NONPOINT-SOURCE DISCHARGES IN PEQUEA CREEK BASIN, PENNSYLVANIA, 1977

U.S. Geological Survey
Water Resources Investigations 79-88
Prepared in cooperation with the Susquehanna River Basin Commission

50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO.	2.	3. Recipient's Accession No.

4. Title and Subtitle	5. Report Date
NONPOINT-SOURCE DISCHARGES IN PEQUEA CREEK BASIN, PENNSYLVANIA, 1977	November 1979
	6.
7. Author(s) Janice R. Ward and David A. Eckhardt	8. Performing Organization Rept. No. USGS/WRI-79-88
9. Performing Organization Name and Address	10. Project/Task/Work Unit No.
U.S. Geological Survey, Water Resources Division P. O. Box 1107, 228 Walnut Street Harrisburg, Pennsylvania 17108	11. Contract(C) or Grant(G) No. (C) (G)
12. Sponsoring Organization Name and Address	13. Type of Report & Period Covered
U.S. Geological Survey, Water Resources Division P. O. Box 1107, 228 Walnut Street Harrisburg, Pennsylvania 17108	Interim 1977
	14.

15. Supplementary Notes

Prepared in cooperation with the Susquehanna River Basin Commission

16. Abstract (Limit: 200 words) A study of Pequea Creek included measurement of streamflow and collection of water and bottom-material samples during selected base-flow and storm periods from February to December 1977. Samples were analyzed for nitrogen and phosphorus species, suspended sediment, organic carbon, and pesticides. Daily mean constituent concentrations and discharges transported from the basin were computed for a gaging station near the mouth. Intermittent constituent mean concentrations and discharges were computed for storms at the six subbasin sites.

The objective of this project was to assess the magnitudes and types of nonpoint discharges that affect the water quality of Pequea Creek. The project included the determination of (1) the total discharges of suspended sediment, nitrogen, and phosphorus from the basin; (2) intermittent storm and base-flow discharges from six subbasin sites of varying size, geology, and land use; (3) the difference in magnitudes of the discharges during base-flow periods and storms; and (4) which variables most affect the transport of these constituents.

The yields measured from the Pequea Creek basin for the period February to December 1977 were among the highest measured in the lower Susquehanna River basin. Some preliminary relations between constituents were examined using linear regression techniques on all of the data for each site. Direct runoff transported the majority of the suspended sediment, total phosphorus, and suspended organic carbon from the basin; the other constituents were transported mainly during base flow.

17. Document Analysis a. Descriptors

*Sediment, *nitrogen, *phosphorus, *pesticides, *storm runoff, *agricultural watersheds, land use, water quality, transport

b. Identifiers/Open-Ended Terms

Pennsylvania, Susquehanna River basin, Lancaster County, Pequea Creek

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages
No restriction on distribution	UNCLASSIFIED	110
	20. Security Class (This Page) UNCLASSIFIED	22. Price

(See ANSI-Z39.18) See Instructions on Reverse

OPTIONAL FORM 272 (4-77)
(Formerly NTIS-35)
Department of Commerce

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U.S. GEOLOGICAL SURVEY

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Susquehanna River Basin Commission

December 1979

UNITED STATES DEPARTMENT OF THE INTERIOR

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Factors for converting Inch-pound units to International System units (SI)

Multiply Inch-pound unit	By	To obtain SI units
inch (in.)	25.4	millimeters (mm)
foot (ft)	.3048	meter (m)
mile (mi)	1.609	kilometers (km)
acre	4,407	square meters (m^2)
acre-foot (acre-ft)	1,233	cubic meters (m^3)
square mile (mi^2)	2.590	square kilometers (km^2)
cubic foot per second (ft^3/s)	.02832	cubic meter per second (m^3/s)
pound (lb)	.4545	kilogram (kg)
ton (short)	.9072	metric ton
ton per square mile (ton/mi^2)	.3502	metric ton per square kilometer
cubic foot per second per square mile ($ft^3/s/mi^2$)	.0109	cubic meter per second per square kilometer ($m^3/s/km^2$)

