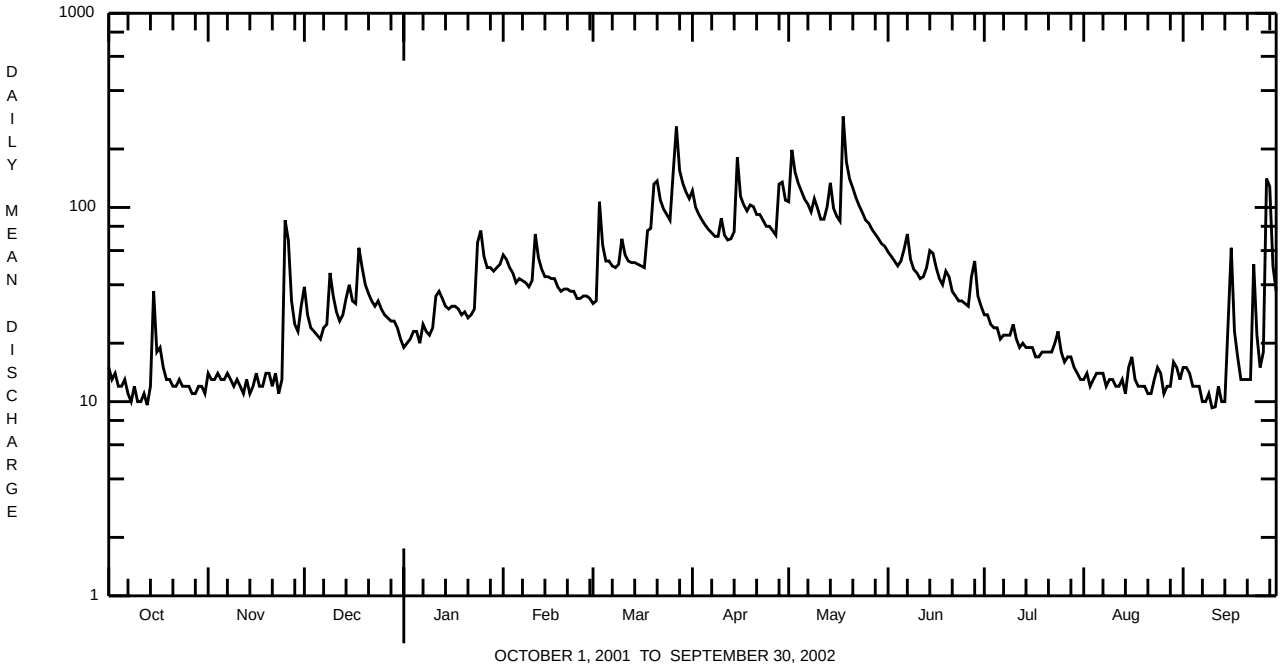
e Estimated.

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1996 - 2002	
ANNUAL TOTAL	18899.6		16373.3			
ANNUAL MEAN	51.8		44.9		69.8	
HIGHEST ANNUAL MEAN					98.7	1997
LOWEST ANNUAL MEAN					44.9	2002
HIGHEST DAILY MEAN	342	Mar 30	294	May 18	1280	Dec 17 2000
LOWEST DAILY MEAN	9.6	Oct 13	9.3	Sep 10	9.3	Sep 10 2002
ANNUAL SEVEN-DAY MINIMUM	11	Oct 7	10	Sep 7	10	Dec 14 1998
MAXIMUM PEAK FLOW			626	Mar 26	**b**2030	Dec 17 2000
MAXIMUM PEAK STAGE			2.61	Mar 26	4.17	Dec 17 2000
INSTANTANEOUS LOW FLOW			9.2	Oct 14**a**	9.2	Oct 14 2001**a**
ANNUAL RUNOFF (CFSM)	1.20		1.04		1.61	
ANNUAL RUNOFF (INCHES)	16.24		14.07		21.90	
10 PERCENT EXCEEDS	122		101		139	
50 PERCENT EXCEEDS	37		31		47	
90 PERCENT EXCEEDS	13		12		14	

a Also Sept. 9-11, 2002.
b From rating curve extended above 638 ft^3/s based on a straight line extension.



SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued
(Swatara Creek Project)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1996 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1996 to current year.
pH: April 1996 to current year.
WATER TEMPERATURE: April 1996 to current year.

INSTRUMENTATION.--Water-quality monitor (in situ system). Automatic pumping sampler for stormflow samples since July 1996.

REMARKS.--Specific conductance records rated fair except for period Sept. 12-25, which is poor. pH records rated fair. Water temperature records rated good. Interruptions in the record were due to malfunctions of the instrumentation. Some values for "*dissolved*" parameters exceed values for the corresponding "*total*" parameter. These results are within the limits of analytical precision and methods. Other data for this project presented in tables on pages 350-412. Figure 9 shows the location of sites sampled as part of the Swatara Creek Project. Abbreviations used: E, estimated.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 538 microsiemens, Jan. 9, 1999; minimum, 27 microsiemens, June 11, 1997.
pH: Maximum, 8.2, July 30, 1999; minimum, 4.7, June 13, 1998.
WATER TEMPERATURE: Maximum, 26.5°C, July 5, 6, 1999, Aug. 1, 1999; minimum, 0.0°C, many days during winters.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 376, microsiemens, Oct. 1; minimum, 69, microsiemens, Sept. 28.
PH: Maximum, 7.9, July 20, 23, Sept. 14; minimum, 6.2, Mar. 29.
WATER TEMPERATURE: Maximum, 25.0°C, July 31, Aug. 1, 2, 15, 16; minimum, 0.0°C, Dec. 31, Jan. 1, 6, 7, Feb. 5.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
OCT										
01...	1000	1028	--	15	--	--	--	6.6	--	336
NOV										
28...	0800	1028	930	26	320	11	91	6.7	6.8	252
DEC										
18...	0830	1028	930	65	--	--	--	6.6	6.5	199
JAN										
24...	1245	1028	930	83	--	--	--	6.8	6.8	254
24...	1400	1028	930	98	--	--	--	7.0	6.6	239
24...	1700	1028	930	104	--	--	--	6.9	6.6	205
24...	2000	1028	930	98	--	--	--	6.8	6.5	188
24...	2200	1028	930	94	--	--	--	6.8	6.5	176
25...	0200	1028	930	92	--	--	--	6.8	6.5	172
25...	0600	1028	930	85	--	--	--	6.7	6.5	170
25...	1000	1028	930	78	--	--	--	6.7	6.5	166
29...	0900	1028	930	48	410	13	97	6.7	6.6	215
FEB										
10...	2100	1028	930	60	--	--	--	7.0	6.7	226
11...	0000	1028	930	73	--	--	--	7.0	6.0	240
11...	0400	1028	930	83	--	--	--	6.9	6.8	222
11...	1200	1028	930	73	--	--	--	6.7	5.8	194
12...	0200	1028	930	60	--	--	--	6.6	6.8	203
MAR										
02...	0000	1028	930	32	--	--	--	6.7	6.8	221
02...	0200	1028	930	32	--	--	--	6.7	6.8	225
02...	0600	1028	930	31	--	--	--	6.7	6.7	227
03...	2200	1028	930	83	--	--	--	6.6	6.7	157
04...	0800	1028	930	66	--	--	--	6.6	6.6	167
13...	0945	1028	930	52	350	13	100	6.8	6.0	196
APR										
14...	2300	1028	930	83	--	--	--	6.6	6.9	190
15...	0200	1028	930	203	--	--	--	7.0	7.0	164
15...	0400	1028	930	256	--	--	--	6.8	6.7	147
15...	0600	1028	930	249	--	--	--	6.7	6.7	131
15...	1600	1028	930	158	--	--	--	6.6	6.6	138
23...	0845	1028	930	86	370	12	97	6.6	6.7	176
MAY										
02...	0700	1028	930	117	--	--	--	6.3	6.8	163
02...	0800	1028	930	145	--	--	--	6.4	6.8	148
02...	1000	1028	930	297	--	--	--	6.5	6.7	135
02...	1200	1028	930	308	--	--	--	6.5	6.7	128
02...	1800	1028	930	225	--	--	--	6.3	6.8	123
29...	0930	1028	930	71	320	10	98	6.4	6.6	205
JUN										
19...	0900	1028	930	46	310	9.9	98	6.5	6.4	228
JUL										
31...	0900	1028	930	13	200	9.1	99	7.0	6.6	314
AUG										
19...	0800	1028	930	13	240	9.1	98	7.0	7.1	330

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
OCT										
01...	10.8	--	--	--	--	--	--	--	--	--
NOV										
28...	9.00	18	18	12	12	1.7	1.7	8.0	7.7	--
DEC										
18...	7.20	13	13	8.0	7.7	1.3	1.6	7.4	7.2	<5.0
JAN										
24...	3.80	18	17	11	11	1.4	2.4	17	17	--
24...	3.70	16	16	9.9	9.5	1.4	2.0	15	14	--
24...	3.80	14	14	7.6	7.5	1.3	1.9	16	16	--
24...	3.70	13	12	6.8	6.7	1.4	1.8	13	13	--
24...	3.90	12	12	6.5	6.3	1.4	1.6	13	13	--
25...	3.80	11	10	5.9	5.5	1.3	1.8	9.8	9.8	--
25...	3.40	11	11	5.9	5.8	1.3	1.3	9.0	8.8	--
25...	3.00	11	11	6.1	5.9	1.2	1.3	8.6	8.3	--
29...	3.70	14	13	10	9.4	1.2	1.2	8.1	8.0	--
FEB										
10...	6.40	15	15	9.6	9.4	1.3	1.5	11	11	--
11...	6.60	13	12	8.4	8.1	1.2	1.2	9.4	9.4	--
11...	5.90	13	12	8.3	7.9	1.3	1.3	9.9	9.7	--
11...	4.70	13	12	7.5	7.0	1.3	1.3	11	10	--
12...	2.40	15	14	8.3	7.9	1.5	1.6	14	13	--
MAR										
02...	2.90	14	14	9.8	9.6	1.2	1.5	9.0	9.0	--
02...	2.40	13	13	8.4	8.2	1.2	1.7	9.8	9.8	--
02...	1.80	12	12	7.0	7.0	1.3	2.1	11	11	--
03...	5.00	10	9.7	6.2	5.9	1.2	1.4	7.4	7.4	--
04...	2.50	11	11	6.9	6.8	1.2	1.2	7.3	7.3	--
13...	5.30	10	10	6.1	6.0	1.2	1.4	11	12	--
APR										
14...	13.2	12	12	8.9	8.6	1.1	1.7	6.1	6.0	--
15...	12.9	11	11	6.2	6.5	1.2	2.4	6.5	6.5	--
15...	12.4	8.3	8.2	4.9	4.9	1.1	1.6	5.4	5.4	--
15...	11.9	9.3	9.6	5.3	5.5	1.2	2.2	6.1	6.1	--
15...	14.2	8.5	8.4	5.6	5.4	1.1	1.3	5.4	5.3	--
23...	8.00	11	11	8.9	8.6	1.0	1.0	5.6	5.5	--
MAY										
02...	10.5	9.9	9.9	7.2	7.2	.96	1.7	5.4	5.3	--
02...	10.5	9.6	9.6	6.7	6.7	1.0	1.6	5.5	5.2	--
02...	10.5	8.9	9.5	5.3	5.9	1.3	3.2	5.6	5.2	--
02...	10.5	8.2	8.5	4.8	5.1	1.1	2.4	5.4	5.0	--
02...	12.0	8.4	8.4	5.1	5.3	1.1	2.1	4.7	4.7	--
29...	14.4	14	13	11	11	1.0	1.0	5.2	5.2	--
JUN										
19...	14.1	16	15	12	12	1.1	1.2	6.0	5.8	--
JUL										
31...	19.3	22	21	16	15	1.4	1.5	8.5	8.2	--
AUG										
19...	19.7	22	22	18	17	1.4	1.5	8.6	8.4	--

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
OCT										
01...	--	--	--	--	--	--	--	--	--	--
NOV										
28...	10	88	20	240	<40	<40	22	23	<3.0	<3.0
DEC										
18...	--	57	30	1800	<40	<40	20	31	<3.0	<3.0
JAN										
24...	7.1	72	<20	6500	<40	<40	21	59	<3.0	<3.0
24...	<5.0	67	<20	6000	<40	<40	22	55	<3.0	<3.0
24...	<5.0	51	40	4000	<40	<40	21	46	<3.0	<3.0
24...	5.5	47	50	3700	<40	<40	22	43	<3.0	<3.0
24...	5.5	45	30	2200	<40	<40	23	38	<3.0	<3.0
25...	5.1	41	60	2500	<40	<40	22	35	<3.0	<3.0
25...	<5.0	43	60	830	<40	<40	23	30	<3.0	<3.0
25...	<5.0	44	50	640	<40	<40	22	28	<3.0	<3.0
29...	6.1	69	20	170	<40	<40	21	25	<3.0	<3.0
FEB										
10...	5.5	67	80	2200	<40	<40	21	34	<3.0	<3.0
11...	<5.0	58	<20	260	<40	<40	24	28	<3.0	<3.0
11...	5.9	57	20	340	<40	<40	24	29	<3.0	<3.0
11...	<5.0	53	70	610	<40	<40	24	30	<3.0	<3.0
12...	6.3	58	290	2600	<40	<40	22	41	<3.0	<3.0
MAR										
02...	7.3	68	<20	1800	<40	<40	19	28	<3.0	<3.0
02...	6.2	59	<20	4200	<40	<40	18	35	<3.0	<3.0
02...	5.4	51	30	7200	<40	<40	17	53	<3.0	<3.0
03...	<5.0	44	30	800	<40	<40	22	26	<3.0	<3.0
04...	<5.0	49	40	400	<40	<40	22	23	<3.0	<3.0
13...	6.2	41	50	1700	<400	<40	23	34	<6.0	<3.0
APR										
14...	<5.0	60	90	4200	<40	<40	21	49	<3.0	<3.0
15...	5.7	43	550	7800	<40	<40	21	69	<3.0	<3.0
15...	<5.0	35	310	3700	<40	<40	22	44	<3.0	<3.0
15...	<5.0	38	510	6400	<40	<40	22	65	<3.0	<3.0
15...	<5.0	39	70	1000	<40	<40	23	32	<3.0	<3.0
23...	5.0	58	30	270	<40	<40	21	22	<3.0	<3.0
MAY										
02...	<5.0	48	30	4400	<40	<40	20	50	<3.0	<3.0
02...	<5.0	44	40	3800	<40	<40	19	45	<3.0	<3.0
02...	<5.0	38	120	12000	<40	<40	18	100	<3.0	<3.0
02...	<5.0	35	90	7700	<40	<40	20	74	<3.0	<3.0
02...	<5.0	36	70	5500	<40	<40	22	58	<3.0	<3.0
29...	5.3	75	<20	330	<40	<40	22	23	<3.0	<3.0
JUN										
19...	7.3	82	<20	570	<40	<40	21	22	<3.0	<3.0
JUL										
31...	11	110	20	140	<40	<40	19	19	<3.0	<3.0
AUG										
19...	7.6	120	<20	170	<40	<40	20	20	<3.0	<3.0

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)
OCT										
01...	--	--	--	--	--	--	--	--	--	--
NOV										
28...	<3.0	<3.0	10	11	<3.0	<3.0	150	420	<40	<40
DEC										
18...	<3.0	<3.0	7.0	15	<3.0	<3.0	100	4400	<40	<40
JAN										
24...	<3.0	6.0	9.0	23	<3.0	9.0	<10	17000	<40	<40
24...	<3.0	4.0	8.0	28	<3.0	11	<10	19000	<40	<40
24...	<3.0	4.0	7.0	20	<3.0	9.0	20	13000	<40	<40
24...	<3.0	<3.0	7.0	14	<3.0	6.0	20	8800	<40	<40
24...	<3.0	3.0	7.0	12	<3.0	<3.0	40	5700	<40	<40
25...	<3.0	<3.0	6.0	9.0	<3.0	<3.0	80	3700	<40	<40
25...	<3.0	<3.0	8.0	9.0	<3.0	<3.0	110	1900	<40	<40
25...	<3.0	<3.0	7.0	9.0	<3.0	<3.0	130	1500	<40	<40
29...	<3.0	<3.0	13	11	<3.0	<3.0	440	790	<40	<40
FEB										
10...	<3.0	<3.0	11	15	<3.0	4.0	300	8500	<40	<40
11...	<3.0	<3.0	12	12	<3.0	<3.0	210	1200	<40	<40
11...	<3.0	<3.0	11	13	<3.0	<3.0	170	1400	<40	<40
11...	<3.0	<3.0	9.0	12	<3.0	<3.0	120	1800	<40	<40
12...	<3.0	<3.0	10	14	<3.0	4.0	1100	8400	<40	<40
MAR										
02...	<3.0	<3.0	10	12	<3.0	<3.0	<10	5000	<40	<40
02...	<3.0	<3.0	8.0	15	<3.0	5.0	<10	17000	<40	<40
02...	<3.0	6.0	6.0	26	<3.0	9.0	40	25000	<40	<40
03...	<3.0	<3.0	7.0	9.0	<3.0	<3.0	120	1900	<40	<40
04...	<3.0	<3.0	9.0	9.0	<3.0	<3.0	310	1200	<40	<40
13...	<6.0	4.0	10	12	<6.0	7.0	290	5000	<80	<40
APR										
14...	<3.0	<3.0	9.0	26	<3.0	4.0	310	12000	<40	<40
15...	<3.0	5.0	7.0	22	<3.0	11	1500	17000	<40	<40
15...	<3.0	<3.0	6.0	17	<3.0	3.0	510	7300	<40	<40
15...	<3.0	<3.0	5.0	21	<3.0	7.0	1000	13000	<40	<40
15...	<3.0	<3.0	7.0	9.0	<3.0	<3.0	190	2000	<40	<40
23...	<3.0	<3.0	11	12	<3.0	<3.0	430	1000	<40	<40
MAY										
02...	<3.0	<3.0	8.0	24	<3.0	6.0	70	10000	<40	<40
02...	<3.0	<3.0	7.0	21	<3.0	4.0	60	9500	<40	<40
02...	<3.0	9.0	4.0	26	<3.0	14	150	23000	<40	<40
02...	<3.0	8.0	4.0	20	<3.0	8.0	100	14000	<40	<40
02...	<3.0	6.0	7.0	16	<3.0	<3.0	80	8800	<40	<40
29...	<3.0	9.0	15	16	<3.0	18	420	1400	<40	<40
JUN										
19...	3.0	<3.0	13	14	<3.0	<3.0	280	1400	<40	<40
JUL										
31...	<3.0	<3.0	5.0	6.0	<3.0	<3.0	120	590	<40	<40
AUG										
19...	<3.0	<3.0	12	12	<3.0	<3.0	170	780	<40	<40

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	MANGANESE, DISSOLVED (µG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (µG/L AS MN) (01055)	NICKEL, DISSOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOVERABLE (µG/L AS NI) (01067)	SELENIUM, DISSOLVED (µG/L AS SE) (01145)	SELENIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DISSOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOVERABLE (µG/L AS ZN) (01092)
OCT								
01...	--	--	--	--	--	--	--	--
NOV								
28...	650	660	26	27	<100	<100	55	52
DEC								
18...	490	740	15	20	<100	<100	38	55
JAN								
24...	550	980	18	29	<100	<100	28	130
24...	520	1200	17	31	<100	<100	39	140
24...	420	820	12	21	<100	<100	28	110
24...	440	670	12	17	<100	<100	31	91
24...	430	590	12	14	<100	<100	28	76
25...	370	450	10	15	<100	<100	29	50
25...	420	460	10	14	<100	<100	32	73
25...	410	450	12	13	<100	<100	31	64
29...	660	640	22	20	<100	<100	53	89
FEB								
10...	540	700	18	21	<100	<100	33	88
11...	590	590	18	19	<100	<100	46	86
11...	570	580	17	20	<100	<100	44	79
11...	520	570	18	18	<100	<100	42	83
12...	500	690	18	20	<100	<100	32	120
MAR								
02...	560	620	19	22	<100	<100	31	53
02...	460	670	17	22	<100	<100	25	73
02...	390	1100	15	29	<100	<100	22	110
03...	420	470	16	18	<100	<100	37	48
04...	470	480	18	19	<100	<100	40	48
13...	440	480	12	16	<200	<100	69	58
APR								
14...	460	1000	20	33	<100	<100	48	170
15...	370	870	14	30	<100	<100	21	150
15...	320	720	10	20	<100	<100	23	110
15...	340	820	11	24	<100	<100	20	130
15...	350	420	15	16	<100	<100	33	110
23...	550	550	20	21	<100	<100	55	51
MAY								
02...	360	870	16	30	<100	<100	38	140
02...	350	750	14	26	<100	<100	32	170
02...	290	1000	12	33	<100	<100	17	170
02...	280	790	13	27	<100	<100	18	150
02...	340	610	16	25	<100	<100	26	120
29...	640	640	29	53	<100	<100	59	66
JUN								
19...	580	590	34	25	<100	<100	74	55
JUL								
31...	300	310	13	13	<100	<100	29	29
AUG								
19...	510	520	24	23	<100	<100	54	53

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	376	308	329	363	321	346	234	---	---	283	256	270
2	342	309	325	368	322	344	245	215	230	293	265	278
3	347	311	329	355	322	338	263	229	244	286	261	273
4	340	306	323	361	323	340	275	249	261	276	258	267
5	338	309	322	361	315	336	268	242	255	284	261	274
6	342	310	329	344	307	328	274	245	259	277	251	264
7	338	310	323	356	315	338	283	252	267	269	242	253
8	337	311	322	355	315	332	274	---	---	287	257	277
9	359	314	335	343	310	326	250	---	---	290	258	270
10	341	315	328	360	310	338	232	---	---	308	259	274
11	341	316	329	357	316	332	250	217	232	312	258	286
12	359	320	337	350	315	334	265	225	242	277	235	253
13	340	309	326	366	320	344	274	240	256	260	229	242
14	336	270	321	351	318	335	260	---	---	259	234	246
15	284	227	255	345	306	328	225	---	---	249	232	241
16	286	249	265	346	315	332	243	---	---	256	232	243
17	310	263	282	344	315	330	242	---	---	261	239	248
18	321	279	302	340	309	326	221	---	---	---	---	---
19	324	290	305	349	312	334	205	171	188	---	---	---
20	345	299	317	349	313	328	217	192	203	---	---	---
21	341	301	321	342	310	324	238	203	220	285	245	262
22	343	303	319	354	321	341	242	221	232	284	247	261
23	357	303	328	355	316	335	243	225	233	289	257	274
24	352	303	327	340	311	324	251	221	236	325	170	236
25	335	308	323	327	154	255	256	229	240	190	165	173
26	359	308	332	199	159	178	250	230	241	204	183	194
27	360	313	335	235	196	216	266	239	253	208	190	199
28	351	318	332	269	227	253	272	244	256	221	196	208
29	375	323	349	268	243	256	262	239	252	224	198	211
30	367	324	349	267	214	244	279	246	265	216	197	206
31	364	314	338	---	---	---	282	257	268	223	197	209
MONTH	376	227	321	368	154	314	283	171	242	325	165	246

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	222	191	207	249	221	238	174	155	163	173	150	155
2	211	187	197	236	217	229	172	159	167	169	114	139
3	220	193	209	218	147	167	164	150	155	153	128	139
4	254	200	215	182	158	170	169	156	162	164	145	152
5	234	210	218	192	179	186	176	166	171	165	152	158
6	240	214	226	206	185	197	185	170	174	170	155	160
7	236	210	223	202	185	192	192	175	184	168	154	161
8	233	211	221	215	179	193	197	180	188	166	151	159
9	237	214	227	220	190	213	205	184	192	164	147	154
10	272	214	229	206	176	186	199	172	180	167	143	154
11	240	189	203	205	181	190	200	175	186	173	155	165
12	214	193	205	208	193	202	210	186	199	171	155	162
13	212	195	204	208	190	200	206	184	199	163	144	155
14	224	201	211	215	193	204	196	182	189	166	146	154
15	224	201	214	215	195	206	189	127	141	182	159	169
16	216	199	207	208	194	200	161	141	152	188	172	180
17	226	197	212	222	199	211	169	151	161	186	175	181
18	224	206	215	266	173	211	179	162	169	181	105	128
19	226	207	215	184	168	174	176	149	166	147	129	139
20	237	208	225	211	172	188	182	155	169	164	144	151
21	235	207	219	173	156	161	184	172	178	168	151	161
22	232	208	216	174	161	167	184	170	177	174	161	166
23	241	222	229	176	167	172	194	168	179	184	166	175
24	239	220	229	184	169	174	199	180	189	186	172	180
25	243	227	233	193	167	181	201	178	189	195	173	185
26	245	222	235	195	117	177	203	175	187	203	183	192
27	236	217	225	145	114	130	207	186	196	202	183	192
28	245	216	229	157	141	149	196	131	160	205	188	199
29	---	---	---	162	148	154	161	130	143	211	195	202
30	---	---	---	176	150	165	165	148	157	224	197	208
31	---	---	---	179	166	173	---	---	---	228	211	220
MONTH	272	187	218	266	114	186	210	127	174	228	105	168

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	227	212	220	268	250	258	330	305	317	324	260	295
2	237	218	227	280	249	266	346	325	334	303	278	292
3	242	221	233	279	261	272	342	321	330	327	288	304
4	240	219	232	289	269	278	343	316	329	345	279	312
5	243	223	233	298	276	285	344	316	332	344	312	325
6	238	179	221	296	277	286	340	301	322	336	308	322
7	210	166	186	302	275	289	343	311	327	331	306	319
8	230	198	216	304	284	296	349	319	331	326	303	313
9	236	219	229	303	272	290	343	316	327	342	311	326
10	255	224	237	299	265	281	346	322	334	337	311	321
11	256	235	246	303	286	293	340	318	327	326	308	316
12	259	238	248	306	287	296	329	307	318	369	309	349
13	250	215	231	320	294	305	338	312	325	361	321	341
14	247	187	216	320	293	304	335	310	326	338	308	323
15	214	182	198	315	292	300	333	230	311	339	209	294
16	230	205	217	317	302	310	323	250	300	238	147	185
17	245	220	232	317	298	308	325	300	313	235	192	212
18	246	229	237	318	296	307	327	304	313	249	232	240
19	247	190	231	348	305	327	343	316	331	261	237	248
20	241	176	219	346	314	331	355	329	344	270	251	261
21	257	231	244	344	316	329	341	316	329	282	268	275
22	262	246	255	346	323	334	344	323	335	286	267	275
23	263	245	254	338	258	321	333	282	309	267	212	238
24	278	251	262	325	291	307	322	285	306	285	250	269
25	278	254	266	332	310	321	326	303	315	288	257	274
26	270	251	260	328	296	309	327	302	312	290	238	275
27	272	186	249	325	302	312	361	305	325	244	114	178
28	221	173	194	314	280	299	361	314	340	189	69	136
29	252	212	233	314	286	297	330	273	296	233	181	204
30	262	244	255	328	309	318	314	275	293	238	218	229
31	---	---	---	327	305	315	320	297	307	---	---	---
MONTH	278	166	233	348	249	301	361	230	321	369	69	275
YEAR	376	69	250									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	6.9	6.6	6.8	6.8	6.6	6.7	6.8	6.6	6.7	6.9	6.7	6.8
2	6.9	6.8	6.9	6.8	6.6	6.7	6.8	6.7	6.7	6.9	6.6	6.7
3	6.9	6.7	6.8	6.8	6.7	6.7	6.8	6.6	6.7	6.9	6.7	6.8
4	6.9	6.7	6.8	6.8	6.6	6.7	6.7	6.6	6.6	7.0	6.8	6.9
5	6.9	6.8	6.8	7.0	6.6	6.8	6.8	6.6	6.7	7.0	6.8	6.9
6	6.9	6.7	6.7	7.0	6.4	6.9	6.8	6.6	6.7	7.0	6.8	6.9
7	6.8	6.6	6.8	7.0	6.7	6.9	6.7	6.6	6.7	7.0	6.9	6.9
8	6.9	6.8	6.8	7.1	6.8	7.0	6.8	6.6	6.7	7.2	6.9	7.1
9	6.8	6.5	6.6	7.1	6.9	7.0	6.8	6.5	6.7	7.3	7.2	7.2
10	6.8	6.6	6.7	7.0	6.7	6.9	6.6	6.4	6.5	7.3	7.1	7.2
11	6.8	6.7	6.8	7.1	6.8	7.0	6.6	6.5	6.6	7.2	7.1	7.2
12	6.8	6.5	6.6	7.1	6.9	7.0	6.6	6.4	6.5	7.2	7.0	7.1
13	6.7	6.6	6.6	7.0	6.8	6.9	6.6	6.4	6.4	7.1	6.9	7.0
14	6.7	6.6	6.7	7.1	6.8	7.0	6.7	6.5	6.6	6.9	6.8	6.9
15	6.8	6.6	6.7	7.1	7.0	7.0	6.6	6.4	6.5	6.9	6.8	6.8
16	6.9	6.7	6.8	7.1	6.9	6.9	6.6	6.3	6.4	6.8	6.6	6.7
17	6.9	6.7	6.8	7.1	6.9	7.0	6.6	6.4	6.5	6.7	6.6	6.6
18	6.8	6.7	6.7	7.1	6.9	7.0	6.7	6.5	6.6	---	---	---
19	6.9	6.8	6.8	7.0	6.8	6.9	6.8	6.6	6.7	---	---	---
20	6.9	6.6	6.8	7.1	6.9	7.0	6.8	6.6	6.7	---	---	---
21	6.8	6.6	6.7	7.1	6.9	7.0	6.7	6.5	6.6	6.9	6.8	6.8
22	6.9	6.8	6.8	7.0	6.8	6.9	6.7	6.5	6.6	6.8	6.7	6.8
23	6.9	6.7	6.8	7.0	6.8	6.9	6.7	6.6	6.6	6.7	6.6	6.6
24	6.8	6.6	6.7	7.0	6.9	7.0	6.7	6.5	6.6	7.0	6.7	6.8
25	6.9	6.8	6.8	7.0	6.6	6.9	6.6	6.4	6.5	6.8	6.6	6.7
26	6.9	6.6	6.8	6.7	6.5	6.6	6.7	6.5	6.6	6.6	6.6	6.6
27	6.7	6.6	6.6	6.9	6.6	6.7	6.6	6.4	6.5	6.7	6.6	6.6
28	6.8	6.7	6.7	6.8	6.4	6.7	6.7	6.4	6.5	6.8	6.7	6.7
29	6.8	6.5	6.7	6.9	6.7	6.8	6.9	6.6	6.7	6.9	6.7	6.8
30	6.8	6.6	6.7	6.9	6.7	6.8	6.9	6.5	6.7	6.9	6.8	6.9
31	6.8	6.7	6.8	---	---	---	6.9	6.6	6.7	6.9	6.8	6.9
MAX	6.9	6.8	6.9	7.1	7.0	7.0	6.9	6.7	6.7	7.3	7.2	7.2
MIN	6.7	6.5	6.6	6.7	6.4	6.6	6.6	6.3	6.4	6.6	6.6	6.6

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	6.9	6.8	6.8	6.7	6.6	6.6	6.7	6.6	6.7	6.6	6.5	6.5
2	6.8	6.7	6.7	6.8	6.7	6.7	6.7	6.6	6.6	6.8	6.4	6.5
3	6.7	6.6	6.7	6.9	6.6	6.7	6.7	6.6	6.6	6.5	6.4	6.4
4	6.7	6.6	6.7	6.6	6.5	6.6	6.6	6.5	6.5	6.4	6.3	6.4
5	6.7	6.7	6.7	6.6	6.5	6.6	6.5	6.4	6.5	6.6	6.4	6.4
6	6.7	6.6	6.6	6.6	6.4	6.5	6.6	6.5	6.5	6.7	6.5	6.6
7	6.8	6.6	6.7	6.8	6.6	6.7	6.5	6.4	6.5	6.6	6.6	6.6
8	6.8	6.7	6.7	6.9	6.7	6.9	6.6	6.5	6.5	6.6	6.6	6.6
9	6.7	6.6	6.7	7.0	6.8	6.9	6.7	6.6	6.6	6.6	6.5	6.6
10	7.0	6.7	6.8	7.3	6.9	7.0	6.7	6.5	6.6	6.5	6.4	6.5
11	7.0	6.6	6.7	6.9	6.8	6.9	6.8	6.6	6.7	6.5	6.4	6.5
12	6.6	6.5	6.5	6.8	6.7	6.8	6.8	6.8	6.8	6.7	6.5	6.5
13	6.7	6.6	6.6	6.9	6.8	6.8	6.9	6.7	6.9	6.7	6.4	6.5
14	6.7	6.6	6.6	6.9	6.7	6.8	6.9	6.7	6.8	6.8	6.5	6.6
15	6.8	6.5	6.6	6.8	6.7	6.8	7.2	6.6	6.7	6.6	6.5	6.5
16	6.9	6.8	6.8	6.8	6.8	6.8	6.8	6.6	6.7	6.7	6.5	6.7
17	6.9	6.7	6.8	6.8	6.7	6.7	6.8	6.7	6.8	6.8	6.7	6.8
18	6.8	6.7	6.8	6.8	6.6	6.7	6.8	6.7	6.8	6.8	6.4	6.6
19	7.0	6.8	6.8	6.6	6.6	6.6	7.0	6.7	6.8	6.6	6.5	6.6
20	6.9	6.8	6.8	6.7	6.5	6.6	6.9	6.6	6.8	6.6	6.5	6.6
21	6.9	6.8	6.9	6.6	6.4	6.5	6.9	6.9	6.9	6.5	6.5	6.5
22	6.9	6.8	6.8	6.5	6.4	6.5	7.1	6.8	6.9	6.5	6.4	6.5
23	6.8	6.7	6.7	6.5	6.3	6.4	6.8	6.8	6.8	6.5	6.4	6.4
24	6.9	6.7	6.8	6.6	6.5	6.5	6.8	6.7	6.8	6.6	6.4	6.5
25	6.9	6.7	6.8	6.6	6.5	6.5	6.8	6.7	6.8	6.6	6.5	6.5
26	6.8	6.6	6.7	6.7	6.5	6.6	6.7	6.6	6.7	6.6	6.5	6.5
27	6.8	6.8	6.8	6.5	6.3	6.4	6.6	6.5	6.6	6.7	6.5	6.6
28	6.8	6.6	6.7	6.4	6.3	6.3	6.7	6.5	6.6	6.6	6.5	6.6
29	---	---	---	6.7	6.2	6.6	6.6	6.4	6.5	6.7	6.5	6.6
30	---	---	---	6.7	6.6	6.6	6.6	6.4	6.5	6.8	6.6	6.7
31	---	---	---	6.7	6.6	6.7	---	---	---	6.8	6.7	6.8
MAX	7.0	6.8	6.9	7.3	6.9	7.0	7.2	6.9	6.9	6.8	6.7	6.8
MIN	6.6	6.5	6.5	6.4	6.2	6.3	6.5	6.4	6.5	6.4	6.3	6.4

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	6.9	6.8	6.8	7.1	6.9	7.0	7.5	7.0	7.3	7.5	7.4	7.5
2	6.8	6.7	6.8	7.0	6.4	6.9	7.4	6.9	7.1	7.6	7.4	7.4
3	6.8	6.7	6.7	7.0	6.4	6.8	7.5	7.0	7.3	7.5	6.8	7.3
4	6.9	6.8	6.8	7.1	6.6	6.9	7.5	6.9	7.3	7.6	6.7	7.3
5	6.8	6.6	6.8	7.0	6.6	6.9	7.4	6.9	7.1	7.7	7.4	7.5
6	7.0	6.7	6.8	7.2	6.8	7.0	7.4	7.1	7.3	7.5	7.3	7.3
7	6.9	6.7	6.8	7.2	6.9	7.0	7.3	7.0	7.2	7.5	7.3	7.4
8	6.9	6.7	6.8	7.1	6.7	6.9	7.4	7.0	7.3	7.6	7.4	7.4
9	7.0	6.9	6.9	7.2	6.8	7.0	7.5	7.1	7.4	7.4	7.2	7.3
10	6.9	6.5	6.9	7.1	6.8	7.0	7.4	7.2	7.3	7.5	7.2	7.4
11	7.0	6.7	6.9	7.1	6.9	7.0	7.5	7.0	7.3	7.5	7.3	7.4
12	7.0	6.8	6.9	7.2	7.0	7.1	7.5	7.0	7.3	7.6	7.2	7.5
13	6.9	6.7	6.8	7.1	6.9	7.0	7.4	6.8	7.2	7.8	7.5	7.5
14	7.0	6.8	6.8	7.1	6.9	7.0	7.5	6.8	7.3	7.9	7.4	7.5
15	6.9	6.8	6.8	7.2	6.9	7.1	7.5	7.1	7.3	7.4	7.2	7.3
16	6.8	6.7	6.8	7.1	6.8	6.9	7.3	6.8	7.2	7.4	6.8	6.9
17	6.9	6.7	6.8	7.8	6.9	7.1	7.5	6.9	7.3	7.0	6.7	6.8
18	6.9	6.8	6.8	7.8	7.0	7.5	7.5	7.0	7.3	7.0	6.8	6.9
19	6.9	6.6	6.8	7.7	7.1	7.4	7.4	7.0	7.2	7.0	7.0	7.0
20	7.2	6.8	6.9	7.9	7.4	7.6	7.6	7.1	7.4	7.0	6.9	7.0
21	7.0	6.7	6.9	7.7	7.3	7.6	7.7	7.3	7.4	7.1	6.8	7.0
22	7.0	6.7	6.8	7.8	7.2	7.5	7.6	7.1	7.4	7.3	7.0	7.2
23	7.0	6.8	6.9	7.9	7.2	7.6	7.7	7.2	7.5	7.2	6.9	7.0
24	6.9	6.6	6.8	7.6	7.3	7.5	7.6	7.2	7.5	7.0	6.8	6.9
25	7.1	6.7	6.9	7.8	7.4	7.6	7.7	7.3	7.4	7.5	7.0	7.3
26	7.0	6.8	6.9	7.7	7.5	7.6	7.8	7.4	7.5	7.5	7.2	7.3
27	7.1	6.6	6.8	7.5	7.3	7.4	7.8	7.4	7.5	7.3	6.7	7.0
28	6.9	6.7	6.8	7.5	7.0	7.4	7.8	7.4	7.5	6.9	6.7	6.9
29	7.0	6.8	6.9	7.5	6.8	7.3	7.6	7.5	7.5	7.0	6.8	6.9
30	7.0	6.7	6.8	7.4	6.9	7.3	7.6	7.3	7.4	7.0	6.8	6.9
31	---	---	---	7.5	7.0	7.3	7.7	7.3	7.5	---	---	---
MAX	7.2	6.9	6.9	7.9	7.5	7.6	7.8	7.5	7.5	7.9	7.5	7.5
MIN	6.8	6.5	6.7	7.0	6.4	6.8	7.3	6.8	7.1	6.9	6.7	6.8

YEAR			
	MAX	MAXIMUM 7.9	MINIMUM 6.4
	MIN	MAXIMUM 7.5	MINIMUM 6.2
	MEDIAN	MAXIMUM 7.6	MINIMUM 6.3

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	13.5	10.5	11.5	10.0	6.0	8.5	12.0	9.0	11.0	1.0	0.0	0.5
2	14.5	10.5	12.5	13.0	8.5	10.5	9.0	7.0	8.0	2.0	0.5	1.0
3	15.5	12.0	14.0	13.5	10.0	12.0	7.0	5.0	6.0	1.5	0.5	0.5
4	16.0	12.0	14.0	11.0	8.0	9.5	7.5	5.0	6.5	1.5	0.5	1.0
5	16.0	12.0	14.0	9.5	6.0	7.5	10.0	7.5	8.5	2.0	1.0	1.5
6	14.5	11.5	13.5	8.5	5.5	6.5	10.0	7.5	9.0	2.0	0.0	1.0
7	11.5	8.5	10.0	10.5	6.0	8.0	10.5	8.0	9.5	1.5	0.0	1.0
8	10.0	7.0	8.5	10.0	6.5	8.5	8.0	5.5	6.5	2.5	0.5	1.5
9	9.5	5.5	7.5	9.5	6.5	8.5	7.0	5.0	6.0	2.5	0.5	1.5
10	11.0	6.5	9.0	8.5	5.5	7.0	5.5	3.5	4.5	4.0	2.0	3.0
11	13.0	8.5	10.5	8.5	5.0	7.0	7.0	5.0	6.0	4.0	3.0	3.5
12	14.0	10.5	12.5	6.5	3.0	5.0	6.0	3.5	5.0	4.0	2.5	3.0
13	16.0	12.0	14.0	6.5	3.0	4.5	8.0	6.0	7.0	3.5	2.5	3.0
14	15.0	13.5	14.5	6.5	2.5	4.5	9.5	8.0	8.5	3.5	1.5	2.5
15	15.0	11.5	13.5	9.0	5.5	7.0	9.0	5.5	7.0	4.0	3.0	3.5
16	12.5	9.0	11.0	10.5	6.5	8.5	5.5	4.0	5.0	4.0	2.5	3.5
17	11.0	8.5	10.0	8.5	6.0	7.5	7.0	5.5	6.0	4.5	3.0	3.5
18	10.5	7.0	8.5	7.5	5.0	6.0	7.5	6.0	7.0	---	---	---
19	10.0	6.0	8.5	7.5	5.0	6.5	7.0	6.0	6.5	---	---	---
20	12.5	8.5	10.5	7.5	5.0	6.5	6.0	4.5	5.5	---	---	---
21	13.0	8.5	10.5	5.5	3.0	4.0	5.0	4.0	4.5	2.0	0.5	1.5
22	13.5	10.5	12.0	5.5	2.5	4.0	4.0	3.0	3.5	4.0	2.0	2.5
23	13.5	11.0	12.5	6.0	3.0	4.5	5.0	2.5	3.5	4.5	2.0	3.0
24	16.5	12.5	14.5	8.5	4.5	6.5	5.5	4.0	4.5	4.0	3.5	4.0
25	15.0	11.5	13.5	11.5	8.5	10.5	4.0	2.0	3.0	4.0	2.5	3.5
26	11.5	8.0	9.5	10.5	9.0	9.5	2.5	1.0	1.5	4.5	1.5	3.0
27	9.0	7.0	8.0	9.0	8.0	8.5	1.5	0.5	1.0	4.5	1.5	3.0
28	9.0	5.5	7.5	11.0	9.0	10.0	2.0	0.5	1.5	5.5	2.5	4.0
29	8.5	4.5	7.0	10.5	10.0	10.0	2.5	1.0	1.5	6.5	3.5	5.5
30	10.0	7.0	8.5	12.5	10.0	11.0	1.5	0.5	0.5	8.0	6.0	7.0
31	8.5	6.5	7.5	---	---	---	1.0	0.0	0.5	7.0	5.5	6.0
MONTH	16.5	4.5	10.9	13.5	2.5	7.6	12.0	0.0	5.3	8.0	0.0	2.8

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			**MARCH**			**APRIL**			**MAY**	
1	6.5	4.5	5.5	5.5	1.0	3.0	10.5	8.0	9.0	12.0	8.5	10.5
2	4.5	2.5	3.5	5.0	1.5	3.5	10.5	7.0	8.5	12.0	10.5	11.0
3	4.0	2.0	3.0	7.0	4.5	5.5	11.0	7.5	9.0	12.0	10.0	11.0
4	3.5	0.5	2.5	4.5	1.0	3.0	9.0	6.0	7.5	12.5	8.5	10.5
5	1.5	0.0	0.5	3.0	0.5	1.5	8.0	5.5	6.5	14.0	9.5	11.5
6	4.0	1.0	2.5	6.5	1.5	4.0	8.0	5.5	6.5	13.5	10.0	12.0
7	5.0	3.0	3.5	7.0	3.5	5.0	9.0	4.5	6.5	15.0	12.0	13.5
8	5.5	2.5	4.0	8.5	4.0	6.5	10.0	6.5	8.0	15.0	12.5	13.5
9	6.0	3.0	4.5	10.0	7.0	8.5	11.5	9.0	10.0	13.5	11.5	12.5
10	6.5	4.5	5.5	10.0	3.5	6.5	12.5	9.0	11.0	15.0	11.5	13.0
11	6.5	2.5	4.5	5.5	2.5	4.0	12.5	7.5	10.0	14.5	11.0	12.5
12	4.0	1.5	3.0	7.0	3.5	5.0	10.5	8.0	9.5	13.5	12.0	12.5
13	4.5	2.0	3.5	6.5	5.0	5.5	12.0	10.0	11.0	13.0	12.5	12.5
14	3.5	0.5	2.0	10.5	6.5	8.0	14.0	10.5	12.5	12.5	10.5	11.5
15	4.5	1.5	3.0	10.0	7.5	8.5	14.0	11.5	13.0	13.0	9.5	11.5
16	6.5	3.5	4.5	10.0	6.5	9.0	17.0	12.0	14.5	15.0	10.0	12.5
17	5.5	3.0	4.5	6.5	4.5	5.0	17.5	13.0	15.0	16.0	13.0	14.5
18	4.5	1.5	3.0	5.0	4.0	4.5	17.0	14.0	15.5	13.5	10.5	12.0
19	5.0	1.0	3.5	6.5	5.0	5.5	17.5	13.5	15.0	11.5	9.5	10.5
20	7.5	4.5	6.0	6.0	4.0	5.0	14.5	12.5	14.0	11.0	9.0	10.0
21	8.5	7.0	7.5	8.0	4.5	6.0	12.5	10.0	11.0	11.0	8.5	10.0
22	7.0	5.5	6.5	5.5	3.0	4.0	11.0	9.5	10.0	12.5	8.5	10.5
23	7.0	4.0	5.0	6.5	2.5	4.5	12.0	8.0	9.5	13.5	9.0	11.5
24	6.0	2.0	4.0	7.0	4.0	5.5	12.5	7.5	10.0	15.0	11.0	13.0
25	7.0	2.5	5.0	6.5	6.0	6.0	10.5	9.0	9.5	14.0	12.5	13.5
26	8.0	4.0	6.0	6.0	5.0	5.5	12.0	7.5	9.5	14.5	12.5	13.5
27	6.5	2.5	4.5	6.0	5.0	5.5	12.5	7.5	10.0	15.5	13.0	14.0
28	5.0	1.5	3.0	8.0	5.0	6.5	11.5	10.0	10.5	16.0	13.5	15.0
29	---	---	---	9.5	6.0	7.5	11.0	9.0	10.0	16.5	14.0	15.0
30	---	---	---	11.0	8.5	9.5	10.5	8.5	9.5	18.0	14.0	16.0
31	---	---	---	10.0	8.5	9.0	---	---	---	18.0	14.0	16.0
MONTH	8.5	0.0	4.1	11.0	0.5	5.7	17.5	4.5	10.4	18.0	8.5	12.5

SWATARA CREEK BASIN

01571820 SWATARA CREEK NEAR RAVINE, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	19.0	14.5	16.5	21.0	17.0	19.0	25.0	20.0	22.0	18.0	16.0	16.5
2	18.0	14.0	16.0	22.5	18.0	20.0	25.0	19.0	22.0	18.5	16.0	17.0
3	16.0	13.0	14.5	24.0	19.0	21.5	24.5	20.0	22.0	20.5	15.5	18.0
4	15.0	13.0	14.0	24.0	19.5	22.0	24.5	20.0	22.0	22.5	18.0	19.5
5	18.0	14.5	16.0	22.5	19.0	20.5	23.0	20.0	21.0	21.0	16.5	18.5
6	16.5	15.0	15.5	20.5	16.5	18.5	22.5	18.0	20.5	19.5	14.5	17.0
7	16.5	14.5	15.5	19.5	15.5	17.5	20.0	15.5	17.5	20.0	14.0	17.0
8	16.5	13.5	15.0	21.0	15.5	18.5	20.5	14.5	17.5	20.0	14.0	16.5
9	18.0	13.0	15.5	21.5	17.5	19.0	21.0	14.5	17.5	20.0	14.0	17.0
10	18.5	15.0	16.5	22.0	17.5	19.5	21.5	15.0	18.0	21.5	15.5	18.0
11	19.0	15.5	17.5	20.0	14.5	17.0	22.5	16.5	19.5	19.5	16.0	17.5
12	19.0	16.5	17.5	20.0	13.5	16.5	22.0	18.0	20.0	18.0	14.0	16.0
13	18.0	16.0	17.0	18.5	14.0	16.5	23.5	18.5	21.0	18.5	12.0	15.5
14	16.0	15.0	15.0	18.5	16.5	17.5	24.5	19.0	21.5	19.5	14.0	16.5
15	15.5	14.5	15.0	22.0	16.0	19.0	25.0	20.0	22.0	19.0	18.0	18.5
16	16.5	14.0	15.0	22.0	17.5	19.5	23.0	20.0	21.5	19.5	18.0	19.0
17	18.0	13.5	15.5	22.5	16.5	19.5	24.5	20.0	22.0	19.5	16.0	17.5
18	16.5	12.5	14.5	22.0	19.0	20.0	25.0	20.0	22.5	18.0	14.5	16.5
19	18.0	14.0	16.0	23.0	18.5	20.5	23.0	19.5	21.5	17.0	15.0	16.0
20	19.0	15.5	17.5	23.5	19.0	21.0	24.0	19.5	22.0	19.5	16.0	17.5
21	19.5	15.5	17.5	21.0	18.0	19.5	23.0	17.0	19.5	19.5	18.0	18.5
22	20.0	15.5	17.5	23.5	18.0	21.0	23.5	18.0	20.5	20.0	18.5	19.0
23	21.0	16.5	18.5	24.5	20.0	21.5	23.0	20.5	21.5	19.0	15.5	17.5
24	21.0	17.0	19.0	22.0	18.5	20.0	21.5	20.0	20.5	16.5	13.0	15.0
25	22.0	17.5	19.5	22.0	19.0	20.0	23.0	18.5	20.5	16.0	13.0	14.5
26	21.0	18.0	19.5	19.0	17.5	18.5	20.5	17.0	19.0	15.5	14.5	15.0
27	21.0	18.0	19.5	19.5	17.5	18.0	20.5	17.0	19.0	17.5	14.0	15.0
28	21.0	18.5	19.5	23.0	18.0	20.0	19.0	17.5	18.0	17.0	15.0	16.5
29	20.5	16.5	18.5	24.0	19.5	21.5	17.5	16.5	17.0	15.0	12.5	14.0
30	20.5	16.5	18.5	24.5	20.0	22.0	18.0	16.5	17.0	15.5	13.0	14.0
31	---	---	---	25.0	19.0	21.5	20.0	15.0	17.5	---	---	---
MONTH	22.0	12.5	16.8	25.0	13.5	19.6	25.0	14.5	20.1	22.5	12.0	16.8
YEAR	25.0	0.0	11.2									

SWATARA CREEK BASIN

01572025 SWATARA CREEK NEAR PINE GROVE, PA

LOCATION.--Lat 40°31'57", long 76°24'09", Schuylkill County, Hydrologic Unit 02050305, on right bank 1.0 mi downstream from Lower Little Swatara Creek, 1.3 mi southwest of Pine Grove, and 1.6 mi upstream from bridge on Interstate Highway 81.

DRAINAGE AREA.--116 mi^2.

PERIOD OF RECORD.--October 1988 to January 1991, October 1991 to current year.

REVISED RECORDS.--WDR PA-90-2: 1989.

GAGE.--Water-stage recorder. Datum of gage is 480.66 ft above North American Vertical Datum of 1988.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite telemetry at station.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)
May 18	1015	*1,220	*7.19

Date	Time	Discharge ft^3/s	Gage Height (ft)
(No peaks above base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	21	89	e35	127	53	316	330	120	55	22	24
2	28	21	60	e34	121	52	247	600	111	54	22	25
3	27	21	51	e35	109	238	223	547	104	51	21	21
4	25	20	47	36	104	149	205	418	98	48	20	19
5	24	20	41	35	e90	121	186	348	99	47	21	19
6	24	19	36	e36	e86	115	173	299	121	44	23	17
7	23	20	40	e42	86	107	162	270	163	42	21	16
8	24	19	43	39	83	100	153	240	108	43	20	15
9	25	18	99	34	78	99	151	280	95	41	19	16
10	25	19	70	37	76	163	184	250	90	46	19	15
11	25	18	57	56	132	126	149	203	86	40	18	14
12	25	17	51	75	101	118	138	198	84	37	17	16
13	23	18	50	68	92	118	140	250	90	36	18	15
14	26	18	68	57	84	115	160	363	116	34	18	14
15	96	18	82	54	82	108	663	271	115	31	19	25
16	44	19	64	56	82	106	448	233	95	29	26	78
17	39	18	63	54	81	100	351	211	83	27	19	32
18	31	17	152	51	74	164	293	812	78	26	17	24
19	26	18	129	e42	70	174	286	612	87	26	17	20
20	24	20	105	e53	71	384	291	446	88	27	16	19
21	23	19	90	46	71	479	243	360	72	26	15	20
22	22	19	77	43	66	341	246	302	68	27	15	20
23	22	18	69	44	63	275	218	264	64	42	18	80
24	22	18	76	138	59	238	192	237	63	42	22	36
25	21	142	65	216	57	213	191	210	62	31	22	25
26	21	154	56	163	58	293	182	195	60	27	18	27
27	21	62	e50	136	60	829	163	179	78	27	17	244
28	20	46	e45	123	56	515	315	163	102	29	18	286
29	20	41	e41	115	---	391	423	151	67	26	27	100
30	21	64	e40	113	---	325	351	138	59	25	25	64
31	20	---	e38	115	---	282	---	130	---	22	20	---
TOTAL	845	962	2044	2181	2319	6891	7443	9510	2726	1108	610	1346
MEAN	27.3	32.1	65.9	70.4	82.8	222	248	307	90.9	35.7	19.7	44.9
MAX	96	154	152	216	132	829	663	812	163	55	27	286
MIN	20	17	36	34	56	52	138	130	59	22	15	14
CFSM	0.23	0.28	0.57	0.61	0.71	1.92	2.14	2.64	0.78	0.31	0.17	0.39
IN.	0.27	0.31	0.66	0.70	0.74	2.21	2.39	3.05	0.87	0.36	0.20	0.43

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

MEAN	121	193	240	265	239	382	324	261	175	113	70.7	74.9
MAX	361	396	745	683	555	846	874	756	317	378	155	178
(WY)	1997	1993	1997	1996	1998	1994	1993	1989	1989	1989	1994	1999
MIN	27.3	32.1	27.4	70.4	82.8	185	135	91.9	46.6	23.1	19.7	26.1
(WY)	2002	2002	1999	2002	2002	1990	1995	1999	1999	1999	2002	1995

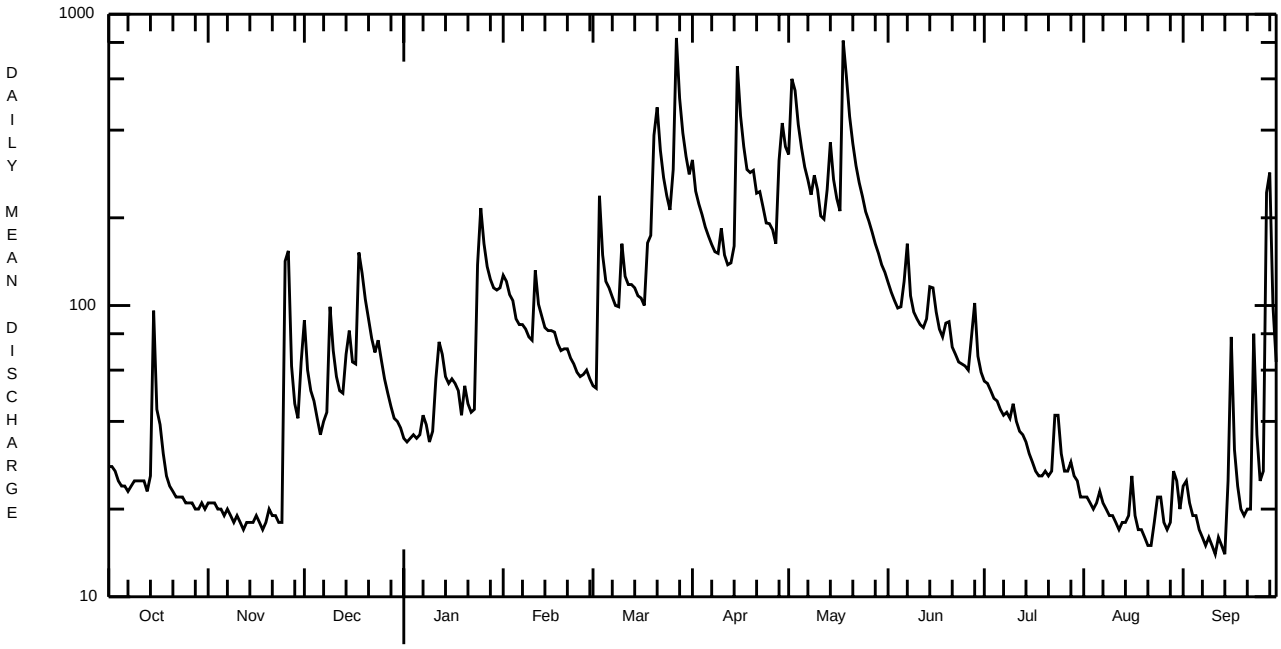
e Estimated.

SWATARA CREEK BASIN

01572025 SWATARA CREEK NEAR PINE GROVE, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	42252		37985			
ANNUAL MEAN	116		104		201	
HIGHEST ANNUAL MEAN					273	1994
LOWEST ANNUAL MEAN					104	2002
HIGHEST DAILY MEAN	743	Mar 30	829	Mar 27	4130	Nov 28 1993
LOWEST DAILY MEAN	17	Nov 12,18	14	Sep 11,14	14	Aug 7 1999
ANNUAL SEVEN-DAY MINIMUM	18	Nov 12	15	Sep 8	15	Sep 8 2002
MAXIMUM PEAK FLOW			1220	May 18	**a**5880	Nov 28 1993
MAXIMUM PEAK STAGE			7.19	May 18	14.17	Nov 28 1993
INSTANTANEOUS LOW FLOW			13	Sep 10**b**	13	Sep 10 2002**b**
ANNUAL RUNOFF (CFSM)	1.00		0.90		1.74	
ANNUAL RUNOFF (INCHES)	13.55		12.18		23.59	
10 PERCENT EXCEEDS	291		266		415	
50 PERCENT EXCEEDS	80		58		120	
90 PERCENT EXCEEDS	21		19		32	

a From rating curve extended above 3,300 ft^3/s on basis of step-backwater analysis.
b Also Sept. 12, 14, 2002.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

SWATARA CREEK BASIN

01572190 SWATARA CREEK NEAR INWOOD, PA

LOCATION.--Lat 40°28'45", long 76°31'52", Lebanon County, Hydrologic Unit 02050305, on right bank 20 ft downstream from single-span steel-truss bridge on Appalachian Trail, 0.4 mi upstream from steel-truss bridge at Inwood, 0.5 mi downstream from Trout Run, and 2.0 mi north of Lickdale.

DRAINAGE AREA.--167 mi^2.

PERIOD OF RECORD.--October 1988 to January 1991, October 1991 to current year.

GAGE.--Water-stage recorder. Datum of gage is 426.13 ft above North American Vertical Datum of 1988.

REMARKS.--Records good except those for estimated daily discharges, which are poor. The Pennsylvania American Water Company diverts water upstream from station for municipal supply of city of Lebanon. Diversion for the year was equivalent to a mean daily discharge of 8.0 ft^3/s. Several measurements of water temperature were made during the year. Satellite telemetry at station.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 27	0415	*1,670	*6.94

Date	Time	Discharge ft^3/s	Gage Height (ft)
(No peaks above base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	28	114	e51	148	58	458	472	168	72	29	37
2	35	30	83	e49	149	56	359	741	152	70	28	48
3	34	29	69	e49	130	256	315	787	138	67	28	41
4	33	28	62	e45	125	198	288	596	132	62	27	35
5	30	28	57	e46	e111	154	258	497	133	59	30	33
6	29	27	50	e45	e103	145	241	423	141	56	33	30
7	28	26	52	e46	103	135	221	379	226	54	31	27
8	27	28	54	e55	98	124	207	335	151	55	31	23
9	28	26	119	e51	92	119	201	382	129	55	28	22
10	29	26	98	e61	87	180	245	364	119	64	28	23
11	28	26	81	e75	146	151	205	285	114	55	28	21
12	29	25	72	118	124	139	184	268	112	49	26	19
13	29	25	69	107	109	138	183	324	116	48	26	22
14	28	26	83	e91	e97	138	213	491	139	47	29	21
15	97	25	112	84	e96	128	820	373	160	44	30	27
16	64	26	90	82	97	125	659	315	133	39	45	91
17	51	27	84	78	93	118	510	287	112	37	40	62
18	45	25	164	73	86	176	430	1000	101	35	31	43
19	39	25	170	e69	79	224	390	887	113	35	28	36
20	36	27	138	e91	80	433	414	638	116	37	28	32
21	34	28	117	e79	81	704	342	516	96	35	26	32
22	33	27	103	e68	75	494	342	433	89	37	24	38
23	33	27	93	e65	70	385	310	379	83	39	27	101
24	32	26	98	131	66	324	266	338	81	71	37	68
25	31	80	89	275	63	292	257	299	81	45	45	46
26	29	228	77	211	64	329	254	276	76	38	35	43
27	29	89	e70	173	66	1270	222	254	90	36	29	240
28	28	64	e66	152	61	783	370	229	144	40	30	370
29	27	56	e61	141	---	588	604	212	92	39	41	150
30	29	67	e57	135	---	483	487	193	79	35	49	94
31	29	---	e52	136	---	407	---	181	---	31	40	---
TOTAL	1089	1225	2704	2932	2699	9254	10255	13154	3616	1486	987	1875
MEAN	35.1	40.8	87.2	94.6	96.4	299	342	424	121	47.9	31.8	62.5
MAX	97	228	170	275	149	1270	820	1000	226	72	49	370
MIN	27	25	50	45	61	56	183	181	76	31	24	19
CFSM	0.21	0.24	0.52	0.57	0.58	1.79	2.05	2.54	0.72	0.29	0.19	0.37
IN.	0.24	0.27	0.60	0.65	0.60	2.06	2.28	2.93	0.81	0.33	0.22	0.42

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

MEAN	168	274	347	385	343	564	480	379	240	156	90.9	98.2
MAX	538	662	1098	987	832	1263	1325	1184	471	576	192	221
(WY)	1997	1993	1997	1996	1998	1994	1993	1989	1989	1989	1994	1999
MIN	35.1	40.8	35.8	94.6	96.4	271	165	123	58.3	26.2	31.5	32.7
(WY)	2002	2002	1999	2002	2002	1990	1995	1999	1999	1999	1999	1995

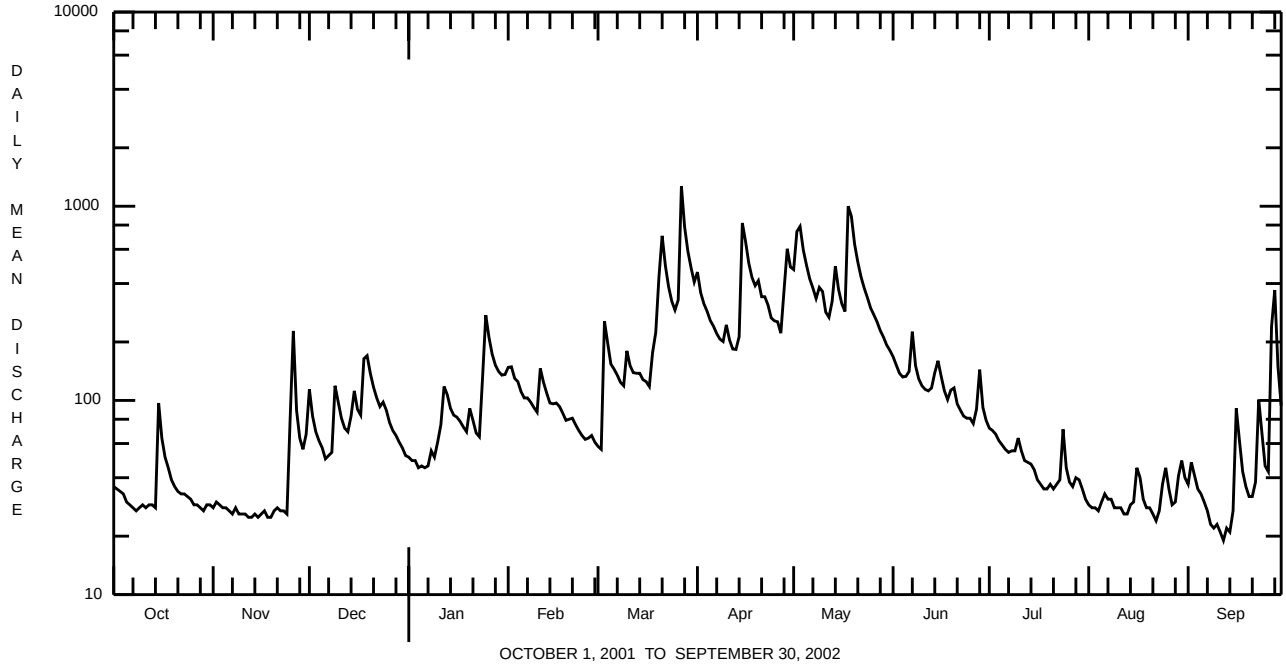
e Estimated.

SWATARA CREEK BASIN

01572190 SWATARA CREEK NEAR INWOOD, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	57565		51276			
ANNUAL MEAN	158		140		288	
HIGHEST ANNUAL MEAN					394	1994
LOWEST ANNUAL MEAN					140	2002
HIGHEST DAILY MEAN	997	Mar 30	1270	Mar 27	6200	Jan 20 1996
LOWEST DAILY MEAN	22	Sep 19	19	Sep 12	17	Aug 2 1999**a**
ANNUAL SEVEN-DAY MINIMUM	25	Sep 13	22	Sep 8	17	Aug 2 1999
MAXIMUM PEAK FLOW			1670	Mar 27	**b**9510	Nov 28 1993
MAXIMUM PEAK STAGE			6.94	Mar 27	16.20	Nov 28 1993
INSTANTANEOUS LOW FLOW			18	Sep 12	17	Aug 2 1999**c**
ANNUAL RUNOFF (CFSM)	0.94		0.84		1.73	
ANNUAL RUNOFF (INCHES)	12.82		11.42		23.46	
10 PERCENT EXCEEDS	400		366		628	
50 PERCENT EXCEEDS	98		78		155	
90 PERCENT EXCEEDS	28		28		41	

a Also Aug. 3-8, 12, 13.
b From rating curve extended above 4,500 ft^3/s.
c Also Aug. 3-8, 12, 13, Sept. 5, 1999.



SWATARA CREEK BASIN

01573000 SWATARA CREEK AT HARPER TAVERN, PA

LOCATION.--Lat 40°24'09", long 76°34'39", Lebanon County, Hydrologic Unit 02050305, on left bank 100 ft downstream from bridge on State Highway 934 at Harper Tavern, 6.0 mi northwest of Annville, and 8.5 mi downstream from Little Swatara Creek.

DRAINAGE AREA.--337 mi^2.

PERIOD OF RECORD.--January 1919 to current year. Prior to October 1927, published as "*at Harpers*".

REVISED RECORDS.--WSP 1202: 1948. WSP 1302: 1920(M), 1921, 1924-25(M), 1927-28(M), 1930(M). WSP 1903: Drainage area. WDR PA-72-1: 1889 (M). WDR PA-85-2: 1984(P)(m).

GAGE.--Water-stage recorder. Datum of gage is 356.68 ft above National Geodetic Vertical Datum of 1929. Prior to July 16, 1931, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. The Pennsylvania American Water Company diverts water upstream from station for municipal supply of city of Lebanon. Diversion for the year was equivalent to a mean daily discharge of 10.4 ft^3/s. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1889, reached a stage of 25.6 ft, from floodmark, discharge, about 88,000 ft^3/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 4,800 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
May 18	1800	*3,440	*5.55

Date	Time	Discharge ft^3/s	Gage Height (ft)
(No peaks above base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	51	151	e77	284	93	930	897	271	149	36	41
2	62	52	144	69	300	90	720	1400	246	134	32	47
3	60	53	109	69	242	498	586	1680	219	123	31	51
4	54	51	96	64	224	473	536	1120	201	110	28	44
5	51	50	88	66	186	281	458	894	230	101	26	34
6	48	49	81	64	187	251	423	743	292	93	30	27
7	41	51	79	70	194	234	389	653	512	86	30	25
8	40	47	90	81	173	215	357	599	303	84	30	22
9	42	52	174	92	156	200	353	712	227	87	28	19
10	44	48	189	92	144	261	452	736	204	100	25	18
11	45	46	138	131	211	284	390	520	182	91	22	18
12	47	45	116	242	225	228	317	483	175	78	21	15
13	48	44	107	253	182	227	310	798	172	71	22	14
14	45	47	141	196	157	234	369	1180	233	67	28	15
15	86	49	234	167	147	207	2020	821	316	71	32	13
16	142	52	180	160	150	196	1450	624	240	65	30	26
17	101	48	148	150	144	191	1040	535	191	54	37	95
18	82	48	290	137	135	341	904	2010	174	50	30	52
19	72	46	358	106	123	614	779	1920	206	47	25	36
20	62	52	251	125	122	1010	751	1330	286	47	24	31
21	55	57	200	152	123	1770	637	1080	173	49	23	28
22	54	56	167	137	122	1100	677	898	150	49	22	38
23	56	51	146	122	115	798	610	727	136	53	27	144
24	51	e81	155	276	107	655	481	617	132	93	30	125
25	58	e140	152	794	103	558	440	529	137	80	39	63
26	55	e396	126	475	104	638	466	483	122	59	49	50
27	50	201	100	359	110	2580	391	452	218	50	36	429
28	48	122	e98	302	105	1620	710	405	747	63	29	934
29	46	101	e95	269	---	1180	1370	364	249	67	46	350
30	47	102	e93	251	---	952	925	322	173	55	61	180
31	52	---	e84	261	---	786	---	299	---	43	54	---
TOTAL	1808	2288	4580	5809	4575	18765	20241	25831	7117	2369	983	2984
MEAN	58.3	76.3	148	187	163	605	675	833	237	76.4	31.7	99.5
MAX	142	396	358	794	300	2580	2020	2010	747	149	61	934
MIN	40	44	79	64	103	90	310	299	122	43	21	13
CFSM	0.17	0.23	0.44	0.56	0.48	1.80	2.00	2.47	0.70	0.23	0.09	0.30
IN.	0.20	0.25	0.51	0.64	0.51	2.07	2.23	2.85	0.79	0.26	0.11	0.33

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1919 - 2002, BY WATER YEAR (WY)

MEAN	326	519	695	678	755	1068	879	677	440	301	238	259
MAX	2104	1752	2168	2538	2097	3096	2466	2189	3952	1472	1772	2000
(WY)	1977	1927	1997	1996	1925	1994	1983	1989	1972	1945	1933	1975
MIN	28.1	35.9	60.0	42.1	162	358	297	154	80.2	30.8	22.0	15.9
(WY)	1942	1932	1931	1981	1980	1985	1988	1926	1965	1966	1966	1932

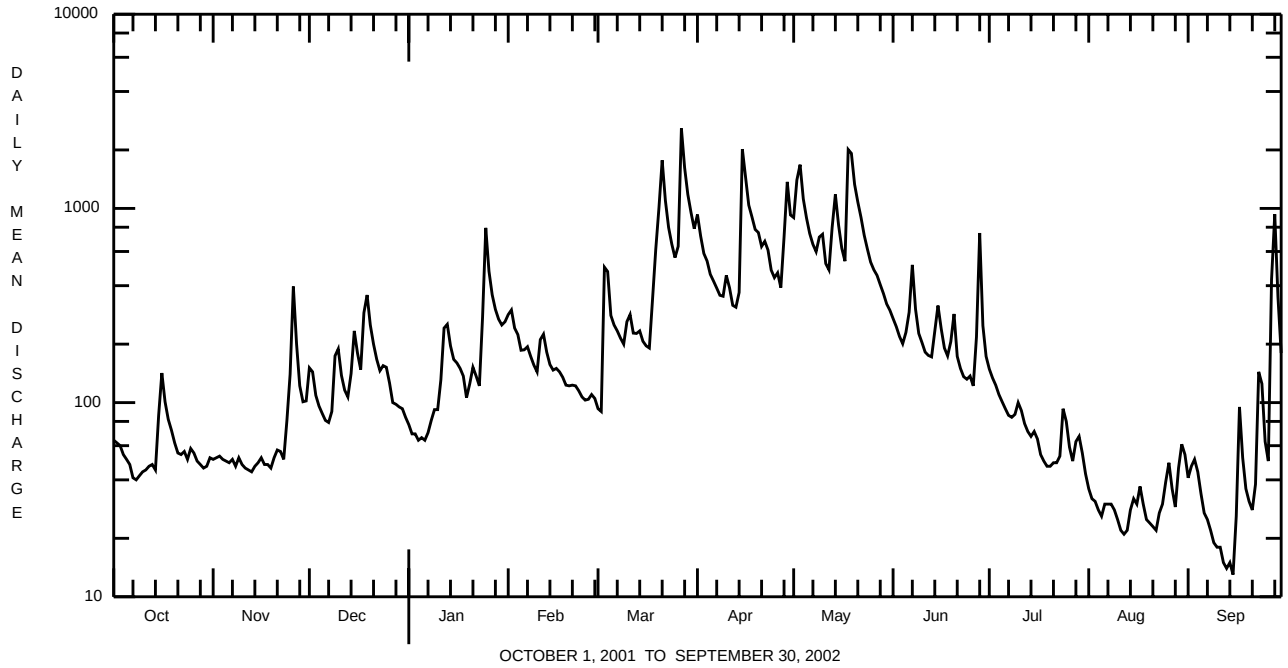
e Estimated.

SWATARA CREEK BASIN

01573000 SWATARA CREEK AT HARPER TAVERN, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1919 - 2002	
ANNUAL TOTAL	115285		97350			
ANNUAL MEAN	316		267		568	
HIGHEST ANNUAL MEAN					948	1972
LOWEST ANNUAL MEAN					201	1931
HIGHEST DAILY MEAN	2290	Mar 30	2580	Mar 27	42500	Jun 23 1972
LOWEST DAILY MEAN	37	Sep 9	13	Sep 15	6.6	Aug 21 1965
ANNUAL SEVEN-DAY MINIMUM	44	Oct 6	16	Sep 9	10	Sep 19 1932
MAXIMUM PEAK FLOW			3440	May 18	**a**66700	Jun 23 1972
MAXIMUM PEAK STAGE			5.55	May 18	**b**23.72	Jun 23 1972
INSTANTANEOUS LOW FLOW			12	Sep 15	6.0	Aug 21 1965
ANNUAL RUNOFF (CFSM)	0.94		0.79		1.69	
ANNUAL RUNOFF (INCHES)	12.73		10.75		22.89	
10 PERCENT EXCEEDS	843		731		1280	
50 PERCENT EXCEEDS	178		131		312	
90 PERCENT EXCEEDS	48		33		65	

a From rating curve extended above 25,000 ft^3/s on basis of slope-area measurement of peak flow.
b From floodmark in gage.



SWATARA CREEK BASIN

01573560 SWATARA CREEK NEAR HERSHEY, PA

LOCATION.--Lat 40°17'54", long 76°40'05", Dauphin County, Hydrologic Unit 02050305, on left bank, 0.4 mi downstream from Manada Creek, 0.5 mi upstream from State Highway 39, and 1.5 mi northwest of Hershey.

DRAINAGE AREA.--483 mi^2.

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder and gated concrete control. Datum of gage is 325.94 ft above National Geodetic Vertical Datum of 1929 (levels by Susquehanna River Basin Commission).

REMARKS.--No estimated daily discharges. Records 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 10.0 ft^3/s. No diversion by Hershey Chocolate U.S.A. Satellite and landline telemetry at station.

COOPERATION.--Records of daily diversion furnished by Hershey Chocolate U.S.A., a division of Hershey Foods Corporation.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 6,900 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
May 18	2215	*3,480	*4.07

Date	Time	Discharge ft^3/s	Gage Height (ft)
(No peaks above base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91	83	166	117	358	121	989	958	379	237	77	106
2	86	86	198	93	376	138	831	1230	340	205	66	123
3	81	86	150	104	328	521	685	1820	300	186	79	129
4	81	73	145	100	302	623	629	1190	264	178	75	129
5	80	80	115	91	257	395	549	969	313	158	53	107
6	84	77	116	95	238	342	509	820	386	154	29	80
7	92	75	127	102	272	318	477	717	612	156	47	61
8	76	89	105	112	238	269	440	681	444	126	76	52
9	79	76	212	134	223	269	431	760	339	128	61	54
10	79	95	265	143	206	308	510	836	274	166	53	36
11	77	82	196	195	228	358	491	627	260	151	50	49
12	83	79	169	312	302	297	396	565	242	132	50	66
13	79	82	148	358	248	295	384	892	241	119	49	66
14	82	79	190	273	215	310	435	1240	306	103	53	47
15	108	86	301	248	203	272	1930	978	384	107	70	57
16	143	78	269	226	197	264	1590	765	340	100	106	72
17	135	87	214	223	198	261	1120	643	274	96	113	147
18	105	84	322	195	190	415	921	1950	260	82	119	162
19	100	81	430	153	165	703	899	2280	319	73	70	108
20	93	93	335	121	156	1090	815	1420	354	83	38	91
21	78	88	262	192	175	1950	722	1150	264	83	47	33
22	77	89	235	215	173	1260	795	978	221	60	55	38
23	83	98	199	186	167	938	733	833	205	78	86	204
24	81	89	210	362	157	768	584	722	179	122	114	168
25	78	111	212	794	149	656	530	646	219	145	97	103
26	77	381	185	593	147	742	545	588	172	113	116	74
27	85	306	141	464	151	2750	485	559	214	101	127	384
28	78	173	131	396	148	1800	674	499	869	96	95	893
29	73	139	150	359	---	1280	1490	455	401	138	140	493
30	73	136	99	334	---	1040	1030	426	282	119	160	266
31	76	---	92	346	---	900	---	394	---	96	164	---
TOTAL	2693	3261	6089	7636	6167	21653	22619	28591	9657	3891	2535	4398
MEAN	86.9	109	196	246	220	698	754	922	322	126	81.8	147
MAX	143	381	430	794	376	2750	1930	2280	869	237	164	893
MIN	73	73	92	91	147	121	384	394	172	60	29	33
CFSM	0.18	0.23	0.41	0.51	0.46	1.45	1.56	1.91	0.67	0.26	0.17	0.30
IN.	0.21	0.25	0.47	0.59	0.47	1.67	1.74	2.20	0.74	0.30	0.20	0.34

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 2002, BY WATER YEAR (WY)

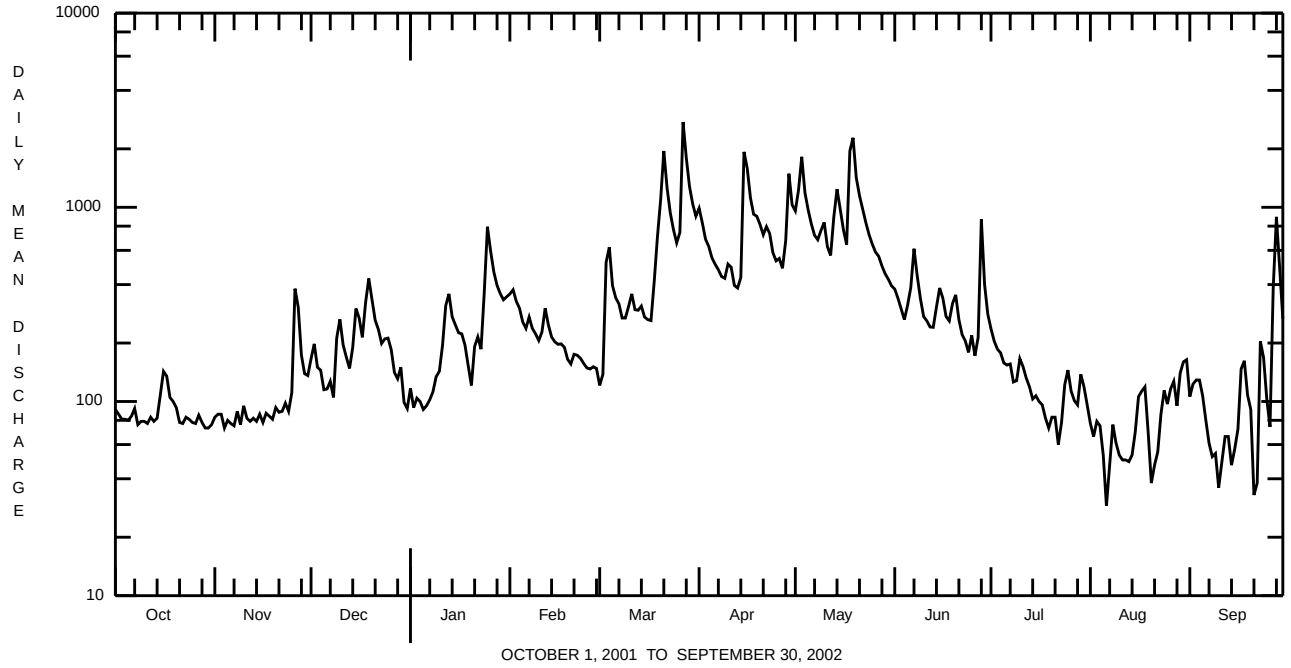
MEAN	546	695	936	954	964	1392	1203	882	583	414	292	322
MAX	2632	1427	2693	3370	1963	3848	3207	2708	1959	1536	1036	1320
(WY)	1977	1993	1997	1979	1998	1994	1993	1989	1982	1989	1978	1987
MIN	85.3	109	111	79.9	220	459	420	295	158	78.9	81.8	73.0
(WY)	1981	2002	1981	1981	2002	1985	1995	1999	1999	1999	2002	1980

SWATARA CREEK BASIN

01573560 SWATARA CREEK NEAR HERSHEY, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1976 - 2002	
ANNUAL TOTAL	149512		119190			
ANNUAL MEAN	410		327		765	
HIGHEST ANNUAL MEAN					1225	1978
LOWEST ANNUAL MEAN					327	2002
HIGHEST DAILY MEAN	2560	Mar 30	2750	Mar 27	23800	Jan 25 1979
LOWEST DAILY MEAN	63	Sep 9	29	Aug 6	29	Aug 6 2002
ANNUAL SEVEN-DAY MINIMUM	73	Aug 25	52	Aug 6	52	Aug 6 2002
MAXIMUM PEAK FLOW			3480	May 18	29400	Sep 27 1975
MAXIMUM PEAK STAGE			4.07	May 18	15.36	Sep 27 1975
INSTANTANEOUS LOW FLOW			24	Aug 5**a**	24	Aug 5 2002**a**
ANNUAL RUNOFF (CFSM)	0.85		0.68		1.58	
ANNUAL RUNOFF (INCHES)	11.52		9.18		21.51	
10 PERCENT EXCEEDS	1030		817		1680	
50 PERCENT EXCEEDS	264		179		424	
90 PERCENT EXCEEDS	79		76		127	

a Also Aug. 6, Sept. 10, 14, 15, 21.



WEST CONEWAGO CREEK BASIN

01574000 WEST CONEWAGO CREEK NEAR MANCHESTER, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 40°04'56", long 76°43'13", York County, Hydrologic Unit 02050306, on left bank 500 ft upstream from bridge on State Highway 181, 0.6 mi downstream from Little Conewago Creek, and 1.5 mi north of Manchester.

DRAINAGE AREA.--510 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1928 to current year. Prior to October 1931, published as Conewago Creek near Manchester.

REVISED RECORDS.--WSP 741: Drainage area. WSP 1502: 1930, 1936.

GAGE.--Water-stage recorder. Datum of gage is 263.68 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Occasional slight regulation since October 1959 by Conewago Lake about 13 miles upstream, capacity, 3,570 acre-ft. Gage height record affected at times by backwater from the Susquehanna River. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 10,800 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 27	1615	*2,970	*6.29	(No peaks above base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	41	80	e42	210	68	357	486	180	79	21	88
2	46	45	61	e41	258	68	395	464	161	64	20	65
3	43	46	54	e42	231	134	306	725	143	55	24	53
4	40	45	51	e45	195	364	263	447	129	47	27	45
5	38	46	54	e43	168	288	235	308	116	44	27	39
6	35	49	49	e45	145	180	205	257	124	40	25	35
7	32	74	47	e48	128	143	185	230	319	36	24	32
8	30	73	46	e58	121	129	175	209	397	35	21	29
9	30	73	55	51	116	118	167	234	206	34	19	26
10	30	66	53	56	110	116	173	237	151	38	18	25
11	30	62	63	77	107	110	174	221	124	32	18	22
12	27	61	76	121	103	114	167	193	107	29	17	20
13	28	61	67	188	103	121	154	299	89	28	15	18
14	30	131	67	163	100	125	158	1630	152	29	15	16
15	49	150	75	141	96	134	967	836	409	29	12	17
16	48	142	69	119	90	143	1010	442	296	27	11	18
17	45	94	90	105	87	129	493	326	187	26	9.5	15
18	43	106	98	95	83	138	347	1260	140	26	8.0	14
19	42	104	89	77	83	163	280	1630	114	26	7.1	14
20	41	106	93	83	83	465	374	725	99	25	11	12
21	41	107	99	92	82	1730	281	503	101	23	7.4	11
22	47	99	80	94	76	791	275	426	109	23	5.6	31
23	48	75	68	96	74	446	275	352	85	25	5.6	40
24	46	47	65	241	74	328	241	305	75	26	10	29
25	46	46	60	643	74	276	203	231	71	25	26	18
26	45	84	e55	471	74	268	191	206	63	22	17	27
27	45	195	e51	257	74	1960	177	195	59	22	13	211
28	45	194	e47	200	69	1090	287	430	77	38	12	632
29	46	142	e44	212	---	583	1180	385	64	32	59	519
30	43	121	e42	199	---	439	709	242	78	23	61	197
31	41	---	e42	157	---	360	---	210	---	22	93	---
TOTAL	1251	2685	1990	4302	3214	11521	10404	14644	4425	1030	659.2	2318
MEAN	40.4	89.5	64.2	139	115	372	347	472	148	33.2	21.3	77.3
MAX	51	195	99	643	258	1960	1180	1630	409	79	93	632
MIN	27	41	42	41	69	68	154	193	59	22	5.6	11
CFSM	0.08	0.18	0.13	0.27	0.23	0.73	0.68	0.93	0.29	0.07	0.04	0.15
IN.	0.09	0.20	0.15	0.31	0.23	0.84	0.76	1.07	0.32	0.08	0.05	0.17

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2002, BY WATER YEAR (WY)

MEAN	272	452	663	777	952	1262	976	650	419	252	216	260
MAX	1783	1534	2578	3126	2526	4510	3273	2874	4445	1419	2423	3862
(WY)	1977	1933	1997	1996	1998	1994	1993	1989	1972	1969	1933	1975
MIN	9.71	14.7	43.3	37.7	86.2	345	253	135	52.7	12.2	13.3	12.0
(WY)	1942	1932	1966	1981	1934	1931	1995	1941	1965	1966	1930	1964

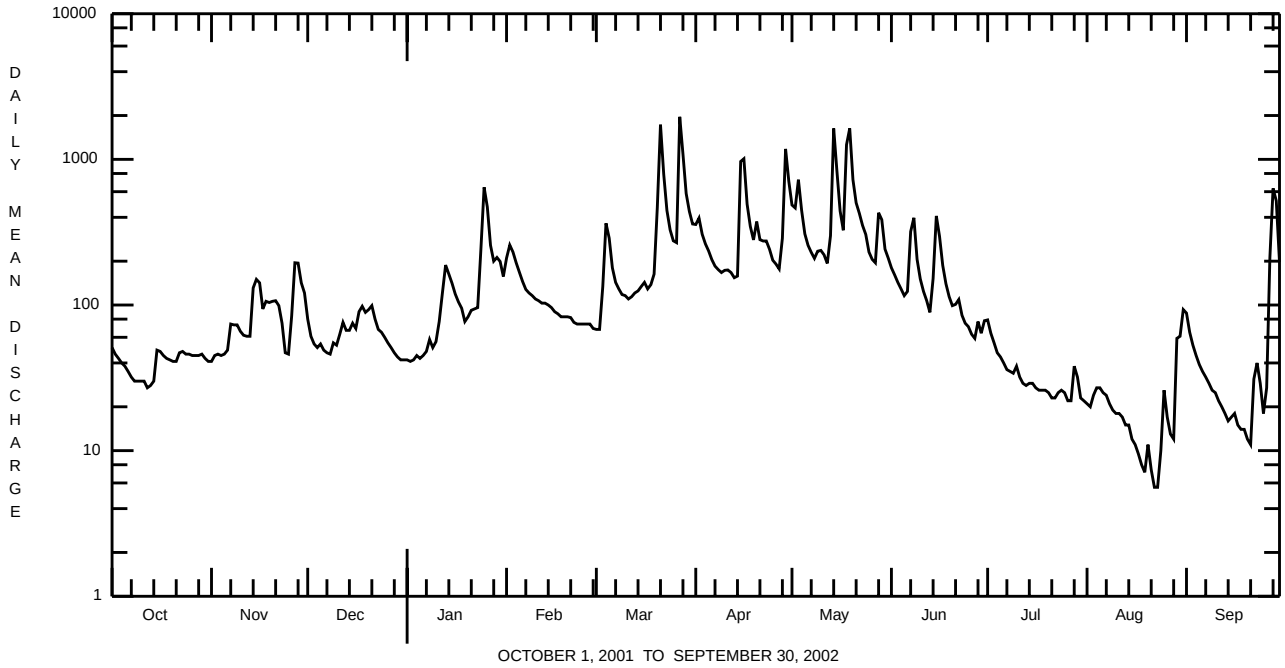
e Estimated.

WEST CONEWAGO CREEK BASIN

01574000 WEST CONEWAGO CREEK NEAR MANCHESTER, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1929 - 2002	
ANNUAL TOTAL	113609		58443.2			
ANNUAL MEAN	311		160		594	
HIGHEST ANNUAL MEAN					1117	1972
LOWEST ANNUAL MEAN					154	1931
HIGHEST DAILY MEAN	5740	Mar 30	1960	Mar 27	64000	Sep 26 1975
LOWEST DAILY MEAN	16	Sep 17-21	5.6	Aug 22,23	2.0	Aug 8 1930
ANNUAL SEVEN-DAY MINIMUM	17	Sep 17	7.7	Aug 17	3.9	Aug 3 1966
MAXIMUM PEAK FLOW			2970	Mar 27	**a**96200	Sep 26 1975
MAXIMUM PEAK STAGE			6.29	Mar 27	**b**32.11	Sep 26 1975
INSTANTANEOUS LOW FLOW			5.4	Aug 22,23	1.9	Oct 13 1941
ANNUAL RUNOFF (CFSM)	0.61		0.31		1.16	
ANNUAL RUNOFF (INCHES)	8.29		4.26		15.82	
10 PERCENT EXCEEDS	799		362		1280	
50 PERCENT EXCEEDS	107		77		245	
90 PERCENT EXCEEDS	31		22		45	

a From rating curve extended above 45,000 ft^3/s on basis of slope-area computation at gage height 30.26 ft.
b From floodmark.



WEST CONEWAGO CREEK BASIN

01574000 WEST CONEWAGO CREEK NEAR MANCHESTER, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
APR 2002													
09...	1230	9813	165	40	10.6	8.6	305	12.9	120	32.8	9.8	76	29.5
JUN													
12...	1230	9813	105	40	5.5	7.5	341	25.7	130	33.7	10.2	90	24.9
AUG													
27...	0830	9813	13	40	5.8	7.6	476	24.2	130	31.9	11.9	86	32.4

Date	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
APR 2002													
09...	220	10	<.020	1.98	<.040	2.7	.04	.060	4.6	<10	300	<1.0	30
JUN													
12...	232	16	.040	1.81	<.040	2.6	.19	.230	4.9	10	520	<1.0	90
AUG													
27...	255	16	.110	4.97	<.200	5.7	.35	.450	6.1	<10	590	<1.0	80

Date	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002		
09...	<50	<10
JUN		
12...	<50	<10
AUG		
27...	<50	<10

CODORUS CREEK BASIN

01574500 CODORUS CREEK AT SPRING GROVE, PA

LOCATION.--Lat 39°52'43", long 76°51'13", York County, Hydrologic Unit 02050306, on right bank 15 ft downstream from abutments of dismantled county highway bridge on Township Route 452, 0.1 mi downstream from small left-bank tributary, 0.3 mi downstream from east boundary of Spring Grove, and 7.0 mi southwest of York.

DRAINAGE AREA.--75.5 mi^2.

PERIOD OF RECORD.--May 1929 to September 1964, November 1965 to current year. October 1962 to September 1964, November 1965 to September 1968, published as West Branch Codorus Creek at Spring Grove.

REVISED RECORDS.--WSP 1302: 1929-30. WSP 1502: 1932(M), 1933, 1935(M), 1940, 1942(M), 1943, 1944-46(M), 1951(M), 1955(m).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 430.86 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 18, 1930, nonrecording gage, Jan. 18, 1930, to Sept. 9, 1941, water-stage recorder at site 0.9 mi upstream, and Sept. 10, 1941, to Sept. 30, 1964, water-stage recorder at site 0.8 mi upstream, all at datum 5.64 ft higher. Nov. 1 to Dec. 20, 1965, nonrecording gage about 40 ft downstream at unknown datum, Dec. 21, 1965, to Mar. 31, 1966, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records 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 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	33	38	34	50	37	39	30	48	44	39	38
2	39	33	35	36	43	38	34	58	46	43	41	34
3	39	46	34	38	36	64	36	41	44	37	41	26
4	42	44	36	37	35	37	40	32	44	44	42	33
5	46	42	35	35	35	31	37	37	46	45	42	37
6	47	42	36	37	36	35	30	36	102	44	40	34
7	46	39	37	40	37	34	29	35	127	41	39	30
8	39	43	41	36	36	36	30	35	43	39	37	30
9	36	43	48	34	35	37	36	38	44	39	34	31
10	37	44	32	39	33	41	41	38	45	39	33	33
11	42	39	40	71	35	35	33	35	47	38	34	32
12	48	39	39	53	35	38	30	38	47	35	38	32
13	44	38	37	39	32	41	33	71	52	35	41	35
14	44	36	46	34	36	40	44	94	58	45	40	34
15	54	36	40	39	39	38	70	31	31	37	39	35
16	46	35	33	36	35	43	32	32	25	37	41	36
17	50	36	34	33	36	44	38	37	29	39	42	35
18	42	38	50	33	33	54	48	91	34	40	40	35
19	44	37	40	35	37	45	50	41	24	43	42	35
20	40	35	35	35	34	140	50	33	29	47	44	32
21	37	35	40	32	36	75	49	35	23	59	42	34
22	43	30	52	38	37	39	39	31	33	51	37	40
23	44	31	48	37	36	32	25	34	36	40	40	47
24	48	32	46	82	36	30	32	39	45	38	93	32
25	45	52	35	54	34	31	30	43	40	37	37	32
26	46	60	47	36	38	40	29	50	42	42	39	44
27	50	37	36	32	39	88	36	49	42	39	38	107
28	47	35	36	37	37	37	66	41	42	35	45	78
29	38	34	37	33	---	32	34	46	42	48	98	36
30	36	38	33	37	---	30	27	43	41	44	44	33
31	36	---	34	52	---	32	---	45	---	37	31	---
TOTAL	1330	1162	1210	1244	1021	1374	1147	1339	1351	1281	1333	1150
MEAN	42.9	38.7	39.0	40.1	36.5	44.3	38.2	43.2	45.0	41.3	43.0	38.3
MAX	54	60	52	82	50	140	70	94	127	59	98	107
MIN	35	30	32	32	32	30	25	30	23	35	31	26
(†)	-22.9	-40.0	-23.3	-13.7	-21.1	-3.1	-9.8	-4.9	-25.2	-31.9	-35.3	-20.7

† Change in contents from Lake Marburg, equivalent in cubic feet per second.

CODORUS CREEK BASIN

01574500 CODORUS CREEK AT SPRING GROVE, PA--Continued

REMARKS.--Daily and monthly discharge figures (and those data determined from them) include water diverted around station by P.H. Glatfelter Co. Instantaneous data reflect actual streamflow past gage and do not include diverted streamflow.

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 2002, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	65.7	61.1	75.8	86.5	100	122	117	87.3	85.2	62.1	55.5	65.4
MAX	269	159	270	264	269	492	372	171	699	185	109	360
(WY)	1980	1997	1997	1996	1971	1994	1993	1975	1972	1970	1996	1975
MIN	18.1	15.8	16.9	19.5	25.7	33.0	31.2	28.8	21.4	17.4	17.1	19.2
(WY)	1967	1966	1966	1966	1969	1969	1969	1969	1966	1966	1966	1966

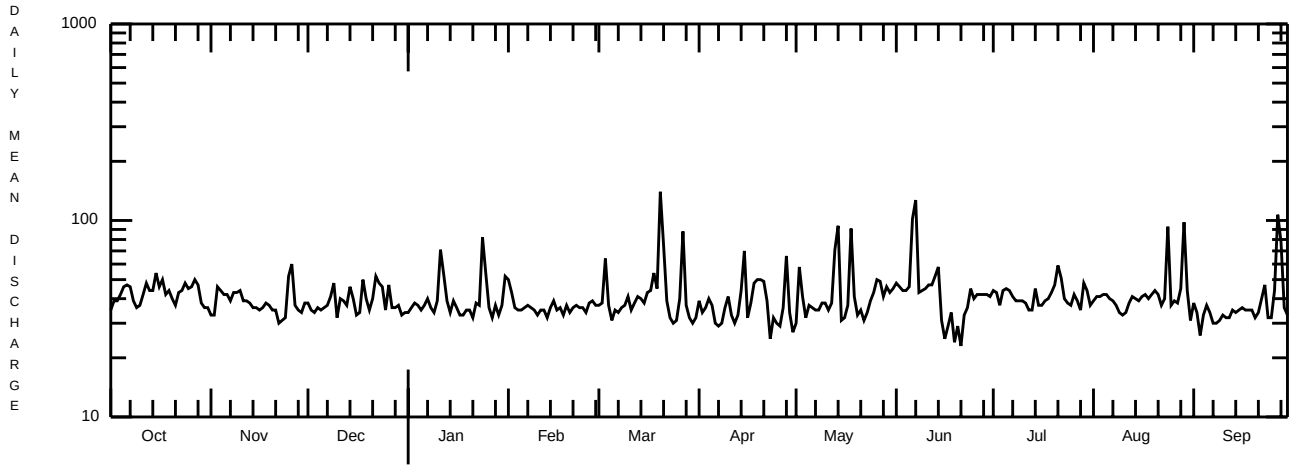
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1966 - 2002	
ANNUAL TOTAL	20595		14942			
ANNUAL MEAN	56.4		40.9		83.0	
HIGHEST ANNUAL MEAN					163	1972
LOWEST ANNUAL MEAN					33.6	1969
HIGHEST DAILY MEAN	449	Mar 30	140	Mar 20	11000	Jun 22 1972
LOWEST DAILY MEAN	30	Nov 22	23	Jun 21	0.60	Sep 4 1966
ANNUAL SEVEN-DAY MINIMUM	34	Nov 18	28	Jun 15	10	Sep 1 1966
MAXIMUM PEAK FLOW			425	Jun 7	**a**19400	Jun 22 1972
MAXIMUM PEAK STAGE			3.56	Jun 7	**b**15.57	Jun 22 1972
10 PERCENT EXCEEDS	79		50		149	
50 PERCENT EXCEEDS	48		38		54	
90 PERCENT EXCEEDS	36		32		35	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1964, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	38.4	52.7	64.4	87.4	114	144	125	86.1	55.6	38.7	44.0	41.7
MAX	151	148	164	223	244	360	326	206	165	157	321	424
(WY)	1943	1938	1951	1949	1951	1936	1952	1952	1946	1945	1933	1934
MIN	8.76	11.9	18.1	19.5	27.3	50.1	41.3	26.6	19.6	9.09	11.9	8.93
(WY)	1942	1937	1959	1942	1932	1959	1947	1963	1959	1954	1935	1941

SUMMARY STATISTICS	WATER YEARS 1929 - 1964	
ANNUAL MEAN	**c**74.1	
HIGHEST ANNUAL MEAN	127	1933
LOWEST ANNUAL MEAN	31.4	1959
HIGHEST DAILY MEAN	3920	Sep 16 1934
LOWEST DAILY MEAN	.80	Oct 26 1947
ANNUAL SEVEN-DAY MINIMUM	5.0	Jul 9 1959
MAXIMUM PEAK FLOW	**d**11200	Aug 23 1933
MAXIMUM PEAK STAGE	**f**11.84	Aug 23 1933
INSTANTANEOUS LOW FLOW	.00	Oct 26 1947
ANNUAL RUNOFF (CFSM)	.98	
ANNUAL RUNOFF (INCHES)	13.34	
10 PERCENT EXCEEDS	151	
50 PERCENT EXCEEDS	42	
90 PERCENT EXCEEDS	14	

a From rating curve extended above 1,400 ft^3/s on basis of computation of peak discharge at dam at gage height 6.80 ft and at peak flow.
b From floodmark in gage.
c Adjusted for diversion since March 1961.
d From rating curve extended above 2,400 ft^3/s on basis of computation of flow at gage height 11.84 ft.
f Site and datum then in use.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

CODORUS CREEK BASIN

LAKES AND RESERVOIRS IN CODORUS CREEK BASIN

0l574390 LAKE MARBURG.--Lat 39°48'26", long 76°52'58", York County, Hydrologic Unit 02050306, at dam on West Branch Codorus Creek, 0.7 mi upstream from Codorus Creek, and 4.5 mi south of Spring Grove. DRAINAGE AREA, 23.2 mi^2. PERIOD OF RECORD, October 1972 to current year in reports of Geological Survey; July 1972 to September 1974 in files of P. H. Glatfelter Co., Spring Grove. Records for period December 1966 to June 1972 were lost in the flood of June 1972. GAGE, Nonrecording. Datum of gage is given in feet above National Geodetic Vertical Datum of 1929.

REMARKS.--Lake is formed by earthfill dam with two bascule spillway gates. Each is 7 ft high and 106.50 ft long. Storage began in December 1966. Elevation of top of gates is 623.00 ft (capacity, 47,680 acre-ft). Top of dam is at elevation 627.00 ft (capacity, 53,210 acre-ft). At the spillway crest, an elevation of 616.00 ft, the capacity is 39,430 acre-ft. The lake is used for water supply and recreation. An average of about 3,380 acre-ft is diverted from Codorus Creek into the lake each year.

COOPERATION.--Records provided by P.H. Glatfelter Company.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 48,010 acre-ft, June 24, 1998, elevation, 623.25 ft; minimum, 32,190 acre-ft, Feb. 13, 14, 15, 1989, elevation, 608.79 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 39,320 acre-ft, Oct. 1, elevation, 615.9 ft; minimum, 23,860 acre-ft, Sept. 26, elevation, 599.17 ft.

01574700 INDIAN ROCK DAM.--Lat 39°55'22", long 76°45'14", York County, Hydrologic Unit 02050306, at dam on Codorus Creek, 0.1 mi upstream from mouth of South Branch Codorus Creek, 0.3 mi west of York Water Co. pumping station, and 3.0 mi southwest of York. DRAINAGE AREA, 93.7 mi^2. PERIOD OF RECORD, September 1962 to current year in reports of Geological Survey, September 1942 to August 1962 in files of Baltimore District, U.S. Army Corps of Engineers. GAGE, water-stage recorder (U.S. Army Corps of Engineers datum).

REMARKS.--Reservoir formed by an earth and rockfill dam with ungated concrete spillway at elevation 435.00 ft (capacity, 28,000 acre-ft). Reservoir completed in June l942; storage began in June 1946. No dead storage. Reservoir is used for flood control. Figures given herein represent total contents. Flood storage is regulated by three vertical-lift tractor gates. Water is stored only during high flows and released when downstream conditions warrant. Satellite telemetry at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 30,200 acre-ft, June 23, 1972, elevation, 436.44 ft; minimum, no storage many days most years.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 48.3 acre-ft, Sept. 26, elevation, 377.80 ft; minimum, 7.5 acre-ft, Sept. 4, elevation, 371.56 ft.

MONTHEND ELEVATION, IN FEET ABOVE SEA LEVEL, AND CONTENTS AT 2400 HRS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)	Elevation (feet)	Contents (acre-feet)	Change in contents (equivalent in ft^3/s)
	01574390 Lake Marburg			01574700 Indian Rock Dam		
Sept. 30	615.90	39,320	---	372.20	9.6	---
Oct. 31	614.56	37,910	-22.9	372.41	10.2	+.01
Nov. 30	612.21	35,530	-40.0	372.32	10.0	0
Dec. 31	610.79	34,100	-23.3	372.19	9.6	-.01
CAL YR 2001	--	--	-7.4	--	--	0
Jan. 31	609.96	33,260	-13.7	372.93	11.8	+.04
Feb. 28	608.69	32,090	-21.1	372.29	9.9	-.03
Mar. 31	608.48	31,900	-3.1	372.50	10.5	+.01
Apr. 30	607.85	31,320	-9.8	372.09	9.3	-.02
May 31	607.52	31,020	-4.9	372.84	11.5	+.04
June 30	605.90	29,520	-25.2	372.49	10.5	-.02
July 31	603.71	27,560	-31.9	371.97	8.9	-.03
Aug. 31	601.08	25,390	-35.3	371.85	8.5	-.01
Sept. 30	599.54	24,160	-20.7	372.33	10.0	+.03
WTR YR 2002	--	--	-21.0	--	--	0

SUSQUEHANNA RIVER BASIN

01576000 SUSQUEHANNA RIVER AT MARIETTA, PA

LOCATION.--Lat 40°03'16", long 76°31'52", Lancaster County, Hydrologic Unit 02050306, on left bank 420 ft upstream from Chickies Creek, and 1.0 mi downstream from Marietta. Records include flow of Chickies Creek.

DRAINAGE AREA.--25,990 mi^2, approximately, includes that of Chickies Creek.

PERIOD OF RECORD.--October 1931 to current year.

REVISED RECORDS.--WSP 781: 1933(M). WSP 1502: 1937.

GAGE.--Water-stage recorder. Datum of gage is 200.56 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow slightly regulated by 16 flood-control reservoirs which have a combined capacity of 1,599,000 acre-ft. Some diurnal fluctuation below 8,000 ft^3/s caused by hydroelectric plant 9.7 mi upstream. Several measurements of water temperature were made during the year. Satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 2, 1889, reached a stage of 58.2 ft, from floodmark, discharge, about 630,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17900	7820	16400	11700	32100	23100	88600	67700	37600	30200	6730	4070
2	14700	7490	17800	13300	41200	22900	78500	73200	36800	26300	6630	4010
3	12700	7310	25100	12400	56000	24500	70000	72500	36000	22100	6130	3820
4	11100	6900	27900	12100	68000	25100	60800	71600	33700	19100	5900	3680
5	9890	6790	27300	12400	64500	25600	53400	67000	31000	16600	5380	3430
6	9020	6370	24800	12900	55100	26100	47100	59700	28400	14900	5190	3350
7	7990	6250	22400	12600	45600	26400	42900	52100	31100	13400	5710	3180
8	7300	6270	20300	12400	39000	26500	39500	45800	82100	12600	4300	2910
9	6680	6310	19000	12400	34300	26000	36500	42300	125000	11800	4430	2690
10	6450	6130	17900	13800	31400	24900	34200	41900	99000	11500	4570	2580
11	10800	6110	17800	15200	29100	23700	32200	49100	72400	10700	4300	2530
12	6650	5850	17300	15700	31800	24100	31000	53900	54000	9970	4030	2280
13	5650	5880	16300	15700	48700	23700	29700	54200	44400	9310	3760	2150
14	5350	5950	15700	16500	64000	23500	29000	98600	39000	9300	3640	2220
15	6020	5820	15700	16600	59700	23400	32400	190000	36200	8960	3480	2220
16	5700	5840	15800	15000	48900	23200	39000	181000	40800	8830	3450	2480
17	6440	5640	17000	15100	41100	22500	53200	148000	58300	8080	3450	2650
18	6440	5560	20200	14100	36900	23800	67000	124000	77500	7410	3770	2680
19	7140	5550	24800	13800	34900	25500	62000	134000	75000	7000	3450	2730
20	7550	5990	41000	12800	32900	29300	53400	137000	60300	6740	3470	2880
21	7700	5580	58500	12500	30400	36600	47900	130000	49700	6720	3060	3090
22	7240	5700	51000	12700	27900	44000	43400	105000	39900	7510	3130	3910
23	6970	5510	41300	12000	26600	45100	39900	84300	34200	7460	3190	4980
24	6630	5540	35200	12200	26500	46100	37500	69500	29800	7340	3240	5730
25	6580	5700	30900	14100	26800	43900	34800	59300	26900	6730	3570	9670
26	6350	7290	28100	15300	27300	40400	33200	51700	24600	6800	3190	9350
27	6450	7740	25800	16300	26200	46500	31100	46100	23100	6780	3120	11200
28	8230	11900	23700	20200	24100	114000	30000	42200	24100	7320	3350	12000
29	9750	16200	22000	26700	---	155000	33700	38200	23600	7420	4160	16300
30	8710	16800	18900	27700	---	130000	43600	37100	22200	7250	4170	21300
31	8180	---	15400	28200	---	104000	---	37500	---	7120	3890	---
TOTAL	254260	213790	771300	474400	1111000	1299400	1355500	2464500	1396700	343250	129840	156070
MEAN	8202	7126	24880	15300	39680	41920	45180	79500	46560	11070	4188	5202
MAX	17900	16800	58500	28200	68000	155000	88600	190000	125000	30200	6730	21300
MIN	5350	5510	15400	11700	24100	22500	29000	37100	22200	6720	3060	2150
CFSM	0.32	0.27	0.96	0.59	1.53	1.61	1.74	3.06	1.79	0.43	0.16	0.20
IN.	0.36	0.31	1.10	0.68	1.59	1.86	1.94	3.53	2.00	0.49	0.19	0.22

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 2002, BY WATER YEAR (WY)

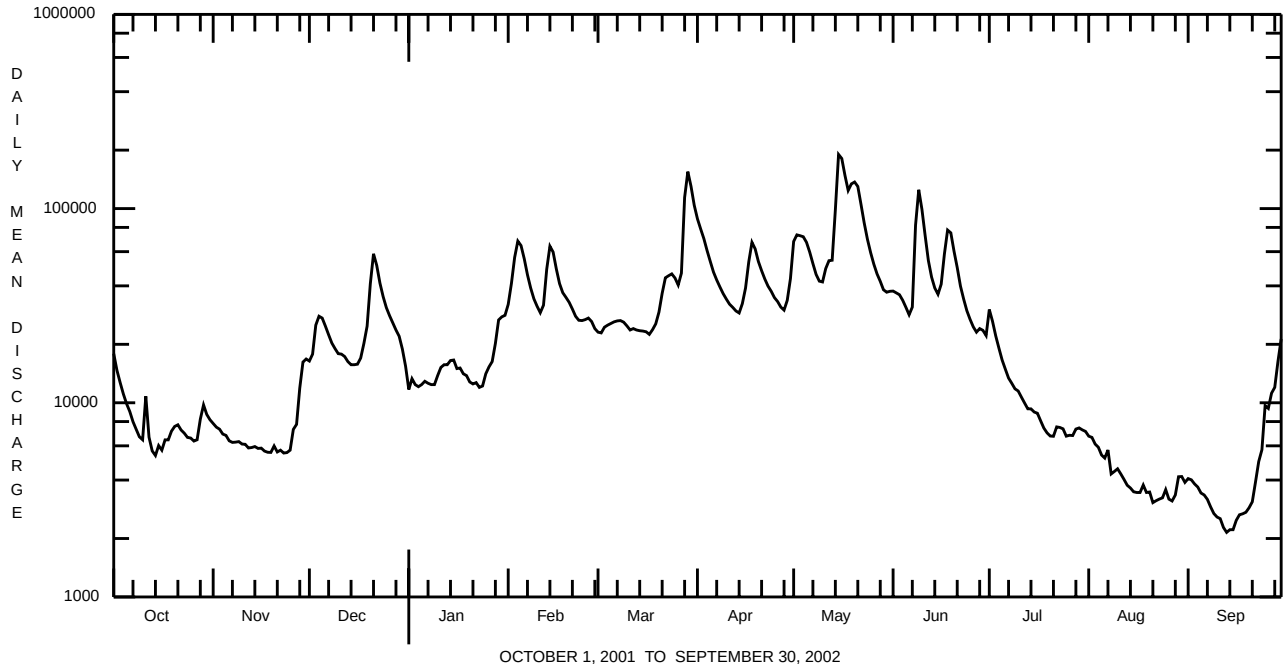
MEAN	17500	29130	39230	39910	45020	75700	79310	48880	28450	15690	11790	12490
MAX	81330	71930	114300	116900	109300	229100	235100	103400	190700	61480	47180	78650
(WY)	1977	1978	1997	1996	1984	1936	1993	1989	1972	1972	1994	1975
MIN	2699	3041	6216	6635	10730	28120	22450	14240	6974	3957	3627	2296
(WY)	1964	1965	1999	1981	1934	1960	1946	1941	1999	1965	1966	1964

SUSQUEHANNA RIVER BASIN

01576000 SUSQUEHANNA RIVER AT MARIETTA, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1932 - 2002	
ANNUAL TOTAL	8896310		9970010			
ANNUAL MEAN	24370		27320		36860	
HIGHEST ANNUAL MEAN					59900	1972
LOWEST ANNUAL MEAN					19060	1965
HIGHEST DAILY MEAN	156000	Apr 12	190000	May 15	1040000	Jun 24 1972
LOWEST DAILY MEAN	3750	Sep 15	2150	Sep 13	1380	Sep 26 1932
ANNUAL SEVEN-DAY MINIMUM	4060	Sep 12	2350	Sep 10	1720	Sep 26 1932
MAXIMUM PEAK FLOW			197000	May 15	**a**1080000	Jun 23 1972
MAXIMUM PEAK STAGE			45.62	May 15	**b**64.54	Jun 23 1972
INSTANTANEOUS LOW FLOW			2130	Sep 13	**c**618	Sep 26 1932
ANNUAL RUNOFF (CFSM)	0.94		1.05		1.42	
ANNUAL RUNOFF (INCHES)	12.73		14.27		19.27	
10 PERCENT EXCEEDS	60400		59900		83800	
50 PERCENT EXCEEDS	15400		17800		22000	
90 PERCENT EXCEEDS	5520		3900		5950	

a From rating curve extended above 961,000 ft^3/s.
b From floodmarks.
c York Haven powerplant shut down to obtain current-meter measurements of low flow.



CONESTOGA RIVER BASIN

01576500 CONESTOGA RIVER AT LANCASTER, PA

LOCATION.--Lat 40°03'00", long 76°16'39", Lancaster County, Hydrologic Unit 02050306, on left bank at Penn Central Railroad bridge, 50 ft downstream from small right-bank tributary, 500 ft downstream from diversion dam at city water plant, and 0.7 mi east of Lancaster.

DRAINAGE AREA.--324 mi^2.

PERIOD OF RECORD.--October 1928 to March 1932; August, September 1932; April 1933 to current year. Prior to October 1973, published as Conestoga Creek at Lancaster.

REVISED RECORDS.--WSP 1202: Drainage area. WSP 1502: 1943(P). WDR PA-87-2: 1985-86(P) (monthly and yearly summaries) WDR PA-90-2: 1972(M).

