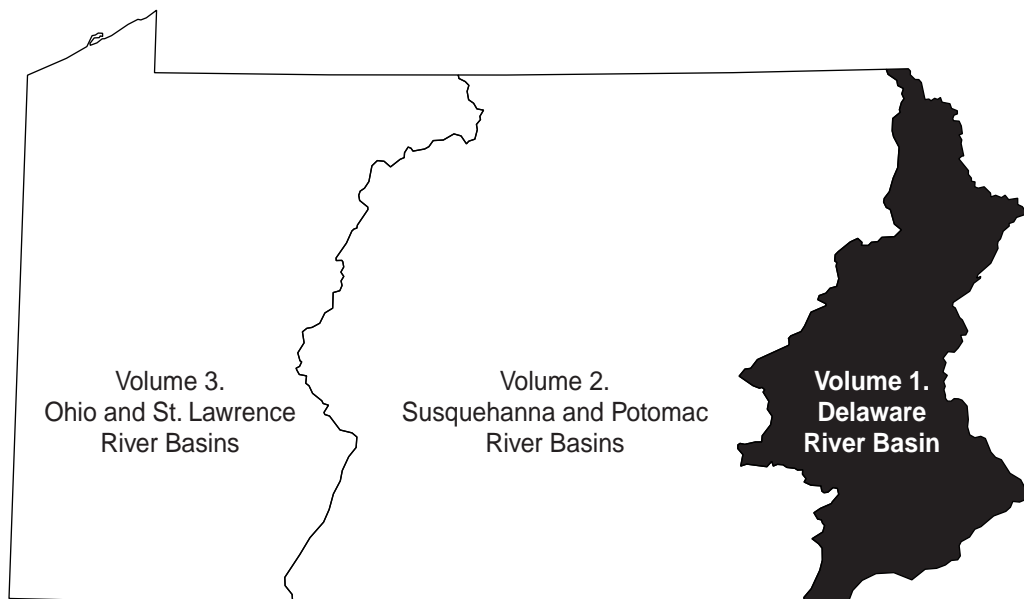


# Water Resources Data Pennsylvania Water Year 2003

## Volume 1. Delaware River Basin

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

Water-Data Report PA-03-1



Prepared in cooperation with the Pennsylvania Department of Environmental Protection, the Philadelphia District of the U.S. Army Corps of Engineers, the Chester County Water Resources Authority, and with other State, municipal, and Federal agencies.



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2004

## PREFACE

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

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

Volume 1 was prepared in cooperation with the Commonwealth of Pennsylvania and other agencies under the general supervision of Patricia L. Lietman, District Chief, Pennsylvania District; Robert A. Hainly, Assistant District Chief for Hydrologic Surveillance and Data Management; Randall R. Durlin, Chief of the Hydrologic Surveillance Program, New Cumberland District Office, and William P. Schaffstall, Chief, Williamsport Project Office. It is the product of a team effort by dedicated personnel of the U.S. Geological Survey who collected, compiled, analyzed, verified, and organized these data, and who typed, edited, and assembled the report. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines, the following individuals contributed significantly to the collection, processing, and tabulation of these data:

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**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, (sc) specific conductance, (t) water temperature, (do) dissolved oxygen, (%) dissolved oxygen, % saturation, (b) biological, (turb) turbidity, (e) elevation, gage heights, or contents.]

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[Letters after local well number designate type of data: (l) water level.]

**GROUND-WATER RECORDS**

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

**GROUND WATER RECORDS**--Continued

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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 <sup>2</sup> )	Period of record (water years)
DELAWARE RIVER BASIN			
North Branch Calkins Creek near Damascus	01427650	7.02	1965-73
Lackawanna River at West Hawley	01430500	206	1922-37
Middle Creek near Hawley	01431000	78.4	1945-59
Stevens Creek near Sterling	01431620	0.68	1992-94
Ariel Creek near Ledgedale	01431673	15.6	1992-94
Unnamed tributary to Purdy Creek near Lakeville	01431683	0.34	1992-94
Purdy Creek at Lakeville	01431685	8.18	1992-94
Shohola Creek near Shohola	01432500	83.6	1920-28
Delaware River below Tocks Island Damsite, near Delaware Water Gap	01440200	3,850	1964-96
McMichaels Creek at Stroudsburg	01441000	65.3	1912-37
Pocono Creek near Stroudsburg	01441500	41.0	1912-19
Lehigh River at Tannery	01448000	322	1919-58
Martins Creek near East Bangor	01446600	10.4	1962-77
Dilldown Creek near Long Pond	01448500	2.39	1949-96
Wild Creek at Hatchery	01449500	16.8	1941-78
Pohopoco Creek near Parryville	01450000	109	1941-69
Little Lehigh Creek near East Texas	01451420	51.2	1987-94
East Branch Monocacy Creek near Bath	01452300	5.35	1963-68
Saucon Creek at Lanark	01453500	12.1	1948-53
South Branch Saucon Creek at Friedensville	01454000	10.3	1948-53
Saucon Creek at Friedensville	01454500	26.6	1948-53
Cooks Creek at Durham Furnace	01457790	29.4	1991-93
Tinicum Creek near Ottsville	01458900	14.7	1991-93
Tohickon Creek at Point Pleasant	01460000	107	1884-98, 1901-12
Paunacussing Creek at Carversville	01460800	6.49	1991-93
Pine Run at Chalfont	01464710	11.6	1990-92

**DISCONTINUED CONTINUOUS-RECORD SURFACE-WATER DISCHARGE STATIONS**—Continued

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record (water years)
Cooks Run at New Britain	01464741	3.08	1985-89
Neshaminy Creek near Rushland	01464750	91.0	1987-92
Little Neshaminy Cr. at Walton Road near Jacksonville	01464984	40.1	1986-92
Neshaminy Creek at Rushland	01465000	134	1885-1912, 32-33
Mill Creek near Wycombe	01465050	14.0	1990-93
Poquessing Creek at Trevoise Road, Philadelphia	01465780	13.2	1965-70
Walton Run at Philadelphia	01465785	2.17	1965-77
Byberry Creek at Chalfont Road, Philadelphia	01465790	5.34	1966-77
Byberry Creek at Grant Avenue, Philadelphia	01465795	7.13	1965-70
Pennypack Creek at Pine Road, Philadelphia	01467042	37.9	1965-80
Pennypack Creek below Verree Road, Philadelphia	01467045	42.8	1965-70
Wooden Bridge Run at Philadelphia	01467050	3.35	1966-80
Tacony Creek near Jenkintown	01467083	5.25	1973-78
Rock Creek above Curtis Arboretum near Philadelphia	01467084	1.15	1972-78
Jenkintown Creek at Elkins Park	01467085	1.17	1974-78
Tacony Creek above Adams Avenue, Philadelphia	01467086	16.7	1966-86
Frankford Creek at Torresdale Avenue, Philadelphia	01467089	33.8	1967-80
Schuylkill River at Pottsville	01467500	53.4	1944-69
Little Schuylkill River at Drehersville	01470000	122	1948-50, 1964-65
Maiden Creek tributary at Lenhartsville	01470720	7.46	1966-79
Maiden Creek at Virginville	01470756	159	1973-94
Pickering Creek near Chester Springs	01472174	5.98	1967-82
Perkiomen Creek near Frederick	01472500	152	1885-1912
Skippack Creek near Collegeville	01473120	53.7	1966-94
Schuylkill River at Norristown	01473500	1,760	1928-32
Wissahickon Creek at Bells Mill Road, Philadelphia	01473950	53.6	1966-70, 1974-81
Wissahickon Creek at Livezey Lane, Philadelphia	01473980	59.2	1967-70
Schuylkill River above Passayunk Ave. at Philadelphia	01474505	1,900	1979-93
Darby Creek at Waterloo Mills near Devon	01475300	5.1	1972-97
Darby Creek near Darby	01475510	37.4	1964-90

**DISCONTINUED CONTINUOUS-RECORD SURFACE-WATER DISCHARGE STATIONS**—Continued

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record (water years)
Cobbs Creek at US Highway No. 1 at Philadelphia	01475530	4.78	1965-80
Cobbs Creek below Indian Creek near Upper Darby	01475540	10.6	1965-73
Naylor Creek at West Chester Pike near Philadelphia	01475545	1.10	1974-78
Cobbs Creek at Darby	01475550	22.0	1964-90
Crum Creek at Woodlyn	01476000	33.3	1932-37
Ridley Creek at Moylan	01476500	31.9	1932-54
Marsh Creek near Lyndell	01480680	17.8	1961-69
East Branch Brandywine Creek at Downingtown	01480800	81.6	1958-68
Valley Creek at Ravine Road near Downingtown	01480887	14.5	1990-97

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 abbreviations are used in this table: --- (not determined); SC (specific conductance); pH; Temp (water temperature); DO (dissolved oxygen); Sed (sediment concentration and discharge); Biol (biological).

#### DISCONTINUED CONTINUOUS-RECORD SURFACE-WATER-QUALITY STATIONS

Station name	Station number	Drainage area (mi <sup>2</sup> )	Type of Record	Period of record (water years)
DELAWARE RIVER BASIN				
Delaware Bay at Ship John Shoal Light, N.J.	01412350	---	SC, Temp	1968-86
Delaware River at Lordville, N.Y.	01427207	1,590	Temp	1968-71, 1973-96
Delaware River at Narrowsburg, N.Y.	01427740	2,023	SC, pH	1948-51
Delaware River at Port Jervis, N.Y.	01434000	3,070	Temp	1957-60, 1973-94
Delaware River at Montague, N.J.	01438500	3,480	Temp SC, pH	1956-57 1956-73
Delaware River at Dingmans Ferry	01439000	3,542	Temp, SC, pH	1950-53
Delaware River near East Stroudsburg	01440090	3,830	SC, DO, Temp pH	1966-78 1972-78
Delaware River at Dunnfield, N.J.	01442750	4,150	Sed	1964-75
Delaware River near Richmond	01444800	4,378	Temp SC	1944-47, 1962-63 1962-63
Delaware River at Easton	01446700	4,636	SC, DO, Temp, pH	1967-77
Lehigh River at Walnutport	01451000	889	Sed	1948-53
Jordan Creek near Schnecksville	01451800	53.0	Sed	1967-69
Jordan Creek at Allentown	01452000	75.8	Sed	1967-69
Lehigh River at Bethlehem	01453000	1,279	SC, pH	1906-07, 1956-72
Delaware River at Burlington-Bristol Bridge	01464600	7,163	Temp DO SC, pH	1954-75, 1979-80 1961-75, 1978-80 1967-75, 1978-80
Neshaminy Creek near Langhorne	01465500	210	Sed	1956-58, 1965-69
Poquessing Creek at Trevoise Road, Philadelphia	01465770	5.08	Sed	1965-69

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

Station name	Station number	Drainage area (mi <sup>2</sup> )	Type of Record	Period of record (water years)
Poquessing Creek above Byberry Creek, Philadelphia	01465780	13.2	Sed	1965-70
Walton Run at Philadelphia	01465785	2.17	Sed	1965-68
Byberry Creek at Chalfont Road, Philadelphia	01465790	5.34	Sed	1966-68, 1970
Byberry Creek at Grant Avenue, Philadelphia	01465795	7.13	Sed	1965-70
Poquessing Creek at Grant Avenue, Philadelphia	01465798	21.4	Sed	1965-70
Delaware River at Torresdale Intake, Philadelphia	01467030	7,781	Temp DO SC pH	1956-57, 1960-81 1961-81 1963-81 1968-81
Pennypack Creek at Pine Road, Philadelphia	01467042	37.9	Sed	1965-69
Pennypack Creek below Verree Road, Philadelphia	01467045	42.8	Sed	1965-69
Wooden Bridge Run at Philadelphia	01467049	3.35	Sed	1965-70
Delaware River at Palmyra, N.J.	01467060	7,850	Sed	1962-64
Tacony Creek at County Line, Philadelphia	01467084	16.2	Sed	1966-69
Frankford Creek at Torresdale Avenue, Philadelphia	01467088	33.8	Sed	1966-70
Delaware River at Lehigh Avenue, Philadelphia	01467100	7,935	SC, DO, Temp, pH	1949-68
Delaware River at Wharton Street, Philadelphia	01467300	7,998	Temp, SC, pH, DO	1949-68
Delaware River at League Island, Philadelphia	01467400	8,072	SC, DO, Temp, pH	1949-68
Schuylkill River at Port Carbon	01467470	27.1	SC, pH, Sed	1949-51, 1963
Schuylkill River at Pottsville	01467500	53.4	SC, pH Sed	1948-51, 1963-66 1963-66
West Branch Schuylkill River at Cressona	01467950	52.5	Sed	1963-66
Schuylkill River at Landingville	01468500	133	SC, pH, Temp Sed	1947-53 1947-53, 1963-65
Schuylkill River at Auburn	01469000	160	Sed, SC, pH	1947-51, 1963-65
Little Schuylkill River at South Tamaqua	01469700	65.7	SC, pH Sed	1948-51, 1963 1950-53, 1963
Little Schuylkill River at Drehersville	01470000	122	SC, pH, Temp, Sed	1947-51, 1963-65

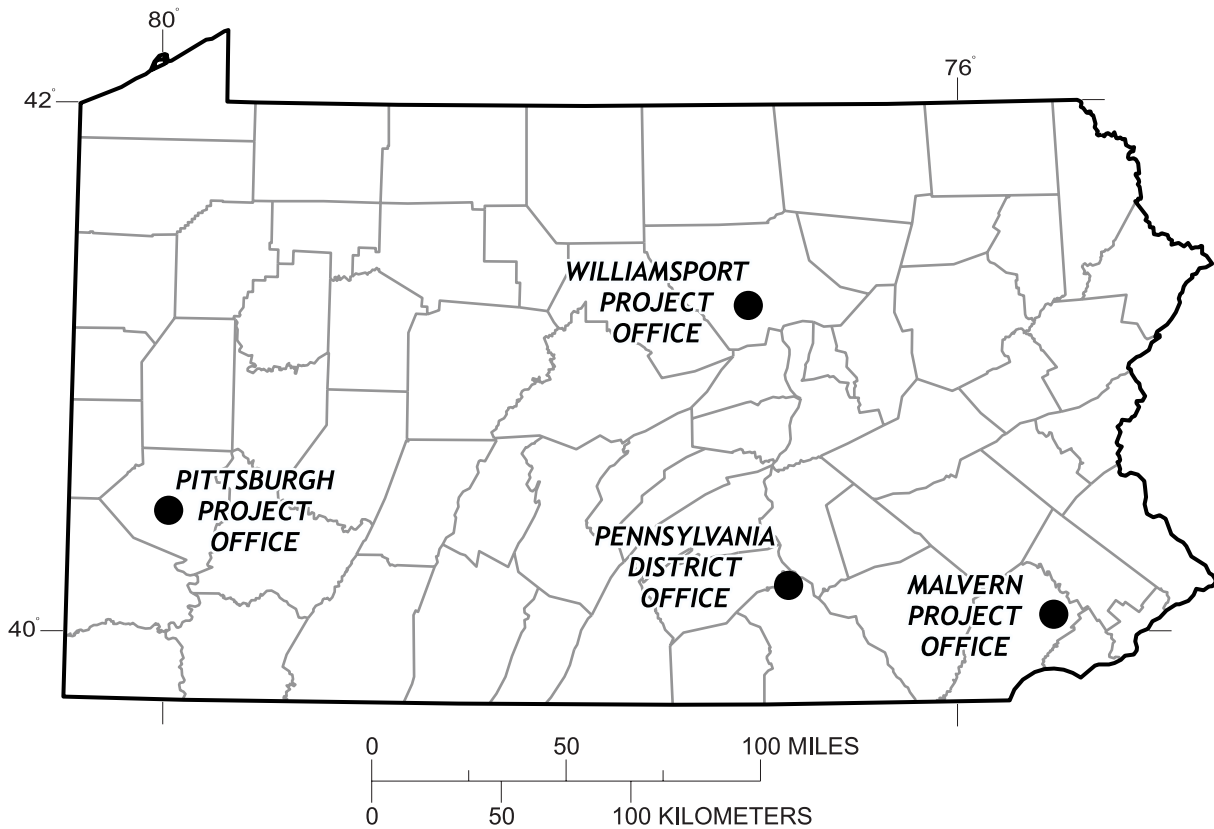
## DISCONTINUED CONTINUOUS-RECORD SURFACE-WATER-QUALITY STATIONS—Continued

Station name	Station number	Drainage area (mi <sup>2</sup> )	Type of Record	Period of record (water years)
Schuylkill River at Berne	01470500	355	Temp SC, pH Sed	1948-53, 1957-81 1963-81 1947-81
Maiden Creek tributary at Lenhartsville	01470720	7.46	Sed	1963-65
Maiden Creek near East Berkley	01470760	192	Sed	1963-65
Tulpehocken Creek near Reading	01471000	211	Sed	1963-65
Schuylkill River at Pottstown	01472000	1,147	Temp Sed, pH SC	1944-51, 1956, 1963-66 1948-51, 1963-66 1948-51, 1963-66, 1985-89
Pigeon Creek near Bucktown	01472054	4.20	Biol	1970-83
Pigeon Creek at Porters Mill	01472065	6.97	Biol	1970-83
Stony Run at Spring City	01472110	4.07	Biol	1970-83
Schuylkill River at Black Rock Dam at Mont Clare	01472119	---	SC, DO	1986-90
French Creek at Trythall	01472126	5.06	Biol	1971-83
French Creek near Knauertown	01472129	11.7	Biol	1970-83
Pickering Creek near Chester Springs	01472174	5.98	Sed	1967-69
Perkiomen Creek at Graterford	01473000	279	SC, pH, Temp Sed	1946-51, 1948-53 1963-66
Schuylkill River at Norristown Dam at Bridgeport	01473499	---	SC, DO	1985-90
Schuylkill River at Plymouth Dam	01473675	---	SC, DO	1985-90
Schuylkill River at Flat Rock Dam at West Manayunk	01473780	---	SC, DO	1985-90
Schuylkill River at Manayunk	01473800	893	SC, pH Sed Temp	1947-70 1947-86 1956-70
Wissahickon Creek at Fort Washington	01473900	40.8	Sed	1963-69
Wissahickon Creek at Bells Mill Road, Philadelphia	01473950	53.6	Sed	1966-69
Wissahickon Creek at Livezey Lane, Philadelphia	01473980	59.2	Sed	1966-69
Wissahickon Creek at mouth, Philadelphia	01474000	64.0	Sed	1966-69
Darby Creek near Darby	01475510	37.4	Sed	1965-69

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

Station name	Station number	Drainage area (mi <sup>2</sup> )	Type of Record	Period of record (water years)
Cobbs Creek at US Highway 1 near Philadelphia	01475530	4.78	Sed	1965-70
Cobbs Creek below Indian Creek near Upper Darby	01475540	9.65	Sed	1965-69
Cobbs Creek at Darby	01475550	22.0	Sed	1965-69
Crum Creek near Paoli	01475830	6.16	Biol	1970-83
Delaware River at Eddystone	01476200	10,190	SC, DO, Temp, pH	1949-68
Delaware River at Marcus Hook	01477200	10,370	SC, DO, Temp, pH	1949-77
West Branch Brandywine Creek near Honey Brook	01480300	18.7	Sed	1965-66, 1968
East Branch Brandywine Creek near Struble Dam	01480647	4.36	Biol	1972-82
Marsh Creek near Lyndell	01480680	17.8	Temp Sed	1965-66 1965-66, 1968
Marsh Creek near Downingtown	01480695	20.3	Temp	1973-87
Brandywine Creek at Chadds Ford	01481000	287	Sed	1963-70
Delaware River at Delaware Memorial Bridge, Del.	01482100	11,030	Temp DO SC pH	1956-81 1962-81 1963-81 1968-81

# PENNSYLVANIA DISTRICT OFFICE LOCATIONS AND ADDRESSES



**Pennsylvania District Office:**  
**U.S. Geological Survey**  
**Water Resources Division**  
 Yellow Breeches Office Center  
 215 Limekiln Road  
 New Cumberland, PA 17070  
 (717) 730-6900  
 FAX (717) 730-6997

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

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

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

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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 1, contains: (1) discharge records for 79 continuous-record streamflow-gaging stations, 8 partial-record stations, 19 special study and miscellaneous streamflow sites; (2) elevation and contents records for 13 lakes and reservoirs, and water quality records for 6 lakes and reservoirs; (3) water-quality records for 37 gaging stations and 12 ungaged streamsites; (4) water-quality records for 67 special-study stations; (5) water-level records for 49 network observation wells; and (6) water-quality analyses of ground water from 10 ground-water wells. Additional water data collected at various sites not involved in the systematic data-collection program may also be presented.

Publications similar to this report are published annually by the Geological Survey for all States. For the purpose of archiving, these official reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report PA-03-1." 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 its present format of 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 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 given on the back of the title page or by phoning the Scientific and Technical Products Section, at (717) 730-6940. Information on the availability of unpublished data or statistical analyses may be obtained from the District Information Specialist by telephone at (717) 730-6916 or by FAX at (717) 730-6997.

## **COOPERATION**

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

The Commonwealth of Pennsylvania, Department of Environmental Protection, Kathleen A. McGinty, Secretary through the following:

- Office of Water Management, Cathleen C. Myers, Deputy Secretary;
- Bureau of Water Supply and Wastewater Management, Frederick Marrocco, Director;
- Bureau of Watershed Management, Stuart I. Gansell, Director;
- Bureau of Waterways Engineering, Michael Conway, Director

Bucks County Commissioners, Charles H. Martin, Chairman;

Chester County Health Department, David Jackson, Executive Director;

Chester County Water Resources Authority, Janet L. Bowers, Executive Director;

City of Allentown, Roy Afflerbach, Mayor;

City of Bethlehem, James A. Delgrosso, Mayor;

City of Philadelphia, Water Department, Kumar Kishinchand, Water Commissioner;

**COOPERATION--Continued**

Delaware County Solid Waste Authority, Joseph W. Vasturia, Chief Executive Officer;  
Delaware River Basin Commission, Carol R. Collier, Executive Director;  
Hazelton City Authority, Water Department, Randy J. Cahalan, Operation Manager;  
Monroe County Conservation District, Craig Todd, District Manager;  
North Penn Water Authority, Anthony J. Bellitto, Jr., Executive Director;  
North Wales Water Authority, Peter. S. Lukens, Executive Director.

Federal Energy Regulatory Commission Licensee:  
PPL Electric Utilities Corporation.

The following Federal agency assisted in the data-collection program by providing funds or services: Corps of Engineers, U.S. Army, Philadelphia District, and the U.S. Environmental Protection Agency, Region III.

The following organizations aided in collecting records: Palmer Water Company, Aqua Pennsylvania Water Company, Borough of Tamaqua, Womelsdorf-Robeson Joint Water Authority, Forest Park Water Company, and the City of Coatesville.

## SUMMARY OF HYDROLOGIC CONDITIONS

### Surface Water

The Delaware River Basin extends from the river's east and west branch headwaters in the New York Catskill Mountains southward about 400 miles to the Atlantic Ocean. In addition to Pennsylvania, the Delaware River drains parts of the states of New York, New Jersey, Delaware, and Maryland. Of the nearly 13,500-mi<sup>2</sup> (square mile) drainage basin, 6,420 mi<sup>2</sup> (about 50 percent of the basin's total area) are within the Commonwealth of Pennsylvania.

### **Precipitation and Streamflow**

Precipitation and streamflow for the 2003 water year were above average for the year. Data from 30 selected National Oceanic and Atmospheric Administration climatological sites, located within 3 climatological regions in the Delaware River basin in Pennsylvania, indicate the annual total precipitation for the Delaware River basin in Pennsylvania averaged 61.7 inches. This average is 132 percent of the 1971-2000 basinwide average of 46.7 inches.

Monthly precipitation at two index stations in the Delaware River basin were used as indicator sites within the basin. The 2003 water year monthly precipitation was compared with the 1971-2000 mean monthly precipitation recorded at Pleasant Mount and Allentown, Pennsylvania (fig. 1). The precipitation data are from the National Oceanic and Atmospheric Administration (Northeast Region Climate Center) and National Weather Service records. The indicator sites show above normal precipitation at both sites for all months except November, January, March, April, and May. Basinwide average precipitation was above normal for all months with the exception of January, April, and May. The greatest surplus basinwide, with an average of 4.9 inches above normal, occurred in September. The greatest deficit basinwide, with an average of 1.1 inches below normal, occurred in both January and April.

During the period from October to December average basinwide precipitation was about 1.8 inches above normal. Precipitation totals averaged 0.3 inch above average from January to March. In April and May precipitation averaged 1.1 and 0.5 inches below normal, respectively, whereas, June averaged 5.2 inches above normal throughout the basin. The summer months were all above normal within the basin with a basinwide average of 2.2 inches above normal for the season. By the end of September, the 11.6-inch deficit from the 2002 water year had been replaced by an average 16.7-inch surplus basinwide.

Streamflow varied seasonably throughout the basin and generally reflected the precipitation patterns within the basin unless the stream was regulated. Following a pattern defined by the above normal precipitation that fell in the basin during the 2003 water year, the mean annual streamflow for unregulated Delaware River basin streams during the 2003 water year was above normal. (Normal annual streamflows are defined as streamflows between the 25th and 75th percentiles as compared to the annual mean streamflows for 1971-2000.) Using 40 unregulated sites with greater than 15 years of record, new record high annual mean streamflows were recorded at 7 of these sites during the water year.

Two U.S. Geological Survey streamflow-gaging stations within the basin were selected as indicators of basinwide streamflow conditions. Figure 2 compares the 2003 water year monthly and annual mean streamflows with the median of the monthly and annual mean streamflows for 1971 through 2000 at the indicator sites. The 2003 water year annual mean streamflow of the Bush Kill at Shoemakers in the upper Delaware River basin was 131 percent of the 1971-2000 median of the mean annual streamflows. The mean annual streamflow of the Schuylkill River at Pottstown in the lower Delaware River basin was 142 percent of the 1971-2000 median of the mean annual streamflows.

Monthly streamflows were above the median of monthly mean streamflows in the Bush Kill for the entire water year, except February, April, and May (fig. 2). Monthly streamflows were above the median of monthly mean streamflows in the Schuylkill River at Pottstown for the entire water year, with the exception of February and May (fig. 2). No new extremes were recorded at the indicator stations.

The Christina River Basin, located in the lower Delaware River Basin, had record low annual mean streamflows during the 2002 water year, but showed remarkable recovery during the 2003 water year. As a result of the above normal precipitation in that basin, averaging 22.1 inches above normal, streams where new record lows were measured during the 2002 water year recovered to average about 160 percent of their mean annual streamflow. One of the seven streamflow sites within the basin with more than 28 years of record, Red Clay Creek near Kennett Square (01479820), recorded a new record high annual mean streamflow. Heavy rains associated with remnants of Tropical Storm Henri, dropped more than 8 inches of rain on the Red Clay Creek basin on September 15. A precipitation gage located in the Downingtown area recorded 8.44 inches in a 19-hour period, with nearly 3 inches falling between 7:00 and 8:00 a.m. on September 15. This resulted in major flooding in the Red Clay Creek basin. Specifically, the peak stage recorded at Kennett Square was at a level more than 5 feet higher than the previous peak of record, which had been recorded on September 16, 1999, as a result of Hurricane Floyd.

There were no drought declarations affecting the Delaware River basin during the 2003 water year. On June 18, 2003, seven Western Pennsylvania counties were upgraded from a drought watch status to a normal status, putting all 67 Pennsylvania counties in a normal status for the first time since August 8, 2001. All counties in the Delaware River basin were returned to normal status on January 8, 2003.

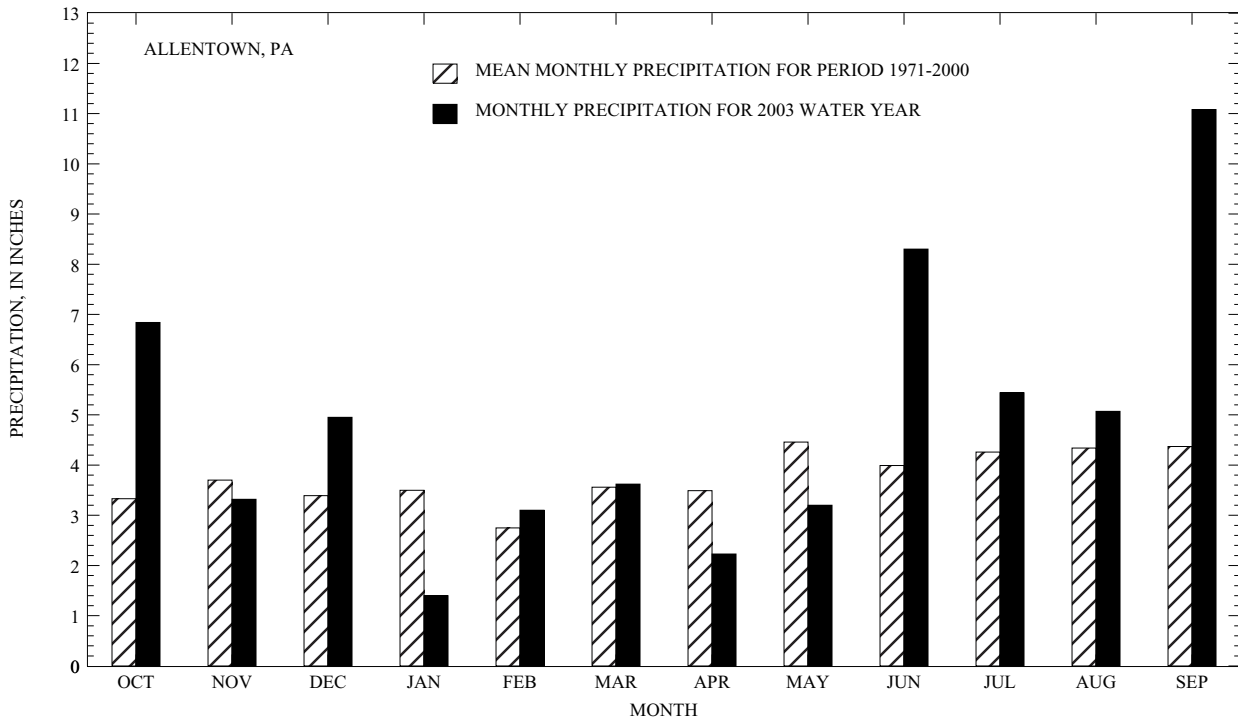
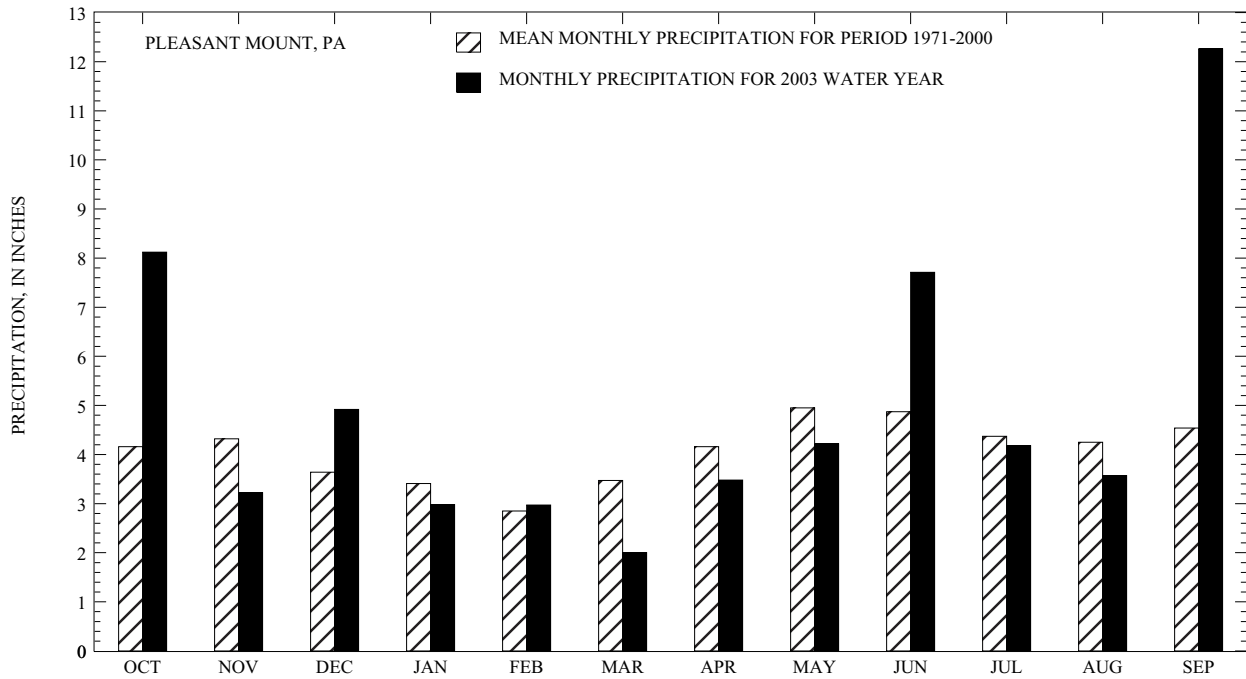


Figure 1.--Comparison of monthly precipitation in the Delaware River Basin at Pleasant Mount and Allentown, Pa. during the 2003 water year with mean monthly precipitation for the period 1971 through 2000.

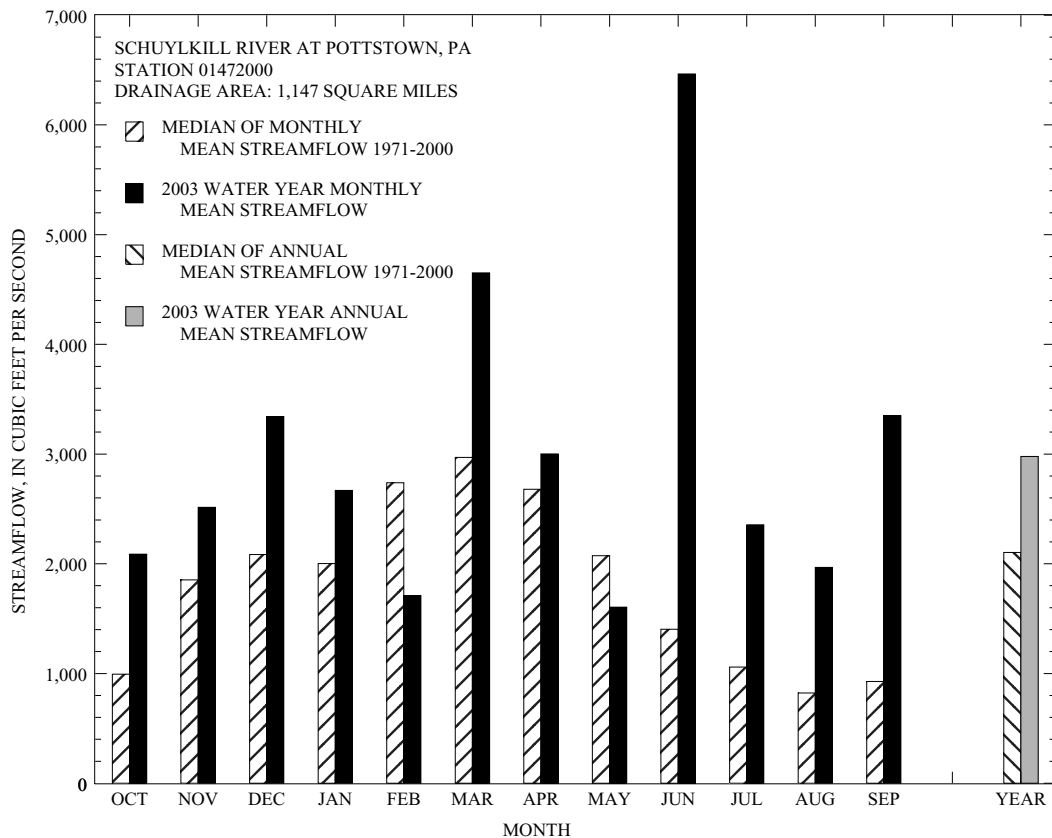
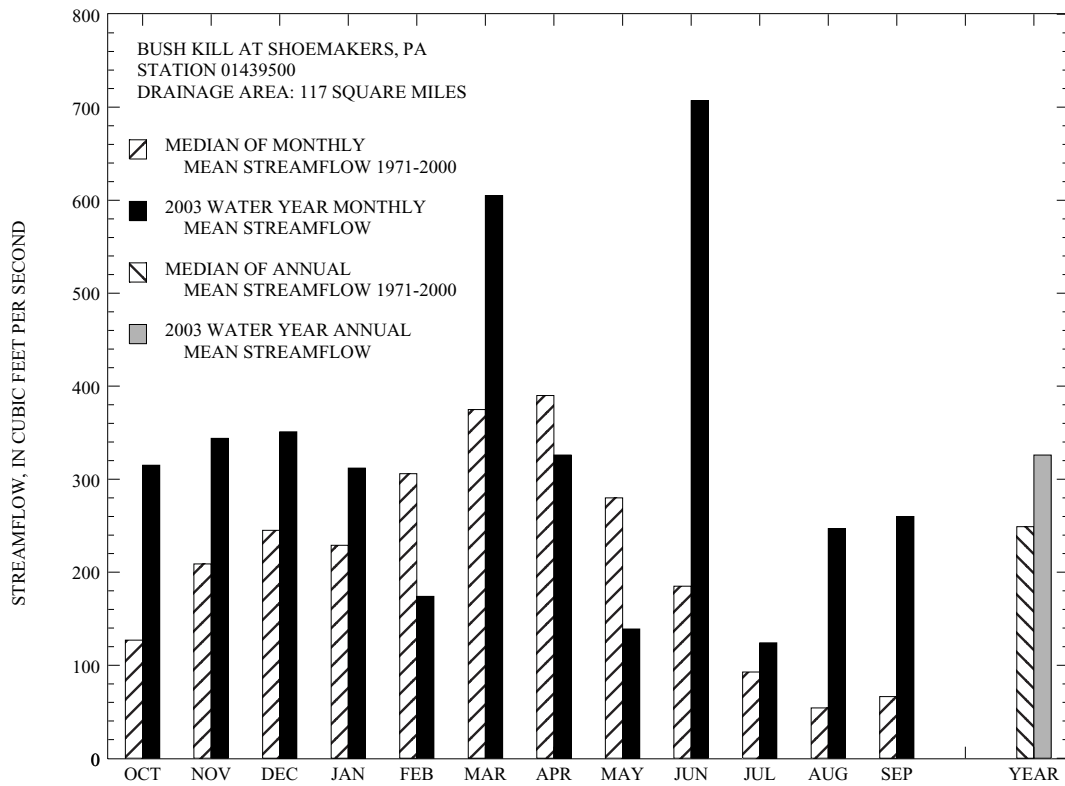


Figure 2.--Comparison of streamflow at two long-term streamflow-gaging stations during the 2003 water year with the median monthly and annual mean streamflow for the period 1971 through 2000.

### **Reservoirs**

Total combined capacity of the major reservoirs in the Delaware River basin within Pennsylvania is 659,390 acre-feet. Total combined drainage areas into these reservoirs is about 1,130 square miles or 18 percent of the total Delaware River basin drainage area within the Commonwealth of Pennsylvania. Combined storage in 13 major reservoirs in the Delaware River basin within Pennsylvania increased slightly from 219,410 acre-feet (33.4 percent of total combined capacity) on September 30, 2002 to 237,750 acre-feet (36.1 percent of total combined capacity) on September 30, 2003. This slight increase in water storage in the basin for the year is a reflection of the above normal precipitation and streamflow conditions.

### **Water Quality**

As part of an ongoing program, the USGS maintains a network of continuous-record water-quality monitoring sites along the Delaware River and its tributaries. Water temperature, dissolved oxygen, pH, and specific conductance are monitored at most sites from April through November. A primary concern to water-resource managers of the Lower Delaware River Basin is the upstream migration of saline water from the Delaware Bay. The salinity and dissolved-solid content in the water are indirectly measured by specific conductance.

Water quality of the Delaware Estuary was monitored between Trenton, N.J., and Reedy Island Jetty, Del. Streamflow is a vital factor that influences the water quality of the estuary. Increased streamflow usually results in better water quality by limiting salt-water intrusion and diluting the concentration of dissolved minerals, both of which contribute to a lower specific conductance and chloride level. Increased freshwater streamflow also aids in maintaining lower water temperature during warm weather and in supporting higher dissolved-oxygen levels.

In general, streamflow for the Delaware River was above normal for the 2003 water year. The annual mean streamflow as recorded at Delaware River at Trenton, N.J., station 01463500, was 147 percent of the period of record mean annual streamflow. The highest sustained streamflows occurred in June. The highest momentary streamflows (peaks) occurred on March 23. (For additional streamflow information refer to Delaware River at Trenton, N.J., station 01463500, pages 188-213). The beginning of October 2002 had the lowest sustained flows during the year. The early summer period had the highest sustained flows. As a reflection of these streamflows, the monthly mean specific conductance at the U.S. Geological Survey water-quality monitoring station on the Delaware River at Reedy Island Jetty, Del., was highest in October and lowest in June.

Figure 3 compares the 2003 water year monthly mean specific conductance with the mean monthly values for the period 1965 through 2002. The mean monthly values of specific conductance were higher than the mean for the period of record in October, February and May. Lower streamflows early in the water year allowed the migration of saline water, (commonly known as "The Salt Line") to advance to River Mile 88--a location about 20 miles upstream of the Delaware Memorial Bridge, by early October. This is the furthestmost upstream location for the 2003 water year. For perspective, the most upstream point of the Salt Line ever recorded (River Mile 102) occurred during the drought of the mid 1960's (Delaware River Basin Commission, 2003). As a direct result of the above normal precipitation throughout the basin, the Delaware River had above normal flow during the entire water year except for the months of February, April, and May. These high flows resulted in the specific conductance dropping below the period of record mean monthly average for the months of November, December, January, March, April, and June through September. The highest daily mean value was recorded on October 5th and 7th and the lowest daily mean value was recorded on June 22. Specific conductance data, along with other water-quality data from the Delaware River at Reedy Island Jetty, Del., can be found on pages 416-424.

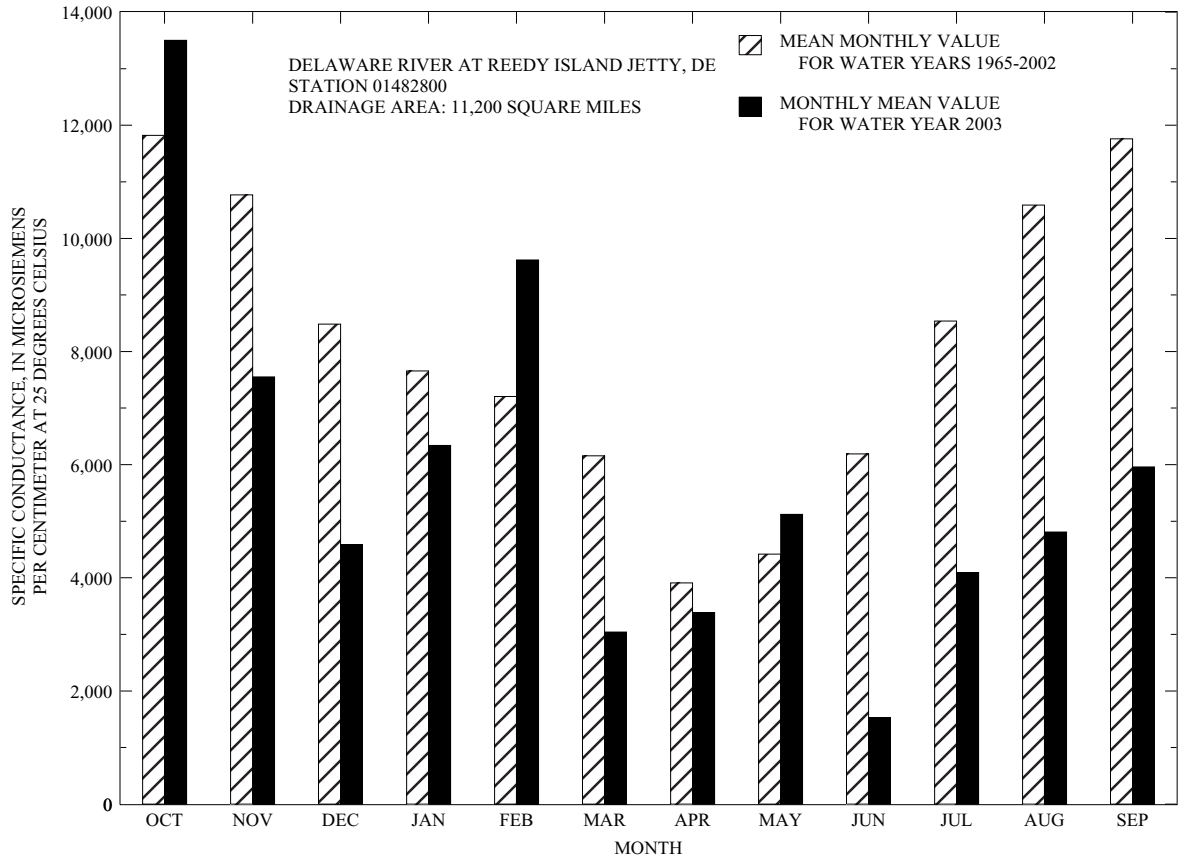


Figure 3.--Monthly mean specific conductance measured in the Delaware River at Reedy Island Jetty, Delaware for the 2003 water year and the mean monthly specific conductance for the period 1965 through 2002.

### **Ground Water**

With some lag time, seasonal ground-water levels during the year generally reflect seasonal precipitation variations. A comparison of the monthly precipitation variation received in the Delaware River basin in the 2003 water year (fig. 1) and recorded ground-water levels shows that this scenario was the case for this year. Ground-water levels by the end of September 2002 were generally normal to much below normal within the basin (Durlin and Schaffstall, 2003). Due to above-normal precipitation in October, combined with the end of the growing season, water levels in 12 of 15 observation wells recovered to normal to above-normal conditions. A comparison between seasonal ground-water levels for the 2003 water year and long-term seasonal ground-water levels is shown in figure 4.

During the winter season, as a result of the continued above-normal precipitation, ground-water levels continued to recover. By the end of the winter season, all 15 indicator wells were normal with one at above-normal levels. The wells continue to show a slight recovery in the spring season. By the end of the spring season, 12 wells remain in normal levels with 3 above normal. As the precipitation surplus continued into the summer months, the ground-water levels continued to show the effects. By the end of the summer season, ground-water levels, on the average, gradually increased to normal or much above normal. By the end of the water year, ground-water levels in 6 of the 15 wells were much above normal, with 6 additional wells above normal. The remaining three were in the normal range. At three of the observation wells located in Montgomery County (MG225), Lebanon County (LB372), and Bucks County (BK1020), new high water levels were recorded. In contrast, in two of these wells, located in Bucks County (BK1020) and Lebanon County (LB372), record lows were measured during the 2002 water year. Only one well, Chester County (CH10), had a new record low during the 2003 water year.

### **References**

- Delaware River Basin Commission, 2003, Delaware River Basin Selected Flow and Storage Data, accessed February 11, 2004, at URL [<http://www.state.nj.us/drbc/data.htm>].
- Durlin, R. R., and Schaffstall, W. P., 2003, Water Resources Data, Pennsylvania, water year 2002: U.S. Geological Survey Water-Data Report PA-02-1, 527 p.
- U.S. Department of Commerce, 2002-03, Climatological data for Pennsylvania, National Oceanic and Atmospheric Administration, National Environmental Satellite, Data, and Information Service, Northeast Regional Climate Center, accessed February 9, 2004, at URL [<http://climod.nrcc.cornell.edu/index.html>].
- Pennsylvania Department of Environmental Protection, 2004, Drought News Room, accessed April 12, 2004, at URL [<http://www.dep.state.pa.us/dep/subject/hotopics/drought/drought.htm>].



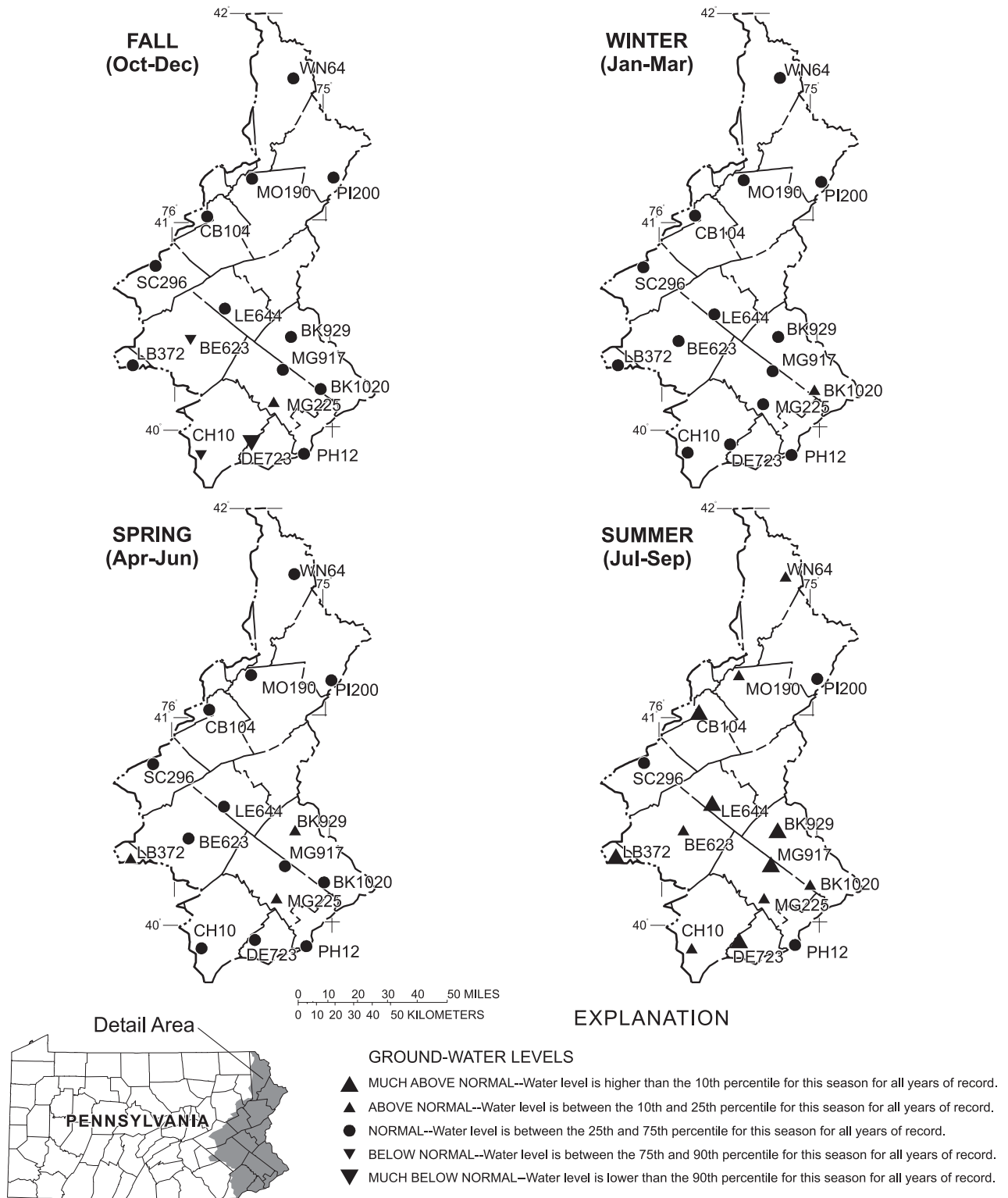


Figure 4.--Relation between 2003 seasonal mean ground-water levels and long-term mean ground-water levels [Seasonal percentile values were determined by ranking the average monthly water levels for each month in the season from highest to lowest for all years of record and averaging the ranks for the three months. A water level that is higher than the seasonal 10th percentile value would be expected to occur only once in a ten-year period. Conversely, a water level that is lower than the seasonal 90th percentile value also would be expected to occur only once during a ten-year period.]

### SPECIAL NETWORKS AND PROGRAMS

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

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

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

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

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

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

## EXPLANATION OF THE RECORDS

The surface-water and ground-water records in this report are for the 2003 water year that began October 1, 2002, and ended September 30, 2003. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, water-quality and ecological data for streamflow stations, ground-water-level data, and water-quality data for ground-water wells. The location of these stations and wells are shown in figures 6-13. 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 indentation in a list of stations in the front of the report. Each indentation represents one rank. This downstream-order system of indentation shows which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

The station-identification number is assigned in downstream order. In assigning station numbers, no distinction is made between partial-record 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 01470500, includes a 2-digit part number "01" plus a 6-digit downstream-order number "470500." 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. 5).

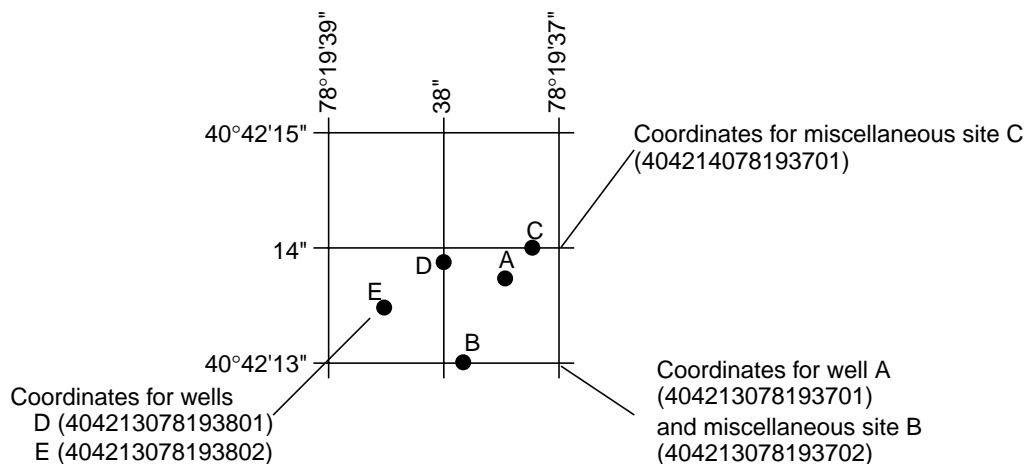


Figure 5.--System for numbering wells and miscellaneous sites (latitude and longitude).

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 6-13.

### **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 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, headings for AVERAGE DISCHARGE, EXTREMES FOR PERIOD OF RECORD, and EXTREMES FOR CURRENT YEAR have been deleted and the information contained in these paragraphs, except for the listing of secondary instantaneous peak discharges in the PEAK DISCHARGES FOR CURRENT YEAR paragraph, is now presented in the tabular summaries following the discharge table or in the REMARKS paragraph, as appropriate. No changes have been made to the data presentations of lake contents. In order to present all the data collected on the Delaware River, data collected by the U.S. Geological Survey offices in New Jersey, New York and Delaware have been included in this report. These data are presented as published by each state, although the format differs slightly from that published in this volume.

#### **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 both monthly and yearly observed discharges are adjusted for reservoir storage or diversion, or diversion data or reservoir contents are given. These figures are identified by a symbol and corresponding footnote.

#### **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) 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 thousandth of a cubic foot per second for sites where the streamflow is often less than .01 ft<sup>3</sup>/s (cubic foot per second); to the nearest hundredth of a cubic foot per second for values less than 1 ft<sup>3</sup>/s for other sites where the streamflow is rarely less than .01 ft<sup>3</sup>/s; to the nearest tenth from 1.0 to 10 ft<sup>3</sup>/s; to whole numbers from 10 to 1,000 ft<sup>3</sup>/s; and to 3 significant figures when greater than 1,000 ft<sup>3</sup>/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 specified site which meets one or all conditions listed: (1) When chemical samples are collected daily or monthly for 10 or more months during the water year. (2) When water temperature records include observations taken one or more times daily. (3) When sediment discharge records include periods for which sediment loads are computed and are considered to be representative of the runoff for the water year. A partial-record station is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A miscellaneous sampling site is a location other than a continuing or partial-record station, where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.



A careful distinction needs to be made between "*continuing records*" as used in this report and "*continuous recordings*," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Location of stations for which records on the quality of surface water appear in this report are shown in figures 6-14.

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

#### **Water Temperature**

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

### Sediment

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

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

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

### Laboratory Measurements

Sediment samples, samples for biochemical-oxygen demand (BOD), samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. The remaining samples are analyzed in the Geological Survey laboratory in Denver, Colorado. If other laboratories are used, they are identified in the "Remarks" or "Cooperation" paragraph of each water-quality station manuscript. Methods used to analyze sediment samples and to compute sediment records are described in the TWRI Book 5, Chapter C1. Methods used by the U.S. 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., Matraw, 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.

Measured physical property	Ratings			
	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:

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

#### 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 sample bottles before and after sample collection.

**Source-solution blank**--A blank solution that is poured directly from a bottle of blank water into the sample container.

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 6 and 7. Ground-water data are grouped by counties, arranged in alphabetical order, and are listed on pages xi and xii. 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, 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 in wells equipped with recording gages are reported for each day.

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

### Data Presentation

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

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

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

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

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

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

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

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

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

### Data table of water levels

A table of water levels follows the station description for each well. These tables usually report water-level data as maximum depth (in feet) above or below land-surface datum, but may report daily mean or instantaneous values depending upon the method used to obtain the record and how the record was published in the past. If water-level record is obtained from electronic data loggers, or 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 from [<http://waterdata.usgs.gov/pa/nwis/>]. The extremes of the water-levels reported in the table for the water year and their dates of occurrence are shown on a line below the table. Missing records are indicated by dashes in place of the water level. A hydrograph showing the last three years of water levels follows each water-level table.

### **Records of Ground-Water Quality**

Records of ground-water quality are obtained at wells and springs included in ground-water projects. Records of ground-water quality in this report may involve a variety of types of data and measurement frequencies. Those wells with a (c) following the well number in the list of ground-water wells on pages xi and xii, 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 mostly 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 for this year, by themselves, do not provide a balanced view of ground-water quality basinwide. 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 method 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, discharge, groundwater level, and stream water-quality data for many of the gaging stations equipped with the necessary telemetry and historic daily-mean and peak-flow discharge data for most current or discontinued gaging stations through the World Wide Web (WWW). These data may be accessed at [<http://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 sim-

plifies 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 ( $\text{g}/\text{m}^3$ ), and periphyton and benthic organisms in grams per square meter ( $\text{g}/\text{m}^2$ ). (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 ( $\mu\text{m}^3$ ) 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:

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

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

From cell volume, total algal biomass expressed as biovolume ( $\mu\text{m}^3/\text{mL}$ ) 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 chloroplatinat 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 boundaries. 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<sup>3</sup>/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<sup>3</sup>/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, (ft<sup>3</sup>/s)/mi<sup>2</sup>]** 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<sub>3</sub>) 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:

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

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 faecalis*, *Streptococcus faecium*, *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<sub>3</sub>).

**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:

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

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

**Micrograms per kilogram (UG/KG,  $\mu\text{g/kg}$ )** 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,  $\mu\text{g/L}$ )** 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,  $\mu\text{S/cm}$ )** 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,  $\text{mg/L}$ )** 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,  $\text{ng/L}$ )** 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<sup>2</sup>), 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 ( $1 \times 10^{-12}$ ) of the amount of radioactive nuclide represented by a curie (Ci). A curie is the quantity of radioactive nuclide that yields  $3.7 \times 10^{10}$  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 photosynthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated (carbon method) by the plants.

**Primary productivity (carbon method)** is expressed as milligrams of carbon per area per unit time [ $\text{mg C}/(\text{m}^2/\text{time})$ ] for periphyton and macrophytes or per volume [ $\text{mg C}/(\text{m}^3/\text{time})$ ] 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 [ $\text{mg O}/(\text{m}^2/\text{time})$ ] for periphyton and macrophytes or per volume [ $\text{mg O}/(\text{m}^3/\text{time})$ ] 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 con-

ditions 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 precipitation.

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

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

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

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

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

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

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

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

**Stage** (See "Gage height")

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

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

**Substrate** is the physical surface upon which an organism lives.

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

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

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

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

**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 material 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<sup>3</sup>/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 hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, *Hexagenia limbata*, is the following:

Kingdom:	Animal
Phylum:	Arthropoda
Class:	Insecta
Order:	Ephemeroptera
Family:	Ephemeraeidae
Genus:	<i>Hexagenia</i>
Species:	<i>Hexagenia limbata</i>

**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. Zooplank-

ton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers. (See also “Plankton”)

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

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

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

### Book 1. Collection of Water Data by Direct Measurement

#### Section D. Water Quality

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

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

### Book 2. Collection of Environmental Data

#### Section D. Surface Geophysical Methods

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

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

#### Section E. Subsurface Geophysical Methods

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

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

#### Section F. Drilling and Sampling Methods

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

## Book 3. Applications of Hydraulics

### Section A. Surface-Water Techniques

- 3–A1. *General field and office procedures for indirect discharge measurements*, by M.A. Benson and Tate Dalrymple: USGS–TWRI book 3, chap. A1. 1967. 30 p.
- 3–A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M.A. Benson: USGS–TWRI book 3, chap. A2. 1967. 12 p.
- 3–A3. *Measurement of peak discharge at culverts by indirect methods*, by G.L. Bodhaine: USGS–TWRI book 3, chap. A3. 1968. 60 p.
- 3–A4. *Measurement of peak discharge at width contractions by indirect methods*, by H.F. Matthai: USGS–TWRI book 3, chap. A4. 1967. 44 p.
- 3–A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS–TWRI book 3, chap. A5. 1967. 29 p.
- 3–A6. *General procedure for gaging streams*, by R.W. Carter and Jacob Davidian: USGS–TWRI book 3, chap. A6. 1968. 13 p.
- 3–A7. *Stage measurement at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS–TWRI book 3, chap. A7. 1968. 28 p.
- 3–A8. *Discharge measurements at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS–TWRI book 3, chap. A8. 1969. 65 p.
- 3–A9. *Measurement of time of travel in streams by dye tracing*, by F.A. Kilpatrick and J.F. Wilson, Jr.: USGS–TWRI book 3, chap. A9. 1989. 27 p.
- 3–A10. *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 Yot-sukura, 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 Gibbs, 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 Gibbs, 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 Gibbs, 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 Gibbs, 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 Gibbs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A5. 1999, 149 p.

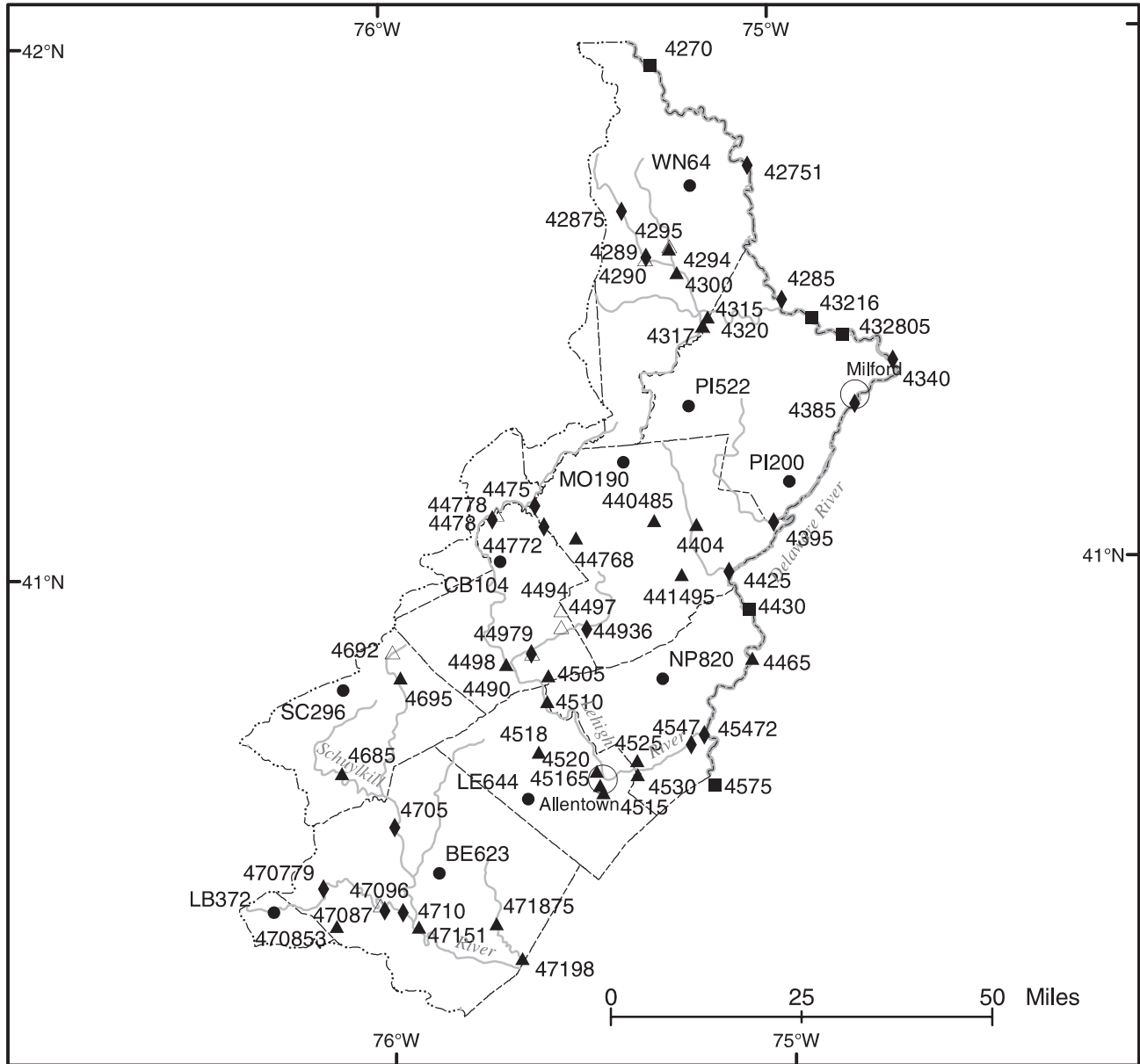
9–A6. *National field manual for the collection of water-quality data: Field measurements*, edited by F.D. Wilde and D.B. Radtke: USGS–TWRI book 9, chap. A6. 1998. Variously paginated.

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.

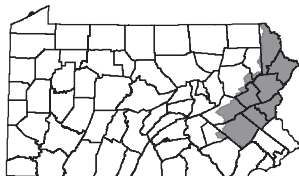
9–A8. *National field manual for the collection of water-quality data: Bottom-material samples*, by D.B. Radtke: USGS–TWRI book 9, chap. A8. 1998. 48 p.

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.





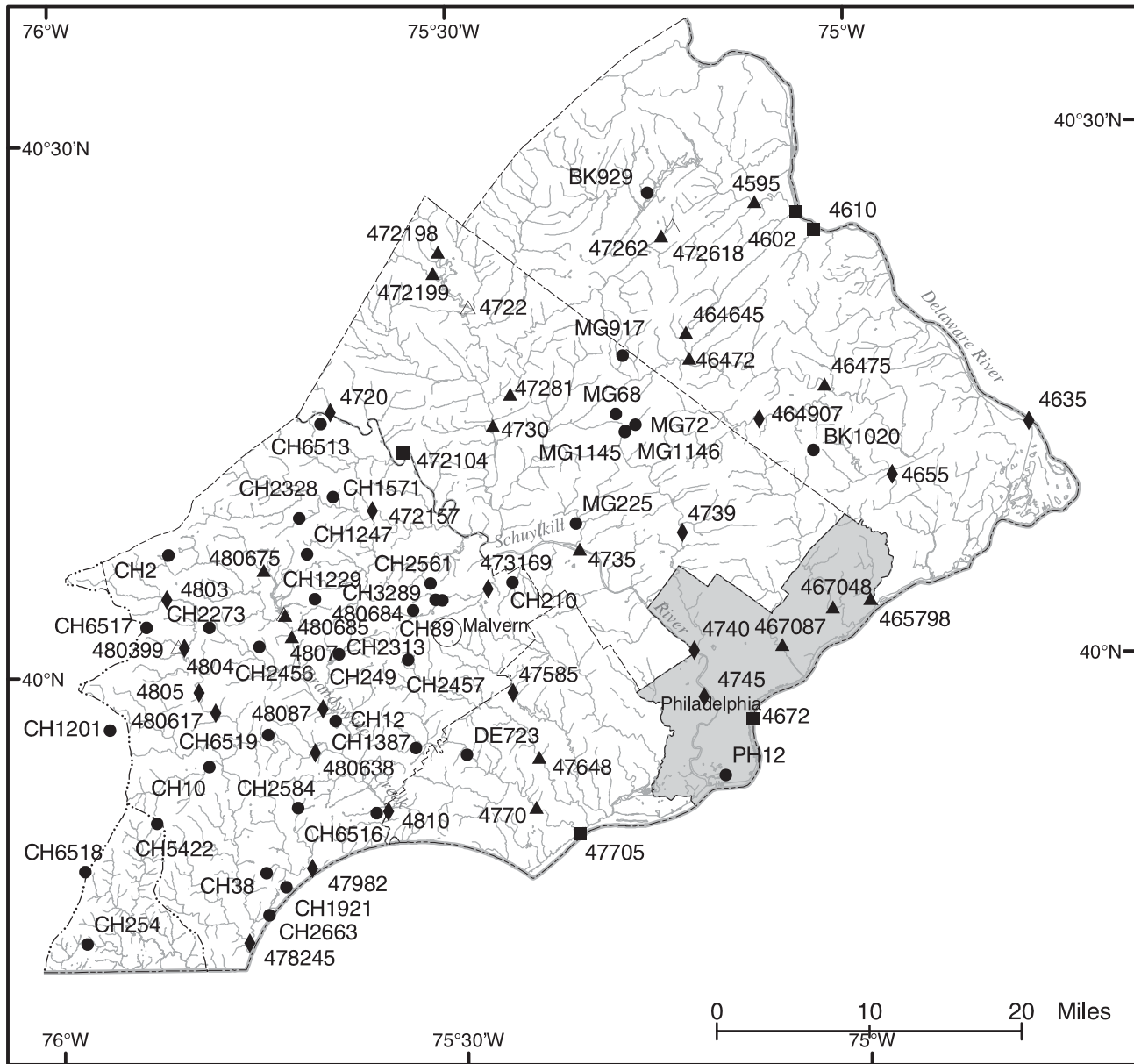
EXPLANATION



- ▲ Streamflow station
- △ Lake
- Water- quality station
- ◆ 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 01470500 is shown as 4705, and station number 01471875 is shown as 471875).

Figure 6.--Location of continuous-record data-collection stations in the upper Delaware River Basin.

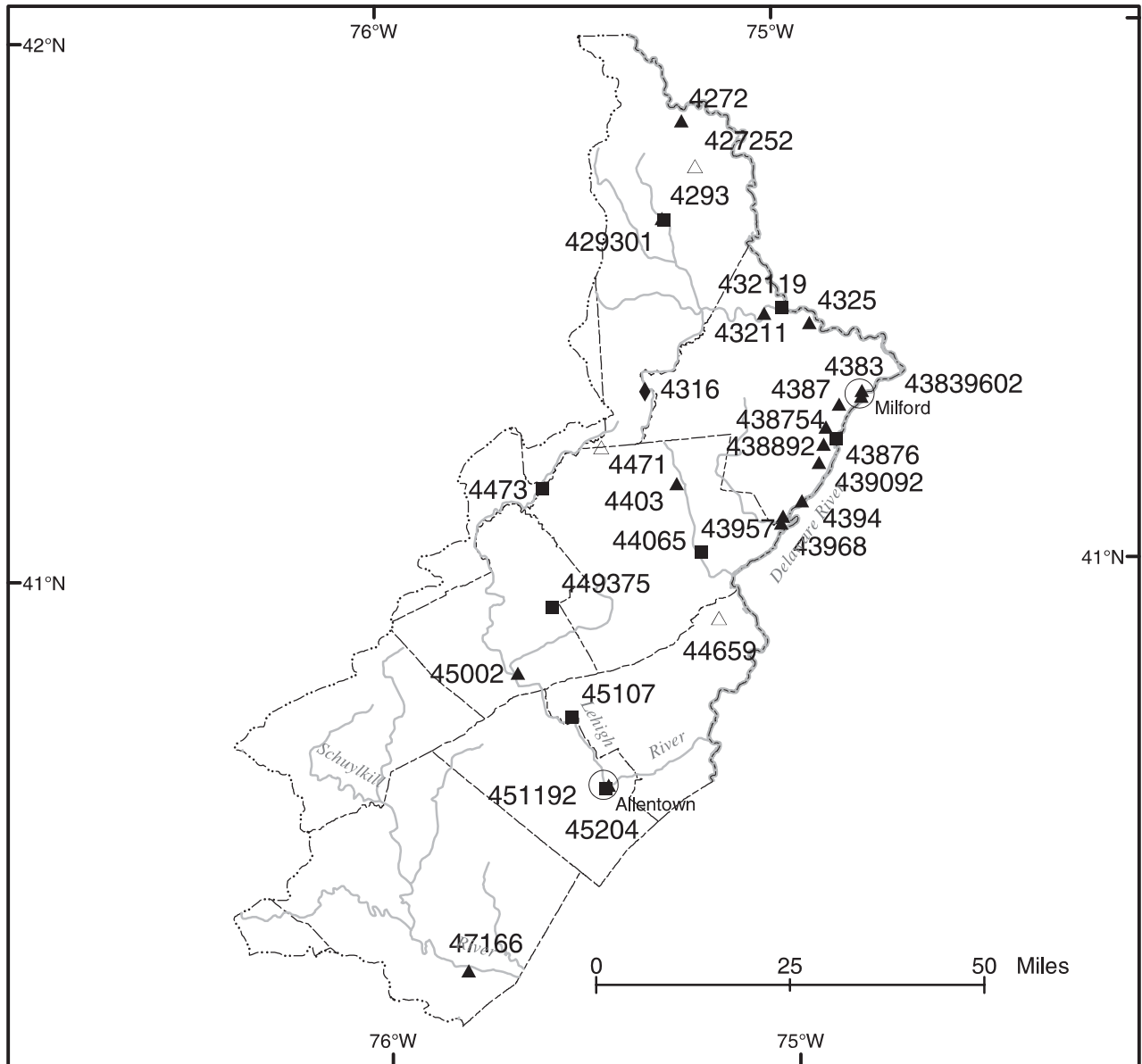


EXPLANATION

- ▲ Streamflow station
- △ Lake
- Water- quality station
- ◆ 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 01474000 is shown as 4740, and station number 01467048 is shown as 467048).

Figure 7.--Location of continuous-record data-collection stations in the lower Delaware River Basin.



EXPLANATION

- ▲ Streamflow station
- △ Lake
- 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 01438300 is shown as 4383, and station number 01451192 is shown as 451192).

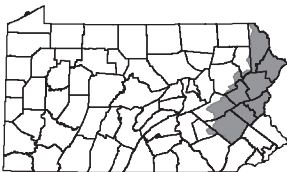
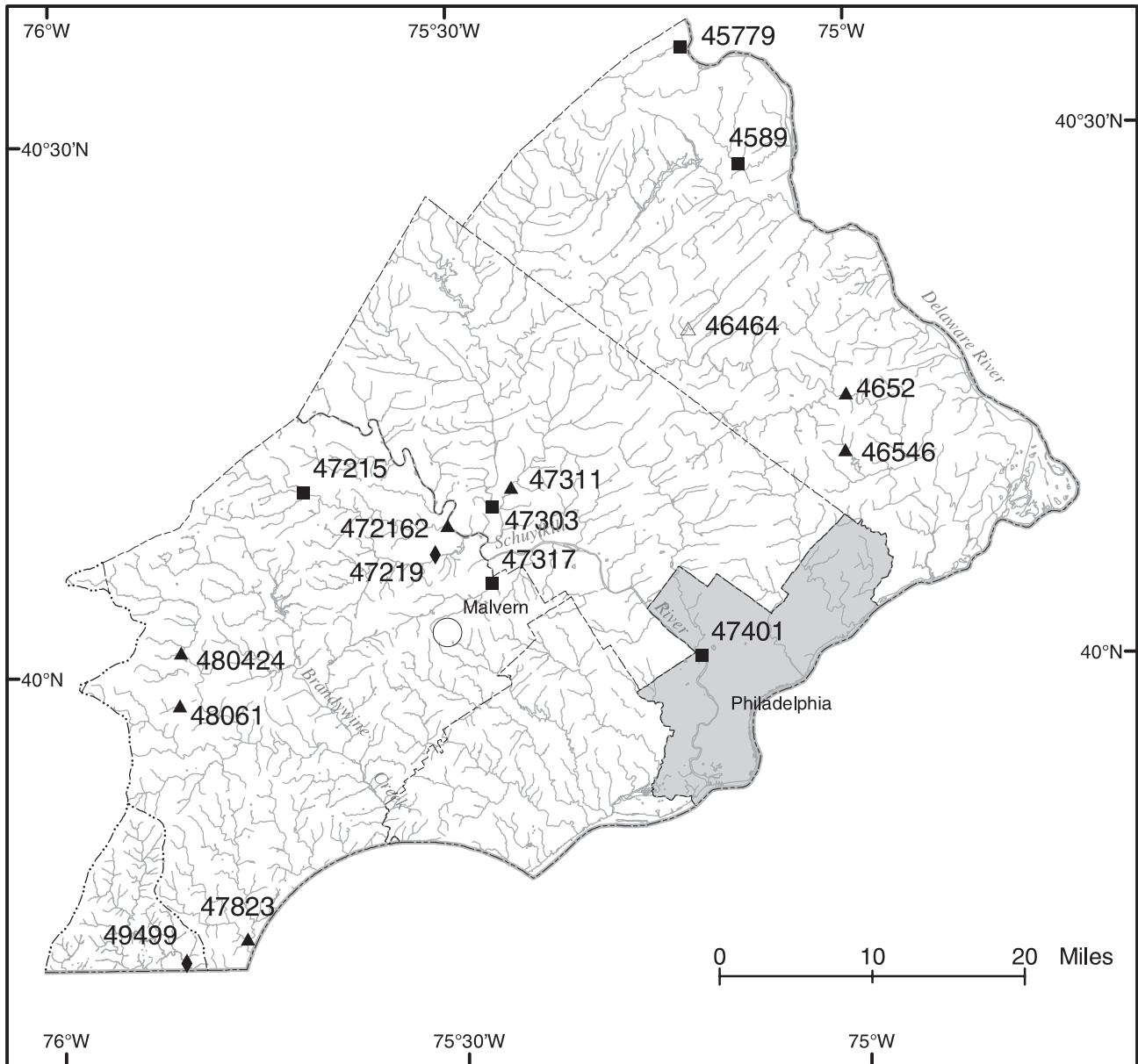


Figure 8.--Location of partial-record data-collection stations in the upper Delaware River Basin.



EXPLANATION

- ▲ Streamflow station
- △ Lake
- 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 01465460 is shown as 46546).



Figure 9.--Location of partial-record data-collection stations in the lower Delaware River Basin.



**SPECIAL NOTES, REMARK CODES, AND SELECTED CONSTITUENT DEFINITIONS**

\*\*\*\*\*

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

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

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

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

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

where:

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

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

\*\*\*\*\*

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

**PRINTED OUTPUT**

**REMARK**

E,e	Estimated value.
>	Actual value is known to be greater than the value shown.
<	Actual value is known to be less than the value shown.
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:**

**(84164) SAMPLER TYPE: (partial list)**

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

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

**(82398) SAMPLE METHOD CODES:**

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

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

**SPECIAL NOTES, REMARK CODES AND SELECTED CONSTITUENT DEFINITIONS--Continued****Explanation of selected abbreviations used in constituent definitions in water-quality tables:**

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

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

1028 --U.S. Geological Survey

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

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

**MEDIUM CODES: (partial listing)**

9-- Surface water.  
 R-- Quality-control sample. Surface water.  
 Q-- Quality-control sample. Artificial.

**SURFACE-WATER RECORDS  
NORTH ATLANTIC SLOPE BASINS  
DELAWARE RIVER BASIN**

**01427000 WEST BRANCH DELAWARE RIVER AT HANCOCK, NY**

**LOCATION.**--Lat 41°57'08", long 75°17'31", Delaware County, Hydrologic Unit 02040101, at bridge at end of Pennsylvania State Highway 191 in Hancock, and 1.3 mi upstream from confluence with East Branch Delaware Riverr.

**DRAINAGE AREA.**--650 mi<sup>2</sup>.

**PERIOD OF DAILY RECORD.**--

WATER TEMPERATURES: October 1996 to current year.

**INSTRUMENTATION.**--Water-temperature satellite telemeter provides 15-minute-interval readings.

**REMARKS.**--Water temperature is affected by release of water from upstream reservoir. Interruption of record was due to malfunction of recording instrument.

**EXTREMES FOR PERIOD OF RECORD.**--

WATER TEMPERATURES: Maximum, 24.5°C, Sept. 18, 1997, June 13, 2001; minimum, 0.0°C on many days during winters.

**EXTREMES FOR CURRENT YEAR.**--

WATER TEMPERATURES: Maximum, 22.5°C, June 26, July 25, 26; minimum, 0.0°C on many days during winter.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	19.5	14.5	17.0	6.5	5.0	6.0	3.0	0.5	2.0	2.5	1.5	2.0
2	21.0	17.0	18.5	5.5	4.5	5.0	2.0	0.5	1.0	2.0	1.0	1.5
3	18.0	16.5	17.5	6.0	4.5	5.0	1.0	0.0	0.0	1.5	0.0	0.5
4	16.5	15.0	15.5	5.5	4.5	5.0	0.0	0.0	0.0	1.0	0.0	0.5
5	18.0	15.5	16.5	7.0	4.5	5.5	0.0	0.0	0.0	2.0	1.0	1.5
6	17.0	14.0	15.5	6.5	5.5	6.0	0.5	0.0	0.0	2.0	1.0	1.5
7	17.0	14.5	15.5	6.5	4.0	5.5	0.5	0.0	0.0	1.5	0.0	0.5
8	15.5	13.0	14.5	7.0	3.5	5.0	0.0	0.0	0.0	1.5	0.0	0.5
9	15.5	13.5	14.5	7.5	4.5	6.0	0.0	0.0	0.0	2.5	1.5	2.0
10	15.5	15.0	15.0	9.5	6.5	8.0	0.0	0.0	0.0	2.5	0.5	1.5
11	15.0	13.5	14.5	11.0	9.0	10.0	0.0	0.0	0.0	0.5	0.0	0.0
12	14.0	13.0	13.5	9.0	8.0	8.5	0.0	0.0	0.0	0.5	0.0	0.0
13	13.5	12.5	13.5	8.0	7.0	7.5	0.0	0.0	0.0	0.0	0.0	0.0
14	12.5	10.0	11.5	8.0	6.0	7.0	1.0	0.0	0.5	0.0	0.0	0.0
15	11.0	9.0	10.0	8.5	6.5	7.5	1.0	0.5	1.0	0.0	0.0	0.0
16	10.5	10.0	10.5	7.5	6.0	6.5	1.5	0.5	1.0	0.0	0.0	0.0
17	10.5	10.0	10.5	6.5	6.0	6.0	0.5	0.0	0.0	0.0	0.0	0.0
18	11.5	9.5	10.0	6.0	4.5	5.0	0.0	0.0	0.0	0.5	0.0	0.0
19	10.0	9.5	9.5	5.0	4.5	4.5	1.0	0.0	0.0	0.5	0.0	0.0
20	10.5	8.5	9.5	6.0	4.5	5.0	2.5	1.0	2.0	0.0	0.0	0.0
21	10.0	8.0	9.0	5.5	4.5	5.0	2.5	2.0	2.5	0.0	0.0	0.0
22	9.5	7.0	8.5	6.5	5.5	6.0	3.0	2.0	2.5	0.0	0.0	0.0
23	10.0	7.0	8.5	6.0	4.0	4.5	3.0	2.0	2.5	0.0	0.0	0.0
24	9.0	6.0	7.5	5.0	3.5	4.5	2.0	1.5	2.0	0.0	0.0	0.0
25	8.0	6.5	7.5	5.0	4.0	4.5	2.0	0.0	0.5	0.0	0.0	0.0
26	8.5	7.5	8.0	4.5	4.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0
27	9.5	8.0	8.5	4.0	2.5	3.5	0.5	0.0	0.5	0.0	0.0	0.0
28	8.5	7.0	8.0	2.5	1.5	2.0	1.0	0.0	0.5	0.0	0.0	0.0
29	7.0	5.5	6.5	2.5	2.0	2.0	1.5	0.5	1.0	0.0	0.0	0.0
30	7.0	5.5	6.5	4.0	2.0	3.0	1.5	0.5	1.0	0.0	0.0	0.0
31	7.5	4.0	6.0	---	---	---	2.0	1.0	1.5	0.0	0.0	0.0
MONTH	21.0	4.0	11.5	11.0	1.5	5.5	3.0	0.0	0.7	2.5	0.0	0.4



DELAWARE RIVER BASIN

01427000 WEST BRANCH DELAWARE RIVER AT HANCOCK, NY--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	0.0	0.0	0.0	1.5	0.5	1.0	3.0	2.0	2.5	13.5	7.5	10.5
2	0.0	0.0	0.0	2.0	1.5	1.5	5.0	2.5	3.5	12.5	9.5	11.0
3	0.0	0.0	0.0	1.5	0.0	0.5	4.0	3.5	4.0	13.5	9.0	11.0
4	0.0	0.0	0.0	1.0	0.0	0.5	4.0	3.0	3.5	13.5	9.0	11.5
5	0.0	0.0	0.0	2.0	0.5	1.5	3.0	2.0	2.5	11.5	9.0	10.0
6	0.0	0.0	0.0	2.0	0.0	1.0	5.0	2.0	3.5	10.5	8.5	9.5
7	0.0	0.0	0.0	1.0	0.0	0.5	3.5	2.0	3.0	13.5	9.5	11.5
8	0.0	0.0	0.0	3.0	0.0	1.5	3.5	2.0	3.0	13.0	11.5	12.0
9	0.0	0.0	0.0	3.0	0.5	2.5	4.0	3.0	3.5	14.5	11.0	12.5
10	0.0	0.0	0.0	0.5	0.0	0.5	7.0	3.5	5.0	14.5	10.5	13.0
11	0.0	0.0	0.0	1.0	0.0	0.5	5.0	3.5	4.0	14.0	12.5	13.5
12	0.0	0.0	0.0	2.5	0.0	1.0	8.5	4.0	6.0	13.5	12.5	13.0
13	0.0	0.0	0.0	2.5	0.5	1.5	8.0	4.0	6.0	12.5	8.5	10.5
14	0.0	0.0	0.0	2.5	0.0	1.5	8.5	3.5	6.0	10.0	8.0	9.0
15	0.0	0.0	0.0	5.5	1.5	3.5	10.0	5.0	7.5	13.0	8.5	11.0
16	0.0	0.0	0.0	6.0	2.5	4.0	10.5	6.0	8.0	13.0	10.5	12.0
17	0.0	0.0	0.0	5.0	2.5	3.0	8.0	4.5	5.5	15.0	11.0	13.0
18	0.0	0.0	0.0	3.0	1.5	2.0	5.5	3.5	4.5	16.0	11.0	13.5
19	0.0	0.0	0.0	4.0	1.5	2.5	9.5	4.5	6.5	17.0	11.5	14.5
20	0.5	0.0	0.0	2.5	2.5	2.5	10.0	5.0	7.5	16.5	12.5	15.0
21	0.5	0.0	0.0	4.0	2.0	3.0	8.5	6.0	7.0	16.0	12.5	13.5
22	0.0	0.0	0.0	4.5	3.0	3.5	7.5	6.5	7.0	14.0	11.5	13.0
23	0.0	0.0	0.0	3.5	3.0	3.0	7.0	4.5	6.0	14.0	12.5	13.0
24	0.0	0.0	0.0	4.5	2.5	3.5	9.0	3.5	6.0	13.0	12.5	12.5
25	0.0	0.0	0.0	5.5	3.0	4.0	10.5	4.5	8.0	16.5	12.0	14.0
26	0.0	0.0	0.0	4.0	3.5	4.0	9.5	7.5	8.0	15.5	13.0	13.5
27	0.0	0.0	0.0	5.5	3.0	4.0	11.5	8.0	9.5	17.0	12.5	15.0
28	0.5	0.0	0.0	5.5	3.0	4.5	11.5	7.0	9.5	16.5	14.0	15.5
29	---	---	---	5.5	4.5	5.0	11.0	7.5	9.0	17.0	13.5	15.5
30	---	---	---	5.0	3.0	3.5	10.5	6.0	8.5	17.5	14.0	16.0
31	---	---	---	5.0	2.0	3.5	---	---	---	16.0	13.5	14.5
MONTH	0.5	0.0	0.0	6.0	0.0	2.4	11.5	2.0	5.8	17.5	7.5	12.7
	JUNE			JULY			AUGUST			SEPTEMBER		
1	13.5	11.5	13.0	19.5	14.5	17.0	17.5	13.5	15.0	14.5	13.0	13.5
2	15.0	11.0	13.0	20.0	15.5	18.0	20.0	13.5	18.5	15.5	14.5	15.0
3	13.5	12.0	13.0	20.0	16.0	18.0	21.0	18.0	19.5	15.0	13.5	14.5
4	14.0	12.5	13.5	20.5	16.5	18.5	20.0	18.5	19.0	15.0	12.5	14.0
5	15.0	13.5	14.0	20.0	17.0	18.5	20.0	18.0	19.0	19.0	15.0	17.5
6	17.5	13.5	15.0	20.5	17.0	18.5	18.5	17.5	18.0	20.5	17.5	19.0
7	16.0	14.0	14.5	19.0	16.0	17.5	19.0	17.0	18.0	21.0	18.5	19.5
8	16.0	14.0	15.0	17.5	13.0	15.5	20.5	17.5	19.0	21.0	18.5	19.5
9	17.0	15.0	16.0	16.5	12.5	13.5	19.5	18.5	19.0	21.5	17.0	19.5
10	18.5	14.0	16.5	16.0	12.0	14.0	20.0	17.0	18.5	18.0	15.0	16.5
11	17.5	15.0	16.0	17.0	15.0	16.0	18.0	16.5	17.5	17.5	14.0	16.0
12	17.0	15.0	16.0	19.0	15.5	17.0	18.5	14.5	16.5	18.0	15.5	16.5
13	16.0	15.0	15.5	19.0	15.5	17.0	16.0	11.5	14.0	16.5	15.0	16.0
14	17.5	14.5	16.0	22.0	15.0	18.5	16.0	11.5	14.0	19.0	16.5	18.0
15	17.5	15.5	16.5	22.0	17.0	19.5	16.0	11.5	14.0	19.0	17.0	17.5
16	19.0	15.0	17.0	20.5	18.0	19.5	15.5	13.0	14.5	18.0	16.0	17.0
17	19.5	16.0	17.5	20.0	16.0	18.0	15.0	13.5	14.5	16.0	13.5	15.0
18	17.5	16.0	16.5	18.0	13.5	16.0	17.0	13.5	15.5	15.0	12.5	14.0
19	19.0	16.0	17.5	15.5	11.5	13.5	19.5	15.5	17.5	15.5	13.5	14.5
20	18.0	15.5	17.0	17.5	12.5	15.0	19.5	16.0	17.5	16.0	14.0	15.0
21	16.0	14.5	15.5	17.0	15.5	16.0	20.5	16.5	18.5	17.0	13.5	15.0
22	---	---	---	18.0	15.0	16.5	20.5	17.5	19.0	15.0	14.0	14.5
23	---	---	---	19.0	16.5	18.0	20.0	15.5	17.5	16.5	15.0	15.5
24	---	---	---	20.5	17.5	19.0	19.0	14.0	16.5	17.0	14.5	15.5
25	---	---	---	22.5	17.5	20.0	19.0	15.0	17.0	16.5	15.0	15.5
26	22.5	---	---	22.5	18.0	20.5	18.0	15.5	17.0	18.0	15.5	16.5
27	21.0	15.5	17.0	20.5	15.5	17.5	18.0	14.0	16.0	19.0	16.5	18.0
28	19.5	15.0	17.5	19.0	14.0	16.5	16.0	12.0	14.0	18.5	16.5	17.0
29	19.0	15.5	17.0	20.0	16.0	18.0	13.5	9.0	11.0	17.5	16.0	16.5
30	18.5	16.0	17.5	20.0	15.5	18.0	13.0	11.0	12.5	17.0	15.0	15.5
31	---	---	---	19.0	15.5	17.5	15.0	9.5	12.5	---	---	---
MONTH	---	---	---	22.5	11.5	17.3	21.0	9.0	16.5	21.5	12.5	16.2

## DELAWARE RIVER BASIN

01427510 DELAWARE RIVER AT CALLICOON, NY  
(Pennsylvania Water-Quality Network Station)

**LOCATION.**--Lat 41°45'24", long 75°03'28", Wayne County, Pennsylvania, Hydrologic Unit 02040101, on right bank, 0.5 mi downstream from Callicoon Creek, 0.5 mi downstream from Interstate Bridge 7, and 0.8 mi southeast of Callicoon. Water-quality sampling site at discharge station.

**DRAINAGE AREA.**--1,820 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--June 1975 to current year.

**REVISED RECORDS.**--WDR NY-82-1: Drainage area. WDR NY-86-1: 1975-84 (M).

**GAGE.**--Water-stage recorder and crest-stage gage. Datum of gage is 734.88 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Subsequent to September 1954, entire flow from 371 mi<sup>2</sup> of drainage area controlled by Pepacton Reservoir, and subsequent to October 1963, entire flow from 454 mi<sup>2</sup> of drainage area controlled by Cannonsville Reservoir. Part of flow from these reservoirs diverted for New York City municipal supply. Remainder of flow (except for conservation releases and spill) impounded for release during period of low flow in the lower Delaware River basin, as directed by the Delaware River Master. Satellite and telephone gage-height and temperature telemeter at station. Information on the above reservoirs can be found in the annual Water-Data Report NY-03-1.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 95,600 ft<sup>3</sup>/s, Jan. 19, 1996, gage-height, 16.31 ft; minimum discharge, 306 ft<sup>3</sup>/s, Sept. 24, 25, 1997; minimum gage height, 2.20 ft, Sept. 13, 1977, Aug. 23, 1985.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 33,900 ft<sup>3</sup>/s, Sept. 4, gage height, 9.38 ft; minimum recorded discharge, 634 ft<sup>3</sup>/s, Oct. 2, but may have been less during period of estimated record, gage height, 2.73 ft.

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	756	1,410	e1,600	2,450	e1,000	e1,380	10,200	3,450	6,450	1,670	1,260	1,060
2	673	1,330	e1,450	7,890	e910	e1,400	8,930	5,290	7,730	1,400	2,440	11,700
3	e640	1,300	e1,300	5,990	e930	e1,370	8,680	8,160	6,330	1,240	2,200	11,500
4	e900	1,170	e1,100	4,710	e1,000	e1,280	8,050	7,450	6,000	1,170	2,770	26,300
5	e970	1,070	e1,040	3,770	e1,400	e1,220	8,120	6,260	5,590	1,190	3,680	18,200
6	e900	1,370	e1,050	e3,000	e1,250	e1,200	7,950	5,440	5,040	1,130	4,270	12,200
7	e950	1,930	e930	e2,450	e1,150	e1,100	7,570	4,550	4,660	1,040	3,580	8,990
8	e930	1,590	e970	e2,010	e1,080	e1,050	6,890	3,900	e4,900	1,270	2,780	6,890
9	e870	1,360	e790	e1,730	e1,050	e1,000	6,110	3,340	e4,200	1,440	e2,650	5,220
10	e960	1,120	e830	e1,490	e1,020	e970	5,480	2,850	e3,400	1,270	2,870	4,450
11	e1,100	1,060	e870	e1,340	e1,030	e950	5,640	e2,550	e3,100	2,170	4,590	e3,800
12	e4,700	1,520	e940	e1,270	e1,050	e930	6,370	e3,300	e3,400	2,360	7,240	e2,600
13	e6,400	2,900	e1,200	e1,100	e1,000	e910	5,820	e4,400	e4,000	1,430	6,030	1,960
14	e4,000	2,920	e1,800	e1,080	e950	e870	5,070	e4,200	e9,800	1,120	5,550	1,750
15	e3,000	2,510	e3,800	e1,000	e890	e850	4,560	e3,650	e10,200	1,080	e4,700	4,050
16	e3,400	2,370	e3,500	e920	e780	e970	4,210	3,260	e7,400	1,120	e3,800	5,640
17	e13,000	5,390	e2,500	e960	e800	e2,300	3,780	2,940	e5,800	1,330	e3,200	4,080
18	e8,000	e8,000	e2,000	e980	e830	9,850	3,380	2,620	e5,200	1,170	e3,000	3,340
19	e5,000	e6,600	e1,800	e1,050	e870	13,300	3,080	2,310	e4,600	1,270	e2,450	3,210
20	e4,200	e5,500	e2,600	e1,130	e890	12,400	2,770	2,040	e4,200	1,230	1,950	2,990
21	e3,300	e5,000	e6,400	e1,150	e960	25,700	2,480	1,930	e7,800	966	1,640	2,180
22	e2,700	e4,950	e5,400	e1,150	e1,000	30,200	2,450	1,880	e9,500	1,900	1,410	1,780
23	e2,200	e6,200	3,560	e1,080	e1,260	26,100	2,450	1,640	e9,300	2,970	1,260	10,300
24	e1,750	e6,000	2,900	e1,030	e1,850	18,100	2,290	1,540	e6,600	2,460	1,070	12,200
25	1,480	e4,400	2,550	e1,000	e1,900	14,400	2,110	1,740	e5,600	1,860	e1,030	8,060
26	2,160	e3,550	2,140	e1,000	e1,950	13,800	2,470	2,040	e4,100	1,520	e1,000	6,160
27	2,750	e2,950	2,430	e990	e1,750	12,200	5,280	2,450	e3,400	1,480	e970	5,190
28	2,220	e2,500	2,220	e1,020	e1,550	9,880	4,870	2,260	e2,850	1,470	e1,070	9,090
29	1,970	e2,120	1,950	e1,030	---	9,510	4,340	2,180	2,300	1,300	e1,090	11,200
30	1,700	e1,890	1,840	e1,040	---	13,500	3,840	1,950	1,960	1,160	1,240	8,590
31	1,530	---	1,800	e1,020	---	12,200	---	2,010	---	1,080	1,190	---
TOTAL	85,109	91,980	65,260	57,830	32,100	240,890	155,240	103,580	165,410	45,266	83,980	214,680
MEAN	2,745	3,066	2,105	1,865	1,146	7,771	5,175	3,341	5,514	1,460	2,709	7,156
MAX	13,000	8,000	6,400	7,890	1,950	30,200	10,200	8,160	10,200	2,970	7,240	26,300
MIN	640	1,060	790	920	780	850	2,110	1,540	1,960	966	970	1,060

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 2003, BY WATER YEAR (WY)

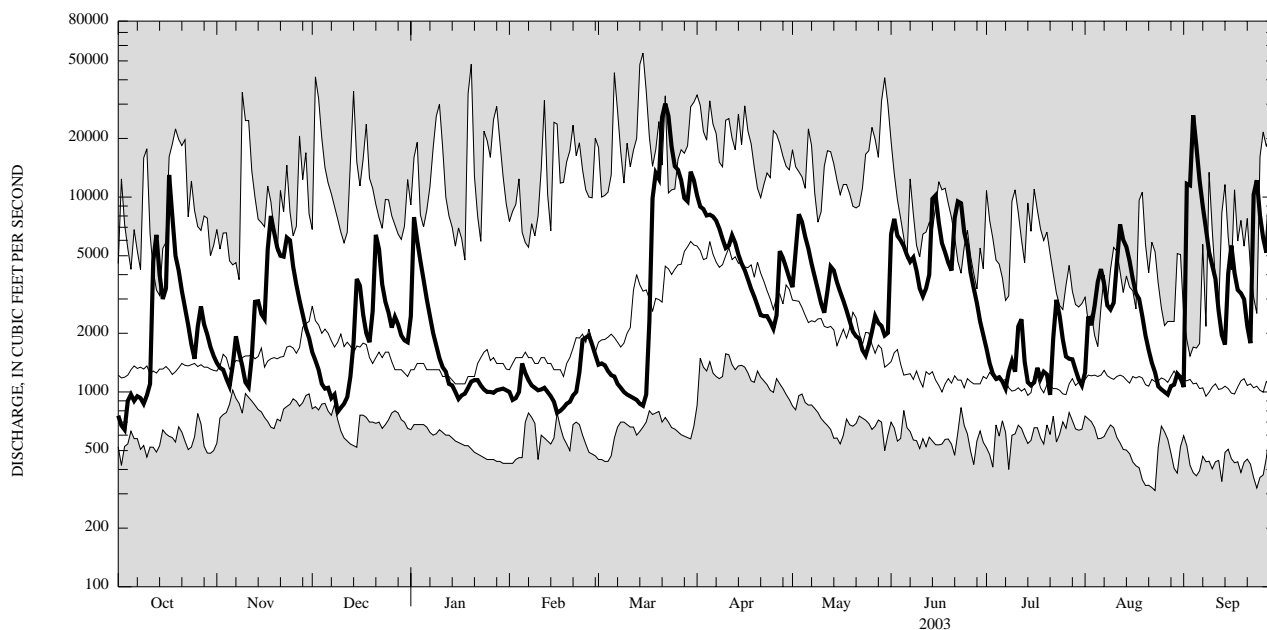
MEAN	2,000	2,547	2,603	2,408	2,590	4,623	5,637	3,494	1,954	1,366	1,334	1,582
MAX	6,545	6,561	11,130	7,594	7,993	11,080	14,500	7,866	5,514	3,571	2,710	7,156
(WY)	(1978)	(1997)	(1997)	(1978)	(1976)	(1977)	(1993)	(1984)	(2003)	(1996)	(1994)	(2003)
MIN	701	1,130	1,035	587	611	1,177	1,496	935	734	777	560	839
(WY)	(1992)	(1979)	(1999)	(1977)	(1980)	(1981)	(1985)	(1985)	(1985)	(1981)	(1985)	(1994)

e Estimated.

## DELAWARE RIVER BASIN

01427510 DELAWARE RIVER AT CALLICOON, NY--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1975 - 2003	
ANNUAL TOTAL	793,871		1,341,325		2,673	
ANNUAL MEAN	2,175		3,675		3,972	
HIGHEST ANNUAL MEAN					1,434	
LOWEST ANNUAL MEAN					1,434	
HIGHEST DAILY MEAN	13,000	Oct 17	30,200	Mar 22	54,800	Mar 15, 1986
LOWEST DAILY MEAN	520	Jan 20	640	Oct 3	312	Aug 23, 1985
ANNUAL SEVEN-DAY MINIMUM	594	Jan 15	827	Oct 1	354	Aug 17, 1985
10 PERCENT EXCEEDS	4,830		8,050		6,040	
50 PERCENT EXCEEDS	1,520		2,290		1,400	
90 PERCENT EXCEEDS	760		970		800	



CURRENT WATER YEAR DAILY MEAN DISCHARGE (BOLD) WITH DAILY MEDIAN FOR PERIOD OF RECORD.  
 SHADED AREAS SHOW HIGHEST AND LOWEST DAILY MEAN FOR PERIOD OF RECORD THROUGH PREVIOUS WATER YEAR.

## DELAWARE RIVER BASIN

01427510 DELAWARE RIVER AT CALLICOON, NY--Continued  
(Pennsylvania Water-Quality Network Station)

## WATER-QUALITY RECORDS

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

**PERIOD OF DAILY RECORD.**--

WATER TEMPERATURES: June 1975 to current year.

**INSTRUMENTATION.**--Water-temperature satellite telemeter provides 15-minute-interval readings. Prior to May 1989, water-temperature recorder provided one-hour-interval readings.

**REMARKS.**--Water temperature is affected by release of water from upstream reservoir. The daily water temperature records for this site were collected, stored, reported and were furnished by the New York District. Other data for the Water-Quality Network can be found on pages 430-470.

**EXTREMES FOR PERIOD OF DAILY RECORD.**--

WATER TEMPERATURES: Maximum, (water years 1976-2003), 30.5°C, July 12, 1987; minimum, 0.0°C on many days during winters.

**EXTREMES FOR CURRENT YEAR.**--

WATER TEMPERATURES: Maximum, 28.0°C, July 6; minimum, 0.0°C on many days during winter.

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd, $\mu$ S/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, unfltrd, mg/L (00915)	Calcium water unfltrd recover, mg/L (00916)	Magnesium, water, unfltrd, mg/L (00925)	
Date		Magnesium, water, unfltrd recover, mg/L (00927)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	Sulfate water, unfltrd, mg/L (00945)	Residue on evap. at 105 degC, wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water, unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)
NOV 2002														
04...	1500	1028	9813	--	40	14.1	8.1	69	4.8	21	6.02	6.3	1.27	
JAN 2003														
09...	1215	1028	9813	--	40	13.9	7.4	68	1.5	19	5.55	5.7	1.14	
MAR														
20...	1100	1028	9813	--	40	13.2	7.4	71	2.2	20	5.36	5.7	1.21	
MAY														
06...	1200	1028	9813	--	40	11.9	7.4	64	9.3	20	5.67	5.6	1.39	
JUL														
08...	1200	1028	9813	--	40	9.8	8.2	88	25.4	24	6.66	7.0	1.47	
SEP														
10...	1400	1028	9813	--	40	9.6	7.6	77	19.1	22	6.55	6.3	1.54	

## DELAWARE RIVER BASIN

## 01427510 DELAWARE RIVER AT CALLICOON, NY--Continued

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

Date	Alum- inum, water, fltrd, µg/L (01106)	Alum- inum, water, unfltrd recover -able, µg/L (01105)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover -able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover -able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover -able, µg/L (01051)	Mangan- ese, water, fltrd, µg/L (01056)	Mangan- ese, water, unfltrd recover -able, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover -able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)
NOV 2002 04...	17	30	<4	<4	20	50	<1.0	<1.0	4.1	5.1	<4.0	<4.0	<5.0
JAN 2003 09...	25	42	<4	<4	20	60	<1.0	<1.0	9.6	10	<4.0	<4.0	<5.0
MAR 20...	33	200	<4	<4	30	670	<1.0	<1.0	30	140	<4.0	<4.0	<5.0
MAY 06...	23	58	<4	<4	20	70	<1.0	<1.0	10	30	<4.0	<4.0	<5.0
JUL 08...	11	14	<4	<4	30	50	<1.0	<1.0	10	20	<4.0	<4.0	<5.0
SEP 10...	<10	31	<4	<4	30	140	<1.0	<1.0	20	50	<4.0	<4.0	<5.0

Date	Zinc, water, unfltrd recover -able, µg/L (01092)
NOV 2002 04...	<5.0
JAN 2003 09...	<5.0
MAR 20...	<5.0
MAY 06...	<5.0
JUL 08...	<5.0
SEP 10...	<5.0

## DELAWARE RIVER BASIN

## 01427510 DELAWARE RIVER AT CALLICOON, NY--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES

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

Date	09/05/02
Benthic Macroinvertebrate	Count
Nematoda (NEMATODES)	2
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Hydrobiidae	
<u>Amnicola</u> sp	4
Physidae	
<u>Physa</u> sp	1
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	
<u>Musculium</u> sp	4
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	33
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Baetis</u> sp	3
<u>Heterocloeon</u> sp	2
Ephemerellidae	
<u>Serratella</u> sp	4
Heptageniidae	
<u>Epeorus</u> sp	1
<u>Leucrocuta</u> sp	3
<u>Stenonema</u> sp	33
Isonychiidae	
<u>Isonychia</u> sp	10
Leptophlebiidae	
<u>Habrophlebia</u> sp	1
Odonata	
Gomphidae (DRAGONFLIES)	
<u>Ophiogomphus</u> sp	2
Plecoptera (STONEFLIES)	
Perlidae	
<u>Acroneuria</u> sp	8
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
<u>Corydalus</u> sp	4
Trichoptera (CADDISFLIES)	
Brachycentridae	
<u>Brachycentrus</u> sp	1
Helicopsychidae	
<u>Helicopsyche</u> sp	1
Hydropsychidae	
<u>Cheumatopsyche</u> sp	24
<u>Hydropsyche</u> sp	13
<u>Macrostemum</u> sp	1
Philopotamidae	
<u>Chimarra</u> sp	12
Uenoidae	
<u>Neophylax</u> sp	4

## DELAWARE RIVER BASIN

01427510 DELAWARE RIVER AT CALLICOON, NY--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES--Continued

Date	09/05/02
Benthic Macroinvertebrate	Count
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Optioservus</u> sp	3
<u>Stenelmis</u> sp	22
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	9
Simuliidae (BLACK FLIES)	
<u>Simulium</u> sp	1
Total Organisms	206

## DELAWARE RIVER BASIN

## 01427510 DELAWARE RIVER AT CALLICOON, NY--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	20.0	15.5	17.5	6.0	4.5	5.5	2.0	0.5	1.5	2.0	1.0	1.5
2	21.5	18.0	19.5	5.0	4.0	4.5	1.5	0.5	1.0	2.0	1.0	1.5
3	20.5	19.0	20.0	5.0	4.0	4.5	0.5	0.0	0.0	1.0	0.0	0.5
4	19.0	17.0	18.0	5.0	4.0	4.5	0.0	0.0	0.0	0.5	0.0	0.0
5	19.5	17.0	18.0	6.0	4.0	5.0	0.0	0.0	0.0	1.0	0.5	0.5
6	17.5	15.0	16.5	6.0	5.0	5.5	0.0	0.0	0.0	1.5	0.5	1.0
7	17.5	15.0	16.5	5.5	4.0	5.0	0.0	0.0	0.0	1.0	0.0	0.5
8	16.0	13.0	14.5	6.0	4.0	5.0	0.0	0.0	0.0	0.5	0.0	0.0
9	15.0	13.0	14.0	6.0	4.0	5.0	0.0	0.0	0.0	1.5	0.5	1.0
10	14.5	14.0	14.0	8.0	5.5	7.0	0.0	0.0	0.0	1.5	0.5	1.5
11	14.0	13.5	14.0	10.0	8.0	9.0	0.0	0.0	0.0	0.5	0.0	0.0
12	14.0	13.0	13.5	9.5	9.0	9.5	0.0	0.0	0.0	0.0	0.0	0.0
13	14.0	13.0	13.5	9.0	8.0	8.5	0.0	0.0	0.0	0.0	0.0	0.0
14	13.0	11.0	12.5	8.0	7.0	7.5	0.0	0.0	0.0	0.0	0.0	0.0
15	11.5	10.5	11.0	8.0	7.0	7.5	0.0	0.0	0.0	0.0	0.0	0.0
16	10.5	10.0	10.0	7.5	6.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0
17	10.0	10.0	10.0	6.0	6.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0
18	10.5	9.5	10.0	6.0	5.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0
19	10.0	9.0	9.5	5.0	4.5	4.5	0.0	0.0	0.0	0.5	0.0	0.0
20	10.0	8.5	9.0	5.0	4.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0
21	10.0	8.0	9.0	5.0	4.5	5.0	0.5	0.0	0.0	0.0	0.0	0.0
22	9.5	7.5	8.5	6.0	5.0	5.5	1.5	0.5	1.0	0.0	0.0	0.0
23	9.5	7.5	8.5	5.5	4.5	5.0	2.5	1.5	2.0	0.0	0.0	0.0
24	8.5	6.5	7.5	4.5	4.0	4.0	2.0	1.5	1.5	0.0	0.0	0.0
25	8.0	7.0	7.5	4.5	4.0	4.0	1.5	0.0	0.5	0.0	0.0	0.0
26	8.0	7.0	7.5	4.5	3.5	4.0	0.0	0.0	0.0	0.0	0.0	0.0
27	9.0	7.5	8.0	4.0	2.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0
28	8.5	7.0	8.0	2.5	1.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0
29	7.0	6.0	6.5	1.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
30	6.5	6.0	6.0	2.5	1.0	2.0	0.5	0.0	0.0	0.0	0.0	0.0
31	7.0	5.0	6.0	---	---	---	1.0	0.0	0.5	0.0	0.0	0.0
MONTH	21.5	5.0	11.8	10.0	1.0	5.2	2.5	0.0	0.3	2.0	0.0	0.3
	FEBRUARY			MARCH			APRIL			MAY		
1	0.0	0.0	0.0	0.0	0.0	0.0	3.5	2.0	2.5	14.0	10.5	12.0
2	0.0	0.0	0.0	0.0	0.0	0.0	4.0	2.0	3.0	14.5	12.5	13.5
3	0.0	0.0	0.0	0.0	0.0	0.0	4.5	4.0	4.5	12.5	11.5	12.0
4	0.0	0.0	0.0	0.0	0.0	0.0	4.5	3.5	4.0	12.5	11.0	11.5
5	0.0	0.0	0.0	0.0	0.0	0.0	3.5	2.0	2.5	11.5	10.0	11.0
6	0.0	0.0	0.0	0.0	0.0	0.0	4.0	2.0	3.0	10.0	9.0	9.5
7	0.0	0.0	0.0	0.0	0.0	0.0	4.0	2.0	3.0	12.5	9.5	11.0
8	0.0	0.0	0.0	0.0	0.0	0.0	2.5	2.0	2.0	13.5	12.0	13.0
9	0.0	0.0	0.0	0.0	0.0	0.0	3.5	2.5	3.0	14.5	12.5	13.5
10	0.0	0.0	0.0	0.0	0.0	0.0	6.0	3.5	5.0	16.0	12.5	14.0
11	0.0	0.0	0.0	0.0	0.0	0.0	5.5	5.0	5.5	14.5	14.0	14.5
12	0.0	0.0	0.0	0.0	0.0	0.0	8.0	5.0	6.5	14.0	12.5	13.0
13	0.0	0.0	0.0	0.0	0.0	0.0	9.0	7.0	7.5	13.0	11.5	12.0
14	0.0	0.0	0.0	0.0	0.0	0.0	9.0	6.5	7.5	12.0	10.0	11.0
15	0.0	0.0	0.0	0.0	0.0	0.0	11.0	7.5	9.0	13.0	9.5	11.5
16	0.0	0.0	0.0	0.0	0.0	0.0	13.0	9.5	11.0	13.0	11.5	12.5
17	0.0	0.0	0.0	0.0	0.0	0.0	11.0	7.0	9.5	15.0	11.5	13.0
18	0.0	0.0	0.0	1.0	0.0	0.0	7.0	6.0	6.5	17.0	12.5	15.0
19	0.0	0.0	0.0	2.5	0.0	1.0	9.5	5.5	7.5	18.0	13.5	16.0
20	0.0	0.0	0.0	2.5	1.5	2.0	12.0	7.5	10.0	19.0	14.0	16.5
21	0.0	0.0	0.0	3.5	1.5	2.5	11.5	9.0	10.5	16.5	15.0	16.0
22	0.0	0.0	0.0	4.5	3.0	4.0	10.5	9.0	10.0	15.0	13.5	14.0
23	0.0	0.0	0.0	4.0	3.5	4.0	9.0	7.0	8.0	14.5	13.0	13.5
24	0.0	0.0	0.0	4.5	3.0	4.0	9.5	6.0	7.5	14.0	13.0	13.5
25	0.0	0.0	0.0	6.0	4.0	5.0	12.0	6.5	9.0	15.5	13.0	14.0
26	0.0	0.0	0.0	6.0	4.5	5.0	10.0	9.5	10.0	14.5	14.0	14.5
27	0.0	0.0	0.0	5.5	4.0	4.5	12.0	9.0	10.5	17.0	13.5	15.5
28	0.0	0.0	0.0	6.0	4.5	5.5	13.0	10.5	11.5	18.5	15.0	16.5
29	---	---	---	7.0	6.0	6.5	12.5	11.0	11.5	18.5	15.5	17.0
30	---	---	---	6.5	3.5	5.5	12.5	10.5	11.0	20.0	16.0	18.0
31	---	---	---	4.0	2.5	3.5	---	---	---	17.5	15.5	16.5
MONTH	0.0	0.0	0.0	7.0	0.0	1.7	13.0	2.0	7.1	20.0	9.0	13.7



## DELAWARE RIVER BASIN

## 01427510 DELAWARE RIVER AT CALLICOON, NY--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	15.5	12.5	14.0	24.0	19.0	21.5	24.0	21.0	22.0	18.5	17.0	17.5
2	14.0	12.0	13.0	25.0	20.0	22.5	22.5	20.5	21.5	17.0	15.5	16.0
3	14.0	13.0	13.5	26.5	21.0	23.5	24.5	20.5	22.5	15.5	15.0	15.0
4	13.5	13.0	13.0	27.5	22.5	25.0	22.5	22.0	22.5	15.5	15.0	15.5
5	15.0	13.0	14.0	27.5	23.0	25.5	23.0	21.0	22.0	17.5	15.5	17.0
6	16.5	14.0	15.0	28.0	23.5	26.0	21.5	20.0	20.5	18.5	17.0	17.5
7	16.0	14.5	15.5	27.5	23.5	25.5	21.5	19.5	20.5	19.0	17.5	18.5
8	15.0	14.5	14.5	27.5	24.0	26.0	23.5	20.0	21.5	19.5	18.5	19.0
9	17.0	14.5	16.0	25.5	21.5	23.0	22.5	21.0	21.5	19.5	18.5	19.0
10	19.5	15.5	17.5	22.5	20.0	21.0	23.0	20.5	21.5	19.5	17.5	18.5
11	18.5	17.0	17.5	20.5	18.5	19.5	22.5	19.5	21.0	---	---	---
12	17.5	17.0	17.0	21.0	18.0	19.5	20.0	19.0	19.5	19.0	---	---
13	17.0	16.0	16.5	22.5	18.5	20.5	20.5	18.5	19.5	18.0	17.0	17.5
14	17.0	15.5	16.5	24.0	19.0	21.5	20.5	18.0	19.5	20.0	17.5	18.5
15	18.0	16.5	17.0	26.0	20.5	23.5	21.5	19.0	20.0	20.0	18.5	19.0
16	18.0	16.0	17.0	26.5	22.0	24.5	20.5	19.0	19.5	19.0	17.5	18.0
17	19.0	17.0	18.0	26.0	21.5	24.0	20.5	18.5	19.0	19.0	17.0	17.5
18	18.0	16.5	17.5	23.5	21.5	22.0	21.0	18.0	19.0	17.5	16.0	16.5
19	18.5	16.0	17.0	24.5	19.5	22.0	22.5	18.5	20.5	18.0	16.0	17.0
20	17.5	16.0	17.5	24.5	19.5	22.0	24.5	19.5	22.0	18.5	16.5	17.5
21	16.0	15.5	16.0	24.5	20.0	22.5	24.5	21.0	22.5	19.0	16.0	17.5
22	15.5	15.0	15.5	23.0	20.5	22.0	25.0	21.5	23.0	17.5	16.5	17.0
23	18.0	15.5	17.0	21.5	19.5	20.5	24.0	20.5	22.0	17.0	16.0	16.5
24	20.5	18.0	19.0	23.0	20.0	21.5	22.5	18.5	21.0	16.0	15.0	15.5
25	21.5	19.0	20.5	25.0	20.5	22.5	23.0	19.0	21.0	15.5	15.0	15.5
26	24.0	20.5	22.0	25.5	21.0	23.0	24.0	20.0	21.5	16.5	15.0	15.5
27	24.5	20.5	22.5	24.0	22.0	23.0	---	---	---	17.5	16.0	17.0
28	23.0	19.5	21.0	25.0	21.5	23.0	24.0	20.0	22.5	18.0	15.5	17.0
29	22.5	19.5	21.0	25.0	20.0	22.5	22.0	19.5	21.0	16.0	15.0	15.5
30	22.5	19.5	21.0	26.0	20.5	23.5	21.0	17.5	19.5	15.5	14.5	15.0
31	---	---	---	26.0	21.5	24.0	20.5	16.0	18.5	---	---	---
MONTH	24.5	12.0	17.1	28.0	18.0	22.8	---	---	---	---	---	---

## DELAWARE RIVER BASIN

## 01428500 DELAWARE RIVER ABOVE LACKAWAXEN RIVER NEAR BARRYVILLE, NY

**LOCATION.**--Lat 41°30'32", long 74°59'10", Sullivan County, Hydrologic Unit 02040101, on left bank, 1.6 mi upstream from Lackawaxen River, and 4.6 mi northwest of Barryville. Water-quality sampling site at discharge station.

**DRAINAGE AREA.**--2,020 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

**REVISED RECORDS.**--WDR NY-82-1: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 600.22 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Subsequent to September 1954, entire flow from 371 mi<sup>2</sup> of drainage area controlled by Pepacton Reservoir, and subsequent to October 1963, entire flow from 454 mi<sup>2</sup> of drainage area controlled by Cannonsville Reservoir. Part of flow of these reservoirs diverted for New York City municipal supply. Remainder of flow (except for conservation releases and spill) impounded for release during periods of low flow in the lower Delaware River basin, as directed by the Delaware River Master. Satellite gage-height and temperature telemeter and National Weather Service telephone gage-height telemeter at station. Information on the above reservoirs can be found in the annual Water-Data Report NY-02-1.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 130,000 ft<sup>3</sup>/s, Aug. 19, 1955, gage height, 26.40 ft, from floodmarks in gage house, from rating curve extended above 55,000 ft<sup>3</sup>/s, on basis of slope-area measurement at gage height 23.19 ft; minimum discharge, 122 ft<sup>3</sup>/s, Sept. 5, 1953, gage height, 1.11 ft.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 35,300 ft<sup>3</sup>/s, Mar. 22, Sept. 4, gage height, 12.26 ft; minimum, 642 ft<sup>3</sup>/s, Oct. 3, gage height, 2.34 ft.

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	884	1,770	2,590	2,760	e1,100	e1,800	11,300	4,160	6,380	2,000	1,260	1,240
2	734	1,640	2,340	8,870	e1,100	e1,800	9,820	4,970	8,620	1,670	2,140	10,900
3	662	1,540	e1,800	8,170	e1,200	e1,900	9,420	8,220	6,870	1,440	2,600	15,300
4	932	1,450	e1,400	6,180	e1,400	e1,800	8,760	8,060	6,230	1,310	2,620	26,300
5	1,010	1,360	e1,300	5,020	e1,500	e1,600	8,680	6,920	5,770	1,270	4,060	22,000
6	913	1,760	e1,300	4,290	e1,400	e1,500	8,680	6,080	5,130	1,260	4,800	13,800
7	972	2,430	e1,300	3,820	e1,300	e1,500	8,420	5,290	4,820	1,170	4,480	9,900
8	946	2,210	e1,200	3,460	e1,200	e1,400	7,730	4,600	5,040	1,220	3,300	7,610
9	888	1,890	e1,100	e3,100	e1,100	e1,300	6,980	4,020	4,330	1,540	3,690	6,030
10	974	1,730	e1,000	e2,800	e1,100	e1,300	6,350	3,520	3,700	1,410	3,290	5,080
11	1,170	1,670	1,100	e2,400	e1,100	e1,400	6,360	3,010	3,330	1,560	4,310	4,230
12	5,190	1,710	1,310	e2,000	e1,100	e1,300	7,420	3,910	3,750	2,940	8,400	3,270
13	7,030	3,020	2,260	e1,700	e1,100	e1,200	6,940	4,510	5,970	1,750	6,410	2,530
14	4,370	3,460	2,650	e1,500	e1,000	e1,200	6,110	4,300	9,810	1,280	5,830	2,240
15	3,120	2,920	4,130	e1,500	e940	e1,300	5,490	4,100	10,600	1,130	4,980	3,340
16	3,680	2,670	3,940	e1,400	e900	e1,600	5,090	3,800	8,170	1,080	3,970	7,090
17	14,600	5,650	3,120	e1,400	e900	e2,800	4,650	3,480	6,620	1,330	3,240	5,050
18	8,980	8,610	2,330	e1,300	e900	10,200	4,220	3,110	5,520	1,290	3,000	4,180
19	5,800	7,030	2,010	e1,400	e920	16,800	3,860	2,780	4,890	1,190	2,520	3,950
20	4,430	5,590	3,050	e1,500	e960	14,300	3,510	2,470	4,320	1,350	2,230	3,910
21	3,520	5,070	6,950	e1,500	e1,100	28,200	3,140	2,340	8,370	1,090	1,910	2,980
22	2,810	5,040	5,430	e1,500	e1,200	34,100	3,030	2,310	9,680	1,730	1,590	2,320
23	2,340	6,400	4,520	e1,300	e1,500	30,500	3,050	2,100	9,390	3,290	1,420	9,190
24	2,010	5,990	3,850	e1,200	e2,000	21,300	2,880	1,910	7,440	2,920	1,230	15,300
25	1,760	4,960	3,420	e1,200	e2,100	16,500	2,680	2,110	5,870	2,200	1,090	9,580
26	2,500	4,290	2,820	e1,200	e2,200	15,400	2,620	2,450	4,800	1,730	1,040	7,480
27	3,650	3,840	2,990	e1,200	e2,000	13,800	5,530	3,040	4,230	1,560	999	6,220
28	2,930	3,420	2,880	e1,200	e1,900	11,200	5,600	2,820	3,480	1,570	1,090	8,770
29	2,440	2,980	2,700	e1,300	---	10,200	5,100	2,650	2,680	1,450	1,110	13,200
30	2,160	2,710	2,470	e1,300	---	14,100	4,580	2,380	2,320	1,270	1,470	9,880
31	1,960	---	2,380	e1,200	---	13,500	---	2,290	---	1,150	1,310	---
TOTAL	95,365	104,810	81,640	78,670	36,220	276,800	178,000	117,710	178,130	49,150	91,389	242,870
MEAN	3,076	3,494	2,634	2,538	1,294	8,929	5,933	3,797	5,938	1,585	2,948	8,096
MAX	14,600	8,610	6,950	8,870	2,200	34,100	11,300	8,220	10,600	3,290	8,400	26,300
MIN	662	1,360	1,000	1,200	900	1,200	2,620	1,910	2,320	1,080	999	1,240

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2003, BY WATER YEAR (WY)

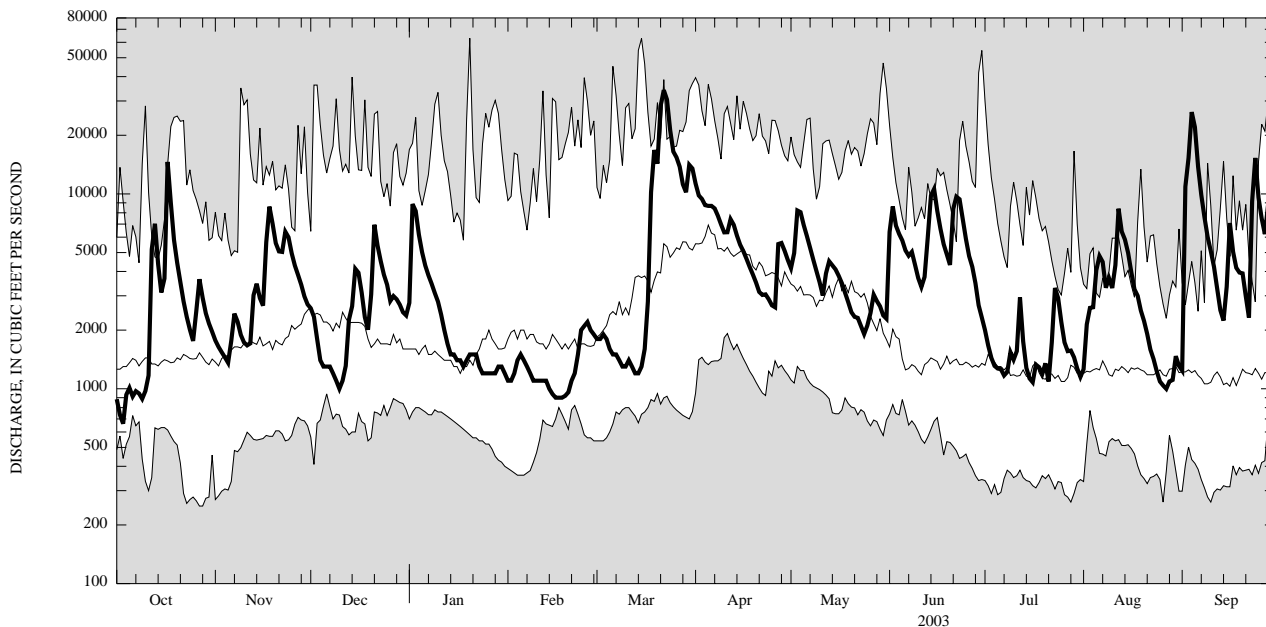
MEAN	2,018	2,708	3,052	2,719	2,914	5,185	6,448	4,066	2,436	1,616	1,426	1,640
MAX	7,404	7,448	11,940	8,335	9,389	12,050	16,500	8,615	6,701	4,087	3,033	8,096
(WY)	(1978)	(1997)	(1997)	(1978)	(1976)	(1977)	(1993)	(1984)	(1972)	(1996)	(1994)	(2003)
MIN	527	610	1,114	687	712	1,399	1,878	1,161	673	328	465	448
(WY)	(1964)	(1965)	(1999)	(1977)	(1980)	(1981)	(1985)	(1965)	(1965)	(1965)	(1965)	(1965)

e Estimated.

## DELAWARE RIVER BASIN

01428500 DELAWARE RIVER ABOVE LACKAWAXEN RIVER NEAR BARRYVILLE, NY--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1964 - 2003	
ANNUAL TOTAL	936,154		1,530,754		3,017	
ANNUAL MEAN	2,565		4,194		4,650	
HIGHEST ANNUAL MEAN					1,297	
LOWEST ANNUAL MEAN					1965	
HIGHEST DAILY MEAN	14,600	Oct 17	34,100	Mar 22	63,000	Jan 20, 1996
LOWEST DAILY MEAN	606	Sep 20	662	Oct 3	250	Oct 27, 1963
ANNUAL SEVEN-DAY MINIMUM	690	Sep 17	872	Oct 1	264	Oct 23, 1963
10 PERCENT EXCEEDS	5,600		8,760		6,710	
50 PERCENT EXCEEDS	1,890		2,800		1,630	
90 PERCENT EXCEEDS	819		1,140		873	



CURRENT WATER YEAR DAILY MEAN DISCHARGE (BOLD) WITH DAILY MEDIAN FOR PERIOD OF RECORD.  
 SHADED AREAS SHOW HIGHEST AND LOWEST DAILY MEAN FOR PERIOD OF RECORD THROUGH PREVIOUS WATER YEAR.

## DELAWARE RIVER BASIN

01428500 DELAWARE RIVER ABOVE LACKAWAXEN RIVER NEAR BARRYVILLE, NY--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

CHEMICAL DATA: 1971-73 (a).

NUTRIENT DATA: 1971 (a).

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: October 1967 to current year (no winter record for water years 1969-76).

INSTRUMENTATION.--Water-temperature recorder provides 15-minute-interval readings. From October 1975 to September 1995, water-temperature recorder provided one-hour-interval readings. Prior to October 1975, water-temperature recorder provided continuous readings.

REMARKS.--Interruptions of record were due to malfunction of recording instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum (water years 1968-75, 1980-81, 1983, 1985-96, 1999-2001, 2003), 32.5°C, July 9, 10, 1993; minimum (water years 1968, 1977-2003), 0.0°C, on many days during winters, each year except water years 1980-82.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum recorded, 29.0°C, July 6, 8; minimum, 0.0°C on many days during winter.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	21.0	16.0	18.5	6.5	5.5	6.0	2.0	1.0	1.5	1.5	0.5	1.0
2	22.0	18.0	20.0	6.0	5.0	5.5	1.5	0.5	1.0	1.5	1.5	1.5
3	22.0	19.5	20.5	5.0	4.5	5.0	0.5	0.0	0.0	1.5	0.5	1.0
4	19.5	18.0	18.5	5.5	4.0	5.0	0.5	0.0	0.0	0.5	0.0	0.5
5	22.5	17.5	19.0	6.0	4.0	5.0	0.0	0.0	0.0	1.0	0.5	0.5
6	20.5	16.5	18.0	6.0	5.0	5.5	0.0	0.0	0.0	1.0	0.5	1.0
7	19.0	15.5	17.5	6.5	5.0	5.5	0.0	0.0	0.0	1.0	0.5	1.0
8	18.5	14.0	16.0	6.5	4.5	5.5	0.0	0.0	0.0	0.5	0.0	0.5
9	16.0	14.0	15.0	6.5	5.0	5.5	0.0	0.0	0.0	1.5	0.5	1.0
10	15.0	14.5	15.0	8.0	5.5	7.0	0.0	0.0	0.0	2.0	1.0	1.5
11	14.5	14.0	14.0	10.0	8.0	9.0	0.0	0.0	0.0	1.0	0.0	0.5
12	14.0	13.5	14.0	9.5	9.0	9.0	0.0	0.0	0.0	0.5	0.0	0.0
13	14.0	13.5	14.0	9.0	8.5	9.0	0.0	0.0	0.0	0.0	0.0	0.0
14	13.5	12.0	13.0	8.5	7.5	8.0	0.0	0.0	0.0	0.5	0.0	0.0
15	12.0	11.0	11.5	8.5	7.5	8.0	0.5	0.0	0.0	0.5	0.0	0.0
16	11.0	10.5	11.0	7.5	6.5	7.5	0.5	0.0	0.0	0.5	0.0	0.0
17	10.5	10.0	10.5	6.5	6.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0
18	10.5	9.5	10.0	6.0	5.0	5.5	0.5	0.0	0.0	0.0	0.0	0.0
19	10.0	9.5	9.5	5.0	4.5	4.5	1.0	0.0	0.0	0.0	0.0	0.0
20	10.0	9.0	9.5	5.0	4.5	4.5	0.5	0.0	0.5	0.0	0.0	0.0
21	10.0	9.0	9.5	5.0	4.5	5.0	0.5	0.0	0.0	0.0	0.0	0.0
22	10.0	8.5	9.0	5.5	5.0	5.0	1.0	0.0	0.5	0.0	0.0	0.0
23	10.0	8.0	9.0	5.5	4.5	5.0	2.0	1.0	1.5	0.0	0.0	0.0
24	9.0	7.5	8.5	4.5	4.0	4.5	2.0	1.5	2.0	0.0	0.0	0.0
25	8.5	8.0	8.0	4.5	4.0	4.0	1.5	0.0	0.5	0.0	0.0	0.0
26	8.5	7.5	8.0	4.5	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0
27	9.0	7.5	8.0	4.0	3.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0
28	9.0	7.5	8.0	3.0	2.0	2.5	0.5	0.0	0.0	0.0	0.0	0.0
29	7.5	6.5	7.5	2.0	1.5	2.0	0.5	0.0	0.0	0.0	0.0	0.0
30	7.0	6.0	6.5	2.5	1.5	2.0	1.0	0.0	0.5	0.5	0.0	0.0
31	7.5	5.5	6.5	---	---	---	1.0	0.5	0.5	0.0	0.0	0.0
MONTH	22.5	5.5	12.4	10.0	1.5	5.5	2.0	0.0	0.3	2.0	0.0	0.3

## DELAWARE RIVER BASIN

## 01428500 DELAWARE RIVER ABOVE LACKAWAXEN RIVER NEAR BARRYVILLE, NY--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	0.0	0.0	0.0	0.0	0.0	0.0	6.0	2.5	3.0	13.5	11.5	12.5
2	0.0	0.0	0.0	0.0	0.0	0.0	3.5	2.0	3.0	14.5	13.5	14.0
3	0.0	0.0	0.0	0.0	0.0	0.0	5.0	3.5	4.5	14.0	12.5	13.0
4	0.0	0.0	0.0	0.5	0.0	0.0	4.5	4.0	4.5	13.0	11.0	12.0
5	0.0	0.0	0.0	0.5	0.0	0.0	4.0	2.5	3.0	12.5	11.0	11.5
6	0.0	0.0	0.0	0.0	0.0	0.0	4.0	2.0	3.0	11.0	10.0	10.0
7	0.0	0.0	0.0	0.0	0.0	0.0	4.0	3.0	3.5	12.0	9.5	11.0
8	0.0	0.0	0.0	0.5	0.0	0.0	3.0	2.0	2.5	13.0	12.0	12.5
9	0.0	0.0	0.0	0.5	0.0	0.0	3.5	2.5	3.0	14.0	13.0	13.5
10	0.0	0.0	0.0	0.5	0.0	0.0	5.5	3.5	4.5	15.0	13.5	14.0
11	0.0	0.0	0.0	0.5	0.0	0.0	6.0	5.5	5.5	15.0	14.5	15.0
12	0.0	0.0	0.0	0.5	0.0	0.0	8.0	5.5	6.5	14.5	13.5	14.0
13	0.0	0.0	0.0	0.0	0.0	0.0	9.0	7.0	8.0	13.5	12.5	13.0
14	0.0	0.0	0.0	0.5	0.0	0.0	9.0	7.0	8.5	12.5	11.5	12.0
15	0.0	0.0	0.0	1.0	0.0	0.5	10.5	8.0	9.5	12.5	11.0	12.0
16	0.0	0.0	0.0	1.5	0.0	0.5	12.5	10.0	11.5	12.5	12.0	12.5
17	0.0	0.0	0.0	1.0	0.0	0.5	12.0	9.0	10.5	14.5	12.5	13.0
18	0.0	0.0	0.0	1.0	0.0	0.5	9.0	7.0	7.5	16.5	13.0	14.5
19	0.0	0.0	0.0	1.0	0.0	0.5	9.0	6.5	7.5	18.0	14.5	16.0
20	0.0	0.0	0.0	2.0	1.0	2.0	11.0	8.0	9.5	18.5	15.5	17.0
21	0.0	0.0	0.0	3.0	1.5	2.0	12.0	10.0	11.0	17.0	16.0	16.5
22	0.0	0.0	0.0	4.5	3.0	4.0	12.0	10.5	11.0	16.0	14.5	15.0
23	0.0	0.0	0.0	4.5	4.0	4.0	10.5	8.0	9.5	14.5	13.5	14.0
24	0.0	0.0	0.0	4.5	3.5	4.0	10.0	7.5	8.5	14.0	13.5	13.5
25	0.0	0.0	0.0	6.0	4.5	5.0	11.0	8.0	9.5	15.0	13.5	14.5
26	0.0	0.0	0.0	6.0	5.0	5.5	11.0	10.0	10.5	14.5	14.0	14.5
27	0.0	0.0	0.0	5.5	4.5	5.0	12.0	10.0	11.0	16.0	14.0	15.0
28	0.0	0.0	0.0	6.5	5.0	6.0	13.5	11.0	12.0	17.0	15.5	16.5
29	---	---	---	7.5	6.0	7.0	13.0	12.0	12.5	19.0	16.0	17.5
30	---	---	---	7.0	5.0	6.0	12.5	11.5	12.0	20.0	17.0	18.5
31	---	---	---	5.0	3.5	4.0	---	---	---	18.5	17.0	18.0
MONTH	0.0	0.0	0.0	7.5	0.0	1.8	13.5	2.0	7.5	20.0	9.5	14.1
	JUNE			JULY			AUGUST			SEPTEMBER		
1	17.0	14.0	15.5	24.5	20.5	22.5	24.5	23.0	23.5	20.5	18.5	19.0
2	14.0	13.0	13.5	25.0	21.0	23.0	25.0	22.0	23.5	18.5	15.5	17.0
3	14.5	13.0	14.0	26.0	21.5	24.0	24.0	22.5	---	15.5	15.5	15.5
4	14.0	13.5	13.5	27.5	23.0	25.5	---	---	---	16.0	15.5	15.5
5	15.0	13.0	14.0	28.5	24.5	26.5	---	---	---	17.5	15.5	16.5
6	16.5	14.5	15.0	29.0	25.5	27.0	---	---	---	18.5	17.0	17.5
7	16.0	15.5	15.5	28.5	25.0	26.5	22.0	---	---	19.5	17.5	18.5
8	15.5	15.0	15.0	29.0	25.0	26.5	23.5	21.5	22.5	19.5	18.0	19.0
9	16.5	15.0	15.5	26.5	24.0	25.0	23.0	22.5	22.5	20.0	18.5	19.0
10	18.5	16.0	17.5	24.5	21.5	23.0	23.5	22.0	22.5	20.0	18.0	19.0
11	19.0	18.0	18.5	23.0	21.0	22.0	23.0	21.5	22.5	19.5	18.0	19.0
12	18.5	17.5	18.0	22.0	20.0	21.0	21.5	20.5	21.0	19.5	18.0	18.5
13	18.0	16.5	17.0	23.0	20.0	21.5	21.5	20.0	20.5	18.5	17.5	18.0
14	17.5	16.5	17.0	25.0	20.0	22.5	21.5	20.0	21.0	20.0	17.5	19.0
15	18.5	16.5	17.5	26.0	21.5	23.5	22.0	20.5	21.0	20.5	19.5	20.0
16	18.5	16.5	17.5	26.5	23.0	24.5	21.5	20.5	21.0	20.0	18.5	19.0
17	18.5	17.0	18.0	27.0	23.0	24.5	22.0	20.5	21.0	19.5	18.0	18.5
18	18.5	17.5	18.0	24.5	22.5	23.5	21.5	20.0	20.5	18.5	17.5	18.0
19	18.5	17.0	17.5	25.5	21.5	23.5	23.0	20.5	21.5	18.5	17.5	18.0
20	18.0	17.5	17.5	25.5	21.5	23.5	24.5	21.0	22.5	19.0	18.0	18.5
21	17.5	16.0	16.5	26.5	22.0	24.0	25.5	22.0	23.5	19.5	17.5	18.5
22	16.0	15.5	15.5	24.5	22.5	23.5	26.0	23.0	24.5	18.0	17.5	18.0
23	18.5	15.5	16.5	23.0	21.0	22.0	25.5	22.5	23.5	17.5	17.0	17.5
24	20.5	17.5	19.0	23.0	21.0	22.0	24.5	20.5	22.5	17.0	15.5	16.0
25	22.0	19.5	20.5	25.0	21.5	23.0	24.5	20.5	22.5	16.0	15.0	15.5
26	23.5	21.0	22.0	25.5	22.5	24.0	24.0	21.5	23.0	16.5	15.0	15.5
27	24.0	23.0	23.5	25.5	23.0	24.0	25.5	22.0	23.5	17.5	16.0	17.0
28	23.5	22.0	---	26.0	23.0	24.5	25.5	21.5	23.5	17.5	16.5	17.0
29	---	---	---	26.5	22.0	24.5	24.5	21.0	23.0	16.5	15.5	16.0
30	23.0	21.5	---	27.0	22.5	24.5	23.5	20.5	22.0	15.5	14.5	15.0
31	---	---	---	26.5	22.5	24.5	22.5	19.0	20.5	---	---	---
MONTH	---	---	---	29.0	20.0	23.9	---	---	---	20.5	14.5	17.6

## LACKAWAXEN RIVER BASIN

## 01428750 WEST BRANCH LACKAWAXEN RIVER NEAR ALDENVILLE, PA

**LOCATION.**--Lat 41°40'28", long 75°22'35", Wayne County, Hydrologic Unit 02040104, on right bank at steel bridge on State Highway 247, 0.3 mi downstream from Johnson Creek, and 2.0 mi northwest of Aldenville.

**DRAINAGE AREA.**--40.6 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--Occasional discharge measurements and annual maximums, water years 1975-86. October 1986 to current year. Published as station number 01427950, 1975-88.

**GAGE.**--Water-stage recorder. Datum of gage is 1,244.60 ft above National Geodetic Vertical Datum of 1929.

**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 base discharge of 1,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Oct. 12	0630	1,660	5.79	June 1	0930	1,220	5.25
Oct. 16	1630	1,480	5.58	Sept. 2	0815	1,630	5.76
Mar. 21	0030	1,370	5.44	Sept. 4	0315	*3,030	*7.09

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	60	65	184	e42	e100	146	79	897	31	19	40
2	25	53	e58	467	e44	e98	153	191	382	27	21	701
3	21	47	52	236	e46	e95	160	141	194	26	16	288
4	23	45	e48	181	e52	e84	136	104	169	24	19	1180
5	28	42	e46	141	e61	e80	175	89	143	23	34	373
6	25	107	e46	120	e62	e86	179	87	105	22	47	185
7	22	83	e44	e100	e60	e84	152	78	136	21	31	122
8	25	64	e44	e100	e60	e70	132	103	134	18	27	90
9	19	56	e42	95	e56	e70	118	83	99	19	42	72
10	20	52	e42	89	e54	e66	140	70	78	18	26	63
11	169	52	e40	81	e54	e60	169	83	86	78	35	57
12	882	e88	e40	e78	e52	e54	207	173	91	38	42	52
13	279	e190	e56	e72	e48	e50	151	132	106	27	27	47
14	157	118	e64	e64	e47	e52	122	108	310	22	22	51
15	103	94	e86	e60	e46	e56	105	88	141	19	20	226
16	588	89	e70	e60	e45	e100	92	76	89	21	18	252
17	507	430	e66	e56	e48	329	79	67	69	19	18	124
18	225	283	e58	e52	e49	619	70	59	66	19	18	94
19	144	176	e80	e51	e47	566	65	51	60	18	16	83
20	115	155	e120	e50	e48	533	59	46	101	16	15	90
21	94	152	161	e50	e50	1020	58	44	492	15	14	69
22	79	183	111	e49	e63	907	73	40	288	53	15	62
23	64	176	e90	e46	e90	592	70	38	180	48	15	429
24	53	130	e72	e44	e140	405	65	58	115	34	13	302
25	59	113	e62	e44	e160	367	60	64	85	23	13	173
26	182	98	e60	e42	e140	354	246	103	67	19	15	129
27	131	92	e54	e38	e100	272	239	91	54	19	14	102
28	96	78	e54	e38	e100	208	143	70	44	19	16	105
29	81	71	e56	e38	---	232	110	66	38	18	17	100
30	73	69	e58	e40	---	246	90	55	34	15	29	87
31	67	---	82	e42	---	181	---	129	---	16	19	---
TOTAL	4388	3446	2027	2808	1864	8036	3764	2666	4853	785	693	5748
MEAN	142	115	65.4	90.6	66.6	259	125	86.0	162	25.3	22.4	192
MAX	882	430	161	467	160	1020	246	191	897	78	47	1180
MIN	19	42	40	38	42	50	58	38	34	15	13	40
CFSM	3.49	2.83	1.61	2.23	1.64	6.38	3.09	2.12	3.98	0.62	0.55	4.72
IN.	4.02	3.16	1.86	2.57	1.71	7.36	3.45	2.44	4.45	0.72	0.63	5.27

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 2003, BY WATER YEAR (WY)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MEAN	54.9	92.7	90.3	84.7	87.3	140	161	97.8	59.2	24.5	26.7	39.9					
MAX	142	199	232	228	192	259	419	258	200	63.0	155	192					
(WY)	2003	1987	1997	1996	1990	2003	1993	1989	1989	1989	1994	2003					
MIN	6.46	12.0	15.5	21.9	30.0	87.0	58.7	34.6	13.7	6.92	5.89	7.41					
(WY)	1992	1999	1999	1989	1993	1989	1988	2001	1999	1999	1999	1991					

e Estimated.

## LACKAWAXEN RIVER BASIN

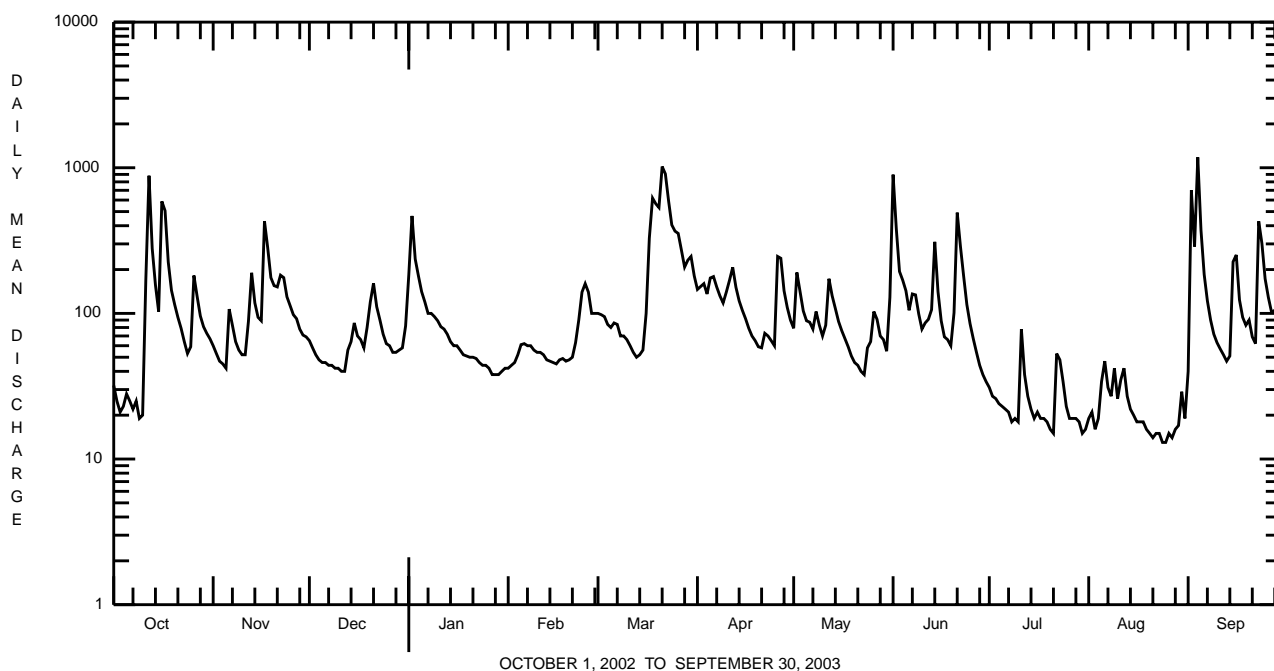
## 01428750 WEST BRANCH LACKAWAXEN RIVER NEAR ALDENVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1987 - 2003	
ANNUAL TOTAL	29098.5		41078			
ANNUAL MEAN	79.7		113		79.7	
HIGHEST ANNUAL MEAN					113	2003
LOWEST ANNUAL MEAN					48.0	1999
HIGHEST DAILY MEAN	882	Oct 12	1180	Sep 4	<b>e</b> 1600	Jan 19 1996
LOWEST DAILY MEAN	7.2	Sep 21	13	Aug 24,25	<b>e</b> 4.0	Aug 6 1999
ANNUAL SEVEN-DAY MINIMUM	7.6	Sep 8	14	Aug 21	<b>a</b> 4.4	Jul 31 1999
MAXIMUM PEAK FLOW			<b>b</b> 3030	Sep 4	<b>b</b> 4340	Jan 19 1996
MAXIMUM PEAK STAGE			7.09	Sep 4	8.00	Jan 19 1996
ANNUAL RUNOFF (CFSM)	1.96		2.77		1.96	
ANNUAL RUNOFF (INCHES)	26.66		37.64		26.68	
10 PERCENT EXCEEDS	181		225		178	
50 PERCENT EXCEEDS	50		69		43	
90 PERCENT EXCEEDS	8.5		21		9.9	

**a** Computed using estimated daily discharges.

**b** From rating curve extended above 2,000 ft<sup>3</sup>/s.

**e** Estimated.



## LACKAWAXEN RIVER BASIN

01428750 WEST BRANCH LACKAWAXEN RIVER NEAR ALDENVILLE, PA--Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Water years 1988 to current year.

INSTRUMENTATION.--Temperature probe interfaced with a data collection platform.

REMARKS.--Water temperature records rated good.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 27.5°C, July 6, 1999; minimum, 0.0°C, many days during winters.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 23.5°C, July 6, 8; minimum, 0.0°C, many days during winter.

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	17.5	13.0	15.0	5.0	4.0	4.5	2.5	0.0	1.0	1.5	0.5	1.5
2	18.5	14.5	16.5	4.5	3.0	4.0	1.0	0.0	0.5	1.0	0.5	0.5
3	17.5	16.0	16.5	4.5	3.5	4.0	0.5	0.0	0.0	0.5	0.0	0.0
4	16.5	15.0	15.5	5.0	3.5	4.5	0.0	0.0	0.0	1.0	0.0	0.5
5	18.5	15.5	17.0	6.0	4.0	5.0	0.0	0.0	0.0	1.0	0.5	1.0
6	15.5	12.5	14.0	5.5	5.0	5.0	0.0	0.0	0.0	1.5	0.5	1.0
7	16.0	13.0	14.5	5.0	3.0	4.5	0.0	0.0	0.0	0.5	0.0	0.0
8	13.5	11.0	12.0	6.0	3.0	4.5	0.0	0.0	0.0	1.0	0.0	0.5
9	13.0	10.0	11.5	7.5	4.5	6.0	0.0	0.0	0.0	2.0	1.0	1.5
10	13.0	12.5	13.0	9.5	6.5	8.0	0.0	0.0	0.0	1.5	0.0	1.0
11	13.0	12.0	12.5	11.5	9.5	10.5	0.0	0.0	0.0	0.0	0.0	0.0
12	13.0	12.0	12.5	9.5	8.0	8.5	0.0	0.0	0.0	0.0	0.0	0.0
13	13.0	12.0	12.5	8.0	6.5	7.5	0.0	0.0	0.0	0.0	0.0	0.0
14	12.0	9.0	10.5	7.0	5.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0
15	9.5	7.0	8.5	8.0	6.0	7.0	1.0	0.0	0.5	0.0	0.0	0.0
16	9.5	9.5	9.5	7.0	5.0	6.0	1.0	0.0	1.0	0.0	0.0	0.0
17	10.5	9.5	10.0	5.5	5.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0
18	10.0	8.5	9.5	5.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0
19	9.5	8.5	9.0	4.0	3.5	4.0	0.0	0.0	0.0	0.0	0.0	0.0
20	9.5	8.0	9.0	5.5	4.0	4.5	0.5	0.0	0.5	0.0	0.0	0.0
21	9.0	7.0	8.0	5.0	3.5	4.0	1.5	0.5	1.0	0.0	0.0	0.0
22	8.5	5.5	7.0	6.0	5.0	5.5	2.0	1.0	1.5	0.0	0.0	0.0
23	8.5	6.5	7.5	5.0	3.0	3.5	2.0	1.0	1.5	0.0	0.0	0.0
24	7.0	4.5	6.0	4.0	3.0	3.5	1.5	0.5	1.0	0.0	0.0	0.0
25	7.0	6.5	6.5	4.5	3.0	4.0	1.0	0.0	0.5	0.0	0.0	0.0
26	8.0	6.5	7.0	4.5	3.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0
27	9.0	7.5	8.0	3.0	1.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0
28	7.5	6.0	7.0	1.5	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
29	6.0	4.5	5.5	2.0	0.5	1.5	1.0	0.0	0.5	0.0	0.0	0.0
30	5.5	5.0	5.5	3.5	2.0	2.5	1.0	0.0	0.5	0.0	0.0	0.0
31	6.0	3.5	5.0	---	---	---	2.0	1.0	1.5	0.0	0.0	0.0
MONTH	18.5	3.5	10.4	11.5	0.0	4.8	2.5	0.0	0.4	2.0	0.0	0.2





## LACKAWAXEN RIVER BASIN

## 01429000 WEST BRANCH LACKAWAXEN RIVER AT PROMPTON, PA

**LOCATION.**--Lat 41°35'14", long 75°19'38", Wayne County, Hydrologic Unit 02040103, on left bank 500 ft downstream from Prompton Reservoir, 1,500 ft upstream from bridge on U.S. Highway 6 at Prompton, and 2,000 ft upstream from Van Auken Creek.

**DRAINAGE AREA.**--59.7 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--August 1944 to current year. Prior to October 1952, published as Lackawaxen River at Prompton.

**REVISED RECORDS.**--WSP 1432: 1948-49. WDR PA-71-1: 1970(M).

**GAGE.**--Water-stage recorder. Datum of gage is 1,083.78 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Flow regulated since 1960 by Prompton Reservoir (station 01428900) 500 ft upstream. Satellite and landline telemetry at station.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of May 23, 1942 reached a stage of 16.7 ft, from floodmark, discharge not determined.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	92	96	154	57	121	287	125	712	62	38	36
2	45	85	87	520	58	118	245	165	794	55	39	581
3	40	77	76	520	59	129	253	229	509	49	39	709
4	38	70	60	411	67	119	230	180	355	45	41	1590
5	37	65	58	317	86	119	239	136	283	41	45	803
6	37	86	60	248	89	120	278	119	219	39	86	668
7	36	111	59	206	90	113	265	108	196	38	92	517
8	34	100	58	180	86	112	228	115	234	37	87	379
9	33	89	55	166	81	112	201	119	205	36	120	268
10	32	80	50	157	79	107	192	102	166	36	103	196
11	40	76	51	137	78	99	221	94	138	40	113	151
12	605	83	61	122	76	98	298	179	142	52	166	123
13	611	183	68	e105	74	99	280	212	150	49	125	106
14	378	186	82	e88	69	99	220	187	230	44	96	95
15	233	153	117	88	70	96	177	148	261	42	75	160
16	366	129	122	85	67	123	148	120	192	41	62	318
17	991	323	108	85	68	292	128	102	144	40	56	398
18	629	468	88	78	71	652	116	88	121	39	50	378
19	405	369	83	73	71	880	104	77	110	38	44	214
20	275	283	118	74	70	758	94	68	102	37	42	166
21	198	247	236	74	70	1260	83	64	398	35	39	143
22	153	244	210	71	75	1350	86	59	512	40	38	119
23	120	267	176	68	121	1140	93	54	418	65	38	416
24	99	227	147	64	177	800	89	55	311	90	37	650
25	90	186	134	63	186	646	84	66	230	79	35	490
26	142	155	126	63	162	598	136	80	172	64	34	363
27	200	139	129	e63	145	524	376	107	130	55	33	272
28	163	123	119	e61	133	423	296	95	106	50	32	230
29	131	109	111	60	---	367	213	86	85	43	31	219
30	113	101	102	62	---	410	158	75	71	40	33	189
31	102	---	106	60	---	362	---	73	---	39	34	---
TOTAL	6427	4906	3153	4523	2535	12246	5818	3487	7696	1460	1903	10947
MEAN	207	164	102	146	90.5	395	194	112	257	47.1	61.4	365
MAX	991	468	236	520	186	1350	376	229	794	90	166	1590
MIN	32	65	50	60	57	96	83	54	71	35	31	36

e Estimated.

## LACKAWAXEN RIVER BASIN

## 01429000 WEST BRANCH LACKAWAXEN RIVER AT PROMPTON, PA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	62.6	96.2	115	102	123	214	228	132	77.3	38.9	30.4	46.1
MAX	307	362	309	312	369	620	556	329	260	133	127	365
(WY)	1978	1973	1997	1979	1981	1977	1993	1989	1973	1984	1994	2003
MIN	7.15	7.65	17.3	19.1	19.0	60.4	86.5	45.8	17.5	9.66	6.82	6.67
(WY)	1965	1965	1999	1981	1980	1981	1988	1965	1962	1999	1999	1964

## SUMMARY STATISTICS FOR 2002 CALENDAR YEAR FOR 2003 WATER YEAR WATER YEARS 1961 - 2003

ANNUAL TOTAL	39088.5		65101			
ANNUAL MEAN	107		178		105	
HIGHEST ANNUAL MEAN					178	
LOWEST ANNUAL MEAN					49.7	
HIGHEST DAILY MEAN	991		Oct 17		1590	
LOWEST DAILY MEAN	7.9		Aug 14, 19		31	
ANNUAL SEVEN-DAY MINIMUM	8.1		Aug 13		33	
MAXIMUM PEAK FLOW					2060	
MAXIMUM PEAK STAGE					5.20	
INSTANTANEOUS LOW FLOW					1.8	
10 PERCENT EXCEEDS	255		398		243	
50 PERCENT EXCEEDS	72		109		56	
90 PERCENT EXCEEDS	13		40		14	

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1960, BY WATER YEAR (WY) (PRIOR TO REGULATION)

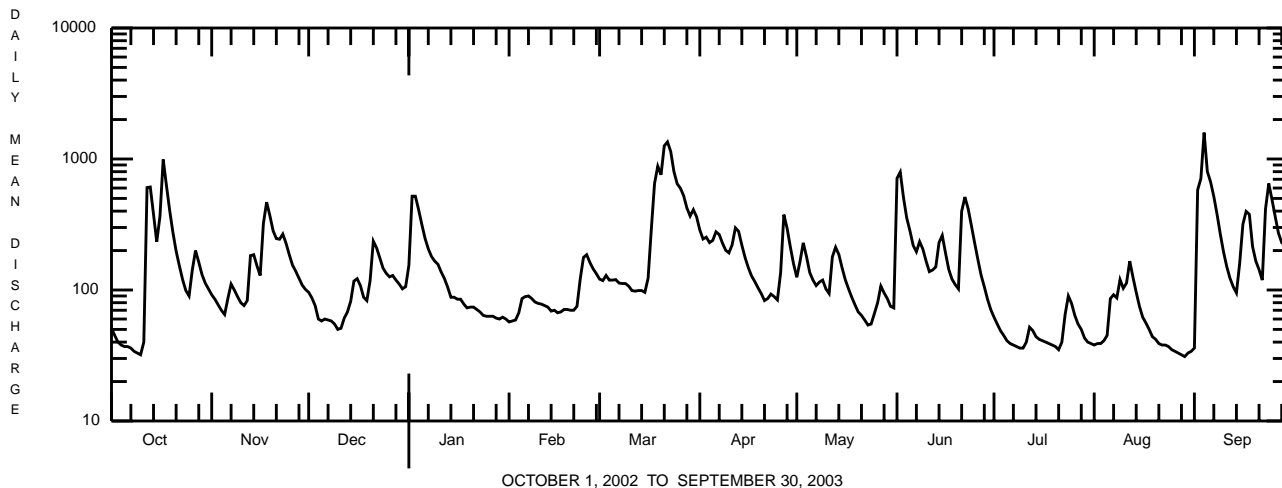
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	62.2	113	136	130	125	221	264	139	63.6	54.3	45.8	47.0
MAX	376	213	243	245	230	409	539	301	155	190	304	153
(WY)	1956	1946	1951	1952	1951	1945	1958	1947	1960	1947	1955	1960
MIN	15.2	23.7	28.8	36.2	46.4	104	57.4	38.6	16.4	10.3	1.33	11.6
(WY)	1958	1958	1947	1948	1958	1960	1946	1951	1959	1955	1960	1957

## SUMMARY STATISTICS WATER YEARS 1945 - 1960

ANNUAL MEAN	117	
HIGHEST ANNUAL MEAN	152	
LOWEST ANNUAL MEAN	78.1	
HIGHEST DAILY MEAN	2440	
LOWEST DAILY MEAN	.00	
ANNUAL SEVEN DAY MINIMUM	.00	
MAXIMUM PEAK FLOW	a5860	
MAXIMUM PEAK STAGE	9.24	
INSTANTANEOUS LOW FLOW	b.00	
ANNUAL RUNOFF (CFSM)	1.95	
ANNUAL RUNOFF (INCHES)	26.56	
10 PERCENT EXCEEDS	257	
50 PERCENT EXCEEDS	62	
90 PERCENT EXCEEDS	15	

a From rating curve extended above 3,600 ft<sup>3</sup>/s.

b No flow July 26 to Aug. 25, 1960, result of construction work upstream.



## LACKAWAXEN RIVER BASIN

01429000 WEST BRANCH LACKAWAXEN RIVER AT PROMPTON, PA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964 to 1987.

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Water years 1987 to current year.

INSTRUMENTATION.--Temperature probe interfaced with a data collection platform.

REMARKS.--Water temperature records rated good.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 26.5°C, Sept. 10, 1989; minimum, 0.0°C, several days during March and April 1994 and January 1996.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 24.0°C, Aug. 13, 23; minimum, 0.5°C, many days during winter.

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	17.5	17.0	17.5	8.0	7.5	7.5	3.0	2.5	3.0	1.5	1.0	1.5
2	18.0	17.0	17.5	7.5	7.0	7.0	3.0	1.5	2.5	1.5	1.5	1.5
3	17.5	17.0	17.0	7.0	6.5	6.5	2.5	1.0	1.5	1.5	1.0	1.0
4	17.5	16.5	17.0	6.5	6.5	6.5	1.5	1.0	1.0	1.0	1.0	1.0
5	19.0	17.0	18.0	6.5	6.0	6.5	1.5	1.5	1.5	1.0	0.5	1.0
6	18.5	17.0	17.0	6.5	6.0	6.0	2.0	1.5	1.5	1.0	0.5	0.5
7	17.5	17.0	17.5	6.0	5.5	6.0	2.0	1.5	2.0	1.0	0.5	1.0
8	17.5	16.5	17.0	6.0	5.5	5.5	2.0	2.0	2.0	1.0	1.0	1.0
9	17.0	16.5	17.0	5.5	5.5	5.5	2.0	2.0	2.0	1.0	1.0	1.0
10	17.0	16.0	16.5	5.5	5.5	5.5	2.0	2.0	2.0	1.0	1.0	1.0
11	16.5	16.0	16.0	6.5	5.5	6.0	2.0	2.0	2.0	1.0	1.0	1.0
12	16.5	15.0	16.0	7.5	6.5	7.0	2.0	2.0	2.0	1.0	1.0	1.0
13	15.0	14.0	14.5	7.5	7.0	7.5	2.5	2.0	2.0	1.0	1.0	1.0
14	15.0	14.0	14.5	7.5	7.0	7.0	2.0	2.0	2.0	1.0	1.0	1.0
15	14.0	13.5	13.5	7.5	7.0	7.0	2.0	1.5	2.0	1.0	1.0	1.0
16	13.5	12.5	13.0	7.5	7.0	7.0	2.0	1.5	1.5	1.0	1.0	1.0
17	13.0	11.5	12.0	7.0	6.5	7.0	1.5	1.5	1.5	1.0	1.0	1.0
18	11.5	11.0	11.5	6.5	6.0	6.5	1.5	1.5	1.5	1.0	1.0	1.0
19	11.0	10.5	10.5	6.0	6.0	6.0	2.0	1.5	2.0	1.5	1.0	1.0
20	11.0	10.0	10.5	6.0	5.5	5.5	2.0	1.5	2.0	1.0	1.0	1.0
21	10.5	10.0	10.5	5.5	5.0	5.5	2.0	1.5	1.5	1.0	1.0	1.0
22	10.5	10.0	10.0	5.5	5.0	5.0	1.5	1.5	1.5	1.5	1.0	1.0
23	10.0	10.0	10.0	5.0	4.5	5.0	1.5	1.5	1.5	1.5	1.0	1.0
24	10.0	9.5	9.5	4.5	4.5	4.5	1.5	1.5	1.5	1.5	1.0	1.5
25	9.5	9.0	9.5	4.5	4.5	4.5	1.5	1.5	1.5	1.5	1.5	1.5
26	9.0	9.0	9.0	4.5	4.0	4.5	2.0	1.5	1.5	1.5	1.5	1.5
27	9.0	9.0	9.0	4.0	3.5	4.0	1.5	1.5	1.5	1.5	1.0	1.0
28	9.0	8.5	9.0	3.5	3.0	3.5	1.5	1.5	1.5	1.5	1.0	1.5
29	8.5	8.5	8.5	3.5	3.0	3.0	1.5	1.5	1.5	1.5	1.5	1.5
30	8.5	8.0	8.0	3.5	3.0	3.0	1.5	1.5	1.5	1.5	1.5	1.5
31	8.0	7.5	8.0	---	---	---	1.5	1.0	1.5	1.5	1.5	1.5
MONTH	19.0	7.5	13.1	8.0	3.0	5.7	3.0	1.0	1.7	1.5	0.5	1.1



## LACKAWAXEN RIVER BASIN

## 01429500 DYBERRY CREEK NEAR HONSDALE, PA

**LOCATION.**--Lat 41°36'26", long 75°16'03", Wayne County, Hydrologic Unit 02040103, on right bank 180 ft upstream from unnamed tributary, 1,700 ft downstream from General Edgar Jadwin Reservoir, 2.1 mi north of Honesdale, and 2.6 mi upstream from mouth.

**DRAINAGE AREA.**--64.6 mi<sup>2</sup>.

**PERIOD OF RECORD.**--October 1943 to current year. Published as "*at Dyberry*" October 1943 to September 1959 and as "*near Dyberry*" October 1959 to September 1961.

**REVISED RECORDS.**--WSP 1382: 1947(M), 1950(M), 1951-53.

**GAGE.**--Water-stage recorder. Datum of gage is 970.70 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1957, nonrecording gage at site 1.9 mi upstream at datum 13.70 ft higher.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Flow regulated since October 1959 by General Edgar Jadwin Reservoir (station 01429400) 1,700 ft upstream. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of May 23, 1942 reached a stage of 15.86 ft, from floodmarks, site and datum then in use, discharge not determined.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	84	110	201	58	95	239	115	786	56	35	75
2	24	81	96	797	58	110	228	189	598	50	59	1160
3	20	76	79	453	57	e120	243	208	254	46	42	1060
4	17	70	71	321	89	e100	206	147	238	54	86	1760
5	16	66	73	244	114	106	232	126	213	39	191	1700
6	15	148	77	214	92	105	249	125	171	35	395	1130
7	13	133	67	188	81	e99	230	117	204	34	178	262
8	12	103	e63	182	72	e99	203	144	263	40	146	178
9	11	90	57	172	70	97	185	131	183	40	477	140
10	11	84	56	166	66	e91	202	110	145	37	159	115
11	105	81	e58	e140	63	e86	237	119	134	95	361	98
12	817	101	93	e120	59	e84	334	281	162	73	408	88
13	389	239	102	e110	57	85	238	184	198	49	183	81
14	181	163	153	e100	e54	88	188	150	210	38	121	92
15	119	132	193	105	54	90	167	128	183	32	92	865
16	353	121	150	e100	55	149	151	112	124	31	76	1350
17	1010	481	e110	95	64	380	130	100	101	33	68	671
18	362	438	e95	e74	86	738	119	91	97	33	63	279
19	202	272	102	e80	80	942	115	80	95	33	55	254
20	157	219	264	87	68	658	105	71	100	30	48	239
21	128	213	358	76	e58	1240	98	74	433	29	42	177
22	106	224	198	68	71	1360	113	71	377	132	40	145
23	91	228	171	65	166	1290	109	66	256	214	38	869
24	78	179	145	68	180	955	99	86	172	142	33	918
25	71	157	115	67	145	576	89	109	130	76	31	378
26	247	141	151	65	113	516	160	146	107	52	29	270
27	217	137	150	64	109	418	334	149	91	43	29	208
28	141	124	e120	62	100	315	190	106	78	41	26	238
29	116	115	121	62	---	309	148	97	69	34	26	213
30	102	111	110	59	---	386	126	81	63	30	65	165
31	92	---	130	56	---	293	---	95	---	28	42	---
TOTAL	5250	4811	3838	4661	2339	11980	5467	3808	6235	1699	3644	15178
MEAN	169	160	124	150	83.5	386	182	123	208	54.8	118	506
MAX	1010	481	358	797	180	1360	334	281	786	214	477	1760
MIN	11	66	56	56	54	84	89	66	63	28	26	75

e Estimated.

## LACKAWAXEN RIVER BASIN

## 01429500 DYBERRY CREEK NEAR HONESDALE, PA--Continued

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

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	60.0	110	124	113	140	234	239	142	80.9	42.4	31.6	51.2
MAX	292	413	388	402	466	552	572	397	291	170	145	506
(WY)	1977	1973	1997	1996	1981	1977	1993	1989	1972	1973	1994	2003
MIN	4.17	5.48	17.4	20.8	20.2	73.0	83.6	43.3	12.0	3.23	5.21	2.26
(WY)	1965	1965	1999	1981	1980	1981	1985	1965	1962	1962	1999	1980

## SUMMARY STATISTICS FOR 2002 CALENDAR YEAR FOR 2003 WATER YEAR WATER YEARS 1960 - 2003

ANNUAL TOTAL	40826.3		68910		114	
ANNUAL MEAN	112		189		189	
HIGHEST ANNUAL MEAN					51.4	
LOWEST ANNUAL MEAN					1965	
HIGHEST DAILY MEAN	1070	May 14	1760	Sep 4	2460	Jan 20 1996
LOWEST DAILY MEAN	6.2	Aug 14,16	11	Oct 9,10	1.2	Jul 29 1970
ANNUAL SEVEN-DAY MINIMUM	6.6	Aug 10	14	Oct 4	1.8	Oct 5 1980
MAXIMUM PEAK FLOW			1900	Sep 4	2600	Jan 20 1996
MAXIMUM PEAK STAGE			6.46	Sep 4	7.32	Jan 20 1996
INSTANTANEOUS LOW FLOW					a0.00	Oct 2 1968
10 PERCENT EXCEEDS	242		377		250	
50 PERCENT EXCEEDS	78		111		57	
90 PERCENT EXCEEDS	10		41		10	

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1959, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	53.7	110	128	119	109	236	262	145	55.8	68.9	45.7	30.5
MAX	348	263	255	248	227	539	628	345	127	293	339	90.8
(WY)	1956	1946	1953	1952	1951	1945	1958	1947	1946	1952	1955	1952
MIN	10.2	18.8	20.4	29.0	47.4	91.8	59.9	44.4	19.2	8.16	5.82	5.30
(WY)	1948	1947	1947	1944	1958	1949	1946	1955	1959	1955	1953	1953

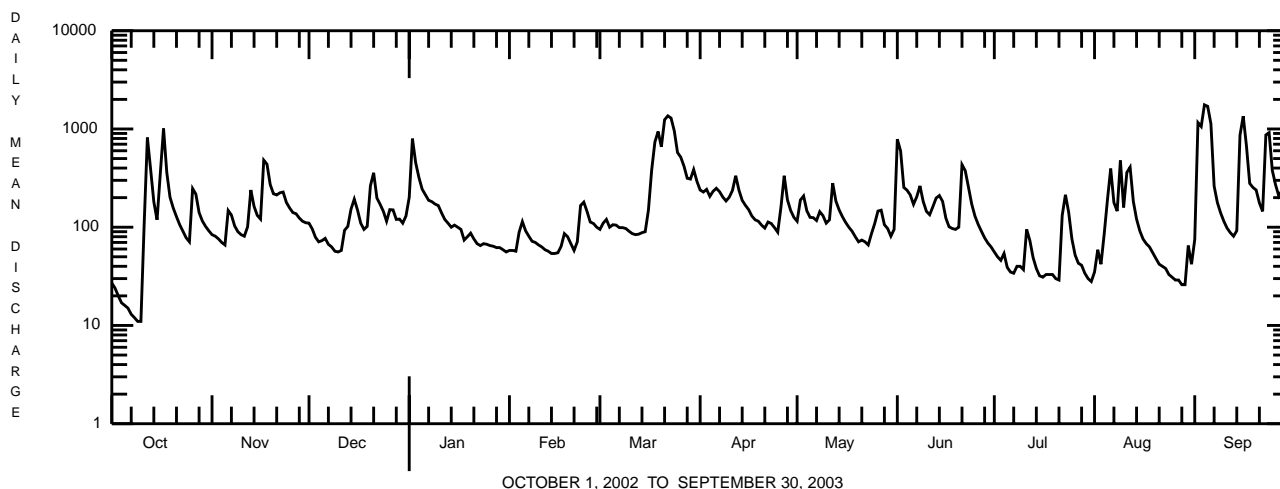
## SUMMARY STATISTICS WATER YEARS 1944 - 1959

ANNUAL MEAN	114	
HIGHEST ANNUAL MEAN	170	1952
LOWEST ANNUAL MEAN	77.2	1957
HIGHEST DAILY MEAN	5880	Jul 10 1952
LOWEST DAILY MEAN	2.0	Oct 5 1953
ANNUAL SEVEN DAY MINIMUM	2.3	Sep 29 1953
MAXIMUM PEAK FLOW	b15500	Jul 10 1952
MAXIMUM PEAK STAGE	c14.60	Jul 10 1952
ANNUAL RUNOFF (CFSM)	1.76	
ANNUAL RUNOFF (INCHES)	23.91	
10 PERCENT EXCEEDS	252	
50 PERCENT EXCEEDS	54	
90 PERCENT EXCEEDS	9.4	

a Result of shutoff at General Jadwin Reservoir.

b From rating curve extended above 2,500 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 13.78 ft.

c Site and datum then in use.



## LACKAWAXEN RIVER BASIN

## 01430000 LACKAWAXEN RIVER NEAR HONESDALE, PA

**LOCATION.**--Lat 41°33'43", long 75°14'54", Wayne County, Hydrologic Unit 02040103, on right bank at Lemnitzer Bridge (Brown Street), on U.S. Highway 6, and 1.2 mi downstream from Dyberry Creek and Honesdale.

**DRAINAGE AREA.**--164 mi<sup>2</sup>.

**PERIOD OF RECORD.**--October 1948 to September 1969, October 1985 to current year. Occasional discharge measurements and annual maximums, water years 1974-85.

**REVISED RECORDS.**--WDR PA 90-1: 1989. WDR PA 94-1: 1989(M).

**GAGE.**--Water-stage recorder. Datum of gage is 946.34 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Flow regulated since 1960 by Prompton Reservoir (station 01428900) and at high flow since 1959 by General Edgar Jadwin Reservoir (station 01429400). Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--The flood of May 1942 reached a stage of 24.5 ft, from data furnished by Corps of Engineers, discharge about 34,000 ft<sup>3</sup>/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	240	288	510	e150	e270	632	302	2050	156	90	183
2	83	225	258	1760	e160	e300	582	400	1900	136	113	3030
3	78	206	e230	1260	e150	e360	611	484	957	124	99	2680
4	76	188	e210	914	e240	e320	541	381	731	126	217	4840
5	77	178	e180	705	e280	e280	598	323	631	106	330	3020
6	73	321	202	592	e260	e270	658	306	502	97	684	2100
7	68	336	e190	513	e240	e260	601	287	571	91	386	926
8	59	283	e180	474	e200	e250	536	332	708	90	263	618
9	52	252	e160	449	e190	253	486	321	533	90	930	465
10	49	225	e150	433	e180	262	500	281	425	88	401	361
11	239	216	e180	e380	e170	252	565	268	371	172	1140	290
12	1950	256	225	e340	e170	e220	765	529	405	155	1130	249
13	1400	542	256	e310	e160	209	624	469	480	118	548	223
14	713	443	359	e260	e160	224	498	404	525	97	351	225
15	462	365	472	e280	e150	219	431	342	516	86	258	1640
16	999	331	417	e260	e160	351	380	298	383	82	207	2120
17	2670	1060	335	e240	e180	870	332	266	307	78	175	1310
18	1300	1190	e280	e200	e220	1900	302	238	285	76	150	748
19	738	817	266	e220	e200	2440	287	203	267	75	130	565
20	536	636	561	e240	e170	1920	263	177	306	69	114	493
21	423	587	861	e220	e160	3370	240	172	1280	69	102	388
22	349	599	580	e200	184	3520	263	161	1450	269	96	317
23	296	628	482	e190	e340	2980	265	149	987	396	93	1760
24	257	515	409	e190	e430	2100	242	181	649	358	82	1910
25	231	446	e340	e180	e380	1450	214	231	474	228	78	991
26	509	395	e370	e180	e360	1280	315	306	375	153	75	705
27	544	376	388	e170	e330	1070	748	352	301	124	74	545
28	408	340	347	e160	e310	836	528	286	249	120	69	553
29	337	308	321	e160	---	761	412	264	212	98	72	520
30	290	293	294	e160	---	920	343	228	181	85	125	427
31	263	---	331	e150	---	775	---	250	---	78	88	---
TOTAL	15626	12797	10122	12300	6284	30492	13762	9191	19011	4090	8670	34202
MEAN	504	427	327	397	224	984	459	296	634	132	280	1140
MAX	2670	1190	861	1760	430	3520	765	529	2050	396	1140	4840
MIN	49	178	150	150	150	209	214	149	181	69	69	183

e Estimated.



## LACKAWAXEN RIVER BASIN

## 01430000 LACKAWAXEN RIVER NEAR HONSDALE, PA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1969, 1986 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	149	281	287	273	287	568	554	345	210	92.2	85.0	138
MAX	504	650	925	884	716	1133	1464	985	634	255	364	1140
(WY)	2003	1987	1997	1996	1990	1986	1993	1989	2003	1996	1994	2003
MIN	14.5	16.5	39.1	73.5	106	261	240	123	43.9	20.3	17.2	12.3
(WY)	1965	1965	1999	1961	1963	1965	1988	2001	1962	1965	1964	1964

## SUMMARY STATISTICS FOR 2002 CALENDAR YEAR FOR 2003 WATER YEAR WATER YEARS 1960 - 1969 1986 - 2003

ANNUAL TOTAL	108398	176547		
ANNUAL MEAN	297	484	272	
HIGHEST ANNUAL MEAN			484	2003
LOWEST ANNUAL MEAN			130	1965
HIGHEST DAILY MEAN	2720	May 14	4840	Sep 4
LOWEST DAILY MEAN	20	Sep 13, 14	49	Oct 10
ANNUAL SEVEN-DAY MINIMUM	22	Aug 9	65	Oct 4
MAXIMUM PEAK FLOW			6430	Sep 4
MAXIMUM PEAK STAGE			8.33	Sep 4
INSTANTANEOUS LOW FLOW				8.49
10 PERCENT EXCEEDS	645	989	601	
50 PERCENT EXCEEDS	202	302	150	
90 PERCENT EXCEEDS	30	99	29	

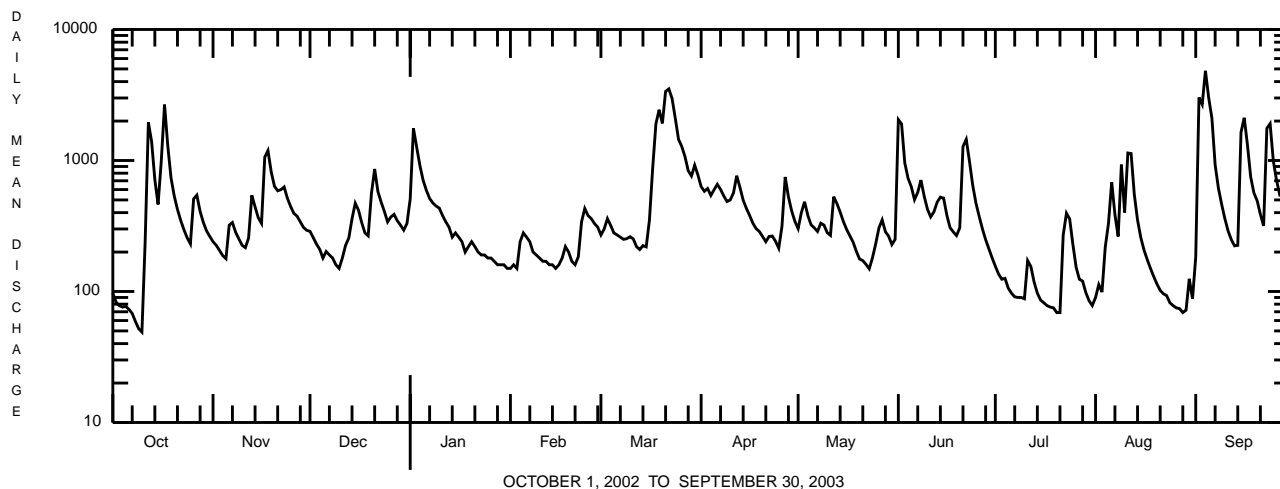
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1959, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	151	281	412	377	364	538	746	322	126	112	125	83.1
MAX	955	520	649	669	664	788	1458	592	304	425	865	189
(WY)	1956	1956	1951	1962	1951	1951	1958	1952	1956	1952	1955	1952
MIN	37.9	80.6	154	130	127	291	379	108	47.8	26.2	20.6	26.2
(WY)	1949	1958	1956	1956	1958	1949	1955	1951	1959	1955	1953	1957

## SUMMARY STATISTICS WATER YEARS 1949 - 1959

ANNUAL MEAN	302
HIGHEST ANNUAL MEAN	428
LOWEST ANNUAL MEAN	209
HIGHEST DAILY MEAN	8920
LOWEST DAILY MEAN	12
ANNUAL SEVEN DAY MINIMUM	12
MAXIMUM PEAK FLOW	a18600
MAXIMUM PEAK STAGE	15.52
ANNUAL RUNOFF (CFSM)	1.84
ANNUAL RUNOFF (INCHES)	25.06
10 PERCENT EXCEEDS	695
50 PERCENT EXCEEDS	152
90 PERCENT EXCEEDS	32

a From rating curve extended above 11,000 ft<sup>3</sup>/s.



## LACKAWAXEN RIVER BASIN

## 01431500 LACKAWAXEN RIVER AT HAWLEY, PA

**LOCATION.**--Lat 41°28'34", long 75°10'21", Wayne County, Hydrologic Unit 02040103, on left bank at bridge on Church Street in Hawley, 700 ft upstream from Wallenpaupack Creek, and 3,000 ft downstream from Middle Creek.

**DRAINAGE AREA.**--290 mi<sup>2</sup>.

**PERIOD OF RECORD.**--July 1908 to September 1917, August 1938 to current year. Monthly discharge only for some periods, published in WSP 1302. October 1917 to December 1919, gage heights and discharge measurements only, in reports of Water Supply Commission of Pennsylvania.

**REVISED RECORDS.**--WSP 1951: 1938-41. WSP 1302: 1909-17. WSP 1432: 1942. WSP 1502: 1956.

**GAGE.**--Water-stage recorder and crest-stage gage. Datum of gage is 869.00 ft above National Geodetic Vertical Datum of 1929. Prior to 1938, nonrecording gage at same site and datum, and Aug 20, 1955, to Feb. 13, 1956, nonrecording gage at site 1,000 ft downstream at same datum.

**REMARKS.**--Records fair except those for estimated daily discharges, which are poor. Regulation since 1960 by Prompton Reservoir (station 01428900) 14.9 mi upstream, and at high flood since 1959 by General Edgar Jadwin Reservoir (station 01429400) 13.0 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 1936 reached a stage of 19.1 ft at present site, 13.9 ft at former site, from floodmarks, discharge, 27,600 ft<sup>3</sup>/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	155	385	500	854	e300	683	1100	467	3420	305	166	236
2	130	370	443	3080	e340	e700	1030	537	3520	265	229	4760
3	116	346	397	2250	e320	e810	1130	717	1650	236	187	4880
4	112	317	e350	1590	e420	819	969	571	1220	221	283	6320
5	110	299	e330	1230	e600	782	1030	488	1070	196	526	4510
6	107	494	e360	1020	e540	769	1150	464	859	176	1110	2950
7	99	555	e380	885	e440	764	1010	433	961	175	783	1440
8	88	452	445	805	e380	788	907	517	1440	183	500	962
9	78	389	e380	772	e340	636	824	536	1020	167	1130	746
10	76	351	e340	762	e320	e520	854	453	799	176	674	594
11	368	330	e430	672	e320	e500	940	402	697	270	1490	487
12	3050	367	e520	604	e320	e450	1270	659	708	301	2460	414
13	2490	845	673	e510	e300	433	1090	652	786	221	1140	367
14	1230	735	841	e420	e300	e420	861	568	787	178	696	377
15	754	598	1060	e460	e280	431	737	485	776	152	494	2620
16	1420	546	892	e420	e330	714	653	424	589	141	385	3790
17	4380	1950	696	e360	e400	1820	573	383	480	135	337	2110
18	2200	2290	e520	e310	e510	3670	515	340	452	133	295	1230
19	1200	1570	e500	e340	e460	4610	492	299	443	145	252	1010
20	854	1150	931	e400	e420	3650	453	265	477	128	214	892
21	666	1020	1820	e330	e380	5830	414	261	2570	118	183	702
22	541	1010	1170	e300	e420	5760	443	264	3450	437	161	581
23	456	1110	915	e280	e800	4850	445	243	2320	725	153	3070
24	390	904	755	e260	1180	3410	405	286	1320	646	140	3290
25	351	769	e630	e280	1050	2380	375	361	906	409	128	1670
26	772	684	704	e280	869	2060	433	477	698	272	122	1200
27	928	658	695	e260	806	1730	1080	623	560	218	113	946
28	673	594	613	e260	746	1360	816	477	460	277	107	991
29	542	533	559	e260	---	e1300	631	435	401	220	101	968
30	460	499	505	e260	---	1530	530	368	363	172	196	787
31	417	---	567	e280	---	1350	---	378	---	146	166	---
TOTAL	25213	22120	19921	20794	13891	55529	23160	13833	35202	7544	14921	54900
MEAN	813	737	643	671	496	1791	772	446	1173	243	481	1830
MAX	4380	2290	1820	3080	1180	5830	1270	717	3520	725	2460	6320
MIN	76	299	330	260	280	420	375	243	363	118	101	236

e Estimated.

## LACKAWAXEN RIVER BASIN

## 01431500 LACKAWAXEN RIVER AT HAWLEY, PA--Continued

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

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	252	441	536	496	569	1011	1002	616	379	179	136	216
MAX (WY)	1056	1643	1671	1915	1434	2651	2392	1826	1475	680	522	1830
MIN (WY)	1977	1973	1997	1996	1976	1977	1994	1989	1972	1984	1994	2003
MIN (WY)	20.8	25.7	62.6	92.0	133	280	348	196	63.6	29.7	26.1	20.5
(WY)	1965	1965	1999	1981	1980	1981	1988	1962	1965	1965	1999	1964

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1960 - 2003	
ANNUAL TOTAL	178773		307028			
ANNUAL MEAN	490		841		485	
HIGHEST ANNUAL MEAN					841	
LOWEST ANNUAL MEAN					204	
HIGHEST DAILY MEAN	4890		May 14		6320	
LOWEST DAILY MEAN	23		Sep 14		76	
ANNUAL SEVEN-DAY MINIMUM	28		Sep 9		96	
MAXIMUM PEAK FLOW			7590		Sep 4	
MAXIMUM PEAK STAGE			9.53		Sep 4	
10 PERCENT EXCEEDS	1080		1690		1120	
50 PERCENT EXCEEDS	330		520		250	
90 PERCENT EXCEEDS	44		185		54	

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909-17, 1939-59, BY WATER YEAR (WY) (PRIOR TO REGULATION)

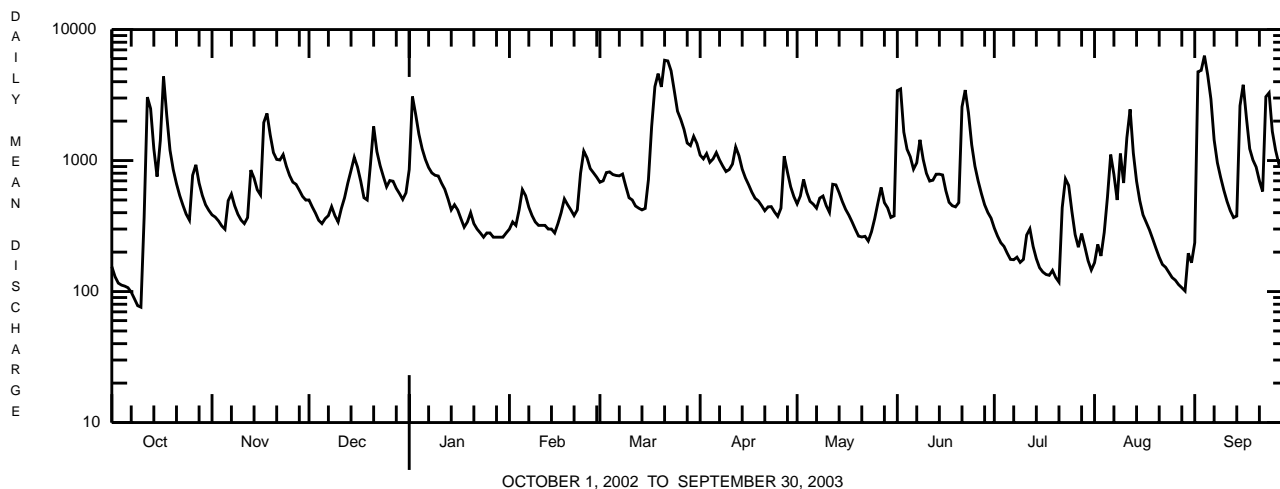
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	239	388	482	527	555	1019	1117	629	296	236	209	156
MAX (WY)	1773	1116	1166	1235	1279	2985	2644	1531	680	1246	2485	601
MIN (WY)	1956	1956	1951	1913	1909	1945	1940	1942	1916	1947	1955	1945
MIN (WY)	25.4	28.6	89.0	116	180	353	280	166	79.7	38.2	32.1	24.6
(WY)	1910	1910	1909	1944	1940	1915	1946	1941	1959	1955	1957	1909

SUMMARY STATISTICS WATER YEARS 1909 - 1917  
1939 - 1959

ANNUAL MEAN	487	
HIGHEST ANNUAL MEAN	748	1952
LOWEST ANNUAL MEAN	316	1917
HIGHEST DAILY MEAN	28100	May 23 1942
LOWEST DAILY MEAN	8.0	Sep 8 1909
ANNUAL SEVEN DAY MINIMUM	12	Sep 4 1909
MAXIMUM PEAK FLOW	a51900	Aug 19 1955
MAXIMUM PEAK STAGE	b24.80	Aug 19 1955
ANNUAL RUNOFF (CFSM)	1.68	
ANNUAL RUNOFF (INCHES)	22.83	
10 PERCENT EXCEEDS	1110	
50 PERCENT EXCEEDS	242	
90 PERCENT EXCEEDS	49	

a From rating curve extended above 12,000 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 20.1 ft.

b From floodmark.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

## LACKAWAXEN RIVER BASIN

## 01432000 WALLEPAUPACK CREEK AT WILSONVILLE, PA

**LOCATION.**--Lat 41°27'33", long 75°11'08", Pike County, Hydrologic Unit 02040103, at hydroelectric plant of Pennsylvania Power and Light Co., at lower end of penstock, at Kimble, and 1.2 mi south of Hawley.

**DRAINAGE AREA.**--228 mi<sup>2</sup>.

**PERIOD OF RECORD.**--October 1909 to current year. Monthly discharge only for some periods, published in WSP 1302.

**REVISED RECORDS.**--WSP 756: Drainage area. WSP 1302: 1918, 1923-24. WSP 1432: 1920-21. WSP 2102: 1966 (monthly mean).  
WDR PA-92-1: 1990.

**GAGE.**--Daily discharge determined from flow through turbines, computed from records of generator output and flow over roller gates on basis of head on gates. Prior to Nov. 3, 1925, nonrecording gage at site 1,000 ft downstream from dam at datum 1,146.78 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--No estimated daily discharges. Records good. No flow over spillway or roller gates. Flow regulated since 1925 by Lake Wallenpaupack (station 01431700).

**COOPERATION.**--Records of generator load, operation of power plant, net operation head, water-surface elevations in lake, and daily discharges furnished by Pennsylvania Power and Light Co., in connection with a Federal Energy Regulatory Commission project.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	277	1500	635	189	1020	158	1170	1700	445	0
2	133	0	636	1670	543	127	996	0	1600	1610	0	502
3	313	0	807	1340	653	458	1100	0	1720	1290	0	579
4	367	4	647	1050	544	627	1010	0	1690	1110	250	510
5	416	2	625	1050	687	413	1010	0	1720	1160	185	543
6	416	0	626	952	717	496	1550	0	1360	1270	245	327
7	415	0	283	820	690	589	1120	0	1120	724	283	399
8	395	183	238	780	560	168	1300	0	1090	754	440	637
9	434	0	663	887	512	176	1370	97	735	315	232	562
10	453	0	645	763	583	603	1320	0	700	426	367	630
11	464	0	686	765	565	386	1290	0	952	562	0	597
12	0	0	684	790	579	385	2	0	1200	0	0	721
13	0	30	736	800	655	440	0	0	1050	0	354	361
14	0	0	1060	852	562	459	525	2	815	627	649	333
15	0	0	440	831	662	0	703	0	741	524	588	563
16	0	0	753	688	574	12	793	1	617	467	382	1400
17	0	0	810	707	817	12	672	0	430	511	271	1580
18	0	247	735	628	669	0	651	0	598	462	392	1570
19	0	174	749	512	502	0	0	126	557	0	533	1580
20	0	203	679	659	552	276	0	348	576	0	410	1570
21	0	174	270	620	687	84	493	179	617	529	447	1580
22	0	202	261	925	726	436	527	146	1690	431	514	1420
23	0	135	736	1020	754	448	543	204	1720	687	2	1270
24	0	211	811	974	828	381	550	0	1720	499	0	1430
25	0	524	614	970	444	598	657	0	1720	602	685	1430
26	52	522	1270	985	491	789	0	0	1720	348	573	1430
27	0	583	1460	830	519	744	0	136	1720	556	623	564
28	0	248	1050	906	553	588	0	197	1700	847	20	0
29	0	221	1350	974	---	851	0	271	1690	953	394	0
30	0	236	727	870	---	996	0	260	1680	1000	0	0
31	0	---	877	856	---	1030	---	0	---	981	0	---
TOTAL	3858	3899	22205	27974	17263	12761	19202	2125	36418	20945	9284	24088
MEAN	124	130	716	902	617	412	640	68.5	1214	676	299	803
MAX	464	583	1460	1670	828	1030	1550	348	1720	1700	685	1580
MIN	0.00	0.00	238	512	444	0.00	0.00	0.00	430	0.00	0.00	0.00

## LACKAWAXEN RIVER BASIN

## 01432000 WALLENPAUPACK CREEK AT WILSONVILLE, PA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	271	244	352	446	441	407	463	347	388	344	301	336
MAX	750	1012	1242	1070	1112	1125	1500	1849	1573	965	995	1018
(WY)	1956	1956	1997	1978	1978	1998	1958	1996	1972	1928	1969	1987
MIN	1.32	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1996	2001	1926	1926	1926	1926	1926	1926	1958	1956	1956	1956

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1926 - 2003	
ANNUAL TOTAL	114716.00		200022			
ANNUAL MEAN	314		548		361	
HIGHEST ANNUAL MEAN					638	
LOWEST ANNUAL MEAN					86.9	
HIGHEST DAILY MEAN	1720		May 1a		1720	
LOWEST DAILY MEAN	0.00		Jan 1c		0.00	
ANNUAL SEVEN-DAY MINIMUM	0.00		Jan 8		0.00	
10 PERCENT EXCEEDS	736		1290		918	
50 PERCENT EXCEEDS	175		524		242	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1910 - 1925, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	235	271	384	490	426	868	831	468	307	206	143	144
MAX	542	627	1043	1219	1031	1656	1677	682	838	575	532	366
(WY)	1913	1920	1921	1911	1915	1920	1916	1924	1917	1916	1915	1915
MIN	28.0	32.0	69.5	104	156	344	396	283	115	57.0	49.0	35.0
(WY)	1910	1910	1923	1918	1920	1924	1925	1922	1921	1912	1910	1910

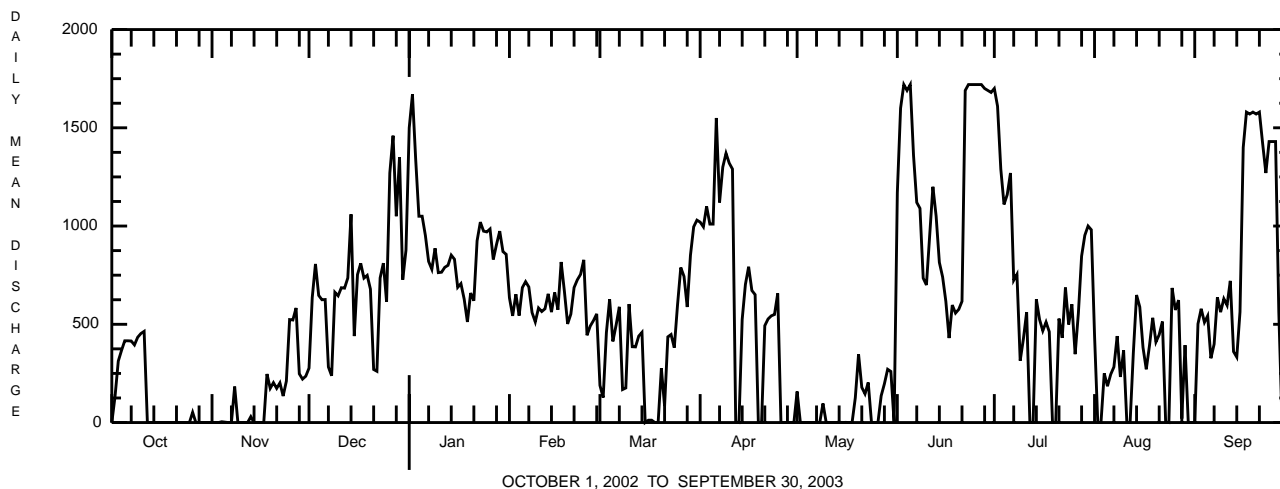
## SUMMARY STATISTICS WATER YEARS 1910 - 1925

MEAN	397
HIGHEST MEAN	527
LOWEST MEAN	279
HIGHEST DAILY MEAN	4840
LOWEST DAILY MEAN	8.0
SEVEN-DAY MINIMUM	10
10 PERCENT EXCEEDS	910
50 PERCENT EXCEEDS	240
90 PERCENT EXCEEDS	60

a Also May 2, 15-17, 19, 30.

b Also June 5, 23-27.

c Many days each year.



## LACKAWAXEN RIVER BASIN

## LAKES AND RESERVOIRS IN LACKAWAXEN RIVER BASIN

**01428900 PROMPTON RESERVOIR.**--Lat 41°35'18", long 75°19'39", Wayne County, Hydrologic Unit 02040103, at dam on West Branch Lackawaxen River, 0.3 mi north of Prompton, 0.4 mi upstream from highway bridge, and 0.5 mi upstream from Van Auken Creek. DRAINAGE AREA, 59.6 mi<sup>2</sup>. PERIOD OF RECORD, December 1960 to current year. GAGE, data collection platform (U.S. Army Corps of Engineers datum).

REMARKS.--Reservoir formed by an earth and rockfill dam with ungated bedrock spillway at elevation 1,205.00 ft. Storage began July 1960. Capacity at elevation 1,205.00 ft is 51,700 acre-ft. Ordinary minimum (conservation) pool is 1,125.00 ft, capacity, 3,420 acre-ft. Reservoir is used for flood control and recreation. Figures given herein represent total contents. Regulation is accomplished by discharge through an ungated tunnel.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 8,170 acre-ft, June 29, 1973, elevation, 1,138.40 ft; minimum (after first filling), 2,500 acre-ft, June 5, 1991, elevation, 1,121.46 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 5,690 acre-ft, Sept. 4, elevation, 1,131.89 ft; minimum contents, 3,230 acre-ft, Aug. 29, elevation, 1,124.04 ft.

**01429400 GENERAL EDGAR JADWIN RESERVOIR.**--Lat 41°36'44", long 75°15'55", Wayne County, Hydrologic Unit 02040103, at dam on Dyberry Creek, 0.4 mi upstream from unnamed tributary, 2.4 mi north of Honesdale, and 2.9 mi upstream from mouth. DRAINAGE AREA, 64.5 mi<sup>2</sup>. PERIOD OF RECORD, October 1959 to current year. GAGE, data collection platform (U.S. Army Corps of Engineers datum).

REMARKS.--Reservoir formed by an earth and rockfill dam with ungated concrete spillway at elevation 1,053.00 ft. Storage began October 1959. Capacity at elevation of 1,053.00 ft is 24,500 acre-ft. Reservoir is used for flood control. Figures given herein represent total contents. Regulation is accomplished by discharge through an ungated tunnel. Since Oct. 1, 1996, pool elevations below 990 ft NGVD are not recorded.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 6,520 acre-ft, June 19, 1973, elevation, 1,017.40 ft; minimum contents, no storage many times.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 3,360 acre-ft, Sept. 4, elevation, 1,006.42 ft; minimum contents, no storage many times.

**01431700 LAKE WALLENPAUPACK.**--Lat 41°27'35", long 75°11'10", Wayne County, Hydrologic Unit 02040103, at dam on Wallenpaupack Creek at Wilsonville, 1.2 mi south of Hawley, and 1.5 mi upstream from mouth. DRAINAGE AREA, 228 mi<sup>2</sup>. PERIOD OF RECORD, January 1926 to current year. GAGE, vertical staff. Datum of gage is sea level (levels by Pennsylvania Power and Light Co.).

REMARKS.--Lake formed by concrete gravity-type and earthfill dam, with concrete spillway in two sections at elevation 1,176.00 ft. Spillway equipped with 14 ft high roller gate on each section. Storage began Nov. 3, 1925; water in reservoir first reached minimum pool elevation January 1926. Total capacity at elevation 1,190.00 ft (top of gates), is 209,300 acre-ft, of which 108,900 acre-ft, above elevation 1,170.00 ft (minimum pool), is controlled storage. Prior to 1984, minimum pool elevation was 1,160.00 ft. Reservoir is used for generation of hydroelectric power. Figures given herein represent usable contents. Records prior to 1984 included additional usable contents of 48,900 acre-ft.

COOPERATION.--Records provided by Pennsylvania Power and Light Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 129,300 acre-ft, Aug. 19-21, 1955, elevation, 1,193.45 ft; minimum (after first filling), 12,280 acre-ft (old minimum pool), Mar. 28, 1958, elevation, 1,162.60 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 106,300 acre-ft, June 24, elevation, 1,189.6 ft; minimum contents, 27,800 acre-ft, Oct. 10, elevation 1,175.5 ft.

## LACKAWAXEN RIVER BASIN

## Lakes and Reservoirs in Lackawaxen River Basin--Continued

MONTH-END ELEVATION, IN FEET ABOVE SEA LEVEL, AND CONTENTS AT 2400 HRS. WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Elevation (feet)	Contents (acre- feet)	Change in contents (equivalent in ft <sup>3</sup> /s)	Elevation (feet)	Contents (acre- feet)	Change in contents (equivalent in ft <sup>3</sup> /s)
<u>01428900 Prompton Reservoir</u>				<u>01429400 General Edgar Jadwin Reservoir</u>		
Sept. 30 .....	1,124.98	3,490	---	--	0	---
Oct. 31 .....	1,125.43	3,620	+2.1	--	0	0
Nov. 30 .....	1,125.44	3,620	0	--	0	0
Dec. 31 .....	1,125.55	3,650	+0.5	--	0	0
CAL YR 2002 .....	--	--	+0.4	--	--	0
Jan. 31 .....	1,124.85	3,460	-3.1	--	0	0
Feb. 28 .....	1,125.41	3,620	+2.9	--	0	0
Mar. 31 .....	1,126.52	3,920	+4.9	--	0	0
Apr. 30 .....	1,125.70	3,700	-3.7	--	0	0
May 31 .....	1,125.84	3,740	+0.6	--	0	0
June 30 .....	1,125.15	3,540	-3.4	--	0	0
July 31 .....	1,124.54	3,370	-2.8	--	0	0
Aug. 31 .....	1,124.24	3,290	-1.3	--	0	0
Sept. 30 .....	1,126.05	3,790	+8.4	--	0	0
WTR YR 2003 .....	--	--	+0.4	--	--	0
<u>01431700 Lake Wallenpaupack</u>						
Sept. 30 .....	1,176.5	32,050	---			
Oct. 31 .....	1,181.7	60,830	+468			
Nov. 30 .....	1,186.6	88,540	+466			
Dec. 31 .....	1,185.9	84,840	-60.2			
CAL YR 2002 .....	--	--	+40.6			
Jan. 31 .....	1,181.4	59,310	-415			
Feb. 28 .....	1,178.1	40,240	-343			
Mar. 31 .....	1,185.9	84,840	+725			
Apr. 30 .....	1,185.3	81,790	-51.3			
May 31 .....	1,187.1	91,280	+154			
June 30 .....	1,187.5	93,530	+37.8			
July 31 .....	1,182.0	62,390	-506			
Aug. 31 .....	1,181.0	57,340	-82.1			
Sept. 30 .....	1,181.7	60,830	+58.6			
WTR YR 2003 .....	--	--	+39.8			

## DELAWARE RIVER BASIN

## 01432160 DELAWARE RIVER AT BARRYVILLE, NY

**LOCATION.**--Lat 41°28'31", long 74°54'46", Pike County, Pa., Hydrologic Unit 02040104, at Shohola-Barryville Bridge at Barryville, just upstream from Halfway Brook, and 1,000 ft upstream from Shohola Creek.

**DRAINAGE AREA.**--2,659 mi<sup>2</sup>.

**PERIOD OF RECORD.**--Water years 1958, 1968 to current year.

CHEMICAL DATA: 1958 (d), 1969 (a), 1973 (b), 1974 (d), 1975 (b).

NUTRIENT DATA: 1973 (b), 1974 (d), 1975 (b). BIOLOGICAL DATA: Bacteria.--1973 (b), 1974 (d), 1975 (b).

**PERIOD OF DAILY RECORD.**--

WATER TEMPERATURES: October 1967 to September 1973, March 1975 to current year.

**INSTRUMENTATION.**--Water-temperature recorder provides 15-minute-interval readings. From March 1975 to February 1994, water-temperature recorder provided one-hour-interval readings. Prior to September 1973, water-temperature recorder provided continuous recordings.

**REMARKS.**--Unpublished records of daily temperatures for May to September 1964-66 are available in files of the Geological Survey. Interruptions of record were due to malfunction of recording instrument.

**EXTREMES FOR PERIOD OF DAILY RECORD.**--

WATER TEMPERATURES: Maximum (water years 1968-73, 1976-78, 1980-82, 1986-88, 1990-2002), 32.0°C, July 20, 21, 1980; minimum, 0.0°C on many days during winters.

**EXTREMES FOR CURRENT YEAR.**--

WATER TEMPERATURES: Maximum recorded, 25.5°C, July 8, 16, 17, but may have been higher during period of instrument malfunction; minimum, 0.0°C on many days during winter.

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	19.0	16.0	17.5	6.5	5.0	6.0	3.0	0.5	2.0	2.0	1.0	1.5
2	21.5	17.5	19.0	6.0	4.5	5.0	3.0	0.5	2.0	2.0	0.5	1.5
3	---	---	---	5.5	4.0	4.5	2.5	0.0	0.5	1.5	0.0	0.5
4	---	---	---	5.5	3.5	4.5	1.5	0.0	0.0	1.5	0.0	0.5
5	---	---	---	5.5	4.0	5.0	1.0	0.0	0.0	1.5	0.0	1.0
6	---	---	---	6.5	5.0	5.5	1.5	0.0	0.5	1.5	0.0	1.0
7	---	---	---	6.0	4.5	5.0	1.0	0.0	0.0	1.5	0.0	0.5
8	---	---	---	6.5	3.5	5.0	0.5	0.0	0.0	1.5	0.0	0.5
9	---	---	---	6.5	4.5	5.5	0.5	0.0	0.0	2.0	0.5	1.5
10	---	---	---	8.0	5.5	6.5	0.5	0.0	0.0	2.0	0.5	1.5
11	---	---	---	10.0	7.5	9.0	0.5	0.0	0.0	1.0	0.0	0.5
12	---	---	---	9.5	9.0	9.5	1.5	0.0	0.5	0.5	0.0	0.0
13	14.5	13.5	14.0	9.5	8.0	9.0	1.5	0.0	1.0	0.5	0.0	0.0
14	14.0	12.0	13.0	8.5	7.0	7.5	2.0	0.0	1.5	0.5	0.0	0.0
15	12.0	11.0	11.5	8.0	7.0	7.5	2.0	0.5	1.0	0.5	0.0	0.0
16	11.5	10.5	11.0	7.5	6.0	7.0	2.0	0.5	1.0	0.5	0.0	0.0
17	11.0	10.0	10.5	6.5	5.5	6.0	1.0	0.0	0.5	0.5	0.0	0.0
18	11.0	9.5	10.0	6.0	5.0	5.5	0.5	0.0	0.0	0.5	0.0	0.0
19	10.0	9.0	9.5	5.5	4.0	5.0	2.0	0.0	0.5	0.5	0.0	0.0
20	10.5	8.5	9.5	5.5	4.0	5.0	2.0	0.5	1.5	0.5	0.0	0.0
21	10.0	8.5	9.5	5.5	4.5	5.0	2.0	0.0	0.5	0.5	0.0	0.0
22	9.5	7.5	8.5	6.0	5.0	5.5	2.0	0.0	0.5	0.5	0.0	0.0
23	9.5	8.0	8.5	6.0	4.0	5.0	2.5	0.5	1.5	0.5	0.0	0.0
24	8.5	7.0	8.0	5.0	3.5	4.5	2.5	1.0	1.5	0.5	0.0	0.0
25	8.5	7.5	8.0	5.5	3.5	4.5	2.0	0.0	0.5	0.5	0.0	0.0
26	9.0	7.5	8.0	5.5	3.5	4.5	1.0	0.0	0.0	0.5	0.0	0.0
27	9.0	7.5	8.0	5.0	3.0	4.0	1.5	0.0	0.5	0.5	0.0	0.0
28	8.5	7.5	8.0	4.0	1.0	2.5	1.5	0.0	0.5	0.5	0.0	0.0
29	8.0	6.5	7.0	2.5	1.0	2.0	2.0	0.0	1.0	0.5	0.0	0.0
30	7.0	6.0	6.5	3.0	1.5	2.0	1.5	0.0	0.5	0.5	0.0	0.0
31	7.0	5.0	6.0	---	---	---	2.5	0.5	1.5	0.5	0.0	0.0
MONTH	---	---	---	10.0	1.0	5.4	3.0	0.0	0.7	2.0	0.0	0.3



## DELAWARE RIVER BASIN

## 01432160 DELAWARE RIVER AT BARRYVILLE, NY--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	1.0	0.0	0.0	1.0	0.0	0.5	4.0	2.0	3.0	14.5	11.5	13.0
2	1.0	0.0	0.5	1.5	0.0	0.5	4.5	2.0	3.5	15.0	13.5	14.5
3	2.0	0.0	1.0	1.0	0.0	0.0	5.5	4.0	4.5	14.5	13.0	13.5
4	1.5	0.0	1.0	1.5	0.0	0.5	5.0	3.5	4.5	14.0	11.0	12.5
5	1.0	0.0	0.0	2.0	0.0	1.0	4.0	2.5	3.5	13.0	11.0	12.0
6	1.0	0.0	0.0	1.5	0.0	0.5	4.5	2.0	3.5	11.5	10.0	10.5
7	1.0	0.0	0.0	1.5	0.0	0.5	4.0	2.5	3.5	13.0	9.5	11.5
8	0.5	0.0	0.0	1.5	0.0	0.5	3.0	2.0	2.5	13.5	12.5	13.0
9	1.0	0.0	0.0	1.5	0.0	0.5	3.5	2.0	3.0	14.5	13.0	13.5
10	1.0	0.0	0.0	1.5	0.0	0.0	5.5	3.0	4.5	15.5	13.0	14.0
11	0.5	0.0	0.0	1.5	0.0	0.5	5.5	4.5	5.0	15.5	14.0	15.0
12	0.5	0.0	0.0	2.0	0.0	0.5	8.5	4.5	6.5	14.5	13.5	14.0
13	0.5	0.0	0.0	1.5	0.0	1.0	9.5	6.5	8.0	13.5	12.0	13.0
14	0.5	0.0	0.0	2.0	0.0	1.0	9.5	6.5	8.0	13.0	11.5	12.5
15	1.0	0.0	0.0	3.0	0.0	1.5	11.0	7.0	9.0	13.0	11.0	12.0
16	0.5	0.0	0.0	3.0	0.5	2.0	12.5	9.0	11.0	13.0	12.0	12.5
17	0.5	0.0	0.0	2.5	0.5	1.5	11.0	8.5	10.0	14.5	12.0	13.0
18	1.0	0.0	0.0	2.5	0.0	1.0	8.5	6.5	7.5	16.5	13.0	14.5
19	1.5	0.0	0.5	1.5	0.0	0.5	10.0	6.0	8.0	18.0	14.0	16.0
20	2.0	0.0	1.0	2.5	1.0	1.5	11.5	8.0	10.0	18.0	14.5	16.5
21	2.0	0.0	0.5	3.0	1.0	2.0	12.0	9.5	10.5	16.5	15.0	16.0
22	1.5	0.5	1.0	4.5	2.5	3.5	11.5	9.5	10.5	15.5	13.5	14.5
23	1.5	0.0	1.0	4.5	3.5	4.0	10.5	7.5	9.0	14.0	13.0	13.5
24	1.0	0.0	0.0	5.0	3.0	4.0	10.0	6.5	8.0	14.0	12.5	13.5
25	1.0	0.0	0.0	6.0	4.0	5.0	11.0	7.0	9.0	15.0	13.0	14.0
26	1.0	0.0	0.0	6.0	4.5	5.5	11.0	9.0	10.0	15.0	13.5	14.5
27	1.5	0.0	0.0	6.0	4.0	5.0	13.0	10.0	11.0	16.0	13.5	14.5
28	1.5	0.0	0.5	7.0	4.5	5.5	14.0	11.0	12.5	17.0	14.5	15.5
29	---	---	---	7.5	6.0	7.0	13.5	12.0	13.0	18.0	15.0	16.5
30	---	---	---	7.5	4.5	6.0	13.0	11.5	12.5	19.0	16.0	17.5
31	---	---	---	5.0	3.0	4.0	---	---	---	18.0	16.5	17.5
MONTH	2.0	0.0	0.2	7.5	0.0	2.2	14.0	2.0	7.5	19.0	9.5	14.0
	JUNE			JULY			AUGUST			SEPTEMBER		
1	16.5	13.0	15.0	21.5	17.5	19.5	---	---	---	20.5	18.5	19.5
2	14.5	12.5	13.5	21.5	18.0	20.0	---	---	---	18.5	16.5	17.0
3	14.5	13.0	13.5	23.0	19.5	21.0	---	---	---	16.5	16.0	16.5
4	14.0	12.5	13.0	24.0	20.5	22.5	---	---	---	16.5	16.0	16.5
5	14.5	12.5	13.5	25.0	21.0	23.0	---	---	---	17.5	16.0	17.0
6	16.0	13.5	14.5	25.0	22.0	23.5	---	---	---	18.5	17.0	17.5
7	15.0	14.0	14.5	25.0	21.0	23.5	---	---	---	19.0	17.5	18.0
8	14.5	13.5	14.0	25.5	22.0	24.0	---	---	---	19.5	18.0	18.5
9	16.5	14.0	15.0	24.5	23.0	24.0	---	---	---	19.5	18.5	19.0
10	18.5	14.5	16.5	23.5	20.5	22.0	---	---	---	19.5	18.0	18.5
11	17.5	16.5	17.0	22.0	19.5	20.5	---	---	---	19.5	18.0	19.0
12	17.5	16.0	16.5	22.0	19.5	20.5	---	---	---	19.5	18.0	18.5
13	16.5	15.5	16.0	23.0	19.5	21.0	---	---	---	18.5	17.5	18.0
14	18.0	15.5	16.5	23.5	20.0	21.5	---	---	---	20.0	17.5	19.0
15	19.0	16.5	17.5	24.5	19.5	22.0	---	---	---	20.0	19.0	19.5
16	18.5	16.0	17.5	25.5	21.5	23.5	---	---	---	19.5	18.5	19.0
17	19.0	16.5	17.5	25.5	21.0	23.0	---	---	---	19.5	18.0	18.5
18	18.0	16.5	17.0	---	---	---	---	---	---	18.5	17.5	18.0
19	18.5	16.0	17.0	---	---	---	---	---	---	19.0	17.5	18.5
20	18.0	16.0	17.0	---	---	---	---	---	---	19.5	18.0	18.5
21	16.5	15.0	16.0	---	---	---	---	---	---	19.5	18.0	18.5
22	15.5	14.5	15.0	---	---	---	25.0	22.0	23.5	18.5	17.5	18.0
23	18.0	14.5	16.0	---	---	---	24.5	22.0	23.0	18.5	17.0	18.0
24	19.5	16.5	17.5	---	---	---	22.5	20.5	22.0	17.0	16.5	17.0
25	20.5	17.0	18.5	---	---	---	23.0	21.0	22.0	17.0	16.0	16.5
26	21.5	18.5	20.0	---	---	---	23.0	21.0	22.0	17.0	16.0	16.5
27	22.0	19.5	20.5	---	---	---	24.0	21.0	22.5	18.0	17.0	17.5
28	21.5	19.0	20.5	---	---	---	24.5	20.5	22.5	17.5	16.5	17.0
29	20.5	18.0	19.5	---	---	---	24.5	21.5	23.0	16.5	15.5	16.0
30	20.5	18.5	19.5	---	---	---	23.0	20.5	22.0	15.5	14.5	15.0
31	---	---	---	---	---	---	21.5	19.5	20.5	---	---	---
MONTH	22.0	12.5	16.5	---	---	---	---	---	---	20.5	14.5	17.8

## DELAWARE RIVER BASIN

## 01432805 DELAWARE RIVER AT POND EDDY, NY

**LOCATION.**--Lat 41°26'20", long 74°49'11", Pike County, Pa., Hydrologic Unit 02040104, at interstate bridge at Pond Eddy, 450 ft downstream from Mill Brook, and 4.5 mi upstream from Mongaup River.

**DRAINAGE AREA.**--2,820 mi<sup>2</sup>.

**PERIOD OF DAILY RECORD.**--

WATER TEMPERATURES: October 1973 to current year.

**INSTRUMENTATION.**--Water-temperature recorder provides 15-minute-interval readings. Prior to August 1994, water-temperature recorder provided one-hour-interval readings.

**EXTREMES FOR PERIOD OF DAILY RECORD.**--

WATER TEMPERATURES: Maximum (water years 1976, 1978, 1980-81, 1983-84, 1986, 1989-90, 1992-2003) 31.5°C, July 5, 1999; minimum (water years 1974, 1977-78, 1980, 1983-2003), 0.0°C on many days during winters, except 1978, 1980, 1985.

**EXTREMES FOR CURRENT YEAR.**--

WATER TEMPERATURES: Maximum, 26.5°C, July 21; minimum, 0.0°C on many days during winter.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	19.5	16.5	17.5	6.5	5.5	6.0	2.0	1.0	2.0	1.5	1.5	1.5
2	21.5	17.5	19.0	5.5	5.0	5.5	1.5	1.0	1.5	1.5	1.0	1.5
3	20.5	19.0	20.0	5.0	4.5	5.0	1.5	0.0	0.5	1.0	0.5	0.5
4	19.5	18.0	18.5	5.0	4.5	5.0	0.0	0.0	0.0	0.5	0.0	0.5
5	20.0	18.0	18.5	5.5	4.5	5.0	0.0	0.0	0.0	1.0	0.5	1.0
6	19.5	17.5	18.5	6.0	5.0	5.5	0.5	0.0	0.0	1.0	0.5	1.0
7	18.5	17.0	18.0	6.0	5.0	5.5	0.5	0.0	0.0	1.0	0.5	0.5
8	17.5	15.5	16.5	5.5	4.5	5.0	0.5	0.0	0.0	1.0	0.0	0.5
9	16.0	15.0	15.5	6.0	5.5	5.5	0.0	0.0	0.0	1.5	1.0	1.0
10	15.5	15.0	15.5	7.5	6.0	6.5	0.5	0.0	0.0	1.5	1.0	1.5
11	15.0	14.0	15.0	9.5	7.5	8.5	0.0	0.0	0.0	1.0	0.0	0.5
12	14.5	14.0	14.0	9.5	9.0	9.5	0.0	0.0	0.0	0.0	0.0	0.0
13	14.0	14.0	14.0	9.0	8.5	9.0	0.5	0.0	0.5	0.0	0.0	0.0
14	14.0	12.5	13.0	8.5	7.5	8.0	1.5	0.5	1.0	0.0	0.0	0.0
15	12.5	11.5	12.0	8.0	7.5	8.0	1.0	1.0	1.0	0.0	0.0	0.0
16	11.5	10.5	11.0	8.0	7.0	7.5	1.0	0.5	1.0	0.0	0.0	0.0
17	10.5	10.5	10.5	7.0	6.0	6.5	0.5	0.0	0.0	0.0	0.0	0.0
18	10.5	10.0	10.5	6.0	5.5	5.5	0.0	0.0	0.0	0.0	0.0	0.0
19	10.0	9.5	10.0	5.5	4.5	5.0	1.0	0.0	0.5	0.0	0.0	0.0
20	10.0	9.0	9.5	5.0	4.5	5.0	1.5	1.0	1.5	0.0	0.0	0.0
21	10.0	9.0	9.5	5.0	5.0	5.0	1.5	0.0	1.0	0.0	0.0	0.0
22	9.5	8.5	9.0	5.5	5.0	5.5	1.0	0.0	0.5	0.0	0.0	0.0
23	9.5	8.5	9.0	5.5	4.5	5.0	1.5	1.0	1.5	0.0	0.0	0.0
24	9.0	7.5	8.5	4.5	4.5	4.5	2.0	1.5	1.5	0.0	0.0	0.0
25	8.5	8.0	8.0	4.5	4.0	4.5	1.5	0.0	1.0	0.0	0.0	0.0
26	8.5	8.0	8.0	4.5	4.5	4.5	0.5	0.0	0.0	0.0	0.0	0.0
27	8.5	8.0	8.5	4.5	3.5	4.0	0.5	0.5	0.5	0.0	0.0	0.0
28	8.5	8.0	8.5	3.5	2.0	3.0	0.5	0.0	0.5	0.0	0.0	0.0
29	8.0	7.0	7.5	2.0	1.5	2.0	1.0	0.5	1.0	0.0	0.0	0.0
30	7.0	6.5	6.5	2.5	1.5	2.0	1.0	0.5	0.5	0.0	0.0	0.0
31	7.0	6.0	6.5	---	---	---	1.5	1.0	1.0	0.0	0.0	0.0
MONTH	21.5	6.0	12.5	9.5	1.5	5.6	2.0	0.0	0.6	1.5	0.0	0.3



## DELAWARE RIVER BASIN

01434000 DELAWARE RIVER AT PORT JERVIS, NY  
(Pennsylvania Water-Quality Network Station)

**LOCATION.**--Lat 41°22'14", long 74°41'52", Pike County, PA, Hydrologic Unit 02040104, on right bank 250 ft downstream from bridge (on U.S. Highways 6 and 209) between Port Jervis, N.Y. and Matamoras, PA, 1.2 mi upstream from Neversink River, and 6.5 mi downstream from Mongaup River.

**DRAINAGE AREA.**--3,070 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--October 1904 to current year.

**REVISED RECORDS.**--WSP 1031: 1905-36. WDR NY-71-1: 1970. WDR NY-82-1: Drainage area. WDR NY-86-1: 1979-80.

**GAGE.**--Water-stage recorder. Datum of gage is 415.35 ft above National Geodetic Vertical Datum of 1929. October 1904 to August 13, 1928, non-recording gage at bridge 250 ft upstream at present datum; operated by U.S. Weather Service prior to June 20, 1914.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Flow regulated by Lake Wallenpaupack (station 01431700) and by Toronto, Cliff Lake, and Swinging Bridge Reservoirs and smaller reservoirs. Large diurnal fluctuations at medium and low flows caused by powerplants on tributary streams. Subsequent to September 1954, entire flow from 371 mi<sup>2</sup> of drainage area controlled by Pepacton Reservoir, and subsequent to October 1963, entire flow from 454 mi<sup>2</sup> of drainage area controlled by Cannonsville Reservoir. Information on the above lakes and reservoirs can be found in the annual Water-Data Report NY-03-1. Part of flow from these reservoirs diverted for New York City municipal supply. Remainder of flow (except for conservation releases and spill) impounded for release during periods of low flow in the lower Delaware River basin, as directed by the Delaware River Master. Satellite and telephone gage-height telemeters and National Weather Service telephone gage-height telemeter at station.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge prior to current degree of regulation, 233,000 ft<sup>3</sup>/s, Aug. 19, 1955, gage height, 23.91 ft, from floodmarks in gage house, from rating curve extended above 89,000 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow; maximum discharge since current degree of regulation, 134,000 ft<sup>3</sup>/s, Jan. 20, 1996, gage height, 18.37 ft; maximum gage height, 26.6 ft, Feb. 12, 1981 (ice jam), from floodmarks; minimum observed discharge, 175 ft<sup>3</sup>/s, Sept. 23, 1908, gage height, 0.6 ft.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--The U.S. Weather Bureau reported a discharge of 205,000 ft<sup>3</sup>/s, Oct. 10, 1903, gage height, 23.1 ft, from rating curve extended above 70,000 ft<sup>3</sup>/s, by velocity-area studies; maximum gage height, 25.5 ft, Mar. 8, 1904 (ice jam).

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 46,500 ft<sup>3</sup>/s, Mar. 22, gage height, 10.51 ft; minimum, 977 ft<sup>3</sup>/s, Oct. 3, gage height, 1.93 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,430	2,950	4,210	e5,000	e2,300	e2,500	16,000	5,240	10,100	5,180	2,370	1,970
2	1,190	2,890	e3,800	14,800	e2,200	e2,400	14,000	5,170	16,700	4,760	2,840	13,200
3	1,140	2,730	e3,200	15,800	e2,300	e2,400	13,500	8,510	12,300	4,110	3,720	25,300
4	1,370	2,380	e2,300	11,700	e2,400	e2,400	12,500	9,050	10,900	3,410	3,520	31,700
5	1,840	2,250	e2,100	9,600	e2,500	e2,300	12,200	7,800	10,200	3,320	5,720	31,900
6	1,730	2,460	e2,200	8,440	e2,300	e2,300	12,400	6,920	9,040	3,330	7,070	20,100
7	1,690	3,730	e2,100	7,540	e2,100	e2,200	12,000	6,190	8,290	3,070	7,080	14,100
8	1,740	3,660	e1,900	e5,800	e2,000	e2,200	11,300	5,520	9,750	2,870	5,460	11,100
9	1,540	3,090	e1,800	e4,700	e1,800	e2,100	10,500	5,180	8,390	2,650	5,830	8,830
10	1,710	2,560	e1,600	e4,000	e1,700	e2,100	9,800	4,440	7,210	2,540	5,760	7,450
11	2,100	2,530	e1,400	e3,700	e1,700	e2,100	9,860	3,880	6,430	2,610	5,820	6,600
12	7,980	2,600	e1,500	e3,500	e1,700	e2,100	10,300	4,310	6,800	4,090	13,400	5,570
13	11,700	4,070	e2,100	e3,000	e1,700	e2,000	9,520	5,560	8,760	2,740	10,500	4,300
14	7,270	5,070	5,700	e2,700	e1,700	e2,000	8,670	5,250	11,200	2,340	9,100	3,880
15	5,260	4,370	7,510	e2,500	e1,600	e2,000	8,040	4,980	14,000	2,510	8,320	5,360
16	5,090	4,270	7,410	e2,400	e1,500	e2,600	7,450	4,610	10,800	2,160	6,850	13,300
17	20,300	8,130	6,340	e2,300	e1,500	6,420	6,860	4,310	8,780	2,260	4,970	10,800
18	14,700	14,200	5,270	e2,400	e1,500	13,900	6,330	3,840	7,770	2,430	4,650	8,670
19	9,330	12,400	4,590	e2,500	e1,500	24,300	5,590	3,560	7,230	2,200	4,180	8,180
20	7,030	9,680	5,310	e2,600	e1,500	21,200	4,950	3,450	6,330	1,840	3,760	7,640
21	5,650	8,570	10,300	e2,600	e1,600	36,500	4,830	3,250	11,800	1,930	3,430	6,510
22	4,640	8,250	9,150	e2,600	e1,800	45,600	5,140	3,100	19,500	2,690	3,140	5,530
23	3,900	9,620	8,030	e2,500	e2,500	41,900	5,090	3,000	18,800	5,120	2,570	13,000
24	3,070	9,480	7,050	e2,500	e2,700	30,700	4,860	2,690	14,500	5,170	2,020	23,900
25	2,940	8,110	e6,200	e2,400	e2,900	23,900	4,290	2,780	11,000	4,130	2,080	15,700
26	3,590	7,040	e5,000	e2,400	e3,000	21,300	3,970	3,630	9,230	3,090	2,530	12,500
27	5,820	6,460	e5,200	e2,400	e3,100	19,300	6,110	4,890	8,070	2,880	2,320	10,100
28	4,840	5,740	e4,800	e2,400	e2,800	15,800	6,990	4,610	7,190	3,300	2,270	11,600
29	3,950	4,860	e4,500	e2,400	---	14,300	6,210	4,290	6,170	3,370	1,840	17,600
30	3,530	4,420	e4,300	e2,400	---	18,700	5,590	3,920	5,670	3,100	2,360	13,700
31	3,200	---	e4,200	e2,400	---	18,800	---	3,480	---	3,010	1,980	---
TOTAL	151,270	168,570	141,070	141,980	57,900	388,320	254,850	147,410	302,910	98,210	147,460	370,090
MEAN	4,880	5,619	4,551	4,580	2,068	12,530	8,495	4,755	10,100	3,168	4,757	12,340
MAX	20,300	14,200	10,300	15,800	3,100	45,600	16,000	9,050	19,500	5,180	13,400	31,900
MIN	1,140	2,250	1,400	2,300	1,500	2,000	3,970	2,690	5,670	1,840	1,840	1,970

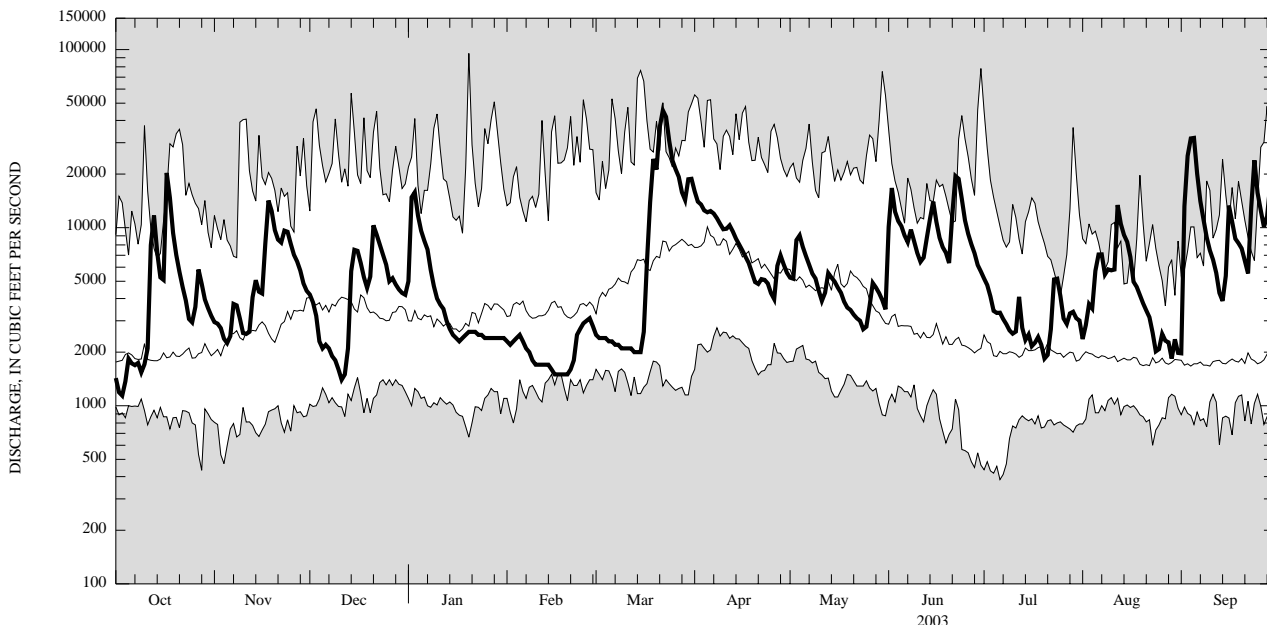
e Estimated.

DELAWARE RIVER BASIN

01434000 DELAWARE RIVER AT PORT JERVIS, NY--Continued

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2003, BY WATER YEAR (WY)												
MEAN	2,981	4,026	5,052	4,704	4,997	8,040	9,380	6,100	4,102	2,684	2,277	2,629
MAX	10,440	10,310	17,280	12,980	13,730	17,520	23,650	12,670	12,650	6,680	4,757	12,340
(WY)	(1978)	(1973)	(1997)	(1996)	(1976)	(1977)	(1993)	(1984)	(1972)	(1973)	(2003)	(2003)
MIN	1,001	884	1,475	1,216	1,601	2,583	2,954	1,890	993	699	963	1,144
(WY)	(1965)	(1965)	(1999)	(1981)	(1980)	(1981)	(1985)	(1995)	(1965)	(1965)	(1965)	(1965)

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1964 - 2003	
ANNUAL TOTAL	1,469,665		2,370,040			
ANNUAL MEAN	4,026		6,493		4,743	
HIGHEST ANNUAL MEAN					7,216	
LOWEST ANNUAL MEAN					2,028	
HIGHEST DAILY MEAN	23,900	May 14	45,600	Mar 22	95,200	Jan 20, 1996
LOWEST DAILY MEAN	666	Jan 20	1,140	Oct 3	385	Jul 6, 1965
ANNUAL SEVEN-DAY MINIMUM	842	Jan 16	1,480	Oct 1	432	Jul 1, 1965
10 PERCENT EXCEEDS	8,470		13,400		10,300	
50 PERCENT EXCEEDS	2,690		4,610		2,830	
90 PERCENT EXCEEDS	1,430		2,000		1,500	



CURRENT WATER YEAR DAILY MEAN DISCHARGE (BOLD) WITH DAILY MEDIAN FOR PERIOD OF RECORD. SHADED AREAS SHOW HIGHEST AND LOWEST DAILY MEAN FOR PERIOD OF RECORD THROUGH PREVIOUS WATER YEAR.

## DELAWARE RIVER BASIN

01434000 DELAWARE RIVER AT PORT JERVIS, NY--Continued  
(Pennsylvania Water-Quality Network Station)

## WATER-QUALITY RECORDS

**PERIOD OF RECORD.**--Water years 1957-60, 1964 to January 1994, June 1997, 1999 to August 2001, April 2002 to current year.

CHEMICAL DATA: 1958-59 (e), 1964-65 (c), 1966 (a), 1967-68 (c), 1969-76 (d), 1987 (b), 1988-89 (c), 1990-91 (b), 1992, 1997 (a), 1999-2001 (d).

MINOR ELEMENTS DATA: 1970, 1972-73 (a), 1974-76 (c), 1987 (b), 1988-89 (c), 1990-91 (b), 1992 (a).

PESTICIDE DATA: 1974 (a), 1987 (b), 1988-89 (c), 1990 (b), 1997 (a), 1999 (c), 2000-01 (d).

ORGANIC DATA: OC--1974 (b), 1975, 1999-2001 (d).

NUTRIENT DATA: 1968 (a), 1969-76 (d), 1987 (b), 1988-89 (c), 1990 (b), 1999-2001 (d).

BIOLOGICAL DATA:

Bacteria--1973-76 (d).

Phytoplankton--1974 (b), 1975-76 (c).

Periphyton--1976 (a).

SEDIMENT DATA: 1959, 1976 (c), 1988 (b), 1989 (c), 1990-91 (b), 1992 (a), 1999-2001 (d).

**PERIOD OF DAILY RECORD.**--

SPECIFIC CONDUCTANCE: January to September 1973

WATER TEMPERATURE: February 1957 to September 1960, January to September 1973, June 1974 to January 1994, October 1998 to August 2001.

SUSPENDED-SEDIMENT DISCHARGE: February 1957 to September 1960, March 1970 to June 1976.

**REMARKS.**--Other data for the Water-Quality Network can be found on pages 430-470.

**EXTREMES FOR PERIOD OF DAILY RECORD.**--

WATER TEMPERATURE: Maximum (water years 1957-59, 1973-81, 1983-84, 1988-93, 1999-2000), 30.5°C, July 5, 1999; minimum (water years 1958-60, 1973, 1975-93, 1999, 2001), 0.0°C on many days during winter periods, except 1984.

SUSPENDED-SEDIMENT CONCENTRATION: (water years 1957-60, 1970-76): Maximum daily mean, 760 mg/L, June 29, 1973; minimum daily mean, less than 1 mg/L on many days.

SUSPENDED-SEDIMENT DISCHARGE: (water years 1957-60, 1970-76): Maximum daily, 187,000 tons, June 29, 1973; minimum daily, 1 ton, Aug. 29, 1957.

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

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unf 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium, water, unfltrd recover -able, mg/L (00916)	Magnesium, water, unfltrd recover -able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002 06...	0900	1028	9813	--	40	12.8	7.2	75	5.8	22	6.6	1.3	13
JAN 2003 08...	1000	1028	9813	--	40	13.2	6.3	76	.8	19	5.9	1.1	10
MAR 06...	1230	1028	9813	--	40	13.9	7.0	101	.2	22	6.5	1.3	13
MAY 07...	1030	1028	9813	--	40	11.7	6.8	76	11.1	21	5.9	1.4	14
JUL 16...	1250	1028	9813	--	40	11.7	8.5	82	23.6	22	6.6	1.3	17
SEP 10...	1620	1028	9813	--	40	9.7	8.1	73	19.9	21	6.4	1.3	16

## DELAWARE RIVER BASIN

## 01434000 DELAWARE RIVER AT PORT JERVIS, NY--Continued

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

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, sus- pended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho- phos- phate, water, unfltrd mg/L as P (70507)	Phos- phorus, water, unfltrd mg/L (00665)	Total nitro- gen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Alum- inum, water, unfltrd recover -able, µg/L (01105)	Copper, water, unfltrd recover -able, µg/L (01042)	Iron, water, unfltrd recover -able, µg/L (01045)
NOV 2002 06...	8.0	138	<2	<.020	.13	<.040	<.01	<.010	.38	2.5	<200	<10	70
JAN 2003 08...	7.3	88	<2	<.020	.27	<.040	<.01	<.010	.40	2.8	<200	<10	90
MAR 06...	7.9	60	<2	<.020	.33	<.040	.01	<.010	.39	2.1	<200	<10	80
MAY 07...	6.7	72	<2	<.020	.18	<.040	.01	.010	.43	2.2	<200	<10	90
JUL 16...	6.2	70	<2	<.020	.12	<.040	.01	.015	.52	3.4	<200	<10	90
SEP 10...	5.8	78	<2	<.020	.15	<.040	.01	.022	.35	3.0	<200	<10	160

Date	Lead, water, unfltrd recover -able, µg/L (01051)	Mangan- ese, water, unfltrd recover -able, µg/L (01055)	Nickel, water, unfltrd recover -able, µg/L (01067)	Zinc, water, unfltrd recover -able, µg/L (01092)
NOV 2002 06...	<1.0	<10	<50	<10
JAN 2003 08...	<1.0	20	<50	10
MAR 06...	<1.0	20	<50	20
MAY 07...	<1.0	30	<50	10
JUL 16...	<1.0	30	<50	<10
SEP 10...	<1.0	40	<50	20

## DELAWARE RIVER BASIN

## 01434000 DELAWARE RIVER AT PORT JERVIS, NY--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES

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

Date	Count
8/07/02	
Benthic Macroinvertebrate	Count
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Valvatidae	
<u>Valvata</u> sp	25
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	
<u>Sphaerium</u> sp	11
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Tubificida	
Naididae	1
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Acentrella</u> sp	7
<u>Baetis</u> sp	4
Ephemerellidae	
<u>Serratella</u> sp	8
Heptageniidae	
<u>Stenonema</u> sp	9
Isonychiidae	
<u>Isonychia</u> sp	1
Polymitarcyidae	
<u>Ephoron</u> sp	2
Tricorythidae	
<u>Tricorythodes</u> sp	2
Odonata	
Coenagrionidae (DAMSELFLIES)	
<u>Argia</u> sp	1
Plecoptera (STONEFLIES)	
Perlidae	
<u>Acroneuria</u> sp	1
<u>Agnetina</u> sp	2
Trichoptera (CADDISFLIES)	
Apataniidae	
<u>Apatania</u> sp	1
Brachycentridae	
<u>Brachycentrus</u> sp	1
Helicopsychidae	
<u>Helicopsyche</u> sp	12
Hydropsychidae	
<u>Cheumatopsyche</u> sp	2
<u>Potamyia</u> sp	3
Hydroptilidae	
<u>Leucotrichia</u> sp	5
Philopotamidae	
<u>Chimarra</u> sp	1
Rhyacophilidae	
<u>Rhyacophila</u> sp	1



## DELAWARE RIVER BASIN

01434000 DELAWARE RIVER AT PORT JERVIS, NY--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES--Continued

Date	8/07/02
Benthic Macroinvertebrate	Count
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Promoresia</u> sp	3
<u>Stenelmis</u> sp	3
Psephenidae (WATER PENNIES)	
<u>Psephenus</u> sp	2
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	8
Empididae (DANCE FLIES)	
<u>Hemerodromia</u> sp	1
Tipulidae (CRANE FLIES)	
<u>Antocha</u> sp	3
Total Organisms	120

## DELAWARE RIVER BASIN

## 01438500 DELAWARE RIVER AT MONTAGUE, NJ

**LOCATION**--Lat 41°18'33", long 74°47'43", Pike County, PA, Hydrologic Unit 02040104, on right bank 1,500 ft upstream from toll bridge (on U.S. Route 206) between Montague, NJ and Milford, PA, 0.8 mi downstream from Sawkill Creek, and at river mile 246.3.

**DRAINAGE AREA**--3,480 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD**--March 1936 to September 1939 (gage heights only, published as "at Milford, PA"). October 1939 to current year. Monthly discharge only for some periods, published in WSP 1302.

**REVISED RECORDS**--WDR-NJ-81-2: 1980.

**GAGE**--Water-stage recorder. Datum of gage is 369.93 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 9, 1940, nonrecording gage on upstream side of left span of subsequently dismantled bridge at present site at datum 70 ft lower.

**REMARKS**--Records good except those for estimated daily discharges, which are fair. Diurnal fluctuation at medium and low flow caused by powerplants on tributary streams. Flow regulated by Lake Wallenpaupack (station 01431700), Cliff Lake, and by Pepacton, Cannonsville, Swinging Bridge, Toronto, and Neversink Reservoirs. Information on the above lakes and reservoirs can be found in the annual Water-Data Report NJ-03-1. Several measurements of water temperature were made during the year. Satellite telemetry at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,800	3,580	4,960	6,760	e3,440	e5,150	18,700	5,720	9,560	5,600	2,630	2,120
2	1,460	3,480	5,100	14,500	e3,120	e4,470	16,300	5,450	19,700	5,140	3,040	10,700
3	1,410	3,320	4,790	17,600	e3,260	e4,720	15,500	8,600	15,000	4,500	3,680	26,400
4	1,560	3,020	4,260	13,500	e3,710	e5,200	14,400	9,800	12,800	3,930	3,690	28,500
5	2,030	2,810	3,990	11,300	e3,650	e4,990	14,000	8,530	11,900	3,710	5,640	34,100
6	1,990	2,960	3,860	9,810	e4,190	e4,790	14,000	7,510	10,700	3,630	7,140	21,300
7	1,850	4,360	3,750	8,810	e4,470	e4,940	13,400	6,760	9,590	3,490	7,330	15,200
8	1,960	4,230	3,250	8,130	e3,990	e4,650	12,800	6,030	11,100	3,190	5,720	11,800
9	1,830	3,800	3,210	7,820	e3,740	e4,140	12,000	5,710	9,860	3,070	5,590	9,530
10	1,890	3,180	e2,910	7,400	e3,650	4,360	11,300	4,990	8,410	2,910	6,120	7,850
11	2,410	3,100	3,510	6,730	e3,570	4,390	11,300	4,450	7,340	2,800	6,340	6,910
12	8,080	3,190	4,250	6,310	e3,300	3,930	12,100	4,540	7,440	4,080	12,200	5,720
13	12,600	4,480	4,770	e5,680	e2,960	4,030	11,500	5,960	9,440	3,180	11,000	4,570
14	8,980	5,750	6,520	e5,160	e3,090	3,990	10,400	5,640	11,300	2,470	9,510	4,030
15	6,490	5,000	8,780	e4,540	e3,010	3,880	9,550	5,400	15,300	e2,770	8,560	4,560
16	5,700	4,870	8,700	e4,530	e2,270	3,980	8,640	5,030	12,100	2,500	7,100	12,500
17	19,000	8,490	7,590	e3,880	e1,940	7,180	7,930	4,740	9,790	2,400	5,360	11,400
18	17,100	15,100	6,590	e3,380	e2,240	13,800	7,230	4,280	8,530	2,640	4,730	9,020
19	10,900	14,200	5,730	e3,480	e2,860	24,800	6,530	3,930	7,970	2,500	4,350	8,510
20	8,230	11,300	6,310	e3,390	e3,100	23,200	5,740	3,780	7,020	2,000	3,960	8,260
21	6,590	9,970	10,500	e3,360	e2,740	38,000	5,450	3,710	11,200	2,030	3,600	6,820
22	5,480	9,540	11,000	e3,040	e3,060	49,900	5,750	3,530	20,500	2,850	3,320	5,660
23	4,700	10,700	9,350	e3,120	e4,550	46,400	5,720	3,420	21,600	4,690	2,980	11,700
24	3,820	10,700	8,350	e3,360	e6,230	34,400	5,510	3,260	16,600	5,260	2,250	26,200
25	3,620	9,250	7,690	e3,410	e6,810	26,700	4,950	3,190	12,300	4,260	2,040	17,400
26	4,050	8,070	7,120	e3,610	e6,220	23,700	4,720	4,300	10,300	3,460	2,680	13,600
27	6,420	7,390	7,330	e3,420	e6,050	21,700	6,160	6,100	8,840	2,980	2,500	11,200
28	5,600	6,690	7,060	e3,090	e5,930	18,400	7,820	5,620	7,970	3,350	2,460	12,100
29	4,670	5,680	6,810	e3,330	---	16,700	6,880	5,250	6,750	3,460	1,960	18,600
30	4,190	5,180	5,930	e3,530	---	22,400	6,190	4,840	6,100	3,210	2,410	15,300
31	3,850	---	5,940	e3,500	---	22,200	---	4,400	---	3,090	2,150	---
TOTAL	170,260	193,390	189,910	189,480	107,150	461,880	292,470	164,470	337,010	105,150	152,040	381,560
MEAN	5,492	6,446	6,126	6,112	3,827	14,900	9,749	5,305	11,230	3,392	4,905	12,720
MAX	19,000	15,100	11,000	17,600	6,810	49,900	18,700	9,800	21,600	5,600	12,200	34,100
MIN	1,410	2,810	2,910	3,040	1,940	3,880	4,720	3,190	6,100	2,000	1,960	2,120

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2003, BY WATER YEAR (WY)

MEAN	3,311	5,012	6,089	5,763	5,889	9,941	11,770	7,356	4,579	3,045	2,613	2,793
MAX	15,690	11,760	18,830	15,600	15,120	24,480	31,560	16,090	15,200	11,220	14,230	12,720
(WY)	(1956)	(1952)	(1997)	(1996)	(1976)	(1945)	(1940)	(1943)	(1972)	(1945)	(1955)	(2003)
MIN	807	995	1,665	1,318	1,748	3,191	3,322	2,215	1,214	864	715	892
(WY)	(1942)	(1965)	(1999)	(1981)	(1980)	(1981)	(1985)	(1965)	(1965)	(1954)	(1954)	(1941)

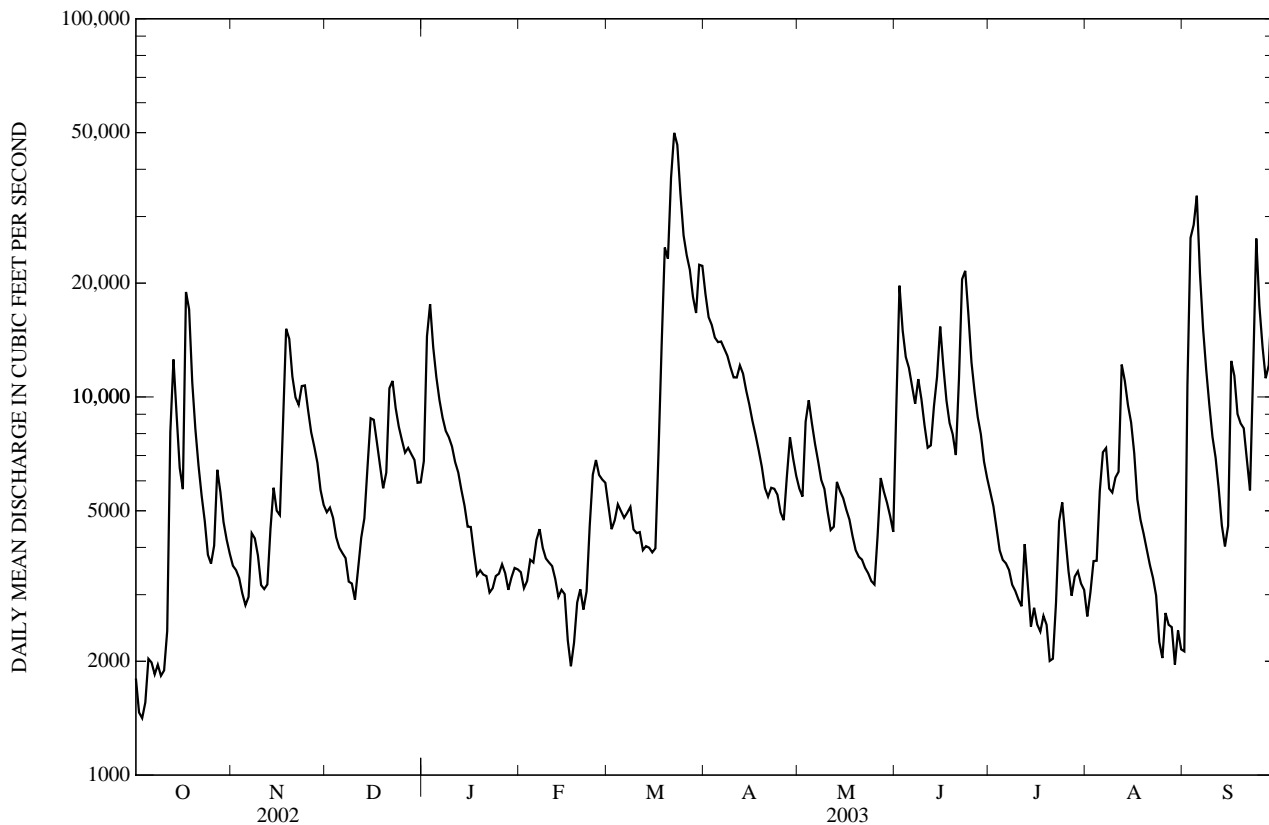
e Estimated.

DELAWARE RIVER BASIN

01438500 DELAWARE RIVER AT MONTAGUE, NJ--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1940 - 2003	
ANNUAL TOTAL	1,673,524		2,744,770		5,675	
ANNUAL MEAN	4,585		7,520		8,621	
HIGHEST ANNUAL MEAN					2,309	
LOWEST ANNUAL MEAN					1965	
HIGHEST DAILY MEAN	23,800	May 14	49,900	Mar 22	187,000	Aug 19, 1955
LOWEST DAILY MEAN	943	Jan 21	1,410	Oct 3	412	Aug 23, 1954
ANNUAL SEVEN-DAY MINIMUM	1,050	Jan 16	1,730	Oct 1	565	Jul 1, 1965
MAXIMUM PEAK FLOW			51,100	Mar 22	250,000a	Aug 19, 1955
MAXIMUM PEAK STAGE			16.03	Mar 22	35.15	Aug 19, 1955
INSTANTANEOUS LOW FLOW			1,210	Oct 3	382	Aug 24, 1954
10 PERCENT EXCEEDS	9,340		14,400		12,000	
50 PERCENT EXCEEDS	3,370		5,600		3,430	
90 PERCENT EXCEEDS	1,620		2,860		1,600	

a From rating curve extended above 90,000 ft<sup>3</sup>/s on basis of flood-routing study.



## DELAWARE RIVER BASIN

## 01438500 DELAWARE RIVER AT MONTAGUE, NJ--Continued

## WATER-QUALITY RECORDS

**PERIOD OF RECORD.**--Water years 1956-73, 1976-78, July 1991 to current year.

**COOPERATION.**--Field data and samples for laboratory analyses were provided by the New Jersey Department of Environmental Protection. Determination of dissolved ammonia, total ammonia, dissolved nitrite, dissolved orthophosphate, biochemical oxygen demand, total suspended solids, fecal coliform, E. coli, and enterococcus bacteria was performed by the New Jersey Department of Health and Senior Services, Public Health and Environmental Laboratories, Environmental and Chemical Laboratory Services. Determination of chlorophyll a was performed by the New Jersey Department of Environmental Protection, Bureau of Freshwater and Biological Monitoring Laboratory.

**COOPERATIVE NETWORK SITE DESCRIPTOR.**-- Delaware River Main Stem, New Jersey Department of Environmental Protection Watershed Management Area 1.

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

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, water, unfltrd field, NTU (61028)	UV absorbance, 254 nm, wat flt units /cm (50624)	UV absorbance, 280 nm, wat flt units /cm (61726)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd $\mu$ S/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)
NOV 19...	1230	14,000	4.6	0.146	0.112	758	12.2	97	6.7	71	3.0	5.5	17
MAR 12...	1230	3,740	1.2	0.067	0.051	753	13.2	95	7.2	112	7.0	1.3	23
JUN 09...	1200	10,100	3.5	0.118	0.090	748	9.7	98	7.2	80	22.0	15.2	19
SEP 03...	1130	27,300	49	0.219	0.168	756	8.5	88	7.1	62	19.0	16.5	17
Date	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
NOV 19...	5.13	1.09	0.75	5.13	E10	7.63	<0.17	3.5	7.2	--	44	7	0.27
MAR 12...	6.95	1.42	0.64	9.17	13	17.3	<0.17	2.7	8.4	56	65	1	0.14
JUN 09...	5.79	1.18	0.67	6.42	12	10.3	<0.17	2.8	6.6	42	46	6	0.17
SEP 03...	5.35	0.910	1.12	4.24	12	6.79	<0.17	3.1	5.3	35	54	63	0.30
Date	Ammonia water, fltrd, mg/L as N (00608)	Ammonia water, unfltrd mg/L as N (00610)	Nitrite + nitrate water, fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Particulate nitrogen, susp, water, mg/L (49570)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, fltrd, mg/L (00602)	Total nitrogen, water, unfltrd mg/L (00600)	Total carbon, suspnd sedimnt total, mg/L (00694)	Inorganic carbon, suspnd sedimnt total, mg/L (00688)	Organic carbon, suspnd sedimnt total, mg/L (00689)
NOV 19...	0.030	<0.030	0.17	<0.003	<0.020	0.08	0.012	0.030	0.44	0.53	0.7	<0.1	0.7
MAR 12...	<0.030	<0.030	0.34	<0.003	<0.020	0.05	0.006	0.010	0.48	0.53	0.3	<0.1	0.3
JUN 09...	<0.030	<0.030	0.18	<0.003	<0.020	0.06	0.011	0.029	0.35	0.41	0.6	<0.1	0.6
SEP 03...	0.022	0.033	0.18	<0.003	<0.020	0.37	0.024	0.132	0.49	0.86	3.3	<0.1	3.3

## DELAWARE RIVER BASIN

## 01438500 DELAWARE RIVER AT MONTAGUE, NJ--Continued

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

Date	Organic carbon, water, fltrd, mg/L (00681)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Chlorophyll a fluorometric method, corrcd $\mu$ g/L (32209)	Boron, water, fltrd, $\mu$ g/L (01020)
NOV 19...	3.9	E1.1	--	<13
MAR 12...	2.4	E1.8	--	E6.2
JUN 09...	3.0	E1.9	3.10	10
SEP 03...	5.8	E1.9	10.2	11

Remark codes used in this table:

&lt; -- Less than

E -- Estimated value

## WATER-COLUMN BACTERIA ANALYSES

Samples were collected synoptically over a 30-day period during the summer.

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

Date	Time	Enterococci, m-E MF, water, col/ 100 mL (31649)	E coli, m-TEC MF, water, col/ 100 mL (31633)	Fecal coli-form, ECbroth water, MPN/ 100 mL (31615)	Date	Time	Enterococci, m-E MF, water, col/ 100 mL (31649)	E coli, m-TEC MF, water, col/ 100 mL (31633)	Fecal coli-form, ECbroth water, MPN/ 100 mL (31615)
MAY 15...	0840	<10	<100	<20	JUN 05...	0845	50	700	<20
22...	0900	10	<100	220	12...	0815	320	100	<20
29...	0810	1,400	<100	<20					

Remark codes used in this table:

&lt; -- Less than

## BUSH KILL BASIN

01439500 BUSH KILL AT SHOEMAKERS, PA  
(Pennsylvania Water-Quality Network Station)

**LOCATION.**--Lat 41°05'17", long 75°02'17", Monroe County, Hydrologic Unit 02040104, on right bank 30 ft downstream from bridge on township route 523, 0.1 mi downstream from Saw Creek, 0.7 mi northwest of Shoemakers, and 2.0 mi southwest of Bushkill.

**DRAINAGE AREA.**--117 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--October 1908 to current year. Monthly discharge only for some periods, published in WSP 1302. Prior to October 1928, published as Bushkill Creek near Shoemakers; October 1928 to September 1952, published as Bushkill Creek at Shoemakers.

**REVISED RECORDS.**--WSP 756: Drainage area. WSP 1202: 1921, 1932(M), 1933, 1935-36, 1938(M), 1939-40, 1942, 1945, 1946(M), 1948(M). WSP 1302: 1909-15, 1920(M), 1922-29. WDR PA-89-1: 1988.