NONPOINT-SOURCE DISCHARGES IN PEQUEA CREEK BASIN, PENNSYLVANIA, 1977

By Janice R. Ward and David A. Eckhardt

ABSTRACT

Pequea Creek drains an agricultural area of 154 square miles in southeastern Pennsylvania and enters the Susquehanna River about 30 miles north of the Chesapeake Bay. Streams were sampled at seven sites from February to December 1977. The study included measurement of streamflow and collection of water and bottom-material samples during selected base-flow and storm periods. Samples were analyzed for nitrogen and phosphorus species, suspended sediment, organic carbon, and pesticides. Daily mean constituent concentrations and discharges transported from the basin were computed at a gaging station near the mouth. Means of constituent concentrations and discharges of intermittent samples were computed for storms at the six subbasin sites.

The objective of this project was to assess the magnitudes and types of nonpoint discharges that affect the water quality of Pequea Creek. The project included the determination of (1) the total discharges of suspended sediment, nitrogen, and phosphorus from the basin; (2) intermittent storm and base-flow discharges from six subbasin sites of varying size, geology, and land use; (3) the difference in magnitudes of the discharges during base-flow periods and storms; and (4) the ways in which constituents contributed by nonpoint discharges are transported, and which variables most affect the transport of these constituents.

The yields measured from the Pequea Creek basin for the period February to December 1977 were 715 ton/mi^2 of suspended sediment, 9,920 lb/mi^2 of total nitrite plus nitrate nitrogen as N, 4,740 lb/mi^2 of total kjeldahl nitrogen as N, 1,540 lb/mi^2 of total phosphorus as P, 16,700 lb/mi^2 of dissolved organic carbon, and 14,000 lb/mi^2 of suspended organic carbon. About 6 inches more of rain fell in 1977 than the average for 62 years of record. Yields were separated into those carried by direct runoff and by base flow. Direct runoff contributed 20 percent of the streamflow, 86 percent of the suspended sediment, 11 percent of the total nitrite plus nitrate nitrogen, 67 percent of the total kjeldahl nitrogen, 73 percent of the total phosphorus, 14 percent of the dissolved organic carbon, and 70 percent of suspended organic carbon.

The concentrations of all the constituents changed rapidly during storms due especially to changes in availability of the constituent, season, storm type, soil moisture, land use, physiography, and geology. Effects of these variables cannot be discerned with only 1 year of data collection. Some preliminary relations between constituents were examined, however, using linear regression techniques on all of the data for each site. Those logarithmic plots that were linear (most of the suspended constituents) when plotted against each other showed little variability because of season, storm type, or soil moisture. Most of the dissolved constituents did not show any linearity when plotted against each other, which indicated that they varied from storm to storm.

INTRODUCTION

The U.S. Geological Survey in cooperation with the Susquehanna River Basin Commission investigated water quality of the Pequea Creek, a tributary to the Susquehanna River in southeastern Pennsylvania. Results of this study can be used by water-resources managers, the agricultural community, and water users interested in the transport of sediment, nutrients, and pesticides from agricultural nonpoint sources. Few studies have quantified the amounts and effects of nonpoint discharges from an agricultural basin like that of Pequea Creek. Clark and others (1973, 1974) identified the Susquehanna River as the primary contributor of nutrients to the upper Chesapeake Bay and reported significant nitrogen concentrations in several tributaries to the Susquehanna River, including Pequea Creek. Takita (1977) reported that nonpoint discharges were the major contributors of nitrogen and phosphorus to Pequea Creek.

The objective of this project was to assess the magnitudes and types of nonpoint discharges that affect the water quality of Pequea Creek. The scope of the project included the determination of (1) the total discharges of suspended sediment, nitrogen, and phosphorus from the basin; (2) intermittent storm and base-flow discharges from six subbasin sites of different size, geology, and land use; (3) the difference in magnitudes of the discharges during base-flow periods and storms; and (4) the ways in which constituents contributed by nonpoint discharges are transported, and which variables most affect the transport of these constitutents.