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 245.63 ft above National Geodetic Vertical Datum of 1929. Prior to May 1, 1933, at site 600 ft upstream at different datum, excluding small tributary.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Regulation at low flow by water plant and mill above station. Diversion upstream for municipal supply of city of Lancaster. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

COOPERATION.--Records of diversion provided by city of Lancaster.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 2,800 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
May 14	1000	*5,390	*9.07	No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87	50	60	55	142	56	143	321	211	131	49	70
2	82	52	69	51	149	55	148	445	196	117	44	74
3	67	52	56	49	e143	148	125	1020	181	107	52	65
4	58	61	56	50	e110	197	133	422	170	102	106	61
5	77	53	54	54	90	110	126	312	166	90	65	51
6	67	51	52	52	86	83	115	266	248	90	57	46
7	67	51	51	68	81	77	115	241	823	87	52	40
8	61	48	59	85	78	70	101	227	319	82	45	38
9	68	50	80	77	74	69	99	316	224	80	42	38
10	58	54	90	71	75	75	112	383	198	84	39	36
11	57	50	76	120	72	77	117	244	178	81	36	35
12	58	52	61	316	79	69	99	224	165	68	38	31
13	62	51	64	156	70	69	96	644	152	70	36	30
14	65	52	67	114	67	88	108	3370	193	70	35	28
15	67	52	104	97	66	87	364	871	290	72	30	32
16	68	49	104	84	64	77	284	595	209	65	27	42
17	73	47	81	79	60	80	178	473	173	59	40	50
18	70	34	84	74	63	97	144	963	160	54	34	52
19	64	46	112	75	64	216	130	829	317	49	32	37
20	61	54	92	72	59	358	127	515	203	51	35	32
21	57	58	75	71	60	682	127	430	164	49	49	34
22	56	56	69	73	60	287	179	385	144	55	39	48
23	55	52	66	72	59	189	257	352	137	56	40	45
24	56	54	71	166	56	155	163	320	128	60	50	42
25	57	59	71	440	58	138	131	302	123	59	60	36
26	54	161	76	192	55	135	136	290	119	57	69	38
27	52	121	61	136	57	352	131	293	123	49	55	237
28	60	75	60	109	58	257	419	276	420	81	45	418
29	60	61	61	102	---	176	968	258	225	100	75	198
30	52	61	49	96	---	147	414	237	153	77	87	111
31	60	---	47	118	---	137	---	219	---	59	76	---
TOTAL	1956	1767	2178	3374	2155	4813	5789	16043	6512	2311	1539	2095
MEAN	63.1	58.9	70.3	109	77.0	155	193	518	217	74.5	49.6	69.8
MAX	87	161	112	440	149	682	968	3370	823	131	106	418
MIN	52	34	47	49	55	55	96	219	119	49	27	28
CFSM	0.19	0.18	0.22	0.34	0.24	0.48	0.60	1.60	0.67	0.23	0.15	0.22
IN.	0.22	0.20	0.25	0.39	0.25	0.55	0.66	1.84	0.75	0.27	0.18	0.24
(†)	16.1	16.2	15.7	16.4	16.8	16.1	15.0	14.0	14.3	16.8	16.7	16.3

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

MEAN	208	274	389	467	543	679	620	458	375	297	232	217
MAX	930	866	1618	1699	1191	2089	1720	1529	3286	944	1427	908
(WY)	1980	1997	1997	1979	1979	1994	1993	1989	1972	1984	1933	1987
MIN	33.2	41.1	70.3	61.3	77.0	155	166	148	92.0	50.3	30.3	40.9
(WY)	1931	1931	2002	1981	2002	2002	1985	1965	1965	1999	1957	1957

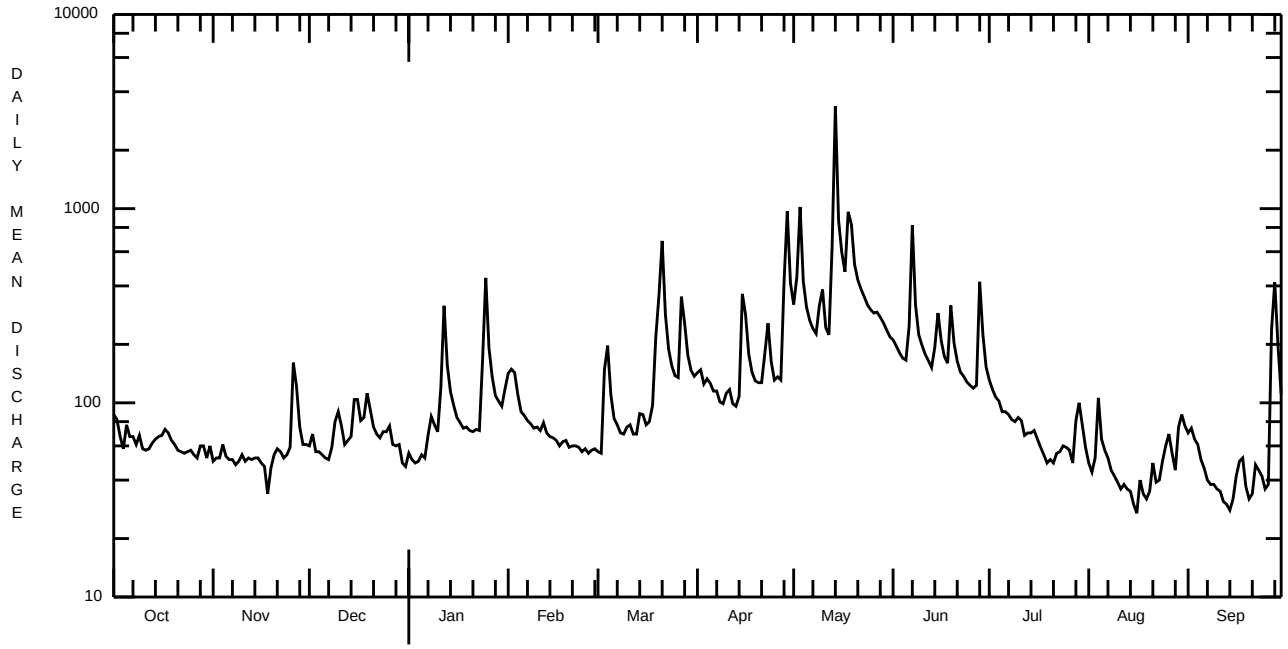
† Diversion for municipal supply of city of Lancaster, equivalent in cubic feet per second.
e Estimated.

CONESTOGA RIVER BASIN

01576500 CONESTOGA RIVER AT LANCASTER, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	87510		50532			
ANNUAL MEAN	240		138		395	
HIGHEST ANNUAL MEAN					753	1972
LOWEST ANNUAL MEAN					138	2002
HIGHEST DAILY MEAN	1770	Mar 30	3370	May 14	47600	Jun 23 1972
LOWEST DAILY MEAN	34	Nov 18	27	Aug 16	7.0	Aug 11 1930
ANNUAL SEVEN-DAY MINIMUM	47	Nov 13	33	Sep 9	20	Aug 9 1930
MAXIMUM PEAK FLOW			5390	May 14	**a**50300	Jun 23 1972
MAXIMUM PEAK STAGE			9.07	May 14	**b**27.90	Jun 23 1972
ANNUAL RUNOFF (CFSM)	0.74		0.43		1.22	
ANNUAL RUNOFF (INCHES)	10.05		5.80		16.54	
10 PERCENT EXCEEDS	530		290		798	
50 PERCENT EXCEEDS	150		75		255	
90 PERCENT EXCEEDS	56		46		84	

a From rating curve extended above 13,000 ft^3/s on basis of slope-area measurement at gage height 17.50 ft and contracted-opening measurement of peak flow.
b From floodmark.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

CONESTOGA RIVER BASIN

01576754 CONESTOGA RIVER AT CONESTOGA, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 39°56'47", long 76°22'05", Lancaster County, Hydrologic Unit 02050306, on left bank on SR 3030, 1,500 ft downstream from Little Conestoga Creek, 1.0 mi west of Conestoga, and 2.6 mi upstream from mouth.

DRAINAGE AREA.--470 mi^2.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR PA-86-2: 1985(M).

GAGE.--Water-stage recorder. Datum of gage is 180.45 ft above National Geodetic Vertical Datum of 1929.

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

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

Date	Time	Discharge ft^3/s	Gage Height (ft)	Date	Time	Discharge ft^3/s	Gage Height (ft)
May 14	1145	*6,700	*7.15	No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	149	109	114	e85	224	119	239	432	282	201	97	138
2	143	97	113	e95	225	121	241	425	264	182	86	141
3	139	100	120	e95	223	286	226	1220	247	167	87	127
4	122	101	106	e95	188	311	218	610	232	158	111	113
5	114	107	107	e100	170	226	220	416	233	143	148	103
6	132	98	105	106	162	174	199	355	405	132	107	90
7	117	95	102	140	155	154	193	326	1400	133	95	82
8	113	96	105	141	150	148	188	307	568	136	90	75
9	110	93	152	147	144	140	181	363	352	125	83	72
10	120	93	152	135	140	150	192	510	304	146	78	71
11	110	96	147	206	144	152	201	368	274	132	75	68
12	109	94	136	451	138	149	188	296	257	120	72	63
13	107	95	118	288	141	167	180	488	248	108	74	62
14	115	94	143	201	131	167	197	4520	316	113	77	59
15	156	94	171	169	128	169	302	1230	457	114	70	62
16	129	96	176	154	127	163	522	761	373	113	70	86
17	156	95	157	142	124	149	303	613	281	106	63	82
18	136	94	177	138	118	190	267	938	250	100	73	78
19	125	77	163	134	125	247	230	1250	346	96	73	83
20	113	92	173	141	122	549	223	678	356	91	75	73
21	115	99	145	136	118	969	216	566	260	91	81	67
22	108	104	129	137	120	491	243	498	228	89	92	78
23	108	100	122	142	119	334	357	456	210	95	88	92
24	110	98	129	394	119	262	293	419	199	98	119	85
25	108	113	126	612	117	235	238	397	192	116	168	78
26	101	235	123	356	117	225	211	376	184	102	124	80
27	98	237	123	242	127	424	220	369	188	96	126	429
28	96	161	112	202	118	450	433	366	435	98	114	716
29	107	128	113	179	---	301	1210	346	415	164	217	411
30	104	115	106	176	---	247	646	323	244	139	174	204
31	96	---	e75	209	---	229	---	299	---	114	145	---
TOTAL	3666	3306	4040	5948	4034	8098	8777	20521	10000	3818	3152	3968
MEAN	118	110	130	192	144	261	293	662	333	123	102	132
MAX	156	237	177	612	225	969	1210	4520	1400	201	217	716
MIN	96	77	75	85	117	119	180	296	184	89	63	59
CFSM	0.25	0.23	0.28	0.41	0.31	0.56	0.62	1.41	0.71	0.26	0.22	0.28
IN.	0.29	0.26	0.32	0.47	0.32	0.64	0.69	1.62	0.79	0.30	0.25	0.31

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 2002, BY WATER YEAR (WY)

MEAN	388	510	678	743	765	1063	833	729	504	456	327	409
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	118	110	130	192	144	261	274	308	203	107	102	132
(WY)	2002	2002	2002	2002	2002	2002	1985	1999	1999	1999	2002	2002

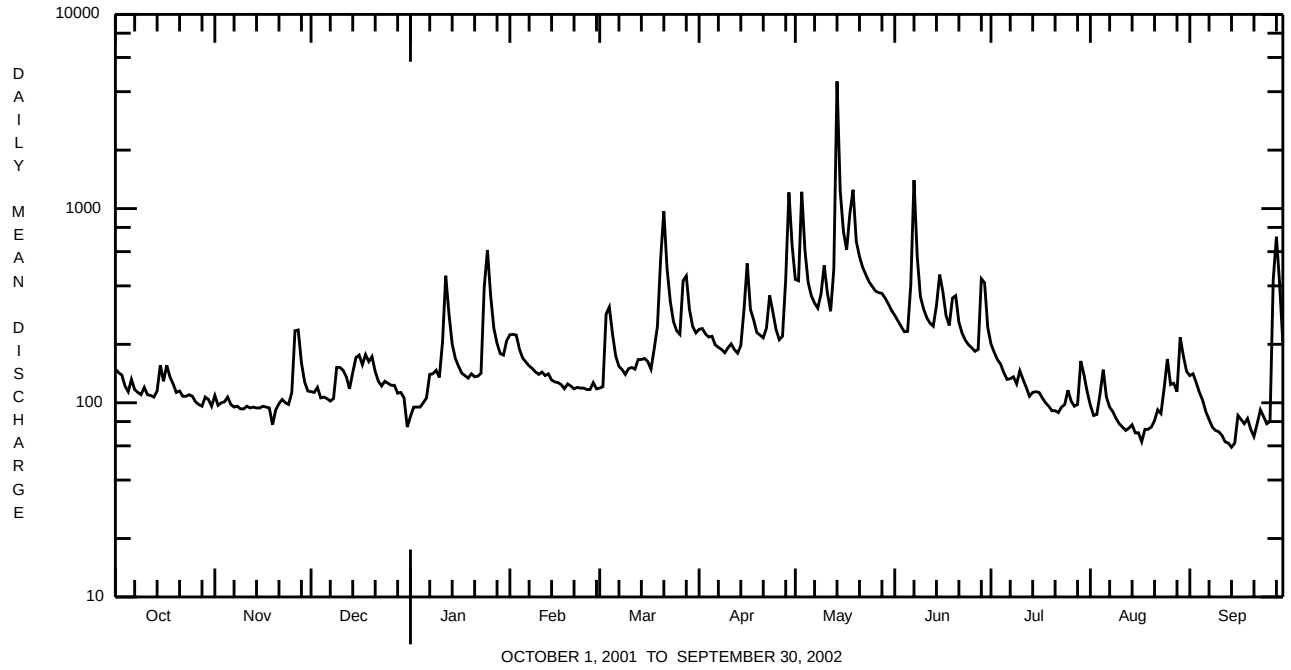
e Estimated.

CONESTOGA RIVER BASIN

01576754 CONESTOGA RIVER AT CONESTOGA, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1985 - 2002	
ANNUAL TOTAL	133916		79328			
ANNUAL MEAN	367		217		616	
HIGHEST ANNUAL MEAN					993	1994
LOWEST ANNUAL MEAN					217	2002
HIGHEST DAILY MEAN	2180	Mar 30	4520	May 14	14100	Sep 17 1999
LOWEST DAILY MEAN	**e**75	Dec 31	59	Sep 14	58	Aug 7 1999
ANNUAL SEVEN-DAY MINIMUM	92	Nov 14	65	Sep 9	65	Sep 9 2002
MAXIMUM PEAK FLOW			6700	May 14	19000	Sep 9 1987
MAXIMUM PEAK STAGE			7.15	May 14	14.37	Sep 9 1987
INSTANTANEOUS LOW FLOW			53	Sep 14,15	52	Aug 7 1999
ANNUAL RUNOFF (CFSM)	0.78		0.46		1.31	
ANNUAL RUNOFF (INCHES)	10.60		6.28		17.82	
10 PERCENT EXCEEDS	759		413		1150	
50 PERCENT EXCEEDS	264		141		421	
90 PERCENT EXCEEDS	106		87		169	

e Estimated.



CONESTOGA RIVER BASIN

01576754 CONESTOGA RIVER AT CONESTOGA, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 306-334.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
APR 2002													
10...	1300	9813	188	40	12.7	8.7	771	16.3	250	65.6	20.4	168	60.6
JUN													
17...	1400	9813	269	40	8.0	8.0	645	23.1	240	64.7	19.2	162	48.0
AUG													
26...	1330	9813	121	40	7.9	8.0	900	25.2	230	55.7	21.3	164	78.3

Date	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
APR 2002													
10...	540	22	<.020	5.24	<.040	5.8	.08	.140	5.1	<10	130	<1.0	20
JUN													
17...	514	26	.030	6.74	<.040	6.9	.25	.310	4.1	<10	1000	2.1	70
AUG													
26...	548	2	<.020	4.11	<.200	4.5	.42	.470	5.4	<10	160	1.3	20

Date	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
APR 2002		
10...	<50	10
JUN		
17...	<50	20
AUG		
26...	<50	<10

POTOMAC RIVER BASIN

TONOLOWAY CREEK BASIN

01613050 TONOLOWAY CREEK NEAR NEEDMORE, PA

LOCATION.--Lat 39°53'54", long 78°07'57", Fulton County, Hydrologic Unit 02070004, on left bank 10 ft downstream from bridge on SR 3008, 0.2 mi upstream from Foster Creek, and 3.5 mi north of Needmore.

DRAINAGE AREA.--10.7 mi^2.

PERIOD OF RECORD.--Occasional discharge measurements and annual maximums, water years 1963-65. October 1965 to current year.

REVISED RECORDS.--WSP 2103: 1966-68(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 688.94 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 2, 1965, crest-stage gage at same site at datum 2.0 ft higher.

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

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

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 20	1400	*146	*4.65

Date	Time	Discharge ft^3/s	Gage Height (ft)
(No peaks above base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.04	0.74	1.1	e0.45	3.6	0.94	16	25	5.0	0.60	0.38	0.07
2	0.04	0.74	0.85	e0.47	3.4	1.1	13	23	3.8	0.52	0.30	0.08
3	0.03	0.26	0.72	e0.46	3.5	7.1	13	16	3.2	0.47	0.24	0.11
4	0.03	0.23	0.68	e0.52	3.5	5.0	11	13	2.9	0.38	0.19	0.06
5	0.03	0.20	0.65	e0.60	3.5	5.6	9.3	10	3.0	0.30	0.19	0.03
6	0.03	0.19	0.62	e0.62	3.1	5.8	8.2	9.1	6.4	0.19	0.79	0.02
7	0.02	0.19	0.66	e0.62	2.8	3.6	6.8	12	5.6	0.15	0.35	0.02
8	0.02	0.19	0.80	e0.61	2.5	3.2	6.1	10	3.4	0.14	0.17	0.02
9	0.02	0.21	1.8	e0.96	2.2	3.0	6.8	13	2.7	0.12	0.10	0.02
10	0.02	0.19	1.1	e1.5	2.0	2.9	7.3	11	2.3	0.17	0.04	0.02
11	0.02	0.20	0.98	e2.5	2.4	2.5	5.4	9.5	2.0	0.14	0.03	0.01
12	0.02	0.20	0.90	e4.3	2.0	2.5	4.8	10	1.8	0.06	0.02	0.01
13	0.02	0.19	0.85	e2.8	1.8	2.5	5.3	13	3.1	0.03	0.02	0.01
14	0.44	0.20	1.5	e2.2	1.6	2.4	6.7	13	4.5	0.52	0.02	0.01
15	2.5	0.23	1.8	2.2	1.7	2.2	19	11	3.3	0.59	0.02	0.01
16	0.71	0.24	1.2	1.8	1.6	2.6	17	9.4	2.4	0.36	0.02	0.02
17	1.1	0.24	1.1	1.5	1.6	2.9	16	8.9	1.8	0.18	0.02	0.01
18	0.84	0.24	1.5	1.3	1.3	11	15	69	1.5	0.09	0.01	0.01
19	0.68	0.24	1.3	1.3	1.3	12	17	54	1.3	0.63	0.01	0.93
20	0.64	0.24	1.1	1.4	1.3	83	14	36	1.1	1.4	0.01	0.67
21	0.62	0.24	0.96	1.3	1.3	80	14	26	0.94	0.57	0.01	0.27
22	0.62	0.24	0.88	1.3	1.2	38	16	20	0.84	0.36	0.01	1.7
23	0.59	0.24	0.85	1.8	1.1	24	13	15	0.76	12	0.01	3.9
24	0.62	0.26	0.99	e2.4	1.1	17	11	13	0.71	3.6	1.5	0.85
25	0.64	3.6	e0.78	e3.2	1.1	13	11	11	0.69	1.4	0.46	0.56
26	0.65	2.6	e0.64	e3.9	1.1	13	9.4	9.2	0.66	2.0	0.17	1.2
27	0.63	1.1	e0.60	4.0	1.3	16	8.2	8.1	0.63	1.4	0.10	12
28	0.63	0.89	e0.57	3.4	1.0	12	29	6.8	1.0	1.2	0.08	9.0
29	0.70	0.78	e0.44	3.0	---	12	35	6.1	1.5	0.79	0.24	4.3
30	0.69	0.87	e0.42	2.9	---	10	31	5.3	0.71	0.60	0.20	2.6
31	0.73	---	e0.42	3.7	---	12	---	4.8	---	0.49	0.14	---
TOTAL	14.37	16.18	28.76	59.01	55.9	408.84	395.3	501.2	69.54	31.45	5.85	38.52
MEAN	0.46	0.54	0.93	1.90	2.00	13.2	13.2	16.2	2.32	1.01	0.19	1.28
MAX	2.5	3.6	1.8	4.3	3.6	83	35	69	6.4	12	1.5	12
MIN	0.02	0.19	0.42	0.45	1.0	0.94	4.8	4.8	0.63	0.03	0.01	0.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 2002, BY WATER YEAR (WY)

MEAN	5.87	11.2	14.3	14.0	21.3	27.8	23.8	17.0	10.2	4.21	1.93	3.59
MAX	37.7	58.2	43.8	62.1	59.5	78.2	72.4	51.5	85.6	39.7	9.93	50.0
(WY)	1991	1998	1997	1996	1986	1994	1993	1988	1972	1989	1989	1996
MIN	0.13	0.26	0.23	0.54	2.00	5.44	5.19	3.53	0.38	0.065	0.000	0.002
(WY)	1992	1999	1999	1981	2002	1990	1968	1976	1991	1966	1966	1991

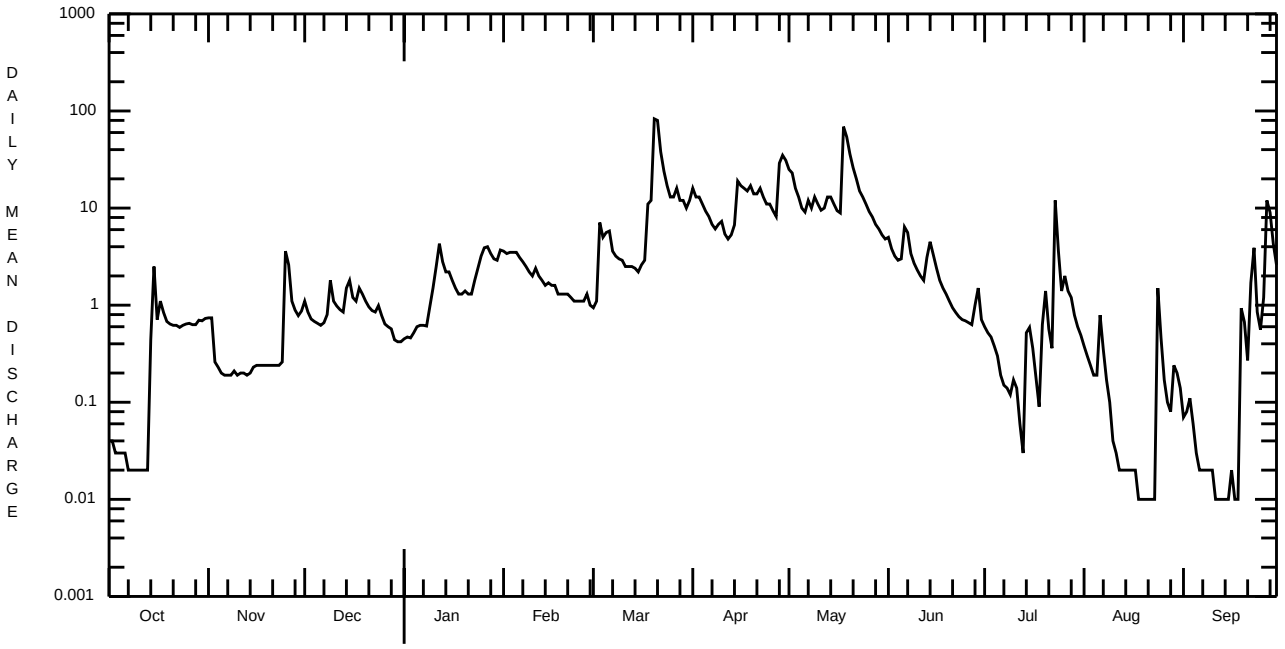
e Estimated.

TONOLOWAY CREEK BASIN

01613050 TONOLOWAY CREEK NEAR NEEDMORE, PA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1966 - 2002	
ANNUAL TOTAL	2349.19		1624.92			
ANNUAL MEAN	6.44		4.45		12.8	
HIGHEST ANNUAL MEAN					28.3	1996
LOWEST ANNUAL MEAN					4.45	2002
HIGHEST DAILY MEAN	86	Apr 16	83	Mar 20	868	Jun 22 1972
LOWEST DAILY MEAN	0.01	Sep 12-24	0.01	Aug 18**a**	0.00	Jun 25 1966**b**
ANNUAL SEVEN-DAY MINIMUM	0.01	Sep 12	0.01	Aug 17	0.00	Jul 1 1966
MAXIMUM PEAK FLOW			146	Mar 20	**cd**1300	Jun 22 1972
MAXIMUM PEAK STAGE			4.65	Mar 20	9.48	Jan 19 1996
INSTANTANEOUS LOW FLOW			0.01	Aug 17**f**	0.00	Jul 18 1991**b**
10 PERCENT EXCEEDS	17		13		32	
50 PERCENT EXCEEDS	1.6		1.1		4.7	
90 PERCENT EXCEEDS	0.04		0.03		0.28	

a Also Aug. 19-23, Sept. 11-15, 17, 18.
b No flow many days throughout period of record.
c Gage height 9.17 ft.
d From rating curve extended above 540 ft^3/s on basis of contracted-opening and slope-area measurement of peak flow.
f Also Aug. 18-24, Sept. 11-19.



OCTOBER 1, 2001 TO SEPTEMBER 30, 2002

CONOCOCHEAGUE CREEK BASIN

01614137 DENNIS CREEK NEAR CHAMBERSBURG, PA

LOCATION.--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.

DRAINAGE AREA.--13.2 mi^2.

PERIOD OF RECORD.--April 1997 to May 2001, published as a partial-record station. June 2001 to September 2002. (discontinued)

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

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. Diversions above station used for irrigation of land in the drainage basin above the station.

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

Date	Time	Discharge ft^3/s	Gage Height (ft)
Mar. 20	1530	*81.0	*2.63
Aug. 24	0415	81.0	2.63

Date	Time	Discharge ft^3/s	Gage Height (ft)
(No peaks above base discharge.)			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	2.8	3.1	e1.7	4.6	1.9	17	27	14	3.7	1.8	2.5
2	2.6	2.8	3.0	e1.7	4.5	2.1	15	26	13	3.4	1.9	2.5
3	2.7	3.1	3.0	e1.8	4.2	7.2	14	23	12	3.5	1.9	2.2
4	2.6	2.7	2.9	2.3	3.9	5.2	13	20	11	3.4	2.3	2.1
5	2.5	2.5	2.7	3.0	e3.7	e4.5	12	19	10	3.1	2.5	2.0
6	2.6	2.7	2.7	2.5	e3.5	4.0	11	17	10	3.5	2.6	1.8
7	2.6	2.8	2.8	e3.8	3.2	3.8	11	17	9.7	3.3	2.2	1.9
8	2.7	2.8	3.2	e3.1	3.0	3.5	9.9	16	8.9	2.9	2.0	1.9
9	2.8	2.7	3.7	2.7	2.8	3.4	9.9	16	8.4	3.0	1.9	1.7
10	2.9	2.8	3.0	3.0	2.8	3.4	9.8	15	7.9	3.4	1.8	1.7
11	2.9	2.8	2.9	3.9	e2.7	3.0	9.0	14	7.6	3.2	1.8	1.7
12	2.5	2.8	2.6	3.5	2.7	3.0	8.6	13	7.3	2.7	1.8	1.7
13	2.4	2.7	2.6	3.0	2.6	3.0	8.8	13	7.6	2.4	1.8	1.6
14	2.9	2.8	3.5	2.7	e2.5	3.0	10	13	8.6	3.2	1.7	1.5
15	3.7	2.8	3.1	2.5	2.4	2.8	20	12	8.0	2.9	1.6	1.8
16	3.0	2.7	2.8	2.3	2.3	3.0	16	11	7.5	2.7	1.5	1.9
17	3.0	2.7	2.7	2.2	2.3	3.1	14	11	6.8	2.6	1.5	1.7
18	2.8	2.7	3.4	2.0	2.2	7.0	23	32	6.3	2.4	1.5	1.6
19	2.7	2.7	3.1	2.1	2.2	7.6	26	25	5.9	2.6	1.5	1.8
20	2.7	2.6	2.8	2.2	2.1	47	23	21	5.7	2.7	1.5	1.6
21	2.6	2.6	2.5	e2.0	2.1	43	21	19	5.3	2.8	1.4	1.7
22	2.6	3.0	2.3	2.0	2.1	28	22	17	5.2	2.7	1.4	1.9
23	2.6	2.5	2.3	2.2	2.0	22	20	16	5.1	3.5	1.7	2.3
24	2.7	2.6	2.3	6.1	1.9	18	19	15	4.9	4.2	14	1.8
25	2.7	3.9	2.2	6.5	1.9	16	18	14	4.8	3.0	4.2	1.7
26	2.8	3.7	e2.1	5.1	2.0	19	16	14	4.5	2.7	3.3	2.3
27	2.8	3.3	e2.0	4.3	2.0	28	15	18	4.4	2.6	2.8	6.9
28	2.8	3.0	e1.8	4.0	1.9	22	34	17	4.3	2.4	2.9	6.9
29	2.7	2.9	e1.8	3.7	---	19	37	18	4.2	2.4	3.1	4.2
30	2.7	3.1	e1.8	3.6	---	16	31	16	4.0	2.2	2.8	3.2
31	3.0	---	e1.7	4.2	---	16	---	14	---	2.2	2.6	---
TOTAL	85.3	85.6	82.4	95.7	76.1	368.5	514.0	539	222.9	91.3	77.3	70.1
MEAN	2.75	2.85	2.66	3.09	2.72	11.9	17.1	17.4	7.43	2.95	2.49	2.34
MAX	3.7	3.9	3.7	6.5	4.6	47	37	32	14	4.2	14	6.9
MIN	2.4	2.5	1.7	1.7	1.9	1.9	8.6	11	4.0	2.2	1.4	1.5
CFSM	0.21	0.22	0.20	0.23	0.21	0.90	1.30	1.32	0.56	0.22	0.19	0.18
IN.	0.24	0.24	0.23	0.27	0.21	1.04	1.45	1.52	0.63	0.26	0.22	0.20

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2002, BY WATER YEAR (WY)

MEAN	2.75	2.85	2.66	3.09	2.72	11.9	17.1	17.4	14.6	5.51	3.05	2.54
MAX	2.75	2.85	2.66	3.09	2.72	11.9	17.1	17.4	21.7	8.07	3.61	2.74
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2001	2001	2001	2001
MIN	2.75	2.85	2.66	3.09	2.72	11.9	17.1	17.4	7.43	2.95	2.49	2.34
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002

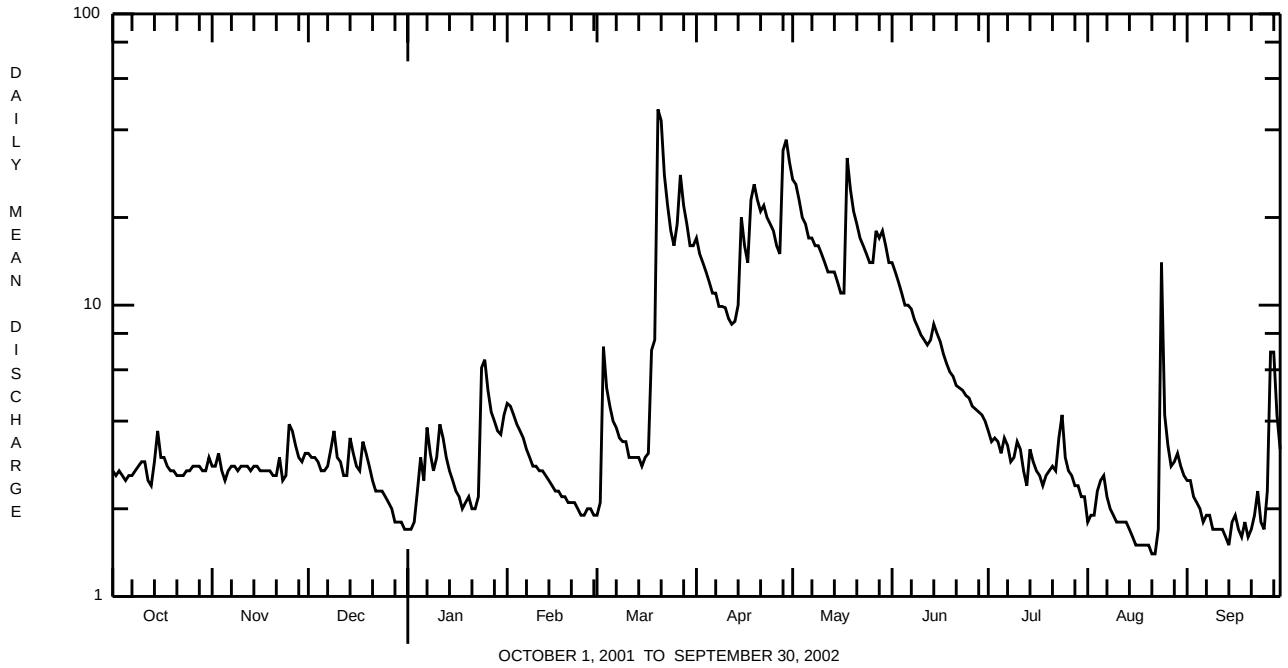
e Estimated.

CONOCOCHEAGUE CREEK BASIN

01614137 DENNIS CREEK NEAR CHAMBERSBURG, PA--Continued

SUMMARY STATISTICS	FOR 2002 WATER YEAR		FOR PERIOD OF RECORD	
ANNUAL TOTAL	2308.2			
ANNUAL MEAN	6.32		6.32	
HIGHEST ANNUAL MEAN			6.32	2002
LOWEST ANNUAL MEAN			6.32	2002
HIGHEST DAILY MEAN	47	Mar 20	189	Jun 23 2001
LOWEST DAILY MEAN	1.4	Aug 21,22	1.4	Aug 21,22 2002
ANNUAL SEVEN-DAY MINIMUM	1.5	Aug 16	1.5	Aug 16 2002
MAXIMUM PEAK FLOW	81	Mar 20,Aug 24	**a**960	Feb 18 1998
MAXIMUM PEAK STAGE	2.63	Mar 20,Aug 24	5.97	Feb 18 1998
ANNUAL RUNOFF (CFSM)	0.48		0.48	
ANNUAL RUNOFF (INCHES)	6.50		6.51	
10 PERCENT EXCEEDS	17		17	
50 PERCENT EXCEEDS	3.0		3.0	
90 PERCENT EXCEEDS	1.8		1.8	

a From rating curve extended above 136 ft^3/s on basis of slope-area measurement at gage height 5.97 ft.



DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which these data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at crest-stage partial-record stations are presented in the following table. Discharge measurements made at low-flow partial-record sites and at miscellaneous sites and for special studies are given in separate tables.

Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations during water year 2002

Station name and number	Location and drainage area	Period of Record	Water year 2002 maximum			Period of record maximum		
			Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
SUSQUEHANNA RIVER BASIN								
CHEMUNG RIVER BASIN								
Crooked Creek below Catlin Hollow at Middlebury Center, Pa. (01518420)	Lat 41°50’33”, long 77°16’25”, Tioga County, Hydrologic Unit 02050104, at single-span bridge on Township Route 586 at Middlebury Center. Drainage area is 74.3 mi^2.	1986-2002	6-05-02	44.32	2,720	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.	1980-2002	6-06-02	22.18	5,170	1-19-96	[a]30.20	28,000
WEST BRANCH SUSQUEHANNA RIVER BASIN								
West Branch Susquehanna River at Karthaus, Pa. (01542500)	Lat 41°07’03”, long 78°06’33”, Clearfield County, Hydrologic Unit 02050201, at steel-truss bridge on State Highway 879 at Karthaus, Drainage area is 1,462 mi^2.	1918-1920[b] 1940-95≠ 1996-2002	6-07-02	8.73	17,000	6-23-72	18.57	84,300
First Fork Sinnemahoning Creek at Wharton, Pa. (01543700)	Lat 41°31’08”, long 78°01’40”, Potter County, Hydrologic Unit 02050202, 50 ft upstream from bridge on State Highway 872, and 0.8 mi southwest of Wharton. Drainage area is 182 mi^2.	1968-80* 1982* 1984-2002	5-13-02	10.11	5,340	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.	1975-2002	5-14-02	15.21	46,200	1-20-96	25.76	93,900

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Annual maximum discharge at crest-stage partial-record stations during water year 2002—Continued

Station name and number	Location and drainage area	Period of Record	Water year 2002 maximum			Period of record maximum		
			Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
			SUSQUEHANNA RIVER BASIN--Continued					
			WEST BRANCH SUSQUEHANNA RIVER BASIN--Continued					
Bald Eagle Creek near Beech Creek Station, Pa. (01548005)	Lat 41°04’51”, long 77°32’59”, Clinton County, Hydrologic Unit 02050204, on right bank at abandoned railroad bridge, 1.5 mi downstream from Beech Creek, and 4.2 mi downstream from Foster Joseph Sayers Dam. Drainage area is 562 mi^2. Datum of gage is 560 ft above NGVD of 1929, from topographic map.	1910-95≠ 1996-2002	5-13-02	10.87	4,250	3-18-36	[c]14.42	25,600
Lycoming Creek near Williamsport, Pa. (01550500)	Lat 41°16’01”, long 77°02’49”, Lycoming County, Hydrologic Unit 02050206, 150 ft downstream from concrete bridge on U.S. Highway 15, 1.2 mi downstream from Beautys Run, and 3.4 mi upstream from mouth. Datum of gage is 530.12 ft above NGVD of 1929. Drainage area is 268 mi^2.	1908-13[d] 1982-87* 1988-90 1995-2002	3-26-02	8.56	6,670	1-19-96	18.69	[f]45,000
Muncy Creek near Muncy, Pa. (01553005)	Lat 41°12’27”, long 76°45’09”, Lycoming County, Hydrologic Unit 02050206, 1,900 ft downstream from Little Muncy Creek, 2,300 ft upstream from bridge on State Highway 405, and 2.2 mi east of Muncy. Drainage area is 209 mi^2.	1989-2002	5-13-02	16.00	9,470	1-19-96	20.57	[g]43,000
			JUNIATA RIVER BASIN					
Raystown Branch Juniata River at Wolfsburg, Pa. (01559790)	Lat 40°02’45”, long 78°31’45”, Bedford County, Hydrologic Unit 02050303, 150 ft upstream from single-span steel-girder bridge on U.S. Highway 30 at Wolfsburg, and 4.7 mi upstream from Dunning Creek. Drainage area is 132 mi^2.	1989-90 1996-2002	5-09-02 5-18-02	9.27	1,380	1-19-96	16.97	9,340
Aughwick Creek near Shirleysburg, Pa. (01564512)	Lat 40°16’55”, long 77°53’27”, Huntingdon County, Hydrologic Unit 02050304, on left bank 0.2 mi upstream from Sugar Run, and 1.2 mi southwest of Shirleysburg. Drainage area is 301 mi^2.	1990-2002	5-18-02	8.99	4,350	1-19-96	19.46	44,400
Juniata River at Lewistown, Pa. (01564895)	Lat 40°35’40”, long 77°34’58”, Mifflin County, Hydrologic Unit 02050304, on left bank 1,200 ft upstream from Kishacoquillas Creek. Datum of gage is 443.83 ft above NGVD of 1929. Drainage area is 2,519 mi^2.	1989-2002	5-19-02	13.80	19,100	1-20-96	[h]31.64	74,400

Annual maximum discharge at crest-stage partial-record stations during water year 2002—Continued

Station name and number	Location and drainage area	Period of Record	Water year 2002 maximum			Period of record maximum		
			Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
SUSQUEHANNA RIVER BASIN--Continued								
CODORUS CREEK BASIN								
Codorus Creek near York, Pa. (01575500)	Lat 39°56'46", long 76°45'20", York County, Hydrologic Unit 02050306, on left bank 0.5 mi upstream from bridge on Richland Ave. (SR 3054), 2.0 mi downstream from South Branch Codorus Creek, and 2.0 mi southwest of York. Drainage area is 222 mi^2. Datum of gage is 356.39 ft above NGVD of 1929.	1915-23[i] 1926-32[i] 1940-96≠ 1997-2002	6-07-02	4.23	751	6-22-72	[j]26.36	30,000
CONOWINGO CREEK BASIN								
Conowingo Creek near Buck, Pa. (01578200)	Lat 39°50'35", long 76°11'45", Lancaster County, Hydrologic Unit 02050306, at concrete bridge on SR 3008, 2.0 mi upstream from Jackson Run, and 2.5 mi southeast of Buck. Drainage area is 8.71 mi^2.	1963-2002	2002	<5.0[k]	<174[k]	7-01-84	[m]13.50	6,200

≠ Operated as a continuous-record gaging station.
* Operated as a low-flow partial-record station.
a From floodmark.
b Gage heights only, in reports of Water Supply Commission of Pennsylvania.
c Site and datum in use before October 1984.
d Operated as a continuous-record station by the Pennsylvania Department of Forests and Waters. Published as "at Bridge No. 2, near Williamsport."
f From rating curve extended above 8,000 ft^3/s.
g From rating curve extended above 9,000 ft^3/s.
h From peak-stage indicator.
i Gage heights and discharge measurements only, in reports of Pennsylvania Department of Forests and Waters.
j From floodmark in gage.
k Annual maximum discharge did not reach minimum recording range of gage.
m From floodmark; farm pond failure upstream.

Miscellaneous sites

Discharge measurements made at miscellaneous sites during water year 2002

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements: Date	Measurements: Discharge (ft^3/s)
		SUSQUEHANNA RIVER BASIN				
		SUGAR CREEK BASIN				
01531488 Sugar Creek	Susquehanna River	Lat 41°46’52”, long 76°30’10”, Bradford County, Hydologic Unit 02050106, at steel-truss bridge in North Towanda township, and 3.5 mi upstream from mouth.	184	2000-2001	10-15-01	16
					12-03-01	51
					2-25-02	80
					4-08-02	105
					7-15-02	8.9
					8-26-02	4.4
		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	1989-2001	10-15-01	70
					12-13-01	207
					2-25-02	186
					4-08-02	200
					4-23-02	168
					6-04-02	107
					7-15-02	17
					8-26-02	23
		LACKAWANNA RIVER BASIN				
01534860 Lackawanna River	Susquehanna River	Lat 41°26’28”, long 75°38’33”, Lackawanna County, Hydrologic Unit 02050107, at Parker Street Bridge at Scranton, and 14.1 mi upstream from mouth.	174	1999-2001	10-18-01	33
					12-06-01	76
					1-10-02	78
					2-27-02	172
					4-10-02	250
					5-08-02	298
					6-26-02	204
					8-07-02	34
		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 1995-2001	10-17-01	111
					12-05-01	132
					1-10-02	102
					2-27-02	146
					4-11-02	239
					7-17-02	84
					8-21-02	48
					8-28-02	51
		FISHING CREEK BASIN				
01539700 Little Fishing Creek	Fishing Creek	Lat 41°02’25”, long 76°29’01”, Columbia County, Hydrologic Unit 02050107, on Township Route 493, 1.6 mi upstream from mouth, and 2.8 mi northwest of Bloomsburg.	66.5	1991* 1992-2001	10-16-01	12
					12-04-01	46
					2-27-02	46
					4-09-02	51
					7-18-02	4.2
					8-28-02	1.6
		WEST BRANCH SUSQUEHANNA RIVER BASIN				
		SINNEMAHONING CREEK BASIN				
01542790 Bennett Branch	Sinnemahoning Creek	Lat 41°20’02”, long 78°08’10”, Cameron County, Hydrologic Unit 02050202, at bridge on Township Route 343 at Driftwood and 1,000 ft upstream from mouth.	365	1975-2001	10-02-01	37
					12-04-01	539
					1-15-02	215
					2-26-02	465
					4-09-02	517
					5-14-02	6,060
					6-25-02	241
					8-06-02	43
					9-19-02	50

Discharge measurements made at miscellaneous sites during water year 2002—Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements: Date	Measurements: Discharge (ft^3/s)
		SUSQUEHANNA RIVER BASIN--Continued				
		WEST BRANCH SUSQUEHANNA RIVER BASIN--Continued BALD EAGLE CREEK BASIN				
01548075 Fishing Creek	Bald Eagle Creek	Lat 41°04’31”, long 77°28’40”, Clinton County, Hydrologic Unit 02050204, at bridge on SR 2004, 1,700 ft south of Cedar Springs (Hill St.), and 4.5 mi upstream from mouth.	137	1989-2001	12-06-01 3-07-02	38 71
01548085 Bald Eagle Creek	West Branch Susquehanna River	Lat 41°07’35”, long 77°26’00', Clinton County, Hydrologic Unit 02050204, at concrete bridge on SR 2012 at Castanea, and 2.0 mi upstream from mouth.	768	1988-89 1991-2001	10-23-01 3-13-02 8-02-02	305 519 293
		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	1989-2001	10-23-01 12-19-01 2-26-02 3-12-02 4-10-02 5-14-02 5-15-02 8-12-02	89 1,220 319 360 415 3,980 3,100 39
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	1989-2001	10-23-01 12-19-01 1-23-02 2-26-02 4-10-02 6-27-02 8-12-02	22 318 29 67 82 68 8.2
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 1992-2001	11-27-01 1-09-02 2-22-02 4-05-02 7-12-02 8-19-02	221 91 207 299 32 9.8
		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 1997-2001	10-04-01 12-07-01 1-17-02 2-28-02 4-11-02 4-11-02 5-21-02 5-22-02 6-27-02 8-08-02 9-19-02	5.7 29 27 36 63 59 186 154 39 5.5 1.2
		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	1989-2001	10-15-01 12-07-01 1-23-02 3-05-02 4-22-02 5-28-02 7-22-02	28 40 55 122 201 186 33

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 2002—Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements: Date	Measurements: Discharge (ft^3/s)
		SUSQUEHANNA RIVER BASIN--Continued				
		JUNIATA RIVER BASIN				
01555810 Frankstown Branch Juniata River	Juniata River	Lat 40°22'42", long 78°25'01", Blair County, Hydrologic Unit 02050302, at end of cantilevered wooden walkway 0.6 mi downstream from McDonald Run, and 3.4 mi south of Duncansville.	84.3	1995-2001	10-31-01	9.7
					12-10-01	21
					1-23-02	25
					3-06-02	70
					4-25-02	141
					6-11-02	55
					8-01-02	8.1
					9-12-02	4.7
01555858 Beaverdam Branch Juniata River	Frankstown Branch Juniata River	Lat 40°25'27", long 78°23'37", Blair County, Hydrologic Unit 02050302, at bridge on Plank Road in Hollidaysburg, 1.5 mi downstream from Blair Gap Run, and 2.2 mi upstream from mouth.	72.1	1982-2001	10-31-01	17
					12-11-01	24
					1-23-02	34
					3-06-02	88
					4-25-02	148
					6-10-02	100
					8-01-02	16
					9-12-02	9.8
		CONODOGUINET CREEK BASIN				
01570280 Conodoguinet Creek	Susquehanna River	Lat 40°16'38", long 76°57'00", Cumberland County, Hydrologic Unit 02050305, at bridge on Oyster Mill Road at Enola, 0.2 mi downstream from Holtz Run, and 4.7 mi upstream from mouth. Datum of gage is 311.08 ft above NGVD of 1929.	501	1989-2001	11-28-01	159
					11-28-01	156
					12-06-01	87
					1-28-02	239
					3-19-02	283
					4-19-02	419
					5-16-02	487
					6-21-02	185
					8-07-02	81
					8-08-02	70
					9-18-02	70
		SWATARA CREEK BASIN				
01573086 Beck Creek	Susquehanna River	Lat 40°19'24", long 76°29'00", Lebanon County, Hydrologic Unit 02050305, at bridge on Township Route 421 (Bricker Lane), 0.4 mi upstream from mouth, and 1.0 mi south of Cleona. Datum of gage is 414.77 ft above NGVD of 1929.	7.87	1963-81*, 1983-85, 1987-89, 1991	11-29-01	.54
					2-05-02	.76
					2-20-02	.47
					3-15-02	.54
					4-03-02	2.4
					4-15-02	16
					5-02-02	5.9
					6-03-02	3.8
					9-09-02	.47
01573160 Quittapahilla Creek	Susquehanna River	Lat 40°20'34", long 76°33'46", Lebanon County, Hydrologic Unit 02050305, on downstream side of bridge on Palmyra-Bellegrove Road (SR 4008), 0.7 mi downstream from Killinger Creek, and 1.8 mi south of Bellegrove. Datum of gage is 361.88 ft above NGVD of 1929.	74.2	1976-94≠	11-29-01	52
					1-14-02	16
					2-14-02	25
					3-16-02	15
					4-05-02	55
					4-15-02	120
					5-02-02	135
					6-03-02	67

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 2002—Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements: Date	Measurements: Discharge (ft^3/s)
		SUSQUEHANNA RIVER BASIN--Continued				
		CONEWAGO CREEK BASIN				
01573820 South Branch Conewago Creek	Conewago Creek	Lat 39°51’30”, long 77°03’59”, Adams County, Hydrologic Unit 02050306, on right bank 3,500 ft upstream from bridge on SR 30, and 0.5 mi west of New Oxford. Datum of gage is 470 ft above NGVD of 1929, from topographic map.	65.8	1995-2001	10-17-01	19
					10-17-01	19
					12-12-01	12
					3-13-02	12
					4-24-02	18
					6-19-02	10
					7-31-02	5.6
					8-15-02	3.2
					8-15-02	3.4
					8-23-02	.37
					8-29-02	115
					9-20-02	5.5
		CHICKIES CREEK BASIN				
01575900 Chickies Creek	Susquehanna River	Lat 40°03’46”, long 76°30’57”, Lancaster County, Hydrologic Unit 02050306, at double-span concrete bridge on SR 23, 400 ft downstream from Little Chickies Creek, and 1.2 mi east of Marietta.	108	1989-2001	10-15-01	16
					12-04-01	23
					1-23-02	29
					3-14-02	33
					4-17-02	85
					6-20-02	64
					8-06-02	10
					9-17-02	18
		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≠ 1989-2001	10-16-01	60
					12-04-01	54
					1-23-02	63
					3-15-02	64
					4-18-02	66
					6-19-02	51
					8-06-02	28
					9-19-02	25
		POTOMAC RIVER BASIN				
		NORTH BRANCH POTOMAC RIVER BASIN WILLS CREEK BASIN				
01600700 Little Wills Creek	Wills Creek	Lat 39°55’37”, long 78°39’36”, 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 NGVD of 1929.	10.2	1961-81[a] 1970-91*[b] 1992-2001	10-02-01	.08
					11-13-01	.24
					2-25-02	1.8
					4-09-02	7.2
					5-30-02	3.3
					7-11-02	.08
					8-26-02	.31
					9-10-02	.01
		LICKING CREEK BASIN				
01613500 Licking Creek	Potomac River	Lat 39°43’23”, long 78°03’38”, Franklin County, Hydrologic Unit 02070004, at bridge on State Highway 456, 200 ft north of PA-MD state line, 3.0 mi southwest of Sylvan, and 10 mi upstream from mouth.	158	1930-41≠ 1983-91*[b] 1992-2001	10-01-01	8.6
					11-14-01	7.9
					2-26-02	14
					4-09-02	72
					5-22-02	193
					7-08-02	12
					8-27-02	17
					9-11-02	5.0

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 2002—Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements: Date	Measurements: Discharge (ft^3/s)
		POTOMAC RIVER BASIN--Continued				
		CONOCOCHEAGUE CREEK BASIN				
01614090 Conococheague Creek	Potomac River	Lat 39°55’48”, long 77°26’23”, Franklin County, Hydrologic Unit 02070004, on State Highway 233 bridge, 0.3 mi upstream from Birch Run, 1.3 mi upstream from Chambersburg Reservoir Dam, and 4.0 mi northeast of Fayetteville. Datum of gage is 1,132.76 ft above NGVD of 1929.	5.0	1960-81≠ 1998-2001	10-17-01	.91
					10-18-01	.61
					12-12-01	.59
					1-25-02	1.9
					3-13-02	1.2
					4-24-02	3.4
					4-25-02	3.3
					6-19-02	1.7
					7-31-02	.53
					9-10-02	.28

≠ Operated as a continuous-record gaging station.
* Operated as a low-flow partial-record station.
a Operated as a crest-stage partial-record station.
b Most years during period.

Low-flow partial record sites

Measurements of streamflow made at low-flow partial-record stations located in the area covered by this report are provided in the following table. The measurements were made during a period of base flow when streamflow is primarily the result of ground-water discharge. These measurements, when correlated with the simultaneous discharge of a nearby stream where historical continuous-record streamflow data are available, will give an indication of the low-flow status of the measured stream. The column headed “Period of Record” shows the water years in which measurements were made at the same, or practically the same, site.

The column headed “Unit Area Discharge” shows the result of the measured discharge divided by the drainage area at the low-flow site. This value is commonly used to make hydrologic comparisons among drainage basins and shows the relative discharge per square mile at each site. A unit area discharge value of 0.10 cubic feet per second per square mile ($(ft^3/s)/mi^2$) is sometimes used as a rule of thumb to estimate the 7-day, 10-year (Q7,10) flow value. The 7-day, 10-year flow value is often used to develop limits for permitted withdrawals or discharges to streams. To compare these measured low-flow values to the computed 7-day, 10-year flow value, visit the USGS-PA Flow Statistics web site at http://pa.water.er.usgs.gov/flowstats/ or, for stream data not available at the web site, refer to methods described in *Comparison of Methods for Computing Streamflow Statistics for Pennsylvania Streams* (USGS Water-Resources Investigations Report 99-4068), authored by Ehlke and Reed, to determine the 7-day, 10-year flow value.

Discharge measurements made at low-flow partial-record sites during water year 2002

Station Number	Station Name	Location	Drainage area (mi^2)	Period of Record	Measurements: Date	Measurements: Unit Area Discharge ($(ft^3/s)/mi^2$)	Measurements: Discharge (ft^3/s)
		SUSQUEHANNA RIVER BASIN					
		WICONISCO CREEK BASIN					
01555570	Wiconisco Creek near Elizabethville	Lat 40°33’40”, long 76°48’30”, Dauphin County, Hydrologic Unit 02050301, at bridge on State Highway 225, and 1.0 mi north of Elizabethville.	79.2	1949-50, 1970-74, 1982-83, 1985, 1987, 1989, 1991, 2002	9-11-02	.12	9.5
		JUNIATA RIVER BASIN					
01559700[a]	Sulphur Springs Creek near Manns Choice	Lat 39°58’40”, long 78°37’08”, Bedford County, Hydrologic Unit 02050303, at bridge on State Highway 96, 2,000 ft upstream from mouth, and 2.3 mi south of Manns Choice.	5.28	1962-78≠, 1983, 1985, 1987, 1989, 1991, 2002	9-10-02	.01	.07
01559750	Raystown Branch Juniata River near Manns Choice	Lat 40°00’58”, long 78°37’03”, Bedford County, Hydrologic Unit 02050303, at bridge on State Highway 31, 0.3 mi upstream from Shawnee Branch, and 2.0 mi northwest of Manns Choice.	50.8	1952-53, 1970-79, 1983, 1985, 1987, 1989, 1991, 2002	9-10-02	<.01	.04
01559756	Shawnee Branch at Schellsburg	Lat 40°02’17”, long 78°39’16”, Bedford County, Hydrologic Unit 02050303, at covered bridge on Township Route 443, 0.3 mi upstream from mouth, and 0.9 mi southwest of Schellsburg.	18.6	1968-79, 1983, 1985, 1987, 1989, 1991, 2002	9-10-02	.06	1.1
01561000	Brush Creek at Gapsville	Lat 39°57’20”, long 78°15’15”, Bedford County, Hydrologic Unit 02050303, at covered bridge 0.8 mi northwest of Gapsville, 1.5 mi downstream from Little Brush Creek, and 5.5 mi upstream from Shaffer Creek.	36.8	1930-58≠, 1983, 1985, 1987, 1989, 1991, 2002	9-11-02	.02	.76
01565700	Little Lost Creek at Oakland Mills	Lat 40°36’19”, long 77°18’42”, Juniata County, Hydrologic Unit 02050304, at bridge on SR 2007, 0.8 mi south of Oakland Mills, and 1.0 mi upstream from mouth.	6.52	1960-63[b], 1964-81≠, 1983-85, 1987, 1989, 1991, 2002	9-11-02	.12	.81

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at low-flow partial-record sites during water year 2002—Continued

Station Number	Station Name	Location	Drainage area (mi^2)	Period of Record	Measurements: Date	Measurements: Unit Area Discharge ($(ft^3/s)/mi^2$)	Measurements: Discharge (ft^3/s)
		JUNIATA RIVER BASIN--Continued					
01566900	Buffalo Creek near Newport	Lat 40°29’37”, long 77°08’20”, Perry County, Hydrologic Unit 02050304, at bridge on SR 1024, 0.4 mi upstream from mouth, and 1.2 mi north of Newport.	69.5	1948, 1970-79, 1983-85, 1987, 1989, 1991, 2002	9-11-02	<.01	.24
		STONY CREEK BASIN					
01568750	Stony Creek at Water Tank Trail near Dauphin	Lat 40°24’51”, long 76°46’50”, Dauphin County, Hydrologic Unit 02050305, at the intersection of Township Route 535 and Water Tank Trail, 3.8 mi downstream from Rattling Run, and 9.0 mi northeast of Dauphin.	21.9	1974-76≠, 1985-86≠, 1988*,1989, 1991, 2002	9-11-02	.15	3.3
		CONODOGUINET CREEK BASIN					
01569300	Conodoguinet Creek at Orrstown	Lat 40°03’40”, long 77°37’00”, Franklin County, Hydrologic Unit 02050305, at bridge on State Highway 433, and 0.3 mi northwest of Orrstown.	53.4	1943-57, 1983-85, 1987, 1989, 1991, 2002	9-10-02	.07	3.8
		YELLOW BREECHES CREEK BASIN					
01571185	Mountain Creek at Pine Grove Furnace	Lat 40°01’51”, long 77°18’18”, Cumberland County, Hydrologic Unit 02050305, at bridge on Township Route 336, 0.2 mi south of Pine Grove Furnace, and 0.5 mi upstream from Toms Run.	13.9	1970-80, 1983-85, 1987, 1989, 1991, 2002	9-09-02	.09	1.3
01571190	Mountain Creek near Mount Holly Springs	Lat 40°05’36”, long 77°11’14”, Cumberland County, Hydrologic Unit 02050305, 0.6 mi upstream from reservoir dam, and 2.0 mi south of Mount Holly Springs.	37.4	1970-79, 1982-85, 1987, 1989, 1991, 2002	9-09-02	.02	.73
01571200	Yellow Breeches Creek at Craigheads	Lat 40°08’47”, long 77°10’15”, Cumberland County, Hydrologic Unit 02050305, at single-lane steel highway bridge on Township Route 520 at Craigheads.	110	1959-62, 1982-85, 1987, 1989, 1990-91, 2002	9-09-02	.27	30
01571300	Dogwood Run near Dillsburg	Lat 40°08’51”, long 77°01’44”, York County, Hydrologic Unit 02050305, at Williams Grove, just downstream from millrace, 100 ft upstream from mouth, and 2.5 mi north of Dillsburg.	8.78	1957-69, 1983-85, 1989-90 2002	9-09-02	.37	3.2
		SWATARA CREEK BASIN					
01571824	Swatara Creek at Spittler Road Bridge at Ravine	Lat 40°34’30”, long 76°24’10”, Schuylkill County, Hydrologic Unit 02050305, at single-span concrete bridge on Spittler Road, Township Route 410, 0.1 mi east of State Highway 125 in Ravine.	44.6	2002	9-09-02	.33	15
01572000	Lower Little Swatara Creek at Pine Grove	Lat 40°32’15”, long 76°22’40”, Schuylkill County, Hydrologic Unit 02050305, at bridge on State Highway 501, 0.5 mi upstream from mouth, and 0.8 mi southeast of Pine Grove.	34.3	1920-32≠, 1981-84≠, 1985, 1987, 1989, 1991, 2002	9-09-02	.01	.34

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at low-flow partial-record sites during water year 2002—Continued

Station Number	Station Name	Location	Drainage area (mi^2)	Period of Record	Measurements: Date	Measurements: Unit Area Discharge ($(ft^3/s)/mi^2$)	Measurements: Discharge (ft^3/s)
		SWATARA CREEK BASIN--Continued					
01573086	Beck Creek near Cleona	Lat 40°19’24”, long 76°29’00”, Lebanon County, Hydrologic Unit 02050305, at bridge on Township Route 421 (Bricker Lane), 0.4 mi upstream from mouth, and 1.0 mi south of Cleona.	7.87	1963-81≠, 1983-85, 1987, 1989, 1991, 2002	9-09-02	.06	.47
		CODORUS CREEK BASIN					
01574800	East Branch Codorus Creek tributary near Winterstown	Lat 39°48’57”, long 76°37’59”, York County, Hydrologic Unit 02050306, on right bank 20 ft downstream from Township Route 850, 1.5 mi upstream from mouth, and 1.7 mi southwest of Winterstown.	5.17	1960-68, 1969-75≠, 1983-85, 1987, 1989, 1991, 2002	9-11-02	.20	1.0
		CONESTOGA RIVER BASIN					
01576200	Little Muddy Creek near Reamstown	Lat 40°11’05”, long 76°04’40”, Lancaster County, Hydrologic Unit 02050306, at bridge on Fivepointville Road, 0.2 mi east of Red Run, 0.8 mi upstream from mouth, and 3.0 mi southeast of Reamstown.	15.7	1959-69, 1983, 1985, 1987, 1989, 1991, 2002	9-09-02	.07	1.0
01576340	Cocalico Creek near Akron	Lat 40°09’53”, long 76°13’56”, Lancaster County, Hydrologic Unit 02050306, 200 ft upstream from Middle Creek, and 2.0 mi west of Akron.	66.3	1964, 1983, 1985, 1987, 1989, 1991, 2002	9-09-02	.16	10
01576750	Little Conestoga Creek at Rockhill	Lat 39°57’27”, long 76°22’18”, Lancaster County, Hydrologic Unit 02050306, 0.2 mi downstream from bridge on Township Route 561, 0.4 mi upstream of mouth, 0.5 mi southwest of Rockhill, and 3.0 mi south of Millersville.	65.5	1948, 1983-84, 1985, 1987, 1989, 1991, 2002	9-10-02	.15	9.9
		PEQUEA CREEK BASIN					
01576766	Pequea Creek at Paradise	Lat 40°00’39”, long 76°08’07”, Lancaster County, Hydrologic Unit 02050306, at west end of Paradise, and 500 ft upstream from U.S. Highway 30.	66.8	1964-65, 1983, 1985, 1987, 1989, 1991, 2002	9-10-02	.20	13
		MUDDY CREEK BASIN					
01577500	Muddy Creek at Castle Fin	Lat 39°46’21”, long 76°18’58”, York County, Hydrologic Unit 02050306, at bridge on SR 2024 (Paper Mill Road), 0.8 mi northeast of Castle Fin, 1.0 mi east of the intersection of SR 2024 and State Highway 74, and 3.4 mi upstream from mouth.	133	1929-38≠, 1968-71≠, 1983-85, 1987, 1989, 1991*, 2002	9-11-02	.12	16
		OCTORARO CREEK BASIN					
01578360	East Branch Octoraro Creek near Mount Vernon	Lat 39°49’50”, long 76°01’05”, Lancaster County, Hydrologic Unit 02050306, at county bridge on Township Route 341, 0.2 mi downstream from Muddy Run, 1.0 mi upstream from Octoraro Lake, and 1.5 mi north of Mt. Vernon.	75.6	1970-78, 1983-85, 1987, 1989, 1991, 2002	9-10-02	.08	6.5

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at low-flow partial-record sites during water year 2002—Continued

Station Number	Station Name	Location	Drainage area (mi^2)	Period of Record	Measurements: Date	Measurements: Unit Area Discharge ($(ft^3/s)/mi^2$)	Measurements: Discharge (ft^3/s)
		OCTORARO CREEK BASIN--Continued					
01578400	Bowery Run near Quarryville	Lat 39°53’41”, long 76°06’50”, Lancaster County, Hydrologic Unit 02050306, at bridge on Township Route 389, 1.1 mi upstream from mouth, and 2.5 mi east of Quarryville.	5.98	1963-81≠, 1983-85, 1987, 1989, 1991, 2002	9-10-02	.24	1.4
01578440	West Branch Octoraro Creek at White Rock	Lat 39°49’29”, long 76°05’25”, Lancaster County, Hydrologic Unit 02050306, at county bridge on Township Route 337 at White Rock, 1.0 mi upstream from Octoraro Lake, and 1.2 mi downstream from Kings Run.	39.6	1970-78, 1983-85, 1987, 1989, 1991, 2002	9-10-02	.10	4.0
		POTOMAC RIVER BASIN					
		SIDELING HILL CREEK BASIN					
*01600700	Little Wills Creek at Bard	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	10.2	1961-81[b], 1970-91[c]*, 1992-2002*	9-10-02	<.01	.01
01601000	Wills Creek below Hyndman	Lat 39°48’43”, long 78°43’00”, Bedford County, Hydrologic Unit 02070002, on left bank 150 ft upstream from county highway bridge piers (bridge dismantled), 150 ft downstream from Pennsylvania Railroad bridge (currently used as a highway bridge), and 5.0 mi south of Hyndman.	146	1952-67≠, 1983, 1985, 1987, 1989, 2002≠	9-10-02	.01	1.2
		TONOLOWAY CREEK BASIN					
01613080	Little Tonoloway Creek at Warfordsburg	Lat 39°45’30”, long 78°11’19”, Fulton County, Hydrologic Unit 02070004, at bridge on U.S. Highway 522, 0.2 mi upstream from Cove Run, and 0.5 mi north of Warfordsburg.	44.8	1970-79, 1983, 1985, 1987, 1989, 1991, 2002	9-11-02	0	.09
		LICKING CREEK BASIN					
*01613500	Licking Creek near Sylvan	Lat 39°43’23”, long 78°03’38”, Franklin County, Hydrologic Unit 02070004, at bridge on State Highway 456, 200 ft upstream from PA-MD state line, and 3.0 mi southwest of Sylvan.	158	1930-41≠, 1983, 1985, 1987, 1989, 1991, 2002	9-11-02	.03	5.0
		CONOCOCHEAGUE CREEK BASIN					
*01614090	Conococheague Creek near Fayetteville	Lat 39°55’48”, long 77°26’23”, Adams County, Hydrologic Unit 02070004, on right bank 20 ft downstream from bridge on State Highway 233, 1.3 mi upstream from dam on Chambersburg Reservoir, and 4.0 mi northeast of Fayetteville.	5.05	1960-81≠, 1983-85, 1987, 1989, 1991, 1998-2002*	9-10-02	.06	.28
01614100	Birch Run near Fayetteville	Lat 39°55’46”, long 77°26’28”, Adams County, Hydrologic Unit 02070004, at bridge on State Highway 233, 0.3 mi upstream from mouth, 2.7 mi northeast of intersection with U.S. Highway 30, and 6.0 mi east of of Fayetteville.	8.13	1959-69, 1983-85, 1987, 2002	9-10-02	.67	5.5

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at low-flow partial-record sites during water year 2002—Continued

Station Number	Station Name	Location	Drainage area (mi^2)	Period of Record	Measurements: Date	Measurements: Unit Area Discharge ($(ft^3/s)/mi^2$)	Measurements: Discharge (ft^3/s)
		CONOCOCHEAGUE CREEK BASIN--Continued					
01614140	Back Creek near Chambersburg	Lat 39°53’36”, long 77°44’30”, Franklin County, Hydrologic Unit 02070004, at bridge on SR 3012, 1.2 mi west of Turkeyfoot, and 5.0 mi southwest of Chambersburg.	63.0	1968-76, 1977-78≠, 1983, 1985, 1987, 1989, 1991, 2002	9-10-02	.04	2.5
		MONOCACY RIVER BASIN					
01638800	Marsh Creek near Gettysburg	Lat 39°49’05”, long 77°17’05”, Adams County, Hydrologic Unit 02070009, at bridge on State Highway 116, and 2.2 mi west of Gettysburg.	49.6	1943-57, 1983-85, 1987, 1989, 1991, 2002	9-10-02	.02	.97

≠ Operated as a continuous-record gaging station.
***** Also a miscellaneous station.
a Previously published as Buffalo Run tributary near Manns Choice, Pa.
b Operated as a crest-stage partial-record station.
c Most years during period.

ANALYSIS OF STREAMFLOW SAMPLES COLLECTED AT PARTIAL-RECORD STATIONS
OCTORARO CREEK BASIN

01578347 EB OCTORARO CREEK NEAR STEELVILLE, PA

Water-quality partial-record stations are sites where chemical-quality, biological, or sediment data are collected systematically over a period of years for use in hydrologic analyses. These data are usually collected less than quarterly.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MISCELLANEOUS STATION ANALYSES

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	ANC WATER UNFLTRD IT FIELD (MG/L AS CACO3) (00419)
OCT 2001													
22...	0915	80020	1028	13	9.3	7.3	298	12.0	29.8	10.5	3.93	9.70	63

Date	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	BORON, DIS-SOLVED (µG/L AS B) (01020)	IRON, DIS-SOLVED (µG/L AS FE) (01046)
OCT 2001									
22...	20.5	6.4	24.3	<.04	6.42	.013	<.02	30	15

ANALYSIS OF STREAMFLOW SAMPLES COLLECTED AT PARTIAL-RECORD STATIONS
OCTORARO CREEK BASIN

01578347 EB OCTORARO CREEK NEAR STEELVILLE, PA--Continued

REMARKS.--Samples were collected using a Hess sampler with a mesh size of 500 µm. Each sample covered a total area of 3.2 m^2.

BIOLOGICAL DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
BENTHIC MACROINVERTEBRATES

Date	10/22/01
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	12
Nematoda (NEMATODES)	76
Nemertea (PROBOSAS WORMS)	
Enopla	
Hoplonemertea	
Tetrastemmatidae	
Prostoma sp	4
Mollusca	
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	4
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	19
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	33
Crustacea	
Amphipoda (SCUDS)	
Gammaridae	
Gammarus sp	3
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Baetis sp	17
Pseudocloeon sp	1
Ephemerellidae	
Serratella sp	253
Heptageniidae	
Stenonema sp	83
Isonychiidae	
Isonychia sp	7
Leptohyphidae	
Tricorythodes sp	8
Plecoptera (STONEFLIES)	
Capniidae	4
Taeniopterygidae	
Taeniopteryx sp	9
Hemiptera (TRUE BUGS)	
Veliidae	
Rhagovelia sp	1

ANALYSIS OF STREAMFLOW SAMPLES COLLECTED AT PARTIAL-RECORD STATIONS
OCTORARO CREEK BASIN

01578347 EB OCTORARO CREEK NEAR STEELVILLE, PA--Continued

BIOLOGICAL DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
BENTHIC MACROINVERTEBRATES

Date	10/22/01
Benthic Macroinvertebrate	Count
Trichoptera (CADDISFLIES)	
Brachycentridae	
Micrasema sp	2
Helicopsychidae	
Helicopsyche sp	11
Hydropsychidae	
Cheumatopsyche sp	17
Hydropsyche sp	133
Hydroptilidae	
Hydroptila sp	7
Leucotrichia sp	168
Philopotamidae	
Chimarra sp	563
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Ancyronyx sp	1
Dubiraphia sp	1
Optioservus sp	73
Oulimnius sp	8
Stenelmis sp	900
Hydrophilidae	
Berosus sp	1
Psephenidae (WATER PENNIES)	
Psephenus sp	148
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	345
Empididae (DANCE FLIES)	
Hemerodromia sp	19
Simuliidae (BLACK FLIES)	
Simulium sp	1
Tipulidae (CRANE FLIES)	
Antocha sp	24
Limnophila sp	1
Tipula sp	1

Total organisms	2958
Total number of taxa	36

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

The Pennsylvania Water-Quality Network (WQN) is a statewide, fixed station water-quality sampling system currently operated by the Department of Environmental Protection (PaDEP), Bureau of Water Supply and Wastewater Management in cooperation with the United States Geological Survey (USGS). It is designed to assess both the quality of Pennsylvania's surface waters and the effectiveness of the water quality management program by accomplishing two basic objectives:

* Monitor temporal water quality trends in major surface streams throughout the Commonwealth of Pennsylvania

* Monitor temporal water-quality trends in selected reference waters

Major streams are defined as interstate waters and intrastate streams with drainage areas of roughly 200 mi^2 or greater. These waters are sampled at or near their mouths to measure overall quality before flows enter the next higher order stream or before exiting the Commonwealth. In this way, trends can be established and the effectiveness of water-quality management programs can be assessed by watershed. Samples are collected on fixed time intervals resulting in coverage of a range of flow regimes. All samples collected from April 1, 2002 through September 30, 2002 were collected by the USGS and analyzed by the PaDEP laboratory in Harrisburg.

Most of the current WQN standard sites are co-located with USGS gage stations and others are equipped with a wire weight gage. Currently the network consists of 123 standard stream sites, and 27 reference stream sites distributed across the Commonwealth. This report contains only those sites in the Susquehanna or Potomac River basins. The location of these sites can be found in figures 5-7. Other data for the WQN can be found in the annual Water Data Reports PA-02-1 and PA-02-3.

Standard stations are sampled bimonthly for physical and chemical parameters and stream discharge or a stage reading. Reference stations are sampled monthly for physical and chemical parameters and stream discharge or a stage reading.

For additional information, contact Andrew Reif at the U.S. Geological Survey, 111 Great Valley Parkway, Malvern, PA 19355; 610-647-9008, (email: agreif@usgs.gov).

TABLE 3.--Pennsylvania Water-Quality Network (WQN) station list.

Station number	WQN No.	Location	Latitude	Longitude	Drainage area (mi^2)
01503000	306	Susquehanna River at Conklin, NY	42° 02’ 07”	75° 48’ 12”	2,232
[a]01518700	324	Tioga River at Tioga Junction, PA	41° 57’ 09”	77° 06’ 56”	446
[a]01520000	320	Cowanesque River near Lawrenceville, PA	41° 59’ 48”	77° 08’ 25”	298
01531000	332	Chemung River at Chemung, NY	40° 00’ 08”	76° 38’ 06”	2,506
01531490	333	Sugar Creek near Towanda, PA	41° 47’ 27”	76° 27’ 45”	188
[a]01531500	305	Susquehanna River at Towanda, PA	41° 45’ 55”	76° 26’ 28”	7,797
[a]01532000	318	Towanda Creek near Monroeton, PA	41° 42’ 25”	76° 29’ 06”	215
01532950	334	Wyalusing Creek near Wyalusing, PA	41° 41’ 49”	76° 13’ 52”	215
01533610	340	Unnamed Tributary to Tunkhannock Creek at Gelatt, PA	41° 48’ 30”	75° 34’ 50”	9.0
[a]01534000	317	Tunkhannock Creek near Tunkhannock, PA	41° 33’ 30”	75° 53’ 42”	383
01534090	323	Susquehanna River at Falls, PA	41° 27’ 42”	75° 51’ 15”	9,440
[a]01536000	313	Lackawanna River at Old Forge, PA	41° 21’ 33”	75° 44’ 41”	332
01537700	302	Susquehanna River near Hunlock Creek, PA	41° 11’ 19”	75° 05’ 13”	10,140
01538600	309	Nescopeck Creek at Nescopeck, PA	41° 02’ 46”	76° 13’ 28”	171
01539350	339	Little Fishing Creek above Wolfhouse Run near Millville, PA	41° 09’ 58”	76° 30’ 14”	19.1
015400021	308	Fishing Creek near Bloomsburg, PA	40° 59’ 37”	76° 28’ 33”	379
[a]01540500	301	Susquehanna River at Danville, PA	40° 57’ 29”	76° 37’ 10”	11,220
[a]01541000	406	West Branch Susquehanna River at Bower, PA	40° 53’ 49”	78° 40’ 38”	315
[a]01541500	422	Clearfield Creek at Dimeling, PA	40° 58’ 18”	78° 24’ 22”	371
01542790	439	Bennett Branch Sinnemahoning Creek at Driftwood, PA	41° 20’ 02”	78° 08’ 10”	365
[a]01543000	420	Driftwood Branch Sinnemahoning Creek at Sterling Run, PA	41° 24’ 48”	78° 11’ 50”	272
[a]01543500	418	Sinnemahoning Creek at Sinnemahoning, PA	41° 19’ 02”	78° 06’ 12”	685
[a]01544000	419	First Fork Sinnemahoning Creek near Sinnemahoning, PA	41° 24’ 06”	78° 01’ 28”	245
[a]01545000	434	Kettle Creek near Westport, PA	41° 19’ 10”	77° 52’ 27”	233
[a]01546500	415	Spring Creek near Axemann, PA	40° 53’ 23”	77° 47’ 40”	87.2
01547400	413	Bald Eagle Creek near Milesburg, PA	40° 58’ 31”	77° 44’ 35”	296
01547980	423	Beech Creek at Beech Creek, PA	41° 04’ 29”	77° 35’ 30”	170
01548075	433	Fishing Creek near Cedar Springs, PA	41° 04’ 31”	77° 28’ 40”	137
01548085	445	Bald Eagle Creek at Castanea, PA	41° 07’ 35”	77° 26’ 00”	768
01549590	429	Little Pine Creek below Reservoir near Waterville	41° 21’ 06”	77° 21’ 20”	172
[a]01549700	410	Pine Creek below Little Pine Creek near Waterville, PA	41° 16’ 25”	77° 19’ 28”	944
[a]01550000	409	Lycoming Creek near Trout Run, PA	41° 25’ 06”	77° 01’ 59”	173
[a]01551500	402	West Branch Susquehanna River at Williamsport, PA	41° 14’ 10”	76° 59’ 49”	5,682
[a]01552000	408	Loyalsock Creek at Loyalsockville, PA	41° 19’ 30”	76° 54’ 46”	435
[a]01552500	446	Muncy Creek near Sonestown, PA	41° 21’ 25”	76° 32’ 06”	23.8
01553005	444	Muncy Creek near Muncy, PA	41° 12’ 27”	76° 45’ 09”	209
01553430	447	Spruce Run above Spruce Run Reservoir near Mazeppa, PA	41° 01’ 27”	77° 03’ 54”	6.7
[a]01553500	401	West Branch Susquehanna River at Lewisburg, PA	40° 58’ 05”	76° 52’ 25”	6,847
01553990	203	Susquehanna River above Dam at Sunbury, PA	40° 51’ 13”	76° 48’ 08”	18,300
01554600	268	Penns Creek at Farmers Mills near Spring Mills, PA	40° 51’ 57”	77° 36’ 35”	13.5
[a]01555000	229	Penns Creek at Penns Creek, PA	40° 52’ 00”	77° 02’ 55”	301
01555210	228	Middle Creek near Selinsgrove, PA	40° 46’ 29”	76° 52’ 11”	174
01555859	252	Beaverdam Branch Juniata River near Hollidaysburg, PA	40° 25’ 50”	78° 21’ 50”	75.4

TABLE 3.--Pennsylvania Water-Quality Network (WQN) station list--continued.

Station number	WQN No.	Location	Latitude	Longitude	Drainage area (mi^2)
01556009	224	Frankstown Branch Juniata River at RR at Williamsburg, PA	40° 28’ 19”	78° 11’ 13”	296
[a]01558000	217	Little Juniata River at Spruce Creek, PA	40° 36’ 45”	78° 08’ 27”	220
[a]01562000	223	Raystown Branch Juniata River at Saxton, PA	40° 12’ 57”	78° 15’ 56”	756
01564515	249	Aughwick Creek at Aughwick Mills, PA	40° 20’ 05”	77° 51’ 36”	356
[a]01567000	214	Juniata River at Newport, PA	40° 28’ 42”	77° 07’ 46”	3,354
01567795	270	Letort Spring Run at Bonny Brook near Carlisle, PA	40° 10’ 39”	77° 11’ 10”	7.26
01570400	240	Conodoguinet Creek at Mouth at Westview, PA	40° 16’ 17”	76° 54’ 51”	506
01571505	212	Yellow Breeches Creek at New Cumberland, PA	40° 13’ 27”	76° 51’ 38”	218
01573610	211	Swatara Creek at Harrisburg Airport at Middletown, PA	40° 11’ 28”	76° 43’ 52”	571
01573750	267	Conewago Creek near Arendtsville, PA	39° 56’ 13”	77° 21’ 58”	6.9
[a]01574000	210	West Conewago Creek near Manchester, PA	40° 04’ 56”	76° 43’ 13”	510
01575900	206	Chickies Creek near Marietta, PA	40° 03’ 46”	76° 30’ 57”	108
01576003	201	Susquehanna River at Columbia, PA	40° 01’42”	76° 31’ 05”	25,990
[a]01576754	231	Conestoga River at Conestoga, PA	39° 56’ 47”	76° 22’ 05”	470
01576787	204	Pequea Creek at Martic Forge, PA	39° 54’ 21”	76° 19’ 43”	148
01577180	265	Rambo Run at Meadetown near Stewartstown, PA	39° 49’ 21”	76° 31’ 59”	10.2
01613500	505	Licking Creek near Sylvan, PA	39° 43’ 23”	78° 03’ 38”	158
01614500	501	Conococheague Creek at Fairview, MD	39° 42’ 59”	77° 49’ 29”	494

[a]Other water-quality data for this station can be found in the continuous station records section of this report.

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)
01503000 Susquehanna River at Conklin, NY (LAT 42 02 07N LONG 075 48 12W)													
APR 2002													
22...	1345	9813	3160	30	11.2	7.8	171	13.2	72	--	24.3	--	2.6
JUN													
18...	1230	9813	6720	30	9.9	7.6	121	16.1	54	--	17.3	--	2.3
AUG													
05...	1215	9813	371	30	7.1	8.6	239	26.2	91	--	30.2	--	3.8
01531000 Chemung River at Chemung, NY <LAT 40 00 08N LONG 076 38 06W>													
APR 2002													
25...	1100	9813	2180	30	10.6	7.9	313	10.7	98	--	29.3	--	6.1
JUN													
05...	0900	9813	3330	30	9.2	7.9	321	18.2	101	--	29.2	--	6.8
AUG													
07...	1130	9813	299	30	8.4	8.3	404	22.0	172	--	48.5	--	12.3
01531490 Sugar Creek near Towanda, PA <LAT 41 47 27N LONG 076 27 45W>													
APR 2002													
25...	0845	9813	99	30	11.0	7.7	179	10.1	70	--	21.1	--	4.2
JUN													
05...	1015	9813	56	30	10.1	8.1	210	18.6	85	--	26.1	--	4.7
AUG													
07...	0845	9813	6.3	30	8.9	8.1	253	19.1	110	--	33.5	--	6.3
01532950 Wyalusing Creek near Wyalusing, PA (LAT 41 41 49N LONG 076 13 52W)													
APR 2002													
22...	0930	9813	148	30	12.4	7.5	106	9.2	36	--	9.8	--	2.8
JUN													
18...	1030	9813	290	30	11.2	7.9	88	16.1	34	--	9.2	--	2.6
AUG													
05...	1000	9813	12	30	8.4	7.6	149	23.6	52	--	14.5	--	3.9
01533610 Unnamed Tributary to Tunkhannock Creek at Gelatt, PA (LAT 41 48 30N LONG 075 34 50W)													
APR 2002													
23...	0730	9813	30	30	12.2	7.6	76	5.6	32	--	10.9	--	1.2
MAY													
14...	1045	9813	94	30	11.7	7.3	56	9.1	19	--	6.2	--	.8
JUN													
06...	0800	9813	81	30	9.9	7.3	70	15.1	27	--	8.9	--	1.1
JUL													
15...	1100	9813	4.0	30	9.8	8.2	105	16.2	46	--	15.6	--	1.7
AUG													
06...	0800	9813	2.3	30	9.7	8.2	118	16.6	51	--	17.4	--	1.9
SEP													
04...	1115	9813	1.8	30	9.3	8.0	138	17.0	57	--	19.4	--	2.0
01534090 Susquehanna River at Falls, PA (LAT 41 27 42N LONG 075 51 15W)													
APR 2002													
16...	1130	9813	29400	40	9.7	7.6	200	14.6	71	--	21.6	--	4.1
JUN													
19...	1230	9813	31400	40	8.2	7.6	158	18.0	59	--	18.8	--	3.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, TOTAL (MG/L AS F) (00951)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
01503000 Susquehanna River at Conklin, NY (LAT 42 02 07N LONG 075 48 12W)													
APR 2002													
22...	--	54	--	--	10.0	116	<2	<.020	.41	<.040	.73	.01	.030
JUN													
18...	--	40	--	--	7.5	112	18	<.020	.36	<.040	.69	.04	.050
AUG													
05...	--	74	--	--	11.9	172	12	<.020	.27	<.040	.49	.02	.020
01531000 Chueung River at Chemung, NY <LAT 40 00 08N LONG 076 38 06W>													
APR 2002													
25...	--	68	--	--	19.6	174	26	<.020	.56	<.040	.83	.02	.030
JUN													
05...	--	72	--	--	16.7	192	74	<.020	.60	<.040	1.01	.02	.090
AUG													
07...	--	122	--	--	25.9	310	4	<.020	.44	<.200	.86	.08	.110
01531490 Sugar Creek near Towanda, PA <LAT 41 47 27N LONG 076 27 45W>													
APR 2002													
25...	--	56	--	--	15.1	114	14	<.020	.15	<.040	.46	.01	.010
JUN													
05...	--	68	--	--	14.6	130	<2	<.020	.37	<.040	.61	.01	.030
AUG													
07...	--	94	--	--	14.2	188	6	<.020	<.04	<.040	.28	.02	.020
01532950 Wyalusing Creek near Wyalusing, PA (LAT 41 41 49N LONG 076 13 52W)													
APR 2002													
22...	--	26	--	--	10.3	92	<2	<.020	.22	<.040	.41	<.01	.010
JUN													
18...	--	28	--	--	8.7	78	<2	<.020	.25	<.040	.49	.02	.020
AUG													
05...	--	40	--	--	10.9	112	<2	<.020	.14	<.040	.38	.02	.020
01533610 Unnamed Tributary to Tunkhannock Creek at Gelatt, PA (LAT 41 48 30N LONG 075 34 50W)													
APR 2002													
23...	--	20	5.5	<.2	8.3	90	<2	<.020	.31	<.040	.44	<.01	.012
MAY													
14...	--	14	3.2	<.2	7.3	64	44	<.020	.27	<.040	.55	.02	.030
JUN													
06...	--	19	3.9	<.2	6.7	60	26	<.020	.17	<.040	.50	.04	.043
JUL													
15...	--	38	6.1	<.2	8.2	68	22	<.020	.38	<.040	.13	<.01	.011
AUG													
06...	--	40	6.5	<.2	8.6	82	<2	.020	.45	<.040	.49	.02	.015
SEP													
04...	--	46	6.6	<.2	9.5	188	<2	.120	.47	<.040	.66	.02	.028
01534090 Susquehanna River at Falls, PA (LAT 41 27 42N LONG 075 51 15W)													
APR 2002													
16...	--	52	--	--	13.2	132	64	<.020	.54	<.040	.96	.04	.070
JUN													
19...	--	46	--	--	9.3	76	44	<.020	.51	<.040	.92	.05	.080

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
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WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	FECAL COLI-FORM, MFC MF, WATER (COL/ 100 ML) (31616)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
01503000 Susquehanna River at Conklin, NY (LAT 42 02 07N LONG 075 48 12W)													
APR 2002													
22...	2.8	--	--	--	--	--	<10	--	363	--	<1.0	--	60
JUN													
18...	3.7	--	--	--	--	--	<10	--	1090	--	<1.0	--	<10
AUG													
05...	2.4	--	--	--	--	--	<10	--	179	--	<1.0	--	40
01531000 Chemung River at Chemung, NY <LAT 40 00 08N LONG 076 38 06W>													
APR 2002													
25...	2.9	--	--	--	--	--	<10	--	326	--	<1.0	--	40
JUN													
05...	4.8	--	--	--	--	--	<10	--	3420	--	2.2	--	110
AUG													
07...	3.8	--	--	--	--	--	<10	--	216	--	<1.0	--	60
01531490 Sugar Creek near Towanda, PA <LAT 41 47 27N LONG 076 27 45W>													
APR 2002													
25...	3.3	--	--	--	--	--	<10	--	160	--	<1.0	--	10
JUN													
05...	3.6	--	--	--	--	--	<10	--	250	--	<1.0	--	30
AUG													
07...	3.7	--	--	--	--	--	<10	--	60	--	<1.0	--	20
01532950 Wyalusing Creek near Wyalusing, PA (LAT 41 41 49N LONG 076 13 52W)													
APR 2002													
22...	2.1	--	--	--	--	--	<10	--	130	--	<1.0	--	10
JUN													
18...	2.9	--	--	--	--	--	<10	--	290	--	<1.0	--	<10
AUG													
05...	2.5	--	--	--	--	--	<10	--	70	--	<1.0	--	40
01533610 Unnamed Tributary to Tunkhannock Creek at Gelatt, PA (LAT 41 48 30N LONG 075 34 50W)													
APR 2002													
23...	--	.5	80	--	--	<4	<4	<20	30	<1.0	<1.0	<2.0	<10
MAY													
14...	--	1.2	660	--	--	<4	8.5	30	420	<1.0	1.0	5.2	40
JUN													
06...	--	.8	1400	<4.0	<.20	<4	<4	50	640	1.0	1.1	3.3	70
JUL													
15...	--	<.2	80	<4.0	<.20	<4	<4	<20	40	<1.0	<1.0	2.3	<10
AUG													
06...	--	.7	60	<4.0	<.20	<4	<4	<20	30	<1.0	<1.0	2.7	<10
SEP													
04...	--	1.4	180	<4.0	<.20	<4	<4	<20	50	<1.0	<1.0	6.8	10
01534090 Susquehanna River at Falls, PA (LAT 41 27 42N LONG 075 51 15W)													
APR 2002													
16...	3.2	--	--	--	--	--	<10	--	1530	--	--	--	81000
JUN													
19...	4.5	--	--	--	--	--	<10	--	1500	--	--	--	70

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Date	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)	PHENOLS TOTAL (µG/L) (32730)
01503000 Susquehanna River at Conklin, NY (LAT 42 02 07N LONG 075 48 12W)					
APR 2002					
22...	--	<50	--	<10	--
JUN					
18...	--	<50	--	<10	--
AUG					
05...	--	<50	--	<10	--
01531000 Chemung River at Chumung, NY <LAT 40 00 08N LONG 076 38 06W>					
APR 2002					
25...	--	<50	--	<10	--
JUN					
05...	--	<50	--	10	--
AUG					
07...	--	<50	--	<10	--
01531490 Sugar Creek near Towanda, PA (LAT 41 47 27N LONG 076 27 45W)					
APR 2002					
25...	--	<50	--	<10	--
JUN					
05...	--	<50	--	<10	--
AUG					
07...	--	<50	--	<10	--
01532950 Wyalusing Creek near Wyalusing, PA (LAT 41 41 49N LONG 076 13 52W)					
APR 2002					
22...	--	<50	--	<10	--
JUN					
18...	--	<50	--	<10	--
AUG					
05...	--	<50	--	<10	--
01533610 Unnamed Tributary to Tunkhannock Creek at Gelatt, PA (LAT 41 48 30N LONG 075 34 50W)					
APR 2002					
23...	<4.0	<4.0	<5.0	<5.0	<5
MAY					
14...	<4.0	<4.0	<5.0	8.4	<5
JUN					
06...	<4.0	5.9	<5.0	<5.0	<5
JUL					
15...	<4.0	<4.0	<5.0	<5.0	<5
AUG					
06...	<4.0	<4.0	<5.0	<5.0	<5
SEP					
04...	<4.0	<4.0	6.6	<5.0	<5
01534090 Susquehanna River at Falls, PA (LAT 41 27 42N LONG 075 51 15W)					
APR 2002					
16...	--	<50	--	<10	--
JUN					
19...	--	<50	--	20	--

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PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)
01537700 Susquehanna River near Hunlock Creek, PA (LAT 41 11 19N LONG 076 05 13W)													
APR 2002													
17...	0930	9813	33600	40	9.1	7.5	204	15.4	76	--	23.3	--	4.4
JUN													
18...	1540	9813	38300	40	8.5	7.3	151	17.7	60	--	17.7	--	3.9
AUG													
21...	1520	9813	1080	40	10.1	7.9	459	27.2	150	--	36.6	--	14.0
01538600 Nescopeck Creek at Nescopeck, PA (LAT 41 02 49N LONG 076 13 17W)													
APR 2002													
17...	1120	9813	301	40	10.6	5.0	281	15.4	95	--	14.4	--	14.3
JUN													
18...	1410	9813	389	40	10.1	5.2	256	15.4	84	--	12.0	--	13.1
AUG													
21...	1230	9813	52	40	106	4.6	529	31.0	200	--	26.4	--	32.8
01539350 Little Fishing Cr ab Wolfhouse Run nr Millville, PA (LAT 41 09 58N LONG 076 30 14W)													
APR 2002													
23...	1000	9813	22	30	11.8	6.4	52	6.4	18	4.67	4.8	1.49	1.5
MAY													
15...	1315	9813	182	30	9.9	6.4	40	10.2	19	4.88	4.9	1.55	1.6
JUN													
19...	1045	9813	37	30	9.8	6.8	57	13.6	21	5.49	5.7	1.69	1.7
JUL													
11...	1300	9813	4.4	30	10.6	7.5	51	18.5	23	6.04	6.2	1.72	1.8
AUG													
08...	1300	9813	1.2	30	8.8	7.8	76	19.5	28	7.53	7.8	1.93	2.0
SEP													
18...	1200	9813	.79	30	9.3	7.5	78	16.4	30	7.84	8.3	2.10	2.2
015400021 Fishing Creek near Bloomsburg, PA <LAT 40 59 37N LONG 076 28 33W>													
APR 2002													
23...	1240	9813	566	30	9.9	7.9	114	10.0	45	12.7	12.4	3.51	3.4
JUN													
19...	1250	9813	877	30	9.7	7.6	128	16.9	48	13.6	13.5	3.49	3.3
AUG													
19...	1315	9813	25	30	5.7	8.0	178	26.5	65	18.6	18.7	4.36	4.3
01542790 Bennett Br Sinnemahoning Cr at Driftwood, PA (LAT 41 20 02N LONG 078 08 10W)													
APR 2002													
29...	1200	9813	1560	30	11.3	6.8	88	9.5	32	--	8.0	--	3.0
JUN													
24...	1615	9813	252	30	8.5	6.0	132	25.9	52	--	12.7	--	4.9
AUG													
14...	1230	9813	34	30	8.4	4.8	348	27.0	140	--	32.0	--	13.6

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, TOTAL (MG/L AS F) (00951)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
01537700 Susquehanna River near Hunlock Creek, PA (LAT 41 11 19N LONG 076 05 13W)													
APR 2002													
17...	--	48	--	--	15.9	174	42	.030	.52	<.040	.97	.05	.070
JUN													
18...	--	42	--	--	12.9	172	64	.020	.48	<.040	1.0	.08	.110
AUG													
21...	--	68	--	--	73.9	314	28	<.020	.05	<.040	.57	.03	.080
01538600 Nescopeck Creek at Nescopeck, PA (LAT 41 02 49N LONG 076 13 17W)													
APR 2002													
17...	--	2	--	--	85.6	246	14	.020	.83	<.040	1.1	.02	.040
JUN													
18...	--	2	--	--	84.3	252	<2	.070	1.21	<.040	1.4	.01	.040
AUG													
21...	--	1	--	--	217	480	28	<.020	1.53	<.040	1.6	<.01	.040
01539350 Little Fishing Cr ab Wolfhouse Run nr Millville, PA (LAT 41 09 58N LONG 076 30 14W)													
APR 2002													
23...	.0	11	3.5	<.2	7.0	60	12	<.020	.72	<.040	.88	<.01	<.010
MAY													
15...	2.2	8	2.4	<.2	8.0	22	18	<.020	.98	<.040	1.1	.03	.020
JUN													
19...	3.2	11	2.9	<.2	7.4	30	8	<.020	.95	<.040	1.1	.01	.010
JUL													
11...	.0	17	4.5	<.2	4.7	56	<2	<.020	.63	<.040	.76	<.01	<.010
AUG													
08...	.0	24	5.6	<.2	4.4	46	4	<.020	.16	<.040	.32	.01	<.010
SEP													
18...	.0	26	5.1	<.2	4.8	52	<2	.040	<.04	<.040	.18	<.01	<.010
015400021 Fishing Creek near Bloomsburg, PA <LAT 40 59 37N LONG 076 28 33W>													
APR 2002													
23...	.0	28	--	--	13.0	20	26	<.020	.96	<.040	1.1	<.01	<.010
JUN													
19...	.0	30	--	--	12.3	80	8	.060	1.71	<.040	1.8	.03	.019
AUG													
19...	.0	40	--	--	13.8	110	2	.030	.97	<.040	1.2	.01	.014
01542790 Bennett Br Sinnemahoning Cr at Driftwood, PA (LAT 41 20 02N LONG 078 08 10W)													
APR 2002													
29...	--	5	--	--	27.9	82	<2	<.020	.09	<.040	.22	.02	.020
JUN													
24...	--	3	--	--	52.1	154	<2	<.020	.09	<.040	<.06	.01	<.010
AUG													
14...	--	2	--	--	137	272	<2	<.020	.16	<.040	.16	<.01	<.010

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	FECAL COLI-FORM, MFC MF, WATER (COL/ 100 ML) (31616)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
01537700 Susquehanna River near Hunlock Creek, PA (LAT 41 11 19N LONG 076 05 13W)													
APR 2002													
17...	3.6	--	--	--	--	--	<10	--	1900	--	1.4	--	110
JUN													
18...	1.6	--	--	--	--	--	10	--	3090	--	2.4	--	140
AUG													
21...	3.8	--	--	--	--	--	<10	--	780	--	<1.0	--	230
01538600 Nescopeck Creek at Nescopeck, PA (LAT 41 02 49N LONG 076 13 17W)													
APR 200													
17...	1.7	--	--	--	--	--	20	--	600	--	1.0	--	970
JUN													
18...	1.8	--	--	--	--	--	10	--	630	--	1.1	--	970
AUG													
21...	1.2	--	--	--	--	--	20	--	60	--	1.8	--	2600
01539350 Little Fishing Cr ab Wolfhouse Run nr Millville, PA (LAT 41 09 58N LONG 076 30 14W)													
APR 2002													
23...	--	1.1	<20	--	--	<4	<4	20	70	<1.0	<1.0	<10	<10
MAY													
15...	--	.7	140	--	--	<4	<4	30	350	<1.0	<1.0	10	20
JUN													
19...	--	.8	100	<4.0	<.20	<4	<4	40	110	<1.0	<1.0	<10	<10
JUL													
11...	--	1.4	60	<4.0	<.20	<4	<4	60	120	<1.0	<1.0	<10	<10
AUG													
08...	--	1.3	100	<4.0	<.20	<4	<4	110	160	<1.0	<1.0	<10	10
SEP													
18...	--	.9	80	<4.0	<.20	<4	<4	70	170	<1.0	<1.0	<10	10
015400021 Fishing Creek near Bloomsburg, PA <LAT 40 59 37N LONG 076 28 33W>													
APR 2002													
23...	--	1.2	--	--	--	<4	<4	30	100	<1.0	<1.0	<10	<10
JUN													
19...	--	1.0	--	--	--	<4	<4	30	180	<1.0	<1.0	<10	10
AUG													
19...	--	.2	--	--	--	<4	<4	<20	70	<1.0	<1.0	20	30
01542790 Bennett Br Sinnemahoning Cr at Driftwood, PA (LAT 41 20 02N LONG 078 08 10W)													
APR 2002													
29...	1.8	--	--	--	--	--	<10	--	1190	--	<1.0	--	200
JUN													
24...	.7	--	--	--	--	--	<10	--	60	--	<1.0	--	340
AUG													
14...	.8	--	--	--	--	--	<10	--	<20	--	<1.0	--	1230

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)	PHENOLS TOTAL (µG/L) (32730)
01537700 Susquehanna River near Hunlock Creek, PA (LAT 41 11 19N LONG 076 05 13W)					
APR 2002					
17...	--	<50	--	<10	--
JUN					
18...	--	<50	--	20	--
AUG					
21...	--	<50	--	20	--
01538600 Nescopeck Creek at Nescopeck, PA (LAT 41 02 49N LONG 076 13 17W)					
APR 2002					
17...	--	<50	--	230	--
JUN					
18...	--	<50	--	180	--
AUG					
21...	--	100	--	370	--
01539350 Little Fishing Cr ab Wolfhouse Run nr Millville, PA (LAT 41 09 58N LONG 076 30 14W)					
APR 2002					
23...	<4.0	<4.0	<5.0	<5.0	<5
MAY					
15...	<4.0	<4.0	<5.0	<5.0	<5
JUN					
19...	<4.0	<4.0	5.4	<5.0	<5
JUL					
11...	<4.0	<4.0	<5.0	<5.0	<5
AUG					
08...	<4.0	<4.0	<5.0	<5.0	<5
SEP					
18...	<4.0	<4.0	<5.0	<5.0	<5
015400021 Fishing Creek near Bloomsburg, PA <LAT 40 59 37N LONG 076 28 33W>					
APR 2002					
23...	<4.0	<4.0	<5.0	8.8	--
JUN					
19...	<4.0	<4.0	<5.0	<5.0	--
AUG					
19...	<4.0	<4.0	<5.0	<5.0	--
01542790 Bennett Br Sinnemahoning Cr at Driftwood, PA (LAT 41 20 02N LONG 078 08 10W)					
APR 2002					
29...	--	<50	--	<10	--
JUN					
24...	--	<50	--	20	--
AUG					
14...	--	<50	--	60	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)
01547400 Bald Eagle Creek near Milesburg, PA (LAT 40 58 31N LONG 077 44 35W)													
APR 2002													
17...	1230	9813	536	30	10.9	8.3	275	15.6	120	--	31.0	--	10.1
JUN													
26...	1215	9813	317	30	10.6	8.3	420	18.5	210	--	51.7	--	18.7
AUG													
14...	1000	9813	153	30	10.0	8.2	448	17.7	210	--	51.6	--	19.8
01547980 Beech Creek at Beech Creek, PA (LAT 41 04 29N LONG 077 35 30W)													
APR 2002													
17...	1315	9813	357	30	9.1	4.7	140	16.0	46	--	9.6	--	5.3
JUN													
26...	1315	9813	191	30	7.7	4.8	194	19.9	72	--	13.7	--	9.1
AUG													
14...	1215	9813	20	30	6.3	4.1	514	25.6	210	--	41.3	--	26.3
01548075 Fishing Creek near Cedar Springs, PA (LAT 41 04 31N LONG 077 28 40W)													
APR 2002													
18...	0950	9813	279	30	11.2	7.8	185	12.2	82	--	22.6	--	6.2
JUN													
27...	0900	9813	E97	30	9.3	7.7	273	14.4	150	--	40.4	--	11.9
AUG													
15...	0745	9813	E13	30	8.6	7.6	346	15.1	180	--	46.8	--	14.9
01548085 Bald Eagle Creek at Castanea, PA (LAT 41 07 29N LONG 077 26 09W)													
APR 2002													
18...	0845	9813	1120	30	9.2	7.0	181	16.1	76	--	19.8	--	6.4
JUN													
27...	0800	9813	801	30	7.7	7.6	254	12.8	130	--	32.9	--	10.6
AUG													
15...	0915	9813	296	30	7.2	7.8	402	21.8	190	--	46.2	--	17.5
01549590 Little Pine Creek bl Reservoir near Waterville, PA (LAT 41 21 12N LONG 077 21 20W)													
APR 2002													
10...	1230	9813	52	30	11.8	7.4	82	10.1	31	8.02	8.2	2.54	2.6
JUN													
03...	0915	9813	106	30	10.1	7.5	98	16.2	37	9.20	9.2	3.24	3.3
AUG													
12...	0930	9813	11	30	7.7	7.6	145	23.2	55	14.5	13.9	4.78	4.9
01553005 Muncy Creek near Muncy, PA (LAT 41 12 27N LONG 076 45 09W)													
APR 2002													
08...	0730	9813	195	30	12.1	8.1	83	5.9	32	9.88	9.8	1.80	1.8
JUN													
04...	0800	9813	110	30	10.3	7.3	99	15.3	44	13.3	13.6	2.17	2.3
AUG													
08...	0815	9813	18	30	8.1	7.3	126	18.9	58	17.4	18.0	3.17	3.2

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, TOTAL (MG/L AS F) (00951)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
01547400 Bald Eagle Creek near Milesburg, PA (LAT 40 58 31N LONG 077 44 35W)													
APR 2002													
17...	--	86	--	--	21.1	204	14	<.020	1.25	<.040	1.6	.02	.030
JUN													
26...	--	154	--	--	25.2	264	<2	<.020	2.64	<.040	2.9	.02	.030
AUG													
14...	--	164	--	--	24.5	286	20	<.020	2.93	<.040	3.1	.02	.030
01547980 Beech Creek at Beech Creek, PA (LAT 41 04 29N LONG 077 35 30W)													
APR 2002													
17...	--	2	--	--	54.5	156	2	<.020	.14	<.040	.23	<.01	.010
JUN													
26...	--	1	--	--	87.0	130	<2	<.020	.15	<.040	.16	.01	.010
AUG													
14...	--	0	--	--	246	426	<2	<.020	.20	<.040	.27	<.01	<.010
01548075 Fishing Creek near Cedar Springs, PA (LAT 41 04 31N LONG 077 28 40W)													
APR 2002													
18...	--	62	--	--	11.9	140	14	<.020	1.07	<.040	1.3	<.01	.030
JUN													
27...	--	110	--	--	13.8	184	2	<.020	2.41	<.040	2.4	.02	.020
AUG													
15...	--	142	--	--	17.7	204	8	.030	2.82	<.040	3.0	.02	.020
01548085 Bald Eagle Creek at Castanea, PA (LAT 41 07 29N LONG 077 26 09W)													
APR 2002													
18...	--	38	--	--	29.9	48	26	<.020	.70	<.040	1.1	.01	.020
JUN													
27...	--	76	--	--	34.6	166	6	<.020	1.33	<.040	1.4	.01	.010
AUG													
15...	--	136	--	--	39.6	290	4	.040	1.71	<.040	1.9	.01	.020
01549590 Little Pine Creek bl Reservoir near Waterville, PA (LAT 41 21 12N LONG 077 21 20W)													
APR 2002													
10...	.0	14	--	--	18.0	70	10	<.020	.40	<.040	.58	<.01	<.010
JUN													
03...	.0	15	--	--	22.2	66	4	<.020	.21	<.040	.33	.01	.011
AUG													
12...	.0	24	--	--	32.5	102	12	.060	.05	<.040	.32	.02	.028
01553005 Muncy Creek near Muncy, PA (LAT 41 12 27N LONG 076 45 09W)													
APR 2002													
08...	.0	17	--	--	10.8	38	12	<.020	1.24	<.040	1.4	<.01	<.010
JUN													
04...	.0	28	--	--	10.4	96	<2	<.020	1.03	<.040	1.1	.01	.010
AUG													
08...	.0	36	--	--	11.9	98	4	<.020	1.90	<.040	1.9	.03	.019

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	FECAL COLI-FORM, MFC MF, WATER (COL/ 100 ML) (31616)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
01547400 Bald Eagle Creek near Milesburg, PA (LAT 40 58 31N LONG 077 44 35W)													
APR 2002													
17...	2.0	--	--	--	--	--	<10	--	290	--	1.4	--	10
JUN													
26...	1.4	--	--	--	--	--	<10	--	470	--	<1.0	--	<10
AUG													
14...	1.9	--	--	--	--	--	<10	--	100	--	<1.0	--	<10
01547980 Beech Creek at Beech Creek, PA (LAT 41 04 29N LONG 077 35 30W)													
APR 2002													
17...	.9	--	--	--	--	--	<10	--	250	--	<1.0	--	1070
JUN													
26...	.6	--	--	--	--	--	<10	--	300	--	<1.0	--	1870
AUG													
14...	.7	--	--	--	--	--	<10	--	110	--	--	--	6240
01548075 Fishing Creek near Cedar Springs, PA (LAT 41 04 31N LONG 077 28 40W)													
APR 2002													
18...	1.7	--	--	--	--	--	<10	--	200	--	<1.0	--	10
JUN													
27...	1.0	--	--	--	--	--	<10	--	130	--	<1.0	--	<10
AUG													
15...	1.1	--	--	--	--	--	<10	--	100	--	<1.0	--	<10
01548085 Bald Eagle Creek at Castanea, PA (LAT 41 07 29N LONG 077 26 09W)													
APR 2002													
18...	1.6	--	--	--	--	--	<10	--	320	--	<1.0	--	430
JUN													
27...	1.6	--	--	--	--	--	<10	--	180	--	<1.0	--	350
AUG													
15...	1.9	--	--	--	--	--	<10	--	190	--	<1.0	--	240
01549590 Little Pine Creek bl Reservoir near Waterville, PA (LAT 41 21 12N LONG 077 21 20W)													
APR 2002													
10...	--	1.7	--	--	--	<4	<4	<20	30	<1.0	<1.0	20	30
JUN													
03...	--	1.2	--	--	--	<4	<4	60	170	<1.0	<1.0	20	50
AUG													
12...	--	1.2	--	--	--	<4	4	100	500	<1.0	<1.0	180	280
01553005 Muncy Creek near Muncy, PA (LAT 41 12 27N LONG 076 45 09W)													
APR 2002													
08...	--	.2	--	--	--	<4	<4	<20	30	<1.0	<1.0	<10	<10
JUN													
04...	--	1.1	--	--	--	<4	<4	<20	30	<1.0	<1.0	<10	<10
AUG													
08...	--	1.4	--	--	--	<4	<4	<20	30	<1.0	<1.0	<10	<10

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)	PHENOLS TOTAL (µG/L) (32730)
01547400 Bald Eagle Creek near Milesburg, PA (LAT 40 58 31N LONG 077 44 35W)					
APR 2002					
17...	--	<50	--	<10	--
JUN					
26...	--	<50	--	<10	--
AUG					
14...	--	<50	--	10	--
01547980 Beech Creek at Beech Creek, PA (LAT 41 04 29N LONG 077 35 30W)					
APR 2002					
17...	--	<50	--	60	--
JUN					
26...	--	<50	--	100	--
AUG					
14...	--	100	--	200	--
01548075 Fishing Creek near Cedar Springs, PA (LAT 41 04 31N LONG 077 28 40W)					
APR 2002					
18...	--	<50	--	<10	--
JUN					
27...	--	<50	--	<10	--
AUG					
15...	--	<50	--	<10	--
01548085 Bald Eagle Creek at Castanea, PA (LAT 41 07 29N LONG 077 26 09W)					
APR 2002					
18...	--	<50	--	<10	--
JUN					
27...	--	<50	--	<10	--
AUG					
15...	--	<50	--	10	--
01549590 Little Pine Creek bl Reservoir near Waterville, PA (LAT 41 21 12N LONG 077 21 20W)					
APR 2002					
10...	<4.0	<4.0	<5.0	<5.0	--
JUN					
03...	<4.0	<4.0	<5.0	<5.0	--
AUG					
12...	7.4	200	<5.0	10	--
01553005 Muncy Creek near Muncy, PA (LAT 41 12 27N LONG 076 45 09W)					
APR 2002					
08...	<4.0	<4.0	<5.0	<5.0	--
JUN					
04...	<4.0	<4.0	<5.0	10	--
AUG					
08...	<4.0	<4.0	<5.0	<5.0	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)
01553430 Spruce Run ab Spruce Run Reservoir nr Mazeppa, PA (LAT 41 01 27N LONG 077 03 54W)													
APR 2002													
18...	1200	9813	12	30	10.6	6.3	19	12.7	7	1.37	1.4	.76	.8
MAY													
15...	1000	9813	49	30	9.9	5.1	15	8.9	7	1.47	1.5	.72	.8
JUN													
27...	1140	9813	7.4	30	8.3	6.8	19	14.8	7	1.57	1.5	.88	.8
JUL													
11...	1015	9813	4.9	30	10.9	5.7	18	12.9	6	1.35	1.3	.77	.8
AUG													
08...	0900	9813	2.2	30	9.0	6.9	19	13.8	7	1.47	1.5	.81	.8
SEP													
18...	0830	9813	1.1	30	8.9	5.7	13	13.8	7	1.35	1.4	.84	.8
01553990 Susquehanna River above Dam at Sunbury, PA (LAT 40 51 13N LONG 076 48 08W)													
APR 2002													
24...	0930	9813	25600	40	11.3	7.7	182	12.4	69	--	19.1	--	5.1
JUN													
20...	0915	9813	47500	40	8.6	7.3	156	18.6	60	--	17.3	--	4.1
AUG													
20...	1015	9813	2660	40	6.6	8.1	383	28.4	140	--	35.2	--	12.4
01554600 Penns Creek at Farmers Mills near Spring Mills, PA (LAT 40 51 57N LONG 077 36 35W)													
APR 2002													
17...	1000	9813	58	30	10.7	7.4	248	10.5	130	--	44.2	--	5.5
MAY													
14...	1315	9813	256	30	8.6	6.9	238	10.9	120	--	39.0	--	5.2
JUN													
26...	0945	9813	27	30	11.4	7.8	364	12.8	190	--	61.4	--	9.2
JUL													
10...	1415	9813	17	30	10.9	8.0	327	16.8	200	--	63.3	--	10.3
AUG													
07...	1445	9813	8.7	30	10.1	8.2	414	16.8	210	--	67.5	--	10.3
SEP													
17...	1400	9813	5.0	30	9.5	8.1	342	16.9	240	--	75.5	--	12.4
01555210 Middle Creek near Selinsgrove, PA (LAT 40 46 29N LONG 076 52 11W)													
APR 2002													
24...	1415	9813	174	30	11.9	8.2	138	14.1	62	--	17.8	--	4.1
JUN													
20...	1350	9813	138	30	8.9	8.2	188	22.6	85	--	24.5	--	5.7
AUG													
20...	1515	9813	17	30	8.2	8.3	285	27.4	140	--	37.4	--	10.2
01555859 Beaverdam Branch Juniata River near Hollidaysburg, PA (LAT 40 25 50N LONG 078 21 50W)													
APR 2002													
16...	1145	9813	360	30	10.6	7.5	270	13.4	85	--	21.9	--	7.3
JUN													
25...	1115	9813	60	30	8.7	7.6	438	20.1	170	--	41.2	--	15.9
AUG													
13...	1130	9813	14	30	6.8	7.6	594	21.0	230	--	60.8	--	19.5