**GAGE.**--Water-stage recorder. Datum of gage is 421.13 ft above National Geodetic Vertical Datum of 1929. Sept. 19, 1908, to Aug. 12, 1938, nonrecording gage, and Aug. 13, 1938, to June 20, 1956, water-stage recorder at site 50 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 base discharge of 1,100 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Oct. 12	0545	1,130	3.41	June 1	1645	1,110	3.38
Mar. 22	0145	2,200	4.54	June 22	1015	*2,340	*4.68

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	65	212	278	395	e150	e180	632	137	820	267	65	95
2	57	201	249	871	e150	e200	606	133	929	230	207	220
3	49	183	e200	724	e150	e260	586	125	743	198	197	245
4	50	167	e190	637	e220	e220	523	120	744	176	548	261
5	59	157	e180	562	e200	e200	510	118	652	159	765	222
6	57	227	e180	509	e160	e260	477	118	543	142	719	168
7	47	230	e170	464	e160	e220	435	118	604	130	516	134
8	42	197	e160	432	e150	e200	410	118	792	126	454	118
9	37	182	e150	417	e140	e220	386	120	644	123	374	105
10	36	173	e140	405	e140	e220	386	117	547	120	441	88
11	367	175	e280	362	e140	e200	388	115	473	121	404	78
12	1050	207	e400	e300	e130	e190	381	117	477	120	407	70
13	760	300	e380	e280	e120	e220	355	112	631	113	333	74
14	560	271	507	e260	e110	e230	327	106	545	99	277	93
15	430	246	572	e240	e120	e240	305	99	548	89	226	137
16	495	266	523	e230	e100	274	291	94	438	83	210	145
17	774	632	453	e220	e240	461	268	89	370	74	182	118
18	624	815	396	e200	e200	763	250	84	372	69	156	105
19	520	700	365	e190	e140	964	241	82	357	82	139	118
20	443	597	486	e190	e130	1030	230	73	373	66	124	125
21	375	530	609	e180	e120	2000	217	89	956	62	117	119
22	322	519	535	e170	e180	1970	210	102	2220	164	113	111
23	280	540	487	e170	e360	1540	190	93	1860	163	103	638
24	245	474	441	e160	e300	1180	175	108	1280	164	89	771
25	225	425	433	e160	e260	942	165	118	928	143	80	591
26	365	384	420	e160	e220	801	176	273	705	127	75	501
27	372	369	391	e150	e200	723	190	336	551	106	72	435
28	310	338	360	e150	e190	613	169	285	445	103	64	683
29	273	310	335	e160	---	652	156	264	366	90	59	688
30	251	292	308	e160	---	840	146	222	311	74	65	546
31	233	---	300	e150	---	730	---	224	---	66	61	---
TOTAL	9773	10319	10878	9658	4880	18743	9781	4309	21224	3849	7642	7802
MEAN	315	344	351	312	174	605	326	139	707	124	247	260
MAX	1050	815	609	871	360	2000	632	336	2220	267	765	771
MIN	36	157	140	150	100	180	146	73	311	62	59	70
CFSM	2.69	2.94	3.00	2.66	1.49	5.17	2.79	1.19	6.05	1.06	2.11	2.22
IN.	3.11	3.28	3.46	3.07	1.55	5.96	3.11	1.37	6.75	1.22	2.43	2.48

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2003, BY WATER YEAR (WY)

MEAN	124	209	263	258	271	433	429	303	200	128	98.0	93.7
MAX	773	643	841	807	706	1119	1002	773	919	747	864	569
(WY)	1956	1933	1997	1979	1909	1936	1993	1989	1972	1945	1955	1933
MIN	7.74	13.6	21.7	44.2	39.7	156	141	90.7	32.8	13.4	8.33	4.39
(WY)	1965	1965	1999	1981	1934	1981	1985	1941	1962	1999	1964	1964

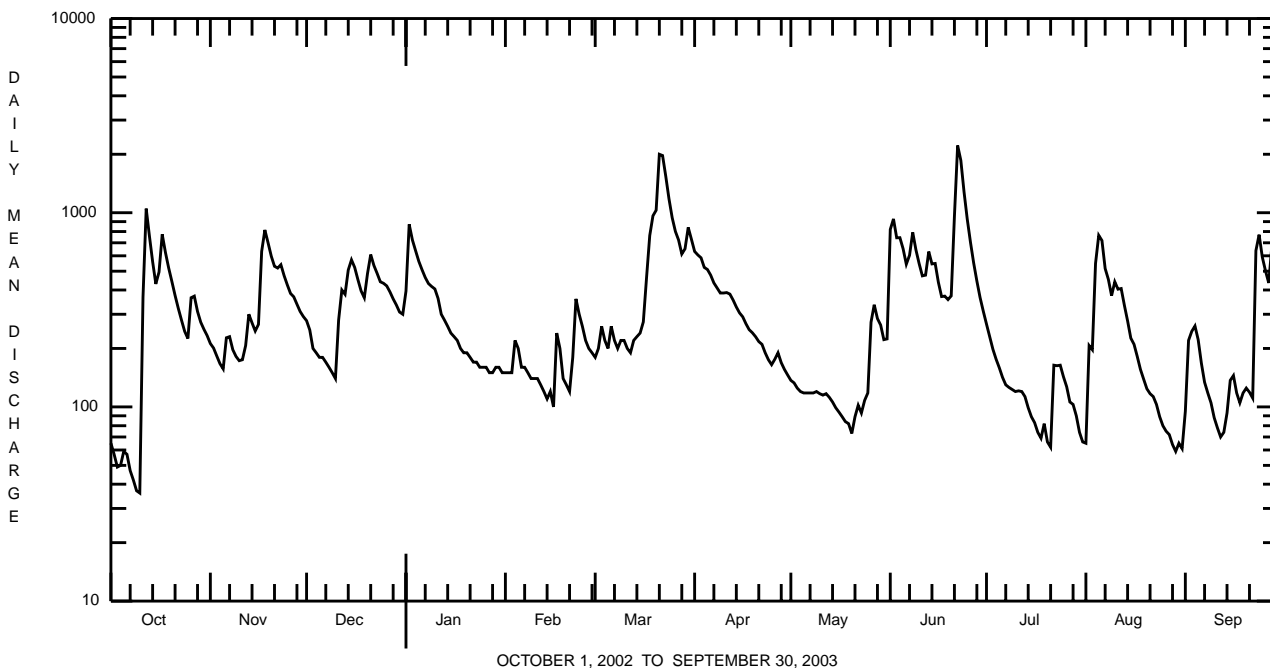
e Estimated.

BUSH KILL BASIN

01439500 BUSH KILL AT SHOEMAKERS, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1909 - 2003	
ANNUAL TOTAL	83038.8		118858		234	
ANNUAL MEAN	228		326		419	
HIGHEST ANNUAL MEAN					1928	
LOWEST ANNUAL MEAN					95.4	
HIGHEST DAILY MEAN	1070	Jun 7	2220	Jun 22	11800	Aug 19 1955
LOWEST DAILY MEAN	8.0	Sep 14	36	Oct 10	2.6	Sep 25 1964
ANNUAL SEVEN-DAY MINIMUM	9.5	Sep 9	47	Oct 4	2.7	Sep 21 1964
MAXIMUM PEAK FLOW			2340	Jun 22	<b>a</b> 23400	Aug 19 1955
MAXIMUM PEAK STAGE			4.68	Jun 22	<b>b</b> 13.95	Aug 19 1955
INSTANTANEOUS LOW FLOW					2.6	Sep 25 1964
ANNUAL RUNOFF (CFSM)	1.94		2.78		2.00	
ANNUAL RUNOFF (INCHES)	26.40		37.79		27.16	
10 PERCENT EXCEEDS	517		652		521	
50 PERCENT EXCEEDS	160		224		160	
90 PERCENT EXCEEDS	22		89		27	

**a** From rating curve extended above 2,600 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow.  
**b** From floodmark.



## BUSH KILL BASIN

01439500 BUSH KILL AT SHOEMAKERS, 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 430-470. Some values for "dissolved" parameters exceed values for the corresponding "total" parameter. These results are within the limits of analytical precision and methods.

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

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unfltrd, $\mu$ S/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, unfltrd, recoverable, mg/L (00915)	Calcium water unfltrd recover, mg/L (00916)	Magnesium, water, unfltrd, mg/L (00925)
NOV 2002 04...	1430	1028	9813	166	30	12.7	6.6	40	5.0	13	3.14	3.4	1.06
JAN 2003 09...	1330	1028	9813	413	30	12.7	6.4	40	2.8	11	2.86	2.9	.98
MAR 04...	1520	1028	9813	E220	30	14.3	7.0	58	.1	15	3.96	4.1	1.24
MAY 07...	1740	1028	9813	118	30	10.2	6.8	47	15.7	12	3.33	3.2	1.02
JUL 01...	1300	1028	9813	269	30	10.3	6.7	37	20.1	11	2.75	2.8	.96
SEP 09...	1130	1028	9813	108	30	9.8	7.2	44	17.9	12	3.18	3.2	.98

Date	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	Sulfate water, unfltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water, unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)
NOV 2002 04...	1.1	6	.0	7.6	76	2	--	<.04	<.040	<.01	.010	.27	1.2
JAN 2003 09...	1.0	4	.0	6.8	36	<2	<.020	<.04	<.040	<.01	<.010	<.06	.8
MAR 04...	1.3	6	.0	7.4	14	<2	<.020	.08	<.040	.01	.011	.11	1.6
MAY 07...	1.0	7	3.2	6.6	36	<2	<.020	<.04	<.040	.01	.015	.18	1.3
JUL 01...	1.0	8	.0	5.6	74	6	<.020	<.04	<.040	.01	.022	.18	.7
SEP 09...	1.0	8	--	5.1	--	6	<.020	<.04	<.040	.01	.029	.14	.7



## BUSH KILL BASIN

## 01439500 BUSH KILL AT SHOEMAKERS, PA--Continued

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

Date	Alum- inum, water, unfltrd recovery, µg/L (01106)	Alum- inum, water, unfltrd recovery, µg/L (01105)	Copper, water, unfltrd recovery, µg/L (01040)	Copper, water, unfltrd recovery, µg/L (01042)	Iron, water, unfltrd recovery, µg/L (01046)	Iron, water, unfltrd recovery, µg/L (01045)	Lead, water, unfltrd recovery, µg/L (01049)	Lead, water, unfltrd recovery, µg/L (01051)	Mangan- ese, water, unfltrd recovery, µg/L (01056)	Mangan- ese, water, unfltrd recovery, µg/L (01055)	Nickel, water, unfltrd recovery, µg/L (01065)	Nickel, water, unfltrd recovery, µg/L (01067)	Zinc, water, unfltrd recovery, µg/L (01090)
NOV 2002 04...	71	100	<4	<4	60	90	<1.0	<1.0	2.5	7.9	<4.0	7.1	5.8
JAN 2003 09...	56	65	<4	<4	50	70	<1.0	<1.0	2.8	6.2	<4.0	<4.0	5.1
MAR 04...	42	70	<4	<4	50	100	<1.0	<1.0	3.1	10	<4.0	<4.0	<5.0
MAY 07...	37	55	<4	<4	40	70	<1.0	<1.0	2.8	9.5	<4.0	<4.0	<5.0
JUL 01...	67	100	<4	<4	140	180	<1.0	<1.0	4.4	10	<4.0	<4.0	5.4
SEP 09...	43	57	<4	<4	110	150	<1.0	<1.0	4.5	10	<4.0	<4.0	10

Date	Zinc, water, unfltrd recovery, µg/L (01092)
NOV 2002 04...	6.5
JAN 2003 09...	5.8
MAR 04...	6.4
MAY 07...	<5.0
JUL 01...	6.1
SEP 09...	20

## BUSH KILL BASIN

## 01439500 BUSH KILL AT SHOEMAKERS, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES

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

Date	8/6/02
Benthic Macroinvertebrate	Count
Nemertea (PROBOSAS WORMS)	
Enopla	
Hoplonemertea	
Tetrastemmatidae	
<u>Prostoma</u> sp	2
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancyliidae	
<u>Ferrissia</u> sp	1
Bivalvia (CLAMS)	
Veneroidea	
Sphaeriidae	
<u>Sphaerium</u> sp	9
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	
	3
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Acentrella</u> sp	1
<u>Baetis</u> sp	4
Ephemerellidae	
<u>Dannella</u> sp	4
Heptageniidae	
<u>Epeorus</u> sp	6
<u>Heptagenia</u> sp	2
<u>Stenonema</u> sp	5
Isonychiidae	
<u>Isonychia</u> sp	2
Leptophlebiidae	
	1
Odonata	
Coenagrionidae (DAMSELFLIES)	
<u>Argia</u> sp	1
Gomphidae (DRAGONFLIES)	
	4
Plecoptera (STONEFLIES)	
Perlidae	
<u>Paragnetina</u> sp	1
Trichoptera (CADDISFLIES)	
Apataniidae	
<u>Apatania</u> sp	3
Brachycentridae	
<u>Brachycentrus</u> sp	1
Glossosomatidae	
<u>Glossosoma</u> sp	1
Helicopsychidae	
<u>Helicopsyche</u> sp	1

## BUSH KILL BASIN

## 01439500 BUSH KILL AT SHOEMAKERS, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES--Continued

Date	8/6/02
Benthic Macroinvertebrate	Count
Trichoptera (CADDISFLIES)	
Hydropsychidae	
<u>Cheumatopsyche</u> sp	17
<u>Hydropsyche</u> sp	3
Philopotamidae	
<u>Chimarra</u> sp	4
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Oulimnius</u> sp	1
<u>Stenelmis</u> sp	4
Psephenidae (WATER PENNIES)	
<u>Psephenus</u> sp	2
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	
Tipulidae (CRANE FLIES)	
<u>Antocha</u> sp	1
Total Organisms	105

**BRODHEAD CREEK BASIN**

**01440400 BRODHEAD CREEK NEAR ANALOMINK, PA**

**LOCATION.**--Lat 41°05'05", long 75°12'54", Monroe County, Hydrologic Unit 02040104, on left bank, along State Highway 447, 1.5 mi upstream from Paradise Creek, 1.6 mi southeast of Henryville, and 2.3 mi north of Analomink.

**DRAINAGE AREA.**--65.9 mi<sup>2</sup>.

**PERIOD OF RECORD.**--October 1957 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is 586.50 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 12, 1957, 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 base discharge of 1,100 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Oct. 12	0215	1,700	5.24	June 21	2130	*2,660	*6.26
Mar. 21	0030	2,050	5.65	Sept. 23	1115	2,360	5.97
June 1	1045	1,360	4.80				

**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	35	129	148	255	68	104	393	97	946	148	38	65
2	31	122	132	571	67	127	407	95	686	128	130	164
3	27	112	120	399	65	140	375	89	459	115	91	163
4	30	104	e100	336	91	131	328	82	437	103	221	167
5	39	98	108	280	96	116	325	79	367	95	411	116
6	36	162	109	251	e78	138	297	80	298	84	381	84
7	30	142	101	226	75	130	266	79	422	78	241	69
8	27	119	97	209	e68	119	252	81	514	77	213	61
9	25	108	89	206	e70	122	239	87	395	72	156	54
10	26	102	e84	202	63	115	248	81	324	70	210	49
11	556	107	107	176	e60	110	260	78	275	77	197	46
12	1210	128	310	155	e56	105	259	82	282	75	246	42
13	634	191	240	145	e54	108	227	75	390	64	175	47
14	382	151	428	135	e50	107	203	71	323	56	141	60
15	246	136	419	126	e52	110	188	67	320	52	116	291
16	474	159	345	e120	e44	163	176	64	260	49	101	273
17	645	572	278	e110	e60	365	161	62	224	46	93	174
18	402	592	231	e110	e140	672	152	59	244	44	84	130
19	295	430	211	e100	e86	720	147	55	227	49	76	154
20	243	347	358	e100	e72	739	138	52	256	41	70	141
21	194	304	390	e95	e66	1530	129	66	1180	40	63	114
22	162	316	318	e93	93	1230	130	66	1860	140	60	99
23	144	310	274	e88	202	909	123	62	1090	99	55	1150
24	127	255	239	e87	171	680	114	87	704	97	50	713
25	118	224	241	e81	141	548	104	97	482	66	47	458
26	270	201	234	e80	e120	455	127	226	350	52	44	327
27	230	197	197	e80	e110	400	141	238	277	45	44	274
28	180	175	180	e75	109	332	116	181	229	53	41	573
29	156	162	168	e72	---	497	107	153	196	46	40	455
30	149	154	155	e69	---	e600	102	133	168	39	43	320
31	142	---	154	68	---	470	---	138	---	36	42	---
TOTAL	7265	6309	6565	5100	2427	12092	6234	2962	14185	2236	3920	6833
MEAN	234	210	212	165	86.7	390	208	95.5	473	72.1	126	228
MAX	1210	592	428	571	202	1530	407	238	1860	148	411	1150
MIN	25	98	84	68	44	104	102	52	168	36	38	42
CFSM	3.56	3.19	3.21	2.50	1.32	5.92	3.15	1.45	7.18	1.09	1.92	3.46
IN.	4.10	3.56	3.71	2.88	1.37	6.83	3.52	1.67	8.01	1.26	2.21	3.86

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 2003, BY WATER YEAR (WY)**

MEAN	73.7	124	169	152	158	250	249	179	115	58.3	42.6	56.3
MAX	237	336	508	559	371	537	596	440	474	380	159	464
(WY)	1977	1973	1997	1996	1981	1977	1983	1989	1972	1969	1973	1987
MIN	8.36	10.2	19.8	15.1	41.8	92.7	84.0	62.3	23.2	10.6	7.91	7.56
(WY)	1964	1965	1999	1981	1980	1989	1985	1962	1962	1999	1999	1964

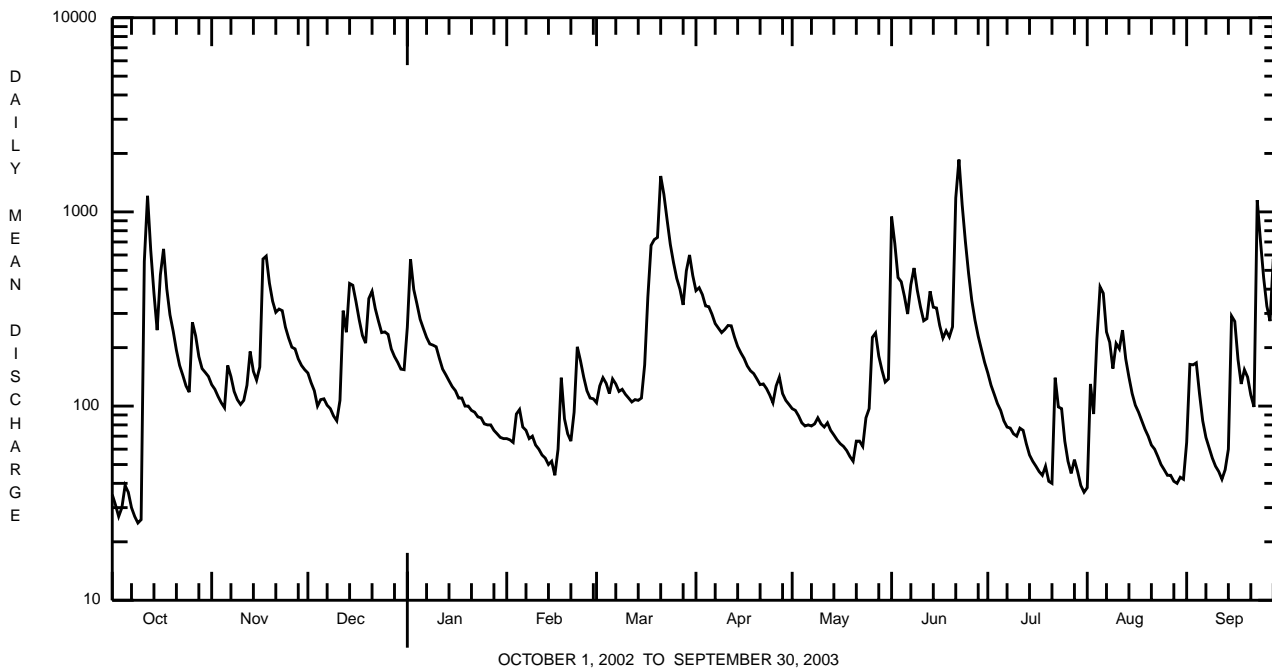
e Estimated.

**BRODHEAD CREEK BASIN**

**01440400 BRODHEAD CREEK NEAR ANALOMINK, PA--Continued**

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1958 - 2003	
ANNUAL TOTAL	51558.6		76128		135	
ANNUAL MEAN	141		209		213	
HIGHEST ANNUAL MEAN					59.6	1973
LOWEST ANNUAL MEAN					1965	
HIGHEST DAILY MEAN	1210	Oct 12	1860	Jun 22	6070	Jul 28 1969
LOWEST DAILY MEAN	9.8	Sep 14	25	Oct 9	5.1	Aug 13 1999
ANNUAL SEVEN-DAY MINIMUM	10	Sep 8	30	Oct 4	5.5	Aug 7 1999
MAXIMUM PEAK FLOW			a2660	Jun 21	a12900	Jul 28 1969
MAXIMUM PEAK STAGE			6.26	Jun 21	11.82	Jul 28 1969
INSTANTANEOUS LOW FLOW					4.9	Aug 7 1999 <sup>b</sup>
ANNUAL RUNOFF (CFSM)	2.14		3.16		2.05	
ANNUAL RUNOFF (INCHES)	29.10		42.97		27.92	
10 PERCENT EXCEEDS	312		429		293	
50 PERCENT EXCEEDS	104		132		84	
90 PERCENT EXCEEDS	18		52		17	

<sup>a</sup> From rating curve extended above 1,400 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow.  
<sup>b</sup> Also Aug. 8, 12, 13, Sept. 5, 1999.



PARADISE CREEK BASIN

01440485 SWIFTWATER CREEK AT SWIFTWATER, PA

LOCATION.--Lat 41°05'38", long 75°19'21", Monroe County, Hydrologic Unit 02040104, on left bank at Aventis Pasteur Laboratories complex, at Discovery Drive in Swiftwater, Pocono Township, and 3.0 mi above mouth.

DRAINAGE AREA.--6.59 mi<sup>2</sup>.

PERIOD OF RECORD.--April 2001 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,114.73 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 18, 2001, nonrecording gage at site 500 ft downstream (datum undetermined).

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 base discharge of 250 ft<sup>3</sup>/s (revised) and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Mar. 21	0045	265	2.33	Sept. 15	1215	551	2.92
June 12	2145	723	3.17	Sept. 23	0700	*996	*3.49
June 21	1930	418	2.68				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.2	17	19	32	12	14	36	16	103	24	11	17
2	6.9	17	18	43	12	16	41	15	59	22	12	19
3	6.7	16	17	32	12	15	36	15	38	21	12	20
4	7.5	16	16	29	15	e15	32	15	42	20	19	20
5	8.0	15	17	27	13	15	33	14	33	19	43	15
6	6.9	19	16	25	12	16	30	14	28	18	42	14
7	6.7	17	15	24	12	16	28	14	42	19	23	13
8	6.3	16	15	24	e11	15	26	14	50	18	18	12
9	6.2	15	15	23	e11	15	26	14	37	17	17	12
10	7.4	15	14	23	11	15	27	13	31	16	20	12
11	72	15	17	21	11	e15	31	13	28	17	19	11
12	115	17	24	20	11	14	30	13	68	15	19	11
13	55	20	21	19	e11	15	26	13	123	14	17	14
14	32	18	37	19	e11	15	24	12	69	14	16	22
15	23	17	39	18	11	15	23	12	50	13	15	219
16	59	20	34	17	e14	22	22	12	39	13	15	100
17	61	52	28	17	e42	37	21	12	33	12	15	58
18	42	53	24	e17	e45	64	21	12	35	14	14	38
19	31	44	23	e16	13	63	20	11	30	13	13	42
20	24	35	50	16	10	71	19	11	50	12	13	35
21	21	30	49	e15	10	147	18	12	251	13	13	27
22	19	31	35	e15	15	101	18	11	219	25	12	24
23	17	30	32	e15	19	74	17	11	102	17	12	255
24	16	26	28	e15	17	52	17	14	75	16	11	67
25	16	24	29	14	15	45	16	13	56	13	11	47
26	27	23	26	13	15	41	20	22	45	12	11	40
27	24	22	24	e13	14	37	19	18	38	12	11	34
28	20	21	22	e12	14	32	17	17	33	12	11	40
29	18	20	21	12	---	50	16	16	29	11	11	32
30	18	20	20	12	---	54	16	16	26	10	11	29
31	18	---	21	12	---	41	---	22	---	10	10	---
TOTAL	797.8	701	766	610	419	1157	726	437	1862	482	497	1299
MEAN	25.7	23.4	24.7	19.7	15.0	37.3	24.2	14.1	62.1	15.5	16.0	43.3
MAX	115	53	50	43	45	147	41	22	251	25	43	255
MIN	6.2	15	14	12	10	14	16	11	26	10	10	11
CFSM	3.91	3.55	3.75	2.99	2.27	5.66	3.67	2.14	9.42	2.36	2.43	6.57
IN.	4.50	3.96	4.32	3.44	2.37	6.53	4.10	2.47	10.51	2.72	2.81	7.33

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2003, BY WATER YEAR (WY)

	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003
MEAN	15.7	14.6	18.0	13.7	12.7	27.6	21.3	17.1	32.8	10.8	9.49	19.5
MAX	25.7	23.4	24.7	19.7	15.0	37.3	24.2	24.0	62.1	15.5	16.0	43.3
(WY)	2003	2003	2003	2003	2003	2003	2003	2002	2003	2003	2003	2003
MIN	5.65	5.90	11.3	7.81	10.5	18.0	18.4	13.1	15.2	8.36	5.59	7.63
(WY)	2002	2002	2002	2002	2002	2002	2002	2001	2001	2002	2002	2002

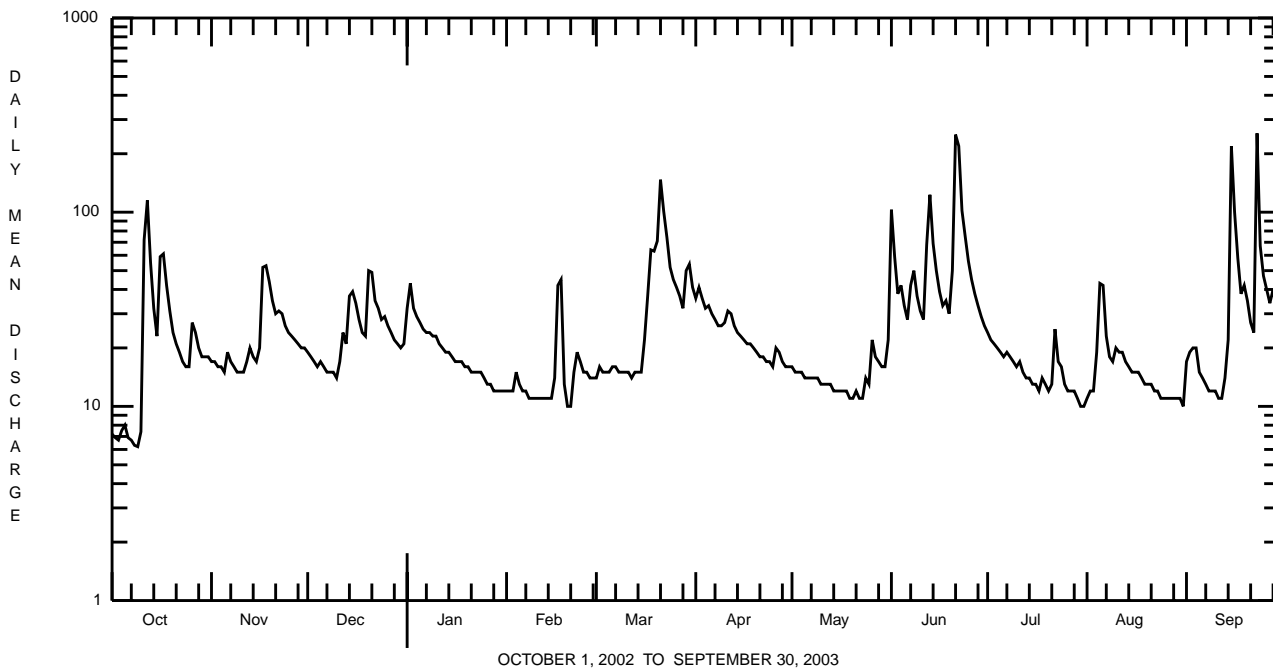
e Estimated.

PARADISE CREEK BASIN

01440485 SWIFTWATER CREEK AT SWIFTWATER, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2001 - 2003	
ANNUAL TOTAL	5947.3		9753.8			
ANNUAL MEAN	16.3		26.7		19.4	
HIGHEST ANNUAL MEAN					26.7 2003	
LOWEST ANNUAL MEAN					12.0 2002	
HIGHEST DAILY MEAN	115	Oct 12	255	Sep 23	255	Sep 23 2003
LOWEST DAILY MEAN	4.2	Sep 9 <sup>a</sup>	6.2	Oct 9	4.2	Sep 9 2002 <sup>a</sup>
ANNUAL SEVEN-DAY MINIMUM	4.2	Sep 8	6.9	Oct 3	4.2	Sep 8 2002
MAXIMUM PEAK FLOW			996 Sep 23		996 Sep 23 2003	
MAXIMUM PEAK STAGE			3.49 Sep 23		3.49 Sep 23 2003	
ANNUAL RUNOFF (CFSM)	2.47		4.06		2.94	
ANNUAL RUNOFF (INCHES)	33.57		55.06		39.93	
10 PERCENT EXCEEDS	28		48		35	
50 PERCENT EXCEEDS	15		18		15	
90 PERCENT EXCEEDS	6.0		11		5.6	

<sup>a</sup> Also Sept. 10, 11, 13, 14.



McMICHAEL CREEK BASIN

01441495 POCONO CREEK ABOVE WIGWAM RUN NEAR STROUDSBURG, PA

LOCATION.--Lat 40°59'27", long 75°15'20", Monroe County, Hydrologic Unit 02040104, on right bank at bridge on SR2005, 150 ft upstream from Wigwam Run, 4.0 mi upstream from mouth, and 4.0 mi west of Stroudsburg, Pa.

DRAINAGE AREA.--38.9 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 574.57 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 base discharge of 1,500 ft<sup>3</sup>/s (revised) and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Oct. 12	0100	1,670	11.11	Sept. 15	1330	2,650	11.56
Mar. 21	0030	1,710	11.13	Sept. 23	0930	*3,540	*11.87

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	e21	84	85	211	47	66	211	63	618	89	31	59
2	e19	77	73	379	45	95	232	62	310	e81	53	80
3	16	71	66	248	41	98	197	58	226	e72	40	93
4	18	66	57	217	68	e84	171	55	293	e65	54	97
5	25	62	59	185	63	82	182	53	224	61	281	67
6	20	104	63	167	e52	98	158	54	176	54	232	53
7	17	82	61	146	47	85	144	51	309	58	133	46
8	15	69	61	137	e44	80	139	54	313	63	94	41
9	14	64	e54	142	e46	85	138	53	235	52	77	38
10	17	62	e52	134	44	79	148	50	191	50	103	35
11	509	67	86	115	e42	73	167	49	162	55	128	32
12	857	88	246	101	e39	72	162	54	244	49	121	31
13	291	e110	163	89	e38	80	136	50	627	44	87	41
14	184	e85	335	83	e35	80	123	46	348	40	72	e110
15	134	e72	287	75	e36	84	116	43	252	38	63	986
16	442	e91	239	e73	e31	138	109	42	200	36	65	544
17	385	e300	184	e70	e48	274	99	42	164	33	67	272
18	223	e360	153	e66	e100	400	96	40	188	34	57	193
19	172	e250	143	e68	e46	379	92	38	153	41	51	238
20	142	e220	298	e67	e40	473	85	37	272	33	46	183
21	e120	e210	248	e64	e36	990	81	45	1040	37	43	136
22	e100	199	196	e60	e62	644	81	42	1090	112	40	115
23	87	182	171	e60	e160	444	76	40	628	70	37	1350
24	e80	145	149	e58	110	338	71	58	411	68	34	553
25	e68	129	157	e58	87	278	65	60	289	49	32	344
26	204	117	149	e56	e81	246	89	175	220	41	31	261
27	135	115	122	e54	e74	222	92	129	172	36	30	209
28	e100	99	113	e59	69	180	73	100	138	38	29	325
29	95	90	108	e56	---	300	71	91	115	33	28	215
30	95	94	100	e56	---	308	66	79	101	30	37	165
31	92	---	104	57	---	243	---	92	---	28	33	---
TOTAL	4697	3764	4382	3411	1631	7098	3670	1905	9709	1590	2229	6912
MEAN	152	125	141	110	58.2	229	122	61.5	324	51.3	71.9	230
MAX	857	360	335	379	160	990	232	175	1090	112	281	1350
MIN	14	62	52	54	31	66	65	37	101	28	28	31

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2002 - 2003, BY WATER YEAR (WY)

	2002	2003	2003	2003	2003	2003	2003	2003	2003	2003	2002	2002
MEAN	152	125	141	110	58.2	229	122	61.5	324	35.0	40.9	124
MAX	152	125	141	110	58.2	229	122	61.5	324	51.3	71.9	230
(WY)	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
MIN	152	125	141	110	58.2	229	122	61.5	324	18.6	9.99	18.0
(WY)	2003	2003	2003	2003	2003	2003	2003	2003	2003	2002	2002	2002

e Estimated.

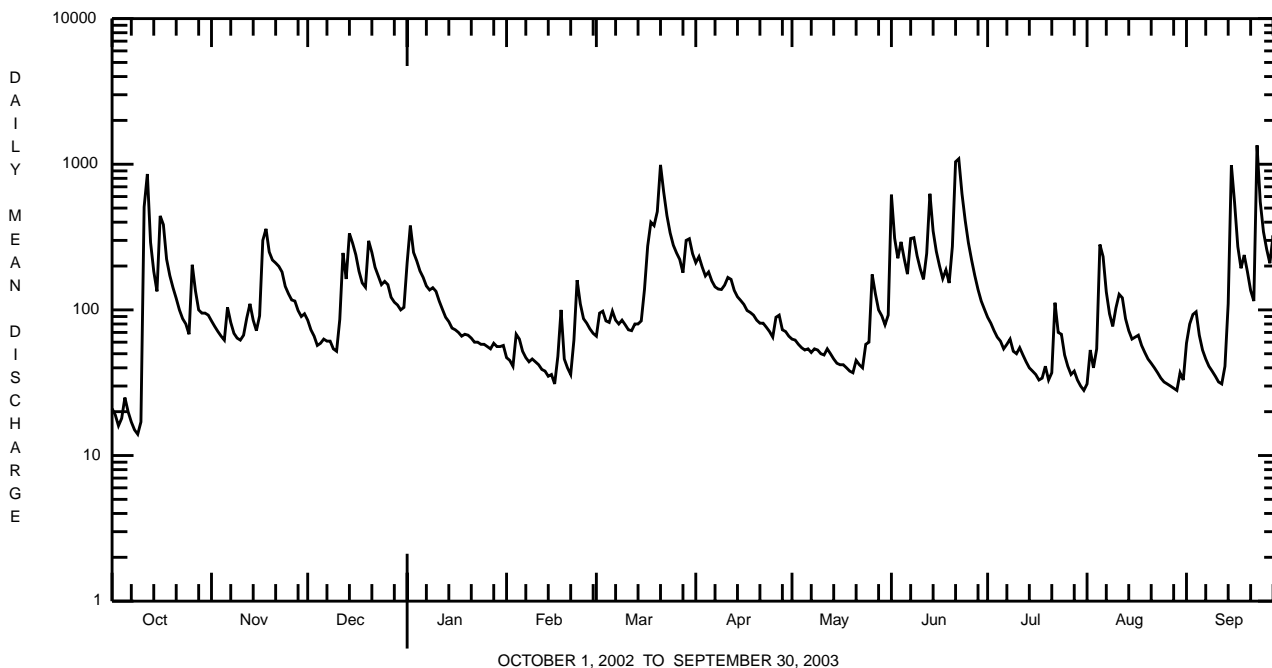


McMICHAEL CREEK BASIN

01441495 POCONO CREEK ABOVE WIGWAM RUN NEAR STROUDSBURG, PA--Continued

SUMMARY STATISTICS	FOR 2003 WATER YEAR		WATER YEARS 2002 - 2003	
ANNUAL TOTAL	50998			
ANNUAL MEAN	140		140	
HIGHEST ANNUAL MEAN			140	2003
LOWEST ANNUAL MEAN			140	2003
HIGHEST DAILY MEAN	1350	Sep 23	1350	Sep 23 2003
LOWEST DAILY MEAN	14	Oct 9	6.6	Aug 15 2002 <sup>a</sup>
ANNUAL SEVEN-DAY MINIMUM	18	Oct 3	7.2	Sep 8 2002
MAXIMUM PEAK FLOW	3540	Sep 23	3540	Sep 23 2003
MAXIMUM PEAK STAGE	11.87	Sep 23	11.87	Sep 23 2003
INSTANTANEOUS LOW FLOW			5.1	Aug 20 2002
10 PERCENT EXCEEDS	290		290	
50 PERCENT EXCEEDS	85		85	
90 PERCENT EXCEEDS	37		37	

<sup>a</sup> Also Sept. 12, 2002.



**BRODHEAD CREEK BASIN**

**01442500 BRODHEAD CREEK AT MINISINK HILLS, PA  
(Pennsylvania Water-Quality Network Station)**

**LOCATION.**--Lat 40°59'55", long 75°08'35", Monroe County, Hydrologic Unit 02040104, on left bank at end of township route 646 at Minisink Hills, 500 ft upstream from Marshall Creek, 0.8 mi upstream from mouth, and 3.0 mi southeast of East Stroudsburg.

**DRAINAGE AREA.**--259 mi<sup>2</sup>.

**WATER-DISCHARGE RECORDS**

**PERIOD OF RECORD.**--November 1950 to current year.

**REVISED RECORDS.**--WSP 1232: 1951(P).

**GAGE.**--Water-stage recorder and crest-stage gage. Datum of gage is 301.84 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 19, 1955, water-stage recorder, and Aug. 23 to Nov. 24, 1955, nonrecording gage at site about 1,300 ft upstream at datum 2.19 ft higher. Nov. 25, 1955, to July 24, 1956, nonrecording gage at site 40 ft upstream at present 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 base discharge of 4,300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Oct. 12	0345	7,060	7.34	June 13	0230	5,860	6.76
Oct. 16	2145	4,570	6.07	June 21	2345	8,610	8.00
Mar. 21	0245	7,440	7.52	Sept. 15	1630	6,270	6.96
June 1	1300	4,600	6.09	Sept. 23	1100	*10,400	*8.64

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	130	505	564	1030	303	434	1350	395	3050	602	199	302
2	115	475	505	2790	304	554	1400	388	2200	541	383	490
3	104	445	472	1760	296	655	1250	368	1440	494	322	526
4	109	419	427	1440	399	510	1080	345	1770	452	666	569
5	137	401	432	1170	428	512	1130	332	1390	418	1410	442
6	131	572	442	1030	331	621	1010	338	1090	382	1520	326
7	111	514	404	899	e310	532	895	331	1690	374	814	281
8	100	443	400	828	e280	506	871	362	2200	390	633	254
9	94	415	372	832	284	536	857	354	1540	341	518	236
10	99	400	350	828	288	514	896	334	1210	330	629	220
11	2030	410	433	717	e260	460	955	321	994	346	724	208
12	4960	459	1440	641	e240	464	955	356	1510	329	830	197
13	2070	688	997	591	e220	509	823	320	3930	292	598	223
14	1170	550	1940	545	e230	511	749	298	2220	269	496	340
15	779	502	1850	514	e230	523	707	286	1650	255	427	2740
16	1910	570	1490	477	e220	794	670	276	1240	242	409	2180
17	2630	2320	1150	471	235	1560	622	271	1000	228	460	1050
18	1440	2410	928	e380	303	2570	598	261	1100	222	372	752
19	1020	1650	844	e380	325	2690	579	252	958	249	330	908
20	829	1310	1480	e360	291	2590	542	239	1230	219	300	742
21	686	1110	1500	e340	e260	5640	513	275	5480	225	280	599
22	591	1150	1150	e320	386	4440	517	277	6830	631	266	527
23	526	1130	990	e310	914	3280	491	261	4320	415	252	5120
24	474	893	867	e320	738	2350	456	330	2840	387	232	3310
25	448	793	891	e330	585	1830	426	363	1940	295	221	1990
26	1050	722	870	347	507	1560	492	910	1410	248	212	1440
27	824	713	748	322	477	1430	550	806	1100	224	209	1150
28	654	647	690	292	454	1140	455	623	885	237	198	2220
29	582	597	654	324	---	1650	433	554	761	217	189	1580
30	564	582	612	310	---	2110	418	490	674	196	225	1150
31	556	---	604	296	---	1610	---	490	---	178	214	---
TOTAL	26923	23795	26496	21194	10098	45085	22690	11806	59652	10228	14538	32072
MEAN	868	793	855	684	361	1454	756	381	1988	330	469	1069
MAX	4960	2410	1940	2790	914	5640	1400	910	6830	631	1520	5120
MIN	94	400	350	292	220	434	418	239	674	178	189	197
CFSM	3.35	3.06	3.30	2.64	1.39	5.62	2.92	1.47	7.68	1.27	1.81	4.13
IN.	3.87	3.42	3.81	3.04	1.45	6.48	3.26	1.70	8.57	1.47	2.09	4.61

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 2003, BY WATER YEAR (WY)**

MEAN	318	537	722	620	657	985	978	697	451	254	240	250
MAX	1560	1634	2321	2051	1498	2108	2293	1619	1988	923	2505	1649
(WY)	1956	1973	1997	1996	1951	1977	1983	1989	2003	1969	1955	1987
MIN	54.4	68.1	83.4	50.6	196	387	312	268	119	58.1	46.4	40.8
(WY)	1964	1965	1981	1981	1980	1985	1985	1962	1962	1999	1957	1964

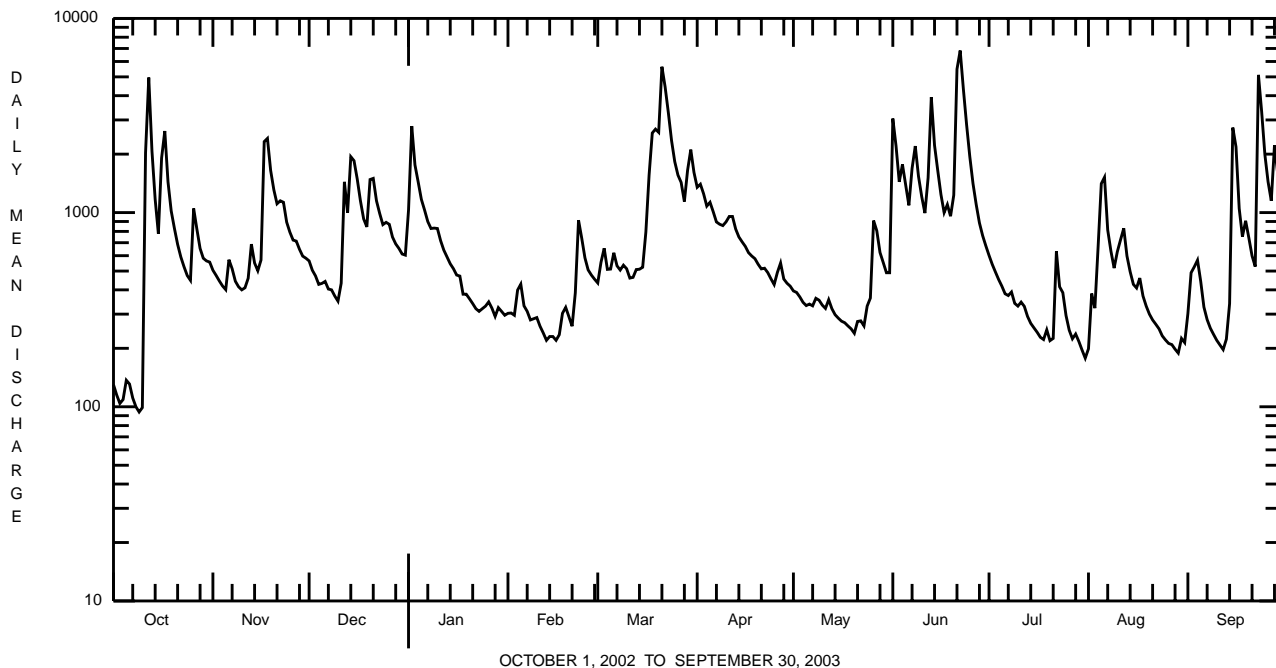
e Estimated.

BRODHEAD CREEK BASIN

01442500 BRODHEAD CREEK AT MINISINK HILLS, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1951 - 2003	
ANNUAL TOTAL	187734		304577			
ANNUAL MEAN	514		834		558	
HIGHEST ANNUAL MEAN					957	
LOWEST ANNUAL MEAN					238	
HIGHEST DAILY MEAN	4960	Oct 12	6830	Jun 22	30500	Aug 19 1955
LOWEST DAILY MEAN	48	Sep 13	94	Oct 9	30	Sep 26 1964
ANNUAL SEVEN-DAY MINIMUM	54	Sep 8	112	Oct 4	33	Sep 6 1964
MAXIMUM PEAK FLOW			a10400	Sep 23	a68800	Aug 19 1955
MAXIMUM PEAK STAGE			8.64	Sep 23	b27.00	Aug 19 1955
INSTANTANEOUS LOW FLOW					29	Sep 27 1964
ANNUAL RUNOFF (CFSM)	1.99		3.22		2.16	
ANNUAL RUNOFF (INCHES)	26.96		43.75		29.29	
10 PERCENT EXCEEDS	1140		1760		1200	
50 PERCENT EXCEEDS	384		518		349	
90 PERCENT EXCEEDS	82		236		93	

a From rating curve extended above 10,100 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow.  
 b From floodmark, at site about 1,300 ft upstream at datum 2.19 ft higher.



**BRODHEAD CREEK BASIN**

**01442500 BRODHEAD CREEK AT MINISINK HILLS, 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 430-470.

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

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd, $\mu$ S/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd, mg/L as CaCO3 (00900)	Calcium, water, unfltrd, recover-able, mg/L (00916)	Magnesium, water, unfltrd, recover-able, mg/L (00927)	ANC, water, fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002 07...	0800	1028	9813	528	40	12.4	7.4	129	6.9	38	12.0	2.0	20
JAN 2003 06...	1500	1028	9813	1000	40	13.3	7.0	162	3.6	39	12.2	2.0	17
MAR 04...	1410	1028	9813	504	40	14.9	7.6	203	1.9	49	15.3	2.6	22
MAY 06...	1620	1028	9813	340	40	12.5	8.6	168	11.3	45	14.0	2.4	26
JUL 01...	1520	1028	9813	606	40	11.2	7.7	140	19.0	40	12.6	2.1	24
SEP 09...	1240	1028	9813	237	40	10.6	8.0	184	18.1	51	16.4	2.4	33

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105 deg. C, sus-pended, mg/L (00515)	Residue total at 105 deg. C, mg/L (00530)	Ammonia water, unfltrd, mg/L as N (00610)	Nitrate water, unfltrd, mg/L as N (00620)	Nitrite water, unfltrd, mg/L as N (00615)	Ortho-phosphate, water, unfltrd, mg/L as P (70507)	Phosphorus, water, unfltrd, mg/L (00665)	Total nitrogen, water, unfltrd, mg/L (00600)	Organic carbon, water, unfltrd, mg/L (00680)	Aluminum, water, unfltrd, recover-able, $\mu$ g/L (01105)	Copper, water, unfltrd, recover-able, $\mu$ g/L (01042)	Iron, water, unfltrd, recover-able, $\mu$ g/L (01045)
NOV 2002 07...	12.9	110	6	.130	.38	<.040	.01	.019	.75	2.6	<200	<10	80
JAN 2003 06...	11.5	136	4	<.020	.52	<.040	.01	.022	.56	2.0	<200	<10	60
MAR 04...	13.4	120	<2	.080	.66	<.040	.02	.030	.87	1.8	<200	<10	90
MAY 06...	11.9	64	52	.070	.38	<.040	.04	.053	.72	2.0	<200	<10	90
JUL 01...	10.9	110	2	.030	.41	<.040	.02	.030	.48	1.9	<200	10	90
SEP 09...	14.4	144	8	.070	.58	<.040	.06	.082	.88	2.2	<200	<10	110

Date	Lead, water, unfltrd, recover-able, $\mu$ g/L (01051)	Manganese, water, unfltrd, recover-able, $\mu$ g/L (01055)	Nickel, water, unfltrd, recover-able, $\mu$ g/L (01067)	Zinc, water, unfltrd, recover-able, $\mu$ g/L (01092)
NOV 2002 07...	<1.0	10	<50	<10
JAN 2003 06...	<1.0	20	<50	20
MAR 04...	<1.0	30	<50	<10
MAY 06...	<1.0	20	<50	<10
JUL 01...	<1.0	20	<50	120
SEP 09...	<1.0	20	<50	10

## BRODHEAD CREEK BASIN

01442500 BRODHEAD CREEK AT MINISINK HILLS, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES

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

Date	8/5/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	2
Nemertea (PROBOSAS WORMS)	
Enopla	
Hoplonemertea	
Tetrastemmatidae	
<u>Prostoma</u> sp	2
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	2
Crustacea	
Amphipoda (SCUDS)	
Crangonyctidae	
<u>Crangonyx</u> sp	1
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Acentrella</u> sp	8
<u>Baetis</u> sp	5
Ephemerellidae	
<u>Eurylophella</u> sp	2
<u>Serratella</u> sp	9
Heptageniidae	
<u>Stenonema</u> sp	7
Trichoptera (CADDISFLIES)	
Hydropsychidae	
<u>Cheumatopsyche</u> sp	12
<u>Hydropsyche</u> sp	11
Hydroptilidae	
<u>Leucotrichia</u> sp	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Optioservus</u> sp	1
<u>Oulimnius</u> sp	5
<u>Stenelmis</u> sp	5
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	50
Empididae (DANCE FLIES)	
<u>Hemerodromia</u> sp	1
Simuliidae (BLACK FLIES)	
<u>Simulium</u> sp	16
Tipulidae (CRANE FLIES)	
<u>Antocha</u> sp	1
Total Organisms	141

## DELAWARE RIVER BASIN

## 01443000 DELAWARE RIVER AT PORTLAND, PA

**LOCATION.**--Lat 40°55'26", long 75°05'46", Northampton County, Hydrologic Unit 02040105, at footbridge connecting Portland, PA and Columbia, NJ, 0.5 mi upstream from Paulins Kill, and at river mile 207.5.

**DRAINAGE AREA.**--4,165 mi<sup>2</sup>.

**PERIOD OF RECORD.**--Water years 1976 to current year.

**REMARKS.**--Total nitrogen (00600) equals the sum of dissolved ammonia plus organic nitrogen (00623), dissolved nitrite plus nitrate nitrogen (00631), and total particulate nitrogen (49570).

**COOPERATION.**--Determination of dissolved ammonia, total ammonia, dissolved nitrite, dissolved orthophosphate, biochemical oxygen demand, total suspended solids, fecal coliform, *E. coli*, and enterococcus bacteria was performed by the New Jersey Department of Health and Senior Services, Public Health and Environmental Laboratories, Environmental and Chemical Laboratory Services. Determination of chlorophyll a was performed by the New Jersey Department of Environmental Protection, Bureau of Freshwater and Biological Monitoring Laboratory.

**COOPERATIVE NETWORK SITE DESCRIPTOR.**--Delaware River Main Stem, New Jersey Department of Environmental Protection Watershed Management Area 1.

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

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, water, unfltrd field, NTU (61028)	UV absorbance, 254 nm, wat flt units /cm (50624)	UV absorbance, 280 nm, wat flt units /cm (61726)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unfltrd 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)
NOV 05...	1410	3,970	0.7	0.100	0.075	758	12.6	102	7.4	92	18.0	6.0	24
MAR 04...	0950	7,350	1.3	0.064	0.049	757	15.0	103	6.0	116	1.0	0.1	26
MAY 05...	1250	9,640	2.5	0.060	0.044	753	--	--	6.7	78	17.0	14.3	21
AUG 11...	1220	11,500	6.8	0.160	0.123	752	8.0	95	7.3	88	24.7	23.6	26
Date	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
NOV 05...	7.29	1.52	0.65	6.32	17	10.2	<0.17	3.0	9.1	49	60	3	0.15
MAR 04...	7.72	1.67	0.60	8.95	19	16.7	<0.17	2.9	8.7	60	68	4	0.14
MAY 05...	6.35	1.32	0.66	6.18	15	9.85	<0.17	1.6	7.1	43	54	4	0.16
AUG 11...	8.10	1.38	0.71	6.02	19	8.72	<0.17	3.6	6.7	47	48	8	0.24
Date	Ammonia water, fltrd, mg/L as N (00608)	Ammonia water, unfltrd mg/L as N (00610)	Nitrite + nitrate water, fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Particulate nitrogen, susp, water, mg/L (49570)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, fltrd, mg/L (00602)	Total nitrogen, water, unfltrd mg/L (00600)	Total carbon, suspnd sedimnt total, mg/L (00694)	Inorganic carbon, suspnd sedimnt total, mg/L (00688)	Organic carbon, suspnd sedimnt total, mg/L (00689)
NOV 05...	<0.030	<0.030	0.17	<0.003	<0.020	0.05	0.011	0.016	0.33	0.37	<0.1	<0.1	<0.1
MAR 04...	<0.030	<0.030	0.35	<0.003	<0.020	0.05	0.005	0.013	0.50	0.55	0.2	<0.1	0.2
MAY 05...	<0.030	<0.030	0.23	0.003	<0.020	0.09	0.006	0.017	0.39	0.48	0.5	<0.1	0.5
AUG 11...	<0.020	0.041	0.18	<0.003	<0.020	0.09	0.023	0.038	0.42	0.51	0.9	<0.1	0.8

## DELAWARE RIVER BASIN

## 01443000 DELAWARE RIVER AT PORTLAND, PA--Continued

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

Date	Organic carbon, water, fltrd, mg/L (00681)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Chloro-phyll a fluorometric method, corrcrtd µg/L (32209)	Boron, water, fltrd, µg/L (01020)
NOV 05...	3.2	<1.0	--	E6.4
MAR 04...	1.9	E2.0	--	<13
MAY 05...	2.1	E1.4	--	<13
AUG 11...	4.4	<1.0	1.50	11

Remark codes used in this table:

&lt; -- Less than

E -- Estimated value

## WATER-COLUMN BACTERIA ANALYSES

Samples were collected synoptically over a 30-day period during the summer.

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

Date	Time	Enterococci, m-E MF, water, col/ 100 mL (31649)	E coli, m-TEC MF, water, col/ 100 mL (31633)	Fecal coli-form, ECbroth water, MPN/ 100 mL (31615)	Date	Time	Enterococci, m-E MF, water, col/ 100 mL (31649)	E coli, m-TEC MF, water, col/ 100 mL (31633)	Fecal coli-form, ECbroth water, MPN/ 100 mL (31615)
MAY					JUN				
15...	0925	90	<100	20	05...	0915	120	500	80
22...	1030	60	<100	<20	12...	0930	600	200	500
29...	0845	110	<100	130					

Remark codes used in this table:

&lt; -- Less than

## DELAWARE RIVER BASIN

## 01446500 DELAWARE RIVER AT BELVIDERE, NJ

**LOCATION.**--Lat 40°49'35", long 75°04'58", revised, Warren County, Hydrologic Unit 02040105, on left bank at Belvidere, 800 ft downstream from Pequest River, and at river mile 197.7.

**DRAINAGE AREA.**--4,535 mi<sup>2</sup>.

**PERIOD OF RECORD.**--October 1922 to current year.

**REVISED RECORDS.**--WSP 781: 1933(M). WSP 951: 1940-41, Drainage area. WSP 1432: 1923, 1924(M).

**GAGE.**--Water-stage recorder. Datum of gage 226.43 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 1, 1929, nonrecording gage at site 200 ft upstream at same datum.

**REMARKS.**--Records good. Diurnal fluctuations at medium and low flow caused by powerplants on tributary streams. Flow regulated by lakes Wallenpaupack (station 01431700) and Cliff, and by Pepacton, Cannonsville, Swinging Bridge, Toronto, and Neversink Reservoirs and smaller reservoirs. Diversions from Pepacton, Cannonsville, and Neversink Reservoirs. Satellite telemetry and National Weather Service gage-height telephone telemetry at station. Information on the above lakes and reservoirs can be found in the annual Water-Data Report NJ-03-1.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of Oct. 10, 1903, reached a stage of 28.6 ft, from floodmark, discharge, 220,000 ft<sup>3</sup>/s, from rating curve extended above 170,000 ft<sup>3</sup>/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2,930	5,300	7,210	9,390	5,040	8,040	26,100	7,710	11,500	9,070	3,890	3,290
2	2,210	4,940	6,960	18,800	4,800	7,430	22,900	7,260	27,400	8,200	3,920	4,200
3	1,840	4,770	6,920	27,600	4,680	7,940	21,100	8,000	23,500	7,530	4,530	26,700
4	1,790	4,540	6,140	21,700	5,020	7,750	19,900	11,400	20,100	6,620	7,370	25,500
5	1,980	4,110	5,590	17,700	5,310	8,150	18,900	10,900	18,400	5,770	10,800	41,300
6	2,420	4,320	5,390	15,400	5,370	8,140	18,800	9,650	16,500	5,530	12,700	27,800
7	2,340	5,120	5,330	13,900	6,290	7,470	17,900	8,800	15,200	5,420	11,900	19,600
8	2,190	5,780	4,630	12,600	5,690	7,380	17,400	8,160	18,300	5,080	10,300	14,800
9	2,240	5,560	4,350	11,900	5,240	6,980	16,500	7,550	17,100	4,850	8,900	12,200
10	2,100	4,840	4,020	11,800	5,060	6,820	15,800	7,030	14,300	4,550	11,900	9,770
11	3,900	4,370	4,390	10,700	4,880	6,660	15,400	6,260	12,400	4,440	11,400	8,630
12	13,100	4,440	6,740	9,470	4,560	6,480	16,100	5,850	12,400	4,490	14,800	7,490
13	18,000	5,220	7,700	8,680	4,190	6,340	16,000	6,610	17,100	5,530	17,300	6,570
14	14,900	7,190	9,920	7,720	4,030	6,500	14,600	7,230	17,200	4,220	13,800	5,760
15	10,200	7,150	13,700	7,050	4,280	6,440	13,400	6,870	21,000	3,830	12,100	7,180
16	8,830	6,650	14,000	6,400	3,660	6,820	12,200	6,510	18,700	3,840	10,600	12,200
17	17,600	10,400	12,600	6,450	2,920	9,850	11,300	6,080	15,400	3,450	9,210	15,600
18	26,200	21,200	10,400	5,100	3,140	18,600	10,300	5,750	13,400	3,530	7,210	12,200
19	16,800	22,400	9,080	5,250	4,130	31,500	9,650	5,230	12,400	3,700	6,710	10,900
20	12,400	17,700	10,000	5,160	4,640	34,300	8,560	4,920	12,200	3,360	6,050	11,000
21	9,870	15,100	14,700	5,110	4,750	47,800	7,910	4,910	18,400	3,030	5,460	9,780
22	8,150	13,900	17,300	4,760	5,180	67,500	7,930	4,750	38,400	4,340	5,050	8,280
23	6,900	14,500	14,200	4,550	8,010	64,600	8,100	4,590	40,900	5,330	4,660	13,100
24	5,950	15,000	12,900	4,910	9,490	50,700	7,880	4,610	31,100	7,060	3,950	32,900
25	5,130	13,300	11,800	4,980	10,100	37,700	7,320	4,450	22,600	6,520	3,350	27,000
26	5,950	11,700	11,200	5,180	9,450	31,600	7,010	5,910	17,800	5,340	3,310	20,100
27	7,740	10,600	10,700	5,260	8,750	29,300	6,650	8,940	14,900	4,340	3,650	16,700
28	8,560	9,850	10,600	4,500	8,430	25,400	9,740	8,930	13,100	4,170	3,430	16,500
29	7,090	8,580	9,700	4,730	---	22,400	9,350	8,400	11,100	4,400	3,310	22,100
30	6,240	7,720	9,420	5,150	---	27,000	8,460	7,610	9,880	4,300	3,000	21,900
31	5,770	---	8,420	5,100	---	30,800	---	6,920	---	3,970	3,400	---
TOTAL	241,320	276,250	286,010	287,000	157,090	644,390	403,160	217,790	552,680	155,810	237,960	471,050
MEAN	7,785	9,208	9,226	9,258	5,610	20,790	13,440	7,025	18,420	5,026	7,676	15,700
MAX	26,200	22,400	17,300	27,600	10,100	67,500	26,100	11,400	40,900	9,070	17,300	41,300
MIN	1,790	4,110	4,020	4,500	2,920	6,340	6,650	4,450	9,880	3,030	3,000	3,290

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1923 - 2003, BY WATER YEAR (WY)

MEAN	4,606	7,069	8,361	7,965	8,270	13,950	15,710	9,875	6,186	4,303	3,664	3,886
MAX	19,570	21,140	27,730	21,020	19,930	42,520	40,720	21,470	22,280	16,840	19,260	15,700
(WY)	(1956)	(1928)	(1997)	(1996)	(1976)	(1936)	(1940)	(1989)	(1972)	(1928)	(1955)	(2003)
MIN	1,055	1,226	1,481	1,683	2,452	5,243	4,512	3,261	1,590	1,017	881	1,199
(WY)	(1942)	(1965)	(1923)	(1981)	(1980)	(1981)	(1985)	(1965)	(1965)	(1965)	(1954)	(1941)

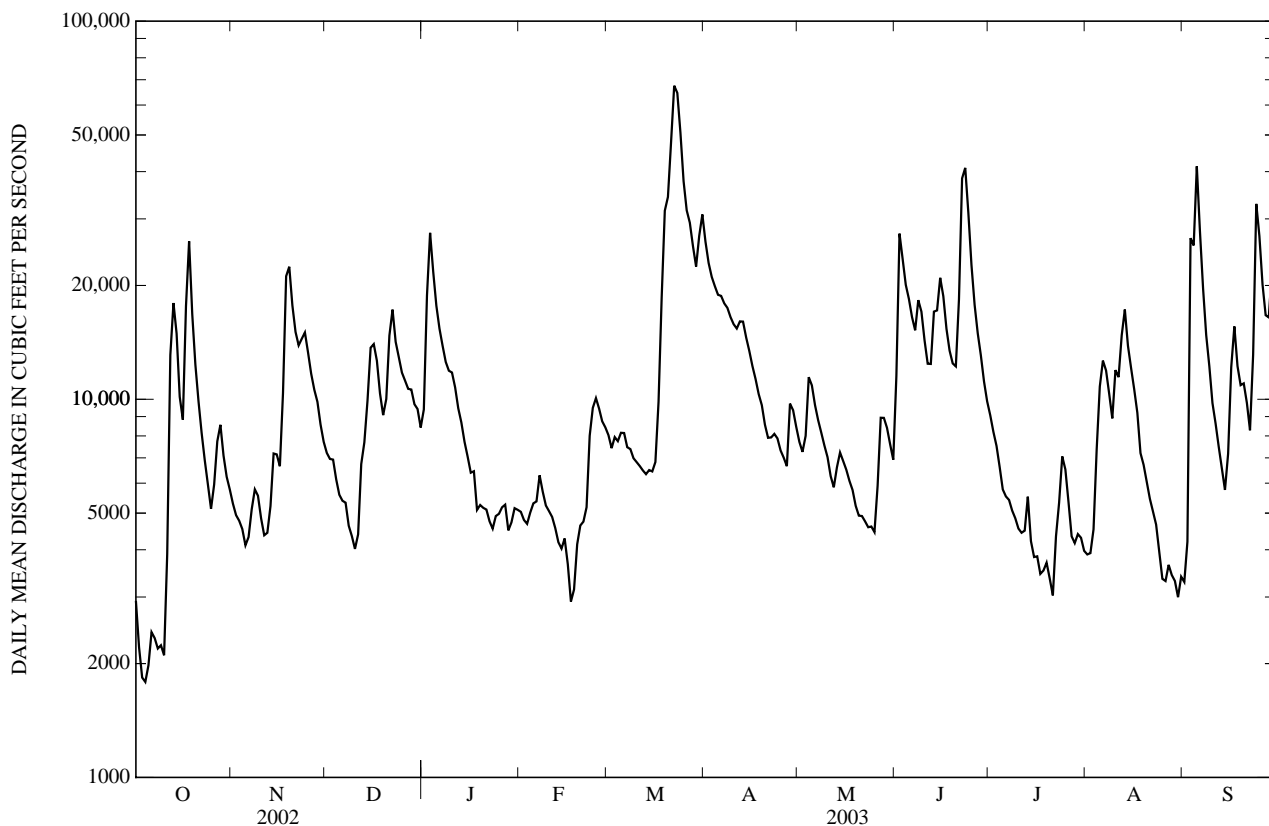


DELAWARE RIVER BASIN

01446500 DELAWARE RIVER AT BELVIDERE, NJ--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1923 - 2003	
ANNUAL TOTAL	2,316,070		3,930,510			
ANNUAL MEAN	6,345		10,770		7,813	
HIGHEST ANNUAL MEAN					14,130 1928	
LOWEST ANNUAL MEAN					2,990 1965	
HIGHEST DAILY MEAN	29,900	May 15	67,500	Mar 22	184,000	Aug 19, 1955
LOWEST DAILY MEAN	1,230	Jan 21	1,790	Oct 4	610	Aug 25, 1954
ANNUAL SEVEN-DAY MINIMUM	1,410	Jan 17	2,110	Oct 2	782	Aug 14, 1954
MAXIMUM PEAK FLOW			69,600	Mar 22	273,000a	Aug 19, 1955
MAXIMUM PEAK STAGE			14.85	Mar 22	30.21b	Aug 19, 1955
INSTANTANEOUS LOW FLOW			1,650	Oct 4	609	Sep 28, 1943
10 PERCENT EXCEEDS	13,800		20,500		16,600	
50 PERCENT EXCEEDS	4,710		7,940		5,000	
90 PERCENT EXCEEDS	1,940		4,120		1,950	

a From rating curve extended above 170,000 ft<sup>3</sup>/s on basis of flood-routing study.  
 b From high-water mark in gage house.



## LEHIGH RIVER BASIN

01447500 LEHIGH RIVER AT STODDARTSVILLE, PA  
(Pennsylvania Water-Quality Network Station)

**LOCATION.**--Lat 41°07'49", long 75°37'33", Monroe County, Hydrologic Unit 02040106, on left bank 75 ft upstream from bridge on State Highway 115, at Stoddartsville, 1.9 mi upstream from Tobyhanna Creek, and 4.0 mi southwest of Thornhurst.

**DRAINAGE AREA.**--91.7 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--October 1943 to current year.

**REVISED RECORDS.**--WSP 1382: 1947, 1951.

**GAGE.**--Water-stage recorder. Datum of gage is 1,463.81 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1946, nonrecording gage at site 350 ft downstream at datum 2.14 ft lower.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Satellite and landline telemetry at station.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of May 22, 1942, reached a stage of 12.03 ft, from floodmark, present site and datum, discharge, 15,700 ft<sup>3</sup>/s.

**PEAK DISCHARGES FOR CURRENT YEAR.**--Peak discharges greater than base discharge of 1,300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Mar. 22	0100	1,880	4.33	Sept. 16	0445	1,450	3.76
June 1	1500	2,140	4.64	Sept. 23	1600	2,150	4.65
June 22	0945	*2,800	*5.44				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	144	185	326	e110	158	493	136	1490	212	74	130
2	47	136	166	594	e110	179	579	133	1050	186	85	400
3	41	126	149	471	e110	e260	611	127	618	163	77	334
4	48	119	146	408	e160	e220	499	118	540	146	205	311
5	52	115	152	345	e200	168	480	114	451	133	255	246
6	49	158	158	310	191	181	446	114	364	121	322	199
7	40	158	149	284	166	e180	396	114	427	131	256	168
8	33	140	e130	268	146	e170	367	128	546	154	177	142
9	30	126	e120	257	143	165	343	150	434	126	135	128
10	29	119	128	254	e130	156	336	139	354	118	256	114
11	286	119	174	232	e120	153	360	129	302	132	450	106
12	556	142	e420	213	e110	140	377	191	327	133	654	99
13	331	242	387	198	e110	141	337	157	318	110	380	96
14	215	202	516	178	e110	144	298	145	310	100	270	105
15	151	173	560	177	e110	145	272	130	477	89	213	646
16	389	172	439	e170	e100	205	255	122	347	82	220	1230
17	803	427	345	e160	e100	371	242	119	270	79	223	635
18	464	478	288	e160	188	607	234	112	291	76	195	410
19	319	379	258	e150	171	729	233	105	275	80	183	e360
20	254	320	455	e150	137	718	216	98	404	74	195	e340
21	206	310	620	e150	125	1450	206	113	1960	72	182	e320
22	172	324	474	e150	156	1670	224	113	2640	184	164	e300
23	145	345	394	e140	284	1340	205	107	1570	187	152	1410
24	128	296	332	e140	273	974	175	120	892	144	138	1260
25	125	266	e300	e130	234	771	155	132	606	112	129	719
26	251	243	346	e130	e200	680	164	212	462	94	121	520
27	249	236	304	e130	183	634	202	227	372	84	101	426
28	198	214	270	e140	168	515	169	175	304	145	94	668
29	170	198	247	e130	---	536	152	147	256	111	84	525
30	161	190	226	e120	---	722	144	131	229	91	92	395
31	154	---	225	e110	---	594	---	166	---	76	84	---
TOTAL	6151	6617	9063	6775	4345	15076	9170	4224	18886	3745	6166	12742
MEAN	198	221	292	219	155	486	306	136	630	121	199	425
MAX	803	478	620	594	284	1670	611	227	2640	212	654	1410
MIN	29	115	120	110	100	140	144	98	229	72	74	96
CFSM	2.16	2.41	3.19	2.38	1.69	5.30	3.33	1.49	6.87	1.32	2.17	4.63
IN.	2.50	2.68	3.68	2.75	1.76	6.12	3.72	1.71	7.66	1.52	2.50	5.17

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 2003, BY WATER YEAR (WY)

MEAN	118	178	213	195	197	306	353	252	167	107	90.2	90.1
MAX	613	439	561	665	709	577	867	604	655	528	1101	511
(WY)	1956	1973	1974	1996	1981	1977	1993	1989	1972	1947	1955	1987
MIN	14.1	17.1	35.5	18.3	62.2	131	135	92.9	43.0	19.8	14.2	9.18
(WY)	1964	1965	1981	1981	1980	1989	1995	1995	1962	1965	1964	1964

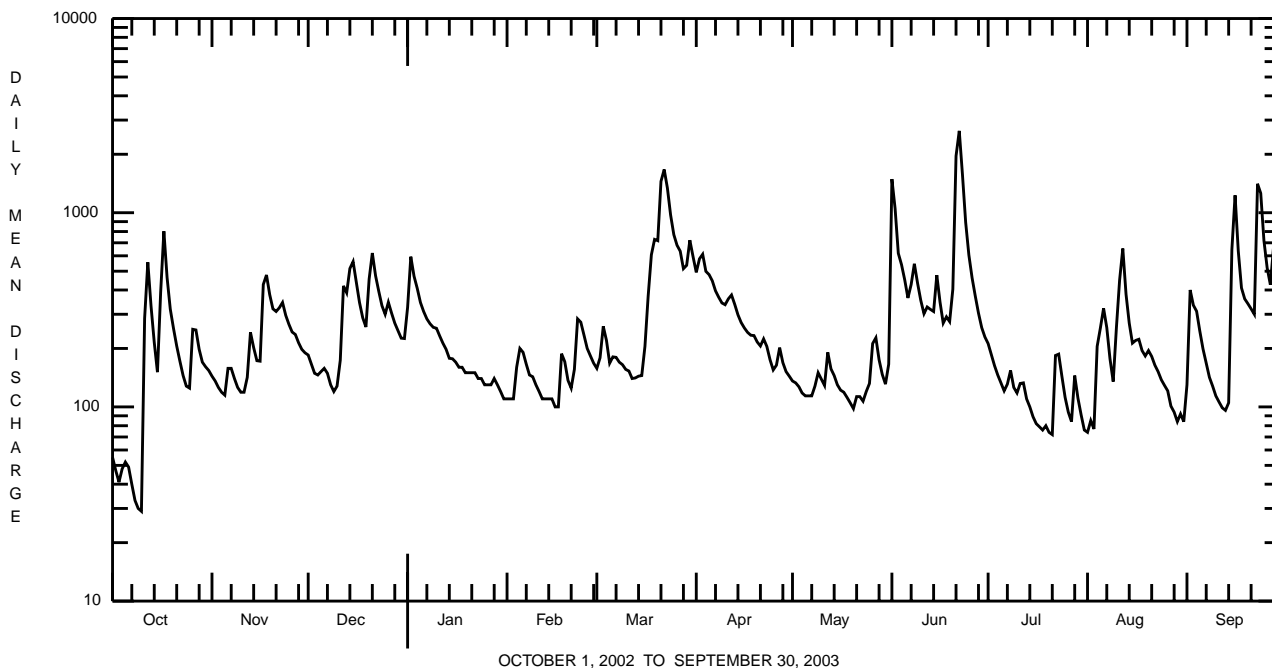
e Estimated.

LEHIGH RIVER BASIN

01447500 LEHIGH RIVER AT STODDARTSVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1944 - 2003	
ANNUAL TOTAL	68228		102960			
ANNUAL MEAN	187		282		189	
HIGHEST ANNUAL MEAN					282	2003
LOWEST ANNUAL MEAN					86.2	1965
HIGHEST DAILY MEAN	2020	May 29	2640	Jun 22	18900	Aug 19 1955
LOWEST DAILY MEAN	12	Sep 12,13	29	Oct 10	7.0	Sep 26 1964
ANNUAL SEVEN-DAY MINIMUM	13	Sep 8	40	Oct 4	7.4	Sep 21 1964
MAXIMUM PEAK FLOW			a2800	Jun 22	a31900	Aug 19 1955
MAXIMUM PEAK STAGE			5.44	Jun 22	b16.37	Aug 19 1955
INSTANTANEOUS LOW FLOW					7.0	Sep 26 1964
ANNUAL RUNOFF (CFSM)	2.04		3.08		2.06	
ANNUAL RUNOFF (INCHES)	27.68		41.77		27.95	
10 PERCENT EXCEEDS	404		542		390	
50 PERCENT EXCEEDS	141		185		128	
90 PERCENT EXCEEDS	24		105		32	

a From rating curve extended above 1,700 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow.  
 b From floodmark.



LEHIGH RIVER BASIN

01447500 LEHIGH RIVER AT STODDARTSVILLE, PA--Continued  
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1926 to 1982; April 2002 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Water years 1981 to current year.

INSTRUMENTATION.--Temperature probe interfaced with a data collection platform.

REMARKS.--Water temperature records rated good. Interruptions in the record were due to malfunctions of the recording instrument. Other data for the Water-Quality Network can be found on pages 430-470.

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.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded, 31.5°C, July 6, 1999; minimum, 0.0°C, many days during winters.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 24.0°C, July 5, 6, 16, Aug. 2; minimum, 0.0°C, many days during winter.

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, unfltrd, recoverable, mg/L (00915)	Calcium water, unfltrd, recoverable, mg/L (00916)	Magnesium, water, unfltrd, recoverable, mg/L (00925)	
Date		Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd, heated, mg/L as CaCO3 (70508)	Sulfate water, unfltrd, mg/L (00945)	Residue on evap. at 105 degC, wat fltrd, mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water, unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L as P (00665)	Total nitrogen, water, unfltrd mg/L (00600)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)
NOV 2002 05...	0830	1028	9813	114	30	13.2	6.3	64	2.9	17	4.94	5.2	1.03	
JAN 2003 07...	1100	1028	9813	283	30	13.2	6.3	58	.4	15	4.43	4.6	.92	
MAR 05...	0830	1028	9813	165	30	14.4	6.9	88	.4	19	5.75	5.7	1.14	
MAY 06...	1030	1028	9813	114	30	11.5	6.8	72	9.4	18	4.98	5.3	1.01	
JUL 22...	1050	1028	9813	225	30	9.4	6.3	66	19.4	19	5.33	5.5	1.18	
SEP 10...	1030	1028	9813	114	30	10.0	6.7	59	14.9	15	4.56	4.6	.95	
NOV 2002 05...	1.1	6	21	7.2	47	<2	<.020	.15	<.040	<.01	<.010	.39	1.6	
JAN 2003 07...	.9	5	.0	6.6	72	<2	<.020	.18	<.040	<.01	<.010	.28	1.2	
MAR 05...	1.1	6	.0	6.8	54	<2	<.020	.22	<.040	.01	<.010	.59	1.5	
MAY 06...	1.1	7	13	6.1	50	<2	<.020	.08	<.040	<.01	.012	.27	1.9	
JUL 22...	1.2	8	--	5.1	54	4	<.020	.15	<.040	.02	.026	.38	1.6	
SEP 10...	1.0	8	.0	5.0	58	4	<.020	.07	<.040	<.01	.013	.14	.9	

## LEHIGH RIVER BASIN

## 01447500 LEHIGH RIVER AT STODDARTSVILLE, PA--Continued

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

Date	Alum- inum, water, unfltrd recovery, fltrd, µg/L (01106)	Alum- inum, water, unfltrd recovery, µg/L (01105)	Copper, water, unfltrd recovery, fltrd, µg/L (01040)	Copper, water, unfltrd recovery, µg/L (01042)	Iron, water, unfltrd recovery, fltrd, µg/L (01046)	Iron, water, unfltrd recovery, µg/L (01045)	Lead, water, unfltrd recovery, fltrd, µg/L (01049)	Lead, water, unfltrd recovery, µg/L (01051)	Mangan- ese, water, unfltrd recovery, fltrd, µg/L (01056)	Mangan- ese, water, unfltrd recovery, µg/L (01055)	Nickel, water, unfltrd recovery, fltrd, µg/L (01065)	Nickel, water, unfltrd recovery, µg/L (01067)	Zinc, water, unfltrd recovery, fltrd, µg/L (01090)
NOV 2002 05...	68	82	<4	<4	100	130	<1.0	<1.0	30	40	<4.0	<4.0	8.9
JAN 2003 07...	87	100	<4	<4	90	130	<1.0	<1.0	60	70	<4.0	<4.0	10
MAR 05...	80	70	<4	<4	--	--	<1.0	<1.0	70	70	<4.0	<4.0	10
MAY 06...	48	61	<4	<4	90	120	<1.0	<1.0	30	40	<4.0	<4.0	7.5
JUL 22...	64	200	<4	<4	190	420	<1.0	<1.0	20	100	<4.0	<4.0	6.3
SEP 10...	60	67	<4	<4	180	240	<1.0	<1.0	20	30	<4.0	<4.0	5.0

Date	Zinc, water, unfltrd recovery, µg/L (01092)
NOV 2002 05...	9.1
JAN 2003 07...	10
MAR 05...	10
MAY 06...	20
JUL 22...	7.5
SEP 10...	<5.0

## LEHIGH RIVER BASIN

## 01447500 LEHIGH RIVER AT STODDARTSVILLE, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES

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

Date	8/8/02
Benthic Macroinvertebrate	Count
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
<u>Ferrissia</u> sp	1
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	
<u>Sphaerium</u> sp	9
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	4
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	1
Insecta	
Ephemeroptera (MAYFLIES)	
Ephemerellidae	
<u>Dannella</u> sp	2
<u>Drunella</u> sp	1
<u>Serratella</u> sp	1
Heptageniidae	
<u>Epeorus</u> sp	3
<u>Stenonema</u> sp	15
Isonychiidae	
<u>Isonychia</u> sp	13
Odonata	
Gomphidae (DRAGONFLIES)	4
<u>Ophiogomphus</u> sp	1
Plecoptera (STONEFLIES)	
Perlidae	
<u>Acroneuria</u> sp	4
<u>Agnetina</u> sp	1
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
<u>Nigronia</u> sp	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	
<u>Cheumatopsyche</u> sp	7
<u>Hydropsyche</u> sp	12
Hydroptilidae	
<u>Hydroptila</u> sp	2
Philopotamidae	
<u>Chimarra</u> sp	6
Rhyacophilidae	
<u>Rhyacophila</u> sp	2

## LEHIGH RIVER BASIN

01447500 LEHIGH RIVER AT STODDARTSVILLE, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES--Continued

Date	8/8/02
Benthic Macroinvertebrate	Count
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Optioservus</u> sp	2
<u>Stenelmis</u> sp	5
Psephenidae (WATER PENNIES)	
<u>Psephenus</u> sp	5
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	78
Total Organisms	180

## LEHIGH RIVER BASIN

## 01447500 LEHIGH RIVER AT STODDARTSVILLE, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	18.0	12.5	15.0	5.5	4.0	5.0	2.5	0.5	1.5	3.5	2.0	3.0
2	20.0	14.5	17.0	4.5	3.5	4.0	1.0	0.0	0.5	2.0	1.5	2.0
3	18.5	15.5	17.0	5.0	3.5	4.0	1.0	0.0	0.0	1.5	0.5	1.0
4	17.5	16.0	16.5	5.0	3.0	4.0	0.0	0.0	0.0	1.5	0.5	1.0
5	19.5	16.5	17.5	5.0	3.0	4.0	0.5	0.0	0.0	1.5	1.0	1.5
6	17.5	13.0	15.5	6.0	4.5	5.0	0.5	0.0	0.5	2.0	1.0	1.5
7	17.0	13.5	15.5	5.5	3.5	4.5	0.5	0.0	0.0	1.0	0.0	0.5
8	15.0	11.0	13.0	5.5	2.5	4.0	1.0	0.0	0.5	2.0	0.0	1.0
9	13.5	9.5	11.5	7.0	4.0	5.5	0.0	0.0	0.0	2.5	2.0	2.0
10	13.5	12.5	13.0	9.5	6.5	8.0	0.5	0.0	0.0	2.5	1.0	2.0
11	13.0	12.5	12.5	12.0	9.5	11.0	0.5	0.0	0.0	1.0	0.0	0.0
12	14.0	13.0	13.5	10.0	8.5	9.0	1.0	0.0	0.5	0.5	0.0	0.0
13	14.0	13.5	13.5	8.5	7.0	8.0	2.0	1.0	1.5	0.5	0.0	0.0
14	13.5	10.5	12.0	7.5	5.5	6.5	2.5	2.0	2.5	0.0	0.0	0.0
15	10.5	8.5	9.5	8.0	6.0	7.0	2.5	2.0	2.0	0.0	0.0	0.0
16	10.0	10.0	10.0	7.0	5.5	6.5	2.5	1.0	2.0	0.0	0.0	0.0
17	10.5	9.5	10.0	5.5	5.0	5.5	1.0	0.0	0.5	0.5	0.0	0.0
18	10.0	9.0	9.5	5.0	4.0	4.5	0.5	0.0	0.0	0.0	0.0	0.0
19	9.5	8.5	9.0	4.0	3.5	3.5	2.0	0.0	1.0	0.5	0.0	0.0
20	10.0	7.5	8.5	5.5	4.0	4.5	4.0	2.0	3.0	0.5	0.0	0.0
21	9.5	7.5	8.5	5.0	3.5	4.0	2.5	2.0	2.0	0.0	0.0	0.0
22	9.0	6.0	7.5	5.5	5.0	5.5	3.0	1.5	2.0	0.5	0.0	0.0
23	9.0	7.0	8.0	5.5	3.5	4.0	2.5	2.0	2.0	0.0	0.0	0.0
24	7.5	5.5	6.5	4.5	3.0	3.5	2.5	1.5	2.0	0.0	0.0	0.0
25	7.0	6.5	6.5	5.0	3.0	4.0	2.0	0.0	0.5	0.0	0.0	0.0
26	8.5	6.5	7.5	4.5	3.5	4.0	1.0	0.0	0.5	0.5	0.0	0.0
27	9.0	7.5	8.5	3.5	2.0	3.0	0.5	0.5	0.5	0.0	0.0	0.0
28	8.5	7.0	8.0	2.0	0.5	1.0	1.0	0.0	0.5	0.0	0.0	0.0
29	7.0	5.5	6.0	1.5	0.5	1.0	2.0	1.0	1.5	0.5	0.0	0.0
30	5.5	5.0	5.0	3.0	1.5	2.5	2.0	0.5	1.5	0.5	0.0	0.0
31	6.5	4.0	5.0	---	---	---	4.0	2.0	3.0	0.5	0.0	0.0
MONTH	20.0	4.0	10.9	12.0	0.5	4.9	4.0	0.0	1.0	3.5	0.0	0.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	0.5	0.5	0.5	0.5	0.0	0.5	3.5	2.0	2.5	16.5	11.5	13.5
2	0.5	0.5	0.5	1.0	0.0	0.5	7.5	2.5	5.0	16.5	14.0	15.0
3	1.0	0.5	0.5	0.5	0.0	0.0	8.5	5.5	7.0	17.5	12.0	14.5
4	1.0	0.0	0.5	0.5	0.0	0.0	8.0	5.5	6.5	16.5	10.5	13.5
5	0.5	0.0	0.0	1.5	0.0	0.5	5.5	4.5	5.0	13.0	10.0	11.0
6	0.0	0.0	0.0	0.5	0.0	0.0	6.0	3.5	4.5	13.5	9.0	10.5
7	0.5	0.0	0.0	0.5	0.0	0.0	5.0	2.0	3.5	17.0	11.0	13.5
8	0.5	0.0	0.0	2.0	0.0	0.5	3.0	2.0	2.5	15.0	13.5	14.0
9	0.5	0.0	0.0	2.5	0.0	1.0	3.5	3.0	3.0	13.5	12.5	13.0
10	0.5	0.0	0.0	1.5	0.0	0.5	6.5	3.5	4.5	15.0	11.0	13.0
11	0.5	0.0	0.0	1.0	0.0	0.0	5.5	4.5	5.0	15.5	13.5	14.5
12	0.5	0.0	0.0	2.5	0.0	1.0	9.5	5.0	7.0	14.5	12.0	13.0
13	0.0	0.0	0.0	2.0	0.5	1.5	10.0	6.0	8.0	12.0	10.5	11.5
14	0.0	0.0	0.0	3.0	0.0	1.0	10.5	5.5	8.0	11.5	10.0	10.5
15	0.0	0.0	0.0	5.5	0.5	2.5	13.5	8.0	10.5	12.0	8.5	10.5
16	0.0	0.0	0.0	6.0	1.5	3.5	15.0	10.5	13.0	12.0	10.5	11.0
17	0.0	0.0	0.0	5.5	2.5	3.5	13.5	8.0	10.5	13.5	10.0	11.5
18	0.0	0.0	0.0	4.5	1.5	3.0	8.0	6.5	7.0	17.5	10.5	13.5
19	0.5	0.0	0.0	4.0	1.0	2.5	12.0	6.5	8.5	18.5	11.0	14.0
20	0.5	0.0	0.5	2.5	2.0	2.0	12.5	8.0	10.5	18.0	11.5	14.5
21	0.5	0.0	0.5	5.0	1.5	3.0	11.0	9.5	10.5	15.0	12.5	13.5
22	0.5	0.5	0.5	6.0	3.0	4.0	12.5	10.0	11.0	12.5	11.5	12.0
23	0.5	0.0	0.5	6.0	3.0	4.5	11.0	7.0	9.0	13.0	11.0	12.0
24	0.0	0.0	0.0	6.5	3.0	5.0	11.0	5.5	8.0	12.5	11.5	12.0
25	0.5	0.0	0.0	8.0	4.0	6.0	12.5	7.0	9.5	13.0	11.5	12.5
26	0.0	0.0	0.0	7.0	5.0	6.0	10.5	10.0	10.5	12.5	12.0	12.0
27	0.5	0.0	0.0	8.0	4.0	6.0	14.5	9.5	11.5	13.5	11.5	12.5
28	0.5	0.0	0.5	8.0	5.0	6.5	15.5	9.5	12.5	14.5	12.0	13.0
29	---	---	---	9.0	7.5	8.0	14.5	11.5	12.5	17.0	12.5	14.5
30	---	---	---	8.5	4.0	6.0	14.0	10.0	12.0	18.0	13.0	15.0
31	---	---	---	5.0	2.5	3.5	---	---	---	15.5	13.5	14.0
MONTH	1.0	0.0	0.2	9.0	0.0	2.7	15.5	2.0	8.0	18.5	8.5	12.9





## LEHIGH RIVER BASIN

## 01447680 TUNKHANNOCK CREEK NEAR LONG POND, PA

**LOCATION.**--Lat 41°03'55", long 75°31'19", Monroe County, Hydrologic Unit 02040106, on left bank 0.6 mi downstream from unnamed tributary, 0.9 mi downstream from bridge on SR 4002, 3.0 mi west of Long Pond, and 5.0 mi upstream from mouth.

**DRAINAGE AREA.**--20.0 mi<sup>2</sup>. At site used prior to July 7, 1966, 16.8 mi<sup>2</sup>.

**PERIOD OF RECORD.**--March 1965 to current year.

**REVISED RECORDS.**--WDR PA-90-1: 1990 (monthly runoff); WDR PA-01-1: Drainage area.

**GAGE.**--Water-stage recorder and concrete control. Datum of gage is 1,804.83 ft above National Geodetic Vertical Datum of 1929. Prior to July 7, 1966, nonrecording gage at site 0.8 mi upstream at different datum.

**REMARKS.**--Records fair except those for estimated daily discharges, which are poor. Diversion upstream to Wild Creek Basin since October 1969. Several measurements of water temperature were made during the year. Satellite telemetry at station.

**COOPERATION.**--Records of diversion provided by the city of Bethlehem.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	40	39	71	e28	34	153	41	185	64	29	36
2	24	40	36	102	29	36	129	38	226	60	32	46
3	18	38	e34	90	29	e44	123	38	191	56	35	57
4	17	35	e32	76	35	e33	111	36	144	52	47	68
5	18	33	30	86	e40	e36	100	35	107	48	61	67
6	21	38	e30	70	e36	e69	96	35	87	45	91	61
7	19	47	e30	58	e31	e55	93	35	86	44	99	52
8	15	44	30	55	e29	39	83	37	123	45	102	44
9	13	36	e29	55	e28	e37	78	37	118	45	90	39
10	13	33	e28	57	27	e34	79	36	95	43	138	35
11	47	32	30	e55	26	e30	92	34	75	45	107	31
12	142	36	47	e50	25	27	100	36	91	45	107	29
13	171	51	59	e46	e24	29	94	36	163	42	96	29
14	146	54	83	e44	e24	e29	80	34	174	39	83	34
15	107	44	104	e40	24	30	67	32	143	35	70	109
16	96	40	e94	e38	22	41	60	29	104	33	60	212
17	141	69	e79	e38	37	76	59	29	79	31	55	239
18	137	97	e65	e37	58	114	57	28	78	32	51	185
19	123	101	55	e36	51	140	58	26	85	35	48	153
20	93	86	89	e35	38	141	55	25	101	35	44	119
21	66	73	142	e34	27	252	51	27	262	35	41	101
22	51	66	140	e34	28	335	50	33	357	63	39	90
23	41	65	115	e34	e48	339	48	30	355	84	37	313
24	39	64	86	e33	e75	268	47	32	276	100	35	371
25	38	56	264	e32	e56	199	47	38	192	86	34	327
26	52	49	385	e30	e46	160	49	54	136	68	33	217
27	69	45	74	e30	e39	150	68	76	103	51	32	154
28	65	42	69	e32	36	135	60	57	88	42	31	125
29	52	40	62	e29	---	142	47	46	77	37	30	112
30	43	40	56	e28	---	195	44	39	69	33	31	103
31	40	---	55	e28	---	188	---	42	---	30	30	---
TOTAL	1954	1534	2471	1483	996	3437	2278	1151	4370	1503	1818	3558
MEAN	63.0	51.1	79.7	47.8	35.6	111	75.9	37.1	146	48.5	58.6	119
MAX	171	101	385	102	75	339	153	76	357	100	138	371
MIN	13	32	28	28	22	27	44	25	69	30	29	29
(†)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

† Diversion to Wild Creek Basin, equivalent in cubic feet per second.

e Estimated.

## LEHIGH RIVER BASIN

## 01447680 TUNKHANNOCK CREEK NEAR LONG POND, PA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	33.9	43.1	52.5	46.5	44.8	66.0	79.9	58.0	46.1	28.5	21.5	29.0
MAX (WY)	1978	1971	1997	1996	1996	1977	1993	1990	2003	1984	1990	1987
MIN (WY)	2001	1981	1981	1981	1980	1989	1985	1999	1999	1999	1999	1995

## SUMMARY STATISTICS FOR 2002 CALENDAR YEAR FOR 2003 WATER YEAR WATER YEARS 1970 - 2003

ANNUAL TOTAL	15375.5	26553	45.8
ANNUAL MEAN	42.1	72.7	72.7
HIGHEST ANNUAL MEAN			2003
LOWEST ANNUAL MEAN			2001
HIGHEST DAILY MEAN	385	Dec 26	643
LOWEST DAILY MEAN	6.3	Sep 14	1.4
ANNUAL SEVEN-DAY MINIMUM	7.5	Sep 9	1.7
MAXIMUM PEAK FLOW			679
MAXIMUM PEAK STAGE			4.76
10 PERCENT EXCEEDS	85		92
50 PERCENT EXCEEDS	34		32
90 PERCENT EXCEEDS	12		10

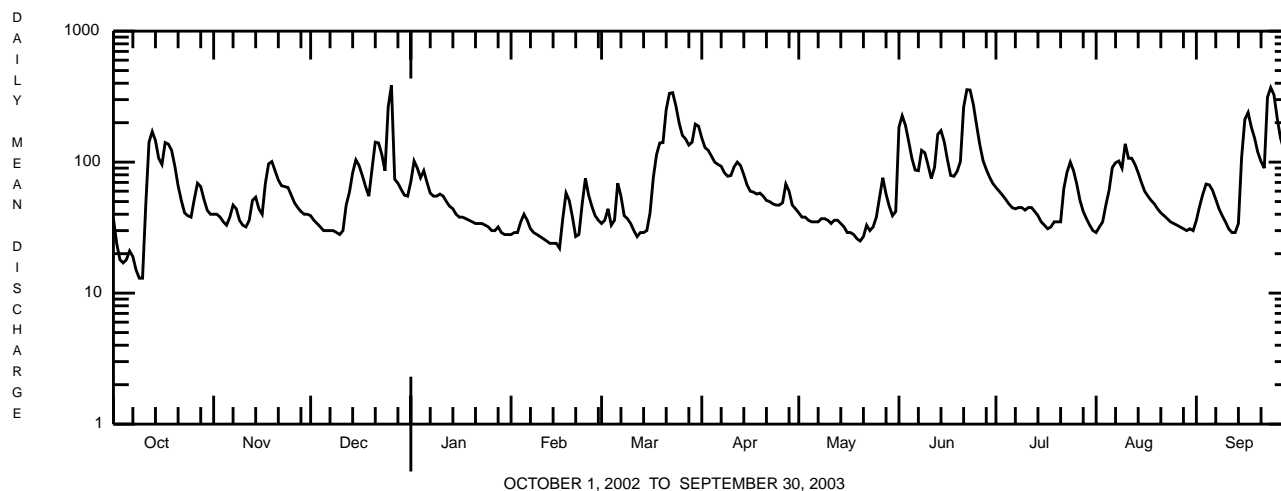
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1969, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	21.5	29.2	37.5	25.7	23.3	55.7	42.6	38.3	38.8	26.6	27.7	16.0
MAX (WY)	1966	1969	1969	1969	1968	1966	1967	1968	1969	1969	1969	1969
MIN (WY)	1969	1966	1966	1966	1967	1969	1966	1965	1965	1965	1966	1966

## SUMMARY STATISTICS WATER YEARS 1965 - 1969

ANNUAL TOTAL ANNUAL MEAN	33.8	
HIGHEST ANNUAL MEAN	47.0	1969
LOWEST ANNUAL MEAN	24.7	1966
HIGHEST DAILY MEAN	448	Jul 30 1969
LOWEST DAILY MEAN	4.0	Sep 13 1966
ANNUAL SEVEN DAY MINIMUM	4.7	Sep 8 1966
MAXIMUM PEAK FLOW	480	Jul 30 1969
MAXIMUM PEAK STAGE	4.34	Jul 30 1969
INSTANTANEOUS LOW FLOW	3.0	Mar 11 1969
ANNUAL RUNOFF (CFSM)	1.88	
ANNUAL RUNOFF (INCHES)	25.53	
10 PERCENT EXCEEDS	60	
50 PERCENT EXCEEDS	24	
90 PERCENT EXCEEDS	8.6	

a Computed using estimated daily discharges.



## LEHIGH RIVER BASIN

01447720 TOBYHANNA CREEK NEAR BLAKESLEE, PA  
(Pennsylvania Water-Quality Network Station)

**LOCATION.**--Lat 41°05'05", long 75°36'21", Carbon County, Hydrologic Unit 02040106, on left bank 50 ft downstream from bridge on State Highway 940, 500 ft downstream from Shingle Mill Run, and 1.5 mi southwest of Blakeslee.

**DRAINAGE AREA.**--118 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--October 1961 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is 1,511.23 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 16, 1962, nonrecording gage at site 50 ft upstream at same datum.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Power generation at Pocono Lake about 5.0 mi upstream since 1985 and minor diversion from Tunkhannock Creek Basin into Wild Creek Basin. Satellite and landline telemetry at station.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of Aug. 19, 1955, reached a stage of 19.41 ft, from floodmark, discharge, 35,300 ft<sup>3</sup>/s, by slope-area measurement.

**PEAK DISCHARGES FOR CURRENT YEAR.**--Peak discharges greater than base discharge of 1,600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Mar. 22	0430	2,580	6.98	Sept. 16	0430	3,130	7.58
June 1	1800	2,170	6.50	Sept. 23	1330	3,700	8.15
June 22	1015	*3,790	*8.23				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e130	225	253	384	168	183	762	207	1650	275	128	201
2	107	206	214	680	167	222	719	199	1370	253	159	367
3	91	206	213	631	167	257	734	189	827	234	154	457
4	99	183	e240	526	203	250	637	166	701	216	340	437
5	116	181	284	445	205	211	567	171	560	200	750	354
6	104	266	219	386	e190	251	527	138	448	189	1050	275
7	84	271	e190	346	182	234	490	168	496	191	822	223
8	79	222	186	323	e170	210	443	191	725	208	512	185
9	70	206	e180	312	e170	208	407	187	610	197	394	149
10	75	188	e180	311	169	198	403	184	475	180	671	131
11	435	198	201	295	e160	192	468	180	390	205	670	122
12	1160	233	467	266	e160	179	527	184	438	201	639	114
13	887	350	503	239	e150	193	479	189	570	183	432	129
14	592	323	662	223	e150	190	406	168	517	150	310	162
15	431	265	751	214	e150	190	356	154	499	136	282	1470
16	e800	262	605	e210	e160	261	326	172	425	124	232	2660
17	e1230	540	449	214	e200	432	310	167	342	117	275	1460
18	835	734	359	e210	267	717	287	164	341	121	243	851
19	573	608	313	e210	192	921	292	159	354	122	211	714
20	431	483	521	e200	165	956	267	133	707	114	181	584
21	340	429	808	e200	166	1910	250	120	2400	122	157	476
22	285	429	670	e200	191	2470	254	123	3490	404	150	441
23	225	443	536	e190	248	2040	250	121	2260	536	144	2750
24	208	392	427	e190	295	1460	231	129	1290	516	121	2310
25	207	346	e380	e190	304	1100	214	173	816	348	117	1320
26	330	313	367	e180	270	953	247	295	590	242	112	850
27	372	304	369	e190	216	880	298	379	463	197	115	592
28	329	267	344	e210	191	734	275	321	389	204	107	513
29	281	247	348	e190	---	840	237	276	341	188	103	530
30	240	245	303	e180	---	1250	222	207	308	153	129	430
31	222	---	290	168	---	1010	---	241	---	126	121	---
TOTAL	11368	9565	11832	8713	5426	21102	11885	5855	24792	6652	9831	21257
MEAN	367	319	382	281	194	681	396	189	826	215	317	709
MAX	1230	734	808	680	304	2470	762	379	3490	536	1050	2750
MIN	70	181	180	168	150	179	214	120	308	114	103	114
CFSM	3.11	2.70	3.23	2.38	1.64	5.77	3.36	1.60	7.00	1.82	2.69	6.00
IN.	3.58	3.02	3.73	2.75	1.71	6.65	3.75	1.85	7.82	2.10	3.10	6.70

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 2003, BY WATER YEAR (WY)

	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003								
MEAN	190	260	292	272	270	416	464	322	239	150	120	170	190	260	292	272	270	416	464	322	239	150	120	170	190	260	292	272	270	416	464	322	239	150	120	170	190	260	292	272	270	416	464	322	239	150	120	170		
MAX	598	644	827	1019	768	948	1247	784	826	481	372	785	1977	1973	1997	1996	1981	1977	1993	1989	2003	1969	1969	1987	31.2	48.1	58.0	40.6	100	172	162	134	64.1	30.3	34.3	28.0	1964	1965	1981	1981	1980	1989	1985	1999	1999	1999	1964	1964		
(WY)	1977	1973	1997	1996	1981	1977	1993	1989	2003	1969	1969	1987	31.2	48.1	58.0	40.6	100	172	162	134	64.1	30.3	34.3	28.0	1964	1965	1981	1981	1980	1989	1985	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999		
MIN	31.2	48.1	58.0	40.6	100	172	162	134	64.1	30.3	34.3	28.0	1964	1965	1981	1981	1980	1989	1985	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999

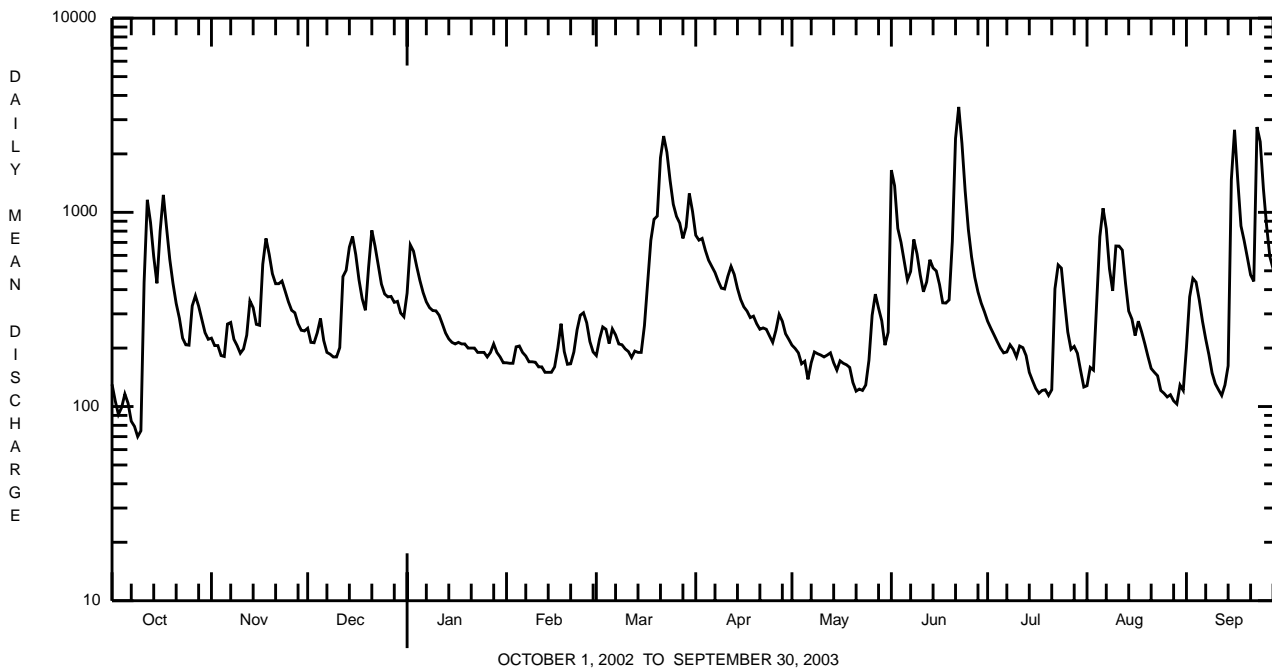
e Estimated.

LEHIGH RIVER BASIN

01447720 TOBYHANNA CREEK NEAR BLAKESLEE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1962 - 2003	
ANNUAL TOTAL	90297		148278			
ANNUAL MEAN	247		406		264	
HIGHEST ANNUAL MEAN					406	
LOWEST ANNUAL MEAN					129	
HIGHEST DAILY MEAN	1230	Oct 17	3490	Jun 22	5540	Apr 6 1984
LOWEST DAILY MEAN	27	Aug 22 <sup>a</sup>	70	Oct 9	21	Aug 12 1999 <sup>b</sup>
ANNUAL SEVEN-DAY MINIMUM	31	Aug 17	90	Oct 4	23	Sep 21 1964
MAXIMUM PEAK FLOW			3790	Jun 22	9190	Sep 27 1985
MAXIMUM PEAK STAGE			8.23	Jun 22	12.33	Sep 27 1985
INSTANTANEOUS LOW FLOW					16	Aug 8 1991
ANNUAL RUNOFF (CFSM)	2.10		3.44		2.23	
ANNUAL RUNOFF (INCHES)	28.47		46.75		30.35	
10 PERCENT EXCEEDS	487		777		530	
50 PERCENT EXCEEDS	208		257		178	
90 PERCENT EXCEEDS	65		137		58	

<sup>a</sup> Also Sept. 12, 13.  
<sup>b</sup> Also Sept. 3, 4, 1999.



## LEHIGH RIVER BASIN

01447720 TOBYHANNA CREEK NEAR BLAKESLEE, PA--Continued  
(Pennsylvania Water-Quality Network Station)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930 to 1982, 2002 to current year.

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Water years 1980 to current year.

INSTRUMENTATION.--Temperature probe interfaced with a data collection platform.

REMARKS.--Water temperature records rated good. Interruption in record from Mar. 21 to May 22 was due to malfunctioning temperature probe. Other interruptions in the record were due to malfunctions of the recording instrument. Other data for the Water-Quality Network can be found on pages 430-470.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 28.5°C, July 5, 6, 1999; minimum, 0.0°C, many days during winters.

## EXTREMES FOR CURRENT YEAR--

WATER TEMPERATURE: Maximum, 22.5°C, July 5, 8, 15, 28, Aug. 2, 5, 14, 15, 22; minimum, 0.0°C, many days during winter.

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd, $\mu$ S/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water, unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	
Date		Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unfltrd end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd heated, mg/L as CaCO3 (70508)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105 deg C, wat flt mg/L (00515)	Residue total at 105 deg C, suspended, mg/L (00530)	Ammonia water, unfltrd, mg/L as N (00610)	Nitrate water, unfltrd, mg/L as N (00620)	Nitrite water, unfltrd, mg/L as N (00615)	Orthophosphate, water, unfltrd, mg/L as P (70507)	Phosphorus, water, unfltrd, mg/L (00665)	Total nitrogen, water, unfltrd, mg/L (00600)	BOD, water, unfltrd 5 day, 20 degC, mg/L (00310)
NOV 05... 2002	1230													
JAN 07... 2003	0900													
MAR 05... 2003	1300													
MAY 06... 2003	0830													
JUL 22... 2003	0940													
SEP 10... 2003	1120													
NOV 05... 2002	1.0	5	30	5.5	20	<2	<.020	.16	<.040	<.01	<.010	.70	2.0	
JAN 07... 2003	1.1	4	20	5.0	110	34	<.020	.22	<.040	<.01	<.010	.58	1.4	
MAR 05... 2003	1.4	6	.0	5.5	72	<2	<.020	.36	<.040	.01	<.010	.50	1.3	
MAY 06... 2003	1.1	6	14	4.7	73	<2	<.020	.16	<.040	<.01	.013	.41	1.5	
JUL 22... 2003	1.1	8	--	4.4	30	36	<.020	.12	<.040	.02	.035	.57	1.5	
SEP 10... 2003	1.0	7	.0	3.6	90	2	<.020	.08	<.040	<.01	.021	.15	1.1	

## LEHIGH RIVER BASIN

## 01447720 TOBYHANNA CREEK NEAR BLAKESLEE, PA--Continued

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

Date	Alum- inum, water, fltrd, µg/L (01106)	Alum- inum, water, unfltrd recover- able, µg/L (01105)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover- able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover- able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover- able, µg/L (01051)	Mangan- ese, water, fltrd, µg/L (01056)	Mangan- ese, water, unfltrd recover- able, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover- able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)
NOV 2002 05...	149	200	<4	<4	160	230	<1.0	<1.0	40	50	<4.0	<4.0	20
JAN 2003 07...	126	300	<4	<4	110	420	<1.0	1.9	40	140	<4.0	<4.0	20
MAR 05...	92	100	<4	<4	110	160	<1.0	<1.0	40	40	<4.0	<4.0	20
MAY 06...	52	100	<4	<4	70	170	<1.0	<1.0	20	60	<4.0	<4.0	9.6
JUL 22...	128	500	<4	<4	280	1170	<1.0	2.5	30	560	<4.0	<4.0	10
SEP 10...	108	100	<4	<4	300	380	<1.0	<1.0	30	60	<4.0	<4.0	10

Date	Zinc, water, unfltrd recover- able, µg/L (01092)
NOV 2002 05...	20
JAN 2003 07...	30
MAR 05...	20
MAY 06...	10
JUL 22...	30
SEP 10...	10

## LEHIGH RIVER BASIN

01447720 TOBYHANNA CREEK NEAR BLAKESLEE, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500  $\mu\text{m}$ .  
Samples represent counts per 100 (approximate) subsamples.

Date	Count
Benthic Macroinvertebrate	
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
<u>Ferrissia</u> sp	1
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	
<u>Sphaerium</u> sp	1
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	4
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Acentrella</u> sp	2
Ephemerellidae	
<u>Dannella</u> sp	3
<u>Serratella</u> sp	3
Heptageniidae	
<u>Epeorus</u> sp	2
<u>Stenonema</u> sp	2
Isonychiidae	
<u>Isonychia</u> sp	1
Leptophlebiidae	3
Tricorythidae	
<u>Tricorythodes</u> sp	1
Odonata	
Gomphidae (DRAGONFLIES)	1
Plecoptera (STONEFLIES)	
Capniidae	1
Perlidae	
<u>Acroneuria</u> sp	1
<u>Paragnetina</u> sp	2
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
<u>Corydalus</u> sp	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	
<u>Cheumatopsyche</u> sp	30
<u>Hydropsyche</u> sp	19
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Optioservus</u> sp	8
<u>Promoresia</u> sp	4
<u>Stenelmis</u> sp	7
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	31
Simuliidae (BLACK FLIES)	
<u>Simulium</u> sp	3
Total Organisms	131



## LEHIGH RIVER BASIN

## 01447720 TOBYHANNA CREEK NEAR BLAKESLEE, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	8.0	6.0	6.5	3.5	1.0	2.0	4.0	2.5	3.0
2	18.5	15.0	17.0	8.0	5.0	6.0	2.5	1.0	1.5	2.5	1.5	2.0
3	18.5	16.0	17.0	7.5	5.0	6.0	1.5	0.0	0.5	1.5	1.0	1.5
4	17.5	16.5	16.5	7.5	5.0	6.0	1.0	0.0	0.5	2.0	1.0	1.5
5	19.0	16.0	17.5	6.5	5.0	6.0	1.0	0.5	0.5	2.5	1.5	2.0
6	16.5	13.5	15.0	8.5	6.0	6.5	1.0	0.5	1.0	2.5	1.5	2.0
7	17.0	14.5	15.5	7.5	4.5	6.0	1.0	0.0	0.5	2.0	1.0	1.5
8	14.5	12.0	13.5	8.0	5.0	6.0	2.0	0.5	1.0	3.0	1.0	2.0
9	14.0	10.5	12.5	8.0	5.5	7.0	1.0	0.0	0.5	3.5	2.5	3.0
10	14.5	13.5	14.0	9.0	7.0	8.0	1.5	0.0	0.5	3.0	1.5	2.5
11	14.5	12.5	13.0	11.5	9.0	10.0	3.0	0.5	1.5	1.5	0.5	1.0
12	14.5	13.5	14.0	9.0	8.5	8.5	2.5	2.0	2.0	1.5	0.5	1.0
13	14.5	13.5	14.0	8.5	7.0	8.0	2.5	2.0	2.0	1.5	0.0	1.0
14	13.5	11.5	12.5	7.5	6.0	7.0	2.5	2.0	2.5	1.5	0.0	0.5
15	12.0	10.5	11.0	8.5	6.5	7.5	2.5	2.0	2.0	1.0	0.0	0.5
16	---	---	---	8.0	6.5	7.0	2.0	1.0	2.0	1.0	0.0	0.5
17	---	---	---	8.5	5.5	6.0	1.5	1.0	1.0	1.0	0.0	0.5
18	10.5	10.0	10.5	5.5	5.0	5.0	1.5	0.5	1.0	0.5	0.0	0.0
19	10.5	9.5	10.0	5.0	4.5	4.5	3.0	1.5	2.5	0.5	0.0	0.0
20	10.5	9.0	9.5	5.5	4.5	5.0	5.0	2.5	3.5	1.0	0.0	0.5
21	10.0	8.5	9.5	6.0	4.5	5.0	2.5	2.0	2.0	0.5	0.0	0.0
22	10.0	8.0	9.0	6.5	5.5	6.0	3.0	2.0	2.5	0.0	0.0	0.0
23	10.5	8.0	9.0	5.5	4.0	4.5	2.5	2.0	2.5	0.0	0.0	0.0
24	9.5	7.0	8.0	5.0	4.0	4.5	2.5	2.0	2.5	0.0	0.0	0.0
25	9.5	7.5	8.0	5.5	4.0	5.0	2.0	0.0	1.0	0.5	0.0	0.0
26	9.0	7.5	8.5	5.5	4.0	4.5	2.5	1.0	1.5	1.0	0.0	0.5
27	9.0	8.0	8.5	4.0	2.5	3.5	2.0	2.0	2.0	0.5	0.0	0.0
28	9.0	7.5	8.5	3.5	1.5	2.5	2.5	1.5	2.0	0.5	0.0	0.0
29	8.5	6.5	7.5	3.0	2.0	2.5	3.0	2.0	2.5	1.0	0.5	0.5
30	9.0	6.0	7.0	5.0	3.0	3.5	3.0	1.5	2.0	2.0	0.0	0.5
31	8.5	5.5	7.0	---	---	---	5.0	2.5	3.5	1.5	0.5	1.0
MONTH	19.0	5.5	11.6	11.5	1.5	5.8	5.0	0.0	1.7	4.0	0.0	0.9
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	2.0	1.0	1.5	2.5	1.5	1.5	---	---	---	---	---	---
2	2.0	1.5	1.5	3.5	1.5	2.5	---	---	---	---	---	---
3	3.5	1.5	2.0	2.0	0.0	0.5	---	---	---	---	---	---
4	2.5	1.0	2.0	1.5	0.0	0.5	---	---	---	---	---	---
5	1.0	0.0	0.5	3.5	1.0	2.0	---	---	---	---	---	---
6	1.0	0.0	0.5	2.5	0.0	1.0	---	---	---	---	---	---
7	1.5	0.5	1.0	1.5	0.0	0.5	---	---	---	---	---	---
8	1.0	0.0	0.5	3.5	0.0	1.5	---	---	---	---	---	---
9	1.5	0.0	0.5	2.5	0.0	2.0	---	---	---	---	---	---
10	1.5	0.5	1.0	1.5	0.0	0.5	---	---	---	---	---	---
11	1.0	0.0	0.5	1.5	0.0	0.5	---	---	---	---	---	---
12	0.5	0.0	0.0	3.5	1.0	2.0	---	---	---	---	---	---
13	0.0	0.0	0.0	3.0	1.0	2.0	---	---	---	---	---	---
14	0.5	0.0	0.0	3.0	0.0	1.5	---	---	---	---	---	---
15	0.5	0.0	0.5	5.5	1.0	2.5	---	---	---	---	---	---
16	0.0	0.0	0.0	6.5	1.5	3.0	---	---	---	---	---	---
17	0.0	0.0	0.0	4.5	1.5	2.5	---	---	---	---	---	---
18	0.5	0.0	0.0	4.0	1.5	2.0	---	---	---	---	---	---
19	1.5	0.0	0.5	3.5	1.5	2.0	---	---	---	---	---	---
20	2.5	1.0	1.5	2.0	1.5	2.0	---	---	---	---	---	---
21	2.5	0.0	1.0	---	---	---	---	---	---	---	---	---
22	2.5	1.5	2.0	---	---	---	---	---	---	---	---	---
23	2.5	0.5	1.5	---	---	---	---	---	---	---	---	---
24	1.0	0.0	0.5	---	---	---	---	---	---	12.5	11.0	11.5
25	1.5	0.0	0.5	---	---	---	---	---	---	12.0	11.0	11.5
26	1.5	0.0	0.5	---	---	---	---	---	---	12.5	11.5	12.0
27	1.0	0.0	0.5	---	---	---	---	---	---	12.5	10.5	12.0
28	2.5	1.0	1.5	---	---	---	---	---	---	13.5	12.0	12.5
29	---	---	---	---	---	---	---	---	---	14.0	12.0	13.0
30	---	---	---	---	---	---	---	---	---	16.0	12.0	13.5
31	---	---	---	---	---	---	---	---	---	16.5	12.5	14.5
MONTH	3.5	0.0	0.8	6.5	0.0	1.6	---	---	---	14.0	12.0	13.5
MONTH	3.5	0.0	0.8	6.5	0.0	1.6	---	---	---	16.5	10.5	12.7





## LEHIGH RIVER BASIN

## 01447800 LEHIGH RIVER BELOW FRANCIS E. WALTER RESERVOIR NEAR WHITE HAVEN, PA

**LOCATION.**--Lat 41°06'17", long 75°43'57", Luzerne County, Hydrologic Unit 02040106, on right bank 0.7 mi downstream from Francis E. Walter Reservoir, 2.0 mi upstream from Fawn Run, and 4.0 mi northeast of White Haven.

**DRAINAGE AREA.**--290 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--October 1957 to current year. Prior to October 1962 published as "*below Bear Creek Reservoir*", October 1962 to September 1971 published as "*below Francis E. Walter Reservoir*."

**GAGE.**--Water-stage recorder. Datum of gage is 1,212.95 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Flow regulated since February 1961 by Francis E. Walter Reservoir (station 01447780) 0.7 mi upstream. Satellite and landline telemetry at station.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of August 1955 reached a discharge of 54,200 ft<sup>3</sup>/s based on slope-area measurement at site 4.9 mi downstream.

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	257	629	971	745	373	582	2120	532	383	575	247	255
2	257	523	937	1550	370	568	1990	491	3060	580	297	888
3	201	523	663	1450	367	e570	2010	455	4450	536	342	1360
4	390	458	542	1150	368	e570	1820	385	4050	571	426	1120
5	468	421	582	1150	564	567	1590	385	3030	447	853	932
6	171	422	539	1280	614	542	1530	385	1850	336	1450	734
7	171	483	511	1250	514	e480	1130	346	651	339	1620	543
8	151	614	501	904	e460	471	962	326	197	346	1240	358
9	137	745	493	644	e460	475	983	408	1650	351	936	291
10	138	740	392	651	323	476	987	499	2360	364	990	294
11	248	739	343	696	e290	472	1050	454	1700	448	1280	297
12	456	733	1010	691	e310	471	1190	457	1310	581	2050	262
13	648	945	1360	609	e310	467	1190	459	1260	450	1800	242
14	1100	1070	1360	501	e360	434	1100	459	1070	264	1010	343
15	1330	1050	1430	405	e370	416	851	455	1200	226	742	843
16	1330	1040	1630	367	e370	424	751	375	1610	227	625	3250
17	2210	1040	1640	e380	e370	1010	752	490	1200	227	761	3340
18	2160	1450	1250	e430	318	1960	748	402	1020	227	784	1490
19	1240	3020	729	e430	248	2580	745	331	958	229	594	896
20	1390	2400	692	e430	336	1860	736	314	879	230	535	1190
21	1390	1110	1090	e430	e370	1870	651	314	358	232	460	1610
22	1020	1110	1150	e430	385	3100	609	315	652	313	400	1560
23	675	1110	1910	e430	608	3230	613	350	4660	716	383	775
24	546	1110	1840	e390	889	3630	543	411	6820	986	385	3690
25	523	1100	1530	334	891	3390	516	411	6420	768	334	5080
26	523	1090	1100	323	612	3070	548	418	6520	593	296	3630
27	527	1080	659	e320	515	2960	553	729	4120	396	263	2090
28	714	1060	613	e320	571	2560	561	919	1340	339	249	2120
29	823	1030	628	363	---	2290	561	757	1030	405	249	2130
30	818	1000	635	382	---	2260	549	509	717	372	253	1500
31	736	---	707	380	---	2360	---	550	---	306	253	---
TOTAL	22748	29845	29437	19815	12536	46115	29939	14091	66525	12980	22107	43113
MEAN	734	995	950	639	448	1488	998	455	2218	419	713	1437
MAX	2210	3020	1910	1550	891	3630	2120	919	6820	986	2050	5080
MIN	137	421	343	320	248	416	516	314	197	226	247	242

e Estimated.

LEHIGH RIVER BASIN

01447800 LEHIGH RIVER BELOW FRANCIS E. WALTER RESERVOIR NEAR WHITE HAVEN, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	441	635	696	639	642	1017	1113	767	565	343	267	348
MAX (WY)	1435	1488	2079	2596	1542	2018	3198	1968	2218	1165	1153	1784
MIN (WY)	1978	1986	1997	1996	1981	1977	1993	1989	2003	1973	1969	1987
MIN (WY)	68.5	68.1	142	131	197	326	341	311	135	66.1	55.9	43.2
MIN (WY)	1964	1965	1999	1981	1980	1981	1966	2001	1962	1999	1999	1964

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR	FOR 2003 WATER YEAR	WATER YEARS 1961 - 2003	
ANNUAL TOTAL	219126	349251		
ANNUAL MEAN	600	957	622	2003
HIGHEST ANNUAL MEAN			957	1965
LOWEST ANNUAL MEAN			289	1965
HIGHEST DAILY MEAN	7830	May 29	6820	Jun 24
LOWEST DAILY MEAN	100	Aug 20-29 <sup>a</sup>	137	Oct 9
ANNUAL SEVEN-DAY MINIMUM	100	Aug 20	210	Oct 6
MAXIMUM PEAK FLOW			7090	Jun 26
MAXIMUM PEAK STAGE			7.47	Jun 26
INSTANTANEOUS LOW FLOW				8.86
10 PERCENT EXCEEDS	1240	2000	1330	Nov 14 1961
50 PERCENT EXCEEDS	450	612	411	
90 PERCENT EXCEEDS	170	310	108	

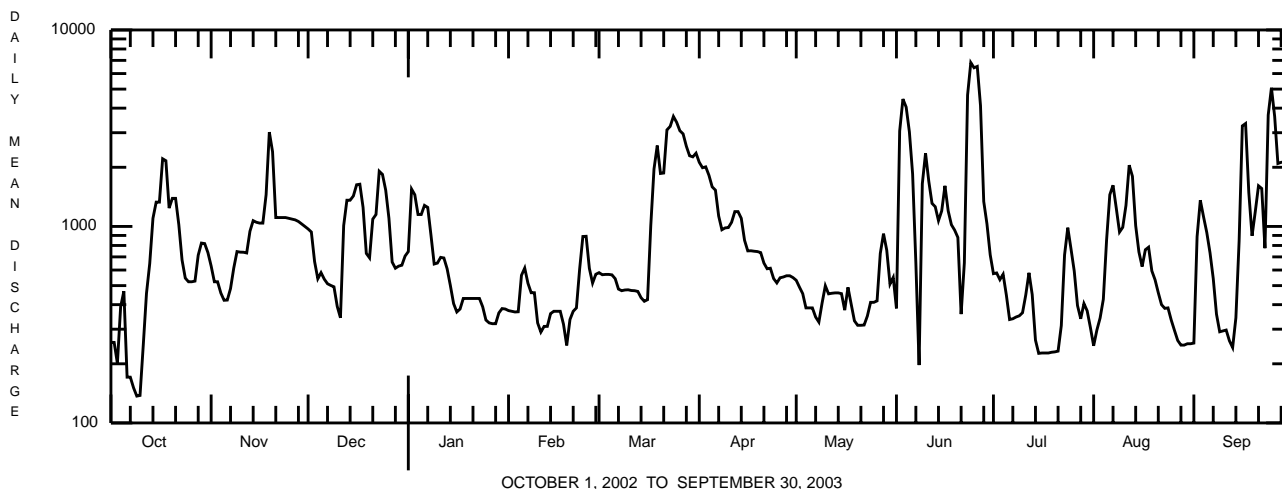
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 1960, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	378	571	1002	692	678	790	1886	909	425	245	190	371
MAX (WY)	502	854	1504	778	1039	926	2536	1134	521	339	270	744
MIN (WY)	1960	1960	1958	1960	1960	1958	1958	1958	1960	1960	1960	1960
MIN (WY)	173	347	371	549	467	610	1262	520	310	195	129	135
MIN (WY)	1958	1958	1959	1959	1959	1960	1959	1959	1959	1959	1959	1959

SUMMARY STATISTICS WATER YEARS 1958 - 1960

ANNUAL TOTAL ANNUAL MEAN	676	
HIGHEST ANNUAL MEAN	807	1960
LOWEST ANNUAL MEAN	478	1959
HIGHEST DAILY MEAN	10700	Dec 21 1957
LOWEST DAILY MEAN	50	Oct 4 1957
ANNUAL SEVEN DAY MINIMUM	63	Oct 1 1957
MAXIMUM PEAK FLOW	d13800	Dec 21 1957
MAXIMUM PEAK STAGE	9.85	Dec 21 1957
ANNUAL RUNOFF (CFSM)	2.33	
ANNUAL RUNOFF (INCHES)	31.69	
10 PERCENT EXCEEDS	1390	
50 PERCENT EXCEEDS	440	
90 PERCENT EXCEEDS	141	

- a Also Sept. 25, 26.
- b Also July 22, 23, 1965.
- c Result of shutoff at reservoir.
- d From rating curve extended above 6,100 ft<sup>3</sup>/s.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

## LEHIGH RIVER BASIN

01447800 LEHIGH RIVER BELOW FRANCIS E. WALTER RESERVOIR NEAR WHITE HAVEN, PA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964 to 1982.

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Water years 1988 to current year.

INSTRUMENTATION.--Temperature probe interfaced with a data collection platform.

REMARKS.--Water temperature records rated good.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 31.5°C, July 21, 1988; minimum, 0.0°C, many days during winters.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 23.5°C, Aug. 19; minimum, 0.0°C, many days during winter.

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	18.0	17.0	17.5	8.5	8.0	8.0	3.0	2.5	2.5	2.5	2.0	2.5
2	18.0	17.0	17.5	8.0	8.0	8.0	3.0	1.0	2.5	2.5	2.0	2.5
3	18.0	17.0	17.5	8.0	7.5	8.0	1.5	1.0	1.5	2.0	1.5	2.0
4	18.0	17.0	17.5	7.5	7.0	7.5	1.5	1.5	1.5	1.5	1.0	1.0
5	18.5	17.5	18.0	7.5	7.0	7.0	1.5	1.0	1.0	1.5	1.0	1.5
6	18.5	17.0	17.5	7.5	7.0	7.0	1.0	0.5	1.0	1.5	1.5	1.5
7	18.0	17.5	17.5	7.5	7.0	7.0	1.0	0.5	0.5	1.5	1.0	1.5
8	18.5	17.0	17.5	7.5	7.0	7.0	0.5	0.5	0.5	1.0	0.5	1.0
9	18.0	17.0	17.0	7.0	7.0	7.0	0.5	0.5	0.5	2.0	1.0	1.5
10	17.0	16.5	16.5	7.0	7.0	7.0	0.5	0.5	0.5	2.0	2.0	2.0
11	17.0	16.0	16.5	7.5	7.0	7.0	0.5	0.5	0.5	2.0	1.0	1.5
12	17.0	15.0	16.0	7.5	7.0	7.5	0.5	0.5	0.5	1.0	0.5	1.0
13	15.0	15.0	15.0	8.0	7.5	7.5	1.0	0.5	0.5	0.5	0.5	0.5
14	15.0	15.0	15.0	8.5	8.0	8.0	2.0	1.0	1.5	0.5	0.0	0.5
15	15.0	14.5	14.5	8.0	8.0	8.0	2.0	2.0	2.0	0.5	0.0	0.0
16	14.5	14.0	14.0	8.5	8.0	8.0	2.5	2.0	2.5	0.5	0.0	0.0
17	14.0	12.5	13.0	8.5	7.5	8.0	2.0	1.5	1.5	0.5	0.0	0.0
18	12.5	12.0	12.5	7.5	7.0	7.0	1.5	0.5	1.0	0.5	0.0	0.0
19	12.0	11.5	12.0	7.0	6.5	6.5	1.5	0.5	1.0	0.0	0.0	0.0
20	12.0	11.5	11.5	6.5	5.5	6.0	3.0	1.5	2.0	0.5	0.0	0.0
21	11.5	11.5	11.5	5.5	5.5	5.5	3.0	2.5	2.5	0.5	0.0	0.0
22	11.5	11.0	11.0	5.5	5.5	5.5	2.5	2.0	2.5	0.0	0.0	0.0
23	11.0	10.5	10.5	6.0	5.5	6.0	2.5	2.0	2.5	0.0	0.0	0.0
24	10.5	10.5	10.5	6.0	5.5	5.5	2.5	2.0	2.5	0.5	0.0	0.0
25	10.5	10.0	10.0	5.5	5.0	5.5	2.0	1.0	2.0	0.5	0.0	0.0
26	10.0	10.0	10.0	5.5	5.0	5.0	1.0	0.5	0.5	0.0	0.0	0.0
27	10.0	9.5	10.0	5.0	5.0	5.0	0.5	0.5	0.5	0.0	0.0	0.0
28	10.0	9.5	10.0	5.0	4.0	4.5	1.0	0.5	0.5	0.0	0.0	0.0
29	10.0	9.5	10.0	4.0	3.5	4.0	1.0	0.5	1.0	0.0	0.0	0.0
30	9.5	9.0	9.5	3.5	3.0	3.5	1.5	1.0	1.0	0.5	0.0	0.0
31	9.0	8.5	9.0	---	---	---	2.0	1.0	1.5	0.5	0.0	0.0
MONTH	18.5	8.5	13.7	8.5	3.0	6.6	3.0	0.5	1.4	2.5	0.0	0.7



## LEHIGH RIVER BASIN

## 01449000 LEHIGH RIVER AT LEHIGHTON, PA

**LOCATION.**--Lat 40°49'45", long 75°42'20", Carbon County, Hydrologic Unit 02040106, on left bank 190 ft downstream from highway bridge at Lehigh, and 0.3 mi upstream from Mahoning Creek.

**DRAINAGE AREA.**--591 mi<sup>2</sup>.

**PERIOD OF RECORD.**--October 1945 to September 1948 (monthly discharge only, published in WSP 1302). October 1982 to current year. Gage height records beginning 1935 are contained in reports of the U.S. Weather Bureau. Miscellaneous measurements, water years 1977-78, 1980-81, and annual maximum, 1982.

**REVISED RECORDS.**--WDR PA-99-1: 1985(M).

**GAGE.**--Water-stage recorder. Datum of gage is 444.26 ft above National Geodetic Vertical Datum of 1929. Prior to August 1970, at same site at datum 2.0 ft higher. Prior to December 1982, nonrecording gage at highway bridge 190 ft upstream at same datum.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Flow regulated by Francis E. Walter Reservoir (station 01447780) since February 1961. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	474	1340	1800	1900	e740	1190	3970	1060	7060	1410	623	723
2	460	1150	1700	3360	e720	1250	3640	1030	5590	1340	692	1090
3	445	1090	1520	3570	e720	1320	3590	1010	7100	1260	805	2120
4	361	1050	e1050	2780	e800	1220	3360	852	6950	1220	1940	2060
5	875	937	e1100	2590	e900	1210	3000	837	5630	1160	2590	1560
6	407	1080	e1050	2550	e1000	1250	2830	846	4180	891	3930	1300
7	340	1050	e1000	2570	e900	1160	2490	837	2770	886	4340	1000
8	330	1070	e960	2190	e840	1090	2040	835	2490	943	3050	829
9	305	1300	e920	1810	e800	1110	2020	842	2740	853	2390	634
10	312	1300	e880	1660	e740	1090	2030	985	4070	833	2340	616
11	870	1300	e900	1670	e600	1050	2260	911	3410	904	2780	601
12	1880	1350	2500	1550	e620	1050	2600	978	3330	1070	3720	589
13	1300	1730	2830	e1400	e620	1080	2420	926	4490	1000	3520	569
14	1480	1830	3390	e1200	e600	1110	2280	902	3100	733	2440	640
15	1870	1770	3460	e1000	e620	1030	2030	878	2730	598	1680	1490
16	2820	1800	3340	e920	e640	1190	1740	842	2970	579	1610	4070
17	4240	2490	3220	e920	e600	2210	1690	871	2620	556	1410	5000
18	4060	2760	2760	e960	e600	4410	1640	850	2350	573	1590	2840
19	2250	3950	2150	e960	e620	5610	1590	747	2180	662	1310	1930
20	2360	4600	2190	e940	e600	5410	1520	682	2410	559	1160	2130
21	2240	2360	2940	e900	e640	7040	1440	739	7250	614	1030	2490
22	1960	2380	2730	e880	e740	7870	1350	739	4800	1240	945	2540
23	1400	2470	3040	e840	1370	6790	1310	713	6000	1290	862	6380
24	1130	2260	3410	e800	1670	6290	1230	830	8260	1920	816	5790
25	1060	2190	3050	e760	1710	5870	1090	878	7550	1510	786	e6700
26	1450	2110	2760	e740	1480	5140	1200	1160	7200	1050	705	e5500
27	1330	2080	1840	e700	1130	4890	1300	1330	6180	968	675	e4600
28	1260	1980	1600	e680	1170	4330	1170	1710	2820	662	611	e4100
29	1480	1920	1570	e700	---	4140	1140	1680	2080	761	589	e3700
30	1490	1850	1510	e720	---	4550	1110	1320	1820	721	694	e3400
31	1460	---	1530	e740	---	4260	---	1350	---	640	640	---
TOTAL	43699	56547	64700	44960	24190	97210	61080	30170	132130	29406	52273	76991
MEAN	1410	1885	2087	1450	864	3136	2036	973	4404	949	1686	2566
MAX	4240	4600	3460	3570	1710	7870	3970	1710	8260	1920	4340	6700
MIN	305	937	880	680	600	1030	1090	682	1820	556	589	569
CFSM	2.39	3.19	3.53	2.45	1.46	5.31	3.45	1.65	7.45	1.61	2.85	4.34
IN.	2.75	3.56	4.07	2.83	1.52	6.12	3.84	1.90	8.32	1.85	3.29	4.85

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

MEAN	806	1252	1556	1278	1296	1941	2334	1699	1265	740	568	768
MAX	2017	2366	4120	4151	2470	3164	6010	4038	4404	1955	1686	3767
(WY)	1991	1986	1997	1996	1984	1986	1993	1989	2003	1984	2003	1987
MIN	238	286	267	532	566	926	895	657	325	152	154	181
(WY)	1983	1999	1999	1989	1987	1989	1995	1999	1999	1999	1999	1995

e Estimated.

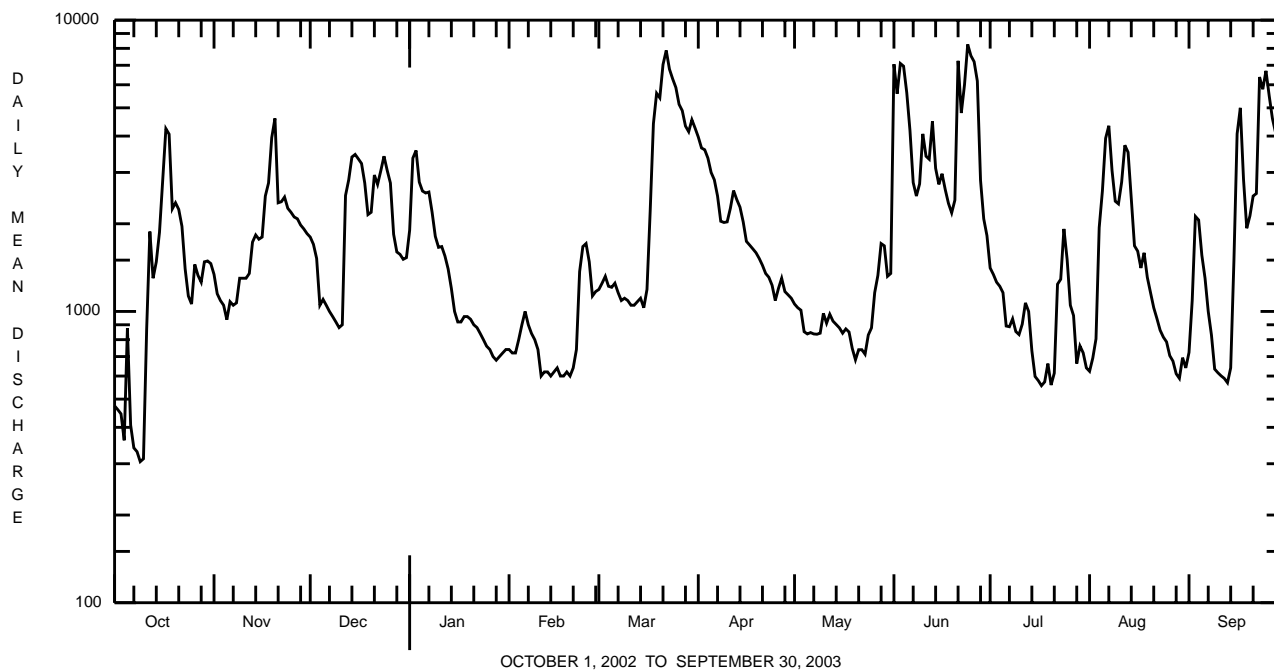


LEHIGH RIVER BASIN

01449000 LEHIGH RIVER AT LEHIGHTON, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1983 - 2003	
ANNUAL TOTAL	440642		713356			
ANNUAL MEAN	1207		1954		1291	
HIGHEST ANNUAL MEAN					1954	
LOWEST ANNUAL MEAN					758	
HIGHEST DAILY MEAN	7280	May 29	8260	Jun 24	15100	Apr 16 1983
LOWEST DAILY MEAN	212	Aug 22	305	Oct 9	104	Aug 30 1999
ANNUAL SEVEN-DAY MINIMUM	231	Aug 22	419	Oct 4	120	Aug 6 1999
MAXIMUM PEAK FLOW			10700	Sep 23	a22900	Jan 27 1996
MAXIMUM PEAK STAGE			8.11	Sep 23	12.55	Jan 27 1996
ANNUAL RUNOFF (CFSM)	2.04		3.31		2.18	
ANNUAL RUNOFF (INCHES)	27.74		44.90		29.67	
10 PERCENT EXCEEDS	2490		4160		2660	
50 PERCENT EXCEEDS	971		1340		884	
90 PERCENT EXCEEDS	360		640		286	

a From rating curve extended above 16,000 ft<sup>3</sup>/s.



LEHIGH RIVER BASIN

01449360 POHOPOCO CREEK AT KRESGEVILLE, PA

LOCATION.--Lat 40°53'51", long 75°30'10", Monroe County, Hydrologic Unit 02040106, on right bank 20 ft downstream from bridge on U.S. Highway 209 at Kresgeville, 0.2 mi downstream from Middle Creek, and 13 mi upstream from mouth.

DRAINAGE AREA.--49.9 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 659.72 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.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Oct. 11	2345	547	5.54	Aug. 17	0045	1,030	6.97
Mar. 21	0845	873	6.54	Sept. 15	1800	834	6.43
June 13	0115	*2,020	*9.14	Sept. 23	1600	1,570	8.22
June 20	2345	899	6.61				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	88	96	168	65	81	198	85	338	153	56	91
2	27	82	89	296	65	103	202	83	323	143	60	102
3	26	77	84	260	64	120	185	79	263	133	64	112
4	27	73	77	234	90	98	173	77	304	121	79	110
5	30	71	79	205	86	95	184	76	256	112	163	89
6	26	94	77	186	69	119	167	78	221	107	260	74
7	24	78	72	167	69	101	158	77	283	114	133	70
8	23	71	71	156	62	94	156	94	342	105	107	67
9	22	69	67	159	e62	104	161	82	282	98	100	65
10	27	68	65	154	61	104	169	77	242	97	182	62
11	249	73	98	135	58	91	174	74	211	98	176	58
12	445	85	222	121	55	90	172	83	314	90	211	57
13	221	102	171	114	e54	102	161	73	1190	82	153	63
14	129	85	263	108	e50	106	154	70	625	78	131	76
15	98	82	277	103	52	113	150	68	420	75	116	370
16	200	100	245	97	e44	184	145	67	324	73	268	462
17	291	231	200	e92	e100	297	138	70	269	69	558	275
18	185	274	168	e86	113	371	136	66	276	70	225	209
19	142	232	154	e86	65	372	130	64	236	72	171	269
20	120	199	213	89	56	414	119	62	307	64	143	221
21	102	175	201	e80	52	770	114	68	757	79	125	183
22	91	172	172	e76	80	555	114	64	669	167	112	167
23	84	161	162	e74	164	418	108	61	549	99	103	1110
24	77	135	150	e72	143	329	102	72	408	88	93	849
25	75	123	163	74	112	276	98	71	320	73	87	472
26	161	115	168	e70	98	246	117	154	267	67	84	348
27	120	116	146	e66	90	229	110	129	230	63	81	286
28	99	107	135	e66	85	197	95	115	202	64	75	320
29	92	102	129	69	---	219	94	109	182	58	72	257
30	98	101	119	65	---	239	88	101	167	56	87	213
31	99	---	119	64	---	211	---	121	---	54	76	---
TOTAL	3438	3541	4452	3792	2164	6848	4272	2570	10777	2822	4351	7107
MEAN	111	118	144	122	77.3	221	142	82.9	359	91.0	140	237
MAX	445	274	277	296	164	770	202	154	1190	167	558	1110
MIN	22	68	65	64	44	81	88	61	167	54	56	57
CFM	2.22	2.37	2.88	2.45	1.55	4.43	2.85	1.66	7.20	1.82	2.81	4.75
IN.	2.56	2.64	3.32	2.83	1.61	5.11	3.18	1.92	8.03	2.10	3.24	5.30

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2003, BY WATER YEAR (WY)

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
MEAN	63.9	91.0	125	113	114	159	157	125	101	64.9	52.3	57.4																										
MAX	181	203	354	323	191	330	369	270	359	165	193	264																										
(WY)	1977	1973	1997	1979	1998	1977	1983	1989	2003	1969	1969	1987																										
MIN	18.9	24.7	18.1	13.9	45.0	60.2	47.9	56.9	35.9	18.2	14.0	15.5																										
(WY)	1981	1981	1999	1981	1980	1985	1985	1995	1999	1999	1999	1980																										

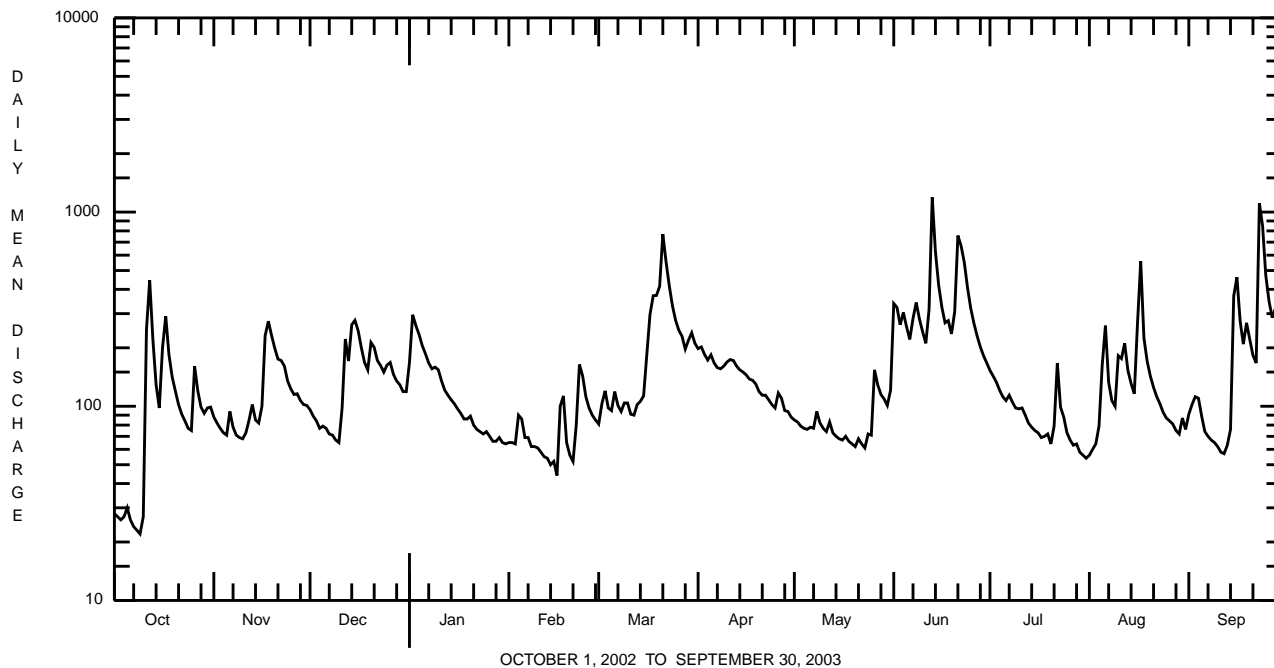
e Estimated.

LEHIGH RIVER BASIN

01449360 POHOPOCO CREEK AT KRESGEVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1967 - 2003	
ANNUAL TOTAL	30950		56134			
ANNUAL MEAN	84.8		154		102	
HIGHEST ANNUAL MEAN					154	2003
LOWEST ANNUAL MEAN					46.5	1985
HIGHEST DAILY MEAN	445	Oct 12	1190	Jun 13	1550	Apr 16 1983
LOWEST DAILY MEAN	16	Sep 10,11	22	Oct 9	9.9	Aug 7 1999
ANNUAL SEVEN-DAY MINIMUM	17	Sep 8	25	Oct 3	11	Aug 2 1999
MAXIMUM PEAK FLOW			a2020	Jun 13	a2080	Jul 29 1969
MAXIMUM PEAK STAGE			9.14	Jun 13	9.21	Jul 29 1969
ANNUAL RUNOFF (CFSM)	1.70		3.08		2.04	
ANNUAL RUNOFF (INCHES)	23.07		41.85		27.74	
10 PERCENT EXCEEDS	175		282		201	
50 PERCENT EXCEEDS	67		107		74	
90 PERCENT EXCEEDS	23		64		27	

a From rating curve extended above 800 ft<sup>3</sup>/s.



## LEHIGH RIVER BASIN

01449360 POHOPOCO CREEK AT KRESGEVILLE, PA--Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Water years 1969 to current year.

INSTRUMENTATION.--Temperature probe interfaced with a data collection platform since water year 1986.

REMARKS.--Water temperature records rated good.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 31.5°C, July 25, 1970; minimum, 0.0°C, many days during winters.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 19.5°C, July 28, Aug. 2-6, 16, 17; minimum, 0.0°C, many days during winter.

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	15.5	13.5	14.5	7.5	6.5	7.0	5.0	2.5	3.5	5.0	4.0	5.0
2	17.0	15.0	16.0	6.5	5.5	6.0	3.5	2.0	3.0	4.5	4.0	4.0
3	17.5	16.0	17.0	6.5	5.5	6.0	3.5	1.0	2.0	4.0	2.5	3.0
4	17.0	15.5	16.0	6.5	5.5	6.0	1.5	0.5	0.5	4.0	2.5	3.5
5	18.0	16.0	17.0	7.0	5.5	6.0	1.5	0.5	1.0	4.5	3.5	4.0
6	16.5	14.0	15.0	8.0	7.0	7.5	2.5	1.0	2.0	4.0	3.5	4.0
7	16.0	14.5	15.0	7.5	6.0	7.0	1.5	0.0	0.5	4.0	2.5	3.0
8	14.5	12.0	13.0	7.0	5.0	6.0	2.5	0.5	1.0	4.5	2.5	3.5
9	12.5	10.5	11.5	8.5	6.0	7.0	2.0	0.5	1.0	5.5	4.5	4.5
10	13.0	12.5	13.0	11.0	8.0	9.0	1.0	0.0	0.5	4.5	3.5	4.5
11	13.5	13.0	13.0	13.0	11.0	12.0	2.0	0.5	1.0	3.5	1.5	2.5
12	14.0	13.5	13.5	11.5	10.0	10.5	3.5	2.0	2.5	2.0	1.0	1.5
13	14.0	13.5	13.5	10.0	8.0	9.5	4.5	3.5	4.0	2.0	0.5	1.5
14	13.5	11.0	12.0	8.5	6.5	7.5	5.0	4.5	4.5	1.5	0.5	1.0
15	11.0	9.0	10.0	8.5	7.5	8.0	5.5	4.5	5.0	1.5	0.5	1.0
16	11.5	11.0	11.0	8.0	6.5	7.5	5.5	3.5	4.5	1.0	0.0	0.5
17	11.5	10.5	11.0	7.0	6.5	6.5	3.5	2.0	3.0	1.0	0.5	0.5
18	11.5	10.0	10.5	7.0	6.5	7.0	3.0	1.0	2.0	0.5	0.0	0.0
19	10.5	9.0	9.5	6.5	5.5	6.0	5.0	2.5	3.5	0.5	0.0	0.0
20	10.5	9.0	10.0	7.5	5.5	6.5	6.0	5.0	5.5	0.5	0.0	0.5
21	10.0	9.0	9.5	7.5	5.5	6.5	5.0	4.5	4.5	0.5	0.0	0.0
22	9.5	7.5	8.5	8.0	7.5	7.5	5.5	4.0	4.5	0.0	0.0	0.0
23	9.5	8.0	9.0	7.5	6.0	6.5	5.5	4.5	5.0	0.0	0.0	0.0
24	9.0	7.0	8.0	7.0	5.5	6.0	4.5	4.0	4.5	0.0	0.0	0.0
25	8.0	8.0	8.0	7.5	5.5	6.5	4.5	0.5	2.5	0.5	0.0	0.5
26	9.5	8.0	9.0	7.5	6.0	6.5	3.5	1.5	2.5	1.0	0.5	0.5
27	10.0	9.0	9.5	6.5	4.0	5.0	3.5	3.0	3.5	0.5	0.0	0.0
28	10.0	8.5	9.5	4.0	2.5	3.5	3.5	2.5	3.0	0.0	0.0	0.0
29	8.5	6.5	7.5	4.0	2.5	3.5	4.5	3.5	4.0	1.0	0.0	0.5
30	7.0	6.0	6.5	5.0	4.0	4.5	4.5	2.5	3.5	1.0	0.0	0.5
31	7.5	6.5	7.0	---	---	---	5.5	4.5	5.0	1.5	0.5	1.0
MONTH	18.0	6.0	11.4	13.0	2.5	6.8	6.0	0.0	3.0	5.5	0.0	1.6



## LEHIGH RIVER BASIN

## 01449800 POHOPOCO CREEK BELOW BELTZVILLE LAKE NEAR PARRYVILLE, PA

**LOCATION.**--Lat 40°50'44", long 75°38'46", Carbon County, Hydrologic Unit 02040106, on right bank 0.1 mi upstream from Sawmill Run, 0.4 mi downstream from Beltzville Dam, 1.3 mi upstream from Bull Run, and 2.3 mi northeast of Parryville.

**DRAINAGE AREA.**--96.4 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--October 1967 to current year.

**GAGE.**--Water-stage recorder and concrete control. Datum of gage is 492.05 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Flow regulated entire period of record by Wild Creek Reservoir (station 01449700) and Penn Forest Reservoir (station 01449400), 7.3 mi and 10.0 mi upstream respectively, and Beltzville Lake (station 01449790), reservoir for city of Bethlehem. Diversion upstream from Tunkhannock Creek to Wild Creek Basin since October 1969. Satellite and landline telemetry at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	162	104	437	101	94	429	179	249	168	62	95
2	41	133	130	440	103	95	429	144	826	131	55	113
3	41	133	150	438	98	95	428	123	1150	150	55	123
4	41	133	150	442	120	95	341	123	1020	150	55	169
5	41	133	150	439	157	95	287	123	657	150	112	130
6	39	133	150	444	175	95	287	123	465	150	321	95
7	39	133	150	357	131	95	287	122	451	179	347	95
8	39	90	150	182	104	95	299	121	449	195	194	95
9	39	64	109	104	104	95	285	132	610	195	125	81
10	39	64	64	104	78	110	273	140	701	150	124	61
11	41	64	66	104	64	120	273	140	573	110	198	55
12	40	138	297	104	64	137	273	173	508	104	385	55
13	187	199	423	133	64	176	273	152	860	107	441	55
14	368	174	427	104	64	195	293	143	1140	132	236	55
15	368	160	428	104	64	195	306	119	1140	150	122	e460
16	373	160	427	104	64	195	270	106	1140	122	114	e1140
17	500	160	351	104	64	353	254	104	1120	107	568	902
18	393	320	306	104	116	644	224	104	1120	89	547	432
19	277	423	306	104	348	979	207	104	870	75	174	263
20	273	423	308	104	603	751	207	104	534	75	116	301
21	140	347	306	104	367	730	196	104	146	93	127	301
22	64	306	306	104	213	1010	191	104	832	239	133	301
23	64	306	380	104	214	989	191	104	1380	303	133	321
24	64	306	422	104	137	978	163	104	1350	185	133	1220
25	83	184	430	104	92	966	146	104	1330	104	112	1350
26	95	104	440	104	94	960	146	104	1250	104	95	1060
27	95	104	435	104	95	702	146	235	927	104	95	894
28	149	104	432	104	95	374	169	302	796	85	95	898
29	179	104	428	104	---	341	201	261	793	73	95	896
30	179	104	430	104	---	342	190	241	415	73	95	890
31	179	---	432	103	---	399	---	242	---	73	95	---
TOTAL	4511	5368	9087	5599	3993	12500	7664	4484	24802	4125	5559	12906
MEAN	146	179	293	181	143	403	255	145	827	133	179	430
MAX	500	423	440	444	603	1010	429	302	1380	303	568	1350
MIN	39	64	64	103	64	94	146	104	146	73	55	55

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 2003, BY WATER YEAR (WY)

MEAN	107	129	197	176	187	260	268	211	165	109	86.7	98.0
MAX	405	302	675	527	459	576	754	538	827	321	491	529
(WY)	1983	1971	1997	1979	1976	1977	1993	1990	2003	1975	1969	1987
MIN	12.7	19.2	14.4	33.3	17.0	16.2	32.5	25.2	46.7	32.4	18.0	29.2
(WY)	1996	1992	1992	1981	1981	1981	1981	1971	1999	1985	1985	1970

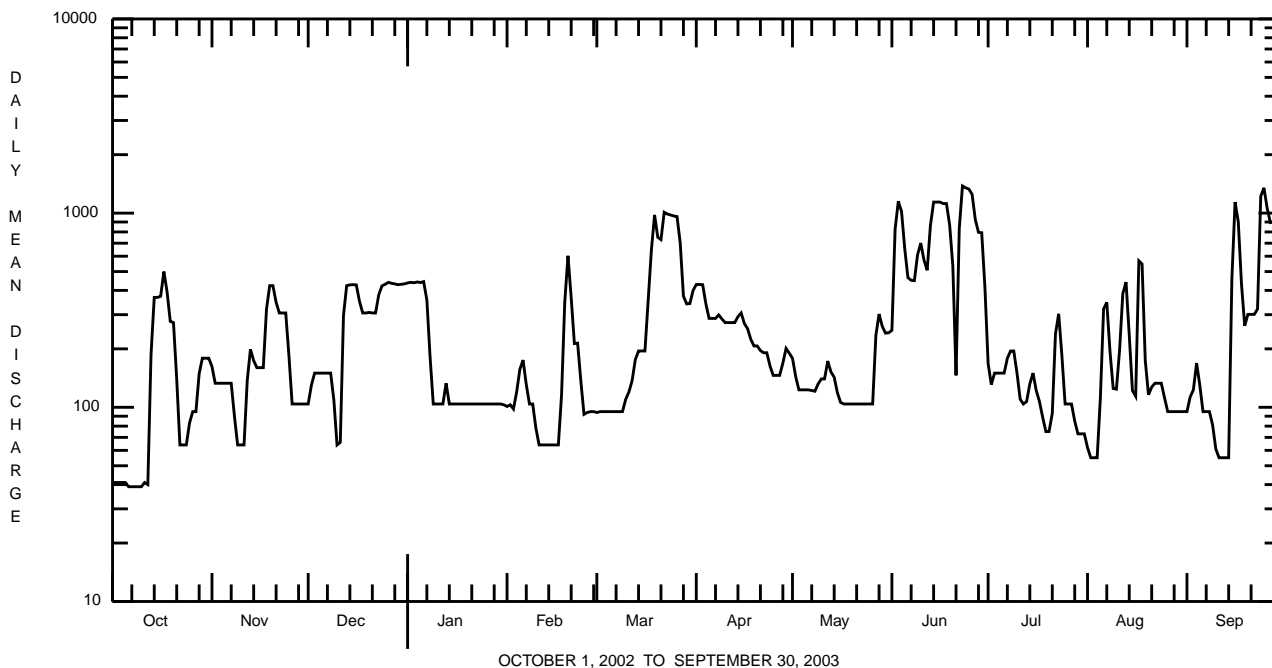
e Estimated.

LEHIGH RIVER BASIN

01449800 POHOPOCO CREEK BELOW BELTZVILLE LAKE NEAR PARRYVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1968 - 2003	
ANNUAL TOTAL	50922		100598			
ANNUAL MEAN	140		276		166	
HIGHEST ANNUAL MEAN					276	2003
LOWEST ANNUAL MEAN					60.2	1985
HIGHEST DAILY MEAN	596	May 21	1380	Jun 23	1470	Apr 15 1993
LOWEST DAILY MEAN	36	Jul 12-18 <sup>a</sup>	39	Oct 6-10	9.5	Oct 12 1993
ANNUAL SEVEN-DAY MINIMUM	36	Jul 12 <sup>b</sup>	39	Oct 6	11	Oct 7 1993
MAXIMUM PEAK FLOW			1740	Jun 22	1740	May 8 1973 <sup>c</sup>
MAXIMUM PEAK STAGE			5.99	Jun 22	5.99	Jun 22 2003
10 PERCENT EXCEEDS	368		701		372	
50 PERCENT EXCEEDS	90		150		104	
90 PERCENT EXCEEDS	38		70		36	

**a** Also Sept. 18-30.  
**b** First occurrence.  
**c** Also June 22, 2003.



## LEHIGH RIVER BASIN

01449800 POHOPOCO CREEK BELOW BELTZVILLE LAKE NEAR PARRYVILLE, PA--Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Water years 1969 to current year.

INSTRUMENTATION.--Temperature probe interfaced with a data collection platform since water year 1986.

REMARKS.--Water temperature records rated good. Interruptions in the record were due to equipment failure.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 26.5°C, several days during July and August 1970; minimum, 0.0°C, Dec. 9, 1969, Jan. 15, 1999.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 19.5°C, Sept. 11, 12, 18, 19; minimum, 1.5°C, Feb. 17, 18.

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	16.5	15.0	15.5	12.5	12.0	12.5	7.5	7.5	7.5	3.5	3.5	3.5
2	16.5	15.0	15.5	12.0	12.0	12.0	7.5	7.0	7.5	3.5	3.5	3.5
3	16.5	15.0	15.5	12.0	11.5	12.0	7.0	6.5	7.0	3.5	3.0	3.0
4	15.5	15.5	15.5	12.0	11.5	11.5	6.5	6.5	6.5	3.0	3.0	3.0
5	16.5	15.0	15.5	11.5	11.5	11.5	6.5	6.0	6.5	3.0	3.0	3.0
6	16.5	14.5	15.5	11.5	11.0	11.5	6.5	6.0	6.0	3.0	3.0	3.0
7	16.5	15.0	15.5	11.0	11.0	11.0	6.0	5.5	6.0	3.0	2.5	3.0
8	16.0	14.5	15.0	11.5	10.5	11.0	6.0	5.5	5.5	3.5	3.0	3.0
9	16.0	14.5	15.0	11.0	10.5	11.0	5.5	5.0	5.5	3.0	3.0	3.0
10	15.0	15.0	15.0	11.0	10.5	11.0	5.5	5.0	5.0	3.0	3.0	3.0
11	15.0	15.0	15.0	11.0	10.5	11.0	5.0	5.0	5.0	3.0	2.5	2.5
12	15.5	15.0	15.0	11.0	10.5	11.0	5.0	5.0	5.0	3.0	2.5	2.5
13	15.0	9.5	12.5	11.0	10.5	11.0	5.0	5.0	5.0	3.0	2.5	2.5
14	10.0	9.5	10.0	11.0	10.5	10.5	5.0	5.0	5.0	2.5	2.5	2.5
15	10.5	10.0	10.0	11.0	10.5	10.5	5.0	5.0	5.0	2.5	2.5	2.5
16	11.0	10.5	10.5	10.5	10.0	10.5	5.0	4.5	5.0	2.5	2.0	2.5
17	11.5	11.0	11.0	10.5	10.0	10.0	4.5	4.5	4.5	2.5	1.5	2.0
18	11.5	11.5	11.5	10.0	10.0	10.0	4.5	4.5	4.5	2.0	1.5	2.0
19	12.0	11.5	12.0	10.0	10.0	10.0	4.5	4.5	4.5	2.0	2.0	2.0
20	12.5	12.0	12.0	10.0	9.5	9.5	4.5	4.5	4.5	2.5	2.0	2.0
21	15.0	12.0	13.5	9.5	9.5	9.5	4.5	4.0	4.5	2.5	2.0	2.0
22	14.5	14.0	14.0	9.5	9.0	9.5	4.5	4.0	4.0	2.0	2.0	2.0
23	14.5	14.0	14.0	9.0	8.5	9.0	4.0	4.0	4.0	2.5	2.0	2.0
24	14.0	13.5	13.5	9.0	9.0	9.0	4.0	4.0	4.0	2.5	2.0	2.0
25	14.0	13.5	13.5	9.0	8.5	9.0	4.0	3.5	4.0	2.5	2.0	2.5
26	14.0	13.5	13.5	9.0	8.5	8.5	3.5	3.5	3.5	2.5	2.0	2.5
27	14.0	13.0	13.5	8.5	8.0	8.5	3.5	3.5	3.5	2.5	2.0	2.0
28	13.5	13.0	13.5	8.5	8.0	8.0	3.5	3.5	3.5	2.5	2.0	2.5
29	13.5	13.0	13.0	8.0	8.0	8.0	3.5	3.5	3.5	2.5	2.5	2.5
30	13.0	13.0	13.0	8.0	7.5	8.0	3.5	3.5	3.5	2.5	2.0	2.5
31	13.0	12.5	12.5	---	---	---	3.5	3.5	3.5	2.5	2.5	2.5
MONTH	16.5	9.5	13.6	12.5	7.5	10.2	7.5	3.5	4.9	3.5	1.5	2.5





**LEHIGH RIVER BASIN**

**01450500 AQUASHICOLA CREEK AT PALMERTON, PA**

**LOCATION.**--Lat 40°48'22", long 75°35'54", Carbon County, Hydrologic Unit 02040106, on right bank 1,200 ft upstream from bridge on Sixth Street in Palmerton, and 1.2 mi upstream from mouth.

**DRAINAGE AREA.**--76.7 mi<sup>2</sup>.

**PERIOD OF RECORD.**--October 1939 to current year.

**REVISED RECORDS.**--WSP 1051: 1940-45 (monthly net diversion), Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 389.08 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Occasional diversion from Pohopoco Creek into Aquashicola Creek upstream of station. Several measurements of water temperature were made during the year. Satellite telemetry at station.

**COOPERATION.**--Records of diversion provided by Palmer Water Company.

**PEAK DISCHARGES FOR CURRENT YEAR.**--Peak discharges greater than base discharge of 1,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Oct. 12	0515	1,620	4.18	June 21	0530	2,630	5.40
Mar. 21	1045	1,230	3.56	Aug. 17	0145	1,400	3.85
June 13	0500	1,480	3.98	Sept. 23	1515	*4,890	*7.35

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	44	148	133	224	78	104	368	104	754	191	70	100
2	41	138	119	520	77	147	337	102	654	177	74	114
3	37	129	108	489	76	209	295	97	456	163	74	133
4	38	123	96	398	107	145	263	92	497	150	93	131
5	48	116	98	320	110	142	256	90	482	137	330	105
6	40	149	96	280	e80	e200	226	90	406	126	452	93
7	36	125	87	244	e74	e150	210	89	460	120	277	87
8	34	111	87	226	e66	138	203	103	612	117	217	82
9	32	109	78	225	e62	190	211	96	510	108	194	77
10	37	107	73	215	e64	210	219	88	398	108	293	73
11	462	111	118	192	e58	157	256	87	330	107	283	70
12	1150	121	333	174	e54	145	304	115	401	98	340	67
13	484	147	329	164	e52	175	295	92	1140	88	272	81
14	282	136	486	153	e58	189	262	84	664	83	225	90
15	205	135	563	144	e48	197	239	82	464	79	193	391
16	449	161	456	134	e40	283	224	78	357	73	320	735
17	750	429	335	132	e36	400	207	83	296	70	809	459
18	440	570	269	e110	e50	495	193	78	298	72	366	329
19	304	476	243	e100	68	466	181	74	261	85	258	440
20	238	367	324	e95	64	459	167	73	451	68	213	385
21	193	298	339	e90	e62	1090	158	81	1930	108	183	314
22	162	275	310	e86	114	792	158	74	1060	306	165	277
23	140	250	281	e86	356	591	146	73	819	169	147	2620
24	123	212	251	87	275	479	134	83	583	137	130	1400
25	114	194	256	93	183	396	126	83	445	108	118	715
26	226	176	239	87	e140	350	146	216	357	97	113	542
27	200	174	206	e76	124	323	138	244	297	90	106	458
28	185	153	189	e76	113	275	119	256	257	95	98	498
29	172	148	182	79	---	308	115	253	230	82	92	486
30	175	145	165	e62	---	406	108	218	208	74	110	396
31	169	---	168	73	---	401	---	240	---	68	95	---
TOTAL	7010	5933	7017	5434	2689	10012	6264	3618	16077	3554	6710	11748
MEAN	226	198	226	175	96.0	323	209	117	536	115	216	392
MAX	1150	570	563	520	356	1090	368	256	1930	306	809	2620
MIN	32	107	73	62	36	104	108	73	208	68	70	67
(†)	-3.3	-2.2	-1.6	-2.0	-0.9	-2.9	-2.6	-1.4	-6.1	-1.9	-3.7	-4.1

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2003, BY WATER YEAR (WY)

MEAN	96.8	143	181	167	171	246	235	177	121	98.6	85.6	91.0
MAX	331	379	583	558	325	534	625	480	536	638	468	417
(WY)	1956	1973	1997	1996	1971	1977	1983	1989	2003	1945	1942	1987
MIN	17.2	21.6	30.2	19.4	38.4	86.5	74.7	55.9	38.8	19.8	13.7	15.2
(WY)	1964	1965	1999	1981	1940	1985	1985	1941	1955	1955	1964	1964

† Figures of net diversion, equivalent in cubic feet per second. Includes water diverted from Pohopoco Creek to Aquashicola Creek.  
e Estimated.

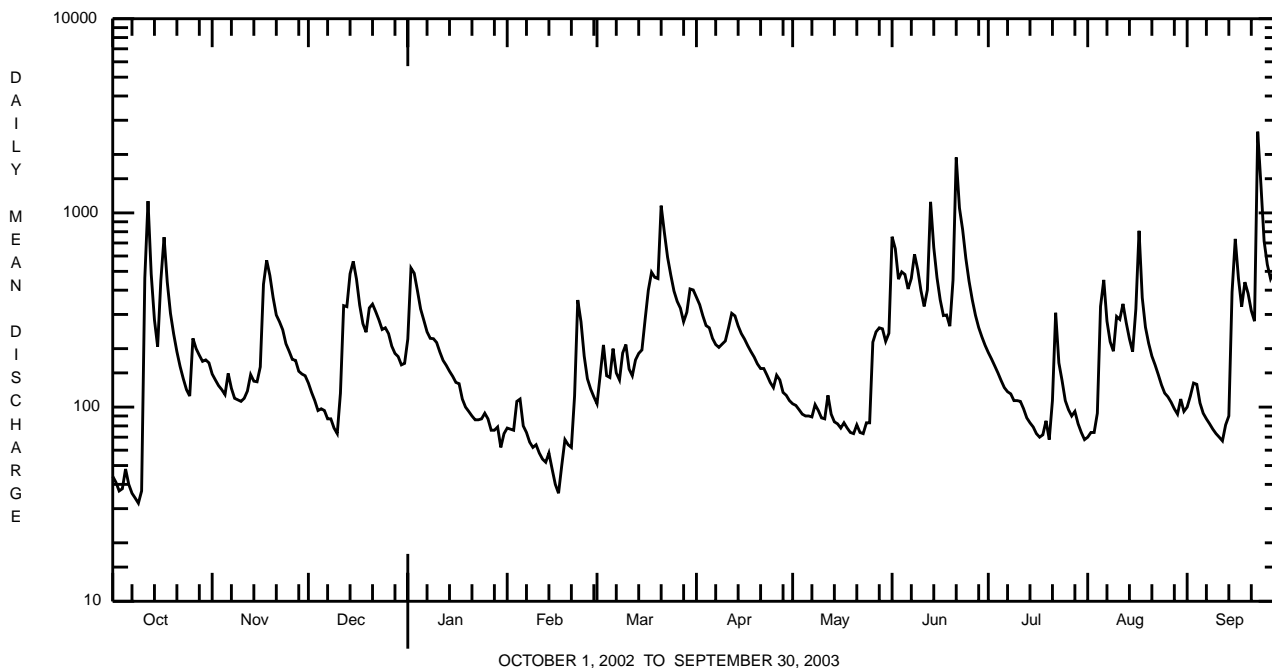
LEHIGH RIVER BASIN

01450500 AQUASHICOLA CREEK AT PALMERTON, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1940 - 2003	
ANNUAL TOTAL	47623		86066		151	
ANNUAL MEAN	130		236		242	
HIGHEST ANNUAL MEAN					69.2	1952
LOWEST ANNUAL MEAN					9.1	1965
HIGHEST DAILY MEAN	1150	Oct 12	2620	Sep 23	4680	Jul 10 1945
LOWEST DAILY MEAN	20	Aug 15 <sup>a</sup>	32	Oct 9	9.1	Sep 15 1964
ANNUAL SEVEN-DAY MINIMUM	21	Sep 8	38	Oct 3	10	Sep 10 1964
MAXIMUM PEAK FLOW			<sup>b</sup> 4890	Sep 23	<sup>b</sup> 11700	Jul 10 1945
MAXIMUM PEAK STAGE			7.35	Sep 23	13.63	Jul 10 1945
INSTANTANEOUS LOW FLOW					2.6	Sep 12 1957
10 PERCENT EXCEEDS	283		463		303	
50 PERCENT EXCEEDS	87		162		99	
90 PERCENT EXCEEDS	25		73		34	

<sup>a</sup> Also Aug. 20, 22, Sept. 12-14.

<sup>b</sup> From rating curve extended above 2,300 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow.



## LEHIGH RIVER BASIN

## 01451000 LEHIGH RIVER AT WALNUTPORT, PA

LOCATION.--Lat 40°45'25", long 75°36'12", Northampton County, Hydrologic Unit 02040106, on left bank 0.3 mi upstream from bridge on SR 4022 at Walnutport, and 0.4 mi upstream from Trout Creek.

DRAINAGE AREA.--889 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1946 to current year.

GAGE.--Water-stage recorder. Datum of gage is 350.27 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Wild Creek Reservoir (station 01449700) since January 1941, Penn Forest Reservoir (station 01449400) since October 1958, Francis E. Walter Reservoir (station 01447780) since February 1961, and Beltzville Lake (station 01449790) since February 1971. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 20.6 ft, May 23, 1942, from floodmarks, discharge not determined.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	656	2080	2420	3090	1390	1790	5590	1670	9450	2220	929	1050
2	641	1830	2300	5410	e1400	1950	5130	1620	8250	2050	1030	1430
3	613	1720	2180	5600	1180	2240	5000	1510	9710	1970	1070	2680
4	544	1660	e1600	4470	1480	1960	4630	1340	9800	1860	2440	2720
5	927	1510	1760	4060	1750	1930	4160	1300	8130	1790	4290	2160
6	651	1760	1740	3890	e1800	2160	3910	1320	6120	1470	5790	1780
7	494	1670	1580	3830	1720	1950	3570	1300	4860	e1500	6170	1420
8	475	1610	e1600	3270	e1600	1830	3060	1350	5070	e1600	4280	1210
9	451	1760	e1500	2780	e1500	1940	3050	1340	4750	1430	3340	940
10	459	1780	e1500	2620	e1400	2020	3100	1470	6100	1370	3310	879
11	1980	1800	e1700	2540	e1200	1850	3430	1420	5190	1380	3690	840
12	4510	1940	4210	2370	e1200	1830	3990	1590	4970	1510	5030	819
13	2620	2510	4560	2280	e1100	1990	3770	1470	7310	1450	5000	857
14	2520	2550	5790	e2000	e1100	2250	3530	1380	5780	1150	3690	950
15	2740	2460	5970	1850	e1200	2150	3240	1320	5060	997	2550	2780
16	4390	2560	5330	e1700	e1100	2610	2840	1270	5040	936	2530	6790
17	7500	4130	4780	e1600	e900	4070	2690	1240	4650	871	3290	7410
18	6030	4800	4080	e1600	e1300	6930	2600	1260	4410	887	3130	4320
19	3590	5710	3350	e1600	e1400	8540	2460	1120	3980	1040	2250	3530
20	3440	6560	3650	e1600	e1400	8170	2350	1020	4380	851	1860	3550
21	3060	3740	4460	e1600	e1400	11500	2240	1090	13700	1050	1690	3650
22	2630	3640	4110	e1500	1570	11600	2120	1090	9030	3200	1560	3640
23	1990	3680	4270	e1500	2760	9810	2030	1040	9620	2340	1420	12300
24	1650	3330	4740	e1400	2900	8840	1900	1190	11400	3060	1320	10600
25	1550	3090	4300	e1400	2610	8280	1680	1280	10400	2330	1240	10500
26	2340	2840	4020	e1400	2280	7330	1840	2000	9680	1690	1080	8800
27	2110	2800	3020	e1300	1800	6850	1960	2310	8530	1550	1040	6190
28	1980	2660	2720	e1100	1800	5770	1780	2810	4590	1200	958	6500
29	2240	2560	2660	e1300	---	5450	1790	2790	3640	1180	918	6240
30	2290	2500	2570	e1400	---	6190	1770	2330	3060	1110	1070	5050
31	2290	---	2560	e1400	---	5860	---	2300	---	990	998	---
TOTAL	69361	83240	101030	73460	44240	147640	91210	47540	206660	48032	78963	121585
MEAN	2237	2775	3259	2370	1580	4763	3040	1534	6889	1549	2547	4053
MAX	7500	6560	5970	5600	2900	11600	5590	2810	13700	3200	6170	12300
MIN	451	1510	1500	1100	900	1790	1680	1020	3060	851	918	819
CFSM	2.52	3.12	3.67	2.67	1.78	5.36	3.42	1.73	7.75	1.74	2.87	4.56
IN.	2.90	3.48	4.23	3.07	1.85	6.18	3.82	1.99	8.65	2.01	3.30	5.09

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 2003, BY WATER YEAR (WY)

MEAN	1158	1788	2271	2019	2088	2987	3174	2337	1582	1074	890	971
MAX	4857	3990	6352	6136	4464	6302	8455	6389	6889	4465	5264	5812
(WY)	1956	1973	1997	1979	1951	1977	1993	1989	2003	1947	1955	1987
MIN	194	251	370	223	790	1335	1156	908	477	241	226	179
(WY)	1964	1965	1981	1981	1980	1981	1985	1995	1999	1965	1964	1964

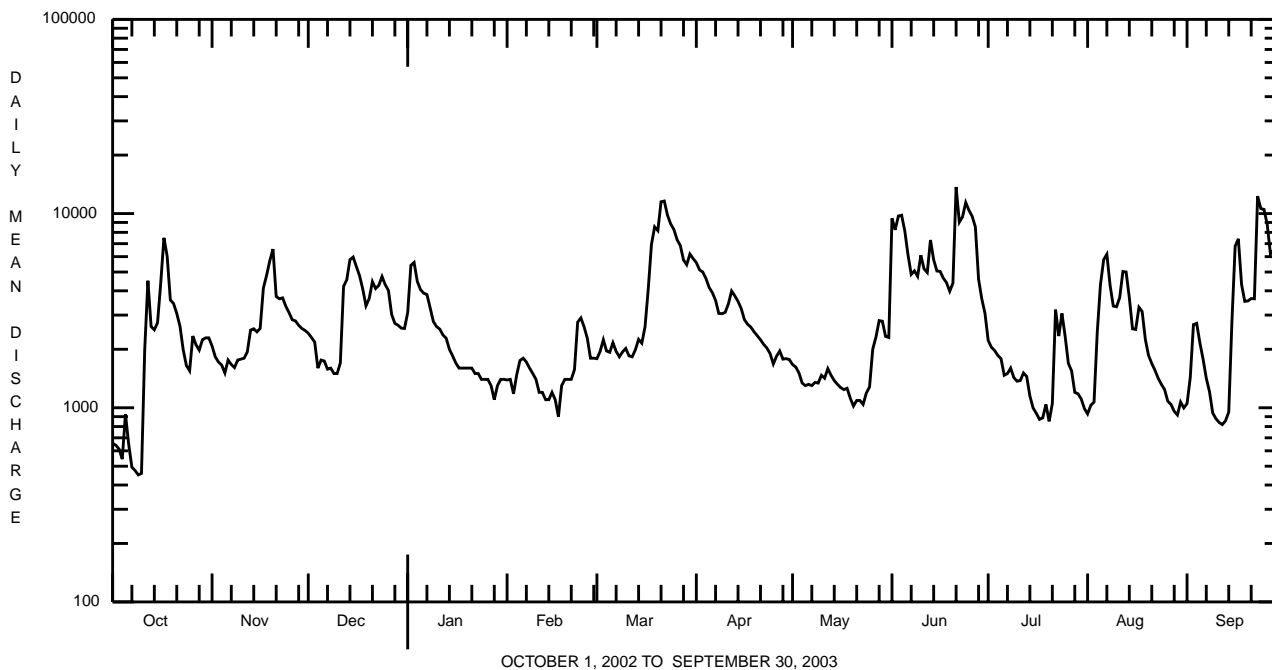
e Estimated.

LEHIGH RIVER BASIN

01451000 LEHIGH RIVER AT WALNUTPORT, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR			FOR 2003 WATER YEAR		WATER YEARS 1947 - 2003	
ANNUAL TOTAL	628889			1112961			
ANNUAL MEAN	1723			3049		1860	
HIGHEST ANNUAL MEAN						3049	
LOWEST ANNUAL MEAN						859	
HIGHEST DAILY MEAN	7500	Oct 17		13700	Jun 21	62400	Aug 19 1955
LOWEST DAILY MEAN	301	Aug 22		451	Oct 9	134	Sep 18 1964
ANNUAL SEVEN-DAY MINIMUM	338	Aug 22		572	Oct 4	143	Sep 16 1964
MAXIMUM PEAK FLOW				19800	Sep 23	77800	Aug 19 1955
MAXIMUM PEAK STAGE				8.40	Sep 23	17.68	Aug 19 1955
INSTANTANEOUS LOW FLOW						a57	Jul 27 1965
ANNUAL RUNOFF (CFSM)	1.94			3.43		2.09	
ANNUAL RUNOFF (INCHES)	26.32			46.57		28.42	
10 PERCENT EXCEEDS	4020			6140		3860	
50 PERCENT EXCEEDS	1320			2240		1290	
90 PERCENT EXCEEDS	481			1080		413	

a Result of upstream shutoff.



LEHIGH RIVER BASIN

01451500 LITTLE LEHIGH CREEK NEAR ALLENTOWN, PA

LOCATION.--Lat 40°34'56", long 75°29'00", Lehigh County, Hydrologic Unit 02040106, on right bank at downstream side of bridge on Lehigh Parkway in Allentown, 0.8 mi upstream from Cedar Creek, and 2.9 mi upstream from mouth.

DRAINAGE AREA.--80.8 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1945 to current year. Prior to October 1946, published as "at Allentown".

REVISED RECORDS.--WDR PA 73-1: 1946(M), 1951(P), 1955(M), 1956(M), 1958(M), 1962(M), 1963(M), 1965(M), 1969(M), 1971(M).  
WDR PA-87-1: 1946 to 1986(P).

GAGE.--Water-stage recorder, crest-stage gage, and masonry control. Datum of gage is 253.41 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Occasional regulation at low flow by fish hatchery upstream. Several measurements of water temperature were made during the year. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 900 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
June 21	0100	*3,910	*6.85	Sept. 23	1130	1,010	4.03
July 22	2115	1,050	4.10	Sept. 24	0115	1,340	4.30
Sept. 15	1730	1,050	4.08				

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	35	69	70	176	91	100	154	111	141	137	112	102
2	34	62	69	240	91	138	152	110	111	132	111	181
3	34	59	66	174	91	217	143	107	99	130	108	129
4	38	57	64	160	103	132	137	105	252	126	126	116
5	36	56	67	144	103	142	141	102	191	122	116	104
6	34	71	67	136	88	248	134	103	135	119	226	96
7	33	63	64	129	90	169	131	103	184	122	168	92
8	32	57	64	126	86	134	136	112	216	127	130	91
9	32	55	63	134	83	179	153	103	150	124	119	88
10	33	54	61	140	86	229	172	102	131	129	164	86
11	155	55	115	125	83	142	203	100	119	123	159	86
12	210	67	224	115	81	132	212	98	141	116	261	84
13	87	83	149	113	78	193	165	94	190	111	177	110
14	62	65	246	109	77	250	149	91	157	107	155	113
15	55	60	203	108	77	180	143	91	126	105	133	460
16	131	72	149	103	75	187	140	90	114	105	124	407
17	159	210	121	106	e78	212	134	101	108	101	125	190
18	80	196	106	99	82	205	134	92	127	107	117	139
19	66	115	102	99	79	173	131	89	124	123	112	236
20	61	92	186	100	78	209	126	86	554	98	108	177
21	57	85	177	97	79	437	124	92	1790	129	107	137
22	55	92	125	95	183	265	128	87	416	417	105	126
23	53	89	115	94	358	202	123	85	286	595	103	534
24	52	80	108	89	271	176	118	91	221	275	99	671
25	52	76	137	89	174	162	117	90	192	166	97	279
26	99	74	139	89	130	163	134	192	174	139	97	263
27	73	76	119	90	112	175	128	134	161	130	97	216
28	60	74	112	87	104	151	116	102	151	161	96	323
29	58	71	109	90	---	158	114	96	145	130	94	308
30	71	71	106	90	---	195	112	90	141	119	94	203
31	81	---	108	90	---	177	---	93	---	113	93	---
TOTAL	2118	2406	3611	3636	3111	5832	4204	3142	7047	4738	3933	6147
MEAN	68.3	80.2	116	117	111	188	140	101	235	153	127	205
MAX	210	210	246	240	358	437	212	192	1790	595	261	671
MIN	32	54	61	87	75	100	112	85	99	98	93	84
CFSM	0.85	0.99	1.44	1.45	1.38	2.33	1.73	1.25	2.91	1.89	1.57	2.54
IN.	0.98	1.11	1.66	1.67	1.43	2.69	1.94	1.45	3.24	2.18	1.81	2.83

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2003, BY WATER YEAR (WY)

MEAN	67.9	75.7	97.3	107	118	136	142	120	103	86.6	76.9	73.4
MAX	195	177	371	385	325	355	331	315	381	366	192	213
(WY)	1997	1976	1997	1979	1979	1994	1983	1984	1972	1984	1971	1987
MIN	27.3	28.1	25.7	26.6	37.7	43.1	37.1	35.8	29.2	26.5	26.5	28.9
(WY)	1964	1966	1966	1966	2002	1965	1966	1965	1965	1965	1965	1965

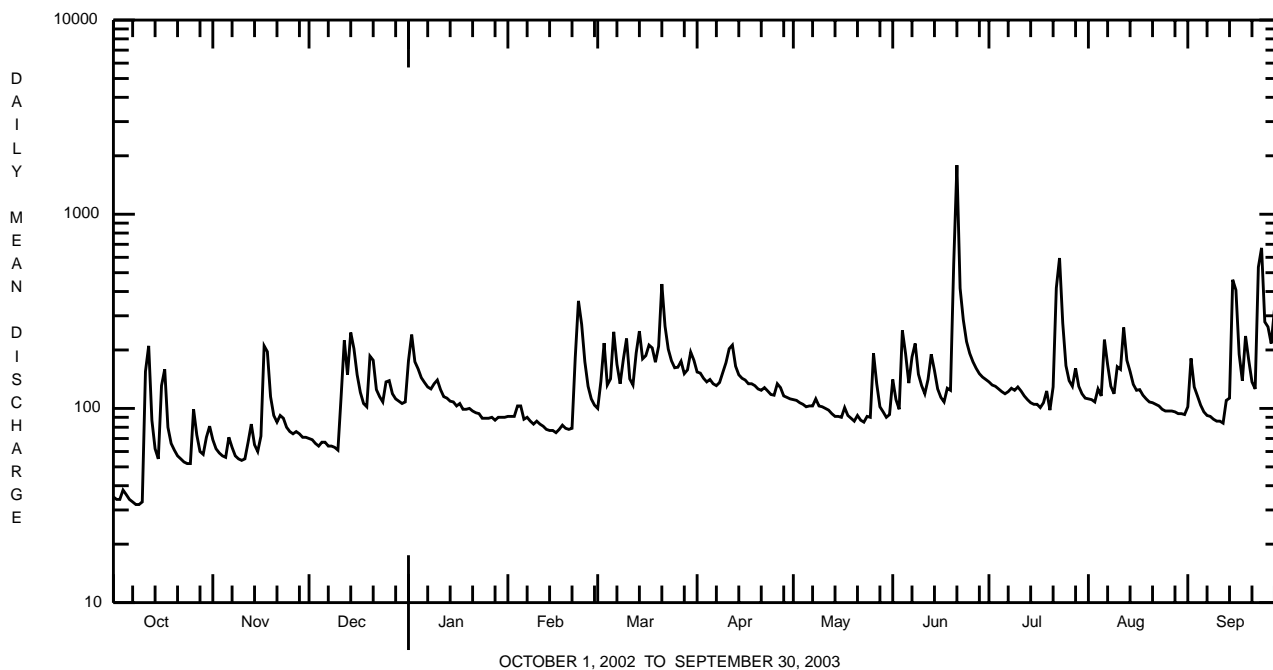
e Estimated.

LEHIGH RIVER BASIN

01451500 LITTLE LEHIGH CREEK NEAR ALLENTOWN, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1946 - 2003	
ANNUAL TOTAL	23134		49925			
ANNUAL MEAN	63.4		137		100	
HIGHEST ANNUAL MEAN					203	1984
LOWEST ANNUAL MEAN					33.8	1966
HIGHEST DAILY MEAN	365	May 13	1790	Jun 21	4050	Jul 7 1984
LOWEST DAILY MEAN	29	Sep 24,25	32	Oct 8,9	23	Dec 20 1965
ANNUAL SEVEN-DAY MINIMUM	31	Sep 20	34	Oct 4	23	Dec 18 1965
MAXIMUM PEAK FLOW			a3910	Jun 21	a11800	Jun 22 1972
MAXIMUM PEAK STAGE			6.85	Jun 21	11.80	Jun 22 1972
INSTANTANEOUS LOW FLOW			32	Oct 7-10	17	Feb 4 1965
ANNUAL RUNOFF (CFSM)	0.78		1.69		1.24	
ANNUAL RUNOFF (INCHES)	10.65		22.99		16.84	
10 PERCENT EXCEEDS	110		210		170	
50 PERCENT EXCEEDS	50		114		79	
90 PERCENT EXCEEDS	34		66		40	

a From rating curve extended above 820 ft<sup>3</sup>/s on basis of slope-area measurements at 8.34 ft and at peak flow.



## LEHIGH RIVER BASIN

## 01451650 LITTLE LEHIGH CREEK AT TENTH STREET BRIDGE AT ALLENTOWN, PA

**LOCATION.**--Lat 40°35'47", long 75°28'28", Lehigh County, Hydrologic Unit 02040106, on left bank at bridge on Tenth Street, and 0.9 mi upstream from confluence with Jordan Creek in Allentown, Pa.

**DRAINAGE AREA.**--98.2 mi<sup>2</sup>.

**PERIOD OF RECORD.**--October 1986 to current year.

**REVISED RECORDS.**--WRD PA-98-1: 1997(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.

**REMARKS.**--Records fair. Diversion upstream for municipal water supply by city of Allentown. Several measurements of water temperature were made during the year. Satellite telemetry at station.

**COOPERATION.**--Records of diversion provided by city of Allentown.

**PEAK DISCHARGES FOR CURRENT YEAR.**--Peak discharges greater than base discharge of 900 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
June 21	0400	*3,340	*6.66	Sept. 15	1630	1,290	4.60
July 22	0200	1,460	4.81	Sept. 23	1100	1,370	4.70
July 23	0030	1,360	4.69	Sept. 24	0115	1,050	4.29

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	95	85	244	112	118	203	130	219	174	146	138
2	44	75	83	309	112	192	190	130	153	178	153	262
3	46	74	80	226	108	285	185	136	128	178	156	163
4	52	72	77	205	129	169	184	134	396	174	182	138
5	62	71	80	176	134	180	195	126	259	158	150	138
6	49	102	87	167	114	323	170	126	173	148	283	127
7	40	88	87	167	106	222	168	127	267	152	209	115
8	47	71	78	167	112	162	184	146	298	162	162	121
9	42	66	73	178	114	226	211	138	208	163	151	118
10	54	66	72	180	111	290	224	129	170	152	219	108
11	329	65	177	157	107	183	260	113	157	147	233	109
12	301	95	304	145	105	159	275	115	223	147	338	107
13	114	109	188	140	101	250	221	124	299	142	219	162
14	73	89	328	136	100	321	197	123	225	130	185	156
15	67	71	255	135	102	228	176	109	171	135	169	756
16	220	106	186	126	99	223	178	103	151	137	163	626
17	219	301	143	139	93	262	176	136	141	130	164	254
18	110	272	127	125	109	261	180	122	189	129	150	176
19	78	152	123	123	105	223	169	108	174	142	133	378
20	77	112	257	124	104	276	161	105	e680	128	133	251
21	76	106	223	122	103	593	159	117	e2170	223	141	190
22	79	126	161	118	288	341	166	109	606	726	139	166
23	74	121	137	116	512	253	166	109	394	817	134	770
24	63	99	123	115	352	223	160	127	298	369	120	685
25	64	92	183	115	224	210	146	124	258	206	117	325
26	158	92	181	115	161	217	174	304	235	173	118	309
27	101	107	153	113	133	233	163	182	222	162	130	261
28	72	103	143	110	122	201	151	125	213	223	126	484
29	75	98	130	113	---	201	153	118	195	176	114	375
30	96	88	123	112	---	257	139	114	182	155	115	259
31	116	---	130	112	---	235	---	131	---	150	117	---
TOTAL	3036	3184	4577	4630	4072	7517	5484	4040	9454	6386	5069	8227
MEAN	97.9	106	148	149	145	242	183	130	315	206	164	274
MAX	329	301	328	309	512	593	275	304	2170	817	338	770
MIN	38	65	72	110	93	118	139	103	128	128	114	107
(†)	8.8	6.8	6.8	6.0	7.5	6.3	6.1	7.7	6.8	7.4	6.8	5.4

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 2003, BY WATER YEAR (WY)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MEAN	85.8	96.7	125	129	125	174	169	145	129	108	90.0	111					
MAX	210	192	435	292	219	415	355	236	315	206	164	368					
(WY)	1997	1997	1997	1996	1996	1994	1994	1989	2003	2003	2003	1987					
MIN	48.5	57.0	52.0	49.5	45.6	62.9	64.4	66.7	64.8	41.0	41.5	46.7					
(WY)	1993	2002	1999	2002	2002	2002	1992	1992	1999	1999	1999	1995					

† Diversion for municipal supply of city of Allentown, equivalent in cubic feet per second.

e Estimated.

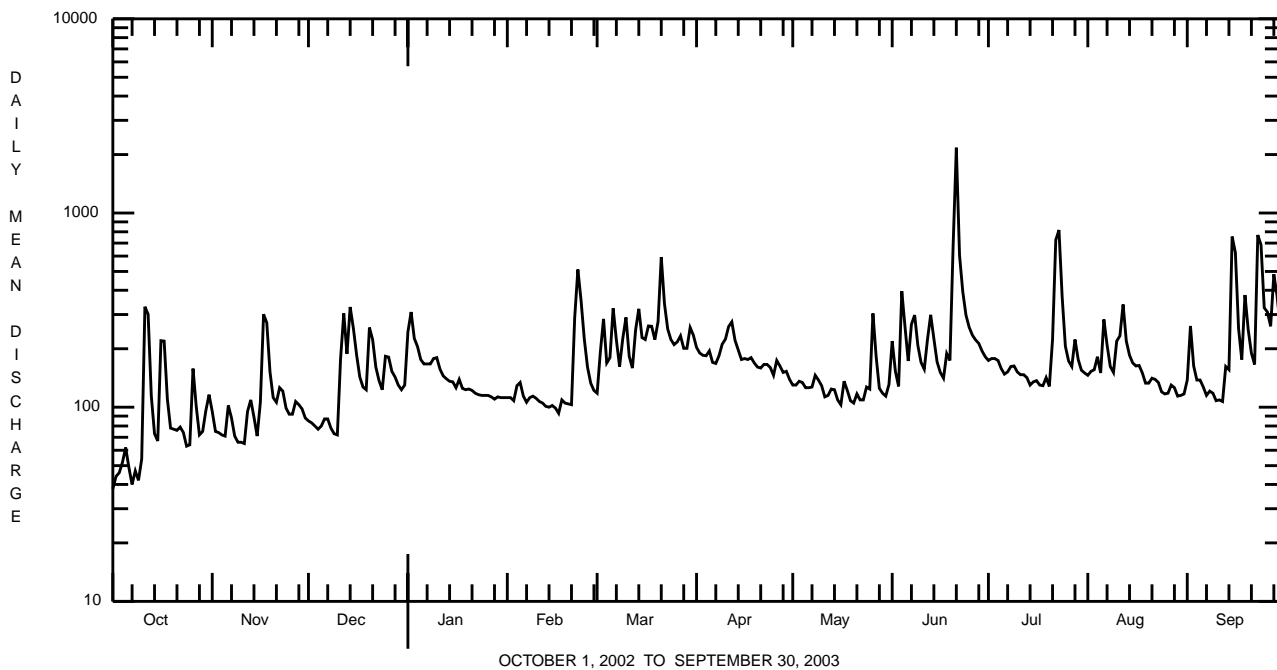


LEHIGH RIVER BASIN

01451650 LITTLE LEHIGH CREEK AT TENTH STREET BRIDGE AT ALLENTOWN, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1987 - 2003	
ANNUAL TOTAL	30929		65676		124	
ANNUAL MEAN	84.7		180		192	
HIGHEST ANNUAL MEAN					1994	
LOWEST ANNUAL MEAN					64.6	
HIGHEST DAILY MEAN	467	May 14	e2170	Jun 21	5200	Sep 9 1987
LOWEST DAILY MEAN	31	Sep 14	38	Oct 1	23	Aug 1 1999
ANNUAL SEVEN-DAY MINIMUM	38	Sep 19	47	Oct 1	30	Aug 1 1999
MAXIMUM PEAK FLOW			a3340	Jun 21	a7370	Sep 9 1987
MAXIMUM PEAK STAGE			6.66	Jun 21	9.47	Sep 9 1987
10 PERCENT EXCEEDS	152		286		208	
50 PERCENT EXCEEDS	65		147		97	
90 PERCENT EXCEEDS	43		82		53	

a From rating curve extended above 1,870 ft<sup>3</sup>/s on the basis of slope-area measurement at gage height 8.06 ft.  
 e Estimated.



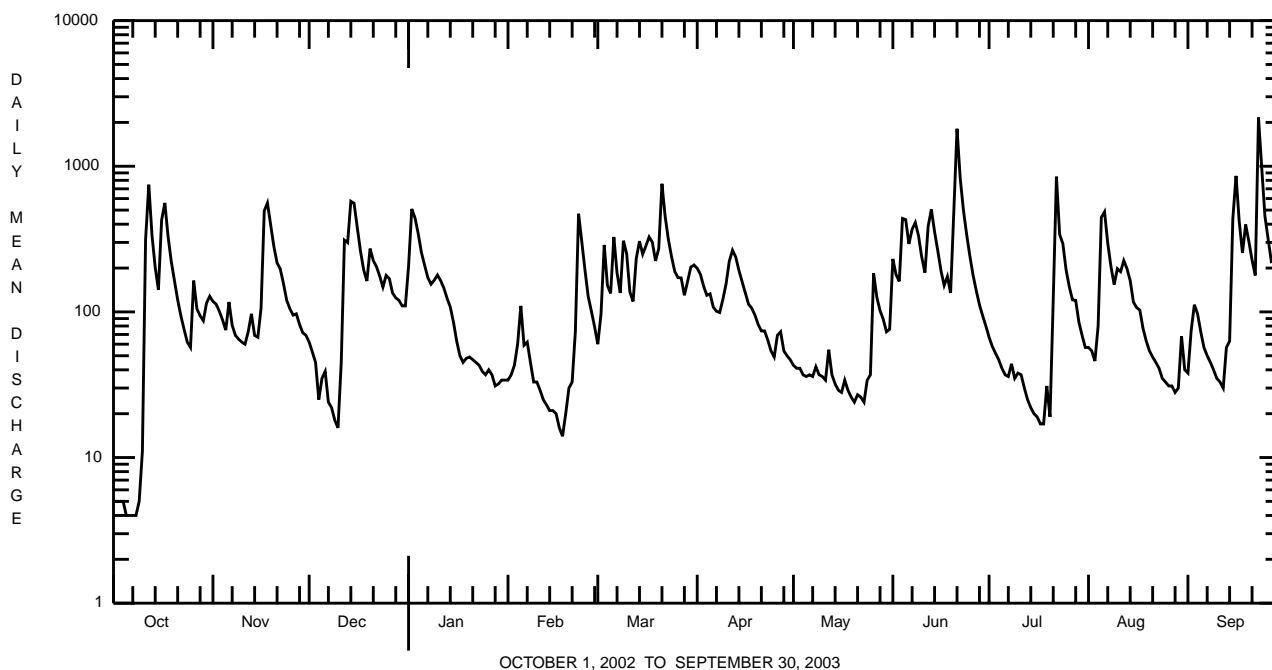


LEHIGH RIVER BASIN

01451800 JORDAN CREEK NEAR SCHNECKSVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1966 - 2003	
ANNUAL TOTAL	29883.9		58183.0			
ANNUAL MEAN	81.9		159		93.0	
HIGHEST ANNUAL MEAN					159	2003
LOWEST ANNUAL MEAN					43.9	1985
HIGHEST DAILY MEAN	747	Oct 12	2160	Sep 23	2800	Sep 9 1987
LOWEST DAILY MEAN	1.5	Aug 19	e4.0	Oct 5-8	0.54	Aug 7 1999
ANNUAL SEVEN-DAY MINIMUM	1.8	Aug 13	a4.4	Oct 2	0.63	Aug 2 1999
MAXIMUM PEAK FLOW			b4000	Sep 23	b7100	Jun 22 1972
MAXIMUM PEAK STAGE			9.29	Sep 23	c12.32	Jun 22 1972
INSTANTANEOUS LOW FLOW			e4.0	Oct 5-8	0.48	Aug 6 1999
ANNUAL RUNOFF (CFSM)	1.54		3.01		1.76	
ANNUAL RUNOFF (INCHES)	20.98		40.84		23.85	
10 PERCENT EXCEEDS	200		343		208	
50 PERCENT EXCEEDS	49		101		48	
90 PERCENT EXCEEDS	4.1		28		11	

- a Computed using estimated daily discharges.
- b From rating curve extended above 1,300 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow.
- c From floodmark.
- e Estimated.



LEHIGH RIVER BASIN

01452000 JORDAN CREEK AT ALLENTOWN, PA

LOCATION.--Lat 40°37'23", long 75°28'58", Lehigh County, Hydrologic Unit 02040106, on right bank 200 ft upstream from bridge on State Highway 145, 0.5 mi northwest of city limits of Allentown, and 2.5 mi upstream from mouth.

DRAINAGE AREA.--75.8 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1944 to current year.

REVISED RECORDS.--WDR PA-76-1: 1970(M), 1971.

GAGE.--Water-stage recorder, crest-stage gage and rubble masonry control. Crest raised 1 ft in August 1958 and further modified filling in square notches on sides and notching center of dam at 17:1 slope in August 1974. Datum of gage is 259.82 ft above National Geodetic Vertical Datum of 1929 (Pennsylvania Department of Transportation datum).

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 23, 1942, reached a stage of approximately 7.1 ft, from floodmarks 650 ft downstream.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Oct. 12	0730	1,310	4.99	July 22	0745	1,850	5.40
Mar. 21	0700	1,360	5.03	Sept. 23	1945	*5,350	*7.00
June 21	0745	3,980	6.45				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.2	140	87	178	41	87	254	59	228	105	80	45
2	7.1	138	76	639	45	134	236	58	210	92	79	90
3	6.7	123	68	639	49	464	197	55	187	84	71	115
4	7.1	106	e40	484	64	194	173	49	480	75	82	121
5	6.2	94	e55	334	124	170	171	48	565	66	303	92
6	5.7	130	e60	265	69	442	147	51	384	60	637	72
7	6.1	102	e42	218	66	263	130	50	388	58	350	60
8	6.7	83	e47	190	52	175	131	54	566	66	248	55
9	6.9	76	e41	192	42	315	143	52	441	59	186	49
10	11	73	e35	211	51	452	192	44	318	60	234	43
11	210	71	e65	206	43	197	254	39	236	60	203	40
12	949	78	e370	185	38	152	336	54	486	50	308	38
13	424	119	e350	171	33	211	306	50	623	42	214	48
14	239	86	697	150	31	480	248	40	485	38	232	89
15	165	81	808	136	33	299	208	35	362	35	158	374
16	351	102	539	94	26	357	181	33	261	32	133	1000
17	737	553	349	e80	19	430	154	35	204	31	140	528
18	411	743	251	e60	19	424	136	32	218	30	107	313
19	259	529	205	e65	31	312	129	30	184	41	90	456
20	192	356	303	e70	36	286	108	28	373	33	78	373
21	146	259	285	e60	38	1010	99	29	2750	61	69	286
22	113	233	242	e56	73	629	103	30	1110	1020	62	221
23	93	198	214	e52	e620	417	94	28	663	471	57	2420
24	77	157	182	e48	584	315	81	32	447	377	48	1580
25	70	138	203	e46	257	246	72	39	322	253	45	582
26	161	125	215	e48	154	211	87	173	241	194	44	408
27	133	125	170	e44	123	225	105	168	194	164	44	288
28	110	112	155	39	102	173	77	124	162	163	41	323
29	105	98	146	43	---	186	69	105	135	121	36	233
30	128	94	137	42	---	249	65	88	119	99	68	195
31	156	---	128	41	---	273	---	80	---	85	53	---
TOTAL	5299.7	5322	6565	5086	2863	9778	4686	1792	13342	4125	4500	10537
MEAN	171	177	212	164	102	315	156	57.8	445	133	145	351
MAX	949	743	808	639	620	1010	336	173	2750	1020	637	2420
MIN	5.7	71	35	39	19	87	65	28	119	30	36	38
CFSM	2.26	2.34	2.79	2.16	1.35	4.16	2.06	0.76	5.87	1.76	1.92	4.63
IN.	2.60	2.61	3.22	2.50	1.41	4.80	2.30	0.88	6.55	2.02	2.21	5.17

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2003, BY WATER YEAR (WY)

MEAN	67.4	109	148	148	160	212	169	119	84.1	54.0	52.2	66.0
MAX	309	321	520	570	354	791	551	438	517	255	326	449
(WY)	1997	1971	1997	1996	1951	1994	1983	1989	1972	1945	1955	1987
MIN	3.93	8.62	14.0	8.45	34.3	55.0	38.0	22.3	5.89	1.21	1.81	2.83
(WY)	1964	1965	1999	1981	1980	1985	1985	1965	1965	1966	1966	1964

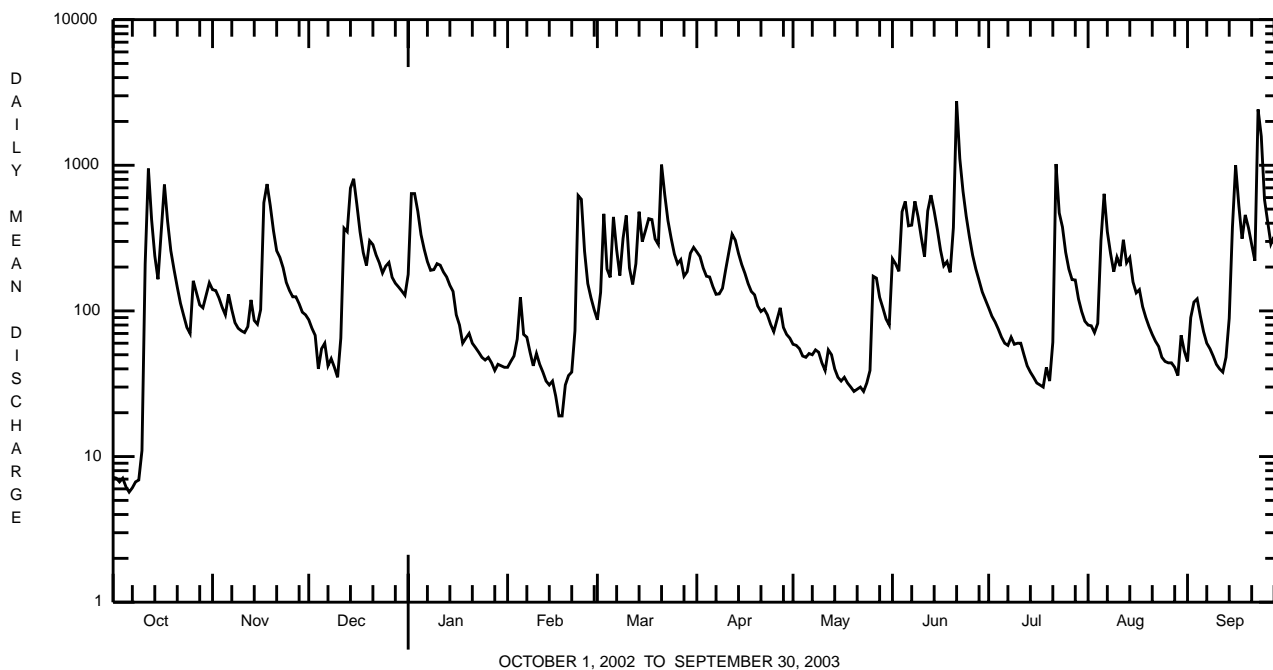
e Estimated.

LEHIGH RIVER BASIN

01452000 JORDAN CREEK AT ALLENTOWN, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1945 - 2003	
ANNUAL TOTAL	35018.7		73895.7		115	
ANNUAL MEAN	95.9		202		203	
HIGHEST ANNUAL MEAN					1984	
LOWEST ANNUAL MEAN					44.9	
HIGHEST DAILY MEAN	949	Oct 12	2750	Jun 21	6650	Sep 9 1987
LOWEST DAILY MEAN	5.7	Oct 6	5.7	Oct 6	0.00	Jul 7 1966
ANNUAL SEVEN-DAY MINIMUM	6.5	Oct 3	6.5	Oct 3	0.06	Jul 9 1966
MAXIMUM PEAK FLOW			5350	Sep 23	a16200	Jun 23 1972
MAXIMUM PEAK STAGE			7.00	Sep 23	b11.61	Jun 23 1972
ANNUAL RUNOFF (CFSM)	1.27		2.67		1.52	
ANNUAL RUNOFF (INCHES)	17.19		36.27		20.70	
10 PERCENT EXCEEDS	231		449		250	
50 PERCENT EXCEEDS	54		125		61	
90 PERCENT EXCEEDS	7.3		38		12	

a From rating curve extended above 6,100 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow.  
 b From floodmark.



LEHIGH RIVER BASIN

01452500 MONOCACY CREEK AT BETHLEHEM, PA

**LOCATION.**--Lat 40°38'28", long 75°22'47", Northampton County, Hydrologic Unit 02040106, on right bank 40 ft downstream from highway bridge at entrance to Monocacy Park at Bethlehem, and 2.1 mi upstream from mouth.

**DRAINAGE AREA.**--44.5 mi<sup>2</sup>.

**PERIOD OF RECORD.**--October 1948 to current year.

**GAGE.**--Water-stage recorder and crest-stage gage. Concrete control since July 17, 1969. Datum of gage is 247.24 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to May 15, 1962, nonrecording gage at site 40 ft upstream at same datum.

**REMARKS.**--No estimated daily discharges. Records fair. Some regulation at low flow since April 1954 by mill upstream. Several measurements of water temperature were made during the year. Satellite telemetry at station.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of July 10, 1945, reached a stage of 9.74 ft, from floodmarks, discharge, about 5,200 ft<sup>3</sup>/s, by slope-area measurement.

**PEAK DISCHARGES FOR CURRENT YEAR.**--Peak discharges greater than base discharge of 300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
June 21	1445	408	3.67	Sept. 15	2045	*735	*4.42
July 21	2330	526	3.94	Sept. 23	0845	548	4.00
Aug. 4	2000	467	3.81	Sept. 28	1500	368	3.56

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	23	26	62	33	45	90	45	105	77	50	51
2	15	22	25	104	33	83	88	44	98	74	51	74
3	15	20	24	103	33	129	81	44	91	70	54	64
4	16	20	22	94	35	68	77	39	159	68	121	59
5	15	19	24	80	34	90	77	40	147	64	149	54
6	15	24	23	73	32	125	71	42	122	58	116	50
7	15	21	22	65	34	80	69	41	152	61	101	48
8	14	20	22	61	32	70	70	44	163	61	92	47
9	14	19	22	59	31	117	73	42	140	58	82	46
10	16	19	21	56	32	107	79	41	114	59	83	45
11	83	19	37	51	31	76	84	40	98	59	86	44
12	98	22	70	49	30	70	85	49	163	56	110	43
13	50	23	56	48	29	84	81	43	142	54	87	50
14	31	20	90	47	29	105	80	41	138	52	81	52
15	24	21	94	46	30	88	77	38	125	52	76	197
16	48	26	84	41	28	92	73	37	110	51	78	177
17	54	69	69	43	27	96	68	38	98	50	79	106
18	41	87	59	38	27	90	66	37	103	49	70	91
19	33	74	53	38	29	80	65	37	101	52	64	145
20	28	62	84	39	29	97	60	36	174	47	61	99
21	25	51	83	37	28	190	59	38	354	86	59	88
22	23	51	74	35	64	144	59	36	278	178	57	83
23	22	47	65	34	203	118	56	36	208	88	55	292
24	20	37	57	34	144	105	53	39	162	70	52	223
25	20	34	61	35	82	92	52	38	135	61	51	166
26	35	31	57	34	62	86	56	90	117	57	51	168
27	24	32	49	33	54	88	53	69	105	57	50	133
28	21	30	47	32	49	77	49	64	93	62	46	244
29	20	28	44	34	---	80	49	61	86	55	45	226
30	22	27	42	32	---	99	46	55	81	49	49	175
31	25	---	42	33	---	93	---	53	---	51	45	---
TOTAL	898	998	1548	1570	1304	2964	2046	1397	4162	1986	2251	3340
MEAN	29.0	33.3	49.9	50.6	46.6	95.6	68.2	45.1	139	64.1	72.6	111
MAX	98	87	94	104	203	190	90	90	354	178	149	292
MIN	14	19	21	32	27	45	46	36	81	47	45	43
CFSM	0.65	0.75	1.12	1.14	1.05	2.15	1.53	1.01	3.12	1.44	1.63	2.50
IN.	0.75	0.83	1.29	1.31	1.09	2.48	1.71	1.17	3.48	1.66	1.88	2.79

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 2003, BY WATER YEAR (WY)

	38.3	44.5	54.1	57.4	63.5	74.5	73.4	58.2	52.2	44.0	40.4	39.8
MEAN	38.3	44.5	54.1	57.4	63.5	74.5	73.4	58.2	52.2	44.0	40.4	39.8
MAX	101	110	191	201	163	216	181	129	142	141	88.2	111
(WY)	1997	1973	1997	1979	1979	1994	1994	1984	1972	1984	1984	2003
MIN	8.90	10.0	6.88	7.14	13.6	19.8	18.6	16.2	15.0	11.6	10.6	9.51
(WY)	1966	1966	1966	1966	2002	2002	1966	1965	1965	1966	1965	1965

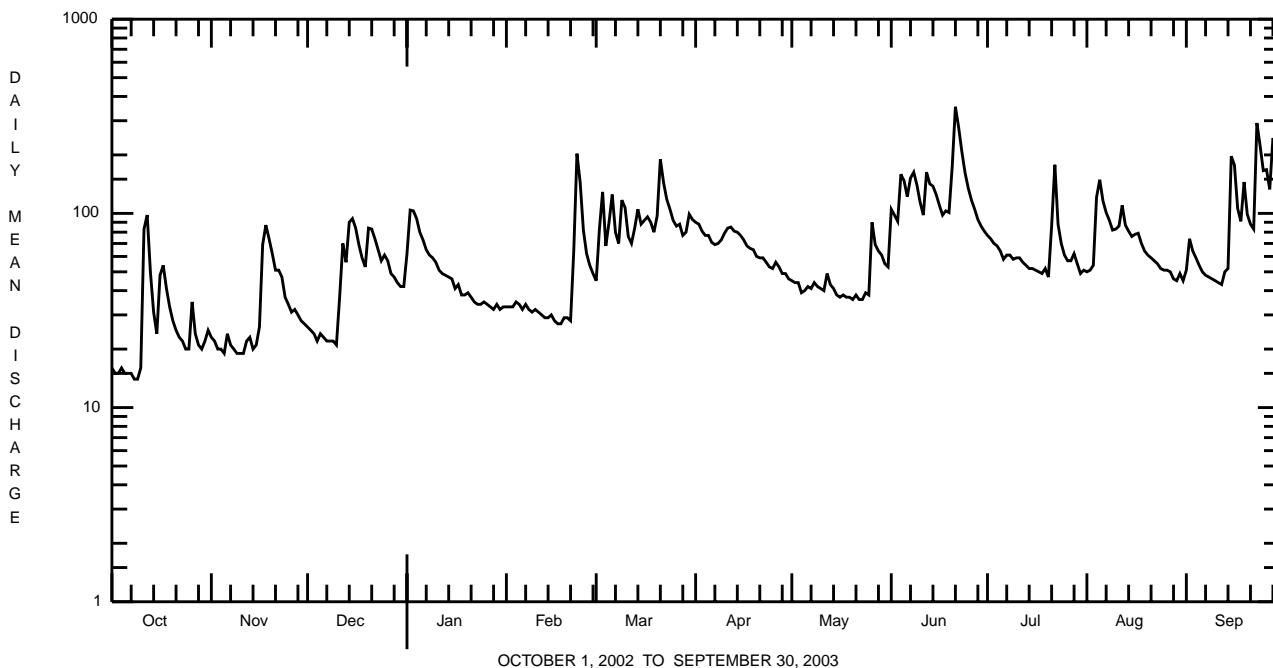
LEHIGH RIVER BASIN

01452500 MONOCACY CREEK AT BETHLEHEM, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1949 - 2003	
ANNUAL TOTAL	9765		24464			
ANNUAL MEAN	26.8		67.0		53.3	
HIGHEST ANNUAL MEAN					89.7	1984
LOWEST ANNUAL MEAN					15.5	1966
HIGHEST DAILY MEAN	98	Oct 12	354	Jun 21	1200	Jan 26 1978
LOWEST DAILY MEAN	12	Feb 25 <sup>a</sup>	14	Oct 8,9	5.2	Jan 1 1966
ANNUAL SEVEN-DAY MINIMUM	12	Feb 24	15	Oct 3	5.9	Dec 27 1965
MAXIMUM PEAK FLOW			<b>b</b> 735	Sep 15	<b>b</b> 3490	Jan 25 1979
MAXIMUM PEAK STAGE			4.42	Sep 15	8.19	Jan 25 1979
INSTANTANEOUS LOW FLOW			14	Oct 3,6-10	3.0	Jan 9 1966
ANNUAL RUNOFF (CFSM)	0.60		1.51		1.20	
ANNUAL RUNOFF (INCHES)	8.16		20.45		16.27	
10 PERCENT EXCEEDS	50		119		97	
50 PERCENT EXCEEDS	20		55		41	
90 PERCENT EXCEEDS	14		23		20	

<sup>a</sup> Also Feb. 26-28, Mar. 1, 2.

<sup>b</sup> From rating curve extended above 440 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 5.47 and at peak flow.



## LEHIGH RIVER BASIN

## 01453000 LEHIGH RIVER AT BETHLEHEM, PA

**LOCATION.**--Lat 40°36'55", long 75°22'45", Lehigh County, Hydrologic Unit 02040106, on left bank 110 ft upstream from bridge on New Street at Bethlehem, and 1,800 ft upstream from Monocacy Creek. Records include flow of Monocacy Creek.

**DRAINAGE AREA.**--1,279 mi<sup>2</sup> (includes that of Monocacy Creek). At site used prior to Oct. 1, 1928, 1,229 mi<sup>2</sup>.

**PERIOD OF RECORD.**--October 1902 to January 1905, May 1909 to current year. Monthly discharge only for some periods, published in WSP 1302. Published as "at South Bethlehem" prior to October 1913.

**REVISED RECORDS.**--WSP 261: 1903-5. WSP 321: 1910-11. WSP 1051: Drainage area. WSP 1141: 1929-34(M). WSP 1302: 1914(M), 1916(M), 1918, 1921, 1927-28. WSP 1432: 1903, 1919(M), 1920-21, 1929, 1933.

**GAGE.**--Water-stage recorder and crest-stage gage. Datum of gage is 210.94 ft above National Geodetic Vertical Datum of 1929. Prior to October 1928, nonrecording gage at New Street bridge 120 ft downstream at same datum. Oct. 1, 1928, to Sept. 30, 1962, water-stage recorder at site 4,250 ft downstream at datum 2.49 ft lower. Oct. 1, 1963, to Dec. 14, 1975, water-stage recorder at site 40 ft downstream at same datum.

**REMARKS.**--Records fair except those for estimated daily discharges, which are poor. Flow regulated by Wild Creek Reservoir (station 01449700) since January 1941, Penn Forest Reservoir (station 01449400) since October 1958, Francis E. Walter Reservoir (station 01447780) since February 1961, and Beltzville Lake (station 01449790) since February 1971. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of Feb. 28, 1902 reached a stage of 24.9 ft, from floodmark, present site and datum, discharge, about 88,000 ft<sup>3</sup>/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	861	2330	2500	3360	1490	1990	5950	1900	9440	2600	1380	1370
2	871	2120	2380	6370	1490	2320	5310	1890	8720	2380	1450	1930
3	839	1960	2290	7040	1470	3210	5120	1770	10600	2280	1450	2620
4	831	1880	1850	5330	1630	2360	4720	1670	12000	2150	2090	2900
5	961	1760	1880	4560	2080	2410	4310	1570	10200	2060	4800	2420
6	1090	2010	1880	4180	1870	3070	3990	1590	7030	1850	6990	2000
7	722	1960	1720	4040	1890	2540	3730	1580	5890	1780	6990	1730
8	697	1820	1700	3590	e1550	2260	3250	1660	6840	1890	4740	1550
9	674	1850	1660	3140	e1400	2570	3300	1620	5130	1790	3600	1360
10	700	1920	1460	3030	e1590	2940	3450	1660	6660	1710	3720	1230
11	2540	1920	1770	2880	e1200	2310	3780	1650	5680	1660	3870	1190
12	7170	2060	4710	2690	e1100	2180	4490	1850	6070	1720	5280	1160
13	3620	2610	5130	2580	e1000	2430	4160	1760	8420	1690	5260	1300
14	2980	2600	6960	2370	e1100	3120	3840	1630	6980	1510	4130	1430
15	2960	2490	7500	2190	e1200	2700	3540	1570	5750	1380	2880	4310
16	4540	2660	6150	1920	e1100	3030	3160	1520	5270	1300	2660	8860
17	9560	4930	5250	1970	e900	4060	2960	1500	4930	1220	3250	8640
18	6820	6110	4390	e1650	e1300	7060	2880	1550	4660	1200	3300	5150
19	4140	6120	3610	e1700	1490	9300	2740	1430	4400	1410	2520	4810
20	3490	7380	4090	e1800	1820	9160	2600	1330	5270	1230	2090	4420
21	3170	4110	5000	e1650	1820	14700	2500	1370	22900	1570	1950	3950
22	2800	3860	4380	e1600	2110	13700	2420	1400	13100	6090	1830	3850
23	2220	3840	4170	e1550	4210	11300	2330	1350	11600	3760	1710	16600
24	1880	3420	4890	e1500	4070	9590	2200	1460	13500	3720	1590	15300
25	1730	3200	4540	e1500	3100	8950	2010	1570	11900	2860	1540	12400
26	2600	2930	4360	e1450	2590	7670	2150	2700	10700	2220	1450	10500
27	2480	2910	3400	e1400	2140	7350	2330	2800	9670	1980	1400	7350
28	2140	2770	2980	e1200	2020	5990	2090	2910	5380	1910	1340	8020
29	2340	2660	2890	e1400	---	5420	2040	3030	3840	1620	1260	7320
30	2470	2580	2790	1490	---	6740	2010	2580	3450	1550	1410	5750
31	2570	---	2740	1470	---	6290	---	2380	---	1450	1400	---
TOTAL	82466	90770	111020	82600	50730	168720	99360	56250	245980	63540	89330	151420
MEAN	2660	3026	3581	2665	1812	5443	3312	1815	8199	2050	2882	5047
MAX	9560	7380	7500	7040	4210	14700	5950	3030	22900	6090	6990	16600
MIN	674	1760	1460	1200	900	1990	2010	1330	3450	1200	1260	1160
CFM	2.08	2.37	2.80	2.08	1.42	4.26	2.59	1.42	6.41	1.60	2.25	3.95
IN.	2.40	2.64	3.23	2.40	1.48	4.91	2.89	1.64	7.15	1.85	2.60	4.40

e Estimated.



LEHIGH RIVER BASIN

01453000 LEHIGH RIVER AT BETHLEHEM, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1583	2298	2880	2662	2749	3861	3886	3043	2174	1608	1338	1414
MAX (WY)	5778	5294	9067	7898	5820	7708	10180	7041	8199	6362	6192	6907
MIN (WY)	1956	1952	1997	1979	1951	1977	1993	1989	2003	1945	1955	1987
MIN (WY)	406	474	514	286	1132	1632	1428	1053	681	366	405	334
MIN (WY)	1964	1965	1981	1981	1980	1981	1985	1941	1965	1965	1964	1964

SUMMARY STATISTICS FOR 2002 CALENDAR YEAR FOR 2003 WATER YEAR WATER YEARS 1941 - 2003

ANNUAL TOTAL		761639		1292186								
ANNUAL MEAN		2087		3540					2456			
HIGHEST ANNUAL MEAN									3973			1952
LOWEST ANNUAL MEAN									1165			1965
HIGHEST DAILY MEAN				9560	Oct 17		22900	Jun 21	70400	Aug 19		1955
LOWEST DAILY MEAN				488	Aug 23		674	Oct 9	210	Jan 31		1981
ANNUAL SEVEN-DAY MINIMUM				555	Aug 22		811	Oct 4	216	Jan 26		1981
MAXIMUM PEAK FLOW							28400	Sep 23	a92000	May 23		1942
MAXIMUM PEAK STAGE							11.77	Sep 23	b25.90	May 23		1942
ANNUAL RUNOFF (CFSM)				1.63			2.77		1.92			
ANNUAL RUNOFF (INCHES)				22.15			37.58		26.09			
10 PERCENT EXCEEDS				4300			7050		4850			
50 PERCENT EXCEEDS				1720			2540		1770			
90 PERCENT EXCEEDS				727			1390		689			

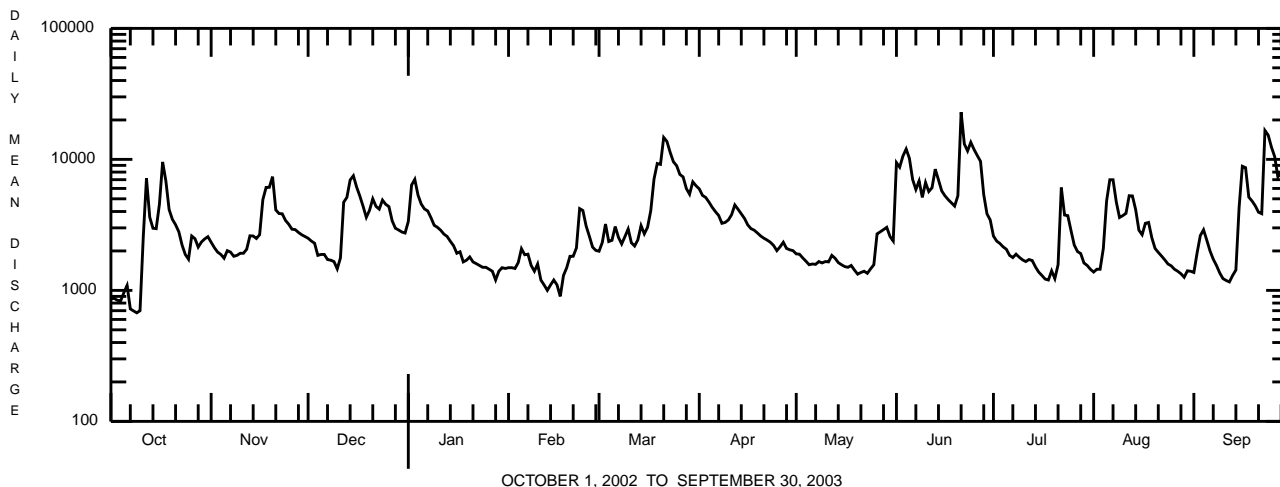
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1903-1904, 1909-1940, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1532	1827	2184	2346	2430	4134	3815	2280	1753	1530	1239	1214
MAX (WY)	4808	5660	5287	5287	5913	11920	7547	3681	4255	5182	4599	6407
MIN (WY)	1903	1927	1939	1915	1915	1936	1940	1924	1928	1935	1933	1933
MIN (WY)	308	370	470	677	668	1887	1499	1020	832	572	428	374
MIN (WY)	1911	1910	1931	1925	1934	1911	1915	1926	1921	1912	1910	1932

SUMMARY STATISTICS WATER YEARS 1903 - 1904 1909 - 1940

ANNUAL MEAN	2189
HIGHEST ANNUAL MEAN	3600
LOWEST ANNUAL MEAN	1262
HIGHEST DAILY MEAN	47900
LOWEST DAILY MEAN	160
ANNUAL SEVEN-DAY MINIMUM	260
MAXIMUM PEAK FLOW	64800
MAXIMUM PEAK STAGE	18.70
INSTANTANEOUS LOW FLOW	160
ANNUAL RUNOFF (CFSM)	1.71
ANNUAL RUNOFF (INCHES)	23.25
10 PERCENT EXCEEDS	4420
50 PERCENT EXCEEDS	1500
90 PERCENT EXCEEDS	548

- a From rating curve extended above 58,000 ft<sup>3</sup>/s on basis of slope-area measurement at gage height, 20.02 ft at present site and datum.
- b From floodmark, present site and datum.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

## LEHIGH RIVER BASIN

01454700 LEHIGH RIVER AT GLENDON, PA  
(Pennsylvania Water-Quality Network Station)

**LOCATION.**--Lat 40°40'09", long 75°14'12", Northampton County, Hydrologic Unit 02040106, on right bank 140 ft upstream from highway bridge in Hugh Moore Parkway at Glendon, 2.3 mi upstream from mouth, and 2.0 mi southwest of Easton.

**DRAINAGE AREA.**--1,359 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--October 1966 to current year.

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

**GAGE.**--Water-stage recorder and crest-stage gage. Datum of gage is 164.30 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Flow regulated by Francis E. Walter Reservoir (station 01447780), Penn Forest Reservoir (station 01449400), Wild Creek Reservoir (station 01449700), and since February 1971, by Beltzville Lake (station 01449790) about 60 mi upstream. Flows above 10,000 ft<sup>3</sup>/s may be affected by backwater from the Delaware River. Several measurements of water temperature were made during the year. Satellite telemetry at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	889	2630	2820	3940	1660	2270	6500	2120	8790	3150	1570	1510
2	869	2370	2680	6780	1670	2650	5950	2100	8840	2840	1640	2430
3	832	2160	2580	7360	1650	3980	5750	1970	10300	2690	1670	2940
4	851	2070	2080	6030	1790	2820	5370	1850	11900	2530	2400	3380
5	877	1940	2070	5250	2360	2850	4980	1730	10300	2410	5050	2860
6	1180	2200	2070	4880	2080	3810	4660	1750	7530	2180	7720	2300
7	760	2200	1910	4720	2150	3120	4400	1730	6470	2050	7460	1990
8	661	1990	1850	4250	1820	2710	3880	1830	7530	2200	5520	1760
9	640	2000	1820	3720	1610	3060	3920	1780	5790	2070	4270	1550
10	643	2100	1580	3590	1780	3690	4130	1820	7020	1990	4500	1370
11	2900	2090	1990	3370	1500	2790	4460	1830	6300	1910	4530	1320
12	7400	2270	5280	3140	1350	2580	5220	2020	6550	1950	5910	1280
13	4340	2930	5700	3000	1250	2910	4890	1990	8460	1940	5950	1470
14	3410	2910	7280	2760	1310	3850	4530	1810	7510	1750	4910	1650
15	3300	2790	7770	2540	1440	3280	4180	1740	6370	1580	3450	4620
16	4530	2960	6630	2200	1290	3640	3750	1670	5850	1480	3110	9270
17	9190	5480	5850	2260	e1100	4670	3470	1650	5580	1390	3740	8940
18	7140	6670	5040	e1870	e1500	7070	3370	1720	5300	1330	3890	5960
19	4810	6470	4220	1950	e1700	8900	3220	1580	5080	1590	2980	5810
20	3970	7460	4720	2120	e2000	8940	3030	1470	5630	1400	2420	5160
21	3620	4930	5680	1920	2070	14500	2900	1510	23000	1500	2230	4620
22	3210	4470	5030	1830	2630	13700	2810	1540	13200	7270	2090	4490
23	2550	4470	4750	e1720	5260	11300	2700	1480	11400	5030	1940	16200
24	2100	3970	5450	e1680	5040	9680	2540	1590	13300	4370	1790	16400
25	1910	3690	5190	1730	3750	9200	2300	1750	11700	3410	1720	12500
26	2910	3370	5060	1740	3090	8050	2440	3150	10500	2640	1620	10800
27	2900	3350	4030	1630	2540	7830	2680	3310	9780	2280	1560	7980
28	2400	3180	3480	1370	2330	6600	2380	3260	6300	2290	1490	8460
29	2580	3010	3340	1620	---	5990	2300	3510	4620	1870	1390	7980
30	2790	2930	3220	1660	---	7230	2270	2990	4160	1770	1540	6510
31	2930	---	3150	1650	---	6850	---	2690	---	1650	1580	---
TOTAL	89092	101060	124320	94280	59720	180520	114980	62940	255060	74510	101640	163510
MEAN	2874	3369	4010	3041	2133	5823	3833	2030	8502	2404	3279	5450
MAX	9190	7460	7770	7360	5260	14500	6500	3510	23000	7270	7720	16400
MIN	640	1940	1580	1370	1100	2270	2270	1470	4160	1330	1390	1280
CFSM	2.11	2.48	2.95	2.24	1.57	4.28	2.82	1.49	6.26	1.77	2.41	4.01
IN.	2.44	2.77	3.40	2.58	1.63	4.94	3.15	1.72	6.98	2.04	2.78	4.48

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2003, BY WATER YEAR (WY)

MEAN	1946	2626	3371	3036	3172	4300	4391	3381	2693	1827	1507	1736
MAX	5272	5438	9593	8414	5385	8344	10810	8542	8502	4641	4179	7920
(WY)	1977	1971	1997	1996	1976	1977	1993	1989	2003	1984	1969	1987
MIN	771	704	633	405	1278	1805	1639	1502	906	630	607	660
(WY)	1981	2002	1981	1981	1980	1981	1985	1995	1999	1999	1999	1983

e Estimated.

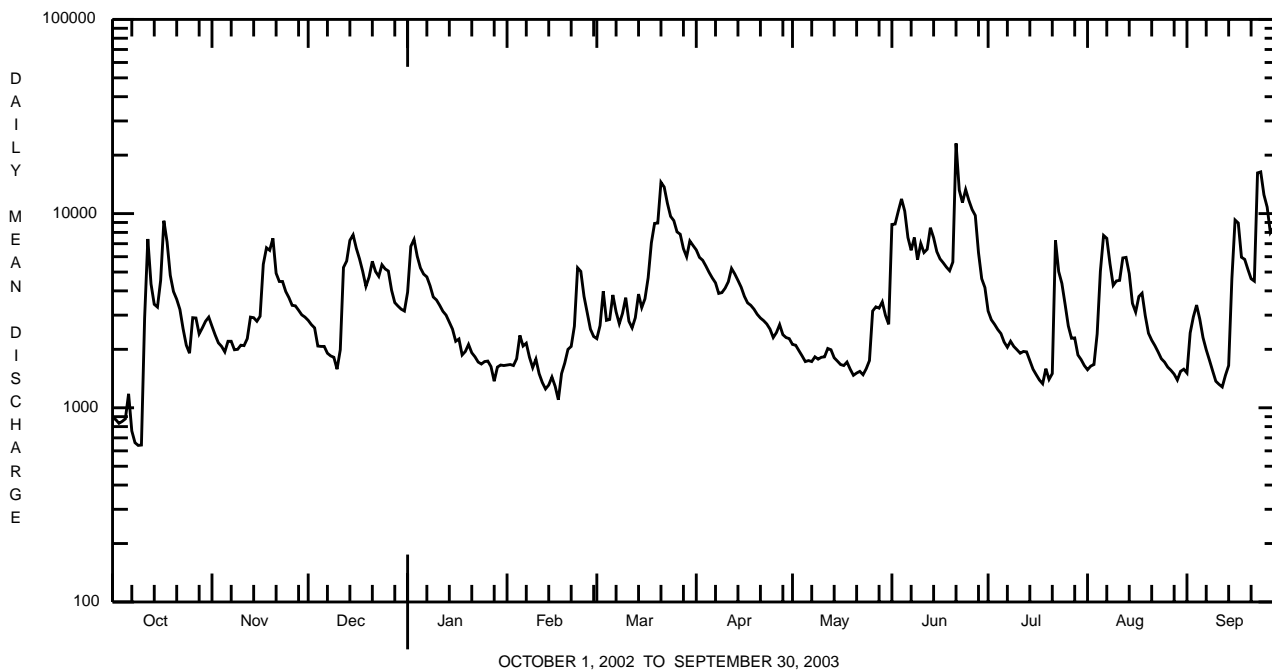
LEHIGH RIVER BASIN

01454700 LEHIGH RIVER AT GLENDON, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1967 - 2003	
ANNUAL TOTAL	821272		1421632			
ANNUAL MEAN	2250		3895		2829	
HIGHEST ANNUAL MEAN					3997	1984
LOWEST ANNUAL MEAN					1594	1985
HIGHEST DAILY MEAN	9190	Oct 17	23000	Jun 21	44300	Jun 23 1972
LOWEST DAILY MEAN	472	Aug 28	640	Oct 9	330	Jan 31 1981 <sup>a</sup>
ANNUAL SEVEN-DAY MINIMUM	525	Sep 5	802	Oct 4	349	Jan 26 1981
MAXIMUM PEAK FLOW			28000	Sep 23	<sup>b</sup> 60600	Jun 23 1972
MAXIMUM PEAK STAGE			17.71	Sep 23	24.86	Jun 23 1972
ANNUAL RUNOFF (CFSM)	1.66		2.87		2.08	
ANNUAL RUNOFF (INCHES)	22.48		38.91		28.29	
10 PERCENT EXCEEDS	4770		7520		5580	
50 PERCENT EXCEEDS	1830		2910		2060	
90 PERCENT EXCEEDS	676		1550		858	

<sup>a</sup> Also Feb. 1, 1981.

<sup>b</sup> From rating curve extended above 36,000 ft<sup>3</sup>/s.



LEHIGH RIVER BASIN

01454700 LEHIGH RIVER AT GLENDON, 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 430-470.

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

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd 25 degC µS/cm (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, unfltrd recover -able, mg/L (00916)	Magnesium, water, unfltrd recover -able, mg/L (00927)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002 19...	1220	1028	9813	6750	40	12.8	7.6	152	7.1	50	12.7	4.5	28
JAN 2003 27...	1230	1028	9813	1550	40	15.4	7.7	281	.7	91	22.4	8.6	56
MAR 19...	1040	1028	9813	9280	40	13.0	7.3	151	6.3	39	10.0	3.5	19
MAY 28...	1110	1028	9813	3250	40	10.5	7.6	227	14.2	75	19.7	6.1	46
JUL 10...	1200	1028	9813	1960	40	8.6	7.8	274	21.1	100	24.8	10.4	64
SEP 24...	1300	1028	9813	14600	40	10.3	7.3	132	15.9	54	14.8	4.2	29

Date	Fluoride, water, unfltrd mg/L (00951)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water, unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recover -able, mg/L (01105)	Copper, water, unfltrd recover -able, mg/L (01042)
NOV 2002 19...	<.2	17.4	136	10	.030	2.02	<.040	.03	.059	2.5	3.1	400	<10
JAN 2003 27...	<.2	28.6	320	2	.090	2.22	<.040	.09	.092	2.4	1.6	<200	<10
MAR 19...	<.2	12.3	112	50	.030	1.13	<.040	.03	.096	1.8	2.6	1300	<10
MAY 28...	<.2	21.4	158	<2	.080	1.53	<.040	.06	.102	2.2	3.1	<200	<10
JUL 10...	<.2	28.1	180	4	<.020	1.92	<.040	.10	.121	2.2	2.9	<200	<10
SEP 24...	<.2	15.3	96	36	<.020	2.17	<.040	.07	.081	2.4	4.5	1300	<10

Date	Cyanide amenable to chlorination wat unfltrd mg/L (00722)	Iron, water, unfltrd recover -able, µg/L (01045)	Lead, water, unfltrd recover -able, µg/L (01051)	Manganese, water, unfltrd recover -able, µg/L (01055)	Nickel, water, unfltrd recover -able, µg/L (01067)	Zinc, water, unfltrd recover -able, µg/L (01092)	Phenolic compounds, water, unfltrd µg/L (32730)
NOV 2002 19...	<1.00	620	1.9	100	<50	80	<5
JAN 2003 27...	<1.00	190	<1.0	60	<50	80	<5
MAR 19...	<1.00	1710	6.2	250	<50	130	<5
MAY 28...	<1.00	330	1.1	60	<50	50	6
JUL 10...	<1.00	180	<1.0	30	<50	50	<5
SEP 24...	<1.00	2050	5.5	160	<50	100	<5

## LEHIGH RIVER BASIN

## 01454700 LEHIGH RIVER AT GLENDON, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES

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

Date	8/19/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	2
Nematoda (NEMATODES)	2
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
<u>Ferrissia</u> sp	1
Physidae	
<u>Physa</u> sp	2
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	
<u>Sphaerium</u> sp	1
Arthropoda	
Crustacea	
Amphipoda (SCUDS)	
Gammaridae	
<u>Gammarus</u> sp	5
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Acentrella</u> sp	2
<u>Baetis</u> sp	4
Heptageniidae	7
<u>Stenacron</u> sp	13
Trichoptera (CADDISFLIES)	
Glossosomatidae	
<u>Glossosoma</u> sp	1
Hydropsychidae	
<u>Cheumatopsyche</u> sp	17
<u>Hydropsyche</u> sp	27
Hydroptilidae	
<u>Leucotrichia</u> sp	2
Lepidostomatidae	
<u>Lepidostoma</u> sp	1
Polycentropodidae	
<u>Polycentropus</u> sp	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Stenelmis</u> sp	5
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	21
Empididae (DANCE FLIES)	
<u>Hemerodromia</u> sp	1
Simuliidae (BLACK FLIES)	
<u>Simulium</u> sp	1
Tipulidae (CRANE FLIES)	
<u>Antocha</u> sp	1
Total Organisms	117

## LEHIGH RIVER BASIN

## 01454720 LEHIGH RIVER AT EASTON, PA

**LOCATION.**--Lat 40°41'12", long 75°12'32", Northampton County, Hydrologic Unit 02040106, on left bank, near bridge on U.S. Highway 611 in Easton.

**DRAINAGE AREA.**--1,364 mi<sup>2</sup>.

**PERIOD OF RECORD.**--October 1961 to current year.

**PERIOD OF DAILY RECORD.**--

SPECIFIC CONDUCTANCE: October 1963 to current year.

pH: November 1972 to current year.

WATER TEMPERATURE: October 1961 to current year.

DISSOLVED OXYGEN: June 1966 to current year.

**INSTRUMENTATION.**--Water-quality monitor since October 1961. Probes interfaced with a data collection platform since the 1986 water year.

**REMARKS.**--Specific conductance record rated good except for period Apr. 29 to May 8, which is fair. pH rated good except for periods June 19-25 and Sept. 23-26, which are poor. Water temperature record rated fair except for periods June 19-25 and Sept. 23-26, which are poor. Dissolved oxygen record rated poor. Beginning with the 1978 water year, no data were recorded during the months of October through March. Other interruptions in the record were due to malfunctions of the pump or recording instrument.

**EXTREMES FOR PERIOD OF DAILY RECORD.**--

SPECIFIC CONDUCTANCE: Maximum, 581 microsiemens, Aug. 19, 1963; minimum, 70 microsiemens, Nov. 14, 1970.

pH: Maximum, 8.7, July 18, 19, 1991; minimum, 6.0, Mar. 16, 1978.

WATER TEMPERATURE: Maximum, 30.5°C, July 29, 1970, July 21, 1980; minimum, 0.0°C, many days during winters.

DISSOLVED OXYGEN: Maximum, 15.7 mg/L, Apr. 14, 1986; minimum, 0.0 mg/L, Aug. 4, 1966.

## SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	171	165	168	266	252	258
2	---	---	---	---	---	---	176	169	172	269	257	261
3	---	---	---	---	---	---	177	169	173	272	260	266
4	---	---	---	---	---	---	178	172	175	276	243	266
5	---	---	---	---	---	---	187	177	182	286	261	274
6	---	---	---	---	---	---	187	181	184	296	270	283
7	---	---	---	---	---	---	217	183	193	295	251	281
8	---	---	---	---	---	---	249	200	231	290	271	283
9	---	---	---	---	---	---	239	227	233	287	278	283
10	---	---	---	---	---	---	245	228	236	287	282	284
11	---	---	---	---	---	---	231	219	224	282	263	273
12	---	---	---	---	---	---	224	201	211	270	256	265
13	---	---	---	---	---	---	209	196	203	266	253	260
14	---	---	---	---	---	---	201	194	198	273	258	265
15	---	---	---	---	---	---	212	198	205	276	271	274
16	---	---	---	---	---	---	219	211	215	278	270	273
17	---	---	---	---	---	---	222	217	220	280	270	275
18	---	---	---	---	---	---	224	216	220	288	273	282
19	---	---	---	---	---	---	222	216	219	274	266	270
20	---	---	---	---	---	---	219	194	209	291	267	278
21	---	---	---	---	---	---	218	190	197	302	286	295
22	---	---	---	---	---	---	223	202	215	302	294	299
23	---	---	---	---	---	---	208	202	205	295	288	291
24	---	---	---	---	---	---	208	196	204	291	285	288
25	---	---	---	---	---	---	249	191	198	289	272	284
26	---	---	---	---	---	---	251	246	248	272	230	250
27	---	---	---	---	---	---	248	229	241	233	212	221
28	---	---	---	161	154	157	245	231	238	228	210	220
29	---	---	---	168	161	164	267	240	258	210	197	202
30	---	---	---	171	157	165	265	253	261	210	202	206
31	---	---	---	---	---	---	---	---	---	223	210	217
MONTH	---	---	---	171	154	162	267	165	211	302	197	265

LEHIGH RIVER BASIN

01454720 LEHIGH RIVER AT EASTON, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	223	134	185	235	200	219	316	304	309	296	269	279
2	149	131	138	247	235	244	324	314	319	275	249	265
3	149	123	131	254	245	251	323	304	312	263	218	246
4	140	125	133	256	247	251	306	271	293	218	198	207
5	148	136	140	251	242	248	271	178	214	210	200	204
6	161	148	154	247	240	244	188	165	176	231	210	222
7	179	160	165	256	243	251	182	153	166	241	230	237
8	181	164	172	258	244	253	179	165	172	258	240	250
9	187	177	184	253	242	249	196	179	188	279	257	266
10	189	161	172	262	251	256	208	192	198	296	279	287
11	170	160	163	275	260	266	208	185	197	313	296	301
12	196	163	181	281	274	278	193	169	181	317	311	314
13	193	168	182	278	270	275	171	153	161	318	302	313
14	180	167	174	279	266	274	174	159	167	314	290	302
15	182	173	177	302	276	287	205	174	189	290	192	257
16	180	173	177	319	297	307	221	205	216	195	174	182
17	175	169	172	326	319	322	222	192	210	178	157	165
18	187	173	180	338	326	332	197	184	191	184	159	167
19	186	179	182	340	333	337	212	186	199	213	182	192
20	198	186	192	337	308	316	235	212	225	216	199	208
21	---	---	---	322	296	315	248	235	242	220	213	217
22	---	---	---	306	190	220	258	244	252	215	205	211
23	---	---	---	236	199	215	265	255	261	---	---	---
24	---	---	---	245	226	236	276	261	268	---	---	---
25	---	---	---	239	223	232	277	268	272	---	---	---
26	133	129	130	259	235	250	284	271	276	---	---	---
27	137	126	130	269	256	265	300	281	289	160	141	150
28	177	137	155	275	255	264	296	290	293	175	155	163
29	197	177	186	304	275	290	303	294	298	164	158	160
30	200	196	198	309	301	306	310	303	306	175	164	168
31	---	---	---	311	302	306	309	296	302	---	---	---
MONTH	223	123	166	340	190	270	324	153	237	318	141	228

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	7.5	7.4	7.4	8.3	7.8	8.1
2	---	---	---	---	---	---	7.5	7.4	7.4	8.2	7.8	8.0
3	---	---	---	---	---	---	7.5	7.4	7.4	8.3	7.8	8.1
4	---	---	---	---	---	---	7.5	7.4	7.4	8.4	7.9	8.1
5	---	---	---	---	---	---	7.5	7.4	7.4	8.3	7.7	8.0
6	---	---	---	---	---	---	7.5	7.4	7.4	7.9	7.6	7.7
7	---	---	---	---	---	---	7.5	7.5	7.5	7.8	7.6	7.7
8	---	---	---	---	---	---	7.5	7.5	7.5	7.9	7.5	7.6
9	---	---	---	---	---	---	7.6	7.5	7.6	7.6	7.5	7.6
10	---	---	---	---	---	---	7.6	7.5	7.5	7.7	7.6	7.6
11	---	---	---	---	---	---	7.6	7.5	7.5	7.7	7.5	7.6
12	---	---	---	---	---	---	7.5	7.4	7.4	7.7	7.5	7.5
13	---	---	---	---	---	---	7.6	7.5	7.5	7.6	7.5	7.5
14	---	---	---	---	---	---	7.6	7.5	7.6	7.6	7.5	7.6
15	---	---	---	---	---	---	7.6	7.5	7.6	7.6	7.5	7.6
16	---	---	---	---	---	---	7.6	7.5	7.6	7.6	7.5	7.6
17	---	---	---	---	---	---	7.7	7.5	7.6	7.6	7.5	7.5
18	---	---	---	---	---	---	7.7	7.6	7.6	7.6	7.5	7.6
19	---	---	---	---	---	---	7.7	7.6	7.7	7.6	7.5	7.6
20	---	---	---	---	---	---	7.8	7.7	7.7	7.8	7.5	7.6
21	---	---	---	---	---	---	7.7	7.6	7.6	7.7	7.5	7.6
22	---	---	---	---	---	---	7.6	7.5	7.6	7.5	7.5	7.5
23	---	---	---	---	---	---	7.7	7.6	7.7	7.6	7.5	7.6
24	---	---	---	---	---	---	7.8	7.7	7.8	7.6	7.5	7.5
25	---	---	---	---	---	---	7.9	7.8	7.8	7.6	7.5	7.5
26	---	---	---	---	---	---	7.9	7.7	7.8	7.6	7.5	7.6
27	---	---	---	---	---	---	7.8	7.6	7.7	7.5	7.5	7.5
28	---	---	---	7.4	7.4	7.4	7.8	7.7	7.8	7.5	7.4	7.5
29	---	---	---	7.5	7.4	7.4	8.1	7.7	7.8	7.5	7.3	7.4
30	---	---	---	7.5	7.4	7.5	8.2	7.7	8.0	7.4	7.3	7.4
31	---	---	---	---	---	---	---	---	---	7.4	7.3	7.3
MAX	---	---	---	7.5	7.4	7.5	8.2	7.8	8.0	8.4	7.9	8.1
MIN	---	---	---	7.4	7.4	7.4	7.5	7.4	7.4	7.4	7.3	7.3

LEHIGH RIVER BASIN

01454720 LEHIGH RIVER AT EASTON, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	7.4	6.9	7.3	7.3	7.1	7.2	7.6	7.5	7.6	7.5	7.3	7.4
2	6.9	6.8	6.9	7.4	7.2	7.3	7.5	7.4	7.5	7.4	7.3	7.3
3	6.9	6.8	6.8	7.4	7.3	7.3	7.5	7.4	7.5	7.4	7.2	7.3
4	7.0	6.9	7.0	7.4	7.2	7.3	7.5	7.4	7.4	7.3	7.1	7.2
5	7.1	6.9	7.0	7.3	7.0	7.2	7.5	7.2	7.3	7.2	7.1	7.2
6	7.1	6.8	7.1	7.2	7.1	7.1	7.3	7.1	7.2	7.3	7.2	7.3
7	6.9	6.8	6.8	7.5	7.1	7.4	7.2	7.0	7.1	7.4	7.1	7.3
8	7.0	6.9	7.0	7.6	7.2	7.4	7.1	7.0	7.0	7.4	7.2	7.2
9	7.2	7.0	7.1	7.4	7.2	7.4	7.1	7.1	7.1	7.3	7.2	7.3
10	7.1	6.9	7.1	7.6	7.4	7.4	7.2	7.0	7.1	7.4	7.3	7.3
11	7.1	7.0	7.0	7.5	7.3	7.4	7.2	7.1	7.1	7.5	7.2	7.3
12	7.1	7.0	7.0	7.6	7.3	7.4	7.3	7.1	7.2	7.5	7.3	7.4
13	7.1	6.9	7.0	7.7	7.2	7.5	7.2	7.0	7.1	7.4	7.3	7.4
14	7.0	6.8	6.8	7.7	7.3	7.5	7.1	7.0	7.1	7.3	7.1	7.2
15	7.1	6.8	7.0	7.7	7.5	7.6	7.2	7.0	7.1	7.3	7.1	7.2
16	7.2	7.1	7.1	7.8	7.5	7.6	7.3	7.1	7.2	7.2	6.9	7.1
17	7.2	7.1	7.1	7.8	7.5	7.7	7.4	7.2	7.3	7.1	6.8	7.0
18	7.1	7.0	7.1	7.9	7.6	7.8	7.3	7.1	7.2	7.0	6.9	6.9
19	7.2	7.1	7.1	7.8	7.5	7.7	7.3	7.0	7.2	6.9	6.8	6.8
20	7.2	7.2	7.2	7.7	7.4	7.6	7.3	7.1	7.2	6.9	6.6	6.8
21	7.3	7.0	7.0	7.6	7.4	7.5	7.3	7.1	7.2	6.8	6.7	6.8
22	7.0	7.0	7.0	7.5	7.1	7.3	7.2	7.1	7.2	6.9	6.8	6.8
23	7.0	6.9	7.0	7.2	7.1	7.2	7.4	7.2	7.2	7.0	6.7	6.8
24	7.3	6.9	7.0	7.2	7.1	7.2	7.6	7.3	7.4	6.9	6.8	6.8
25	7.2	7.0	7.2	7.3	7.1	7.2	7.6	7.3	7.4	6.9	6.8	6.8
26	7.1	6.9	7.0	7.2	7.0	7.2	7.6	7.3	7.4	6.9	6.8	6.8
27	7.0	6.8	6.9	7.2	7.1	7.2	7.5	7.2	7.3	6.9	6.8	6.8
28	7.1	7.0	7.0	7.3	7.1	7.2	7.5	7.2	7.4	7.1	6.9	7.0
29	7.2	7.0	7.1	7.5	7.2	7.4	7.4	7.1	7.2	7.1	6.9	7.0
30	7.1	7.0	7.1	7.6	7.4	7.5	7.2	7.1	7.2	7.0	6.9	7.0
31	---	---	---	7.6	7.4	7.5	7.5	7.2	7.4	---	---	---
MAX	7.4	7.2	7.3	7.9	7.6	7.8	7.6	7.5	7.6	7.5	7.3	7.4
MIN	6.9	6.8	6.8	7.2	7.0	7.1	7.1	7.0	7.0	6.8	6.6	6.8

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	---	---	---	7.0	5.5	6.5	16.5	15.0	15.5
2	---	---	---	---	---	---	8.0	5.5	6.5	17.5	16.5	17.0
3	---	---	---	---	---	---	9.5	8.0	9.0	17.5	16.5	17.0
4	---	---	---	---	---	---	9.0	8.0	9.0	17.0	16.0	16.5
5	---	---	---	---	---	---	8.0	7.5	7.5	16.5	14.5	15.5
6	---	---	---	---	---	---	8.0	7.0	7.5	14.5	13.0	13.5
7	---	---	---	---	---	---	8.0	5.5	7.0	14.5	12.5	13.5
8	---	---	---	---	---	---	5.5	5.0	5.0	15.5	14.5	15.0
9	---	---	---	---	---	---	5.5	5.0	5.5	16.0	15.5	16.0
10	---	---	---	---	---	---	7.0	5.5	6.0	16.0	15.0	15.5
11	---	---	---	---	---	---	7.0	7.0	7.0	16.0	15.5	15.5
12	---	---	---	---	---	---	9.5	7.0	8.0	16.0	15.0	16.0
13	---	---	---	---	---	---	11.0	9.5	10.0	15.0	14.0	14.5
14	---	---	---	---	---	---	11.0	10.0	10.5	14.0	13.5	13.5
15	---	---	---	---	---	---	12.5	10.5	11.5	13.5	13.0	13.5
16	---	---	---	---	---	---	14.5	12.0	13.0	13.5	13.0	13.0
17	---	---	---	---	---	---	14.5	11.5	13.0	14.0	12.5	13.0
18	---	---	---	---	---	---	11.5	9.0	10.0	14.0	13.5	13.5
19	---	---	---	---	---	---	10.5	8.5	9.5	15.0	13.5	14.0
20	---	---	---	---	---	---	12.5	10.0	11.5	16.5	14.5	15.5
21	---	---	---	---	---	---	12.5	12.0	12.5	17.0	16.0	16.5
22	---	---	---	---	---	---	13.0	12.0	12.5	16.0	15.0	15.5
23	---	---	---	---	---	---	13.0	11.0	12.0	15.0	14.0	14.0
24	---	---	---	---	---	---	11.5	10.5	11.0	14.0	13.5	13.5
25	---	---	---	---	---	---	12.5	10.5	11.5	14.0	13.5	13.5
26	---	---	---	---	---	---	12.5	12.5	12.5	14.0	13.5	14.0
27	---	---	---	---	---	---	14.0	12.5	13.0	14.5	13.5	14.0
28	---	---	---	9.5	8.5	9.0	15.5	13.5	14.5	15.0	14.0	14.5
29	---	---	---	10.0	9.0	9.5	15.5	15.0	15.0	16.0	14.5	15.0
30	---	---	---	10.0	8.0	9.5	15.5	14.5	15.0	17.5	15.5	16.5
31	---	---	---	---	---	---	---	---	---	17.0	16.5	16.5
MONTH	---	---	---	10.0	8.0	9.3	15.5	5.0	10.1	17.5	12.5	14.9



LEHIGH RIVER BASIN

01454720 LEHIGH RIVER AT EASTON, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	16.5	14.0	15.0	20.5	19.0	19.5	22.5	21.5	22.0	20.5	19.5	20.5
2	14.0	13.0	13.5	21.0	20.0	20.5	22.0	21.5	21.5	19.5	18.5	19.0
3	13.5	12.5	13.0	21.5	20.5	21.0	23.0	22.0	22.5	18.5	18.0	18.0
4	12.5	12.5	12.5	22.5	20.5	21.5	23.5	22.5	23.0	18.5	18.0	18.0
5	14.0	12.5	13.0	23.5	22.0	23.0	23.5	21.5	22.5	19.5	18.5	19.0
6	15.0	14.0	14.5	24.0	23.0	23.5	21.5	20.5	21.0	20.0	19.0	19.5
7	15.0	14.5	14.5	24.0	23.5	24.0	21.0	20.5	20.5	20.0	19.0	19.5
8	14.5	13.5	14.0	24.0	23.0	23.5	21.0	20.0	20.5	20.0	19.5	19.5
9	15.0	14.0	14.5	24.0	22.5	23.0	21.5	21.0	21.0	20.5	20.0	20.0
10	16.0	14.5	15.5	22.5	20.5	21.5	22.0	21.0	21.5	20.5	20.0	20.0
11	16.5	16.0	16.0	21.0	20.0	20.5	22.0	21.5	21.5	20.5	20.0	20.0
12	17.0	16.0	16.5	21.0	20.0	20.5	22.0	21.0	21.5	20.5	19.5	20.0
13	17.0	16.5	16.5	22.0	21.0	21.5	22.0	21.0	21.5	19.5	19.0	19.0
14	17.0	16.0	16.5	22.0	21.0	21.5	22.5	21.0	21.5	20.0	19.0	19.5
15	17.5	17.0	17.0	22.5	21.5	22.0	23.0	22.0	22.5	21.0	20.0	20.5
16	17.5	17.0	17.0	23.0	22.0	22.5	23.0	22.0	22.5	21.0	19.0	20.0
17	17.5	16.5	17.0	23.5	22.5	23.0	22.0	21.0	21.5	19.0	18.0	18.5
18	17.0	16.0	16.5	23.0	22.0	22.5	21.5	20.5	21.0	18.5	18.0	18.0
19	17.0	15.5	16.0	22.5	21.5	22.0	22.0	20.0	21.0	19.0	18.0	18.5
20	17.5	17.0	17.5	22.5	21.5	22.0	22.0	21.0	21.5	19.0	18.5	19.0
21	17.0	15.5	16.0	23.5	22.0	22.5	22.5	21.5	22.5	19.0	18.5	18.5
22	15.5	15.0	15.5	23.0	21.5	22.0	23.5	22.5	23.0	18.5	18.0	18.5
23	16.0	15.0	15.5	21.5	21.0	21.5	23.5	22.5	23.0	19.0	18.0	18.5
24	17.0	16.0	16.5	21.5	21.0	21.0	22.5	21.5	22.0	18.5	17.0	17.5
25	17.5	17.0	17.0	22.0	20.5	21.0	21.5	21.0	21.5	17.0	17.0	17.0
26	18.5	17.5	18.0	22.5	21.0	22.0	21.5	21.5	21.5	17.0	17.0	17.0
27	19.5	18.5	19.0	23.0	22.0	22.5	22.0	21.5	21.5	18.0	17.0	17.5
28	20.0	19.5	19.5	23.5	23.0	23.0	22.5	21.5	22.0	18.0	17.5	18.0
29	20.0	19.0	19.5	23.0	22.5	23.0	22.0	21.5	21.5	17.5	16.5	16.5
30	20.0	19.5	19.5	23.0	22.5	23.0	22.0	21.0	21.5	16.5	15.0	15.5
31	---	---	---	23.0	22.5	22.5	21.0	20.5	21.0	---	---	---
MONTH	20.0	12.5	16.1	24.0	19.0	22.0	23.5	20.0	21.7	21.0	15.0	18.7

OXYGEN, DISSOLVED (MG/L), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	12.4	11.8	12.1	11.0	9.8	10.3
2	---	---	---	---	---	---	12.5	11.8	12.3	10.5	9.5	10
3	---	---	---	---	---	---	11.8	11.4	11.5	10.5	9.3	9.9
4	---	---	---	---	---	---	11.5	11.2	11.4	10.5	9.2	9.8
5	---	---	---	---	---	---	11.9	11.5	11.7	10.5	9.1	9.9
6	---	---	---	---	---	---	12.2	11.9	12.1	10.8	10.1	10.4
7	---	---	---	---	---	---	12.6	11.9	12.1	10.6	10.0	10.4
8	---	---	---	---	---	---	13.0	12.6	12.8	10.0	9.0	9.6
9	---	---	---	---	---	---	12.9	12.6	12.7	9.9	9.0	9.4
10	---	---	---	---	---	---	12.6	12.3	12.4	10.3	9.2	9.6
11	---	---	---	---	---	---	12.3	11.8	12.0	9.9	9.2	9.6
12	---	---	---	---	---	---	11.8	11.5	11.7	9.6	9.1	9.3
13	---	---	---	---	---	---	11.5	11.0	11.2	10.0	9.2	9.7
14	---	---	---	---	---	---	11.4	10.9	11.2	10.5	9.7	10.1
15	---	---	---	---	---	---	11.2	10.6	10.9	10.9	10.2	10.5
16	---	---	---	---	---	---	10.6	10.0	10.2	10.8	10.3	10.5
17	---	---	---	---	---	---	10.7	9.8	10.2	11.1	10.1	10.6
18	---	---	---	---	---	---	11.6	10.7	11.1	11.0	10.3	10.6
19	---	---	---	---	---	---	11.9	11.3	11.6	11.0	10.2	10.6
20	---	---	---	---	---	---	11.4	10.7	11.2	10.3	9.5	10.0
21	---	---	---	---	---	---	11.1	10.5	10.7	9.5	9.1	9.3
22	---	---	---	---	---	---	11.0	10.3	10.6	9.7	9.0	9.4
23	---	---	---	---	---	---	11.2	10.2	10.7	10.4	9.7	10.1
24	---	---	---	---	---	---	11.7	10.8	11.2	10.6	10.1	10.4
25	---	---	---	---	---	---	11.6	10.7	11.2	10.6	10.1	10.4
26	---	---	---	---	---	---	10.8	10.3	10.6	10.5	10.0	10.4
27	---	---	---	---	---	---	11.3	10.3	10.7	10.7	10.4	10.6
28	---	---	---	---	---	---	10.9	9.9	10.4	10.8	10.5	10.6
29	---	---	---	---	---	---	10.4	9.7	10	10.5	10.2	10.4
30	---	---	---	---	---	---	11.0	9.6	10.3	10.3	9.9	10.1
31	---	---	---	---	---	---	---	---	---	10.0	9.7	9.8
MONTH	---	---	---	---	---	---	13.0	9.6	11.3	11.1	9.0	10.1

## LEHIGH RIVER BASIN

## 01454720 LEHIGH RIVER AT EASTON, PA--Continued

OXYGEN, DISSOLVED (MG/L), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	10.1	9.5	9.8	---	---	---	8.7	8.1	8.4	9.0	8.5	8.9
2	10.7	10.0	10.4	8.8	8.4	8.7	9.1	8.2	8.6	8.9	8.5	8.8
3	11.1	10.3	10.5	8.5	7.9	8.3	9.0	8.3	8.5	9.1	8.7	8.9
4	11.1	10.7	10.9	7.9	7.2	7.6	8.4	8.1	8.3	9.1	8.8	8.9
5	---	---	---	7.7	6.4	7.2	8.6	8.1	8.3	8.9	8.8	8.8
6	---	---	---	7.7	7.0	7.4	8.5	8.2	8.4	9.1	8.7	8.9
7	---	---	---	8.3	6.9	7.5	8.4	8.1	8.3	9.2	8.7	8.9
8	---	---	---	7.8	7.0	7.4	8.4	8.2	8.3	9.3	8.6	8.9
9	---	---	---	8.0	6.6	7.4	8.3	7.5	7.9	9.3	8.7	8.9
10	---	---	---	7.6	7.4	7.5	8.3	7.9	8.1	9.3	8.6	8.9
11	9.2	8.9	9.0	8.4	7.5	7.8	8.3	8.0	8.2	9.2	8.6	8.8
12	8.9	8.2	8.6	8.2	7.7	7.9	8.6	8.1	8.3	9.2	8.4	8.8
13	8.8	8.0	8.6	8.0	6.5	7.5	8.6	8.4	8.5	8.8	8.4	8.6
14	8.4	7.6	8.0	8.3	6.4	7.4	8.8	8.3	8.6	8.7	8.3	8.5
15	8.7	7.4	8.1	8.3	6.9	7.7	8.8	8.0	8.6	8.4	7.5	8.1
16	9.0	8.5	8.8	8.6	7.1	7.9	8.8	8.4	8.7	8.0	7.4	7.7
17	9.1	8.3	9.0	8.6	7.5	8.0	9.1	8.7	8.9	8.0	7.7	7.9
18	9.3	8.5	9.0	8.7	7.7	8.1	9.3	8.8	9.1	---	---	---
19	9.5	9.2	9.4	8.7	7.8	8.2	9.5	8.9	9.3	---	---	---
20	9.4	8.9	9.1	9.0	7.7	8.3	9.5	9.1	9.3	---	---	---
21	---	---	---	9.1	7.8	8.2	9.4	8.9	9.1	---	---	---
22	---	---	---	8.3	7.4	7.8	9.3	8.6	9.0	---	---	---
23	---	---	---	8.0	7.7	7.8	9.3	8.5	9.0	---	---	---
24	---	---	---	8.1	7.5	7.9	9.8	8.9	9.3	---	---	---
25	---	---	---	8.6	7.9	8.4	10.0	9.1	9.5	---	---	---
26	---	---	---	8.7	7.6	8.1	9.9	9.2	9.5	---	---	---
27	---	---	---	8.3	7.3	7.8	9.8	9.1	9.4	8.5	8.2	8.4
28	---	---	---	8.2	7.3	7.8	10.0	8.9	9.3	8.6	8.3	8.4
29	---	---	---	8.7	7.5	8.1	9.5	8.8	9.1	9.2	8.6	8.9
30	---	---	---	8.8	7.9	8.4	9.6	8.7	9.0	9.5	9.1	9.3
31	---	---	---	8.9	8.2	8.5	9.7	8.8	9.2	---	---	---
MONTH	11.1	7.4	9.2	9.1	6.4	7.9	10.0	7.5	8.8	9.5	7.4	8.7



## LEHIGH RIVER BASIN

## LAKES AND RESERVOIRS IN LEHIGH RIVER BASIN

- 01447780 FRANCIS E. WALTER RESERVOIR** (formerly published as Bear Creek Reservoir)--Lat 41°06'45", long 75°43'15", Luzerne County, Hydrologic Unit 02040106, at dam on Lehigh River, 2,200 ft downstream from Bear Creek, and 5.0 mi northeast of White Haven. DRAINAGE AREA, 289 mi<sup>2</sup>. PERIOD OF RECORD, February 1961 to current year. GAGE, water-stage recorder (U.S. Army Corps of Engineers datum).  
 REMARKS.--Reservoir formed by an earthfill embankment covered with a rock shell, with concrete spillway at elevation 1,450.0 ft. Storage began Feb. 17, 1961; reservoir first reached conservation pool in June 1961. Total capacity (elevation 1,450.0 ft) is 110,700 acre-ft of which 108,700 acre-ft is controlled storage above elevation 1,300.0 ft. (conservation pool). Dead storage is 2,000 acre-ft. Flow regulated by three gates and low-flow by-pass system. Reservoir is used for flood control and recreation. Satellite telemetry at station.  
 EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 62,100 acre-ft, Sept. 28, 1985, elevation, 1,417.08 ft; minimum contents (after establishment of conservation pool), 980 acre-ft, July 6, 1982, elevation, 1,287.70 ft.  
 EXTREMES FOR CURRENT YEAR.--Maximum recorded contents, 29,360 acre-ft, June 23, elevation, 1,382.85 ft; minimum contents, 1,310 acre-ft, Dec. 26, elevation, 1,293.34 ft.
- 01449400 PENN FOREST RESERVOIR**--Lat 40°55'45", long 75°33'45", Carbon County, Hydrologic Unit 02040106, at dam on Wild Creek, 0.7 mi upstream from hatchery, 2.6 mi upstream from Wild Creek Dam, 4.4 mi upstream from mouth, and 10.0 mi northeast of Palmerton. DRAINAGE AREA, 16.5 mi<sup>2</sup>. PERIOD OF RECORD, October 1958 to current year. GAGE, water-stage recorder. Datum of gage is sea level (levels by city of Bethlehem).  
 REMARKS.--Reservoir formed by a roller-compacted concrete dam with ungated concrete spillway at elevation 1,000.60 ft (capacity, 18,510 acre-ft). Storage began October 1958. Reservoir is used for municipal water supply. Regulation by valves on pipe through dam. Figures given herein represent total contents and include diversion since October 1969 from Tunkhannock Creek Basin to Wild Creek Basin.  
 COOPERATION.--Records provided by city of Bethlehem.  
 EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 20,800 acre-ft, Apr. 16, 1983, elevation, 1,001.69 ft; minimum contents, 0 acre-ft, many days during 1996, 1997, 1998, and 1999 water years, elevation, 890.60 ft.  
 EXTREMES FOR CURRENT YEAR.--Maximum contents, 19,090 acre-ft, June 13, elevation, 1,001.73 ft; minimum contents, 16,170 acre-ft, Oct. 10, elevation, 995.08 ft.
- 01449700 WILD CREEK RESERVOIR**--Lat 40°53'50", long 75°33'50", Carbon County, Hydrologic Unit 02040106, at dam on Wild Creek, 1.6 mi upstream from mouth, 2.4 mi south of hatchery, and 7.5 mi northeast of Palmerton. DRAINAGE AREA, 22.2 mi<sup>2</sup>. PERIOD OF RECORD, January 1941 to current year. GAGE, nonrecording gage. Datum of gage is sea level (levels by city of Bethlehem).  
 REMARKS.--Reservoir formed by earthfill dam with concrete ungated spillway at elevation 820.00 ft. Storage began January 27, 1941; reservoir first reached minimum contents pool elevation in February 1941. Total capacity at elevation 820.00 ft is 12,500 acre-ft of which 12,000 acre-ft is controlled storage. Reservoir is used for municipal water supply. Regulation by valves on pipe through dam. Figures given herein represent usable contents and include diversion since October 1969 from Tunkhannock Creek Basin to Wild Creek Basin.  
 COOPERATION.--Records provided by city of Bethlehem.  
 EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 12,880 acre-ft, May 23, 1942, elevation, 822.93 ft; minimum contents (after first filling), 2,680 acre-ft, Nov. 15, 1966, elevation, 774.10 ft.  
 EXTREMES FOR CURRENT YEAR.--Maximum contents, 12,490 acre-ft, June 13, elevation, 821.64 ft; minimum contents, 11,500 acre-ft, Dec. 10, elevation 817.88 ft.
- 01449790 BELTZVILLE LAKE**--Lat 40°50'56", long 75°38'19", Carbon County, Hydrologic Unit 02040106, at dam on Pohopoco Creek, 0.4 mi upstream from gaging station on Pohopoco Creek, 0.6 mi upstream from Sawmill Run, and 2.3 mi northeast of Parryville. DRAINAGE AREA, 96.3 mi<sup>2</sup>. PERIOD OF RECORD, February 1971 to current year. GAGE, water-stage recorder (U.S. Army Corps of Engineers datum).  
 REMARKS.--Lake formed by an earth and rockfill dam with ungated, partially lined spillway at an elevation of 651.00 ft. Storage began Feb. 8, 1971. Capacity at elevation 651.00 ft is 68,300 acre-ft. Ordinary minimum contents (conservation) pool elevation is 628.00 ft, capacity, 41,250 acre-ft. Dead storage is 1,390 acre-ft. Lake is used for recreation, flood control, low-flow augmentation, and water supply. Figures given herein represent total contents. Regulation is accomplished by a multi-level water-quality outlet system, and two flood-control gates.  
 EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 49,730 acre-ft, Jan. 29, 1976, elevation, 636.30 ft; minimum contents, 15,110 acre-ft, Mar. 31, 1983, elevation, 588.79 ft.  
 EXTREMES FOR CURRENT YEAR.--Maximum contents, 46,090 acre-ft, June 23, elevation, 632.89 ft; minimum contents, 38,760 acre-ft, Jan. 8, elevation, 625.34 ft.