The study was made possible through dedicated efforts by many people involved with project planning, field sampling and data compilation. Cooperation and field assistance by personnel of the Susquehanna River Basin Commission, Robert J. Bielo, Executive Director, is gratefully acknowledged. Interest and support of the study from several groups of the Environmental Protection Agency is also acknowledged.

DESCRIPTION OF PEQUEA CREEK BASIN

Physiography and Geology

Pequea Creek originates in the Welsh Mountains in eastern Lancaster County and flows 44 stream miles westward to its junction with the Susquehanna River. The 154 square-mile basin is typical of agricultural areas in southeastern Pennsylvania that contribute runoff to the lower Susquehanna River and the Chesapeake Estuary (fig. 1). Corn and alfalfa are the primary crops grown. Most farmers maintain a herd of dairy cattle, and milk is the major source of their income. The basin has no large industrial or municipal centers, and its water quality is representative of nonpoint-source discharges.

The long, relatively narrow basin is in the southern part of the Conestoga Valley, a carbonate and shale section of the Appalachian Piedmont (fig. 2). The valley is formed principally on dolomite and limestone of Cambrian and Ordovician age that have been extensively weathered, primarily by solution, to a gently rolling karst terrain having average elevations between 400 and 500 feet National Geodetic Vertical Datum of 1929. The valley is bordered on the north by low hills of sandstone and intrusive diabase of Triassic age in the Piedmont Lowlands and on the south by relatively resistant schist, quartzite, and meta-granites that form an escarpment and highland of the Piedmont Uplands.

Soils

Most soils in the basin are residual (derived from the underlying bedrock) except for bottomland soils, which were formed by alluvial deposition. About 60 percent of the soils are classified as silty loams developed from weathered impure limestone and dolomite. These easily cultivated, productive soils, primarily of the Conestoga-Hollinger and the Duffield-Hagerstown associations, are generally deep and well-drained and have high moisture-holding capacities (U.S. Dept. of Agriculture, 1956). During intense storms, overland runoff flows into poorly defined broad, shallow drainageways and may quickly erode unprotected soils on steeper slopes. Internal drainage of the carbonate soils is generally excellent due to the high transmissivity of soluted carbonate bedrock.

Bottomland soils formed in alluvium at the base of slopes and on flood plains are less extensive than the carbonate soils, but are still agriculturally important. More material is temporarily deposited than is eroded in these narrow, flat areas, and naturally fertile silty loams have formed along many waterways. Because of frequent flooding, poor drainage, and ground-water levels that are close to the land surface, some of these bottomland soils are unsuitable for cropland and are left to permanent pasture or to wildlife. Other bottomland soils are farmed even though it means a risk of flooded fields several times during the growing season.