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, TOTAL (MG/L AS F) (00951)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
01553430 Spruce Run ab Spruce Run Reservoir nr Mazeppa, PA (LAT 41 01 27N LONG 077 03 54W)													
APR 2002													
18...	.0	5	.8	<.2	4.2	<2	4	<.020	<.04	<.040	.07	<.01	.010
MAY													
15...	3.4	4	.7	<.2	5.1	--	--	<.020	<.04	<.040	.13	.01	.010
JUN													
27...	12	5	.7	<.2	3.9	8	2	<.020	<.04	<.040	<.06	.01	.010
JUL													
11...	9.2	8	.6	<.2	3.4	28	<2	<.020	.05	<.040	.30	<.01	<.010
AUG													
08...	.0	7	.7	<.2	3.0	202	4	<.020	.07	<.040	.14	<.01	<.010
SEP													
18...	.0	6	.8	<.2	2.6	24	<2	.040	<.04	<.040	.09	<.01	<.010
01553990 Susquehanna River above Dam at Sunbury, PA (LAT 40 51 13N LONG 076 48 08W)													
APR 2002													
24...	--	42	--	--	30.8	136	10	<.020	.46	<.040	.83	.01	.030
JUN													
20...	--	38	--	--	20.8	144	44	<.020	.55	<.040	.83	.05	.060
AUG													
20...	--	50	--	--	93.2	312	10	<.020	.36	<.040	.81	.02	.030
01554600 Penns Creek at Farmers Mills near Spring Mills, PA (LAT 40 51 57N LONG 077 36 35W)													
APR 2002													
17...	--	102	7.2	<.2	13.1	198	12	<.020	2.40	<.040	2.8	.04	.040
MAY													
14...	--	98	5.7	<.2	12.0	250	114	<.020	3.49	<.040	4.0	.01	.130
JUN													
26...	--	156	8.3	<.2	14.4	160	6	<.020	3.79	<.040	4.0	.01	.014
JUL													
10...	--	172	9.2	<.2	15.3	242	12	<.020	3.75	<.040	3.9	<.01	.018
AUG													
07...	--	174	9.8	<.2	16.4	294	<2	<.020	3.75	<.040	3.8	.01	.015
SEP													
17...	--	194	10.6	<.2	17.4	314	4	.040	3.78	<.040	4.0	.01	.016
01555210 Middle Creek near Selinsgrove, PA (LAT 40 46 29N LONG 076 52 11W)													
APR 2002													
24...	--	46	--	--	13.8	134	20	<.020	.80	<.040	1.1	.03	.030
JUN													
20...	--	62	--	--	14.1	142	38	<.020	1.32	<.040	1.6	.05	.070
AUG													
20...	--	106	--	--	23.8	224	18	<.020	.73	<.040	1.2	.07	.090
01555859 Beaverdam Branch Juniata River near Hollidaysburg, PA (LAT 40 25 50N LONG 078 21 50W)													
APR 2002													
16...	--	32	--	--	50.7	184	42	<.020	.90	<.040	1.2	.04	.080
JUN													
25...	--	44	--	--	112	374	8	<.020	1.71	<.040	1.8	.02	.120
AUG													
13...	--	88	--	--	117	436	14	<.020	6.30	<.200	6.7	.45	.600

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	FECAL COLI-FORM, MFC MF, WATER (COL/ 100 ML) (31616)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
01553430 Spruce Run ab Spruce Run Reservoir nr Mazeppa, PA (LAT 41 01 27N LONG 077 03 54W)													
APR 2002													
18...	--	<.2	10	--	--	<4	<4	<20	<20	<1.0	<1.0	<2.0	<10
MAY													
15...	--	.7	10	--	--	<4	<4	<20	60	<1.0	<1.0	7.4	10
JUN													
27...	--	1.2	<20	<4.0	<.20	<4	<4	<20	40	<1.0	<1.0	<2.0	<10
JUL													
11...	--	1.3	<20	<4.0	<.20	<4	<4	<20	40	<1.0	<1.0	<2.0	<10
AUG													
08...	--	1.3	<20	<4.0	<.20	<4	<4	30	40	<1.0	<1.0	<2.0	<10
SEP													
18...	--	.7	<20	<4.0	<.20	<4	<4	<20	30	<1.0	<1.0	2.3	<10
01553990 Susquehanna River above Dam at Sunbury, PA (LAT 40 51 13N LONG 076 48 08W)													
APR 2002													
24...	2.3	--	--	--	--	--	<10	--	580	--	<1.0	--	140
JUN													
20...	3.5	--	--	--	--	--	<10	--	1670	--	1.5	--	140
AUG													
20...	2.8	--	--	--	--	--	<10	--	300	--	<1.0	--	12900
01554600 Penns Creek at Farmers Mills near Spring Mills, PA (LAT 40 51 57N LONG 077 36 35W)													
APR 2002													
17...	--	.8	2000	--	--	<4	<4	<20	530	<1.0	<1.0	10	20
MAY													
14...	--	1.0	7600	--	--	<4	4	40	3190	<1.0	3.2	40	160
JUN													
26...	--	1.4	340	<4.0	<.20	<4	<4	20	140	<1.0	<1.0	30	30
JUL													
10...	--	1.5	140	<4.0	<.20	<4	<4	50	170	<1.0	<1.0	10	20
AUG													
07...	--	1.4	120	<4.0	<.20	<4	<4	170	460	<1.0	<1.0	<10	<10
SEP													
17...	--	1.5	260	<4.0	<.20	9	<4	<20	70	1.7	<1.0	<10	10
01555210 Middle Creek near Selinsgrove, PA (LAT 40 46 29N LONG 076 52 11W)													
APR 2002													
24...	2.8	--	--	--	--	--	<10	--	430	--	<1.0	--	30
JUN													
20...	3.2	--	--	--	--	--	<10	--	820	--	<1.0	--	60
AUG													
20...	4.0	--	--	--	--	--	<10	--	450	--	<1.0	--	40
01555859 Beaverdam Branch Juniata River near Hollidaysburg, PA (LAT 40 25 50N LONG 078 21 50W)													
APR 2002													
16...	2.9	--	--	--	--	--	<10	--	2180	--	2.2	--	520
JUN													
25...	1.7	--	--	--	--	--	<10	--	1110	--	<1.0	--	1320
AUG													
13...	3.5	--	--	--	--	--	<10	--	390	--	1.8	--	190

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
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WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)	PHENOLS TOTAL (µG/L) (32730)
01553430 Spruce Run ab Spruce Run Reservoir nr Mazeppa, PA (LAT 41 01 27N LONG 077 03 54W)					
APR					
18...	<4.0	<4.0	<5.0	<5.0	<5
MAY					
15...	<4.0	<4.0	5.3	<5.0	<5
JUN					
27...	<4.0	<4.0	<5.0	<5.0	<5
JUL					
11...	<4.0	<4.0	<5.0	<5.0	<5
AUG					
08...	<4.0	<4.0	<5.0	<5.0	<5
SEP					
18...	<4.0	<4.0	<5.0	<5.0	<5
01553990 Susquehanna River above Dam at Sunbury, PA (LAT 40 51 13N LONG 076 48 08W)					
APR 2002					
24...	--	<50	--	10	--
JUN					
20...	--	<50	--	50	--
AUG					
20...	--	<50	--	<10	--
01554600 Penns Creek at Farmers Mills near Spring Mills, PA (LAT 40 51 57N LONG 077 36 35W)					
APR 2002					
17...	<4.0	<4.0	<5.0	<5.0	<5
MAY					
14...	<4.0	6.2	<5.0	10	<5
JUN					
26...	<4.0	<4.0	<5.0	<5.0	<5
JUL					
10...	<4.0	<4.0	<5.0	<5.0	<5
AUG					
07...	<4.0	<4.0	<5.0	<5.0	<5
SEP					
17...	<4.0	<4.0	7.9	<5.0	<5
01555210 Middle Creek near Selinsgrove, PA (LAT 40 46 29N LONG 076 52 11W)					
APR 2002					
24...	--	<50	--	<10	--
JUN					
20...	--	<50	--	<10	--
AUG					
20...	--	<50	--	<10	--
01555859 Beaverdam Branch Juniata River near Hollidaysburg, PA (LAT 40 25 50N LONG 078 21 50W)					
APR 2002					
16...	--	<50	--	20	--
JUN					
25...	--	<50	--	40	--
AUG					
13...	--	<50	--	<10	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)
01556009 Frankstown Br Juniata River at RR at Williamsburg, PA (LAT 40 28 19N LONG 078 11 13W)													
APR 2002													
16...	1250	9813	995	30	8.5	7.5	284	16.4	100	--	27.4	--	8.7
JUN													
25...	1230	9813	192	30	8.9	7.9	471	22.3	170	--	42.4	--	15.2
AUG													
13...	1315	9813	84	30	9.1	8.2	561	21.5	220	--	53.8	--	19.8
01564515 Aughwick Creek at Aughwick Mills, PA (LAT 40 20 05N LONG 077 51 36W)													
APR 2002													
15...	1400	9813	E535	30	9.1	7.4	147	17.1	59	--	17.4	--	3.8
MAY													
14...	1000	9813	E1120	30	10.1	6.0	100	13.5	42	--	11.4	--	3.2
JUN													
24...	1415	9813	E55	30	7.9	8.0	58	26.9	77	--	22.2	--	5.2
JUL													
10...	1115	9813	E22	30	7.5	8.0	212	16.8	96	--	27.6	--	6.6
AUG													
07...	1130	9813	E20	30	6.7	7.8	243	22.2	100	--	28.8	--	7.6
SEP													
17...	1145	9813	E9.0	30	5.6	7.7	266	21.1	130	--	36.2	--	9.6
01567795 Letort Spring Run at Bonny Brook near Carlisle, PA (LAT 40 10 39N LONG 077 11 10W)													
APR 2002													
25...	1400	9813	9.9	30	11.8	7.6	506	11.4	260	--	78.3	--	15.1
MAY													
22...	1500	9813	11	30	10.7	8.0	496	15.8	280	--	83.0	--	16.3
JUN													
18...	1310	9813	8.9	30	11.4	7.8	517	14.6	290	--	87.7	--	18.1
JUL													
09...	1530	9813	8.8	30	11.3	7.7	526	15.0	300	--	89.5	--	17.8
AUG													
06...	1430	9813	7.7	30	10.6	7.7	494	16.0	270	--	82.6	--	16.5
SEP													
19...	1430	9813	9.5	30	9.8	7.7	354	12.8	290	--	87.0	--	16.9
01570400 Conodoguinet Creek at Mouth at West Fairview, PA (LAT 40 16 17N LONG 076 54 51W)													
APR 2002													
08...	1350	9813	279	40	11.6	8.4	359	11.7	150	--	46.3	--	8.8
JUN													
11...	0945	9813	243	40	5.2	7.7	358	24.6	140	--	41.8	--	8.6
AUG													
22...	1100	9813	E66	40	7.8	8.2	474	25.8	150	--	36.5	--	13.5
01571505 Yellow Breeches Creek at New Cumberland, PA (LAT 40 13 27N LONG 076 51 38W)													
APR 2002													
08...	0915	9813	130	40	10.9	7.8	303	8.8	140	--	39.4	--	10.5
JUN													
11...	0830	9813	126	40	7.8	7.7	330	21.1	140	--	38.6	--	11.0
AUG													
22...	1000	9813	72	40	7.7	7.8	334	23.4	150	--	39.5	--	12.2

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, TOTAL (MG/L AS F) (00951)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
01556009 Frankstown Br Juniata River at RR at Williamsburg, PA (LAT 40 28 19N LONG 078 11 13W)													
APR 2002													
16...	--	54	--	--	44.6	142	230	.070	.93	<.040	2.1	.25	.330
JUN													
25...	--	102	--	--	63.1	322	6	<.020	2.03	<.040	2.3	.04	.070
AUG													
13...	--	150	--	--	74.6	16	16	<.020	3.12	.110	3.8	.16	.270
01564515 Aughwick Creek at Aughwick Mills, PA (LAT 40 20 05N LONG 077 51 36W)													
APR 2002													
15...	--	36	12.2	<.2	13.9	132	24	<.020	.29	<.040	.62	.05	.036
MAY													
14...	--	28	5.0	<.2	11.4	96	46	<.020	.53	<.040	1.1	.02	.042
JUN													
24...	--	58	9.5	<.2	14.1	4240	14	<.020	.21	<.040	.42	.02	.028
JUL													
10...	--	78	11.3	<.2	15.6	154	16	<.020	.16	<.040	.48	.02	.020
AUG													
07...	--	88	10.6	<.2	16.5	102	8	<.020	.06	<.040	.40	.02	.023
SEP													
17...	--	106	10.2	<.2	24.9	194	6	.030	.05	<.040	.39	.01	.016
01567795 Letort Spring Run at Bonny Brook near Carlisle, PA (LAT 40 10 39N LONG 077 11 10W)													
APR 2002													
25...	--	214	10.9	<.2	19.9	350	20	<.020	6.63	<.040	6.8	<.01	<.010
MAY													
22...	--	212	11.5	<.2	20.3	302	6	.320	7.29	.110	8.7	.01	<.010
JUN													
18...	--	222	10.1	<.2	20.1	334	4	.030	6.52	.070	6.6	.01	.010
JUL													
09...	--	226	11.5	<.2	20.1	306	<2	.110	9.82	.100	7.0	<.01	.011
AUG													
06...	--	224	9.4	<.2	20.4	314	8	.110	6.49	.040	6.5	<.01	.011
SEP													
19...	--	222	11.0	<.2	20.0	314	4	.050	6.68	<.040	6.4	<.01	<.010
01570400 Conodoguinet Creek at Mouth at West Fairview, PA (LAT 40 16 17N LONG 076 54 51W)													
APR 2002													
08...	--	106	--	--	24.8	240	8	<.020	2.90	<.040	3.5	.02	.040
JUN													
11...	--	110	--	--	20.5	230	16	.140	2.27	<.040	3.2	.08	.100
AUG													
22...	--	104	--	--	34.4	282	<2	.020	1.20	<.040	1.8	.08	.130
01571505 Yellow Breeches Creek at New Cumberland, PA (LAT 40 13 27N LONG 076 51 38W)													
APR 2002													
08...	--	110	--	--	16.4	200	<2	<.020	1.78	<.040	2.2	.01	.020
JUN													
11...	--	116	--	--	15.7	202	16	.050	1.77	<.040	2.4	.06	.080
AUG													
22...	--	122	--	--	17.5	208	6	<.020	1.60	<.040	1.8	.04	.070

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	FECAL COLI-FORM, MFC MF, WATER (COL/ 100 ML) (31616)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
01556009 Frankstown Br Juniata River at RR at Williamsburg, PA (LAT 40 28 19N LONG 078 11 13W)													
APR 2002													
16...	5.1	--	--	--	--	--	20	--	12200	--	15	--	690
JUN													
25...	3.2	--	--	--	--	--	<10	--	280	--	<1.0	--	100
AUG													
13...	8.7	--	--	--	--	--	<10	--	400	--	1.8	--	50
01564515 Aughwick Creek at Aughwick Mills, PA (LAT 40 20 05N LONG 077 51 36W)													
APR 2002													
15...	--	1.6	3900	--	--	<4	<4	80	780	<1.0	<1.0	20	50
MAY													
14...	--	1.3	1500	--	--	<4	<4	90	1020	<1.0	1.1	20	70
JUN													
24...	--	1.3	80	<4.0	<.20	<4	<4	100	320	<1.0	<1.0	20	30
JUL													
10...	--	1.2	100	<4.0	<.20	<4	<4	60	230	<1.0	<1.0	30	40
AUG													
07...	--	1.6	60	<4.0	<.20	<4	<4	60	300	<1.0	<1.0	30	60
SEP													
17...	--	1.3	100	<4.0	<.20	<4	<4	50	140	1.9	2.2	50	40
01567795 Letort Spring Run at Bonny Brook near Carlisle, PA (LAT 40 10 39N LONG 077 11 10W)													
APR 2002													
25...	--	1.0	240	--	--	<4	<4	40	60	<1.0	<1.0	2.4	<10
MAY													
22...	--	6.1	60	--	--	<4	<4	<20	40	<1.0	<1.0	<2.0	<10
JUN													
18...	--	.8	4000	<4.0	<.20	<4	<4	<20	70	<1.0	<1.0	2.4	<10
JUL													
09...	--	1.0	300	<4.0	<.20	<4	<4	20	100	<1.0	<1.0	2.3	<10
AUG													
06...	--	.9	320	<4.0	<.20	<4	<4	<20	90	<1.0	<1.0	3.3	<10
SEP													
19...	--	--	140	<4.0	<.20	<4	<4	<20	50	<1.0	<1.0	3.5	<10
01570400 Conodoguinet Creek at Mouth at West Fairview, PA (LAT 40 16 17N LONG 076 54 51W)													
APR 2002													
08...	2.9	--	--	--	--	--	<10	--	300	--	<1.0	--	30
JUN													
11...	4.4	--	--	--	--	--	<10	--	350	--	<1.0	--	30
AUG													
22...	4.8	--	--	--	--	--	<10	--	110	--	<1.0	--	30
01571505 Yellow Breeches Creek at New Cumberland, PA (LAT 40 13 27N LONG 076 51 38W)													
APR 2002													
08...	1.9	--	--	--	--	--	<10	--	160	--	<1.0	--	30
JUN													
11...	2.0	--	--	--	--	--	<10	--	440	--	<1.0	--	50
AUG													
22...	2.0	--	--	--	--	--	<10	--	250	--	<1.0	--	40

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)	PHENOLS TOTAL (µG/L) (32730)
01556009 Frankstown Br Juniata River at RR at Williamsburg, PA (LAT 40 28 19N LONG 078 11 13W)					
APR 2002					
16...	--	<50	--	80	--
JUN					
25...	--	<50	--	<10	--
AUG					
13...	--	<50	--	<10	--
01564515 Aughwick Creek at Aughwick Mills, PA (LAT 40 20 05N LONG 077 51 36W)					
APR 2002					
15...	<4.0	<4.0	<5.0	<5.0	<5
MAY					
14...	<4.0	<4.0	<5.0	5.6	10
JUN					
24...	<4.0	<4.0	<5.0	<5.0	<5
JUL					
10...	<4.0	<4.0	<5.0	<5.0	<5
AUG					
07...	<4.0	12	<5.0	<5.0	<5
SEP					
17...	<4.0	<4.0	--	<5.0	8
01567795 Letort Spring Run at Bonny Brook near Carlisle, PA (LAT 40 10 39N LONG 077 11 10W)					
APR 2002					
25...	<4.0	<4.0	<5.0	<5.0	<5
MAY					
22...	<4.0	<4.0	<5.0	<5.0	<5
JUN					
18...	<4.0	<4.0	<5.0	<5.0	<5
JUL					
09...	<4.0	<4.0	<5.0	<5.0	<5
AUG					
06...	<4.0	<4.0	<5.0	<5.0	<5
SEP					
19...	<4.0	<4.0	<5.0	<5.0	<5
01570400 Conodoguinet Creek at Mouth at West Fairview, PA (LAT 40 16 17N LONG 076 54 51W)					
APR 2002					
08...	--	<50	--	<10	--
JUN					
11...	--	<50	--	<10	--
AUG					
22...	--	<50	--	<10	--
01571505 Yellow Breeches Creek at New Cumberland, PA (LAT 40 13 27N LONG 076 51 38W)					
APR 2002					
08...	--	<50	--	40	--
JUN					
11...	--	<50	--	<10	--
AUG					
22...	--	<50	--	<10	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)
01573610 Swatara Creek at Harrisburg Airport at Middletown, PA (LAT 40 11 28N LONG 076 43 52W)													
APR 2002													
09...	0840	9813	501	40	9.9	7.5	280	10.7	110	--	29.8	--	8.5
JUN													
12...	0915	9813	286	40	5.8	7.3	316	24.1	120	--	34.3	--	8.8
AUG													
27...	1230	9813	99	40	8.2	8.0	558	25.1	210	--	58.5	--	16.1
01573750 Conewago Creek near Arendtsville, PA (LAT 39 56 13N LONG 077 21 58W)													
APR 2002													
25...	1145	9813	4.4	30	9.8	6.4	62	9.3	17	4.59	4.4	1.58	1.5
MAY													
22...	1245	9813	5.7	30	10.3	7.3	56	9.0	16	3.70	4.1	1.29	1.5
JUN													
18...	1030	9813	2.2	30	9.2	6.9	60	14.7	18	4.28	4.5	1.49	1.6
JUL													
09...	1300	9813	.96	30	7.5	7.3	59	20.0	16	4.14	4.2	1.38	1.4
AUG													
06...	1100	9813	.59	30	7.9	7.0	57	20.1	18	4.52	4.6	1.45	1.5
SEP													
19...	1230	9813	<.01	30	5.0	7.2	68	16.8	20	5.01	5.2	1.57	1.6
01575900 Chickies Creek near Marietta, PA (LAT 40 03 46N LONG 076 30 57W)													
APR 2002													
09...	1100	9813	44	30	12.6	8.4	551	12.6	220	--	60.8	--	16.3
JUN													
12...	1100	9813	274	30	7.9	7.9	408	21.3	220	--	63.8	--	16.0
AUG													
27...	1100	9813	24	30	8.2	7.8	734	21.0	260	--	74.5	--	18.2
01576003 Susquehanna River at Columbia, PA (LAT 40 01 42N LONG 076 31 05W)													
JUN 2002													
06...	1320	9813	27900	40	8.6	8.2	222	24.0	90	--	24.9	--	6.7
AUG													
28...	1300	9813	3210	40	7.2	8.2	410	26.6	140	--	34.2	--	14.2
01576787 Pequea Creek at Martic Forge, PA (LAT 39 54 21N LONG 076 19 43W)													
APR 2002													
10...	1210	9813	68	30	11.7	8.5	464	14.2	230	--	54.2	--	22.4
JUN													
17...	1250	9813	58	30	9.0	8.2	462	20.2	220	--	50.8	--	21.4
AUG													
26...	0930	9813	37	30	6.0	7.5	478	22.4	210	--	44.1	--	23.6
01577180 Rambo Run at Meadetown near Stewartstown, PA (LAT 39 49 21N LONG 076 31 59W)													
APR 2002													
10...	1000	9813	4.5	30	10.3	6.7	117	10.8	42	--	8.7	--	4.9
MAY													
22...	1000	9813	5.1	30	9.2	6.6	117	8.8	41	--	8.7	--	4.7
JUN													
17...	1000	9813	3.7	30	9.0	7.0	125	15.7	45	--	9.5	--	5.1
JUL													
09...	1000	9813	2.1	30	8.2	7.1	124	19.8	42	--	8.7	--	4.8
AUG													
28...	0930	9813	1.6	30	8.2	7.0	122	19.6	47	--	10.2	--	5.2
SEPT													
19...	0930	9813	1.7	30	8.5	6.8	124	16.9	47	--	9.8	--	5.3

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, TOTAL (MG/L AS F) (00951)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
01573610 Swatara Creek at Harrisburg Airport at Middletown, PA (LAT 40 11 28N LONG 076 43 52W)													
APR 2002													
09...	--	62	--	--	27.8	218	10	<.020	3.46	<.040	4.0	.02	.050
JUN													
12...	--	76	--	--	29.2	226	6	.060	3.28	.040	3.8	.07	.090
AUG													
27...	--	148	--	--	50.5	392	12	.030	5.52	<.200	6.1	.11	.160
01573750 Conewago Creek near Arendtsville, PA (LAT 39 56 13N LONG 077 21 58W)													
APR 2002													
25...	.0	16	4.9	<.2	7.0	42	18	<.020	.47	<.040	.77	<.01	<.010
MAY													
22...	.0	14	4.4	<.2	6.9	68	4	<.020	.48	<.040	.85	<.01	<.010
JUN													
18...	8.0	16	4.3	<.2	5.1	44	<2	<.020	.46	<.040	.59	.01	.010
JUL													
09...	8.2	18	3.8	<.2	3.9	44	6	<.020	.36	<.040	.47	<.01	.010
AUG													
06...	.0	20	2.9	<.2	3.6	66	<2	<.020	.29	<.040	.43	.02	.020
SEP													
19...	.0	22	3.3	<.2	4.5	30	4	.050	.21	<.040	.37	.01	.010
01575900 Chickies Creek near Marietta, PA (LAT 40 03 46N LONG 076 30 57W)													
APR 2002													
09...	--	152	--	--	32.2	352	6	<.020	7.14	.050	7.7	.02	.040
JUN													
12...	--	156	--	--	28.3	352	14	.020	9.48	<.040	10	.11	.130
AUG													
27...	--	194	--	--	33.6	496	12	.040	8.13	<.200	8.6	.08	.130
01576003 Susquehanna River at Columbia, PA (LAT 40 01 42N LONG 076 31 05W)													
JUN 2002													
06...	--	48	--	--	35.7	102	18	<.020	.46	<.040	.80	.03	.030
AUG													
28...	--	60	--	--	79.1	286	4	.130	.38	<.040	.91	.02	.026
01576787 Pequea Creek at Martic Forge, PA (LAT 39 54 21N LONG 076 19 43W)													
APR 2002													
10...	--	156	--	--	27.9	280	10	<.020	5.85	<.040	6.2	.03	.060
JUN													
17...	--	158	--	--	26.3	392	22	<.020	5.59	.050	6.0	.20	.260
AUG													
26...	--	156	--	--	29.8	192	18	.050	2.96	<.040	3.6	.18	.270
01577180 Rambo Run at Meadetown near Stewartstown, PA (LAT 39 49 21N LONG 076 31 59W)													
APR 2002													
10...	--	17	10.7	<.2	2.9	86	22	<.020	4.97	<.040	5.4	.01	.011
MAY													
22...	--	20	10.6	<.2	3.1	88	6	<.020	5.04	<.040	5.3	<.01	<.010
JUN													
17...	--	22	10.7	<.2	2.5	132	6	<.020	4.91	<.040	5.0	.02	.016
JUL													
09...	--	22	10.9	<.2	2.4	94	<2	<.020	4.66	<.040	4.7	.02	.018
AUG													
28...	--	26	10.6	<.2	2.6	92	4	.130	4.17	<.040	4.3	.01	.013
SEPT													
19...	--	26	11.4	<.2	2.5	94	4	.040	4.51	<.040	4.4	.01	.011

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	FECAL COLI-FORM, MFC MF, WATER (COL/ 100 ML) (31616)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
01573610 Swatara Creek at Harrisburg Airport at Middletown, PA (LAT 40 11 28N LONG 076 43 52W)													
APR 2002													
09...	2.2	--	--	--	--	--	<10	--	280	--	5.9	--	60
JUN													
12...	3.3	--	--	--	--	--	<10	--	340	--	<1.0	--	60
AUG													
27...	3.2	--	--	--	--	--	<10	--	260	--	<1.0	--	80
01573750 Conewago Creek near Arendtsville, PA (LAT 39 56 13N LONG 077 21 58W)													
APR 2002													
25...	--	.5	<20	--	--	<4	<4	70	80	<1.0	<1.0	<10	<10
MAY													
22...	--	6.3	<20	--	--	<4	<4	40	80	<1.0	<1.0	<10	<10
JUN													
18...	--	.6	<10	<4.0	<.20	<4	<4	100	170	<1.0	<1.0	<10	10
JUL													
09...	--	.6	20	<4.0	<.20	<4	<4	100	160	<1.0	<1.0	<10	10
AUG													
06...	--	.6	160	<4.0	<.20	<4	<4	150	240	<1.0	<1.0	10	30
SEP													
19...	--	--	780	<4.0	<.20	<4	<4	80	180	<1.0	<1.0	10	20
01575900 Chickies Creek near Marietta, PA (LAT 40 03 46N LONG 076 30 57W)													
APR 2002													
09...	3.4	--	--	--	--	--	<10	--	160	--	<1.0	--	40
JUN													
12...	3.2	--	--	--	--	--	10	--	500	--	<1.0	--	60
AUG													
27...	3.1	--	--	--	--	--	<10	--	320	--	<1.0	--	60
01576003 Susquehanna River at Columbia, PA (LAT 40 01 42N LONG 076 31 05W)													
JUN 2002													
06...	3.5	--	--	--	--	--	<10	--	580	--	<1.0	--	120
AUG													
28...	3.4	--	--	--	--	--	<10	--	110	--	<1.0	--	60
01576787 Pequea Creek at Martic Forge, PA (LAT 39 54 21N LONG 076 19 43W)													
APR 2002													
10...	2.7	--	--	--	--	--	<10	--	230	--	<1.0	--	30
JUN													
17...	4.2	--	--	--	--	--	<10	--	1180	--	1.3	--	70
AUG													
26...	5.2	--	--	--	--	--	<10	--	830	--	1.6	--	100
01577180 Rambo Run at Meadetown near Stewartstown, PA (LAT 39 49 21N LONG 076 31 59W)													
APR 2002													
10...	--	.9	20	--	--	<4	<4	30	150	<1.0	<1.0	<10	10
MAY													
22...	--	6.4	<10	--	--	<4	<4	<20	90	<1.0	<1.0	10	10
JUN													
17...	--	1.2	120	<4.0	<.20	<4	<4	30	260	1.0	<1.0	10	20
JUL													
09...	--	.9	170	<4.0	<.20	<4	<4	40	220	<1.0	<1.0	20	20
AUG													
28...	--	<.2	260	<4.0	<.20	<4	<4	20	190	<1.0	<1.0	20	20
SEPT													
19...	--	--	460	<4.0	<.20	4	<4	30	240	<1.0	<1.0	20	20

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)	PHENOLS TOTAL (µG/L) (32730)
01573610 Swatara Creek at Harrisburg Airport at Middletown, PA (LAT 40 11 28N LONG 076 43 52W)					
APR 2002					
09...	--	<50	--	<10	--
JUN					
12...	--	<50	--	<10	--
AUG					
27...	--	<50	--	<10	--
01573750 Conewago Creek near Arendtsville, PA (LAT 39 56 13N LONG 077 21 58W)					
APR 2002					
25...	<4.0	<4.0	<5.0	<5.0	<5
MAY					
22...	<4.0	<4.0	<5.0	<5.0	<5
JUN					
18...	<4.0	<4.0	<5.0	5.2	<5
JUL					
09...	<4.0	<4.0	6.8	8.7	<5
AUG					
06...	<4.0	<4.0	<5.0	<5.0	<5
SEP					
19...	<4.0	<4.0	8.9	<5.0	5
01575900 Chickies Creek near Marietta, PA (LAT 40 03 46N LONG 076 30 57W)					
APR 2002					
09...	--	<50	--	<10	--
JUN					
12...	--	<50	--	<10	--
AUG					
27...	--	<50	--	<10	--
01576003 Susquehanna River at Columbia, PA (LAT 40 01 42N LONG 076 31 05W)					
JUN 2002					
06...	--	<50	--	10	--
AUG					
28...	--	<50	--	<10	--
01576787 Pequea Creek at Martic Forge, PA (LAT 39 54 21N LONG 076 19 43W)					
APR 2002					
10...	--	<50	--	<10	--
JUN					
17...	--	<50	--	<10	--
AUG					
26...	--	<50	--	<10	--
01577180 Rambo Run at Meadetown near Stewartstown, PA (LAT 39 49 21N LONG 076 31 59W)					
APR 2002					
10...	<4.0	<4.0	<5.0	<5.0	<5
MAY					
22...	<4.0	<4.0	<5.0	<5.0	<5
JUN					
17...	<4.0	<4.0	6.8	<5.0	<5
JUL					
09...	<4.0	<4.0	<5.0	10	--
AUG					
28...	<4.0	<4.0	<5.0	<5.0	<5
SEPT					
19...	<4.0	<4.0	10	<5.0	<5

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	Time	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM-PLING METHOD, CODES (82398)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)
01613500 Licking Creek near Sylvan, PA (LAT 39 43 23N LONG 078 03 38W)													
APR 2002													
15...	1145	9813	387	30	8.4	7.2	125	14.8	59	--	15.5	--	4.9
JUN													
24...	1200	9813	18	30	6.6	7.7	304	23.9	160	--	40.4	--	15.0
AUG													
12...	1330	9813	7.5	30	7.0	8.0	341	24.5	190	--	45.3	--	18.9
01614500 Conococheague Creek at Fairview, MD (LAT 39 42 59N LONG 077 49 29W)													
APR 2002													
15...	1000	9813	1090	40	7.3	7.3	290	15.7	160	--	47.9	--	9.7
JUN													
24...	1020	9813	111	40	7.6	7.9	472	23.2	229	--	67.4	--	14.8
AUG													
12...	1030	9813	53	40	8.5	8.3	502	24.4	202	--	56.9	--	14.6

MISCELLANEOUS STATION ANALYSES

Date	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB (MG/L AS CACO3) (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, TOTAL (MG/L AS F) (00951)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) (00515)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
01613500 Licking Creek near Sylvan, PA (LAT 39 43 23N LONG 078 03 38W)													
APR 2002													
15...	--	40	--	--	11.2	148	70	<.020	.63	<.040	1.1	.13	.120
JUN													
24...	--	130	--	--	14.1	296	10	.020	.64	<.040	.97	.05	.070
AUG													
12...	--	172	--	--	18.6	278	8	<.020	.41	<.040	.74	.07	.080
01614500 Conococheague Creek at Fairview, MD (LAT 39 42 59N LONG 077 49 29W)													
APR 2002													
15...	--	98	--	--	18.9	286	310	.120	2.21	.040	3.3	.30	.040
JUN													
24...	--	176	--	--	21.1	460	20	<.020	3.63	<.040	4.0	.06	.120
AUG													
12...	--	178	--	--	24.3	372	4	<.020	2.10	<.040	2.5	.05	.090

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA WATER-QUALITY NETWORK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

MISCELLANEOUS STATION ANALYSES

Date	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	FECAL COLI-FORM, MFC MF, WATER (COL/ 100 ML) (31616)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
01613500 Licking Creek near Sylvan, PA (LAT 39 43 23N LONG 078 03 38W)													
APR 2002													
15...	6.7	--	--	--	--	--	<10	--	2650	--	1.5	--	110
JUN													
24...	3.0	--	--	--	--	--	<10	--	360	--	<1.0	--	60
AUG													
12...	3.1	--	--	--	--	--	<10	--	260	--	<1.0	--	50
01614500 Conococheague Creek at Fairview, MD (LAT 39 42 59N LONG 077 49 29W)													
APR 2002													
15...	6.9	--	--	--	--	--	<10	--	1170	--	8.6	--	40
JUN													
24...	7.4	--	--	--	--	--	<10	--	770	--	<1.0	--	30
AUG													
12...	4.8	--	--	--	--	--	<10	--	230	--	<1.0	--	30

MISCELLANEOUS STATION ANALYSES

Date	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)	PHENOLS TOTAL (µG/L) (32730)
01613500 Licking Creek near Sylvan, PA (LAT 39 43 23N LONG 078 03 38W)					
APR 2002					
15...	--	<50	--	<10	--
JUN					
24...	--	<50	--	<10	--
AUG					
12...	--	<50	--	<10	--
01614500 Conococheague Creek at Fairview, MD (LAT 39 42 59N LONG 077 49 29W)					
APR 2002					
15...	--	<50	--	24	--
JUN					
24...	--	<50	--	10	--
AUG					
12...	--	<50	--	<10	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
BEAR CREEK WATERSHED PROJECT

Assessment of Water Quality in the Bear Creek Watershed, With Emphasis on Abandoned Mine Drainage, Dauphin County, Pennsylvania

The aquatic habitat of Bear Creek and its receiving waters are degraded by AMD originating from two discharges and multiple diffuse seeps draining the Lykens-Williamstown mine pool. Water chemistry data collected by USGS indicate that Bear Creek above abandoned mine inputs is relatively unpolluted by mine drainage. Below its confluence with Lykens Water Level Tunnel, Lykens Drift, and multiple seeps, Bear Creek becomes laden with orange iron precipitate that armors channel substrate, resulting in poor habitat and water quality. The affected reach of Bear Creek extends for 1.1 miles downstream of Lykens Water Level Tunnel, where it empties into Wiconisco Creek, degrading habitat and impairing fish and macroinvertebrate populations.

USGS has been collecting baseline chemical and hydrologic data at various sites in the Bear Creek watershed since October 1999. The following data were collected in water years 2002 and 2003, prior to any remediation. All previously collected data can be found in Annual Water Data Report (PA-00-2) and Annual Water Data Report (PA-01-2).

A total of seven sites were sampled in the period October 2001 to December 2003 (see map on page 337). Site WC1 is located on Wiconisco Creek below its confluence with Bear Creek. Site WC2 is located on Wiconisco Creek above its confluence with Bear Creek. These two sites determine the impact of Bear Creek on water quality in Wiconisco Creek. Site BC1 is at the mouth of Bear Creek and represents conditions prior to mixing with Wiconisco Creek. Site BC2 is a surface water site located immediately below all mining inputs. Sites BC3 and BC4 are underground mine discharges draining the Lykens-Williamstown mine pool complex. Even though they drain the same mine pool the chemical signatures of these sites are different, possibly due to stratification in the pool, or poorly connected flow paths which limit mixing. Site BC5 is a control site above all mining impacts.

For additional information, contact Jeff Chaplin at the U.S. Geological Survey, 215 Limekiln Road, New Cumberland, Pennsylvania 17070; phone - (717) 730-6957 (email - jchaplin@usgs.gov).

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
BEAR CREEK WATERSHED PROJECT--Continued

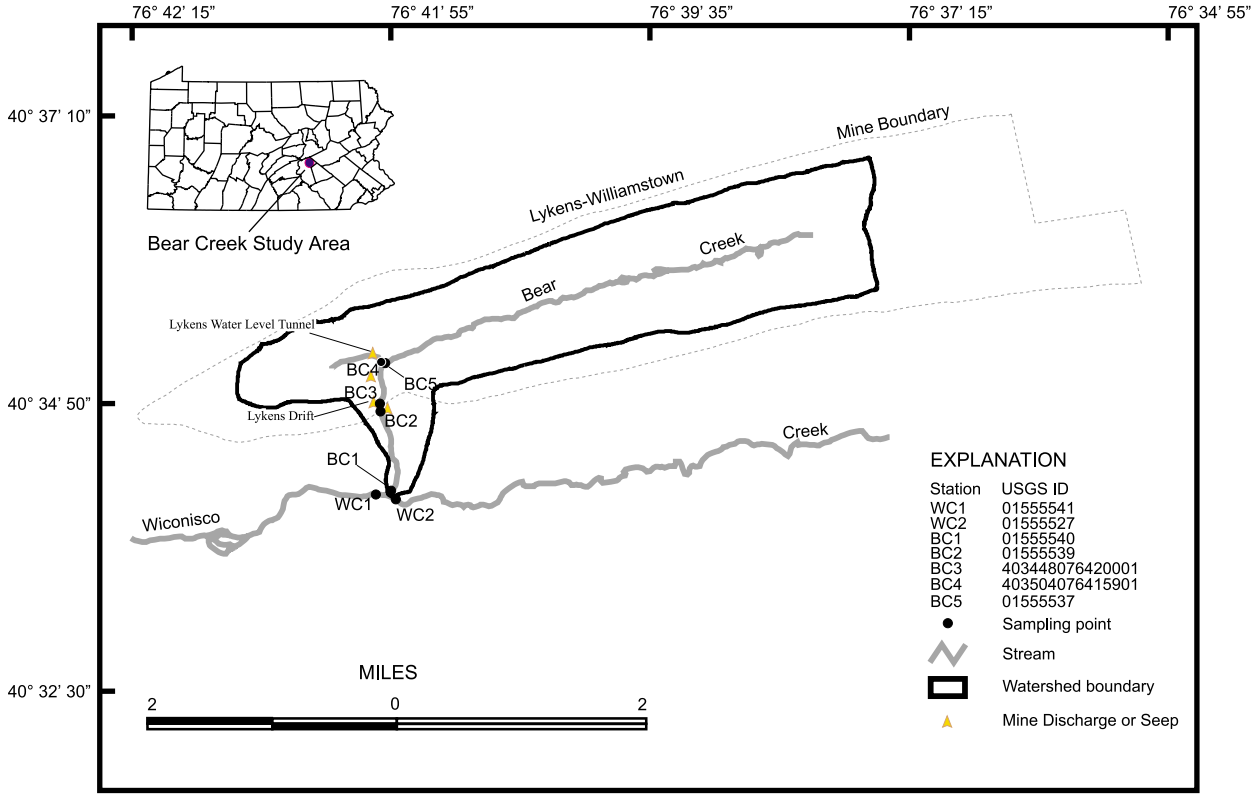


Figure 8.--Location of sites sampled for the Bear Creek Watershed project.

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
BEAR CREEK WATERSHED PROJECT--Continued

01555527 Wiconisco Creek (WC2) us Bear Creek at Lykens, PA

WATER-QUALITY DATA, OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Hydro-logic event	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT 2001													
23...	1000	9	1028	9813	17	10.9	100	7.1	218	11.9	10.2	30	26
NOV													
30...	1100	9	1028	9813	E28	8.5	78	6.8	206	11.3	8.1	36	22
DEC													
18...	0945	9	1028	9813	E18	9.3	76	6.7	179	6.5	7.4	41	22
JAN 2002													
24...	1030	9	1028	9813	20	8.3	63	7.0	241	3.6	18.8	30	22
25...	1415	J	1028	9813	42	8.8	68	7.1	214	4.2	10.8	33	17
FEB													
21...	0900	9	1028	9813	E20	10.1	80	6.2	156	6.1	6.7	32	15
MAR													
21...	1000	J	1028	9813	E56	8.8	69	6.5	111	5.2	7.9	52	13
APR													
29...	1000	9	1028	9813	E84	7.5	69	6.7	129	11.8	5.2	.0	16
MAY													
02...	1200	J	1028	9813	82	7.5	70	6.7	125	11.9	5.2	36	15
09...	1345	J	1028	9813	E70	7.4	71	7.0	131	13.3	4.6	28	19
30...	1020	9	1028	9813	55	6.8	69	7.0	167	16.0	5.7	.0	26
JUN													
19...	0945	9	1028	9813	E24	7.4	73	6.7	212	14.8	6.9	22	30
JUL													
18...	0900	9	1028	9813	10	6.2	68	6.7	230	19.7	9.2	.0	26
18...	0901	9	1028	80020	10	6.2	68	6.7	230	19.7	--	--	--
AUG													
21...	0930	9	1028	9813	E6.7	6.1	67	7.0	243	19.7	10.3	.0	24
SEP													
16...	0930	9	1028	9813	22	6.2	67	6.7	267	19.1	10.9	.0	20
23...	1300	9	1028	9813	E25	6.4	69	6.8	181	19.0	7.0	.0	22

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON FERROUS WATER FLTRD (µG/L) (01047)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
OCT 2001								
23...	64.7	48	<200	300	<500	540	220	240
NOV								
30...	50.6	<2	<200	150	<500	570	280	280
DEC								
18...	38.2	24	300	140	<500	800	260	280
JAN 2002								
24...	42.3	20	700	160	<500	1000	370	390
25...	42.0	10	400	90	<500	770	400	440
FEB								
21...	39.6	<2	<200	130	<500	350	340	360
MAR								
21...	21.9	92	1600	150	<500	4370	380	520
APR								
29...	29.1	36	700	120	<500	1500	210	280
MAY								
02...	34.6	40	600	90	<500	1410	230	300
09...	40.9	36	400	130	<500	1190	280	310
30...	46.6	14	400	150	<500	1230	520	550
JUN								
19...	61.1	14	<200	100	<500	80	480	510
JUL								
18...	64.5	20	<200	70	500	720	350	370
18...	67.8	--	120	77	<500	650	325	338
AUG								
21...	67.2	2	<200	90	<500	620	250	270
SEP								
16...	57.6	32	1400	100	<500	1620	180	240
23...	48.3	42	700	100	<500	1390	260	330

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
BEAR CREEK WATERSHED PROJECT--Continued

01555527 Wiconisco Creek (WC2) us Bear Creek at Lykens, PA--Continued

WATER-QUALITY DATA, **OCTOBER 2002 TO DECEMBER 2002**

Date	Time	Hydro-logic event	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT													
22...	0930	9	1028	9813	19	8.9	75	6.9	207	8.0	8.5	.0	20
NOV													
21...	1000	9	1028	9813	E65	9.8	80	6.4	131	6.4	5.6	40	13
DEC													
18...	0930	9	1028	9813	104	11.6	83	6.2	118	1.6	4.9	.0	12

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON FERROUS WATER FLTRD (µG/L) (01047)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
OCT								
22...	49.9	<2	<200	170	<500	500	350	390
NOV								
21...	31.0	6	200	90	500	490	180	210
DEC								
18...	33.1	16	200	70	<500	410	150	180

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
BEAR CREEK WATERSHED PROJECT--Continued

01555537 Bear Creek (BC5) at Wiconisco, PA

WATER-QUALITY DATA, OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Hydro-logic event	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT 2001													
23...	1300	9	1028	9813	.01	5.4	53	6.1	80	11.8	.8	40	13
NOV													
30...	1330	9	1028	9813	.42	8.4	76	5.5	49	10.9	.8	45	7
DEC													
18...	1300	9	1028	9813	E.01	10.4	87	4.7	49	7.2	.8	43	8
JAN 2002													
24...	1415	9	1028	9813	E.43	9.3	69	4.5	54	2.9	.8	50	7
25...	1145	J	1028	9813	4.1	10.5	75	4.5	53	1.8	.9	54	6
FEB													
21...	1230	9	1028	9813	E.01	11.6	87	4.6	47	4.0	1.1	36	6
MAR													
21...	1400	J	1028	9813	6.9	9.4	75	4.6	37	5.6	.8	38	7
APR													
29...	1330	9	1028	9813	E4.9	8.6	78	4.6	37	10.9	.7	52	8
MAY													
02...	1240	J	1028	9813	8.1	8.4	77	4.5	37	11.3	.7	46	7
09...	1045	J	1028	9813	E3.5	8.3	78	4.5	78	12.7	.6	42	9
30...	1400	9	1028	9813	.48	7.5	74	5.1	30	14.6	.7	49	6
JUN													
19...	1400	9	1028	9813	E.34	7.8	77	5.1	36	14.6	.7	65	8
JUL													
18...	1500	9	1028	9813	E.01	2.3	22	5.8	87	12.6	.8	47	24
18...	1501	9	1028	80020	E.01	2.3	22	5.8	87	12.6	--	--	--
AUG													
21...	1345	9	1028	9813	E.01	2.5	24	5.8	78	13.8	.6	44	--
SEP													
16...	1300	9	1028	9813	E.01	2.5	24	5.8	56	14.7	.6	48	14
23...	0930	9	1028	9813	E.01	4.8	47	5.7	54	15.1	.6	46	10

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON FERROUS WATER FLTRD (µG/L) (01047)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
OCT 2001								
23...	40.7	58	<200	2350	2200	6630	770	910
NOV								
30...	21.8	<2	<200	270	<500	280	620	650
DEC								
18...	<20.0	6	300	140	<500	510	540	550
JAN 2002								
24...	<20.0	<2	300	470	<500	460	500	490
25...	<20.0	<2	300	400	<500	600	430	450
FEB								
21...	<20.0	<2	200	220	<500	200	340	320
MAR								
21...	<20.0	<2	300	180	<500	250	280	270
APR								
29...	<20.0	<2	300	620	<500	950	200	190
MAY								
02...	<20.0	6	300	410	<500	740	200	200
09...	<20.0	<2	200	280	<500	380	210	210
30...	<20.0	<2	300	490	<500	860	220	240
JUN								
19...	<20.0	4	300	1260	<500	1120	400	420
JUL								
18...	22.0	<2	<200	3160	1100	4180	500	560
18...	18.2	--	70	4660	1100	5390	548	585
AUG								
21...	20.9	4	<200	4790	2900	7480	580	740
SEP								
16...	32.8	8	<200	2080	2400	2770	500	530
23...	<20.0	<2	<200	1440	1400	1330	600	580

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
BEAR CREEK WATERSHED PROJECT--Continued

01555537 Bear Creek (BC5) at Wiconisco, PA--Continued

WATER-QUALITY DATA, **OCTOBER 2002 TO DECEMBER 2002**

Date	Time	Hydro-logic event	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT													
22...	1330	9	1028	9813	.62	9.6	85	4.5	71	9.8	.9	37	7
NOV													
21...	1330	9	1028	9813	E1.7	11.1	88	4.6	45	5.3	.8	33	6
DEC													
18...	1400	9	1028	9813	3.8	13.0	90	4.4	44	.6	.7	31	6

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON FERROUS WATER FLTRD (µG/L) (01047)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
OCT								
22...	24.4	<2	300	160	<500	180	530	540
NOV								
21...	<20.0	<2	300	160	<500	170	300	300
DEC								
18...	<20.0	4	300	140	<500	150	240	240

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
BEAR CREEK WATERSHED PROJECT--Continued

01555540 Bear Creek (BC1) at Mouth at Lykens, PA

WATER-QUALITY DATA, OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Hydro-logic event	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT 2001													
23...	1045	9	1028	9813	E3.6	10.1	97	7.6	298	13.5	6.4	.0	86
NOV													
30...	1115	9	1028	9813	4.1	9.7	93	7.5	274	13.7	5.3	.0	80
DEC													
18...	1015	9	1028	9813	E4.5	9.2	83	7.4	222	10.4	7.2	30	32
JAN 2002													
24...	1115	9	1028	9813	E4.7	7.6	68	7.6	262	10.2	6.0	.0	72
25...	1400	J	1028	9813	E6.7	8.9	75	7.3	187	8.0	3.5	.0	48
FEB													
21...	1000	9	1028	9813	3.7	9.3	85	7.3	283	10.9	5.9	.0	80
MAR													
21...	1100	J	1028	9813	E11	8.8	76	7.0	122	8.8	2.9	.0	38
APR													
29...	1030	9	1028	9813	14	8.6	78	7.2	171	11.3	3.2	.0	46
MAY													
02...	1130	J	1028	9813	E20	8.2	76	7.3	163	12.0	3.1	.0	46
09...	1330	J	1028	9813	11	8.4	78	7.4	223	12.3	3.8	.0	64
30...	1045	9	1028	9813	E11	7.9	78	7.1	233	14.7	4.3	.0	68
JUN													
19...	1045	9	1028	9813	8.3	8.7	86	7.3	262	14.8	4.8	.0	80
JUL													
18...	0930	9	1028	9813	E5.2	9.4	93	7.4	234	14.7	5.5	.0	88
18...	0931	9	1028	80020	E5.2	9.4	93	7.4	234	14.7	--	--	--
AUG													
21...	0945	9	1028	9813	5.3	9.4	91	7.6	291	13.9	5.5	.0	--
SEP													
16...	0900	9	1028	9813	E5.0	9.2	90	7.5	298	14.6	6.4	.0	90
23...	1315	9	1028	9813	4.7	8.7	88	7.8	299	15.8	6.5	.0	90

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON FERROUS WATER FLTRD (µG/L) (01047)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
OCT 2001								
23...	81.5	70	<200	3920	<500	13400	2150	2220
NOV								
30...	68.3	46	<200	70	<500	22800	1560	1860
DEC								
18...	42.9	12	<200	150	600	3090	450	520
JAN 2002								
24...	59.7	30	<200	700	600	15600	1460	1570
25...	39.8	50	300	1360	<500	35000	1100	1480
FEB								
21...	68.4	30	<200	320	<500	10300	1620	1740
MAR								
21...	29.6	6	200	1570	<500	25200	890	1170
APR								
29...	38.1	28	<200	880	500	10800	940	1060
MAY								
02...	29.7	46	200	960	<500	11600	940	1010
09...	52.7	20	<200	1190	2500	9330	1190	1270
30...	52.8	20	<200	1270	<500	9600	1380	1420
JUN								
19...	58.8	24	<200	270	<500	260	1500	1530
JUL								
18...	61.2	16	<200	540	<500	12500	1710	1850
18...	--	--	--	--	<500	--	--	--
AUG								
21...	62.8	20	<200	100	<500	10900	1800	1840
SEP								
16...	70.6	34	<200	120	<500	13200	1750	1890
23...	65.8	26	<200	30	<500	16600	1650	1870

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
BEAR CREEK WATERSHED PROJECT--Continued

01555540 Bear Creek (BC1) at Mouth at Lykens, PA--Continued

WATER-QUALITY DATA, **OCTOBER 2002 TO DECEMBER 2002**

Date	Time	Hydro-logic event	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT													
22...	0915	9	1028	9813	E5.5	9.8	87	7.3	274	10.2	5.7	.0	80
NOV													
21...	1015	9	1028	9813	8.9	9.9	87	7.0	207	9.7	4.0	.0	56
DEC													
18...	1100	9	1028	9813	E12	10.9	89	7.0	211	6.8	3.6	.0	53

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON FERROUS WATER FLTRD (µG/L) (01047)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
OCT								
22...	60.1	18	<200	800	800	13500	1590	1720
NOV								
21...	48.7	<2	<200	1940	1800	8520	1170	1250
DEC								
18...	52.5	18	<200	3820	3200	8520	1160	1190

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
BEAR CREEK WATERSHED PROJECT--Continued

01555541 Wiconisco Creek (WC1) ds Bear Creek at Lykens, PA

WATER-QUALITY DATA, OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Hydro-logic event	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT 2001													
23...	0930	9	1028	9813	E21	9.7	96	7.1	262	12.1	7.9	.0	46
NOV													
30...	1015	9	1028	9813	32	8.8	81	6.7	226	11.8	7.8	.0	38
DEC													
18...	0900	9	1028	9813	E22	9.5	79	6.2	192	7.1	5.0	.0	74
JAN 2002													
24...	0930	9	1028	9813	E25	8.3	64	7.0	293	4.8	.8	.0	32
25...	1530	J	1028	9813	E49	9.4	72	7.0	203	4.4	9.2	.0	22
FEB													
21...	0830	9	1028	9813	24	9.7	80	6.1	182	6.8	6.2	27	26
MAR													
21...	0915	J	1028	9813	E67	8.9	70	6.4	113	5.4	7.5	49	16
APR													
29...	0900	9	1028	9813	98	7.6	70	6.5	128	11.8	4.8	.0	22
MAY													
02...	1100	J	1028	9813	E102	7.6	71	6.9	131	12.0	4.5	33	20
09...	1415	J	1028	9813	81	7.6	72	7.0	144	13.1	4.7	22	28
30...	0920	9	1028	9813	E66	7.0	71	6.7	162	15.4	5.1	.0	34
JUN													
19...	0915	9	1028	9813	32	7.7	76	6.3	223	14.6	6.2	.0	40
JUL													
18...	0800	9	1028	9813	E15	7.0	73	7.0	247	17.5	7.3	.0	50
18...	0801	9	1028	80020	E15	7.0	73	7.0	247	17.5	--	--	--
AUG													
21...	0830	9	1028	9813	12	7.8	80	7.3	272	16.7	8.1	.0	--
SEP													
16...	0830	9	1028	9813	E27	7.0	74	6.8	273	18.2	10.1	.0	34
23...	1415	9	1028	9813	30	6.8	73	7.2	204	18.5	6.7	.0	36

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON FERROUS WATER FLTRD (µG/L) (01047)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
OCT 2001								
23...	81.5	64	<200	240	<500	3860	860	790
NOV								
30...	65.2	<2	<200	120	<500	3110	630	660
DEC								
18...	60.8	36	<200	460	<500	19600	1470	1570
JAN 2002								
24...	44.9	92	300	240	<500	460	540	490
25...	40.5	16	300	330	<500	6900	550	640
FEB								
21...	45.0	<2	<200	320	<500	1920	540	570
MAR								
21...	23.1	92	1600	340	<500	7330	450	630
APR								
29...	28.8	4	1000	340	<500	4000	360	390
MAY								
02...	56.8	54	700	320	<500	3270	360	410
09...	34.4	24	200	290	<500	2280	440	490
30...	51.7	20	300	360	<500	2740	680	680
JUN								
19...	56.3	20	<200	450	<500	130	720	730
JUL								
18...	60.5	182	<200	210	<500	4950	860	920
18...	65.3	--	80	182	<500	4690	819	862
AUG								
21...	64.6	20	<200	80	<500	5850	980	1050
SEP								
16...	64.6	32	1100	620	<500	3450	490	560
23...	51.2	16	600	80	<500	3870	520	590

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
BEAR CREEK WATERSHED PROJECT--Continued

01555541 Wiconisco Creek (WC1) ds Bear Creek at Lykens, PA--Continued

WATER-QUALITY DATA, **OCTOBER 2002 TO DECEMBER 2002**

Date	Time	Hydro-logic event	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT													
22...	0830	9	1028	9813	E25	9.1	78	6.6	222	8.5	7.5	.0	34
NOV													
21...	0900	9	1028	9813	74	9.9	81	6.5	143	6.9	5.3	.0	20
DEC													
18...	0900	9	1028	9813	E116	11.5	84	6.2	131	2.2	4.7	.0	21

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON FERROUS WATER FLTRD (µG/L) (01047)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
OCT								
22...	61.8	4	<200	330	500	2720	640	670
NOV								
21...	35.0	<2	<200	400	600	1550	340	5430
DEC								
18...	29.5	14	200	680	1000	1720	300	350

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
BEAR CREEK WATERSHED PROJECT--Continued

403448076420001 -- Lykens-Williamstown Seep (BC3)

WATER-QUALITY DATA, OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Hydro-logic event	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT 2001													
23...	1200	9	1028	9813	E1.4	.4	4	6.8	361	13.4	6.4	.0	130
NOV													
30...	1300	9	1028	9813	E2.4	.4	4	6.6	363	13.3	.8	--	--
DEC													
18...	1130	9	1028	9813	.55	.2	2	6.6	345	13.3	5.9	.0	132
JAN 2002													
24...	1345	9	1028	9813	E1.4	.3	3	6.6	362	13.3	5.8	.0	126
25...	1245	J	1028	9813	E.46	.4	4	6.5	369	13.3	6.1	.0	124
FEB													
15...	1135	9	1028	9813	E1.0	.9	7	6.5	364	11.3	--	--	--
21...	1045	9	1028	9813	.40	5.7	54	6.5	368	13.3	6.4	.0	132
MAR													
21...	1300	J	1028	9813	E2.9	.4	4	6.6	303	13.3	6.1	.0	132
APR													
29...	1230	9	1028	9813	2.7	1.1	10	6.5	370	13.3	6.5	.0	136
MAY													
02...	1215	J	1028	9813	E4.9	.3	3	6.6	365	13.3	6.1	.0	140
09...	1200	J	1028	9813	3.0	.4	4	6.5	366	13.3	6.4	.0	140
30...	1245	9	1028	9813	E3.2	.2	2	6.6	341	13.2	6.5	.0	130
JUN													
19...	1300	9	1028	9813	2.6	.3	3	6.5	361	13.3	6.2	.0	136
JUL													
18...	1300	9	1028	9813	E1.2	.3	3	6.6	343	13.3	6.3	.0	132
18...	1301	9	1028	80020	E1.2	.3	3	6.6	343	13.3	--	--	--
AUG													
21...	1200	9	1028	9813	1.6	.3	3	6.6	356	13.3	6.2	.0	124
SEP													
16...	1215	9	1028	9813	E1.1	.3	3	6.5	365	13.3	6.4	.0	134
23...	1100	9	1028	9813	1.3	.4	3	6.5	364	13.3	6.4	.0	128

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON FERROUS WATER FLTRD (µG/L) (01047)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
OCT 2001								
23...	78.9	68	<200	21400	14400	20700	2720	2700
NOV								
30...	77.6	<18	<200	7150	5500	10500	1100	1080
DEC								
18...	65.7	20	<200	18200	6400	19000	2080	2120
JAN 2002								
24...	65.2	4	<200	16700	8200	23000	2120	2230
25...	59.6	<2	<200	18200	2000	18800	2060	2160
FEB								
15...	--	--	--	--	--	--	--	--
21...	60.1	18	<200	17300	4800	17500	2220	2230
MAR								
21...	55.8	14	<200	19300	1500	20000	2080	2060
APR								
29...	58.9	<2	<200	18500	3500	18900	2160	2110
MAY								
02...	54.5	62	<200	18400	900	18500	2180	2120
09...	55.1	22	<200	8300	1100	17100	1320	2170
30...	54.6	12	<200	18700	2000	18500	2090	2120
JUN								
19...	59.6	6	<200	18900	2600	19800	2020	2110
JUL								
18...	61.3	14	<200	18300	4000	18900	2120	2190
18...	--	--	--	--	4000	--	--	--
AUG								
21...	57.7	10	<200	17500	4100	18300	2070	2070
SEP								
16...	88.8	14	<200	17700	4300	18300	2150	2130
23...	62.5	6	<200	18100	4100	19200	2160	2200

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
BEAR CREEK WATERSHED PROJECT--Continued

403448076420001 -- Lykens-Williamstown Seep (BC3)--Continued

WATER-QUALITY DATA, **OCTOBER 2002 TO DECEMBER 2002**

Date	Time	Hydro-logic event	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT													
22...	1230	9	1028	9813	E1.6	.3	3	6.5	367	13.3	6.0	.0	130
NOV													
21...	1300	9	1028	9813	1.5	.4	4	6.6	361	13.3	6.3	.0	132
DEC													
18...	1300	9	1028	9813	E3.4	.4	4	6.5	364	13.3	6.4	.0	125

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON FERROUS WATER FLTRD (µG/L) (01047)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
OCT								
22...	58.6	10	<200	17100	3900	17500	2100	2090
NOV								
21...	60.0	6	<200	18000	4200	18100	2110	2110
DEC								
18...	57.6	6	<200	17800	3700	18200	2150	2160

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
BEAR CREEK WATERSHED PROJECT--Continued

403504076415901 -- Lykens-Williamstown Mine (BC4)

WATER-QUALITY DATA, OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Hydro-logic event	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT 2001													
23...	1230	9	1028	9813	E1.4	8.9	80	5.8	219	10.8	1.0	67	12
NOV													
30...	1315	9	1028	9813	E.83	8.7	79	5.7	228	11.0	.7	57	0
DEC													
18...	1230	9	1028	9813	.52	8.0	71	5.3	198	10.2	.8	64	5
JAN 2002													
24...	1400	9	1028	9813	E.97	6.5	58	5.1	220	10.2	.7	55	1
25...	1045	J	1028	9813	.41	7.2	64	5.1	222	10.3	.9	74	0
FEB													
15...	1205	9	1028	9813	E.73	8.2	73	5.9	164	10.2	--	--	--
21...	1130	9	1028	9813	.72	10.5	95	5.8	202	10.3	1.2	60	9
MAR													
21...	1330	J	1028	9813	E1.9	7.0	63	6.0	182	10.7	.9	49	26
APR													
29...	1300	9	1028	9813	2.3	7.3	66	6.2	188	10.1	.9	21	32
MAY													
02...	1300	J	1028	9813	E3.0	7.0	63	6.1	181	10.3	.8	34	28
09...	1100	J	1028	9813	2.8	7.2	64	6.0	187	10.1	.7	23	28
30...	1310	9	1028	9813	E2.0	6.8	61	5.9	160	10.4	.9	26	19
JUN													
19...	1345	9	1028	9813	1.4	7.6	68	5.8	187	10.4	.8	47	19
JUL													
18...	1400	9	1028	9813	E.85	8.4	75	5.8	185	10.6	.8	50	16
18...	1401	9	1028	80020	E.85	8.4	75	5.8	185	10.6	--	--	--
AUG													
21...	1330	9	1028	9813	.85	8.5	76	6.0	206	10.7	.8	46	19
SEP													
16...	1245	9	1028	9813	E.81	8.8	79	5.9	211	10.7	.8	53	19
23...	1000	9	1028	9813	.68	8.4	75	5.9	211	10.5	.8	42	18

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON FERROUS WATER FLTRD (µG/L) (01047)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
OCT 2001								
23...	85.3	58	300	10700	2000	14700	1330	1320
NOV								
30...	90.2	12	<200	11000	3600	14700	1200	1240
DEC								
18...	77.6	6	<200	7150	5400	10500	1100	1080
JAN 2002								
24...	82.3	18	<200	8860	5400	14300	1200	1200
25...	73.1	<2	<200	7900	600	12200	1100	1110
FEB								
15...	--	--	--	--	--	--	--	--
21...	75.3	22	<200	7920	2400	13200	1130	1130
MAR								
21...	75.2	22	<200	10100	1000	15500	1070	1050
APR								
29...	55.6	28	400	5170	1300	10600	830	820
MAY								
02...	<20.0	8	400	4840	1200	9900	830	830
09...	55.7	22	500	4540	1100	10000	800	810
30...	54.6	12	500	2370	<500	8960	790	800
JUN								
19...	64.8	18	<200	5150	1600	5510	890	910
JUL								
18...	69.5	14	300	5960	3000	11500	990	1010
18...	--	--	--	--	3000	--	--	--
AUG								
21...	76.6	6	300	8950	5900	13500	1060	1070
SEP								
16...	70.9	6	200	9360	4200	13100	1080	1070
23...	81.3	<2	<200	10100	4000	10100	1100	1140

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
BEAR CREEK WATERSHED PROJECT--Continued

403504076415901 -- Lykens-Williamstown Mine (BC4)--Continued

WATER-QUALITY DATA, **OCTOBER 2002 TO DECEMBER 2002**

Date	Time	Hydro-logic event	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)
OCT													
22...	1300	9	1028	9813	E.87	8.5	76	6.0	216	10.5	.8	41	18
NOV													
21...	1400	9	1028	9813	1.1	8.3	74	5.9	221	10.2	.8	39	20
DEC													
18...	1430	9	1028	9813	E2.2	8.3	74	6.0	238	9.9	.8	38	29

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON FERROUS WATER FLTRD (µG/L) (01047)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
OCT								
22...	77.5	4	200	9180	4800	12500	1080	1100
NOV								
21...	80.8	6	500	10400	3700	15800	1070	1100
DEC								
18...	80.6	12	600	11900	4800	15200	970	970

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT

EVALUATION OF LIMESTONE TREATMENT OF ACIDIC MINE DRAINAGE IN SWATARA CREEK BASIN, SCHUYLKILL COUNTY, PENNSYLVANIA

Acidic mine drainage (AMD) from abandoned anthracite mines has degraded water resources in the 48 mi^2 northern Swatara Creek Basin. To neutralize the AMD, with a goal of remediating approximately 25 miles (67 percent) of degraded streams in the basin, a variety of limestone treatment systems have been constructed (fig. 9). 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 1995-2001, data on discharge rate and water quality at 48 stations in the Swatara Creek basin and 5 stations in adjacent watersheds (table 4) 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.

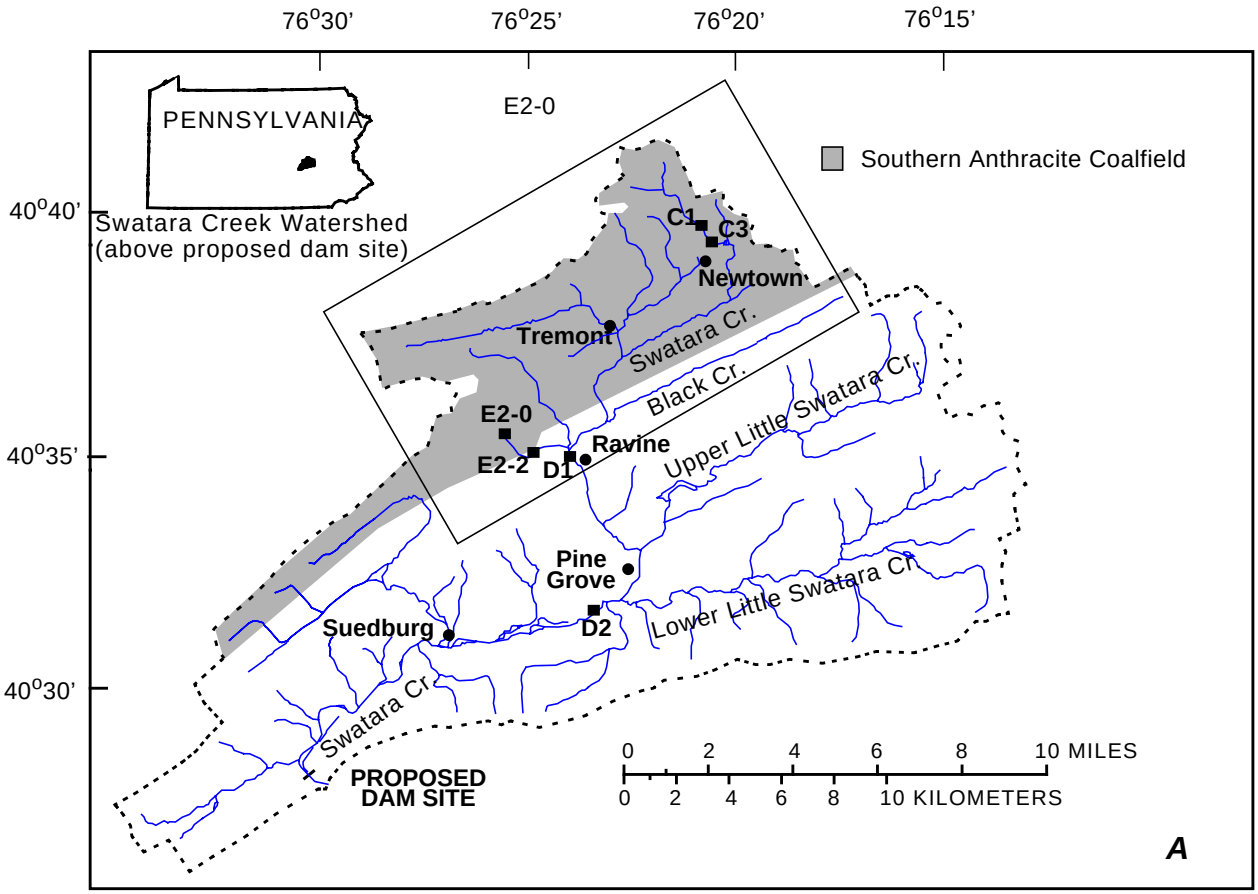
Limestone sand dosing and open limestone channels are the simplest treatment systems where limestone is added directly to the stream channel semiannually or less frequently. Limestone sand, which can dissolve rapidly because of its small size (<1/8 inch), was dumped into Coal Run (14 tons) between stations C4 and C6 on September 4, 1996, and into Lorberry Creek (150 tons) below station E2 on February 13-14, 1997 (fig. 9). An open limestone channel was constructed within a 110-ft long segment of Swatara Creek at station B2 (fig. 9) on March 21, 1997. A total of 44 tons of sand-size fragments and 70 tons of larger fragments (1-4 inches) were installed as a series of alternating berms extending part way across the 15-ft-wide channel from opposite sides of the stream.

A limestone drain is another relatively simple treatment method, which involves the burial of limestone in air-tight trenches that intercept acidic discharge water. Keeping oxygen out of contact with the discharge water minimizes the potential for oxidation of ferrous iron and the consequent precipitation of ferric-iron armoring as iron hydroxides. Furthermore, keeping carbon dioxide within the drain can enhance limestone dissolution and alkalinity production. Limestone drains were constructed on March 15, 1995, at station E3 to treat a small acidic discharge (10-30 gpm, oxic inflow; 44 tons limestone) along Lower Rausch Creek May 21, 1997, at station A1 to treat a large discharge (50-200 gpm, anoxic inflow; 400 tons limestone) at the headwaters of Swatara Creek; and on May 20, 2000, at station C0-1 to treat a large discharge (50-500 gpm; oxic inflow; 880 tons limestone) near the headwaters of Swatara Creek (fig. 9).

In a limestone diversion well, acidic water is diverted from upstream points and the hydraulic force of the piped flow is deflected upward through limestone fragments inside 4-ft diameter "wells." Hydraulic churning abrades limestone forming fine particles and preventing the buildup of iron or aluminum hydroxides armoring. On November 14, 1995, a pair of diversion wells was installed to treat water diverted from Swatara Creek at station C2; on July 13, 1997, a single diversion well was installed to treat water from Martin Run at station C8 (fig. 9); and, on November 18-19, 1998, another pair of diversion wells was installed to treat water diverted from Lorberry Creek above station E2-0. Approximately 1 ton of limestone is consumed weekly by each operating diversion well.

Constructed wetlands for treatment of mine drainage can attenuate the transport of dissolved and suspended pollutants by promoting the production of alkalinity and the precipitation and deposition of iron and other metals. For net acidic water (acidity > alkalinity), wetlands that have compost and/or limestone substrates can be appropriate. The organic matter in the compost provides a substrate for plant rooting and for microbial reduction of sulfate. In December 1998, a 3-acre aerobic wetland system with limestone and compost substrate was installed near the mouth of Lower Rausch Creek between stations E3-1 and E3-2, and in December 2001, a 3-acre aerobic wetland system that intercepts outflow from the limestone diversion wells on Lorberry Creek below station E2-0 began operation. At the inflow to the Lorberry wetlands, a hopper with water-powered auger was installed to deliver pelletized lime or limestone as needed. The main objective for these wetlands is to reduce the downstream transport of metals, with a secondary objective of providing additional alkalinity.

For additional information, contact Charles Cravotta at the U.S. Geological Survey, 215 Limekiln Road, New Cumberland, PA 17070; 717-730-6963 (email: cravotta@usgs.gov).



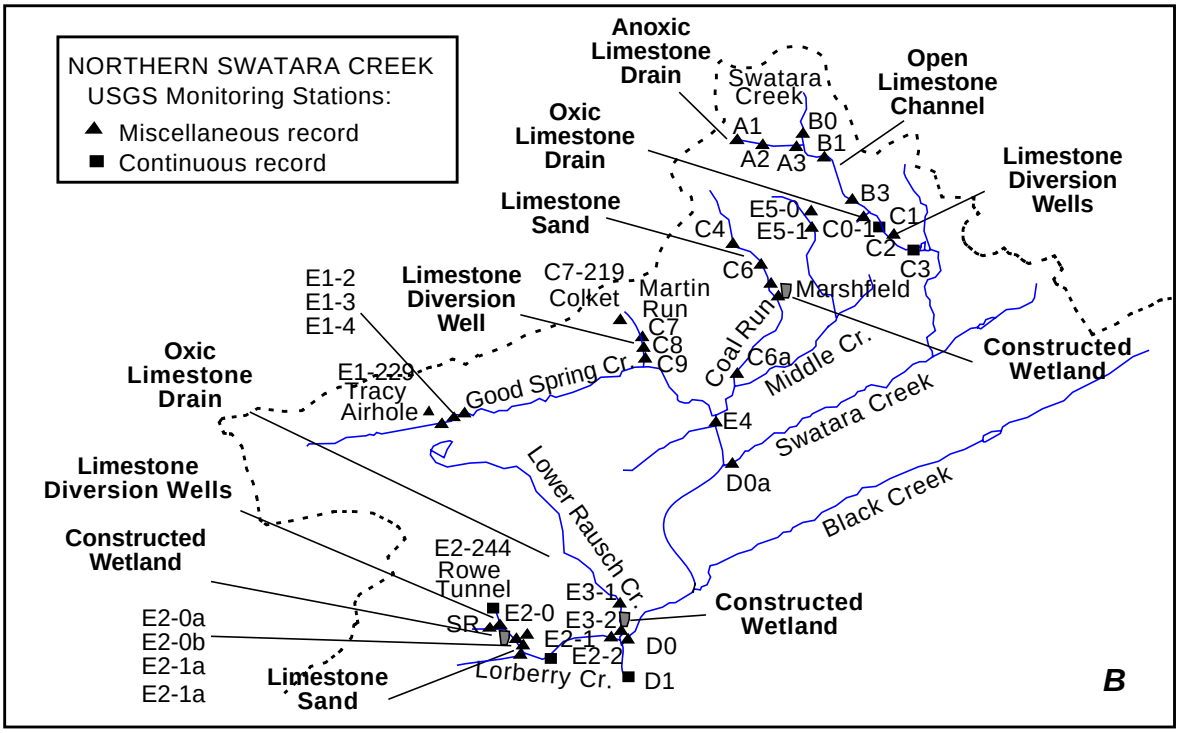


Figure 9.--Locations of water-quality and streamflow monitoring stations in the Swatara Creek Basin, Lebanon and Schuylkill Counties, Pennsylvania: *A*, continuous monitoring stations on Swatara Creek above the proposed dam for Swatara State Park Reservoir; B, monitoring stations within the Southern Anthracite Coalfield, above Ravine (area denoted in *A*).

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

TABLE 4.--Swatara Creek project station list.

REMARKS.--All samples collected by the U.S. Geological Survey. Abbreviations used in the following table include: AB-above; BL-below; NR-near; DS-downstream, US-upstream, ALD-anoxic limestone drain; OLD-oxic limestone drain; OLC-open limestone channel; LS-limestone sand; LDW-limestone diversion well; n.a.-not applicable.

LOCAL ID	STATION NUMBER	STATION NAME	LATITUDE	LONGITUDE	DRAINAGE AREA
		CONTINUOUS-RECORD STATIONS			
C1	0157155010	SWATARA CREEK, SITE C1, 350 FT AB LDW, AB SR209 BRIDGE AT NEWTOWN, PA	40°39'34"	76°20'50"	2.58
C3	0157155014	SWATARA CREEK, SITE C3, 350 FT BL LDW, BL SR209 BRIDGE AT NEWTOWN, PA	40°39'28"	76°20'43"	2.92
E2-244	403542076263201	ROWE DRAINAGE TUNNEL, SITE E2-244, NEAR JOLIETT	40°35′42"	76°26′32"	n.a.
E2-1	01571778	LORBERRY CREEK ABOVE TR625 BRIDGE NEAR LORBERRY JUNCTION, PA	40°35′15"	76°25′35"	3.59
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			
A1-199	404032076222901	WM CARL BUCK MTN MINE, SITE A1-199, NEAR NEWTOWN	40°40′32"	76°22′29"	n.a.
A2	0157154970	NORTHWEST TRIBIUTARY TO SWATARA CREEK, SITE A2, AT ALD OUTFLOW, NEAR NEWTOWN, PA	40°40'32"	76°22'25"	.25
A3	0157154972	NORTHWEST TRIBIUTARY TO SWATARA CREEK, SITE A3, 1500 FT BELOW ALD, NEAR NEWTOWN, PA	40°40'32"	76°21'59"	.40
B0	0157154960	SWATARA CREEK, ABOVE NORTHWEST TRIBUTARY, SITE B0, NEAR NEWTOWN, PA	40°40'34"	76°21'57"	1.14
B3	0157154984	SWATARA CREEK, BELOW NORTHWEST TRIBUTARY, SITE B3, 400 FT BELOW OLC, NEAR NEWTOWN, PA	40°40'22"	76°21'36"	1.90
C0-1	403955076211801	HEGINS MINE DISCHARGE, SITE C0-1, AT NEWTOWN, PA	40°39′55"	76°21′18"	n.a.
	403955076211802	HEGINS MINE DISCHARGE, TREATED, AT NEWTOWN, PA	40°39′55"	76°21′18"	n.a.
C2	0157155012	SWATARA CREEK, SITE C2, AT LDW OUTFLOW, AT NEWTOWN, PA	40°39'31"	76°20'47"	2.65
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
C6	0157158014	COAL RUN, SITE C6, NEAR TREMONT, PA	40°38′32"	76°22′46"	.29
C6a	01571585	COAL RUN BELOW WETLAND AT TREMONT, PA	40°38′00"	76°22′58"	1.26
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
E1-2	0157156212	TRACY AIRHOLE, SITE E1-2, NEAR DONALDSON, PA	40°37′41"	76°27′08"	.20
E1-229	403745076271901	TRACY AIRHOLE, SITE E1-229, NEAR DONALDSON, PA	40°37'45"	76°27'19"	n.a.
E1-3	0157156520	GOOD SPRING CREEK AB TRACY TRIB NEAR DONALDSON, PA	40°37′40"	76°27′09"	.23
E1-4	0157156521	GOOD SPRING CREEK BL TRACY TRIB NEAR DONALDSON, PA	40°37′39"	76°27′05"	2.59
D0a	01571552	SWATARA CREEK AT TREMONT, PA	40°37′08"	76°23′09"	9.81
E4	01571593	GOOD SPRING CREEK BL MIDDLE CREEK AT TREMONT, PA	40°37'35"	76°23'15"	14.0
E3-S0	403626076253001	ORCHARD MINE, SITE E3-S0, NEAR JOLIETT, PA	40°36'26"	76°25'30"	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
E2-0b	01571773	LORBERRY CREEK DIV WELLS OUTFLOW NR LORBERRY,PA	40°35′36"	76°26′25"	1.01
E2-0	01571774	LORBERRY CREEK, SITE E2-0, AT LORBERRY, PA	40°35′32"	76°26′22"	1.15
SR	01571776	STUMPS RUN AT LORBERRY, PA	40°35'30"	76°26'23"	.65
	0157177610	LORBERRY CREEK WETLANDS INFLOW AT LORBERRY, PA	40°35′29"	76°26′23"	
	0157177612	LORBERRY CR WETLANDS CELL 1 OUTFLOW AT LORBERRY	40°35′27"	76°26′25"	
	0157177614	LORBERRY CR WETLANDS CELL 2 OUTFLOW AT LORBERRY	40°35′28"	76°26′20"	
	0157177616	LORBERRY CR WETLANDS CELL 3 OUTFLOW AT LORBERRY	40°35′26"	76°26′24"	
	0157177618	LORBERRY CR WETLANDS CELL 4 OUTFLOW AT LORBERRY	40°35′27"	76°26′19"	
	403524076262301	PIPED DISCHARGE NEAR CELL 4, PA	40°35′24"	76°26′23"	
	403530076262601	PIPED DISCHARGE NEAR CELL 1, PA	40°35′30"	76°26′26"	
	0157177620	LORBERRY CREEK BELOW WETLANDS AT LORBERRY, PA	40°35′27"	76°26′17"	1.80
SH	403521076260601	SHADLE MINE SHAFT AT LORBERRY, PA	40°35′21"	76°26′06"	n.a.
	01571777	LORBERRY CREEK ABOVE PANTHER HEAD DISCHARGE NEAR LORBERRY JUNCTION, PA	40°35'11"	76°25'55"	2.11
	0157177780	PANTHER HEAD, 500 FT BELOW DISCHARGE TO LORBERRY CREEK NEAR LORBERRY JUNCTION, PA	40°35'10"	76°25'56"	.01
	0157177790	UNNAMED TRIBUTARY TO LORBERRY CREEK NEAR LORBERRY JUNCTION, PA	40°35'07"	76°25'48"	1.14
E2-2	01571780	LORBERRY CREEK ABOVE LOWER RAUSCH CREEK AT LORBERRY JUNCTION, PA	40°35'20"	76°24'43"	4.17
	4036360876253026	LIMESTONE DRAIN 2, EFFLUENT (80 FT)	40°36′26"	76°25′30"	n.a.
D0	01571798	SWATARA CREEK BELOW TR412 BRIDGE AT LORBERRY JUNCTION, PA	40°35'18"	76°24'37"	42.3

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

404032076222901 -- WM Carl Buck Mtn Mine, Site A1-199, nr Newtown, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
13...	1030	1028	930	.01	360	.5	4	5.0	5.0	253
29...	1200	1028	9813	.49	410	2.0	19	5.0	4.9	252
DEC										
03...	1030	1028	930	--	--	--	--	--	5.2	--
10...	0930	1028	9813	.01	410	.4	3	4.7	3.3	327
JAN										
30...	1215	1028	9813	.02	410	3.0	27	5.0	5.0	306
MAR										
26...	1345	1028	9813	.02	440	3.1	27	5.1	4.9	313
MAY										
28...	1445	1028	9813	.02	420	3.5	32	4.9	4.8	302
JUL										
30...	1330	1028	9813	.01	240	2.0	19	5.0	4.9	273

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
13...	11.0	5.0	4.8	8.2	7.8	1.8	1.8	16	16	17
29...	11.0	6.4	6.2	9.9	9.8	--	--	15	15	63
DEC										
03...	--	5.3	5.1	8.3	7.9	1.7	1.7	16	16	15
10...	11.0	8.3	8.5	13	13	--	--	18	18	72
JAN										
30...	10.5	6.7	6.7	10	11	--	--	15	15	65
MAR										
26...	9.40	6.7	6.8	13	13	--	--	16	16	70
MAY										
28...	10.5	5.4	5.3	11	11	--	--	16	15	120
JUL										
30...	11.0	5.9	5.7	9.8	9.7	--	--	16	16	61

Date	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)
NOV										
13...	--	--	79	--	250	250	<40	<40	42	42
29...	4.0	19	89	<2.0	590	600	--	--	--	--
DEC										
03...	--	--	80	--	200	230	<40	<40	41	41
10...	.00	18	120	<2.0	1200	1200	--	--	--	--
JAN										
30...	5.0	17	110	<2.0	850	900	--	--	--	--
MAR										
26...	3.0	18	120	2.0	830	800	--	--	--	--
MAY										
28...	2.0	19	120	<2.0	820	900	--	--	--	--
JUL										
30...	5.0	18	87	2.0	520	500	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

404032076222901 -- WM Carl Buck Mtn Mine, Site A1-199, nr Newtown, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)
NOV										
13...	<3.0	<3.0	<3.0	<3.0	81	77	<3.0	<3.0	16000	15000
29...	--	--	--	--	--	--	--	--	18000	18000
DEC										
03...	<3.0	<3.0	<3.0	<3.0	81	78	<3.0	<3.0	15000	15000
10...	--	--	--	--	--	--	--	--	24000	24000
JAN										
30...	--	--	--	--	--	--	--	--	21000	21000
MAR										
26...	--	--	--	--	--	--	--	--	24000	25000
MAY										
28...	--	--	--	--	--	--	--	--	22000	21000
JUL										
30...	--	--	--	--	--	--	--	--	17000	17000

Date	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	SELE-NIUM, DIS-SOLVED (µG/L AS SE) (01145)	SELE-NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
NOV										
13...	<40	<40	1400	1400	83	78	<100	<100	170	160
29...	--	--	1700	1700	--	--	--	--	--	--
DEC										
03...	<40	<40	1500	1400	82	83	<100	<100	220	160
10...	--	--	2300	2300	--	--	--	--	--	--
JAN										
30...	--	--	1900	2000	--	--	--	--	--	--
MAR										
26...	--	--	2200	2200	--	--	--	--	--	--
MAY										
28...	--	--	1900	1900	--	--	--	--	--	--
JUL										
30...	--	--	1700	1700	--	--	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157154970 -- NW Trib to Swatara Cr, Site A2, near Newtown, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
13...	1015	1028	930	.01	230	.4	4	6.5	6.7	382
29...	1145	1028	9813	.36	290	1.1	10	5.9	6.3	329
DEC										
10...	0915	1028	9813	.03	210	.2	2	6.4	6.6	420
JAN										
30...	1200	1028	9813	.06	290	3.1	28	6.5	6.6	417
MAR										
26...	1330	1028	9813	.66	380	3.9	34	6.3	6.3	358
MAY										
28...	1430	1028	9813	.66	310	3.9	35	6.2	6.2	333
JUL										
30...	1315	1028	9813	.27	160	2.3	20	6.4	6.5	376

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
13...	12.0	45	43	7.9	7.4	2.2	2.1	17	17	17
29...	12.0	36	41	9.1	8.9	--	--	17	17	.00
DEC										
10...	12.0	50	50	11	11	--	--	18	18	.00
JAN										
30...	11.0	45	43	10	10	--	--	16	15	.00
MAR										
26...	9.80	32	33	10	11	--	--	16	16	15
MAY										
28...	10.0	26	26	9.3	9.4	--	--	16	16	42
JUL										
30...	11.5	45	46	8.0	8.3	--	--	17	17	.00

Date	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)
NOV										
13...	84	--	70	--	<20	30	<40	<40	60	61
29...	80	20	76	<2.0	<200	<200	--	--	--	--
DEC										
10...	80	18	82	10	<200	<200	--	--	--	--
JAN										
30...	86	16	94	<2.0	<200	<200	--	--	--	--
MAR										
26...	52	18	92	14	<200	<200	--	--	--	--
MAY										
28...	42	21	85	<2.0	<200	3800	--	--	--	--
JUL										
30...	88	21	71	6.0	<200	<200	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157154970 -- NW Trib to Swatara Cr, Site A2, near Newtown, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)
NOV										
13...	<3.0	<3.0	<3.0	<3.0	61	59	<3.0	<3.0	7800	7600
29...	--	--	--	--	--	--	--	--	8500	7100
DEC										
10...	--	--	--	--	--	--	--	--	9900	10000
JAN										
30...	--	--	--	--	--	--	--	--	11000	11000
MAR										
26...	--	--	--	--	--	--	--	--	13000	13000
MAY										
28...	--	--	--	--	--	--	--	--	10000	11000
JUL										
30...	--	--	--	--	--	--	--	--	10000	11000

Date	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	SELE-NIUM, DIS-SOLVED (µG/L AS SE) (01145)	SELE-NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
NOV										
13...	<40	<40	1400	1400	53	51	<100	<100	100	96
29...	--	--	1700	1700	--	--	--	--	--	--
DEC										
10...	--	--	2000	2000	--	--	--	--	--	--
JAN										
30...	--	--	1900	1900	--	--	--	--	--	--
MAR										
26...	--	--	1900	2000	--	--	--	--	--	--
MAY										
28...	--	--	1700	1700	--	--	--	--	--	--
JUL										
30...	--	--	1500	1500	--	--	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157154972 -- NW Trib to Swatara Cr, Site A3, near Newtown, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µ) (00095)
NOV										
29...	1130	1028	9813	.44	300	11	96	5.7	6.6	235
JAN										
30...	1130	1028	9813	.41	370	11	95	6.4	6.6	288
MAR										
26...	1315	1028	9813	1.5	360	12	94	6.4	6.3	295
MAY										
28...	1400	1028	9813	.92	200	10	98	6.5	6.1	287
JUL										
30...	1215	1028	9813	.22	140	8.9	92	6.4	6.4	280

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
29...	9.90	22	22	7.5	7.3	14	14	.00	20	17
JAN										
30...	8.90	23	25	7.7	8.7	13	13	.00	20	15
MAR										
26...	6.60	25	26	9.0	9.1	15	15	30	22	17
MAY										
28...	13.0	20	21	8.9	8.8	15	15	91	15	20
JUL										
30...	17.0	22	24	8.4	8.6	15	16	30	19	19

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
NOV								
29...	68	<2.0	<200	<200	1200	2900	1100	1100
JAN								
30...	81	6.0	<200	500	2200	4900	1200	1300
MAR								
26...	84	16	<200	400	5200	7800	1500	1500
MAY								
28...	83	8.0	<200	200	4200	6200	1400	1400
JUL								
30...	80	6.0	<200	<200	350	2500	970	1000

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157154960 -- Swatara Creek, ab NW Trib, Site B0, nr Newtown, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
29...	1115	1028	9813	1.6	520	11	96	4.0	4.2	92.0
JAN										
30...	1115	1028	9813	1.1	520	12	96	4.2	4.4	93.0
MAR										
26...	1300	1028	9813	2.0	540	12	95	4.4	4.4	88.0
MAY										
28...	1345	1028	9813	2.3	580	10	97	4.2	4.4	81.0
JUL										
30...	1200	1028	9813	.18	210	8.8	96	4.2	4.3	91.0

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
29...	9.10	1.2	1.2	1.1	1.1	8.9	9.1	49	.00	15
JAN										
30...	6.20	1.2	1.1	1.2	1.1	8.2	8.1	37	.00	14
MAR										
26...	4.20	1.3	1.3	1.2	1.1	7.4	7.2	35	.00	12
MAY										
28...	13.5	1.0	1.0	1.0	1.0	5.5	5.4	67	.00	9.0
JUL										
30...	20.5	1.2	1.1	1.4	1.3	6.5	6.5	41	.00	12

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
NOV								
29...	11	<2.0	800	900	220	280	240	240
JAN								
30...	15	<2.0	880	900	160	160	200	200
MAR								
26...	15	2.0	990	900	160	460	200	200
MAY								
28...	15	<2.0	790	800	100	160	160	160
JUL								
30...	13	2.0	520	500	170	290	290	280

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157154984 -- Swatara Cr, bl NW Trib, Site B3, near Newtown, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
29...	1045	1028	9813	2.0	490	11	94	4.8	5.1	107
JAN										
30...	1100	1028	9813	1.5	450	12	96	5.5	5.2	119
MAR										
26...	1215	1028	9813	3.5	460	12	95	6.0	5.7	123
MAY										
28...	1330	1028	9813	3.2	340	10	99	6.0	5.7	133
JUL										
30...	1130	1028	9813	.40	310	9.0	99	6.3	6.2	186

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
29...	9.20	5.8	5.9	2.7	2.5	10	10	52	1.0	16
JAN										
30...	6.70	6.3	6.5	3.0	2.9	8.9	8.4	47	3.0	15
MAR										
26...	4.60	7.1	7.2	3.2	3.1	8.9	9.1	34	3.0	13
MAY										
28...	14.0	6.4	6.6	3.4	3.4	8.0	8.3	63	4.0	13
JUL										
30...	20.5	15	16	5.7	6.1	12	13	30	8.0	17

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
NOV								
29...	22	10	290	600	280	770	440	430
JAN								
30...	26	<2.0	<200	800	510	1200	460	460
MAR								
26...	31	4.0	<200	800	1300	1900	530	530
MAY								
28...	38	2.0	<200	600	1200	2000	530	530
JUL								
30...	57	6.0	<200	<200	50	760	590	640

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403955076211801 -- Hegins Mine Discharge Site C0-1, at Newtown, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
29...	1015	1028	9813	.05	720	10	94	3.3	3.5	517
JAN										
14...	0930	1028	9813	.04	520	9.4	82	3.5	3.5	600
30...	1030	1028	9813	.02	550	11	92	3.5	3.6	583
MAR										
04...	1315	1028	9813	.13	560	9.3	82	3.5	--	524
26...	1130	1028	9813	.44	550	11	91	3.7	3.7	438
MAY										
28...	1300	1028	9813	.23	630	10	96	3.5	3.7	375
JUL										
30...	1100	1028	9813	.07	310	10	94	3.4	3.5	548

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
29...	9.60	11	11	41	41	5.7	5.7	100	.00	4.0
JAN										
14...	9.50	12	11	49	50	4.8	4.7	110	.00	3.8
30...	9.30	10	11	43	45	4.8	4.8	95	.00	4.1
MAR										
04...	9.55	11	10	45	45	5.7	5.6	--	.00	--
26...	6.70	8.6	8.5	30	28	4.5	4.4	79	.00	4.3
MAY										
28...	11.5	6.3	6.9	24	24	4.0	4.3	110	.00	3.9
JUL										
30...	11.0	10	10	35	38	7.4	7.7	93	.00	5.1

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
NOV								
29...	240	<2.0	6400	6400	190	180	2400	2400
JAN								
14...	290	<2.0	6400	6300	240	400	2500	2400
30...	260	<2.0	6000	5900	170	170	2300	2300
MAR								
04...	--	--	6100	6000	280	300	2100	2100
26...	190	4.0	4500	4400	110	110	1600	1600
MAY								
28...	160	<2.0	3300	3500	80	90	1100	1200
JUL								
30...	230	2.0	5800	6000	170	180	1800	1900

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403955076211802 -- Hegins Mine Discharge, Treated, at Newtown, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
29...	1000	1028	9813	.05	560	11	92	4.7	4.6	431
JAN										
14...	0915	1028	9813	.04	490	11	94	4.6	4.5	501
30...	1015	1028	9813	.06	500	11	93	4.6	4.5	501
MAR										
04...	1300	1028	9813	.13	490	11	95	4.4	--	436
26...	1115	1028	9813	.39	510	11	94	4.4	4.3	470
MAY										
28...	1245	1028	9813	.23	590	11	100	4.2	4.3	422
JUL										
30...	1045	1028	9813	.07	360	10	76	4.6	4.5	460

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
29...	9.50	20	20	40	41	5.7	5.7	71	.00	4.1
JAN										
14...	8.10	20	21	49	50	4.8	4.8	71	.00	3.8
30...	9.10	16	18	41	45	4.6	5.0	73	.00	4.0
MAR										
04...	7.90	19	20	45	46	5.6	5.6	--	.00	--
26...	9.50	17	17	39	39	6.3	6.2	89	.00	6.2
MAY										
28...	10.5	14	14	35	35	6.0	6.0	98	.00	6.3
JUL										
30...	12.5	18	19	36	37	7.3	7.6	53	.00	5.2

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
NOV								
29...	240	<2.0	4900	5100	70	80	2100	2100
JAN								
14...	270	<2.0	5900	5900	110	90	2300	2300
30...	260	<2.0	5200	5700	90	100	2000	2200
MAR								
04...	--	--	5700	5700	110	120	2000	2000
26...	250	8.0	6000	6100	340	240	1800	1800
MAY								
28...	220	2.0	4400	4400	120	120	1300	1300
JUL								
30...	230	2.0	4700	5000	60	70	1700	1800

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157155012 -- Swatara Creek, Site C2, at Newtown, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
29...	0930	1028	9813	.06	400	10	93	5.8	5.5	134
JAN										
30...	0945	1028	9813	1.6	350	12	96	7.3	7.0	146
MAR										
26...	1030	1028	9813	1.7	450	12	95	5.8	6.0	164
MAY										
28...	1215	1028	9813	.39	430	10	99	5.4	4.4	165
JUL										
30...	1000	1028	9813	.43	390	8.4	92	5.6	5.5	260

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
29...	9.30	8.2	8.1	4.4	4.5	9.5	9.4	47	2.0	14
JAN										
30...	6.70	9.3	14	5.0	5.4	7.3	7.8	.00	12	11
MAR										
26...	4.70	9.9	12	7.2	7.1	7.3	7.2	37	6.0	9.8
MAY										
28...	14.0	8.8	9.2	7.2	7.2	7.0	7.0	68	.00	9.8
JUL										
30...	19.5	17	18	13	13	9.3	9.7	34	2.0	12

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
NOV								
29...	34	<2.0	<200	400	150	340	390	380
JAN								
30...	40	2.0	<200	800	140	890	380	420
MAR								
26...	52	10	370	1200	590	970	580	570
MAY								
28...	55	4.0	380	900	620	1100	540	540
JUL								
30...	91	12	<200	500	190	410	580	600

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157157010 -- Middle Creek, Site E5-1, near Newtown, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
29...	1400	1028	9813	.70	480	9.1	83	5.2	4.9	225
JAN										
30...	1400	1028	9813	1.4	440	10	86	5.3	5.2	222
MAR										
27...	1045	1028	9813	9.0	460	11	88	5.2	5.1	179

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
29...	11.0	12	12	14	14	11	11	50	2.0	17
JAN										
30...	7.80	9.1	8.8	11	10	12	12	40	3.0	19
MAR										
27...	7.10	8.1	8.1	8.5	8.5	11	11	58	3.0	16

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
NOV								
29...	79	<2.0	540	500	1100	1800	1000	1100
JAN								
30...	64	<2.0	470	700	2100	2900	780	760
MAR								
27...	55	32	390	1300	790	4800	600	610

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157158014 -- Coal Run, Site C6, near Tremont, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
29...	1345	1028	9813	2.1	240	11	99	6.3	6.5	251
JAN										
30...	1345	1028	9813	2.3	350	11	96	6.8	6.4	230
MAR										
27...	0945	1028	9813	5.9	410	12	99	6.2	5.8	157

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
29...	10.5	18	19	15	16	7.5	8.0	.00	18	13
JAN										
30...	9.60	15	15	12	12	7.0	7.1	30	22	11
MAR										
27...	7.20	9.0	9.2	7.5	7.7	5.8	5.9	50	4.0	8.5

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
NOV								
29...	87	<2.0	<200	<200	2300	2600	1200	1300
JAN								
30...	68	<2.0	<200	<200	1700	2000	990	1000
MAR								
27...	48	18	<200	500	480	1300	660	700

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571585 -- Coal Run below Wetland at Tremont, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
29...	1315	1028	9813	2.5	310	11	95	5.9	6.5	259
JAN										
30...	1330	1028	9813	2.4	410	11	98	6.6	6.4	269
MAR										
27...	0930	1028	9813	6.5	390	12	97	6.6	6.1	191

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
29...	10.5	20	20	15	16	7.1	7.4	.00	22	12
JAN										
30...	8.00	17	18	13	13	6.6	6.4	26	18	10
MAR										
27...	6.70	10	10	7.8	7.9	5.6	5.7	42	9.0	7.8

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
NOV								
29...	88	2.0	<200	<200	1500	1800	1200	1200
JAN								
30...	70	<2.0	<200	<200	1000	1200	930	920
MAR								
27...	53	14	<200	400	400	1200	660	700

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403825076242301 -- Colket Mine Tunnel, Site C7-219, at Donaldson, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
29...	1515	1028	9813	.23	280	6.6	61	5.8	6.0	384
JAN										
30...	1500	1028	9813	.05	320	11	97	6.6	6.1	232
MAR										
27...	1215	1028	9813	.34	420	7.0	63	5.8	6.0	417

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
29...	11.5	30	32	24	25	2.8	2.8	48	42	3.3
JAN										
30...	10.0	30	29	23	23	3.1	3.1	52	46	3.6
MAR										
27...	11.5	32	32	24	24	3.1	3.0	54	32	3.9

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
NOV								
29...	160	<2.0	<200	<200	25000	26000	1500	1500
JAN								
30...	170	<2.0	<200	<200	24000	24000	1500	1500
MAR								
27...	160	10	260	500	21000	22000	1700	1600

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157156010 -- Martin Run, Site C7, at Donaldson, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
29...	1500	1028	9813	.50	260	11	96	6.1	6.2	262
JAN										
30...	1445	1028	9813	.93	350	10	92	6.4	6.0	232
MAR										
27...	1200	1028	9813	3.6	440	12	99	5.9	5.4	163

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
29...	11.0	18	17	14	14	11	10	41	10	18
JAN										
30...	9.90	13	13	9.7	9.7	11	11	30	8.0	17
MAR										
27...	7.80	6.7	6.5	5.1	5.0	13	13	43	3.0	21

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
NOV								
29...	89	<2.0	<200	<200	7000	7500	1100	1100
JAN								
30...	65	<2.0	<200	200	3300	3700	690	680
MAR								
27...	35	10	<200	400	2000	2900	540	540

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157156012 -- Martin Run, Site C8, at Donaldson, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
29...	1445	1028	9813	--	260	11	96	5.9	6.2	260
JAN										
30...	1430	1028	9813	.60	320	11	97	6.6	6.2	232
MAR										
27...	1145	1028	9813	.31	440	12	99	6.0	5.7	163

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
29...	11.0	18	18	15	15	11	11	41	10	19
JAN										
30...	10.0	12	18	9.4	9.5	11	11	32	12	17
MAR										
27...	7.70	6.9	7.4	5.0	5.0	13	13	37	4.0	21

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
NOV								
29...	90	<2.0	<200	200	7700	7900	1100	1100
JAN								
30...	65	4.0	<200	300	5000	5600	820	810
MAR								
27...	35	18	<200	400	1900	3000	530	530

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157156014 -- Martin Run, Site C9, at Donaldson, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
29...	1430	1028	9813	.50	260	11	96	6.1	6.2	262
JAN										
30...	1415	1028	9813	.93	380	11	95	6.4	6.3	235
MAR										
27...	1115	1028	9813	3.9	430	12	98	6.0	5.5	163

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
29...	11.0	18	18	14	14	10	10	35	10	8.3
JAN										
30...	10.0	13	16	9.7	9.4	11	11	30	13	18
MAR										
27...	7.60	6.9	7.1	5.2	5.2	13	13	37	3.0	20

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
NOV								
29...	88	<2.0	<200	<200	6800	7100	1100	1100
JAN								
30...	65	2.0	<200	200	4500	5400	820	800
MAR								
27...	36	16	<200	400	1900	2800	540	550

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403745076271901 -- Tracy Airhole, Site E1-229, near Donaldson, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
29...	1530	1028	9813	1.2	260	.9	8	5.8	6.1	574
JAN										
30...	1515	1028	9813	1.8	330	1.9	17	6.0	6.0	562
MAR										
27...	1230	1028	9813	4.5	390	1.3	12	6.0	6.1	452

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
29...	11.0	43	43	43	46	6.5	6.9	17	74	11
JAN										
30...	11.0	39	39	39	39	6.7	6.5	6.2	58	11
MAR										
27...	11.0	31	31	30	30	8.4	8.2	10	46	15

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
NOV								
29...	240	4.0	<200	<200	24000	24000	3000	3100
JAN								
30...	210	4.0	<200	<200	20000	20000	2700	2600
MAR								
27...	140	12	<200	<200	11000	14000	2100	2100

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157156212 -- Tracy Airhole, Site E1-2, near Donaldson, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
29...	1600	1028	9813	1.2	230	9.5	87	6.2	6.4	542
JAN										
30...	1545	1028	9813	1.8	270	9.1	83	6.6	6.4	542
MAR										
27...	1315	1028	9813	4.5	370	8.2	74	6.4	6.3	438

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
29...	11.0	42	43	43	44	7.3	7.3	13	54	12
JAN										
30...	11.0	36	37	36	37	6.7	6.7	4.0	50	11
MAR										
27...	10.5	31	30	29	28	8.4	8.7	12	44	15

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
NOV								
29...	230	16	<200	<200	18000	19000	2900	2900
JAN								
30...	200	10	<200	<200	15000	17000	2500	2600
MAR								
27...	140	38	<200	<200	9100	17000	2000	2100

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157156520 -- Good Spring Cr ab Tracy Trib nr Donaldson, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
29...	1615	1028	9813	1.8	340	9.8	88	6.3	6.4	145
JAN										
30...	1600	1028	9813	1.3	330	11	88	6.8	6.3	171
MAR										
27...	1330	1028	9813	2.5	390	12	92	6.7	6.4	207

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
29...	9.80	12	12	5.4	5.3	6.9	6.8	15	12	11
JAN										
30...	6.50	13	13	5.7	5.7	7.2	7.3	12	12	3.1
MAR										
27...	5.10	17	18	5.8	5.7	10	10	13	15	18

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
NOV								
29...	37	<2.0	<200	<200	180	200	140	130
JAN								
30...	39	<2.0	<200	<200	150	140	100	90
MAR								
27...	46	<2.0	<200	300	120	260	220	230

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157156521 -- Good Spring Cr bl Tracy Trib nr Donaldson, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
29...	1545	1028	9813	3.1	240	10	90	6.2	6.4	338
JAN										
30...	1530	1028	9813	3.0	310	10	89	6.6	6.4	347
MAR										
27...	1300	1028	9813	6.4	390	11	89	6.5	6.3	310

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
29...	10.5	26	26	23	23	6.9	7.0	23	30	11
JAN										
30...	8.60	23	23	20	20	6.9	6.8	24	34	1.8
MAR										
27...	7.50	23	23	16	16	9.6	9.4	25	26	17

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
NOV								
29...	130	<2.0	<200	<200	7600	7900	1400	1400
JAN								
30...	110	<2.0	<200	<200	6600	6900	1200	1200
MAR								
27...	87	24	<200	<200	3900	6300	1000	1000

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571593 -- Good Spring Creek bl Middle Creek at Tremont, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
OCT										
01...	1545	1028	--	10	--	--	--	7.1	--	325
NOV										
29...	1230	1028	9813	8.8	340	11	97	5.8	6.5	262
JAN										
30...	1245	1028	9813	14	420	12	98	6.3	6.2	258
MAR										
27...	0845	1028	9813	12	410	12	99	6.4	6.2	186
MAY										
28...	1100	1028	9813	26	270	10	100	6.8	6.1	270
JUL										
30...	0930	1028	9813	4.3	350	8.8	96	6.8	7.0	390

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT										
01...	13.0	--	--	--	--	--	--	--	--	--
NOV										
29...	10.5	20	20	15	15	9.9	9.6	.00	10	14
JAN										
30...	8.20	17	17	12	13	11	11	38	10	17
MAR										
27...	5.70	12	12	7.2	7.4	9.5	9.6	42	8.0	15
MAY										
28...	13.5	19	19	17	18	7.9	7.7	52	11	12
JUL										
30...	19.5	30	31	24	24	8.6	8.5	.00	14	12

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
OCT								
01...	--	--	--	--	--	--	--	--
NOV								
29...	94	<2.0	<200	<200	480	520	930	950
JAN								
30...	76	18	<200	<200	640	940	760	740
MAR								
27...	47	20	<200	600	460	1600	580	620
MAY								
28...	96	2.0	<200	400	540	1500	800	830
JUL								
30...	150	4.0	<200	<200	30	160	700	700

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571552 -- Swatara Creek at Tremont, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
29...	0745	1028	9813	6.1	400	11	100	5.5	6.3	174
JAN										
30...	0845	1028	9813	12	410	12	97	6.6	6.3	167
MAR										
26...	0945	1028	9813	18	440	12	96	6.8	6.1	144
MAY										
28...	0930	1028	9813	11	350	9.8	99	6.4	6.0	171
JUL										
30...	0915	1028	9813	3.9	350	8.3	92	6.6	6.9	323

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
29...	9.90	15	15	7.6	7.7	6.9	6.8	19	9.0	9.3
JAN										
30...	5.60	13	13	6.5	6.5	5.5	5.5	34	9.0	7.8
MAR										
26...	4.50	10	10	6.1	6.2	4.8	4.8	42	7.0	6.7
MAY										
28...	15.5	13	14	7.7	7.9	5.1	6.8	46	7.0	6.4
JUL										
30...	20.5	27	29	14	15	10	10	.00	13	14

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)
NOV								
29...	58	<2.0	<200	<200	100	160	840	840
JAN								
30...	49	<2.0	<200	<200	200	250	750	740
MAR								
26...	44	6.0	<200	400	250	390	610	630
MAY								
28...	57	2.0	<200	200	60	290	620	640
JUL								
30...	97	12	<200	<200	20	70	220	240

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571773 -- Lorberry Cr Div Wells Outflow nr Lorberry, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
28...	1515	1028	930	1.3	--	--	--	--	--	--
JAN										
29...	1700	1028	930	1.6	260	9.6	88	6.5	5.9	328
MAR										
13...	1545	1028	930	2.4	400	11	97	6.4	6.2	286
APR										
23...	1430	1028	930	2.3	410	9.8	91	5.6	5.1	304
MAY										
29...	1515	1028	930	2.1	430	10	93	5.5	5.5	239
JUN										
19...	1515	1028	930	2.5	420	10	98	5.5	4.2	213
JUL										
31...	1445	1028	930	1.2	110	8.9	84	6.4	5.6	311
AUG										
19...	1415	1028	930	.82	--	9.6	90	5.5	4.2	311

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
28...	--	--	--	--	--	--	--	--	--	--
JAN										
29...	12.0	13	14	23	23	1.2	1.2	3.6	3.6	--
MAR										
13...	12.0	12	13	20	19	1.2	1.2	3.6	3.6	--
APR										
23...	12.0	14	15	23	22	1.2	1.3	3.9	3.5	13
MAY										
29...	12.0	11	11	20	20	1.1	1.1	3.2	3.1	8.2
JUN										
19...	12.5	15	16	24	23	1.3	1.3	3.1	3.0	26
JUL										
31...	12.5	12	12	22	21	1.1	1.2	3.7	3.6	18
AUG										
19...	13.0	14	13	22	21	1.2	1.2	3.8	3.6	17

Date	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV										
28...	--	--	--	--	--	--	--	--	--	--
JAN										
29...	<5.0	130	<20	1100	<40	<40	29	32	<3.0	<3.0
MAR										
13...	<5.0	110	70	900	<40	<40	31	31	<3.0	<3.0
APR										
23...	<5.0	140	490	1300	<40	<40	29	29	<3.0	<3.0
MAY										
29...	--	110	300	950	<40	<40	26	26	<3.0	<3.0
JUN										
19...	--	150	320	1200	<40	<40	29	29	<3.0	<3.0
JUL										
31...	--	120	<20	1100	<40	<40	29	29	<3.0	<3.0
AUG										
19...	--	130	<20	690	<40	<40	29	29	<3.0	<3.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571773 -- Lorberry Cr Div Wells Outflow nr Lorberry, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)
NOV										
28...	--	--	--	--	--	--	--	--	--	--
JAN										
29...	<3.0	<3.0	40	40	<3.0	<3.0	10000	11000	<40	<40
MAR										
13...	<3.0	<3.0	38	38	<3.0	<3.0	10000	11000	<40	<40
APR										
23...	<3.0	<3.0	59	58	<3.0	<3.0	5900	8000	<40	<40
MAY										
29...	<3.0	<3.0	51	49	<3.0	<3.0	5400	7400	<40	<40
JUN										
19...	3.0	<3.0	58	58	<3.0	<3.0	6000	7500	<40	<40
JUL										
31...	<3.0	<3.0	40	39	<3.0	<3.0	10000	13000	<40	<40
AUG										
19...	7.0	3.0	45	44	<3.0	<3.0	9500	10000	<40	<40

Date	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	SELE-NIUM, DIS-SOLVED (µG/L AS SE) (01145)	SELE-NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
NOV								
28...	--	--	--	--	--	--	--	--
JAN								
29...	2000	2000	59	58	<100	<100	94	140
MAR								
13...	1900	1900	52	52	<100	<100	80	90
APR								
23...	2100	2000	90	87	<100	<100	200	200
MAY								
29...	1800	1700	70	68	<100	<100	150	150
JUN								
19...	2100	2000	97	84	<100	<100	210	210
JUL								
31...	1900	1900	52	53	<100	<100	80	87
AUG								
19...	2100	2000	71	67	<100	<100	110	110

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571774 -- Lorberry Creek, Site E2-0, at Lorberry, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
JAN										
29...	1430	1028	930	1.0	210	9.7	90	6.7	6.5	312
MAR										
13...	1500	1028	930	1.0	210	11	99	6.7	6.3	281
APR										
23...	1415	1028	930	4.0	320	10	95	6.5	6.0	271
MAY										
29...	1500	1028	930	4.8	370	10	96	6.0	5.5	266
JUN										
19...	1500	1028	930	1.5	360	10	99	5.9	4.4	317
JUL										
31...	1430	1028	930	1.2	95	7.8	82	6.4	6.9	226
AUG										
19...	1400	1028	930	.26	340	8.8	88	5.5	5.2	301

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
JAN										
29...	11.5	14	15	22	21	1.2	1.2	5.9	5.7	--
MAR										
13...	11.0	12	13	19	18	1.1	1.2	3.7	3.7	--
APR										
23...	12.0	11	12	20	19	1.1	1.2	3.9	3.6	--
MAY										
29...	12.5	10	10	19	19	1.1	1.1	3.3	3.1	11
JUN										
19...	13.0	16	16	24	23	1.3	1.3	3.3	3.2	17
JUL										
31...	17.5	16	16	13	12	.92	.9	2.5	2.4	--
AUG										
19...	15.5	19	19	21	20	1.2	1.2	3.1	3.0	8.5

Date	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
JAN										
29...	8.2	120	<20	4600	<40	<40	26	36	<3.0	<3.0
MAR										
13...	5.2	100	30	750	<40	<40	29	29	<3.0	<3.0
APR										
23...	<5.0	110	40	1100	<40	<40	28	28	<3.0	<3.0
MAY										
29...	--	110	50	980	<40	<40	25	25	<3.0	<3.0
JUN										
19...	--	150	40	1100	<40	<40	28	29	<3.0	<3.0
JUL										
31...	18	78	<20	460	<40	<40	16	16	<3.0	<3.0
AUG										
19...	--	130	<20	500	<40	<40	24	24	<3.0	<3.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571774 -- Lorberry Creek, Site E2-0, at Lorberry, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)
JAN										
29...	<3.0	<3.0	34	42	<3.0	<3.0	6300	28000	<40	<40
MAR										
13...	<3.0	<3.0	34	33	<3.0	<3.0	8300	8600	<40	<40
APR										
23...	<3.0	<3.0	44	44	<3.0	<3.0	6000	7700	<40	<40
MAY										
29...	<3.0	<3.0	45	46	<3.0	<3.0	4800	6700	<40	<40
JUN										
19...	<3.0	<3.0	56	55	<3.0	<3.0	5500	7000	<40	<40
JUL										
31...	<3.0	<3.0	7.0	7.0	<3.0	<3.0	390	2000	<40	<40
AUG										
19...	<3.0	<3.0	37	35	<3.0	<3.0	2500	3500	<40	<40

Date	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	SELE-NIUM, DIS-SOLVED (µG/L AS SE) (01145)	SELE-NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
JAN								
29...	1700	2000	51	60	<100	<100	67	180
MAR								
13...	1800	1700	48	48	<100	<100	71	79
APR								
23...	1800	1700	63	63	<100	<100	130	140
MAY								
29...	1600	1600	67	71	<100	<100	150	150
JUN								
19...	2000	2000	85	87	<100	<100	200	200
JUL								
31...	440	440	19	17	<100	<100	23	43
AUG								
19...	1400	1400	59	58	<100	<100	140	140

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571776 -- Stumps Run at Lorberry, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
28...	1315	1028	930	.13	470	9.5	85	5.1	6.0	51.0
DEC										
18...	1405	1028	930	1.0	430	12	97	5.4	6.1	51.0
JAN										
08...	1325	1028	930	.11	530	12	86	5.6	6.1	47.0
29...	1415	1028	930	.34	410	11	94	5.8	6.1	48.0
MAR										
13...	1445	1028	930	.68	380	12	97	6.0	6.0	42.0
APR										
23...	1400	1028	930	1.1	390	9.9	92	6.2	6.3	46.0
MAY										
29...	1445	1028	930	1.3	420	9.7	95	5.8	8.4	52.0
JUN										
19...	1445	1028	930	.90	450	9.7	96	5.9	6.3	40.0
JUL										
31...	1415	1028	930	.50	110	7.7	81	6.2	6.3	20.0
AUG										
19...	1345	1028	930	.14	380	8.4	87	6.0	6.3	18.0