LEHIGH RIVER BASIN

Lakes and Reservoirs in Lehigh River Basin--Continued

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

Date	Elevation (feet)	Contents (acre- feet)	Change in contents (equivalent in ft <sup>3</sup> /s)	Elevation (feet)	Contents (acre- feet)	Change in contents (equivalent in ft <sup>3</sup> /s)
<u>01447780 Francis E. Walter Reservoir</u>				<u>01449400 Penn Forest Reservoir</u>		
Sept. 30 .....	1,371.63	21,840	---	995.45	16,330	--
Oct. 31 .....	1,370.75	21,290	-8.9	996.71	16,860	+8.6
Nov. 30 .....	1,326.99	5,450	-266	999.43	18,010	+19.3
Dec. 31 .....	1,304.54	2,200	-52.9	1,000.73	18,580	+9.3
CAL YR 2002 .....	--	--	+0.3	--	--	+4.0
Jan. 31 .....	1,302.76	2,040	-2.6	1,000.50	18,470	-1.8
Feb. 28 .....	1,302.69	2,040	0	1,000.25	18,360	-2.0
Mar. 31 .....	1,321.84	4,510	+40.2	1,000.96	18,690	+5.4
Apr. 30 .....	1,301.57	1,930	-43.4	1,000.75	18,590	-1.7
May 31 .....	1,305.56	2,310	+6.2	1,000.77	18,600	+0.2
June 30 .....	1,300.28	1,820	-8.2	1,000.93	18,680	+1.3
July 31 .....	1,300.71	1,860	+0.7	1,000.56	18,490	-3.1
Aug. 31 .....	1,301.68	1,940	+1.3	1,000.60	18,510	+0.3
Sept. 30 .....	1,305.96	2,350	+6.9	1,000.90	18,660	+2.5
WTR YR 2003 .....	--	--	-26.9	--	--	+3.2
<u>01449700 Wild Creek Reservoir</u>				<u>01449790 Beltzville Lake</u>		
Sept. 30 .....	818.72	11,720	---	626.99	40,290	--
Oct. 31 .....	818.46	11,650	-1.1	628.22	41,460	+19.0
Nov. 30 .....	818.56	11,680	+0.5	628.13	41,370	-1.5
Dec. 31 .....	820.26	12,080	+6.5	625.71	39,090	-37.1
CAL YR 2002 .....	--	--	+0.7	--	--	-3.1
Jan. 31 .....	820.06	12,020	-1.0	628.11	41,350	+36.8
Feb. 28 .....	820.11	12,030	+0.2	626.76	40,070	-23.0
Mar. 31 .....	820.51	12,150	+2.0	628.43	41,660	+25.9
Apr. 30 .....	820.18	12,050	-1.7	628.04	41,290	-6.2
May 31 .....	820.28	12,080	+0.5	628.23	41,470	+2.9
June 30 .....	820.41	12,120	+0.7	627.16	40,450	-17.1
July 31 .....	819.90	11,980	-2.3	627.91	41,160	+11.5
Aug. 31 .....	819.63	11,930	-0.8	628.04	41,290	+2.1
Sept. 30 .....	820.42	12,130	+3.4	628.38	41,610	+5.4
WTR YR 2003 .....	--	--	+0.6	--	--	+1.8

## DELAWARE RIVER BASIN

## 01457500 DELAWARE RIVER AT RIEGELSVILLE, NJ

**LOCATION.**--Lat 40°35'40", long 75°11'24", Warren County, Hydrologic Unit 02040105, at suspension bridge at Riegelsville, NJ, 600 ft upstream from Musconetcong River, and at river mile 174.8. Water-quality samples are collected from the bridge and are unaffected by the flow of the Musconetcong River.

**DRAINAGE AREA.**--6,328 mi<sup>2</sup>.

**PERIOD OF RECORD.**--Water years 1934, 1943, 1950, 1960-79, 1991 to current year.

**REMARKS.**--Total nitrogen (00600) equals the sum of dissolved ammonia plus organic nitrogen (00623), dissolved nitrite plus nitrate nitrogen (00631), and total particulate nitrogen (49570). The flow of the Musconetcong River is included in the instantaneous discharge, cfs (00061).

**COOPERATION.**--Field data and samples for laboratory analyses were provided by the New Jersey Department of Environmental Protection. Determination of dissolved ammonia, total ammonia, dissolved nitrite, dissolved orthophosphate, biochemical oxygen demand, total suspended solids, fecal coliform, *E. coli*, and enterococcus bacteria was performed by the New Jersey Department of Health and Senior Services, Public Health and Environmental Laboratories, Environmental and Chemical Laboratory Services. Determination of chlorophyll a was performed by the New Jersey Department of Environmental Protection, Bureau of Freshwater and Biological Monitoring Laboratory.

**COOPERATIVE NETWORK SITE DESCRIPTOR.**--Delaware River Main Stem, New Jersey Department of Environmental Protection Watershed Management Area 11.

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

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, water, unfltrd field, NTU (61028)	UV absorbance, 254 nm, wat flt units /cm (50624)	UV absorbance, 280 nm, wat flt units /cm (61726)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd μS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO <sub>3</sub> (00900)
DEC 03...	1030	9,820	1.3	0.086	0.066	768	12.2	88	7.7	150	-5.0	2.0	46
FEB 03...	1030	7,110	1.1	0.056	0.042	757	13.4	98	7.7	197	4.0	1.9	64
MAY 08...	1030	11,000	2.6	0.048	0.035	756	9.0	89	7.6	157	18.0	14.3	49
SEP 10...	1045	12,200	4.2	0.099	0.075	765	8.3	89	7.6	138	19.5	19.3	49

Date	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd end pt, lab, mg/L as CaCO <sub>3</sub> (90410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate, water, fltrd, mg/L (00945)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
DEC 03...	12.1	3.92	0.87	8.45	30	13.2	<0.17	4.2	13.8	78	86	6	0.16
FEB 03...	16.5	5.47	1.17	11.9	41	18.2	<0.17	3.7	16.3	103	110	<1	0.17
MAY 08...	12.7	4.18	1.05	8.93	34	14.2	<0.17	2.2	13.1	80	92	3	0.17
SEP 10...	13.6	3.76	1.07	7.63	32	11.6	<0.17	3.6	11.9	75	80	6	0.19

Date	Ammonia water, fltrd, mg/L as N (00608)	Ammonia water, unfltrd mg/L as N (00610)	Nitrite + nitrate water, fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Particulate nitrogen, susp, water, mg/L (49570)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, fltrd, mg/L (00602)	Total nitrogen, water, unfltrd mg/L (00600)	Total carbon, suspnd sedimnt total, mg/L (00694)	Inorganic carbon, suspnd sedimnt total, mg/L (00688)	Organic carbon, suspnd sedimnt total, mg/L (00689)
DEC 03...	<0.030	0.030	0.79	<0.003	0.044	0.04	0.036	0.041	0.95	0.99	0.2	<0.1	0.2
FEB 03...	<0.030	<0.030	1.10	0.007	0.034	0.06	0.032	0.041	1.3	1.3	0.2	<0.1	0.2
MAY 08...	<0.030	<0.030	0.66	0.005	0.027	0.09	0.026	0.044	0.83	0.93	0.6	<0.1	0.6
SEP 10...	<0.020	<0.020	0.55	0.003	0.023	0.09	0.030	0.048	0.74	0.84	0.6	<0.1	0.6

## DELAWARE RIVER BASIN

## 01457500 DELAWARE RIVER AT RIEGELSVILLE, NJ--Continued

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

Date	Organic carbon, water, fltrd, mg/L (00681)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Chloro-phyll a fluorometric method, corrcrtd µg/L (32209)	Boron, water, fltrd, µg/L (01020)
DEC 03...	2.6	2.0	--	13
FEB 03...	2.0	E1.5	--	E12
MAY 08...	2.1	E1.1	10.1	E8.9
SEP 10...	2.9	<1.0	3.40	12

Remark codes used in this table:

&lt; -- Less than

E -- Estimated value

## WATER-COLUMN BACTERIA ANALYSES

Samples were collected synoptically over a 30-day period during the summer.

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

Date	Time	Enterococci, m-E MF, water, col/ 100 mL (31649)	E coli, m-TEC MF, water, col/ 100 mL (31633)	Fecal coli-form, ECbroth water, MPN/ 100 mL (31615)	Date	Time	Enterococci, m-E MF, water, col/ 100 mL (31649)	E coli, m-TEC MF, water, col/ 100 mL (31633)	Fecal coli-form, ECbroth water, MPN/ 100 mL (31615)
MAY 15...	0900	<10	<100	80	JUN 05...	0855	330	1,000	500
22...	0900	40	100	20	12...	0910	2,500	1,300	3,000
29...	0930	370	100	800					

Remark codes used in this table:

&lt; -- Less than

## TOHICKON CREEK BASIN

## 01459500 TOHICKON CREEK NEAR PIPERSVILLE, PA

**LOCATION.**--Lat 40°26'01", long 75°07'01", Bucks County, Hydrologic Unit 02040105, on right bank at site of Traugers bridge, 1.5 mi northeast of Pipersville, and 4.5 mi upstream from mouth.

**DRAINAGE AREA.**--97.4 mi<sup>2</sup>.

**PERIOD OF RECORD.**--July 1935 to current year.

**REVISED RECORDS.**--WDR PA-75-1: 1974.

**GAGE.**--Water-stage recorder. Datum of gage is 258.96 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Flow regulated since December 1973 by Nockamixon Reservoir about 6.2 mi upstream. Several measurements of water temperature were made during the year. Satellite telemetry at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	187	70	850	e23	156	346	57	215	28	25	11
2	19	280	53	1630	e24	564	248	56	311	25	34	44
3	18	217	51	742	e25	759	192	54	194	24	26	103
4	17	23	40	571	e30	487	151	45	2010	21	31	216
5	17	18	42	393	e35	538	139	41	1680	19	262	218
6	17	71	52	294	e40	759	132	40	655	18	1800	122
7	15	49	43	238	e60	538	122	39	602	17	979	69
8	13	45	58	199	e50	386	144	46	909	16	353	46
9	11	44	41	239	e45	652	371	47	492	15	235	35
10	11	42	66	237	e38	635	670	48	270	14	205	29
11	311	45	169	181	e37	385	695	46	160	15	340	26
12	762	169	1190	125	e34	290	924	45	114	15	577	23
13	405	474	1000	88	e35	378	567	41	129	13	259	27
14	188	319	1760	73	e36	557	311	34	199	11	141	90
15	95	181	990	e70	e25	471	203	30	150	10	93	389
16	228	162	470	e60	e20	525	154	28	98	9.4	61	1250
17	477	2270	255	e45	e130	695	166	28	67	8.3	48	537
18	282	1810	155	e40	e760	628	71	28	106	7.5	44	210
19	146	678	112	e50	e390	443	80	28	133	7.8	35	988
20	90	337	927	e40	e140	540	81	26	1370	6.8	31	669
21	59	203	1550	e35	e75	1890	76	28	2800	6.5	27	278
22	44	181	567	e32	e570	966	127	29	1150	308	25	144
23	36	247	307	e30	e1750	450	124	28	464	1630	23	1350
24	31	183	190	e30	1360	274	98	31	245	670	19	1330
25	28	127	325	e29	766	194	73	39	142	229	17	437
26	180	97	551	e27	465	157	85	820	91	104	15	211
27	194	106	417	e25	304	195	105	950	62	61	13	149
28	133	101	288	e20	209	177	93	403	45	47	12	788
29	89	85	215	e25	---	211	81	231	35	35	11	273
30	159	75	173	e22	---	625	68	144	31	29	11	154
31	247	---	206	e20	---	592	---	102	---	24	12	---
TOTAL	4343	8826	12333	6460	7476	16117	6697	3612	14929	3444.3	5764	10216
MEAN	140	294	398	208	267	520	223	117	498	111	186	341
MAX	762	2270	1760	1630	1750	1890	924	950	2800	1630	1800	1350
MIN	11	18	40	20	20	156	68	26	31	6.5	11	11

e Estimated.



TOHICKON CREEK BASIN

01459500 TOHICKON CREEK NEAR PIPERSVILLE, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	85.4	164	229	237	207	314	232	193	92.6	68.0	51.7	90.1
MAX	528	553	813	916	436	867	707	579	498	602	232	452
(WY)	1997	1976	1997	1979	1984	1994	1983	1984	2003	1984	1978	1999
MIN	5.87	5.12	3.61	16.4	28.3	43.1	36.9	29.1	5.73	2.11	3.92	4.03
(WY)	1983	2002	1999	1977	1974	1976	1985	1999	1999	1999	2002	1980

SUMMARY STATISTICS FOR 2002 CALENDAR YEAR FOR 2003 WATER YEAR WATER YEARS 1974 - 2003

ANNUAL TOTAL	51552.4		100217.3			
ANNUAL MEAN	141		275		164	
HIGHEST ANNUAL MEAN					300 1984	
LOWEST ANNUAL MEAN					74.0 2002	
HIGHEST DAILY MEAN	3870	May 14	2800	Jun 21	6810	Dec 5 1993
LOWEST DAILY MEAN	2.4	Sep 12	6.5	Jul 21	1.5	Oct 26 2001
ANNUAL SEVEN-DAY MINIMUM	2.8	Sep 7	8.0	Jul 15	1.7	Sep 12 1991
MAXIMUM PEAK FLOW			4090	Jun 4	a18600	Sep 16 1999
MAXIMUM PEAK STAGE			6.56	Jun 4	11.90	Sep 16 1999
10 PERCENT EXCEEDS	305		749		400	
50 PERCENT EXCEEDS	46		114		47	
90 PERCENT EXCEEDS	3.6		20		5.9	

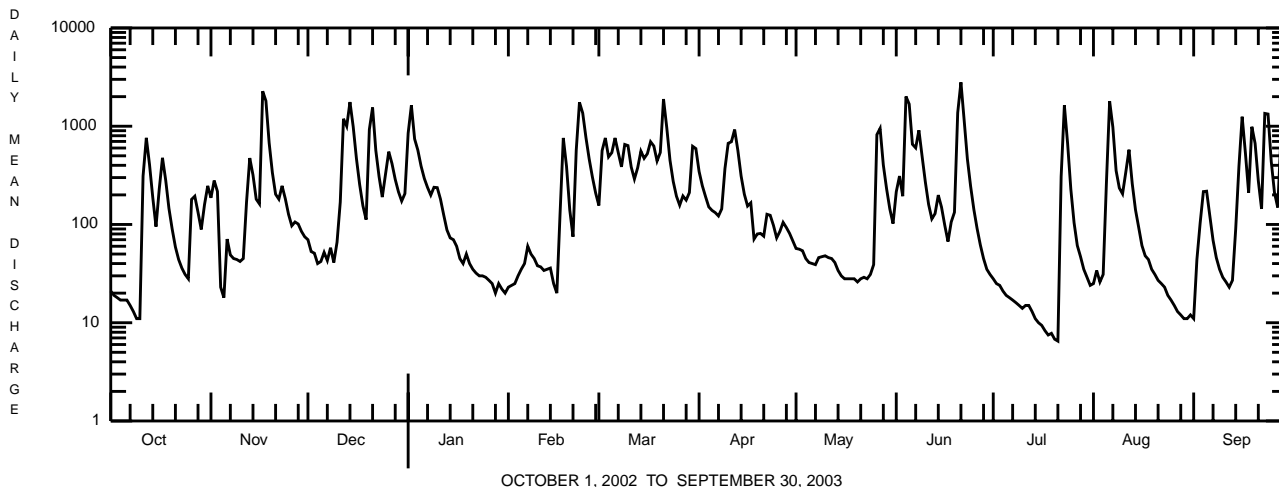
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1936 - 1973, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	43.4	138	183	190	235	300	217	121	79.0	54.0	66.8	54.3
MAX	367	601	464	501	572	795	612	430	413	288	515	513
(WY)	1956	1973	1973	1949	1971	1936	1952	1948	1972	1938	1955	1960
MIN	1.46	3.51	11.5	37.8	42.5	133	35.2	15.9	4.64	1.68	1.12	1.21
(WY)	1965	1965	1966	1966	1947	1949	1946	1955	1965	1957	1957	1957

SUMMARY STATISTICS WATER YEARS 1936 - 1973

ANNUAL MEAN	140	
HIGHEST ANNUAL MEAN	240	1973
LOWEST ANNUAL MEAN	45.8	1965
HIGHEST DAILY MEAN	6820	Sep 12 1960
LOWEST DAILY MEAN	.10	Sep 24 1941 <sup>b</sup>
ANNUAL SEVEN DAY MINIMUM	.47	Jul 24 1955
MAXIMUM PEAK FLOW	a16000	Aug 18 1955
MAXIMUM PEAK STAGE	11.26	Aug 18 1955
INSTANTANEOUS LOW FLOW	.05	Sep 24 1941
ANNUAL RUNOFF (CFSM)	1.43	
ANNUAL RUNOFF (INCHES)	19.48	
10 PERCENT EXCEEDS	325	
50 PERCENT EXCEEDS	37	
90 PERCENT EXCEEDS	3.8	

a From rating curve extended above 13,600 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 10.48 ft.  
 b Also Sept. 29, Oct. 6, 1941.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

## DELAWARE RIVER BASIN

## 01460200 DELAWARE RIVER BELOW TOHICKON CREEK AT POINT PLEASANT, PA

**LOCATION.**--Lat 40°25'06", long 75°03'42", Bucks County, Hydrologic Unit 02040105, on right bank at Forest Park Water Company pump station, 0.2 mi downstream from Tohickon Creek and 0.4 mi southeast of Point Pleasant.

**DRAINAGE AREA.**--6,570 mi<sup>2</sup>.

**PERIOD OF RECORD.**--May 2000 to current year.

**PERIOD OF DAILY RECORD.**--

SPECIFIC CONDUCTANCE: May 2000 to current year.

pH: May 2000 to current year.

WATER TEMPERATURE: May 2000 to current year.

DISSOLVED OXYGEN: May 2000 to current year.

**INSTRUMENTATION.**--Probes interfaced with a data collection platform with 30-minute recording interval. Satellite and landline telemetry at station.

**REMARKS.**--Specific conductance and pH records rated good except for period Oct. 30 to Apr. 27, which is poor. Dissolved oxygen record rated fair except for period Apr. 23 to May 8, which is poor. Water temperature record rated good. Other interruptions in the record due to intermittent pumping. (See Tributary from Bradshaw Reservoir, station 01472618).

**EXTREMES FOR PERIOD OF DAILY RECORD.**--

SPECIFIC CONDUCTANCE: Maximum, 298 microsiemens, Dec. 12, 2002; minimum recorded, 77 microsiemens, Sept. 5, 6, 2003.

pH: Maximum recorded, 9.6, Apr. 25, 30, May 3, 2003; minimum recorded, 6.9, Oct. 18, 2002, Jan. 7, 2003.

WATER TEMPERATURE: Maximum, 32.5°C, Aug. 9, 2001; minimum, 2.0°C, Jan. 19-21, 2002.

DISSOLVED OXYGEN: Maximum, 15.5 mg/L, Nov. 25, 2000; minimum, 6.1 mg/L, Aug. 11, 2001.

**EXTREMES FOR CURRENT YEAR.**--

SPECIFIC CONDUCTANCE: Maximum, 298 microsiemens, Dec. 12; minimum recorded, 77 microsiemens, Sept. 5, 6.

pH: Maximum recorded, 9.6, Apr. 25, 30, May 3; minimum recorded, 6.9, Oct. 18, Jan. 7

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	174	168	171	168	158	161	158	147	149	171	167	169
2	191	174	184	175	163	169	158	146	149	175	168	170
3	213	191	199	174	165	168	153	147	149	169	146	157
4	218	213	216	169	166	167	153	149	151	170	146	161
5	227	218	224	169	166	168	160	149	155	173	162	168
6	231	222	225	181	168	176	170	156	165	166	160	162
7	236	214	227	189	180	182	177	166	173	182	162	170
8	214	195	202	183	167	179	186	172	178	174	168	171
9	203	196	198	170	164	166	187	179	183	179	169	174
10	208	203	206	165	162	164	191	182	186	190	175	178
11	207	206	207	168	163	164	198	183	190	187	178	181
12	226	171	199	168	164	166	298	194	206	186	179	182
13	171	142	154	182	166	174	270	228	243	190	180	182
14	142	134	136	178	161	170	232	190	218	190	184	186
15	141	133	135	163	144	150	195	167	181	191	186	188
16	142	139	140	145	141	143	171	161	164	204	188	195
17	158	130	145	147	141	143	162	154	158	205	199	201
18	130	102	112	147	131	143	158	152	155	215	200	207
19	106	102	103	131	116	124	165	156	159	226	211	217
20	118	106	112	119	115	116	166	156	164	221	212	218
21	125	118	122	121	114	116	175	161	168	---	---	---
22	135	123	127	128	120	124	169	141	155	---	---	---
23	143	133	136	135	127	131	149	138	140	---	---	---
24	148	140	144	131	123	127	144	139	143	---	---	---
25	157	148	153	124	121	122	142	137	140	---	---	---
26	170	156	161	127	123	125	178	141	168	---	---	---
27	171	160	165	135	126	128	175	167	170	---	---	---
28	166	144	150	143	135	140	172	162	165	205	197	201
29	148	142	144	145	141	142	165	159	161	209	200	204
30	154	148	151	157	142	144	164	160	162	222	201	214
31	163	152	156	---	---	---	168	159	161	216	207	212
MONTH	236	102	165	189	114	150	298	137	168	226	146	186



## DELAWARE RIVER BASIN

## 01460200 DELAWARE RIVER BELOW TOHICKON CREEK AT POINT PLEASANT, PA

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	<b>OCTOBER</b>			<b>NOVEMBER</b>			<b>DECEMBER</b>			<b>JANUARY</b>		
1	8.5	7.4	7.6	7.5	7.3	7.4	7.4	7.3	7.3	7.5	7.4	7.5
2	8.6	7.3	7.7	7.5	7.3	7.5	7.4	7.3	7.4	7.5	7.4	7.5
3	8.6	7.3	7.8	7.5	7.3	7.4	7.5	7.3	7.4	7.4	7.1	7.3
4	7.7	7.4	7.5	7.6	7.4	7.5	7.5	7.3	7.4	7.2	7.0	7.1
5	8.4	7.4	7.7	7.6	7.4	7.5	7.5	7.4	7.4	7.2	7.1	7.2
6	8.5	7.4	7.7	7.6	7.4	7.4	7.6	7.3	7.4	7.2	7.1	7.2
7	8.5	7.5	7.8	7.7	7.4	7.5	7.6	7.4	7.5	7.3	6.9	7.1
8	8.6	7.5	7.8	7.6	7.4	7.5	7.6	7.4	7.5	7.1	7.0	7.0
9	8.4	7.5	7.7	7.6	7.4	7.4	7.7	7.5	7.5	7.1	7.0	7.0
10	8.0	7.5	7.6	7.6	7.4	7.4	7.6	7.5	7.6	7.1	7.0	7.1
11	7.6	7.5	7.5	7.6	7.3	7.4	---	---	---	7.2	7.1	7.1
12	7.5	7.2	7.4	7.4	7.3	7.4	---	---	---	7.2	7.1	7.2
13	7.2	7.1	7.2	7.5	7.2	7.3	---	---	---	7.2	7.1	7.1
14	7.1	7.0	7.1	7.6	7.3	7.4	---	---	---	7.2	7.1	7.2
15	7.2	7.0	7.1	7.4	7.2	7.3	---	---	---	7.3	7.2	7.2
16	7.3	7.1	7.2	7.4	7.3	7.3	---	---	---	7.3	7.2	7.2
17	7.3	7.1	7.2	7.3	7.2	7.3	7.2	7.1	7.2	7.3	7.2	7.2
18	7.2	6.9	7.0	7.3	7.2	7.3	7.3	7.2	7.2	7.4	7.2	7.3
19	7.0	7.0	7.0	7.2	7.1	7.2	7.2	7.1	7.2	7.3	7.2	7.3
20	7.1	7.0	7.0	7.2	7.0	7.1	7.3	7.2	7.2	7.2	7.1	7.1
21	7.2	7.1	7.1	7.2	7.1	7.1	7.4	7.2	7.3	---	---	---
22	7.3	7.1	7.2	7.2	7.1	7.2	7.3	7.2	7.3	---	---	---
23	7.3	7.2	7.2	7.3	7.2	7.2	7.3	7.2	7.2	---	---	---
24	7.4	7.2	7.3	7.3	7.2	7.2	7.3	7.2	7.3	---	---	---
25	7.3	7.2	7.3	7.3	7.2	7.2	7.3	7.2	7.3	---	---	---
26	7.4	7.2	7.3	7.3	7.2	7.2	7.4	7.3	7.3	---	---	---
27	7.4	7.3	7.3	7.3	7.2	7.3	7.5	7.3	7.4	---	---	---
28	7.4	7.3	7.3	7.3	7.2	7.3	7.5	7.4	7.4	7.6	7.3	7.5
29	7.4	7.3	7.3	7.4	7.3	7.3	7.5	7.4	7.4	7.7	7.3	7.3
30	7.4	7.2	7.3	7.4	7.2	7.3	7.6	7.4	7.5	7.8	7.4	7.5
31	7.4	7.2	7.3	---	---	---	7.6	7.4	7.5	7.7	7.5	7.6
MAX	8.6	7.5	7.8	7.7	7.4	7.5	7.7	7.5	7.6	7.8	7.5	7.6
MIN	7.0	6.9	7.0	7.2	7.0	7.1	7.2	7.1	7.2	7.1	6.9	7.0
	<b>FEBRUARY</b>			<b>MARCH</b>			<b>APRIL</b>			<b>MAY</b>		
1	7.7	7.4	7.4	8.0	7.4	7.4	7.4	7.3	7.3	9.5	7.8	8.5
2	7.9	7.4	7.4	7.7	7.4	7.5	7.4	7.3	7.3	9.5	7.8	8.6
3	7.9	7.5	7.8	8.0	7.6	7.7	7.4	7.2	7.4	9.6	7.8	8.6
4	7.8	7.4	7.5	7.9	7.6	7.8	7.4	7.4	7.4	9.1	7.8	8.2
5	8.1	7.5	7.5	8.4	7.6	7.7	7.4	7.4	7.4	8.2	7.6	7.8
6	7.9	7.5	7.7	8.1	7.6	7.7	7.5	7.3	7.4	8.1	7.6	7.7
7	7.9	7.4	7.5	8.2	7.6	7.6	7.5	7.4	7.4	8.3	7.7	7.8
8	8.1	7.4	7.6	8.8	7.7	8.4	7.5	7.4	7.4	8.0	7.6	7.8
9	8.2	7.5	7.7	8.7	7.7	7.7	7.5	7.4	7.5	8.4	7.5	7.8
10	8.1	7.6	7.7	7.8	7.7	7.8	7.6	7.4	7.5	8.5	7.6	7.9
11	8.0	7.4	7.5	8.6	7.7	7.8	7.6	7.5	7.5	8.3	7.6	7.8
12	8.5	7.6	7.7	8.7	7.8	8.3	7.5	7.5	7.5	8.1	7.7	7.8
13	8.4	7.6	8.2	8.4	7.8	7.9	7.6	7.5	7.5	8.0	7.6	7.8
14	8.2	7.6	8.1	8.6	7.7	8.3	---	---	---	7.8	7.7	7.8
15	8.5	7.6	7.7	8.5	7.7	7.8	---	---	---	7.8	7.6	7.7
16	8.3	7.7	8.2	9.0	7.8	8.7	---	---	---	7.8	7.7	7.7
17	8.2	7.6	8.0	8.9	7.7	7.8	---	---	---	7.8	7.7	7.7
18	8.6	7.4	7.9	7.8	7.5	7.7	7.9	7.6	7.7	7.9	7.7	7.8
19	8.5	7.5	7.9	7.6	7.3	7.4	7.9	7.6	7.8	8.0	7.8	7.9
20	8.5	7.5	7.9	7.3	7.1	7.2	7.9	7.6	7.8	8.2	7.9	8.0
21	8.6	7.4	7.8	7.2	7.1	7.1	8.5	7.7	7.8	7.9	7.7	7.8
22	---	---	---	7.2	7.1	7.1	8.4	7.8	8.1	8.0	7.7	7.8
23	---	---	---	7.1	7.0	7.0	9.0	7.7	7.8	8.0	7.8	7.8
24	---	---	---	7.2	7.0	7.2	9.3	8.0	8.1	8.0	7.8	7.8
25	7.4	7.1	7.2	7.3	7.2	7.2	9.6	8.3	9.2	7.9	7.8	7.8
26	7.4	7.1	7.3	7.4	7.2	7.3	9.5	8.0	8.4	7.8	7.6	7.6
27	7.6	7.2	7.2	7.3	7.2	7.3	9.5	7.8	8.8	7.8	7.6	7.7
28	8.0	7.3	7.6	7.3	7.2	7.3	9.5	7.9	8.8	7.7	7.5	7.6
29	---	---	---	7.4	7.2	7.3	9.4	7.9	8.6	7.6	7.5	7.6
30	---	---	---	7.4	7.3	7.4	9.6	7.8	8.8	7.6	7.4	7.5
31	---	---	---	7.4	7.3	7.3	---	---	---	7.7	7.6	7.6
MAX	8.6	7.7	8.2	9.0	7.8	8.7	9.6	8.3	9.2	9.6	7.9	8.6
MIN	7.4	7.1	7.2	7.1	7.0	7.0	7.4	7.2	7.3	7.6	7.4	7.5



## DELAWARE RIVER BASIN

## 01460200 DELAWARE RIVER BELOW TOHICKON CREEK AT POINT PLEASANT, PA

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	17.5	15.0	16.0
2	---	---	---	---	---	---	---	---	---	18.5	16.5	17.0
3	---	---	---	---	---	---	---	---	---	19.0	16.5	17.5
4	---	---	---	---	---	---	---	---	---	17.5	16.5	17.0
5	---	---	---	---	---	---	---	---	---	16.5	14.5	15.5
6	---	---	---	---	---	---	---	---	---	14.5	14.0	14.0
7	---	---	---	---	---	---	---	---	---	16.0	13.5	14.5
8	---	---	---	---	---	---	---	---	---	15.5	15.0	15.0
9	---	---	---	---	---	---	---	---	---	15.5	15.0	15.0
10	---	---	---	---	---	---	---	---	---	16.0	15.0	15.5
11	---	---	---	---	---	---	---	---	---	17.0	15.5	16.0
12	---	---	---	---	---	---	---	---	---	16.5	15.5	16.0
13	---	---	---	---	---	---	---	---	---	16.0	15.0	15.5
14	---	---	---	---	---	---	---	---	---	15.5	14.5	15.0
15	---	---	---	---	---	---	---	---	---	15.0	14.0	14.5
16	---	---	---	---	---	---	---	---	---	15.0	14.0	14.5
17	---	---	---	---	---	---	---	---	---	15.5	14.0	14.5
18	---	---	---	---	---	---	---	---	---	15.5	14.0	15.0
19	---	---	---	---	---	---	---	---	---	18.0	14.0	16.0
20	---	---	---	---	---	---	---	---	---	19.5	15.5	17.5
21	---	---	---	---	---	---	---	---	---	18.0	17.0	17.5
22	---	---	---	---	---	---	---	---	---	17.5	16.5	17.0
23	---	---	---	---	---	---	---	---	---	16.5	15.5	16.0
24	---	---	---	---	---	---	---	---	---	16.0	15.5	15.5
25	---	---	---	---	---	---	---	---	---	15.5	15.0	15.5
26	---	---	---	---	---	---	---	---	---	15.0	14.5	15.0
27	---	---	---	---	---	---	---	---	---	15.5	---	---
28	---	---	---	---	---	---	16.0	13.0	14.5	16.0	---	---
29	---	---	---	---	---	---	16.0	14.5	15.0	17.5	15.5	16.5
30	---	---	---	---	---	---	17.0	14.5	15.5	18.5	16.5	17.5
31	---	---	---	---	---	---	---	---	---	18.0	17.5	18.0
MONTH	---	---	---	---	---	---	17.0	13.0	15.0	19.5	13.5	15.9

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	17.5	16.0	---	23.5	21.5	22.5	25.5	24.5	25.0	23.0	21.5	22.5
2	16.0	15.0	---	24.0	22.0	23.0	26.5	24.0	25.0	21.5	---	21.0
3	---	15.0	---	23.5	22.5	23.0	26.5	25.0	25.5	---	19.0	---
4	---	---	---	25.0	22.5	23.5	26.0	25.0	25.5	19.0	18.0	18.5
5	15.0	14.0	---	26.5	23.5	25.0	25.5	24.5	25.0	19.0	18.0	18.5
6	16.5	15.0	15.5	27.5	24.5	25.5	23.5	23.0	23.0	19.0	18.0	18.5
7	---	---	---	27.5	25.0	26.0	23.0	23.0	23.0	20.0	18.5	19.5
8	16.0	15.5	15.5	27.5	25.5	26.5	24.0	23.0	23.5	21.0	19.5	20.0
9	16.5	15.5	16.0	27.0	25.5	26.0	24.0	22.5	23.5	21.5	20.0	20.5
10	---	16.5	17.0	25.5	23.5	24.5	24.0	23.0	23.5	22.0	20.0	20.5
11	18.5	17.5	18.0	24.5	22.5	23.5	24.5	23.5	24.0	22.0	20.0	21.0
12	19.0	18.0	18.5	24.5	22.0	23.5	24.0	23.5	24.0	22.5	20.5	21.0
13	19.0	18.5	18.5	25.0	22.0	23.5	24.5	23.5	24.0	21.0	20.5	20.5
14	19.0	---	---	25.0	22.5	23.5	24.5	23.5	24.0	22.5	20.5	21.5
15	19.5	18.5	19.0	25.5	22.5	24.0	25.5	24.0	24.5	22.0	21.5	21.5
16	19.5	18.5	19.0	25.5	23.5	24.5	25.0	24.0	24.5	22.0	20.5	21.5
17	19.5	18.5	19.0	27.0	23.5	25.0	25.0	23.5	24.0	21.0	20.0	20.5
18	19.0	18.5	19.0	25.5	24.0	24.5	24.5	23.0	23.5	20.0	19.5	20.0
19	---	---	18.5	26.5	23.5	24.5	25.0	23.0	24.0	20.5	---	---
20	---	---	---	26.5	23.0	24.5	25.5	23.0	24.0	21.0	---	20.5
21	---	16.5	---	26.5	24.0	25.0	26.0	23.5	24.5	21.0	20.0	20.5
22	16.5	16.0	16.0	25.0	23.5	24.0	27.0	24.5	25.5	20.5	20.0	20.0
23	17.0	---	16.5	24.0	22.5	23.5	26.5	24.5	25.5	20.0	---	---
24	19.0	17.0	18.0	25.0	23.0	24.0	26.0	23.0	24.5	19.5	18.0	19.0
25	20.0	18.5	19.0	25.5	23.0	24.5	25.5	23.0	24.0	18.0	17.5	18.0
26	---	20.0	20.0	26.0	23.5	24.5	25.0	23.0	24.0	18.0	18.0	18.0
27	22.0	21.0	21.5	27.0	24.5	25.5	25.5	23.5	24.5	19.0	18.0	18.5
28	23.0	---	22.5	26.5	25.0	25.5	26.0	23.5	24.5	19.0	18.5	19.0
29	23.0	22.0	22.5	27.5	24.5	25.5	24.5	23.0	24.0	18.5	17.5	18.0
30	23.0	22.0	22.5	27.0	24.5	25.5	25.5	23.5	24.0	17.5	16.5	17.0
31	---	---	---	26.5	24.5	25.5	25.0	22.0	23.5	---	---	---
MONTH	23.0	14.0	18.7	27.5	21.5	24.5	27.0	22.0	24.2	23.0	16.5	19.8

DELAWARE RIVER BASIN

01460200 DELAWARE RIVER BELOW TOHICKON CREEK AT POINT PLEASANT, PA

OXYGEN, DISSOLVED (MG/L), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	9.8	8.6	9.3	---	---	---	---	---	---	---	---	---
2	9.8	8.3	8.9	---	---	---	---	---	---	---	---	---
3	9.8	8.0	8.7	---	---	---	---	---	---	---	---	---
4	8.7	7.9	8.2	---	---	---	---	---	---	---	---	---
5	9.3	7.7	8.5	---	---	---	---	---	---	---	---	---
6	9.7	8.0	8.7	---	---	---	---	---	---	---	---	---
7	10.0	8.1	8.8	---	---	---	---	---	---	---	---	---
8	10.1	8.5	9.2	---	---	---	---	---	---	---	---	---
9	10.3	8.7	9.3	---	---	---	---	---	---	---	---	---
10	9.7	8.6	9.1	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	9.4	---	---	---	---	---	---	---	---	---	---	---
13	9.5	9.4	9.4	---	---	---	---	---	---	---	---	---
14	9.6	9.4	9.5	---	---	---	---	---	---	---	---	---
15	9.8	9.6	9.7	---	---	---	---	---	---	---	---	---
16	9.8	9.5	9.7	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	10.3	7.7	9.1	---	---	---	---	---	---	---	---	---

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	14.8	11.3	12.8
2	---	---	---	---	---	---	---	---	---	14.7	11.3	12.9
3	---	---	---	---	---	---	---	---	---	14.4	10.9	12.4
4	---	---	---	---	---	---	---	---	---	12.4	10.6	11.5
5	---	---	---	---	---	---	---	---	---	11.3	10.4	11.0
6	---	---	---	---	---	---	---	---	---	10.9	10.2	10.5
7	---	---	---	---	---	---	---	---	---	10.9	9.9	10.4
8	---	---	---	---	---	---	---	---	---	10.1	9.3	9.7
9	---	---	---	---	---	---	---	---	---	10.3	9.1	9.7
10	---	---	---	---	---	---	---	---	---	10.6	9.1	9.8
11	---	---	---	---	---	---	---	---	---	10.2	9.0	9.5
12	---	---	---	---	---	---	---	---	---	10.0	8.6	9.3
13	---	---	---	---	---	---	---	---	---	10.0	8.8	9.4
14	---	---	---	---	---	---	---	---	---	10.0	9.1	9.5
15	---	---	---	---	---	---	---	---	---	10.0	9.4	9.7
16	---	---	---	---	---	---	---	---	---	10.2	9.3	9.8
17	---	---	---	---	---	---	---	---	---	10.2	9.6	9.9
18	---	---	---	---	---	---	---	---	---	10.2	9.4	9.8
19	---	---	---	---	---	---	---	---	---	10.0	9.6	9.8
20	---	---	---	---	---	---	---	---	---	9.7	9.2	9.5
21	---	---	---	---	---	---	---	---	---	9.3	8.9	9.1
22	---	---	---	---	---	---	---	---	---	9.4	8.8	9.1
23	---	---	---	---	---	---	---	---	---	9.7	9.1	9.4
24	---	---	---	---	---	---	---	---	---	9.8	9.3	9.5
25	---	---	---	---	---	---	---	---	---	9.9	9.4	9.6
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	15.2	11.6	13.3	---	---	---
29	---	---	---	---	---	---	14.2	11.3	12.6	9.6	9.1	9.3
30	---	---	---	---	---	---	15.1	11.4	13.1	9.2	8.9	9.1
31	---	---	---	---	---	---	---	---	---	8.9	8.7	8.8
MONTH	---	---	---	---	---	---	15.2	11.3	13.0	14.8	8.6	10.0

## DELAWARE RIVER BASIN

## 01460200 DELAWARE RIVER BELOW TOHICKON CREEK AT POINT PLEASANT, PA

OXYGEN, DISSOLVED (MG/L), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	8.9	8.5	8.7	8.8	8.4	8.6	8.2	7.4	7.8	---	---	---
2	9.2	8.8	---	9.1	8.3	8.6	8.6	7.2	7.8	---	---	---
3	9.5	---	9.4	9.1	8.2	8.6	8.4	7.2	7.7	---	---	---
4	---	9.5	---	9.6	8.1	8.8	7.8	6.9	7.3	8.8	8.6	8.7
5	---	---	---	10.2	8.0	8.9	---	6.8	---	8.9	8.7	8.8
6	9.6	9.2	9.4	10.8	7.8	9.1	7.3	7.1	7.3	8.9	8.7	8.8
7	---	---	---	11.4	7.5	9.1	---	---	---	8.7	8.7	8.7
8	---	9.1	---	11.3	7.3	9.1	7.5	7.3	7.4	8.8	8.6	8.7
9	9.3	---	9.1	11.1	7.2	8.6	---	---	---	9.0	8.6	8.8
10	9.0	8.8	8.9	9.2	7.3	8.0	---	---	---	9.1	8.7	8.9
11	8.8	8.6	8.7	10.4	7.4	8.6	---	---	---	9.3	8.8	9.0
12	8.6	8.3	8.5	10.5	7.7	9.1	---	---	---	9.5	8.7	9.1
13	8.5	8.3	8.4	10.3	7.7	9.0	---	---	---	9.4	8.6	9.0
14	8.5	---	---	9.8	7.6	8.7	---	---	---	9.5	8.6	9.0
15	8.5	8.3	8.4	9.7	7.7	8.6	---	---	---	---	---	---
16	8.5	8.3	8.4	9.2	7.4	8.2	---	---	---	---	---	---
17	8.6	8.4	8.5	9.3	7.2	8.2	---	---	---	8.8	8.6	8.8
18	8.7	8.4	8.5	8.7	7.1	7.8	---	---	---	8.9	8.8	8.9
19	8.9	8.5	8.7	8.8	6.9	7.8	---	---	---	---	---	---
20	---	---	---	8.4	6.8	7.6	---	---	---	8.9	8.7	8.8
21	---	---	---	8.1	6.5	7.3	---	---	---	9.1	8.8	8.9
22	9.2	9.1	9.2	---	---	---	---	---	---	9.1	8.7	8.9
23	9.2	9.0	9.1	---	---	---	---	---	---	---	---	---
24	9.0	8.7	8.9	---	---	---	---	---	---	8.5	8.1	8.4
25	8.8	8.5	8.7	7.3	6.4	6.9	---	---	---	8.6	8.5	8.6
26	8.6	8.4	8.5	7.9	7.0	7.6	---	---	---	8.7	8.6	8.7
27	8.4	8.0	8.3	7.9	7.1	7.5	---	---	---	8.7	8.6	8.6
28	8.4	8.2	8.3	8.1	6.9	7.4	---	---	---	8.6	8.5	8.5
29	8.5	8.2	8.4	8.7	7.2	7.8	---	---	---	8.8	8.5	8.7
30	8.7	8.2	8.5	8.9	7.5	8.1	---	---	---	9.1	8.8	8.9
31	---	---	---	9.0	7.5	8.1	---	---	---	---	---	---
MONTH	9.6	8.0	8.7	11.4	6.4	8.3	8.6	6.8	7.5	9.5	8.1	8.8





## DELAWARE RIVER BASIN

## 01461000 DELAWARE RIVER AT LUMBERVILLE, PA

**LOCATION.**--Lat 40°24'27", long 75°02'16", Bucks County, Hydrologic Unit 02040105, at pedestrian bridge at Lumberville, 1.4 mi upstream from Lockatong Creek, and at river mile 155.4.

**DRAINAGE AREA.**--6,598 mi<sup>2</sup>.

**PERIOD OF RECORD.**--Water years 1976 to current year.

**REMARKS.**--Total nitrogen (00600) equals the sum of dissolved ammonia plus organic nitrogen (00623), dissolved nitrite plus nitrate nitrogen (00631), and total particulate nitrogen (49570).

**COOPERATION.**--Field data and samples for laboratory analyses were provided by the New Jersey Department of Environmental Protection. Determination of dissolved ammonia, total ammonia, dissolved nitrite, dissolved orthophosphate, biochemical oxygen demand, total suspended solids, fecal coliform, *E. coli*, and enterococcus bacteria was performed by the New Jersey Department of Health and Senior Services, Public Health and Environmental Laboratories, Environmental and Chemical Laboratory Services. Determination of chlorophyll a was performed by the New Jersey Department of Environmental Protection, Bureau of Freshwater and Biological Monitoring Laboratory.

**COOPERATIVE NETWORK SITE DESCRIPTOR.**--Delaware River Main Stem, New Jersey Department of Environmental Protection Watershed Management Area 11.

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

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, water, unfltrd field, NTU (61028)	UV absorbance, 254 nm, wat flt units /cm (50624)	UV absorbance, 280 nm, wat flt units /cm (61726)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd μS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO <sub>3</sub> (00900)
Date	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO <sub>3</sub> (90410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
Date	Ammonia water, fltrd, mg/L as N (00608)	Ammonia water, unfltrd mg/L as N (00610)	Nitrite + nitrate water, fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Particulate nitrogen, susp, water, mg/L (49570)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, fltrd, mg/L (00602)	Total nitrogen, water, unfltrd mg/L (00600)	Total carbon, suspnd sedimnt total, mg/L (00694)	Inorganic carbon, suspnd sedimnt total, mg/L (00688)	Organic carbon, suspnd sedimnt total, mg/L (00689)
NOV 26...	1000	16,500	2.4	0.111	0.086	766	11.5	92	8.2	128	7.0	6.0	43
FEB 13...	0900	6,090	--	0.062	0.048	760	13.9	101	8.5	208	-2.1	2.0	68
MAY 08...	1000	11,300	1.8	0.055	0.041	756	9.8	97	7.8	150	17.7	14.5	53
AUG 21...	1000	9,060	4.2	0.097	0.074	760	8.2	96	7.9	199	22.8	23.0	74
NOV 26...	11.2	3.58	0.92	8.49	27	12.4	<0.17	4.6	12.2	--	76	3	0.43
FEB 13...	17.4	6.01	1.22	14.5	E51	26.6	<0.17	3.1	17.3	--	126	3	0.20
MAY 08...	13.6	4.64	1.07	9.65	38	16.2	<0.17	1.9	13.0	86	101	5	0.18
AUG 21...	20.0	5.91	1.33	10.6	51	18.1	<0.17	5.0	14.9	111	119	12	0.21
NOV 26...	0.037	0.131	--	<0.003	0.032	0.05	0.021	0.035	--	0.48	0.4	<0.1	0.4
FEB 13...	<0.030	<0.030	1.08	0.007	0.038	0.10	0.033	0.040	1.3	1.4	0.3	<0.1	0.3
MAY 08...	<0.030	<0.030	0.69	0.007	<0.020	0.10	0.013	0.037	0.87	0.97	0.4	<0.1	0.4
AUG 21...	0.020	<0.020	1.01	<0.003	0.040	0.11	0.043	0.058	1.2	1.3	0.7	<0.1	0.7

## DELAWARE RIVER BASIN

## 01461000 DELAWARE RIVER AT LUMBERVILLE, PA--Continued

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

Date	Organic carbon, water, fltrd, mg/L (00681)	BOD, water, unfltrd 5 day, 20 degC mg/Lm (00310)	Chloro-phyll a fluorometric method, correctd µg/L (32209)	Boron, water, fltrd, µg/L (01020)
NOV 26...	3.2	<1.0	--	14
FEB 13...	2.1	E1.1	--	E7.5
MAY 08...	2.1	E1.5	13.4	16
AUG 21...	3.1	E1.2	1.60	20

Remark codes used in this table:

&lt; -- Less than

E -- Estimated value

## WATER-COLUMN BACTERIA ANALYSES

Samples were collected synoptically over a 30-day period during the summer.

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

Date	Time	Enterococci, m-E MF, water, col/ 100 mL (31649)	E coli, m-TEC MF, water, col/ 100 mL (31633)	Fecal coliform, ECbroth water, MPN/ 100 mL (31615)	Date	Time	Enterococci, m-E MF, water, col/ 100 mL (31649)	E coli, m-TEC MF, water, col/ 100 mL (31633)	Fecal coliform, ECbroth water, MPN/ 100 mL (31615)
JUN 11...	0924	40	400	40	JUL 02...	0940	30	<100	70
18...	0935	130	300	220	09...	0955	30	<100	40
25...	1010	330	600	1,100					

Remark codes used in this table:

&lt; -- Less than

DELAWARE RIVER BASIN

01463500 DELAWARE RIVER AT TRENTON, NJ  
(National Water-Quality Assessment Station)  
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 40°13'18", long 74°46'41", Mercer County, Hydrologic Unit 02040105, at Calhoun Street Bridge at Trenton, 0.5 mi upstream from Assunpink Creek, and at river mile 134.5.

DRAINAGE AREA.--6,780 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1913 to current year. October 1912 to February 1913 monthly discharge only, published in WSP 1302. Gage-height records collected in this vicinity since 1904 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 951: Drainage area. WSP 1302: 1913-20. WSP 1382: 1924, 1928.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1965, at datum 7.77 ft higher. Feb. 24, 1913 to Oct. 2, 1928, nonrecording gage on downstream side of highway bridge at site 450 ft downstream.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Diurnal fluctuations at medium and low flow caused by powerplants on tributary streams. Flow regulated by Lakes Wallenpaupack (station 01431700) and Hopatcong, and by Pepacton, Cannonsville, Swinging Bridge, Toronto, Cliff Lake, Neversink, Wild Creek, and Merrill Creek Reservoirs and smaller reservoirs. Diversion from Pepacton, Cannonsville, and Neversink Reservoirs. Diversion to Bradshaw and Merrill Creek Reservoirs and to Delaware and Raritan Canal. Water diverted just above station by borough of Morrisville, PA, and city of Trenton, NJ for municipal supply. Satellite gage height and water-quality parameter telemeter at station. Information on the above lakes and reservoirs can be found in the annual Water-Data Report NJ-03-1.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 11, 1903, reached an elevation of about 28.5 ft above sea level, discharge estimated, 295,000 ft<sup>3</sup>/s. Maximum elevation since 1692, 30.6 ft above sea level, Mar. 8, 1904, from floodmark, due to ice jam.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 50,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Mar. 22	1815	*83,100	*16.66	June 23	1045	60,400	14.96
June 4	1315	54,300	14.47	Sept. 25	0115	53,800	14.43

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

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5,530	10,200	12,000	15,600	e8,700	12,400	37,100	11,700	15,500	14,800	6,550	5,740
2	4,430	9,390	11,400	29,000	e8,400	13,600	32,800	11,000	34,000	13,300	7,200	6,950
3	3,590	8,610	11,000	38,200	8,770	17,500	30,000	10,500	38,000	12,300	6,760	15,600
4	3,160	8,130	10,600	36,500	8,180	14,100	28,300	12,600	43,700	11,400	8,490	33,700
5	3,130	7,610	9,450	29,000	8,610	14,100	26,400	14,500	39,300	10,400	16,800	39,100
6	3,230	7,750	9,070	24,800	8,630	17,600	25,500	13,300	30,700	9,420	27,800	38,400
7	3,970	8,050	8,620	22,100	9,020	14,900	24,700	12,300	26,400	8,790	24,500	27,000
8	3,530	8,810	8,420	20,000	9,300	13,000	23,700	11,800	31,500	8,830	21,000	20,300
9	3,210	8,880	7,690	18,600	8,230	14,000	23,500	11,100	28,700	8,290	16,800	16,500
10	3,350	8,790	7,130	17,900	7,780	15,400	24,300	10,500	25,500	8,050	19,800	13,800
11	4,680	8,020	7,270	16,900	7,700	12,500	23,400	9,840	22,700	7,640	19,200	11,800
12	19,300	7,950	15,100	15,500	7,050	11,600	25,400	9,140	21,400	7,420	23,100	10,800
13	24,800	10,400	18,100	14,000	6,590	11,800	24,700	9,000	26,200	7,720	27,400	9,840
14	23,900	10,800	22,500	13,200	6,290	13,900	22,500	9,930	29,800	8,160	24,000	9,710
15	17,700	12,400	25,300	11,900	6,160	12,900	20,300	9,870	28,500	6,660	19,300	10,400
16	14,700	11,500	25,000	10,900	6,720	13,300	18,700	9,580	29,900	6,320	16,600	20,900
17	22,400	20,500	22,400	10,300	e5,500	15,500	17,100	9,160	25,200	6,040	15,500	27,400
18	36,300	30,200	19,200	10,300	e6,100	22,700	16,100	8,650	22,300	5,550	14,300	23,500
19	29,200	34,300	16,400	8,880	e7,500	36,200	15,100	8,240	21,000	5,820	12,200	21,000
20	20,200	30,500	17,400	8,970	e8,800	46,500	14,100	7,490	22,300	6,010	10,800	19,200
21	16,600	25,200	24,500	9,460	e9,600	60,300	12,900	7,170	45,200	5,350	9,670	17,300
22	14,100	21,300	25,900	8,990	13,900	78,100	12,400	7,330	52,800	11,500	8,740	15,600
23	12,100	21,000	23,700	e8,700	23,800	79,000	12,500	7,110	58,700	18,600	8,160	21,200
24	10,200	20,900	21,000	e8,400	23,200	67,700	12,200	7,100	51,400	15,000	7,490	51,100
25	8,790	20,000	20,600	e8,600	17,900	52,900	11,700	7,320	41,700	13,300	6,550	48,400
26	9,430	17,700	20,700	e8,900	15,900	43,600	11,200	10,700	33,900	11,000	5,950	37,200
27	11,800	16,300	18,200	e8,800	14,200	40,400	11,300	15,200	29,400	8,940	5,890	30,100
28	12,800	15,500	16,600	e8,400	12,800	36,400	11,400	14,700	24,200	7,900	6,010	29,300
29	12,100	14,300	15,900	e8,300	---	31,600	13,600	14,500	19,400	7,360	5,730	30,800
30	11,300	12,900	15,200	e8,600	---	34,800	12,700	13,100	16,600	7,220	5,620	33,200
31	11,000	---	14,200	e8,800	---	40,400	---	11,800	---	6,840	5,490	---
TOTAL	380,530	447,890	500,550	468,500	285,330	908,700	595,600	326,230	935,900	285,930	413,400	695,840
MEAN	12,280	14,930	16,150	15,110	10,190	29,310	19,850	10,520	31,200	9,224	13,340	23,190
MAX	36,300	34,300	25,900	38,200	23,800	79,000	37,100	15,200	58,700	18,600	27,800	51,100
MIN	3,130	7,610	7,130	8,300	5,500	11,600	11,200	7,100	15,500	5,350	5,490	5,740

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1913 - 2003, BY WATER YEAR (WY)

MEAN	6,854	10,360	12,570	12,380	12,730	20,580	22,150	14,140	9,391	7,005	5,938	5,919
MAX	28,710	27,340	42,860	34,950	27,550	60,840	52,680	31,690	33,460	25,720	30,290	23,190
(WY)	(1956)	(1928)	(1997)	(1979)	(1951)	(1936)	(1940)	(1989)	(1972)	(1928)	(1955)	(2003)
MIN	1,632	1,868	2,037	2,539	3,500	7,715	6,828	5,074	2,572	1,548	1,808	1,762
(WY)	(1942)	(1915)	(1923)	(1981)	(1920)	(1981)	(1985)	(1995)	(1965)	(1965)	(1965)	(1932)

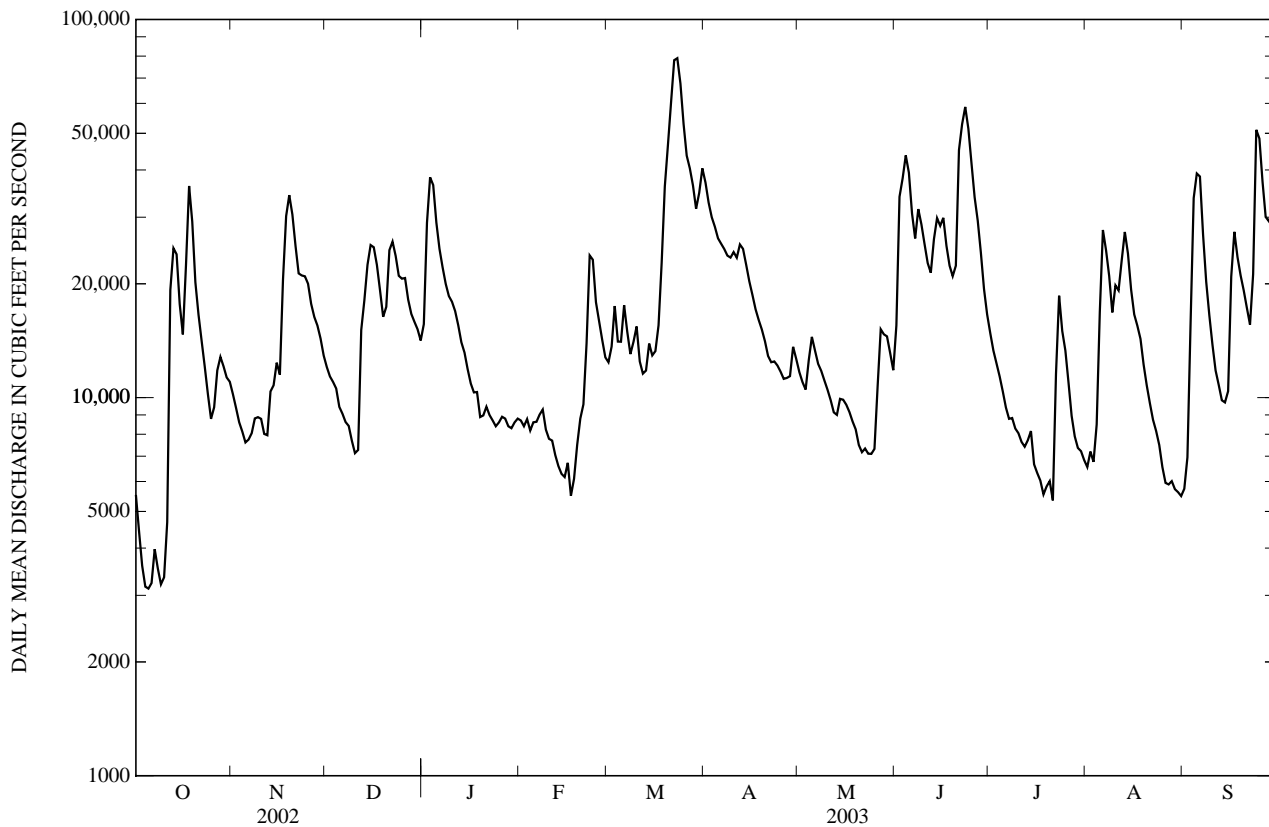
e Estimated.

DELAWARE RIVER BASIN

01463500 DELAWARE RIVER AT TRENTON, NJ--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1913 - 2003	
ANNUAL TOTAL	3,604,330		6,244,400		11,660	
ANNUAL MEAN	9,875		17,110		19,810	
HIGHEST ANNUAL MEAN					4,708	
LOWEST ANNUAL MEAN					1965	
HIGHEST DAILY MEAN	41,800	May 15	79,000	Mar 23	279,000	Aug 20, 1955
LOWEST DAILY MEAN	2,480	Jan 21	3,130	Oct 5	1,240	Oct 31, 1914
ANNUAL SEVEN-DAY MINIMUM	2,760	Jan 18	3,370	Oct 4	1,310	Oct 31, 1914
MAXIMUM PEAK FLOW			83,100	Mar 22	329,000a	Aug 20, 1955
MAXIMUM PEAK STAGE			16.66	Mar 22	28.60b	Aug 20, 1955
INSTANTANEOUS LOW FLOW			2,920	Oct 6	1,180	Oct 31, 1963
10 PERCENT EXCEEDS	21,000		31,500		24,600	
50 PERCENT EXCEEDS	7,610		13,300		7,930	
90 PERCENT EXCEEDS	3,100		7,010		3,020	

a From rating curve extended above 230,000 ft<sup>3</sup>/s, maximum flow since 1692.  
 b From high-water mark in gage house, current datum.



## DELAWARE RIVER BASIN

01463500 DELAWARE RIVER AT TRENTON, NJ--Continued  
(National Water-Quality Assessment Station)  
(Pennsylvania Water-Quality Network Station)

## WATER-QUALITY RECORDS

**PERIOD OF RECORD.**--October 1944 to current year.

**PERIOD OF DAILY RECORD.**--

DISSOLVED OXYGEN: October 1962 to current year. Recorded as once daily during 1979.  
DISSOLVED OXYGEN PERCENT SATURATION: October 2001 to current year.  
pH: June 1968 to current year. Recorded as once daily during 1979.  
SPECIFIC CONDUCTANCE: October 1963 to current year. Recorded as once daily during years 1964 to 1968, 1979.  
SUSPENDED SEDIMENT DISCHARGE: September 1949 to September 1981.  
WATER TEMPERATURE: October 1944 to current year. Recorded as once daily during years 1945 to 1953, 1962, 1964, 1979.  
TURBIDITY: November 2000 to current year.

**INSTRUMENTATION.**--

TEMPERATURE MONITOR (in-situ system, max-min recorded): October 1953 to September 1961.  
TEMPERATURE / DISSOLVED-OXYGEN MONITOR (in-situ system): October 1962 to September 1965: max-min recorded (only dissolved-oxygen concentration recorded during water year 1964). October 1965 to May 1968: measurements recorded hourly.  
WATER-QUALITY MONITOR (continuous pumping system, measurements recorded hourly): June 1968 to August 1975: water withdrawn from raw-water intake within Trenton Water Filtration Plant, Trenton, NJ. November 1975 to November 1978: water withdrawn from river through PVC pipe to gage house outside Trenton Water Filtration Plant, Trenton, NJ. December 1979 to September 1986: water withdrawn from raw-water intake within Trenton Water Filtration Plant, Trenton, NJ.  
WATER-QUALITY MONITOR (in situ system, measurements recorded hourly): October 1986 to September 1995: probes located inside raw-water intake of Trenton Water Filtration Plant, Trenton, NJ. October 1995 to current year: monitor suspended within stilling well of Morrisville Water Filtration Plant, Morrisville, Pa., 1,600 ft upstream from the gage house.

**REMARKS.**--Additional nutrient samples on Dec. 4 at 0931, Mar. 6 at 0931, June 5 at 1021, and Sep. 4 at 0901 were collected to fulfill the requirements of the Ambient Stream Monitoring Network. For definition of the type of quality-control data listed under SAMPLE TYPE refer to "Water-Quality-Control Data" in the Surface-Water-Quality Records section of this report. Unpublished records of suspended-sediment discharge for the period Oct. 1, 1981, to Mar. 31, 1982, are available at the U.S. Geological Survey Office in West Trenton, NJ. Beginning October, 1999, pH daily value tables reported maximum, minimum and median values. Continuous turbidity-record values less than 2 were below the instrument detection level. Missing continuous water-quality records are the result of instrument malfunction or interruption of flow through the filtration plant. The calibration of water-quality sensors is verified by regular inspections. Cleaning or recalibration is needed occasionally as a result of sensor fouling or drift. When a sensor is recalibrated, the continuous-record water-quality data for the period between inspections are adjusted to account for the difference between the sensor's response and a known value. The adjustment may be constant over the period or may be prorated. Continuous-record water-quality data for periods for which the difference between the sensor's response and a known value does not exceed recalibration criteria are considered to be reliable and are not adjusted. Recalibration criteria are listed in the "Introduction" (see section "Explanation of the Records, On-Site Measurements and Sample Collection"). Data from the following periods were adjusted: DISSOLVED OXYGEN: Oct. 16 to Feb. 12, Feb. 27 to Mar. 13, May 25 to Apr. 25, May 5 to May 23, May 28 to July 1, July 7 to Aug. 18, Sept. 2-15. pH: Sept. 2-15. WATER TEMPERATURE: Jan. 15 to Feb. 27, Apr. 2 to May 13. TURBIDITY: Oct. 1-16, May 21-23, May 26-28, June 2-3, July 1-8, July 16 to Aug. 4.

**COOPERATION.**--Samples were collected as part of the Delaware River Basin National Water-Quality Assessment Program (NAWQA) with cooperation from the Delaware River Basin Commission. Determination of dissolved ammonia, total ammonia, dissolved nitrite, dissolved orthophosphate, biochemical oxygen demand, and dissolved hexavalent chromium on Dec. 4 at 0932, Mar. 6 at 0932, June 5 at 1022, and Sept. 4 at 0902; and fecal coliform, *E. coli*, and enterococcus bacteria collected synoptically during the summer months was performed by the New Jersey Department of Health and Senior Services, Public Health and Environmental Laboratories, Environmental and Chemical Laboratory Services. Determination of chlorophyll a was performed by the New Jersey Department of Environmental Protection, Bureau of Freshwater and Biological Monitoring Laboratory.

**COOPERATIVE NETWORK SITE DESCRIPTOR.**--Delaware River Main Stem, New Jersey Department of Environmental Protection Watershed Management Area 11.

**EXTREMES FOR PERIOD OF DAILY RECORD.**--

SPECIFIC CONDUCTANCE: Maximum, 468 microsiemens, Jan. 11, 1999; minimum, 63 microsiemens, July 7, 1984.  
pH: Maximum, 10.3, Aug. 9, 10, 1983; minimum, 5.3, June 22, 1972.  
WATER TEMPERATURE: Maximum, 34.0°C, June 18, 1957; minimum, 0.0°C, on many days during winters in water years 1954-57.  
DISSOLVED OXYGEN: Maximum, 20.0 mg/L, Feb. 11, 1989; minimum, 4.0 mg/L, Nov. 9, 1972, Sept. 9, 1995.  
DISSOLVED OXYGEN PERCENT OF SATURATION: Maximum, 151, Aug. 12, 2002; minimum, 64, Sept. 3, 2003.  
TURBIDITY: Maximum, 460 ntu, May 19, 2000; minimum, <2.0 ntu, on many days in water years 2000-03.

**EXTREMES FOR CURRENT YEAR.**--

SPECIFIC CONDUCTANCE: Maximum, 305 microsiemens, Dec. 13; minimum, 77 microsiemens, Sept. 6.  
pH: Maximum, 9.4, Apr. 28; minimum, 6.2, Sept. 5, 6.  
WATER TEMPERATURE: Maximum, 27.3°C, July 8; minimum, -0.1°C, several days during January and February.  
DISSOLVED OXYGEN: Maximum, 17.1 mg/L, Feb. 19; minimum, 5.8 mg/L, Sept. 3.  
DISSOLVED OXYGEN PERCENT OF SATURATION: Maximum, 147, Apr. 28; minimum, 64, Sept. 3.  
TURBIDITY: Maximum, 200 ntu, July 23; minimum, <2.0 ntu, many days.



## DELAWARE RIVER BASIN

## 01463500 DELAWARE RIVER AT TRENTON, NJ--Continued

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

Date	Silica, water, ftrd, mg/L (00955)	Sulfate water, ftrd, mg/L (00945)	Residue water, ftrd, sum of consti- tuents mg/L (70301)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, ftrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, ftrd, mg/L as N (00608)	Ammonia water, unfltrd mg/L as N (00610)	Nitrite + nitrate water ftrd, mg/L as N (00631)	Nitrite water, ftrd, mg/L as N (00613)	Ortho- phos- phate, water, ftrd, mg/L as P (00671)	Partic- ulate nitro- gen, susp, water, ftrd, mg/L (49570)	Phos- phorus, water, ftrd, mg/L (00666)
NOV													
01...	--	<0.2	--	--	--	<0.10	<0.04	--	<0.06	<0.008	<0.02	--	--
01...	--	16.6	--	--	--	0.24	<0.04	--	0.94	E.006	0.03	--	--
DEC													
04...	4.5	14.1	85	95	--	0.18	<0.04	--	0.86	<0.008	0.02	<0.02	--
04...	--	--	--	--	0.14	--	--	--	0.84	--	--	--	0.032
04...	--	--	--	--	--	--	0.044	0.038	--	<0.003	0.034	--	--
JAN													
08...	--	13.6	--	--	--	0.19	E.03	--	0.98	<0.008	E.02	--	--
MAR													
06...	4.0	14.0	103	114	--	0.42	E.04	--	0.98	0.008	0.02	0.14	--
06...	--	--	--	--	0.26	--	--	--	0.97	--	--	--	0.036
06...	--	--	--	--	--	--	0.039	0.038	--	0.008	0.036	--	--
APR													
10...	--	12.3	--	--	--	0.27	0.05	--	0.72	E.004	E.01	--	--
MAY													
08...	--	12.8	--	--	--	0.33	<0.04	--	0.57	E.006	<0.02	--	--
JUN													
05...	4.7	10.6	70	86	--	0.49	<0.04	--	0.73	E.006	--	0.26	--
05...	--	--	--	--	0.27	--	--	--	0.68	--	--	--	0.032
05...	--	--	--	--	--	--	0.043	0.044	--	0.005	0.027	--	--
JUL													
02...	--	14.1	--	--	--	0.25	<0.04	--	0.71	0.010	<0.02	--	--
SEP													
04...	3.4	9.0	61	72	--	0.70	E.02	--	0.47	<0.008	0.02	0.51	--
04...	--	--	--	--	0.28	--	--	--	0.46	--	--	--	0.032
04...	--	--	--	--	--	--	0.042	0.049	--	<0.003	--	--	--

Date	Phos- phorus, water, unfltrd mg/L (00665)	Total nitro- gen, water, ftrd, mg/L (00602)	Total nitro- gen, water, unfltrd mg/L (00600)	Total carbon, suspnd sedimnt total, mg/L (00694)	Inor- ganic carbon, suspnd sedimnt total, mg/L (00688)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, ftrd, mg/L (00681)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	COD, high level, water, unfltrd corrctd mg/L (00340)	Chloro- phyll a fluoro- metric method, corrctd µg/L (32209)	Sus- pended sedi- ment concen- tration mg/L (80154)	Sus- pended sedi- ment load, tons/d (80155)
NOV												
01...	E.003	--	--	--	--	--	--	--	--	--	--	--
01...	0.058	--	1.2	--	--	--	--	--	--	--	3	73
DEC												
04...	0.039	--	1.1	0.2	<0.1	0.2	2.7	--	<10	--	4	106
04...	--	0.98	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	E1.8	--	--	--	--
JAN												
08...	0.032	--	1.2	--	--	--	--	--	--	--	3	184
MAR												
06...	0.076	--	1.4	0.8	<0.1	0.8	2.7	--	20	--	13	606
06...	--	1.2	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	<1.0	--	--	--	--
APR												
10...	0.032	--	0.98	--	--	--	--	--	--	--	5	356
MAY												
08...	0.042	--	0.90	--	--	--	--	--	--	--	6	204
JUN												
05...	0.089	--	1.2	3.0	<0.1	3.0	3.7	--	20	--	37	3,970
05...	--	0.95	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	E1.2	--	--	--	--
JUL												
02...	0.046	--	0.96	--	--	--	--	--	--	--	6	222
SEP												
04...	0.138	--	1.2	5.3	<0.1	5.3	4.4	--	30	23.4	63	6,020
04...	--	0.74	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	<1.2	--	--	--	--

Remark codes used in this table:

&lt; -- Less than

E -- Estimated value





## DELAWARE RIVER BASIN

## 01463500 DELAWARE RIVER AT TRENTON, NJ--Continued

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

Date	cis-1,2-Dichloro-ethene, water, unfltrd µg/L (77093)	Di-bromo-chloro-methane water unfltrd µg/L (32105)	Di-chloro-di-fluoro-methane wat unfltrd µg/L (34668)	Di-chloro-methane water unfltrd µg/L (34423)	Di-ethyl ether, water, unfltrd µg/L (81576)	Diiso-propyl ether, water, unfltrd µg/L (81577)	Ethyl-benzene water unfltrd µg/L (34371)	Methyl tert-pentyl ether, water, unfltrd µg/L (50005)	meta-+ para-Xylene, water, unfltrd µg/L (85795)	o-Xylene, water, unfltrd µg/L (77135)	Styrene water unfltrd µg/L (77128)	t-Butyl ethyl ether, water, unfltrd µg/L (50004)	Methyl t-butyl ether, water, unfltrd µg/L (78032)
DEC 04...	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.2
MAR 06...	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	E.1
JUN 05...	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	E.1
SEP 04...	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	E.1

Date	Tetra-chloro-ethene, water, unfltrd µg/L (34475)	Tetra-chloro-methane water unfltrd µg/L (32102)	Toluene water unfltrd µg/L (34010)	trans-1,2-Di-chloro-ethene, water, unfltrd µg/L (34546)	Tri-bromo-methane water unfltrd µg/L (32104)	Tri-chloro-ethene, water, unfltrd µg/L (39180)	Tri-chloro-fluoro-methane water unfltrd µg/L (34488)	Tri-chloro-methane water unfltrd µg/L (32106)	Vinyl chloride, water, unfltrd µg/L (39175)
DEC 04...	<0.1	<0.2	<0.1	<0.1	<0.2	<0.1	<0.2	<0.1	<0.2
MAR 06...	<0.1	<0.2	<0.1	<0.1	<0.2	<0.1	<0.2	<0.1	<0.2
JUN 05...	<0.1	<0.2	<0.1	<0.1	<0.2	<0.1	<0.2	<0.1	<0.2
SEP 04...	<0.1	<0.2	<0.1	<0.1	<0.2	<0.1	<0.2	<0.1	<0.2

Remark codes used in this table:

&lt; -- Less than

E -- Estimated value

## WATER-COLUMN PESTICIDE ANALYSES

**REMARKS.**--Pesticides in filtered water were determined using laboratory schedule 2001 (listed in its entirety, with laboratory reporting levels, on page 197). Only schedule-2001 compounds detected in one or more surface-water samples are included in the following table. Pesticides in unfiltered water were determined using laboratory schedule 1608. All schedule-1608 compounds are included in the following table.

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

Date	Time	Sample type	2,6-Di-ethyl-aniline water fltrd 0.7µ GF µg/L (82660)	CIAT, water, fltrd, µg/L (04040)	Aceto-chlor, water, fltrd, µg/L (49260)	Ala-chlor, water, fltrd, µg/L (46342)	Aldrin, water, unfltrd µg/L (39330)	alpha-Endo-sulfan, water, unfltrd µg/L (34361)	alpha-HCH, water, fltrd, µg/L (34253)	alpha-HCH, water, unfltrd µg/L (39337)	Aroclor 1016 + 1242, water, unfltrd µg/L (81648)
NOV 01...	0920	Environmental	<0.006	E.014	<0.006	<0.004	--	--	<0.005	--	--
DEC 04...	0930	Environmental	<0.006	E.012	<0.006	<0.004	<0.04	<0.1	<0.005	<0.03	<0.1
JAN 08...	0940	Environmental	<0.006	E.012	<0.006	<0.004	--	--	<0.005	--	--
MAR 06...	0930	Environmental	<0.006	E.018	<0.006	<0.004	<0.04	<0.1	<0.005	<0.03	<0.1
APR 10...	1040	Environmental	<0.006	E.009	<0.006	<0.004	--	--	<0.005	--	--
MAY 08...	0920	Environmental	<0.006	E.011	<0.006	<0.004	--	--	<0.005	--	--
JUN 08...	0921	Split Replicate	<0.006	E.010	<0.006	<0.004	--	--	<0.005	--	--
JUN 05...	1020	Environmental	<0.006	E.029	0.017	0.005	<0.20	<0.5	<0.005	<0.15	<0.5
JUL 02...	0915	Environmental	<0.006	E.017	<0.006	<0.004	--	--	<0.005	--	--
SEP 04...	0900	Environmental	<0.006	E.006	<0.006	<0.004	<0.04	<0.1	<0.005	<0.03	<0.1

## DELAWARE RIVER BASIN

## 01463500 DELAWARE RIVER AT TRENTON, NJ--Continued

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

Date	Aroclor 1221, water, unfltrd µg/L (39488)	Aroclor 1232, water, unfltrd µg/L (39492)	Aroclor 1248, water, unfltrd µg/L (39500)	Aroclor 1254, water, unfltrd µg/L (39504)	Aroclor 1260, water, unfltrd µg/L (39508)	Atra- zine, water, fltrd, µg/L (39632)	Azin- phos- methyl, water, fltrd 0.7µ GF µg/L (82686)	Ben- flur- alin, water, fltrd 0.7µ GF µg/L (82673)	beta- Endo- sulfan, water, unfltrd µg/L (34356)	beta- HCH, water, unfltrd µg/L (39338)	Butyl- ate, water, fltrd, µg/L (04028)	Car- baryl, water, fltrd 0.7µ GF µg/L (82680)	Carbo- furan, water, fltrd 0.7µ GF µg/L (82674)
NOV 01...	--	--	--	--	--	0.022	<0.050	<0.010	--	--	<0.002	<0.041	<0.020
DEC 04...	<1	<0.1	<0.1	<0.1	<0.1	0.013	<0.050	<0.010	<0.04	<0.03	<0.002	<0.041	<0.020
JAN 08...	--	--	--	--	--	0.012	<0.050	<0.010	--	--	<0.002	<0.041	<0.020
MAR 06...	<1	<0.1	<0.1	<0.1	<0.1	0.017	<0.050	<0.010	<0.04	<0.03	<0.002	<0.041	<0.020
APR 10...	--	--	--	--	--	0.010	<0.050	<0.010	--	--	<0.002	<0.041	<0.020
MAY 08...	--	--	--	--	--	0.012	<0.050	<0.010	--	--	<0.002	<0.041	<0.020
JUN 08...	--	--	--	--	--	0.012	<0.050	<0.010	--	--	<0.002	<0.041	<0.020
JUN 05...	<5	<0.5	<0.5	<0.5	<0.5	0.215	<0.050	<0.010	<0.20	<0.15	<0.002	E.009	<0.020
JUL 02...	--	--	--	--	--	0.026	<0.050	<0.010	--	--	<0.002	<0.041	<0.020
SEP 04...	<1	<0.1	<0.1	<0.1	<0.1	0.007	<0.050	<0.010	--	<0.03	<0.002	<0.041	<0.020
Date	Chlor- dane, tech- nical, water, unfltrd µg/L (39350)	cis- Chlor- dane, water, unfltrd µg/L (39062)	cis- Per- methrin water fltrd 0.7µ GF µg/L (82687)	DCPA, water fltrd 0.7µ GF µg/L (82682)	delta- HCH, water, unfltrd µg/L (34259)	Desulf- inyl fipro- nil, water, fltrd, µg/L (62170)	Diazi- non, water, fltrd, µg/L (39572)	Diel- drin, water, fltrd, µg/L (39381)	Diel- drin, water, unfltrd µg/L (39380)	Endo- sulfan sulfate water unfltrd µg/L (34351)	Endrin alde- hyde, water, unfltrd µg/L (34366)	Endrin, water, unfltrd µg/L (39390)	EPTC, water, fltrd 0.7µ GF µg/L (82668)
NOV 01...	--	--	<0.006	<0.003	--	<0.004	<0.005	<0.005	--	--	--	--	<0.002
DEC 04...	<0.1	<0.1	<0.006	<0.003	<0.09	<0.004	<0.005	<0.005	<0.02	<0.6	<0.2	<0.06	<0.002
JAN 08...	--	--	<0.006	<0.003	--	<0.004	<0.005	<0.005	--	--	--	--	<0.002
MAR 06...	<0.1	<0.1	<0.006	<0.003	<0.09	<0.004	<0.005	<0.005	<0.02	<0.6	<0.2	<0.06	<0.002
APR 10...	--	--	<0.006	<0.003	--	<0.004	<0.005	<0.005	--	--	--	--	<0.002
MAY 08...	--	--	<0.006	<0.003	--	<0.004	<0.005	<0.005	--	--	--	--	<0.002
JUN 08...	--	--	<0.006	<0.003	--	<0.004	<0.005	<0.005	--	--	--	--	<0.002
JUN 05...	<0.5	<0.5	<0.006	<0.003	<0.45	<0.004	<0.005	<0.005	<0.10	<3.0	<1.0	<0.30	<0.002
JUL 02...	--	--	<0.006	<0.003	--	<0.004	<0.005	<0.005	--	--	--	--	<0.002
SEP 04...	<0.1	<0.1	<0.006	<0.003	--	<0.004	<0.005	<0.005	<0.20	--	<3.0	<0.42	<0.002

## DELAWARE RIVER BASIN

## 01463500 DELAWARE RIVER AT TRENTON, NJ--Continued

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

Date	Desulf- inyl- fipro- nil amide, wat flt µg/L (62169)	Fipro- nil sulfide fltrd, µg/L (62167)	Fipro- nil sulfone fltrd, µg/L (62168)	Fipro- nil, water, fltrd, µg/L (62166)	Hepta- chlor epoxide water unfltrd µg/L (39420)	Hepta- chlor, water, unfltrd µg/L (39410)	Lindane water, unfltrd µg/L (39340)	Mala- thion, water, fltrd, µg/L (39532)	Metola- chlor, water, fltrd, µg/L (39415)	Metri- buzin, water, fltrd, µg/L (82630)	Naprop- amide, water, fltrd 0.7µ GF µg/L (82684)	p,p'- DDD, water, unfltrd µg/L (39310)	p,p'- DDE, water, unfltrd µg/L (39320)
NOV 01...	<0.009	<0.005	<0.005	<0.007	--	--	--	<0.027	E.009	<0.006	<0.007	--	--
DEC 04...	<0.009	<0.005	<0.005	<0.007	<0.8	<0.03	<0.03	<0.027	E.003	<0.006	<0.007	<0.1	<0.04
JAN 08...	<0.009	<0.005	<0.005	<0.007	--	--	--	<0.027	E.006	<0.006	<0.007	--	--
MAR 06...	<0.009	<0.005	<0.005	<0.007	<0.8	<0.03	<0.03	<0.027	E.009	<0.006	<0.007	<0.1	<0.04
APR 10...	<0.009	<0.005	<0.005	<0.007	--	--	--	<0.027	E.009	<0.006	<0.007	--	--
MAY 08...	<0.009	<0.005	<0.005	<0.007	--	--	--	<0.027	E.004	<0.006	<0.007	--	--
MAY 08...	<0.009	<0.005	<0.005	<0.007	--	--	--	<0.027	E.004	<0.006	<0.007	--	--
JUN 05...	<0.009	<0.005	<0.005	<0.007	<4.0	<0.15	<0.15	<0.027	0.099	<0.006	<0.007	<0.5	<0.20
JUL 02...	<0.009	<0.005	<0.005	<0.007	--	--	--	<0.027	E.007	<0.006	<0.007	--	--
SEP 04...	<0.009	<0.005	<0.005	<0.007	<0.8	<0.03	<0.03	<0.027	E.004	<0.006	<0.007	<0.1	<0.04

Date	p,p'- DDT, water, unfltrd µg/L (39300)	Pendi- meth- alin, water, fltrd 0.7µ GF µg/L (82683)	Prome- ton, water, fltrd, µg/L (04037)	Sima- zine, water, fltrd, µg/L (04035)	Tebu- thiuron water fltrd 0.7µ GF µg/L (82670)	Terba- cil, water, fltrd 0.7µ GF µg/L (82665)	Toxa- phene, water, unfltrd µg/L (39400)	trans- Chlor- dane, water, unfltrd µg/L (39065)	Tri- flur- alin, water, fltrd 0.7µ GF µg/L (82661)
NOV 01...	--	<0.022	<0.01	<0.005	<0.02	<0.034	--	--	<0.009
DEC 04...	<0.1	<0.022	M	<0.005	<0.02	<0.034	<2	<0.1	<0.009
JAN 08...	--	<0.022	<0.01	<0.005	<0.02	<0.034	--	--	<0.009
MAR 06...	<0.1	<0.022	<0.01	<0.005	<0.02	<0.034	<2	<0.1	<0.009
APR 10...	--	<0.022	<0.01	<0.005	<0.02	<0.034	--	--	<0.009
MAY 08...	--	<0.022	E.01	0.007	<0.02	<0.034	--	--	<0.009
MAY 08...	--	<0.022	E.01	0.007	<0.02	<0.034	--	--	<0.009
JUN 05...	<0.5	<0.022	E.01	0.015	<0.02	<0.034	<10	<0.5	<0.009
JUL 02...	--	<0.022	E.01	0.013	<0.02	<0.034	--	--	<0.009
SEP 04...	<0.1	<0.022	E.01	E.005	<0.02	<0.034	<2	<0.1	<0.009

Remark codes used in this table:

&lt; -- Less than

E -- Estimated value

M-- Presence verified, not quantified

## DELAWARE RIVER BASIN

## 01463500 DELAWARE RIVER AT TRENTON, NJ--Continued

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

## WATER-COLUMN BACTERIA ANALYSES

Samples were collected synoptically over a 30-day period during the summer.

Date	Time	Enterococci, m-E MF, water, col/ 100 mL (31649)	E coli, m-TEC MF, water, col/ 100 mL (31633)	Fecal coliform, ECbroth water, MPN/ 100 mL (31615)	Date	Time	Enterococci, m-E MF, water, col/ 100 mL (31649)	E coli, m-TEC MF, water, col/ 100 mL (31633)	Fecal coliform, ECbroth water, MPN/ 100 mL (31615)
MAY					JUNE				
07...	0935	<10	<100	80	04...	0910	610	2500	300
14...	0935	<10	100	140					
21	1045	20	<100	<20					
28	1050	220	500	500					

Remark codes used in this table:

&lt; -- Less than

**Analyses of pesticides in surface-water and ground-water samples (schedule 2001)**

Selected water samples from DELR-NAWQA study sites were analyzed for pesticides by use of NWQL schedule 2001. This table lists the pesticides on the schedule, the unit of measure (micrograms per liter, µg/L), the U.S. Geological Survey National Water Information System parameter code, and the reporting level. **Only pesticides measured at or above the minimum reporting level for one or more samples are listed in the water-quality tables.**

SCHEDULE DESCRIPTION.--Pesticides in filtered water extracted on C-18 Solid Phase Extraction (SPE) cartridge and analyzed by Gas Chromatography/Mass Spectrometry (GC/MS).

SAMPLE REQUIREMENTS.--1 liter of water filtered through 0.7-micron glass-fiber depth filter, chilled at 4° C (packed in ice).

CONTAINER REQUIREMENTS.--1 liter baked amber glass bottle (GCC) from NWQL.

PCODE.--The USGS/EPA parameter code.

COMMON NAME.--Common or trade name(s) for constituent.

LRL.--Laboratory reporting level.

PCode	Common Name	LRL (µg/L)	PCode	Common Name	LRL (µg/L)
82660	2,6-Diethylaniline	0.006	82667	Parathion-methyl	0.006
49260	Acetochlor	0.006	39415	Metolachlor	0.013
46342	Alachlor	0.0045	82630	Metribuzin	0.006
34253	alpha-HCH	0.0046	82671	Molinate	0.0016
39632	Atrazine	0.007	82684	Napropamide	0.007
82673	Benfluralin	0.010	34653	p,p'-DDE	0.0025
04028	Butylate	0.002	39542	Parathion	0.010
82680	Carbaryl	0.041	82669	Pebulate	0.0041
82674	Carbofuran	0.020	82683	Pendimethalin	0.022
38933	Chlorpyrifos	0.005	82687	cis-Permethrin	0.006
04041	Cyanazine	0.018	82664	Phorate	0.011
82682	Dacthal	0.0030	04037	Prometon	0.015
04040	Deethylatrazine	0.006	82676	Propyzamide	0.0041
39572	Diazinon	0.005	04024	Propachlor	0.010
39381	Dieldrin	0.0048	82679	Propanil	0.011
82677	Disulfoton	0.021	82685	Propargite	0.023
82668	EPTC	0.0020	04035	Simazine	0.005
82663	Ethalfuralin	0.009	82670	Tebuthiuron	0.016
82672	Ethoprophos	0.005	82665	Terbacil	0.034
04095	Fonofos	0.0027	82675	Terbufos	0.017
39341	Lindane	0.0040	82681	Thiobencarb	0.0048
82666	Linuron	0.035	82678	Triallate	0.0023
39532	Malathion	0.027	82661	Trifluralin	0.009
82686	Azinphos-methyl	0.05			

DELAWARE RIVER BASIN

01463500 DELAWARE RIVER AT TRENTON, NJ--Continued  
(Pennsylvania Water-Quality Network Station)

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 430-470.

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

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unfltrd μS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, unfltrd recover-able, mg/L (00916)	Magnesium, water, unfltrd recover-able, mg/L (00927)	ANC, wat unfltrd end pt, lab, mg/L as CaCO3 (00417)
NOV 2002 20...	1620	1028	9813	29800	40	12.2	7.3	120	6.7	39	10.3	3.1	24
JAN 2003 08...	0950	1028	9813	19600	40	13.6	7.6	179	2.1	53	14.4	4.1	29
MAR 06...	0940	1028	9813	17800	40	13.7	7.7	198	2.5	56	14.8	4.7	33
MAY 08...	0930	1028	9813	11800	40	9.9	7.8	161	15.3	53	13.8	4.5	35
JUL 02...	0910	1028	9813	13500	40	8.9	7.8	191	22.3	64	16.7	5.4	44
SEP 04...	0910	1028	9813	35300	40	8.9	7.3	116	18.3	38	10.1	3.0	25

Date	Fluoride, water, unfltrd mg/L (00951)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat fltr (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water, unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recover-able, μg/L (01105)	Copper, water, unfltrd recover-able, μg/L (01042)
NOV 2002 20...	<.2	12.3	100	16	<.020	.78	<.040	.02	.034	1.4	4.4	300	<10
JAN 2003 08...	<.2	13.4	312	<2	.070	.96	<.040	.02	.020	1.2	2.5	<200	<10
MAR 06...	<.2	13.9	170	14	<.020	1.00	<.040	.03	.070	1.3	2.9	400	<10
MAY 08...	<.2	13.0	114	8	<.020	.57	<.040	.02	.030	.94	2.6	<200	<10
JUL 02...	<.2	13.9	140	<2	<.020	.78	<.040	.02	.033	1.0	3.1	<200	<10
SEP 04...	<.2	8.4	92	76	.030	.47	<.040	.03	.138	1.1	4.8	1400	<10

Date	Cyanide amenable to chlorination wat unfltrd mg/L (00722)	Iron, water, unfltrd recover-able, μg/L (01045)	Lead, water, unfltrd recover-able, μg/L (01051)	Manganese, water, unfltrd recover-able, μg/L (01055)	Nickel, water, unfltrd recover-able, μg/L (01067)	Zinc, water, unfltrd recover-able, μg/L (01092)	Phenolic compounds, water, unfltrd μg/L (32730)
NOV 2002 20...	<1.00	470	1.3	80	<50	<10	<5
JAN 2003 08...	<1.00	130	<1.0	30	<50	20	<5
MAR 06...	<1.00	420	<1.0	40	<50	20	<5
MAY 08...	<1.00	180	<1.0	50	<50	<10	<5
JUL 02...	<1.00	260	<1.0	40	<50	<10	<5
SEP 04...	<1.00	2020	4.6	340	<50	40	--

## DELAWARE RIVER BASIN

## 01463500 DELAWARE RIVER AT TRENTON, NJ--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES

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

Date	8/19/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	1
Nematoda (NEMATODES)	1
Mollusca	
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	
<u>Sphaerium</u> sp	1
Annelida	
Hirudinea (LEECHES)	
Arhynchobdellida	
Erpobdellidae	
<u>Erpobdella</u> sp	1
Polychaeta	
Sabellida	
Sabellidae	
<u>Manayunkia speciosa</u>	1
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Acentrella</u> sp	3
<u>Baetis</u> sp	20
Ephemerellidae	
<u>Ephemerella</u> sp	1
<u>Serratella</u> sp	8
Heptageniidae	6
<u>Stenonema</u> sp	5
Tricorythidae	
<u>Tricorythodes</u> sp	7
Plecoptera (STONEFLIES)	
Perlidae	
<u>Agnatina</u> sp	3
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
<u>Corydalis</u> sp	1
Trichoptera (CADDISFLIES)	
Glossosomatidae	2
Hydropsychidae	
<u>Cheumatopsyche</u> sp	2
<u>Hydropsyche</u> sp	14
<u>Potamyia</u> sp	6
Philopotamidae	
<u>Chimarra</u> sp	17
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Optioservus</u> sp	1
<u>Stenelmis</u> sp	78
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	9
Total Organisms	188

## DELAWARE RIVER BASIN

## 01463500 DELAWARE RIVER AT TRENTON, NJ--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	194	176	183	168	162	165	157	151	154	175	168	173
2	179	176	177	169	167	168	159	155	157	182	162	172
3	195	179	187	173	169	171	158	157	157	178	151	164
4	210	194	200	174	170	173	159	157	158	174	152	163
5	222	209	216	173	171	172	162	157	159	188	167	177
6	230	221	225	182	172	177	177	162	168	177	166	169
7	232	225	228	188	179	184	183	176	178	183	170	175
8	234	223	230	188	183	186	193	181	185	182	178	180
9	223	206	214	183	169	174	---	---	---	184	178	181
10	206	203	204	170	167	169	198	194	195	188	182	185
11	206	200	203	169	167	168	202	192	197	189	184	186
12	225	198	210	172	167	169	245	199	210	---	---	---
13	198	156	175	177	172	175	305	236	263	---	---	---
14	156	140	146	181	173	178	236	190	209	195	188	192
15	142	140	141	173	151	162	200	181	192	---	---	---
16	145	141	143	152	148	150	181	168	174	---	---	---
17	159	142	151	152	134	144	168	160	163	---	---	---
18	147	106	124	158	147	155	162	157	159	215	200	210
19	107	104	106	147	123	132	165	160	163	233	204	222
20	117	107	110	124	118	120	172	164	168	---	---	---
21	124	117	121	122	119	121	179	156	171	---	---	---
22	130	123	126	133	120	127	176	152	162	230	216	226
23	140	130	135	137	131	134	152	143	146	229	215	225
24	146	140	143	139	129	134	149	146	147	236	225	231
25	155	146	151	129	126	127	149	141	144	236	225	230
26	166	154	158	132	127	130	183	148	167	228	221	224
27	175	166	170	136	130	132	180	172	176	221	217	218
28	169	153	162	145	136	142	181	170	174	218	212	215
29	153	148	150	150	145	148	171	165	168	213	206	211
30	157	147	152	153	148	152	170	165	168	225	205	215
31	164	157	160	---	---	---	168	165	167	226	210	218
MONTH	234	104	168	188	118	155	305	141	173	236	151	198
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	221	210	216	200	193	197	124	121	122	174	169	172
2	212	208	210	193	186	190	131	123	127	177	171	174
3	212	209	211	205	178	189	137	131	134	182	176	179
4	214	205	209	211	201	207	138	135	136	181	168	178
5	213	207	209	201	192	199	140	136	138	168	147	155
6	225	213	219	195	188	191	143	140	141	151	146	148
7	224	210	215	216	195	210	---	---	---	157	149	153
8	214	205	208	229	215	223	152	138	144	165	155	160
9	211	203	205	229	208	221	162	152	158	173	161	167
10	216	210	213	214	197	206	169	162	165	179	173	176
11	220	213	216	219	209	215	169	166	168	183	177	179
12	221	215	218	215	209	213	171	167	169	188	182	185
13	221	216	218	212	210	211	167	162	164	196	186	190
14	225	218	222	217	208	211	162	158	159	196	186	193
15	228	223	225	235	213	224	161	156	158	188	172	178
16	232	221	229	214	208	211	162	158	160	179	175	177
17	236	212	229	210	203	207	164	161	163	180	174	176
18	230	220	227	203	181	195	170	164	168	190	174	178
19	233	218	223	181	140	158	173	170	172	189	178	183
20	238	230	235	140	114	124	176	172	174	187	179	184
21	231	218	225	134	114	126	180	174	178	193	181	188
22	229	216	222	129	104	116	185	180	183	201	187	193
23	241	206	219	---	---	---	191	184	187	206	189	198
24	243	231	235	---	---	---	190	184	187	210	189	202
25	231	222	226	---	---	---	188	184	187	216	195	204
26	222	206	214	118	112	116	191	185	188	212	192	201
27	207	194	201	123	118	120	197	191	195	208	187	197
28	196	194	195	123	120	121	198	194	196	201	175	187
29	---	---	---	128	121	124	195	168	181	177	173	175
30	---	---	---	135	126	131	172	167	169	178	167	172
31	---	---	---	133	122	128	---	---	---	173	169	172
MONTH	243	194	218	235	104	178	198	121	165	216	146	180





## DELAWARE RIVER BASIN

## 01463500 DELAWARE RIVER AT TRENTON, NJ--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	8.6	7.5	7.9	7.8	7.5	7.7	7.6	7.5	7.6	7.7	7.6	7.7
2	8.7	7.5	8.0	7.8	7.7	7.7	7.6	7.5	7.6	7.7	7.6	7.6
3	8.7	7.5	8.1	7.8	7.7	7.8	7.6	7.6	7.6	7.6	7.5	7.5
4	8.1	7.5	7.7	7.8	7.7	7.8	7.6	7.6	7.6	7.5	7.4	7.5
5	8.6	7.5	8.0	7.9	7.7	7.8	7.6	7.5	7.6	7.6	7.5	7.5
6	8.6	7.6	8.1	7.9	7.8	7.8	7.6	7.6	7.6	7.6	7.5	7.6
7	8.5	7.6	8.1	7.9	7.8	7.8	7.6	7.6	7.6	7.7	7.6	7.7
8	8.7	7.7	8.2	7.9	7.8	7.8	7.7	7.6	7.6	7.7	7.6	7.7
9	8.6	7.8	8.2	7.9	7.7	7.8	---	---	---	7.7	7.6	7.7
10	8.2	7.7	7.9	7.8	7.7	7.7	7.7	7.7	7.7	7.8	7.7	7.7
11	7.9	7.6	7.8	7.7	7.6	7.7	7.7	7.7	7.7	7.8	7.7	7.7
12	7.7	7.4	7.5	7.7	7.6	7.6	7.7	7.6	7.6	---	---	---
13	7.5	7.3	7.4	7.6	7.6	7.6	7.6	7.6	7.6	---	---	---
14	7.3	7.3	7.3	7.8	7.6	7.7	7.6	7.5	7.5	7.9	7.8	7.8
15	7.3	7.2	7.2	7.7	7.4	7.6	7.5	7.5	7.5	7.9	7.8	7.9
16	7.4	7.2	7.4	7.4	7.3	7.3	7.5	7.5	7.5	8.0	7.8	7.9
17	7.5	7.4	7.5	7.4	7.2	7.3	7.5	7.5	7.5	8.0	7.8	7.9
18	7.4	7.2	7.3	7.3	7.3	7.3	7.6	7.5	7.5	8.0	7.9	7.9
19	7.2	7.2	7.2	7.3	7.2	7.2	7.6	7.5	7.6	8.0	7.9	8.0
20	7.3	7.2	7.3	7.2	7.2	7.2	7.6	7.6	7.6	8.0	7.9	8.0
21	7.5	7.3	7.4	7.2	7.2	7.2	7.6	7.5	7.6	8.0	8.0	8.0
22	7.4	7.4	7.4	7.3	7.2	7.2	7.6	7.5	7.5	8.1	8.0	8.0
23	7.5	7.4	7.5	7.4	7.2	7.3	7.5	7.5	7.5	8.1	7.9	8.0
24	7.6	7.5	7.5	7.4	7.2	7.3	7.6	7.5	7.5	8.1	8.0	8.0
25	7.6	7.5	7.6	7.3	7.2	7.3	7.6	7.5	7.5	8.0	8.0	8.0
26	7.7	7.6	7.6	7.3	7.3	7.3	7.6	7.5	7.6	8.0	8.0	8.0
27	7.7	7.6	7.6	7.4	7.3	7.4	7.7	7.6	7.6	8.0	8.0	8.0
28	7.7	7.6	7.6	7.5	7.4	7.4	7.7	7.6	7.6	8.0	8.0	8.0
29	7.6	7.6	7.6	7.5	7.4	7.5	7.7	7.6	7.7	8.0	8.0	8.0
30	7.7	7.6	7.6	7.5	7.4	7.4	7.7	7.6	7.7	8.1	8.0	8.0
31	7.7	7.6	7.7	---	---	---	7.7	7.6	7.7	8.1	8.0	8.0
MAX	8.7	7.8	8.2	7.9	7.8	7.8	7.7	7.7	7.7	8.1	8.0	8.0
MIN	7.2	7.2	7.2	7.2	7.2	7.2	7.5	7.5	7.5	7.5	7.4	7.5
	FEBRUARY			MARCH			APRIL			MAY		
1	8.0	7.9	8.0	8.1	7.7	7.9	7.5	7.4	7.4	9.1	8.2	8.9
2	8.1	7.8	8.0	8.0	7.6	7.8	7.4	7.3	7.4	9.1	8.6	8.8
3	8.1	7.8	8.0	7.8	7.5	7.7	7.4	7.4	7.4	9.2	8.2	8.8
4	8.0	7.8	7.9	8.0	7.6	7.7	7.4	7.4	7.4	8.9	8.3	8.8
5	8.2	7.8	7.9	8.0	7.6	7.9	7.5	7.4	7.4	8.6	7.6	7.8
6	8.2	7.9	8.0	7.9	7.5	7.6	7.5	7.4	7.5	7.8	7.3	7.5
7	8.1	7.8	7.9	7.9	7.5	7.7	---	---	---	8.7	7.6	7.9
8	8.2	7.8	7.9	8.3	7.7	7.9	7.6	7.5	7.5	8.5	7.2	7.7
9	8.2	7.8	8.0	8.6	7.8	8.2	7.6	7.5	7.5	7.8	7.4	7.6
10	8.2	7.8	8.0	8.3	7.6	7.7	7.7	7.6	7.6	8.1	7.4	7.8
11	8.4	7.8	8.0	8.0	7.7	7.8	7.7	7.6	7.6	8.2	7.6	7.8
12	8.5	8.0	8.2	8.5	7.8	8.0	7.7	7.6	7.6	8.3	7.8	7.9
13	8.6	8.1	8.3	8.5	7.9	8.2	7.8	7.6	7.6	8.4	7.6	8.0
14	8.7	8.1	8.4	8.2	7.7	8.0	7.8	7.6	7.7	8.3	7.8	8.0
15	8.7	8.2	8.5	8.5	7.6	8.2	7.9	7.5	7.7	8.0	7.8	7.9
16	8.6	8.3	8.4	8.8	7.8	8.4	8.1	7.6	7.8	8.1	7.6	7.8
17	8.3	8.0	8.1	8.8	7.8	8.4	8.0	7.6	7.8	8.1	7.7	7.9
18	8.6	7.9	8.0	8.3	7.6	7.8	8.1	7.6	7.8	8.2	7.7	7.9
19	8.7	8.3	8.5	7.6	7.3	7.4	8.6	7.6	7.9	8.2	7.8	7.9
20	8.8	8.3	8.5	7.4	7.2	7.2	8.8	7.9	8.5	8.3	7.7	7.9
21	8.8	8.4	8.6	7.3	7.2	7.3	9.0	8.1	8.7	7.8	7.6	7.7
22	8.6	7.7	8.1	7.3	7.2	7.2	8.9	8.0	8.7	7.8	7.6	7.7
23	7.7	7.5	7.5	---	---	---	9.0	8.0	8.7	8.0	7.6	7.7
24	7.6	7.4	7.5	---	---	---	9.3	8.2	8.6	8.0	7.8	7.9
25	7.7	7.5	7.5	---	---	---	9.3	8.7	9.1	8.0	7.8	7.9
26	7.8	7.5	7.7	7.3	7.2	7.3	9.2	8.6	8.8	8.0	7.8	7.9
27	7.8	7.6	7.7	7.3	7.3	7.3	9.3	8.1	8.8	7.9	7.7	7.9
28	8.2	7.6	7.8	7.4	7.3	7.4	9.4	8.9	9.2	7.8	7.5	7.6
29	---	---	---	7.4	7.4	7.4	9.2	8.4	8.9	7.7	7.5	7.6
30	---	---	---	7.5	7.4	7.4	9.2	8.3	8.9	7.7	7.4	7.5
31	---	---	---	7.4	7.4	7.4	---	---	---	7.6	7.4	7.5
MAX	8.8	8.4	8.6	8.8	7.9	8.4	9.4	8.9	9.2	9.2	8.6	8.9
MIN	7.6	7.4	7.5	7.3	7.2	7.2	7.4	7.3	7.4	7.6	7.2	7.5

## DELAWARE RIVER BASIN

## 01463500 DELAWARE RIVER AT TRENTON, NJ--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	JUNE			JULY			AUGUST			SEPTEMBER		
				MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	7.5	7.4	7.4	8.1	7.5	7.8	7.6	7.2	7.5	8.5	7.6	8.0			
2	7.5	7.2	7.2	8.4	7.7	7.9	7.7	7.2	7.4	7.6	7.1	7.4			
3	7.2	7.0	7.2	8.2	7.7	7.9	7.8	7.4	7.6	7.3	6.9	7.1			
4	7.3	7.2	7.2	8.5	7.8	8.1	7.7	7.4	7.5	6.9	6.4	6.6			
5	7.4	7.3	7.3	8.5	8.1	8.2	7.4	7.1	7.2	6.5	6.2	6.5			
6	7.4	7.3	7.4	8.6	8.1	8.3	7.1	7.0	7.0	6.4	6.2	6.3			
7	7.4	7.3	7.4	8.5	8.3	8.5	7.1	7.0	7.1	6.4	6.3	6.4			
8	7.4	7.4	7.4	8.6	8.2	8.4	7.1	7.0	7.0	6.7	6.3	6.5			
9	7.4	7.4	7.4	8.4	8.2	8.4	7.1	7.0	7.1	6.9	6.6	6.7			
10	7.5	7.3	7.4	8.2	7.5	7.8	7.1	7.0	7.0	7.1	6.7	6.8			
11	7.5	7.4	7.4	8.3	7.3	7.7	7.2	7.1	7.1	7.4	6.8	7.2			
12	7.5	7.3	7.4	---	---	---	7.2	7.1	7.2	7.6	7.1	7.3			
13	7.5	7.4	7.4	8.6	7.9	8.3	7.1	7.0	7.1	7.3	7.1	7.2			
14	7.4	7.3	7.4	8.3	7.6	8.1	7.0	6.8	7.0	7.6	7.1	7.3			
15	7.5	7.3	7.4	8.4	7.6	8.1	6.9	6.8	6.9	7.5	7.1	7.3			
16	7.5	7.3	7.4	8.3	7.6	8.1	7.0	6.9	7.0	7.5	7.2	7.3			
17	7.5	7.4	7.5	8.4	7.6	8.1	7.2	7.0	7.1	7.2	6.9	6.9			
18	7.6	7.5	7.5	8.3	7.8	8.1	7.2	7.0	7.1	6.9	6.8	6.8			
19	7.6	7.5	7.6	8.4	7.5	8.0	7.3	7.0	7.1	6.9	6.8	6.9			
20	7.6	7.5	7.6	8.4	7.6	8.1	7.5	7.2	7.3	7.0	6.9	7.0			
21	7.6	7.5	7.6	8.2	7.4	7.9	7.6	7.3	7.4	7.1	7.0	7.0			
22	7.5	7.4	7.5	7.9	7.0	7.5	7.6	7.4	7.5	7.1	7.0	7.1			
23	7.5	7.4	7.4	7.1	7.0	7.0	7.9	7.4	7.6	7.1	6.9	7.0			
24	7.4	7.4	7.4	7.2	7.0	7.1	8.0	7.6	7.8	7.0	6.7	6.8			
25	7.4	7.2	7.4	7.3	7.1	7.2	8.3	7.8	8.0	6.7	6.4	6.4			
26	7.5	7.4	7.4	7.3	7.0	7.1	8.3	8.0	8.2	6.7	6.4	6.5			
27	7.5	7.2	7.4	7.6	7.1	7.2	8.4	8.0	8.2	6.8	6.6	6.7			
28	7.6	7.4	7.5	7.7	7.1	7.2	8.5	8.0	8.2	6.8	6.7	6.8			
29	7.8	7.5	7.6	7.9	7.2	7.6	8.6	8.2	8.4	6.9	6.8	6.9			
30	8.0	7.5	7.7	8.1	7.3	7.6	8.6	8.1	8.4	6.9	6.6	6.9			
31	---	---	---	8.0	7.5	7.7	8.6	7.8	8.3	---	---	---			
MAX	8.0	7.5	7.7	8.6	8.3	8.5	8.6	8.2	8.4	8.5	7.6	8.0			
MIN	7.2	7.0	7.2	7.1	7.0	7.0	6.9	6.8	6.9	6.4	6.2	6.3			
YEAR	MAX			MAXIMUM 9.4	MINIMUM 6.4										
	MIN			MAXIMUM 8.9	MINIMUM 6.2										
	MEDIAN			MAXIMUM 9.2	MINIMUM 6.3										

## DELAWARE RIVER BASIN

## 01463500 DELAWARE RIVER AT TRENTON, NJ--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	20.7	18.8	19.8	8.7	7.8	8.1	3.1	2.5	2.8	3.6	3.2	3.4
2	21.8	19.4	20.6	8.1	7.3	7.8	2.5	2.1	2.4	3.8	3.5	3.7
3	22.7	20.6	21.6	7.5	7.0	7.3	2.5	1.3	1.9	3.5	2.5	3.0
4	22.2	20.8	21.2	7.2	6.8	7.0	1.3	0.9	1.1	2.5	1.9	2.1
5	22.4	20.7	21.5	7.1	6.4	6.8	1.1	0.1	0.5	2.0	1.8	1.9
6	21.6	20.0	20.7	7.6	7.0	7.3	1.1	0.1	0.5	2.3	1.9	2.1
7	21.1	19.6	20.3	7.7	6.9	7.2	0.6	0.0	0.3	2.2	1.9	2.1
8	20.0	18.2	19.0	7.8	6.9	7.3	0.8	0.1	0.5	2.2	1.8	2.0
9	18.6	17.2	17.6	8.2	7.4	7.8	---	---	---	2.7	1.9	2.3
10	17.5	17.1	17.3	9.3	8.0	8.7	---	---	---	3.1	2.4	2.8
11	17.1	16.5	16.7	10.7	9.3	10.2	---	---	---	3.1	2.1	2.5
12	16.7	15.6	16.1	10.5	10.1	10.4	2.0	0.7	1.3	---	---	---
13	15.6	14.9	15.1	10.4	9.8	10.2	2.3	1.8	2.0	---	---	---
14	15.1	14.4	14.7	10.1	9.3	9.7	3.2	2.3	2.9	0.8	0.2	0.5
15	14.4	13.3	13.7	9.7	9.2	9.5	3.8	3.2	3.5	---	---	---
16	13.8	12.8	13.3	9.3	8.5	8.9	3.7	3.3	3.5	---	---	---
17	12.8	12.1	12.5	8.5	7.5	7.9	3.3	2.5	2.8	---	---	---
18	12.5	11.6	12.0	7.7	7.0	7.4	2.5	1.5	1.8	---	---	---
19	11.6	11.1	11.3	7.0	6.4	6.6	1.7	1.2	1.4	---	---	---
20	11.6	10.9	11.2	6.4	6.0	6.2	3.3	1.7	2.4	---	---	---
21	11.5	10.5	11.1	6.5	5.9	6.2	3.7	3.3	3.5	---	---	---
22	11.4	10.4	11.0	6.7	6.3	6.5	3.6	3.2	3.4	0.0	-0.1	-0.1
23	11.2	10.5	10.9	6.6	6.1	6.3	3.3	2.9	3.0	-0.1	-0.1	-0.1
24	10.7	10.0	10.3	6.4	5.8	6.1	3.0	2.3	2.6	-0.1	-0.1	-0.1
25	10.1	9.8	10	6.2	5.5	5.9	2.9	2.2	2.5	-0.1	-0.1	-0.1
26	10.6	9.8	10.2	6.3	5.7	6.0	2.2	1.6	1.9	-0.1	-0.1	-0.1
27	10.5	9.9	10.2	6.3	5.4	5.8	1.9	1.5	1.7	-0.1	-0.1	-0.1
28	10.1	9.7	9.9	5.4	4.4	4.8	2.0	1.6	1.8	-0.1	-0.1	-0.1
29	9.8	9.1	9.4	4.4	3.4	3.7	2.5	1.9	2.2	-0.1	-0.1	-0.1
30	9.1	8.2	8.7	3.4	3.1	3.3	2.7	2.0	2.3	-0.1	-0.1	-0.1
31	8.7	8.0	8.3	---	---	---	3.3	2.7	3.0	-0.1	-0.1	-0.1
MONTH	22.7	8.0	14.4	10.7	3.1	7.2	3.8	0.0	2.1	3.8	-0.1	1.2
DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	0.6	-0.1	0.0	2.5	2.2	2.4	6.6	5.3	5.8	16.9	15.1	16.0
2	1.5	0.6	1.1	2.9	2.4	2.6	6.4	4.9	5.7	18.0	16.6	17.3
3	2.5	1.2	1.8	2.6	1.6	2.1	7.5	6.0	6.6	17.9	16.7	17.3
4	3.0	2.5	2.8	2.3	1.2	1.9	7.4	6.8	7.1	17.5	16.4	17.0
5	2.6	1.8	2.3	2.9	2.0	2.5	6.8	6.3	6.5	17.0	14.7	15.6
6	1.8	1.0	1.4	3.0	2.0	2.5	6.8	5.7	6.3	14.7	13.9	14.1
7	1.1	0.6	0.8	2.4	1.4	1.9	---	---	---	15.5	13.4	14.4
8	1.5	0.6	1.0	3.4	1.9	2.6	4.7	4.4	4.5	15.6	14.6	15.1
9	1.3	0.2	0.7	4.5	3.1	3.8	4.4	4.2	4.3	14.8	14.4	14.6
10	1.0	0.8	0.9	4.1	2.7	3.2	5.3	4.2	4.7	15.3	14.5	14.9
11	1.3	0.2	0.8	3.1	2.0	2.5	5.8	5.2	5.4	16.3	15.2	15.7
12	1.4	0.5	0.9	3.2	2.2	2.7	8.0	5.8	6.8	16.6	15.7	16.2
13	0.9	0.1	0.4	3.8	3.0	3.3	9.6	7.7	8.5	15.7	14.6	15.1
14	1.1	0.0	0.4	3.8	2.8	3.3	10.6	8.9	9.7	14.8	14.3	14.5
15	0.9	0.4	0.7	4.5	3.0	3.8	12.1	9.9	10.9	14.5	13.9	14.2
16	0.4	0.0	0.0	5.9	4.1	4.9	13.9	11.5	12.6	14.1	13.7	13.9
17	0.0	0.0	0.0	6.7	5.6	6.2	13.8	11.8	12.7	14.6	13.5	13.9
18	0.0	0.0	0.0	7.5	6.1	6.9	11.8	10.4	10.9	14.3	13.8	14.0
19	0.0	0.0	0.0	7.4	4.9	6.2	11.8	10.0	10.9	16.6	13.6	15.0
20	1.3	0.0	0.4	4.9	3.5	3.9	12.2	10.6	11.5	18.0	15.8	16.8
21	2.2	0.9	1.6	4.4	3.6	3.9	12.6	11.3	12.1	17.5	16.7	17.2
22	2.6	2.0	2.4	5.5	4.4	5.0	13.3	12.0	12.7	16.7	15.9	16.4
23	2.1	1.5	1.9	---	---	---	12.9	11.6	12.1	15.9	15.2	15.6
24	1.5	1.0	1.2	---	---	---	12.6	10.8	11.7	15.3	15.0	15.1
25	1.7	0.7	1.2	---	---	---	13.1	11.4	12.3	15.0	14.9	15.0
26	1.5	0.7	1.1	7.5	6.4	6.9	13.0	12.4	12.6	14.9	14.2	14.6
27	1.3	0.5	1.0	7.8	6.9	7.3	14.6	12.3	13.3	15.0	13.9	14.5
28	2.4	1.0	1.7	8.0	7.2	7.6	15.3	13.4	14.3	15.9	14.5	15.1
29	---	---	---	8.7	7.6	8.1	15.4	14.2	14.9	17.3	15.1	16.2
30	---	---	---	8.6	7.9	8.4	16.2	14.5	15.3	18.5	16.4	17.4
31	---	---	---	7.9	6.6	7.4	---	---	---	18.3	17.5	17.8
MONTH	3.0	-0.1	1.0	8.7	1.2	4.4	16.2	4.2	9.7	18.5	13.4	15.5



## DELAWARE RIVER BASIN

## 01463500 DELAWARE RIVER AT TRENTON, NJ--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	10.7	8.5	9.5	12.5	11.9	12.2	14.2	13.7	14.0	14.4	13.9	14.1
2	10.6	8.3	9.4	12.3	11.9	12.1	14.2	13.6	13.9	13.9	13.8	13.9
3	10.8	7.9	9.2	12.4	12.0	12.2	14.2	13.6	13.9	14.3	13.9	14.0
4	8.8	7.6	8.2	12.4	12.1	12.3	14.7	14.2	14.4	14.6	14.3	14.4
5	10.5	7.5	8.8	12.4	12.1	12.3	14.8	14.5	14.6	14.7	14.4	14.6
6	10.5	7.9	9.1	12.2	11.9	12.0	14.9	14.7	14.8	14.6	14.4	14.5
7	10.2	8.0	9.1	12.1	11.7	11.9	15.1	14.8	14.9	14.6	14.3	14.4
8	11.0	8.3	9.5	12.0	11.6	11.7	15.1	14.9	15.0	14.4	14.1	14.3
9	10.8	8.7	9.7	11.8	11.4	11.6	---	---	---	14.2	13.9	14.1
10	10.1	8.7	9.4	---	---	---	15.5	15.2	15.3	14.0	13.7	13.9
11	9.7	8.8	9.3	---	---	---	15.3	15.0	15.2	14.2	13.3	13.9
12	9.3	8.7	9.1	---	---	---	15.0	14.6	14.8	---	---	---
13	9.5	9.3	9.5	---	---	---	14.7	14.4	14.6	---	---	---
14	9.6	9.5	9.6	---	---	---	14.4	13.8	14.0	14.8	14.4	14.6
15	9.9	9.6	9.7	---	---	---	13.9	13.8	13.8	14.8	14.4	14.6
16	10.0	9.7	9.8	10.9	10.7	10.8	13.9	13.8	13.9	15.0	14.6	14.8
17	10.5	9.9	10.3	11.2	10.9	11.0	14.6	13.9	14.2	15.0	14.6	14.8
18	10.7	10.4	10.6	11.5	11.0	11.3	15.2	14.6	14.9	15.2	14.8	15.0
19	10.9	10.7	10.8	11.9	11.5	11.8	15.2	15.0	15.1	15.2	14.9	15.1
20	11.1	10.8	11.0	12.2	11.9	12.1	15.0	14.0	14.6	15.2	14.9	15.1
21	11.4	11.1	11.2	12.2	11.9	12.1	14.0	13.8	13.8	15.2	14.9	15.1
22	11.7	11.3	11.5	12.0	11.7	11.9	14.2	13.8	14.1	15.4	14.9	15.2
23	11.9	11.4	11.6	12.2	11.7	12.0	14.4	14.2	14.3	15.5	15.2	15.3
24	12.0	11.6	11.8	12.5	11.7	12.2	14.6	14.3	14.5	15.4	15.3	15.3
25	12.2	11.8	12.0	12.8	12.3	12.6	14.4	14.2	14.3	15.3	15.2	15.2
26	12.0	11.8	11.9	12.8	12.5	12.6	14.9	14.3	14.7	15.2	14.9	15.1
27	12.1	11.7	11.9	12.8	12.3	12.6	15.3	14.9	15.1	15.1	14.7	14.9
28	12.3	11.9	12.1	13.3	12.8	13.1	15.2	14.8	15.0	15.1	15.0	15.1
29	12.2	11.9	12.1	13.7	13.3	13.5	15.0	14.7	14.8	15.1	14.8	14.9
30	12.4	12.0	12.2	13.8	13.5	13.6	15.0	14.6	14.8	14.9	14.7	14.8
31	12.7	12.3	12.5	---	---	---	14.7	14.4	14.6	14.7	14.2	14.4
MONTH	12.7	7.5	10.4	13.8	10.7	12.1	15.5	13.6	14.5	15.5	13.3	14.7
DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	14.3	13.7	13.9	15.2	14.6	14.9	12.7	12.4	12.6	12.6	9.3	10.7
2	14.1	13.6	13.8	14.8	14.1	14.4	12.9	12.6	12.7	12.4	8.9	10.6
3	15.1	13.6	14.3	14.5	14.0	14.3	12.7	12.4	12.6	12.4	8.3	10.4
4	14.6	14.1	14.3	15.1	14.1	14.6	12.4	12.3	12.4	11.6	8.8	10.0
5	15.8	14.2	14.8	14.8	14.0	14.4	12.6	12.4	12.5	10.4	8.5	9.4
6	16.1	14.9	15.4	14.2	13.6	13.8	13.1	12.6	12.9	10.7	8.9	9.7
7	16.0	15.2	15.6	14.7	13.7	14.2	---	---	---	12.3	9.7	10.8
8	16.1	15.1	15.6	15.1	14.0	14.5	13.9	13.5	13.7	10.6	8.9	9.5
9	16.4	15.4	15.8	14.9	13.5	14.1	14.0	13.8	13.9	10.5	8.8	9.7
10	16.0	15.2	15.5	13.6	13.2	13.4	13.9	13.6	13.8	11.1	9.7	10.2
11	16.2	14.9	15.5	14.4	13.4	13.9	13.6	13.2	13.4	11.2	9.5	10.0
12	16.2	14.9	15.5	15.1	13.6	14.3	13.2	12.6	12.9	11.0	9.4	10.0
13	16.3	15.0	15.7	14.3	12.9	13.7	12.6	12.2	12.5	10.2	9.1	9.7
14	17.0	15.4	16.0	13.5	12.4	13.0	12.5	12.0	12.2	10.5	8.8	9.7
15	16.7	15.2	16.0	14.1	12.6	13.3	12.1	11.5	11.9	10.8	9.3	10.1
16	16.7	15.6	16.1	14.1	12.3	13.1	11.8	10.9	11.5	10.8	9.6	10.2
17	16.3	15.8	16.1	13.1	11.7	12.3	11.3	10.6	10.9	11.2	9.9	10.5
18	17.0	15.6	16.1	11.7	10.7	11.2	12.2	11.1	11.5	11.2	9.9	10.5
19	17.1	16.2	16.6	11.6	10.6	11.2	13.3	11.2	12.2	11.4	10.1	10.7
20	17.0	15.9	16.4	12.7	11.5	12.3	13.6	11.4	12.4	11.1	9.8	10.4
21	16.9	15.3	16.0	12.7	12.3	12.5	13.7	11.2	12.3	---	---	---
22	15.7	14.3	14.8	12.4	12.0	12.1	13.4	10.6	11.9	---	---	---
23	15.4	14.0	14.2	---	---	---	13.4	10.6	11.9	---	---	---
24	15.0	14.1	14.7	---	---	---	15.3	11.1	12.8	---	---	---
25	15.3	14.8	15.1	---	---	---	14.9	11.2	12.8	---	---	---
26	15.8	15.0	15.4	13.4	12.8	13.2	12.2	10.2	11.0	---	---	---
27	15.8	15.2	15.5	13.4	13.0	13.1	14.8	9.9	12.1	---	---	---
28	15.8	14.9	15.3	13.2	12.8	13.0	14.7	10.6	12.4	---	---	---
29	---	---	---	12.9	12.3	12.6	12.1	9.5	10.9	9.7	8.9	9.4
30	---	---	---	12.4	11.9	12.1	12.9	9.2	11.0	9.5	8.8	9.1
31	---	---	---	12.4	12.1	12.2	---	---	---	9.0	8.6	8.8
MONTH	17.1	13.6	15.4	15.2	10.6	13.3	15.3	9.2	12.3	12.6	8.3	10.0



## DELAWARE RIVER BASIN

## 01463500 DELAWARE RIVER AT TRENTON, NJ--Continued

OXYGEN DIS. PERCENT, in % OF SATURATION, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	120	92	104	108	100	104	106	101	104	108	105	106
2	121	90	105	104	100	102	104	100	102	106	104	105
3	125	88	105	104	99	102	102	98	100	105	103	105
4	100	86	92	103	100	101	104	100	102	106	104	105
5	121	84	101	103	98	101	103	101	102	107	104	105
6	118	87	102	102	98	100	105	101	103	106	104	105
7	115	88	101	102	97	98	105	101	103	106	104	105
8	120	89	103	101	96	98	106	102	104	105	102	103
9	113	91	102	100	95	97	---	---	---	105	101	103
10	106	91	98	---	---	---	---	---	---	104	101	103
11	100	91	96	---	---	---	---	---	---	105	97	102
12	95	89	92	---	---	---	106	103	105	---	---	---
13	95	93	94	---	---	---	106	104	105	---	---	---
14	95	94	94	---	---	---	105	103	104	103	99	101
15	96	93	94	---	---	---	106	103	104	---	---	---
16	96	93	94	95	93	94	105	104	104	---	---	---
17	99	94	97	94	92	93	107	104	106	---	---	---
18	99	97	98	96	92	94	110	106	108	---	---	---
19	100	97	99	97	95	96	109	106	108	---	---	---
20	102	98	100	99	97	98	108	105	107	---	---	---
21	105	101	102	99	97	98	105	104	104	---	---	---
22	107	102	105	98	96	97	107	104	106	106	102	104
23	109	102	105	99	94	97	108	105	106	106	104	105
24	107	103	106	102	94	98	108	105	107	105	105	105
25	108	105	107	103	99	101	107	103	105	105	104	104
26	108	105	106	104	100	101	108	104	106	104	102	103
27	109	104	106	103	99	101	110	107	108	103	100	102
28	109	105	107	104	100	102	110	106	108	103	103	103
29	107	104	106	104	101	102	110	106	108	103	101	102
30	106	103	105	104	101	102	110	106	108	102	100	101
31	109	104	106	---	---	---	110	106	108	100	97	98
MONTH	125	84	101	108	92	99	110	98	105	108	97	103
DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	98	94	95	112	106	109	102	100	101	130	93	108
2	100	96	98	110	103	106	104	99	101	131	92	111
3	111	96	103	106	101	104	105	101	103	131	86	108
4	108	104	106	110	101	105	103	102	102	122	90	104
5	114	103	108	110	101	106	103	101	102	104	86	94
6	115	105	110	105	99	101	108	102	105	104	87	95
7	113	106	110	107	98	103	---	---	---	123	93	106
8	115	106	110	113	101	107	108	105	106	106	88	95
9	116	106	111	115	101	107	108	106	107	104	87	96
10	113	107	109	104	97	100	109	106	108	111	96	101
11	115	103	109	106	97	102	108	106	106	114	95	101
12	115	104	109	113	99	106	109	104	106	113	95	102
13	114	103	109	108	97	103	110	104	107	102	90	96
14	120	106	111	103	92	98	112	104	108	104	86	95
15	117	106	112	109	94	101	112	104	108	106	90	98
16	114	107	111	112	95	103	114	103	108	105	93	100
17	112	108	110	107	93	100	106	100	104	110	95	102
18	117	107	110	96	89	93	110	101	105	110	96	103
19	117	111	114	93	87	90	123	100	110	117	98	107
20	121	109	114	96	90	94	127	103	114	118	99	108
21	123	108	115	97	94	96	129	103	115	---	---	---
22	114	104	108	96	94	95	128	99	112	---	---	---
23	112	101	103	---	---	---	125	99	111	---	---	---
24	107	101	104	---	---	---	144	101	119	---	---	---
25	110	104	107	---	---	---	142	103	120	---	---	---
26	112	105	109	110	107	109	116	96	104	---	---	---
27	112	106	109	111	107	109	146	93	116	---	---	---
28	115	105	110	111	108	109	147	102	122	---	---	---
29	---	---	---	109	106	107	121	93	108	101	92	96
30	---	---	---	106	102	103	131	91	110	102	91	96
31	---	---	---	103	101	102	---	---	---	95	90	93
MONTH	123	94	108	115	87	102	147	91	109	131	86	101





## DELAWARE RIVER BASIN

## 01463500 DELAWARE RIVER AT TRENTON, NJ--Continued

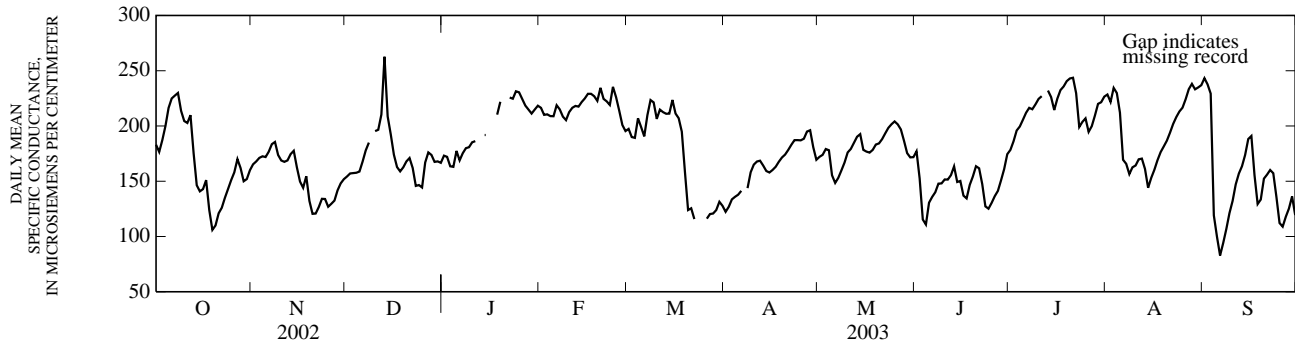
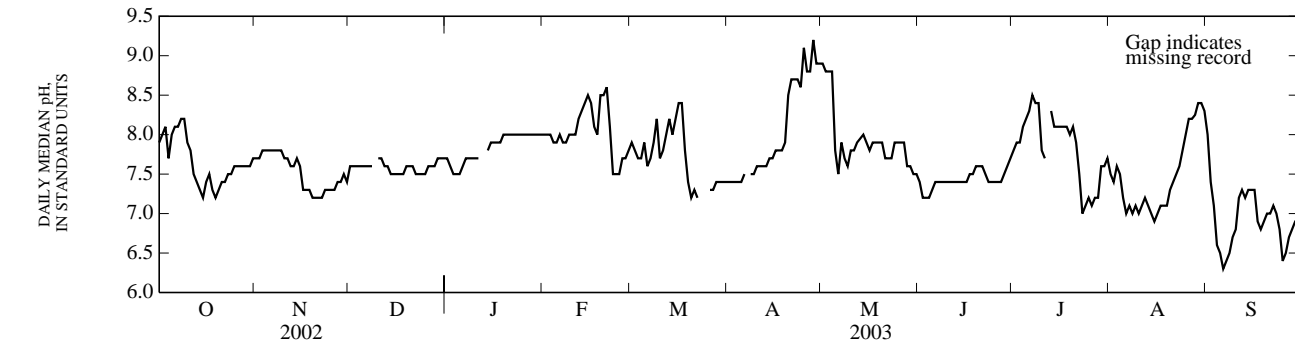
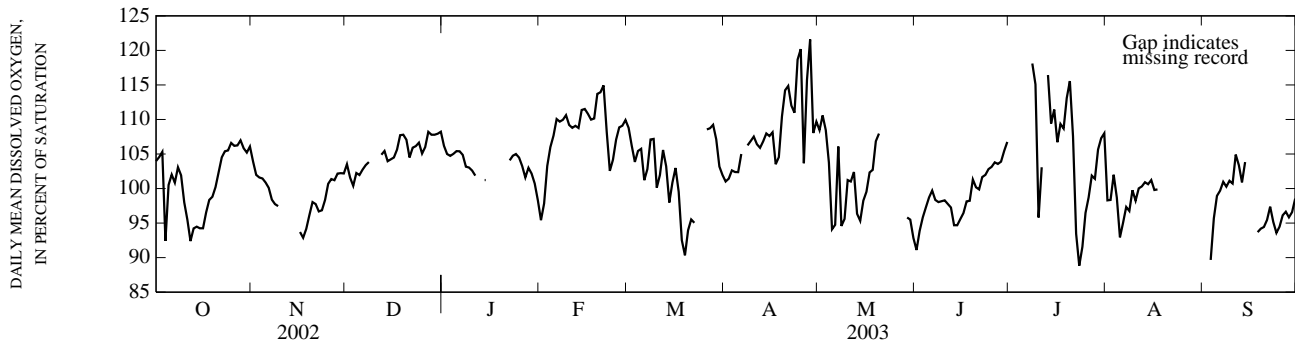
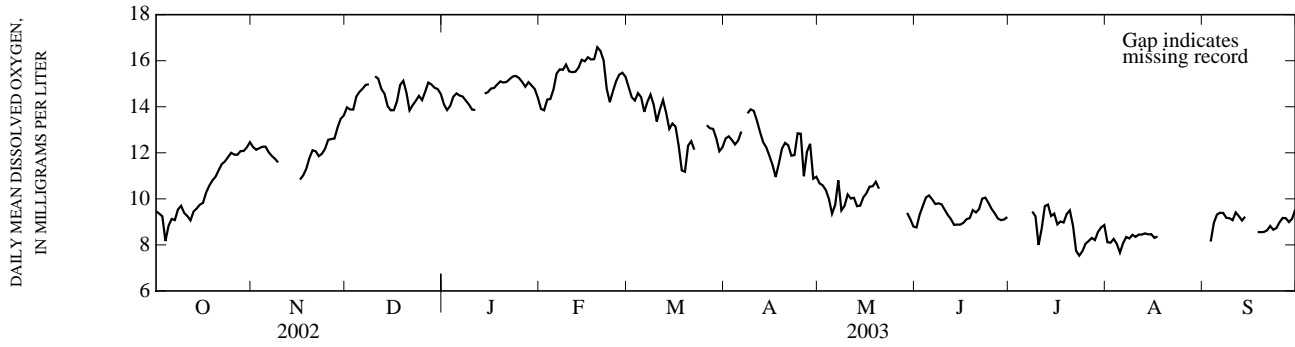
TURBIDITY, FIELD, IN (NTU), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	3.3	<2.0	<2.0	4.1	<2.0	2.1	2.2	<2.0	<2.0	17	<2.0	<2.0
2	<2.0	<2.0	<2.0	2.7	<2.0	2.0	<2.0	<2.0	<2.0	62	17	36
3	<2.0	<2.0	<2.0	2.3	<2.0	<2.0	<2.0	<2.0	<2.0	33	5.6	18
4	<2.0	<2.0	<2.0	2.0	<2.0	<2.0	<2.0	<2.0	<2.0	8.8	4.3	6.1
5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	5.5	2.6	3.6
6	<2.0	<2.0	<2.0	2.0	<2.0	<2.0	<2.0	<2.0	<2.0	4.4	<2.0	<2.0
7	<2.0	<2.0	<2.0	4.3	<2.0	2.0	<2.0	<2.0	<2.0	2.5	<2.0	<2.0
8	<2.0	<2.0	<2.0	3.1	<2.0	<2.0	<2.0	<2.0	<2.0	2.2	<2.0	<2.0
9	<2.0	<2.0	<2.0	2.2	<2.0	<2.0	---	---	---	<2.0	<2.0	<2.0
10	<2.0	<2.0	<2.0	68	<2.0	9.2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
11	3.9	<2.0	<2.0	68	<2.0	13	2.6	<2.0	<2.0	<2.0	<2.0	<2.0
12	64	3.9	26	2.3	<2.0	<2.0	18	2.5	12	---	---	---
13	46	25	35	6.5	2.3	5.1	15	9.1	12	---	---	---
14	26	13	19	7.4	3.0	4.0	21	8.0	14	<2.0	<2.0	<2.0
15	18	10	14	4.6	3.0	3.9	15	8.0	11	<2.0	<2.0	<2.0
16	13	2.3	7.3	6.7	2.1	3.3	14	4.8	8.3	<2.0	<2.0	<2.0
17	32	3.2	12	110	2.9	41	7.9	3.3	5.7	<2.0	<2.0	<2.0
18	43	19	31	41	20	32	5.6	2.0	3.5	<2.0	<2.0	<2.0
19	31	15	20	28	10	18	2.9	<2.0	<2.0	<2.0	<2.0	<2.0
20	24	9.3	14	17	9.2	12	56	<2.0	5.1	<2.0	<2.0	<2.0
21	12	4.1	8.1	12	2.4	5.2	160	21	55	<2.0	<2.0	<2.0
22	9.9	4.9	6.0	3.7	<2.0	<2.0	22	7.9	13	<2.0	<2.0	<2.0
23	5.5	2.7	4.0	7.1	<2.0	2.7	10	2.5	5.8	<2.0	<2.0	<2.0
24	4.6	2.2	3.0	4.2	<2.0	2.0	7.1	3.8	5.4	<2.0	<2.0	<2.0
25	3.7	2.2	2.8	4.4	<2.0	2.3	6.0	2.4	3.8	<2.0	<2.0	<2.0
26	4.7	<2.0	2.7	3.4	<2.0	<2.0	5.4	2.7	3.8	<2.0	<2.0	<2.0
27	8.4	3.6	5.4	3.5	<2.0	<2.0	4.0	<2.0	2.5	<2.0	<2.0	<2.0
28	6.7	2.6	4.7	3.1	<2.0	<2.0	2.2	<2.0	<2.0	<2.0	<2.0	<2.0
29	6.5	<2.0	2.7	2.3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
30	4.4	<2.0	3.1	2.6	<2.0	<2.0	2.3	<2.0	<2.0	<2.0	<2.0	<2.0
31	3.7	<2.0	2.5	---	---	---	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
MONTH	64	<2.0	7.4	110	<2.0	6.0	160	<2.0	6.0	62	<2.0	2.8
DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	<2.0	<2.0	<2.0	4.8	<2.0	3.1	18	10	13	5.1	<2.0	2.7
2	<2.0	<2.0	<2.0	19	<2.0	5.5	10	7.5	8.8	4.2	<2.0	<2.0
3	<2.0	<2.0	<2.0	26	14	18	9.9	5.7	7.4	6.0	<2.0	2.5
4	<2.0	<2.0	<2.0	16	10	13	7.6	4.4	5.8	7.4	2.0	3.4
5	<2.0	<2.0	<2.0	14	6.3	8.8	6.9	4.6	5.6	6.4	<2.0	3.4
6	<2.0	<2.0	<2.0	23	12	16	7.7	4.8	5.6	3.6	<2.0	<2.0
7	2.8	<2.0	<2.0	15	9.0	11	---	---	---	2.8	<2.0	<2.0
8	2.2	<2.0	<2.0	9.8	6.1	7.6	15	2.1	3.2	2.8	<2.0	2.2
9	<2.0	<2.0	<2.0	16	4.6	7.7	3.6	<2.0	2.7	2.7	<2.0	2.0
10	<2.0	<2.0	<2.0	30	14	22	6.0	3.1	4.2	3.7	<2.0	2.2
11	<2.0	<2.0	<2.0	17	10	12	4.6	2.2	3.1	2.5	<2.0	<2.0
12	<2.0	<2.0	<2.0	11	3.2	6.6	9.3	4.2	5.7	4.1	<2.0	2.1
13	<2.0	<2.0	<2.0	4.6	2.8	3.6	8.2	2.8	4.4	2.9	<2.0	<2.0
14	<2.0	<2.0	<2.0	18	2.8	9.4	4.9	2.1	3.3	3.6	<2.0	<2.0
15	<2.0	<2.0	<2.0	11	7.6	9.2	3.8	<2.0	2.6	3.9	<2.0	<2.0
16	<2.0	<2.0	<2.0	10	5.5	8.0	6.6	2.1	3.0	2.7	<2.0	<2.0
17	<2.0	<2.0	<2.0	7.5	4.4	5.6	3.6	<2.0	2.0	3.4	<2.0	<2.0
18	<2.0	<2.0	<2.0	27	6.1	12	3.4	<2.0	2.2	2.7	<2.0	<2.0
19	---	---	---	26	9.7	16	6.2	<2.0	2.2	3.1	<2.0	2.1
20	<2.0	<2.0	<2.0	49	15	24	2.4	<2.0	<2.0	5.3	2.3	3.7
21	<2.0	<2.0	<2.0	110	30	48	2.2	<2.0	<2.0	4.9	<2.0	2.4
22	18	<2.0	3.6	---	---	---	2.2	<2.0	<2.0	5.3	<2.0	2.3
23	25	12	15	---	---	---	2.6	<2.0	2.1	4.8	<2.0	<2.0
24	20	13	17	---	---	---	2.4	<2.0	2.0	<2.0	<2.0	<2.0
25	13	6.0	8.7	---	---	---	2.9	<2.0	<2.0	<2.0	<2.0	<2.0
26	6.0	3.5	4.7	13	8.0	11	<2.0	<2.0	<2.0	29	<2.0	3.8
27	6.5	3.5	4.6	11	7.6	9.2	2.3	<2.0	<2.0	29	4.3	11
28	4.9	2.7	3.8	12	6.7	8.9	2.3	<2.0	<2.0	11	<2.0	4.7
29	---	---	---	9.1	6.3	7.9	4.2	<2.0	2.2	9.2	<2.0	4.2
30	---	---	---	15	8.5	11	5.1	<2.0	2.6	8.5	<2.0	2.9
31	---	---	---	17	10	13	---	---	---	5.9	2.0	3.5
MONTH	25	<2.0	2.6	110	<2.0	12	18	<2.0	3.6	29	<2.0	2.5



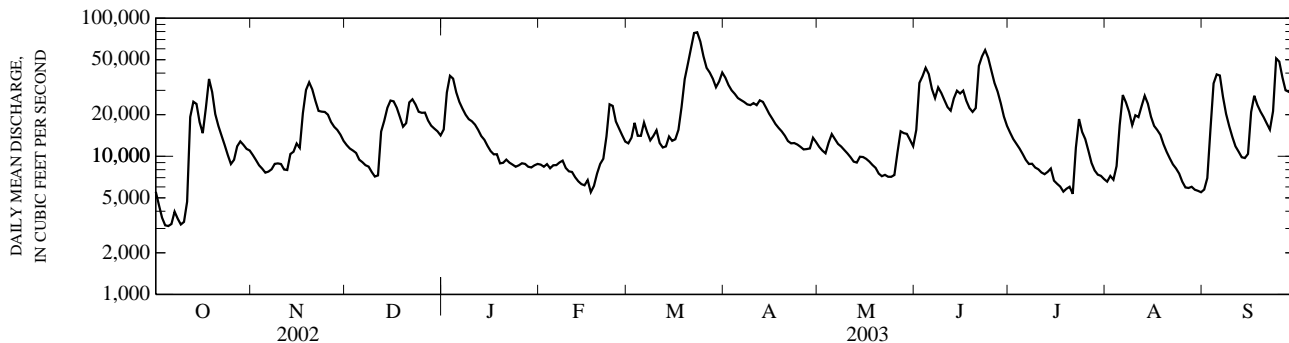
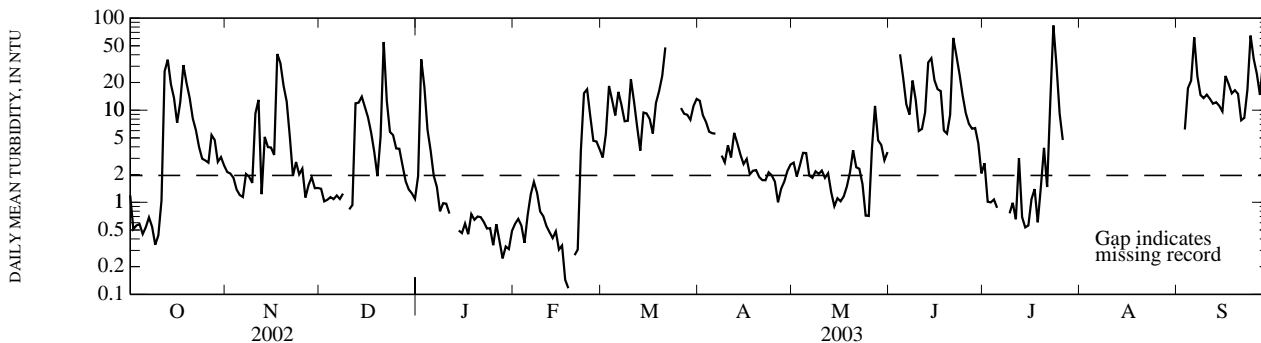
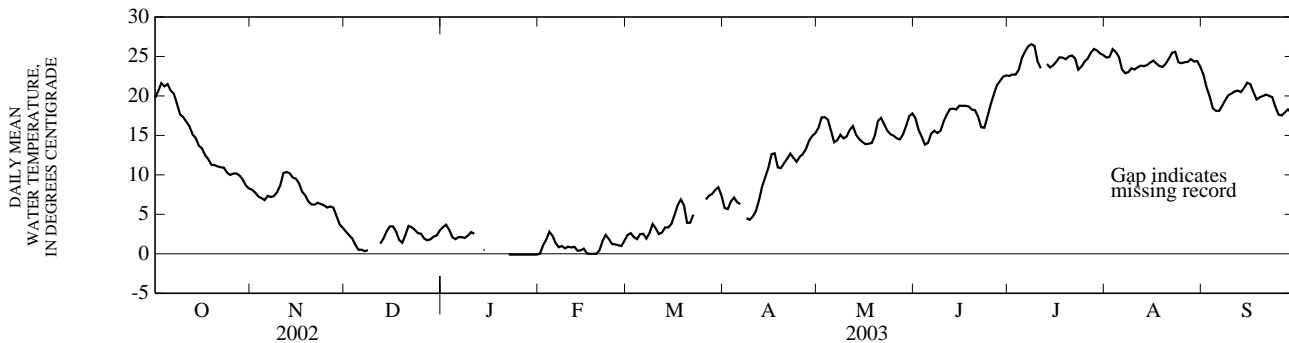
DELAWARE RIVER BASIN

01463500 DELAWARE RIVER AT TRENTON, NJ--Continued



DELAWARE RIVER BASIN

01463500 DELAWARE RIVER AT TRENTON, NJ--Continued



## NESHAMINY CREEK BASIN

## 01464645 NORTH BRANCH NESHAMINY CREEK BELOW LAKE GALENA NEAR NEW BRITAIN, PA

**LOCATION.**--Lat 40°18'44", long 75°12'25", Bucks County, Hydrologic Unit 02040201, on left bank 0.3 mi downstream from Lake Galena (Peace Valley Reservoir), 1.5 mi west of New Britain, 2.0 mi north of Chalfont on Callowhill Road, and 4.0 mi west of Doylestown.

**DRAINAGE AREA.**--16.2 mi<sup>2</sup>.

**PERIOD OF RECORD.**--November 1985 to current year.

**GAGE.**--Water-stage recorder, crest-stage gage, and concrete control. Elevation of gage is 280 ft above National Geodetic Vertical Datum of 1929, from topographic map.

**REMARKS.**--No estimated daily discharges. Records fair. Flow regulated by Lake Galena (Peace Valley Reservoir). Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

**COOPERATION.**--Records of change in contents in Lake Galena provided by Forest Park Water Company.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	24	24	96	24	28	55	28	31	32	33	28
2	27	24	24	187	24	51	46	28	29	33	39	26
3	28	23	24	113	24	92	39	28	27	32	34	26
4	26	24	24	95	24	73	34	28	325	31	30	28
5	25	25	24	68	24	100	32	28	348	31	33	29
6	25	25	24	54	24	187	30	28	150	31	77	27
7	27	25	24	45	24	131	30	29	119	33	63	27
8	27	25	24	39	23	87	30	25	137	33	53	27
9	26	25	23	39	23	120	41	26	85	34	65	27
10	26	24	23	38	24	123	67	26	58	32	179	27
11	29	24	32	33	24	77	81	26	44	30	108	26
12	26	27	48	28	24	59	107	26	36	30	68	28
13	25	26	80	25	24	61	85	26	35	30	46	27
14	25	25	217	24	25	63	60	27	39	32	35	33
15	25	25	142	24	24	55	46	27	33	30	27	40
16	28	25	83	24	24	52	38	27	29	30	28	86
17	27	39	55	24	32	57	33	27	29	33	28	49
18	26	51	40	24	28	55	31	27	31	33	28	41
19	24	46	33	24	27	48	30	28	34	31	30	40
20	24	39	58	26	25	60	29	31	156	31	29	36
21	25	33	77	26	25	154	29	27	303	33	33	31
22	25	34	56	26	46	106	29	27	149	38	31	31
23	25	38	43	26	56	71	29	27	85	49	27	54
24	25	31	35	25	40	54	29	27	56	54	28	54
25	25	27	44	25	37	44	28	27	41	45	28	42
26	26	24	53	25	35	39	28	49	33	36	31	35
27	24	25	45	25	30	33	28	53	31	30	31	32
28	25	24	39	26	28	29	26	43	33	33	30	231
29	24	23	35	24	---	38	26	34	32	31	29	131
30	26	22	31	24	---	64	29	30	31	29	28	75
31	26	---	33	24	---	70	---	27	---	30	29	---
TOTAL	797	852	1517	1306	792	2281	1225	917	2569	1040	1358	1394
MEAN	25.7	28.4	48.9	42.1	28.3	73.6	40.8	29.6	85.6	33.5	43.8	46.5
MAX	29	51	217	187	56	187	107	53	348	54	179	231
MIN	24	22	23	24	23	28	26	25	27	29	27	26
(≠)	+6.0	+11.8	+0.5	-12.8	+9.7	+6.8	-8.2	+4.4	-2.7	+0.3	-3.1	+9.4

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 2003, BY WATER YEAR (WY)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MEAN	23.6	24.9	47.1	34.8	27.7	40.5	32.1	29.0	28.3	21.9	19.9	25.2						
MAX	81.8	86.4	145	80.4	58.8	123	80.0	81.1	85.6	55.3	43.8	114						
(WY)	1997	1996	1997	1996	1988	1994	1996	1998	2003	1988	2003	1999						
MIN	3.91	5.85	17.5	6.62	5.36	4.75	4.68	6.55	5.38	4.92	4.97	3.63						
(WY)	1989	1992	1995	1986	1989	1988	1988	1986	1986	1990	1987	1988						

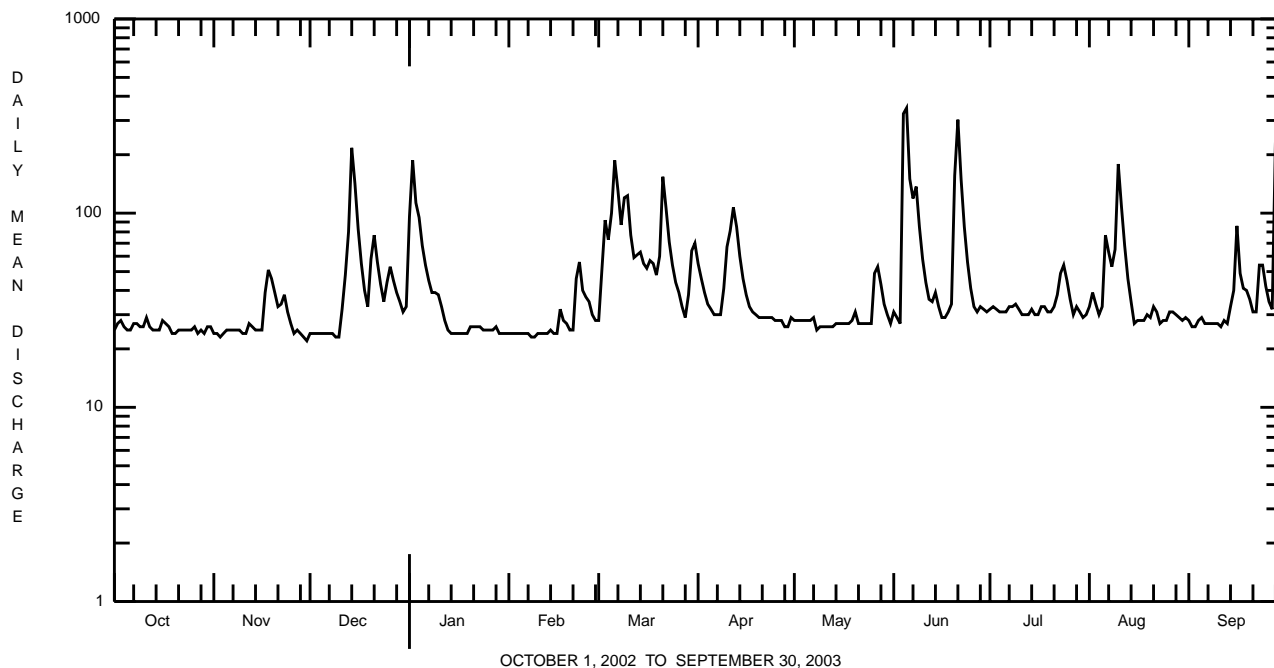
≠ Change in contents, equivalent in cubic feet per second, in Lake Galena.

NESHAMINY CREEK BASIN

01464645 NORTH BRANCH NESHAMINY CREEK BELOW LAKE GALENA NEAR NEW BRITAIN, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1986 - 2003	
ANNUAL TOTAL	11200		16048			
ANNUAL MEAN	30.7		44.0		30.1	
HIGHEST ANNUAL MEAN					44.3	1996
LOWEST ANNUAL MEAN					13.1	1992
HIGHEST DAILY MEAN	217	Dec 14	348	Jun 5	1040	Sep 17 1999
LOWEST DAILY MEAN	22	Nov 30	22	Nov 30	3.1	Dec 22 1989
ANNUAL SEVEN-DAY MINIMUM	23	Feb 19	24	Nov 28	3.1	Dec 22 1989
MAXIMUM PEAK FLOW			521	Jun 4	a2340	Sep 16 1999
MAXIMUM PEAK STAGE			3.55	Jun 4	4.96	Sep 16 1999
10 PERCENT EXCEEDS	36		77		54	
50 PERCENT EXCEEDS	27		30		24	
90 PERCENT EXCEEDS	24		24		5.1	

a From rating curve extended above 580 ft<sup>3</sup>/s on basis of slope-conveyance computation.



## NESHAMINY CREEK BASIN

## 01464720 NORTH BRANCH NESHAMINY CREEK AT CHALFONT, PA

**LOCATION.**--Lat 40°17'17", long 75°12'15", Bucks County, Hydrologic Unit 02040201, on right bank 250 ft upstream from Route 202 bridge in Chalfont, and 0.6 mi upstream from mouth.

**DRAINAGE AREA.**--31.5 mi<sup>2</sup>.

**PERIOD OF RECORD.**--December 1990 to current year.

**REVISED RECORDS.**--WDR PA-99-1: 1993-98(M).

**GAGE.**--Water-stage recorder and crest-stage gage. Elevation of gage is 250 ft above National Geodetic Vertical Datum of 1929, from topographic map.

**REMARKS.**--Records fair except those for estimated daily discharges, which are poor. Diversion for municipal supply by Forest Park Water Company upstream of gage. Flow regulated by Lake Galena (Peace Valley Reservoir) 1.8 mi upstream, drainage area 15.8 mi<sup>2</sup>, normal pool capacity 6,539 acre-ft. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

**COOPERATION.**--Records of diversion provided by Forest Park Water Company.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.4	20	17	221	10	25	65	14	37	16	67	13
2	7.4	16	15	311	11	174	53	13	30	16	69	28
3	7.4	13	15	168	11	204	40	16	19	16	24	28
4	6.4	11	13	153	14	98	33	12	695	16	18	35
5	6.8	12	16	102	13	207	31	11	519	18	55	28
6	6.4	33	15	80	9.9	361	28	12	198	15	138	17
7	6.4	20	14	66	11	190	27	15	212	15	68	15
8	6.6	14	14	56	10	131	32	14	222	15	68	13
9	6.7	13	13	61	12	230	86	12	118	15	132	12
10	8.4	12	11	52	9.9	185	114	13	75	12	325	11
11	78	12	87	39	9.6	99	128	13	50	13	135	10
12	59	44	206	29	9.4	82	171	11	40	11	83	11
13	22	62	158	24	10	97	112	10	47	12	46	23
14	13	27	390	21	8.7	95	72	11	69	11	28	83
15	10	20	202	18	8.2	75	50	11	38	9.7	17	114
16	25	28	115	17	8.6	75	39	11	25	9.2	16	114
17	30	248	72	17	e8.5	85	31	12	22	9.4	17	51
18	15	172	49	18	e8.0	73	26	13	51	10	18	34
19	11	75	38	15	e7.5	57	24	11	38	9.1	15	124
20	9.7	52	127	16	e7.5	115	23	13	473	7.7	13	47
21	8.8	39	123	15	e7.0	286	21	12	545	11	16	28
22	8.5	51	77	18	219	147	24	11	207	62	13	23
23	8.0	57	54	17	401	95	20	12	114	56	12	223
24	7.1	36	40	16	162	65	18	15	69	74	10	94
25	7.5	26	88	12	78	49	16	15	44	36	9.8	51
26	37	21	93	12	50	43	22	183	30	21	11	36
27	21	30	65	11	34	40	21	82	23	13	14	35
28	13	25	52	13	29	28	14	51	23	20	11	419
29	12	20	44	11	---	59	13	32	21	12	10	156
30	33	18	37	9.9	---	108	13	22	17	9.5	10	83
31	40	---	48	10	---	96	---	18	---	9.3	11	---
TOTAL	537.5	1227	2308	1628.9	1177.8	3674	1367	701	4071	579.9	1479.8	1959
MEAN	17.3	40.9	74.5	52.5	42.1	119	45.6	22.6	136	18.7	47.7	65.3
MAX	78	248	390	311	401	361	171	183	695	74	325	419
MIN	6.4	11	11	9.9	7.0	25	13	10	17	7.7	9.8	10
(†)	23.1	22.8	22.0	22.2	22.2	22.2	23.1	23.5	24.2	27.2	24.7	23.0
(≠)	+6.0	+11.8	+0.5	-12.8	+9.7	+6.8	-8.2	+4.4	-2.7	+0.3	-3.1	+9.4

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 2003, BY WATER YEAR (WY)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MEAN	27.4	29.6	61.0	60.8	38.6	80.4	48.8	32.1	34.1	18.1	21.8	31.3	
MAX	131	108	236	209	74.6	222	121	136	136	55.8	67.5	197	
(WY)	1997	1996	1997	1996	1998	1994	1996	1998	2003	1996	1994	1999	
MIN	6.76	4.86	5.06	7.43	6.09	18.6	11.8	11.1	5.92	7.65	4.82	5.86	
(WY)	2002	2002	2002	2002	2002	2002	1995	1995	1999	1995	1995	1992	

† Diversion by Forest Park Water Company, equivalent in cubic feet per second.

≠ Change in contents, equivalent in cubic feet per second, in Lake Galena.

e Estimated.



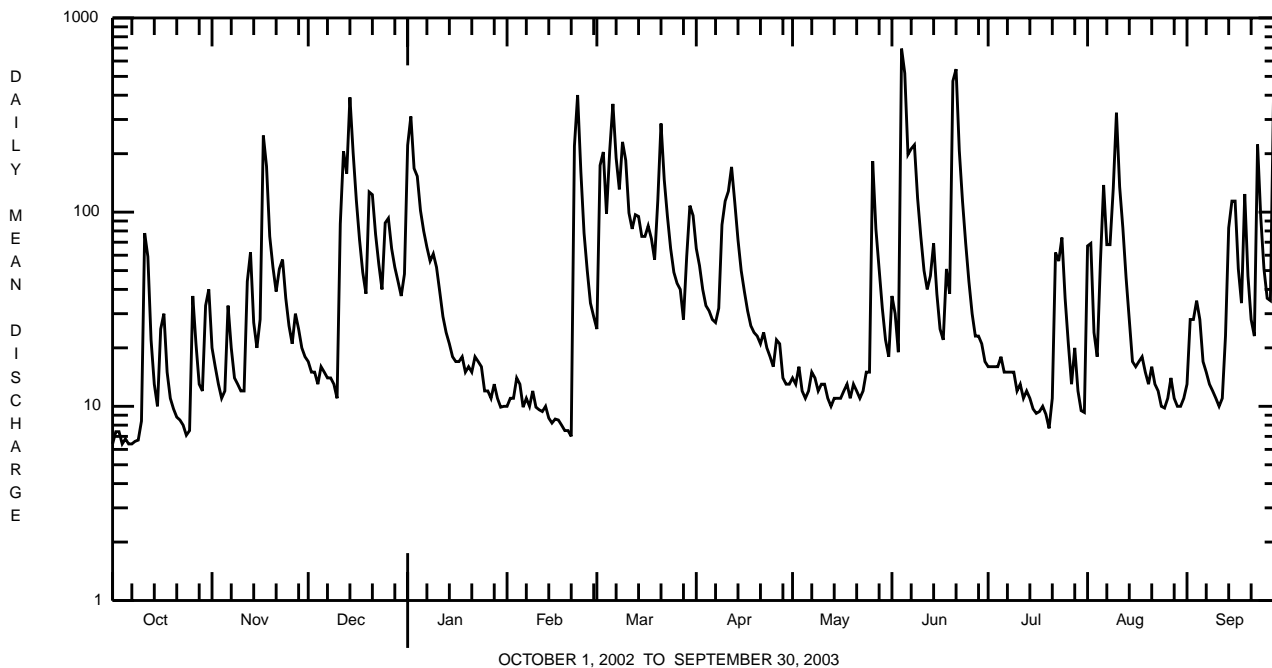
NESHAMINY CREEK BASIN

01464720 NORTH BRANCH NESHAMINY CREEK AT CHALFONT, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1991 - 2003	
ANNUAL TOTAL	7972.5		20710.9			
ANNUAL MEAN	21.8		56.7		40.7	
HIGHEST ANNUAL MEAN					67.0	1996
LOWEST ANNUAL MEAN					12.1	2002
HIGHEST DAILY MEAN	390	Dec 14	695	Jun 4	2090	Sep 16 1999
LOWEST DAILY MEAN	3.9	Feb 25	6.4	Oct 1 <sup>a</sup>	2.3	Aug 18 1991
ANNUAL SEVEN-DAY MINIMUM	4.3	Feb 19	6.7	Oct 3	3.0	Aug 12 1991
MAXIMUM PEAK FLOW			1540	Sep 28	<sup>b</sup> 6930	Sep 16 1999
MAXIMUM PEAK STAGE			6.69	Sep 28	11.36	Sep 16 1999
10 PERCENT EXCEEDS	50		142		82	
50 PERCENT EXCEEDS	9.7		23		15	
90 PERCENT EXCEEDS	6.0		9.9		6.3	

<sup>a</sup> Also Oct. 4, 6, 7.

<sup>b</sup> From rating curve extended above 1,550 ft<sup>3</sup>/s on basis of velocity-area study of peak flow at gage height 11.36 ft.



NESHAMINY CREEK BASIN

01464750 NESHAMINY CREEK NEAR RUSHLAND, PA

**LOCATION.**--Lat 40°15'37", long 75°02'07", Bucks County, Hydrologic Unit 02040201, on left bank at bridge on Rushland Road, 2,000 ft upstream from confluence with Little Neshaminy Creek.

**DRAINAGE AREA.**--91.0 mi<sup>2</sup>.

**PERIOD OF RECORD.**--December 1986 to September 1992; October 2001 to current year.

**REVISED RECORDS.**--WDR PA-02-1: 1988-92 (P).

**GAGE.**--Water-stage recorder and crest-stage gage. Elevation of gage is 160 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 and landline telemetry at station.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges greater than a base discharge of 1,950 ft<sup>3</sup>/s and maximum(\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Nov. 17	0845	1,980	7.08	June 20	2300	2,970	8.56
Jan. 1	2215	2,410	7.71	Sept. 16	0245	2,160	7.35
Feb. 22	2030	Ice jam	*10.37	Sept. 23	1600	2,200	7.40
June 4	1400	*3,070	8.71				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	107	74	674	e58	118	205	68	155	78	115	43
2	24	78	64	941	e59	605	184	66	162	75	353	e80
3	24	62	59	440	e55	802	155	69	98	73	102	135
4	24	53	e55	e347	e60	326	134	60	1740	70	91	141
5	24	48	e52	e285	e80	589	127	57	1290	66	171	155
6	22	138	e50	e242	e60	1170	125	61	509	79	651	80
7	21	101	e50	203	e50	571	112	60	573	64	201	59
8	20	64	e48	177	e40	388	141	73	699	69	199	55
9	21	54	e48	201	e40	705	362	67	348	62	275	51
10	22	50	e50	168	e35	555	456	62	243	61	705	49
11	290	49	e210	131	e35	292	439	60	182	63	328	43
12	308	117	e800	108	e35	245	559	58	153	62	221	43
13	104	371	e470	e97	e35	317	352	48	276	61	142	90
14	62	142	1170	e90	e30	350	232	48	510	54	107	310
15	45	98	498	e85	e30	244	182	46	220	50	83	224
16	59	105	281	e82	e28	251	154	46	155	48	72	776
17	191	1060	186	e77	e28	297	132	66	125	45	70	194
18	77	743	139	e75	e27	262	115	57	309	44	e62	110
19	53	256	116	e75	e27	202	109	49	212	46	e61	587
20	44	165	376	e75	e26	342	101	46	1600	41	57	205
21	40	130	405	e70	e30	1030	95	49	1760	39	e54	120
22	37	167	204	e70	e500	437	120	54	610	301	53	93
23	35	203	155	e65	e1500	288	113	45	347	208	60	745
24	33	125	125	e65	796	217	90	61	234	236	46	358
25	32	101	339	e65	368	177	82	61	169	123	43	163
26	166	86	378	e60	223	158	98	800	137	80	41	123
27	107	109	233	e60	160	189	114	369	114	61	47	107
28	59	122	177	e60	130	138	86	187	98	60	64	784
29	49	89	155	e58	---	126	76	143	91	61	40	365
30	169	80	151	e56	---	392	71	108	83	50	44	199
31	231	---	162	e55	---	338	---	91	---	44	60	---
TOTAL	2421	5073	7280	5257	4545	12121	5321	3135	13202	2474	4618	6487
MEAN	78.1	169	235	170	162	391	177	101	440	79.8	149	216
MAX	308	1060	1170	941	1500	1170	559	800	1760	301	705	784
MIN	20	48	48	55	26	118	71	45	83	39	40	43
CFSM	0.86	1.86	2.58	1.86	1.78	4.30	1.95	1.11	4.84	0.88	1.64	2.38
IN.	0.99	2.07	2.98	2.15	1.86	4.95	2.18	1.28	5.40	1.01	1.89	2.65

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

MEAN	72.8	110	129	167	145	185	153	181	175	113	75.1	91.6
MAX	211	249	235	311	315	391	321	374	443	315	149	244
(WY)	1990	1989	2003	1990	1988	2003	1987	1989	1989	1989	2003	1989
MIN	28.2	22.6	37.1	62.5	41.2	95.7	61.9	70.0	30.4	32.5	32.2	24.8
(WY)	2002	2002	2002	2002	2002	1990	1988	1987	1991	1992	1987	1992

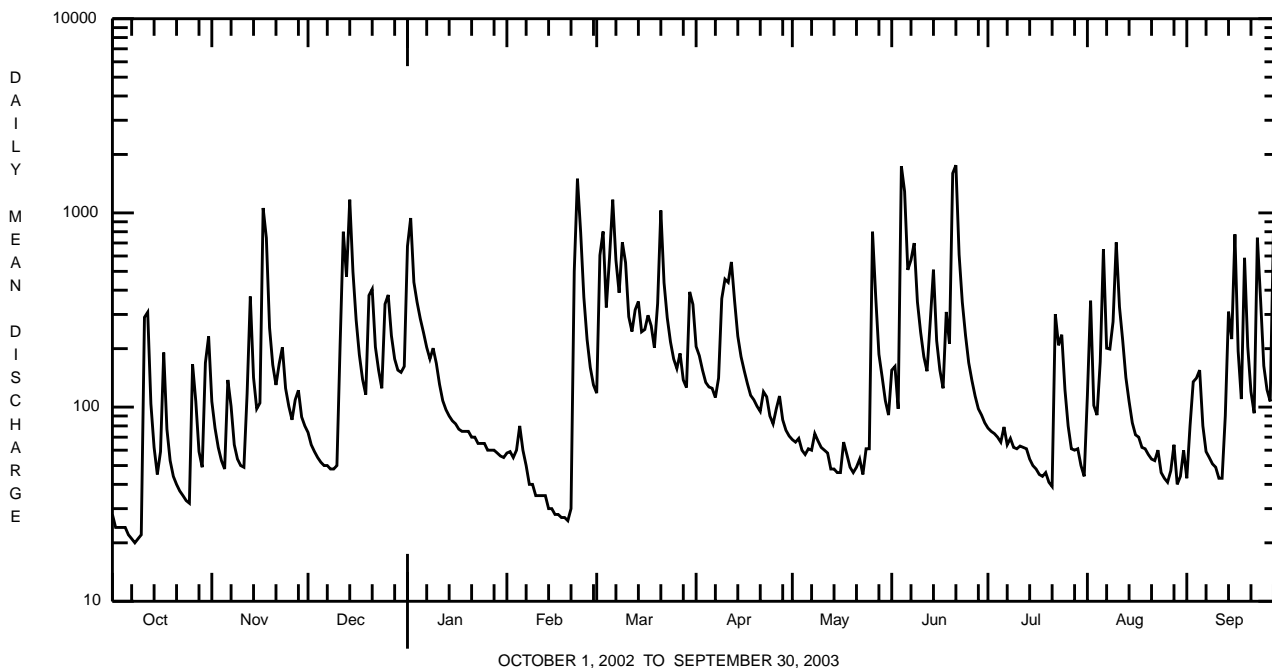
e Estimated.

NESHAMINY CREEK BASIN

01464750 NESHAMINY CREEK NEAR RUSHLAND, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	36309		71934			
ANNUAL MEAN	99.5		197		134	
HIGHEST ANNUAL MEAN					214	
LOWEST ANNUAL MEAN					66.4	
HIGHEST DAILY MEAN	1170	Dec 14	1760	Jun 21	3130	Jul 19 1989
LOWEST DAILY MEAN	18	Jul 29-Aug 2	20	Oct 8	15	Aug 14 1987
ANNUAL SEVEN-DAY MINIMUM	19	Jul 27	22	Oct 4	16	Sep 14 1992
MAXIMUM PEAK FLOW			a3070	Jun 4	a5300	Sep 20 1989
MAXIMUM PEAK STAGE			b10.37	Feb 22	12.33	Sep 20 1989
ANNUAL RUNOFF (CFSM)	1.09		2.17		1.47	
ANNUAL RUNOFF (INCHES)	14.84		29.41		20.00	
10 PERCENT EXCEEDS	203		462		288	
50 PERCENT EXCEEDS	53		104		66	
90 PERCENT EXCEEDS	24		43		24	

a From rating curve extended above 916 ft<sup>3</sup>/s based on slope-area measurement at gage height 10.33 ft.  
 b Backwater from ice.



NESHAMINY CREEK BASIN

01464907 LITTLE NESHAMINY CREEK AT VALLEY ROAD NEAR NESHAMINY, PA  
(National Water-Quality Assessment Station)

LOCATION.--Lat 40°13'45", long 75°07'12", Bucks County, Hydrologic Unit 02040201, on left bank just upstream from bridge on Valley Road, 6.8 mi upstream from confluence with Neshaminy Creek, 3.0 mi downstream from Bradford Dam, 2.0 mi downstream from Park Creek, and 1.1 mi east of Neshaminy.

DRAINAGE AREA.--26.8 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1998 to current year.

REVISED RECORDS.--WDR PA-01-1: 1999, 2000 (P).

GAGE.--Water stage recorder and crest-stage gage. Datum of gage is 190.42 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite and landline telemetry at station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 1,600 ft<sup>3</sup>/s and maximum(\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
June 4	1100	1,700	6.02	June 20	1815	*1,840	*6.20

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.2	29	17	381	e13	25	32	12	53	14	44	13
2	5.0	25	15	218	e12	290	33	12	29	13	41	47
3	4.4	16	14	110	e11	200	27	11	19	13	12	54
4	4.4	13	14	112	e11	65	25	9.6	779	12	34	65
5	6.4	12	16	60	e14	215	25	9.9	304	9.9	100	38
6	6.9	62	15	58	e10	391	22	11	75	9.4	58	20
7	5.2	26	12	51	e10	112	24	11	223	9.3	22	15
8	4.7	17	13	50	e9.5	104	39	49	129	12	51	12
9	3.4	14	12	54	e9.0	254	145	17	60	8.7	197	11
10	6.1	12	11	38	e9.0	97	85	15	41	9.5	209	9.1
11	156	15	228	e27	e8.5	52	138	13	31	12	72	8.3
12	69	116	328	e22	e8.0	64	140	12	47	9.6	44	7.7
13	22	102	148	e19	e8.0	89	62	11	246	7.5	25	38
14	14	36	421	e18	e7.5	76	42	9.2	246	6.5	19	175
15	9.9	24	92	e17	e7.5	54	35	8.2	76	6.6	15	224
16	43	41	54	e17	e7.0	58	31	9.2	44	5.6	13	151
17	43	443	35	e16	e7.0	68	26	18	33	4.9	12	40
18	17	247	28	e16	e10	51	23	11	150	5.5	11	26
19	12	58	25	e15	e12	37	22	9.5	73	8.6	9.2	331
20	10	37	142	e15	e14	221	19	8.5	917	5.7	8.2	54
21	8.5	30	68	e14	e16	304	18	11	534	5.7	7.7	31
22	7.6	78	38	e13	e400	80	19	11	107	136	7.1	24
23	7.4	52	30	e13	733	51	17	11	67	18	11	283
24	7.0	29	25	e12	211	40	15	15	47	63	7.3	66
25	6.8	24	163	e11	89	34	14	13	37	18	6.2	35
26	102	21	96	e11	50	35	27	409	29	11	5.7	27
27	25	39	59	e11	34	46	21	69	24	8.7	18	40
28	14	30	45	e10	28	30	16	36	20	7.7	15	133
29	16	23	40	e10	---	29	14	27	18	6.5	7.3	47
30	107	20	40	e10	---	43	13	20	15	5.5	54	29
31	86	---	47	e10	---	47	---	17	---	4.9	30	---
TOTAL	835.9	1691	2291	1439	1759.0	3262	1169	906.1	4473	468.3	1165.7	2054.1
MEAN	27.0	56.4	73.9	46.4	62.8	105	39.0	29.2	149	15.1	37.6	68.5
MAX	156	443	421	381	733	391	145	409	917	136	209	331
MIN	3.4	12	11	10	7.0	25	13	8.2	15	4.9	5.7	7.7
CFSM	1.01	2.10	2.76	1.73	2.34	3.93	1.45	1.09	5.56	0.56	1.40	2.55
IN.	1.16	2.35	3.18	2.00	2.44	4.53	1.62	1.26	6.21	0.65	1.62	2.85

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 2003, BY WATER YEAR (WY)

MEAN	17.4	26.2	36.9	41.8	46.0	78.1	34.0	32.0	82.0	13.4	25.7	61.7
MAX	27.0	56.4	73.9	71.2	68.4	105	44.7	46.8	211	34.2	47.5	174
(WY)	2003	2003	2003	1999	2001	2003	2000	2002	2001	2000	2000	1999
MIN	3.22	3.40	2.47	17.8	9.04	38.3	15.4	13.3	3.06	1.40	5.41	11.2
(WY)	2002	2002	1999	2002	2002	2002	2002	1999	1999	1999	2002	2002

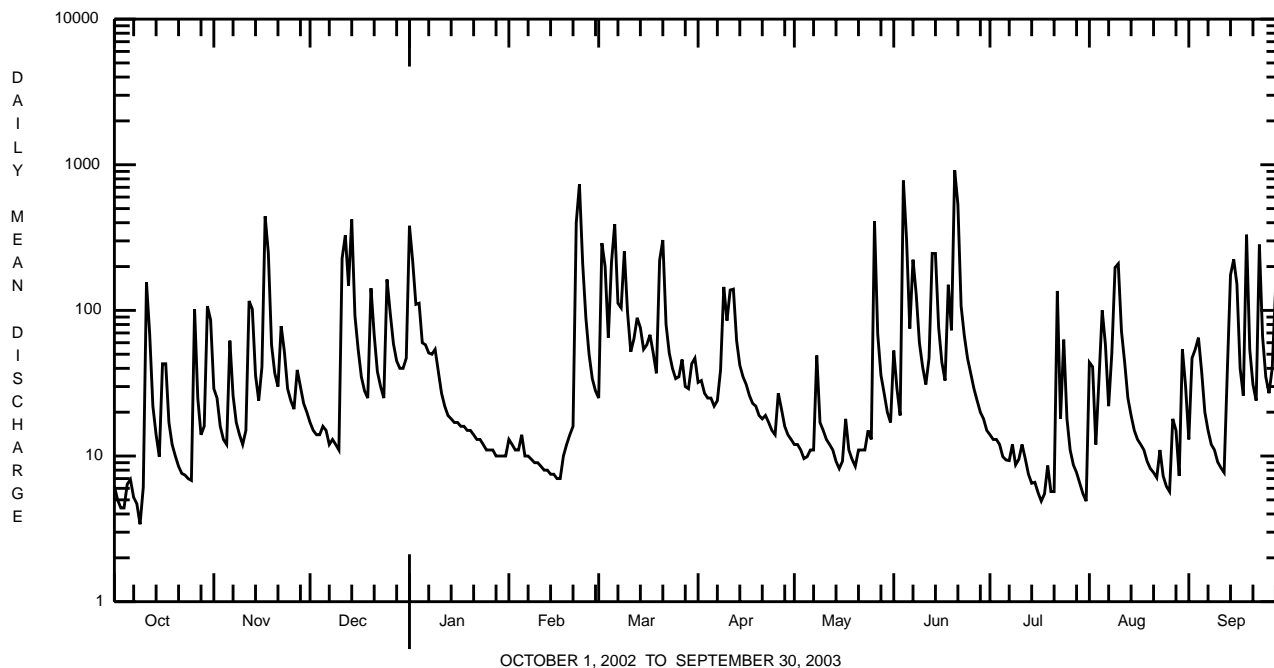
e Estimated.

NESHAMINY CREEK BASIN

01464907 LITTLE NESHAMINY CREEK AT VALLEY ROAD NEAR NESHAMINY, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1999 - 2003	
ANNUAL TOTAL	10246.53		21514.1			
ANNUAL MEAN	28.1		58.9		41.7	
HIGHEST ANNUAL MEAN					58.9	
LOWEST ANNUAL MEAN					16.1	
HIGHEST DAILY MEAN	489	May 18	917	Jun 20	2830	Sep 16 1999
LOWEST DAILY MEAN	0.87	Aug 1	3.4	Oct 9	0.24	Aug 2 1999
ANNUAL SEVEN-DAY MINIMUM	1.1	Aug 9	5.1	Oct 3	0.27	Aug 1 1999
MAXIMUM PEAK FLOW			a1840	Jun 20	a11300	Jun 16 2001
MAXIMUM PEAK STAGE			6.20	Jun 20	b14.57	Jun 16 2001
INSTANTANEOUS LOW FLOW			2.8	Oct 9	0.15	Aug 8 1999
ANNUAL RUNOFF (CFSM)	1.05		2.20		1.56	
ANNUAL RUNOFF (INCHES)	14.22		29.86		21.13	
10 PERCENT EXCEEDS	67		146		80	
50 PERCENT EXCEEDS	10		24		14	
90 PERCENT EXCEEDS	2.1		7.7		3.4	

a From rating curve extended above 758 ft<sup>3</sup>/s on basis of contracted-opening measurements at gage height 11.68 and at peak flow.  
 b From outside high-water mark.



## NESHAMINY CREEK BASIN

01464907 LITTLE NESHAMINY CREEK AT VALLEY ROAD NEAR NESHAMINY, PA--Continued  
(National Water-Quality Assessment Station)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1998 to current year.

REMARKS.--These samples were collected as part of the Delaware River Basin National Water-Quality Assessment Program (DELR NAWQA). For the definition of the type of quality-control data listed under SAMPLE TYPE refer to "Water-Quality-Control Data" in the "Introduction".

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

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Turbidity, water, unfltrd field, NTU (61028)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd $\mu$ S/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)
NOV 01...	1210	Environmental	27	12	755	12.7	108	8.2	353	--	8.0
01...	1211	Split Replicate	--	--	--	--	--	--	--	--	--
DEC 09...	0950	Environmental	11	--	772	14.9	102	8.0	701	-3.0	0.5
JAN 08...	1320	Environmental	45	--	740	14.3	113	7.9	869	6.0	4.0
MAR 07...	0940	Environmental	100	15	768	14.6	100	7.5	557	-2.0	0.4
APR 08...	0940	Environmental	35	3.4	764	12.9	100	7.4	655	1.5	4.6
MAY 08...	1200	Environmental	40	21	752	7.7	81	7.4	471	18.0	16.8
JUN 06...	1010	Environmental	75	22	755	9.5	97	7.5	369	21.0	15.7
JUL 02...	1230	Environmental	12	--	756	11.6	138	8.1	543	30.5	23.3
SEP 05...	0930	Environmental	38	14	755	8.2	91	7.4	376	21.5	20.0

Date	Alkalinity, wat flt inc tit field, mg/L as CaCO <sub>3</sub> (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Chloride, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	Suspended sediment concentration mg/L (80154)	Suspended sediment load, tons/d (80155)
NOV 01...	93	113	31.4	38.1	0.55	<0.04	1.58	0.009	0.06	0.167	9	0.69
01...	92	111	32.4	37.9	0.55	<0.04	1.61	0.009	0.06	0.114	9	--
DEC 09...	121	147	96.6	51.4	0.34	E.04	2.56	0.014	0.06	0.104	4	0.12
JAN 08...	82	100	179	39.4	0.27	E.03	2.00	0.029	0.06	0.090	3	0.40
MAR 07...	48	58	126	18.7	0.64	0.22	0.97	0.012	0.03	0.083	13	3.4
APR 08...	93	118	122	37.0	0.63	0.26	1.19	0.070	E.01	0.041	6	0.56
MAY 08...	78	95	72.0	29.0	0.94	0.05	0.81	0.073	0.02	0.134	25	2.7
JUN 06...	88	107	42.0	28.5	0.65	E.02	1.34	0.017	0.04	0.119	18	3.6
JUL 02...	105	125	72.6	38.2	0.39	<0.04	1.54	0.008	0.06	0.089	2	0.06
SEP 05...	76	92	34.2	27.8	0.70	E.03	0.86	0.019	0.07	0.128	13	1.3

Remark codes used in this table:

&lt; -- Less than

E -- Estimated value

## NESHAMINY CREEK BASIN

## 01464907 LITTLE NESHAMINY CREEK AT VALLEY ROAD NEAR NESHAMINY, PA--Continued

## WATER-COLUMN PESTICIDE ANALYSES

REMARKS.--The following were determined using laboratory schedule 2001 (listed in its entirety, with laboratory reporting levels, on page 197). Only pesticides detected in one or more surface-water samples are listed in the following table.

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

Date	Time	Sample type	2,6-Di-ethyl-aniline water fltrd 0.7µ GF µg/L (82660)	CIAT, water, fltrd, µg/L (04040)	Aceto-chlor, water, fltrd, µg/L (49260)	Ala-chlor, water, fltrd, µg/L (46342)	alpha-HCH, water, fltrd, µg/L (34253)	Atra-zine, water, fltrd, µg/L (39632)	Azin-phos-methyl, water, fltrd 0.7µ GF µg/L (82686)	Ben-flur-alin, water, fltrd 0.7µ GF µg/L (82673)	Butyl-ate, water, fltrd, µg/L (04028)
NOV 01...	1210	Environmental	<0.006	E.008	<0.006	<0.004	<0.005	0.011	<0.050	<0.010	<0.002
DEC 09...	0950	Environmental	<0.006	E.018	<0.006	<0.004	<0.005	0.016	<0.050	<0.010	<0.002
JAN 08...	1320	Environmental	<0.006	E.014	<0.006	<0.004	<0.005	0.015	<0.050	<0.010	<0.002
MAR 07...	0940	Environmental	<0.006	E.007	<0.006	<0.004	<0.005	0.008	<0.050	<0.010	<0.002
APR 08...	0940	Environmental	<0.006	E.014	<0.006	<0.004	<0.005	0.014	<0.050	<0.010	<0.002
MAY 08...	1200	Environmental	<0.006	E.027	0.017	<0.004	<0.005	0.044	<0.050	<0.010	<0.002
JUN 06...	1010	Environmental	<0.006	E.028	0.011	0.009	<0.005	0.182	<0.050	E.007	<0.005
JUL 02...	1200	Field Blank	<0.006	<0.006	<0.006	<0.004	<0.005	<0.007	<0.050	<0.010	<0.002
JUL 02...	1230	Environmental	<0.006	E.031	E.005	<0.008	<0.005	0.045	<0.050	<0.010	<0.002
SEP 05...	0930	Environmental	<0.006	E.007	<0.006	<0.004	<0.005	0.013	<0.050	<0.010	<0.002

Date	Car-baryl, water, fltrd 0.7µ GF µg/L (82680)	Carbo-furan, water, fltrd 0.7µ GF µg/L (82674)	cis-Per-methrin water fltrd 0.7µ GF µg/L (82687)	DCPA, water fltrd 0.7µ GF µg/L (82682)	Desulf-inyl fipro-nil, water, fltrd, µg/L (62170)	Diazi-non, water, fltrd, µg/L (39572)	Diel-drin, water, fltrd, µg/L (39381)	EPTC, water, fltrd 0.7µ GF µg/L (82668)	Desulf-inyl- fipro-nil amide, wat flt µg/L (62169)	Fipro-nil sulfide water, fltrd, µg/L (62167)	Fipro-nil sulfone water, fltrd, µg/L (62168)	Fipro-nil, water, fltrd, µg/L (62166)	Malathion, water, fltrd, µg/L (39532)
NOV 01...	E.033	<0.020	<0.006	<0.003	<0.004	0.016	<0.005	<0.002	<0.009	<0.005	<0.005	E.010	<0.027
DEC 09...	<0.041	<0.020	<0.006	<0.003	<0.004	<0.005	<0.005	<0.002	<0.009	<0.005	<0.005	E.009	<0.027
JAN 08...	<0.041	<0.020	<0.006	<0.003	<0.004	<0.005	<0.005	<0.002	<0.009	<0.005	<0.005	<0.007	<0.027
MAR 07...	<0.041	<0.020	<0.006	<0.003	<0.004	<0.005	<0.005	<0.002	<0.009	<0.005	<0.005	<0.007	<0.027
APR 08...	<0.041	<0.020	<0.006	<0.003	<0.004	<0.005	<0.005	<0.002	<0.009	<0.005	<0.005	E.007	<0.027
MAY 08...	E.012	<0.020	<0.006	E.002	<0.004	0.014	<0.005	<0.002	<0.009	<0.005	<0.005	<0.007	<0.027
JUN 06...	E.053	<0.020	<0.006	<0.003	<0.004	0.013	<0.005	<0.002	<0.009	<0.005	<0.005	E.012	<0.027
JUL 02...	<0.041	<0.020	<0.006	<0.003	<0.004	<0.005	<0.005	<0.002	<0.009	<0.005	<0.005	<0.007	<0.027
JUL 02...	E.122	<0.020	<0.006	<0.003	E.003	E.007	<0.005	<0.002	<0.009	<0.005	<0.005	<0.007	<0.027
SEP 05...	E.116	<0.020	<0.006	<0.003	<0.004	0.010	<0.005	<0.002	<0.009	<0.005	<0.005	<0.007	<0.027

## NESHAMINY CREEK BASIN

01464907 LITTLE NESHAMINY CREEK AT VALLEY ROAD NEAR NESHAMINY, PA--Continued

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

Date	Metolachlor, water, fltrd, µg/L (39415)	Metribuzin, water, fltrd, µg/L (82630)	Napropamide, water, fltrd 0.7µ GF µg/L (82684)	Pendimethalin, water, fltrd 0.7µ GF µg/L (82683)	Prometon, water, fltrd, µg/L (04037)	Simazine, water, fltrd, µg/L (04035)	Tebu-thiuron water fltrd 0.7µ GF µg/L (82670)	Terbacil, water, fltrd 0.7µ GF µg/L (82665)	Tri-fluralin, water, fltrd 0.7µ GF µg/L (82661)
NOV 01...	0.036	<0.006	<0.007	<0.022	0.02	<0.010	<0.02	<0.034	<0.009
DEC 09...	E.012	<0.006	<0.007	<0.022	E.01	<0.010	<0.02	<0.034	<0.009
JAN 08...	E.012	<0.006	<0.007	<0.022	E.01	<0.005	<0.02	<0.034	<0.009
MAR 07...	E.012	<0.006	<0.007	<0.022	E.01	<0.005	<0.02	<0.034	E.003
APR 08...	E.008	<0.006	<0.007	<0.022	E.01	<0.010	<0.02	<0.034	<0.009
MAY 08...	0.024	<0.006	<0.007	<0.022	0.02	0.011	<0.02	<0.034	<0.009
JUN 06...	0.050	<0.006	<0.007	E.011	0.05	0.006	<0.02	<0.034	E.009
JUL 02...	<0.013	<0.006	<0.007	<0.022	<0.01	<0.005	<0.02	<0.034	<0.009
JUL 02...	E.006	<0.006	<0.007	<0.022	E.01	0.009	<0.02	<0.034	<0.009
SEP 05...	0.024	<0.006	<0.007	<0.022	0.09	<0.005	<0.02	<0.034	<0.009

Remark codes used in this table:

&lt; -- Less than

E -- Estimated value





## NESHAMINY CREEK BASIN

01465500 NESHAMINY CREEK NEAR LANGHORNE, PA  
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 40°10'26", long 74°57'26", Bucks County, Hydrologic Unit 02040201, on left bank at bridge on State Highway 213, 0.3 mi downstream from Mill Creek, and 1.7 mi west of Langhorne.

DRAINAGE AREA.--210 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1934 to current year.

REVISED RECORDS.--WSP 1332: 1949. WSP 1432: 1936-37. WDR PA-83-1: 1982(P).

GAGE.--Water-stage recorder. Datum of gage is 40.57 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Some regulation at low flow by mills above station. Flow regulated by upstream reservoirs on Little Neshaminy Creek, Robin Run, Pine Run, North Branch Neshaminy Creek, and Core Creek (combined flood control capacity, about 9,560 acre-ft). Occasional regulation by Springfield Lake, capacity, 2,000 acre-ft, completed in 1934; no significant regulation except during period May 1934 to January 1944, when the lake was filling, and in September 1949, July 1954, July through October 1957, and September, October 1961. Interceptor sewer installed along left bank during May and June 1966. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 23, 1933 reached a stage of 17.3 ft, from floodmark, discharge, about 30,000 ft<sup>3</sup>/s, from rating curve extended as explained in footnotes on next page.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 4,500 ft<sup>3</sup>/s and maximum(\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Jan. 2	0130	5,130	7.60	June 4	1430	6,990	9.17
Feb. 22	2030	Ice jam	*11.18	June 21	0100	6,380	8.67
Feb. 23	0000	*7,380	9.48				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	247	186	1060	e125	261	372	174	494	203	120	107
2	57	172	167	2480	e130	1380	339	177	415	191	662	178
3	50	143	157	927	e120	2090	305	178	249	182	198	258
4	48	119	137	1080	e130	723	276	163	3920	176	163	216
5	47	107	126	628	e170	1220	262	154	2940	160	223	301
6	47	253	e120	511	e125	2910	257	161	1060	161	1010	158
7	45	248	e115	466	e110	1330	245	161	958	150	345	113
8	41	150	e110	393	e100	796	289	236	1690	144	378	101
9	40	123	e105	446	e90	1490	665	201	725	140	251	91
10	41	112	e100	373	e85	1270	997	173	491	133	1330	82
11	432	110	e300	314	e80	598	786	165	373	139	500	75
12	738	250	2330	272	e80	473	1190	155	354	138	367	71
13	246	913	1090	e244	e75	614	744	143	922	124	235	122
14	145	349	2580	e224	e75	704	467	132	1560	113	183	581
15	101	228	1080	e200	e70	466	377	127	708	106	149	483
16	114	197	589	e180	e65	460	335	121	407	99	127	1270
17	330	2220	394	e170	e65	533	294	137	326	93	120	353
18	173	1780	313	e165	e70	484	265	151	917	88	120	204
19	116	605	272	e160	e70	380	251	124	589	101	112	1070
20	93	365	661	e160	e75	588	237	115	3510	89	99	436
21	81	293	961	e155	e80	2680	225	116	4270	79	90	233
22	72	368	422	e150	e1700	934	224	126	1400	584	89	181
23	67	516	333	e140	e4800	583	252	117	823	304	88	1090
24	62	296	283	e135	2150	431	207	144	566	389	91	758
25	59	244	865	e135	907	361	194	145	420	246	74	293
26	390	215	1000	e130	507	333	228	1620	349	148	70	225
27	283	244	550	e130	348	384	252	855	303	117	83	195
28	145	281	408	e125	291	310	208	356	265	103	122	961
29	113	220	356	e120	---	314	188	283	241	103	85	577
30	310	200	343	e120	---	547	180	225	224	89	172	296
31	482	---	336	e115	---	567	---	214	---	80	196	---
TOTAL	5037	11568	16789	11908	12693	26214	11111	7349	31469	4972	7852	11079
MEAN	162	386	542	384	453	846	370	237	1049	160	253	369
MAX	738	2220	2580	2480	4800	2910	1190	1620	4270	584	1330	1270
MIN	40	107	100	115	65	261	180	115	224	79	70	71

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1935 - 2003, BY WATER YEAR (WY)

MEAN	131	238	362	408	453	542	430	288	219	184	168	167
MAX (WY)	840	1170	1424	1509	1074	1246	1455	862	1049	1161	1694	1330
MIN (WY)	1997	1973	1997	1979	1939	1936	1983	1989	2003	1938	1955	1999
MIN (WY)	13.8	23.2	34.3	47.2	75.9	105	89.8	54.5	33.7	21.8	15.1	15.4
	1958	1937	1966	1981	2002	1985	1985	1963	1965	1957	1966	1951

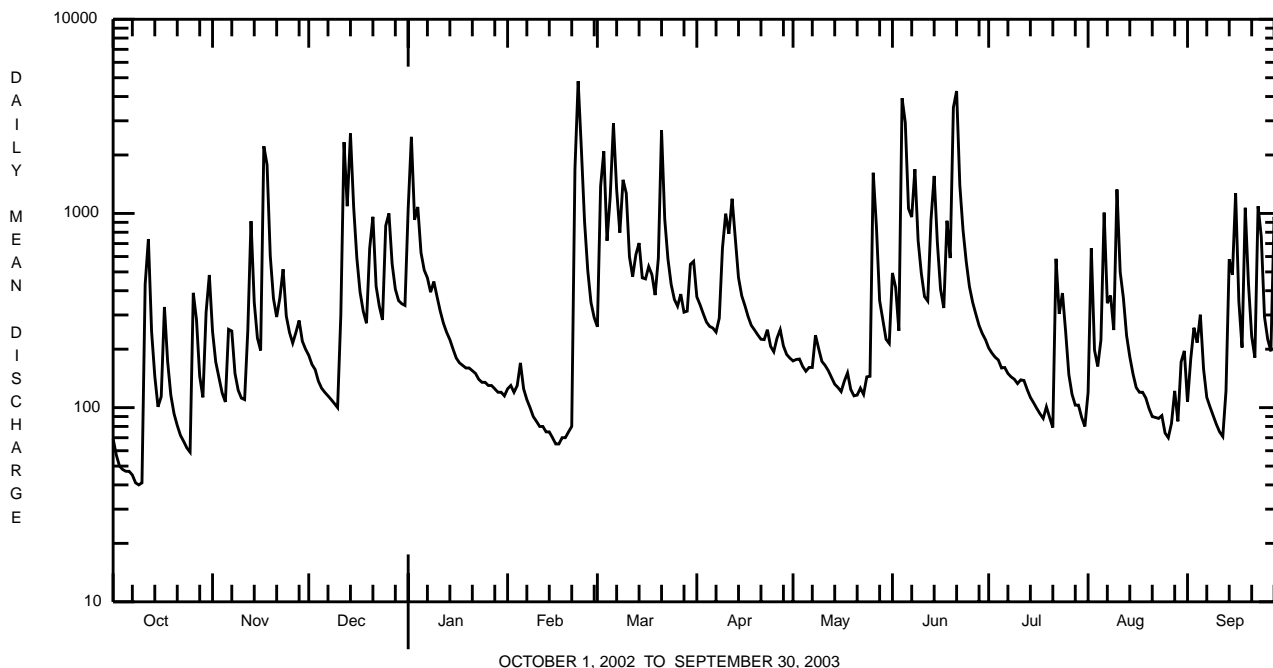
e Estimated.

NESHAMINY CREEK BASIN

01465500 NESHAMINY CREEK NEAR LANGHORNE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1935 - 2003	
ANNUAL TOTAL	73966		158041			
ANNUAL MEAN	203		433		298	
HIGHEST ANNUAL MEAN					565	
LOWEST ANNUAL MEAN					121	
HIGHEST DAILY MEAN	2580	Dec 14	e4800	Feb 23	27300	Aug 19 1955
LOWEST DAILY MEAN	30	Aug 11	40	Oct 9	2.9	Sep 8 1957
ANNUAL SEVEN-DAY MINIMUM	34	Sep 20	44	Oct 4	8.2	Aug 26 1944
MAXIMUM PEAK FLOW			ab7380	Feb 23	a49300	Aug 19 1955
MAXIMUM PEAK STAGE			c11.18	Feb 22	d22.84	Aug 19 1955
INSTANTANEOUS LOW FLOW			39	Oct 9	1.9	Sep 8 1957
10 PERCENT EXCEEDS	414		998		581	
50 PERCENT EXCEEDS	108		228		140	
90 PERCENT EXCEEDS	41		87		33	

- a From rating curve extended above 6,720 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow at gage height 22.84 ft.
- b At gage height 9.48 ft.
- c Ice jam.
- d From floodmark.
- e Estimated.



NESHAMINY CREEK BASIN

01465500 NESHAMINY CREEK NEAR LANGHORNE, 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 430-470.

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

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

Date	Time	Agency col-lecting sample, code (00027)	Agency ana-lyzing sample, code (00028)	Instan-taneous dis-charge, cfs (00061)	Sam-pling method, code (82398)	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd, µS/cm (00095)	Temper-ature, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, unfltrd recover -able, mg/L (00916)	Magnes-ium, water, unfltrd recover -able, mg/L (00927)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002 12...	1240	1028	9813	120	30	10.5	7.6	444	11.2	140	36.2	13.2	90
JAN 2003 28...	1310	1028	9813	189	30	17.2	7.8	540	.1	150	37.2	13.7	78
MAR 26...	1040	1028	9813	328	30	15.8	9.3	414	12.1	120	29.2	10.3	61
MAY 08...	1030	1028	9813	203	30	7.7	7.2	453	16.3	140	33.1	12.7	75
JUL 02...	1040	1028	9813	195	30	10.3	8.3	406	23.1	120	30.1	11.0	74
SEP 04...	1030	1028	9813	201	30	8.8	7.7	354	20.1	100	25.7	9.1	74

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC, wat flt mg/L (00515)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water, unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phos-phate, water, unfltrd mg/L as P (70507)	Phos-phorus, water, unfltrd mg/L (00665)	Total nitro-gen, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Alum-inum, water, unfltrd recover -able, mg/L (01105)	Copper, water, unfltrd recover -able, µg/L (01042)	Iron, water, unfltrd recover -able, µg/L (01045)
NOV 2002 12...	41.0	292	6	<.020	2.43	<.040	.18	.206	3.6	4.2	<200	<10	100
JAN 2003 28...	39.9	366	6	<.020	5.10	.140	.20	.293	5.7	3.3	<200	<10	130
MAR 26...	28.1	266	8	<.020	1.74	<.200	.04	.085	2.1	3.9	<200	<10	210
MAY 08...	29.9	310	12	.090	2.05	<.040	.10	.167	2.8	4.7	<200	<10	270
JUL 02...	31.4	288	6	<.020	2.22	<.040	.09	.106	2.8	3.3	<200	<10	120
SEP 04...	25.2	258	2	.040	1.59	<.040	.18	.227	1.8	4.3	200	<10	320

Date	Lead, water, unfltrd recover -able, µg/L (01051)	Mangan-ese, water, unfltrd recover -able, µg/L (01055)	Nickel, water, unfltrd recover -able, µg/L (01067)	Zinc, water, unfltrd recover -able, µg/L (01092)
NOV 2002 12...	<1.0	20	<50	<10
JAN 2003 28...	<1.0	30	<50	<10
MAR 26...	<1.0	30	<50	80
MAY 08...	<1.0	90	<50	<10
JUL 02...	<1.0	20	<50	90
SEP 04...	<1.0	40	<50	--

## NESHAMINY CREEK BASIN

01465500 NESHAMINY CREEK NEAR LANGHORNE, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES

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

Date	8/26/02
Benthic Macroinvertebrate	Count
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Hydrobiidae	5
Bivalvia (CLAMS)	
Veneroida	
Corbiculidae	
<u>Corbicula fluminea</u>	2
Arthropoda	
Crustacea	
Amphipoda (SCUDS)	
Gammaridae	
<u>Gammarus</u> sp	7
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Baetis</u> sp	7
Trichoptera (CADDISFLIES)	
Glossosomatidae	
<u>Glossosoma</u> sp	24
Hydropsychidae	
<u>Cheumatopsyche</u> sp	6
<u>Hydropsyche</u> sp	2
Hydroptilidae	
<u>Hydroptila</u> sp	2
<u>Leucotrichia</u> sp	1
Philopotamidae	
<u>Chimarra</u> sp	15
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Optioservus</u> sp	3
<u>Stenelmis</u> sp	36
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	7
Total Organisms	117

**POQUESSING CREEK BASIN**

**01465798 POQUESSING CREEK AT GRANT AVENUE, PHILADELPHIA, PA**

**LOCATION.**--Lat 40°03'25", long 74°59'08", Philadelphia County, Hydrologic Unit 02040202, on right bank 600 ft upstream from Interstate Highway 95, 3,000 ft upstream from mouth, and in northeast Philadelphia.

**DRAINAGE AREA.**--21.4 mi<sup>2</sup>.

**PERIOD OF RECORD.**--July 1965 to current year. Records for 1971-74 published in WDR PA-81-1.

**REVISED RECORD.**--WDR PA-86-1: 1985.

**GAGE.**--Water-stage recorder, crest-stage gage, and concrete low-water control. Datum of gage is 2.68 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--No estimated daily discharges. Records fair. Several measurements of water temperature were made during the year. Flow occasionally affected by tide.

**PEAK DISCHARGES FOR CURRENT YEAR.**--Peak discharges greater than base discharge of 1,200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Feb. 22	1545	*2,560	*9.08	May 26	1230	2,060	8.40

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	7.8	6.5	165	12	17	19	10	102	10	27	9.6
2	1.5	7.7	6.1	73	12	282	20	45	22	9.8	14	61
3	1.3	4.7	6.0	51	8.4	78	15	25	14	9.8	7.3	41
4	2.9	4.0	5.7	43	28	29	14	10	305	9.5	40	42
5	2.4	4.2	6.3	19	12	144	14	11	60	9.8	21	11
6	1.5	80	9.4	27	7.5	217	13	46	23	9.9	11	6.5
7	1.2	8.2	8.5	19	9.8	52	35	17	156	16	12	5.5
8	0.96	5.0	12	16	11	37	48	176	53	14	72	5.0
9	0.84	4.4	12	16	9.5	56	75	18	23	8.4	20	4.6
10	20	4.0	6.9	13	9.7	32	28	13	18	16	21	4.2
11	256	24	193	11	9.4	21	57	12	16	13	12	4.2
12	26	116	89	10	7.5	20	101	10	112	9.4	5.8	3.9
13	6.9	62	61	10	6.5	23	25	9.2	103	8.0	5.2	84
14	3.7	13	118	9.6	6.5	21	19	8.8	53	9.0	5.0	64
15	2.7	7.5	23	9.2	6.6	18	18	8.6	21	7.4	4.6	103
16	61	26	15	9.1	4.5	18	17	12	15	6.9	4.4	43
17	16	244	11	9.4	3.3	20	15	34	14	6.3	4.8	7.8
18	5.2	88	9.8	8.7	8.5	17	13	9.9	157	14	4.2	6.9
19	3.7	15	9.4	8.4	12	15	13	8.7	24	43	3.9	120
20	3.5	10	89	8.7	24	158	13	8.2	229	6.6	3.8	9.0
21	3.2	8.8	22	8.2	37	136	12	29	101	5.9	3.7	6.3
22	2.3	69	12	7.6	685	33	13	13	25	14	3.7	5.7
23	2.0	21	10	7.5	336	21	12	25	18	61	3.4	147
24	2.0	9.6	9.2	7.8	90	19	11	33	15	17	3.1	18
25	2.1	8.1	255	7.8	40	18	11	16	14	7.0	2.9	8.4
26	131	7.2	53	8.1	24	26	43	491	13	5.8	3.6	7.4
27	8.5	34	23	7.7	17	28	14	38	12	5.7	31	7.7
28	4.3	10	16	7.0	19	15	11	27	11	13	8.1	130
29	37	7.5	14	7.9	---	37	11	19	11	5.8	3.4	12
30	107	7.0	12	9.4	---	47	11	13	11	5.3	165	7.3
31	42	---	11	9.5	---	25	---	41	---	5.4	23	---
TOTAL	760.50	917.7	1134.8	624.6	1456.7	1680	721	1237.4	1751	382.7	549.9	986.0
MEAN	24.5	30.6	36.6	20.1	52.0	54.2	24.0	39.9	58.4	12.3	17.7	32.9
MAX	256	244	255	165	685	282	101	491	305	61	165	147
MIN	0.84	4.0	5.7	7.0	3.3	15	11	8.2	11	5.3	2.9	3.9

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 2003, BY WATER YEAR (WY)**

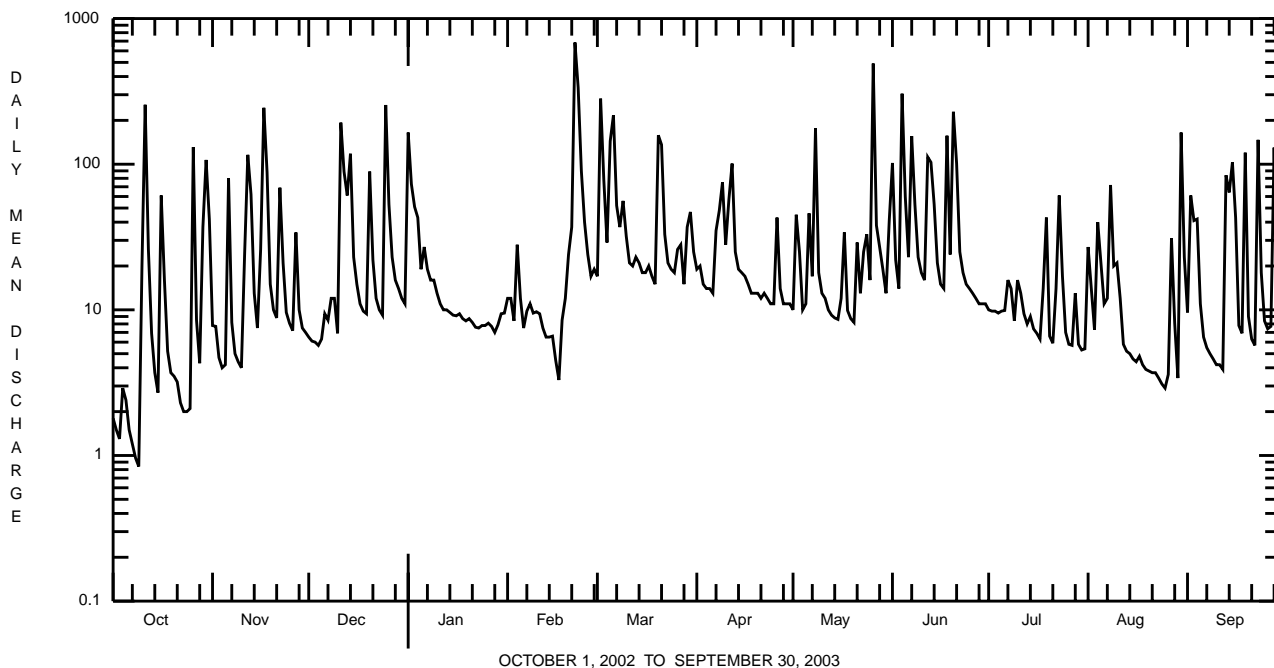
MEAN	20.9	25.9	32.9	34.4	33.8	40.5	35.7	33.7	30.8	35.9	30.9	29.0
MAX	59.9	112	124	136	105	98.0	104	74.2	84.7	112	130	109
(WY)	1997	1973	1997	1979	1979	1994	1983	1989	1989	1989	1971	1999
MIN	3.63	4.23	3.58	4.34	6.03	9.17	8.91	10.6	5.94	3.98	4.22	3.93
(WY)	2002	2002	1999	1981	2002	1985	1985	1977	1966	1999	1995	1970

POQUESSING CREEK BASIN

01465798 POQUESSING CREEK AT GRANT AVENUE, PHILADELPHIA, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1965 - 2003	
ANNUAL TOTAL	7954.27		12202.30			
ANNUAL MEAN	21.8		33.4		32.1	
HIGHEST ANNUAL MEAN					52.3	1979
LOWEST ANNUAL MEAN					15.7	2002
HIGHEST DAILY MEAN	436	May 18	685	Feb 22	2490	Sep 16 1999
LOWEST DAILY MEAN	0.37	Aug 19	0.84	Oct 9	0.21	Aug 3 1999
ANNUAL SEVEN-DAY MINIMUM	0.55	Aug 13	1.6	Oct 3	0.33	Aug 1 1999
MAXIMUM PEAK FLOW			a2560	Feb 22	a9400	Jul 28 1982
MAXIMUM PEAK STAGE			9.08	Feb 22	15.35	Jul 28 1982
10 PERCENT EXCEEDS	61		86		61	
50 PERCENT EXCEEDS	6.0		13		12	
90 PERCENT EXCEEDS	1.5		4.4		4.2	

a From rating curve extended above 550 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow.



**PENNYPACK CREEK BASIN**

**01467048 PENNYPACK CREEK AT LOWER RHAWN STREET BRIDGE, PHILADELPHIA, PA**

**LOCATION.**--Lat 40°03'00", long 75°01'59", Philadelphia County, Hydrologic Unit 02040202, on left bank at downstream side of footbridge pier, 400 ft downstream from Lower Rhawn Street bridge, and 0.8 mi upstream from Wooden Bridge Run in Philadelphia.

**DRAINAGE AREA.**--49.8 mi<sup>2</sup>.

**PERIOD OF RECORD.**--June 1965 to current year. Records for 1971-74 published in WDR PA-81-1.

**REVISED RECORDS:** WDR PA-81-1: 1974. WDR PA-89-1: 1988.

**GAGE.**--Water-stage recorder and crest-stage gage. Datum of gage is 21.27 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 base discharge of 1,700 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Feb. 22	1800	*3,090	*7.91	May 26	1030	2,500	7.25

**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	17	37	40	359	e55	70	81	53	330	74	122	36
2	16	37	39	248	60	502	84	84	92	71	113	125
3	22	27	37	121	44	240	73	66	69	69	44	93
4	35	25	36	124	65	104	69	49	774	66	109	89
5	19	26	48	82	52	254	67	49	267	62	190	56
6	15	126	46	90	35	518	66	85	117	63	105	34
7	15	34	e44	80	41	170	85	64	281	101	58	31
8	14	26	e45	72	e38	132	110	261	174	81	153	30
9	14	24	e42	73	e35	227	162	64	110	55	60	28
10	37	23	e40	64	e33	149	106	55	96	69	99	27
11	415	44	311	59	e31	105	177	51	88	63	51	26
12	91	237	286	55	e32	101	187	49	124	54	44	26
13	32	185	133	54	e30	115	99	45	411	55	39	148
14	24	52	368	52	e29	109	84	44	309	48	36	158
15	20	38	96	50	e27	90	80	43	154	46	34	83
16	93	61	72	e48	e26	91	77	47	103	44	32	86
17	70	529	60	e45	e29	95	72	82	92	42	33	37
18	28	262	54	e44	e31	86	68	45	382	63	31	37
19	22	72	51	e45	e55	77	67	42	129	73	30	251
20	21	56	259	e46	e90	295	65	40	763	40	29	50
21	20	50	93	e44	e150	538	63	64	461	37	28	36
22	19	138	61	e42	1240	135	64	45	172	199	28	34
23	18	88	55	e40	840	108	61	54	139	81	36	280
24	18	54	51	e41	248	98	58	81	122	138	26	67
25	18	49	370	e43	125	90	57	51	109	51	23	42
26	262	45	133	e44	93	99	132	757	101	39	23	38
27	40	89	83	e43	77	120	70	117	95	36	58	55
28	24	54	70	e41	75	81	59	84	85	43	47	162
29	57	45	64	e43	---	120	58	74	80	36	26	49
30	192	43	60	e47	---	131	55	62	78	33	248	36
31	129	---	58	e51	---	97	---	111	---	33	82	---
TOTAL	1817	2576	3205	2290	3686	5147	2556	2818	6307	1965	2037	2250
MEAN	58.6	85.9	103	73.9	132	166	85.2	90.9	210	63.4	65.7	75.0
MAX	415	529	370	359	1240	538	187	757	774	199	248	280
MIN	14	23	36	40	26	70	55	40	69	33	23	26
CFSM	1.18	1.72	2.08	1.48	2.64	3.33	1.71	1.83	4.22	1.27	1.32	1.51
IN.	1.36	1.92	2.39	1.71	2.75	3.84	1.91	2.11	4.71	1.47	1.52	1.68

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 2003, BY WATER YEAR (WY)**

MEAN	58.0	73.6	93.6	97.1	95.9	122	116	100	90.2	83.4	69.8	73.7
MAX	174	300	311	334	252	273	338	194	270	257	163	276
(WY)	1997	1973	1997	1979	1979	1994	1983	1978	2001	1975	1967	1999
MIN	18.1	17.5	18.5	14.0	27.1	33.5	32.5	42.5	21.4	18.2	15.7	17.4
(WY)	2002	1966	1999	1981	2002	1985	1985	1995	1995	1999	1966	1970

e Estimated.

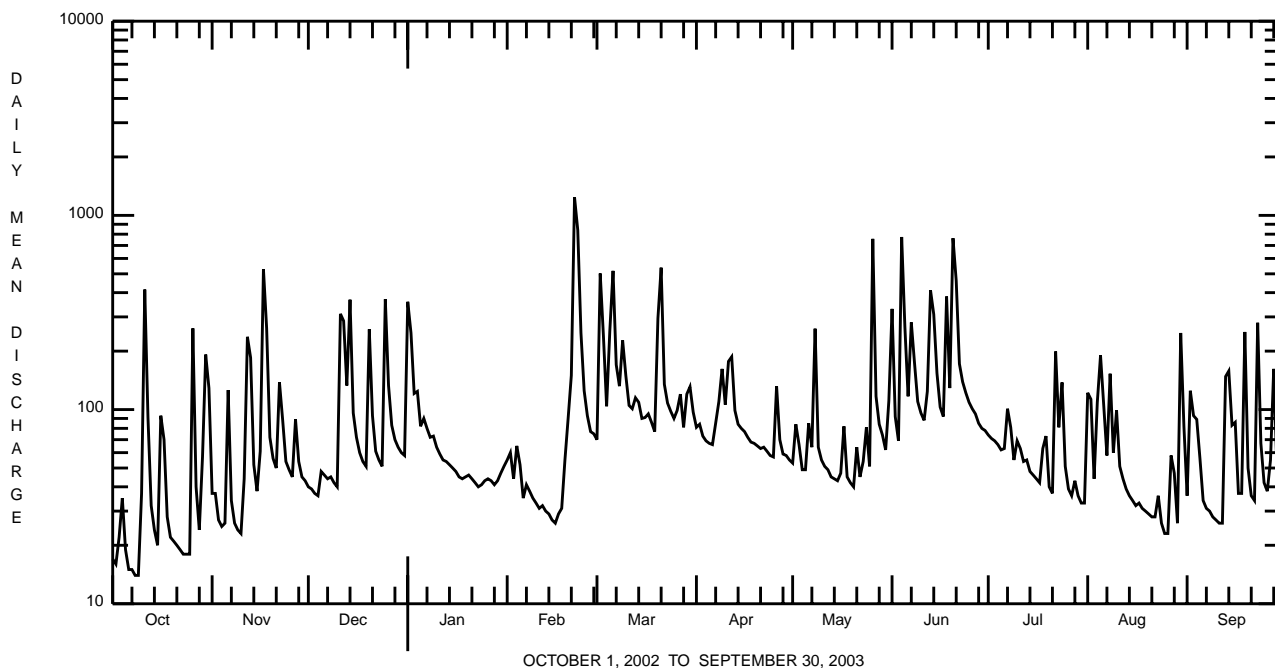


PENNYPACK CREEK BASIN

01467048 PENNYPACK CREEK AT LOWER RHAWN STREET BRIDGE, PHILADELPHIA, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1965 - 2003	
ANNUAL TOTAL	21076		36654			
ANNUAL MEAN	57.7		100		89.9	
HIGHEST ANNUAL MEAN					165	1973
LOWEST ANNUAL MEAN					42.7	2002
HIGHEST DAILY MEAN	783	May 18	1240	Feb 22	e4900	Sep 16 1999
LOWEST DAILY MEAN	10	Sep 25	14	Oct 8,9	7.8	Aug 7 1999
ANNUAL SEVEN-DAY MINIMUM	12	Sep 19	19	Oct 3	9.1	Aug 1 1999
MAXIMUM PEAK FLOW			3090	Feb 22	a12400	Sep 16 1999
MAXIMUM PEAK STAGE			7.91	Feb 22	b14.77	Sep 16 1999
INSTANTANEOUS LOW FLOW			12	Oct 7-9	6.0	Oct 11 1966
ANNUAL RUNOFF (CFSM)	1.16		2.02		1.80	
ANNUAL RUNOFF (INCHES)	15.74		27.38		24.52	
10 PERCENT EXCEEDS	121		210		169	
50 PERCENT EXCEEDS	30		62		49	
90 PERCENT EXCEEDS	15		28		21	

- a From rating curve extended above 3,900 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 13.15 ft.
- b From high-water mark in gage shelter.
- e Estimated.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

**FRANKFORD CREEK BASIN**

**01467087 FRANKFORD CREEK AT CASTOR AVENUE, PHILADELPHIA, PA**

**LOCATION.**--Lat 40°00'57", long 75°05'50", Philadelphia County, Hydrologic Unit 02040203, on left bank at upstream side of Castor Avenue bridge, and 2.8 mi upstream from mouth in northeast Philadelphia.

**DRAINAGE AREA.**--30.4 mi<sup>2</sup>.

**PERIOD OF RECORD.**--July 1982 to current year.

**GAGE.**--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 16.56 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 base discharge of 3,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Feb. 22	1415	3,730	6.74	Aug. 30	1615	3,710	6.72
May 7	2345	3,130	6.18	Sept. 15	1730	3,130	6.18
Aug. 4	1445	*4,650	*7.54				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	5.7	9.7	220	17	14	33	19	146	21	125	21
2	2.1	5.5	9.4	36	16	293	31	36	26	21	38	119
3	1.9	5.0	9.4	39	13	45	27	22	23	24	17	24
4	3.4	4.6	9.3	28	32	22	26	19	308	21	261	60
5	2.5	11	9.9	20	14	92	27	20	65	20	157	14
6	2.0	85	12	27	13	215	25	67	33	22	24	11
7	1.8	5.8	11	e22	16	36	42	92	179	85	68	11
8	2.0	4.7	13	e20	14	32	36	175	44	27	77	11
9	2.4	4.6	11	18	13	51	61	23	33	19	110	10
10	30	4.3	8.6	16	13	30	29	20	31	40	26	10
11	281	20	247	15	13	24	139	20	29	21	16	11
12	15	151	52	15	12	24	68	19	146	27	16	10
13	5.0	31	82	15	11	25	30	17	63	27	13	135
14	4.4	6.7	84	14	11	22	27	16	100	17	13	120
15	3.9	5.6	21	14	e10	21	27	16	34	15	13	167
16	52	47	17	14	7.7	20	26	23	26	15	12	26
17	11	240	15	16	7.8	20	25	36	25	14	15	12
18	5.1	63	14	15	18	18	25	16	193	70	12	43
19	4.1	15	14	15	17	16	24	16	32	41	12	203
20	3.5	13	197	15	26	306	23	15	348	16	12	15
21	e3.5	12	20	14	39	106	23	36	100	16	12	12
22	e3.4	79	15	e14	817	39	24	17	40	35	11	12
23	3.4	16	14	e15	253	34	22	26	35	46	11	182
24	3.7	11	14	e15	47	32	22	26	32	78	11	16
25	4.1	10	240	e15	25	31	22	21	30	16	11	13
26	168	10	33	14	19	61	74	464	28	15	11	12
27	5.6	36	20	14	16	37	22	29	46	14	23	31
28	4.4	10	17	13	17	28	20	24	26	17	13	48
29	74	9.8	16	14	---	88	20	22	25	15	11	13
30	e82	10	15	13	---	48	19	19	24	14	202	12
31	24	---	15	14	---	32	---	124	---	14	17	---
TOTAL	811.3	932.3	1265.3	749	1527.5	1862	1019	1495	2270	843	1370	1384
MEAN	26.2	31.1	40.8	24.2	54.6	60.1	34.0	48.2	75.7	27.2	44.2	46.1
MAX	281	240	247	220	817	306	139	464	348	85	261	203
MIN	1.8	4.3	8.6	13	7.7	14	19	15	23	14	11	10
CFSM	0.86	1.02	1.34	0.79	1.79	1.98	1.12	1.59	2.49	0.89	1.45	1.52
IN.	0.99	1.14	1.55	0.92	1.87	2.28	1.25	1.83	2.78	1.03	1.68	1.69

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 2003, BY WATER YEAR (WY)**

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
MEAN	26.5	32.9	36.5	34.4	34.3	50.9	45.8	48.7	43.8	47.6	38.6	44.8											
MAX	86.5	81.7	145	61.8	80.4	91.4	143	98.4	111	116	71.4	143											
(WY)	1997	1987	1997	1996	1988	1994	1983	1989	1989	1989	1989	1999											
MIN	7.38	6.64	6.47	10.6	7.79	11.7	14.4	20.8	11.1	4.91	5.66	9.02											
(WY)	2002	2002	1999	1985	2002	1985	2002	1986	1999	1999	1995	1998											

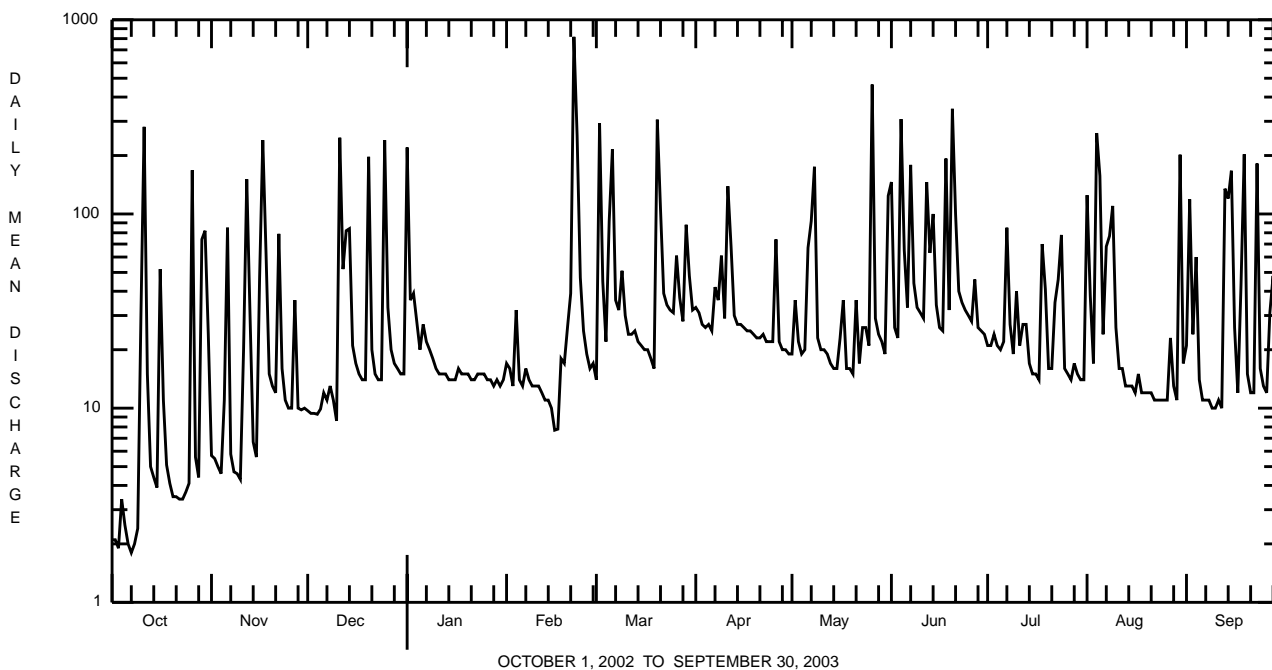
e Estimated.

FRANKFORD CREEK BASIN

01467087 FRANKFORD CREEK AT CASTOR AVENUE, PHILADELPHIA, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1982 - 2003	
ANNUAL TOTAL	8723.02		15528.4			
ANNUAL MEAN	23.9		42.5		40.4	
HIGHEST ANNUAL MEAN					61.7	1996
LOWEST ANNUAL MEAN					17.9	2002
HIGHEST DAILY MEAN	518	May 18	817	Feb 22	3140	Sep 16 1999
LOWEST DAILY MEAN	0.39	Sep 25	1.8	Oct 7	0.39	Sep 25 2002
ANNUAL SEVEN-DAY MINIMUM	0.48	Sep 19	2.2	Oct 2	0.48	Sep 19 2002
MAXIMUM PEAK FLOW			4650	Aug 4	a10300	Jul 31 1985
MAXIMUM PEAK STAGE			7.54	Aug 4	11.82	Jul 31 1985
INSTANTANEOUS LOW FLOW			1.7	Oct 3,5-8	0.31	Sep 25 2002
ANNUAL RUNOFF (CFSM)	0.79		1.40		1.33	
ANNUAL RUNOFF (INCHES)	10.67		19.00		18.06	
10 PERCENT EXCEEDS	61		100		78	
50 PERCENT EXCEEDS	6.7		20		16	
90 PERCENT EXCEEDS	1.7		9.4		6.6	

a From rating curve extended above 8,000 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 9.97 ft.



DELAWARE RIVER BASIN

01467200 DELAWARE RIVER AT BENJAMIN FRANKLIN BRIDGE AT PHILADELPHIA, PA

LOCATION.--Lat 39°57'14", long 75°08'16", Philadelphia County, Hydrologic Unit 02040202, on right bank at river end of pier 12, 150 ft upstream from Ben Franklin bridge, and at Philadelphia.

DRAINAGE AREA.--7,993 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1949 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1963 to current year.  
 pH: October 1967 to current year.  
 WATER TEMPERATURE: November 1960 to current year.  
 DISSOLVED OXYGEN: October 1961 to current year.

INSTRUMENTATION.--Water-quality monitor interfaced with a data collection platform.

REMARKS.--Water temperature, pH, and specific conductance records rated good. Dissolved oxygen record rated fair except for period, Aug. 13 to Sept. 30, which is poor. Prior to July 1988, located on edge of pier 11 about 300 ft downstream of pier 12. Further information on this station is given in U.S. Geological Survey Water-Supply Paper 1809-0. Data collection discontinued during winter months. Other interruptions in the record were due to malfunctions of the pump or recording instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,450 microsiemens, Nov. 20, 1964; minimum, 65 microsiemens, Sept. 15, 1979.  
 pH: Maximum, 8.7, Oct. 14, 1979; minimum, 4.7, Dec. 29, 1978.  
 WATER TEMPERATURE: Maximum, 31.0°C, July 13-15, 1966; minimum, 0.0°C, many days during winters.  
 DISSOLVED OXYGEN: Maximum, 14.1 mg/L, Dec. 14, 1962; minimum, 0.0 mg/L, on many days.