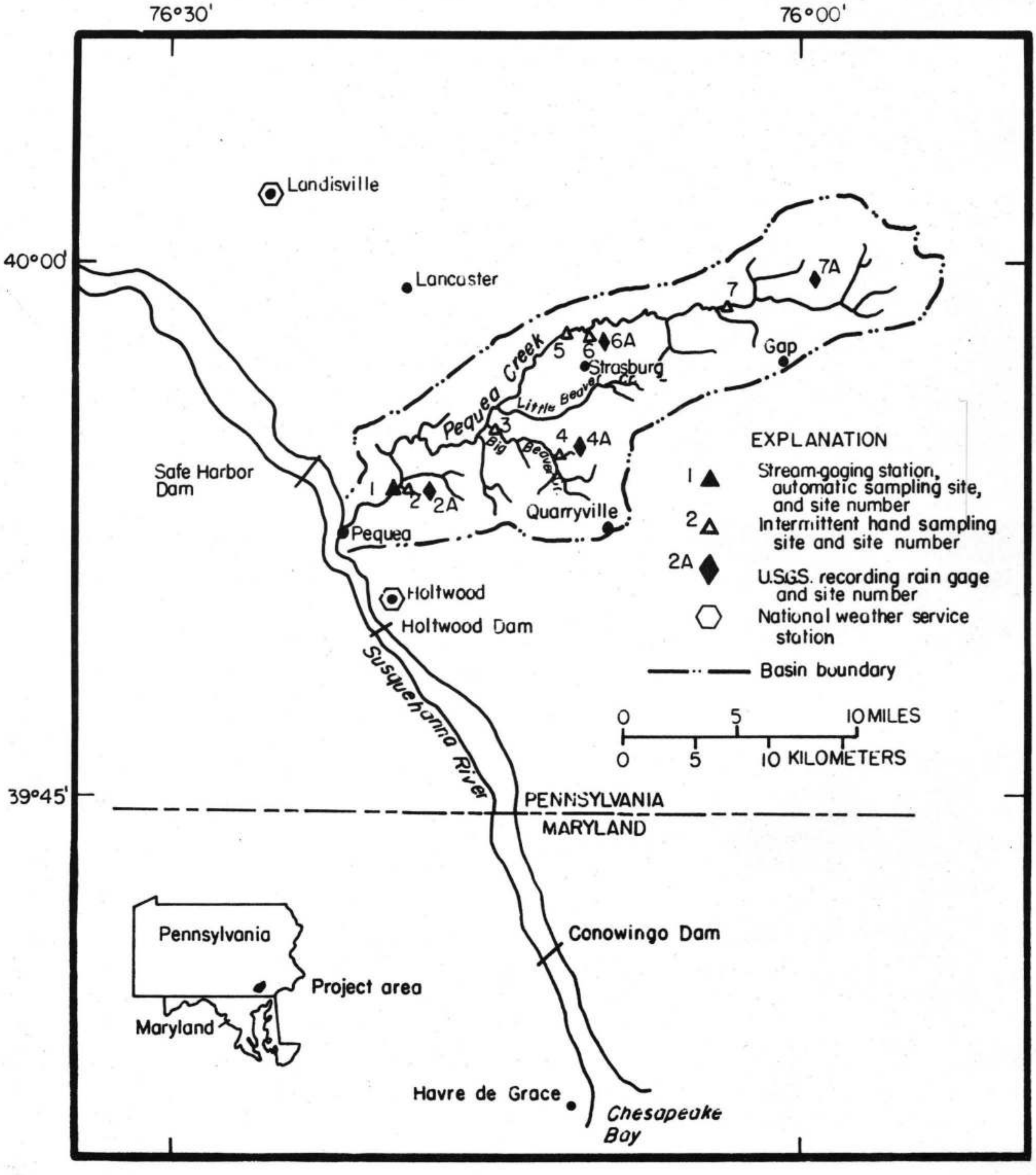


Figure 1.--Data-collection sites

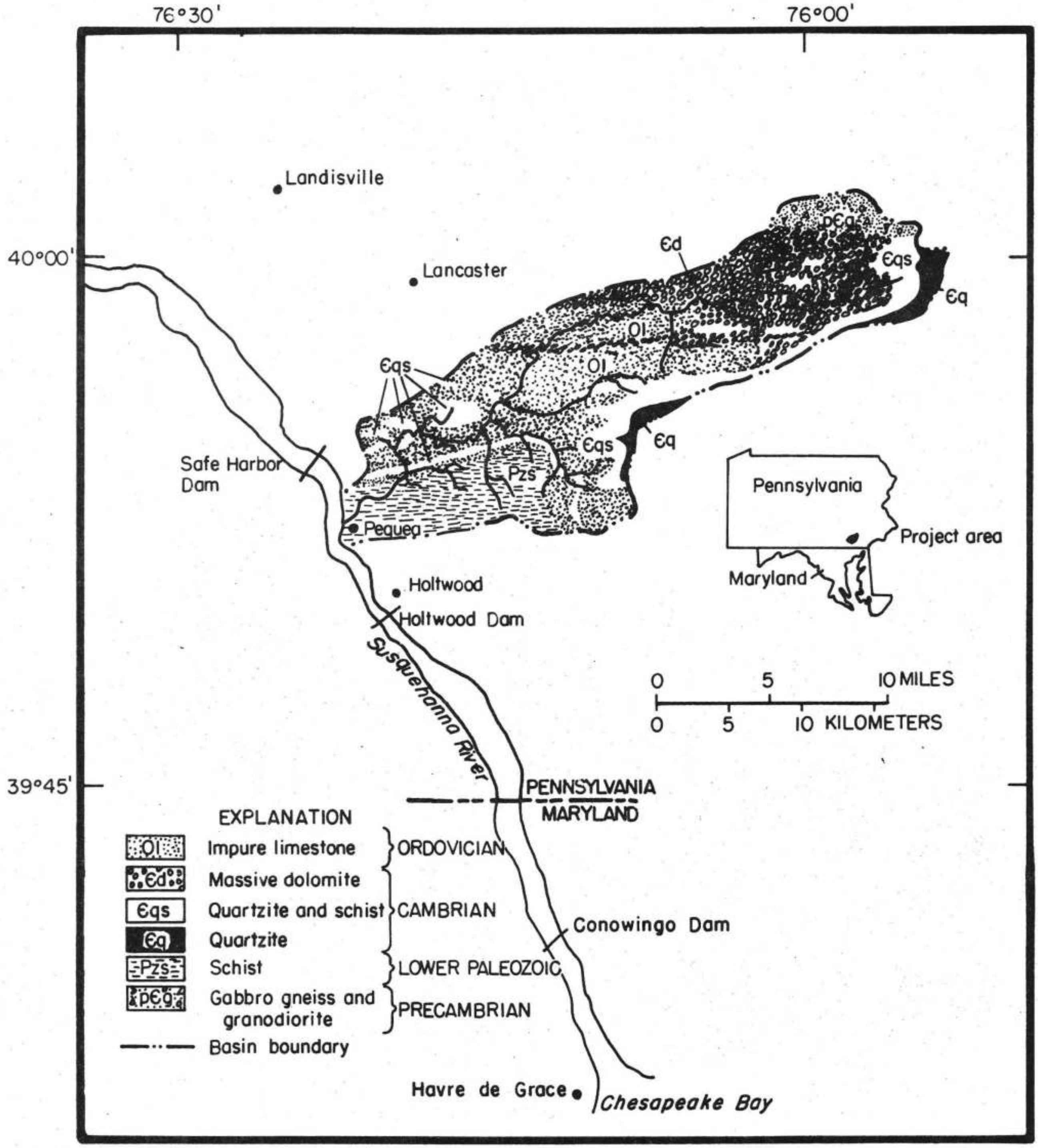


Figure 2.--Generalized geology

Soils in steeper areas, as in the headwaters along the southern divide, are of lesser agricultural value. The soils are primarily stony and channery silt loams formed in colluvium of igneous and metamorphic rock. Bedrock outcrops and boulders are common. Some silty loams do exist on the broader, more gently sloping hilltops. Although some hilltop soils are cultivated, soils on most steep uplands remain protected by deciduous forest cover.

Climate

The climate is humid and temperate and is a modified-continental type of the northeastern Middle Atlantic states. Annual rainfall averages 38 inches and is fairly evenly distributed through the year. During 1977, precipitation in the basin totalled about 40 inches. The maximum monthly rainfall of 7.3 inches was measured in August, and the minimum monthly rainfall of 0.77 inches was measured in May. Precipitation data recorded at two sites in the basin and from two longer term stations operated by the National Weather Service in nearby areas of Lancaster County are shown in table 1.