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
28...	10.5	3.9	3.4	2.5	2.2	.77	.70	.91	.9	--
DEC										
18...	7.80	4.0	3.7	2.5	2.2	.59	.6	.8	.7	<5.0
JAN										
08...	2.40	3.2	3.1	2.3	2.1	.61	.5	1.0	.8	--
29...	7.00	3.6	3.4	2.2	2.1	.68	.60	.72	.6	--
MAR										
13...	5.60	3.0	2.9	2.1	2.0	.56	.60	.76	.7	--
APR										
23...	12.0	3.4	3.4	2.3	2.2	.67	.70	.7	.8	--
MAY										
29...	14.5	11	10	2.1	2.0	.90	.9	30	30	--
JUN										
19...	15.0	3.0	2.8	1.9	1.8	.55	.60	.87	.6	--
JUL										
31...	18.0	1.3	1.3	.95	.8	.25	.3	.83	.6	--
AUG										
19...	17.0	1.3	1.2	.90	.8	.31	.40	.96	.80	--

Date	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV										
28...	<5.0	19	50	30	<40	<40	18	18	<3.0	<3.0
DEC										
18...	--	19	30	80	<40	<40	21	21	<3.0	<3.0
JAN										
08...	<5.0	15	<20	<20	<40	<40	14	14	<3.0	<3.0
29...	<5.0	18	<20	30	<40	<40	15	18	<3.0	<3.0
MAR										
13...	<5.0	15	<20	30	<40	<40	14	15	<3.0	<3.0
APR										
23...	<5.0	17	<20	60	<40	<40	17	18	<3.0	<3.0
MAY										
29...	110	6.4	<20	60	<40	<40	64	65	50	48
JUN										
19...	<5.0	13	<20	120	<40	<40	14	14	<3.0	<3.0
JUL										
31...	5.7	2.8	<20	110	<40	<40	5.0	5.0	<3.0	<3.0
AUG										
19...	<5.0	2.6	<20	350	<40	<40	5.0	8.0	<3.0	<3.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571776 -- Stumps Run at Lorberry, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)
NOV										
28...	<3.0	<3.0	<3.0	<3.0	4.0	<3.0	680	30	<40	<40
DEC										
18...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	50	140	<40	<40
JAN										
08...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	30	20	<40	<40
29...	<3.0	<3.0	<3.0	<3.0	7.0	<3.0	330	80	<40	<40
MAR										
13...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	40	30	<40	<40
APR										
23...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	10	100	<40	<40
MAY										
29...	81	78	40	39	63	61	240	240	110	110
JUN										
19...	<3.0	<3.0	<3.0	<3.0	<3.0	4.0	10	90	<40	<40
JUL										
31...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	50	80	<40	<40
AUG										
19...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	30	700	<40	<40

Date	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	SELE-NIUM, DIS-SOLVED (µG/L AS SE) (01145)	SELE-NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
NOV								
28...	90	50	7.0	<5.0	<100	<100	30	27
DEC								
18...	100	110	6.0	7.0	<100	<100	41	40
JAN								
08...	30	20	6.0	<5.0	<100	<100	17	20
29...	60	50	<5.0	<5.0	<100	<100	40	53
MAR								
13...	50	50	<5.0	<5.0	<100	<100	15	19
APR								
23...	50	60	8.0	6.0	<100	<100	22	26
MAY								
29...	420	410	66	62	<100	<100	47	48
JUN								
19...	20	30	<5.0	<5.0	<100	<100	10	79
JUL								
31...	30	20	<5.0	<5.0	<100	<100	<3.0	21
AUG								
19...	20	110	<5.0	<5.0	<100	<100	5.0	13

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177610 -- Lorberry Creek Wetlands Inflow at Lorberry, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
28...	1430	1028	930	1.3	620	9.8	93	3.8	3.9	470
DEC										
18...	1350	1028	930	1.5	420	11	100	5.2	4.2	397
JAN										
08...	1320	1028	930	1.5	420	11	99	5.6	4.8	357
29...	1500	1028	930	1.6	290	10	96	6.3	5.8	330
MAR										
13...	1430	1028	930	1.3	300	12	97	6.3	5.9	295
APR										
23...	1340	1028	930	2.2	370	10	94	6.2	6.2	283
MAY										
29...	1140	1028	930	1.8	430	11	101	5.5	5.4	273
JUN										
19...	1435	1028	930	2.2	420	11	104	5.4	4.3	326
JUL										
31...	1400	1028	930	1.2	110	10	97	6.4	5.5	313
AUG										
19...	1335	1028	930	.82	390	10	99	4.5	3.8	369

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
28...	12.5	23	22	33	31	1.6	1.6	3.6	3.5	9.2
DEC										
18...	12.0	21	20	33	31	1.5	1.5	4.0	3.9	13
JAN										
08...	12.0	18	18	25	24	1.5	1.4	3.7	3.6	<5.0
29...	12.0	14	14	24	23	1.2	1.2	3.7	3.5	--
MAR										
13...	12.0	13	13	20	19	1.2	1.1	3.5	3.5	--
APR										
23...	12.5	12	13	21	19	1.2	1.2	4.1	3.6	--
MAY										
29...	12.0	11	11	20	19	1.1	1.1	3.3	3.1	6.9
JUN										
19...	13.0	16	16	25	24	1.3	1.3	3.3	3.0	20
JUL										
31...	13.5	13	12	23	21	1.2	1.2	3.9	3.7	18
AUG										
19...	13.5	18	18	26	25	1.4	1.4	3.2	3.2	29

Date	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV										
28...	--	210	1400	1600	<40	<40	31	31	<3.0	<3.0
DEC										
18...	--	200	1200	1900	<40	<40	29	29	<3.0	<3.0
JAN										
08...	--	160	140	1400	<40	<40	33	33	<3.0	<3.0
29...	<5.0	130	<20	1300	<40	<40	30	31	<3.0	<3.0
MAR										
13...	7.5	110	30	870	<40	<40	30	31	<3.0	<3.0
APR										
23...	<5.0	120	170	1000	<40	<40	28	28	<3.0	<3.0
MAY										
29...	--	110	340	960	<40	<40	26	26	<3.0	<3.0
JUN										
19...	--	150	340	1300	<40	<40	29	29	<3.0	<3.0
JUL										
31...	--	120	20	840	<40	<40	29	29	<3.0	<3.0
AUG										
19...	--	170	770	1000	<40	<40	29	30	<3.0	<3.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177610 -- Lorberry Creek Wetlands Inflow at Lorberry, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)
NOV										
28...	<3.0	<3.0	68	67	<3.0	<3.0	4600	5000	<40	<40
DEC										
18...	<3.0	<3.0	77	74	<3.0	<3.0	6400	9400	<40	<40
JAN										
08...	<3.0	<3.0	64	63	<3.0	<3.0	7300	9900	<40	<40
29...	<3.0	<3.0	42	41	<3.0	<3.0	10000	13000	<40	<40
MAR										
13...	<3.0	<3.0	39	38	<3.0	<3.0	10000	11000	<40	<40
APR										
23...	<3.0	<3.0	46	45	<3.0	<3.0	6500	8000	<40	<40
MAY										
29...	<3.0	<3.0	51	48	<3.0	<3.0	5400	7300	<40	<40
JUN										
19...	<3.0	<3.0	60	58	<3.0	<3.0	6000	7500	<40	<40
JUL										
31...	<3.0	<3.0	40	38	<3.0	<3.0	10000	10000	<40	<40
AUG										
19...	<3.0	<3.0	63	62	<3.0	<3.0	5600	6700	<40	<40

Date	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	SELE-NIUM, DIS-SOLVED (µG/L AS SE) (01145)	SELE-NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
NOV								
28...	2500	2400	110	100	<100	<100	270	250
DEC								
18...	2800	2700	120	110	<100	<100	290	280
JAN								
08...	2300	2300	92	91	<100	<100	230	220
29...	2000	2000	61	58	<100	<100	100	110
MAR								
13...	2000	1900	56	51	<100	<100	150	87
APR								
23...	1900	1800	67	65	<100	<100	140	130
MAY								
29...	1800	1700	72	66	<100	<100	150	150
JUN								
19...	2100	2000	85	84	<100	<100	210	210
JUL								
31...	2000	1900	57	55	<100	<100	86	88
AUG								
19...	2300	2300	95	93	<100	<100	230	220

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177612 -- Lorberry Cr Wetlands Cell 1 Outflow at Lorberry, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
28...	1420	1028	930	1.1	590	9.7	93	3.9	3.9	475
DEC										
18...	1340	1028	930	1.6	230	11	100	6.4	5.4	322
JAN										
08...	1310	1028	930	1.4	420	10	94	5.6	4.7	360
29...	1630	1028	930	1.4	300	9.9	93	6.4	5.4	346
MAR										
13...	1525	1028	930	1.6	390	11	100	6.5	--	296
APR										
23...	1330	1028	930	1.3	330	10	100	6.4	6.5	286
MAY										
29...	1430	1028	930	1.5	440	11	104	5.3	4.9	279
JUN										
19...	1425	1028	930	1.4	430	11	109	5.2	4.2	331
JUL										
31...	1350	1028	930	1.2	100	9.5	97	6.4	5.7	311
AUG										
19...	1325	1028	930	1.2	380	10	105	4.7	4.2	375

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
28...	13.0	24	22	34	32	1.6	1.6	3.8	3.7	11
DEC										
18...	11.5	14	13	24	24	1.2	1.3	3.7	3.7	5.9
JAN										
08...	11.0	18	18	25	24	1.4	1.4	3.7	3.5	<5.0
29...	13.0	16	15	25	24	1.3	1.3	3.6	3.5	14
MAR										
13...	11.5	--	--	--	--	--	--	--	--	--
APR										
23...	14.5	13	13	21	20	1.2	1.2	4.5	3.5	--
MAY										
29...	14.0	13	12	21	20	1.1	1.2	3.1	3.0	11
JUN										
19...	16.0	16	16	25	24	1.3	1.3	3.3	3.1	23
JUL										
31...	16.5	13	12	22	21	1.1	1.2	3.7	3.5	18
AUG										
19...	16.0	22	21	27	26	1.5	1.4	3.9	3.6	22

Date	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV										
28...	--	220	1700	1800	<40	<40	30	31	<3.0	<3.0
DEC										
18...	--	130	<20	1100	<40	<40	29	29	<3.0	<3.0
JAN										
08...	--	160	100	1000	<40	<40	32	32	<3.0	<3.0
29...	--	150	<20	1100	<40	<40	30	31	<3.0	<3.0
MAR										
13...	--	--	--	--	--	--	--	--	--	--
APR										
23...	<5.0	120	<20	1000	<40	<40	28	28	<3.0	<3.0
MAY										
29...	--	120	230	1100	<40	<40	26	26	<3.0	<3.0
JUN										
19...	--	150	230	1100	<40	<40	29	29	<3.0	<3.0
JUL										
31...	--	120	<20	810	<40	<40	29	29	<3.0	<3.0
AUG										
19...	--	170	340	980	<40	<40	30	30	<3.0	<3.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177612 -- Lorberry Cr Wetlands Cell 1 Outflow at Lorberry, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)
NOV										
28...	<3.0	<3.0	71	69	<3.0	<3.0	4100	5000	<40	<40
DEC										
18...	<3.0	<3.0	43	42	<3.0	<3.0	9300	9700	<40	<40
JAN										
08...	<3.0	<3.0	64	62	<3.0	<3.0	7100	8400	<40	<40
29...	<3.0	<3.0	49	48	<3.0	<3.0	8700	10000	<40	<40
MAR										
13...	--	--	--	--	--	--	--	--	--	--
APR										
23...	<3.0	<3.0	47	45	<3.0	<3.0	5800	7600	<40	<40
MAY										
29...	<3.0	<3.0	56	54	<3.0	<3.0	4500	6800	<40	<40
JUN										
19...	<3.0	<3.0	63	61	<3.0	<3.0	5400	7200	<40	<40
JUL										
31...	<3.0	<3.0	39	38	<3.0	<3.0	9300	9900	<40	<40
AUG										
19...	<3.0	<3.0	68	64	<3.0	<3.0	5100	6400	<40	<40

Date	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	SELE-NIUM, DIS-SOLVED (µG/L AS SE) (01145)	SELE-NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
NOV								
28...	2600	2500	110	110	<100	<100	280	250
DEC								
18...	2000	2000	62	62	<100	<100	180	160
JAN								
08...	2400	2300	96	92	<100	<100	240	220
29...	2100	2100	71	69	<100	<100	150	150
MAR								
13...	--	--	--	--	--	--	--	--
APR								
23...	1900	1800	65	64	<100	<100	150	130
MAY								
29...	1800	1800	80	76	<100	<100	180	170
JUN								
19...	2100	2100	93	92	<100	<100	230	220
JUL								
31...	1900	1900	55	53	<100	<100	84	83
AUG								
19...	2400	2300	98	96	<100	<100	240	240

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177614 -- Lorberry Cr Wetlands Cell 2 Outflow at Lorberry,PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
28...	1410	1028	930	.94	590	9.6	93	3.9	4.0	475
DEC										
18...	1320	1028	930	1.4	220	11	96	6.5	5.5	319
JAN										
08...	1300	1028	930	1.3	410	11	94	5.7	4.8	362
29...	1615	1028	930	1.3	290	9.7	93	6.4	5.3	348
MAR										
13...	1520	1028	930	1.6	320	11	100	6.6	--	295
APR										
23...	1320	1028	930	1.3	300	10	102	6.5	6.2	285
MAY										
29...	1405	1028	930	1.4	430	10	108	5.2	4.9	293
JUN										
19...	1415	1028	930	1.3	420	10	112	5.3	4.2	320
JUL										
31...	1330	1028	930	1.2	120	10	113	6.4	5.6	313
AUG										
19...	1305	1028	930	1.3	380	10	110	5.1	4.1	379

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
28...	13.5	24	23	34	32	1.5	1.6	3.8	3.7	9.0
DEC										
18...	11.0	14	13	24	23	1.2	1.3	3.7	3.7	<5.0
JAN										
08...	10.5	18	18	26	25	1.4	1.4	3.8	3.6	<5.0
29...	13.0	16	17	25	25	1.3	1.4	3.5	3.6	18
MAR										
13...	11.0	--	--	--	--	--	--	--	--	--
APR										
23...	15.0	13	13	20	20	1.2	1.2	3.8	3.6	--
MAY										
29...	17.5	13	13	21	20	1.2	1.2	3.0	3.0	13
JUN										
19...	20.0	16	16	25	24	1.3	1.3	3.3	3.1	22
JUL										
31...	21.0	13	12	22	20	1.3	1.1	3.7	3.4	18
AUG										
19...	18.5	21	21	27	26	1.4	1.5	3.9	3.7	22

Date	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV										
28...	--	220	1800	1800	<40	<40	30	30	<3.0	<3.0
DEC										
18...	--	130	<20	1000	<40	<40	29	29	<3.0	<3.0
JAN										
08...	--	160	90	990	<40	<40	32	32	<3.0	<3.0
29...	--	150	<20	1000	<40	<40	31	31	<3.0	<3.0
MAR										
13...	--	--	--	--	--	--	--	--	--	--
APR										
23...	<5.0	120	<20	950	<40	<40	29	28	<3.0	<3.0
MAY										
29...	--	130	250	1100	<40	<40	26	26	<3.0	<3.0
JUN										
19...	--	150	180	1100	<40	<40	29	28	<3.0	<3.0
JUL										
31...	--	120	<20	760	<40	<40	29	29	<3.0	<3.0
AUG										
19...	--	170	330	890	<40	<40	30	30	<3.0	<3.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177614 -- Lorberry Cr Wetlands Cell 2 Outflow at Lorberry,PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)
NOV										
28...	<3.0	<3.0	70	69	<3.0	<3.0	3800	4900	<40	<40
DEC										
18...	<3.0	<3.0	44	41	<3.0	<3.0	8800	9400	<40	<40
JAN										
08...	<3.0	<3.0	64	64	<3.0	<3.0	6900	8300	<40	<40
29...	<3.0	<3.0	51	53	<3.0	<3.0	7900	8900	<40	<40
MAR										
13...	--	--	--	--	--	--	--	--	--	--
APR										
23...	<3.0	<3.0	45	46	<3.0	<3.0	5300	7300	<40	<40
MAY										
29...	<3.0	<3.0	57	55	<3.0	<3.0	4200	6200	<40	<40
JUN										
19...	<3.0	<3.0	62	61	<3.0	<3.0	5400	7200	<40	<40
JUL										
31...	<3.0	<3.0	40	37	<3.0	<3.0	8500	9200	<40	<40
AUG										
19...	<3.0	<3.0	68	67	<3.0	<3.0	4800	6000	<40	<40

Date	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	SELE-NIUM, DIS-SOLVED (µG/L AS SE) (01145)	SELE-NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
NOV								
28...	2600	2500	110	110	<100	<100	270	260
DEC								
18...	2000	1900	61	58	<100	<100	98	100
JAN								
08...	2400	2300	96	94	<100	<100	230	230
29...	2200	2200	76	76	<100	<100	160	180
MAR								
13...	--	--	--	--	--	--	--	--
APR								
23...	1800	1800	64	65	<100	<100	120	130
MAY								
29...	1800	1800	82	79	<100	<100	200	190
JUN								
19...	2100	2100	91	89	<100	<100	220	220
JUL								
31...	1900	1900	58	52	<100	<100	80	86
AUG								
19...	2400	2400	100	99	<100	<100	240	240

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177616 -- Lorberry Cr Wetlands Cell 3 Outflow at Lorberry, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
28...	1400	1028	930	1.1	580	9.6	94	4.0	4.0	476
DEC										
18...	1310	1028	930	1.6	210	11	100	6.6	5.5	319
JAN										
08...	1250	1028	930	1.4	410	11	95	5.7	4.8	362
29...	1600	1028	930	1.6	300	9.9	95	6.3	5.3	355
MAR										
13...	1515	1028	930	1.8	380	11	99	6.6	--	294
APR										
23...	1310	1028	930	1.2	270	10	102	6.6	6.3	285
MAY										
29...	1355	1028	930	1.5	420	10	108	5.2	4.9	292
JUN										
19...	1355	1028	930	1.4	410	10	113	5.3	4.2	332
JUL										
31...	1320	1028	930	1.8	120	9.3	106	6.5	5.7	314
AUG										
19...	1255	1028	930	1.5	370	9.9	108	5.1	4.1	379

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
28...	14.0	24	23	35	33	1.7	1.6	3.9	3.8	8.9
DEC										
18...	11.0	14	14	24	23	1.2	1.2	3.7	3.7	<5.0
JAN										
08...	9.40	18	18	26	25	1.4	1.4	3.8	3.6	<5.0
29...	13.5	17	17	26	25	1.3	1.3	3.6	3.5	16
MAR										
13...	11.0	--	--	--	--	--	--	--	--	--
APR										
23...	16.0	13	13	21	20	1.2	1.2	3.7	3.6	--
MAY										
29...	18.0	13	12	21	20	1.2	1.2	3.1	3.0	13
JUN										
19...	21.0	16	16	25	23	1.3	1.3	3.2	3.1	22
JUL										
31...	21.5	13	12	22	20	1.1	1.1	3.6	3.3	18
AUG										
19...	19.5	21	21	27	26	1.5	1.5	3.8	3.7	22

Date	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV										
28...	--	220	1800	1900	<40	<40	30	30	<3.0	<3.0
DEC										
18...	--	130	<20	990	<40	<40	29	29	<3.0	<3.0
JAN										
08...	--	160	60	1000	<40	<40	32	32	<3.0	<3.0
29...	--	160	<20	1000	<40	<40	31	31	<3.0	<3.0
MAR										
13...	--	--	--	--	--	--	--	--	--	--
APR										
23...	<5.0	120	<20	940	<40	<40	27	28	<3.0	<3.0
MAY										
29...	--	130	230	950	<40	<40	26	26	<3.0	<3.0
JUN										
19...	--	150	160	1200	<40	<40	28	28	<3.0	<3.0
JUL										
31...	--	120	<20	750	<40	<40	29	29	<3.0	<3.0
AUG										
19...	--	170	340	900	<40	<40	30	30	<3.0	<3.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177616 -- Lorberry Cr Wetlands Cell 3 Outflow at Lorberry, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)
NOV										
28...	<3.0	<3.0	73	70	<3.0	<3.0	3800	4800	<40	<40
DEC										
18...	<3.0	<3.0	42	41	<3.0	<3.0	8400	9300	<40	<40
JAN										
08...	<3.0	<3.0	64	64	<3.0	<3.0	6800	8300	<40	<40
29...	<3.0	<3.0	54	53	<3.0	<3.0	7600	8800	<40	<40
MAR										
13...	--	--	--	--	--	--	--	--	--	--
APR										
23...	<3.0	<3.0	47	44	<3.0	<3.0	5300	7200	<40	<40
MAY										
29...	<3.0	<3.0	58	54	<3.0	<3.0	4100	6000	<40	<40
JUN										
19...	<3.0	<3.0	63	60	<3.0	<3.0	5200	6900	<40	<40
JUL										
31...	<3.0	<3.0	39	38	<3.0	<3.0	8300	9200	<40	<40
AUG										
19...	<3.0	<3.0	69	66	<3.0	<3.0	4800	6100	<40	<40

Date	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	SELE-NIUM, DIS-SOLVED (µG/L AS SE) (01145)	SELE-NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
NOV								
28...	2600	2500	120	110	<100	<100	280	260
DEC								
18...	2000	1900	59	60	<100	<100	98	100
JAN								
08...	2400	2400	95	95	<100	<100	230	230
29...	2200	2200	78	79	<100	<100	180	170
MAR								
13...	--	--	--	--	--	--	--	--
APR								
23...	1900	1800	68	65	<100	<100	120	130
MAY								
29...	1800	1800	82	83	<100	<100	200	190
JUN								
19...	2100	2000	90	87	<100	<100	220	220
JUL								
31...	1900	1900	56	52	<100	<100	80	85
AUG								
19...	2400	2400	100	97	<100	<100	240	240

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177618 -- Lorberry Cr Wetlands Cell 4 Outflow at Lorberry, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
28...	1340	1028	930	1.4	560	9.6	94	4.1	4.0	475
DEC										
18...	1240	1028	930	1.7	210	11	100	6.6	5.5	319
JAN										
08...	1230	1028	930	1.6	410	11	93	5.8	4.7	363
29...	1530	1028	930	1.9	290	9.9	96	6.4	5.1	361
MAR										
13...	1345	1028	930	2.1	220	10	98	6.7	6.3	293
APR										
23...	1300	1028	930	1.6	290	10	101	6.5	6.3	285
MAY										
29...	1345	1028	930	1.6	420	9.9	106	5.3	4.9	293
JUN										
19...	1345	1028	930	1.6	400	9.7	112	5.3	4.2	334
JUL										
31...	1310	1028	930	2.2	120	8.7	102	6.5	5.7	312
AUG										
19...	1245	1028	930	2.2	350	9.4	105	5.0	4.1	378

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
28...	14.5	24	23	35	33	1.6	1.6	3.9	3.8	8.7
DEC										
18...	10.5	14	13	24	23	1.2	1.2	3.7	3.6	<5.0
JAN										
08...	9.00	18	18	26	25	1.4	1.4	3.8	3.6	<5.0
29...	14.0	18	17	26	24	1.3	1.4	3.5	3.5	20
MAR										
13...	11.0	14	13	20	19	1.2	1.1	3.5	3.4	--
APR										
23...	16.0	13	13	21	20	1.1	1.2	3.7	3.5	--
MAY										
29...	19.0	13	13	21	20	1.2	1.2	3.0	3.0	13
JUN										
19...	22.0	16	16	25	24	1.3	1.2	3.3	3.1	23
JUL										
31...	23.0	13	12	22	20	1.1	1.1	3.5	3.4	18
AUG										
19...	20.5	21	21	27	25	1.5	1.5	3.8	3.6	22

Date	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV										
28...	--	220	1900	1900	<40	<40	30	30	<3.0	<3.0
DEC										
18...	--	130	<20	990	<40	<40	29	29	<3.0	<3.0
JAN										
08...	--	160	60	1000	<40	<40	32	33	<3.0	<3.0
29...	--	160	<20	1000	<40	<40	31	32	<3.0	<3.0
MAR										
13...	6.2	110	<20	850	<40	<40	30	30	<3.0	<3.0
APR										
23...	<5.0	120	<20	940	<40	<40	27	28	<3.0	<3.0
MAY										
29...	--	130	120	960	<40	<40	26	26	<3.0	<3.0
JUN										
19...	--	150	120	1200	<40	<40	28	28	<3.0	<3.0
JUL										
31...	--	120	<20	700	<40	<40	29	29	<3.0	<3.0
AUG										
19...	--	170	290	850	<40	<40	30	30	<3.0	<3.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177618 -- Lorberry Cr Wetlands Cell 4 Outflow at Lorberry, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)
NOV										
28...	<3.0	<3.0	72	69	<3.0	<3.0	3600	4800	<40	<40
DEC										
18...	<3.0	<3.0	41	40	<3.0	<3.0	8300	9100	<40	<40
JAN										
08...	<3.0	<3.0	65	63	<3.0	<3.0	6800	8300	<40	<40
29...	<3.0	<3.0	56	54	<3.0	<3.0	7300	8400	<40	<40
MAR										
13...	<3.0	<3.0	39	37	<3.0	<3.0	8400	9600	<40	<40
APR										
23...	<3.0	<3.0	45	44	<3.0	<3.0	5000	7100	<40	<40
MAY										
29...	<3.0	<3.0	56	55	<3.0	<3.0	3900	6000	<40	<40
JUN										
19...	<3.0	<3.0	63	60	<3.0	<3.0	5000	7000	<40	<40
JUL										
31...	<3.0	<3.0	38	37	<3.0	<3.0	7500	8800	<40	<40
AUG										
19...	<3.0	<3.0	68	65	<3.0	<3.0	4600	5900	<40	<40

Date	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	SELE-NIUM, DIS-SOLVED (µG/L AS SE) (01145)	SELE-NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
NOV								
28...	2600	2500	120	110	<100	<100	290	260
DEC								
18...	2000	1900	60	58	<100	<100	98	96
JAN								
08...	2400	2300	95	96	<100	<100	240	230
29...	2200	2200	81	78	<100	<100	180	180
MAR								
13...	1900	1900	53	52	<100	<100	130	88
APR								
23...	1800	1800	64	65	<100	<100	120	130
MAY								
29...	1800	1800	79	80	<100	<100	190	190
JUN								
19...	2100	2100	92	89	<100	<100	230	230
JUL								
31...	1900	1900	55	52	<100	<100	77	84
AUG								
19...	2400	2300	100	97	<100	<100	240	240

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403524076262301 -- Piped Discharge near Cell 4, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
28...	1450	1028	930	<.01	510	6.5	58	4.7	5.7	29.0
DEC										
18...	1250	1028	930	.01	430	9.6	80	5.0	5.6	29.0
JAN										
08...	1240	1028	930	.01	520	9.4	73	5.4	5.7	29.0
29...	1545	1028	930	.01	390	9.8	77	5.7	5.7	23.0

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
28...	9.80	2.2	2.0	1.0	.93	.70	.7	.9	.7	--
DEC										
18...	7.60	2.0	1.9	.95	.92	.56	.8	.8	.7	<5.0
JAN										
08...	5.30	2.4	2.4	1.2	1.1	.45	.5	1.0	.8	--
29...	5.00	1.7	1.6	.93	1.0	.51	1.1	.58	.5	--

Date	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV										
28...	6.2	4.1	80	500	<40	<40	14	17	<3.0	<3.0
DEC										
18...	--	6.5	140	1200	<40	<40	19	27	<3.0	<3.0
JAN										
08...	7.4	4.3	70	650	<40	<40	8.0	12	<3.0	<3.0
29...	<5.0	4.9	560	3200	<40	<40	11	33	<3.0	<3.0

Date	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)
NOV										
28...	<3.0	<3.0	<3.0	<3.0	4.0	<3.0	260	510	<40	<40
DEC										
18...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	230	1300	<40	<40
JAN										
08...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	190	950	<40	<40
29...	<3.0	5.0	<3.0	<3.0	<3.0	<3.0	610	3600	<40	<40

Date	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	SELE-NIUM, DIS-SOLVED (µG/L AS SE) (01145)	SELE-NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
NOV								
28...	180	170	<5.0	<5.0	<100	<100	22	14
DEC								
18...	170	170	<5.0	<5.0	<100	<100	17	25
JAN								
08...	110	110	<5.0	<5.0	<100	<100	<3.0	<3.0
29...	150	160	<5.0	<5.0	<100	<100	41	44

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403530076262601 -- Piped Discharge near Cell 1, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
28...	1440	1028	930	<.01	530	9.1	82	4.9	6.0	52.0
DEC										
18...	1410	1028	930	<.01	440	11	98	5.5	5.9	52.0
JAN										
08...	1330	1028	930	<.01	530	10	86	5.3	5.8	49.0
29...	1445	1028	930	<.01	430	10	90	5.6	5.8	480

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
28...	10.5	3.5	3.3	2.2	2.0	.56	.6	.9	.8	--
DEC										
18...	8.70	3.3	3.2	2.4	2.4	.48	.9	.9	.9	<5.0
JAN										
08...	6.70	3.2	3.1	2.5	2.4	.44	.5	1.1	.9	--
29...	8.90	3.4	3.2	2.7	2.5	.46	.5	.89	.8	--

Date	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV										
28...	5.6	14	60	110	<40	<40	19	21	<3.0	<3.0
DEC										
18...	--	14	80	1800	<40	<40	18	27	<3.0	<3.0
JAN										
08...	5.7	13	50	70	<40	<40	14	14	<3.0	<3.0
29...	6.1	14	60	200	<40	<40	13	14	<3.0	<3.0

Date	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)
NOV										
28...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	20	100	<40	<40
DEC										
18...	<3.0	3.0	<3.0	3.0	<3.0	<3.0	120	1900	<40	<40
JAN										
08...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	20	20	<40	<40
29...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	290	470	<40	<40

Date	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	SELE-NIUM, DIS-SOLVED (µG/L AS SE) (01145)	SELE-NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
NOV								
28...	100	110	6.0	<5.0	<100	<100	16	17
DEC								
18...	140	240	<5.0	<5.0	<100	<100	15	19
JAN								
08...	100	100	<5.0	<5.0	<100	<100	<3.0	5.0
29...	110	110	<5.0	<5.0	<100	<100	25	15

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177620 -- Lorberry Creek below Wetlands at Lorberry, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
28...	1330	1028	930	4.7	590	9.5	91	4.1	4.1	430
DEC										
18...	1215	1028	930	2.9	230	11	100	6.6	6.2	272
JAN										
08...	1215	1028	930	4.2	400	11	98	5.8	4.8	355
29...	1515	1028	930	3.0	270	10	94	6.6	5.6	302
MAR										
13...	1330	1028	930	5.2	220	11	96	6.5	6.3	263
APR										
23...	1145	1028	930	8.4	290	10	96	6.3	6.3	249
MAY										
29...	1300	1028	930	7.3	340	10	97	5.8	5.5	258
JUN										
19...	1245	1028	930	4.8	370	10	100	5.7	4.3	305
JUL										
31...	1200	1028	930	1.6	120	8.6	97	6.4	5.7	295
AUG										
19...	1145	1028	930	2.5	380	9.4	98	5.2	4.1	361

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
28...	13.0	22	20	31	29	1.6	1.5	3.7	3.5	6.7
DEC										
18...	9.80	12	11	18	16	1.1	1.1	5.3	5.1	<5.0
JAN										
08...	9.00	19	18	26	25	1.4	1.4	3.6	3.5	<5.0
29...	12.0	15	14	21	20	1.1	1.2	3.6	3.4	--
MAR										
13...	10.0	13	12	18	17	1.1	1.1	3.3	3.2	--
APR										
23...	12.0	12	12	19	18	1.2	1.2	3.4	3.3	--
MAY										
29...	14.0	11	10	19	18	1.1	1.1	2.9	2.9	9.8
JUN										
19...	15.5	15	14	22	21	1.2	1.2	3.1	2.9	18
JUL										
31...	21.0	13	12	20	19	1.2	1.2	3.6	3.4	18
AUG										
19...	17.0	20	19	26	24	1.4	1.4	3.5	3.4	23

Date	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV										
28...	--	190	1600	1800	<40	<40	30	30	<3.0	<3.0
DEC										
18...	--	100	100	1100	<40	<40	27	27	<3.0	<3.0
JAN										
08...	--	160	40	1100	<40	<40	31	32	<3.0	<3.0
29...	<5.0	130	<20	2000	<40	<40	27	30	<3.0	<3.0
MAR										
13...	<5.0	100	<20	690	<40	<40	28	28	<3.0	<3.0
APR										
23...	<5.0	110	30	860	<40	<40	26	26	<3.0	<3.0
MAY										
29...	--	110	<20	870	<40	<40	25	26	<3.0	<3.0
JUN										
19...	--	140	50	1000	<40	<40	27	27	<3.0	<3.0
JUL										
31...	--	120	40	670	<40	<40	27	28	<3.0	<3.0
AUG										
19...	--	170	380	840	<40	<40	29	29	<3.0	4.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177620 -- Lorberry Creek below Wetlands at Lorberry, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)
NOV										
28...	<3.0	<3.0	63	59	5.0	<3.0	3200	4300	<40	<40
DEC										
18...	<3.0	<3.0	27	26	<3.0	<3.0	4600	6500	<40	<40
JAN										
08...	<3.0	<3.0	65	64	<3.0	<3.0	6700	8800	<40	<40
29...	<3.0	<3.0	41	43	<3.0	<3.0	5700	13000	<40	<40
MAR										
13...	<3.0	<3.0	33	31	<3.0	<3.0	8000	8000	<40	<40
APR										
23...	<3.0	4.0	40	41	<3.0	<3.0	5400	6600	<40	<40
MAY										
29...	<3.0	<3.0	44	43	<3.0	<3.0	4700	6000	<40	<40
JUN										
19...	<3.0	<3.0	53	52	<3.0	<3.0	4800	6400	<40	<40
JUL										
31...	<3.0	<3.0	38	35	<3.0	<3.0	7500	8000	<40	<40
AUG										
19...	<3.0	<3.0	64	62	<3.0	<3.0	5000	5800	<40	<40

Date	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	SELE-NIUM, DIS-SOLVED (µG/L AS SE) (01145)	SELE-NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
NOV								
28...	2300	2200	110	97	<100	<100	590	230
DEC								
18...	1400	1300	42	39	<100	<100	79	80
JAN								
08...	2400	2400	99	95	<100	<100	240	230
29...	1800	1800	61	63	<100	<100	130	150
MAR								
13...	1700	1600	47	44	<100	<100	71	76
APR								
23...	1600	1600	59	59	<100	<100	120	120
MAY								
29...	1600	1500	63	63	<100	<100	140	140
JUN								
19...	1900	1800	82	78	<100	<100	200	190
JUL								
31...	1800	1700	50	48	<100	<100	72	91
AUG								
19...	2300	2200	97	94	<100	<100	230	230

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403521076260601 -- Shadle Mine Shaft at Lorberry, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
28...	1245	1028	930	<.01	350	.5	5	3.9	3.2	1510
JAN										
29...	1400	1028	930	<.01	340	.6	6	3.7	3.2	1520
MAR										
13...	1315	1028	930	<.01	370	1.3	13	4.1	3.2	1510
APR										
23...	1115	1028	930	.01	390	6.3	60	4.1	3.3	1450
MAY										
29...	1215	1028	930	<.01	350	1.0	9	3.8	3.6	1570
JUL										
31...	1130	1028	930	<.01	130	.00	.000	4.0	3.0	1580
AUG										
19...	1115	1028	930	<.01	210	.00	.000	4.0	3.0	1540

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
28...	13.0	130	130	59	57	3.2	3.3	1.7	1.6	3800
JAN										
29...	13.0	130	130	58	56	3.3	3.4	1.6	1.6	380
MAR										
13...	12.5	130	120	58	56	3.4	3.4	1.7	1.7	400
APR										
23...	12.5	130	130	59	57	3.3	3.4	1.8	2.1	370
MAY										
29...	13.0	130	130	61	59	3.4	3.5	1.9	2.0	390
JUL										
31...	13.0	140	130	60	57	3.6	3.6	1.7	1.5	390
AUG										
19...	13.0	140	130	59	57	3.6	3.6	1.8	1.6	390

Date	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV									
28...	940	5100	5100	<40	<40	15	15	4.0	6.0
JAN									
29...	940	4600	4600	<40	<40	14	16	<3.0	<3.0
MAR									
13...	910	4400	4400	<40	<40	15	15	3.0	6.0
APR									
23...	920	3900	3900	<40	<40	16	16	6.0	7.0
MAY									
29...	950	4100	4100	<40	<40	15	15	8.0	10
JUL									
31...	960	5200	5300	<40	<40	16	17	<3.0	3.0
AUG									
19...	980	5300	5300	<40	<40	15	15	<3.0	<3.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403521076260601 -- Shadle Mine Shaft at Lorberry, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)
NOV										
28...	<3.0	<3.0	260	260	<3.0	<3.0	200000	200000	<40	<40
JAN										
29...	<3.0	<3.0	240	240	<3.0	<3.0	200000	200000	<40	<40
MAR										
13...	<3.0	<3.0	230	220	<3.0	<3.0	190000	190000	<40	<40
APR										
23...	<3.0	<3.0	220	210	<3.0	<3.0	190000	190000	<40	<40
MAY										
29...	<3.0	<3.0	230	220	<3.0	<3.0	200000	200000	<40	<40
JUL										
31...	<3.0	<3.0	260	250	<3.0	<3.0	210000	200000	<40	<40
AUG										
19...	<3.0	<3.0	260	250	<3.0	<3.0	200000	200000	<40	<40

Date	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	SELE-NIUM, DIS-SOLVED (µG/L AS SE) (01145)	SELE-NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
NOV								
28...	8800	8600	270	260	<100	<100	430	420
JAN								
29...	8600	8400	250	240	<100	<100	400	440
MAR								
13...	8400	8200	240	230	<100	<100	380	370
APR								
23...	8300	8200	220	220	<100	<100	350	350
MAY								
29...	8800	8600	240	230	<100	<100	370	350
JUL								
31...	8900	8600	270	260	<100	<100	410	410
AUG								
19...	8800	8700	270	260	<100	<100	420	420

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571777 -- Lorberry Cr ab Panther Head Disch nr Lorberry Jct, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
28...	1200	1028	930	3.6	590	9.8	91	4.1	4.0	413
JAN										
29...	1300	1028	930	3.7	350	11	99	6.3	4.9	290
MAR										
13...	1215	1028	930	5.5	210	11	97	7.0	4.2	251
APR										
23...	1030	1028	930	8.5	300	11	96	6.8	5.8	237
MAY										
29...	1130	1028	930	8.6	430	10	98	4.9	4.5	270
JUN										
19...	1145	1028	930	7.0	410	10	100	5.3	4.2	300
JUL										
31...	1030	1028	930	1.2	180	9.3	94	6.6	4.6	295
AUG										
19...	1000	1028	930	1.4	440	9.8	97	4.6	4.0	365

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
28...	12.0	22	21	29	27	1.4	1.4	3.6	3.5	7.4
JAN										
29...	11.0	15	15	20	19	1.1	1.2	3.4	3.4	17
MAR										
13...	9.20	13	13	17	17	1.1	1.1	4.1	4.1	<5.0
APR										
23...	10.5	11	11	17	16	.99	1.0	3.2	3.3	8.6
MAY										
29...	13.0	12	12	18	18	1.1	1.1	3.1	2.8	13
JUN										
19...	14.5	15	15	21	21	1.2	1.2	2.9	2.9	22
JUL										
31...	16.0	15	14	20	19	1.1	1.1	3.2	3.0	19
AUG										
19...	15.0	20	20	25	24	1.4	1.3	3.4	3.2	26

Date	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV										
28...	--	190	1700	1700	<40	<40	27	28	<3.0	<3.0
JAN										
29...	--	130	<20	850	<40	<40	25	28	<3.0	<3.0
MAR										
13...	<5.0	110	160	1000	<80	<40	24	24	<6.0	<3.0
APR										
23...	--	99	20	890	<40	<40	24	25	<3.0	<3.0
MAY										
29...	--	110	210	1000	<40	<40	24	24	<3.0	<3.0
JUN										
19...	--	140	110	1000	<40	<40	26	26	<3.0	<3.0
JUL										
31...	--	120	<20	730	<40	<40	26	27	<3.0	<3.0
AUG										
19...	--	170	470	910	<40	<40	29	29	<3.0	<3.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571777 -- Lorberry Cr ab Panther Head Disch nr Lorberry Jct, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)
NOV										
28...	<3.0	<3.0	62	60	<3.0	<3.0	3500	4200	<40	<40
JAN										
29...	<3.0	<3.0	38	39	<3.0	<3.0	5100	6400	<40	<40
MAR										
13...	<6.0	<3.0	42	41	<6.0	<3.0	4100	5800	<80	<40
APR										
23...	<3.0	<3.0	36	35	<3.0	<3.0	4100	5700	<40	<40
MAY										
29...	<3.0	<3.0	48	47	<3.0	<3.0	3700	5600	<40	<40
JUN										
19...	<3.0	<3.0	51	51	<3.0	<3.0	3800	4700	<40	<40
JUL										
31...	<3.0	<3.0	39	38	<3.0	<3.0	5500	7200	<40	<40
AUG										
19...	<3.0	<3.0	62	60	<3.0	<3.0	4700	5900	<40	<40

Date	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	SELE-NIUM, DIS-SOLVED (µG/L AS SE) (01145)	SELE-NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
NOV								
28...	2200	2100	98	96	<100	<100	240	230
JAN								
29...	1700	1700	59	58	<100	<100	130	150
MAR								
13...	1600	1600	63	66	<200	<100	170	160
APR								
23...	1500	1400	53	56	<100	<100	110	110
MAY								
29...	1600	1500	74	71	<100	<100	180	170
JUN								
19...	1800	1800	82	77	<100	<100	190	220
JUL								
31...	1800	1700	50	53	<100	<100	91	90
AUG								
19...	2200	2200	93	89	<100	<100	230	220

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177780 -- Panther Head Disch to Lorberry Cr nr Lorberry Jct, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
28...	1215	1028	930	<.01	650	7.2	62	3.4	3.8	410
JAN										
29...	1315	1028	930	<.01	510	7.8	64	3.6	3.7	277
MAR										
13...	1230	1028	930	.03	500	10	83	3.7	3.5	236
APR										
23...	1045	1028	930	.13	520	9.7	84	3.4	3.4	378
MAY										
29...	1145	1028	930	.27	600	8.4	76	3.0	3.3	489
JUN										
19...	1200	1028	930	.03	660	6.5	63	3.2	3.3	444
JUL										
31...	1045	1028	930	<.01	370	3.6	42	3.6	3.6	412
AUG										
19...	1045	1028	930	<.01	480	3.0	34	3.6	--	392

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
28...	8.60	19	18	14	13	1.5	1.6	1.8	1.6	56
JAN										
29...	6.40	4.9	5.1	3.9	4.0	.66	.7	.93	.9	360
MAR										
13...	5.80	7.1	7.0	7.3	7.1	.87	.8	1.3	1.1	47
APR										
23...	8.80	7.6	7.2	8.4	8.0	.89	.9	1.6	.9	77
MAY										
29...	11.0	9.1	9.4	10	9.2	.97	1.0	1.1	1.1	87
JUN										
19...	14.0	11	10	10	10	.94	1.0	1.3	1.2	89
JUL										
31...	22.5	21	20	15	14	1.3	1.3	1.7	1.6	74
AUG										
19...	22.5	--	--	--	--	--	--	--	--	--

Date	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV										
28...	0.0	170	9700	9500	<40	<40	48	49	<3.0	<3.0
JAN										
29...	0.0	56	2800	3000	<40	<40	24	26	<3.0	<3.0
MAR										
13...	0.0	110	5700	5800	<80	<40	30	28	<6.0	<3.0
APR										
23...	0.0	120	6400	6400	<40	<40	35	35	<3.0	<3.0
MAY										
29...	0.0	140	8100	7700	<40	<40	36	35	<3.0	<3.0
JUN										
19...	0.0	150	8100	8000	<40	<40	39	39	<3.0	<3.0
JUL										
31...	0.0	170	7400	7300	<40	<40	49	50	<3.0	<3.0
AUG										
19...	0.0	--	--	--	--	--	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177780 -- Panther Head Disch to Lorberry Cr nr Lorberry Jct, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)
NOV										
28...	<3.0	<3.0	160	150	64	64	590	700	<40	<40
JAN										
29...	<3.0	<3.0	45	48	23	28	250	270	<40	<40
MAR										
13...	<6.0	<3.0	100	98	50	46	1400	1400	<80	<40
APR										
23...	<3.0	<3.0	110	110	56	53	1500	1500	<40	<40
MAY										
29...	<3.0	6.0	150	130	64	62	2500	2300	<40	<40
JUN										
19...	<3.0	<3.0	140	140	60	62	2000	2000	<40	<40
JUL										
31...	<3.0	<3.0	150	150	13	13	1300	1200	<40	<40
AUG										
19...	--	--	--	--	--	--	--	--	--	--

Date	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	SELE-NIUM, DIS-SOLVED (µG/L AS SE) (01145)	SELE-NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
NOV								
28...	3600	3500	260	240	<100	<100	750	700
JAN								
29...	1100	1200	76	80	<100	<100	230	270
MAR								
13...	1500	1500	160	160	<200	<100	450	430
APR								
23...	1600	1600	180	180	<100	<100	460	440
MAY								
29...	1900	1700	240	230	<100	<100	570	530
JUN								
19...	2100	2000	240	230	<100	<100	570	540
JUL								
31...	2900	2800	250	240	<100	<100	410	390
AUG								
19...	--	--	--	--	--	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177790 -- Unnamed Trib to Lorberry Cr nr Lorberry Jct, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
28...	1230	1028	930	<.01	550	10	86	4.5	5.3	33.0
JAN										
29...	1330	1028	930	<.01	450	12	94	5.4	5.5	23.0
MAR										
13...	1245	1028	930	1.1	440	12	91	5.4	5.2	21.0
APR										
23...	1100	1028	930	3.6	470	11	92	5.0	5.1	19.0
MAY										
29...	1200	1028	930	6.1	470	9.8	93	4.6	5.1	20.0
JUN										
19...	1215	1028	930	.50	510	9.7	94	5.0	5.2	18.0
JUL										
31...	1100	1028	930	.51	220	7.2	75	5.6	5.7	14.0
AUG										
19...	1100	1028	930	.25	400	7.1	76	5.6	5.9	16.0

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
28...	8.80	1.9	1.6	1.0	.84	.93	1.0	1.1	1.0	--
JAN										
29...	3.40	1.4	1.4	.68	.7	.51	.5	.90	.9	--
MAR										
13...	3.60	1.2	1.1	.67	.6	.43	.5	.91	.8	--
APR										
23...	8.90	.95	.96	.560	.53	.28	.3	.7	.90	8.7
MAY										
29...	13.5	.98	.9	.49	.5	.22	.2	.71	.7	6.5
JUN										
19...	14.0	.86	1.0	.47	.4	.23	.3	.73	.7	9.4
JUL										
31...	18.0	1.1	1.0	.36	.4	<.20	.3	.84	.8	18
AUG										
19...	18.5	1.0	.9	.40	.4	.33	.50	.95	.9	8.1

Date	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV										
28...	<5.0	8.2	260	810	<40	<40	21	26	<3.0	<3.0
JAN										
29...	<5.0	5.6	100	110	<40	<40	16	19	<3.0	<3.0
MAR										
13...	<5.0	5.8	170	200	<80	<40	17	18	<6.0	<3.0
APR										
23...	--	4.6	150	180	<40	<40	17	17	<3.0	<3.0
MAY										
29...	--	3.8	150	460	<40	<40	14	14	<3.0	<3.0
JUN										
19...	--	2.9	180	310	<40	<40	13	14	<3.0	<3.0
JUL										
31...	--	1.9	90	170	<40	<40	7.0	7.0	<3.0	<3.0
AUG										
19...	--	2.3	60	520	<40	<40	7.0	11	<3.0	<3.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

0157177790 -- Unnamed Trib to Lorberry Cr nr Lorberry Jct, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)
NOV										
28...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	220	900	<40	<40
JAN										
29...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	100	100	<40	<40
MAR										
13...	<6.0	<3.0	<6.0	<3.0	<6.0	4.0	120	160	<80	<40
APR										
23...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	160	210	<40	<40
MAY										
29...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	190	310	<40	<40
JUN										
19...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	330	440	<40	<40
JUL										
31...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	240	310	<40	<40
AUG										
19...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	190	750	<40	<40

Date	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	SELE-NIUM, DIS-SOLVED (µG/L AS SE) (01145)	SELE-NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
NOV								
28...	80	100	<5.0	<5.0	<100	<100	29	18
JAN								
29...	20	20	<5.0	<5.0	<100	<100	9.0	32
MAR								
13...	50	40	<10	<5.0	<200	<100	31	18
APR								
23...	30	30	<5.0	<5.0	<100	<100	17	11
MAY								
29...	20	20	<5.0	<5.0	<100	<100	12	54
JUN								
19...	30	30	<5.0	<5.0	<100	<100	6.0	55
JUL								
31...	40	20	<5.0	<5.0	<100	<100	3.0	10
AUG								
19...	40	70	<5.0	<5.0	<100	<100	5.0	10

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571780 -- Lorberry Creek at Lorberry Junction, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
28...	0930	1028	930	4.9	460	10	91	5.1	4.8	358
JAN										
29...	1115	1028	930	5.6	390	12	100	5.9	3.8	285
MAR										
13...	1030	1028	930	5.3	290	12	98	6.8	5.0	218
APR										
23...	0930	1028	930	13	330	11	97	6.6	5.5	189
MAY										
29...	1015	1028	930	13	410	10	98	5.2	4.5	227
JUN										
19...	0945	1028	930	7.5	360	10	100	6.0	4.8	246
JUL										
31...	0930	1028	930	3.5	220	9.1	95	6.3	5.2	293
AUG										
19...	0845	1028	930	2.1	320	9.4	99	5.6	4.6	337

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
28...	10.5	20	20	24	22	1.4	1.4	5.8	6.2	<5.0
JAN										
29...	2.80	15	15	19	18	1.1	1.1	4.5	4.4	16
MAR										
13...	7.50	10	9.2	10	10	.99	.9	12	5.0	<5.0
APR										
23...	9.10	9.6	9.2	13	12	.88	.8	3.2	3.1	11
MAY										
29...	13.0	10	9.8	14	14	.92	1.0	2.9	2.8	12
JUN										
19...	13.0	13	12	16	15	1.1	1.1	3.4	3.3	11
JUL										
31...	17.5	17	16	18	17	1.1	1.1	5.7	5.8	19
AUG										
19...	17.0	20	19	22	21	1.3	1.3	5.9	5.8	11

Date	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV										
28...	--	150	820	1200	<40	<40	25	25	<3.0	<3.0
JAN										
29...	--	120	70	680	<40	<40	25	29	<3.0	<3.0
MAR										
13...	<5.0	66	80	820	<80	<40	24	23	<6.0	<3.0
APR										
23...	--	75	40	700	<40	<40	23	23	<3.0	<3.0
MAY										
29...	6.3	89	210	870	<40	<40	22	23	<3.0	<3.0
JUN										
19...	--	100	40	810	<40	<40	23	24	<3.0	<3.0
JUL										
31...	--	110	50	420	<40	<40	23	23	<3.0	<3.0
AUG										
19...	--	150	180	720	<40	<40	26	27	<3.0	<3.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571780 -- Lorberry Creek at Lorberry Junction, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)
NOV										
28...	<3.0	<3.0	43	39	<3.0	<3.0	1600	1900	<40	<40
JAN										
29...	<3.0	<3.0	37	37	<3.0	<3.0	3300	4400	<40	<40
MAR										
13...	<6.0	<3.0	25	24	<6.0	3.0	2000	4700	<80	<40
APR										
23...	<3.0	<3.0	28	26	<3.0	<3.0	2300	3500	<40	<40
MAY										
29...	<3.0	<3.0	37	35	<3.0	<3.0	2300	3800	<40	<40
JUN										
19...	<3.0	<3.0	38	37	<3.0	<3.0	2300	4000	<40	<40
JUL										
31...	<3.0	<3.0	28	26	<3.0	<3.0	2100	3300	<40	<40
AUG										
19...	<3.0	<3.0	49	49	<3.0	<3.0	2400	4000	<40	<40

Date	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	SELE-NIUM, DIS-SOLVED (µG/L AS SE) (01145)	SELE-NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
NOV								
28...	1600	1500	74	69	<100	<100	190	170
JAN								
29...	1500	1500	55	56	<100	<100	150	190
MAR								
13...	890	920	36	40	<200	<100	110	110
APR								
23...	1100	1000	45	40	<100	<100	100	91
MAY								
29...	1200	1200	56	56	<100	<100	140	150
JUN								
19...	1300	1300	61	57	<100	<100	140	180
JUL								
31...	1200	1200	48	45	<100	<100	80	82
AUG								
19...	1800	1700	81	78	<100	<100	200	190

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

403626076253001 -- Orchard Mine, Site E3-S0, near Joliett, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
MAY										
06...	1500	1028	9813	.05	660	5.2	47	3.5	3.5	306

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	ACIDITY (MG/L AS CACO3) (00435)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)
MAY									
06...	11.0	19	19	64	.00	2900	4100	2600	430

403626076253026 -- Limestone Drain 2, Effluent (80 ft)

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
MAY										
06...	1445	1028	9813	.05	520	5.8	53	4.5	4.5	252

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	ACIDITY (MG/L AS CACO3) (00435)	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)
MAY									
06...	11.0	17	12	58	1.0	1600	2500	1700	180

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571758 -- Lower Rausch Creek near Lorberry Junction, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
28...	1015	1028	930	3.6	230	10	93	6.8	7.5	545
JAN										
29...	1200	1028	930	4.5	250	12	100	7.2	7.2	358
MAR										
13...	1100	1028	930	11	260	12	96	7.1	6.5	351
APR										
23...	1000	1028	930	8.6	280	11	97	6.9	6.8	330
MAY										
29...	1100	1028	930	5.8	220	10	97	6.6	6.7	397
JUN										
19...	1015	1028	930	3.9	210	11	101	7.0	7.1	467
JUL										
31...	1000	1028	930	1.8	160	9.7	99	7.2	6.7	499
AUG										
19...	0930	1028	930	3.2	290	10	99	7.2	7.5	476

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
28...	11.0	42	39	24	22	2.1	2.0	29	29	--
JAN										
29...	9.00	25	24	16	15	1.3	1.3	18	18	--
MAR										
13...	7.40	25	26	12	13	1.5	1.9	35	35	--
APR										
23...	8.70	25	24	16	15	1.3	1.4	13	12	9.3
MAY										
29...	13.5	30	29	20	19	1.6	1.6	12	11	14
JUN										
19...	13.5	33	33	20	19	2.1	2.2	30	29	--
JUL										
31...	16.5	34	33	24	23	1.6	1.6	24	24	--
AUG										
19...	17.0	31	30	21	20	1.6	1.7	30	29	--

Date	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV										
28...	<5.0	190	<20	300	<40	<40	23	24	<3.0	<3.0
JAN										
29...	18	110	<20	210	<40	<40	22	27	<3.0	<3.0
MAR										
13...	14	88	60	1900	<80	<40	35	48	<6.0	<3.0
APR										
23...	--	120	<20	450	<40	<40	22	23	<3.0	<3.0
MAY										
29...	--	150	<20	920	<40	<40	21	23	<3.0	<3.0
JUN										
19...	23	170	<20	920	<40	<40	22	26	<3.0	<3.0
JUL										
31...	16	180	30	660	<40	<40	22	24	<3.0	<3.0
AUG										
19...	18	170	<20	450	<40	<40	20	22	<3.0	<3.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571758 -- Lower Rausch Creek near Lorberry Junction, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)
NOV										
28...	<3.0	<3.0	20	20	<3.0	<3.0	10	2000	<40	<40
JAN										
29...	<3.0	<3.0	18	18	<3.0	<3.0	610	1700	<40	<40
MAR										
13...	<6.0	4.0	19	19	<6.0	<3.0	1300	4400	<80	<40
APR										
23...	<3.0	<3.0	24	24	<3.0	<3.0	2300	3100	<40	<40
MAY										
29...	<3.0	<3.0	34	34	<3.0	<3.0	2100	3900	<40	<40
JUN										
19...	<3.0	<3.0	25	27	<3.0	<3.0	270	3500	<40	<40
JUL										
31...	4.0	3.0	31	33	<3.0	<3.0	120	4400	<40	<40
AUG										
19...	<3.0	3.0	24	26	<3.0	<3.0	10	3200	<40	<40

Date	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	SELE-NIUM, DIS-SOLVED (µG/L AS SE) (01145)	SELE-NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
NOV								
28...	1200	1200	33	34	<100	<100	28	37
JAN								
29...	1200	1100	30	29	<100	<100	32	130
MAR								
13...	870	910	31	33	<200	<100	67	72
APR								
23...	1200	1100	42	41	<100	<100	54	61
MAY								
29...	1500	1500	54	52	<100	<100	73	90
JUN								
19...	1200	1200	38	42	<100	<100	26	84
JUL								
31...	1500	1600	51	54	<100	<100	28	67
AUG								
19...	1300	1300	38	41	<100	<100	18	47

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571760 -- Lower Rausch Creek at Lorberry Junction, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
28...	0945	1028	930	1.9	350	10	92	6.5	7.5	480
JAN										
29...	1130	1028	930	2.5	370	12	100	6.8	7.5	356
MAR										
13...	1045	1028	930	3.2	320	12	101	7.0	6.4	357
APR										
23...	0945	1028	930	5.6	320	12	98	6.8	6.8	324
MAY										
29...	1030	1028	930	5.4	260	10	98	6.4	6.8	392
JUN										
19...	1000	1028	930	4.3	290	10	102	6.8	6.8	413
JUL										
31...	0945	1028	930	1.8	150	7.9	92	7.2	6.8	479
AUG										
19...	0915	1028	930	2.0	290	8.2	98	7.0	7.4	473

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
28...	9.80	39	38	22	21	2.0	2.0	20	20	--
JAN										
29...	6.20	23	23	15	14	1.4	1.4	21	21	--
MAR										
13...	6.30	30	32	11	12	1.7	2.1	45	45	--
APR										
23...	8.20	24	23	15	15	1.3	1.4	13	12	11
MAY										
29...	14.5	31	30	20	19	1.6	1.6	11	11	--
JUN										
19...	15.0	32	32	20	19	1.8	1.8	17	17	--
JUL										
31...	23.0	36	35	24	23	1.6	1.5	20	19	--
AUG										
19...	24.0	32	30	21	20	1.5	1.6	26	26	--

Date	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV										
28...	<5.0	170	<20	70	<40	<40	22	22	<3.0	<3.0
JAN										
29...	23	110	<20	90	<40	<40	19	23	<3.0	<3.0
MAR										
13...	21	90	40	2200	<80	<40	32	48	<6.0	<3.0
APR										
23...	--	110	<20	290	<40	<40	22	23	<3.0	<3.0
MAY										
29...	9.9	150	<20	600	<40	<40	22	23	<3.0	<3.0
JUN										
19...	15	150	<20	560	<40	<40	21	23	<3.0	<3.0
JUL										
31...	19	180	60	140	<40	<40	20	21	<3.0	<3.0
AUG										
19...	19	170	<20	60	<40	<40	18	19	<3.0	<3.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571760 -- Lower Rausch Creek at Lorberry Junction, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CHROMIUM, DISSOLVED (µG/L AS CR) (01030)	CHROMIUM, TOTAL RECOVERABLE (µG/L AS CR) (01034)	COBALT, DISSOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOVERABLE (µG/L AS CO) (01037)	COPPER, DISSOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOVERABLE (µG/L AS CU) (01042)	IRON, DISSOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOVERABLE (µG/L AS FE) (01045)	LEAD, DISSOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOVERABLE (µG/L AS PB) (01051)
NOV										
28...	<3.0	<3.0	16	15	<3.0	<3.0	<10	530	<40	<40
JAN										
29...	<3.0	<3.0	15	14	<3.0	<3.0	70	780	<40	<40
MAR										
13...	<6.0	5.0	14	16	<6.0	<3.0	130	3300	<80	<40
APR										
23...	<3.0	<3.0	23	23	<3.0	<3.0	1500	2400	<40	<40
MAY										
29...	<3.0	<3.0	32	32	<3.0	<3.0	1200	2800	<40	<40
JUN										
19...	<3.0	<3.0	26	27	<3.0	<3.0	50	2200	<40	<40
JUL										
31...	6.0	4.0	12	12	<3.0	<3.0	10	530	<40	<40
AUG										
19...	3.0	67	<3.0	5.0	<3.0	4.0	20	710	<40	<40

Date	MANGANESE, DISSOLVED (µG/L AS MN) (01056)	MANGANESE, TOTAL RECOVERABLE (µG/L AS MN) (01055)	NICKEL, DISSOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOVERABLE (µG/L AS NI) (01067)	SELENIUM, DISSOLVED (µG/L AS SE) (01145)	SELENIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DISSOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOVERABLE (µG/L AS ZN) (01092)
NOV								
28...	1100	1000	28	29	<100	<100	21	25
JAN								
29...	940	910	26	25	<100	<100	27	73
MAR								
13...	760	790	22	26	<200	<100	27	42
APR								
23...	1100	1100	38	37	<100	<100	49	52
MAY								
29...	1500	1400	51	50	<100	<100	75	80
JUN								
19...	1300	1300	45	43	<100	<100	31	59
JUL								
31...	820	820	27	30	<100	<100	6.0	16
AUG								
19...	350	390	19	71	<100	<100	3.0	11

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571798 -- Swatara Creek at Lorberry Junction, PA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXID-ATION RED-UCTION POTEN-TIAL (MV) (00090)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)
NOV										
28...	0915	1028	930	--	380	11	93	6.1	6.7	217
JAN										
29...	1100	1028	930	40	360	14	100	6.8	6.9	190
MAR										
13...	1015	1028	930	24	370	13	99	6.8	6.2	187
APR										
23...	0915	1028	930	62	380	11	97	6.7	7.0	157
MAY										
29...	1000	1028	930	52	360	9.9	98	6.4	6.9	197
JUN										
19...	0930	1028	930	28	370	10	100	6.8	6.8	207
JUL										
31...	0915	1028	930	9.3	180	8.8	96	6.9	6.7	304
AUG										
19...	0830	1028	930	9.6	280	9.2	100	6.9	7.2	292

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	ACIDITY TOTAL HEATED (MG/L AS CAC03) (70508)
NOV										
28...	9.30	16	15	9.6	9.0	1.7	1.7	6.9	6.8	--
JAN										
29...	3.70	13	13	8.0	7.8	1.2	1.1	7.4	7.2	--
MAR										
13...	4.90	8.8	9.0	5.1	5.2	1.3	1.4	8.7	8.7	--
APR										
23...	8.10	11	10	7.8	7.4	.98	1.0	5.3	5.2	5.7
MAY										
29...	15.0	13	12	9.8	9.2	.98	1.0	5.3	5.2	--
JUN										
19...	14.5	15	14	11	10	1.1	1.2	5.4	5.2	--
JUL										
31...	19.5	24	23	16	15	1.5	1.5	7.6	7.4	--
AUG										
19...	20.0	23	23	16	16	1.6	1.5	8.0	7.9	--

Date	ANC WATER UNFLTRD FET LAB MG/L AS CACO3 (00417)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	ALUM-INUM, DIS-SOLVED (µG/L AS AL) (01106)	ALUM-INUM, TOTAL RECOV-ERABLE (µG/L AS AL) (01105)	ARSENIC DIS-SOLVED (µG/L AS AS) (01000)	ARSENIC TOTAL (µG/L AS AS) (01002)	BARIUM, DIS-SOLVED (µG/L AS BA) (01005)	BARIUM, TOTAL RECOV-ERABLE (µG/L AS BA) (01007)	CADMIUM DIS-SOLVED (µG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (µG/L AS CD) (01027)
NOV										
28...	7.4	69	30	120	<40	<40	22	23	<3.0	<3.0
JAN										
29...	6.4	56	<20	110	<40	<40	21	26	<3.0	<3.0
MAR										
13...	6.1	36	110	1600	<80	<40	24	29	<6.0	<3.0
APR										
23...	--	51	<20	220	<40	<40	22	23	<3.0	<3.0
MAY										
29...	10	64	<20	260	<40	<40	22	23	<3.0	<3.0
JUN										
19...	7.1	71	<20	450	<40	<40	20	22	<3.0	<3.0
JUL										
31...	12	100	<20	100	<40	<40	17	18	<3.0	<3.0
AUG										
19...	11	100	<20	50	<40	<40	18	18	<3.0	<3.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
SWATARA CREEK PROJECT--Continued

01571798 -- Swatara Creek at Lorberry Junction, PA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	CHRO-MIUM, TOTAL RECOV-ERABLE (µG/L AS CR) (01034)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COBALT, TOTAL RECOV-ERABLE (µG/L AS CO) (01037)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	COPPER, TOTAL RECOV-ERABLE (µG/L AS CU) (01042)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (µG/L AS FE) (01045)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	LEAD, TOTAL RECOV-ERABLE (µG/L AS PB) (01051)
NOV										
28...	<3.0	<3.0	6.0	6.0	<3.0	<3.0	30	180	<40	<40
JAN										
29...	<3.0	<3.0	6.0	6.0	<3.0	<3.0	40	240	<40	<40
MAR										
13...	6.0	5.0	10	9.0	7.0	4.0	160	3800	<80	<40
APR										
23...	<3.0	<3.0	10	9.0	<3.0	<3.0	100	520	<40	<40
MAY										
29...	<3.0	<3.0	8.0	9.0	<3.0	<3.0	80	720	<40	<40
JUN										
19...	<3.0	<3.0	7.0	8.0	<3.0	<3.0	100	960	<40	<40
JUL										
31...	<3.0	4.0	<3.0	<3.0	<3.0	<3.0	30	190	<40	<40
AUG										
19...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	20	180	<40	<40

Date	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MANGA-NESE, TOTAL RECOV-ERABLE (µG/L AS MN) (01055)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	NICKEL, TOTAL RECOV-ERABLE (µG/L AS NI) (01067)	SELE-NIUM, DIS-SOLVED (µG/L AS SE) (01145)	SELE-NIUM, TOTAL (µG/L AS SE) (01147)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	ZINC, TOTAL RECOV-ERABLE (µG/L AS ZN) (01092)
NOV								
28...	510	510	18	19	<100	<100	43	42
JAN								
29...	490	490	13	12	<100	<100	34	57
MAR								
13...	370	420	15	17	<200	<100	62	50
APR								
23...	440	450	20	20	<100	<100	37	42
MAY								
29...	450	460	21	21	<100	<100	48	44
JUN								
19...	380	410	22	18	<100	<100	26	100
JUL								
31...	30	60	<5.0	6.0	<100	<100	16	10
AUG								
19...	20	50	<5.0	<5.0	<100	<100	8.0	12

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT

Good Hope Mill Dam was removed over a 3-day period beginning November 2, 2001 to eliminate safety concerns, provide for resident and migratory fish passage, and improve habitat for native fish. The deteriorated, obsolete, condition of the dam made removal a more cost effective option to mitigate safety and ecological concerns than rebuilding or retrofitting the structure to meet current safety and environmental regulations.

The dam was located on the Conodoguinet Creek at the former Good Hope Mill, approximately 13.5 miles upstream of the confluence of Conodoguinet Creek and the Susquehanna River. It was a run of the river, 6-foot high, 220-foot wide concrete and log crib structure constructed on bedrock over 100 years ago to provide waterpower to the former mill. Drainage area at the dam site is 492 square miles and the mean annual flow is 619 cubic feet per second based on 72 years of daily streamflow recorded at Hogestown gage (USGS station number 01570000). Under normal flow conditions the dam impounded a 1-mile reach and held approximately 52 acre-feet of water, all of which was contained within the channel.

The implications of small dam removal on channel characteristics, water quality, macroinvertebrates, and fish are not well understood because of the small number of dam removals that have been studied. Comprehensive studies that document the effects of dam removal are just beginning to be published and most past research has focused on larger dams or on the response of a single variable (such as macroinvertebrates). This limited knowledge base underscores the need for additional study to develop understanding of response to removal in order to better predict the outcome.

To address this need the U.S. Geological Survey (USGS) has partnered with the Conodoguinet Creek Watershed Association (CCWA), The Pennsylvania Fish and Boat Commission (PFBC), and The Pennsylvania State University to study the short-term effects of removing Good Hope Mill Dam on channel characteristics, water quality, macroinvertebrates, and fish.

USGS collected data to characterize geomorphologic, water quality, and macroinvertebrate community conditions before, during, and shortly after removal. USGS also sampled bed sediment upstream of the dam prior to removal to address concerns over metals and other potentially harmful constituents sometimes associated with accumulated sediment. The Pennsylvania State University collected fish community data before and after removal. Data presented in this report include bed sediment, water quality, and macroinvertebrate data collected by USGS.

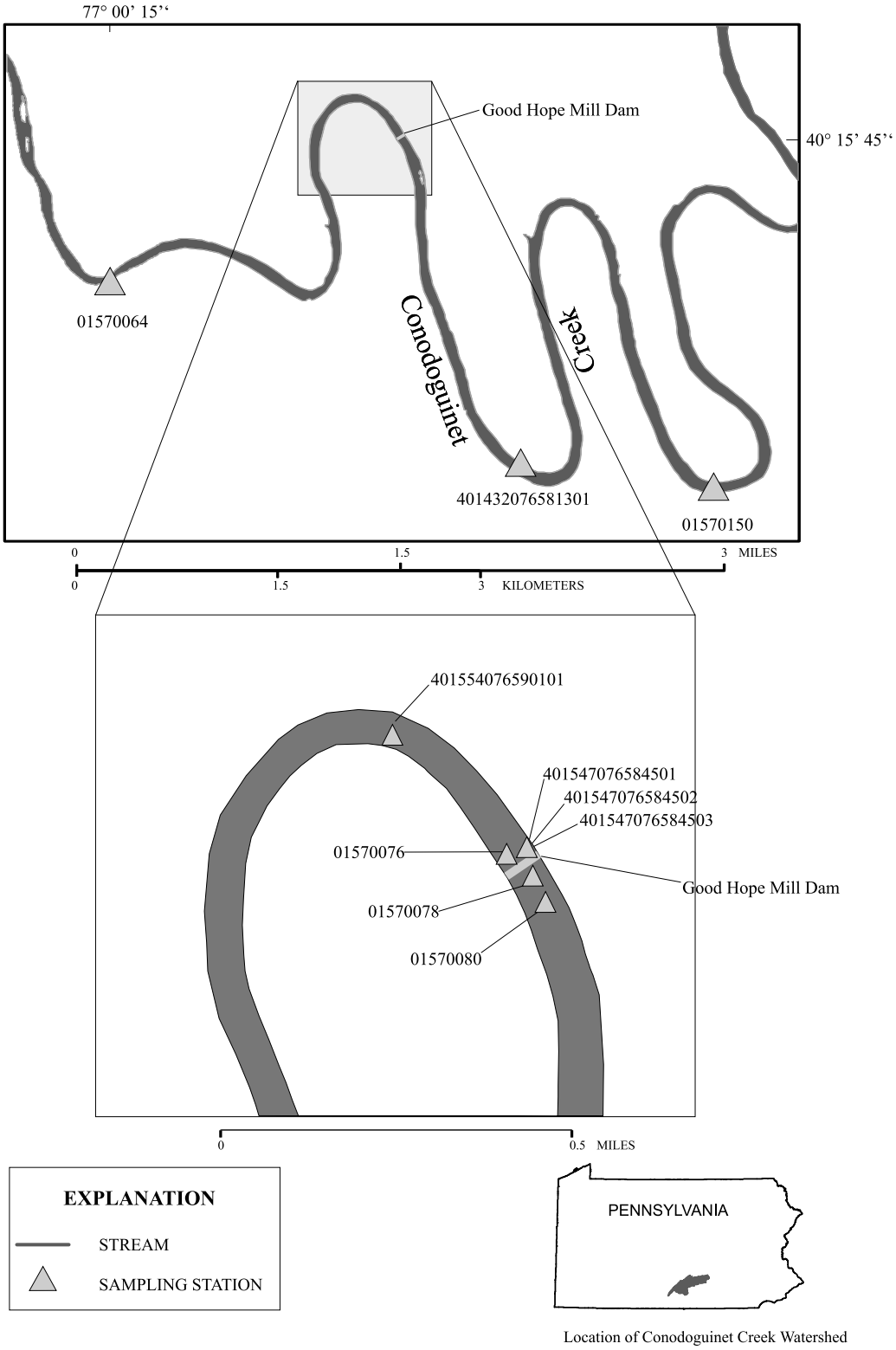
Bed sediments behind the dam were minimal. As a result, isolated depositional features with fine sediment were selected for sampling (Figure 10). Coring tubes were inserted into the bed sediment to the point of refusal and composited at each site. Multiple cores were collected at each site to provide enough sediment to analyze for Metals, PCBs, Semi-Volatile Organic Compounds, and Pesticides. Only Metals, PCBs, and Pesticide data are included in this report due to extended holding times at the lab which likely compromised the quality of results for Semi-Volatile Organic Compounds.

Water-quality constituents including specific conductance (µS/cm), pH, turbidity (NTU), dissolved oxygen (mg/L), and temperature (˚C) were measured at Stations 01570064, 01570076, and 01570078 on a continuous basis (15-minute intervals). In addition to continuous monitoring, discrete samples for nutrients and suspended sediment were collected at Stations 01570064, 01570076, 01570078, and 01570150. Cross-sectional sampling of field parameters was conducted on various occasions.

Benthic macroinvertebrates were sampled at 01570064, 01570076, 01570078, and 01570150. Stations 01570064, 01570078, and 01570150 are at free-flowing natural riffles conducive to kick sampling before and after removal. Because Station 01570076 was impounded prior to dam removal, mid-channel locations were inaccessible by wading and there was insufficient sediment to warrant capture of benthic organisms via bed sediment. Instead habitat such as downed trees and rocks near the dam and periphery of the channel was selectively jab sampled. Following dam removal, Station 01570076 converted to a free-flowing riffle and was kick sampled in the same manner as the other free-flowing sites. Macroinvertebrates were identified to the lowest possible taxa at the USGS biology lab in New Cumberland, Pennsylvania.

For additional information, contact Jeff Chaplin at the U.S. Geological Survey, 215 Limekiln Road, New Cumberland, PA 17070; 717-730-6957 (email: jchaplin@usgs.gov).

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued



Location of Conodoguinet Creek Watershed

Base features from Pennsylvania Department of Transportation 1:24,000-scale digital data

Figure 10.--Locations of sites sampled for the Good Hope Mill Dam project.

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570064 -- Conodoguinet Cr US of Lambs Gap Rd Brg nr Hogestown, PA

LOCATION.--Lat 40°15'11", long 77°00'15", Cumberland County, Hydrologic unit 02050305, 16 mi upstream of confluence with Susquehanna River.

DRAINAGE AREA.--486 mi^2.

PERIOD OF RECORD.--October 2001 to current year (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: September 1, 2001 to current year (discontinued).
pH: August 30, 2001 to current year (discontinued).
WATER TEMPERATURE: August 31, 2001 to current year (discontinued).
DISSOLVED OXYGEN: August 31, 2001 to current year (discontinued).
TURBIDITY: August 30, 2001 to current year (discontinued).

INSTRUMENTATION.--Yellow Springs Instruments 6600 multi-parameter sonde (in-situ system).

REMARKS.--Daily specific conductance records rated fair except for periods Aug. 30 to Oct. 15 and Nov. 8, 9, which are poor. Daily pH records rated good. Daily water temperature record rated fair. Daily dissolved oxygen record rated poor. Daily turbidity records rated good except for period Oct. 30 to Nov. 8, which is fair.

All samples collected by U.S. Geological Survey for the Good Hope Mill Dam Project. Explanation of column headings -- AGENCY COLLECTION CODE: 1028 - U. S. Geological Survey; AGENCY ANALYZING CODE: 80020 - U.S. Geological Survey, 9813 - Pennsylvania Department of Environmental Protection; SAMPLE TYPE: 9 - Routine Sample, 5 - Duplicate Sample. Explanation of remark codes -- E - Estimated Value; < - Less Than; c - Sample Holding Time Exceeded. For explanation of units of measurement please refer to pages 42-43.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	Sample type	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	TUR-BID-ITY FIELD WATER UNFLTRD (NTU) (61028)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)
OCT 2001													
25...	1430	1028	80020	9	E63	1.9	19.5	203	8.4	570	17.4	<.04	.30
25...	1431	1028	80020	5	E63	1.9	19.5	203	8.4	570	17.4	<.04	.28

Date	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
OCT 2001						
25...	.27	3.78	.008	.020	<.02	.031
25...	.28	3.88	.009	.021	<.02	.034

CROSS-SECTION ANALYSES, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	TUR-BID-ITY FIELD WATER UNFLTRD (NTU) (61028)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	SAMPLE LOC-ATION, CROSS SECTION (FT FM L BANK) (00009)
OCT 2001								
25...	1432	5.9	19.9	195	8.1	639	14.3	20
25...	1433	2.8	18.1	177	8.0	642	14.4	30
25...	1434	2.9	17.3	174	8.1	618	15.7	40
25...	1435	1.7	18.3	194	8.4	565	18.1	50
25...	1436	1.2	19.2	205	8.4	534	18.6	60
25...	1437	.8	20.1	218	8.5	528	19.1	70
25...	1438	.0	20.9	226	8.5	522	19.2	80
25...	1439	.0	21.8	238	8.6	516	19.5	90

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570064 -- Conodoguinet Cr US of Lambs Gap Rd Brg nr Hogestown, PA--Continued

REMARKS.--Definition of terms used: Total Number - the total number of aquatic invertebrates collected at a site; Total EPT Taxa - total number of distinct taxa within the orders Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies). These orders of insects are generally considered to be pollution sensitive; % Contribution of Dominant Taxa - total number of organisms is an indication of community balance at the lowest taxonomic level possible (usually genus or species). A community that proves dominated by relatively few taxa would include environmental stress. This metric can include the single most dominant taxa, three most dominant, or five most dominant taxa "dominants in common" (DIC). Other definitions can be found on pages 22-33.

	Sept. 18, 2001	Nov. 20, 2001	Nov. 25, 2002
PLATYHELMINTHES	--	--	--
TURBELLARIA	--	--	--
TRICLADIDA	--	--	--
Planariidae	--	--	12
ANNELIDA	--	--	--
OLIGOCHAETA (aquatic earthworms)	--	--	--
TUBIFICIDA	--	--	--
Enchytraeidae	--	--	--
Tubificidae	--	--	--
Aulodrilus pleuriseta	--	--	2
Spirosperma nikolskyi	--	--	--
Tubificidae w/o capilliform setae	--	--	15
LUMBRICINA	--	--	--
MOLLUSCA	--	--	--
GASTROPODA (snails)	--	--	--
MESOGASTROPODA	--	--	--
Hydrobiidae	--	--	2
Amnicola	--	--	--
Pleuroceridae	--	--	--
Goniobasis	--	--	--
Leptoxis carinata	--	--	2
BASOMMATOPHORA	--	--	--
Ancylidae (limpets)	--	--	--
Ferrissia	2	--	7
Planorbidae	--	--	--
Gyraulus	--	--	1
Planorbella	--	--	--
Lymnaeidae	--	--	--
Fossaria	--	--	--
Physidae	--	--	--
Physella	--	--	--
BIVALVIA (clams and mussels)	--	--	--
VENEROIDA	--	--	--
Corbiculidae	--	--	--
Corbicula fluminea	1	1	2
Sphaeriidae (fingernail clams)	--	--	1
Pisidium	--	--	2
CHELICERATA	--	--	--
ARACHNIDA	--	--	--
HYDRACHNIDIA (water mites)	--	--	2
ARTHROPODA	--	--	--
CRUSTACEA	--	--	--
OSTRACODA	--	--	--
MALACOSTRACA	--	--	--
ISOPODA (sow bugs)	--	--	--
Asellidae	--	--	--
Lirceus	--	--	105
AMPHIPODA (scuds)	--	--	--
Crangonyctidae	--	--	--
Crangonyx	--	--	--
Gammaridae	--	--	--
Gammarus	--	5	34
Hyalellidae	--	--	--
Hyalella azteca	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570064 -- Conodoguinet Cr US of Lambs Gap Rd Brg nr Hogestown, PA--Continued

	Sept. 18, 2001	Nov. 20, 2001	Nov. 25, 2002
INSECTA	--	--	--
EPHEMEROPTERA (mayflies)	--	--	--
PISCIFORMA	--	--	--
Baetidae	--	--	--
Acentrella	5	1	--
Acerpenna	5	--	--
Baetis	14	20	1
Baetis (2-tailed)	--	--	--
SETISURA	--	--	--
Heptageniidae	2	--	1
Heptagenia	1	--	--
Leucrocuta	--	--	--
Stenacron	1	--	--
Stenonema	6	14	2
Isonychiidae	--	--	--
Isonychia	7	12	1
FUCATERGALIA	--	--	--
Leptophlebiidae	--	--	--
Leptophlebia	--	--	--
Paraleptophlebia	--	--	--
Ephemeridae	--	--	--
Hexagenia	--	--	--
Potamanthidae	--	--	--
Anthopotamus	1	8	--
Caenidae	--	--	--
Caenis	1	--	--
Ephemerellidae	--	--	--
Ephemerella	--	6	--
Serratella	--	6	--
Leptohyphidae	--	--	--
Tricorythodes	--	--	--
ODONATA (dragonflies and damselflies)	--	--	--
ZYGOPTERA	--	--	--
Coenagrionidae	--	--	--
Argia	2	3	1
Enallagma	--	--	--
HEMIPTERA (true bugs)	--	--	--
Corixidae	--	--	--
PLECOPTERA (stoneflies)	--	--	--
EUHOLOGNATHA	--	--	--
Taeniopterygidae	--	--	--
Taeniopteryx	--	4	1
SYSTELLAGNATHA	--	--	--
Perlidae	--	--	--
Agnetina	--	1	--
Paragnetina	1	--	--
COLEOPTERA (beetles)	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570064 -- Conodoguinet Cr US of Lambs Gap Rd Brg nr Hogestown, PA--Continued

	Sept. 18, 2001	Nov. 20, 2001	Nov. 25, 2002
POLYPHAGA	--	--	--
Hydrophilidae (water scavenger beetles)	--	--	--
Berosus	--	--	--
Psephenidae (water pennies)	--	--	--
Psephenus	1	--	--
Elmidae (riffle beetles)	--	--	--
Dubiraphia	--	1	--
Macronychus	--	--	--
Optioservus	9	17	2
Promoresia	--	--	--
Stenelmis	19	9	--
Scirtidae	--	1	--
MEGALOPTERA (dobsonflies and fishflies)	--	--	--
Corydalidae	--	--	--
Corydalus	--	--	--
Sialidae	--	--	--
Sialis	--	--	--
TRICHOPTERA (caddisflies)	--	--	--
SPICIPALPIA	--	--	--
Hydroptilidae	--	--	--
Hydroptila	--	--	--
Leucotrichia	--	--	--
Glossosomatidae	2	--	--
Glossosoma	--	1	--
ANNULIPALPIA	--	--	--
Philopotamidae	--	--	--
Chimarra	22	2	--
Hydropsychidae	--	--	--
Cheumatopsyche	35	41	1
Hydropsyche	51	42	4
Hydropsyche bifida gr.	12	4	--
INTEGRIPALPIA	--	--	--
Leptoceridae	--	--	--
Oecetis	--	--	--
Helicopsychidae	--	--	--
Helicopsyche	--	--	1
LEPIDOPTERA (aquatic moths)	--	--	--
Pyralidae	--	--	--
Petrophila	6	--	--
DIPTERA (true flies)	--	--	--
Ceratopogonidae (biting midges)	--	--	--
Probezzia	--	--	--
Chironomidae (non-biting midges)	--	--	--
Tanypodinae	1	--	--
Pentaneurini	--	--	--
Ablabesmyia	--	--	--
Ablabesmyia mallochi	--	--	--
Conchapelopia	--	--	1
Pentaneura	--	1	--
Thiennemannimyia gr.	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570064 -- Conodoguinet Cr US of Lambs Gap Rd Brg nr Hogestown, PA--Continued

	Sept. 18, 2001	Nov. 20, 2001	Nov. 25, 2002
Procladini	--	--	--
Procladius	--	--	--
Tanypodini	--	--	--
Tanypus	--	--	--
Orthocladiinae	--	--	--
Corynoneurini	--	--	--
Corynoneura	--	--	--
Orthocladiini	--	--	--
Cricotopus/Orthocladius	--	--	--
Cricotopus	--	--	--
Cricotopus bicinctus	--	2	--
Cricotopus trifascia	--	--	1
Cricotopus vierrensis	--	--	--
Eukiefferiella	--	1	3
Eukiefferiella brevicalcar gr.	--	--	--
Nanocladius	--	--	--
Orthocladius	--	--	3
Thiennemaniella	--	1	--
Tvetenia	--	--	--
Tvetenia bavarica gr.	--	--	--
Tvetenia vitracies gr.	--	1	--
Chironominae	--	--	--
Chironomini	--	--	--
Chironomus	--	--	--
Cryptochironomus	--	--	--
Dicrotendipes	--	--	1
Microtendipes pedellus gr.	--	--	--
Paratendipes	--	--	--
Phaenopsectra	--	--	1
Polypedilum	1	--	--
Polypedilum flavum	--	3	--
Polypedilum scalaenum gr.	--	--	--
Pseudochironomini	--	--	--
Pseudochironomus	--	--	--
Tanytarsini	--	--	--
Cladotanytarsus	--	--	--
Rheotanytarsus	--	2	--
Tanytarsus	1	1	--
Simuliidae (black flies)	--	--	--
Simulium	--	1	--
TOTAL TAXA	26	30	29
TOTAL NUMBER	209	212	212
TOTAL EPT TAXA	16	14	8
PERCENT EPT TAXA	61	47	27
HBI	4.49	4.29	7.18
PERCENT DOMINANT TAXA (single)	24	20	49

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570064 -- Conodoguinet Cr US of Lambs Gap Rd Brg nr Hogestown, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR **OCTOBER 2000 TO SEPTEMBER 2001**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	---	---	---	---	---	---	---	---	---	431	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	439	---	---
6	---	---	---	---	---	---	---	---	---	436	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	468	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	487	---	---
11	---	---	---	---	---	---	---	---	---	489	---	---
12	---	---	---	---	---	---	---	---	---	506	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	483	---	---
15	---	---	---	---	---	---	---	---	---	505	---	---
16	---	---	---	---	---	---	---	---	---	487	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	489	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	449	---	---
26	---	---	---	---	---	---	---	---	---	447	---	---
27	---	---	---	---	---	---	---	---	---	489	---	---
28	---	---	---	---	---	---	---	---	---	497	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	506	---	---

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR **OCTOBER 2001 TO SEPTEMBER 2002**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	---	---	---	551	513	533	527	512	518	597	561	573
2	471	---	---	540	513	530	528	505	515	610	596	602
3	---	---	---	540	515	532	525	507	516	597	561	579
4	---	---	---	541	515	532	523	452	498	590	575	582
5	483	---	---	545	520	535	527	440	492	586	577	581
6	503	---	---	546	515	534	517	495	511	583	575	580
7	506	---	---	542	523	536	525	504	515	611	560	572
8	517	---	---	550	---	---	523	505	516	591	556	573
9	523	---	---	530	---	---	514	500	509	589	549	564
10	537	---	---	568	511	540	525	483	503	---	---	---
11	526	---	---	558	522	546	519	486	500	---	---	---
12	---	---	---	560	509	542	514	497	507	---	---	---
13	506	---	---	559	489	531	509	500	506	---	---	---
14	484	---	---	544	480	522	513	499	504	---	---	---
15	511	---	---	538	487	519	517	501	512	---	---	---
16	521	496	506	535	423	491	511	487	497	---	---	---
17	528	499	514	523	432	483	516	483	501	---	---	---
18	542	516	530	532	490	513	493	479	486	---	---	---
19	525	492	510	550	466	513	492	465	479	---	---	---
20	521	491	512	538	496	523	495	478	488	---	---	---
21	522	484	510	542	506	529	503	492	499	---	---	---
22	526	490	513	548	509	533	510	488	499	---	---	---
23	529	493	518	542	504	529	505	483	496	---	---	---
24	528	475	511	537	517	527	497	483	494	---	---	---
25	533	498	519	519	480	508	505	495	502	---	---	---
26	544	527	537	507	493	500	507	496	502	---	---	---
27	557	542	549	502	461	483	515	497	506	---	---	---
28	559	534	552	518	498	509	526	506	515	---	---	---
29	561	532	550	516	504	513	549	521	531	---	---	---
30	553	510	536	521	512	517	576	538	555	---	---	---
31	550	527	538	---	---	---	581	531	558	---	---	---
MONTH	561	475	525	568	423	522	581	440	507	611	549	578

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570064 -- Conodoguinet Cr US of Lambs Gap Rd Brg nr Hogestown, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR **OCTOBER 2000 TO SEPTEMBER 2001**

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	---	---	---	---	---	---	---	---	---	8.7	7.6	8.0
2	---	---	---	---	---	---	---	---	---	8.7	7.7	8.0
3	---	---	---	---	---	---	---	---	---	8.7	7.8	8.1
4	---	---	---	---	---	---	---	---	---	8.7	7.7	8.1
5	---	---	---	---	---	---	---	---	---	8.7	7.7	8.0
6	---	---	---	---	---	---	---	---	---	8.8	7.7	8.0
7	---	---	---	---	---	---	---	---	---	8.8	7.7	8.0
8	---	---	---	---	---	---	---	---	---	8.8	7.7	8.0
9	---	---	---	---	---	---	---	---	---	8.8	7.7	8.0
10	---	---	---	---	---	---	---	---	---	8.6	7.7	8.0
11	---	---	---	---	---	---	---	---	---	8.7	7.8	8.0
12	---	---	---	---	---	---	---	---	---	8.7	7.8	8.0
13	---	---	---	---	---	---	---	---	---	8.7	7.8	8.0
14	---	---	---	---	---	---	---	---	---	8.7	7.8	8.0
15	---	---	---	---	---	---	---	---	---	8.7	7.9	8.1
16	---	---	---	---	---	---	---	---	---	8.7	7.9	8.1
17	---	---	---	---	---	---	---	---	---	8.7	7.9	8.0
18	---	---	---	---	---	---	---	---	---	8.7	7.8	8.0
19	---	---	---	---	---	---	---	---	---	8.6	7.8	8.1
20	---	---	---	---	---	---	---	---	---	8.2	7.7	7.8
21	---	---	---	---	---	---	---	---	---	8.6	7.8	7.9
22	---	---	---	---	---	---	---	---	---	8.6	7.8	7.9
23	---	---	---	---	---	---	---	---	---	8.6	7.7	8.0
24	---	---	---	---	---	---	---	---	---	8.2	7.7	7.9
25	---	---	---	---	---	---	---	---	---	8.3	7.7	7.9
26	---	---	---	---	---	---	---	---	---	8.7	7.8	8.1
27	---	---	---	---	---	---	---	---	---	8.5	7.9	8.1
28	---	---	---	---	---	---	---	---	---	8.6	8.0	8.2
29	---	---	---	---	---	---	---	---	---	8.5	8.0	8.1
30	---	---	---	---	---	---	---	---	---	8.6	7.9	8.1
31	---	---	---	---	---	---	8.6	7.7	8.0	---	---	---
MAX	---	---	---	---	---	---	---	---	---	8.8	8.0	8.2
MIN	---	---	---	---	---	---	---	---	---	8.2	7.6	7.8

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR **OCTOBER 2001 TO SEPTEMBER 2002**

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	8.6	7.9	8.0	8.6	8.1	8.2	8.3	7.8	8.1	8.0	7.9	7.9
2	8.6	7.9	8.0	8.5	8.0	8.2	8.4	7.9	8.2	7.9	7.8	7.9
3	8.6	7.8	8.0	8.5	7.8	8.0	8.3	8.0	8.2	7.9	7.8	7.9
4	8.6	7.8	8.0	8.4	7.9	8.0	8.4	8.0	8.2	7.9	7.8	7.9
5	8.6	7.8	8.0	8.4	7.9	8.1	8.4	8.0	8.2	7.9	7.8	7.9
6	8.6	7.8	8.0	8.5	8.0	8.2	8.3	7.9	8.1	7.9	7.8	7.8
7	8.6	7.9	8.1	8.5	8.0	8.2	8.3	7.8	8.1	7.8	7.8	7.8
8	8.5	8.0	8.1	8.4	7.9	8.1	8.1	7.9	8.0	7.9	7.8	7.8
9	8.5	8.0	8.1	8.4	7.9	8.1	8.3	7.9	8.2	7.9	7.8	7.8
10	8.5	8.0	8.1	8.4	8.0	8.1	8.3	8.0	8.2	---	---	---
11	8.5	7.9	8.0	8.4	8.0	8.2	8.3	8.0	8.2	---	---	---
12	8.5	7.9	8.0	8.4	8.0	8.2	8.3	8.0	8.2	---	---	---
13	8.5	7.9	7.9	8.4	8.0	8.2	8.2	7.9	8.1	---	---	---
14	8.3	7.8	7.9	8.4	8.1	8.2	8.0	7.9	7.9	---	---	---
15	8.5	7.8	8.0	8.4	8.0	8.2	8.3	7.9	8.2	---	---	---
16	---	---	---	8.4	8.0	8.1	8.3	7.9	8.2	---	---	---
17	8.4	7.9	8.1	8.4	7.9	8.1	8.2	8.0	8.1	---	---	---
18	8.4	8.0	8.1	8.4	8.0	8.1	8.3	7.9	8.2	---	---	---
19	8.5	8.0	8.1	8.5	8.0	8.2	8.3	7.9	8.2	---	---	---
20	8.5	8.0	8.1	8.4	8.0	8.2	8.2	7.9	8.1	---	---	---
21	8.5	8.0	8.0	8.4	8.0	8.2	8.2	7.9	8.1	---	---	---
22	8.5	7.9	8.0	8.4	8.1	8.2	8.2	7.9	8.1	---	---	---
23	8.5	7.9	8.0	8.5	8.1	8.2	8.2	7.9	8.1	---	---	---
24	8.5	7.9	8.0	8.3	8.0	8.1	8.2	7.9	8.1	---	---	---
25	8.5	7.8	8.0	8.1	7.8	7.9	8.1	7.9	8.1	---	---	---
26	8.5	7.9	8.1	8.3	7.8	8.0	8.1	7.9	8.1	---	---	---
27	8.5	8.0	8.2	8.2	7.8	8.0	8.1	8.0	8.0	---	---	---
28	8.5	8.1	8.2	8.2	7.9	8.0	8.1	7.9	8.0	---	---	---
29	8.5	8.1	8.2	8.0	7.8	7.9	8.0	7.9	8.0	---	---	---
30	8.6	8.1	8.2	8.0	7.8	7.9	8.0	7.8	7.9	---	---	---
31	8.5	8.1	8.2	---	---	---	8.0	7.8	7.9	---	---	---
MAX	8.6	8.1	8.2	8.6	8.1	8.2	8.4	8.0	8.2	8.0	7.9	7.9
MIN	8.3	7.8	7.9	8.0	7.8	7.9	8.0	7.8	7.9	7.8	7.8	7.8

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570064 -- Conodoguinet Cr US of Lambs Gap Rd Brg nr Hogestown, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR **OCTOBER 2000 TO SEPTEMBER 2001**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	---	---	---	---	---	---	---	---	---	29.0	23.5	25.5
2	---	---	---	---	---	---	---	---	---	27.0	20.5	23.0
3	---	---	---	---	---	---	---	---	---	25.5	19.5	22.5
4	---	---	---	---	---	---	---	---	---	27.0	22.0	24.0
5	---	---	---	---	---	---	---	---	---	27.5	21.0	23.5
6	---	---	---	---	---	---	---	---	---	27.0	19.0	22.5
7	---	---	---	---	---	---	---	---	---	27.5	19.5	23.0
8	---	---	---	---	---	---	---	---	---	28.0	21.5	24.0
9	---	---	---	---	---	---	---	---	---	27.0	22.0	24.5
10	---	---	---	---	---	---	---	---	---	26.0	22.5	24.5
11	---	---	---	---	---	---	---	---	---	26.5	20.0	23.0
12	---	---	---	---	---	---	---	---	---	26.5	19.5	22.5
13	---	---	---	---	---	---	---	---	---	27.0	19.5	22.5
14	---	---	---	---	---	---	---	---	---	23.0	18.5	21.0
15	---	---	---	---	---	---	---	---	---	22.0	16.0	18.5
16	---	---	---	---	---	---	---	---	---	22.5	15.5	18.5
17	---	---	---	---	---	---	---	---	---	23.5	16.0	19.0
18	---	---	---	---	---	---	---	---	---	23.0	17.5	20.0
19	---	---	---	---	---	---	---	---	---	22.5	18.0	20.0
20	---	---	---	---	---	---	---	---	---	20.0	19.5	20.0
21	---	---	---	---	---	---	---	---	---	24.0	19.0	21.0
22	---	---	---	---	---	---	---	---	---	24.5	19.5	21.5
23	---	---	---	---	---	---	---	---	---	25.0	19.0	21.5
24	---	---	---	---	---	---	---	---	---	21.0	20.0	20.5
25	---	---	---	---	---	---	---	---	---	20.0	16.5	19.0
26	---	---	---	---	---	---	---	---	---	19.5	14.5	16.5
27	---	---	---	---	---	---	---	---	---	17.5	15.0	16.0
28	---	---	---	---	---	---	---	---	---	17.0	13.0	15.0
29	---	---	---	---	---	---	---	---	---	19.0	14.0	16.0
30	---	---	---	---	---	---	---	---	---	17.5	13.5	15.5
31	---	---	---	---	---	---	28.5	23.0	25.5	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	29.0	13.0	20.8

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR **OCTOBER 2001 TO SEPTEMBER 2002**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	19.5	13.5	16.0	13.0	8.5	10.5	14.5	10.5	12.0	0.5	0.0	0.0
2	21.0	14.5	17.0	15.0	10.5	13.0	11.0	8.0	9.5	0.5	0.0	0.0
3	22.0	16.0	18.5	17.0	12.5	14.5	10.0	6.0	7.5	0.5	0.0	0.0
4	22.5	16.5	19.5	15.5	10.5	12.5	10.0	6.0	8.0	0.5	0.0	0.0
5	22.0	16.5	19.0	13.0	8.0	10.5	12.0	8.5	10.0	0.0	0.0	0.0
6	19.5	15.0	18.0	11.5	6.5	8.5	11.0	9.0	10.0	0.0	0.0	0.0
7	16.0	12.0	14.0	12.5	7.5	9.5	12.0	9.0	10.5	0.0	0.0	0.0
8	15.5	10.0	12.0	14.0	8.5	10.5	9.0	7.0	7.5	0.0	0.0	0.0
9	15.0	8.5	11.5	13.0	8.0	10.0	8.5	5.5	7.0	0.0	0.0	0.0
10	16.0	9.5	12.5	11.5	6.5	9.0	7.0	4.0	5.5	---	---	---
11	18.5	11.5	14.5	11.5	6.5	8.5	8.5	5.5	6.5	---	---	---
12	17.5	13.5	15.5	10.0	5.0	7.0	6.5	4.5	5.5	---	---	---
13	21.0	15.0	18.0	9.5	4.5	6.5	7.5	6.5	7.0	---	---	---
14	18.5	17.5	18.0	9.5	4.5	6.5	9.0	7.5	8.0	---	---	---
15	19.5	15.0	17.0	11.0	6.5	8.5	8.5	5.5	7.0	---	---	---
16	15.5	13.0	14.5	12.5	7.0	9.5	6.0	4.5	5.0	---	---	---
17	14.0	10.5	12.5	12.5	8.0	10.0	6.5	5.5	6.0	---	---	---
18	14.5	9.0	11.5	9.5	7.0	8.0	8.0	6.0	7.0	---	---	---
19	14.5	9.0	11.5	10.0	6.5	8.0	8.0	5.0	6.0	---	---	---
20	17.0	11.0	13.0	8.5	5.5	7.5	6.0	3.0	4.5	---	---	---
21	17.5	11.0	14.0	8.0	4.0	5.5	4.5	2.5	3.0	---	---	---
22	18.0	12.5	15.0	7.5	3.5	5.0	4.5	1.5	3.0	---	---	---
23	17.5	13.5	15.5	8.5	3.5	5.5	4.0	1.5	3.0	---	---	---
24	20.5	15.0	17.5	8.5	5.5	7.0	4.5	2.0	3.0	---	---	---
25	19.5	14.0	17.0	11.0	8.5	10.0	3.5	0.5	1.5	---	---	---
26	14.0	9.0	11.5	13.0	9.5	11.0	3.0	0.0	1.0	---	---	---
27	10.5	8.5	9.0	10.0	9.0	9.5	0.5	0.0	0.0	---	---	---
28	12.0	6.5	8.5	11.0	10.0	10.5	0.5	0.0	0.0	---	---	---
29	12.0	6.0	8.5	11.5	10.5	11.0	1.0	0.0	0.0	---	---	---
30	13.5	8.5	10.5	13.0	11.5	12.5	0.5	0.0	0.0	---	---	---
31	11.5	9.0	10.0	---	---	---	0.5	0.0	0.0	---	---	---
MONTH	22.5	6.0	14.2	17.0	3.5	9.2	14.5	0.0	5.3	0.5	0.0	0.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570064 -- Conodoguinet Cr US of Lambs Gap Rd Brg nr Hogestown, PA--Continued

OXYGEN, DISSOLVED (MG/L), WATER YEAR **OCTOBER 2000 TO SEPTEMBER 2001**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	---	---	---	---	---	---	---	---	---	14.8	4.2	8.6
2	---	---	---	---	---	---	---	---	---	16.0	5.4	9.5
3	---	---	---	---	---	---	---	---	---	16.0	5.9	10.0
4	---	---	---	---	---	---	---	---	---	15.7	5.4	9.5
5	---	---	---	---	---	---	---	---	---	15.8	5.2	9.3
6	---	---	---	---	---	---	---	---	---	15.5	5.8	9.5
7	---	---	---	---	---	---	---	---	---	15.9	5.7	9.6
8	---	---	---	---	---	---	---	---	---	15.6	5.2	9.3
9	---	---	---	---	---	---	---	---	---	15.3	5.1	9.0
10	---	---	---	---	---	---	---	---	---	13.2	4.6	8.2
11	---	---	---	---	---	---	---	---	---	15.5	5.6	9.4
12	---	---	---	---	---	---	---	---	---	15.9	6.0	9.7
13	---	---	---	---	---	---	---	---	---	16.0	5.8	9.8
14	---	---	---	---	---	---	---	---	---	15.7	5.8	9.7
15	---	---	---	---	---	---	---	---	---	16.8	7.6	11.1
16	---	---	---	---	---	---	---	---	---	16.3	7.8	11.0
17	---	---	---	---	---	---	---	---	---	16.3	7.4	10.8
18	---	---	---	---	---	---	---	---	---	16.6	7.1	10.8
19	---	---	---	---	---	---	---	---	---	15.9	6.8	10.7
20	---	---	---	---	---	---	---	---	---	9.6	6.1	7.5
21	---	---	---	---	---	---	---	---	---	15.3	6.2	9.5
22	---	---	---	---	---	---	---	---	---	15.4	5.6	9.4
23	---	---	---	---	---	---	---	---	---	15.5	5.4	9.1
24	---	---	---	---	---	---	---	---	---	9.5	4.9	6.5
25	---	---	---	---	---	---	---	---	---	10.1	5.2	7.0
26	---	---	---	---	---	---	---	---	---	13.2	6.6	9.0
27	---	---	---	---	---	---	---	---	---	13.9	6.5	9.3
28	---	---	---	---	---	---	---	---	---	14.7	6.8	10.3
29	---	---	---	---	---	---	---	---	---	15.2	8.0	10.7
30	---	---	---	---	---	---	---	---	---	15.4	7.9	10.7
31	---	---	---	---	---	---	15.2	5.1	8.6	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	16.8	4.2	9.5

OXYGEN, DISSOLVED (MG/L), WATER YEAR **OCTOBER 2001 TO SEPTEMBER 2002**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	15.3	8.0	10.7	16.0	10.3	12.4	13.8	9.7	11.4	---	---	---
2	15.0	7.4	10.3	15.0	9.0	11.4	14.2	10.8	12.5	---	---	---
3	14.8	6.8	9.8	14.8	8.1	10.6	17.9	12.1	14.5	---	---	---
4	14.6	6.4	9.4	15.0	8.8	11.1	17.4	14.2	15.6	---	---	---
5	14.6	6.4	9.4	15.0	9.4	11.8	16.6	13.1	14.6	---	---	---
6	14.0	6.0	9.1	15.4	10.9	12.7	15.7	12.3	13.6	---	---	---
7	14.8	7.6	10.5	15.2	10.9	12.4	15.3	11.4	13.3	---	---	---
8	15.3	9.2	11.4	13.6	8.8	11.2	14.2	12.2	13.0	---	---	---
9	15.4	9.8	11.8	13.6	8.8	10.8	14.1	11.8	12.8	---	---	---
10	15.4	9.2	11.7	13.6	9.6	11.3	14.2	10.7	12.7	---	---	---
11	14.9	8.2	10.9	13.8	9.6	11.5	14.4	12.3	13.4	---	---	---
12	14.2	7.8	10.1	14.2	10.6	12.2	14.2	12.1	13.3	---	---	---
13	14.0	6.8	9.6	14.6	11.2	12.5	14.1	12.3	13.1	---	---	---
14	10.7	6.3	7.9	14.6	11.0	12.6	13.3	12.3	12.7	---	---	---
15	14.0	6.7	9.4	14.0	10.6	11.9	14.4	12.0	13.1	---	---	---
16	---	---	---	14.2	10.1	11.7	13.9	11.9	13.0	---	---	---
17	13.5	8.2	10.5	14.2	9.4	11.5	13.6	12.1	12.8	---	---	---
18	14.5	9.9	11.5	13.9	9.7	11.6	14.1	12.2	13.0	---	---	---
19	14.9	9.9	11.7	14.7	10.7	12.2	14.2	12.0	13.0	---	---	---
20	14.8	9.3	11.3	14.0	9.9	12.0	13.1	11.9	12.4	---	---	---
21	14.9	8.8	10.9	14.8	11.2	12.9	13.7	11.6	12.6	---	---	---
22	14.6	8.2	10.4	14.9	11.9	13.3	14.0	11.6	12.9	---	---	---
23	14.5	7.8	10.1	15.1	12.1	13.4	---	---	---	---	---	---
24	14.0	7.0	9.6	13.6	11.0	12.3	---	---	---	---	---	---
25	13.6	6.3	9.0	11.3	9.4	10.4	---	---	---	---	---	---
26	14.0	7.6	10.4	13.4	9.1	11.0	---	---	---	---	---	---
27	14.4	9.9	11.7	12.9	9.9	11.2	---	---	---	---	---	---
28	15.3	10.9	12.5	13.4	10.2	11.5	---	---	---	---	---	---
29	15.5	11.2	12.9	11.7	10.1	10.6	---	---	---	---	---	---
30	15.7	10.7	12.5	11.5	9.8	10.4	---	---	---	---	---	---
31	15.3	10.4	12.2	---	---	---	---	---	---	---	---	---
MONTH	15.7	6.0	10.6	16.0	8.1	11.7	17.9	9.7	13.2	---	---	---

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570064 -- Conodoguinet Cr US of Lambs Gap Rd Brg nr Hogestown, PA--Continued

TURBIDITY, FIELD, WATER, UNFILTERED, NEPHELOMETRIC TURBIDITY UNITS, WATER YEAR **OCTOBER 2000 TO SEPTEMBER 2001**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	---	---	---	---	---	---	---	---	---	7.9	1.7	3.8
2	---	---	---	---	---	---	---	---	---	4.7	1.5	2.3
3	---	---	---	---	---	---	---	---	---	6.8	1.5	2.3
4	---	---	---	---	---	---	---	---	---	4.6	1.5	2.0
5	---	---	---	---	---	---	---	---	---	3.7	1.5	2.0
6	---	---	---	---	---	---	---	---	---	4.1	1.2	2.0
7	---	---	---	---	---	---	---	---	---	3.6	1.2	1.7
8	---	---	---	---	---	---	---	---	---	2.9	1.2	1.6
9	---	---	---	---	---	---	---	---	---	3.4	1.1	1.6
10	---	---	---	---	---	---	---	---	---	2.5	1.2	1.5
11	---	---	---	---	---	---	---	---	---	4.0	1.2	1.6
12	---	---	---	---	---	---	---	---	---	2.8	1.1	1.6
13	---	---	---	---	---	---	---	---	---	3.3	1.0	1.6
14	---	---	---	---	---	---	---	---	---	2.3	1.2	1.6
15	---	---	---	---	---	---	---	---	---	2.0	1.0	1.5
16	---	---	---	---	---	---	---	---	---	4.3	1.0	1.4
17	---	---	---	---	---	---	---	---	---	2.4	0.9	1.4
18	---	---	---	---	---	---	---	---	---	2.3	0.9	1.4
19	---	---	---	---	---	---	---	---	---	3.1	0.9	1.3
20	---	---	---	---	---	---	---	---	---	3.0	1.1	1.5
21	---	---	---	---	---	---	---	---	---	3.6	1.0	1.8
22	---	---	---	---	---	---	---	---	---	6.7	0.9	1.5
23	---	---	---	---	---	---	---	---	---	4.4	0.9	1.4
24	---	---	---	---	---	---	---	---	---	10.4	0.9	2.7
25	---	---	---	---	---	---	---	---	---	21.9	5.4	11.5
26	---	---	---	---	---	---	---	---	---	7.4	2.3	3.7
27	---	---	---	---	---	---	---	---	---	3.3	1.3	2.0
28	---	---	---	---	---	---	---	---	---	3.2	1.0	1.7
29	---	---	---	---	---	---	---	---	---	2.5	1.0	1.4
30	---	---	---	---	---	---	---	---	---	3.2	0.9	1.3
31	---	---	---	---	---	---	12.2	1.6	3.0	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	21.9	0.9	2.2

TURBIDITY, FIELD, WATER, UNFILTERED, NEPHELOMETRIC TURBIDITY UNITS, WATER YEAR **OCTOBER 2001 TO SEPTEMBER 2002**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	2.3	0.8	1.2	2.2	0.7	1.0	9.6	1.2	2.8	36.9	1.2	2.6
2	5.0	0.7	1.1	2.9	0.5	1.0	12.0	1.1	2.1	7.7	1.5	2.5
3	5.3	0.7	1.3	2.1	0.6	1.0	6.7	0.9	1.8	2.8	1.3	1.8
4	4.1	0.7	1.1	12.7	0.6	1.4	3.4	0.9	1.4	8.4	1.3	2.0
5	6.8	0.7	1.3	2.5	0.8	1.5	3.0	0.9	1.1	2.8	1.2	1.6
6	2.1	0.9	1.2	2.8	0.7	1.7	5.3	0.9	1.5	5.1	1.2	1.9
7	2.8	0.9	1.2	5.7	0.6	1.5	13.9	0.9	1.5	4.1	1.2	2.0
8	3.6	0.7	1.1	---	---	---	4.4	0.9	1.3	8.2	1.5	3.2
9	3.6	0.7	1.2	---	---	---	3.1	1.2	1.9	5.9	1.4	2.2
10	6.3	0.7	1.3	---	---	---	3.6	1.3	1.7	---	---	---
11	2.1	0.6	1.1	---	---	---	2.9	1.2	1.5	---	---	---
12	2.4	0.7	1.2	---	---	---	4.7	1.1	1.6	---	---	---
13	2.6	0.8	1.2	---	---	---	2.0	1.0	1.3	---	---	---
14	2.3	0.9	1.2	---	---	---	5.4	1.2	1.9	---	---	---
15	5.3	0.8	1.5	---	---	---	13.1	1.5	2.9	---	---	---
16	---	---	---	---	---	---	4.0	1.5	2.1	---	---	---
17	7.8	1.0	2.1	1.7	0.7	1.0	8.3	1.4	1.9	---	---	---
18	5.4	0.9	1.9	7.0	0.8	1.3	4.2	1.7	2.1	---	---	---
19	5.8	0.8	1.3	6.2	0.8	1.2	11.5	1.6	2.3	---	---	---
20	4.0	0.7	1.2	4.5	0.7	1.0	6.0	1.6	2.3	---	---	---
21	2.2	0.7	1.2	3.6	0.8	1.2	5.7	1.6	2.1	---	---	---
22	5.8	0.6	1.2	9.6	0.8	1.1	2.9	1.4	1.7	---	---	---
23	3.2	0.7	1.3	4.3	0.8	1.1	3.7	1.2	1.6	---	---	---
24	25.5	0.7	1.8	3.4	0.7	1.1	2.5	1.2	1.5	---	---	---
25	10.0	0.9	2.1	17.9	1.0	3.5	2.9	1.2	1.5	---	---	---
26	9.1	0.9	2.1	11.5	2.3	4.5	2.5	1.2	1.5	---	---	---
27	16.1	1.2	3.9	7.4	2.0	3.1	3.6	1.2	1.7	---	---	---
28	15.3	0.9	2.2	19.2	1.5	2.9	10.8	1.0	2.6	---	---	---
29	5.6	0.9	1.6	11.0	1.1	2.1	10.3	1.1	2.9	---	---	---
30	2.6	0.7	1.1	15.5	1.1	2.8	28.3	1.0	3.8	---	---	---
31	2.3	0.8	1.1	---	---	---	7.1	1.2	2.0	---	---	---
MONTH	25.5	0.6	1.5	19.2	0.5	1.8	28.3	0.9	1.9	36.9	1.2	2.2

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570076 -- Conodoguinet Cr 115 ft US of Good Hope Dam, PA

LOCATION.--Lat 40°15’46", long 76°58’46", Cumberland County, Hydrologic unit 02050305, 13.6 mi upstream of confluence with Susquehanna River.

DRAINAGE AREA.--488 mi^2.

PERIOD OF RECORD.--October 2001 to current year (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: September 7, 2001 to current year (discontinued).
pH: September 7, 2001 to current year (discontinued).
WATER TEMPERATURE: September 7, 2001 to current year (discontinued).
DISSOLVED OXYGEN: September 7, 2001 to current year (discontinued).
TURBIDITY: September 20, 2001 to current year (discontinued).

INSTRUMENTATION.--Yellow Springs Instruments 6600 multi-parameter sonde (in-situ system).

REMARKS.--Daily specific conductance records rated good except for periods Nov. 16-21 and Dec. 3-8, which are poor. Daily pH records rated good. Daily water temperature record rated good except for periods Nov. 16-21 and Dec. 3-8, which are poor. Daily dissolved oxygen record rated fair. Daily turbidity records rated good.