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	414	289	341	182	168	175	174	168	170	---	---	---
2	414	292	332	199	174	185	---	---	---	---	---	---
3	397	292	334	198	182	191	---	---	---	---	---	---
4	430	296	354	200	188	194	---	---	---	---	---	---
5	457	309	374	204	195	199	---	---	---	---	---	---
6	439	292	359	207	193	201	---	---	---	---	---	---
7	470	307	380	201	192	197	---	---	---	---	---	---
8	456	298	369	204	194	199	---	---	---	---	---	---
9	489	312	389	203	196	199	---	---	---	---	---	---
10	500	319	396	204	196	200	---	---	---	---	---	---
11	463	307	382	205	198	201	---	---	---	---	---	---
12	404	280	335	207	200	203	---	---	---	---	---	---
13	333	248	283	204	201	203	---	---	---	---	---	---
14	273	238	249	220	202	210	---	---	---	---	---	---
15	256	234	244	226	215	219	---	---	---	---	---	---
16	253	225	239	223	216	220	---	---	---	---	---	---
17	243	201	225	223	210	218	---	---	---	---	---	---
18	230	171	197	219	201	207	---	---	---	---	---	---
19	194	168	176	206	181	195	---	---	---	---	---	---
20	175	167	171	188	177	181	---	---	---	---	---	---
21	174	158	168	181	169	177	---	---	---	---	---	---
22	173	149	163	178	163	172	---	---	---	---	---	---
23	168	144	156	165	151	157	---	---	---	---	---	---
24	165	142	152	158	152	155	---	---	---	---	---	---
25	162	142	151	162	154	157	---	---	---	---	---	---
26	160	145	152	165	158	161	---	---	---	---	---	---
27	153	145	149	173	164	168	---	---	---	---	---	---
28	153	147	150	172	168	170	---	---	---	---	---	---
29	161	150	154	174	165	170	---	---	---	---	---	---
30	164	157	161	172	166	169	---	---	---	---	---	---
31	175	161	168	---	---	---	---	---	---	---	---	---
MONTH	500	142	253	226	151	188	174	168	170	---	---	---

## DELAWARE RIVER BASIN

## 01467200 DELAWARE RIVER AT BENJAMIN FRANKLIN BRIDGE AT PHILADELPHIA, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	<b>FEBRUARY</b>			<b>MARCH</b>			<b>APRIL</b>			<b>MAY</b>		
1	---	---	---	---	---	---	160	145	152	226	220	224
2	---	---	---	---	---	---	161	149	154	230	222	227
3	---	---	---	---	---	---	156	145	151	230	220	226
4	---	---	---	---	---	---	153	145	150	233	223	229
5	---	---	---	---	---	---	157	145	151	236	217	228
6	---	---	---	---	---	---	---	151	---	235	215	225
7	---	---	---	---	---	---	---	---	---	235	213	223
8	---	---	---	---	---	---	177	---	---	230	210	220
9	---	---	---	---	---	---	188	168	175	228	212	219
10	---	---	---	---	---	---	183	173	178	226	209	218
11	---	---	---	---	---	---	195	174	184	225	205	216
12	---	---	---	---	---	---	205	183	196	226	207	216
13	---	---	---	---	---	---	---	197	---	226	204	214
14	---	---	---	---	---	---	213	---	---	224	205	215
15	---	---	---	---	---	---	213	202	208	231	207	218
16	---	---	---	---	---	---	210	196	206	232	209	221
17	---	---	---	---	---	---	210	195	203	236	212	223
18	---	---	---	---	---	---	213	196	204	231	215	221
19	---	---	---	---	---	---	210	194	202	232	217	224
20	---	---	---	---	---	---	207	193	201	232	220	225
21	---	---	---	---	---	---	207	195	202	232	222	227
22	---	---	---	---	---	---	208	196	203	231	222	227
23	---	---	---	---	---	---	208	200	205	237	224	231
24	---	---	---	---	---	---	210	203	207	237	227	233
25	---	---	---	---	---	---	214	205	210	239	226	233
26	---	---	---	---	---	---	219	209	214	239	215	227
27	---	---	---	---	---	---	220	212	216	227	215	221
28	---	---	---	---	---	---	221	211	216	229	219	224
29	---	---	---	148	135	142	223	215	220	231	224	228
30	---	---	---	152	144	147	224	217	221	232	225	229
31	---	---	---	151	142	146	---	---	---	231	222	227
MONTH	---	---	---	152	135	145	224	145	193	239	204	224
	<b>JUNE</b>			<b>JULY</b>			<b>AUGUST</b>			<b>SEPTEMBER</b>		
1	234	214	225	175	166	170	271	244	258	227	218	223
2	226	203	216	179	170	175	268	237	253	230	219	225
3	214	196	204	---	175	---	261	235	248	233	224	229
4	203	160	188	---	---	---	259	236	247	243	228	234
5	163	143	152	---	---	---	254	232	241	249	234	245
6	147	139	143	---	---	---	242	231	236	248	158	214
7	157	144	150	---	---	---	244	235	239	233	133	165
8	163	154	158	215	204	210	243	221	237	186	116	141
9	172	156	165	220	211	216	241	204	226	169	115	134
10	173	165	170	227	217	221	235	192	211	153	116	128
11	178	167	172	230	223	227	223	189	200	138	116	125
12	179	170	175	234	228	231	209	186	194	136	119	127
13	184	173	176	237	232	235	196	184	190	137	123	132
14	182	174	177	240	234	238	194	186	190	137	129	134
15	189	177	182	243	237	241	197	189	192	144	133	137
16	188	182	185	247	240	245	196	191	194	151	141	144
17	188	175	183	255	244	250	198	186	193	179	149	160
18	188	173	180	261	251	256	195	178	188	189	171	179
19	179	167	174	261	254	258	192	178	185	195	172	183
20	177	167	173	263	257	260	189	179	184	199	190	194
21	174	167	171	266	259	263	190	182	186	196	178	188
22	180	172	176	269	261	265	192	184	188	193	169	181
23	180	168	174	271	258	265	195	178	190	191	166	176
24	172	152	163	268	256	261	197	190	193	179	162	169
25	162	148	152	267	258	262	200	194	196	181	160	172
26	154	147	150	273	261	265	204	197	200	171	142	158
27	155	148	151	268	258	264	208	202	205	157	135	146
28	159	151	154	267	252	261	212	205	209	147	129	137
29	158	136	146	271	250	261	219	208	215	136	128	131
30	171	127	150	271	246	261	224	214	219	146	133	139
31	---	---	---	272	243	259	225	217	221	---	---	---
MONTH	234	127	171	273	166	243	271	178	211	249	115	168

## DELAWARE RIVER BASIN

## 01467200 DELAWARE RIVER AT BENJAMIN FRANKLIN BRIDGE AT PHILADELPHIA, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	7.0	6.9	6.9	6.9	6.8	6.8	6.9	6.9	6.9	---	---	---
2	7.0	6.9	6.9	6.9	6.8	6.9	---	---	---	---	---	---
3	6.9	6.9	6.9	6.9	6.9	6.9	---	---	---	---	---	---
4	6.9	6.9	6.9	6.9	6.9	6.9	---	---	---	---	---	---
5	6.9	6.9	6.9	7.0	6.9	6.9	---	---	---	---	---	---
6	6.9	6.9	6.9	6.9	6.9	6.9	---	---	---	---	---	---
7	6.9	6.9	6.9	6.9	6.9	6.9	---	---	---	---	---	---
8	6.9	6.9	6.9	6.9	6.9	6.9	---	---	---	---	---	---
9	6.9	6.9	6.9	6.9	6.9	6.9	---	---	---	---	---	---
10	6.9	6.9	6.9	6.9	6.8	6.9	---	---	---	---	---	---
11	6.9	6.9	6.9	6.9	6.8	6.9	---	---	---	---	---	---
12	6.9	6.9	6.9	6.9	6.8	6.8	---	---	---	---	---	---
13	7.0	6.9	7.0	6.8	6.8	6.8	---	---	---	---	---	---
14	7.0	7.0	7.0	7.0	6.8	6.9	---	---	---	---	---	---
15	7.0	7.0	7.0	7.0	6.9	6.9	---	---	---	---	---	---
16	7.1	7.0	7.0	7.0	6.9	7.0	---	---	---	---	---	---
17	7.1	7.0	7.0	7.0	6.9	7.0	---	---	---	---	---	---
18	7.1	7.0	7.0	7.0	6.9	7.0	---	---	---	---	---	---
19	7.0	7.0	7.0	7.0	6.9	7.0	---	---	---	---	---	---
20	7.0	7.0	7.0	7.0	6.9	6.9	---	---	---	---	---	---
21	7.0	6.9	7.0	6.9	6.9	6.9	---	---	---	---	---	---
22	7.0	6.9	6.9	6.9	6.9	6.9	---	---	---	---	---	---
23	6.9	6.7	6.9	6.9	6.8	6.9	---	---	---	---	---	---
24	6.8	6.7	6.7	6.9	6.8	6.9	---	---	---	---	---	---
25	6.8	6.7	6.7	6.9	6.8	6.8	---	---	---	---	---	---
26	6.7	6.7	6.7	6.8	6.8	6.8	---	---	---	---	---	---
27	6.7	6.6	6.7	6.9	6.8	6.9	---	---	---	---	---	---
28	6.7	6.6	6.6	6.9	6.9	6.9	---	---	---	---	---	---
29	6.7	6.6	6.6	6.9	6.9	6.9	---	---	---	---	---	---
30	6.8	6.6	6.8	6.9	6.9	6.9	---	---	---	---	---	---
31	6.9	6.8	6.8	---	---	---	---	---	---	---	---	---
MAX	7.1	7.0	7.0	7.0	6.9	7.0	6.9	6.9	6.9	---	---	---
MIN	6.7	6.6	6.6	6.8	6.8	6.8	6.9	6.9	6.9	---	---	---
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	7.4	7.4	7.4	7.3	7.2	7.3
2	---	---	---	---	---	---	7.4	7.4	7.4	7.3	7.2	7.2
3	---	---	---	---	---	---	7.4	7.4	7.4	7.3	7.2	7.2
4	---	---	---	---	---	---	7.4	7.4	7.4	7.2	7.1	7.2
5	---	---	---	---	---	---	7.4	7.4	7.4	7.2	7.1	7.1
6	---	---	---	---	---	---	7.4	7.4	7.4	7.3	7.1	7.2
7	---	---	---	---	---	---	---	---	---	7.3	7.2	7.2
8	---	---	---	---	---	---	---	---	---	7.3	7.2	7.2
9	---	---	---	---	---	---	7.5	7.4	7.5	7.2	7.1	7.2
10	---	---	---	---	---	---	7.6	7.5	7.5	7.2	7.0	7.1
11	---	---	---	---	---	---	7.6	7.5	7.5	7.1	7.0	7.1
12	---	---	---	---	---	---	7.5	7.5	7.5	7.2	6.9	7.0
13	---	---	---	---	---	---	7.5	7.5	7.5	7.2	7.1	7.2
14	---	---	---	---	---	---	7.6	7.5	7.5	7.2	7.1	7.2
15	---	---	---	---	---	---	7.5	7.5	7.5	7.3	7.1	7.2
16	---	---	---	---	---	---	7.6	7.5	7.5	7.3	7.2	7.2
17	---	---	---	---	---	---	7.6	7.5	7.5	7.3	7.2	7.2
18	---	---	---	---	---	---	7.6	7.5	7.5	7.3	7.2	7.2
19	---	---	---	---	---	---	7.6	7.5	7.5	7.3	7.1	7.2
20	---	---	---	---	---	---	7.6	7.5	7.5	7.3	7.1	7.2
21	---	---	---	---	---	---	7.5	7.5	7.5	7.3	7.2	7.2
22	---	---	---	---	---	---	7.5	7.3	7.5	7.3	7.2	7.2
23	---	---	---	---	---	---	7.4	7.3	7.3	7.3	7.1	7.2
24	---	---	---	---	---	---	7.4	7.3	7.3	7.3	7.1	7.2
25	---	---	---	---	---	---	7.4	7.3	7.4	7.2	7.1	7.2
26	---	---	---	---	---	---	7.4	7.3	7.3	7.2	7.1	7.2
27	---	---	---	---	---	---	7.4	7.3	7.3	7.3	7.1	7.2
28	---	---	---	---	---	---	7.4	7.3	7.3	7.2	7.2	7.2
29	---	---	---	7.3	7.3	7.3	7.4	7.3	7.3	7.2	7.1	7.2
30	---	---	---	7.4	7.3	7.3	7.4	7.3	7.3	7.2	7.1	7.2
31	---	---	---	7.4	7.3	7.4	---	---	---	7.1	7.1	7.1
MAX	---	---	---	7.4	7.3	7.4	7.6	7.5	7.5	7.3	7.2	7.3
MIN	---	---	---	7.3	7.3	7.3	7.4	7.3	7.3	7.1	6.9	7.0

DELAWARE RIVER BASIN

01467200 DELAWARE RIVER AT BENJAMIN FRANKLIN BRIDGE AT PHILADELPHIA, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	7.1	7.0	7.1	7.2	7.1	7.1	7.2	7.1	7.2	7.1	7.0	7.0
2	7.1	7.0	7.1	7.2	7.1	7.1	7.2	7.1	7.2	7.0	6.9	7.0
3	7.2	7.1	7.1	---	---	---	7.2	7.1	7.2	7.0	6.9	6.9
4	7.2	7.1	7.1	---	---	---	7.2	7.1	7.2	7.2	6.9	7.0
5	7.2	7.0	7.1	---	---	---	7.2	7.1	7.1	7.4	7.1	7.2
6	7.1	7.0	7.0	---	---	---	7.2	7.1	7.1	7.4	7.2	7.3
7	7.0	7.0	7.0	---	---	---	7.3	7.1	7.2	7.3	7.0	7.1
8	7.1	7.0	7.0	7.2	7.1	7.1	7.4	7.2	7.2	7.1	6.9	7.0
9	7.1	7.0	7.1	7.2	7.0	7.1	7.3	7.3	7.3	7.0	6.8	6.9
10	7.1	7.0	7.1	7.1	7.0	7.0	7.3	7.2	7.2	7.0	6.8	6.8
11	7.1	7.0	7.1	7.1	6.9	7.0	7.2	7.2	7.2	6.9	6.8	6.8
12	7.1	7.0	7.1	7.1	6.9	7.0	7.2	7.1	7.1	6.8	6.8	6.8
13	7.1	7.0	7.1	7.1	7.0	7.0	7.2	7.1	7.1	6.8	6.8	6.8
14	7.1	7.0	7.1	7.0	7.0	7.0	7.1	7.0	7.1	6.8	6.8	6.8
15	7.1	7.0	7.1	7.1	7.0	7.0	7.2	7.0	7.2	6.9	6.8	6.8
16	7.2	7.0	7.1	7.1	7.0	7.0	7.2	7.1	7.1	6.9	6.8	6.8
17	7.2	7.1	7.1	7.1	7.0	7.0	7.2	7.1	7.2	7.2	6.8	7.0
18	7.2	7.1	7.1	7.1	7.0	7.0	7.2	7.1	7.2	7.2	7.1	7.2
19	7.1	7.1	7.1	7.1	7.0	7.0	7.2	7.1	7.1	7.3	7.1	7.2
20	7.1	7.0	7.0	7.1	7.0	7.0	7.2	7.1	7.1	7.3	7.2	7.2
21	7.1	7.0	7.0	7.1	7.0	7.1	7.2	7.2	7.2	7.2	7.1	7.1
22	7.2	7.1	7.1	7.2	7.0	7.1	7.2	7.1	7.2	7.1	7.0	7.1
23	7.2	7.1	7.1	7.3	7.1	7.1	7.2	7.1	7.1	7.1	6.9	7.0
24	7.1	7.1	7.1	7.2	7.1	7.2	7.2	7.1	7.1	7.1	6.9	7.0
25	7.1	7.0	7.0	7.2	7.1	7.2	7.2	7.1	7.1	7.1	7.0	7.1
26	7.0	7.0	7.0	7.1	7.0	7.1	7.3	7.1	7.2	7.1	7.0	7.1
27	7.0	7.0	7.0	7.1	7.0	7.0	7.2	7.2	7.2	7.1	6.9	7.0
28	7.1	7.0	7.1	7.1	7.0	7.0	7.2	7.1	7.2	7.0	6.9	6.9
29	7.1	7.0	7.1	7.0	7.0	7.0	7.2	7.0	7.1	6.9	6.9	6.9
30	7.2	7.0	7.1	7.2	7.0	7.0	7.1	7.0	7.0	7.0	6.9	7.0
31	---	---	---	7.2	7.1	7.1	7.1	7.0	7.0	---	---	---
MAX	7.2	7.1	7.1	7.3	7.1	7.2	7.4	7.3	7.3	7.4	7.2	7.3
MIN	7.0	7.0	7.0	7.0	6.9	7.0	7.1	7.0	7.0	6.8	6.8	6.8

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	22.5	22.5	22.5	11.0	10.5	11.0	6.5	5.5	6.0	---	---	---
2	23.0	22.5	22.5	11.0	10.5	10.5	---	---	---	---	---	---
3	23.0	22.5	23.0	10.5	10.0	10.0	---	---	---	---	---	---
4	23.0	23.0	23.0	10.0	10.0	10.0	---	---	---	---	---	---
5	23.0	23.0	23.0	10.0	9.5	10.0	---	---	---	---	---	---
6	23.0	22.5	22.5	10.0	9.5	10.0	---	---	---	---	---	---
7	22.5	22.5	22.5	9.5	9.0	9.5	---	---	---	---	---	---
8	22.5	22.0	22.0	9.5	9.0	9.5	---	---	---	---	---	---
9	22.0	21.5	21.5	9.5	9.0	9.5	---	---	---	---	---	---
10	21.5	21.5	21.5	10.0	9.0	9.5	---	---	---	---	---	---
11	21.5	21.0	21.0	10.0	9.5	10.0	---	---	---	---	---	---
12	21.0	20.5	20.5	10.0	10.0	10.0	---	---	---	---	---	---
13	20.5	20.0	20.5	10.5	10.0	10.0	---	---	---	---	---	---
14	20.0	19.5	19.5	10.5	10.0	10.0	---	---	---	---	---	---
15	19.5	18.0	19.0	10.5	10.0	10.0	---	---	---	---	---	---
16	19.0	17.0	18.0	10.0	10.0	10.0	---	---	---	---	---	---
17	18.0	16.0	17.0	10.0	10.0	10.0	---	---	---	---	---	---
18	17.0	15.0	15.5	10.0	10.0	10.0	---	---	---	---	---	---
19	15.0	14.0	14.5	10.0	9.0	9.5	---	---	---	---	---	---
20	14.5	13.5	14.0	9.5	8.5	9.0	---	---	---	---	---	---
21	14.0	13.0	13.5	8.5	8.0	8.0	---	---	---	---	---	---
22	13.5	13.0	13.5	8.5	8.0	8.0	---	---	---	---	---	---
23	13.5	13.0	13.0	8.0	7.0	7.5	---	---	---	---	---	---
24	13.0	12.5	12.5	7.5	7.0	7.0	---	---	---	---	---	---
25	12.5	12.5	12.5	7.5	7.0	7.5	---	---	---	---	---	---
26	12.5	12.5	12.5	7.5	7.0	7.5	---	---	---	---	---	---
27	12.5	12.5	12.5	7.5	7.0	7.5	---	---	---	---	---	---
28	12.5	12.0	12.5	7.0	7.0	7.0	---	---	---	---	---	---
29	12.0	12.0	12.0	7.0	6.5	6.5	---	---	---	---	---	---
30	12.0	11.5	11.5	6.5	6.0	6.5	---	---	---	---	---	---
31	11.5	11.0	11.0	---	---	---	---	---	---	---	---	---
MONTH	23.0	11.0	17.4	11.0	6.0	9.0	6.5	5.5	6.0	---	---	---

## DELAWARE RIVER BASIN

## 01467200 DELAWARE RIVER AT BENJAMIN FRANKLIN BRIDGE AT PHILADELPHIA, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	9.0	8.5	9.0	15.5	14.5	15.0
2	---	---	---	---	---	---	9.0	8.5	8.5	16.0	15.0	15.5
3	---	---	---	---	---	---	9.0	8.0	8.5	16.5	15.5	16.0
4	---	---	---	---	---	---	8.5	7.5	8.0	16.5	16.0	16.0
5	---	---	---	---	---	---	8.0	7.5	7.5	16.5	16.0	16.5
6	---	---	---	---	---	---	7.5	7.5	7.5	16.5	16.0	16.5
7	---	---	---	---	---	---	---	---	---	17.0	16.0	16.5
8	---	---	---	---	---	---	---	---	---	17.0	16.5	17.0
9	---	---	---	---	---	---	7.0	6.5	6.5	17.0	17.0	17.0
10	---	---	---	---	---	---	6.5	6.0	6.5	17.0	17.0	17.0
11	---	---	---	---	---	---	6.5	5.5	6.0	17.5	17.0	17.0
12	---	---	---	---	---	---	6.0	5.5	6.0	17.5	17.0	17.0
13	---	---	---	---	---	---	6.5	6.0	6.0	17.0	16.0	16.5
14	---	---	---	---	---	---	---	---	---	16.5	16.0	16.5
15	---	---	---	---	---	---	9.5	7.5	8.5	16.5	16.0	16.0
16	---	---	---	---	---	---	11.0	8.5	10.0	16.5	15.5	16.0
17	---	---	---	---	---	---	11.0	10.0	10.5	16.0	15.0	15.5
18	---	---	---	---	---	---	11.0	10.0	10.5	15.5	15.0	15.0
19	---	---	---	---	---	---	11.5	10.5	11.0	15.5	15.0	15.5
20	---	---	---	---	---	---	12.5	11.0	11.5	16.0	15.5	15.5
21	---	---	---	---	---	---	12.5	11.5	12.0	16.0	15.5	15.5
22	---	---	---	---	---	---	13.0	12.0	12.5	16.0	15.5	15.5
23	---	---	---	---	---	---	13.0	12.5	12.5	15.5	15.5	15.5
24	---	---	---	---	---	---	12.5	12.5	12.5	15.5	15.5	15.5
25	---	---	---	---	---	---	13.0	12.5	12.5	15.5	15.5	15.5
26	---	---	---	---	---	---	13.0	13.0	13.0	15.5	15.0	15.5
27	---	---	---	---	---	---	13.5	13.0	13.0	15.5	15.0	15.5
28	---	---	---	---	---	---	14.0	13.5	13.5	16.0	15.5	15.5
29	---	---	---	9.5	8.5	9.0	14.5	14.0	14.0	16.5	15.5	16.0
30	---	---	---	9.5	9.0	9.5	15.0	14.0	14.5	17.0	16.0	16.5
31	---	---	---	9.5	9.0	9.0	---	---	---	17.0	16.5	16.5
MONTH	---	---	---	9.5	8.5	9.2	15.0	5.5	10.1	17.5	14.5	16.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	17.0	16.5	17.0	24.0	22.5	23.5	26.0	25.5	26.0	26.0	25.5	26.0
2	17.5	16.5	17.0	24.0	23.0	23.5	26.0	26.0	26.0	25.5	25.0	25.5
3	18.0	17.0	17.5	---	---	---	26.5	26.0	26.0	25.0	25.0	25.0
4	17.5	16.0	17.0	---	---	---	26.5	26.0	26.5	25.0	24.5	24.5
5	16.0	15.0	15.5	---	---	---	26.5	26.5	26.5	24.5	23.0	24.0
6	15.5	15.0	15.0	---	---	---	26.5	26.5	26.5	24.0	20.0	21.5
7	15.5	15.0	15.0	26.0	---	---	26.5	26.5	26.5	22.5	19.5	20.5
8	16.0	15.5	15.5	26.0	25.5	26.0	26.5	25.5	26.0	21.0	19.5	20.0
9	16.5	15.5	16.0	26.5	26.0	26.0	26.5	25.0	26.0	21.0	20.0	20.0
10	17.5	16.5	17.0	26.0	25.5	26.0	26.0	25.0	25.5	20.5	20.0	20.0
11	17.5	17.0	17.5	26.0	25.5	25.5	25.5	24.5	25.0	20.5	20.0	20.0
12	18.5	17.5	18.0	26.0	25.5	25.5	25.5	24.5	25.0	20.5	20.0	20.5
13	19.5	18.0	19.0	26.0	25.5	26.0	25.5	25.0	25.0	20.5	20.5	20.5
14	20.5	19.0	19.5	26.0	25.5	26.0	25.5	25.0	25.5	21.0	20.5	21.0
15	20.5	20.0	20.5	26.0	25.5	26.0	26.0	25.5	25.5	21.5	21.0	21.5
16	20.5	20.0	20.5	26.0	26.0	26.0	26.0	25.5	25.5	22.0	21.5	21.5
17	20.5	20.0	20.0	26.0	26.0	26.0	26.0	25.5	25.5	22.5	21.5	22.0
18	20.5	20.0	20.0	26.0	26.0	26.0	26.0	25.5	25.5	22.0	22.0	22.0
19	20.5	20.0	20.0	26.0	26.0	26.0	26.0	25.5	25.5	22.0	22.0	22.0
20	20.5	20.0	20.0	26.0	26.0	26.0	26.0	25.5	26.0	22.5	22.0	22.0
21	20.0	19.5	19.5	26.5	26.0	26.0	26.5	26.0	26.0	22.0	21.5	22.0
22	19.5	18.5	19.0	26.5	26.0	26.5	26.5	26.0	26.5	22.0	21.5	21.5
23	18.5	17.5	18.0	26.5	26.0	26.5	26.5	26.0	26.5	22.0	21.5	21.5
24	18.0	17.5	17.5	26.5	26.0	26.0	26.0	26.0	26.0	21.5	21.0	21.5
25	18.5	18.0	18.0	26.5	26.0	26.5	26.0	25.5	26.0	21.0	20.0	21.0
26	20.5	18.5	19.5	26.5	26.0	26.5	26.0	25.5	26.0	21.0	19.5	20.0
27	21.0	19.5	20.5	26.5	26.5	26.5	26.0	25.5	26.0	20.0	19.0	19.5
28	22.0	20.5	21.5	26.5	26.5	26.5	26.0	26.0	26.0	20.0	19.0	19.5
29	23.0	21.5	22.0	26.5	26.0	26.5	26.5	26.0	26.0	19.5	19.0	19.0
30	23.5	22.0	22.5	26.5	26.0	26.0	26.5	26.0	26.0	19.0	19.0	19.0
31	---	---	---	26.0	26.0	26.0	26.0	26.0	26.0	---	---	---
MONTH	23.5	15.0	18.5	26.5	22.5	25.9	26.5	24.5	25.9	26.0	19.0	21.5



## DELAWARE RIVER BASIN

## 01467200 DELAWARE RIVER AT BENJAMIN FRANKLIN BRIDGE AT PHILADELPHIA, PA--Continued

## OXYGEN, DISSOLVED (MG/L), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	<b>OCTOBER</b>			<b>NOVEMBER</b>			<b>DECEMBER</b>			<b>JANUARY</b>		
1	5.5	4.5	4.9	9.6	9.1	9.4	11.6	11.0	11.4	---	---	---
2	5.3	4.6	4.9	9.7	9.4	9.6	---	---	---	---	---	---
3	5.0	4.4	4.7	9.8	9.4	9.6	---	---	---	---	---	---
4	4.9	4.3	4.6	10.0	9.6	9.7	---	---	---	---	---	---
5	4.8	4.2	4.5	10.0	9.6	9.7	---	---	---	---	---	---
6	5.2	4.4	4.8	9.9	9.4	9.6	---	---	---	---	---	---
7	5.2	4.7	4.9	10.2	9.7	9.9	---	---	---	---	---	---
8	5.4	4.8	5.1	10.2	9.7	9.9	---	---	---	---	---	---
9	5.4	5.0	5.2	10.2	9.7	10	---	---	---	---	---	---
10	5.3	5.0	5.2	10.3	9.8	10.0	---	---	---	---	---	---
11	5.5	4.9	5.2	10.2	9.7	9.9	---	---	---	---	---	---
12	5.7	4.8	5.2	9.9	9.5	9.7	---	---	---	---	---	---
13	6.5	5.3	5.9	9.7	9.4	9.5	---	---	---	---	---	---
14	6.4	6.0	6.3	9.8	9.3	9.5	---	---	---	---	---	---
15	7.2	6.3	6.6	9.9	9.4	9.6	---	---	---	---	---	---
16	7.7	6.5	7.1	9.9	9.4	9.7	---	---	---	---	---	---
17	8.2	6.9	7.5	9.7	9.5	9.6	---	---	---	---	---	---
18	8.6	7.4	8.2	9.9	9.4	9.6	---	---	---	---	---	---
19	9.0	8.2	8.6	10.4	9.7	10.1	---	---	---	---	---	---
20	9.1	8.7	8.9	10.5	10.1	10.3	---	---	---	---	---	---
21	9.2	8.8	9.0	10.8	10.3	10.5	---	---	---	---	---	---
22	9.3	8.9	9.1	10.7	10.3	10.5	---	---	---	---	---	---
23	9.2	9.0	9.1	11.1	10.5	10.9	---	---	---	---	---	---
24	9.3	9.0	9.1	11.1	10.8	11.0	---	---	---	---	---	---
25	9.2	8.9	9.1	11.1	10.8	11.0	---	---	---	---	---	---
26	9.1	8.7	8.9	11.0	10.8	10.9	---	---	---	---	---	---
27	9.1	8.7	8.9	10.9	10.5	10.7	---	---	---	---	---	---
28	9.2	8.7	9.0	10.9	10.6	10.8	---	---	---	---	---	---
29	9.3	8.8	9.0	11.2	10.7	10.9	---	---	---	---	---	---
30	9.3	8.9	9.0	11.2	10.8	11.1	---	---	---	---	---	---
31	9.3	9.0	9.2	---	---	---	---	---	---	---	---	---
MONTH	9.3	4.2	7.0	11.2	9.1	10.1	11.6	11.0	11.4	---	---	---
	<b>FEBRUARY</b>			<b>MARCH</b>			<b>APRIL</b>			<b>MAY</b>		
1	---	---	---	---	---	---	10.6	10.5	10.5	10.4	9.8	10.0
2	---	---	---	---	---	---	10.8	10.5	10.6	10.1	9.5	9.7
3	---	---	---	---	---	---	11.1	10.5	10.7	9.8	9.4	9.5
4	---	---	---	---	---	---	11.3	10.6	11.0	9.6	9.0	9.2
5	---	---	---	---	---	---	11.3	10.9	11.1	9.1	8.5	8.7
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	11.5	11.1	11.3	---	---	---
10	---	---	---	---	---	---	11.8	11.4	11.6	---	---	---
11	---	---	---	---	---	---	12.0	11.6	11.8	---	---	---
12	---	---	---	---	---	---	11.9	11.7	11.8	---	---	---
13	---	---	---	---	---	---	---	---	---	7.7	6.4	7.0
14	---	---	---	---	---	---	---	---	---	8.0	6.8	7.4
15	---	---	---	---	---	---	11.3	10.8	11.1	8.5	7.1	7.7
16	---	---	---	---	---	---	10.9	10.4	10.6	8.7	7.3	8.0
17	---	---	---	---	---	---	10.7	10.4	10.5	8.9	7.7	8.2
18	---	---	---	---	---	---	10.6	10.3	10.4	9.1	7.8	8.4
19	---	---	---	---	---	---	10.3	10.1	10.2	9.1	7.6	8.4
20	---	---	---	---	---	---	10.2	9.8	10.0	8.8	7.5	8.3
21	---	---	---	---	---	---	9.9	9.6	9.8	8.7	7.4	8.1
22	---	---	---	---	---	---	9.6	9.4	9.6	8.3	7.1	7.8
23	---	---	---	---	---	---	10.0	9.5	9.8	8.2	7.1	7.7
24	---	---	---	---	---	---	10.5	10.0	10.2	8.2	7.2	7.7
25	---	---	---	---	---	---	10.8	10.3	10.5	8.2	7.1	7.6
26	---	---	---	---	---	---	10.8	10.3	10.5	8.2	7.2	7.8
27	---	---	---	---	---	---	10.7	10.3	10.5	8.3	7.6	7.9
28	---	---	---	---	---	---	10.7	10.4	10.5	8.0	7.7	7.8
29	---	---	---	10.9	10.6	10.7	10.4	10.2	10.3	7.8	7.4	7.6
30	---	---	---	10.6	10.4	10.5	10.5	10.1	10.3	7.7	7.4	7.5
31	---	---	---	10.6	10.5	10.6	---	---	---	7.5	7.2	7.4
MONTH	---	---	---	10.9	10.4	10.6	12.0	9.4	10.6	10.4	6.4	8.1

## DELAWARE RIVER BASIN

## 01467200 DELAWARE RIVER AT BENJAMIN FRANKLIN BRIDGE AT PHILADELPHIA, PA--Continued

## OXYGEN, DISSOLVED (MG/L), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	7.3	6.7	6.9	7.4	6.8	7.2	5.2	4.4	4.6	5.3	4.5	4.8
2	7.6	6.5	7.0	7.3	6.9	7.0	4.8	4.2	4.4	4.9	4.1	4.5
3	7.7	7.0	7.5	---	---	---	5.2	4.1	4.6	4.7	4.1	4.4
4	8.2	7.0	7.7	---	---	---	5.1	4.4	4.7	5.1	4.2	4.6
5	8.9	8.0	8.5	---	---	---	4.8	4.2	4.5	6.0	4.6	5.2
6	8.8	8.3	8.5	---	---	---	5.3	4.1	4.6	7.1	5.1	6.4
7	8.6	8.1	8.4	---	---	---	5.6	4.5	5.1	7.1	6.0	6.8
8	8.6	7.9	8.3	6.9	6.2	6.5	5.8	4.8	5.2	7.0	6.6	6.8
9	8.5	8.1	8.3	6.6	5.8	6.3	5.6	4.7	5.3	7.0	6.5	6.8
10	8.3	8.0	8.2	6.3	5.2	5.8	5.6	4.8	5.2	7.1	6.7	6.9
11	8.2	7.9	8.1	5.7	4.8	5.3	5.7	4.9	5.4	7.2	6.6	6.9
12	8.1	7.8	7.9	5.6	4.7	5.1	5.9	4.9	5.4	7.2	6.6	6.9
13	7.9	7.4	7.7	5.4	4.7	5.0	5.7	5.2	5.5	7.2	6.5	6.7
14	7.8	7.2	7.5	5.4	4.7	4.9	6.0	5.3	5.6	7.0	6.2	6.6
15	7.5	6.9	7.2	5.3	4.7	4.9	6.1	5.4	5.7	7.1	6.0	6.5
16	7.4	6.9	7.2	5.3	4.6	4.8	5.9	5.3	5.6	6.9	5.8	6.2
17	7.4	7.0	7.2	5.1	4.5	4.8	6.0	5.2	5.6	7.5	6.3	6.8
18	7.5	7.0	7.2	5.0	4.4	4.7	6.1	5.3	5.7	7.1	6.7	6.9
19	7.4	6.9	7.1	5.1	4.3	4.7	5.9	5.2	5.6	7.1	6.8	7.0
20	7.3	6.8	7.0	5.0	4.3	4.7	6.0	5.3	5.7	7.1	6.6	6.9
21	7.3	6.7	7.0	5.2	4.5	4.8	6.2	5.3	5.7	6.7	6.4	6.6
22	7.6	7.0	7.4	5.4	4.6	5.0	6.6	5.5	5.9	6.6	6.1	6.4
23	7.9	7.4	7.6	6.3	4.6	5.3	6.7	5.7	6.2	6.3	5.5	6.0
24	8.1	7.6	7.9	6.0	4.9	5.6	7.0	5.8	6.4	6.6	5.6	6.1
25	8.1	7.6	7.9	6.0	5.2	5.5	6.9	5.9	6.4	6.9	6.3	6.6
26	8.0	7.6	7.8	6.0	5.1	5.5	6.5	5.6	6.1	6.5	5.7	6.0
27	7.6	7.2	7.4	5.8	5.1	5.5	5.6	5.0	5.4	6.1	5.5	5.8
28	7.4	7.0	7.2	5.4	4.8	5.1	6.0	4.0	4.9	6.1	5.6	5.8
29	7.2	6.4	6.9	5.2	4.6	4.9	6.0	5.1	5.4	5.6	4.7	5.2
30	7.5	6.5	7.0	5.5	4.5	4.8	5.8	4.9	5.2	6.2	4.7	5.4
31	---	---	---	5.4	4.7	5.0	5.5	4.7	5.0	---	---	---
MONTH	8.9	6.4	7.6	7.4	4.3	5.3	7.0	4.0	5.4	7.5	4.1	6.2

## DELAWARE RIVER BASIN

## 01467200 DELAWARE RIVER AT BENJAMIN FRANKLIN BRIDGE AT PHILADELPHIA, PA--Continued

## CROSS-SECTION ANALYSES, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Loca- tion in X-sect- looking dwnstrm ft from l bank (00009)	Sam- pling depth, feet (00003)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf µS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)
APR 2003									
01...	1222	1028	1028	88	1	10.9	7.5	153	8.6
01...	1224	1028	1028	88	5	10.8	7.5	154	8.6
01...	1226	1028	1028	288	1	10.9	7.4	152	8.7
01...	1228	1028	1028	288	6	10.9	7.4	153	8.7
01...	1229	1028	1028	288	10	10.9	7.4	152	8.7
01...	1230	1028	1028	288	15	10.9	7.4	152	8.7
01...	1231	1028	1028	288	20	10.9	7.4	151	8.7
01...	1232	1028	1028	288	25	10.9	7.4	151	8.7
01...	1233	1028	1028	288	30	10.9	7.4	151	8.7
01...	1240	1028	1028	450	1	10.9	7.4	151	8.7
01...	1241	1028	1028	450	5	10.9	7.5	151	8.7
01...	1242	1028	1028	450	10	11.0	7.5	151	8.7
01...	1243	1028	1028	450	15	10.8	7.5	151	8.7
01...	1244	1028	1028	450	20	10.9	7.5	151	8.7
01...	1245	1028	1028	450	25	10.8	7.5	151	8.7
01...	1246	1028	1028	450	30	10.9	7.5	151	8.7
01...	1255	1028	1028	700	1	10.8	7.5	152	8.8
01...	1256	1028	1028	700	5	10.8	7.5	152	8.8
01...	1257	1028	1028	700	10	10.8	7.5	151	8.8
01...	1258	1028	1028	700	15	10.8	7.5	152	8.8
01...	1259	1028	1028	700	20	10.8	7.5	152	8.8
01...	1300	1028	1028	700	25	10.8	7.5	152	8.8
01...	1301	1028	1028	700	30	10.8	7.5	152	8.8
01...	1308	1028	1028	910	1	10.8	7.5	152	8.8
01...	1309	1028	1028	910	5	10.8	7.5	151	8.8
01...	1310	1028	1028	910	10	10.8	7.5	152	8.8
01...	1311	1028	1028	910	15	10.8	7.5	152	8.8
01...	1312	1028	1028	910	20	10.8	7.5	152	8.8
01...	1313	1028	1028	910	25	10.8	7.5	152	8.8
01...	1314	1028	1028	910	30	10.8	7.5	152	8.8
01...	1315	1028	1028	910	35	10.8	7.5	152	8.8
01...	1316	1028	1028	910	40	10.8	7.5	152	8.8
01...	1325	1028	1028	1150	1	10.8	7.5	152	8.8
01...	1326	1028	1028	1150	5	10.8	7.5	152	8.8
01...	1327	1028	1028	1150	10	10.8	7.5	152	8.8
01...	1328	1028	1028	1150	15	10.8	7.5	152	8.8
01...	1329	1028	1028	1150	20	10.8	7.5	152	8.8
01...	1330	1028	1028	1150	25	10.8	7.5	152	8.8
01...	1331	1028	1028	1150	30	10.8	7.5	152	8.8
01...	1332	1028	1028	1150	35	10.8	7.5	152	8.8
01...	1333	1028	1028	1150	40	10.8	7.5	152	8.8
01...	1337	1028	1028	1370	1	10.8	7.5	153	8.8
01...	1338	1028	1028	1370	5	10.8	7.5	153	8.8
01...	1339	1028	1028	1370	10	10.8	7.5	153	8.8
01...	1340	1028	1028	1370	15	10.8	7.5	153	8.8
01...	1341	1028	1028	1370	20	10.8	7.5	153	8.8
01...	1342	1028	1028	1370	25	10.8	7.5	153	8.8
01...	1343	1028	1028	1370	30	10.8	7.5	154	8.8
01...	1344	1028	1028	1370	35	10.8	7.5	154	8.8
01...	1345	1028	1028	1370	40	10.8	7.5	154	8.8
01...	1346	1028	1028	1370	45	10.8	7.5	154	8.9
01...	1347	1028	1028	1550	1	10.9	7.4	154	8.8
01...	1348	1028	1028	1550	5	10.8	7.5	154	8.8
01...	1349	1028	1028	1550	10	10.8	7.4	154	8.8
01...	1350	1028	1028	1550	15	10.8	7.4	154	8.8
01...	1351	1028	1028	1550	20	10.8	7.5	154	8.8
01...	1352	1028	1028	1550	25	10.8	7.5	154	8.8
01...	1353	1028	1028	1550	30	10.8	7.5	154	8.8
01...	1354	1028	1028	1550	35	10.8	7.5	154	8.8
01...	1355	1028	1028	1550	40	10.8	7.4	154	8.8
01...	1356	1028	1028	1550	45	10.8	7.5	154	8.8
01...	1357	1028	1028	1770	1	10.8	7.4	155	8.8
01...	1358	1028	1028	1770	5	10.8	7.5	155	8.8
01...	1359	1028	1028	1770	10	10.8	7.5	155	8.8
01...	1400	1028	1028	1770	15	10.8	7.5	155	8.8
01...	1401	1028	1028	1770	20	10.8	7.5	155	8.8
01...	1402	1028	1028	1770	25	10.8	7.4	155	8.8
01...	1403	1028	1028	1770	30	10.8	7.5	155	8.8
01...	1404	1028	1028	1770	35	10.8	7.5	155	8.8
01...	1405	1028	1028	1770	40	10.8	7.4	155	8.9
01...	1406	1028	1028	1770	45	10.8	7.4	155	8.9
01...	1407	1028	1028	1770	50	10.8	7.5	155	8.9
01...	1408	1028	1028	2010	1	10.8	7.4	157	8.9
01...	1409	1028	1028	2010	5	10.7	7.4	157	8.9
01...	1410	1028	1028	2010	10	10.7	7.4	157	8.9
01...	1411	1028	1028	2010	15	10.7	7.5	157	8.9
01...	1412	1028	1028	2010	20	10.7	7.5	157	8.9
01...	1413	1028	1028	2010	25	10.7	7.5	157	8.9
01...	1414	1028	1028	2010	30	10.7	7.5	157	8.9
01...	1415	1028	1028	2010	35	10.7	7.4	157	8.9
01...	1416	1028	1028	2010	40	10.7	7.5	157	8.9
01...	1417	1028	1028	2010	45	10.7	7.5	157	8.9
01...	1418	1028	1028	2010	50	10.7	7.5	157	8.9
01...	1419	1028	1028	2160	0	--	--	--	--

**SCHUYLKILL RIVER BASIN**

**01468500 SCHUYLKILL RIVER AT LANDINGVILLE, PA**

**LOCATION.**--Lat 40°37'45", long 76°07'30", Schuylkill County, Hydrologic Unit 02040203, on left bank 10 ft upstream from highway bridge on SR 2011 at Landingville, 0.1 mi upstream from Mahannon Creek, and 5.0 mi downstream from West Branch Schuylkill River.

**DRAINAGE AREA.**--133 mi<sup>2</sup>.

**PERIOD OF RECORD.**--August 1947 to April 1953, October 1963 to September 1965, August 1973 to current year.

**REVISED RECORDS.**--WDR PA-75-1: 1973(P), 1974(P).

**GAGE.**--Water-stage recorder and crest-stage gage. Datum of gage is 470.64 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 27, 1947, nonrecording gage 10 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 and landline telemetry at station.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in June 1972 reached a stage of 17.36 ft, discharge, about 14,000 ft<sup>3</sup>/s.

**PEAK DISCHARGES FOR CURRENT YEAR.**--Peak discharges greater than base discharge of 1,300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Mar. 21	0100	2,810	8.76	July 21	2200	1,550	6.44
June 1	0600	*3,810	*10.71	July 23	2300	2,150	7.45
June 4	0230	1,700	6.70	Aug. 11	1730	1,330	6.04
June 7	1530	1,820	6.91	Aug. 13	1930	1,690	6.69
June 12	2330	1,780	6.83	Sept. 23	0930	2,400	7.90
June 21	0400	3,330	9.86				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	112	278	244	613	163	250	611	260	2900	357	243	209
2	102	261	229	968	161	396	588	293	1640	334	238	239
3	95	237	207	847	157	407	537	270	1200	301	197	383
4	101	223	189	748	307	319	499	246	1370	276	549	341
5	115	215	196	642	237	336	513	235	1080	252	454	258
6	99	324	180	583	166	455	456	228	893	233	755	219
7	95	256	159	527	166	365	437	236	1150	268	668	199
8	89	229	155	504	e150	356	419	280	1080	238	543	186
9	85	215	144	519	e140	427	422	225	930	210	481	178
10	90	214	134	510	e145	399	429	224	772	204	484	166
11	424	225	398	459	e140	348	680	218	675	245	660	159
12	442	297	811	418	e135	330	814	208	856	201	651	156
13	277	352	625	392	e135	431	710	191	990	182	709	197
14	207	295	1020	365	e125	492	620	184	722	172	670	256
15	169	289	943	345	e115	481	558	179	608	161	498	247
16	428	347	755	e310	e110	585	516	183	526	154	444	392
17	445	579	591	e290	e105	849	469	207	464	145	437	247
18	323	681	e480	e280	e110	1180	427	189	628	177	356	222
19	271	567	e470	e250	e120	1190	410	177	464	217	319	381
20	231	489	798	e230	e125	1460	379	168	901	146	292	291
21	203	446	671	e210	e130	2320	363	184	2720	307	273	253
22	186	475	609	e190	327	1640	364	169	1840	552	264	242
23	166	449	555	e180	582	1220	336	162	1290	587	250	1590
24	153	383	504	e160	423	978	312	236	989	841	222	987
25	156	352	543	e170	324	816	295	217	797	437	209	704
26	383	326	535	e180	286	749	366	511	664	339	202	572
27	252	325	462	e170	268	682	335	435	570	294	198	491
28	219	293	418	e150	257	585	289	496	500	337	186	649
29	210	275	398	e155	---	633	281	529	445	251	182	474
30	281	263	363	148	---	718	268	450	398	219	246	407
31	298	---	362	143	---	648	---	546	---	206	188	---
TOTAL	6707	10160	14148	11656	5609	22045	13703	8336	30062	8843	12068	11295
MEAN	216	339	456	376	200	711	457	269	1002	285	389	376
MAX	445	681	1020	968	582	2320	814	546	2900	841	755	1590
MIN	85	214	134	143	105	250	268	162	398	145	182	156
CFSM	1.63	2.55	3.43	2.83	1.51	5.35	3.43	2.02	7.53	2.14	2.93	2.83
IN.	1.88	2.84	3.96	3.26	1.57	6.17	3.83	2.33	8.41	2.47	3.38	3.16

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

MEAN	175	257	338	327	316	442	429	352	247	171	137	158
MAX	760	569	918	887	620	929	1079	811	1002	471	389	475
(WY)	1977	1952	1997	1979	1981	1977	1993	1989	2003	1984	2003	1975
MIN	28.5	52.5	59.7	41.2	113	164	157	127	77.1	54.2	51.4	55.6
(WY)	1964	1965	1999	1981	2002	1985	1985	1965	1965	1965	2002	1964

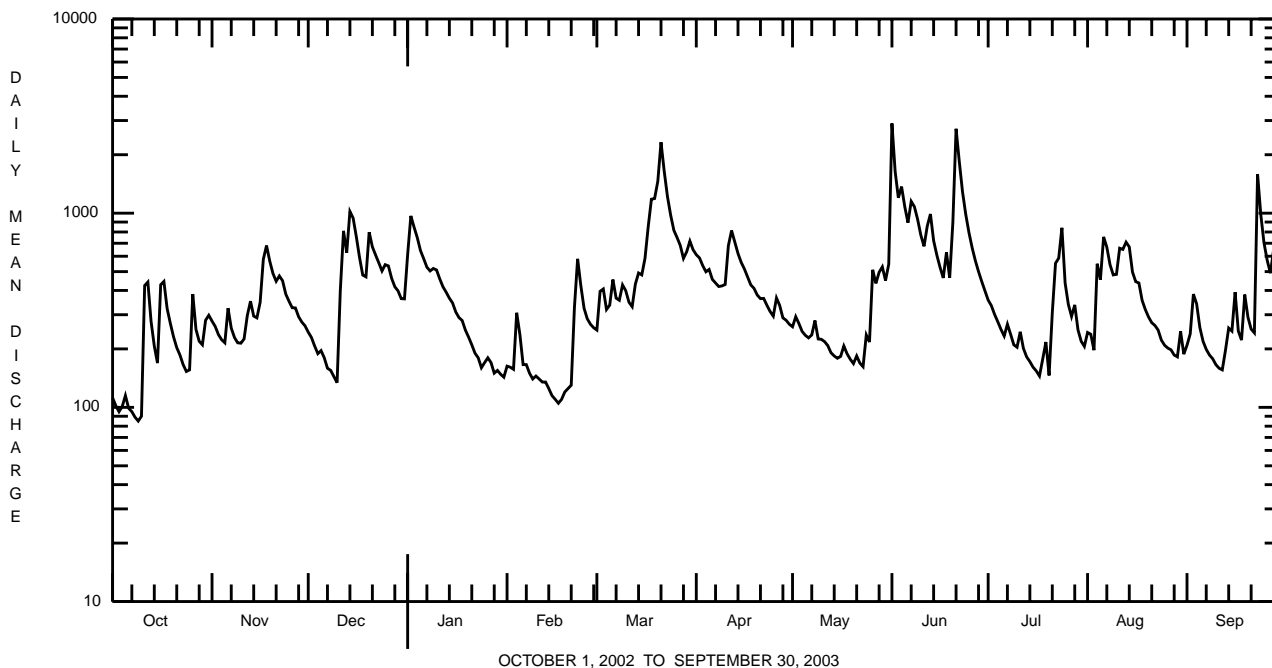
e Estimated.

SCHUYLKILL RIVER BASIN

01468500 SCHUYLKILL RIVER AT LANDINGVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	78488		154632			
ANNUAL MEAN	215		424		276	
HIGHEST ANNUAL MEAN					441	1952
LOWEST ANNUAL MEAN					122	1965
HIGHEST DAILY MEAN	1020	Dec 14	2900	Jun 1	4660	Apr 16 1983
LOWEST DAILY MEAN	38	Sep 11,12	85	Oct 9	21	Nov 4 1963
ANNUAL SEVEN-DAY MINIMUM	41	Sep 8	96	Oct 4	23	Oct 25 1963
MAXIMUM PEAK FLOW			3810	Jun 1	ab8570	Nov 25 1950
MAXIMUM PEAK STAGE			10.71	Jun 1	13.60	Apr 16 1983
INSTANTANEOUS LOW FLOW			75	Oct 10	19	Oct 30 1963
ANNUAL RUNOFF (CFSM)	1.62		3.19		2.08	
ANNUAL RUNOFF (INCHES)	21.95		43.25		28.23	
10 PERCENT EXCEEDS	446		782		550	
50 PERCENT EXCEEDS	151		324		192	
90 PERCENT EXCEEDS	54		156		74	

a From rating curve extended above 5,000 ft<sup>3</sup>/s.  
 b Gage height, 13.29 ft.



## SCHUYLKILL RIVER BASIN

## 01469500 LITTLE SCHUYLKILL RIVER AT TAMAQUA, PA

**LOCATION.**--Lat 40°48'25", long 75°58'20", Schuylkill County, Hydrologic Unit 02040203, on left bank along State Highway 309, 0.6 mi upstream from Tamaqua, and 0.8 mi upstream from Panther Creek.

**DRAINAGE AREA.**--42.9 mi<sup>2</sup>.

**PERIOD OF RECORD.**--October 1919 to current year. June 1916 to September 1919, gage heights and discharge measurements only, in reports of Water Supply Commission of Pennsylvania.

**REVISED RECORDS.**--WSP 756: Drainage area. WSP 971: 1942. WSP 1302: 1922, 1926-30. WSP 1432: 1920-21, 1933.

**GAGE.**--Water-stage recorder and broad-crested weir. Datum of gage is 817.48 ft above National Geodetic Vertical Datum of 1929. Prior to June 21, 1929, nonrecording gage at site 3,600 ft downstream at datum 28.64 ft lower.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Flow regulated by Still Creek Reservoir (station 01469200) 6.5 mi upstream. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

**COOPERATION.**--Records of diversion and change in contents of Still Creek Reservoir provided by the Borough of Tamaqua.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	73	88	129	41	69	222	77	723	99	69	57
2	25	69	79	222	41	83	213	77	519	88	67	60
3	22	65	72	205	40	91	187	76	364	80	73	75
4	20	62	64	189	62	76	168	73	379	72	348	79
5	23	60	67	158	65	76	167	71	299	66	432	63
6	20	78	66	147	49	87	148	68	246	61	455	55
7	19	70	58	137	49	e78	141	54	281	69	370	49
8	17	63	56	127	44	77	134	62	307	72	283	46
9	17	63	52	125	41	79	128	55	259	59	231	44
10	18	63	e46	123	40	78	131	51	221	52	191	42
11	115	65	102	110	38	e70	194	50	184	63	232	40
12	164	77	280	98	36	72	236	49	166	54	258	39
13	108	94	207	92	36	82	222	46	204	45	191	43
14	84	81	321	86	e32	104	204	e42	169	40	157	57
15	69	78	322	83	33	105	184	e38	153	36	134	61
16	138	84	277	76	31	162	164	39	131	34	122	76
17	160	138	219	76	e50	311	148	44	118	31	121	59
18	125	169	173	e62	e48	465	135	41	148	34	101	50
19	106	159	150	66	42	504	127	38	127	53	85	90
20	93	146	247	66	37	510	117	36	218	38	73	92
21	80	133	234	58	34	769	106	40	840	64	70	79
22	70	141	208	54	55	660	101	38	640	139	67	74
23	63	135	185	49	104	514	93	36	471	168	63	420
24	56	115	160	51	101	406	86	47	355	268	56	328
25	54	111	171	51	87	300	82	52	255	141	51	241
26	105	111	153	49	79	259	94	90	207	104	48	189
27	82	113	123	44	75	238	95	93	165	89	47	166
28	71	104	109	42	71	188	84	99	136	96	44	199
29	67	97	100	46	---	209	80	98	117	79	47	154
30	72	93	92	42	---	253	78	90	108	74	65	131
31	74	---	88	40	---	231	---	115	---	67	56	---
TOTAL	2166	2910	4569	2903	1461	7206	4269	1885	8510	2435	4607	3158
MEAN	69.9	97.0	147	93.6	52.2	232	142	60.8	284	78.5	149	105
MAX	164	169	322	222	104	769	236	115	840	268	455	420
MIN	17	60	46	40	31	69	78	36	108	31	44	39
(†)	4.4	4.6	4.8	4.3	4.8	4.3	4.7	4.7	4.7	4.3	5.0	5.0

† Diversion from Still Creek Reservoir, equivalent in cubic feet per second.

e Estimated.

## SCHUYLKILL RIVER BASIN

## 01469500 LITTLE SCHUYLKILL RIVER AT TAMAQUA, PA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1933 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	49.5	80.6	103	89.5	94.0	142	141	107	67.7	50.2	40.0	43.9
MAX	317	242	321	338	242	365	475	315	430	394	226	259
(WY)	1977	1952	1997	1996	1951	1936	1993	1989	1972	1947	1933	1933
MIN	5.82	7.81	12.2	8.57	26.6	42.5	46.6	21.1	14.6	8.87	6.25	6.46
(WY)	1964	1942	1981	1981	1934	1985	1985	1941	1941	1965	1944	1964

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR	FOR 2003 WATER YEAR	WATER YEARS 1933 - 2003	
ANNUAL TOTAL	26357.3	46079		
ANNUAL MEAN	72.2	126	84.0	
HIGHEST ANNUAL MEAN			155	1952
LOWEST ANNUAL MEAN			33.8	1965
HIGHEST DAILY MEAN	332	Mar 27	840	Jun 21
LOWEST DAILY MEAN	5.1	Sep 12,14	17	Oct 8,9
ANNUAL SEVEN-DAY MINIMUM	5.4	Sep 8	19	Oct 4
MAXIMUM PEAK FLOW			942	Jun 21
MAXIMUM PEAK STAGE			4.73	Jun 21
INSTANTANEOUS LOW FLOW				2.6
10 PERCENT EXCEEDS	152	254	176	
50 PERCENT EXCEEDS	57	84	51	
90 PERCENT EXCEEDS	9.5	41	13	

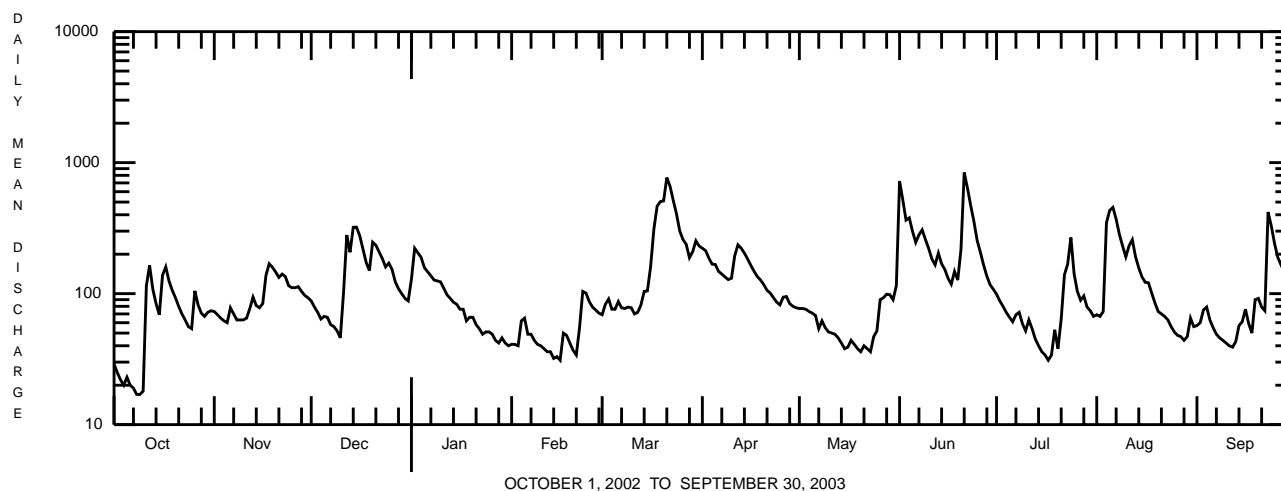
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1920 - 1932, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	73.0	96.5	101	78.7	103	188	143	112	74.4	57.0	33.7	37.7
MAX	227	308	241	266	344	410	227	208	209	185	81.5	152
(WY)	1928	1927	1928	1924	1925	1920	1928	1924	1922	1928	1927	1924
MIN	6.67	6.74	7.99	13.3	25.7	88.5	72.6	32.8	27.3	14.5	10.3	6.66
(WY)	1931	1931	1931	1931	1931	1931	1926	1926	1921	1923	1923	1932

## SUMMARY STATISTICS WATER YEARS 1920 - 1932

ANNUAL TOTAL ANNUAL MEAN	91.5	
HIGHEST ANNUAL MEAN	145	1928
LOWEST ANNUAL MEAN	42.3	1931
HIGHEST DAILY MEAN	3600	Sep 30 1924
LOWEST DAILY MEAN	3.0	Dec 23 1930
ANNUAL SEVEN DAY MINIMUM	3.8	Dec 14 1930
MAXIMUM PEAK FLOW	5000	Sep 30 1924
INSTANTANEOUS LOW FLOW	1.8	Dec 18 1931
ANNUAL RUNOFF (CFSM)	2.13	
ANNUAL RUNOFF (INCHES)	28.97	
10 PERCENT EXCEEDS	201	
50 PERCENT EXCEEDS	54	
90 PERCENT EXCEEDS	12	

a From rating curve extended above 3,200 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow.



**SCHUYLKILL RIVER BASIN**

**01470500 SCHUYLKILL RIVER AT BERNE, PA  
(Pennsylvania Water-Quality Network Station)**

**LOCATION.**--Lat 40°31'21", long 75°59'55", Berks County, Hydrologic Unit 02040203, on right bank 50 ft upstream from bridge on Township Route 558 at Berne, 0.5 mi upstream from Mill Creek, and 6.5 mi downstream from Little Schuylkill River.

**DRAINAGE AREA.**--355 mi<sup>2</sup>.

**WATER-DISCHARGE RECORDS**

**PERIOD OF RECORD.**--August 1947 to current year.

**GAGE.**--Water-stage recorder and crest-stage gage. Datum of gage is 310.65 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Some regulation at low flow by mine pumpage and by Still Creek Reservoir (station 01469200) about 25 mi upstream. 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 base discharge of 4,400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Mar. 21	0500	7,560	9.49	June 21	0700	*11,300	*10.93
June 1	1130	7,510	9.47	Sept. 23	1300	7,280	9.37
June 7	2030	4,530	8.08				

**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	269	721	641	1190	375	576	1740	565	5520	838	537	404
2	230	665	583	2680	383	729	1650	575	4270	760	585	527
3	208	599	540	2310	367	1050	1460	595	2980	689	486	788
4	209	545	497	1980	539	752	1320	530	3470	623	1130	775
5	241	511	501	1630	629	728	1300	511	2930	572	1800	618
6	208	690	505	1430	436	1080	1170	500	2390	531	1890	515
7	185	603	e440	1260	414	920	1080	482	2780	522	1720	456
8	169	533	e460	1160	380	812	1050	575	3280	623	1390	420
9	158	499	e470	1180	e370	978	1070	496	2640	484	1150	395
10	163	485	e430	1220	e340	1040	1140	471	2120	475	1100	370
11	880	492	e600	1070	e350	836	1570	453	1750	507	1290	350
12	1900	534	2730	963	e340	759	2300	446	2020	468	1840	340
13	1050	835	2030	887	e320	890	2000	419	2830	410	1430	363
14	716	667	3170	819	e310	1300	1700	397	2130	379	1810	584
15	543	641	3120	766	e300	1150	1490	376	1740	361	1260	639
16	1390	718	2440	e650	e290	1410	1340	373	1420	344	1050	1300
17	2150	1490	1860	e570	e280	2080	1180	424	1200	323	1040	844
18	1260	2000	1500	e520	e310	3000	1050	389	1440	330	836	671
19	918	1690	1300	e460	e350	3150	989	369	1210	514	718	997
20	743	1400	1920	e550	e400	3170	906	349	1800	347	634	860
21	607	1200	1950	e490	e500	6410	846	366	8820	427	582	723
22	522	1220	1710	e450	572	4550	856	355	5130	2030	548	656
23	457	1220	1520	e420	1590	3420	771	335	3630	1210	534	4470
24	409	1020	1330	e380	1300	2700	694	418	2740	2860	472	3420
25	393	936	1340	e420	909	2180	642	476	2130	1490	440	2270
26	859	864	1280	e500	745	1890	761	1100	1730	1020	418	1770
27	710	851	1080	e410	663	1810	820	1190	1440	820	414	1430
28	592	772	966	e360	617	1490	662	1160	1230	848	396	1600
29	544	712	914	e400	---	1480	617	1250	1070	663	368	1270
30	651	678	847	e420	---	1880	600	1040	952	565	489	1030
31	784	---	813	388	---	1870	---	994	---	512	439	---
TOTAL	20118	25791	39487	27933	14379	56090	34774	17979	78792	22545	28796	30855
MEAN	649	860	1274	901	514	1809	1159	580	2626	727	929	1028
MAX	2150	2000	3170	2680	1590	6410	2300	1250	8820	2860	1890	4470
MIN	158	485	430	360	280	576	600	335	952	323	368	340
CFSM	1.83	2.42	3.59	2.54	1.45	5.10	3.27	1.63	7.40	2.05	2.62	2.90
IN.	2.11	2.70	4.14	2.93	1.51	5.88	3.64	1.88	8.26	2.36	3.02	3.23

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 2003, BY WATER YEAR (WY)**

MEAN	421	685	921	814	874	1187	1124	870	597	377	344	365
MAX	1896	1631	2932	2547	1735	2525	3319	2689	3410	1240	1594	1381
(WY)	1977	1971	1997	1979	1981	1994	1993	1989	1972	1984	1955	1987
MIN	75.7	120	125	88.4	274	462	424	314	148	104	105	94.6
(WY)	1964	1965	1981	1981	2002	1985	1985	1999	1965	1999	2002	1964

e Estimated.

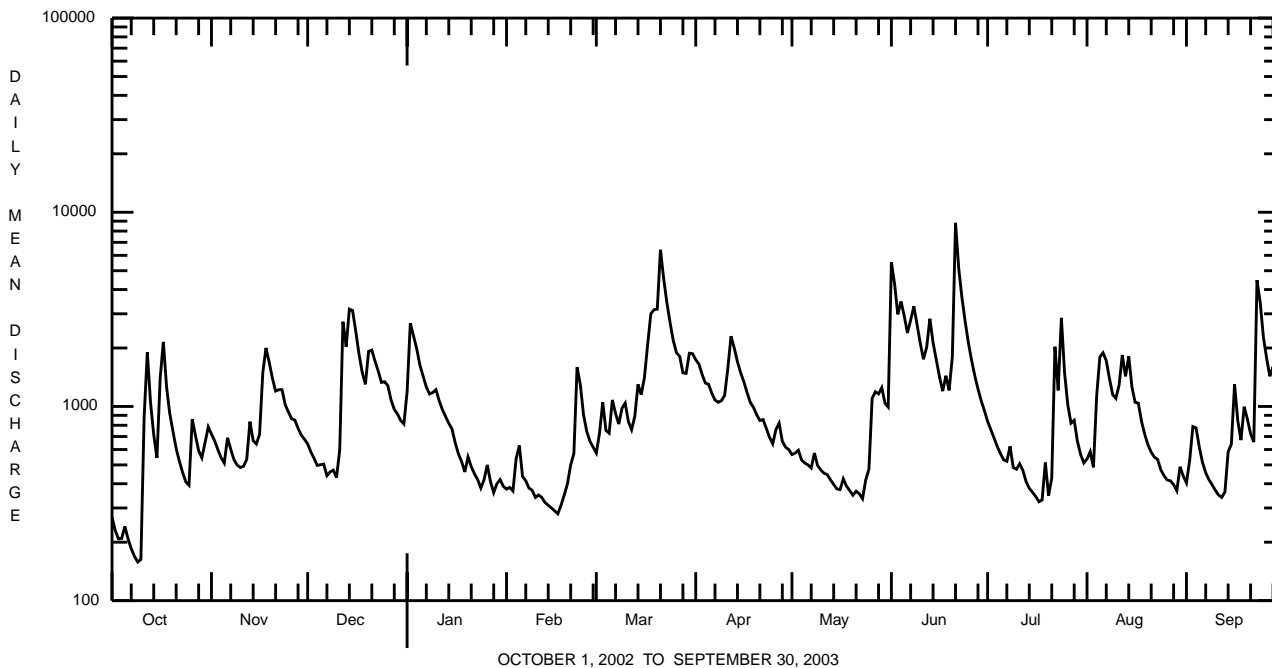


SCHUYLKILL RIVER BASIN

01470500 SCHUYLKILL RIVER AT BERNE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1947 - 2003	
ANNUAL TOTAL	213108		397539			
ANNUAL MEAN	584		1089		714	
HIGHEST ANNUAL MEAN					1182	1952
LOWEST ANNUAL MEAN					321	1965
HIGHEST DAILY MEAN	3170	Dec 14	8820	Jun 21	26000	Jun 23 1972
LOWEST DAILY MEAN	75	Sep 13	158	Oct 9	40	Sep 2 1949
ANNUAL SEVEN-DAY MINIMUM	80	Sep 8	190	Oct 4	52	Aug 30 1999
MAXIMUM PEAK FLOW			11300	Jun 21	<b>a</b> 42800	Jun 22 1972
MAXIMUM PEAK STAGE			10.93	Jun 21	<b>b</b> 19.00	Jun 22 1972
INSTANTANEOUS LOW FLOW			155	Oct 9,10	31	Sep 2 1949
ANNUAL RUNOFF (CFSM)	1.64		3.07		2.01	
ANNUAL RUNOFF (INCHES)	22.33		41.66		27.33	
10 PERCENT EXCEEDS	1330		2120		1480	
50 PERCENT EXCEEDS	409		766		450	
90 PERCENT EXCEEDS	112		370		158	

**a** From rating curve extended above 20,800 ft<sup>3</sup>/s.  
**b** From floodmark in gage shelter.



SCHUYLKILL RIVER BASIN

01470500 SCHUYLKILL RIVER AT BERNE, PA--Continued  
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

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

REMARKS.--Some values for "dissolved" parameters exceed values for the corresponding "total" parameter. These results are within the limits of analytical precision and methods. Other data for the Water-Quality Network can be found on pages 430-470.

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

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd μS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium, water, unfltrd mg/L (00915)	Calcium recoverable, mg/L (00916)	Magnesium, water, unfltrd mg/L (00925)
NOV 2002 12...	1020	1028	9813	480	40	10.2	7.6	285	11.2	110	23.0	23.3	12.9
JAN 2003 16...	1030	1028	9813	E650	40	15.3	6.9	307	.3	120	23.3	24.0	13.4
MAR 20...	1100	1028	9813	2680	40	11.5	6.3	161	5.8	52	11.1	11.1	5.8
MAY 06...	1030	1028	9813	509	40	9.8	6.9	301	12.0	120	24.3	25.0	14.7
JUL 09...	1030	1028	9813	485	40	8.7	7.6	316	23.0	150	27.4	29.2	16.5
SEP 04...	0920	1028	9813	802	40	9.6	6.8	352	17.7	140	26.7	27.2	17.7

Date	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity, water, unfltrd heated, mg/L as CaCO3 (70508)	Sulfate, water, unfltrd, mg/L (00945)	Residue on evap. at 105degC, wat fltrd, mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia, water, unfltrd as N, mg/L (00610)	Nitrate, water, unfltrd as N, mg/L (00620)	Nitrite, water, unfltrd as N, mg/L (00615)	Orthophosphate, water, unfltrd as P, mg/L (70507)	Phosphorus, water, unfltrd as P, mg/L (00665)	Total nitrogen, water, unfltrd as N, mg/L (00600)	BOD, water, unfltrd 5 day, 20 degC, mg/L (00310)
NOV 2002 12...	13.2	22	.0	85.7	220	6	.100	1.35	<.040	<.01	<.010	1.9	1.9
JAN 2003 16...	13.8	109	.0	88.5	<2	<2	.100	1.32	<.040	<.01	.010	7.4	.5
MAR 20...	6.0	11	.0	37.6	134	12	.040	.88	<.040	.02	.028	1.0	.6
MAY 06...	14.9	23	.0	104	248	<2	<.020	.66	<.040	.01	.022	.97	1.2
JUL 09...	17.7	23	.0	116	212	8	<.020	.81	<.040	.01	.022	.98	1.5
SEP 04...	18.0	30	.0	10.8	298	<2	.070	.97	<.040	.02	.030	1.2	1.3

Date	Aluminum, water, unfltrd recoverable, μg/L (01106)	Aluminum, water, unfltrd, μg/L (01105)	Copper, water, unfltrd recoverable, μg/L (01040)	Copper, water, unfltrd recoverable, μg/L (01042)	Iron, water, unfltrd, μg/L (01046)	Iron, water, unfltrd recoverable, μg/L (01045)	Lead, water, unfltrd recoverable, μg/L (01049)	Lead, water, unfltrd recoverable, μg/L (01051)	Manganese, water, unfltrd recoverable, μg/L (01056)	Manganese, water, unfltrd recoverable, μg/L (01055)	Nickel, water, unfltrd recoverable, μg/L (01065)	Nickel, water, unfltrd recoverable, μg/L (01067)	Zinc, water, unfltrd recoverable, μg/L (01090)
NOV 2002 12...	22	55	<4	<4	30	170	<1.0	<1.0	330	350	11.3	11.6	30
JAN 2003 16...	24	73	<4	<4	<20	280	<1.0	<1.0	670	670	21.4	21.3	60
MAR 20...	27	300	<4	<4	20	940	<1.0	1.2	320	440	9.3	10.9	30
MAY 06...	12	69	<4	<4	50	270	<1.0	<1.0	520	600	13.4	16.5	20
JUL 09...	19	77	<4	<4	40	270	<1.0	<1.0	280	340	12.7	14.6	10
SEP 04...	<10	200	<4	<4	30	560	<1.0	1.3	240	400	8.2	11.0	10

Date	Zinc, water, unfltrd recoverable, μg/L (01092)
NOV 2002 12...	30
JAN 2003 16...	60
MAR 20...	40
MAY 06...	20
JUL 09...	20
SEP 04...	20

## SCHUYLKILL RIVER BASIN

## 01470500 SCHUYLKILL RIVER AT BERNE, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES

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

Date	08/21/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	7
Nematoda (NEMATODES)	5
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Physidae	
<u>Physa</u> sp	1
Bivalvia (CLAMS)	
Veneroida	
Corbiculidae	
<u>Corbicula fluminea</u>	10
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	3
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	2
<u>Baetis</u> sp	10
<u>Heterocloeon</u> sp	1
<u>Plauditus</u> sp	10
Tricorythidae	
<u>Tricorythodes</u> sp	3
Odonata	
Coenagrionidae (DAMSELFLIES)	
<u>Argia</u> sp	1
Trichoptera (CADDISFLIES)	
Glossosomatidae	
<u>Protophila</u> sp	2
Hydropsychidae	
<u>Cheumatopsyche</u> sp	6
<u>Hydropsyche</u> sp	6
<u>Macrostemum</u> sp	4
Hydroptilidae	
<u>Hydroptila</u> sp	1
<u>Leucotrichia</u> sp	1
Philopotamidae	
<u>Chimarra</u> sp	1
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	17
Total Organisms	91

**SCHUYLKILL RIVER BASIN**

**01470779 TULPEHOCKEN CREEK NEAR BERNVILLE, PA**

**LOCATION.**--Lat 40°24'48", long 76°10'19", Berks County, Hydrologic Unit, 02040203, on left bank 30 ft downstream from Mill Road bridge at Kricks Mill, 0.4 mi upstream from Mill Creek, and 3.5 mi west of Bernville.

**DRAINAGE AREA.**--66.5 mi<sup>2</sup>.

**WATER-DISCHARGE RECORDS**

**PERIOD OF RECORD.**--November 1974 to current year.

**REVISED RECORDS.**--WDR PA-96-1: 1975-83(P), 1988(P), 1990(P), 1993-94(P).

**GAGE.**--Water-stage recorder and crest-stage gage. Datum of gage is 311.26 ft above National Geodetic Vertical Datum of 1929 (Pennsylvania Department of Transportation datum).

**REMARKS.**--Records fair except those for estimated daily discharges, which are poor. Satellite and landline telemetry at station.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of June 1972 reached a stage of about 9.5 ft, from information by local resident, discharge about 6,000 ft<sup>3</sup>/s.

**PEAK DISCHARGES FOR CURRENT YEAR.**--Peak discharges greater than base discharge of 950 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Mar. 21	0130	1,080	5.15	June 21	0630	*2,840	*7.19

**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	44	92	81	283	97	112	180	100	167	161	109	67
2	41	83	78	532	97	183	172	109	151	156	110	79
3	39	76	75	391	95	359	163	99	133	154	103	71
4	37	71	71	345	120	173	155	96	280	146	104	74
5	35	67	76	296	108	168	161	94	251	140	109	72
6	34	82	73	269	95	370	147	94	202	135	149	65
7	32	73	70	245	96	229	146	93	328	133	102	62
8	32	68	64	234	91	173	149	108	370	132	94	60
9	32	66	66	249	89	358	186	98	264	128	92	60
10	35	64	66	240	88	279	194	94	217	130	97	60
11	100	64	113	208	86	178	339	90	191	127	92	63
12	125	71	284	194	84	162	357	87	179	125	105	66
13	77	89	208	187	82	316	262	84	195	123	91	70
14	66	72	412	177	81	407	228	81	165	119	87	76
15	62	68	332	168	80	319	204	79	150	115	86	73
16	174	80	252	157	e75	304	191	80	140	112	84	81
17	129	200	202	156	e70	304	176	84	132	110	86	72
18	72	234	172	145	e73	266	168	79	147	110	81	64
19	60	166	156	140	e77	220	161	76	144	113	80	109
20	56	142	201	140	e80	329	150	73	524	108	78	88
21	50	130	166	132	83	654	146	77	1750	108	74	83
22	47	142	142	e120	196	376	144	72	554	145	71	80
23	45	133	130	e110	699	302	137	71	377	206	72	346
24	45	115	120	e100	460	257	130	92	292	318	73	165
25	46	106	142	111	245	224	125	93	246	150	73	142
26	77	100	140	109	174	215	138	205	221	133	73	142
27	61	101	124	105	138	221	127	147	202	126	75	129
28	53	91	118	e100	125	186	114	122	187	122	74	144
29	57	81	115	102	---	177	110	111	181	117	69	127
30	98	87	110	100	---	212	105	103	169	112	68	120
31	125	---	108	97	---	204	---	106	---	109	70	---
TOTAL	1986	3014	4467	5942	3884	8237	5165	2997	8509	4223	2731	2910
MEAN	64.1	100	144	192	139	266	172	96.7	284	136	88.1	97.0
MAX	174	234	412	532	699	654	357	205	1750	318	149	346
MIN	32	64	64	97	70	112	105	71	132	108	68	60
CFSM	0.96	1.51	2.17	2.88	2.09	4.00	2.59	1.45	4.27	2.05	1.32	1.46
IN.	1.11	1.69	2.50	3.32	2.17	4.61	2.89	1.68	4.76	2.36	1.53	1.63

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 2003, BY WATER YEAR (WY)**

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MEAN	78.7	92.2	113	128	127	167	146	111	104	85.9	65.4	66.9																	
MAX	250	181	288	385	264	468	367	277	284	216	129	181																	
(WY)	1977	1997	1997	1979	1979	1994	1993	1989	2003	1984	1976	1975																	
MIN	35.1	31.4	29.1	26.5	27.4	51.7	58.8	59.5	41.4	32.1	27.5	29.7																	
(WY)	2002	2002	2002	2002	2002	2002	1985	1999	1999	1999	2002	2002																	

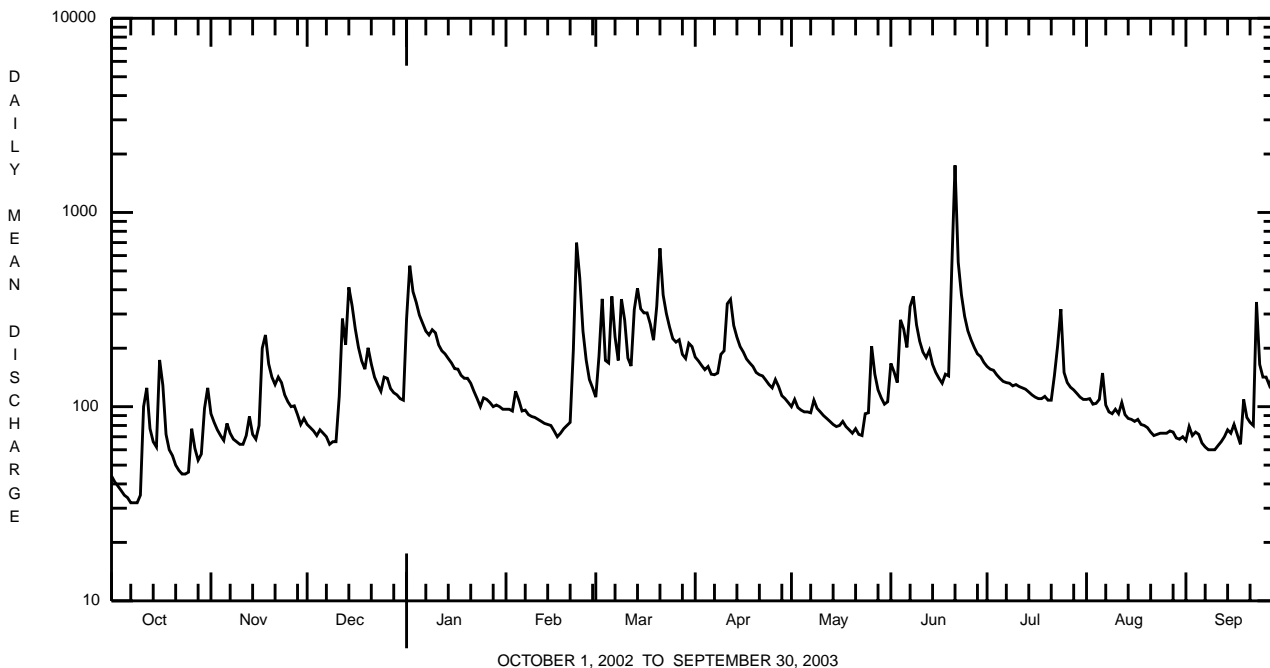
e Estimated.

SCHUYLKILL RIVER BASIN

01470779 TULPEHOCKEN CREEK NEAR BERNVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1975 - 2003	
ANNUAL TOTAL	22132		54065			
ANNUAL MEAN	60.6		148		106	
HIGHEST ANNUAL MEAN					164	1994
LOWEST ANNUAL MEAN					42.7	2002
HIGHEST DAILY MEAN	412	Dec 14	1750	Jun 21	2140	Jan 26 1978
LOWEST DAILY MEAN	15	Sep 8	32	Oct 7-9	15	Sep 8 2002
ANNUAL SEVEN-DAY MINIMUM	16	Sep 7	34	Oct 4	16	Sep 7 2002
MAXIMUM PEAK FLOW			a2840	Jun 21	a7140	Jan 24 1979
MAXIMUM PEAK STAGE			7.19	Jun 21	10.16	Jan 24 1979
INSTANTANEOUS LOW FLOW			29	Oct 7	14	Sep 8 2002
ANNUAL RUNOFF (CFSM)	0.91		2.23		1.60	
ANNUAL RUNOFF (INCHES)	12.38		30.24		21.67	
10 PERCENT EXCEEDS	119		267		179	
50 PERCENT EXCEEDS	47		114		82	
90 PERCENT EXCEEDS	24		67		40	

a From rating curve extended above 740 ft<sup>3</sup>/s on basis of contracted-opening measurement at 3,900 ft<sup>3</sup>/s, gage height 8.01 ft.



## SCHUYLKILL RIVER BASIN

01470779 TULPEHOCKEN CREEK NEAR BERNVILLE, PA--Continued

## WATER-QUALITY RECORDS

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

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Water years 1978 to current year.

INSTRUMENTATION.--Temperature recorder since October 1977. Temperature probe interfaced with a data collection platform since 1986 water year.

REMARKS.--Water temperature records rated good.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 28.5°C, July 6, 1999; minimum, 0.0°C, many days during winters.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 21.5°C, Aug. 14, 15, 22, 23; minimum, 0.0°C, several days during winter.

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	18.0	15.5	16.5	9.0	8.0	8.5	6.0	3.5	4.5	7.0	4.5	6.5
2	20.0	17.0	18.0	8.0	7.0	7.5	4.5	3.0	3.5	6.5	4.5	5.5
3	20.5	18.5	19.5	8.0	7.0	7.5	4.5	2.0	3.5	6.0	5.0	5.0
4	19.5	19.0	19.0	8.5	7.0	7.5	2.5	1.0	2.0	6.0	5.0	5.5
5	20.5	18.5	19.5	8.5	7.5	8.0	3.0	1.5	2.0	6.0	5.5	5.5
6	18.5	16.5	17.5	9.5	8.5	9.0	4.0	2.0	3.0	6.5	5.5	6.0
7	18.0	16.0	17.0	9.0	8.0	8.5	3.0	1.0	1.5	6.0	4.5	5.0
8	16.0	13.5	14.5	8.5	6.5	7.5	2.5	1.0	1.5	6.0	4.5	5.5
9	14.0	12.0	13.0	9.5	7.5	8.5	2.5	1.0	2.0	6.5	5.5	6.0
10	14.5	13.5	14.0	13.0	9.5	11.0	1.5	0.5	1.0	6.5	5.5	6.0
11	14.5	14.5	14.5	14.5	13.0	14.0	3.0	1.5	2.0	5.5	3.5	4.0
12	15.0	14.5	15.0	13.5	11.0	12.0	5.5	3.0	4.0	3.5	2.5	3.5
13	15.0	15.0	15.0	11.0	9.0	10.5	5.5	4.5	5.0	4.0	3.0	3.5
14	15.0	12.0	13.5	9.0	7.5	8.5	5.5	5.0	5.5	4.0	2.5	3.0
15	12.0	10.5	11.5	10.0	8.5	9.0	7.0	5.5	6.5	4.0	3.0	3.5
16	12.5	11.5	12.0	9.5	8.0	9.0	7.0	5.5	6.5	3.0	1.5	2.5
17	13.0	12.0	12.5	8.5	7.5	8.0	5.5	4.0	4.5	3.5	2.5	3.0
18	13.0	11.5	12.0	8.5	8.0	8.0	5.0	3.5	4.0	3.0	1.0	1.5
19	11.5	10.5	11.0	8.0	7.0	7.5	7.0	5.0	6.0	2.5	1.0	2.0
20	12.0	11.0	11.5	9.0	7.5	8.0	9.0	7.0	8.0	3.5	2.5	3.0
21	12.0	11.0	11.5	8.5	7.5	8.0	7.5	5.5	6.5	2.5	1.5	2.0
22	11.0	9.5	10.5	9.5	8.5	9.0	7.0	5.0	6.0	2.0	1.0	1.5
23	11.0	9.5	10.5	9.0	7.0	7.5	7.0	6.0	6.5	1.0	0.0	0.5
24	10.0	9.0	9.5	8.0	7.0	7.5	6.0	5.0	5.5	0.5	0.0	0.0
25	9.0	9.0	9.0	8.5	6.5	7.5	5.5	3.0	4.0	2.5	0.5	1.5
26	11.0	9.0	10.0	8.5	7.5	8.0	5.0	3.0	4.0	3.5	2.5	2.5
27	11.5	10.5	11.0	8.0	6.5	7.0	5.0	4.5	5.0	3.0	0.5	1.5
28	11.0	9.5	10.5	6.5	4.5	5.0	5.0	3.5	4.5	2.0	0.0	0.5
29	9.5	7.0	8.5	5.0	4.0	4.5	6.5	5.0	5.5	3.5	2.0	2.5
30	7.5	7.0	7.0	6.5	5.0	5.5	5.5	4.0	5.0	3.5	2.0	2.5
31	9.0	7.5	8.0	---	---	---	7.0	5.5	6.5	4.5	3.5	4.0
MONTH	20.5	7.0	13.0	14.5	4.0	8.2	9.0	0.5	4.4	7.0	0.0	3.4



## SCHUYLKILL RIVER BASIN

01470779 TULPEHOCKEN CREEK NEAR BERNVILLE, PA--Continued

CROSS-SECTION ANALYSES, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Sample loc- ation, cross section ft from rt bank (72103)	Sam- pling depth, feet (00003)	Temper- ature, water, deg C (00010)
SEP 2003							
09...	0938	1028	1028	61	62	0.0	--
09...	0939	1028	1028	--	60	0.4	18.6
09...	0940	1028	1028	--	55	0.8	18.6
09...	0941	1028	1028	--	50	0.9	18.6
09...	0942	1028	1028	--	45	0.8	18.6
09...	0943	1028	1028	--	40	0.8	18.6
09...	0944	1028	1028	--	35	1.0	18.6
09...	0945	1028	1028	--	30	1.1	18.6
09...	0946	1028	1028	--	25	1.0	18.6
09...	0947	1028	1028	--	20	0.7	18.6
09...	0948	1028	1028	--	15	0.5	18.6
09...	0949	1028	1028	--	10	0.7	18.6
09...	0950	1028	1028	--	5	0.6	18.6
09...	0951	1028	1028	--	0	0.0	--





SCHUYLKILL RIVER BASIN

01470853 FURNACE CREEK AT ROBESONIA, PA

LOCATION.--Lat 40°20'24", long 76°08'37", Berks County, Hydrologic Unit 02040202, on left bank 500 ft upstream from Furnace Street in Robesonia.

DRAINAGE AREA.--4.18 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1982 to current year.

REVISED RECORDS.--WDR PA-87-1: 1986 (P).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 527.20 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 27, 1986, 760 ft downstream at different datum.

REMARKS.--Records poor. Flow slightly regulated by Furnace Creek Reservoir 0.6 mi upstream, until drained in early 2002. Reservoir now acts as a retention basin and releases water through an unregulated 10 in. outlet pipe. Several measurements of water temperature were made during the year. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
June 20	2345	*33	*1.13	(No peaks above base discharge.)			

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.98	4.6	4.4	13	4.5	7.3	18	8.2	14	9.5	3.4	2.3
2	1.1	4.0	4.2	16	4.7	9.1	17	8.0	15	9.0	3.4	4.2
3	1.1	3.5	e4.2	16	4.7	11	13	7.7	11	8.8	3.5	3.6
4	1.1	3.3	e4.5	16	7.0	9.0	12	7.3	16	8.2	4.0	3.2
5	1.3	3.2	e4.7	15	5.9	8.3	13	7.3	17	6.8	3.7	3.2
6	1.1	4.4	4.8	14	5.1	13	11	7.3	16	7.4	5.1	2.7
7	1.1	4.3	e4.4	10	4.9	11	11	7.1	16	6.9	3.7	2.1
8	0.98	4.2	3.9	9.7	e4.5	9.4	11	7.3	18	6.6	3.6	2.1
9	0.98	4.0	e4.2	10	e4.2	11	13	7.5	18	6.1	3.6	2.0
10	1.8	3.4	11	9.7	3.9	12	15	7.6	17	6.2	3.5	1.9
11	8.5	3.6	6.5	8.4	4.1	9.4	18	7.5	16	6.4	3.5	1.9
12	11	4.0	13	7.7	4.9	8.9	21	7.1	12	5.7	3.8	1.9
13	5.9	5.4	13	6.9	e4.6	11	20	6.6	11	5.3	3.7	2.1
14	1.8	4.4	15	6.8	e4.3	14	19	6.3	10	4.7	2.7	4.6
15	0.48	4.2	17	6.6	4.0	13	18	6.1	9.5	4.7	2.5	4.4
16	11	5.9	16	e6.4	7.9	15	17	6.1	8.7	4.9	2.8	4.0
17	26	13	16	6.2	e10	17	14	6.6	8.4	4.9	3.5	3.1
18	4.9	14	13	e6.0	e25	19	12	6.6	9.7	4.7	3.3	2.9
19	3.2	13	9.2	e5.8	e20	20	12	6.4	9.1	4.9	2.8	6.3
20	2.8	7.5	13	e5.6	16	22	11	5.7	15	4.7	2.3	3.6
21	2.1	6.1	14	5.4	6.8	26	11	5.6	30	4.5	2.3	3.1
22	1.9	7.4	12	e5.3	11	27	11	6.0	30	7.0	2.3	2.9
23	2.3	6.2	10	e5.2	17	26	10	6.0	30	8.0	2.3	21
24	2.3	5.2	9.0	e5.1	17	25	9.5	9.4	29	7.4	2.1	21
25	2.3	5.0	12	e5.0	16	24	9.1	9.0	27	5.1	2.1	18
26	4.7	4.7	13	4.9	12	23	13	13	25	4.8	2.1	12
27	3.7	4.7	9.8	e4.8	7.8	22	11	14	23	4.4	2.2	5.1
28	3.5	4.7	9.2	e4.8	7.4	21	9.3	10	18	3.8	2.7	4.7
29	3.4	4.6	9.0	4.7	---	20	8.8	8.7	11	3.9	2.7	4.5
30	6.4	4.5	8.5	4.5	---	19	8.7	7.9	10	3.7	2.6	3.3
31	12	---	9.1	4.5	---	19	---	7.8	---	3.3	2.3	---
TOTAL	131.72	167.0	297.6	250.0	245.2	502.4	397.4	237.7	500.4	182.3	94.1	157.7
MEAN	4.25	5.57	9.60	8.06	8.76	16.2	13.2	7.67	16.7	5.88	3.04	5.26
MAX	26	14	17	16	25	27	21	14	30	9.5	5.1	21
MIN	0.48	3.2	3.9	4.5	3.9	7.3	8.7	5.6	8.4	3.3	2.1	1.9
CFSM	1.02	1.33	2.30	1.93	2.10	3.88	3.17	1.83	3.99	1.41	0.73	1.26
IN.	1.17	1.49	2.65	2.22	2.18	4.47	3.54	2.12	4.45	1.62	0.84	1.40

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

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
MEAN	3.19	5.32	7.51	6.84	8.20	11.8	11.8	9.20	6.08	4.25	2.84	2.94										
MAX	7.31	10.3	22.0	14.3	15.2	26.7	31.8	24.7	16.7	11.7	8.98	9.05										
(WY)	1997	1987	1997	1996	1996	1994	1993	1989	2003	1984	1986	1999										
MIN	0.94	1.68	2.06	2.34	1.80	2.72	3.32	4.29	2.10	1.36	0.85	0.63										
(WY)	1989	2001	2002	1983	2002	2002	1985	1997	1985	1983	1983	1983										

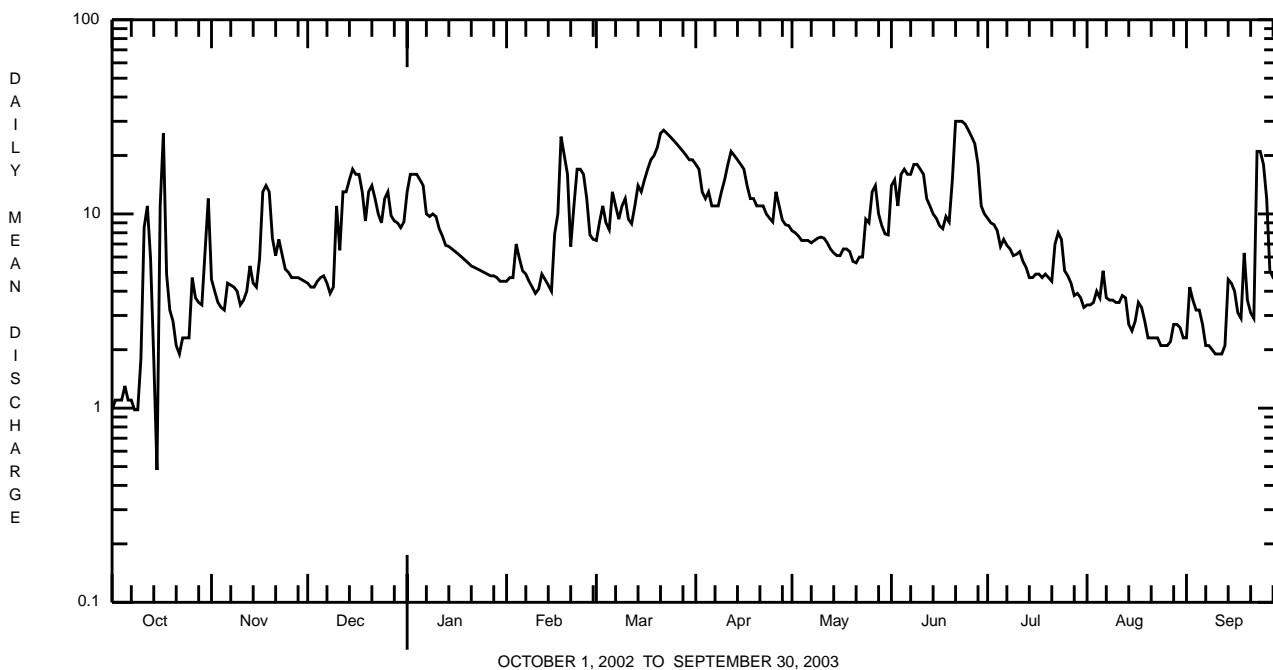
e Estimated.

SCHUYLKILL RIVER BASIN

01470853 FURNACE CREEK AT ROBESONIA, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1983 - 2003	
ANNUAL TOTAL	1431.49		3163.52			
ANNUAL MEAN	3.92		8.67		6.65	
HIGHEST ANNUAL MEAN					10.5	1994
LOWEST ANNUAL MEAN					2.76	2002
HIGHEST DAILY MEAN	26	Oct 17	30	Jun 21-23	139	Dec 5 1993
LOWEST DAILY MEAN	0.26	Sep 29	0.48	Oct 15	0.11	Sep 11 1983
ANNUAL SEVEN-DAY MINIMUM	0.88	Sep 10	1.1	Oct 3	0.19	Sep 16 1985
MAXIMUM PEAK FLOW			33	Jun 20,21	a718	Dec 17 2000
MAXIMUM PEAK STAGE			b1.71	Jan 24	c4.72	Jan 19 1996
ANNUAL RUNOFF (CFSM)	0.94		2.07		1.59	
ANNUAL RUNOFF (INCHES)	12.74		28.15		21.62	
10 PERCENT EXCEEDS	9.0		17		13	
50 PERCENT EXCEEDS	2.5		6.8		4.5	
90 PERCENT EXCEEDS	1.1		2.7		1.4	

- a From rating curve extended above 308 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow at gage height 3.11 ft.
- b Ice jam.
- c From peak indicator; ice jam.



## SCHUYLKILL RIVER BASIN

## 01470960 TULPEHOCKEN CREEK AT BLUE MARSH DAMSITE NEAR READING, PA

**LOCATION.**--Lat 40°22'14", long 76°01'32", Berks County, Hydrologic Unit 02040203, on right bank 1.0 mi upstream from Rebers Bridge and Plum Creek, 1.0 mi east of Blue Marsh, 3.0 mi north of Sinking Spring, and 5.5 mi northeast of Reading.

**DRAINAGE AREA.**--175 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--May 1965 to current year.

**REVISED RECORDS.**--WDR PA-72-1: 1969-71 (M).

**GAGE.**--Water-stage recorder. Datum of gage is 230.06 ft above National Geodetic Vertical Datum of 1929 (Western Berks Water Authority datum). Prior to Nov. 25, 1974, water-stage recorder at site 0.3 mi downstream at same datum.

**REMARKS.**--No estimated daily discharges. Records good. Flow regulated since April 1979 by Blue Marsh Lake (station 01470870) 0.8 mi upstream. Satellite and landline telemetry at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	477	293	288	178	297	379	263	388	303	160	113
2	51	376	199	1020	178	298	381	242	579	304	161	151
3	51	376	97	1330	178	860	332	242	782	267	161	181
4	51	247	98	1180	192	845	293	242	1010	238	163	180
5	51	139	98	1170	247	371	293	222	1120	238	163	137
6	51	230	129	805	241	626	293	204	811	238	375	113
7	99	234	169	444	208	752	294	205	644	242	362	113
8	143	183	169	366	208	578	293	205	650	244	186	106
9	142	183	169	371	207	579	253	205	867	244	188	88
10	142	183	169	408	205	754	223	206	1000	245	189	76
11	166	183	170	434	188	796	268	205	826	233	189	76
12	183	184	625	434	159	562	302	205	693	226	216	76
13	183	286	958	361	148	430	299	184	696	226	172	76
14	183	261	960	302	134	785	550	166	696	175	121	76
15	380	256	968	304	122	980	747	166	692	135	135	556
16	678	296	1020	256	123	974	745	165	426	135	136	1110
17	1140	300	1140	242	123	817	739	166	205	135	137	1390
18	1010	700	899	251	121	680	500	166	178	136	193	802
19	852	984	526	251	270	608	346	164	219	135	213	357
20	840	820	395	251	769	570	346	164	324	136	163	355
21	506	538	398	251	615	1150	346	165	72	165	140	354
22	144	413	399	251	203	2180	346	164	588	516	125	200
23	98	411	494	214	210	2080	346	164	1620	918	115	115
24	124	410	565	183	690	1070	274	166	2290	1330	115	439
25	181	327	572	183	1020	158	217	167	2290	906	116	571
26	202	260	527	183	715	102	219	169	2300	543	117	487
27	201	281	421	210	381	104	219	365	1520	541	114	455
28	233	297	380	226	297	221	251	571	935	324	111	455
29	260	296	379	225	---	357	319	583	916	161	112	358
30	338	294	323	206	---	370	318	468	545	158	113	297
31	516	---	283	185	---	379	---	387	---	159	113	---
TOTAL	9250	10425	13992	12785	8330	21333	10731	7356	25882	9956	5074	9863
MEAN	298	348	451	412	298	688	358	237	863	321	164	329
MAX	1140	984	1140	1330	1020	2180	747	583	2300	1330	375	1390
MIN	51	139	97	183	121	102	217	164	72	135	111	76

## SCHUYLKILL RIVER BASIN

## 01470960 TULPEHOCKEN CREEK AT BLUE MARSH DAMSITE NEAR READING, PA--Continued

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

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	206	226	331	340	339	451	327	296	256	182	121	147
MAX	612	484	986	1151	596	1365	1016	1058	863	543	283	379
(WY)	1980	1997	1997	1979	1979	1994	1993	1989	2003	1984	1994	1987
MIN	51.4	61.7	61.3	84.5	75.2	106	49.8	123	69.9	64.9	55.4	54.0
(WY)	1996	2002	1999	2002	2002	2002	1985	1999	1979	2002	1981	1983

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1979 - 2003	
ANNUAL TOTAL	66008		144977			
ANNUAL MEAN	181		397		268	
HIGHEST ANNUAL MEAN					435	
LOWEST ANNUAL MEAN					111	
HIGHEST DAILY MEAN	1140	Oct 17	2300	Jun 26	3950	Apr 18 1983
LOWEST DAILY MEAN	32	Jan 1	51	Oct 1-6	25	Oct 7 1995
ANNUAL SEVEN-DAY MINIMUM	41	Feb 20	58	Oct 1	26	Oct 6 1995
MAXIMUM PEAK FLOW			2320	Jun 25,26	a4060	Dec 6 1993
MAXIMUM PEAK STAGE			6.38	Jun 25,26	8.02	Jun 26 2000
10 PERCENT EXCEEDS	410		863		534	
50 PERCENT EXCEEDS	98		260		172	
90 PERCENT EXCEEDS	50		122		63	

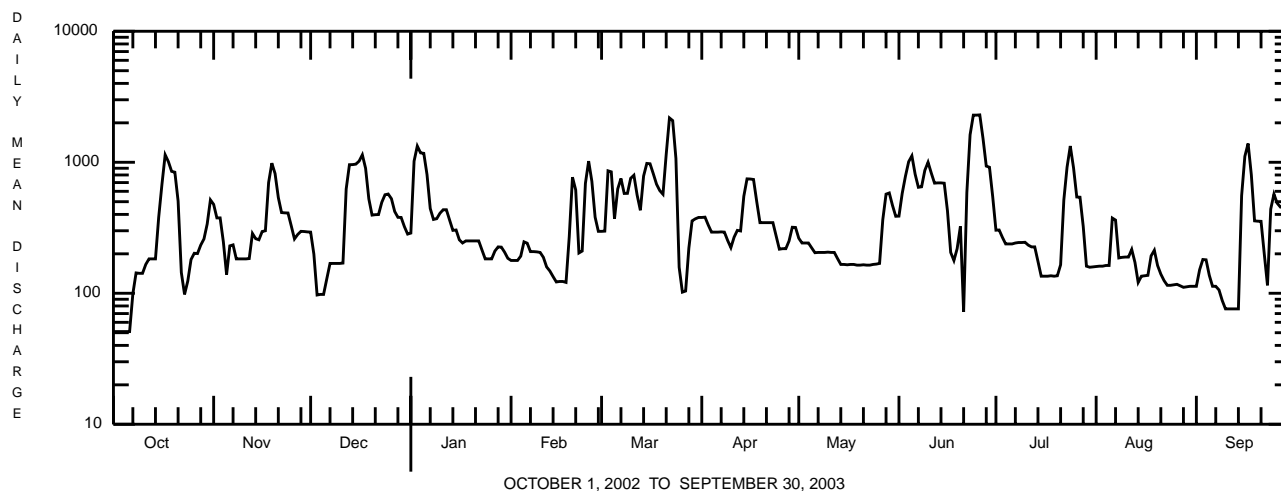
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1978, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	180	236	333	333	373	423	363	261	285	233	175	150
MAX	701	464	827	761	790	832	706	423	1244	523	350	536
(WY)	1977	1976	1978	1978	1971	1978	1970	1973	1972	1969	1969	1975
MIN	56.2	58.3	69.9	100	146	163	144	89.2	60.4	45.0	31.9	43.4
(WY)	1967	1966	1966	1966	1969	1969	1966	1965	1965	1966	1966	1966

## SUMMARY STATISTICS WATER YEARS 1965 - 1978

ANNUAL MEAN	283	
HIGHEST ANNUAL MEAN	416	1978
LOWEST ANNUAL MEAN	122	1966
HIGHEST DAILY MEAN	11000	Jun 23 1972
LOWEST DAILY MEAN	23	Sep 12 1966
ANNUAL SEVEN-DAY MINIMUM	25	Sep 7 1966
MAXIMUM PEAK FLOW	a16100	Jun 22 1972
MAXIMUM PEAK STAGE	b18.70	Jun 22 1972
ANNUAL RUNOFF (CFSM)	1.62	
ANNUAL RUNOFF (INCHES)	22.00	
10 PERCENT EXCEEDS	551	
50 PERCENT EXCEEDS	178	
90 PERCENT EXCEEDS	69	

- a From rating curve extended above 3,540 ft<sup>3</sup>/s on basis of runoff comparison with downstream station.  
b From floodmark.



## SCHUYLKILL RIVER BASIN

01470960 TULPEHOCKEN CREEK AT BLUE MARSH DAMSITE NEAR READING, PA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to 1980.

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Water years 1969 to current year.

SUSPENDED-SEDIMENT DISCHARGE.--May 1973 to May 1976.

INSTRUMENTATION.--Temperature recorder since October 1968. Temperature probe interfaced with a data collection platform since 1986 water year.

REMARKS.--Water temperature records rated fair. Temperature records collected at streamgage. Water-quality samples and suspended sediment samples collected at Rebers Bridge 1.0 mi downstream.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 34.0°C, Oct. 2, 1968; minimum, 0.0°C, on several days during December 1970, January and March 1971, and February 1979.

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,400 mg/L, June 22, 1973; minimum daily mean, 2 mg/L on many days.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 8,570 tons, Jan. 27, 1976; minimum daily, 0.45 tons, July 13.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 22.5°C, Aug. 14; minimum, 1.5°C, Jan. 15-17.

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	22.0	20.0	20.5	12.0	11.5	12.0	6.5	6.0	6.0	3.5	3.0	3.5
2	22.0	20.0	20.5	11.5	11.0	11.0	6.0	5.5	5.5	3.5	3.5	3.5
3	21.5	20.0	20.5	11.0	10.5	10.5	5.5	5.0	5.0	3.5	3.0	3.5
4	20.5	20.0	20.0	10.5	10.0	10.0	5.0	4.5	4.5	3.0	3.0	3.0
5	21.5	19.5	20.5	10.0	9.5	9.5	4.5	4.0	4.5	3.0	3.0	3.0
6	21.0	19.5	20.0	10.0	9.5	9.5	4.5	4.0	4.5	3.0	3.0	3.0
7	21.0	20.0	20.5	10.0	9.0	9.5	4.0	4.0	4.0	3.0	3.0	3.0
8	21.0	20.0	20.5	9.5	9.0	9.5	4.5	3.5	4.0	3.0	3.0	3.0
9	20.5	20.0	20.5	10.0	9.5	9.5	3.5	3.5	3.5	3.5	3.0	3.0
10	20.5	20.0	20.5	10.0	9.5	10.0	4.0	3.5	3.5	3.5	3.0	3.0
11	20.0	20.0	20.0	10.5	9.5	10.0	3.5	3.5	3.5	3.0	2.5	3.0
12	20.0	19.5	20.0	10.0	9.5	9.5	3.5	3.0	3.5	2.5	2.5	2.5
13	19.5	18.5	19.5	10.0	9.5	9.5	3.5	3.0	3.0	3.0	2.0	2.5
14	18.5	18.0	18.5	10.0	9.5	10.0	3.0	3.0	3.0	2.5	2.0	2.0
15	18.5	18.0	18.0	10.0	9.5	10.0	3.0	3.0	3.0	2.0	1.5	2.0
16	18.0	18.0	18.0	10.0	9.5	9.5	3.0	3.0	3.0	2.0	1.5	1.5
17	18.0	17.5	17.5	9.5	9.5	9.5	3.0	2.5	2.5	2.0	1.5	2.0
18	17.5	16.5	17.0	9.5	9.0	9.0	3.0	2.5	2.5	2.5	2.0	2.0
19	16.5	15.5	16.0	9.0	9.0	9.0	3.0	3.0	3.0	2.5	2.5	2.5
20	16.0	15.5	15.5	9.5	9.0	9.0	3.5	3.0	3.0	2.5	2.5	2.5
21	15.5	14.5	15.0	9.0	8.5	9.0	3.5	3.0	3.0	3.0	2.5	2.5
22	14.5	13.5	14.0	8.5	8.5	8.5	3.5	3.0	3.5	3.0	2.5	2.5
23	14.0	13.0	13.5	8.5	8.0	8.5	3.5	3.0	3.5	3.0	2.5	2.5
24	14.0	13.5	13.5	8.0	8.0	8.0	3.5	3.5	3.5	3.0	2.5	3.0
25	13.5	13.5	13.5	8.0	8.0	8.0	3.5	3.0	3.0	3.0	3.0	3.0
26	13.5	13.0	13.5	8.0	7.5	8.0	3.0	3.0	3.0	3.0	3.0	3.0
27	14.0	13.0	13.5	7.5	7.5	7.5	3.0	3.0	3.0	3.0	2.5	3.0
28	13.5	13.0	13.0	7.5	7.0	7.0	3.0	2.5	3.0	3.0	3.0	3.0
29	13.0	12.5	12.5	7.0	6.5	7.0	3.0	2.5	3.0	3.0	3.0	3.0
30	12.5	12.0	12.0	7.0	6.5	6.5	3.0	3.0	3.0	3.0	3.0	3.0
31	12.5	12.0	12.0	---	---	---	3.5	3.0	3.0	3.0	3.0	3.0
MONTH	22.0	12.0	17.1	12.0	6.5	9.1	6.5	2.5	3.5	3.5	1.5	2.8



## SCHUYLKILL RIVER BASIN

01470960 TULPEHOCKEN CREEK AT BLUE MARSH DAMSITE NEAR READING, PA--Continued

## CROSS-SECTION ANALYSES, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Sample loc- ation, cross section ft from rt bank (72103)	Sam- pling depth, feet (00003)	Temper- ature, water, deg C (00010)
SEP 2003							
09...	1305	1028	1028	77	0	0.0	--
09...	1306	1028	1028	--	2	0.3	21.1
09...	1307	1028	1028	--	7	0.5	21.2
09...	1308	1028	1028	--	12	0.5	21.3
09...	1309	1028	1028	--	17	0.6	21.4
09...	1310	1028	1028	--	22	0.6	21.5
09...	1311	1028	1028	--	27	0.6	21.7
09...	1312	1028	1028	--	32	0.8	21.9
09...	1313	1028	1028	--	37	0.6	22.1
09...	1314	1028	1028	--	42	0.7	22.3
09...	1315	1028	1028	--	47	0.7	22.4
09...	1316	1028	1028	--	52	0.6	22.6
09...	1317	1028	1028	--	57	0.7	22.7
09...	1318	1028	1028	--	62	0.7	23.0
09...	1319	1028	1028	--	67	0.6	23.2
09...	1320	1028	1028	--	72	0.6	23.4
09...	1321	1028	1028	--	77	0.5	23.5
09...	1322	1028	1028	--	82	0.4	23.6
09...	1323	1028	1028	--	87	0.4	24.1
09...	1324	1028	1028	--	92	0.2	24.5
09...	1325	1028	1028	--	97	0.1	25.0
09...	1326	1028	1028	--	102	0.0	--



## SCHUYLKILL RIVER BASIN

01471000 TULPEHOCKEN CREEK NEAR READING, PA  
(Pennsylvania Water-Quality Network Station)

**LOCATION.**--Lat 40°22'08", long 75°58'46", Berks County, Hydrologic Unit 02040203, on right bank 15 ft upstream from covered bridge on Township Route 921, 1.0 mi downstream from Cacoosing Creek, 2.5 mi upstream from mouth, and 3.5 mi northwest of town square in Reading.

**DRAINAGE AREA.**--211 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--October 1950 to current year.

**REVISED RECORDS.**--WSP 1382: 1951-53, 1954 (M). WSP 2102: 1965 (M). WDR PA-72-1: 1971 (M).

**GAGE.**--Water-stage recorder. Datum of gage is 216.60 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--No estimated daily discharges. Records good. Flow regulated since April 1979 by Blue Marsh Lake (station 01470870) 3.9 mi upstream. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67	589	353	465	231	352	482	312	551	356	202	148
2	66	459	272	1150	231	407	476	290	634	351	202	226
3	66	448	152	1470	231	899	421	286	835	323	200	224
4	67	325	148	1300	259	914	374	285	1160	294	203	219
5	69	198	152	1250	295	470	375	269	1210	291	204	180
6	67	296	178	940	293	735	366	251	912	290	400	149
7	106	302	222	569	259	854	368	249	811	292	400	148
8	166	241	221	473	253	667	368	251	796	292	227	140
9	164	243	218	476	251	740	356	248	950	290	229	122
10	169	243	217	502	251	847	324	247	1060	291	228	107
11	311	243	284	524	235	873	454	247	896	279	228	105
12	268	264	780	515	207	652	481	244	756	268	245	104
13	233	361	1130	449	193	557	443	226	763	263	216	112
14	222	339	1250	377	183	876	635	206	747	226	159	113
15	374	312	1210	373	170	1070	836	204	735	184	169	606
16	902	399	1210	328	168	1070	821	206	497	183	174	1050
17	1250	565	1270	309	170	946	808	208	271	182	174	1300
18	1110	893	1050	313	169	794	591	206	254	183	208	794
19	928	1140	657	311	284	716	418	204	280	186	232	403
20	905	974	536	309	750	743	412	202	625	182	193	348
21	591	678	508	306	668	1360	409	211	718	202	170	342
22	195	528	500	303	373	2240	406	205	835	554	159	229
23	142	511	588	271	484	2080	399	202	1700	931	146	618
24	160	503	669	237	780	1190	334	209	2330	1260	144	529
25	215	417	737	238	1080	277	273	207	2290	907	143	644
26	281	329	670	237	794	221	292	273	2280	537	143	568
27	255	352	542	255	455	217	282	395	1590	531	148	491
28	276	364	480	268	356	295	298	600	984	363	146	485
29	307	362	473	269	---	438	358	613	955	204	144	396
30	425	358	415	254	---	481	365	497	625	203	146	328
31	623	---	371	237	---	487	---	400	---	202	145	---
TOTAL	10980	13236	17463	15278	10073	24468	13225	8653	29050	11100	6127	11228
MEAN	354	441	563	493	360	789	441	279	968	358	198	374
MAX	1250	1140	1270	1470	1080	2240	836	613	2330	1260	400	1300
MIN	66	198	148	237	168	217	273	202	254	182	143	104

SCHUYLKILL RIVER BASIN

01471000 TULPEHOCKEN CREEK NEAR READING, PA--Continued

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

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	240	277	393	362	384	520	401	359	310	213	148	169
MAX	651	589	1220	1069	663	1604	1191	1226	968	661	331	456
(WY)	1997	1997	1997	1996	1986	1994	1983	1989	2003	1984	1994	1987
MIN	78.3	67.6	80.1	99.8	94.5	134	64.2	155	98.8	80.2	63.1	63.0
(WY)	1996	2002	1999	1981	2002	2002	1985	1999	1999	2002	1981	1983

SUMMARY STATISTICS FOR 2002 CALENDAR YEAR FOR 2003 WATER YEAR WATER YEARS 1980 - 2003

ANNUAL TOTAL	80806			170881			314					
ANNUAL MEAN	221			468			531					
HIGHEST ANNUAL MEAN							133					
LOWEST ANNUAL MEAN							202					
HIGHEST DAILY MEAN	1270			Dec 17			2330			Jun 24		
LOWEST DAILY MEAN	37			Jan 1			66			Oct 2,3		
ANNUAL SEVEN-DAY MINIMUM	52			Feb 20			73			Oct 1		
MAXIMUM PEAK FLOW							2400			Mar 21, Jun 23		
MAXIMUM PEAK STAGE							4.25			Mar 21, Jun 23		
10 PERCENT EXCEEDS	509						942			618		
50 PERCENT EXCEEDS	128						329			210		
90 PERCENT EXCEEDS	62						169			81		

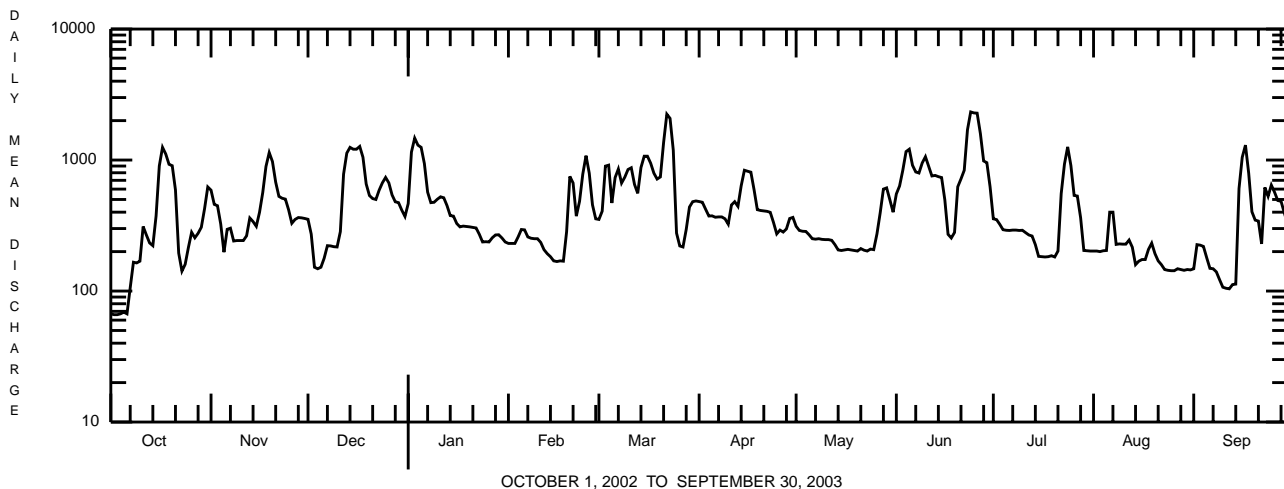
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1979, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	178	259	360	405	444	522	451	318	263	210	178	192
MAX	689	490	829	1193	917	914	806	712	1434	645	481	588
(WY)	1977	1973	1978	1979	1971	1978	1970	1953	1972	1969	1955	1975
MIN	55.8	67.5	84.4	124	178	202	170	116	72.8	57.5	41.9	54.8
(WY)	1964	1966	1966	1966	1969	1969	1966	1965	1965	1966	1966	1957

SUMMARY STATISTICS WATER YEARS 1951 - 1979

ANNUAL MEAN	314		
HIGHEST ANNUAL MEAN	491		
LOWEST ANNUAL MEAN	144		
HIGHEST DAILY MEAN	12000		
LOWEST DAILY MEAN	33		
ANNUAL SEVEN-DAY MINIMUM	35		
MAXIMUM PEAK FLOW	a17000		
MAXIMUM PEAK STAGE	b15.65		
INSTANTANEOUS LOW FLOW	23		
ANNUAL RUNOFF (CFSM)	1.49		
ANNUAL RUNOFF (INCHES)	20.23		
10 PERCENT EXCEEDS	613		
50 PERCENT EXCEEDS	211		
90 PERCENT EXCEEDS	86		

- a From rating curve extended above 3,600 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow.
- b From floodmark in gage shelter.



SCHUYLKILL RIVER BASIN

01471000 TULPEHOCKEN CREEK NEAR READING, 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 430-470.

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

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd, $\mu$ S/cm 25 degC (00095)	Temperature, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium, water, unfltrd recover -able, mg/L (00916)	Magnesium, water, unfltrd recover -able, mg/L (00927)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002 12...	1230	1028	9813	251	40	10.5	7.8	370	10.0	150	44.0	10.7	112
JAN 2003 16...	1250	1028	9813	299	40	15.4	7.9	388	2.2	170	49.7	12.0	--
MAR 20...	1250	1028	9813	674	40	11.4	7.4	326	4.6	140	40.2	10.1	97
MAY 06...	1320	1028	9813	251	40	10.0	8.1	329	12.6	150	41.5	10.9	108
JUL 09...	1310	1028	9813	290	40	9.4	8.0	338	20.3	170	48.3	11.7	118
SEP 04...	1310	1028	9813	219	40	7.8	7.6	427	20.6	190	51.4	14.5	139

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105 deg. C, suspended, mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water, unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recover -able, $\mu$ g/L (01105)	Copper, water, unfltrd recover -able, $\mu$ g/L (01042)	Iron, water, unfltrd recover -able, $\mu$ g/L (01045)
NOV 2002 12...	25.0	264	8	.070	4.41	.070	.02	.050	5.8	3.1	<200	<10	100
JAN 2003 16...	88.6	250	<2	.030	1.32	<.040	<.01	.054	1.5	1.9	<200	<10	120
MAR 20...	19.3	<2	<2	.290	5.37	.060	.11	.141	6.3	3.5	500	<10	440
MAY 06...	21.4	234	4	<.020	5.06	<.040	.02	.050	5.8	2.2	<200	<10	100
JUL 09...	20.3	242	12	<.020	5.62	.100	.03	.048	5.9	2.5	<200	10	90
SEP 04...	22.1	320	6	.100	4.79	.090	.05	.074	5.1	2.6	<200	<10	180

Date	Lead, water, unfltrd recover -able, $\mu$ g/L (01051)	Manganese, water, unfltrd recover -able, $\mu$ g/L (01055)	Nickel, water, unfltrd recover -able, $\mu$ g/L (01067)	Zinc, water, unfltrd recover -able, $\mu$ g/L (01092)
NOV 2002 12...	<1.0	40	<50	20
JAN 2003 16...	<1.0	30	<50	<10
MAR 20...	<1.0	50	<50	60
MAY 06...	<1.0	40	<50	100
JUL 09...	<1.0	40	<50	190
SEP 04...	<1.0	90	<50	<10

## SCHUYLKILL RIVER BASIN

## 01471000 TULPEHOCKEN CREEK NEAR READING, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES

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

Date	8/21/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	5
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancyliidae	
<u>Ferrissia</u> sp	1
Physidae	
<u>Physa</u> sp	2
Planorbidae	
<u>Planorbella</u> sp	1
Bivalvia (CLAMS)	
Veneroidea	
Corbiculidae	
<u>Corbicula fluminea</u>	2
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Tubificida	
Enchytraeidae	1
Naididae	1
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	4
Crustacea	
Amphipoda (SCUDS)	
Crangonyctidae	
<u>Crangonyx</u> sp	2
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	3
<u>Acentrella</u> sp	27
<u>Baetis</u> sp	16
Ephemerellidae	
<u>Serratella</u> sp	14
Heptageniidae	
<u>Stenonema</u> sp	2
Tricorythidae	
<u>Tricorythodes</u> sp	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	3
<u>Cheumatopsyche</u> sp	50
<u>Hydropsyche</u> sp	12
Hydroptilidae	
<u>Hydroptila</u> sp	9
<u>Leucotrichia</u> sp	4
Leptoceridae	
<u>Oecetis</u> sp	1
Polycentropodidae	1

## SCHUYLKILL RIVER BASIN

01471000 TULPEHOCKEN CREEK NEAR READING, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES--Continued

Date	8/21/02
Benthic Macroinvertebrate	Count
Lepidoptera (MOTHS AND BUTTERFLIES)	
Pyralidae	
<u>Petrophila</u> sp	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Stenelmis</u> sp	13
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	57
Empididae (DANCE FLIES)	
<u>Hemerodromia</u> sp	4
Simuliidae (BLACK FLIES)	
<u>Simulium</u> sp	1
Tipulidae (CRANE FLIES)	
<u>Antocha</u> sp	1
Total Organisms	239

## SCHUYLKILL RIVER BASIN

## 01471510 SCHUYLKILL RIVER AT READING, PA

**LOCATION.**--Lat 40°20'05", long 75°56'12", Berks County, Hydrologic Unit 02040203, on left bank 200 ft downstream from bridge on Penn Street at Reading, and 1.0 mi downstream from Tulpehocken Creek.

**DRAINAGE AREA.**--880 mi<sup>2</sup>.

**PERIOD OF RECORD.**--May 1914 to September 1915, October 1919 to September 1930, and July 1977 to current year. Prior to October 1914 monthly discharge only, published in WSP 1302. Diversion by Schuylkill Navigation Canal included during the navigation seasons of 1914-15.

**REVISED RECORD.**--WDR PA-78-1: 1977.

**GAGE.**--Water-stage recorder and crest-stage gage. Datum of gage is 185.50 ft above National Geodetic Vertical Datum of 1929 (Pennsylvania Railroad datum). May 7, 1914, to Sept. 30, 1930, and July 6, 1979, to Dec. 5, 1980, nonrecording gage. June 30, 1977, to July 5, 1979, water-stage recorder at site 1,500 ft downstream on right bank at same datum.

**REMARKS.**--Records fair except those for estimated daily discharges, which are poor. Flow regulated by Still Creek Reservoir (station 01469200) since February 1933, Blue Marsh Lake (station 01470870) since April 1979, and to some extent by Lake Ontelaunee. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of June 23, 1972, reached a stage of about 31.3 ft at site 1,500 ft downstream, from floodmarks, discharge, about 90,000 ft<sup>3</sup>/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	453	2150	1530	2510	e950	1510	3360	1400	6400	1930	1280	924
2	398	1880	1360	5990	e980	1780	3280	1360	6600	1780	1400	1320
3	362	1730	1130	6170	e1000	3430	2960	1360	5070	1660	1260	1440
4	420	1500	994	5280	1200	2690	2690	1280	6390	1500	1380	1640
5	404	1260	1030	4480	1670	2060	2650	1230	6230	1430	2900	1360
6	401	1580	1070	3770	1230	3210	2510	1190	5000	1360	3450	1100
7	378	1570	1030	3040	1120	3100	2370	1200	4810	1320	3160	969
8	429	1320	989	2700	1020	2440	2340	1300	6420	1500	2450	886
9	402	1250	971	2690	907	2820	2400	1230	5390	1300	2130	821
10	433	1200	873	2870	973	3430	2640	1170	4660	1290	2020	740
11	1500	1190	1230	2750	906	2820	3250	1130	3880	1270	2000	724
12	4340	e1600	4860	2510	824	2350	4480	1110	3880	1230	2970	711
13	2760	e2000	4850	2270	757	2380	4050	1070	6250	1120	2270	768
14	1880	1630	6220	2040	756	3740	3720	994	5020	1010	2620	1170
15	1570	1510	6670	e1850	743	3470	3570	955	3970	902	2070	2240
16	2980	1770	5440	e1600	664	3630	3300	953	3130	870	1830	4110
17	6300	e5000	4470	e1550	e750	4180	3050	1020	2470	863	1780	3610
18	4070	e5600	3650	e1400	e900	5020	2650	1000	2600	851	1580	2610
19	2970	e4500	2920	e1350	e1000	5120	2330	956	2500	1170	1440	2600
20	2530	3860	3290	e1200	1510	4910	2190	899	3670	992	1280	2370
21	1950	3110	3780	e1250	1460	10300	2090	959	14400	957	1160	2030
22	1310	2830	3220	e1100	1520	9060	1870	933	9700	6280	1120	1730
23	1090	2800	3030	e1000	4090	7140	1760	882	7680	5180	1080	9270
24	997	2430	2830	e900	4220	5410	1560	981	6710	6520	971	9070
25	1010	2170	3100	e800	3270	3810	1420	1150	5680	4370	904	5430
26	1740	1940	3090	e850	2480	3290	1600	2060	5070	2950	861	4330
27	1750	1940	2600	e800	1880	3290	1810	2680	4090	2460	893	3450
28	1480	1820	2330	e800	1620	2830	1540	2520	3150	2210	846	3360
29	1450	1680	2220	e750	---	2860	1500	2570	2880	1710	792	2940
30	e2100	1600	2070	e750	---	3470	1490	2220	2400	1470	903	2370
31	e2600	---	1930	e900	---	3590	---	1960	---	1330	983	---
TOTAL	52457	66420	84777	67920	40400	119140	76430	41722	156100	60785	51783	76093
MEAN	1692	2214	2735	2191	1443	3843	2548	1346	5203	1961	1670	2536
MAX	6300	5600	6670	6170	4220	10300	4480	2680	14400	6520	3450	9270
MIN	362	1190	873	750	664	1510	1420	882	2400	851	792	711

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

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MEAN	1054	1433	2000	1895	1893	2673	2401	1964	1462	953	728	828															
MAX	3390	2791	5763	5682	3358	6484	6472	5493	5203	2907	1670	2705															
(WY)	1980	1997	1997	1979	1984	1994	1983	1989	2003	1984	2003	1987															
MIN	322	352	278	265	609	824	606	724	415	330	257	273															
(WY)	1981	2002	1981	1981	2002	1985	1985	1999	1999	1999	2002	1983															

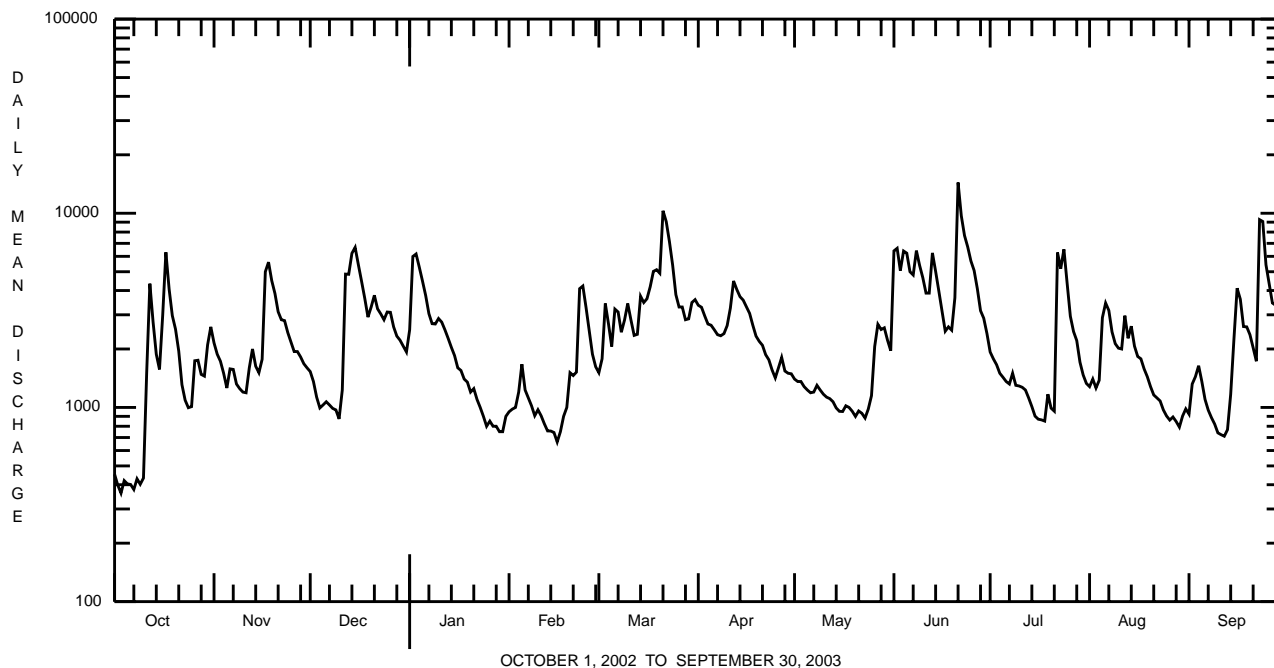
e Estimated.

SCHUYLKILL RIVER BASIN

01471510 SCHUYLKILL RIVER AT READING, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR			FOR 2003 WATER YEAR		WATER YEARS 1977 - 2003	
ANNUAL TOTAL	455883			894027			
ANNUAL MEAN	1249			2449		1608	
HIGHEST ANNUAL MEAN						2559	
LOWEST ANNUAL MEAN						803	
HIGHEST DAILY MEAN	6670	Dec 15		14400	Jun 21	24700	Jan 25 1979
LOWEST DAILY MEAN	226	Aug 22		362	Oct 3	180	Oct 1 1980
ANNUAL SEVEN-DAY MINIMUM	235	Aug 8		399	Oct 2	224	Dec 24 1980
MAXIMUM PEAK FLOW				17500		a37500	
MAXIMUM PEAK STAGE				11.56		b17.50	
10 PERCENT EXCEEDS	2870			5000		3310	
50 PERCENT EXCEEDS	873			1880		1080	
90 PERCENT EXCEEDS	269			890		398	

a From rating curve extended above 31,000 ft<sup>3</sup>/s, gage height 17.36 ft, at site 150 ft downstream.  
 b Discharge, 33,100 ft<sup>3</sup>/s, from rating curve extended above 31,000 ft<sup>3</sup>/s.



## SCHUYLKILL RIVER BASIN

## 01471875 MANATAWNY CREEK NEAR SPANGSVILLE, PA

**LOCATION.**--Lat 40°20'22", long 75°44'33", Berks County, Hydrologic Unit 02040203, on left bank 200 ft north of powerline across stream, 1.2 mi south of Spangsville, and 1.3 mi north of SR 562 and Earlville.

**DRAINAGE AREA.**--56.9 mi<sup>2</sup>.

**PERIOD OF RECORD.**--October 1993 to current year.

**GAGE.**--Water-stage recorder and crest-stage gage. Elevation of gage is 265 ft above National Geodetic Vertical Datum of 1929, from topographic map.

**REMARKS.**--Records good except those for estimated daily discharges and those greater than 1,560 ft<sup>3</sup>/s, 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 base discharge of 1,300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
June 21	0030	*2,990	*7.76	Sept. 15	2030	1,770	6.48
July 23	0315	1,800	6.52	Sept. 23	1145	2,500	7.29

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	73	59	278	67	93	148	88	253	108	67	63
2	19	62	53	309	70	190	154	87	121	103	68	147
3	19	53	51	192	70	e170	136	82	96	101	67	123
4	28	48	e44	220	101	120	128	80	431	96	86	97
5	29	46	e47	158	86	218	138	80	190	95	307	81
6	22	100	e45	145	66	276	122	82	136	95	298	67
7	20	63	e48	132	70	154	123	80	277	94	115	62
8	19	52	e50	133	e57	152	133	89	218	98	93	59
9	19	50	46	146	e53	267	195	83	152	86	90	57
10	22	48	51	139	e56	177	185	83	127	95	299	56
11	308	50	195	113	e54	127	275	80	116	93	139	54
12	171	101	414	99	e52	126	202	77	114	81	146	53
13	57	127	200	e90	e45	183	155	72	187	75	102	83
14	41	66	518	e83	e45	197	141	70	203	72	102	134
15	34	55	214	e78	e43	165	134	68	124	71	82	796
16	231	112	150	e75	e41	188	129	68	107	70	87	271
17	142	430	118	e72	e46	212	123	82	99	67	86	128
18	59	324	101	e68	e50	177	126	74	130	66	74	106
19	46	122	98	e68	e55	146	123	69	123	81	69	311
20	43	94	290	e70	e58	260	113	64	674	65	66	135
21	37	86	167	e66	e60	554	109	84	1120	79	65	110
22	34	111	120	e64	e300	216	123	73	373	287	69	101
23	32	97	108	e60	581	175	109	70	250	573	82	1040
24	31	74	98	e55	260	157	101	89	193	133	63	219
25	33	67	193	e58	158	145	97	88	168	95	60	158
26	143	62	175	e60	119	149	137	258	151	81	60	206
27	63	75	127	e55	104	171	122	124	138	75	61	148
28	46	69	113	e51	98	135	100	94	126	72	60	358
29	45	61	110	e55	---	180	96	83	120	69	57	162
30	129	60	105	e57	---	231	92	75	115	64	61	133
31	147	---	123	e60	---	181	---	78	---	63	63	---
TOTAL	2089	2838	4231	3309	2865	5892	4069	2674	6632	3303	3144	5518
MEAN	67.4	94.6	136	107	102	190	136	86.3	221	107	101	184
MAX	308	430	518	309	581	554	275	258	1120	573	307	1040
MIN	19	46	44	51	41	93	92	64	96	63	57	53
CFSM	1.18	1.66	2.40	1.88	1.80	3.34	2.38	1.52	3.89	1.87	1.78	3.23
IN.	1.37	1.86	2.77	2.16	1.87	3.85	2.66	1.75	4.34	2.16	2.06	3.61

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1994 - 2003, BY WATER YEAR (WY)

MEAN	58.5	70.0	101	102	97.5	158	125	97.1	86.3	55.6	42.2	54.1
MAX	139	154	326	201	141	353	201	162	221	107	101	184
(WY)	1997	1997	1997	1996	1996	1994	1996	2002	2003	2003	2003	2003
MIN	27.4	28.4	21.1	42.0	35.8	54.6	69.4	50.8	26.3	14.6	13.6	18.9
(WY)	1998	2002	1999	2002	2002	2002	2002	1999	1999	1999	1999	1995

e Estimated.

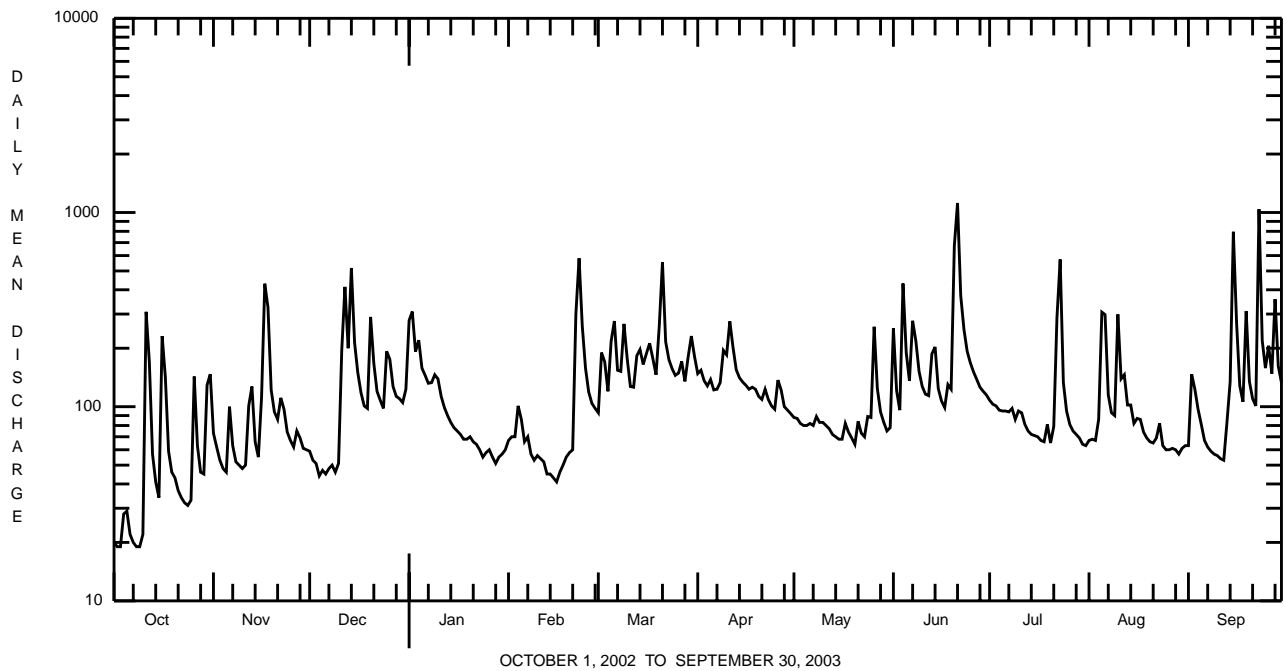


SCHUYLKILL RIVER BASIN

01471875 MANATAWNY CREEK NEAR SPANGSVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1994 - 2003	
ANNUAL TOTAL	24550		46564			
ANNUAL MEAN	67.3		128		87.2	
HIGHEST ANNUAL MEAN					128	2003
LOWEST ANNUAL MEAN					49.6	2002
HIGHEST DAILY MEAN	837	May 13	1120	Jun 21	1620	Oct 19 1996
LOWEST DAILY MEAN	13	Aug 13-15	19	Oct 2,3,8,9	8.8	Aug 3 1999
ANNUAL SEVEN-DAY MINIMUM	14	Aug 9	22	Oct 2	9.5	Aug 1 1999
MAXIMUM PEAK FLOW			a2990	Jun 21	a3380	Oct 19 1996
MAXIMUM PEAK STAGE			7.76	Jun 21	8.11	Oct 19 1996
INSTANTANEOUS LOW FLOW			18	Oct 2,3,8,9	7.5	Jan 17 2000
ANNUAL RUNOFF (CFSM)	1.18		2.24		1.53	
ANNUAL RUNOFF (INCHES)	16.05		30.44		20.83	
10 PERCENT EXCEEDS	128		224		167	
50 PERCENT EXCEEDS	43		96		57	
90 PERCENT EXCEEDS	18		50		24	

a From rating curve extended above 1,560 ft<sup>3</sup>/s.



SCHUYLKILL RIVER BASIN

01471980 MANATAWNY CREEK NEAR POTTSTOWN, PA

LOCATION.--Lat 40°16'22", long 75°40'49", Berks County, Hydrologic Unit 02040203, on left bank 180 ft upstream from bridge on Manatawny Street, 0.7 mi downstream from Ironstone Creek, 2.4 mi northwest of Pottstown, 3.1 mi upstream from mouth, and 4.7 mi southwest of Boyertown.

DRAINAGE AREA.--85.5 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1974 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 150.00 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

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 June 22, 1972 reached a stage of 17.1 ft from floodmarks, discharge, about 9,600 ft<sup>3</sup>/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,800 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
June 20	2030	*5,120	*9.55	Sept. 23	1515	2,860	7.14
Sept. 15	0845	2,770	7.03				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	129	85	344	e95	112	197	98	301	145	71	64
2	24	103	78	467	e100	294	199	97	162	134	76	260
3	25	82	74	304	e105	355	172	91	113	129	75	181
4	52	73	e66	355	151	179	157	86	705	122	102	158
5	41	68	e72	249	113	333	171	86	363	135	254	114
6	32	143	e68	222	102	486	149	88	215	139	441	86
7	26	101	e75	200	84	251	157	85	356	109	150	75
8	24	76	e70	193	e80	233	176	92	380	122	113	69
9	23	70	e74	208	e78	417	267	88	231	102	99	65
10	27	66	e70	199	e82	298	272	87	184	104	426	61
11	422	70	e300	156	e80	194	400	83	156	132	163	59
12	316	125	640	133	e75	186	331	80	152	104	203	56
13	103	222	334	131	e65	231	227	74	262	86	123	96
14	68	112	747	123	e65	299	196	72	319	73	124	190
15	54	88	349	114	e60	223	187	69	178	62	97	1520
16	257	149	235	e110	e62	256	171	69	145	53	94	603
17	275	609	176	e100	e68	299	159	82	129	43	106	232
18	103	476	143	e98	e74	251	160	75	193	50	85	171
19	75	214	133	e96	e80	199	157	70	177	137	78	607
20	66	156	326	e100	e85	319	140	64	1290	75	72	232
21	56	135	257	e95	e90	782	134	86	1920	79	70	174
22	51	168	170	e90	e400	328	147	77	628	394	71	149
23	47	154	146	e85	935	246	132	71	424	662	98	1310
24	44	113	128	e80	429	210	119	91	309	149	68	391
25	45	100	293	e82	233	192	113	103	256	120	64	257
26	194	92	288	e86	169	187	163	344	222	97	62	292
27	107	116	195	e80	136	226	151	176	197	88	71	223
28	71	106	165	e75	124	173	116	118	184	82	65	507
29	71	92	154	e80	---	205	108	98	167	78	59	266
30	199	88	147	e85	---	316	104	83	156	71	65	203
31	244	---	163	e90	---	261	---	83	---	69	68	---
TOTAL	3171	4296	6221	4830	4220	8541	5332	2966	10474	3945	3713	8671
MEAN	102	143	201	156	151	276	178	95.7	349	127	120	289
MAX	422	609	747	467	935	782	400	344	1920	662	441	1520
MIN	23	66	66	75	60	112	104	64	113	43	59	56
CFSM	1.20	1.67	2.35	1.82	1.76	3.22	2.08	1.12	4.08	1.49	1.40	3.38
IN.	1.38	1.87	2.71	2.10	1.84	3.72	2.32	1.29	4.56	1.72	1.62	3.77

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 2003, BY WATER YEAR (WY)

MEAN	80.7	107	147	165	170	207	191	154	112	85.1	60.7	77.1
MAX	245	231	511	499	356	470	450	390	349	312	138	289
(WY)	1997	1997	1997	1979	1984	1994	1993	1989	2003	1984	1990	2003
MIN	30.8	32.6	32.2	28.0	46.9	69.6	53.6	67.4	36.1	18.2	21.6	27.1
(WY)	2002	2002	1999	1981	2002	1981	1985	1987	1999	1999	1981	1983

e Estimated.

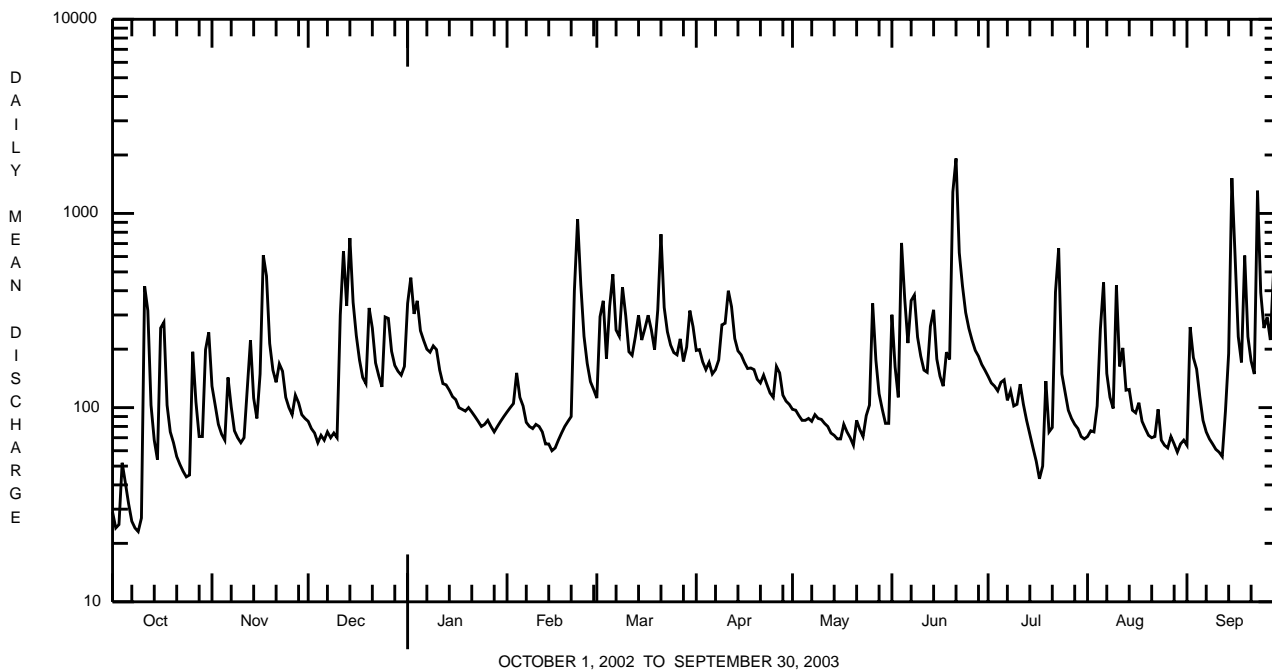
SCHUYLKILL RIVER BASIN

01471980 MANATAWNY CREEK NEAR POTTSTOWN, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1974 - 2003	
ANNUAL TOTAL	34265		66380			
ANNUAL MEAN	93.9		182		129	
HIGHEST ANNUAL MEAN					230	1984
LOWEST ANNUAL MEAN					63.4	1981
HIGHEST DAILY MEAN	1580	May 14	1920	Jun 21	3010	Jul 7 1984
LOWEST DAILY MEAN	16	Aug 14	23	Oct 9	11	Aug 3 1999
ANNUAL SEVEN-DAY MINIMUM	16	Aug 14-16 <sup>a</sup>	32	Oct 3	12	Aug 1 1999
MAXIMUM PEAK FLOW			<sup>b</sup> 5120	Jun 20	<sup>b</sup> 7550	Sep 9 1987
MAXIMUM PEAK STAGE			9.55	Jun 20	11.46	Sep 9 1987
INSTANTANEOUS LOW FLOW			21	Oct 10	9.1	Aug 3 1999
ANNUAL RUNOFF (CFSM)	1.10		2.13		1.51	
ANNUAL RUNOFF (INCHES)	14.91		28.88		20.54	
10 PERCENT EXCEEDS	183		338		242	
50 PERCENT EXCEEDS	57		124		83	
90 PERCENT EXCEEDS	23		66		34	

<sup>a</sup> Also Aug. 18, 19.

<sup>b</sup> From rating curve extended above 2,780 ft<sup>3</sup>/s.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

## SCHUYLKILL RIVER BASIN

01472000 SCHUYLKILL RIVER AT POTTSTOWN, PA  
(Pennsylvania Water-Quality Network Station)

**LOCATION.**--Lat 40°14'30", long 75°39'07", Montgomery County, Hydrologic Unit 02040203, on right bank 75 ft upstream from bridge on Hanover Street in Pottstown, and 0.3 mi downstream from Manatawny Creek.

**DRAINAGE AREA.**--1,147 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--October 1927 to current year.

**GAGE.**--Water-stage recorder and crest-stage gage. Datum of gage is 117.86 ft above National Geodetic Vertical Datum of 1929. October 1927 to Nov. 22, 1928, nonrecording gage, and Nov. 23, 1928, to Dec. 26, 1972, recording gage at site 100 ft downstream at same datum. Dec. 27, 1972, to May 10, 1974, nonrecording gage 1.0 mi downstream at datum 2.83 ft lower.

**REMARKS.**--Records good except those for estimated daily discharges, which are fair. Flow regulated by Blue Marsh Lake (station 01470870) since April 1979, by Still Creek Reservoir (station 01469200) since February 1933, and by Lake Ontelaunee. Satellite and landline telemetry at station.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Maximum stage known prior to October 1926, 21.0 ft, Feb. 28, 1902, from floodmarks, discharge, about 53,900 ft<sup>3</sup>/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	667	2650	1690	3230	e1200	1900	3850	1710	5970	2420	1480	1090
2	576	2190	1570	6700	e1300	2430	3760	1630	7920	2250	1550	2540
3	520	1970	1290	7600	e1200	4180	3450	1630	5820	2120	1530	1930
4	663	1770	1130	7030	e1100	3660	3070	1560	9000	1940	1560	2240
5	616	1390	1140	5580	e1500	2980	2990	1500	8020	1830	2930	1870
6	552	1710	1190	4860	e1400	4340	2900	1440	6240	1790	4210	1450
7	488	1870	1160	3900	e1200	4310	2670	1430	5670	1670	3850	1270
8	524	1470	1100	3360	e1100	3250	2740	1530	7830	1820	2840	1170
9	521	1340	1080	3320	e1000	3920	3010	1540	6420	1690	2430	1090
10	535	1270	983	3390	e950	4380	3250	1420	5560	1620	3200	989
11	2700	1250	1960	3280	e920	3590	4040	1370	4670	1640	2340	930
12	5630	1590	5950	2960	e900	3020	5260	1330	4310	1570	3140	904
13	3890	2230	6150	2700	e850	2840	4770	1270	6240	1440	2720	1150
14	2430	2010	8020	2400	e750	4280	4170	1200	6430	1340	2740	1600
15	1780	1630	8080	e2200	e700	4190	4040	1150	4690	1200	2430	6100
16	3300	2000	6580	e1900	e650	4300	3710	1130	3820	1150	2130	5370
17	7600	5140	5360	e1800	e600	4910	3430	1210	2950	1120	2070	4400
18	5240	6380	4440	e1700	e650	5530	3120	1210	2910	1070	1850	3360
19	3560	5670	3530	e1600	e800	5740	2640	1150	3190	1340	1690	4350
20	2920	4580	3790	e1400	e1100	5680	2470	1080	7170	1320	1510	3110
21	2440	3660	4750	e1500	e1700	11600	2340	1190	19700	1180	1370	2480
22	1540	3290	3840	e1300	e2500	10900	2320	1140	13200	5900	1310	2140
23	1230	3200	3490	e1200	e6100	8390	2230	1070	9610	7610	1370	10000
24	1100	2750	3290	e1000	5710	6680	2050	1170	8170	6650	1190	12100
25	1070	2450	4050	e900	4230	4510	1810	1410	6840	5420	1110	6590
26	1910	2120	4220	e1000	3260	3820	2010	2590	5990	3400	1050	5230
27	2200	2150	3340	e1000	2420	3950	2290	3220	5200	2770	1090	4090
28	1660	2080	2850	e970	2050	3300	1970	2870	3830	2480	1080	4270
29	1570	1860	2680	e900	---	3340	1840	2820	3470	2030	997	3770
30	2270	1770	2550	e960	---	3970	1840	2570	3110	1700	1010	2900
31	3040	---	2390	e1100	---	4290	---	2180	---	1550	1210	---
TOTAL	64742	75440	103643	82740	47840	144180	90040	49720	193950	73030	60987	100483
MEAN	2088	2515	3343	2669	1709	4651	3001	1604	6465	2356	1967	3349
MAX	7600	6380	8080	7600	6100	11600	5260	3220	19700	7610	4210	12100
MIN	488	1250	983	900	600	1900	1810	1070	2910	1070	997	904

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 2003, BY WATER YEAR (WY)

MEAN	1141	1656	2170	2184	2420	3193	2913	2265	1621	1247	1033	1087
MAX (WY)	3870	3897	7359	7383	5117	8948	7820	7220	7634	3940	5290	3732
MIN (WY)	1977	1951	1997	1979	1971	1936	1983	1989	1972	1984	1933	1987
MIN (WY)	258	309	419	316	540	1101	875	729	462	302	301	256
(WY)	1931	1931	1931	1981	1934	1981	1985	1965	1965	1966	1966	1932

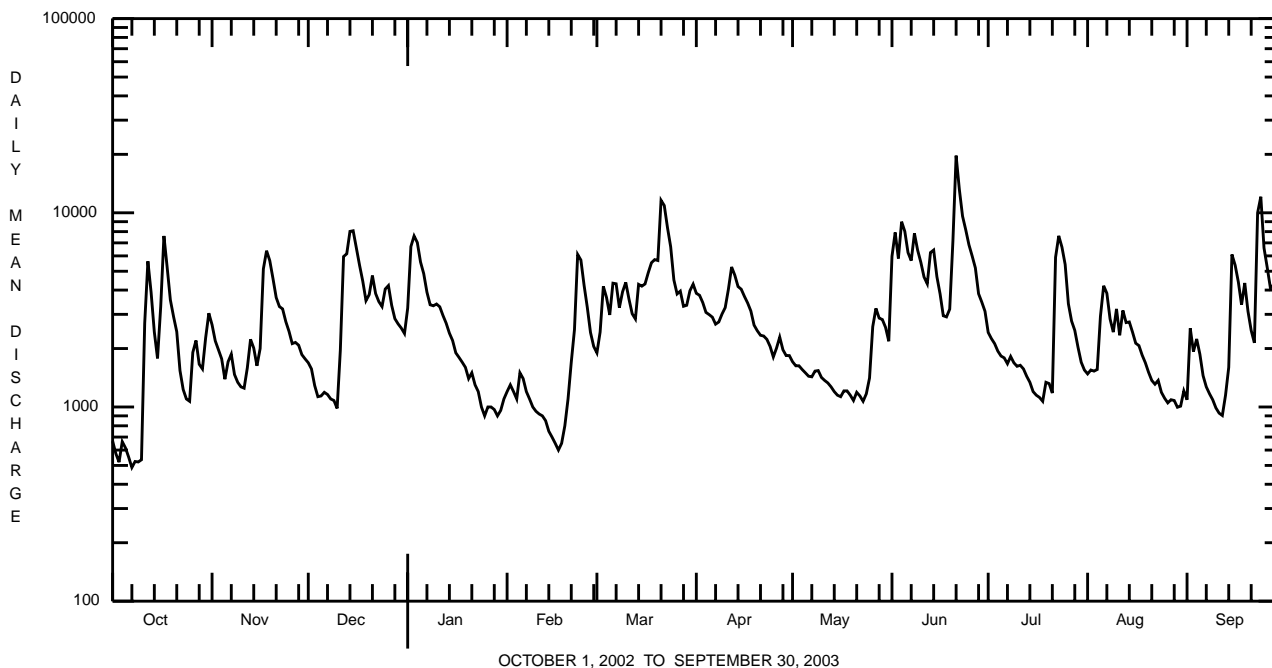
e Estimated.

SCHUYLKILL RIVER BASIN

01472000 SCHUYLKILL RIVER AT POTTSTOWN, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR			FOR 2003 WATER YEAR		WATER YEARS 1928 - 2003	
ANNUAL TOTAL	555853			1086795			
ANNUAL MEAN	1523			2978		1908	
HIGHEST ANNUAL MEAN						3211	
LOWEST ANNUAL MEAN						843	
HIGHEST DAILY MEAN	8080	Dec 15		19700	Jun 21	71200	Jun 23 1972
LOWEST DAILY MEAN	254	Aug 14		488	Oct 7	175	Sep 19 1932
ANNUAL SEVEN-DAY MINIMUM	268	Aug 9		555	Oct 3	210	Sep 19 1932
MAXIMUM PEAK FLOW				23400	Jun 20	<b>a</b> 95900	Jun 23 1972
MAXIMUM PEAK STAGE				13.04	Jun 20	<b>b</b> 29.97	Jun 23 1972
10 PERCENT EXCEEDS	3330			5960		3850	
50 PERCENT EXCEEDS	1070			2320		1300	
90 PERCENT EXCEEDS	347			1070		474	

**a** From rating curve extended above 50,400 ft<sup>3</sup>/s.  
**b** From floodmark.



SCHUYLKILL RIVER BASIN

01472000 SCHUYLKILL RIVER AT POTTSTOWN, 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 430-470.

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

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd 25 degC µS/cm (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water, unfltrd recover -able, mg/L (00916)	Magnesium, water, unfltrd recover -able, mg/L (00927)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002 26...	0910	1028	9813	2140	40	11.9	7.7	298	6.9	120	28.8	10.5	62
JAN 2003 15...	0830	1028	9813	E2200	40	14.0	7.6	355	1.3	140	34.1	12.0	65
MAR 31...	0830	1028	9813	4410	40	11.3	7.6	274	7.8	100	25.3	10.0	52
MAY 12...	0910	1028	9813	1330	40	7.7	7.4	383	16.6	160	37.1	15.1	80
JUL 01...	0850	1028	9813	2460	40	8.3	7.6	335	19.8	140	32.6	13.2	71
SEP 09...	0820	1028	9813	1080	40	8.0	7.6	399	20.4	160	38.7	14.7	89

Date	Fluoride, water, unfltrd mg/L (00951)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water, unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recover -able, mg/L (01105)	Copper, water, unfltrd recover -able, mg/L (01042)
NOV 2002 26...	<.2	40.8	226	12	.120	3.65	.060	.04	.078	4.6	2.2	400	<10
JAN 2003 15...	<.2	46.3	278	6	.240	4.42	<.200	.04	.069	4.7	1.7	<200	<10
MAR 31...	<.2	42.3	168	22	.120	2.11	<.040	.04	.077	2.5	2.5	500	<10
MAY 12...	<.2	57.7	72	18	.050	2.83	.130	.08	.136	3.5	2.7	200	<10
JUL 01...	<.2	51.5	254	8	.100	2.99	.070	.04	.070	3.3	2.0	300	10
SEP 09...	<.2	59.8	318	4	.020	2.75	.040	.11	.132	2.7	2.8	<200	10

Date	Cyanide amenable to chlorination wat unfltrd mg/L (00722)	Iron, water, unfltrd recover -able, µg/L (01045)	Lead, water, unfltrd recover -able, µg/L (01051)	Manganese, water, unfltrd recover -able, µg/L (01055)	Nickel, water, unfltrd recover -able, µg/L (01067)	Zinc, water, unfltrd recover -able, µg/L (01092)	Phenolic compounds, water, unfltrd µg/L (32730)
NOV 2002 26...	1.14	530	2.2	120	<50	20	<5
JAN 2003 15...	<1.00	210	<1.0	190	<50	<10	<5
MAR 31...	<1.00	1030	4.4	340	<50	50	<5
MAY 12...	<1.00	390	1.2	160	<50	30	<5
JUL 01...	<1.00	380	1.9	100	<50	110	<5
SEP 09...	<1.00	250	1.2	80	<50	260	<5

## SCHUYLKILL RIVER BASIN

## 01472000 SCHUYLKILL RIVER AT POTTSTOWN, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES

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

Date	9/3/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	1
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Physidae	
<u>Physa</u> sp	1
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Acentrella</u> sp	16
<u>Baetis</u> sp	7
Heptageniidae	4
<u>Stenonema</u> sp	11
Isonychiidae	
<u>Isonychia</u> sp	1
Tricorythidae	
<u>Tricorythodes</u> sp	11
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Coenagrionidae	
<u>Argia</u> sp	1
Plecoptera (STONEFLIES)	
Perlidae	
<u>Agnatina</u> sp	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	
<u>Cheumatopsyche</u> sp	27
<u>Hydropsyche</u> sp	12
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Optioservus</u> sp	4
<u>Stenelmis</u> sp	56
Psephenidae (WATER PENNIES)	
<u>Psephenus</u> sp	1
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	9
Total Organisms	163

## SCHUYLKILL RIVER BASIN

## 01472104 SCHUYLKILL RIVER AT VINCENT DAM AT LINFIELD, PA

**LOCATION**--Lat 40°12'22", long 75°33'57", Montgomery County, Hydrologic Unit 02040203, on left bank 100 ft upstream from Vincent Dam, and 0.3 mi south of Linfield.

**DRAINAGE AREA**--1,189 mi<sup>2</sup>.

**PERIOD OF RECORD**--Water years 1986 to current year.

**PERIOD OF DAILY RECORD**--

SPECIFIC CONDUCTANCE: January 1986 to September 1990.

WATER TEMPERATURE: September 1989 to current year.

DISSOLVED OXYGEN: January 1986 to September 1990; March 1997 to current year.

**INSTRUMENTATION**--Water-quality monitor January 1986 to September 1990, March 1997 to current year. In situ water temperature probe since October 1990. Probes interfaced with a data collection platform.

**REMARKS**--Water temperature records rated good except for period Dec. 23 to Feb. 1, which is poor. Dissolved oxygen records rated poor except for periods Apr. 16 to May 19 and June 25 to July 22, which are good. Dissolved oxygen collection discontinued October through March. Other interruptions in the record were due to pump intake sedimentation and instrument malfunctions.

**EXTREMES FOR PERIOD OF DAILY RECORD**--

SPECIFIC CONDUCTANCE: Maximum, 752 microsiemens, Sept. 15, 1989; minimum, 118 microsiemens, Sept. 15, 1987.

WATER TEMPERATURE: Maximum, 33.5°C, July 6, 1999; minimum, 0.0°C, many days during winters.

DISSOLVED OXYGEN: Maximum, 19.6 mg/L, Mar. 24, 1988; minimum, 0.8 mg/L, July 26, 1986.

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	22.0	18.0	20.0	---	---	---	---	---	---	5.5	5.0	5.5
2	23.5	19.5	21.5	---	---	---	---	---	---	5.5	5.0	5.0
3	24.0	21.0	22.5	---	---	---	---	---	---	5.0	4.5	4.5
4	23.0	21.0	21.5	---	---	---	---	---	---	4.5	4.0	4.0
5	24.0	21.0	22.0	---	---	---	---	---	---	4.5	4.0	4.0
6	22.0	19.5	20.5	---	---	---	---	---	---	4.5	4.0	4.0
7	22.0	19.5	20.5	---	---	---	---	---	---	4.0	3.5	4.0
8	---	---	---	---	---	---	---	---	---	4.5	3.5	4.0
9	---	---	---	---	---	---	---	---	---	5.0	4.0	4.5
10	---	---	---	---	---	---	---	---	---	5.0	4.5	5.0
11	---	---	---	---	---	---	---	---	---	4.5	3.0	3.5
12	---	---	---	---	---	---	---	---	---	3.0	2.0	2.5
13	---	---	---	---	---	---	---	---	---	2.5	1.5	2.0
14	---	---	---	---	---	---	---	---	---	2.0	1.5	2.0
15	---	---	---	---	---	---	---	---	---	2.0	1.5	1.5
16	---	---	---	---	---	---	---	---	---	1.5	0.5	1.0
17	---	---	---	---	---	---	---	---	---	1.5	1.0	1.0
18	---	---	---	---	---	---	---	---	---	1.0	0.5	0.5
19	---	---	---	---	---	---	---	---	---	1.0	0.5	0.5
20	---	---	---	---	---	---	---	---	---	1.0	0.5	0.5
21	---	---	---	---	---	---	---	---	---	1.0	0.5	0.5
22	---	---	---	---	---	---	---	---	---	1.0	0.5	0.5
23	---	---	---	---	---	---	---	---	---	1.5	0.5	0.5
24	---	---	---	---	---	---	5.0	4.5	4.5	0.5	0.5	0.5
25	---	---	---	---	---	---	4.5	3.0	4.0	0.5	0.5	0.5
26	---	---	---	---	---	---	3.5	2.5	3.0	1.5	0.5	1.0
27	---	---	---	---	---	---	3.5	3.0	3.5	1.0	1.0	1.0
28	---	---	---	---	---	---	4.0	3.0	3.5	1.0	0.5	1.0
29	---	---	---	---	---	---	4.0	3.5	4.0	1.5	1.0	1.5
30	---	---	---	---	---	---	4.5	3.5	4.0	2.5	1.5	1.5
31	---	---	---	---	---	---	5.0	4.5	5.0	4.5	2.5	3.5
MONTH	24.0	18.0	21.2	---	---	---	5.0	2.5	3.9	5.5	0.5	2.3



## SCHUYLKILL RIVER BASIN

## 01472104 SCHUYLKILL RIVER AT VINCENT DAM AT LINFIELD, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	<b>FEBRUARY</b>			<b>MARCH</b>			<b>APRIL</b>			<b>MAY</b>		
1	5.0	4.5	5.0	---	---	---	---	---	---	18.5	16.0	17.0
2	---	---	---	---	---	---	---	---	---	19.5	17.5	18.5
3	---	---	---	---	---	---	---	---	---	18.5	17.0	18.0
4	---	---	---	---	---	---	---	---	---	18.0	16.5	17.0
5	---	---	---	---	---	---	---	---	---	17.0	13.5	15.0
6	---	---	---	---	---	---	---	---	---	14.0	13.0	13.5
7	---	---	---	---	---	---	---	---	---	17.5	13.5	15.5
8	---	---	---	---	---	---	---	---	---	17.5	17.0	17.0
9	---	---	---	---	---	---	---	---	---	17.0	16.0	16.5
10	---	---	---	---	---	---	---	---	---	16.5	15.5	16.0
11	---	---	---	---	---	---	---	---	---	17.5	16.0	16.5
12	---	---	---	---	---	---	---	---	---	17.5	16.5	17.0
13	---	---	---	---	---	---	---	---	---	16.5	15.0	15.5
14	---	---	---	---	---	---	---	---	---	15.5	14.0	15.0
15	---	---	---	---	---	---	---	---	---	15.5	14.0	14.5
16	---	---	---	---	---	---	---	---	---	14.5	13.5	14.5
17	---	---	---	---	---	---	14.5	11.5	13.5	14.0	13.0	13.5
18	---	---	---	---	---	---	11.5	10.0	10.5	14.0	13.0	13.5
19	---	---	---	---	---	---	12.0	9.5	10.5	17.0	12.5	15.0
20	---	---	---	---	---	---	13.5	11.0	12.0	19.0	15.0	17.0
21	---	---	---	---	---	---	13.5	12.0	13.0	18.0	16.5	17.0
22	---	---	---	---	---	---	13.5	12.5	13.0	16.5	15.5	15.5
23	---	---	---	---	---	---	13.0	11.5	12.0	15.5	14.5	15.0
24	---	---	---	---	---	---	13.0	10.5	12.0	15.0	14.5	14.5
25	---	---	---	---	---	---	13.5	11.5	12.5	15.5	14.5	15.0
26	---	---	---	---	---	---	13.5	13.5	13.5	15.0	14.5	14.5
27	---	---	---	---	---	---	15.5	13.0	14.0	15.5	14.0	14.5
28	---	---	---	11.5	10.0	10.5	17.0	14.0	15.5	16.0	14.5	15.0
29	---	---	---	14.0	10.5	11.5	16.5	15.5	16.0	17.5	14.5	16.0
30	---	---	---	14.5	8.5	11.5	17.5	15.0	16.0	19.0	16.0	17.5
31	---	---	---	---	---	---	---	---	---	18.5	17.0	17.5
MONTH	5.0	4.5	5.0	14.5	8.5	11.2	17.5	9.5	13.1	19.5	12.5	15.7
	<b>JUNE</b>			<b>JULY</b>			<b>AUGUST</b>			<b>SEPTEMBER</b>		
1	17.5	15.0	16.0	22.5	20.0	21.5	23.5	23.0	23.0	23.0	21.5	22.0
2	15.0	14.0	14.5	23.0	21.0	22.0	25.0	22.5	23.5	21.5	20.0	20.5
3	14.5	14.0	14.5	22.5	21.5	22.0	25.0	24.0	24.5	20.0	19.5	19.5
4	14.0	13.0	13.5	24.5	21.5	23.0	26.0	24.0	25.0	20.0	19.5	20.0
5	15.0	13.5	14.0	25.5	23.0	24.5	25.0	23.0	24.0	21.5	19.5	20.5
6	16.0	14.5	15.0	26.0	23.5	25.0	23.0	21.5	22.0	21.5	19.0	20.5
7	15.5	15.0	15.0	26.0	24.0	25.0	22.5	22.0	22.5	22.5	19.5	21.0
8	15.0	14.5	14.5	26.0	24.0	25.0	24.0	21.5	22.5	22.0	20.0	21.0
9	16.0	14.5	15.0	25.0	24.0	24.5	23.5	22.5	23.0	23.0	20.5	21.5
10	17.0	15.5	16.0	24.0	21.5	22.5	24.0	22.0	23.0	22.0	19.5	21.0
11	18.0	16.5	17.0	23.0	21.0	22.0	24.0	23.0	23.5	23.0	20.0	21.0
12	18.5	17.0	18.0	24.0	21.5	22.5	24.0	23.0	23.5	21.5	20.0	21.0
13	18.5	18.0	18.5	25.0	22.0	23.5	24.5	22.5	23.5	20.5	19.5	20.0
14	19.5	18.0	18.5	24.0	22.0	23.0	25.5	23.0	24.0	22.0	20.0	21.0
15	19.5	18.5	19.0	25.5	22.5	24.0	25.5	23.0	24.5	22.0	20.5	21.0
16	19.5	18.5	19.0	26.0	23.5	24.5	25.0	23.0	23.5	21.0	20.0	20.5
17	19.5	17.5	18.5	26.0	23.0	24.5	24.0	22.0	23.0	21.0	19.5	20.5
18	19.0	18.0	18.5	25.0	23.0	24.0	24.0	22.5	23.5	20.5	19.5	20.0
19	19.0	18.0	18.5	25.0	22.5	23.5	24.5	22.5	23.5	20.0	19.5	19.5
20	19.0	17.0	18.5	25.0	22.0	23.5	25.0	22.5	24.0	20.5	19.5	20.0
21	17.0	15.5	16.5	26.0	23.0	24.5	26.5	23.5	25.0	20.0	19.0	19.5
22	15.5	15.5	15.5	25.0	23.0	23.5	27.0	24.5	25.5	20.0	19.0	19.5
23	17.0	15.0	16.0	23.0	22.0	22.5	26.0	24.0	25.0	20.0	19.0	20.0
24	18.0	16.5	17.5	22.5	21.0	22.0	24.5	22.5	23.5	19.0	18.0	18.5
25	19.5	17.5	18.5	22.0	20.5	21.5	25.0	22.0	23.0	18.0	17.5	17.5
26	20.5	18.5	19.5	23.5	21.0	22.5	25.0	23.0	24.0	18.0	17.5	18.0
27	21.0	19.5	20.0	24.5	22.5	23.5	24.5	23.0	24.0	18.5	17.5	18.0
28	21.5	20.0	20.5	24.5	23.0	24.0	25.5	23.0	24.0	18.5	18.0	18.5
29	21.5	20.0	21.0	24.5	22.0	23.5	25.0	23.0	24.0	18.0	17.0	17.5
30	22.0	20.5	21.0	24.5	22.5	24.0	25.5	23.5	24.0	17.0	15.5	16.5
31	---	---	---	24.5	23.0	24.0	24.0	22.0	23.0	---	---	---
MONTH	22.0	13.0	17.3	26.0	20.0	23.4	27.0	21.5	23.7	23.0	15.5	19.9

SCHUYLKILL RIVER BASIN

01472104 SCHUYLKILL RIVER AT VINCENT DAM AT LINFIELD, PA--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	10.4	8.8	9.7
2	---	---	---	---	---	---	---	---	---	9.9	8.5	9.2
3	---	---	---	---	---	---	---	---	---	10.2	8.5	9.3
4	---	---	---	---	---	---	---	---	---	10.5	8.8	9.6
5	---	---	---	---	---	---	---	---	---	10.3	9.0	9.7
6	---	---	---	---	---	---	---	---	---	10.8	9.4	9.9
7	---	---	---	---	---	---	---	---	---	10.6	9.6	10.1
8	---	---	---	---	---	---	---	---	---	9.7	8.5	8.9
9	---	---	---	---	---	---	---	---	---	8.9	8.2	8.6
10	---	---	---	---	---	---	---	---	---	9.4	8.7	8.9
11	---	---	---	---	---	---	---	---	---	9.1	8.7	8.9
12	---	---	---	---	---	---	---	---	---	9.1	8.6	8.8
13	---	---	---	---	---	---	---	---	---	9.6	8.8	9.2
14	---	---	---	---	---	---	---	---	---	10.0	9.1	9.5
15	---	---	---	---	---	---	---	---	---	10.4	9.2	9.8
16	---	---	---	---	---	---	---	---	---	9.9	9.1	9.5
17	---	---	---	---	---	---	10.7	9.6	10.1	10.4	9.0	9.6
18	---	---	---	---	---	---	11.2	10.5	10.8	10.6	9.2	9.9
19	---	---	---	---	---	---	11.4	10.8	11.1	11.0	9.6	10.3
20	---	---	---	---	---	---	11.2	10.6	10.9	10.8	9.1	9.8
21	---	---	---	---	---	---	10.8	10.1	10.4	9.2	8.2	8.6
22	---	---	---	---	---	---	10.3	9.7	10.0	8.7	7.9	8.3
23	---	---	---	---	---	---	11.1	9.7	10.4	9.0	8.4	8.7
24	---	---	---	---	---	---	11.5	10.3	10.9	8.7	8.3	8.5
25	---	---	---	---	---	---	11.4	10.1	10.8	8.5	8.1	8.3
26	---	---	---	---	---	---	10.5	9.4	9.8	8.4	8.1	8.3
27	---	---	---	---	---	---	10.7	9.3	9.9	---	---	---
28	---	---	---	11.0	10.6	10.8	10.7	9.5	10.1	---	---	---
29	---	---	---	10.8	10.2	10.5	10.2	9.1	9.7	---	---	---
30	---	---	---	11.8	10.1	10.9	10.9	9.1	9.9	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	11.8	10.1	10.7	11.5	9.1	10.3	11.0	7.9	9.2

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	7.5	7.2	7.4	7.1	6.6	6.8	---	---	---
2	---	---	---	7.7	7.0	7.3	7.5	6.8	7.1	---	---	---
3	---	---	---	7.7	6.9	7.3	7.4	6.7	7.0	7.5	6.9	7.3
4	9.1	8.2	8.6	8.7	7.0	7.8	7.6	6.6	7.0	7.5	7.2	7.4
5	8.2	7.0	7.8	9.4	6.9	7.9	7.0	6.3	6.6	---	---	---
6	8.0	7.0	7.5	10.1	6.7	8.2	---	---	---	---	---	---
7	8.0	7.4	7.9	10.9	7.0	8.9	---	---	---	---	---	---
8	8.1	7.7	7.9	12.2	6.9	9.4	---	---	---	---	---	---
9	8.0	7.0	7.5	10.5	6.3	8.4	7.3	6.9	7.1	---	---	---
10	---	---	---	8.1	6.2	6.8	---	---	---	---	---	---
11	---	---	---	7.9	6.1	6.9	---	---	---	---	---	---
12	---	---	---	8.6	6.5	7.5	---	---	---	---	---	---
13	---	---	---	8.7	6.5	7.6	---	---	---	---	---	---
14	---	---	---	8.4	6.6	7.5	7.2	6.9	7.0	---	---	---
15	---	---	---	8.4	6.8	7.6	7.1	6.8	6.9	---	---	---
16	---	---	---	7.6	6.3	7.0	7.0	6.6	6.8	---	---	---
17	---	---	---	7.7	6.3	7.0	---	---	---	---	---	---
18	7.8	7.6	7.7	7.4	6.4	6.9	---	---	---	---	---	---
19	7.8	7.5	7.6	7.6	6.2	6.9	---	---	---	---	---	---
20	---	---	---	7.9	6.2	7.0	---	---	---	---	---	---
21	---	---	---	7.9	6.3	7.1	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	7.4	7.2	7.3	---	---	---	---	---	---
26	7.9	7.6	7.8	7.4	7.2	7.3	---	---	---	---	---	---
27	7.8	7.4	7.6	7.2	6.9	7.0	---	---	---	---	---	---
28	7.7	7.2	7.4	7.1	6.6	6.8	---	---	---	---	---	---
29	7.6	7.3	7.4	7.2	6.7	6.9	9.6	7.3	8.0	---	---	---
30	7.6	7.2	7.4	7.6	6.6	7.0	---	---	---	---	---	---
31	---	---	---	7.3	6.7	7.0	---	---	---	---	---	---
MONTH	9.1	7.0	7.7	12.2	6.1	7.4	9.6	6.3	7.0	7.5	6.9	7.3

## SCHUYLKILL RIVER BASIN

01472157 FRENCH CREEK NEAR PHOENIXVILLE, PA  
(National Water-Quality Assessment Station)

**LOCATION.**--Lat 40°09'05", long 75°36'06", Chester County, Hydrologic Unit 02040203, on right bank 70 ft downstream from two-span county bridge on French Creek Road, 4.5 mi northwest of Phoenixville, and 7.3 mi upstream from mouth.

**DRAINAGE AREA.**--59.1 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

**GAGE.**--Water-stage recorder and crest-stage gage. Elevation of gage is 160 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Nov. 7, 1968, nonrecording gage at site 70 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 base discharge of 750 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Dec. 20	1230	827	6.79	June 21	0000	*5,420	*10.99
Feb. 22	----	1,190	Ice jam	Sept. 15	1215	3,460	9.70
Mar. 20	2315	1,020	7.11	Sept. 19	0500	838	6.81
May 26	1045	920	6.95	Sept. 23	1015	1,510	7.81
June 4	1100	1,620	7.95				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	78	49	278	e54	88	129	70	426	109	65	35
2	13	56	45	370	e54	262	121	69	168	103	62	149
3	12	45	41	223	e55	354	111	65	103	104	66	114
4	18	39	e35	286	e75	153	106	62	1080	100	163	155
5	24	36	e32	159	e65	223	110	62	482	92	84	105
6	17	75	e32	140	e60	534	102	63	216	100	125	58
7	14	57	e32	126	e56	261	101	63	319	95	69	47
8	12	44	e31	121	e55	171	120	82	338	90	62	42
9	11	38	e31	128	e54	374	175	72	196	82	63	39
10	13	34	e55	116	e53	279	173	69	153	83	418	35
11	250	43	e200	99	e52	146	300	64	132	90	127	35
12	190	138	511	e75	e50	182	264	60	123	81	103	33
13	57	187	232	e67	e48	273	156	55	227	71	71	103
14	34	76	552	e59	e45	261	132	53	230	68	64	129
15	26	57	222	e53	e44	217	117	50	186	66	55	1570
16	214	91	135	e47	e46	252	111	51	125	63	52	407
17	177	426	103	e45	e100	294	103	63	109	59	55	142
18	58	323	85	e45	e190	208	104	55	176	57	48	102
19	40	123	80	e43	e150	155	104	52	136	62	45	491
20	34	86	329	e42	e115	328	95	47	1370	55	42	156
21	29	73	182	e40	e105	649	91	60	2130	54	41	108
22	25	85	112	e38	e475	239	98	57	461	230	40	93
23	22	79	95	e36	e875	176	89	53	306	261	38	696
24	21	62	84	e36	e480	153	82	73	226	92	35	241
25	21	55	219	e35	e215	139	78	84	187	69	34	137
26	61	51	206	e35	e145	136	109	460	165	60	34	124
27	48	62	131	e38	113	166	100	171	149	56	36	118
28	33	64	107	e46	98	126	82	99	133	53	35	205
29	31	53	98	e50	---	140	77	80	125	51	33	131
30	165	51	93	e55	---	209	73	67	118	47	35	99
31	227	---	106	e53	---	183	---	63	---	49	34	---
TOTAL	1912	2687	4265	2984	3927	7331	3613	2494	10295	2652	2234	5899
MEAN	61.7	89.6	138	96.3	140	236	120	80.5	343	85.5	72.1	197
MAX	250	426	552	370	875	649	300	460	2130	261	418	1570
MIN	11	34	31	35	44	88	73	47	103	47	33	33
CFM	1.04	1.52	2.33	1.63	2.37	4.00	2.04	1.36	5.81	1.45	1.22	3.33
IN.	1.20	1.69	2.68	1.88	2.47	4.61	2.27	1.57	6.48	1.67	1.41	3.71

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 2003, BY WATER YEAR (WY)

MEAN	48.3	69.2	97.8	106	121	145	134	104	83.1	59.0	39.8	52.0
MAX	180	166	328	394	266	350	306	250	353	258	110	214
(WY)	1997	1973	1997	1979	1984	1994	1983	1989	1972	1984	1971	1999
MIN	16.7	17.3	19.2	13.7	24.8	40.5	35.6	31.9	22.2	11.1	11.7	14.1
(WY)	2002	2002	2002	1981	2002	1981	1985	1969	1999	1999	2002	1980

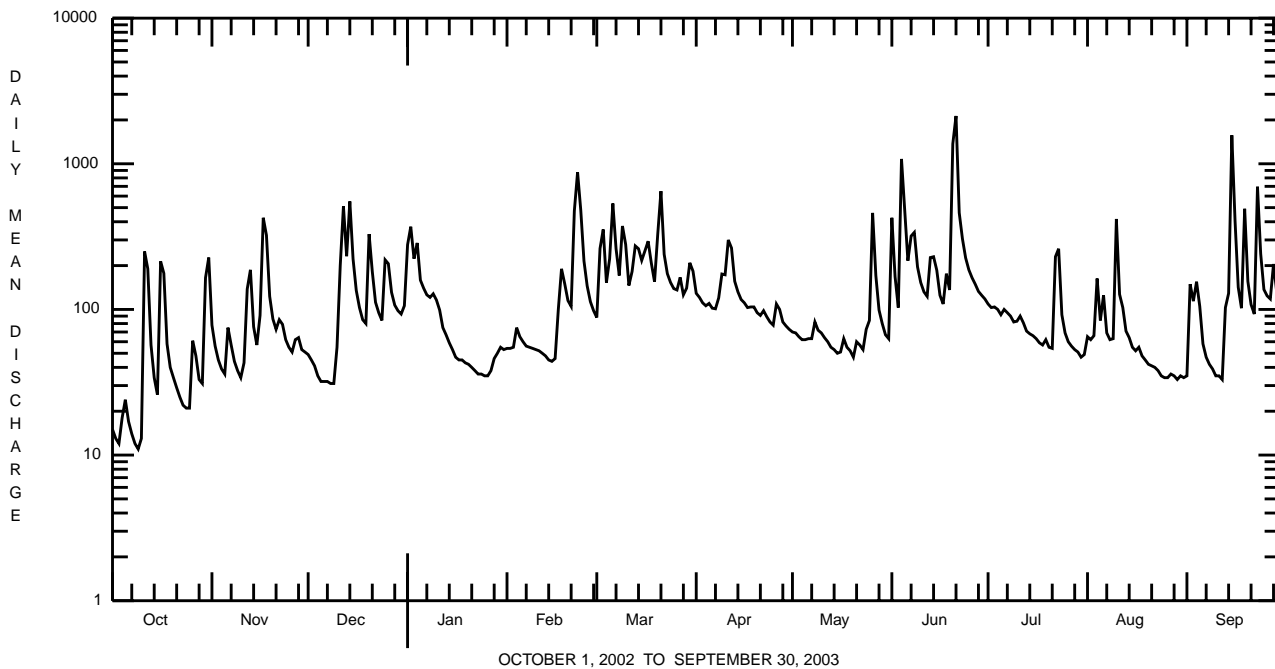
e Estimated.

SCHUYLKILL RIVER BASIN

01472157 FRENCH CREEK NEAR PHOENIXVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1969 - 2003	
ANNUAL TOTAL	18330.6		50293			
ANNUAL MEAN	50.2		138		88.1	
HIGHEST ANNUAL MEAN					155	1984
LOWEST ANNUAL MEAN					30.4	2002
HIGHEST DAILY MEAN	552	Dec 14	2130	Jun 21	4530	Jun 22 1972
LOWEST DAILY MEAN	7.5	Sep 13	11	Oct 9	7.1	Aug 7 1999
ANNUAL SEVEN-DAY MINIMUM	8.0	Aug 15	15	Oct 3	7.3	Aug 2 1999
MAXIMUM PEAK FLOW			a5420	Jun 21	a11200	Jun 22 1972
MAXIMUM PEAK STAGE			10.99	Jun 21	13.66	Jun 22 1972
INSTANTANEOUS LOW FLOW			11	Oct 3,8-10	6.9	Aug 8 1999
ANNUAL RUNOFF (CFSM)	0.85		2.33		1.49	
ANNUAL RUNOFF (INCHES)	11.54		31.66		20.25	
10 PERCENT EXCEEDS	110		263		169	
50 PERCENT EXCEEDS	29		85		55	
90 PERCENT EXCEEDS	9.6		35		20	

a From rating curve extended above 2,500 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow.



## SCHUYLKILL RIVER BASIN

01472157 FRENCH CREEK NEAR PHOENIXVILLE, PA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1950 to current year.

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: November 1998 to April 1999, June 1999 to August 1999, June 2000 to September 2001.

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

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf µS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419)
OCT 2002 23...	0900	1028	80020	23	12.4	7.6	186	8.2	17.6	5.61	2.07	8.76	39

Date	Chlor- ide, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water, fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Boron, water, fltrd, µg/L (01020)	Iron, water, fltrd, µg/L (01046)
OCT 2002 23...	13.8	18.0	18.3	<.04	1.28	<.008	.02	30	126

## SCHUYLKILL RIVER BASIN

01472157 FRENCH CREEK NEAR PHOENIXVILLE, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATESREMARKS.--Samples were collected using a Hess sampler with a mesh size of 500 µm. Each sample covered a total area of 2.4 m<sup>2</sup>.

Date	10/23/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	3
Nemertea (PROBOSAS WORMS)	
Enopla	
Hoplonemertea	
Tetrastemmatidae	
<u>Prostoma</u> sp	27
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
<u>Ferrissia</u> sp	27
Lymnaeidae	1
<u>Fossaria</u> sp	3
Planorbidae	
<u>Gyraulus</u> sp	1
Mesogastropoda	
Hydrobiidae	17
Bivalvia (CLAMS)	
Veneroidea	
Sphaeriidae	
<u>Pisidium</u> sp	8
<u>Sphaerium</u> sp	79
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	25
Tubificida	
Tubificidae	7
Hirudinea (LEECHES)	
Rhynchobdellida	
Glossiphoniidae	1
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	36
Amphipoda (SCUDS)	
Talitridae	
<u>Hyallolella</u> sp	6
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Cloeon</u> sp	2
Caenidae	
<u>Caenis</u> sp	6
Ephemerellidae	
<u>Eurylophella</u> sp	5
<u>Serratella</u> sp	70
Heptageniidae	
<u>Epeorus</u> sp	18
<u>Stenonema</u> sp	217

## SCHUYLKILL RIVER BASIN

01472157 FRENCH CREEK NEAR PHOENIXVILLE, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES--Continued

Date	10/23/02
Benthic Macroinvertebrate	Count
Ephemeroptera (MAYFLIES)	
Isonychiidae	
<u>Isonychia</u> sp	120
Tricorythidae	
<u>Tricorythodes</u> sp	1
Odonata	
Coenagrionidae (DAMSELFLIES)	
<u>Argia</u> sp	49
Gomphidae (DRAGONFLIES)	4
Plecoptera (STONEFLIES)	
Perlidae	
<u>Acroneuria</u> sp	5
<u>Paragnetina</u> sp	4
Taeniopterygidae	
<u>Taeniopteryx</u> sp	12
Trichoptera (CADDISFLIES)	
Apataniidae	
<u>Apatania</u> sp	17
Brachycentridae	
<u>Micrasema</u> sp	71
Helicopsychidae	
<u>Helicopsyche</u> sp	12
Hydropsychidae	
<u>Cheumatopsyche</u> sp	160
<u>Hydropsyche</u> sp	25
Hydroptilidae	
<u>Hydroptila</u> sp	4
<u>Leucotrichia</u> sp	45
Lepidostomatidae	
<u>Lepidostoma</u> sp	3
Leptoceridae	
<u>Oecetis</u> sp	1
Philopotamidae	
<u>Chimarra</u> sp	107
Polycentropodidae	
<u>Neureclipsis</u> sp	3
<u>Polycentropus</u> sp	2
Psychomyiidae	
<u>Psychomyia</u> sp	1
Lepidoptera (MOTHS AND BUTTERFLIES)	
Pyralidae	
<u>Petrophila</u> sp	2
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Ancyronyx</u> sp	1
<u>Dubiraphia</u> sp	4
<u>Macronychus</u> sp	4
<u>Optioservus</u> sp	84
<u>Oulimnius</u> sp	6
<u>Promoresia</u> sp	20
<u>Stenelmis</u> sp	30
Hydrophilidae	
<u>Berosus</u> sp	1

## SCHUYLKILL RIVER BASIN

01472157 FRENCH CREEK NEAR PHOENIXVILLE, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES--Continued

Date	10/23/02
Benthic Macroinvertebrate	Count
Psephenidae (WATER PENNIES)	
<u>Ectopria</u> sp	4
<u>Psephenus</u> sp	58
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	41
Empididae (DANCE FLIES)	
<u>Hemerodromia</u> sp	4
Simuliidae (BLACK FLIES)	
<u>Simulium</u> sp	1
Tipulidae (CRANE FLIES)	
<u>Antocha</u> sp	3
<u>Tipula</u> sp	4
Total Organisms	1472
Total Taxa	56



## SCHUYLKILL RIVER BASIN

01472157 FRENCH CREEK NEAR PHOENIXVILLE, PA--Continued  
(National Water-Quality Assessment Station)

REMARKS.--These samples were collected as part of the Delaware River Basin National Water-Quality Assessment Program (DELR NAWQA). For the definition of the type of quality-control data listed under SAMPLE TYPE, refer to "Water-Quality-Control Data" in the "Introduction."

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

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd, std units (00400)	Specific conductance, wat unfltrd 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Alkalinity, wat inc tit field, mg/L as CaCO3 (39086)
NOV 14...	0840	Environmental	80	759	11.6	97	7.3	153	10.5	7.6	34
DEC 10...	1040	Environmental	93	765	14.4	98	7.4	183	1.5	0.1	--
	1041	Split Replicate	--	--	--	--	--	--	--	--	--
JAN 14...	0950	Environmental	68	761	14.8	102	7.1	169	-4.0	0.0	29
MAR 11...	1100	Environmental	133	762	14.2	100	7.1	147	10.0	1.1	21
APR 15...	0820	Environmental	118	757	11.7	105	7.4	145	16.0	10.2	28
MAY 13...	1030	Environmental	55	749	10.3	101	7.4	156	16.0	13.7	35
JUN 11...	1310	Environmental	133	753	9.6	102	7.4	143	25.5	17.6	30
JUL 14...	1120	Environmental	68	760	9.6	104	7.8	152	28.5	19.6	36
SEP 02...	0840	Environmental	209	755	8.9	97	7.5	136	25.0	19.2	32

Date	Chloride, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia + org-N, water, unfltrd, mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water, fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd, mg/L (00665)	Suspended sediment concentration, mg/L (80154)	Suspended sediment load, tons/d (80155)
NOV 14...	10.2	16.4	0.41	<0.04	1.04	E.006	E.01	0.051	5	0.99
DEC 10...	14.6	15.4	0.14	<0.04	1.99	<0.008	<0.02	0.015	1	0.35
	14.1	15.5	0.14	<0.04	1.99	<0.008	<0.02	0.014	1	--
JAN 14...	14.9	14.4	0.12	<0.04	2.25	<0.008	<0.02	0.016	<1	--
MAR 11...	15.8	11.9	0.21	<0.04	1.34	E.004	E.02	0.036	4	1.6
APR 15...	13.0	12.6	--	--	--	--	--	--	2	0.76
MAY 13...	13.3	11.8	0.23	<0.04	1.20	E.007	E.01	0.034	5	0.80
JUN 11...	11.8	12.3	--	--	--	--	--	--	8	3.0
JUL 14...	12.0	11.3	0.17	<0.04	1.42	<0.008	E.01	0.033	3	0.55
SEP 02...	11.0	10.0	0.52	<0.04	1.15	0.009	0.03	0.161	58	33

Remark codes used in this table:

< -- Less than

E -- Estimated value

## SCHUYLKILL RIVER BASIN

01472157 FRENCH CREEK NEAR PHOENIXVILLE, PA--Continued

## WATER-COLUMN PESTICIDE ANALYSES

REMARKS.--The following were determined using laboratory schedule 2001 (listed in its entirety, with laboratory reporting levels, on page 197). Only pesticides detected in one or more surface-water samples are listed in the following table.

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

Date	Time	Sample type	2,6-Di-ethyl-aniline water fltrd 0.7µ GF µg/L (82660)	CIAT, water, fltrd, µg/L (04040)	Aceto-chlor, water, fltrd, µg/L (49260)	Ala-chlor, water, fltrd, µg/L (46342)	alpha-HCH, water, fltrd, µg/L (34253)	Atra-zine, water, fltrd, µg/L (39632)	Azin-phos-methyl, water, fltrd 0.7µ GF µg/L (82686)	Ben-flur-alin, water, fltrd 0.7µ GF µg/L (82673)	Butyl-ate, water, fltrd, µg/L (04028)
NOV 14...	0840	Environmental	<0.006	E.017	<0.006	<0.004	<0.005	0.013	<0.050	<0.010	<0.002
JAN 14...	0950	Environmental	<0.006	E.033	<0.006	<0.004	<0.005	0.012	<0.050	<0.010	<0.002
MAR 11...	1100	Environmental	<0.006	E.018	<0.006	<0.004	<0.005	<0.010	<0.050	<0.010	<0.002
APR 15...	0820	Environmental	<0.006	E.025	<0.006	<0.004	<0.005	0.010	<0.050	<0.010	<0.002
MAY 13...	1030	Environmental	<0.006	E.027	<0.006	<0.004	<0.005	0.019	<0.050	<0.010	<0.002
JUN 11...	1309	Field Blank	<0.006	<0.006	<0.006	<0.004	<0.005	<0.007	<0.050	<0.010	<0.002
JUN 11...	1310	Environmental	<0.006	E.034	<0.006	<0.004	<0.005	0.152	<0.050	<0.010	<0.002
JUL 14...	1120	Environmental	<0.006	E.028	<0.006	<0.004	<0.005	0.029	<0.050	<0.010	<0.002
SEP 02...	0840	Environmental	<0.006	E.018	<0.006	<0.004	<0.005	0.016	<0.050	<0.010	<0.002

Date	Car-baryl, water, fltrd 0.7µ GF µg/L (82680)	Carbo-furan, water, fltrd 0.7µ GF µg/L (82674)	cis-Per-methrin water fltrd 0.7µ GF µg/L (82687)	DCPA, water fltrd 0.7µ GF µg/L (82682)	Desulf-inyl fipro-nil, water, fltrd, µg/L (62170)	Diazi-non, water, fltrd, µg/L (39572)	Diel-drin, water, fltrd, µg/L (39381)	EPTC, water, fltrd 0.7µ GF µg/L (82668)	Desulf-inyl-fipro-nil amide, wat flt µg/L (62169)	Fipro-nil sulfide water, fltrd, µg/L (62167)	Fipro-nil sulfone water, fltrd, µg/L (62168)	Fipro-nil, water, fltrd, µg/L (62166)	Malathion, water, fltrd, µg/L (39532)
NOV 14...	<0.041	<0.020	<0.006	<0.003	<0.004	<0.005	<0.005	<0.002	<0.009	<0.005	<0.005	<0.007	<0.027
JAN 14...	<0.041	<0.020	<0.006	<0.003	<0.004	<0.005	<0.005	<0.002	<0.009	<0.005	<0.005	<0.007	<0.027
MAR 11...	<0.041	<0.020	<0.006	<0.003	<0.004	<0.005	<0.005	<0.002	<0.009	<0.005	<0.005	<0.007	<0.027
APR 15...	<0.041	<0.020	<0.006	<0.003	<0.004	<0.005	<0.005	<0.002	E.005	<0.005	<0.005	<0.007	<0.027
MAY 13...	<0.041	<0.020	<0.006	<0.003	<0.004	<0.005	<0.005	<0.002	<0.009	<0.005	<0.005	<0.007	<0.027
JUN 11...	<0.041	<0.020	<0.006	<0.003	<0.004	<0.005	<0.005	<0.002	<0.009	<0.005	<0.005	<0.007	<0.027
JUN 11...	<0.041	<0.020	<0.006	<0.003	<0.004	<0.005	<0.005	<0.002	<0.009	<0.005	<0.005	<0.007	<0.027
JUL 14...	<0.041	<0.020	<0.006	<0.003	<0.004	<0.005	<0.005	<0.002	<0.009	<0.005	<0.005	<0.007	<0.027
SEP 02...	<0.041	<0.020	<0.006	<0.003	<0.004	0.007	<0.005	<0.002	<0.009	<0.005	<0.005	<0.007	<0.027

## SCHUYLKILL RIVER BASIN

## 01472157 FRENCH CREEK NEAR PHOENIXVILLE, PA--Continued

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

Date	Metolachlor, water, fltrd, µg/L (39415)	Metribuzin, water, fltrd, µg/L (82630)	Napropamide, water, fltrd 0.7µ GF µg/L (82684)	Pendimethalin, water, fltrd 0.7µ GF µg/L (82683)	Prometon, water, fltrd, µg/L (04037)	Simazine, water, fltrd, µg/L (04035)	Tebu-thiuron water fltrd 0.7µ GF µg/L (82670)	Terbacil, water, fltrd 0.7µ GF µg/L (82665)	Tri-fluralin, water, fltrd 0.7µ GF µg/L (82661)
NOV 14...	E.009	<0.006	<0.007	<0.022	M	0.019	<0.02	<0.034	<0.009
JAN 14...	E.008	<0.006	<0.007	<0.022	<0.01	0.023	<0.02	<0.034	<0.009
MAR 11...	E.010	<0.006	<0.007	<0.022	<0.01	<0.005	<0.02	<0.034	<0.009
APR 15...	E.006	<0.006	<0.007	<0.022	0.06	0.077	<0.02	<0.034	<0.009
MAY 13...	E.009	<0.006	<0.007	<0.022	E.01	0.139	<0.02	E.005	<0.009
JUN 11...	<0.013	<0.006	<0.007	<0.022	<0.01	<0.005	<0.02	<0.034	<0.009
JUN 11...	0.048	<0.006	<0.007	<0.022	E.01	0.022	<0.02	<0.034	<0.009
JUL 14...	E.010	<0.006	<0.007	<0.022	<0.01	0.019	<0.02	<0.034	<0.009
SEP 02...	0.016	<0.006	<0.007	<0.022	E.01	0.019	<0.02	<0.034	<0.009

Remark codes used in this table:

&lt; -- Less than

E -- Estimated value

M-- Presence verified, not quantified

## SCHUYLKILL RIVER BASIN

## 01472198 PERKIOMEN CREEK AT EAST GREENVILLE, PA

**LOCATION.**--Lat 40°23'38", long 75°30'57", Montgomery County, Hydrologic Unit 02040203, on right bank 100 ft upstream from bridge on Church Road, 0.9 mi upstream from Molasses Creek, and 1.0 mi southwest of East Greenville.

**DRAINAGE AREA.**--38.0 mi<sup>2</sup>.

**PERIOD OF RECORD.**--October 1981 to current year.

**REVISED RECORD.**--WDR PA-98-1: 1982-97(P).

**GAGE.**--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 288.50 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Records fair except those for estimated daily discharges, and those greater than 1,500 ft<sup>3</sup>/s, 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 base discharge of 1,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Feb. 22	----	Unknown	Ice jam	July 23	0030	1,890	4.57
June 21	0015	*4,730	*6.50	Sept. 15	2045	2,140	4.77
July 22	0200	2,420	4.99	Sept. 23	1115	1,320	4.09

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	14	48	42	228	45	58	108	46	115	66	38	25
2	13	40	36	227	47	153	104	46	68	62	39	92
3	12	32	33	147	46	e155	90	44	57	61	37	85
4	16	27	29	140	67	e80	83	42	334	58	72	59
5	23	25	e28	111	53	171	92	42	162	55	51	43
6	14	56	e30	103	39	220	76	44	105	55	80	31
7	12	37	e28	93	43	e110	75	42	218	59	47	27
8	12	29	e30	94	37	107	85	50	160	60	42	25
9	12	26	e28	99	36	254	137	44	111	51	38	23
10	15	24	e35	92	39	e120	137	44	92	59	92	21
11	260	27	e140	77	36	e85	204	43	81	57	124	21
12	163	57	e270	66	32	96	157	40	77	49	86	20
13	65	76	158	61	32	174	114	36	151	45	66	58
14	42	53	338	58	33	151	97	34	99	42	62	46
15	30	42	152	56	32	133	88	32	75	41	45	1050
16	136	72	110	48	23	150	83	33	63	40	43	239
17	110	257	e80	53	14	164	79	50	59	37	42	104
18	58	198	e65	41	e50	131	84	37	84	34	35	79
19	44	84	e60	45	e45	106	78	31	80	44	31	230
20	36	66	e200	48	e40	219	67	28	790	33	29	99
21	25	60	120	41	e35	471	64	46	1200	76	28	78
22	21	88	91	38	e350	180	68	36	268	644	28	67
23	19	75	79	35	e550	131	60	34	178	361	28	447
24	18	59	69	36	e200	111	56	43	131	110	24	135
25	18	52	132	38	114	98	54	47	111	69	23	101
26	83	48	116	40	85	99	81	200	99	55	23	111
27	47	57	92	37	67	107	64	84	90	50	23	89
28	34	50	82	34	61	84	55	90	82	53	23	179
29	31	46	78	41	---	137	54	82	77	43	21	99
30	69	45	72	40	---	171	50	55	72	39	24	80
31	75	---	84	42	---	132	---	58	---	36	24	---
TOTAL	1527	1856	2907	2309	2251	4558	2644	1583	5289	2544	1368	3763
MEAN	49.3	61.9	93.8	74.5	80.4	147	88.1	51.1	176	82.1	44.1	125
MAX	260	257	338	228	550	471	204	200	1200	644	124	1050
MIN	12	24	28	34	14	58	50	28	57	33	21	20
CFSM	1.30	1.63	2.47	1.96	2.12	3.87	2.32	1.34	4.64	2.16	1.16	3.30
IN.	1.49	1.82	2.85	2.26	2.20	4.46	2.59	1.55	5.18	2.49	1.34	3.68

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 2003, BY WATER YEAR (WY)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
MEAN	35.6	49.2	67.9	68.7	73.5	99.3	93.4	72.8	52.8	39.6	28.0	37.1											
MAX	117	100	246	223	138	273	213	160	176	154	53.1	125											
(WY)	1997	1993	1997	1996	1984	1994	1983	1989	2003	1984	1994	2003											
MIN	10.6	10.5	14.7	25.4	21.4	34.5	24.9	35.0	18.5	10.2	11.3	13.4											
(WY)	2002	2002	1999	2002	2002	1985	1985	1995	1999	1999	1995	1986											

e Estimated.

SCHUYLKILL RIVER BASIN

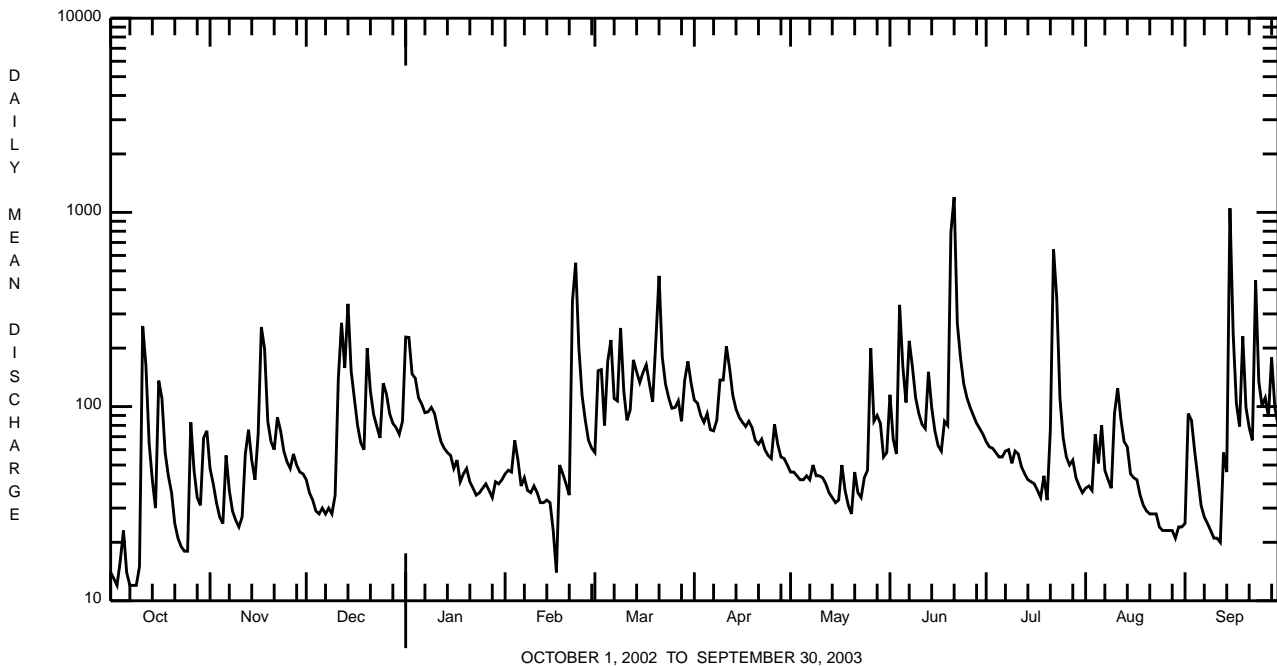
01472198 PERKIOMEN CREEK AT EAST GREENVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1982 - 2003	
ANNUAL TOTAL	16553.5		32599			
ANNUAL MEAN	45.4		89.3		59.7	
HIGHEST ANNUAL MEAN					101	1984
LOWEST ANNUAL MEAN					31.3	2002
HIGHEST DAILY MEAN	963	May 13	1200	Jun 21	2800	Jan 19 1996
LOWEST DAILY MEAN	7.8	Aug 19	12	Oct 3 <sup>a</sup>	4.2	Aug 21 1985
ANNUAL SEVEN-DAY MINIMUM	8.9	Sep 8	14	Oct 3	4.4	Aug 18 1985
MAXIMUM PEAK FLOW			b4730	Jun 21	b6740	Jun 25 1984
MAXIMUM PEAK STAGE			6.50	Jun 21	7.26	Jun 25 1984
INSTANTANEOUS LOW FLOW			c6.6	Feb 9	3.8	Sep 5 1985
ANNUAL RUNOFF (CFSM)	1.19		2.35		1.57	
ANNUAL RUNOFF (INCHES)	16.21		31.91		21.36	
10 PERCENT EXCEEDS	87		162		113	
50 PERCENT EXCEEDS	26		59		37	
90 PERCENT EXCEEDS	10		27		15	

a Also Oct. 7-9.

b From rating curve extended above 1,500 ft<sup>3</sup>/s on basis of contracted-opening measurement at gage height 6.53 ft and Flood Insurance Study of Montgomery County.

c Result of freeze-up.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

SCHUYLKILL RIVER BASIN

01472199 WEST BRANCH PERKIOMEN CREEK AT HILLEGASS, PA

LOCATION.--Lat 40°22'26", long 75°31'22", Montgomery County, Hydrologic Unit 02040203, on left bank 0.3 mi downstream from bridge on private road off Heffner Road, and 0.5 mi north of Hillegass.

DRAINAGE AREA.--23.0 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1981 to current year. Prior to October 1992, published as "Northwest Branch".

REVISED RECORDS: WDR PA-01-1: 1982-85, 1987, 1989, 1990, 1993-96 (P).

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 290.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges and those above 560 ft<sup>3</sup>/s, 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 base discharge of 800 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
June 20	2130	*1,870	*5.32	Sept. 15	1600	1,540	5.02
July 22	0115	1,140	4.63				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	43	30	138	30	34	58	32	76	40	22	17
2	6.5	36	25	134	32	94	58	32	45	38	25	65
3	6.2	29	22	86	31	96	50	30	38	38	24	56
4	7.3	24	e19	86	48	50	47	28	240	34	43	45
5	8.7	20	e16	66	43	108	51	28	117	34	42	35
6	7.5	48	e17	62	28	136	45	29	65	35	69	27
7	6.5	35	e14	56	e25	65	44	29	137	37	38	22
8	5.8	25	e16	57	e23	60	48	32	106	38	33	19
9	5.8	20	e17	62	e21	136	83	30	67	32	29	18
10	6.9	18	e15	59	e23	74	86	30	54	36	80	16
11	139	23	e90	49	e22	49	154	29	47	37	55	16
12	88	50	184	46	e19	52	99	27	52	31	79	15
13	40	64	107	e42	21	86	65	24	115	27	45	32
14	25	41	256	e40	22	85	56	22	84	26	55	49
15	16	34	103	e37	19	74	52	21	55	24	34	906
16	74	63	70	e35	14	91	48	22	46	23	32	185
17	66	185	54	e28	7.4	107	46	33	41	20	33	81
18	36	135	47	e24	e20	81	47	26	55	19	27	61
19	27	63	45	e22	e30	60	46	22	55	26	23	106
20	21	51	123	e25	e25	140	42	19	523	19	21	62
21	16	47	73	e27	e22	272	40	29	562	63	19	52
22	14	62	55	e25	e70	98	43	26	169	264	18	47
23	13	53	49	e22	e250	70	40	23	109	166	23	319
24	12	42	45	20	137	61	37	31	77	54	17	91
25	13	38	87	22	63	55	35	34	63	41	16	65
26	66	34	74	24	48	55	50	137	57	35	16	75
27	40	40	56	21	42	62	43	55	52	32	16	59
28	28	36	51	19	37	49	37	50	47	30	16	122
29	25	32	49	25	---	74	35	50	44	26	15	67
30	61	31	47	24	---	93	33	36	42	23	17	55
31	67	---	54	26	---	72	---	36	---	20	17	---
TOTAL	955.0	1422	1910	1409	1172.4	2639	1618	1052	3240	1368	999	2785
MEAN	30.8	47.4	61.6	45.5	41.9	85.1	53.9	33.9	108	44.1	32.2	92.8
MAX	139	185	256	138	250	272	154	137	562	264	80	906
MIN	5.8	18	14	19	7.4	34	33	19	38	19	15	15
CFSM	1.34	2.06	2.68	1.98	1.82	3.70	2.34	1.48	4.70	1.92	1.40	4.04
IN.	1.54	2.30	3.09	2.28	1.90	4.27	2.62	1.70	5.24	2.21	1.62	4.50

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 2003, BY WATER YEAR (WY)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
MEAN	21.0	31.7	45.5	43.5	46.2	63.1	58.8	46.8	33.3	22.7	16.0	22.0											
MAX	66.9	60.6	165	140	93.8	171	146	114	108	99.0	35.3	92.8											
(WY)	1997	1993	1984	1996	1984	1994	1983	1989	2003	1984	1994	2003											
MIN	7.45	7.47	7.94	15.3	11.9	23.4	16.4	22.9	11.0	5.67	5.65	5.47											
(WY)	2002	2002	1999	2002	2002	1985	1985	1995	1999	1999	2002	1983											

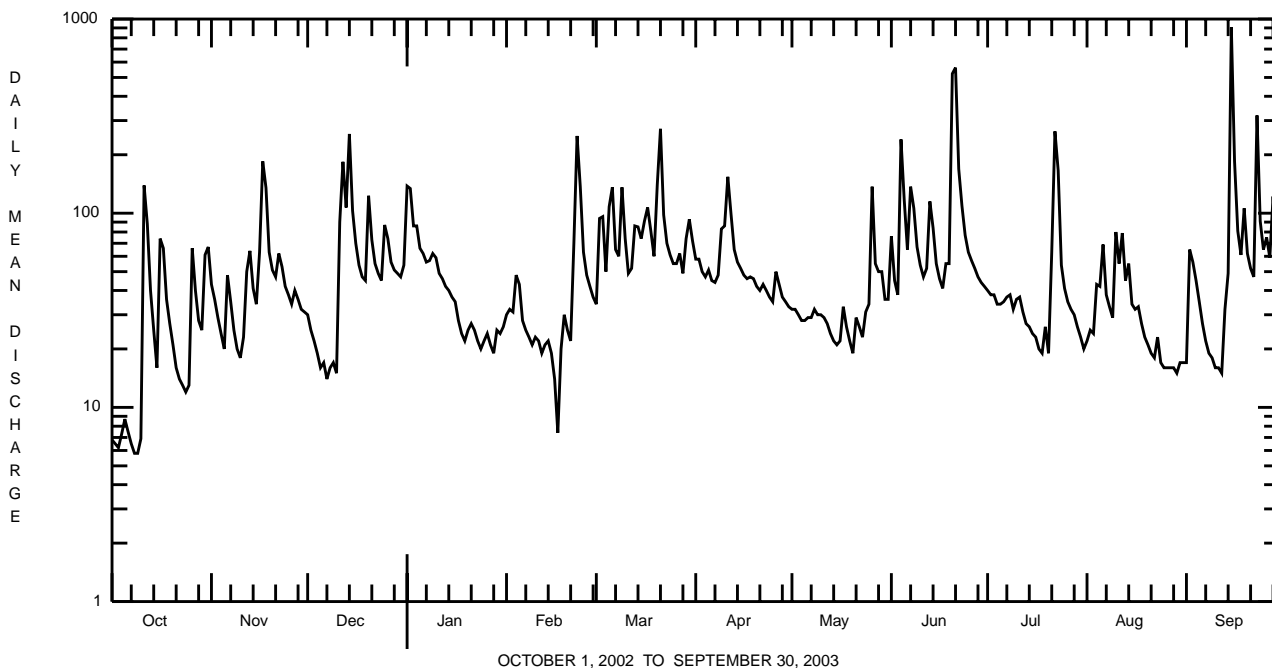
e Estimated.

SCHUYLKILL RIVER BASIN

01472199 WEST BRANCH PERKIOMEN CREEK AT HILLEGASS, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR			FOR 2003 WATER YEAR			WATER YEARS 1982 - 2003		
ANNUAL TOTAL	10459.2			20569.4					
ANNUAL MEAN	28.7			56.4			37.5		
HIGHEST ANNUAL MEAN							69.5		
LOWEST ANNUAL MEAN							19.1		
HIGHEST DAILY MEAN	571	May 13		906	Sep 15		1760	Jan 19 1996	
LOWEST DAILY MEAN	4.2	Aug 19		5.8	Oct 8,9		3.0	Aug 7 1999	
ANNUAL SEVEN-DAY MINIMUM	4.7	Aug 13		6.8	Oct 3		3.2	Aug 1 1999	
MAXIMUM PEAK FLOW				a1870	Jun 20		a3270	Jan 19 1996	
MAXIMUM PEAK STAGE				5.32	Jun 20		6.34	Jan 19 1996	
INSTANTANEOUS LOW FLOW				b5.3	Feb 17		b2.6	Dec 31 1998	
ANNUAL RUNOFF (CFSM)	1.25			2.45			1.63		
ANNUAL RUNOFF (INCHES)	16.92			33.27			22.15		
10 PERCENT EXCEEDS	61			101			73		
50 PERCENT EXCEEDS	14			40			23		
90 PERCENT EXCEEDS	5.4			18			7.9		

a From rating curve extended above 560 ft<sup>3</sup>/s on basis of contracted-opening measurement at gage height 5.51 ft.  
 b Result of freeze-up.



**SCHUYLKILL RIVER BASIN**

**01472620 EAST BRANCH PERKIOMEN CREEK NEAR DUBLIN, PA**

**LOCATION.**--Lat 40°24'14", long 75°14'05", Bucks County, Hydrologic Unit 02040203, on right bank 40 ft downstream from bridge on Bucks Road, 4.5 mi northeast of Perkasio, and 5.0 mi southeast of Quakertown.

**DRAINAGE AREA.**--4.05 mi<sup>2</sup>, not including distributary.

**PERIOD OF RECORD.**--October 1983 to current year.

**REVISED RECORD.**--WDR PA-99-1: 1984, 1985, 1989, 1993, 1994, 1996, 1997 (M).

**GAGE.**--Water-stage recorder, crest-stage gage and concrete control. Datum of gage is 338.14 ft (revised) above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Records good except those below 10 ft<sup>3</sup>/s, which are poor, and those for estimated daily discharges, which are fair. Diversion since August 1989 from Delaware River at Point Pleasant to Bradshaw Reservoir (Geddes Creek Basin). Pumpage from reservoir enters the stream about 0.5 mi upstream of gage. Pumpage into the creek was equivalent to an annual mean discharge of 26.7 ft<sup>3</sup>/s. See station 01472618, Distributary from Bradshaw Reservoir, for pumpage data. Peak flows are unregulated. 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 base discharge of 350 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Nov. 17	0230	705	5.12	Aug. 5	1815	521	4.37
Dec. 20	1300	438	3.99	Aug. 6	0530	438	3.99
June 4	0845	543	4.47	Sept. 23	0900	*997	*6.19
June 20	1700	372	3.68				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	18	15	82	e10	14	19	56	34	62	55	34
2	62	16	15	40	e10	66	19	57	31	63	36	39
3	62	15	14	34	e10	41	17	61	29	64	35	32
4	62	15	14	31	e10	20	16	62	140	64	41	49
5	62	15	14	21	e10	49	17	62	59	64	87	39
6	62	27	15	21	e10	52	16	62	38	64	88	36
7	62	17	14	19	e10	23	16	62	63	64	42	35
8	62	16	14	23	e10	27	18	62	44	64	39	35
9	62	21	14	23	e10	65	54	62	36	64	30	35
10	62	34	14	18	e10	25	34	62	32	64	39	33
11	70	35	38	16	e10	19	42	62	31	64	39	30
12	67	52	70	15	e10	28	42	62	30	64	37	30
13	66	27	46	15	e10	40	21	62	35	64	36	34
14	64	19	77	14	e10	27	18	61	30	64	36	50
15	59	17	28	14	e10	27	12	60	32	64	35	73
16	48	27	21	13	e10	30	8.5	60	31	63	35	46
17	36	166	18	14	e33	33	5.4	61	31	63	35	35
18	30	53	16	14	e49	26	14	60	37	64	35	33
19	29	23	16	14	e25	21	14	60	40	64	35	77
20	29	19	83	14	31	59	14	60	143	64	34	36
21	28	18	28	10	38	60	14	60	66	65	34	33
22	28	21	21	4.9	65	25	18	60	40	66	34	32
23	28	19	18	0.45	111	19	16	61	35	43	34	161
24	28	17	17	0.45	56	18	14	62	31	37	34	39
25	28	16	37	0.45	28	17	14	63	30	36	34	34
26	47	15	28	0.46	20	17	15	87	30	47	34	33
27	32	19	22	1.9	16	19	15	36	29	63	34	36
28	30	17	20	e10	15	16	21	44	39	60	34	47
29	30	16	19	e10	---	25	46	54	57	64	34	35
30	41	16	18	e10	---	37	56	30	53	64	34	32
31	25	---	29	e10	---	24	---	29	---	64	34	---
TOTAL	1463	806	813	513.61	647	969	645.9	1802	1356	1884	1223	1293
MEAN	47.2	26.9	26.2	16.6	23.1	31.3	21.5	58.1	45.2	60.8	39.5	43.1
MAX	70	166	83	82	111	66	56	87	143	66	88	161
MIN	25	15	14	0.45	10	14	5.4	29	29	36	30	30

e Estimated.



## SCHUYLKILL RIVER BASIN

## 01472620 EAST BRANCH PERKIOMEN CREEK NEAR DUBLIN, PA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	53.9	41.2	32.5	26.1	21.3	28.4	26.9	47.6	55.2	58.4	58.3	57.0
MAX (WY)	2001	1999	1999	2002	2002	1993	2002	2001	2001	2001	2000	1999
MIN (WY)	1990	1991	1995	2003	1991	1991	1992	1996	1992	1990	2003	2003

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1990 - 2003	
ANNUAL TOTAL	16142.41		13415.51			
ANNUAL MEAN	44.2		36.8		42.4	
HIGHEST ANNUAL MEAN					50.3 1999	
LOWEST ANNUAL MEAN					35.7 1990	
HIGHEST DAILY MEAN	166	Nov 17	166	Nov 17	528	Sep 16 1999
LOWEST DAILY MEAN	a0.00	Sep 24	a0.45	Jan 23-25	a0.00	Sep 24 2002
ANNUAL SEVEN-DAY MINIMUM	5.3	Sep 19	2.7	Jan 21	2.5	Apr 17 1990
MAXIMUM PEAK FLOW			997	Sep 23	b1860	Sep 16 1999
MAXIMUM PEAK STAGE			6.19	Sep 23	8.57	Sep 16 1999
10 PERCENT EXCEEDS	64		64		64	
50 PERCENT EXCEEDS	53		33		43	
90 PERCENT EXCEEDS	15		14		14	

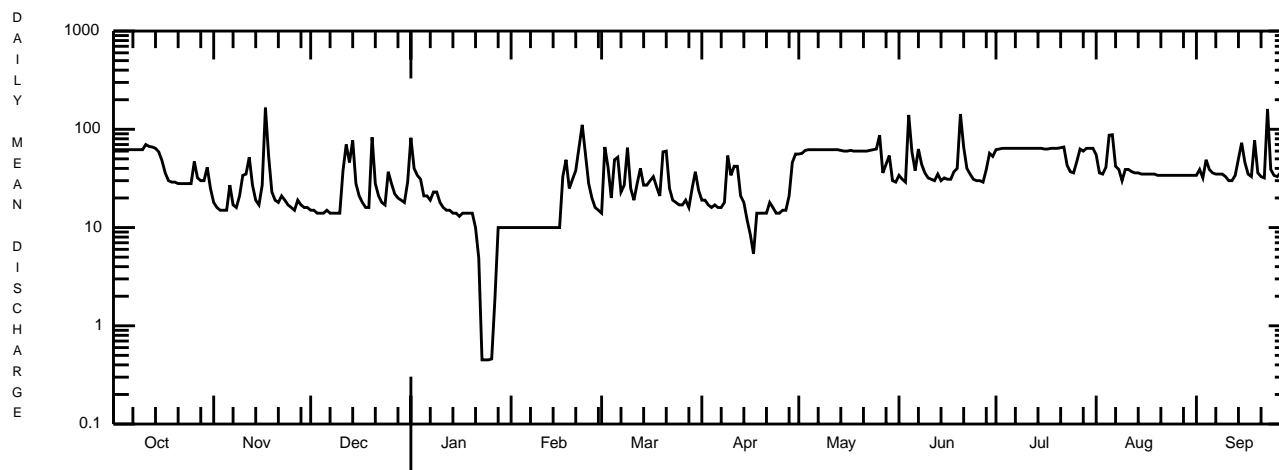
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1989, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1.19	10.1	8.67	5.60	11.8	8.00	7.61	9.15	3.18	5.25	2.89	6.55
MAX (WY)	1986	1986	1984	1986	1984	1984	1984	1984	1989	1984	1989	1989
MIN (WY)	1987	1985	1989	1985	1987	1985	1985	1986	1987	1985	1987	1986

## SUMMARY STATISTICS WATER YEARS 1984 - 1989

ANNUAL MEAN	6.63	
HIGHEST ANNUAL MEAN	11.7	1984
LOWEST ANNUAL MEAN	3.60	1985
HIGHEST DAILY MEAN	418	Sep 20 1989
LOWEST DAILY MEAN	.00	Jul 20 1985
ANNUAL SEVEN-DAY MINIMUM	.00	Sep 14 1985
MAXIMUM PEAK FLOW	b1790	Jul 7 1984
MAXIMUM PEAK STAGE	8.41	Jul 7 1984
ANNUAL RUNOFF (CFM)	1.50	
ANNUAL RUNOFF (INCHES)	20.42	
10 PERCENT EXCEEDS	13	
50 PERCENT EXCEEDS	1.2	
90 PERCENT EXCEEDS	.06	

- a Result of no pumpage from the Delaware River diversion.  
b From rating curve extended above 1,300 ft<sup>3</sup>/s.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

SCHUYLKILL RIVER BASIN

01472810 EAST BRANCH PERKIOMEN CREEK NEAR SCHWENKSVILLE, PA

LOCATION.--Lat 40°15'31", long 75°25'45", Montgomery County, Hydrologic Unit 02040203, on left bank 600 ft upstream from Bergey's Mill bridge, and 2.0 mi east of Schwenksville.

DRAINAGE AREA.--58.7 mi<sup>2</sup>, not including distributary.

PERIOD OF RECORD.--January 1991 to current year.

REVISED RECORD.--WDR PA-96-1: 1993-95(P). WDR PA-99-1: 1996, 1997 (M).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 150 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Diversion since August 1989 from Delaware River at Point Pleasant to Bradshaw Reservoir (Geddes Creek Basin). Pumpage from reservoir enters stream about 19 mi upstream of gage. Pumpage into the creek was equivalent to an annual mean discharge of 26.5 ft<sup>3</sup>/s. See station 01472618, Distributary from Bradshaw Reservoir, for pumpage data. Peak flows are unregulated. 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 base discharge of 2,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Nov. 17	0830	3,930	8.14	June 20	2330	4,130	8.33
Dec. 20	1800	2,570	6.75	Aug. 5	1930	3,570	7.79
Feb. 22	2000	3,770	7.99	Aug. 6	1030	2,970	7.20
June 4	1430	*4,160	*8.35	Sept. 23	0930	3,750	7.97

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	74	104	56	708	e50	68	142	78	168	80	111	49
2	72	80	50	529	e60	664	127	76	129	82	109	181
3	71	65	e45	228	e55	584	99	78	86	82	65	149
4	74	56	e40	282	e50	194	84	78	2060	79	117	222
5	74	50	e45	146	e45	474	88	78	821	86	932	160
6	72	160	e40	120	e40	712	82	82	286	79	1230	91
7	71	94	e40	109	e40	270	73	81	519	79	248	74
8	70	67	e40	101	e35	225	93	90	458	81	164	66
9	70	57	e35	143	e35	630	340	85	222	77	139	62
10	74	63	e35	109	e35	309	367	84	144	76	290	57
11	361	72	e250	78	e30	150	413	82	110	86	161	53
12	272	198	e800	e60	e30	156	423	81	93	99	115	49
13	131	311	385	e55	e30	267	204	79	131	85	90	94
14	103	123	1020	e50	e30	271	129	79	166	80	79	228
15	92	88	266	e50	e25	181	106	78	104	77	69	845
16	194	106	145	e45	e30	207	73	79	83	75	65	861
17	219	1680	97	e45	e40	262	64	91	73	74	66	198
18	98	748	76	e40	e130	207	e59	81	146	74	80	128
19	77	195	67	e35	e250	144	60	79	134	78	62	753
20	70	127	876	e40	e150	340	53	78	1490	73	56	209
21	60	98	306	e35	e120	857	49	84	1390	73	54	130
22	51	117	142	e30	e700	266	105	81	320	337	56	98
23	48	135	103	e30	e1400	159	76	77	188	456	55	1590
24	46	85	82	e30	739	116	58	81	123	141	49	331
25	46	71	345	e25	278	93	50	88	94	85	48	172
26	194	63	274	e25	157	85	59	932	79	68	48	130
27	108	76	159	e20	103	114	65	295	68	84	49	156
28	76	84	120	e30	76	82	51	153	61	105	48	358
29	67	66	103	e30	---	93	67	144	79	80	47	148
30	208	60	94	e35	---	344	74	97	86	78	50	103
31	249	---	143	e45	---	263	---	79	---	77	54	---
TOTAL	3492	5299	6279	3308	4763	8787	3733	3728	9911	3186	4806	7745
MEAN	113	177	203	107	170	283	124	120	330	103	155	258
MAX	361	1680	1020	708	1400	857	423	932	2060	456	1230	1590
MIN	46	50	35	20	25	68	49	76	61	68	47	49

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 2003, BY WATER YEAR (WY)

MEAN	112	119	163	152	114	201	124	109	103	81.1	94.3	112
MAX	287	201	405	456	183	388	230	230	330	107	159	277
(WY)	1997	1994	1997	1996	2001	1994	1993	1998	2003	1996	1994	1999
MIN	65.1	66.0	52.1	70.7	49.0	115	43.2	60.9	57.8	56.3	52.5	64.8
(WY)	2002	2002	1996	1992	2002	2002	1992	1999	1993	1999	1997	2002

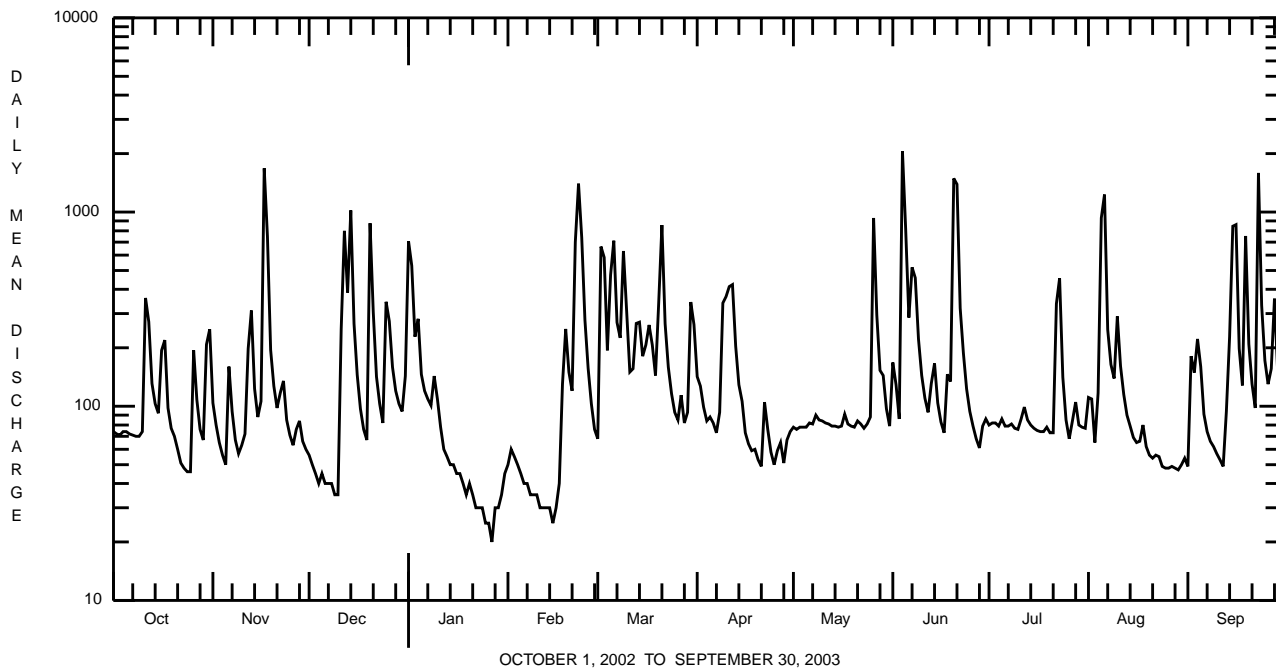
e Estimated.

SCHUYLKILL RIVER BASIN

01472810 EAST BRANCH PERKIOMEN CREEK NEAR SCHWENKSVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1991 - 2003	
ANNUAL TOTAL	39332.0		65037			
ANNUAL MEAN	108		178		125	
HIGHEST ANNUAL MEAN					178	2003
LOWEST ANNUAL MEAN					80.6	1992
HIGHEST DAILY MEAN	1680	Nov 17	2060	Jun 4	6020	Jan 19 1996
LOWEST DAILY MEAN	3.5	Sep 25 <sup>a</sup>	<sup>e</sup> 20	Jan 27	3.5	Sep 25 2002 <sup>a</sup>
ANNUAL SEVEN-DAY MINIMUM	11	Sep 19	<sup>b</sup> 27	Jan 22	11	Sep 19 2002
MAXIMUM PEAK FLOW			<sup>c</sup> 4160	Jun 4	<sup>c</sup> 12300	Sep 16 1999
MAXIMUM PEAK STAGE			8.35	Jun 4	14.03	Sep 16 1999
10 PERCENT EXCEEDS	193		350		200	
50 PERCENT EXCEEDS	72		85		73	
90 PERCENT EXCEEDS	44		45		48	

- a Result of no pumpage from the Delaware River diversion.
- b Computed using estimated daily discharges.
- c From rating curve extended above 2,840 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow.
- e Estimated.



## SCHUYLKILL RIVER BASIN

## 01473000 PERKIOMEN CREEK AT GRATERFORD, PA

**LOCATION.**--Lat 40°13'46", long 75°27'07", Montgomery County, Hydrologic Unit 02040203, on left bank 1,650 ft upstream from highway bridge at Graterford, 0.5 mi upstream from Lodel Creek, and 2.5 mi north of Collegeville.

**DRAINAGE AREA.**--279 mi<sup>2</sup>.

**PERIOD OF RECORD.**--June 1914 to current year. Monthly discharge only for some periods, published in WSP 1302. Prior to October 1950, published as "at Graters Ford."

**REVISED RECORDS.**--WSP 756: Drainage area. WSP 1171: 1935(M). WSP 1302: 1915-16, 1927-29. WSP 1382: 1932-33, 1935, 1937, 1942, 1947, 1948(M), 1949(P), 1950(M), 1951-52(P), WDR PA-91-1: 1989-90 (adjusted means and monthly runoff).

**GAGE.**--Water-stage recorder and crest-stage gage. Datum of gage is 112.66 ft above National Geodetic Vertical Datum of 1929. June 1914, to Sept. 6, 1921, nonrecording gage at site 1,650 ft downstream at datum 3.29 ft lower. Sept. 7, 1921, to Sept. 13, 1927, nonrecording gage at present site and datum.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Some regulation since Dec. 21, 1956 by Green Lane Reservoir (station 01472200) 10.5 mi upstream. Diversion from the Delaware River at Point Pleasant to Bradshaw Reservoir (Geddes Creek Basin) has been pumped from the reservoir to the East Branch Perkiomen Creek since August 1989. See station 01472618, Distributary from Bradshaw Reservoir, for pumpage data. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	128	499	249	2190	e155	333	682	243	1370	260	191	128
2	120	352	198	2750	e170	1770	653	239	719	244	222	747
3	121	268	188	1250	e160	e2200	516	232	395	234	178	740
4	137	223	e150	1400	e190	e600	436	215	6900	227	333	850
5	151	194	e140	856	e240	1490	446	210	3060	218	1260	584
6	130	542	e120	695	e170	2930	426	220	1120	239	2790	301
7	125	387	e140	616	e140	1230	374	219	1730	208	634	226
8	120	254	e120	535	e150	920	465	244	2110	258	387	192
9	118	211	e130	725	e140	2260	1290	237	946	215	320	171
10	123	199	e140	615	e120	1580	1560	230	614	201	969	151
11	1290	210	e950	440	e125	709	2060	221	448	234	1690	142
12	1230	752	3890	336	e135	626	1850	215	386	236	735	131
13	371	1330	1880	e260	e125	1080	953	201	818	197	464	212
14	247	538	4280	e270	e115	1390	630	184	972	179	561	622
15	192	359	1550	e220	e120	941	514	177	512	169	323	9510
16	752	445	862	e180	e110	1130	432	177	363	161	257	4940
17	1110	4090	546	e160	e100	1440	367	223	295	159	348	972
18	426	2930	401	e140	e105	1120	349	218	498	149	255	548
19	275	965	345	e150	e115	777	372	193	505	157	208	2440
20	226	595	3070	e160	e125	1550	321	176	5660	155	173	878
21	185	446	1730	e170	e130	4550	291	198	10600	149	162	505
22	157	547	772	e155	e180	1490	362	220	2080	2360	155	380
23	140	718	553	e140	e4200	886	332	195	1240	3010	157	6210
24	127	409	426	e130	2920	652	270	215	759	678	138	1630
25	122	324	1420	e140	1240	531	238	296	543	373	131	734
26	761	282	1490	e145	727	481	297	3070	431	264	121	583
27	506	332	839	e130	491	703	355	1280	363	236	125	509
28	291	368	607	e115	385	488	270	599	307	247	135	943
29	234	281	524	e125	---	584	256	522	290	212	121	622
30	872	260	493	e135	---	1570	257	358	282	188	122	401
31	1130	---	601	e145	---	1170	---	281	---	172	151	---
TOTAL	11917	19310	28804	15478	13083	39181	17624	11508	46316	11989	13816	37002
MEAN	384	644	929	499	467	1264	587	371	1544	387	446	1233
MAX	1290	4090	4280	2750	4200	4550	2060	3070	10600	3010	2790	9510
MIN	118	194	120	115	100	333	238	176	282	149	121	128

e Estimated.

SCHUYLKILL RIVER BASIN

01473000 PERKIOMEN CREEK AT GRATERFORD, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	215	366	526	552	594	774	624	428	292	206	161	248
MAX (WY)	1059	1182	1869	2071	1241	2100	1759	1298	1544	1286	493	1233
MIN (WY)	1997	1973	1997	1979	1971	1994	1983	1989	2003	1984	1971	2003
MIN (WY)	28.1	43.8	63.3	75.6	147	186	128	84.0	52.9	41.7	37.4	24.8
(WY)	1958	1958	1966	1981	2002	1985	1985	1965	1965	1965	1957	1957

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1957 - 2003	
ANNUAL TOTAL	131697		266028			
ANNUAL MEAN	361		729		415	
HIGHEST ANNUAL MEAN					767	
LOWEST ANNUAL MEAN					165	
HIGHEST DAILY MEAN	8360	May 14	10600	Jun 21	16600	Dec 5 1993
LOWEST DAILY MEAN	45	Sep 23-25	e100	Feb 17	13	Sep 1 1957
ANNUAL SEVEN-DAY MINIMUM	53	Sep 20	a113	Feb 13	19	Aug 31 1957
MAXIMUM PEAK FLOW			b23100	Jun 21	b35800	Jun 22 1972
MAXIMUM PEAK STAGE			13.78	Jun 21	17.08	Jun 22 1972
10 PERCENT EXCEEDS	756		1570		841	
50 PERCENT EXCEEDS	166		345		182	
90 PERCENT EXCEEDS	105		135		62	

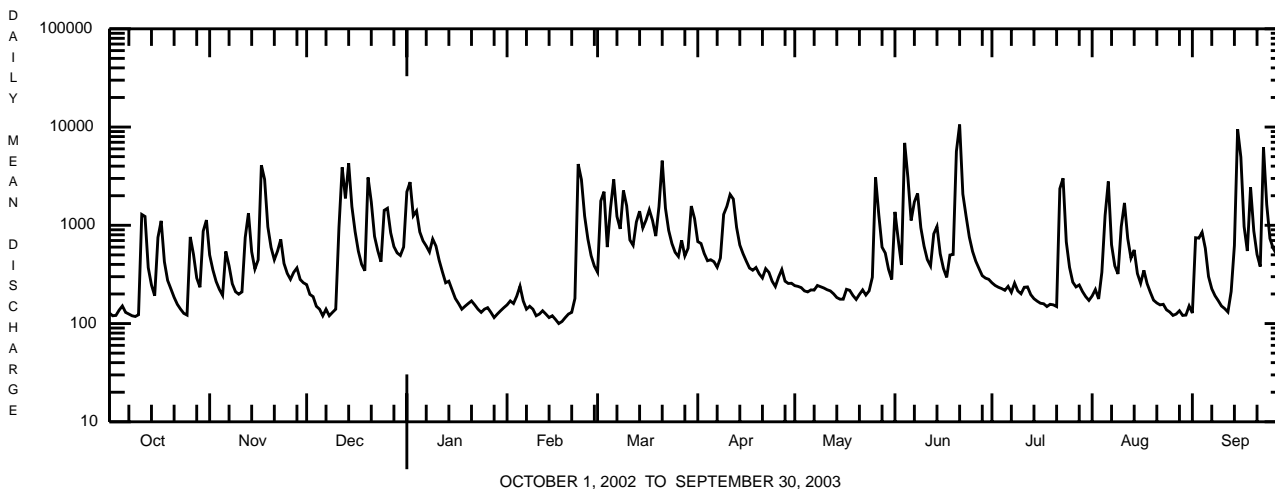
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1915 - 1956, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	192	345	445	504	641	771	513	346	213	274	261	177
MAX (WY)	856	1119	1077	1336	1458	2193	1335	1395	976	1190	1378	869
MIN (WY)	1956	1933	1928	1915	1918	1936	1952	1948	1946	1919	1955	1934
MIN (WY)	21.2	38.0	69.8	66.5	80.2	247	167	71.7	32.7	32.4	21.0	23.8
(WY)	1942	1932	1923	1925	1934	1915	1946	1941	1921	1954	1930	1932

SUMMARY STATISTICS WATER YEARS 1915 - 1956

ANNUAL MEAN	389
HIGHEST ANNUAL MEAN	689
LOWEST ANNUAL MEAN	188
HIGHEST DAILY MEAN	18600
LOWEST DAILY MEAN	3.8
ANNUAL SEVEN-DAY MINIMUM	5.2
MAXIMUM PEAK FLOW	b39900
MAXIMUM PEAK STAGE	18.26
INSTANTANEOUS LOW FLOW	4.7
ANNUAL RUNOFF (CFSM)	1.40
ANNUAL RUNOFF (INCHES)	18.96
10 PERCENT EXCEEDS	800
50 PERCENT EXCEEDS	166
90 PERCENT EXCEEDS	42

- a Computed using estimated daily discharges.
- b From rating curve extended above 14,000 ft<sup>3</sup>/s on basis of slope-area measurement at 32,000 ft<sup>3</sup>/s, gage height 16.23 ft.
- e Estimated.



**SCHUYLKILL RIVER BASIN**

**01473169 VALLEY CREEK AT PENNSYLVANIA TURNPIKE BRIDGE NEAR VALLEY FORGE, PA**

**LOCATION.**--Lat 40°04'45", long 75°27'40", Chester County, Hydrologic Unit 02040202, on right bank 100 ft upstream from Pennsylvania turnpike bridge, 0.9 mi downstream from Little Valley Creek, 2.2 mi upstream from mouth, and 1.0 mi south of Valley Forge.

**DRAINAGE AREA.**--20.8 mi<sup>2</sup>.

**WATER-DISCHARGE RECORDS**

**PERIOD OF RECORD.**--October 1982 to current year.

**GAGE.**--Water-stage recorder and crest-stage gage. Datum of gage is 108.62 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Records good except those for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year. Satellite telemetry at station. Intermittent pumpage from quarry upstream.

**PEAK DISCHARGES FOR CURRENT YEAR.**--Peak discharges greater than base discharge of 600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Nov. 17	0300	1,200	7.74	Aug. 9	1715	950	7.20
Dec. 11	1800	765	6.83	Aug. 10	0815	1,430	8.31
Feb. 22	1630	1,130	7.57	Sept. 15	1730	*1,720	*8.95
June 20	2000	1,710	8.92	Sept. 19	0230	985	7.27

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	23	18	101	22	29	37	27	68	34	29	20
2	10	21	17	49	22	101	36	27	29	33	20	52
3	10	19	17	50	21	60	35	27	28	39	72	27
4	12	19	16	42	29	38	34	26	188	33	111	44
5	12	19	18	35	22	74	34	27	78	33	54	25
6	9.5	37	17	35	20	140	32	31	41	31	27	22
7	9.1	20	16	32	22	56	38	27	80	37	22	21
8	8.8	18	17	32	21	50	39	43	48	32	32	20
9	8.6	18	17	31	20	84	46	29	39	29	157	20
10	23	18	16	29	20	52	37	27	35	29	290	19
11	155	22	171	27	20	43	81	26	34	30	85	19
12	37	58	69	27	19	46	54	26	39	36	34	18
13	19	34	51	26	e19	49	40	25	90	31	27	52
14	16	24	90	25	19	45	37	25	76	26	24	34
15	15	22	36	25	19	42	36	24	38	25	22	417
16	95	53	31	24	e18	43	35	27	34	25	24	67
17	28	292	27	24	e18	48	34	27	32	23	22	34
18	19	65	25	24	e19	42	37	24	56	24	20	34
19	17	29	24	24	e19	38	33	23	38	24	22	158
20	16	22	70	23	20	120	32	23	514	22	22	34
21	15	20	31	23	23	100	32	29	171	22	21	30
22	15	30	26	23	368	52	34	23	75	23	21	28
23	15	23	25	e22	206	46	31	24	60	23	20	155
24	14	21	24	e22	73	43	30	27	53	27	20	38
25	15	20	104	21	46	41	29	25	47	22	19	32
26	52	19	44	21	36	44	38	160	44	21	19	31
27	19	27	32	21	32	41	31	35	42	21	19	30
28	17	20	29	21	31	37	29	29	39	20	19	52
29	30	19	28	21	---	44	28	26	37	20	18	30
30	65	19	27	21	---	51	28	25	35	19	44	28
31	39	---	27	20	---	41	---	25	---	19	22	---
TOTAL	826.0	1051	1160	921	1224	1740	1097	969	2188	833	1358	1591
MEAN	26.6	35.0	37.4	29.7	43.7	56.1	36.6	31.3	72.9	26.9	43.8	53.0
MAX	155	292	171	101	368	140	81	160	514	39	290	417
MIN	8.6	18	16	20	18	29	28	23	28	19	18	18
CFSM	1.28	1.68	1.80	1.43	2.10	2.70	1.76	1.50	3.51	1.29	2.11	2.55
IN.	1.48	1.88	2.07	1.65	2.19	3.11	1.96	1.73	3.91	1.49	2.43	2.85

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

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
MEAN	22.8	27.2	32.0	33.2	33.0	44.5	42.7	36.5	30.1	26.3	23.6	29.3										
MAX	61.8	48.8	103	95.8	53.5	85.9	98.8	77.5	72.9	53.1	43.8	95.5										
(WY)	1997	1987	1997	1996	1984	1994	1983	1984	2003	1996	2003	1999										
MIN	9.91	10.1	12.7	16.8	11.9	17.9	15.8	19.5	15.1	11.1	10.5	14.5										
(WY)	2002	2002	1999	1985	2002	1985	2002	1995	1995	2002	2002	2002										

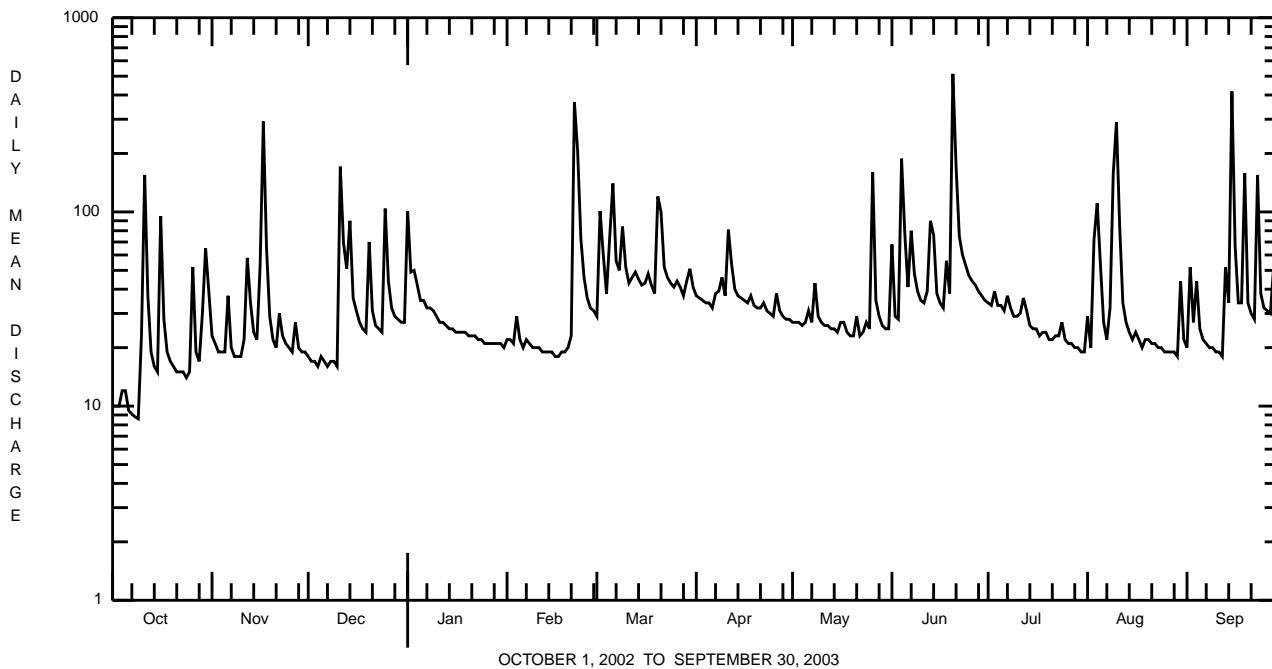
e Estimated.

SCHUYLKILL RIVER BASIN

01473169 VALLEY CREEK AT PENNSYLVANIA TURNPIKE BRIDGE NEAR VALLEY FORGE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1983 - 2003	
ANNUAL TOTAL	7568.4		14958.0			
ANNUAL MEAN	20.7		41.0		31.7	
HIGHEST ANNUAL MEAN					47.7	1996
LOWEST ANNUAL MEAN					15.2	2002
HIGHEST DAILY MEAN	292	Nov 17	514	Jun 20	2020	Sep 16 1999
LOWEST DAILY MEAN	7.5	Aug 17	8.6	Oct 9	7.4	Jul 13 1999
ANNUAL SEVEN-DAY MINIMUM	7.7	Aug 13	10	Oct 3	7.7	Aug 13 2002
MAXIMUM PEAK FLOW			1720	Sep 15	a6280	Sep 16 1999
MAXIMUM PEAK STAGE			8.95	Sep 15	b14.75	Sep 16 1999
INSTANTANEOUS LOW FLOW			8.4	Oct 9,10	6.4	Jul 29 1999
ANNUAL RUNOFF (CFSM)	1.00		1.97		1.53	
ANNUAL RUNOFF (INCHES)	13.54		26.75		20.74	
10 PERCENT EXCEEDS	33		68		52	
50 PERCENT EXCEEDS	15		28		23	
90 PERCENT EXCEEDS	9.2		19		14	

a From rating curve extended above 3,690 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow.  
 b From outside highwater mark.



## SCHUYLKILL RIVER BASIN

01473169 VALLEY CREEK AT PENNSYLVANIA TURNPIKE BRIDGE NEAR VALLEY FORGE, PA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1984, 1999 to current year.

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

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf µS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419)
OCT 2002 24...	1130	1028	80020	14	13.1	8.3	656	10.1	54.8	29.0	3.06	36.4	211

Date	Chlor- ide, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Boron, water, fltrd, µg/L (01020)	Iron, water, fltrd, µg/L (01046)
OCT 2002 24...	68.8	7.4	26.9	<.04	1.83	E.006	<.02	70	12



## SCHUYLKILL RIVER BASIN

01473169 VALLEY CREEK AT PENNSYLVANIA TURNPIKE BRIDGE NEAR VALLEY FORGE, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATESREMARKS.--Samples were collected using a Hess sampler with a mesh size of 500  $\mu\text{m}$ . Each sample covered a total area of 2.4  $\text{m}^2$ .

Date	10/24/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	45
Nemertea (PROBOSAS WORMS)	
Enopla	
Hoplonemertea	
Tetrastemmatidae	
<u>Prostoma</u> sp	27
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancyliidae	
<u>Ferrissia</u> sp	4
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	24
Tubificida	
Naididae	2
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	56
Crustacea	
Amphipoda (SCUDS)	
Gammaridae	
<u>Gammarus</u> sp	5
Podocopa (SEED SHRIMP)	2
Insecta	
Ephemeroptera (MAYFLIES)	
Ephemerellidae	
<u>Eurylophella</u> sp	2
<u>Serratella</u> sp	13
Heptageniidae	
<u>Stenonema</u> sp	2
Isonychiidae	
<u>Isonychia</u> sp	1
Plecoptera (STONEFLIES)	
Taeniopterygidae	
<u>Taeniopteryx</u> sp	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	
<u>Cheumatopsyche</u> sp	145
<u>Hydropsyche</u> sp	57
Philopotamidae	
<u>Chimarra</u> sp	45

## SCHUYLKILL RIVER BASIN

01473169 VALLEY CREEK AT PENNSYLVANIA TURNPIKE BRIDGE NEAR VALLEY FORGE, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES--Continued

Date	10/24/02
Benthic Macroinvertebrate	Count
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Optioservus</u> sp	329
<u>Oulimnius</u> sp	87
<u>Stenelmis</u> sp	32
Psephenidae (WATER PENNIES)	
<u>Psephenus</u> sp	15
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	
32	
Empididae (DANCE FLIES)	
<u>Hemerodromia</u> sp	1
Simuliidae (BLACK FLIES)	
<u>Simulium</u> sp	3
Tipulidae (CRANE FLIES)	
<u>Antocha</u> sp	52
Total organisms	982
Total number of taxa	24



**SCHUYLKILL RIVER BASIN**

**01473500 SCHUYLKILL RIVER AT NORRISTOWN, PA**

**LOCATION.**--Lat 40°06'40", long 75°20'25", Montgomery County, Hydrologic Unit 02040203, on left bank at Haws Avenue bridge leading to Barbadoes Island, 0.2 miles upstream from Stony Creek, 0.6 miles upstream from Norristown Dam.

**DRAINAGE AREA.**--1,760 mi<sup>2</sup>.

**PERIOD OF RECORD.**--August 2001 to current year. October 1927 to May 1933 at site 0.6 mi downstream, at different datum. Annual maximums, October 1983 to September 1993 from crest-stage gage located 0.7 mi downstream at different datum.

**GAGE.**--Water-stage recorder and crest-stage gage. Datum of gage is 51.00 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Records good except for estimated daily discharges, and those greater than 16,000 ft<sup>3</sup>/s, which are poor. Several measurements of temperature were made during the year. Satellite and landline telemetry at station.

**PEAK DISCHARGES FOR CURRENT YEAR.**--Peak discharges greater than base discharge of 23,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
June 4	1445	24,900	13.25	Sept. 15	1945	25,800	13.51
June 21	0630	*33,500	*16.25	Sept. 23	1900	23,100	12.80

**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	878	3880	2390	6050	e1650	2750	5430	2730	6970	3550	2140	1520
2	684	3190	2240	10800	e1700	5000	5170	2630	10000	3160	2320	3620
3	598	2740	2020	9940	e1650	8770	4830	2570	7220	3050	2340	3460
4	641	2460	1750	10000	e1700	5760	4330	2520	16800	2850	3670	3680
5	827	2150	1710	7580	e2100	5450	4130	2380	14300	2640	4790	3590
6	659	2640	1830	6510	e2200	10300	4080	2330	9060	2670	8800	2410
7	587	2860	e1770	5440	e1900	7560	3810	2280	8220	2520	5430	1960
8	501	2330	1720	4610	e1700	5220	4020	2530	11800	2590	4210	1750
9	555	2010	1690	4680	e1550	7350	4770	2460	8570	2540	3970	1620
10	591	1890	1550	4510	e1500	7970	6090	2280	7200	2270	7000	1450
11	3120	1860	3300	4300	e1450	5330	6720	2190	6040	2380	5090	1310
12	7620	2460	12200	3870	e1400	4510	8640	2090	5200	2350	4250	1250
13	5380	5100	9810	3530	e1300	4820	6910	1960	7100	2160	4120	1540
14	3310	3380	14300	3220	e1200	6180	5730	1840	9790	1970	3700	2980
15	2300	2660	11200	2980	e1000	5920	5310	1740	6580	1840	3560	14400
16	3120	2740	8600	2630	e900	5990	4920	1720	5260	1710	2910	14500
17	9070	12300	6850	2530	e600	6940	4570	1880	4250	1650	2930	6450
18	6690	11200	5660	2370	e650	7180	4260	1880	4460	1600	2680	4680
19	4460	7740	4600	2180	e1000	7090	3880	1780	4600	1760	2330	8990
20	3550	6020	7800	e2100	e1500	7620	3570	1670	10700	1950	2140	5100
21	3040	4840	8390	e2000	e2200	16900	3350	1760	27500	1670	1920	3660
22	2330	4400	5530	e1900	6470	13700	3500	1880	16900	6420	1770	3060
23	1800	4610	4720	e1600	16700	10500	3370	1700	12300	11400	1760	13300
24	1560	3860	4300	e1400	11900	8570	3060	1780	9910	7070	1630	15600
25	1460	3360	6230	e1300	7070	6260	2760	2060	8320	6970	1460	8730
26	2650	2990	7730	e1500	5020	5180	2920	7830	7250	4490	1380	6430
27	e2910	2970	5390	e1600	3750	5400	3430	6190	6500	3590	1380	5230
28	e2410	3090	4370	e1400	3080	4720	3140	4350	5060	3170	1470	5890
29	2230	2700	3950	e1300	---	4470	2780	4030	4490	2880	1330	5200
30	3630	2510	3810	e1500	---	6350	2770	3740	4190	2370	1440	3880
31	5650	---	3640	e1600	---	6630	---	3150	---	2130	1590	---
TOTAL	84811	116940	161050	116930	84840	216390	132250	81930	266540	99370	95510	157240
MEAN	2736	3898	5195	3772	3030	6980	4408	2643	8885	3205	3081	5241
MAX	9070	12300	14300	10800	16700	16900	8640	7830	27500	11400	8800	15600
MIN	501	1860	1550	1300	600	2750	2760	1670	4190	1600	1330	1250
CFSM	1.55	2.21	2.95	2.14	1.72	3.97	2.50	1.50	5.05	1.82	1.75	2.98
IN.	1.79	2.47	3.40	2.47	1.79	4.57	2.80	1.73	5.63	2.10	2.02	3.32

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

MEAN	1774	2345	2371	2149	3008	4014	3945	2843	2764	1873	1254	1388
MAX	4449	5866	6439	3772	6811	6980	7141	3873	8885	4933	3081	5241
(WY)	1928	1933	1928	2003	1928	2003	1933	1933	2003	1928	2003	2003
MIN	256	353	508	910	1045	1746	1917	1603	1113	534	351	283
(WY)	1931	1931	1931	1931	2002	1931	1931	1930	1930	2002	1930	1932

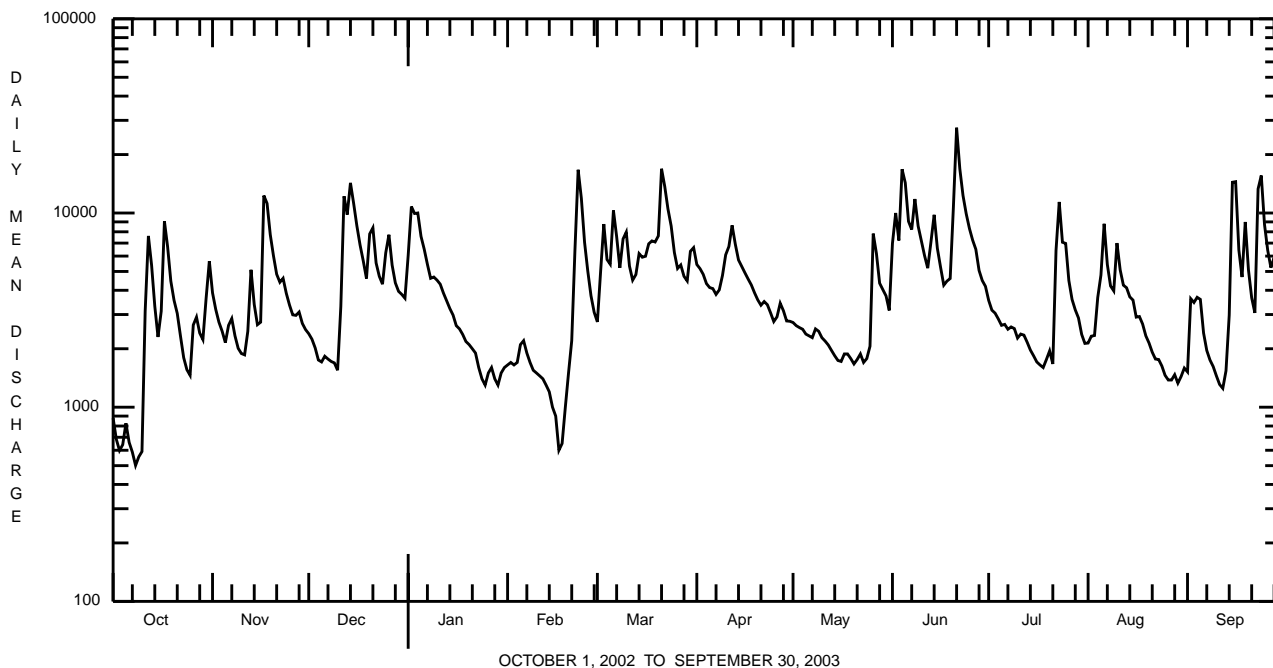
e Estimated.

SCHUYLKILL RIVER BASIN

01473500 SCHUYLKILL RIVER AT NORRISTOWN, PA

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	782368		1613801			
ANNUAL MEAN	2143		4421		2371	
HIGHEST ANNUAL MEAN					4421	2003
LOWEST ANNUAL MEAN					1259	1931
HIGHEST DAILY MEAN	16900	May 14	27500	Jun 21	30100	Feb 27 1929
LOWEST DAILY MEAN	234	Aug 15	501	Oct 8	179	Dec 18 1930
ANNUAL SEVEN-DAY MINIMUM	268	Aug 11	623	Oct 4	232	Oct 3 1930
MAXIMUM PEAK FLOW			a33500	Jun 21	a42000	Jul 15 1931b
MAXIMUM PEAK STAGE			16.25	Jun 21	16.25	Jun 21 2003
ANNUAL RUNOFF (CFSM)	1.22		2.51		1.35	
ANNUAL RUNOFF (INCHES)	16.54		34.11		18.30	
10 PERCENT EXCEEDS	4580		8680		5070	
50 PERCENT EXCEEDS	1450		3380		1510	
90 PERCENT EXCEEDS	414		1500		404	

- a From rating curve extended above 16,000 ft<sup>3</sup>/s on basis of runoff comparisons.
- b At site 0.6 mi downstream at different datum.



**SCHUYLKILL RIVER BASIN**

**01473900 WISSAHICKON CREEK AT FORT WASHINGTON, PA  
(Pennsylvania Water-Quality Network Station)**

**LOCATION.**--Lat 40°07'26", long 75°13'13", Montgomery County, Hydrologic Unit 02040203, on left bank at downstream side of bridge on State Highway 73, 0.5 mi downstream from Sandy Run, and 1 mi south of Fort Washington.

**DRAINAGE AREA.**--40.8 mi<sup>2</sup>.

**WATER-DISCHARGE RECORDS**

**PERIOD OF RECORD.**--September 1961 to March 1969; June 2000 to current year; Annual maximums, October 1969 to September 1979, at site and datum then in use.

**GAGE.**--Water-stage recorder and crest-stage gage. Datum of gage is 139.98 ft above National Geodetic Vertical Datum of 1929. From Sept. 1961 to Mar. 1969 gage at present site at datum 140.70 ft above National Geodetic Vertical Datum of 1929.

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

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of Sept. 16, 1999, reached a stage of 18.05 ft, from floodmarks, discharge about 14,300 ft<sup>3</sup>/s.

**PEAK DISCHARGES FOR CURRENT YEAR.**--Peak discharges greater than base discharge of 1,300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Nov. 17	0445	1,420	6.68	June 13	2030	1,830	7.57
Dec. 11	2015	1,630	7.14	June 20	1745	2,590	8.96
Jan. 1	1815	2,280	8.42	Aug. 5	1600	1,630	7.14
Feb. 22	1800	*3,010	*9.66	Aug. 9	2100	2,930	9.55
Mar. 20	2330	1,720	7.34	Sept. 15	2100	1,910	7.72
May 26	1100	1,640	7.16	Sept. 19	0545	1,650	7.19
June 4	1145	2,260	8.37	Sept. 23	1100	1,870	7.64

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	44	37	506	32	60	74	45	115	46	94	27
2	16	40	35	200	32	432	78	64	54	42	53	82
3	16	30	32	150	31	237	68	41	44	44	27	81
4	16	27	30	144	55	101	61	37	787	42	79	89
5	15	25	35	98	40	281	62	39	293	39	519	49
6	14	89	34	98	31	516	57	45	108	36	114	33
7	15	35	32	87	34	160	66	38	258	79	60	29
8	13	28	33	84	31	147	85	126	e145	52	104	28
9	14	27	33	86	30	319	161	47	e120	35	568	26
10	20	23	30	72	31	145	104	43	e95	36	289	25
11	196	31	367	63	30	100	204	40	e80	40	123	24
12	66	183	321	57	28	116	193	38	73	38	68	23
13	25	118	182	55	27	141	104	37	373	32	51	94
14	19	50	441	51	26	120	85	37	347	29	42	128
15	18	38	116	48	26	99	77	34	141	29	37	338
16	89	63	83	44	e27	104	71	37	89	28	35	139
17	54	468	65	45	e28	113	63	54	77	26	33	52
18	24	282	55	41	e30	92	61	37	236	25	31	47
19	19	80	53	40	32	78	59	34	100	36	30	449
20	18	60	210	40	34	369	58	34	1020	25	29	63
21	17	53	96	37	43	394	57	49	541	26	28	45
22	16	98	67	35	1010	132	58	37	161	201	27	39
23	15	69	58	34	787	101	54	36	119	42	28	403
24	15	50	52	e33	242	85	50	40	96	e130	24	77
25	16	45	286	32	120	76	47	39	83	e30	24	54
26	158	40	138	32	86	85	78	570	73	27	24	46
27	32	68	92	30	69	91	55	e90	66	26	42	58
28	23	50	77	28	65	70	49	e60	57	28	30	189
29	40	42	69	30	---	73	47	e55	54	26	24	59
30	191	40	65	29	---	100	45	e50	51	24	149	45
31	111	---	71	29	---	91	---	46	---	23	40	---
TOTAL	1318	2296	3295	2358	3057	5028	2331	1979	5856	1342	2826	2841
MEAN	42.5	76.5	106	76.1	109	162	77.7	63.8	195	43.3	91.2	94.7
MAX	196	468	441	506	1010	516	204	570	1020	201	568	449
MIN	13	23	30	28	26	60	45	34	44	23	24	23
CFSM	1.04	1.88	2.61	1.86	2.68	3.98	1.90	1.56	4.78	1.06	2.23	2.32
IN.	1.20	2.09	3.00	2.15	2.79	4.58	2.13	1.80	5.34	1.22	2.58	2.59

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

	23.1	33.2	49.0	60.0	73.3	100	61.8	52.1	67.7	28.0	36.2	33.2
MEAN	23.1	33.2	49.0	60.0	73.3	100	61.8	52.1	67.7	28.0	36.2	33.2
MAX	55.7	76.5	111	108	119	162	115	77.5	219	51.2	107	94.7
(WY)	1967	2003	1968	1964	1966	2003	1962	1968	2001	1967	1967	2003
MIN	7.45	11.7	14.0	17.4	23.8	61.6	30.2	17.2	10.9	9.88	8.55	11.3
(WY)	1964	1966	1966	1966	2002	1965	1963	1963	1963	1962	1964	1968

e Estimated.

SCHUYLKILL RIVER BASIN

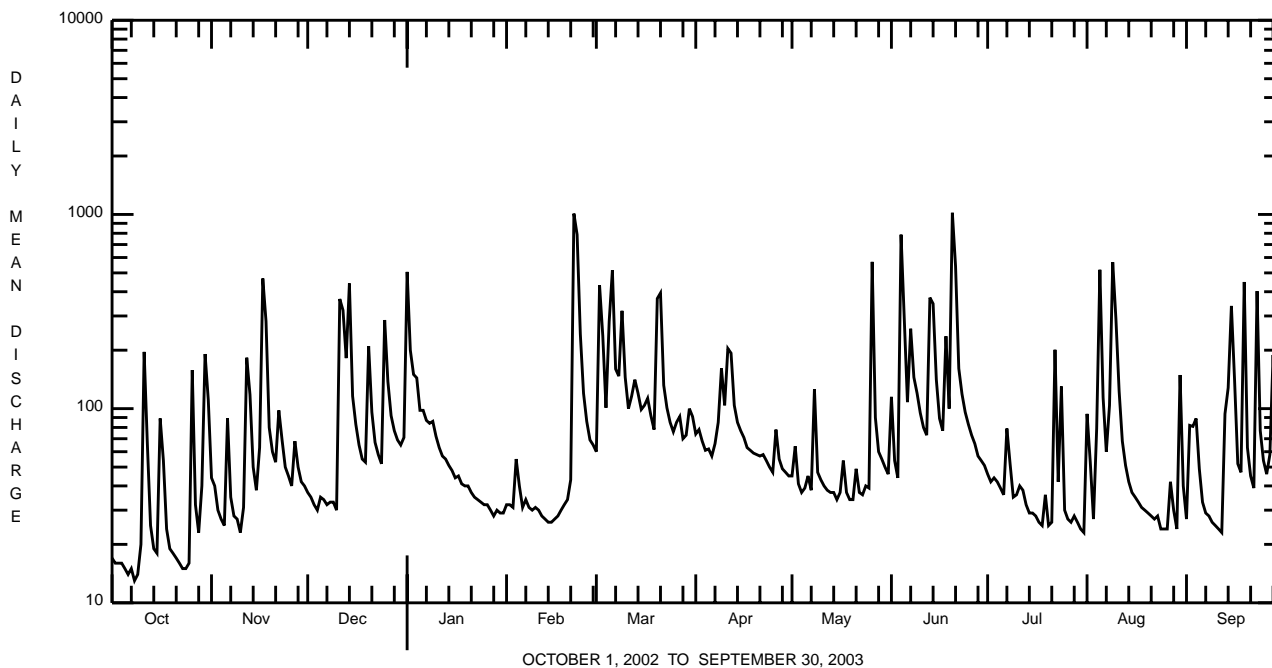
01473900 WISSAHICKON CREEK AT FORT WASHINGTON, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	18344		34527			
ANNUAL MEAN	50.3		94.6		52.1	
HIGHEST ANNUAL MEAN					94.6	2003
LOWEST ANNUAL MEAN					31.6	1965
HIGHEST DAILY MEAN	707	May 18	1020	Jun 20	2490	Jun 17 2001
LOWEST DAILY MEAN	11	Aug 11-15 <sup>a</sup>	13	Oct 8	4.6	Jul 5 1963
ANNUAL SEVEN-DAY MINIMUM	11	Aug 9	15	Oct 3	5.6	Jul 1 1963
MAXIMUM PEAK FLOW			<sup>b</sup> 3010	Feb 22	<sup>b</sup> 11000	Jun 17 2001
MAXIMUM PEAK STAGE			9.66	Feb 22	<sup>c</sup> 16.30	Jun 17 2001
INSTANTANEOUS LOW FLOW			10	Oct 8	2.9	Sep 2 1963
ANNUAL RUNOFF (CFSM)	1.23		2.32		1.28	
ANNUAL RUNOFF (INCHES)	16.73		31.48		17.37	
10 PERCENT EXCEEDS	102		198		98	
50 PERCENT EXCEEDS	28		52		27	
90 PERCENT EXCEEDS	13		26		9.3	

<sup>a</sup> Also Aug. 18, 19, 21, 22, Sept. 12, 25

<sup>b</sup> From rating curve extended above 1,860 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 16.30 ft.

<sup>c</sup> From floodmark.



SCHUYLKILL RIVER BASIN

01473900 WISSAHICKON CREEK AT FORT WASHINGTON, 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 430-470.

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

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium, water, unfltrd recover -able, mg/L (00916)	Magnesium, water, unfltrd recover -able, mg/L (00927)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002 26...	1240	1028	9813	37	30	11.5	7.7	643	9.0	180	45.4	17.3	108
JAN 2003 15...	1150	1028	9813	47	30	14.8	7.7	754	3.1	190	47.0	17.6	95
MAR 31...	1050	1028	9813	88	30	16.0	8.3	667	7.6	160	38.9	14.6	85
MAY 08...	1140	1028	9813	83	30	8.6	7.3	567	16.6	140	34.4	13.1	76
JUL 02...	1140	1028	9813	42	30	8.8	7.7	661	20.5	190	45.9	17.2	96
SEP 04...	1150	1028	9813	69	30	8.1	7.7	540	20.1	150	36.4	14.5	98

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC, suspended, mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water, unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recover -able, mg/L (01105)	Copper, water, unfltrd recover -able, mg/L (01042)	Iron, water, unfltrd recover -able, mg/L (01045)
NOV 2002 26...	52.2	428	8	.180	6.68	<.200	1.02	1.23	7.8	5.4	<200	10	180
JAN 2003 15...	65.8	480	6	<.020	6.73	<.200	.75	.897	7.2	4.2	<200	10	180
MAR 31...	41.6	474	2	<.020	3.50	<.200	.48	.512	4.1	4.8	<200	<10	170
MAY 08...	40.1	410	12	.140	3.17	<.040	.68	.827	4.3	7.4	1100	10	1010
JUL 02...	60.7	460	10	.020	5.87	<.200	.84	.917	6.1	4.3	<200	<10	210
SEP 04...	43.9	404	6	.040	5.25	<.200	.86	.957	5.7	5.7	300	20	300

Date	Lead, water, unfltrd recover -able, µg/L (01051)	Manganese, water, unfltrd recover -able, µg/L (01055)	Nickel, water, unfltrd recover -able, µg/L (01067)	Zinc, water, unfltrd recover -able, µg/L (01092)
NOV 2002 26...	<1.0	20	<50	20
JAN 2003 15...	<1.0	40	<50	<10
MAR 31...	<1.0	40	<50	60
MAY 08...	2.0	90	<50	30
JUL 02...	<1.0	20	<50	150
SEP 04...	1.1	30	<50	20



## SCHUYLKILL RIVER BASIN

01473900 WISSAHICKON CREEK AT FORT WASHINGTON, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES

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

Date	09/03/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	18
Nemertea (PROBOSAS WORMS)	
Enopla	
Hoplonemertea	
Tetrastemmatidae	
<u>Prostoma</u> sp	1
Mollusca	
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	
<u>Sphaerium</u> sp	2
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Tubificida	
Naididae	2
Hirudinea (LEECHES)	
Arhynchobdellida	
Erpobdellidae	3
Arthropoda	
Crustacea	
Amphipoda (SCUDS)	
Crangonyctidae	
<u>Crangonyx</u> sp	1
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Baetis</u> sp	4
Odonata	
Coenagrionidae (DAMSELFLIES)	
<u>Argia</u> sp	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	
<u>Cheumatopsyche</u> sp	35
<u>Hydropsyche</u> sp	27
Hydroptilidae	
<u>Hydroptila</u> sp	1
Philopotamidae	
<u>Chimarra</u> sp	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Stenelmis</u> sp	61
Psephenidae (WATER PENNIES)	
<u>Psephenus</u> sp	1
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	42
Tipulidae (CRANE FLIES)	
<u>Tipula</u> sp	1
Total Organisms	201

**SCHUYLKILL RIVER BASIN**

**01474000 WISSAHICKON CREEK AT MOUTH, PHILADELPHIA, PA  
(Pennsylvania Water-Quality Network Station)**

**LOCATION.**--Lat 40°00'55", long 75°12'26", Philadelphia County, Hydrologic Unit 02040203, on left bank 100 ft upstream from dam at Ridge Avenue, 750 ft upstream from mouth, and 1,000 ft northwest of Gustine Lake in Philadelphia.

**DRAINAGE AREA.**--64.0 mi<sup>2</sup>.

**WATER-DISCHARGE RECORDS**

**PERIOD OF RECORD.**--June 1897 to September 1903, January 1905 to July 1906, October 1965 to current year. Prior to October 1965, records furnished by Department of Public Works, City of Philadelphia. Records for 1971-74 published in WDR PA-81-1. Prior to October 1965, published as "near Philadelphia".

**REVISED RECORDS.**--WSP 1302: 1905: WDR PA-89-1: 1988.

**GAGE.**--Water-stage recorder, crest-stage gage and concrete control. Datum of gage is 26.41 ft above National Geodetic Vertical Datum of 1929. Prior to October 1965, water-stage recorder at about same site and datum.

**REMARKS.**--No estimated daily discharges. Records fair. Several measurements of water temperature were made during the year. Satellite telemetry at station.