During the winter, relatively large and predictable weather systems deliver fairly uniformly distributed precipitation in the form of rain, freezing rain, or snow. Subfreezing temperatures are typical during much of the winter, and temperatures may fall below 0°F in January and February. The average frost-free season extends 160 days from about April 30 to about October 7. During the abnormally cold winter of 1977-78, soils froze as deep as 3 feet and did not thaw completely until March.

During the summer, convective storms occur fairly regularly and are highly variable in intensity, quantity, and areal distribution. Summer temperatures average 72°F and can exceed 95°F in July or August.

Table 1.--Monthly precipitation, in inches, in Lancaster County during 1977

Month	U.S. Geological Survey rain gages		National Weather Service stations	
	#2A (295 ft National Geodetic Vertical Datum of 1929)	#6A (350 ft National Geodetic Vertical Datum of 1929)	HOLTWOOD (187 ft National Geodetic Vertical Datum of 1929)	LANDISVILLE (465 ft National Geodetic Vertical Datum of 1929)
Jan.	a/	a/	1.18	1.24
Feb.	0.68a/	0.45a/	.73	1.18
Mar.	4.69	4.61	4.45	4.56
Apr.	4.49	4.19	3.90	5.30
May	.77	.78	.70	1.12
June	4.58	4.93	3.10	4.09
July	4.51	2.58	3.84	3.05
Aug.	6.09	7.30	3.00	3.55
Sept.	2.71	2.33	3.37	3.48
Oct.	3.96	3.81	3.78	4.10
Nov.	4.53	4.92	4.10	4.83
Dec.	5.44	4.23	5.65	6.32
Total	42.4	39.7	37.8	42.8
Yearly Average	--	--	36.1	38.6
Years of Record	1	1	62	32

a/ incomplete record during the month

Land-use and Farming Practices

During the study period 19 percent of the basin was forested, 69 percent was general cropland, and 12 percent was pasture, farmsteads, towns, and roads. Approximate percentages of various land uses in Pequea Creek basin and the individual subbasins are listed in table 2. Agriculture, principally dairy farming, is the primary economic activity. Of about 650 farms in the basin, 550 are dairy farms and 100 are general crop farms.

A typical dairy farmer with a 90-acre farm may have as many as 50 dairy cattle and grow 35 to 45 acres of corn, 20 acres of small grains such as wheat, oats, and barley, or mixed hay, such as timothy or clover. About 20 acres are devoted to alfalfa, and the remaining acreage is pasture. Farmers generally rotate crops in strips that may be in corn for 1 to 4 years, grain for 1 year, then a mixed hay, such as clover and timothy or other grass, for 1 year. Alfalfa is generally a 7-year or 8-year perennial crop and is commonly cut three or four times per year. Tobacco, a major cash crop for many farmers, may follow corn or hay in the crop rotation.

Most crops grown are used to feed the dairy cattle, except for tobacco and wheat. Most dairy farmers spread manure on corn fields during winter and early spring. Commercial fertilizers are used to maintain soil fertility and to increase crop yields in addition to the application of manure. In recent years, herbicides such as atrazine with simazine or alachlor, have been widely used for controlling weeds and grass in corn. Usage of fertilizers and pesticides during 1977 is estimated in table 3.

SAMPLING NETWORK AND DATA-COLLECTION METHODS

A continuous gaging and sampling station, six partial-record stations, and four graphic rain gages comprise the sampling network (fig. 1). Table 4 lists the stations, their identification numbers, and drainage areas.

Table 2.--Land use in subbasins of Pequea Creek

Subbasin Number	Drainage Area (square miles)	Forest (percent)	Cropland (percent)	Grassland and Pasture (percent)	Residential and Roads (percent)	Number of Livestock per square miles
1	148	19	69	10	2	290
2	1.56	68	29	2	1	48
3	20.4	15	71	11	3	320
4	.66	15	68	16	1	120
5	72.9	19	73	6	2	410
5	1.63	0	79	20	1	310
	42.8	23	69	7	1	280

Table 3.--Estimated nitrogen, phosphorus and atrazine applications in subbasins of Pequea Creek[a]