All samples collected by U.S. Geological Survey for the Good Hope Mill Dam Project. Explanation of column headings -- AGENCY COLLECTION CODE: 1028 - U. S. Geological Survey; AGENCY ANALYZING CODE: 80020 - U.S. Geological Survey, 9813 - Pennsylvania Department of Environmental Protection; SAMPLE TYPE: 9 - Routine Sample, 5 - Duplicate Sample. Explanation of remark codes -- E - Estimated Value; < - Less Than; c - Sample Holding Time Exceeded. For explanation of units of measurement please refer to pages 42-43.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	Sample type	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	TUR-BID-ITY FIELD WATER UNFLTRD (NTU) (61028)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)
OCT 2001													
1													
25...	1330	1028	80020	9	E63	8.3	11.2	117	7.8	563	17.5	<.04	.31
NOV													
02...	0800	1028	80020	9	E70	5.8	12.0	111	8.2	553	11.7	<.04	.27
02...	1230	1028	80020	9	E160	7.6	9.9	93	8.0	557	12.5	E.04	.28
05...	1100	1028	80020	9	E71	3.9	11.8	93	8.0	557	12.5	<.04	.28

Date	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	SEDI-MENT, SUS-PENDED (MG/L) (80154)
OCT							
25...	.35	3.62	.013	.018	<.02	.117	--
NOV							
02...	.38	3.67	E.006	.016	<.02	.022	4.1
02...	.43	3.75	.009	.018	<.02	.035	10
05...	.31	3.71	.008	.016	<.02	.022	1.9

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES

EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570076 -- Conodoguinet Cr 115 ft US of Good Hope Dam, PA--Continued

CROSS-SECTION ANALYSES, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	TURBIDITY FIELD WATER UNFLTRD (NTU) (61028)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	SPECIFIC CONDUCTANCE (µS/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	SAMPLE LOCATION, CROSS SECTION (FT FM L BANK) (00009)
OCT 2001								
19...	1201	16	10.4	96	7.9	566	11.2	0
19...	1202	12	10.6	97	7.9	565	11.2	10
19...	1203	10	10.5	96	8.0	566	11.3	20
19...	1204	8.1	10.1	92	8.0	565	11.2	30
19...	1205	6.7	9.8	89	8.0	566	11.0	40
19...	1206	6.2	9.2	84	7.9	566	11.0	50
19...	1207	4.5	9.4	86	7.9	568	11.0	60
19...	1208	5.9	9.2	84	7.9	567	11.0	70
19...	1209	5.3	9.3	84	7.9	567	11.0	80
19...	1210	4.1	9.2	84	7.9	569	11.0	90
19...	1211	4.4	9.2	83	7.9	569	10.9	100
19...	1212	4.5	9.2	83	7.9	568	10.9	110
19...	1213	6.0	9.2	83	7.9	567	10.9	120
19...	1214	6.2	9.1	82	7.9	565	10.9	130
19...	1215	7.9	9.1	82	7.9	564	10.8	140
19...	1216	5.6	9.1	82	7.9	559	10.8	150
19...	1217	6.3	9.2	82	8.0	559	10.7	160
19...	1218	6.3	9.2	83	8.0	556	10.7	170
19...	1219	4.0	9.1	82	8.0	556	10.7	180
19...	1220	5.7	9.0	82	8.0	558	10.8	190
19...	1221	3.7	9.1	82	8.0	557	10.8	200
19...	1222	4.7	9.2	82	8.0	554	10.7	210
19...	1223	5.0	9.3	84	8.0	555	10.8	220
19...	1224	4.6	9.5	86	8.0	558	10.8	230
19...	1225	4.6	9.5	86	8.0	559	11.0	238
25...	1331	10	12.6	133	7.9	560	17.8	50
25...	1332	10	12.2	129	7.9	562	17.5	75
25...	1333	8.9	11.3	119	7.9	563	17.6	100
25...	1334	6.6	10.8	113	7.8	564	17.5	125
25...	1335	6.7	10.6	111	7.8	565	17.4	150
25...	1336	7.6	10.6	110	7.8	564	17.4	175
25...	1337	6.7	10.8	113	7.8	563	17.4	200
25...	1338	9.6	10.7	111	7.8	562	17.4	225
NOV								
02...	0801	5.7	13.1	120	8.2	541	11.7	25
02...	0802	6.0	13.4	124	8.3	538	11.8	50
02...	0803	6.6	12.7	117	8.2	543	11.8	75
02...	0804	5.1	12.3	114	8.2	554	11.8	100
02...	0805	4.9	11.9	110	8.2	547	11.7	125
02...	0806	6.0	11.5	106	8.2	542	11.7	150
02...	0807	5.8	11.3	104	8.1	557	11.6	175
02...	0808	5.0	11.1	102	8.1	565	11.6	200
02...	0809	6.3	11.1	102	8.1	569	11.6	225
02...	0810	6.7	12.0	111	8.1	575	11.7	250
02...	1231	5.0	10.0	96	7.8	558	13.3	50
02...	1232	7.2	10.2	96	8.0	545	12.6	70
02...	1233	5.1	10.2	96	8.1	543	12.5	90
02...	1234	5.0	10.2	95	8.1	541	12.3	110
02...	1235	5.5	10.1	94	8.1	542	12.3	130
02...	1236	5.0	10.0	94	8.1	545	12.3	150
02...	1237	12	9.8	92	8.0	555	12.3	170
02...	1238	11	9.7	91	8.0	566	12.3	190
02...	1239	7.3	9.5	88	7.9	581	12.3	210
02...	1240	13	9.0	85	7.7	597	12.4	230
05...	1101	2.5	11.9	106	8.1	580	10.0	20
05...	1102	1.5	11.9	106	8.1	572	10.3	40
05...	1103	7.8	11.8	107	8.1	566	10.6	60
05...	1104	1.2	11.7	107	8.2	556	11.3	80
05...	1105	2.6	11.6	106	8.2	549	11.3	100
05...	1106	3.2	11.6	106	8.2	547	11.4	120
05...	1107	5.2	11.6	107	8.2	545	11.7	140
05...	1108	5.7	11.8	110	8.2	542	12.0	160
05...	1109	5.2	11.9	112	8.2	546	12.3	180

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570076 -- Conodoguinet Cr 115 ft US of Good Hope Dam, PA--Continued

REMARKS.--Definition of terms used: Total Number - the total number of aquatic invertebrates collected at a site; Total EPT Taxa - total number of distinct taxa within the orders Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies). These orders of insects are generally considered to be pollution sensitive; % Contribution of Dominant Taxa - total number of organisms is an indication of community balance at the lowest taxonomic level possible (usually genus or species). A community that proves dominated by relatively few taxa would include environmental stress. This metric can include the single most dominant taxa, three most dominant, or five most dominant taxa "dominants in common" (DIC). Other definitions can be found on pages 22-33.

	Sept. 19, 2001	Nov. 19, 2001	Nov. 25, 2002
PLATYHELMINTHES	--	--	--
TURBELLARIA	--	--	--
TRICLADIDA	--	--	--
Planariidae	--	--	3
ANNELIDA	--	--	--
OLIGOCHAETA (aquatic earthworms)	--	--	--
TUBIFICIDA	--	--	--
Enchytraeidae	--	2	--
Tubificidae	--	--	--
Aulodrilus pleuriseta	--	--	7
Spirosperma nikolskyi	--	2	--
Tubificidae w/o capilliform setae	--	--	10
LUMBRICINA	--	--	--
MOLLUSCA	--	--	--
GASTROPODA (snails)	--	--	--
MESOGASTROPODA	--	--	--
Hydrobiidae	--	--	--
Amnicola	--	--	2
Pleuroceridae	--	--	--
Goniobasis	--	--	--
Leptoxis carinata	--	1	--
BASOMMATOPHORA	--	--	--
Ancylidae (limpets)	--	--	--
Ferrissia	--	1	8
Planorbidae	--	--	--
Gyraulus	--	1	--
Planorbella	--	--	1
Lymnaeidae	--	--	--
Fossaria	--	--	2
Physidae	--	--	--
Physella	--	--	--
BIVALVIA (clams and mussels)	--	--	--
VENEROIDA	--	--	--
Corbiculidae	--	--	--
Corbicula fluminea	--	6	14
Sphaeriidae (fingernail clams)	--	--	--
Pisidium	--	1	1
CHELICERATA	--	--	--
ARACHNIDA	--	--	--
HYDRACHNIDIA (water mites)	--	--	3
ARTHROPODA	--	--	--
CRUSTACEA	--	--	--
OSTRACODA	--	--	1
MALACOSTRACA	--	--	--
ISOPODA (sow bugs)	--	--	--
Asellidae	--	--	--
Lirceus	--	--	--
AMPHIPODA (scuds)	--	--	--
Crangonyctidae	--	--	--
Crangonyx	2	--	--
Gammaridae	--	--	--
Gammarus	34	9	58
Hyalellidae	--	--	--
Hyalella azteca	6	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570076 -- Conodoguinet Cr 115 ft US of Good Hope Dam, PA--Continued

	Sept. 19, 2001	Nov. 19, 2001	Nov. 25, 2002
INSECTA	--	--	--
EPHEMEROPTERA (mayflies)	--	--	--
PISCIFORMA	--	--	--
Baetidae	1	--	--
Acentrella	--	--	--
Acerpenna	--	--	--
Baetis	--	--	--
Baetis (2-tailed)	--	--	--
SETISURA	--	--	--
Heptageniidae	1	--	--
Heptagenia	--	--	--
Leucrocuta	--	--	--
Stenacron	--	--	1
Stenonema	--	--	9
Isonychiidae	--	--	--
Isonychia	--	--	--
FUCATERGALIA	--	--	--
Leptophlebiidae	--	--	--
Leptophlebia	--	--	--
Paraleptophlebia	--	--	--
Ephemeridae	--	--	--
Hexagenia	--	2	--
Potamanthidae	--	--	--
Anthopotamus	--	--	3
Caenidae	--	--	--
Caenis	1	146	36
Ephemerellidae	--	--	--
Ephemerella	--	--	--
Serratella	--	--	1
Leptohyphidae	--	--	--
Tricorythodes	--	--	--
ODONATA (dragonflies and damselflies)	--	--	--
ZYGOPTERA	--	--	--
Coenagrionidae	--	--	--
Argia	1	--	1
Enallagma	7	--	--
HEMIPTERA (true bugs)	--	--	--
Corixidae	1	--	--
PLECOPTERA (stoneflies)	--	--	--
EUHOLOGNATHA	--	--	--
Taeniopterygidae	--	--	--
Taeniopteryx	--	--	--
SYSTELLAGNATHA	--	--	--
Perlidae	--	--	--
Agnetina	--	--	--
Paragnetina	--	--	--
COLEOPTERA (beetles)	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570076 -- Conodoguinet Cr 115 ft US of Good Hope Dam, PA--Continued

	Sept. 19, 2001	Nov. 19, 2001	Nov. 25, 2002
POLYPHAGA	--	--	--
Hydrophilidae (water scavenger beetles)	--	--	--
Berosus	1	--	1
Psephenidae (water pennies)	--	--	--
Psephenus	--	--	--
Elmidae (riffle beetles)	--	--	--
Dubiraphia	5	30	27
Macronychus	2	1	--
Optioservus	--	2	2
Promoresia	4	--	2
Stenelmis	1	1	8
Scirtidae	--	--	--
MEGALOPTERA (dobsonflies and fishflies)	--	--	--
Corydalidae	--	--	--
Corydalus	--	1	--
Sialidae	--	--	--
Sialis	--	--	--
TRICHOPTERA (caddisflies)	--	--	--
SPICIPALPIA	--	--	--
Hydroptilidae	--	--	--
Hydroptila	--	--	--
Leucotrichia	--	--	--
Glossosomatidae	--	--	--
Glossosoma	--	--	--
ANNULIPALPIA	--	--	--
Philopotamidae	--	--	--
Chimarra	--	--	--
Hydropsychidae	--	--	--
Cheumatopsyche	--	--	5
Hydropsyche	3	--	14
Hydropsyche bifida gr.	--	--	1
INTEGRIPALPIA	--	--	--
Leptoceridae	--	--	--
Oecetis	--	--	2
Helicopsychidae	--	--	--
Helicopsyche	--	--	1
LEPIDOPTERA (aquatic moths)	--	--	--
Pyralidae	--	--	--
Petrophila	--	--	3
DIPTERA (true flies)	--	--	--
Ceratopogonidae (biting midges)	1	--	--
Probezzia	--	--	--
Chironomidae (non-biting midges)	--	--	--
Tanypodinae	--	--	--
Pentaneurini	--	--	--
Ablabesmyia	1	--	--
Ablabesmyia mallochi	7	--	--
Conchapelopia	--	--	--
Pentaneura	--	--	--
Thiennemannimyia gr.	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570076 -- Conodoguinet Cr 115 ft US of Good Hope Dam, PA--Continued

	Sept. 19, 2001	Nov. 19, 2001	Nov. 25, 2002
Procladini	--	--	--
Procladius	4	1	--
Tanypodini	--	--	--
Tanypus	1	--	--
Orthocladiinae	--	--	--
Corynoneurini	--	--	--
Corynoneura	2	--	--
Orthocladiini	--	--	--
Cricotopus/Orthocladius	1	--	1
Cricotopus	--	--	--
Cricotopus bicinctus	2	--	--
Cricotopus trifascia	--	--	--
Cricotopus vierrensis	--	--	--
Eukiefferiella	--	--	--
Eukiefferiella brevicalcar gr.	--	--	--
Nanocladius	1	--	--
Orthocladius	--	--	6
Thiennemaniella	--	--	--
Tvetenia	--	--	--
Tvetenia bavarica gr.	--	--	--
Tvetenia vitracies gr.	--	--	--
Chironominae	--	--	--
Chironomini	--	--	--
Chironomus	1	1	--
Cryptochironomus	--	--	--
Dicrotendipes	9	5	1
Microtendipes pedellus gr.	--	--	1
Paratendipes	--	--	1
Phaenopsectra	--	--	--
Polypedilum	9	--	--
Polypedilum flavum	--	--	--
Polypedilum scalaenum gr.	--	--	2
Pseudochironomini	--	--	--
Pseudochironomus	--	--	--
Tanytarsini	--	--	--
Cladotanytarsus	--	6	2
Rheotanytarsus	1	--	--
Tanytarsus	22	2	--
Simuliidae (black flies)	--	--	--
Simulium	--	--	--
TOTAL TAXA	29	20	36
TOTAL NUMBER	132	221	241
TOTAL EPT TAXA	4	2	10
PERCENT EPT TAXA	14	10	28
HBI	6.37	6.10	5.82
PERCENT DOMINANT TAXA (single)	26	66	24

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570076 -- Conodoguinet Cr 115 ft US of Good Hope Dam, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, **WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	502	457	479
8	---	---	---	---	---	---	---	---	---	507	454	482
9	---	---	---	---	---	---	---	---	---	521	464	492
10	---	---	---	---	---	---	---	---	---	529	468	502
11	---	---	---	---	---	---	---	---	---	525	475	501
12	---	---	---	---	---	---	---	---	---	522	470	496
13	---	---	---	---	---	---	---	---	---	537	475	508
14	---	---	---	---	---	---	---	---	---	524	485	508
15	---	---	---	---	---	---	---	---	---	525	480	505
16	---	---	---	---	---	---	---	---	---	519	481	499
17	---	---	---	---	---	---	---	---	---	532	485	509
18	---	---	---	---	---	---	---	---	---	526	482	505
19	---	---	---	---	---	---	---	---	---	522	465	497
20	---	---	---	---	---	---	---	---	---	516	466	490
21	---	---	---	---	---	---	---	---	---	509	486	497
22	---	---	---	---	---	---	---	---	---	526	476	503
23	---	---	---	---	---	---	---	---	---	513	457	487
24	---	---	---	---	---	---	---	---	---	510	440	479
25	---	---	---	---	---	---	---	---	---	475	387	439
26	---	---	---	---	---	---	---	---	---	477	391	443
27	---	---	---	---	---	---	---	---	---	484	394	446
28	---	---	---	---	---	---	---	---	---	508	480	497
29	---	---	---	---	---	---	---	---	---	507	487	498
30	---	---	---	---	---	---	---	---	---	513	480	501
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	537	387	490

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, **WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	519	486	504	606	561	583	589	543	565	600	566	586
2	517	481	502	610	573	591	591	540	571	622	596	610
3	516	480	496	612	562	595	585	540	563	625	588	605
4	507	465	488	615	559	594	597	513	560	---	---	---
5	508	467	490	617	570	596	582	471	532	621	583	603
6	522	468	498	622	573	598	549	506	527	607	573	592
7	528	482	505	609	568	590	563	507	539	---	---	---
8	534	483	508	608	531	575	584	528	556	---	---	---
9	537	500	520	---	---	---	577	539	559	---	---	---
10	544	503	524	---	---	---	577	546	561	---	---	---
11	540	508	524	---	---	---	553	525	542	---	---	---
12	534	510	522	---	---	---	558	524	544	---	---	---
13	537	506	522	---	---	---	555	529	544	---	---	---
14	543	506	527	---	---	---	561	514	543	---	---	---
15	543	514	535	---	---	---	563	541	553	---	---	---
16	554	526	540	---	---	---	565	527	547	---	---	---
17	565	523	544	530	438	485	549	525	540	---	---	---
18	573	525	554	545	480	515	541	525	532	---	---	---
19	567	542	560	575	474	529	546	526	536	---	---	---
20	569	540	554	555	511	531	542	530	536	---	---	---
21	570	546	558	595	542	569	555	528	542	---	---	---
22	566	540	555	604	530	571	560	531	549	---	---	---
23	574	545	561	589	502	556	554	527	543	---	---	---
24	572	552	561	585	546	567	560	529	543	---	---	---
25	569	547	557	567	460	533	565	533	551	---	---	---
26	574	544	559	559	533	548	573	537	554	---	---	---
27	593	553	572	551	506	530	571	544	558	---	---	---
28	611	574	590	544	515	534	566	529	549	---	---	---
29	609	571	588	555	541	547	572	534	553	---	---	---
30	606	572	589	571	532	550	596	555	570	---	---	---
31	590	552	569	---	---	---	614	565	580	---	---	---

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570076 -- Conodoguinet Cr 115 ft US of Good Hope Dam, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, **WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001**

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	8.6	7.7	8.2
8	---	---	---	---	---	---	---	---	---	8.6	7.7	8.2
9	---	---	---	---	---	---	---	---	---	8.5	7.6	8.1
10	---	---	---	---	---	---	---	---	---	8.4	7.6	8.0
11	---	---	---	---	---	---	---	---	---	8.4	7.7	8.0
12	---	---	---	---	---	---	---	---	---	8.5	7.7	8.1
13	---	---	---	---	---	---	---	---	---	8.6	7.7	8.2
14	---	---	---	---	---	---	---	---	---	8.5	7.7	8.1
15	---	---	---	---	---	---	---	---	---	8.6	7.9	8.2
16	---	---	---	---	---	---	---	---	---	8.5	7.9	8.3
17	---	---	---	---	---	---	---	---	---	8.5	7.8	8.2
18	---	---	---	---	---	---	---	---	---	8.5	7.8	8.2
19	---	---	---	---	---	---	---	---	---	8.6	7.8	8.3
20	---	---	---	---	---	---	---	---	---	8.5	7.6	7.8
21	---	---	---	---	---	---	---	---	---	8.3	7.6	7.8
22	---	---	---	---	---	---	---	---	---	8.3	7.7	8.1
23	---	---	---	---	---	---	---	---	---	8.4	7.7	8.1
24	---	---	---	---	---	---	---	---	---	8.4	7.6	7.8
25	---	---	---	---	---	---	---	---	---	8.0	7.6	7.7
26	---	---	---	---	---	---	---	---	---	8.4	7.8	7.9
27	---	---	---	---	---	---	---	---	---	8.4	7.8	8.0
28	---	---	---	---	---	---	---	---	---	8.4	7.9	8.1
29	---	---	---	---	---	---	---	---	---	8.4	7.9	8.1
30	---	---	---	---	---	---	---	---	---	8.4	7.9	8.1
31	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	8.6	7.9	8.3
MIN	---	---	---	---	---	---	---	---	---	8.0	7.6	7.7

PH, WATER, WHOLE, FIELD, STANDARD UNITS, **WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002**

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	8.5	7.9	8.2	8.4	8.0	8.1	8.3	7.7	7.9	8.2	8.0	8.0
2	8.4	7.9	8.1	8.4	7.8	8.1	8.5	7.9	8.1	8.2	8.0	8.0
3	8.4	7.8	8.1	8.5	7.8	8.0	8.5	8.0	8.2	8.2	8.0	8.0
4	8.4	7.8	8.0	8.6	7.9	8.1	8.6	8.0	8.2	8.2	8.0	8.0
5	8.4	7.8	8.0	8.6	7.9	8.2	8.5	7.9	8.0	8.2	8.0	8.0
6	8.4	7.8	7.9	8.6	8.0	8.2	8.3	7.8	7.9	8.2	8.0	8.0
7	8.4	7.9	8.1	8.6	8.0	8.2	8.5	7.8	8.0	---	---	---
8	8.5	8.0	8.2	8.5	7.9	8.1	8.4	7.8	8.0	---	---	---
9	8.5	8.0	8.2	---	---	---	8.4	7.8	8.0	---	---	---
10	8.5	8.0	8.1	---	---	---	8.4	7.9	8.1	---	---	---
11	8.5	7.9	8.1	---	---	---	8.4	7.9	8.0	---	---	---
12	8.4	7.9	8.1	---	---	---	8.4	7.9	8.0	---	---	---
13	8.4	7.9	8.1	---	---	---	8.3	7.8	7.9	---	---	---
14	8.4	7.8	7.9	---	---	---	7.9	7.7	7.8	---	---	---
15	8.2	7.8	7.9	---	---	---	8.3	7.7	8.1	---	---	---
16	8.3	7.9	8.0	---	---	---	8.4	8.0	8.1	---	---	---
17	8.4	7.9	8.1	---	---	---	8.3	7.9	8.1	---	---	---
18	8.5	8.1	8.2	---	---	---	8.3	7.9	8.0	---	---	---
19	8.4	8.1	8.2	---	---	---	8.3	8.0	8.1	---	---	---
20	8.5	8.0	8.2	---	---	---	8.5	8.0	8.3	---	---	---
21	8.4	8.0	8.2	---	---	---	8.4	8.0	8.3	---	---	---
22	8.4	8.0	8.2	8.5	8.1	8.2	8.4	8.0	8.1	---	---	---
23	8.4	7.9	8.0	8.4	8.0	8.2	8.3	8.0	8.0	---	---	---
24	8.3	7.9	8.1	8.2	7.7	7.9	8.3	7.9	8.0	---	---	---
25	8.3	7.9	8.0	7.8	7.5	7.7	8.3	8.0	8.1	---	---	---
26	8.4	8.0	8.1	8.0	7.5	7.7	8.3	8.0	8.1	---	---	---
27	8.5	8.1	8.2	8.2	7.7	7.8	8.4	7.9	8.0	---	---	---
28	8.5	8.1	8.2	8.2	7.8	7.8	8.3	8.0	8.1	---	---	---
29	8.6	8.2	8.3	8.0	7.8	7.8	8.3	8.0	8.1	---	---	---
30	8.5	8.0	8.2	8.0	7.7	7.8	8.3	8.0	8.1	---	---	---
31	8.5	8.0	8.2	---	---	---	8.2	8.0	8.1	---	---	---
MAX	8.6	8.2	8.3	8.6	8.1	8.2	8.6	8.0	8.3	8.2	8.0	8.0
MIN	8.2	7.8	7.9	7.8	7.5	7.7	7.9	7.7	7.8	8.2	8.0	8.0

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570076 -- Conodoguinet Cr 115 ft US of Good Hope Dam, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, **WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	24.0	20.5	22.5
8	---	---	---	---	---	---	---	---	---	25.0	22.0	23.5
9	---	---	---	---	---	---	---	---	---	25.0	22.0	24.0
10	---	---	---	---	---	---	---	---	---	25.0	23.0	24.0
11	---	---	---	---	---	---	---	---	---	23.5	21.0	22.0
12	---	---	---	---	---	---	---	---	---	23.0	20.5	22.0
13	---	---	---	---	---	---	---	---	---	23.5	20.5	22.0
14	---	---	---	---	---	---	---	---	---	23.5	20.0	21.0
15	---	---	---	---	---	---	---	---	---	20.0	17.5	18.5
16	---	---	---	---	---	---	---	---	---	19.5	17.0	18.0
17	---	---	---	---	---	---	---	---	---	20.0	17.0	18.5
18	---	---	---	---	---	---	---	---	---	20.5	18.0	19.5
19	---	---	---	---	---	---	---	---	---	21.0	19.0	20.0
20	---	---	---	---	---	---	---	---	---	20.5	19.0	19.5
21	---	---	---	---	---	---	---	---	---	21.0	19.0	20.0
22	---	---	---	---	---	---	---	---	---	21.5	20.0	21.0
23	---	---	---	---	---	---	---	---	---	21.5	20.0	21.0
24	---	---	---	---	---	---	---	---	---	21.5	20.0	20.5
25	---	---	---	---	---	---	---	---	---	20.0	17.5	18.5
26	---	---	---	---	---	---	---	---	---	17.5	15.0	16.0
27	---	---	---	---	---	---	---	---	---	17.0	15.5	16.0
28	---	---	---	---	---	---	---	---	---	16.0	14.0	15.0
29	---	---	---	---	---	---	---	---	---	16.0	14.5	15.0
30	---	---	---	---	---	---	---	---	---	16.0	14.5	15.0
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	25.0	14.0	19.7

WATER TEMPERATURE, DEGREES CELSIUS, **WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	16.5	14.5	15.5	11.5	10.0	10.5	14.0	10.0	12.0	0.5	0.0	0.0
2	18.0	15.5	16.5	15.0	11.5	13.0	11.0	8.0	10.0	1.0	0.0	0.5
3	19.0	17.0	18.0	16.5	12.0	14.0	9.5	6.5	8.0	3.0	0.0	1.0
4	19.5	18.0	19.0	14.5	10.0	12.0	10.5	6.5	8.5	3.0	0.0	1.0
5	19.5	18.0	18.5	12.0	8.0	10.0	12.5	9.0	10.5	2.5	1.0	1.5
6	19.5	17.0	18.0	11.0	7.0	8.5	11.5	9.5	10.5	2.0	0.0	1.0
7	17.0	13.5	14.5	12.5	7.5	9.5	12.0	9.0	11.0	---	---	---
8	13.5	11.5	12.0	13.0	8.0	10.5	9.0	7.5	8.0	---	---	---
9	12.5	10.5	11.5	12.0	8.5	10.0	9.0	6.0	7.5	---	---	---
10	13.5	11.0	12.0	---	---	---	7.5	4.5	6.0	---	---	---
11	15.0	12.5	13.5	---	---	---	9.5	6.5	7.5	---	---	---
12	16.0	15.0	15.5	---	---	---	7.5	5.0	6.5	---	---	---
13	18.5	16.0	17.0	---	---	---	9.0	7.5	8.5	---	---	---
14	19.0	17.5	18.0	---	---	---	10.0	9.0	9.5	---	---	---
15	17.5	16.0	16.5	---	---	---	9.5	6.0	8.0	---	---	---
16	16.5	14.0	14.5	---	---	---	7.0	5.0	6.0	---	---	---
17	14.0	12.5	13.0	12.0	8.0	10.0	8.0	6.5	7.0	---	---	---
18	12.5	10.0	11.0	10.0	7.5	8.5	9.0	6.5	8.0	---	---	---
19	12.0	10.5	11.0	10.5	6.5	8.5	9.0	6.0	7.0	---	---	---
20	13.5	11.5	12.5	9.0	5.5	8.0	6.5	4.0	5.5	---	---	---
21	14.0	13.0	13.5	8.0	4.5	6.0	5.5	3.0	4.0	---	---	---
22	15.0	14.0	14.5	8.0	4.0	5.5	5.5	2.5	3.5	---	---	---
23	16.0	14.5	15.0	8.5	4.0	6.0	5.5	3.0	4.0	---	---	---
24	17.5	15.5	16.5	9.5	6.5	8.0	5.5	3.0	4.5	---	---	---
25	18.0	16.0	17.5	12.5	9.5	11.0	4.0	1.5	2.5	---	---	---
26	16.0	10.5	13.0	13.0	9.5	11.5	4.0	1.0	2.5	---	---	---
27	10.5	9.0	9.5	11.0	9.5	10.0	2.0	0.0	1.0	---	---	---
28	9.0	8.5	8.5	12.0	10.5	11.0	3.0	0.0	1.0	---	---	---
29	9.5	8.0	8.5	12.0	11.0	11.5	3.5	0.0	1.0	---	---	---
30	11.0	9.5	10.0	14.0	11.5	13.0	0.5	0.0	0.0	---	---	---
31	11.0	10.0	10.5	---	---	---	0.0	0.0	0.0	---	---	---
MONTH	19.5	8.0	14.0	16.5	4.0	9.8	14.0	0.0	6.1	3.0	0.0	0.8

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570076 -- Conodoguinet Cr 115 ft US of Good Hope Dam, PA--Continued

OXYGEN, DISSOLVED (MG/L), **WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	15.8	6.0	10.9
8	---	---	---	---	---	---	---	---	---	15.6	5.7	10.7
9	---	---	---	---	---	---	---	---	---	14.8	5.2	10.2
10	---	---	---	---	---	---	---	---	---	13.3	4.5	8.8
11	---	---	---	---	---	---	---	---	---	14.8	5.9	9.8
12	---	---	---	---	---	---	---	---	---	15.2	6.0	10.4
13	---	---	---	---	---	---	---	---	---	15.8	6.3	11.4
14	---	---	---	---	---	---	---	---	---	14.9	5.9	10.1
15	---	---	---	---	---	---	---	---	---	16.3	7.7	11.9
16	---	---	---	---	---	---	---	---	---	16.5	8.3	12.4
17	---	---	---	---	---	---	---	---	---	16.8	7.6	12.0
18	---	---	---	---	---	---	---	---	---	16.4	6.8	11.9
19	---	---	---	---	---	---	---	---	---	16.1	7.1	11.4
20	---	---	---	---	---	---	---	---	---	13.8	4.9	7.4
21	---	---	---	---	---	---	---	---	---	14.1	5.1	8.4
22	---	---	---	---	---	---	---	---	---	14.6	6.4	10.5
23	---	---	---	---	---	---	---	---	---	15.1	6.6	10.7
24	---	---	---	---	---	---	---	---	---	14.8	5.0	8.1
25	---	---	---	---	---	---	---	---	---	10.4	5.6	7.5
26	---	---	---	---	---	---	---	---	---	14.9	7.2	10.1
27	---	---	---	---	---	---	---	---	---	15.3	7.8	11.0
28	---	---	---	---	---	---	---	---	---	17.1	8.8	12.2
29	---	---	---	---	---	---	---	---	---	16.9	9.6	13.0
30	---	---	---	---	---	---	---	---	---	17.8	9.7	13.1
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	17.8	4.5	10.6

OXYGEN, DISSOLVED (MG/L), **WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	19.2	9.9	14.1	---	---	---	15.5	7.7	10.7	15.8	12.8	14.0
2	18.9	9.4	13.5	15.2	7.2	11.2	17.4	8.8	12.0	14.8	12.2	13.2
3	18.5	8.7	13.1	14.5	6.4	9.6	17.1	9.9	12.8	15.9	12.6	13.8
4	17.9	8.1	12.3	15.9	7.2	10.4	19.6	10.6	13.9	15.6	12.5	13.9
5	17.6	7.9	12.1	14.9	7.6	10.7	19.8	9.8	13.2	15.2	11.9	13.0
6	17.4	7.7	11.1	16.1	8.6	11.7	16.6	9.0	11.9	14.2	11.8	12.7
7	---	---	---	15.9	8.9	11.5	18.8	8.3	12.3	---	---	---
8	---	---	---	16.0	8.6	11.6	15.1	9.3	11.5	---	---	---
9	---	---	---	---	---	---	17.9	9.7	12.8	---	---	---
10	---	---	---	---	---	---	17.8	11.0	13.4	---	---	---
11	19.0	10.8	14.2	---	---	---	18.1	10.7	13.3	---	---	---
12	17.3	8.5	12.1	---	---	---	18.0	10.9	13.2	---	---	---
13	14.5	8.0	10.9	---	---	---	16.1	10.0	12.1	---	---	---
14	13.2	6.0	8.6	---	---	---	12.5	9.6	10.5	---	---	---
15	11.8	5.7	7.8	---	---	---	16.4	9.7	12.5	---	---	---
16	---	---	---	---	---	---	17.0	11.2	13.2	---	---	---
17	---	---	---	19.1	8.7	12.6	15.6	10.7	12.5	---	---	---
18	---	---	---	18.8	9.2	12.9	15.4	10.2	12.1	---	---	---
19	---	---	---	20.9	9.8	13.8	16.6	10.9	12.9	---	---	---
20	---	---	---	18.7	9.1	13.1	15.4	11.1	12.9	---	---	---
21	---	---	---	19.2	10.7	13.9	---	---	---	---	---	---
22	---	---	---	20.1	10.9	14.2	17.0	12.2	13.8	---	---	---
23	---	---	---	19.8	10.9	14.1	---	---	---	---	---	---
24	---	---	---	14.6	9.1	11.5	17.0	11.6	13.6	---	---	---
25	---	---	---	11.0	7.8	9.0	17.5	12.5	14.3	---	---	---
26	---	---	---	14.7	7.7	10.3	17.4	13.0	14.6	---	---	---
27	---	---	---	14.2	8.6	10.4	17.5	13.3	14.8	---	---	---
28	---	---	---	14.2	8.6	10.4	17.5	13.6	14.9	---	---	---
29	---	---	---	10.9	8.3	9.2	---	---	---	---	---	---
30	---	---	---	11.1	7.8	9.0	---	---	---	---	---	---
31	15.2	9.2	11.3	---	---	---	---	---	---	---	---	---
MONTH	19.2	5.7	11.8	20.9	6.4	11.5	19.8	7.7	12.9	15.9	11.8	13.4

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570076 -- Conodoguinet Cr 115 ft US of Good Hope Dam, PA--Continued

TURBIDITY, FIELD, WATER, UNFILTERED, NEPHELOMETRIC TURBIDITY UNITS, **WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	50	4.1	9.3
21	---	---	---	---	---	---	---	---	---	21	2.3	6.2
22	---	---	---	---	---	---	---	---	---	14	2.5	5.1
23	---	---	---	---	---	---	---	---	---	45	3.0	8.8
24	---	---	---	---	---	---	---	---	---	26	3.6	9.8
25	---	---	---	---	---	---	---	---	---	39	12	19
26	---	---	---	---	---	---	---	---	---	16	3.3	7.1
27	---	---	---	---	---	---	---	---	---	23	3.9	7.8
28	---	---	---	---	---	---	---	---	---	12	3.2	5.8
29	---	---	---	---	---	---	---	---	---	15	3.2	6.1
30	---	---	---	---	---	---	---	---	---	18	3.2	6.1
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	50	2.3	8.3

TURBIDITY, FIELD, WATER, UNFILTERED, NEPHELOMETRIC TURBIDITY UNITS, **WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	18	2.6	7.7	24	0.7	5.0	28	1.8	7.4	---	---	---
2	28	4.4	10	60	3.9	9.9	64	1.7	6.2	---	---	---
3	24	3.2	9.0	16	1.6	5.2	35	1.7	4.8	---	---	---
4	38	3.3	7.5	14	1.4	4.0	54	1.7	5.6	---	---	---
5	27	3.7	7.3	8.6	1.4	2.9	11	1.7	4.8	---	---	---
6	46	4.2	8.7	22	1.6	8.3	15	1.8	5.7	---	---	---
7	34	2.6	9.7	26	1.7	9.1	16	2.1	6.9	---	---	---
8	18	1.7	3.8	41	2.1	8.3	29	1.6	7.5	---	---	---
9	13	1.5	3.3	---	---	---	25	2.4	6.7	---	---	---
10	13	2.8	5.1	---	---	---	47	1.9	5.4	---	---	---
11	56	4.7	8.2	---	---	---	18	2.1	5.2	---	---	---
12	28	2.9	8.4	---	---	---	53	2.0	5.7	---	---	---
13	11	1.5	3.8	---	---	---	22	2.1	6.3	---	---	---
14	14	1.9	6.8	---	---	---	20	3.6	9.6	---	---	---
15	30	3.3	7.9	---	---	---	25	2.1	6.6	---	---	---
16	26	3.4	6.5	---	---	---	47	2.4	5.1	---	---	---
17	39	3.6	7.8	12	1.3	4.3	24	2.1	5.8	---	---	---
18	20	1.8	3.8	20	1.2	3.8	63	5.3	14	---	---	---
19	15	2.9	5.1	19	1.8	5.4	31	2.3	6.1	---	---	---
20	22	3.7	5.7	26	1.6	4.8	22	2.5	7.1	---	---	---
21	18	2.6	5.3	46	0.5	6.4	---	---	---	---	---	---
22	19	2.6	4.8	26	2.1	5.2	---	---	---	---	---	---
23	34	3.1	7.1	38	2.1	7.2	---	---	---	---	---	---
24	30	3.1	7.9	22	1.7	6.6	---	---	---	---	---	---
25	33	3.1	7.9	93	2.8	19	---	---	---	---	---	---
26	38	3.1	9.1	46	4.3	20	---	---	---	---	---	---
27	8.8	2.0	3.2	40	2.8	14	---	---	---	---	---	---
28	9.0	2.0	2.6	42	2.6	17	---	---	---	---	---	---
29	5.1	1.9	2.7	56	2.2	12	---	---	---	---	---	---
30	---	---	---	26	2.5	10	---	---	---	---	---	---
31	60	3.4	6.0	---	---	---	---	---	---	---	---	---
MONTH	60	1.5	6.4	93	0.5	8.6	64	1.6	6.6	---	---	---

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570078 -- Conodoguinet Cr 126 ft DS of Good Hope Dam at Good Hope, PA

LOCATION.--Lat 40°15'45", long 76°58'44", Cumberland County, Hydrologic unit 02050305, 13.4 mi upstream of confluence with Susquehanna River.

DRAINAGE AREA.--488 mi^2.

PERIOD OF RECORD.--October 2001 to current year (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: August 31, 2001 to current year (discontinued).
pH: August 31, 2001 to current year (discontinued).
WATER TEMPERATURE: August 31, 2001 to current year (discontinued).
DISSOLVED OXYGEN: August 31, 2001 to current year (discontinued).
TURBIDITY: August 31, 2001 to current year (discontinued).

INSTRUMENTATION.--Yellow Springs Instruments 6600 multi-parameter sonde (in-situ system).

REMARKS.--Daily specific conductance records rated poor. Daily pH records rated good. Daily water temperature record rated good. Daily dissolved oxygen record rated fair. Daily turbidity records rated good.

All samples collected by U.S. Geological Survey for the Good Hope Mill Dam Project. Explanation of column headings -- AGENCY COLLECTION CODE: 1028 - U. S. Geological Survey; AGENCY ANALYZING CODE: 80020 - U.S. Geological Survey, 9813 - Pennsylvania Department of Environmental Protection; SAMPLE TYPE: 9 - Routine Sample, 5 - Duplicate Sample. Explanation of remark codes -- E - Estimated Value; < - Less Than; c - Sample Holding Time Exceeded. For explanation of units of measurement please refer to pages 42-43.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	Sample type	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	TUR-BID-ITY FIELD WATER UNFLTRD (NTU) (61028)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)
OCT 2001													
25...	1200	1028	80020	9	E63	5.9	12.5	131	7.9	559	17.5	E.03	.30

Date	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
OCT 2001						
25...	.34	3.58	.016	.021	<.02	.026

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	Sample type	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	TUR-BID-ITY FIELD WATER UNFLTRD (NTU) (61028)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)
NOV 2001													
01...	1100	1028	80020	9	E66	3.1	11.0	98	8.1	568	10.2	<.04	.31
02...	0900	1028	80020	9	E70	4.5	11.7	108	8.2	550	11.8	<.04	.29
02...	1000	1028	80020	9	E70	140	10.4	96	8.0	559	11.8	<.04	.27
02...	1100	1028	80020	9	E194	43	9.3	86	8.0	565	11.6	<.04	.24
02...	1315	1028	80020	9	E150	50	10.6	100	8.1	556	13.0	E.03	.27
05...	0945	1028	80020	9	E71	9.2	10.0	89	8.0	553	9.7	<.04	.32

Date	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	SEDI-MENT, SUS-PENDED (MG/L) (80154)
NOV 2001							
01...	.35	3.84	<.008	.016	<.02	.021	2.8
02...	.37	3.69	.009	.017	<.02	.023	3.0
02...	.92	3.74	E.007	.018	<.02	.116	98
02...	.58	3.77	E.007	.017	E.01	.039	22
02...	.58	3.71	E.007	.017	<.02	.049	33
05...	.46	3.67	.008	.017	<.02	.023	4.1

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570078 -- Conodoguinet Cr 126 ft DS of Good Hope Dam at Good Hope, PA--Continued

CROSS-SECTION ANALYSES, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	TURBIDITY FIELD WATER UNFLTRD (NTU) (61028)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	SPECIFIC CONDUCTANCE (µS/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	SAMPLE LOCATION, CROSS SECTION (FT FM L BANK) (00009)
OCT 2001								
19...	1301	--	7.0	69	7.3	727	14.3	2
19...	1302	--	9.3	88	7.8	569	13.9	12
19...	1303	--	10.1	98	7.9	572	13.9	22
19...	1304	--	10.7	104	8.0	569	14.3	30
19...	1305	2.7	10.3	96	8.0	563	12.3	52
19...	1306	5.0	9.8	90	8.0	567	11.4	62
19...	1307	5.4	9.9	90	8.0	566	11.2	72
19...	1308	6.8	9.9	90	8.0	564	11.2	82
19...	1309	3.6	9.9	90	8.0	565	11.1	92
19...	1310	4.6	9.8	90	8.0	565	11.1	102
19...	1311	5.8	9.8	90	8.0	564	11.1	112
19...	1312	2.4	9.8	89	8.0	563	11.1	122
19...	1313	4.1	9.8	89	8.0	563	11.2	132
19...	1314	4.2	9.7	89	8.0	563	11.1	142
19...	1315	5.0	9.7	88	8.0	563	11.1	152
19...	1316	4.5	9.7	88	8.0	562	11.2	162
19...	1317	4.6	9.7	88	8.0	562	11.1	172
19...	1318	4.8	9.6	88	8.0	561	11.1	182
19...	1319	5.0	9.4	85	8.0	558	11.1	192
19...	1320	4.8	9.3	85	8.0	556	11.1	202
19...	1321	4.7	9.3	85	8.0	555	11.1	212
19...	1322	7.8	9.4	86	8.0	555	11.2	222
19...	1323	3.7	9.5	87	8.0	554	11.3	232
19...	1324	9.7	9.2	84	7.9	556	11.1	237
25...	1201	5.5	13.7	144	8.0	557	17.7	60
25...	1202	7.7	13.2	138	7.9	559	17.6	80
25...	1203	8.0	13.0	136	7.9	558	17.6	100
25...	1204	5.0	12.7	133	7.9	560	17.5	120
25...	1205	5.0	12.4	130	7.9	560	17.5	140
25...	1206	5.7	12.3	129	7.9	560	17.5	160
25...	1207	5.4	12.2	128	7.9	560	17.5	180
25...	1208	5.7	11.7	122	7.9	560	17.5	200
25...	1209	4.8	11.7	123	7.9	558	17.5	220

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570078 -- Conodoguinet Cr 126 ft DS of Good Hope Dam at Good Hope, PA--Continued

CROSS-SECTION ANALYSES, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	TURBIDITY FIELD WATER UNFLTRD (NTU) (61028)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	SPECIFIC CONDUCTANCE (µS/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	SAMPLE LOCATION, CROSS SECTION (FT FM L BANK) (00009)
NOV 2001								
01...	1131	4.9	11.6	104	8.1	553	10.3	10
01...	1132	2.9	11.4	102	8.1	557	10.2	30
01...	1133	2.8	11.3	100	8.1	563	10.2	50
01...	1134	3.0	11.1	99	8.1	566	10.1	70
01...	1135	2.9	10.9	97	8.1	569	10.1	90
01...	1136	3.1	10.8	96	8.0	570	10.2	110
01...	1137	2.3	10.7	95	8.0	573	10.1	130
01...	1138	4.7	10.6	94	8.0	580	10.1	150
01...	1139	1.7	10.6	95	8.0	585	10.3	170
02...	0901	4.2	11.9	110	8.2	533	11.9	10
02...	0902	5.1	11.9	110	8.2	546	11.9	50
02...	0903	2.6	11.9	110	8.2	545	12.0	70
02...	0904	4.0	11.8	109	8.2	548	11.8	90
02...	0905	5.2	11.6	107	8.2	551	11.8	110
02...	0906	4.9	11.5	106	8.2	552	11.7	130
02...	0907	5.0	11.3	104	8.1	557	11.7	150
02...	0908	5.2	11.3	104	8.1	569	11.7	170
02...	1001	750	11.3	106	8.1	553	12.2	0
02...	1002	300	11.0	102	8.1	553	11.8	20
02...	1003	140	10.9	101	8.1	553	11.8	40
02...	1004	120	10.8	100	8.1	554	11.8	60
02...	1005	86	10.5	97	8.1	555	11.8	80
02...	1006	30	10.3	95	8.0	556	11.7	100
02...	1007	26	10.0	92	8.0	556	11.7	120
02...	1008	21	9.9	91	8.0	559	11.6	140
02...	1009	17	9.7	90	8.0	565	11.6	160
02...	1010	20	9.8	91	8.0	572	11.7	180
02...	1011	34	10.1	93	8.0	574	11.8	200
02...	1101	200	10.3	97	8.1	552	11.8	0
02...	1102	150	9.7	90	8.0	548	11.7	20
02...	1103	22	9.6	89	8.0	547	11.6	40
02...	1104	20	9.5	87	8.0	548	11.5	60
02...	1105	20	9.5	87	8.0	548	11.5	80
02...	1106	10	9.4	86	8.0	554	11.5	100
02...	1107	9.1	9.2	85	8.0	564	11.4	120
02...	1108	10	9.0	82	7.9	576	11.5	140
02...	1109	10	8.7	80	7.9	587	11.6	160
02...	1110	14	8.6	80	7.8	595	11.7	180
02...	1111	11	8.6	80	7.8	594	11.7	200
02...	1316	250	10.0	96	8.1	543	13.4	0
02...	1317	42	10.5	100	8.1	544	13.1	20
02...	1318	11	10.8	102	8.1	540	13.0	40
02...	1319	11	10.9	103	8.1	540	13.1	60
02...	1320	7.3	10.9	104	8.1	540	12.9	80
02...	1321	11	11.0	104	8.1	541	12.9	100
02...	1322	10	11.1	105	8.1	545	12.8	120
02...	1323	24	11.1	105	8.1	554	12.9	140
02...	1324	25	10.7	102	8.0	578	12.9	160
02...	1325	64	9.8	94	7.8	595	13.0	180
02...	1326	95	9.4	90	7.8	598	13.1	200
05...	0946	51	9.8	86	8.3	527	9.6	30
05...	0947	4.3	10.2	90	8.1	550	9.5	50
05...	0948	7.0	10.3	91	8.0	548	9.7	70
05...	0949	3.0	10.3	91	8.0	548	9.8	90
05...	0950	4.7	10.2	90	8.0	550	9.8	110
05...	0951	2.0	10.0	89	8.0	552	9.8	130
05...	0952	2.7	9.9	88	8.0	556	9.8	150
05...	0953	4.2	9.9	87	8.0	568	9.6	170
05...	0954	4.3	9.8	86	7.9	582	9.4	190

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570078 -- Conodoguinet Cr 126 ft DS of Good Hope Dam at Good Hope, PA--Continued

REMARKS.--Definition of terms used: Total Number - the total number of aquatic invertebrates collected at a site; Total EPT Taxa - total number of distinct taxa within the orders Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies). These orders of insects are generally considered to be pollution sensitive; % Contribution of Dominant Taxa - total number of organisms is an indication of community balance at the lowest taxonomic level possible (usually genus or species). A community that proves dominated by relatively few taxa would include environmental stress. This metric can include the single most dominant taxa, three most dominant, or five most dominant taxa "dominants in common" (DIC). Other definitions can be found on pages 22-33.

	Sept. 18, 2001	Nov. 19, 2001	Nov. 25, 2002
PLATYHELMINTHES	--	--	--
TURBELLARIA	--	--	--
TRICLADIDA	--	--	--
Planariidae	--	--	18
ANNELIDA	--	--	--
OLIGOCHAETA (aquatic earthworms)	--	--	--
TUBIFICIDA	--	--	--
Enchytraeidae	--	--	--
Tubificidae	--	--	--
Aulodrilus pleuriseta	--	--	--
Spirosperma nikolskyi	--	--	2
Tubificidae w/o capilliform setae	--	--	--
LUMBRICINA	--	--	--
MOLLUSCA	--	--	--
GASTROPODA (snails)	--	--	--
MESOGASTROPODA	--	--	--
Hydrobiidae	--	--	--
Amnicola	--	--	--
Pleuroceridae	--	--	--
Goniobasis	--	--	2
Leptoxis carinata	--	--	--
BASOMMATOPHORA	--	--	--
Ancylidae (limpets)	--	--	--
Ferrissia	--	--	7
Planorbidae	--	--	--
Gyraulus	--	--	--
Planorbella	--	--	1
Lymnaeidae	--	--	--
Fossaria	--	--	--
Physidae	--	--	--
Physella	--	--	1
BIVALVIA (clams and mussels)	--	--	--
VENEROIDA	--	--	--
Corbiculidae	--	--	--
Corbicula fluminea	2	--	39
Sphaeriidae (fingernail clams)	--	--	1
Pisidium	--	--	--
CHELICERATA	--	--	--
ARACHNIDA	--	--	--
HYDRACHNIDIA (water mites)	--	1	1
ARTHROPODA	--	--	--
CRUSTACEA	--	--	--
OSTRACODA	--	--	2
MALACOSTRACA	--	--	--
ISOPODA (sow bugs)	--	--	--
Asellidae	--	--	--
Lirceus	--	--	1
AMPHIPODA (scuds)	--	--	--
Crangonyctidae	--	--	--
Crangonyx	--	--	--
Gammaridae	--	--	--
Gammarus	--	6	28
Hyalellidae	--	--	--
Hyalella azteca	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570078 -- Conodoguinet Cr 126 ft DS of Good Hope Dam at Good Hope, PA--Continued

	Sept. 18, 2001	Nov. 19, 2001	Nov. 25, 2002
INSECTA	--	--	--
EPHEMEROPTERA (mayflies)	--	--	--
PISCIFORMA	--	--	--
Baetidae	3	4	--
Acentrella	4	--	--
Acerpenna	15	15	--
Baetis	6	--	1
Baetis (2-tailed)	--	--	--
SETISURA	--	--	--
Heptageniidae	4	--	--
Heptagenia	1	--	--
Leucrocuta	3	--	--
Stenacron	4	--	1
Stenonema	14	16	7
Isonychiidae	--	--	--
Isonychia	9	5	--
FUCATERGALIA	--	--	--
Leptophlebiidae	--	--	--
Leptophlebia	--	1	--
Paraleptophlebia	--	1	--
Ephemeridae	--	--	--
Hexagenia	--	--	--
Potamanthidae	--	--	--
Anthopotamus	6	5	4
Caenidae	--	--	--
Caenis	1	1	10
Ephemerellidae	--	--	--
Ephemerella	--	1	--
Serratella	1	1	--
Leptohyphidae	--	--	--
Tricorythodes	--	--	--
ODONATA (dragonflies and damselflies)	--	--	--
ZYGOPTERA	--	--	--
Coenagrionidae	--	--	--
Argia	3	2	5
Enallagma	--	--	--
HEMIPTERA (true bugs)	--	--	--
Corixidae	--	--	--
PLECOPTERA (stoneflies)	--	--	--
EUHOLOGNATHA	--	--	--
Taeniopterygidae	--	--	--
Taeniopteryx	--	5	3
SYSTELLAGNATHA	--	--	--
Perlidae	--	--	--
Agnetina	1	--	--
Paragnetina	--	--	--
COLEOPTERA (beetles)	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570078 -- Conodoguinet Cr 126 ft DS of Good Hope Dam at Good Hope, PA--Continued

	Sept. 18, 2001	Nov. 19, 2001	Nov. 25, 2002
POLYPHAGA	--	--	--
Hydrophilidae (water scavenger beetles)	--	--	--
Berosus	--	--	1
Psephenidae (water pennies)	--	--	--
Psephenus	4	1	13
Elmidae (riffle beetles)	--	--	--
Dubiraphia	--	--	3
Macronychus	--	--	--
Optioservus	30	47	32
Promoresia	--	1	--
Stenelmis	42	11	26
Scirtidae	--	--	--
MEGALOPTERA (dobsonflies and fishflies)	--	--	--
Corydalidae	--	--	--
Corydalus	2	--	--
Sialidae	--	--	--
Sialis	1	--	--
TRICHOPTERA (caddisflies)	--	--	--
SPICIPALPIA	--	--	--
Hydroptilidae	--	--	--
Hydroptila	1	2	--
Leucotrichia	3	--	--
Glossosomatidae	--	--	--
Glossosoma	1	--	--
ANNULIPALPIA	--	--	--
Philopotamidae	--	--	--
Chimarra	5	3	--
Hydropsychidae	1	1	--
Cheumatopsyche	35	32	3
Hydropsyche	11	7	7
Hydropsyche bifida gr.	1	9	--
INTEGRIPALPIA	--	--	--
Leptoceridae	--	--	--
Oecetis	--	--	--
Helicopsychidae	--	--	--
Helicopsyche	1	--	2
LEPIDOPTERA (aquatic moths)	--	--	--
Pyralidae	--	--	--
Petrophila	4	1	1
DIPTERA (true flies)	--	--	--
Ceratopogonidae (biting midges)	--	1	--
Probezzia	--	--	1
Chironomidae (non-biting midges)	--	--	--
Tanypodinae	--	--	--
Pentaneurini	--	--	--
Ablabesmyia	--	--	--
Ablabesmyia mallochi	--	--	--
Conchapelopia	1	6	--
Pentaneura	1	1	--
Thiennemannimyia gr.	1	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570078 -- Conodoguinet Cr 126 ft DS of Good Hope Dam at Good Hope, PA--Continued

	Sept. 18, 2001	Nov. 19, 2001	Nov. 25, 2002
Procladini	--	--	--
Procladius	--	--	--
Tanypodini	--	--	--
Tanypus	--	--	--
Orthocladiinae	--	--	--
Corynoneurini	--	--	--
Corynoneura	--	--	--
Orthocladiini	--	--	--
Cricotopus/Orthocladius	--	3	2
Cricotopus	--	--	--
Cricotopus bicinctus	3	6	--
Cricotopus trifascia	--	1	--
Cricotopus vierrensis	--	--	--
Eukiefferiella	--	--	--
Eukiefferiella brevicalcar gr.	--	--	5
Nanocladius	--	--	--
Orthocladius	--	3	2
Thiennemaniella	3	--	--
Tvetenia	--	--	--
Tvetenia bavarica gr.	1	--	--
Tvetenia vitracies gr.	--	--	--
Chironominae	1	--	--
Chironomini	--	--	--
Chironomus	--	--	--
Cryptochironomus	--	--	--
Dicrotendipes	--	2	--
Microtendipes pedellus gr.	--	4	--
Paratendipes	--	--	--
Phaenopsectra	--	--	--
Polypedilum	--	--	--
Polypedilum flavum	6	1	1
Polypedilum scalaenum gr.	--	--	--
Pseudochironomini	--	--	--
Pseudochironomus	--	--	--
Tanytarsini	--	--	--
Cladotanytarsus	--	3	--
Rheotanytarsus	6	12	1
Tanytarsus	6	7	--
Simuliidae (black flies)	--	--	--
Simulium	--	--	1
TOTAL TAXA	41	38	35
TOTAL NUMBER	248	229	235
TOTAL EPT TAXA	22	17	9
PERCENT EPT TAXA	54	45	26
HBI	4.56	4.69	5.26
PERCENT DOMINANT TAXA (single)	17	21	17

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570078 -- Conodoguinet Cr 126 ft DS of Good Hope Dam at Good Hope, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, **WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	---	---	---	---	---	---	---	---	---	497	425	467
2	---	---	---	---	---	---	---	---	---	539	430	494
3	---	---	---	---	---	---	---	---	---	522	411	478
4	---	---	---	---	---	---	---	---	---	497	405	456
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	522	441	482
12	---	---	---	---	---	---	---	---	---	530	445	488
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	521	---	---
19	---	---	---	---	---	---	---	---	---	530	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	484	389	446
26	---	---	---	---	---	---	---	---	---	492	386	455
27	---	---	---	---	---	---	---	---	---	492	387	454
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	535	429	485	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	539	386	469

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, **WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	---	---	---	599	562	577	584	551	566	---	---	---
2	---	---	---	---	---	---	584	545	564	---	---	---
3	---	---	---	---	---	---	571	535	556	---	---	---
4	---	---	---	---	---	---	574	496	541	---	---	---
5	---	---	---	---	---	---	554	473	518	---	---	---
6	---	---	---	602	553	577	534	504	520	---	---	---
7	548	502	527	591	553	572	546	510	530	---	---	---
8	556	506	533	594	483	---	591	542	565	---	---	---
9	543	498	522	578	485	---	590	548	570	---	---	---
10	---	---	---	582	527	554	---	---	---	---	---	---
11	---	---	---	580	526	557	---	---	---	---	---	---
12	---	---	---	593	549	571	---	---	---	---	---	---
13	---	---	---	595	540	567	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	555	---	---	---	---	---	---	---	---	---	---	---
16	561	530	546	---	---	---	---	---	---	---	---	---
17	563	523	544	---	---	---	---	---	---	---	---	---
18	567	524	550	534	440	500	---	---	---	---	---	---
19	563	535	554	559	481	524	---	---	---	---	---	---
20	---	---	---	555	514	531	---	---	---	---	---	---
21	564	533	550	592	521	558	---	---	---	---	---	---
22	575	528	553	591	507	553	---	---	---	---	---	---
23	578	542	562	567	479	528	---	---	---	---	---	---
24	572	544	559	543	507	526	---	---	---	---	---	---
25	573	532	553	530	477	511	---	---	---	---	---	---
26	583	550	567	545	519	531	---	---	---	---	---	---
27	596	562	578	539	501	522	---	---	---	---	---	---
28	604	578	592	545	512	536	---	---	---	---	---	---
29	606	579	591	554	531	545	---	---	---	---	---	---
30	598	569	587	573	551	559	---	---	---	---	---	---
31	584	537	564	---	---	---	---	---	---	---	---	---
MONTH	606	498	557	602	440	545	591	473	548	---	---	---

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570078 -- Conodoguinet Cr 126 ft DS of Good Hope Dam at Good Hope, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, **WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001**

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	---	---	---	---	---	---	---	---	---	8.5	7.6	8.0
2	---	---	---	---	---	---	---	---	---	8.5	7.7	8.1
3	---	---	---	---	---	---	---	---	---	8.6	7.7	8.2
4	---	---	---	---	---	---	---	---	---	8.5	7.7	8.2
5	---	---	---	---	---	---	---	---	---	8.5	7.7	8.2
6	---	---	---	---	---	---	---	---	---	8.6	7.7	8.2
7	---	---	---	---	---	---	---	---	---	8.6	7.8	8.2
8	---	---	---	---	---	---	---	---	---	8.6	7.7	8.2
9	---	---	---	---	---	---	---	---	---	8.6	7.7	8.2
10	---	---	---	---	---	---	---	---	---	8.5	7.7	8.1
11	---	---	---	---	---	---	---	---	---	8.6	7.8	8.2
12	---	---	---	---	---	---	---	---	---	8.6	7.8	8.2
13	---	---	---	---	---	---	---	---	---	8.5	7.8	8.2
14	---	---	---	---	---	---	---	---	---	8.5	7.7	8.1
15	---	---	---	---	---	---	---	---	---	8.6	7.9	8.2
16	---	---	---	---	---	---	---	---	---	8.6	7.9	8.3
17	---	---	---	---	---	---	---	---	---	8.5	7.8	8.2
18	---	---	---	---	---	---	---	---	---	8.5	7.8	8.2
19	---	---	---	---	---	---	---	---	---	8.6	7.8	8.3
20	---	---	---	---	---	---	---	---	---	8.6	7.7	7.9
21	---	---	---	---	---	---	---	---	---	8.4	7.7	7.9
22	---	---	---	---	---	---	---	---	---	8.4	7.8	8.2
23	---	---	---	---	---	---	---	---	---	8.5	7.8	8.1
24	---	---	---	---	---	---	---	---	---	8.5	7.7	7.9
25	---	---	---	---	---	---	---	---	---	8.1	7.6	7.8
26	---	---	---	---	---	---	---	---	---	8.5	7.8	8.0
27	---	---	---	---	---	---	---	---	---	8.4	7.9	8.1
28	---	---	---	---	---	---	---	---	---	8.5	8.0	8.2
29	---	---	---	---	---	---	---	---	---	8.5	8.0	8.2
30	---	---	---	---	---	---	---	---	---	8.5	8.0	8.2
31	---	---	---	---	---	---	8.4	7.7	8.1	---	---	---
MAX	---	---	---	---	---	---	---	---	---	8.6	8.0	8.3
MIN	---	---	---	---	---	---	---	---	---	8.1	7.6	7.8

PH, WATER, WHOLE, FIELD, STANDARD UNITS, **WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002**

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	8.5	8.0	8.2	8.4	8.0	8.2	8.4	7.8	8.0	8.3	8.1	8.2
2	8.5	7.9	8.2	8.5	7.9	8.3	8.5	7.9	8.1	8.2	8.0	8.1
3	8.5	7.8	8.1	8.5	7.9	8.0	8.5	8.0	8.1	8.2	8.1	8.1
4	8.5	7.8	8.1	8.5	7.9	8.1	8.6	8.0	8.1	---	---	---
5	8.5	7.8	8.0	8.6	8.0	8.2	8.6	8.0	8.1	8.3	8.1	8.2
6	8.5	7.9	8.0	8.5	8.0	8.2	8.5	7.9	8.0	8.3	8.1	8.2
7	8.5	8.0	8.2	8.5	8.0	8.2	8.6	7.9	8.1	8.3	8.1	8.2
8	8.6	8.0	8.2	8.6	8.0	8.2	8.4	7.9	8.0	8.3	8.1	8.2
9	8.5	8.0	8.2	8.6	8.0	8.2	8.6	7.9	8.1	8.2	8.1	8.2
10	8.5	8.0	8.2	8.6	8.0	8.2	---	---	---	---	---	---
11	8.5	8.0	8.1	8.6	8.0	8.2	---	---	---	---	---	---
12	8.4	7.9	8.1	8.6	8.1	8.2	---	---	---	---	---	---
13	8.4	7.9	8.1	8.6	8.1	8.2	---	---	---	---	---	---
14	8.4	7.8	7.9	---	---	---	---	---	---	---	---	---
15	8.3	7.8	7.9	---	---	---	---	---	---	---	---	---
16	8.3	7.9	8.0	---	---	---	---	---	---	---	---	---
17	8.4	7.9	8.1	8.5	7.9	8.1	---	---	---	---	---	---
18	8.4	8.0	8.2	8.5	7.9	8.1	---	---	---	---	---	---
19	8.4	8.0	8.1	8.6	7.9	8.1	---	---	---	---	---	---
20	8.4	8.0	8.1	8.5	7.9	8.1	---	---	---	---	---	---
21	8.4	8.0	8.1	8.6	8.0	8.2	---	---	---	---	---	---
22	8.3	7.9	8.1	8.7	8.0	8.2	8.5	8.2	8.3	---	---	---
23	8.4	7.9	8.0	8.7	8.0	8.2	8.5	8.0	8.3	---	---	---
24	8.3	7.9	8.1	8.3	7.9	8.0	8.4	8.0	8.2	---	---	---
25	8.3	7.9	8.0	8.1	7.7	7.9	8.5	8.2	8.3	---	---	---
26	8.2	8.0	8.1	8.3	7.7	7.9	8.5	8.2	8.3	---	---	---
27	8.4	8.1	8.2	8.2	7.8	7.8	8.5	8.3	8.4	---	---	---
28	8.4	8.1	8.2	8.2	7.8	7.9	8.4	8.2	8.3	---	---	---
29	8.5	8.1	8.2	8.0	7.8	7.9	8.4	8.2	8.2	---	---	---
30	8.4	8.1	8.2	8.1	7.8	7.9	8.4	8.2	8.2	---	---	---
31	8.5	8.0	8.2	---	---	---	8.4	8.1	8.2	---	---	---
MAX	8.6	8.1	8.2	8.7	8.1	8.3	8.6	8.3	8.4	8.3	8.1	8.2
MIN	8.2	7.8	7.9	8.0	7.7	7.8	8.4	7.8	8.0	8.2	8.0	8.1

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570078 -- Conodoguinet Cr 126 ft DS of Good Hope Dam at Good Hope, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, **WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	---	---	---	---	---	---	---	---	---	25.5	24.0	25.0
2	---	---	---	---	---	---	---	---	---	25.0	21.5	23.0
3	---	---	---	---	---	---	---	---	---	23.5	20.5	22.0
4	---	---	---	---	---	---	---	---	---	25.0	22.0	23.5
5	---	---	---	---	---	---	---	---	---	24.5	22.0	23.5
6	---	---	---	---	---	---	---	---	---	23.5	20.5	22.0
7	---	---	---	---	---	---	---	---	---	24.0	20.5	22.5
8	---	---	---	---	---	---	---	---	---	25.0	22.0	23.5
9	---	---	---	---	---	---	---	---	---	25.5	22.0	24.0
10	---	---	---	---	---	---	---	---	---	25.0	23.5	24.0
11	---	---	---	---	---	---	---	---	---	23.5	21.0	22.5
12	---	---	---	---	---	---	---	---	---	23.0	20.5	22.0
13	---	---	---	---	---	---	---	---	---	23.5	20.5	22.0
14	---	---	---	---	---	---	---	---	---	23.5	20.0	21.0
15	---	---	---	---	---	---	---	---	---	20.0	17.5	18.5
16	---	---	---	---	---	---	---	---	---	19.5	17.0	18.5
17	---	---	---	---	---	---	---	---	---	20.5	17.0	19.0
18	---	---	---	---	---	---	---	---	---	20.5	18.5	19.5
19	---	---	---	---	---	---	---	---	---	21.0	19.0	20.0
20	---	---	---	---	---	---	---	---	---	21.0	19.0	19.5
21	---	---	---	---	---	---	---	---	---	21.0	19.0	20.0
22	---	---	---	---	---	---	---	---	---	22.0	20.0	21.0
23	---	---	---	---	---	---	---	---	---	22.0	20.0	21.0
24	---	---	---	---	---	---	---	---	---	22.0	20.0	20.5
25	---	---	---	---	---	---	---	---	---	20.0	17.5	18.5
26	---	---	---	---	---	---	---	---	---	17.5	15.0	16.5
27	---	---	---	---	---	---	---	---	---	17.0	15.5	16.0
28	---	---	---	---	---	---	---	---	---	16.0	14.0	15.0
29	---	---	---	---	---	---	---	---	---	16.0	14.5	15.0
30	---	---	---	---	---	---	---	---	---	16.0	15.0	15.5
31	---	---	---	---	---	---	26.0	23.5	24.5	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	25.5	14.0	20.5

WATER TEMPERATURE, DEGREES CELSIUS, **WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	16.5	14.5	15.5	11.5	10.0	10.5	13.5	10.5	12.0	0.5	0.0	0.0
2	18.0	15.5	16.5	15.0	11.5	13.0	11.0	8.0	10.0	1.5	0.0	0.5
3	19.5	17.0	18.0	16.0	12.5	14.0	9.5	6.5	8.0	3.0	0.0	1.0
4	19.5	18.0	19.0	14.5	10.5	12.5	10.0	7.0	8.5	2.5	0.0	1.0
5	19.5	18.0	19.0	12.0	8.5	10.0	12.0	9.0	10.5	2.0	0.5	1.5
6	19.5	17.0	18.5	11.0	7.0	9.0	11.0	9.5	10.5	2.0	0.0	0.5
7	17.0	13.5	14.5	12.0	7.5	9.5	12.0	9.5	11.0	3.0	0.0	1.0
8	13.5	11.5	12.5	13.0	8.5	10.5	9.5	7.5	8.0	3.0	0.0	1.0
9	12.5	10.5	11.5	12.0	8.5	10.0	9.0	6.0	7.5	4.0	0.0	2.0
10	13.5	11.0	12.0	11.0	7.0	9.0	---	---	---	---	---	---
11	15.0	13.0	14.0	10.5	7.0	8.5	---	---	---	---	---	---
12	16.0	15.0	15.5	9.5	5.5	7.0	---	---	---	---	---	---
13	18.5	16.0	17.0	9.0	5.0	7.0	---	---	---	---	---	---
14	19.0	17.5	18.0	9.0	5.0	7.5	---	---	---	---	---	---
15	17.5	16.5	16.5	---	---	---	---	---	---	---	---	---
16	16.5	14.0	15.0	---	---	---	---	---	---	---	---	---
17	14.0	12.5	13.0	12.0	8.5	10.0	---	---	---	---	---	---
18	12.5	10.0	11.0	10.0	7.5	8.5	---	---	---	---	---	---
19	12.0	10.5	11.5	10.0	7.0	8.5	---	---	---	---	---	---
20	13.5	12.0	12.5	8.5	6.0	8.0	---	---	---	---	---	---
21	14.5	13.0	13.5	8.0	4.5	6.0	---	---	---	---	---	---
22	15.0	14.0	14.5	7.5	4.0	5.5	5.0	2.5	3.5	---	---	---
23	16.0	14.5	15.0	8.0	4.0	6.0	5.0	3.0	4.0	---	---	---
24	17.5	15.5	16.5	9.5	6.0	7.5	5.0	3.0	4.5	---	---	---
25	18.0	16.0	17.5	11.5	9.5	11.0	3.5	1.5	2.5	---	---	---
26	16.0	10.5	13.0	12.5	10.0	11.0	3.5	1.0	2.0	---	---	---
27	10.5	9.0	9.5	10.5	9.5	10.0	2.0	0.0	0.5	---	---	---
28	9.5	8.5	9.0	11.5	10.5	11.0	3.0	0.0	1.0	---	---	---
29	9.5	8.0	8.5	11.5	11.0	11.5	3.5	0.0	1.0	---	---	---
30	11.0	9.5	10.0	13.5	11.5	12.5	0.5	0.0	0.0	---	---	---
31	11.0	10.0	10.5	---	---	---	0.0	0.0	0.0	---	---	---
MONTH	19.5	8.0	14.1	16.0	4.0	9.5	13.5	0.0	5.5	4.0	0.0	0.9

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570078 -- Conodoguinet Cr 126 ft DS of Good Hope Dam at Good Hope, PA--Continued

OXYGEN, DISSOLVED (MG/L), **WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	---	---	---	---	---	---	---	---	---	13.4	4.9	8.6
2	---	---	---	---	---	---	---	---	---	14.9	5.9	10.1
3	---	---	---	---	---	---	---	---	---	15.5	6.6	10.9
4	---	---	---	---	---	---	---	---	---	14.8	6.5	10.7
5	---	---	---	---	---	---	---	---	---	14.8	6.2	10.5
6	---	---	---	---	---	---	---	---	---	14.7	6.5	10.6
7	---	---	---	---	---	---	---	---	---	14.5	6.1	10.3
8	---	---	---	---	---	---	---	---	---	14.4	5.8	10.2
9	---	---	---	---	---	---	---	---	---	13.7	5.3	9.6
10	---	---	---	---	---	---	---	---	---	12.3	4.7	8.4
11	---	---	---	---	---	---	---	---	---	14.2	5.9	9.7
12	---	---	---	---	---	---	---	---	---	14.5	6.3	10.3
13	---	---	---	---	---	---	---	---	---	14.7	6.4	10.6
14	---	---	---	---	---	---	---	---	---	14.0	6.2	9.9
15	---	---	---	---	---	---	---	---	---	15.8	7.9	11.7
16	---	---	---	---	---	---	---	---	---	16.0	8.3	12.2
17	---	---	---	---	---	---	---	---	---	16.3	7.8	11.9
18	---	---	---	---	---	---	---	---	---	16.1	7.5	11.7
19	---	---	---	---	---	---	---	---	---	15.8	7.6	11.1
20	---	---	---	---	---	---	---	---	---	13.4	5.3	7.6
21	---	---	---	---	---	---	---	---	---	13.5	5.6	8.5
22	---	---	---	---	---	---	---	---	---	14.0	6.8	10.3
23	---	---	---	---	---	---	---	---	---	14.4	6.8	10.4
24	---	---	---	---	---	---	---	---	---	14.2	5.6	8.3
25	---	---	---	---	---	---	---	---	---	10.2	6.2	7.9
26	---	---	---	---	---	---	---	---	---	14.2	7.5	10.0
27	---	---	---	---	---	---	---	---	---	14.7	7.8	10.8
28	---	---	---	---	---	---	---	---	---	15.6	8.8	11.5
29	---	---	---	---	---	---	---	---	---	15.6	9.0	11.8
30	---	---	---	---	---	---	---	---	---	16.3	9.0	11.9
31	---	---	---	---	---	---	11.8	5.6	9.0	---	---	---
MONTH	---	---	---	---	---	---	11.8	5.6	9.0	16.3	4.7	10.3

OXYGEN, DISSOLVED (MG/L), **WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	16.5	9.2	12.5	14.7	9.7	11.9	14.2	7.0	9.7	15.6	12.6	13.9
2	16.7	8.6	11.9	15.3	7.9	12.1	15.8	8.2	10.9	15.4	12.6	13.8
3	16.4	7.9	11.5	14.6	7.0	9.9	16.4	9.3	11.9	15.8	12.6	13.8
4	15.8	7.3	10.9	16.0	7.8	10.9	17.3	9.7	12.4	15.7	12.5	13.7
5	15.3	7.2	10.6	15.4	8.3	11.3	17.5	9.0	11.9	15.4	12.3	13.5
6	15.4	7.3	10.0	16.7	9.8	12.5	14.5	8.4	10.6	14.6	12.3	13.1
7	15.6	8.7	11.2	16.6	10.0	12.4	17.0	8.0	11.2	14.6	11.3	12.7
8	17.1	10.0	13.0	17.8	9.8	13.0	13.6	8.8	10.6	14.5	11.8	12.9
9	17.5	10.5	13.4	18.1	9.4	12.8	16.4	9.2	11.8	14.5	11.9	12.9
10	17.4	10.4	13.4	18.5	10.3	13.3	---	---	---	---	---	---
11	17.6	9.4	12.8	18.2	10.3	13.5	---	---	---	---	---	---
12	15.9	7.9	11.2	19.1	11.2	14.2	---	---	---	---	---	---
13	14.3	7.4	10.2	19.5	11.6	14.6	---	---	---	---	---	---
14	13.0	5.8	8.4	---	---	---	---	---	---	---	---	---
15	12.3	5.8	7.7	---	---	---	---	---	---	---	---	---
16	12.7	7.2	9.5	---	---	---	---	---	---	---	---	---
17	13.3	7.8	10.1	17.0	8.3	11.6	---	---	---	---	---	---
18	14.3	9.2	11.0	16.8	8.9	11.9	---	---	---	---	---	---
19	14.5	9.5	11.5	18.6	9.4	12.7	---	---	---	---	---	---
20	15.2	9.0	11.4	17.1	8.8	12.1	---	---	---	---	---	---
21	14.1	8.2	10.7	18.4	10.0	13.3	---	---	---	---	---	---
22	13.5	7.9	10.5	19.5	10.4	13.8	16.8	12.8	14.2	---	---	---
23	13.8	7.4	9.7	19.6	10.5	13.9	16.8	12.4	14.1	---	---	---
24	13.1	7.1	9.7	13.8	8.8	11.1	16.4	11.9	13.6	---	---	---
25	12.2	6.5	8.9	10.5	7.6	8.8	16.7	12.5	14.1	---	---	---
26	11.1	7.2	9.1	14.1	7.4	9.8	16.6	12.9	14.3	---	---	---
27	13.0	9.6	11.0	---	---	---	16.4	13.1	14.3	---	---	---
28	14.8	9.8	11.8	---	---	---	16.4	12.8	14.2	---	---	---
29	15.4	10.5	12.5	10.0	7.6	8.5	16.0	12.7	13.9	---	---	---
30	15.4	10.4	12.3	10.1	7.1	8.3	15.6	12.9	13.9	---	---	---
31	15.3	9.7	11.7	---	---	---	15.4	12.8	13.9	---	---	---
MONTH	17.6	5.8	11.0	19.6	7.0	11.9	17.5	7.0	12.7	15.8	11.3	13.4

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570078 -- Conodoguinet Cr 126 ft DS of Good Hope Dam at Good Hope, PA--Continued

TURBIDITY, FIELD, WATER, UNFILTERED, NEPHELOMETRIC TURBIDITY UNITS, **WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			**JULY**			**AUGUST**			**SEPTEMBER**	
1	---	---	---	---	---	---	---	---	---	56	4.8	15
2	---	---	---	---	---	---	---	---	---	14	4.5	8.8
3	---	---	---	---	---	---	---	---	---	19	3.7	10
4	---	---	---	---	---	---	---	---	---	14	3.2	8.9
5	---	---	---	---	---	---	---	---	---	16	4.0	9.4
6	---	---	---	---	---	---	---	---	---	18	4.0	10
7	---	---	---	---	---	---	---	---	---	14	2.8	7.7
8	---	---	---	---	---	---	---	---	---	12	2.0	6.5
9	---	---	---	---	---	---	---	---	---	20	2.3	6.4
10	---	---	---	---	---	---	---	---	---	18	2.7	6.6
11	---	---	---	---	---	---	---	---	---	11	3.0	6.6
12	---	---	---	---	---	---	---	---	---	16	3.1	6.9
13	---	---	---	---	---	---	---	---	---	12	2.7	6.3
14	---	---	---	---	---	---	---	---	---	9.3	3.2	6.6
15	---	---	---	---	---	---	---	---	---	11	2.6	6.1
16	---	---	---	---	---	---	---	---	---	9.6	2.1	5.3
17	---	---	---	---	---	---	---	---	---	12	2.6	5.6
18	---	---	---	---	---	---	---	---	---	29	2.8	6.2
19	---	---	---	---	---	---	---	---	---	9.6	3.1	5.5
20	---	---	---	---	---	---	---	---	---	11	4.3	6.2
21	---	---	---	---	---	---	---	---	---	8.3	2.5	5.3
22	---	---	---	---	---	---	---	---	---	8.4	2.9	4.8
23	---	---	---	---	---	---	---	---	---	9.8	3.2	5.2
24	---	---	---	---	---	---	---	---	---	20	3.5	7.8
25	---	---	---	---	---	---	---	---	---	40	9.8	17
26	---	---	---	---	---	---	---	---	---	11	3.4	6.2
27	---	---	---	---	---	---	---	---	---	8.3	4.2	5.9
28	---	---	---	---	---	---	---	---	---	10	3.1	5.6
29	---	---	---	---	---	---	---	---	---	17	3.5	5.0
30	---	---	---	---	---	---	---	---	---	8.7	3.0	5.1
31	---	---	---	---	---	---	120	4.1	13	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	56	2.0	7.3

TURBIDITY, FIELD, WATER, UNFILTERED, NEPHELOMETRIC TURBIDITY UNITS, **WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002**

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			**NOVEMBER**			**DECEMBER**			**JANUARY**	
1	7.7	2.5	4.7	30	3.3	5.0	26	1.8	8.9	20	1.8	4.8
2	9.5	3.4	5.8	54	3.6	7.4	15	1.5	5.2	14	2.0	4.0
3	15	2.8	5.6	11	1.5	4.7	17	1.0	5.4	8.8	2.1	3.1
4	7.6	3.6	5.1	11	1.6	5.3	8.7	0.7	3.0	---	---	---
5	20	3.7	6.1	20	2.1	5.5	16	1.1	4.8	7.2	1.6	2.8
6	8.6	3.9	6.4	90	2.8	16	16	0.8	6.0	8.8	1.8	3.7
7	9.0	2.9	5.7	140	2.8	14	19	1.7	7.1	9.8	2.6	4.5
8	12	1.7	3.3	36	2.5	9.0	17	0.9	5.1	7.7	1.9	4.5
9	7.0	1.7	3.6	22	3.4	9.1	16	1.5	6.3	9.6	0.3	4.1
10	14	3.2	4.8	22	3.9	8.9	---	---	---	---	---	---
11	14	4.4	6.0	30	2.0	6.8	---	---	---	---	---	---
12	8.6	4.6	6.4	11	3.1	6.2	---	---	---	---	---	---
13	6.3	2.7	4.6	19	2.0	5.4	---	---	---	---	---	---
14	9.3	3.4	6.2	---	---	---	---	---	---	---	---	---
15	13	6.6	9.5	---	---	---	---	---	---	---	---	---
16	13	3.5	6.7	---	---	---	---	---	---	---	---	---
17	8.6	4.2	5.4	16	1.0	4.9	---	---	---	---	---	---
18	5.3	2.3	3.3	8.7	1.1	4.0	---	---	---	---	---	---
19	11	3.1	4.3	20	1.5	4.3	---	---	---	---	---	---
20	7.3	3.9	5.0	8.6	1.3	3.3	---	---	---	---	---	---
21	7.0	3.3	5.0	15	1.3	3.2	---	---	---	---	---	---
22	7.6	2.5	3.8	11	1.4	3.4	5.7	2.0	3.0	---	---	---
23	10	3.2	4.6	14	1.3	3.6	6.5	1.8	3.4	---	---	---
24	11	3.4	5.4	11	1.5	4.4	8.2	1.7	2.7	---	---	---
25	10	3.4	5.8	47	2.8	15	5.6	1.7	2.4	---	---	---
26	38	3.4	7.1	77	4.7	21	6.9	1.7	2.4	---	---	---
27	7.7	2.1	3.5	52	2.6	14	14	2.1	4.2	---	---	---
28	36	2.0	3.2	35	2.5	16	14	1.8	3.9	---	---	---
29	7.0	1.7	2.7	34	1.9	11	9.8	1.7	3.6	---	---	---
30	10	3.0	4.6	31	1.8	10	17	1.7	4.7	---	---	---
31	9.0	4.0	5.2	---	---	---	21	1.9	4.4	---	---	---
MONTH	38	1.7	5.1	140	1.0	8.2	26	0.7	4.6	20	0.3	3.9

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570080 -- Conodoguinet Creek 600 ft DS of Good Hope Dam, PA

CROSS-SECTION ANALYSES, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	SAMPLE LOC-ATION, CROSS SECTION (FT FM L BANK) (00009)
MAY 2001							
10...	1141	9.2	99	7.8	357	18.8	0
10...	1142	8.6	94	7.9	382	19.2	10
10...	1143	8.6	93	7.9	432	19.2	20
10...	1144	8.6	94	7.9	450	19.4	30
10...	1145	9.1	98	8.0	342	19.2	40
10...	1146	9.2	100	8.0	448	19.1	50
10...	1147	9.2	99	8.0	447	19.1	60
10...	1148	9.2	100	8.1	448	19.1	70
10...	1149	9.2	100	8.1	448	19.1	80
10...	1150	9.3	100	8.1	450	19.1	90
10...	1151	9.3	100	8.1	449	19.0	100
10...	1152	9.3	100	8.1	449	18.9	110
10...	1153	9.2	100	8.1	452	18.9	120
10...	1154	9.2	99	8.1	452	18.8	130
10...	1155	9.2	99	8.0	454	18.8	140
10...	1156	9.4	100	8.1	454	18.8	150
10...	1157	9.4	100	8.1	456	18.7	160
10...	1158	9.3	100	8.0	458	18.6	170
10...	1159	9.3	99	8.0	461	18.6	180
10...	1200	9.2	98	8.0	464	18.5	190
10...	1201	9.1	98	8.0	466	18.5	200
10...	1202	9.1	97	8.0	470	18.5	210
10...	1203	8.9	96	8.0	472	18.5	220
10...	1204	8.9	95	8.0	473	18.6	230
10...	1205	9.0	96	8.0	473	18.7	240
10...	1206	9.3	100	8.0	474	18.8	250
10...	1207	9.6	104	8.0	471	19.6	255

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570150 -- Conodoguinet Cr DS of Orrs Bridge Rd at Camp Hill, PA

REMARKS.--All samples collected by U.S. Geological Survey for the Good Hope Mill Dam Project. Explanation of column headings -- AGENCY COLLECTION CODE: 1028 - U. S. Geological Survey; AGENCY ANALYZING CODE: 80020 - U.S. Geological Survey, 9813 - Pennsylvania Department of Environmental Protection; SAMPLE TYPE: 9 - Routine Sample, 5 - Duplicate Sample. Explanation of remark codes -- E - Estimated Value; < - Less Than. For explanation of units of measurement please refer to pages 42-43.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	Sample type	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	TUR-BID-ITY FIELD WATER UNFLTRD (NTU) (61028)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)
OCT 2001													
25...	1100	1028	80020	9	E64	7.3	11.9	123	7.8	567	16.7	<.04	.32
25...	1101	1028	80020	5	E64	7.3	11.9	123	7.8	567	16.7	E.02	.30
NOV													
02...	1415	1028	80020	9	E71	17	13.7	134	8.3	562	14.4	--	--

Date	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	SEDI-MENT, SUS-PENDED (MG/L) (80154)
OCT 2001							
25...	.35	3.17	.024	.027	E.01	.044	--
25...	.38	3.18	.025	.027	E.01	.041	--
NOV							
02...	.46	--	--	--	--	.047	16

CROSS-SECTION ANALYSES, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	TUR-BID-ITY FIELD WATER UNFLTRD (NTU) (61028)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	SAMPLE LOC-ATION, CROSS SECTION (FT FM L BANK) (00009)
OCT 2001								
25...	1102	8.6	11.2	116	7.8	581	16.8	13
25...	1103	6.5	11.6	120	7.8	581	16.9	38
25...	1104	7.5	11.4	118	7.8	579	16.8	53
25...	1105	8.5	11.9	123	7.8	576	16.7	78
25...	1106	7.3	12.9	132	7.9	565	16.5	103
25...	1107	7.3	13.5	139	8.0	562	16.5	128
25...	1108	3.6	12.7	131	7.9	559	16.6	153
25...	1109	10	11.4	118	7.9	554	16.7	178
25...	1110	6.6	10.9	113	7.8	549	16.8	203
NOV								
02...	1416	34	12.8	126	8.2	590	14.8	23
02...	1417	16	12.8	127	8.2	583	14.8	48
02...	1418	21	13.9	137	8.3	570	14.8	73
02...	1419	9.3	13.8	136	8.4	555	14.6	98
02...	1420	6.6	14.5	140	8.4	544	14.2	123
02...	1421	9.7	15.1	146	8.5	546	14.2	148
02...	1422	9.6	14.8	144	8.4	554	14.2	173
02...	1423	23	14.3	140	8.4	555	14.3	198
02...	1424	19	13.2	129	8.2	557	14.3	223
02...	1425	21	12.2	120	8.1	567	14.1	248

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570150 -- Conodoguinet Cr DS of Orrs Bridge Rd at Camp Hill, PA--Continued

REMARKS.--Definition of terms used: Total Number - the total number of aquatic invertebrates collected at a site; Total EPT Taxa - total number of distinct taxa within the orders Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies). These orders of insects are generally considered to be pollution sensitive; % Contribution of Dominant Taxa - total number of organisms is an indication of community balance at the lowest taxonomic level possible (usually genus or species). A community that proves dominated by relatively few taxa would include environmental stress. This metric can include the single most dominant taxa, three most dominant, or five most dominant taxa "dominants in common" (DIC). Other definitions can be found on pages 22-33.

	Sept. 18, 2001	Nov. 19, 2001	Nov. 25, 2002
PLATYHELMINTHES	--	--	--
TURBELLARIA	--	--	--
TRICLADIDA	--	--	--
Planariidae	--	--	4
ANNELIDA	--	--	--
OLIGOCHAETA (aquatic earthworms)	--	--	--
TUBIFICIDA	--	--	--
Enchytraeidae	--	--	--
Tubificidae	--	--	--
Aulodrilus pleuriseta	--	--	2
Spirosperma nikolskyi	--	--	--
Tubificidae w/o capilliform setae	--	--	28
LUMBRICINA	--	--	1
MOLLUSCA	--	--	--
GASTROPODA (snails)	--	--	--
MESOGASTROPODA	--	--	--
Hydrobiidae	--	--	--
Amnicola	--	--	3
Pleuroceridae	--	--	--
Goniobasis	--	--	--
Leptoxis carinata	--	1	1
BASOMMATOPHORA	--	--	--
Ancylidae (limpets)	--	--	--
Ferrissia	--	--	3
Planorbidae	--	--	--
Gyraulus	--	--	--
Planorbella	--	--	10
Lymnaeidae	--	--	--
Fossaria	--	--	--
Physidae	--	--	--
Physella	--	--	4
BIVALVIA (clams and mussels)	--	--	--
VENEROIDA	--	--	--
Corbiculidae	--	--	--
Corbicula fluminea	--	--	23
Sphaeriidae (fingernail clams)	--	--	--
Pisidium	--	--	--
CHELICERATA	--	--	--
ARACHNIDA	--	--	--
HYDRACHNIDIA (water mites)	--	1	1
ARTHROPODA	--	--	--
CRUSTACEA	--	--	--
OSTRACODA	--	1	--
MALACOSTRACA	--	--	--
ISOPODA (sow bugs)	--	--	--
Asellidae	--	--	--
Lirceus	--	--	--
AMPHIPODA (scuds)	--	--	--
Crangonyctidae	--	--	--
Crangonyx	--	--	--
Gammaridae	--	--	--
Gammarus	91	54	27
Hyalellidae	--	--	--
Hyalella azteca	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570150 -- Conodoguinet Cr DS of Orrs Bridge Rd at Camp Hill, PA--Continued

	Sept. 18, 2001	Nov. 19, 2001	Nov. 25, 2002
INSECTA	--	--	--
EPHEMEROPTERA (mayflies)	--	--	--
PISCIFORMA	--	--	--
Baetidae	--	--	--
Acentrella	--	--	--
Acerpenna	--	--	--
Baetis	29	2	--
Baetis (2-tailed)	1	--	--
SETISURA	--	--	--
Heptageniidae	--	--	--
Heptagenia	--	--	--
Leucrocuta	1	--	--
Stenacron	2	1	--
Stenonema	6	15	6
Isonychiidae	--	--	--
Isonychia	--	2	1
FUCATERGALIA	--	--	--
Leptophlebiidae	--	--	--
Leptophlebia	--	--	--
Paraleptophlebia	--	--	--
Ephemeridae	--	--	--
Hexagenia	--	--	--
Potamanthidae	--	--	--
Anthopotamus	2	11	1
Caenidae	--	--	--
Caenis	14	3	77
Ephemerellidae	--	--	--
Ephemerella	--	--	--
Serratella	--	2	--
Leptohyphidae	--	--	--
Tricorythodes	3	--	--
ODONATA (dragonflies and damselflies)	--	--	--
ZYGOPTERA	--	--	--
Coenagrionidae	--	--	--
Argia	1	2	2
Enallagma	--	--	--
HEMIPTERA (true bugs)	--	--	--
Corixidae	--	--	--
PLECOPTERA (stoneflies)	--	--	--
EUHOLOGNATHA	--	--	--
Taeniopterygidae	--	--	--
Taeniopteryx	--	3	--
SYSTELLAGNATHA	--	--	--
Perlidae	--	--	--
Agnetina	--	--	--
Paragnetina	--	--	--
COLEOPTERA (beetles)	--	--	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570150 -- Conodoguinet Cr DS of Orrs Bridge Rd at Camp Hill, PA--Continued

	Sept. 18, 2001	Nov. 19, 2001	Nov. 25, 2002
POLYPHAGA	--	--	--
Hydrophilidae (water scavenger beetles)	--	--	--
Berosus	--	--	1
Psephenidae (water pennies)	--	--	--
Psephenus	5	2	20
Elmidae (riffle beetles)	--	--	--
Dubiraphia	--	2	4
Macronychus	--	--	--
Optioservus	13	37	11
Promoresia	--	--	--
Stenelmis	49	10	27
Scirtidae	--	--	--
MEGALOPTERA (dobsonflies and fishflies)	--	--	--
Corydalidae	--	--	--
Corydalus	--	--	--
Sialidae	--	--	--
Sialis	--	--	--
TRICHOPTERA (caddisflies)	--	--	--
SPICIPALPIA	--	--	--
Hydroptilidae	--	--	--
Hydroptila	1	1	1
Leucotrichia	--	--	--
Glossosomatidae	--	--	--
Glossosoma	--	--	--
ANNULIPALPIA	--	--	--
Philopotamidae	--	--	--
Chimarra	--	--	--
Hydropsychidae	2	--	--
Cheumatopsyche	2	8	--
Hydropsyche	6	12	--
Hydropsyche bifida gr.	--	--	--
INTEGRIPALPIA	--	--	--
Leptoceridae	--	--	--
Oecetis	--	--	--
Helicopsychidae	--	--	--
Helicopsyche	--	--	3
LEPIDOPTERA (aquatic moths)	--	--	--
Pyralidae	--	--	--
Petrophila	--	--	--
DIPTERA (true flies)	--	--	--
Ceratopogonidae (biting midges)	--	--	--
Probezzia	--	--	--
Chironomidae (non-biting midges)	--	--	--
Tanypodinae	--	--	--
Pentaneurini	--	--	--
Ablabesmyia	--	--	--
Ablabesmyia mallochi	--	--	--
Conchapelopia	--	8	1
Pentaneura	1	1	--
Thiennemannimyia gr.	--	1	--

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

01570150 -- Conodoguinet Cr DS of Orrs Bridge Rd at Camp Hill, PA--Continued

	Sept. 18, 2001	Nov. 19, 2001	Nov. 25, 2002
Procladini	--	--	--
Procladius	--	--	--
Tanypodini	--	--	--
Tanypus	--	--	--
Orthocladiinae	--	--	--
Corynoneurini	--	--	--
Corynoneura	--	--	--
Orthocladiini	--	--	--
Cricotopus/Orthocladius	--	--	--
Cricotopus	2	--	--
Cricotopus bicinctus	1	3	--
Cricotopus trifascia	--	--	--
Cricotopus vierrensis	--	--	--
Eukiefferiella	--	1	4
Eukiefferiella brevicalcar gr.	--	--	--
Nanocladius	1	--	--
Orthocladius	--	1	9
Thiennemaniella	1	--	--
Tvetenia	--	--	--
Tvetenia bavarica gr.	--	--	--
Tvetenia vitracies gr.	--	1	--
Chironominae	1	1	--
Chironomini	--	--	--
Chironomus	--	--	--
Cryptochironomus	--	1	--
Dicrotendipes	--	3	--
Microtendipes pedellus gr.	4	8	1
Paratendipes	--	--	--
Phaenopsectra	--	--	--
Polypedilum	--	2	--
Polypedilum flavum	--	3	--
Polypedilum scalaenum gr.	--	--	13
Pseudochironomini	--	--	--
Pseudochironomus	--	2	--
Tanytarsini	--	--	--
Cladotanytarsus	--	7	--
Rheotanytarsus	2	30	1
Tanytarsus	12	14	--
Simuliidae (black flies)	--	--	--
Simulium	--	--	--
TOTAL TAXA	26	37	30
TOTAL NUMBER	253	257	290
TOTAL EPT TAXA	12	11	6
PERCENT EPT TAXA	46	30	20
HBI	5.49	5.17	5.96
PERCENT DOMINANT TAXA (single)	36	21	27

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

401432076581301 -- Conodoguinet Cr 1.52 mi DS of Good Hope Dam, PA

REMARKS.--All samples collected by U.S. Geological Survey for the Good Hope Mill Dam Project. Explanation of column headings -- AGENCY COLLECTION CODE: 1028 - U. S. Geological Survey; AGENCY ANALYZING CODE: 80020 - U.S. Geological Survey, 9813 - Pennsylvania Department of Environmental Protection; SAMPLE TYPE: 9 - Routine Sample, 5 - Duplicate Sample. Explanation of remark codes -- E - Estimated Value; < - Less Than; c - Sample Holding Time Exceeded. For explanation of units of measurement please refer to pages 42-43.

WATER-QUALITY DATA, WATER YEAR **OCTOBER 2000 TO SEPTEMBER 2001**

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	Sample type	MAGNE-SIUM, RECOV. FM BOT-TOM MA-TERIAL (MG/KG) (00924)	POTAS-SIUM, RECOV. FM BOT-TOM MA-TERIAL (MG/KG) (00938)	SODIUM, RECOV. FM BOT-TOM MA-TERIAL (MG/KG AS NA) (00934)	ALUM-INUM, RECOV. FM BOT-TOM MA-TERIAL (µG/G) (01108)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (µG/G AS AS) (01003)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (µG/G AS CD) (01028)	CALCIUM SEDIMT, BED MATERL (µG/G) (62456)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (µG/G) (01029)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (µG/G AS CU) (01043)
APR 2001 06...	1245	1028	9813	9	4300	3800	150	22000	<6	<1.4	27000	32	32

Date	IRON, SEDIMT, BED MA-TERIAL AS FE) (01170)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (µG/G AS PB) (01052)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (µG/G) (01053)	MERCURY SEDI-MENT BEDMAT (µG/G) (30280)	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (µG/G AS NI) (01068)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (µG/G) (01148)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39333)	ALPHA BHC TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39076)	AROCLOR 1242 PCB BOT.MAT (µG/KG) (39499)	AROCLOR 1248 PCB BOT.MAT (µG/KG) (39503)	AROCLOR 1254 PCB BOT.MAT (µG/KG) (39507)	AROCLOR 1260 PCB BOT.MAT (µG/KG) (39511)	BETA BENZENE HEXA-CHLOR-IDE BOT.MAT (µG/KG) (34257)
APR 2001 06...	26000	37	850	<.14	36	<10	c<200	c<200	c<.25	c<.25	c<.25	c<.25	c<200

Date	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39351)	CHLOR-NEB, BED MAT DRY WT, REC (µG/KG) (62903)	CHLORO-BENZIL-ATE, BED MAT DRY WT, REC (µG/KG) (39461)	CHLORO-THAL-ONIL, BED MAT DRY WT, REC (µG/KG) (62904)	CHLOR-PYRIFOS IN BOT. MAT. (µG/KG) (81404)	CIS-CHLOR-DANE, BED MAT DRY WT, REC (µG/KG) (62802)	CIS-PER-METHRIN BED MAT DRY WT, REC (µG/KG) (62908)	DCPA, BED MAT DRY WT, REC (µG/KG) (62905)	DELTA BENZENE HEXA-CHLOR-IDE BOT.MAT (µG/KG) (34262)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39383)	ENDO-SULFAN BETA BOT.MAT (µG/KG) (34359)	ENDO-SULFAN SULFATE BOT.MAT (µG/KG) (34354)	ENDO-SULFAN I TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39389)
APR 2001 06...	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200

Date	ENDRIN ALDE-HYDE BOT.MAT (µG/KG) (34369)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39393)	ENDRIN KETONE, BED MAT DRY WT, REC (µG/KG) (62906)	ETRIDI-AZOLE, BED MAT DRY WT, REC (µG/KG) (62907)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (µG/KG) (39423)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39413)	HEXA-CHLORO-BENZENE TOT. IN BOTTOM MATL. (µG/KG) (39701)	HEXA-CHLORO-CYCLO-PENT-ADIENE BOT.MAT (µG/KG) (34389)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39343)	P,P' DDE, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39321)	P,P' DDT, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39301)	P,P'-DDD, RECOVER IN BOT-TOM MA-TERIAL (µG/KG) (39363)	PROPA-CHLOR, BED MAT DRY WT, REC (µG/KG) (62909)
APR 2001 06...	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200

Date	TRI-FLUR-ALIN, BED MAT DRY WT, REC (µG/KG) (62902)
APR 2001 06...	c<200

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

401547076584501 -- Conodoguinet Cr 20 ft US of Good Hope Dam, PA

REMARKS.--All samples collected by U.S. Geological Survey for the Good Hope Mill Dam Project. Explanation of column headings -- AGENCY COLLECTION CODE: 1028 - U. S. Geological Survey; AGENCY ANALYZING CODE: 80020 - U.S. Geological Survey, 9813 - Pennsylvania Department of Environmental Protection; SAMPLE TYPE: 9 - Routine Sample, 5 - Duplicate Sample. Explanation of remark codes -- E - Estimated Value; < - Less Than; c - Sample Holding Time Exceeded. For explanation of units of measurement please refer to pages 42-43.

WATER-QUALITY DATA, WATER YEAR **OCTOBER 2000 TO SEPTEMBER 2001**

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	Sample type	MAGNE-SIUM, RECOV. FM BOT-TOM MA-TERIAL (MG/KG) (00924)	POTAS-SIUM, RECOV. FM BOT-TOM MA-TERIAL (MG/KG) (00938)	SODIUM, RECOV. FM BOT-TOM MA-TERIAL (MG/KG AS NA) (00934)	ALUM-INUM, RECOV. FM BOT-TOM MA-TERIAL (µG/G) (01108)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (µG/G AS AS) (01003)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (µG/G AS CD) (01028)	CALCIUM SEDIMT, BED MATERL (µG/G) (62456)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (µG/G) (01029)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (µG/G AS CU) (01043)
APR 2001													
06...	1044	9813	1028	9	15000	3400	<130	29000	16	<1.3	61000	43	58
06...	1045	9813	1028	5	5700	3500	340	23000	<10	<2.4	52000	34	41

Date	IRON, SEDIMT, BED MA-TERIAL AS FE) (01170)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (µG/G AS PB) (01052)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (µG/G) (01053)	MERCURY SEDI-MENT BEDMAT (µG/G) (30280)	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (µG/G AS NI) (01068)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (µG/G) (01148)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39333)	ALPHA BHC TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39076)	AROCLOR 1242 PCB BOT.MAT (µG/KG) (39499)	AROCLOR 1248 PCB BOT.MAT (µG/KG) (39503)	AROCLOR 1254 PCB BOT.MAT (µG/KG) (39507)	AROCLOR 1260 PCB BOT.MAT (µG/KG) (39511)	BETA BENZENE HEXA-CHLOR-IDE BOT.MAT (µG/KG) (34257)
APR 2001													
06...	88000	38	1100	<.13	56	<9	c<100	c<100	c<.25	c<.25	c<.25	c<.25	c<100
06...	37000	46	910	<.24	41	<17	c<200	c<200	c<.25	c<.25	c<.25	c<.25	c<200

Date	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39351)	CHLOR-NEB, BED MAT DRY WT, REC (µG/KG) (62903)	CHLORO-BENZIL-ATE, BED MAT DRY WT, REC (µG/KG) (39461)	CHLORO-THAL-ONIL, BED MAT DRY WT, REC (µG/KG) (62904)	CHLOR-PYRIFOS IN BOT. MAT. (µG/KG) (81404)	CIS-CHLOR-DANE, BED MAT DRY WT, REC (µG/KG) (62802)	CIS-PER-METHRIN BED MAT DRY WT, REC (µG/KG) (62908)	DCPA, BED MAT DRY WT, REC (µG/KG) (62905)	DELTA BENZENE HEXA-CHLOR-IDE BOT.MAT (µG/KG) (34262)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39383)	ENDO-SULFAN BETA BOT.MAT (µG/KG) (34359)	ENDO-SULFAN SULFATE BOT.MAT (µG/KG) (34354)	ENDO-SULFAN I TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39389)
APR 2001													
06...	c<100	c<100	c<100	c<100	c<100	c<100	c<50	c<100	c<100	c<100	c<100	c<100	c<100
06...	c<200	c<200	c<200	c<200	c<200	c<200	c<100	c<200	c<200	c<200	c<200	c<200	c<200

Date	ENDRIN ALDE-HYDE BOT.MAT (µG/KG) (34369)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39393)	ENDRIN KETONE, BED MAT DRY WT, REC (µG/KG) (62906)	ETRIDI-AZOLE, BED MAT DRY WT, REC (µG/KG) (62907)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (µG/KG) (39423)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39413)	HEXA-CHLORO-BENZENE TOT. IN BOTTOM MATL. (µG/KG) (39701)	HEXA-CHLORO-CYCLO-PENT-ADIENE BOT.MAT (µG/KG) (34389)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39343)	P,P' DDE, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39321)	P,P' DDT, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39301)	P,P'-DDD, RECOVER IN BOT-TOM MA-TERIAL (µG/KG) (39363)	PROPA-CHLOR, BED MAT DRY WT, REC (µG/KG) (62909)
APR 2001													
06...	c<100	c<100	c<100	c<100	c<100	c<100	c<100	c<100	c<100	c<100	c<100	c<100	c<100
06...	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200

Date	TRI-FLUR-ALIN, BED MAT DRY WT, REC (µG/KG) (62902)
APR 2001	
06...	c<100
06...	c<200

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

401547076584502 -- Conodoguinet Cr 40 ft US of Good Hope Dam, PA

REMARKS.--All samples collected by U.S. Geological Survey for the Good Hope Mill Dam Project. Explanation of column headings -- AGENCY COLLECTION CODE: 1028 - U. S. Geological Survey; AGENCY ANALYZING CODE: 80020 - U.S. Geological Survey, 9813 - Pennsylvania Department of Environmental Protection; SAMPLE TYPE: 9 - Routine Sample, 5 - Duplicate Sample. Explanation of remark codes -- E - Estimated Value; < - Less Than; c - Sample Holding Time Exceeded. For explanation of units of measurement please refer to pages 42-43.

WATER-QUALITY DATA, WATER YEAR **OCTOBER 2000 TO SEPTEMBER 2001**

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	Sample type	MAGNE-SIUM, RECOV. FM BOT-TOM MA-TERIAL (MG/KG) (00924)	POTAS-SIUM, RECOV. FM BOT-TOM MA-TERIAL (MG/KG) (00938)	SODIUM, RECOV. FM BOT-TOM MA-TERIAL (MG/KG AS NA) (00934)	ALUM-INUM, RECOV. FM BOT-TOM MA-TERIAL (µG/G) (01108)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (µG/G AS AS) (01003)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (µG/G AS CD) (01028)	CALCIUM SEDIMT, BED MATERL (µG/G) (62456)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (µG/G) (01029)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (µG/G AS CU) (01043)
APR 2001 06...	0955	1028	9813	9	5100	2600	<170	20000	<7	<1.7	49000	31	37

Date	IRON, SEDIMT, BED MA-TERIAL AS FE) (01170)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (µG/G AS PB) (01052)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (µG/G) (01053)	MERCURY SEDI-MENT BEDMAT (µG/G) (30280)	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (µG/G AS NI) (01068)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (µG/G) (01148)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39333)	ALPHA BHC TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39076)	AROCLOR 1242 PCB BOT.MAT (µG/KG) (39499)	AROCLOR 1248 PCB BOT.MAT (µG/KG) (39503)	AROCLOR 1254 PCB BOT.MAT (µG/KG) (39507)	AROCLOR 1260 PCB BOT.MAT (µG/KG) (39511)	BETA BENZENE HEXA-CHLOR-IDE BOT.MAT (µG/KG) (34257)
APR 2001 06...	29000	44	740	<.17	33	<12	c<200	c<200	c<.25	c<.25	c<.25	c<.25	c<200

Date	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39351)	CHLOR-NEB, BED MAT DRY WT, REC (µG/KG) (62903)	CHLORO-BENZIL-ATE, BED MAT DRY WT, REC (µG/KG) (39461)	CHLORO-THAL-ONIL, BED MAT DRY WT, REC (µG/KG) (62904)	CHLOR-PYRIFOS IN BOT. MAT. (µG/KG) (81404)	CIS-CHLOR-DANE, BED MAT DRY WT, REC (µG/KG) (62802)	CIS-PER-METHRIN BED MAT DRY WT, REC (µG/KG) (62908)	DCPA, BED MAT DRY WT, REC (µG/KG) (62905)	DELTA BENZENE HEXA-CHLOR-IDE BOT.MAT (µG/KG) (34262)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39383)	ENDO-SULFAN BETA BOT.MAT (µG/KG) (34359)	ENDO-SULFAN SULFATE BOT.MAT (µG/KG) (34354)	ENDO-SULFAN I TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39389)
APR 2001 06...	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200

Date	ENDRIN ALDE-HYDE BOT.MAT (µG/KG) (34369)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39393)	ENDRIN KETONE, BED MAT DRY WT, REC (µG/KG) (62906)	ETRIDI-AZOLE, BED MAT DRY WT, REC (µG/KG) (62907)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (µG/KG) (39423)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39413)	HEXA-CHLORO-BENZENE TOT. IN BOTTOM MATL. (µG/KG) (39701)	HEXA-CHLORO-CYCLO-PENT-ADIENE BOT.MAT (µG/KG) (34389)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39343)	P,P' DDE, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39321)	P,P' DDT, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39301)	P,P'-DDD, RECOVER IN BOT-TOM MA-TERIAL (µG/KG) (39363)	PROPA-CHLOR, BED MAT DRY WT, REC (µG/KG) (62909)
APR 2001 06...	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200	c<200

Date	TRI-FLUR-ALIN, BED MAT DRY WT, REC (µG/KG) (62902)
APR 2001 06...	c<200

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

401547076584503 -- Conodoguinet Cr 120 ft US of Good Hope Dam, PA

REMARKS.--All samples collected by U.S. Geological Survey for the Good Hope Mill Dam Project. Explanation of column headings -- AGENCY COLLECTION CODE: 1028 - U. S. Geological Survey; AGENCY ANALYZING CODE: 80020 - U.S. Geological Survey, 9813 - Pennsylvania Department of Environmental Protection; SAMPLE TYPE: 9 - Routine Sample, 5 - Duplicate Sample. Explanation of remark codes -- E - Estimated Value; < - Less Than; c - Sample Holding Time Exceeded. For explanation of units of measurement please refer to pages 42-43.

WATER-QUALITY DATA, WATER YEAR **OCTOBER 2000 TO SEPTEMBER 2001**

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	Sample type	MAGNE-SIUM, RECOV. FM BOT-TOM MA-TERIAL (MG/KG) (00924)	POTAS-SIUM, RECOV. FM BOT-TOM MA-TERIAL (MG/KG) (00938)	SODIUM, RECOV. FM BOT-TOM MA-TERIAL (MG/KG AS NA) (00934)	ALUM-INUM, RECOV. FM BOT-TOM MA-TERIAL (µG/G) (01108)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (µG/G AS AS) (01003)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (µG/G AS CD) (01028)	CALCIUM SEDIMT, BED MATERL (µG/G) (62456)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (µG/G) (01029)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (µG/G AS CU) (01043)
APR 2001 06...	1105	1028	9813	9	7000	4300	180	32000	6	<1.4	29000	47	38

Date	IRON, SEDIMT, BED MA-TERIAL AS FE) (01170)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (µG/G AS PB) (01052)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (µG/G) (01053)	MERCURY SEDI-MENT BEDMAT (µG/G) (30280)	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (µG/G AS NI) (01068)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (µG/G) (01148)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39333)	ALPHA BHC TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39076)	AROCLOR 1242 PCB BOT.MAT (µG/KG) (39499)	AROCLOR 1248 PCB BOT.MAT (µG/KG) (39503)	AROCLOR 1254 PCB BOT.MAT (µG/KG) (39507)	AROCLOR 1260 PCB BOT.MAT (µG/KG) (39511)	BETA BENZENE HEXA-CHLOR-IDE BOT.MAT (µG/KG) (34257)
APR 2001 06...	33000	39	490	<.14	45	<10	c<100	c<100	c<.25	c<.25	c<.25	c<.25	c<100

Date	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39351)	CHLOR-NEB, BED MAT DRY WT, REC (µG/KG) (62903)	CHLORO-BENZIL-ATE, BED MAT DRY WT, REC (µG/KG) (39461)	CHLORO-THAL-ONIL, BED MAT DRY WT, REC (µG/KG) (62904)	CHLOR-PYRIFOS IN BOT. MAT. (µG/KG) (81404)	CIS-CHLOR-DANE, BED MAT DRY WT, REC (µG/KG) (62802)	CIS-PER-METHRIN BED MAT DRY WT, REC (µG/KG) (62908)	DCPA, BED MAT DRY WT, REC (µG/KG) (62905)	DELTA BENZENE HEXA-CHLOR-IDE BOT.MAT (µG/KG) (34262)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39383)	ENDO-SULFAN BETA BOT.MAT (µG/KG) (34359)	ENDO-SULFAN SULFATE BOT.MAT (µG/KG) (34354)	ENDO-SULFAN I TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39389)
APR 2001 06...	c<100	c<100	c<100	c<100	c<100	c<100	c<50	c<100	c<100	c<100	c<100	c<100	c<100

Date	ENDRIN ALDE-HYDE BOT.MAT (µG/KG) (34369)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39393)	ENDRIN KETONE, BED MAT DRY WT, REC (µG/KG) (62906)	ETRIDI-AZOLE, BED MAT DRY WT, REC (µG/KG) (62907)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (µG/KG) (39423)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39413)	HEXA-CHLORO-BENZENE TOT. IN BOTTOM MATL. (µG/KG) (39701)	HEXA-CHLORO-CYCLO-PENT-ADIENE BOT.MAT (µG/KG) (34389)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39343)	P,P' DDE, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39321)	P,P' DDT, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39301)	P,P'-DDD, RECOVER IN BOT-TOM MA-TERIAL (µG/KG) (39363)	PROPA-CHLOR, BED MAT DRY WT, REC (µG/KG) (62909)
APR 2001 06...	c<100	c<100	c<100	c<100	c<100	c<100	c<100	c<100	c<100	c<100	c<100	c<100	c<100

Date	TRI-FLUR-ALIN, BED MAT DRY WT, REC (µG/KG) (62902)
APR 2001 06...	c<100

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
EFFECTS OF REMOVING GOOD HOPE MILL DAM PROJECT--Continued

401554076590101 -- Conodoguinet Cr 1500 ft US of Good Hope Dam, PA

REMARKS.--All samples collected by U.S. Geological Survey for the Good Hope Mill Dam Project. Explanation of column headings -- AGENCY COLLECTION CODE: 1028 - U. S. Geological Survey; AGENCY ANALYZING CODE: 80020 - U.S. Geological Survey, 9813 - Pennsylvania Department of Environmental Protection; SAMPLE TYPE: 9 - Routine Sample, 5 - Duplicate Sample. Explanation of remark codes -- E - Estimated Value; < - Less Than; c - Sample Holding Time Exceeded. For explanation of units of measurement please refer to pages 42-43.

WATER-QUALITY DATA, WATER YEAR **OCTOBER 2000 TO SEPTEMBER 2001**

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	Sample type	MAGNE-SIUM, RECOV. FM BOT-TOM MA-TERIAL (MG/KG) (00924)	POTAS-SIUM, RECOV. FM BOT-TOM MA-TERIAL (MG/KG) (00938)	SODIUM, RECOV. FM BOT-TOM MA-TERIAL (MG/KG AS NA) (00934)	ALUM-INUM, RECOV. FM BOT-TOM MA-TERIAL (µG/G) (01108)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (µG/G AS AS) (01003)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (µG/G AS CD) (01028)	CALCIUM SEDIMT, BED MATERL (µG/G) (62456)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (µG/G) (01029)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (µG/G AS CU) (01043)
APR 2001 06...	1200	1028	9813	9	7800	2500	<100	25000	13	<1.0	9600	38	34

Date	IRON, SEDIMT, BED MA-TERIAL AS FE) (01170)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (µG/G AS PB) (01052)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (µG/G) (01053)	MERCURY SEDI-MENT BEDMAT (µG/G) (30280)	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (µG/G AS NI) (01068)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (µG/G) (01148)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39333)	ALPHA BHC TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39076)	AROCLOR 1242 PCB BOT.MAT (µG/KG) (39499)	AROCLOR 1248 PCB BOT.MAT (µG/KG) (39503)	AROCLOR 1254 PCB BOT.MAT (µG/KG) (39507)	AROCLOR 1260 PCB BOT.MAT (µG/KG) (39511)	BETA BENZENE HEXA-CHLOR-IDE BOT.MAT (µG/KG) (34257)
APR 2001 06...	74000	46	1100	<.10	50	<7	c<10	c<10	c<.25	c<.25	c<.25	c<.25	c<10

Date	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39351)	CHLOR-NEB, BED MAT DRY WT, REC (µG/KG) (62903)	CHLORO-BENZIL-ATE, BED MAT DRY WT, REC (µG/KG) (39461)	CHLORO-THAL-ONIL, BED MAT DRY WT, REC (µG/KG) (62904)	CHLOR-PYRIFOS IN BOT. MAT. (µG/KG) (81404)	CIS-CHLOR-DANE, BED MAT DRY WT, REC (µG/KG) (62802)	CIS-PER-METHRIN BED MAT DRY WT, REC (µG/KG) (62908)	DCPA, BED MAT DRY WT, REC (µG/KG) (62905)	DELTA BENZENE HEXA-CHLOR-IDE BOT.MAT (µG/KG) (34262)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39383)	ENDO-SULFAN BETA BOT.MAT (µG/KG) (34359)	ENDO-SULFAN SULFATE BOT.MAT (µG/KG) (34354)	ENDO-SULFAN I TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39389)
APR 2001 06...	c<10	c<10	c<10	c<10	c<10	c<10	c<5.0	c<10	c<10	c<10	c<10.0	c<10.0	c<10

Date	ENDRIN ALDE-HYDE BOT.MAT (µG/KG) (34369)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39393)	ENDRIN KETONE, BED MAT DRY WT, REC (µG/KG) (62906)	ETRIDI-AZOLE, BED MAT DRY WT, REC (µG/KG) (62907)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (µG/KG) (39423)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39413)	HEXA-CHLORO-BENZENE TOT. IN BOTTOM MATL. (µG/KG) (39701)	HEXA-CHLORO-CYCLO-PENT-ADIENE BOT.MAT (µG/KG) (34389)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39343)	P,P' DDE, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39321)	P,P' DDT, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39301)	P,P'-DDD, RECOVER IN BOT-TOM MA-TERIAL (µG/KG) (39363)	PROPA-CHLOR, BED MAT DRY WT, REC (µG/KG) (62909)
APR 2001 06...	c<10.0	c<10	c<10	c<10	c<10	c<10	c<10	c<10	c<10	c<10	c<10	c<10	

Date	TRI-FLUR-ALIN, BED MAT DRY WT, REC (µG/KG) (62902)
APR 2001 06...	c<10

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
WATER QUALITY AND POTENTIAL SOURCES OF
CONTAMINANTS IN MORRISONS COVE, PENNSYLVANIA
MARTINSBURG PROJECT

The following pages contain data collected from 10 ground-water wells, 1 spring, and 4 streams near Martinsburg, Pennsylvania. Martinsburg is located in a valley known as Morrisons Cove. The sampling was conducted to assess the quality of water in areas of predominantly agricultural land use near the municipal supply wells used by the Martinsburg Municipal Authority. The water-quality data were used to help determine sources of contaminants in the streams and ground-water system.