**PEAK DISCHARGES FOR CURRENT YEAR.**--Peak discharges greater than base discharge of 2,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Feb. 22	2200	*2,900	*5.38	June 20	2300	2,820	5.32
June 4	1500	2,020	4.65	Aug. 10	0030	2,340	4.92

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	56	55	537	54	68	90	68	192	81	117	48
2	24	52	55	356	55	560	94	77	96	76	137	117
3	22	47	53	182	54	416	78	89	70	78	63	97
4	25	48	51	208	65	139	75	67	940	74	119	116
5	27	44	56	127	71	333	78	66	471	73	530	79
6	23	119	57	126	53	787	72	80	172	74	280	51
7	23	54	53	110	56	265	78	67	319	100	90	49
8	21	47	53	100	54	184	103	209	291	130	158	47
9	21	49	56	109	52	437	185	77	155	69	409	44
10	38	47	50	91	54	253	149	70	122	74	596	43
11	284	52	333	81	53	143	276	65	107	72	202	43
12	125	193	528	74	52	137	296	64	123	76	98	42
13	49	228	210	73	50	184	161	60	321	71	67	146
14	38	65	628	69	49	183	126	58	553	60	59	192
15	33	52	171	66	50	130	111	58	280	59	53	287
16	88	69	111	63	47	138	105	60	138	57	52	380
17	108	578	87	64	42	155	95	81	113	55	52	86
18	46	393	74	58	71	138	91	62	380	60	48	79
19	39	104	70	61	56	123	89	58	158	77	46	559
20	36	74	274	61	57	372	84	55	1030	60	46	113
21	32	65	156	58	65	735	81	66	1020	57	45	83
22	29	109	87	56	1110	197	85	60	275	250	44	72
23	28	103	77	55	1310	141	80	58	203	73	47	518
24	23	64	68	55	414	117	76	69	166	224	46	141
25	27	59	379	55	181	99	69	65	142	69	44	86
26	225	57	209	54	109	105	127	755	125	60	37	76
27	54	76	124	54	80	137	87	162	113	57	48	76
28	43	67	99	52	73	87	75	94	106	55	55	253
29	50	57	88	55	---	104	72	85	98	53	42	97
30	213	56	83	54	---	120	70	72	90	52	207	73
31	207	---	85	53	---	127	---	79	---	52	106	---
TOTAL	2027	3084	4480	3217	4437	7114	3258	3056	8369	2478	3943	4093
MEAN	65.4	103	145	104	158	229	109	98.6	279	79.9	127	136
MAX	284	578	628	537	1310	787	296	755	1030	250	596	559
MIN	21	44	50	52	42	68	69	55	70	52	37	42
CFSM	1.02	1.61	2.26	1.62	2.48	3.59	1.70	1.54	4.36	1.25	1.99	2.13
IN.	1.18	1.79	2.60	1.87	2.58	4.14	1.89	1.78	4.86	1.44	2.29	2.38

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

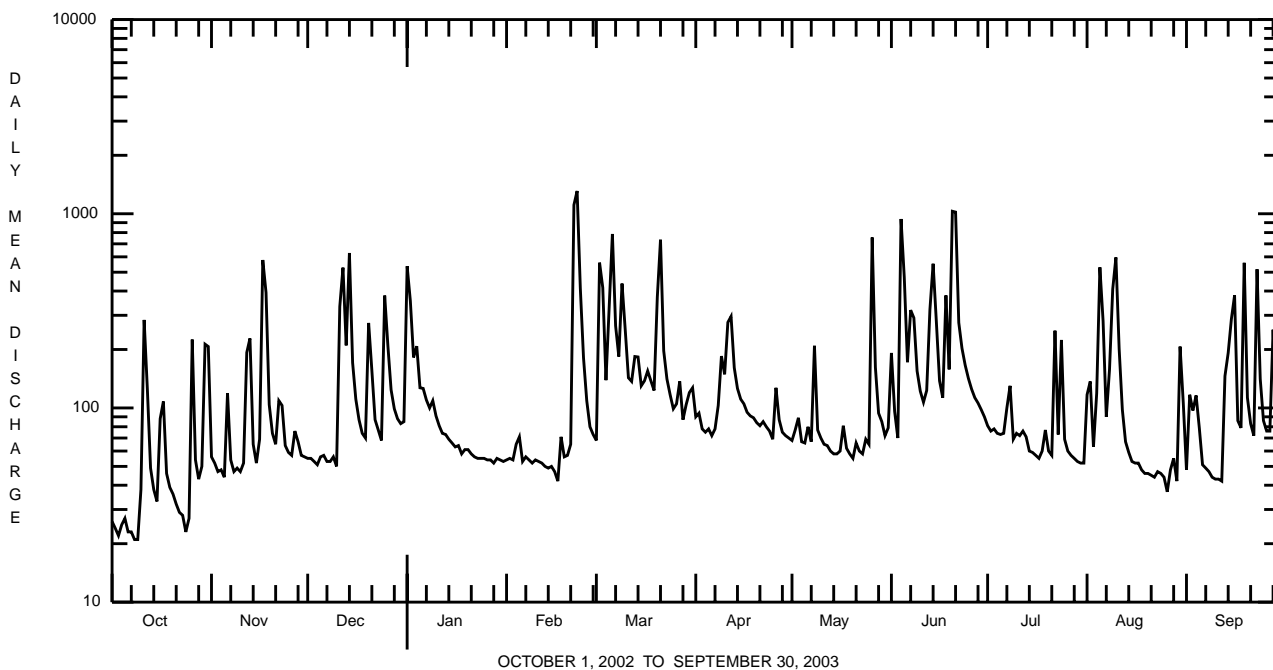
MEAN	68.1	85.6	113	118	122	154	136	115	97.6	79.7	74.9	84.3
MAX	216	265	398	378	266	370	410	229	306	230	171	365
(WY)	1997	1973	1997	1979	1979	1994	1983	1984	2001	1975	1973	1999
MIN	23.1	17.7	22.7	24.3	37.0	40.7	41.3	50.8	32.0	23.7	19.8	23.0
(WY)	1966	1966	1966	1981	1969	1985	1985	1986	1986	1999	1966	1968

SCHUYLKILL RIVER BASIN

01474000 WISSAHICKON CREEK AT MOUTH, PHILADELPHIA, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1966 - 2003	
ANNUAL TOTAL	26435		49556			
ANNUAL MEAN	72.4		136		104	
HIGHEST ANNUAL MEAN					169	1996
LOWEST ANNUAL MEAN					50.6	1966
HIGHEST DAILY MEAN	847	May 18	1310	Feb 23	5560	Sep 16 1999
LOWEST DAILY MEAN	16	Aug 15, 16 <sup>a</sup>	21	Oct 8, 9	8.8	Aug 30 1995
ANNUAL SEVEN-DAY MINIMUM	17	Aug 14	23	Oct 3	12	Aug 27 1966
MAXIMUM PEAK FLOW			2900	Feb 22	b19800	Sep 16 1999
MAXIMUM PEAK STAGE			5.38	Feb 22	c11.50	Sep 16 1999
INSTANTANEOUS LOW FLOW			18	Oct 24	2.0	Jul 18 1905 <sup>d</sup>
ANNUAL RUNOFF (CFSM)	1.13		2.12		1.62	
ANNUAL RUNOFF (INCHES)	15.37		28.80		22.06	
10 PERCENT EXCEEDS	132		285		180	
50 PERCENT EXCEEDS	48		76		60	
90 PERCENT EXCEEDS	23		47		28	

- a Also Aug. 20, 23.
- b From rating curve extended above 4,000 ft<sup>3</sup>/s on basis of slope-area measurement at peak flow.
- c From floodmark. Maximum recorded 10.77 ft.
- d Also July 19. Minimum observed is outside computed statistical period.



SCHUYLKILL RIVER BASIN

01474000 WISSAHICKON CREEK AT MOUTH, PHILADELPHIA, 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 430-470.

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

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd recover, mg/L as CaCO3 (00900)	Calcium, water, unfltrd recover, mg/L (00916)	Magnesium, water, unfltrd recover, mg/L (00927)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002 21...	1320	1028	9813	64	30	12.4	7.9	545	7.9	180	40.8	18.0	112
JAN 2003 28...	1140	1028	9813	52	30	16.4	8.1	741	.2	210	47.5	21.9	110
MAR 13...	1110	1028	9813	152	30	14.4	7.9	654	6.7	160	37.9	15.2	75
MAY 22...	1200	1028	9813	63	30	7.4	7.5	525	14.8	190	44.0	20.5	114
JUL 15...	1340	1028	9813	61	30	10.2	8.2	628	21.6	200	45.6	21.8	112
SEP 03...	1320	1028	9813	128	30	9.3	7.9	545	19.3	140	33.3	14.4	94

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC, suspended, mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd, mg/L as N (00610)	Nitrate water, unfltrd, mg/L as N (00620)	Nitrite water, unfltrd, mg/L as N (00615)	Orthophosphate, water, unfltrd, mg/L as P (70507)	Phosphorus, water, unfltrd, mg/L (00665)	Total nitrogen, water, unfltrd, mg/L (00600)	Organic carbon, water, unfltrd, mg/L (00680)	Aluminum, water, unfltrd recover, mg/L (01105)	Copper, water, unfltrd recover, mg/L (01042)	Iron, water, unfltrd recover, mg/L (01045)
NOV 2002 21...	47.3	160	<2	.030	4.33	<.040	.44	.447	4.6	4.1	<200	<10	130
JAN 2003 28...	65.4	538	2	.030	7.04	<.200	.69	.747	7.6	3.7	<200	10	150
MAR 13...	42.4	676	12	.020	3.73	<.200	.28	.332	4.4	3.9	<200	<10	210
MAY 22...	53.6	502	2	.050	5.11	<.200	.80	.988	6.3	4.6	<200	<10	320
JUL 15...	46.4	400	<2	.030	4.65	<.200	.57	.708	5.0	3.7	<200	<10	110
SEP 03...	57.1	402	2	.050	3.43	<.200	.60	.698	4.0	4.4	200	20	340

Date	Lead, water, unfltrd recover, mg/L (01051)	Manganese, water, unfltrd recover, mg/L (01055)	Nickel, water, unfltrd recover, mg/L (01067)	Zinc, water, unfltrd recover, mg/L (01092)
NOV 2002 21...	<1.0	20	<50	20
JAN 2003 28...	<1.0	20	<50	<10
MAR 13...	<1.0	40	<50	50
MAY 22...	1.6	40	<50	30
JUL 15...	<1.0	10	<50	20
SEP 03...	1.5	30	<50	170

## SCHUYLKILL RIVER BASIN

01474000 WISSAHICKON CREEK AT MOUTH, PHILADELPHIA, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES

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

Date	8/15/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	5
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
<u>Ferrissia</u> sp	2
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	
<u>Sphaerium</u> sp	1
Arthropoda	
Crustacea	
Amphipoda (SCUDS)	
Gammaridae	
<u>Gammarus</u> sp	28
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Baetis</u> sp	15
Hemiptera (TRUE BUGS)	
Veliidae	
<u>Microvelia</u> sp	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	
<u>Cheumatopsyche</u> sp	1
<u>Hydropsyche</u> sp	31
Hydroptilidae	
<u>Hydroptila</u> sp	2
Lepidoptera (MOTHS AND BUTTERFLIES)	
Pyralidae	
<u>Petrophila</u> sp	2
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Optioservus</u> sp	1
<u>Stenelmis</u> sp	10
Psephenidae (WATER PENNIES)	
<u>Psephenus</u> sp	2
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	19
Empididae (DANCE FLIES)	
<u>Hemerodromia</u> sp	2
Total Organisms	122

**SCHUYLKILL RIVER BASIN**

**01474500 SCHUYLKILL RIVER AT PHILADELPHIA, PA  
(National Water-Quality Assessment Station)**

**LOCATION.**--Lat 39°58'04", long 75°11'20", Philadelphia County, Hydrologic Unit 02040203, on right bank 150 ft upstream from Fairmount Dam, 1,500 ft upstream from bridge on Spring Garden Street in Philadelphia, and 8.7 mi upstream from mouth.

**DRAINAGE AREA.**--1,893 mi<sup>2</sup>.

**WATER-DISCHARGE RECORDS**

**PERIOD OF RECORD.**--October 1931 to current year. Records for January 1898 to December 1912, published in WSP 35, 48, 65, 82, 97, 125, 166, 202, 214, 261, 301, and 381 have been found to be unreliable and should not be used.

**REVISED RECORDS.**--WSP 756: Drainage area. WSP 1302: 1936(M). WSP 1432: 1945. See also PERIOD OF RECORD.

**GAGE.**--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 5.74 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 25, 1956, water-stage recorder at site on right bank just upstream from Fairmount Dam at same datum. Nov. 26, 1956, to Oct. 6, 1966, water-stage recorder at site on left bank 40 ft upstream from Fairmount Dam at same datum.

**REMARKS.**--No estimated daily discharges. Records good. Flow regulated by Still Creek Reservoir (station 01469200) since February 1933, Blue Marsh Lake (station 01470870) since April 1979, Green Lane Reservoir (station 01472200) since December 1956 and to some extent by Lake Ontelaunee. Daily mean discharges do not include diversion above station by city of Philadelphia for municipal water supply. Satellite and landline telemetry at station.

**COOPERATION.**--Records of diversion provided by Philadelphia Water Department.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of Oct. 4, 1869 reached a stage of 17.0 ft, discharge, about 135,000 ft<sup>3</sup>/s. Flood of Mar. 1, 1902 reached a stage of 14.8 ft, discharge, about 98,000 ft<sup>3</sup>/s.

**PEAK DISCHARGES FOR CURRENT YEAR.**--Peak discharges greater than base discharge of 18,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Nov. 17	1100	18,400	8.44	June 4	1700	32,800	9.87
Dec. 14	1200	18,900	8.50	June 21	0830	*52,500	*11.43
Feb. 23	0500	21,500	8.77	Sept. 16	0030	35,500	10.11
Mar. 21	1330	20,800	8.70	Sept. 23	2000	29,200	9.54

**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	972	4150	2430	6070	1420	3000	5620	2290	6490	3630	1950	1390
2	754	3350	2290	12900	1490	5000	5280	2140	11300	3090	2300	3310
3	631	2780	2040	11400	1440	10600	4910	2040	7840	2910	1960	3570
4	552	2460	1730	11700	1490	6640	4350	2010	19200	2670	3800	3520
5	835	2140	1660	8790	1970	5830	4050	1940	17600	2480	4580	3890
6	701	2560	1670	7410	2010	12100	4030	1940	10300	2510	10300	2400
7	663	2980	1600	6240	1640	9180	3780	1870	8450	2390	5940	1830
8	533	2320	1610	5170	1550	5890	3940	2340	13400	2440	4540	1600
9	547	1860	1610	5120	1350	7430	4510	2060	9560	2380	4190	1410
10	638	1750	1470	4870	1320	9530	6430	1930	7770	2090	7830	1280
11	2590	1740	2750	4720	1300	6010	6450	1830	6450	2110	5550	1120
12	7780	2280	13700	4110	1220	4890	9720	1770	5540	2090	4350	1030
13	5760	5430	11300	3680	1070	5240	7490	1670	6720	2020	4310	1380
14	3600	3610	16300	3260	950	6500	6030	1570	11600	1770	3590	2900
15	2430	2710	12800	2920	1080	6500	5430	1480	7390	1590	3580	14500
16	2670	2580	9780	2590	1010	6380	5000	1470	5580	1430	2820	20100
17	8800	13000	7580	2420	657	7420	4570	1630	4470	1350	2790	7340
18	7190	12800	6160	2160	370	7770	4180	1610	4810	1290	2660	5270
19	4790	8650	5080	1940	1020	7700	3810	1530	4710	1420	2170	10200
20	3690	6570	7540	2040	1600	8050	3410	1420	9810	1630	1930	6160
21	3180	5280	10400	1950	2370	19400	3230	1520	41200	1490	1720	4200
22	2430	4690	6220	1680	7140	15900	3260	1610	20800	5310	1510	3500
23	1740	4910	5270	1420	20700	11900	3210	1470	14300	12700	1470	14000
24	1470	4180	4670	1160	15000	9470	2890	1460	11100	7550	1470	19300
25	1300	3600	6520	1270	8270	6880	2520	1690	9150	7540	1320	10300
26	2470	3170	9300	1480	5710	5450	2640	8060	7720	4730	1180	7250
27	3560	3120	6130	1510	4310	5580	3120	7340	6740	3600	1160	5910
28	2580	3190	4830	1230	3410	4950	2920	4520	5370	3130	1270	6550
29	2160	2850	4330	1260	---	4370	2460	4020	4580	2780	1090	6070
30	3520	2530	4180	1380	---	6290	2400	3700	4270	2180	1460	4480
31	6060	---	3940	1400	---	6980	---	3120	---	1880	1490	---
TOTAL	86596	123240	176890	125250	92867	238830	131640	75050	304220	96180	96280	175760
MEAN	2793	4108	5706	4040	3317	7704	4388	2421	10140	3103	3106	5859
MAX	8800	13000	16300	12900	20700	19400	9720	8060	41200	12700	10300	20100
MIN	533	1740	1470	1160	370	3000	2400	1420	4270	1290	1090	1030
(†)	197	194	200	206	218	205	188	195	200	218	217	202

† Diversion for municipal supply of City of Philadelphia, equivalent in cubic feet per second.

SCHUYLKILL RIVER BASIN

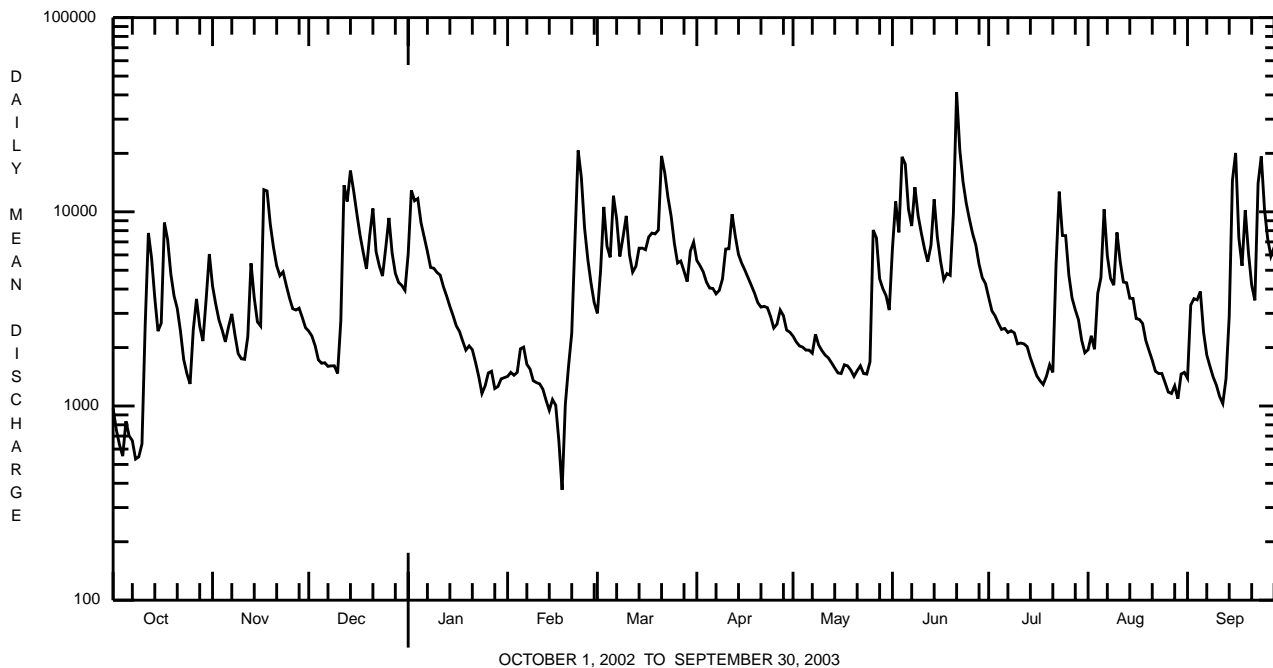
01474500 SCHUYLKILL RIVER AT PHILADELPHIA, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 2003, BY WATER YEAR (WY)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1417	2310	3180	3341	3606	4884	4234	3117	2226	1628	1389	1487
MAX	5624	6272	11150	11400	8136	13320	11620	9943	11640	6434	7980	5859
(WY)	1997	1973	1997	1979	1939	1936	1983	1989	1972	1984	1933	2003
MIN	89.4	223	444	340	647	1552	1237	693	261	116	140	117
(WY)	1942	1932	1981	1981	1934	1981	1985	1965	1965	1966	1966	1932

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1932 - 2003	
ANNUAL TOTAL	827607		1722803			
ANNUAL MEAN	2267		4720		2730	
HIGHEST ANNUAL MEAN					4791 1984	
LOWEST ANNUAL MEAN					1014 1965	
HIGHEST DAILY MEAN	18400	May 14	41200	Jun 21	93400	Jun 23 1972
LOWEST DAILY MEAN	79	Aug 17	370	Feb 18	0.60	Sep 2 1966
ANNUAL SEVEN-DAY MINIMUM	134	Aug 12	637	Oct 3	24	Sep 28 1941
MAXIMUM PEAK FLOW			52500	Jun 21	a103000	Jun 23 1972
MAXIMUM PEAK STAGE			11.43	Jun 21	14.65	Jun 23 1972
INSTANTANEOUS LOW FLOW			146	Feb 18	0.00	Sep 2 1966 <sup>b</sup>
10 PERCENT EXCEEDS	4980		9790		5880	
50 PERCENT EXCEEDS	1500		3500		1670	
90 PERCENT EXCEEDS	302		1370		440	

a From rating curve extended above 92,000 ft<sup>3</sup>/s.  
 b No flow over dam at times.



## SCHUYLKILL RIVER BASIN

01474500 SCHUYLKILL RIVER AT PHILADELPHIA, PA--Continued  
(National Water-Quality Assessment Station)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1998, revised, to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: September 1998 to April 1999, July 1999 to September 1999.

WATER TEMPERATURE: September 1998 to September 2001.

REMARKS.--These samples were collected as part of the Delaware River Basin National Water-Quality Assessment Program (NAWQA). For the definition of the type of quality-control data listed under SAMPLE TYPE refer to "Water-Quality-Control Data" in the "Introduction."

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

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Alkalinity, wat fltr inc tit field, mg/L as CaCO3 (39086)
NOV 21...	1000	Environmental	5,380	760	12.2	103	7.7	294	7.5	7.9	63
DEC 18...	1119	Field Blank	--	--	--	--	--	--	--	--	--
DEC 18...	1120	Environmental	6,340	773	14.1	105	7.6	294	3.0	3.6	53
JAN 16...	1110	Environmental	2,700	767	14.4	102	7.7	375	0.0	1.4	66
MAR 12...	1130	Environmental	4,900	762	13.6	103	7.7	342	9.5	3.7	55
APR 23...	1150	Environmental	3,300	757	10.3	100	8.1	345	19.0	13.4	65
MAY 15...	1120	Environmental	1,570	764	10.1	102	7.7	437	18.0	15.9	76
JUN 05...	1200	Environmental	16,700	755	10.0	98	7.3	210	22.0	13.9	42
JUL 15...	1040	Environmental	1,730	763	9.3	112	8.0	425	27.5	24.4	73
SEP 03...	1130	Environmental	3,560	757	9.1	104	7.8	405	22.5	21.2	77

Date	Chloride, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	Suspended sediment concentration mg/L (80154)	Suspended sediment load, tons/d (80155)
NOV 21...	20.5	32.0	0.54	0.08	3.89	0.026	0.08	0.125	8	118
DEC 18...	<0.20	<0.2	<0.10	<0.04	<0.06	<0.008	<0.02	<0.004	<1	--
DEC 18...	26.0	28.5	0.47	0.14	3.81	0.029	0.07	0.110	6	103
JAN 16...	35.9	40.6	0.51	0.27	4.19	0.085	0.10	0.145	3	21
MAR 12...	40.1	29.6	0.64	0.26	2.81	0.037	0.09	0.141	8	103
APR 23...	32.4	40.8	--	--	--	--	--	--	125	1,110
MAY 15...	41.1	52.7	0.71	0.05	3.09	0.082	0.17	0.28	10	42
JUN 05...	17.4	19.5	--	--	--	--	--	--	107	4,840
JUL 15...	36.4	56.8	0.43	<0.04	3.40	0.031	0.15	0.21	5	22
SEP 03...	36.6	66.0	0.56	0.07	2.42	0.027	0.15	0.22	10	100

Remark codes used in this table:

< -- Less than



## SCHUYLKILL RIVER BASIN

## 01474500 SCHUYLKILL RIVER AT PHILADELPHIA, PA--Continued

## WATER-COLUMN PESTICIDE ANALYSES

REMARKS.--The following were determined using laboratory schedule 2001 (listed in its entirety, with laboratory reporting levels, on page 197). Only pesticides detected in one or more surface-water sample are listed in the following table.

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

Date	Time	Sample type	2,6-Di-ethyl-aniline water fltrd 0.7µ GF (82660)	CIAT, water, fltrd, µg/L (04040)	Aceto-chlor, water, fltrd, µg/L (49260)	Ala-chlor, water, fltrd, µg/L (46342)	alpha-HCH, water, fltrd, µg/L (34253)	Atra-zine, water, fltrd, µg/L (39632)	Azin-phos-methyl, water, fltrd 0.7µ GF (82686)	Ben-flur-alin, water, fltrd 0.7µ GF (82673)	Butyl-ate, water, fltrd, µg/L (04028)
NOV 21...	1000	Environmental	<0.006	E.030	<0.006	<0.004	<0.005	0.049	<0.050	<0.010	<0.002
JAN 16...	1110	Environmental	<0.006	E.032	<0.006	<0.004	<0.005	0.025	<0.050	<0.010	<0.002
MAR 12...	1130	Environmental	<0.006	E.035	<0.006	<0.004	<0.005	0.024	<0.050	<0.010	<0.002
APR 23...	1150	Environmental	<0.006	E.038	<0.006	<0.004	<0.005	0.031	<0.050	<0.010	<0.002
MAY 15...	1120	Environmental	<0.006	E.035	<0.006	<0.004	<0.005	0.042	<0.050	<0.010	<0.002
MAY 15...	1121	Split Replicate	<0.006	E.035	<0.006	<0.004	<0.005	0.041	<0.050	<0.010	<0.002
JUN 05...	1200	Environmental	<0.006	E.093	0.047	0.008	<0.005	0.865	<0.050	<0.010	<0.002
JUL 15...	1040	Environmental	<0.006	E.038	0.015	<0.004	<0.005	0.129	<0.050	<0.010	<0.002
SEP 03...	1130	Environmental	<0.006	E.036	<0.006	<0.004	<0.005	0.054	<0.050	<0.010	<0.002

Date	Car-baryl, water, fltrd 0.7µ GF (82680)	Carbo-furan, water, fltrd 0.7µ GF (82674)	cis-Per-methrin water fltrd 0.7µ GF (82687)	DCPA, water fltrd 0.7µ GF (82682)	Desulf-inyl fipro-nil, water, fltrd, µg/L (62170)	Diazi-non, water, fltrd, µg/L (39572)	Diel-drin, water, fltrd, µg/L (39381)	EPTC, water, fltrd 0.7µ GF (82668)	Desulf-inyl-fipro-nil amide, wat flt µg/L (62169)	Fipro-nil sulfide water, fltrd, µg/L (62167)	Fipro-nil sulfone water, fltrd, µg/L (62168)	Fipro-nil, water, fltrd, µg/L (62166)	Malathion, water, fltrd, µg/L (39532)
NOV 21...	<0.041	<0.020	<0.006	<0.003	<0.004	<0.005	<0.005	<0.002	<0.009	<0.005	<0.005	E.005	<0.027
JAN 16...	<0.041	<0.020	<0.006	<0.003	<0.004	<0.005	<0.005	<0.002	<0.009	<0.005	<0.005	<0.007	<0.027
MAR 12...	<0.041	<0.020	<0.006	<0.003	<0.004	<0.005	<0.005	<0.002	<0.009	<0.005	<0.005	<0.007	<0.027
APR 23...	E.008	<0.020	<0.006	<0.003	<0.004	<0.005	<0.005	<0.002	<0.009	<0.005	<0.005	E.005	<0.027
MAY 15...	<0.041	<0.020	<0.006	<0.003	<0.004	0.007	<0.005	<0.002	<0.009	<0.005	<0.005	E.007	<0.027
MAY 15...	E.008	<0.020	<0.006	<0.003	<0.004	0.006	<0.005	<0.002	<0.009	<0.005	<0.005	E.007	<0.027
JUN 05...	E.023	<0.020	<0.006	<0.003	<0.004	0.012	<0.005	<0.002	<0.009	<0.005	<0.005	E.005	<0.027
JUL 15...	E.006	<0.020	<0.006	<0.003	<0.004	<0.005	<0.005	<0.002	<0.009	<0.005	<0.005	<0.007	<0.027
SEP 03...	E.009	<0.020	<0.006	<0.003	<0.004	0.006	<0.005	<0.002	<0.009	<0.005	<0.005	E.007	<0.027

## SCHUYLKILL RIVER BASIN

## 01474500 SCHUYLKILL RIVER AT PHILADELPHIA, PA--Continued

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

Date	Metolachlor, water, fltrd, µg/L (39415)	Metribuzin, water, fltrd, µg/L (82630)	Napropamide, water, fltrd 0.7µ GF µg/L (82684)	Pendimethalin, water, fltrd 0.7µ GF µg/L (82683)	Prometon, water, fltrd, µg/L (04037)	Simazine, water, fltrd, µg/L (04035)	Tebu-thiuron water fltrd 0.7µ GF µg/L (82670)	Terbacil, water, fltrd 0.7µ GF µg/L (82665)	Tri-fluralin, water, fltrd 0.7µ GF µg/L (82661)
NOV 21...	0.049	<0.006	<0.007	<0.022	E.01	0.014	E.01	<0.034	<0.009
JAN 16...	0.016	<0.006	<0.007	<0.022	E.01	<0.010	<0.02	<0.034	<0.009
MAR 12...	0.020	<0.006	<0.007	<0.022	<0.01	0.020	<0.02	<0.034	<0.009
APR 23...	0.015	<0.006	<0.007	<0.022	E.01	0.027	<0.02	<0.034	<0.009
MAY 15...	0.021	<0.006	<0.007	<0.022	E.01	0.017	E.01	<0.034	<0.009
15...	0.021	<0.006	<0.007	<0.022	E.01	0.017	<0.02	<0.034	<0.009
JUN 05...	0.489	<0.006	<0.007	E.012	0.01	0.054	E.01	<0.034	<0.009
JUL 15...	0.038	<0.006	<0.007	<0.022	0.03	0.024	E.01	<0.034	<0.009
SEP 03...	0.021	<0.006	<0.007	<0.022	0.03	0.028	E.01	<0.034	<0.009

Remark codes used in this table:

&lt; -- Less than

E -- Estimated value



## SCHUYLKILL RIVER BASIN

## LAKES AND RESERVOIRS IN SCHUYLKILL RIVER BASIN

**01469200 STILL CREEK RESERVOIR.**--Lat 40°51'25", long 75°59'30", Schuylkill County, Hydrologic Unit 02040106, at dam on Still Creek, 1.0 mi upstream from mouth, and 2.3 mi north of Hometown. DRAINAGE AREA, 7.19 mi<sup>2</sup>. PERIOD OF RECORD, January 1933 to current year. GAGE, nonrecording gage. Datum of gage is sea level (levels by Panther Valley Water Co.).

REMARKS.--Reservoir formed by earthfill dam with ungated concrete spillway at elevation 1,182.00 ft. Storage began February 1933. Capacity at elevation 1,182.00 ft is 8,290 acre-ft. Reservoir is used for municipal water supply. Figures given herein represent total contents. Regulation by valves on pipe through dam. COOPERATION.--Records provided by the borough of Tamaqua.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 8,570 acre-ft, Oct. 15, 1955, elevation, 1,182.92 ft, but may have been greater during 1950 or 1951 water years; minimum contents (after first filling), 588 acre-ft, Dec. 8, 1944, elevation, 1,136.70 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 8,430 acre-ft, Aug. 4, elevation, 1,182.5 ft; minimum contents, 7,110 acre-ft, Oct. 10, elevation, 1,177.7 ft.

**01470870 BLUE MARSH LAKE.**--Lat 40°22'45", long 76°01'59", Berks County, Hydrologic Unit 02040203, at dam on Tulpehocken Creek, 0.8 mi upstream from gaging station on Tulpehocken Creek (station 01470960), 1.0 mi northeast of Blue Marsh, 1.9 mi upstream from Rebers Bridge, and 5.1 mi southeast of Bernville. DRAINAGE AREA, 175 mi<sup>2</sup>. PERIOD OF RECORD, April 1979 to current year. GAGE, water-stage recorder (U.S. Army Corps of Engineers datum).

REMARKS.--Lake formed by earthfill dam with ungated concrete spillway at elevation 307.00 ft. Storage began April 23, 1979. Capacity at elevation 307.00 ft is 50,000 acre-ft. Dead storage is 3,000 acre-ft. Lake is used for flood control, water supply, and recreation. Figures herein represent total contents. Satellite telemetry at station. COOPERATION.--Records provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 39,480 acre-ft, Apr. 17, 1983, elevation, 301.65 ft; minimum contents (after first filling), 13,150 acre-ft, Mar. 18, 1994, elevation, 279.88 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 34,700 acre-ft, June 23, elevation, 298.78 ft; minimum contents, 14,200 acre-ft, Mar. 24, elevation, 281.25 ft.

**01472200 GREEN LANE RESERVOIR.**--Lat 40°20'30", long 75°28'45", Montgomery County, Hydrologic Unit 02040203, at dam on Perkiomen Creek, 0.4 mi west of Green Lane, and 2.1 mi upstream from Unami Creek. DRAINAGE AREA, 70.9 mi<sup>2</sup>. PERIOD OF RECORD, December 1956 to current year. GAGE, water-stage recorder. Datum of gage is sea level (levels by Aqua Pennsylvania Water Co.).

REMARKS.--Reservoir formed by concrete, gravity-type dam with ungated spillway at elevation 286.00 ft. Storage began December 21, 1956. Capacity at elevation 286.00 ft is 13,430 acre-ft. Reservoir is used for municipal water supply. Figures given herein represent total contents. Regulation by valves on pipe through dam. COOPERATION.--Records provided by Aqua Pennsylvania Water Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 17,030 acre-ft, June 23, 1972, elevation, 290.05 ft; minimum contents (after first filling), 1,270 acre-ft, Aug. 25, 1957, elevation, 251.60 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 14,800 acre-ft, June 21, elevation, 287.54 ft; minimum contents, 11,070 acre-ft, Oct. 10, elevation, 283.05 ft.

**01472618 DISTRIBUTARY FROM BRADSHAW RESERVOIR.**--Lat 40°24'50", long 75°13'13", Bucks County, Hydrologic Unit 02040203, about 0.5 mi upstream from station 01472620, East Branch Perkiomen Creek near Dublin, Pa. PERIOD OF RECORD, October 1994 to current year.

REMARKS.--Water from the Delaware River near Point Pleasant is diverted to Bradshaw Reservoir located in Geddes Run Basin on Tohickon Creek, a tributary to the Delaware River, for consumptive use by the Philadelphia Electric Company. Figures in the table represent the equivalent monthly mean streamflow, in cubic feet per second, diverted from Bradshaw Reservoir to the East Branch Perkiomen Creek. COOPERATION.--Records provided by Philadelphia Electric Company.

## SCHUYLKILL RIVER BASIN

## Lakes and Reservoirs in Schuylkill River Basin--Continued

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

Date	Elevation (feet)	Contents (acre- feet)	Change in contents (equivalent in ft <sup>3</sup> /s)	Elevation (feet)	Contents (acre- feet)	Change in contents (equivalent in ft <sup>3</sup> /s)
<u>01469200 Still Creek Reservoir</u>				<u>01470870 Blue Marsh Lake</u>		
Sept. 30	1,178.0	7,190	--	288.37	21,100	--
Oct. 31	1,180.0	7,740	+8.9	285.20	17,800	-53.7
Nov. 30	1,182.2	8,340	+10.1	284.63	17,300	-8.4
Dec. 31	1,182.2	8,340	0	285.01	17,600	+4.9
CAL YR 2002	--	--	+0.3	--	--	-0.1
Jan. 31	1,182.1	8,320	-0.3	285.02	17,600	0
Feb. 28	1,182.1	8,320	0	285.12	17,700	+1.8
Mar. 31	1,182.3	8,370	+0.8	285.96	18,600	+14.6
Apr. 30	1,181.2	8,070	-5.0	290.17	23,100	+75.6
May 31	1,182.0	8,290	+3.6	290.21	23,100	0
June 30	1,182.1	8,320	+0.5	289.74	22,600	-8.4
July 31	1,181.9	8,260	-1.0	289.77	22,600	0
Aug. 31	1,182.0	8,290	+0.5	289.99	22,900	+4.9
Sept. 30	1,181.7	8,210	-1.3	286.38	19,000	-65.5
WTR YR 2003	--	--	+1.4	--	--	-2.9

<u>01472200 Green Lane Reservoir</u>			
Sept. 30	283.31	11,260	--
Oct. 31	286.20	13,610	+38.2
Nov. 30	286.05	13,480	-2.2
Dec. 31	286.13	13,550	+1.1
CAL YR 2002	--	--	+4.7
Jan. 31	286.05	13,480	-1.1
Feb. 28	286.13	13,550	+1.3
Mar. 31	286.32	13,720	+2.8
Apr. 30	286.10	13,520	-3.4
May 31	286.10	13,520	0
June 30	286.12	13,540	+0.3
July 31	286.02	13,450	-1.5
Aug. 31	286.00	13,430	-0.3
Sept. 30	286.17	13,580	+2.5
WTR YR 2003	--	--	+0.01

Date	Monthly Mean Discharge (equivalent in ft <sup>3</sup> /s)
<u>01472618 Distributary from Bradshaw Reservoir</u>	
Oct 2002	41.4
Nov	13.3
Dec	10.8
Jan 2003	8.72
Feb	14.9
Mar	9.57
Apr	12.8
May	55.3
June	29.2
July	58.2
Aug	34.6
Sept	29.7

## CRUM CREEK BASIN

## 01475850 CRUM CREEK NEAR NEWTOWN SQUARE, PA

**LOCATION.**--Lat 39°58'35", long 75°26'13", Delaware County, Hydrologic Unit 02040202, at Castle Rock bridge on State Highway 3, 0.6 mi upstream from Preston Run, 0.8 mi upstream from Springton Reservoir, and 2.0 mi west of Newtown Square.

**DRAINAGE AREA.**--15.8 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--October 1981 to current year. Occasional low-flow measurements, water years 1932, 1949, 1970-1977, and annual maximum 1977-1981.

**GAGE.**--Water-stage recorder and crest-stage gage. Datum of gage is 207.75 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 and landline telemetry at station.

**PEAK DISCHARGES FOR CURRENT YEAR.**--Peak discharges greater than base discharge of 600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Nov. 17	0545	903	6.58	Aug. 9	1915	665	5.84
Feb. 22	----	Unknown	Ice jam	Aug. 10	1000	1,160	7.25
June 20	1945	*1,840	*8.72	Sept. 15	1915	953	6.72

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	3.2	13	13	106	14	21	26	18	43	22	15	14
2	3.0	9.8	13	55	18	107	25	18	22	21	14	36
3	2.9	8.1	13	46	15	83	23	17	18	29	13	20
4	2.9	7.4	12	41	24	33	22	16	153	22	46	50
5	3.1	7.6	14	27	16	87	23	16	77	20	31	22
6	3.2	25	16	26	13	177	21	22	30	20	19	15
7	2.6	11	13	24	15	54	24	19	64	22	14	14
8	2.4	8.0	13	24	12	49	30	40	44	23	25	13
9	2.4	7.3	13	26	13	124	47	22	29	19	150	12
10	7.7	7.2	13	22	13	50	32	21	24	19	212	11
11	92	10	144	19	12	32	77	19	22	21	51	11
12	29	51	97	17	11	44	53	17	26	19	31	11
13	9.8	38	58	17	11	58	31	16	40	24	20	32
14	7.3	15	126	16	11	44	26	16	51	17	17	26
15	6.0	11	34	16	11	38	25	15	27	16	16	214
16	44	33	24	15	8.5	42	23	17	21	16	16	50
17	22	266	19	16	e11	46	22	20	19	15	17	20
18	9.7	82	17	14	e10	34	23	16	56	14	16	20
19	7.9	26	17	14	e10	28	23	15	28	15	15	94
20	6.6	21	73	15	e9.0	130	21	14	473	14	14	23
21	5.2	18	31	14	e9.0	109	21	17	134	13	14	18
22	4.7	25	21	13	e250	40	22	16	49	13	14	17
23	4.7	21	19	12	e240	32	20	16	39	13	13	87
24	4.5	16	17	12	89	29	19	18	33	17	12	26
25	5.5	16	113	13	43	27	19	17	29	13	12	19
26	43	15	45	13	29	28	31	130	27	12	12	18
27	11	24	27	12	24	31	22	31	26	12	13	17
28	7.2	19	22	11	23	26	20	22	25	12	12	39
29	11	15	21	13	---	27	19	19	23	11	11	e20
30	51	15	20	13	---	41	18	17	23	11	33	e19
31	38	---	21	13	---	33	---	16	---	13	19	---
TOTAL	453.5	841.4	1099	695	964.5	1704	808	693	1675	528	917	988
MEAN	14.6	28.0	35.5	22.4	34.4	55.0	26.9	22.4	55.8	17.0	29.6	32.9
MAX	92	266	144	106	250	177	77	130	473	29	212	214
MIN	2.4	7.2	12	11	8.5	21	18	14	18	11	11	11
CFSM	0.93	1.78	2.24	1.42	2.18	3.48	1.70	1.41	3.53	1.08	1.87	2.08
IN.	1.07	1.98	2.59	1.64	2.27	4.01	1.90	1.63	3.94	1.24	2.16	2.33

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 2003, BY WATER YEAR (WY)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
MEAN	14.3	19.9	25.6	26.4	27.5	37.5	32.0	25.3	20.1	15.4	12.3	15.8											
MAX	53.4	37.3	92.6	63.0	42.7	95.0	76.8	58.9	55.8	36.2	29.6	74.6											
(WY)	1997	1987	1997	1996	1984	1994	1983	1984	2003	1989	2003	1999											
MIN	3.87	5.02	4.63	7.45	7.13	11.7	9.45	13.2	5.85	4.02	2.82	4.53											
(WY)	2002	2002	1999	1985	2002	1985	1985	1999	1985	1999	2002	1998											

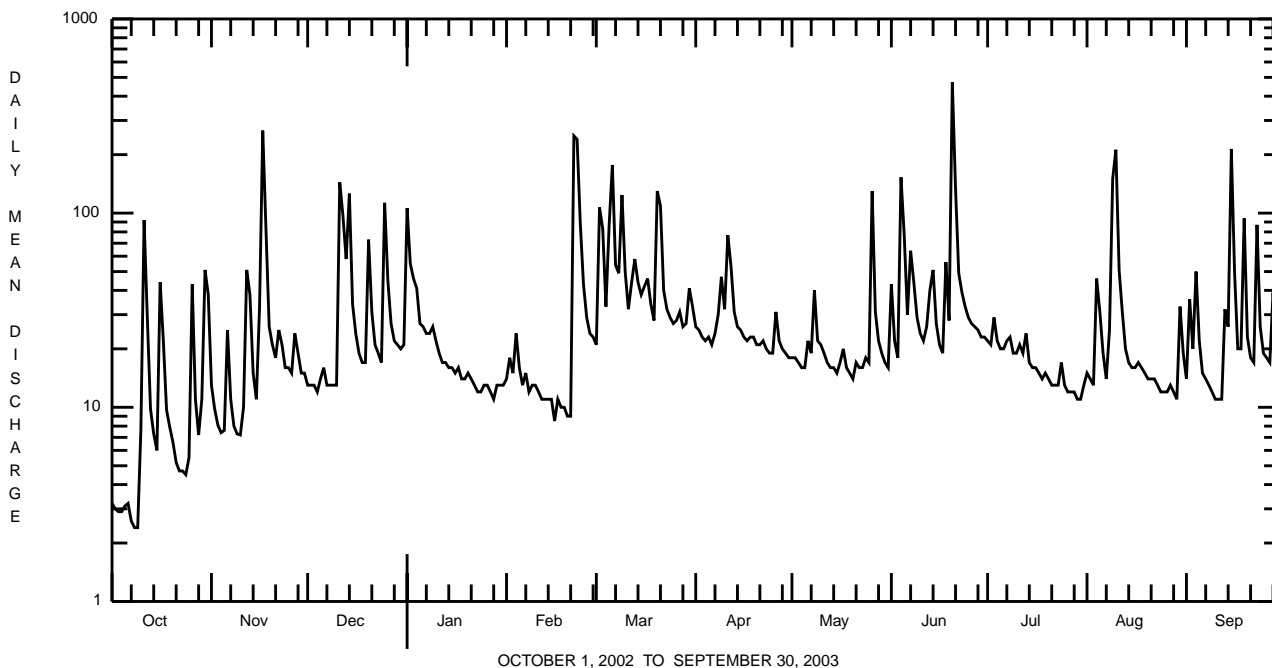
e Estimated.

CRUM CREEK BASIN

01475850 CRUM CREEK NEAR NEWTOWN SQUARE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1982 - 2003	
ANNUAL TOTAL	5243.6		11366.4			
ANNUAL MEAN	14.4		31.1		22.7	
HIGHEST ANNUAL MEAN					34.7	1984
LOWEST ANNUAL MEAN					9.24	2002
HIGHEST DAILY MEAN	266	Nov 17	473	Jun 20	1610	Sep 16 1999
LOWEST DAILY MEAN	1.1	Aug 18	2.4	Oct 8	0.64	Aug 8 1991
ANNUAL SEVEN-DAY MINIMUM	1.2	Aug 16	2.8	Oct 3	1.2	Aug 16 2002
MAXIMUM PEAK FLOW			a1840	Jun 20	a4250	Sep 16 1999
MAXIMUM PEAK STAGE			8.72	Jun 20	b11.99	Sep 16 1999
ANNUAL RUNOFF (CFSM)	0.91		1.97		1.43	
ANNUAL RUNOFF (INCHES)	12.35		26.76		19.48	
10 PERCENT EXCEEDS	27		53		39	
50 PERCENT EXCEEDS	8.8		19		15	
90 PERCENT EXCEEDS	2.6		11		5.7	

- a From rating curve extended above 1,300 ft<sup>3</sup>/s on basis of slope-area measurement at peak flow.
- b From outside floodmark.



CRUM CREEK BASIN

01475850 CRUM CREEK NEAR NEWTOWN SQUARE, PA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975, 1999 to current year.

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unf 25 degC (00095)	Temperature, water, deg C (00010)	Calcium, water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419)
OCT 2002 24...	0900	1028	80020	4.5	11.6	7.3	240	8.8	19.7	9.65	2.38	10.0	50

Date	Chloride, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate, water, fltrd, mg/L (00945)	Ammonia, water, fltrd, mg/L as N (00608)	Nitrite + Nitrate, water, fltrd, mg/L as N (00631)	Nitrite, water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Boron, water, fltrd, µg/L (01020)	Iron, water, fltrd, µg/L (01046)
OCT 2002 24...	25.9	18.4	16.7	<.04	1.49	<.008	E.01	20	89



## CRUM CREEK BASIN

01475850 CRUM CREEK NEAR NEWTOWN SQUARE, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATESREMARKS.--Samples were collected using a Hess sampler with a mesh size of 500 µm. Each sample covered a total area of 2.4 m<sup>2</sup>.

Date	Count
10/24/02	
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	63
Nemertea (PROBOSAS WORMS)	
Enopla	
Hoplonemertea	
Tetrastemmatidae	
<u>Prostoma</u> sp	78
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancyliidae	
<u>Ferrissia</u> sp	36
Lymnaeidae	
<u>Fossaria</u> sp	1
Planorbidae	
<u>Gyraulus</u> sp	5
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	19
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	218
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Acentrella</u> sp	6
<u>Baetis</u> sp	2
Caenidae	
<u>Caenis</u> sp	10
Ephemerellidae	
<u>Eurylophella</u> sp	40
<u>Serratella</u> sp	81
Heptageniidae	
<u>Stenonema</u> sp	175
Isonychiidae	
<u>Isonychia</u> sp	203
Tricorythidae	
<u>Tricorythodes</u> sp	2
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Coenagrionidae (DAMSELFLIES)	
<u>Argia</u> sp	2
Gomphidae	3

## CRUM CREEK BASIN

01475850 CRUM CREEK NEAR NEWTOWN SQUARE, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES--Continued

Date	10/24/02
Benthic Macroinvertebrate	Count
Plecoptera (STONEFLIES)	
Perlidae	
<u>Acroneuria</u> sp	8
Taeniopterygidae	
<u>Taeniopteryx</u> sp	3
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
<u>Corydalus</u> sp	1
Trichoptera (CADDISFLIES)	
Brachycentridae	
<u>Micrasema</u> sp	1
Glossosomatidae	
<u>Glossosoma</u> sp	2
Hydropsychidae	
<u>Cheumatopsyche</u> sp	622
<u>Hydropsyche</u> sp	768
Hydroptilidae	
<u>Hydroptila</u> sp	1
<u>Leucotrichia</u> sp	17
Philopotamidae	
<u>Chimarra</u> sp	69
Psychomyiidae	
<u>Psychomyia</u> sp	9
Lepidoptera (MOTHS AND BUTTERFLIES)	
Pyralidae	
<u>Petrophila</u> sp	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Dubiraphia</u> sp	1
<u>Optioservus</u> sp	90
<u>Oulimnius</u> sp	54
<u>Stenelmis</u> sp	55
Psephenidae (WATER PENNIES)	
<u>Psephenus</u> sp	3
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	
	111
Empididae (DANCE FLIES)	
<u>Hemerodromia</u> sp	4
Simuliidae (BLACK FLIES)	
<u>Simulium</u> sp	9
Tipulidae (CRANE FLIES)	
<u>Antocha</u> sp	31
Total organisms	
	2804
Total number of taxa	
	38

## RIDLEY CREEK BASIN

## 01476480 RIDLEY CREEK AT MEDIA, PA

**LOCATION.**--Lat 39°54'58", long 75°24'13", Delaware County, Hydrologic Unit 02040202, on right bank 400 ft downstream from bridge on U.S. Highway 1 (Baltimore Pike) at Media.

**DRAINAGE AREA.**--30.5 mi<sup>2</sup>.

**PERIOD OF RECORD.**--October 1986 to September 1995, October 1995 to December 1996 (fragmentary), January 1997 to current year.

**REVISED RECORDS.**--WDR PA-94-1: 1987, 1991, 1992 adjusted monthly and yearly summaries.

**GAGE.**--Water-stage recorder and crest-stage gage. Elevation of gage is 110 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. Diversion during entire period of record by Aqua Pennsylvania Water Company (formerly Philadelphia Suburban Water Company). Satellite telemetry at station.

**COOPERATION.**--Records of diversion provided by Aqua Pennsylvania Water Company.

**PEAK DISCHARGES FOR CURRENT YEAR.**--Peak discharges greater than base discharge of 650 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Nov. 17	0800	698	5.47	Mar. 20	2245	873	5.85
Dec. 11	2130	660	5.39	June 20	2000	*2,490	*8.60
Jan. 29	1330	1,900	7.69	Sept. 15	2200	712	5.50
Feb. 23	0000	974	6.06				

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	4.6	22	17	137	25	44	56	37	80	45	e28	e30
2	5.4	16	16	110	34	187	54	37	48	43	e30	e70
3	4.7	14	16	76	29	178	51	35	37	70	e27	e35
4	5.1	12	14	76	42	71	49	34	295	50	e140	e100
5	6.6	12	15	50	36	150	49	34	156	43	e80	e50
6	4.7	38	20	49	25	368	46	44	72	41	e60	27
7	5.1	18	16	45	28	123	51	37	132	e43	e40	23
8	5.6	14	16	44	25	94	66	74	111	e40	e70	21
9	4.6	12	16	47	30	209	86	45	67	e35	e130	19
10	11	12	15	41	25	115	69	45	55	e35	e240	17
11	142	13	181	36	24	70	158	40	48	e40	e130	17
12	63	51	204	32	22	73	108	37	52	e35	e80	17
13	17	68	86	31	22	95	70	34	78	e40	e50	38
14	11	25	230	30	22	87	58	33	94	e30	e35	55
15	8.0	19	63	29	22	69	53	32	116	e28	e30	266
16	39	34	42	28	16	73	51	35	54	e28	e30	167
17	42	343	35	29	17	88	47	42	47	e26	e30	39
18	15	130	32	28	35	68	49	34	123	e25	e30	33
19	11	43	31	28	29	57	52	31	68	e27	e25	193
20	9.3	31	116	27	29	220	46	28	693	e25	e25	44
21	7.8	26	64	25	32	321	45	35	668	e23	e25	36
22	7.4	31	40	23	370	95	47	34	138	e23	e25	32
23	7.1	32	34	21	606	75	42	33	102	e23	e25	200
24	6.8	22	31	20	192	67	38	39	83	e33	e25	60
25	7.4	20	188	20	87	61	37	37	73	e26	e20	43
26	56	19	89	21	60	62	66	271	65	e22	e20	40
27	20	28	51	20	55	70	46	72	62	e22	e40	39
28	13	23	41	16	49	56	40	60	55	e20	e25	103
29	16	19	37	47	---	59	40	47	51	e20	e25	44
30	63	19	34	24	---	78	39	39	48	e25	e120	35
31	61	---	33	23	---	73	---	36	---	e30	e50	---
TOTAL	680.2	1166	1823	1233	1988	3456	1709	1471	3771	1016	1710	1893
MEAN	21.9	38.9	58.8	39.8	71.0	111	57.0	47.5	126	32.8	55.2	63.1
MAX	142	343	230	137	606	368	158	271	693	70	240	266
MIN	4.6	12	14	16	16	44	37	28	37	20	20	17
(†)	3.6	4.4	4.3	4.4	4.2	4.5	5.0	4.2	4.5	4.3	3.9	3.3

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 2003, BY WATER YEAR (WY)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MEAN	20.0	32.2	40.4	49.7	49.4	73.5	53.0	45.7	39.8	30.9	24.3	32.5					
MAX	49.3	62.4	84.0	82.7	74.3	164	108	87.8	126	89.6	55.2	147					
(WY)	1990	1987	1987	1990	1988	1994	1993	1989	2003	1989	2003	1999					
MIN	6.24	10.0	8.14	20.3	12.1	30.6	19.4	23.1	11.7	6.42	5.45	8.42					
(WY)	2002	2002	1999	2002	2002	2002	2002	1999	1999	2002	2002	1998					

† Diversion for municipal supply, equivalent in cubic feet per second.

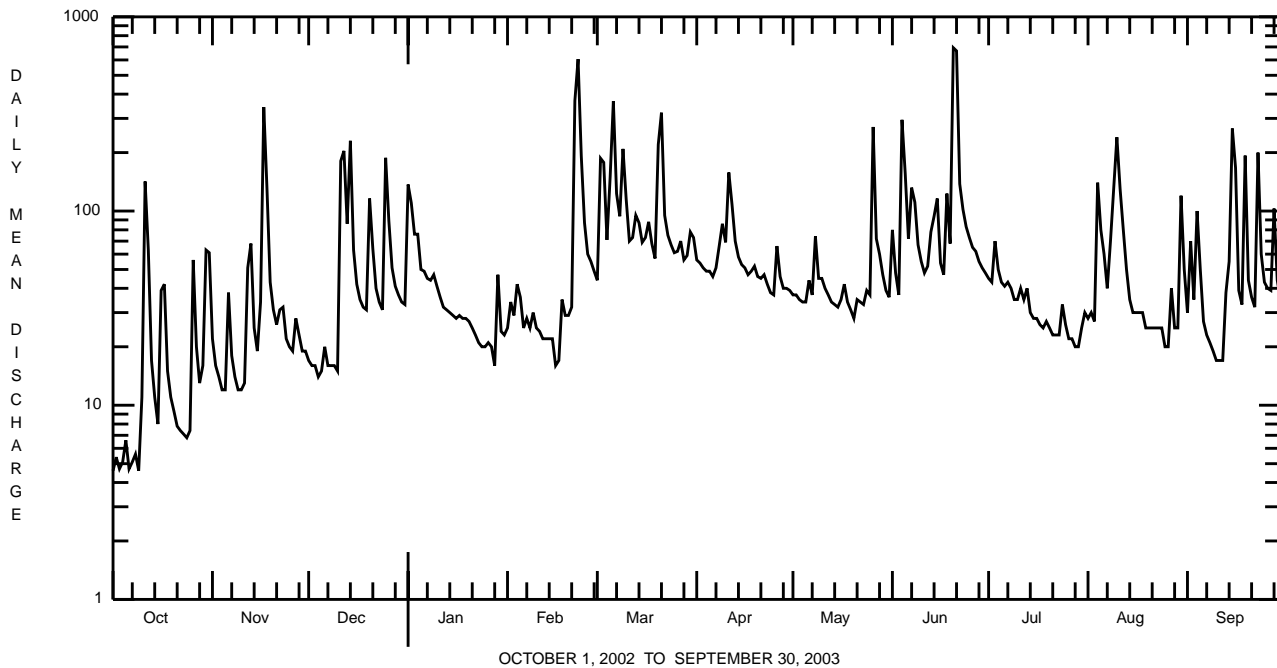
e Estimated.

RIDLEY CREEK BASIN

01476480 RIDLEY CREEK AT MEDIA, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1987 - 2003	
ANNUAL TOTAL	8328.37		21916.2			
ANNUAL MEAN	22.8		60.0		40.7	
HIGHEST ANNUAL MEAN					60.0	2003
LOWEST ANNUAL MEAN					15.2	2002
HIGHEST DAILY MEAN	343	Nov 17	693	Jun 20	2860	Sep 16 1999
LOWEST DAILY MEAN	0.57	Aug 17	4.6	Oct 1, 9	0.57	Aug 17 2002
ANNUAL SEVEN-DAY MINIMUM	1.6	Aug 14	5.2	Oct 1	1.6	Aug 14 2002
MAXIMUM PEAK FLOW			a2490	Jun 20	a8000	Sep 16 1999
MAXIMUM PEAK STAGE			8.60	Jun 20	b15.10	Sep 16 1999
10 PERCENT EXCEEDS	45		121		73	
50 PERCENT EXCEEDS	14		39		27	
90 PERCENT EXCEEDS	4.7		16		9.5	

a From rating curve extended above 1,600 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow.  
 b From floodmark.



## CHESTER CREEK BASIN

## 01477000 CHESTER CREEK NEAR CHESTER, PA

**LOCATION.**--Lat 39°52'08", long 75°24'31", Delaware County, Hydrologic Unit 02040202, on right bank 30 ft downstream from bridge on Dutton Mill Road, and 3.0 mi northwest of Chester.

**DRAINAGE AREA.**--61.1 mi<sup>2</sup>.

**PERIOD OF RECORD.**--August 1931 to current year. Monthly discharges only for some periods, published in WSP 1302.

**REVISED RECORDS.**--WDR PA-72-1: 1971.

**GAGE.**--Water-stage recorder. Datum of gage is 23.41 ft above Penn Central Railroad datum. Prior to June 27, 1966, water-stage recorder at site 50 ft upstream, and June 28, 1966, to Oct. 4, 1967, nonrecording gage 30 ft upstream and at gage, all at same datum.

**REMARKS.**--Records fair except those for estimated daily discharges, which are poor. Diversion about 2.6 mi upstream into Ridley Creek basin (see station 01476480 Ridley Creek at Media) by Aqua Pennsylvania Water Company (formerly Philadelphia Suburban Water Company). Diversion for the year was equivalent to a mean daily discharge of 2.5 ft<sup>3</sup>/s. 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 base discharge of 1,400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Dec. 11	1945	1,480	6.43	June 20	2030	*7,500	*14.65
Feb. 22	1745	2,620	8.44	Sept. 15	1900	2,400	8.15
Mar. 20	2245	2,420	8.08				

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	20	48	43	239	61	80	103	74	179	102	71	71
2	16	38	41	214	75	446	97	74	96	97	82	185
3	18	33	39	136	62	358	93	68	72	163	63	97
4	19	32	40	132	85	134	89	65	566	115	265	206
5	19	33	43	90	74	353	88	66	295	101	162	113
6	16	96	48	89	56	723	85	86	119	104	147	72
7	15	48	e40	81	61	262	97	73	297	109	79	64
8	15	35	e44	76	e54	202	127	134	238	102	171	61
9	16	32	e40	82	e50	331	171	86	126	86	239	58
10	33	33	e44	74	e52	202	132	84	102	89	477	54
11	378	40	398	68	e46	123	349	75	88	103	360	52
12	127	131	379	64	e47	119	232	70	100	86	249	51
13	42	136	173	63	e43	144	134	65	161	94	103	181
14	30	60	421	61	e39	142	110	62	311	82	85	187
15	26	47	116	62	e41	114	104	58	274	77	73	1020
16	99	70	85	e53	e37	115	100	65	110	72	74	542
17	78	586	70	e58	e33	147	93	81	93	69	83	128
18	38	255	61	e52	e30	116	98	63	334	66	65	114
19	30	83	59	e55	e34	97	96	60	142	70	60	427
20	28	63	249	e59	e40	503	86	55	1880	61	56	132
21	26	56	124	e52	e80	680	84	79	1510	62	57	99
22	25	68	75	e47	1030	185	92	85	320	61	59	90
23	24	70	65	e40	1100	135	86	67	223	62	57	393
24	24	52	61	e41	376	118	83	80	176	97	51	168
25	24	47	363	e43	165	109	82	72	152	65	51	107
26	118	45	166	e45	113	109	150	568	138	56	57	95
27	48	68	92	e42	90	127	96	156	132	56	81	94
28	32	54	76	e40	85	100	83	126	117	57	55	250
29	40	46	70	e43	---	105	81	106	110	55	51	123
30	125	45	65	e46	---	151	78	76	106	52	193	95
31	101	---	64	e50	---	136	---	70	---	86	161	---
TOTAL	1650	2450	3654	2297	4059	6666	3399	2949	8567	2557	3837	5329
MEAN	53.2	81.7	118	74.1	145	215	113	95.1	286	82.5	124	178
MAX	378	586	421	239	1100	723	349	568	1880	163	477	1020
MIN	15	32	39	40	30	80	78	55	72	52	51	51

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 2003, BY WATER YEAR (WY)

MEAN	55.6	76.9	90.3	104	114	143	127	101	79.5	67.9	62.1	68.5
MAX	234	233	328	326	326	627	413	224	286	254	217	543
(WY)	1980	1951	1997	1979	1979	1994	1980	1983	2003	1975	1955	1971
MIN	13.7	18.2	24.3	23.4	36.0	53.1	41.9	34.8	28.3	15.6	13.7	10.4
(WY)	1942	1932	1932	1981	2002	1981	1963	1942	1966	2002	1966	1932

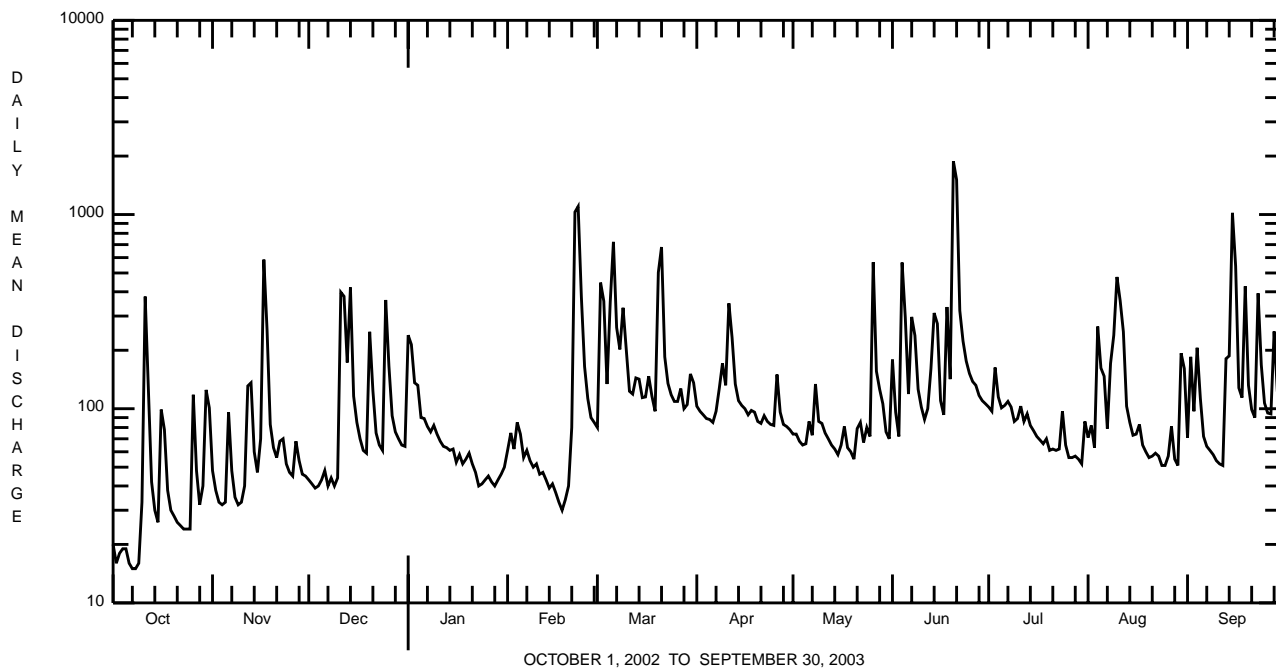
e Estimated.

CHESTER CREEK BASIN

01477000 CHESTER CREEK NEAR CHESTER, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1932 - 2003	
ANNUAL TOTAL	18952.8		47414		90.6	
ANNUAL MEAN	51.9		130		168	
HIGHEST ANNUAL MEAN					168	1979
LOWEST ANNUAL MEAN					38.0	2002
HIGHEST DAILY MEAN	586	Nov 17	1880	Jun 20	6510	Sep 13 1971
LOWEST DAILY MEAN	5.8	Aug 11	15	Oct 7,8	5.8	Aug 11 2002
ANNUAL SEVEN-DAY MINIMUM	6.1	Aug 8	17	Oct 2	6.1	Aug 8 2002
MAXIMUM PEAK FLOW			a7500	Jun 20	a21000	Sep 13 1971
MAXIMUM PEAK STAGE			14.65	Jun 20	b24.59	Sep 13 1971
INSTANTANEOUS LOW FLOW			13	Oct 7,8	0.30	Aug 7 1934
10 PERCENT EXCEEDS	94		252		155	
50 PERCENT EXCEEDS	37		82		60	
90 PERCENT EXCEEDS	12		40		27	

- a From rating curve extended above 2,400 ft<sup>3</sup>/s on basis of contracted-opening measurement at 9,400 ft<sup>3</sup>/s, at gage height 13.57 ft, and slope-area measurement of peak flow.
- b From floodmark.



## DELAWARE RIVER BASIN

## 01477050 DELAWARE RIVER AT CHESTER, PA

**LOCATION.**--Lat 39°50'33", long 75°21'28", Delaware County, Hydrologic Unit 02040202, in the pumping house of Kimberly-Clark Paper Company at Chester.

**DRAINAGE AREA.**--10,300 mi<sup>2</sup>, approximately.

**PERIOD OF RECORD.**--December 1961 to current year.

**PERIOD OF DAILY RECORD.**--

SPECIFIC CONDUCTANCE: October 1963 to current year.

pH: January 1968 to current year.

WATER TEMPERATURES: December 1961 to current year.

DISSOLVED OXYGEN: December 1961 to current year.

**INSTRUMENTATION.**--Water-quality monitor since December 1961. Probes interfaced with a data collection platform since the 1986 water year.

**REMARKS.**--Specific conductance, pH, and water temperature records rated good. Dissolved oxygen record rated fair. Data collection discontinued during winter months. Other interruptions in the record were due to malfunctions of the instrumentation. Prior to April 1981 sampling site located at auxiliary tidal-gaging station at the end of Reynolds Aluminum Company pier, 0.5 mi downstream from Chester Creek in Chester (latitude 39°50'12", longitude 75°22'00").

**EXTREMES FOR PERIOD OF DAILY RECORD.**--

SPECIFIC CONDUCTANCE: Maximum, 5,900 microsiemens, Oct. 7, 1965; minimum, 103 microsiemens, June 2, 1984, Apr. 9, 1987.

pH: Maximum, 8.7, Sept. 13, 14, 1971, Oct. 16, 1979; minimum, 5.5, Dec. 10, 11, 1969.

WATER TEMPERATURE: Maximum, 33.0°C, July 21, 1977, Aug. 3, 1999; minimum, 0.0°C, many days during winters.

DISSOLVED OXYGEN: Maximum, 16.3 mg/L, Mar. 28, 1993; minimum, 0.0 mg/L, on many days.

## SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	2820	1290	1870	231	221	226	---	---	---	---	---	---
2	2630	1250	1760	236	225	230	---	---	---	---	---	---
3	2700	1270	1770	237	226	231	---	---	---	---	---	---
4	2850	1270	1980	236	229	233	---	---	---	---	---	---
5	3530	1480	2190	237	229	233	---	---	---	---	---	---
6	2960	1290	1980	238	230	233	---	---	---	---	---	---
7	3500	1480	2230	238	230	233	---	---	---	---	---	---
8	3220	1430	2090	240	233	237	---	---	---	---	---	---
9	3530	1540	2280	250	234	241	---	---	---	---	---	---
10	3540	1540	2290	251	240	244	---	---	---	---	---	---
11	3260	1410	2180	255	242	248	---	---	---	---	---	---
12	2430	1170	1710	253	245	249	---	---	---	---	---	---
13	1790	880	1290	259	248	251	---	---	---	---	---	---
14	1120	602	818	257	246	251	---	---	---	---	---	---
15	991	520	702	263	250	256	---	---	---	---	---	---
16	875	465	631	268	254	262	---	---	---	---	---	---
17	715	364	498	270	245	259	---	---	---	---	---	---
18	514	319	382	272	252	261	---	---	---	---	---	---
19	380	297	331	269	237	254	---	---	---	---	---	---
20	321	265	291	251	232	240	---	---	---	---	---	---
21	290	251	271	238	231	235	---	---	---	---	---	---
22	277	238	259	237	227	232	---	---	---	---	---	---
23	263	232	249	245	217	228	---	---	---	---	---	---
24	259	229	245	226	215	220	---	---	---	---	---	---
25	254	235	245	224	214	220	---	---	---	---	---	---
26	254	232	243	214	204	209	---	---	---	---	---	---
27	244	220	234	207	198	203	---	---	---	---	---	---
28	234	216	227	203	198	201	---	---	---	---	---	---
29	255	217	227	203	197	199	---	---	---	---	---	---
30	230	220	226	201	195	197	---	---	---	---	---	---
31	230	220	225	---	---	---	---	---	---	---	---	---
MONTH	3540	216	1030	272	195	234	---	---	---	---	---	---

## DELAWARE RIVER BASIN

## 01477050 DELAWARE RIVER AT CHESTER, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	<b>FEBRUARY</b>			<b>MARCH</b>			<b>APRIL</b>			<b>MAY</b>		
1	---	---	---	---	---	---	208	185	196	276	267	272
2	---	---	---	---	---	---	207	191	201	277	269	273
3	---	---	---	---	---	---	214	193	201	283	270	276
4	---	---	---	---	---	---	212	197	205	287	277	282
5	---	---	---	---	---	---	213	202	208	297	280	287
6	---	---	---	---	---	---	214	197	207	294	278	285
7	---	---	---	---	---	---	211	201	206	285	275	281
8	---	---	---	---	---	---	216	201	210	282	274	278
9	---	---	---	---	---	---	223	208	217	290	274	278
10	---	---	---	---	---	---	236	210	223	281	274	277
11	---	---	---	---	---	---	249	211	232	283	275	280
12	---	---	---	---	---	---	264	232	246	291	276	281
13	---	---	---	---	---	---	267	239	253	285	275	280
14	---	---	---	---	---	---	258	245	252	282	277	279
15	---	---	---	---	---	---	250	241	247	---	---	---
16	---	---	---	---	---	---	255	241	246	---	---	---
17	---	---	---	---	---	---	251	243	246	294	285	288
18	---	---	---	---	---	---	257	241	248	296	282	289
19	---	---	---	---	---	---	261	247	253	292	278	285
20	---	---	---	---	---	---	260	249	253	286	272	280
21	---	---	---	---	---	---	257	249	252	282	273	278
22	---	---	---	---	---	---	279	246	257	280	272	277
23	---	---	---	---	---	---	263	254	257	284	274	278
24	---	---	---	---	---	---	263	254	258	282	273	278
25	---	---	---	---	---	---	265	255	260	282	274	277
26	---	---	---	---	---	---	268	256	262	278	247	268
27	---	---	---	190	165	177	268	260	264	276	255	266
28	---	---	---	186	164	175	265	258	262	289	266	280
29	---	---	---	186	166	177	266	259	263	285	272	280
30	---	---	---	195	168	182	281	261	269	285	258	273
31	---	---	---	199	175	189	---	---	---	279	258	269
MONTH	---	---	---	199	164	180	281	185	238	297	247	278
	<b>JUNE</b>			<b>JULY</b>			<b>AUGUST</b>			<b>SEPTEMBER</b>		
1	282	257	267	209	198	203	309	302	305	255	246	251
2	276	259	263	214	199	206	313	298	307	258	249	254
3	268	254	260	218	200	211	315	298	308	269	252	257
4	262	225	249	225	206	213	318	301	309	272	259	265
5	238	212	228	225	209	217	320	303	311	278	265	270
6	222	196	210	223	211	216	316	298	307	269	260	265
7	213	196	201	235	213	219	317	297	306	266	258	262
8	211	190	198	228	215	222	308	272	291	268	253	261
9	213	190	203	235	219	229	306	267	285	264	253	259
10	211	195	203	242	224	234	293	256	270	264	238	253
11	209	194	201	257	230	240	279	252	265	254	223	245
12	210	195	202	252	230	243	276	252	263	250	229	240
13	217	197	206	276	236	251	265	238	255	255	220	238
14	218	202	210	278	242	257	256	225	242	239	201	229
15	222	204	215	267	248	259	249	225	237	233	199	219
16	222	206	216	270	253	262	244	225	234	259	180	222
17	225	214	220	273	256	265	242	227	235	229	193	214
18	230	213	220	280	263	271	253	225	239	208	181	195
19	230	212	221	288	270	278	243	230	236	222	181	195
20	---	---	---	291	275	283	241	233	236	203	184	190
21	---	---	---	297	278	287	274	230	245	209	190	201
22	---	---	---	298	286	292	251	233	241	220	193	211
23	---	---	---	310	290	298	244	231	238	223	200	213
24	---	---	---	337	297	321	248	235	241	229	208	221
25	---	---	---	335	308	325	245	236	240	227	192	213
26	---	---	---	326	297	316	245	237	240	205	193	198
27	---	---	---	324	304	314	248	236	243	209	191	200
28	---	---	---	323	301	310	260	243	250	213	199	205
29	---	---	---	321	298	310	257	241	247	208	195	200
30	---	---	---	315	299	307	251	242	245	205	188	196
31	---	---	---	309	301	305	258	246	250	---	---	---
MONTH	282	190	221	337	198	263	320	225	262	278	180	228



## DELAWARE RIVER BASIN

## 01477050 DELAWARE RIVER AT CHESTER, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	7.3	7.2	7.3	7.1	7.0	7.1	---	---	---	---	---	---
2	7.3	7.2	7.2	7.2	7.0	7.1	---	---	---	---	---	---
3	7.3	7.1	7.2	7.2	7.0	7.1	---	---	---	---	---	---
4	7.3	7.2	7.2	7.1	7.0	7.1	---	---	---	---	---	---
5	7.3	7.2	7.2	7.1	7.0	7.1	---	---	---	---	---	---
6	7.3	7.2	7.2	7.2	7.0	7.0	---	---	---	---	---	---
7	7.3	7.2	7.3	7.2	7.1	7.2	---	---	---	---	---	---
8	7.3	7.2	7.3	7.2	7.1	7.2	---	---	---	---	---	---
9	7.4	7.2	7.3	7.2	7.1	7.1	---	---	---	---	---	---
10	7.4	7.2	7.3	7.1	7.0	7.0	---	---	---	---	---	---
11	7.4	7.3	7.4	7.0	6.9	7.0	---	---	---	---	---	---
12	7.4	7.2	7.3	7.0	7.0	7.0	---	---	---	---	---	---
13	7.3	7.2	7.2	7.1	7.0	7.1	---	---	---	---	---	---
14	7.2	7.1	7.1	7.2	7.0	7.1	---	---	---	---	---	---
15	7.2	7.2	7.2	7.1	7.0	7.1	---	---	---	---	---	---
16	7.3	7.2	7.3	7.1	7.0	7.1	---	---	---	---	---	---
17	7.3	7.2	7.3	7.2	7.1	7.2	---	---	---	---	---	---
18	7.3	7.2	7.2	7.3	7.1	7.2	---	---	---	---	---	---
19	7.3	7.3	7.3	7.3	7.1	7.2	---	---	---	---	---	---
20	7.3	7.3	7.3	7.1	6.9	7.0	---	---	---	---	---	---
21	7.3	7.2	7.2	7.1	6.9	7.0	---	---	---	---	---	---
22	7.2	7.2	7.2	7.0	7.0	7.0	---	---	---	---	---	---
23	7.2	7.2	7.2	7.2	7.0	7.1	---	---	---	---	---	---
24	7.2	7.2	7.2	7.2	7.0	7.1	---	---	---	---	---	---
25	7.2	7.2	7.2	7.2	6.9	7.0	---	---	---	---	---	---
26	7.2	7.1	7.2	7.0	6.8	7.0	---	---	---	---	---	---
27	7.2	7.0	7.1	7.1	6.9	7.0	---	---	---	---	---	---
28	7.1	7.0	7.1	7.2	6.9	7.0	---	---	---	---	---	---
29	7.1	7.1	7.1	7.1	7.0	7.1	---	---	---	---	---	---
30	7.2	7.1	7.1	7.1	7.0	7.0	---	---	---	---	---	---
31	7.1	7.0	7.1	---	---	---	---	---	---	---	---	---
MAX	7.4	7.3	7.4	7.3	7.1	7.2	---	---	---	---	---	---
MIN	7.1	7.0	7.1	7.0	6.8	7.0	---	---	---	---	---	---

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	7.3	7.3	7.3	7.1	7.1	7.1
2	---	---	---	---	---	---	7.3	7.3	7.3	7.1	7.0	7.1
3	---	---	---	---	---	---	7.3	7.3	7.3	7.1	7.0	7.0
4	---	---	---	---	---	---	7.3	7.3	7.3	7.0	6.9	7.0
5	---	---	---	---	---	---	7.3	7.3	7.3	7.0	6.9	7.0
6	---	---	---	---	---	---	7.3	7.3	7.3	7.2	7.0	7.0
7	---	---	---	---	---	---	7.4	7.3	7.3	7.2	7.1	7.1
8	---	---	---	---	---	---	7.4	7.3	7.4	7.1	7.1	7.1
9	---	---	---	---	---	---	7.4	7.4	7.4	7.1	7.0	7.1
10	---	---	---	---	---	---	7.4	7.4	7.4	7.0	7.0	7.0
11	---	---	---	---	---	---	7.5	7.4	7.5	7.0	7.0	7.0
12	---	---	---	---	---	---	7.5	7.4	7.5	7.0	7.0	7.0
13	---	---	---	---	---	---	7.5	7.4	7.4	7.1	7.0	7.1
14	---	---	---	---	---	---	7.4	7.4	7.4	7.1	7.0	7.1
15	---	---	---	---	---	---	7.4	7.4	7.4	---	---	---
16	---	---	---	---	---	---	7.4	7.3	7.4	---	---	---
17	---	---	---	---	---	---	7.4	7.3	7.4	7.3	7.2	7.3
18	---	---	---	---	---	---	7.4	7.4	7.4	7.2	7.2	7.2
19	---	---	---	---	---	---	7.4	7.4	7.4	7.2	7.1	7.2
20	---	---	---	---	---	---	7.4	7.3	7.3	7.2	7.1	7.1
21	---	---	---	---	---	---	7.3	7.3	7.3	7.1	7.1	7.1
22	---	---	---	---	---	---	7.4	7.2	7.3	7.1	7.1	7.1
23	---	---	---	---	---	---	7.4	7.4	7.4	7.1	7.1	7.1
24	---	---	---	---	---	---	7.5	7.4	7.4	7.1	7.1	7.1
25	---	---	---	---	---	---	7.5	7.4	7.4	7.1	7.1	7.1
26	---	---	---	---	---	---	7.4	7.4	7.4	7.1	7.1	7.1
27	---	---	---	7.2	7.2	7.2	7.4	7.3	7.4	7.1	7.1	7.1
28	---	---	---	7.2	7.2	7.2	7.4	7.3	7.3	7.2	7.1	7.1
29	---	---	---	7.2	7.2	7.2	7.3	7.3	7.3	7.2	7.1	7.1
30	---	---	---	7.2	7.2	7.2	7.3	7.1	7.2	7.2	7.1	7.1
31	---	---	---	7.3	7.2	7.2	---	---	---	7.1	7.1	7.1
MAX	---	---	---	7.3	7.2	7.2	7.5	7.4	7.5	7.3	7.2	7.3
MIN	---	---	---	7.2	7.2	7.2	7.3	7.1	7.2	7.0	6.9	7.0

## DELAWARE RIVER BASIN

## 01477050 DELAWARE RIVER AT CHESTER, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	7.1	7.1	7.1	7.2	7.1	7.1	7.2	7.1	7.1	6.9	6.9	6.9
2	7.2	7.1	7.1	7.1	7.1	7.1	7.2	7.1	7.1	7.0	6.9	6.9
3	7.2	7.1	7.2	7.1	7.1	7.1	7.2	7.1	7.1	7.0	6.9	6.9
4	7.2	7.1	7.2	7.1	7.1	7.1	7.2	7.1	7.1	7.0	6.9	6.9
5	7.1	7.1	7.1	7.2	7.1	7.1	7.1	7.1	7.1	6.9	6.9	6.9
6	7.2	7.1	7.1	7.2	7.1	7.2	7.1	7.1	7.1	7.0	6.9	6.9
7	7.1	7.1	7.1	7.3	7.2	7.2	7.1	7.0	7.0	7.0	6.9	7.0
8	7.1	7.1	7.1	7.3	7.2	7.2	7.0	7.0	7.0	7.1	7.0	7.0
9	7.1	7.1	7.1	7.2	7.1	7.2	7.0	7.0	7.0	7.2	7.0	7.1
10	7.1	7.1	7.1	7.2	7.0	7.1	7.0	7.0	7.0	7.1	7.1	7.1
11	7.1	7.0	7.0	7.1	7.0	7.0	7.0	7.0	7.0	7.1	7.0	7.1
12	7.0	6.9	6.9	7.1	7.0	7.0	7.0	7.0	7.0	7.2	7.1	7.1
13	6.9	6.9	6.9	7.1	7.0	7.0	7.1	7.0	7.0	7.2	7.1	7.1
14	7.0	6.9	6.9	7.1	7.0	7.1	7.0	7.0	7.0	7.1	6.9	7.0
15	7.0	6.9	6.9	7.1	7.0	7.1	7.0	6.9	7.0	7.0	6.9	7.0
16	7.1	6.9	7.0	7.1	7.0	7.1	7.0	6.9	6.9	7.0	6.9	6.9
17	7.1	7.0	7.1	7.1	7.0	7.1	7.0	6.9	6.9	7.0	6.9	6.9
18	7.1	7.0	7.0	7.1	7.0	7.1	7.0	6.9	6.9	7.1	6.9	6.9
19	7.0	7.0	7.0	7.1	7.0	7.1	7.0	6.9	7.0	7.3	7.0	7.1
20	7.0	7.0	7.0	7.1	7.0	7.1	7.0	6.9	6.9	7.0	7.0	7.0
21	7.1	7.0	7.0	7.2	7.1	7.1	7.0	6.9	6.9	7.0	6.9	7.0
22	7.0	7.0	7.0	7.2	7.2	7.2	7.0	6.9	7.0	7.0	6.9	7.0
23	7.0	7.0	7.0	7.2	7.1	7.2	7.0	6.9	6.9	7.0	7.0	7.0
24	7.1	7.0	7.1	7.3	7.2	7.2	7.0	6.9	7.0	7.0	7.0	7.0
25	7.1	7.0	7.1	7.2	7.2	7.2	7.1	7.0	7.0	7.0	7.0	7.0
26	7.1	7.0	7.1	7.2	7.1	7.2	7.0	7.0	7.0	7.0	6.9	6.9
27	7.1	7.0	7.0	7.2	7.1	7.1	7.0	7.0	7.0	7.0	6.9	7.0
28	7.1	7.0	7.0	7.2	7.1	7.1	7.0	7.0	7.0	7.0	7.0	7.0
29	7.1	7.0	7.1	7.2	7.1	7.1	7.0	6.9	7.0	7.0	7.0	7.0
30	7.1	7.0	7.1	7.2	7.1	7.2	7.0	6.9	6.9	7.0	6.9	7.0
31	---	---	---	7.2	7.1	7.2	7.0	6.9	6.9	---	---	---
MAX	7.2	7.1	7.2	7.3	7.2	7.2	7.2	7.1	7.1	7.3	7.1	7.1
MIN	6.9	6.9	6.9	7.1	7.0	7.0	7.0	6.9	6.9	6.9	6.9	6.9

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	23.5	23.0	23.0	12.0	11.5	11.5	---	---	---	---	---	---
2	24.0	23.0	23.5	11.5	10.5	11.0	---	---	---	---	---	---
3	24.5	23.5	24.0	11.5	10.5	11.0	---	---	---	---	---	---
4	24.0	23.5	24.0	11.0	10.0	10.5	---	---	---	---	---	---
5	24.5	23.5	24.0	10.5	10.0	10.5	---	---	---	---	---	---
6	24.0	23.0	23.5	10.5	10.5	10.5	---	---	---	---	---	---
7	23.5	23.0	23.0	10.5	10.0	10.5	---	---	---	---	---	---
8	23.0	22.0	22.5	10.5	10.0	10.0	---	---	---	---	---	---
9	22.0	22.0	22.0	10.5	10.0	10.5	---	---	---	---	---	---
10	22.0	21.5	22.0	11.0	10.5	10.5	---	---	---	---	---	---
11	21.5	21.0	21.0	12.0	11.0	11.5	---	---	---	---	---	---
12	21.0	20.5	21.0	11.5	11.0	11.5	---	---	---	---	---	---
13	21.0	20.5	20.5	11.5	11.0	11.5	---	---	---	---	---	---
14	20.5	20.0	20.0	11.5	10.5	11.0	---	---	---	---	---	---
15	20.0	19.0	19.5	11.0	11.0	11.0	---	---	---	---	---	---
16	19.5	18.5	19.0	11.0	11.0	11.0	---	---	---	---	---	---
17	18.5	18.0	18.5	11.0	10.0	10.5	---	---	---	---	---	---
18	18.5	17.5	18.0	10.5	9.5	10.0	---	---	---	---	---	---
19	18.0	16.5	17.0	10.0	9.0	9.5	---	---	---	---	---	---
20	17.0	16.0	16.5	10.0	9.5	9.5	---	---	---	---	---	---
21	16.5	15.5	16.0	10.0	9.5	10.0	---	---	---	---	---	---
22	16.0	15.0	15.5	10.0	9.5	10.0	---	---	---	---	---	---
23	15.5	15.0	15.5	10.0	8.5	9.0	---	---	---	---	---	---
24	15.0	14.5	15.0	9.0	8.5	8.5	---	---	---	---	---	---
25	14.5	14.0	14.5	9.0	8.5	8.5	---	---	---	---	---	---
26	14.5	14.0	14.0	9.0	8.5	8.5	---	---	---	---	---	---
27	14.0	13.5	14.0	8.5	8.0	8.5	---	---	---	---	---	---
28	14.0	13.5	13.5	8.0	7.5	7.5	---	---	---	---	---	---
29	13.5	13.0	13.5	7.5	6.5	7.0	---	---	---	---	---	---
30	13.0	12.0	12.5	7.0	6.5	7.0	---	---	---	---	---	---
31	12.5	11.5	12.0	---	---	---	---	---	---	---	---	---
MONTH	24.5	11.5	18.7	12.0	6.5	9.9	---	---	---	---	---	---

DELAWARE RIVER BASIN

01477050 DELAWARE RIVER AT CHESTER, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	<b>FEBRUARY</b>			<b>MARCH</b>			<b>APRIL</b>			<b>MAY</b>		
1	---	---	---	---	---	---	10.5	9.5	10.0	17.0	15.0	16.0
2	---	---	---	---	---	---	10.5	9.5	10.0	18.0	16.0	16.5
3	---	---	---	---	---	---	10.5	10.0	10.0	17.5	16.5	17.0
4	---	---	---	---	---	---	10.5	10.0	10.0	17.5	16.5	17.0
5	---	---	---	---	---	---	10.0	9.5	9.5	17.0	16.0	16.5
6	---	---	---	---	---	---	9.5	9.0	9.5	16.5	16.0	16.5
7	---	---	---	---	---	---	9.5	9.0	9.0	17.5	16.0	16.5
8	---	---	---	---	---	---	9.0	8.0	8.5	17.5	16.5	17.0
9	---	---	---	---	---	---	8.0	7.5	8.0	17.5	16.5	17.0
10	---	---	---	---	---	---	8.0	7.5	7.5	17.5	17.0	17.0
11	---	---	---	---	---	---	7.5	7.5	7.5	18.5	17.0	17.5
12	---	---	---	---	---	---	8.0	7.5	7.5	18.5	17.5	18.0
13	---	---	---	---	---	---	9.0	8.0	8.0	18.0	17.0	17.5
14	---	---	---	---	---	---	9.0	8.0	8.5	18.0	17.0	17.5
15	---	---	---	---	---	---	10.5	8.5	9.0	---	---	---
16	---	---	---	---	---	---	11.0	9.0	10.0	---	---	---
17	---	---	---	---	---	---	10.5	9.5	10.0	16.5	15.5	16.0
18	---	---	---	---	---	---	9.5	9.0	9.5	16.0	15.5	16.0
19	---	---	---	---	---	---	11.0	9.5	10.0	16.5	15.5	16.0
20	---	---	---	---	---	---	11.5	10.0	10.5	17.0	16.0	16.5
21	---	---	---	---	---	---	12.0	10.5	11.5	17.0	16.5	17.0
22	---	---	---	---	---	---	12.5	11.0	12.0	17.0	16.5	16.5
23	---	---	---	---	---	---	12.5	11.5	12.0	16.5	16.5	16.5
24	---	---	---	---	---	---	13.0	12.0	12.5	16.5	16.0	16.5
25	---	---	---	---	---	---	13.5	12.0	12.5	16.5	16.0	16.5
26	---	---	---	---	---	---	13.5	12.5	13.0	16.5	15.5	16.0
27	---	---	---	10.0	8.5	9.0	14.5	13.0	13.5	16.5	15.5	16.0
28	---	---	---	10.0	9.0	9.5	15.5	13.5	14.5	16.5	16.0	16.5
29	---	---	---	10.5	9.5	10.0	16.0	14.5	15.0	17.0	16.0	16.5
30	---	---	---	10.5	9.5	10.0	16.5	15.0	15.5	17.5	16.5	17.0
31	---	---	---	10.5	9.5	10.0	---	---	---	17.5	17.0	17.0
MONTH	---	---	---	10.5	8.5	9.7	16.5	7.5	10.5	18.5	15.0	16.7
	<b>JUNE</b>			<b>JULY</b>			<b>AUGUST</b>			<b>SEPTEMBER</b>		
1	17.5	17.0	17.0	23.5	22.0	23.0	27.0	26.5	26.5	26.5	26.5	26.5
2	17.5	16.5	17.0	24.0	23.0	23.5	27.5	26.5	27.0	26.5	26.0	26.0
3	17.5	17.0	17.0	24.0	23.0	23.5	27.5	27.0	27.0	26.0	25.0	25.5
4	17.0	16.0	16.5	24.5	23.5	24.0	27.5	27.0	27.0	25.5	25.0	25.5
5	17.0	16.5	16.5	25.5	24.0	24.5	27.5	27.0	27.0	25.5	25.0	25.0
6	17.0	16.5	16.5	26.0	24.5	25.0	27.0	26.5	27.0	25.0	24.5	24.5
7	17.0	16.5	16.5	26.5	25.0	25.5	27.0	26.5	26.5	25.0	24.0	24.5
8	16.5	16.0	16.5	26.5	25.5	26.0	27.0	26.0	26.5	24.5	23.5	24.0
9	17.0	16.0	16.5	27.0	26.0	26.5	26.5	26.5	26.5	24.5	23.0	24.0
10	18.0	16.5	17.0	26.5	26.0	26.0	26.5	26.0	26.5	24.0	22.5	23.0
11	18.5	17.0	17.5	26.5	25.5	26.0	27.0	26.5	26.5	23.0	22.0	22.5
12	19.0	18.0	18.5	26.5	25.5	26.0	27.5	26.0	26.5	23.0	21.5	22.5
13	20.0	18.5	19.0	26.5	25.5	26.0	27.5	26.5	26.5	22.5	21.5	22.0
14	20.5	19.0	19.5	26.5	26.0	26.0	27.5	26.5	26.5	22.5	22.0	22.0
15	21.0	20.0	20.5	27.0	26.0	26.5	27.5	26.5	26.5	23.0	22.0	22.5
16	21.0	20.5	20.5	27.0	26.0	26.5	27.0	26.5	27.0	22.5	22.0	22.0
17	21.0	20.5	20.5	27.0	26.5	26.5	27.0	26.5	26.5	22.5	22.0	22.0
18	21.0	20.5	21.0	27.0	26.5	26.5	27.0	26.5	26.5	22.0	21.5	21.5
19	21.5	21.0	21.0	27.0	26.5	26.5	27.0	26.5	26.5	22.0	21.0	21.5
20	21.5	20.5	21.0	27.0	26.5	26.5	27.0	26.5	27.0	22.5	21.5	22.0
21	20.5	19.5	20.0	27.5	26.5	27.0	27.5	27.0	27.0	22.5	22.0	22.5
22	19.5	19.0	19.5	27.5	27.0	27.0	28.0	27.0	27.5	23.0	22.0	22.5
23	20.0	19.0	19.5	27.5	27.0	27.0	28.0	27.0	27.5	23.0	22.5	22.5
24	20.0	19.0	19.5	27.5	26.5	27.0	27.0	26.5	27.0	22.5	22.0	22.0
25	20.0	19.0	19.5	27.5	26.5	26.5	27.0	26.0	26.5	22.5	21.5	22.0
26	21.0	19.5	20.0	27.5	26.5	27.0	27.5	26.5	27.0	22.5	21.5	22.0
27	21.5	20.0	20.5	27.5	26.5	27.0	27.5	26.5	27.0	22.5	21.5	22.0
28	21.5	20.5	21.0	27.5	26.5	27.0	27.5	26.5	27.0	22.0	21.0	21.5
29	22.5	21.0	21.5	27.5	26.5	27.0	28.0	26.5	27.0	21.0	20.0	20.5
30	23.0	21.5	22.5	27.5	26.5	27.0	27.5	27.0	27.0	20.0	19.5	20.0
31	---	---	---	27.0	26.5	26.5	27.0	26.5	27.0	---	---	---
MONTH	23.0	16.0	19.0	27.5	22.0	26.0	28.0	26.0	26.8	26.5	19.5	22.9

## DELAWARE RIVER BASIN

## 01477050 DELAWARE RIVER AT CHESTER, PA--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	6.6	5.6	6.1	8.6	8.3	8.4	---	---	---	---	---	---
2	6.5	5.6	6.0	9.0	8.4	8.6	---	---	---	---	---	---
3	6.4	5.4	5.8	9.0	8.4	8.8	---	---	---	---	---	---
4	6.4	5.4	6.0	8.9	8.4	8.7	---	---	---	---	---	---
5	6.6	5.5	6.1	8.9	8.5	8.7	---	---	---	---	---	---
6	6.5	5.3	6.0	9.0	8.5	8.7	---	---	---	---	---	---
7	6.6	5.6	6.2	9.1	8.8	8.9	---	---	---	---	---	---
8	6.8	5.8	6.3	9.2	8.8	9.0	---	---	---	---	---	---
9	6.7	5.7	6.2	9.2	8.9	9.0	---	---	---	---	---	---
10	6.6	5.7	6.2	9.0	8.9	8.9	---	---	---	---	---	---
11	6.9	6.0	6.5	9.1	8.9	9.0	---	---	---	---	---	---
12	6.7	5.9	6.4	9.0	8.8	8.9	---	---	---	---	---	---
13	6.3	5.4	5.8	8.9	8.8	8.8	---	---	---	---	---	---
14	5.9	5.4	5.7	8.8	8.6	8.7	---	---	---	---	---	---
15	6.3	5.7	5.9	8.8	8.6	8.7	---	---	---	---	---	---
16	6.8	6.1	6.5	8.9	8.6	8.7	---	---	---	---	---	---
17	6.8	6.6	6.7	9.3	8.8	9.1	---	---	---	---	---	---
18	7.0	6.7	6.8	9.9	9.0	9.5	---	---	---	---	---	---
19	7.4	6.5	7.0	10.0	9.6	9.8	---	---	---	---	---	---
20	7.7	7.1	7.4	9.8	9.6	9.7	---	---	---	---	---	---
21	7.8	7.2	7.5	9.6	9.4	9.5	---	---	---	---	---	---
22	7.9	7.2	7.7	9.6	9.4	9.5	---	---	---	---	---	---
23	8.1	7.4	7.8	10.4	9.4	9.9	---	---	---	---	---	---
24	8.2	7.6	7.9	10.4	10.0	10.2	---	---	---	---	---	---
25	8.3	7.8	8.0	10.5	9.8	10.1	---	---	---	---	---	---
26	8.5	8.0	8.3	10.4	9.6	10.1	---	---	---	---	---	---
27	8.4	8.0	8.2	10.4	9.9	10.1	---	---	---	---	---	---
28	8.2	7.9	8.0	10.5	9.9	10.2	---	---	---	---	---	---
29	8.4	7.8	8.0	10.9	10.1	10.5	---	---	---	---	---	---
30	8.5	8.0	8.2	11.0	10.3	10.6	---	---	---	---	---	---
31	8.4	8.2	8.3	---	---	---	---	---	---	---	---	---
MONTH	8.5	5.3	6.9	11.0	8.3	9.3	---	---	---	---	---	---

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	10.3	10.2	10.2	9.2	7.8	8.7
2	---	---	---	---	---	---	10.2	10.0	10.1	8.9	7.9	8.5
3	---	---	---	---	---	---	10.1	9.8	10	8.6	7.4	8.1
4	---	---	---	---	---	---	10.0	9.7	9.9	8.1	6.1	7.5
5	---	---	---	---	---	---	10.2	9.9	10.0	8.0	6.9	7.6
6	---	---	---	---	---	---	10.3	9.9	10.1	7.8	6.9	7.3
7	---	---	---	---	---	---	10.5	10.1	10.3	7.1	6.5	6.8
8	---	---	---	---	---	---	10.6	10.3	10.5	6.8	6.2	6.5
9	---	---	---	---	---	---	10.7	10.3	10.5	6.5	5.6	6.1
10	---	---	---	---	---	---	10.8	10.6	10.7	5.8	5.2	5.5
11	---	---	---	---	---	---	10.9	10.8	10.8	---	---	---
12	---	---	---	---	---	---	11.0	10.8	10.9	---	---	---
13	---	---	---	---	---	---	11.1	10.9	10.9	---	---	---
14	---	---	---	---	---	---	11.3	10.9	11.0	---	---	---
15	---	---	---	---	---	---	11.2	10.9	11.0	---	---	---
16	---	---	---	---	---	---	11.1	10.7	10.9	---	---	---
17	---	---	---	---	---	---	11.0	10.8	10.9	7.6	7.3	7.5
18	---	---	---	---	---	---	11.0	10.8	10.9	7.5	7.0	7.2
19	---	---	---	---	---	---	10.9	10.6	10.8	7.1	6.8	7.0
20	---	---	---	---	---	---	10.8	10.4	10.6	6.8	6.5	6.7
21	---	---	---	---	---	---	10.6	10.2	10.4	6.5	6.1	6.4
22	---	---	---	---	---	---	10.3	9.6	10	6.3	6.1	6.2
23	---	---	---	---	---	---	9.8	9.5	9.7	6.5	6.2	6.3
24	---	---	---	---	---	---	10.0	9.7	9.8	6.8	6.4	6.7
25	---	---	---	---	---	---	9.9	9.6	9.7	6.8	6.5	6.6
26	---	---	---	---	---	---	9.7	9.4	9.6	7.5	6.5	6.9
27	---	---	---	10.7	10.4	10.5	9.6	9.2	9.4	7.1	6.6	6.9
28	---	---	---	10.6	10.4	10.5	9.5	9.0	9.3	7.3	6.3	6.6
29	---	---	---	10.6	10.3	10.4	9.3	8.9	9.1	7.7	6.8	7.2
30	---	---	---	10.3	10.1	10.2	9.2	8.8	9.0	7.6	7.1	7.2
31	---	---	---	10.3	10.1	10.2	---	---	---	7.2	6.9	7.0
MONTH	---	---	---	10.7	10.1	10.4	11.3	8.8	10.2	9.2	5.2	7.0

## DELAWARE RIVER BASIN

## 01477050 DELAWARE RIVER AT CHESTER, PA--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.3	6.6	6.9	7.6	6.9	7.2	5.5	5.0	5.2	4.7	4.4	4.5
2	7.6	6.8	7.1	7.4	6.9	7.3	5.3	4.8	5.1	4.8	4.4	4.5
3	7.6	7.1	7.2	7.4	6.8	7.1	5.4	4.8	5.1	4.8	4.5	4.6
4	7.4	7.1	7.2	7.3	6.6	6.9	5.4	4.9	5.1	4.6	4.1	4.4
5	7.4	7.1	7.3	7.2	6.7	7.0	5.3	4.9	5.0	4.1	3.7	3.8
6	7.6	7.2	7.4	7.4	6.6	7.0	4.9	4.7	4.8	4.2	3.6	3.8
7	7.6	7.2	7.4	7.9	6.8	7.3	4.8	4.4	4.6	4.7	3.6	4.1
8	7.6	7.4	7.5	7.6	7.0	7.2	4.7	4.3	4.5	5.2	3.9	4.6
9	7.7	7.4	7.5	7.0	6.2	6.5	4.7	4.0	4.2	6.0	4.4	5.2
10	7.6	7.2	7.4	6.4	5.2	5.6	4.9	4.1	4.4	6.0	5.2	5.6
11	7.3	7.0	7.2	5.6	4.8	5.1	5.0	4.2	4.5	6.1	5.5	5.8
12	7.1	6.9	7.0	5.1	4.5	4.8	4.8	4.2	4.5	6.5	5.8	6.1
13	6.9	6.6	6.8	5.2	4.5	4.8	4.5	4.1	4.3	6.5	6.3	6.4
14	6.7	6.4	6.5	4.9	4.3	4.6	4.5	4.1	4.2	6.4	5.8	6.1
15	6.6	6.3	6.4	4.9	4.4	4.6	4.6	3.9	4.2	6.1	5.7	5.8
16	7.0	6.3	6.6	4.9	4.5	4.7	4.6	4.0	4.3	6.2	5.4	5.7
17	7.0	6.6	6.8	4.8	4.5	4.6	4.6	4.1	4.3	5.7	5.4	5.5
18	7.0	6.5	6.7	4.7	4.4	4.5	4.6	4.2	4.4	6.4	5.6	5.9
19	6.5	6.1	6.3	4.8	4.4	4.6	4.7	4.3	4.5	7.4	6.4	7.0
20	6.5	6.0	6.1	4.9	4.5	4.7	4.6	4.4	4.5	6.7	6.2	6.5
21	7.0	6.3	6.6	5.3	4.8	5.0	4.7	4.4	4.6	6.3	5.9	6.1
22	6.6	6.3	6.4	5.4	5.1	5.3	4.8	4.5	4.7	6.0	5.8	5.9
23	7.1	6.5	6.7	5.3	5.0	5.1	4.9	4.5	4.7	6.2	5.8	6.0
24	7.2	6.9	7.0	5.5	4.8	5.0	5.2	4.6	4.8	6.3	5.8	6.0
25	7.2	6.8	7.0	5.5	4.8	5.0	5.4	4.8	5.0	6.4	5.9	6.1
26	7.1	6.8	6.9	5.7	4.8	5.1	5.2	4.9	5.0	6.4	6.0	6.2
27	7.0	6.5	6.8	5.9	5.2	5.4	5.0	4.7	4.9	6.7	6.0	6.2
28	7.0	6.6	6.8	5.5	5.1	5.3	4.9	4.6	4.7	6.5	6.2	6.3
29	7.2	6.6	6.9	5.6	4.9	5.2	4.9	4.2	4.7	6.7	6.3	6.4
30	7.5	6.8	7.1	6.2	4.9	5.4	4.8	4.5	4.7	6.8	6.6	6.6
31	---	---	---	5.9	5.3	5.6	4.8	4.4	4.6	---	---	---
MONTH	7.7	6.0	6.9	7.9	4.3	5.6	5.5	3.9	4.6	7.4	3.6	5.6

## DELAWARE RIVER BASIN

## 01477050 DELAWARE RIVER AT CHESTER, PA--Continued

## CROSS-SECTION ANALYSES, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Sample loc- ation, cross section ft from rt bank (72103)	Sam- pling depth, feet (00003)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf µS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)
APR 2003									
03...	1021	1028	1028	129	1	10.8	7.3	212	10.0
03...	1022	1028	1028	129	5	10.8	7.3	212	10.0
03...	1024	1028	1028	450	1	10.9	7.3	192	9.7
03...	1025	1028	1028	450	5	10.9	7.3	192	9.7
03...	1026	1028	1028	450	10	10.9	7.3	193	9.7
03...	1027	1028	1028	450	15	10.9	7.3	193	9.7
03...	1028	1028	1028	450	20	10.9	7.3	194	9.7
03...	1029	1028	1028	450	25	10.9	7.3	194	9.7
03...	1030	1028	1028	650	1	11.0	7.3	181	9.4
03...	1031	1028	1028	650	5	11.0	7.3	180	9.4
03...	1032	1028	1028	650	10	11.0	7.4	179	9.4
03...	1033	1028	1028	650	15	11.0	7.3	179	9.4
03...	1034	1028	1028	650	20	11.0	7.4	177	9.4
03...	1035	1028	1028	650	25	11.0	7.4	179	9.4
03...	1036	1028	1028	650	30	11.0	7.4	180	9.4
03...	1037	1028	1028	870	1	11.0	7.4	181	9.4
03...	1038	1028	1028	870	5	11.0	7.4	181	9.4
03...	1039	1028	1028	870	10	10.9	7.4	181	9.4
03...	1040	1028	1028	870	15	10.9	7.4	181	9.4
03...	1041	1028	1028	870	20	10.9	7.4	181	9.4
03...	1042	1028	1028	870	25	10.9	7.4	181	9.4
03...	1043	1028	1028	870	30	10.9	7.4	181	9.4
03...	1044	1028	1028	1130	1	11.0	7.4	171	9.3
03...	1045	1028	1028	1130	5	11.0	7.4	171	9.3
03...	1046	1028	1028	1130	10	11.0	7.4	170	9.3
03...	1047	1028	1028	1130	15	11.0	7.4	170	9.3
03...	1048	1028	1028	1130	20	11.0	7.4	171	9.3
03...	1049	1028	1028	1130	25	11.0	7.4	170	9.3
03...	1050	1028	1028	1130	30	11.0	7.4	171	9.3
03...	1051	1028	1028	1130	35	11.0	7.4	171	9.3
03...	1052	1028	1028	1130	40	11.0	7.4	172	9.3
03...	1053	1028	1028	1130	45	11.0	7.4	171	9.3
03...	1054	1028	1028	1390	1	11.0	7.4	165	9.3
03...	1055	1028	1028	1390	5	11.0	7.4	165	9.3
03...	1056	1028	1028	1390	10	11.0	7.4	165	9.3
03...	1057	1028	1028	1390	15	11.0	7.4	165	9.3
03...	1058	1028	1028	1390	20	11.0	7.4	165	9.3
03...	1059	1028	1028	1390	25	11.0	7.4	166	9.3
03...	1100	1028	1028	1390	30	11.0	7.4	166	9.3
03...	1101	1028	1028	1390	35	11.0	7.4	165	9.3
03...	1102	1028	1028	1390	40	11.0	7.4	166	9.3
03...	1103	1028	1028	1390	45	11.0	7.4	166	9.3
03...	1104	1028	1028	1390	50	11.0	7.4	166	9.3
03...	1105	1028	1028	1650	1	11.0	7.4	187	9.3
03...	1106	1028	1028	1650	5	11.0	7.4	188	9.3
03...	1107	1028	1028	1650	10	11.0	7.4	188	9.3
03...	1108	1028	1028	1650	15	11.0	7.4	187	9.3
03...	1109	1028	1028	1650	20	11.0	7.4	188	9.3
03...	1110	1028	1028	1650	25	11.0	7.4	187	9.3
03...	1111	1028	1028	1650	30	11.0	7.4	187	9.3
03...	1112	1028	1028	1650	35	11.0	7.4	188	9.3
03...	1113	1028	1028	1650	40	11.0	7.4	187	9.3
03...	1114	1028	1028	1650	45	11.0	7.4	187	9.3
03...	1115	1028	1028	1650	50	11.0	7.4	188	9.3
03...	1116	1028	1028	2050	1	11.0	7.4	165	9.4
03...	1117	1028	1028	2050	5	11.0	7.4	165	9.4
03...	1118	1028	1028	2050	10	11.0	7.4	165	9.4
03...	1119	1028	1028	2050	15	11.0	7.4	166	9.4
03...	1120	1028	1028	2050	20	11.0	7.4	165	9.4
03...	1121	1028	1028	2050	25	10.9	7.4	166	9.4
03...	1122	1028	1028	2050	30	10.9	7.4	166	9.4
03...	1123	1028	1028	2050	35	10.9	7.4	167	9.4
03...	1124	1028	1028	2350	1	11.0	7.4	168	9.5
03...	1125	1028	1028	2350	5	11.0	7.4	168	9.5
03...	1126	1028	1028	2350	10	10.9	7.3	168	9.5
03...	1127	1028	1028	2350	15	10.9	7.3	168	9.5
03...	1128	1028	1028	2700	1	10.9	7.3	168	9.5
03...	1129	1028	1028	2700	5	10.9	7.3	168	9.5
03...	1130	1028	1028	2700	10	10.9	7.4	168	9.5
03...	1131	1028	1028	3100	1	10.9	7.4	168	9.5

## DELAWARE RIVER BASIN

## 01477050 DELAWARE RIVER AT CHESTER, PA--Continued

## CROSS-SECTION ANALYSES, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003--Continued

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Sample loc- ation, cross section ft from rt bank (72103)	Sam- pling depth, feet (00003)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf µS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)
APR 2003									
03...	1132	1028	1028	3100	5	10.9	7.4	168	9.5
03...	1133	1028	1028	3100	10	10.9	7.4	168	9.5
03...	1134	1028	1028	3500	1	10.9	7.4	167	9.5
03...	1135	1028	1028	3500	5	10.9	7.4	168	9.5
03...	1136	1028	1028	3500	10	10.9	7.4	168	9.5
03...	1137	1028	1028	3850	1	10.9	7.4	167	9.5
03...	1138	1028	1028	3850	5	10.9	7.4	167	9.5
03...	1139	1028	1028	3850	10	10.9	7.4	167	9.5
03...	1140	1028	1028	4250	1	11.0	7.4	167	9.5
03...	1141	1028	1028	4250	5	10.9	7.4	167	9.5
03...	1142	1028	1028	4250	10	10.9	7.4	167	9.5
03...	1143	1028	1028	4250	15	11.0	7.4	167	9.5
03...	1144	1028	1028	4600	1	10.9	7.4	168	9.5
03...	1145	1028	1028	4600	5	10.9	7.4	168	9.5
03...	1146	1028	1028	4600	10	11.0	7.4	168	9.5
03...	1147	1028	1028	4860	1	11.0	7.4	168	9.6
03...	1148	1028	1028	4860	5	11.0	7.4	170	9.6
03...	1149	1028	1028	4860	10	11.0	7.4	170	9.6
03...	1150	1028	1028	4860	15	11.0	7.4	170	9.6
03...	1151	1028	1028	5150	0	--	--	--	--

**CHRISTINA RIVER BASIN**

**01478245 WHITE CLAY CREEK NEAR STRICKERSVILLE, PA  
(Pennsylvania Water-Quality Network Station)**

**LOCATION.**--Lat 39°44'51", long 75°46'15", Chester County, Hydrologic Unit 02040205, on right bank 0.1 mi downstream from West Branch White Clay Creek, in the White Clay Creek State Preserve, and 1.5 mi northeast of Strickersville.

**DRAINAGE AREA.**--59.2 mi<sup>2</sup>.

**WATER-DISCHARGE RECORDS**

**PERIOD OF RECORD.**--August 1996 to current year.

**GAGE.**--Water-stage recorder and crest-stage gage. Elevation of gage is 120 ft above National Geodetic Vertical Datum of 1929, from topographic map.

**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 1,800 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Feb. 22	1815	2,830	8.82	Sept. 15	0930	*9,750	*14.28
Mar. 20	2145	1,860	7.55	Sept. 23	0900	2,790	8.87
June 20	1930	3,800	9.92				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	42	41	282	e50	78	89	64	99	68	40	49
2	11	35	39	192	e50	408	85	63	69	67	41	79
3	11	32	38	161	e50	368	80	60	60	100	42	56
4	11	30	e30	194	e80	126	77	59	347	77	50	106
5	12	29	e30	108	71	373	76	60	198	68	56	74
6	11	69	e40	100	58	782	72	63	101	66	60	53
7	11	39	e30	91	e50	223	82	61	288	65	43	48
8	10	33	e30	90	e45	253	100	65	190	61	48	45
9	11	31	e35	97	e40	414	127	67	115	57	79	42
10	18	30	e40	85	e40	174	102	68	90	59	416	40
11	336	32	e250	e70	e40	114	290	65	79	66	88	40
12	117	75	304	e65	e30	112	153	60	81	57	74	40
13	41	94	180	e65	e35	133	105	56	101	53	60	126
14	30	46	405	e50	e35	124	90	54	87	51	56	111
15	26	38	119	e50	e35	103	84	52	78	51	49	3100
16	119	68	87	e50	e30	103	81	61	67	50	62	234
17	82	283	71	e50	e30	140	74	69	62	46	81	114
18	38	203	64	e45	e80	106	74	58	170	46	55	140
19	30	81	63	e40	e75	90	76	55	93	50	49	588
20	28	63	189	e35	e75	458	74	51	1080	44	45	131
21	25	55	115	e30	e70	481	72	64	704	43	44	102
22	23	60	79	e35	1160	163	78	72	187	42	50	92
23	22	58	69	e25	1120	123	71	61	136	47	61	841
24	22	49	63	e30	409	109	66	76	109	52	43	172
25	23	46	315	e25	174	95	66	65	96	43	41	123
26	65	44	178	e25	114	96	125	344	88	40	41	109
27	35	59	104	e25	90	103	91	115	83	40	42	108
28	28	50	86	e25	84	88	73	89	77	40	41	172
29	32	45	80	e25	---	94	69	77	74	39	39	110
30	83	44	76	e25	---	131	66	66	72	37	103	96
31	68	---	79	e20	---	115	---	61	---	39	74	---
TOTAL	1391	1863	3329	2210	4220	6280	2768	2301	5081	1664	2073	7141
MEAN	44.9	62.1	107	71.3	151	203	92.3	74.2	169	53.7	66.9	238
MAX	336	283	405	282	1160	782	290	344	1080	100	416	3100
MIN	10	29	30	20	30	78	66	51	60	37	39	40
CFSM	0.76	1.05	1.81	1.20	2.55	3.42	1.56	1.25	2.86	0.91	1.13	4.02
IN.	0.87	1.17	2.09	1.39	2.65	3.95	1.74	1.45	3.19	1.05	1.30	4.49

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2003, BY WATER YEAR (WY)**

MEAN	52.7	55.3	89.1	82.8	95.4	132	90.1	68.9	66.3	36.4	42.1	89.0
MAX	143	119	246	134	151	203	126	90.3	169	59.3	96.2	238
(WY)	1997	1997	1997	1997	2003	2003	1997	1998	2003	2000	1996	2003
MIN	25.8	27.6	26.6	44.7	32.7	60.3	45.4	43.3	27.7	13.7	10.7	14.0
(WY)	1998	2002	1999	2002	2002	2002	2002	2002	1999	2002	2002	2002

e Estimated.

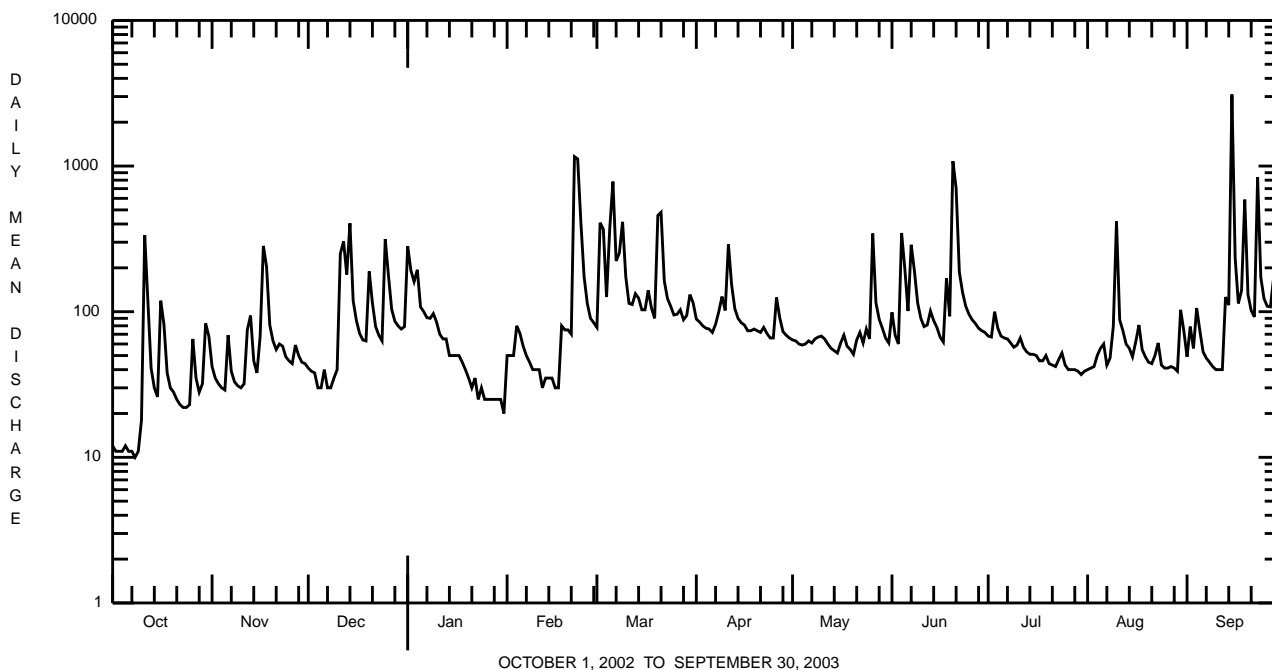


CHRISTINA RIVER BASIN

01478245 WHITE CLAY CREEK NEAR STRICKERSVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1996 - 2003	
ANNUAL TOTAL	15560.0		40321			
ANNUAL MEAN	42.6		110		74.3	
HIGHEST ANNUAL MEAN					110	2003
LOWEST ANNUAL MEAN					31.8	2002
HIGHEST DAILY MEAN	405	Dec 14	3100	Sep 15	4930	Sep 16 1999
LOWEST DAILY MEAN	5.4	Aug 15	10	Oct 8	5.4	Aug 15 2002
ANNUAL SEVEN-DAY MINIMUM	6.1	Aug 10	11	Oct 2	6.1	Aug 10 2002
MAXIMUM PEAK FLOW			a9750	Sep 15	a14400	Sep 16 1999
MAXIMUM PEAK STAGE			14.28	Sep 15	b16.71	Sep 16 1999
INSTANTANEOUS LOW FLOW			10	Oct 4,6-9	5.0	Aug 15 2002
ANNUAL RUNOFF (CFSM)	0.72		1.87		1.26	
ANNUAL RUNOFF (INCHES)	9.78		25.34		17.06	
10 PERCENT EXCEEDS	77		188		126	
50 PERCENT EXCEEDS	33		67		48	
90 PERCENT EXCEEDS	9.5		30		22	

a From rating curve extended above 1,180 ft<sup>3</sup>/s on basis of runoff comparison with nearby station.  
 b From floodmark in gage.



CHRISTINA RIVER BASIN

01478245 WHITE CLAY CREEK NEAR STRICKERSVILLE, 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 430-470.

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

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd µS/cm 25 degC (00095)	Temperature, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, unfltrd recover -able, mg/L (00916)	Magnesium, water, unfltrd recover -able, mg/L (00927)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002 13...	1020	1028	9813	87	30	10.3	7.5	306	10.9	120	28.2	10.7	68
JAN 2003 13...	1050	1028	9813	E65	30	14.7	7.8	359	.0	140	34.2	13.3	72
MAR 27...	0910	1028	9813	105	30	13.2	7.9	279	8.5	110	26.5	9.7	53
MAY 27...	1000	1028	9813	114	30	10.7	7.5	257	12.2	93	22.9	8.7	56
JUL 07...	1030	1028	9813	68	30	9.1	8.0	311	20.7	120	29.3	11.5	71
SEP 08...	1100	1028	9813	46	30	10.6	8.0	350	16.9	130	30.8	11.9	85

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water, unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recover -able, µg/L (01105)	Copper, water, unfltrd recover -able, µg/L (01042)	Iron, water, unfltrd recover -able, µg/L (01045)
NOV 2002 13...	34.4	242	2	.060	2.73	.040	--	.203	4.6	9.3	400	4.1	720
JAN 2003 13...	34.3	232	<2	<.020	4.79	<.010	--	.041	5.5	1.9	52	<4.0	180
MAR 27...	27.1	208	4	<.020	3.83	<.040	.03	.029	4.2	3.0	<200	<10	120
MAY 27...	24.2	212	12	.110	2.79	.080	.10	.140	3.8	6.6	500	<10	750
JUL 07...	26.1	230	4	<.020	4.13	<.040	.05	.062	4.4	2.7	<200	<10	150
SEP 08...	27.2	258	<2	<.020	4.33	<.040	.05	.068	4.4	2.5	<200	<10	80

Date	Lead, water, unfltrd recover -able, µg/L (01051)	Manganese, water, unfltrd recover -able, µg/L (01055)	Nickel, water, unfltrd recover -able, µg/L (01067)	Zinc, water, unfltrd recover -able, µg/L (01092)
NOV 2002 13...	2.1	40	<4.0	20
JAN 2003 13...	<1.0	40	<4.0	<5.0
MAR 27...	<1.0	20	<50	<10
MAY 27...	<1.0	50	<50	<10
JUL 07...	<1.0	20	<50	20
SEP 08...	<1.0	20	<50	150

## CHRISTINA RIVER BASIN

01478245 WHITE CLAY CREEK NEAR STRICKERSVILLE, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES

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

Date	Count
Benthic Macroinvertebrate	
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	7
Nematoda (NEMATODES)	5
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
<u>Ferrissia</u> sp	2
Physidae	
<u>Physa</u> sp	7
Planorbidae	
<u>Gyraulus</u> sp	1
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	1
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	2
Crustacea	
Ostracoda	1
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Baetis</u> sp	2
Caenidae	
<u>Caenis</u> sp	3
Odonata	
Coenagrionidae (DAMSELFLIES)	
<u>Argia</u> sp	2
Trichoptera (CADDISFLIES)	
Hydropsychidae	
<u>Hydropsyche</u> sp	14
Hydroptilidae	
<u>Leucotrichia</u> sp	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Optioservus</u> sp	8
<u>Oulimnius</u> sp	2
<u>Stenelmis</u> sp	5
Hydrophilidae	
<u>Berosus</u> sp	3
Psephenidae (WATER PENNIES)	
<u>Psephenus</u> sp	1

## CHRISTINA RIVER BASIN

01478245 WHITE CLAY CREEK NEAR STRICKERSVILLE, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES--Continued

Date	08/28/02
Benthic Macroinvertebrate	Count
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	35
Empididae (DANCE FLIES)	
<u>Hemerodromia</u> sp	4
Tipulidae (CRANE FLIES)	
<u>Antocha</u> sp	1
<u>Tipula</u> sp	1
Total Organisms	108

## CHRISTINA RIVER BASIN

01479820 RED CLAY CREEK NEAR KENNETT SQUARE, PA  
(Pennsylvania Water-Quality Network Station)

**LOCATION.**--Lat 39°49'00", long 75°41'31", Chester County, Hydrologic Unit 02040205, on left bank along SR 82 (Creek Road), and 3.0 mi south of the intersection of SR 82 and U.S. Highway 1 at Kennett Square.

**DRAINAGE AREA.**--28.3 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--January 1988 to current year.

**GAGE.**--Water-stage recorder and crest-stage gage. Elevation of gage is 196.02 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--No estimated daily discharges. Records fair. Some regulation upstream of gage. 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 1,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Feb. 22	1715	1,610	6.76	Sept. 15	0930	*19,700	*15.30
Mar. 20	2100	1,340	6.36	Sept. 19	0300	1,020	5.65
June 20	1945	3,660	8.04	Sept. 23	0900	1,890	6.68

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	19	18	123	33	37	40	31	59	43	21	22
2	11	18	18	72	33	286	37	30	36	38	22	41
3	9.0	16	18	74	28	172	36	26	37	62	56	25
4	12	15	17	70	47	58	35	25	224	41	32	51
5	6.9	15	21	42	29	231	35	26	98	39	40	29
6	5.7	63	20	42	25	424	30	29	54	39	29	21
7	6.1	24	19	37	27	99	35	30	165	40	23	18
8	9.2	19	19	38	24	129	41	32	90	38	31	17
9	5.9	20	19	39	24	203	60	33	60	34	64	16
10	20	18	18	34	25	74	43	32	49	34	237	16
11	246	18	229	30	24	51	166	30	43	38	45	16
12	59	62	144	28	23	53	72	29	55	32	33	18
13	22	44	87	28	22	63	47	28	69	30	26	59
14	16	24	178	27	21	53	41	27	52	29	24	53
15	17	20	39	26	21	46	38	27	43	28	22	4150
16	101	64	30	25	15	46	37	31	39	28	24	117
17	44	222	30	26	21	60	34	32	38	26	27	51
18	19	111	27	24	27	46	37	28	107	25	22	96
19	15	44	27	24	26	39	36	28	52	27	20	394
20	15	35	97	25	28	314	33	26	1120	23	20	59
21	14	31	39	23	31	224	31	37	346	23	19	46
22	14	37	28	22	676	68	35	30	96	22	26	42
23	13	33	28	21	576	53	33	28	73	26	22	518
24	13	28	27	21	184	48	33	33	63	28	17	71
25	13	27	184	21	79	45	34	28	55	24	16	52
26	58	27	72	21	52	49	62	204	52	22	16	47
27	21	33	41	20	43	51	37	55	49	22	19	64
28	17	22	36	21	40	43	32	46	47	22	20	141
29	28	20	34	22	---	45	30	38	45	22	19	55
30	52	20	33	21	---	68	30	33	45	20	59	46
31	35	---	33	22	---	53	---	33	---	21	29	---
TOTAL	929.8	1149	1630	1069	2204	3231	1290	1145	3361	946	1080	6351
MEAN	30.0	38.3	52.6	34.5	78.7	104	43.0	36.9	112	30.5	34.8	212
MAX	246	222	229	123	676	424	166	204	1120	62	237	4150
MIN	5.7	15	17	20	15	37	30	25	36	20	16	16

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 2003, BY WATER YEAR (WY)

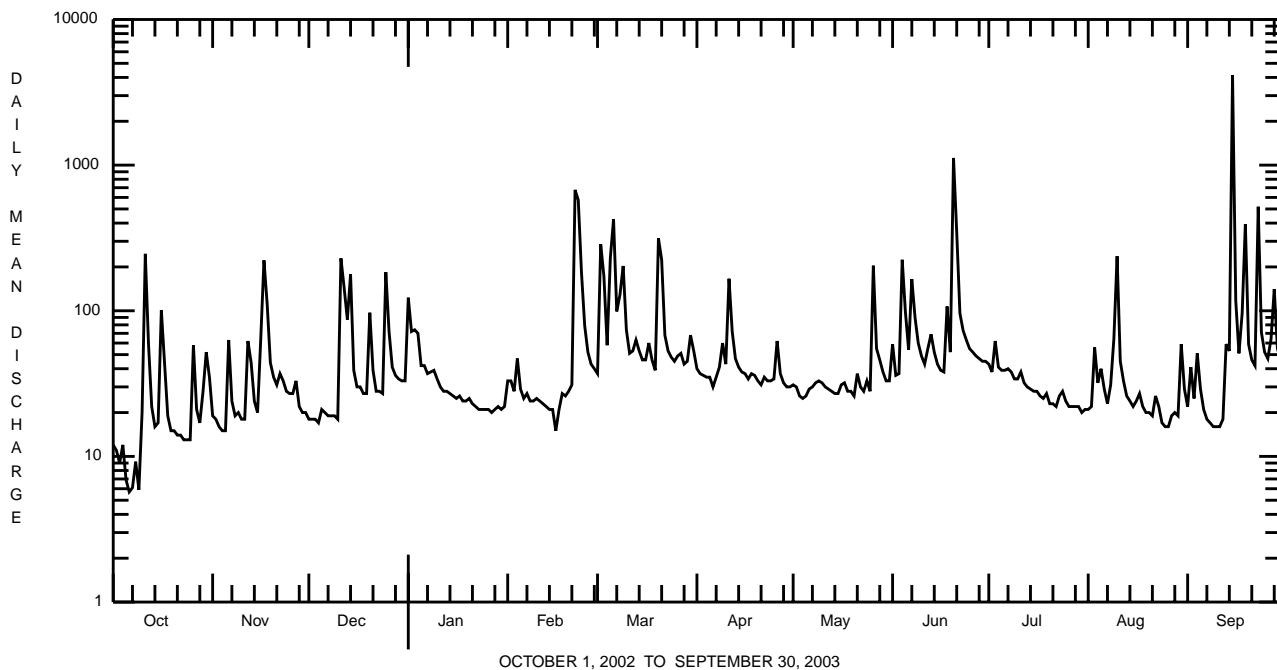
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MEAN	26.8	31.5	41.1	47.2	45.0	62.9	45.5	40.3	37.5	27.0	22.4	40.6				
MAX	75.5	61.3	128	96.1	81.2	116	85.5	79.2	112	94.5	55.2	212				
(WY)	1997	1997	1997	1996	1994	1994	1993	1989	2003	1989	1996	2003				
MIN	10.8	10.9	12.9	22.0	16.6	30.5	21.7	21.7	16.0	12.0	5.84	8.83				
(WY)	1995	1999	1999	1992	2002	2002	2002	1999	1995	1995	1995	1995				

CHRISTINA RIVER BASIN

01479820 RED CLAY CREEK NEAR KENNETT SQUARE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1988 - 2003	
ANNUAL TOTAL	9236.1		24385.8			
ANNUAL MEAN	25.3		66.8		39.2	
HIGHEST ANNUAL MEAN					66.8	2003
LOWEST ANNUAL MEAN					18.9	2002
HIGHEST DAILY MEAN	246	Oct 11	4150	Sep 15	a4150	Sep 15 2003
LOWEST DAILY MEAN	4.6	Aug 26	5.7	Oct 6	0.86	Sep 3 1995
ANNUAL SEVEN-DAY MINIMUM	5.2	Aug 8	7.8	Oct 3	1.1	Sep 2 1995
MAXIMUM PEAK FLOW			a19700	Sep 15	a19700	Sep 15 2003
MAXIMUM PEAK STAGE			b15.30	Sep 15	b15.30	Sep 15 2003
10 PERCENT EXCEEDS	43		96		60	
50 PERCENT EXCEEDS	17		33		26	
90 PERCENT EXCEEDS	7.9		18		12	

a From rating curve extended above 2,580 ft<sup>3</sup>/s from slope-conveyance determination of discharge at gage height 15.30 ft.  
 b From outside highwater mark.



## CHRISTINA RIVER BASIN

01479820 RED CLAY CREEK NEAR KENNETT SQUARE, 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 430-470.

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

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, unfltrd recover -able, mg/L (00916)	Magnesium, water, unfltrd recover -able, mg/L (00927)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002 13...	1130	1028	9813	38	30	11.5	7.6	335	10.9	130	32.6	12.4	70
JAN 2003 13...	1140	1028	9813	27	30	14.7	7.9	408	.9	150	37.2	14.6	76
MAR 27...	1000	1028	9813	49	30	13.8	8.2	377	9.1	140	33.3	12.9	69
MAY 27...	0900	1028	9813	56	30	10.7	7.3	332	12.0	120	30.7	11.6	74
JUL 07...	1130	1028	9813	40	30	9.0	7.8	365	20.7	140	34.2	13.5	78
SEP 08...	1230	1028	9813	18	30	11.0	8.1	389	17.7	160	38.6	15.2	87

Date	Sulfate water, unfltrd, mg/L (00945)	Residue on evap. at 105degC, suspended, mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water, unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recover -able, mg/L (01105)	Copper, water, unfltrd recover -able, mg/L (01042)	Iron, water, unfltrd recover -able, mg/L (01045)
NOV 2002 13...	41.6	276	<2	.090	2.88	.020	--	.228	4.3	8.6	300	<4	470
JAN 2003 13...	42.2	172	6	.030	4.81	<.010	--	.127	5.8	2.3	88	<4	190
MAR 27...	37.9	268	4	<.020	3.84	<.040	.07	.067	4.1	3.6	<200	<10	180
MAY 27...	34.9	266	4	.100	3.15	.100	.11	.161	4.1	6.2	500	<10	750
JUL 07...	34.2	288	<2	<.020	3.98	<.200	.12	.145	4.3	3.9	<200	<10	270
SEP 08...	36.0	298	4	.030	4.93	<.040	.20	.190	5.0	2.8	<200	<10	180

Date	Lead, water, unfltrd recover -able, ug/L (01051)	Manganese, water, unfltrd recover -able, ug/L (01055)	Nickel, water, unfltrd recover -able, ug/L (01067)	Zinc, water, unfltrd recover -able, ug/L (01092)
NOV 2002 13...	<1.0	20	<4.0	7.5
JAN 2003 13...	<1.0	50	<4.0	7.1
MAR 27...	<1.0	30	<50	50
MAY 27...	<1.0	60	<50	10
JUL 07...	<1.0	20	<50	20
SEP 08...	<1.0	20	<50	180

## CHRISTINA RIVER BASIN

01479820 RED CLAY CREEK NEAR KENNETT SQUARE, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500  $\mu\text{m}$ .  
Samples represent counts per 100 (approximate) subsamples.

Date	08/28/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	7
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	1
Crustacea	
Amphipoda (SCUDS)	
Gammaridae	
<u>Gammarus</u> sp	2
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Baetis</u> sp	3
Trichoptera (CADDISFLIES)	
Hydropsychidae	
<u>Cheumatopsyche</u> sp	9
<u>Hydropsyche</u> sp	31
Philopotamidae	
<u>Chimarra</u> sp	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Optioservus</u> sp	11
<u>Oulimnius</u> sp	2
<u>Stenelmis</u> sp	20
Psephenidae (WATER PENNIES)	
<u>Psephenus</u> sp	3
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	61
Tipulidae (CRANE FLIES)	
<u>Antocha</u> sp	1
<u>Tipula</u> sp	1
Total Organisms	153



## CHRISTINA RIVER BASIN

## 01480300 WEST BRANCH BRANDYWINE CREEK NEAR HONEY BROOK, PA

**LOCATION.**--Lat 40°04'22", long 75°51'40", Chester County, Hydrologic Unit 02040205, on right bank 100 ft upstream from bridge on SR 4007 at Birdell, 0.4 mi downstream from Two Log Run, and 3.0 mi southeast of Honey Brook.

**DRAINAGE AREA.**--18.7 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--June 1960 to current year.

**REVISED RECORDS.**--WDR PA-73-1: 1972(P). WDR PA-99-1: 1972, 1973, 1975, 1976, 1978, 1979, 1982, 1984, 1985, 1987-89, 1996, 1997 (P).

**GAGE.**--Water-stage recorder and crest-stage gage. Prior to July 1990, water-stage recorder at site 130 ft downstream on right bank at same datum. Datum of gage is 591.20 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Records fair, except those above 1,000 ft<sup>3</sup>/s, and those for estimated daily discharges, which are poor. Some regulation at low flow by pumpage from the Northwestern Chester County Wastewater Treatment plant. 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 base discharge of 500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Jan. 1	2015	504	5.75	June 4	1230	845	6.67
Feb. 23	1600	845	6.67	June 20	2215	*2,790	*10.03
Mar. 5	1930	540	5.87	Sept. 15	1845	1,030	7.03
Mar. 9	1730	666	6.26	Sept. 19	0815	606	6.08
Mar. 20	2345	632	6.16	Sept. 23	1215	1,550	7.91

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.9	21	14	190	e11	18	26	16	83	19	13	10
2	3.5	15	14	138	e12	134	25	16	27	19	12	50
3	3.1	13	13	72	e14	141	23	15	23	19	11	27
4	5.1	13	e11	96	e24	38	21	14	385	17	17	77
5	4.7	12	e10	32	e16	181	23	15	81	18	15	24
6	3.0	27	e10	28	e14	257	20	16	34	19	15	15
7	3.4	16	e9.0	26	e14	58	21	15	100	20	13	12
8	3.2	13	e10	30	e13	72	26	21	63	20	12	12
9	3.2	12	e10	40	e12	259	52	19	34	19	22	11
10	6.9	11	e14	28	e13	50	35	18	26	19	66	11
11	93	29	e80	21	e12	26	101	16	24	19	16	10
12	49	88	170	18	e13	68	51	16	22	15	14	10
13	14	51	78	18	e12	89	27	15	32	15	13	27
14	10	21	262	18	e10	55	23	15	48	15	12	31
15	9.0	17	50	18	e9.0	45	22	14	42	15	11	295
16	97	52	29	16	e8.0	47	21	15	22	15	12	67
17	39	204	21	e14	e9.0	53	20	16	21	14	13	23
18	17	123	19	e12	e10	35	20	15	44	14	11	20
19	12	26	19	e13	e12	26	19	14	27	14	10	245
20	11	22	83	e14	e14	134	19	14	555	13	10	32
21	10	21	33	e13	16	217	19	18	643	13	10	23
22	9.3	27	22	e11	106	42	21	16	73	18	10	21
23	8.6	20	20	e10	551	28	19	16	40	27	9.4	456
24	8.4	16	18	e10	263	25	18	19	29	16	8.6	47
25	10	16	70	e11	86	23	17	24	26	13	9.1	30
26	26	15	53	e11	38	26	30	126	24	12	9.3	28
27	14	19	35	e10	24	32	23	31	22	12	11	25
28	11	17	27	e9.0	20	23	18	22	20	12	9.6	50
29	14	15	25	e10	---	32	18	20	19	12	12	27
30	78	15	23	e9.0	---	52	17	18	19	11	16	23
31	69	---	35	e10	---	37	---	17	---	11	9.3	---
TOTAL	649.3	967	1287.0	956.0	1356.0	2323	795	642	2608	495	432.3	1739
MEAN	20.9	32.2	41.5	30.8	48.4	74.9	26.5	20.7	86.9	16.0	13.9	58.0
MAX	97	204	262	190	551	259	101	126	643	27	66	456
MIN	3.0	11	9.0	9.0	8.0	18	17	14	19	11	8.6	10
CFSM	1.12	1.72	2.22	1.65	2.59	4.01	1.42	1.11	4.65	0.85	0.75	3.10
IN.	1.29	1.92	2.56	1.90	2.70	4.62	1.58	1.28	5.19	0.98	0.86	3.46

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

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003					
MEAN	16.8	24.1	29.0	34.7	36.8	41.8	32.3	25.4	23.8	19.8	12.4	17.6	68.5	58.6	107	136	85.1	110	83.8	74.6	96.6	106	25.8	63.1	1997	1973	1997	1996	1979	1994	1983	1989	1972	1984	1990	1960	5.74	6.59	7.65	7.03	6.55	14.1	11.0	8.84	6.46	3.79	2.34	3.62	
MIN (WY)	1965	2002	1999	1981	2002	2002	2002	1963	1963	1963	2002	1964																																					

e Estimated.

CHRISTINA RIVER BASIN

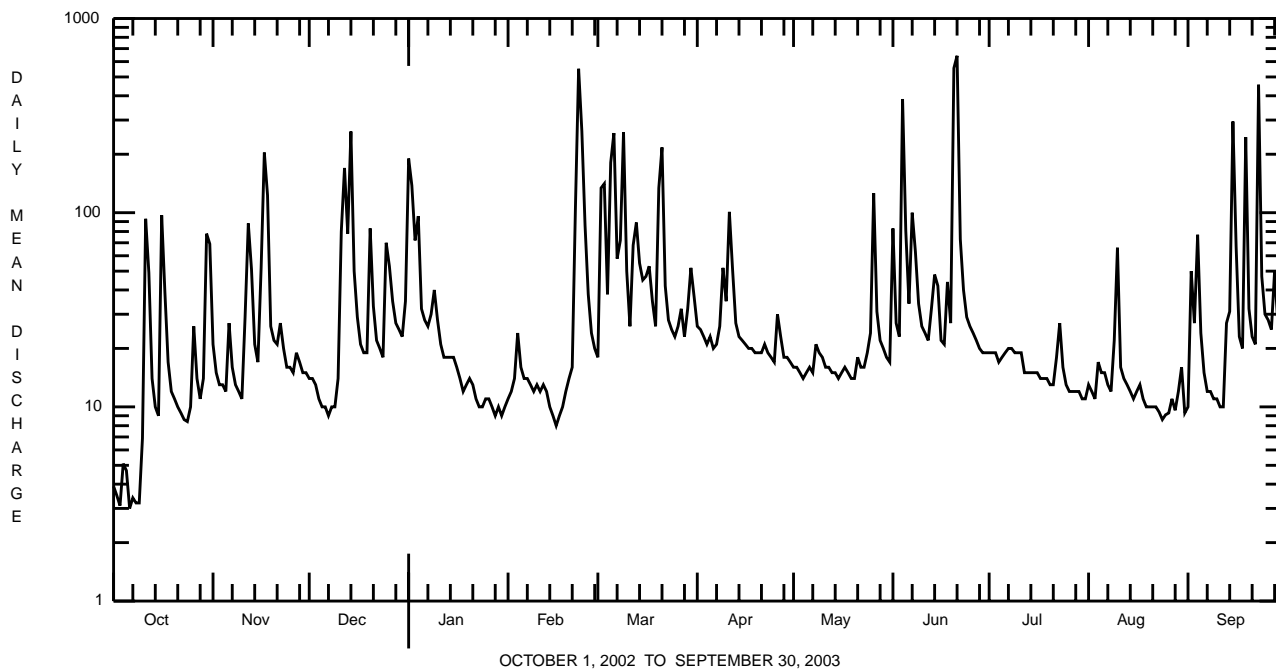
01480300 WEST BRANCH BRANDYWINE CREEK NEAR HONEY BROOK, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1960 - 2003	
ANNUAL TOTAL	5654.6		14249.6		26.1	
ANNUAL MEAN	15.5		39.0		46.3	
HIGHEST ANNUAL MEAN					1984	
LOWEST ANNUAL MEAN					2002	
HIGHEST DAILY MEAN	262	Dec 14	643	Jun 21	1400	Jun 22 1972
LOWEST DAILY MEAN	1.0	Aug 21, 22	3.0	Oct 6	1.0	Aug 21 2002
ANNUAL SEVEN-DAY MINIMUM	1.2	Aug 16	3.7	Oct 3	1.2	Aug 16 2002
MAXIMUM PEAK FLOW			a2790	Jun 20	a3800	Jan 19 1996
MAXIMUM PEAK STAGE			10.03	Jun 20	11.62	Jan 19 1996
INSTANTANEOUS LOW FLOW			2.3	Oct 3b	0.83	Aug 14 2002c
ANNUAL RUNOFF (CFSM)	0.83		2.09		1.39	
ANNUAL RUNOFF (INCHES)	11.25		28.35		18.95	
10 PERCENT EXCEEDS	29		78		41	
50 PERCENT EXCEEDS	8.4		19		15	
90 PERCENT EXCEEDS	2.2		10		6.7	

a From rating curve extended above 1,000 ft<sup>3</sup>/s on basis of runoff comparison with nearby stations.

b Also Oct. 4, 9, 10.

c Also Aug. 19, 20, 2002.



CHRISTINA RIVER BASIN

01480300 WEST BRANCH BRANDYWINE CREEK NEAR HONEY BROOK, PA--Continued

WATER-QUALITY RECORDS

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

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Chloride, water, fltrd, mg/L (00940)
OCT 2002 22...	1400	1028	80020	10	11.1	7.6	336	10.9	28.8	10.2	5.54	19.0	28.4

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water, fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Boron, water, fltrd, µg/L (01020)	Iron, water, fltrd, µg/L (01046)
OCT 2002 22...	16.4	30.8	E.02	4.78	.023	.12	60	76

## CHRISTINA RIVER BASIN

01480300 WEST BRANCH BRANDYWINE CREEK NEAR HONEY BROOK, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATESREMARKS.--Samples were collected using a Hess sampler with a mesh size of 500 µm. Each sample covered a total area of 2.4 m<sup>2</sup>.

Date	10/22/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	10
Nematoda (NEMATODES)	31
Nemertea (PROBOSAS WORMS)	
Enopla	
Hoplonemertea	
Tetrastemmatidae	
<u>Prostoma</u> sp	3
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancyliidae	
<u>Ferrissia</u> sp	14
Physidae	1
Planorbidae	
<u>Gyraulus</u> sp	2
Bivalvia (CLAMS)	
Veneroidea	
Sphaeriidae	
<u>Pisidium</u> sp	3
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	8
Tubificida	
Naididae	67
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	33
Insecta	
Ephemeroptera (MAYFLIES)	
Ephemerellidae	
<u>Serratella</u> sp	4
Ephemeridae	
<u>Ephemera</u> sp	2
Heptageniidae	
<u>Stenonema</u> sp	4
Plecoptera (STONEFLIES)	
Taeniopterygidae	
<u>Taeniopteryx</u> sp	2
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
<u>Corydalis</u> sp	2

## CHRISTINA RIVER BASIN

01480300 WEST BRANCH BRANDYWINE CREEK NEAR HONEY BROOK, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES--Continued

Date	10/22/02
Benthic Macroinvertebrate	Count
Trichoptera (CADDISFLIES)	
Hydropsychidae	
<u>Cheumatopsyche</u> sp	217
<u>Hydropsyche</u> sp	505
Hydroptilidae	
<u>Hydroptila</u> sp	25
<u>Leucotrichia</u> sp	2
Leptoceridae	
<u>Oecetis</u> sp	2
Philopotamidae	
<u>Chimarra</u> sp	36
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Ancyronyx</u> sp	8
<u>Dubiraphia</u> sp	5
<u>Macronychus</u> sp	22
<u>Microcylloepus</u> sp	22
<u>Optioservus</u> sp	133
<u>Oulimnius</u> sp	2
<u>Stenelmis</u> sp	820
Psephenidae (WATER PENNIES)	
<u>Psephenus</u> sp	12
Diptera (TRUE FLIES)	
Ceratopogonidae (BITING MIDGES)	
	4
Chironomidae (MIDGES)	
	572
Empididae (DANCE FLIES)	
<u>Hemerodromia</u> sp	10
Simuliidae (BLACK FLIES)	
<u>Simulium</u> sp	5
Tipulidae (CRANE FLIES)	
<u>Antocha</u> sp	95
<u>Hexatoma</u> sp	13
<u>Tipula</u> sp	1
Total organisms	2697
Total number of taxa	36

## CHRISTINA RIVER BASIN

## 01480400 BIRCH RUN NEAR WAGONTOWN, PA

**LOCATION.**--Lat 40°01'38", long 75°50'43", Chester County, Hydrologic Unit 02040205, on right bank 15 ft upstream from SR 4005, 0.2 mi upstream of mouth, 0.6 mi downstream from Chambers Lake, and 1.1 mi northwest of Wagontown.

**DRAINAGE AREA.**--4.55 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--February 1995 to current year.

**REVISED RECORDS.**--WDR PA-99-1: 1996-98 (M).

**GAGE.**--Water-stage recorder, crest-stage gage, and concrete control. Elevation of gage is 505.81 ft above North American Vertical Datum of 1988.

**REMARKS.**--No estimated daily discharges. Records fair. Flow regulated by Chambers Lake (station 01480399) 0.6 mi upstream. Satellite and landline telemetry at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	1.4	1.5	23	4.2	7.0	11	5.2	20	6.2	2.3	2.2
2	5.3	1.4	1.5	41	4.6	12	9.7	5.0	15	5.8	3.4	7.1
3	5.1	1.4	1.6	23	4.6	23	8.6	4.5	10	6.2	3.4	6.5
4	4.9	1.4	1.6	24	5.8	15	7.9	4.3	50	6.1	6.4	11
5	5.0	1.4	1.6	15	6.3	15	8.4	4.3	45	5.7	7.0	10
6	5.0	1.4	1.6	13	5.1	33	7.7	4.4	21	5.7	7.0	6.1
7	4.7	1.4	1.6	10	5.4	25	7.7	4.5	21	6.8	5.2	4.3
8	4.7	1.4	1.6	9.1	4.9	16	8.3	5.2	25	8.3	4.3	3.5
9	4.9	1.4	1.6	10	4.3	25	11	5.4	17	6.4	14	2.8
10	4.6	1.4	1.6	9.7	4.2	26	13	5.6	12	5.6	69	2.3
11	2.9	1.4	2.1	7.9	4.0	14	19	5.3	9.8	5.9	22	2.0
12	1.4	1.5	1.8	6.6	3.8	12	20	5.0	8.6	5.7	12	1.8
13	1.3	1.4	1.9	5.6	3.7	18	13	4.4	15	5.6	7.5	3.4
14	1.3	1.4	24	5.3	3.5	21	10	4.0	31	4.7	5.6	6.5
15	1.1	1.4	21	5.3	3.7	16	8.6	3.8	25	4.3	4.4	32
16	1.4	1.5	14	4.9	4.2	15	8.1	4.0	14	4.1	4.1	27
17	1.3	1.7	9.5	5.0	7.2	17	7.1	4.5	10	3.8	4.3	36
18	1.4	1.6	7.0	4.6	5.7	14	6.9	4.5	15	3.5	3.9	17
19	1.4	1.5	5.8	4.3	4.8	11	6.8	4.4	13	3.5	3.5	7.3
20	1.4	1.5	15	4.2	4.2	21	6.5	4.1	72	3.2	2.9	9.0
21	1.4	1.4	17	4.1	4.4	54	6.4	4.2	163	3.0	2.7	7.5
22	1.4	1.4	11	3.9	22	25	6.8	4.2	52	3.1	2.7	6.5
23	1.4	1.4	7.8	3.7	70	16	6.2	4.2	25	5.4	2.9	41
24	1.3	1.4	6.2	3.6	53	12	5.5	5.1	16	4.7	2.2	25
25	1.4	1.5	14	3.5	25	10	5.2	6.5	12	4.0	1.9	13
26	1.4	1.5	18	3.6	15	9.6	8.8	45	10	3.4	1.9	10
27	1.4	1.5	12	3.7	10	10	9.5	26	8.9	3.2	2.1	7.8
28	1.4	1.5	9.2	3.5	8.2	9.1	7.4	14	7.5	2.7	2.1	9.0
29	1.4	1.5	7.6	3.8	---	10	6.4	9.3	7.0	2.3	2.0	7.9
30	1.5	1.5	7.1	3.9	---	15	5.6	7.1	6.7	2.1	2.1	6.0
31	1.4	---	7.6	3.9	---	15	---	6.3	---	1.9	2.0	---
TOTAL	77.7	43.5	235.4	272.7	301.8	541.7	267.1	224.3	757.5	142.9	216.8	331.5
MEAN	2.51	1.45	7.59	8.80	10.8	17.5	8.90	7.24	25.2	4.61	6.99	11.1
MAX	5.3	1.7	24	41	70	54	20	45	163	8.3	69	41
MIN	1.1	1.4	1.5	3.5	3.5	7.0	5.2	3.8	6.7	1.9	1.9	1.8

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2003, BY WATER YEAR (WY)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	1995	1996	1997	1998	1999
MEAN	4.90	3.35	7.53	6.35	7.81	11.9	9.15	5.87	6.37	2.68	3.03	3.86		
MAX	19.2	11.3	30.3	16.2	10.8	17.5	17.1	8.99	25.2	6.23	6.99	11.1		
(WY)	1997	1997	1997	1996	2003	2003	1998	1998	2003	1996	2003	2003		
MIN	1.15	1.23	1.21	1.57	2.79	1.86	1.40	2.65	1.50	1.33	1.25	1.45		
(WY)	1996	1996	1996	1999	1999	2002	2002	1999	1999	1995	1995	1995		

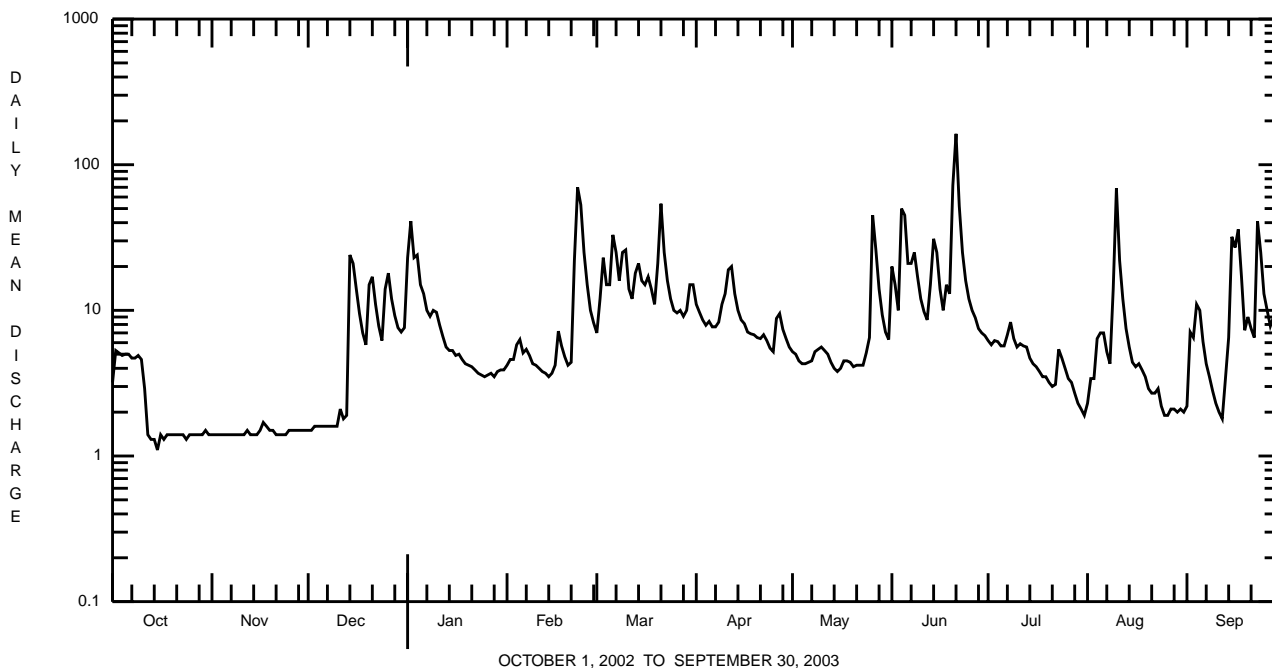
CHRISTINA RIVER BASIN

01480400 BIRCH RUN NEAR WAGONTOWN, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1995 - 2003	
ANNUAL TOTAL	1144.9		3412.9			
ANNUAL MEAN	3.14		9.35		6.28	
HIGHEST ANNUAL MEAN					9.52	
LOWEST ANNUAL MEAN					2.83	
HIGHEST DAILY MEAN	27	Jun 7	163	Jun 21	250	Oct 19 1996
LOWEST DAILY MEAN	1.1	Jul 31 <sup>a</sup>	1.1	Oct 15	0.10	Feb 15 1995
ANNUAL SEVEN-DAY MINIMUM	1.2	Jul 29	1.3	Oct 12	0.27	Apr 18 1995
MAXIMUM PEAK FLOW			b291	Jun 21	b401	Jan 19 1996
MAXIMUM PEAK STAGE			4.45	Jun 21	4.99	Jan 19 1996
10 PERCENT EXCEEDS	5.1		21		13	
50 PERCENT EXCEEDS	2.1		5.6		3.3	
90 PERCENT EXCEEDS	1.4		1.4		1.5	

<sup>a</sup> Also Aug. 1-3, Oct. 15.

<sup>b</sup> From rating curve extended above 230 ft<sup>3</sup>/s based on a slope-conveyance determination of discharge at gage height 4.99 ft.



## CHRISTINA RIVER BASIN

01480400 BIRCH RUN NEAR WAGONTOWN, PA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--June 1996 to current year.

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: June 1996 to current year.

INSTRUMENTATION.--Temperature probe interfaced with a data collection platform.

REMARKS.--Water temperature records rated good except for period Dec. 19 to Dec. 30, which is fair and period Jan. 1-6, which is poor.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 27.0°C, June 26, Aug. 10, 2003; minimum, 0.0°C, several days during winters.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 27.0°C, June 26, Aug. 10; minimum, 0.5°C, Dec. 5, Jan. 11-14.

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	21.0	17.5	19.0	10.5	8.0	9.0	4.5	3.0	3.5	2.0	2.0	2.0
2	22.0	19.5	20.5	9.5	8.0	8.5	4.5	3.0	3.5	2.5	2.0	2.5
3	22.0	20.0	21.0	9.0	7.5	8.0	4.0	2.0	2.5	2.5	2.5	2.5
4	21.0	20.0	20.5	9.0	7.5	8.5	3.0	1.5	2.0	2.5	2.0	2.5
5	22.0	20.5	21.0	9.0	7.5	8.0	2.5	0.5	2.0	2.5	2.5	2.5
6	20.5	19.5	20.0	9.5	7.5	8.5	3.5	2.0	2.5	2.5	2.5	2.5
7	21.0	19.5	20.0	8.5	7.0	8.0	3.5	1.5	2.5	2.5	1.5	2.0
8	19.5	18.5	19.0	9.0	7.0	8.0	4.5	2.0	3.0	2.0	1.0	1.5
9	19.0	18.5	18.5	9.5	7.0	8.0	3.5	2.0	2.5	2.5	1.5	2.0
10	18.5	18.0	18.5	10.0	8.0	9.0	4.0	2.0	3.0	2.5	1.5	2.0
11	18.0	16.5	17.0	10.0	8.5	9.5	3.5	2.5	3.0	2.0	0.5	1.5
12	17.0	16.0	16.5	9.0	8.5	8.5	5.0	3.5	4.0	1.0	0.5	0.5
13	17.0	16.0	16.5	9.0	7.5	8.5	4.5	3.0	4.0	1.5	0.5	1.0
14	16.5	14.5	15.5	10.0	7.0	8.5	4.0	2.5	2.5	1.5	0.5	1.0
15	15.5	14.0	14.5	10.0	7.5	8.5	3.0	2.5	2.5	1.5	1.0	1.0
16	14.5	14.0	14.5	8.5	8.0	8.5	3.0	2.5	3.0	2.0	1.0	1.5
17	15.0	13.5	14.0	9.0	8.0	8.5	2.5	2.0	2.5	2.0	1.0	1.5
18	14.5	12.5	13.0	8.0	7.0	7.5	2.5	2.0	2.5	2.0	1.0	1.5
19	14.0	12.5	13.0	8.5	6.5	7.5	3.5	2.5	3.0	2.0	1.5	1.5
20	14.0	12.5	13.5	9.0	6.5	7.5	4.0	2.5	3.0	2.0	1.5	1.5
21	14.0	12.0	13.0	8.0	6.5	7.5	3.0	2.5	2.5	2.5	1.5	2.0
22	14.0	11.5	12.5	8.0	7.0	8.0	3.0	2.5	2.5	2.0	1.5	1.5
23	13.5	11.5	12.0	7.0	5.5	6.5	3.0	2.5	3.0	2.5	1.5	1.5
24	12.0	11.5	12.0	7.5	5.5	6.5	3.0	2.5	3.0	2.5	1.5	2.0
25	12.0	11.5	11.5	8.0	6.0	6.5	3.0	1.5	2.0	3.0	2.0	2.5
26	13.5	11.5	12.0	7.5	6.0	6.5	2.0	1.5	1.5	3.0	2.0	2.5
27	13.0	11.0	12.0	7.0	5.0	6.0	1.5	1.5	1.5	2.5	1.5	2.0
28	12.0	10.5	11.5	6.0	4.5	5.0	1.5	1.5	1.5	3.0	2.0	2.5
29	11.0	10.0	10.5	5.5	4.0	4.5	2.0	1.5	1.5	3.0	2.5	2.5
30	10.0	9.5	9.5	6.0	4.5	5.0	2.5	1.5	2.0	3.5	2.0	2.5
31	10.0	8.5	9.5	---	---	---	2.5	2.0	2.5	3.5	2.5	3.0
MONTH	22.0	8.5	15.2	10.5	4.0	7.6	5.0	0.5	2.6	3.5	0.5	1.9





## CHRISTINA RIVER BASIN

## 01480500 WEST BRANCH BRANDYWINE CREEK AT COATESVILLE, PA

**LOCATION.**--Lat 39°59'08", long 75°49'40", Chester County, Hydrologic Unit 02040205, on right bank at city limits of Coatesville, 1,200 ft upstream from bridge on old Lincoln Highway, and 0.6 mi downstream from Rock Run.

**DRAINAGE AREA.**--45.8 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--October 1943 to December 1951, January 1970 to current year.

**GAGE.**--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 306.05 ft above National Geodetic Vertical Datum of 1929. Sept. 10, 1943, to Dec. 31, 1951, nonrecording gage at site 1,100 ft downstream at different datum. Satellite and landline telemetry at station.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Diversion from Rock Run Reservoir (station 01480465) 2.6 mi upstream, capacity, 982 acre-ft, for municipal supply of city of Coatesville.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of Aug. 9, 1942, reached a stage of 12.3 ft, site and datum then in use, discharge, 8,600 ft<sup>3</sup>/s, by slope-area measurement.

**COOPERATION.**--Records of diversion provided by the Pennsylvania American Water Company.

**PEAK DISCHARGES FOR CURRENT YEAR.**--Peak discharges greater than base discharge of 700 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Feb. 23	1700	1,200	5.97	June 21	0300	*3,500	*7.80
Mar. 9	2200	748	5.42	Aug. 9	2330	1,610	6.39
Mar. 21	0430	848	5.55	Sept. 15	1100	928	5.65
May 26	1000	896	5.61	Sept. 23	1730	1,330	6.10
June 4	1100	1,090	5.84				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.9	35	26	258	e34	52	75	45	185	57	29	29
2	8.0	23	22	350	e37	168	68	45	93	56	32	111
3	7.7	18	22	150	e40	295	62	42	62	63	27	69
4	8.8	16	20	218	e42	106	59	40	641	57	79	156
5	8.8	16	21	103	e44	193	61	41	278	53	57	89
6	7.8	37	e19	85	e32	506	59	43	127	55	49	50
7	6.9	27	e18	73	e33	183	58	42	194	68	36	42
8	6.5	18	e19	71	e32	128	68	49	219	64	31	37
9	7.3	16	e18	90	e30	390	109	50	121	52	196	34
10	14	15	e20	83	e31	214	103	48	90	50	467	32
11	138	21	e125	60	e29	89	201	45	76	53	112	30
12	100	74	291	51	e26	109	150	43	69	49	76	30
13	27	113	147	50	e25	191	89	40	135	44	55	46
14	15	34	418	47	e24	161	68	38	193	39	48	95
15	11	25	153	47	e24	120	62	36	162	38	43	492
16	90	48	82	42	e15	129	61	38	85	37	41	274
17	93	260	58	e36	e20	145	56	44	69	34	47	99
18	27	183	49	e33	e30	107	55	39	136	33	40	81
19	18	51	47	e34	e32	79	55	38	97	34	37	421
20	15	38	185	e36	e34	220	53	35	683	30	34	103
21	13	33	123	e33	e36	493	52	41	1430	30	33	68
22	11	42	65	e29	e250	148	56	40	252	36	32	59
23	11	39	55	e25	767	103	51	39	168	63	32	666
24	10	29	48	e26	460	82	48	46	125	40	28	172
25	11	26	138	e27	188	73	47	56	103	33	27	95
26	36	25	141	e28	110	71	77	392	89	29	29	86
27	26	30	89	e27	71	88	71	132	79	29	30	76
28	15	33	68	e26	59	68	53	73	69	28	29	116
29	17	27	61	e28	---	78	50	59	65	27	27	79
30	71	27	57	e30	---	128	48	50	62	25	52	62
31	119	---	67	e32	---	121	---	47	---	25	33	---
TOTAL	956.7	1379	2672	2228	2555	5038	2125	1816	6157	1331	1888	3799
MEAN	30.9	46.0	86.2	71.9	91.2	163	70.8	58.6	205	42.9	60.9	127
MAX	138	260	418	350	767	506	201	392	1430	68	467	666
MIN	6.5	15	18	25	15	52	47	35	62	25	27	29
(†)	5.6	5.7	5.8	5.7	6.6	6.8	6.4	5.9	5.8	6.6	6.1	6.2

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

	2002	2002	2002	1981	2002	2002	2002	1999	1999	2002	2002	2002
MEAN	37.0	53.9	68.4	77.4	84.4	97.6	85.6	71.6	62.4	47.4	31.9	38.8
MAX	149	114	227	262	179	275	197	159	236	176	82.9	136
(WY)	1997	1973	1997	1979	1971	1994	1983	1989	1972	1984	1971	1979
MIN	11.2	11.1	14.4	15.5	19.6	31.3	25.4	29.6	17.5	9.62	5.43	8.06
(WY)	2002	2002	2002	1981	2002	2002	2002	1999	1999	2002	2002	2002

† Diversion for municipal supply, equivalent in cubic feet per second (includes change in contents from Rock Run Reservoir).

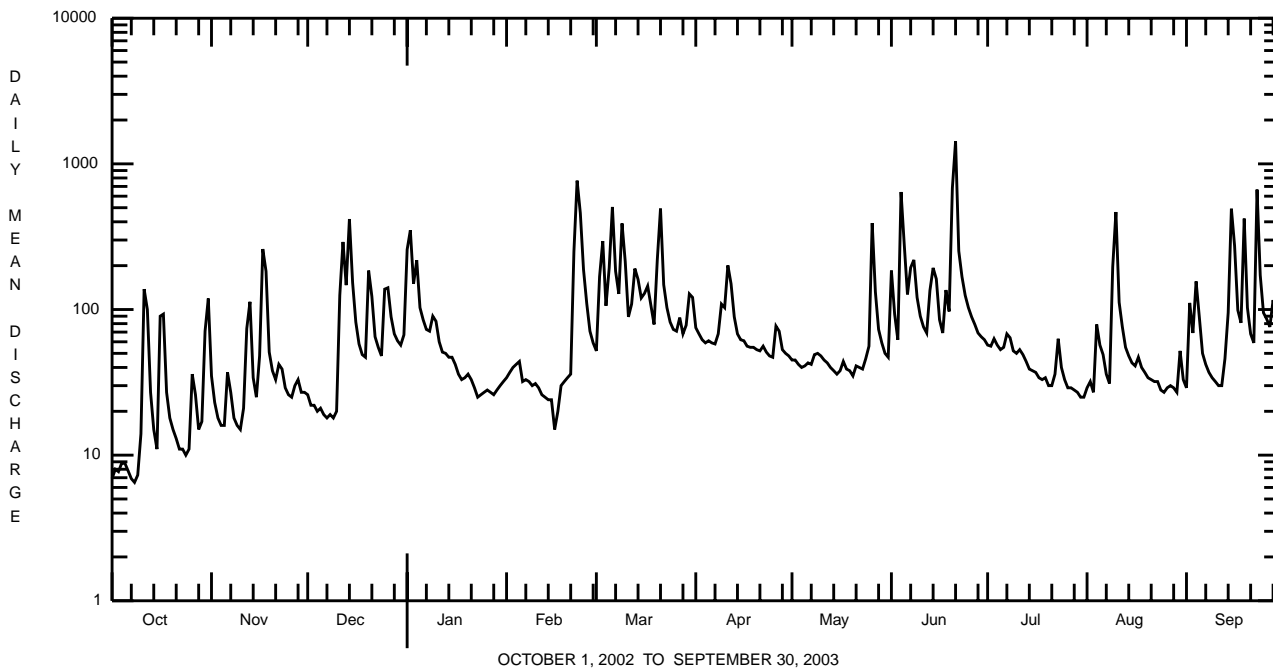
e Estimated.

CHRISTINA RIVER BASIN

01480500 WEST BRANCH BRANDYWINE CREEK AT COATESVILLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		FOR PERIOD OF DAILY RECORD	
ANNUAL TOTAL	11437.0		31944.7			
ANNUAL MEAN	31.3		87.5		63.0	
HIGHEST ANNUAL MEAN					98.6	1979
LOWEST ANNUAL MEAN					20.7	2002
HIGHEST DAILY MEAN	418	Dec 14	1430	Jun 21	3400	Jun 22 1972
LOWEST DAILY MEAN	3.0	Aug 23	6.5	Oct 8	3.0	Aug 23 2002
ANNUAL SEVEN-DAY MINIMUM	3.2	Aug 17	7.7	Oct 3	3.2	Aug 17 2002
MAXIMUM PEAK FLOW			3500	Jun 21	a8100	Jun 29 1973
MAXIMUM PEAK STAGE			7.80	Jun 21	10.08	Jun 29 1973
10 PERCENT EXCEEDS	67		184		111	
50 PERCENT EXCEEDS	20		50		41	
90 PERCENT EXCEEDS	5.7		21		15	

a From rating curve extended above 7,800 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 9.92 ft.



## CHRISTINA RIVER BASIN

01480500 WEST BRANCH BRANDYWINE CREEK AT COATESVILLE, PA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1965, 1970-72, 1995 to current year.

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: January 1995 to current year.

INSTRUMENTATION.--Temperature probe interfaced with a data collection platform.

REMARKS.--Water temperature records rated good.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 29.0°C, July 6, 1999; minimum, 0.0°C, many days during winters.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 25.0°C, Aug. 14; minimum 0.0°C, many days during winter.

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	18.0	15.5	16.5	7.5	5.5	6.5	3.5	1.5	2.5	5.0	3.5	4.0
2	19.5	17.0	18.5	6.5	5.5	6.0	2.5	0.5	1.5	3.5	3.0	3.5
3	20.5	18.5	19.5	6.0	4.0	5.0	2.5	0.0	1.0	3.5	3.0	3.5
4	20.5	19.5	19.5	7.0	4.5	6.0	0.5	0.0	0.5	3.5	2.5	3.0
5	21.0	19.5	20.0	7.0	5.5	6.5	0.5	0.0	0.0	3.0	1.5	2.5
6	20.0	17.0	18.0	8.5	7.0	7.5	0.5	0.0	0.5	3.5	2.0	2.5
7	19.0	17.0	17.5	8.0	6.5	7.5	0.5	0.0	0.0	2.5	1.5	2.0
8	17.0	14.0	15.0	7.5	5.0	6.5	0.5	0.0	0.5	4.0	2.0	3.0
9	14.0	12.5	13.5	9.0	6.0	7.5	0.5	0.0	0.5	4.5	2.0	3.5
10	15.5	14.0	15.0	12.0	8.0	9.5	0.5	0.0	0.5	4.5	3.0	4.0
11	15.5	15.0	15.5	14.0	12.0	13.5	0.5	0.0	0.5	3.5	1.0	2.0
12	16.0	15.5	15.5	13.0	11.5	12.0	2.0	0.5	1.5	1.5	0.0	0.5
13	16.0	15.5	16.0	11.5	9.0	10.5	3.0	1.5	2.0	1.0	0.0	0.5
14	16.0	12.5	14.0	9.0	7.0	8.0	3.5	2.5	3.0	1.0	0.0	0.5
15	12.5	10.0	11.0	9.5	7.5	8.5	4.5	3.5	4.0	1.5	0.0	0.5
16	12.5	12.0	12.0	8.5	8.0	8.5	4.5	3.0	4.0	0.5	0.0	0.0
17	13.0	11.5	12.0	8.0	7.0	7.5	3.0	1.0	2.0	1.0	0.0	0.5
18	12.0	10.5	11.5	7.0	6.0	6.5	1.5	0.0	0.5	0.5	0.0	0.0
19	11.0	9.0	10.0	6.5	4.5	6.0	4.0	1.0	2.5	0.5	0.0	0.0
20	12.0	11.0	11.5	7.5	5.0	6.0	8.0	4.0	5.5	0.5	0.0	0.0
21	11.5	10.0	10.5	7.0	4.5	6.0	6.0	3.5	5.0	0.5	0.0	0.0
22	10.5	8.0	9.5	8.5	7.0	8.0	5.0	3.0	4.0	0.5	0.0	0.0
23	10.0	8.5	9.5	7.5	5.5	6.0	5.0	3.5	4.5	0.5	0.0	0.0
24	10.0	8.5	9.0	6.5	4.5	5.5	4.0	2.5	3.5	0.5	0.0	0.0
25	9.0	8.0	8.5	7.0	4.0	5.5	3.5	1.0	2.0	0.5	0.0	0.0
26	11.5	9.0	10.0	7.0	5.5	6.5	2.5	1.0	1.5	0.5	0.0	0.0
27	11.0	9.5	10.5	6.5	4.0	5.0	2.5	2.0	2.0	0.0	0.0	0.0
28	10.5	9.0	10.0	4.0	2.0	3.0	2.5	1.0	2.0	0.0	0.0	0.0
29	9.0	7.0	8.0	3.0	1.5	2.0	3.5	2.0	2.5	0.0	0.0	0.0
30	7.0	6.5	6.5	4.0	2.5	3.5	3.5	1.5	2.5	0.5	0.0	0.0
31	7.0	6.5	6.5	---	---	---	5.0	3.5	4.0	0.5	0.0	0.5
MONTH	21.0	6.5	12.9	14.0	1.5	6.9	8.0	0.0	2.1	5.0	0.0	1.2



## CHRISTINA RIVER BASIN

## 01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA

**LOCATION.**--Lat 39°57'42", long 75°48'06", Chester County, Hydrologic Unit 02040205, on left bank at bridge on SR 15068 at Modena, and 300 ft upstream from Dennis Run.

**DRAINAGE AREA.**--55.0 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--January 1970 to current year.

**REVISED RECORDS.**--WDR PA-74-1: 1971-72(P), 1973. WDR PA-75-1: 1974(m).

**GAGE.**--Water-stage recorder and crest-stage gage. Elevation of gage is 265 ft above National Geodetic Vertical Datum of 1929, from topographic map.

**REMARKS.**--Records fair except those for estimated daily discharges, which are poor. Slight regulation from Rock Run Reservoir 5.6 mi upstream, capacity, 982 acre-ft, and by Lukens Steel Company. Diversion from Rock Run Reservoir for municipal supply of city of Coatesville reenters creek upstream from gage. Satellite and landline telemetry at station.

**COOPERATION.**--Records of diversion provided by the Pennsylvania American Water Company.

**PEAK DISCHARGES FOR CURRENT YEAR.**--Peak discharges greater than base discharge of 1,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Feb. 23	1700	1,330	5.96	Aug. 9	2330	2,670	7.60
May 26	1030	1,120	5.63	Sept. 15	1030	1,700	6.48
June 4	1030	1,380	6.03	Sept. 23	0930	1,410	6.08
June 21	0400	*4,660	*9.35				

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	15	53	42	362	e44	73	124	61	236	108	49	44
2	17	37	38	496	e47	225	103	61	124	103	51	152
3	18	32	38	199	e50	382	94	56	83	119	47	93
4	18	30	34	304	e53	145	87	55	757	102	149	209
5	19	29	e31	144	e55	241	83	55	376	93	105	117
6	16	58	e28	122	e39	652	84	61	171	96	78	65
7	16	42	e30	112	e41	257	83	56	259	113	57	52
8	14	32	e28	105	e38	163	95	66	288	107	51	46
9	16	27	e31	123	e34	477	137	70	158	85	282	44
10	46	28	e34	116	e37	299	132	64	124	83	677	40
11	327	34	231	88	e35	129	275	61	107	87	166	40
12	177	117	435	74	e33	124	192	55	103	92	119	39
13	44	188	197	71	e30	227	121	53	163	77	88	77
14	27	51	605	65	e30	226	98	50	241	68	74	124
15	24	38	216	66	e30	152	90	47	210	65	66	711
16	170	85	117	56	e27	159	86	51	112	62	63	353
17	163	459	87	e47	e32	186	81	56	94	56	69	132
18	40	309	68	e40	e40	147	75	51	173	57	60	119
19	32	86	64	e42	47	114	77	49	124	55	53	567
20	25	63	317	e43	50	298	74	45	1010	51	52	256
21	24	55	173	e40	51	613	72	51	1820	49	49	156
22	20	70	95	e36	470	203	81	51	353	65	50	105
23	21	65	80	e34	1010	144	72	49	236	99	50	779
24	19	50	69	e36	590	122	68	60	182	63	45	233
25	23	44	202	e38	248	110	64	79	154	54	40	136
26	63	43	203	e40	149	108	111	522	137	48	47	125
27	40	54	124	e38	102	125	98	169	125	47	44	116
28	27	55	101	e36	88	104	75	99	118	46	43	146
29	38	44	88	e38	---	103	68	79	119	43	41	136
30	107	44	84	e40	---	149	65	66	112	43	88	99
31	188	---	91	e42	---	165	---	65	---	42	47	---
TOTAL	1794	2322	3981	3093	3500	6622	2965	2413	8269	2278	2900	5311
MEAN	57.9	77.4	128	99.8	125	214	98.8	77.8	276	73.5	93.5	177
MAX	327	459	605	496	1010	652	275	522	1820	119	677	779
MIN	14	27	28	34	27	73	64	45	83	42	40	39
CFM	1.05	1.41	2.33	1.81	2.27	3.88	1.80	1.42	5.01	1.34	1.70	3.22
IN.	1.21	1.57	2.69	2.09	2.37	4.48	2.01	1.63	5.59	1.54	1.96	3.59
(†)	0.1	1.0	1.0	0	0	0	0	0	0	0	0	0

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2003, BY WATER YEAR (WY)

	54.6	70.5	91.9	101	106	128	115	93.3	86.2	67.0	46.8	57.8
MEAN	54.6	70.5	91.9	101	106	128	115	93.3	86.2	67.0	46.8	57.8
MAX	190	144	306	330	235	308	241	213	302	236	123	186
(WY)	1997	1997	1997	1979	1971	1994	1983	1989	1972	1984	1971	1979
MIN	20.0	17.8	21.5	20.1	30.2	43.0	34.7	41.5	28.4	15.4	11.8	20.6
(WY)	2002	2002	1999	1981	2002	1985	2002	1999	1999	2002	2002	2002

† Change in contents from Rock Run Reservoir, equivalent in cubic feet per second.

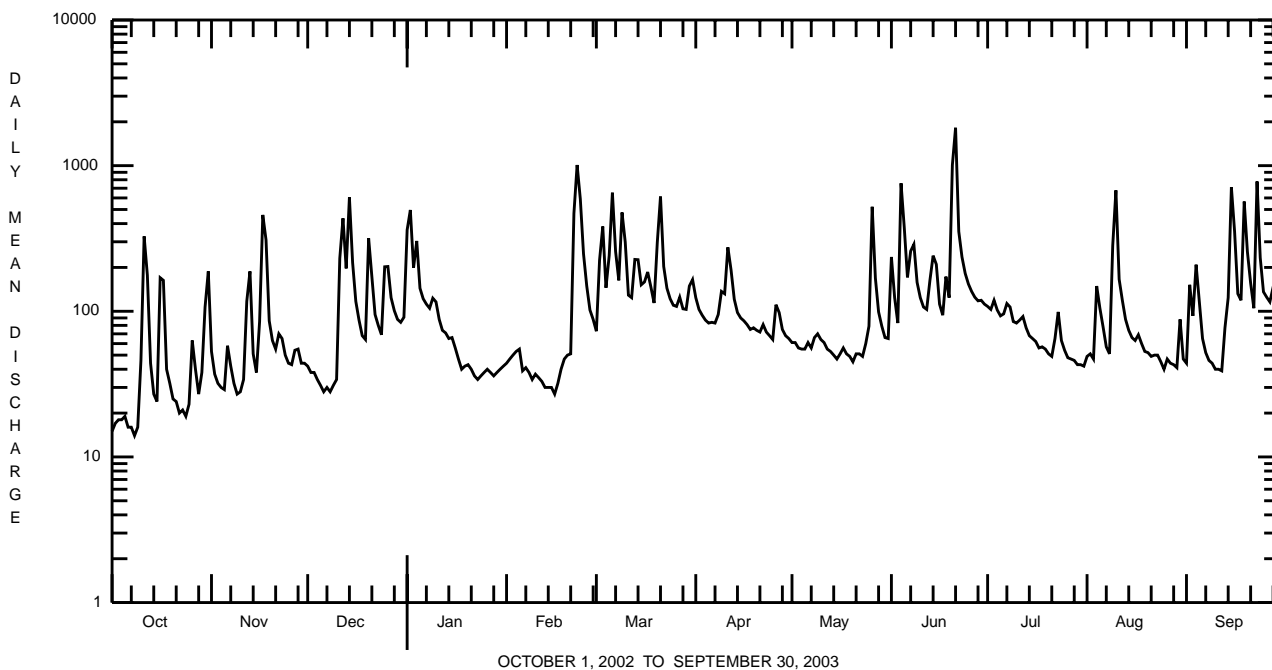
e Estimated.

CHRISTINA RIVER BASIN

01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1970 - 2003	
ANNUAL TOTAL	17034.5		45448			
ANNUAL MEAN	46.7		125		84.9	
HIGHEST ANNUAL MEAN					130	1979
LOWEST ANNUAL MEAN					29.7	2002
HIGHEST DAILY MEAN	605	Dec 14	1820	Jun 21	4010	Jun 22 1972
LOWEST DAILY MEAN	7.4	Aug 23	14	Oct 8	7.4	Aug 23 2002
ANNUAL SEVEN-DAY MINIMUM	8.1	Aug 17	17	Oct 3	8.1	Aug 17 2002
MAXIMUM PEAK FLOW			4660	Jun 21	a9600	Jun 29 1973
MAXIMUM PEAK STAGE			9.35	Jun 21	12.47	Jun 29 1973
ANNUAL RUNOFF (CFSM)	0.85		2.26		1.54	
ANNUAL RUNOFF (INCHES)	11.52		30.74		20.97	
10 PERCENT EXCEEDS	94		244		146	
50 PERCENT EXCEEDS	30		74		56	
90 PERCENT EXCEEDS	13		34		25	

a From rating curve extended above 7,800 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 11.48 ft.



## CHRISTINA RIVER BASIN

01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

## WATER-QUALITY RECORDS

**PERIOD OF RECORD.**--October 1969 to October 1978, August 1981 to current year.**PERIOD OF DAILY RECORD.**--

SPECIFIC CONDUCTANCE: May 1971 to October 1977, August 1981 to current year.

pH: May 1971 to October 1977, August 1981 to current year.

WATER TEMPERATURES: May 1971 to October 1977, August 1981 to current year.

DISSOLVED OXYGEN: May 1971 to October 1977, August 1981 to current year.

**INSTRUMENTATION.**--Water-quality monitor May 1971 to October 1977, August 1981 to current year.**REMARKS.**--Specific conductance record rated good except for periods Nov. 3-5 and Aug. 22-26, which are poor. pH record rated good except for period Apr. 7-21, which is fair. Water temperature record rated good. Dissolved oxygen record rated fair except for periods July 16 to Aug. 4 and Aug. 15 to Sept. 9, which are poor. Data collection discontinued during winter months since 1981 water year. Other interruptions in the record were due to malfunctions of the equipment.**EXTREMES FOR PERIOD OF DAILY RECORD.**--

SPECIFIC CONDUCTANCE: Maximum, 858 microsiemens, Jan. 10, 1977; minimum, 72 microsiemens, Nov. 16, 1985.

pH: Maximum, 10.0, Dec. 21, 1971; minimum, 5.9, July 14, 1991.

WATER TEMPERATURE: Maximum, 33.5°C, July 19, 1977; minimum, 0.0°C, many days during winters.

DISSOLVED OXYGEN: Maximum, 19.5 mg/L, Sept. 2, 1990; minimum, 0.6 mg/L, Nov. 1, 3, 1974.

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

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd std units (00400)	Specif. conduc- tance, wat un- f µS/cm 25 degC (00095)	Temper- ature, deg C (00010)	Fecal coli- form, M-FC 0.7µ MF col/ 100 mL (31625)
MAR 2003									
10...	1345	1028	1028	196	13.3	7.7	223	4.1	125
20...	1215	1028	1028	122	12.7	8.0	302	7.2	220
APR									
07...	1245	1028	1028	81	13.1	8.4	299	7.0	160
21...	1130	1028	1028	71	13.2	8.8	290	12.3	58
MAY									
01...	1310	1028	1028	61	13.4	9.1	315	16.6	157
12...	1615	1028	1028	54	10.0	8.4	313	16.6	467
21...	1425	1028	1028	51	9.9	7.8	325	15.4	1250
JUN									
05...	1420	1028	1028	329	9.6	7.6	218	16.1	5600
12...	1200	1028	1028	105	9.1	7.9	304	19.4	560
26...	0750	1028	1028	142	9.1	7.5	301	19.4	460
JUL									
08...	1210	1028	1028	109	8.7	7.6	298	22.7	2500
16...	1105	1028	1028	64	8.7	7.6	322	21.4	1140
23...	1250	1028	1028	102	8.3	7.7	306	22.1	2700
AUG									
06...	1225	1028	1028	76	8.1	7.7	305	22.2	E700
27...	1415	1028	1028	41	11.0	8.4	345	22.7	1470
SEP									
09...	1305	1028	1028	43	9.3	8.3	359	20.7	2000
22...	1350	1028	1028	105	9.0	7.7	331	19.4	1520



## CHRISTINA RIVER BASIN

## 01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd, µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium, water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd, titr., field, mg/L as CaCO3 (00419)	
OCT 2002	21...	1028	80020	25	12.5	8.1	423	13.3	39.1	11.4	7.30	25.9	66	
Date	Chloride, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate, water, fltrd, mg/L (00945)	Ammonia, water, fltrd, mg/L as N (00608)	Nitrite + Nitrate, water, fltrd, mg/L as N (00631)	Nitrite, water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, µg/L (01106)	Arsenic, water, fltrd, µg/L (01000)	Boron, water, fltrd, µg/L (01020)	Cadmium, water, fltrd, µg/L (01025)	Chromium, water, fltrd, µg/L (01030)	Copper, water, fltrd, µg/L (01040)	
OCT 2002	21...	41.2	13.4	47.9	<.04	4.21	.009	.11	30	<2	110	<.2	9.1	3.0
Date	Iron, water, fltrd, µg/L (01046)	Lead, water, fltrd, µg/L (01049)	Manganese, water, fltrd, µg/L (01056)	Mercury, water, fltrd, µg/L (71890)	Molybdenum, water, fltrd, µg/L (01060)	Nickel, water, fltrd, µg/L (01065)	Zinc, water, fltrd, µg/L (01090)							
OCT 2002	21...	47	<1	40.0	<.02	45.8	3.3	<24						

## CHRISTINA RIVER BASIN

01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATESREMARKS.--Samples were collected using a Hess sampler with a mesh size of 500 µm. Each sample covered a total area of 2.4 m<sup>2</sup>.

Date	10/21/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	321
Nematoda (NEMATODES)	5
Nemertea (PROBOSAS WORMS)	
Enopla	
Hoplonemertea	
Tetrastemmatidae	
<u>Prostoma</u> sp	48
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
<u>Ferrissia</u> sp	12
Physidae	
<u>Physa</u> sp	1
Mesogastropoda	
Valvatidae	
<u>Valvata</u> sp	1
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	
<u>Pisidium</u> sp	4
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	4
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	18
Insecta	
Ephemeroptera (MAYFLIES)	
Ephemerellidae	
<u>Serratella</u> sp	6
Heptageniidae	
<u>Stenonema</u> sp	7
Trichoptera (CADDISFLIES)	
Hydropsychidae	
<u>Cheumatopsyche</u> sp	756
<u>Hydropsyche</u> sp	467
Hydroptilidae	
<u>Leucotrichia</u> sp	360
Philopotamidae	
<u>Chimarra</u> sp	6
Polycentropodidae	
<u>Polycentropus</u> sp	1
Lepidoptera (MOTHS AND BUTTERFLIES)	
Pyralidae	
<u>Petrophila</u> sp	12

## CHRISTINA RIVER BASIN

01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES--Continued

Date	10/21/02
Benthic Macroinvertebrate	Count
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Ancyronyx</u> sp	1
<u>Macronychus</u> sp	1
<u>Optioservus</u> sp	48
<u>Oulimnius</u> sp	8
<u>Stenelmis</u> sp	93
Hydrophilidae	
<u>Berosus</u> sp	34
Psephenidae (WATER PENNIES)	
<u>Psephenus</u> sp	4
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	
	93
Empididae (DANCE FLIES)	
<u>Hemerodromia</u> sp	8
Simuliidae	
<u>Simulium</u> sp	1
Tipulidae (CRANE FLIES)	
<u>Antocha</u> sp	4
Total organisms	2324
Total number of taxa	28

## CHRISTINA RIVER BASIN

## 01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	<b>OCTOBER</b>			<b>NOVEMBER</b>			<b>DECEMBER</b>			<b>JANUARY</b>		
1	487	434	459	342	293	316	332	305	321	---	---	---
2	472	408	444	384	342	361	357	310	336	---	---	---
3	453	374	427	394	319	367	---	---	---	---	---	---
4	429	284	383	398	307	369	---	---	---	---	---	---
5	437	396	426	412	317	391	---	---	---	---	---	---
6	446	403	427	398	286	328	---	---	---	---	---	---
7	473	433	450	366	318	344	---	---	---	---	---	---
8	491	458	478	394	357	376	---	---	---	---	---	---
9	489	455	477	409	371	392	---	---	---	---	---	---
10	490	199	412	409	380	398	---	---	---	---	---	---
11	284	191	242	407	368	389	---	---	---	---	---	---
12	344	242	302	385	242	293	---	---	---	---	---	---
13	428	344	386	293	---	---	---	---	---	---	---	---
14	452	423	437	339	293	311	---	---	---	---	---	---
15	463	438	453	366	334	347	---	---	---	---	---	---
16	468	---	---	370	243	318	---	---	---	---	---	---
17	335	---	---	243	---	---	---	---	---	---	---	---
18	388	335	358	257	---	---	---	---	---	---	---	---
19	428	388	405	---	---	---	---	---	---	---	---	---
20	454	417	433	---	---	---	---	---	---	---	---	---
21	453	421	441	---	---	---	---	---	---	---	---	---
22	462	423	444	---	---	---	---	---	---	---	---	---
23	463	426	447	336	317	328	---	---	---	---	---	---
24	461	432	447	352	327	339	---	---	---	---	---	---
25	460	418	441	349	330	341	---	---	---	---	---	---
26	425	253	318	347	325	336	---	---	---	---	---	---
27	398	305	352	352	293	332	---	---	---	---	---	---
28	402	366	387	331	305	318	---	---	---	---	---	---
29	417	271	372	341	307	324	---	---	---	---	---	---
30	313	266	289	345	308	326	---	---	---	---	---	---
31	293	243	274	---	---	---	---	---	---	---	---	---
MONTH	491	191	400	412	242	345	357	305	328	---	---	---
	<b>FEBRUARY</b>			<b>MARCH</b>			<b>APRIL</b>			<b>MAY</b>		
1	---	---	---	373	338	350	298	275	285	333	310	316
2	---	---	---	424	191	331	304	282	291	320	306	312
3	---	---	---	255	218	231	308	291	297	322	307	314
4	---	---	---	293	242	274	314	298	306	328	312	321
5	---	---	---	321	234	286	313	297	302	327	306	316
6	---	---	---	236	187	204	303	287	294	323	270	306
7	---	---	---	266	190	234	360	296	313	334	309	317
8	---	---	---	297	259	277	318	293	301	334	284	306
9	---	---	---	267	154	228	304	259	280	316	292	305
10	---	---	---	248	152	207	285	263	273	310	298	304
11	---	---	---	295	248	276	286	203	246	320	302	311
12	---	---	---	301	227	286	260	230	239	326	297	311
13	---	---	---	260	209	246	288	260	272	325	306	317
14	---	---	---	253	217	236	293	279	284	---	---	---
15	---	---	---	275	237	258	311	288	294	347	307	331
16	---	---	---	265	237	252	315	291	302	347	315	331
17	---	---	---	251	233	245	308	286	301	328	306	318
18	---	---	---	274	249	262	315	300	306	332	312	323
19	---	---	---	297	268	279	310	291	299	326	301	315
20	---	---	---	306	188	272	311	290	301	332	303	318
21	---	---	---	238	188	210	308	293	298	340	298	324
22	---	---	---	272	235	253	307	275	293	351	312	333
23	---	---	---	285	270	276	312	296	302	352	316	333
24	---	---	---	293	279	285	318	302	309	318	295	305
25	---	---	---	303	283	290	321	303	311	311	250	292
26	---	---	---	304	279	293	321	262	282	270	158	197
27	312	293	301	299	270	283	290	262	274	258	199	230
28	509	310	370	301	289	295	301	280	288	290	258	271
29	---	---	---	298	272	290	312	288	299	303	284	293
30	---	---	---	272	245	256	319	299	308	318	299	307
31	---	---	---	283	237	260	---	---	---	334	216	316
MONTH	509	293	336	424	152	265	360	203	292	352	158	306

## CHRISTINA RIVER BASIN

## 01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	279	206	234	316	302	309	375	311	358	372	343	357
2	281	239	257	327	278	311	362	327	346	343	209	250
3	296	263	282	329	264	309	368	346	356	299	273	283
4	276	165	196	321	307	315	359	119	272	301	193	256
5	248	185	214	320	300	312	331	173	290	305	257	281
6	---	---	---	317	300	309	330	276	303	336	305	318
7	---	---	---	318	213	298	343	323	334	354	329	340
8	---	---	---	307	278	290	353	327	342	357	338	349
9	---	---	---	---	---	---	354	114	286	372	332	353
10	303	280	290	333	309	319	---	---	---	378	352	365
11	303	281	296	321	306	316	---	---	---	383	355	367
12	308	301	304	319	196	302	310	249	284	380	346	365
13	309	173	285	329	297	312	327	309	318	356	214	310
14	236	173	209	328	313	322	---	---	---	294	225	270
15	254	195	230	331	314	324	---	---	---	301	98	199
16	285	253	267	341	317	332	361	339	349	281	171	228
17	297	280	288	345	322	335	346	320	331	311	271	288
18	296	235	259	360	329	344	344	324	336	---	266	---
19	287	271	279	351	328	338	357	328	341	---	---	---
20	282	125	228	346	324	336	359	334	344	302	240	277
21	---	---	---	346	327	337	363	339	349	325	302	312
22	---	---	---	346	203	331	365	255	318	337	319	328
23	279	---	---	329	169	287	362	230	285	332	144	197
24	291	278	284	340	325	334	365	260	327	275	169	234
25	302	286	294	349	330	338	373	249	295	302	275	290
26	310	299	304	354	324	340	376	274	347	304	288	297
27	312	302	308	354	328	342	360	335	347	306	250	298
28	311	304	308	365	334	353	369	346	355	315	229	278
29	312	304	308	370	348	362	370	350	361	306	280	295
30	310	299	304	389	351	367	371	154	312	324	302	311
31	---	---	---	395	346	373	358	280	336	---	---	---
MONTH	312	125	271	395	169	327	376	114	327	383	98	296

## PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	8.5	7.5	7.9	7.6	7.4	7.4	7.7	7.4	7.4	---	---	---
2	8.4	7.4	7.9	7.7	7.4	7.5	7.6	7.3	7.4	---	---	---
3	8.4	7.3	8.0	7.7	7.4	7.5	---	---	---	---	---	---
4	7.9	7.0	7.3	7.7	7.4	7.5	---	---	---	---	---	---
5	8.0	7.2	7.5	7.7	7.4	7.5	---	---	---	---	---	---
6	8.1	7.3	7.6	7.6	7.3	7.4	---	---	---	---	---	---
7	8.2	7.3	7.7	7.7	7.3	7.4	---	---	---	---	---	---
8	8.3	7.4	7.9	7.7	7.3	7.4	---	---	---	---	---	---
9	8.1	7.4	7.9	7.9	7.3	7.5	---	---	---	---	---	---
10	7.8	7.4	7.5	7.9	7.4	7.5	---	---	---	---	---	---
11	7.6	7.3	7.4	7.5	7.3	7.4	---	---	---	---	---	---
12	7.4	7.3	7.3	7.4	7.3	7.3	---	---	---	---	---	---
13	7.5	7.3	7.4	---	---	---	---	---	---	---	---	---
14	7.8	7.4	7.6	7.8	7.6	7.6	---	---	---	---	---	---
15	7.8	7.5	7.6	8.0	7.6	7.7	---	---	---	---	---	---
16	---	---	---	7.8	7.6	7.6	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	7.7	7.4	7.5	---	---	---	---	---	---	---	---	---
19	7.7	7.4	7.5	---	---	---	---	---	---	---	---	---
20	7.8	7.4	7.5	---	---	---	---	---	---	---	---	---
21	7.9	7.4	7.6	---	---	---	---	---	---	---	---	---
22	7.9	7.4	7.6	---	---	---	---	---	---	---	---	---
23	8.1	7.4	7.7	7.8	7.6	7.6	---	---	---	---	---	---
24	7.8	7.4	7.6	7.8	7.5	7.6	---	---	---	---	---	---
25	7.7	7.3	7.5	7.7	7.5	7.5	---	---	---	---	---	---
26	7.6	7.4	7.5	7.8	7.5	7.5	---	---	---	---	---	---
27	7.9	7.3	7.5	7.7	7.4	7.5	---	---	---	---	---	---
28	7.9	7.4	7.6	7.7	7.4	7.5	---	---	---	---	---	---
29	7.8	7.3	7.5	7.6	7.4	7.4	---	---	---	---	---	---
30	7.4	7.4	7.4	7.6	7.3	7.4	---	---	---	---	---	---
31	7.4	7.4	7.4	---	---	---	---	---	---	---	---	---
MAX	8.5	7.5	8.0	8.0	7.6	7.7	7.7	7.4	7.4	---	---	---
MIN	7.4	7.0	7.3	7.4	7.3	7.3	7.6	7.3	7.4	---	---	---

## CHRISTINA RIVER BASIN

## 01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	<b>FEBRUARY</b>			<b>MARCH</b>			<b>APRIL</b>			<b>MAY</b>		
1	---	---	---	7.9	7.7	7.8	9.1	7.8	8.1	9.3	7.6	7.9
2	---	---	---	8.3	7.7	7.8	9.4	7.7	8.2	9.2	7.4	8.1
3	---	---	---	7.8	7.7	7.7	9.6	7.7	8.4	9.3	7.4	8.0
4	---	---	---	7.8	7.7	7.7	9.0	7.7	7.9	9.2	7.4	8.1
5	---	---	---	8.0	7.6	7.7	9.0	7.7	8.0	8.8	7.5	7.7
6	---	---	---	7.8	7.6	7.6	9.4	7.8	8.6	8.8	7.5	7.7
7	---	---	---	7.8	7.6	7.6	8.8	7.7	7.9	9.1	7.4	7.8
8	---	---	---	7.8	7.6	7.7	8.9	7.6	7.8	8.3	7.3	7.5
9	---	---	---	7.8	7.6	7.7	8.7	7.6	7.8	7.8	7.4	7.5
10	---	---	---	7.8	7.6	7.7	9.2	7.6	8.2	8.3	7.4	7.6
11	---	---	---	7.9	7.7	7.7	8.6	7.8	7.8	8.0	7.4	7.5
12	---	---	---	8.0	7.6	7.7	8.7	7.7	7.8	8.5	7.3	7.6
13	---	---	---	7.9	7.6	7.7	9.2	7.7	8.2	8.7	7.5	7.8
14	---	---	---	7.9	7.6	7.7	9.4	7.8	8.2	---	7.5	---
15	---	---	---	7.9	7.6	7.7	9.5	7.8	8.4	8.6	7.5	7.9
16	---	---	---	8.0	7.6	7.7	9.7	7.8	8.6	7.9	7.5	7.6
17	---	---	---	8.1	7.6	7.6	9.5	7.8	8.5	8.3	7.5	7.6
18	---	---	---	8.3	7.6	7.7	8.9	7.9	8.2	8.4	7.5	7.7
19	---	---	---	8.4	7.6	7.8	9.7	8.0	8.6	8.4	7.5	7.7
20	---	---	---	8.2	7.6	7.7	9.7	8.0	8.7	8.6	7.4	7.8
21	---	---	---	7.7	7.6	7.6	9.4	7.9	8.4	8.0	7.4	7.6
22	---	---	---	8.0	7.6	7.7	9.1	7.6	7.9	8.2	7.5	7.7
23	---	---	---	8.2	7.6	7.8	9.4	7.6	8.3	8.1	7.5	7.6
24	---	---	---	8.5	7.6	7.8	9.3	7.7	8.4	8.0	7.5	7.6
25	---	---	---	8.8	7.7	7.9	9.5	7.6	8.3	7.8	7.5	7.6
26	---	---	---	9.0	7.7	7.8	8.3	7.6	7.8	7.8	7.4	7.4
27	7.8	7.7	7.8	9.0	7.7	8.0	9.3	7.7	8.2	7.5	7.4	7.4
28	7.9	7.7	7.8	9.1	7.7	8.0	9.5	7.6	8.2	7.7	7.4	7.5
29	---	---	---	9.0	7.7	7.8	9.4	7.7	8.2	7.8	7.5	7.6
30	---	---	---	8.5	7.7	7.8	9.5	7.7	8.3	8.0	7.5	7.6
31	---	---	---	8.9	7.7	8.0	---	---	---	7.9	7.5	7.6
MAX	7.9	7.7	7.8	9.1	7.7	8.0	9.7	8.0	8.7	9.3	7.6	8.1
MIN	7.8	7.7	7.8	7.7	7.6	7.6	8.3	7.6	7.8	7.5	7.3	7.4
	<b>JUNE</b>			<b>JULY</b>			<b>AUGUST</b>			<b>SEPTEMBER</b>		
1	7.8	7.5	7.6	8.7	7.5	7.8	7.9	7.4	7.6	7.9	7.6	7.7
2	7.8	7.5	7.6	8.8	7.5	7.8	7.9	7.4	7.6	7.6	7.5	7.5
3	7.8	7.5	7.6	8.3	7.4	7.6	7.8	7.5	7.6	7.6	7.5	7.5
4	7.8	7.4	7.5	8.6	7.5	7.8	8.2	7.4	7.6	7.7	7.4	7.5
5	7.6	7.4	7.5	8.4	7.4	7.6	8.1	7.5	7.6	7.6	7.4	7.5
6	---	---	---	8.2	7.4	7.6	7.8	7.6	7.7	7.8	7.5	7.7
7	---	---	---	8.0	7.3	7.4	7.9	7.6	7.7	8.1	7.6	7.7
8	---	---	---	7.9	7.3	7.5	8.0	7.6	7.7	8.3	7.6	7.8
9	---	---	---	8.0	---	---	7.8	7.4	7.6	8.8	7.6	7.9
10	7.8	7.5	7.6	7.8	7.5	7.6	---	---	---	8.9	7.7	8.1
11	7.8	7.5	7.6	7.9	7.5	7.6	---	---	---	9.1	7.7	8.2
12	8.0	7.5	7.6	7.9	7.5	7.7	7.8	7.6	7.6	9.0	7.6	8.0
13	8.1	7.2	7.5	7.8	7.5	7.6	7.8	7.6	7.6	7.9	7.6	7.7
14	7.6	7.2	7.4	7.9	7.5	7.6	---	---	---	7.9	7.5	7.6
15	7.6	7.3	7.4	8.0	7.5	7.7	8.2	---	---	7.7	7.3	7.4
16	7.8	7.4	7.6	8.1	7.5	7.6	7.9	7.6	7.7	7.5	7.3	7.4
17	8.0	7.5	7.7	8.0	7.5	7.7	8.2	7.6	7.7	7.8	7.5	7.6
18	7.9	7.5	7.6	7.9	7.5	7.7	8.3	7.6	7.8	7.6	7.6	7.6
19	8.0	7.6	7.7	8.1	7.5	7.7	8.6	7.6	7.8	---	---	---
20	7.7	7.3	7.6	8.0	7.6	7.7	8.8	7.5	7.8	7.6	7.5	7.5
21	---	---	---	8.1	7.5	7.7	8.9	7.5	8.0	7.7	7.5	7.6
22	---	---	---	8.0	7.5	7.6	8.9	7.4	7.9	7.8	7.5	7.6
23	---	---	---	8.3	7.5	7.7	8.9	7.4	8.0	8.1	7.3	7.5
24	7.6	7.5	7.6	8.0	7.5	7.7	9.0	7.5	8.1	7.6	7.4	7.6
25	7.6	7.5	7.6	7.9	7.6	7.7	9.1	7.5	8.2	7.7	7.6	7.6
26	7.7	7.4	7.5	7.9	7.5	7.6	9.0	7.3	7.8	7.8	7.6	7.6
27	7.9	7.4	7.6	8.0	7.5	7.6	8.9	7.3	7.9	7.8	7.6	7.6
28	8.3	7.5	7.7	7.9	7.4	7.6	9.1	7.5	8.2	7.8	7.6	7.6
29	8.6	7.6	7.8	7.9	7.5	7.7	9.0	7.5	8.0	7.9	7.6	7.7
30	8.8	7.5	7.8	8.1	7.5	7.7	8.7	7.5	7.6	8.0	7.7	7.8
31	---	---	---	7.9	7.5	7.6	8.1	7.5	7.8	---	---	---
MAX	8.8	7.6	7.8	8.8	7.6	7.8	9.1	7.6	8.2	9.1	7.7	8.2
MIN	7.6	7.2	7.4	7.8	7.3	7.4	7.8	7.3	7.6	7.5	7.3	7.4

## CHRISTINA RIVER BASIN

## 01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	<b>OCTOBER</b>			<b>NOVEMBER</b>			<b>DECEMBER</b>			<b>JANUARY</b>		
1	20.5	17.0	19.0	9.0	7.0	8.0	5.5	3.0	4.0	---	---	---
2	21.5	18.5	20.5	9.5	7.5	8.0	4.5	3.0	3.5	---	---	---
3	22.5	19.5	21.0	9.0	6.5	7.5	---	---	---	---	---	---
4	22.0	20.5	21.0	9.5	7.5	8.5	---	---	---	---	---	---
5	23.0	20.5	21.5	9.5	8.0	9.0	---	---	---	---	---	---
6	21.0	18.0	19.5	10.5	9.0	9.5	---	---	---	---	---	---
7	20.0	18.5	19.0	9.5	8.0	9.0	---	---	---	---	---	---
8	18.5	16.0	17.0	10.0	7.0	8.5	---	---	---	---	---	---
9	16.5	15.0	16.0	11.0	8.5	9.5	---	---	---	---	---	---
10	17.5	16.5	17.0	13.5	10.0	11.5	---	---	---	---	---	---
11	17.0	16.0	16.0	16.0	13.5	15.0	---	---	---	---	---	---
12	17.0	16.0	16.5	14.5	12.0	13.0	---	---	---	---	---	---
13	17.5	16.0	17.0	---	---	---	---	---	---	---	---	---
14	17.0	14.5	15.5	10.5	8.5	9.5	---	---	---	---	---	---
15	14.5	12.5	13.5	11.0	9.0	10.0	---	---	---	---	---	---
16	---	---	---	10.0	9.0	10.0	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	14.0	12.0	13.0	---	---	---	---	---	---	---	---	---
19	13.5	11.5	12.5	---	---	---	---	---	---	---	---	---
20	14.0	13.0	13.5	---	---	---	---	---	---	---	---	---
21	14.0	12.0	13.0	---	---	---	---	---	---	---	---	---
22	13.0	10.5	12.0	---	---	---	---	---	---	---	---	---
23	13.0	10.5	12.0	9.0	6.5	7.5	---	---	---	---	---	---
24	12.5	11.0	11.5	8.0	6.0	7.0	---	---	---	---	---	---
25	11.5	10.5	11.0	8.5	6.0	7.0	---	---	---	---	---	---
26	13.5	11.0	12.0	9.0	7.0	8.0	---	---	---	---	---	---
27	13.5	11.0	12.0	8.0	5.5	7.0	---	---	---	---	---	---
28	12.5	11.0	11.5	5.5	4.0	5.0	---	---	---	---	---	---
29	11.0	9.0	10.0	4.5	3.5	4.0	---	---	---	---	---	---
30	9.0	7.5	8.0	6.0	4.5	5.0	---	---	---	---	---	---
31	8.5	7.0	7.5	---	---	---	---	---	---	---	---	---
MONTH	23.0	7.0	14.8	16.0	3.5	8.6	5.5	3.0	3.8	---	---	---
	<b>FEBRUARY</b>			<b>MARCH</b>			<b>APRIL</b>			<b>MAY</b>		
1	---	---	---	4.0	3.5	4.0	8.0	5.5	7.0	18.5	14.0	16.5
2	---	---	---	5.5	2.5	4.0	13.0	7.0	10.0	19.0	16.0	17.5
3	---	---	---	2.5	0.5	1.5	13.5	9.5	12.0	17.5	15.0	16.0
4	---	---	---	4.0	0.0	2.0	12.0	9.0	10.5	15.5	14.0	14.5
5	---	---	---	6.0	3.0	4.0	9.0	8.5	9.0	14.0	11.5	12.0
6	---	---	---	3.0	1.0	2.0	11.0	7.0	9.0	13.5	11.0	12.0
7	---	---	---	4.0	0.5	2.5	10.0	6.0	7.0	18.5	12.5	15.5
8	---	---	---	6.5	2.0	4.0	6.5	5.5	6.0	17.5	16.0	16.5
9	---	---	---	6.0	2.0	4.0	6.5	5.5	6.0	16.5	14.5	15.0
10	---	---	---	4.5	1.0	2.5	8.5	6.0	7.0	16.5	13.5	15.0
11	---	---	---	4.0	1.0	2.5	8.0	6.0	7.0	17.5	15.0	16.0
12	---	---	---	6.5	3.5	4.5	12.5	6.5	9.5	17.0	15.0	16.0
13	---	---	---	7.0	4.0	5.5	13.5	8.5	11.0	15.0	13.5	14.0
14	---	---	---	6.5	3.0	4.5	13.5	8.5	11.0	---	---	---
15	---	---	---	8.0	3.5	5.5	16.0	10.0	13.0	15.5	12.5	14.0
16	---	---	---	10.0	4.5	7.5	17.5	13.0	15.5	14.0	12.5	13.5
17	---	---	---	11.0	7.5	9.0	16.5	10.5	13.0	13.0	11.5	12.5
18	---	---	---	11.5	8.0	9.5	10.5	8.5	9.0	13.0	11.5	12.0
19	---	---	---	10.0	7.5	8.5	13.5	9.0	10.5	16.5	10.5	13.5
20	---	---	---	7.5	6.0	6.5	14.5	9.5	12.0	17.5	12.5	15.0
21	---	---	---	8.5	6.0	7.0	14.0	11.0	12.5	16.0	14.0	15.0
22	---	---	---	11.5	7.5	9.5	14.5	12.0	13.5	14.5	13.5	14.0
23	---	---	---	11.5	8.0	9.5	13.5	10.0	12.0	14.0	13.0	13.5
24	---	---	---	12.0	8.0	10.0	14.0	9.0	11.5	14.0	13.0	13.5
25	---	---	---	13.0	8.5	10.5	14.5	10.0	12.5	14.0	13.5	13.5
26	---	---	---	12.5	9.5	11.0	14.0	12.5	13.0	14.0	13.0	13.5
27	2.5	1.0	2.0	13.0	8.5	11.0	17.0	12.0	14.0	14.5	12.5	13.5
28	4.5	2.0	3.0	11.5	9.0	10.5	17.5	12.0	14.5	15.5	13.5	14.5
29	---	---	---	13.0	11.0	12.0	16.5	13.5	15.0	17.0	13.0	15.0
30	---	---	---	12.0	8.0	10.0	17.5	13.0	15.0	19.5	14.5	17.0
31	---	---	---	9.0	6.0	7.5	---	---	---	17.5	15.5	16.5
MONTH	4.5	1.0	2.5	13.0	0.0	6.5	17.5	5.5	10.9	19.5	10.5	14.6

## CHRISTINA RIVER BASIN

## 01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	16.5	14.0	15.5	22.5	18.5	20.5	22.0	20.5	21.0	21.0	19.5	20.5
2	17.0	13.0	15.0	21.5	18.5	20.0	24.0	20.5	22.0	21.5	19.5	20.5
3	15.5	14.0	14.5	20.0	18.5	19.5	24.0	22.0	23.0	19.5	19.0	19.5
4	14.0	13.0	13.0	23.0	18.5	20.5	24.0	21.5	22.5	20.5	19.5	20.0
5	16.0	13.0	14.5	23.5	20.0	21.5	23.5	21.5	22.5	21.0	19.5	20.0
6	---	---	---	24.0	20.0	22.0	23.5	21.0	22.0	20.5	17.5	19.0
7	---	---	---	24.5	20.5	22.5	22.0	21.0	21.5	20.5	17.5	19.0
8	---	---	---	24.0	21.0	22.5	24.0	20.5	22.0	21.0	17.5	19.0
9	---	---	---	23.5	---	---	22.5	21.5	22.0	21.0	18.5	19.5
10	19.5	15.5	17.5	21.5	19.5	20.0	---	---	---	20.0	17.0	18.5
11	19.5	16.5	18.0	22.0	19.0	20.5	---	---	---	20.5	17.0	18.5
12	20.5	17.5	19.0	22.0	19.0	20.5	24.0	22.0	22.5	19.0	18.0	18.5
13	20.5	18.0	19.0	23.0	19.0	21.0	24.0	22.0	23.0	21.0	17.5	18.5
14	22.0	19.0	20.5	22.0	19.0	20.5	---	---	---	21.5	19.0	20.0
15	21.0	19.5	20.5	23.0	19.0	20.5	---	---	---	20.5	20.0	20.5
16	20.5	18.0	19.0	24.0	20.5	22.0	23.0	21.0	21.5	20.5	19.0	20.0
17	19.0	16.0	17.5	23.5	20.0	21.5	23.5	20.5	21.5	19.5	17.0	18.5
18	18.5	16.5	17.5	21.5	19.5	20.0	22.5	20.5	21.5	---	---	---
19	19.5	17.5	18.0	22.5	19.0	20.5	23.5	19.5	21.5	---	---	---
20	19.0	17.0	18.0	22.5	18.5	20.5	23.5	19.5	21.5	20.5	18.5	19.5
21	---	---	---	24.0	19.5	21.5	24.5	20.5	22.0	19.5	18.0	19.0
22	---	---	---	24.0	21.5	22.5	25.0	21.5	23.0	19.5	18.0	18.5
23	19.5	---	---	23.0	21.0	22.0	24.0	21.5	22.5	19.5	19.0	19.5
24	21.0	17.0	19.0	23.5	21.0	22.0	22.0	19.0	20.5	19.0	17.0	18.0
25	21.5	18.0	19.5	24.0	20.0	21.5	22.5	18.5	20.0	19.0	16.0	17.5
26	22.5	19.0	20.5	24.0	20.0	22.0	23.0	20.0	21.0	19.5	18.0	18.5
27	22.5	19.5	21.0	24.5	21.0	22.5	23.0	20.0	21.5	20.5	18.0	19.0
28	21.5	18.5	20.0	23.5	21.5	22.5	24.0	20.5	22.0	19.5	18.0	19.0
29	21.5	18.5	20.0	24.0	20.5	22.0	22.5	20.5	21.5	18.0	16.0	17.0
30	22.0	19.0	20.5	23.5	20.0	21.5	24.5	21.0	22.0	16.5	14.0	15.5
31	---	---	---	22.0	20.5	21.5	22.0	19.5	21.0	---	---	---
MONTH	22.5	13.0	18.2	24.5	18.5	21.3	25.0	18.5	21.8	21.5	14.0	19.0

## OXYGEN, DISSOLVED (MG/L), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	11.5	7.4	9.0	12.0	11.0	11.4	12.7	11.1	12.0	---	---	---
2	11.4	7.1	8.8	12.2	11.0	11.5	12.9	11.6	12.3	---	---	---
3	11.4	6.8	8.6	12.6	11.2	12.0	---	---	---	---	---	---
4	8.8	5.7	7.0	12.3	11.7	12.0	---	---	---	---	---	---
5	9.8	6.7	7.8	13.2	11.8	12.2	---	---	---	---	---	---
6	10.6	6.9	8.4	14.2	11.8	12.7	---	---	---	---	---	---
7	10.8	6.8	8.6	13.6	11.8	12.5	---	---	---	---	---	---
8	11.9	7.6	9.3	13.2	11.7	12.3	---	---	---	---	---	---
9	11.5	8.0	9.4	13.4	11.0	12.0	---	---	---	---	---	---
10	9.6	8.0	8.7	12.2	10.0	11.1	---	---	---	---	---	---
11	9.3	8.8	9.1	10.0	9.3	9.6	---	---	---	---	---	---
12	9.3	8.8	9.1	10.5	9.5	10.1	---	---	---	---	---	---
13	9.2	8.5	8.8	10.5	---	---	---	---	---	---	---	---
14	10.0	8.5	9.2	11.3	10.4	10.8	---	---	---	---	---	---
15	10.9	9.0	9.9	11.5	10.3	10.7	---	---	---	---	---	---
16	---	9.2	---	10.6	10.1	10.3	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	10.8	9.8	10.3	---	---	---	---	---	---	---	---	---
19	10.9	9.7	10.4	---	---	---	---	---	---	---	---	---
20	11.0	9.7	10.1	---	---	---	---	---	---	---	---	---
21	11.8	9.6	10.4	---	---	---	---	---	---	---	---	---
22	11.8	10.0	10.7	---	---	---	---	---	---	---	---	---
23	12.2	10.0	10.9	11.5	10.5	11.1	---	---	---	---	---	---
24	11.9	9.9	10.7	11.7	10.9	11.2	---	---	---	---	---	---
25	11.7	10.0	10.6	11.8	10.7	11.2	---	---	---	---	---	---
26	11.0	10.2	10.6	11.6	10.6	11.0	---	---	---	---	---	---
27	11.7	10.0	10.7	11.7	10.6	11.2	---	---	---	---	---	---
28	11.8	9.9	10.7	12.6	11.4	12.0	---	---	---	---	---	---
29	12.1	10.1	11.0	12.5	11.6	12.0	---	---	---	---	---	---
30	11.8	11.0	11.5	12.0	11.1	11.5	---	---	---	---	---	---
31	11.8	11.4	11.6	---	---	---	---	---	---	---	---	---
MONTH	12.2	5.7	9.7	14.2	9.3	11.4	12.9	11.1	12.2	---	---	---



## CHRISTINA RIVER BASIN

## 01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

## OXYGEN, DISSOLVED (MG/L), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	13.2	12.3	12.8	14.7	11.2	12.8	13.8	7.9	10.3
2	---	---	---	13.0	11.9	12.3	14.3	9.5	12.0	13.3	7.8	10.0
3	---	---	---	14.0	13.0	13.5	14.0	9.3	11.4	13.5	7.8	10.2
4	---	---	---	14.0	12.2	13.2	13.0	9.3	11.0	13.6	8.4	10.7
5	---	---	---	12.3	11.2	12.0	13.5	10.5	11.6	13.4	9.1	10.9
6	---	---	---	13.6	12.1	12.9	14.5	10.2	12.3	12.9	9.3	10.8
7	---	---	---	14.0	12.6	13.4	14.1	10.2	12.1	13.3	7.7	10.4
8	---	---	---	13.5	11.8	12.7	14.4	11.9	12.8	11.2	7.5	9.2
9	---	---	---	13.1	11.7	12.3	13.8	11.9	12.6	10.1	8.2	9.1
10	---	---	---	13.7	12.7	13.2	14.3	11.2	12.7	11.2	8.5	9.8
11	---	---	---	14.0	12.6	13.3	11.9	11.2	11.6	10.7	8.0	9.3
12	---	---	---	13.0	11.8	12.6	12.1	10.1	11.3	11.1	8.0	9.3
13	---	---	---	12.5	11.4	12.1	13.0	9.8	11.3	11.7	8.7	10.2
14	---	---	---	13.3	12.1	12.6	13.6	9.5	11.4	---	9.3	---
15	---	---	---	13.3	11.3	12.4	13.4	8.6	11.0	12.0	9.1	10.4
16	---	---	---	12.8	10.7	11.8	13.1	8.1	10.3	10.7	9.0	9.8
17	---	---	---	11.9	10.4	11.1	13.3	8.0	10.8	11.9	9.7	10.6
18	---	---	---	12.3	10.2	11.2	13.2	10.3	11.6	12.1	9.9	10.8
19	---	---	---	13.0	10.4	11.7	14.2	9.5	11.8	11.9	8.7	10.5
20	---	---	---	12.8	11.3	11.9	13.9	8.9	11.3	11.3	8.6	9.8
21	---	---	---	12.1	11.3	11.7	13.7	8.9	10.9	10.3	8.3	9.3
22	---	---	---	12.0	10.6	11.3	12.9	8.9	10.3	10.8	9.3	9.9
23	---	---	---	12.3	10.6	11.4	14.0	9.2	11.4	11.0	9.5	10.1
24	---	---	---	12.7	10.4	11.4	14.2	9.3	11.6	10.8	9.6	10.0
25	---	---	---	12.9	10.0	11.4	14.3	8.9	11.3	10.3	9.4	9.8
26	---	---	---	13.1	9.9	11.2	11.4	8.7	10	9.9	9.6	9.8
27	14.0	13.1	13.7	13.3	10.1	11.5	13.1	8.7	10.8	10.2	9.4	9.9
28	13.7	12.4	13.1	13.9	10.1	11.6	13.5	8.2	10.6	10.0	9.3	9.7
29	---	---	---	13.3	9.8	11.0	13.0	8.1	10.4	10.4	8.8	9.7
30	---	---	---	12.7	10.0	11.3	14.0	8.4	10.7	10.1	8.2	9.2
31	---	---	---	14.0	11.5	12.5	---	---	---	10.0	8.4	9.2
MONTH	14.0	12.4	13.4	14.0	9.8	12.1	14.7	8.0	11.4	13.8	7.5	10.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	9.8	8.4	9.3	10.3	8.0	9.0	8.3	7.1	7.7	9.3	7.8	8.4
2	10.3	8.9	9.8	10.1	7.9	8.9	8.3	7.3	7.8	8.3	7.7	8.1
3	10.5	9.1	9.8	9.5	7.9	8.6	8.1	7.3	7.6	8.2	7.8	8.0
4	10.2	9.3	9.9	9.7	7.8	8.7	7.9	7.2	7.5	7.9	7.3	7.6
5	9.9	9.4	9.6	9.3	7.6	8.4	8.0	7.4	7.7	7.6	6.9	7.4
6	---	---	---	9.0	7.8	8.3	8.2	7.7	7.9	8.1	7.0	7.6
7	---	---	---	9.0	7.2	8.2	8.4	7.7	8.0	8.4	7.3	7.7
8	---	---	---	9.2	7.8	8.3	8.6	7.7	8.1	8.6	7.0	7.6
9	---	---	---	---	---	---	8.4	7.7	7.9	---	6.9	---
10	9.8	8.6	9.3	9.2	8.1	8.7	---	---	---	---	---	---
11	9.6	8.5	9.0	9.2	8.2	8.7	---	---	---	---	---	---
12	9.7	8.0	8.9	9.2	7.3	8.5	8.3	7.8	8.1	---	---	---
13	9.8	7.9	8.9	8.9	7.7	8.3	8.4	7.8	8.1	---	---	---
14	8.6	6.8	8.1	9.0	7.7	8.3	---	7.8	---	---	---	---
15	8.8	7.7	8.3	8.9	7.6	8.3	---	7.8	---	---	---	---
16	9.3	8.2	8.8	8.9	7.6	8.1	9.0	7.8	8.3	---	---	---
17	10.1	8.6	9.3	9.1	7.8	8.3	9.4	7.9	8.6	9.2	8.6	8.9
18	9.9	8.4	9.3	9.1	7.9	8.5	9.9	7.9	8.8	9.2	---	---
19	10.0	8.8	9.4	9.1	8.0	8.5	10.6	8.1	9.1	---	---	---
20	---	---	---	9.2	7.9	8.5	11.2	8.1	9.3	8.8	8.2	8.5
21	---	---	---	8.9	7.6	8.3	11.8	8.0	9.5	9.0	8.2	8.6
22	---	---	---	8.7	7.3	8.0	11.8	7.7	9.2	9.3	8.4	8.8
23	---	---	---	8.6	7.2	7.9	11.7	7.7	9.3	8.6	8.2	8.5
24	9.5	8.7	9.1	8.5	7.6	8.0	12.4	8.1	9.9	9.2	8.6	8.9
25	9.2	8.4	8.8	8.6	7.6	8.0	12.9	8.3	10.1	9.4	8.6	9.0
26	9.2	8.3	8.7	8.7	7.6	8.0	12.9	7.0	9.4	9.1	8.7	8.9
27	9.1	8.3	8.7	8.6	7.2	7.8	11.8	7.4	9.3	9.2	8.3	8.8
28	9.8	8.5	9.1	8.3	7.2	7.7	12.8	7.6	9.6	9.0	8.3	8.7
29	10.0	8.4	9.2	8.5	7.6	7.9	12.7	7.6	9.3	9.6	8.9	9.2
30	10.2	8.1	9.1	8.6	7.6	8.1	11.3	7.6	8.5	10.3	9.2	9.7
31	---	---	---	8.3	7.6	7.8	9.8	8.0	8.8	---	---	---
MONTH	10.5	6.8	9.1	10.3	7.2	8.3	12.9	7.0	8.6	10.3	6.9	8.4

## CHRISTINA RIVER BASIN

## 01480617 WEST BRANCH BRANDYWINE CREEK AT MODENA, PA--Continued

## CROSS-SECTION ANALYSES, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Loca- tion in X-sect. dwnstrm ft from l bank (00009)	Sam- pling depth, feet (00003)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf $\mu$ S/cm 25 degC (00095)	Temper- ature, water, deg C (00010)
OCT 2002										
17...	1201	1028	1028	107	5	1	10.7	7.7	290	12.9
17...	1203	1028	1028	--	10	1	10.6	7.7	289	12.8
17...	1204	1028	1028	--	15	1	10.6	7.7	289	12.8
17...	1206	1028	1028	--	20	1	10.5	7.7	289	12.8
17...	1207	1028	1028	--	25	1	10.5	7.7	289	12.8
17...	1209	1028	1028	--	30	1	10.5	7.7	289	12.8
17...	1210	1028	1028	--	35	1	10.5	7.7	289	12.9
17...	1211	1028	1028	--	40	1	10.5	7.7	289	12.8
17...	1212	1028	1028	--	45	1	10.5	7.7	289	12.9
17...	1214	1028	1028	--	50	1	10.5	7.7	289	12.9
17...	1215	1028	1028	--	55	1	10.5	7.7	289	12.8
17...	1216	1028	1028	--	60	1	10.5	7.7	289	12.8
17...	1217	1028	1028	--	65	1	10.4	7.7	289	12.9
17...	1218	1028	1028	--	70	1	10.4	7.7	289	12.9
17...	1219	1028	1028	--	75	1	10.4	7.7	289	12.9
17...	1220	1028	1028	--	80	1	10.4	7.7	288	12.9
17...	1221	1028	1028	--	85	1	10.4	7.7	288	13.0
17...	1222	1028	1028	--	89	0	--	--	--	--

## CHRISTINA RIVER BASIN

## 01480638 BROAD RUN AT NORTHBROOK, PA

**LOCATION.**--Lat 39°55'49", long 75°41'06", Chester County, Hydrologic Unit 02040205, on right bank 50 ft upstream from Northbrook Road and 2.2 mi south of Marshalton.

**DRAINAGE AREA.**--6.39 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--December 2002 to current year.

**GAGE.**--Water-stage recorder, crest-stage gage. Elevation of gage is 190.78 ft above NAVD of 1988.

**REMARKS.**--Records fair except those for estimated daily discharges and those above 100 ft<sup>3</sup>/s, which are poor. Several measurements of water temperature were made during the year.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	24	8.0	12	14	9.7	16	18	6.5	6.5
2	---	---	---	20	7.9	36	14	9.5	9.3	17	6.5	9.9
3	---	---	---	22	7.3	28	13	9.2	9.0	18	15	8.1
4	---	---	---	23	e8.3	15	13	9.1	48	16	17	17
5	---	---	---	19	6.9	33	13	9.1	33	16	11	8.5
6	---	---	---	19	6.2	50	12	9.6	21	15	8.6	7.2
7	---	---	---	17	e6.0	27	12	9.3	34	19	7.6	6.6
8	---	---	---	17	e6.2	29	13	14	24	16	7.6	6.3
9	---	---	---	16	e6.3	41	14	10	21	14	13	6.0
10	---	---	---	14	e6.1	24	12	9.9	18	13	44	5.9
11	---	---	---	13	e6.2	20	26	9.3	17	13	12	5.7
12	---	---	---	11	e6.2	20	17	8.7	17	12	9.9	5.8
13	---	---	---	11	e6.2	22	14	8.4	19	12	8.7	8.4
14	---	---	---	11	e6.2	19	14	8.2	18	11	7.9	7.6
15	---	---	---	10	e6.0	17	13	8.0	17	10	7.4	277
16	---	---	---	9.6	e5.9	17	13	8.1	14	9.8	7.6	57
17	---	---	---	e9.0	e6.0	19	13	8.2	13	9.2	7.7	38
18	---	---	---	e8.5	e6.1	17	13	7.7	22	9.0	7.0	33
19	---	---	---	e8.8	e6.2	15	12	7.4	14	8.8	6.8	49
20	---	---	---	e9.0	e6.2	30	12	7.0	63	8.4	6.4	31
21	---	---	---	e8.6	e6.4	36	12	7.5	81	8.3	6.2	28
22	---	---	---	e7.8	e22	24	13	7.2	62	7.9	6.1	26
23	---	---	---	e7.2	e81	21	12	7.4	48	8.1	6.0	50
24	---	---	8.5	e7.4	e40	19	11	8.0	37	8.5	5.8	31
25	---	---	25	e7.5	21	18	11	7.8	31	7.4	5.6	28
26	---	---	16	e7.6	16	19	13	33	27	7.1	6.3	26
27	---	---	13	e7.0	14	17	11	11	24	7.1	6.3	30
28	---	---	12	e6.7	14	16	10	9.8	22	6.9	5.7	36
29	---	---	11	e6.9	---	17	10	9.1	20	6.7	5.8	25
30	---	---	10	e7.1	---	18	9.8	8.6	19	6.5	17	22
31	---	---	11	7.4	---	16	---	8.6	---	6.4	7.4	---
TOTAL	---	---	106.5	373.1	344.8	712	389.8	298.4	818.3	346.1	296.4	896.5
MEAN	---	---	13.3	12.0	12.3	23.0	13.0	9.63	27.3	11.2	9.56	29.9
MAX	---	---	13.3	12.0	12.3	23.0	13.0	9.63	27.3	11.2	9.56	29.9
(WY)	---	---	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
MIN	---	---	13.3	12.0	12.3	23.0	13.0	9.63	27.3	11.2	9.56	29.9
(WY)	---	---	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003

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

MEAN	---	---	13.3	12.0	12.3	23.0	13.0	9.63	27.3	11.2	9.56	29.9
MAX	---	---	13.3	12.0	12.3	23.0	13.0	9.63	27.3	11.2	9.56	29.9
(WY)	---	---	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
MIN	---	---	13.3	12.0	12.3	23.0	13.0	9.63	27.3	11.2	9.56	29.9
(WY)	---	---	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003

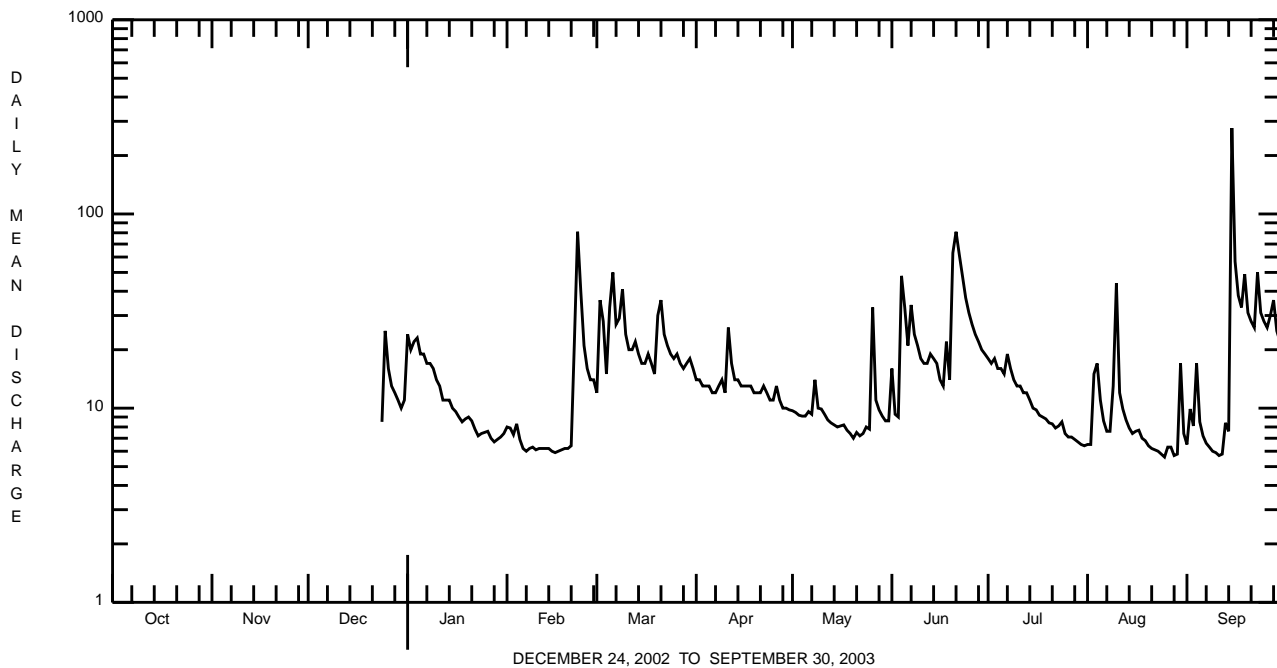
e Estimated.

CHRISTINA RIVER BASIN

01480638 BROAD RUN AT NORTHBROOK, PA--Continued

SUMMARY STATISTICS	FOR PERIOD OF RECORD	
ANNUAL TOTAL	4581.9	
PERIOD OF RECORD MEAN	16.3	
HIGHEST DAILY MEAN	277	Sep 15
LOWEST DAILY MEAN	5.6	Aug 25
ANNUAL SEVEN-DAY MINIMUM	5.9	Aug 23
MAXIMUM PEAK FLOW	<sup>a</sup> 4700	Sep 15
MAXIMUM PEAK STAGE	8.04	Sep 15
INSTANTANEOUS LOW FLOW	5.2	Aug 25
10 PERCENT EXCEEDS	30	
50 PERCENT EXCEEDS	12	
90 PERCENT EXCEEDS	6.3	

a From rating curve extended above 76 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 8.04 ft.



CHRISTINA RIVER BASIN

01480638 BROAD RUN AT NORTHBROOK, PA--Continued

WATER-QUALITY RECORDS

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

REMARKS.--

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unfltrd, µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd, titr., field, mg/L as CaCO3 (00419)
NOV 2002 26...	0930	1028	80020	5.0	10.1	7.2	224	6.7	17.4	8.06	1.39	10.6	36
Date	Chloride, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water, fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, µg/L (01106)	Arsenic water, fltrd, µg/L (01000)	Boron, water, fltrd, µg/L (01020)	Cadmium water, fltrd, µg/L (01025)	Chromium, water, fltrd, µg/L (01030)	Copper, water, fltrd, µg/L (01040)
NOV 2002 26...	21.3	9.9	17.5	<.04	2.61	E.004	<.02	<20	<2	40	<.2	<.8	<1.2
Date	Iron, water, fltrd, µg/L (01046)	Lead, water, fltrd, µg/L (01049)	Manganese, water, fltrd, µg/L (01056)	Mercury water, fltrd, µg/L (71890)	Molybdenum, water, fltrd, µg/L (01060)	Nickel, water, fltrd, µg/L (01065)	Zinc, water, fltrd, µg/L (01090)						
NOV 2002 26...	32	<1	26.7	<.02	<1.8	<2.0	<24						

## CHRISTINA RIVER BASIN

## 01480638 BROAD RUN AT NORTHBROOK, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATESREMARKS.--Samples were collected using a Hess sampler with a mesh size of 500 µm. Each sample covered a total area of 2.4 m<sup>2</sup>.

Date	11/26/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	20
Nematoda (NEMATODES)	52
Mollusca	
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	
<u>Pisidium</u> sp	1
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	15
Tubificida	
Naididae	78
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	82
Isopoda (SOW BUGS)	
Asellidae	
<u>Caecidotea</u> sp	1
Podocopa (SEED SHRIMP)	3
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Acentrella</u> sp	1
<u>Baetis</u> sp	6
Caenidae	
<u>Caenis</u> sp	2
Ephemerellidae	
<u>Eurylophella</u> sp	9
<u>Serratella</u> sp	154
Heptageniidae	
<u>Stenonema</u> sp	17
Isonychiidae	
<u>Isonychia</u> sp	6
Plecoptera (STONEFLIES)	
Leuctridae	
<u>Paraleuctra</u> sp	7
Perlidae	
<u>Acroneuria</u> sp	3
<u>Paragnetina</u> sp	23
Taeniopterygidae	
<u>Strophopteryx</u> sp	29
<u>Taeniopteryx</u> sp	3
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
<u>Nigronia</u> sp	2

## CHRISTINA RIVER BASIN

## 01480638 BROAD RUN AT NORTHBROOK, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES--Continued

Date	11/26/02
Benthic Macroinvertebrate	Count
Trichoptera (CADDISFLIES)	
Brachycentridae	
<u>Micrasema</u> sp	66
Glossosomatidae	
<u>Glossosoma</u> sp	10
Goeridae	
<u>Goera</u> sp	1
Hydropsychidae	
<u>Cheumatopsyche</u> sp	369
<u>Hydropsyche</u> sp	352
Hydroptilidae	
<u>Hydroptila</u> sp	48
Philopotamidae	
<u>Chimarra</u> sp	287
<u>Dolophilodes</u> sp	2
Polycentropodidae	
<u>Polycentropus</u> sp	3
Psychomyiidae	
<u>Psychomyia</u> sp	1
Rhyacophilidae	
<u>Rhyacophila</u> sp	3
Uenoidae	
<u>Neophylax</u> sp	4
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Macronychus</u> sp	3
<u>Optioservus</u> sp	587
<u>Oulimnius</u> sp	292
<u>Promoresia</u> sp	71
<u>Stenelmis</u> sp	95
Psephenidae (WATER PENNIES)	
<u>Psephenus</u> sp	54
Diptera (TRUE FLIES)	
Ceratopogonidae (BITING MIDGES)	1
Chironomidae (MIDGES)	509
Empididae (DANCE FLIES)	
<u>Hemerodromia</u> sp	14
Ephydriidae	2
Simuliidae (BLACK FLIES)	
<u>Simulium</u> sp	30
Tipulidae (CRANE FLIES)	
<u>Antocha</u> sp	66
Total Organisms	3384
Total Taxa	45

**CHRISTINA RIVER BASIN**

**01480675 MARSH CREEK NEAR GLENMOORE, PA**

**LOCATION.**--Lat 40°05'52", long 75°44'31", Chester County, Hydrologic Unit 02040205, on left bank 200 ft north of Pennsylvania Turnpike, 1.2 mi downstream from Lyons Run, 1.8 mi upstream from Black Horse Creek, and 3.0 mi northeast of Glenmoore.

**DRAINAGE AREA.**--8.57 mi<sup>2</sup>.

**PERIOD OF RECORD.**--July 1966 to current year.

**REVISED RECORDS.**--WDR PA-74-1: 1967(M), 1971-72(P) WDR PA-93-1: 1992.

**GAGE.**--Water-stage recorder, crest-stage gage, and concrete control. Elevation of gage is 450 ft above National Geodetic Vertical Datum of 1929, from topographic map.

**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 base discharge of 130 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Feb. 23	2000	169	2.42	June 20	2200	*317	*2.90
Mar. 21	0745	148	2.35	Aug. 9	2345	131	2.29
June 4	2315	151	2.36	Sept. 15	1045	304	2.86

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	22	7.9	36	e7.0	e12	20	9.6	37	11	5.0	3.1
2	0.88	9.6	6.3	80	e10	e22	17	9.5	35	11	5.9	20
3	0.68	6.3	e4.8	37	e9.5	e50	16	9.1	15	11	6.5	27
4	0.93	5.1	e3.8	42	e13	e38	15	8.5	100	10	14	33
5	1.2	4.4	e3.9	25	e13	e30	16	8.2	124	11	10	27
6	0.87	11	e4.0	19	e10	e70	15	8.9	50	10	13	13
7	0.80	11	e4.1	17	e7.0	e50	15	8.8	40	11	10	6.9
8	0.73	7.1	e4.0	17	e8.0	e30	18	13	63	10	7.5	4.8
9	0.66	5.1	e4.4	19	e7.0	e44	28	13	37	9.1	14	4.0
10	1.8	4.4	e4.8	18	e8.0	e56	31	13	21	9.4	93	3.7
11	29	8.0	e16	14	e7.0	e26	46	12	16	10	62	3.3
12	45	20	88	12	e7.2	24	59	10	16	9.6	26	3.2
13	21	38	50	11	e7.0	51	24	8.8	34	8.4	13	8.4
14	7.4	18	74	10	e7.0	55	17	7.9	36	7.7	8.9	16
15	3.2	9.5	52	e9.0	e5.0	36	16	7.4	21	7.0	7.0	123
16	20	15	20	e7.8	e3.0	42	15	7.9	15	6.6	6.2	99
17	36	62	e6.0	e6.5	e2.0	48	13	11	13	6.2	5.7	34
18	17	65	e8.8	e5.6	e3.0	36	14	9.5	24	5.9	5.0	12
19	7.4	29	10	e5.8	e3.8	25	15	8.2	23	5.8	4.5	62
20	4.6	13	34	e6.2	e5.0	42	13	7.3	102	5.3	4.0	53
21	3.4	11	43	e5.6	e7.0	124	13	10	252	5.3	3.8	15
22	2.8	12	17	e5.0	e9.0	49	15	10	125	11	3.6	9.2
23	2.4	12	13	e4.2	e30	27	14	9.2	56	26	3.4	77
24	2.1	9.7	12	e3.6	e80	21	12	13	30	16	3.0	100
25	2.6	8.1	22	e4.0	e45	18	11	16	22	9.0	2.9	30
26	11	7.4	32	e4.4	e30	19	16	75	18	6.9	2.8	14
27	10	10	24	e4.0	e18	23	17	75	16	6.0	2.9	12
28	6.6	9.8	16	e3.6	e11	18	13	21	14	5.3	2.8	22
29	5.6	8.1	15	e4.4	---	21	11	12	13	4.6	2.8	25
30	21	8.0	14	e5.0	---	39	10	9.8	12	4.1	3.2	15
31	43	---	16	e6.0	---	34	---	8.7	---	4.0	2.8	---
TOTAL	311.05	459.6	630.8	447.7	372.5	1180	555	451.3	1380	274.2	355.2	875.6
MEAN	10.0	15.3	20.3	14.4	13.3	38.1	18.5	14.6	46.0	8.85	11.5	29.2
MAX	45	65	88	80	80	124	59	75	252	26	93	123
MIN	0.66	4.4	3.8	3.6	2.0	12	10	7.3	12	4.0	2.8	3.1
CFSM	1.17	1.79	2.37	1.69	1.55	4.44	2.16	1.70	5.37	1.03	1.34	3.41
IN.	1.35	1.99	2.74	1.94	1.62	5.12	2.41	1.96	5.99	1.19	1.54	3.80

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

MEAN	7.16	10.7	14.0	14.1	16.4	21.5	18.9	15.0	11.5	8.23	5.72	7.09
MAX	25.3	22.8	49.9	35.9	44.8	58.4	47.4	36.7	46.0	34.0	22.1	29.2
(WY)	1997	1997	1997	1978	1971	1994	1983	1989	2003	1984	1971	2003
MIN	1.71	2.45	2.07	1.19	3.75	6.58	4.84	4.97	2.30	0.83	0.58	0.88
(WY)	2002	2002	1981	1981	2002	1981	1985	1969	1999	2002	2002	1980

e Estimated.



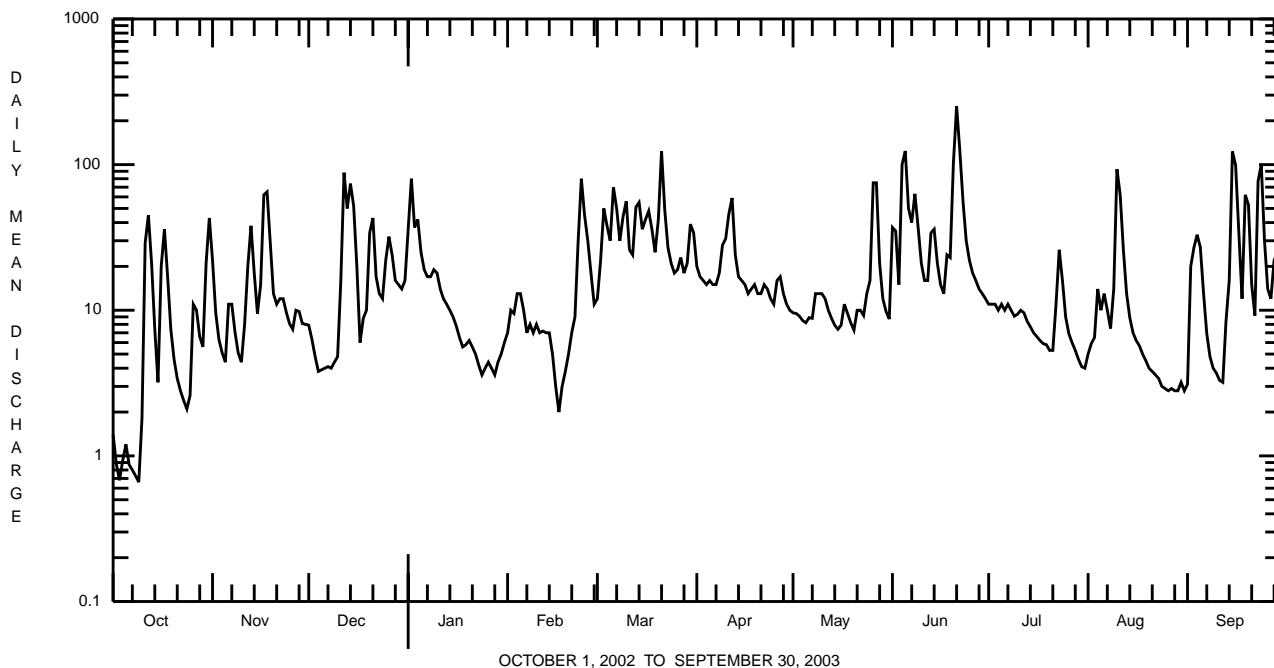
CHRISTINA RIVER BASIN

01480675 MARSH CREEK NEAR GLENMOORE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1966 - 2003	
ANNUAL TOTAL	2743.87		7292.95		12.5	
ANNUAL MEAN	7.52		20.0		23.2	
HIGHEST ANNUAL MEAN					1984	
LOWEST ANNUAL MEAN					2002	
HIGHEST DAILY MEAN	88	Dec 12	252	Jun 21	444	Jun 22 1972
LOWEST DAILY MEAN	0.21	Aug 20-22	0.66	Oct 9	0.21	Aug 20-22 2002
ANNUAL SEVEN-DAY MINIMUM	0.24	Aug 16	0.84	Oct 3	0.24	Aug 16 2002
MAXIMUM PEAK FLOW			317	Jun 20,21	a946	Jun 22 1972
MAXIMUM PEAK STAGE			2.90	Jun 20,21	4.68	Jun 22 1972
INSTANTANEOUS LOW FLOW			0.56	Oct 10	0.21	Aug 6 1999b
ANNUAL RUNOFF (CFSM)	0.88		2.33		1.46	
ANNUAL RUNOFF (INCHES)	11.91		31.66		19.85	
10 PERCENT EXCEEDS	18		47		25	
50 PERCENT EXCEEDS	3.7		12		7.6	
90 PERCENT EXCEEDS	0.44		3.8		2.1	

a From rating curve extended above 903 ft<sup>3</sup>/s based on straight-line extension.

b Also Aug. 19-22, 2002.



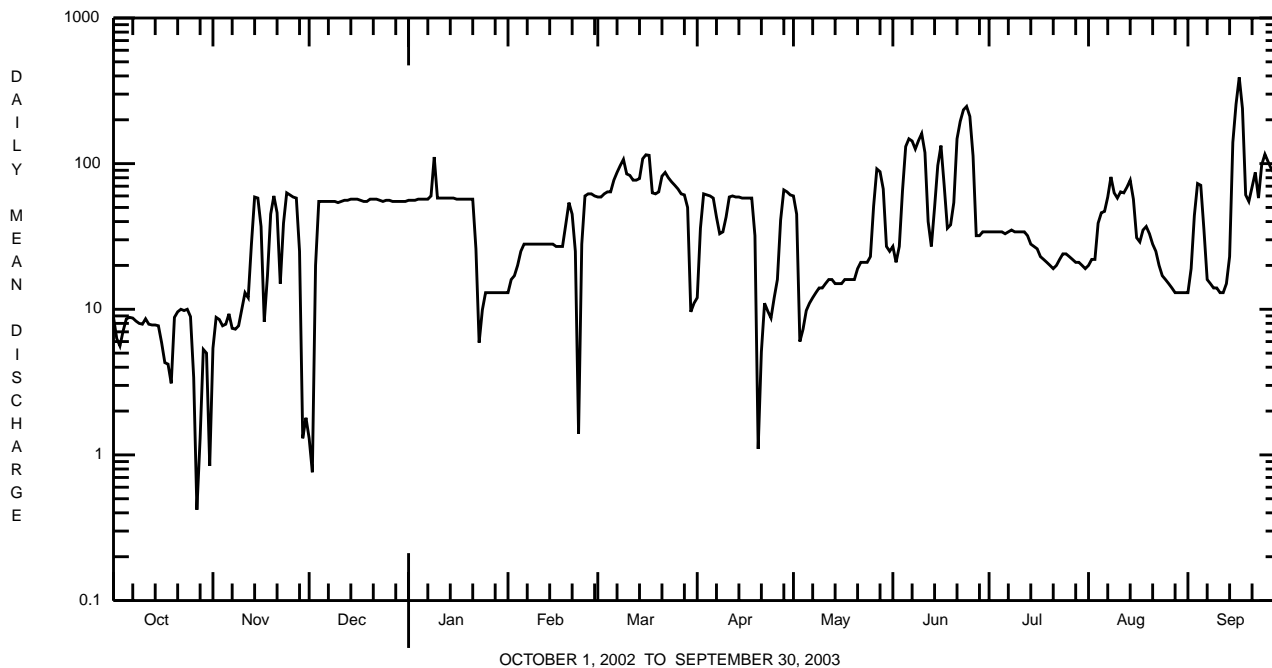


CHRISTINA RIVER BASIN

01480685 MARSH CREEK NEAR DOWNINGTOWN, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1973 - 2003	
ANNUAL TOTAL	5590.30		16451.62			
ANNUAL MEAN	15.3		45.1		29.3	
HIGHEST ANNUAL MEAN					52.9	1984
LOWEST ANNUAL MEAN					10.8	2002
HIGHEST DAILY MEAN	63	Nov 24	391	Sep 17	462	Jun 18 1982
LOWEST DAILY MEAN	0.18	Mar 25	0.42	Oct 27	0.18	Mar 25 2002
ANNUAL SEVEN-DAY MINIMUM	0.28	Mar 20	3.1	Oct 26	0.28	Mar 20 2002
MAXIMUM PEAK FLOW			a523	Sep 17	a560	Dec 14 1983
MAXIMUM PEAK STAGE			3.63	Sep 17	3.70	Dec 14 1983
10 PERCENT EXCEEDS	45		84		65	
50 PERCENT EXCEEDS	10		34		15	
90 PERCENT EXCEEDS	4.7		8.3		6.3	

a From rating curve extended above 300 ft<sup>3</sup>/s.



## CHRISTINA RIVER BASIN

## 01480700 EAST BRANCH BRANDYWINE CREEK NEAR DOWNINGTOWN, PA

**LOCATION.**--Lat 40°02'05", long 75°42'32", Chester County, Hydrologic Unit 02040205, on right bank 20 ft downstream from bridge on Dowlin Forge Road, 200 ft east of State Highway 282, 0.4 mi downstream from Shamona Creek, 1.5 mi downstream from Marsh Creek, 2.0 mi upstream from Beaver Creek, and 2.2 mi north of Downingtown.

**DRAINAGE AREA.**--60.6 mi<sup>2</sup>.

**PERIOD OF RECORD.**--Occasional low-flow measurements, water years 1948-57. October 1965 to current year.

**GAGE.**--Water-stage recorder and crest-stage gage. Elevation of gage is 270 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to July 30, 1966, nonrecording gage at same site and datum.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Flow regulated since November 1973 by Marsh Creek Reservoir (station 01480684) 1.9 mi upstream. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	54	35	297	e52	124	98	115	227	99	70	36
2	13	45	30	316	e57	227	113	100	107	96	64	127
3	12	39	47	212	e55	289	139	51	93	102	73	121
4	19	36	88	240	e63	199	134	50	751	96	167	225
5	19	34	89	162	e73	222	137	53	415	92	136	147
6	17	74	97	152	e66	404	129	58	274	94	108	81
7	15	47	91	144	e67	316	115	56	383	108	102	50
8	14	38	94	145	e64	256	116	74	302	99	129	45
9	14	36	92	205	e58	368	150	71	259	88	137	41
10	24	38	89	141	e60	261	153	70	254	88	496	38
11	227	55	289	127	e59	219	256	66	202	91	152	37
12	115	130	366	119	e58	214	215	63	115	91	130	36
13	45	143	210	117	e57	258	179	59	281	82	120	94
14	33	116	416	115	e51	241	145	56	222	73	126	98
15	27	103	197	113	e48	252	137	54	205	70	98	1330
16	138	123	149	108	e50	265	132	56	217	67	68	438
17	91	301	127	112	e45	280	127	65	147	63	69	462
18	40	231	116	102	e47	189	128	58	160	61	68	317
19	29	129	113	105	e51	157	101	56	127	61	68	356
20	31	126	300	109	e56	329	62	53	1110	56	61	138
21	29	104	175	104	e52	388	63	70	976	54	57	133
22	29	77	136	e34	e150	263	78	66	660	66	52	153
23	27	95	124	e35	e400	235	68	64	399	92	46	674
24	26	114	117	e37	352	213	63	81	375	71	40	248
25	27	107	216	e38	290	179	64	92	323	63	37	209
26	66	102	187	e40	230	155	100	501	216	59	37	186
27	32	110	148	e39	144	162	113	208	116	56	38	175
28	23	76	135	e36	132	143	130	171	108	54	35	230
29	31	38	128	e39	---	143	124	138	106	52	34	158
30	124	37	125	e44	---	144	119	80	103	48	49	137
31	139	---	136	e47	---	132	---	77	---	47	39	---
TOTAL	1493	2758	4662	3634	2887	7227	3688	2832	9233	2339	2906	6520
MEAN	48.2	91.9	150	117	103	233	123	91.4	308	75.5	93.7	217
MAX	227	301	416	316	400	404	256	501	1110	108	496	1330
MIN	12	34	30	34	45	124	62	50	93	47	34	36

e Estimated.

CHRISTINA RIVER BASIN

01480700 EAST BRANCH BRANDYWINE CREEK NEAR DOWNINGTOWN, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	58.3	73.3	110	118	110	141	129	105	79.4	64.0	44.4	60.3
MAX (WY)	199	169	385	361	242	380	365	246	308	257	93.7	217
MIN (WY)	1997	1997	1997	1979	1979	1994	1983	1989	2003	1984	2003	2003
MIN (WY)	23.2	24.9	23.5	17.5	29.5	35.7	28.9	49.2	29.6	19.7	17.8	17.1
MIN (WY)	1981	2002	1981	1981	2002	1985	1985	1976	1985	2002	2002	1980

SUMMARY STATISTICS FOR 2002 CALENDAR YEAR FOR 2003 WATER YEAR WATER YEARS 1974 - 2003

ANNUAL TOTAL		19330.8		50179								
ANNUAL MEAN		53.0		137						90.9		
HIGHEST ANNUAL MEAN										150		1984
LOWEST ANNUAL MEAN										35.0		2002
HIGHEST DAILY MEAN				416	Dec 14		1330	Sep 15		2020	Jan 26	1978
LOWEST DAILY MEAN				9.1	Sep 13		12	Oct 3		9.1	Sep 13	2002
ANNUAL SEVEN-DAY MINIMUM				11	Sep 8		16	Oct 2		11	Sep 8	2002
MAXIMUM PEAK FLOW							4450	Jun 20		a5410	Sep 16	1999
MAXIMUM PEAK STAGE							8.65	Jun 20		9.59	Sep 16	1999
INSTANTANEOUS LOW FLOW							10	Oct 3		7.4	Sep 13	2002
10 PERCENT EXCEEDS				124			276			176		
50 PERCENT EXCEEDS				32			103			58		
90 PERCENT EXCEEDS				15			37			25		

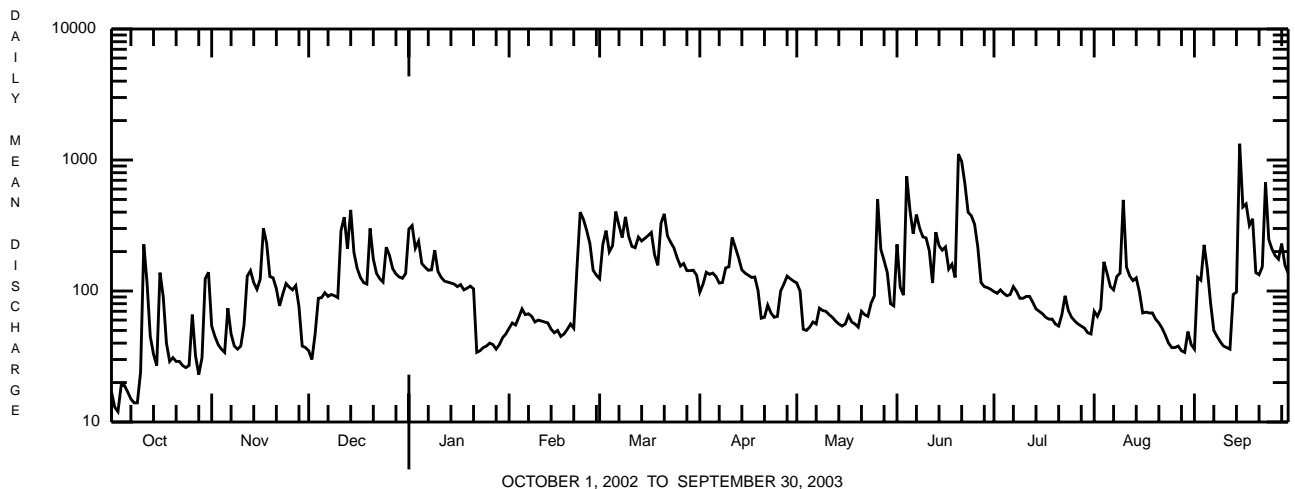
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1973, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	44.3	76.4	92.0	81.4	139	129	123	98.8	99.8	63.1	56.5	45.2
MAX (WY)	120	168	245	168	286	195	238	144	306	128	147	148
MIN (WY)	1972	1973	1973	1973	1971	1972	1973	1973	1972	1972	1971	1971
MIN (WY)	24.8	27.6	32.0	33.3	51.6	70.0	64.3	43.2	30.3	18.3	15.3	20.1
MIN (WY)	1970	1966	1966	1969	1969	1969	1969	1969	1966	1966	1966	1970

SUMMARY STATISTICS WATER YEARS 1966 - 1973

ANNUAL TOTAL ANNUAL MEAN		87.0										
HIGHEST ANNUAL MEAN		139					1973					
LOWEST ANNUAL MEAN		51.6					1969					
HIGHEST DAILY MEAN		3220				Jun 22	1972					
LOWEST DAILY MEAN		7.2				Sep 12	1966					
ANNUAL SEVEN DAY MINIMUM		8.0				Sep 7	1966					
MAXIMUM PEAK FLOW		a8070				Jun 22	1972					
MAXIMUM PEAK STAGE		b12.06				Jun 22	1972					
INSTANTANEOUS LOW FLOW		7.2				Sep 2,3,11-13,	1966					
ANNUAL RUNOFF (CFSM)		1.44										
ANNUAL RUNOFF (INCHES)		19.51										
10 PERCENT EXCEEDS		163										
50 PERCENT EXCEEDS		56										
90 PERCENT EXCEEDS		23										

a From rating curve extended above 5,000 ft<sup>3</sup>/s.  
 b From floodmark.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

## CHRISTINA RIVER BASIN

## 01480870 EAST BRANCH BRANDYWINE CREEK BELOW DOWNINGTOWN, PA

**LOCATION.**--Lat 39°58'07", long 75°40'25", Chester County, Hydrologic Unit 02040205, on left bank at downstream side of Sugars Bridge (U.S. Highway 322), 2,000 ft upstream from Valley Creek, 1.5 mi north of Marshallton, and 3.3 mi southeast of Downingtown.

**DRAINAGE AREA.**--89.9 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--February 1972 to current year.

**REVISED RECORDS.**--WDR PA-75-1: 1972(P), 1973, 1974.

**GAGE.**--Water-stage recorder and crest-stage gage. Elevation of gage is 195 ft above National Geodetic Vertical Datum of 1929, from topographic map. Feb. 1 to Apr. 10, and June 25 to Nov. 17, 1972, nonrecording gage at same site and datum.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Flow regulated since November 1973 by Marsh Creek Reservoir (station 01480684) about 7.5 mi upstream. Satellite and landline telemetry at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	93	73	431	106	182	163	157	335	182	108	65
2	29	77	67	456	111	359	168	148	162	174	121	217
3	29	69	72	311	108	458	192	98	138	187	158	160
4	38	65	116	364	141	282	186	94	1150	175	365	366
5	37	61	123	237	132	345	188	98	597	162	247	215
6	33	116	129	222	113	706	181	107	355	165	195	128
7	31	81	119	206	120	451	174	100	524	180	151	87
8	29	66	126	207	112	365	174	126	433	174	185	79
9	27	63	124	267	e107	581	213	115	337	151	242	72
10	55	63	118	199	e108	406	212	115	323	149	1160	68
11	497	75	453	180	e105	305	395	109	271	155	248	66
12	220	171	587	169	e100	300	302	103	181	153	198	62
13	85	217	295	167	e95	373	244	95	320	152	169	167
14	61	150	623	163	e92	347	204	91	383	131	170	172
15	52	134	288	160	e95	333	191	87	304	126	143	3000
16	217	178	210	151	e90	340	190	89	275	122	107	793
17	162	483	179	e140	e87	387	184	102	209	114	113	627
18	76	367	163	e145	e85	269	185	92	244	111	102	503
19	57	182	157	e137	e87	225	166	88	190	112	102	675
20	58	171	474	e138	e110	463	118	83	1520	106	93	273
21	54	152	270	e139	142	705	118	99	2200	101	89	240
22	53	127	192	e110	842	376	140	96	1030	111	82	261
23	50	133	177	e83	1060	330	124	93	613	148	77	1190
24	48	150	164	e80	580	298	116	116	551	127	70	450
25	50	142	341	e85	404	257	112	126	475	109	67	356
26	130	136	289	e88	319	229	161	748	364	102	68	325
27	68	153	211	e85	212	236	162	284	229	101	69	315
28	51	126	190	e80	194	206	176	217	210	98	63	413
29	60	77	183	e85	---	213	167	186	200	94	59	295
30	176	75	177	e90	---	221	161	125	191	89	150	251
31	225	---	185	94	---	207	---	119	---	90	83	---
TOTAL	2791	4153	6875	5469	5857	10755	5467	4306	14314	4151	5254	11891
MEAN	90.0	138	222	176	209	347	182	139	477	134	169	396
MAX	497	483	623	456	1060	706	395	748	2200	187	1160	3000
MIN	27	61	67	80	85	182	112	83	138	89	59	62
CFSM	1.00	1.54	2.47	1.96	2.33	3.86	2.03	1.55	5.31	1.49	1.89	4.41
IN.	1.15	1.72	2.84	2.26	2.42	4.45	2.26	1.78	5.92	1.72	2.17	4.92

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 2003, BY WATER YEAR (WY)

MEAN	90.4	111	167	179	174	221	205	167	129	106	75.8	102
MAX	304	242	577	527	409	525	594	410	477	421	177	396
(WY)	1997	1997	1997	1979	1979	1994	1983	1989	2003	1984	1996	2003
MIN	36.7	41.8	40.8	30.9	49.2	61.6	53.1	75.9	45.5	32.5	28.6	29.5
(WY)	2002	2002	1981	1981	2002	1985	1985	1999	1999	2002	1999	1980

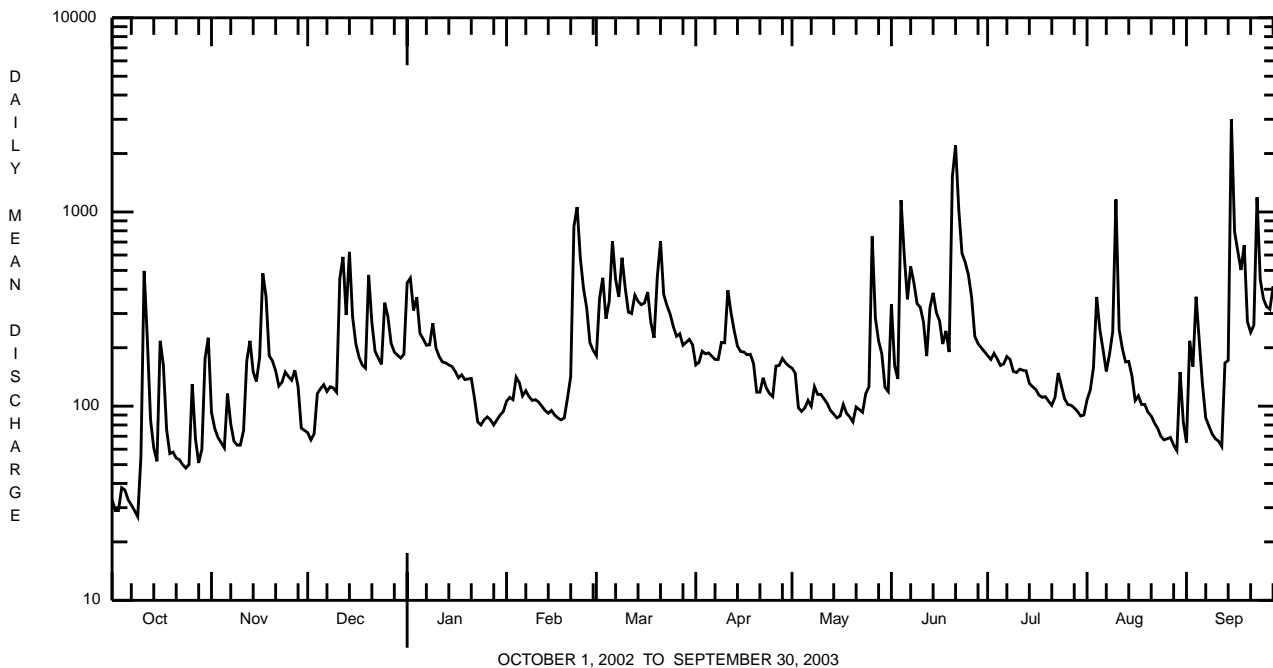
e Estimated.

CHRISTINA RIVER BASIN

01480870 EAST BRANCH BRANDYWINE CREEK BELOW DOWNINGTOWN, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1974 - 2003	
ANNUAL TOTAL	30773		81283			
ANNUAL MEAN	84.3		223		144	
HIGHEST ANNUAL MEAN					257	1984
LOWEST ANNUAL MEAN					57.0	2002
HIGHEST DAILY MEAN	623	Dec 14	3000	Sep 15	3080	Sep 16 1999
LOWEST DAILY MEAN	19	Sep 14	27	Oct 9	19	Sep 14 2002
ANNUAL SEVEN-DAY MINIMUM	22	Sep 9	32	Oct 3	22	Sep 9 2002
MAXIMUM PEAK FLOW			a6230	Sep 15	b8160	Jun 22 1972
MAXIMUM PEAK STAGE			13.56	Sep 15	c14.79	Sep 16 1999
ANNUAL RUNOFF (CFSM)	0.94		2.48		1.60	
ANNUAL RUNOFF (INCHES)	12.73		33.63		21.74	
10 PERCENT EXCEEDS	177		420		275	
50 PERCENT EXCEEDS	57		160		94	
90 PERCENT EXCEEDS	26		69		41	

- a From rating curve extended above 3,600 ft<sup>3</sup>/s on basis of runoff comparison with nearby stations.
- b From rating curve extended above 3,600 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow at gage height 13.40 ft.
- c Discharge, 7,200 ft<sup>3</sup>/s on basis of runoff comparison with nearby stations.



## CHRISTINA RIVER BASIN

01480870 EAST BRANCH BRANDYWINE CREEK BELOW DOWNINGTOWN, PA--Continued

## WATER-QUALITY RECORDS

**PERIOD OF RECORD.**--October 1965 to September 1966, October 1970 to current year.**PERIOD OF DAILY RECORD.**--

SPECIFIC CONDUCTANCE: February 1972 to current year.

pH: February 1972 to current year.

WATER TEMPERATURES: February 1972 to current year.

DISSOLVED OXYGEN: February 1972 to current year.

**INSTRUMENTATION.**--Water-quality monitor since February 1972.**REMARKS.**--Specific conductance record rated good. pH record rated good, except for period Oct. 1-18, which is fair. Water temperature record rated good. Dissolved oxygen record rated fair, except for periods Nov. 5-11, 14-16, July 16-28, which are poor. Data collection discontinued during winter months since 1981 water year. Other interruptions in the record were due to malfunctions of the equipment.**EXTREMES FOR PERIOD OF DAILY RECORD.**--

SPECIFIC CONDUCTANCE: Maximum, 891 microsiemens, Mar. 5, 2001; minimum, 67 microsiemens, July 1, 1984.

pH: Maximum, 9.9, May 13, June 5, 1973; minimum, 5.4, Oct. 24, 26, 1973.

WATER TEMPERATURE: Maximum, 33.0°C, July 18, 1977; minimum, 0.0°C, many days during winters.

DISSOLVED OXYGEN: Maximum, 19.4 mg/L, Mar. 18, 1989; minimum, 0.8 mg/L, July 23, 1984.

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

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf µS/cm 25 degC (00095)	Temper- ature, deg C (00010)	Fecal coli- form, M-FC 0.7µ MF col/ 100 mL (31625)
MAR 2003									
10...	1420	1028	1028	356	13.6	7.6	229	4.2	183
20...	1330	1028	1028	246	12.6	7.6	282	6.6	380
APR									
07...	1405	1028	1028	168	13.1	8.2	272	7.0	680
21...	1215	1028	1028	116	12.3	8.2	304	13.6	57
MAY									
01...	1155	1028	1028	159	10.9	7.8	275	14.6	132
12...	1705	1028	1028	100	10.1	7.7	311	16.7	593
21...	1530	1028	1028	114	8.4	7.4	307	15.4	527
JUN									
05...	1300	1028	1028	557	9.4	7.2	201	15.3	3900
12...	1345	1028	1028	192	9.1	7.5	266	18.8	133
26...	0935	1028	1028	432	9.2	7.3	234	16.5	280
JUL									
08...	1110	1028	1028	171	8.0	7.5	277	22.2	1350
16...	0950	1028	1028	127	7.8	7.5	296	21.2	390
23...	1350	1028	1028	155	8.4	7.6	270	22.6	2600
AUG									
06...	1330	1028	1028	172	8.0	7.6	255	23.3	E1700
27...	1250	1028	1028	72	11.0	8.4	319	22.9	1230
SEP									
09...	1140	1028	1028	72	8.6	7.7	333	20.1	277
22...	1245	1028	1028	261	8.8	7.5	249	19.4	113



## CHRISTINA RIVER BASIN

## 01480870 EAST BRANCH BRANDYWINE CREEK BELOW DOWNINGTOWN, PA--Continued

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

Date	Time	Agency collecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf µS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419)
OCT 2002 28...	1130	1028	80020	49	11.5	7.7	381	12.2	35.9	11.7	4.26	21.3	103
Date	Chlor- ide, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water, fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Alum- inum, water, fltrd, µg/L (01106)	Arsenic water, fltrd, µg/L (01000)	Boron, water, fltrd, µg/L (01020)	Cadmium water, fltrd, µg/L (01025)	Chrom- ium, water, fltrd, µg/L (01030)	Copper, water, fltrd, µg/L (01040)
OCT 2002 28...	33.4	12.8	27.0	.36	2.98	.051	.17	20	<2	210	<.2	<.8	3.2
Date	Iron, water, fltrd, µg/L (01046)	Lead, water, fltrd, µg/L (01049)	Mangan- ese, water, fltrd, µg/L (01056)	Mercury water, fltrd, µg/L (71890)	Molyb- denum, water, fltrd, µg/L (01060)	Nickel, water, fltrd, µg/L (01065)	Zinc, water, fltrd, µg/L (01090)						
OCT 2002 28...	56	<1	29.1	<.02	2.0	<2.0	<24						

## CHRISTINA RIVER BASIN

01480870 EAST BRANCH BRANDYWINE CREEK BELOW DOWNINGTOWN, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATESREMARKS.--Samples were collected using a Hess sampler with a mesh size of 500 µm. Each sample covered a total area of 2.4 m<sup>2</sup>.

Date	Count
Benthic Macroinvertebrate	
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	129
Nemertea (PROBOSAS WORMS)	
Enopla	
Hoplonemertea	
Tetrastemmatidae	
<u>Prostoma</u> sp	95
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancyliidae	
<u>Ferrissia</u> sp	16
Physidae	
<u>Physa</u> sp	1
Planorbidae	
<u>Gyraulus</u> sp	5
Mesogastropoda	
Hydrobiidae	
<u>Amnicola</u> sp	1
Bivalvia (CLAMS)	
Veneroidea	
Corbiculidae	
<u>Corbicula fluminea</u>	7
Sphaeriidae	
<u>Sphaerium</u> sp	32
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	46
Tubificida	
Naididae	3
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	86
Crustacea	
Amphipoda (SCUDS)	
Gammaridae	
<u>Gammarus</u> sp	90

## CHRISTINA RIVER BASIN

01480870 EAST BRANCH BRANDYWINE CREEK BELOW DOWNINGTOWN, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES--Continued

Date	10/28/02
Benthic Macroinvertebrate	Count
Insecta	
Ephemeroptera (MAYFLIES)	
Caenidae	
<u>Caenis</u> sp	102
Ephemerellidae sp	
<u>Eurylophella</u> sp	3
<u>Serratella</u> sp	40
Heptageniidae	
<u>Stenonema</u> sp	159
Isonychiidae	
<u>Isonychia</u> sp	1
Tricorythidae	
<u>Tricorythodes</u> sp	3
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Aeshnidae	
<u>Boyeria</u> sp	1
Coenagrionidae	
<u>Argia</u> sp	45
Plecoptera (STONEFLIES)	
Perlidae	1
Taeniopterygidae	
<u>Taeniopteryx</u> sp	1
Trichoptera (CADDISFLIES)	
Brachycentridae	
<u>Micrasema</u> sp	9
Hydropsychidae	
<u>Cheumatopsyche</u> sp	132
<u>Hydropsyche</u> sp	290
Hydroptilidae	
<u>Hydroptila</u> sp	1
<u>Leucotrichia</u> sp	12
Lepidostomatidae	
<u>Lepidostoma</u> sp	6
Leptoceridae	
<u>Oecetis</u> sp	4
Philopotamidae	
<u>Chimarra</u> sp	56
Polycentropodidae	
<u>Polycentropus</u> sp	3
Lepidoptera (MOTHS AND BUTTERFLIES)	
Pyralidae	
<u>Petrophila</u> sp	14

## CHRISTINA RIVER BASIN

01480870 EAST BRANCH BRANDYWINE CREEK BELOW DOWNINGTOWN, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES--Continued

Date	10/28/02
Benthic Macroinvertebrate	Count
Coleoptera (BEETLES)	
Dryopidae	
<u>Helichus</u> sp	1
Elmidae (RIFFLE BEETLES)	
<u>Ancyronyx</u> sp	5
<u>Dubiraphia</u> sp	11
<u>Macronychus</u> sp	10
<u>Optioservus</u> sp	277
<u>Oulimnius</u> sp	24
<u>Stenelmis</u> sp	464
Hydrophilidae	
<u>Berosus</u> sp	7
Psephenidae (WATER PENNIES)	
<u>Psephenus</u> sp	77
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	
	602
Empididae (DANCE FLIES)	
<u>Hemerodromia</u> sp	6
Simuliidae	
<u>Simulium</u> sp	20
Tipulidae (CRANE FLIES)	
<u>Antocha</u> sp	7
Total organisms	2905
Total number of taxa	45

## CHRISTINA RIVER BASIN

## 01480870 EAST BRANCH BRANDYWINE CREEK BELOW DOWNINGTOWN, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	<b>OCTOBER</b>			<b>NOVEMBER</b>			<b>DECEMBER</b>			<b>JANUARY</b>		
1	399	380	389	325	268	302	367	354	359	---	---	---
2	443	399	422	---	---	---	374	359	367	---	---	---
3	473	400	449	---	---	---	---	---	---	---	---	---
4	459	398	425	363	348	355	---	---	---	---	---	---
5	417	392	402	362	347	353	---	---	---	---	---	---
6	421	401	410	357	279	303	---	---	---	---	---	---
7	442	412	424	331	290	310	---	---	---	---	---	---
8	454	430	439	357	322	337	---	---	---	---	---	---
9	454	433	444	361	344	352	---	---	---	---	---	---
10	449	262	407	365	341	355	---	---	---	---	---	---
11	---	---	---	362	326	346	---	---	---	---	---	---
12	---	---	---	326	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	281	258	270	---	---	---	---	---	---
15	---	---	---	291	278	284	---	---	---	---	---	---
16	---	---	---	292	254	276	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	341	292	319	243	---	---	---	---	---	---	---	---
19	373	341	357	279	243	266	---	---	---	---	---	---
20	386	350	372	277	266	270	---	---	---	---	---	---
21	383	349	370	292	273	281	---	---	---	---	---	---
22	373	363	368	315	274	301	---	---	---	---	---	---
23	382	367	374	313	276	297	---	---	---	---	---	---
24	389	375	384	284	271	277	---	---	---	---	---	---
25	387	369	380	284	276	281	---	---	---	---	---	---
26	384	257	296	287	278	283	---	---	---	---	---	---
27	368	298	333	322	276	303	---	---	---	---	---	---
28	394	368	383	347	296	318	---	---	---	---	---	---
29	429	286	392	373	347	357	---	---	---	---	---	---
30	291	241	271	375	360	367	---	---	---	---	---	---
31	268	207	232	---	---	---	---	---	---	---	---	---
MONTH	473	207	377	375	243	310	374	354	363	---	---	---
	<b>FEBRUARY</b>			<b>MARCH</b>			<b>APRIL</b>			<b>MAY</b>		
1	---	---	---	443	345	376	288	270	280	278	270	275
2	---	---	---	503	314	385	---	---	---	298	271	278
3	---	---	---	314	262	273	---	---	---	329	298	321
4	---	---	---	289	270	276	---	---	---	328	307	316
5	---	---	---	377	257	317	---	---	---	324	308	318
6	---	---	---	325	237	268	---	---	---	316	294	305
7	---	---	---	293	249	259	---	---	---	324	290	308
8	---	---	---	316	262	278	332	297	312	305	288	295
9	---	---	---	305	193	253	297	271	286	300	287	294
10	---	---	---	240	195	220	271	259	264	305	293	298
11	---	---	---	254	240	248	269	200	238	309	299	304
12	---	---	---	265	238	258	243	220	234	316	303	309
13	---	---	---	244	221	237	---	---	---	321	306	312
14	---	---	---	248	234	243	---	---	---	322	308	313
15	---	---	---	265	232	248	276	259	268	324	294	312
16	---	---	---	254	228	243	288	265	273	333	308	323
17	---	---	---	260	237	248	281	271	275	329	296	316
18	---	---	---	249	239	243	286	276	280	336	306	321
19	---	---	---	259	249	255	306	272	283	335	302	322
20	---	---	---	291	188	261	310	297	304	339	313	326
21	---	---	---	231	186	212	308	298	302	323	303	311
22	---	---	---	234	225	231	300	289	296	318	288	306
23	---	---	---	239	232	235	304	297	300	321	295	312
24	---	---	---	243	238	240	308	296	304	316	284	298
25	---	---	---	260	243	249	319	299	309	302	274	288
26	---	---	---	278	257	263	299	272	288	276	149	199
27	295	271	289	275	250	259	288	261	278	246	189	227
28	468	295	361	266	257	262	272	265	268	255	239	247
29	---	---	---	267	248	261	274	263	269	279	243	254
30	---	---	---	280	262	269	276	267	272	289	273	282
31	---	---	---	270	256	264	---	---	---	289	166	253
MONTH	468	271	325	503	186	262	332	200	281	339	149	295

CHRISTINA RIVER BASIN

01480870 EAST BRANCH BRANDYWINE CREEK BELOW DOWNINGTOWN, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	279	191	221	290	277	282	327	265	321	335	318	327
2	264	215	242	288	273	282	314	262	289	325	---	---
3	281	257	268	288	277	283	317	211	284	272	254	262
4	265	137	180	289	280	285	267	151	215	265	204	234
5	225	168	201	291	281	286	270	193	239	---	---	---
6	238	225	233	290	283	286	267	213	245	---	---	---
7	240	180	223	289	267	284	278	258	270	---	---	---
8	237	184	216	285	267	277	266	255	260	---	---	---
9	241	232	237	301	280	287	271	207	250	333	316	327
10	245	234	238	295	282	288	238	115	161	---	---	---
11	266	234	244	296	287	291	246	212	236	348	334	339
12	281	254	265	293	271	288	265	240	254	345	334	340
13	287	150	256	297	268	285	269	258	265	341	193	300
14	239	154	203	299	283	292	269	259	262	---	---	---
15	252	189	233	297	285	290	297	269	273	---	---	---
16	252	237	245	303	292	297	301	283	291	---	---	---
17	282	245	260	303	296	300	304	292	296	225	215	220
18	281	243	255	306	297	302	306	292	299	251	218	231
19	278	255	271	311	298	304	298	288	291	239	172	194
20	278	97	217	316	302	309	---	---	---	256	219	240
21	168	101	144	315	297	306	---	---	---	260	239	253
22	214	168	188	312	294	303	---	---	---	249	238	244
23	225	214	220	303	267	281	---	---	---	262	---	---
24	229	217	223	301	278	286	---	---	---	---	---	---
25	234	227	231	313	295	301	---	---	---	---	---	---
26	274	233	246	317	298	304	---	---	---	---	---	---
27	276	270	273	316	300	307	331	319	327	---	---	---
28	280	272	276	321	311	315	351	326	335	---	---	---
29	281	276	279	319	306	311	354	334	345	---	---	---
30	280	276	278	322	300	310	348	188	293	---	---	---
31	---	---	---	324	305	316	327	239	303	---	---	---
MONTH	287	97	236	324	267	295	354	115	275	348	172	270

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	8.0	7.5	7.7	7.6	7.4	7.4	7.6	7.4	7.4	---	---	---
2	8.0	7.4	7.6	7.6	---	---	7.6	7.4	7.4	---	---	---
3	7.9	7.2	7.5	7.6	---	---	---	---	---	---	---	---
4	7.6	7.2	7.4	7.6	7.4	7.5	---	---	---	---	---	---
5	7.7	7.2	7.3	7.7	7.4	7.5	---	---	---	---	---	---
6	8.0	7.3	7.5	7.5	7.3	7.4	---	---	---	---	---	---
7	8.1	7.5	7.5	7.6	7.4	7.5	---	---	---	---	---	---
8	8.3	7.5	7.8	7.8	7.5	7.6	---	---	---	---	---	---
9	8.2	7.6	7.8	7.7	7.4	7.5	---	---	---	---	---	---
10	7.8	7.4	7.6	7.5	7.2	7.4	---	---	---	---	---	---
11	---	---	---	7.2	7.1	7.1	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	7.5	7.2	7.3	---	---	---	---	---	---
15	---	---	---	7.5	7.2	7.2	---	---	---	---	---	---
16	---	---	---	7.3	7.2	7.2	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	7.7	7.4	7.5	---	---	---	---	---	---	---	---	---
19	7.8	7.5	7.6	7.5	7.3	7.3	---	---	---	---	---	---
20	7.7	7.4	7.5	7.5	7.2	7.3	---	---	---	---	---	---
21	7.6	7.4	7.5	7.5	7.2	7.3	---	---	---	---	---	---
22	7.7	7.4	7.5	7.3	7.2	7.2	---	---	---	---	---	---
23	7.8	7.5	7.5	7.5	7.2	7.3	---	---	---	---	---	---
24	7.7	7.5	7.6	7.5	7.2	7.3	---	---	---	---	---	---
25	7.7	7.5	7.6	7.5	7.2	7.3	---	---	---	---	---	---
26	7.5	7.1	7.3	7.4	7.2	7.2	---	---	---	---	---	---
27	7.4	7.1	7.2	7.4	7.2	7.3	---	---	---	---	---	---
28	7.3	7.1	7.3	7.6	7.3	7.4	---	---	---	---	---	---
29	7.6	7.3	7.5	7.6	7.4	7.4	---	---	---	---	---	---
30	7.6	7.4	7.5	7.5	7.4	7.4	---	---	---	---	---	---
31	7.5	7.3	7.4	---	---	---	---	---	---	---	---	---
MAX	8.3	7.6	7.8	7.8	7.5	7.6	7.6	7.4	7.4	---	---	---
MIN	7.3	7.1	7.2	7.2	7.1	7.1	7.6	7.4	7.4	---	---	---

## CHRISTINA RIVER BASIN

## 01480870 EAST BRANCH BRANDYWINE CREEK BELOW DOWNINGTOWN, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	<b>FEBRUARY</b>			<b>MARCH</b>			<b>APRIL</b>			<b>MAY</b>		
1	---	---	---	7.7	7.5	7.6	8.4	7.4	7.6	8.5	7.4	7.5
2	---	---	---	7.6	7.4	7.5	8.5	7.1	7.5	8.5	7.3	7.5
3	---	---	---	7.6	7.4	7.5	8.7	7.1	7.6	8.6	7.3	7.5
4	---	---	---	7.7	7.4	7.5	8.2	7.3	7.5	8.7	7.4	7.6
5	---	---	---	7.7	7.4	7.5	8.5	7.4	7.6	8.2	7.4	7.5
6	---	---	---	7.4	7.4	7.4	8.9	7.4	7.9	8.2	7.4	7.5
7	---	---	---	7.5	7.4	7.5	8.4	7.4	7.6	8.6	7.3	7.5
8	---	---	---	7.7	7.5	7.5	8.3	7.5	7.6	8.0	7.2	7.4
9	---	---	---	7.7	7.4	7.5	8.3	7.5	7.6	7.6	7.3	7.4
10	---	---	---	7.6	7.4	7.5	8.8	7.4	7.7	7.9	7.3	7.4
11	---	---	---	7.7	7.5	7.5	7.6	7.4	7.4	7.9	7.3	7.4
12	---	---	---	7.8	7.4	7.6	8.0	7.4	7.5	7.8	7.3	7.4
13	---	---	---	7.7	7.4	7.4	---	---	---	8.0	7.3	7.5
14	---	---	---	7.6	7.3	7.4	---	---	---	8.1	7.3	7.6
15	---	---	---	7.6	7.3	7.4	8.9	7.4	7.7	8.0	7.5	7.7
16	---	---	---	7.7	7.3	7.4	9.0	7.3	7.7	7.6	7.3	7.5
17	---	---	---	7.6	7.2	7.3	8.8	7.3	7.8	7.4	7.2	7.3
18	---	---	---	7.7	7.2	7.3	8.0	7.4	7.6	7.6	7.2	7.4
19	---	---	---	7.7	7.2	7.4	8.8	7.4	7.7	7.8	7.3	7.4
20	---	---	---	7.6	7.2	7.3	8.7	7.4	7.7	7.7	7.2	7.3
21	---	---	---	7.3	7.2	7.2	8.5	7.4	7.7	7.5	7.2	7.3
22	---	---	---	7.5	7.2	7.3	8.0	7.4	7.6	7.5	7.3	7.4
23	---	---	---	7.7	7.3	7.4	8.3	7.4	7.6	7.6	7.3	7.4
24	---	---	---	7.8	7.3	7.4	8.1	7.5	7.6	7.5	7.3	7.3
25	---	---	---	7.9	7.3	7.4	8.2	7.4	7.6	7.4	7.3	7.3
26	---	---	---	8.0	7.3	7.4	7.7	7.4	7.5	7.3	7.0	7.1
27	7.6	7.5	7.5	8.2	7.3	7.5	8.1	7.4	7.5	7.3	7.1	7.2
28	7.7	7.5	7.6	8.1	7.3	7.4	8.1	7.4	7.5	7.3	7.2	7.2
29	---	---	---	8.1	7.2	7.3	8.0	7.3	7.5	7.4	7.2	7.3
30	---	---	---	7.8	7.2	7.4	8.2	7.3	7.5	7.4	7.2	7.3
31	---	---	---	8.3	7.4	7.6	---	---	---	7.4	7.0	7.3
MAX	7.7	7.5	7.6	8.3	7.5	7.6	9.0	7.5	7.9	8.7	7.5	7.7
MIN	7.6	7.5	7.5	7.3	7.2	7.2	7.6	7.1	7.4	7.3	7.0	7.1
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	<b>JUNE</b>			<b>JULY</b>			<b>AUGUST</b>			<b>SEPTEMBER</b>		
1	7.3	7.2	7.2	7.7	7.3	7.4	7.7	7.3	7.4	7.7	7.4	7.4
2	7.4	7.2	7.3	8.0	7.3	7.5	7.7	7.2	7.4	7.4	7.3	7.4
3	7.4	7.2	7.3	7.7	7.3	7.4	7.7	7.3	7.3	7.5	7.3	7.4
4	7.3	7.0	7.1	8.0	7.3	7.5	7.3	7.2	7.3	7.3	7.2	7.3
5	7.4	7.1	7.2	8.0	7.3	7.5	7.4	7.2	7.3	---	---	---
6	7.5	7.3	7.4	7.8	7.3	7.4	7.6	7.2	7.3	---	---	---
7	7.3	7.3	7.3	7.8	7.3	7.4	7.6	7.4	7.5	---	---	---
8	7.3	7.3	7.3	7.7	7.2	7.4	7.6	7.4	7.4	---	---	---
9	7.4	7.3	7.4	7.6	7.3	7.4	7.4	7.3	7.3	7.8	7.4	7.6
10	7.4	7.3	7.3	7.5	7.3	7.4	7.3	7.1	7.1	---	---	---
11	7.4	7.3	7.3	7.6	7.3	7.4	7.3	7.2	7.3	7.9	7.4	7.6
12	7.5	7.3	7.4	7.6	7.3	7.4	7.4	7.3	7.3	8.0	7.4	7.6
13	7.6	7.1	7.3	7.6	7.3	7.4	7.4	7.3	7.3	7.6	7.2	7.4
14	7.4	7.1	7.3	7.6	7.3	7.4	7.4	7.3	7.3	---	---	---
15	7.4	7.2	7.3	7.7	7.4	7.5	7.4	7.3	7.3	---	---	---
16	7.4	7.3	7.3	7.8	7.4	7.5	7.5	7.3	7.4	---	---	---
17	7.4	7.3	7.4	7.8	7.4	7.5	7.6	7.4	7.4	7.2	7.0	7.2
18	7.6	7.3	7.4	7.6	7.4	7.4	7.7	7.4	7.5	7.2	7.0	7.0
19	7.6	7.4	7.4	7.8	7.4	7.5	7.7	7.4	7.5	7.2	7.1	7.2
20	7.5	7.0	7.4	7.7	7.4	7.5	---	---	---	7.3	7.2	7.3
21	7.2	7.0	7.1	7.8	7.3	7.4	---	---	---	7.4	7.2	7.3
22	7.2	7.2	7.2	7.7	7.3	7.4	---	---	---	7.4	7.3	7.3
23	7.3	7.1	7.2	7.6	7.3	7.4	---	---	---	---	---	---
24	7.2	7.1	7.1	7.8	7.4	7.5	---	---	---	---	---	---
25	7.2	7.1	7.1	7.8	7.4	7.5	---	---	---	---	---	---
26	7.3	7.1	7.2	7.9	7.4	7.5	---	---	---	---	---	---
27	7.4	7.2	7.3	7.9	7.4	7.5	8.5	7.4	7.6	---	---	---
28	7.4	7.3	7.3	7.7	7.4	7.4	8.6	7.4	7.6	---	---	---
29	7.5	7.3	7.4	7.8	7.3	7.4	8.5	7.3	7.5	---	---	---
30	7.6	7.3	7.4	7.9	7.3	7.4	8.3	7.2	7.3	---	---	---
31	---	---	---	7.7	7.3	7.4	7.9	7.2	7.4	---	---	---
MAX	7.6	7.4	7.4	8.0	7.4	7.5	8.6	7.4	7.6	8.0	7.4	7.6
MIN	7.2	7.0	7.1	7.5	7.2	7.4	7.3	7.1	7.1	7.2	7.0	7.0

CHRISTINA RIVER BASIN

01480870 EAST BRANCH BRANDYWINE CREEK BELOW DOWNINGTOWN, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	21.0	17.0	18.5	9.0	7.0	8.0	5.5	3.5	4.5	---	---	---
2	22.5	18.5	20.0	9.0	7.0	---	4.5	3.0	4.0	---	---	---
3	23.0	19.5	21.0	9.0	7.0	---	---	---	---	---	---	---
4	21.5	20.5	21.0	9.5	7.5	8.5	---	---	---	---	---	---
5	23.5	20.5	21.5	9.5	7.5	8.5	---	---	---	---	---	---
6	20.5	17.5	19.0	10.0	9.0	9.5	---	---	---	---	---	---
7	21.5	18.0	19.5	10.5	8.5	9.0	---	---	---	---	---	---
8	18.0	15.5	17.0	10.0	7.5	8.5	---	---	---	---	---	---
9	17.0	14.5	16.0	11.5	8.5	10.0	---	---	---	---	---	---
10	17.5	16.5	17.0	14.0	10.5	12.0	---	---	---	---	---	---
11	---	---	---	16.5	14.0	15.5	---	---	---	---	---	---
12	---	---	---	16.0	---	---	---	---	---	---	---	---
13	---	---	---	11.5	---	---	---	---	---	---	---	---
14	---	---	---	10.5	8.5	9.5	---	---	---	---	---	---
15	---	---	---	11.0	9.0	10.0	---	---	---	---	---	---
16	14.0	13.0	13.5	10.0	9.0	10.0	---	---	---	---	---	---
17	13.5	---	---	---	---	---	---	---	---	---	---	---
18	14.0	12.0	13.0	8.5	---	---	---	---	---	---	---	---
19	13.0	11.0	12.0	8.5	6.5	7.5	---	---	---	---	---	---
20	14.0	13.0	13.5	9.0	7.0	8.0	---	---	---	---	---	---
21	14.5	12.0	13.0	9.0	7.5	8.0	---	---	---	---	---	---
22	13.5	10.5	12.0	9.5	9.0	9.5	---	---	---	---	---	---
23	13.0	10.5	12.0	9.0	7.0	8.0	---	---	---	---	---	---
24	12.0	11.0	11.5	8.5	7.0	7.5	---	---	---	---	---	---
25	11.5	10.5	11.0	9.0	6.5	7.5	---	---	---	---	---	---
26	12.5	11.0	11.5	9.0	7.5	8.5	---	---	---	---	---	---
27	13.0	11.0	12.0	8.0	6.0	7.0	---	---	---	---	---	---
28	12.5	11.0	12.0	6.0	5.0	5.5	---	---	---	---	---	---
29	11.0	8.5	10.0	5.0	4.0	4.5	---	---	---	---	---	---
30	8.5	7.5	8.0	6.0	4.5	5.5	---	---	---	---	---	---
31	8.5	7.0	8.0	---	---	---	---	---	---	---	---	---
MONTH	23.5	7.0	14.5	16.5	4.0	8.6	5.5	3.0	4.2	---	---	---

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	4.5	4.0	4.5	8.0	6.0	7.5	18.0	13.5	16.0
2	---	---	---	5.5	3.5	4.5	13.0	7.5	10.5	18.0	15.0	16.5
3	---	---	---	3.5	1.5	2.5	13.0	10.0	11.5	18.0	15.0	16.5
4	---	---	---	4.0	1.0	2.5	12.0	9.0	10.0	16.0	14.5	15.0
5	---	---	---	6.5	3.5	4.5	9.5	8.5	9.0	14.5	12.0	13.0
6	---	---	---	4.0	2.0	3.0	11.5	7.5	9.5	13.5	12.0	12.5
7	---	---	---	4.5	1.5	3.0	10.0	6.5	8.0	18.5	13.0	15.5
8	---	---	---	6.0	2.5	4.5	6.5	6.0	6.5	17.5	16.5	17.0
9	---	---	---	7.0	3.0	5.0	7.0	6.5	6.5	16.5	15.0	15.5
10	---	---	---	4.5	2.0	3.0	8.5	6.5	7.5	16.0	14.0	15.0
11	---	---	---	4.5	2.0	3.0	8.5	7.0	7.5	18.0	16.0	16.5
12	---	---	---	6.5	3.5	5.0	12.5	7.5	9.5	17.5	15.5	16.5
13	---	---	---	7.0	4.5	5.5	---	---	---	15.5	14.0	14.5
14	---	---	---	6.5	3.5	5.0	---	---	---	15.5	13.0	14.0
15	---	---	---	7.0	3.5	5.5	15.5	10.0	12.5	15.5	13.0	14.5
16	---	---	---	9.0	5.0	7.0	17.0	12.0	14.5	15.0	13.5	14.0
17	---	---	---	9.5	7.0	8.0	15.5	10.0	12.5	14.0	12.5	13.0
18	---	---	---	10.5	7.5	9.0	10.0	9.0	9.5	13.5	12.0	13.0
19	---	---	---	9.5	7.5	8.0	14.0	9.0	11.0	17.0	11.0	14.0
20	---	---	---	7.5	6.5	6.5	15.5	10.5	13.0	18.5	13.5	16.0
21	---	---	---	9.0	6.5	8.0	15.0	12.0	13.5	16.5	15.0	15.5
22	---	---	---	11.0	7.0	9.0	15.0	13.0	14.0	15.0	14.5	14.5
23	---	---	---	11.0	7.5	9.5	14.0	11.0	12.5	14.5	13.5	14.0
24	---	---	---	11.5	7.5	9.5	15.0	10.0	12.5	15.0	13.5	14.5
25	---	---	---	12.0	8.0	10.0	15.0	11.0	13.0	14.5	14.0	14.5
26	---	---	---	12.0	9.0	10.5	14.0	13.0	13.5	14.5	13.5	14.0
27	3.5	2.0	2.5	12.5	9.0	10.5	17.5	12.5	14.5	15.0	13.0	14.0
28	5.0	2.5	4.0	11.5	8.5	10.0	17.0	12.0	14.5	15.5	14.0	15.0
29	---	---	---	13.0	10.0	11.5	15.5	13.0	14.5	17.0	13.5	15.5
30	---	---	---	12.0	8.5	10.5	17.0	12.5	15.0	19.5	15.0	17.0
31	---	---	---	9.5	6.5	8.0	---	---	---	18.0	16.5	17.0
MONTH	5.0	2.0	3.2	13.0	1.0	6.7	17.5	6.0	11.2	19.5	11.0	15.0



## CHRISTINA RIVER BASIN

## 01480870 EAST BRANCH BRANDYWINE CREEK BELOW DOWNINGTOWN, PA--Continued

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	17.0	15.0	16.0	22.5	19.5	21.0	23.5	21.5	22.5	21.5	21.0	21.0
2	17.0	13.5	15.5	22.0	20.0	21.0	24.5	22.0	23.0	---	20.0	---
3	16.0	14.5	15.5	21.0	20.0	20.5	24.5	23.0	23.5	20.0	19.0	20.0
4	15.0	13.0	13.5	23.0	19.5	21.0	24.5	22.5	23.5	19.5	18.0	19.0
5	16.5	14.0	15.0	24.0	21.0	22.5	24.0	23.0	23.5	---	---	---
6	16.5	14.5	15.5	24.0	21.0	22.5	24.0	22.0	23.0	---	---	---
7	15.0	14.0	14.5	24.5	21.5	23.0	23.5	22.5	23.0	---	---	---
8	15.5	14.5	15.0	24.0	22.0	23.0	23.0	19.5	21.0	21.5	17.5	---
9	17.0	14.5	15.5	23.5	22.0	23.0	21.5	19.5	20.5	22.0	19.2	---
10	17.5	14.0	15.5	22.5	20.5	21.0	23.5	21.0	22.5	20.5	---	---
11	16.5	14.5	15.5	22.5	20.0	21.5	23.5	22.5	23.0	21.0	17.5	19.0
12	19.5	16.5	18.0	22.5	20.0	21.5	24.5	22.5	23.5	19.5	18.5	19.0
13	20.5	18.0	19.0	23.5	20.0	21.5	24.5	23.0	23.5	21.0	18.5	19.0
14	21.5	19.0	20.0	22.5	20.0	21.0	23.5	21.0	22.5	---	---	---
15	21.0	17.0	19.5	23.0	20.0	21.5	23.5	21.0	22.0	---	---	---
16	17.5	15.0	16.5	24.0	21.0	22.5	23.0	21.5	22.5	21.0	---	---
17	17.5	13.5	15.5	24.0	20.5	22.5	24.0	22.0	23.0	18.0	14.5	16.5
18	18.0	16.5	17.0	22.0	20.5	21.0	24.0	21.5	23.0	18.5	14.0	15.5
19	19.0	17.0	18.0	23.0	20.0	21.5	24.5	22.0	23.0	20.0	18.5	19.5
20	18.5	17.5	18.0	23.0	19.5	21.0	---	---	---	20.5	18.5	19.5
21	17.5	17.0	17.0	24.0	21.0	22.5	---	---	---	20.0	18.5	19.5
22	18.0	17.0	17.5	24.0	22.5	23.0	---	---	---	20.0	19.0	19.5
23	20.0	16.5	18.0	23.0	22.0	22.5	---	---	---	---	---	---
24	19.0	16.0	17.5	23.5	21.5	22.5	---	---	---	---	---	---
25	19.0	16.0	17.5	24.5	21.0	22.5	---	---	---	---	---	---
26	20.0	16.5	18.0	25.0	21.0	23.0	---	---	---	---	---	---
27	22.0	19.5	21.0	25.5	22.5	24.0	23.5	21.5	22.5	---	---	---
28	21.5	19.0	20.5	24.5	23.0	24.0	24.5	21.5	23.0	---	---	---
29	22.0	19.0	20.5	25.0	21.5	23.0	23.5	21.5	22.5	---	---	---
30	22.5	19.5	21.0	24.0	21.0	22.5	24.5	22.0	23.0	---	---	---
31	---	---	---	23.5	22.0	22.5	23.0	20.5	22.0	---	---	---
MONTH	22.5	13.0	17.2	25.5	19.5	22.1	24.5	19.5	22.7	22.0	14.0	18.9

## OXYGEN, DISSOLVED (MG/L), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	8.4	5.5	6.8	11.1	9.8	10.3	---	---	---	---	---	---
2	9.1	5.5	6.8	11.1	9.8	---	---	---	---	---	---	---
3	9.4	5.5	6.9	11.4	---	---	---	---	---	---	---	---
4	7.6	5.0	6.0	11.1	9.5	10.2	---	---	---	---	---	---
5	8.2	5.5	6.5	11.4	9.5	10.2	---	---	---	---	---	---
6	9.6	6.0	7.5	10.9	9.4	10.2	---	---	---	---	---	---
7	10.0	6.5	7.6	11.3	10.9	11.2	---	---	---	---	---	---
8	10.6	6.6	8.0	11.4	11.0	11.2	---	---	---	---	---	---
9	10.8	7.0	8.2	11.0	10.8	10.9	---	---	---	---	---	---
10	8.6	6.7	7.5	10.8	10.0	10.4	---	---	---	---	---	---
11	---	---	---	10.0	9.6	9.8	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	9.7	8.7	9.1	---	---	---	---	---	---
15	---	---	---	10.3	8.9	9.5	---	---	---	---	---	---
16	---	8.5	---	9.9	9.4	9.8	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	10.4	9.1	9.7	---	---	---	---	---	---	---	---	---
19	10.5	9.2	9.8	---	---	---	---	---	---	---	---	---
20	10.5	9.1	9.6	---	---	---	---	---	---	---	---	---
21	10.5	9.2	9.7	---	---	---	---	---	---	---	---	---
22	11.0	9.4	10.0	---	---	---	---	---	---	---	---	---
23	11.5	9.6	10.3	---	---	---	---	---	---	---	---	---
24	11.2	9.4	10.1	---	---	---	---	---	---	---	---	---
25	11.2	9.7	10.2	---	---	---	---	---	---	---	---	---
26	10.7	9.6	10.1	---	---	---	---	---	---	---	---	---
27	11.1	9.0	10	---	---	---	---	---	---	---	---	---
28	10.8	8.9	9.6	---	---	---	---	---	---	---	---	---
29	11.1	9.1	10	---	---	---	---	---	---	---	---	---
30	10.7	10.1	10.4	---	---	---	---	---	---	---	---	---
31	10.9	10.0	10.5	---	---	---	---	---	---	---	---	---
MONTH	11.5	5.0	8.8	11.4	8.7	10.2	---	---	---	---	---	---

## CHRISTINA RIVER BASIN

## 01480870 EAST BRANCH BRANDYWINE CREEK BELOW DOWNINGTOWN, PA--Continued

## OXYGEN, DISSOLVED (MG/L), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	13.0	11.9	12.3	14.4	10.3	12.1	11.5	7.5	9.4
2	---	---	---	12.4	11.8	12.0	15.0	9.0	11.7	11.3	7.4	9.1
3	---	---	---	13.7	12.2	13.0	14.7	8.9	11.2	12.5	7.3	9.5
4	---	---	---	13.9	12.2	13.2	12.7	8.9	10.5	13.0	7.6	9.8
5	---	---	---	12.8	11.5	12.2	13.4	9.9	11.2	12.3	8.1	10
6	---	---	---	12.9	12.1	12.5	15.3	9.7	12.0	12.2	8.7	10.1
7	---	---	---	13.7	12.3	13.1	13.5	9.6	11.3	12.9	7.1	9.9
8	---	---	---	13.3	11.4	12.5	13.9	10.7	11.9	10.7	6.5	8.4
9	---	---	---	12.7	11.5	12.1	13.7	10.7	11.9	9.7	7.5	8.5
10	---	---	---	13.5	12.4	12.9	14.5	10.4	12.2	11.4	7.9	9.4
11	---	---	---	13.8	12.3	13.1	11.2	10.2	10.7	10.6	7.3	8.8
12	---	---	---	13.4	11.6	12.5	12.0	9.2	10.8	10.8	7.2	8.7
13	---	---	---	13.0	11.6	12.1	---	---	---	11.7	8.0	9.7
14	---	---	---	13.6	11.9	12.6	---	---	---	11.8	7.6	9.6
15	---	---	---	13.6	11.5	12.5	14.3	8.6	11.2	11.6	6.4	9.0
16	---	---	---	13.2	11.1	12.1	14.2	8.0	10.6	---	---	---
17	---	---	---	12.7	10.3	11.5	13.8	8.0	10.9	---	---	---
18	---	---	---	12.7	9.9	11.1	13.0	10.1	11.4	---	---	---
19	---	---	---	12.9	9.8	11.3	14.5	9.0	11.7	---	---	---
20	---	---	---	12.7	10.8	11.5	13.9	8.5	10.9	9.9	5.3	7.3
21	---	---	---	11.4	10.5	11.1	12.9	8.3	10.1	8.8	6.2	7.5
22	---	---	---	12.1	10.2	11.1	11.4	8.3	9.4	9.5	7.1	8.3
23	---	---	---	12.3	10.1	11.1	11.9	8.4	10.1	10.6	8.0	9.2
24	---	---	---	12.6	9.9	11.1	11.9	8.8	10.3	10.7	8.6	9.4
25	---	---	---	12.7	9.6	11.0	11.9	8.4	10	10.1	8.6	9.3
26	13.9	---	---	12.8	9.3	10.7	10.4	7.9	9.1	9.3	8.6	9.0
27	13.4	12.4	12.8	13.2	9.3	11.0	11.4	8.3	9.7	10.4	8.9	9.8
28	13.4	11.9	12.6	13.7	9.6	11.2	11.4	8.1	9.6	10.1	8.9	9.5
29	---	---	---	13.2	9.1	10.6	11.2	8.1	9.6	10.1	8.1	9.2
30	---	---	---	12.4	9.0	10.4	11.7	8.2	9.7	9.4	7.4	8.6
31	---	---	---	14.1	10.3	11.9	---	---	---	8.9	5.3	7.9
MONTH	13.9	11.9	12.7	14.1	9.0	11.8	15.3	7.9	10.8	13.0	5.3	9.1

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	8.9	7.5	8.3	8.9	7.3	8.0	8.8	6.9	7.5	9.2	7.2	7.9
2	9.7	8.1	9.0	9.2	7.3	8.1	8.5	6.6	7.4	---	---	---
3	9.2	8.0	8.5	8.5	7.4	7.9	8.5	6.4	7.1	8.8	8.0	8.4
4	9.5	8.2	9.2	9.0	7.2	8.1	7.2	6.8	7.0	8.8	8.3	8.4
5	9.5	8.7	9.2	9.0	7.0	7.8	7.6	6.8	7.1	---	---	---
6	9.3	8.8	9.1	8.9	7.0	7.8	8.1	7.0	7.4	---	---	---
7	9.4	8.8	9.1	8.8	6.8	7.7	8.2	7.1	7.6	---	---	---
8	9.1	8.8	9.0	8.6	7.0	7.6	8.8	7.3	8.2	---	---	---
9	9.4	8.7	9.1	8.5	6.8	7.5	8.6	7.7	8.0	9.1	---	---
10	9.6	8.8	9.2	8.2	7.0	7.6	7.8	7.2	7.4	9.8	---	---
11	9.6	8.4	9.2	8.7	7.3	7.9	7.7	7.1	7.4	10.0	7.5	8.3
12	9.1	7.5	8.5	8.8	7.1	7.9	7.9	7.1	7.4	9.8	7.4	8.1
13	8.8	7.1	7.9	8.7	7.2	7.8	7.8	7.0	7.3	9.0	7.2	7.8
14	8.2	6.7	7.7	8.9	7.2	8.0	8.1	7.0	7.6	---	---	---
15	8.6	6.7	7.9	8.9	7.3	8.1	8.0	6.8	7.5	---	---	---
16	9.6	8.6	9.2	8.7	7.0	7.7	8.0	6.8	7.3	---	---	---
17	10.0	8.2	9.4	8.7	7.0	7.7	8.2	6.8	7.5	9.7	8.1	9.1
18	9.2	8.2	8.7	8.7	7.3	8.0	8.4	6.7	7.4	9.9	8.5	9.5
19	9.1	8.0	8.6	9.1	7.7	8.2	8.3	6.7	7.4	8.5	8.0	8.2
20	8.6	7.4	8.1	9.1	7.7	8.3	---	---	---	8.5	7.9	8.2
21	8.6	7.6	8.4	9.0	7.3	8.2	---	---	---	8.6	7.9	8.2
22	8.8	8.6	8.7	8.5	6.8	7.7	---	---	---	8.9	8.2	8.5
23	8.9	8.3	8.7	8.6	6.8	7.3	---	---	---	---	---	---
24	9.2	8.5	8.9	8.1	6.8	7.4	---	---	---	---	---	---
25	9.3	8.7	8.9	8.2	7.0	7.5	---	---	---	---	---	---
26	9.4	8.0	8.8	8.4	7.2	7.7	---	---	---	---	---	---
27	8.5	7.7	8.1	8.6	7.4	7.9	11.5	6.8	8.7	---	---	---
28	8.7	7.7	8.2	8.7	6.7	7.8	11.7	6.9	8.6	---	---	---
29	8.7	7.5	8.2	8.8	6.7	7.6	11.8	6.8	8.4	---	---	---
30	8.8	7.5	8.0	9.1	6.9	7.8	11.0	6.0	7.7	---	---	---
31	---	---	---	8.9	6.9	7.6	9.7	6.0	8.0	---	---	---
MONTH	10.0	6.7	8.7	9.2	6.7	7.8	11.8	6.0	7.6	10.0	7.2	8.4

## CHRISTINA RIVER BASIN

01481000 BRANDYWINE CREEK AT CHADDS FORD, PA  
(Pennsylvania Water-Quality Network Station)

**LOCATION.**--Lat 39°52'11", long 75°35'37", Delaware County, Hydrologic Unit 02040205, on left bank 27 ft upstream from Penn Central Railroad bridge at Chadds Ford, 150 ft upstream from Harvey Run, and 1,200 ft downstream from highway bridge on U.S. Highway 1.

**DRAINAGE AREA.**--287 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--August 1911 to September 1953, October 1962 to current year. Prior to October 1911, monthly discharge only, published in WSP 1302.

**REVISED RECORDS.**--WSP 756: Drainage area. WSP 1202: 1917-18(M), 1919-20, 1922-31(M), 1932-33, 1934(M), 1936, 1938(P), 1939(M), 1942, 1944-46(M), WDR PA-98-1: 1996-97 (M).

**GAGE.**--Water-stage recorder and crest-stage gage. Datum of gage is 150.45 ft above National Geodetic Vertical Datum of 1929. Prior to May 21, 1927, nonrecording gage at same site and datum.

**REMARKS.**--Records good except those for estimated daily discharges, which are fair. Flow regulated since November 1973 by Marsh Creek Reservoir (station 01480684) about 17 mi upstream. Satellite and landline telemetry at station.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of Aug. 19, 1955, reached a stage of 14.64 ft, gage datum, discharge, about 16,400 ft<sup>3</sup>/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	277	195	1040	313	521	569	410	978	576	278	237
2	56	203	178	1830	338	1190	535	409	621	551	338	631
3	53	178	172	1020	323	2090	551	350	425	683	452	456
4	88	163	200	1330	391	942	531	325	2760	577	1030	932
5	68	157	235	823	428	1130	529	331	2140	532	736	776
6	58	257	271	746	309	3200	516	363	1090	534	646	380
7	50	221	e210	680	333	1680	507	347	1280	542	387	283
8	48	169	e210	650	312	1170	549	449	1560	580	437	253
9	45	156	236	758	289	2030	634	394	968	485	596	233
10	62	148	210	643	312	1720	674	394	842	466	3660	219
11	1210	159	782	554	289	927	1230	366	723	492	1040	208
12	939	297	2080	495	e260	820	1130	344	592	454	812	202
13	260	684	1020	478	e240	1110	749	330	702	478	547	416
14	169	331	2060	464	e220	1150	614	315	1210	407	505	758
15	137	270	1130	453	e230	906	568	302	981	397	444	8540
16	408	339	700	411	e210	892	550	304	689	378	381	3850
17	712	1650	558	e390	e220	1060	518	348	575	357	422	1430
18	229	1290	475	e365	e240	822	522	323	847	344	356	1220
19	166	536	445	e380	e250	688	514	311	641	352	331	2760
20	148	456	1100	e390	e350	1070	436	295	2910	334	306	1120
21	139	390	1060	e340	459	2880	423	317	10300	324	293	759
22	130	359	589	e300	2520	1230	464	333	2670	327	276	704
23	119	365	510	e270	5770	962	428	313	1720	418	261	3310
24	114	336	462	e275	2890	834	400	372	1450	394	235	1820
25	118	306	1060	e280	1420	740	388	377	1250	334	221	1050
26	312	288	1140	e290	964	673	515	2020	1060	308	240	902
27	217	345	714	e270	665	733	517	1030	796	299	271	855
28	153	322	598	e250	570	617	474	619	711	294	220	1300
29	142	217	551	e270	---	618	445	514	659	285	209	867
30	379	203	522	289	---	767	431	403	621	270	526	644
31	627	---	520	285	---	764	---	366	---	275	464	---
TOTAL	7418	11072	20193	17019	21115	35936	16911	13674	43771	13047	16920	37115
MEAN	239	369	651	549	754	1159	564	441	1459	421	546	1237
MAX	1210	1650	2080	1830	5770	3200	1230	2020	10300	683	3660	8540
MIN	45	148	172	250	210	521	388	295	425	270	209	202

e Estimated.

CHRISTINA RIVER BASIN

01481000 BRANDYWINE CREEK AT CHADDS FORD, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	265	317	460	530	539	673	613	509	412	326	239	301
MAX	924	751	1634	1664	1308	1713	1509	1097	1459	1153	562	1237
(WY)	1997	1997	1997	1979	1979	1994	1983	1989	2003	1975	1996	2003
MIN	99.5	105	112	106	144	195	183	249	153	88.8	64.0	80.2
(WY)	2002	2002	1999	1981	2002	1981	2002	1999	1999	2002	2002	2002

SUMMARY STATISTICS FOR 2002 CALENDAR YEAR FOR 2003 WATER YEAR WATER YEARS 1974 - 2003

ANNUAL TOTAL	84207	254191	
ANNUAL MEAN	231	696	432
HIGHEST ANNUAL MEAN			714
LOWEST ANNUAL MEAN			152
HIGHEST DAILY MEAN	2080	Dec 12	10300
LOWEST DAILY MEAN	33	Aug 22	45
ANNUAL SEVEN-DAY MINIMUM	36	Aug 17	59
MAXIMUM PEAK FLOW			a16700
MAXIMUM PEAK STAGE			13.74
INSTANTANEOUS LOW FLOW			42
10 PERCENT EXCEEDS	484	1230	815
50 PERCENT EXCEEDS	156	454	293
90 PERCENT EXCEEDS	53	209	123

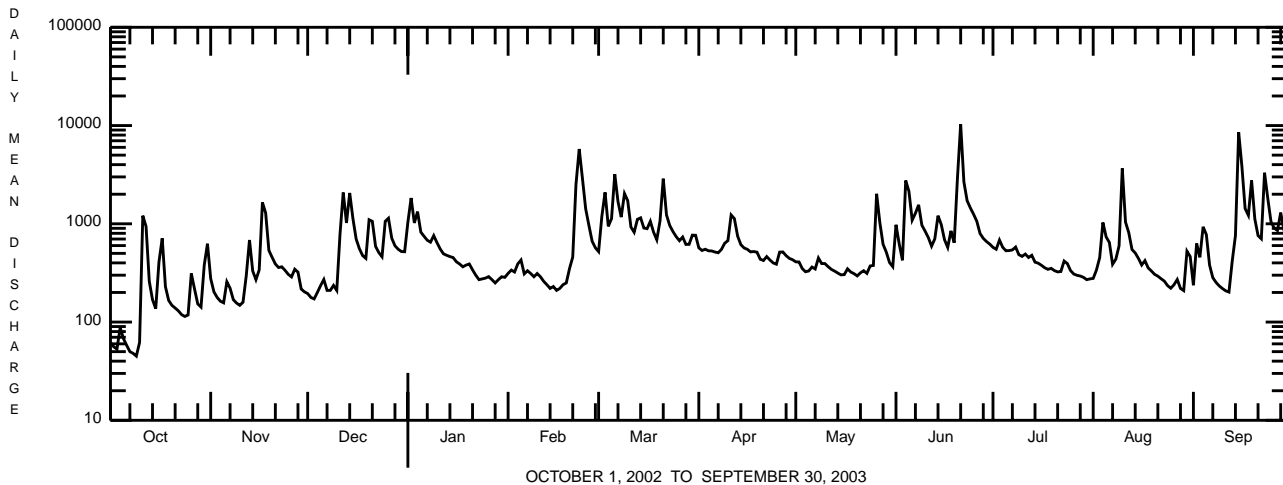
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1911-1953, 1963-1973, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	219	301	348	444	570	605	530	435	364	309	278	230
MAX	666	625	827	1020	1130	1366	1043	946	1144	802	1089	1050
(WY)	1972	1972	1973	1936	1971	1920	1973	1952	1972	1919	1933	1971
MIN	67.7	98.3	114	145	214	247	226	175	149	91.1	82.1	59.4
(WY)	1964	1942	1966	1966	1934	1931	1963	1926	1963	1963	1930	1932

SUMMARY STATISTICS WATER YEARS 1911-1953 1963-1973

ANNUAL MEAN	385	
HIGHEST ANNUAL MEAN	625	1928
LOWEST ANNUAL MEAN	218	1932
HIGHEST DAILY MEAN	9590	Aug 24 1933
LOWEST DAILY MEAN	42	Sep 12 1966
ANNUAL SEVEN-DAY MINIMUM	45	Sep 7 1966
MAXIMUM PEAK FLOW	b23800	Jun 22 1972
MAXIMUM PEAK STAGE	16.56	Jun 22 1972
INSTANTANEOUS LOW FLOW	4.9	Oct 2 1942
ANNUAL RUNOFF (CFSM)	1.34	
ANNUAL RUNOFF (INCHES)	18.23	
10 PERCENT EXCEEDS	700	
50 PERCENT EXCEEDS	274	
90 PERCENT EXCEEDS	118	

- a From rating curve extended above 13,200 ft<sup>3</sup>/s on basis of area-velocity study at gage height 16.56 ft.
- b From rating curve extended above 9,000 ft<sup>3</sup>/s on basis of area-velocity study.



OCTOBER 1, 2002 TO SEPTEMBER 30, 2003

## CHRISTINA RIVER BASIN

01481000 BRANDYWINE CREEK AT CHADDS FORD, PA--Continued  
(Pennsylvania Water-Quality Network Station)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1965 to current year.  
pH: October 1965 to September 1966, December 1971 to current year.  
WATER TEMPERATURES: October 1964 to current year.  
DISSOLVED OXYGEN: October 1971 to current year.  
SUSPENDED-SEDIMENT DISCHARGE: October 1963 to September 1978.

INSTRUMENTATION.--Water-quality monitor since August 1971.

REMARKS.--Specific conductance record rated good except for period May 1-21, which is fair. pH record rated good. Water temperature record rated fair. Dissolved oxygen record rated fair, except for periods Nov. 12 to Dec. 3, and May 1-7, which are poor. Data collection discontinued during winter months since 1981 water year. Other interruptions in the record were due to malfunctions of the equipment.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 689 microsiemens, Mar. 6, 2001; minimum, 42 microsiemens, Nov. 26, 1979.  
pH: Maximum, 9.8, Apr. 9, 1975; minimum, 6.1, Feb. 22, 1976.  
WATER TEMPERATURE: Maximum, 31.0°C, July 4, 2002; minimum, 0.0°C, many days during winters.  
DISSOLVED OXYGEN: Maximum, 17.1 mg/L, Dec. 5, 1976; minimum, 3.0 mg/L, June 21, 1984.

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

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat un- ftrd µS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Fecal coli- form, M-FC 0.7µ MF col/ 100 mL (31625)
MAR 2003									
10...	1545	1028	1028	1210	13.0	7.5	201	3.8	450
20...	1530	1028	1028	776	11.6	7.8	263	7.5	105
APR									
07...	1600	1028	1028	567	12.7	8.2	272	7.9	115
21...	1355	1028	1028	420	12.8	8.6	277	13.8	37
MAY									
01...	1430	1028	1028	406	11.5	8.2	275	16.8	49
12...	1500	1028	1028	311	9.4	7.6	295	17.2	145
21...	1245	1028	1028	314	8.7	7.3	309	16.1	380
JUN									
05...	1140	1028	1028	2050	9.4	7.4	196	14.3	3800
12...	1450	1028	1028	578	8.2	7.6	263	19.7	350
JUL									
08...	1340	1028	1028	547	9.5	7.6	270	23.1	350
16...	1250	1028	1028	380	8.8	7.5	284	22.0	277
AUG									
06...	1510	1028	1028	492	8.0	7.3	228	23.1	2800
27...	1620	1028	1028	249	11.8	8.5	289	22.9	820
SEP									
09...	1520	1028	1028	229	10.0	7.7	304	20.7	210
22...	1610	1028	1028	687	8.9	7.3	261	19.2	260

CHRISTINA RIVER BASIN

01481000 BRANDYWINE CREEK AT CHADDS FORD, PA--Continued  
(Pennsylvania Water-Quality Network Station)

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 430-470.

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

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unfltrd µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, unfltrd recover-able, mg/L (00916)	Magnesium, water, unfltrd recover-able, mg/L (00927)	ANC, wat unfltrd end pt, lab, mg/L as CaCO3 (00417)
NOV 2002 13...	1410	1028	9813	681	40	10.1	7.5	243	11.4	91	22.4	8.5	56
JAN 2003 13...	0830	1028	9813	481	40	13.9	7.5	295	.5	94	22.8	8.9	54
MAR 17...	1230	1028	9813	1110	40	11.6	7.4	252	9.6	77	18.9	7.1	43
MAY 20...	1130	1028	9813	292	40	10.7	7.6	294	16.1	110	25.6	10.0	59
JUL 10...	1240	1028	9813	467	40	8.7	7.5	270	20.9	100	23.6	10.0	55
SEP 08...	1340	1028	9813	250	40	10.4	7.9	289	19.7	110	25.4	10.7	68

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water, unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recover-able, µg/L (01105)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, unfltrd recover-able, µg/L (01045)
NOV 2002 13...	22.5	190	12	.090	2.24	.020	--	.194	3.3	6.1	600	<4	1410
JAN 2003 13...	21.9	190	<2	<.020	3.27	<.010	--	.096	3.7	2.8	80	<4	210
MAR 17...	17.1	184	<2	<.020	2.24	<.040	.05	.070	2.6	3.5	300	10	430
MAY 20...	21.0	158	<2	.030	2.93	<.040	.03	.056	3.7	2.9	<200	<10	310
JUL 10...	18.6	184	8	.020	2.92	<.040	.04	.082	3.2	3.0	300	<10	500
SEP 08...	20.3	218	6	.030	3.12	<.040	.08	.081	3.3	3.3	<200	<10	340

Date	Lead, water, unfltrd recover-able, µg/L (01051)	Manganese, water, unfltrd recover-able, µg/L (01055)	Nickel, water, unfltrd recover-able, µg/L (01067)	Zinc, water, unfltrd recover-able, µg/L (01092)
NOV 2002 13...	2.8	90	<4.0	20
JAN 2003 13...	<1.0	40	<4.0	10
MAR 17...	1.0	40	<50	10
MAY 20...	<1.0	60	<50	20
JUL 10...	1.1	40	<50	20
SEP 08...	<1.0	40	<50	130

## CHRISTINA RIVER BASIN

## 01481000 BRANDYWINE CREEK AT CHADDS FORD, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES

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

Date	8/28/02
Benthic Macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	2
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Physidae	
<u>Physa</u> sp	2
Bivalvia (CLAMS)	
Veneroidea	
Corbiculidae	
<u>Corbicula fluminea</u>	1
Arthropoda	
Crustacea	
Amphipoda (SCUDS)	
Gammaridae	
<u>Gammarus</u> sp	3
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Acentrella</u> sp	8
<u>Baetis</u> sp	6
Ephemerellidae	
<u>Serratella</u> sp	11
Heptageniidae	
<u>Stenonema</u> sp	11
Isonychiidae	
<u>Isonychia</u> sp	1
Tricorythidae	
<u>Tricorythodes</u> sp	4
Odonata	
Coenagrionidae (DAMSELFLIES)	
<u>Argia</u> sp	4
Trichoptera (CADDISFLIES)	
Hydropsychidae	
<u>Cheumatopsyche</u> sp	27
<u>Hydropsyche</u> sp	2
Philopotamidae	
<u>Chimarra</u> sp	10
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Optioservus</u> sp	48
<u>Oulimnius</u> sp	1
<u>Stenelmis</u> sp	22
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	
Simuliidae (BLACK FLIES)	
<u>Simulium</u> sp	3
Total Organisms	184

## CHRISTINA RIVER BASIN

## 01481000 BRANDYWINE CREEK AT CHADDS FORD, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	<b>OCTOBER</b>			<b>NOVEMBER</b>			<b>DECEMBER</b>			<b>JANUARY</b>		
1	353	312	332	282	257	271	337	311	324	---	---	---
2	375	352	365	308	282	297	345	331	335	---	---	---
3	384	333	362	328	308	318	---	---	---	---	---	---
4	392	351	372	338	326	331	---	---	---	---	---	---
5	410	371	384	343	336	339	---	---	---	---	---	---
6	405	383	389	339	320	327	---	---	---	---	---	---
7	400	374	382	320	293	305	---	---	---	---	---	---
8	383	368	377	314	295	303	---	---	---	---	---	---
9	391	378	384	322	304	315	---	---	---	---	---	---
10	391	357	379	326	316	322	---	---	---	---	---	---
11	404	189	320	333	325	328	---	---	---	---	---	---
12	250	189	222	338	309	329	---	---	---	---	---	---
13	298	250	276	325	249	272	---	---	---	---	---	---
14	338	298	312	288	256	279	---	---	---	---	---	---
15	339	323	330	304	288	298	---	---	---	---	---	---
16	343	248	326	309	285	303	---	---	---	---	---	---
17	276	212	237	285	199	217	---	---	---	---	---	---
18	294	260	274	217	208	211	---	---	---	---	---	---
19	317	294	308	272	217	250	---	---	---	---	---	---
20	337	316	325	281	272	277	---	---	---	---	---	---
21	350	337	344	294	281	287	---	---	---	---	---	---
22	354	346	349	304	292	295	---	---	---	---	---	---
23	370	354	356	307	295	302	---	---	---	---	---	---
24	360	356	357	312	295	302	---	---	---	---	---	---
25	362	358	360	306	297	302	---	---	---	---	---	---
26	362	290	336	310	302	306	---	---	---	---	---	---
27	311	287	295	310	299	303	---	---	---	---	---	---
28	326	292	309	335	310	326	---	---	---	---	---	---
29	345	326	334	333	319	323	---	---	---	---	---	---
30	349	286	321	324	310	318	---	---	---	---	---	---
31	291	246	262	---	---	---	---	---	---	---	---	---
MONTH	410	189	332	343	199	299	345	311	330	---	---	---
	<b>FEBRUARY</b>			<b>MARCH</b>			<b>APRIL</b>			<b>MAY</b>		
1	---	---	---	429	312	380	272	255	266	275	270	273
2	---	---	---	370	312	338	273	269	272	276	267	271
3	---	---	---	312	233	245	276	266	269	278	266	271
4	---	---	---	269	242	257	274	267	271	281	274	278
5	---	---	---	285	268	275	274	271	273	276	273	275
6	---	---	---	280	194	215	273	267	271	278	268	273
7	---	---	---	258	241	249	273	269	271	277	263	269
8	---	---	---	267	252	261	309	270	292	282	265	272
9	---	---	---	257	183	232	297	282	287	272	267	270
10	---	---	---	224	180	197	284	267	274	272	263	270
11	---	---	---	250	224	240	272	217	253	271	264	269
12	---	---	---	258	250	255	248	217	236	286	269	274
13	---	---	---	258	239	247	259	247	253	282	275	279
14	---	---	---	245	233	239	264	252	259	279	272	276
15	---	---	---	---	---	---	263	241	254	276	269	272
16	---	---	---	260	245	252	283	244	276	276	272	274
17	---	---	---	254	244	251	287	273	282	283	272	279
18	---	---	---	258	250	252	289	283	285	288	277	283
19	---	---	---	261	252	257	292	248	279	304	286	294
20	---	---	---	---	---	---	283	232	259	309	286	301
21	---	---	---	---	---	---	282	267	274	315	300	307
22	---	---	---	241	226	238	276	272	274	310	301	305
23	---	---	---	248	241	246	277	271	273	330	301	318
24	---	---	---	253	248	251	283	273	277	335	320	329
25	---	---	---	259	251	255	285	278	281	320	305	314
26	---	---	---	262	257	261	283	276	280	318	174	234
27	---	---	---	271	259	265	276	260	265	270	185	236
28	---	---	---	265	259	263	274	264	267	305	270	290
29	---	---	---	268	260	265	269	264	268	309	302	305
30	---	---	---	274	256	263	271	265	268	315	304	310
31	---	---	---	266	251	258	---	---	---	315	307	312
MONTH	---	---	---	429	180	257	309	217	270	335	174	283



## CHRISTINA RIVER BASIN

## 01481000 BRANDYWINE CREEK AT CHADDS FORD, PA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	307	228	276	266	263	264	300	295	297	284	247	268
2	281	236	259	268	263	265	307	282	295	288	237	268
3	294	281	289	267	251	261	292	235	285	265	237	251
4	294	152	222	266	255	262	235	186	201	271	223	258
5	213	172	194	268	264	266	242	195	224	255	215	234
6	238	213	229	266	262	265	252	217	229	272	255	264
7	242	208	235	270	260	265	277	252	268	291	272	282
8	228	193	209	270	256	262	281	274	277	297	291	294
9	242	228	237	273	261	267	279	236	267	304	293	299
10	248	242	244	276	271	273	242	128	166	305	302	303
11	254	246	250	282	272	277	232	168	208	310	302	306
12	264	252	259	281	273	276	246	232	239	311	306	309
13	267	252	258	280	265	273	268	243	257	313	274	302
14	277	192	212	276	264	272	273	268	271	274	210	228
15	238	213	225	280	276	278	279	273	276	241	84	134
16	253	238	246	284	276	279	286	279	282	221	119	180
17	257	252	254	286	281	283	288	284	286	242	221	235
18	262	240	253	288	284	286	287	283	285	253	241	245
19	264	239	252	290	285	287	290	280	286	---	---	---
20	270	101	218	290	285	289	291	283	288	---	---	---
21	172	100	126	290	286	288	295	291	293	264	248	258
22	215	172	197	289	287	288	300	295	298	267	257	262
23	---	---	---	292	276	287	298	291	295	257	138	202
24	---	---	---	283	263	272	296	293	295	226	162	191
25	242	236	240	289	275	283	298	293	295	241	226	234
26	250	242	245	293	289	291	302	291	298	249	241	246
27	261	249	258	294	292	293	296	286	290	252	245	250
28	263	260	262	296	293	294	304	294	298	251	225	235
29	265	262	264	297	293	295	307	298	302	249	224	240
30	266	263	264	295	292	293	311	219	293	257	249	254
31	---	---	---	297	287	292	247	220	233	---	---	---
MONTH	307	100	238	297	251	278	311	128	270	313	84	251

## PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	8.0	7.4	7.5	7.3	7.1	7.2	7.2	7.1	7.1	---	---	---
2	8.1	7.4	7.5	7.3	7.2	7.3	7.2	7.1	7.1	---	---	---
3	8.3	7.4	7.6	7.4	7.3	7.3	---	---	---	---	---	---
4	7.6	7.3	7.4	7.4	7.3	7.3	---	---	---	---	---	---
5	7.8	7.3	7.3	7.4	7.3	7.3	---	---	---	---	---	---
6	8.0	7.3	7.4	7.3	7.2	7.3	---	---	---	---	---	---
7	8.2	7.4	7.5	7.2	7.2	7.2	---	---	---	---	---	---
8	8.3	7.4	7.6	7.3	7.2	7.2	---	---	---	---	---	---
9	8.2	7.5	7.6	7.2	7.1	7.2	---	---	---	---	---	---
10	7.7	7.5	7.5	7.3	7.1	7.2	---	---	---	---	---	---
11	7.5	7.1	7.4	7.2	7.0	7.0	---	---	---	---	---	---
12	7.2	7.1	7.2	7.1	6.9	7.0	---	---	---	---	---	---
13	7.2	7.2	7.2	7.0	7.0	7.0	---	---	---	---	---	---
14	7.3	7.2	7.3	7.0	7.0	7.0	---	---	---	---	---	---
15	7.5	7.3	7.4	7.0	7.0	7.0	---	---	---	---	---	---
16	7.5	7.4	7.4	7.0	7.0	7.0	---	---	---	---	---	---
17	7.4	7.2	7.3	7.0	6.9	7.0	---	---	---	---	---	---
18	7.4	7.3	7.3	7.2	7.0	7.0	---	---	---	---	---	---
19	7.4	7.3	7.4	7.1	7.1	7.1	---	---	---	---	---	---
20	7.5	7.3	7.4	7.1	7.1	7.1	---	---	---	---	---	---
21	7.4	7.3	7.4	7.1	7.1	7.1	---	---	---	---	---	---
22	7.5	7.3	7.4	7.1	7.1	7.1	---	---	---	---	---	---
23	7.6	7.3	7.4	7.1	7.0	7.0	---	---	---	---	---	---
24	7.6	7.4	7.4	7.0	7.0	7.0	---	---	---	---	---	---
25	7.6	7.4	7.4	7.0	7.0	7.0	---	---	---	---	---	---
26	7.4	7.3	7.4	7.0	7.0	7.0	---	---	---	---	---	---
27	7.4	7.2	7.3	7.1	7.0	7.0	---	---	---	---	---	---
28	7.4	7.2	7.3	7.1	7.1	7.1	---	---	---	---	---	---
29	7.5	7.2	7.3	7.1	7.0	7.0	---	---	---	---	---	---
30	7.4	7.3	7.4	7.1	7.0	7.1	---	---	---	---	---	---
31	7.3	7.2	7.3	---	---	---	---	---	---	---	---	---
MAX	8.3	7.5	7.6	7.4	7.3	7.3	7.2	7.1	7.1	---	---	---
MIN	7.2	7.1	7.2	7.0	6.9	7.0	7.2	7.1	7.1	---	---	---

## CHRISTINA RIVER BASIN

## 01481000 BRANDYWINE CREEK AT CHADDS FORD, PA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	<b>FEBRUARY</b>			<b>MARCH</b>			<b>APRIL</b>			<b>MAY</b>		
1	---	---	---	7.7	7.7	7.7	8.5	7.8	8.2	8.7	7.6	8.2
2	---	---	---	7.7	7.6	7.7	8.9	7.7	8.2	8.7	7.5	8.2
3	---	---	---	7.6	7.5	7.5	9.0	7.7	8.6	8.6	7.5	8.0
4	---	---	---	7.6	7.5	7.6	8.9	7.7	8.0	8.4	7.5	7.9
5	---	---	---	7.6	7.6	7.6	8.2	7.5	7.8	8.0	7.6	7.8
6	---	---	---	7.6	7.4	7.5	8.9	7.6	8.0	7.9	7.5	7.7
7	---	---	---	7.5	7.4	7.5	8.9	7.6	8.2	8.4	7.4	7.7
8	---	---	---	7.6	7.5	7.5	8.2	7.6	7.9	7.8	7.3	7.4
9	---	---	---	7.5	7.5	7.5	8.4	7.6	8.0	7.4	7.3	7.4
10	---	---	---	7.6	7.4	7.4	8.8	7.6	8.0	7.7	7.3	7.4
11	---	---	---	7.6	7.6	7.6	8.7	7.5	7.6	7.5	7.3	7.4
12	---	---	---	7.6	7.5	7.6	7.7	7.4	7.5	7.5	7.3	7.4
13	---	---	---	7.6	7.5	7.5	8.2	7.4	7.6	7.5	7.3	7.4
14	---	---	---	7.5	7.4	7.5	8.5	7.5	8.0	7.5	7.3	7.4
15	---	---	---	---	---	---	8.8	7.5	8.2	7.5	7.3	7.4
16	---	---	---	7.7	7.5	7.6	9.0	7.6	8.4	7.4	7.3	7.3
17	---	---	---	7.7	7.4	7.6	8.9	7.7	8.4	7.4	7.3	7.3
18	---	---	---	7.7	7.4	7.5	8.5	7.6	7.9	7.3	7.2	7.3
19	---	---	---	7.8	7.4	7.6	8.8	7.6	7.9	7.3	7.2	7.3
20	---	---	---	---	---	---	8.8	7.7	8.6	7.4	7.2	7.2
21	---	---	---	---	---	---	9.0	7.7	8.7	7.4	7.2	7.3
22	---	---	---	7.7	7.4	7.5	8.9	7.7	8.3	7.4	7.4	7.4
23	---	---	---	7.8	7.5	7.6	8.9	7.6	8.1	7.4	7.3	7.3
24	---	---	---	8.0	7.5	7.7	9.0	7.8	8.7	7.3	7.3	7.3
25	---	---	---	8.5	7.6	7.8	9.0	7.8	8.6	7.3	7.2	7.3
26	---	---	---	8.3	7.6	7.9	8.7	7.6	7.8	7.3	7.1	7.2
27	---	---	---	8.7	7.6	7.9	8.8	7.5	7.8	7.1	7.1	7.1
28	---	---	---	8.7	7.6	8.2	8.8	7.6	8.2	7.2	7.1	7.2
29	---	---	---	8.7	7.6	8.2	8.7	7.6	8.1	7.2	7.2	7.2
30	---	---	---	8.3	7.6	7.9	8.8	7.6	8.1	7.2	7.2	7.2
31	---	---	---	8.7	7.6	8.0	---	---	---	7.2	7.2	7.2
MAX	---	---	---	8.7	7.7	8.2	9.0	7.8	8.7	8.7	7.6	8.2
MIN	---	---	---	7.5	7.4	7.4	7.7	7.4	7.5	7.1	7.1	7.1
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	<b>JUNE</b>			<b>JULY</b>			<b>AUGUST</b>			<b>SEPTEMBER</b>		
1	7.3	7.2	7.2	8.3	7.4	7.7	7.6	7.4	7.5	7.5	7.3	7.4
2	7.2	7.2	7.2	8.5	7.4	7.9	7.6	7.4	7.5	7.4	7.3	7.4
3	7.2	7.2	7.2	8.0	7.4	7.6	7.6	7.3	7.4	7.4	7.3	7.3
4	7.3	7.1	7.2	8.3	7.4	7.7	7.3	7.1	7.2	7.4	7.3	7.4
5	7.4	7.1	7.3	8.3	7.4	7.7	7.3	7.2	7.2	7.4	7.3	7.3
6	7.5	7.4	7.4	8.1	7.3	7.6	7.4	7.2	7.3	7.4	7.3	7.4
7	7.5	7.4	7.4	7.9	7.3	7.5	7.5	7.4	7.4	7.6	7.4	7.5
8	7.4	7.4	7.4	7.7	7.3	7.5	7.5	7.4	7.4	7.7	7.4	7.5
9	7.5	7.4	7.4	7.7	7.3	7.5	7.4	7.3	7.4	8.0	7.4	7.6
10	7.5	7.4	7.4	7.5	7.3	7.4	7.4	7.0	7.1	8.2	7.6	7.8
11	7.6	7.4	7.4	7.6	7.4	7.5	7.2	7.1	7.2	8.4	7.6	8.0
12	7.6	7.4	7.5	7.6	7.4	7.5	7.3	7.2	7.3	8.2	7.7	8.0
13	7.5	7.3	7.4	7.6	7.4	7.5	7.4	7.3	7.3	7.9	7.6	7.7
14	7.5	7.3	7.3	7.6	7.4	7.5	7.5	7.4	7.4	7.6	7.3	7.4
15	7.4	7.3	7.4	7.6	7.4	7.5	7.6	7.4	7.5	7.4	6.9	7.0
16	7.6	7.4	7.5	7.7	7.4	7.5	7.5	7.4	7.5	7.0	7.0	7.0
17	7.6	7.5	7.5	7.6	7.4	7.5	7.7	7.5	7.6	7.1	7.0	7.1
18	7.6	7.4	7.5	7.5	7.4	7.5	7.8	7.5	7.6	7.1	7.0	7.1
19	7.5	7.4	7.4	7.6	7.4	7.5	7.9	7.5	7.7	---	---	---
20	7.5	6.9	7.4	7.6	7.4	7.5	8.0	7.6	7.8	---	---	---
21	7.1	6.9	7.0	7.6	7.4	7.5	8.3	7.6	7.9	7.2	7.2	7.2
22	7.2	7.1	7.2	7.7	7.4	7.5	8.4	7.7	8.1	7.5	7.2	7.2
23	---	---	---	7.6	7.4	7.5	8.5	7.7	8.2	7.5	7.1	7.3
24	---	---	---	7.6	7.4	7.5	8.6	7.8	8.3	7.4	7.2	7.2
25	7.5	7.3	7.4	7.6	7.4	7.5	8.8	7.8	8.4	7.4	7.4	7.4
26	7.5	7.3	7.4	7.6	7.4	7.5	8.8	7.9	8.4	7.5	7.4	7.4
27	7.5	7.3	7.4	7.6	7.4	7.5	8.7	7.5	8.0	7.5	7.4	7.4
28	7.6	7.4	7.5	7.6	7.4	7.5	8.8	7.7	8.4	7.4	7.3	7.4
29	7.8	7.4	7.5	7.7	7.4	7.5	8.7	7.8	8.2	7.5	7.4	7.4
30	8.0	7.4	7.6	7.7	7.4	7.5	8.6	7.3	7.8	7.5	7.4	7.5
31	---	---	---	7.6	7.5	7.5	7.6	7.3	7.4	---	---	---
MAX	8.0	7.5	7.6	8.5	7.5	7.9	8.8	7.9	8.4	8.4	7.7	8.0
MIN	7.1	6.9	7.0	7.5	7.3	7.4	7.2	7.0	7.1	7.0	6.9	7.0

## CHRISTINA RIVER BASIN

## 01481000 BRANDYWINE CREEK AT CHADDS FORD, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	<b>OCTOBER</b>			<b>NOVEMBER</b>			<b>DECEMBER</b>			<b>JANUARY</b>		
1	20.5	18.0	19.0	7.5	7.0	7.0	4.0	2.5	3.0	---	---	---
2	22.0	18.5	20.0	7.5	6.5	7.0	2.5	2.0	2.5	---	---	---
3	23.0	20.0	21.0	6.5	5.5	6.0	---	---	---	---	---	---
4	22.0	21.0	21.5	7.0	5.5	6.5	---	---	---	---	---	---
5	23.5	21.0	22.0	7.5	6.0	7.0	---	---	---	---	---	---
6	22.0	19.5	20.5	9.0	7.0	8.0	---	---	---	---	---	---
7	22.0	19.0	20.5	9.0	7.5	8.5	---	---	---	---	---	---
8	19.5	16.5	18.0	8.5	7.0	7.5	---	---	---	---	---	---
9	17.5	16.0	16.5	9.0	7.0	8.0	---	---	---	---	---	---
10	17.0	16.0	16.5	11.5	8.5	10.0	---	---	---	---	---	---
11	17.0	16.0	16.5	14.0	11.5	13.0	---	---	---	---	---	---
12	17.0	16.0	16.5	14.0	12.5	13.5	---	---	---	---	---	---
13	17.0	16.5	17.0	12.5	10.5	11.5	---	---	---	---	---	---
14	17.0	15.0	16.0	10.5	9.5	10.0	---	---	---	---	---	---
15	15.0	13.0	13.5	10.0	9.0	9.5	---	---	---	---	---	---
16	13.5	13.0	13.5	10.0	9.5	9.5	---	---	---	---	---	---
17	13.5	12.5	13.0	9.5	8.0	8.5	---	---	---	---	---	---
18	13.0	12.0	12.5	8.5	7.0	8.0	---	---	---	---	---	---
19	12.5	11.5	12.0	7.0	6.5	7.0	---	---	---	---	---	---
20	13.0	12.0	12.0	7.5	6.5	7.0	---	---	---	---	---	---
21	13.0	11.5	12.0	7.5	6.5	7.0	---	---	---	---	---	---
22	12.0	10.5	11.5	9.0	7.5	8.5	---	---	---	---	---	---
23	12.0	10.0	11.0	8.5	6.5	7.5	---	---	---	---	---	---
24	11.5	10.0	10.5	7.0	6.0	6.5	---	---	---	---	---	---
25	10.0	10.0	10.0	7.0	6.0	6.5	---	---	---	---	---	---
26	12.0	10.0	11.0	7.5	6.5	7.0	---	---	---	---	---	---
27	12.0	11.0	11.5	7.0	5.5	7.0	---	---	---	---	---	---
28	11.5	10.5	11.0	5.5	4.0	5.0	---	---	---	---	---	---
29	10.5	9.0	9.5	4.0	3.0	3.5	---	---	---	---	---	---
30	9.0	7.5	8.0	4.0	3.0	3.5	---	---	---	---	---	---
31	8.0	7.0	7.5	---	---	---	---	---	---	---	---	---
MONTH	23.5	7.0	14.6	14.0	3.0	7.8	4.0	2.0	2.8	---	---	---
	<b>FEBRUARY</b>			<b>MARCH</b>			<b>APRIL</b>			<b>MAY</b>		
1	---	---	---	4.0	3.5	4.0	8.0	6.5	7.0	18.0	15.5	16.5
2	---	---	---	4.5	4.0	4.5	11.5	7.0	9.0	19.0	17.0	18.0
3	---	---	---	4.0	1.5	2.5	13.0	10.5	12.0	18.5	16.5	17.5
4	---	---	---	3.0	0.5	2.0	12.5	10.0	11.0	17.0	15.0	15.5
5	---	---	---	5.0	3.0	4.0	10.0	9.0	9.0	15.0	12.5	13.5
6	---	---	---	5.0	1.5	3.0	10.5	7.5	9.0	13.0	12.0	12.0
7	---	---	---	3.5	1.0	2.0	10.5	6.5	8.5	17.0	12.5	14.5
8	---	---	---	5.5	3.0	4.0	6.5	5.5	6.0	17.5	16.5	17.0
9	---	---	---	6.5	4.5	5.5	6.5	5.5	6.0	17.0	15.0	16.0
10	---	---	---	5.0	2.5	3.0	7.5	6.0	7.0	16.0	14.5	15.0
11	---	---	---	3.5	2.0	3.0	7.5	7.0	7.0	17.5	15.5	16.5
12	---	---	---	5.5	3.0	4.5	11.5	7.0	9.0	17.5	16.0	17.0
13	---	---	---	7.0	5.0	6.0	12.5	10.0	11.5	16.0	14.5	15.0
14	---	---	---	7.0	5.0	6.0	13.0	10.0	11.5	15.0	13.5	14.5
15	---	---	---	---	---	---	15.0	11.0	13.0	15.0	13.5	14.5
16	---	---	---	9.0	6.0	7.5	17.0	14.0	15.5	14.5	13.5	14.0
17	---	---	---	10.0	8.5	9.5	17.0	11.5	14.0	13.5	12.5	13.0
18	---	---	---	11.0	9.5	10.0	11.5	9.0	10.0	13.0	12.0	12.5
19	---	---	---	10.5	9.0	9.5	12.5	9.0	10.5	15.0	11.5	13.5
20	---	---	---	---	---	---	14.0	11.0	12.5	17.0	14.0	15.5
21	---	---	---	---	---	---	14.0	12.5	13.5	16.5	15.0	16.0
22	---	---	---	11.0	8.0	9.5	14.5	13.0	14.0	15.0	14.5	14.5
23	---	---	---	11.0	9.5	10.0	13.5	11.5	12.5	14.5	14.0	14.0
24	---	---	---	11.5	9.0	10.5	13.5	10.5	12.0	14.5	13.5	14.0
25	---	---	---	12.0	9.5	11.0	14.0	11.5	13.0	14.5	14.0	14.5
26	---	---	---	12.0	10.5	11.5	14.0	13.5	13.5	14.5	13.5	14.0
27	---	---	---	12.0	10.0	11.0	16.0	12.5	14.5	14.5	13.5	14.0
28	---	---	---	11.5	10.0	11.0	17.0	14.0	15.5	15.0	14.0	14.5
29	---	---	---	12.5	11.0	12.0	16.5	15.0	15.5	16.5	14.0	15.5
30	---	---	---	12.5	9.0	11.0	16.5	14.0	15.5	18.5	15.5	17.0
31	---	---	---	9.0	7.5	8.0	---	---	---	18.5	17.0	17.5
MONTH	---	---	---	12.5	0.5	7.0	17.0	5.5	11.3	19.0	11.5	15.1

## CHRISTINA RIVER BASIN

## 01481000 BRANDYWINE CREEK AT CHADDS FORD, PA--Continued

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	17.0	15.5	16.0	22.0	20.0	21.0	23.0	22.0	22.5	22.0	21.5	21.5
2	16.5	14.0	15.5	21.5	20.0	20.5	24.0	22.0	23.0	21.5	20.5	21.0
3	16.0	15.0	15.5	21.0	19.5	20.0	24.0	23.0	23.5	20.5	19.5	20.0
4	15.0	13.5	14.0	22.0	19.0	20.5	23.5	23.0	23.0	20.0	20.0	20.0
5	16.0	13.5	14.5	23.0	21.0	22.0	23.5	22.5	23.0	21.0	19.5	20.0
6	16.5	14.5	15.5	23.5	21.5	22.5	23.5	22.0	22.5	20.0	18.5	19.5
7	16.0	14.5	15.0	23.5	22.0	23.0	23.0	22.0	22.5	20.0	18.0	19.0
8	15.5	15.0	15.0	23.5	22.0	23.0	23.5	21.5	22.5	20.5	18.5	19.5
9	17.0	14.5	15.5	23.5	22.0	23.0	23.0	21.5	22.0	20.5	19.5	20.0
10	18.5	15.5	17.0	23.0	20.0	21.5	23.5	21.5	22.5	20.0	18.5	19.0
11	18.5	16.5	17.5	21.5	19.5	20.5	23.0	22.5	23.0	20.0	18.0	19.0
12	20.5	17.5	19.0	22.0	20.0	21.0	23.5	22.0	23.0	19.5	18.5	19.0
13	20.5	19.0	20.0	22.5	20.5	21.5	24.0	22.5	23.0	19.5	18.5	19.0
14	21.5	19.5	20.5	22.0	20.5	21.5	24.5	22.5	23.5	21.5	19.5	20.5
15	21.0	20.5	21.0	22.5	20.5	21.5	24.5	22.5	23.5	21.5	21.0	21.0
16	20.5	18.0	19.0	23.5	21.5	22.5	24.0	22.0	23.0	21.0	19.5	20.0
17	18.5	16.5	17.5	23.5	21.5	22.5	23.5	21.5	22.5	19.5	17.5	18.0
18	18.0	17.0	17.5	23.0	21.0	21.5	23.5	22.0	22.5	17.5	16.0	16.5
19	18.5	17.5	18.0	22.0	20.5	21.0	23.5	21.5	22.5	---	---	---
20	18.5	17.5	18.0	22.5	20.5	21.5	23.5	22.0	22.5	---	---	---
21	18.0	16.5	17.0	23.5	21.0	22.0	24.5	22.5	23.5	20.0	19.0	19.5
22	17.0	16.0	16.5	24.5	23.0	23.5	25.0	23.5	24.0	19.5	18.5	19.0
23	---	---	---	24.0	22.5	23.0	24.5	23.5	24.0	20.0	19.0	19.5
24	---	---	---	23.5	22.0	22.5	23.5	21.5	22.5	19.5	17.5	18.5
25	20.0	17.5	19.0	23.5	21.5	22.5	22.5	20.5	21.5	18.5	17.0	17.5
26	20.5	18.5	19.5	23.5	22.0	23.0	22.5	21.0	22.0	19.5	18.0	19.0
27	21.5	19.5	20.5	24.5	23.0	23.5	23.0	21.5	22.0	19.5	18.5	19.0
28	21.0	19.5	20.5	24.5	23.5	24.0	24.0	22.0	23.0	19.5	18.5	19.0
29	21.5	19.5	20.5	24.0	22.5	23.0	23.5	22.5	23.0	18.5	16.5	17.5
30	21.5	19.5	21.0	23.0	22.0	22.5	24.0	22.5	23.0	16.5	15.0	15.5
31	---	---	---	23.0	21.5	22.5	23.0	21.5	22.0	---	---	---
MONTH	21.5	13.5	17.7	24.5	19.0	22.1	25.0	20.5	22.8	22.0	15.0	19.2

## OXYGEN, DISSOLVED (MG/L), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	10.7	7.9	8.8	11.5	11.0	11.2	13.3	12.6	12.9	---	---	---
2	11.1	7.5	8.9	11.8	11.1	11.4	13.5	13.0	13.2	---	---	---
3	11.4	7.1	8.8	12.2	11.3	11.7	---	---	---	---	---	---
4	8.6	6.7	7.5	12.1	11.3	11.6	---	---	---	---	---	---
5	9.8	6.5	7.6	12.0	11.0	11.4	---	---	---	---	---	---
6	10.4	6.8	8.1	11.0	10.2	10.6	---	---	---	---	---	---
7	10.9	7.0	8.5	11.0	10.1	10.5	---	---	---	---	---	---
8	11.8	7.3	9.1	11.4	10.5	10.9	---	---	---	---	---	---
9	11.4	7.9	9.2	11.5	10.3	10.8	---	---	---	---	---	---
10	9.7	7.8	8.6	11.2	9.3	10.2	---	---	---	---	---	---
11	8.8	7.7	8.5	9.3	8.0	8.6	---	---	---	---	---	---
12	9.0	8.7	8.9	8.9	7.7	8.2	---	---	---	---	---	---
13	8.8	8.5	8.6	9.7	8.9	9.3	---	---	---	---	---	---
14	9.2	8.5	8.8	10.6	9.7	10.2	---	---	---	---	---	---
15	10.0	8.8	9.4	11.1	10.4	10.7	---	---	---	---	---	---
16	9.7	9.3	9.5	11.1	10.7	10.9	---	---	---	---	---	---
17	10.1	9.5	9.7	11.5	10.7	11.3	---	---	---	---	---	---
18	10.2	9.7	9.9	12.1	11.3	11.7	---	---	---	---	---	---
19	10.4	9.9	10.1	12.2	11.9	12.0	---	---	---	---	---	---
20	10.5	9.8	10.1	12.3	11.9	12.1	---	---	---	---	---	---
21	10.7	9.8	10.1	12.3	11.7	12.0	---	---	---	---	---	---
22	11.1	9.9	10.4	11.7	11.2	11.4	---	---	---	---	---	---
23	11.5	10.1	10.6	12.0	11.2	11.7	---	---	---	---	---	---
24	11.5	10.2	10.6	12.5	12.0	12.2	---	---	---	---	---	---
25	11.6	10.3	10.7	12.6	12.2	12.4	---	---	---	---	---	---
26	10.6	10.0	10.4	12.5	12.0	12.2	---	---	---	---	---	---
27	10.8	9.8	10.2	12.5	11.9	12.2	---	---	---	---	---	---
28	11.1	9.9	10.4	13.0	12.4	12.7	---	---	---	---	---	---
29	11.6	10.2	10.8	13.2	12.8	13.0	---	---	---	---	---	---
30	11.2	10.7	11.0	13.1	12.6	12.9	---	---	---	---	---	---
31	11.5	11.1	11.3	---	---	---	---	---	---	---	---	---
MONTH	11.8	6.5	9.5	13.2	7.7	11.3	13.5	12.6	13.1	---	---	---

## CHRISTINA RIVER BASIN

## 01481000 BRANDYWINE CREEK AT CHADDS FORD, PA--Continued

OXYGEN, DISSOLVED (MG/L), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	<b>FEBRUARY</b>			<b>MARCH</b>			<b>APRIL</b>			<b>MAY</b>		
1	---	---	---	12.8	12.6	12.7	13.7	11.3	12.5	12.2	8.4	10.0
2	---	---	---	12.6	12.2	12.4	13.6	11.3	12.4	12.3	8.2	10.2
3	---	---	---	13.4	12.2	13.0	13.1	9.7	11.4	12.4	8.4	10.4
4	---	---	---	13.7	12.8	13.4	11.6	9.5	10.6	12.7	9.1	10.9
5	---	---	---	12.8	11.9	12.3	12.6	10.3	11.4	11.9	9.8	10.8
6	---	---	---	13.1	11.8	12.4	13.7	10.9	12.3	11.3	9.5	10.4
7	---	---	---	13.6	12.7	13.2	12.9	10.6	11.8	11.5	8.7	9.9
8	---	---	---	12.7	12.0	12.5	13.7	11.8	12.7	8.9	7.4	8.1
9	---	---	---	12.0	11.3	11.7	14.0	12.0	13.0	8.8	7.7	8.3
10	---	---	---	12.9	11.5	12.6	14.5	11.8	13.1	10.4	8.4	9.2
11	---	---	---	13.3	12.7	13.0	13.0	11.3	11.6	9.5	8.4	8.9
12	---	---	---	12.8	12.0	12.5	11.5	10.7	11.3	---	---	---
13	---	---	---	12.1	11.3	11.8	12.5	10.1	11.2	---	---	---
14	---	---	---	12.4	11.3	12.0	13.0	10.1	11.5	---	---	---
15	---	---	---	---	---	---	13.0	9.9	11.3	---	---	---
16	---	---	---	11.8	10.9	11.5	12.8	8.9	10.8	---	---	---
17	---	---	---	11.2	10.6	10.8	12.5	8.6	10.6	---	---	---
18	---	---	---	11.1	10.1	10.6	12.7	10.6	11.6	---	---	---
19	---	---	---	11.6	10.1	10.9	14.0	11.0	12.3	---	---	---
20	---	---	---	---	---	---	13.7	10.2	11.9	---	---	---
21	---	---	---	---	---	---	13.1	9.4	11.3	---	---	---
22	---	---	---	11.1	10.4	10.8	11.8	9.2	10.5	---	---	---
23	---	---	---	11.3	10.3	10.8	13.5	9.3	11.3	---	---	---
24	---	---	---	11.6	10.3	10.9	13.7	10.1	11.9	---	---	---
25	---	---	---	11.8	10.2	11.0	14.0	9.6	11.7	---	---	---
26	---	---	---	11.9	9.9	10.8	11.0	9.0	10	---	---	---
27	---	---	---	12.4	10.0	11.1	12.9	9.2	10.9	---	---	---
28	---	---	---	12.6	10.1	11.3	12.6	8.8	10.5	---	---	---
29	---	---	---	12.1	9.9	10.9	11.7	8.4	10.1	10.1	9.3	9.8
30	---	---	---	11.7	9.3	10.5	12.4	8.8	10.5	9.7	8.8	9.3
31	---	---	---	13.5	10.9	12.1	---	---	---	9.3	8.6	8.9
MONTH	---	---	---	13.7	9.3	11.8	14.5	8.4	11.5	12.7	7.4	9.7
	<b>JUNE</b>			<b>JULY</b>			<b>AUGUST</b>			<b>SEPTEMBER</b>		
1	9.6	8.8	9.3	10.6	8.5	9.4	9.1	7.9	8.3	9.0	7.5	8.2
2	10.1	9.4	9.7	11.0	8.3	9.6	9.1	7.8	8.3	8.3	8.0	8.2
3	9.7	9.3	9.5	9.7	8.3	8.9	8.6	7.6	8.0	8.9	8.2	8.5
4	9.9	9.2	9.6	11.0	8.6	9.6	7.9	7.4	7.6	8.6	8.3	8.4
5	9.5	9.0	9.3	10.8	8.1	9.2	8.0	7.5	7.7	8.6	8.2	8.4
6	9.3	8.9	9.1	10.3	7.9	9.0	8.3	7.7	7.9	9.2	8.2	8.6
7	9.2	8.7	9.0	10.0	7.7	8.7	8.4	7.8	8.0	9.7	8.4	8.9
8	---	---	---	9.7	7.6	8.5	8.6	8.0	8.2	9.8	8.2	9.0
9	---	---	---	9.6	7.7	8.5	8.3	7.8	8.0	10.1	8.3	9.1
10	---	---	---	8.7	7.8	8.3	8.1	6.8	7.3	10.3	8.1	9.1
11	---	---	---	9.4	8.4	8.8	7.6	7.3	7.5	10.7	8.1	9.3
12	8.4	7.8	8.1	9.4	8.2	8.7	7.8	7.4	7.6	10.0	8.0	8.9
13	7.9	7.6	7.8	9.4	8.2	8.7	7.8	7.3	7.5	9.2	7.8	8.4
14	7.8	7.4	7.6	9.5	8.1	8.7	7.9	7.3	7.6	7.9	7.3	7.6
15	7.8	7.4	7.6	9.7	8.3	8.9	8.4	7.4	7.9	---	---	---
16	8.7	7.8	8.4	9.6	8.0	8.7	8.2	7.6	7.9	---	---	---
17	9.2	8.5	8.9	9.4	8.0	8.6	8.8	7.9	8.3	---	---	---
18	8.9	8.8	8.8	9.0	8.0	8.5	9.0	7.9	8.4	---	---	---
19	9.0	8.7	8.8	9.3	8.2	8.6	9.4	8.0	8.6	---	---	---
20	8.7	7.0	8.3	9.3	8.0	8.6	9.8	7.9	8.8	---	---	---
21	8.2	6.9	7.3	9.0	7.8	8.3	10.3	8.0	9.0	---	---	---
22	9.0	8.2	8.8	8.5	7.4	7.9	10.4	7.8	9.0	---	---	---
23	---	---	---	8.2	7.2	7.7	10.6	7.6	9.0	8.6	7.0	7.9
24	---	---	---	8.5	7.5	7.9	11.5	8.0	9.6	8.7	7.5	8.4
25	9.2	8.7	9.0	8.8	7.6	8.1	12.2	8.4	10.1	9.0	8.6	8.8
26	9.1	8.5	8.9	8.9	7.6	8.2	12.3	8.2	9.9	8.9	8.6	8.7
27	8.9	8.5	8.6	8.7	7.5	8.0	11.8	7.7	9.5	8.8	8.4	8.7
28	9.3	8.4	8.8	8.5	7.3	7.8	12.4	7.7	9.8	8.6	8.2	8.4
29	9.6	8.6	9.1	8.9	7.5	8.1	11.8	7.6	9.3	9.1	8.6	8.9
30	10.0	8.5	9.2	9.3	7.7	8.4	11.6	7.4	8.9	9.8	9.0	9.5
31	---	---	---	9.1	8.0	8.5	9.1	7.4	8.1	---	---	---
MONTH	10.1	6.9	8.7	11.0	7.2	8.6	12.4	6.8	8.4	10.7	7.0	8.6

## CHRISTINA RIVER BASIN

## 01481000 BRANDYWINE CREEK AT CHADDS FORD, PA--Continued

## CROSS-SECTION ANALYSES, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Loca- tion in X-sect. looking dwnstrm ft from l bank (00009)	Sam- pling depth, feet (00003)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf µS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)
MAR 2003										
	21...	1426	1028	2290	18	3.2	11.5	7.3	206	7.9
	21...	1427	1028	--	18	1.0	11.5	7.4	206	7.9
	21...	1431	1028	--	38	1.2	11.4	7.4	207	7.9
	21...	1436	1028	--	59	2.5	11.4	7.5	207	7.9
	21...	1440	1028	--	80	2.0	11.4	7.4	208	7.9
	21...	1444	1028	--	100	2.0	11.3	7.4	208	7.9
	21...	1449	1028	--	115	5.0	11.3	7.4	209	7.9
	21...	1450	1028	--	115	2.0	11.3	7.4	209	7.9
	21...	1456	1028	--	130	6.0	11.3	7.4	210	8.0
	21...	1457	1028	--	130	2.0	11.3	7.4	210	8.0
	21...	1500	1028	--	145	6.0	11.3	7.4	210	8.0
	21...	1511	1028	--	180	5.0	11.3	7.3	211	8.0
	21...	1513	1028	--	180	2.0	11.3	7.4	211	8.0

## CHRISTINA RIVER BASIN

## LAKES AND RESERVOIRS IN CHRISTINA RIVER BASIN

**01480399 CHAMBERS LAKE NEAR WAGONTOWN.**--Lat 40°01'40", long 75°51'03", Chester County, Hydrologic Unit 02040205, at Hibernia Dam on Birch Run, 0.6 mi upstream from gaging station on Birch Run (station 01480400), 0.9 mi upstream from mouth, and 1.4 mi northwest of Wagontown. DRAINAGE AREA, 4.5 mi<sup>2</sup>. PERIOD OF RECORD, May 1997 to current year. GAGE, non-recording gage. Manual measurement from top of concrete riser at upstream flank of Hibernia Dam. Datum of gage is sea level (levels by Chester County Water Resources Authority, Chester County Parks and Recreation Department).

REMARKS.--Reservoir formed by earthfill dam with principle spillway at elevation 587.5 ft, capacity 2,000 acre-ft. Dam crest at elevation 596.5 ft. Normal elevation 580 ft, capacity 1,226 acre feet. Reservoir is used for water supply, flood control, and recreation. Figures given herein represent total contents.

COOPERATION.--Records provided by Chester County Water Resources Authority, in cooperation with City of Coatesville Authority and Chester County Parks and Recreation Department.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,440 acre-ft, March 22, 2000, elevation, 582.76 ft; minimum contents, 605 acre-ft, Oct. 10, 2002, elevation, 571.23 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,240 acre-ft, Jan 1, elevation, 580.70 ft; minimum contents, 605 acre-ft, Oct. 10, elevation, 571.23 ft.

**01480684 MARSH CREEK LAKE NEAR DOWNINGTOWN.**--Lat 40°03'24", long 75°43'06", Chester County, Hydrologic Unit 02040205, on right bank at dam on Marsh Creek, 0.3 mi upstream from mouth, and 3.2 mi north of Downingtown. DRAINAGE AREA, 20.1 mi<sup>2</sup>. PERIOD OF RECORD, November 1973 to current year. GAGE, Water-stage recorder. Datum of gage is sea level (levels by Pennsylvania Department of Environmental Protection).

REMARKS.--Reservoir formed by earthfill dam with concrete spillway at elevation 359.5 ft. Storage began November 1973. Total capacity, 22,190 acre-ft, elevation 373 ft. Reservoir is used for water supply, flood control, and recreation. Figures given herein represent contents above lowest gate sill at elevation 289.5 ft.

COOPERATION.--Records provided by Pennsylvania Department of Environmental Protection.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 16,500 acre-ft, Sept. 18, 1999, elevation, 363.49 ft; minimum contents (after first filling), 10,410 acre-ft, Mar. 3, 1976, elevation, 351.75 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 16,040 acre-ft, June 22, elevation, 362.87 ft; minimum contents, 13,260 acre-ft, Oct. 10, elevation, 357.71 ft.

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

Date	Elevation (feet)	Contents (acre- feet)	Change in contents (equivalent in ft <sup>3</sup> /s)	Elevation (feet)	Contents (acre- feet)	Change in contents (equivalent in ft <sup>3</sup> /s)
<u>01480399 Chambers Lake</u>				<u>01480684 Marsh Creek Lake</u>		
Sept. 30	572.68	670	---	358.04	13,430	---
Oct. 31	574.00	750	+1.3	359.71	14,300	+14.2
Nov. 30	577.60	1,010	+4.4	359.86	14,380	+1.3
Dec. 31	580.30	1,200	+3.1	359.25	14,050	-5.4
CAL YR 2002	--	--	+0.5	--	--	+1.5
Jan. 31	580.20	1,190	-0.2	358.10	13,460	-9.6
Feb. 28	580.30	1,200	+0.2	359.96	14,440	+17.6
Mar. 31	580.30	1,200	0	360.45	14,710	+4.4
Apr. 30	580.19	1,190	-0.2	360.40	14,680	-0.5
May 31	580.21	1,200	+0.2	360.85	14,930	+4.1
June 30	580.22	1,200	0	360.75	14,870	-1.0
July 31	580.08	1,180	-0.3	360.45	14,710	-2.6
Aug. 31	580.00	1,180	0	360.08	14,500	-3.4
Sept. 30	580.20	1,190	+0.2	360.35	14,650	+2.5
WTR YR 2003	--	--	+0.7	--	--	+1.7

## DELAWARE RIVER BASIN

## 01482800 DELAWARE RIVER AT REEDY ISLAND JETTY, DE

**LOCATION.**--Lat 39°30'03", long 75°34'07", New Castle County, Delaware, Hydrologic Unit 02040205, on dock on streamward side of jetty about 0.4 mi downstream from Reedy Island near Port Penn.

**DRAINAGE AREA.**--11,200 mi<sup>2</sup>, approximately.

**PERIOD OF RECORD.**--Water year 1997 to current year.

**PERIOD OF DAILY RECORD.**--

SPECIFIC CONDUCTANCE: October 1963 to current year.

pH: February 1970 to current year.

WATER TEMPERATURES: February 1970 to current year.

DISSOLVED OXYGEN: February 1970 to current year.

**INSTRUMENTATION.**--Water-quality monitor since February 1970. Probes interfaced with a data collection platform since the 1986 water year. Probes placed in situ since July 1998.

**REMARKS.**--Specific conductance and water temperature records rated good. Dissolved oxygen record rated poor, except for periods Mar. 1-8, Apr. 28 to May 11, June 13-29, and July 10 to Aug. 19, which are good. pH records rated good except for period Oct. 27 to Nov. 8, which is fair. Interruptions in the record were due to malfunctions of the equipment.

**EXTREMES FOR PERIOD OF DAILY RECORD.**--

SPECIFIC CONDUCTANCE: Maximum, 35,600 microsiemens, Nov. 15, 1978; minimum, 100 microsiemens, several days in 1969, 1970, 1974 and 1979.

pH: Maximum, 8.9, Mar. 4, 1980; minimum, 5.4, Dec. 31, 1972.

WATER TEMPERATURE: Maximum, 32.5°C, July 23, 1987; minimum, 0.0°C, many days during winters.

DISSOLVED OXYGEN: Maximum, 17.1 mg/L, Dec. 16, 19, 1976; minimum, 0.3 mg/L, Sept. 16, 17, 1971.

**EXTREMES FOR CURRENT YEAR.**--

SPECIFIC CONDUCTANCE: Maximum, 22,000 microsiemens, Oct. 5; minimum, 175 microsiemens, Mar. 31.

pH: Maximum 8.0, Feb. 17-20; minimum, 6.8, June 25-27.

WATER TEMPERATURE: Maximum, 29.0°C, Aug. 20, 22; minimum recorded, 0.0°C, many days during winter.

DISSOLVED OXYGEN: Maximum, 12.9 mg/L, Mar. 9-12; minimum recorded, 3.8 mg/L, Aug. 17.

## SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	20600	14400	16600	16600	7700	12400	6000	1490	3070	8540	1760	3550
2	19400	14100	15700	15000	7680	10400	8120	1490	2900	8950	1770	3700
3	20100	13800	15600	15200	7490	9980	6940	1420	2330	8200	1660	3900
4	22000	14500	17100	17100	7950	10900	10100	1620	4080	6700	796	2800
5	22000	14800	17400	16300	8020	10800	10500	2200	5040	5340	898	1690
6	19500	14300	16300	16500	8010	11400	12400	3520	6600	4280	924	1440
7	21300	15000	17400	14200	7500	9670	12100	3610	6480	2410	672	1020
8	20800	14600	16700	16400	7460	10800	9540	3510	5050	3840	700	1630
9	20700	15100	17100	12100	6990	8580	8660	2900	4760	4940	720	1990
10	20700	15100	17300	14200	6980	9150	10200	3390	6060	6650	890	3290
11	19700	15400	17200	12500	6720	8940	12500	4000	7230	6840	1590	3120
12	18600	14200	16400	11200	5990	8040	12100	5070	8440	8300	1690	4960
13	20500	13800	16500	13400	6150	9490	10600	3550	6980	11000	3590	7460
14	18200	12100	14300	14700	6290	10500	13000	4240	8540	11600	3210	7560
15	18700	11600	14500	13200	6450	9250	9080	3070	5580	14300	4610	9510
16	19200	12700	15600	13900	6080	8650	9520	2220	4850	13100	5140	8580
17	18700	11300	14500	15900	7330	11300	10100	2580	5320	14800	5450	8790
18	17400	9980	12800	13900	4770	8230	11400	2590	5960	14000	5790	8600
19	17400	8700	12300	6720	3250	4800	10400	3140	5330	15000	6220	9910
20	12700	7970	9630	9110	3030	4350	10000	3050	5280	10600	4600	7670
21	14000	7100	9520	9540	2470	4310	8370	2080	4170	10800	4070	6100
22	14400	6520	9640	10000	2470	4670	5290	1970	2740	9870	3640	6030
23	12300	6690	9130	5810	1630	3060	5650	1360	2420	8320	3230	4930
24	12900	6460	8520	4280	1630	2230	4540	1220	1970	12100	3140	6770
25	14100	6800	9240	5630	1590	2350	8140	1230	3170	15000	6070	11000
26	14500	6850	10200	8520	1580	3300	2900	1060	1580	16900	6240	10300
27	13500	6570	9530	8230	1950	4200	6960	902	2840	13100	4830	9030
28	13500	6100	9040	10200	2000	5250	7260	1110	3030	16100	7610	11300
29	13800	5760	9820	9550	1960	5180	8950	1120	3290	15200	6690	10700
30	15000	7460	11200	8470	2210	4180	9090	1340	3480	16400	8060	10900
31	17800	8740	13100	---	---	---	9350	1760	3790	17400	8740	12000
MONTH	22000	5760	13500	17100	1580	7550	13000	902	4590	17400	672	6460





## DELAWARE RIVER BASIN

## 01482800 DELAWARE RIVER AT REEDY ISLAND JETTY, DE--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	<b>OCTOBER</b>			<b>NOVEMBER</b>			<b>DECEMBER</b>			<b>JANUARY</b>		
1	7.3	7.2	7.3	7.6	7.6	7.6	7.6	7.5	7.5	7.6	7.4	7.4
2	7.2	7.1	7.2	7.7	7.6	7.6	7.6	7.5	7.5	7.6	7.4	7.5
3	7.2	7.1	7.1	7.8	7.6	7.7	7.6	7.5	7.6	7.6	7.4	7.5
4	7.3	7.1	7.2	7.8	7.8	7.8	7.7	7.5	7.6	7.5	7.4	7.5
5	7.3	7.2	7.3	7.8	7.6	7.6	7.7	7.6	7.6	7.5	7.3	7.4
6	7.3	7.2	7.3	7.8	7.6	7.6	7.8	7.6	7.7	7.4	7.3	7.4
7	7.3	7.2	7.2	7.9	7.8	7.9	7.8	7.6	7.7	7.4	7.3	7.4
8	7.3	7.2	7.3	7.9	7.7	7.8	7.7	7.6	7.6	7.5	7.4	7.4
9	7.3	7.3	7.3	7.8	7.7	7.7	7.7	7.6	7.6	7.5	7.4	7.4
10	7.3	7.3	7.3	7.8	7.7	7.7	7.7	7.6	7.6	7.5	7.4	7.4
11	7.3	7.3	7.3	7.8	7.7	7.7	7.8	7.6	7.7	7.6	7.4	7.5
12	7.4	7.3	7.3	7.8	7.7	7.7	7.8	7.6	7.7	7.6	7.5	7.6
13	7.3	7.3	7.3	7.8	7.7	7.8	7.7	7.6	7.6	7.7	7.6	7.6
14	7.4	7.3	7.3	7.8	7.7	7.8	7.8	7.6	7.7	7.7	7.5	7.6
15	7.5	7.3	7.4	7.8	7.7	7.7	7.6	7.4	7.5	7.8	7.6	7.7
16	7.6	7.4	7.5	7.7	7.6	7.7	7.6	7.4	7.4	7.7	7.6	7.6
17	7.6	7.5	7.5	7.8	7.6	7.7	7.6	7.4	7.5	7.8	7.6	7.6
18	7.5	7.5	7.5	7.7	7.5	7.6	7.6	7.3	7.5	7.8	7.6	7.7
19	7.6	7.4	7.5	7.6	7.4	7.5	7.6	7.3	7.4	7.8	7.6	7.7
20	7.5	7.3	7.4	7.6	7.4	7.5	7.6	7.3	7.4	7.7	7.6	7.7
21	7.5	7.3	7.4	7.6	7.3	7.5	7.5	7.3	7.4	7.7	7.6	7.6
22	7.4	7.3	7.4	7.6	7.3	7.4	7.4	7.3	7.3	7.7	7.6	7.6
23	7.4	7.3	7.3	7.5	7.3	7.4	7.4	7.3	7.3	7.9	7.6	7.6
24	7.4	7.3	7.4	7.5	7.3	7.4	7.4	7.3	7.3	7.8	7.6	7.7
25	7.4	7.3	7.4	7.5	7.3	7.4	7.5	7.3	7.4	7.8	7.6	7.7
26	7.4	7.3	7.4	7.6	7.3	7.4	7.6	7.4	7.4	7.8	7.6	7.7
27	7.5	7.3	7.4	7.6	7.4	7.4	7.6	7.4	7.4	7.8	7.6	7.7
28	7.5	7.4	7.4	7.6	7.4	7.5	7.5	7.4	7.4	7.8	7.7	7.7
29	7.6	7.5	7.5	7.6	7.4	7.5	7.6	7.4	7.4	7.8	7.6	7.7
30	7.6	7.5	7.6	7.6	7.4	7.5	7.6	7.4	7.4	7.8	7.7	7.7
31	7.6	7.5	7.5	---	---	---	7.6	7.4	7.4	7.8	7.7	7.7
MAX	7.6	7.5	7.6	7.9	7.8	7.9	7.8	7.6	7.7	7.9	7.7	7.7
MIN	7.2	7.1	7.1	7.5	7.3	7.4	7.4	7.3	7.3	7.4	7.3	7.4
	<b>FEBRUARY</b>			<b>MARCH</b>			<b>APRIL</b>			<b>MAY</b>		
1	7.8	7.7	7.7	7.7	7.4	7.5	7.5	7.3	7.3	7.5	7.3	7.3
2	7.8	7.7	7.7	7.6	7.4	7.4	7.4	7.2	7.2	7.5	7.2	7.3
3	7.7	7.6	7.7	7.5	7.3	7.4	7.2	7.1	7.2	7.4	7.3	7.3
4	7.8	7.7	7.7	7.5	7.3	7.4	7.3	7.1	7.2	7.5	7.3	7.3
5	7.8	7.6	7.7	7.4	7.3	7.4	7.3	7.1	7.2	7.4	7.2	7.2
6	7.7	7.6	7.7	7.4	7.3	7.3	7.3	7.1	7.2	7.3	7.1	7.2
7	7.8	7.6	7.7	7.4	7.3	7.3	7.2	7.1	7.2	7.3	7.1	7.2
8	7.8	7.7	7.7	7.5	7.2	7.3	7.3	7.2	7.3	7.3	7.1	7.1
9	7.8	7.7	7.7	7.4	7.2	7.3	7.4	7.2	7.3	7.4	7.1	7.2
10	7.8	7.6	7.7	7.4	7.3	7.3	7.5	7.3	7.5	7.3	7.1	7.1
11	7.8	7.7	7.8	7.5	7.3	7.4	7.6	7.5	7.6	7.4	7.1	7.1
12	7.9	7.7	7.8	7.5	7.3	7.4	7.8	7.5	7.7	7.4	7.1	7.2
13	7.8	7.7	7.8	7.5	7.3	7.4	7.8	7.4	7.6	7.4	7.2	7.3
14	7.9	7.7	7.8	7.7	7.4	7.6	7.7	7.4	7.5	7.6	7.2	7.3
15	7.9	7.7	7.8	7.8	7.4	7.5	7.7	7.4	7.4	7.6	7.3	7.3
16	7.9	7.8	7.8	7.8	7.4	7.5	7.5	7.3	7.4	7.5	7.3	7.4
17	8.0	7.8	7.9	7.8	7.4	7.5	7.6	7.4	7.4	7.6	7.4	7.4
18	8.0	7.8	7.9	7.7	7.4	7.5	7.7	7.4	7.5	7.5	7.3	7.4
19	8.0	7.8	7.9	7.8	7.4	7.5	7.6	7.4	7.5	7.4	7.3	7.3
20	8.0	7.8	7.8	7.6	7.4	7.5	7.6	7.4	7.5	7.4	7.3	7.3
21	7.9	7.8	7.8	7.5	7.3	7.3	7.6	7.4	7.5	7.3	7.3	7.3
22	7.9	7.8	7.8	7.3	7.3	7.3	7.6	7.4	7.4	7.4	7.3	7.3
23	7.9	7.7	7.8	7.3	7.3	7.3	7.6	7.4	7.5	7.4	7.3	7.4
24	7.7	7.6	7.6	7.3	7.3	7.3	7.6	7.4	7.5	7.4	7.3	7.4
25	7.6	7.5	7.6	7.4	7.3	7.3	7.8	7.4	7.5	7.4	7.4	7.4
26	7.7	7.5	7.6	7.4	7.3	7.3	7.8	7.5	7.6	7.5	7.3	7.4
27	7.8	7.5	7.6	7.3	7.3	7.3	7.8	7.4	7.5	7.5	7.3	7.4
28	7.8	7.6	7.6	7.3	7.2	7.3	7.7	7.3	7.5	7.5	7.4	7.4
29	---	---	---	7.3	7.2	7.3	7.6	7.3	7.3	7.5	7.4	7.4
30	---	---	---	7.3	7.2	7.3	7.5	7.3	7.3	7.5	7.4	7.4
31	---	---	---	7.5	7.2	7.3	---	---	---	7.5	7.4	7.4
MAX	8.0	7.8	7.9	7.8	7.4	7.6	7.8	7.5	7.7	7.6	7.4	7.4
MIN	7.6	7.5	7.6	7.3	7.2	7.3	7.2	7.1	7.2	7.3	7.1	7.1

DELAWARE RIVER BASIN

01482800 DELAWARE RIVER AT REEDY ISLAND JETTY, DE--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.6	7.4	7.5	7.0	6.9	7.0	7.4	7.3	7.3	7.3	7.2	7.3
2	7.6	7.5	7.5	7.1	7.0	7.1	7.4	7.3	7.3	7.3	7.2	7.3
3	7.6	7.4	7.5	7.2	7.1	7.1	7.4	7.3	7.4	7.3	7.2	7.3
4	7.5	7.4	7.5	7.2	7.0	7.1	7.4	7.3	7.4	7.3	7.2	7.3
5	7.5	7.4	7.5	7.2	7.1	7.1	7.4	7.3	7.3	7.3	7.2	7.3
6	7.5	7.4	7.4	7.2	7.1	7.1	7.4	7.3	7.3	7.3	7.2	7.3
7	7.6	7.4	7.4	7.2	7.1	7.2	7.4	7.3	7.3	7.3	7.2	7.2
8	7.5	7.3	7.4	7.2	7.1	7.2	7.4	7.2	7.3	7.3	7.1	7.1
9	7.4	7.3	7.3	7.3	7.2	7.2	7.4	7.3	7.3	7.3	7.2	7.3
10	7.4	7.3	7.3	7.2	7.1	7.2	7.4	7.3	7.4	7.4	7.2	7.3
11	7.3	7.3	7.3	7.2	7.1	7.2	7.4	7.3	7.3	7.3	7.1	7.3
12	7.3	7.2	7.3	7.2	7.1	7.2	7.4	7.3	7.3	7.4	7.2	7.3
13	7.3	7.0	7.3	7.2	7.1	7.2	7.3	7.2	7.3	7.5	7.4	7.4
14	7.1	7.0	7.0	7.2	7.1	7.2	7.3	7.2	7.3	7.4	7.4	7.4
15	7.1	6.9	7.0	7.3	7.1	7.2	7.3	7.2	7.2	7.4	7.4	7.4
16	7.0	7.0	7.0	7.2	7.2	7.2	7.3	7.2	7.2	7.4	7.3	7.3
17	7.1	7.0	7.0	7.3	7.2	7.2	7.3	7.2	7.2	7.4	7.3	7.3
18	7.0	7.0	7.0	7.2	7.2	7.2	7.3	7.2	7.2	7.6	7.3	7.4
19	7.0	7.0	7.0	7.2	7.2	7.2	7.3	7.1	7.2	7.7	7.4	7.6
20	7.0	7.0	7.0	7.3	7.2	7.3	7.4	7.2	7.3	7.4	7.4	7.4
21	7.0	7.0	7.0	7.4	7.3	7.3	7.4	7.2	7.3	7.4	7.3	7.4
22	7.0	6.9	7.0	7.4	7.2	7.3	7.4	7.2	7.3	7.4	7.3	7.4
23	7.0	6.9	6.9	7.4	7.3	7.3	7.4	7.2	7.3	7.4	7.3	7.4
24	7.0	6.9	6.9	7.4	7.2	7.4	7.5	7.3	7.4	7.4	7.2	7.3
25	7.0	6.8	6.9	7.5	7.3	7.4	7.5	7.3	7.3	7.3	7.2	7.3
26	7.0	6.8	6.9	7.5	7.2	7.4	7.4	7.3	7.3	7.3	7.1	7.2
27	7.0	6.8	6.9	7.5	7.3	7.4	7.4	7.2	7.3	7.2	7.1	7.2
28	7.0	6.9	6.9	7.5	7.3	7.4	7.3	7.2	7.3	7.2	7.1	7.2
29	7.0	6.9	7.0	7.4	7.2	7.4	7.4	7.2	7.3	7.3	7.1	7.2
30	7.0	6.9	7.0	7.4	7.3	7.4	7.3	7.2	7.2	7.3	7.1	7.2
31	---	---	---	7.4	7.2	7.3	7.3	7.2	7.3	---	---	---
MAX	7.6	7.5	7.5	7.5	7.3	7.4	7.5	7.3	7.4	7.7	7.4	7.6
MIN	7.0	6.8	6.9	7.0	6.9	7.0	7.3	7.1	7.2	7.2	7.1	7.1
YEAR	MAX			MAXIMUM 8.0	MINIMUM 7.0							
	MIN			MAXIMUM 7.8	MINIMUM 6.8							
	MEDIAN			MAXIMUM 7.9	MINIMUM 6.9							

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	23.0	22.5	22.5	12.5	12.0	12.5	7.5	6.0	7.0	4.0	3.5	4.0
2	23.5	22.5	23.0	12.0	11.5	12.0	7.0	6.0	6.5	4.5	4.0	4.0
3	23.5	23.0	23.0	11.5	11.0	11.5	6.5	5.0	5.5	4.5	4.0	4.0
4	23.5	23.0	23.5	11.5	11.0	11.0	6.0	5.0	5.0	4.5	4.0	4.0
5	24.0	23.5	23.5	11.0	11.0	11.0	5.5	4.5	5.0	4.0	3.5	3.5
6	23.5	22.5	23.0	11.0	10.5	11.0	5.0	4.0	4.5	4.0	3.5	3.5
7	23.0	22.5	23.0	11.0	10.5	10.5	4.5	4.0	4.0	3.5	2.5	3.5
8	22.5	21.0	22.0	10.5	10.0	10.5	4.5	4.0	4.0	3.5	3.0	3.5
9	22.0	21.0	21.5	10.5	10.0	10.5	4.0	3.0	3.5	3.5	3.0	3.5
10	21.5	21.0	21.0	11.5	10.5	11.0	4.0	3.5	3.5	3.5	3.5	3.5
11	21.0	20.5	21.0	11.5	11.0	11.5	4.0	3.5	3.5	3.5	2.5	3.0
12	21.0	20.5	20.5	11.5	11.5	11.5	4.0	3.5	4.0	3.5	2.5	3.0
13	20.5	20.0	20.5	11.5	11.0	11.5	4.0	3.5	4.0	3.0	2.0	2.5
14	20.5	19.0	20.0	11.5	11.0	11.0	4.5	4.0	4.0	3.0	2.0	2.5
15	19.5	18.5	19.0	11.5	11.0	11.5	4.5	4.0	4.0	3.0	2.0	2.5
16	19.0	18.0	18.5	11.5	11.0	11.0	4.5	3.5	4.0	2.5	1.5	2.0
17	18.5	17.5	18.0	11.0	10.5	11.0	4.0	3.5	4.0	2.5	1.5	2.0
18	18.0	17.5	17.5	11.0	10.0	10.5	4.0	3.5	3.5	2.0	0.5	1.5
19	17.5	17.0	17.0	10.0	9.5	10.0	4.0	3.5	3.5	1.5	1.0	1.0
20	17.0	16.5	17.0	10.5	9.5	10.0	4.5	4.0	4.0	1.0	0.5	1.0
21	17.0	16.5	16.5	10.5	9.5	10.0	4.5	4.0	4.0	1.0	0.0	0.5
22	16.5	16.0	16.0	10.5	10.0	10.0	4.0	3.5	4.0	0.5	0.0	0.0
23	16.5	15.5	16.0	10.5	9.0	9.5	4.5	3.5	4.0	0.0	0.0	0.0
24	16.0	15.0	15.5	9.5	8.5	9.0	4.0	3.5	4.0	0.0	0.0	0.0
25	15.5	14.5	15.0	9.5	8.5	9.0	4.5	3.5	4.0	0.0	0.0	0.0
26	15.0	14.5	15.0	9.5	8.5	9.0	3.5	3.0	3.5	0.0	0.0	0.0
27	15.0	14.5	15.0	9.5	8.0	9.0	3.5	3.0	3.5	0.0	0.0	0.0
28	15.0	14.5	14.5	8.5	8.0	8.5	3.5	3.0	3.5	0.0	0.0	0.0
29	14.5	13.5	14.0	8.5	7.5	8.0	4.0	3.0	3.5	0.0	0.0	0.0
30	13.5	12.5	13.0	8.0	7.5	7.5	3.5	3.0	3.5	0.0	0.0	0.0
31	13.0	12.5	12.5	---	---	---	4.0	3.5	3.5	0.0	0.0	0.0
MONTH	24.0	12.5	18.6	12.5	7.5	10.3	7.5	3.0	4.1	4.5	0.0	1.9



## DELAWARE RIVER BASIN

## 01482800 DELAWARE RIVER AT REEDY ISLAND JETTY, DE--Continued

OXYGEN, DISSOLVED (MG/L), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	<b>OCTOBER</b>			<b>NOVEMBER</b>			<b>DECEMBER</b>			<b>JANUARY</b>		
1	6.8	6.3	6.6	8.2	7.8	8.0	11.0	10.1	10.6	---	---	---
2	6.8	6.3	6.6	8.3	7.9	8.1	11.5	10.0	10.5	---	---	---
3	6.6	6.2	6.5	8.3	8.0	8.2	10.2	9.7	9.9	---	---	---
4	6.8	6.2	6.5	8.4	8.0	8.3	9.8	9.3	9.5	---	---	---
5	6.6	6.2	6.5	8.5	8.2	8.3	9.4	9.1	9.3	---	---	---
6	6.7	6.4	6.6	8.7	8.3	8.5	9.3	8.9	9.1	10.2	9.2	9.6
7	6.6	6.3	6.5	8.8	8.5	8.6	9.3	8.8	8.9	9.9	8.8	9.3
8	6.8	6.4	6.6	---	---	---	9.1	8.8	8.9	9.7	8.8	9.1
9	6.8	6.4	6.6	---	---	---	9.3	9.0	9.1	9.2	8.7	9.0
10	6.8	6.4	6.6	---	---	---	9.2	8.8	8.9	9.3	8.7	9.1
11	6.8	6.5	6.7	---	---	---	9.2	8.8	9.0	9.4	8.8	9.1
12	6.8	6.6	6.7	---	---	---	9.2	8.5	8.8	9.4	8.8	9.1
13	6.8	6.4	6.7	---	---	---	9.2	8.7	8.9	9.2	8.6	8.9
14	7.1	5.6	6.8	---	---	---	9.2	8.7	8.8	10.7	8.4	9.4
15	7.2	6.7	6.9	---	---	---	9.5	8.8	9.0	8.8	8.2	8.4
16	7.2	6.9	7.0	---	---	---	9.5	9.0	9.2	9.0	7.8	8.3
17	7.2	6.9	7.1	---	---	---	10.0	9.3	9.5	8.6	7.8	8.2
18	7.2	7.0	7.1	---	---	---	9.9	9.1	9.4	8.2	7.8	8.1
19	7.4	7.0	7.2	---	---	---	10.1	9.4	9.7	8.2	7.9	8.1
20	7.3	6.7	7.0	---	---	---	10.4	9.6	9.8	8.4	7.8	8.1
21	7.2	6.6	7.1	---	---	---	10.4	9.8	10.1	9.1	7.7	8.3
22	7.5	7.0	7.3	---	---	---	10.3	9.6	10.0	12.0	6.9	8.5
23	7.8	7.3	7.5	---	---	---	10.4	9.6	9.9	11.7	5.2	9.3
24	8.1	7.6	7.9	---	---	---	11.1	10.0	10.4	11.7	8.5	9.5
25	8.5	8.0	8.2	9.8	9.2	9.5	11.2	10.7	10.9	10.3	8.7	9.3
26	8.7	8.2	8.4	10.2	9.5	9.8	11.9	11.0	11.4	9.2	8.6	8.8
27	8.7	7.6	8.1	10.2	9.7	9.9	12.5	11.4	11.8	10.4	8.6	9.3
28	7.9	7.5	7.8	10.3	9.6	10	---	---	---	9.2	8.4	8.8
29	8.1	7.6	7.9	10.4	9.9	10.1	---	---	---	8.8	8.5	8.6
30	8.2	7.8	8.0	10.6	10.0	10.3	---	---	---	8.7	8.3	8.6
31	8.2	7.8	8.0	---	---	---	---	---	---	8.9	8.3	8.5
MONTH	8.7	5.6	7.1	10.6	7.8	9.0	12.5	8.5	9.7	12.0	5.2	8.8
	<b>FEBRUARY</b>			<b>MARCH</b>			<b>APRIL</b>			<b>MAY</b>		
1	9.2	8.3	8.5	---	---	---	10.6	8.6	10.1	8.8	8.4	8.6
2	8.5	8.2	8.3	12.8	12.3	12.5	10.4	9.2	9.9	8.6	8.2	8.4
3	---	---	---	12.7	12.3	12.5	9.3	9.1	9.2	8.5	8.1	8.3
4	---	---	---	12.7	12.3	12.5	9.2	9.0	9.1	8.3	8.0	8.1
5	---	---	---	12.6	12.3	12.4	9.2	9.0	9.1	8.2	7.8	8.0
6	---	---	---	12.7	12.3	12.4	9.3	9.0	9.1	8.0	7.6	7.9
7	---	---	---	12.6	12.2	12.4	9.4	9.0	9.3	7.8	7.4	7.6
8	---	---	---	12.7	12.2	12.4	9.7	9.3	9.5	7.5	6.9	7.3
9	---	---	---	12.9	12.3	12.6	10.0	9.5	9.8	7.7	7.0	7.3
10	---	---	---	12.9	12.6	12.7	10.1	9.8	10	7.4	7.0	7.2
11	---	---	---	12.9	12.7	12.8	10.2	10.0	10.1	7.4	6.9	7.1
12	---	---	---	12.9	12.7	12.8	10.2	10.0	10.1	7.6	7.0	7.3
13	---	---	---	12.8	12.5	12.6	10.2	9.6	9.9	8.0	7.3	7.7
14	---	---	---	12.8	12.3	12.5	9.7	9.3	9.5	8.1	7.7	7.9
15	---	---	---	12.5	11.9	12.3	9.4	9.0	9.2	8.3	7.7	8.0
16	---	---	---	12.0	9.8	11.4	9.1	8.7	8.9	8.4	8.0	8.2
17	---	---	---	10.4	8.8	9.7	9.1	8.7	8.9	8.4	8.0	8.2
18	---	---	---	10.5	8.5	9.6	9.0	8.5	8.8	8.3	7.8	8.1
19	---	---	---	10.2	8.4	9.4	8.8	8.4	8.6	8.3	7.7	8.1
20	---	---	---	10.1	8.5	9.4	8.7	8.4	8.6	8.1	7.6	7.9
21	---	---	---	10.9	9.2	10.0	8.8	8.4	8.6	7.9	7.5	7.8
22	---	---	---	11.7	10.7	11.3	8.8	8.4	8.6	8.0	7.6	7.9
23	---	---	---	11.7	11.5	11.6	8.8	8.4	8.6	8.0	7.6	7.8
24	---	---	---	11.7	11.4	11.6	8.9	8.4	8.7	8.0	7.6	7.8
25	---	---	---	11.4	10.9	11.2	9.1	8.5	8.8	8.1	7.6	7.8
26	---	---	---	10.9	10.6	10.7	9.1	8.6	8.8	8.8	7.8	8.1
27	---	---	---	10.7	10.3	10.5	9.1	8.6	8.9	8.8	8.3	8.6
28	---	---	---	10.7	10.0	10.5	9.0	8.6	8.9	8.6	8.1	8.5
29	---	---	---	10.8	10.5	10.6	9.0	8.6	8.8	8.5	8.1	8.3
30	---	---	---	10.8	10.4	10.6	8.9	8.6	8.7	8.4	7.9	8.2
31	---	---	---	10.5	8.6	10.1	---	---	---	8.2	7.8	8.1
MONTH	9.2	8.2	8.4	12.9	8.4	11.5	10.6	8.4	9.2	8.8	6.9	7.9



## DELAWARE RIVER BASIN

## 01482800 DELAWARE RIVER AT REEDY ISLAND JETTY, DE--Continued

## CROSS-SECTION ANALYSES, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Loca- tion in X-sect. downstrm ft from l bank (00009)	Sam- pling depth, feet (00003)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unfl µS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)
APR 2003									
02...	1132	1028	1028	330	1	10.5	7.5	2040	9.9
02...	1133	1028	1028	330	5	10.4	7.5	2280	10.1
02...	1134	1028	1028	330	10	10.4	7.5	2300	10.1
02...	1135	1028	1028	800	1	10.5	7.5	1960	9.6
02...	1136	1028	1028	800	5	10.5	7.5	2220	9.3
02...	1137	1028	1028	800	10	10.4	7.5	2320	9.3
02...	1138	1028	1028	800	15	10.3	7.5	2480	9.4
02...	1139	1028	1028	800	20	10.3	7.5	2600	9.9
02...	1140	1028	1028	800	25	10.3	7.5	2600	10.2
02...	1141	1028	1028	800	30	10.3	7.5	2620	10.3
02...	1153	1028	1028	1300	1	10.5	7.5	1750	10.4
02...	1154	1028	1028	1300	5	10.5	7.5	1850	9.0
02...	1155	1028	1028	1300	10	10.5	7.5	2040	8.9
02...	1156	1028	1028	1300	15	10.4	7.5	2270	9.0
02...	1157	1028	1028	1300	20	10.4	7.4	2450	9.0
02...	1158	1028	1028	1300	25	10.3	7.5	2560	9.6
02...	1159	1028	1028	1300	30	10.3	7.5	2610	9.7
02...	1202	1028	1028	1800	1	10.6	7.5	1770	9.2
02...	1203	1028	1028	1800	5	10.5	7.5	1770	9.0
02...	1204	1028	1028	1800	10	10.5	7.5	1910	8.9
02...	1205	1028	1028	1800	15	10.4	7.4	2690	9.2
02...	1206	1028	1028	1800	20	10.4	7.5	2410	9.1
02...	1207	1028	1028	1800	25	10.3	7.5	2830	9.4
02...	1208	1028	1028	1800	30	10.3	7.5	2850	9.5
02...	1209	1028	1028	2300	1	10.4	7.5	1860	9.0
02...	1210	1028	1028	2300	5	10.4	7.5	1880	8.9
02...	1211	1028	1028	2300	10	10.4	7.5	1980	8.9
02...	1212	1028	1028	2300	15	10.4	7.4	2370	8.9
02...	1213	1028	1028	2300	20	10.3	7.4	2840	9.1
02...	1214	1028	1028	2300	25	10.3	7.4	3070	9.5
02...	1215	1028	1028	2300	30	10.3	7.5	3080	9.6
02...	1216	1028	1028	2300	35	10.3	7.5	3100	9.6
02...	1217	1028	1028	2800	1	10.5	7.5	2010	9.1
02...	1218	1028	1028	2800	5	10.5	7.5	2130	9.0
02...	1219	1028	1028	2800	10	10.4	7.5	2190	9.0
02...	1220	1028	1028	2800	15	10.4	7.5	2210	9.0
02...	1221	1028	1028	2800	20	10.4	7.5	2310	9.0
02...	1222	1028	1028	2800	25	10.4	7.5	2600	9.1
02...	1223	1028	1028	2800	30	10.3	7.5	2840	9.3
02...	1224	1028	1028	2800	35	10.3	7.5	2880	9.4
02...	1225	1028	1028	3300	1	10.4	7.5	2150	9.1
02...	1226	1028	1028	3300	5	10.4	7.5	2140	9.0
02...	1227	1028	1028	3300	10	10.4	7.5	2150	8.9
02...	1228	1028	1028	3300	15	10.4	7.5	2400	8.9
02...	1229	1028	1028	3300	20	10.4	7.5	2450	8.9
02...	1230	1028	1028	3300	25	10.4	7.5	2670	9.0
02...	1231	1028	1028	3300	30	10.4	7.5	2830	9.0
02...	1232	1028	1028	3300	35	10.4	7.5	2820	9.0
02...	1233	1028	1028	3300	40	10.4	7.5	2800	9.0
02...	1234	1028	1028	3800	1	10.5	7.5	2470	9.2
02...	1235	1028	1028	3800	5	10.5	7.5	2560	9.2
02...	1236	1028	1028	3800	10	10.5	7.5	2610	9.0
02...	1237	1028	1028	3800	15	10.4	7.5	2750	8.9
02...	1238	1028	1028	3800	20	10.4	7.5	2740	8.9
02...	1239	1028	1028	3800	25	10.4	7.5	2730	8.9
02...	1240	1028	1028	3800	30	10.4	7.5	2740	8.8
02...	1241	1028	1028	3800	35	10.4	7.5	2780	8.8
02...	1242	1028	1028	3800	40	10.4	7.5	2810	8.8
02...	1243	1028	1028	3800	45	10.4	7.5	2870	8.8
02...	1244	1028	1028	4300	1	10.5	7.5	2740	9.0
02...	1245	1028	1028	4300	5	10.4	7.5	2820	8.8
02...	1246	1028	1028	4300	10	10.4	7.5	3000	8.8
02...	1247	1028	1028	4300	15	10.4	7.5	3030	8.8
02...	1248	1028	1028	4300	20	10.4	7.5	3100	8.8
02...	1249	1028	1028	4300	25	10.4	7.5	3180	8.8
02...	1250	1028	1028	4300	30	10.4	7.5	3200	8.8
02...	1251	1028	1028	4300	35	10.4	7.5	3130	8.8
02...	1252	1028	1028	4300	40	10.4	7.5	3150	8.8
02...	1253	1028	1028	4300	45	10.4	7.5	3120	8.8
02...	1254	1028	1028	4300	50	10.4	7.5	3080	8.8

## DELAWARE RIVER BASIN

## 01482800 DELAWARE RIVER AT REEDY ISLAND JETTY, DE--Continued

## CROSS-SECTION ANALYSES, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003--Continued

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Loca- tion in X-sect. downstrm ft from l bank (00009)	Sam- pling depth, feet (00003)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf $\mu$ S/cm 25 degC (00095)	Temper- ature, water, deg C (00010)
APR 2003									
02...	1255	1028	1028	4800	1	10.4	7.5	2800	9.3
02...	1256	1028	1028	4800	5	10.5	7.5	2890	9.1
02...	1257	1028	1028	4800	10	10.4	7.5	2900	8.9
02...	1258	1028	1028	4800	15	10.4	7.5	2920	8.8
02...	1259	1028	1028	4800	20	10.4	7.5	3000	8.8
02...	1300	1028	1028	4800	25	10.4	7.5	3140	8.8
02...	1301	1028	1028	4800	30	10.4	7.5	3160	8.8
02...	1302	1028	1028	4800	35	10.4	7.5	3190	8.8
02...	1303	1028	1028	4800	40	10.4	7.5	3180	8.8
02...	1304	1028	1028	4800	45	10.4	7.5	3190	8.8
02...	1305	1028	1028	5300	1	10.5	7.5	2900	9.8
02...	1306	1028	1028	5300	5	10.5	7.5	2880	9.7
02...	1307	1028	1028	5300	10	10.6	7.5	2820	9.3
02...	1308	1028	1028	5300	15	10.6	7.5	2920	9.2
02...	1309	1028	1028	5300	20	10.5	7.5	2980	9.2
02...	1310	1028	1028	5300	25	10.5	7.5	2960	9.3
02...	1311	1028	1028	5300	30	10.5	7.5	3070	9.3
02...	1312	1028	1028	5300	35	10.5	7.5	3140	9.2
02...	1313	1028	1028	5800	1	10.5	7.5	1510	9.3
02...	1314	1028	1028	5800	5	10.5	7.4	2080	9.1
02...	1315	1028	1028	5800	10	10.5	7.4	2800	9.0
02...	1316	1028	1028	5800	15	10.5	7.4	2920	9.0
02...	1317	1028	1028	5800	20	10.5	7.5	2960	8.9
02...	1318	1028	1028	5800	25	10.5	7.5	2950	9.0
02...	1319	1028	1028	6300	1	10.5	7.5	830	9.4
02...	1320	1028	1028	6300	5	10.5	7.4	1090	9.1
02...	1321	1028	1028	6300	10	10.5	7.3	1770	9.0
02...	1322	1028	1028	6300	15	10.5	7.3	2790	8.9
02...	1323	1028	1028	6300	20	10.5	7.3	2850	8.8
02...	1324	1028	1028	6800	1	10.5	7.5	560	9.4
02...	1325	1028	1028	6800	5	10.6	7.4	1100	9.2
02...	1326	1028	1028	6800	10	10.6	7.3	1760	8.8
02...	1327	1028	1028	6800	15	10.5	7.3	2360	8.8
02...	1328	1028	1028	7300	1	10.4	7.3	520	9.2
02...	1329	1028	1028	7300	5	10.5	7.4	640	8.9
02...	1330	1028	1028	7300	10	10.5	7.3	1300	8.9
02...	1331	1028	1028	7500	0	--	--	--	--



## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at crest-stage partial-record stations are presented in the following table. Discharge measurements made at low-flow partial-record sites and at miscellaneous sites and for special studies are given in separate tables.

### Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

**Annual maximum discharge at crest-stage partial-record stations during water year 2003**

Station name and number	Location and drainage area	Period of Record	Water year 2003 maximum			Period of record maximum		
			Date	Gage height (ft)	Discharge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Discharge (ft <sup>3</sup> /s)
<b>DELAWARE RIVER BASIN</b>								
LACKAWAXEN RIVER BASIN								
Dyberry Creek above Reservoir near Honesdale, Pa. (01429300)	Lat 41°39'26", long 75°17'12", Wayne County, Hydrologic Unit 02040103, on right bank 955 ft downstream from bridge on West Branch Dyberry Creek at Tanners Falls, Pa., 0.2 mi downstream from confluence of the East and West Branches of Dyberry Creek, and 6 mi north of Dyberry, Pa. Datum of gage is 1,023.43 ft above sea level. Drainage area is 45.8 mi <sup>2</sup> .	1975-2003	9-04-03	10.94	3,810	9-27-85	11.75	5,140
VANDERMARK CREEK BASIN								
Vandermark Creek at Milford, Pa. (01438300)	Lat 41°19'35", long 74°47'50", Pike County, Hydrologic Unit 02040104, at stone bridge on Broad Street in Milford, Pa., and 0.4 mi upstream of mouth. Datum of gage is 490.50 ft above sea level. Drainage area is 5.36 mi <sup>2</sup> .	1962-2003	9-04-03	2.33	103	9-16-99	3.36 <sup>a</sup>	566
BRODHEAD CREEK BASIN								
Mill Creek at Mountainhome, Pa. (01440300)	Lat 41°09'50", long 75°16'00", Monroe County, Hydrologic Unit 02040104, at concrete bridge on macadam road, 0.5 mi east of Mountainhome, Pa., and 1.5 mi upstream of mouth. Drainage area is 5.84 mi <sup>2</sup> .	1961-2003	9-23-03	10.15	626	7-28-69	12.65	1,650

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Annual maximum discharge at crest-stage partial-record stations during water year 2003—Continued

Station name and number	Location and drainage area	Period of Record	Water year 2003 maximum			Period of record maximum		
			Date	Gage height (ft)	Discharge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Discharge (ft <sup>3</sup> /s)
<b>DELAWARE RIVER BASIN</b> --Continued								
LEHIGH RIVER BASIN								
Lehigh River at Allentown, Pa. (01451192)	Lat 40°36'23", long 75°27'17", Lehigh County, Hydrologic Unit 02040106, on upstream side of bridge on Hamilton Street in Allentown, Pa., 200 ft downstream from lock and dam, and 0.7 mi upstream from Little Lehigh Creek. Datum of gage, 200 ft above sea level. Drainage area is 1,033 mi <sup>2</sup> .	1977-81* 1982-94 1995-2003	9-23-03	44.12	23,000	1-20-96	48.25	45,600
NESHAMINY CREEK BASIN								
Neshaminy Creek near Penns Park, Pa. (01465200)	Lat 40°15'06", long 75°00'31", Bucks County, Hydrologic Unit 02040201, on left bank at bridge over main stem of Neshaminy Creek on Second Street Pike (Rt. 232) at Penns Park, Pa. Drainage area is 157 mi <sup>2</sup> .	2002-2003	6-04-03	13.71	7,400	6-04-03	13.71 <sup>b</sup>	7,400
SCHUYLKILL RIVER BASIN								
Schuylkill River at Birdsboro, Pa. (01471660)	Lat 40°16'05", long 75°48'40", Berks County, Hydrologic Unit 02040203, on railroad bridge, on right bank 1,000 ft upstream from bridge on SR 82 in Birdsboro, Pa. Datum of gage, sea level. Drainage area is 976 mi <sup>2</sup> .	1981-94 1996 1999-2003	6-21-03	153.32	18,000	4-16-83	158.72	30,700
Schuylkill River at Phoenixville, Pa. (01472162)	Lat 40°08'07", long 75°30'32", Chester County, Hydrologic Unit 02040203, on the downstream end of the left bank wingwall of Reading Railroad bridge across the mouth of French Creek at Phoenixville, Pa. (station 014721612). Datum of gage, sea level. Drainage area is 1,280 mi <sup>2</sup> .	1971-94 1996 1999-2003	6-21-03	87.30	33,400	6-23-72	100.58	79,100
CHRISTINA RIVER BASIN BRANDYWINE CREEK BASIN WEST BRANCH BRANDYWINE CREEK BASIN								
Sucker Run near Coatesville, Pa. (01480610)	Lat 39°58'20", long 75°51'03", Chester County, Hydrologic Unit 02040205, at concrete bridge on South Park Avenue on SR 372, 1.6 mi upstream of mouth, and 2.0 mi west of Coatesville, Pa. Drainage area is 2.57 mi <sup>2</sup> .	1964-2003	6-21-03	6.12	435	7-21-79	8.49	1,500

\* Operated as a low-flow partial-record station.  
<sup>a</sup> Peak gage height for period of record is 3.65 ft, Sept. 25, 1975.  
<sup>b</sup> Peak gage height for period of record is 14.38 ft, Feb. 22, 2003.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

## Miscellaneous sites

## Discharge measurements made at miscellaneous sites during water year 2003

Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
<b>DELAWARE RIVER BASIN--Continued</b>						
EQUINUNK CREEK BASIN						
01427200 Equinunk Creek	Delaware River	Lat 41°50'15", long 75°13'55", Wayne County, Hydrologic Unit 02040101, at highway bridge 700 ft downstream from South Branch Equinunk Creek, and 1.4 mi above mouth and Equinunk, Pa.	56.3	1946-57* 1978-91* 1992-2002	5-15-03	125
					7-30-03	19
					8-20-03	31
					8-28-03	12
LACKAWAXEN RIVER BASIN						
01431600 Wallenpaupack Creek	Lackawaxen River	Lat 41°20'10", long 75°20'25", Wayne County, Hydrologic Unit 02040103, at bridge on dirt road 2.6 mi south of intersection of State Routes 84 and 191, 0.2 mi upstream from Rock Port Creek, and at East Sterling, Pa.	69.5	1944-57 1978-81 1989-2002	10-03-02	25
					11-14-02	136
					3-26-03	635
					4-23-03	128
					5-13-03	86
01432110 Lackawaxen River	Delaware River	Lat 41°28'33", long 75°02'12", Pike County, Hydrologic Unit 02040103, at mouth, and downstream from bridge on SR 590, at Rowland, Pa. Regulated by lakes and reservoirs upstream.	588	1949 <sup>a</sup> 1989-2002	7-09-03	90
					8-20-03	60
					10-03-02	126
					11-14-02	890
					3-26-03	3,740
5-13-03	743					
7-09-03	218					
8-20-03	279					
SHOHOLA CREEK BASIN						
01432500 Shohola Creek	Delaware River	Lat 41°27'20", long 74°55'25", Pike County, Hydrologic Unit 02040104, 1.7 mi upstream from mouth, and 1.4 mi south of Shohola, Pa. Prior to 1959 at highway bridge 0.4 mi upstream.	83.6	1920-28≠ 1957-80 1981-91* 1992-2002	5-14-03	83
					7-29-03	53
					0143839602 Sawkill Creek	Delaware River
10-17-02	135					
4-01-03	92					
5-13-03	24					
7-22-03	48					
9-22-03	30					
01438700 Raymondskill Creek	Delaware River	Lat 41°18'11", long 74°51'21", Pike County, Hydrologic Unit 02040104, at bridge on SR 2009, 2.0 mi upstream from mouth, and 2.4 mi southwest of Milford, Pa.	20.4	1947-57 2002	10-07-02	9.1
					10-17-02	127
					4-01-03	85
					5-13-03	18
					7-22-03	49
9-22-03	25					
01438754 Adams Creek	Delaware River	Lat 41°15'40", long 74°53'24", Pike County, Hydrologic Unit 02040104, at bridge on SR 2001, 3.0 mi upstream from mouth, and near Edgemere, Pa.	3.71	2002	10-07-02	0.53
					10-17-02	31
					4-01-03	18
					5-13-03	2.7
					7-22-03	4.8
9-22-03	2.9					
01438892 Dingmans Creek	Delaware River	Lat 41°13'47", long 74°53'50", Pike County, Hydrologic Unit 02040104, at bridge on Doodle Hollow Road, 2.3 mi upstream from mouth, and near Dingmans Ferry, Pa.	13.9	2002	10-08-02	2.5
					10-17-02	121
					4-01-03	64
					5-13-03	12
					7-22-03	24
9-22-03	9.0					

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 2003—Continued

Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
<b>DELAWARE RIVER BASIN--Continued</b>						
SHOHOLA CREEK BASIN--Continued						
01439092 Hornbecks Creek	Delaware River	Lat 41°11'45", long 74°54'36", Pike County, Hydrologic Unit 02040104, at culvert on Emery Road 2.0 mi upstream from mouth, and near Dingmans Ferry, Pa.	6.43	2002	10-08-02 10-16-02 4-01-03 5-15-03 7-22-03 9-22-03	1.0 66 27 3.6 8.0 3.0
01439400 Toms Creek	Delaware River	Lat 41°07'33", long 74°57'20", Pike County, Hydrologic Unit 02040104, at bridge on Toms Creek Road, 0.4 mi upstream from mouth, at Egypt Mills, Pa.	9.34	1970-83 2002	10-07-02 10-16-02 4-02-03 5-14-03 7-23-03 9-22-03	1.4 82 42 6.5 8.1 4.8
01439570 Sand Hill Creek	Bush Kill	Lat 41°05'06", long 75°00'32", Monroe County, Hydrologic Unit 02040104, at abandoned footbridge, 0.3 mi upstream from mouth, at Bushkill, Pa.	3.46	2002	10-07-02 10-16-02 4-02-03 5-14-03 7-23-03 9-22-03	0 8.5 13 0.47 3.2 3.4
01439680 Little Bush Kill	Bush Kill	Lat 41°05'52", long 75°00'15", Pike County, Hydrologic Unit 02040104, at bridge on East Sugar Mountain Road, 0.7 mi upstream from mouth, at Bushkill, Pa.	32.6	2002	10-07-02 10-17-02 4-02-03 5-14-03 7-23-03 9-22-03	9.4 158 179 31 38 37
BRODHEAD CREEK BASIN POHOPOCO CREEK BASIN						
01450020 Pohopoco Creek	Lehigh River	Lat 40°49'05", long 75°40'27", Carbon County, Hydrologic Unit 02040106, 200 ft upstream of Parryville Dam, at Parryville, Pa., and 0.25 mi above mouth.	111	1992-1998 <sup>b</sup> 1999-2002	10-10-02 3-05-03 4-24-03 6-02-03 8-28-03	46 132 162 914 106
NESHAMINY CREEK BASIN						
01465460 Iron Works Creek	Mill Creek	Lat 40°11'54", long 75°00'40", Bucks County, Hydrologic Unit 02040201, at lower Holland Road bridge 300 ft east of Bustleton Pike, and 1.3 mi south of Richboro, Pa.	3.69	1981* 1982-86 1991-2002	1-14-03 4-10-03 5-21-03 7-15-03 8-27-03	5.0 7.5 2.5 2.5 0.87
SCHUYLKILL RIVER BASIN						
†01472190 Pickering Creek	Schuylkill River	Lat 40°06'33", long 75°31'42", Chester County, Hydrologic Unit 02040203, at bridge on Creek Road at SR 29, 0.3 mi downstream from Conrail bridge, 1.0 mi south of Phoenixville, Pa., and 2.6 mi upstream from Pickering Creek Dam.	31.4	1967-68 <sup>z</sup> 1975-2002 1981-84*	10-22-02 11-07-02 1-09-03 3-05-03 5-20-03 6-18-03 8-12-03	13 23 50 78 30 100 52
01473110 Skippack Creek	Perkiomen Creek	Lat 40°10'17", long 75°25'52", Montgomery County, Hydrologic Unit 02040203, at bridge on State Route 363, and 0.4 mi east of Evansburg, Pa.	52.9	1995-2002	10-23-02 12-05-02 3-06-03 5-20-03 6-19-03 8-13-03	17 26 1,810 18 101 71

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 2003—Continued

Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
<b>DELAWARE RIVER BASIN--Continued</b>						
<b>CHRISTINA RIVER BASIN</b>						
01478230	White Clay Creek	Lat 39°45'02", long 75°46'19", Chester County, Hydrologic Unit 02040205, at bridge on Sharpless Road, 2.0 mi south of Landenberg, Pa., and 6.0 mi south of Avondale, Pa. Formerly published as "White Clay Creek".	25.5	1989-2002	10-23-02	8.9
Middle Branch White Clay Creek					12-10-02	13
					3-11-03	46
					4-24-03	28
					5-28-03	39
					7-09-03	28
					8-28-03	16
01480424	Brandywine Creek	Lat 40°01'19", long 75°50'53", Chester County, Hydrologic Unit 02040205, on downstream side of concrete bridge on Wagontown Road, .75 mi northwest of Wagontown, Pa.	31.9	2002	10-11-02	74
West Branch Brandywine Creek					12-18-02	32
					3-11-03	57
					4-23-03	34
					6-17-03	44
					7-22-03	25
					9-08-03	19
					9-18-03	534
<b>BIG ELK CREEK BASIN</b>						
01494990	Elk River	Lat 39°43'50", long 75°50'55", Chester County, Hydrologic Unit 02060002, at bridge on Lewisville Road, 1.5 mi east of Lewisville, Pa., and 9.2 mi north of Elkton, Md.	41.0	1989-2002	10-25-02	15
Big Elk Creek					12-18-02	43
					1-22-03	38
					3-11-03	74
					4-25-03	49
					5-28-03	69
					7-09-03	50
					8-28-03	36
					9-19-03	347

\* Operated as a low-flow partial-record station.

≠ Operated as a continuous-record gaging station.

† Operated as a water-quality partial-record station since 1974.

‡ Prior to October 1988 at latitude 41°28'19", longitude 75°02'25".

b The results of discharge measurements made from 1992 through 1998 water years are available in office files.

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

The Pennsylvania Water-Quality Network (WQN) is a statewide, fixed station water-quality sampling system currently operated by the Department of Environmental Protection (PaDEP), Bureau of Water Supply and Wastewater Management in cooperation with the United States Geological Survey (USGS). It is designed to assess both the quality of Pennsylvania's surface waters and the effectiveness of the water quality management program by accomplishing three basic objectives:

- \* Monitor temporal water-quality trends in major surface streams throughout the Commonwealth of Pennsylvania.
- \* Monitor temporal water-quality trends in selected reference waters.
- \* Monitor temporal water-quality trends in selected Pennsylvania lakes.

Major streams are defined as interstate waters and intrastate streams with drainage areas of roughly 200 mi<sup>2</sup> or greater. These waters are sampled at or near their mouths to measure overall quality before flows enter the next higher order stream or before exiting the Commonwealth. In this way, trends can be established and the effectiveness of water-quality management programs can be assessed by watershed. Samples are collected on fixed time intervals resulting in coverage of a range of flow regimes. All samples collected from April 1, 2002 through September 30, 2003 were collected by the USGS and analyzed by the PaDEP laboratory in Harrisburg.

Most of the current WQN standard sites are co-located with USGS gage stations and others are equipped with a wire-weight gage. Currently the network consists of 120 standard stream sites, 26 reference stream sites, and 27 lakes distributed across the Commonwealth. This report contains only those sites in the Delaware River basin. The locations of these sites can be found in figures 6-9. Other data for the WQN can be found in the annual Water Data Reports PA-03-2 and PA-03-3.

Standard stations are sampled bimonthly (6 times per year) for physical and chemical parameters and stream discharge or a stage reading. Reference stations are sampled monthly at 25-30 day intervals for physical and chemical parameters and stream discharge or a stage reading. Benthic macroinvertebrates are also collected annually at all WQN stations.

Ninety lakes are part of the WQN. Of these 90 lakes, approximately 15-20 are sampled annually during mid-summer stratification for 5 years; and then a different set of 15-20 lakes is sampled for 5 years. Using this schedule, all 90 lakes are sampled over a 30-year period. However, 27 lakes are scheduled for sampling in the current 5-year sampling period. Lakes are sampled for physical and chemical parameters. Two samples are collected from the deepest point of the lake with the first sample being collected 1-meter below the surface and the second sample collected 1-meter from the bottom. Each sample is analyzed separately. A temperature and dissolved oxygen profile is collected at the site through the water column. This report contains only data for lakes in the Delaware River basin. The locations of these sites can be found in figures 6-9.

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).

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

**TABLE 3.**--Pennsylvania Water-Quality Network (WQN) station list.

Station number	WQN No.	Location	Latitude	Longitude	Drainage area (mi <sup>2</sup> )
01426500	104	West Branch Delaware River at Hale Eddy, NY	42° 00' 11"	75° 23' 02"	595
<sup>a</sup> 01427510	185	Delaware River at Callicoon, NY	41° 45' 24"	75° 03' 28"	1,820
01429301	336	Dyberry Creek at Tanners Falls near Dyberry, PA	41° 39' 11"	75° 16' 55"	46.4
01431600	141	Wallenpaupack Creek at East Sterling, PA	41° 20' 10"	75° 20' 25"	69.5
01432119	147	Lackawaxen River at mouth at Lackawaxen, PA	41° 29' 12"	74° 59' 31"	597
<sup>a</sup> 01434000	103	Delaware River at Port Jervis, NY	41° 22' 14"	74° 41' 52"	3,070
01438760	192	Adams Creek near Dingmans Ferry, PA	41° 14' 22"	74° 52' 02"	8.20
<sup>a</sup> 01439500	139	Bush Kill at Shoemakers, PA	41° 05' 17"	75° 02' 17"	117
01440650	138	Brodhead Creek near East Stroudsburg, PA	41° 02' 10"	75° 12' 34"	121
<sup>a</sup> 01442500	137	Brodhead Creek at Minisink Hills, PA	40° 59' 55"	75° 08' 35"	259
01444800	194	Delaware River at Richmond, NJ	40° 49' 44"	75° 05' 06"	4,378
01447300	190	Choke Creek near Thornhurst, PA	41° 09' 40"	75° 36' 10"	8.06
<sup>a</sup> 01447500	126	Lehigh River at Stoddartsville, PA	41° 07' 49"	75° 37' 33"	91.7
<sup>a</sup> 01447720	142	Tobyhanna Creek near Blakeslee, PA	41° 05' 05"	75° 36' 21"	118
01449375	191	Wild Creek above Penn Forest Reservoir near Kresgeville, PA	40° 56' 24"	75° 35' 04"	5.4
01451070	125	Lehigh River at Treichlers, PA	40° 44' 03"	75° 32' 28"	928
01452040	130	Jordan Creek at mouth at Allentown, PA	40° 36' 06"	75° 27' 43"	82.3
<sup>a</sup> 01454700	123	Lehigh River at Glendon, PA	40° 40' 09"	75° 14' 12"	1,359
01457790	187	Cooks Creek at Durham Furnace, PA	40° 34' 56"	75° 12' 20"	29.4
01458900	186	Tinicum Creek near Ottsville, PA	40° 28' 14"	75° 08' 13"	14.7
<sup>a</sup> 01463500	101	Delaware River at Trenton, NJ	40° 13' 18"	74° 46' 42"	6,780
<sup>a</sup> 01465500	121	Neshaminy Creek near Langhorne, PA	40° 10' 26"	74° 57' 26"	210
<sup>a</sup> 01470500	113	Schuylkill River at Berne, PA	40° 31' 21"	75° 59' 55"	355
<sup>a</sup> 01471000	117	Tulpehocken Creek near Reading, PA	40° 22' 08"	75° 58' 46"	211
<sup>a</sup> 01472000	111	Schuylkill River at Pottstown, PA	40° 14' 30"	75° 39' 07"	1,147
01472150	156	French Creek at Coventryville, PA	40° 10' 16"	75° 41' 26"	36.9
01473030	116	Perkiomen Creek at Arcola near Collegeville, PA	40° 09' 11"	75° 27' 21"	300
01473170	154	Valley Creek at Wilson Road near Valley Forge, PA	40° 04' 53"	75° 27' 25"	22.0
<sup>a</sup> 01473900	193	Wissahickon Creek at Fort Washington, PA	40° 07' 26"	75° 13' 13"	40.8
<sup>a</sup> 01474000	115	Wissahickon Creek at mouth at Philadelphia, PA	40° 00' 55"	75° 12' 26"	64.0
01474010	110	Schuylkill River at Falls Bridge at Philadelphia, PA	40° 00' 30"	75° 11' 52"	1,893
<sup>a</sup> 01478245	149	White Clay Creek near Strickersville, PA	39° 44' 51"	75° 46' 15"	59.2
<sup>a</sup> 01479820	150	Red Clay Creek near Kennett Square, PA	39° 49' 00"	75° 41' 31"	28.3
<sup>a</sup> 01481000	105	Brandywine Creek at Chadds Ford, PA	39° 52' 11"	75° 35' 37"	287
01494990	256	Big Elk Creek near Lewisville, PA	39° 43' 48"	75° 50' 54"	41.0

<sup>a</sup>Other data for this station can be found in the continuous station records section of this report.

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

**TABLE 4.**--List of lakes sampled as part of the Pennsylvania Water-Quality Network.

Station number	WQN No.	Location	Latitude	Longitude	Drainage area (mi <sup>2</sup> )
01427252	L114	Duck Harbor Pond near Lookout, PA	41° 45' 11"	75° 12' 01"	3.59
01446590	L112	Minsi Lake near Roseto, PA	40° 54' 43"	75° 10' 15"	3.22
01447100	L113	Gouldsboro Lake at Gouldsboro, PA	41° 14' 07"	75° 27' 09"	
01459350	L111	Nockamixon Reservoir near Ottsville, PA	40° 28' 13"	75° 11' 10"	73.3
01464640	L115	Lake Galena near Chalfont, PA	40° 19' 01"	75° 12' 15"	
<sup>a</sup> 01480684	L110	Marsh Creek Lake near Downingtown, PA	40° 03' 24"	75° 43' 06"	20.1

<sup>a</sup>Other data for this station can be found in the continuous station records section of this report.



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

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

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Sam- pling method, code (82398)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unfl- trd µS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, unfltrd recovery, mg/L (00915)	Calcium water unfltrd recover- able, mg/L (00916)	Magnes- ium, water, fltrd, mg/L (00925)
01426500 West Banch Delaware River at Hale Eddy, NY (LAT 42 00 11N LONG 075 23 02W)													
NOV 2002													
04...	1200	1028	9813	--	40	13.2	7.5	90	4.6	25	6.54	6.8	1.79
JAN 2003													
07...	1215	1028	9813	--	40	14.2	7.5	90	.2	21	5.85	5.7	1.63
MAR													
20...	0915	1028	9813	--	40	13.2	7.5	127	1.9	23	6.37	6.4	1.54
MAY													
06...	1100	1028	9813	--	40	12.0	7.4	76	8.3	21	5.62	5.8	1.53
JUL													
08...	1045	1028	9813	--	40	9.9	7.5	99	14.9	26	7.03	7.2	1.80
SEP													
10...	1200	1028	9813	--	40	9.8	7.3	91	16.1	25	6.79	6.9	1.81
01429301 Dyberry Creek at Tanners Falls near Dyberry, PA (LAT 41 39 11N LONG 075 16 55W)													
OCT 2002													
08...	1330	1028	9813	7.3	30	11.2	7.5	87	12.6	37	--	12.9	--
NOV													
21...	1300	1028	9813	137	30	13.2	7.4	56	4.1	21	--	7.1	--
DEC													
10...	1300	1028	9813	--	30	--	7.7	68	.0	27	--	9.4	--
APR 2003													
08...	1245	1028	9813	146	30	13.7	7.5	49	1.7	18	--	6.3	--
MAY													
22...	1230	1028	9813	44	30	11.5	7.6	66	11.6	25	--	8.5	--
JUN													
10...	1215	1028	9813	92	30	9.9	7.1	55	14.6	20	--	7.1	--
JUL													
08...	1330	1028	9813	15	30	10.1	8.0	75	21.4	27	--	9.6	--
AUG													
11...	1245	1028	9813	55	30	9.2	7.5	68	20.1	25	--	8.8	--
SEP													
11...	0830	1028	9813	60	30	9.9	7.4	61	13.5	22	--	7.7	--
01431600 Wallenpaupack Creek at East Sterling, PA (LAT 41 20 10N LONG 075 20 25W)													
NOV 2002													
06...	1415	1028	9813	176	30	12.3	7.3	69	6.2	20	6.05	6.5	.90
JAN 2003													
08...	1530	1028	9813	254	30	12.4	6.8	66	2.0	15	5.06	4.7	.74
MAR													
19...	1200	1028	9813	544	30	12.3	6.8	69	2.8	17	5.40	5.5	.81
MAY													
07...	1500	1028	9813	77	30	11.5	7.5	83	13.8	23	7.09	7.2	1.11
JUL													
16...	1600	1028	9813	59	30	11.4	7.8	78	21.5	22	7.16	7.3	1.02
SEP													
10...	1320	1028	9813	104	30	10.2	7.5	69	16.6	20	6.35	6.5	.97

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

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

MISCELLANEOUS STATION ANALYSES

Date	Magnesium, water, unfltrd recover-able, mg/L (00927)	ANC, wat unfixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, unfltrd, mg/L (00951)	Sulfate, water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water, unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)
01426500 West Branch Delaware River at Hale Eddy, NY (LAT 42 00 11N LONG 075 23 02W)													
NOV 2002 04...	1.9	15	--	--	8.7	274	6	<.020	.26	<.040	<.01	.011	.48
JAN 2003 07...	1.6	11	--	--	7.8	84	4	<.020	.37	<.040	<.01	<.010	.43
MAR 20...	1.6	11	--	--	7.3	98	12	<.020	.45	<.040	.02	.019	.65
MAY 06...	1.6	12	--	--	6.9	44	8	<.020	.23	<.040	.01	.010	.43
JUL 08...	1.9	17	--	--	6.5	76	<2	<.020	.36	<.040	<.01	.016	.47
SEP 10...	1.9	18	--	--	6.2	94	<2	<.020	.30	<.040	.01	.017	.52
01429301 Dyberry Creek at Tanners Falls near Dyberry, PA (LAT 41 39 11N LONG 075 16 55W)													
OCT 2002 08...	1.1	28	4.5	<.2	8.2	56	8	.110	.04	<.040	<.01	.012	.18
NOV 21...	.7	13	3.2	<.2	7.4	26	2	<.020	.11	<.040	<.01	<.010	.57
DEC 10...	.9	17	3.8	<.2	8.1	52	2	<.020	.17	<.040	<.01	<.010	.42
APR 2003 08...	.6	11	4.2	<.2	6.4	60	<2	<.020	.20	<.040	<.01	.012	.33
MAY 22...	.8	19	3.4	<.2	6.2	80	<2	<.020	.08	<.040	<.01	.018	.17
JUN 10...	.7	17	2.8	<.2	6.0	50	4	<.020	.10	<.040	<.01	.022	.28
JUL 08...	.8	25	3.2	<.2	6.0	66	<2	<.020	.10	<.040	.01	.018	.82
AUG 11...	.8	26	3.0	<.2	5.2	52	<2	<.020	.11	<.040	.01	.017	.32
SEP 11...	.7	20	2.4	<.2	5.6	72	2	<.020	.13	<.040	.01	.020	.39
01431600 Wallenpaupack Creek at East Sterling, PA (LAT 41 20 10N LONG 075 20 25W)													
NOV 2002 06...	1.0	11	--	--	7.7	32	<2	.060	.23	<.040	<.01	<.010	.46
JAN 2003 08...	.7	8	--	--	6.8	84	<2	<.020	.33	<.040	<.01	<.010	.40
MAR 19...	.8	15	--	--	6.7	114	6	<.020	.42	<.040	<.01	.010	--
MAY 07...	1.1	13	--	--	7.0	70	2	<.020	.19	<.040	.01	.020	.39
JUL 16...	1.0	16	--	--	6.2	84	6	<.020	.24	<.040	.01	.014	.41
SEP 10...	1.0	13	--	--	5.6	94	<2	<.020	.16	<.040	.01	.018	.12

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

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

MISCELLANEOUS STATION ANALYSES

Date	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45µMF col/100 mL (31616)	Arsenic water, fltrd, µg/L (01000)	Cadmium water, fltrd, µg/L (01025)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover -able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover -able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover -able, µg/L (01051)	Mangan-ese, water, fltrd, µg/L (01056)	Mangan-ese, water, unfltrd recover -able, µg/L (01055)
01426500 West Branch Delaware River at Hale Eddy NY (LAT 42 00 11N LONG 075 23 02W)													
NOV 2002 04...	--	.8	--	--	--	<4	<4	30	120	<1.0	<1.0	20	30
JAN 2003 07...	--	1.5	--	--	--	<4	<4	30	130	<1.0	<1.0	20	50
MAR 20...	--	.9	--	--	--	<4	<4	40	420	<1.0	<1.0	30	100
MAY 06...	--	1.5	--	--	--	<4	<4	<20	110	<1.0	<1.0	30	40
JUL 08...	--	.9	--	--	--	<4	<4	30	60	<1.0	<1.0	30	40
SEP 10...	--	1.4	--	--	--	<4	<4	40	170	<1.0	<1.0	30	70
01429301 Dyberry Creek at Tanners Falls near Dyberry, PA (LAT 41 39 11N LONG 075 16 55W)													
OCT 2002 08...	--	2.0	20	<4.0	<.20	<4	<4	30	100	<1.0	<1.0	40	50
NOV 21...	--	1.1	40	<4.0	<.20	<4	<4	40	90	<1.0	<1.0	9.1	10
DEC 10...	--	1.4	<20	<4.0	<.20	<4	<4	40	90	<1.0	<1.0	20	40
APR 2003 08...	--	1.3	40	<4.0	<.20	<4	<4	30	70	<1.0	<1.0	10	20
MAY 22...	--	1.3	<20	<4.0	<.20	<4	<4	50	80	<1.0	<1.0	20	30
JUN 10...	--	1.1	60	<4.0	<.20	<4	<4	60	140	<1.0	<1.0	20	30
JUL 08...	--	1.2	140	<4.0	<.20	<4	<4	70	150	<1.0	<1.0	20	40
AUG 11...	--	1.1	60	<4.0	<.20	<4	<4	100	160	<1.0	<1.0	20	40
SEP 11...	--	.8	20	<4.0	<.20	<4	<4	50	120	<1.0	<1.0	30	40
01431600 Wallenpaupack Creek at East Sterling, PA (LAT 41 20 10N LONG 075 20 25W)													
NOV 2002 06...	--	2.4	--	--	--	<4	<4	40	110	<1.0	<1.0	20	30
JAN 2003 08...	--	1.0	--	--	--	<4	<4	40	130	<1.0	<1.0	20	30
MAR 19...	--	.7	--	--	--	<4	<4	60	210	<1.0	<1.0	40	60
MAY 07...	--	1.7	--	--	--	<4	<4	50	90	<1.0	<1.0	20	30
JUL 16...	--	1.0	--	--	--	<4	<4	60	100	<1.0	<1.0	20	30
SEP 10...	--	.9	--	--	--	<4	<4	70	130	<1.0	<1.0	20	30

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

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

MISCELLANEOUS STATION ANALYSES

Date	Nickel, water, fltrd, µg/L (01065)	Nickel, water, recover -able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, recover -able, µg/L (01092)	Phen- olic com- pounds, water, unfltrd µg/L (32730)
01426500 West Branch Delaware River at Hale Eddy, NY (LAT 42 00 11N LONG 075 23 02W)					
NOV 2002					
04...	<4.0	<4.0	<5.0	<5.0	--
JAN 2003					
07...	<4.0	<4.0	<5.0	<5.0	--
MAR					
20...	<4.0	<4.0	<5.0	<5.0	--
MAY					
06...	<4.0	<4.0	<5.0	<5.0	--
JUL					
08...	<4.0	<4.0	<5.0	<5.0	--
SEP					
10...	<4.0	<4.0	<5.0	<5.0	--
01429301 Dyberry Creek at Tanners Falls near Dyberry, PA (LAT 41 39 11N LONG 075 16 55W)					
OCT 2002					
08...	<4.0	<4.0	<5.0	<5.0	<5
NOV					
21...	<4.0	<4.0	<5.0	<5.0	<5
DEC					
10...	<4.0	<4.0	<5.0	<5.0	<5
APR 2003					
08...	<4.0	<4.0	<5.0	<5.0	<5
MAY					
22...	<4.0	<4.0	<5.0	<5.0	<5
JUN					
10...	<4.0	<4.0	<5.0	<5.0	<5
JUL					
08...	<4.0	<4.0	<5.0	<5.0	<5
AUG					
11...	<4.0	<4.0	<5.0	<5.0	<5
SEP					
11...	<4.0	<4.0	<5.0	<5.0	<5
01431600 Wallenpaupack Creek at East Sterling, PA (LAT 41 20 10N LONG 075 20 25W)					
NOV 2002					
06...	<4.0	<4.0	<5.0	<5.0	--
JAN 2003					
08...	<4.0	<4.0	6.4	<5.0	--
MAR					
19...	<4.0	<4.0	5.6	7.2	--
MAY					
07...	<4.0	<4.0	<5.0	<5.0	--
JUL					
16...	<4.0	<4.0	<5.0	6.3	--
SEP					
10...	<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 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd, $\mu$ S/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd, mg/L as CaCO3 (00900)	Calcium water, unfltrd, recoverable, mg/L (00915)	Calcium water, unfltrd, recoverable, mg/L (00916)	Magnesium, water, unfltrd, mg/L (00925)
01432119 Lackawaxen River at mouth at Lackawaxen, PA (LAT 41 29 12N LONG 074 59 31W)													
NOV 2002													
06...	1200	1028	9813	586	40	13.1	7.5	80	6.2	25	--	7.9	--
JAN 2003													
08...	1300	1028	9813	2020	40	13.1	6.7	88	1.1	23	--	7.5	--
MAR													
19...	1400	1028	9813	5080	40	15.0	6.9	69	2.0	19	--	6.0	--
MAY													
07...	1300	1028	9813	586	40	12.6	8.9	87	14.4	25	--	7.9	--
JUL													
16...	1430	1028	9813	1090	40	12.4	8.1	86	21.6	22	--	7.0	--
SEP													
11...	0820	1028	9813	49	40	10.0	7.5	81	16.4	22	--	7.0	--
01438760 Adams Creek near Dingmans Ferry, PA (LAT 41 14 22N LONG 074 52 02W)													
OCT 2002													
08...	1500	1028	9813	.78	30	10.9	7.2	87	11.7	25	--	6.4	--
NOV													
04...	1240	1028	9813	7.5	30	12.8	7.5	74	5.0	17	--	4.3	--
DEC													
09...	1400	1028	9813	8.0	30	14.7	5.8	72	.0	17	--	4.2	--
JAN 2003													
09...	1000	1028	9813	22	30	12.6	6.3	70	3.0	16	--	3.8	--
MAR													
06...	0930	1028	9813	16	30	14.1	6.3	92	.5	18	--	4.4	--
APR													
03...	1400	1028	9813	25	30	12.4	6.3	79	6.6	16	--	3.9	--
MAY													
08...	1000	1028	9813	4.9	30	10.6	6.6	90	12.5	21	--	5.2	--
JUN													
03...	1300	1028	9813	49	30	11.2	6.7	73	13.0	14	--	3.4	--
JUL													
01...	1200	1028	9813	14	30	11.3	7.0	68	17.0	16	--	3.8	--
AUG													
13...	1430	1028	9813	8.8	30	10.4	7.2	79	21.2	18	--	4.5	--
SEP													
09...	0930	1028	9813	4.9	30	10.4	7.2	79	15.4	19	--	4.7	--
01440650 Brodhead Creek near East Stroudsburg, PA (LAT 41 02 10N LONG 075 12 34W)													
NOV 2002													
04...	1550	1028	9813	191	30	12.4	7.1	82	6.5	22	5.74	6.0	1.54
JAN 2003													
07...	1600	1028	9813	404	30	13.2	6.6	79	2.0	20	5.46	5.4	1.46
MAR													
04...	1630	1028	9813	312	30	14.7	7.2	107	.9	24	6.76	6.5	1.79
MAY													
06...	1440	1028	9813	145	30	11.9	7.0	105	10.8	23	6.52	6.4	1.73
JUL													
01...	1430	1028	9813	272	30	11.2	7.4	88	18.2	22	5.46	6.0	1.52
SEP													
09...	1350	1028	9813	99	30	10.4	8.2	103	18.2	23	6.30	6.4	1.63

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

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

MISCELLANEOUS STATION ANALYSES

Date	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unfixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, unfltrd, mg/L (00951)	Sulfate, water, fltrd, mg/L (00945)	Residue on evap. at 105degC, wat flt mg/L (00515)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia, water, unfltrd, mg/L as N (00610)	Nitrate, water, unfltrd, mg/L as N (00620)	Nitrite, water, unfltrd, mg/L as N (00615)	Ortho-phosphate, water, unfltrd, mg/L as P (70507)	Phosphorus, water, unfltrd, mg/L (00665)	Total nitrogen, water, unfltrd, mg/L (00600)
01432119 Lackawaxen River at mouth at Lackawaxen, PA (LAT 41 29 12N LONG 074 59 31W)													
NOV 2002 06...	1.2	15	--	--	9.1	40	<2	.050	.20	<.040	.01	.015	.45
JAN 2003 08...	1.1	12	--	--	8.1	86	2	<.020	.25	<.040	<.01	.016	.48
MAR 19...	1.0	17	--	--	6.8	78	24	.030	.43	<.040	.02	.055	.84
MAY 07...	1.2	19	--	--	7.2	70	2	<.020	<.04	<.040	.01	.016	.32
JUL 16...	1.1	16	--	--	7.1	62	<2	<.020	.15	<.040	.01	.027	.43
SEP 11...	1.0	16	--	--	6.0	94	<2	<.020	.14	<.040	.01	.028	.18
01438760 Adams Creek near Dingmans Ferry, PA (LAT 41 14 22N LONG 074 52 02W)													
OCT 2002 08...	2.2	15	10.3	<.2	9.7	64	8	.100	.08	<.040	.02	<.010	.17
NOV 04...	1.6	8	12.1	<.2	9.5	68	8	<.020	<.04	<.040	<.01	<.010	.22
DEC 09...	1.6	8	10.9	<.2	9.4	132	<2	<.020	.06	<.040	<.01	<.010	.17
JAN 2003 09...	1.5	6	12.2	<.2	8.1	38	<2	<.020	.07	<.040	<.01	<.010	<.06
MAR 06...	1.7	7	16.9	<.2	8.2	20	<2	<.020	.16	<.040	<.01	<.010	.12
APR 03...	1.5	--	15.0	<.2	7.7	--	--	<.020	.05	<.040	<.01	<.010	.58
MAY 08...	1.8	9	16.4	<.2	7.7	68	6	<.020	.09	<.040	<.01	.010	.22
JUN 03...	1.3	6	12.7	<.2	7.2	48	2	<.020	<.04	<.040	.01	.010	.18
JUL 01...	1.5	10	10.7	<.2	7.1	54	8	<.020	.10	<.040	<.01	.017	.17
AUG 13...	1.6	9	13.5	<.2	6.2	70	<2	<.020	.09	<.040	.01	.014	.34
SEP 09...	1.7	11	12.3	<.2	6.7	60	4	<.020	.12	<.040	<.01	.019	.12
01440650 Brodhead Creek near East Stroudsburg, PA (LAT 41 02 10N LONG 075 12 34W)													
NOV 2002 04...	1.6	12	--	--	8.7	80	4	<.020	.20	<.040	<.01	<.010	.36
JAN 2003 07...	1.4	8	--	--	8.0	50	<2	<.020	.23	<.040	<.01	<.010	.23
MAR 04...	1.8	9	--	--	8.2	30	<2	<.020	.30	<.040	.01	.010	.34
MAY 06...	1.7	--	--	--	7.5	38	<2	<.020	.17	<.040	<.01	.010	.33
JUL 01...	1.7	12	--	--	7.3	78	6	<.020	.17	<.040	<.01	.021	.24
SEP 09...	1.7	17	--	--	7.0	54	6	<.020	.19	<.040	.01	.021	.15

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

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

MISCELLANEOUS STATION ANALYSES

Date	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45µMF col/100 mL (31616)	Arsenic water, fltrd, µg/L (01000)	Cadmium water, fltrd, µg/L (01025)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)	Mangan-ese, water, fltrd, µg/L (01056)	Mangan-ese, water, unfltrd recover-able, µg/L (01055)
01432119 Lackawaxen River at mouth at Lackawaxen, PA (LAT 41 29 12N LONG 074 59 31W)													
NOV 2002 06...	3.7	--	--	--	--	--	<10	--	120	--	<1.0	--	20
JAN 2003 08...	3.3	--	--	--	--	--	<10	--	80	--	<1.0	--	30
MAR 19...	3.8	--	--	--	--	--	<10	--	810	--	1.2	--	220
MAY 07...	3.6	--	--	--	--	--	<10	--	120	--	<1.0	--	30
JUL 16...	3.8	--	--	--	--	--	<10	--	160	--	<1.0	--	90
SEP 11...	4.3	--	--	--	--	--	<10	--	320	--	<1.0	--	130
01438760 Adams Creek near Dingmans Ferry, PA (LAT 41 14 22N LONG 074 52 02W)													
OCT 2002 08...	--	1.5	<20	<4.0	<.20	<4	<4	<20	<20	<1.0	<1.0	<2.0	2.3
NOV 04...	--	.8	<20	<4.0	<.20	<4	<4	<20	<20	<1.0	<1.0	<2.0	2.7
DEC 09...	--	.6	<20	<4.0	<.20	<4	<4	30	30	<1.0	<1.0	<2.0	3.1
JAN 2003 09...	--	1.1	<20	<4.0	<.20	<4	<4	40	60	<1.0	<1.0	<2.0	4.7
MAR 06...	--	.8	120	<4.0	<.20	<4	<4	40	90	<1.0	<1.0	2.8	6.9
APR 03...	--	.6	<10	<4.0	<.20	<4	<4	20	50	<1.0	<1.0	2.2	7.9
MAY 08...	--	1.3	20	<4.0	<.20	<4	<4	40	30	<1.0	<1.0	<2.0	6.2
JUN 03...	--	.5	10	<4.0	<.20	<4	<4	110	150	<1.0	<1.0	3.8	20
JUL 01...	--	1.0	<20	<4.0	<.20	<4	<4	60	100	<1.0	<1.0	<2.0	10
AUG 13...	--	.9	20	<4.0	<.20	<4	<4	60	130	<1.0	<1.0	<2.0	20
SEP 09...	--	.8	60	<4.0	<.20	<4	<4	<20	30	<1.0	<1.0	<2.0	3.0
01440650 Brodhead Creek near East Stroudsburg, PA (LAT 41 02 10N LONG 075 12 34W)													
NOV 2002 04...	--	1.0	--	--	--	<4	<4	<20	30	<1.0	<1.0	3.7	5.3
JAN 2003 07...	--	1.7	--	--	--	<4	<4	<20	30	<1.0	<1.0	4.9	7.3
MAR 04...	--	1.0	--	--	--	<4	<4	30	50	<1.0	<1.0	5.1	10
MAY 06...	--	1.3	--	--	--	<4	<4	<20	30	<1.0	<1.0	4.3	8.0
JUL 01...	--	1.0	--	--	--	<4	<4	20	40	<1.0	<1.0	5.0	8.3
SEP 09...	--	1.0	--	--	--	<4	<4	30	140	<1.0	<1.0	2.8	7.6

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

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

MISCELLANEOUS STATION ANALYSES

Date	Nickel, water, fltrd, µg/L (01065)	Nickel, unfltrd water, recover -able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, unfltrd water, recover -able, µg/L (01092)	Phen- olic com- pounds, water, unfltrd µg/L (32730)
01432119 Lackawaxen River at mouth at Lackawaxen, PA (LAT 41 29 12N LONG 074 59 31W)					
NOV 2002 06...	--	<50	--	<10	--
JAN 2003 08...	--	<50	--	10	--
MAR 19...	--	<50	--	10	--
MAY 07...	--	<50	--	30	--
JUL 16...	--	<50	--	<10	--
SEP 11...	--	<50	--	10	--
01438760 Adams Creek near Dingmans Ferry, PA (LAT 41 14 22N LONG 074 52 02W)					
OCT 2002 08...	<4.0	<4.0	<5.0	<5.0	<5
NOV 04...	<4.0	<4.0	<5.0	<5.0	<5
DEC 09...	<4.0	<4.0	<5.0	<5.0	<5
JAN 2003 09...	<4.0	<4.0	<5.0	<5.0	<5
MAR 06...	<4.0	<4.0	<5.0	<5.0	<5
APR 03...	<4.0	<4.0	<5.0	5.5	<5
MAY 08...	<4.0	<4.0	<5.0	<5.0	<5
JUN 03...	<4.0	<4.0	20	6.2	<5
JUL 01...	<4.0	<4.0	<5.0	<5.0	<5
AUG 13...	<4.0	<4.0	<5.0	<5.0	<5
SEP 09...	<4.0	<4.0	<5.0	7.7	<5
01440650 Brodhead Creek near East Stroudsburg, PA (LAT 41 02 10N LONG 075 12 34W)					
NOV 2002 04...	<4.0	<4.0	6.3	<5.0	--
JAN 2003 07...	<4.0	<4.0	<5.0	<5.0	--
MAR 04...	<4.0	<4.0	<5.0	6.6	--
MAY 06...	<4.0	<4.0	<5.0	<5.0	--
JUL 01...	<4.0	<4.0	5.0	5.0	--
SEP 09...	<4.0	<4.0	<5.0	10	--



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

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

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Sam- pling method, code (82398)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unfl- trd µS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover- able, mg/L (00916)	Magnes- ium, water, fltrd, mg/L (00925)
01444800 Delaware River near Richmond, PA (LAT 40 49 44N LONG 075 05 06W)													
JAN 2003													
22...	1530	1028	9813	--	40	15.6	7.4	143	1.1	43	--	12.1	--
MAR 05...	1510	1028	9813	--	40	14.4	7.5	135	1.7	37	--	10.7	--
MAY 08...	1310	1028	9813	--	40	10.4	7.0	99	13.7	32	--	9.3	--
JUL 01...	1630	1028	9813	--	40	10.9	7.8	118	22.7	36	--	10.3	--
SEP 24...	1445	1028	9813	--	40	9.4	7.1	74	17.9	22	--	6.2	--
01447300 Choke Creek near Thornhurst, PA (LAT 41 09 40N LONG 075 36 10W)													
OCT 2002													
08...	1230	1028	9813	1.1	30	10.3	5.3	28	12.8	8	1.59	1.7	.88
NOV 05...	1040	1028	9813	8.0	30	13.1	4.7	27	3.8	6	1.27	1.3	.76
DEC 04...	1100	1028	9813	12	30	14.0	4.3	24	.1	6	1.22	1.2	.71
JAN 2003													
07...	1300	1028	9813	18	30	13.2	4.8	29	.3	6	1.14	1.1	.65
FEB 05...	1245	1028	9813	20	30	18.7	5.1	28	.1	7	1.42	1.4	.77
MAR 05...	1010	1028	9813	13	30	13.3	4.7	38	.8	7	1.44	1.4	.78
APR 02...	1530	1028	9813	53	30	11.3	4.2	33	8.3	5	.99	1.0	.53
MAY 06...	1200	1028	9813	7.6	30	11.6	4.5	24	8.9	5	1.05	1.0	.58
JUN 25...	1500	1028	9813	32	30	10.1	4.4	24	17.5	4	.88	.9	.47
JUL 22...	1200	1028	9813	14	30	9.4	4.2	19	17.8	6	1.14	1.2	.66
AUG 26...	0630	1028	9813	5.0	30	9.8	4.8	17	16.1	4	.96	.9	.52
SEP 10...	0900	1028	9813	7.4	30	10.3	5.1	20	12.2	4	.89	.9	.49
01449375 Wild Creek above Penn Forest Reservoir near Kresgeville PA (LAT 40 56 24N LONG 075 35 04W)													
OCT 2002													
08...	0930	1028	9813	1.4	30	10.5	6.5	67	11.8	9	2.27	2.3	.90
NOV 04...	1100	1028	9813	6.6	30	12.3	6.8	66	5.2	8	2.04	2.0	.82
DEC 04...	1330	1028	9813	9.0	30	13.7	6.0	62	1.6	9	2.03	2.1	.80
JAN 2003													
06...	1230	1028	9813	17	30	12.6	5.8	98	4.0	10	2.39	2.5	.85
FEB 05...	0930	1028	9813	8.0	30	10.9	6.4	61	1.7	8	2.08	2.0	.82
MAR 04...	1120	1028	9813	12	30	15.1	7.4	70	.1	9	2.18	2.2	.88
APR 02...	1230	1028	9813	25	30	12.0	6.4	92	7.2	8	2.11	2.1	.75
MAY 05...	1500	1028	9813	8.0	30	13.3	6.8	70	9.1	9	2.03	2.1	.84
JUN 25...	1200	1028	9813	40	30	12.1	6.3	65	13.0	7	1.81	1.8	.73
JUL 29...	1400	1028	9813	4.5	30	10.3	6.8	65	18.0	9	2.09	2.2	.81
AUG 13...	1700	1028	9813	8.8	30	11.0	6.9	75	18.5	9	2.14	2.2	.77
SEP 08...	1200	1028	9813	4.3	30	10.9	7.1	71	14.4	9	2.23	2.1	.90

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

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

MISCELLANEOUS STATION ANALYSES

Date	Magnesium, water, unfltrd recover-able, mg/L (00927)	ANC, wat unfix ed pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, unfltrd, mg/L (00951)	Sulfate, water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water, unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)
01444800 Delaware River near Richmond, PA (LAT 40 49 44N LONG 075 05 06W)													
JAN 2003 22...	3.0	28	--	--	11.2	56	28	.040	.57	<.040	<.01	<.010	.64
MAR 05...	2.5	19	--	--	9.6	94	<2	<.020	.43	<.040	.01	.011	.43
MAY 08...	2.1	20	--	--	7.9	64	14	<.020	.24	<.040	.01	.022	.50
JUL 01...	2.5	26	--	--	8.8	82	<2	<.020	.21	<.040	.01	.025	.34
SEP 24...	1.5	15	--	--	5.9	68	60	<.020	.17	<.040	.04	.098	.62
01447300 Choke Creek near Thornhurst, PA (LAT 41 09 40N LONG 075 36 10W)													
OCT 2002 08...	.9	2	2.1	<.2	6.9	26	2	.050	<.04	<.040	<.01	<.010	.09
NOV 05...	.8	2	2.3	<.2	5.7	<2	<2	<.020	<.04	<.040	.03	<.010	.21
DEC 04...	.7	2	2.0	<.2	5.1	38	<2	<.020	<.04	<.040	<.01	<.010	.34
JAN 2003 07...	.7	1	3.9	<.2	4.9	16	<2	<.020	<.04	<.040	<.01	<.010	<.06
FEB 05...	.8	--	4.4	<.2	5.3	30	4	<.020	.07	<.040	<.01	<.010	<.06
MAR 05...	.8	2	5.6	<.2	5.1	12	<2	<.020	<.04	<.040	<.01	<.010	<.06
APR 02...	.6	--	3.2	<.2	5.9	24	4	<.020	<.04	<.040	<.01	.013	.14
MAY 06...	.6	2	2.5	<.2	4.4	22	8	<.020	<.04	<.040	<.01	<.010	.13
JUN 25...	.5	2	1.3	<.2	4.4	38	<2	<.020	<.04	<.040	.01	.010	.12
JUL 22...	.7	2	1.2	<.2	3.5	14	<2	<.020	<.04	<.040	.01	.012	.10
AUG 26...	.5	3	1.2	<.2	3.5	24	<2	<.020	<.04	<.040	<.01	<.010	.14
SEP 10...	.5	2	1.8	<.2	3.5	92	<2	<.020	<.04	<.040	<.01	<.010	<.06
01449375 Wild Creek above Penn Forest Reservoir near Kresgeville PA (LAT 40 56 24N LONG 075 35 04W)													
OCT 2002 08...	.9	5	16.5	<.2	1.9	48	8	.090	<.04	<.040	<.01	<.010	.10
NOV 04...	.8	5	17.2	<.2	2.3	56	2	<.020	<.04	<.040	<.01	<.010	.14
DEC 04...	.8	4	16.5	<.2	1.9	66	<2	<.020	<.04	<.040	<.01	<.010	.09
JAN 2003 06...	.9	3	29.1	<.2	2.3	80	8	<.020	.04	<.040	<.01	<.010	<.06
FEB 05...	.8	4	14.6	<.2	2.6	42	14	<.020	.06	<.040	<.01	<.010	.56
MAR 04...	.9	--	16.7	<.2	2.4	26	<2	<.020	.05	<.040	<.01	<.010	<.06
APR 02...	.8	--	24.5	<.2	2.7	84	<2	<.020	.04	<.040	<.01	<.010	.27
MAY 05...	.9	5	17.6	<.2	1.9	76	2	<.020	<.04	<.040	<.01	<.010	<.06
JUN 25...	.7	5	17.0	<.2	2.5	48	8	<.020	.04	<.040	.01	.012	.08
JUL 29...	.9	6	16.4	<.2	1.4	60	<2	<.020	<.04	<.040	<.01	<.010	<.06
AUG 13...	.8	4	19.6	<.2	1.8	72	<2	<.020	<.04	<.040	<.01	.012	.13
SEP 08...	.8	6	17.5	<.2	1.3	50	<2	<.020	<.04	<.040	<.01	<.010	<.06

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

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

MISCELLANEOUS STATION ANALYSES

Date	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45µMF col/100 mL (31616)	Arsenic water, fltrd, µg/L (01000)	Cadmium water, fltrd, µg/L (01025)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)	Mangan-ese, water, fltrd, µg/L (01056)	Mangan-ese, water, unfltrd recover-able, µg/L (01055)
01444800 Delaware River near Richmond, PA (LAT 40 49 44N LONG 075 05 06W)													
JAN 2003 22...	3.0	--	--	--	--	--	<10	--	80	--	<1.0	--	20
MAR 05...	2.5	--	--	--	--	--	<10	--	140	--	<1.0	--	20
MAY 08...	2.3	--	--	--	--	--	<10	--	130	--	<1.0	--	30
JUL 01...	3.3	--	--	--	--	--	<10	--	150	--	<1.0	--	30
SEP 24...	5.8	--	--	--	--	--	<10	--	1730	--	3.0	--	300
01447300 Choke Creek near Thornhurst, PA (LAT 41 09 40N LONG 075 36 10W)													
OCT 2002 08...	--	1.8	<20	<4.0	<.20	<4	<4	60	80	<1.0	<1.0	40	40
NOV 05...	--	1.4	20	<4.0	<.20	<4	<4	60	80	<1.0	<1.0	100	100
DEC 04...	--	.8	<10	<4.0	<.20	<4	<4	60	80	<1.0	<1.0	80	80
JAN 2003 07...	--	1.0	<20	<4.0	<.20	<4	<4	50	70	<1.0	<1.0	70	80
FEB 05...	--	.9	20	<4.0	<.20	<4	<4	50	70	<1.0	<1.0	90	90
MAR 05...	--	1.1	<20	<4.0	<.20	<4	<4	60	80	<1.0	<1.0	80	90
APR 02...	--	<.2	<20	<4.0	<.20	<4	<4	50	80	<1.0	<1.0	70	80
MAY 06...	--	1.1	<20	<4.0	<.20	<4	<4	60	70	<1.0	<1.0	40	40
JUN 25...	--	1.0	20	<4.0	<.20	<4	<4	80	130	<1.0	<1.0	70	80
JUL 22...	--	.8	550	<4.0	<.20	<4	<4	190	220	<1.0	<1.0	60	70
AUG 26...	--	1.5	20	<4.0	<.20	<4	<4	140	180	<1.0	<1.0	40	40
SEP 10...	--	.8	<20	<4.0	<.20	<4	<4	140	180	<1.0	<1.0	50	60
01449375 Wild Creek above Penn Forest Reservoir near Kresgeville PA (LAT 40 56 24N LONG 075 35 04W)													
OCT 2002 08...	--	1.3	60	<4.0	<.20	<4	<4	20	60	<1.0	<1.0	2.3	4.6
NOV 04...	--	1.0	<20	<4.0	<.20	<4	<4	<20	<20	<1.0	<1.0	4.8	6.4
DEC 04...	--	1.1	20	<4.0	<.20	<4	<4	<20	<20	<1.0	<1.0	4.0	5.1
JAN 2003 06...	--	<.2	<20	<4.0	<.20	<4	<4	<20	20	<1.0	<1.0	9.5	10
FEB 05...	--	1.0	<20	<4.0	<.20	<4	<4	<20	40	<1.0	<1.0	7.3	9.0
MAR 04...	--	1.0	20	<4.0	<.20	<4	<4	20	70	<1.0	<1.0	8.7	20
APR 02...	--	<.2	10	<4.0	.20	<4	<4	<20	20	<1.0	<1.0	10	10
MAY 05...	--	1.4	<20	<4.0	<.20	<4	<4	<20	50	<1.0	<1.0	3.7	10
JUN 25...	--	.8	20	<4.0	<.20	<4	<4	20	60	<1.0	<1.0	10	20
JUL 29...	--	.5	<10	<4.0	<.20	<4	<4	40	80	<1.0	<1.0	2.8	8.4
AUG 13...	--	.4	<20	<4.0	<.20	<4	<4	40	70	<1.0	<1.0	4.7	10
SEP 08	--	.7	<10	<4.0	<.20	<4	<4	<20	60	<1.0	<1.0	2.2	7.6

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

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

MISCELLANEOUS STATION ANALYSES

Date	Nickel, water, fltrd, µg/L (01065)	Nickel, unfltrd water, recover -able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, unfltrd water, recover -able, µg/L (01092)	Phen- olic com- pounds, water, unfltrd µg/L (32730)
01444800 Delaware River near Richmond, PA (LAT 40 49 44N LONG 075 05 06W)					
JAN 2003					
22...	--	<50	--	90	--
MAR					
05...	--	<50	--	<10	--
MAY					
08...	--	<50	--	<10	--
JUL					
01...	--	<50	--	110	--
SEP					
24...	--	<50	--	<10	--
01447300 Choke Creek near Thornhurst, PA (LAT 41 09 40N LONG 075 36 10W)					
OCT 2002					
08...	<4.0	<4.0	10	10	<5
NOV					
05...	<4.0	<4.0	20	20	<5
DEC					
04...	<4.0	<4.0	20	20	<5
JAN 2003					
07...	<4.0	<4.0	20	20	<5
FEB					
05...	<4.0	<4.0	20	20	<5
MAR					
05...	<4.0	<4.0	20	20	<5
APR					
02...	<4.0	<4.0	20	30	<5
MAY					
06...	<4.0	<4.0	20	10	<5
JUN					
25...	<4.0	<4.0	20	20	<5
JUL					
22...	<4.0	<4.0	10	20	<5
AUG					
26...	<4.0	<4.0	10	9.0	<5
SEP					
10...	<4.0	<4.0	10	10	<5
01449375 Wild Creek above Penn Forest Reservoir near Kresgeville PA (LAT 40 56 24N LONG 075 35 04W)					
OCT 2002					
08...	<4.0	<4.0	20	10	<5
NOV					
04...	<4.0	<4.0	30	30	<5
DEC					
04...	<4.0	<4.0	20	20	<5
JAN 2003					
06...	<4.0	<4.0	30	30	<5
FEB					
05...	<4.0	<4.0	30	30	<5
MAR					
04...	<4.0	<4.0	30	30	<5
APR					
02...	<4.0	<4.0	30	30	<5
MAY					
05...	<4.0	<4.0	20	20	<5
JUN					
25...	<4.0	<4.0	20	20	<5
JUL					
29...	<4.0	<4.0	10	10	<5
AUG					
13...	<4.0	<4.0	20	20	<5
SEP					
08...	<4.0	<4.0	10	10	<5

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

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

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Sam- pling method, code (82398)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unfl- trd µS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover- able, mg/L (00916)	Magnes- ium, water, fltrd, mg/L (00925)
01451070 Lehigh River at Treichlers, PA (LAT 40 44 03N LONG 075 32 28W)													
NOV 2002 19...	0940	1028	9813	2520	30	12.4	6.6	94	6.6	25	--	6.3	--
JAN 2003 27...	0950	1028	9813	E1400	30	15.2	6.6	132	.0	37	--	9.2	--
MAR 19...	1150	1028	9813	1960	30	14.1	7.7	112	5.2	22	--	5.7	--
MAY 28...	0900	1028	9813	3250	30	10.5	7.3	117	12.9	30	--	7.8	--
JUL 10...	1000	1028	9813	1520	30	8.7	7.2	120	19.6	40	--	9.7	--
SEP 24...	1640	1028	9813	9770	30	12.0	7.1	87	16.0	26	--	7.0	--
01452040 Jordan Creek at mouth at Allentown, PA (LAT 40 36 06N LONG 075 27 43W)													
NOV 2002 19...	1050	1028	9813	578	30	12.4	7.3	221	7.1	83	--	22.4	--
JAN 2003 27...	1100	1028	9813	E48	30	15.9	7.8	480	1.0	160	--	42.3	--
MAR 19...	0910	1028	9813	348	30	12.5	7.5	214	7.8	73	--	19.6	--
MAY 28...	1000	1028	9813	133	30	10.3	7.7	309	14.1	110	--	28.5	--
JUL 10...	1040	1028	9813	62	30	7.6	7.8	445	19.8	160	--	41.4	--
SEP 24...	1730	1028	9813	1090	30	12.1	7.6	205	15.3	81	--	22.2	--
01457790 Cooks Creek at Durham Furnace, PA (LAT 40 34 56N LONG 075 12 20W)													
OCT 2002 22...	0910	1028	9813	18	30	10.9	7.6	273	7.9	120	--	27.3	--
NOV 25...	1110	1028	9813	35	30	12.4	7.9	240	5.8	110	--	25.9	--
DEC 17...	1130	1028	9813	60	30	14.6	7.8	226	2.6	92	--	21.1	--
JAN 2003 30...	0950	1028	9813	23	30	15.7	8.0	285	1.0	130	--	28.3	--
FEB 26...	1030	1028	9813	56	30	15.9	7.6	247	.6	96	--	21.5	--
MAR 25...	1010	1028	9813	66	30	13.4	8.2	217	8.4	93	--	22.5	--
APR 16...	1020	1028	9813	65	30	13.4	8.6	233	12.2	97	--	22.1	--
MAY 21...	1030	1028	9813	33	30	10.5	7.9	272	13.6	130	--	28.2	--
JUN 10...	1040	1028	9813	69	30	9.8	7.8	227	14.5	99	--	23.1	--
JUL 09...	1100	1028	9813	31	30	9.8	8.3	278	18.8	130	--	28.7	--
AUG 14...	1130	1028	9813	42	30	9.7	8.2	263	19.4	120	--	26.1	--
SEP 11...	1500	1028	9813	19	30	11.3	8.4	286	16.9	140	--	30.3	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

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

MISCELLANEOUS STATION ANALYSES

Date	Magnesium, water, unfltrd recover-able, mg/L (00927)	ANC, wat unfixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, unfltrd, mg/L (00951)	Sulfate, water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)
01451070 Lehigh River at Treichlers, PA (LAT 40 44 03N LONG 075 32 28W)													
NOV 2002 19...	2.1	10	--	--	11.7	82	12	<.020	.97	<.040	<.01	.019	1.5
JAN 2003 27...	3.4	12	--	--	19.3	112	<2	.030	.80	<.040	<.01	.011	.89
MAR 19...	1.9	7	--	--	9.2	94	24	<.020	.72	<.040	.02	.024	.95
MAY 28...	2.6	15	--	--	12.4	86	<2	<.020	.64	<.040	.02	.017	.82
JUL 10...	3.7	15	--	--	18.4	62	<2	<.020	.49	<.040	<.01	.014	.63
SEP 24...	2.1	12	--	--	11.5	92	10	<.020	1.08	<.040	.02	.032	1.2
01452040 Jordan Creek at mouth at Allentown, PA (LAT 40 36 06N LONG 075 27 43W)													
NOV 2002 19...	6.6	36	--	--	23.5	136	14	<.020	6.43	<.040	.02	.034	7.0
JAN 2003 27...	13.1	103	--	--	69.2	354	<2	.040	5.58	<.040	.01	.024	5.7
MAR 19...	5.7	36	--	--	19.8	150	24	<.020	3.51	<.040	.01	.021	3.9
MAY 28...	8.7	69	--	--	31.4	212	10	.060	2.90	<.040	.03	.048	3.4
JUL 10...	14.7	116	--	--	58.6	298	<2	<.020	3.34	<.040	.04	.054	3.6
SEP 24...	6.2	41	--	--	19.2	170	46	<.020	6.05	<.040	.07	.080	6.3
01457790 Cooks Creek at Durham Furnace, PA (LAT 40 34 56N LONG 075 12 20W)													
OCT 2002 22...	12.3	92	9.8	<.2	19.6	202	<2	<.020	2.69	<.040	.01	.018	3.0
NOV 25...	11.3	78	10.6	<.2	18.1	174	2	<.020	2.72	<.040	.01	.014	3.0
DEC 17...	9.5	64	13.2	<.2	17.2	166	2	<.020	2.92	<.040	.01	.018	3.4
JAN 2003 30...	14.5	100	12.3	<.2	18.6	380	8	<.020	2.54	<.040	<.01	.011	2.7
FEB 26...	10.2	64	22.9	<.2	15.3	182	16	<.020	2.04	<.040	.02	.033	2.4
MAR 25...	9.0	67	14.3	<.2	16.7	158	<2	<.020	1.88	<.040	<.01	.015	2.0
APR 16...	10.1	75	13.2	<.2	16.2	188	<2	<.020	1.54	<.040	.01	<.010	1.6
MAY 21...	13.4	102	10.8	<.2	16.0	212	4	<.020	1.65	<.040	.01	.015	2.0
JUN 10...	10.0	73	11.7	<.2	15.6	174	16	<.020	2.32	<.040	.03	.034	2.8
JUL 09...	13.8	105	10.9	<.2	15.9	154	24	<.020	1.84	<.040	.01	.020	2.0
AUG 14...	12.6	94	10.9	<.2	14.0	166	4	<.020	2.05	<.040	.02	.025	2.3
SEP 11...	14.8	114	10.9	<.2	15.5	--	--	<.020	2.06	<.040	.02	.024	1.6

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

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

MISCELLANEOUS STATION ANALYSES

Date	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45µMF col/100 mL (31616)	Arsenic water, fltrd, µg/L (01000)	Cadmium water, fltrd, µg/L (01025)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)	Mangan-ese, water, fltrd, µg/L (01056)	Mangan-ese, water, unfltrd recover-able, µg/L (01055)
01451070 Lehigh River at Treichlers, PA (LAT 40 44 03N LONG 075 32 28W)													
NOV 2002 19...	3.3	--	--	--	--	--	<10	--	450	--	1.1	--	140
JAN 2003 27...	1.1	--	--	--	--	--	<10	--	120	--	<1.0	--	110
MAR 19...	2.5	--	--	--	--	--	<10	--	1100	--	2.7	--	190
MAY 28...	2.5	--	--	--	--	--	<10	--	370	--	1.0	--	120
JUL 10...	2.4	--	--	--	--	--	<10	--	120	--	<1.0	--	50
SEP 24...	4.5	--	--	--	--	--	<10	--	700	--	2.6	--	130
01452040 Jordan Creek at mouth at Allentown, PA (LAT 40 36 06N LONG 075 27 43W)													
NOV 2002 19...	1.9	--	--	--	--	--	<10	--	460	--	1.2	--	20
JAN 2003 27...	1.4	--	--	--	--	--	<10	--	150	--	<1.0	--	10
MAR 19...	1.6	--	--	--	--	--	<10	--	400	--	<1.0	--	20
MAY 28...	3.0	--	--	--	--	--	<10	--	350	--	1.3	--	20
JUL 10...	2.7	--	--	--	--	--	<10	--	110	--	1.0	--	10
SEP 24...	2.1	--	--	--	--	--	<10	--	2000	--	2.8	--	80
01457790 Cooks Creek at Durham Furnace, PA (LAT 40 34 56N LONG 075 12 20W)													
OCT 2002 22...	--	.7	20	<4.0	<.20	<4	<4	<20	50	<1.0	<1.0	2.1	3.1
NOV 25...	--	.7	80	<4.0	<.20	<4	<4	<20	40	<1.0	<1.0	2.9	3.6
DEC 17...	--	1.5	100	<4.0	<.20	<4	<4	<20	70	<1.0	<1.0	3.0	5.0
JAN 2003 30...	--	1.0	140	<4.0	<.20	<4	<4	<20	50	<1.0	<1.0	2.4	3.1
FEB 26...	--	1.1	140	<4.0	<.20	<4	<4	50	300	<1.0	<1.0	6.9	10
MAR 25...	--	1.4	<20	<4.0	<.20	<4	<4	<20	60	<1.0	<1.0	3.1	5.2
APR 16...	--	1.3	40	<4.0	<.20	<4	<4	<20	60	<1.0	<1.0	4.6	6.7
MAY 21...	--	1.4	480	<4.0	<.20	<4	<4	<20	100	<1.0	<1.0	4.9	10
JUN 10...	--	1.2	210	<4.0	<.20	<4	<4	20	190	<1.0	<1.0	4.2	10
JUL 09...	--	1.5	500	<4.0	<.20	<4	<4	<20	110	<1.0	<1.0	2.7	8.9
AUG 14...	--	.7	80	<4.0	<.20	<4	<4	<20	70	<1.0	<1.0	<2.0	3.7
SEP 11...	--	.8	100	<4.0	<.20	<4	<4	20	20	<1.0	<1.0	2.1	3.7

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

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

MISCELLANEOUS STATION ANALYSES

Date	Nickel, water, fltrd, µg/L (01065)	Nickel, unfltrd water, recover -able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, unfltrd water, recover -able, µg/L (01092)	Phen- olic com- pounds, water, unfltrd µg/L (32730)
01451070 Lehigh River at Treichlers, PA (LAT 40 44 03N LONG 075 32 28W)					
NOV 2002					
19...	--	<50	--	70	--
JAN 2003					
27...	--	<50	--	100	--
MAR					
19...	--	<50	--	80	--
MAY					
28...	--	<50	--	150	--
JUL					
10...	--	<50	--	140	--
SEP					
24...	--	<50	--	120	--
01452040 Jordan Creek at mouth at Allentown, PA (LAT 40 36 06N LONG 075 27 43W)					
NOV 2002					
19...	--	<50	--	<10	--
JAN 2003					
27...	--	<50	--	<10	--
MAR					
19...	--	<50	--	<10	--
MAY					
28...	--	<50	--	70	--
JUL					
10...	--	<50	--	20	--
SEP					
24...	--	<50	--	20	--
01457790 Cooks Creek at Durham Furnace, PA (LAT 40 34 56N LONG 075 12 20W)					
OCT 2002					
22...	<4.0	<4.0	<5.0	6.8	<5
NOV					
25...	<4.0	<4.0	<5.0	9.7	<5
DEC					
17...	<4.0	<4.0	<5.0	<5.0	<5
JAN 2003					
30...	<4.0	<4.0	<5.0	<5.0	<5
FEB					
26...	<4.0	<4.0	<5.0	<5.0	6
MAR					
25...	<4.0	<4.0	<5.0	8.7	<5
APR					
16...	<4.0	<4.0	7.1	5.8	<5
MAY					
21...	<4.0	<4.0	<5.0	<5.0	<5
JUN					
10...	<4.0	<4.0	<5.0	<5.0	<5
JUL					
09...	<4.0	<4.0	<5.0	<5.0	<5
AUG					
14...	<4.0	<4.0	<5.0	<5.0	<5
SEP					
11...	<4.0	<4.0	<5.0	<5.0	<5



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

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

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Sam- pling method, code (82398)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat un- f µS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover- able, mg/L (00916)	Magnes- ium, water, fltrd, mg/L (00925)
01458900 Tinicum Creek near Ottsville, PA (LAT 40 28 14N LONG 075 08 13W)													
OCT 2002													
22...	1125	1028	9813	3.8	30	11.7	8.0	293	8.8	120	--	30.4	--
NOV													
12...	0910	1028	9813	6.1	30	10.7	7.4	261	15.5	110	--	27.6	--
DEC													
17...	1330	1028	9813	22	30	14.4	7.7	162	2.2	61	--	13.7	--
JAN 2003													
30...	0910	1028	9813	16	30	15.2	7.3	282	.1	120	--	27.1	--
FEB													
26...	0830	1028	9813	40	30	15.6	6.9	161	.0	53	--	11.5	--
MAR													
25...	0840	1028	9813	19	30	13.4	7.6	144	6.9	54	--	13.1	--
APR													
16...	0830	1028	9813	19	30	12.1	8.0	159	11.3	59	--	13.3	--
MAY													
21...	0840	1028	9813	3.0	30	9.3	7.4	324	13.7	130	--	31.4	--
JUN													
10...	0830	1028	9813	24	30	9.7	7.3	148	14.4	58	--	12.9	--
JUL													
09...	0850	1028	9813	1.4	30	8.2	7.8	388	22.0	170	--	42.0	--
AUG													
14...	0940	1028	9813	14	30	9.2	7.8	189	21.1	79	--	18.3	--
SEP													
11...	1700	1028	9813	1.4	30	12.8	8.9	336	19.7	150	--	36.6	--
01472150 French Creek at Coventryville, PA (LAT 40 10 16N LONG 075 41 26W)													
OCT 2002													
01...	0940	1028	9813	8.4	30	9.4	7.4	192	15.1	68	--	17.5	--
NOV													
14...	1100	1028	9813	44	30	11.8	7.3	141	7.8	55	--	13.6	--
DEC													
10...	1230	1028	9813	34	30	14.3	7.6	167	.1	64	--	15.6	--
JAN 2003													
14...	1130	1028	9813	59	30	14.9	7.3	154	.1	51	--	12.8	--
FEB													
12...	0900	1028	9813	42	30	15.3	7.0	162	.0	55	--	14.0	--
MAR													
11...	1230	1028	9813	90	30	13.9	7.3	130	1.6	41	--	10.0	--
APR													
15...	0950	1028	9813	76	30	11.8	7.3	129	10.3	44	--	11.1	--
MAY													
13...	1200	1028	9813	35	30	10.1	7.5	144	13.2	51	--	12.9	--
JUN													
12...	1050	1028	9813	81	30	9.2	7.2	126	17.5	46	--	11.2	--
JUL													
14...	1300	1028	9813	43	30	9.8	7.8	145	19.8	55	--	14.1	--
AUG													
18...	0940	1028	9813	32	30	8.9	7.6	163	19.9	62	--	15.9	--
SEP													
30...	1000	1028	9813	60	30	10.8	7.2	135	13.3	54	--	13.8	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

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

MISCELLANEOUS STATION ANALYSES

Date	Magnesium, water, unfltrd recover-able, mg/L (00927)	ANC, wat unfixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, unfltrd, mg/L (00951)	Sulfate, water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)
01458900 Tinicum Creek near Ottsville, PA (LAT 40 28 14N LONG 075 08 13W)													
OCT 2002 22...	11.8	60	9.2	<.2	66.2	234	<2	<.020	1.16	<.040	.01	.014	1.5
NOV 12...	10.7	60	11.7	<.2	51.2	208	<2	<.020	.72	<.040	<.01	<.010	1.2
DEC 17...	6.6	32	10.0	<.2	27.1	140	4	<.020	.62	<.040	.01	--	.86
JAN 2003 30...	12.8	67	16.2	<.2	46.0	670	16	<.020	.62	<.040	<.01	.013	.69
FEB 26...	6.0	25	21.0	<.2	15.5	158	6	.080	.62	<.040	.02	.025	1.3
MAR 25...	5.2	32	11.6	<.2	20.0	98	<2	<.020	.36	<.040	<.01	.018	.48
APR 16...	6.2	37	10.8	<.2	20.6	128	<2	<.020	.15	<.040	.01	<.010	.19
MAY 21...	13.4	81	15.5	<.2	54.8	246	2	<.020	.78	<.040	.01	.012	1.0
JUN 10...	6.2	44	7.2	<.2	17.2	136	<2	<.020	.35	<.040	.02	.020	.70
JUL 09...	16.2	95	12.3	<.2	78.3	284	2	<.020	.98	<.040	<.01	<.010	1.1
AUG 14...	8.1	56	6.9	<.2	22.5	152	4	<.020	.46	<.040	.01	.028	.73
SEP 11...	14.1	85	12.0	<.2	67.4	276	<2	.020	.96	<.040	.01	.018	1.2
01472150 French Creek at Coventryville, PA (LAT 40 10 16N LONG 075 41 26W)													
OCT 2002 01...	6.0	42	13.9	<.2	24.4	170	<2	.050	.72	<.040	.02	.030	1.0
NOV 14...	5.0	32	10.6	<.2	15.7	120	<2	.090	.85	<.040	.01	.026	1.4
DEC 10...	6.1	36	13.6	<.2	15.0	62	4	<.020	1.73	<.040	<.01	.014	2.2
JAN 2003 14...	4.7	28	13.4	<.2	13.6	130	<2	<.020	1.98	<.040	<.01	.013	2.2
FEB 12...	4.8	32	15.6	<.2	13.5	96	<2	<.020	1.73	<.040	.01	<.010	--
MAR 11...	3.8	--	13.9	<.2	11.4	302	10	<.020	1.14	<.040	.02	.024	1.7
APR 15...	4.0	29	11.8	<.2	11.4	126	<2	<.020	1.02	<.040	<.01	.013	1.1
MAY 13...	4.5	38	11.8	<.2	10.9	110	<2	<.020	1.17	<.040	.02	.026	1.8
JUN 12...	4.4	30	9.8	<.2	10.9	<2	<2	<.020	1.17	<.040	.03	.026	1.5
JUL 14...	4.7	38	11.2	<.2	10.5	136	2	<.020	1.45	<.040	.02	.028	1.6
AUG 18...	5.4	46	12.3	<.2	10.3	132	<2	<.020	1.29	<.040	.02	.033	1.5
SEP 30...	4.8	38	10.4	<.2	10.2	116	<2	<.020	1.27	<.040	.02	.021	1.3

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

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

MISCELLANEOUS STATION ANALYSES

Date	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45µMF col/100 mL (31616)	Arsenic water, fltrd, µg/L (01000)	Cadmium water, fltrd, µg/L (01025)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)	Mangan-ese, water, fltrd, µg/L (01056)	Mangan-ese, water, unfltrd recover-able, µg/L (01055)
01458900 Tinicum Creek near Ottsville, PA (LAT 40 28 14N LONG 075 08 13W)													
OCT 2002 22...	--	.5	20	<4.0	<.20	<4	<4	<20	30	<1.0	<1.0	8.0	7.8
NOV 12...	--	2.2	20	<4.0	<.20	<4	<4	20	40	<1.0	<1.0	5.1	6.0
DEC 17...	--	1.7	20	<4.0	<.20	<4	<4	<20	240	<1.0	<1.0	<2.0	3.0
JAN 2003 30...	--	.9	<10	<4.0	<.20	<4	<4	<20	40	<1.0	<1.0	<2.0	<2.0
FEB 26...	--	1.1	140	<4.0	<.20	<4	<4	140	390	<1.0	<1.0	20	20
MAR 25...	--	--	<20	<4.0	<.20	<4	<4	40	150	<1.0	<1.0	<2.0	2.1
APR 16...	--	1.4	<10	<4.0	<.20	<4	<4	50	160	<1.0	<1.0	<2.0	2.4
MAY 21...	--	1.2	60	<4.0	<.20	<4	<4	<20	40	<1.0	<1.0	7.5	9.6
JUN 10...	--	1.1	240	<4.0	<.20	<4	<4	120	300	<1.0	<1.0	<2.0	5.0
JUL 09...	--	1.0	140	<4.0	<.20	<4	<4	<20	<20	<1.0	<1.0	5.4	6.7
AUG 14...	--	.9	220	<4.0	<.20	<4	4	160	240	<1.0	1.2	2.8	5.4
SEP 11...	--	.8	20	<4.0	<.20	<4	<4	<20	<20	<1.0	<1.0	4.8	6.1
01472150 French Creek at Coventryville, PA (LAT 40 10 16N LONG 075 41 26W)													
OCT 2002 01...	--	1.1	220	<4.0	<.20	<4	<4	50	170	<1.0	<1.0	10	20
NOV 14...	--	1.9	240	<4.0	<.20	<4	<4	160	400	<1.0	<1.0	10	20
DEC 10...	--	2.0	40	<4.0	<.20	<4	<4	100	320	<1.0	<1.0	20	30
JAN 2003 14...	--	1.6	20	<4.0	<.20	<4	<4	60	180	<1.0	<1.0	20	20
FEB 12...	--	1.1	40	<4.0	<.20	<4	<4	80	130	<1.0	<1.0	20	20
MAR 11...	--	1.2	20	<4.0	<.20	<4	<4	220	330	<1.0	<1.0	20	20
APR 15...	--	1.3	20	<4.0	<.20	<4	<4	70	190	<1.0	<1.0	20	20
MAY 13...	--	1.8	40	<4.0	<.20	<4	<4	120	360	<1.0	<1.0	30	40
JUN 12...	--	1.3	120	<4.0	<.20	<4	<4	110	440	<1.0	<1.0	10	30
JUL 14...	--	.8	260	<4.0	<.20	<4	<4	160	410	<1.0	<1.0	10	20
AUG 18...	--	1.3	260	<4.0	<.20	<4	7	210	460	<1.0	1.0	20	20
SEP 30...	--	1.1	140	<4.0	<.20	<4	<4	280	450	<1.0	<1.0	20	20

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
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WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

MISCELLANEOUS STATION ANALYSES

Date	Nickel, water, fltrd, µg/L (01065)	Nickel, water, recover -able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, recover -able, µg/L (01092)	Phen- olic com- pounds, water, unfltrd µg/L (32730)
01458900 Tinicum Creek near Ottsville, PA (LAT 40 28 14N LONG 075 08 13W)					
OCT 2002					
22...	<4.0	<4.0	<5.0	<5.0	<5
NOV					
12...	<4.0	<4.0	<5.0	<5.0	<5
DEC					
17...	<4.0	<4.0	<5.0	<5.0	<5
JAN 2003					
30...	<4.0	<4.0	<5.0	<5.0	<5
FEB					
26...	<4.0	<4.0	<5.0	<5.0	<5
MAR					
25...	<4.0	<4.0	8.7	9.1	<5
APR					
16...	<4.0	<4.0	5.3	30	<5
MAY					
21...	<4.0	<4.0	<5.0	<5.0	<5
JUN					
10...	<4.0	<4.0	<5.0	<5.0	<5
JUL					
09...	<4.0	<4.0	<5.0	<5.0	<5
AUG					
14...	<4.0	<4.0	<5.0	10	<5
SEP					
11...	<4.0	<4.0	<5.0	<5.0	<5
01472150 French Creek at Coventryville, PA (LAT 40 10 16N LONG 075 41 26W)					
OCT 2002					
01...	<4.0	<4.0	<5.0	7.2	<5
NOV					
14...	<4.0	<4.0	<5.0	5.7	--
DEC					
10...	<4.0	<4.0	<5.0	<5.0	<5
JAN 2003					
14...	<4.0	<4.0	<5.0	<5.0	<5
FEB					
12...	<4.0	<4.0	<5.0	<5.0	<5
MAR					
11...	<4.0	<4.0	<5.0	<5.0	<5
APR					
15...	<4.0	<4.0	8.6	7.4	<5
MAY					
13...	<4.0	<4.0	7.4	5.3	<5
JUN					
12...	<4.0	<4.0	<5.0	<5.0	<5
JUL					
14...	<4.0	<4.0	<5.0	<5.0	<5
AUG					
18...	<4.0	<4.0	<5.0	10	<5
SEP					
30...	<4.0	<4.0	<5.0	<5.0	<5

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

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

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Sam- pling method, code (82398)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unfl- trd µS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, recover- able, fltrd, mg/L (00915)	Calcium water unfltrd mg/L (00916)	Magnes- ium, water, fltrd, mg/L (00925)
01473030 Perkiomen Creek at Arcola near Collegeville, PA (LAT 40 09 11N LONG 075 27 21W)													
NOV 2002													
26...	1050	1028	9813	304	40	13.0	7.9	297	6.3	97	--	24.5	--
JAN 2003													
15...	0940	1028	9813	E240	40	15.6	7.8	305	.0	110	--	26.9	--
MAR													
31...	0940	1028	9813	1290	40	12.7	7.7	251	6.8	72	--	17.5	--
MAY													
12...	1020	1028	9813	230	40	8.0	7.6	336	17.6	100	--	26.6	--
JUL													
01...	1010	1028	9813	280	40	8.1	8.1	256	23.5	82	--	20.5	--
SEP													
09...	1000	1028	9813	185	40	8.7	7.8	313	20.6	96	--	24.7	--
01473170 Valley Creek at Wilson Road near Valley Forge, PA (LAT 40 04 53N LONG 075 27 25W)													
NOV 2002													
18...	1240	1028	9813	48	30	11.6	8.0	475	8.9	180	--	41.1	--
JAN 2003													
28...	0930	1028	9813	23	30	15.4	8.1	709	.5	270	--	59.3	--
MAR													
26...	1220	1028	9813	42	30	15.6	8.5	702	12.6	260	--	56.5	--
MAY													
20...	1300	1028	9813	24	30	12.0	8.3	704	15.1	260	--	56.5	--
JUL													
01...	1120	1028	9813	37	30	10.1	8.3	674	17.3	260	--	54.1	--
SEP													
08...	1530	1028	9813	21	30	11.2	8.4	663	18.0	260	--	55.1	--
01474010 Schuylkill River at Falls Bridge, Philadelphia, PA (LAT 40 00 30N LONG 075 11 52W)													
NOV 2002													
21...	1220	1028	9813	5520	40	12.2	7.7	294	8.1	110	--	27.8	--
JAN 2003													
16...	1300	1028	9813	2630	40	13.8	7.5	352	3.1	133	--	32.3	--
MAR													
13...	1210	1028	9813	5330	40	14.2	7.7	360	5.4	122	--	31.3	--
MAY													
22...	1040	1028	9813	1770	40	9.5	7.7	436	16.9	160	--	37.3	--
JUL													
15...	1230	1028	9813	1770	40	9.9	8.3	428	25.6	170	--	39.6	--
SEP													
03...	1220	1028	9813	3550	40	9.1	7.8	405	21.2	130	--	30.9	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

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

MISCELLANEOUS STATION ANALYSES

Date	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unfixed end pt, lab, mg/L as CaCO3 (00417)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, unfltrd, mg/L (00951)	Sulfate, water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water, unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)
01473030 Perkiomen Creek at Arcola near Collegeville, PA (LAT 40 09 11N LONG 075 27 21W)													
NOV 2002 26...	8.6	58	--	--	29.3	212	6	<.020	2.63	<.040	.05	.067	2.8
JAN 2003 15...	9.7	52	--	--	26.2	200	8	.040	2.76	<.200	.05	.060	3.1
MAR 31...	6.9	43	--	--	16.8	194	20	<.020	1.24	<.040	.04	.057	1.8
MAY 12...	8.6	62	--	--	27.6	216	<2	.040	1.31	<.040	.05	.074	1.9
JUL 01...	7.6	60	--	--	20.1	180	8	<.020	1.17	<.040	.03	.055	1.5
SEP 09...	8.4	72	--	--	25.3	252	6	<.020	1.58	<.040	.08	.110	1.7
01473170 Valley Creek at Wilson Road near Valley Forge, PA (LAT 40 04 53N LONG 075 27 25W)													
NOV 2002 18...	18.4	148	47.0	--	22.1	344	10	<.020	1.31	<.010	--	.048	1.9
JAN 2003 28...	30.6	--	86.3	--	29.9	--	--	<.020	2.45	.010	--	<.010	2.6
MAR 26...	29.0	193	--	<.2	28.4	466	6	<.020	1.98	<.200	<.01	<.010	2.0
MAY 20...	27.6	210	--	<.2	27.5	430	<2	<.020	2.02	<.200	.02	.022	2.2
JUL 01...	29.2	199	--	<.2	26.9	444	4	<.020	2.20	<.040	.01	.365	2.4
SEP 08...	29.0	205	--	<.2	25.8	466	2	<.020	2.02	<.200	.01	.018	1.9
01474010 Schuylkill River at Falls Bridge, Philadelphia, PA (LAT 40 00 30N LONG 075 11 52W)													
NOV 2002 21...	9.6	64	--	<.2	32.4	218	2	.100	3.61	<.040	.06	.076	4.3
JAN 2003 16...	12.7	69	--	<.2	43.5	306	<2	.330	3.95	.180	.10	.133	4.6
MAR 13...	10.5	65	--	<.2	32.2	280	10	.230	3.09	.140	.10	.139	3.9
MAY 22...	15.1	81	--	<.2	58.0	342	2	.100	2.97	<.200	.20	.269	3.8
JUL 15...	16.7	81	--	<.2	58.1	282	<2	.030	3.49	<.040	.14	.231	4.0
SEP 03...	12.9	73	--	<.2	60.9	5880	18	.100	2.50	<.040	.19	.222	2.9

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

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

MISCELLANEOUS STATION ANALYSES

Date	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC 0.45µMF col/100 mL (31616)	Arsenic water, fltrd, µg/L (01000)	Cadmium water, fltrd, µg/L (01025)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)	Mangan-ese, water, fltrd, µg/L (01056)	Mangan-ese, water, unfltrd recover-able, µg/L (01055)
01473030 Perkiomen Creek at Arcola near Collegeville, PA (LAT 40 09 11N LONG 075 27 21W)													
NOV 2002 26...	4.2	--	--	--	--	--	<10	--	180	--	<1.0	--	20
JAN 2003 15...	2.8	--	--	--	--	--	<10	--	130	--	<1.0	--	20
MAR 31...	5.7	--	--	--	--	--	<10	--	590	--	<1.0	--	30
MAY 12...	3.7	--	--	--	--	--	<10	--	120	--	<1.0	--	50
JUL 01...	4.1	--	--	--	--	--	<10	--	110	--	<1.0	--	10
SEP 09...	4.6	--	--	--	--	--	<10	--	350	--	<1.0	--	20
01473170 Valley Creek at Wilson Road near Valley Forge, PA (LAT 40 04 53N LONG 075 27 25W)													
NOV 2002 18...	3.1	.6	--	<4.0	<.20	<4	<4	20	490	<1.0	<1.0	10	20
JAN 2003 28...	1.1	.8	--	--	--	--	<4	--	40	--	<1.0	--	7.8
MAR 26...	1.9	--	--	--	--	--	<10	--	170	--	<1.0	--	20
MAY 20...	1.8	--	--	--	--	--	<10	--	130	--	<1.0	--	20
JUL 01...	1.6	--	--	--	--	--	<10	--	190	--	<1.0	--	10
SEP 08...	1.4	--	--	--	--	--	<10	--	80	--	<1.0	--	10
01474010 Schuylkill River at Falls Bridge, Philadelphia, PA (LAT 40 00 30N LONG 075 11 52W)													
NOV 2002 21...	2.9	--	--	--	--	--	<10	--	590	--	<1.0	--	70
JAN 2003 16...	2.3	--	--	--	--	--	<10	--	170	--	<1.0	--	120
MAR 13...	3.3	--	--	--	--	--	<10	--	460	--	<1.0	--	200
MAY 22...	3.6	--	--	--	--	--	<10	--	400	--	1.3	--	150
JUL 15...	3.2	--	--	--	--	--	<10	--	130	--	<1.0	--	40
SEP 03...	3.3	--	--	--	--	--	<10	--	500	--	1.9	--	70

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

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

MISCELLANEOUS STATION ANALYSES

Date	Nickel, water, fltrd, µg/L (01065)	Nickel, water, recover able, fltrd, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, recover able, fltrd, µg/L (01092)	Phen- olic com- pounds, water, unfltrd µg/L (32730)
01473030 Perkiomen Creek at Arcola near Collegetown, PA (LAT 40 09 11N LONG 075 27 21W)					
NOV 2002					
26...	--	<50	--	<10	--
JAN 2003					
15...	--	<50	--	<10	--
MAR					
31...	--	<50	--	30	--
MAY					
12...	--	<50	--	20	--
JUL					
01...	--	<50	--	70	--
SEP					
09...	--	<50	--	<10	--
01473170 Valley Creek at Wilson Road near Valley Forge, PA (LAT 40 04 53N LONG 075 27 25W)					
NOV 2002					
18...	<4.0	<4.0	<5.0	5.4	<5
JAN 2003					
28...	--	<4.0	--	<5.0	<5
MAR					
26...	--	<50	--	110	<5
MAY					
20...	--	<50	--	<10	<5
JUL					
01...	--	<50	--	170	<5
SEP					
08...	--	<50	--	320	<5
01474010 Schuylkill River at Falls Bridge, Philadelphia, PA (LAT 40 00 30N LONG 075 11 52W)					
NOV 2002					
21...	--	<50	--	<10	<5
JAN 2003					
16...	--	<50	--	20	<5
MAR					
13...	--	<50	--	10	--
MAY					
22...	--	<50	--	40	<5
JUL					
15...	--	<50	--	20	<5
SEP					
03...	--	<50	--	140	<5



ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK

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

MISCELLANEOUS STATION ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dis-solved oxygen, mg/L (00300)	pH, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd, µS/cm 25 degC (00095)	Temper-ature, deg C (00010)	Hard-ness, unfltrd CaCO3, mg/L as (00900)	Calcium unfltrd water, recover-able, mg/L (00915)	Calcium unfltrd water, recover-able, mg/L (00916)	Magnes-ium, water, fltrd, mg/L (00925)
01494990 Big Elk Creek near Lewisville, PA (LAT 39 43 48N LONG 075 50 54W)													
NOV 2002 13...	0950	1028	9813	75.0	30	10.2	7.0	197	11.0	65	--	14.4	--
JAN 2003 13...	1010	1028	9813	37.3	30	14.4	7.5	194	.1	58	--	13.2	--
MAR 27...	0810	1028	9813	75.0	30	12.3	7.2	164	8.5	56	--	12.6	--
MAY 27...	1050	1028	9813	79.0	30	10.7	7.4	159	13.1	53	--	12.0	--
JUL 07...	0920	1028	9813	57.6	30	8.9	7.5	173	21.0	57	--	12.9	--
SEP 08...	1020	1028	9813	34.7	30	10.8	7.7	178	17.6	62	--	13.2	--

Date	Magnes-ium, unfltrd recover-able, mg/L (00927)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, unfltrd, mg/L (00951)	Sulfate, water, fltrd, mg/L (00945)	Residue on evap. at 105 deg. C, sus-pended, mg/L (00515)	Residue total at 105 deg. C, unfltrd, mg/L (00530)	Ammonia, water, unfltrd, as N, mg/L (00610)	Nitrate, water, unfltrd, mg/L as N (00620)	Nitrite, water, unfltrd, mg/L as N (00615)	Ortho-phos-phate, water, unfltrd, mg/L as P (70507)	Phos-phorus, water, unfltrd, mg/L (00665)	Total nitro-gen, water, unfltrd, mg/L (00600)
01494990 Big Elk Creek near Lewisville, PA (LAT 39 43 48N LONG 075 50 54W)													
NOV 2002 13...	7.1	38	--	--	15.9	174	10	<.020	2.52	<.040	.08	.112	3.7
JAN 2003 13...	6.1	24	--	--	13.2	134	8	<.020	4.96	<.040	.02	.019	4.8
MAR 27...	5.9	24	--	--	12.1	110	8	<.020	3.73	<.040	.01	.013	3.9
MAY 27...	5.5	31	--	--	12.3	128	14	.070	2.73	.040	.08	.100	3.6
JUL 07...	5.9	29	--	--	10	138	<2	<.020	3.96	<.040	.02	.024	4.2
SEP 08...	7.1	31	--	--	9.2	134	2	<.020	4.27	<.040	.02	.024	4.4

Date	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Fecal coli-form, M-FC, col/100 mL (31616)	Arsenic, water, fltrd, µg/L (01000)	Cadmium, water, fltrd, µg/L (01025)	Copper, water, fltrd, µg/L (01040)	Copper, unfltrd recover-able, µg/L (01042)	Iron, water, unfltrd recover-able, µg/L (01046)	Iron, unfltrd recover-able, µg/L (01045)	Lead, water, unfltrd recover-able, µg/L (01049)	Lead, unfltrd recover-able, µg/L (01051)	Mangan-ese, water, fltrd, µg/L (01056)	Mangan-ese, water, unfltrd recover-able, µg/L (01055)
01494990 Big Elk Creek near Lewisville, PA (LAT 39 43 48N LONG 075 50 54W)													
NOV 13...	2.9	--	--	--	--	--	<10	--	860	--	<1.0	--	50
JAN 2003 13...	1.3	--	--	--	--	--	<10	--	200	--	<1.0	--	60
MAR 27...	1.9	--	--	--	--	--	<10	--	160	--	<1.0	--	50
MAY 27...	6.1	--	--	--	--	--	<10	--	1160	--	1.1	--	70
JUL 07...	2.2	--	--	--	--	--	20	--	240	--	<1.0	--	20
SEP 08...	2.2	--	--	--	--	--	<10	--	140	--	<1.0	--	20

Date	Nickel, water, fltrd, µg/L (01065)	Nickel, unfltrd recover-able, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, unfltrd recover-able, µg/L (01092)	Phen-olic com-pounds, water, unfltrd, µg/L (32730)
01494990 Big Elk Creek near Lewisville, PA (LAT 39 43 48N LONG 075 50 54W)					
NOV 13...	--	<50	--	<10	--
JAN 2003 13...	--	<50	--	<10	--
MAR 27...	--	<50	--	<10	--
MAY 27...	--	<50	--	<10	--
JUL 07...	--	<50	--	<10	--
SEP 08...	--	<50	--	70	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

WATER-QUALITY DATA, WATER YEAR SEPTEMBER 2002 TO SEPTEMBER 2003  
MISCELLANEOUS LAKE ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Sampling depth, meters (00098)	Transparency Secchi disc, meters (00078)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unfltrd, $\mu$ S/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd, mg/L as CaCO3 (00900)	Calcium, water, unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unfltrd end pt, lab, mg/L as CaCO3 (00417)	
01427252 Duck Harbor Pond near Lookout, PA (LAT 41 45 11N LONG 075 12 01W)														
AUG 2003	1030	1028	9813	1.0	1.4	10.0	7.6	42	25.9	16	5.3	.6	13	
	1100	1028	9813	18.0	1.4	.1	6.6	66	6.3	18	6.1	.7	24	
01446590 Minsi Lake near Roseto, PA (LAT 40 54 43N LONG 075 10 15W)														
AUG 2003	1000	1028	9813	4.0	1.7	.2	6.3	86	19.7	25	7.4	1.5	20	
	1030	1028	9813	1.0	1.7	9.0	7.7	82	25.9	24	7.1	1.5	19	
01447100 Gouldsboro Lake at Gouldsboro, PA (LAT 41 14 07N LONG 075 27 09W)														
AUG 2003	1400	1028	9813	1.0	1.3	8.0	7.0	91	24.6	14	4.3	.7	13	
01459350 Nockamixon Reservoir near Ottsville, PA (LAT 40 28 13N LONG 075 11 10W)														
SEP 2002	09...	1028	9813	21.0	2.7	.2	9.1	407	9.1	74	17.9	7.0	54	
	09...	1028	9813	1.0	2.7	9.1	9.0	362	24.0	65	15.6	6.4	44	
AUG 2003	1135	1028	9813	21.0	1.4	.7	6.9	220	8.0	58	14.2	5.5	42	
	1145	1028	9813	1.0	1.4	11.9	7.4	164	26.8	50	12.2	4.8	38	
01464640 Lake Galena near Chalfont, PA (LAT 40 19 01N LONG 075 12 15W)														
SEP 2002	17...	1028	9813	9.0	.8	.5	8.9	412	14.9	77	19.0	7.1	58	
	17...	1028	9813	1.0	.8	11.1	9.3	359	22.7	74	18.2	6.8	54	
AUG 2003	26...	1028	9813	9.0	.7	.7	6.7	224	12.0	70	17.0	6.6	68	
	26...	1028	9813	1.0	.7	12.2	7.8	200	25.8	70	17.0	6.7	53	
Date		Sulfate water, fltrd, mg/L (00945)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd, mg/L as N (00610)	Phosphorus, water, unfltrd, mg/L (00665)	Total nitrogen, water, unfltrd, mg/L (00600)	Organic carbon, water, unfltrd, mg/L (00680)	Aluminum, water, unfltrd, $\mu$ g/L (01106)	Aluminum, water, unfltrd recoverable, $\mu$ g/L (01105)	Copper, water, unfltrd, $\mu$ g/L (01040)	Copper, water, unfltrd recoverable, $\mu$ g/L (01042)	Iron, water, unfltrd, $\mu$ g/L (01046)	Iron, water, unfltrd recoverable, $\mu$ g/L (01045)	Lead, water, unfltrd, $\mu$ g/L (01049)
01427252 Duck Harbor Pond near Lookout, PA (LAT 41 45 11N LONG 075 12 01W)														
AUG 2003	13...	4.2	8	<.02	.02	.40	4.8	<10	18	<4	<4	20	60	<1.0
	13...	3.3	2	.71	.12	1.1	5.0	<10	14	<4	<4	2500	2900	<1.0
01446590 Minsi Lake near Roseto, PA (LAT 40 54 43N LONG 075 10 15W)														
AUG 2003	12...	5.8	<2	<.02	.03	.50	7.4	47	59	6	<4	210	380	<1.0
	12...	6.0	<2	<.02	.02	.40	6.1	22	27	<4	<4	160	260	<1.0
01447100 Gouldsboro Lake at Gouldsboro, PA (LAT 41 14 07N LONG 075 27 09W)														
AUG 2003	12...	2.6	<2	.02	.02	.48	6.4	29	41	<4	<4	730	890	<1.0
01459350 Nockamixon Reservoir near Ottsville, PA (LAT 40 28 13N LONG 075 11 10W)														
SEP 2002	09...	17.4	10	.76	.14	1.2	6.0	16	43	<4	<4	260	880	<1.0
	09...	18.6	2	<.02	.02	.46	5.7	17	24	<4	<4	<20	30	<1.0
AUG 2003	27...	13.6	8	.49	.10	.91	5.7	<10	16	<4	<4	220	960	<1.0
	27...	13.1	2	.02	.02	.53	7.6	<10	22	<4	<4	20	70	<1.0
01464640 Lake Galena near Chalfont, PA (LAT 40 19 01N LONG 075 12 15W)														
SEP 2002	17...	17.0	8	.75	.04	.81	3.8	22	54	<4	<4	<20	70	<1.0
	17...	17.8	6	.06	.03	.65	4.0	28	100	<4	<4	90	100	<1.0
AUG 2003	26...	6.3	<2	2.4	.40	2.4	6.7	31	68	<4	<4	1600	1900	<1.0
	26...	16.9	4	<.02	.04	.99	6.8	23	85	<4	<4	30	140	<1.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

WATER-QUALITY DATA, WATER YEAR SEPTEMBER 2002 TO SEPTEMBER 2003  
MISCELLANEOUS LAKE ANALYSES

Date	Lead, water, unfltrd recover -able, µg/L (01051)	Mangan- ese, water, unfltrd recover -able, µg/L (01056)	Mangan- ese, water, unfltrd recover -able, µg/L (01055)	Zinc, water, unfltrd recover -able, µg/L (01090)	Zinc, water, unfltrd recover -able, µg/L (01092)
01427252 Duck Harbor Pond near Lookout, PA (LAT 41 45 11N LONG 075 12 01W)					
AUG 2003					
13...	<1.0	<2	80	<5.0	<5.0
13...	<1.0	2200	2300	<5.0	6.8
01446590 Minsi Lake near Roseto, PA (LAT 40 54 43N LONG 075 10 15W)					
AUG 2003					
12...	<1.0	100	110	9.6	10
12...	<1.0	<2	20	<5.0	<5.0
01447100 Gouldsboro Lake at Gouldsboro, PA (LAT 41 14 07N LONG 075 27 09W)					
AUG 2003					
12...	<1.0	20	130	<5.0	6.1
01459350 Nockamixon Reservoir near Ottsville, PA (LAT 40 28 13N LONG 075 11 10W)					
SEP 2002					
09...	<1.0	1200	1200	<5.0	<5.0
09...	<1.0	<2	20	<5.0	<5.0
AUG 2003					
27...	<1.0	1600	1300	<5.0	60
27...	<1.0	10	30	<5.0	<5.0
01464640 Lake Galena near Chalfont, PA (LAT 40 19 01N LONG 075 12 15W)					
SEP 2002					
17...	<1.0	600	1100	<5.0	10
17...	<1.0	<2	50	<5.0	<5.0
AUG 2003					
26...	<1.0	1800	1900	<5.0	5.4
26...	<1.0	2	50	<5.0	<5.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

WATER-QUALITY DATA, WATER YEAR SEPTEMBER 2002 TO SEPTEMBER 2003  
MISCELLANEOUS LAKE ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Sampling depth, meters (00098)	Transparency Secchi disc, meters (00078)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water unfltrd recover -able, mg/L (00916)	Magnesium, water, unfltrd recover -able, mg/L (00927)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)
01480684 Marsh Creek Lake near Downingtown, PA (LAT 40 03 24N LONG 075 43 06W)													
SEP 2002													
05...	1145	1028	9813	17.0	4.5	.9	6.3	354	9.2	68	17.8	5.6	44
05...	1200	1028	9813	1.0	4.5	14.0	8.8	346	24.3	62	15.9	5.5	40
AUG 2003													
25...	1130	1028	9813	19.0	1.9	.7	6.9	205	7.8	57	14.8	4.8	34
25...	1145	1028	9813	1.0	1.9	13.4	7.8	169	26.9	55	19.9	4.9	38

Date	Sulfate water, fltrd, mg/L (00945)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recover -able, µg/L (01105)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover -able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover -able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)
01480684 Marsh Creek Lake near Downingtown, PA (LAT 40 03 24N LONG 075 43 06W)													
SEP 2002													
05...	12.8	4	.08	<.01	.59	3.2	<10	<10	5	<4	20	240	<1.0
05...	11.6	<2	.06	<.01	.41	3.9	<10	<10	<4	<4	<20	40	<1.0
AUG 2003													
25...	12.1	<2	.11	.07	1.0	3.5	<10	<10	<4	<4	40	150	<1.0
25...	10.1	16	<.02	.02	.50	5.4	<10	14	<4	<4	40	100	<1.0

Date	Lead, water, unfltrd recover -able, µg/L (01051)	Manganese, water, unfltrd recover -able, µg/L (01056)	Manganese, water, unfltrd recover -able, µg/L (01055)	Zinc, water, unfltrd recover -able, µg/L (01090)	Zinc, water, unfltrd recover -able, µg/L (01092)
01480684 Marsh Creek Lake near Downingtown, PA (LAT 40 03 24N LONG 075 43 06W)					
SEP 2002					
05...	<1.0	470	520	8.5	<5.0
05...	<1.0	<2.0	10	<5.0	<5.0
AUG 2003					
25...	<1.0	150	280	<5.0	<5.0
25...	<1.0	2.8	12	<5.0	<5.0



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

**REMARKS.**--Samples were collected using a D-Frame net with a mesh size of 500 µm. A dash (--) indicates there were no observations of the organism in the sample. Samples represent counts per 100 (approximate) subsamples.