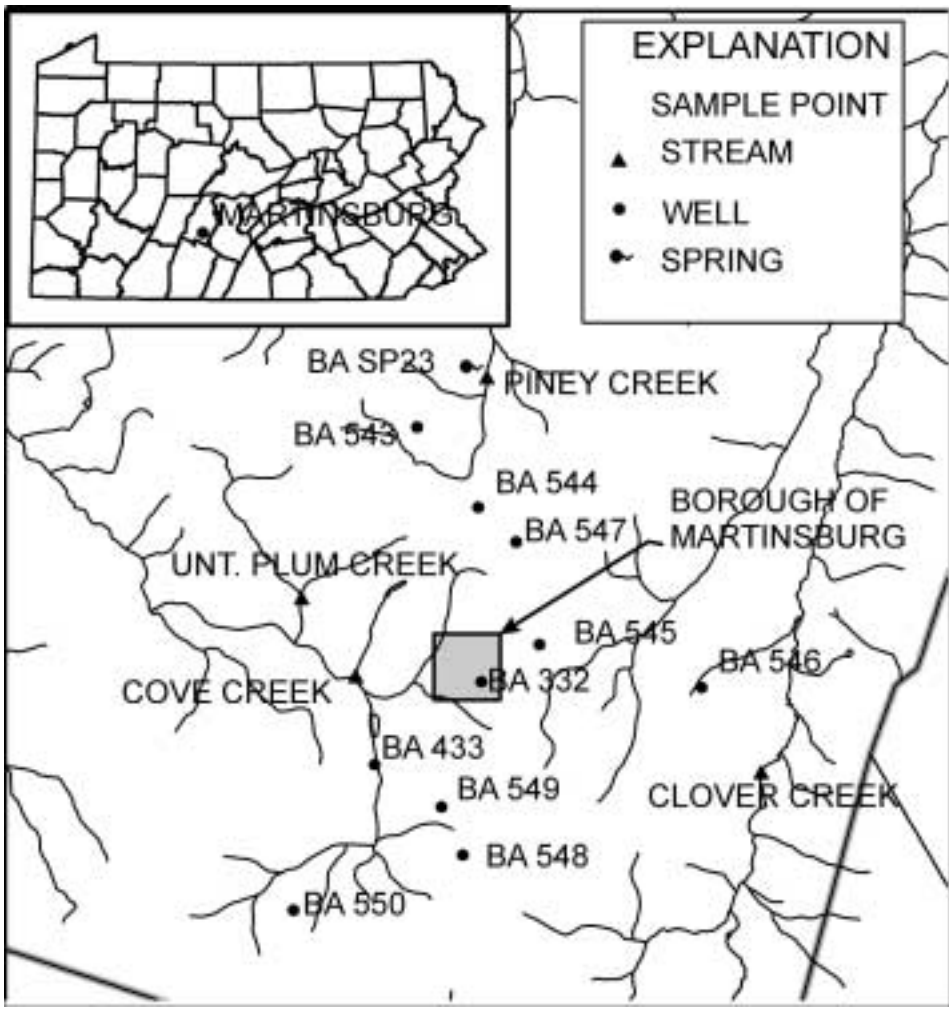


Figure 11.--Locations of sites sampled for the Martinsburg project.

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
WATER QUALITY AND POTENTIAL SOURCES OF
CONTAMINANTS IN MORRISONS COVE, PENNSYLVANIA
MARTINSBURG PROJECT--Continued

REMARKS.--The remark code "E" indicates an estimated value based on low recovery for the analyte. The remark code "M" indicates that the constituent was identified, but not quantified (in the case of detection of the analyte, a result rounded to zero is replaced by an unquantified "M". Sampling condition code: 0.11 - site recently pumped; 8.00 - pumping.

MISCELLANEOUS STATION ANALYSES

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET) (72019)	DEPTH OF WELL, TOTAL (FEET) (72008)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD) (72000)	DIS-CHARGE (GPM) (50042)	DRAIN-AGE AREA (SQ. MI.) (81024)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)
402013078192701 BA 543 (LAT 40 20 13N LONG 078 19 27W)													
SEP 2002 09...	1100	1028	80020	22.90	145	1473	4.0	--	--	0.2	--	7.5	7.5
401939078190401 BA 544 (LAT 40 19 38N LONG 078 19 03W)													
SEP 2002 09...	1200	1028	80020	43.30	125	1438	5.0	--	--	4.0	--	6.8	7.1
401842078184601 BA 545 (LAT 40 18 41N LONG 078 18 46W)													
SEP 2002 09...	1330	1028	80020	113.00	308	1405	--	--	--	9.2	--	7.3	7.4
401814078172801 BA 546 (LAT 40 18 13N LONG 078 17 28W)													
SEP 2002 10...	1140	1028	80020	70.20	180	1336	2.2	--	728	2.4	26	6.7	6.9
401832078191901 BA 332 (LAT 40 18 32N LONG 078 19 19W)													
SEP 2002 10...	1315	1028	80020	30.00	100	1440	3.0	--	--	7.1	75	7.1	7.2
401808078202101 BA 433 (LAT 40 18 08N LONG 078 20 21W)													
SEP 2002 10...	1445	1028	80020	11.70	160	1345.00	--	--	--	1.7	--	6.8	7.0
401923078184801 BA 547 (LAT 40 19 23N LONG 078 18 48W)													
SEP 2002 11...	0815	1028	80020	138.20	>200	1474	3.3	--	718	8.2	76	7.4	7.6
402028078155001 BA SP23 (LAT 40 20 28N LONG 078 15 50W)													
SEP 2002 11...	0930	1028	80020	--	--	1334	E15	--	719	1.4	12	7.2	7.5
401726078194501 BA 548 (LAT 40 17 26N LONG 078 19 45W)													
SEP 2002 11...	1030	1028	80020	44.00	185	1463	5.0	--	717	7.0	66	7.3	7.4
401747078195101 BA 549 (LAT 40 17 46N LONG 078 19 51W)													
SEP 2002 11...	1120	1028	80020	32.45	420	1450	--	--	--	3.7	34	7.0	7.4
401718078211701 BA 550 (LAT 40 17 18N LONG 078 21 15W)													
SEP 2002 11...	1240	1028	80020	108.00	310	1440	--	--	--	4.4	--	6.9	7.2
01555884 Piney Creek near Martinsburg, PA (LAT 40 20 27N LONG 078 18 46W)													
SEP 2002 11...	0900	1028	80020	--	--	1350	--	1.85	--	5.5	48	7.1	7.5
01556040 Clover Creek at Clover Creek, PA (LAT 40 17 37N LONG 078 17 05W)													
SEP 2002 11...	1330	1028	80020	--	--	1290	--	10.2	723	8.3	83	--	7.8

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES
WATER QUALITY AND POTENTIAL SOURCES OF
CONTAMINANTS IN MORRISONS COVE, PENNSYLVANIA
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MISCELLANEOUS STATION ANALYSES

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	SPE-CIFIC CON-DUCT-ANCE LAB (µS/CM) (90095)	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	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)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
402013078192701 BA 543 (LAT 40 20 13N LONG 078 19 27W)													
SEP 2002 09...	277	238	12.9	30.7	8.68	.89	5.63	96	--	10.3	.2	22.0	15.5
401939078190401 BA 544 (LAT 40 19 38N LONG 078 19 03W)													
SEP 2002 09...	1080	1070	11.5	115	60.4	1.16	18.7	313	.05	59.3	<.1	8.8	54.8
401842078184601 BA 545 (LAT 40 18 41N LONG 078 18 46W)													
SEP 2002 09...	469	462	11.2	53.9	26.1	1.09	4.66	189	E.02	14.2	<.1	8.7	11.9
401814078172801 BA 546 (LAT 40 18 13N LONG 078 17 28W)													
SEP 2002 10...	873	833	20.2	109	49.6	2.18	6.09	421	.04	17.6	E.1	10.1	26.7
401832078191901 BA 332 (LAT 40 18 32N LONG 078 19 19W)													
SEP 2002 10...	557	661	17.8	87.1	29.3	3.64	12.4	267	E.02	27.1	E.1	10.3	28.4
401808078202101 BA 433 (LAT 40 18 08N LONG 078 20 21W)													
SEP 2002 10...	2440	2420	14.1	173	11.3	1.13	312	324	.16	515	E.1	8.9	83.7
401923078184801 BA 547 (LAT 40 19 23N LONG 078 18 48W)													
SEP 2002 11...	499	483	12.4	49.8	29.1	2.37	5.15	170	E.03	12.8	<.1	9.7	11.6
402028078155001 BA SP23 (LAT 40 20 28N LONG 078 15 50W)													
SEP 2002 11...	519	509	11.1	87.9	11.3	.80	4.88	203	--	13.1	E.1	9.1	23.3
401726078194501 BA 548 (LAT 40 17 26N LONG 078 19 45W)													
SEP 2002 11...	682	653	12.5	64.0	34.8	2.28	21.1	222	--	57.1	<.1	8.9	25.4
401747078195101 BA 549 (LAT 40 17 46N LONG 078 19 51W)													
SEP 2002 11...	783	791	11.7	88.4	45.2	2.26	14.0	294	.03	40.5	.3	8.2	53.3
401718078211701 BA 550 (LAT 40 17 18N LONG 078 21 15W)													
SEP 2002 11...	960	949	11.4	99.9	57.1	6.61	16.9	349	--	57.1	.1	8.8	64.5
01555884 Piney Creek near Martinsburg, PA (LAT 40 20 27N LONG 078 18 46W)													
SEP 2002 11...	523	503	11.9	86.8	11.3	1.05	5.46	205	E.02	12.6	E.1	9.2	23.8
01556040 Clover Creek at Clover Creek, PA (LAT 40 17 37N LONG 078 17 05W)													
SEP 2002 11...	443	445	15.7	60.2	21.1	1.21	3.81	199	<.03	10.5	E.1	8.4	14.5

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MISCELLANEOUS STATION ANALYSES

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	BORON, DIS-SOLVED (µG/L AS B) (01020)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	STRON-TIUM, DIS-SOLVED (µG/L AS SR) (01080)	1,4-DI-CHLORO-BENZENE DISSOLV (µG/L) (34572)	1METHYL NAPH-THALENE WATER, FLTERD REC (µG/L) (62054)	26DIMET NAPH-THALENE WATER, FLTERD REC (µG/L) (62055)	2METHYL NAPH-THALENE WATER, FLTERD REC (µG/L) (62056)
402013078192701 BA 543 (LAT 40 20 13N LONG 078 19 27W)													
SEP 2002 09...	.04	E.08	.11	<.008	<.06	E.02	20	57	180	--	--	--	--
401939078190401 BA 544 (LAT 40 19 38N LONG 078 19 03W)													
SEP 2002 09...	<.04	.21	36.9	<.008	<.06	<.02	E10	18	56.9	<.5	<.5	<.5	<.5
401842078184601 BA 545 (LAT 40 18 41N LONG 078 18 46W)													
SEP 2002 09...	<.04	E.06	8.92	<.008	<.06	<.02	M	<10	37.3	<.5	<.5	<.5	<.5
401814078172801 BA 546 (LAT 40 18 13N LONG 078 17 28W)													
SEP 2002 10...	<.04	E.06	5.46	E.004	<.06	<.02	20	<10	82.7	<.5	<.5	<.5	<.5
401832078191901 BA 332 (LAT 40 18 32N LONG 078 19 19W)													
SEP 2002 10...	<.04	<.10	9.16	<.008	<.06	<.02	20	20	161	<.5	<.5	<.5	<.5
401808078202101 BA 433 (LAT 40 18 08N LONG 078 20 21W)													
SEP 2002 10...	<.04	.29	7.69	.029	E.05	.05	20	32	1020	--	--	--	--
401923078184801 BA 547 (LAT 40 19 23N LONG 078 18 48W)													
SEP 2002 11...	<.04	E.07	16.8	<.008	<.06	<.02	E10	<10	31.3	<.5	<.5	<.5	<.5
402028078155001 BA SP23 (LAT 40 20 28N LONG 078 15 50W)													
SEP 2002 11...	<.04	<.10	8.81	<.008	<.06	E.01	20	<10	447	--	--	--	--
401726078194501 BA 548 (LAT 40 17 26N LONG 078 19 45W)													
SEP 2002 11...	<.04	E.07	7.88	<.008	<.06	<.02	20	<10	58.3	--	--	--	--
401747078195101 BA 549 (LAT 40 17 46N LONG 078 19 51W)													
SEP 2002 11...	<.04	E.07	10.5	<.008	<.06	<.02	10	<10	51.8	<.5	<.5	<.5	<.5
401718078211701 BA 550 (LAT 40 17 18N LONG 078 21 15W)													
SEP 2002 11...	.52	.73	5.73	<.008	<.06	<.02	E10	E8	501	--	--	--	--
01555884 Piney Creek near Martinsburg, PA (LAT 40 20 27N LONG 078 18 46W)													
SEP 2002 11...	.20	.34	7.92	.096	.21	.19	20	16	448	<.5	<.5	<.5	<.5
01556040 Clover Creek at Clover Creek, PA (LAT 40 17 37N LONG 078 17 05W)													
SEP 2002 11...	<.04	.13	5.35	.016	E.03	E.01	E10	<10	119	<.5	<.5	<.5	<.5

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WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	3-BETA-COPRO-STANOL, WATER, FLTERD REC (µG/L) (62057)	3METHYL 1(H)-INDOLE, WATER, FLTERD REC (µG/L) (62058)	3-TERT-BHA, WATER, FLTERD REC (µG/L) (62059)	4-CUMYL PHENOL, WATER, FLTERD REC (µG/L) (62060)	4-OCTYL PHENOL, WATER, FLTERD REC (µG/L) (62061)	4-TERT-OCTYL-PHENOL, WATER, FLTERD REC (µG/L) (62062)	5METHYL 1HBENZO TRIAZLE WATER, FLTERD REC (µG/L) (62063)	ACETO-PHENONE WATER, FLTERD REC (µG/L) (62064)	AHT NAPH-THALENE WATER, FLTERD REC (µG/L) (62065)	ANTHRA-CENE DISSOLV (µG/L) (34221)	ANTHRA-QUINONE WATER, FLTERD REC (µG/L) (62066)	BENZO-A-PYRENE DISSOLV (µG/L) (34248)	BENZO-PHENONE WATER, FLTERD REC (µG/L) (62067)
402013078192701 BA 543 (LAT 40 20 13N LONG 078 19 27W)													
SEP 2002 09...	--	--	--	--	--	--	--	--	--	--	--	--	--
401939078190401 BA 544 (LAT 40 19 38N LONG 078 19 03W)													
SEP 2002 09...	<2	<1	<5	<1	<1	<1	<2	<.5	<.5	<.5	<.5	<.5	<.5
401842078184601 BA 545 (LAT 40 18 41N LONG 078 18 46W)													
SEP 2002 09...	<2	<1	<5	<1	<1	<1	<2	<.5	<.5	<.5	<.5	<.5	<.5
401814078172801 BA 546 (LAT 40 18 13N LONG 078 17 28W)													
SEP 2002 10...	<2	<1	<5	<1	<1	<1	<2	<.5	<.5	<.5	<.5	<.5	<.5
401832078191901 BA 332 (LAT 40 18 32N LONG 078 19 19W)													
SEP 2002 10...	<2	<1	<5	<1	<1	<1	<2	<.5	<.5	<.5	<.5	M	<.5
401808078202101 BA 433 (LAT 40 18 08N LONG 078 20 21W)													
SEP 2002 10...	--	--	--	--	--	--	--	--	--	--	--	--	--
401923078184801 BA 547 (LAT 40 19 23N LONG 078 18 48W)													
SEP 2002 11...	<2	<1	<5	<1	<1	<1	<2	<.5	<.5	<.5	<.5	<.5	<.5
402028078155001 BA SP23 (LAT 40 20 28N LONG 078 15 50W)													
SEP 2002 11...	--	--	--	--	--	--	--	--	--	--	--	--	--
401726078194501 BA 548 (LAT 40 17 26N LONG 078 19 45W)													
SEP 2002 11...	--	--	--	--	--	--	--	--	--	--	--	--	--
401747078195101 BA 549 (LAT 40 17 46N LONG 078 19 51W)													
SEP 2002 11...	<2	<1	<5	<1	<1	<1	<2	<.5	<.5	<.5	<.5	<.5	<.5
401718078211701 BA 550 (LAT 40 17 18N LONG 078 21 15W)													
SEP 2002 11...	--	--	--	--	--	--	--	--	--	--	--	--	--
01555884 Piney Creek near Martinsburg, PA (LAT 40 20 27N LONG 078 18 46W)													
SEP 2002 11...	<2	<1	<5	<1	<1	<1	<2	<.5	<.5	<.5	<.5	<.5	<.5
01556040 Clover Creek at Clover Creek, PA (LAT 40 17 37N LONG 078 17 05W)													
SEP 2002 11...	<2	<1	<5	<1	<1	<1	<2	<.5	<.5	<.5	<.5	<.5	<.5

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MISCELLANEOUS STATION ANALYSES

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	BETA-SITOS-TEROL, WATER, FLTERD REC (µG/L) (62068)	BISPHE-NOL A, WATER, FLTERD REC (µG/L) (62069)	BISPHEN OL A-D3 SURRGTE S2033/ 8033 WAT FLT PERCENT (99583)	BRO-MACIL, WATER, DISS, REC (µG/L) (04029)	BROMO-FORM DISSOLV (µG/L) (34288)	CAF-FEINE, WATER FLTRD REC (µG/L) (50305)	CAFFE-INE-C13 SURRGTE S2033/ 8033 WAT FLT PERCENT (99584)	CAMPHOR WATER, FLTERD REC (µG/L) (62070)	CAR-BARYL WATER FLTRD 0.7 µ GF, REC (µG/L) (82680)	CARBA-ZOLE, WATER, FLTERD REC (µG/L) (62071)	CHLOR-PYRIFOS DIS-SOLVED (µG/L) (38933)	CHOLES-TEROL, WATER, FLTERD REC (µG/L) (62072)	COT-ININE, WATER, FLTERD REC (µG/L) (62005)
402013078192701 BA 543 (LAT 40 20 13N LONG 078 19 27W)													
SEP 2002 09...	--	--	--	--	--	--	--	--	--	--	--	--	--
401939078190401 BA 544 (LAT 40 19 38N LONG 078 19 03W)													
SEP 2002 09...	<2	<1	45.3	<.5	<.5	<.5	74.3	<.5	<1	<.5	<.5	<2	<1
401842078184601 BA 545 (LAT 40 18 41N LONG 078 18 46W)													
SEP 2002 09...	<2	<1	31.2	<.5	<.5	<.5	79.1	<.5	<1	<.5	<.5	<2	<1
401814078172801 BA 546 (LAT 40 18 13N LONG 078 17 28W)													
SEP 2002 10...	<2	<1	.0	<.5	<.5	<.5	78.1	<.5	<1	<.5	<.5	<2	<1
401832078191901 BA 332 (LAT 40 18 32N LONG 078 19 19W)													
SEP 2002 10...	<2	<1	.0	<.5	E3.8	<.5	65.5	<.5	<1	<.5	<.5	<2	<1
401808078202101 BA 433 (LAT 40 18 08N LONG 078 20 21W)													
SEP 2002 10...	--	--	--	--	--	--	--	--	--	--	--	--	--
401923078184801 BA 547 (LAT 40 19 23N LONG 078 18 48W)													
SEP 2002 11...	<2	<1	4.7	<.5	<.5	<.5	78.7	<.5	<1	<.5	<.5	<2	<1
402028078155001 BA SP23 (LAT 40 20 28N LONG 078 15 50W)													
SEP 2002 11...	--	--	--	--	--	--	--	--	--	--	--	--	--
401726078194501 BA 548 (LAT 40 17 26N LONG 078 19 45W)													
SEP 2002 11...	--	--	--	--	--	--	--	--	--	--	--	--	--
401747078195101 BA 549 (LAT 40 17 46N LONG 078 19 51W)													
SEP 2002 11...	<2	<1	39.1	<.5	<.5	<.5	91.5	<.5	<1	<.5	<.5	<2	<1
401718078211701 BA 550 (LAT 40 17 18N LONG 078 21 15W)													
SEP 2002 11...	--	--	--	--	--	--	--	--	--	--	--	--	--
01555884 Piney Creek near Martinsburg, PA (LAT 40 20 27N LONG 078 18 46W)													
SEP 2002 11...	<2	<1	7.6	<.5	<.5	E.1	78.6	<.5	<1	<.5	<.5	<2	<1
01556040 Clover Creek at Clover Creek, PA (LAT 40 17 37N LONG 078 17 05W)													
SEP 2002 11...	<2	<1	4.2	<.5	<.5	<.5	77.2	<.5	<1	<.5	<.5	<2	<1

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Date	DCFLBI-PHENYL, SURRGTE S2033/ 8033 WAT FLT PERCENT (99585)	DI-AZINON, DIS-SOLVED (µG/L) (39572)	D-LIMO-NENE, WATER, FLTERD REC (µG/L) (62073)	FLUOR-ANTHENE DISSOLV (µG/L) (34377)	FLUORO-ANTHENE D10 SUR S2033/ 8033 WAT FLT PERCENT (99586)	HHHMCP-BENZO-PYRAN, WATER, FLTERD REC (µG/L) (62075)	INDOLE, WATER, FLTERD REC (µG/L) (62076)	ISOBOR-NEOL, WATER, FLTERD REC (µG/L) (62077)	ISO-PHORONE DISSOLV (µG/L) (34409)	ISO-PROPYL BENZENE WATER, FLTERD REC (µG/L) (62078)	ISO-QUIN-OLINE, WATER, FLTERD REC (µG/L) (62079)	MENTHOL WATER, FLTERD REC (µG/L) (62080)	METAL-AXYL WATER FLTRD REC (µG/L) (50359)
402013078192701 BA 543 (LAT 40 20 13N LONG 078 19 27W)													
SEP 2002 09...	--	--	--	--	--	--	--	--	--	--	--	--	--
401939078190401 BA 544 (LAT 40 19 38N LONG 078 19 03W)													
SEP 2002 09...	58.9	<.5	<.5	<.5	73.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5
401842078184601 BA 545 (LAT 40 18 41N LONG 078 18 46W)													
SEP 2002 09...	60.8	<.5	<.5	<.5	69.9	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5
401814078172801 BA 546 (LAT 40 18 13N LONG 078 17 28W)													
SEP 2002 10...	76.7	<.5	<.5	<.5	71.8	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5
401832078191901 BA 332 (LAT 40 18 32N LONG 078 19 19W)													
SEP 2002 10...	75.3	<.5	<.5	<.5	37.2	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5
401808078202101 BA 433 (LAT 40 18 08N LONG 078 20 21W)													
SEP 2002 10...	--	--	--	--	--	--	--	--	--	--	--	--	--
401923078184801 BA 547 (LAT 40 19 23N LONG 078 18 48W)													
SEP 2002 11...	79.5	<.5	<.5	<.5	68.7	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5
402028078155001 BA SP23 (LAT 40 20 28N LONG 078 15 50W)													
SEP 2002 11...	--	--	--	--	--	--	--	--	--	--	--	--	--
401726078194501 BA 548 (LAT 40 17 26N LONG 078 19 45W)													
SEP 2002 11...	--	--	--	--	--	--	--	--	--	--	--	--	--
401747078195101 BA 549 (LAT 40 17 46N LONG 078 19 51W)													
SEP 2002 11...	82.9	<.5	<.5	<.5	78.7	<.5	<.5	<.5	E.2	<.5	<.5	<.5	<.5
401718078211701 BA 550 (LAT 40 17 18N LONG 078 21 15W)													
SEP 2002 11...	--	--	--	--	--	--	--	--	--	--	--	--	--
01555884 Piney Creek near Martinsburg, PA (LAT 40 20 27N LONG 078 18 46W)													
SEP 2002 11...	82.3	<.5	<.5	<.5	72.0	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5
01556040 Clover Creek at Clover Creek, PA (LAT 40 17 37N LONG 078 17 05W)													
SEP 2002 11...	84.8	<.5	<.5	<.5	71.2	<.5	<.5	<.5	<.5	<.5	<.5	E.1	<.5

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Date	METHYL SALICY-LATE, WATER, FLTERD REC (µG/L) (62081)	METO-LACHLOR WATER DISSOLV (µG/L) (39415)	DEET, WATER, FLTERD REC (µG/L) (62082)	NAPHTH-ALENE DISSOLV (µG/L) (34443)	NONYL-PHENOL, DIETHOX WATER, FLTERD REC (µG/L) (62083)	DI-ETHOXY-OCTYL-PHENOL WAT FLT REC (µG/L) (61705)	MONO-ETHOXY-OCTYL-PHENOL WAT FLT REC (µG/L) (61706)	PARA-CRESOL, WATER, FLTERD REC (µG/L) (62084)	PARA-NONYL-PHENOL, WATER, FLTERD REC (µG/L) (62085)	PENTA-CHLORO-PHENOL DISSOLV (µG/L) (34459)	PHENAN-THREN EDISSOLV (µG/L) (34462)	PHENOL WATER FILTRD (µG/L) (34466)	PRO-METON, WATER, DISS, REC (µG/L) (04037)
402013078192701 BA 543 (LAT 40 20 13N LONG 078 19 27W)													
SEP 2002 09...	--	--	--	--	--	--	--	--	--	--	--	--	--
401939078190401 BA 544 (LAT 40 19 38N LONG 078 19 03W)													
SEP 2002 09...	<.5	<.5	M	<.5	<5	<1	<1	<1	<5	<2	<.5	<.5	<.5
401842078184601 BA 545 (LAT 40 18 41N LONG 078 18 46W)													
SEP 2002 09...	<.5	M	<.5	<.5	<5	<1	<1	<1	<5	<2	<.5	<.5	<.5
401814078172801 BA 546 (LAT 40 18 13N LONG 078 17 28W)													
SEP 2002 10...	<.5	M	<.5	<.5	<5	<1	<1	<1	<5	<2	<.5	<.5	<.5
401832078191901 BA 332 (LAT 40 18 32N LONG 078 19 19W)													
SEP 2002 10...	<.5	M	<.5	<.5	<5	<1	<1	<1	<5	<2	<.5	<.5	<.5
401808078202101 BA 433 (LAT 40 18 08N LONG 078 20 21W)													
SEP 2002 10...	--	--	--	--	--	--	--	--	--	--	--	--	--
401923078184801 BA 547 (LAT 40 19 23N LONG 078 18 48W)													
SEP 2002 11...	<.5	<.5	M	<.5	<5	<1	<1	<1	<5	<2	<.5	<.5	<.5
402028078155001 BA SP23 (LAT 40 20 28N LONG 078 15 50W)													
SEP 2002 11...	--	--	--	--	--	--	--	--	--	--	--	--	--
401726078194501 BA 548 (LAT 40 17 26N LONG 078 19 45W)													
SEP 2002 11...	--	--	--	--	--	--	--	--	--	--	--	--	--
401747078195101 BA 549 (LAT 40 17 46N LONG 078 19 51W)													
SEP 2002 11...	<.5	E.2	<.5	<.5	<5	<1	<1	<1	<5	<2	<.5	<.5	<.5
401718078211701 BA 550 (LAT 40 17 18N LONG 078 21 15W)													
SEP 2002 11...	--	--	--	--	--	--	--	--	--	--	--	--	--
01555884 Piney Creek near Martinsburg, PA (LAT 40 20 27N LONG 078 18 46W)													
SEP 2002 11...	<.5	<.5	<.5	<.5	<5	<1	<1	<1	<5	<2	<.5	<.5	<.5
01556040 Clover Creek at Clover Creek, PA (LAT 40 17 37N LONG 078 17 05W)													
SEP 2002 11...	<.5	<.5	<.5	<.5	<5	<1	<1	<1	<5	<2	<.5	<.5	<.5

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Date	PYRENE DISSOLV (µG/L) (34470)	STIGMA-STANOL, WATER, FLTERD REC (µG/L) (62086)	TETRA-CHLORO-ETHY-LENE DISSOLV (µG/L) (34476)	FYROL CEF, WATER, FLTERD REC (µG/L) (62087)	FYROL PCF, WATER, FLTERD REC (µG/L) (62088)	TRIBUTL PHOS-PHATE, WATER, FLTERD REC (µG/L) (62089)	TRICLO-SAN, WATER, FLTERD REC (µG/L) (62090)	TRI-ETHYL CITRATE WATER, FLTERD REC (µG/L) (62091)	TRIPHNL PHOS-PHATE, WATER, FLTERD REC (µG/L) (62092)	TRIS(2-BUTOXE_ PHOS-PHATE, WATER, FLTERD (µG/L) (62093)	DICHLOR VOS, WATER FLTRD REC (µG/L) (38775)	N15/N14 NO3 FRAC WATER FLTRD 0.45 µ PER MIL (82690)	SAMPLE WEIGHT, WASTE-WATER METHOD, WAT FLT (ML) (99587)
402013078192701 BA 543 (LAT 40 20 13N LONG 078 19 27W)													
SEP 2002 09...	--	--	--	--	--	--	--	--	--	--	--	--	--
401939078190401 BA 544 (LAT 40 19 38N LONG 078 19 03W)													
SEP 2002 09...	<.5	<2	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5	<1.00	9.40	942
401842078184601 BA 545 (LAT 40 18 41N LONG 078 18 46W)													
SEP 2002 09...	<.5	<2	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5	<1.00	4.10	901
401814078172801 BA 546 (LAT 40 18 13N LONG 078 17 28W)													
SEP 2002 10...	<.5	<2	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5	<1.00	8.80	883
401832078191901 BA 332 (LAT 40 18 32N LONG 078 19 19W)													
SEP 2002 10...	<.5	<2	<.5	M	<.5	<.5	<1	<.5	<.5	<.5	<1.00	6.00	947
401808078202101 BA 433 (LAT 40 18 08N LONG 078 20 21W)													
SEP 2002 10...	--	--	--	--	--	--	--	--	--	--	--	--	--
401923078184801 BA 547 (LAT 40 19 23N LONG 078 18 48W)													
SEP 2002 11...	<.5	<2	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5	<1.00	7.40	880
402028078155001 BA SP23 (LAT 40 20 28N LONG 078 15 50W)													
SEP 2002 11...	--	--	--	--	--	--	--	--	--	--	--	--	--
401726078194501 BA 548 (LAT 40 17 26N LONG 078 19 45W)													
SEP 2002 11...	--	--	--	--	--	--	--	--	--	--	--	--	--
401747078195101 BA 549 (LAT 40 17 46N LONG 078 19 51W)													
SEP 2002 11...	<.5	<2	<.5	<.5	<.5	<.5	<1	<.5	<.5	E.2	<1.00	6.40	813
401718078211701 BA 550 (LAT 40 17 18N LONG 078 21 15W)													
SEP 2002 11...	--	--	--	--	--	--	--	--	--	--	--	--	--
01555884 Piney Creek near Martinsburg, PA (LAT 40 20 27N LONG 078 18 46W)													
SEP 2002 11...	<.5	<2	<.5	<.5	<.5	<.5	<1	<.5	M	<.5	<1.00	8.30	913
01556040 Clover Creek at Clover Creek, PA (LAT 40 17 37N LONG 078 17 05W)													
SEP 2002 11...	<.5	<2	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5	<1.00	5.20	836

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Date	SAMPLER TYPE (CODE) (84164)	SAM-PLING CONDI-TION (72006)
402013078192701 BA 543 (LAT 40 20 13N LONG 078 19 27W)		
SEP 2002		
09...	4040	.11
401939078190401 BA 544 (LAT 40 19 38N LONG 078 19 03W)		
SEP 2002		
09...	4040	.11
401842078184601 BA 545 (LAT 40 18 41N LONG 078 18 46W)		
SEP 2002		
09...	4040	8.00
401814078172801 BA 546 (LAT 40 18 13N LONG 078 17 28W)		
SEP 2002		
10...	4040	8.00
401832078191901 BA 332 (LAT 40 18 32N LONG 078 19 19W)		
SEP 2002		
10...	4040	8.00
401808078202101 BA 433 (LAT 40 18 08N LONG 078 20 21W)		
SEP 2002		
10...	4040	8.00
401923078184801 BA 547 (LAT 40 19 23N LONG 078 18 48W)		
SEP 2002		
11...	4040	.11
402028078155001 BA SP23 (LAT 40 20 28N LONG 078 15 50W)		
SEP 2002		
11...	--	--
401726078194501 BA 548 (LAT 40 17 26N LONG 078 19 45W)		
SEP 2002		
11...	4040	.11
401747078195101 BA 549 (LAT 40 17 46N LONG 078 19 51W)		
SEP 2002		
11...	4040	.11
401718078211701 BA 550 (LAT 40 17 18N LONG 078 21 15W)		
SEP 2002		
11...	4040	.11
01555884 Piney Creek near Martinsburg, PA (LAT 40 20 27N LONG 078 18 46W)		
SEP 2002		
11...	8010	--
01556040 Clover Creek at Clover Creek, PA (LAT 40 17 37N LONG 078 17 05W)		
SEP 2002		
11...	8010	--

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Date	Time	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD) (72000)	DIS-CHARGE (GPM) (50042)	DRAIN-AGE AREA (SQ. MI.) (81024)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	SPE-CIFIC CON-DUCT-ANCE LAB (µS/CM) (90095)
015558069 Unnamed Tributary to Plum Run near Martinsburg, PA (LAT 40 19 16N LONG 078 20 41W)													
SEP 2002 11...	1420	1028	80020	1351	1150	1.65	722	6.0	65	7.6	7.8	198	184
01555806 Cove Creek at Martinsburg, PA (LAT 40 18 42N LONG 078 20 21W)													
SEP 2002 11...	1500	1028	80020	1330	E900	5.02	725	3.0	32	7.5	7.7	1310	1320

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	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)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)
015558069 Unnamed Tributary to Plum Run near Martinsburg, PA (LAT 40 19 16N LONG 078 20 41W)													
SEP 2002 11...	19.9	21.1	6.56	3.96	3.52	68	<.03	4.81	E.1	7.9	11.8	.15	.62
01555806 Cove Creek at Martinsburg, PA (LAT 40 18 42N LONG 078 20 21W)													
SEP 2002 11...	20.5	77.2	28.2	10.8	145	269	.03	230	.1	10.5	44.6	.12	.97

Date	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	BORON, DIS-SOLVED (µG/L AS B) (01020)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	STRON-TIUM, DIS-SOLVED (µG/L AS SR) (01080)	1,4-DI-CHLORO-BENZENE DISSOLV (µG/L) (34572)	1METHYL NAPH-THALENE WATER, FLTERD REC (µG/L) (62054)	26DIMET NAPH-THALENE WATER, FLTERD REC (µG/L) (62055)	2METHYL NAPH-THALENE WATER, FLTERD REC (µG/L) (62056)	3-BETA-COPRO-STANOL, WATER, FLTERD REC (µG/L) (62057)	3METHYL 1(H)-INDOLE, WATER, FLTERD REC (µG/L) (62058)
015558069 Unnamed Tributary to Plum Run near Martinsburg, PA (LAT 40 19 16N LONG 078 20 41W)													
SEP 2002 11...	.80	.054	.16	.13	20	138	99.3	<.5	<.5	<.5	<.5	<2	<1
01555806 Cove Creek at Martinsburg, PA (LAT 40 18 42N LONG 078 20 21W)													
SEP 2002 11...	1.65	.147	1.01	.98	220	22	381	E.1	<.5	<.5	<.5	<2	<1

Date	3-TERT-BHA, WATER, FLTERD REC (µG/L) (62059)	4-CUMYL PHENOL, WATER, FLTERD REC (µG/L) (62060)	4-OCTYL PHENOL, WATER, FLTERD REC (µG/L) (62061)	4-TERT-OCTYL-PHENOL, WATER, FLTERD REC (µG/L) (62062)	5METHYL 1HBENZO TRIAZLE WATER, FLTERD REC (µG/L) (62063)	ACETO-PHENONE WATER, FLTERD REC (µG/L) (62064)	AHT NAPH-THALENE WATER, FLTERD REC (µG/L) (62065)	ANTHRA-CENE DISSOLV (µG/L) (34221)	ANTHRA-QUINONE WATER, FLTERD REC (µG/L) (62066)	BENZO-A-PYRENE DISSOLV (µG/L) (34248)	BENZO-PHENONE WATER, FLTERD REC (µG/L) (62067)	BETA-SITOS-TEROL, WATER, FLTERD REC (µG/L) (62068)	BISPHE-NOL A, WATER, FLTERD REC (µG/L) (62069)
015558069 Unnamed Tributary to Plum Run near Martinsburg, PA (LAT 40 19 16N LONG 078 20 41W)													
SEP 2002 11...	<5	<1	<1	<1	<2	<.5	M	<.5	<.5	<.5	<.5	<2	M
01555806 Cove Creek at Martinsburg, PA (LAT 40 18 42N LONG 078 20 21W)													
SEP 2002 11...	<5	<1	<1	<1	<2	<.5	1.0	<.5	M	<.5	E.1	<2	<1

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Date	BISPHENOL A-D3 SURRGTE S2033/ 8033 WAT FLT PERCENT (99583)	BROMACIL, WATER, DISS, REC (µG/L) (04029)	BROMOFORM DISSOLV (µG/L) (34288)	CAFFEINE, WATER FLTRD REC (µG/L) (50305)	CAFFEINE-C13 SURRGTE S2033/ 8033 WAT FLT PERCENT (99584)	CAMPHOR WATER, FLTERD REC (µG/L) (62070)	CARBARYL WATER FLTRD 0.7 µ GF, REC (µG/L) (82680)	CARBAZOLE, WATER, FLTERD REC (µG/L) (62071)	CHLORPYRIFOS DISSOLVED (µG/L) (38933)	CHOLESTEROL, WATER, FLTERD REC (µG/L) (62072)	COTININE, WATER, FLTERD REC (µG/L) (62005)	DCFLBIPHENYL, SURRGTE S2033/ 8033 WAT FLT PERCENT (99585)	DIAZINON, DISSOLVED (µG/L) (39572)
015558069 Unnamed Tributary to Plum Run near Martinsburg, PA (LAT 40 19 16N LONG 078 20 41W)													
SEP 2002 11...	70.7	<.5	<.5	E.1	91.8	<.5	<1	<.5	<.5	<2	<1	85.6	<.5
01555806 Cove Creek at Martinsburg, PA (LAT 40 18 42N LONG 078 20 21W)													
SEP 2002 11...	76.4	<.5	<.5	1.0	92.0	M	<1	<.5	<.5	M	M	90.9	<.5

Date	D-LIMONENE, WATER, FLTERD REC (µG/L) (62073)	FLUORANTHENE DISSOLV (µG/L) (34377)	FLUORANTHENE D10 SUR S2033/ 8033 WAT FLT PERCENT (99586)	HHHMCP-BENZOPYRAN, WATER, FLTERD REC (µG/L) (62075)	INDOLE, WATER, FLTERD REC (µG/L) (62076)	ISOBORNEOL, WATER, FLTERD REC (µG/L) (62077)	ISOPHORONE DISSOLV (µG/L) (34409)	ISOPROPYL BENZENE WATER, FLTERD REC (µG/L) (62078)	ISOQUINOLINE, WATER, FLTERD REC (µG/L) (62079)	MENTHOL WATER, FLTERD REC (µG/L) (62080)	METALAXYL WATER FLTRD REC (µG/L) (50359)	METHYL SALICYLATE, WATER, FLTERD REC (µG/L) (62081)	METOLACHLOR WATER DISSOLV (µG/L) (39415)
015558069 Unnamed Tributary to Plum Run near Martinsburg, PA (LAT 40 19 16N LONG 078 20 41W)													
SEP 2002 11...	<.5	<.5	78.9	M	<.5	<.5	<.5	<.5	<.5	E.1	<.5	<.5	<.5
01555806 Cove Creek at Martinsburg, PA (LAT 40 18 42N LONG 078 20 21W)													
SEP 2002 11...	<.5	<.5	75.5	E.2	<.5	<.5	<.5	<.5	<.5	E.2	<.5	<.5	M

Date	DEET, WATER, FLTERD REC (µG/L) (62082)	NAPHTHALENE DISSOLV (µG/L) (34443)	NONYLPHENOL, DIETHOX WATER, FLTERD REC (µG/L) (62083)	DI-ETHOXYOCTYLPHENOL WAT FLT REC (µG/L) (61705)	MONO-ETHOXYOCTYLPHENOL WAT FLT REC (µG/L) (61706)	PARA-CRESOL, WATER, FLTERD REC (µG/L) (62084)	PARA-NONYLPHENOL, WATER, FLTERD REC (µG/L) (62085)	PENTACHLOROPHENOL DISSOLV (µG/L) (34459)	PHENAN- THRENEDISSOLV (µG/L) (34462)	PHENOL WATER FILTRD (µG/L) (34466)	PROMETON, WATER, DISS, REC (µG/L) (04037)	PYRENE DISSOLV (µG/L) (34470)	STIGMASTANOL, WATER, FLTERD REC (µG/L) (62086)
015558069 Unnamed Tributary to Plum Run near Martinsburg, PA (LAT 40 19 16N LONG 078 20 41W)													
SEP 2002 11...	<.5	<.5	<5	<1	<1	<1	<5	<2	<.5	<.5	<.5	<.5	<2
01555806 Cove Creek at Martinsburg, PA (LAT 40 18 42N LONG 078 20 21W)													
SEP 2002 11...	E.1	<.5	E2	<1	<1	<1	<5	<2	<.5	<.5	<.5	<.5	<2

Date	TETRACHLOROETHYLENE DISSOLV (µG/L) (34476)	FYROL CEF, WATER, FLTERD REC (µG/L) (62087)	FYROL PCF, WATER, FLTERD REC (µG/L) (62088)	TRIBUTL PHOSPHATE, WATER, FLTERD REC (µG/L) (62089)	TRICLOSAN, WATER, FLTERD REC (µG/L) (62090)	TRIETHYL CITRATE WATER, FLTERD REC (µG/L) (62091)	TRIPHNL PHOSPHATE, WATER, FLTERD REC (µG/L) (62092)	TRIS(2-BUTOXE_ PHOSPHATE, WATER, FLTERD REC (µG/L) (62093)	DICHLORVOS, WATER FLTRD REC (µG/L) (38775)	N15/N14 NO3 FRAC WATER FLTRD 0.45 µ PER MIL (82690)	SAMPLE WEIGHT, WASTEWATER METHOD, WAT FLT (ML) (99587)	SAMPLER TYPE (CODE) (84164)	SAMPLING CONDITION (72006)
015558069 Unnamed Tributary to Plum Run near Martinsburg, PA (LAT 40 19 16N LONG 078 20 41W)													
SEP 2002 11...	<.5	<.5	<.5	<.5	M	<.5	<.5	<.5	<1.00	6.60	812	30	9
01555806 Cove Creek at Martinsburg, PA (LAT 40 18 42N LONG 078 20 21W)													
SEP 2002 11...	<.5	E.2	E.3	E.1	M	E.1	M	E.2	<1.00	11.30	814	30	9

SPECIAL NOTES, REMARK CODES, AND SELECTED CONSTITUENT DEFINITIONS

****

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

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

--In March 1989 a bias was discovered in the turbidimetric method for sulfate analysis for those samples analyzed by the U.S. Geological Survey National Water-Quality Laboratory indicating that values below 75 mg/L have a median positive bias of 2 mg/L above the true value for the period between 1982 and 1989.

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

$$MBASCOR = M - 0.0088N - 0.00019C$$

where:

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

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

****

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

PRINTED OUTPUT	REMARK
E,e	Estimated value.
>	Actual value is known to be greater than the value shown.
<	Actual value is known to be less than the value shown.
M	Presence of material verified but not quantified.
M	Presence of material verified, but not quantified.
N	Presumptive evidence of presence of material.
U	Material specifically analyzed for, but not detected.
A	Value is an average.
V	Analyte was detected in both the environmental sample and the associated blanks.
S	Most probable value.

****

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

(71999) SAMPLE PURPOSE CODES:

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

(82398) SAMPLE METHOD CODES:

10--Equal width increment
20--Equal discharge increment
30--Single vertical
40--Multiple verticals
50--Point sample
70--Grab sample
120--Velocity integrated
4040--Submersible pump
8010--Other

(84164) SAMPLER TYPE: (partial list)

110--Sewage sampler

3011--US D-77

3035--DH-76 Trace metal sampler with teflon gasket and nozzle

3039--D-77 Trace metal

3040--D-77 Trace metal modified teflon bag sampler

3045--DH-81 with Teflon cap and nozzle

8010--Other (other than a defined sampler type)

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

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

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

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

1028 --U.S. Geological Survey

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

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

GROUND-WATER-LEVEL AND GROUND-WATER-QUALITY STATION RECORDS

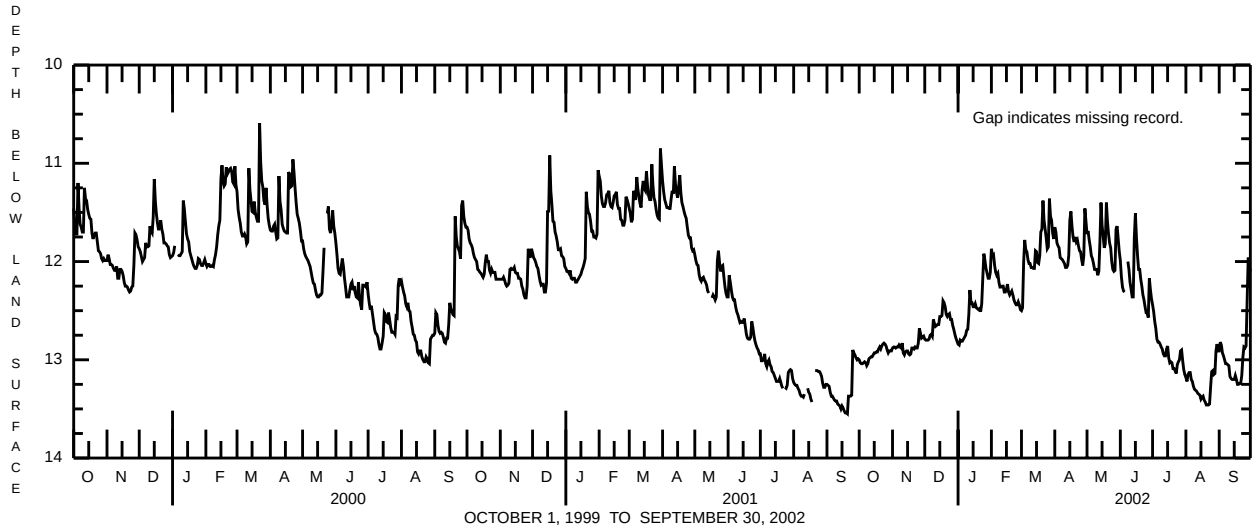
ADAMS COUNTY

395846077040601. Local number, AD 146.

LOCATION.--Lat 39°58'46", long 77°04'06", Hydrologic Unit 02050306, at State Game Land No. 249, and near York Springs.
Owner: U.S. Geological Survey.
AQUIFER.--Gettysburg Formation, Late Triassic age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 100 ft, cased to 17 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 540 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.00 ft above land-surface datum.
REMARKS.--Well shows significant response to earth tides. Water-quality records for 1973-75 are available in files of the District Office. In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.
PERIOD OF RECORD.--January 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 9.83 ft below land-surface datum, Dec. 17, 2000; lowest, 14.02 ft below land-surface datum, July 16-18, 1988.
EXTREMES FOR CURRENT YEAR.--Highest water level, 10.98 ft below land-surface datum, Mar. 27; lowest, 13.46 ft below land-surface datum, Aug. 20-22.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.00	12.88	12.79	12.84	11.87	12.50	11.65	11.72	11.99	12.44	13.18	12.91
2	13.03	12.87	12.80	12.85	11.94	12.47	11.70	11.69	12.16	12.51	13.22	12.82
3	13.04	12.87	12.80	12.80	11.93	12.01	11.81	11.78	12.26	12.61	13.15	12.85
4	13.04	12.88	12.80	12.81	12.04	11.78	11.84	11.85	12.30	12.68	13.13	12.93
5	13.03	12.87	12.79	12.81	12.11	11.88	11.86	11.94	12.31	12.79	13.13	12.96
6	13.02	12.87	12.75	12.79	12.14	11.90	11.96	11.97	---	12.82	13.20	13.00
7	13.03	12.85	12.74	12.77	12.12	11.98	11.97	12.02	---	12.82	13.22	13.04
8	13.06	12.87	12.76	12.75	12.21	12.02	11.98	12.08	12.00	12.84	13.27	13.04
9	13.04	12.88	12.59	12.70	12.26	12.02	12.00	12.08	12.08	12.87	13.30	13.05
10	12.99	12.83	12.63	12.69	12.26	12.06	12.02	12.08	12.21	12.89	13.31	13.06
11	12.98	12.93	12.66	12.54	12.25	12.06	12.06	12.14	12.28	12.94	13.32	13.17
12	12.97	12.95	12.65	12.29	12.25	12.07	12.06	12.10	12.36	12.96	13.34	13.19
13	12.97	12.92	12.64	12.42	12.31	12.07	12.04	11.80	12.36	12.96	13.35	13.20
14	12.95	12.91	12.64	12.42	12.31	11.89	11.94	11.40	11.76	12.89	13.36	13.20
15	12.93	12.91	12.56	12.46	12.28	11.90	11.58	11.63	11.51	12.86	13.40	13.20
16	12.93	12.94	12.56	12.46	12.23	12.01	11.49	11.74	11.76	12.98	13.38	13.16
17	12.92	12.95	12.55	12.43	12.31	12.02	11.64	11.86	11.94	13.03	13.37	13.20
18	12.92	12.94	12.40	12.47	12.34	11.94	11.75	11.82	12.08	13.02	13.41	13.25
19	12.89	12.88	12.42	12.48	12.32	11.70	11.80	11.40	12.08	13.03	13.43	13.25
20	12.87	12.88	12.46	12.49	12.30	11.67	11.75	11.59	12.18	13.09	13.46	13.24
21	12.89	12.89	12.54	12.48	12.34	11.38	11.80	11.72	12.25	13.09	13.46	13.24
22	12.86	12.87	12.56	12.51	12.39	11.58	11.78	11.81	12.34	13.11	13.46	13.16
23	12.84	12.88	12.54	12.43	12.42	11.67	11.84	11.86	12.39	13.14	13.45	12.98
24	12.83	12.88	12.53	12.17	12.44	11.76	11.89	12.00	12.46	13.05	13.28	12.87
25	12.84	12.83	12.59	11.92	12.44	11.87	11.90	12.08	12.52	13.02	13.12	12.88
26	12.86	12.68	12.59	11.99	12.41	11.85	11.98	12.10	12.52	13.00	13.11	12.86
27	12.90	12.73	12.65	12.07	12.44	11.36	12.04	12.09	12.57	12.91	13.15	12.40
28	12.93	12.78	12.69	12.12	12.49	11.54	11.94	11.67	12.17	12.90	13.14	11.96
29	12.91	12.77	12.74	12.17	---	11.58	11.46	11.64	12.29	13.01	12.91	12.05
30	12.91	12.76	12.78	12.17	---	11.71	11.59	11.77	12.38	13.10	12.84	12.10
31	12.91	---	12.81	12.11	---	11.77	---	11.90	---	13.15	12.91	---
MEAN	12.94	12.87	12.65	12.46	12.26	11.87	11.84	11.85	12.20	12.92	13.25	12.94
MAX	13.06	12.95	12.81	12.85	12.49	12.50	12.06	12.14	12.57	13.15	13.46	13.25
MIN	12.83	12.68	12.40	11.92	11.87	11.36	11.46	11.40	11.51	12.44	12.84	11.96



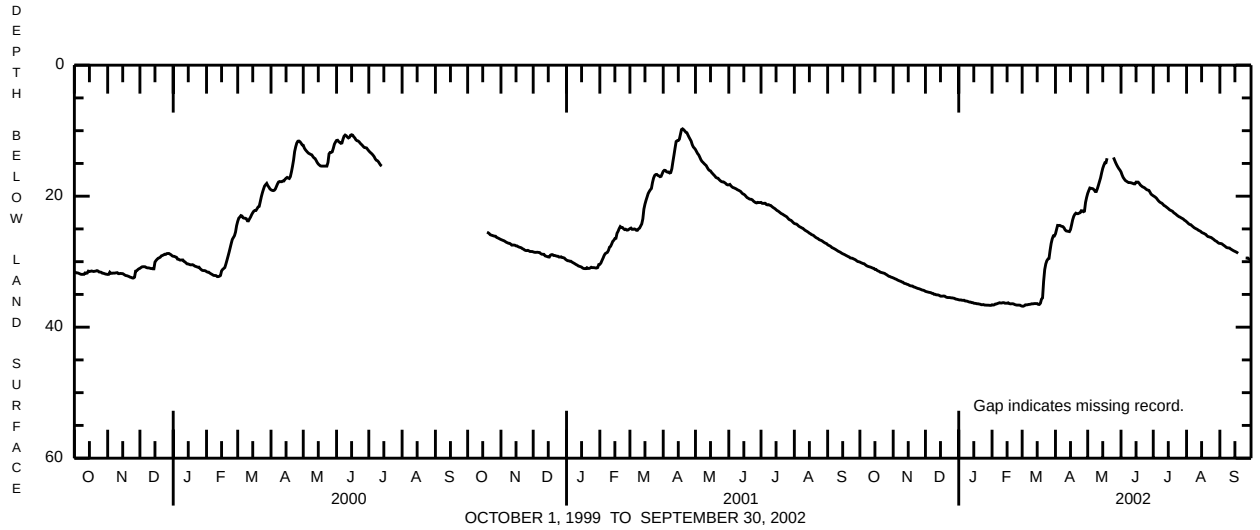
BEDFORD COUNTY

400217078281901. Local number, BD 150.

LOCATION.--Lat 40°02'17", long 78°28'19", Hydrologic Unit 02050303, at Bedford.
Owner: U.S. Geological Survey.
AQUIFER.--Onondaga Formation, Middle Devonian age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in., depth 150 ft, cased to 47 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,160 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of instrument shelf, 3.07 ft above land-surface datum. Prior to Oct. 18, 2001, measuring point, top of casing, 3.10 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since June 1999, are also available from the District Office.
PERIOD OF RECORD.--July 1965 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 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.
EXTREMES FOR CURRENT YEAR.--Highest water level, 13.20 ft below land-surface datum, May 20; lowest, 36.80 ft below land-surface datum, Mar. 2.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30.06	32.48	34.53	35.82	36.58	36.79	25.75	19.57	16.30	19.94	23.90	27.21
2	30.15	32.55	34.58	35.85	36.62	36.80	25.10	19.14	16.75	20.04	24.05	27.23
3	30.22	32.64	34.62	35.84	36.59	36.73	24.46	18.75	17.13	20.16	24.22	27.29
4	30.29	32.69	34.67	35.89	36.47	36.59	24.47	18.80	17.38	20.31	24.32	27.43
5	30.32	32.80	34.70	35.90	36.46	36.59	24.46	18.83	17.60	20.53	24.36	27.54
6	30.46	32.87	34.73	35.89	36.39	36.58	24.55	18.88	17.71	20.73	24.52	27.67
7	30.59	32.95	34.83	36.00	36.33	36.53	24.61	19.04	17.82	20.89	24.66	27.81
8	30.68	32.99	34.85	36.01	36.27	36.52	24.66	19.29	17.92	21.00	24.80	27.88
9	30.74	33.10	34.98	36.04	36.31	36.48	24.84	19.29	17.92	21.07	24.90	27.90
10	30.79	33.13	34.98	36.11	36.31	36.43	25.15	18.86	17.94	21.23	24.99	27.92
11	30.84	33.28	35.06	36.17	36.26	36.44	25.30	18.31	17.99	21.42	25.07	28.06
12	30.91	33.34	35.07	36.17	36.26	36.41	25.34	17.75	18.05	21.50	25.20	28.16
13	30.99	33.38	35.09	36.25	36.34	36.39	25.37	17.19	18.12	21.63	25.28	28.26
14	31.02	33.46	35.16	36.25	36.34	36.41	25.41	16.44	18.12	21.76	25.36	28.35
15	31.18	33.50	35.26	36.34	36.34	36.40	25.09	15.75	17.85	21.89	25.52	28.43
16	31.18	33.61	35.27	36.36	36.28	36.52	24.39	15.28	17.85	22.05	25.61	28.51
17	31.33	33.68	35.26	36.38	36.39	36.53	23.62	14.90	17.86	22.15	25.67	28.60
18	31.42	33.71	35.24	36.43	36.44	36.34	23.08	14.89	18.05	22.23	25.77	28.72
19	31.48	33.72	35.27	36.43	36.43	35.73	22.77	14.21	18.29	22.32	25.85	---
20	31.61	33.85	35.39	36.47	36.42	35.53	22.59	---	18.43	22.51	26.05	---
21	31.65	33.89	35.45	36.50	36.45	33.00	22.67	---	18.57	22.63	26.17	---
22	31.70	33.96	35.48	36.57	36.54	31.20	22.67	---	18.64	22.74	26.21	---
23	31.74	34.03	35.47	36.57	36.59	30.34	22.59	---	18.73	22.90	26.27	---
24	31.79	34.09	35.49	36.55	36.63	29.85	22.52	---	18.88	23.02	26.32	---
25	31.91	34.13	35.53	36.62	36.63	29.60	22.22	14.09	19.01	23.14	26.45	29.44
26	32.00	34.19	35.53	36.63	36.63	29.51	22.24	14.49	19.07	23.20	26.56	29.45
27	32.12	34.26	35.57	36.64	36.64	28.28	22.37	14.88	19.12	23.32	26.71	29.44
28	32.23	34.33	35.60	36.64	36.74	27.21	22.29	15.23	19.40	23.40	26.83	29.58
29	32.27	34.36	35.70	36.65	---	26.52	20.95	15.53	19.69	23.50	26.90	29.68
30	32.36	34.42	35.73	36.67	---	26.07	20.20	15.80	19.82	23.66	27.06	29.73
31	32.41	---	35.77	36.67	---	26.07	---	16.02	---	23.76	27.18	---
MEAN	31.24	33.51	35.19	36.30	36.45	33.75	23.72	16.97	18.20	21.96	25.57	28.35
MAX	32.41	34.42	35.77	36.67	36.74	36.80	25.75	19.57	19.82	23.76	27.18	29.73
MIN	30.06	32.48	34.53	35.82	36.26	26.07	20.20	14.09	16.30	19.94	23.90	27.21



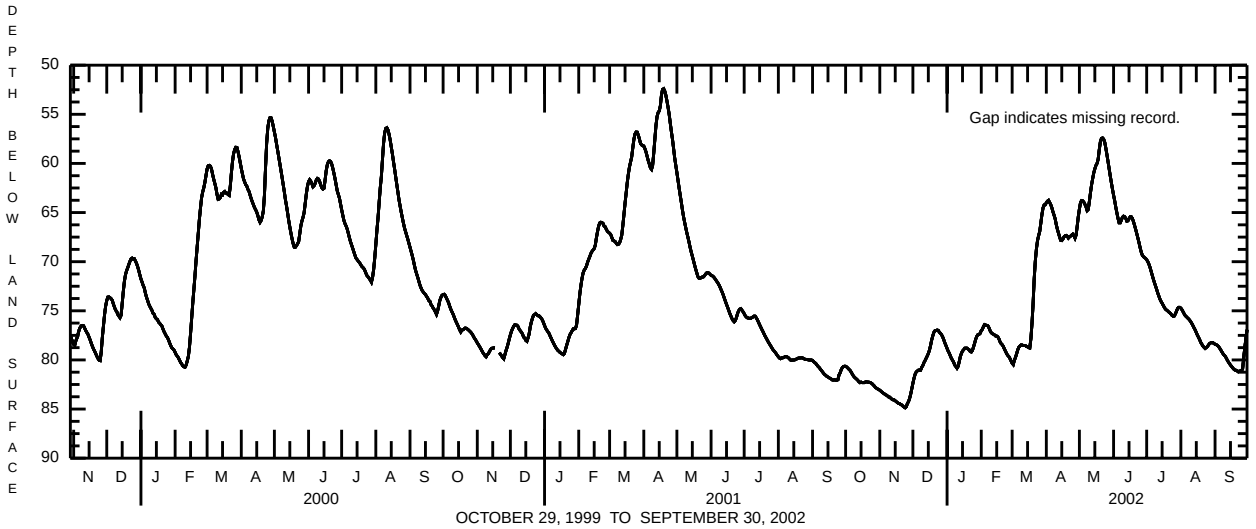
BEDFORD COUNTY

400450078303001. Local number, BD 654.

LOCATION.--Lat 40°04'50", long 78°30'30", Hydrologic Unit 02050303, at Bedford County Airport 3.0 mi north of Bedford.
Owner: Bedford Township.
AQUIFER.--Bloomsburg and Mifflintown undifferentiated.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 245 ft, cased to 105 ft, open hole.
INSTRUMENTATION.--Electronic data logger with 60-minute recording interval.
DATUM.--Elevation of land surface is 1,190 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.05 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels are also available from the District Office.
PERIOD OF RECORD.--October 1999 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 52.38 ft below land-surface datum, April 18, 19, 2001; lowest, 84.89 ft below land-surface datum, Nov. 24, 25, 2001.
EXTREMES FOR CURRENT YEAR.--Highest water level, 57.40 ft below land-surface datum, May 21, 22; lowest, 84.89 ft below land-surface datum, Nov. 24, 25.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80.65	83.08	82.38	78.83	77.01	80.34	64.00	64.64	63.24	69.80	74.73	78.40
2	80.72	83.18	81.88	79.11	76.89	80.47	63.84	63.98	63.81	69.99	74.89	78.43
3	80.83	83.28	81.46	79.32	76.60	80.04	63.76	63.78	64.46	70.25	75.10	78.52
4	80.95	83.37	81.23	79.60	76.41	79.76	63.97	63.81	65.05	70.57	75.31	78.61
5	81.06	83.44	81.13	79.86	76.46	79.40	64.19	63.94	65.59	70.96	75.50	78.77
6	81.23	83.54	81.04	80.04	76.48	79.00	64.51	64.16	66.04	71.37	75.60	78.95
7	81.43	83.58	81.04	80.25	76.53	78.72	64.92	64.42	66.04	71.76	75.72	79.14
8	81.62	83.67	81.04	80.53	76.73	78.59	65.26	64.80	65.78	72.13	75.82	79.33
9	81.76	83.77	80.75	80.68	77.02	78.48	65.64	64.69	65.48	72.46	75.96	79.49
10	81.86	83.79	80.58	80.84	77.22	78.48	66.22	63.89	65.37	72.80	76.12	79.60
11	81.96	83.90	80.28	80.66	77.33	78.53	66.69	63.01	65.42	73.18	76.31	79.78
12	82.07	84.00	80.08	80.19	77.38	78.53	67.09	62.20	65.58	73.49	76.52	80.00
13	82.22	84.06	79.84	79.67	77.45	78.54	67.47	61.56	65.87	73.80	76.75	80.19
14	82.31	84.07	79.61	79.34	77.56	78.63	67.82	60.97	65.84	74.04	76.96	80.36
15	82.26	84.16	79.35	79.09	77.57	78.67	67.85	60.55	65.63	74.23	77.22	80.53
16	82.31	84.25	79.02	78.97	77.65	78.75	67.71	60.20	65.44	74.44	77.48	80.66
17	82.31	84.35	78.54	78.81	77.85	78.79	67.48	60.00	65.43	74.65	77.70	80.81
18	82.31	84.42	77.99	78.80	78.15	77.84	67.37	59.58	65.60	74.83	77.93	80.94
19	82.24	84.45	77.57	78.80	78.34	76.29	67.33	58.61	65.92	74.92	78.21	81.03
20	82.23	84.54	77.20	78.89	78.45	74.31	67.41	57.81	66.30	75.01	78.40	81.05
21	82.26	84.59	77.03	78.96	78.63	71.75	67.60	57.45	66.70	75.12	78.59	81.12
22	82.26	84.71	77.01	79.15	78.89	69.96	67.48	57.41	67.14	75.21	78.72	81.20
23	82.30	84.80	76.96	79.19	79.12	68.71	67.40	57.53	67.58	75.33	78.83	81.14
24	82.34	84.87	76.99	79.03	79.36	67.86	67.29	57.87	68.05	75.47	78.75	81.13
25	82.42	84.77	77.18	78.68	79.54	67.36	67.20	58.47	68.55	75.55	78.65	81.09
26	82.54	84.44	77.29	78.29	79.66	66.93	67.36	59.14	69.00	75.53	78.49	80.91
27	82.65	84.26	77.44	77.88	79.86	66.09	67.60	59.85	69.33	75.33	78.33	79.75
28	82.80	83.93	77.65	77.59	80.10	65.22	67.29	60.57	69.48	75.05	78.27	78.72
29	82.88	83.49	77.95	77.42	---	64.53	66.38	61.29	69.59	74.77	78.24	77.79
30	82.95	82.94	78.27	77.40	---	64.23	65.41	61.98	69.66	74.65	78.24	76.93
31	83.02	---	78.54	77.30	---	64.21	---	62.63	---	74.65	78.33	---
MEAN	82.02	83.99	79.17	79.13	77.87	74.48	66.38	61.32	66.43	73.59	77.15	79.81
MAX	83.02	84.87	82.38	80.84	80.10	80.47	67.85	64.80	69.66	75.55	78.83	81.20
MIN	80.65	82.94	76.96	77.30	76.41	64.21	63.76	57.41	63.24	69.80	74.73	76.93



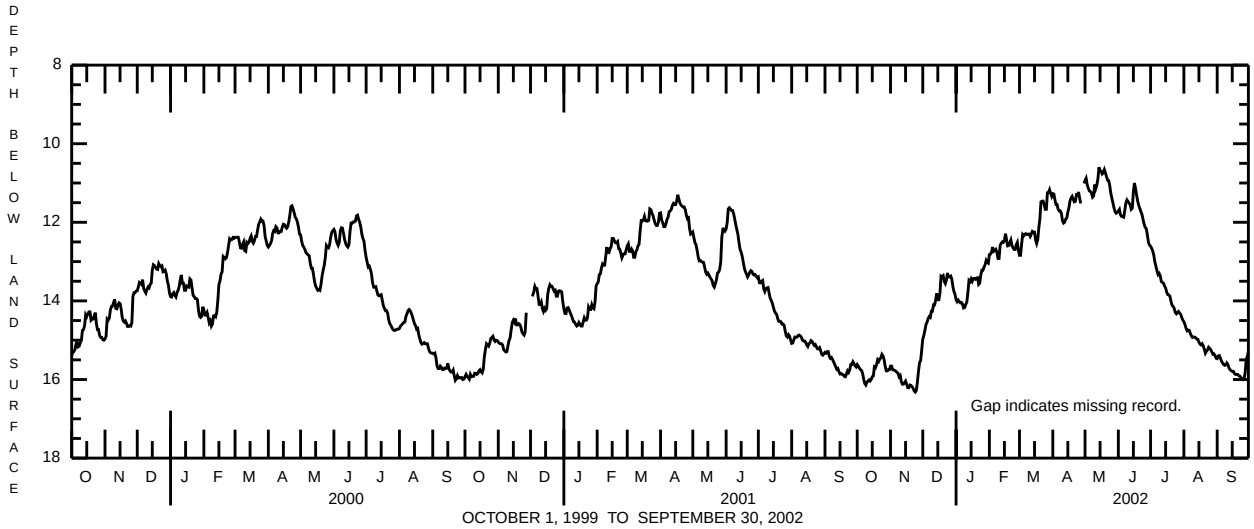
BLAIR COUNTY

402452078271301. Local number, BA 74.

LOCATION.--Lat 40°24'52", long 78°27'13", Hydrologic Unit 02050302, at Allegheny Portage Railroad National Historic Site, and southwest of Duncansville.
Owner: U.S. Geological Survey.
AQUIFER.--Brallier Formation, Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 150 ft, cased to 14 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,130 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.06 ft above land-surface datum. Prior to June 10, 1999, top of casing 1.8 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since June 1999, are also available from the District Office.
PERIOD OF RECORD.--August 1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 9.65 ft below land-surface datum, May 11, l989; lowest, 18.65 ft below land-surface datum, Oct. 29, 30, 1969.
EXTREMES FOR CURRENT YEAR.--Highest water level, 10.55 ft below land-surface datum, May 13, 14; lowest, 16.32 ft below land-surface datum, Nov. 24.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.62	15.66	14.97	13.97	12.82	12.84	11.27	10.94	11.71	12.61	14.53	15.47
2	15.66	15.66	14.88	14.02	12.81	12.84	11.28	10.88	11.67	12.66	14.60	15.40
3	15.71	15.75	14.75	13.98	12.76	12.55	11.43	11.04	11.81	12.73	14.70	15.39
4	15.75	15.76	14.60	14.02	12.63	12.31	11.55	11.13	11.85	12.84	14.76	15.46
5	15.77	15.77	14.54	14.05	12.74	12.34	11.55	11.20	11.86	13.01	14.74	15.53
6	15.84	15.79	14.45	14.04	12.72	12.30	11.67	11.22	11.87	13.12	14.75	15.58
7	15.99	15.82	14.40	14.08	12.69	12.29	11.71	11.25	11.70	13.24	14.83	15.62
8	16.10	15.84	14.42	14.18	12.76	12.31	11.71	11.36	11.51	13.33	14.89	15.64
9	16.14	15.93	14.26	14.17	12.92	12.30	11.77	11.33	11.43	13.30	14.93	15.63
10	16.07	15.90	14.26	14.09	12.92	12.30	11.96	11.04	11.47	13.36	14.92	15.58
11	16.04	16.05	14.10	14.03	12.59	12.36	12.02	11.14	11.51	13.51	14.92	15.62
12	16.01	16.12	14.10	13.79	12.53	12.30	12.00	11.05	11.56	13.53	14.94	15.71
13	16.04	16.12	13.98	13.48	12.50	12.23	11.92	10.89	11.67	13.55	14.97	15.75
14	16.00	16.08	13.81	13.51	12.51	12.25	11.89	10.60	11.64	13.62	14.98	15.78
15	15.93	16.04	13.97	13.44	12.46	12.25	11.74	10.70	11.22	13.67	15.05	15.79
16	15.91	16.12	13.97	13.50	12.29	12.45	11.63	10.70	11.00	13.78	15.10	15.79
17	15.68	16.21	13.80	13.43	12.45	12.54	11.46	10.77	11.14	13.84	15.12	15.85
18	15.70	16.21	13.37	13.43	12.60	12.44	11.38	10.74	11.31	13.85	15.09	15.87
19	15.62	16.14	13.39	13.45	12.59	12.14	11.34	10.66	11.46	13.88	15.14	15.87
20	15.50	16.15	13.36	13.42	12.52	11.91	11.41	10.74	11.57	14.01	15.23	15.87
21	15.54	16.18	13.51	13.41	12.45	11.48	11.48	10.84	11.65	14.11	15.33	15.90
22	15.48	16.22	13.56	13.58	12.59	11.46	11.47	10.93	11.73	14.14	15.28	15.91
23	15.45	16.29	13.47	13.55	12.65	11.46	11.30	10.94	11.80	14.19	15.25	15.95
24	15.36	16.32	13.29	13.34	12.69	11.55	11.31	11.07	11.93	14.30	15.18	15.97
25	15.40	16.28	13.39	13.22	12.69	11.67	11.23	11.26	12.05	14.33	15.21	16.00
26	15.49	16.07	13.39	13.22	12.57	11.67	11.39	11.39	12.13	14.30	15.24	15.98
27	15.66	15.79	13.37	13.14	12.51	11.25	11.52	11.51	12.16	14.27	15.30	15.83
28	15.78	15.57	13.44	13.08	12.71	11.24	---	11.64	12.32	14.31	15.36	15.49
29	15.78	15.52	13.63	12.97	---	11.17	---	11.73	12.51	14.34	15.35	15.42
30	15.75	15.25	13.76	13.02	---	11.26	11.01	11.77	12.58	14.42	15.39	15.29
31	15.75	---	13.83	13.04	---	11.34	---	11.75	---	14.49	15.46	---
MEAN	15.76	15.95	13.94	13.60	12.63	12.03	11.55	11.10	11.73	13.70	15.05	15.70
MAX	16.14	16.32	14.97	14.18	12.92	12.84	12.02	11.77	12.58	14.49	15.46	16.00
MIN	15.36	15.25	13.29	12.97	12.29	11.17	11.01	10.60	11.00	12.61	14.53	15.29



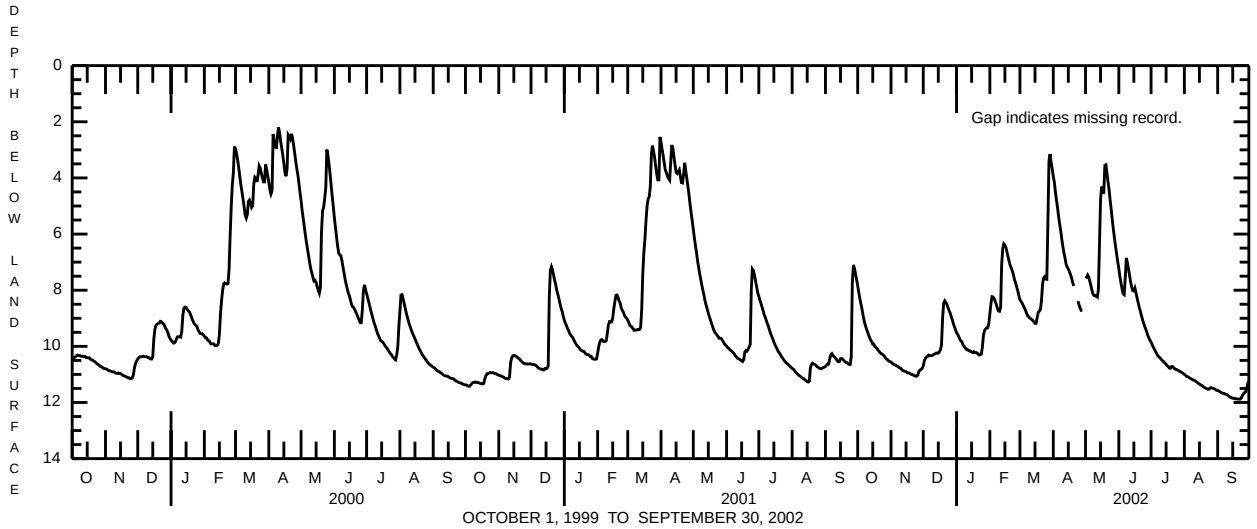
BRADFORD COUNTY

414330076280501. Local number, BR 92.

LOCATION.--Lat 41°43'30", long 76°28'05", Hydrologic Unit 02050106, at Monroeton.
Owner: U.S. Geological Survey.
AQUIFER.--Lock Haven Formation, Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 117 ft, cased to 55 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 750 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.05 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since September 1998, are also available from the District Office.
PERIOD OF RECORD.--May 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 1.33 ft below land-surface datum, Apr. 6, 1984; lowest, 11.99 ft below land-surface datum, Sept. 20, 24, 1991.
EXTREMES FOR CURRENT YEAR.--Highest water level, 3.10 ft below land-surface datum, Mar. 28, 29; lowest, 11.88 ft below land-surface datum, Sept. 20-22.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.84	10.56	10.70	9.51	8.85	8.34	3.94	7.57	7.23	9.85	11.00	11.57
2	8.08	10.60	10.52	9.57	8.48	8.40	4.15	7.54	7.51	9.93	11.03	11.59
3	8.30	10.63	10.43	9.65	8.23	8.46	4.50	7.46	7.74	10.02	11.07	11.61
4	8.49	10.65	10.38	9.74	8.24	8.54	4.80	7.53	7.95	10.10	11.08	11.64
5	8.68	10.67	10.36	9.81	8.30	8.62	5.07	7.68	8.13	10.17	11.10	11.66
6	8.90	10.69	10.31	9.84	8.40	8.70	5.39	7.83	8.16	10.24	11.13	11.67
7	9.08	10.71	10.33	9.95	8.51	8.80	5.65	8.00	7.55	10.32	11.15	11.68
8	9.24	10.73	10.33	10.00	8.64	8.90	5.91	8.14	6.85	10.36	11.17	11.70
9	9.36	10.77	10.33	10.05	8.74	8.94	6.20	8.19	7.02	10.40	11.20	11.71
10	9.47	10.78	10.31	10.10	8.75	8.99	6.46	8.19	7.24	10.44	11.21	11.73
11	9.58	10.83	10.28	10.13	8.61	9.01	6.68	8.22	7.47	10.49	11.23	11.77
12	9.68	10.87	10.27	10.13	7.08	9.05	6.87	8.25	7.71	10.52	11.26	11.79
13	9.77	10.87	10.24	10.17	6.50	9.08	7.08	7.98	7.89	10.56	11.28	11.82
14	9.83	10.89	10.24	10.17	6.35	9.13	7.18	6.40	8.02	10.60	11.32	11.83
15	9.92	10.90	10.24	10.20	6.40	9.18	7.24	4.77	8.03	10.64	11.34	11.85
16	9.92	10.94	10.19	10.22	6.48	9.18	7.34	4.31	7.93	10.69	11.37	11.85
17	10.01	10.95	10.12	10.19	6.66	8.98	7.44	4.52	8.10	10.72	11.39	11.86
18	10.04	10.95	9.94	10.22	6.82	8.79	7.56	4.52	8.28	10.77	11.41	11.87
19	10.08	10.98	9.00	10.22	6.99	8.74	7.71	3.55	8.44	10.78	11.45	11.87
20	10.14	11.00	8.47	10.23	7.13	8.69	7.85	3.53	8.61	10.72	11.47	11.88
21	10.18	11.01	8.38	10.27	7.22	8.40	---	3.84	8.74	10.72	11.49	11.88
22	10.23	11.03	8.44	10.31	7.32	7.79	---	4.15	8.90	10.76	11.51	11.88
23	10.26	11.05	8.50	10.30	7.47	7.57	---	4.44	9.04	10.80	11.53	11.84
24	10.28	11.06	8.62	10.28	7.63	7.52	8.39	4.82	9.17	10.82	11.52	11.75
25	10.32	11.06	8.72	10.04	7.75	7.60	8.52	5.15	9.28	10.83	11.48	11.69
26	10.36	11.02	8.81	9.62	7.89	7.61	8.64	5.53	9.38	10.85	11.47	11.65
27	10.42	10.89	8.93	9.44	8.03	5.61	8.72	5.85	9.49	10.88	11.49	11.62
28	10.46	10.84	9.05	9.38	8.20	3.40	8.72	6.17	9.61	10.89	11.50	11.49
29	10.48	10.82	9.19	9.35	---	3.15	---	6.45	9.70	10.92	11.51	11.34
30	10.53	10.78	9.30	9.34	---	3.45	---	6.72	9.78	10.94	11.54	11.25
31	10.54	---	9.41	9.19	---	3.67	---	6.99	---	10.97	11.57	---
MEAN	9.69	10.85	9.69	9.92	7.70	7.82	6.72	6.27	8.30	10.57	11.33	11.71
MAX	10.54	11.06	10.70	10.31	8.85	9.18	8.72	8.25	9.78	10.97	11.57	11.88
MIN	7.84	10.56	8.38	9.19	6.35	3.15	3.94	3.53	6.85	9.85	11.00	11.25



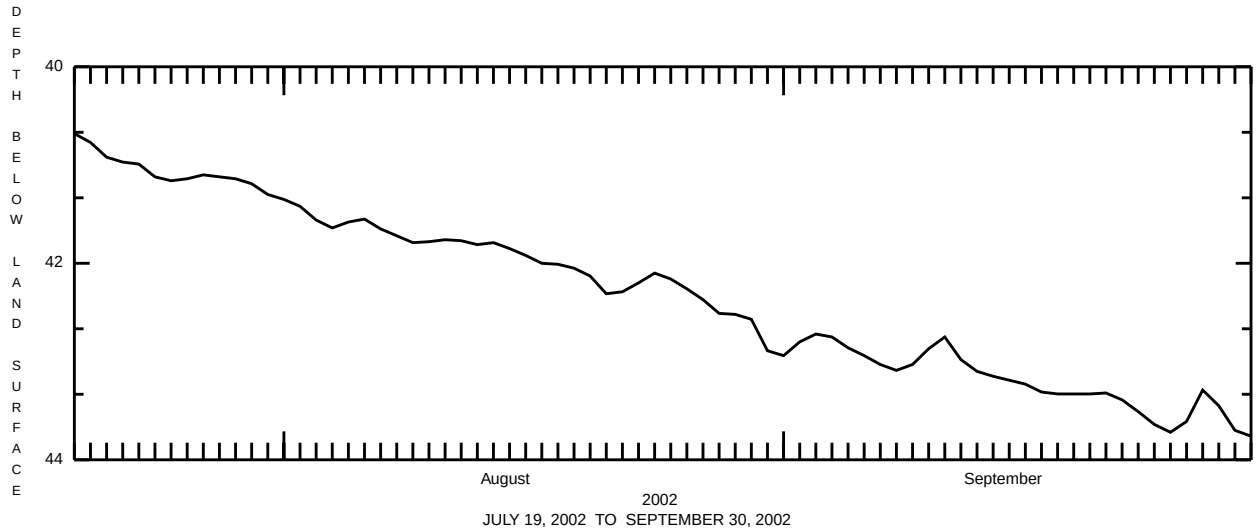
CAMBRIA COUNTY

403434078302201. Local number, CA 459.

LOCATION.--Lat 40°34'34", long 78°30'22", Hydrologic Unit 02050201, at State Game Lands No. 184.
Owner: U.S. Geological Survey.
AQUIFER.--Pottsville Formation, Middle Pennsylvanian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in, depth 148 ft, cased to 18 ft.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land-surface datum is 2,070 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of plywood shelf, 3.30 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels are available from the District Office.
PERIOD OF RECORD.--July 2002 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 40.64 ft below land-surface datum, July 18, 2002; lowest, 43.78 ft below land-surface datum, Sept. 30, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level, 40.64 ft below land-surface datum, July 18; lowest, 43.78 ft below land-surface datum, Sept. 30.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	41.35	42.94
2	---	---	---	---	---	---	---	---	---	---	41.42	42.80
3	---	---	---	---	---	---	---	---	---	---	41.56	42.72
4	---	---	---	---	---	---	---	---	---	---	41.64	42.75
5	---	---	---	---	---	---	---	---	---	---	41.58	42.86
6	---	---	---	---	---	---	---	---	---	---	41.55	42.94
7	---	---	---	---	---	---	---	---	---	---	41.65	43.03
8	---	---	---	---	---	---	---	---	---	---	41.72	43.09
9	---	---	---	---	---	---	---	---	---	---	41.79	43.03
10	---	---	---	---	---	---	---	---	---	---	41.78	42.87
11	---	---	---	---	---	---	---	---	---	---	41.76	42.75
12	---	---	---	---	---	---	---	---	---	---	41.77	42.98
13	---	---	---	---	---	---	---	---	---	---	41.81	43.10
14	---	---	---	---	---	---	---	---	---	---	41.79	43.15
15	---	---	---	---	---	---	---	---	---	---	41.85	43.19
16	---	---	---	---	---	---	---	---	---	---	41.92	43.23
17	---	---	---	---	---	---	---	---	---	---	42.00	43.31
18	---	---	---	---	---	---	---	---	---	---	42.01	43.33
19	---	---	---	---	---	---	---	---	---	40.68	42.05	43.33
20	---	---	---	---	---	---	---	---	---	40.77	42.13	43.33
21	---	---	---	---	---	---	---	---	---	40.92	42.31	43.32
22	---	---	---	---	---	---	---	---	---	40.97	42.29	43.39
23	---	---	---	---	---	---	---	---	---	40.99	42.20	43.51
24	---	---	---	---	---	---	---	---	---	41.12	42.10	43.64
25	---	---	---	---	---	---	---	---	---	41.16	42.16	43.72
26	---	---	---	---	---	---	---	---	---	41.14	42.26	43.61
27	---	---	---	---	---	---	---	---	---	41.10	42.37	43.29
28	---	---	---	---	---	---	---	---	---	41.12	42.51	43.45
29	---	---	---	---	---	---	---	---	---	41.14	42.52	43.70
30	---	---	---	---	---	---	---	---	---	41.19	42.57	43.76
31	---	---	---	---	---	---	---	---	---	41.30	42.89	---
MEAN	---	---	---	---	---	---	---	---	---	41.05	41.98	43.20
MAX	---	---	---	---	---	---	---	---	---	41.30	42.89	43.76
MIN	---	---	---	---	---	---	---	---	---	40.68	41.35	42.72



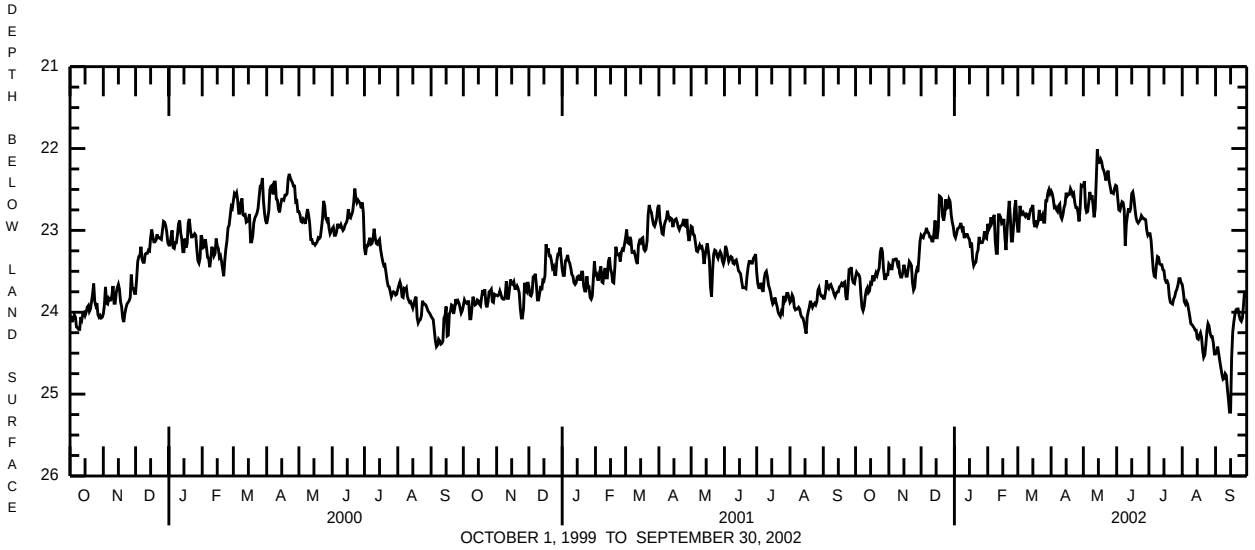
CAMERON COUNTY

412732078034201. Local number, CM 13.

LOCATION.--Lat 41°27'32", long 78°03'42", Hydrologic Unit 02050202, at Sinnemahoning State Park.
Owner: U.S. Geological Survey.
AQUIFER.--Catskill Formation, Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 102 ft, cased to 57 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,010 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.0 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 level table shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.
PERIOD OF RECORD.--October 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 3.21 ft above land-surface datum, Apr. 3, 1993 (see Remarks); lowest, 25.98 ft below land-surface datum, Sept. 10, 1972.
EXTREMES FOR CURRENT YEAR.--Highest water level, 21.94 ft below land-surface datum, May 14; lowest, 25.22 ft below land-surface datum, Sept. 14, 15.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.57	23.41	23.06	23.06	22.92	23.01	22.52	22.45	22.46	23.04	23.66	24.51
2	23.51	23.43	23.08	23.09	22.99	23.01	22.55	22.40	22.61	23.04	23.75	24.49
3	23.53	23.47	23.09	23.04	22.96	22.70	22.62	22.72	22.75	23.12	23.87	24.42
4	23.54	23.47	23.04	22.98	22.84	22.77	22.72	22.78	22.76	23.30	23.90	24.51
5	23.58	23.36	23.03	22.97	22.90	22.80	22.71	22.77	22.70	23.48	23.87	24.60
6	23.79	23.36	22.97	22.95	22.86	22.78	22.75	22.66	22.65	23.56	23.90	24.68
7	23.94	23.35	23.02	22.91	22.81	22.81	22.77	22.53	22.66	23.57	23.97	24.76
8	23.98	23.35	23.03	22.98	23.13	22.83	22.70	22.62	22.75	23.42	24.05	24.82
9	23.93	23.41	23.08	22.95	23.28	22.80	22.68	22.57	23.19	23.32	24.14	24.81
10	23.81	23.37	23.08	23.08	23.28	22.81	22.83	22.69	22.92	23.33	24.15	24.75
11	23.73	23.52	23.13	23.08	22.81	22.87	22.86	22.84	22.82	23.41	24.17	24.77
12	23.70	23.57	23.13	23.05	22.81	22.80	22.81	22.74	22.73	23.42	24.19	24.93
13	23.76	23.57	23.03	23.05	22.84	22.74	22.72	22.38	22.78	23.42	24.22	25.06
14	23.74	23.51	22.88	23.09	22.92	22.73	22.68	22.01	22.73	23.48	24.22	25.22
15	23.64	23.42	23.09	23.11	22.91	22.69	22.54	22.17	22.55	23.49	24.32	25.22
16	23.65	23.48	23.09	23.21	22.86	22.91	22.58	22.17	22.53	23.60	24.33	24.55
17	23.55	23.56	22.97	23.15	23.09	22.96	22.56	22.13	22.61	23.63	24.28	24.24
18	23.62	23.56	22.58	23.35	23.24	22.88	22.56	22.16	22.73	23.62	24.25	24.12
19	23.57	23.47	22.59	23.43	23.00	22.93	22.49	22.24	22.84	23.66	24.31	24.03
20	23.52	23.38	22.61	23.40	22.81	22.89	22.52	22.27	22.89	23.81	24.46	23.97
21	23.55	23.40	22.83	23.39	22.64	22.75	22.57	22.32	22.91	23.88	24.55	23.96
22	23.50	23.43	22.88	23.28	22.83	22.88	22.55	22.39	22.89	23.89	24.52	23.96
23	23.46	23.64	22.80	23.24	23.13	22.84	22.66	22.32	22.87	23.90	24.39	24.04
24	23.27	23.73	22.62	23.08	23.13	22.81	22.72	22.27	22.82	23.84	24.23	24.09
25	23.21	23.70	22.73	23.15	22.95	22.90	22.72	22.40	22.84	23.81	24.14	24.11
26	23.26	23.54	22.72	23.15	22.74	22.90	22.78	22.47	22.86	23.75	24.17	24.07
27	23.47	23.48	22.62	23.15	22.63	22.64	22.89	22.54	22.86	23.72	24.26	23.92
28	23.59	23.51	22.65	23.11	22.87	22.64	22.73	22.54	22.87	23.67	24.30	23.74
29	23.59	23.33	22.81	23.01	---	22.54	22.45	22.55	23.00	23.59	24.30	23.78
30	23.54	23.13	22.90	23.09	---	22.50	22.46	22.49	23.06	23.59	24.38	23.75
31	23.54	---	22.96	23.10	---	22.55	---	22.45	---	23.64	24.51	---
MEAN	23.60	23.46	22.91	23.12	22.93	22.80	22.66	22.45	22.79	23.55	24.19	24.40
MAX	23.98	23.73	23.13	23.43	23.28	23.01	22.89	22.84	23.19	23.90	24.55	25.22
MIN	23.21	23.13	22.58	22.91	22.63	22.50	22.45	22.01	22.46	23.04	23.66	23.74



OCTOBER 1, 1999 TO SEPTEMBER 30, 2002

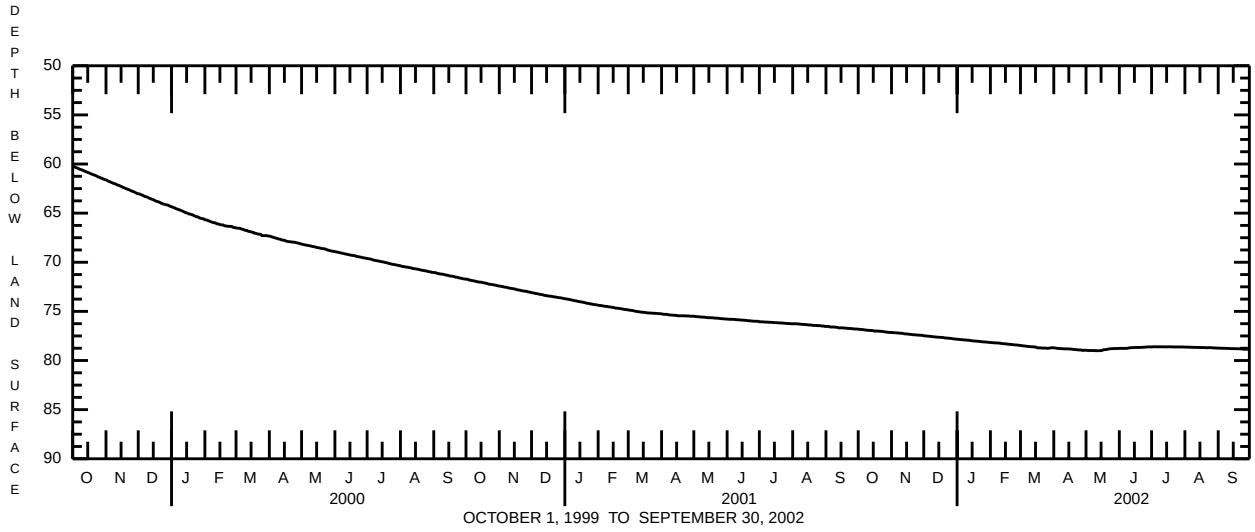
CENTRE COUNTY

404518077575501. Local number, CE 118.

LOCATION.--Lat 40°45'18", long 77°57'55", Hydrologic Unit 02050302, at State Game Land No. 176, and near Fairbrook.
Owner: U.S. Geological Survey.
AQUIFER.--Gatesburg Formation, Late Cambrian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 130 ft, cased to 40 ft, open hole.
INSTRUMENTATION.--Electronic data logger with 60-minute recording interval.
DATUM.--Elevation of land surface is 1,150 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.9 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since June 1999, are also available from the District Office.
PERIOD OF RECORD.--January 1968 to June 1981, July 1984 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 45.95 ft below land-surface datum, Aug. 27-31, Sept. 1-4, 1998; lowest, 80.14 ft below land-surface datum, Mar. 26, 1970.
EXTREMES FOR CURRENT YEAR.--Highest water level, 76.80 ft below land-surface datum, Oct. 1; lowest, 79.00 ft below land-surface datum, May 11-14.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76.81	77.15	77.48	77.83	78.17	78.48	78.71	78.96	78.77	78.61	78.63	78.74
2	76.83	77.16	77.49	77.84	78.18	78.48	78.72	78.97	78.76	78.61	78.63	78.74
3	76.83	77.16	77.50	77.85	78.18	78.50	78.74	78.98	78.77	78.60	78.64	78.75
4	76.84	77.17	77.51	77.87	78.20	78.51	78.76	78.98	78.77	78.60	78.64	78.74
5	76.85	77.18	77.52	77.87	78.20	78.52	78.77	78.98	78.76	78.60	78.64	78.76
6	76.87	77.19	77.53	77.88	78.21	78.55	78.78	78.98	78.77	78.60	78.65	78.76
7	76.88	77.20	77.54	77.90	78.21	78.55	78.78	78.98	78.77	78.61	78.65	78.76
8	76.90	77.21	77.56	77.91	78.22	78.56	78.79	78.99	78.76	78.60	78.66	78.76
9	76.92	77.22	77.57	77.91	78.23	78.58	78.80	78.99	78.74	78.60	78.66	78.77
10	76.92	77.22	77.58	77.92	78.23	78.59	78.80	79.00	78.71	78.60	78.66	78.77
11	76.93	77.23	77.59	77.93	78.27	78.60	78.82	79.00	78.71	78.61	78.66	78.77
12	76.94	77.26	77.61	77.94	78.27	78.60	78.81	79.00	78.69	78.61	78.67	78.78
13	76.94	77.28	77.61	77.96	78.29	78.61	78.81	79.00	78.69	78.60	78.67	78.79
14	76.96	77.29	77.63	77.98	78.30	78.62	78.82	79.00	78.69	78.61	78.67	78.79
15	76.96	77.29	77.63	77.99	78.30	78.62	78.82	78.98	78.68	78.61	78.68	78.79
16	77.01	77.31	77.64	78.01	78.32	78.68	78.83	78.97	78.67	78.61	78.68	78.79
17	77.00	77.32	77.64	78.01	78.33	78.71	78.83	78.91	78.67	78.61	78.68	78.80
18	77.00	77.33	77.65	78.02	78.35	78.71	78.85	78.90	78.67	78.60	78.68	78.80
19	77.00	77.35	77.66	78.03	78.35	78.71	78.86	78.89	78.67	78.61	78.68	78.80
20	77.02	77.35	77.69	78.04	78.37	78.72	78.88	78.88	78.67	78.61	78.69	78.80
21	77.02	77.38	77.70	78.04	78.37	78.73	78.89	78.85	78.67	78.62	78.70	78.81
22	77.03	77.38	77.71	78.07	78.39	78.73	78.90	78.83	78.66	78.61	78.70	78.81
23	77.04	77.39	77.72	78.07	78.40	78.73	78.91	78.81	78.65	78.62	78.69	78.83
24	77.04	77.39	77.73	78.09	78.41	78.73	78.92	78.80	78.65	78.62	78.69	78.83
25	77.07	77.41	77.74	78.10	78.41	78.75	78.92	78.79	78.64	78.62	78.69	78.85
26	77.09	77.42	77.75	78.11	78.43	78.76	78.93	78.79	78.63	78.62	78.70	78.85
27	77.10	77.42	77.76	78.11	78.44	78.75	78.94	78.78	78.62	78.62	78.71	78.85
28	77.12	77.43	77.79	78.12	78.45	78.74	78.98	78.78	78.61	78.62	78.72	78.85
29	77.13	77.43	77.80	78.13	---	78.71	78.95	78.78	78.62	78.62	78.72	78.86
30	77.14	77.45	77.81	78.15	---	78.70	78.95	78.78	78.62	78.62	78.73	78.86
31	77.14	---	77.83	78.15	---	78.70	---	78.77	---	78.63	78.73	---
MEAN	76.98	77.30	77.64	77.99	78.30	78.64	78.84	78.91	78.69	78.61	78.68	78.80
MAX	77.14	77.45	77.83	78.15	78.45	78.76	78.98	79.00	78.77	78.63	78.73	78.86
MIN	76.81	77.15	77.48	77.83	78.17	78.48	78.71	78.77	78.61	78.60	78.63	78.74



CENTRE COUNTY

404556077525101. Local number, CE 686.

LOCATION.--Lat 40°45'56", long 77°52'51", Hydrologic Unit 02050302, at State College.
Owner: Todd Giddings and Associates.
AQUIFER.--Nittany Formation, Early-Lower Ordovician Age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 345 ft, 6 in. steel casing to 84 ft, 4 in. slotted pvc casing from 0-345 ft..
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,222.6 ft above National Geodetic Vertical Datum of 1929, from local survey. Measuring point: Top of casing, 1.80 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily minimum and maximum water levels, are also available from the District Office.
PERIOD OF RECORD.--September 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 99.11 ft below land-surface datum, July 1, 2002; lowest, 142.15 ft below land-surface datum, Mar. 14, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level, 99.11 ft below land-surface datum, July 1; lowest, 142.15 ft below land-surface datum, Mar. 14.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), **WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001**
MEAN VALUES

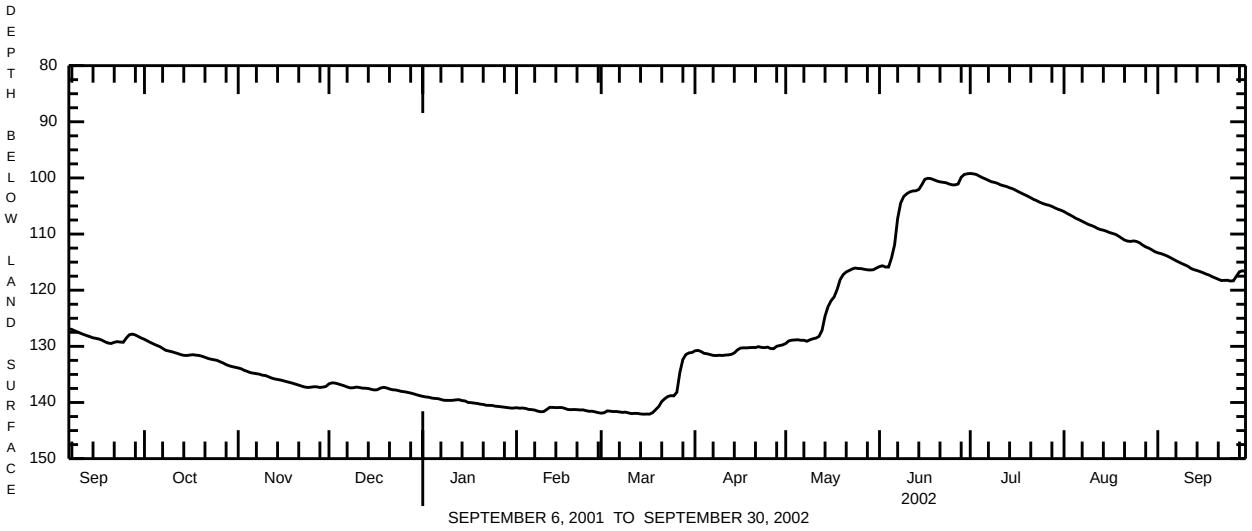
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	126.85
7	---	---	---	---	---	---	---	---	---	---	---	127.00
8	---	---	---	---	---	---	---	---	---	---	---	127.24
9	---	---	---	---	---	---	---	---	---	---	---	127.47
10	---	---	---	---	---	---	---	---	---	---	---	127.70
11	---	---	---	---	---	---	---	---	---	---	---	127.91
12	---	---	---	---	---	---	---	---	---	---	---	128.10
13	---	---	---	---	---	---	---	---	---	---	---	128.28
14	---	---	---	---	---	---	---	---	---	---	---	128.48
15	---	---	---	---	---	---	---	---	---	---	---	128.58
16	---	---	---	---	---	---	---	---	---	---	---	128.70
17	---	---	---	---	---	---	---	---	---	---	---	128.92
18	---	---	---	---	---	---	---	---	---	---	---	129.20
19	---	---	---	---	---	---	---	---	---	---	---	129.42
20	---	---	---	---	---	---	---	---	---	---	---	129.49
21	---	---	---	---	---	---	---	---	---	---	---	129.28
22	---	---	---	---	---	---	---	---	---	---	---	129.16
23	---	---	---	---	---	---	---	---	---	---	---	129.24
24	---	---	---	---	---	---	---	---	---	---	---	129.27
25	---	---	---	---	---	---	---	---	---	---	---	128.52
26	---	---	---	---	---	---	---	---	---	---	---	127.94
27	---	---	---	---	---	---	---	---	---	---	---	127.82
28	---	---	---	---	---	---	---	---	---	---	---	127.98
29	---	---	---	---	---	---	---	---	---	---	---	128.26
30	---	---	---	---	---	---	---	---	---	---	---	128.53
31	---	---	---	---	---	---	---	---	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	128.37
MAX	---	---	---	---	---	---	---	---	---	---	---	129.49
MIN	---	---	---	---	---	---	---	---	---	---	---	126.85

CENTRE COUNTY

404556077525101. Local number, CE 686--Continued.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), **WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002**
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	128.75	133.85	136.68	138.91	140.93	141.90	130.80	129.49	115.79	99.21	106.00	113.34
2	129.04	134.00	136.50	139.01	141.01	141.82	130.72	129.04	115.65	99.27	106.32	113.47
3	129.32	134.27	136.54	139.07	140.99	141.49	130.92	128.90	115.87	99.39	106.60	113.67
4	129.57	134.46	136.68	139.21	141.06	141.55	131.24	128.86	115.88	99.67	106.90	113.88
5	129.82	134.68	136.86	139.28	141.23	141.62	131.32	128.83	114.20	99.95	107.22	114.15
6	130.03	134.78	137.02	139.31	141.27	141.60	131.46	128.92	111.89	100.18	107.45	114.45
7	130.36	134.87	137.23	139.46	141.35	141.68	131.61	128.92	107.23	100.43	107.73	114.74
8	130.70	134.95	137.39	139.61	141.54	141.76	131.64	129.09	104.47	100.68	107.99	115.00
9	130.83	135.14	137.38	139.62	141.65	141.72	131.59	128.84	103.32	100.79	108.28	115.27
10	130.95	135.20	137.26	139.63	141.61	141.85	131.63	128.65	102.83	100.96	108.46	115.50
11	131.12	135.41	137.32	139.61	141.25	141.98	131.56	128.53	102.50	101.23	108.68	115.75
12	131.28	135.64	137.44	139.53	140.86	141.94	131.52	128.23	102.33	101.39	108.98	116.13
13	131.47	135.80	137.46	139.50	140.88	141.95	131.43	127.15	102.29	101.53	109.19	116.35
14	131.60	135.90	137.51	139.66	140.91	142.04	131.17	124.60	102.06	101.76	109.31	116.50
15	131.63	136.00	137.66	139.73	140.90	142.08	130.65	122.92	101.21	101.92	109.49	116.69
16	131.55	136.14	137.77	139.99	140.90	142.06	130.32	121.87	100.24	102.19	109.72	116.89
17	131.49	136.29	137.72	140.03	141.06	142.07	130.26	121.20	100.07	102.47	109.88	117.13
18	131.57	136.43	137.44	140.11	141.25	141.81	130.27	119.86	100.13	102.74	110.05	117.31
19	131.62	136.57	137.30	140.17	141.28	141.28	130.23	118.11	100.34	103.00	110.35	117.60
20	131.76	136.74	137.39	140.29	141.25	140.73	130.20	117.22	100.55	103.25	110.71	117.82
21	131.95	136.91	137.59	140.35	141.28	139.84	130.21	116.75	100.70	103.54	111.07	118.05
22	132.15	137.09	137.73	140.50	141.33	139.33	130.06	116.49	100.78	103.84	111.25	118.27
23	132.29	137.25	137.77	140.51	141.31	138.94	130.19	116.21	100.86	104.06	111.31	118.25
24	132.39	137.32	137.89	140.53	141.46	138.78	130.23	116.05	101.08	104.34	111.22	118.23
25	132.50	137.28	138.03	140.66	141.57	138.82	130.14	116.14	101.23	104.55	111.32	118.36
26	132.74	137.20	138.09	140.71	141.56	138.18	130.38	116.16	101.24	104.74	111.57	118.32
27	132.96	137.21	138.20	140.77	141.67	134.66	130.42	116.28	101.08	104.87	111.96	117.49
28	133.25	137.32	138.32	140.84	141.81	132.33	129.99	116.37	99.89	105.07	112.29	116.71
29	133.46	137.26	138.46	140.91	---	131.45	129.86	116.40	99.40	105.34	112.50	116.54
30	133.61	137.14	138.63	140.99	---	131.17	129.74	116.35	99.26	105.58	112.80	116.66
31	133.73	---	138.78	141.00	---	131.10	---	116.05	---	105.76	113.13	---
MEAN	131.47	135.97	137.55	139.98	141.26	139.66	130.73	122.53	104.15	102.38	109.67	116.28
MAX	133.73	137.32	138.78	141.00	141.81	142.08	131.64	129.49	115.88	105.76	113.13	118.36
MIN	128.75	133.85	136.50	138.91	140.86	131.10	129.74	116.05	99.26	99.21	106.00	113.34



CLEARFIELD COUNTY

410627078313601. Local number, CF 321.

LOCATION.--Lat 41°06'27", long 78°31'36", Hydrologic Unit 02050201, at S. B. Elliott State Park.
Owner: U.S. Geological Survey.
AQUIFER.--Burgoon Member of Pocono Formation.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 150 ft, cased to 26 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 2,160 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.40 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels, are also available from the District Office.
PERIOD OF RECORD.--September 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 20.65 ft below land-surface datum, May 15, 2002; lowest, 34.66 ft below land-surface datum, Sept. 21, 22, 2001.
EXTREMES FOR CURRENT YEAR.--Highest water level, 20.65 ft below land-surface datum, May 15; lowest, 29.81 ft below land-surface datum, Oct. 5.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), **WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001**
MEAN VALUES

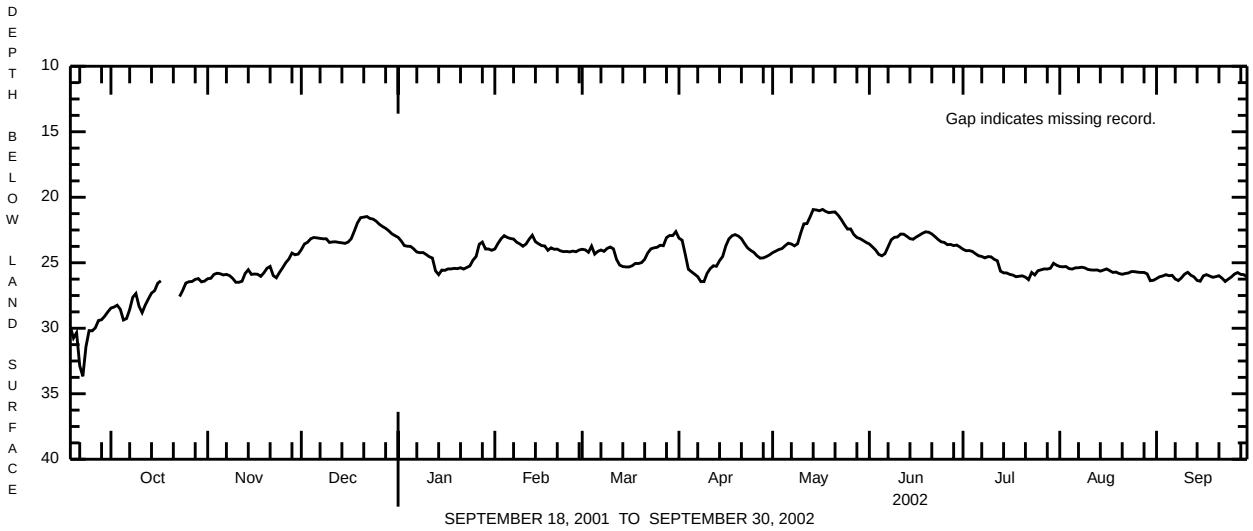
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	29.89
19	---	---	---	---	---	---	---	---	---	---	---	30.75
20	---	---	---	---	---	---	---	---	---	---	---	30.34
21	---	---	---	---	---	---	---	---	---	---	---	32.86
22	---	---	---	---	---	---	---	---	---	---	---	33.67
23	---	---	---	---	---	---	---	---	---	---	---	31.41
24	---	---	---	---	---	---	---	---	---	---	---	30.18
25	---	---	---	---	---	---	---	---	---	---	---	30.20
26	---	---	---	---	---	---	---	---	---	---	---	29.97
27	---	---	---	---	---	---	---	---	---	---	---	29.41
28	---	---	---	---	---	---	---	---	---	---	---	29.35
29	---	---	---	---	---	---	---	---	---	---	---	29.08
30	---	---	---	---	---	---	---	---	---	---	---	28.75
31	---	---	---	---	---	---	---	---	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	30.45
MAX	---	---	---	---	---	---	---	---	---	---	---	33.67
MIN	---	---	---	---	---	---	---	---	---	---	---	28.75

CLEARFIELD COUNTY

410627078313601. Local number, CF 321--Continued.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), **WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002**
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.46	26.22	24.00	23.06	23.95	23.97	23.12	24.23	23.57	23.97	25.29	26.21
2	28.38	26.19	23.57	23.33	23.53	24.02	23.28	24.11	23.79	24.08	25.31	26.07
3	28.24	25.89	23.44	23.69	23.17	24.20	24.35	23.99	24.03	24.07	25.29	26.01
4	28.55	25.80	23.17	23.74	22.93	23.73	25.49	23.92	24.36	24.14	25.45	25.91
5	29.37	25.84	23.07	23.75	23.07	24.34	25.69	23.70	24.47	24.31	25.48	25.99
6	29.26	25.93	23.10	23.94	23.15	24.13	25.87	23.51	24.31	24.47	25.39	25.96
7	28.57	25.89	23.14	24.18	23.19	24.03	26.06	23.57	23.78	24.52	25.38	26.24
8	27.63	25.98	23.17	24.23	23.43	24.13	26.44	23.71	23.25	24.63	25.34	26.36
9	27.35	26.19	23.17	24.22	23.56	23.90	26.44	23.55	23.06	24.53	25.39	26.15
10	28.32	26.49	23.45	24.37	23.74	23.80	25.81	22.74	23.03	24.55	25.51	25.87
11	28.81	26.49	23.41	24.54	23.57	23.94	25.45	22.03	22.81	24.74	25.55	25.73
12	28.23	26.41	23.40	24.64	23.20	24.75	25.23	22.01	22.82	24.85	25.56	25.95
13	27.76	25.82	23.45	25.62	22.90	25.18	25.27	21.51	22.98	25.64	25.55	26.08
14	27.32	25.53	23.48	25.91	23.39	25.29	24.84	20.94	23.16	25.77	25.64	26.35
15	27.13	25.89	23.52	25.56	23.55	25.32	24.52	20.97	23.21	25.78	25.56	26.41
16	26.56	25.86	23.42	25.58	23.69	25.32	23.72	21.03	23.04	25.89	25.47	26.00
17	26.38	25.88	23.16	25.47	23.72	25.23	23.18	20.93	22.90	25.94	25.60	25.91
18	---	26.04	22.57	25.47	24.05	25.05	22.94	21.08	22.75	26.07	25.74	26.01
19	---	25.77	21.95	25.43	23.86	25.06	22.85	21.18	22.64	26.03	25.71	26.11
20	---	25.42	21.56	25.45	23.97	24.99	22.96	21.14	22.67	26.00	25.82	26.06
21	---	25.28	21.52	25.38	23.96	24.74	23.16	21.12	22.80	26.10	25.88	25.99
22	---	25.98	21.47	25.48	24.09	24.25	23.54	21.37	23.00	26.29	25.82	26.18
23	27.58	26.15	21.62	25.36	24.15	23.94	23.87	21.70	23.22	25.74	25.78	26.43
24	27.11	25.74	21.67	25.24	24.14	23.86	24.06	22.09	23.40	25.93	25.67	26.25
25	26.55	25.39	21.83	24.80	24.17	23.82	24.21	22.43	23.45	25.61	25.68	26.08
26	26.45	25.00	22.06	24.52	24.11	23.66	24.47	22.42	23.62	25.54	25.72	25.86
27	26.43	24.72	22.23	23.59	24.16	23.70	24.65	22.84	23.60	25.47	25.74	25.75
28	26.27	24.26	22.37	23.42	24.03	23.08	24.63	23.07	23.69	25.48	25.74	25.89
29	26.21	24.39	22.56	23.95	---	22.92	24.53	23.16	23.65	25.42	25.85	25.91
30	26.46	24.34	22.79	23.95	---	22.93	24.40	23.30	23.80	25.04	26.37	26.10
31	26.40	---	22.93	24.05	---	22.62	---	23.45	---	25.19	26.34	---
MEAN	27.53	25.69	22.78	24.58	23.66	24.19	24.50	22.48	23.36	25.22	25.63	26.06
MAX	29.37	26.49	24.00	25.91	24.17	25.32	26.44	24.23	23.47	26.29	26.37	26.43
MIN	26.21	24.26	21.47	23.06	22.90	22.62	22.85	20.93	22.64	23.97	25.29	25.73