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
BENTHIC MACROINVERTEBRATES

Station Number	01426500	01431600	01432119	01440650	01444800	01451070
Date	09/04/02	08/07/02	08/07/02	08/06/02	8/19/02	08/27/02
Benthic Macroinvertebrate	Count	Count	Count	Count	Count	Count
Platyhelminthes						
Turbellaria (FLATWORMS)						
Tricladida						
Planariidae						
	--	--	--	--	--	--
Nemertea (PROBOSAS WORMS)						
Enopla						
Hoplonemertea						
Tetrastemmatidae						
<u>Prostoma</u> sp						
	--	1	--	--	--	1
Mollusca						
Gastropoda (SNAILS)						
Basommatophora						
Ancylidae						
<u>Ferrissia</u> sp						
	1	1	--	--	--	--
Lymnaeidae						
<u>Fossaria</u> sp						
	--	--	--	--	2	--
Physidae						
<u>Physa</u> sp						
	--	--	2	3	1	--
Valvatidae						
<u>Valvata</u> sp						
	--	--	2	--	--	--
Bivalvia (CLAMS)						
Veneroidea						
Sphaeriidae						
<u>Pisidium</u> sp						
	--	--	--	--	--	--
<u>Sphaerium</u> sp						
	4	--	17	1	--	--
Annelida						
Oligochaeta (AQUATIC EARTHWORMS)						
	25	--	--	--	--	--
Lumbriculida						
Lumbriculidae						
	--	1	--	11	--	--
Tubificida						
Naididae						
	--	--	--	--	--	--
Arthropoda						
Acariformes						
Hydrachnidia (WATER MITES)						
	--	--	--	1	1	1
Crustacea						
Amphipoda (SCUDS)						
Gammaridae						
<u>Gammarus</u> sp						
	--	--	--	--	--	--
Decapoda						
Cambaridae (CRAYFISH)						
<u>Orconectes</u> sp						
	--	--	--	--	--	--
Ostracoda						
	--	--	--	--	--	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
BENTHIC MACROINVERTEBRATES

01452040	01473030	01473170	01474010	01494990	Station Number
08/27/02	09/03/02	08/27/02	08/15/02	08/28/02	Date
Count	Count	Count	Count	Count	Benthic Macroinvertebrate
					Platyhelminthes
					Turbellaria (FLATWORMS)
					Tricladida
21	7	2	3	--	Planariidae
					Nemertea (PROBOSAS WORMS)
					Enopla
					Hoplonemertea
					Tetrastemmatidae
--	--	2	1	8	<u>Prostoma</u> sp
					Mollusca
					Gastropoda (SNAILS)
					Basommatophora
					Ancyliidae
--	--	--	--	--	<u>Ferrissia</u> sp
					Lymnaeidae
--	5	--	--	--	<u>Fossaria</u> sp
					Physidae
--	--	--	--	--	<u>Physa</u> sp
					Valvatidae
--	--	--	--	--	<u>Valvata</u> sp
					Bivalvia (CLAMS)
					Veneroida
					Sphaeriidae
1	--	--	--	--	<u>Pisidium</u> sp
--	1	--	--	--	<u>Sphaerium</u> sp
					Annelida
--	--	--	--	--	Oligochaeta (AQUATIC EARTHWORMS)
					Lumbriculida
1	--	2	--	--	Lumbriculidae
					Tubificida
--	--	1	--	--	Naididae
					Arthropoda
					Acariformes
2	--	--	--	--	Hydrachnidia (WATER MITES)
					Crustacea
					Amphipoda (SCUDS)
					Gammaridae
4	--	--	2	--	<u>Gammarus</u> sp
					Decapoda
					Cambaridae (CRAYFISH)
--	--	--	--	1	<u>Orconectes</u> sp
17	--	--	--	--	Ostracoda

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
BENTHIC MACROINVERTEBRATES

Station Number	01426500	01431600	01432119	01440650	01444800	01451070
Date	09/04/02	08/07/02	08/07/02	08/06/02	8/19/02	08/27/02
Benthic Macroinvertebrate	Count	Count	Count	Count	Count	Count
<b>Insecta</b>						
Ephemeroptera (MAYFLIES)						
Baetidae						
<u>Acentrella</u> sp	--	--	--	4	7	15
<u>Baetis</u> sp	7	--	8	1	1	--
Ephemerellidae						
<u>Ephemerella</u> sp	--	--	--	1	--	--
<u>Serratella</u> sp	8	7	18	1	--	--
Heptageniidae						
<u>Epeorus</u> sp	2	--	8	32	--	--
<u>Stenonema</u> sp	10	18	23	27	1	3
Isonychiidae						
<u>Isonychia</u> sp	6	9	--	7	10	--
Leptophlebiidae						
<u>Paraleptophlebia</u> sp	3	--	--	--	--	--
Tricorythidae						
<u>Tricorythodes</u> sp	--	--	--	2	22	--
Odonata (DRAGONFLIES AND DAMSELFLIES)						
Coenagrionidae						
<u>Argia</u> sp	--	1	--	--	5	--
Gomphidae						
<u>Ophiogomphus</u> sp	--	4	--	--	--	--
Plecoptera (STONEFLIES)						
Perlidae						
<u>Acroneuria</u> sp	3	--	5	--	1	--
<u>Agnatina</u> sp	--	--	--	2	--	--
<u>Paragnetina</u> sp	--	--	--	1	--	--
Megaloptera						
Corydalidae (FISHFLIES AND DOBSONFLIES)						
<u>Chauliodes</u> sp	--	1	--	--	--	--
<u>Corydalus</u> sp	--	--	3	5	--	--
<u>Nigronia</u> sp	--	--	--	1	--	--
Trichoptera (CADDISFLIES)						
Apataniidae						
<u>Apatania</u> sp	--	--	--	11	--	--
Brachycentridae						
<u>Brachycentrus</u> sp	3	--	10	--	--	--
Glossosomatidae						
<u>Glossosoma</u> sp	--	--	--	3	--	--
<u>Protophila</u> sp	--	--	5	--	--	10
Hydropsychidae						
<u>Cheumatopsyche</u> sp	10	26	2	5	--	11
<u>Hydropsyche</u> sp	16	10	10	6	17	12
<u>Macrostemum</u> sp	--	--	--	--	2	--
<u>Potamyia</u> sp	--	--	10	--	2	--
Hydroptilidae						
<u>Hydroptila</u> sp	--	--	--	--	--	--
<u>Leucotrichia</u> sp	--	1	--	3	--	1
Lepidostomatidae						
<u>Lepidostoma</u> sp	--	--	2	1	--	--



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
BENTHIC MACROINVERTEBRATES

01452040	01473030	01473170	01474010	01494990	Station Number
08/27/02	09/03/02	08/27/02	08/15/02	08/28/02	Date
Count	Count	Count	Count	Count	Benthic Macroinvertebrate
					Insecta
					Ephemeroptera (MAYFLIES)
					Baetidae
--	3	--	11	--	<u>Acentrella</u> sp
3	12	4	12	1	<u>Baetis</u> sp
					Ephemerellidae
--	--	--	--	--	<u>Ephemerella</u> sp
--	6	--	--	--	<u>Serratella</u> sp
--	--	--	--	2	Heptageniidae
--	--	--	--	--	<u>Epeorus</u> sp
--	3	--	2	11	<u>Stenonema</u> sp
					Isonychiidae
--	--	--	--	6	<u>Isonychia</u> sp
					Leptophlebiidae
--	--	--	--	--	<u>Paraleptophlebia</u> sp
					Tricorythidae
--	--	--	5	--	<u>Tricorythodes</u> sp
					Odonata (DRAGONFLIES AND DAMSELFLIES)
					Coenagrionidae
--	1	--	--	2	<u>Argia</u> sp
					Gomphidae
--	--	--	--	--	<u>Ophiogomphus</u> sp
					Plecoptera (STONEFLIES)
					Perlidae
--	--	--	--	--	<u>Acroneuria</u> sp
--	--	--	--	--	<u>Agnatina</u> sp
--	--	--	--	--	<u>Paragnetina</u> sp
					Megaloptera
					Corydalidae (FISHFLIES AND DOBSONFLIES)
--	--	--	--	--	<u>Chauliodes</u> sp
--	--	--	--	2	<u>Corydalus</u> sp
--	--	--	--	--	<u>Nigronia</u> sp
					Trichoptera (CADDISFLIES)
					Apataniidae
--	--	--	--	--	<u>Apatania</u> sp
					Brachycentridae
--	--	--	--	--	<u>Brachycentrus</u> sp
					Glossosomatidae
--	--	--	--	--	<u>Glossosoma</u> sp
--	--	--	--	--	<u>Protoptila</u> sp
					Hydropsychidae
15	--	21	37	1	<u>Cheumatopsyche</u> sp
15	6	5	2	29	<u>Hydropsyche</u> sp
--	--	--	--	--	<u>Macrostemum</u> sp
--	--	--	--	--	<u>Potamyia</u> sp
					Hydroptilidae
1	2	--	5	--	<u>Hydroptila</u> sp
--	--	--	--	4	<u>Leucotrichia</u> sp
					Lepidostomatidae
--	--	--	--	--	<u>Lepidostoma</u> sp

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
BENTHIC MACROINVERTEBRATES

Station Number	01426500	01431600	01432119	01440650	01444800	01451070
Date	09/04/02	08/07/02	08/07/02	08/06/02	8/19/02	08/27/02
Benthic Macroinvertebrate	Count	Count	Count	Count	Count	Count
Trichoptera (CADDISFLIES)						
Leptoceridae						
<u>Oecetis</u> sp	--	--	--	--	--	--
Philopotamidae						
<u>Chimarra</u> sp	--	4	2	7	13	24
<u>Dolophilodes</u> sp	--	--	--	2	--	--
Polycentropodidae						
<u>Polycentropus</u> sp	--	--	2	--	--	--
Rhyacophilidae						
<u>Rhyacophila</u> sp	--	4	--	2	--	--
Uenoidae						
<u>Neophylax</u> sp	20	--	1	--	--	--
Coleoptera (BEETLES)						
Elmidae (RIFFLE BEETLES)						
<u>Optioservus</u> sp	2	10	7	1	--	3
<u>Oulimnius</u> sp	--	--	3	2	--	3
<u>Promoresia</u> sp	--	2	5	--	6	--
<u>Stenelmis</u> sp	--	4	31	15	20	13
Hydrophilidae						
<u>Berosus</u> sp	--	--	--	--	--	--
Psephenidae (WATER PENNIES)						
<u>Psephenus</u> sp	--	--	--	3	--	1
Diptera (TRUE FLIES)						
Chironomidae (MIDGES)						
	23	20	11	56	5	6
Empididae (DANCE FLIES)						
<u>Hemerodromia</u> sp	--	--	1	--	--	--
Simuliidae (BLACK FLIES)						
<u>Simulium</u> sp	2	--	--	--	--	--
Tipulidae (CRANE FLIES)						
<u>Antocha</u> sp	--	--	2	2	1	--
<u>Hexatoma</u> sp	--	1	--	--	--	--
Total organisms	145	125	190	222	119	104

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
BENTHIC MACROINVERTEBRATES

01452040	01473030	01473170	01474010	01494990	Station Number
08/27/02	09/03/02	08/27/02	08/15/02	08/28/02	Date
Count	Count	Count	Count	Count	Benthic Macroinvertebrate
					Trichoptera (CADDISFLIES)
					Leptoceridae
--	--	--	--	2	<u>Oecetis</u> sp
					Philopotamidae
--	42	7	--	1	<u>Chimarra</u> sp
--	--	--	--	--	<u>Dolophilodes</u> sp
					Polycentropodidae
--	--	--	--	--	<u>Polycentropus</u> sp
					Rhyacophilidae
--	--	--	--	--	<u>Rhyacophila</u> sp
					Uenoidae
--	--	--	--	--	<u>Neophylax</u> sp
					Coleoptera (BEETLES)
					Elmidae (RIFFLE BEETLES)
3	6	32	--	13	<u>Optioservus</u> sp
--	4	4	--	4	<u>Oulimnius</u> sp
--	--	--	--	--	<u>Promoresia</u> sp
4	13	21	17	--	<u>Stenelmis</u> sp
					Hydrophilidae
--	--	--	--	1	<u>Berosus</u> sp
					Psephenidae (WATER PENNIES)
--	--	3	--	--	<u>Psephenus</u> sp
					Diptera (TRUE FLIES)
18	5	8	21	20	Chironomidae (MIDGES)
					Empididae (DANCE FLIES)
--	--	--	--	--	<u>Hemerodromia</u> sp
					Simuliidae (BLACK FLIES)
--	--	--	--	--	<u>Simulium</u> sp
					Tipulidae (CRANE FLIES)
--	--	4	--	5	<u>Antocha</u> sp
--	--	--	--	--	<u>Hexatoma</u> sp
105	116	116	118	113	Total organisms



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
BENTHIC MACROINVERTEBRATES AT REFERENCE SITES

Station Number	01429301	01438760	01447300	01449375	01457790	01458900	01472150
Date	3/29/02	4/26/02	4/23/02	4/23/02	4/29/02	4/29/02	4/29/02
Benthic Macroinvertebrate	Count	Count	Count	Count	Count	Count	Count
Ephemeroptera (MAYFLIES)							
Heptageniidae							
<u>Cinygmula</u> sp	--	6	--	3	--	--	--
<u>Epeorus</u> sp	2	13	--	--	1	--	1
<u>Leucrocuta</u> sp	--	6	--	3	--	--	--
<u>Stenacron</u> sp	2	--	--	--	--	--	--
<u>Stenonema</u> sp	6	--	6	--	--	1	6
Isonychiidae							
<u>Isonychia</u> sp	1	--	--	--	--	--	2
Leptophlebiidae							
<u>Leptophlebia</u> sp	1	--	--	--	1	--	--
<u>Paraleptophlebia</u> sp	6	27	1	2	--	1	--
Odonata (DRAGONFLIES AND DAMSELFLIES)							
Aeshnidae							
<u>Boyeria</u> sp	--	--	1	1	--	--	--
Gomphidae							
<u>Lanthus</u> sp	--	--	--	--	--	--	1
Plecoptera (STONEFLIES)							
Capniidae							
<u>Paracapnia</u> sp	--	--	--	1	--	--	--
Chloroperlidae							
<u>Chloroperla</u> sp	--	1	--	--	--	--	--
Leuctridae							
<u>Leuctra</u> sp	--	9	8	--	--	--	1
Nemouridae							
<u>Amphinemura</u> sp	--	2	10	1	1	1	2
Peltoperlidae							
<u>Tallaperla</u> sp	--	--	2	1	--	--	--
Perlidae							
<u>Acroneuria</u> sp	--	--	5	--	--	--	--
<u>Agnetina</u> sp	--	--	--	--	1	--	--
<u>Paragnetina</u> sp	--	--	--	--	--	--	1
<u>Perlesta</u> sp	--	--	--	--	--	1	--
Perlodidae							
<u>Isoperla</u> sp	1	1	--	4	--	--	--
Megaloptera							
Corydalidae (FISHFLIES AND DOBSONFLIES)							
<u>Nigronia</u> sp	--	--	1	--	--	--	--
Sialidae (ALDERFLIES)							
<u>Sialis</u> sp	1	--	--	--	--	--	--
Trichoptera (CADDISFLIES)							
Apataniidae							
<u>Apatania</u> sp	--	--	--	--	--	--	4
Brachycentridae							
<u>Adicropheps</u> sp	--	--	--	2	--	--	--
<u>Micrasema</u> sp	--	--	--	1	--	--	--
Glossosomatidae							
<u>Agapetus</u> sp	--	7	--	1	--	--	--
<u>Protoptila</u> sp	--	--	--	--	1	--	--
Helicopsychidae							
<u>Helicopsyche</u> sp	2	--	--	--	1	--	--
Hydropsychidae							
<u>Cheumatopsyche</u> sp	1	--	--	--	8	1	1
<u>Diplectronea</u> sp	--	5	7	1	--	--	--
<u>Hydropsyche</u> sp	1	5	4	1	2	--	1

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
PENNSYLVANIA WATER-QUALITY NETWORK**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
BENTHIC MACROINVERTEBRATES AT REFERENCE SITES

Station Number	01429301	01438760	01447300	01449375	01457790	01458900	01472150
Date	3/29/02	4/26/02	4/23/02	4/23/02	4/29/02	4/29/02	4/29/02
Benthic Macroinvertebrate	Count	Count	Count	Count	Count	Count	Count
<b>Trichoptera (CADDISFLIES)</b>							
Hydroptilidae							
<u>Hydroptila</u> sp	--	--	--	--	--	--	1
Lepidostomatidae							
<u>Lepidostoma</u> sp	--	1	--	3	--	--	--
Limnephilidae							
<u>Hydatophylax</u> sp	1	--	--	--	--	--	--
Odontoceridae							
<u>Psilotreta</u> sp	5	--	2	--	--	--	--
Philopotamidae							
<u>Chimarra</u> sp	--	--	1	--	8	3	--
<u>Dolophilodes</u> sp	--	2	1	2	1	--	--
Polycentropodidae							
<u>Polycentropus</u> sp	--	1	--	--	2	--	--
Rhyacophilidae							
<u>Rhyacophila</u> sp	3	--	3	5	--	--	--
Uenoidae							
<u>Neophylax</u> sp	7	--	--	--	--	--	--
<b>Coleoptera (BEETLES)</b>							
Elmidae (RIFFLE BEETLES)							
<u>Optioservus</u> sp	7	--	--	--	13	--	9
<u>Oulimnius</u> sp	--	2	1	1	--	--	1
<u>Promoresia</u> sp	--	3	39	28	--	--	1
<u>Stenelmis</u> sp	--	--	--	--	11	3	1
Psephenidae (WATER PENNIES)							
<u>Psephenus</u> sp	6	8	--	--	6	9	2
Ptilodactylidae							
<u>Anchytarsus</u> sp	--	--	--	1	--	--	--
<b>Diptera (TRUE FLIES)</b>							
Athericidae							
<u>Atherix</u> sp	1	--	--	--	--	--	--
Blephariceridae							
<u>Blepharicera</u> sp	--	7	--	--	--	--	--
Chironomidae (MIDGES)							
	54	46	97	95	11	30	10
Empididae (DANCE FLIES)							
<u>Hemerodromia</u> sp	--	--	--	--	2	2	1
Muscidae							
<u>Limnophora</u> sp	--	--	--	1	--	--	--
Simuliidae (BLACK FLIES)							
<u>Prosimulium</u> sp	41	1	4	4	--	--	--
<u>Simulium</u> sp	--	--	--	1	--	--	2
Tipulidae (CRANE FLIES)							
<u>Antocha</u> sp	2	3	--	--	--	2	1
<u>Dicranota</u> sp	--	--	--	3	--	--	--
<u>Hexatoma</u> sp	1	2	--	--	--	--	--
<u>Tipula</u> sp	--	--	1	--	--	--	--
Total Organisms	210	211	206	203	183	73	92

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK**

Water-quality and benthic macroinvertebrate samples were collected from selected streams in Chester County in October and November 2002 as part of the Stream Conditions of Chester County Biological Monitoring Network. The biological monitoring program was initiated in 1969 with the goals of evaluating stream quality and long-term changes in stream quality of selected streams in Chester County. Benthic macroinvertebrates are macroscopic animals that inhabit the bottoms of aquatic habitats. Freshwater forms include aquatic insects, clams, crustaceans, snails, and worms. Samples are collected annually from similar habitats of the selected streams. By sampling in similar habitats with similar physical conditions it can be assumed that water quality is the determining factor controlling community structure. Benthic macroinvertebrate sampling was conducted following a single habitat approach. A cobble-riffle habitat was used because macroinvertebrate diversity and abundance is usually highest there. Samples were collected using a Hess sampler with a mesh size of 500 mm. Three samples were collected from areas of various velocities from within the riffle. Samples were composited and the entire sample was sorted and identified. Identifications were made to the lowest practical level (family or genus) by a U.S. Geological Survey biologist.

**TABLE 5.**--Stream conditions of Chester County biological monitoring network station list.

STATION NUMBER	STATION NAME	LATITUDE	LONGITUDE	DRAINAGE AREA (mi <sup>2</sup> )
01472080	PIGEON CREEK NEAR SLONAKER, PA	40°12'03"	75°37'10"	12.0
01472138	FRENCH CREEK NEAR COVENTRYVILLE, PA	40°10'14"	75°41'50"	19.9
01472140	SOUTH BRANCH FRENCH CREEK AT COVENTRYVILLE, PA	40°09'18"	75°42'52"	12.4
<sup>a</sup> 01472157	FRENCH CREEK NEAR PHOENIXVILLE, PA	40°09'05"	75°36'06"	59.1
01472170	PICKERING CREEK NEAR EAGLE, PA	40°04'43"	75°39'14"	3.06
014721854	PICKERING CREEK AT MERLIN, PA	40°06'25"	75°35'34"	21.2
01472190	PICKERING CREEK NEAR PHOENIXVILLE, PA	40°06'33"	75°31'42"	31.4
<sup>a</sup> 01473169	VALLEY CREEK AT PA TURNPIKE BRIDGE NEAR VALLEY FORGE, PA	40°04'45"	75°27'40"	20.8
<sup>a</sup> 01475850	CRUM CREEK NEAR NEWTOWN SQUARE, PA	39°58'35"	75°26'13"	15.8
01476450	RIDLEY CREEK AT PA ROUTE 3 NEAR WILLISTOWN, PA	39°58'01"	75°28'58"	13.9
01476835	EAST BRANCH CHESTER CREEK AT WESTTOWN, PA	39°56'26"	75°32'30"	10.4
01478120	EAST BRANCH WHITE CLAY CREEK AT AVONDALE, PA	39°49'42"	75°46'52"	11.3
01478137	TROUT RUN AT AVONDALE, PA	39°49'18"	75°46'46"	1.34
01478170	EAST BRANCH WHITE CLAY CREEK NEAR STRICKERSVILLE, PA	39°44'58"	75°46'08"	33.5
01478230	MIDDLE BRANCH WHITE CLAY CREEK NEAR AVONDALE, PA	39°45'02"	75°46'19"	25.5
01479700	WEST BRANCH RED CLAY CR NR KENNETT SQUARE, PA	39°48'39"	75°42'18"	16.9
01479800	EAST BRANCH RED CLAY CREEK NEAR FIVE POINTS, PA	39°49'10"	75°41'29"	10.2
<sup>a</sup> 01480300	WEST BRANCH BRANDYWINE CR NR HONEY BROOK, PA	40°04'22"	75°55'40"	18.7
<sup>a</sup> 01480617	WEST BRANCH BRANDYWINE CREEK AT MODENA, PA	39°57'42"	75°48'06"	55.0
01480629	BUCK RUN AT DOE RUN, PA	39°55'46"	75°49'24"	22.6
01480636	BROAD RUN AT ROMANSVILLE, PA	39°57'06"	75°43'33"	2.86
0148063750	BROAD RUN NEAR MARSHALLTON, PA	39°56'48"	75°42'11"	5.45
<sup>a</sup> 01480638	BROAD RUN AT NORTHBROOK, PA	39°55'49"	75°41'06"	6.39
01480653	EAST BRANCH BRANDYWINE CR AT GLENMOORE, PA	40°05'48"	75°46'44"	16.5
<sup>a</sup> 01480870	EAST BRANCH BRANDYWINE CR BL DOWNINGTOWN, PA	39°58'07"	75°40'25"	89.9
01494953	BIG ELK CREEK AT MAPLE GROVE, PA	39°45'44"	75°55'16"	26.6

<sup>a</sup> Other data for this station can be found in the continuous station records section of this report.

ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
 STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK--Continued

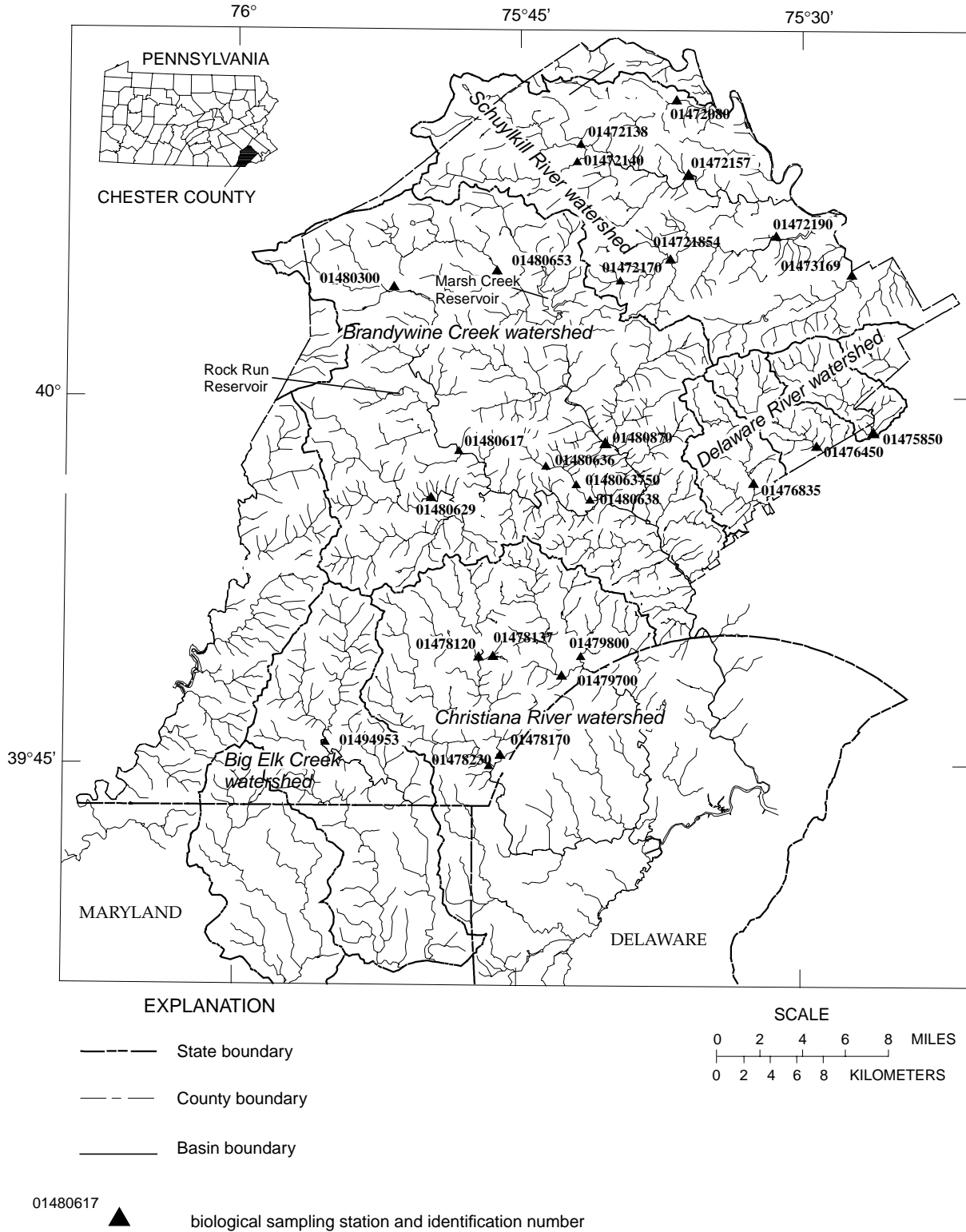


Figure 10.--Biological sampling locations and major drainage basin divides in Chester County.



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES**  
**STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK--Continued**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 MISCELLANEOUS STATION ANALYSES

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd std units (00400)	Specif. conduc- tance, wat un- f µS/cm 25 degC (00095)	Temper- ature, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat un- f incrm. titr., field, mg/L as CaCO3 (00419)
		01472080 Pigeon Creek near Slonaker, PA (LAT 40 12 03N LONG 075 37 10W)											
NOV 2002 07...	1400	1028	80020	6.8	11.2	7.5	171	8.7	15.0	5.07	2.08	8.23	32
		01472138 French Creek near Coventryville, PA (LAT 40 10 14N LONG 075 41 50W)											
OCT 2002 23...	1100	1028	80020	7.4	11.7	7.4	135	8.4	14.8	5.10	1.50	7.02	32
		01472140 South Branch French Creek at Coventryville, PA (LAT 40 09 18N LONG 075 42 52W)											
OCT 2002 23...	1300	1028	80020	4.8	13.1	7.8	205	9.3	20.2	6.27	2.31	9.02	48
		01472170 Pickering Creek near Eagle, PA (LAT 40 04 43N LONG 075 39 14W)											
OCT 2002 29...	1130	1028	80020	1.3	11.7	7.5	270	8.0	26.3	8.32	2.00	10.4	54
		014721854 Pickering Creek at Merlin, PA (LAT 40 06 25N LONG 075 35 34W)											
OCT 2002 29...	0900	1028	80020	9.3	11.2	7.3	254	7.6	25.3	7.48	2.01	10.4	55
		01472190 Pickering Creek near Phoenixville, PA (LAT 40 06 33N LONG 075 31 42W)											
NOV 2002 07...	1200	1028	80020	23	11.4	7.4	235	7.9	21.3	6.75	2.41	10.1	48
		01476450 Ridley Creek at Rt 3 near Willistown, PA (LAT 39 58 01N LONG 075 28 58W)											
OCT 2002 07...	1200	1028	80020	4.1	9.3	7.6	331	18.4	22.9	12.2	3.91	22.5	57
		01476835 East Branch Chester Creek at Westtown, PA (LAT 39 56 26N LONG 075 32 30W)											
OCT 2002 15...	1430	1028	80020	5.2	10.6	7.4	346	12.9	27.5	12.2	3.92	19.2	54
		01478120 East Branch White Clay Creek at Avondale, PA (LAT 39 49 42N LONG 075 46 52W)											
OCT 2002 21...	1115	1028	80020	5.3	11.3	7.8	399	10.8	42.9	17.8	3.31	9.36	103
		01478137 Trout Run at Avondale, PA (LAT 39 49 18N LONG 075 46 46W)											
DEC 2002 02...	0930	1028	80020	1.1	11.4	7.3	858	4.1	97.7	38.7	15.0	20.9	206
		01478170 East Branch White Clay Creek nr Strickersville, PA (LAT 39 44 58N LONG 075 46 08W)											
DEC 2002 02...	1230	1028	80020	21	14.5	7.6	444	1.9	47.4	18.0	4.45	13.2	100
		01478230 Middle Branch White Clay Creek near Avondale, PA (LAT 39 45 02N LONG 075 46 19W)											
OCT 2002 21...	0930	1028	80020	11	11.8	7.5	234	10.0	19.6	7.98	4.57	10.4	35
		01479700 West Branch Red Clay Creek near Kennett Square, PA (LAT 39 48 39N LONG 075 42 18W)											
OCT 2002 15...	1230	1028	80020	9.1	11.5	7.8	455	11.2	45.3	17.3	8.82	16.4	89

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES**  
**STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK--Continued**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 MISCELLANEOUS STATION ANALYSES

Date	Chloride, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate, water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water, fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, µg/L (01106)	Arsenic, water, fltrd, µg/L (01000)	Boron, water, fltrd, µg/L (01020)	Cadmium, water, fltrd, µg/L (01025)	Chromium, water, fltrd, µg/L (01030)	Copper, water, fltrd, µg/L (01040)
	01472080 Pigeon Creek near Slonaker, PA (LAT 40 12 03N LONG 075 37 10W)												
NOV 2002 07...	11.0	16.4	19.2	<.04	2.18	E.005	.03	--	--	20	--	--	--
	01472138 French Creek near Coventryville, PA (LAT 40 10 14N LONG 075 41 50W)												
OCT 2002 23...	10.2	16.7	15.0	<.04	.66	<.008	E.01	--	--	30	--	--	--
	01472140 South Branch French Creek at Coventryville, PA (LAT 40 09 18N LONG 075 42 52W)												
OCT 2002 23...	17.1	20.2	18.8	<.04	2.20	E.005	E.01	--	--	20	--	--	--
	01472170 Pickering Creek near Eagle, PA (LAT 40 04 43N LONG 075 39 14W)												
OCT 2002 29...	31.0	21.4	20.1	<.04	1.92	<.008	E.01	--	--	20	--	--	--
	014721854 Pickering Creek at Merlin, PA (LAT 40 06 25N LONG 075 35 34W)												
OCT 2002 29...	25.6	18.2	21.4	<.04	1.29	<.008	E.01	--	--	20	--	--	--
	01472190 Pickering Creek near Phoenixville, PA (LAT 40 06 33N LONG 075 31 42W)												
NOV 2002 07...	21.6	15.6	23.9	<.04	1.07	E.004	<.02	--	--	20	--	--	--
	01476450 Ridley Creek at Rt 3 near Willistown, PA (LAT 39 58 01N LONG 075 28 58W)												
OCT 2002 07...	39.5	14.4	23.9	E.04	2.88	.011	.21	--	--	70	--	--	--
	01476835 East Branch Chester Creek at Westtown, PA (LAT 39 56 26N LONG 075 32 30W)												
OCT 2002 15...	45.5	13.9	25.7	E.02	3.37	E.006	.35	--	--	60	--	--	--
	01478120 East Branch White Clay Creek at Avondale, PA (LAT 39 49 42N LONG 075 46 52W)												
OCT 2002 21...	24.9	16.7	30.7	<.04	4.78	.008	.04	--	--	20	--	--	--
	01478137 Trout Run at Avondale, PA (LAT 39 49 18N LONG 075 46 46W)												
DEC 2002 02...	56.8	16.1	119	.25	7.76	.079	.17	--	--	40	--	--	--
	01478170 East Branch White Clay Creek nr Strickersville, PA (LAT 39 44 58N LONG 075 46 08W)												
DEC 2002 02...	31.0	14.3	43.2	<.04	4.92	.027	.05	--	--	30	--	--	--
	01478230 Middle Branch White Clay Creek near Avondale, PA (LAT 39 45 02N LONG 075 46 19W)												
OCT 2002 21...	19.6	15.3	22.5	<.04	3.85	<.008	.07	--	--	30	--	--	--
	01479700 West Branch Red Clay Creek near Kennett Square, PA (LAT 39 48 39N LONG 075 42 18W)												
OCT 2002 15...	34.3	17.5	51.7	E.02	5.36	.012	.44	E10	<2	50	<.2	<.8	2.2

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES**  
**STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK--Continued**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 MISCELLANEOUS STATION ANALYSES

Date	Iron, water, fltrd, µg/L (01046)	Lead, water, fltrd, µg/L (01049)	Mangan- ese, water, fltrd, µg/L (01056)	Mercury water, fltrd, µg/L (71890)	Molyb- denum, water, fltrd, µg/L (01060)	Nickel, water, fltrd, µg/L (01065)	Zinc, water, fltrd, µg/L (01090)
01472080	Pigeon Creek near Slonaker, PA (LAT 40 12 03N LONG 075 37 10W)						
NOV 2002 07...	63	--	--	--	--	--	--
01472138	French Creek near Coventryville, PA (LAT 40 10 14N LONG 075 41 50W)						
OCT 2002 23...	175	--	--	--	--	--	--
01472140	South Branch French Creek at Coventryville, PA (LAT 40 09 18N LONG 075 42 52W)						
OCT 2002 23...	86	--	--	--	--	--	--
01472170	Pickering Creek near Eagle, PA (LAT 40 04 43N LONG 075 39 14W)						
OCT 2002 29...	187	--	--	--	--	--	--
014721854	Pickering Creek at Merlin, PA (LAT 40 06 25N LONG 075 35 34W)						
OCT 2002 29...	100	--	--	--	--	--	--
01472190	Pickering Creek near Phoenixville, PA (LAT 40 06 33N LONG 075 31 42W)						
NOV 2002 07...	79	--	--	--	--	--	--
01476450	Ridley Creek at Rt 3 near Willistown, PA (LAT 39 58 01N LONG 075 28 58W)						
OCT 2002 07...	80	--	--	--	--	--	--
01476835	East Branch Chester Creek at Westtown, PA (LAT 39 56 26N LONG 075 32 30W)						
OCT 2002 15...	234	--	--	--	--	--	--
01478120	East Branch White Clay Creek at Avondale, PA (LAT 39 49 42N LONG 075 46 52W)						
OCT 2002 21...	22	--	--	--	--	--	--
01478137	Trout Run at Avondale, PA (LAT 39 49 18N LONG 075 46 46W)						
DEC 2002 02...	47	--	--	--	--	--	--
01478170	East Branch White Clay Creek nr Strickersville, PA (LAT 39 44 58N LONG 075 46 08W)						
DEC 2002 02...	44	--	--	--	--	--	--
01478230	Middle Branch White Clay Creek near Avondale, PA (LAT 39 45 02N LONG 075 46 19W)						
OCT 2002 21...	26	--	--	--	--	--	--
01479700	West Branch Red Clay Creek near Kennett Square, PA (LAT 39 48 39N LONG 075 42 18W)						
OCT 2002 15...	20	<1	15.1	<.02	E1.5	<2.0	E12

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK--Continued**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
MISCELLANEOUS STATION ANALYSES

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unf 25 degC $\mu$ S/cm (00095)	Temperature, water, deg C (00010)	Calcium, water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419)
01479800 East Branch Red Clay Creek near Five Points, PA (LAT 39 49 10N LONG 075 41 29W)													
OCT 2002 15...	1030	1028	80020	4.1	11.6	7.6	381	10.5	38.3	13.7	6.70	14.1	72
01480629 Buck Run at Doe Run, PA (LAT 39 55 46N LONG 075 49 24W)													
OCT 2002 09...	1200	1028	80020	3.9	11.2	7.8	264	14.2	27.5	8.98	3.17	9.80	94
01480636 Broad Run at Romansville, PA (LAT 39 57 06N LONG 075 43 33W)													
DEC 2002 17...	1200	1028	80020	5.5	11.8	6.8	188	5.4	12.5	7.11	1.31	9.95	25
0148063750 Broad Run near Marshallton, PA (LAT 39 56 48N LONG 075 42 11W)													
NOV 2002 26...	1300	1028	80020	4.4	12.1	7.2	231	8.7	18.1	8.41	1.46	11.1	47
01480653 East Branch Brandywine Creek at Glenmoore, PA (LAT 40 05 48N LONG 075 46 44W)													
OCT 2002 09...	0900	1028	80020	2.1	10.1	7.7	219	11.2	22.5	6.71	2.28	9.42	52
01494953 Big Elk Creek at Maple Grove, PA (LAT 39 45 44N LONG 075 55 16W)													
OCT 2002 22...	0915	1028	80020	10	11.8	7.5	209	9.0	14.8	7.26	3.45	10.6	22

Date	Chloride, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate, water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water, fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phosphate, water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, $\mu$ g/L (01106)	Arsenic, water, fltrd, $\mu$ g/L (01000)	Boron, water, fltrd, $\mu$ g/L (01020)	Cadmium, water, fltrd, $\mu$ g/L (01025)	Chromium, water, fltrd, $\mu$ g/L (01030)	Copper, water, fltrd, $\mu$ g/L (01040)
01479800 East Branch Red Clay Creek near Five Points, PA (LAT 39 49 10N LONG 075 41 29W)													
OCT 2002 15...	35.5	17.3	42.1	<.04	2.59	E.006	.03	20	<2	30	<.2	<.8	2.4
01480629 Buck Run at Doe Run, PA (LAT 39 55 46N LONG 075 49 24W)													
OCT 2002 09...	21.4	9.3	17.9	E.04	2.76	.010	<.02	--	--	30	--	--	--
01480636 Broad Run at Romansville, PA (LAT 39 57 06N LONG 075 43 33W)													
DEC 2002 17...	19.7	7.4	15.5	<.04	2.75	<.008	<.02	--	--	30	--	--	--
0148063750 Broad Run near Marshallton, PA (LAT 39 56 48N LONG 075 42 11W)													
NOV 2002 26...	22.5	9.5	18.1	<.04	2.80	E.005	<.02	--	--	40	--	--	--
01480653 East Branch Brandywine Creek at Glenmoore, PA (LAT 40 05 48N LONG 075 46 44W)													
OCT 2002 09...	14.1	23.4	14.3	<.04	2.44	E.006	E.01	--	--	20	--	--	--
01494953 Big Elk Creek at Maple Grove, PA (LAT 39 45 44N LONG 075 55 16W)													
OCT 2002 22...	22.5	12.7	13.1	<.04	5.04	E.005	.06	--	--	30	--	--	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES**  
**STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK--Continued**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 MISCELLANEOUS STATION ANALYSES

Date	Iron, water, fltrd, µg/L (01046)	Lead, water, fltrd, µg/L (01049)	Mangan- ese, water, fltrd, µg/L (01056)	Mercury water, fltrd, µg/L (71890)	Molyb- denum, water, fltrd, µg/L (01060)	Nickel, water, fltrd, µg/L (01065)	Zinc, water, fltrd, µg/L (01090)
01479800 East Branch Red Clay Creek near Five Points, PA (LAT 39 49 10N LONG 075 41 29W)							
OCT 2002 15...	58	<1	16.5	<.02	<1.8	E1.5	<24
01480629 Buck Run at Doe Run, PA (LAT 39 55 46N LONG 075 49 24W)							
OCT 2002 09...	55	--	--	--	--	--	--
01480636 Broad Run at Romansville, PA (LAT 39 57 06N LONG 075 43 33W)							
DEC 2002 17...	15	--	--	--	--	--	--
0148063750 Broad Run near Marshallton, PA (LAT 39 56 48N LONG 075 42 11W)							
NOV 2002 26...	43	--	--	--	--	--	--
01480653 East Branch Brandywine Creek at Glenmoore, PA (LAT 40 05 48N LONG 075 46 44W)							
OCT 2002 09...	55	--	--	--	--	--	--
01494953 Big Elk Creek at Maple Grove, PA (LAT 39 45 44N LONG 075 55 16W)							
OCT 2002 22...	40	--	--	--	--	--	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES**  
**STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK--Continued**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 BENTHIC MACROINVERTEBRATES

**REMARKS:**--Samples were collected using a Hess sampler with a mesh size of 500 µm. Each sample covered a total area of 2.4 m<sup>2</sup>. A dash (--) indicates there were no observations of the organism in the sample.

Station Number	01472080	01472138	01472140	01472170	014721854
Date	11/07/02	10/23/02	10/23/02	10/29/02	10/29/02
Benthic Macroinvertebrate	Count	Count	Count	Count	Count
Platyhelminthes					
Turbellaria (FLATWORMS)					
Tricladida					
Planariidae	11	28	48	2	14
Nematoda (NEMATODES)	7	3	--	4	7
Nemertea (PROBOSAS WORMS)					
Enopla					
Hoploneurata					
Tetrastemmatidae					
<u>Prostoma</u> sp	13	50	39	29	142
Mollusca					
Gastropoda (SNAILS)					
Basommatophora					
Ancylidae					
<u>Ferrissia</u> sp	1	19	27	1	43
Lymnaeidae					
<u>Fossaria</u> sp	--	--	1	--	1
Physidae					
<u>Physa</u> sp	--	--	--	--	--
Planorbidae					
<u>Gyraulus</u> sp	--	7	4	--	--
Mesogastropoda					
Valvataidae					
<u>Valvata</u> sp	--	--	--	--	--
Bivalvia (CLAMS)					
Veneroida					
Sphaeriidae					
<u>Pisidium</u> sp	--	11	8	--	--
<u>Sphaerium</u> sp	--	33	--	--	1
Annelida					
Oligochaeta (AQUATIC EARTHWORMS)					
Lumbriculida					
Lumbriculidae	--	9	--	10	5
Tubificida					
Naididae	5	3	--	6	26
Tubificidae	--	--	--	--	--
Hirudinea (LEECHES)					
Arhynchobdellida					
Erpobdellidae	--	--	--	--	--
Arthropoda					
Acariformes					
Hydrachnidia (WATER MITES)	38	71	99	82	115
Crustacea					
Cyclopoida					
Cyclopidae	--	--	--	2	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES**  
**STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK--Continued**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 BENTHIC MACROINVERTEBRATES--Continued

01472190	01476450	01476835	01478120	01478137	Station Number
11/07/02	10/07/02	10/15/02	10/21/02	12/02/02	Date
Count	Count	Count	Count	Count	Benthic Macroinvertebrate
					Platyhelminthes
					Turbellaria (FLATWORMS)
					Tricladida
27	115	51	207	33	Planariidae
--	78	33	37	--	Nematoda (NEMATODES)
					Nemertea (PROBOSAS WORMS)
					Enopla
					Hoplonemertea
					Tetrastemmatidae
5	26	23	35	15	<u>Prostoma</u> sp
					Mollusca
					Gastropoda (SNAILS)
					Basommatophora
					Ancyliidae
8	6	10	7	--	<u>Ferrissia</u> sp
					Lymnaeidae
--	--	1	--	--	<u>Fossaria</u> sp
					Physidae
--	--	--	--	37	<u>Physa</u> sp
					Planorbidae
--	--	--	1	19	<u>Gyraulus</u> sp
					Mesogastropoda
					Valvataidae
--	1	--	--	--	<u>Valvata</u> sp
					Bivalvia (CLAMS)
					Veneroida
--	--	--	--	--	Sphaeriidae
--	--	13	--	9	<u>Pisidium</u> sp
--	4	--	5	--	<u>Sphaerium</u> sp
					Annelida
					Oligochaeta (AQUATIC EARTHWORMS)
					Lumbriculida
11	12	27	--	8	Lumbriculidae
					Tubificida
--	2	--	--	269	Naididae
--	--	2	7	--	Tubificidae
					Hirudinea (LEECHES)
					Arhynchobdellida
--	--	2	--	1	Erpobdellidae
					Arthropoda
					Acariformes
28	11	20	120	--	Hydrachnidia (WATER MITES)
					Crustacea
					Cyclopoida
--	--	--	--	--	Cyclopidae

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES**  
**STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK--Continued**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 BENTHIC MACROINVERTEBRATES--Continued

Station Number	01472080	01472138	01472140	01472170	014721854
Date	11/07/02	10/23/02	10/23/02	10/29/02	10/29/02
Benthic Macroinvertebrate	Count	Count	Count	Count	Count
Arthropoda					
Crustacea					
Amphipoda (SCUDS)					
Crangonyctidae					
<u>Crangonyx</u> sp	1	1	--	--	1
<u>Stygonectes</u> sp	--	--	--	1	--
Gammaridae					
<u>Gammarus</u> sp	--	--	--	--	--
Talitridae					
<u>Hyallolella</u> sp	--	2	--	--	--
Isopoda (AQUATIC SOWBUGS)					
Asellidae					
<u>Caecidotea</u> sp	--	--	--	--	3
Decapoda					
Cambaridae (CRAYFISH)	--	--	1	--	--
Podocopa (SEED SHRIMP)	--	--	--	--	2
Insecta					
Ephemeroptera (MAYFLIES)					
Baetidae					
<u>Acentrella</u> sp	--	2	1	5	1
<u>Baetis</u> sp	--	--	--	--	--
Caenidae					
<u>Caenis</u> sp	--	66	1	1	3
Ephemerellidae					
<u>Eurylophella</u> sp	6	9	2	10	--
<u>Serratella</u> sp	82	7	27	41	6
Ephemeridae					
<u>Ephemera</u> sp	--	--	--	--	--
Heptageniidae					
<u>Epeorus</u> sp	1	1	3	1	--
<u>Stenonema</u> sp	66	248	17	145	202
Isonychiidae					
<u>Isonychia</u> sp	38	277	74	8	73
Leptophlebiidae					
<u>Leptophlebia</u> sp	--	1	--	--	--
Tricorythidae					
<u>Tricorythodes</u> sp	--	--	--	--	--
Odonata (DRAGONFLIES AND DAMSELFLIES)					
Aeshnidae					
<u>Boyeria</u> sp	--	--	--	--	--
Coenagrionidae					
<u>Argia</u> sp	--	1	1	--	1
Gomphidae					
<u>Lanthus</u> sp	3	--	--	2	--
<u>Stylogomphus</u> sp	--	2	--	--	--
Plecoptera (STONEFLIES)					
Capniidae					
<u>Capnia</u> sp	--	--	--	--	10
Leuctridae					
<u>Paraleuctra</u> sp	13	--	--	--	--



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES**  
**STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK--Continued**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 BENTHIC MACROINVERTEBRATES--Continued

01472190	01476450	01476835	01478120	01478137	Station Number
11/07/02	10/07/02	10/15/02	10/21/02	12/02/02	Date
Count	Count	Count	Count	Count	Benthic Macroinvertebrate
					Arthropoda
					Crustacea
					Amphipoda (SCUDS)
					Crangonyctidae
--	--	68	10	--	<u>Crangonyx</u> sp
--	4	--	--	--	<u>Stygonectes</u> sp
					Gammaridae
2	--	--	--	--	<u>Gammarus</u> sp
					Talitridae
--	3	--	--	--	<u>Hyallega</u> sp
					Isopoda (AQUATIC SOWBUGS)
					Asellidae
--	--	--	2	--	<u>Caecidotea</u> sp
					Decapoda
--	--	--	--	--	Cambaridae (CRAYFISH)
--	--	--	--	6	Podocopa (SEED SHRIMP)
					Insecta
					Ephemeroptera (MAYFLIES)
					Baetidae
1	4	--	1	--	<u>Acentrella</u> sp
--	63	8	1	--	<u>Baetis</u> sp
					Caenidae
3	4	--	--	--	<u>Caenis</u> sp
					Ephemerellidae
--	--	--	7	--	<u>Eurylophella</u> sp
88	178	2	209	1	<u>Serratella</u> sp
					Ephemeridae
--	--	--	2	--	<u>Ephemer</u> sp
					Heptageniidae
--	--	--	--	--	<u>Epeorus</u> sp
38	102	20	402	--	<u>Stenonema</u> sp
					Isonychiidae
31	38	--	4	--	<u>Isonychia</u> sp
--	--	--	--	--	Leptophlebiidae
					Tricorythidae
--	10	3	--	--	<u>Tricorythodes</u> sp
					Odonata (DRAGONFLIES AND DAMSELFLIES)
					Aeshnidae
--	1	--	--	--	<u>Boyeria</u> sp
					Coenagrionidae
--	34	--	--	--	<u>Argia</u> sp
--	--	1	--	--	Gomphidae
--	--	--	--	--	<u>Lanthus</u> sp
--	--	--	1	--	<u>Stylogomphus</u> sp
					Plecoptera (STONEFLIES)
--	--	--	--	--	Capniidae
48	--	--	--	--	Leuctridae
--	--	--	--	--	<u>Paraleuctra</u> sp

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES**  
**STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK--Continued**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 BENTHIC MACROINVERTEBRATES--Continued

Station Number	01472080	01472138	01472140	01472170	014721854
Date	11/07/02	10/23/02	10/23/02	10/29/02	10/29/02
Benthic Macroinvertebrate	Count	Count	Count	Count	Count
Plecoptera (STONEFLIES)					
Nemouridae	--	4	--	--	--
<u>Paranemoura</u> sp	17	--	--	--	--
Perlidae					
<u>Acroneuria</u> sp	19	29	6	--	1
<u>Agnetina</u> sp	--	4	--	--	--
<u>Beloneuria</u> sp	--	3	2	--	--
<u>Paragnetina</u> sp	2	6	--	--	--
Taeniopterygidae					
<u>Strophopteryx</u> sp	1	7	--	--	6
<u>Taeniopteryx</u> sp	3	110	31	23	122
Megaloptera					
Corydalidae (FISHFLIES AND DOBSONFLIES)					
<u>Corydalus</u> sp	--	16	15	--	2
<u>Nigronia</u> sp	--	--	1	8	1
Sialidae (ALDERFLIES)					
<u>Sialis</u> sp	--	--	--	--	--
Trichoptera (CADDISFLIES)					
Apataniidae					
<u>Apatania</u> sp	5	5	--	--	21
Brachycentridae					
<u>Micrasema</u> sp	--	6	7	3	13
Glossosomatidae					
<u>Glossosoma</u> sp	1	3	1	2	1
<u>Protoptila</u> sp	--	--	--	--	--
Goeridae					
<u>Goera</u> sp	1	--	--	3	1
Helicopsychidae					
<u>Helicopsyche</u> sp	--	1	--	--	--
Hydropsychidae					
<u>Cheumatopsyche</u> sp	221	889	441	527	211
<u>Hydropsyche</u> sp	64	240	321	132	106
<u>Macrostemum</u> sp	--	--	4	--	1
Hydroptilidae					
<u>Hydroptila</u> sp	1	35	--	3	7
<u>Leucotrichia</u> sp	--	26	34	14	7
Lepidostomatidae					
<u>Lepidostoma</u> sp	--	3	--	--	2
Leptoceridae					
<u>Mystacides</u> sp	--	--	--	--	--
<u>Oecetis</u> sp	--	--	--	--	--
Philopotamidae					
<u>Chimarra</u> sp	240	450	63	125	40
Polycentropodidae					
<u>Neureclipsis</u> sp	--	--	--	--	--
<u>Nyctiophylax</u> sp	--	--	--	--	17
<u>Polycentropus</u> sp	3	1	--	7	3

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES**  
**STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK--Continued**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 BENTHIC MACROINVERTEBRATES--Continued

01472190	01476450	01476835	01478120	01478137	Station Number
11/07/02	10/07/02	10/15/02	10/21/02	12/02/02	Date
Count	Count	Count	Count	Count	Benthic Macroinvertebrate
					Plecoptera (STONEFLIES)
					Nemouridae
--	--	1	--	--	<u>Paranemoura</u> sp
--	--	--	--	--	Perlidae
7	1	--	--	--	<u>Acroneuria</u> sp
--	1	--	--	--	<u>Agnetina</u> sp
1	2	--	--	--	<u>Beloneuria</u> sp
4	--	--	--	--	<u>Paragnetina</u> sp
					Taeniopterygidae
--	--	--	--	--	<u>Strophopteryx</u> sp
114	--	--	2	--	<u>Taeniopteryx</u> sp
					Megaloptera
					Corydalidae (FISHFLIES AND DOBSONFLIES)
--	--	--	--	--	<u>Corydalis</u> sp
--	--	--	--	--	<u>Nigronia</u> sp
					Sialidae (ALDERFLIES)
--	--	--	1	--	<u>Sialis</u> sp
					Trichoptera (CADDISFLIES)
					Apataniidae
1	--	--	--	--	<u>Apatania</u> sp
					Brachycentridae
11	1	--	--	--	<u>Micrasema</u> sp
					Glossosomatidae
--	--	--	--	--	<u>Glossosoma</u> sp
1	--	--	--	--	<u>Protoptila</u> sp
					Goeridae
--	--	--	--	--	<u>Goera</u> sp
					Helicopsychidae
2	--	--	--	--	<u>Helicopsyche</u> sp
					Hydropsychidae
115	490	196	131	--	<u>Cheumatopsyche</u> sp
80	382	116	210	--	<u>Hydropsyche</u> sp
--	--	--	--	--	<u>Macrostemum</u> sp
					Hydroptilidae
2	15	2	--	--	<u>Hydroptila</u> sp
2	10	--	15	--	<u>Leucotrichia</u> sp
					Lepidostomatidae
1	1	--	--	--	<u>Lepidostoma</u> sp
					Leptoceridae
--	--	--	2	--	<u>Mystacides</u> sp
--	5	--	--	--	<u>Oecetis</u> sp
					Philopotamidae
45	9	242	375	1	<u>Chimarra</u> sp
					Polycentropodidae
1	--	--	--	--	<u>Neureclipsis</u> sp
--	--	--	--	--	<u>Nyctiophylax</u> sp
--	2	--	1	--	<u>Polycentropus</u> sp

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES**  
**STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK--Continued**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 BENTHIC MACROINVERTEBRATES--Continued

Station Number	01472080	01472138	01472140	01472170	014721854
Date	11/07/02	10/23/02	10/23/02	10/29/02	10/29/02
Benthic Macroinvertebrate	Count	Count	Count	Count	Count
<b>Trichoptera (CADDISFLIES)</b>					
Psychomyiidae					
<u>Psychomyia</u> sp	--	--	1	35	--
Rhyacophilidae					
<u>Rhyacophila</u> sp	4	--	--	1	--
Uenoidae					
<u>Neophylax</u> sp	--	--	--	7	--
<b>Lepidoptera (MOTHS AND BUTTERFLIES)</b>					
Pyralididae					
<u>Petrophila</u> sp	--	1	4	--	--
<b>Coleoptera (BEETLES)</b>					
Dryopidae					
<u>Helichus</u> sp	--	2	--	--	--
Elmidae (RIFFLE BEETLES)					
<u>Ancyronyx</u> sp	2	--	2	--	--
<u>Dubiraphia</u> sp	2	2	--	3	3
<u>Macronychus</u> sp	--	--	6	--	--
<u>Optioservus</u> sp	264	379	337	276	314
<u>Oulimnius</u> sp	144	22	35	127	105
<u>Promoresia</u> sp	8	14	6	24	--
<u>Stenelmis</u> sp	104	93	53	2	10
Gyrinidae					
<u>Dineutus</u> sp	--	--	--	--	1
Hydrophilidae					
<u>Berosus</u> sp	--	--	--	--	--
Psephenidae (WATER PENNIES)					
<u>Psephenus</u> sp	21	61	3	20	44
<b>Diptera (TRUE FLIES)</b>					
Athericidae					
<u>Atherix</u> sp	2	5	1	--	--
Ceratopogonidae (BITING MIDGES)					
	7	--	--	--	1
Chironomidae (MIDGES)					
	633	281	57	221	91
Empididae (DANCE FLIES)					
<u>Hemerodromia</u> sp	7	59	15	4	22
Ephydriidae					
	--	--	--	--	--
Psychodidae					
<u>Telmatoscopus</u> sp	--	--	--	--	--
Simuliidae (BLACK FLIES)					
<u>Simulium</u> sp	10	3	28	--	2
Tabanidae					
	--	--	--	--	--
Tipulidae (CRANE FLIES)					
<u>Antocha</u> sp	19	1	40	76	56
<u>Hexatoma</u> sp	--	--	--	--	--
<u>Tipula</u> sp	2	5	--	1	--
<b>Total organisms</b>					
	2093	3617	1871	1996	1879
<b>Total number of taxa</b>					
	43	55	43	42	49

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES**  
**STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK--Continued**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 BENTHIC MACROINVERTEBRATES--Continued

01472190	01476450	01476835	01478120	01478137	Station Number
11/07/02	10/07/02	10/15/02	10/21/02	12/02/02	Date
Count	Count	Count	Count	Count	Benthic Macroinvertebrate
					Trichoptera (CADDISFLIES)
					Psychomyiidae
3	--	--	--	--	<u>Psychomyia</u> sp
					Rhyacophilidae
--	--	--	--	--	<u>Rhyacophila</u> sp
					Uenoidae
--	--	--	--	--	<u>Neophylax</u> sp
					Lepidoptera (MOTHS AND BUTTERFLIES)
					Pyralididae
--	--	--	--	--	<u>Petrophila</u> sp
					Coleoptera (BEETLES)
					Drypoidae
--	--	--	--	--	<u>Helichus</u> sp
					Elmidae (RIFFLE BEETLES)
1	--	1	--	--	<u>Ancyronyx</u> sp
--	3	19	5	--	<u>Dubiraphia</u> sp
--	--	--	--	--	<u>Macronychus</u> sp
81	197	494	264	--	<u>Optioservus</u> sp
12	37	54	23	--	<u>Oulimnius</u> sp
--	--	--	--	--	<u>Promoresia</u> sp
5	344	1123	445	--	<u>Stenelmis</u> sp
					Gyrinidae
--	--	--	--	--	<u>Dineutus</u> sp
					Hydrophilidae
--	1	4	--	--	<u>Berosus</u> sp
					Psephenidae (WATER PENNIES)
5	92	184	170	--	<u>Psephenus</u> sp
					Diptera (TRUE FLIES)
					Athericidae
--	--	--	--	--	<u>Atherix</u> sp
					Ceratopogonidae (BITING MIDGES)
70	272	175	238	187	Chironomidae (MIDGES)
					Empididae (DANCE FLIES)
4	6	--	18	--	<u>Hemerodromia</u> sp
--	6	--	--	--	Ephydriidae
					Psychodidae
--	--	--	--	1	<u>Telmatoscopus</u> sp
					Simuliidae (BLACK FLIES)
1	25	120	9	1	<u>Simulium</u> sp
--	--	1	--	--	Tabanidae
					Tipulidae (CRANE FLIES)
14	9	3	29	--	<u>Antocha</u> sp
--	--	1	--	--	<u>Hexatoma</u> sp
1	4	4	--	2	<u>Tipula</u> sp
874	2611	3025	2996	590	Total organisms
38	44	35	35	15	Total number of taxa

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES**  
**STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK--Continued**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 BENTHIC MACROINVERTEBRATES--Continued

Station Number	01478170	01478230	01479700	01479800	01480629
Date	12/02/02	10/21/02	10/15/02	10/15/02	10/09/02
Benthic Macroinvertebrate	Count	Count	Count	Count	Count
Platyhelminthes					
Turbellaria (FLATWORMS)					
Tricladida					
Planariidae	--	55	22	31	103
Nematoda (NEMATODES)	4	12	7	11	15
Nemertea (PROBOSAS WORMS)					
Enopla					
Hoploneurata					
Tetrastemmatidae					
<u>Prostoma</u> sp	--	--	31	8	2
Mollusca					
Gastropoda (SNAILS)					
Basommatophora					
Ancyliidae					
<u>Ferrissia</u> sp	9	5	1	11	--
Physidae					
<u>Physa</u> sp	--	2	--	--	--
Planorbidae					
<u>Gyraulus</u> sp	--	--	--	--	1
<u>Helisoma</u> sp	--	--	--	--	--
Bivalvia (CLAMS)					
Veneroida					
Sphaeriidae					
<u>Pisidium</u> sp	--	2	--	1	--
<u>Pisidium</u> sp	--	--	--	--	--
<u>Sphaerium</u> sp	2	--	--	--	36
Annelida					
Oligochaeta (AQUATIC EARTHWORMS)					
Lumbriculida					
Lumbriculidae	--	6	--	8	2
Tubificida					
Naididae	3	--	115	4	--
Arthropoda					
Acariformes					
Hydrachnidia (WATER MITES)	10	160	57	47	21
Amphipoda (SCUDS)					
Crangonyctidae					
<u>Crangonyx</u> sp	2	--	--	--	--
<u>Stygonectes</u> sp	--	--	--	--	--
Gammaridae					
<u>Gammarus</u> sp	--	4	2	66	--
Isopoda (AQUATIC SOWBUGS)					
Asellidae					
<u>Caecidotea</u> sp	3	--	4	--	--
Podocopa (SEED SHRIMP)	--	--	--	--	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES**  
**STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK--Continued**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 BENTHIC MACROINVERTEBRATES--Continued

01480636	0148063750	01480653	01494953	Station Number
12/17/02	11/26/02	10/09/02	10/22/02	Date
Count	Count	Count	Count	Benthic Macroinvertebrate
				Platyhelminthes
				Turbellaria (FLATWORMS)
				Tricladida
31	194	6	1	Planariidae
2	2	12	4	Nematoda (NEMATODES)
				Nemertea (PROBOSAS WORMS)
				Enopla
				Hoplonemertea
				Tetrastemmatidae
14	13	--	129	<u>Prostoma</u> sp
				Mollusca
				Gastropoda (SNAILS)
				Basommatophora
				Ancyliidae
--	--	23	11	<u>Ferrissia</u> sp
				Physidae
--	--	--	--	<u>Physa</u> sp
				Planorbidae
--	--	5	--	<u>Gyraulus</u> sp
--	--	--	2	<u>Helisoma</u> sp
				Bivalvia (CLAMS)
				Veneroida
--	1	--	--	Sphaeriidae
--	--	--	7	<u>Pisidium</u> sp
1	--	--	--	<u>Sphaerium</u> sp
				Annelida
				Oligochaeta (AQUATIC EARTHWORMS)
				Lumbriculida
30	--	20	2	Lumbriculidae
				Tubificida
--	10	--	--	Naididae
				Arthropoda
				Acariformes
22	62	69	122	Hydrachnidia (WATER MITES)
				Amphipoda (SCUDS)
				Crangonyctidae
--	--	1	--	<u>Crangonyx</u> sp
1	--	--	--	<u>Stygonectes</u> sp
				Gammaridae
--	--	--	--	<u>Gammarus</u> sp
				Isopoda (AQUATIC SOWBUGS)
				Asellidae
--	1	--	--	<u>Caecidotea</u> sp
--	1	--	--	Podocopa (SEED SHRIMP)

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES**  
**STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK--Continued**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 BENTHIC MACROINVERTEBRATES--Continued

Station Number	01478170	01478230	01479700	01479800	01480629
Date	12/02/02	10/21/02	10/15/02	10/15/02	10/09/02
Benthic Macroinvertebrate	Count	Count	Count	Count	Count
Insecta					
Ephemeroptera (MAYFLIES)					
Baetidae					
<u>Acentrella</u> sp	--	10	--	--	--
<u>Baetis</u> sp	--	--	--	1	20
Caenidae					
<u>Caenis</u> sp	2	4	--	4	--
Ephemerellidae					
<u>Eurylophella</u> sp	1	12	6	--	--
<u>Serratella</u> sp	--	75	--	19	393
Heptageniidae					
<u>Epeorus</u> sp	--	--	--	--	--
<u>Stenonema</u> sp	9	42	--	135	117
Isonychiidae					
<u>Isonychia</u> sp	--	21	--	--	64
Leptohyphidae					
<u>Tricorythodes</u> sp	2	2	--	--	2
Odonata (DRAGONFLIES AND DAMSELFLIES)					
Coenagrionidae					
<u>Argia</u> sp	--	--	--	--	4
Gomphidae					
	--	--	1	--	--
Plecoptera (STONEFLIES)					
Capniidae					
<u>Allocapnia</u> sp	--	--	--	--	--
Chloroperlidae					
	--	3	--	--	--
Leuctridae					
<u>Paraleuctra</u> sp	--	--	--	--	--
Nemouridae					
<u>Paranemoura</u> sp	--	--	--	--	--
Perlidae					
<u>Acroneuria</u> sp	--	--	--	--	--
<u>Agnetina</u> sp	--	--	--	--	--
<u>Perlesta</u> sp	--	--	--	--	1
Taeniopterygidae					
<u>Strophopteryx</u> sp	--	--	--	--	--
<u>Taeniopteryx</u> sp	1	66	--	--	--
Megaloptera					
Corydalidae (FISHFLIES AND DOBSONFLIES)					
<u>Corydalus</u> sp	--	6	--	--	5
<u>Nigronia</u> sp	4	1	--	--	--
Sialidae (ALDERFLIES)					
<u>Sialis</u> sp	--	--	--	--	--



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES**  
**STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK--Continued**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 BENTHIC MACROINVERTEBRATES--Continued

01480636	0148063750	01480653	01494953	Station Number
12/17/02	11/26/02	10/09/02	10/22/02	Date
Count	Count	Count	Count	Benthic Macroinvertebrate
				Insecta
				Ephemeroptera (MAYFLIES)
				Baetidae
--	--	1	2	<u>Acentrella</u> sp
8	14	--	--	<u>Baetis</u> sp
				Caenidae
--	--	5	3	<u>Caenis</u> sp
				Ephemerellidae
9	49	1	--	<u>Eurylophella</u> sp
88	640	10	22	<u>Serratella</u> sp
				Heptageniidae
--	2	2	--	<u>Epeorus</u> sp
23	126	321	112	<u>Stenonema</u> sp
				Isonychiidae
--	24	157	111	<u>Isonychia</u> sp
				Leptohyphidae
--	3	--	--	<u>Tricorythodes</u> sp
				Odonata (DRAGONFLIES AND DAMSELFLIES)
				Coenagrionidae
--	1	1	3	<u>Argia</u> sp
9	--	1	--	Gomphidae
				Plecoptera (STONEFLIES)
				Capniidae
60	--	--	--	<u>Allocapnia</u> sp
--	--	--	--	Chloroperlidae
2	--	2	--	Leuctridae
--	6	--	--	<u>Paraleuctra</u> sp
				Nemouridae
4	--	--	--	<u>Paranemoura</u> sp
				Perlidae
--	1	7	--	<u>Acroneuria</u> sp
17	15	--	--	<u>Agnetina</u> sp
--	--	--	--	<u>Perlesta</u> sp
				Taeniopterygidae
105	24	--	--	<u>Strophopteryx</u> sp
1	3	16	--	<u>Taeniopteryx</u> sp
				Megaloptera
				Corydalidae (FISHFLIES AND DOBSONFLIES)
--	--	1	10	<u>Corydalus</u> sp
7	2	2	10	<u>Nigronia</u> sp
				Sialidae (ALDERFLIES)
--	--	1	--	<u>Sialis</u> sp

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES**  
**STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK--Continued**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 BENTHIC MACROINVERTEBRATES--Continued

Station Number	01478170	01478230	01479700	01479800	01480629
Date	12/02/02	10/21/02	10/15/02	10/15/02	10/09/02
Benthic Macroinvertebrate	Count	Count	Count	Count	Count
<b>Trichoptera (CADDISFLIES)</b>					
Apataniidae					
<u>Apatania</u> sp	--	--	--	--	--
Brachycentridae					
<u>Micrasema</u> sp	--	5	--	--	3
Glossosomatidae					
<u>Glossosoma</u> sp	--	--	--	--	--
Goeridae					
<u>Goera</u> sp	--	--	--	--	--
Hydropsychidae					
<u>Cheumatopsyche</u> sp	66	310	192	213	20
<u>Hydropsyche</u> sp	75	501	239	347	259
Hydroptilidae					
<u>Hydroptila</u> sp	--	4	--	--	4
<u>Leucotrichia</u> sp	8	3	--	7	20
Leptoceridae					
<u>Oecetis</u> sp	--	--	--	--	3
Philopotamidae					
<u>Chimarra</u> sp	2	152	7	304	425
<u>Dolophilodes</u> sp	--	--	--	--	--
Polycentropodidae					
<u>Neureclipsis</u> sp	--	--	--	--	9
<u>Polycentropus</u> sp	--	--	--	2	--
Psychomyiidae					
<u>Lype</u> sp	--	--	--	--	--
<u>Psychomyia</u> sp	--	--	--	--	--
Rhyacophilidae					
<u>Rhyacophila</u> sp	--	--	--	--	--
Uenoidae					
<u>Neophylax</u> sp	--	--	--	--	--
<b>Coleoptera (BEETLES)</b>					
Dryopidae					
<u>Helichus</u> sp	--	--	--	--	1
Elmidae (RIFFLE BEETLES)					
<u>Ancyronyx</u> sp	--	--	1	--	--
<u>Dubiraphia</u> sp	--	1	--	--	2
<u>Macronychus</u> sp	4	--	--	--	3
<u>Optioservus</u> sp	37	163	128	140	104
<u>Oulimnius</u> sp	21	91	20	48	16
<u>Promoresia</u> sp	--	--	--	--	--
<u>Stenelmis</u> sp	7	--	55	139	60
Hydrophilidae					
<u>Berosus</u> sp	--	--	--	--	1
Psephenidae (WATER PENNIES)					
<u>Ectopria</u> sp	--	--	--	--	--
<u>Psephenus</u> sp	--	2	7	84	18
Ptilodactylidae					
<u>Anchytarsus</u> sp	--	--	--	--	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES**  
**STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK--Continued**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 BENTHIC MACROINVERTEBRATES--Continued

01480636	0148063750	01480653	01494953	Station Number
12/17/02	11/26/02	10/09/02	10/22/02	Date
Count	Count	Count	Count	Benthic Macroinvertebrate
Trichoptera (CADDISFLIES)				
Apataniidae				
--	--	3	--	<u>Apatania</u> sp
Brachycentridae				
1	21	25	--	<u>Micrasema</u> sp
Glossosomatidae				
17	11	2	--	<u>Glossosoma</u> sp
Goeridae				
2	--	--	--	<u>Goera</u> sp
Hydropsychidae				
95	414	116	31	<u>Cheumatopsyche</u> sp
38	807	81	20	<u>Hydropsyche</u> sp
Hydroptilidae				
--	25	--	9	<u>Hydroptila</u> sp
2	4	1	65	<u>Leucotrichia</u> sp
Leptoceridae				
--	1	--	3	<u>Oecetis</u> sp
Philopotamidae				
136	714	22	1	<u>Chimarra</u> sp
2	--	--	--	<u>Dolophilodes</u> sp
Polycentropodidae				
--	--	--	--	<u>Neureclipsis</u> sp
36	5	7	--	<u>Polycentropus</u> sp
Psychomyiidae				
1	--	--	--	<u>Lype</u> sp
2	--	3	--	<u>Psychomyia</u> sp
Rhyacophilidae				
6	--	1	--	<u>Rhyacophila</u> sp
Uenoidae				
10	1	--	--	<u>Neophylax</u> sp
Coleoptera (BEETLES)				
Drypoidae				
--	--	--	--	<u>Helichus</u> sp
Elmidae (RIFFLE BEETLES)				
--	--	--	--	<u>Ancyronyx</u> sp
10	1	--	--	<u>Dubiraphia</u> sp
2	--	--	--	<u>Macronychus</u> sp
320	211	413	31	<u>Optioservus</u> sp
89	40	56	19	<u>Oulimnius</u> sp
--	29	9	--	<u>Promoresia</u> sp
16	34	76	19	<u>Stenelmis</u> sp
Hydrophilidae				
--	--	--	--	<u>Berosus</u> sp
Psephenidae (WATER PENNIES)				
--	1	--	--	<u>Ectopria</u> sp
10	76	46	--	<u>Psephenus</u> sp
Ptilodactylidae				
7	--	--	--	<u>Anchytarsus</u> sp

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES**  
**STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK--Continued**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 BENTHIC MACROINVERTEBRATES--Continued

Station Number	01478170	01478230	01479700	01479800	01480629
Date	12/02/02	10/21/02	10/15/02	10/15/02	10/09/02
Benthic Macroinvertebrate	Count	Count	Count	Count	Count
Diptera (TRUE FLIES)					
Athericidae					
<u>Atherix</u> sp	--	--	--	1	--
Ceratopogonidae (BITING MIDGES)	--	--	1	--	--
Chironomidae (MIDGES)	328	172	174	152	37
Empididae (DANCE FLIES)					
<u>Hemerodromia</u> sp	3	20	7	13	3
Simuliidae (BLACK FLIES)					
<u>Simulium</u> sp	5	5	--	1	16
Tipulidae (CRANE FLIES)					
<u>Antocha</u> sp	10	38	14	18	13
<u>Dicranota</u> sp	--	--	--	--	--
<u>Tipula</u> sp	1	1	1	--	--
Total organisms	619	1956	1092	1815	1804
Total number of taxa	26	34	23	27	36

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES**  
**STREAM CONDITIONS OF CHESTER COUNTY BIOLOGICAL MONITORING NETWORK--Continued**

BIOLOGICAL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 BENTHIC MACROINVERTEBRATES--Continued

01480636	0148063750	01480653	01494953	Station Number
12/17/02	11/26/02	10/09/02	10/22/02	Date
Count	Count	Count	Count	Benthic Macroinvertebrate
				Diptera (TRUE FLIES)
				Athericidae
--	--	6		<u>Atherix</u> sp
1	1			Ceratopogonidae (BITING MIDGES)
521	440	58	87	Chironomidae (MIDGES)
				Empididae (DANCE FLIES)
2	2	1	1	<u>Hemerodromia</u> sp
				Simuliidae (BLACK FLIES)
194	9	--	--	<u>Prosimulium</u> sp
--	131	3	1	<u>Simulium</u> sp
--	--	--	--	Tipulidae (CRANE FLIES)
4	65	16	56	<u>Antocha</u> sp
--	1	1	--	<u>Dicranota</u> sp
8	--	1	1	<u>Tipula</u> sp
1966	4238	1611	895	Total organisms
45	46	44	30	Total number of taxa



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

Miscellaneous water-quality data were collected for several projects in cooperation with the Schuylkill Conservation District, the Schuylkill Headwaters Association, Inc., and the Wildlands Conservancy. These projects involve assessing the characteristics and remediation of abandoned mine drainage in the Upper Schuylkill River and Lehigh River Basin.

**TABLE 6.**--Acid mine drainage projects station list.

Station number	Location	Latitude	Longitude	Drainage area (mi <sup>2</sup> )
404728075590901	Newkirk North Dip Tunnel Discharge near Tamaqua	40° 47' 28"	75° 59' 09"	n.a.
404728075590902	Newkirk Oxid Limestone Drain Well 1	40° 47' 27"	75° 59' 09"	n.a.
404728075590903	Newkirk Oxid Limestone Drain Well 2	40° 47' 27"	75° 59' 09"	n.a.
404728075590904	Newkirk Oxid Limestone Drain Well 3	40° 47' 27"	75° 59' 10"	n.a.
404728075590905	Newkirk Oxid Limestone Drain Well 4	40° 47' 27"	75° 59' 10"	n.a.
404728075590906	Newkirk Oxid Limestone Drain Outflow	40° 47' 27"	75° 59' 11"	n.a.
404728075590907	Newkirk Wetland Outflow	40° 47' 28"	75° 59' 09"	n.a.
404728075590908	Newkirk Discharge to Wabash Creek	40° 47' 28"	75° 59' 09"	n.a.
404728075590909	Newkirk Oxid Limestone Drain Flush Pipe Outflow	40° 47' 28"	75° 59' 09"	n.a.
0146742494	Schuylkill River above Bell Tunnel at Maryd, PA	40° 45' 16"	76° 02' 54"	3.29
0146742496	Bell Water Level Tunnel near Middleport, PA	40° 45' 12"	76° 02' 58"	0.02
0146742498	Bell Water Level Tunnel, 225 M DS, near Middleport, PA	40° 45' 14"	76° 02' 57"	0.02
0146742500	Schuylkill River below Bell Tunnel at Maryd, PA	40° 45' 12"	76° 03' 01"	3.35
01467448	Schuylkill River at Middleport, PA	40° 43' 43"	76° 05' 14"	14.5
403958076191401	Otto Air Shaft	40° 39' 58"	76° 19' 14"	n.a.
0146784338	Muddy Branch above Otto Mine Discharge near Branchdale	40° 40' 08"	76° 19' 07"	1.66
0146784348	Otto Air Shaft near Llewellyn, PA	40° 40' 03"	76° 19' 11"	0.08
0146784350	Otto Air Shaft, 400 M DS, near Llewellyn, PA	40° 40' 07"	76° 19' 07"	0.09
0146784354	Muddy Branch below Otto Mine Discharge above Steins, PA	40° 40' 03"	76° 18' 24"	2.25
0146784358	Muddy Branch below Otto Mine Discharge below Steins, PA	40° 39' 53"	76° 18' 10"	3.03
405853075484901	Buck Mountain Tunnel	40° 58' 53"	75° 48' 49"	n.a.
405224076001701	Silverbrook Mine Opening	40° 52' 24"	76° 00' 17"	n.a.
404705076003201	Reevesdale S Dip Tunnel	40° 47' 05"	76° 00' 32"	n.a.
404403076072401	Silver Creek Mine Tunnel	40° 43' 48"	76° 07' 26"	n.a.
01467455	Silver Creek Mine Tunnel at New Philadelphia, PA	40° 43' 42"	76° 07' 26"	0.02
01467456	Silver Creek Mine Tunnel at New Philadelphia, PA	40° 43' 42"	76° 07' 28"	0.02
404320076103201	Pine Forest Mine	40° 43' 20"	76° 10' 32"	n.a.
0146748720	Pine Forest Pit Lake near St. Clair, PA	40° 43' 05"	76° 10' 29"	
01469192	Little Schuylkill Dry Dam at Hometown, PA	40° 50' 27"	76° 00' 04"	
01469195	Neifert's Dam near Hometown, PA	40° 50' 06"	76° 00' 36"	





















































**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**404512076025501 -- Bell Water Level Tunnel**

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

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Oxi- dation re- duc- tion poten- tial, mV (00090)	Tur- bidity, water, unfltrd field, NTU (61028)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
MAR 11...	0900	1028	9813	.87	437	.0	1.6	14	4.5	--
APR 03...	1030	1028	9813	1.5	444	1.0	1.3	11	4.9	--
JUL 02...	1130	1028	1028	.95	310	9.0	6.9	60	3.6	4.1
SEP 10...	1330	1028	1028	.56	590	4.0	3.5	30	4.0	4.0
24...	1400	1028	1028	.55	--	--	--	--	--	--

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

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Oxi- dation re- duc- tion poten- tial, mV (00090)	Tur- bidity, water, unfltrd field, NTU (61028)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
OCT 23...	1300	1028	1028	.88	570	4.0	2.9	25	4.2	4.2
DEC 17...	1245	1028	1028	2.7	550	12	3.2	28	4.2	4.2
MAR 05...	1015	1028	1028	1.1	540	8.0	2.3	20	3.7	3.7
APR 28...	1015	1028	1028	1.8	570	11	5.0	44	3.8	4.0
JUN 30...	1015	1028	1028	4.2	600	9.0	4.1	36	3.9	4.0
AUG 27...	0945	1028	1028	.61	640	--	5.2	45	3.7	3.9

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

Date	Specif. conduc- tance, wat unfl uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover- able, mg/L (00916)	Magnes- ium, water, fltrd, mg/L (00925)	Magnes- ium, water, unfltrd recover- able, mg/L (00927)	Potas- sium, water, fltrd, mg/L (00935)	Potas- sium, water, unfltrd recover- able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover- able, mg/L (00929)
MAR 11...	292	9.8	--	--	--	--	--	--	--	--
APR 03...	273	9.8	--	--	--	--	--	--	--	--
JUL 02...	290	9.7	12.2	12.6	10.1	10.2	.77	.8	1.75	1.7
SEP 10...	300	9.7	12.2	11.9	9.90	10.1	.74	.7	1.75	1.6
24...	--	--	--	--	--	--	--	--	--	--

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

Date	Specif. conduc- tance, wat unfl uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover- able, mg/L (00916)	Magnes- ium, water, fltrd, mg/L (00925)	Magnes- ium, water, unfltrd recover- able, mg/L (00927)	Potas- sium, water, fltrd, mg/L (00935)	Potas- sium, water, unfltrd recover- able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover- able, mg/L (00929)
OCT 23...	300	9.7	12.2	12.7	9.90	10.2	.72	.8	1.70	1.7
DEC 17...	210	9.5	11.2	11.6	8.65	8.8	.90	.9	2.05	2.1
MAR 05...	330	9.7	17.8	16.7	14.1	13.3	1.02	1.0	2.40	2.4
APR 28...	300	9.5	16.7	16.1	13.3	12.9	1.02	1.0	2.35	2.3
JUN 30...	330	9.5	17.2	17.0	14.3	14.2	1.04	1.0	2.35	2.3
AUG 27...	340	9.5	18.6	18.5	14.4	14.4	1.04	1.0	2.40	2.4

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**404512076025501 -- Bell Water Level Tunnel--Continued**

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

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Silica, water, fltrd, mg/L (00955)	Silica, water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water, unfltrd mg/L (00946)	Phos- phorus, water, fltrd, mg/L (00666)	Phos- phorus, water, unfltrd mg/L (00665)	Alum- inum, water, fltrd, ug/L (01106)	Alum- inum, water, unfltrd recover- able, ug/L (01105)
MAR 11...	.000	--	--	--	--	--	--	--	--	--
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	.000	--	9.57	9.76	84.0	89.0	<.004	<.004	735	735
SEP 10...	.000	--	9.30	9.25	92.0	91.0	<.004	<.004	540	555
24...	.000	--	--	--	--	--	--	--	--	--

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

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Silica, water, fltrd, mg/L (00955)	Silica, water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water, unfltrd mg/L (00946)	Phos- phorus, water, fltrd, mg/L (00666)	Phos- phorus, water, unfltrd mg/L (00665)	Alum- inum, water, fltrd, ug/L (01106)	Alum- inum, water, unfltrd recover- able, ug/L (01105)
OCT 23...	.000	--	8.82	8.93	97.0	99.0	<.004	<.004	580	605
DEC 17...	.000	--	9.50	9.77	87.0	87.0	<.003	<.003	800	830
MAR 05...	.000	--	10.9	10.8	190	200	<.001	<.001	885	880
APR 28...	.000	--	10.8	10.5	180	180	<.001	<.001	1250	1200
JUN 30...	.000	--	11.2	11.4	190	190	<.001	<.001	1400	1400
AUG 27...	.000	--	10.8	11.2	200	200	<.001	<.001	1200	1200

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

Date	Cadmium water, fltrd, ug/L (01025)	Cadmium water, unfltrd ug/L (01027)	Cerium, water, fltrd, ug/L (01110)	Cerium, water, unfltrd ug/L (01112)	Cesium, water, fltrd, ug/L (01115)	Cesium, water, unfltrd ug/L (01117)	Chrom- ium, water, fltrd, ug/L (01030)	Chrom- ium, water, unfltrd recover- able, ug/L (01034)	Cobalt water, fltrd, ug/L (01035)	Cobalt water, unfltrd recover- able, ug/L (01037)
MAR 11...	--	--	--	--	--	--	--	--	--	--
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	.100	.100	3.40	3.60	.100	.100	<1.00	<1.00	35.0	37.0
SEP 10...	.200	.070	3.00	3.00	.100	.100	<1.00	<1.00	35.0	34.5
24...	--	--	--	--	--	--	--	--	--	--

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

Date	Cadmium water, fltrd, ug/L (01025)	Cadmium water, unfltrd ug/L (01027)	Cerium, water, fltrd, ug/L (01110)	Cerium, water, unfltrd ug/L (01112)	Cesium, water, fltrd, ug/L (01115)	Cesium, water, unfltrd ug/L (01117)	Chrom- ium, water, fltrd, ug/L (01030)	Chrom- ium, water, unfltrd recover- able, ug/L (01034)	Cobalt water, fltrd, ug/L (01035)	Cobalt water, unfltrd recover- able, ug/L (01037)
OCT 23...	.100	.080	3.40	3.30	.100	.100	<1.00	<1.00	31.5	33.5
DEC 17...	.240	.150	2.60	2.60	.078	.081	<1.00	<1.00	27.5	26.0
MAR 05...	.120	.840	2.80	2.80	.078	.085	<1.00	<1.00	41.0	38.0
APR 28...	.290	.180	3.30	3.40	.078	.079	<1.00	<1.00	44.0	44.0
JUN 30...	.340	.260	4.30	4.20	.083	.088	<1.00	<1.00	48.5	51.5
AUG 27...	.250	.440	4.00	3.90	.086	.088	<1.00	<1.00	45.5	47.5



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**404512076025501 -- Bell Water Level Tunnel--Continued**

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

Date	Copper, water, unfltrd, fltrd, ug/L (01040)	Copper, water, recover- able, ug/L (01042)	Dyspros- ium, water, fltrd, ug/L (82331)	Dyspros- ium, water, unfltrd, ug/L (82330)	Erbium, water, fltrd, ug/L (50573)	Erbium, water, unfltrd, ug/L (01246)	Euro- pium, water, fltrd, ug/L (50574)	Euro- pium, water, unfltrd, ug/L (01236)	Gado- linium, water, fltrd, ug/L (50575)	Gado- linium, water, unfltrd, ug/L (01219)
MAR 11...	--	--	--	--	--	--	--	--	--	--
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	2.00	2.00	.290	.320	.170	.170	.079	.096	.370	.390
SEP 10...	1.00	1.00	.270	.260	.140	.140	.076	.076	.340	.320
24...	--	--	--	--	--	--	--	--	--	--

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

Date	Copper, water, unfltrd, fltrd, ug/L (01040)	Copper, water, recover- able, ug/L (01042)	Dyspros- ium, water, fltrd, ug/L (82331)	Dyspros- ium, water, unfltrd, ug/L (82330)	Erbium, water, fltrd, ug/L (50573)	Erbium, water, unfltrd, ug/L (01246)	Euro- pium, water, fltrd, ug/L (50574)	Euro- pium, water, unfltrd, ug/L (01236)	Gado- linium, water, fltrd, ug/L (50575)	Gado- linium, water, unfltrd, ug/L (01219)
OCT 23...	2.00	2.00	.300	.280	.160	.170	.079	.062	.340	.360
DEC 17...	5.00	5.20	.250	.230	.130	.130	.064	.060	.270	.280
MAR 05...	1.70	2.00	.240	.240	.130	.140	.067	.066	.300	.300
APR 28...	6.20	6.40	.300	.320	.160	.160	.081	.082	.350	.360
JUN 30...	12.0	12.5	.390	.360	.220	.200	.110	.110	.440	.440
AUG 27...	5.90	6.00	.370	.350	.210	.210	.097	.100	.420	.410

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

Date	Gallium water, fltrd, ug/L (01120)	Gallium water, unfltrd, ug/L (01122)	German- ium, water, fltrd, ug/L (01125)	German- ium, water, unfltrd, ug/L (01127)	Gold, water, fltrd, ug/L (82334)	Gold, water, unfltrd, ug/L (71910)	Holmium water, fltrd, ug/L (50577)	Holmium water, unfltrd, ug/L (01247)	Indium water, fltrd, ug/L (62843)	Indium, water, unfltrd, ug/L (01168)
MAR 11...	--	--	--	--	--	--	--	--	--	--
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	<.020	<.020	<.020	<.020	<.010	<.010	.061	.062	<.010	<.010
SEP 10...	<.020	<.020	<.020	<.020	<.010	<.010	.052	.050	<.010	<.010
24...	--	--	--	--	--	--	--	--	--	--

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

Date	Gallium water, fltrd, ug/L (01120)	Gallium water, unfltrd, ug/L (01122)	German- ium, water, fltrd, ug/L (01125)	German- ium, water, unfltrd, ug/L (01127)	Gold, water, fltrd, ug/L (82334)	Gold, water, unfltrd, ug/L (71910)	Holmium water, fltrd, ug/L (50577)	Holmium water, unfltrd, ug/L (01247)	Indium water, fltrd, ug/L (62843)	Indium, water, unfltrd, ug/L (01168)
OCT 23...	<.020	<.020	<.020	.020	<.010	<.010	.058	.059	<.010	<.010
DEC 17...	<.020	<.020	<.020	<.020	<.010	<.010	.051	.046	<.010	<.010
MAR 05...	.034	.039	<.020	<.020	<.010	.012	.047	.049	<.010	<.010
APR 28...	.031	.044	<.020	<.020	<.010	<.010	.058	.066	<.010	<.010
JUN 30...	.032	.041	<.020	<.020	<.010	<.010	.074	.076	<.010	<.010
AUG 27...	.040	.043	<.020	<.020	.016	.012	.074	.070	<.010	<.010

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**404512076025501 -- Bell Water Level Tunnel--Continued**

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

Date	Iron, water, unfltrd recover- able, ug/L (01046)	Iron, water, unfltrd recover- able, ug/L (01045)	Lantha- num, water, fltrd, ug/L (01180)	Lantha- num, water, unfltrd ug/L (01182)	Lead, water, fltrd, ug/L (01049)	Lead, water, unfltrd recover- able, ug/L (01051)	Lithium water, recover fltrd, ug/L (01130)	Lithium water, recover fltrd, ug/L (01132)	Mangan- ese, water, fltrd, ug/L (01056)	Mangan- ese, water, unfltrd recover- able, ug/L (01055)
MAR 11...	--	--	--	--	--	--	--	--	--	--
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	2250	3250	1.60	1.70	1.00	1.10	16.5	16.5	1180	1200
SEP 10...	5400	5900	1.40	1.40	.690	.740	15.0	15.0	1180	1220
24...	--	--	--	--	--	--	--	--	--	--

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

Date	Iron, water, unfltrd recover- able, ug/L (01046)	Iron, water, unfltrd recover- able, ug/L (01045)	Lantha- num, water, fltrd, ug/L (01180)	Lantha- num, water, unfltrd ug/L (01182)	Lead, water, fltrd, ug/L (01049)	Lead, water, unfltrd recover- able, ug/L (01051)	Lithium water, recover fltrd, ug/L (01130)	Lithium water, recover fltrd, ug/L (01132)	Mangan- ese, water, fltrd, ug/L (01056)	Mangan- ese, water, unfltrd recover- able, ug/L (01055)
OCT 23...	6300	6900	1.60	1.60	.850	.970	15.0	15.5	1230	1280
DEC 17...	2200	4000	1.30	1.20	1.10	1.40	15.0	15.5	945	965
MAR 05...	3700	2900	1.30	1.30	.880	1.00	20.5	20.5	1580	1540
APR 28...	1450	2250	1.50	1.60	1.00	1.20	21.0	20.0	1500	1440
JUN 30...	1300	1800	2.00	1.90	1.40	1.50	20.0	20.0	1580	1540
AUG 27...	2350	2850	1.80	1.80	1.10	1.10	20.5	20.0	1720	1700

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

Date	Molyb- denum, water, unfltrd recover- able, ug/L (01060)	Molyb- denum, water, unfltrd recover- able, ug/L (01062)	Neodym- ium, water, fltrd, ug/L (50579)	Neodym- ium, water, unfltrd ug/L (01237)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd recover- able, ug/L (01067)	Praseo- dymium, water, fltrd, ug/L (50582)	Praseo- dymium, water, unfltrd ug/L (01238)	Rhenium water, fltrd, ug/L (50583)	Rhenium water, unfltrd ug/L (01242)
MAR 11...	--	--	--	--	--	--	--	--	--	--
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	.040	<.020	1.80	1.80	39.5	41.5	.430	.480	<.020	<.020
SEP 10...	<.020	<.020	1.50	1.50	38.5	40.0	.370	.380	<.020	<.020
24...	--	--	--	--	--	--	--	--	--	--

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

Date	Molyb- denum, water, unfltrd recover- able, ug/L (01060)	Molyb- denum, water, unfltrd recover- able, ug/L (01062)	Neodym- ium, water, fltrd, ug/L (50579)	Neodym- ium, water, unfltrd ug/L (01237)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd recover- able, ug/L (01067)	Praseo- dymium, water, fltrd, ug/L (50582)	Praseo- dymium, water, unfltrd ug/L (01238)	Rhenium water, fltrd, ug/L (50583)	Rhenium water, unfltrd ug/L (01242)
OCT 23...	.030	.020	1.70	1.70	39.5	39.5	.430	.410	<.020	<.020
DEC 17...	.030	<.020	1.20	1.30	32.5	33.0	.320	.320	<.020	<.020
MAR 05...	.034	.037	1.40	1.40	47.0	45.5	.350	.360	<.020	<.020
APR 28...	.055	.049	1.70	1.70	52.5	49.5	.410	.420	<.020	<.020
JUN 30...	.038	.032	2.20	2.10	57.5	59.0	.540	.530	<.020	<.020
AUG 27...	.082	.061	2.10	2.00	55.5	58.5	.510	.490	<.020	<.020

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**404512076025501 -- Bell Water Level Tunnel--Continued**

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

Date	Rubidium, water, fltrd, ug/L (01135)	Rubidium, water, unfltrd, ug/L (01137)	Samarium, water, fltrd, ug/L (82323)	Samarium, water, unfltrd, ug/L (82322)	Selenium, water, fltrd, ug/L (01145)	Selenium, water, unfltrd, ug/L (01147)	Silver, water, fltrd, ug/L (01075)	Silver, water, unfltrd, recover-able, ug/L (01077)	Strontium, water, fltrd, ug/L (01080)	Strontium, water, unfltrd, recover-able, ug/L (01082)
MAR 11...	--	--	--	--	--	--	--	--	--	--
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	2.00	2.00	.380	.380	<.200	<.200	.010	<.010	101	104
SEP 10...	2.10	2.00	.320	.340	<.200	<.200	<.010	<.010	102	98.5
24...	--	--	--	--	--	--	--	--	--	--

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

Date	Rubidium, water, fltrd, ug/L (01135)	Rubidium, water, unfltrd, ug/L (01137)	Samarium, water, fltrd, ug/L (82323)	Samarium, water, unfltrd, ug/L (82322)	Selenium, water, fltrd, ug/L (01145)	Selenium, water, unfltrd, ug/L (01147)	Silver, water, fltrd, ug/L (01075)	Silver, water, unfltrd, recover-able, ug/L (01077)	Strontium, water, fltrd, ug/L (01080)	Strontium, water, unfltrd, recover-able, ug/L (01082)
OCT 23...	2.10	2.10	.330	.350	<.200	<.200	.020	.040	101	104
DEC 17...	1.50	1.50	.310	.280	<.200	<.200	.061	.042	88.0	91.0
MAR 05...	1.50	1.50	.290	.290	<.200	<.200	.037	.017	118	116
APR 28...	1.50	1.50	.360	.370	<.200	<.200	.689	.058	115	112
JUN 30...	1.60	1.60	.450	.450	<.200	<.200	.019	.016	128	122
AUG 27...	1.60	1.60	.440	.410	<.200	<.200	<.010	<.010	128	128

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

Date	Terbium, water, fltrd, ug/L (50586)	Terbium, water, unfltrd, ug/L (01218)	Thallium, water, fltrd, ug/L (01057)	Thallium, water, unfltrd, ug/L (01059)	Thorium, water, fltrd, ug/L (82365)	Thorium, water, unfltrd, ug/L (82364)	Thulium, water, fltrd, ug/L (50587)	Thulium, water, unfltrd, ug/L (01245)	Tungsten, water, fltrd, ug/L (01155)	Tungsten, water, unfltrd, ug/L (01154)
MAR 11...	--	--	--	--	--	--	--	--	--	--
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	.054	.058	<.050	<.050	<.020	<.020	.030	.020	<.020	<.020
SEP 10...	.040	.040	<.050	<.050	<.020	<.020	.020	.020	<.020	<.020
24...	--	--	--	--	--	--	--	--	--	--

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

Date	Terbium, water, fltrd, ug/L (50586)	Terbium, water, unfltrd, ug/L (01218)	Thallium, water, fltrd, ug/L (01057)	Thallium, water, unfltrd, ug/L (01059)	Thorium, water, fltrd, ug/L (82365)	Thorium, water, unfltrd, ug/L (82364)	Thulium, water, fltrd, ug/L (50587)	Thulium, water, unfltrd, ug/L (01245)	Tungsten, water, fltrd, ug/L (01155)	Tungsten, water, unfltrd, ug/L (01154)
OCT 23...	.052	.053	<.050	<.050	<.020	<.020	.020	.020	<.020	<.020
DEC 17...	.042	.040	<.050	<.050	<.030	<.030	.020	.022	.048	.069
MAR 05...	.041	.043	<.050	<.050	<.020	<.020	.020	.021	<.020	<.020
APR 28...	.051	.051	<.050	<.050	<.020	<.020	.026	.024	<.020	<.020
JUN 30...	.065	.066	<.050	<.050	<.020	<.020	.033	.030	<.020	<.020
AUG 27...	.059	.061	<.050	<.050	<.020	<.020	.030	.028	<.020	<.020

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**404512076025501 -- Bell Water Level Tunnel--Continued**

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

Date	Vanadium, water, fltrd, ug/L (01085)	Vanadium, water, unfltrd, ug/L (01087)	Ytterbium, water, fltrd, ug/L (01194)	Ytterbium, water, unfltrd, ug/L (01196)	Yttrium, water, fltrd, ug/L (01201)	Yttrium, water, unfltrd, ug/L (01203)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd, recover-able, ug/L (01092)	Uranium natural water, fltrd, ug/L (22703)	Uranium natural water, unfltrd, ug/L (28011)
MAR 11...	--	--	--	--	--	--	--	--	--	--
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	<.200	<.200	.200	.200	1.20	1.30	122	120	.110	.130
SEP 10...	<.200	<.200	.100	.100	1.10	1.10	114	99.0	.090	.090
24...	--	--	--	--	--	--	--	--	--	--

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

Date	Vanadium, water, fltrd, ug/L (01085)	Vanadium, water, unfltrd, ug/L (01087)	Ytterbium, water, fltrd, ug/L (01194)	Ytterbium, water, unfltrd, ug/L (01196)	Yttrium, water, fltrd, ug/L (01201)	Yttrium, water, unfltrd, ug/L (01203)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd, recover-able, ug/L (01092)	Uranium natural water, fltrd, ug/L (22703)	Uranium natural water, unfltrd, ug/L (28011)
OCT 23...	<.200	<.200	.200	.100	1.20	1.20	102	96.0	.110	.110
DEC 17...	<.100	<.100	.120	.120	1.00	1.10	112	113	.096	.097
MAR 05...	<.100	<.100	.120	.120	1.10	1.10	144	157	.086	.084
APR 28...	<.100	<.100	.140	.150	1.30	1.40	206	204	.130	.140
JUN 30...	<.100	<.100	.210	.180	1.60	1.60	227	228	.200	.200
AUG 27...	<.100	<.100	.170	.160	1.60	1.50	195	199	.170	.160

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146742498 -- Bell Water Level Tunnel, 225 M DS, nr Middleport**

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

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Oxi- dation re- duc- tion poten- tial, mV (00090)	Tur- bidity, water, unfltrd field, NTU (61028)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
APR 03...	1000	1028	9813	1.5	492	4.0	9.9	88	4.6	--
JUL 02...	1100	1028	1028	.95	300	12	10.1	91	3.6	4.0
SEP 10...	1300	1028	1028	.56	600	4.0	8.0	72	3.9	3.9
24...	1330	1028	1028	.55	590	5.0	10.0	90	3.9	3.9

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

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Oxi- dation re- duc- tion poten- tial, mV (00090)	Tur- bidity, water, unfltrd field, NTU (61028)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
OCT 23...	1230	1028	1028	.88	570	7.0	10.7	94	4.0	4.0
DEC 17...	1230	1028	1028	2.7	550	23	10.5	91	4.2	4.2
MAR 05...	1000	1028	1028	1.1	540	12	10.8	94	3.7	3.7
APR 28...	1000	1028	1028	1.8	560	11	10.4	92	3.8	4.4
JUN 30...	1000	1028	1028	4.2	600	20	10.1	89	3.9	4.0
AUG 27...	0930	1028	1028	.61	640	--	10.7	95	3.7	3.9

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

Date	Specif. conduc- tance, wat unfl uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover- able, mg/L (00916)	Magnes- ium, water, fltrd, mg/L (00925)	Magnes- ium, water, unfltrd recover- able, mg/L (00927)	Potas- sium, water, fltrd, mg/L (00935)	Potas- sium, water, unfltrd recover- able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover- able, mg/L (00929)
APR 03...	273	10.2	--	--	--	--	--	--	--	--
JUL 02...	300	10.7	11.8	11.5	9.80	9.6	.73	.7	1.70	1.6
SEP 10...	300	10.9	16.6	13.7	13.1	11.0	.97	.8	2.15	1.8
24...	280	10.7	12.8	14.3	10.3	11.4	.74	.8	1.75	1.9

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

Date	Specif. conduc- tance, wat unfl uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover- able, mg/L (00916)	Magnes- ium, water, fltrd, mg/L (00925)	Magnes- ium, water, unfltrd recover- able, mg/L (00927)	Potas- sium, water, fltrd, mg/L (00935)	Potas- sium, water, unfltrd recover- able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover- able, mg/L (00929)
OCT 23...	300	9.7	17.9	17.6	14.2	14.1	1.04	1.1	2.35	2.4
DEC 17...	220	9.2	10.9	10.8	8.50	8.3	.89	.9	2.00	1.9
MAR 05...	330	9.0	17.0	17.6	13.6	13.6	.99	1.0	2.45	2.4
APR 28...	310	9.7	16.7	16.8	13.4	13.9	1.03	1.0	2.35	2.5
JUN 30...	330	9.7	18.1	17.7	14.7	14.3	1.05	1.0	2.40	2.4
AUG 27...	340	9.9	18.0	18.4	14.3	14.2	1.04	1.0	2.35	2.4

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**014674298 -- Bell Water Level Tunnel, 225 M DS, nr Middleport--Continued**

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

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Silica, water, fltrd, mg/L (00955)	Silica, water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water, unfltrd mg/L (00946)	Phos- phorus, water, fltrd, mg/L (00666)	Phos- phorus, water, unfltrd mg/L (00665)	Alum- inum, water, fltrd, ug/L (01106)	Alum- inum, water, unfltrd recover- able, ug/L (01105)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	.000	--	9.14	9.30	84.0	85.0	<.004	<.004	720	700
SEP 10...	.000	--	11.2	10.0	110	92.0	<.003	<.004	690	620
SEP 24...	.000	--	9.40	10.4	95.0	90.0	<.004	<.004	585	645

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

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Silica, water, fltrd, mg/L (00955)	Silica, water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water, unfltrd mg/L (00946)	Phos- phorus, water, fltrd, mg/L (00666)	Phos- phorus, water, unfltrd mg/L (00665)	Alum- inum, water, fltrd, ug/L (01106)	Alum- inum, water, unfltrd recover- able, ug/L (01105)
OCT 23...	.000	--	11.6	11.6	120	120	<.003	<.003	895	900
DEC 17...	.000	--	9.39	9.33	88.0	88.0	<.003	<.003	840	860
MAR 05...	.000	--	11.3	11.3	200	200	<.001	<.001	1050	985
APR 28...	.000	--	10.6	11.5	180	190	<.001	<.001	1250	1300
JUN 30...	.000	--	11.4	11.5	190	190	<.001	<.001	1500	1500
AUG 27...	.000	--	11.1	11.5	200	200	<.001	<.001	1200	1250

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

Date	Anti- mony, water, fltrd, ug/L (01095)	Anti- mony, water, unfltrd ug/L (01097)	Arsenic water, fltrd, ug/L (01000)	Arsenic water, unfltrd ug/L (01002)	Barium, water, fltrd, ug/L (01005)	Barium, water, unfltrd recover- able, ug/L (01007)	Beryll- ium, water, fltrd, ug/L (01010)	Beryll- ium, water, unfltrd recover- able, ug/L (00998)	Bismuth water, fltrd, ug/L (01015)	Bismuth water, unfltrd ug/L (01017)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	<.050	<.050	<.600	<.600	17.5	17.5	1.00	1.00	<.040	<.040
SEP 10...	.050	<.050	.800	<.600	19.0	19.0	1.00	.800	<.030	<.040
SEP 24...	<.050	<.050	<.600	<.600	18.0	20.0	1.00	.700	<.040	<.040

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

Date	Anti- mony, water, fltrd, ug/L (01095)	Anti- mony, water, unfltrd ug/L (01097)	Arsenic water, fltrd, ug/L (01000)	Arsenic water, unfltrd ug/L (01002)	Barium, water, fltrd, ug/L (01005)	Barium, water, unfltrd recover- able, ug/L (01007)	Beryll- ium, water, fltrd, ug/L (01010)	Beryll- ium, water, unfltrd recover- able, ug/L (00998)	Bismuth water, fltrd, ug/L (01015)	Bismuth water, unfltrd ug/L (01017)
OCT 23...	<.040	<.040	<.200	.400	19.5	19.5	1.10	1.10	<.030	.120
DEC 17...	<.030	<.030	<.900	<.900	24.5	23.5	.920	.800	<.040	<.040
MAR 05...	<.020	<.020	<.200	<.200	18.0	17.5	1.00	1.20	<.010	<.010
APR 28...	<.020	<.020	<.200	<.200	19.5	20.0	1.20	1.30	<.010	<.010
JUN 30...	<.020	<.020	<.200	<.200	21.0	21.0	1.40	1.50	<.010	<.010
AUG 27...	<.020	<.020	<.200	<.200	19.5	20.0	1.30	1.40	<.010	<.010

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146742498 -- Bell Water Level Tunnel, 225 M DS, nr Middleport--Continued**

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

Date	Cadmium water, fltrd, ug/L (01025)	Cadmium water, unfltrd ug/L (01027)	Cerium, water, fltrd, ug/L (01110)	Cerium, water, unfltrd ug/L (01112)	Cesium, water, fltrd, ug/L (01115)	Cesium, water, unfltrd ug/L (01117)	Chrom- ium, water, fltrd, ug/L (01030)	Chrom- ium, water, unfltrd recover- able, ug/L (01034)	Cobalt water, fltrd, ug/L (01035)	Cobalt water, unfltrd recover- able, ug/L (01037)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	.200	.100	3.40	3.40	.100	.100	<1.00	<1.00	33.5	34.0
SEP 10...	.400	.100	2.60	3.00	.100	.100	<1.00	<1.00	43.0	37.0
24...	.080	.070	3.00	3.00	.100	.100	<1.00	<1.00	34.5	39.0

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

Date	Cadmium water, fltrd, ug/L (01025)	Cadmium water, unfltrd ug/L (01027)	Cerium, water, fltrd, ug/L (01110)	Cerium, water, unfltrd ug/L (01112)	Cesium, water, fltrd, ug/L (01115)	Cesium, water, unfltrd ug/L (01117)	Chrom- ium, water, fltrd, ug/L (01030)	Chrom- ium, water, unfltrd recover- able, ug/L (01034)	Cobalt water, fltrd, ug/L (01035)	Cobalt water, unfltrd recover- able, ug/L (01037)
OCT 23...	.100	.200	3.20	3.00	.100	.100	<1.00	<1.00	46.0	44.5
DEC 17...	.200	.160	2.60	2.60	.078	.074	<1.00	<1.00	27.5	28.5
MAR 05...	.420	.110	3.00	3.00	.086	.086	<1.00	<1.00	38.5	41.0
APR 28...	.290	.210	3.50	3.60	.080	.082	<1.00	<1.00	44.5	45.0
JUN 30...	.490	.260	4.30	4.30	.087	.086	<1.00	<1.00	50.5	51.0
AUG 27...	.200	.170	3.80	3.90	.083	.085	<1.00	<1.00	49.5	49.0

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

Date	Copper, water, fltrd, ug/L (01040)	Copper, water, unfltrd recover- able, ug/L (01042)	Dyspros- ium, water, fltrd, ug/L (82331)	Dyspros- ium, water, unfltrd ug/L (82330)	Erbium, water, fltrd, ug/L (50573)	Erbium, water, unfltrd ug/L (01246)	Euro- pium, water, fltrd, ug/L (50574)	Euro- pium, water, unfltrd ug/L (01236)	Gado- linium, water, fltrd, ug/L (50575)	Gado- linium, water, unfltrd ug/L (01219)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	2.00	2.00	.300	.260	.160	.160	.072	.082	.370	.390
SEP 10...	1.00	1.00	.200	.270	.130	.140	.060	.067	.300	.330
24...	1.00	1.00	.260	.270	.140	.150	.062	.076	.350	.320

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

Date	Copper, water, fltrd, ug/L (01040)	Copper, water, unfltrd recover- able, ug/L (01042)	Dyspros- ium, water, fltrd, ug/L (82331)	Dyspros- ium, water, unfltrd ug/L (82330)	Erbium, water, fltrd, ug/L (50573)	Erbium, water, unfltrd ug/L (01246)	Euro- pium, water, fltrd, ug/L (50574)	Euro- pium, water, unfltrd ug/L (01236)	Gado- linium, water, fltrd, ug/L (50575)	Gado- linium, water, unfltrd ug/L (01219)
OCT 23...	3.00	2.00	.270	.240	.160	.140	.069	.075	.330	.340
DEC 17...	5.00	5.30	.220	.260	.130	.130	.066	.061	.290	.290
MAR 05...	2.00	2.10	.270	.260	.140	.150	.076	.074	.320	.300
APR 28...	6.50	6.70	.310	.320	.180	.180	.087	.096	.370	.410
JUN 30...	13.0	12.5	.390	.380	.210	.210	.110	.110	.430	.470
AUG 27...	5.80	5.80	.360	.360	.200	.200	.095	.100	.400	.420

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146742498 -- Bell Water Level Tunnel, 225 M DS, nr Middleport--Continued**

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

Date	Gallium water, fltrd, ug/L (01120)	Gallium water, unfltrd ug/L (01122)	German- ium, water, fltrd, ug/L (01125)	German- ium, water, unfltrd ug/L (01127)	Gold, water, fltrd, ug/L (82334)	Gold, water, unfltrd ug/L (71910)	Holmium water, fltrd, ug/L (50577)	Holmium water, unfltrd ug/L (01247)	Indium water, fltrd, ug/L (62843)	Indium, water, unfltrd ug/L (01168)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	<.020	<.020	<.020	<.020	<.010	<.010	.064	.060	<.010	<.010
SEP 10...	<.020	<.020	<.020	<.020	<.010	<.010	.040	.050	<.010	<.010
24...	.020	.020	<.020	<.020	<.010	<.010	.052	.053	<.010	<.010

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

Date	Gallium water, fltrd, ug/L (01120)	Gallium water, unfltrd ug/L (01122)	German- ium, water, fltrd, ug/L (01125)	German- ium, water, unfltrd ug/L (01127)	Gold, water, fltrd, ug/L (82334)	Gold, water, unfltrd ug/L (71910)	Holmium water, fltrd, ug/L (50577)	Holmium water, unfltrd ug/L (01247)	Indium water, fltrd, ug/L (62843)	Indium, water, unfltrd ug/L (01168)
OCT 23...	<.020	<.020	<.020	<.020	<.010	<.010	.054	.051	<.010	<.010
DEC 17...	<.020	<.020	<.020	<.020	<.010	<.010	.049	.049	<.010	<.010
MAR 05...	.048	.048	<.020	<.020	<.010	<.010	.054	.054	<.010	<.010
APR 28...	.028	.041	<.020	<.020	<.010	<.010	.062	.064	<.010	<.010
JUN 30...	.046	.043	<.020	<.020	<.010	<.010	.078	.077	<.010	<.010
AUG 27...	.038	.041	<.020	<.020	.040	.018	.070	.072	<.010	<.010

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

Date	Iron, water, fltrd, ug/L (01046)	Iron, water, unfltrd recover -able, ug/L (01045)	Lantha- num, water, fltrd, ug/L (01180)	Lantha- num, water, unfltrd ug/L (01182)	Lead, water, fltrd, ug/L (01049)	Lead, water, unfltrd recover -able, ug/L (01051)	Lithium water, fltrd, ug/L (01130)	Lithium water, unfltrd recover -able, ug/L (01132)	Mangan- ese, water, fltrd, ug/L (01056)	Mangan- ese, water, unfltrd recover -able, ug/L (01055)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	1950	2300	1.60	1.60	1.00	1.00	16.0	15.5	1130	1120
SEP 10...	5650	5950	1.30	1.50	.680	.780	18.5	17.0	1510	1320
24...	5350	6600	1.50	1.40	.680	.770	15.5	17.0	1220	1360

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

Date	Iron, water, fltrd, ug/L (01046)	Iron, water, unfltrd recover -able, ug/L (01045)	Lantha- num, water, fltrd, ug/L (01180)	Lantha- num, water, unfltrd ug/L (01182)	Lead, water, fltrd, ug/L (01049)	Lead, water, unfltrd recover -able, ug/L (01051)	Lithium water, fltrd, ug/L (01130)	Lithium water, unfltrd recover -able, ug/L (01132)	Mangan- ese, water, fltrd, ug/L (01056)	Mangan- ese, water, unfltrd recover -able, ug/L (01055)
OCT 23...	6800	7450	1.50	1.50	.860	.980	20.0	20.0	1660	1670
DEC 17...	1950	4200	1.30	1.20	1.00	1.40	15.5	15.5	925	905
MAR 05...	2650	3550	1.40	1.40	.930	.930	20.0	20.5	1560	1610
APR 28...	1300	2050	1.60	1.70	1.10	1.20	20.5	21.0	1480	1480
JUN 30...	1200	2800	2.00	2.00	1.40	1.70	21.0	21.0	1580	1620
AUG 27...	2050	2650	1.80	1.80	1.00	1.10	20.5	21.5	1660	1680



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146742498 -- Bell Water Level Tunnel, 225 M DS, nr Middleport--Continued**

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

Date	Molybdenum, water, unfltrd, recover-able, ug/L (01060)	Molybdenum, water, unfltrd, recover-able, ug/L (01062)	Neodymium, water, fltrd, ug/L (50579)	Neodymium, water, unfltrd, ug/L (01237)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd, recover-able, ug/L (01067)	Praseodymium, water, fltrd, ug/L (50582)	Praseodymium, water, unfltrd, ug/L (01238)	Rhenium, water, fltrd, ug/L (50583)	Rhenium, water, unfltrd, ug/L (01242)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	.030	<.020	1.70	1.60	39.0	39.0	.440	.440	<.020	<.020
SEP 10...	.770	.020	1.30	1.50	44.0	42.0	.320	.380	<.020	<.020
24...	<.020	.100	1.40	1.50	40.5	43.5	.370	.360	<.020	<.020

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

Date	Molybdenum, water, unfltrd, recover-able, ug/L (01060)	Molybdenum, water, unfltrd, recover-able, ug/L (01062)	Neodymium, water, fltrd, ug/L (50579)	Neodymium, water, unfltrd, ug/L (01237)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd, recover-able, ug/L (01067)	Praseodymium, water, fltrd, ug/L (50582)	Praseodymium, water, unfltrd, ug/L (01238)	Rhenium, water, fltrd, ug/L (50583)	Rhenium, water, unfltrd, ug/L (01242)
OCT 23...	.300	.400	1.50	1.40	49.5	46.5	.400	.380	<.020	<.020
DEC 17...	.027	<.020	1.30	1.30	33.0	32.0	.320	.340	<.020	<.020
MAR 05...	.030	.028	1.50	1.50	46.5	47.0	.370	.370	<.020	<.020
APR 28...	.048	.046	1.70	1.80	51.5	55.0	.430	.460	<.020	<.020
JUN 30...	.031	.027	2.10	2.10	59.0	58.5	.540	.550	<.020	<.020
AUG 27...	.340	.130	2.00	2.00	53.5	58.0	.480	.490	<.020	<.020

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

Date	Rubidium, water, fltrd, ug/L (01135)	Rubidium, water, unfltrd, ug/L (01137)	Samarium, water, fltrd, ug/L (82323)	Samarium, water, unfltrd, ug/L (82322)	Selenium, water, fltrd, ug/L (01145)	Selenium, water, unfltrd, ug/L (01147)	Silver, water, fltrd, ug/L (01075)	Silver, water, unfltrd, recover-able, ug/L (01077)	Strontium, water, fltrd, ug/L (01080)	Strontium, water, unfltrd, recover-able, ug/L (01082)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	1.90	1.90	.330	.340	<.200	<.200	.050	<.010	97.5	96.0
SEP 10...	1.90	2.00	.260	.300	<.200	<.200	.200	<.010	113	112
24...	2.10	2.00	.320	.330	<.200	<.200	.020	.030	105	116

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

Date	Rubidium, water, fltrd, ug/L (01135)	Rubidium, water, unfltrd, ug/L (01137)	Samarium, water, fltrd, ug/L (82323)	Samarium, water, unfltrd, ug/L (82322)	Selenium, water, fltrd, ug/L (01145)	Selenium, water, unfltrd, ug/L (01147)	Silver, water, fltrd, ug/L (01075)	Silver, water, unfltrd, recover-able, ug/L (01077)	Strontium, water, fltrd, ug/L (01080)	Strontium, water, unfltrd, recover-able, ug/L (01082)
OCT 23...	1.90	1.90	.320	.320	<.200	<.200	.200	1.20	123	122
DEC 17...	1.50	1.50	.290	.270	.200	<.200	.037	<.010	87.0	86.0
MAR 05...	1.60	1.60	.320	.320	<.200	<.200	.016	.024	118	118
APR 28...	1.60	1.60	.370	.410	<.200	<.200	.012	.075	113	122
JUN 30...	1.60	1.60	.470	.460	<.200	<.200	.013	<.010	131	128
AUG 27...	1.60	1.60	.410	.430	<.200	<.200	<.010	<.010	128	130

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146742498 -- Bell Water Level Tunnel, 225 M DS, nr Middleport--Continued**

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

Date	Terbium water, fltrd, ug/L (50586)	Terbium water, unfltrd ug/L (01218)	Thall- ium, water, fltrd, ug/L (01057)	Thall- ium, water, unfltrd ug/L (01059)	Thorium water, fltrd, ug/L (82365)	Thorium water, unfltrd ug/L (82364)	Thulium water, fltrd, ug/L (50587)	Thulium water, unfltrd ug/L (01245)	Tung- sten, water, fltrd, ug/L (01155)	Tung- sten, water, unfltrd ug/L (01154)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	.050	.050	<.050	<.050	<.020	<.020	.020	.020	<.020	<.020
SEP 10...	.040	.050	<.050	<.050	<.040	<.020	.020	.020	.100	<.020
SEP 24...	.040	.040	<.050	<.050	<.020	<.020	.020	.020	<.020	<.020

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

Date	Terbium water, fltrd, ug/L (50586)	Terbium water, unfltrd ug/L (01218)	Thall- ium, water, fltrd, ug/L (01057)	Thall- ium, water, unfltrd ug/L (01059)	Thorium water, fltrd, ug/L (82365)	Thorium water, unfltrd ug/L (82364)	Thulium water, fltrd, ug/L (50587)	Thulium water, unfltrd ug/L (01245)	Tung- sten, water, fltrd, ug/L (01155)	Tung- sten, water, unfltrd ug/L (01154)
OCT 23...	.040	.040	<.050	<.050	<.040	<.040	.020	.020	.100	.100
DEC 17...	.037	.040	<.050	<.050	<.030	<.030	.021	.017	.056	.028
MAR 05...	.044	.043	<.050	<.050	<.020	<.020	.022	.021	<.020	<.020
APR 28...	.056	.056	<.050	<.050	<.020	<.020	.024	.027	<.020	<.020
JUN 30...	.068	.066	<.050	<.050	<.020	<.020	.034	.031	<.020	<.020
AUG 27...	.060	.062	<.050	<.050	<.020	<.020	.028	.028	<.020	<.020

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

Date	Vanad- ium, water, fltrd, ug/L (01085)	Vanad- ium, water, unfltrd ug/L (01087)	Ytterb- ium, water, fltrd, ug/L (01194)	Ytterb- ium, water, unfltrd ug/L (01196)	Yttrium water, fltrd, ug/L (01201)	Yttrium water, unfltrd ug/L (01203)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd recover- able, ug/L (01092)	Uranium natural water, fltrd, ug/L (22703)	Uranium natural water, unfltrd ug/L (28011)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	<.200	<.200	.200	.200	1.30	1.20	114	116	.120	.110
SEP 10...	<.100	<.200	.100	.100	1.10	1.10	183	106	.090	.100
SEP 24...	<.200	<.200	.100	.100	1.10	1.10	98.5	109	.090	.090

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

Date	Vanad- ium, water, fltrd, ug/L (01085)	Vanad- ium, water, unfltrd ug/L (01087)	Ytterb- ium, water, fltrd, ug/L (01194)	Ytterb- ium, water, unfltrd ug/L (01196)	Yttrium water, fltrd, ug/L (01201)	Yttrium water, unfltrd ug/L (01203)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd recover- able, ug/L (01092)	Uranium natural water, fltrd, ug/L (22703)	Uranium natural water, unfltrd ug/L (28011)
OCT 23...	<.100	<.100	.100	.100	1.30	1.20	139	136	.100	.100
DEC 17...	<.100	<.100	.120	.140	1.10	1.10	110	109	.092	.097
MAR 05...	<.100	<.100	.130	.130	1.20	1.20	153	149	.094	.091
APR 28...	<.100	<.100	.140	.160	1.40	1.40	206	212	.130	.140
JUN 30...	<.100	<.100	.180	.200	1.60	1.60	235	231	.210	.200
AUG 27...	<.100	<.100	.190	.170	1.60	1.50	197	203	.180	.170

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146742494 -- Schuylkill R ab Bell Tunnel at Maryd, PA**

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
APR 03...	0930	1028	9813	4.8	434	3.0	10.8	95	6.0	--
JUL 02...	0945	1028	1028	.36	480	12	9.3	98	4.9	5.3
SEP 10...	1400	1028	1028	.15	500	2.0	7.1	76	5.8	5.7
SEP 24...	1445	1028	1028	.20	460	4.0	8.6	86	5.8	5.6

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
OCT 23...	1330	1028	1028	2.1	430	2.0	10.5	93	6.1	6.1
DEC 17...	1315	1028	1028	6.2	470	2.0	12.9	99	5.8	5.8
MAR 05...	1030	1028	1028	2.9	440	4.0	13.9	98	5.7	5.7
APR 28...	1030	1028	1028	2.9	460	2.0	10.6	96	5.4	5.7
JUN 30...	1015	1028	1028	4.1	440	4.0	9.5	95	5.6	5.6
AUG 27...	1000	1028	1028	.81	440	--	9.4	97	5.5	5.4

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

Date	Specif. conductance, wat unfltrd, uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recover-able, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recover-able, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recover-able, mg/L (00929)
APR 03...	190	9.6	--	--	--	--	--	--	--	--
JUL 02...	270	17.8	16.7	16.2	10.9	10.8	1.45	1.4	5.60	5.5
SEP 10...	310	18.0	22.3	21.9	14.4	14.2	2.10	2.1	8.25	8.2
SEP 24...	270	15.7	17.7	17.6	10.7	10.7	2.10	2.1	8.65	8.7

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

Date	Specif. conductance, wat unfltrd, uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recover-able, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recover-able, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recover-able, mg/L (00929)
OCT 23...	220	10.0	13.7	13.0	8.45	8.1	1.50	1.4	5.15	5.0
DEC 17...	200	4.4	11.2	11.6	6.75	6.8	1.25	1.2	5.20	5.1
MAR 05...	280	1.0	15.4	15.7	8.90	8.8	1.40	1.4	12.6	12.8
APR 28...	260	10.7	15.7	15.9	10.1	10.0	1.50	1.5	8.40	8.5
JUN 30...	240	15.5	14.6	14.2	9.45	9.4	1.40	1.4	5.45	5.3
AUG 27...	240	17.1	16.4	16.1	10.6	10.7	1.45	1.4	5.50	5.5

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146742494 -- Schuylkill R ab Bell Tunnel at Maryd, PA--Continued**

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

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Silica, water, fltrd, mg/L (00955)	Silica, water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water, unfltrd mg/L (00946)	Phos- phorus, water, fltrd, mg/L (00666)	Phos- phorus, water, unfltrd mg/L (00665)	Alum- inum, water, fltrd, ug/L (01106)	Alum- inum, water, unfltrd recover- able, ug/L (01105)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	4.00	--	9.29	9.75	79.0	98.0	<.004	.026	620	1750
SEP 10...	1.90	--	9.47	9.98	110	110	<.003	.066	110	2300
24...	5.00	--	10.2	9.97	100	78.0	.018	.011	155	1250

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

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Silica, water, fltrd, mg/L (00955)	Silica, water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water, unfltrd mg/L (00946)	Phos- phorus, water, fltrd, mg/L (00666)	Phos- phorus, water, unfltrd mg/L (00665)	Alum- inum, water, fltrd, ug/L (01106)	Alum- inum, water, unfltrd recover- able, ug/L (01105)
OCT 23...	7.00	--	8.21	7.99	56.0	58.0	<.004	.011	65.5	755
DEC 17...	3.00	--	7.57	7.67	64.0	65.0	<.003	.010	195	785
MAR 05...	7.00	--	6.94	6.99	110	110	<.001	.025	285	995
APR 28...	7.00	--	7.99	8.19	130	130	<.001	.008	415	1350
JUN 30...	3.80	--	9.03	9.13	120	120	<.001	.009	155	1140
AUG 27...	3.00	--	9.65	9.70	130	130	<.001	.005	140	1250

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

Date	Anti- mony, water, fltrd, ug/L (01095)	Anti- mony, water, unfltrd ug/L (01097)	Arsenic water, fltrd, ug/L (01000)	Arsenic water, unfltrd ug/L (01002)	Barium, water, fltrd, ug/L (01005)	Barium, water, unfltrd recover- able, ug/L (01007)	Beryll- ium, water, fltrd, ug/L (01010)	Beryll- ium, water, unfltrd recover- able, ug/L (00998)	Bismuth water, fltrd, ug/L (01015)	Bismuth water, unfltrd ug/L (01017)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	.080	<.050	<.600	<.600	19.0	19.0	.400	.700	<.040	<.040
SEP 10...	<.040	.060	<.200	.400	16.0	17.0	.100	.400	<.030	<.030
24...	<.050	<.050	<.600	<.600	20.5	21.0	.300	.300	<.040	<.040

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

Date	Anti- mony, water, fltrd, ug/L (01095)	Anti- mony, water, unfltrd ug/L (01097)	Arsenic water, fltrd, ug/L (01000)	Arsenic water, unfltrd ug/L (01002)	Barium, water, fltrd, ug/L (01005)	Barium, water, unfltrd recover- able, ug/L (01007)	Beryll- ium, water, fltrd, ug/L (01010)	Beryll- ium, water, unfltrd recover- able, ug/L (00998)	Bismuth water, fltrd, ug/L (01015)	Bismuth water, unfltrd ug/L (01017)
OCT 23...	<.050	<.050	<.600	<.600	20.5	22.0	.070	.100	<.040	<.040
DEC 17...	<.030	<.030	<.900	<.900	20.5	21.5	.220	.200	<.040	<.040
MAR 05...	.040	.031	<.200	<.200	20.5	20.5	.180	.260	<.010	<.010
APR 28...	<.020	<.020	<.200	<.200	19.5	19.0	.230	.270	<.010	<.010
JUN 30...	<.020	<.020	<.200	<.200	20.5	20.5	.220	.270	<.010	<.010
AUG 27...	<.020	<.020	<.200	<.200	16.5	16.5	.140	.330	<.010	<.010

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146742494 -- Schuylkill R ab Bell Tunnel at Maryd, PA--Continued**

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

Date	Cadmium water, fltrd, ug/L (01025)	Cadmium water, unfltrd ug/L (01027)	Cerium, water, fltrd, ug/L (01110)	Cerium, water, unfltrd ug/L (01112)	Cesium, water, fltrd, ug/L (01115)	Cesium, water, unfltrd ug/L (01117)	Chrom- ium, water, fltrd, ug/L (01030)	Chrom- ium, water, unfltrd recover- able, ug/L (01034)	Cobalt water, fltrd, ug/L (01035)	Cobalt water, unfltrd recover- able, ug/L (01037)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	.400	.400	4.00	4.60	.090	.100	<1.00	2.00	25.0	25.0
SEP 10...	.500	.400	2.40	4.20	.100	.100	<1.00	<1.00	27.0	28.0
24...	.500	.400	3.50	4.10	.100	.200	2.00	<1.00	21.5	24.5

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

Date	Cadmium water, fltrd, ug/L (01025)	Cadmium water, unfltrd ug/L (01027)	Cerium, water, fltrd, ug/L (01110)	Cerium, water, unfltrd ug/L (01112)	Cesium, water, fltrd, ug/L (01115)	Cesium, water, unfltrd ug/L (01117)	Chrom- ium, water, fltrd, ug/L (01030)	Chrom- ium, water, unfltrd recover- able, ug/L (01034)	Cobalt water, fltrd, ug/L (01035)	Cobalt water, unfltrd recover- able, ug/L (01037)
OCT 23...	.200	.200	1.80	2.10	.080	.090	<1.00	<1.00	13.5	10.5
DEC 17...	.290	.250	1.30	1.50	.046	.044	<1.00	<1.00	8.60	8.70
MAR 05...	.320	.250	1.50	1.60	.044	.044	<1.00	<1.00	13.0	12.5
APR 28...	.300	.260	2.00	2.20	.062	.062	<1.00	<1.00	18.0	18.0
JUN 30...	.290	.210	1.60	1.80	.060	.063	<1.00	<1.00	11.5	16.5
AUG 27...	.240	.230	2.20	2.50	.063	.069	<1.00	<1.00	16.5	16.0

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

Date	Copper, water, fltrd, ug/L (01040)	Copper, water, unfltrd recover- able, ug/L (01042)	Dyspros- ium, water, fltrd, ug/L (82331)	Dyspros- ium, water, unfltrd ug/L (82330)	Erbium, water, fltrd, ug/L (50573)	Erbium, water, unfltrd ug/L (01246)	Euro- pium, water, fltrd, ug/L (50574)	Euro- pium, water, unfltrd ug/L (01236)	Gado- linium, water, fltrd, ug/L (50575)	Gado- linium, water, unfltrd ug/L (01219)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	3.00	4.00	.500	.680	.280	.300	.140	.150	.730	.860
SEP 10...	3.00	5.00	.260	.670	.150	.340	.062	.160	.400	.880
24...	6.00	6.00	.380	.550	.200	.290	.100	.120	.500	.710

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

Date	0146742494 -- Sc Copper, water, fltrd, ug/L (01040)	0146742494 -- Sc Copper, water, unfltrd recover- able, ug/L (01042)	Dyspros- ium, water, fltrd, ug/L (82331)	Dyspros- ium, water, unfltrd ug/L (82330)	Copper, Erbium, water, fltrd, ug/L (50573)	Copper, Erbium, water, unfltrd ug/L (01246)	Euro- pium, water, fltrd, ug/L (50574)	Euro- pium, water, unfltrd ug/L (01236)	Gado- linium, water, fltrd, ug/L (50575)	Gado- linium, water, unfltrd ug/L (01219)
OCT 23...	3.00	3.00	.170	.260	.092	.130	.040	.058	.220	.320
DEC 17...	2.90	3.50	.130	.180	.077	.100	.035	.044	.190	.230
MAR 05...	2.20	2.70	.190	.220	.100	.120	.044	.052	.240	.280
APR 28...	2.90	3.20	.300	.320	.150	.170	.065	.076	.360	.390
JUN 30...	2.40	2.80	.200	.260	.110	.140	.047	.056	.270	.320
AUG 27...	2.50	2.90	.270	.370	.130	.190	.066	.085	.330	.450

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146742494 -- Schuylkill R ab Bell Tunnel at Maryd, PA--Continued**

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

Date	Gallium water, fltrd, ug/L (01120)	Gallium water, unfltrd ug/L (01122)	German- ium, water, fltrd, ug/L (01125)	German- ium, water, unfltrd ug/L (01127)	Gold, water, fltrd, ug/L (82334)	Gold, water, unfltrd ug/L (71910)	Holmium water, fltrd, ug/L (50577)	Holmium water, unfltrd ug/L (01247)	Indium water, fltrd, ug/L (62843)	Indium, water, unfltrd ug/L (01168)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	<.020	<.020	<.020	.020	<.010	<.010	.110	.120	<.010	<.010
SEP 10...	.020	.020	<.020	<.020	<.010	<.010	.057	.130	<.010	<.010
24...	<.020	<.020	.050	<.020	<.010	<.010	.088	.098	<.010	<.010

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

Date	Gallium water, fltrd, ug/L (01120)	Gallium water, unfltrd ug/L (01122)	German- ium, water, fltrd, ug/L (01125)	German- ium, water, unfltrd ug/L (01127)	Gold, water, fltrd, ug/L (82334)	Gold, water, unfltrd ug/L (71910)	Holmium water, fltrd, ug/L (50577)	Holmium water, unfltrd ug/L (01247)	Indium water, fltrd, ug/L (62843)	Indium, water, unfltrd ug/L (01168)
OCT 23...	<.020	<.020	<.020	<.020	<.010	<.010	.030	.052	<.010	<.010
DEC 17...	<.020	<.020	<.020	<.020	<.010	<.010	.025	.036	<.010	<.010
MAR 05...	.024	.027	<.020	<.020	<.010	<.010	.040	.048	<.010	<.010
APR 28...	<.020	<.020	<.020	<.020	<.010	<.010	.061	.065	<.010	<.010
JUN 30...	.020	.020	<.020	<.020	<.010	<.010	.043	.050	<.010	<.010
AUG 27...	<.020	<.020	<.020	<.020	<.010	<.010	.053	.074	<.010	<.010

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

Date	Iron, water, fltrd, ug/L (01046)	Iron, water, unfltrd recover- able, ug/L (01045)	Lantha- num, water, fltrd, ug/L (01180)	Lantha- num, water, unfltrd ug/L (01182)	Lead, water, fltrd, ug/L (01049)	Lead, water, unfltrd recover- able, ug/L (01051)	Lithium water, fltrd, ug/L (01130)	Lithium water, unfltrd recover- able, ug/L (01132)	Mangan- ese, water, fltrd, ug/L (01056)	Mangan- ese, water, unfltrd recover- able, ug/L (01055)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	265	535	2.00	2.10	.400	.750	17.5	17.5	1400	1380
SEP 10...	280	1750	1.30	1.90	.200	1.60	16.5	17.5	1880	1880
24...	315	520	1.80	2.00	.300	.590	18.0	18.0	1350	1400

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

Date	Iron, water, fltrd, ug/L (01046)	Iron, water, unfltrd recover- able, ug/L (01045)	Lantha- num, water, fltrd, ug/L (01180)	Lantha- num, water, unfltrd ug/L (01182)	Lead, water, fltrd, ug/L (01049)	Lead, water, unfltrd recover- able, ug/L (01051)	Lithium water, fltrd, ug/L (01130)	Lithium water, unfltrd recover- able, ug/L (01132)	Mangan- ese, water, fltrd, ug/L (01056)	Mangan- ese, water, unfltrd recover- able, ug/L (01055)
OCT 23...	275	350	.930	1.00	.100	.300	10.8	10.3	817	784
DEC 17...	340	405	.700	.760	.270	.390	9.05	9.20	611	618
MAR 05...	405	460	.720	.770	.170	.260	11.0	10.5	898	898
APR 28...	270	355	1.00	1.00	.240	.300	17.5	17.5	1100	1100
JUN 30...	205	345	.800	.850	.190	.360	17.5	17.5	915	915
AUG 27...	225	380	1.10	1.20	.220	.390	17.0	16.5	1200	1180

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146742494 -- Schuylkill R ab Bell Tunnel at Maryd, PA--Continued**

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

Date	Molybdenum, water, unfltrd, recover-able, ug/L (01060)	Molybdenum, water, unfltrd, recover-able, ug/L (01062)	Neodymium, water, fltrd, ug/L (50579)	Neodymium, water, unfltrd, ug/L (01237)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd, recover-able, ug/L (01067)	Praseodymium, water, fltrd, ug/L (50582)	Praseodymium, water, unfltrd, ug/L (01238)	Rhenium, water, fltrd, ug/L (50583)	Rhenium, water, unfltrd, ug/L (01242)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	.550	.090	2.50	2.70	36.0	37.0	.560	.650	<.020	<.020
SEP 10...	.200	.200	1.40	2.80	37.5	37.0	.340	.630	<.020	<.020
24...	.070	.040	2.00	2.40	33.5	32.0	.470	.580	<.020	<.020

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

Date	Molybdenum, water, unfltrd, recover-able, ug/L (01060)	Molybdenum, water, unfltrd, recover-able, ug/L (01062)	Neodymium, water, fltrd, ug/L (50579)	Neodymium, water, unfltrd, ug/L (01237)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd, recover-able, ug/L (01067)	Praseodymium, water, fltrd, ug/L (50582)	Praseodymium, water, unfltrd, ug/L (01238)	Rhenium, water, fltrd, ug/L (50583)	Rhenium, water, unfltrd, ug/L (01242)
OCT 23...	.100	.040	.950	1.20	19.5	20.5	.240	.290	<.020	<.020
DEC 17...	.026	.025	.730	.870	17.5	15.5	.180	.200	<.020	<.020
MAR 05...	.230	.170	.840	.980	20.5	17.5	.200	.220	<.020	<.020
APR 28...	.360	.140	1.30	1.40	26.5	28.0	.300	.320	<.020	<.020
JUN 30...	.032	.034	.960	1.10	26.5	27.0	.230	.260	<.020	<.020
AUG 27...	.048	.040	1.30	1.60	28.5	25.5	.300	.360	<.020	<.020

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

Date	Rubidium, water, fltrd, ug/L (01135)	Rubidium, water, unfltrd, ug/L (01137)	Samarium, water, fltrd, ug/L (82323)	Samarium, water, unfltrd, ug/L (82322)	Selenium, water, fltrd, ug/L (01145)	Selenium, water, unfltrd, ug/L (01147)	Silver, water, fltrd, ug/L (01075)	Silver, water, unfltrd, recover-able, ug/L (01077)	Strontium, water, fltrd, ug/L (01080)	Strontium, water, unfltrd, recover-able, ug/L (01082)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	2.80	2.70	.500	.540	<.200	.900	.200	.530	101	100
SEP 10...	3.50	3.50	.260	.630	<.200	<.200	<.010	<.010	108	111
24...	3.80	3.90	.330	.520	1.00	<.200	.100	.200	105	110

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

Date	Rubidium, water, fltrd, ug/L (01135)	Rubidium, water, unfltrd, ug/L (01137)	Samarium, water, fltrd, ug/L (82323)	Samarium, water, unfltrd, ug/L (82322)	Selenium, water, fltrd, ug/L (01145)	Selenium, water, unfltrd, ug/L (01147)	Silver, water, fltrd, ug/L (01075)	Silver, water, unfltrd, recover-able, ug/L (01077)	Strontium, water, fltrd, ug/L (01080)	Strontium, water, unfltrd, recover-able, ug/L (01082)
OCT 23...	2.40	2.30	.200	.270	<.200	<.200	.300	.300	80.0	77.5
DEC 17...	1.40	1.40	.160	.190	<.200	<.200	<.010	.646	62.0	64.0
MAR 05...	1.40	1.40	.180	.220	<.200	<.200	.180	.200	74.0	73.5
APR 28...	1.60	1.70	.270	.290	<.200	<.200	.078	.041	77.0	76.5
JUN 30...	1.60	1.50	.190	.260	<.200	<.200	.140	.140	75.5	75.0
AUG 27...	1.80	1.90	.250	.350	<.200	<.200	.100	.084	83.5	83.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146742494 -- Schuylkill R ab Bell Tunnel at Maryd, PA--Continued**

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

Date	Terbium water, fltrd, ug/L (50586)	Terbium water, unfltrd ug/L (01218)	Thall- ium, water, fltrd, ug/L (01057)	Thall- ium, water, unfltrd ug/L (01059)	Thorium water, fltrd, ug/L (82365)	Thorium water, unfltrd ug/L (82364)	Thulium water, fltrd, ug/L (50587)	Thulium water, unfltrd ug/L (01245)	Tung- sten, water, fltrd, ug/L (01155)	Tung- sten, water, unfltrd ug/L (01154)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	.097	.130	<.050	<.050	<.020	<.020	.040	.040	<.020	<.020
SEP 10...	.050	.120	<.050	<.050	<.040	<.040	.020	.040	.080	.080
24...	.065	.094	<.050	<.050	<.020	<.020	.030	.040	<.020	<.020

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

Date	Terbium water, fltrd, ug/L (50586)	Terbium water, unfltrd ug/L (01218)	Thall- ium, water, fltrd, ug/L (01057)	Thall- ium, water, unfltrd ug/L (01059)	Thorium water, fltrd, ug/L (82365)	Thorium water, unfltrd ug/L (82364)	Thulium water, fltrd, ug/L (50587)	Thulium water, unfltrd ug/L (01245)	Tung- sten, water, fltrd, ug/L (01155)	Tung- sten, water, unfltrd ug/L (01154)
OCT 23...	.030	.050	<.050	<.050	<.020	<.020	.010	.020	<.020	<.020
DEC 17...	.024	.032	<.050	<.050	<.030	<.030	.010	.014	.099	.094
MAR 05...	.035	.042	<.050	<.050	<.020	<.020	.015	.017	<.020	<.020
APR 28...	.052	.060	<.050	<.050	<.020	<.020	.022	.023	<.020	<.020
JUN 30...	.034	.045	<.050	<.050	<.020	<.020	.014	.018	<.020	<.020
AUG 27...	.047	.066	<.050	<.050	<.020	<.020	.018	.026	<.020	<.020

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

Date	Vanad- ium, water, fltrd, ug/L (01085)	Vanad- ium, water, unfltrd ug/L (01087)	Ytterb- ium, water, fltrd, ug/L (01194)	Ytterb- ium, water, unfltrd ug/L (01196)	Yttrium water, fltrd, ug/L (01201)	Yttrium water, unfltrd ug/L (01203)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd recover- able, ug/L (01092)	Uranium natural water, fltrd, ug/L (22703)	Uranium natural water, unfltrd ug/L (28011)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	<.200	.400	.200	.200	2.90	3.20	64.5	70.5	.040	.050
SEP 10...	<.100	<.100	.100	.290	1.90	3.50	71.5	73.0	.010	.060
24...	.500	<.200	.200	.230	2.00	2.50	75.0	66.5	.020	.040

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

Date	Vanad- ium, water, fltrd, ug/L (01085)	Vanad- ium, water, unfltrd ug/L (01087)	Ytterb- ium, water, fltrd, ug/L (01194)	Ytterb- ium, water, unfltrd ug/L (01196)	Yttrium water, fltrd, ug/L (01201)	Yttrium water, unfltrd ug/L (01203)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd recover- able, ug/L (01092)	Uranium natural water, fltrd, ug/L (22703)	Uranium natural water, unfltrd ug/L (28011)
OCT 23...	<.200	<.200	.070	.100	.970	1.20	43.0	42.0	.010	.020
DEC 17...	<.100	<.100	.066	.081	.850	1.00	49.0	49.0	.012	.022
MAR 05...	<.100	<.100	.074	.100	1.10	1.20	68.5	55.0	.011	.018
APR 28...	<.100	<.100	.110	.130	1.60	1.70	60.5	59.5	.014	.020
JUN 30...	<.100	<.100	.080	.110	1.10	1.20	57.0	57.0	.014	.022
AUG 27...	<.100	<.100	.100	.140	1.50	1.80	54.5	54.0	.016	.027



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146742500 -- Schuylkill River bl Bell Tunnel at Maryd, PA**

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
APR 03...	0945	1028	9813	6.3	456	3.0	10.6	93	5.4	--
JUL 02...	1230	1028	1028	1.8	570	17	9.4	93	4.5	4.5
SEP 10...	1245	1028	1028	1.1	590	2.0	7.2	69	4.1	3.8
SEP 24...	1300	1028	1028	.75	550	4.0	9.4	90	4.4	4.5

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
OCT 23...	1245	1028	1028	3.0	460	3.0	10.7	94	5.5	5.5
DEC 17...	1215	1028	1028	8.8	490	8.0	12.4	98	5.3	5.3
MAR 05...	0945	1028	1028	4.0	470	5.0	13.5	98	5.0	5.2
APR 28...	0945	1028	1028	4.7	520	7.0	10.9	95	4.2	4.4
JUN 30...	0945	1028	1028	8.3	560	6.0	10.0	94	4.3	4.5
AUG 27...	0915	1028	1028	1.4	600	--	9.8	95	4.1	4.5

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

Date	Specif. conductance, wat unfltrd, uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water unfltrd recover, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water unfltrd recover, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water unfltrd recover, mg/L (00929)
APR 03...	215	9.9	--	--	--	--	--	--	--	--
JUL 02...	290	15.1	12.6	13.3	9.00	9.7	.98	1.1	3.25	3.4
SEP 10...	320	13.3	18.9	18.9	14.1	14.0	1.40	1.4	4.75	4.7
SEP 24...	270	13.2	16.4	16.2	11.0	11.1	1.45	1.5	5.80	5.9

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

Date	Specif. conductance, wat unfltrd, uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water unfltrd recover, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water unfltrd recover, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water unfltrd recover, mg/L (00929)
OCT 23...	230	9.8	14.0	13.8	9.50	9.4	1.35	1.4	4.25	4.3
DEC 17...	200	5.6	10.8	11.6	7.15	7.7	1.10	1.2	4.05	4.4
MAR 05...	280	2.0	15.7	15.6	9.90	9.8	1.30	1.3	9.95	9.8
APR 28...	280	9.5	16.2	16.3	11.6	11.7	1.30	1.2	5.55	5.7
JUN 30...	280	12.5	15.9	16.1	11.4	11.7	1.15	1.2	3.65	3.6
AUG 27...	270	13.8	17.4	17.2	12.6	12.4	1.20	1.3	4.15	4.1

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146742500 -- Schuylkill River bl Bell Tunnel at Maryd, PA--Continued**

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

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Silica, water, fltrd, mg/L (00955)	Silica, water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water, unfltrd mg/L (00946)	Phos- phorus, water, fltrd, mg/L (00666)	Phos- phorus, water, unfltrd mg/L (00665)	Alum- inum, water, fltrd, ug/L (01106)	Alum- inum, water, unfltrd recover- able, ug/L (01105)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	.000	--	8.83	9.09	83.0	84.0	<.004	<.004	720	995
SEP 10...	.000	--	11.1	10.6	120	110	<.003	<.003	630	700
SEP 24...	.000	--	10.5	10.5	86.0	85.0	<.004	<.004	460	990

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

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Silica, water, fltrd, mg/L (00955)	Silica, water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water, unfltrd mg/L (00946)	Phos- phorus, water, fltrd, mg/L (00666)	Phos- phorus, water, unfltrd mg/L (00665)	Alum- inum, water, fltrd, ug/L (01106)	Alum- inum, water, unfltrd recover- able, ug/L (01105)
OCT 23...	2.80	--	9.35	9.29	67.0	67.0	<.004	.004	245	800
DEC 17...	3.00	--	8.19	8.83	73.0	73.0	<.003	.006	430	905
MAR 05...	3.00	--	7.97	8.29	130	130	<.001	.017	445	1150
APR 28...	3.00	--	9.31	9.36	160	160	<.001	.001	885	1400
JUN 30...	.000	--	9.67	10.1	160	160	<.001	.001	840	1250
AUG 27...	.000	--	10.7	10.9	160	160	<.001	<.001	690	1250

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

Date	Anti- mony, water, fltrd, ug/L (01095)	Anti- mony, water, unfltrd ug/L (01097)	Arsenic water, fltrd, ug/L (01000)	Arsenic water, unfltrd ug/L (01002)	Barium, water, fltrd, ug/L (01005)	Barium, water, unfltrd recover- able, ug/L (01007)	Beryll- ium, water, fltrd, ug/L (01010)	Beryll- ium, water, unfltrd recover- able, ug/L (00998)	Bismuth water, fltrd, ug/L (01015)	Bismuth water, unfltrd ug/L (01017)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	<.050	<.050	<.600	<.600	17.0	17.5	.600	.600	<.040	<.040
SEP 10...	<.040	<.040	<.200	.200	19.0	19.0	.700	.800	<.030	<.030
SEP 24...	<.050	.050	<.600	<.600	20.5	20.5	.400	.500	<.040	<.040

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

Date	Anti- mony, water, fltrd, ug/L (01095)	Anti- mony, water, unfltrd ug/L (01097)	Arsenic water, fltrd, ug/L (01000)	Arsenic water, unfltrd ug/L (01002)	Barium, water, fltrd, ug/L (01005)	Barium, water, unfltrd recover- able, ug/L (01007)	Beryll- ium, water, fltrd, ug/L (01010)	Beryll- ium, water, unfltrd recover- able, ug/L (00998)	Bismuth water, fltrd, ug/L (01015)	Bismuth water, unfltrd ug/L (01017)
OCT 23...	<.050	<.050	<.600	<.600	21.0	22.0	.300	.400	<.040	<.040
DEC 17...	<.030	<.030	<.900	<.900	21.0	22.5	.310	.270	<.040	<.040
MAR 05...	.170	.059	<.200	<.200	23.5	19.5	.350	.370	.140	.012
APR 28...	<.020	<.020	<.200	<.200	20.0	19.5	.650	.690	<.010	<.010
JUN 30...	.020	<.020	<.200	<.200	20.0	20.0	.730	.960	<.010	<.010
AUG 27...	<.020	<.020	<.200	<.200	17.0	18.0	.740	.860	<.010	<.010

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146742500 -- Schuylkill River bl Bell Tunnel at Maryd, PA--Continued**

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

Date	Cadmium water, fltrd, ug/L (01025)	Cadmium water, unfltrd ug/L (01027)	Cerium, water, fltrd, ug/L (01110)	Cerium, water, unfltrd ug/L (01112)	Cesium, water, fltrd, ug/L (01115)	Cesium, water, unfltrd ug/L (01117)	Chrom- ium, water, fltrd, ug/L (01030)	Chrom- ium, water, unfltrd recover- able, ug/L (01034)	Cobalt water, fltrd, ug/L (01035)	Cobalt water, unfltrd recover- able, ug/L (01037)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	.300	.200	2.80	2.90	.100	.100	20.0	<1.00	28.0	28.5
SEP 10...	.400	.400	2.60	2.60	.100	.100	<1.00	<1.00	35.0	34.5
24...	.400	.300	3.40	3.70	.100	.100	<1.00	<1.00	28.0	26.5

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

Date	Cadmium water, fltrd, ug/L (01025)	Cadmium water, unfltrd ug/L (01027)	Cerium, water, fltrd, ug/L (01110)	Cerium, water, unfltrd ug/L (01112)	Cesium, water, fltrd, ug/L (01115)	Cesium, water, unfltrd ug/L (01117)	Chrom- ium, water, fltrd, ug/L (01030)	Chrom- ium, water, unfltrd recover- able, ug/L (01034)	Cobalt water, fltrd, ug/L (01035)	Cobalt water, unfltrd recover- able, ug/L (01037)
OCT 23...	.200	.200	2.30	2.40	.090	.090	<1.00	<1.00	20.0	20.5
DEC 17...	.270	.200	2.00	1.90	.052	.058	<1.00	<1.00	15.5	16.5
MAR 05...	.480	.250	1.70	1.80	.048	.050	<1.00	<1.00	19.0	19.5
APR 28...	.340	.250	2.70	2.70	.060	.058	<1.00	<1.00	28.0	26.5
JUN 30...	.540	.230	2.70	2.80	.065	.065	<1.00	<1.00	32.0	30.5
AUG 27...	.200	.190	2.80	2.90	.062	.065	<1.00	<1.00	35.5	31.5

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

Date	Copper, water, fltrd, ug/L (01040)	Copper, water, unfltrd recover- able, ug/L (01042)	Dyspros- ium, water, fltrd, ug/L (82331)	Dyspros- ium, water, unfltrd ug/L (82330)	Erbium, water, fltrd, ug/L (50573)	Erbium, water, unfltrd ug/L (01246)	Euro- pium, water, fltrd, ug/L (50574)	Euro- pium, water, unfltrd ug/L (01236)	Gado- linium, water, fltrd, ug/L (50575)	Gado- linium, water, unfltrd ug/L (01219)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	3.00	3.00	.300	.350	.170	.190	.070	.067	.410	.410
SEP 10...	2.00	2.00	.270	.280	.160	.150	.072	.063	.350	.380
24...	3.00	3.00	.380	.400	.200	.230	.088	.100	.460	.550

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

Date	Copper, water, fltrd, ug/L (01040)	Copper, water, unfltrd recover- able, ug/L (01042)	Dyspros- ium, water, fltrd, ug/L (82331)	Dyspros- ium, water, unfltrd ug/L (82330)	Erbium, water, fltrd, ug/L (50573)	Erbium, water, unfltrd ug/L (01246)	Euro- pium, water, fltrd, ug/L (50574)	Euro- pium, water, unfltrd ug/L (01236)	Gado- linium, water, fltrd, ug/L (50575)	Gado- linium, water, unfltrd ug/L (01219)
OCT 23...	2.00	3.00	.180	.260	.099	.140	.054	.054	.260	.300
DEC 17...	3.90	3.80	.210	.200	.100	.110	.045	.049	.240	.240
MAR 05...	2.30	2.70	.190	.240	.100	.120	.048	.056	.230	.270
APR 28...	4.60	4.70	.310	.320	.160	.170	.075	.080	.370	.380
JUN 30...	7.10	7.20	.270	.280	.140	.150	.072	.071	.320	.340
AUG 27...	3.70	4.00	.290	.320	.160	.180	.075	.083	.350	.400

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146742500 -- Schuylkill River bl Bell Tunnel at Maryd, PA--Continued**

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

Date	Gallium water, fltrd, ug/L (01120)	Gallium water, unfltrd ug/L (01122)	German- ium, water, fltrd, ug/L (01125)	German- ium, water, unfltrd ug/L (01127)	Gold, water, fltrd, ug/L (82334)	Gold, water, unfltrd ug/L (71910)	Holmium water, fltrd, ug/L (50577)	Holmium water, unfltrd ug/L (01247)	Indium water, fltrd, ug/L (62843)	Indium, water, unfltrd ug/L (01168)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	<.020	<.020	<.020	<.020	<.010	<.010	.064	.066	<.010	<.010
SEP 10...	<.020	.020	.020	<.020	<.010	<.010	.055	.056	<.010	<.010
24...	<.020	.020	<.020	<.020	<.010	<.010	.073	.080	<.010	<.010

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

Date	Gallium water, fltrd, ug/L (01120)	Gallium water, unfltrd ug/L (01122)	German- ium, water, fltrd, ug/L (01125)	German- ium, water, unfltrd ug/L (01127)	Gold, water, fltrd, ug/L (82334)	Gold, water, unfltrd ug/L (71910)	Holmium water, fltrd, ug/L (50577)	Holmium water, unfltrd ug/L (01247)	Indium water, fltrd, ug/L (62843)	Indium, water, unfltrd ug/L (01168)
OCT 23...	<.020	<.020	<.020	<.020	<.010	<.010	.040	.050	<.010	<.010
DEC 17...	<.020	<.020	<.020	<.020	<.010	<.010	.036	.040	<.010	<.010
MAR 05...	.020	.028	<.020	<.020	<.010	<.010	.040	.044	<.010	<.010
APR 28...	.045	.026	<.020	<.020	<.010	<.010	.061	.062	<.010	<.010
JUN 30...	.024	.030	<.020	<.020	<.010	<.010	.052	.054	<.010	<.010
AUG 27...	.024	.023	<.020	<.020	<.010	<.010	.055	.063	<.010	<.010

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

Date	Iron, water, fltrd, ug/L (01046)	Iron, water, unfltrd recover- able, ug/L (01045)	Lantha- num, water, fltrd, ug/L (01180)	Lantha- num, water, unfltrd ug/L (01182)	Lead, water, fltrd, ug/L (01049)	Lead, water, unfltrd recover- able, ug/L (01051)	Lithium water, fltrd, ug/L (01130)	Lithium water, unfltrd recover- able, ug/L (01132)	Mangan- ese, water, fltrd, ug/L (01056)	Mangan- ese, water, unfltrd recover- able, ug/L (01055)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	26.0	44.5	1.60	1.60	.200	.100	14.5	15.5	1120	1200
SEP 10...	3300	3650	1.30	1.40	.550	.590	18.0	18.5	1680	1680
24...	2350	2700	1.80	1.80	.500	.650	19.0	19.0	1400	1400

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

Date	Iron, water, fltrd, ug/L (01046)	Iron, water, unfltrd recover- able, ug/L (01045)	Lantha- num, water, fltrd, ug/L (01180)	Lantha- num, water, unfltrd ug/L (01182)	Lead, water, fltrd, ug/L (01049)	Lead, water, unfltrd recover- able, ug/L (01051)	Lithium water, fltrd, ug/L (01130)	Lithium water, unfltrd recover- able, ug/L (01132)	Mangan- ese, water, fltrd, ug/L (01056)	Mangan- ese, water, unfltrd recover- able, ug/L (01055)
OCT 23...	2050	2200	1.20	1.20	.300	.540	14.0	13.5	1010	1000
DEC 17...	800	1650	1.00	.950	.410	.660	11.0	12.0	709	756
MAR 05...	965	1250	.820	.880	.360	.430	14.0	13.5	1060	1050
APR 28...	745	1090	1.30	1.30	.600	.670	18.5	18.0	1260	1250
JUN 30...	700	1000	1.30	1.30	.760	.850	18.0	18.5	1170	1240
AUG 27...	1100	1500	1.30	1.40	.510	.630	20.0	19.5	1420	1490

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146742500 -- Schuylkill River bl Bell Tunnel at Maryd, PA--Continued**

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

Date	Molybdenum, water, unfltrd, recover-able, ug/L (01060)	Molybdenum, water, unfltrd, recover-able, ug/L (01062)	Neodymium, water, fltrd, ug/L (50579)	Neodymium, water, unfltrd, ug/L (01237)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd, recover-able, ug/L (01067)	Praseodymium, water, fltrd, ug/L (50582)	Praseodymium, water, unfltrd, ug/L (01238)	Rhenium, water, fltrd, ug/L (50583)	Rhenium, water, unfltrd, ug/L (01242)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	<.020	<.020	1.50	1.50	36.0	37.5	.360	.380	<.020	<.020
SEP 10...	.090	.100	1.40	1.40	43.0	43.0	.340	.360	<.020	<.020
SEP 24...	.200	.300	1.90	2.00	36.0	37.5	.440	.500	<.020	<.020

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

Date	Molybdenum, water, unfltrd, recover-able, ug/L (01060)	Molybdenum, water, unfltrd, recover-able, ug/L (01062)	Neodymium, water, fltrd, ug/L (50579)	Neodymium, water, unfltrd, ug/L (01237)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd, recover-able, ug/L (01067)	Praseodymium, water, fltrd, ug/L (50582)	Praseodymium, water, unfltrd, ug/L (01238)	Rhenium, water, fltrd, ug/L (50583)	Rhenium, water, unfltrd, ug/L (01242)
OCT 23...	.030	.090	1.20	1.30	27.0	27.0	.280	.310	<.020	<.020
DEC 17...	.021	<.020	1.00	1.00	21.5	23.0	.260	.240	<.020	<.020
MAR 05...	1.10	.380	.920	1.00	26.0	26.0	.220	.240	<.020	<.020
APR 28...	.083	.070	1.50	1.50	36.0	37.0	.350	.360	<.020	<.020
JUN 30...	.120	.100	1.40	1.50	38.5	40.0	.360	.360	<.020	<.020
AUG 27...	.095	.092	1.50	1.60	45.5	43.0	.370	.380	<.020	<.020

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

Date	Rubidium, water, fltrd, ug/L (01135)	Rubidium, water, unfltrd, ug/L (01137)	Samarium, water, fltrd, ug/L (82323)	Samarium, water, unfltrd, ug/L (82322)	Selenium, water, fltrd, ug/L (01145)	Selenium, water, unfltrd, ug/L (01147)	Silver, water, fltrd, ug/L (01075)	Silver, water, unfltrd, recover-able, ug/L (01077)	Strontium, water, fltrd, ug/L (01080)	Strontium, water, unfltrd, recover-able, ug/L (01082)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	2.40	2.50	.320	.340	<.200	<.200	<.010	<.010	88.0	95.0
SEP 10...	2.50	2.50	.300	.270	<.200	<.200	<.010	<.010	114	113
SEP 24...	2.90	2.90	.350	.410	<.200	<.200	<.010	.090	108	110

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

Date	Rubidium, water, fltrd, ug/L (01135)	Rubidium, water, unfltrd, ug/L (01137)	Samarium, water, fltrd, ug/L (82323)	Samarium, water, unfltrd, ug/L (82322)	Selenium, water, fltrd, ug/L (01145)	Selenium, water, unfltrd, ug/L (01147)	Silver, water, fltrd, ug/L (01075)	Silver, water, unfltrd, recover-able, ug/L (01077)	Strontium, water, fltrd, ug/L (01080)	Strontium, water, unfltrd, recover-able, ug/L (01082)
OCT 23...	2.30	2.30	.220	.260	<.200	<.200	<.010	.200	92.0	90.5
DEC 17...	1.40	1.40	.200	.200	<.200	<.200	.110	.091	68.5	74.0
MAR 05...	1.30	1.30	.180	.220	<.200	<.200	1.60	.380	82.0	81.0
APR 28...	1.50	1.50	.320	.320	<.200	<.200	.180	.016	94.0	94.5
JUN 30...	1.50	1.50	.300	.330	<.200	<.200	.078	.067	95.5	98.0
AUG 27...	1.60	1.60	.320	.340	<.200	<.200	.566	.037	98.5	104

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146742500 -- Schuylkill River bl Bell Tunnel at Maryd, PA--Continued**

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

Date	Rubidium, water, fltrd, ug/L (01135)	Rubidium, water, unfltrd, ug/L (01137)	Samarium, water, fltrd, ug/L (82323)	Samarium, water, unfltrd, ug/L (82322)	Selenium, water, fltrd, ug/L (01145)	Selenium, water, unfltrd, ug/L (01147)	Silver, water, fltrd, ug/L (01075)	Silver, water, unfltrd, recoverable, ug/L (01077)	Strontium, water, fltrd, ug/L (01080)	Strontium, water, unfltrd, recoverable, ug/L (01082)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	2.40	2.50	.320	.340	<.200	<.200	<.010	<.010	88.0	95.0
SEP 10...	2.50	2.50	.300	.270	<.200	<.200	<.010	<.010	114	113
24...	2.90	2.90	.350	.410	<.200	<.200	<.010	.090	108	110

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

Date	Rubidium, water, fltrd, ug/L (01135)	Rubidium, water, unfltrd, ug/L (01137)	Samarium, water, fltrd, ug/L (82323)	Samarium, water, unfltrd, ug/L (82322)	Selenium, water, fltrd, ug/L (01145)	Selenium, water, unfltrd, ug/L (01147)	Silver, water, fltrd, ug/L (01075)	Silver, water, unfltrd, recoverable, ug/L (01077)	Strontium, water, fltrd, ug/L (01080)	Strontium, water, unfltrd, recoverable, ug/L (01082)
OCT 23...	2.30	2.30	.220	.260	<.200	<.200	<.010	.200	92.0	90.5
DEC 17...	1.40	1.40	.200	.200	<.200	<.200	.110	.091	68.5	74.0
MAR 05...	1.30	1.30	.180	.220	<.200	<.200	1.60	.380	82.0	81.0
APR 28...	1.50	1.50	.320	.320	<.200	<.200	.180	.016	94.0	94.5
JUN 30...	1.50	1.50	.300	.330	<.200	<.200	.078	.067	95.5	98.0
AUG 27...	1.60	1.60	.320	.340	<.200	<.200	.566	.037	98.5	104

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

Date	Terbium, water, fltrd, ug/L (50586)	Terbium, water, unfltrd, ug/L (01218)	Thallium, water, fltrd, ug/L (01057)	Thallium, water, unfltrd, ug/L (01059)	Thorium, water, fltrd, ug/L (82365)	Thorium, water, unfltrd, ug/L (82364)	Thulium, water, fltrd, ug/L (50587)	Thulium, water, unfltrd, ug/L (01245)	Tungsten, water, fltrd, ug/L (01155)	Tungsten, water, unfltrd, ug/L (01154)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	.054	.057	<.050	<.050	<.020	<.020	.020	.020	<.020	<.020
SEP 10...	.052	.050	<.050	<.050	<.040	<.040	.020	.020	.060	.060
24...	.065	.074	<.050	<.050	<.020	<.020	.030	.030	<.020	<.020

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

Date	Terbium, water, fltrd, ug/L (50586)	Terbium, water, unfltrd, ug/L (01218)	Thallium, water, fltrd, ug/L (01057)	Thallium, water, unfltrd, ug/L (01059)	Thorium, water, fltrd, ug/L (82365)	Thorium, water, unfltrd, ug/L (82364)	Thulium, water, fltrd, ug/L (50587)	Thulium, water, unfltrd, ug/L (01245)	Tungsten, water, fltrd, ug/L (01155)	Tungsten, water, unfltrd, ug/L (01154)
OCT 23...	.030	.050	<.050	<.050	<.020	<.020	.020	.020	<.020	<.020
DEC 17...	.037	.031	<.050	<.050	<.030	<.030	.015	.016	.085	.062
MAR 05...	.032	.040	.074	<.050	<.020	<.020	.014	.016	<.020	<.020
APR 28...	.052	.054	<.050	<.050	<.020	<.020	.023	.023	<.020	<.020
JUN 30...	.044	.051	<.050	<.050	<.020	<.020	.022	.023	<.020	<.020
AUG 27...	.050	.055	<.050	<.050	<.020	<.020	.021	.024	<.020	.024

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146742500 -- Schuylkill River bl Bell Tunnel at Maryd, PA--Continued**

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

Date	Vanadium, water, fltrd, ug/L (01085)	Vanadium, water, unfltrd, ug/L (01087)	Ytterbium, water, fltrd, ug/L (01194)	Ytterbium, water, unfltrd, ug/L (01196)	Yttrium, water, fltrd, ug/L (01201)	Yttrium, water, unfltrd, ug/L (01203)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd, recover-able, ug/L (01092)	Uranium, natural water, fltrd, ug/L (22703)	Uranium, natural water, unfltrd, ug/L (28011)
APR 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	<.200	<.200	.100	.200	1.70	1.80	86.5	89.0	.030	.030
SEP 10...	<.100	<.100	.100	.100	1.60	1.60	124	163	.060	.060
SEP 24...	<.200	<.200	.200	.200	1.80	2.10	86.5	87.0	.050	.060

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

Date	Vanadium, water, fltrd, ug/L (01085)	Vanadium, water, unfltrd, ug/L (01087)	Ytterbium, water, fltrd, ug/L (01194)	Ytterbium, water, unfltrd, ug/L (01196)	Yttrium, water, fltrd, ug/L (01201)	Yttrium, water, unfltrd, ug/L (01203)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd, recover-able, ug/L (01092)	Uranium, natural water, fltrd, ug/L (22703)	Uranium, natural water, unfltrd, ug/L (28011)
OCT 23...	<.200	<.200	.090	.100	.990	1.20	98.0	64.0	.030	.040
DEC 17...	<.100	<.100	.084	.089	1.10	1.00	71.5	69.5	.042	.044
MAR 05...	<.100	<.100	.077	.110	1.10	1.20	162	77.5	.028	.032
APR 28...	<.100	<.100	.130	.120	1.60	1.60	120	124	.065	.066
JUN 30...	<.100	<.100	.120	.130	1.30	1.40	148	139	.099	.100
AUG 27...	<.100	<.100	.130	.140	1.40	1.60	117	116	.070	.076

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**01467448 -- Schuylkill River at Middleport, PA**

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
SEP 24...	1015	1028	1028	5.9	440	2.0	10.1	94	5.8	5.7
Date	Specif. conductance, wat unfltrd 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water, unfltrd recover-able, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recover-able, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recover-able, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recover-able, mg/L (00929)
SEP 24...	280	12.2	19.9	20.2	11.9	12.1	1.07	1.1	5.25	5.3
Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Silica, water, fltrd, mg/L (00955)	Silica, water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water, unfltrd mg/L (00946)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Aluminum, water, fltrd, ug/L (01106)	Aluminum, water, unfltrd recover-able, ug/L (01105)
SEP 24...	6.00	--	7.99	8.15	90.0	91.0	<.004	<.004	160	400
Date	Antimony, water, fltrd, ug/L (01095)	Antimony, water, unfltrd, ug/L (01097)	Arsenic, water, fltrd, ug/L (01000)	Arsenic, water, unfltrd, ug/L (01002)	Barium, water, fltrd, ug/L (01005)	Barium, water, unfltrd recover-able, ug/L (01007)	Beryllium, water, fltrd, ug/L (01010)	Beryllium, water, unfltrd recover-able, ug/L (00998)	Bismuth, water, fltrd, ug/L (01015)	Bismuth, water, unfltrd, ug/L (01017)
SEP 24...	<.050	<.050	<.600	<.600	27.5	27.0	.300	.400	<.040	<.040
Date	Cadmium, water, fltrd, ug/L (01025)	Cadmium, water, unfltrd, ug/L (01027)	Cerium, water, fltrd, ug/L (01110)	Cerium, water, unfltrd, ug/L (01112)	Cesium, water, fltrd, ug/L (01115)	Cesium, water, unfltrd, ug/L (01117)	Chromium, water, fltrd, ug/L (01030)	Chromium, water, unfltrd recover-able, ug/L (01034)	Cobalt, water, fltrd, ug/L (01035)	Cobalt, water, unfltrd recover-able, ug/L (01037)
SEP 24...	.300	.300	1.90	2.10	.060	.060	<1.00	<1.00	28.0	27.5
Date	Copper, water, fltrd, ug/L (01040)	Copper, water, unfltrd recover-able, ug/L (01042)	Dysprosium, water, fltrd, ug/L (82331)	Dysprosium, water, unfltrd, ug/L (82330)	Erbium, water, fltrd, ug/L (50573)	Erbium, water, unfltrd, ug/L (01246)	Europium, water, fltrd, ug/L (50574)	Europium, water, unfltrd, ug/L (01236)	Gadolinium, water, fltrd, ug/L (50575)	Gadolinium, water, unfltrd, ug/L (01219)
SEP 24...	4.00	4.00	.220	.240	.120	.140	.050	.058	.290	.330



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**01467448 -- Schuylkill River at Middleport, PA--Continued**

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

Date	Gallium water, fltrd, ug/L (01120)	Gallium water, unfltrd ug/L (01122)	German- ium, water, fltrd, ug/L (01125)	German- ium, water, unfltrd ug/L (01127)	Gold, water, fltrd, ug/L (82334)	Gold, water, unfltrd ug/L (71910)	Holmium water, fltrd, ug/L (50577)	Holmium water, unfltrd ug/L (01247)	Indium water, fltrd, ug/L (62843)	Indium, water, unfltrd ug/L (01168)
SEP 24...	<.020	<.020	<.020	<.020	<.010	<.010	.040	.050	<.010	<.010
Date	Iron, water, fltrd, ug/L (01046)	Iron, water, recover- able, ug/L (01045)	Iron, water, fltrd, ug/L (01180)	Iron, water, unfltrd ug/L (01182)	Lead, water, fltrd, ug/L (01049)	Lead, water, recover- able, ug/L (01051)	Lithium water, fltrd, ug/L (01130)	Lithium water, recover- able, ug/L (01132)	Mangan- ese, water, fltrd, ug/L (01056)	Mangan- ese, water, unfltrd ug/L (01055)
SEP 24...	500	620	1.00	1.10	.200	.200	12.0	12.5	1620	1610
Date	Molyb- denum, water, fltrd, ug/L (01060)	Molyb- denum, water, recover- able, ug/L (01062)	Neodym- ium, water, fltrd, ug/L (50579)	Neodym- ium, water, unfltrd ug/L (01237)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, recover- able, ug/L (01067)	Praseo- dymium, water, fltrd, ug/L (50582)	Praseo- dymium, water, unfltrd ug/L (01238)	Rhenium water, fltrd, ug/L (50583)	Rhenium water, unfltrd ug/L (01242)
SEP 24...	.200	.200	1.00	1.10	35.5	36.0	.240	.270	<.020	<.020
Date	Rubid- ium, water, fltrd, ug/L (01135)	Rubid- ium, water, unfltrd ug/L (01137)	Samar- ium, water, fltrd, ug/L (82323)	Samar- ium, water, unfltrd ug/L (82322)	Selen- ium, water, fltrd, ug/L (01145)	Selen- ium, water, unfltrd ug/L (01147)	Silver, water, fltrd, ug/L (01075)	Silver, water, recover- able, ug/L (01077)	Stront- ium, water, fltrd, ug/L (01080)	Stront- ium, water, unfltrd ug/L (01082)
SEP 24...	2.00	2.00	.200	.210	<.200	<.200	.060	.080	179	182
Date	Terbium water, fltrd, ug/L (50586)	Terbium water, unfltrd ug/L (01218)	Thall- ium, water, fltrd, ug/L (01057)	Thall- ium, water, unfltrd ug/L (01059)	Thorium water, fltrd, ug/L (82365)	Thorium water, unfltrd ug/L (82364)	Thulium water, fltrd, ug/L (50587)	Thulium water, unfltrd ug/L (01245)	Tung- sten, water, fltrd, ug/L (01155)	Tung- sten, water, unfltrd ug/L (01154)
SEP 24...	.040	.040	<.050	<.050	<.020	<.020	.020	.020	<.020	<.020
Date	Vanad- ium, water, fltrd, ug/L (01085)	Vanad- ium, water, unfltrd ug/L (01087)	Ytterb- ium, water, fltrd, ug/L (01194)	Ytterb- ium, water, unfltrd ug/L (01196)	Yttrium water, fltrd, ug/L (01201)	Yttrium water, unfltrd ug/L (01203)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, recover- able, ug/L (01092)	Uranium natural water, fltrd, ug/L (22703)	Uranium natural water, unfltrd ug/L (28011)
SEP 24...	<.200	<.200	.100	.100	1.20	1.30	93.5	89.0	.040	.050

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**403958076191401 -- Otto Air Shaft**

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
DEC 03...	0930	1028	930	2.8	342	.0	.2	2	5.9	5.8

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
MAR 04...	1330	1028	1028	3.3	327	4.0	.5	4	6.0	6.0
APR 28...	1400	1028	1028	3.3	360	9.0	.7	6	5.9	6.0
JUN 04...	1245	1028	1028	--	280	11	1.9	17	5.8	6.7
JUN 30...	1215	1028	1028	8.6	400	23	1.1	11	5.8	6.2
AUG 27...	1230	1028	1028	4.3	320	--	.1	2	5.8	6.2

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

Date	Specif. conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recoverable, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recoverable, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recoverable, mg/L (00929)
DEC 03...	547	12.3	42.0	40.0	37.0	35.0	1.20	1.2	11.0	10.0

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

Date	Specif. conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recoverable, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recoverable, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recoverable, mg/L (00929)
MAR 04...	526	11.9	--	--	--	--	--	--	--	--
APR 28...	530	12.0	33.6	35.7	32.6	34.4	1.04	1.1	6.65	7.0
JUN 04...	540	11.9	35.4	--	32.4	--	1.10	--	7.00	--
JUN 30...	560	12.0	34.8	35.3	33.5	34.2	1.10	1.1	6.90	7.0
AUG 27...	540	12.0	32.6	33.4	32.8	33.6	1.03	1.1	6.10	6.2

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**403958076191401 -- Otto Air Shaft--Continued**

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

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Silica, water, fltrd, mg/L (00955)	Silica, water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water, unfltrd mg/L (00946)	Phos- phorus, water, fltrd, mg/L (00666)	Phos- phorus, water, unfltrd mg/L (00665)	Alum- inum, water, fltrd, ug/L (01106)	Alum- inum, water, unfltrd recover- able, ug/L (01105)
DEC 03...	70	--	--	--	230	220	--	--	80	400

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

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Silica, water, fltrd, mg/L (00955)	Silica, water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water, unfltrd mg/L (00946)	Phos- phorus, water, fltrd, mg/L (00666)	Phos- phorus, water, unfltrd mg/L (00665)	Alum- inum, water, fltrd, ug/L (01106)	Alum- inum, water, unfltrd recover- able, ug/L (01105)
MAR 04...	40.0	--	--	--	--	--	--	--	--	--
APR 28...	42.0	--	10.1	10.1	370	370	<.001	<.001	185	1750
JUN 04...	42.0	80.0	11.0	--	232	--	<.001	--	270	--
JUN 30...	37.0	--	9.89	10.3	360	360	<.001	<.001	70.0	1700
AUG 27...	37.0	--	9.68	10.4	340	360	<.001	<.001	170	1800

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

Date	Anti- mony, water, fltrd, ug/L (01095)	Anti- mony, water, unfltrd ug/L (01097)	Arsenic water, fltrd, ug/L (01000)	Arsenic water, unfltrd ug/L (01002)	Barium, water, fltrd, ug/L (01005)	Barium, water, unfltrd recover- able, ug/L (01007)	Beryll- ium, water, fltrd, ug/L (01010)	Beryll- ium, water, unfltrd recover- able, ug/L (00998)	Bismuth water, fltrd, ug/L (01015)	Bismuth water, unfltrd ug/L (01017)
DEC 03...	<40	<40	<40.0	<40	26.0	26.000	<1.000	1.000	--	--

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

Date	Anti- mony, water, fltrd, ug/L (01095)	Anti- mony, water, unfltrd ug/L (01097)	Arsenic water, fltrd, ug/L (01000)	Arsenic water, unfltrd ug/L (01002)	Barium, water, fltrd, ug/L (01005)	Barium, water, unfltrd recover- able, ug/L (01007)	Beryll- ium, water, fltrd, ug/L (01010)	Beryll- ium, water, unfltrd recover- able, ug/L (00998)	Bismuth water, fltrd, ug/L (01015)	Bismuth water, unfltrd ug/L (01017)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	<.020	<.020	1.40	1.90	23.5	23.5	1.10	1.70	<.010	<.010
JUN 04...	.091	--	<1.00	--	23.0	--	.900	--	.020	--
JUN 30...	<.020	<.020	.390	.500	21.5	23.0	.960	1.50	<.010	<.010
AUG 27...	.020	<.020	1.70	1.80	21.0	20.5	1.20	1.80	<.010	<.010

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**403958076191401 -- Otto Air Shaft--Continued**

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

Date	Cadmium water, fltrd, ug/L (01025)	Cadmium water, unfltrd ug/L (01027)	Cerium, water, fltrd, ug/L (01110)	Cerium, water, unfltrd ug/L (01112)	Cesium, water, fltrd, ug/L (01115)	Cesium, water, unfltrd ug/L (01117)	Chrom- ium, water, fltrd, ug/L (01030)	Chrom- ium, water, unfltrd ug/L (01034)	Cobalt water, recover fltrd, ug/L (01035)	Cobalt water, unfltrd recover fltrd, ug/L (01037)
DEC 03...	<3.000	<3.000	--	--	--	--	<3.000	<3	60	50

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

Date	Cadmium water, fltrd, ug/L (01025)	Cadmium water, unfltrd ug/L (01027)	Cerium, water, fltrd, ug/L (01110)	Cerium, water, unfltrd ug/L (01112)	Cesium, water, fltrd, ug/L (01115)	Cesium, water, unfltrd ug/L (01117)	Chrom- ium, water, fltrd, ug/L (01030)	Chrom- ium, water, unfltrd ug/L (01034)	Cobalt water, recover fltrd, ug/L (01035)	Cobalt water, unfltrd recover fltrd, ug/L (01037)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.190	.150	9.00	10.0	.130	.120	<1.00	<1.00	53.5	53.5
JUN 04...	.065	--	10.0	--	.140	--	<1.00	--	60.0	--
JUN 30...	.480	.500	6.10	8.80	.110	.120	<1.00	<1.00	45.0	51.0
AUG 27...	.130	.150	7.80	8.90	.100	.100	<1.00	<1.00	47.5	53.5

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

Date	Copper, water, fltrd, ug/L (01040)	Copper, water, unfltrd recover ug/L (01042)	Dyspros- ium, water, fltrd, ug/L (82331)	Dyspros- ium, water, unfltrd ug/L (82330)	Erbium, water, fltrd, ug/L (50573)	Erbium, water, unfltrd ug/L (01246)	Euro- pium, water, fltrd, ug/L (50574)	Euro- pium, water, unfltrd ug/L (01236)	Gado- linium, water, fltrd, ug/L (50575)	Gado- linium, water, unfltrd ug/L (01219)
DEC 03...	<3.000	<3.000	--	--	--	--	--	--	--	--

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

Date	Copper, water, fltrd, ug/L (01040)	Copper, water, unfltrd recover ug/L (01042)	Dyspros- ium, water, fltrd, ug/L (82331)	Dyspros- ium, water, unfltrd ug/L (82330)	Erbium, water, fltrd, ug/L (50573)	Erbium, water, unfltrd ug/L (01246)	Euro- pium, water, fltrd, ug/L (50574)	Euro- pium, water, unfltrd ug/L (01236)	Gado- linium, water, fltrd, ug/L (50575)	Gado- linium, water, unfltrd ug/L (01219)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.540	4.70	.800	1.00	.470	.580	.170	.230	.830	1.00
JUN 04...	.800	--	.860	--	.500	--	.200	--	1.00	--
JUN 30...	1.10	8.40	.530	.920	.300	.530	.100	.200	.500	.880
AUG 27...	<.500	3.00	.700	.920	.400	.500	.160	.210	.680	.880

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**403958076191401 -- Otto Air Shaft--Continued**

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

Date	Gallium water, fltrd, ug/L (01120)	Gallium water, unfltrd ug/L (01122)	German- ium, water, fltrd, ug/L (01125)	German- ium, water, unfltrd ug/L (01127)	Gold, water, fltrd, ug/L (82334)	Gold, water, unfltrd ug/L (71910)	Holmium water, fltrd, ug/L (50577)	Holmium water, unfltrd ug/L (01247)	Indium water, fltrd, ug/L (62843)	Indium, water, unfltrd ug/L (01168)
DEC 03...	--	--	--	--	--	--	--	--	--	--

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

Date	Gallium water, fltrd, ug/L (01120)	Gallium water, unfltrd ug/L (01122)	German- ium, water, fltrd, ug/L (01125)	German- ium, water, unfltrd ug/L (01127)	Gold, water, fltrd, ug/L (82334)	Gold, water, unfltrd ug/L (71910)	Holmium water, fltrd, ug/L (50577)	Holmium water, unfltrd ug/L (01247)	Indium water, fltrd, ug/L (62843)	Indium, water, unfltrd ug/L (01168)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	<.020	<.020	.035	<.020	<.010	<.010	.160	.210	<.010	<.010
JUN 04...	.035	--	<.020	--	.022	--	.190	--	<.010	--
30...	.021	<.020	<.020	<.020	<.010	<.010	.100	.190	<.010	<.010
AUG 27...	<.020	<.020	<.020	<.020	<.010	<.010	.140	.180	<.010	<.010

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

Date	Iron, water, fltrd, ug/L (01046)	Iron, water, unfltrd recover- able, ug/L (01045)	Lantha- num, water, fltrd, ug/L (01180)	Lantha- num, water, unfltrd ug/L (01182)	Lead, water, fltrd, ug/L (01049)	Lead, water, unfltrd recover- able, ug/L (01051)	Lithium water, fltrd, ug/L (01130)	Lithium water, unfltrd recover- able, ug/L (01132)	Mangan- ese, water, fltrd, ug/L (01056)	Mangan- ese, water, unfltrd recover- able, ug/L (01055)
DEC 03...	16000	16000	--	--	<40.000	<40.000	--	--	2500	2400

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

Date	Iron, water, fltrd, ug/L (01046)	Iron, water, unfltrd recover- able, ug/L (01045)	Lantha- num, water, fltrd, ug/L (01180)	Lantha- num, water, unfltrd ug/L (01182)	Lead, water, fltrd, ug/L (01049)	Lead, water, unfltrd recover- able, ug/L (01051)	Lithium water, fltrd, ug/L (01130)	Lithium water, unfltrd recover- able, ug/L (01132)	Mangan- ese, water, fltrd, ug/L (01056)	Mangan- ese, water, unfltrd recover- able, ug/L (01055)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	7500	7950	4.40	4.70	.066	.750	21.5	21.5	2080	2060
JUN 04...	9250	--	4.90	--	.066	--	21.0	--	2050	--
30...	3650	5200	3.20	4.10	.063	1.40	21.5	22.0	1820	1870
AUG 27...	6000	6650	3.70	4.00	<.050	.580	21.5	22.5	1900	1940

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**403958076191401 -- Otto Air Shaft--Continued**

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

Date	Molybdenum, water, unfltrd, recoverable, ug/L (01060)	Molybdenum, water, unfltrd, recoverable, ug/L (01062)	Neodymium, water, fltrd, ug/L (50579)	Neodymium, water, unfltrd, ug/L (01237)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd, recoverable, ug/L (01067)	Praseodymium, water, fltrd, ug/L (50582)	Praseodymium, water, unfltrd, ug/L (01238)	Rhenium, water, fltrd, ug/L (50583)	Rhenium, water, unfltrd, ug/L (01242)
DEC 03...	--	--	--	--	78.000	75.000	--	--	--	--

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

Date	Molybdenum, water, unfltrd, recoverable, ug/L (01060)	Molybdenum, water, unfltrd, recoverable, ug/L (01062)	Neodymium, water, fltrd, ug/L (50579)	Neodymium, water, unfltrd, ug/L (01237)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd, recoverable, ug/L (01067)	Praseodymium, water, fltrd, ug/L (50582)	Praseodymium, water, unfltrd, ug/L (01238)	Rhenium, water, fltrd, ug/L (50583)	Rhenium, water, unfltrd, ug/L (01242)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.094	.110	4.20	5.10	79.5	77.5	1.10	1.30	<.020	<.020
JUN 04...	.140	--	4.60	--	82.5	--	1.20	--	<.020	--
JUN 30...	.110	.160	2.70	4.50	72.5	75.5	.710	1.10	<.020	<.020
AUG 27...	.230	.190	3.60	4.50	74.0	78.0	.940	1.10	<.020	<.020

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

Date	Rubidium, water, fltrd, ug/L (01135)	Rubidium, water, unfltrd, ug/L (01137)	Samarium, water, fltrd, ug/L (82323)	Samarium, water, unfltrd, ug/L (82322)	Selenium, water, fltrd, ug/L (01145)	Selenium, water, unfltrd, ug/L (01147)	Silver, water, fltrd, ug/L (01075)	Silver, water, unfltrd, recoverable, ug/L (01077)	Strontium, water, fltrd, ug/L (01080)	Strontium, water, unfltrd, recoverable, ug/L (01082)
DEC 03...	--	--	--	--	<100	<100	--	--	--	--

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

Date	Rubidium, water, fltrd, ug/L (01135)	Rubidium, water, unfltrd, ug/L (01137)	Samarium, water, fltrd, ug/L (82323)	Samarium, water, unfltrd, ug/L (82322)	Selenium, water, fltrd, ug/L (01145)	Selenium, water, unfltrd, ug/L (01147)	Silver, water, fltrd, ug/L (01075)	Silver, water, unfltrd, recoverable, ug/L (01077)	Strontium, water, fltrd, ug/L (01080)	Strontium, water, unfltrd, recoverable, ug/L (01082)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	2.10	2.00	.790	1.00	<.200	<.200	<.010	<.010	360	374
JUN 04...	2.30	--	.850	--	<.200	--	.160	--	366	--
JUN 30...	1.80	1.90	.470	.960	<.200	<.200	.034	.034	358	378
AUG 27...	1.70	1.70	.680	.940	<.200	<.200	.530	.280	322	326

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**403958076191401 -- Otto Air Shaft--Continued**

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

Date	Terbium water, fltrd, ug/L (50586)	Terbium water unfltrd ug/L (01218)	Thall- ium, water, fltrd, ug/L (01057)	Thall- ium, water, unfltrd ug/L (01059)	Thorium water, fltrd, ug/L (82365)	Thorium water unfltrd ug/L (82364)	Thulium water, fltrd, ug/L (50587)	Thulium water unfltrd ug/L (01245)	Tung- sten, water, fltrd, ug/L (01155)	Tung- sten, water, unfltrd ug/L (01154)
DEC 03...	--	--	--	--	--	--	--	--	--	--

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

Date	Terbium water, fltrd, ug/L (50586)	Terbium water unfltrd ug/L (01218)	Thall- ium, water, fltrd, ug/L (01057)	Thall- ium, water, unfltrd ug/L (01059)	Thorium water, fltrd, ug/L (82365)	Thorium water unfltrd ug/L (82364)	Thulium water, fltrd, ug/L (50587)	Thulium water unfltrd ug/L (01245)	Tung- sten, water, fltrd, ug/L (01155)	Tung- sten, water, unfltrd ug/L (01154)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.130	.160	<.050	<.050	<.030	<.030	.063	.084	<.020	<.020
JUN 04...	.150	--	<.050	--	<.010	--	.067	--	<.020	--
30...	.082	.140	<.050	<.050	<.030	<.030	.042	.073	<.020	<.020
AUG 27...	.110	.160	<.050	<.050	<.030	<.030	.056	.079	<.020	<.020

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

Date	Vanad- ium, water, fltrd, ug/L (01085)	Vanad- ium, water, unfltrd ug/L (01087)	Ytterb- ium, water, fltrd, ug/L (01194)	Ytterb- ium, water, unfltrd ug/L (01196)	Yttrium water, fltrd, ug/L (01201)	Yttrium water unfltrd ug/L (01203)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, recover -able, ug/L (01092)	Uranium natural water, fltrd, ug/L (22703)	Uranium natural water unfltrd ug/L (28011)
DEC 03...	--	--	--	--	--	--	30	30	--	--

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

Date	Vanad- ium, water, fltrd, ug/L (01085)	Vanad- ium, water, unfltrd ug/L (01087)	Ytterb- ium, water, fltrd, ug/L (01194)	Ytterb- ium, water, unfltrd ug/L (01196)	Yttrium water, fltrd, ug/L (01201)	Yttrium water unfltrd ug/L (01203)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd recover -able, ug/L (01092)	Uranium natural water, fltrd, ug/L (22703)	Uranium natural water unfltrd ug/L (28011)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	<.100	<.100	.350	.480	3.80	4.40	182	179	.071	.380
JUN 04...	<.100	--	.380	--	4.30	--	158	--	.068	--
30...	<.100	<.100	.220	.440	2.90	4.00	226	240	.046	.350
AUG 27...	<.100	<.100	.300	.440	3.40	4.00	183	192	.062	.320

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146784350 -- Otto Air Shaft, 400 M DS, near Llewellyn, PA**

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
MAR 04...	1300	1028	1028	3.3	325	7.0	10.9	100	6.7	6.8
APR 28...	1345	1028	1028	3.3	330	11	9.8	95	6.4	6.5
JUN 30...	1145	1028	1028	8.6	350	38	9.6	90	6.1	--
AUG 27...	1200	1028	1028	4.3	350	--	10.0	94	6.2	--
Date	Specif. conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recover-able, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recover-able, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recover-able, mg/L (00929)
MAR 04...	529	11.7	--	--	--	--	--	--	--	--
APR 28...	520	12.3	41.9	42.5	18.9	19.1	1.90	1.9	8.40	8.3
JUN 30...	560	12.1	35.5	36.2	34.4	34.6	1.10	1.1	7.10	7.3
AUG 27...	520	12.1	32.4	33.7	32.0	32.6	1.04	1.1	5.90	6.2
Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Silica water, fltrd, mg/L (00955)	Silica water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water, unfltrd mg/L (00946)	Phosphorus water, fltrd, mg/L (00666)	Phosphorus water, unfltrd mg/L (00665)	Aluminum water, fltrd, ug/L (01106)	Aluminum water, unfltrd recover-able, ug/L (01105)
MAR 04...	48.0	.000	--	--	--	--	--	--	--	--
APR 28...	36.0	--	13.0	15.9	310	320	<.001	.030	17.5	755
JUN 30...	40.0	--	10.1	10.4	360	360	<.001	<.001	57.0	1700
AUG 27...	40.0	--	9.93	10.2	350	350	<.001	<.001	96.5	1800
Date	Antimony water, fltrd, ug/L (01095)	Antimony water, unfltrd ug/L (01097)	Arsenic water, fltrd, ug/L (01000)	Arsenic water, unfltrd ug/L (01002)	Barium water, fltrd, ug/L (01005)	Barium water, unfltrd recover-able, ug/L (01007)	Beryllium water, fltrd, ug/L (01010)	Beryllium water, unfltrd recover-able, ug/L (00998)	Bismuth water, fltrd, ug/L (01015)	Bismuth water, unfltrd ug/L (01017)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.036	.043	<.200	<.200	23.5	22.0	.280	.690	<.010	<.010
JUN 30...	<.020	<.020	<.200	<.200	22.5	23.0	.970	1.50	<.010	<.010
AUG 27...	<.020	<.020	1.70	2.00	21.0	21.0	.870	2.00	<.010	<.010



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146784350 -- Otto Air Shaft, 400 M DS, near Llewellyn, PA--Continued**

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

Date	Cadmium water, fltrd, ug/L (01025)	Cadmium water, unfltrd ug/L (01027)	Cerium, water, fltrd, ug/L (01110)	Cerium, water, unfltrd ug/L (01112)	Cesium, water, fltrd, ug/L (01115)	Cesium, water, unfltrd ug/L (01117)	Chrom- ium, water, fltrd, ug/L (01030)	Chrom- ium, water, unfltrd recover- able, ug/L (01034)	Cobalt water, fltrd, ug/L (01035)	Cobalt water, unfltrd recover- able, ug/L (01037)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.360	.340	.750	1.50	.083	.089	<1.00	<1.00	25.5	32.5
JUN 30...	.490	.530	6.00	9.00	.120	.110	<1.00	<1.00	50.0	51.0
AUG 27...	.130	.140	8.10	9.20	.120	.110	<1.00	<1.00	53.5	53.5
Date	Copper, water, fltrd, ug/L (01040)	Copper, water, unfltrd recover- able, ug/L (01042)	Dyspros- ium, water, fltrd, ug/L (82331)	Dyspros- ium, water, unfltrd ug/L (82330)	Erbium, water, fltrd, ug/L (50573)	Erbium, water, unfltrd ug/L (01246)	Euro- pium, water, fltrd, ug/L (50574)	Euro- pium, water, unfltrd ug/L (01236)	Gado- linium, water, fltrd, ug/L (50575)	Gado- linium, water, unfltrd ug/L (01219)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.660	3.90	.076	.230	.045	.130	.014	.047	.081	.230
JUN 30...	.980	8.80	.460	.970	.290	.550	.096	.220	.500	.960
AUG 27...	<.500	3.30	.670	.900	.390	.510	.160	.210	.670	.890
Date	Gallium water, fltrd, ug/L (01120)	Gallium water, unfltrd ug/L (01122)	German- ium, water, fltrd, ug/L (01125)	German- ium, water, unfltrd ug/L (01127)	Gold, water, fltrd, ug/L (82334)	Gold, water, unfltrd ug/L (71910)	Holmium water, fltrd, ug/L (50577)	Holmium water, unfltrd ug/L (01247)	Indium water, fltrd, ug/L (62843)	Indium, water, unfltrd ug/L (01168)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.029	.022	.023	.022	<.010	<.010	.018	.047	<.010	<.010
JUN 30...	.039	.040	<.020	<.020	<.010	<.010	.100	.180	<.010	<.010
AUG 27...	<.020	<.020	.027	<.020	<.010	<.010	.140	.190	<.010	<.010
Date	Iron, water, fltrd, ug/L (01046)	Iron, water, unfltrd recover- able, ug/L (01045)	Lantha- num, water, fltrd, ug/L (01180)	Lantha- num, water, unfltrd ug/L (01182)	Lead, water, fltrd, ug/L (01049)	Lead, water, unfltrd recover- able, ug/L (01051)	Lithium water, fltrd, ug/L (01130)	Lithium water, unfltrd recover- able, ug/L (01132)	Mangan- ese, water, fltrd, ug/L (01056)	Mangan- ese, water, unfltrd recover- able, ug/L (01055)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	620	1350	.540	.850	<.050	.380	37.5	37.0	1570	1540
JUN 30...	3700	5400	3.20	4.20	<.050	1.50	21.5	23.0	1880	1880
AUG 27...	6300	6750	4.00	4.20	<.050	.580	21.5	21.5	2010	1980

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146784350 -- Otto Air Shaft, 400 M DS, near Llewellyn, PA--Continued**

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

Date	Molybdenum, water, fltrd, ug/L (01060)	Molybdenum, water, unfltrd recover-able, ug/L (01062)	Neodymium, water, fltrd, ug/L (50579)	Neodymium, water, unfltrd, ug/L (01237)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd recover-able, ug/L (01067)	Praseodymium, water, fltrd, ug/L (50582)	Praseodymium, water, unfltrd, ug/L (01238)	Rhenium, water, fltrd, ug/L (50583)	Rhenium, water, unfltrd, ug/L (01242)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.049	.050	.370	.850	50.0	60.5	.093	.200	<.020	<.020
JUN 30...	.100	.150	2.60	4.60	76.0	77.5	.700	1.20	<.020	<.020
AUG 27...	.060	.075	3.70	4.60	78.0	76.5	.960	1.20	<.020	<.020
Date	Rubidium, water, fltrd, ug/L (01135)	Rubidium, water, unfltrd, ug/L (01137)	Samarium, water, fltrd, ug/L (82323)	Samarium, water, unfltrd, ug/L (82322)	Selenium, water, fltrd, ug/L (01145)	Selenium, water, unfltrd, ug/L (01147)	Silver, water, fltrd, ug/L (01075)	Silver, water, unfltrd recover-able, ug/L (01077)	Strontium, water, fltrd, ug/L (01080)	Strontium, water, unfltrd recover-able, ug/L (01082)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	2.40	2.30	.070	.200	.380	.470	<.010	<.010	226	221
JUN 30...	1.90	1.90	.430	.970	<.200	<.200	.047	.063	372	390
AUG 27...	1.90	1.80	.670	.960	<.200	<.200	<.010	<.010	326	326
Date	Terbium, water, fltrd, ug/L (50586)	Terbium, water, unfltrd, ug/L (01218)	Thallium, water, fltrd, ug/L (01057)	Thallium, water, unfltrd, ug/L (01059)	Thorium, water, fltrd, ug/L (82365)	Thorium, water, unfltrd, ug/L (82364)	Thulium, water, fltrd, ug/L (50587)	Thulium, water, unfltrd, ug/L (01245)	Tungsten, water, fltrd, ug/L (01155)	Tungsten, water, unfltrd, ug/L (01154)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.014	.038	<.050	<.050	<.030	<.030	.006	.018	<.020	<.020
JUN 30...	.076	.160	<.050	<.050	<.030	<.030	.038	.076	<.020	<.020
AUG 27...	.110	.160	<.050	<.050	<.030	<.030	.050	.075	<.020	<.020
Date	Vanadium, water, fltrd, ug/L (01085)	Vanadium, water, unfltrd, ug/L (01087)	Ytterbium, water, fltrd, ug/L (01194)	Ytterbium, water, unfltrd, ug/L (01196)	Yttrium, water, fltrd, ug/L (01201)	Yttrium, water, unfltrd, ug/L (01203)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd recover-able, ug/L (01092)	Uranium, natural water, fltrd, ug/L (22703)	Uranium, natural water, unfltrd, ug/L (28011)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	<.100	<.100	.032	.110	.600	1.30	99.5	124	.021	.043
JUN 30...	<.100	<.100	.200	.460	2.70	4.10	242	246	.029	.360
AUG 27...	<.100	<.100	.290	.450	3.50	4.20	182	182	.036	.340

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146784338 -- Muddy Br ab Otto Mine Discharge nr Branchdale, PA**

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
MAR 04...	1245	1028	1028	1.1	389	18	11.5	93	6.6	6.7
APR 28...	1330	1028	1028	2.1	330	11	8.6	87	6.6	6.6
JUN 30...	1200	1028	1028	3.0	330	13	9.7	95	6.4	6.5
AUG 27...	1215	1028	1028	1.2	300	--	9.0	90	6.3	6.5

Date	Specif. conductance, wat unfltrd, uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recover-able, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recover-able, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recover-able, mg/L (00929)
MAR 04...	531	6.3	--	--	--	--	--	--	--	--
APR 28...	460	16.1	35.9	35.4	34.1	32.8	1.15	1.1	7.00	6.8
JUN 30...	490	14.2	42.9	43.5	19.4	19.8	1.75	1.9	5.10	5.2
AUG 27...	450	15.5	50.5	49.0	21.6	21.2	2.30	2.3	6.45	6.3

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Silica water, fltrd, mg/L (00955)	Silica water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water, unfltrd mg/L (00946)	Phosphorus water, fltrd, mg/L (00666)	Phosphorus water, unfltrd mg/L (00665)	Aluminum water, fltrd, ug/L (01106)	Aluminum water, unfltrd recover-able, ug/L (01105)
MAR 04...	19.0	--	--	--	--	--	--	--	--	--
APR 28...	13.0	--	10.2	10.1	380	370	<.001	<.001	120	1700
JUN 30...	19.0	--	15.2	16.8	320	290	<.001	.021	26.5	1040
AUG 27...	19.0	--	17.5	17.6	330	330	<.001	.023	28.0	485

Date	Antimony, water, fltrd, ug/L (01095)	Antimony, water, unfltrd ug/L (01097)	Arsenic water, fltrd, ug/L (01000)	Arsenic water, unfltrd ug/L (01002)	Barium water, fltrd, ug/L (01005)	Barium water, unfltrd recover-able, ug/L (01007)	Beryllium water, fltrd, ug/L (01010)	Beryllium water, unfltrd recover-able, ug/L (00998)	Bismuth water, fltrd, ug/L (01015)	Bismuth water, unfltrd ug/L (01017)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.026	.025	1.50	1.50	23.5	24.5	.680	1.40	<.010	<.010
JUN 30...	.064	.084	<.200	<.200	25.5	25.5	.490	1.00	.010	.040
AUG 27...	<.020	<.020	<.200	<.200	21.5	21.0	.360	.480	<.010	<.010

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146784338 -- Muddy Branch Otto Mine Discharge near Branchdale, PA--Continued**

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

Date	Cadmium	Cadmium	Cerium	Cerium	Cesium	Cesium	Chrom-	Chrom-	Cobalt	Cobalt
	water, fltrd, ug/L (01025)	water, unfltrd ug/L (01027)	water, fltrd, ug/L (01110)	water, unfltrd ug/L (01112)	water, fltrd, ug/L (01115)	water, unfltrd ug/L (01117)	ium, water, fltrd, ug/L (01030)	ium, water, recover -able, ug/L (01034)	water, fltrd, ug/L (01035)	water, recover -able, ug/L (01037)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.180	.170	8.50	11.0	.130	.150	<1.00	<1.00	58.5	53.5
JUN 30...	.480	.430	1.70	2.70	.110	.110	<1.00	<1.00	35.0	37.0
AUG 27...	.320	.340	1.30	1.60	.098	.100	<1.00	<1.00	33.0	36.0
Date	Copper,	Copper,	Dyspros	Dyspros	Erbium,	Erbium,	Euro-	Euro-	Gado-	Gado-
	water, fltrd, ug/L (01040)	water, unfltrd recover -able, ug/L (01042)	ium, water, fltrd, ug/L (82331)	ium, water, unfltrd ug/L (82330)	water, fltrd, ug/L (50573)	water, unfltrd ug/L (01246)	pium, water, fltrd, ug/L (50574)	pium, water, unfltrd ug/L (01236)	linium, water, fltrd, ug/L (50575)	linium, water, unfltrd ug/L (01219)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.550	5.20	.700	1.20	.370	.640	.150	.260	.740	1.20
JUN 30...	.900	4.40	.180	.420	.097	.220	.031	.081	.170	.410
AUG 27...	.500	2.40	.120	.230	.077	.120	.024	.043	.160	.230
Date	Gallium	Gallium	German-	German-	Gold,	Gold,	Holmium	Holmium	Indium	Indium,
	water, fltrd, ug/L (01120)	water, unfltrd ug/L (01122)	ium, water, fltrd, ug/L (01125)	ium, water, unfltrd ug/L (01127)	water, fltrd, ug/L (82334)	water, unfltrd ug/L (71910)	water, fltrd, ug/L (50577)	water, unfltrd ug/L (01247)	water, fltrd, ug/L (62843)	water, unfltrd ug/L (01168)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.027	.023	.024	.022	<.010	<.010	.140	.240	<.010	<.010
JUN 30...	.052	.053	.030	.036	<.010	<.010	.037	.079	<.010	<.010
AUG 27...	.060	.051	<.020	<.020	<.010	<.010	.029	.044	<.010	<.010
Date	Iron,	Iron,	Lantha-	Lantha-	Lead,	Lead,	Lithium	Lithium	Mangan-	Mangan-
	water, fltrd, ug/L (01046)	water, unfltrd recover -able, ug/L (01045)	num, water, fltrd, ug/L (01180)	num, water, unfltrd ug/L (01182)	water, fltrd, ug/L (01049)	water, unfltrd recover -able, ug/L (01051)	water, fltrd, ug/L (01130)	water, unfltrd recover -able, ug/L (01132)	ese, water, fltrd, ug/L (01056)	ese, water, unfltrd recover -able, ug/L (01055)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	7500	8150	4.40	5.20	.058	.850	21.5	21.5	2170	2170
JUN 30...	1350	2200	1.10	1.50	.092	.760	39.0	40.5	1990	2020
AUG 27...	745	1150	.890	1.00	<.050	.230	47.5	48.0	2040	2040

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146784338 -- Muddy Branch Otto Mine Discharge nr Branchdale, PA--Continued**

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

Date	Molybdenum, water, fltrd, ug/L (01060)	Molybdenum, unfltrd recover-able, ug/L (01062)	Neodymium, water, fltrd, ug/L (50579)	Neodymium, unfltrd, ug/L (01237)	Nickel, water, fltrd, ug/L (01065)	Nickel, unfltrd recover-able, ug/L (01067)	Praseodymium, water, fltrd, ug/L (50582)	Praseodymium, unfltrd, ug/L (01238)	Rhenium, water, fltrd, ug/L (50583)	Rhenium, unfltrd, ug/L (01242)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.270	.250	3.80	5.50	82.5	81.0	1.00	1.40	<.020	<.020
JUN 30...	.120	.120	.800	1.50	63.0	69.0	.200	.350	<.020	<.020
AUG 27...	.071	.065	.610	.850	65.5	67.0	.150	.200	<.020	<.020
Date	Rubidium, water, fltrd, ug/L (01135)	Rubidium, unfltrd, ug/L (01137)	Samarium, water, fltrd, ug/L (82323)	Samarium, unfltrd, ug/L (82322)	Selenium, water, fltrd, ug/L (01145)	Selenium, unfltrd, ug/L (01147)	Silver, water, fltrd, ug/L (01075)	Silver, unfltrd recover-able, ug/L (01077)	Strontium, water, fltrd, ug/L (01080)	Strontium, unfltrd recover-able, ug/L (01082)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	2.20	2.40	.660	1.20	<.200	<.200	.480	.300	384	388
JUN 30...	2.80	2.80	.140	.310	.450	.440	.230	.240	251	250
AUG 27...	2.70	2.60	.110	.160	<.200	<.200	<.010	<.010	241	231
Date	Terbium, water, fltrd, ug/L (50586)	Terbium, unfltrd, ug/L (01218)	Thallium, water, fltrd, ug/L (01057)	Thallium, unfltrd, ug/L (01059)	Thorium, water, fltrd, ug/L (82365)	Thorium, unfltrd, ug/L (82364)	Thulium, water, fltrd, ug/L (50587)	Thulium, unfltrd, ug/L (01245)	Tungsten, water, fltrd, ug/L (01155)	Tungsten, unfltrd, ug/L (01154)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.110	.190	<.050	<.050	<.030	.140	.053	.093	.085	.072
JUN 30...	.028	.065	<.050	<.050	<.030	<.030	.013	.033	.057	.054
AUG 27...	.023	.035	<.050	<.050	<.020	<.020	.009	.018	<.020	<.020
Date	Vanadium, water, fltrd, ug/L (01085)	Vanadium, unfltrd, ug/L (01087)	Ytterbium, water, fltrd, ug/L (01194)	Ytterbium, unfltrd, ug/L (01196)	Yttrium, water, fltrd, ug/L (01201)	Yttrium, unfltrd, ug/L (01203)	Zinc, water, fltrd, ug/L (01090)	Zinc, unfltrd recover-able, ug/L (01092)	Uranium, natural, fltrd, ug/L (22703)	Uranium, natural, unfltrd, ug/L (28011)
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	<.100	<.100	.280	.560	3.70	5.00	186	183	.043	.430
JUN 30...	<.100	<.100	.073	.190	1.20	2.00	123	136	.032	.080
AUG 27...	<.100	<.100	.055	.094	.930	1.30	132	134	.021	.034

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146784354 -- Muddy Branch bl Otto Mine Discharge ab Steins, PA**

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
OCT	02...	1028	1028	2.9	210	12	10.1	100	6.9	--
MAR	04...	1028	1028	6.5	333	12	11.8	102	6.8	6.9
	04...	1028	1028	6.5	333	12	11.8	102	6.8	6.9
APR	28...	1028	1028	9.4	300	14	10.2	99	6.7	6.8
JUN	30...	1028	1028	12	350	20	9.7	92	6.1	--
AUG	27...	1028	1028	5.4	310	--	9.9	94	6.2	--

Date	Specif. conductance, wat unfltrd, uS/cm, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recoverable, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recoverable, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recoverable, mg/L (00929)
OCT	530	14.7	42.2	43.0	31.0	31.6	1.40	1.4	9.55	9.8
MAR	501	9.0	--	--	--	--	--	--	--	--
	501	9.0	--	--	--	--	--	--	--	--
APR	490	13.6	36.1	36.5	29.4	29.9	1.15	1.2	7.20	7.2
JUN	540	12.5	36.2	37.4	31.1	31.4	1.25	1.3	6.70	6.8
AUG	530	12.7	34.8	35.0	30.4	30.7	1.20	1.2	6.00	6.0

Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd, mg/L as CaCO3 (00435)	Silica water, fltrd, mg/L (00955)	Silica water, unfltrd, mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water, unfltrd, mg/L (00946)	Phosphorus water, fltrd, mg/L (00666)	Phosphorus water, unfltrd, mg/L (00665)	Aluminum water, fltrd, ug/L (01106)	Aluminum water, unfltrd recoverable, ug/L (01105)
OCT	39.0	.000	9.98	10.2	210	210	<.003	.014	16.0	620
MAR	43.0	.000	--	--	--	--	--	--	--	--
	43.0	--	--	--	--	--	--	--	--	--
APR	32.0	--	10.2	11.1	340	350	<.001	<.001	20.5	1350
JUN	35.0	--	10.6	11.4	340	350	<.001	<.001	29.0	1550
AUG	35.0	--	11.5	11.5	360	360	<.001	<.001	97.5	1850

Date	Anti-mony, water, fltrd, ug/L (01095)	Anti-mony, water, unfltrd, ug/L (01097)	Arsenic water, fltrd, ug/L (01000)	Arsenic water, unfltrd, ug/L (01002)	Barium water, fltrd, ug/L (01005)	Barium water, unfltrd recoverable, ug/L (01007)	Beryllium water, fltrd, ug/L (01010)	Beryllium water, unfltrd recoverable, ug/L (00998)	Bismuth water, fltrd, ug/L (01015)	Bismuth water, unfltrd, ug/L (01017)
OCT	<.040	<.040	<.200	<.200	23.5	23.5	.200	.600	<.030	<.030
MAR	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
APR	.020	<.020	<.200	.840	24.0	24.0	.410	1.20	<.010	<.010
JUN	.023	<.020	<.200	<.200	22.0	22.0	.600	1.40	<.010	<.010
AUG	<.020	<.020	1.20	1.70	22.0	22.5	.920	1.60	<.010	<.010

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146784354 -- Muddy Branch bl Otto Mine Discharge ab Steins, PA--Continued**

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

Date	Cadmium water, fltrd, ug/L (01025)	Cadmium water, unfltrd ug/L (01027)	Cerium, water, fltrd, ug/L (01110)	Cerium, water, unfltrd ug/L (01112)	Cesium, water, fltrd, ug/L (01115)	Cesium, water, unfltrd ug/L (01117)	Chrom- ium, water, fltrd, ug/L (01030)	Chrom- ium, water, unfltrd recover- able, ug/L (01034)	Cobalt water, fltrd, ug/L (01035)	Cobalt water, unfltrd recover- able, ug/L (01037)
OCT 02...	.200	.200	.400	4.20	.100	.100	<1.00	<1.00	42.5	42.0
MAR 04...	--	--	--	--	--	--	--	--	--	--
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.360	.230	3.90	7.40	.120	.130	<1.00	<1.00	48.0	47.0
JUN 30...	.440	.480	4.60	7.20	.100	.120	<1.00	<1.00	42.0	45.5
AUG 27...	.200	.190	7.80	10.0	.130	.120	<1.00	<1.00	52.5	51.0
Date	Copper, water, fltrd, ug/L (01040)	Copper, water, unfltrd recover- able, ug/L (01042)	Dyspros- ium, water, fltrd, ug/L (82331)	Dyspros- ium, water, unfltrd ug/L (82330)	Erbium, water, fltrd, ug/L (50573)	Erbium, water, unfltrd ug/L (01246)	Euro- pium, water, fltrd, ug/L (50574)	Euro- pium, water, unfltrd ug/L (01236)	Gado- linium, water, fltrd, ug/L (50575)	Gado- linium, water, unfltrd ug/L (01219)
OCT 02...	.900	3.00	.040	.450	.030	.260	.006	.099	.050	.530
MAR 04...	--	--	--	--	--	--	--	--	--	--
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.540	4.70	.230	.810	.130	.450	.048	.190	.260	.810
JUN 30...	.800	7.50	.360	.760	.220	.450	.074	.180	.360	.760
AUG 27...	<.500	4.20	.660	1.10	.360	.620	.140	.250	.690	1.10
Date	Gallium water, fltrd, ug/L (01120)	Gallium water, unfltrd ug/L (01122)	German- ium, water, fltrd, ug/L (01125)	German- ium, water, unfltrd ug/L (01127)	Gold, water, fltrd, ug/L (82334)	Gold, water, unfltrd ug/L (71910)	Holmium water, fltrd, ug/L (50577)	Holmium water, unfltrd ug/L (01247)	Indium water, fltrd, ug/L (62843)	Indium, water, unfltrd ug/L (01168)
OCT 02...	.030	<.020	<.020	<.020	<.010	<.010	.009	.095	<.010	<.010
MAR 04...	--	--	--	--	--	--	--	--	--	--
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.038	.023	.032	.023	<.010	<.010	.050	.170	<.010	<.010
JUN 30...	.027	<.020	.021	.020	<.010	<.010	.080	.160	<.010	<.010
AUG 27...	.030	<.020	<.020	.023	<.010	<.010	.140	.230	<.010	<.010
Date	Iron, water, fltrd, ug/L (01046)	Iron, water, unfltrd recover- able, ug/L (01045)	Lantha- num, water, fltrd, ug/L (01180)	Lantha- num, water, unfltrd ug/L (01182)	Lead, water, fltrd, ug/L (01049)	Lead, water, unfltrd recover- able, ug/L (01051)	Lithium water, fltrd, ug/L (01130)	Lithium water, unfltrd recover- able, ug/L (01132)	Mangan- ese, water, fltrd, ug/L (01056)	Mangan- ese, water, unfltrd recover- able, ug/L (01055)
OCT 02...	4450	5750	.300	2.00	.060	.300	20.5	20.5	1850	1900
MAR 04...	--	--	--	--	--	--	--	--	--	--
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	4300	5350	2.40	3.60	<.050	.730	22.5	23.0	1980	1990
JUN 30...	3100	4600	2.50	3.40	<.050	1.20	26.0	25.0	1820	1860
AUG 27...	5400	7300	3.90	4.70	.050	1.20	25.0	25.0	2050	2040

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146784354 -- Muddy Branch bl Otto Mine Discharge ab Steins, PA--Continued**

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

Date	Molybdenum, water, fltrd, ug/L (01060)	Molybdenum, water, unfltrd recover-able, ug/L (01062)	Neodymium, water, fltrd, ug/L (50579)	Neodymium, water, unfltrd, ug/L (01237)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd recover-able, ug/L (01067)	Praseodymium, water, fltrd, ug/L (50582)	Praseodymium, water, unfltrd, ug/L (01238)	Rhenium, water, fltrd, ug/L (50583)	Rhenium, water, unfltrd, ug/L (01242)
OCT 02...	.060	.050	.200	2.10	63.5	63.5	.040	.520	<.020	<.020
MAR 04...	--	--	--	--	--	--	--	--	--	--
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.190	.140	1.60	3.80	71.0	74.0	.420	.940	<.020	<.020
JUN 30...	.150	.160	1.90	3.80	68.0	73.5	.510	.940	<.020	<.020
AUG 27...	.067	.077	3.60	5.50	79.0	78.0	.920	1.40	<.020	<.020

Date	Rubidium, water, fltrd, ug/L (01135)	Rubidium, water, unfltrd, ug/L (01137)	Samarium, water, fltrd, ug/L (82323)	Samarium, water, unfltrd, ug/L (82322)	Selenium, water, fltrd, ug/L (01145)	Selenium, water, unfltrd, ug/L (01147)	Silver, water, fltrd, ug/L (01075)	Silver, water, unfltrd recover-able, ug/L (01077)	Strontium, water, fltrd, ug/L (01080)	Strontium, water, unfltrd recover-able, ug/L (01082)
OCT 02...	2.30	2.40	.030	.430	.200	<.200	<.010	<.010	342	349
MAR 04...	--	--	--	--	--	--	--	--	--	--
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	2.30	2.30	.220	.790	.310	<.200	<.010	<.010	347	345
JUN 30...	1.80	2.00	.310	.800	.200	<.200	.670	.160	335	346
AUG 27...	2.20	2.20	.660	1.20	<.200	<.200	<.010	<.010	322	320

Date	Terbium, water, fltrd, ug/L (50586)	Terbium, water, unfltrd, ug/L (01218)	Thallium, water, fltrd, ug/L (01057)	Thallium, water, unfltrd, ug/L (01059)	Thorium, water, fltrd, ug/L (82365)	Thorium, water, unfltrd, ug/L (82364)	Thulium, water, fltrd, ug/L (50587)	Thulium, water, unfltrd, ug/L (01245)	Tungsten, water, fltrd, ug/L (01155)	Tungsten, water, unfltrd, ug/L (01154)
OCT 02...	.007	.080	<.050	<.050	<.040	<.040	<.005	.030	.030	.040
MAR 04...	--	--	--	--	--	--	--	--	--	--
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.036	.130	<.050	<.050	<.030	<.030	.018	.071	.039	.038
JUN 30...	.060	.130	<.050	<.050	<.030	<.030	.027	.061	<.020	<.020
AUG 27...	.110	.180	<.050	<.050	<.030	<.030	.053	.092	<.020	<.020

Date	Vanadium, water, fltrd, ug/L (01085)	Vanadium, water, unfltrd, ug/L (01087)	Ytterbium, water, fltrd, ug/L (01194)	Ytterbium, water, unfltrd, ug/L (01196)	Yttrium, water, fltrd, ug/L (01201)	Yttrium, water, unfltrd, ug/L (01203)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd recover-able, ug/L (01092)	Uranium natural, water, fltrd, ug/L (22703)	Uranium natural, water, unfltrd, ug/L (28011)
OCT 02...	<.100	<.100	.020	.200	.400	2.20	46.5	54.5	.020	.080
MAR 04...	--	--	--	--	--	--	--	--	--	--
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	<.100	<.100	.094	.400	1.70	3.60	149	165	.030	.310
JUN 30...	<.100	<.100	.150	.370	2.20	3.40	202	222	.026	.280
AUG 27...	<.100	<.100	.270	.540	3.30	4.80	183	181	.042	.360



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146784358 -- Muddy Branch bl Otto Mine Discharge bl Steins, PA**

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
OCT 02...	1000	1028	1028	3.5	250	11	9.8	95	6.9	--
MAR 04...	1145	1028	1028	7.4	426	11	12.0	100	6.4	6.6
APR 28...	1230	1028	1028	12	320	13	10.0	97	6.6	6.8
Date	Specif. conductance, wat unfltrd, uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recover-able, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recover-able, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recover-able, mg/L (00929)
OCT 02...	480	13.9	39.5	38.5	28.1	27.3	1.40	1.4	8.70	8.3
MAR 04...	434	7.2	--	--	--	--	--	--	--	--
APR 28...	450	13.9	34.5	34.8	26.9	27.1	1.20	1.2	6.85	6.8
Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Silica water, fltrd, mg/L (00955)	Silica water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water, unfltrd mg/L (00946)	Phosphorus water, fltrd, mg/L (00666)	Phosphorus water, unfltrd mg/L (00665)	Aluminum water, fltrd, ug/L (01106)	Aluminum water, unfltrd recover-able, ug/L (01105)
OCT 02...	33.0	.000	9.51	9.46	190	180	<.003	.007	17.0	335
MAR 04...	33.0	--	--	--	--	--	--	--	--	--
APR 28...	32.0	--	9.53	9.58	290	290	<.001	.005	20.5	1150
Date	Antimony water, fltrd, ug/L (01095)	Antimony water, unfltrd ug/L (01097)	Arsenic water, fltrd, ug/L (01000)	Arsenic water, unfltrd ug/L (01002)	Barium water, fltrd, ug/L (01005)	Barium water, unfltrd recover-able, ug/L (01007)	Beryllium water, fltrd, ug/L (01010)	Beryllium water, unfltrd recover-able, ug/L (00998)	Bismuth water, fltrd, ug/L (01015)	Bismuth water, unfltrd ug/L (01017)
OCT 02...	<.040	<.040	<.200	<.200	22.5	22.5	.090	.200	<.030	<.030
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	<.020	<.020	.240	.420	20.0	20.5	.260	.660	<.010	<.010
Date	Cadmium water, fltrd, ug/L (01025)	Cadmium water, unfltrd ug/L (01027)	Cerium water, fltrd, ug/L (01110)	Cerium water, unfltrd ug/L (01112)	Cesium water, fltrd, ug/L (01115)	Cesium water, unfltrd ug/L (01117)	Chromium water, fltrd, ug/L (01030)	Chromium water, unfltrd recover-able, ug/L (01034)	Cobalt water, fltrd, ug/L (01035)	Cobalt water, unfltrd recover-able, ug/L (01037)
OCT 02...	.200	.200	.100	2.20	.090	.090	<1.00	<1.00	32.5	34.0
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.190	.190	2.00	5.20	.092	.094	<1.00	<1.00	35.0	35.5

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146784358 -- Muddy Branch bl Otto Mine Discharge bl Steins, PA--Continued**

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

Date	Copper, water, fltrd, ug/L (01040)	Copper, water, unfltrd recover-able, ug/L (01042)	Copper, water, fltrd, ug/L (82331)	Dysprosium, water, unfltrd, ug/L (82330)	Erbium, water, fltrd, ug/L (50573)	Erbium, water, unfltrd, ug/L (01246)	Euro-pium, water, fltrd, ug/L (50574)	Euro-pium, water, unfltrd, ug/L (01236)	Gado-linium, water, fltrd, ug/L (50575)	Gado-linium, water, unfltrd, ug/L (01219)
OCT 02...	<.500	2.00	.020	.230	.010	.140	<.005	.056	.020	.280
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	<.500	3.50	.120	.590	.074	.330	.024	.130	.140	.630
Date	Gallium, water, fltrd, ug/L (01120)	Gallium, water, unfltrd, ug/L (01122)	German-ium, water, fltrd, ug/L (01125)	German-ium, water, unfltrd, ug/L (01127)	Gold, water, fltrd, ug/L (82334)	Gold, water, unfltrd, ug/L (71910)	Holmium, water, fltrd, ug/L (50577)	Holmium, water, unfltrd, ug/L (01247)	Indium, water, fltrd, ug/L (62843)	Indium, water, unfltrd, ug/L (01168)
OCT 02...	.040	.040	<.020	<.020	<.010	<.010	<.005	.050	<.010	<.010
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.046	.040	<.020	<.020	<.010	<.010	.027	.120	<.010	<.010
Date	Iron, water, fltrd, ug/L (01046)	Iron, water, unfltrd recover-able, ug/L (01045)	Lantha-num, water, fltrd, ug/L (01180)	Lantha-num, water, unfltrd, ug/L (01182)	Lead, water, fltrd, ug/L (01049)	Lead, water, unfltrd recover-able, ug/L (01051)	Lithium, water, fltrd, ug/L (01130)	Lithium, water, unfltrd recover-able, ug/L (01132)	Mangan-ese, water, fltrd, ug/L (01056)	Mangan-ese, water, unfltrd recover-able, ug/L (01055)
OCT 02...	2350	3250	.100	1.10	<.050	.200	18.0	18.0	1620	1580
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	2900	4100	1.40	2.50	<.050	.510	20.0	20.5	1560	1580
Date	Molybdenum, water, fltrd, ug/L (01060)	Molybdenum, water, unfltrd recover-able, ug/L (01062)	Neodym-ium, water, fltrd, ug/L (50579)	Neodym-ium, water, unfltrd, ug/L (01237)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd recover-able, ug/L (01067)	Praseo-dymium, water, fltrd, ug/L (50582)	Praseo-dymium, water, unfltrd, ug/L (01238)	Rhenium, water, fltrd, ug/L (50583)	Rhenium, water, unfltrd, ug/L (01242)
OCT 02...	.050	.060	.050	1.10	52.0	50.0	.010	.290	<.020	<.020
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.071	.083	.730	2.70	61.0	57.0	.210	.650	<.020	<.020
Date	Rubid-ium, water, fltrd, ug/L (01135)	Rubid-ium, water, unfltrd, ug/L (01137)	Samar-ium, water, fltrd, ug/L (82323)	Samar-ium, water, unfltrd, ug/L (82322)	Selen-ium, water, fltrd, ug/L (01145)	Selen-ium, water, unfltrd, ug/L (01147)	Silver, water, fltrd, ug/L (01075)	Silver, water, unfltrd recover-able, ug/L (01077)	Stront-ium, water, fltrd, ug/L (01080)	Stront-ium, water, unfltrd recover-able, ug/L (01082)
OCT 02...	2.20	2.20	<.010	.220	<.200	<.200	.010	.010	312	304
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	1.60	1.70	.100	.580	<.200	<.200	.545	<.010	278	282

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**0146784358 -- Muddy Branch bl Otto Mine Discharge bl Steins, PA--Continued**

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

Date	Terbium water, fltrd, ug/L (50586)	Terbium water, unfltrd ug/L (01218)	Thall- ium, water, fltrd, ug/L (01057)	Thall- ium, water, unfltrd ug/L (01059)	Thorium water, fltrd, ug/L (82365)	Thorium water, unfltrd ug/L (82364)	Thulium water, fltrd, ug/L (50587)	Thulium water, unfltrd ug/L (01245)	Tung- sten, water, fltrd, ug/L (01155)	Tung- sten, water, unfltrd ug/L (01154)
OCT 02...	<.005	.040	<.050	<.050	<.040	<.040	<.005	.020	.030	.040
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	.018	.100	<.050	<.050	<.020	<.020	.009	.047	<.020	<.020

Date	Vanad- ium, water, fltrd, ug/L (01085)	Vanad- ium, water, unfltrd ug/L (01087)	Ytterb- ium, water, fltrd, ug/L (01194)	Ytterb- ium, water, unfltrd ug/L (01196)	Yttrium water, fltrd, ug/L (01201)	Yttrium water, unfltrd ug/L (01203)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd recover- able, ug/L (01092)	Uranium natural water, fltrd, ug/L (22703)	Uranium natural water, unfltrd ug/L (28011)
OCT 02...	<.100	<.100	.010	.100	.200	1.20	41.0	42.5	.020	.050
MAR 04...	--	--	--	--	--	--	--	--	--	--
APR 28...	<.100	<.100	.050	.280	.850	2.40	124	128	.019	.200







**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**405224076001701 -- Silverbrook Mine Opening**

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
NOV 26...	1130	1028	1028	.73	510	.0	1.7	15	4.2	--
Date	Specif. conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water, unfltrd recover, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recover, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recover, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recover, mg/L (00929)
NOV 26...	490	9.8	33.8	32.9	9.90	9.7	2.90	2.8	21.6	21.4
Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Silica water, fltrd, mg/L (00955)	Silica water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water, unfltrd mg/L (00946)	Phosphorus water, fltrd, mg/L (00666)	Phosphorus water, unfltrd mg/L (00665)	Aluminum water, fltrd, ug/L (01106)	Aluminum water, unfltrd recover, ug/L (01105)
NOV 26...	.000	--	12.9	12.8	200	200	<.003	<.003	5700	5650
Date	Antimony, water, fltrd, ug/L (01095)	Antimony, water, unfltrd, ug/L (01097)	Arsenic water, fltrd, ug/L (01000)	Arsenic water, unfltrd, ug/L (01002)	Barium water, fltrd, ug/L (01005)	Barium water, unfltrd recover, ug/L (01007)	Beryllium water, fltrd, ug/L (01010)	Beryllium water, unfltrd recover, ug/L (00998)	Bismuth water, fltrd, ug/L (01015)	Bismuth water, unfltrd, ug/L (01017)
NOV 26...	<.040	<.040	52.9	<.200	26.0	25.5	4.10	3.10	<.030	<.030
Date	Cadmium water, fltrd, ug/L (01025)	Cadmium water, unfltrd, ug/L (01027)	Cerium water, fltrd, ug/L (01110)	Cerium water, unfltrd, ug/L (01112)	Cesium water, fltrd, ug/L (01115)	Cesium water, unfltrd, ug/L (01117)	Chromium water, fltrd, ug/L (01030)	Chromium water, unfltrd recover, ug/L (01034)	Cobalt water, fltrd, ug/L (01035)	Cobalt water, unfltrd recover, ug/L (01037)
NOV 26...	1.10	1.10	26.0	26.0	.200	.200	1.00	<1.00	79.0	74.5
Date	Copper water, fltrd, ug/L (01040)	Copper water, unfltrd recover, ug/L (01042)	Dysprosium water, fltrd, ug/L (82331)	Dysprosium water, unfltrd, ug/L (82330)	Erbium water, fltrd, ug/L (50573)	Erbium water, unfltrd, ug/L (01246)	Europium water, fltrd, ug/L (50574)	Europium water, unfltrd, ug/L (01236)	Gadolinium water, fltrd, ug/L (50575)	Gadolinium water, unfltrd, ug/L (01219)
NOV 26...	6.00	9.00	1.80	1.80	1.10	1.10	.600	.580	2.60	2.60

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**405224076001701 -- Silverbrook Mine Opening--Continued**

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

Date	Gallium water, fltrd, ug/L (01120)	Gallium water, unfltrd ug/L (01122)	German- ium, water, fltrd, ug/L (01125)	German- ium, water, unfltrd ug/L (01127)	Gold, water, fltrd, ug/L (82334)	Gold, water, unfltrd ug/L (71910)	Holmium water, fltrd, ug/L (50577)	Holmium water, unfltrd ug/L (01247)	Indium water, fltrd, ug/L (62843)	Indium, water, unfltrd ug/L (01168)
NOV 26...	<.020	<.020	<.020	<.020	<.010	<.010	.370	.370	<.010	<.010
Date	Iron, water, fltrd, ug/L (01046)	Iron, water, unfltrd recover- able, ug/L (01045)	Lantha- num, water, fltrd, ug/L (01180)	Lantha- num, water, unfltrd ug/L (01182)	Lead, water, fltrd, ug/L (01049)	Lead, water, unfltrd recover- able, ug/L (01051)	Lithium water, fltrd, ug/L (01130)	Lithium water, unfltrd recover- able, ug/L (01132)	Mangan- ese, water, fltrd, ug/L (01056)	Mangan- ese, water, unfltrd recover- able, ug/L (01055)
NOV 26...	16400	16000	13.0	13.0	9.00	11.0	106	102	1780	1730
Date	Molyb- denum, water, fltrd, ug/L (01060)	Molyb- denum, water, unfltrd recover- able, ug/L (01062)	Neodym- ium, water, fltrd, ug/L (50579)	Neodym- ium, water, unfltrd ug/L (01237)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd recover- able, ug/L (01067)	Praseo- dymium, water, fltrd, ug/L (50582)	Praseo- dymium, water, unfltrd ug/L (01238)	Rhenium water, fltrd, ug/L (50583)	Rhenium water, unfltrd ug/L (01242)
NOV 26...	.030	.020	13.0	13.0	71.0	69.0	3.30	3.30	<.020	<.020
Date	Rubid- ium, water, fltrd, ug/L (01135)	Rubid- ium, water, unfltrd ug/L (01137)	Samar- ium, water, fltrd, ug/L (82323)	Samar- ium, water, unfltrd ug/L (82322)	Selen- ium, water, fltrd, ug/L (01145)	Selen- ium, water, unfltrd ug/L (01147)	Silver, water, fltrd, ug/L (01075)	Silver, water, unfltrd recover- able, ug/L (01077)	Stront- ium, water, fltrd, ug/L (01080)	Stront- ium, water, unfltrd recover- able, ug/L (01082)
NOV 26...	4.50	4.40	2.70	2.60	<.200	<.200	.030	.040	139	138
Date	Terbium water, fltrd, ug/L (50586)	Terbium water, unfltrd ug/L (01218)	Thall- ium, water, fltrd, ug/L (01057)	Thall- ium, water, unfltrd ug/L (01059)	Thorium water, fltrd, ug/L (82365)	Thorium water, unfltrd ug/L (82364)	Thulium water, fltrd, ug/L (50587)	Thulium water, unfltrd ug/L (01245)	Tung- sten, water, fltrd, ug/L (01155)	Tung- sten, water, unfltrd ug/L (01154)
NOV 26...	.330	.320	<.050	<.050	<.040	<.040	.160	.160	.030	.040
Date	Vanad- ium, water, fltrd, ug/L (01085)	Vanad- ium, water, unfltrd ug/L (01087)	Ytterb- ium, water, fltrd, ug/L (01194)	Ytterb- ium, water, unfltrd ug/L (01196)	Yttrium water, fltrd, ug/L (01201)	Yttrium water, unfltrd ug/L (01203)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd recover- able, ug/L (01092)	Uranium natural water, fltrd, ug/L (22703)	Uranium natural water, unfltrd ug/L (28011)
NOV 26...	<.100	<.100	.960	.940	9.80	9.50	262	246	.580	.580



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**404705076003201 -- Reevesdale S Dip Tunnel**

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
NOV 18...	1400	1028	1028	1.7	490	9.0	10.9	99	5.2	--
NOV 26...	1300	1028	1028	1.2	540	15	1.2	11	4.7	--
JAN 13...	1145	1028	1028	.89	520	8.0	1.1	10	4.6	--
Date	Specif. conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium, water, fltrd, mg/L (00915)	Calcium, water, unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)
NOV 18...	180	10.6	--	8.6	--	6.8	--	.9	--	.8
NOV 26...	200	10.6	9.90	9.6	8.30	8.2	.88	.8	1.02	.8
JAN 13...	190	10.4	9.25	9.4	8.20	8.4	.90	.9	.80	.8
Date	ANC, wat unfltrd end pt, mg/L as CaCO3 (00417)	Acidity, water, unfltrd, mg/L as CaCO3 (00435)	Silica, water, fltrd, mg/L (00955)	Silica, water, unfltrd, mg/L (00956)	Sulfate, water, fltrd, mg/L (00945)	Sulfate, water, unfltrd, mg/L (00946)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd, mg/L (00665)	Aluminum, water, fltrd, mg/L (01106)	Aluminum, water, unfltrd recoverable, mg/L (01105)
NOV 18...	2.60	--	--	8.26	--	47.0	--	<.004	--	1070
NOV 26...	2.00	--	9.96	9.81	59.0	58.0	<.004	<.004	1700	1700
JAN 13...	1.00	--	9.74	9.86	84.0	85.0	<.003	<.003	1600	1650
Date	Antimony, water, fltrd, ug/L (01095)	Antimony, water, unfltrd, ug/L (01097)	Arsenic, water, fltrd, ug/L (01000)	Arsenic, water, unfltrd, ug/L (01002)	Barium, water, fltrd, ug/L (01005)	Barium, water, unfltrd recoverable, ug/L (01007)	Beryllium, water, fltrd, ug/L (01010)	Beryllium, water, unfltrd recoverable, ug/L (00998)	Bismuth, water, fltrd, ug/L (01015)	Bismuth, water, unfltrd recoverable, ug/L (01017)
NOV 18...	--	<.050	--	<.600	--	24.5	--	.500	--	<.040
NOV 26...	<.050	<.050	<.600	<.600	25.0	25.0	.800	.600	<.040	<.040
JAN 13...	<.030	<.030	<.900	<.900	20.5	21.0	.800	.760	<.040	<.040
Date	Cadmium, water, fltrd, ug/L (01025)	Cadmium, water, unfltrd, ug/L (01027)	Cerium, water, fltrd, ug/L (01110)	Cerium, water, unfltrd, ug/L (01112)	Cesium, water, fltrd, ug/L (01115)	Cesium, water, unfltrd, ug/L (01117)	Chromium, water, fltrd, ug/L (01030)	Chromium, water, unfltrd recoverable, ug/L (01034)	Cobalt, water, fltrd, ug/L (01035)	Cobalt, water, unfltrd recoverable, ug/L (01037)
NOV 18...	--	.200	--	2.60	--	.080	--	<1.00	--	20.5
NOV 26...	.300	.300	4.50	4.10	.100	.090	<1.00	<1.00	31.0	31.0
JAN 13...	.260	.240	3.60	3.60	.073	.069	1.10	<1.00	26.0	27.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**404705076003201 -- Reevesdale S Dip Tunnel--Continued**

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

Date	Copper, water, fltrd, ug/L (01040)	Copper, water, unfltrd recover-able, ug/L (01042)	Copper, water, fltrd, ug/L (82331)	Dysprosium, water, unfltrd, ug/L (82330)	Erbium, water, fltrd, ug/L (50573)	Erbium, water, unfltrd, ug/L (01246)	Euro-pium, water, fltrd, ug/L (50574)	Euro-pium, water, unfltrd, ug/L (01236)	Gado-linium, water, fltrd, ug/L (50575)	Gado-linium, water, unfltrd, ug/L (01219)
NOV 18...	--	5.00	--	.240	--	.130	--	.062	--	.340
NOV 26...	8.50	9.50	.390	.370	.230	.220	.110	.097	.490	.470
JAN 13...	7.40	9.60	.320	.340	.180	.180	.092	.079	.400	.400
Date	Gallium, water, fltrd, ug/L (01120)	Gallium, water, unfltrd, ug/L (01122)	German-ium, water, fltrd, ug/L (01125)	German-ium, water, unfltrd, ug/L (01127)	Gold, water, fltrd, ug/L (82334)	Gold, water, unfltrd, ug/L (71910)	Holmium, water, fltrd, ug/L (50577)	Holmium, water, unfltrd, ug/L (01247)	Indium, water, fltrd, ug/L (62843)	Indium, water, unfltrd, ug/L (01168)
NOV 18...	--	<.020	--	<.020	--	<.010	--	.053	--	<.010
NOV 26...	<.020	<.020	<.020	<.020	<.010	<.010	.082	.079	<.010	<.010
JAN 13...	<.020	<.020	<.020	<.020	<.010	<.010	.065	.062	<.010	<.010
Date	Iron, water, fltrd, ug/L (01046)	Iron, water, unfltrd recover-able, ug/L (01045)	Iron, water, fltrd, ug/L (01180)	Iron, water, unfltrd, ug/L (01182)	Lead, water, fltrd, ug/L (01049)	Lead, water, unfltrd recover-able, ug/L (01051)	Lithium, water, fltrd, ug/L (01130)	Lithium, water, unfltrd recover-able, ug/L (01132)	Mangan-ese, water, fltrd, ug/L (01056)	Mangan-ese, water, unfltrd recover-able, ug/L (01055)
NOV 18...	--	2350	--	1.20	--	.940	--	12.5	--	736
NOV 26...	2100	2950	2.10	1.90	1.00	1.40	17.5	16.0	960	940
JAN 13...	1800	2450	1.70	1.70	1.30	1.70	15.5	16.0	854	874
Date	Molyb-denum, water, fltrd, ug/L (01060)	Molyb-denum, water, unfltrd recover-able, ug/L (01062)	Neodym-ium, water, fltrd, ug/L (50579)	Neodym-ium, water, unfltrd, ug/L (01237)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd recover-able, ug/L (01067)	Praseo-dymium, water, fltrd, ug/L (50582)	Praseo-dymium, water, unfltrd, ug/L (01238)	Rhenium, water, fltrd, ug/L (50583)	Rhenium, water, unfltrd, ug/L (01242)
NOV 18...	--	.400	--	1.30	--	33.0	--	.320	--	<.020
NOV 26...	.300	.400	2.20	2.10	44.0	43.5	.570	.520	<.020	<.020
JAN 13...	.066	.060	1.90	1.80	42.0	42.5	.450	.460	<.020	<.020
Date	Rubid-ium, water, fltrd, ug/L (01135)	Rubid-ium, water, unfltrd, ug/L (01137)	Samar-ium, water, fltrd, ug/L (82323)	Samar-ium, water, unfltrd, ug/L (82322)	Selen-ium, water, fltrd, ug/L (01145)	Selen-ium, water, unfltrd, ug/L (01147)	Silver, water, fltrd, ug/L (01075)	Silver, water, unfltrd recover-able, ug/L (01077)	Stront-ium, water, fltrd, ug/L (01080)	Stront-ium, water, unfltrd recover-able, ug/L (01082)
NOV 18...	--	1.40	--	.270	--	<.200	--	.200	--	50.5
NOV 26...	1.50	1.40	.470	.420	<.200	<.200	.050	.200	59.0	58.0
JAN 13...	1.20	1.20	.390	.400	<.200	<.200	.740	.140	52.5	54.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**404705076003201 -- Reevesdale S Dip Tunnel--Continued**

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

Date	Terbium water, fltrd, ug/L (50586)	Terbium water unfltrd ug/L (01218)	Thall- ium, water, fltrd, ug/L (01057)	Thall- ium, water, unfltrd ug/L (01059)	Thorium water, fltrd, ug/L (82365)	Thorium water unfltrd ug/L (82364)	Thulium water, fltrd, ug/L (50587)	Thulium water unfltrd ug/L (01245)	Tung- sten, water, fltrd, ug/L (01155)	Tung- sten, water, unfltrd ug/L (01154)
NOV 18...	--	.040	--	<.050	--	<.020	--	.020	--	<.020
26...	.071	.069	<.050	<.050	<.020	<.020	.030	.030	<.020	<.020
JAN 13...	.057	.056	<.050	<.050	<.030	<.030	.027	.030	.210	.200

Date	Vanad- ium, water, fltrd, ug/L (01085)	Vanad- ium, water, unfltrd ug/L (01087)	Ytterb- ium, water, fltrd, ug/L (01194)	Ytterb- ium, water, unfltrd ug/L (01196)	Yttrium water, fltrd, ug/L (01201)	Yttrium water unfltrd ug/L (01203)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd recover- able, ug/L (01092)	Uranium natural water, fltrd, ug/L (22703)	Uranium natural water unfltrd ug/L (28011)
NOV 18...	--	<.200	--	.100	--	.990	--	99.5	--	.080
26...	<.200	<.200	.200	.200	1.60	1.50	148	140	.120	.120
JAN 13...	<.100	<.100	.170	.150	1.50	1.50	138	140	.110	.110

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**404403076072401 -- Silver Creek Mine Tunnel**

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation-reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
NOV 26...	1345	1028	1028	3.8	300	10	--	--	5.9	--
JAN 13...	1300	1028	1028	4.2	400	11	.4	4	5.9	--
JUN 04...	1430	1028	1028	--	310	9.9	.9	9	5.8	6.2
Date	Specif. conductance, wat unfltrd, uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Calcium water unfltrd recover-able, mg/L (00916)	Magnesium water, fltrd, mg/L (00925)	Magnesium water, unfltrd recover-able, mg/L (00927)	Potassium water, fltrd, mg/L (00935)	Potassium water, unfltrd recover-able, mg/L (00937)	Sodium water, fltrd, mg/L (00930)	Sodium water, unfltrd recover-able, mg/L (00929)
NOV 26...	580	11.8	51.3	50.6	30.9	30.1	1.10	1.1	2.45	2.4
JAN 13...	570	11.7	50.7	52.7	29.9	31.4	1.15	1.1	2.65	2.6
JUN 04...	640	11.8	57.9	--	31.3	--	1.15	--	2.75	--
Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity water, unfltrd mg/L as CaCO3 (00435)	Silica water, fltrd, mg/L (00955)	Silica water, unfltrd mg/L (00956)	Sulfate water, fltrd, mg/L (00945)	Sulfate water, unfltrd mg/L (00946)	Phosphorus water, fltrd, mg/L (00666)	Phosphorus water, unfltrd mg/L (00665)	Aluminum water, fltrd, ug/L (01106)	Aluminum water, unfltrd recover-able, ug/L (01105)
NOV 26...	47.0	--	12.9	13.4	250	250	<.003	.004	445	1450
JAN 13...	39.0	--	13.9	14.6	320	340	<.003	<.003	500	1550
JUN 04...	45.0	100	14.6	--	292	--	<.001	--	460	--
Date	Antimony, water, fltrd, ug/L (01095)	Antimony, water, unfltrd ug/L (01097)	Arsenic water, fltrd, ug/L (01000)	Arsenic water, unfltrd ug/L (01002)	Barium, water, fltrd, ug/L (01005)	Barium, water, unfltrd recover-able, ug/L (01007)	Beryllium, water, fltrd, ug/L (01010)	Beryllium, water, unfltrd recover-able, ug/L (00998)	Bismuth water, fltrd, ug/L (01015)	Bismuth water, unfltrd ug/L (01017)
NOV 26...	<.040	<.040	51.6	2.80	18.5	18.5	2.10	2.10	<.030	<.030
JAN 13...	<.030	<.030	<.900	<.900	18.5	19.5	1.50	2.10	<.040	<.040
JUN 04...	.030	--	2.00	--	18.0	--	1.50	--	<.020	--
Date	Cadmium water, fltrd, ug/L (01025)	Cadmium water, unfltrd ug/L (01027)	Cerium, water, fltrd, ug/L (01110)	Cerium, water, unfltrd ug/L (01112)	Cesium, water, fltrd, ug/L (01115)	Cesium, water, unfltrd ug/L (01117)	Chromium, water, fltrd, ug/L (01030)	Chromium, water, unfltrd recover-able, ug/L (01034)	Cobalt water, fltrd, ug/L (01035)	Cobalt water, unfltrd recover-able, ug/L (01037)
NOV 26...	.100	.100	9.50	10.0	.200	.200	2.00	<1.00	87.0	85.0
JAN 13...	3.10	2.63	10.0	11.0	.200	.210	<1.00	<1.00	77.5	80.0
JUN 04...	.250	--	11.0	--	.220	--	<1.00	--	91.0	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**404403076072401 -- Silver Creek Mine Tunnel--Continued**

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

Date	Copper, water, fltrd, ug/L (01040)	Copper, water, unfltrd recover- able, ug/L (01042)	Copper, water, fltrd, ug/L (82331)	Dyspros- ium, water, unfltrd ug/L (82330)	Dyspros- ium, water, fltrd, ug/L (50573)	Erbium, water, unfltrd ug/L (01246)	Erbium, water, fltrd, ug/L (50574)	Euro- pium, water, unfltrd ug/L (01236)	Euro- pium, water, fltrd, ug/L (50575)	Gado- linium, water, unfltrd ug/L (01219)	Gado- linium, water, fltrd, ug/L (01219)
NOV 26...	.600	2.00	.780	.970	.450	.520	.220	.260	1.10	1.30	
JAN 13...	1.00	2.50	.910	1.10	.460	.550	.220	.280	1.20	1.50	
JUN 04...	.630	--	.980	--	.520	--	.260	--	1.20	--	
Date	Gallium, water, fltrd, ug/L (01120)	Gallium, water, unfltrd ug/L (01122)	German- ium, water, fltrd, ug/L (01125)	German- ium, water, unfltrd ug/L (01127)	Gold, water, fltrd, ug/L (82334)	Gold, water, unfltrd ug/L (71910)	Holmium, water, fltrd, ug/L (50577)	Holmium, water, unfltrd ug/L (01247)	Indium, water, fltrd, ug/L (62843)	Indium, water, unfltrd ug/L (01168)	
NOV 26...	<.020	<.020	<.020	<.020	<.010	<.010	.170	.180	<.010	<.010	
JAN 13...	<.020	<.020	<.020	.020	<.010	<.010	.160	.210	<.010	<.010	
JUN 04...	.038	--	<.020	--	<.010	--	.200	--	<.010	--	
Date	Iron, water, fltrd, ug/L (01046)	Iron, water, unfltrd recover- able, ug/L (01045)	Lantha- num, water, fltrd, ug/L (01180)	Lantha- num, water, unfltrd ug/L (01182)	Lead, water, fltrd, ug/L (01049)	Lead, water, unfltrd recover- able, ug/L (01051)	Lithium, water, fltrd, ug/L (01130)	Lithium, water, unfltrd recover- able, ug/L (01132)	Mangan- ese, water, fltrd, ug/L (01056)	Mangan- ese, water, unfltrd recover- able, ug/L (01055)	
NOV 26...	22200	22400	4.60	4.80	.300	.500	37.5	37.5	3360	3340	
JAN 13...	20000	21000	5.00	5.40	.430	.600	41.5	43.0	3110	3210	
JUN 04...	21000	--	5.50	--	.200	--	36.5	--	3210	--	
Date	Molyb- denum, water, fltrd, ug/L (01060)	Molyb- denum, water, unfltrd recover- able, ug/L (01062)	Neodym- ium, water, fltrd, ug/L (50579)	Neodym- ium, water, unfltrd ug/L (01237)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd recover- able, ug/L (01067)	Praseo- dymium, water, fltrd, ug/L (50582)	Praseo- dymium, water, unfltrd ug/L (01238)	Rhenium, water, fltrd, ug/L (50583)	Rhenium, water, unfltrd ug/L (01242)	
NOV 26...	.200	.200	4.60	5.10	97.5	97.0	1.20	1.30	<.020	<.020	
JAN 13...	.160	.200	4.80	5.80	99.0	102	1.20	1.40	<.020	<.020	
JUN 04...	.190	--	5.40	--	102	--	1.40	--	<.020	--	
Date	Rubid- ium, water, fltrd, ug/L (01135)	Rubid- ium, water, unfltrd ug/L (01137)	Samar- ium, water, fltrd, ug/L (82323)	Samar- ium, water, unfltrd ug/L (82322)	Selen- ium, water, fltrd, ug/L (01145)	Selen- ium, water, unfltrd ug/L (01147)	Silver, water, fltrd, ug/L (01075)	Silver, water, unfltrd recover- able, ug/L (01077)	Stront- ium, water, fltrd, ug/L (01080)	Stront- ium, water, unfltrd recover- able, ug/L (01082)	
NOV 26...	2.40	2.40	.960	1.10	<.200	<.200	.010	.050	550	544	
JAN 13...	2.30	2.40	.980	1.20	<.200	<.200	.260	.066	572	592	
JUN 04...	2.70	--	1.10	--	<.200	--	.012	--	610	--	

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**404403076072401 -- Silver Creek Mine Tunnel--Continued**

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

Date	Terbium water, fltrd, ug/L (50586)	Terbium water, unfltrd ug/L (01218)	Thall- ium, water, fltrd, ug/L (01057)	Thall- ium, water, unfltrd ug/L (01059)	Thorium water, fltrd, ug/L (82365)	Thorium water, unfltrd ug/L (82364)	Thulium water, fltrd, ug/L (50587)	Thulium water, unfltrd ug/L (01245)	Tung- sten, water, fltrd, ug/L (01155)	Tung- sten, water, unfltrd ug/L (01154)
NOV 26...	.160	.180	<.050	<.050	<.040	<.040	.060	.068	.040	.040
JAN 13...	.160	.190	<.050	<.050	<.030	<.030	.065	.080	<.020	<.020
JUN 04...	.170	--	<.050	--	<.010	--	.074	--	<.020	--

Date	Vanad- ium, water, fltrd, ug/L (01085)	Vanad- ium, water, unfltrd ug/L (01087)	Ytterb- ium, water, fltrd, ug/L (01194)	Ytterb- ium, water, unfltrd ug/L (01196)	Yttrium water, fltrd, ug/L (01201)	Yttrium water, unfltrd ug/L (01203)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd recover- able, ug/L (01092)	Uranium natural water, fltrd, ug/L (22703)	Uranium natural water, unfltrd ug/L (28011)
NOV 26...	<.100	<.100	.330	.420	4.30	4.60	202	199	.070	.200
JAN 13...	<.100	<.100	.360	.460	4.50	5.00	220	225	.061	.220
JUN 04...	<.100	--	.420	--	4.70	--	241	--	.065	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**404320076103201 -- Pine Forest Mine**

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

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Oxidation reduction potential, mV (00090)	Turbidity, water, unfltrd field, NTU (61028)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)
NOV 18...	1200	1028	1028	3.0	260	9.0	.2	2	5.7	--
NOV 26...	1530	1028	1028	2.7	280	5.0	--	--	5.7	--
DEC 17...	1400	1028	1028	3.2	400	5.0	.5	5	5.6	--
Date	Specif. conductance, wat unfltrd, 25 degC (00095)	Temperature, water, deg C (00010)	Calcium, water, fltrd, mg/L (00915)	Calcium, water, unfltrd recoverable, mg/L (00916)	Magnesium, water, fltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	Potassium, water, fltrd, mg/L (00935)	Potassium, water, unfltrd recoverable, mg/L (00937)	Sodium, water, fltrd, mg/L (00930)	Sodium, water, unfltrd recoverable, mg/L (00929)
NOV 18...	870	11.5	--	66.0	--	62.2	--	1.3	--	3.8
NOV 26...	810	11.5	64.7	64.3	61.4	60.4	1.30	1.3	3.75	3.7
DEC 17...	800	11.4	63.0	64.4	57.0	57.2	1.35	1.4	3.65	3.6
Date	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Acidity, water, unfltrd, mg/L as CaCO3 (00435)	Silica, water, fltrd, mg/L (00955)	Silica, water, unfltrd, mg/L (00956)	Sulfate, water, fltrd, mg/L (00945)	Sulfate, water, unfltrd, mg/L (00946)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd, mg/L (00665)	Aluminum, water, fltrd, mg/L (01106)	Aluminum, water, unfltrd recoverable, mg/L (01105)
NOV 18...	33.0	--	--	11.6	--	430	--	<.003	--	670
NOV 26...	33.0	--	11.6	11.6	420	420	<.003	.006	430	645
DEC 17...	38.0	--	11.1	11.3	530	530	<.004	<.004	265	705
Date	Antimony, water, fltrd, ug/L (01095)	Antimony, water, unfltrd, ug/L (01097)	Arsenic, water, fltrd, ug/L (01000)	Arsenic, water, unfltrd, ug/L (01002)	Barium, water, fltrd, ug/L (01005)	Barium, water, unfltrd recoverable, ug/L (01007)	Beryllium, water, fltrd, ug/L (01010)	Beryllium, water, unfltrd recoverable, ug/L (00998)	Bismuth, water, fltrd, ug/L (01015)	Bismuth, water, unfltrd recoverable, ug/L (01017)
NOV 18...	--	<.040	--	2.70	--	12.0	--	.900	--	<.030
NOV 26...	<.040	<.040	2.30	2.30	12.0	12.0	.900	1.00	<.030	<.030
DEC 17...	<.030	<.030	.500	<.500	12.0	12.0	1.00	1.20	<.040	<.040
Date	Cadmium, water, fltrd, ug/L (01025)	Cadmium, water, unfltrd, ug/L (01027)	Cerium, water, fltrd, ug/L (01110)	Cerium, water, unfltrd, ug/L (01112)	Cesium, water, fltrd, ug/L (01115)	Cesium, water, unfltrd, ug/L (01117)	Chromium, water, fltrd, ug/L (01030)	Chromium, water, unfltrd recoverable, ug/L (01034)	Cobalt, water, fltrd, ug/L (01035)	Cobalt, water, unfltrd recoverable, ug/L (01037)
NOV 18...	--	.090	--	5.60	--	.100	--	2.00	--	81.0
NOV 26...	.100	.100	5.70	5.40	.100	.100	1.00	1.00	86.5	83.5
DEC 17...	.190	.140	6.20	6.30	.140	.140	<1.00	<1.00	81.5	87.5

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**404320076103201 -- Pine Forest Mine--Continued**

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

Date	Copper, water, fltrd, ug/L (01040)	Copper, water, unfltrd recover-able, ug/L (01042)	Copper, water, fltrd, ug/L (82331)	Dysprosium, water, unfltrd, ug/L (82330)	Erbium, water, fltrd, ug/L (50573)	Erbium, water, unfltrd, ug/L (01246)	Erbium, water, fltrd, ug/L (50574)	Erbium, water, unfltrd, ug/L (01236)	Gadolinium, water, fltrd, ug/L (50575)	Gadolinium, water, unfltrd, ug/L (01219)
NOV 18...	--	2.00	--	.560	--	.300	--	.150	--	.760
NOV 26...	1.00	2.00	.560	.520	.280	.290	.160	.130	.770	.700
DEC 17...	<.500	1.60	.630	.640	.320	.320	.160	.170	.800	.830
Date	Gallium, water, fltrd, ug/L (01120)	Gallium, water, unfltrd, ug/L (01122)	Germanium, water, fltrd, ug/L (01125)	Germanium, water, unfltrd, ug/L (01127)	Gold, water, fltrd, ug/L (82334)	Gold, water, unfltrd, ug/L (71910)	Holmium, water, fltrd, ug/L (50577)	Holmium, water, unfltrd, ug/L (01247)	Indium, water, fltrd, ug/L (62843)	Indium, water, unfltrd, ug/L (01168)
NOV 18...	--	.070	--	<.020	--	<.010	--	.110	--	<.010
NOV 26...	.060	.070	<.020	.020	<.010	<.010	.100	.100	<.010	<.010
DEC 17...	.045	.046	.026	.023	<.010	<.010	.120	.120	<.010	<.010
Date	Iron, water, fltrd, ug/L (01046)	Iron, water, unfltrd recover, ug/L (01045)	Lanthanum, water, fltrd, ug/L (01180)	Lanthanum, water, unfltrd, ug/L (01182)	Lead, water, fltrd, ug/L (01049)	Lead, water, unfltrd recover, ug/L (01051)	Lithium, water, fltrd, ug/L (01130)	Lithium, water, unfltrd recover, ug/L (01132)	Manganese, water, fltrd, ug/L (01056)	Manganese, water, unfltrd recover, ug/L (01055)
NOV 18...	--	17400	--	2.80	--	.400	--	36.0	--	5960
NOV 26...	17600	16800	2.80	2.80	.300	.500	35.5	35.5	5840	5820
DEC 17...	15900	16700	3.20	3.10	.240	.520	36.5	36.0	5610	5650
Date	Molybdenum, water, fltrd, ug/L (01060)	Molybdenum, water, unfltrd recover, ug/L (01062)	Neodymium, water, fltrd, ug/L (50579)	Neodymium, water, unfltrd, ug/L (01237)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd recover, ug/L (01067)	Praseodymium, water, fltrd, ug/L (50582)	Praseodymium, water, unfltrd, ug/L (01238)	Rhenium, water, fltrd, ug/L (50583)	Rhenium, water, unfltrd, ug/L (01242)
NOV 18...	--	.050	--	2.90	--	92.0	--	.720	--	<.020
NOV 26...	.090	.080	3.00	2.80	91.0	90.0	.740	.710	<.020	<.020
DEC 17...	.230	.230	3.20	3.30	91.0	91.0	.760	.820	<.020	<.020
Date	Rubidium, water, fltrd, ug/L (01135)	Rubidium, water, unfltrd, ug/L (01137)	Samarium, water, fltrd, ug/L (82323)	Samarium, water, unfltrd, ug/L (82322)	Selenium, water, fltrd, ug/L (01145)	Selenium, water, unfltrd, ug/L (01147)	Silver, water, fltrd, ug/L (01075)	Silver, water, unfltrd recover, ug/L (01077)	Strontium, water, fltrd, ug/L (01080)	Strontium, water, unfltrd recover, ug/L (01082)
NOV 18...	--	2.20	--	.580	--	<.200	--	<.010	--	547
NOV 26...	2.10	2.20	.640	.560	<.200	<.200	.010	.020	536	530
DEC 17...	2.20	2.20	.670	.690	<.200	<.200	.014	.017	524	531



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
ACID MINE DRAINAGE PROJECTS IN THE UPPER SCHUYLKILL AND UPPER LEHIGH RIVER BASINS**

**404320076103201 -- Pine Forest Mine--Continued**

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

Date	Terbium water, fltrd, ug/L (50586)	Terbium water unfltrd ug/L (01218)	Thall- ium, water, fltrd, ug/L (01057)	Thall- ium, water, unfltrd ug/L (01059)	Thorium water, fltrd, ug/L (82365)	Thorium water unfltrd ug/L (82364)	Thulium water, fltrd, ug/L (50587)	Thulium water unfltrd ug/L (01245)	Tung- sten, water, fltrd, ug/L (01155)	Tung- sten, water, unfltrd ug/L (01154)
NOV 18...	--	.120	--	<.050	--	<.040	--	.040	--	.030
26...	.110	.100	<.050	<.050	<.040	<.040	.040	.040	.040	.040
DEC 17...	.110	.120	<.050	<.050	<.030	<.030	.042	.044	.091	.089

Date	Vanad- ium, water, fltrd, ug/L (01085)	Vanad- ium, water, unfltrd ug/L (01087)	Ytterb- ium, water, fltrd, ug/L (01194)	Ytterb- ium, water, unfltrd ug/L (01196)	Yttrium water, fltrd, ug/L (01201)	Yttrium water unfltrd ug/L (01203)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd recover- able, ug/L (01092)	Uranium natural water, fltrd, ug/L (22703)	Uranium natural water unfltrd ug/L (28011)
NOV 18...	--	.200	--	.210	--	3.10	--	122	--	.130
26...	<.100	<.100	.230	.200	3.10	3.10	126	122	.120	.120
DEC 17...	<.100	<.100	.250	.270	3.40	3.50	147	146	.097	.130

### SPECIAL NOTES, REMARK CODES, AND SELECTED CONSTITUENT DEFINITIONS

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

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

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

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

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

where:

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

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

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

#### PRINTED OUTPUT

#### REMARK

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

\*\*\*\*\*

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

##### (71999) SAMPLE PURPOSE CODES:

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

##### (84164) SAMPLER TYPE: (partial list)

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

##### (82398) SAMPLE METHOD CODES:

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

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

## WATER RESOURCES DATA - PENNSYLVANIA, 2003

**SPECIAL NOTES, REMARK CODES AND SELECTED CONSTITUENT DEFINITIONS--Continued****Explanation of selected abbreviations used in constituent definitions in water-quality tables:**

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

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

1028 --U.S. Geological Survey

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

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

**MEDIUM CODES: (partial listing)**

9-- Surface water.  
 R-- Quality-control sample. Surface water.  
 Q-- Quality-control sample. Artificial.

GROUND-WATER-LEVEL STATION RECORDS

BERKS COUNTY

402615075530501. Local number, BE 623.

LOCATION.--Lat 40°26'15", long 75°53'05", Hydrologic Unit 02040203, at Wesner Road, Blandon.

Owner: Maiden Creek Township Water Authority.

AQUIFER.--Dolomite of Leithsville Formation of Early and Middle Cambrian age.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 8 in., depth 385 ft, casing information not available.

INSTRUMENTATION.--Data collection platform with 30-minute recording interval. Satellite telemetry at station.

DATUM.--Elevation of land-surface datum is 430 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of plywood shelf, 1.71 ft above land-surface datum. Prior to Apr. 30, 1981, top of casing, 1.30 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.--January 1975 to current year.

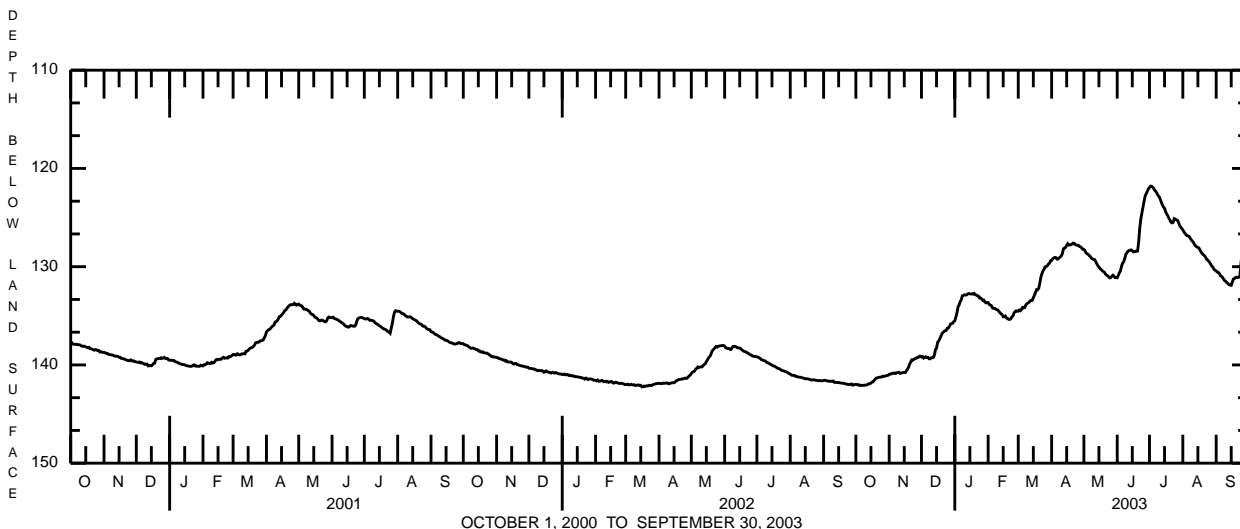
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.

Highest water level, 109.44 ft below land-surface datum, Apr. 19, 1994; lowest, 142.23 ft below land-surface datum, Mar. 16, 2002.