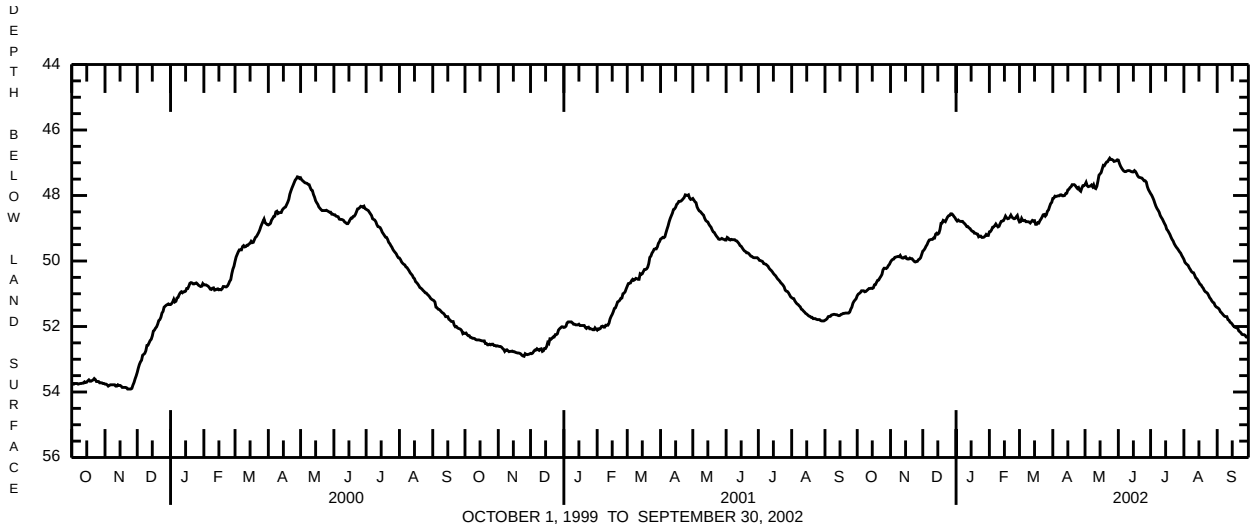
CLINTON COUNTY

411424077462201. Local number, CN 1.

LOCATION.--Lat 41°14'24", long 77°46'22", Hydrologic Unit 02050203, at Sproul State Forest, and at State Camp.
Owner: Commonwealth of Pennsylvania.
AQUIFER.--Huntley Mountain Formation, Early Mississippian-Late Devonian age.
WELL CHARACTERISTICS.--Drilled unused observation well, diameter 6 in., depth 78 ft, cased to 38 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 2,050 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of platform, 3.2 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.
PERIOD OF RECORD.--August 1950 to March 1964, instantaneous water levels obtained several times per month. April 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 44.00 ft below land-surface datum, Jan. 13, 1951; lowest, 57.24 ft below land-surface datum, Dec. 21, 1964.
EXTREMES FOR CURRENT YEAR.--Highest water level, 46.80 ft below land-surface datum, May 24; lowest, 52.33 ft below land-surface datum, Sept. 29, 30.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51.06	50.03	49.70	48.74	49.11	48.81	48.09	47.67	46.92	47.94	49.95	51.42
2	51.01	49.98	49.67	48.78	49.10	48.80	48.08	47.60	47.02	47.99	50.04	51.44
3	50.99	49.95	49.62	48.75	49.05	48.70	48.02	47.70	47.10	48.06	50.08	51.48
4	50.96	49.94	49.55	48.78	48.97	48.76	48.03	47.73	47.16	48.14	50.11	51.55
5	50.91	49.89	49.50	48.79	48.96	48.77	48.02	47.72	47.21	48.24	50.14	51.58
6	50.91	49.88	49.42	48.79	48.92	48.76	48.01	47.71	47.25	48.33	50.21	51.62
7	50.91	49.87	49.36	48.79	48.87	48.80	48.01	47.68	47.27	48.40	50.26	51.66
8	50.94	49.86	49.35	48.83	48.92	48.80	47.98	47.73	47.27	48.45	50.32	51.69
9	50.93	49.87	49.34	48.86	48.96	48.80	47.98	47.67	47.25	48.51	50.35	51.70
10	50.90	49.83	49.34	48.90	48.94	48.81	48.01	47.77	47.24	48.61	50.36	51.70
11	50.87	49.89	49.30	48.95	48.86	48.84	48.01	47.79	47.24	48.67	50.43	51.79
12	50.84	49.91	49.30	48.95	48.79	48.80	48.00	47.72	47.25	48.72	50.51	51.81
13	50.84	49.91	49.18	48.99	48.78	48.76	47.94	47.56	47.27	48.79	50.54	51.87
14	50.83	49.88	49.15	49.01	48.77	48.78	47.93	47.38	47.28	48.86	50.59	51.89
15	50.84	49.87	49.18	49.06	48.71	48.77	47.83	47.34	47.28	48.92	50.65	51.93
16	50.82	49.93	49.15	49.09	48.63	48.88	47.81	47.30	47.24	49.03	50.71	51.98
17	50.73	49.94	49.04	49.10	48.68	48.88	47.76	47.19	47.27	49.07	50.73	52.01
18	50.72	49.94	48.85	49.15	48.71	48.83	47.73	47.08	47.33	49.13	50.79	52.03
19	50.65	49.91	48.84	49.15	48.70	48.84	47.67	47.09	47.40	49.19	50.83	52.04
20	50.59	49.93	48.76	49.17	48.66	48.77	47.67	47.03	47.44	49.27	50.90	52.04
21	50.58	49.93	48.78	49.18	48.60	48.72	47.67	46.98	47.45	49.34	50.94	52.13
22	50.52	49.97	48.80	49.26	48.66	48.66	47.70	46.97	47.46	49.39	50.96	52.16
23	50.47	50.01	48.73	49.24	48.69	48.59	47.75	46.91	47.47	49.47	50.99	52.19
24	50.41	50.03	48.66	49.24	48.71	48.58	47.79	46.86	47.51	49.53	51.05	52.24
25	50.27	50.02	48.62	49.28	48.70	48.63	47.76	46.90	47.55	49.58	51.12	52.25
26	50.22	50.01	48.61	49.28	48.65	48.59	47.84	46.90	47.55	49.62	51.16	52.25
27	50.22	49.96	48.56	49.27	48.61	48.48	47.87	46.92	47.59	49.67	51.22	52.27
28	50.23	49.94	48.56	49.24	48.73	48.44	47.77	46.96	47.73	49.72	51.26	52.32
29	50.20	49.90	48.59	49.19	---	48.34	47.70	46.95	47.82	49.76	51.28	52.33
30	50.14	49.80	48.64	49.22	---	48.25	47.70	46.94	47.88	49.83	51.36	52.33
31	50.10	---	48.68	49.22	---	48.21	---	46.91	---	49.89	51.40	---
MEAN	50.66	49.93	49.06	49.04	48.80	48.69	47.87	47.31	47.36	48.97	50.69	51.92
MAX	51.06	50.03	49.70	49.28	49.11	48.88	48.09	47.79	47.88	49.89	51.40	52.33
MIN	50.10	49.80	48.56	48.74	48.60	48.21	47.67	46.86	46.92	47.94	49.95	51.42



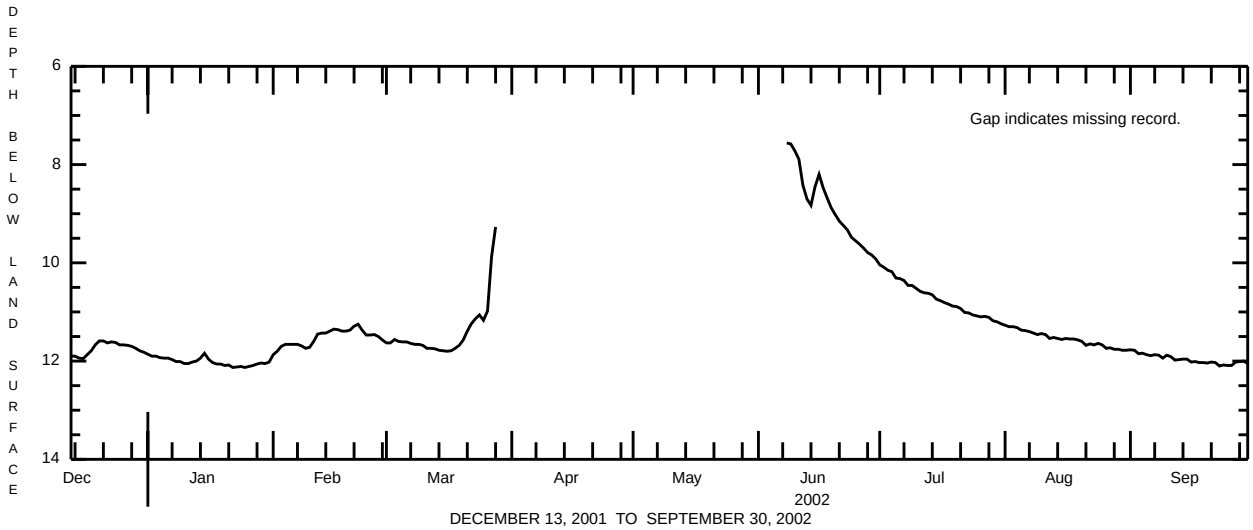
CLINTON COUNTY

410738077262702. Local number, CN 398.
(Drake Chemical Superfund Project)

LOCATION.--Lat 41°07’38”, long 77°26’27” , Hydrologic Unit 02050204, at the Drake Chemical Site in Castanea Township
Owner: American Color and Chemical LLC.
AQUIFER.--Gravel, sand, and clay of the Quaternary System
WELL CHARACTERISTICS.--Drilled unused observation well, diameter 4 in., depth 36.4 ft, cased to 21.5 ft, screened from 21.5-36.4 ft.
INSTRUMENTATION.--Electronic data logger with 15-minute recording interval.
DATUM.--Elevation of land surface is 552.43 ft above National Geodetic Vertical Datum of 1929, from levels. Measuring point: Top of PVC casing, 2 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels are also available from the District Office.
PERIOD OF RECORD.--December 13, 2001 to September 30, 2002.
EXTREMES FOR CURRENT YEAR.--Highest recorded water level 7.56 ft below land-surface datum, June 8, 2002; lowest 12.13 ft below land-surface datum, Jan. 22, 2002.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	11.86	11.87	11.63	---	---	---	10.04	11.27	11.77
2	---	---	---	11.90	11.80	11.63	---	---	---	10.09	11.30	11.78
3	---	---	---	11.90	11.70	11.56	---	---	---	10.15	11.30	11.85
4	---	---	---	11.93	11.66	11.60	---	---	---	10.18	11.32	11.84
5	---	---	---	11.94	11.66	11.61	---	---	---	10.31	11.37	11.87
6	---	---	---	11.94	11.66	11.61	---	---	---	10.32	11.38	11.89
7	---	---	---	11.97	11.66	11.64	---	---	---	10.36	11.40	11.87
8	---	---	---	12.01	11.69	11.66	---	---	7.56	10.46	11.43	11.88
9	---	---	---	12.01	11.74	11.66	---	---	7.58	10.46	11.46	11.94
10	---	---	---	12.05	11.72	11.68	---	---	7.72	10.52	11.44	11.88
11	---	---	---	12.05	11.60	11.74	---	---	7.89	10.58	11.46	11.91
12	---	---	---	12.02	11.45	11.74	---	---	8.42	10.61	11.54	11.98
13	---	---	11.90	12.00	11.43	11.75	---	---	8.70	10.62	11.52	11.97
14	---	---	11.90	11.94	11.43	11.78	---	---	8.83	10.65	11.54	11.96
15	---	---	11.94	11.84	11.39	11.79	---	---	8.45	10.74	11.56	11.96
16	---	---	11.95	11.96	11.35	11.80	---	---	8.20	10.77	11.54	12.02
17	---	---	11.87	12.03	11.36	11.79	---	---	8.47	10.81	11.55	12.01
18	---	---	11.79	12.06	11.39	11.74	---	---	8.68	10.84	11.55	12.03
19	---	---	11.67	12.06	11.39	11.68	---	---	8.88	10.88	11.57	12.03
20	---	---	11.59	12.09	11.37	11.57	---	---	9.02	10.89	11.60	12.04
21	---	---	11.59	12.08	11.29	11.39	---	---	9.15	10.93	11.68	12.02
22	---	---	11.63	12.13	11.25	11.24	---	---	9.24	11.01	11.65	12.03
23	---	---	11.61	12.12	11.37	11.14	---	---	9.33	11.02	11.67	12.10
24	---	---	11.62	12.11	11.47	11.06	---	---	9.48	11.06	11.64	12.08
25	---	---	11.67	12.13	11.47	11.17	---	---	9.55	11.08	11.67	12.09
26	---	---	11.67	12.11	11.46	10.98	---	---	9.62	11.10	11.74	12.09
27	---	---	11.68	12.09	11.50	9.88	---	---	9.70	11.09	11.73	12.02
28	---	---	11.70	12.06	11.57	9.27	---	---	9.79	11.11	11.76	12.01
29	---	---	11.74	12.04	---	---	---	---	9.84	11.18	11.76	12.00
30	---	---	11.79	12.05	---	---	---	---	9.92	11.20	11.78	12.05
31	---	---	11.82	12.02	---	---	---	---	---	11.24	11.78	---
MEAN	---	---	11.74	12.02	11.53	11.42	---	---	8.87	10.72	11.55	11.97
MAX	---	---	11.95	12.13	11.87	11.80	---	---	9.92	11.24	11.78	12.10
MIN	---	---	11.59	11.84	11.25	9.27	---	---	7.56	10.04	11.27	11.77



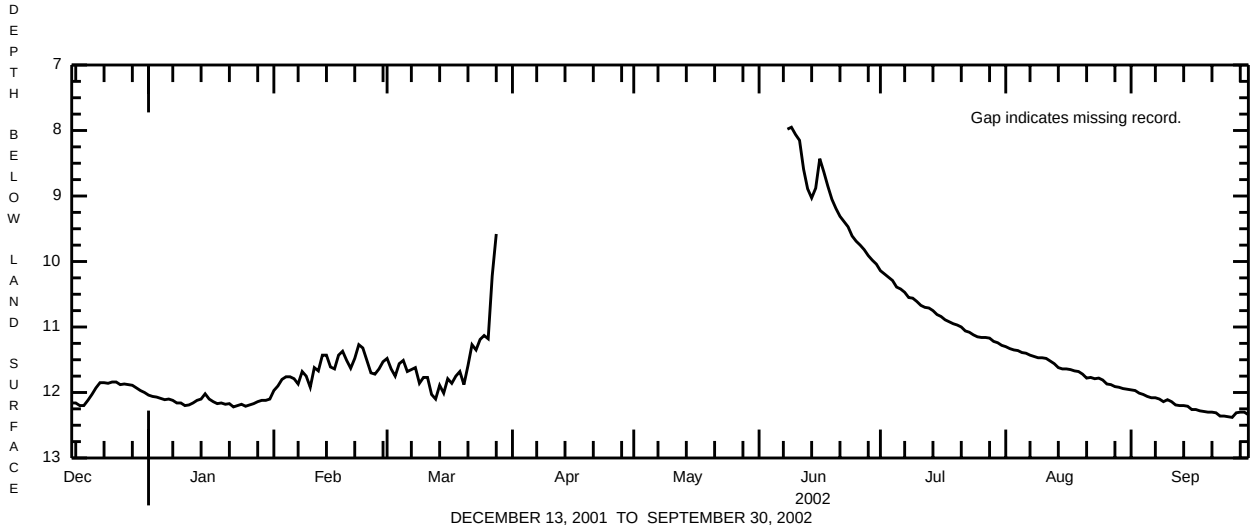
CLINTON COUNTY

410740077262501. Local number, CN 399.
(Drake Chemical Superfund Project)

LOCATION.--Lat 41°07’ 40.38”, long 77°26’ 25.46”, Hydrologic Unit 02050204, at the Drake Chemical Site in Castanea Township
Owner: American Color and Chemical LLC.
AQUIFER.--Gravel, sand, and clay of the Quaternary System
WELL CHARACTERISTICS.--Drilled unused observation well, diameter 2 in., depth 41.0 ft, cased to 36 ft, screened from 36-41 ft.
INSTRUMENTATION.--Electronic data logger with 15-minute recording interval.
DATUM.--Elevation of land surface is 552.91 ft above National Geodetic Vertical Datum of 1929, from levels. Measuring point: Top of PVC casing, 0.25 ft below land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels are also available from the District Office.
PERIOD OF RECORD.--December 13, 2001 to September 30, 2002.
EXTREMES FOR CURRENT YEAR.--Highest recorded water level, 7.95 ft below land-surface datum, June 9, 2002; lowest, 12.38 ft below land-surface datum, Sept. 26, 2002.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	12.04	11.97	11.48	---	---	---	10.14	11.30	11.96
2	---	---	---	12.06	11.90	11.64	---	---	---	10.19	11.33	11.97
3	---	---	---	12.07	11.80	11.75	---	---	---	10.24	11.35	12.01
4	---	---	---	12.09	11.76	11.56	---	---	---	10.29	11.36	12.03
5	---	---	---	12.11	11.76	11.51	---	---	---	10.39	11.39	12.06
6	---	---	---	12.10	11.79	11.68	---	---	---	10.42	11.40	12.08
7	---	---	---	12.12	11.87	11.65	---	---	---	10.47	11.43	12.08
8	---	---	---	12.16	11.68	11.62	---	---	7.98	10.55	11.45	12.10
9	---	---	---	12.16	11.75	11.86	---	---	7.95	10.56	11.47	12.14
10	---	---	---	12.20	11.92	11.77	---	---	8.06	10.61	11.47	12.11
11	---	---	---	12.19	11.62	11.77	---	---	8.15	10.67	11.48	12.14
12	---	---	---	12.16	11.67	12.03	---	---	8.59	10.70	11.52	12.19
13	---	---	12.16	12.12	11.43	12.10	---	---	8.89	10.71	11.56	12.20
14	---	---	12.16	12.10	11.43	11.89	---	---	9.03	10.75	11.62	12.20
15	---	---	12.20	12.02	11.61	12.01	---	---	8.88	10.81	11.64	12.21
16	---	---	12.20	12.10	11.64	11.79	---	---	8.43	10.84	11.64	12.26
17	---	---	12.12	12.14	11.43	11.86	---	---	8.63	10.89	11.65	12.26
18	---	---	12.03	12.17	11.37	11.75	---	---	8.85	10.92	11.67	12.28
19	---	---	11.93	12.16	11.51	11.68	---	---	9.05	10.95	11.68	12.29
20	---	---	11.85	12.18	11.63	11.88	---	---	9.19	10.97	11.72	12.30
21	---	---	11.85	12.17	11.48	11.59	---	---	9.31	11.00	11.78	12.30
22	---	---	11.86	12.22	11.27	11.27	---	---	9.39	11.06	11.77	12.31
23	---	---	11.84	12.20	11.32	11.35	---	---	9.47	11.08	11.79	12.36
24	---	---	11.84	12.18	11.51	11.19	---	---	9.61	11.12	11.78	12.36
25	---	---	11.88	12.21	11.70	11.13	---	---	9.69	11.15	11.81	12.37
26	---	---	11.87	12.19	11.72	11.18	---	---	9.75	11.16	11.87	12.38
27	---	---	11.88	12.17	11.64	10.22	---	---	9.82	11.16	11.88	12.31
28	---	---	11.89	12.14	11.53	9.58	---	---	9.91	11.17	11.91	12.30
29	---	---	11.93	12.12	---	---	---	---	9.98	11.22	11.92	12.30
30	---	---	11.97	12.12	---	---	---	---	10.04	11.24	11.94	12.34
31	---	---	12.00	12.10	---	---	---	---	---	11.28	11.95	---
MEAN	---	---	11.97	12.14	11.63	11.53	---	---	9.07	10.80	11.63	12.21
MAX	---	---	12.20	12.22	11.97	12.10	---	---	10.04	11.28	11.95	12.38
MIN	---	---	11.84	12.02	11.27	9.58	---	---	7.95	10.14	11.30	11.96



DECEMBER 13, 2001 TO SEPTEMBER 30, 2002

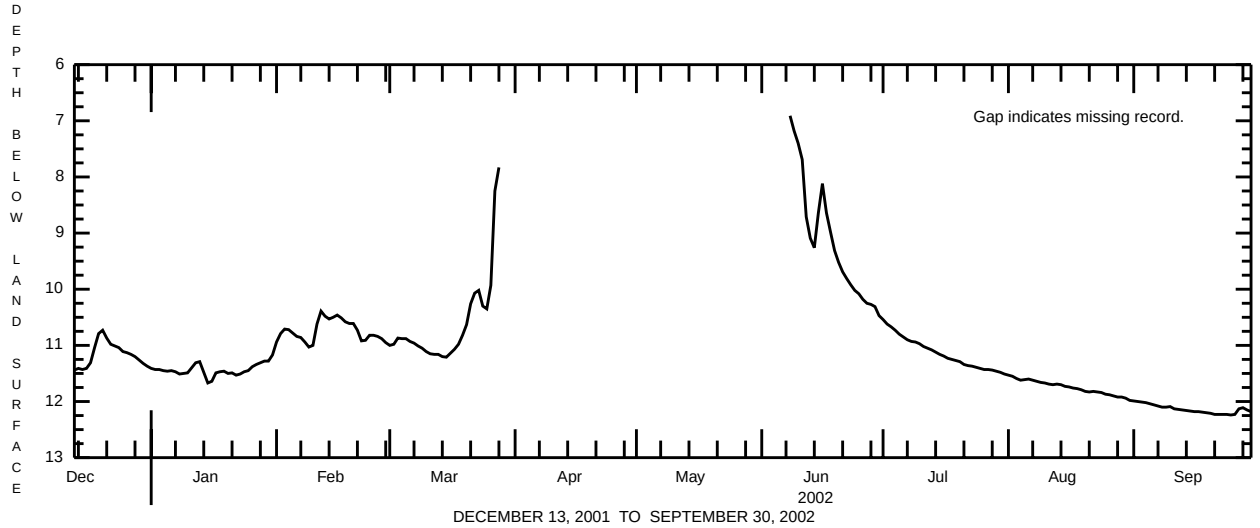
CLINTON COUNTY

410734077262102. Local number, CN 419.
(Drake Chemical Superfund Project)

LOCATION.--Lat 41°07’ 33.55”, long 77°26’ 21.44”, Hydrologic Unit 02050204, at the Drake Chemical Site in Castanea Township
Owner: American Color and Chemical LLC.
AQUIFER.--Gravel, sand, and clay of the Quaternary System
WELL CHARACTERISTICS.--Drilled unused observation well, diameter 2 in., depth 39.3 ft, cased to 30.3 ft, screened from 30.3-39.3 ft.
INSTRUMENTATION.--Electronic data logger with 15-minute recording interval.
DATUM.--Elevation of land surface is 551.5 ft above National Geodetic Vertical Datum of 1929, from levels. Measuring point: Top of PVC casing, 1.4 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels are also available from the District Office.
PERIOD OF RECORD.--December 13, 2001 to September 30, 2002.
EXTREMES FOR CURRENT YEAR.--Highest recorded water level, 6.91ft below land-surface datum, June 8, 2002; lowest, 12.24 ft below land-surface datum, Sept. 25, 2002.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	11.41	10.94	11.00	---	---	---	10.54	11.53	11.99
2	---	---	---	11.43	10.79	10.98	---	---	---	10.62	11.55	12.00
3	---	---	---	11.43	10.71	10.87	---	---	---	10.67	11.59	12.01
4	---	---	---	11.45	10.72	10.88	---	---	---	10.73	11.62	12.02
5	---	---	---	11.46	10.78	10.88	---	---	---	10.80	11.61	12.04
6	---	---	---	11.45	10.84	10.93	---	---	---	10.85	11.60	12.06
7	---	---	---	11.47	10.86	10.96	---	---	---	10.90	11.62	12.08
8	---	---	---	11.51	10.94	11.01	---	---	6.91	10.93	11.64	12.10
9	---	---	---	11.50	11.03	11.05	---	---	7.18	10.94	11.66	12.10
10	---	---	---	11.49	11.00	11.11	---	---	7.40	10.97	11.67	12.09
11	---	---	---	11.40	10.62	11.15	---	---	7.69	11.02	11.69	12.13
12	---	---	---	11.31	10.39	11.16	---	---	8.71	11.05	11.70	12.14
13	---	---	11.44	11.29	10.48	11.16	---	---	9.09	11.08	11.69	12.15
14	---	---	11.41	11.48	10.53	11.20	---	---	9.26	11.12	11.70	12.16
15	---	---	11.43	11.67	10.50	11.21	---	---	8.64	11.16	11.73	12.17
16	---	---	11.41	11.64	10.46	11.14	---	---	8.12	11.19	11.74	12.18
17	---	---	11.31	11.49	10.51	11.07	---	---	8.64	11.23	11.76	12.18
18	---	---	11.04	11.47	10.58	10.98	---	---	8.98	11.25	11.77	12.19
19	---	---	10.79	11.46	10.61	10.82	---	---	9.31	11.27	11.79	12.20
20	---	---	10.73	11.50	10.61	10.63	---	---	9.52	11.29	11.82	12.21
21	---	---	10.87	11.49	10.73	10.26	---	---	9.69	11.34	11.83	12.23
22	---	---	10.98	11.53	10.92	10.07	---	---	9.81	11.36	11.82	12.23
23	---	---	11.01	11.51	10.91	10.02	---	---	9.92	11.37	11.83	12.23
24	---	---	11.04	11.47	10.82	10.30	---	---	10.02	11.39	11.84	12.23
25	---	---	11.11	11.45	10.82	10.35	---	---	10.08	11.41	11.87	12.24
26	---	---	11.13	11.38	10.84	9.93	---	---	10.18	11.43	11.88	12.23
27	---	---	11.16	11.34	10.88	8.25	---	---	10.25	11.43	11.90	12.13
28	---	---	11.20	11.31	10.95	7.83	---	---	10.27	11.44	11.92	12.11
29	---	---	11.26	11.28	---	---	---	---	10.31	11.46	11.92	12.15
30	---	---	11.32	11.28	---	---	---	---	10.47	11.48	11.94	12.18
31	---	---	11.37	11.17	---	---	---	---	---	11.51	11.98	---
MEAN	---	---	11.16	11.44	10.74	10.61	---	---	9.15	11.14	11.75	12.14
MAX	---	---	11.44	11.67	11.03	11.21	---	---	10.47	11.51	11.98	12.24
MIN	---	---	10.73	11.17	10.39	7.83	---	---	6.91	10.54	11.53	11.99



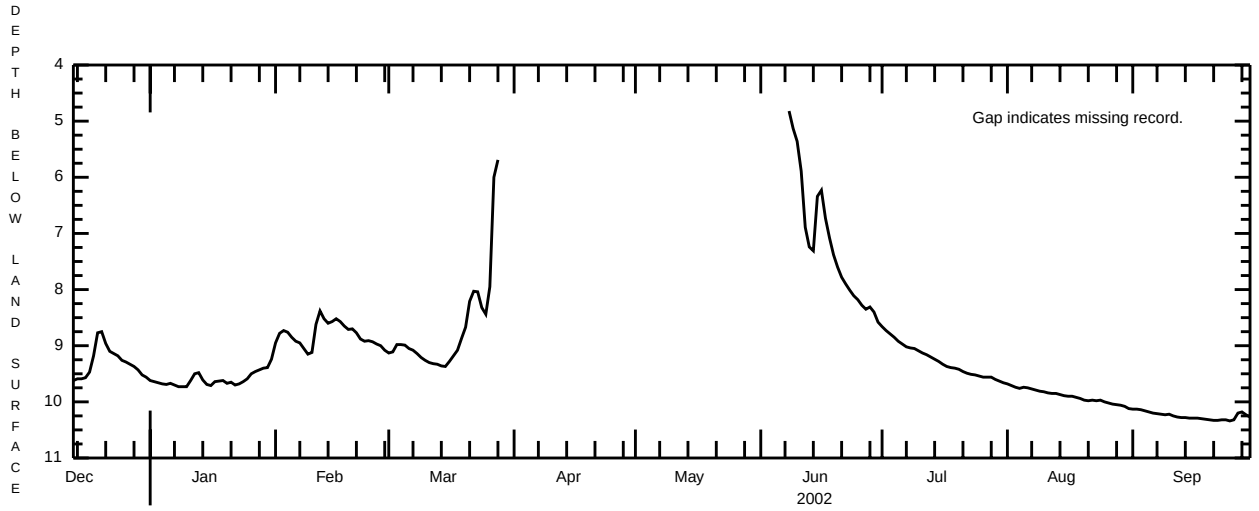
CLINTON COUNTY

410732077261901. Local number, CN 445.
(Drake Chemical Superfund Project)

LOCATION.--Lat 41°07’ 32.29”, long 77°26’ 19.50”, Hydrologic Unit 02050204, at the Drake Chemical Site in Castanea Township
Owner: American Color and Chemical LLC.
AQUIFER.--Gravel, sand, and clay of the Quaternary System
WELL CHARACTERISTICS.--Drilled unused observation well, diameter 2 in., depth 39 ft, cased to 29 ft, screened from 29-39 ft.
INSTRUMENTATION.--Electronic data logger with 15-minute recording interval.
DATUM.--Elevation of land surface is 549.78 ft above National Geodetic Vertical Datum of 1929, from levels. Measuring point: Top of PVC casing, 0.4 ft below land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels are also available from the District Office.
PERIOD OF RECORD.--December 13, 2001 to September 30, 2002 (discontinued).
EXTREMES FOR CURRENT YEAR.--Highest recorded water level, 4.82 ft below land-surface datum, June 8, 2002; lowest, 10.34 ft below land-surface datum, Sept. 25, 2002.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	9.62	8.95	9.13	---	---	---	8.66	9.68	10.13
2	---	---	---	9.64	8.78	9.11	---	---	---	8.73	9.71	10.13
3	---	---	---	9.66	8.73	8.98	---	---	---	8.79	9.74	10.14
4	---	---	---	9.68	8.76	8.98	---	---	---	8.85	9.76	10.16
5	---	---	---	9.69	8.85	8.99	---	---	---	8.92	9.74	10.18
6	---	---	---	9.67	8.92	9.05	---	---	---	8.97	9.75	10.20
7	---	---	---	9.70	8.95	9.08	---	---	---	9.02	9.77	10.21
8	---	---	---	9.73	9.05	9.14	---	---	4.82	9.04	9.79	10.22
9	---	---	---	9.73	9.15	9.21	---	---	5.13	9.05	9.81	10.23
10	---	---	---	9.73	9.12	9.26	---	---	5.36	9.09	9.82	10.22
11	---	---	---	9.62	8.62	9.30	---	---	5.89	9.13	9.84	10.25
12	---	---	---	9.50	8.38	9.32	---	---	6.89	9.16	9.85	10.27
13	---	---	9.62	9.48	8.52	9.33	---	---	7.24	9.20	9.85	10.28
14	---	---	9.59	9.61	8.60	9.36	---	---	7.31	9.24	9.87	10.28
15	---	---	9.59	9.69	8.57	9.37	---	---	6.34	9.28	9.89	10.29
16	---	---	9.57	9.71	8.52	9.28	---	---	6.23	9.33	9.90	10.29
17	---	---	9.47	9.64	8.57	9.18	---	---	6.73	9.37	9.90	10.29
18	---	---	9.18	9.63	8.65	9.08	---	---	7.08	9.39	9.92	10.30
19	---	---	8.77	9.62	8.71	8.87	---	---	7.38	9.40	9.94	10.31
20	---	---	8.75	9.67	8.70	8.67	---	---	7.60	9.42	9.97	10.32
21	---	---	8.96	9.65	8.77	8.21	---	---	7.78	9.46	9.98	10.33
22	---	---	9.10	9.70	8.88	8.03	---	---	7.90	9.49	9.97	10.33
23	---	---	9.14	9.68	8.92	8.04	---	---	8.01	9.51	9.98	10.32
24	---	---	9.18	9.64	8.91	8.32	---	---	8.11	9.52	9.97	10.32
25	---	---	9.26	9.59	8.93	8.44	---	---	8.18	9.54	10.00	10.34
26	---	---	9.29	9.50	8.97	7.95	---	---	8.28	9.56	10.02	10.32
27	---	---	9.33	9.46	9.00	6.00	---	---	8.35	9.56	10.04	10.20
28	---	---	9.37	9.43	9.08	5.69	---	---	8.31	9.56	10.05	10.18
29	---	---	9.43	9.40	---	---	---	---	8.40	9.60	10.06	10.23
30	---	---	9.52	9.39	---	---	---	---	8.58	9.63	10.08	10.27
31	---	---	9.56	9.24	---	---	---	---	---	9.66	10.12	---
MEAN	---	---	9.30	9.60	8.81	8.69	---	---	7.21	9.26	9.90	10.25
MAX	---	---	9.62	9.73	9.15	9.37	---	---	8.58	9.66	10.12	10.34
MIN	---	---	8.75	9.24	8.38	5.69	---	---	4.82	8.66	9.68	10.13



DECEMBER 13, 2001 TO SEPTEMBER 30, 2002

COLUMBIA COUNTY

410705076334901. Local number, CO 589.

LOCATION.--Lat 41°07'05", long 76°33'49", Hydrologic Unit 02050107, at State Game Land No. 226, near Millville.
Owner: U.S. Geological Survey.
AQUIFER.--Hamilton Group.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 241 ft, cased to 18 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 720 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.79 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels, are also available from the District Office.
PERIOD OF RECORD.--September 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 23.42 ft below land-surface datum, June 16, 17, 2002; lowest, 38.01 ft below land-surface datum, Sept. 17, 2001.
EXTREMES FOR CURRENT YEAR.--Highest water level, 23.42 ft below land-surface datum, June 16, 17; lowest, 37.94 ft below land-surface datum, Nov. 18.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), **WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001**
MEAN VALUES

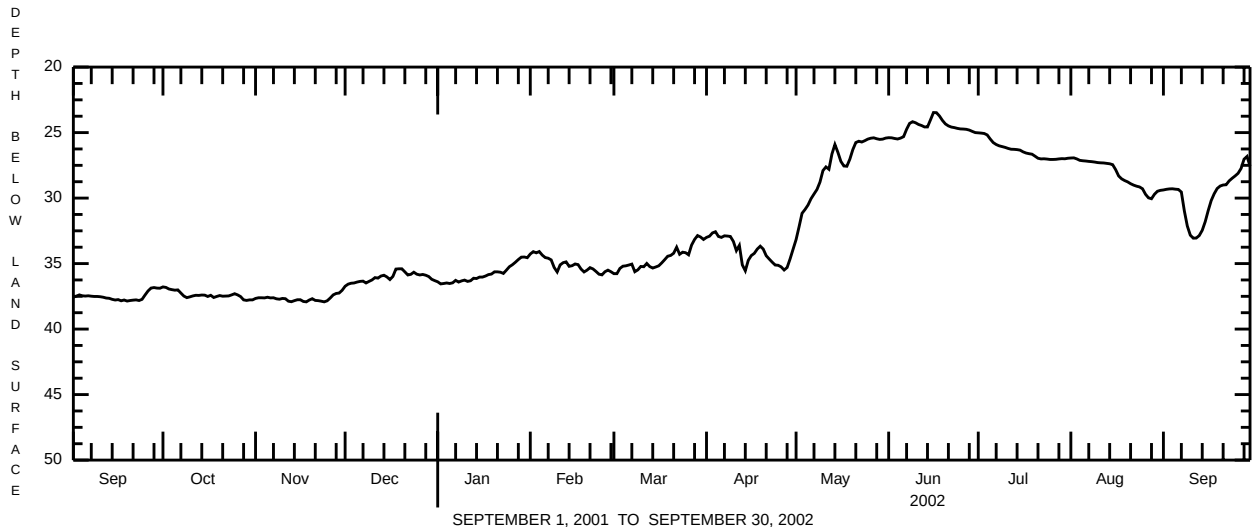
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	37.56
2	---	---	---	---	---	---	---	---	---	---	---	37.49
3	---	---	---	---	---	---	---	---	---	---	---	37.39
4	---	---	---	---	---	---	---	---	---	---	---	37.46
5	---	---	---	---	---	---	---	---	---	---	---	37.48
6	---	---	---	---	---	---	---	---	---	---	---	37.46
7	---	---	---	---	---	---	---	---	---	---	---	37.49
8	---	---	---	---	---	---	---	---	---	---	---	37.51
9	---	---	---	---	---	---	---	---	---	---	38.32	37.51
10	---	---	---	---	---	---	---	---	---	---	38.38	37.53
11	---	---	---	---	---	---	---	---	---	---	38.38	37.57
12	---	---	---	---	---	---	---	---	---	---	38.38	37.63
13	---	---	---	---	---	---	---	---	---	---	38.37	37.65
14	---	---	---	---	---	---	---	---	---	---	38.37	37.73
15	---	---	---	---	---	---	---	---	---	---	38.38	37.78
16	---	---	---	---	---	---	---	---	---	---	38.38	37.75
17	---	---	---	---	---	---	---	---	---	---	38.34	37.84
18	---	---	---	---	---	---	---	---	---	---	38.25	37.78
19	---	---	---	---	---	---	---	---	---	---	38.16	37.86
20	---	---	---	---	---	---	---	---	---	---	38.08	37.82
21	---	---	---	---	---	---	---	---	---	---	38.06	37.79
22	---	---	---	---	---	---	---	---	---	---	38.06	37.77
23	---	---	---	---	---	---	---	---	---	---	38.01	37.82
24	---	---	---	---	---	---	---	---	---	---	37.95	37.73
25	---	---	---	---	---	---	---	---	---	---	37.95	37.40
26	---	---	---	---	---	---	---	---	---	---	37.92	37.09
27	---	---	---	---	---	---	---	---	---	---	37.85	36.87
28	---	---	---	---	---	---	---	---	---	---	37.85	36.83
29	---	---	---	---	---	---	---	---	---	---	37.85	36.87
30	---	---	---	---	---	---	---	---	---	---	37.85	36.88
31	---	---	---	---	---	---	---	---	---	---	37.74	---
MEAN	---	---	---	---	---	---	---	---	---	---	38.13	37.51
MAX	---	---	---	---	---	---	---	---	---	---	38.38	37.86
MIN	---	---	---	---	---	---	---	---	---	---	37.74	36.83

COLUMBIA COUNTY

410705076334901. Local number, CO 589--Continued.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), **WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002**
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36.78	37.66	36.73	36.39	34.27	35.77	33.00	33.17	25.39	25.02	26.94	29.38
2	36.82	37.61	36.57	36.55	34.09	35.77	32.91	32.19	25.40	25.04	26.93	29.33
3	36.94	37.61	36.50	36.52	34.18	35.37	32.66	31.16	25.45	25.07	27.01	29.30
4	36.99	37.62	36.48	36.48	34.08	35.20	32.57	30.87	25.49	25.18	27.12	29.29
5	37.03	37.57	36.41	36.52	34.35	35.17	32.93	30.53	25.42	25.49	27.15	29.32
6	37.01	37.62	36.36	36.47	34.54	35.11	33.00	30.05	25.31	25.76	27.17	29.34
7	37.25	37.61	36.34	36.28	34.59	35.04	32.88	29.69	24.75	25.91	27.20	29.54
8	37.48	37.69	36.48	36.41	34.72	35.62	32.90	29.34	24.30	26.01	27.22	30.98
9	37.60	37.72	36.36	36.32	35.30	35.48	32.93	28.78	24.17	26.07	27.25	32.13
10	37.54	37.66	36.25	36.26	35.64	35.22	33.31	27.90	24.25	26.13	27.29	32.83
11	37.47	37.68	36.07	36.36	35.10	35.24	34.01	27.62	24.38	26.21	27.31	33.06
12	37.42	37.87	36.11	36.31	34.93	34.99	33.61	27.80	24.46	26.27	27.32	33.05
13	37.43	37.91	35.95	36.12	34.87	35.23	35.10	26.64	24.57	26.28	27.35	32.86
14	37.40	37.83	35.89	36.14	35.21	35.34	35.55	25.91	24.57	26.30	27.38	32.46
15	37.41	37.76	36.02	36.03	35.16	35.26	34.75	26.51	24.03	26.34	27.45	31.80
16	37.51	37.76	36.22	36.03	35.03	35.17	34.39	27.20	23.47	26.47	27.83	30.95
17	37.42	37.89	35.98	35.95	35.08	34.95	34.22	27.55	23.48	26.56	28.31	30.19
18	37.59	37.92	35.42	35.84	35.42	34.70	33.89	27.57	23.73	26.61	28.53	29.67
19	37.51	37.78	35.40	35.80	35.64	34.44	33.67	27.03	24.07	26.65	28.66	29.27
20	37.44	37.68	35.40	35.63	35.50	34.38	33.89	26.30	24.34	26.80	28.76	29.08
21	37.49	37.81	35.63	35.63	35.31	34.21	34.40	25.76	24.49	26.96	28.90	29.00
22	37.48	37.83	35.87	35.66	35.41	33.75	34.65	25.66	24.58	27.01	29.01	28.98
23	37.47	37.87	35.82	35.75	35.60	34.29	34.89	25.72	24.62	27.00	29.09	28.69
24	37.39	37.92	35.66	35.50	35.81	34.13	35.11	25.62	24.68	27.02	29.15	28.49
25	37.30	37.84	35.81	35.24	35.86	34.17	35.13	25.50	24.72	27.05	29.29	28.31
26	37.39	37.63	35.87	35.09	35.62	34.33	35.25	25.43	24.73	27.05	29.71	28.11
27	37.52	37.39	35.83	34.90	35.50	33.59	35.49	25.40	24.75	27.04	29.98	27.74
28	37.77	37.28	35.89	34.69	35.62	33.16	35.30	25.47	24.81	27.01	30.05	27.03
29	37.81	37.25	35.99	34.51	---	32.86	34.64	25.52	24.91	26.99	29.71	26.82
30	37.77	37.04	36.20	34.50	---	32.97	33.90	25.50	25.00	27.00	29.48	27.56
31	37.77	---	36.30	34.55	---	33.16	---	25.42	---	26.96	29.41	---
MEAN	37.39	37.68	36.06	35.82	35.09	34.65	34.03	27.57	24.61	26.36	28.19	29.82
MAX	37.81	37.92	36.73	36.55	35.86	35.77	35.55	33.17	25.49	27.05	30.05	33.06
MIN	36.78	37.04	35.40	34.50	34.08	32.86	32.57	25.40	23.47	25.02	26.93	26.82



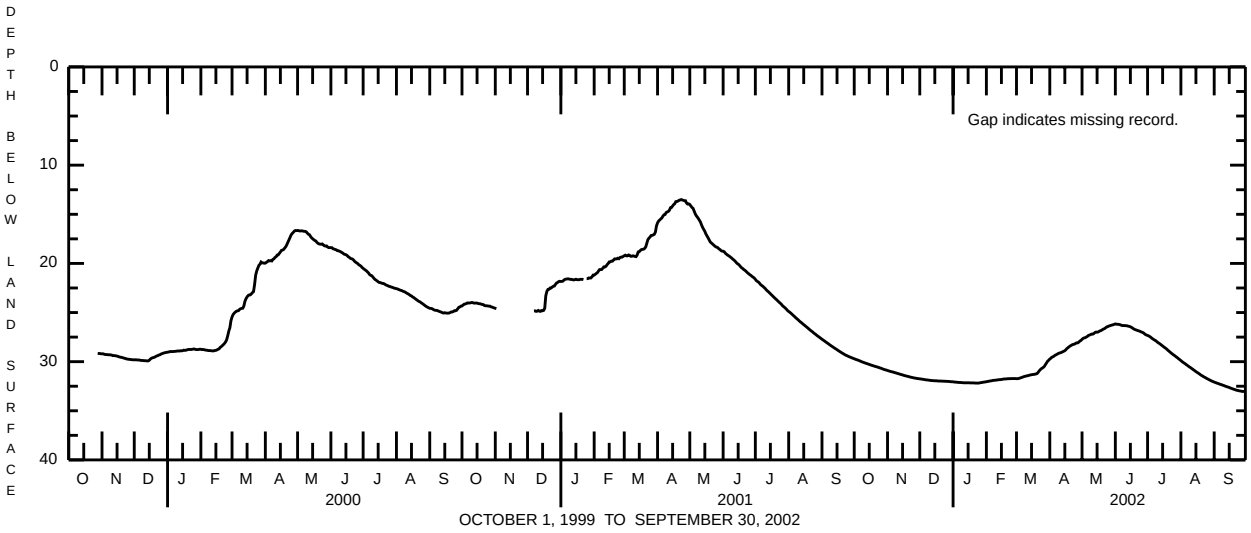
CUMBERLAND COUNTY

400209077183301. Local number, CU 2.

LOCATION.--Lat 40°02'09", long 77°l8'33", Hydrologic Unit 02050305, at Michaux State Forest, and at Pine Grove Furnace.
Owner: Commonwealth of Pennsylvania.
AQUIFER.--Metarhyolite, Precambrian age.
WELL CHARACTERISTICS.--Drilled unused observation well, diameter 6 in., depth 37 ft, cased to 19 ft.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 955 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.29 ft above land-surface datum. Prior to June 2, 1999, top of casing, 1.56 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since June 1999, are also available from the District Office.
PERIOD OF RECORD.--June 1951 to March 1955, instantaneous water levels obtained several times per month. July 1955 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 8.96 ft below land-surface datum, May 14, 1998; lowest, 33.50 ft below land-surface datum, Feb. 3, 1955.
EXTREMES FOR CURRENT YEAR.--Highest water level, 26.12 ft below land-surface datum, June 2; lowest, 33.03 ft below land-surface datum, Sept. 27-30.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.70	30.90	31.75	32.05	32.04	31.73	29.73	27.73	26.16	27.33	29.89	32.08
2	29.75	30.93	31.76	32.07	32.02	31.73	29.65	27.63	26.18	27.38	29.98	32.12
3	29.79	30.97	31.78	32.08	32.00	31.71	29.54	27.58	26.20	27.44	30.07	32.16
4	29.82	31.00	31.80	32.09	31.97	31.68	29.50	27.56	26.20	27.52	30.14	32.20
5	29.87	31.03	31.81	32.10	31.96	31.64	29.43	27.49	26.23	27.62	30.21	32.24
6	29.91	31.05	31.84	32.11	31.94	31.60	29.34	27.43	26.26	27.69	30.30	32.28
7	29.96	31.09	31.85	32.12	31.91	31.56	29.29	27.33	26.31	27.77	30.38	32.32
8	30.01	31.12	31.86	32.12	31.90	31.52	29.23	27.29	26.33	27.83	30.46	32.35
9	30.05	31.15	31.88	32.13	31.89	31.49	29.16	27.24	26.32	27.90	30.54	32.40
10	30.09	31.19	31.89	32.14	31.88	31.46	29.12	27.19	26.33	28.00	30.61	32.43
11	30.13	31.22	31.91	32.15	31.86	31.44	29.09	27.20	26.34	28.08	30.69	32.48
12	30.17	31.25	31.92	32.15	31.85	31.41	29.05	27.13	26.35	28.15	30.77	32.52
13	30.20	31.29	31.92	32.15	31.83	31.38	28.99	27.04	26.39	28.23	30.85	32.56
14	30.24	31.32	31.94	32.15	31.83	31.35	28.94	26.99	26.41	28.32	30.93	32.59
15	30.28	31.35	31.94	32.15	31.81	31.33	28.88	27.00	26.45	28.40	31.01	32.63
16	30.32	31.39	31.95	32.15	31.79	31.31	28.78	26.98	26.51	28.49	31.09	32.68
17	30.36	31.42	31.95	32.16	31.77	31.30	28.66	26.91	26.58	28.57	31.15	32.72
18	30.39	31.45	31.97	32.16	31.76	31.28	28.57	26.85	26.66	28.65	31.23	32.76
19	30.43	31.47	31.97	32.16	31.76	31.25	28.48	26.82	26.72	28.74	31.31	32.80
20	30.46	31.50	31.97	32.16	31.75	31.22	28.40	26.74	26.76	28.85	31.39	32.83
21	30.50	31.53	31.98	32.17	31.73	31.11	28.34	26.68	26.80	28.94	31.45	32.88
22	30.53	31.56	31.98	32.18	31.73	30.96	28.27	26.63	26.84	29.03	31.52	32.91
23	30.56	31.59	31.99	32.18	31.73	30.83	28.24	26.55	26.87	29.13	31.58	32.93
24	30.60	31.61	31.99	32.18	31.72	30.73	28.21	26.46	26.92	29.21	31.64	32.96
25	30.64	31.64	32.00	32.18	31.72	30.65	28.14	26.43	26.97	29.30	31.71	32.98
26	30.67	31.66	32.00	32.15	31.72	30.58	28.09	26.37	27.01	29.37	31.76	33.00
27	30.72	31.68	32.01	32.13	31.72	30.47	28.09	26.34	27.06	29.46	31.82	33.03
28	30.76	31.70	32.01	32.12	31.72	30.29	28.01	26.30	27.15	29.54	31.88	33.03
29	30.80	31.72	32.03	32.09	---	30.12	27.90	26.27	27.24	29.62	31.93	33.03
30	30.83	31.73	32.04	32.08	---	29.95	27.84	26.24	27.29	29.72	31.99	33.03
31	30.86	---	32.04	32.06	---	29.85	---	26.20	---	29.80	32.03	---
MEAN	30.30	31.35	31.93	32.13	31.83	31.13	28.77	26.92	26.59	28.52	31.04	32.63
MAX	30.86	31.73	32.04	32.18	32.04	31.73	29.73	27.73	27.29	29.80	32.03	33.03
MIN	29.70	30.90	31.75	32.05	31.72	29.85	27.84	26.20	26.16	27.33	29.89	32.08



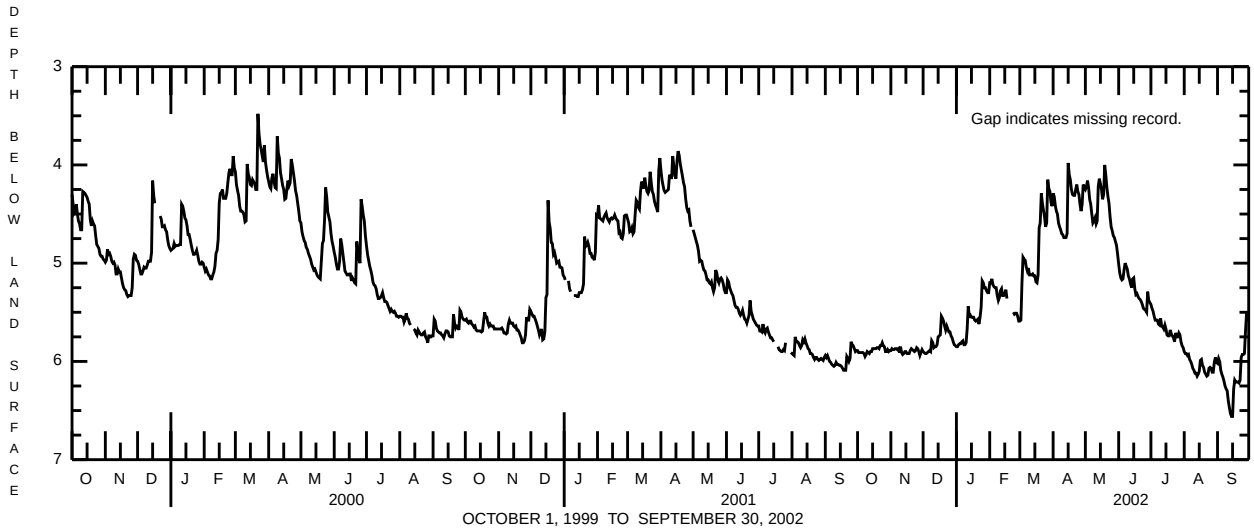
DAUPHIN COUNTY

402118076462201. Local number, DA 350.

LOCATION.--Lat 40°21'18", long 76°46'22", Hydrologic Unit 02050305, at R. D. l, Linglestown.
Owner: Privately owned.
AQUIFER.--Hamburg sequence, Early-Middle Ordovician age.
WELL CHARACTERISTICS.--Drilled unused observation well, diameter 6 in., depth 225 ft, cased to 19 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 450 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.30 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.
PERIOD OF RECORD.--September 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 1.15 ft below land-surface datum, June 22, 1972; lowest, 6.95 ft below land-surface datum, Sept. 11, 1966.
EXTREMES FOR CURRENT YEAR.--Highest water level, 3.28 ft below land-surface datum, Apr. 15; lowest, 6.56 ft below land-surface datum, Sept. 14, 15.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.89	5.89	5.90	5.85	5.20	5.59	4.29	4.25	5.01	5.42	5.90	6.02
2	5.91	5.87	5.91	5.85	5.20	5.58	4.32	4.22	5.10	5.46	5.92	5.97
3	5.91	5.88	5.92	5.83	5.16	5.20	4.41	4.16	5.15	5.49	5.92	6.00
4	5.91	5.88	5.92	5.82	5.22	4.94	4.47	4.23	5.17	5.54	5.94	6.09
5	5.91	5.87	5.91	5.82	5.24	4.96	4.50	4.35	5.16	5.58	5.93	6.13
6	5.91	5.87	5.90	5.80	5.25	4.97	4.59	4.40	5.07	5.58	5.98	6.16
7	5.92	5.88	5.89	5.79	5.25	5.04	4.63	4.50	5.00	5.58	6.00	6.20
8	5.95	5.87	5.90	5.83	5.33	5.08	4.66	4.59	5.03	5.62	6.03	6.25
9	5.93	5.91	5.79	5.83	5.38	5.05	4.70	4.57	5.06	5.63	6.07	6.28
10	5.90	5.85	5.81	5.81	5.35	5.12	4.71	4.54	5.13	5.56	6.09	6.30
11	5.91	5.91	5.86	5.67	5.28	5.12	4.74	4.60	5.16	5.64	6.12	6.40
12	5.92	5.93	5.85	5.44	5.26	5.12	4.74	4.57	5.21	5.65	6.12	6.47
13	5.90	5.92	5.85	5.54	5.33	5.11	4.74	4.22	5.25	5.67	6.15	6.53
14	5.90	5.90	5.83	5.53	5.33	5.13	4.70	4.14	5.16	5.63	6.13	6.56
15	5.87	5.90	5.75	5.55	5.31	5.13	3.98	4.19	5.15	5.67	6.10	6.56
16	5.87	5.92	5.74	5.55	5.27	5.19	4.10	4.25	5.26	5.73	5.99	6.28
17	5.87	5.92	5.73	5.55	5.36	5.20	4.15	4.35	5.32	5.74	5.98	6.19
18	5.87	5.92	5.54	5.58	---	5.12	4.25	4.30	5.31	5.74	6.04	6.21
19	5.86	5.89	5.56	5.59	---	4.64	4.30	4.00	5.34	5.68	6.06	6.21
20	5.86	5.87	5.59	5.58	---	4.59	4.31	4.10	5.36	5.72	6.11	6.21
21	5.87	5.88	5.64	5.57	---	4.29	4.31	4.23	5.37	5.74	6.13	6.22
22	5.84	5.89	5.68	5.62	---	4.39	4.25	4.32	5.39	5.76	6.15	6.19
23	5.84	5.90	5.64	5.55	5.50	4.46	4.20	4.39	5.42	5.80	6.14	5.96
24	5.81	5.89	5.67	5.45	5.52	4.53	4.27	4.53	5.46	5.71	6.07	5.93
25	5.84	5.86	5.70	5.18	5.51	4.63	4.30	4.63	5.47	5.75	6.06	5.93
26	5.85	5.87	5.70	5.20	5.51	4.59	4.40	4.67	5.48	5.75	6.07	5.92
27	5.90	5.90	5.74	5.25	5.54	4.15	4.47	4.72	5.50	5.71	6.11	5.70
28	5.90	5.94	5.76	5.25	5.59	4.24	4.40	4.74	5.29	5.73	6.11	5.51
29	5.88	5.91	5.80	5.28	---	4.27	4.20	4.78	5.38	5.80	6.01	5.54
30	5.90	5.88	5.83	5.30	---	4.38	4.23	4.82	5.40	5.84	5.96	5.59
31	5.89	---	5.84	5.30	---	4.42	---	4.91	---	5.86	6.01	---
MEAN	5.89	5.89	5.78	5.57	5.34	4.85	4.41	4.43	5.25	5.67	6.05	6.12
MAX	5.95	5.94	5.92	5.85	5.59	5.59	4.74	4.91	5.50	5.86	6.15	6.56
MIN	5.81	5.85	5.54	5.18	5.16	4.15	3.98	4.00	5.00	5.42	5.90	5.51



FRANKLIN COUNTY

395322077365301. Local number, FR 818.

LOCATION.--Lat 39°53'22", long 77°36'53", Hydrologic Unit 02070004, near Chambersburg.
Owner: Privately owned.
AQUIFER.--Zullinger Formation, Cambrian age.
WELL CHARACTERISTICS.--Drilled unused observation well, diameter 6 in., depth 202 ft, cased to 37 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 760 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.90 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels, are also available from the District Office.
PERIOD OF RECORD.--July 28, 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 75.76 ft above land-surface datum, July 27, 2001; lowest, 82.97 ft below land-surface datum, Sept. 22, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level, 78.52 ft below land-surface datum, Oct. 1; lowest, 82.97 ft below land-surface datum, Sept. 22.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), **WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001**
MEAN VALUES

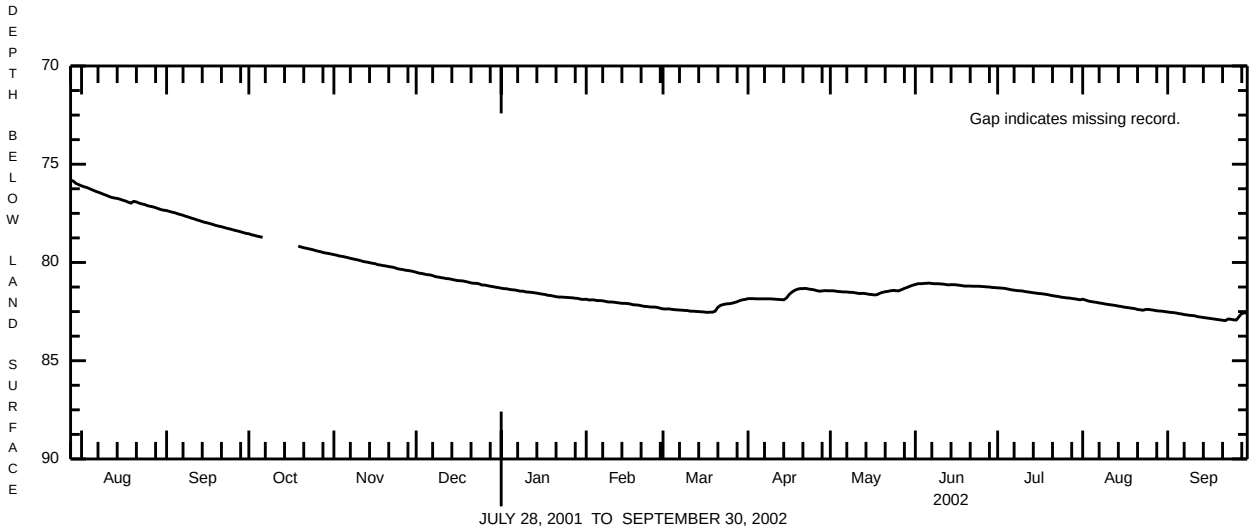
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	76.10	77.36
2	---	---	---	---	---	---	---	---	---	---	76.15	77.40
3	---	---	---	---	---	---	---	---	---	---	76.19	77.44
4	---	---	---	---	---	---	---	---	---	---	76.25	77.47
5	---	---	---	---	---	---	---	---	---	---	76.31	77.52
6	---	---	---	---	---	---	---	---	---	---	76.37	77.56
7	---	---	---	---	---	---	---	---	---	---	76.42	77.60
8	---	---	---	---	---	---	---	---	---	---	76.47	77.65
9	---	---	---	---	---	---	---	---	---	---	76.53	77.69
10	---	---	---	---	---	---	---	---	---	---	76.58	77.74
11	---	---	---	---	---	---	---	---	---	---	76.64	77.78
12	---	---	---	---	---	---	---	---	---	---	76.69	77.83
13	---	---	---	---	---	---	---	---	---	---	76.72	77.87
14	---	---	---	---	---	---	---	---	---	---	76.74	77.92
15	---	---	---	---	---	---	---	---	---	---	76.78	77.96
16	---	---	---	---	---	---	---	---	---	---	76.83	77.99
17	---	---	---	---	---	---	---	---	---	---	76.87	78.03
18	---	---	---	---	---	---	---	---	---	---	76.93	78.07
19	---	---	---	---	---	---	---	---	---	---	76.98	78.12
20	---	---	---	---	---	---	---	---	---	---	76.89	78.15
21	---	---	---	---	---	---	---	---	---	---	76.92	78.18
22	---	---	---	---	---	---	---	---	---	---	76.98	78.22
23	---	---	---	---	---	---	---	---	---	---	77.02	78.26
24	---	---	---	---	---	---	---	---	---	---	77.05	78.29
25	---	---	---	---	---	---	---	---	---	---	77.11	78.33
26	---	---	---	---	---	---	---	---	---	---	77.14	78.37
27	---	---	---	---	---	---	---	---	---	---	77.17	78.40
28	---	---	---	---	---	---	---	---	---	75.81	77.21	78.44
29	---	---	---	---	---	---	---	---	---	75.86	77.26	78.48
30	---	---	---	---	---	---	---	---	---	75.98	77.31	78.52
31	---	---	---	---	---	---	---	---	---	76.04	77.34	---
MEAN	---	---	---	---	---	---	---	---	---	75.92	76.77	77.95
MAX	---	---	---	---	---	---	---	---	---	76.04	77.34	78.52
MIN	---	---	---	---	---	---	---	---	---	75.81	76.10	77.36

FRANKLIN COUNTY

395322077365301. Local number, FR 818--Continued.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), **WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002**
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78.54	79.60	80.50	81.31	81.87	82.36	81.84	81.44	81.12	81.29	81.87	82.52
2	78.59	79.63	80.54	81.33	81.91	82.37	81.84	81.44	81.08	81.30	81.91	82.54
3	78.62	79.67	80.56	81.34	81.90	82.36	81.84	81.46	81.08	81.31	81.96	82.55
4	78.66	79.69	80.59	81.37	81.91	82.38	81.85	81.48	81.07	81.33	81.99	82.57
5	78.69	79.72	80.62	81.39	81.94	82.40	81.85	81.49	81.06	81.36	82.01	82.60
6	78.72	79.75	80.63	81.40	81.94	82.41	81.85	81.50	81.05	81.39	82.03	82.62
7	---	79.79	80.67	81.43	81.95	82.42	81.85	81.50	81.07	81.41	82.06	82.65
8	---	79.82	80.72	81.46	81.98	82.43	81.85	81.52	81.08	81.43	82.08	82.67
9	---	79.85	80.74	81.46	82.01	82.44	81.85	81.52	81.08	81.44	82.11	82.69
10	---	79.88	80.77	81.50	82.01	82.45	81.86	81.54	81.09	81.45	82.13	82.70
11	---	79.92	80.79	81.51	82.02	82.48	81.87	81.57	81.10	81.48	82.15	82.72
12	---	79.96	80.82	81.52	82.04	82.48	81.88	81.58	81.12	81.50	82.17	82.76
13	---	79.98	80.83	81.54	82.06	82.49	81.89	81.57	81.14	81.52	82.19	82.78
14	---	80.01	80.86	81.56	82.08	82.50	81.90	81.59	81.13	81.54	82.22	82.80
15	---	80.04	80.89	81.59	82.08	82.51	81.81	81.62	81.13	81.56	82.24	82.82
16	---	80.06	80.92	81.61	82.09	82.52	81.63	81.63	81.14	81.58	82.27	82.84
17	---	80.11	80.93	81.63	82.11	82.54	81.51	81.65	81.16	81.59	82.29	82.86
18	---	80.13	80.94	81.67	82.15	82.53	81.42	81.64	81.18	81.61	82.31	82.88
19	79.17	80.16	80.97	81.68	82.16	82.53	81.36	81.57	81.20	81.63	82.33	82.90
20	79.21	80.18	81.00	81.71	82.17	82.48	81.33	81.52	81.20	81.66	82.35	82.92
21	79.25	80.21	81.04	81.74	82.20	82.28	81.33	81.49	81.20	81.69	82.39	82.94
22	79.28	80.23	81.06	81.76	82.23	82.18	81.32	81.47	81.21	81.71	82.41	82.96
23	79.31	80.26	81.06	81.76	82.24	82.14	81.35	81.44	81.21	81.73	82.43	82.88
24	79.34	80.31	81.09	81.77	82.26	82.11	81.37	81.42	81.21	81.76	82.39	82.89
25	79.38	80.34	81.15	81.78	82.27	82.10	81.39	81.44	81.22	81.78	82.39	82.92
26	79.42	80.36	81.15	81.79	82.27	82.08	81.43	81.44	81.23	81.80	82.41	82.93
27	79.45	80.39	81.18	81.80	82.29	82.04	81.46	81.38	81.24	81.81	82.43	82.76
28	79.49	80.41	81.21	81.82	82.33	82.00	81.45	81.32	81.25	81.83	82.46	82.59
29	79.52	80.43	81.23	81.83	---	81.94	81.43	81.27	81.27	81.85	82.47	82.57
30	79.54	80.46	81.26	81.87	---	81.90	81.44	81.21	81.28	81.87	82.48	82.57
31	79.57	---	81.28	81.88	---	81.88	---	81.16	---	81.90	82.50	---
MEAN	79.14	80.05	80.90	81.61	82.09	82.31	81.64	81.48	81.15	81.58	82.24	82.75
MAX	79.57	80.46	81.28	81.88	82.33	82.54	81.90	81.65	81.28	81.90	82.50	82.96
MIN	78.54	79.60	80.50	81.31	81.87	81.88	81.32	81.16	81.05	81.29	81.87	82.52



FULTON COUNTY

394755078135001. Local number, FU 249.

LOCATION.--Lat 39°47'55", long 78°13'50", Hydrologic Unit 02070004, at State Game Land No. 128, at Deneen Gap.
Owner: U.S. Geological Survey.
AQUIFER.--Stonehenge Formation, Early Ordovician age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in., depth 122 ft, cased to 18 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 760 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of plywood shelf, 3.30 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels, are also available from the District Office.
PERIOD OF RECORD.--July 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 47.23 ft below land-surface datum, July 12, 2001; lowest, 50.27 ft below land-surface datum, Sept. 15, 17-19, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level, 48.29 ft below land-surface datum, May 2, 3; lowest, 50.27 ft below land-surface datum, Sept. 15, 17-19.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), **WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001**
MEAN VALUES

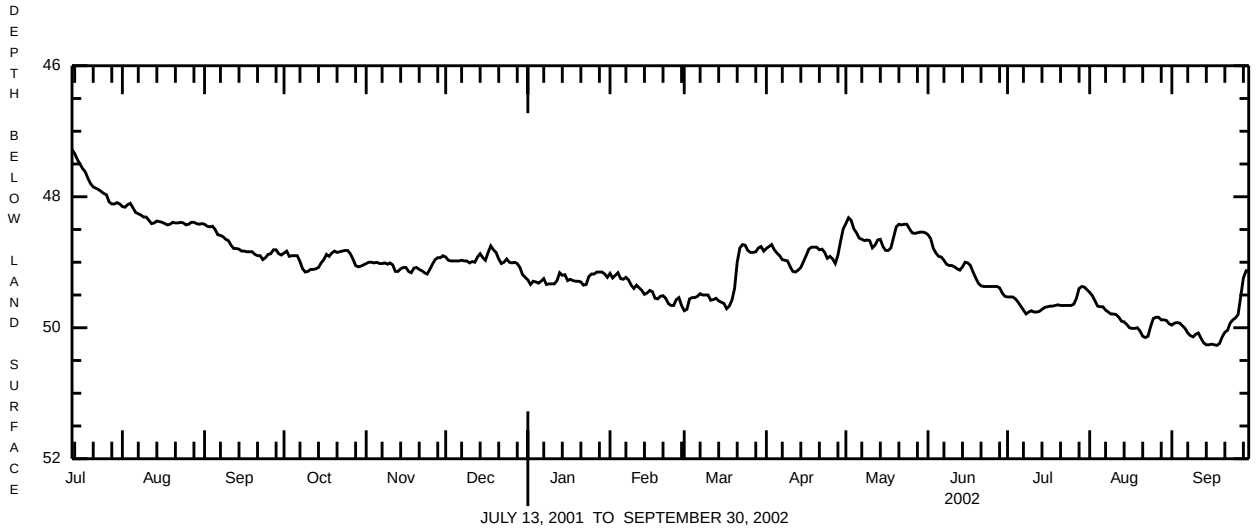
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	48.15	48.42
2	---	---	---	---	---	---	---	---	---	---	48.16	48.45
3	---	---	---	---	---	---	---	---	---	---	48.12	48.46
4	---	---	---	---	---	---	---	---	---	---	48.10	48.45
5	---	---	---	---	---	---	---	---	---	---	48.17	48.50
6	---	---	---	---	---	---	---	---	---	---	48.24	48.58
7	---	---	---	---	---	---	---	---	---	---	48.26	48.59
8	---	---	---	---	---	---	---	---	---	---	48.28	48.61
9	---	---	---	---	---	---	---	---	---	---	48.31	48.65
10	---	---	---	---	---	---	---	---	---	---	48.31	48.67
11	---	---	---	---	---	---	---	---	---	---	48.36	48.74
12	---	---	---	---	---	---	---	---	---	---	48.41	48.79
13	---	---	---	---	---	---	---	---	---	47.28	48.40	48.79
14	---	---	---	---	---	---	---	---	---	47.34	48.37	48.80
15	---	---	---	---	---	---	---	---	---	47.43	48.38	48.83
16	---	---	---	---	---	---	---	---	---	47.50	48.39	48.83
17	---	---	---	---	---	---	---	---	---	47.57	48.41	48.84
18	---	---	---	---	---	---	---	---	---	47.62	48.43	48.84
19	---	---	---	---	---	---	---	---	---	47.72	48.42	48.84
20	---	---	---	---	---	---	---	---	---	47.80	48.39	48.88
21	---	---	---	---	---	---	---	---	---	47.85	48.40	48.90
22	---	---	---	---	---	---	---	---	---	47.87	48.40	48.90
23	---	---	---	---	---	---	---	---	---	47.89	48.39	48.96
24	---	---	---	---	---	---	---	---	---	47.92	48.40	48.93
25	---	---	---	---	---	---	---	---	---	47.95	48.43	48.88
26	---	---	---	---	---	---	---	---	---	47.97	48.42	48.87
27	---	---	---	---	---	---	---	---	---	48.08	48.39	48.81
28	---	---	---	---	---	---	---	---	---	48.11	48.39	48.81
29	---	---	---	---	---	---	---	---	---	48.11	48.41	48.87
30	---	---	---	---	---	---	---	---	---	48.09	48.42	48.89
31	---	---	---	---	---	---	---	---	---	48.11	48.41	---
MEAN	---	---	---	---	---	---	---	---	---	47.80	48.34	48.75
MAX	---	---	---	---	---	---	---	---	---	48.11	48.43	48.96
MIN	---	---	---	---	---	---	---	---	---	47.28	48.10	48.42

FULTON COUNTY

394755078135001. Local number, FU 249--Continued.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), **WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002**
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48.86	49.02	48.92	49.27	49.17	49.74	48.79	48.41	48.58	49.53	49.46	49.96
2	48.83	49.00	48.97	49.34	49.24	49.72	48.76	48.32	48.64	49.53	49.51	49.93
3	48.91	49.00	48.98	49.29	49.20	49.56	48.73	48.36	48.79	49.53	49.59	49.92
4	48.90	49.01	48.98	49.30	49.16	49.54	48.81	48.49	48.86	49.56	49.67	49.93
5	48.90	49.00	48.98	49.32	49.25	49.54	48.86	48.55	48.91	49.61	49.68	49.97
6	48.90	49.02	48.98	49.29	49.26	49.52	48.90	48.63	48.92	49.67	49.68	50.01
7	48.99	49.02	48.97	49.25	49.23	49.48	48.96	48.65	48.97	49.73	49.73	50.08
8	49.10	49.01	48.98	49.34	49.27	49.50	48.97	48.67	49.03	49.79	49.76	50.12
9	49.15	49.03	48.98	49.33	49.35	49.50	48.98	48.66	49.05	49.76	49.79	50.14
10	49.14	49.01	49.01	49.33	49.40	49.50	49.07	48.67	49.05	49.74	49.79	50.10
11	49.11	49.04	48.99	49.33	49.35	49.58	49.14	48.78	49.07	49.76	49.80	50.08
12	49.11	49.14	49.00	49.28	49.39	49.57	49.15	48.74	49.10	49.76	49.84	50.16
13	49.10	49.14	48.92	49.16	49.43	49.55	49.12	48.66	49.12	49.75	49.90	50.23
14	49.08	49.10	48.87	49.20	49.49	49.59	49.08	48.65	49.07	49.72	49.91	50.26
15	49.01	49.08	48.93	49.19	49.47	49.61	48.99	48.76	49.00	49.69	49.95	50.26
16	48.96	49.08	48.97	49.28	49.43	49.63	48.90	48.82	49.01	49.68	50.00	50.25
17	48.88	49.14	48.85	49.26	49.45	49.71	48.80	48.82	49.05	49.67	50.01	50.26
18	48.91	49.16	48.75	49.28	49.55	49.67	48.77	48.78	49.15	49.67	50.01	50.27
19	48.86	49.09	48.81	49.29	49.56	49.58	48.77	48.62	49.24	49.66	50.00	50.24
20	48.83	49.08	48.85	49.29	49.52	49.40	48.77	48.46	49.32	49.65	50.05	50.14
21	48.85	49.11	48.95	49.30	49.51	49.00	48.81	48.42	49.36	49.66	50.13	50.07
22	48.84	49.13	49.02	49.35	49.55	48.78	48.80	48.43	49.37	49.66	50.15	50.04
23	48.83	49.16	49.00	49.34	49.63	48.73	48.85	48.42	49.37	49.66	50.13	49.93
24	48.82	49.18	48.95	49.22	49.66	48.74	48.94	48.42	49.37	49.66	49.98	49.88
25	48.82	49.11	49.00	49.18	49.66	48.82	48.91	48.49	49.37	49.66	49.86	49.85
26	48.87	49.03	49.01	49.18	49.57	48.85	48.95	48.55	49.37	49.64	49.84	49.80
27	48.95	48.96	49.00	49.15	49.54	48.85	49.02	48.56	49.37	49.55	49.84	49.52
28	49.05	48.93	49.02	49.15	49.66	48.84	48.89	48.55	49.39	49.40	49.88	49.24
29	49.07	48.93	49.08	49.15	---	48.78	48.68	48.54	49.47	49.37	49.88	49.13
30	49.06	48.90	49.19	49.18	---	48.76	48.49	48.54	49.52	49.38	49.89	49.13
31	49.04	---	49.23	49.23	---	48.83	---	48.55	---	49.42	49.94	---
MEAN	48.96	49.05	48.97	49.26	49.43	49.31	48.89	48.58	49.13	49.63	49.86	49.96
MAX	49.15	49.18	49.23	49.35	49.66	49.74	49.15	48.82	49.52	49.79	50.15	50.27
MIN	48.82	48.90	48.75	49.15	49.16	48.73	48.49	48.32	48.58	49.37	49.46	49.13



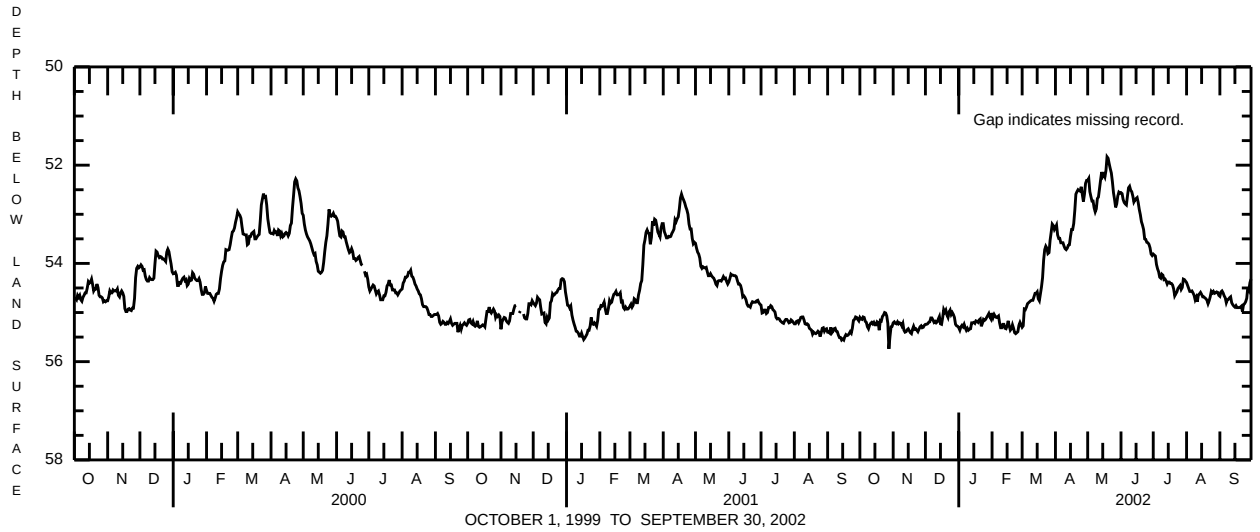
HUNTINGDON COUNTY

401843078075401. Local number, HU 301.

LOCATION.--Lat 40°18'43", long 78°07'54", Hydrologic Unit 02050303, at Trough Creek State Park, and near Newburg.
Owner: U.S. Geological Survey.
AQUIFER.--Pocono Formation, Early Mississippian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 105 ft, cased to 18 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 970 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.60 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.
PERIOD OF RECORD.--August 1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 48.82 ft below land-surface datum, June 23, l972; lowest, 55.96 ft below land-surface datum, Aug. 28, 30, 1981.
EXTREMES FOR CURRENT YEAR.--Highest water level, 51.75 ft below land-surface datum, May 20; lowest, 55.74 ft below land-surface datum, Oct. 28.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55.10	55.21	55.24	55.31	55.01	55.30	53.27	52.31	52.56	53.81	54.39	54.67
2	55.13	55.19	55.24	55.36	55.10	55.27	53.22	52.27	52.58	53.83	54.45	54.58
3	55.14	55.22	55.23	55.29	55.04	54.93	53.42	52.54	52.70	53.85	54.51	54.56
4	55.09	55.23	55.20	55.26	55.08	54.94	53.49	52.64	52.76	54.02	54.57	54.60
5	55.10	55.19	55.19	55.29	55.10	54.89	53.49	52.73	52.79	54.11	54.57	54.66
6	55.18	55.23	55.11	55.24	55.09	54.82	53.58	52.73	52.81	54.17	54.56	54.70
7	55.20	55.21	55.11	55.31	55.07	54.80	53.58	52.87	52.63	54.28	54.60	54.80
8	55.29	55.22	55.15	55.36	55.21	54.78	53.58	52.95	52.46	54.30	54.65	54.74
9	55.33	55.27	55.20	55.32	55.31	54.76	53.65	52.89	52.43	54.22	54.74	54.73
10	55.26	55.22	55.18	55.36	55.31	54.75	53.70	52.68	52.51	54.24	54.69	54.70
11	55.22	55.36	55.21	55.34	55.24	54.75	53.72	52.65	52.54	54.33	54.78	54.68
12	55.20	55.40	55.19	55.33	55.24	54.68	53.69	52.48	52.63	54.32	54.64	54.80
13	55.23	55.39	55.13	55.21	55.32	54.61	53.63	52.30	52.75	54.36	54.62	54.84
14	55.20	55.35	55.08	55.21	55.33	54.61	53.62	52.14	52.71	54.42	54.59	54.87
15	55.25	55.33	55.23	55.20	55.27	54.58	53.45	52.23	52.68	54.38	54.63	54.89
16	55.25	55.37	55.24	55.22	55.17	54.72	53.31	52.19	52.66	54.38	54.68	54.86
17	55.19	55.41	55.11	55.17	55.27	54.76	53.31	52.24	52.76	54.41	54.68	54.90
18	55.21	55.43	54.94	55.18	55.36	54.62	53.19	52.11	52.90	54.41	54.70	54.90
19	55.36	55.34	54.99	55.20	55.33	54.48	52.92	51.83	53.01	54.44	54.72	54.90
20	55.16	55.28	54.95	55.15	55.25	54.29	52.59	51.86	53.15	54.52	54.75	54.89
21	55.17	55.34	55.05	55.13	55.32	53.93	52.54	51.97	53.22	54.66	54.82	54.87
22	55.08	55.33	55.10	55.28	55.41	53.72	52.50	52.07	53.31	54.62	54.76	54.98
23	55.05	55.36	54.99	55.22	55.43	53.65	52.52	52.16	53.50	54.58	54.68	54.84
24	55.00	55.39	54.95	55.14	55.41	53.69	52.53	52.34	53.51	54.51	54.57	54.82
25	55.01	55.34	55.04	55.16	55.39	53.80	52.44	52.56	53.57	54.48	54.60	54.78
26	55.07	55.29	55.00	55.14	55.26	53.78	52.60	52.70	53.58	54.45	54.57	54.71
27	55.22	55.27	55.04	55.10	55.20	53.53	52.74	52.86	53.61	54.53	54.61	54.49
28	55.74	55.31	55.10	55.06	55.25	53.37	52.59	52.79	53.68	54.49	54.60	54.54
29	55.49	55.30	55.24	55.02	---	53.20	52.37	52.63	53.81	54.32	54.58	54.39
30	55.29	55.26	55.27	55.09	---	53.23	52.31	52.55	53.84	54.33	54.59	54.32
31	55.28	---	55.28	55.13	---	53.31	---	52.57	---	54.36	54.65	---
MEAN	55.21	55.30	55.13	55.22	55.24	54.34	53.12	52.45	52.99	54.33	54.63	54.73
MAX	55.74	55.43	55.28	55.36	55.43	55.30	53.72	52.95	53.84	54.66	54.82	54.98
MIN	55.00	55.19	54.94	55.02	55.01	53.20	52.31	51.83	52.43	53.81	54.39	54.32



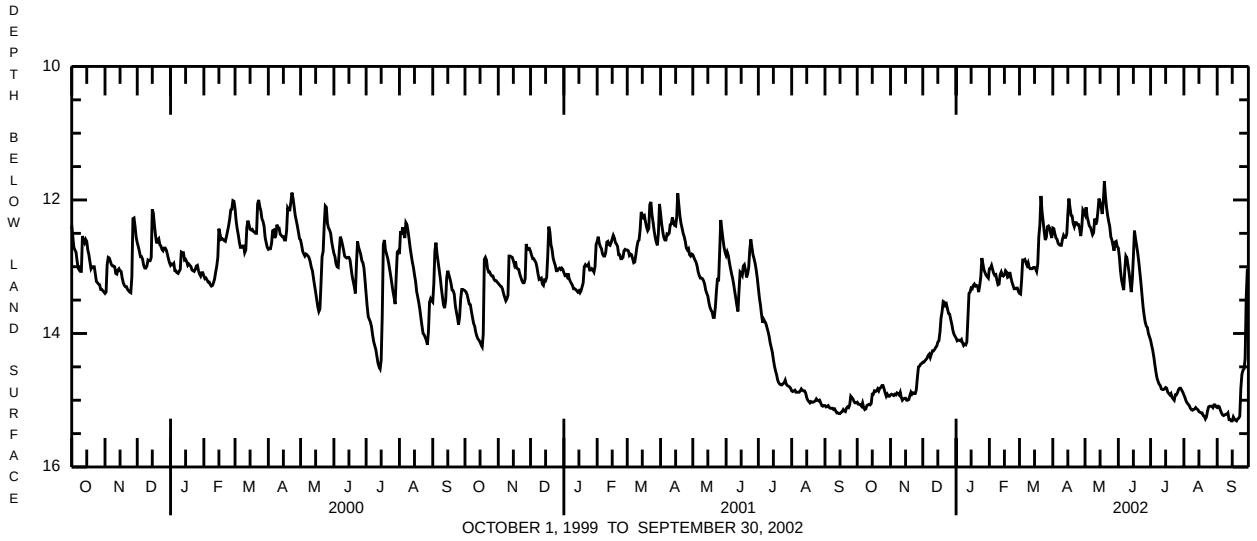
JUNIATA COUNTY

402411077374801. Local number, JU 351.

LOCATION.--Lat 40°24'11", long 77°37'48", Hydrologic Unit 02050304, at State Game Land No. 215, and near Reeds Gap.
Owner: U.S. Geological Survey.
AQUIFER.--Brailler and Harrell Formations, undivided, Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 110 ft, cased to 18 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 635 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of metal cover, 3.6 ft above land-surface datum.
REMARKS.--This well shows significant response to Earth tides. In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since June 1999, are also available from the District Office.
PERIOD OF RECORD.--June 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 10.65 ft below land-surface datum, Feb. 7, l996; lowest, 16.62 ft below land-surface datum, June 10, 1994.
EXTREMES FOR CURRENT YEAR.--Highest water level, 11.43 ft below land-surface datum, May 19; lowest, 15.31 ft below land-surface datum, Sept. 14, 15, 19.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.03	14.92	14.43	14.07	13.03	13.40	12.42	12.22	12.72	14.10	14.92	15.11
2	15.06	14.91	14.43	14.11	13.02	13.41	12.43	12.11	12.86	14.18	14.96	15.09
3	15.06	14.92	14.41	14.10	12.98	13.20	12.51	12.25	13.06	14.25	15.01	15.10
4	15.07	14.93	14.39	14.10	13.04	12.90	12.57	12.32	13.20	14.35	15.04	15.15
5	15.09	14.91	14.37	14.11	13.10	12.90	12.59	12.39	13.28	14.47	15.06	15.19
6	15.04	14.92	14.33	14.09	13.13	12.89	12.65	12.41	13.35	14.58	15.08	15.22
7	15.11	14.89	14.31	14.14	13.12	12.94	12.67	12.46	13.04	14.67	15.12	15.23
8	15.14	14.90	14.36	14.18	13.20	12.98	12.68	12.52	12.84	14.72	15.14	15.22
9	15.13	14.92	14.31	14.16	13.27	12.94	12.68	12.49	12.87	14.76	15.15	15.21
10	15.08	14.88	14.26	14.17	13.26	13.01	12.59	12.28	12.98	14.78	15.14	15.21
11	15.07	14.96	14.26	14.13	13.12	13.03	12.53	12.37	13.09	14.83	15.13	15.19
12	15.06	15.00	14.24	13.78	13.08	13.03	12.56	12.32	13.23	14.84	15.11	15.29
13	15.07	14.98	14.21	13.40	13.13	13.03	12.56	12.17	13.38	14.84	15.13	15.29
14	15.05	14.97	14.19	13.38	13.14	13.01	12.51	11.98	13.19	14.83	15.14	15.31
15	14.91	14.97	14.13	13.32	13.12	13.01	12.21	12.03	12.85	14.81	15.17	15.31
16	14.91	15.00	14.11	13.33	13.06	13.03	11.98	12.11	12.46	14.82	15.18	15.25
17	14.86	15.00	13.98	13.28	13.08	13.07	12.11	12.21	12.58	14.88	15.19	15.28
18	14.87	14.99	13.77	13.26	13.16	12.96	12.23	12.03	12.68	14.90	15.19	15.30
19	14.86	14.93	13.67	13.29	13.15	12.55	12.24	11.72	12.79	14.92	15.23	15.31
20	14.83	14.88	13.52	13.28	13.08	12.37	12.35	11.94	12.92	14.90	15.24	15.28
21	14.86	14.91	13.53	13.29	13.16	11.94	12.40	12.11	13.08	14.96	15.28	15.27
22	14.82	14.89	13.58	13.38	13.23	12.18	12.34	12.23	13.24	14.98	15.25	15.24
23	14.81	14.90	13.56	13.28	13.28	12.32	12.34	12.32	13.42	15.00	15.16	14.82
24	14.78	14.90	13.63	13.15	13.33	12.47	12.37	12.40	13.60	14.92	15.10	14.61
25	14.78	14.84	13.70	12.87	13.33	12.60	12.37	12.55	13.73	14.92	15.09	14.55
26	14.83	14.66	13.71	12.96	13.32	12.56	12.43	12.60	13.83	14.89	15.09	14.53
27	14.89	14.50	13.79	13.05	13.32	12.40	12.54	12.68	13.89	14.84	15.09	14.37
28	14.94	14.49	13.86	13.09	13.37	12.39	12.40	12.76	13.91	14.82	15.11	13.46
29	14.91	14.46	13.95	13.13	---	12.42	12.15	12.63	14.00	14.82	15.07	13.06
30	14.94	14.45	14.01	13.15	---	12.50	12.18	12.62	14.05	14.85	15.07	13.07
31	14.94	---	14.04	13.17	---	12.57	---	12.70	---	14.88	15.10	---
MEAN	14.96	14.86	14.03	13.55	13.16	12.77	12.42	12.32	13.20	14.75	15.12	14.92
MAX	15.14	15.00	14.43	14.18	13.37	13.41	12.68	12.76	14.05	15.00	15.28	15.31
MIN	14.78	14.45	13.52	12.87	12.98	11.94	11.98	11.72	12.46	14.10	14.92	13.06



LACKAWANNA COUNTY

413346075421301. Local number, LK 508.

LOCATION.--Lat 41°33'46", long 75°42'13", Hydrologic Unit 02050106, at Lackawanna State Park, near Dalton.
Owner: U.S. Geological Survey.
AQUIFER.--Quaternary System.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 202 ft, cased to 90 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,000 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.84 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels, are also available from the District Office.
PERIOD OF RECORD.--September 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 53.52 ft below land-surface datum, June 20, 2002; lowest, 62.96 ft below land-surface datum, Oct. 24, 2001.
EXTREMES FOR CURRENT YEAR.--Highest water level, 53.52 ft below land-surface datum, June 20; lowest, 62.96 ft below land-surface datum, Oct. 24.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), **WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001**
MEAN VALUES

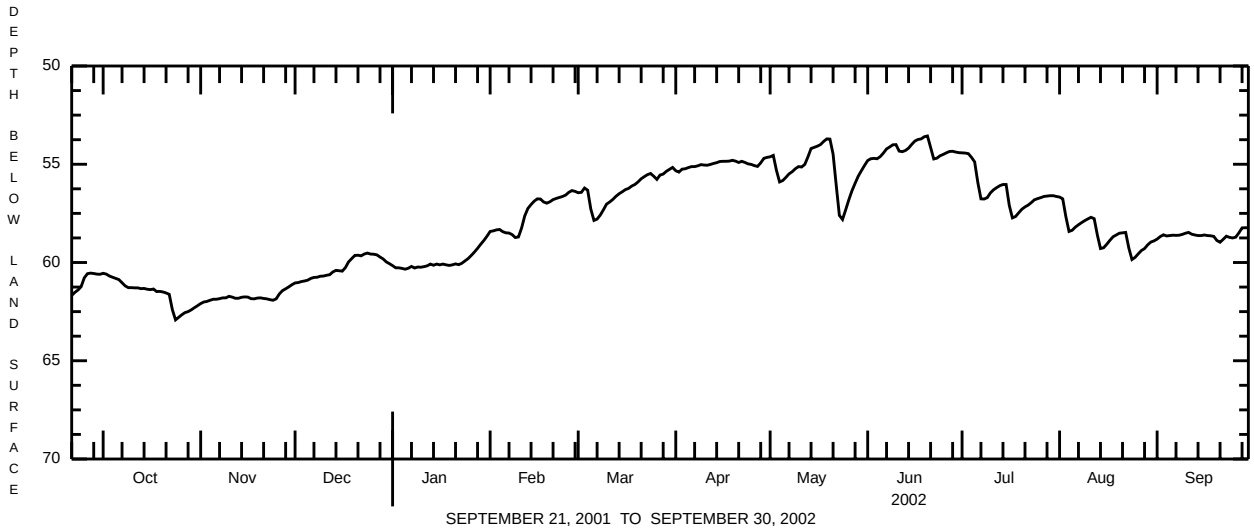
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	61.68
22	---	---	---	---	---	---	---	---	---	---	---	61.52
23	---	---	---	---	---	---	---	---	---	---	---	61.40
24	---	---	---	---	---	---	---	---	---	---	---	61.23
25	---	---	---	---	---	---	---	---	---	---	---	60.78
26	---	---	---	---	---	---	---	---	---	---	---	60.57
27	---	---	---	---	---	---	---	---	---	---	---	60.54
28	---	---	---	---	---	---	---	---	---	---	---	60.56
29	---	---	---	---	---	---	---	---	---	---	---	60.59
30	---	---	---	---	---	---	---	---	---	---	---	60.60
31	---	---	---	---	---	---	---	---	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	60.95
MAX	---	---	---	---	---	---	---	---	---	---	---	61.68
MIN	---	---	---	---	---	---	---	---	---	---	---	60.54

LACKAWANNA COUNTY

413346075421301. Local number, LK 508--Continued.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), **WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002**
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60.55	62.09	61.04	60.16	58.42	56.45	55.33	54.62	54.81	54.42	56.67	58.81
2	60.59	62.01	61.02	60.27	58.39	56.43	55.40	54.55	54.72	54.43	56.76	58.68
3	60.69	61.98	60.97	60.27	58.34	56.21	55.25	55.31	54.70	54.46	57.67	58.59
4	60.75	61.92	60.94	60.30	58.32	56.32	55.23	55.90	54.72	54.65	58.42	58.65
5	60.81	61.87	60.90	60.34	58.43	57.28	55.17	55.83	54.61	54.88	58.36	58.63
6	60.87	61.87	60.81	60.29	58.49	57.86	55.12	55.67	54.43	55.92	58.20	58.61
7	61.03	61.84	60.76	60.20	58.50	57.79	55.12	55.49	54.22	56.76	58.08	58.62
8	61.19	61.80	60.75	60.28	58.58	57.59	55.08	55.38	54.12	56.77	57.97	58.61
9	61.28	61.80	60.70	60.23	58.73	57.32	55.02	55.23	54.01	56.70	57.87	58.57
10	61.28	61.72	60.69	60.24	58.70	57.03	55.04	55.12	54.00	56.46	57.78	58.51
11	61.29	61.76	60.65	60.21	58.24	56.92	55.05	55.14	54.33	56.30	57.70	58.47
12	61.29	61.82	60.62	60.17	57.63	56.79	55.01	55.01	54.36	56.19	57.77	58.56
13	61.33	61.82	60.48	60.08	57.25	56.63	54.96	54.63	54.30	56.09	58.60	58.60
14	61.32	61.77	60.40	60.14	57.05	56.50	54.92	54.20	54.18	56.03	59.29	58.63
15	61.36	61.75	60.42	60.08	56.88	56.40	54.86	54.14	53.99	56.03	59.25	58.63
16	61.38	61.76	60.44	60.12	56.76	56.29	54.85	54.08	53.82	57.09	59.07	58.60
17	61.35	61.84	60.26	60.08	56.77	56.23	54.85	54.00	53.74	57.73	58.87	58.63
18	61.48	61.85	59.97	60.12	56.92	56.11	54.84	53.84	53.71	57.66	58.69	58.64
19	61.47	61.81	59.80	60.15	56.98	56.03	54.80	53.71	53.60	57.47	58.60	58.67
20	61.50	61.80	59.64	60.12	56.91	55.90	54.84	53.72	53.56	57.29	58.51	58.88
21	61.55	61.83	59.63	60.07	56.80	55.74	54.91	54.48	54.14	57.17	58.49	58.97
22	61.62	61.85	59.66	60.11	56.74	55.63	54.85	56.07	54.73	57.08	58.47	58.82
23	62.40	61.89	59.57	60.04	56.69	55.53	54.91	57.60	54.69	56.95	59.26	58.66
24	62.92	61.92	59.52	59.92	56.64	55.47	54.98	57.81	54.57	56.81	59.85	58.72
25	62.79	61.85	59.57	59.80	56.57	55.61	55.01	57.32	54.50	56.75	59.74	58.75
26	62.66	61.60	59.58	59.64	56.43	55.77	55.07	56.81	54.42	56.70	59.56	58.71
27	62.55	61.43	59.61	59.47	56.34	55.55	55.11	56.35	54.35	56.64	59.39	58.49
28	62.50	61.34	59.72	59.28	56.38	55.50	54.93	55.97	54.34	56.62	59.29	58.24
29	62.41	61.24	59.82	59.07	---	55.36	54.70	55.61	54.38	56.60	59.10	58.23
30	62.30	61.13	59.97	58.88	---	55.26	54.65	55.33	54.41	56.60	58.96	58.23
31	62.20	---	60.06	58.66	---	55.16	---	55.06	---	56.64	58.90	---
MEAN	61.57	61.77	60.26	59.96	57.46	56.28	55.00	55.29	54.28	56.38	58.55	58.61
MAX	62.92	62.09	61.04	60.34	58.73	57.86	55.40	57.81	54.81	57.73	59.85	58.97
MIN	60.55	61.13	59.52	58.66	56.34	55.16	54.65	53.71	53.56	54.42	56.67	58.23



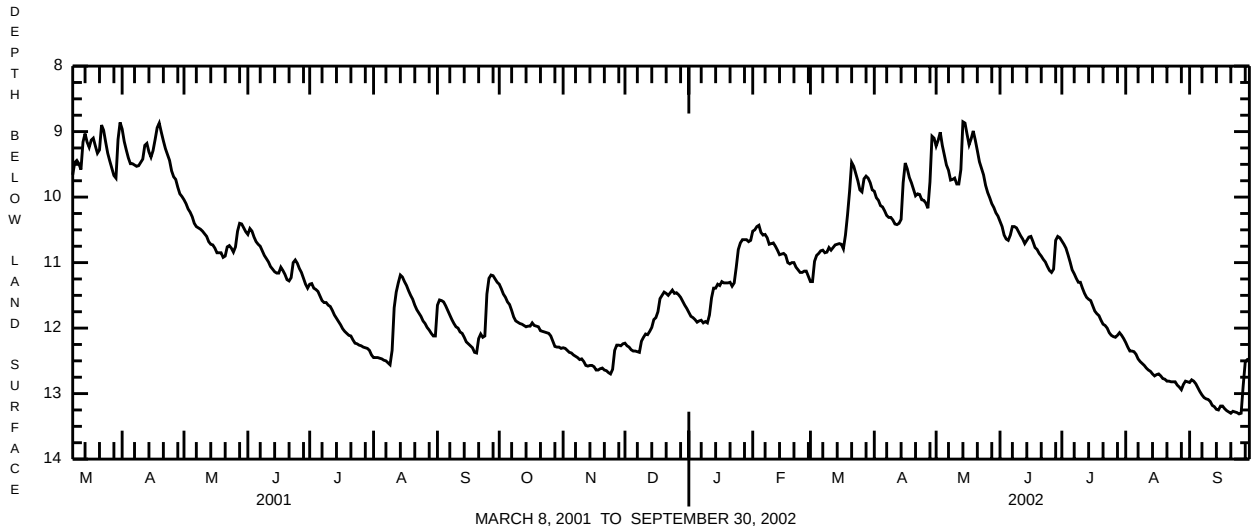
LANCASTER COUNTY

401637076071501. Local number, LN 1351.

LOCATION.--Lat 40°16'37", long 76°07'15", Hydrologic Unit 02050306, at State Game Lands 220, near Blainsport.
Owner: Pennsylvania Game Commission.
AQUIFER.--Hammer Creek Formation, Triassic age.
WELL CHARACTERISTICS.--Drilled unused well, diameter 6 in., depth 135 ft, cased to 50 ft.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 480 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.89 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels are also available from the District Office.
PERIOD OF RECORD.--March 8, 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 8.77 ft below land-surface datum, May 14, 2002; lowest, 13.32 ft below land-surface datum, Sept. 25, 26, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level, 8.77 ft below land-surface datum, May 14; lowest, 13.32 ft below land-surface datum, Sept. 25, 26.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.33	12.30	12.23	11.76	10.52	11.29	9.91	9.22	10.37	10.67	12.22	12.83
2	11.40	12.31	12.27	11.82	10.50	11.29	10.01	9.13	10.45	10.72	12.29	12.79
3	11.48	12.34	12.29	11.84	10.45	10.98	10.05	9.01	10.58	10.78	12.35	12.81
4	11.53	12.37	12.33	11.87	10.43	10.89	10.13	9.21	10.64	10.88	12.35	12.85
5	11.60	12.38	12.35	11.91	10.54	10.86	10.15	9.36	10.66	10.99	12.36	12.91
6	11.64	12.41	12.35	11.89	10.58	10.82	10.21	9.51	10.58	11.11	12.40	12.97
7	11.73	12.43	12.36	11.88	10.57	10.81	10.28	9.59	10.45	11.17	12.47	13.02
8	11.83	12.45	12.37	11.92	10.62	10.85	10.31	9.74	10.45	11.24	12.51	13.06
9	11.89	12.48	12.20	11.90	10.72	10.84	10.31	9.73	10.47	11.30	12.54	13.08
10	11.91	12.47	12.14	11.92	10.71	10.77	10.35	9.71	10.53	11.30	12.57	13.09
11	11.93	12.51	12.09	11.80	10.70	10.81	10.41	9.80	10.59	11.39	12.61	13.12
12	11.94	12.57	12.10	11.54	10.75	10.77	10.42	9.80	10.64	11.47	12.64	13.18
13	11.96	12.58	12.05	11.39	10.81	10.73	10.40	9.58	10.71	11.53	12.66	13.20
14	11.98	12.57	11.99	11.39	10.88	10.72	10.34	8.85	10.66	11.56	12.70	13.24
15	11.97	12.57	11.87	11.33	10.87	10.71	9.78	8.87	10.61	11.58	12.73	13.25
16	11.97	12.59	11.84	11.35	10.86	10.72	9.48	9.04	10.60	11.66	12.71	13.19
17	11.92	12.64	11.75	11.29	10.89	10.79	9.57	9.20	10.68	11.74	12.70	13.19
18	11.96	12.64	11.55	11.31	11.00	10.58	9.70	9.11	10.77	11.78	12.73	13.23
19	11.97	12.62	11.50	11.31	11.02	10.27	9.78	8.99	10.80	11.81	12.77	13.26
20	11.98	12.61	11.45	11.31	11.00	9.91	9.88	9.13	10.86	11.88	12.78	13.28
21	12.04	12.64	11.47	11.30	11.00	9.47	9.98	9.29	10.90	11.94	12.81	13.30
22	12.05	12.65	11.50	11.36	11.07	9.53	9.95	9.46	10.95	11.96	12.81	13.27
23	12.06	12.68	11.46	11.31	11.11	9.64	9.96	9.56	10.99	12.00	12.82	13.28
24	12.07	12.70	11.42	11.07	11.15	9.75	10.04	9.66	11.06	12.07	12.82	13.29
25	12.08	12.63	11.47	10.80	11.15	9.89	10.05	9.82	11.12	12.11	12.82	13.31
26	12.12	12.34	11.46	10.70	11.13	9.92	10.09	9.93	11.15	12.13	12.87	13.30
27	12.20	12.26	11.49	10.65	11.13	9.72	10.17	10.01	11.10	12.14	12.90	12.88
28	12.28	12.26	11.53	10.65	11.21	9.68	9.77	10.10	10.66	12.11	12.94	12.52
29	12.29	12.27	11.59	10.65	---	9.71	9.07	10.16	10.60	12.07	12.86	12.48
30	12.29	12.24	11.65	10.68	---	9.78	9.10	10.24	10.62	12.11	12.81	12.47
31	12.31	---	11.70	10.66	---	9.89	---	10.29	---	12.16	12.82	---
MEAN	11.93	12.48	11.87	11.37	10.83	10.40	9.99	9.52	10.71	11.59	12.66	13.05
MAX	12.31	12.70	12.37	11.92	11.21	11.29	10.42	10.29	11.15	12.16	12.94	13.31
MIN	11.33	12.24	11.42	10.65	10.43	9.47	9.07	8.85	10.37	10.67	12.22	12.47



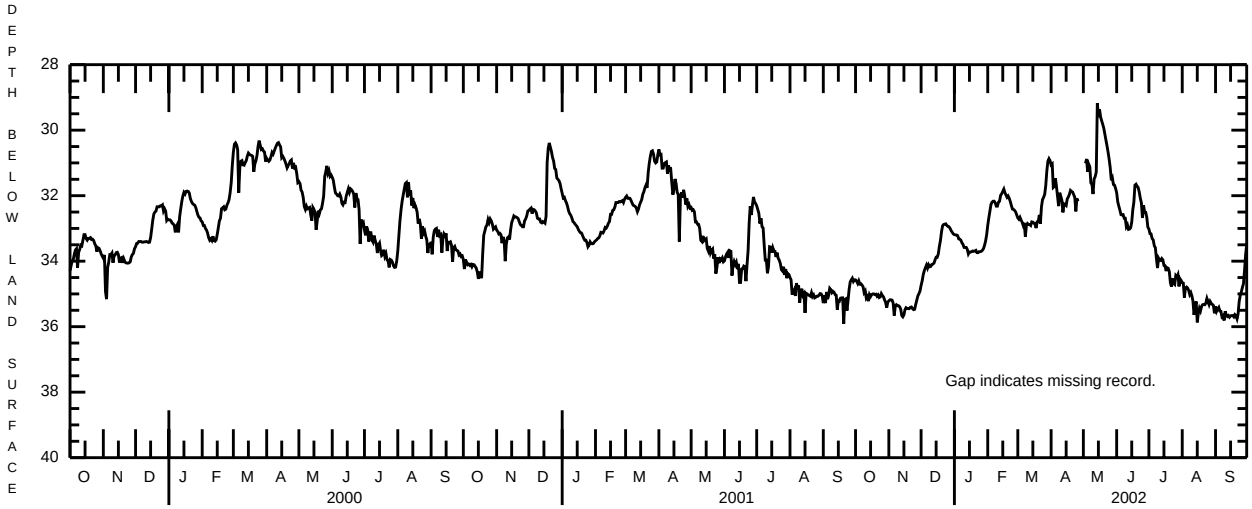
LUZERNE COUNTY

411756076162701. Local number, LU 294.

LOCATION.--Lat 41°17'56", long 76°16'27", Hydrologic Unit 02050107, at Ricketts Glen Park, and near Red Rock.
Owner: Commonwealth of Pennsylvania.
AQUIFER.--Catskill Formation, Late Devonian age.
WELL CHARACTERISTICS.--Drilled unused observation well, diameter 6 in., depth 167 ft, cased to 40 ft, open hole.
INSTRUMENTATION.--Electronic data logger with 60-minute recording interval. Landline telemetry at station.
DATUM.--Elevation of land surface is 1,245 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.7 ft above land-surface datum; 2.8 ft above land-surface datum since April 19, 1999.
REMARKS.--Well levels affected by nearby intermittent pumpage. In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since April 1999, are also available from the District Office.
PERIOD OF RECORD.--November 1994 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 28.72 ft below land-surface datum, May 14, 2002; lowest, 38.20 ft below land-surface datum, Oct. 18, 19, 1998.
EXTREMES FOR CURRENT YEAR.--Highest water level, 28.72 ft below land-surface datum, May 14; lowest, 35.87 ft below land-surface datum, Aug. 15.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34.57	35.21	34.74	33.19	32.91	32.68	31.06	---	31.91	33.02	34.66	35.38
2	34.61	35.18	34.60	33.20	32.68	32.72	31.03	---	32.19	33.16	34.67	35.53
3	34.68	35.18	34.41	33.20	32.48	32.66	31.75	31.01	32.32	33.17	35.11	35.46
4	34.60	35.19	34.29	33.22	32.27	32.74	31.72	30.88	32.44	33.31	34.82	35.41
5	34.70	35.28	34.20	33.32	32.20	32.81	31.47	31.27	32.58	33.35	34.79	35.52
6	34.69	35.66	34.12	33.33	32.17	32.91	31.73	31.04	32.59	33.53	34.82	35.53
7	34.73	35.37	34.21	33.36	32.17	32.83	32.03	31.12	32.58	33.59	34.89	35.70
8	34.78	35.33	34.11	33.44	32.22	33.25	32.32	31.61	32.69	33.92	35.02	35.67
9	34.96	35.36	34.17	33.49	32.32	32.92	31.91	31.66	32.69	34.21	34.96	35.81
10	34.91	35.36	34.16	33.58	32.32	32.85	32.02	31.95	32.95	33.91	35.06	35.53
11	35.13	35.39	34.10	33.58	32.20	32.88	32.14	31.49	32.89	33.97	35.22	35.65
12	35.08	35.46	34.09	33.58	32.17	32.88	32.51	31.42	33.03	33.98	35.64	35.69
13	35.22	35.66	34.06	33.64	31.99	32.91	32.25	31.28	33.02	33.92	35.37	35.66
14	35.02	35.70	33.96	33.78	31.94	32.80	32.27	29.18	32.98	33.96	35.23	35.71
15	35.08	35.64	33.88	33.72	31.87	32.81	32.30	29.60	32.81	34.13	35.87	35.67
16	35.02	35.48	33.88	33.72	31.80	32.84	32.10	29.36	32.43	34.14	35.59	35.66
17	35.00	35.42	33.78	33.71	31.91	32.86	32.04	29.59	32.20	34.30	35.44	35.66
18	35.00	35.44	33.55	33.69	31.98	32.99	31.96	29.71	31.68	34.20	35.52	35.70
19	35.02	35.45	33.37	33.70	32.05	32.80	31.84	29.82	31.65	34.22	35.38	35.63
20	35.01	35.45	33.10	33.69	32.01	32.79	31.87	29.94	31.71	34.32	35.33	35.66
21	35.07	35.41	32.92	33.67	32.08	32.59	31.89	30.12	31.75	34.66	35.32	35.76
22	35.03	35.40	32.88	33.74	32.18	32.86	31.97	30.30	31.89	34.78	35.33	35.61
23	35.11	35.45	32.87	33.74	32.30	32.34	32.05	30.48	32.08	34.53	35.28	35.23
24	35.09	35.48	32.86	33.71	32.41	32.12	32.48	30.67	32.22	34.68	35.14	35.05
25	34.99	35.47	32.91	33.71	32.42	32.05	32.09	30.89	32.68	34.71	35.24	34.94
26	35.05	35.32	32.94	33.70	32.45	31.96	32.17	31.15	32.29	34.44	35.33	34.80
27	35.09	35.19	32.95	33.67	32.50	31.69	---	31.53	32.51	34.48	35.23	34.69
28	35.18	35.06	33.00	33.62	32.59	31.25	---	31.46	32.51	34.41	35.29	34.28
29	35.26	34.99	33.07	33.52	---	30.95	---	31.66	32.66	34.77	35.32	33.80
30	35.42	34.91	33.12	33.39	---	30.87	---	31.68	32.96	34.54	35.35	33.50
31	35.25	---	33.17	33.20	---	30.93	---	31.78	---	34.59	35.59	---
MEAN	34.98	35.36	33.66	33.54	32.24	32.47	31.96	30.82	32.43	34.09	35.22	35.33
MAX	35.42	35.70	34.74	33.78	32.91	33.25	32.51	31.95	33.03	34.78	35.87	35.81
MIN	34.57	34.91	32.86	33.19	31.80	30.87	31.03	29.18	31.65	33.02	34.66	33.50



OCTOBER 1, 1999 TO SEPTEMBER 30, 2002

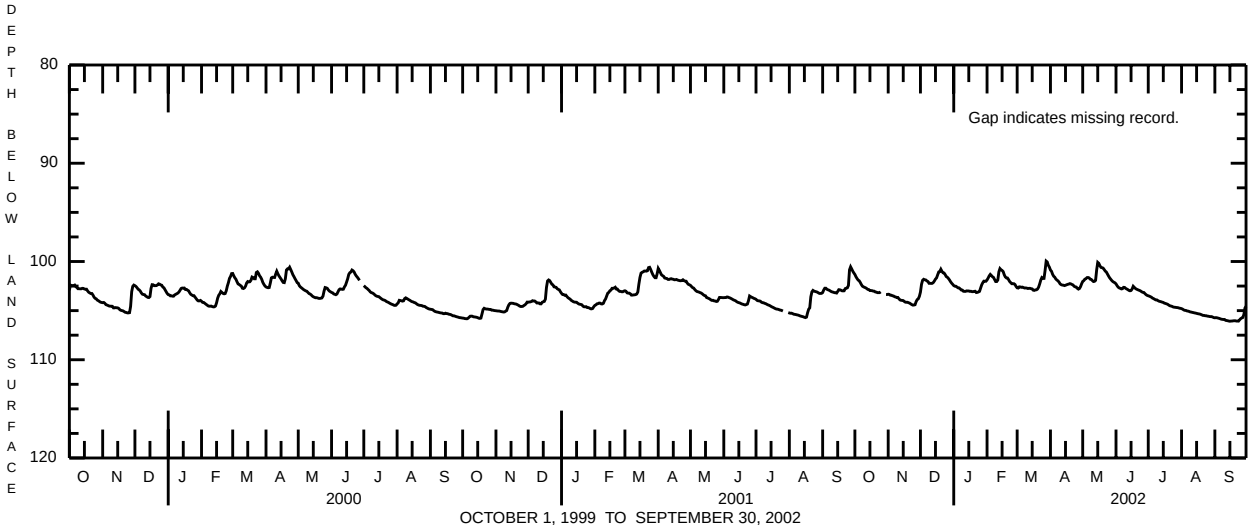
LYCOMING COUNTY

412427076594401. Local number, LY 112.

LOCATION.--Lat 41°24'27", long 76°59'44", Hydrologic Unit 02050206, at State Game Land No. 133, and near Trout Run.
Owner: U.S. Geological Survey.
AQUIFER.--Catskill Formation, Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 200 ft, cased to 23 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,400 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder shelf, 3.0 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. Water level was lowered when nearby well was drilled in Aug. 1999.
PERIOD OF RECORD.--October 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 76.10 ft below land-surface datum, June 23, l972; lowest recorded, 107.22 ft below land-surface datum, Sept. 6, 1999.
EXTREMES FOR CURRENT YEAR.--Highest water level, 99.79 ft below land-surface datum, Mar. 27; lowest, 106.08 ft below land-surface datum, Sept. 15.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	101.32	103.33	103.12	102.45	101.88	102.68	100.87	102.03	102.28	103.49	104.80	105.73
2	101.55	103.35	102.33	102.51	101.69	102.70	101.00	101.95	102.46	103.53	104.85	105.71
3	101.73	103.43	101.92	102.52	101.46	102.58	101.30	101.80	102.61	103.58	104.93	105.73
4	101.89	103.43	101.81	102.60	101.31	102.59	101.50	101.75	102.69	103.64	104.97	105.76
5	101.96	103.49	101.86	102.68	101.42	102.63	101.60	101.64	102.73	103.73	104.98	105.79
6	102.13	103.51	101.88	102.69	101.55	102.61	101.78	101.63	102.79	103.78	105.03	105.83
7	102.34	103.59	101.98	102.79	101.62	102.66	101.89	101.67	102.77	103.85	105.05	105.87
8	102.51	103.61	102.04	102.90	101.83	102.70	101.97	101.80	102.63	103.91	105.08	105.89
9	102.58	103.67	102.22	102.91	102.04	102.69	102.10	101.83	102.64	103.91	105.13	105.90
10	102.63	103.66	102.22	103.03	102.04	102.71	102.28	101.94	102.74	103.98	105.15	105.90
11	102.68	103.80	102.23	103.04	101.89	102.75	102.36	102.04	102.80	104.04	105.18	105.99
12	102.75	103.91	102.22	103.04	101.05	102.73	102.40	102.02	102.86	104.07	105.20	106.01
13	102.84	103.95	102.14	102.99	100.72	102.73	102.41	101.92	102.94	104.10	105.23	106.03
14	102.86	103.96	101.98	103.00	100.84	102.77	102.45	100.84	102.98	104.14	105.25	106.06
15	102.96	103.98	101.79	103.00	100.91	102.79	102.42	100.09	102.95	104.17	105.28	106.08
16	102.96	104.07	101.67	103.04	101.03	102.92	102.37	100.19	102.80	104.24	105.31	106.06
17	102.97	104.14	101.36	103.03	101.35	102.94	102.33	100.43	102.52	104.27	105.33	106.06
18	103.01	104.15	101.07	103.07	101.57	102.89	102.30	100.60	102.63	104.31	105.35	106.04
19	103.02	104.15	101.03	103.07	101.67	102.88	102.25	100.63	102.74	104.35	105.39	106.03
20	103.10	104.20	100.79	103.04	101.68	102.80	102.28	100.67	102.81	104.43	105.44	106.03
21	103.12	104.24	101.00	103.03	101.84	102.61	102.34	100.82	102.86	104.50	105.49	106.06
22	103.17	104.32	101.15	103.16	102.03	102.27	102.39	100.98	102.91	104.53	105.49	106.06
23	103.17	104.39	101.17	103.14	102.15	101.89	102.52	101.07	102.95	104.56	105.52	106.07
24	103.17	104.44	101.33	103.10	102.26	101.64	102.58	101.27	103.01	104.62	105.52	105.94
25	103.09	104.43	101.53	103.04	102.26	101.73	102.60	101.47	103.09	104.65	105.56	105.82
26	---	104.40	101.60	102.71	102.26	101.72	102.73	101.65	103.14	104.66	105.57	105.75
27	---	104.08	101.72	102.38	102.34	100.92	102.81	101.79	103.16	104.68	105.60	105.70
28	---	103.88	101.87	102.16	102.54	99.96	102.75	101.93	103.28	104.69	105.61	105.39
29	---	103.80	102.05	102.00	---	100.05	102.56	102.04	103.38	104.71	105.61	104.74
30	103.36	103.55	102.20	102.01	---	100.38	102.27	102.11	103.45	104.75	105.66	104.56
31	103.36	---	102.32	102.01	---	100.58	---	102.17	---	104.77	105.71	---
MEAN	102.68	103.90	101.79	102.78	101.69	102.21	102.18	101.44	102.85	104.21	105.30	105.82
MAX	103.36	104.44	103.12	103.16	102.54	102.94	102.81	102.17	103.45	104.77	105.71	106.08
MIN	101.32	103.33	100.79	102.00	100.72	99.96	100.87	100.09	102.28	103.49	104.80	104.56



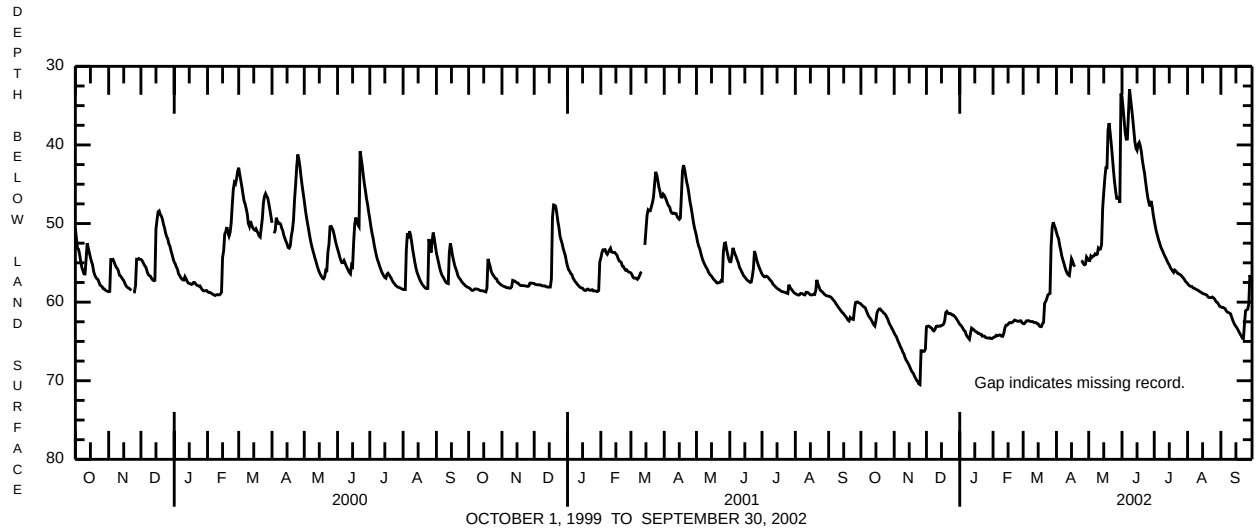
MIFFLIN COUNTY

404140077354001. Local number, MF 344.

LOCATION.--Lat 40°41'40", long 77°35'48", Hydrologic Unit 02050304, at Roseann.
Owner: Privately owned.
AQUIFER.--Bellefonte Formation, Early-Middle Ordovician age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 200 ft, cased to 42 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 800 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of shelter platform, 2.92 ft above land-surface datum. Prior to July 1998, measuring point was 1.0 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since August 1998, are also available from the District Office.
PERIOD OF RECORD.--September 1983 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 13.54 ft below land-surface datum, Apr. 28, 1993; lowest, 77.13 ft below land-surface datum, Oct. 11, 1983.
EXTREMES FOR CURRENT YEAR.--Highest water level, 31.70 ft below land-surface datum, May 30; lowest, 70.50 ft below land-surface datum, Nov. 25.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60.23	63.92	63.13	62.83	64.53	62.74	51.13	54.71	33.85	49.63	57.64	60.60
2	60.40	64.20	63.06	62.95	64.45	62.75	51.60	54.72	35.33	50.36	57.82	60.67
3	60.50	64.37	63.04	63.12	64.41	62.59	51.93	54.14	36.87	51.03	57.93	60.67
4	60.64	64.77	63.13	63.37	64.22	62.38	52.80	54.30	38.50	51.55	57.99	60.76
5	60.70	65.08	63.23	63.61	64.29	62.39	53.41	54.17	39.27	52.06	58.01	60.84
6	61.06	65.39	63.33	63.71	64.24	62.35	54.14	54.09	39.25	52.47	58.18	61.11
7	61.39	65.73	63.58	64.14	64.17	62.42	54.65	53.86	36.02	52.95	58.23	61.26
8	61.73	65.99	63.66	64.38	64.20	62.47	55.09	53.97	32.90	53.26	58.29	61.32
9	61.92	66.37	63.47	64.56	64.35	62.47	55.59	53.90	34.16	53.55	58.37	61.39
10	62.11	66.58	63.10	64.73	64.35	62.48	56.03	53.11	35.40	53.89	58.45	61.49
11	62.35	67.02	63.04	63.97	63.97	62.58	56.34	53.25	36.70	54.19	58.50	61.90
12	62.62	67.34	63.08	63.30	63.27	62.60	56.53	53.24	38.17	54.45	58.64	62.29
13	62.88	67.57	63.04	63.40	62.94	62.60	56.63	52.67	39.61	54.77	58.70	62.61
14	63.04	67.82	63.06	63.50	62.94	62.73	55.53	48.01	40.43	55.05	58.79	62.91
15	62.37	68.07	62.97	63.64	62.82	62.77	54.47	46.06	40.69	55.27	58.90	63.08
16	61.38	68.40	62.92	63.77	62.63	63.01	54.78	44.27	39.91	55.60	58.95	63.30
17	61.05	68.72	62.79	63.81	62.60	63.12	55.24	42.91	39.68	55.81	58.98	63.55
18	60.87	68.94	62.35	63.97	62.64	63.12	55.49	42.91	40.12	56.03	59.04	63.81
19	60.87	69.10	61.32	63.97	62.57	62.75	---	38.09	40.86	56.21	59.12	64.08
20	61.06	69.46	61.19	64.08	62.44	62.58	---	37.23	41.99	55.92	59.33	64.29
21	61.18	69.71	61.39	64.10	62.28	60.14	---	38.50	42.85	56.04	59.40	64.60
22	61.35	69.97	61.49	64.33	62.34	59.91	---	39.90	43.63	56.17	59.43	64.67
23	61.47	70.13	61.44	64.32	62.38	59.56	---	41.42	44.74	56.37	59.42	62.69
24	61.62	70.42	61.50	64.32	62.44	59.09	54.73	43.16	45.81	56.41	59.35	61.10
25	61.90	70.50	61.63	64.49	62.44	58.97	54.80	44.64	46.69	56.50	59.45	60.99
26	62.16	66.18	61.64	64.54	62.37	58.90	55.10	45.78	47.37	56.60	59.57	60.90
27	62.55	66.18	61.79	64.57	62.38	52.91	55.25	46.79	47.81	56.76	59.81	60.20
28	62.87	66.27	61.93	64.57	62.62	50.50	55.18	46.82	47.13	56.92	60.00	56.56
29	63.09	66.25	62.14	64.54	---	49.83	54.25	46.74	47.78	57.10	60.07	57.05
30	63.39	66.00	62.36	64.63	---	50.24	54.45	47.36	48.82	57.34	60.33	57.39
31	63.63	---	62.59	64.64	---	50.62	---	33.46	---	57.49	60.54	---
MEAN	61.75	67.22	62.53	64.00	63.26	60.12	54.61	47.55	40.74	54.77	58.94	61.60
MAX	63.63	70.50	63.66	64.73	64.53	63.12	56.63	54.72	48.82	57.49	60.54	64.67
MIN	60.23	63.92	61.19	62.83	62.28	49.83	51.13	33.46	32.90	49.63	57.64	56.56



MONTOUR COUNTY

405738076343501. Local number, MT 256.

LOCATION.--Lat 40°57'38", long 76°34'35", Hydrologic Unit 02050106, at Danville.
Owner: U.S. Geological Survey.
AQUIFER.--Hamilton Group.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 121 ft, cased to 25 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 540 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.80 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels, are also available from the District Office.
PERIOD OF RECORD.--September 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 12.26 ft below land-surface datum, May 18, 19, 2002; lowest, 15.89 ft below land-surface datum, Sept. 14, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level, 12.26 ft below land-surface datum, May 18, 19; lowest, 15.89 ft below land-surface datum, Sept. 14.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), **WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001**
MEAN VALUES

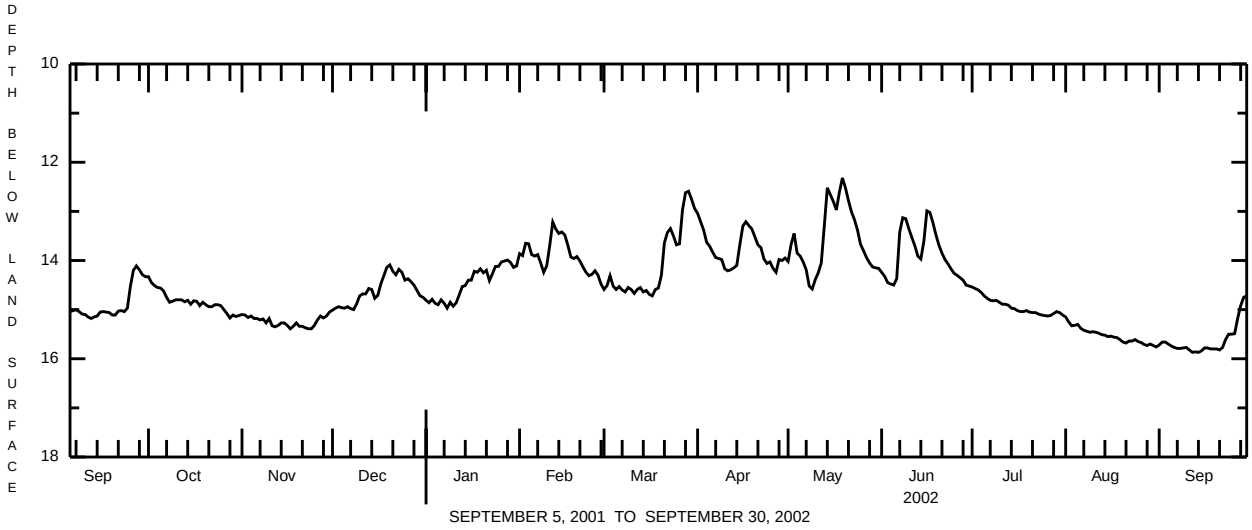
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	15.04
6	---	---	---	---	---	---	---	---	---	---	---	15.02
7	---	---	---	---	---	---	---	---	---	---	---	15.00
8	---	---	---	---	---	---	---	---	---	---	---	15.04
9	---	---	---	---	---	---	---	---	---	---	---	15.09
10	---	---	---	---	---	---	---	---	---	---	---	15.10
11	---	---	---	---	---	---	---	---	---	---	---	15.15
12	---	---	---	---	---	---	---	---	---	---	---	15.18
13	---	---	---	---	---	---	---	---	---	---	---	15.15
14	---	---	---	---	---	---	---	---	---	---	---	15.13
15	---	---	---	---	---	---	---	---	---	---	---	15.05
16	---	---	---	---	---	---	---	---	---	---	---	15.04
17	---	---	---	---	---	---	---	---	---	---	---	15.05
18	---	---	---	---	---	---	---	---	---	---	---	15.06
19	---	---	---	---	---	---	---	---	---	---	---	15.11
20	---	---	---	---	---	---	---	---	---	---	---	15.11
21	---	---	---	---	---	---	---	---	---	---	---	15.03
22	---	---	---	---	---	---	---	---	---	---	---	15.02
23	---	---	---	---	---	---	---	---	---	---	---	15.04
24	---	---	---	---	---	---	---	---	---	---	---	14.97
25	---	---	---	---	---	---	---	---	---	---	---	14.53
26	---	---	---	---	---	---	---	---	---	---	---	14.20
27	---	---	---	---	---	---	---	---	---	---	---	14.11
28	---	---	---	---	---	---	---	---	---	---	---	14.19
29	---	---	---	---	---	---	---	---	---	---	---	14.29
30	---	---	---	---	---	---	---	---	---	---	---	14.33
31	---	---	---	---	---	---	---	---	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	14.89
MAX	---	---	---	---	---	---	---	---	---	---	---	15.18
MIN	---	---	---	---	---	---	---	---	---	---	---	14.11

MONTOUR COUNTY

405738076343501. Local number, MT 256--Continued.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), **WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002**
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.33	15.10	15.01	14.81	13.86	14.59	13.04	14.02	14.24	14.54	15.15	15.72
2	14.45	15.11	14.97	14.86	13.90	14.51	13.21	13.67	14.32	14.57	15.25	15.66
3	14.51	15.16	14.94	14.79	13.65	14.31	13.38	13.45	14.45	14.60	15.33	15.66
4	14.55	15.13	14.96	14.87	13.66	14.52	13.63	13.85	14.48	14.65	15.32	15.70
5	14.56	15.18	14.97	14.90	13.88	14.59	13.71	13.91	14.50	14.72	15.30	15.74
6	14.62	15.18	14.94	14.80	13.91	14.53	13.83	14.03	14.37	14.77	15.38	15.77
7	14.75	15.21	14.98	14.87	13.88	14.60	13.94	14.19	13.42	14.81	15.42	15.79
8	14.85	15.19	15.00	14.97	14.05	14.64	13.96	14.52	13.13	14.82	15.44	15.79
9	14.83	15.27	14.88	14.85	14.24	14.55	13.98	14.58	13.15	14.81	15.46	15.78
10	14.80	15.18	14.72	14.93	14.11	14.59	14.17	14.39	13.35	14.85	15.45	15.77
11	14.80	15.33	14.68	14.86	13.69	14.67	14.21	14.25	13.53	14.89	15.46	15.82
12	14.80	15.35	14.68	14.70	13.22	14.59	14.19	14.05	13.70	14.89	15.48	15.87
13	14.84	15.32	14.57	14.53	13.36	14.55	14.15	13.30	13.91	14.91	15.51	15.86
14	14.81	15.27	14.59	14.51	13.45	14.64	14.10	12.52	13.97	14.97	15.52	15.87
15	14.89	15.27	14.77	14.40	13.42	14.61	13.68	12.66	13.61	14.98	15.55	15.84
16	14.82	15.32	14.71	14.40	13.48	14.69	13.30	12.80	12.99	15.02	15.54	15.78
17	14.83	15.39	14.48	14.22	13.69	14.72	13.21	12.97	13.02	15.04	15.56	15.78
18	14.92	15.34	14.31	14.24	13.93	14.59	13.29	12.61	13.23	15.04	15.57	15.80
19	14.85	15.27	14.14	14.17	13.96	14.56	13.36	12.32	13.48	15.02	15.61	15.80
20	14.90	15.34	14.09	14.25	13.92	14.30	13.52	12.52	13.69	15.05	15.66	15.80
21	14.94	15.34	14.22	14.20	14.01	13.64	13.68	12.78	13.85	15.06	15.68	15.82
22	14.94	15.37	14.29	14.41	14.13	13.43	13.74	13.01	13.98	15.06	15.64	15.77
23	14.90	15.39	14.18	14.27	14.24	13.35	13.97	13.17	14.07	15.09	15.64	15.61
24	14.90	15.39	14.24	14.12	14.31	13.50	14.06	13.38	14.17	15.11	15.61	15.50
25	14.92	15.32	14.40	14.12	14.28	13.68	14.03	13.67	14.26	15.12	15.65	15.50
26	15.00	15.21	14.37	14.03	14.21	13.66	14.16	13.80	14.30	15.13	15.67	15.49
27	15.08	15.13	14.43	14.01	14.30	12.97	14.24	13.94	14.35	15.12	15.71	15.18
28	15.17	15.17	14.50	13.99	14.48	12.62	13.98	14.05	14.40	15.08	15.73	14.92
29	15.11	15.13	14.61	14.04	---	12.59	14.00	14.13	14.50	15.04	15.70	14.75
30	15.14	15.05	14.72	14.14	---	12.75	13.95	14.15	14.52	15.06	15.73	14.72
31	15.12	---	14.75	14.11	---	12.94	---	14.16	---	15.11	15.76	---
MEAN	14.84	15.25	14.62	14.46	13.90	14.08	13.79	13.58	13.90	14.93	15.53	15.63
MAX	15.17	15.39	15.01	14.97	14.48	14.72	14.24	14.58	14.52	15.13	15.76	15.87
MIN	14.33	15.05	14.09	13.99	13.22	12.59	13.04	12.32	12.99	14.54	15.15	14.72



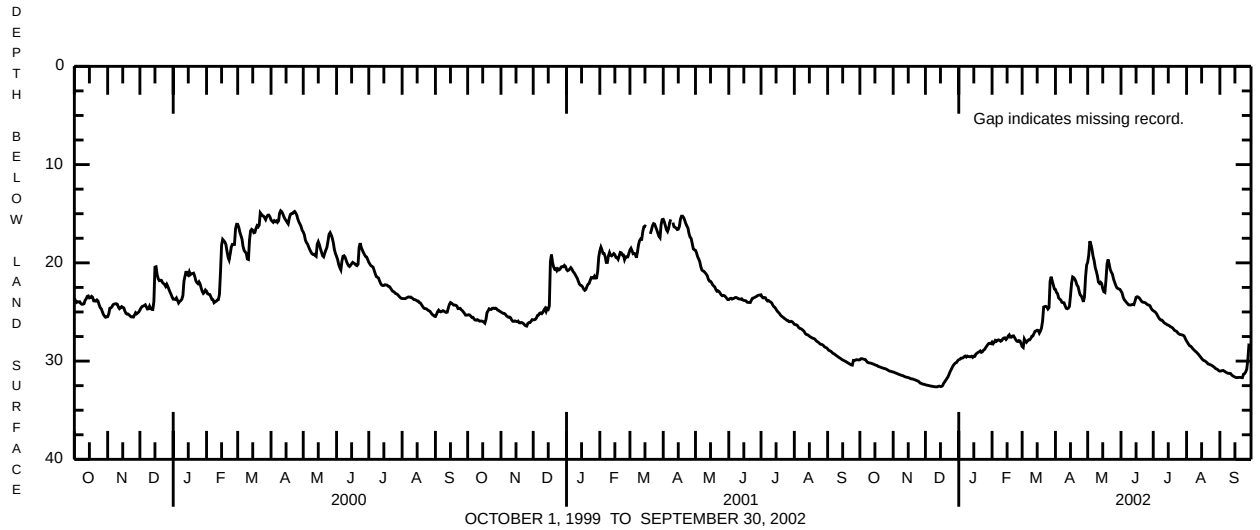
NORTHUMBERLAND COUNTY

404239076362001. Local number, NU 567.

LOCATION.--Lat 40°42'39", long 76°36'20", Hydrologic Unit 02050301, at 0.3 mi southwest of intersection T371 and T488, 1.2 mi east of Leck Kill. Owner: Privately owned.
AQUIFER.--Catskill Formation, Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 156 ft, cased to 23.5 ft.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 946.47 ft above National Geodetic Vertical Datum of 1929, from survey. Measuring point: Top of metal shelf, 3.25 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily minimum and maximum water levels since Mar. 20, 2001 are also available from the District Office. Data from January 1, 1995 to March 16, 2001 collected by Agricultural Research Service (ARS). Well is part of the ground-water monitoring network within the ARS experimental watershed WE-38.
PERIOD OF RECORD.--January 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 14.70 ft below land-surface datum, Apr. 10, 2000; lowest, 32.65 ft below land-surface datum, Dec. 11, 12, 2001.
EXTREMES FOR CURRENT YEAR.--Highest water level, 17.61 ft below land-surface datum, May 3; lowest, 32.65 ft below land-surface datum, Dec. 11, 12.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.86	31.11	32.41	29.86	28.07	28.51	22.71	19.94	22.87	24.87	27.96	31.02
2	29.76	31.15	32.45	29.82	28.23	28.61	23.02	19.19	23.07	24.94	28.13	31.01
3	29.76	31.20	32.46	29.71	28.09	27.75	23.15	17.80	23.49	25.03	28.31	30.97
4	29.79	31.24	32.49	29.70	27.90	27.96	23.57	18.12	23.75	25.17	28.45	30.95
5	29.82	31.29	32.52	29.67	27.99	28.09	23.69	18.63	23.88	25.37	28.50	31.02
6	29.84	31.34	32.54	29.56	27.89	27.94	23.79	19.33	24.02	25.57	28.62	31.09
7	29.98	31.38	32.56	29.49	27.84	27.84	24.02	19.78	24.14	25.72	28.77	31.16
8	30.11	31.42	32.58	29.59	27.88	27.84	24.05	20.46	24.27	25.82	28.87	31.22
9	30.17	31.46	32.60	29.49	27.98	27.69	24.07	20.86	24.29	25.83	28.99	31.25
10	30.19	31.48	32.62	29.54	27.92	27.47	24.37	21.31	24.30	25.94	29.07	31.25
11	30.21	31.54	32.62	29.55	27.73	27.44	24.62	21.95	24.26	26.09	29.19	31.27
12	30.24	31.60	32.62	29.56	27.65	27.20	24.67	22.09	24.23	26.17	29.30	31.42
13	30.29	31.63	32.57	29.51	27.63	26.97	24.61	21.98	24.26	26.22	29.45	31.50
14	30.32	31.65	32.55	29.62	27.80	26.92	24.44	22.12	23.91	26.31	29.58	31.57
15	30.38	31.68	32.59	29.50	27.68	26.86	23.34	22.64	23.51	26.34	29.73	31.63
16	30.42	31.72	32.58	29.51	27.45	26.89	22.08	22.94	23.45	26.41	29.86	31.67
17	30.45	31.78	32.50	29.28	27.33	27.15	21.44	23.01	23.48	26.50	29.94	31.68
18	30.54	31.81	32.25	29.20	27.57	26.95	21.51	21.74	23.58	26.55	29.98	31.67
19	30.57	31.82	32.10	29.11	27.57	26.64	21.66	20.11	23.73	26.62	30.06	31.66
20	30.61	31.86	31.93	29.06	27.45	25.94	21.90	19.66	23.90	26.76	30.15	31.66
21	30.66	31.90	31.77	28.97	27.43	24.50	22.27	20.13	23.99	26.89	30.29	31.68
22	30.70	31.94	31.60	29.11	27.61	24.45	22.41	20.69	24.02	26.94	30.32	31.69
23	30.73	31.99	31.34	29.05	27.81	24.43	22.87	20.95	24.04	27.00	30.37	31.33
24	30.76	32.03	31.07	28.89	27.97	24.51	23.27	21.14	24.09	27.16	30.41	31.28
25	30.79	32.10	30.86	28.82	28.01	24.70	23.35	21.63	24.21	27.24	30.48	31.11
26	30.85	32.23	30.63	28.64	27.91	24.55	23.63	21.96	24.27	27.30	30.56	30.83
27	30.91	32.27	30.43	28.48	27.96	21.90	23.97	22.26	24.31	27.31	30.64	29.91
28	30.99	32.32	30.29	28.32	28.22	21.41	23.46	22.51	24.37	27.35	30.76	28.39
29	31.02	32.35	30.19	28.20	---	21.84	21.44	22.61	24.62	27.38	30.81	28.44
30	31.05	32.37	30.14	28.19	---	22.25	20.23	22.66	24.78	27.49	30.87	28.25
31	31.09	---	29.96	28.23	---	22.66	---	22.70	---	27.75	30.98	---
MEAN	30.41	31.72	31.87	29.20	27.81	26.00	23.12	21.06	23.97	26.39	29.66	30.99
MAX	31.09	32.37	32.62	29.86	28.23	28.61	24.67	23.01	24.78	27.75	30.98	31.69
MIN	29.76	31.11	29.96	28.19	27.33	21.41	20.23	17.80	22.87	24.87	27.96	28.25



PERRY COUNTY

402735077100901. Local number, PE 684.

LOCATION.--Lat 40°27'35", long 77°10'09", Hydrologic Unit 02050301, at Little Buffalo State Park.
Owner: U.S. Geological Survey.
AQUIFER.--Trimmers Rock.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 150 ft, cased to 18 ft.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 495 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of steel cover, 2.90 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels are also available from the District Office.
PERIOD OF RECORD.--September 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 10.05 ft below land-surface datum, May 19, 2002; lowest, 17.83 ft below land-surface datum, Nov. 24, 2001.
EXTREMES FOR CURRENT YEAR.--Highest water level, 10.05 ft below land-surface datum, May 19; lowest, 17.83 ft below land-surface datum, Nov. 24.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), **WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001**
MEAN VALUES

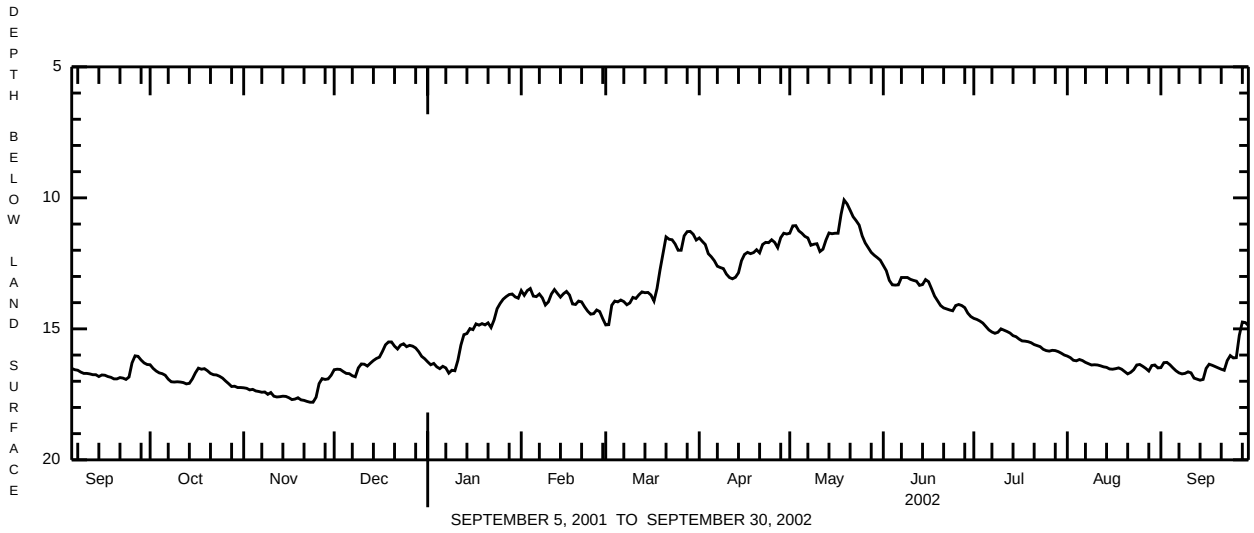
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	16.51
6	---	---	---	---	---	---	---	---	---	---	---	16.56
7	---	---	---	---	---	---	---	---	---	---	---	16.58
8	---	---	---	---	---	---	---	---	---	---	---	16.65
9	---	---	---	---	---	---	---	---	---	---	---	16.70
10	---	---	---	---	---	---	---	---	---	---	---	16.70
11	---	---	---	---	---	---	---	---	---	---	---	16.72
12	---	---	---	---	---	---	---	---	---	---	---	16.75
13	---	---	---	---	---	---	---	---	---	---	---	16.75
14	---	---	---	---	---	---	---	---	---	---	---	16.82
15	---	---	---	---	---	---	---	---	---	---	---	16.76
16	---	---	---	---	---	---	---	---	---	---	---	16.77
17	---	---	---	---	---	---	---	---	---	---	---	16.82
18	---	---	---	---	---	---	---	---	---	---	---	16.85
19	---	---	---	---	---	---	---	---	---	---	---	16.91
20	---	---	---	---	---	---	---	---	---	---	---	16.91
21	---	---	---	---	---	---	---	---	---	---	---	16.86
22	---	---	---	---	---	---	---	---	---	---	---	16.88
23	---	---	---	---	---	---	---	---	---	---	---	16.93
24	---	---	---	---	---	---	---	---	---	---	---	16.84
25	---	---	---	---	---	---	---	---	---	---	---	16.30
26	---	---	---	---	---	---	---	---	---	---	---	16.03
27	---	---	---	---	---	---	---	---	---	---	---	16.05
28	---	---	---	---	---	---	---	---	---	---	---	16.19
29	---	---	---	---	---	---	---	---	---	---	---	16.30
30	---	---	---	---	---	---	---	---	---	---	---	16.36
31	---	---	---	---	---	---	---	---	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	16.63
MAX	---	---	---	---	---	---	---	---	---	---	---	16.93
MIN	---	---	---	---	---	---	---	---	---	---	---	16.03

PERRY COUNTY

402735077100901. Local number, PE 684--Continued.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), **WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002**
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.37	17.25	16.56	16.26	13.54	14.85	11.53	11.35	12.58	14.60	16.04	16.48
2	16.51	17.27	16.54	16.37	13.72	14.84	11.66	11.07	12.78	14.64	16.10	16.29
3	16.61	17.33	16.55	16.32	13.54	14.10	11.78	11.06	13.15	14.70	16.20	16.28
4	16.68	17.31	16.63	16.45	13.46	13.94	12.13	11.26	13.32	14.78	16.22	16.37
5	16.71	17.37	16.70	16.52	13.75	13.97	12.25	11.35	13.33	14.91	16.17	16.49
6	16.77	17.39	16.71	16.43	13.77	13.90	12.40	11.47	13.32	15.04	16.21	16.60
7	16.92	17.42	16.79	16.49	13.67	13.96	12.61	11.53	13.04	15.12	16.28	16.68
8	17.02	17.41	16.83	16.69	13.82	14.08	12.66	11.81	13.04	15.17	16.33	16.72
9	17.03	17.50	16.49	16.58	14.09	14.01	12.70	11.77	13.04	15.13	16.38	16.70
10	17.02	17.43	16.34	16.60	13.97	13.80	12.91	11.75	13.11	15.00	16.37	16.64
11	17.03	17.57	16.35	16.20	13.67	13.84	13.04	12.05	13.15	15.05	16.38	16.68
12	17.05	17.60	16.42	15.62	13.50	13.70	13.09	11.96	13.18	15.10	16.41	16.88
13	17.10	17.59	16.31	15.22	13.65	13.59	13.03	11.61	13.34	15.16	16.45	16.92
14	17.08	17.57	16.21	15.18	13.79	13.62	12.86	11.34	13.31	15.26	16.47	16.96
15	16.91	17.58	16.13	14.99	13.66	13.61	12.40	11.37	13.12	15.30	16.53	16.93
16	16.68	17.63	16.08	15.03	13.57	13.71	12.16	11.35	13.20	15.39	16.54	16.51
17	16.50	17.70	15.86	14.81	13.71	13.94	12.08	11.35	13.47	15.46	16.52	16.35
18	16.54	17.68	15.61	14.86	14.05	13.46	12.13	10.63	13.75	15.47	16.49	16.39
19	16.52	17.63	15.50	14.80	14.07	12.75	12.09	10.08	13.93	15.49	16.54	16.44
20	16.60	17.71	15.50	14.85	13.94	12.12	11.98	10.23	14.11	15.53	16.63	16.49
21	16.70	17.73	15.66	14.77	13.97	11.49	12.10	10.47	14.20	15.60	16.72	16.54
22	16.75	17.77	15.77	14.95	14.16	11.58	11.78	10.72	14.24	15.64	16.66	16.58
23	16.76	17.80	15.62	14.66	14.32	11.60	11.70	10.87	14.28	15.68	16.56	16.21
24	16.81	17.80	15.57	14.23	14.44	11.76	11.71	11.04	14.31	15.78	16.38	16.02
25	16.88	17.61	15.68	14.03	14.42	12.00	11.60	11.45	14.11	15.83	16.36	16.11
26	16.99	17.09	15.63	13.87	14.28	12.00	11.70	11.72	14.07	15.85	16.43	16.10
27	17.09	16.90	15.66	13.77	14.34	11.45	11.90	11.90	14.11	15.82	16.51	15.25
28	17.20	16.93	15.73	13.69	14.61	11.29	11.52	12.08	14.19	15.83	16.61	14.74
29	17.19	16.91	15.87	13.67	---	11.28	11.35	12.19	14.40	15.87	16.40	14.76
30	17.24	16.77	16.05	13.78	---	11.39	11.38	12.28	14.53	15.93	16.38	14.87
31	17.24	---	16.14	13.83	---	11.61	---	12.38	---	16.00	16.49	---
MEAN	16.85	17.44	16.11	15.21	13.91	13.01	12.14	11.40	13.59	15.36	16.41	16.30
MAX	17.24	17.80	16.83	16.69	14.61	14.85	13.09	12.38	14.53	16.00	16.72	16.96
MIN	16.37	16.77	15.50	13.67	13.46	11.28	11.35	10.08	12.58	14.60	16.04	14.74



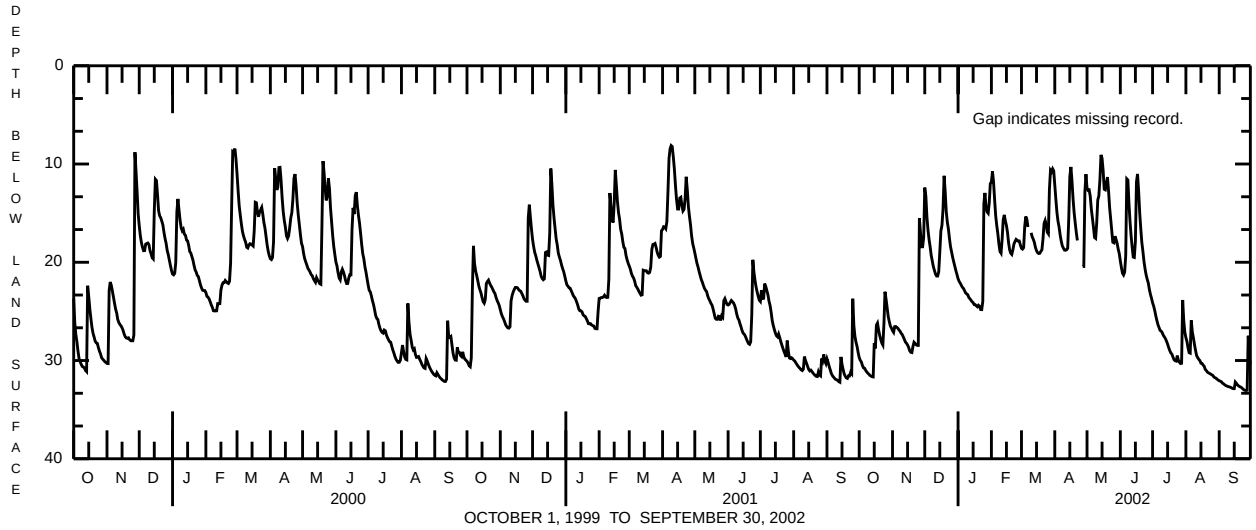
POTTER COUNTY

414640077493801. Local number, PO 72.

LOCATION.--Lat 41°46'40", long 77°49'38", Hydrologic Unit 02050205, at Denton Hill State Park, and near Walton.
Owner: U.S. Geological Survey.
AQUIFER.--Catskill Formation, Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 110 ft, cased to 21 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,810 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of metal shelf, 3.68 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.
PERIOD OF RECORD.--October 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 5.20 ft below land-surface datum, Mar. 23, 1968; lowest, 39.12 ft below land-surface datum, Dec. 11, 1987.
EXTREMES FOR CURRENT YEAR.--Highest water level, 8.72 ft below land-surface datum, May 14; lowest, 33.05 ft below land-surface datum, Sept. 26.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.70	26.96	12.40	21.67	11.84	18.58	12.15	12.47	19.87	24.12	27.69	32.06
2	29.98	27.13	13.26	21.95	10.76	18.66	13.61	12.68	20.54	24.46	28.06	32.10
3	30.15	26.55	15.38	22.12	11.81	18.51	14.94	12.64	21.12	24.91	28.71	32.16
4	30.51	26.54	16.71	22.34	13.64	16.38	15.83	13.28	21.29	25.45	29.20	32.30
5	30.75	26.62	17.67	22.54	15.27	15.34	16.41	14.57	21.00	25.93	29.25	32.37
6	30.79	26.72	18.43	22.66	16.26	15.63	17.24	15.50	19.34	26.35	25.92	32.46
7	31.00	26.89	19.31	22.88	17.10	16.41	17.85	16.44	11.51	26.64	27.10	32.54
8	31.16	27.01	19.87	23.12	18.14	---	18.33	17.48	11.63	26.93	27.70	32.59
9	31.29	27.23	20.45	23.22	18.90	---	18.56	17.57	13.97	27.01	28.38	32.64
10	31.39	27.35	20.83	23.30	19.07	17.00	18.76	16.00	15.83	27.17	28.98	32.67
11	31.52	27.59	21.21	23.58	17.63	17.42	18.78	13.66	17.29	27.43	29.50	32.70
12	31.59	27.85	21.40	23.71	15.68	17.66	18.73	13.25	18.46	27.61	29.71	32.75
13	31.65	28.12	21.40	23.86	15.18	17.99	18.58	11.56	19.47	27.78	29.88	32.82
14	31.67	28.24	20.97	24.01	15.80	18.50	15.55	9.07	19.51	28.04	30.00	32.86
15	28.23	28.43	18.96	24.11	16.26	18.82	11.28	9.42	17.86	28.33	30.27	32.86
16	28.77	28.67	16.80	24.31	16.96	19.02	10.30	10.70	11.82	28.69	30.30	32.19
17	26.39	29.01	16.24	24.32	18.01	19.11	11.72	12.57	11.01	28.99	30.46	32.32
18	26.19	29.16	14.59	24.44	18.74	19.09	13.54	12.63	12.69	29.22	30.58	32.49
19	26.87	29.19	11.20	24.53	19.08	18.90	14.97	11.96	14.95	29.36	30.90	32.57
20	27.42	28.57	12.81	24.38	19.20	18.74	15.99	11.33	16.56	29.66	31.02	32.66
21	27.85	28.14	14.84	24.48	18.72	17.65	16.95	12.67	17.98	29.92	31.17	32.70
22	28.21	28.26	15.93	24.81	18.14	16.08	17.78	14.39	18.90	30.02	31.26	32.78
23	28.42	28.40	16.62	24.82	17.88	15.76	---	15.59	19.92	30.06	31.31	32.89
24	26.29	28.46	17.60	23.99	17.67	16.25	---	16.77	20.67	29.50	31.38	32.98
25	23.00	28.46	18.43	14.03	17.76	16.93	---	17.96	21.28	29.97	31.45	33.04
26	23.78	15.52	18.97	12.94	17.85	17.10	---	18.02	21.73	30.18	31.51	33.05
27	24.64	16.94	19.52	14.32	17.84	12.58	20.43	17.35	22.10	30.31	31.66	33.03
28	25.53	18.42	19.98	14.87	18.25	10.63	20.43	17.67	22.75	30.28	31.75	27.48
29	26.04	18.42	20.43	15.01	---	10.79	12.86	18.06	23.27	23.84	31.80	29.73
30	26.50	17.45	20.87	13.96	---	10.49	11.03	18.66	23.66	25.95	31.90	30.40
31	26.69	---	21.26	11.98	---	10.70	---	19.12	---	27.10	31.98	---
MEAN	28.52	26.08	17.88	21.36	16.77	16.44	15.87	14.55	18.27	27.78	30.03	32.27
MAX	31.67	29.19	21.40	24.82	19.20	19.11	20.43	19.12	23.66	30.31	31.98	33.05
MIN	23.00	15.52	11.20	11.98	10.76	10.49	10.30	9.07	11.01	23.84	25.92	27.48



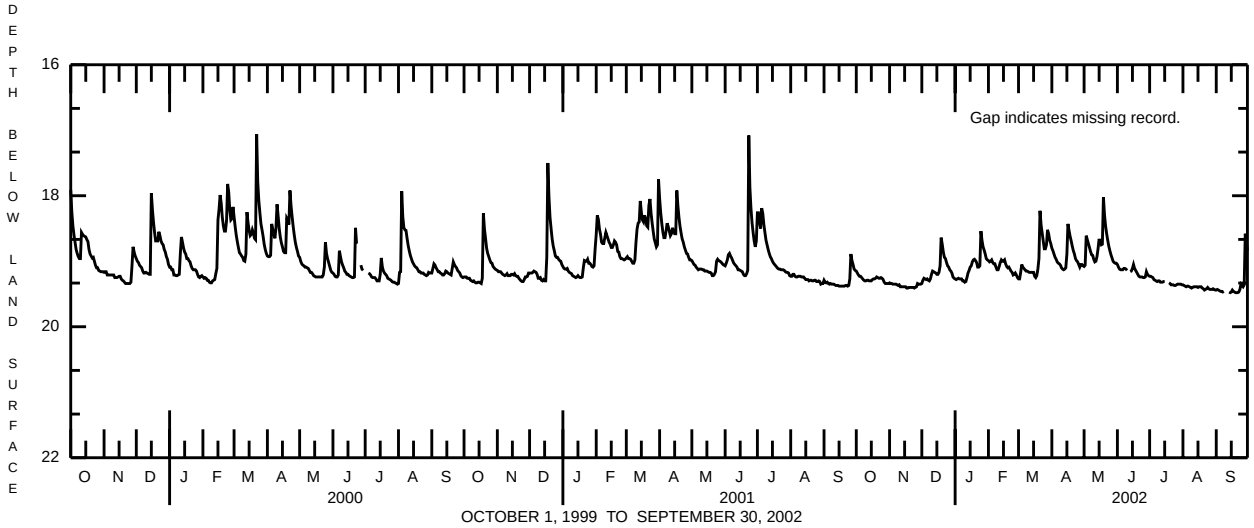
SNYDER COUNTY

403939076591001. Local number, SN 130.

LOCATION.--Lat 40°39'39", long 76°59'10", Hydrologic Unit 02050301, at State Game Land No. 194, and at Meiserville.
Owner: U.S. Geological Survey.
AQUIFER.--Irish Valley member of Catskill Formation, Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 100 ft, cased to 40 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 740 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of metal shelf, 3.47 ft above land-surface datum. Prior to July 3, 2000, measuring point was 3.55 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since October 1997, are also available from the District Office.
PERIOD OF RECORD.--June 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 11.51 ft below land-surface datum, Jan. 19, 1996 (may have been higher during period of no record, Jan. 1-18); lowest, 19.63 ft below land-surface datum, Jan. 1, 2, 1999.
EXTREMES FOR CURRENT YEAR.--Highest water level, 17.28 ft below land-surface datum, May 18, 19; lowest, 19.48 ft below land-surface datum, Sept. 14, 19-21.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.15	19.33	19.34	19.27	18.99	19.27	18.80	19.08	19.05	19.23	19.36	19.44
2	19.18	19.34	19.29	19.28	19.01	19.27	18.84	19.06	19.09	19.23	19.37	19.43
3	19.21	19.34	19.26	19.27	19.00	19.17	18.89	18.61	19.12	19.24	19.38	19.44
4	19.23	19.35	19.27	19.26	18.98	19.05	18.94	18.67	19.13	19.25	19.39	19.45
5	19.23	19.35	19.28	19.27	19.02	19.09	18.97	18.73	19.13	19.28	19.38	19.46
6	19.25	19.35	19.27	19.27	19.04	19.11	19.01	18.79	19.13	19.29	19.38	19.46
7	19.27	19.35	19.29	19.27	19.04	19.13	19.03	18.85	19.11	19.30	19.39	19.47
8	19.29	19.36	19.30	19.30	19.09	19.15	19.04	18.90	19.11	19.31	19.40	19.46
9	19.30	19.37	19.27	19.30	19.13	19.15	19.06	18.91	19.12	19.30	19.41	---
10	19.30	19.36	19.20	19.32	19.13	19.16	19.10	18.97	19.14	19.30	19.40	---
11	19.29	19.39	19.15	19.31	19.08	19.17	19.12	19.01	---	19.32	19.39	---
12	19.29	19.39	19.16	19.25	19.02	19.17	19.13	19.00	---	19.32	19.39	---
13	19.30	19.39	19.17	19.18	18.98	19.17	19.12	18.93	19.16	19.32	19.39	19.47
14	19.30	19.39	19.18	19.14	19.00	19.17	19.10	18.81	19.15	19.31	19.39	19.48
15	19.30	19.39	19.20	19.09	19.00	19.17	18.89	18.66	19.11	19.31	19.40	19.47
16	19.28	19.39	19.20	19.07	18.98	19.23	18.43	18.71	19.05	---	19.39	19.44
17	19.27	19.41	19.17	19.01	19.04	19.25	18.53	18.75	19.11	---	19.39	19.46
18	19.27	19.41	19.07	18.98	19.08	19.22	18.62	18.74	19.14	---	19.39	19.47
19	19.26	19.40	18.64	18.97	19.10	19.12	18.69	18.02	19.17	19.33	19.41	19.48
20	19.24	19.40	18.74	18.99	19.09	18.96	18.77	18.29	19.20	19.34	19.42	19.48
21	19.25	19.40	18.86	19.02	19.12	18.23	18.84	18.46	19.23	19.36	19.44	19.48
22	19.26	19.40	18.94	19.09	19.15	18.45	18.89	18.58	19.24	19.36	19.43	19.47
23	19.26	19.40	18.96	19.09	19.17	18.57	18.96	18.68	19.24	19.36	19.42	19.43
24	19.25	19.41	19.02	19.07	19.21	18.69	18.99	18.77	19.24	19.37	19.40	19.35
25	19.26	19.40	19.07	18.54	19.20	18.81	19.01	18.84	19.25	19.37	19.42	19.37
26	19.28	19.39	19.09	18.68	19.18	18.81	19.05	18.90	19.25	19.36	19.43	19.39
27	19.32	19.34	19.13	18.78	19.21	18.75	19.09	18.95	19.24	19.35	19.43	19.36
28	19.34	19.35	19.15	18.83	19.25	18.52	19.05	19.00	19.16	19.35	19.43	18.58
29	19.34	19.35	19.18	18.89	---	18.58	19.05	19.02	19.20	19.35	19.42	18.72
30	19.34	19.35	19.24	18.96	---	18.68	19.07	19.03	19.22	19.35	19.43	18.84
31	19.34	---	19.26	18.98	---	18.73	---	19.03	---	19.36	19.44	---
MEAN	19.27	19.38	19.14	19.09	19.08	18.97	18.94	18.80	19.16	19.32	19.40	19.36
MAX	19.34	19.41	19.34	19.32	19.25	19.27	19.13	19.08	19.25	19.37	19.44	19.48
MIN	19.15	19.33	18.64	18.54	18.98	18.23	18.43	18.02	19.05	19.23	19.36	18.58



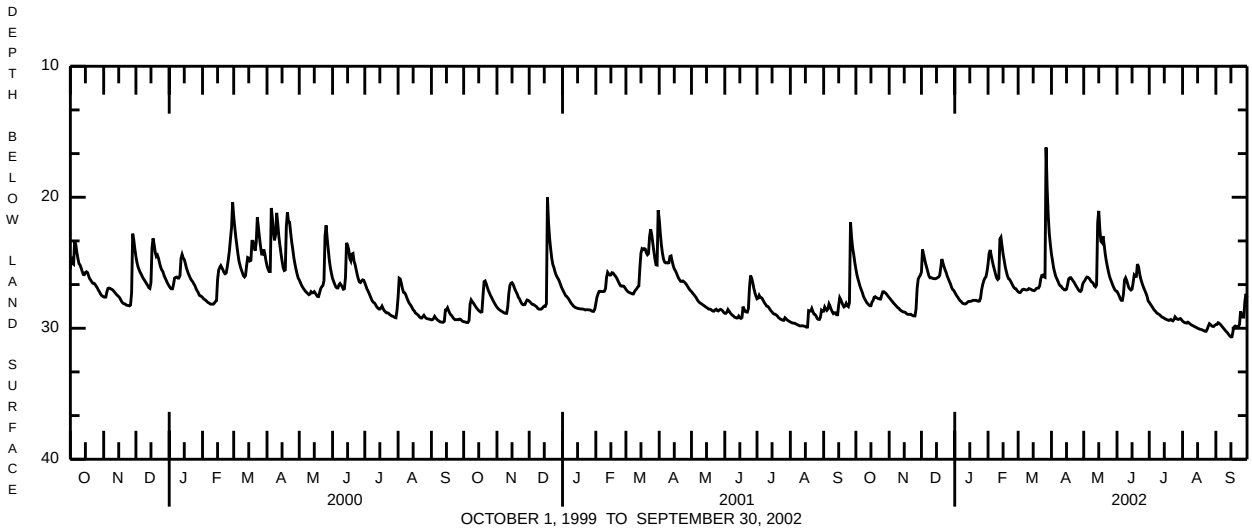
SULLIVAN COUNTY

413026076352901. Local number, SU 34.

LOCATION.--Lat 41°30'26", long 76°35'29", Hydrologic Unit 02050206, near Forksville.
Owner: U.S. Geological Survey.
AQUIFER.--Catskill Formation, Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 50 ft, cased to 34 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,060 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.7 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.
PERIOD OF RECORD.--April 1965 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 7.42 ft below land-surface datum, June 23, 1972; lowest, 31.12 ft below land-surface datum, Sept. 4, 1966.
EXTREMES FOR CURRENT YEAR.--Highest water level, 13.31 ft below land-surface datum, Mar. 27; lowest, 30.66 ft below land-surface datum, Sept. 15.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.49	27.66	25.71	27.25	25.10	27.22	24.35	26.47	27.19	28.02	29.45	29.72
2	25.93	27.76	23.99	27.41	24.29	27.27	24.85	26.37	27.34	28.15	29.52	29.71
3	26.25	27.87	24.34	27.54	24.03	27.27	25.38	26.20	27.53	28.27	29.57	29.58
4	26.55	27.97	24.75	27.65	24.47	27.16	25.74	26.09	27.75	28.40	29.59	29.62
5	26.84	28.07	25.10	27.79	24.88	27.05	26.04	26.12	27.87	28.54	29.61	29.69
6	27.06	28.16	25.39	27.90	25.24	27.02	26.22	26.18	27.87	28.64	29.54	29.79
7	27.27	28.25	25.71	27.96	25.56	27.04	26.41	26.30	27.39	28.73	29.60	29.89
8	27.55	28.34	26.01	28.07	25.88	27.07	26.61	26.44	26.32	28.83	29.67	29.99
9	27.73	28.43	26.15	28.12	26.16	27.08	26.75	26.49	26.15	28.89	29.73	30.09
10	27.87	28.48	26.14	28.14	26.28	27.05	26.79	26.59	26.35	28.93	29.78	30.19
11	28.03	28.59	26.17	28.14	26.20	26.97	26.92	26.77	26.64	29.00	29.82	30.28
12	28.12	28.65	26.21	28.09	23.20	27.00	27.00	26.84	26.90	29.09	29.87	30.37
13	28.22	28.71	26.21	28.00	23.06	27.03	27.07	26.70	27.01	29.15	29.91	30.49
14	28.28	28.75	26.22	27.95	23.72	27.09	27.07	21.92	27.08	29.19	29.95	30.59
15	28.28	28.76	26.19	27.95	24.34	27.11	27.02	21.04	27.01	29.24	30.00	30.66
16	28.00	28.79	26.13	27.94	24.82	27.13	26.67	22.42	26.53	29.29	30.03	30.65
17	27.89	28.88	26.09	27.91	25.31	27.06	26.25	23.36	25.94	29.33	30.07	30.20
18	27.63	28.93	25.95	27.87	25.67	26.96	26.15	23.46	26.04	29.36	30.09	29.90
19	27.59	28.94	25.39	27.87	25.99	26.94	26.14	22.97	26.04	29.40	30.11	29.83
20	27.65	28.94	24.72	27.87	26.21	26.93	26.25	23.60	25.10	29.38	30.16	29.86
21	27.70	28.93	25.01	27.87	26.27	26.77	26.37	24.31	25.30	29.33	30.19	29.91
22	27.74	28.99	25.29	27.92	26.41	26.24	26.49	24.85	25.80	29.40	30.23	29.91
23	27.77	29.04	25.54	27.93	26.57	25.97	26.63	25.27	26.20	29.44	30.23	29.69
24	27.77	29.06	25.74	27.92	26.74	25.94	26.78	25.68	26.48	29.33	30.06	28.71
25	27.48	29.06	26.02	27.70	26.88	26.07	26.91	26.03	26.73	29.13	29.83	28.95
26	27.22	28.53	26.22	27.08	26.97	26.11	27.05	26.27	26.94	29.23	29.65	29.15
27	27.21	26.95	26.42	26.67	26.99	16.20	27.16	26.48	27.14	29.30	29.72	29.15
28	27.28	26.24	26.61	26.38	27.12	19.37	27.19	26.71	27.34	29.33	29.81	27.95
29	27.34	26.08	26.86	26.18	---	21.42	27.09	26.89	27.57	29.29	29.86	27.37
30	27.45	25.94	27.03	26.08	---	22.79	26.65	27.06	27.92	29.26	29.86	27.65
31	27.56	---	27.11	25.69	---	23.64	---	27.16	---	29.35	29.77	---
MEAN	27.44	28.26	25.82	27.58	25.51	25.87	26.47	25.45	26.78	29.04	29.85	29.65
MAX	28.28	29.06	27.11	28.14	27.12	27.27	27.19	27.16	27.92	29.44	30.23	30.66
MIN	25.49	25.94	23.99	25.69	23.06	16.20	24.35	21.04	25.10	28.02	29.45	27.37



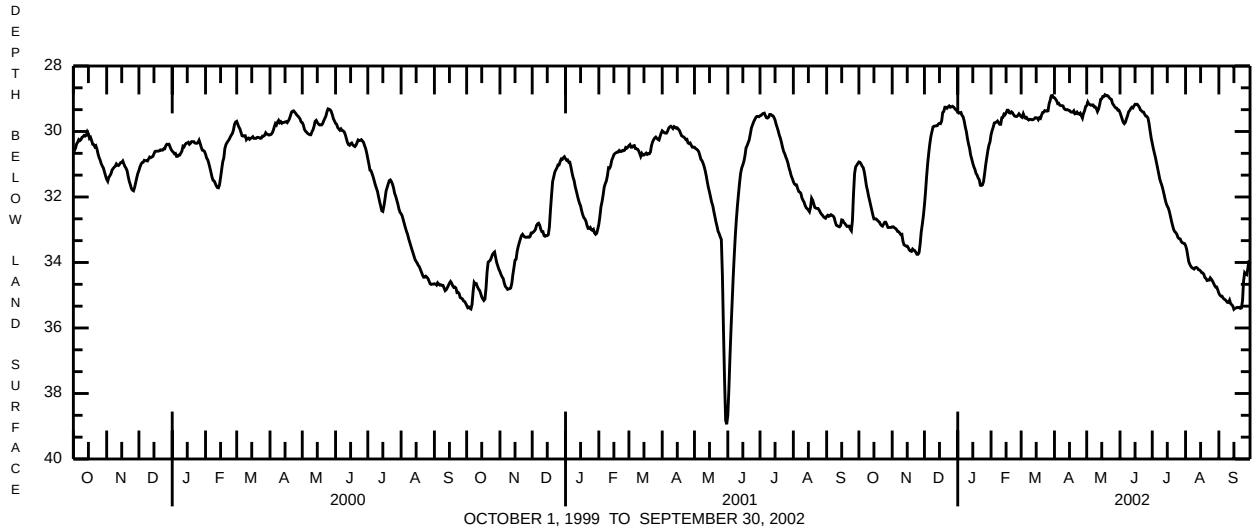
SUSQUEHANNA COUNTY

415323077451301. Local number, SQ 61.

LOCATION.--Lat 41°53'23", long 75°45'13", Hydrologic Unit 02050101, at State Game Land No. 175, and at New Milford.
Owner: U.S. Geological Survey.
AQUIFER.--Catskill Formation, Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 175 ft, cased to 80 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,270 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.0 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.
PERIOD OF RECORD.--July 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 21.49 ft below land-surface datum, Apr. 3, 1978; lowest, 38.94 ft below land-surface datum, May 31, 2001.
EXTREMES FOR CURRENT YEAR.--Highest water level, 28.75 ft below land-surface datum, Mar. 29, 30, May 18; lowest, 35.43 ft below land-surface datum, Sept. 15.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30.93	32.91	32.25	29.40	30.10	29.55	28.97	29.21	29.42	30.36	33.48	34.94
2	30.94	32.91	31.85	29.44	29.97	29.57	29.01	29.10	29.52	30.52	33.59	35.00
3	30.99	32.94	31.39	29.43	29.87	29.46	29.06	29.16	29.62	30.66	33.79	35.03
4	31.06	32.96	30.98	29.42	29.74	29.54	29.15	29.18	29.72	30.80	33.98	35.03
5	31.10	32.99	30.66	29.51	29.73	29.59	29.14	29.20	29.76	30.96	34.06	35.09
6	31.23	33.05	30.38	29.55	29.71	29.57	29.20	29.19	29.72	31.12	34.12	35.12
7	31.43	33.06	30.15	29.68	29.68	29.62	29.21	29.19	29.61	31.29	34.16	35.14
8	31.66	33.10	30.00	29.86	29.73	29.65	29.21	29.25	29.52	31.45	34.18	35.18
9	31.80	33.15	29.86	30.00	29.78	29.63	29.22	29.25	29.40	31.56	34.20	35.22
10	31.97	33.14	29.84	30.21	29.78	29.63	29.30	29.30	29.36	31.65	34.16	35.22
11	32.11	33.35	29.83	30.38	29.58	29.64	29.33	29.39	29.30	31.78	34.15	35.15
12	32.26	33.46	29.83	30.51	29.57	29.64	29.34	29.32	29.26	31.92	34.17	35.26
13	32.40	33.48	29.82	30.72	29.47	29.62	29.33	29.19	29.28	32.07	34.22	35.29
14	32.55	33.50	29.77	30.84	29.49	29.58	29.35	29.02	29.22	32.20	34.23	35.33
15	32.67	33.50	29.75	30.97	29.43	29.58	29.36	29.00	29.17	32.28	34.26	35.43
16	32.67	33.55	29.76	31.08	29.35	29.59	29.40	28.93	29.17	32.34	34.31	35.40
17	32.67	33.62	29.68	31.16	29.35	29.64	29.41	28.93	29.17	32.45	34.32	35.39
18	32.70	33.65	29.42	31.28	29.43	29.58	29.41	28.88	29.21	32.60	34.36	35.37
19	32.74	33.66	29.39	31.33	29.44	29.60	29.37	28.91	29.26	32.75	34.46	35.38
20	32.76	33.59	29.26	31.42	29.40	29.50	29.46	28.90	29.34	32.88	34.49	35.37
21	32.83	33.62	29.26	31.47	29.43	29.42	29.45	28.92	29.37	33.00	34.55	35.40
22	32.87	33.64	29.29	31.64	29.49	29.41	29.41	28.97	29.40	33.06	34.54	35.39
23	32.89	33.69	29.25	31.65	29.53	29.36	29.46	29.00	29.41	33.09	34.54	35.17
24	32.83	33.75	29.22	31.63	29.54	29.37	29.47	29.02	29.48	33.15	34.47	34.56
25	32.77	33.75	29.26	31.53	29.54	29.38	29.44	29.14	29.53	33.24	34.51	34.31
26	32.77	33.70	29.25	31.29	29.51	29.37	29.52	29.19	29.54	33.27	34.56	34.35
27	32.84	33.44	29.23	31.02	29.46	29.16	29.59	29.24	29.59	33.28	34.63	34.37
28	32.93	33.07	29.25	30.80	29.50	29.05	29.45	29.28	29.75	33.36	34.70	34.18
29	32.93	32.84	29.29	30.59	---	28.91	29.37	29.29	29.98	33.40	34.75	33.94
30	32.93	32.58	29.33	30.42	---	28.90	29.24	29.35	30.20	33.41	34.75	34.03
31	32.93	---	29.36	30.32	---	28.96	---	29.35	---	33.42	34.84	---
MEAN	32.26	33.32	29.87	30.60	29.59	29.45	29.32	29.14	29.48	32.24	34.31	35.00
MAX	32.93	33.75	32.25	31.65	30.10	29.65	29.59	29.39	30.20	33.42	34.84	35.43
MIN	30.93	32.58	29.22	29.40	29.35	28.90	28.97	28.88	29.17	30.36	33.48	33.94



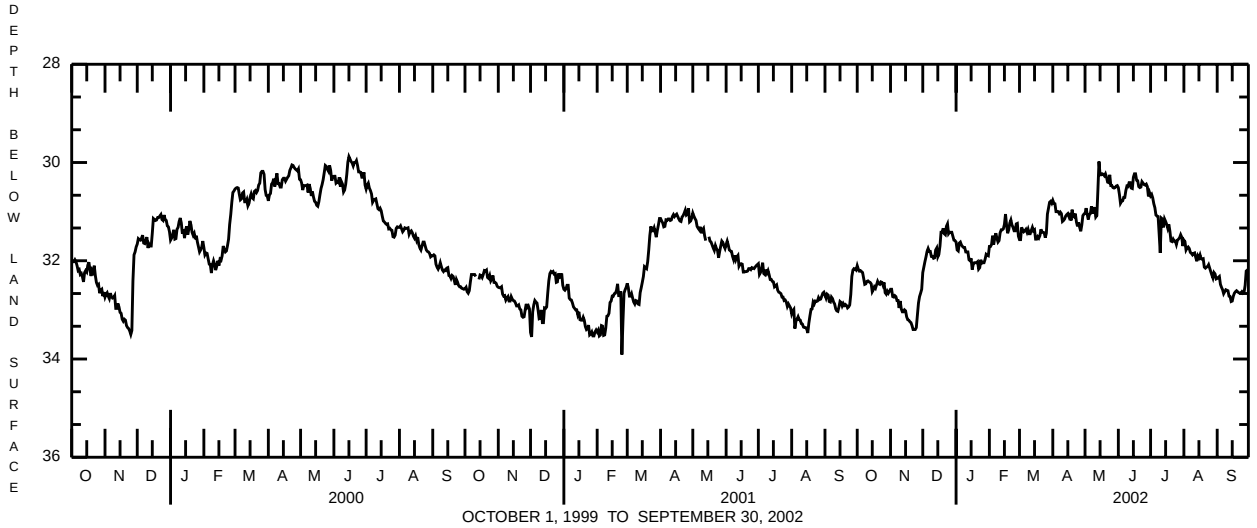
TIOGA COUNTY

414513077333701. Local number, TI 100.

LOCATION.--Lat 41°45'13", long 77°33'37", Hydrologic Unit 02050205, at State Game Land No. 208, and at Gaines.
Owner: U.S. Geological Survey.
AQUIFER.--Catskill Formation, Late Devonian age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 5 in., depth 77 ft, cased to 67 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,310 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 4.0 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since July 1999, are also available from the District Office.
PERIOD OF RECORD.--July 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 28.95 ft below land-surface datum, July 13, 1998; lowest, 35.88 ft below land-surface datum, Oct. 11, 1988.
EXTREMES FOR CURRENT YEAR.--Highest water level, 29.88 ft below land-surface datum, May 14; lowest, 33.40 ft below land-surface datum, Nov. 22-24.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32.10	32.58	32.24	31.62	31.71	31.57	30.77	31.04	30.51	30.68	31.58	32.36
2	32.17	32.58	32.13	31.78	31.71	31.57	30.83	30.93	30.65	30.65	31.61	32.34
3	32.21	32.73	32.02	31.80	31.67	31.32	30.84	31.05	30.83	30.72	31.78	32.32
4	32.20	32.74	31.92	31.64	31.49	31.37	31.00	31.16	30.79	30.84	31.74	32.48
5	32.22	32.71	31.81	31.62	31.67	31.41	31.00	31.06	30.78	30.92	31.72	32.54
6	32.24	32.73	31.75	31.68	31.54	31.39	31.00	31.04	30.71	31.07	31.75	32.59
7	32.36	32.81	31.81	31.71	31.44	31.36	31.04	30.89	30.71	31.09	31.83	32.67
8	32.48	32.81	31.81	31.73	31.54	31.42	31.01	31.04	30.57	31.10	31.85	32.63
9	32.47	32.96	31.91	31.73	31.62	31.36	31.04	30.98	30.48	31.46	31.88	32.59
10	32.42	32.82	31.91	31.82	31.59	31.45	31.20	30.91	30.49	31.84	31.85	32.60
11	32.41	32.98	31.95	31.82	31.43	31.45	31.18	31.11	30.41	31.13	31.84	32.61
12	32.43	33.04	31.94	31.82	31.37	31.38	31.15	31.08	30.41	31.15	31.93	32.72
13	32.44	33.04	31.78	31.98	31.37	31.32	31.09	30.55	30.52	31.32	32.01	32.73
14	32.47	33.00	31.74	32.00	31.35	31.39	31.06	29.98	30.53	31.15	31.90	32.83
15	32.63	33.02	31.92	31.95	31.26	31.37	31.04	30.25	30.30	31.20	31.94	32.82
16	32.59	33.14	31.87	32.18	31.05	31.56	31.10	30.25	30.23	31.26	31.88	32.72
17	32.53	33.20	31.70	32.07	31.28	31.56	31.03	30.23	30.23	31.34	31.96	32.66
18	32.56	33.21	31.42	32.04	31.44	31.51	31.18	30.24	30.36	31.26	31.97	32.63
19	32.49	33.24	31.42	32.04	31.37	31.54	30.96	30.27	30.37	31.40	31.96	32.61
20	32.42	33.26	31.34	32.04	31.23	31.49	31.10	30.23	30.49	31.60	32.13	32.63
21	32.47	33.32	31.45	32.02	31.17	31.36	31.11	30.30	30.51	31.61	32.15	32.65
22	32.48	33.40	31.47	32.17	31.27	31.42	31.04	30.40	30.50	31.56	32.13	32.66
23	32.43	33.40	31.30	32.14	31.32	31.42	31.21	30.41	30.39	31.60	32.12	32.66
24	32.44	33.40	31.25	31.98	31.39	31.43	31.30	30.25	30.42	31.60	32.08	32.63
25	32.50	33.36	31.45	32.05	31.39	31.53	31.22	30.47	30.45	31.67	32.15	32.66
26	32.44	33.11	31.42	32.04	31.25	31.44	31.32	30.47	30.46	31.58	32.22	32.64
27	32.65	32.86	31.42	32.04	31.24	31.05	31.40	30.51	30.44	31.56	32.29	32.50
28	32.68	32.73	31.42	31.97	31.50	30.93	31.27	30.52	30.49	31.53	32.35	32.21
29	32.62	32.66	31.50	31.87	---	30.81	31.08	30.51	30.69	31.47	32.24	32.19
30	32.66	32.58	31.58	31.89	---	30.79	31.05	30.48	30.61	31.52	32.27	32.19
31	32.62	---	31.59	31.90	---	30.83	---	30.47	---	31.70	32.37	---
MEAN	32.45	32.98	31.69	31.91	31.42	31.35	31.09	30.62	30.51	31.31	31.98	32.57
MAX	32.68	33.40	32.24	32.18	31.71	31.57	31.40	31.16	30.83	31.84	32.37	32.83
MIN	32.10	32.58	31.25	31.62	31.05	30.79	30.77	29.98	30.23	30.65	31.58	32.19



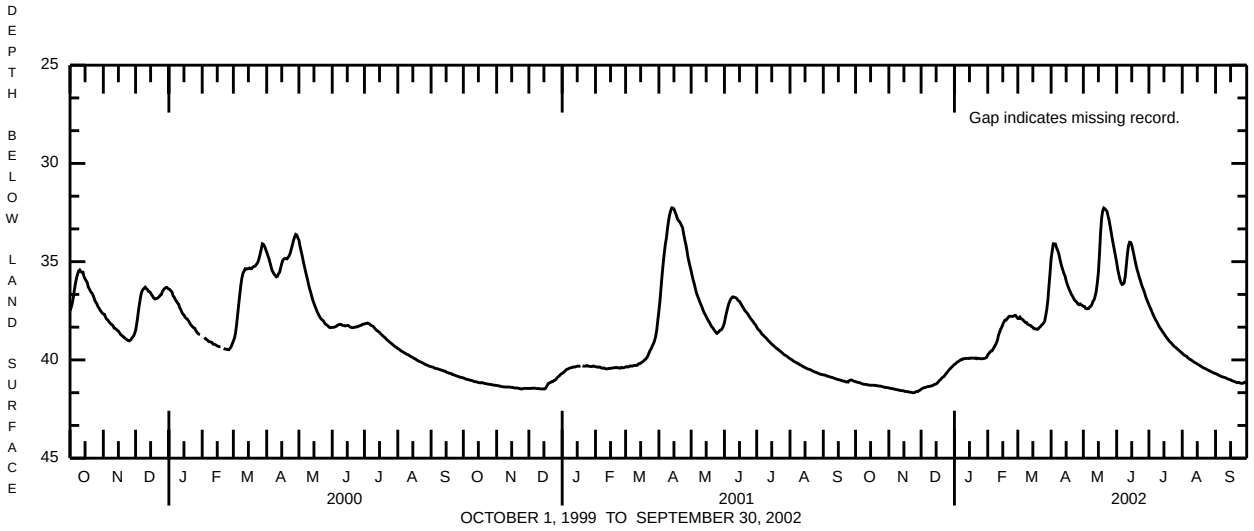
UNION COUNTY

405928077115501. Local number, UN 51.

LOCATION.--Lat 40°59'28", long 77°11'55", Hydrologic Unit 02050206, at Raymond B. Winter Park, and 5.5 mi east of Livonia. Owner: U.S. Geological Survey.
AQUIFER.--Reedsville Formation, Late Ordovician age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 115 ft, cased to 91 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,550 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder shelf, 3.5 ft above land-surface datum.
REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.
PERIOD OF RECORD.--October 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes shown were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.
Highest water level, 25.26 ft below land-surface datum, Apr. 10, 1978; lowest, 42.31 ft below land-surface datum, Jan. 18, 1999.
EXTREMES FOR CURRENT YEAR.--Highest water level, 32.21 ft below land-surface datum, May 20; lowest, 41.67 ft below land-surface datum, Nov. 23, 24.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41.10	41.43	41.49	40.23	39.74	37.89	34.85	37.27	35.04	37.19	39.66	40.70
2	41.13	41.44	41.46	40.20	39.68	37.89	34.46	37.28	35.39	37.32	39.72	40.72
3	41.14	41.45	41.43	40.14	39.61	37.82	34.09	37.38	35.66	37.44	39.76	40.75
4	41.15	41.46	41.41	40.10	39.55	37.90	34.09	37.40	35.89	37.58	39.79	40.78
5	41.16	41.47	41.40	40.07	39.54	37.93	34.10	37.39	36.07	37.71	39.81	40.81
6	41.19	41.48	41.38	40.03	39.45	37.97	34.29	37.38	36.16	37.82	39.88	40.83
7	41.21	41.50	41.36	39.99	39.35	38.04	34.41	37.29	36.14	37.94	39.92	40.86
8	41.23	41.51	41.35	39.99	39.25	38.09	34.57	37.27	36.06	38.03	39.97	40.87
9	41.24	41.52	41.35	39.94	39.15	38.09	34.82	37.17	35.74	38.13	39.99	40.89
10	41.24	41.53	41.33	39.94	39.00	38.18	35.07	37.01	35.17	38.25	40.03	40.90
11	41.25	41.55	41.31	39.93	38.75	38.21	35.27	36.94	34.61	38.34	40.07	40.93
12	41.26	41.56	41.30	39.92	38.60	38.23	35.44	36.75	34.19	38.42	40.11	40.96
13	41.28	41.56	41.26	39.92	38.44	38.25	35.62	36.50	34.01	38.51	40.14	40.98
14	41.28	41.57	41.24	39.93	38.34	38.31	35.74	36.07	34.02	38.59	40.17	41.00
15	41.29	41.58	41.22	39.91	38.20	38.34	35.97	35.55	34.16	38.66	40.21	41.01
16	41.29	41.60	41.18	39.92	38.07	38.41	36.15	34.60	34.39	38.75	40.24	41.05
17	41.29	41.61	41.12	39.90	37.98	38.42	36.30	33.54	34.65	38.83	40.27	41.07
18	41.29	41.61	41.05	39.91	37.98	38.42	36.43	32.79	34.92	38.90	40.31	41.09
19	41.29	41.62	41.01	39.91	37.91	38.45	36.56	32.41	35.17	38.97	40.34	41.11
20	41.31	41.64	40.94	39.92	37.84	38.42	36.68	32.27	35.40	39.04	40.38	41.13
21	41.31	41.64	40.89	39.90	37.78	38.35	36.76	32.31	35.58	39.10	40.41	41.16
22	41.32	41.65	40.86	39.94	37.78	38.31	36.88	32.37	35.79	39.15	40.43	41.15
23	41.33	41.67	40.79	39.92	37.78	38.23	36.97	32.44	35.95	39.22	40.46	41.15
24	41.33	41.67	40.71	39.92	37.79	38.19	37.02	32.68	36.14	39.28	40.49	41.18
25	41.35	41.66	40.65	39.94	37.77	38.12	37.07	32.91	36.30	39.33	40.52	41.19
26	41.36	41.62	40.58	39.94	37.73	38.02	37.16	33.22	36.43	39.37	40.54	41.19
27	41.38	41.60	40.51	39.94	37.74	37.74	37.19	33.54	36.58	39.42	40.58	41.18
28	41.39	41.61	40.45	39.93	37.82	37.42	37.15	33.87	36.78	39.47	40.60	41.14
29	41.40	41.56	40.39	39.92	---	36.95	37.20	34.16	36.93	39.51	40.63	41.16
30	41.41	41.54	40.34	39.90	---	36.23	37.23	34.45	37.06	39.57	40.66	41.18
31	41.41	---	40.28	39.87	---	35.57	---	34.75	---	39.61	40.68	---
MEAN	41.28	41.56	41.03	39.97	38.52	37.95	35.85	35.06	35.55	38.63	40.22	41.00
MAX	41.41	41.67	41.49	40.23	39.74	38.45	37.23	37.40	37.06	39.61	40.68	41.19
MIN	41.10	41.43	40.28	39.87	37.73	35.57	34.09	32.27	34.01	37.19	39.66	40.70



WYOMING COUNTY

412826076083301. Local number, WY 179.

LOCATION.--Lat 41°28'26", long 77°08'33", Hydrologic Unit 02050302, at State Game Land No. 57, and near Forkston.
Owner: Pennsylvania Game Commission.
AQUIFER.--Catskill Formation.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 122 ft, open hole.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 1,000 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.78 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels, are also available from the District Office.
PERIOD OF RECORD.--August 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 24.94 ft below land-surface datum, Sept. 30, 2002; lowest, 31.13 ft below land-surface datum, Aug. 25, 2001.
EXTREMES FOR CURRENT YEAR.--Highest water level, 24.94 ft below land-surface datum, Sept. 30; lowest, 31.12 ft below land-surface datum, Aug. 22.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), **WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001**
MEAN VALUES

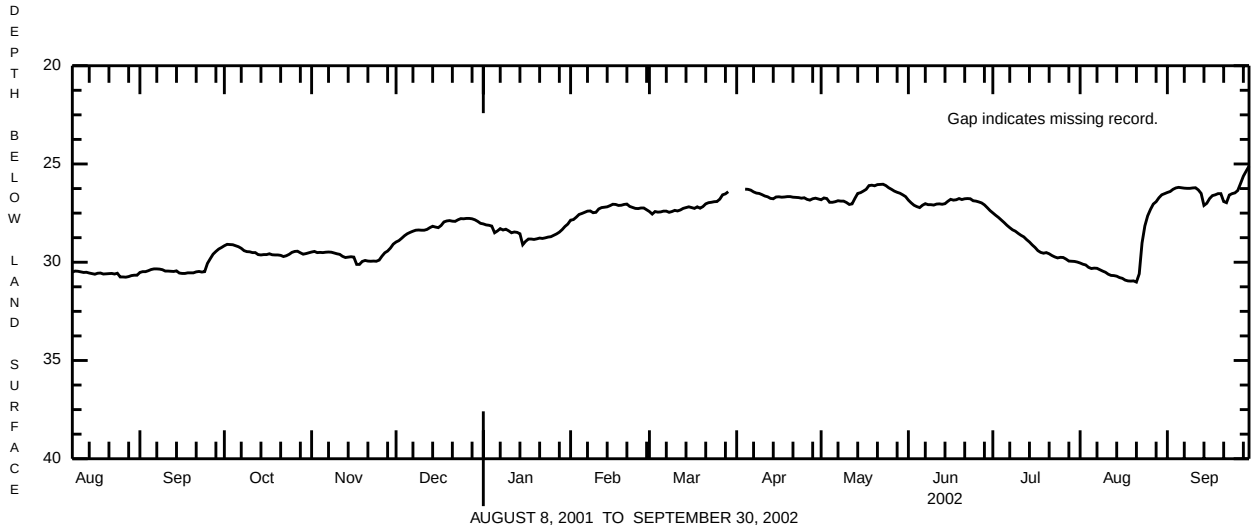
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	30.52
2	---	---	---	---	---	---	---	---	---	---	---	30.48
3	---	---	---	---	---	---	---	---	---	---	---	30.48
4	---	---	---	---	---	---	---	---	---	---	---	30.43
5	---	---	---	---	---	---	---	---	---	---	---	30.37
6	---	---	---	---	---	---	---	---	---	---	---	30.34
7	---	---	---	---	---	---	---	---	---	---	---	30.34
8	---	---	---	---	---	---	---	---	---	---	30.50	30.35
9	---	---	---	---	---	---	---	---	---	---	30.45	30.38
10	---	---	---	---	---	---	---	---	---	---	30.46	30.45
11	---	---	---	---	---	---	---	---	---	---	30.49	30.45
12	---	---	---	---	---	---	---	---	---	---	30.52	30.46
13	---	---	---	---	---	---	---	---	---	---	30.51	30.47
14	---	---	---	---	---	---	---	---	---	---	30.55	30.44
15	---	---	---	---	---	---	---	---	---	---	30.58	30.55
16	---	---	---	---	---	---	---	---	---	---	30.61	30.57
17	---	---	---	---	---	---	---	---	---	---	30.56	30.57
18	---	---	---	---	---	---	---	---	---	---	30.55	30.54
19	---	---	---	---	---	---	---	---	---	---	30.60	30.54
20	---	---	---	---	---	---	---	---	---	---	30.59	30.54
21	---	---	---	---	---	---	---	---	---	---	30.58	30.49
22	---	---	---	---	---	---	---	---	---	---	30.57	30.47
23	---	---	---	---	---	---	---	---	---	---	30.60	30.50
24	---	---	---	---	---	---	---	---	---	---	30.56	30.48
25	---	---	---	---	---	---	---	---	---	---	30.75	30.06
26	---	---	---	---	---	---	---	---	---	---	30.75	29.82
27	---	---	---	---	---	---	---	---	---	---	30.76	29.59
28	---	---	---	---	---	---	---	---	---	---	30.73	29.45
29	---	---	---	---	---	---	---	---	---	---	30.68	29.33
30	---	---	---	---	---	---	---	---	---	---	30.66	29.25
31	---	---	---	---	---	---	---	---	---	---	30.66	---
MEAN	---	---	---	---	---	---	---	---	---	---	30.59	30.29
MAX	---	---	---	---	---	---	---	---	---	---	30.76	30.57
MIN	---	---	---	---	---	---	---	---	---	---	30.45	29.25

WYOMING COUNTY

412826076083301. Local number, WY 179--Continued.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), **WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002**
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.16	29.48	28.97	28.05	27.86	27.42	---	26.82	26.84	27.49	30.04	26.45
2	29.09	29.45	28.90	28.10	27.83	27.55	---	26.73	26.98	27.61	30.10	26.40
3	29.10	29.51	28.78	28.12	27.71	27.42	---	26.76	27.10	27.72	30.14	26.29
4	29.11	29.50	28.65	28.16	27.57	27.45	26.28	26.95	27.17	27.85	30.26	26.22
5	29.16	29.51	28.55	28.50	27.52	27.44	26.29	26.95	27.22	27.98	30.32	26.19
6	29.21	29.49	28.48	28.41	27.46	27.40	26.33	26.92	27.10	28.12	30.30	26.21
7	29.29	29.48	28.42	28.29	27.40	27.40	26.42	26.87	27.02	28.24	30.31	26.23
8	29.41	29.49	28.37	28.36	27.39	27.46	26.48	26.89	27.07	28.35	30.38	26.24
9	29.46	29.53	28.36	28.32	27.48	27.42	26.50	26.89	27.07	28.42	30.45	26.24
10	29.47	29.57	28.37	28.40	27.46	27.36	26.56	26.96	27.09	28.53	30.51	26.22
11	29.51	29.60	28.37	28.50	27.29	27.39	26.63	27.06	27.04	28.63	30.61	26.21
12	29.51	29.70	28.33	28.46	27.22	27.34	26.67	27.03	27.03	28.71	30.67	26.32
13	29.61	29.76	28.24	28.48	27.20	27.26	26.75	26.75	27.05	28.85	30.68	26.50
14	29.63	29.74	28.17	28.55	27.18	27.22	26.77	26.50	27.02	28.97	30.71	27.11
15	29.61	29.72	28.21	29.11	27.12	27.18	26.68	26.46	26.90	29.12	30.78	27.00
16	29.61	29.74	28.24	28.94	27.05	27.22	26.67	26.38	26.80	29.25	30.82	26.76
17	29.57	30.11	28.13	28.82	27.06	27.26	26.69	26.29	26.84	29.41	30.91	26.61
18	29.62	30.11	27.95	28.82	27.11	27.18	26.68	26.10	26.82	29.50	30.95	26.57
19	29.63	29.96	27.90	28.84	27.10	27.25	26.66	26.08	26.76	29.54	30.96	26.51
20	29.63	29.91	27.88	28.81	27.06	27.17	26.66	26.11	26.81	29.51	30.95	26.51
21	29.65	29.94	27.91	28.77	27.04	27.03	26.69	26.05	26.77	29.57	31.01	26.91
22	29.71	29.95	27.92	28.79	27.16	26.97	26.70	26.04	26.76	29.66	30.59	26.97
23	29.67	29.94	27.84	28.76	27.21	26.95	26.71	26.03	26.77	29.73	29.02	26.58
24	29.60	29.95	27.78	28.72	27.26	26.92	26.74	26.10	26.87	29.78	28.15	26.51
25	29.50	29.89	27.79	28.70	27.27	26.91	26.72	26.21	26.89	29.75	27.64	26.47
26	29.45	29.69	27.77	28.63	27.24	26.79	26.80	26.29	26.93	29.76	27.31	26.35
27	29.44	29.52	27.77	28.56	27.24	26.57	26.84	26.38	26.98	29.84	27.04	25.99
28	29.52	29.43	27.79	28.47	27.33	26.52	26.77	26.44	27.08	29.94	26.92	25.62
29	29.59	29.28	27.84	28.34	---	26.41	26.74	26.49	27.22	29.95	26.72	25.36
30	29.56	29.08	27.92	28.18	---	---	26.78	26.57	27.37	29.96	26.57	25.11
31	29.52	---	28.02	28.06	---	---	---	26.66	---	29.99	26.51	---
MEAN	29.47	29.67	28.18	28.52	27.32	27.17	26.64	26.54	26.98	29.02	29.62	26.36
MAX	29.71	30.11	28.97	29.11	27.86	27.55	26.84	27.06	27.37	29.99	31.01	27.11
MIN	29.09	29.08	27.77	28.05	27.04	26.41	26.28	26.03	26.76	27.49	26.51	25.11



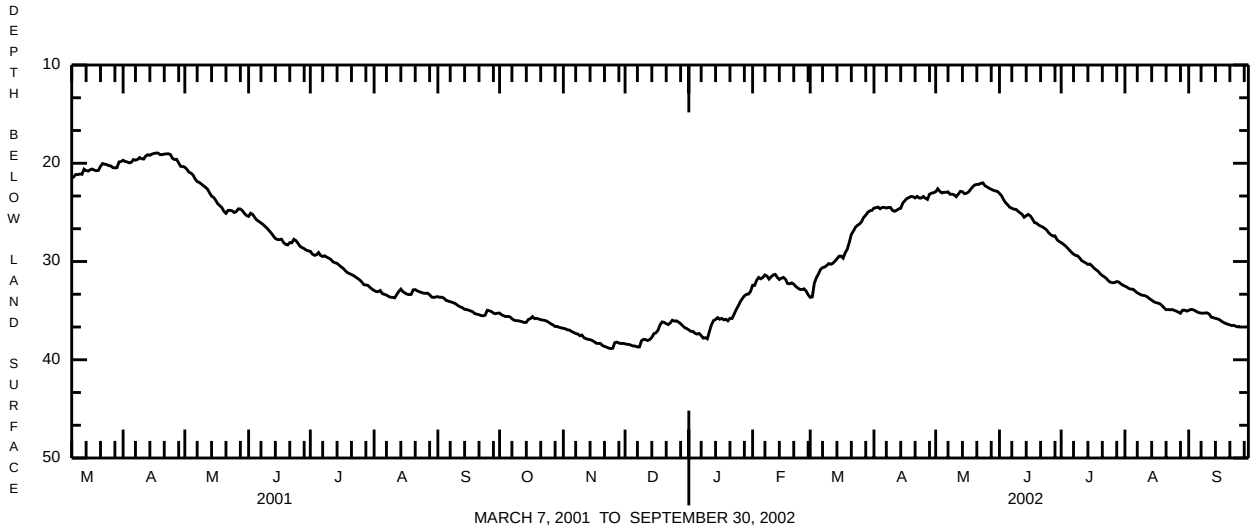
YORK COUNTY

400916076492301. Local number, YO 1147.

LOCATION.--Lat 40°09'16", long 76°49'23", Hydrologic Unit 02050305, at I83 south rest stop between exits 34 and 35.
Owner: U.S. Geological Survey.
AQUIFER.--Gettysburg Formation, Triassic age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 182 ft, cased to 41 ft.
INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.
DATUM.--Elevation of land surface is 470 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder shelf, 2.25 ft above land-surface datum.
REMARKS.--In addition to the daily mean water level table shown below, daily maximum and minimum water levels are also available from the District Office.
PERIOD OF RECORD.--March 7, 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.
Highest water level, 18.86 ft below land-surface datum, Apr. 18, 2001; lowest, 38.90 ft below land-surface datum, Sept. 24, 2002.
EXTREMES FOR CURRENT YEAR.--Highest water level, 21.96 ft below land-surface datum, May 24; lowest, 38.90 ft below land-surface datum, Sept. 24.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35.25	36.80	38.38	36.96	32.42	33.65	24.56	22.90	23.07	28.08	32.51	34.98
2	35.43	36.85	38.43	37.11	32.43	33.61	24.52	22.60	23.30	28.23	32.61	34.88
3	35.52	36.96	38.44	37.11	31.89	32.22	24.46	22.86	23.71	28.40	32.76	34.90
4	35.61	36.98	38.53	37.31	31.62	31.66	24.63	23.02	24.02	28.60	32.81	34.99
5	35.59	37.12	38.60	37.39	31.76	31.27	24.50	22.96	24.23	28.84	32.83	35.13
6	35.63	37.22	38.61	37.32	31.62	30.82	24.48	22.96	24.48	29.06	33.02	35.21
7	35.82	37.33	38.70	37.54	31.37	30.62	24.56	22.91	24.58	29.25	33.19	35.25
8	35.97	37.38	38.69	37.80	31.49	30.57	24.50	23.16	24.68	29.38	33.30	35.26
9	36.02	37.55	38.06	37.76	31.79	30.41	24.50	23.15	24.69	29.42	33.41	35.24
10	36.03	37.48	37.92	37.87	31.56	30.21	24.80	23.22	24.88	29.65	33.45	35.23
11	36.08	37.75	37.96	37.12	31.37	30.28	24.89	23.41	25.05	29.92	33.50	35.37
12	36.13	37.86	38.04	36.44	31.31	30.19	24.79	23.14	25.20	30.03	33.62	35.67
13	36.21	37.92	37.94	36.01	31.62	29.96	24.65	22.86	25.50	30.16	33.80	35.71
14	36.19	37.96	37.73	35.90	31.83	29.73	24.59	22.90	25.34	30.30	33.93	35.79
15	35.90	38.04	37.35	35.71	31.70	29.46	24.06	23.10	25.21	30.26	34.09	35.84
16	35.82	38.16	37.26	35.88	31.62	29.45	23.81	23.05	25.36	30.45	34.18	35.93
17	35.61	38.32	37.00	35.79	31.82	29.66	23.59	22.93	25.66	30.68	34.23	36.09
18	35.82	38.34	36.46	35.94	32.24	29.12	23.50	22.64	26.04	30.84	34.31	36.21
19	35.78	38.34	36.15	35.88	32.27	28.76	23.38	22.39	26.10	31.00	34.48	36.31
20	35.85	38.55	36.19	36.04	32.18	28.05	23.40	22.21	26.27	31.25	34.71	36.38
21	35.93	38.64	36.33	35.78	32.30	27.24	23.53	22.16	26.40	31.44	34.91	36.46
22	35.96	38.72	36.42	35.80	32.54	26.90	23.37	22.15	26.49	31.56	34.89	36.52
23	36.00	38.81	36.25	35.37	32.70	26.51	23.54	22.03	26.63	31.73	34.92	36.50
24	36.08	38.87	35.97	34.91	32.84	26.31	23.54	22.00	26.81	31.97	34.89	36.60
25	36.21	38.83	36.07	34.53	32.85	26.18	23.38	22.30	27.09	32.11	34.98	36.66
26	36.35	38.26	36.04	34.10	32.78	25.94	23.56	22.41	27.28	32.16	35.05	36.58
27	36.46	38.20	36.17	33.78	33.00	25.51	23.68	22.55	27.41	32.15	35.16	---
28	36.62	38.30	36.33	33.50	33.38	25.29	23.15	22.65	27.39	32.04	35.27	---
29	36.61	38.35	36.54	33.35	---	25.00	23.04	22.75	27.78	32.09	34.96	---
30	36.70	38.33	36.73	33.31	---	24.84	23.00	22.82	27.96	32.27	34.95	---
31	36.76	---	36.83	33.05	---	24.80	---	22.86	---	32.41	35.05	---
MEAN	36.00	37.94	37.29	35.88	32.08	28.85	24.00	22.74	25.62	30.51	34.06	35.76
MAX	36.76	38.87	38.70	37.87	33.38	33.65	24.89	23.41	27.96	32.41	35.27	36.66
MIN	35.25	36.80	35.97	33.05	31.31	24.80	23.00	22.00	23.07	28.08	32.51	34.88



GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
HYDROGEOLOGY OF SELECTED AREA OF CARROLL VALLEY, ADAMS COUNTY

Population growth has increased the demand for ground water in Carroll Valley. Since 1998 over 20 wells in Carroll Valley have gone dry, forcing home owners to either deepen existing wells, drill new wells or have water transported to their domiciles. To address the capability of the bedrock aquifers to meet the increased demand for ground water, the U.S. Geological Survey (USGS) and the Borough of Carroll Valley, in 2000, began a cooperative study to investigate areas where reported yields are typically less than 5 gallons per minute or areas where dry wells have been reported. Through the use of data bases, approximately 400 wells in the Borough of Carroll Valley were inventoried. Selected well construction (well depth, casing length, depth of water-bearing zones) and discharge (reported yield and specific capacity) data were entered into the Ground-Water Site Inventory (GWSI) data base maintained by the USGS. Water levels were collected from approximately 75 wells in November 2000 and August 2001 to evaluate seasonal changes in water levels. Water from 35 wells were analyzed for chloride. Of this sample set, 18 were also examined for bromide to determine chloride to bromide ratios. Water from 6 of the 18 wells analyzed for chloride to bromide ratios were also analyzed for a suite of 67 wastewater compounds. A drought monitor well was established in the Borough of Carroll Valley and water levels from this well were correlated to water levels from the Cumberland County observation well. In summary, the bedrock aquifers that underlie the study area are (1) typically low-yielding, (2) poorly connected to the overlying regolith, (3) on occasion, impacted by anthropogenic sources (road salt, fertilizer, sewage), and (4) severely stressed by drought conditions and development.

For additional information, contact Dennis J. Low at the U.S. Geological Survey, 215 Limekiln Road, New Cumberland, PA 17070; 717-730-6959 (email: djlow@usgs.gov).

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
HYDROGEOLOGY OF SELECTED AREA OF CARROLL VALLEY, ADAMS COUNTY

REMARKS.--Explanation of column headings--LOCAL ID: unique identification code that utilizes a county abbreviation (AD is Adams County) and a sequential series of numbers to represent individual wells in a specific county. SITE IDENTIFIER: unique 15-digit identifier based on site latitude (first six digits), longitude (digits seven through thirteen), and a 2-digit sequence number suffix. LOCATION MAP NAME: a name of 1:24,000 U.S. Geological Survey topographic map on which well is located. ELEVATION OF LAND SURFACE: land-surface altitude at well site, in feet above sea level, determined from appropriate topographic map. AQUIFER CODE: abbreviation of geologic formation names. Precambrian--000MBSL, metabasalt; 000MTRL, metarhyolite; 000GRNS greenstone schist. WATER-LEVEL IN FEET BELOW LAND SURFACE: >, greater than. WATER-LEVEL METHOD: T, electric tape; E, estimated; R, reported.

LOCAL ID	SITE IDENTIFIER	LOCATION MAP NAME	ELEVATION OF LAND SURFACE (FEET)	AQUIFER CODE	WATER LEVEL IN FEET BELOW LAND SURFACE	WATER-LEVEL METHOD	WATER LEVEL DATE
AD 774	394439077223901	BLUE RIDGE SUMMIT	620	000MBSL	73.11	T	01/23/02
AD 787	394429077223601	BLUE RIDGE SUMMIT	680	000MTRL	91.46	T	01/28/02
AD 790	394421077232801	BLUE RIDGE SUMMIT	660	000MBSL	48.21	T	05/07/02
AD 806	394426077223901	BLUE RIDGE SUMMIT	730	000MBSL	52.18	T	01/28/02
AD 808	394430077225001	BLUE RIDGE SUMMIT	790	000MBSL	137.33	T	01/16/02
AD 818	394503077241201	IRON SPRINGS	905	000MBSL	20.10	T	01/16/02
AD 819	394501077241502	IRON SPRINGS	895	000MBSL	73.54	T	01/16/02
AD 821	394443077241801	BLUE RIDGE SUMMIT	800	000GRNS	110.31	T	01/16/02
AD 822	394455077240201	BLUE RIDGE SUMMIT	790	000GRNS	24.96	T	01/16/02
AD 830	394446077233701	BLUE RIDGE SUMMIT	870	000MBSL	>125	E	05/07/02
AD 831	394453077234801	BLUE RIDGE SUMMIT	885	000MBSL	79.85	T	01/16/02
AD 835	394513077234701	IRON SPRINGS	950	000MBSL	92.43	T	01/16/02
AD 836	394514077235401	IRON SPRINGS	980	000MBSL	88.75	T	01/10/02
AD 836	394514077235401	IRON SPRINGS	980	000MBSL	92.59	T	01/16/02
AD 837	394511077235401	IRON SPRINGS	970	000MBSL	77.85	T	01/16/02
AD 846	394453077232001	BLUE RIDGE SUMMIT	680	000MBSL	13.70	T	01/16/02
AD 841	394506077231301	IRON SPRINGS	770	000MBSL	56.74	T	01/28/02
AD 842	394505077232002	IRON SPRINGS	780	000MBSL	20.72	T	01/29/02
AD 922	394432077241801	BLUE RIDGE SUMMIT	670	000GRNS	88.90	T	05/07/02
AD 1051	394505077232001	IRON SPRINGS	770	000MBSL	21.68	T	01/28/02
AD 1060	394448077240001	BLUE RIDGE SUMMIT	820	000MBSL	50.25	T	01/28/02
AD 1063	394533077234601	IRON SPRINGS	810	000MBSL	37.45	T	01/16/02
AD 1092	394453077242901	BLUE RIDGE SUMMIT	780	000MBSL	127.03	T	01/16/02
AD 1098	394420077225901	BLUE RIDGE SUMMIT	720	000MBSL	171.15	T	05/07/02
AD 1131	394517077233001	IRON SPRINGS	860	000GRNS	40	R	10/30/01
AD 1146	394452077233301	BLUE RIDGE SUMMIT	760	000MBSL	9.6	T	01/28/02
AD 1148	394505077233801	IRON SPRINGS	820	000MBSL	19.35	T	01/16/02
AD 1149	394512077234901	IRON SPRINGS	960	000MBSL	98	R	12/26/01
AD 1149	394512077234901	IRON SPRINGS	960	000MBSL	101.31	T	01/16/02
AD 1150	394534077233801	IRON SPRINGS	780	000MBSL	19.27	T	01/16/02
AD 1151	394505077231801	IRON SPRINGS	770	000MBSL	35.91	T	01/28/02
AD 1152	394433077230901	BLUE RIDGE SUMMIT	770	000MTRL	59.55	T	01/28/02
AD 1152	394433077230901	BLUE RIDGE SUMMIT	770	000MTRL	43.42	T	06/17/02
AD 1152	394433077230901	BLUE RIDGE SUMMIT	770	000MTRL	58.18	T	06/27/02
AD 1153	394504077241401	IRON SPRINGS	910	000MBSL	59.75	T	01/16/02

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
STATEWIDE ASSESSMENT OF METHYL-TERT-BUTYL-ETHER (MTBE) IN GROUND WATER

The following table contains water-quality data from wells sampled as part of a study of MTBE in ground water in Pennsylvania. The U.S. Geological Survey, in cooperation with the Pennsylvania Department of Environmental Protection, conducted the study. The wells were sampled for MTBE, a gasoline additive, BTEX compounds (benzene, toluene, ethyl benzene, and xylene), pH, specific conductance, and temperature. Samples were collected from 86 wells in four geologic settings, and in various land use settings, across the state. Other data for the project can be found in the annual Water Data Reports PA-02-1, and PA-02-3. For additional information, contact Steve McAuley at the U.S. Geological Survey, 1000 Church Hill Road, Pittsburgh, PA 15025; 412-490-3801 (email: smcauley@usgs.gov).

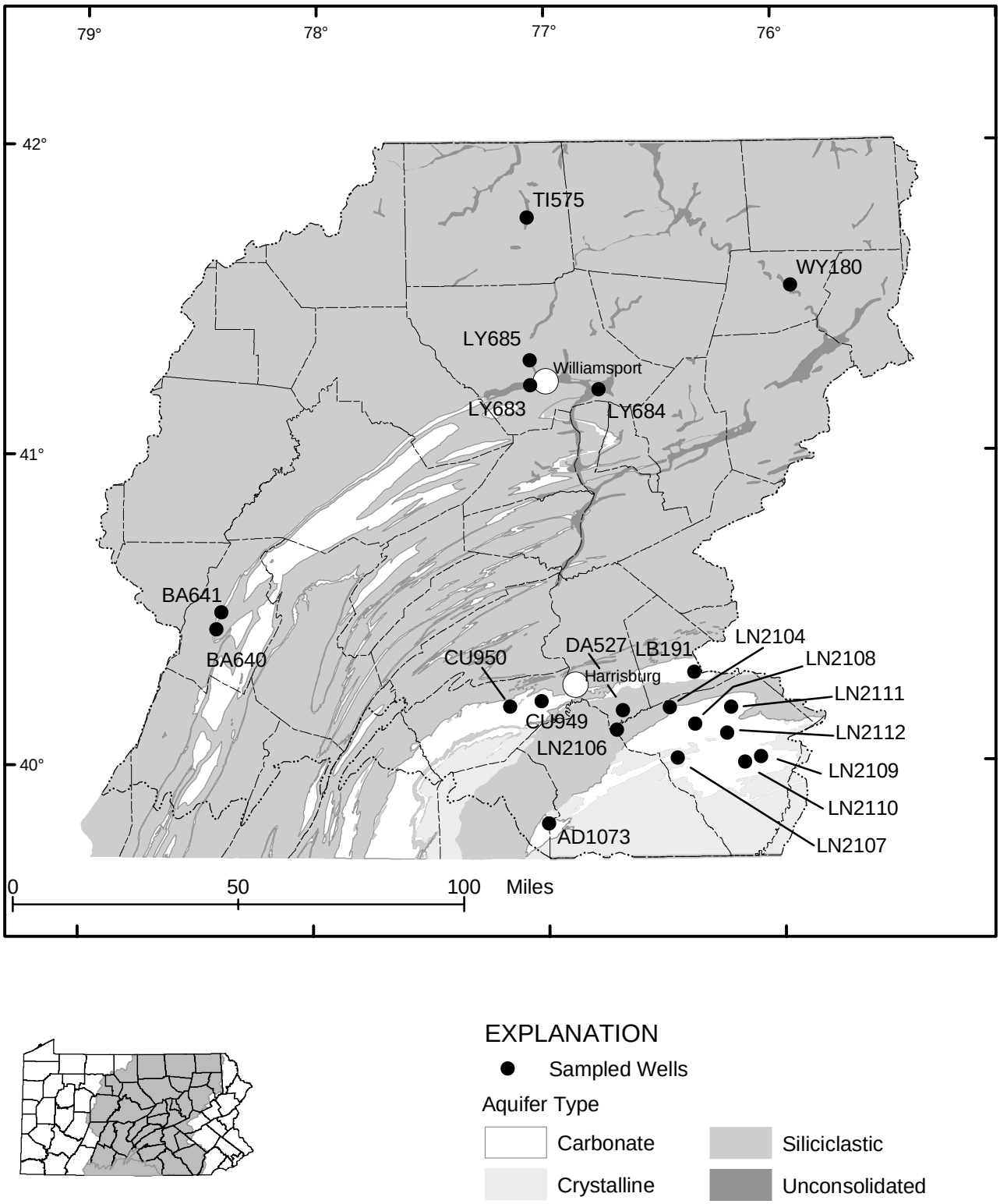


Figure 12.--Location of wells sampled as part of the MTBE in ground water project.

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
STATEWIDE ASSESSMENT OF METHYL-TERT-BUTYL-ETHER (MTBE) IN GROUND WATER PROJECT--Continued

REMARKS.--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; Sampling method code 4040 = submersible pump; Sampling condition code 8 = pumping; µS/CM: microsiemens per centimeter at 25 degrees Celsius; DEG C: degrees Celsius; µG/L: micrograms per liter; "<" = less than; "E" = estimated. Quality-control data for replicate samples are shown for Local Well Numbers LN 2104 on October 12, 2001 at 1216 and BA 640 on November 19, 2001 at 1105.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

SITE IDENTIFIER	LOCAL WELL NUMBER	DATE	TIME	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET) (72019)	DEPTH OF WELL, TOTAL (FEET) (72008)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD) (72000)	SAM-PLING METHOD, CODES (82398)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)
					ADAMS COUNTY							
394922077114201	AD 1072	10-19-01	1505	1028	80020	4.83	125	545	4040	6.7	512	13.7
394957077000601	AD 1073	12-06-01	1500	1028	80020	12.80	143	530	4040	8.0	349	14.0
					BLAIR COUNTY							
402703078243001	BA 640	11-19-01	1100	1028	80020	--	--	1080	--	7.4	628	12.0
402703078243001	BA 640	11-19-01	1105	1028	80020	--	--	1080	--	--	--	--
403015078231501	BA 641	11-19-01	1340	1028	80020	--	100	1120	4040	7.4	756	13.0
					CUMBERLAND COUNTY							
401218077094501	CU 950	07-31-01	1455	1028	80020	35.03	180	472	4040	7.1	674	18.0
401315077015101	CU 949	07-20-01	1120	1028	80020	25.01	175	405	4040	7.3	573	12.6
					DAUPHIN COUNTY							
401128076410901	DA 527	11-28-01	1528	1028	80020	95.50	300	540	4040	7.4	720	13.4
					LANCASTER COUNTY							
400118076102701	LN 2110	12-04-01	1230	1028	80020	9.20	38	360	4040	7.1	848	12.0
400212076272701	LN 2107	12-04-01	0945	1028	80020	33.35	400	380	4040	6.8	186	12.5
400218076062301	LN 2109	12-05-01	1240	1028	80020	29.18	80	430	4040	7.2	628	15.8
400652076144801	LN 2112	12-06-01	1120	1028	80020	40.0	162	320	4040	7.1	1300	12.5
400746076424901	LN 2106	11-28-01	1115	1028	80020	25.63	200	360	4040	6.0	1620	14.3
400839076225201	LN 2108	12-03-01	1245	1028	80020	--	44	420	4040	7.3	655	14.0
401150076134701	LN 2111	12-07-01	1020	1028	80020	--	40	355	4040	7.0	783	12.2
401152076292101	LN 2104	10-12-01	1215	1028	80020	32.77	80	540	4040	5.7	312	13.5
401152076292101	LN 2104	10-12-01	1216	1028	80020	--	80	540	4040	--	--	--
					LEBANON COUNTY							
401838076225901	LB 191	07-26-01	1225	1028	80020	--	80	542	4040	7.4	522	11.9
					LYCOMING COUNTY							
411246076463601	LY 684	11-01-01	1330	1028	80020	--	250	500	4040	7.3	--	12.6
411339077040901	LY 683	08-31-01	1145	1028	80020	--	250	525	4040	6.7	520	14.9
411827077041101	LY 685	11-15-01	1145	1028	80020	15.17	90	590	4040	6.5	319	12.4
					TIOGA COUNTY							
414545077044601	TI 575	11-13-01	1405	1028	80020	32.50	79	1160	4040	8.0	1560	11.4
					WYOMING COUNTY							
413216075564601	WY 180	10-10-01	1245	1028	80020	--	--	610	4040	7.8	403	13.7

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
STATEWIDE ASSESSMENT OF METHYL-TERT-BUTYL-ETHER (MTBE) IN GROUND WATER PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DATE	XYLENE WATER UNFLTRD REC (µG/L) (81551)	BENZENE 14BRFL-SURROG VOC UNFLTRD REC PERCENT (99834)	BENZENE TOTAL (µG/L) (34030)	ETHANE 12DICL SURROG VOC UNFLTRD REC PERCENT (99832)	ETHYL-BENZENE TOTAL (µG/L) (34371)	METHYL TERT-BUTYL ETHER WAT UNF REC (µG/L) (78032)	META/ PARA-XYLENE WATER UNFLTRD REC (µG/L) (85795)	O-XYLENE WATER WHOLE TOTAL (µG/L) (77135)	TOLUENE D8 SURROG VOC UNFLTRD REC PERCENT (99833)	TOLUENE TOTAL (µG/L) (34010)	SAM-PLING CONDI-TION (72006)	SET NUMBER VOC AN-ALYSIS (NO.) (99931)
ADAMS COUNTY												
10-19-01	<.2	93.7	<.2	112	<.2	<.2	<.2	<.2	103	<.2	8	6.01
12-06-01	<.2	87.9	<.2	127	<.2	<.2	<.2	<.2	104	<.2	8	6.01
BLAIR COUNTY												
11-19-01	<.2	98.2	<.2	128	<.2	<.2	<.2	<.2	104	<.2	8	7.01
11-19-01	<.2	96.3	<.2	116	<.2	<.2	<.2	<.2	101	<.2	8	7.01
11-19-01	<.2	97.1	<.2	121	<.2	<.2	<.2	<.2	104	<.2	8	7.01
CUMBERLAND COUNTY												
07-31-01	<.2	96.0	<.2	108	<.2	<.2	<.2	<.2	102	<.2	8	5.01
07-20-01	<.2	95.8	<.2	102	<.2	<.2	<.2	<.2	99.4	<.2	8	7.01
DAUPHIN COUNTY												
11-28-01	<.2	83.4	<.2	116	<.2	.4	<.2	<.2	101	<.2	8	6.01
LANCASTER COUNTY												
12-04-01	<.2	85.9	<.2	123	<.2	.3	<.2	<.2	102	<.2	8	6.01
12-04-01	<.2	87.7	<.2	122	<.2	<.2	<.2	<.2	103	<.2	8	6.01
12-05-01	<.2	89.7	<.2	127	<.2	E.1	<.2	<.2	104	<.2	8	6.01
12-06-01	<.2	89.5	<.2	128	<.2	E.1	<.2	<.2	103	<.2	8	6.01
11-28-01	<.2	85.9	<.2	122	<.2	.4	<.2	<.2	101	<.2	8	6.01
12-03-01	<.2	87.3	<.2	124	<.2	E.1	<.2	<.2	102	<.2	8	6.01
12-07-01	<.2	90.7	<.2	126	<.2	<.2	<.2	<.2	106	<.2	8	6.01
10-12-01	<.2	99.2	<.2	119	<.2	<.2	<.2	<.2	104	<.2	8	6.01
10-12-01	<.2	97.2	<.2	113	<.2	<.2	<.2	<.2	103	<.2	8	6.01
LEBANON COUNTY												
07-26-01	<.2	95.1	<.2	96.7	<.2	<.2	<.2	<.2	95.7	<.2	8	2.01
LYCOMING COUNTY												
11-01-01	<.2	91.9	<.2	119	<.2	<.2	<.2	<.2	102	<.2	8	6.01
08-31-01	<.2	99.7	<.2	98.6	<.2	<.2	<.2	<.2	93.2	<.2	8	2.01
11-15-01	<.2	97.1	<.2	102	<.2	31.9	<.2	<.2	96.7	<.2	8	7.01
TIOGA COUNTY												
11-13-01	<.2	87.1	<.2	128	<.2	<.2	<.2	<.2	106	<.2	8	6.01
WYOMING COUNTY												
10-10-01	<.2	99.3	<.2	113	<.2	<.2	<.2	<.2	103	<.2	8	6.01

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
STATEWIDE ASSESSMENT OF METHYL-TERT-BUTYL-ETHER (MTBE) IN GROUND WATER PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

REMARKS.--The following are quality-control samples (blanks) processed during 2001 and 2002 water years and are defined in the explanation of records section entitled, "Water Quality-Control Data"; "<" = less than.

QUALITY-CONTROL DATA, WATER YEARS OCTOBER 2000 TO SEPTEMBER 2002

SITE IDENTIFIER	LOCAL WELL NUMBER	DATE	TIME	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	XYLENE WATER UNFLTRD REC (µG/L) (81551)	BENZENE 14BRFL-SURROG VOC UNFLTRD REC PERCENT (99834)	BENZENE TOTAL (µG/L) (34030)	ETHANE 12DICL SURROG VOC UNFLTRD REC PERCENT (99832)	ETHYL-BENZENE TOTAL (µG/L) (34371)	METHYL TERT-BUTYL ETHER WAT UNF REC (µG/L) (78032)	META/ PARA-XYLENE WATER UNFLTRD REC (µG/L) (85795)
401435076540910	LEMOYNE STATION	06-29-01	1500	1028	80020	<.2	68.0	<.2	111	<.2	<.2	<.2
401152076292101	LN 2104	10-12-01	1100	1028	80020	<.2	97.9	<.2	114	<.2	<.2	<.2

DATE	O-XYLENE WATER WHOLE TOTAL (µG/L) (77135)	TOLUENE D8 SURROG VOC UNFLTRD REC PERCENT (99833)	TOLUENE TOTAL (µG/L) (34010)	BLANK, SOURCE OF SOLU-TION (CODE) (99101)	BLANK, TYPE OF SAMPLE (CODE) (99102)	BLANK, TYPE OF SOLU-TION (CODE) (99100)	REF-ERENCE MA-TERIAL/ SPIKE LOT NUMBER (99104)	SET NUMBER VOC AN-ALYSIS (NO.) (99931)
06-29-01	<.2	97.2	<.2	10.00	200.00	50.00	90217	5.01
10-12-01	<.2	101	<.2	10.00	100.00	50.00	80101	6.01

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES
STATEWIDE ASSESSMENT OF METHYL-TERT-BUTYL-ETHER (MTBE) IN GROUND WATER PROJECT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

REMARKS.--Concentrations of volatile organic (fuel) compounds in environmental sample and spiked replicate from site ID 4002218076062301 (Local identifier LN 2109) and calculated recoveries, in percent; "<" = less than. Less-than values were set equal to zero for calculations; E = estimated value.

QUALITY-CONTROL DATA, WATER YEARS OCTOBER 2000 TO SEPTEMBER 2002--Continued

		Concentration, in micrograms per liter			
		Laboratory results			
Parameter code	Constituent	Environmental Sample (not spiked) (12/05/01 @ 1240) A	Replicate (spiked) (12/05/01 @ 1242) B	[a] Calculated concentration in replicate C	Recovery in percent [(B-A)/C] x 100
78032	Methyl-t-butyl ether (MTBE)	E0.1278 [b]	0.8116	.755	91%
34030	Benzene	<0.2	0.4310	.471	92%
34010	Toluene	<0.2	0.4105	.475	86%
34371	Ethylbenzene	<0.2	0.3839	.475	81%
77135	o-Xylene	<0.2	0.2426	.283	86%
85795	m & p-Xylene	<0.2	0.5171	.567	91%
81551	Xylenes (total)	<0.2	0.7597	.850	89%
				Mean recovery	88%
				Standard deviation	3.92
				Median recovery	89%

a Calculated concentration of spike in sample equals the concentration of the spike solution, in micrograms per milliliter x amount of spike added, in milliters, divided by the spiked sample volume, in liters

b Unrounded value was used in recovery calculations.

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