EXTREMES FOR CURRENT YEAR.--Highest water level, 121.72 ft below land-surface datum, July 3; lowest, 142.09 ft below land-surface datum, Oct. 5, 8.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	141.97	140.96	139.19	135.51	133.66	134.53	129.36	128.24	131.13	121.95	126.25	130.44
2	141.99	140.91	139.14	135.13	133.84	134.41	129.18	128.38	130.89	121.80	126.46	130.55
3	142.05	140.92	139.30	134.70	133.90	134.48	129.12	128.59	130.61	121.82	126.60	130.57
4	142.02	140.85	139.23	134.09	133.97	134.35	129.06	128.69	130.43	121.91	126.75	130.71
5	142.09	140.85	139.16	133.89	134.20	134.15	129.08	128.75	129.96	122.04	126.85	130.92
6	142.08	140.82	139.24	133.55	134.24	134.20	129.23	128.86	129.64	122.24	126.88	130.99
7	142.07	140.87	139.23	133.36	134.24	134.17	129.21	128.98	129.51	122.36	126.94	131.10
8	142.09	140.80	139.37	132.97	134.31	133.91	129.11	129.14	129.16	122.54	127.14	131.29
9	142.06	140.78	139.38	132.91	134.37	133.76	129.02	129.21	128.75	122.77	127.28	131.43
10	142.06	140.74	139.27	132.87	134.41	133.70	128.90	129.26	128.58	122.88	127.41	131.50
11	142.04	140.86	139.27	132.89	134.56	133.62	128.67	129.28	128.43	123.13	127.56	131.64
12	141.98	140.84	139.24	132.87	134.68	133.48	128.18	129.49	128.36	123.43	127.77	131.72
13	141.92	140.80	139.02	132.77	134.80	133.44	128.10	129.70	128.32	123.72	127.90	131.83
14	141.92	140.77	138.44	132.74	134.88	133.43	128.04	129.90	128.29	123.93	128.00	131.88
15	141.84	140.76	138.30	132.76	135.10	133.15	127.82	130.03	128.37	124.06	128.04	131.90
16	141.75	140.77	137.70	132.78	135.10	132.92	127.66	130.20	128.49	124.40	128.10	131.56
17	141.72	140.60	137.56	132.77	135.02	132.63	127.80	130.28	128.49	124.63	128.31	131.25
18	141.57	140.44	137.35	132.79	135.22	132.34	127.79	130.40	128.43	124.82	128.52	131.21
19	141.44	140.23	137.12	132.72	135.27	132.35	127.75	130.50	128.44	125.07	128.67	131.09
20	141.34	139.92	136.82	132.85	135.36	132.20	127.71	130.56	128.41	125.25	128.78	131.07
21	141.32	139.71	136.70	132.89	135.37	131.69	127.60	130.74	127.37	125.48	128.87	131.11
22	141.27	139.48	136.59	132.95	135.32	131.08	127.62	130.86	126.00	125.54	129.02	131.08
23	141.25	139.50	136.52	133.00	135.11	130.70	127.76	130.92	125.11	125.49	129.22	130.95
24	141.25	139.43	136.49	133.19	135.03	130.43	127.79	131.03	124.49	125.11	129.32	129.75
25	141.21	139.36	136.26	133.19	134.72	130.25	127.83	131.14	123.92	125.17	129.44	128.65
26	141.15	139.33	136.24	133.28	134.59	130.01	127.83	131.12	123.32	125.22	129.57	127.93
27	141.17	139.25	136.08	133.44	134.49	130.00	127.95	130.98	122.79	125.27	129.77	127.19
28	141.13	139.24	135.84	133.41	134.53	129.91	127.98	130.87	122.56	125.50	129.95	126.53
29	141.12	139.12	135.78	133.60	---	129.74	128.10	130.96	122.33	125.78	130.05	126.25
30	141.07	139.11	135.76	133.68	---	129.65	128.23	131.11	122.07	125.98	130.28	126.24
31	141.05	---	135.60	133.66	---	129.40	---	131.11	---	126.10	130.36	---
MEAN	141.64	140.27	137.78	133.33	134.65	132.39	128.32	129.98	127.42	124.04	128.26	130.34
MAX	142.09	140.96	139.38	135.51	135.37	134.53	129.36	131.14	131.13	126.10	130.36	131.90
MIN	141.05	139.11	135.60	132.72	133.66	129.40	127.60	128.24	122.07	121.80	126.25	126.24



BUCKS COUNTY

402643075150501. Local number, BK 929.

LOCATION.--Lat 40°26'43", long 75°15'05", Hydrologic Unit 02040105, at Nockamixon State Park.

Owner: U.S. Geological Survey.

AQUIFER.--Shale of Brunswick Formation of Late Triassic age.

WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in., depth 116 ft, cased to 27 ft, open hole.

INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.

DATUM.--Elevation of land-surface datum is 490 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of plywood shelf, 3.0 ft above land-surface datum. Prior to Mar. 17, 1980, top of casing, 1.05 ft above land-surface datum. Prior to June 1970, land surface datum was approximately 16 feet lower.

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.--November 1967 to current year.

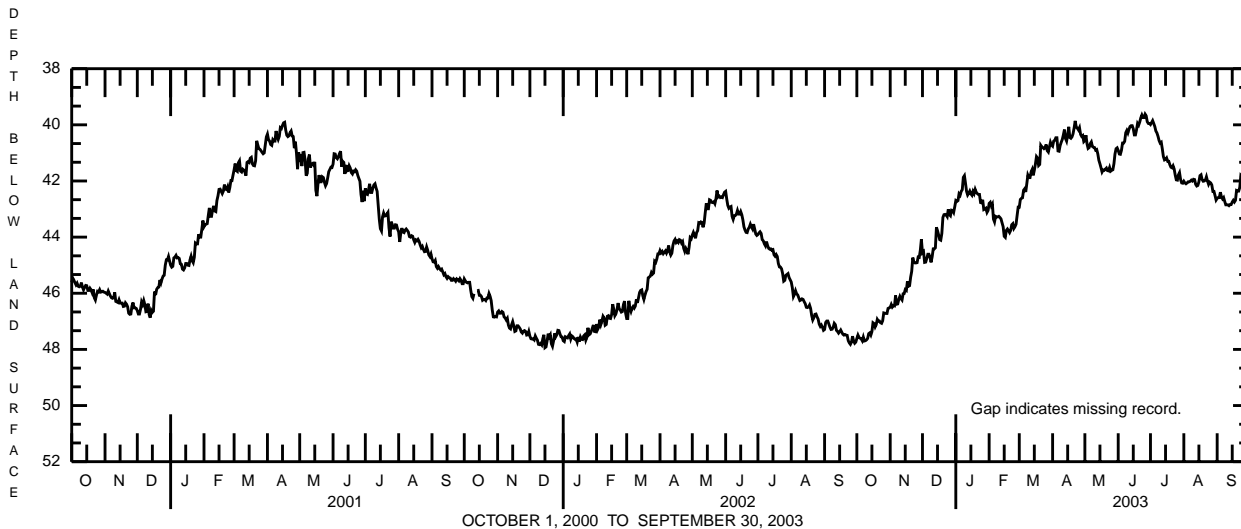
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.

Highest water level, 39.29 ft below land-surface datum, Mar. 28, 1991; lowest, 59.75 ft below land-surface datum, Nov. 26, 1968.

EXTREMES FOR CURRENT YEAR.--Highest water level, 39.45 ft below land-surface datum, June 27; lowest, 47.70 ft below land-surface datum, Oct. 8.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47.61	46.50	44.56	42.70	42.80	42.93	40.76	40.56	40.91	39.99	42.01	42.62
2	47.49	46.40	44.52	42.73	42.76	42.66	40.58	40.37	41.04	39.92	42.07	42.59
3	47.58	46.49	44.90	42.70	42.89	42.62	40.55	40.68	41.05	39.85	42.10	42.59
4	47.60	46.44	44.89	42.46	42.82	42.60	40.46	40.84	40.91	39.95	42.07	42.40
5	47.62	46.45	44.76	42.51	43.36	42.33	40.46	40.81	40.65	40.06	42.03	42.57
6	47.69	46.08	44.61	42.37	43.46	42.28	40.93	40.67	40.65	40.22	42.03	42.64
7	47.56	46.39	44.61	42.31	43.26	42.39	40.94	40.61	40.59	40.29	42.01	42.59
8	47.70	46.38	44.72	41.87	43.28	42.10	40.74	40.77	40.28	40.41	41.97	42.73
9	47.69	46.22	44.90	41.81	43.28	41.79	40.62	40.80	40.20	40.56	42.00	42.85
10	47.66	46.11	44.70	42.08	43.26	41.88	40.52	40.81	40.29	40.65	41.94	42.85
11	47.61	46.19	44.42	42.37	43.30	41.88	40.36	40.90	40.16	40.62	41.95	42.85
12	47.44	46.24	44.42	42.50	43.35	41.68	40.17	40.88	40.06	40.86	42.12	42.88
13	47.41	46.02	44.38	42.44	43.49	41.59	40.49	41.03	40.03	41.13	42.18	42.84
14	47.49	46.01	43.65	42.36	43.63	41.80	40.58	41.26	40.03	41.25	42.16	42.84
15	47.37	45.87	43.77	42.46	43.97	41.62	40.37	41.39	40.14	41.23	42.03	42.75
16	47.05	45.90	43.92	42.51	44.01	41.40	40.07	41.53	40.36	41.18	41.81	42.69
17	47.08	45.58	44.09	42.37	43.76	41.13	40.45	41.68	40.36	41.30	41.78	42.75
18	47.20	45.75	44.11	42.45	43.71	41.18	40.48	41.61	40.18	41.30	41.95	42.69
19	47.12	45.73	43.87	42.30	43.77	41.45	40.43	41.62	39.95	41.42	42.01	42.34
20	46.93	45.43	43.30	42.40	43.84	41.41	40.32	41.58	40.01	41.51	42.00	42.36
21	46.99	45.22	43.20	42.45	43.76	40.73	40.11	41.54	39.90	41.53	41.97	42.36
22	46.99	44.73	43.19	42.48	43.56	40.79	39.86	41.63	39.75	41.46	41.85	42.23
23	47.05	44.89	43.21	42.48	43.52	40.81	40.08	41.64	39.65	41.57	42.00	41.80
24	47.07	44.92	43.27	42.77	43.69	40.85	40.12	41.52	39.74	41.79	42.12	41.84
25	46.98	44.92	43.01	42.78	43.63	40.82	40.18	41.65	39.74	41.96	42.04	41.64
26	46.70	44.91	43.20	42.67	43.54	40.70	40.10	41.62	39.62	41.97	42.07	41.48
27	46.71	44.71	43.24	43.02	43.23	40.92	40.34	41.60	39.68	41.78	42.14	41.40
28	46.72	44.72	43.04	43.00	42.93	40.97	40.41	41.39	39.89	41.70	42.37	41.12
29	46.72	44.47	43.05	42.97	---	40.79	40.38	41.04	39.95	41.95	42.37	41.30
30	46.54	44.08	43.12	43.12	---	40.62	40.60	40.85	39.95	42.07	42.52	41.34
31	46.52	---	42.92	43.05	---	40.72	---	40.82	---	42.08	42.68	---
MEAN	47.22	45.66	43.92	42.53	43.42	41.53	40.42	41.15	40.19	41.08	42.08	42.33
MAX	47.70	46.50	44.90	43.12	44.01	42.93	40.94	41.68	41.05	42.08	42.68	42.88
MIN	46.52	44.08	42.92	41.81	42.76	40.62	39.86	40.37	39.62	39.85	41.78	41.12



BUCKS COUNTY

401157075032001. Local number, BK 1020

LOCATION.--Lat 40°11'57", long 75°03'20", Hydrologic Unit 02040201, at Naval Air Development Center in Warminster Township.

Owner: United States Navy.

AQUIFER.--Sandstone and shale of Stockton Formation of Late Triassic age.

WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in., depth 400 ft, cased to 57 ft, open hole.

INSTRUMENTATION.--Data collection platform with 30-minute recording interval. Satellite telemetry at station.

DATUM.--Elevation of land-surface datum is 370 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of metal shelf, 1.93 ft above land-surface datum.

REMARKS.--Operated by Bucks County Planning Commission September 1975 to March 1988. 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.--September 1975 to current year.

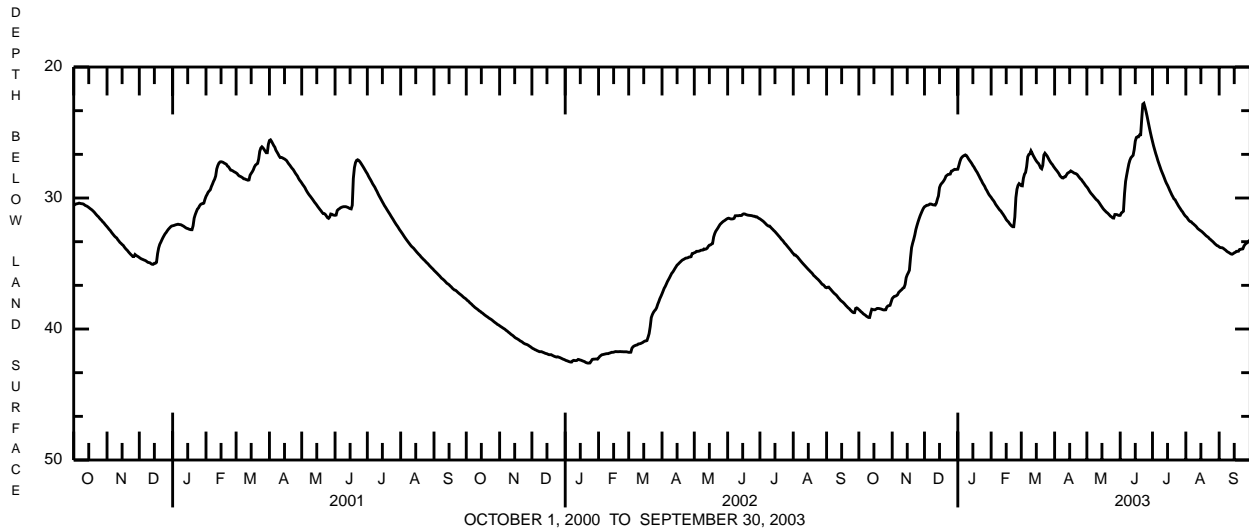
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.

Highest water level, 22.64 ft below land-surface datum, June 23, 2003; lowest, 42.60 ft below land-surface datum, Jan. 22, 23, 2002.

EXTREMES FOR CURRENT YEAR.--Highest water level, 22.64 ft below land-surface datum, June 23; lowest, 39.12 ft below land-surface datum, Oct. 10, 11.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38.52	37.68	30.67	27.80	29.95	29.06	27.70	29.16	31.32	25.68	31.41	33.73
2	38.59	37.58	30.62	27.51	30.08	29.07	27.81	29.27	31.15	26.02	31.48	33.78
3	38.68	37.51	30.56	27.20	30.18	28.49	27.91	29.42	31.08	26.31	31.61	33.79
4	38.74	37.49	30.55	26.98	30.30	28.18	28.02	29.55	31.01	26.60	31.72	33.80
5	38.83	37.45	30.52	26.87	30.46	28.05	28.14	29.66	29.66	26.86	31.79	33.85
6	38.89	37.38	30.46	26.80	30.58	27.60	28.30	29.75	28.73	27.14	31.81	33.92
7	38.94	37.21	30.46	26.75	30.69	26.85	28.39	29.85	28.26	27.38	31.91	33.98
8	39.02	37.13	30.49	26.71	30.81	26.68	28.46	29.95	27.81	27.62	31.97	34.06
9	39.07	37.05	30.52	26.76	30.92	26.63	28.47	30.05	27.40	27.86	32.05	34.12
10	39.12	36.98	30.53	26.88	30.99	26.40	28.39	30.14	27.11	28.06	32.12	34.16
11	39.12	36.88	30.54	27.02	31.12	26.56	28.38	30.20	26.92	28.26	32.21	34.22
12	38.78	36.84	30.40	27.14	31.23	26.74	28.24	30.31	26.83	28.47	32.32	34.27
13	38.49	36.60	30.09	27.25	31.36	26.89	28.11	30.43	26.74	28.69	32.39	34.29
14	38.51	36.08	29.84	27.37	31.49	27.04	28.06	30.56	26.30	28.88	32.45	34.25
15	38.53	35.86	29.20	27.52	31.64	27.17	28.01	30.68	25.66	29.03	32.51	34.18
16	38.53	35.70	28.99	27.63	31.74	27.28	27.93	30.80	25.38	29.21	32.57	34.15
17	38.48	35.51	28.88	27.78	31.82	27.36	27.98	30.90	25.33	29.41	32.65	34.07
18	38.43	34.58	28.79	27.92	31.94	27.51	28.03	30.98	25.33	29.58	32.73	34.07
19	38.43	33.79	28.67	28.04	32.04	27.70	28.09	31.07	25.18	29.76	32.81	34.06
20	38.44	33.45	28.53	28.20	32.13	27.77	28.12	31.13	25.17	29.91	32.89	33.93
21	38.46	33.16	28.33	28.36	32.19	27.51	28.15	31.21	23.96	30.07	32.95	33.91
22	38.48	32.82	28.26	28.53	32.19	26.72	28.21	31.30	22.84	30.13	33.01	33.90
23	38.52	32.41	28.20	28.67	31.45	26.58	28.32	31.39	22.77	30.29	33.11	33.88
24	38.54	32.11	28.19	28.85	29.97	26.68	28.43	31.44	23.06	30.43	33.17	33.67
25	38.54	31.83	28.17	28.98	29.33	26.79	28.53	31.52	23.39	30.58	33.25	33.55
26	38.53	31.58	27.95	29.11	29.03	26.94	28.60	31.53	23.77	30.71	33.32	33.47
27	38.32	31.35	27.92	29.30	28.90	27.10	28.73	31.26	24.18	30.83	33.40	33.42
28	38.24	31.15	27.86	29.43	28.97	27.24	28.83	31.26	24.58	30.96	33.49	33.34
29	38.22	30.96	27.81	29.59	---	27.36	28.95	31.27	24.98	31.06	33.56	33.25
30	38.19	30.79	27.82	29.74	---	27.45	29.07	31.31	25.34	31.20	33.63	33.21
31	37.94	---	27.81	29.85	---	27.59	---	31.33	---	31.32	33.66	---
MEAN	38.58	34.90	29.28	27.95	30.84	27.32	28.28	30.60	26.37	28.98	32.58	33.88
MAX	39.12	37.68	30.67	29.85	32.19	29.07	29.07	31.53	31.32	31.32	33.66	34.29
MIN	37.94	30.79	27.81	26.71	28.90	26.40	27.70	29.16	22.77	25.68	31.41	33.21



CARBON COUNTY

410123075425401. Local number, CB 104.

LOCATION.--Lat 41°01'23", long 75°42'54", Hydrologic Unit 02040106, at Hickory Run State Park.

Owner: U.S. Geological Survey.

AQUIFER.--Shale of Lower Member of Mauch Chunk Formation of Late Mississippian age.

WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in., depth 125 ft, cased to 20 ft, open hole.

INSTRUMENTATION.--Data collection platform with 30-minute recording interval. Satellite telemetry at station.

DATUM.--Elevation of land-surface datum is 1,305 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of plywood shelf, 3.1 ft above land-surface datum. Prior to May 28, 1980, top of casing 3.00 ft above land-surface datum.

REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.

PERIOD OF RECORD.--September 1969 to current year.

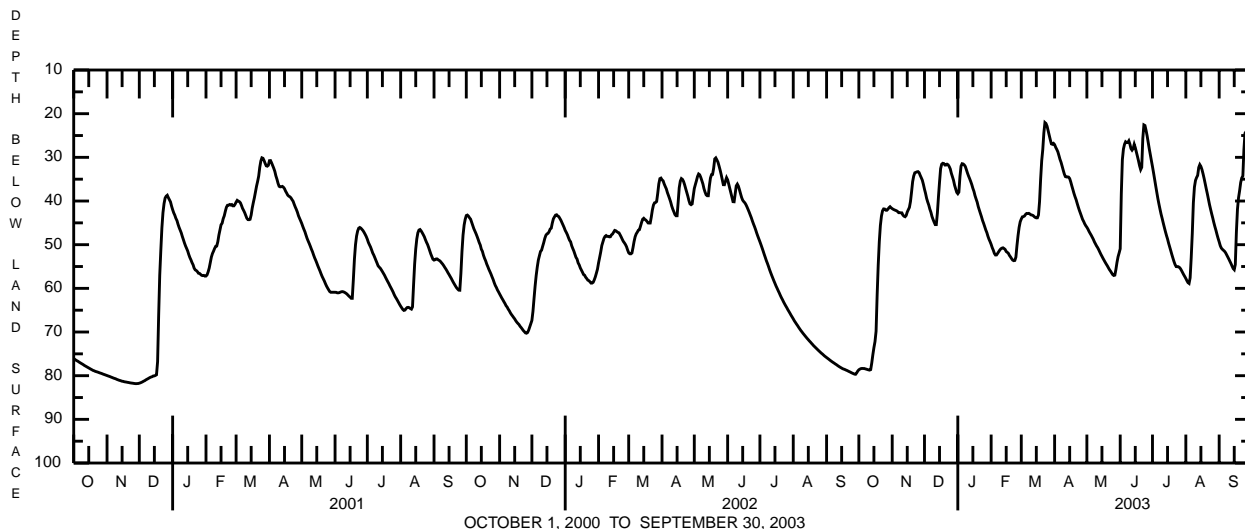
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.

Highest water level, 18.44 ft below land-surface datum, Apr. 17, 1983; lowest, 90.58 ft below land-surface datum, Jan. 31, 1981.

EXTREMES FOR CURRENT YEAR.--Highest water level, 21.68 ft below land-surface datum, Mar. 23; lowest, 78.72 ft below land-surface datum, Oct. 11.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78.65	41.75	37.29	38.33	49.93	44.12	27.09	46.01	50.93	32.12	57.75	49.35
2	78.49	41.90	38.24	37.96	50.69	43.63	27.71	46.44	38.32	33.57	58.25	50.23
3	78.38	42.02	39.38	34.35	51.26	43.57	28.18	46.96	30.51	35.04	58.68	50.78
4	78.34	42.13	40.22	32.01	51.99	43.43	28.72	47.40	28.09	36.56	58.87	51.06
5	78.36	42.23	40.93	31.46	52.36	43.07	29.56	47.83	27.00	38.01	57.59	51.29
6	78.36	42.40	41.86	31.52	52.35	42.85	30.46	48.30	26.43	39.43	53.03	51.52
7	78.44	42.67	42.59	31.74	51.99	42.87	31.14	48.77	26.63	40.69	47.40	51.86
8	78.51	42.67	43.55	32.10	51.61	42.82	32.02	49.35	26.61	41.90	40.41	52.34
9	78.59	42.70	44.22	32.85	51.24	42.97	32.94	49.83	26.22	43.03	36.82	52.82
10	78.67	42.72	44.85	33.61	50.95	43.17	33.80	50.29	26.97	43.99	35.27	53.30
11	78.72	43.24	45.40	34.28	50.79	43.22	34.40	50.67	27.99	45.04	34.62	53.83
12	78.61	43.48	45.40	34.89	50.72	43.32	34.49	51.15	28.35	46.02	34.14	54.34
13	77.09	43.60	42.75	35.53	50.88	43.57	34.47	51.68	27.99	47.00	32.31	54.91
14	75.20	43.31	39.06	36.23	51.09	43.76	34.53	52.20	27.02	47.89	31.67	55.45
15	73.58	42.52	35.71	37.10	51.57	43.86	34.85	52.66	27.76	48.70	32.09	55.72
16	72.21	41.98	32.58	37.79	51.75	43.84	35.62	53.13	28.79	49.66	32.80	54.54
17	69.82	41.46	31.58	38.77	51.98	43.19	36.52	53.57	29.77	50.53	33.76	47.07
18	61.54	40.11	31.36	39.54	52.46	40.16	37.39	54.02	30.80	51.38	34.85	41.90
19	54.70	37.90	31.42	40.26	52.81	34.97	38.26	54.44	31.92	52.27	36.03	39.26
20	49.28	35.57	31.76	41.27	53.20	30.77	39.02	54.83	32.81	53.08	37.22	37.67
21	45.62	34.28	31.76	42.07	53.53	28.22	39.70	55.29	32.28	53.87	38.37	35.76
22	43.47	33.54	31.57	42.84	53.66	24.37	40.56	55.72	25.69	54.55	39.58	34.71
23	42.24	33.43	31.71	43.59	53.61	22.04	41.39	56.06	22.57	55.02	40.80	34.26
24	41.81	33.32	32.10	44.46	52.84	22.27	42.14	56.47	22.71	55.04	41.88	28.24
25	41.83	33.27	32.66	45.12	50.22	22.88	42.81	56.85	23.77	55.04	42.91	24.49
26	42.10	33.49	33.66	45.86	47.90	23.90	43.50	57.05	25.06	55.20	43.86	24.10
27	42.12	34.10	34.43	46.63	46.03	24.95	44.21	56.97	26.54	55.49	44.90	24.83
28	41.88	34.66	35.25	47.24	44.75	25.99	44.68	55.66	28.03	55.93	45.86	24.83
29	41.52	35.23	36.38	48.08	---	26.92	45.23	54.06	29.41	56.40	46.71	24.01
30	41.30	36.17	37.21	48.76	---	27.01	45.67	52.75	30.78	56.87	47.69	24.71
31	41.55	---	38.02	49.31	---	26.81	---	51.88	---	57.30	48.56	---
MEAN	62.61	39.26	37.25	39.21	51.22	36.08	36.37	52.20	28.93	47.96	42.73	42.97
MAX	78.72	43.60	45.40	49.31	53.66	44.12	45.67	57.05	50.93	57.30	58.87	55.72
MIN	41.30	33.27	31.36	31.46	44.75	22.04	27.09	46.01	22.57	32.12	31.67	24.01



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

CHESTER COUNTY

395450075485401. Local number, CH 10.

LOCATION.--Lat 39°54'50", long 75°48'54", Hydrologic Unit 02040205, near intersection of SR 82 and 841, at Doe Run.

Owner: Privately owned.

AQUIFER.--Cockeysville Marble of Paleozoic age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in., depth 34 ft, casing information not available.

INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.

DATUM.--Elevation of land-surface datum is 300 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of plywood shelf, 5.23 ft above land-surface datum. Prior to June 24, 1981, top of casing 1.00 ft above land-surface datum.

REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.

PERIOD OF RECORD.--August 1951 to April 1965, instantaneous water levels obtained several times per month. February 1966 to current year.

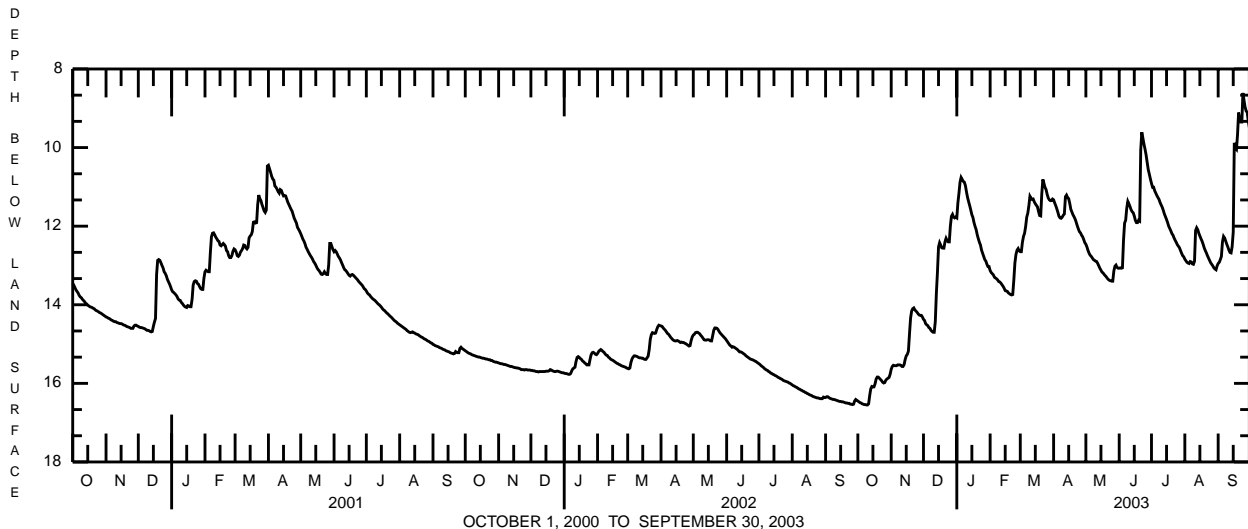
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.

Highest water level, 7.77 ft below land-surface datum, Mar. 25, 1993; lowest, 16.55 ft below land-surface datum, Oct. 9, 10, 2002.

EXTREMES FOR CURRENT YEAR.--Highest water level, 8.36 ft below land-surface datum, Sept. 23; lowest, 16.55 ft below land-surface datum, Oct. 9, 10.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.45	15.64	14.37	11.79	13.13	12.65	11.33	12.46	13.07	10.91	12.84	12.95
2	16.47	15.57	14.40	11.41	13.18	12.65	11.41	12.53	13.06	11.01	12.88	12.92
3	16.49	15.54	14.48	11.16	13.21	12.41	11.48	12.62	13.07	11.01	12.92	12.85
4	16.50	15.55	14.51	10.88	13.24	12.26	11.56	12.69	13.06	11.10	12.94	12.77
5	16.52	15.55	14.53	10.76	13.30	12.18	11.65	12.74	12.35	11.16	12.95	12.40
6	16.53	15.55	14.58	10.81	13.32	12.01	11.75	12.77	11.92	11.22	12.90	12.26
7	16.54	15.53	14.60	10.86	13.34	11.77	11.79	12.81	11.85	11.27	12.91	12.30
8	16.54	15.53	14.65	10.88	13.37	11.67	11.80	12.85	11.54	11.32	12.96	12.38
9	16.55	15.53	14.68	10.97	13.41	11.48	11.77	12.87	11.37	11.40	12.97	12.46
10	16.55	15.54	14.70	11.13	13.42	11.24	11.72	12.89	11.43	11.46	12.89	12.53
11	16.52	15.57	14.70	11.27	13.45	11.29	11.69	12.90	11.50	11.52	12.11	12.61
12	16.31	15.57	14.43	11.38	13.49	11.32	11.25	12.95	11.58	11.60	12.04	12.67
13	16.14	15.52	13.70	11.48	13.53	11.31	11.21	13.01	11.63	11.69	12.09	12.68
14	16.08	15.39	13.17	11.59	13.58	11.38	11.27	13.07	11.66	11.76	12.18	12.52
15	16.09	15.30	12.53	11.71	13.64	11.43	11.30	13.12	11.74	11.83	12.25	12.15
16	16.09	15.26	12.42	11.78	13.65	11.47	11.42	13.17	11.85	11.91	12.32	9.88
17	16.01	15.18	12.48	11.91	13.66	11.51	11.57	13.19	11.91	12.00	12.38	10.02
18	15.89	14.75	12.55	12.01	13.70	11.63	11.64	13.23	11.91	12.06	12.46	10.05
19	15.84	14.34	12.56	12.09	13.72	11.73	11.71	13.26	11.85	12.12	12.55	9.67
20	15.84	14.16	12.56	12.22	13.74	11.74	11.76	13.29	11.87	12.19	12.62	9.11
21	15.87	14.10	12.40	12.32	13.75	11.18	11.82	13.33	10.06	12.23	12.68	9.27
22	15.90	14.08	12.31	12.41	13.74	10.81	11.90	13.36	9.61	12.30	12.75	9.35
23	15.93	14.13	12.37	12.48	13.37	10.91	11.99	13.38	9.76	12.36	12.81	9.35
24	15.97	14.16	12.40	12.61	12.94	11.01	12.07	13.39	9.91	12.41	12.87	8.61
25	15.99	14.19	12.40	12.69	12.72	11.07	12.14	13.40	10.04	12.47	12.93	8.79
26	15.98	14.23	12.00	12.77	12.61	11.19	12.17	13.40	10.19	12.51	12.97	8.97
27	15.92	14.26	11.75	12.85	12.57	11.28	12.23	13.14	10.38	12.55	13.01	9.07
28	15.89	14.27	11.70	12.89	12.63	11.33	12.27	13.02	10.56	12.62	13.06	9.10
29	15.87	14.27	11.77	12.97	---	11.35	12.34	12.99	10.68	12.69	13.09	9.33
30	15.85	14.31	11.79	13.03	---	11.35	12.42	13.05	10.80	12.75	13.11	9.49
31	15.77	---	11.77	13.03	---	11.31	---	13.07	---	12.78	13.01	---
MEAN	16.16	14.95	13.20	11.88	13.34	11.55	11.75	13.03	11.41	11.88	12.72	10.95
MAX	16.55	15.64	14.70	13.03	13.75	12.65	12.42	13.40	13.07	12.78	13.11	12.95
MIN	15.77	14.08	11.70	10.76	12.57	10.81	11.21	12.46	9.61	10.91	12.04	8.61





## CHESTER COUNTY

## 400650075514001. Local number, CH 2.

**LOCATION**--Lat 40°06'55", long 75°51'20", Hydrologic Unit 02040205, at Morgantown Road, near Strubel Lake, Honeybrook Township.  
Owner: Privately owned.

**AQUIFER**--Felsic and intermediate gneiss, granulite facies.

**WELL CHARACTERISTICS**--Dug unused observation well, diameter 36 in., depth 15 ft.

**INSTRUMENTATION**--Monthly measurement with chalked tape by U.S. Geological Survey personnel. Monthly measurements for Feb. to Sept. made with electric tape.

**DATUM**--Elevation of land-surface datum is 640 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of hole in concrete porch, 0.5 ft above land-surface datum.

**PERIOD OF RECORD**--September 1951 to current year.

**EXTREMES FOR PERIOD OF RECORD**--Highest water level, 3.50 ft below land-surface datum, Mar. 11, 1952; lowest, 14.47 ft below land-surface datum, Sept. 18, 2002.

**EXTREMES FOR CURRENT YEAR**--Highest water level, 5.96 ft below land-surface datum, Sept. 23; lowest, 13.40 ft below land-surface datum, Oct. 21.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	13.40	DEC 19	9.72	FEB 21	10.11	APR 21	8.06	JUN 19	7.96	AUG 20	9.41
NOV 20	10.86	JAN 21	9.17	MAR 19	8.27	MAY 21	8.95	JUL 21	8.46	SEP 23	5.96

## 395717075392301. Local number, CH 12.

**LOCATION**--Lat 39°57'17", long 75°39'23", Hydrologic Unit 02040205, at Deborah's Rock Farm at State Highway 162, at Copesville.  
Owner: Privately owned.

**AQUIFER**--Felsic and intermediate gneiss, amphibolite facies.

**WELL CHARACTERISTICS**--Dug unused observation well, diameter 29 in., depth 38.5 ft.

**INSTRUMENTATION**--Monthly measurement with chalked tape by U.S. Geological Survey personnel. Monthly measurements for Feb. to Sept. made with electric tape.

**DATUM**--Elevation of land-surface datum is 248 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of wooden cover, 2.0 ft above land surface datum.

**REMARKS**--Well is dry at 38.50 ft. In past, well was at least 39.2 ft deep, but has since filled with silt to 38.5 ft. Measuring point changed Dec. 26, 1990.

**PERIOD OF RECORD**--July 1951 to current year.

**EXTREMES FOR PERIOD OF RECORD**--Highest water level, 28.98 ft below land-surface datum, Apr. 20, 1993; lowest, 39.13 ft below land-surface datum, Oct. 18, 1951.

**EXTREMES FOR CURRENT YEAR**--Highest water level, 31.64 ft below land-surface datum, Sept. 23; lowest, 38.50 ft below land-surface datum, Oct. 22, Nov. 21, Dec. 19.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	38.50	DEC 19	38.50	FEB 21	36.74	APR 22	33.21	JUN 20	32.51	AUG 21	33.11
NOV 21	38.50	JAN 22	36.69	MAR 20	33.52	MAY 20	34.30	JUL 22	31.68	SEP 23	31.64

## 394846075444901. Local number, CH 38.

**LOCATION**--Lat 39°48'46", long 75°44'49", Hydrologic Unit 02040205, at New Garden Road and State Highway 41 at New Garden.  
Owner: Privately owned.

**AQUIFER**--Wissahickon Formation.

**WELL CHARACTERISTICS**--Dug observation well, diameter 46 in., depth 18.5 ft.

**INSTRUMENTATION**--Monthly measurement with chalked tape by U.S. Geological Survey personnel. Monthly measurements for Feb. to Sept. made with electric tape.

**DATUM**--Elevation of land-surface datum is 440 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of concrete cover, 0.5 ft above land surface datum.

**PERIOD OF RECORD**--September 1974 to current year.

**EXTREMES FOR PERIOD OF RECORD**--Highest water level, 2.00 ft below land-surface datum, July 21, 1989; lowest, 16.52 ft below land-surface datum, Sept. 18, 2002.

**EXTREMES FOR CURRENT YEAR**--Highest water level, 2.87 ft below land-surface datum, Sept. 22; lowest, 14.61 ft below land-surface datum, Oct. 21.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	14.61	DEC 20	9.47	FEB 20	7.71	APR 21	4.88	JUN 19	4.99	AUG 20	7.42
NOV 20	12.62	JAN 21	6.96	MAR 19	5.24	MAY 20	6.55	JUL 21	6.11	SEP 22	2.87

## CHESTER COUNTY

## 400400075314401. Local number, CH 89.

**LOCATION.**--Lat 40°04'00", long 75°31'44", Hydrologic Unit 02040203, at quarry on Yellow Springs Road, near Devault.

Owner: U.S. Geological Survey/Trammell Crow

**AQUIFER.**--Elbrook limestone.

**WELL CHARACTERISTICS.**--Drilled unused observation well, diameter 6 in., depth 265 ft, cased to 112 ft.

**INSTRUMENTATION.**--Monthly measurement with electric tape by U.S. Geological Survey personnel.

**DATUM.**--Elevation of land-surface datum is 365 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.62 ft above land-surface datum.

**PERIOD OF RECORD.**--May 1988 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 134.20 ft below land-surface datum, Sept. 22, 2003; lowest, 183.77 ft below land-surface datum, Feb. 21, 1989.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 134.20 ft below land-surface datum, Sept. 22; lowest, 165.56 ft below land-surface datum, Oct. 21.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	165.56	DEC 20	158.50	MAR 19	148.44	MAY 20	145.70	JUL 21	139.73	SEP 22	134.20
NOV 20	161.95	JAN 21	155.56	APR 23	146.05	JUN 19	142.25	AUG 20	137.96		

## 400453075255601. Local number, CH 210.

**LOCATION.**--Lat 40°04'53", long 75°25'56", Hydrologic Unit 02040203, at Red Coat Lane, near Valley Forge Park.

Owner: Privately owned.

**AQUIFER.**--Elbrook limestone.

**WELL CHARACTERISTICS.**--Drilled unused observation well, diameter 12 in., depth 600 ft, cased to 26 ft.

**INSTRUMENTATION.**--Monthly measurement with chalked tape by U.S. Geological Survey personnel. Monthly measurements for Feb. to Sept. made with electric tape.

**DATUM.**--Elevation of land-surface datum is 150 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.4 ft above land-surface datum.

**PERIOD OF RECORD.**--June 1978 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 14.00 ft below land-surface datum, Feb. 26, 1979; lowest, 28.20 ft below land-surface datum, Sept. 19, 2002.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 18.26 ft below land-surface datum, June 19; lowest, 27.29 ft below land-surface datum, Oct. 21.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	27.29	DEC 19	19.82	FEB 20	21.88	APR 21	19.32	JUN 19	18.26	AUG 20	20.63
NOV 20	21.84	JAN 21	19.65	MAR 19	18.52	MAY 20	21.15	JUL 21	20.20	SEP 22	21.07

## 400103075390101. Local number, CH 249.

**LOCATION.**--Lat 40°01'03", long 75°39'16", Hydrologic Unit 02040205, at Creamery Way at Oaklands Corporate Center, near Exton.

Owner: Oaklands Business Parks, Inc.

**AQUIFER.**--Ledger dolomite.

**WELL CHARACTERISTICS.**--Drilled unused observation well, diameter 8 in., depth 600 ft.

**INSTRUMENTATION.**--Monthly measurement with chalked tape by U.S. Geological Survey personnel.

**DATUM.**--Elevation of land-surface datum is 317 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum.

**PERIOD OF RECORD.**--November 1987 to December 2002. (Discontinued)

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 11.26 ft below land-surface datum, May 20, 1988; lowest, 26.61 ft below land-surface datum, Sept. 18, 2002.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 19.43 ft below land-surface datum, Dec. 19; lowest, 24.13 ft below land-surface datum, Oct. 22.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	24.13	NOV 21	21.24	DEC 19	19.43

## CHESTER COUNTY

## 394457075581601. Local number, CH 254.

**LOCATION.**--Lat 39°44'57", long 75°58'16", Hydrologic Unit 02060002, at Mt. Pleasant Road, near Oxford.

Owner: Privately owned.

**AQUIFER.**--Wissahickon Formation.

**WELL CHARACTERISTICS.**--Drilled unused domestic well, diameter 6 in., depth 250 ft, cased to 102 ft.

**INSTRUMENTATION.**--Monthly measurement with chalked tape by U.S. Geological Survey personnel. Monthly measurements for Feb. to Sept. made with electric tape.

**DATUM.**--Elevation of land-surface datum is 517 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.35 ft above land-surface datum.

**PERIOD OF RECORD.**--January 1987 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 16.16 ft below land-surface datum, April 21, 1997; lowest, 31.16 ft below land-surface datum, Oct. 21, 2002.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 22.44 ft below land-surface datum, Sept. 22; lowest, 31.16 ft below land-surface datum, Oct. 21.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	31.16	DEC 20	30.21	FEB 20	27.50	APR 21	26.05	JUN 19	24.39	AUG 20	22.52
NOV 20	31.08	JAN 21	28.50	MAR 19	27.03	MAY 20	25.39	JUL 21	22.73	SEP 22	22.44

## 395701075561601. Local number, CH 1201.

**LOCATION.**--Lat 39°57'01", long 75°56'46", Hydrologic Unit 02050306, at State Highway 372, near Atglen.

Owner: A Duie Pyle Inc.

**AQUIFER.**--Conestoga limestone.

**WELL CHARACTERISTICS.**--Drilled withdrawal commercial well, diameter 6 in., depth 83 ft, cased to 33 ft.

**INSTRUMENTATION.**--Monthly measurement with chalked tape by U.S. Geological Survey personnel. Monthly measurements for Feb. to Sept. made with electric tape.

**DATUM.**--Elevation of land-surface datum is 502 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.

**PERIOD OF RECORD.**--October 1973 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 2.80 ft below land-surface datum, Dec. 19, 1996; lowest, 8.49 ft below land-surface datum, Sept. 18, 1985.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 4.31 ft below land-surface datum, Sept. 22; lowest, 7.10 ft below land-surface datum, Oct. 21.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	7.10	DEC 19	5.26	FEB 20	5.43	APR 21	4.63	JUN 19	4.43	AUG 20	5.24
NOV 20	5.95	JAN 21	4.81	MAR 19	4.77	MAY 20	5.24	JUL 21	4.80	SEP 22	4.31

## 400412075404301. Local number, CH 1229.

**LOCATION.**--Lat 40°04'12", long 75°40'43", Hydrologic Unit 02040205, State Highway 100 and Pennsylvania Turnpike, near Eagle.

Owner: Privately owned.

**AQUIFER.**--Graphitic felsic gneiss, amphibolite facies.

**WELL CHARACTERISTICS.**--Drilled unused observation well, diameter 6 in., depth 165 ft, cased to 31 ft.

**INSTRUMENTATION.**--Monthly measurement with chalked tape by U.S. Geological Survey personnel. Monthly measurements for Feb. to Sept. made with electric tape.

**DATUM.**--Elevation of land-surface datum is 540 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.5 ft above land-surface datum.

**PERIOD OF RECORD.**--April 1974 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 29.15 ft below land-surface datum, April 21, 1952; lowest, 44.09 ft below land-surface datum, Aug. 20, 1985.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 31.90 ft below land-surface datum, Sept. 23; lowest, 41.64 ft below land-surface datum, Oct. 22.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	41.64	DEC 19	36.66	FEB 21	36.86	APR 22	34.33	JUN 20	33.18	AUG 21	34.34
NOV 21	38.66	JAN 22	35.79	MAR 20	35.37	MAY 21	35.85	JUL 22	33.29	SEP 23	31.90

## CHESTER COUNTY

## 400645075411501. Local number, CH 1247.

**LOCATION.**--Lat 40°06'45", long 75°41'15", Hydrologic Unit 020402053, at State Highway 401 and 100, at Ludwigs Corner.

Owner: Privately owned.

**AQUIFER.**--Felsic and intermediate gneiss, granulite facies.

**WELL CHARACTERISTICS.**--Dug unused observation well, diameter 4 ft., depth 75 ft.

**INSTRUMENTATION.**--Monthly measurement with chalked tape by U.S. Geological Survey personnel. Monthly measurements for Feb. to Sept. made with electric tape.

**DATUM.**--Elevation of land-surface datum is 610 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

**REMARKS.**--Well is dry at 34.70 ft.

**PERIOD OF RECORD.**--December 1973 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 25.61 ft below land-surface datum, April 21, 1983; lowest, 36.14 ft below land-surface datum, Jan. 22, 1996.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 26.94 ft below land-surface datum, June 20; lowest, 33.34 ft below land-surface datum, Dec. 19.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	34.70	DEC 19	33.34	FEB 21	30.18	APR 22	27.67	JUN 20	26.94	AUG 21	28.21
NOV 21	34.70	JAN 22	28.99	MAR 20	28.35	MAY 21	28.25	JUL 22	27.54	SEP 23	27.61

## 395540075332601. Local number, CH 1387.

**LOCATION.**--Lat 39°55'40", long 75°33'26", Hydrologic Unit 02040202, at State Highway 926 and Northgate Road, near Westtown.

Owner: Privately owned.

**AQUIFER.**--Felsic and intermediate gneiss, amphibolite facies.

**WELL CHARACTERISTICS.**--Drilled unused observation well, diameter 5 in., depth 159 ft, cased to 41 ft.

**INSTRUMENTATION.**--Monthly measurement with chalked tape by U.S. Geological Survey personnel. Monthly measurements for Feb. to Sept. made with electric tape.

**DATUM.**--Elevation of land-surface datum is 329 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.

**PERIOD OF RECORD.**--September 1974 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 28.28 ft below land-surface datum, Dec. 19, 1996; lowest, 39.45 ft below land-surface datum, Oct. 21, 1977.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 30.61 ft below land-surface datum, June 19; lowest, 38.33 ft below land-surface datum, Oct. 21.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	38.33	DEC 20	34.88	FEB 20	34.48	APR 21	30.71	JUN 19	30.61	AUG 20	31.78
NOV 20	36.98	JAN 21	33.47	MAR 19	31.68	MAY 20	31.51	JUL 21	30.66	SEP 22	31.25

## 400956075391501. Local number, CH 1571.

**LOCATION.**--Lat 40°09'56", long 75°39'15", Hydrologic Unit 02040203, at Pughtown Road and Bertolet School Road, near Pughtown, East Vincent Township.

Owner: Privately owned.

**AQUIFER.**--Stockton Formation.

**WELL CHARACTERISTICS.**--Dug unused observation well, diameter unknown, depth 16 ft.

**INSTRUMENTATION.**--Monthly measurement with chalked tape by U.S. Geological Survey personnel. Monthly measurements for Feb. to Sept. made with electric tape.

**DATUM.**--Elevation of land-surface datum is 282 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.2 ft above land-surface datum.

**PERIOD OF RECORD.**--June 1974 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 4.86 ft below land-surface datum, May 20, 1988, June 20, 2003; lowest, 11.74 ft below land-surface datum, Dec. 23, 1998.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 4.86 ft below land-surface datum, June 20; lowest, 9.98 ft below land-surface datum, Oct. 22.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	9.98	DEC 19	5.70	FEB 21	7.12	APR 22	5.62	JUN 20	4.86	AUG 21	7.54
NOV 21	5.96	JAN 22	5.60	MAR 20	5.37	MAY 21	6.50	JUL 22	7.35	SEP 23	5.25

## CHESTER COUNTY

## 394757075432101. Local number, CH 1921.

**LOCATION.**--Lat 39°47'57", long 75°43'21", Hydrologic Unit 02040205, at Ewart Road, at Kaolin.  
Owner: Privately owned.

**AQUIFER.**--Wissahickon Formation.

**WELL CHARACTERISTICS.**--Drilled unused observation well, diameter 6 in., depth 65 ft, cased to 24 ft.

**INSTRUMENTATION.**--Monthly measurement with chalked tape by U.S. Geological Survey personnel. Monthly measurements for Feb. to Sept. made with electric tape.

**DATUM.**--Elevation of land-surface datum is 405 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.3 ft above land-surface datum.

**PERIOD OF RECORD.**--September 1974 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 34.93 ft below land-surface datum, April 21, 1997; lowest, 60.96 ft below land-surface datum, Jan. 21, 1986.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 38.91 ft below land-surface datum, Sept. 22; lowest, 50.76 ft below land-surface datum, Oct. 21.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	50.76	DEC 20	49.16	FEB 20	46.62	APR 21	42.55	JUN 19	40.76	AUG 20	39.44
NOV 20	50.32	JAN 21	47.40	MAR 19	44.79	MAY 20	41.88	JUL 21	39.23	SEP 22	38.91

## 400242075484301. Local number, CH 2273.

**LOCATION.**--Lat 40°02'42", long 75°48'43", Hydrologic Unit 02040205, at Culbertson Run Road and State Highway 82, West Brandywine Township.  
Owner: U. S. Geological Survey.

**AQUIFER.**--Felsic gneiss, amphibolite facies.

**WELL CHARACTERISTICS.**--Drilled unused artesian observation well, diameter 6 in., depth 298 ft, cased to 45 ft.

**INSTRUMENTATION.**--Monthly measurement with chalked tape by U.S. Geological Survey personnel. Monthly measurements for Feb. to Sept. made with electric tape.

**DATUM.**--Elevation of land-surface datum is 590 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder platform, 4.55 ft above land-surface datum.

**PERIOD OF RECORD.**--October 1983 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 4.49 ft above land-surface datum, Dec. 19, 1996; lowest, 4.91 ft below land-surface datum, Sept. 18, 2002.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 1.34 ft above land-surface datum, Sept. 23; lowest, 4.26 ft below land-surface datum, Oct. 21.

DEPTH ABOVE (-) OR BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	4.26	DEC 19	.87	FEB 21	-.88	APR 21	-1.05	JUN 19	-1.10	AUG 20	-1.17
NOV 21	2.42	JAN 21	-1.02	MAR 19	-1.07	MAY 21	-1.04	JUL 21	-1.15	SEP 23	-1.34

## 400325075332501. Local number, CH 2313.

**LOCATION.**--Lat 40°03'25", long 75°33'25", Hydrologic Unit 02040203, at Moores Road and Sidley Road, East Whiteland Township.  
Owner: Philadelphia Suburban Water Co.

**AQUIFER.**--Elbrook limestone.

**WELL CHARACTERISTICS.**--Drilled unused artesian observation well, diameter 8 to 20 in., depth 507 ft, cased to 22 ft with 20 in. diameter casing.

**INSTRUMENTATION.**--Monthly measurement with chalked tape by U.S. Geological Survey personnel. Monthly measurements for Feb. to Sept. made with electric tape.

**DATUM.**--Elevation of land-surface datum is 330 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of inner casing, 2.4 ft above land-surface datum.

**PERIOD OF RECORD.**--April 1978 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 1.50 ft above land-surface datum, April 21, 1983; lowest, 21.65 ft below land-surface datum, Sept. 18, 2002.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 5.54 ft below land-surface datum, July. 21; lowest, 21.37 ft below land-surface datum, Oct. 21.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	21.37	DEC 19	16.34	FEB 20	11.45	APR 21	6.01	JUN 19	5.58	AUG 20	6.66
NOV 20	19.59	JAN 21	11.67	MAR 19	6.97	MAY 20	7.42	JUL 21	5.54	SEP 22	6.58

## CHESTER COUNTY

## 400847075414701. Local number, CH 2328.

**LOCATION.**--Lat 40°08'47", long 75°41'47", Hydrologic Unit 02040203, at Prizer Road, near Coventryville.

Owner: U.S. Geological Survey.

**AQUIFER.**--Graphitic felsic gneiss, granulite facies.

**WELL CHARACTERISTICS.**--Drilled unused artesian observation well, diameter 6 in., depth 323 ft, cased to 98 ft.

**INSTRUMENTATION.**--Monthly measurement with chalked tape by U.S. Geological Survey personnel. Monthly measurements for Feb. to Sept. made with electric tape.

**DATUM.**--Elevation of land-surface datum is 452 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.5 ft above land-surface datum.

**PERIOD OF RECORD.**--May 1975 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, .30 ft above land-surface datum, Dec. 18, 1996; lowest, 7.38 ft below land-surface datum, Sept. 19, 2002.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, .36 ft below land-surface datum, Sept. 23; lowest, 6.24 ft below land-surface datum, Oct. 22.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	6.24	DEC 19	2.94	FEB 21	2.15	APR 22	1.53	JUN 20	.93	AUG 21	1.56
NOV 21	4.01	JAN 22	1.62	MAR 20	1.58	MAY 21	2.11	JUL 22	.85	SEP 23	.36

## 400133075450001. Local number, CH 2456.

**LOCATION.**--Lat 40°01'33", long 75°45'00", Hydrologic Unit 02040205, at State Highway 322, at Guthriesville.

Owner: East Brandywine Baptist Church.

**AQUIFER.**--Felsic gneiss, amphibolite facies.

**WELL CHARACTERISTICS.**--Drilled unused observation well, diameter 6 in., depth 225 ft, cased to 33 ft.

**INSTRUMENTATION.**--Monthly measurement with chalked tape by U.S. Geological Survey personnel. Monthly measurements for Feb. to Sept. made with electric tape.

**DATUM.**--Elevation of land-surface datum is 560 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.9 ft above land-surface datum.

**PERIOD OF RECORD.**--February 1982 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 18.00 ft below land-surface datum, Jan. 22, 1996; lowest, 22.00 ft below land-surface datum, Jan. 21, 1986.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 18.37 ft below land-surface datum, Sept. 23; lowest, 19.36 ft below land-surface datum, Feb. 21.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	19.03	DEC 19	18.56	FEB 21	19.36	APR 21	18.83	JUN 19	18.53	AUG 20	18.92
NOV 21	18.52	JAN 21	18.98	MAR 19	18.80	MAY 21	19.29	JUL 21	19.05	SEP 23	18.37

## 400039075335201. Local number, CH 2457.

**LOCATION.**--Lat 40°00'39", long 75°33'52", Hydrologic Unit 02040202, at Upton Circle and Green Hill Road, at Hersheys Mill.

Owner: Philadelphia Suburban Water Co.

**AQUIFER.**--Wissahickon Formation.

**WELL CHARACTERISTICS.**--Drilled unused observation well, diameter 6 in., depth 285 ft.

**INSTRUMENTATION.**--Monthly measurement with chalked tape by U.S. Geological Survey personnel. Monthly measurements for Feb. to Sept. made with electric tape.

**DATUM.**--Elevation of land-surface datum is 470 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.

**PERIOD OF RECORD.**--February 1982 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 10.35 ft below land-surface datum, Dec. 18, 1996; lowest, 26.08 ft below land-surface datum, Oct. 20, 1986.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 15.26 ft below land-surface datum, Mar. 19; lowest, 22.47 ft below land-surface datum, Oct. 21.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	22.47	DEC 20	18.43	FEB 20	18.73	APR 21	15.55	JUN 19	16.42	AUG 20	18.54
NOV 20	20.26	JAN 21	16.26	MAR 19	15.26	MAY 20	17.96	JUL 21	16.56	SEP 22	18.13

## CHESTER COUNTY

## 400456075320301. Local number, CH 2561.

**LOCATION.**--Lat 40°04'27", long 75°32'03", Hydrologic Unit 02040203, at Yellow Springs Road and State Highway 29, at Devault.  
Owner: Privately owned.

**AQUIFER.**--Elbrook limestone.

**WELL CHARACTERISTICS.**--Drilled unused observation well, diameter 6 in., depth 240 ft, cased to 229 ft.

**INSTRUMENTATION.**--Monthly measurement with chalked tape by U.S. Geological Survey personnel.

**DATUM.**--Elevation of land-surface datum is 338 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.90 ft above land-surface datum.

**PERIOD OF RECORD.**--January 1984 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 103.64 ft below land-surface datum, Sept. 22, 2003; lowest, 178.32 ft below land-surface datum, Sept. 21, 1992.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 103.64 ft below land-surface datum, Sept. 22; lowest, 147.46 ft below land-surface datum, Oct. 21.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	147.46	DEC 19	138.03	FEB 20	136.34	APR 21	123.64	JUN 19	116.57	AUG 21	110.19
NOV 20	144.23	JAN 21	135.58	MAR 19	127.05	MAY 20	124.89	JUL 21	115.79	SEP 22	103.64

## 395225075422001. Local number, CH 2584.

**LOCATION.**--Lat 39°52'25", long 75°42'20", Hydrologic Unit 02040205, at Walnut Road near intersection of Rt. 926 near Willowdale.  
Owner: Privately owned.

**AQUIFER.**--Cockeysville marble.

**WELL CHARACTERISTICS.**--Drilled unused observation well, diameter 6 in.

**INSTRUMENTATION.**--Monthly measurement with electric tape by U.S. Geological Survey personnel.

**DATUM.**--Elevation of land-surface datum is 365 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.90 ft above land-surface datum.

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

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 17.04 ft below land-surface datum, Sept. 22, 2003; lowest, 24.66 ft below land-surface datum, Sept. 18, 2002.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 17.04 ft below land-surface datum, Sept. 22; lowest, 23.83 ft below land-surface datum, Oct. 21.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	23.83	DEC 20	18.81	FEB 20	20.13	APR 21	17.88	JUN 19	18.00	AUG 20	20.23
NOV 20	21.16	JAN 21	18.47	MAR 19	18.85	MAY 20	19.87	JUL 21	19.19	SEP 22	17.04

## 394624075444001. Local number, CH 2663.

**LOCATION.**--Lat 39°46'24", long 75°44'40", Hydrologic Unit 02040205, at Broad Run Road and Newark Road, New Garden Township.  
Owner: Privately owned.

**AQUIFER.**--Cockeysville marble.

**WELL CHARACTERISTICS.**--Drilled unused observation well, diameter 6 in., depth 150 ft.

**INSTRUMENTATION.**--Monthly measurement with chalked tape by U.S. Geological Survey personnel. Monthly measurements for Feb. to Sept. made with electric tape.

**DATUM.**--Elevation of land-surface datum is 220 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.20 ft above land-surface datum. Prior to May 21, 2001 measuring point was 1.30 ft above land-surface datum.

**PERIOD OF RECORD.**--January 1984 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 7.65 ft below land-surface datum, Sept. 23, 2003; lowest, 11.67 ft below land-surface datum, July 18, 1985.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 7.65 ft below land-surface datum, Sept. 23; lowest, 10.82 ft below land-surface datum, Oct. 21.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	10.82	DEC 20	9.37	FEB 20	10.45	APR 21	9.89	JUN 19	9.57	AUG 21	10.18
NOV 20	9.91	JAN 21	10.05	MAR 19	9.97	MAY 20	10.37	JUL 21	10.15	SEP 23	7.65

## CHESTER COUNTY

## 400358075311301. Local number, CH 3289.

**LOCATION.**--Lat 40°03'58", long 75°31'13", Hydrologic Unit 02040203, at Church Road, near Cedar Hollow.

Owner: Trammell Crow.

**AQUIFER.**--Elbrook limestone.

**WELL CHARACTERISTICS.**--Drilled unused observation well, diameter 8 in., depth 202 ft, cased to 40 ft.

**INSTRUMENTATION.**--Monthly measurement with chalked tape by U.S. Geological Survey personnel. Monthly measurements for Feb. to Sept. made with electric tape.

**DATUM.**--Elevation of land-surface datum is 240 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.

**PERIOD OF RECORD.**--May 1988 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 10.44 ft below land-surface datum, Dec. 18, 1996; lowest, 33.18 ft below land-surface datum, Sept. 19, 2002.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 14.16 ft below land-surface datum, Mar. 19; lowest, 30.93 ft below land-surface datum, Oct. 21.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	30.93	DEC 20	17.15	FEB 20	21.62	APR 21	18.44	JUN 19	18.43	AUG 20	22.44
NOV 20	20.55	JAN 21	19.57	MAR 19	14.16	MAY 20	20.95	JUL 21	21.19	SEP 22	18.62

## 395141075525401. Local number, CH 5422.

**LOCATION.**--Lat 39°51'41", long 75°52'54", Hydrologic Unit 02060002, on Rt. 796 near intersection of Colton Drive at Daleville.

Owner: Privately owned.

**AQUIFER.**--Wissahickon schist.

**WELL CHARACTERISTICS.**--Drilled unused irrigation well, diameter 6 in., depth 49.4 ft.

**INSTRUMENTATION.**--Monthly measurement with electric tape by U.S. Geological Survey personnel.

**DATUM.**--Elevation of land-surface datum is 619 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.4 ft above land-surface datum.

**PERIOD OF RECORD.**--July 2000 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 16.07 ft below land-surface datum, Sept. 22, 2003; lowest, 26.38 ft below land-surface datum, Sept. 18, 2002.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 16.07 ft below land-surface datum, Sept. 22; lowest, 25.14 ft below land-surface datum, Oct. 21.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	25.14	DEC 20	18.48	FEB 20	19.52	APR 21	16.87	JUN 19	16.32	AUG 20	18.13
NOV 20	22.01	JAN 21	17.27	MAR 19	18.09	MAY 20	18.80	JUL 21	17.73	SEP 22	16.07

## 401405075400301. Local number, CH 6513.

**LOCATION.**--Lat 40°14'05", long 75°40'03", Hydrologic Unit 02040203, at Laurelwood Road near Rt. 724 at Pottstown Landing.

Owner: Privately owned.

**AQUIFER.**--Brunswick Formation.

**WELL CHARACTERISTICS.**--Drilled unused observation well, diameter 6 in.

**INSTRUMENTATION.**--Monthly measurement with electric tape by U.S. Geological Survey personnel.

**DATUM.**--Elevation of land-surface datum is 210 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.40 ft above land-surface datum.

**PERIOD OF RECORD.**--January 2002 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 11.38 ft below land-surface datum, Jan. 18, 2002; lowest, 19.39 ft below land-surface datum, Feb. 15, 2002.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 12.69 ft below land-surface datum, Sept. 23; lowest, 16.74 ft below land-surface datum, Oct. 22.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	16.74	DEC 19	13.18	FEB 21	15.70	APR 22	13.54	JUN 20	12.91	AUG 21	15.47
NOV 21	13.54	JAN 22	13.97	MAR 20	13.78	MAY 21	15.46	JUL 22	14.44	SEP 23	12.69



## CHESTER COUNTY

## 395201075363001. Local number, CH 6516.

**LOCATION.**--Lat 39°52'01", long 75°36'30", Hydrologic Unit 02040205, at Hillendale Road near Virginia Place near Chaddsford Junction.

Owner: Privately owned.

**AQUIFER.**--Felsic Gneiss, Hornblende-bearing.

**WELL CHARACTERISTICS.**--Drilled unused observation well, diameter 6 in., depth 100 ft.

**INSTRUMENTATION.**--Monthly measurement with electric tape by U.S. Geological Survey personnel.

**DATUM.**--Elevation of land-surface datum is 295 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.20 ft above land-surface datum.

**PERIOD OF RECORD.**--November 2001 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, .19 ft above land-surface datum, Sept. 22, 2003; lowest, 7.75 ft below land-surface datum, Sept. 18, 2002.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, .19 ft above land-surface datum, Sept. 22; lowest, 8.51 ft below land-surface datum, Oct. 21.

DEPTH ABOVE (-) OR BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	8.51	DEC 20	6.68	MAR 19	.84	MAY 20	.27	JUL 21	-.03	SEP 22	-.19
NOV 20	8.45	JAN 21	4.04	APR 21	-.03	JUN 19	-.01	AUG 20	-.11		

## 400247075532401. Local number, CH 6517.

**LOCATION.**--Lat 40°02'47", long 75°53'24", Hydrologic Unit 02040205, at Telegraph Road near Sandy Hill Road west of Martins Corner.

Owner: Privately owned.

**AQUIFER.**--Chickies Quartzite.

**WELL CHARACTERISTICS.**--Drilled unused irrigation well, diameter 6 in.

**INSTRUMENTATION.**--Monthly measurement with electric tape by U.S. Geological Survey personnel.

**DATUM.**--Elevation of land-surface datum is 940 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.20 ft above land-surface datum.

**PERIOD OF RECORD.**--November 2001 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 63.56 ft below land-surface datum, Sept. 23, 2003; lowest, 75.83 ft below land-surface datum, Oct. 21, 2002.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 63.56 ft below land-surface datum, Sept. 23; lowest, 75.83 ft below land-surface datum, Nov. 21.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	75.38	DEC 19	75.55	FEB 21	74.40	APR 21	70.05	JUN 19	66.35	AUG 20	64.02
NOV 21	75.83	JAN 22	74.34	MAR 19	72.49	MAY 21	69.08	JUL 21	64.31	SEP 23	63.56

## 394903075581901. Local number, CH 6518.

**LOCATION.**--Lat 39°49'03", long 75°58'19", Hydrologic Unit 02050306, at Wyncote Golf Club on Rt. 10 near Hayesville.

Owner: Wyncote Golf Club.

**AQUIFER.**--Peters Creek Schist.

**WELL CHARACTERISTICS.**--Drilled unused observation well, diameter 4 in., depth 37 ft.

**INSTRUMENTATION.**--Monthly measurement with electric tape by U.S. Geological Survey personnel.

**DATUM.**--Elevation of land-surface datum is 545 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.

**PERIOD OF RECORD.**--November 2001 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 20.32 ft below land-surface datum, Sept. 22, 2003; lowest, 27.25 ft below land-surface datum, Sept. 18, 2002.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 20.32 ft below land-surface datum, Sept. 22; lowest, 26.66 ft below land-surface datum, Oct. 21.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	26.66	DEC 20	23.72	MAR 19	22.77	MAY 20	22.37	JUL 21	20.78	SEP 22	20.32
NOV 20	25.13	JAN 21	21.56	APR 21	21.42	JUN 19	20.66	AUG 20	21.53		

## CHESTER COUNTY

395634075442601. Local number, CH 6519.

**LOCATION.**--Lat 39°56'34", long 75°44'26", Hydrologic Unit 02040205, at Youngs Road near Stargazer Road east of Laurel.

Owner: Privately owned.

**AQUIFER.**--Peters Creek Schist.

**WELL CHARACTERISTICS.**--Drilled unused observation well, diameter 5 in., depth 400 ft.

**INSTRUMENTATION.**--Monthly measurement with electric tape by U.S. Geological Survey personnel.

**DATUM.**--Elevation of land-surface datum is 475 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.10 ft above land-surface datum.

**PERIOD OF RECORD.**--January 2002 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level, 41.55 ft below land-surface datum, Sept. 23, 2003; lowest, 66.84 ft below land-surface datum, Feb. 15, 2002.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 41.55 ft below land-surface datum, Sept. 23; lowest, 63.31 ft below land-surface datum, Oct. 22.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
INSTANTANEOUS VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	63.31	DEC 19	59.85	FEB 21	61.31	APR 22	59.38	JUN 20	54.66	AUG 21	52.02
NOV 21	61.17	JAN 22	60.11	MAR 20	60.66	MAY 20	60.98	JUL 22	54.60	SEP 23	41.55

DELAWARE COUNTY

395512075293701, Local number, DE 723.

LOCATION.--Lat 39°55'12", long 75°29'37", Hydrologic Unit 02040203, at Glen Mills School, in Thornbury Township.  
 Owner: Glen Mills School.

AQUIFER.--Felsic Hornblende bearing Gneiss of Precambian Age.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 6 in., depth 300 ft, casing information not available.

INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.

DATUM.--Elevation of land-surface datum is 280 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of plywood shelf, 2.66 ft above land-surface datum. Prior to May 11, 1984, top of plywood shelf 1.20 ft above land-surface datum.

REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.

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

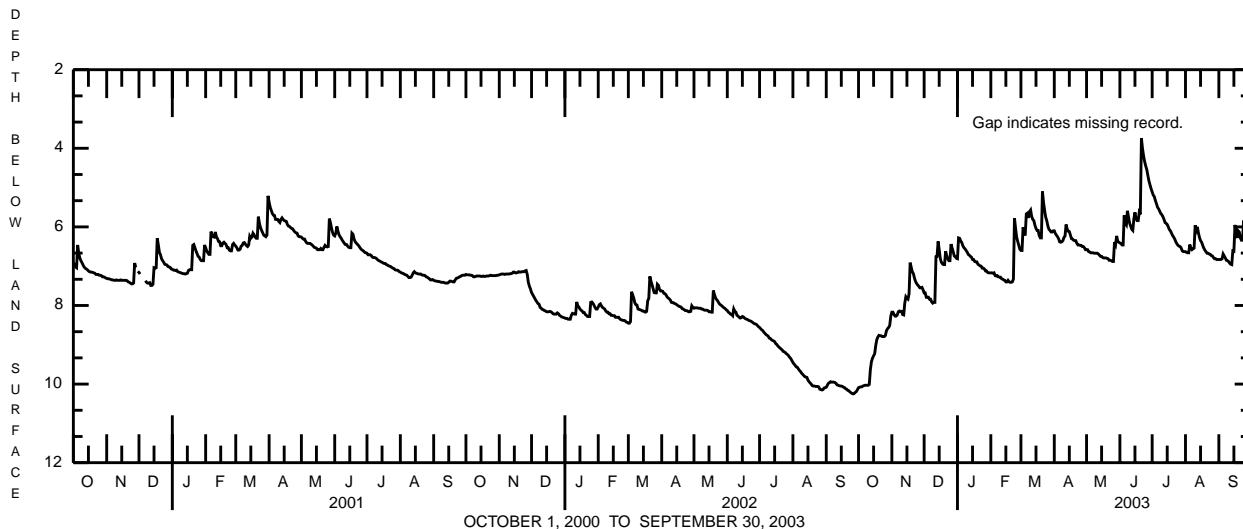
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.

Highest water level, 1.50 ft below land-surface datum, Dec. 15, 1996; lowest, 10.25 ft below land-surface datum, Sept. 26, 2002.

EXTREMES FOR CURRENT YEAR.--Highest water level, 3.18 ft below land-surface datum, June 21; lowest, 10.09 ft below land-surface datum, Oct. 1.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.09	8.17	7.68	6.81	7.17	6.60	6.10	6.58	6.41	5.11	6.63	6.83
2	10.08	8.17	7.68	6.28	7.17	6.60	6.17	6.58	6.42	5.19	6.65	6.83
3	10.07	8.23	7.79	6.29	7.18	6.01	6.21	6.63	6.46	5.23	6.66	6.83
4	10.07	8.27	7.79	6.36	7.17	6.19	6.25	6.64	6.46	5.33	6.66	6.81
5	10.05	8.27	7.79	6.40	7.24	6.19	6.30	6.66	5.71	5.41	6.45	6.69
6	10.04	8.24	7.84	6.48	7.25	5.67	6.38	6.66	5.91	5.50	6.54	6.74
7	10.03	8.16	7.84	6.53	7.24	5.65	6.39	6.66	5.95	5.54	6.58	6.79
8	10.03	8.14	7.91	6.56	7.27	5.77	6.38	6.67	5.59	5.60	6.56	6.85
9	10.03	8.15	7.94	6.60	7.28	5.61	6.35	6.67	5.75	5.66	6.54	6.86
10	10.03	8.15	7.92	6.64	7.28	5.57	6.27	6.67	5.90	5.69	5.96	6.88
11	10.01	8.23	7.92	6.70	7.32	5.74	6.23	6.67	5.98	5.74	6.08	6.92
12	9.63	8.24	6.76	6.72	7.33	5.81	5.94	6.69	6.06	5.81	6.00	6.95
13	9.43	7.94	6.75	6.75	7.35	5.84	6.06	6.72	6.09	5.89	6.15	6.96
14	9.34	7.78	6.37	6.77	7.36	5.96	6.11	6.75	5.80	5.91	6.27	6.61
15	9.28	7.82	6.58	6.83	7.40	6.04	6.12	6.75	5.63	5.94	6.35	6.62
16	9.23	7.84	6.80	6.83	7.40	6.09	6.21	6.78	5.79	6.00	6.39	5.95
17	9.02	7.70	6.90	6.88	7.36	6.09	6.30	6.79	5.84	6.07	6.47	6.19
18	8.87	6.91	6.94	6.89	7.40	6.22	6.31	6.79	5.84	6.10	6.54	6.28
19	8.80	7.03	6.96	6.89	7.41	6.28	6.34	6.79	5.63	6.16	6.59	6.10
20	8.76	7.14	6.96	6.95	7.41	6.28	6.35	6.80	5.68	6.22	6.63	6.13
21	8.77	7.19	6.62	6.97	7.40	5.10	6.35	6.81	3.75	6.26	6.67	6.28
22	8.77	7.30	6.73	6.99	7.33	5.38	6.42	6.85	4.00	6.31	6.67	6.34
23	8.79	7.39	6.81	7.00	5.78	5.58	6.46	6.85	4.19	6.38	6.69	6.34
24	8.79	7.44	6.86	7.05	6.03	5.75	6.46	6.86	4.34	6.43	6.70	5.84
25	8.79	7.48	6.86	7.05	6.26	5.84	6.47	6.88	4.45	6.47	6.73	6.03
26	8.76	7.51	6.44	7.07	6.37	5.97	6.47	6.88	4.54	6.49	6.74	6.15
27	8.64	7.55	6.54	7.12	6.47	6.06	6.50	6.39	4.69	6.50	6.78	6.22
28	8.59	7.55	6.63	7.12	6.57	6.09	6.50	6.45	4.83	6.54	6.81	6.22
29	8.56	7.54	6.74	7.16	---	---	6.13	6.53	4.93	6.61	6.81	6.30
30	8.51	7.60	6.76	7.17	---	---	6.13	6.58	6.37	5.03	6.63	6.33
31	8.27	---	6.80	7.17	---	---	6.10	---	6.39	---	6.63	---
MEAN	9.29	7.77	7.13	6.81	7.08	5.95	6.32	6.67	5.46	5.98	6.55	6.50
MAX	10.09	8.27	7.94	7.17	7.41	6.60	6.58	6.88	6.46	6.63	6.83	6.96
MIN	8.27	6.91	6.37	6.28	5.78	5.10	5.94	6.23	3.75	5.11	5.96	5.84



LEBANON COUNTY

402207076180801. Local number, LB 372.

LOCATION.--Lat 40°22'07", long 76°18'08", Hydrologic Unit 02040203, at Myerstown.

Owner: Kohl Brothers, Inc.

AQUIFER.--Dolomite of Ontelaunee Formation of Middle Ordovician age.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 6 in., depth 80 ft, casing information not available, open hole.

INSTRUMENTATION.--Data collection platform with 30-minute recording interval. Satellite telemetry at station.

DATUM.--Elevation of land-surface datum is 444 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of plywood shelf, 2.7 ft above land-surface datum. Prior to Apr. 22, 1981, measuring point was 3.50 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 1973 to current year.

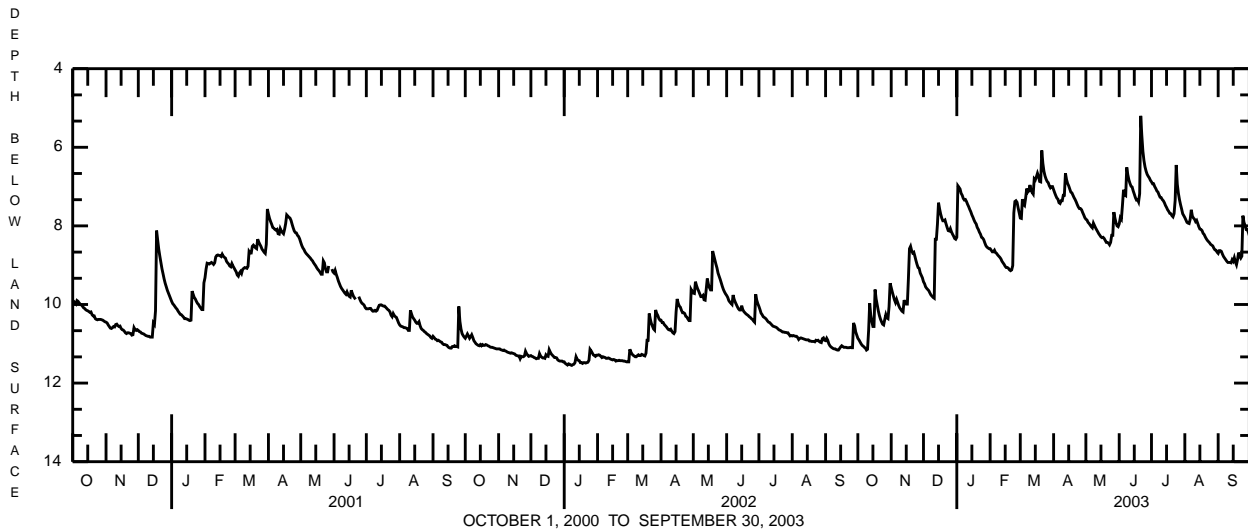
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.

Highest water level, 3.83 ft below land-surface datum, June 21, 2003; lowest, 11.55 ft below land-surface datum, Jan. 8, 2002.

EXTREMES FOR CURRENT YEAR.--Highest water level, 3.83 ft below land-surface datum, June 21; lowest, 11.16 ft below land-surface datum, Oct. 9.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.86	9.57	9.42	8.29	8.58	7.80	7.08	7.83	7.95	6.88	7.79	8.70
2	10.90	9.68	9.47	6.98	8.62	7.81	7.16	7.85	7.79	6.93	7.85	8.63
3	10.95	9.78	9.55	7.02	8.66	7.32	7.23	7.91	7.83	6.93	7.91	8.63
4	11.00	9.88	9.59	7.06	8.66	7.45	7.29	7.94	7.48	7.00	7.93	8.65
5	11.04	9.95	9.62	7.17	8.62	7.48	7.32	7.98	7.08	7.05	7.94	8.72
6	11.06	9.87	9.65	7.22	8.68	7.29	7.41	8.02	7.21	7.11	7.83	8.78
7	11.09	9.95	9.71	7.30	8.70	7.05	7.43	8.05	7.23	7.14	7.59	8.82
8	11.11	10.03	9.76	7.34	8.74	7.14	7.36	7.93	6.51	7.21	7.75	8.86
9	11.16	10.09	9.79	7.33	8.77	7.11	7.36	7.99	6.70	7.27	7.80	8.90
10	11.14	10.13	9.82	7.38	8.80	6.96	7.22	8.05	6.83	7.28	7.83	8.93
11	10.66	10.17	9.84	7.45	8.84	7.08	7.22	8.10	6.92	7.33	7.89	8.93
12	9.97	10.19	8.34	7.51	8.90	7.15	6.66	8.15	6.99	7.36	7.86	8.93
13	10.27	9.89	8.34	7.58	8.94	7.19	6.82	8.20	7.01	7.41	7.94	8.94
14	10.44	9.95	7.95	7.64	8.98	6.80	6.92	8.24	7.11	7.48	8.02	8.86
15	10.56	9.99	7.41	7.72	9.03	6.83	6.98	8.28	7.19	7.53	8.08	8.90
16	10.56	9.99	7.57	7.78	9.06	6.75	7.06	8.30	7.28	7.59	8.09	8.81
17	9.62	9.34	7.70	7.85	9.06	6.66	7.14	8.29	7.34	7.63	8.12	8.92
18	9.86	8.58	7.80	7.91	9.08	6.74	7.16	8.32	7.33	7.68	8.19	8.99
19	10.01	8.52	7.87	7.95	9.12	6.87	7.22	8.37	7.39	7.69	8.22	8.86
20	10.16	8.63	7.87	8.04	9.14	6.88	7.28	8.42	7.18	7.74	8.28	8.68
21	10.28	8.69	7.85	8.09	9.12	6.08	7.33	8.42	5.20	7.77	8.33	8.77
22	10.37	8.67	7.95	8.16	9.01	6.41	7.39	8.44	5.69	7.69	8.37	8.82
23	10.44	8.77	8.04	8.21	7.67	6.61	7.46	8.48	6.10	7.35	8.40	8.77
24	10.50	8.88	8.12	8.29	7.38	6.73	7.52	8.42	6.34	6.45	8.43	7.74
25	10.52	8.98	8.13	8.31	7.36	6.81	7.56	8.24	6.50	6.94	8.47	7.91
26	10.38	9.06	8.07	8.35	7.40	6.87	7.56	8.24	6.61	7.17	8.49	7.99
27	10.26	9.08	8.15	8.43	7.54	6.90	7.59	7.65	6.69	7.33	8.51	8.09
28	10.34	9.20	8.21	8.50	7.67	6.98	7.66	7.80	6.74	7.46	8.57	8.09
29	10.36	9.26	8.26	8.54	---	7.03	7.72	7.92	6.78	7.57	8.61	8.16
30	10.06	9.32	8.32	8.56	---	7.00	7.79	8.00	6.84	7.69	8.62	8.25
31	9.46	---	8.34	8.58	---	7.00	---	8.02	---	7.74	8.67	---
MEAN	10.50	9.47	8.60	7.82	8.58	6.99	7.30	8.12	6.93	7.34	8.14	8.63
MAX	11.16	10.19	9.84	8.58	9.14	7.81	7.79	8.48	7.95	7.77	8.67	8.99
MIN	9.46	8.52	7.41	6.98	7.36	6.08	6.66	7.65	5.20	6.45	7.59	7.74



LEHIGH COUNTY

403429075392401. Local number, LE 644.

LOCATION.--Lat 40°34'29", long 75°39'24", Hydrologic Unit 02040106, at Haafsville.

Owner: Privately owned.

AQUIFER.--Beekmantown Group of Middle Ordovician age.

WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 10 in., depth 184 ft, cased to 63 ft, open hole.

INSTRUMENTATION.--Data collection platform with 30-minute recording interval. Satellite telemetry at station.

DATUM.--Elevation of land-surface datum is 470 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of plywood shelf, 2.65 ft above land-surface datum. Prior to Mar. 18, 1981, top of casing, 1.45 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, and water-quality records for 1973-75 are also available from the District Office.

PERIOD OF RECORD.--January 1971 to current year.

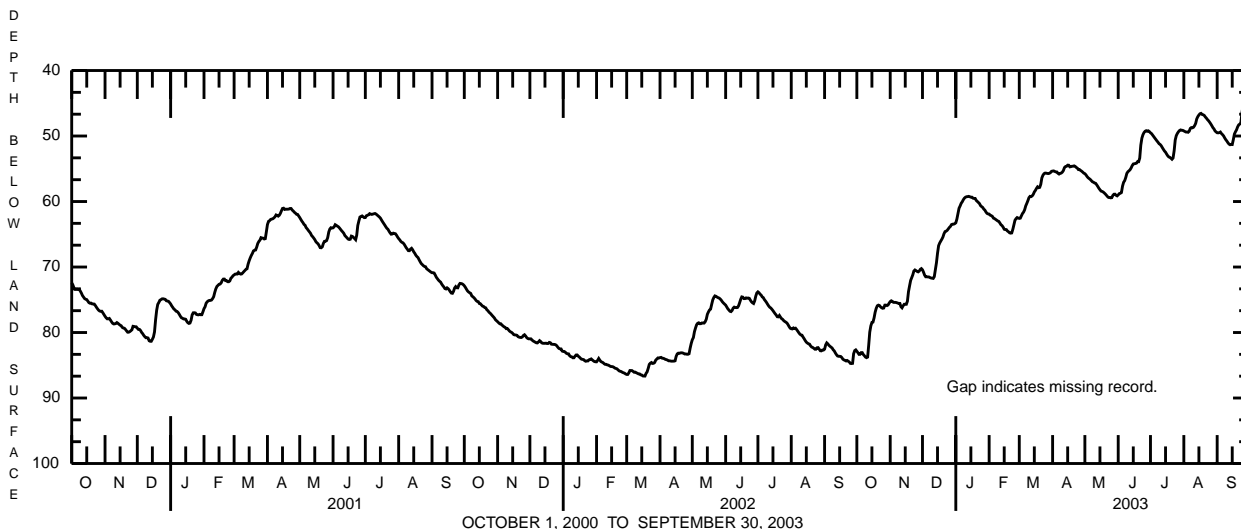
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.

Highest water level, 33.72 ft below land-surface datum, Apr. 3, 1994; lowest, 93.42 ft below land-surface datum, Feb. 6, 1971.

EXTREMES FOR CURRENT YEAR.--Highest water level, 43.27 ft below land-surface datum, Sept. 30; lowest, 83.84 ft below land-surface datum, Oct. 10.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82.86	75.28	70.42	63.25	61.92	62.58	55.35	55.75	58.99	49.51	49.22	49.50
2	83.09	75.16	70.80	62.68	62.09	62.54	55.33	55.93	58.79	49.64	49.31	49.52
3	83.34	75.25	71.24	61.84	62.16	62.18	55.41	56.18	58.74	49.86	49.39	49.48
4	83.33	75.39	71.49	61.03	62.27	61.83	55.48	56.37	58.63	50.09	49.39	49.39
5	83.07	75.40	71.49	60.68	62.54	61.62	55.49	56.50	57.65	50.31	49.43	49.63
6	83.07	75.40	71.51	60.27	62.61	61.26	55.70	56.63	57.07	50.53	49.27	49.79
7	83.36	75.44	71.52	60.04	62.73	60.67	55.81	56.81	56.81	50.75	48.84	49.99
8	83.54	75.51	71.61	59.72	62.85	60.29	55.71	56.98	56.33	50.95	48.71	50.30
9	83.75	75.55	71.68	59.48	62.97	59.88	55.66	57.06	55.71	51.18	48.75	50.56
10	83.84	75.56	71.71	59.34	63.04	59.41	55.52	57.17	55.46	51.29	48.66	50.77
11	83.75	76.06	71.74	59.27	63.29	59.21	55.28	57.22	55.31	51.49	48.42	51.03
12	81.95	76.23	71.47	59.25	63.55	59.25	54.82	57.45	55.15	51.77	48.08	51.23
13	79.93	75.93	70.39	59.21	63.68	59.14	54.66	57.70	54.88	52.04	47.39	51.33
14	78.98	75.69	69.35	59.27	63.92	58.91	54.62	57.98	54.52	52.29	47.04	51.29
15	78.47	75.69	67.91	59.34	64.23	58.54	54.45	58.20	54.27	52.47	46.79	51.30
16	78.41	75.69	66.74	59.34	64.29	58.30	54.46	58.40	54.23	52.75	46.60	50.57
17	77.77	75.23	66.34	59.49	64.29	58.00	54.71	58.46	54.20	53.01	46.54	49.70
18	76.90	73.77	66.05	59.53	64.50	57.76	54.68	58.55	54.14	53.19	46.71	49.35
19	76.31	72.88	65.76	59.53	64.62	57.89	54.62	58.69	53.91	53.26	46.76	49.06
20	75.92	72.05	65.43	59.83	64.78	57.84	54.61	58.85	53.92	53.39	46.86	48.61
21	75.82	71.63	64.93	59.99	64.83	57.38	54.56	59.04	53.37	53.55	47.10	48.30
22	75.87	71.19	64.59	60.15	64.80	56.39	54.64	59.24	51.39	53.36	47.28	48.18
23	76.08	70.61	64.53	60.31	64.25	55.99	54.80	59.38	50.32	52.24	47.50	48.01
24	76.22	70.45	64.40	60.63	63.57	55.75	54.91	59.39	49.80	50.60	47.68	46.49
25	76.30	70.55	64.18	60.78	62.87	55.66	55.13	59.44	49.47	49.94	47.90	45.39
26	76.26	70.67	63.96	60.90	62.61	55.67	55.12	59.41	49.27	49.60	48.14	44.90
27	75.82	70.74	63.80	61.16	62.45	55.71	55.26	59.07	49.19	49.35	48.41	44.39
28	75.81	70.62	63.52	61.31	62.53	55.73	55.37	58.89	49.27	49.16	48.71	44.08
29	75.89	70.35	63.46	61.60	---	55.69	55.51	58.88	49.21	49.07	48.91	43.64
30	75.80	70.24	63.46	61.81	---	55.59	55.67	59.05	49.33	49.12	49.22	43.44
31	75.52	---	63.38	61.89	---	55.39	---	59.14	---	49.14	49.38	---
MEAN	79.26	73.67	67.71	60.42	63.37	58.45	55.11	57.99	53.98	51.13	48.14	48.64
MAX	83.84	76.23	71.74	63.25	64.83	62.58	55.81	59.44	58.99	53.55	49.43	51.33
MIN	75.52	70.24	63.38	59.21	61.92	55.39	54.45	55.75	49.19	49.07	46.54	43.44



MONROE COUNTY

41223075234901. Local number, MO 190.

LOCATION.--Lat 41°12'23", long 75°23'49", Hydrologic Unit 02040106, at Tobyhanna State Park.

Owner: U.S. Geological Survey.

AQUIFER.--Sandstone of Catskill Formation of Late Devonian age.

WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in., depth 98 ft, cased to 59 ft, open hole.

INSTRUMENTATION.--Data collection platform with 30-minute recording interval. Satellite telemetry at station.

DATUM.--Elevation of land-surface datum is 1,990 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of plywood shelf, 3.0 ft above land-surface datum. Prior to Mar. 28, 1980, top of plywood shelf, 2.6 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.

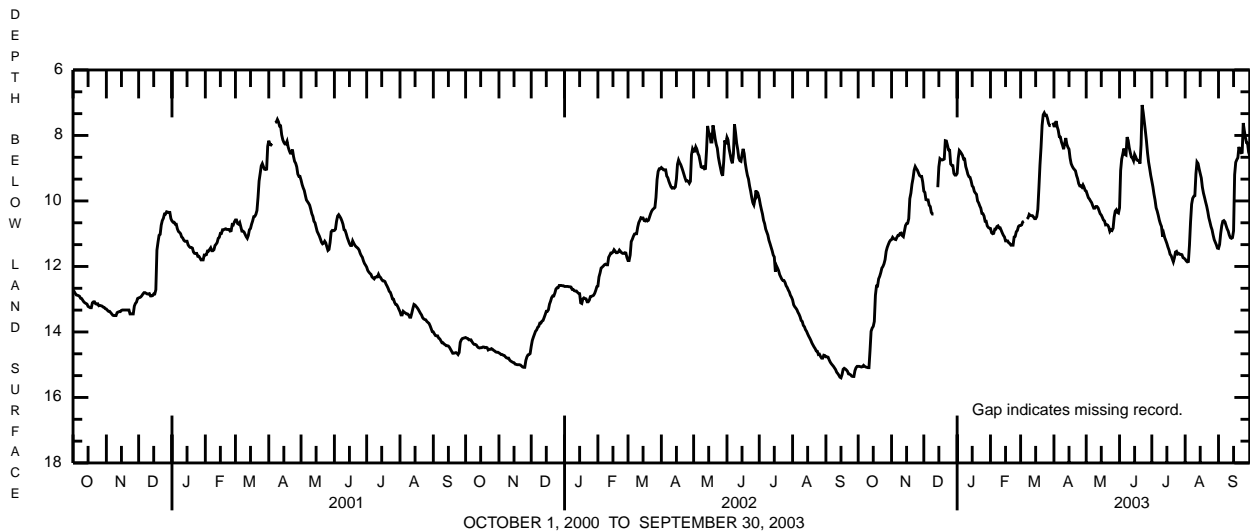
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.

Highest water level, 6.62 ft below land-surface datum, Apr. 13,14, 1994; lowest, 16.87 ft below land-surface datum, Oct. 24, 25, 1980.

EXTREMES FOR CURRENT YEAR.--Highest water level, 6.93 ft below land-surface datum, June 22; lowest, 15.09 ft below land-surface datum, Oct. 10, 11.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.05	11.18	9.70	9.16	10.84	10.75	7.71	9.70	10.21	9.39	11.78	11.45
2	15.05	11.11	9.74	8.70	10.97	10.73	7.71	9.80	9.07	9.57	11.83	11.33
3	15.06	11.15	9.96	8.46	11.00	10.64	7.56	9.90	8.72	9.79	11.86	11.00
4	15.07	11.17	9.97	8.50	10.99	10.62	7.73	9.94	8.57	9.97	11.85	10.76
5	15.06	11.18	9.97	8.55	10.86	---	7.84	10.00	8.40	10.21	11.35	10.62
6	15.02	11.11	10.13	8.61	10.86	---	8.04	10.05	8.58	10.31	10.65	10.60
7	15.05	11.05	10.17	8.72	10.78	10.55	8.05	10.14	8.60	10.44	10.10	10.64
8	15.07	11.05	10.35	8.72	10.76	10.51	8.20	10.22	8.05	10.59	9.92	10.75
9	15.08	10.99	10.40	8.95	10.82	10.41	8.30	10.22	8.15	10.70	9.86	10.85
10	15.09	10.98	10.40	9.06	10.82	10.44	8.42	10.17	8.37	10.78	9.84	10.92
11	15.09	11.06	---	9.19	10.90	10.45	8.24	10.17	8.53	11.09	9.18	11.04
12	14.57	11.09	---	9.26	10.98	10.45	8.08	10.21	8.66	10.99	8.81	11.12
13	13.98	10.92	---	9.28	11.05	10.49	8.27	10.30	8.69	11.12	8.86	11.14
14	13.88	10.75	9.58	9.39	11.10	10.54	8.36	10.39	8.77	11.21	9.02	11.12
15	13.83	10.69	8.96	9.54	11.22	10.54	8.42	10.43	8.58	11.30	9.16	10.91
16	13.68	10.68	8.71	9.58	11.22	10.48	8.69	10.50	8.65	11.41	9.30	9.20
17	12.88	10.54	8.74	9.71	11.22	10.26	8.86	10.58	8.75	11.50	9.58	8.82
18	12.60	9.93	8.75	9.76	11.28	9.62	8.94	10.61	8.76	11.63	9.76	8.74
19	12.60	9.76	8.74	9.80	11.30	8.90	9.00	10.73	8.76	11.67	9.89	8.68
20	12.38	9.49	8.72	10.00	11.35	8.36	9.04	10.72	8.86	11.77	10.03	8.35
21	12.30	9.31	8.16	10.06	11.35	7.69	9.08	10.74	8.29	11.86	10.16	8.47
22	12.19	9.06	8.17	10.15	11.35	7.37	9.22	10.80	7.07	11.74	10.32	8.53
23	12.05	8.95	8.30	10.22	11.10	7.31	9.32	10.93	7.30	11.56	10.51	8.52
24	12.00	9.01	8.44	10.38	11.08	7.38	9.47	10.88	7.58	11.54	10.64	7.62
25	11.92	9.06	8.45	10.39	10.94	7.38	9.54	10.90	7.86	11.62	10.78	7.85
26	11.79	9.14	8.87	10.46	10.90	7.48	9.54	10.83	8.17	11.60	10.88	8.06
27	11.54	9.22	8.91	10.62	10.78	7.63	9.58	10.49	8.53	11.63	11.04	8.22
28	11.42	9.25	8.92	10.62	10.75	7.70	9.51	10.31	8.81	11.63	11.18	8.23
29	11.33	9.25	9.16	10.76	---	7.70	9.58	10.27	9.01	11.64	11.26	8.51
30	11.25	9.42	9.21	10.81	---	---	9.68	10.35	9.22	11.73	11.34	8.62
31	11.20	---	9.21	10.83	---	7.61	---	10.37	---	11.75	11.44	---
MEAN	13.39	10.25	9.24	9.62	11.02	9.29	8.67	10.38	8.52	11.09	10.39	9.69
MAX	15.09	11.18	10.40	10.83	11.35	10.75	9.68	10.93	10.21	11.86	11.86	11.45
MIN	11.20	8.95	8.16	8.46	10.75	7.31	7.56	9.70	7.07	9.39	8.81	7.62



MONTGOMERY COUNTY

401415075175101. Local number, MG 68.  
(North Penn Area 7 Project)

LOCATION.--Lat 40°14'15", long 75°17'49", Hydrologic Unit 02040203, on Towamencin Street southwest from Whites Road, Upper Gwynedd Township.

Owner: North Penn Water Authority.

AQUIFER.--Shale of Brunswick Group of Triassic Age.

WELL CHARACTERISTICS.--Drilled unused public supply well, diameter 14 in., depth 500 ft, cased to 9 ft, open hole.

INSTRUMENTATION.--Electronic data logger with 15-minute recording interval.

DATUM.--Elevation of land-surface datum is 321.7 ft above National Geodetic Vertical Datum of 1929, from survey. Measuring point: Top of plywood shelf, about 0.5 ft above land-surface datum. Horizontal datum is NAD83.

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 1996 to January 2000; December 2000 to current year.

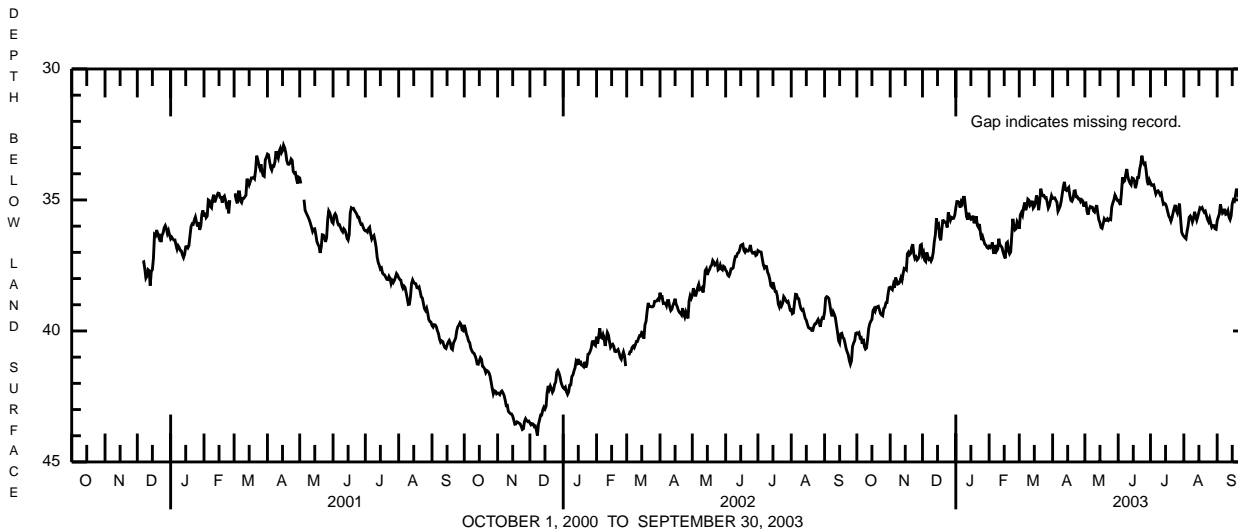
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.

Highest water level, 33.01 ft below land-surface datum, Apr. 17, 2001; lowest, 54.76 ft below land-surface datum, Dec. 27, 1998.

EXTREMES FOR CURRENT YEAR.--Highest water level, 33.27 ft below land-surface datum, June 23; lowest, 40.71 ft below land-surface datum, Oct. 9.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40.07	38.33	37.09	35.30	36.77	36.10	34.94	35.12	35.01	34.34	36.39	35.80
2	40.11	38.39	37.00	35.06	36.82	35.57	34.93	35.11	35.10	34.44	36.44	35.66
3	40.07	38.43	37.30	35.06	36.77	35.48	34.92	35.44	35.19	34.43	36.48	35.54
4	40.27	38.23	37.35	35.10	36.62	35.58	35.01	35.56	34.74	34.42	36.20	35.17
5	40.25	38.35	37.00	35.29	37.01	35.29	35.08	35.35	34.14	34.60	35.98	35.35
6	40.49	37.96	37.14	35.07	37.01	35.10	35.43	35.25	34.31	34.77	35.66	35.51
7	40.30	38.07	37.27	35.14	36.72	35.39	35.34	35.27	34.27	34.68	35.61	35.47
8	40.59	38.21	37.24	34.90	36.94	35.26	35.24	35.28	34.01	34.65	35.68	35.34
9	40.69	38.19	37.33	34.90	36.87	34.97	35.04	35.42	33.82	34.70	35.84	35.55
10	40.65	38.12	37.23	35.28	36.48	35.01	34.76	35.46	34.12	34.80	35.71	35.53
11	40.31	37.97	37.01	35.64	36.73	35.21	34.48	35.31	34.27	34.75	35.45	35.42
12	39.91	38.07	36.59	35.75	36.76	35.16	34.31	35.20	34.36	34.98	35.62	35.66
13	39.72	37.81	36.32	35.49	36.82	35.03	34.61	35.51	34.42	35.16	35.77	35.75
14	39.63	37.61	35.70	35.66	37.00	35.31	34.64	35.76	34.16	35.13	35.63	35.60
15	39.56	37.63	36.01	35.74	37.13	35.25	34.57	35.87	34.18	35.16	35.46	35.14
16	39.23	37.67	35.95	35.72	37.23	35.09	34.52	36.05	34.28	35.27	35.30	35.00
17	39.15	37.05	36.42	35.60	36.65	34.83	34.83	36.08	34.55	35.45	35.33	35.04
18	39.24	36.99	36.54	35.89	36.61	34.96	35.02	35.91	34.39	35.61	35.29	34.83
19	39.09	37.09	36.11	35.77	36.94	35.39	35.05	35.72	34.14	35.69	35.39	34.57
20	39.08	37.04	35.75	35.62	37.06	35.06	34.95	35.78	34.14	35.81	35.47	34.78
21	39.06	36.80	35.85	35.97	36.99	34.57	34.66	35.78	33.82	35.68	35.43	34.87
22	39.19	36.69	35.84	36.04	36.39	34.76	34.65	35.72	33.63	35.49	35.59	34.68
23	39.34	37.07	35.86	35.92	35.72	34.84	34.88	35.78	33.31	35.32	35.74	34.32
24	39.39	37.24	36.05	36.29	35.98	34.83	34.88	35.73	33.53	35.19	35.83	34.36
25	39.42	37.18	35.47	36.53	36.14	34.92	34.96	35.75	33.63	35.40	35.70	34.19
26	39.14	37.29	35.64	36.41	36.10	34.91	34.96	35.27	33.60	35.50	35.88	34.33
27	39.10	37.24	35.78	36.56	35.83	35.09	35.06	35.11	33.89	35.29	36.04	34.42
28	38.93	37.14	35.67	36.69	35.91	35.31	34.99	34.99	34.28	35.14	35.98	33.98
29	38.92	36.73	35.70	36.72	---	35.22	35.03	34.81	34.43	35.73	35.98	33.78
30	38.59	36.70	35.70	36.81	---	35.03	35.25	34.90	34.24	36.23	36.10	33.99
31	38.35	---	35.58	36.84	---	34.84	---	35.01	---	36.33	36.12	---
MEAN	39.61	37.58	36.37	35.77	36.64	35.14	34.90	35.46	34.20	35.17	35.78	34.99
MAX	40.69	38.43	37.35	36.84	37.23	36.10	35.43	36.08	35.19	36.33	36.48	35.80
MIN	38.35	36.69	35.47	34.90	35.72	34.57	34.31	34.81	33.31	34.34	35.29	33.78



MONTGOMERY COUNTY

401338075162801. Local number, MG 72.  
(North Penn Area 7 Project)

**LOCATION.**--Lat 40°13'38", long 75°16'27", Hydrologic Unit 02040203, on Hancock Street near Wissahickon Creek, Upper Gwynedd Township.  
Owner: North Penn Water Authority.

**AQUIFER.**--Shale of Brunswick Group of Triassic Age.

**WELL CHARACTERISTICS.**--Drilled unused public supply well, diameter 10 in., depth 298 ft, cased to 41.5 ft, open hole.

**INSTRUMENTATION.**--Electronic data logger with 15-minute recording interval.

**DATUM.**--Elevation of land-surface datum is 355.1 ft above National Geodetic Vertical Datum of 1929, from survey. Measuring point: Top of concrete pad, about 0.85 ft above well-house floor and 1.47 ft above land-surface datum. Horizontal datum is NAD83.

**REMARKS.**--Records good except for period July 3 to Sept. 30, which is fair to poor because of applied corrections for drift in transducer ranging from 0.24-1.41 ft per month. 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 2000 to current year.

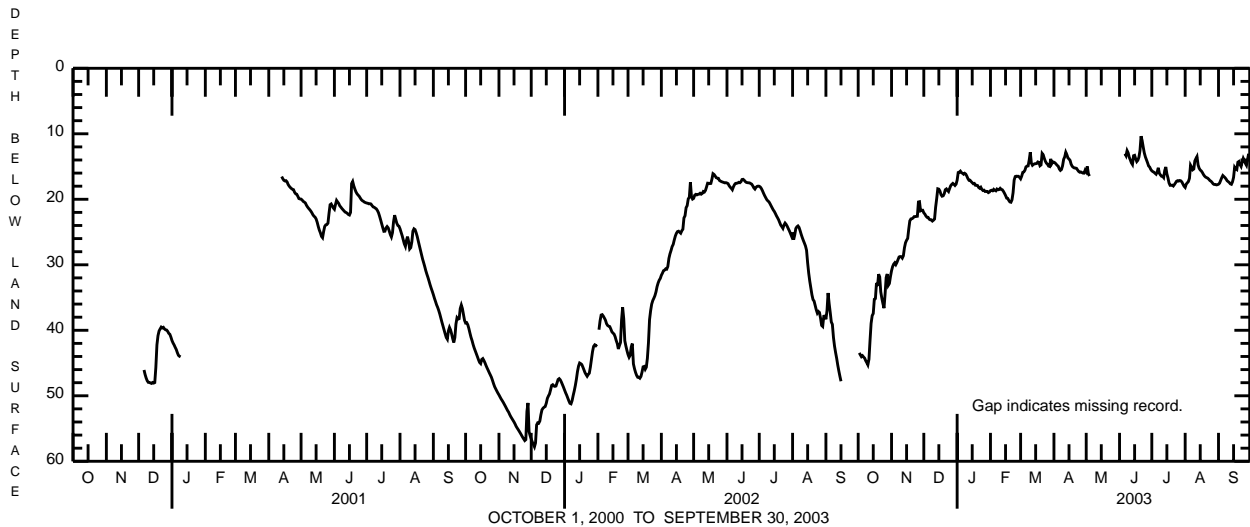
**EXTREMES FOR PERIOD OF RECORD.**--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.

Highest water level, 13.07 ft below land-surface datum, June 14, 2003; lowest, 58.03 ft below land-surface datum, Dec. 4, 2001.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 10.25 ft below land-surface datum, June 21; lowest, 45.38 ft below land-surface datum, Oct. 10.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	30.90	22.07	17.08	18.68	16.87	14.34	15.80	---	15.65	18.19	17.70
2	43.45	30.28	22.26	15.91	18.62	16.47	14.44	14.98	---	15.78	17.68	17.53
3	43.75	29.90	22.56	15.85	18.70	15.89	14.63	16.10	---	15.87	17.48	17.12
4	44.03	29.69	22.75	15.70	18.48	15.82	14.81	16.45	---	16.03	17.29	16.71
5	43.88	29.97	22.76	15.94	18.63	15.57	14.96	---	---	16.17	16.79	16.37
6	44.08	29.65	23.03	16.03	18.71	15.05	15.38	---	13.04	15.82	14.79	16.53
7	44.26	29.21	23.13	16.17	18.44	14.93	15.59	---	13.35	15.19	15.10	16.69
8	44.65	28.81	23.13	16.03	18.55	14.90	15.45	---	12.57	16.03	15.50	16.90
9	44.95	28.74	23.32	16.15	18.51	14.01	14.89	---	12.91	16.28	15.38	17.17
10	45.28	28.77	23.19	16.46	18.32	12.82	13.91	---	13.57	16.48	14.14	17.30
11	44.42	28.98	23.01	16.84	18.48	14.48	13.52	---	13.99	16.49	13.78	17.44
12	41.58	28.63	21.21	17.10	18.55	14.81	12.82	---	14.43	16.69	13.48	17.64
13	38.96	27.40	19.86	17.09	18.78	14.67	13.19	---	14.69	15.61	14.75	17.71
14	37.76	26.63	18.40	17.29	19.08	14.58	13.69	---	13.35	15.07	15.26	17.33
15	37.44	26.25	18.45	17.46	19.41	14.57	13.85	---	13.29	16.11	15.53	16.65
16	35.26	25.98	18.75	17.63	19.81	14.53	14.06	---	13.83	16.72	15.67	15.10
17	35.15	24.54	19.29	17.58	19.86	14.30	14.65	---	14.24	17.51	15.91	15.34
18	32.78	23.29	19.53	17.86	20.16	14.36	14.97	---	14.04	17.87	16.22	15.46
19	33.22	23.00	19.47	17.85	20.40	14.88	15.12	---	13.56	17.86	16.45	14.34
20	31.44	22.96	19.15	17.90	20.45	14.75	15.22	---	12.55	17.84	16.61	14.22
21	31.84	22.85	18.54	18.20	20.08	12.99	15.23	---	10.37	17.97	16.70	14.69
22	34.14	22.65	18.42	18.32	19.00	13.20	15.28	---	11.03	17.75	16.78	14.98
23	35.13	22.64	18.64	18.16	17.06	13.74	15.53	---	12.03	17.50	16.94	14.29
24	35.93	22.62	18.82	18.49	16.53	14.19	15.75	---	12.92	17.24	17.14	13.74
25	36.62	22.59	18.35	18.66	16.47	14.49	15.87	---	13.53	17.16	17.24	14.09
26	34.46	20.41	17.93	18.61	16.49	14.64	15.83	---	13.97	17.22	17.42	14.53
27	31.95	20.37	17.72	18.81	16.49	14.93	15.92	---	14.41	17.13	17.64	14.82
28	31.41	21.76	17.57	18.79	16.65	14.99	16.00	---	14.91	17.19	17.74	13.92
29	33.13	21.68	17.71	18.80	---	13.83	16.01	---	15.08	17.37	17.73	13.06
30	32.86	21.67	17.89	18.98	---	14.56	15.55	---	15.43	17.70	17.80	14.12
31	31.80	---	17.69	18.89	---	14.28	---	---	---	18.01	17.77	---
MEAN	37.85	25.76	20.15	17.44	18.55	14.65	14.88	15.83	13.48	16.75	16.35	15.78
MAX	45.28	30.90	23.32	18.98	20.45	16.87	16.01	16.45	15.43	18.01	18.19	17.71
MIN	31.41	20.37	17.57	15.70	16.47	12.82	12.82	14.98	10.37	15.07	13.48	13.06





MONTGOMERY COUNTY

400808075210401. Local number, MG 225.

LOCATION.--Lat 40°08'08", long 75°21'04", Hydrologic Unit 02040203, at Willow and Locust Streets, Norristown.

Owner: Norristown State Hospital.

AQUIFER.--Sandstone of Stockton Formation of Late Triassic age.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 12 in., depth 486 ft (previously reported as 300 ft), cased to 78 ft, open hole.

INSTRUMENTATION.--Electronic data logger with 60-minute recording interval.

DATUM.--Elevation of land-surface datum is 165 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of plywood shelf, 2.35 ft above land-surface datum. Prior to Mar. 17, 1981, top of casing 0.8 ft above land-surface datum.

REMARKS.--In addition to the daily maximum water level table shown below, daily minimum and mean water levels, since October 1994, are also available from the District Office.

PERIOD OF RECORD.--September 1956 to current year.

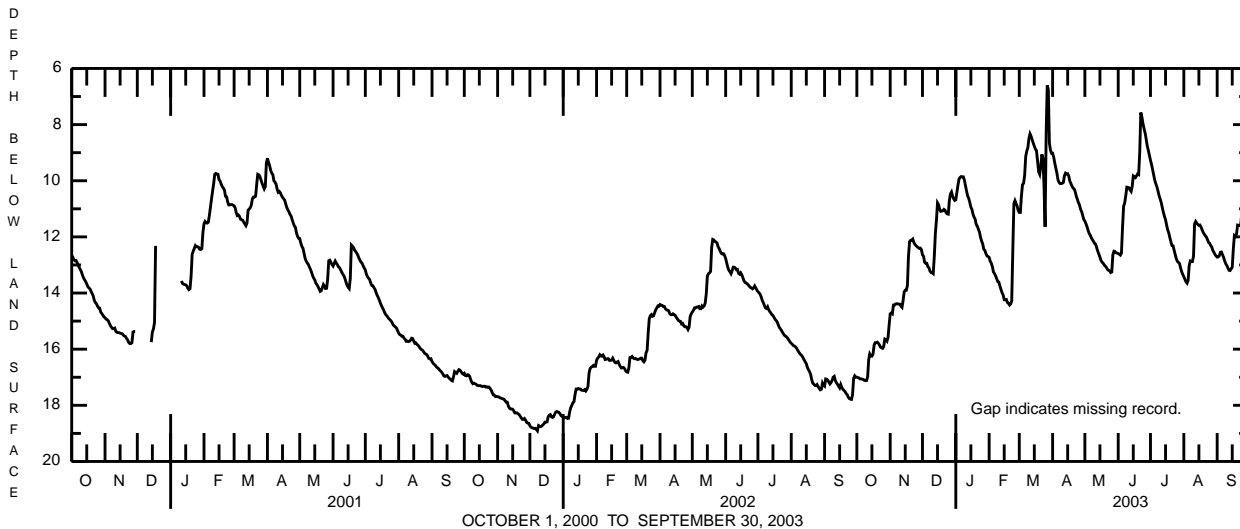
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.

Highest water level, 6.42 ft below land-surface datum, (affected by nearby pumping), Mar. 27, 2003; lowest, 60.25 ft below land-surface datum, Nov. 5, 6, 1963.

EXTREMES FOR CURRENT YEAR.--Highest water level, 6.42 ft below land-surface datum, (affected by nearby pumping), Mar. 27; lowest, 17.12 ft below land-surface datum, Oct. 9, 10.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.00	14.74	12.64	10.68	12.73	11.13	9.02	11.44	12.59	9.27	13.42	12.72
2	17.01	14.71	12.69	10.42	12.87	11.13	9.16	11.53	12.62	9.43	13.51	12.71
3	17.03	14.74	12.90	10.15	12.94	10.54	9.37	11.64	12.65	9.61	13.60	12.67
4	17.06	14.43	12.94	9.94	13.06	10.14	9.55	11.77	12.58	9.80	13.65	12.55
5	17.06	14.43	12.94	9.88	13.25	10.09	9.73	11.88	11.66	9.99	13.55	12.54
6	17.07	14.39	13.06	9.85	13.31	9.81	9.97	11.94	10.91	10.11	13.02	12.64
7	17.08	14.38	13.10	9.86	13.39	9.13	10.06	12.03	10.79	10.22	12.86	12.73
8	17.11	14.39	13.22	9.86	13.49	8.94	10.10	12.10	10.54	10.37	12.88	12.86
9	17.12	14.39	13.27	9.98	13.59	8.82	10.10	12.16	10.23	10.53	12.88	12.96
10	17.12	14.40	13.28	10.18	13.61	8.49	10.09	12.23	10.24	10.65	12.68	13.02
11	16.99	14.47	13.31	10.37	13.75	8.33	10.06	12.26	10.25	10.78	11.54	13.11
12	16.37	14.51	12.70	10.54	13.87	8.42	9.82	12.39	10.33	10.96	11.45	13.19
13	16.17	14.26	11.87	10.63	13.99	8.54	9.73	12.51	10.38	11.13	11.51	13.20
14	16.24	13.96	11.40	10.77	14.07	8.66	9.76	12.62	10.20	11.27	11.56	13.14
15	16.25	13.90	10.79	10.94	14.24	8.77	9.75	12.72	9.83	11.39	11.59	13.08
16	16.18	13.90	10.86	11.02	14.24	8.87	9.83	12.84	9.86	11.58	11.58	12.44
17	15.86	13.73	11.02	11.19	14.23	8.93	10.01	12.90	9.89	11.75	11.65	11.95
18	15.77	12.68	11.09	11.30	14.34	9.29	10.10	12.94	9.83	11.86	11.75	11.98
19	15.77	12.17	11.08	11.37	14.37	9.68	10.19	13.00	9.76	12.03	11.84	11.90
20	15.75	12.12	11.07	11.56	14.43	9.77	10.26	13.04	9.78	12.18	11.90	11.58
21	15.79	12.12	11.02	11.62	14.39	9.49	10.29	13.09	8.99	12.31	11.96	11.59
22	15.85	12.08	11.05	11.73	14.28	9.06	10.39	13.16	7.57	12.32	12.01	11.60
23	15.93	12.20	11.14	11.83	12.44	9.20	10.55	13.19	7.73	12.48	12.10	11.53
24	15.95	12.27	11.18	12.02	10.82	10.20	10.66	13.21	7.96	12.63	12.20	11.07
25	15.97	12.31	11.19	12.15	10.71	11.64	10.78	13.27	8.14	12.78	12.23	10.92
26	15.90	12.35	10.70	12.25	10.81	8.32	10.86	13.25	8.30	12.87	12.31	10.96
27	15.64	12.38	10.47	12.44	10.90	6.60	11.02	12.64	8.52	12.91	12.36	10.96
28	15.66	12.41	10.40	12.48	11.06	6.75	11.10	12.51	8.76	12.95	12.49	10.95
29	15.71	12.40	10.55	12.60	---	8.65	11.24	12.52	8.92	13.11	12.55	10.41
30	15.58	12.45	10.64	12.68	---	8.91	11.38	12.57	9.10	13.24	12.63	10.43
31	15.14	---	10.70	12.70	---	9.02	---	12.58	---	13.34	12.68	---
MEAN	16.29	13.46	11.75	11.13	13.19	9.20	10.16	12.51	9.96	11.48	12.39	12.11
MAX	17.12	14.74	13.31	12.70	14.43	11.64	11.38	13.27	12.65	13.34	13.65	13.20
MIN	15.14	12.08	10.40	9.85	10.71	6.60	9.02	11.44	7.57	9.27	11.45	10.41



MONTGOMERY COUNTY

401733075171401. Local number, MG 917.

LOCATION.--Lat 40°17'33", long 75°17'14", Hydrologic Unit 02040201, at North Penn Water Authority at Lansdale.

Owner: North Penn Water Authority.

AQUIFER.--Shale of Brunswick Formation of Late Triassic Age.

WELL CHARACTERISTICS.--Drilled observation well, diameter 8 in, depth 500 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 datum is 350 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of plywood shelf, 3.39 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 1997 to current year.

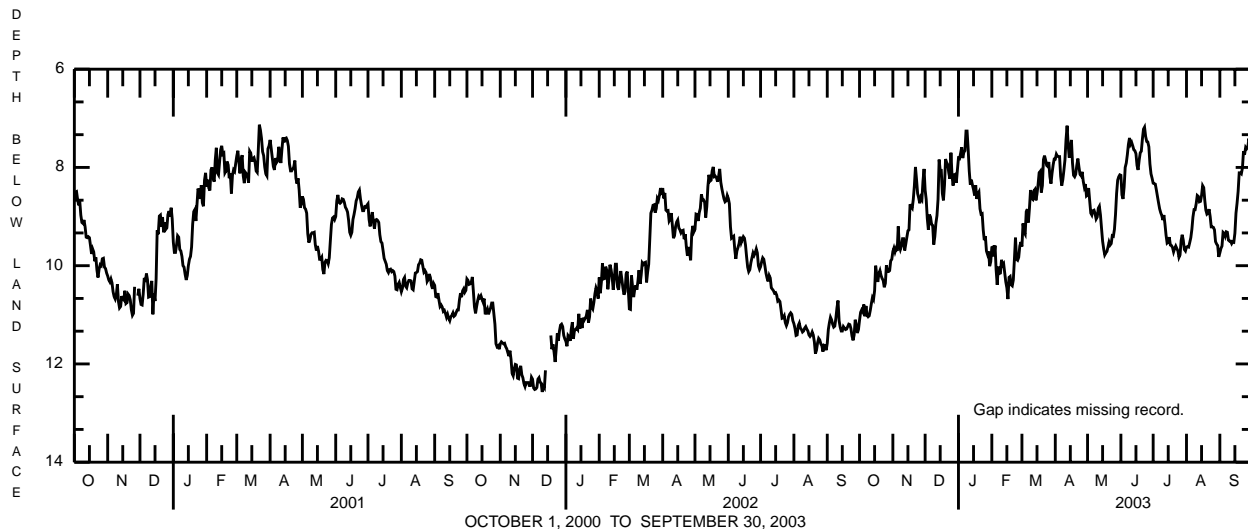
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.

Highest water level, 7.00 ft below land-surface datum, March 28, 2000; lowest, 12.66 ft below land-surface datum, Aug. 16, 1999.

EXTREMES FOR CURRENT YEAR.--Highest water level, 7.03 ft below land-surface datum, Apr. 12; lowest, 11.22 ft below land-surface datum, Oct. 1.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.11	9.71	8.46	7.81	9.63	9.61	7.83	8.56	8.16	8.32	9.62	9.74
2	10.95	9.64	8.65	7.82	9.62	9.14	7.73	8.42	8.56	8.33	9.61	9.65
3	10.90	9.72	9.04	7.71	9.81	9.32	7.77	8.68	8.64	8.34	9.62	9.60
4	10.94	9.65	9.27	7.59	9.59	9.36	7.78	8.93	8.40	8.46	9.53	9.32
5	10.79	9.70	8.96	7.81	10.08	8.90	7.78	8.97	8.00	8.59	9.43	9.34
6	11.03	9.20	9.01	7.69	10.39	8.85	8.18	8.88	7.91	8.72	9.26	9.40
7	10.82	9.59	9.16	7.66	10.02	9.12	8.37	8.87	7.74	8.84	9.01	9.31
8	11.01	9.67	9.18	7.26	10.16	8.83	8.25	8.94	7.53	8.92	8.86	9.32
9	11.04	9.60	9.57	7.26	10.15	8.46	8.06	9.05	7.40	8.98	8.86	9.48
10	11.02	9.45	9.41	7.62	9.88	8.63	7.85	9.01	7.53	9.07	8.74	9.50
11	10.91	9.45	9.14	8.07	9.99	8.65	7.43	8.83	7.49	8.97	8.57	9.50
12	10.77	9.69	8.98	8.35	9.96	8.48	7.15	8.79	7.56	9.16	8.59	9.55
13	10.65	9.56	8.65	8.25	10.15	8.45	7.55	8.97	7.64	9.38	8.70	9.51
14	10.69	9.42	7.84	8.36	10.33	8.67	7.80	9.24	7.66	9.54	8.69	9.52
15	10.51	9.29	8.06	8.45	10.45	8.54	7.60	9.50	7.72	9.52	8.57	9.34
16	10.00	9.27	8.06	8.57	10.68	8.35	7.44	9.66	7.96	9.42	8.37	8.93
17	10.18	8.75	8.53	8.36	10.24	8.11	7.91	9.78	8.05	9.58	8.41	8.73
18	10.33	8.80	8.67	8.64	10.22	8.08	8.16	9.74	7.85	9.59	8.67	8.49
19	10.16	8.83	8.36	8.54	10.39	8.51	8.19	9.71	7.70	9.63	8.87	8.11
20	10.10	8.65	7.83	8.50	10.41	8.37	8.14	9.62	7.67	9.72	8.95	8.11
21	10.20	8.37	7.90	8.84	10.29	7.84	7.96	9.52	7.42	9.65	8.93	8.13
22	10.26	7.99	7.94	8.95	9.87	7.76	7.82	9.58	7.22	9.60	8.85	8.01
23	10.30	8.25	8.11	8.94	9.43	7.85	7.99	9.55	7.18	9.65	9.00	7.67
24	10.44	8.53	8.23	9.27	9.87	7.96	8.14	9.39	7.37	9.70	9.21	7.74
25	10.36	8.62	7.70	9.48	9.89	7.98	8.17	9.40	7.47	9.83	9.21	7.59
26	9.99	8.73	8.17	9.40	9.83	7.89	8.09	9.26	7.48	9.78	9.22	7.62
27	10.12	8.61	8.37	9.70	9.60	8.19	8.28	8.96	7.58	9.49	9.27	7.59
28	10.12	8.65	8.15	9.77	9.52	8.33	8.40	8.53	7.93	9.37	9.51	7.41
29	10.10	8.28	8.14	9.71	---	8.12	8.34	8.26	8.13	9.48	9.56	7.52
30	9.90	8.03	8.31	10.01	---	7.95	8.58	8.19	8.22	9.67	9.59	7.78
31	9.87	---	8.05	9.92	---	7.83	---	8.15	---	9.70	9.82	---
MEAN	10.50	9.06	8.51	8.53	10.02	8.46	7.96	9.06	7.77	9.26	9.07	8.72
MAX	11.11	9.72	9.57	10.01	10.68	9.61	8.58	9.78	8.64	9.83	9.82	9.74
MIN	9.87	7.99	7.70	7.26	9.43	7.76	7.15	8.15	7.18	8.32	8.37	7.41



## MONTGOMERY COUNTY

401314075171401. Local number, MG 1145.  
(North Penn Area 7 Project)

**LOCATION.**--Lat 40°13'12", long 75°17'12", Hydrologic Unit 02040203, on Church Road southwest from Wissahickon Avenue, Upper Gwynedd Township.

Owner: Teleflex Corporation.

**AQUIFER.**--Shale of Brunswick Group of Triassic Age.

**WELL CHARACTERISTICS.**--Drilled monitor well, diameter 6 in., depth 83 ft, cased to 19 ft, open hole.

**INSTRUMENTATION.**--Electronic data logger with 15-minute recording interval.

**DATUM.**--Elevation of land-surface datum is 330.62 ft above North American Vertical Datum of 1988, from topographic map. Measuring point: Top of plywood shelf on top of well casing, about 1.35 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 13, 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, 4.24 ft below land-surface datum, June 20, 2003; lowest, 34.13 ft below land-surface datum, Sept. 26, 2002.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 4.24 ft below land-surface datum, June 20; lowest, 32.70 ft below land-surface datum, Oct. 10.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
MEAN VALUES

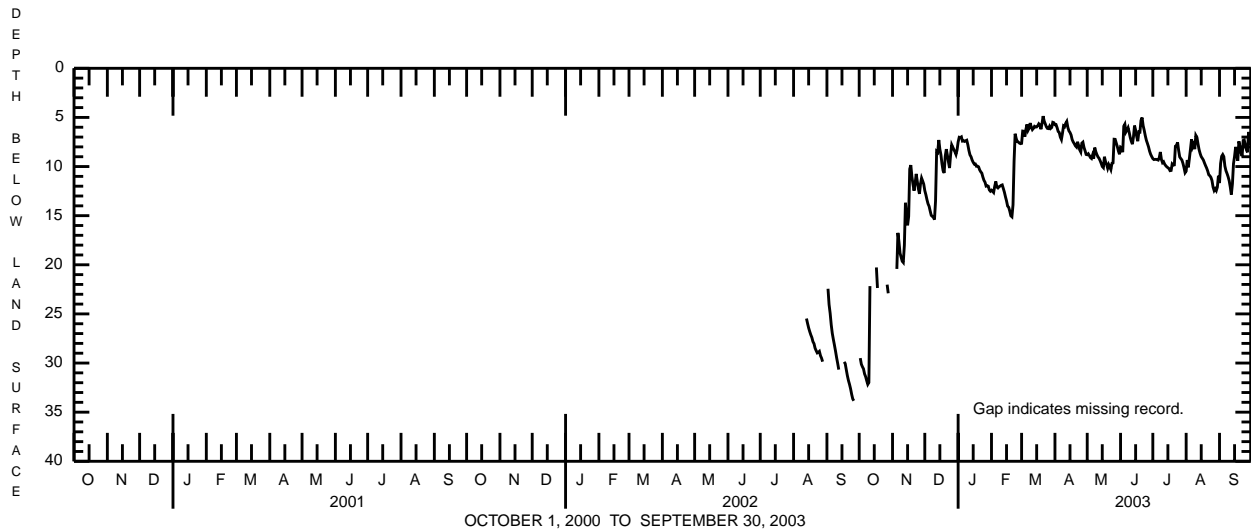
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	22.44
3	---	---	---	---	---	---	---	---	---	---	---	24.04
4	---	---	---	---	---	---	---	---	---	---	---	24.94
5	---	---	---	---	---	---	---	---	---	---	---	26.10
6	---	---	---	---	---	---	---	---	---	---	---	26.98
7	---	---	---	---	---	---	---	---	---	---	---	27.61
8	---	---	---	---	---	---	---	---	---	---	---	28.18
9	---	---	---	---	---	---	---	---	---	---	---	28.80
10	---	---	---	---	---	---	---	---	---	---	---	29.45
11	---	---	---	---	---	---	---	---	---	---	---	30.03
12	---	---	---	---	---	---	---	---	---	---	---	30.67
13	---	---	---	---	---	---	---	---	---	---	25.47	---
14	---	---	---	---	---	---	---	---	---	---	25.97	---
15	---	---	---	---	---	---	---	---	---	---	26.42	---
16	---	---	---	---	---	---	---	---	---	---	26.79	---
17	---	---	---	---	---	---	---	---	---	---	27.13	29.88
18	---	---	---	---	---	---	---	---	---	---	27.40	30.05
19	---	---	---	---	---	---	---	---	---	---	27.82	30.68
20	---	---	---	---	---	---	---	---	---	---	28.03	31.28
21	---	---	---	---	---	---	---	---	---	---	28.49	31.77
22	---	---	---	---	---	---	---	---	---	---	28.74	32.17
23	---	---	---	---	---	---	---	---	---	---	28.97	32.62
24	---	---	---	---	---	---	---	---	---	---	28.91	33.19
25	---	---	---	---	---	---	---	---	---	---	28.81	33.65
26	---	---	---	---	---	---	---	---	---	---	29.25	33.84
27	---	---	---	---	---	---	---	---	---	---	29.50	---
28	---	---	---	---	---	---	---	---	---	---	29.86	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	27.97	29.45
MAX	---	---	---	---	---	---	---	---	---	---	29.86	33.84
MIN	---	---	---	---	---	---	---	---	---	---	25.47	22.44

MONTGOMERY COUNTY

401314075171401. Local number, MG 1145.  
(North Penn Area 7 Project)

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	12.45	7.50	12.41	7.64	5.74	8.80	8.02	9.19	10.47	11.68
2	29.50	---	12.86	7.02	12.52	6.39	5.73	8.70	8.09	9.29	9.34	9.70
3	30.12	---	13.37	7.05	12.64	6.41	6.04	8.88	8.54	9.27	10.08	8.96
4	30.38	---	13.79	6.98	12.01	6.96	6.43	9.09	5.89	9.27	9.18	8.78
5	30.59	20.42	14.05	7.41	11.52	6.22	6.53	9.18	5.69	9.30	8.22	8.99
6	31.10	16.75	14.53	7.38	12.09	5.71	7.00	8.82	6.48	9.34	7.24	9.95
7	31.39	17.69	14.97	7.44	12.18	6.31	7.25	9.19	6.28	9.09	8.02	10.43
8	31.80	18.82	15.07	7.37	12.06	6.09	6.60	8.07	6.05	8.52	7.75	10.71
9	32.17	19.24	15.18	7.32	11.99	5.58	5.86	8.49	6.51	9.29	8.23	11.04
10	31.98	19.63	15.40	7.77	11.91	5.98	5.94	8.79	7.04	9.61	6.83	11.45
11	22.17	19.76	13.50	8.36	11.87	6.24	5.60	9.02	7.43	9.51	7.03	12.08
12	---	18.01	8.45	8.81	12.23	6.11	5.41	9.16	7.72	9.76	7.69	12.85
13	---	13.69	8.55	9.00	12.61	5.91	6.02	9.40	6.98	9.91	8.27	11.76
14	---	14.90	7.30	9.34	13.08	5.98	6.37	9.68	5.83	10.03	8.68	9.71
15	---	15.98	8.23	9.57	13.50	5.97	6.53	9.99	6.30	10.12	8.99	8.97
16	---	15.07	8.80	9.75	14.03	5.85	6.79	10.11	6.93	10.20	9.16	8.00
17	20.27	10.25	9.75	9.74	14.15	5.65	7.26	9.00	7.42	10.42	9.34	8.84
18	22.36	9.86	10.43	9.97	14.54	5.77	7.50	9.49	6.47	10.40	9.63	9.41
19	---	11.02	10.65	9.96	15.01	6.20	7.68	9.78	6.49	9.74	9.90	7.43
20	---	11.79	8.96	10.03	15.11	5.61	7.89	10.17	5.31	9.85	10.15	7.95
21	---	12.46	8.23	10.34	13.90	4.87	8.01	9.80	5.01	9.83	10.45	8.60
22	---	11.72	8.85	10.53	9.44	5.37	7.48	10.03	5.84	7.93	10.83	8.94
23	---	10.75	9.53	10.67	6.66	5.66	7.85	10.30	6.31	7.85	10.94	7.34
24	---	11.50	10.15	11.07	7.15	5.95	8.30	9.68	6.87	7.54	11.10	7.29
25	---	12.24	8.79	11.40	7.46	6.12	8.52	9.62	7.33	8.36	11.42	7.83
26	---	12.78	7.79	11.60	7.51	6.14	7.62	7.22	7.65	9.02	12.09	8.30
27	22.02	11.76	8.03	11.99	7.62	5.90	7.52	7.23	8.00	9.19	12.44	8.55
28	22.90	11.17	8.27	11.95	7.67	6.12	8.06	7.61	8.44	9.33	12.26	6.48
29	---	11.46	8.50	12.00	---	6.02	8.39	7.97	8.76	9.67	12.45	7.13
30	---	11.79	8.77	12.38	---	5.50	8.77	8.42	8.99	10.12	12.10	7.79
31	---	---	8.31	12.51	---	5.54	---	8.75	---	10.63	10.94	---
MEAN	27.77	14.25	10.69	9.49	11.60	5.99	7.02	9.05	6.96	9.41	9.72	9.23
MAX	32.17	20.42	15.40	12.51	15.11	7.64	8.77	10.30	8.99	10.63	12.45	12.85
MIN	20.27	9.86	7.30	6.98	6.66	4.87	5.41	7.22	5.01	7.54	6.83	6.48



MONTGOMERY COUNTY

401318075171101. Local number, MG 1146.  
(North Penn Area 7 Project)

**LOCATION.**--Lat 40°13'19", long 75°17'11", Hydrologic Unit 02040203, on Church Road southwest from Wissahickon Avenue, Upper Gwynedd Township.  
Owner: Teleflex Corporation.

**AQUIFER.**--Shale of Brunswick Group of Triassic Age.

**WELL CHARACTERISTICS.**--Drilled monitor well, diameter 6 in., depth 84 ft, cased to 19.5 ft, open hole.

**INSTRUMENTATION.**--Electronic data logger with 15-minute recording interval.

**DATUM.**--Elevation of land-surface datum is 343.8 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of plywood shelf on top of well casing, about 1.74 ft above land-surface datum. Horizontal datum is NAD27.

**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.

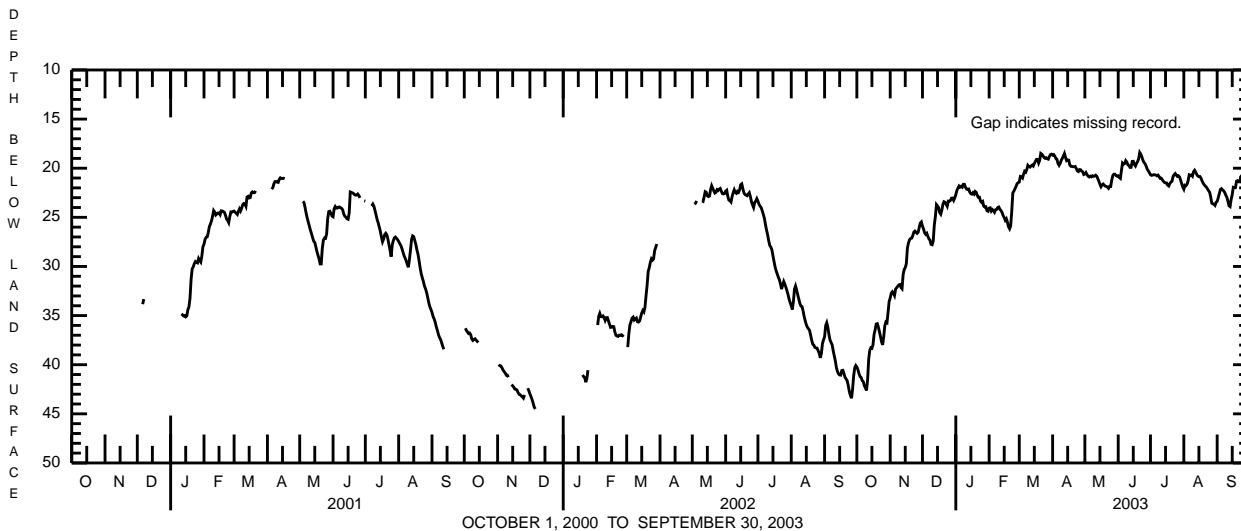
**PERIOD OF RECORD.**--December 2000 to current year.

**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, 20.98 ft below land-surface datum, Apr. 13, 2000; lowest, 44.95 ft below land-surface datum, Dec. 7, 2001.

**EXTREMES FOR CURRENT YEAR.**--Highest water level, 18.35 ft below land-surface datum, June 21; lowest, 42.70 ft below land-surface datum, Oct. 10.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40.22	33.20	25.90	22.68	24.07	21.41	18.67	20.59	20.77	20.66	22.14	23.38
2	40.52	32.72	26.18	22.27	24.03	20.84	18.61	20.44	20.95	20.73	21.73	23.01
3	40.92	32.57	26.57	22.02	24.36	20.88	18.77	20.65	21.04	20.70	21.78	22.57
4	41.21	32.73	26.73	21.81	24.21	21.00	19.00	20.81	20.22	20.66	21.64	22.16
5	41.31	32.96	26.62	21.93	24.31	20.62	19.09	20.89	19.48	20.67	21.27	22.08
6	41.61	32.32	26.92	21.84	24.48	20.31	19.51	20.81	19.60	20.70	20.67	22.21
7	41.74	32.16	27.19	21.93	24.23	20.40	19.71	20.88	19.53	20.77	20.72	22.31
8	42.15	32.02	27.33	21.64	24.19	20.13	19.53	20.77	19.23	20.70	20.70	22.47
9	42.38	31.88	27.75	21.64	24.00	19.71	19.20	20.82	19.37	20.85	20.82	22.74
10	42.62	31.84	27.79	21.95	23.95	19.84	19.00	20.80	19.65	21.03	20.36	22.96
11	41.51	32.13	27.42	22.12	24.18	19.89	18.76	20.71	19.74	21.02	20.21	23.35
12	39.44	32.26	25.79	22.15	24.31	19.76	18.50	20.81	19.92	21.18	20.39	23.83
13	38.53	30.84	24.92	22.12	24.50	19.68	18.90	21.06	19.91	21.33	20.64	23.91
14	38.28	30.31	23.70	22.44	24.83	19.78	19.23	21.33	19.31	21.45	20.79	23.18
15	38.33	30.11	23.84	22.60	25.03	19.52	19.16	21.63	19.30	21.49	20.86	22.68
16	37.98	29.72	24.02	22.64	25.30	19.30	19.18	21.88	19.63	21.50	20.85	21.94
17	36.91	28.12	24.52	22.49	25.15	19.10	19.67	21.70	19.78	21.73	21.02	21.97
18	36.45	27.62	24.68	22.63	25.50	19.11	19.81	21.61	19.52	21.81	21.30	21.98
19	35.86	27.27	24.27	22.37	25.96	19.47	19.82	21.73	19.33	21.56	21.53	21.32
20	35.82	27.15	23.69	22.46	26.17	19.19	19.85	21.83	19.03	21.41	21.70	21.27
21	36.17	27.12	23.41	22.79	25.87	18.49	19.84	21.85	18.41	21.33	21.82	21.38
22	36.66	26.86	23.46	22.96	24.40	18.57	19.82	21.93	18.59	20.85	21.93	21.39
23	37.15	26.50	23.65	22.95	22.52	18.72	20.02	22.05	18.86	20.66	22.11	20.86
24	37.69	26.40	23.87	23.35	22.33	18.92	20.28	21.84	19.20	20.54	22.29	20.72
25	37.98	26.52	23.35	23.48	22.09	18.99	20.34	21.85	19.41	20.70	22.45	20.77
26	37.13	26.63	23.36	23.39	21.85	18.93	20.14	21.20	19.55	20.83	22.94	20.94
27	36.02	26.52	23.28	23.87	21.57	19.04	20.15	20.74	19.79	20.77	23.55	20.97
28	35.65	26.02	23.05	23.96	21.47	19.08	20.29	20.61	20.10	20.89	23.63	20.35
29	35.73	25.58	23.04	23.93	---	18.81	20.36	20.62	20.28	21.20	23.66	20.43
30	34.68	25.47	23.27	24.33	---	18.61	20.64	20.75	20.46	21.58	23.78	20.75
31	33.59	---	23.02	24.38	---	18.57	---	20.81	---	21.92	23.47	---
MEAN	38.46	29.45	24.92	22.68	24.10	19.57	19.53	21.16	19.67	21.07	21.70	22.00
MAX	42.62	33.20	27.79	24.38	26.17	21.41	20.64	22.05	21.04	21.92	23.78	23.91
MIN	33.59	25.47	23.02	21.64	21.47	18.49	18.50	20.44	18.41	20.54	20.21	20.35



NORTHAMPTON COUNTY

404745075184001. Local number, NP 820.

LOCATION.--Lat 40°47'45", long 75°18'40", Hydrologic Unit 02040105, at 0.75 mi east of Bushkill Center on SR 1010, at Jacobsburg State Park.  
 Owner: Jacobsburg State Park.

AQUIFER.--Martinsburg Shale.

WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in, depth 218 ft, cased to 50 ft.

INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.

DATUM.--Elevation of land-surface datum is 578 ft above National Geodetic Vertical Datum of 1929, from topographic map. 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 maximum and minimum water levels, are also available from the District Office.

PERIOD OF RECORD.--May 3, 2001 to current year.

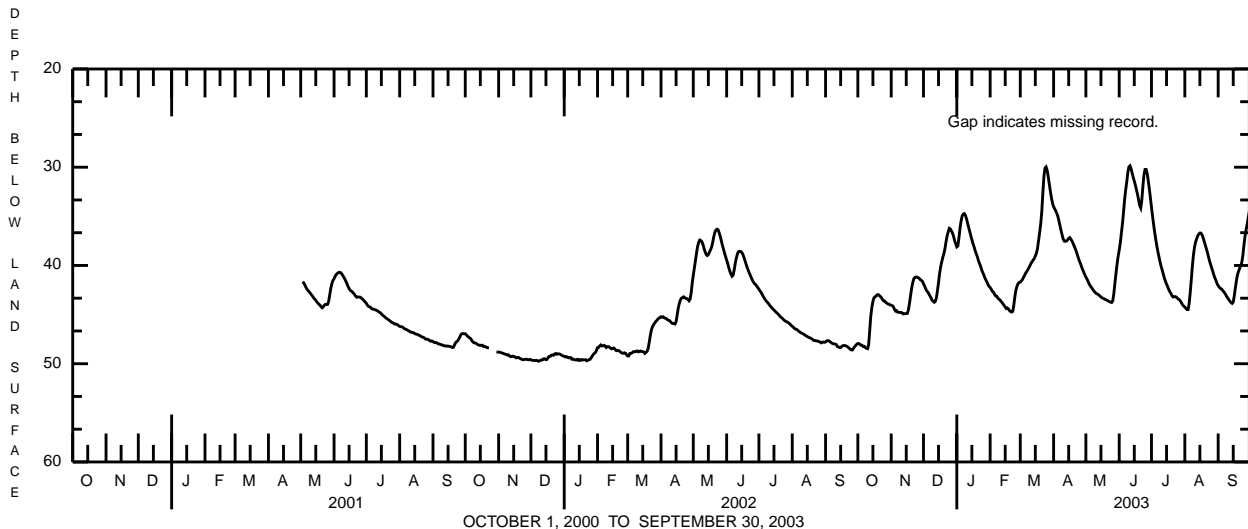
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land surface for the period of record indicated above.

Highest water level, 29.81 ft below land-surface datum, June 11, 2003; lowest, 49.79 ft below land-surface datum, Dec. 8, 2001.

EXTREMES FOR CURRENT YEAR.--Highest water level, 29.81 ft below land-surface datum, June 11; lowest, 48.51 ft below land-surface datum, Oct. 10.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47.95	44.05	41.87	38.11	42.24	41.70	34.02	41.18	38.44	34.08	44.24	42.05
2	47.95	44.09	42.08	38.02	42.42	41.58	34.23	41.37	37.70	35.00	44.37	42.21
3	48.03	44.20	42.36	37.17	42.63	41.44	34.45	41.63	36.71	35.85	44.49	42.34
4	48.12	44.46	42.59	36.18	42.70	41.21	34.71	41.86	35.76	36.65	44.49	42.38
5	48.13	44.64	42.70	35.47	42.92	41.01	35.02	42.06	34.59	37.38	43.88	42.51
6	48.26	44.60	42.89	34.94	43.09	40.78	35.50	42.21	33.31	38.03	42.79	42.66
7	48.24	44.75	43.10	34.77	43.12	40.62	35.99	42.37	32.32	38.63	41.46	42.79
8	48.37	44.78	43.28	34.72	43.29	40.44	36.48	42.53	31.50	39.15	40.08	42.97
9	48.43	44.78	43.55	34.89	43.42	40.23	36.94	42.68	30.54	39.66	38.95	43.17
10	48.47	44.77	43.65	35.24	43.49	40.02	37.34	42.79	29.97	40.11	38.14	43.33
11	48.09	44.82	43.75	35.68	43.65	39.79	37.53	42.87	29.86	40.48	37.62	43.50
12	46.68	44.93	43.66	36.13	43.76	39.61	37.54	42.92	30.13	40.89	37.28	43.66
13	45.18	44.92	43.29	36.54	43.92	39.45	37.51	43.01	30.59	41.29	37.00	43.78
14	44.26	44.90	42.57	36.97	44.07	39.29	37.40	43.10	31.02	41.63	36.79	43.86
15	43.66	44.89	41.76	37.37	44.23	39.03	37.24	43.21	31.41	41.90	36.70	43.73
16	43.29	44.88	40.81	37.77	44.39	38.76	37.16	43.29	31.82	42.15	36.71	43.07
17	43.19	44.52	40.14	38.08	44.33	38.28	37.31	43.35	32.29	42.44	36.87	42.24
18	43.11	43.86	39.62	38.48	44.42	37.48	37.50	43.40	32.75	42.66	37.18	41.53
19	42.98	43.06	39.17	38.79	44.59	36.65	37.73	43.46	33.30	42.84	37.55	40.92
20	42.97	42.33	38.78	39.08	44.70	35.78	37.99	43.51	33.89	43.06	37.91	40.59
21	43.06	41.77	38.29	39.47	44.75	34.53	38.26	43.56	34.14	43.21	38.30	40.28
22	43.17	41.36	37.57	39.77	44.68	32.58	38.54	43.64	33.37	43.19	38.69	40.03
23	43.29	41.22	36.98	40.04	44.04	30.93	38.89	43.70	31.95	43.17	39.11	39.66
24	43.48	41.18	36.59	40.41	43.15	30.09	39.23	43.73	30.78	43.21	39.56	38.93
25	43.61	41.18	36.22	40.70	42.49	29.97	39.56	43.77	30.23	43.32	39.91	37.90
26	43.63	41.25	36.28	40.93	42.09	30.31	39.81	43.62	30.23	43.42	40.27	37.00
27	43.76	41.30	36.49	41.24	41.84	30.96	40.14	42.85	30.64	43.50	40.60	36.33
28	43.84	41.44	36.71	41.48	41.72	31.74	40.43	41.80	31.37	43.64	40.98	35.77
29	43.92	41.51	37.05	41.68	---	32.45	40.67	40.81	32.22	43.83	41.29	35.14
30	43.95	41.61	37.48	41.95	---	33.13	40.96	39.86	33.13	44.01	41.55	34.45
31	44.02	---	37.81	42.13	---	33.68	---	39.06	---	44.14	41.86	---
MEAN	45.33	43.40	40.29	38.20	43.43	36.89	37.54	42.55	32.53	41.05	39.89	40.96
MAX	48.47	44.93	43.75	42.13	44.75	41.70	40.96	43.77	38.44	44.14	44.49	43.86
MIN	42.97	41.18	36.22	34.72	41.72	29.97	34.02	39.06	29.86	34.08	36.70	34.45



PHILADELPHIA COUNTY

395342075102101. Local number, PH 12.

LOCATION.--Lat 39°53'42", long 75°10'21", Hydrologic Unit 02040202, at Barracks and East Fourth Streets, Philadelphia.  
 Owner: U.S. Naval Base.

AQUIFER.--Middle Sand Unit of Potomac-Raritan-Magothy aquifer system of Late Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 8 in., depth 101 ft, cased to 93 ft, screened from 93-101 ft.

INSTRUMENTATION.--Data collection platform with 30-minute recording interval. Satellite telemetry at station.

DATUM.--Elevation of land-surface datum is 8.6 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.3 ft above land-surface datum. Prior to May 27, 1998, 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 October 1994, are also available from the District Office. Mean daily fluctuation caused by tidal loading, 0.20 ft.

PERIOD OF RECORD.--January 1952 to current year.

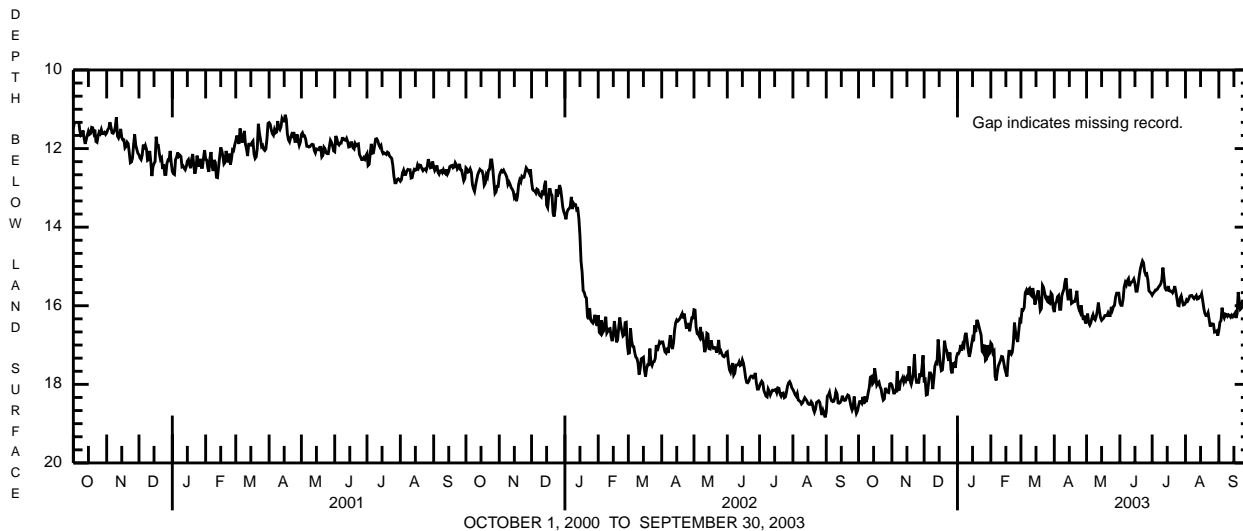
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.

Highest water level, 10.65 ft below land-surface datum, Dec. 17, 18, 1996; lowest, 39.60 ft below land-surface datum, July 20, 1955.

EXTREMES FOR CURRENT YEAR.--Highest water level, 14.79 ft below land-surface datum, June 21, 22; lowest, 18.55 ft below land-surface datum, Oct. 1.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
 MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.55	18.01	17.90	17.22	16.95	16.39	16.16	16.38	15.92	15.73	15.93	16.63
2	18.44	18.13	17.88	17.22	16.99	16.10	15.94	16.20	15.99	15.68	15.85	16.42
3	18.44	18.25	18.27	17.15	17.20	16.11	15.90	16.43	15.99	15.65	15.88	16.38
4	18.48	18.16	18.26	17.00	17.16	16.05	15.77	16.49	15.83	15.60	15.83	16.05
5	18.32	18.17	17.99	17.14	17.80	15.67	15.74	16.43	15.52	15.60	15.75	16.25
6	18.50	17.66	17.71	16.98	17.90	15.61	16.09	16.31	15.41	15.57	15.74	16.31
7	18.31	18.14	17.71	17.03	17.69	15.72	16.09	16.23	15.47	15.52	15.74	16.21
8	18.45	18.13	17.79	16.76	17.53	15.59	15.75	16.33	15.36	15.49	15.79	16.22
9	18.37	17.93	18.12	16.69	17.46	15.56	15.65	16.36	15.31	15.44	15.82	16.27
10	18.21	17.89	17.86	16.89	17.39	15.72	15.58	16.27	15.50	15.34	15.78	16.23
11	18.08	17.83	17.54	17.14	17.29	15.75	15.38	16.13	15.42	15.03	15.74	16.25
12	17.82	17.94	17.45	17.30	17.30	15.55	15.30	15.92	15.40	15.29	15.83	16.29
13	17.80	17.85	17.47	17.18	17.44	15.71	15.66	16.14	15.37	15.55	15.82	16.24
14	17.99	17.91	16.86	17.00	17.60	15.97	15.86	16.30	15.32	15.60	15.77	16.28
15	17.95	17.83	17.18	16.84	17.70	15.85	15.69	16.37	15.43	15.60	15.77	16.24
16	17.59	17.90	17.48	16.90	17.80	15.74	15.57	16.34	15.63	15.50	15.70	16.19
17	17.78	17.54	17.65	16.50	17.41	15.61	15.94	16.31	15.63	15.62	15.87	16.31
18	18.02	17.92	17.63	16.67	17.13	15.84	15.92	16.25	15.46	15.63	16.06	16.21
19	17.97	18.00	17.35	16.36	17.21	16.12	15.89	16.25	15.24	15.63	16.19	15.65
20	17.94	17.88	16.89	16.42	17.24	16.07	15.89	16.25	15.07	15.67	16.25	15.90
21	18.06	17.68	17.08	16.53	17.18	15.48	15.79	16.18	14.95	15.61	16.25	16.09
22	18.12	17.24	17.14	16.64	16.92	15.53	15.62	16.25	14.86	15.50	16.18	16.06
23	18.29	17.79	17.31	16.75	16.43	15.67	15.98	16.25	14.91	15.64	16.35	15.85
24	18.40	17.95	17.40	17.16	16.67	15.80	16.09	16.03	15.13	15.81	16.53	16.01
25	18.37	17.95	17.19	17.20	16.84	15.85	16.16	16.11	15.21	15.99	16.46	15.90
26	18.09	17.95	17.63	16.99	16.92	15.75	15.99	16.02	15.19	16.00	16.46	15.95
27	18.16	17.72	17.72	17.39	16.63	15.92	16.21	15.99	15.34	15.81	16.47	15.91
28	18.20	17.81	17.47	17.36	16.36	15.94	16.36	15.78	15.62	15.75	16.67	15.72
29	18.21	17.58	17.46	17.00	---	15.68	16.25	15.68	15.65	15.88	16.66	15.95
30	17.99	17.26	17.58	17.24	---	15.72	16.45	15.68	15.68	15.98	16.64	16.04
31	17.98	---	17.32	17.20	---	16.06	---	15.68	---	15.97	16.76	---
MEAN	18.16	17.87	17.56	16.96	17.22	15.81	15.89	16.17	15.43	15.63	16.08	16.13
MAX	18.55	18.25	18.27	17.39	17.90	16.39	16.45	16.49	15.99	16.00	16.76	16.63
MIN	17.59	17.24	16.86	16.36	16.36	15.48	15.30	15.68	14.86	15.03	15.70	15.65



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003

PIKE COUNTY

410940074583401. Local number, PI 200.

LOCATION.--Lat 41°09'40", long 74°58'34", Hydrologic Unit 02040104, at Pocono Mountain Lake Estates.

Owner: Pocono Mountain Lake Estates.

AQUIFER.--Sandstone and siltstone of Towamensing Member of Catskill Formation of Late Devonian age.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 8 in., depth 799 ft, cased to 86 ft, open hole.

INSTRUMENTATION.--Electronic data logger with 30-minute recording interval.

DATUM.--Elevation of land-surface datum is 1,180 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of plywood shelf, 3.3 ft above land-surface datum. Prior to October 1983, published as 1.4 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 1981 to current year.

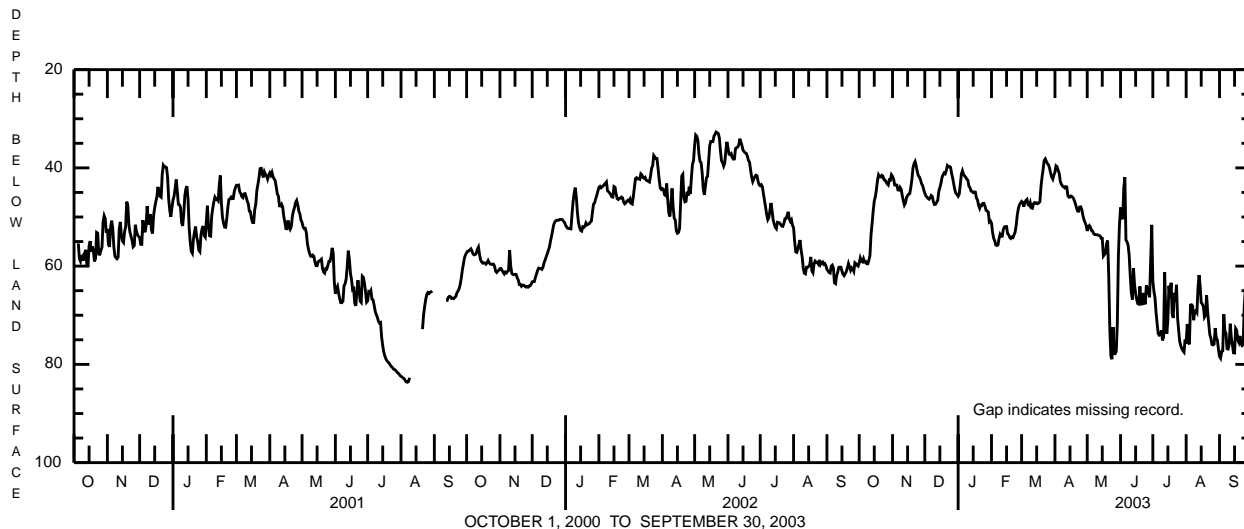
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.

Highest water level, 24.30 ft below land-surface datum, June 1, 1984; lowest recorded, 98.67 ft below land-surface datum, Sept. 10, 26-29, Oct. 1 1998.

EXTREMES FOR CURRENT YEAR.--Highest water level, 36.60 ft below land-surface datum, June 5; lowest, 78.95 ft below land-surface datum, May 24.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59.37	41.74	45.14	45.77	51.23	46.81	40.85	52.83	48.07	63.00	75.76	78.39
2	58.34	42.30	45.71	45.36	53.11	47.01	39.59	52.04	49.88	65.10	71.78	78.75
3	58.94	43.47	45.96	43.43	54.35	47.90	39.77	51.75	50.45	66.41	75.24	77.37
4	59.10	43.46	46.21	41.27	54.83	47.08	40.54	52.07	44.08	69.45	75.93	77.26
5	58.49	43.51	46.38	40.60	55.70	46.63	41.16	52.75	41.91	71.68	67.93	69.81
6	59.14	44.49	46.08	41.32	55.80	46.41	42.77	52.86	54.69	73.74	67.86	73.27
7	59.06	44.52	45.63	41.66	55.67	47.45	43.34	53.39	55.03	74.07	68.11	73.65
8	59.52	43.96	45.85	41.88	54.44	47.64	43.71	53.57	55.72	73.96	71.01	76.82
9	59.52	44.33	46.93	42.29	53.54	47.05	43.82	53.57	57.80	73.11	69.24	76.88
10	58.78	45.59	47.46	42.49	53.91	48.15	44.06	53.64	61.92	75.12	69.06	75.92
11	57.85	46.72	47.40	43.72	53.92	48.23	43.82	53.65	65.35	74.46	69.44	71.73
12	53.54	47.57	47.00	44.03	52.55	47.32	43.87	53.76	66.79	61.27	64.43	74.55
13	51.32	47.15	46.66	44.72	52.04	47.07	45.65	53.87	60.40	69.38	61.82	76.02
14	48.81	46.06	44.80	44.78	51.95	47.21	45.98	54.34	63.74	73.77	64.10	77.65
15	46.75	45.63	44.01	45.04	51.95	47.13	45.95	54.36	65.57	70.86	67.45	77.68
16	45.87	45.37	43.18	44.91	53.39	47.29	45.73	57.95	66.77	64.00	67.70	72.72
17	44.45	45.24	41.95	44.93	53.59	47.14	45.88	57.64	67.64	66.44	68.24	73.10
18	42.60	43.97	41.39	46.12	54.18	46.86	46.13	57.37	67.74	63.39	70.37	75.07
19	41.42	42.40	41.02	46.53	54.37	43.88	46.67	55.43	64.15	69.67	69.97	75.54
20	41.79	40.01	41.20	47.65	54.07	41.87	47.29	54.79	67.39	70.54	65.91	74.21
21	41.87	39.15	40.51	48.23	54.18	40.29	48.08	61.88	67.93	65.45	69.38	75.89
22	41.52	38.72	39.54	47.60	53.61	38.51	48.78	72.75	65.46	67.12	71.72	76.19
23	41.66	39.62	39.79	47.68	53.05	38.17	48.82	78.29	67.19	63.80	73.96	75.96
24	42.39	40.77	39.72	47.22	51.66	38.66	47.97	78.95	67.77	70.52	74.69	68.26
25	42.47	41.61	39.90	47.23	49.55	39.13	47.93	72.41	63.88	73.06	75.96	64.48
26	42.86	41.86	41.25	47.82	48.27	39.39	48.56	77.80	64.91	75.33	76.03	66.64
27	43.22	42.42	42.18	48.65	47.52	40.05	49.69	77.83	64.27	76.22	75.87	68.26
28	43.47	43.24	43.41	48.77	47.14	41.08	50.57	77.34	66.34	76.81	72.61	68.01
29	42.42	43.59	44.57	48.99	---	41.87	51.13	71.57	58.89	77.24	74.63	63.44
30	42.48	44.49	45.22	50.99	---	42.28	51.71	57.85	51.60	77.52	75.01	63.71
31	41.41	---	45.38	50.80	---	41.47	---	51.46	---	74.95	76.88	---
MEAN	49.37	43.43	43.92	45.56	52.84	44.42	45.66	59.99	60.44	70.56	70.91	73.24
MAX	59.52	47.57	47.46	50.99	55.80	48.23	51.71	78.95	67.93	77.52	76.88	78.75
MIN	41.41	38.72	39.54	40.60	47.14	38.17	39.59	51.46	41.91	61.27	61.82	63.44



OCTOBER 1, 2000 TO SEPTEMBER 30, 2003



PIKE COUNTY

411833075133601. Local number PI 522.

LOCATION.--Lat 41°18' 33", long 75°13' 36", Hydrologic Unit 02040103, at Promised Land State Park.

Owner: U.S. Geological Survey.

AQUIFER.-- Catskill Formation.

WELL CHARACTERISTICS.--Drilled unused public supply well, diameter 6 in., depth 150 ft, cased to 28 ft, open hole.

INSTRUMENTATION.--Data collection platform with 60-minute recording interval. Satellite telemetry at station.

DATUM.--Elevation of land-surface datum is 1,730 ft above National Geodetic Vertical Datum of 1929, from survey. Measuring point: Top of casing, 3.64 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 2001 to current year.

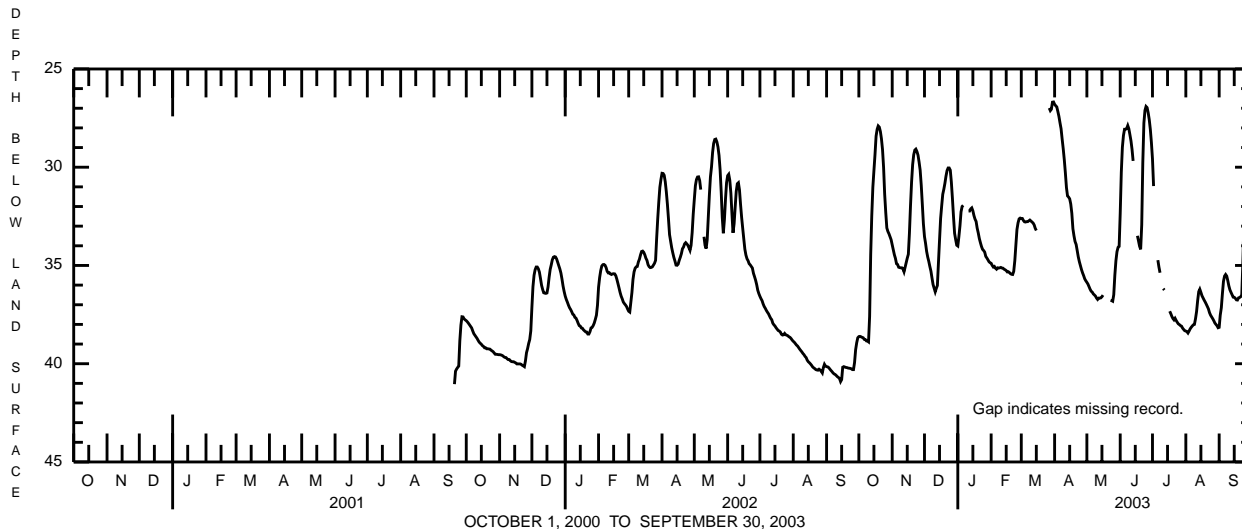
EXTREMES FOR PERIOD OF RECORD.--The extremes shown are extremes of the instantaneous depth below land-surface datum for the period of record indicated above.

Highest water level, 26.63 ft below land-surface datum, Mar. 30, 31, 2003; lowest, 40.96 ft below land-surface datum, Sept. 15, 2002.

EXTREMES FOR CURRENT YEAR.--Highest water level, 26.63 ft below land-surface datum, Mar. 30, 31; lowest, 38.90 ft below land-surface datum, Oct. 10.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38.62	33.95	33.53	34.01	34.89	32.61	26.80	35.86	32.35	29.58	38.34	38.15
2	38.61	34.20	33.87	33.54	35.00	32.61	26.87	35.95	30.26	30.96	38.37	37.53
3	38.63	34.45	34.28	32.98	35.08	32.71	26.93	36.08	28.99	---	38.44	37.15
4	38.66	34.64	34.57	32.27	35.05	32.78	27.16	36.21	28.39	---	38.34	36.44
5	38.68	34.91	34.79	32.00	35.14	32.79	27.41	36.31	28.07	---	38.23	35.81
6	38.76	34.95	35.05	31.94	35.19	32.77	27.74	36.36	28.07	34.73	38.15	35.54
7	38.77	35.09	35.29	---	35.12	32.77	28.04	36.45	28.03	35.08	38.08	35.46
8	38.84	35.11	35.64	---	35.13	32.73	28.56	36.50	27.88	35.37	38.02	35.54
9	38.85	35.12	35.97	---	35.12	32.69	29.06	36.56	28.04	---	38.00	35.77
10	38.89	35.12	36.16	---	35.10	32.74	29.62	36.66	28.34	---	37.71	36.04
11	37.59	35.17	36.34	32.23	35.13	32.79	30.28	36.73	28.66	36.18	37.34	36.24
12	34.45	35.32	36.17	32.23	35.14	32.84	31.04	36.66	29.10	36.25	36.79	36.37
13	32.48	35.09	36.02	32.12	35.19	32.94	31.46	36.66	29.68	---	36.33	36.49
14	31.02	34.86	34.86	32.07	35.22	33.11	31.52	36.65	---	---	36.21	36.61
15	30.18	34.63	33.72	32.22	35.26	33.22	31.61	36.59	---	---	36.37	36.62
16	29.37	34.43	32.61	32.46	35.33	---	31.87	36.51	---	---	36.54	36.67
17	28.42	33.37	31.97	32.64	35.32	---	32.34	---	33.49	37.33	36.65	36.75
18	28.07	31.99	31.38	32.76	35.36	---	33.13	---	33.75	37.45	36.76	36.76
19	27.90	30.76	31.12	33.10	35.42	---	33.49	---	34.02	37.59	36.86	36.65
20	27.96	29.87	30.82	33.34	35.45	---	33.78	---	34.18	37.70	36.97	36.63
21	28.18	29.37	30.46	33.63	35.46	---	33.93	---	32.93	37.77	37.09	36.59
22	28.55	29.13	30.17	33.84	35.30	---	34.24	---	29.77	37.69	37.21	36.51
23	29.11	29.08	30.04	34.03	34.75	---	34.56	36.77	27.75	37.80	37.40	34.86
24	30.02	29.20	30.04	34.18	33.95	---	34.81	36.79	27.11	37.89	37.53	32.79
25	31.37	29.39	30.15	34.24	33.17	---	35.01	36.82	26.91	37.97	37.62	31.15
26	32.31	29.74	30.76	34.32	32.83	---	35.21	36.49	26.97	38.01	37.71	30.07
27	33.09	30.15	31.59	34.54	32.63	26.99	35.38	35.49	27.23	38.06	37.81	29.57
28	33.27	30.92	32.53	34.62	32.59	27.12	35.52	34.76	27.58	38.09	37.93	29.20
29	33.39	31.88	33.36	34.71	---	27.05	35.68	34.30	28.08	38.19	38.00	29.27
30	33.54	32.87	33.68	34.81	---	26.69	35.78	34.08	28.75	38.26	38.07	29.54
31	33.69	---	33.97	34.86	---	26.68	---	34.03	---	38.32	38.17	---
MEAN	33.59	32.83	33.26	33.32	34.80	31.33	31.63	36.09	29.42	36.65	37.52	34.96
MAX	38.89	35.32	36.34	34.86	35.46	33.22	35.78	36.82	34.18	38.32	38.44	38.15
MIN	27.90	29.08	30.04	31.94	32.59	26.68	26.80	34.03	26.91	29.58	36.21	29.20



SCHUYLKILL COUNTY

404708076070701. Local number, SC 296.

LOCATION.--Lat 40°47'08", long 76°07'07", Hydrologic Unit 02040203, at Locust Lake State Park.

Owner: U.S. Geological Survey.

AQUIFER.--Mauch Chunk Formation of Early Pennsylvanian age.

WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in., depth 242 ft, cased to 40 ft, open hole.

INSTRUMENTATION.--Data collection platform with 30-minute recording interval. Satellite telemetry at station.

DATUM.--Elevation of land-surface datum is 1,290 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of plywood shelf, 2.8 ft above land-surface datum. Prior to June 26, 1980, top of casing 2.3 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 1975 to current year.

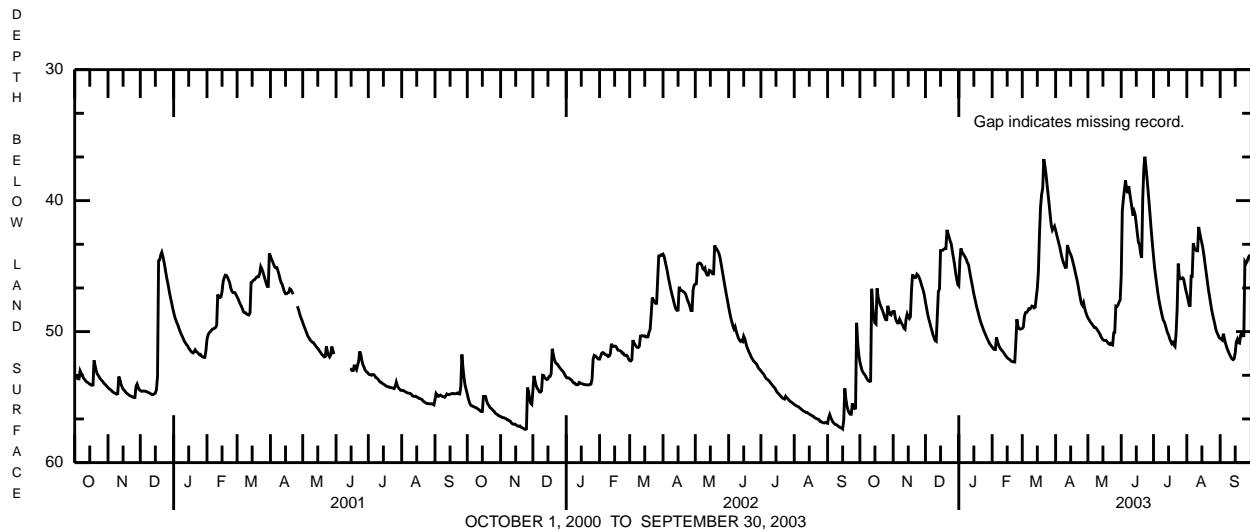
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.

Highest water level, 26.27 ft below land-surface datum, May 18, 1989; lowest, 57.46 ft below land-surface datum, Nov. 24, 2001.

EXTREMES FOR CURRENT YEAR.--Highest water level, 36.47 ft below land-surface datum, Mar. 21; lowest, 53.80 ft below land-surface datum, Oct. 10.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52.29	48.45	47.75	46.50	51.17	49.75	42.26	48.94	45.73	44.22	47.13	50.52
2	52.65	48.46	48.18	44.53	51.30	49.65	42.60	49.08	40.79	45.09	47.52	50.58
3	52.96	48.95	48.65	43.65	51.37	48.83	42.93	49.22	39.88	45.77	47.93	50.65
4	53.12	49.19	49.01	43.92	51.37	48.55	43.26	49.34	39.14	46.38	48.09	50.16
5	53.23	49.34	49.30	44.06	50.43	48.54	43.58	49.45	38.45	47.01	45.77	50.55
6	53.34	49.34	49.64	44.19	50.77	48.44	44.00	49.56	39.13	47.55	45.77	50.90
7	53.51	49.06	49.93	44.32	51.02	48.26	44.38	49.68	39.43	47.99	43.25	51.18
8	53.66	49.24	50.24	44.50	51.20	48.29	44.66	49.68	38.89	48.38	43.60	51.40
9	53.75	49.40	50.47	44.74	51.34	48.20	44.89	49.77	39.47	48.77	43.74	51.61
10	53.80	49.53	50.68	44.88	51.43	48.05	45.10	49.90	40.02	49.11	43.83	51.78
11	53.77	49.74	50.74	45.35	51.53	48.08	45.09	50.02	40.59	49.24	43.83	51.96
12	46.73	49.82	48.79	45.83	51.64	48.19	43.39	50.16	41.14	49.49	42.01	52.08
13	48.14	49.03	46.94	46.24	51.78	48.13	43.70	50.35	40.82	49.79	42.46	52.14
14	48.96	48.66	46.77	46.69	51.88	47.39	43.94	50.50	41.09	50.08	42.89	52.07
15	49.34	48.88	43.81	47.14	52.00	46.67	44.10	50.62	41.81	50.24	43.24	51.61
16	49.42	49.00	43.80	47.51	52.06	45.41	44.34	50.67	42.52	50.53	43.67	50.77
17	46.70	48.86	43.79	47.89	52.11	42.59	44.67	50.67	43.18	50.73	44.23	50.58
18	47.37	46.84	43.71	48.23	52.20	40.46	44.99	50.67	43.37	50.91	44.88	50.85
19	47.71	45.63	43.67	48.55	52.27	39.53	45.37	50.79	44.02	50.82	45.50	50.88
20	47.97	45.81	43.66	48.88	52.30	39.05	45.73	50.90	44.37	51.02	46.12	50.27
21	48.17	45.88	42.24	49.16	52.31	36.83	46.09	50.97	39.84	51.13	46.75	50.13
22	48.38	45.86	42.52	49.42	52.32	37.31	46.53	50.90	37.58	50.12	47.25	50.32
23	48.62	45.61	42.79	49.63	50.86	37.95	47.01	51.00	36.65	48.28	47.78	50.31
24	48.88	45.69	43.09	49.87	49.06	38.74	47.45	51.03	37.47	44.81	48.29	44.66
25	49.09	45.84	43.31	50.07	49.59	39.51	47.87	50.10	38.33	45.80	48.70	44.80
26	49.09	46.07	43.88	50.26	49.78	40.29	48.00	50.07	39.26	45.97	49.07	44.67
27	48.03	46.34	44.36	50.46	49.81	41.14	47.79	48.05	40.28	45.95	49.43	44.37
28	48.41	46.62	44.86	50.63	49.79	41.90	48.21	48.08	41.31	45.89	49.83	44.22
29	48.68	46.87	45.49	50.82	---	42.25	48.51	47.97	42.35	45.98	50.08	44.24
30	48.73	47.24	45.97	50.96	---	42.09	48.75	47.75	43.33	46.40	50.24	44.67
31	48.51	---	46.40	51.07	---	41.95	---	47.59	---	46.83	50.45	---
MEAN	50.10	47.84	46.27	47.42	51.24	44.26	45.31	49.79	40.67	48.07	46.24	49.50
MAX	53.80	49.82	50.74	51.07	52.32	49.75	48.75	51.03	45.73	51.13	50.45	52.14
MIN	46.70	45.61	42.24	43.65	49.06	36.83	42.26	47.59	36.65	44.22	42.01	44.22



WAYNE COUNTY

414333075153201. Local number, WN 64.

LOCATION.--Lat 41°43'33", long 75°15'32", Hydrologic Unit 02040103, at State Game Land Number 159.

Owner: U.S. Geological Survey.

AQUIFER.--Sand and gravel of Glacial Outwash of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in., depth 52 ft, cased to 52 ft, open hole.

INSTRUMENTATION.--Data collection platform with 30-minute recording interval. Satellite telemetry at station.

DATUM.--Elevation of land-surface datum is 1,350 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of plywood shelf, 3.9 ft above land-surface datum. Prior to May 7, 1987, top of plywood cover, measuring point above land-surface datum varied.

REMARKS.--Daily maximum water-level data collected prior to May 7, 1987 were referenced to an uncertain datum elevation that cannot be related to any datum after that date. 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.

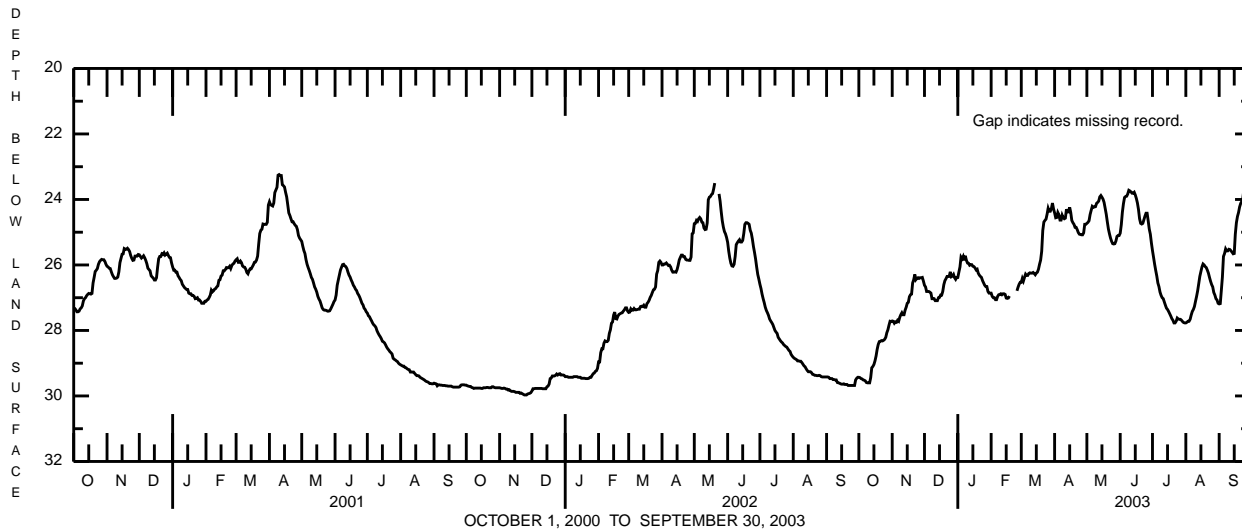
EXTREMES FOR PERIOD OF RECORD.--Prior to October 2000, the extremes were based on extremes of the daily maximum depth below land-surface datum. Since that date, the extremes are based on the instantaneous depth below land-surface datum.

Highest water level, 7.88 ft below land-surface datum, Nov. 17, 1972; lowest, 32.98 ft below land-surface datum, Nov. 9, 10, 11, 1991.

EXTREMES FOR CURRENT YEAR.--Highest water level recorded, 23.26 ft below land-surface datum, Sept. 25; lowest, 29.60 ft below land-surface datum, Oct. 9-11.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.43	27.71	26.62	26.38	26.86	26.53	24.41	24.73	25.03	25.56	27.77	27.19
2	29.44	27.72	26.67	26.22	26.96	26.41	24.56	24.70	24.77	25.77	27.75	27.18
3	29.47	27.78	26.81	26.06	27.00	26.49	24.55	24.65	24.39	25.98	27.72	26.78
4	29.48	27.74	26.81	25.76	27.00	26.38	24.40	24.46	24.13	26.17	27.72	26.37
5	29.51	27.75	26.81	25.81	27.06	26.28	24.47	24.33	23.94	26.34	27.66	25.74
6	29.52	27.69	26.83	25.74	27.06	26.32	24.63	24.21	23.91	26.55	27.53	25.65
7	29.54	27.72	26.86	25.86	26.96	26.32	24.63	24.24	23.90	26.66	27.42	25.51
8	29.59	27.60	27.03	25.72	26.91	26.26	24.48	24.23	23.83	26.83	27.36	25.57
9	29.60	27.52	27.03	25.86	26.90	26.24	24.56	24.22	23.72	26.93	27.27	25.57
10	29.60	27.46	27.03	25.94	26.88	26.25	24.59	24.12	23.74	27.00	27.11	25.52
11	29.60	27.52	27.09	25.95	26.91	26.25	24.57	24.09	23.77	27.03	26.96	25.53
12	29.44	27.52	27.09	26.01	26.88	26.23	24.30	24.05	23.81	27.13	26.79	25.57
13	29.14	27.38	27.09	25.99	26.88	26.26	24.38	23.92	23.81	27.23	26.57	25.61
14	29.10	27.29	27.00	25.99	26.90	26.30	24.38	23.88	23.78	27.32	26.35	25.66
15	29.04	27.17	26.99	26.04	27.01	26.25	24.24	23.93	23.86	27.36	26.20	25.65
16	28.93	27.14	26.92	26.05	27.02	26.22	24.40	23.99	23.97	27.42	26.06	25.06
17	28.78	26.97	26.92	26.09	27.01	26.13	24.64	24.09	24.11	27.49	25.97	24.71
18	28.58	26.91	26.81	26.15	26.95	25.98	24.71	24.27	24.31	27.56	26.00	24.52
19	28.43	26.89	26.60	26.13	---	25.85	24.76	24.45	24.59	27.64	26.05	24.40
20	28.34	26.55	26.48	26.25	---	25.58	24.85	24.68	24.73	27.69	26.08	24.23
21	28.33	26.45	26.42	26.31	---	24.95	24.85	24.90	24.75	27.77	26.16	24.12
22	28.31	26.29	26.35	26.35	---	24.69	24.92	25.05	24.73	27.77	26.25	24.06
23	28.32	26.45	26.35	26.38	---	24.64	25.01	25.18	24.62	27.72	26.38	23.96
24	28.30	26.41	26.35	26.48	---	24.60	25.06	25.28	24.51	27.62	26.50	23.68
25	28.27	26.39	26.21	26.55	26.79	24.45	25.07	25.35	24.42	27.65	26.60	23.35
26	28.21	26.41	26.36	26.62	26.68	24.27	25.08	25.36	24.42	27.66	26.67	23.35
27	28.07	26.39	26.34	26.66	26.59	24.36	25.08	25.35	24.65	27.66	26.84	23.36
28	27.98	26.39	26.29	26.66	26.53	24.36	25.02	25.27	24.90	27.69	26.92	23.48
29	27.84	26.38	26.39	26.81	---	24.28	24.76	25.13	25.06	27.73	27.03	23.67
30	27.72	26.49	26.44	26.86	---	24.11	24.76	25.10	25.33	27.76	27.07	23.76
31	27.73	---	26.38	26.86	---	24.29	---	25.10	---	27.77	27.17	---
MEAN	28.83	27.07	26.69	26.21	26.90	25.60	24.67	24.59	24.32	27.18	26.84	24.96
MAX	29.60	27.78	27.09	26.86	27.06	26.53	25.08	25.36	25.33	27.77	27.77	27.19
MIN	27.72	26.29	26.21	25.72	26.53	24.11	24.24	23.88	23.72	25.56	25.97	23.35



**GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES  
GROUND WATER PESTICIDES NETWORK PROJECT**

The following tables contain water-quality data from wells sampled in Pennsylvania during the first year of the Ground Water Pesticides Network project. The 5-year study is being conducted by the U.S. Geological Survey in cooperation with the Pennsylvania Department of Agriculture. Sites were selected to meet project objectives in the Annual Baseline Network, the Baseline Trends Network, and Hot-Spot Trends Networks. Twenty Annual Baseline Network sites were selected in the Blue Ridge and Triassic Lowlands orchard area to fill an existing data gap in ground-water quality; sites in this network are only sampled one time as part of an occurrence survey. Sixteen Baseline Trend Network sites were selected in four hydrogeologic settings (4 sites per setting) of carbonate bedrock where wells had previous detections of pesticides. The wells in this network are sampled yearly to evaluate trends. The three Hot-Spot Trend Network sites have well water with recorded pesticide concentrations at or above the Pennsylvania Pesticides and Ground Water Strategy action levels. These wells are sampled four times per year during: 1) declining water levels; 2) stable water levels; 3) rising water levels due to spring/summer flush; and 4) rising water levels due to winter recharge. Declining water level, rising water level due to spring/summer flush, and rising water level due to winter recharge samples from the Delaware River Basin, are included in this report. Samples are identified by network in the third heading within the table: Annual Baseline = AB, Baseline Trends = BT, and Hot-Spot Trends = HST. Well locations are shown in Figure 11 and Figure 12. The following analytical methods were used to determine results for the samples listed: USGS National Water Quality Laboratory (Analyzing Agency Code 80020), pesticides - (SH2001) C-18 solid-phase extraction and capillary-column gas chromatography/mass spectrometry with selected-ion monitoring, nitrate/nitrite - colorimetry (cadmium reduction), total coliform and E. coli bacteria - Colilert Quantitray; PA Department of Environmental Protection Laboratory (Analyzing Agency Code 9813), pesticides -SAC USGS2 (EPA 525.2) solid phase extraction gas chromatography/mass spectrometry, nitrate/nitrite - colorimetry (cadmium reduction), total coliform and E. coli bacteria - Colilert Quantitray. Pesticides analyzed for this study are identified by analyzing agency in the table which follows study area maps. Other data for the project can be found in the annual Water Data Report PA-03-2. For additional information, contact Connie Loper at the U.S. Geological Survey, 215 Limekiln Road, New Cumberland, PA 17070; 717-730-6976 (email caloper@usgs.gov).

**GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES  
GROUND WATER PESTICIDES NETWORK PROJECT**

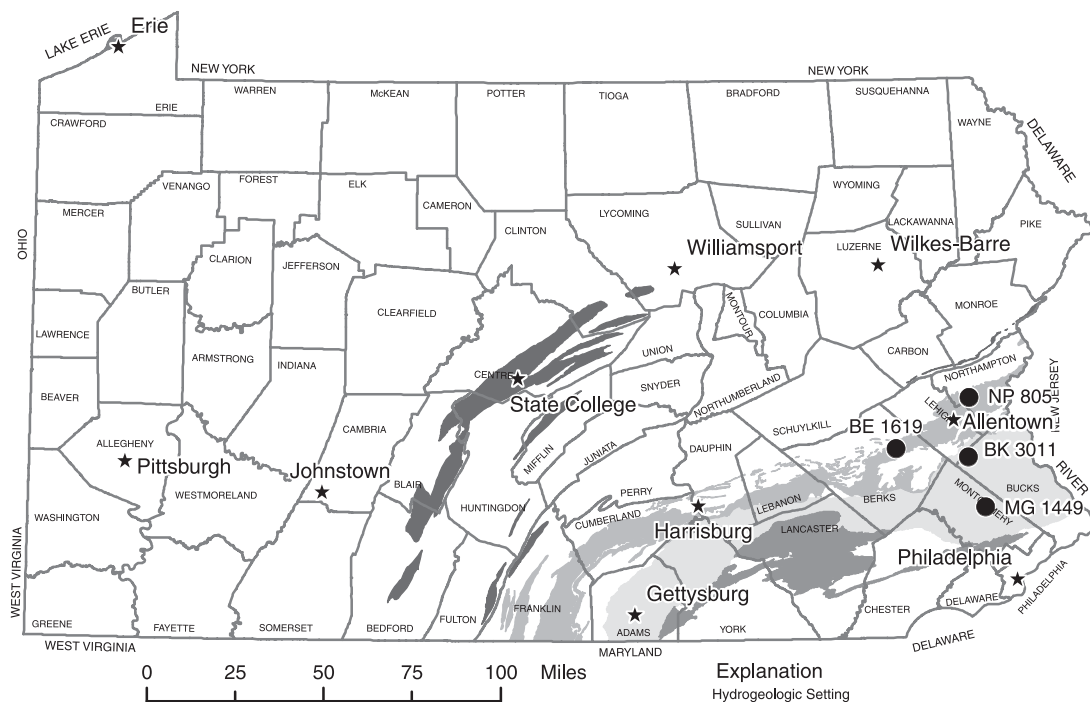


Figure 11.--Location of the Baseline Trend Network wells, in the Delaware River Basin, sampled as part of the Ground Water Pesticides Network project.

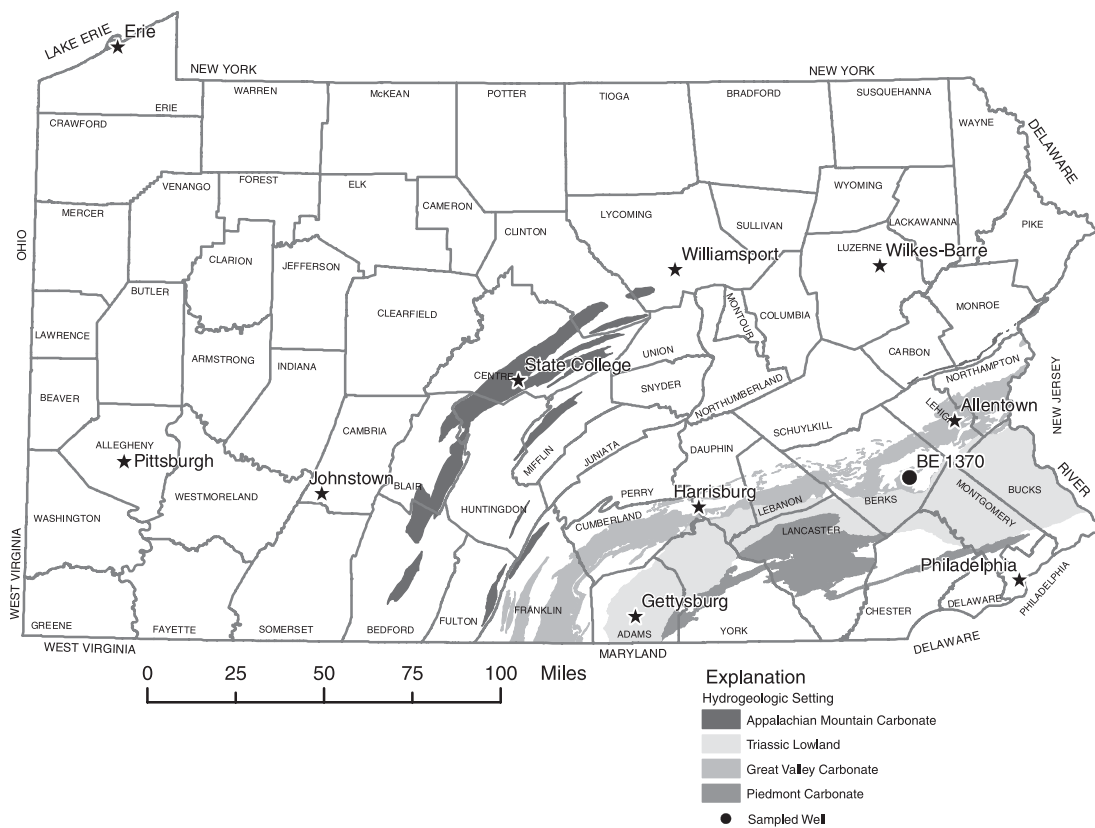


Figure 12.--Location of the Hot-Spot Trend Network well, in the Delaware River Basin, sampled as part of the Ground Water Pesticides Network project.

**GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES  
GROUND WATER PESTICIDES NETWORK PROJECT**

**Compounds analyzed at the USGS National Water-Quality Laboratory and the Pennsylvania Department of Environmental Protection Laboratory for the Ground Water Pesticides Network Project**

USGS National Water Quality Laboratory Pesticide Schedule (SH2001)			Pennsylvania Department of Environmental Protection Laboratory Pesticide Schedule used for Baseline Trends and Hot-Spot Trends Networks (SAC USGS2)	
Analyte	Parameter Code		Analyte	Parameter Code
Alpha-HC	34253		Acetochlor	49260
Acetochlor	49260		Alachlor	46342
Alachlor	46342		Atrazine	39632
2,6 -Diethylaniline	82660		Chlorothalonil	49306
Atrazine	39632		Chlorpyrifos (Dursban)	38933
Desethyl atrazine (CIAT)	04040		Hexachlorocyclopentadiene	34386
Azinphos-methyl	82686		Metolachlor	39415
Benfluralin	82673		Metribuzin	82630
Butylate	04028		Pendimethalin	82683
Carbaryl	82680		Simazine	04035
Carbofuran	82674			
Chlorpyrifos	38933			
cis-Permethrin	82687			
Cyanazine	04041			
Dacthal (DCPA)	82682			
Diazanone	39572			
Diazinon-d10(surrogate)	91063			
Dieldrin	39381			
Disulfoton	82677			
EPTC	82668			
Ethalfuralin	82663			
Ethoprophos	82672			
Desulfinylfipronil amide	62169			
Fipronil sulfide	62167			
Fipronil sulfone	62168			
Desulfinylfipronil	62170			
Fipronil	62166			
Fonofos	04095			
alpha-HCH-d6(surrogate)	91065			
Lindane	39341			
Linuron	82666			
Malathion	39532			
Parathion-methyl	82667			
Metolachlor	39415			
Metribuzin	82630			
Molinate	82671			
Napropamide	82684			
p,p'-DDE	34653			
Parathion	39542			
Pebulate	82669			
Pendimethalin	82683			
Phorate	82664			
Prometon	04037			
Propyzamide	82676			
Propachlor	04024			
Propanil	82679			
Propargite	82685			
Simazine	04035			
Tebuthiuron	82670			
Terbacil	82665			
Terbufos	82675			
Thiobencarb	82681			
Triallate	82678			
Trifluralin	82661			

**GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES  
GROUND WATER PESTICIDES NETWORK PROJECT**

**REMARKS.**--Explanation of column headings--Station number: 15-digit unique identifier based on site latitude (first six digits), longitude (digits seven through thirteen), and a 2-digit sequence number suffix; Altitude of land surface: land-surface at well site in feet above sea level; Sampling method code 4040 = submersible pump; Sampling condition code 8 = pumping; Agency analyzing sample code 80020 = USGS National Water Quality Lab in Denver, CO or 9813 = PA Department of Environmental Protection Lab in Harrisburg, PA;  $\mu\text{S}/\text{cm}$ : microsiemens per centimeter at 25 degrees Celsius; deg C: degrees Celsius;  $\mu\text{g}/\text{L}$ : micrograms per liter (parts per billion);  $\text{mg}/\text{L}$  = milligrams per liter (parts per million); "<" = less than; "E" = estimated; CIAT = desethyl atrazine; DCPA = dacthal; MPN = Most Probable Number; GF = Glass fiber filter; Type of sample related QA data code 10 = blank or 100 = More than one type of QA sample; Network Identifier HST = Hot-Spot Trends, or BT = Baseline Trends.

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

Station number	Local Well ID	Network Identifier	Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Depth of well, feet below LSD (72008)	Depth to water level, feet below LSD (72019)	Altitude of land surface feet (72000)	Pump or flow period prior to sampling, minutes (72004)	Sampling method, code (82398)	Turbidity, water, unfltrd field, NTU (61028)	
BERKS COUNTY													
402238075443401	BE 1370	HST	03-26-03	1535	1028	80020	110	--	330	35	4040	--	
402238075443401	BE 1370	HST	05-15-03	1145	1028	80020	110	--	330	45	4040	.0	
402238075443401	BE 1370	HST	08-13-03	0955	1028	9813	110	--	330	45	4040	.1	
402934075481801	BE 1619	BT	04-01-03	1135	1028	80020	150	27.02	400.	35	4040	--	
BUCKS COUNTY													
402704075245701	BK 3011	BT	04-15-03	1130	1028	80020	100	--	550	30	4040	--	
MONTGOMERY COUNTY													
401446075193701	MG 1449	BT	04-23-03	1205	1028	80020	114.5	11.08	265	50	4040	--	
NORTHAMPTON COUNTY													
404144075241501	NP 805	BT	04-01-03	1510	1028	80020	140	66.30	400	40	4040	--	
Date	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, unfltrd field, std (00400)	Specific conductance, $\mu\text{S}/\text{cm}$ 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Nitrite + nitrate water, fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L (00613)	E coli, Coli-lert Quantry water, MPN/100 mL (50468)	Total coli-form, Colert Quantry water, MPN/100 mL (50569)	2,6-Di-ethyl-aniline water, fltrd, $0.7\mu\text{GF}$ (82660)	CIAT, water, fltrd, $\mu\text{g}/\text{L}$ (04040)
BERKS COUNTY													
03-26-03	746	--	--	7.3	698	15.4	12.4	21.5	<.008	<1	<1	<.006	E.318
05-15-03	755	9.2	89	7.2	742	16.4	13.2	23.5	<.008	<1	<1	E.001	E.234
08-13-03	760	8.2	80	7.2	740	--	14.2	23.1	<.010	2	110	--	--
04-01-03	753	7.2	66	7.5	542	4.8	10.9	9.81	<.008	<1	2	<.006	E.226
BUCKS COUNTY													
04-15-03	751	.1	.0	8.0	275	20.1	11.5	<.06	<.008	<1	<1	<.006	<.006
MONTGOMERY COUNTY													
04-23-03	751	1.3	13	8.1	403	11.1	13.9	2.63	<.008	<1	<1	<.006	E.006
NORTHAMPTON COUNTY													
04-01-03	749	6.7	62	7.4	662	8.5	10.8	12.8	<.008	<1	<1	<.006	E.218
Date	Aceto-chlor, water, fltrd, $\mu\text{g}/\text{L}$ (49260)	Ala-chlor, water, fltrd, $\mu\text{g}/\text{L}$ (46342)	alpha-HCH, water, fltrd, $\mu\text{g}/\text{L}$ (34253)	alpha-HCH-d6, surrog, wat flt, 0.7 $\mu\text{GF}$ percent recovry (91065)	Atra-zine, water, fltrd, $\mu\text{g}/\text{L}$ (39632)	Azin-phos-methyl, water, fltrd, $0.7\mu\text{GF}$ $\mu\text{g}/\text{L}$ (82686)	Ben-flur-alin, water, fltrd, $0.7\mu\text{GF}$ $\mu\text{g}/\text{L}$ (82673)	Butyl-ate, water, fltrd, $\mu\text{g}/\text{L}$ (04028)	Car-baryl, water, fltrd, $0.7\mu\text{GF}$ $\mu\text{g}/\text{L}$ (82680)	Carbo-furan, water, fltrd, $0.7\mu\text{GF}$ $\mu\text{g}/\text{L}$ (82674)	Chloro-thalo-nil, water, fltrd, $0.7\mu\text{GF}$ $\mu\text{g}/\text{L}$ (49306)	Chlor-pyri-fos, water, fltrd, $0.7\mu\text{GF}$ $\mu\text{g}/\text{L}$ (38933)	cis-Per-methrin, water, fltrd, $0.7\mu\text{GF}$ $\mu\text{g}/\text{L}$ (82687)
BERKS COUNTY													
03-26-03	<.006	.396	<.005	90.2	.164	<.050	<.010	<.002	<.041	<.020	--	<.005	<.006
05-15-03	<.006	.260	<.005	84.7	.154	<.050	<.010	<.002	<.041	<.020	--	<.005	<.006
08-13-03	<.100	.15	--	--	.10	--	--	--	--	--	<.10	<.10	--
04-01-03	<.006	<.004	<.005	88.1	.200	<.050	<.010	<.002	<.041	<.020	--	<.005	<.006
BUCKS COUNTY													
04-15-03	<.006	<.004	<.005	95.4	<.007	<.050	<.010	<.002	<.041	<.020	--	<.005	<.006
MONTGOMERY COUNTY													
04-23-03	<.006	<.007	<.005	100	<.007	<.050	<.010	<.002	<.041	<.020	--	<.005	<.006
NORTHAMPTON COUNTY													
04-01-03	<.006	E.004	<.005	93.4	.127	<.050	<.010	<.002	<.041	<.020	--	<.005	<.006

**GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES  
GROUND WATER PESTICIDES NETWORK PROJECT**

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

Date	Cyana- zine, water, fltrd, µg/L (04041)	DCPA, water, fltrd, 0.7µ GF µg/L (82682)	Desulf- inyl- fipro- nil, water, fltrd, µg/L (62170)	Diazi- non, water, fltrd, µg/L (39572)	Diazi- non-d10 surrog. wat flt 0.7µ GF percent recovry (91063)	Diel- drin, water, fltrd, µg/L (39381)	Disul- foton, water, fltrd, 0.7µ GF µg/L (82677)	EPTC, water, fltrd, 0.7µ GF µg/L (82668)	Ethal- flur- alin, water, fltrd, µg/L (82663)	Etho- prop, water, fltrd, 0.7µ GF µg/L (82672)	Desulf- inyl- fipro- nil amide, wat flt µg/L (62169)	Fipro- nil sulfide water, fltrd, µg/L (62167)	Fipro- nil sulfone water, fltrd, µg/L (62168)
BERKS COUNTY													
03-26-03	<.018	<.003	<.004	<.005	110	<.005	<.02	<.002	<.009	<.005	<.009	<.005	<.005
05-15-03	<.018	<.003	<.004	<.005	92.0	<.015	<.02	<.002	<.009	<.005	<.009	<.005	<.005
08-13-03	--	--	--	--	--	--	--	--	--	--	--	--	--
04-01-03	<.018	<.003	<.004	<.005	110	<.005	<.02	<.002	<.009	<.005	<.009	<.005	<.005
BUCKS COUNTY													
04-15-03	<.018	<.003	<.004	<.005	101	<.005	<.02	<.002	<.009	<.005	<.009	<.005	<.005
MONTGOMERY COUNTY													
04-23-03	<.018	<.003	<.004	<.005	109	<.005	<.02	<.002	<.009	<.005	<.009	<.005	<.005
NORTHAMPTON COUNTY													
04-01-03	<.018	<.003	<.004	<.005	110	<.005	<.02	<.002	<.009	<.005	<.009	<.005	<.005
Date	Fipro- nil, water, fltrd, µg/L (62166)	Fonofos water, fltrd, µg/L (04095)	Hexa- chloro- cyclo- penta- diene, wat unf µg/L (34386)	Lindane water, fltrd, µg/L (39341)	Linuron water, fltrd, 0.7µ GF µg/L (82666)	Mala- thion, water, fltrd, µg/L (39532)	Methyl para- thion, water, fltrd, 0.7µ GF µg/L (82667)	Metola- chlor, water, fltrd, µg/L (39415)	Metri- buzin, water, fltrd, µg/L (82630)	Moli- nate, water, fltrd, 0.7µ GF µg/L (82671)	Naprop- amide, water, fltrd, 0.7µ GF µg/L (82684)	p,p'- DDE, water, fltrd, µg/L (34653)	Para- thion, water, fltrd, µg/L (39542)
BERKS COUNTY													
03-26-03	<.007	<.003	--	<.004	<.035	<.027	<.006	1.06	<.006	<.002	<.007	<.003	<.010
05-15-03	<.007	<.003	--	<.004	<.035	<.027	<.006	.461	<.006	<.002	<.007	<.003	<.010
08-13-03	--	--	<.1	--	--	--	--	.37	<.10	--	--	--	--
04-01-03	<.007	<.003	--	<.004	<.035	<.027	<.006	E.013	<.006	<.003	<.007	<.003	<.010
BUCKS COUNTY													
04-15-03	<.007	<.003	--	<.004	<.035	<.027	<.006	<.013	<.006	<.002	<.007	<.003	<.010
MONTGOMERY COUNTY													
04-23-03	<.007	<.003	--	<.004	<.035	<.027	<.006	<.013	<.006	<.002	<.007	<.003	<.010
NORTHAMPTON COUNTY													
04-01-03	<.007	<.003	--	<.004	<.035	<.027	<.006	<.013	<.006	<.003	<.007	<.003	<.010
Date	Peb- ulate, water, fltrd, 0.7µ GF µg/L (82669)	Pendi- meth- alin, water, fltrd, 0.7µ GF µg/L (82683)	Phorate water, fltrd, 0.7µ GF µg/L (82664)	Prome- ton, water, fltrd, µg/L (04037)	Pron- amide, water, fltrd, 0.7µ GF µg/L (82676)	Propa- chlor, water, fltrd, µg/L (04024)	Pro- panil, water, fltrd, 0.7µ GF µg/L (82679)	Prepar- gite, water, fltrd, 0.7µ GF µg/L (82685)	Sima- zine, water, fltrd, µg/L (04035)	Tebu- thiuron water, fltrd, 0.7µ GF µg/L (82670)	Terba- cil, water, fltrd, 0.7µ GF µg/L (82665)	Terbu- fos, water, fltrd, 0.7µ GF µg/L (82675)	Thio- bencarb water, fltrd, 0.7µ GF µg/L (82681)
BERKS COUNTY													
03-26-03	<.004	<.022	<.011	<.01	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005
05-15-03	<.004	<.022	<.011	E.01	<.004	<.010	<.011	<.02	.006	<.02	<.034	<.02	<.005
08-13-03	--	<.100	--	--	--	--	--	--	<.10	--	--	--	--
04-01-03	<.004	<.022	<.011	<.01	<.004	<.010	<.011	<.02	.009	<.02	<.034	<.02	<.005
BUCKS COUNTY													
04-15-03	<.004	<.022	<.011	<.01	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005
MONTGOMERY COUNTY													
04-23-03	<.004	<.022	<.011	<.01	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005
NORTHAMPTON COUNTY													
04-01-03	<.004	<.022	<.011	<.01	<.004	<.010	<.011	<.02	.044	<.02	<.034	<.02	<.005



**GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES  
GROUND WATER PESTICIDES NETWORK PROJECT**

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

Date	Tri- allate, water, fltrd 0.7µ GF µg/L (82678)	Tri- flur- alin, water, fltrd 0.7µ GF µg/L (82661)	Purpose site visit, code (50280)	Sample purpose code (71999)	Sample volume, Sched- ule 2001, mL (99856)	Sam- pling condi- tion, code (72006)	Type of sample related QA data, code (99111)
BERKS COUNTY							
03-26-03	<.002	E.006	2001	50.00	949	8.00	--
05-15-03	<.002	E.003	2001	50.00	934	8.00	10
08-13-03	--	--	2001	50.00	--	8.00	--
04-01-03	<.002	<.009	2001	50.00	943	8.00	--
BUCKS COUNTY							
04-15-03	<.002	<.009	2001	50.00	915	8.00	100
MONTGOMERY COUNTY							
04-23-03	<.002	<.009	2001	50.00	961	8.00	--
NORTHAMPTON COUNTY							
04-01-03	<.002	<.009	2001	50.00	936	8.00	--

**GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES  
GROUND WATER PESTICIDES NETWORK PROJECT**

**REMARKS.**--The following are quality-control samples (blanks) processed during the 2003 water year. "Blanks" are defined in the explanation of records section entitled, "Water Quality-Control Data"; "<" = less than; µg/L: micrograms per liter (parts per billion); mg/L = milligrams per liter (parts per million); GF = Glass fiber filter; MPN = Most Probable Number; DCPA = dacthal; Network Identifier BT = Baseline Trends or HST = Hot-spot Trends.

QUALITY CONTROL DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Station number	Local Well ID	Network Identifier	Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Depth of well, feet below LSD (72008)	Altitude of land surface (72000)	Nitrate + nitrite water, fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	E coli, Coli- lert Quantity water, MPN/ 100 mL (50468)	Total coli- form, Colert Quantity MPN/ 100 mL (50569)	
401435076540910	Lemoyne Station	--	04-15-03	1115	1028	80020	--	--	--	--	--	--	
402704075245701	BK 3011	BT	04-15-03	1129	1028	80020	100	550	<.06	<.008	--	--	
402238075443401	BK 1370	HST	05-15-03	1144	1028	80020	110	330	--	--	<1	<1	
	2,6-Di-ethyl-aniline water, fltrd, 0.7µ GF µg/L (82660)	CIAT, water, fltrd, µg/L (04040)	Aceto-chlor, water, fltrd, µg/L (49260)	Ala-chlor, water, fltrd, µg/L (46342)	alpha-HCH, water, fltrd, µg/L (34253)	alpha-HCH-d6, surrog, wat flt, 0.7µ GF recovery (91065)	Atra-zine, water, fltrd, µg/L (39632)	Azin-phos-methyl, water, fltrd, µg/L (82686)	Ben-flur-alin, water, fltrd, µg/L (82673)	Butyl-ate, water, fltrd, µg/L (04028)	Car-baryl, water, fltrd, µg/L (82680)	Carbo-furan, water, fltrd, µg/L (82674)	Chlor-pyri-fos water, fltrd, µg/L (38933)
04-15-03	<.006	<.006	<.006	<.004	<.005	91.9	<.007	<.050	<.010	<.002	<.041	<.020	<.005
04-15-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-15-03	--	--	--	--	--	--	--	--	--	--	--	--	--
	cis-Per-methrin water, fltrd, 0.7µ GF µg/L (82687)	Cyana-zine, water, fltrd, µg/L (04041)	DCPA, water, fltrd, µg/L (82682)	Desulf-inyl fipro-nil, water, fltrd, µg/L (62170)	Diazi-non, water, fltrd, µg/L (39572)	Diazi-non-d10, surrog, wat flt, 0.7µ GF recovery (91063)	Diel-drin, water, fltrd, µg/L (39381)	Disul-foton, water, fltrd, µg/L (82677)	Ethal-alin, water, fltrd, µg/L (82668)	Etho-prop, water, fltrd, µg/L (82672)	Desulf-inyl fipro-nil amide, wat flt, µg/L (62169)	Fipro-nil sulfide water, fltrd, µg/L (62167)	
04-15-03	<.006	<.018	<.003	<.004	<.005	94.6	<.005	<.02	<.002	<.009	<.005	<.009	<.005
04-15-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-15-03	--	--	--	--	--	--	--	--	--	--	--	--	--
	Fipro-nil sulfone water, fltrd, µg/L (62168)	Fipro-nil, water, fltrd, µg/L (62166)	Fonofos, water, fltrd, µg/L (04095)	Lindane, water, fltrd, µg/L (39341)	Linuron, water, fltrd, µg/L (82666)	Methy-l para-thion, water, fltrd, µg/L (82667)	Mala-thion, water, fltrd, µg/L (39532)	Metola-chlor, water, fltrd, µg/L (39415)	Metri-buzin, water, fltrd, µg/L (82630)	Moli-nate, water, fltrd, µg/L (82671)	Naprop-amide, water, fltrd, µg/L (82684)	p,p'-DDE, water, fltrd, µg/L (34653)	Para-thion, water, fltrd, µg/L (39542)
04-15-03	<.005	<.007	<.003	<.004	<.035	<.027	<.006	<.013	<.006	<.002	<.007	<.003	<.010
04-15-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-15-03	--	--	--	--	--	--	--	--	--	--	--	--	--
	Peb-ulate, water, fltrd, 0.7µ GF µg/L (82669)	Pendi-meth-alin, water, fltrd, µg/L (82683)	Phorate, water, fltrd, µg/L (82664)	Prome-ton, water, fltrd, µg/L (04037)	Pron-amide, water, fltrd, µg/L (82676)	Propa-chlor, water, fltrd, µg/L (04024)	Pro-panil, water, fltrd, µg/L (82679)	Propar-gite, water, fltrd, µg/L (82685)	Sima-zine, water, fltrd, µg/L (04035)	Tebu-thiuron, water, fltrd, µg/L (82670)	Terba-cil, water, fltrd, µg/L (82665)	Terbu-fos, water, fltrd, µg/L (82675)	Thio-bencarb, water, fltrd, µg/L (82681)
04-15-03	<.004	<.022	<.011	<.01	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005
04-15-03	--	--	--	--	--	--	--	--	--	--	--	--	--
05-15-03	--	--	--	--	--	--	--	--	--	--	--	--	--
			Tri-allate, water, fltrd, µg/L (82678)	Tri-flur-alin, water, fltrd, µg/L (82661)	Purpose site visit, code (50280)	Sample purpose code (71999)	Sample volume, Sched- ule 2001, mL (99856)	Source of blank solu- tion, code (99101)	Refer- ence material or spike lot number (99104)	Type of blank sample, code (99102)	Type of blank solution, code (99100)		
			04-15-03	<.002	<.009	2098	50.00	904	10.00	80201	150.00	40.00	
			04-15-03	--	--	2098	50.00	--	80.00	2330	100.00	10.00	
			05-15-03	--	--	2098	50.00	--	80.00	--	100.00	200.00	

**GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES  
GROUND WATER PESTICIDES NETWORK PROJECT**

**401435076540910 - QUALITY-ASSURANCE RESULTS**

**REMARKS.**--A commercially-available and USGS-certified mixture of pesticides and herbicides was spiked into approximately 3 liters of organic-free blank water April 15, 2003 to create three 1-L triplicate quality-assurance samples which were submitted to the U.S. Geological Survey National Water Quality Laboratory. These samples are used to determine both precision and accuracy. Concentrations of pesticides and herbicides (in µg/L) and calculated recoveries (in percent) are shown in the table below for estimation of accuracy. Less-than values were set equal to zero for calculations; E = estimated value; "<" = less than.

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

		Concentration, in micrograms per liter			
		Laboratory results		a Calculated concentration in spiked blank C	Recovery in percent [(B-A)/C] x 100
Parameter code	Constituent	Blank (04/15/03 @ 1115) A	Spiked Blank (04/15/03 @ 1120) B		
49260	Acetochlor	<0.006	0.533	.40	133
46342	Alachlor	<0.004	0.522	.40	130
34253	Alpha BHC	<0.005	0.460	.40	115
39632	Atrazine	<0.007	0.581	.40	145
82673	Benfluralin	<0.010	0.385	.40	96
04028	Butylate	<0.002	0.456	.40	114
82680	Carbaryl	<0.041	E0.515	.40	129
82674	Carbofuran	<0.020	E0.534	.40	134
38933	Chlorpyrifos	<0.005	0.436	.40	109
04041	Cyanazine	<0.018	0.601	.40	150
82682	DCPA (Dacthal)	<0.003	0.532	.40	133
04040	CIAT (Desethyl Atrazine)	<0.006	E0.325	.40	81
39572	Diazinon	<0.005	0.456	.40	114
39381	Dieldrin	<0.005	0.437	.40	109
82660	2,6-Diethyl Aniline	<0.006	0.448	.40	112
82677	Disulfoton	<0.02	0.202	.40	50
82668	EPTC	<0.002	0.436	.40	109
82663	Ethalfuralin	<0.009	0.404	.40	101
82672	Ethoprop	<0.005	0.441	.40	110
04095	Fonofos	<0.003	0.455	.40	114
39341	Lindane	<0.004	0.512	.40	128
82666	Linuron	<0.035	0.687	.40	172
39532	Malathion	<0.027	0.434	.40	108
82686	Methyl Azinphos	<0.050	E0.541	.40	135
82667	Methyl Parathion	<0.006	E0.557	.40	139
39415	Metolachlor	<0.013	0.524	.40	131
82630	Metribuzin	<0.006	0.489	.40	122
82671	Molinate	<0.002	0.468	.40	117
82684	Napropamide	<0.007	0.432	.40	108
34653	P, P' DDE	<0.003	0.284	.40	71
39542	Parathion	<0.010	E0.592	.40	148
82669	Pebulate	<0.004	0.455	.40	114
82683	Pendimethalin	<0.022	0.454	.40	114
82687	Permethrin, cis	<0.006	0.247	.40	62
82664	Phorate	<0.011	0.298	.40	74
04037	Prometon	<0.01	0.518	.40	130
82676	Pronamide	<0.004	0.518	.40	130
04024	Propachlor	<0.010	0.521	.40	130
82679	Propanil	<0.011	0.591	.40	148
82685	Propargite	<0.02	0.336	.40	84
04035	Simazine	<0.005	0.602	.40	150
82670	Tebuthiuron	<0.02	E0.528	.40	132
82665	Terbacil	<0.034	E0.481	.40	120
82675	Terbufos	<0.02	0.340	.40	88
82681	Thiobencarb	<0.005	0.523	.40	131
82678	Triallate	<0.002	0.453	.40	113
82661	Trifluralin	<0.009	0.386	.40	96
Mean recovery					117
Standard deviation					25
Median recovery					115

a Calculated concentration of spike in sample equals the concentration of the spike solution, in micrograms per milliliter x amount of spike added, in milliliters, divided by the spiked sample volume, in liters.

**GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES  
GROUND WATER PESTICIDES NETWORK PROJECT**

**401435076540910 - QUALITY-ASSURANCE RESULTS**

**REMARKS.**--A commercially-available and USGS-certified mixture of pesticides and herbicides was spiked into approximately 3 liters of organic-free blank water April 15, 2003 to create three 1-L triplicate quality-assurance samples which were submitted to the U.S. Geological Survey National Water Quality Laboratory. These samples are used to determine both precision and accuracy. Concentrations of pesticides and herbicides (in µg/L) and calculated recoveries (in percent) are shown in the table below for estimation of accuracy. Less-than values were set equal to zero for calculations; E = estimated value; "<" = less than.

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

		Concentration, in micrograms per liter			
		Laboratory results		a Calculated concentration in spiked blank C	Recovery in percent [(B-A)/C] x 100
Parameter code	Constituent	Blank (04/15/03 @ 1115) A	Spiked Blank (04/15/03 @ 1121) B		
49260	Acetochlor	<0.006	0.551	.40	138
46342	Alachlor	<0.004	0.540	.40	135
34253	Alpha BHC	<0.005	0.531	.40	133
39632	Atrazine	<0.007	0.582	.40	146
82673	Benfluralin	<0.010	0.427	.40	107
04028	Butylate	<0.002	0.496	.40	124
82680	Carbaryl	<0.041	E0.290	.40	72
82674	Carbofuran	<0.020	E0.473	.40	118
38933	Chlorpyrifos	<0.005	0.520	.40	130
04041	Cyanazine	<0.018	0.603	.40	151
82682	DCPA (Dacthal)	<0.003	0.546	.40	136
04040	CIAT (Desethyl Atrazine)	<0.006	E0.324	.40	81
39572	Diazinon	<0.005	0.499	.40	125
39381	Dieldrin	<0.005	0.483	.40	121
82660	2,6-Diethyl Aniline	<0.006	0.498	.40	124
82677	Disulfoton	<0.02	0.227	.40	57
82668	EPTC	<0.002	0.485	.40	121
82663	Ethalfuralin	<0.009	0.455	.40	114
82672	Ethoprop	<0.005	0.501	.40	125
04095	Fonofos	<0.003	0.529	.40	132
39341	Lindane	<0.004	0.546	.40	136
82666	Linuron	<0.035	0.757	.40	189
39532	Malathion	<0.027	0.263	.40	66
82686	Methyl Azinphos	<0.050	E0.590	.40	148
82667	Methyl Parathion	<0.006	0.584	.40	146
39415	Metolachlor	<0.013	0.535	.40	134
82630	Metribuzin	<0.006	0.518	.40	130
82671	Molinate	<0.002	0.479	.40	120
82684	Napropamide	<0.007	0.466	.40	116
34653	P, P' DDE	<0.003	0.325	.40	81
39542	Parathion	<0.010	0.595	.40	149
82669	Pebulate	<0.004	0.476	.40	119
82683	Pendimethalin	<0.022	0.500	.40	125
82687	Permethrin, cis	<0.006	0.265	.40	66
82664	Phorate	<0.011	0.401	.40	100
04037	Prometon	<0.01	0.530	.40	132
82676	Pronamide	<0.004	0.527	.40	132
04024	Propachlor	<0.010	0.504	.40	126
82679	Propanil	<0.011	0.592	.40	148
82685	Propargite	<0.02	0.302	.40	76
04035	Simazine	<0.005	0.603	.40	151
82670	Tebuthiuron	<0.02	0.450	.40	112
82665	Terbacil	<0.034	E0.496	.40	124
82675	Terbufos	<0.02	0.422	.40	106
82681	Thiobencarb	<0.005	0.535	.40	134
82678	Triallate	<0.002	0.489	.40	122
82661	Trifluralin	<0.009	0.428	.40	107
Mean recovery					121
Standard deviation					26
Median recovery					125

a Calculated concentration of spike in sample equals the concentration of the spike solution, in micrograms per milliliter x amount of spike added, in milliliters, divided by the spiked sample volume, in liters.

**GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES  
GROUND WATER PESTICIDES NETWORK PROJECT**

**401435076540910 - QUALITY-ASSURANCE RESULTS**

**REMARKS.**--A commercially-available and USGS-certified mixture of pesticides and herbicides was spiked into approximately 3 liters of organic-free blank water April 15, 2003 to create three 1-L triplicate quality assurance samples which were submitted to the U.S. Geological Survey National Water Quality Laboratory. These samples are used to determine both precision and accuracy. Concentrations of pesticides and herbicides (in µg/L) and calculated recoveries (in percent) are shown in the table below for estimation of accuracy. Less-than values were set equal to zero for calculations; E = estimated value; "<" = less than.

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

Parameter code	Constituent	Concentration, in micrograms per liter				Recovery in percent [(B-A)/C] x 100
		Laboratory results			a Calculated concentration in spiked blank C	
		Blank (4/15/03 @ 1115)	Spiked Blank (04/15/03 @ 1122)	Recovery		
		A	B			
49260	Acetochlor	<0.006	0.547	.40	137	
46342	Alachlor	<0.004	0.540	.40	135	
34253	Alpha BHC	<0.005	0.486	.40	122	
39632	Atrazine	<0.007	0.600	.40	150	
82673	Benfluralin	<0.010	0.410	.40	102	
04028	Butylate	<0.002	0.476	.40	119	
82680	Carbaryl	<0.041	E0.197	.40	49	
82674	Carbofuran	<0.020	E0.415	.40	104	
38933	Chlorpyrifos	<0.005	0.509	.40	127	
04041	Cyanazine	<0.018	0.622	.40	156	
82682	DCPA (Dacthal)	<0.003	0.561	.40	140	
04040	CIAT (Desethyl Atrazine)	<0.006	E0.274	.40	68	
39572	Diazinon	<0.005	0.489	.40	122	
39381	Dieldrin	<0.005	0.455	.40	114	
82660	2,6-Diethyl Aniline	<0.006	0.473	.40	118	
82677	Disulfoton	<0.02	0.219	.40	55	
82668	EPTC	<0.002	0.453	.40	113	
82663	Ethalfuralin	<0.009	0.421	.40	105	
82672	Ethoprop	<0.005	0.465	.40	116	
04095	Fonofos	<0.003	0.506	.40	126	
39341	Lindane	<0.004	0.525	.40	131	
82666	Linuron	<0.035	0.721	.40	180	
39532	Malathion	<0.027	0.184	.40	46	
82686	Methyl Azinphos	<0.050	E0.542	.40	136	
82667	Methyl Parathion	<0.006	E0.578	.40	144	
39415	Metolachlor	<0.013	0.540	.40	135	
82630	Metribuzin	<0.006	0.477	.40	119	
82671	Molinate	<0.002	0.486	.40	122	
82684	Napropamide	<0.007	0.443	.40	111	
34653	P, P' DDE	<0.003	0.307	.40	77	
39542	Parathion	<0.010	E0.597	.40	149	
82669	Pebulate	<0.004	E0.467	.40	117	
82683	Pendimethalin	<0.022	0.468	.40	117	
82687	Permethrin, cis	<0.006	0.260	.40	65	
82664	Phorate	<0.011	0.351	.40	88	
04037	Prometon	<0.01	0.532	.40	133	
82676	Pronamide	<0.004	0.541	.40	135	
04024	Propachlor	<0.010	0.546	.40	136	
82679	Propanil	<0.011	0.549	.40	137	
82685	Propargite	<0.02	0.249	.40	62	
04035	Simazine	<0.005	0.617	.40	154	
82670	Tebuthiuron	<0.02	E0.523	.40	131	
82665	Terbacil	<0.034	E0.443	.40	111	
82675	Terbufos	<0.02	0.391	.40	98	
82681	Thiobencarb	<0.005	0.549	.40	137	
82678	Triallate	<0.002	0.472	.40	118	
82661	Trifluralin	<0.009	0.407	.40	102	
				Mean recovery	116	
				Standard deviation	29	
				Median recovery	119	

**a** Calculated concentration of spike in sample equals the concentration of the spike solution, in micrograms per milliliter x amount of spike added, in milliliters, divided by the spiked sample volume, in liters.

**GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES  
DELAWARE RIVER BASIN NAWQA PROJECT**

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

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

NAWQA study units are divided into three groups that are studied intensively on a rotational basis. Three NAWQA studies have been active in the state of Pennsylvania. The Lower Susquehanna (LSUS) study unit conducted intensive sampling from 1993 through 1995 and is currently in a low-intensity phase. The Allegheny and Monongahela River Basins (ALMN) study unit conducted intensive sampling from 1996 through 1998 and is currently in a low-intensity phase. The Delaware River Basin (DELR) study unit conducted intensive sampling from 1999 to 2001, and currently is in a low-intensity phase. The DELR is scheduled to resume intensive sampling in 2009.

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

DELR NAWQA fixed stations (fig. 6-7) are: Delaware River at Trenton, NJ (01463500); Little Neshaminy Creek near Warminster, PA (01464907); French Creek near Phoenixville, PA (01472157); and Schuylkill River at Philadelphia, PA (01474500). Data from Pennsylvania fixed stations are published in the continuous-record section of this report. DELR NAWQA low-intensity phase ground-water sample locations are shown on figure 13. Data from the ground-water sample locations are published in the analyses of ground-water samples collected at special-study sites section of this report. A complete list of DELR NAWQA data, including water-quality results from all synoptic and fixed sampling sites, can be found in 'Water Resources Data, New Jersey, Water Year 2003', Water-Data Report NJ-03-3.

**GROUND WATER IN THE CLASTIC BEDROCK WITHIN THE TRIASSIC LOWLANDS SECTION  
OF THE PIEDMONT PHYSIOGRAPHIC PROVINCE**

The following table contains site, water-level, and water-quality data from a network of five domestic wells. The wells are a subset from a network of 30 wells that were established and sampled in 1999 as part of the National Water-Quality Assessment Program in the Delaware River Basin.

The five wells were re-sampled in 2003 to assess the status and trends of ground-water quality in the clastic bedrock of the Piedmont Physiographic Province (fig. 13). Samples were tested for field parameters, nutrients, major ions, trace elements, dissolved and volatile organic compounds (VOCs), pesticides (including their metabolites), and radioisotopes. Many VOCs and pesticides constituents were not detected at any of the five wells. Data collected during the initial sampling of all 30 wells in 1999 for this network can be found in the annual 'Water Resources Data, Pennsylvania, Water Year 2000', Water Data Report PA-00-1. For additional information, contact Doug Chichester at the U.S. Geological Survey, 215 Limekiln Road, New Cumberland, PA 17070; 717-730-6951 (email: [dchiche@usgs.gov](mailto:dchiche@usgs.gov)).

GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES  
 DELAWARE RIVER BASIN NAWQA PROJECT

GROUND WATER IN THE CLASTIC BEDROCK WITHIN THE TRIASSIC LOWLANDS SECTION  
 OF THE PIEDMONT PHYSIOGRAPHIC PROVINCE

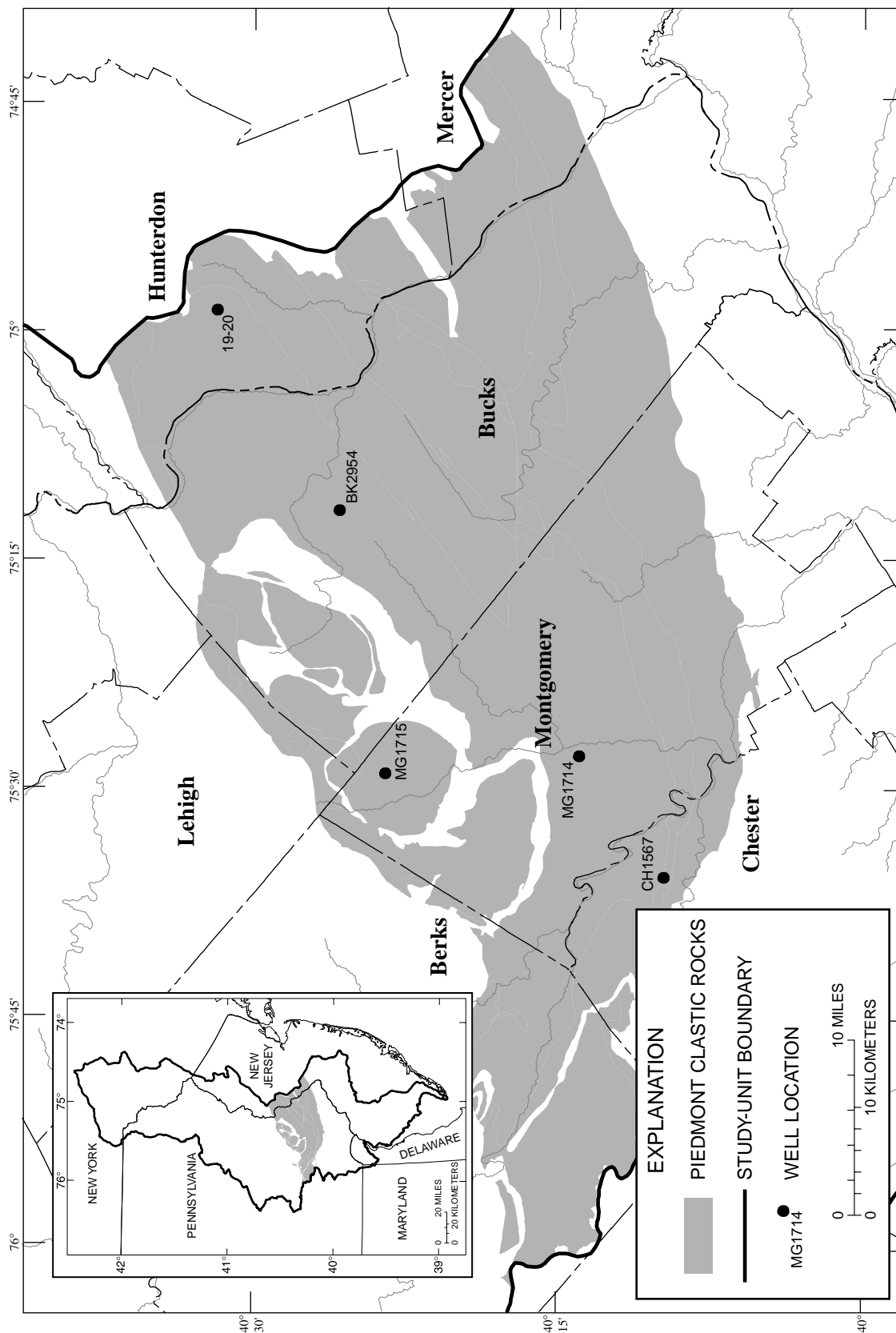


Figure 13.--Location of Delaware River Basin National Water-Quality Assessment Program low-intensity phase ground-water sampling sites in the Clastic Bedrock within the Triassic Lowlands Section of the Piedmont Physiographic Province.

**GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES  
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**REMARKS.**--Explanation of column headings--Station number = 15-digit unique identifier based on site latitude (first six digits), longitude (digits seven through thirteen), and a 2-digit sequence number suffix; Altitude of land surface = land surface at well site in feet above sea level; Sampling method code 4040 = submersible pump;  $\mu\text{S}/\text{cm}$  = microsiemens per centimeter at 25 degrees Celsius; deg C = degrees Celsius;  $\mu\text{g}/\text{L}$  = micrograms per liter (parts per billion); mg/L = milligrams per liter (parts per million); pCi/L = picocuries per liter; "<" = less than; "E" = estimated; "M" = presence of material verified but not quantified; CIAT = deethylatrazine; DCPA = dacthal; GF = Glass fiber filter.

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

Local ID	Station number	Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Depth of well, feet below LSD (72008)	Depth to water level, feet below LSD (72019)	Altitude of land surface, feet (72000)	Flow rate, gal/min (00059)	Pump or flow period prior to sampling, minutes (72004)			
BUCKS COUNTY, PA													
BK 2954	402555075114701	07-29-03	1100	1028	80020	92	53.23	370	3.5	42			
CHESTER COUNTY, PA													
CH 1567	400954075354501	07-23-03	1200	1028	80020	105	17.51	340	6.4	65			
MONTGOMERY COUNTY, PA													
MG 1714	401405075275101	07-28-03	1100	1028	80020	210	66.83	200	7.7	60			
MG 1715	402337075290001	07-30-03	1200	1028	80020	200	16.34	325	3.8	95			
HUNTERDON COUNTY, NJ													
190020	403156074583901	07-24-03	1300	1028	80020	275	15.13	525	4.8	110			
Date	Sampling method, code (82398)	Turbidity, water, unfltrd field, NTU (61028)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unfltrd lab, $\mu\text{S}/\text{cm}$ 25 degC (90095)	Specif. conductance, wat unfltrd lab, $\mu\text{S}/\text{cm}$ 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Noncarb hardness, wat flt field, mg/L as CaCO3 (00904)
BUCKS COUNTY, PA													
07-29-03	4040	.4	750	6.1	59	7.5	7.5	258	268	23.5	13.6	120	27
CHESTER COUNTY, PA													
07-23-03	4040	.1	748	5.1	53	7.1	6.7	404	410	26.0	15.8	180	82
MONTGOMERY COUNTY, PA													
07-28-03	4040	.1	747	6.0	60	7.8	7.5	394	370	30.0	14.5	200	25
07-30-03	4040	.4	755	3.1	30	7.6	7.6	456	482	28.0	13.6	250	54
HUNTERDON COUNTY, NJ													
07-24-03	4040	.0	745	3.2	35	8.2	7.9	274	269	32.0	17.6	120	13
Date	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	Sodium, percent (00932)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bromide water, fltrd, mg/L (71870)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate, water, fltrd, mg/L (00945)	Residue water, fltrd, sum of constituents, mg/L (70301)
BUCKS COUNTY, PA													
07-29-03	23.8	14.0	.77	.4	9.13	14	91	.02	9.51	<.2	15.6	13.3	164
CHESTER COUNTY, PA													
07-23-03	59.0	9.03	.95	.4	12.4	13	103	.08	47.4	<.2	23.3	12.5	245
MONTGOMERY COUNTY, PA													
07-28-03	40.9	22.8	.85	.3	11.2	11	172	.04	10.6	<.2	24.2	18.9	247
07-30-03	55.7	27.1	.93	.3	11.0	9	198	.03	13.9	<.2	23.5	16.5	297
HUNTERDON COUNTY, NJ													
07-24-03	26.3	13.1	.63	.5	11.8	18	109	.02	6.71	<.2	22.1	11.6	175



**GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES  
DELAWARE RIVER BASIN NAWQA PROJECT**

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

Date	Residue water, fltrd, tons/acre-ft (70303)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, fltrd, mg/L as N (00623)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water, fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phosphate water, fltrd, mg/L (00660)	Ortho-phosphate water, fltrd, mg/L as P (00671)	Aluminum, water, fltrd, mg/L (01106)	Anti-mony, water, fltrd, mg/L (01095)	Arsenic water, fltrd, mg/L (01000)	Barium, water, fltrd, mg/L (01005)	Beryllium, water, fltrd, mg/L (01010)
BUCKS COUNTY, PA													
07-29-03	.21	156	E.08	<.04	5.10	<.008	.110	.04	<2	<.30	1.5	245	<.06
CHESTER COUNTY, PA													
07-23-03	.34	252	<.10	<.04	4.12	<.008	.187	.06	M	<.30	1.0	381	<.06
MONTGOMERY COUNTY, PA													
07-28-03	.33	245	<.10	<.04	3.06	<.008	--	E.01	<2	<.30	14.8	198	<.06
07-30-03	.40	293	<.10	<.04	6.55	<.008	--	E.01	<2	<.30	4.1	350	<.06
HUNTERDON COUNTY, NJ													
07-24-03	.23	172	<.10	<.04	3.46	<.008	.098	.03	<2	<.30	25.2	85	<.06
Date	Boron, water, fltrd, µg/L (01020)	Cadmium water, fltrd, µg/L (01025)	Chromium, water, fltrd, µg/L (01030)	Cobalt water, fltrd, µg/L (01035)	Copper, water, fltrd, µg/L (01040)	Iron, water, fltrd, µg/L (01046)	Lead, water, fltrd, µg/L (01049)	Lithium water, fltrd, µg/L (01130)	Manganese, water, fltrd, µg/L (01056)	Molybdenum, water, fltrd, µg/L (01060)	Nickel, water, fltrd, µg/L (01065)	Selenium, water, fltrd, µg/L (01145)	Silver, water, fltrd, µg/L (01075)
BUCKS COUNTY, PA													
07-29-03	22	E.02	<.8	.055	1.1	E4	E.07	8.5	.3	1.4	.71	.9	<.2
CHESTER COUNTY, PA													
07-23-03	10	<.04	<.8	.145	13.4	<8	2.06	12.4	.8	<.3	2.51	E.3	<.2
MONTGOMERY COUNTY, PA													
07-28-03	31	E.02	<.8	.074	2.5	<8	3.11	11.4	<.2	8.6	1.22	E.3	<.2
07-30-03	32	<.04	<.8	.106	2.1	<8	.66	18.8	<.2	1.0	.71	1.0	<.2
HUNTERDON COUNTY, NJ													
07-24-03	224	E.02	E.5	.060	1.2	<8	.79	10.3	<.2	2.5	.40	.7	<.2
Date	Strontium, water, fltrd, µg/L (01080)	Thallium, water, fltrd, µg/L (01057)	Vanadium, water, fltrd, µg/L (01085)	Zinc, water, fltrd, µg/L (01090)	2,6-Di-ethyl-aniline water, fltrd, 0.7µ GF (82660)	CIAT, water, fltrd, µg/L (04040)	Aceto-chlor, water, fltrd, µg/L (49260)	Ala-chlor, water, fltrd, µg/L (46342)	alpha-HCH, water, fltrd, µg/L (34253)	Atra-zine, water, fltrd, µg/L (39632)	Azin-phos-methyl, water, fltrd, 0.7µ GF (82686)	Ben-flur-alin, water, fltrd, µg/L (82673)	
BUCKS COUNTY, PA													
07-29-03	200	<.04	.9	13	<.006	E.006	<.006	<.004	<.005	.009	<.050	<.010	
CHESTER COUNTY, PA													
07-23-03	167	<.04	.8	3	<.006	<.006	<.006	<.004	<.005	<.007	<.050	<.010	
MONTGOMERY COUNTY, PA													
07-28-03	978	<.04	4.7	M	<.006	E.005	<.006	<.004	<.005	<.007	<.050	<.010	
07-30-03	558	<.04	2.1	M	<.006	E.014	<.006	<.004	<.005	.014	<.050	<.010	
HUNTERDON COUNTY, NJ													
07-24-03	2050	<.04	7.3	27	<.006	<.006	<.006	<.004	<.005	<.007	<.050	<.010	

**GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES  
DELAWARE RIVER BASIN NAWQA PROJECT**

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

Date	Butyl- ate, water, fltrd, µg/L (04028)	Car- baryl, water, fltrd 0.7µ GF µg/L (82680)	Carbo- furan, water, fltrd 0.7µ GF µg/L (82674)	Chlor- pyrifos water, fltrd, µg/L (38933)	cis- Per- methrin water, fltrd 0.7µ GF µg/L (82687)	Cyana- zine, water, fltrd, µg/L (04041)	DCPA, water, fltrd 0.7µ GF µg/L (82682)	Desulf- inyl fipro- nil, water, fltrd, µg/L (62170)	Diazi- non, water, fltrd, µg/L (39572)	Diel- drin, water, fltrd, µg/L (39381)	Disul- foton, water, fltrd 0.7µ GF µg/L (82677)	EPTC, water, fltrd 0.7µ GF µg/L (82668)	
BUCKS COUNTY, PA													
07-29-03	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.004	<.005	<.005	<.02	<.002	
CHESTER COUNTY, PA													
07-23-03	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.004	<.005	<.005	<.02	<.002	
MONTGOMERY COUNTY, PA													
07-28-03	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.004	<.005	<.005	<.02	<.002	
07-30-03	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.004	<.005	<.005	<.02	<.002	
HUNTERDON COUNTY, NJ													
07-24-03	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.004	<.005	<.005	<.02	<.002	
Date	Ethal- flur- alin, water, fltrd 0.7µ GF µg/L (82663)	Etho- prop, water, fltrd 0.7µ GF µg/L (82672)	Desulf- inyl- fipro- nil amide, wat flt µg/L (62169)	Fipro- nil sulfide water, fltrd, µg/L (62167)	Fipro- nil sulfone water, fltrd, µg/L (62168)	Fipro- nil, water, fltrd, µg/L (62166)	Fonofos water, fltrd, µg/L (04095)	Lindane water, fltrd, µg/L (39341)	Linuron water, fltrd 0.7µ GF µg/L (82666)	Mala- thion, water, fltrd, µg/L (39532)	Methyl para- thion, water, fltrd 0.7µ GF µg/L (82667)	Metola- chlor, water, fltrd, µg/L (39415)	Metri- buzin, water, fltrd, µg/L (82630)
BUCKS COUNTY, PA													
07-29-03	<.009	<.005	<.009	<.005	<.005	<.007	<.003	<.004	<.035	<.027	<.006	E.004	<.006
CHESTER COUNTY, PA													
07-23-03	<.009	<.005	<.009	<.005	<.005	<.007	<.003	<.004	<.035	<.027	<.006	<.013	<.006
MONTGOMERY COUNTY, PA													
07-28-03	<.009	<.005	<.009	<.005	<.005	<.007	<.003	<.004	<.035	<.027	<.006	<.013	<.006
07-30-03	<.009	<.005	<.009	<.005	<.005	<.007	<.003	<.004	<.035	<.027	<.006	<.013	<.006
HUNTERDON COUNTY, NJ													
07-24-03	<.009	<.005	<.009	<.005	<.005	<.007	<.003	<.004	<.035	<.027	<.006	<.013	<.006
Date	Moli- nate, water, fltrd 0.7µ GF µg/L (82671)	Naprop- amide, water, fltrd 0.7µ GF µg/L (82684)	p,p'- DDE, water, fltrd, µg/L (34653)	Para- thion, water, fltrd, µg/L (39542)	Peb- ulate, water, fltrd 0.7µ GF µg/L (82669)	Pendi- meth- alin, water, fltrd 0.7µ GF µg/L (82683)	Phorate water, fltrd 0.7µ GF µg/L (82664)	Prome- ton, water, fltrd, µg/L (04037)	Pron- amide, water, fltrd 0.7µ GF µg/L (82676)	Propa- chlor, water, fltrd, µg/L (04024)	Pro- panil, water, fltrd 0.7µ GF µg/L (82679)	Prepar- gite, water, fltrd 0.7µ GF µg/L (82685)	Sima- zine, water, fltrd, µg/L (04035)
BUCKS COUNTY, PA													
07-29-03	<.002	<.007	<.003	<.010	<.004	<.022	<.011	E.01	<.004	<.010	<.011	<.02	.147
CHESTER COUNTY, PA													
07-23-03	<.002	<.007	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.010	<.011	<.02	<.005
MONTGOMERY COUNTY, PA													
07-28-03	<.002	<.007	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.010	<.011	<.02	<.005
07-30-03	<.002	<.007	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.010	<.011	<.02	<.005
HUNTERDON COUNTY, NJ													
07-24-03	<.002	<.007	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.010	<.011	<.02	<.005

**GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES  
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WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Tebu- thiuron water fltrd 0.7µ GF µg/L (82670)	Terba- cil, water, fltrd 0.7µ GF µg/L (82665)	Terbu- fos, water, fltrd 0.7µ GF µg/L (82675)	Thio- bencarb water, fltrd 0.7µ GF µg/L (82681)	Tri- allate, water, fltrd 0.7µ GF µg/L (82678)	Tri- flur- alin, water, fltrd 0.7µ GF µg/L (82661)	1,1,1,2 -Tetra- chloro- ethane, water, unfltrd µg/L (77562)	1,1,1- Tri- chloro- ethane, water, unfltrd µg/L (34506)	1,1,2,2 -Tetra- chloro- ethane, water, unfltrd µg/L (34516)	CFC-113 water unfltrd µg/L (77652)	1,1,2- Tri- chloro- ethane, water, unfltrd µg/L (34511)	1,1-Di- chloro- ethane, water, unfltrd µg/L (34496)	1,1-Di- chloro- ethene, water, unfltrd µg/L (34501)
BUCKS COUNTY, PA													
07-29-03	<.02	<.034	<.02	<.005	<.002	<.009	<.03	<.03	<.09	<.06	<.06	<.04	<.04
CHESTER COUNTY, PA													
07-23-03	<.02	<.034	<.02	<.005	<.002	<.009	<.03	E.02	<.09	<.06	<.06	<.04	<.04
MONTGOMERY COUNTY, PA													
07-28-03	<.02	<.034	<.02	<.005	<.002	<.009	<.03	<.03	<.09	<.06	<.06	<.04	<.04
07-30-03	<.02	<.034	<.02	<.005	<.002	<.009	<.03	.21	<.09	<.06	<.06	<.04	.10
HUNTERDON COUNTY, NJ													
07-24-03	<.02	<.034	<.02	<.005	<.002	<.009	<.03	<.03	<.09	<.06	<.06	<.04	<.04
Date	1,1-Di- chloro- propene water unfltrd µg/L (77168)	1,2,3,4 Tetra- methyl- benzene water unfltrd µg/L (49999)	1,2,3,5 Tetra- methyl- benzene water unfltrd µg/L (50000)	1,2,3- Tri- chloro- benzene water unfltrd µg/L (77613)	1,2,3- Tri- chloro- propane water unfltrd µg/L (77443)	1,2,3- Tri- methyl- benzene water unfltrd µg/L (77221)	1,2,4- Tri- chloro- benzene water unfltrd µg/L (34551)	1,2,4- Tri- methyl- benzene water unfltrd µg/L (77222)	Dibromo chloro- propane water unfltrd µg/L (82625)	1,2-Di- bromo- ethane, water unfltrd µg/L (77651)	1,2-Di- chloro- benzene water unfltrd µg/L (34536)	1,2-Di- chloro- ethane, water, unfltrd µg/L (32103)	
BUCKS COUNTY, PA													
07-29-03	<.05	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03	<.1	
CHESTER COUNTY, PA													
07-23-03	<.05	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03	<.1	
MONTGOMERY COUNTY, PA													
07-28-03	<.05	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03	<.1	
07-30-03	<.05	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03	<.1	
HUNTERDON COUNTY, NJ													
07-24-03	<.05	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03	<.1	
Date	1,2-Di- chloro- propane water unfltrd µg/L (34541)	1,3,5- Tri- methyl- benzene water unfltrd µg/L (77226)	1,3-Di- chloro- benzene water unfltrd µg/L (34566)	1,3-Di- chloro- propane water unfltrd µg/L (77173)	1,4-Di- chloro- benzene water unfltrd µg/L (34571)	2,2-Di- chloro- propane water unfltrd µg/L (77170)	2- Chloro- toluene water unfltrd µg/L (77275)	2- Ethyl- toluene water unfltrd µg/L (77220)	3- Chloro- propene water unfltrd µg/L (78109)	4- Chloro- toluene water unfltrd µg/L (77277)	4-Iso- propyl- toluene water unfltrd µg/L (77356)	Acetone water unfltrd µg/L (81552)	
BUCKS COUNTY, PA													
07-29-03	<.03	<.04	<.03	<.1	<.05	<.05	<.04	<.06	<.12	<.05	<.12	<.7	
CHESTER COUNTY, PA													
07-23-03	<.03	<.04	<.03	<.1	<.05	<.05	<.04	<.06	<.12	<.05	<.12	<.7	
MONTGOMERY COUNTY, PA													
07-28-03	<.03	<.04	<.03	<.1	<.05	<.05	<.04	<.06	<.12	<.05	<.12	<.7	
07-30-03	<.03	<.04	<.03	<.1	<.05	<.05	<.04	<.06	<.12	<.05	<.12	<.7	
HUNTERDON COUNTY, NJ													
07-24-03	<.03	<.04	<.03	<.1	<.05	<.05	<.04	<.06	<.12	<.05	<.12	<.7	

**GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES  
DELAWARE RIVER BASIN NAWQA PROJECT**

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

Date	Acrylonitrile water unfltrd µg/L (34215)	Benzene water unfltrd µg/L (34030)	Bromobenzene water unfltrd µg/L (81555)	Bromo-chloro-methane water unfltrd µg/L (77297)	Bromo-di-chloro-methane water unfltrd µg/L (32101)	Bromo-ethene, water, unfltrd µg/L (50002)	Bromo-methane water unfltrd µg/L (34413)	Carbon di-sulfide water unfltrd µg/L (77041)	Chloro-benzene water unfltrd µg/L (34301)	Chloro-ethane, water, unfltrd µg/L (34311)	Chloro-methane water unfltrd µg/L (34418)	cis-1,2-Di-chloro-ethene, water, unfltrd µg/L (77093)	cis-1,3-Di-chloro-propene water unfltrd µg/L (34704)
BUCKS COUNTY, PA													
07-29-03	<1	<.04	<.04	<.12	<.05	<.1	<.3	<.07	<.03	<.1	<.2	<.04	<.09
CHESTER COUNTY, PA													
07-23-03	<1	<.04	<.04	<.12	<.05	<.1	<.3	<.07	<.03	<.1	<.2	<.04	<.09
MONTGOMERY COUNTY, PA													
07-28-03	<1	<.04	<.04	<.12	<.05	<.1	<.3	<.07	<.03	<.1	<.2	<.04	<.09
07-30-03	<1	<.04	<.04	<.12	<.05	<.1	<.3	<.07	<.03	<.1	<.2	<.04	<.09
HUNTERDON COUNTY, NJ													
07-24-03	<1	<.04	<.04	<.12	<.05	<.1	<.3	<.07	<.03	<.1	<.2	<.04	<.09
Date	Di-bromo-chloro-methane water unfltrd µg/L (32105)	Di-bromo-methane water unfltrd µg/L (30217)	Di-chloro-di-fluoro-methane wat unfltrd µg/L (34668)	Di-chloro-methane water unfltrd µg/L (34423)	Di-ethyl ether, water, unfltrd µg/L (81576)	Diiso-propyl ether, water, unfltrd µg/L (81577)	Ethyl methacrylate, water, unfltrd µg/L (73570)	Ethyl methyl ketone, water, unfltrd µg/L (81595)	Ethyl-benzene water unfltrd µg/L (34371)	Hexa-chloro-buta-diene, water, unfltrd µg/L (39702)	Hexa-chloro-ethane, water, unfltrd µg/L (34396)	Iodo-methane water unfltrd µg/L (77424)	Iso-butyl methyl ketone, water, unfltrd µg/L (78133)
BUCKS COUNTY, PA													
07-29-03	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<5.0	<.03	<.1	<.2	<.35	<.4
CHESTER COUNTY, PA													
07-23-03	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<5.0	<.03	<.1	<.2	<.35	<.4
MONTGOMERY COUNTY, PA													
07-28-03	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<5.0	<.03	<.1	<.2	<.35	<.4
07-30-03	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<5.0	<.03	<.1	<.2	<.35	<.4
HUNTERDON COUNTY, NJ													
07-24-03	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<5.0	<.03	<.1	<.2	<.35	<.4
Date	Iso-propyl-benzene water unfltrd µg/L (77223)	Methyl acrylonitrile water unfltrd µg/L (81593)	Methyl acrylate, water, unfltrd µg/L (49991)	Methyl methacrylate, water, unfltrd µg/L (81597)	Methyl tert-pentyl ether, water, unfltrd µg/L (50005)	meta-para-Xylene, water, unfltrd µg/L (85795)	Naphthalene, water, unfltrd µg/L (34696)	Methyl n-butyl ketone, water, unfltrd µg/L (77103)	n-Butyl benzene water unfltrd µg/L (77342)	n-propyl-benzene water unfltrd µg/L (77224)	o-Xylene, water, unfltrd µg/L (77135)	sec-Butyl-benzene water unfltrd µg/L (77350)	Styrene water unfltrd µg/L (77128)
BUCKS COUNTY, PA													
07-29-03	<.06	<.6	<2.0	<.3	<.08	<.06	<.5	<.7	<.2	<.04	<.07	<.06	<.04
CHESTER COUNTY, PA													
07-23-03	<.06	<.6	<2.0	<.3	<.08	<.06	<.5	<.7	<.2	<.04	<.07	<.06	<.04
MONTGOMERY COUNTY, PA													
07-28-03	<.06	<.6	<2.0	<.3	<.08	<.06	<.5	<.7	<.2	<.04	<.07	<.06	<.04
07-30-03	<.06	<.6	<2.0	<.3	<.08	<.06	<.5	<.7	<.2	<.04	<.07	<.06	<.04
HUNTERDON COUNTY, NJ													
07-24-03	<.06	<.6	<2.0	<.3	<.08	<.06	<.5	<.7	<.2	<.04	<.07	<.06	<.04

**GROUND-WATER DATA COLLECTED AT SPECIAL-STUDY SITES  
DELAWARE RIVER BASIN NAWQA PROJECT**

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

Date	t-Butyl ethyl ether, water, unfltrd µg/L (50004)	Methyl t-butyl ether, water, unfltrd µg/L (78032)	tert- Butyl- benzene water, unfltrd µg/L (77353)	Tetra- chloro- ethene, water, unfltrd µg/L (34475)	Tetra- chloro- methane water, unfltrd µg/L (32102)	Tetra- hydro- furan, water, unfltrd µg/L (81607)	Toluene water, unfltrd µg/L (34010)	trans- 1,2-Di- chloro- ethene, water, unfltrd µg/L (34546)	trans- 1,3-Di- chloro- propene water, unfltrd µg/L (34699)	trans- 1,4-Di- chloro- 2- butene, wat unfl µg/L (73547)	Tri- bromo- methane water, unfltrd µg/L (32104)	Tri- chloro- ethene, water, unfltrd µg/L (39180)
BUCKS COUNTY, PA												
07-29-03	<.05	E.1	<.10	<.03	<.06	<2	<.05	<.03	<.09	<.7	<.10	<.04
CHESTER COUNTY, PA												
07-23-03	<.05	.2	<.10	E.01	<.06	<2	<.05	<.03	<.09	<.7	<.10	E.07
MONTGOMERY COUNTY, PA												
07-28-03	<.05	<.2	<.10	<.03	<.06	<2	<.05	<.03	<.09	<.7	<.10	<.04
07-30-03	<.05	<.2	<.10	<.03	<.06	<2	<.05	<.03	<.09	<.7	<.10	<.04
HUNTERDON COUNTY, NJ												
07-24-03	<.05	<.2	<.10	<.03	<.06	<2	<.05	<.03	<.09	<.7	<.10	<.04

Date	Tri- chloro- fluoro- methane water, unfltrd µg/L (34488)	Tri- chloro- methane water, unfltrd µg/L (32106)	Vinyl chlor- ide, water, unfltrd µg/L (39175)	Rn-222, water, unfltrd pCi/L (82303)	Uranium natural water, fltrd, µg/L (22703)
BUCKS COUNTY, PA					
07-29-03	<.09	<.02	<.1	1800	1.50
CHESTER COUNTY, PA					
07-23-03	<.09	.11	<.1	1690	.67
MONTGOMERY COUNTY, PA					
07-28-03	<.09	E.02	<.1	2420	3.18
07-30-03	<.09	<.02	<.1	2270	2.61
HUNTERDON COUNTY, NJ					
07-24-03	<.09	E.01	<.1	2340	2.22



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# CALENDAR FOR WATER YEAR 2003

## 2002

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OCTOBER							NOVEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
		1	2	3	4	5						1	2	1	2	3	4	5	6	7
6	7	8	9	10	11	12	3	4	5	6	7	8	9	8	9	10	11	12	13	14
13	14	15	16	17	18	19	10	11	12	13	14	15	16	15	16	17	18	19	20	21
20	21	22	23	24	25	26	17	18	19	20	21	22	23	22	23	24	25	26	27	28
27	28	29	30	31			24	25	26	27	28	29	30	29	30	31				

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## 2003

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JANUARY							FEBRUARY							MARCH						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
			1	2	3	4							1							1
5	6	7	8	9	10	11	2	3	4	5	6	7	8	2	3	4	5	6	7	8
12	13	14	15	16	17	18	9	10	11	12	13	14	15	9	10	11	12	13	14	15
19	20	21	22	23	24	25	16	17	18	19	20	21	22	16	17	18	19	20	21	22
26	27	28	29	30	31		23	24	25	26	27	28		23	24	25	26	27	28	29
														30	31					

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APRIL							MAY							JUNE						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
			1	2	3	4					1	2	3	1	2	3	4	5	6	7
6	7	8	9	10	11	12	4	5	6	7	8	9	10	8	9	10	11	12	13	14
13	14	15	16	17	18	19	11	12	13	14	15	16	17	15	16	17	18	19	20	21
20	21	22	23	24	25	26	18	19	20	21	22	23	24	22	23	24	25	26	27	28
27	28	29	30				25	26	27	28	29	30	31	29	30					

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JULY							AUGUST							SEPTEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
			1	2	3	4						1	2		1	2	3	4	5	6
6	7	8	9	10	11	12	3	4	5	6	7	8	9	7	8	9	10	11	12	13
13	14	15	16	17	18	19	10	11	12	13	14	15	16	14	15	16	17	18	19	20
20	21	22	23	24	25	26	17	18	19	20	21	22	23	21	22	23	24	25	26	27
27	28	29	30	31			24	25	26	27	28	29	30	28	29	30				

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# Conversion Factors

<b>Multiply</b>	<b>By</b>	<b>To obtain</b>
<b>Length</b>		
inch (in.)	$2.54 \times 10^1$	millimeter (mm)
	$2.54 \times 10^{-2}$	meter (m)
foot (ft)	$3.048 \times 10^{-1}$	meter (m)
mile (mi)	$1.609 \times 10^0$	kilometer (km)
<b>Area</b>		
acre	$4.047 \times 10^3$	square meter (m <sup>2</sup> )
	$4.047 \times 10^{-1}$	square hectometer (hm <sup>2</sup> )
	$4.047 \times 10^{-3}$	square kilometer (km <sup>2</sup> )
square mile (mi <sup>2</sup> )	$2.590 \times 10^0$	square kilometer (km <sup>2</sup> )
<b>Volume</b>		
gallon (gal)	$3.785 \times 10^0$	liter (L)
	$3.785 \times 10^{-3}$	cubic meter (m <sup>3</sup> )
	$3.785 \times 10^0$	cubic decimeter (dm <sup>3</sup> )
million gallons (Mgal)	$3.785 \times 10^3$	cubic meter (m <sup>3</sup> )
	$3.785 \times 10^{-3}$	cubic hectometer (hm <sup>3</sup> )
cubic foot (ft <sup>3</sup> )	$2.832 \times 10^{-2}$	cubic meter (m <sup>3</sup> )
	$2.832 \times 10^1$	cubic decimeter (dm <sup>3</sup> )
cubic-foot-per-second-per-day [(ft <sup>3</sup> /s/d)]	$2.447 \times 10^3$	cubic meter (m <sup>3</sup> )
	$2.447 \times 10^{-3}$	cubic hectometer (hm <sup>3</sup> )
acre-foot (acre-ft)	$1.223 \times 10^3$	cubic meter (m <sup>3</sup> )
	$1.223 \times 10^{-3}$	cubic hectometer (hm <sup>3</sup> )
	$1.223 \times 10^{-6}$	cubic kilometer (km <sup>3</sup> )
<b>Flow rate</b>		
cubic foot per second (ft <sup>3</sup> /s)	$2.832 \times 10^1$	liter per second (L/s)
	$2.832 \times 10^{-2}$	cubic meter per second (m <sup>3</sup> /s)
	$2.832 \times 10^1$	cubic decimeter per second (dm <sup>3</sup> /s)
gallon per minute (gal/min)	$6.309 \times 10^{-2}$	liter per second (L/s)
	$6.309 \times 10^{-5}$	cubic meter per second (m <sup>3</sup> /s)
	$6.309 \times 10^{-2}$	cubic decimeter per second (dm <sup>3</sup> /s)
million gallons per day (Mgal/d)	$4.381 \times 10^{-2}$	cubic meter per second (m <sup>3</sup> /s)
	$4.381 \times 10^1$	cubic decimeter per second (dm <sup>3</sup> /s)
<b>Mass</b>		
ton, short (2,000 lb)	$9.072 \times 10^{-1}$	megagram (Mg) or metric ton

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows:

$$^{\circ}\text{F} = (1.8 \times ^{\circ}\text{C}) + 32$$