	SUBBASINS						
	1	2	3	4	5	6	7
Nitrogen applied as:							
commercial fertilizer (tons)	1,000	4.1	140	9.0	500	14	280
commercial fertilizer (lb/acre)	21	8.3	22	42	21	27	21
cattle manure (tons)	3,100	5.4	460	5.7	1,600	36	870
cattle manure (lb/acre)	65	11	70	27	69	68	64
Total nitrogen (tons)	4,100	9.5	600	15	2,100	50	1,200
Total nitrogen (lb/acre)	86	19	92	69	90	95	85
Phosphorus applied as:							
commercial fertilizer (tons)	1,100	3	150	9.5	550	15	300
commercial fertilizer (lb/acre)	23	6	23	45	24	29	22
cattle manure (tons)	2,400	4.3	370	5	1,300	30	700
cattle manure (lb/acre)	51	8.6	57	24	56	58	51
Total phosphorus[b] (tons)	3,500	7.3	520	14	1,850	45	1,000
Total phosphorus (lb/acre)	74	15	80	69	80	87	73
Number of cattle	43,000	75	6,400	80	22,000	500	12,000
Atrazine application (lb)	37,000	120	5,400	170	18,000	730	10,000
Atrazine application (lb/acre)	.39	.12	.41	.42	.39	.70	.38

a/Nitrogen, phosphorus, and atrazine applications are calculated on the basis of responses to questionnaires by farmers in the study area.

b/Total phosphorus does not include contribution from detergents.

Table 4.--Sampling sites in Pequea Creek basin

Site	USGS Identification Number	Site Name	Drainage area (square miles)
1	015767.87	Pequea Creek at Martic Forge	148
2	015767.86	Pequea Creek tributary near Martic Forge	1.56
2A		Raingage	
3	015767.77	Big Beaver Creek at Refton	20.4
4	015767.75	Big Beaver Creek tributary at New Providence	.66
4A		Raingage	
5	015767.69	Pequea Creek at Strasburg	72.9
6	015767.68	Pequea Creek tributary near Strasburg	1.63
6A		Raingage	
7	015767.63	Pequea Creek at New Milltown	42.8
7A		Raingage	

Site 1, Pequea Creek at Martic Forge, provided a continuous record of stream stage (height). The stage was then converted to discharge using a stage-discharge relationship defined by discharge measurements made at various stages. Samples for suspended-sediment and chemical analyses were collected automatically by a PS-69 pumping sampler, which was modified to keep samples chilled to 4°C in a thermostatically controlled water bath (fig. 3). Samples were collected automatically twice daily during periods of steady or slowly changing stage and hourly during storms. Selected samples were individually analyzed for the following constituents:

suspended sediment	total nitrite plus nitrate nitrogen
total kjeldahl nitrogen	total phosphorus
dissolved organic carbon	suspended organic carbon

Intermittent samples were collected from the stream cross section using the discharge-incremented and depth-integrated techniques described by Guy and Norman (1970) and Culbertson and Feltz (1972) at various flows. The cross-section samples were compared with those collected automatically to insure that the automatic samples were representative of the stream cross section.

Sediment samples were analyzed in the Survey's laboratory in Harrisburg, by methods described by Guy (1969). The other determinations were done in the Survey's Central Laboratory at Doraville, Georgia. Inorganic chemical constituents were determined by methods described by Skougstad (1978), and organic carbon was determined by methods described by the U.S. Environmental Protection Agency (1974). Samples shipped to Doraville were chilled to 4°C. Daily mean discharges were computed for streamflow; and daily mean concentrations and discharges were computed for the chemical constituents named above by streamflow and concentration integration techniques described by Porterfield (1972).

Selected storms and base flows were sampled throughout the growing season to show the effects of agricultural practices on water quality. Water was sampled by hand during base flow before each storm. Both manual and automatic samples were collected through the rise and recession of the hydrograph and continued until the stage stabilized near its prestorm level.

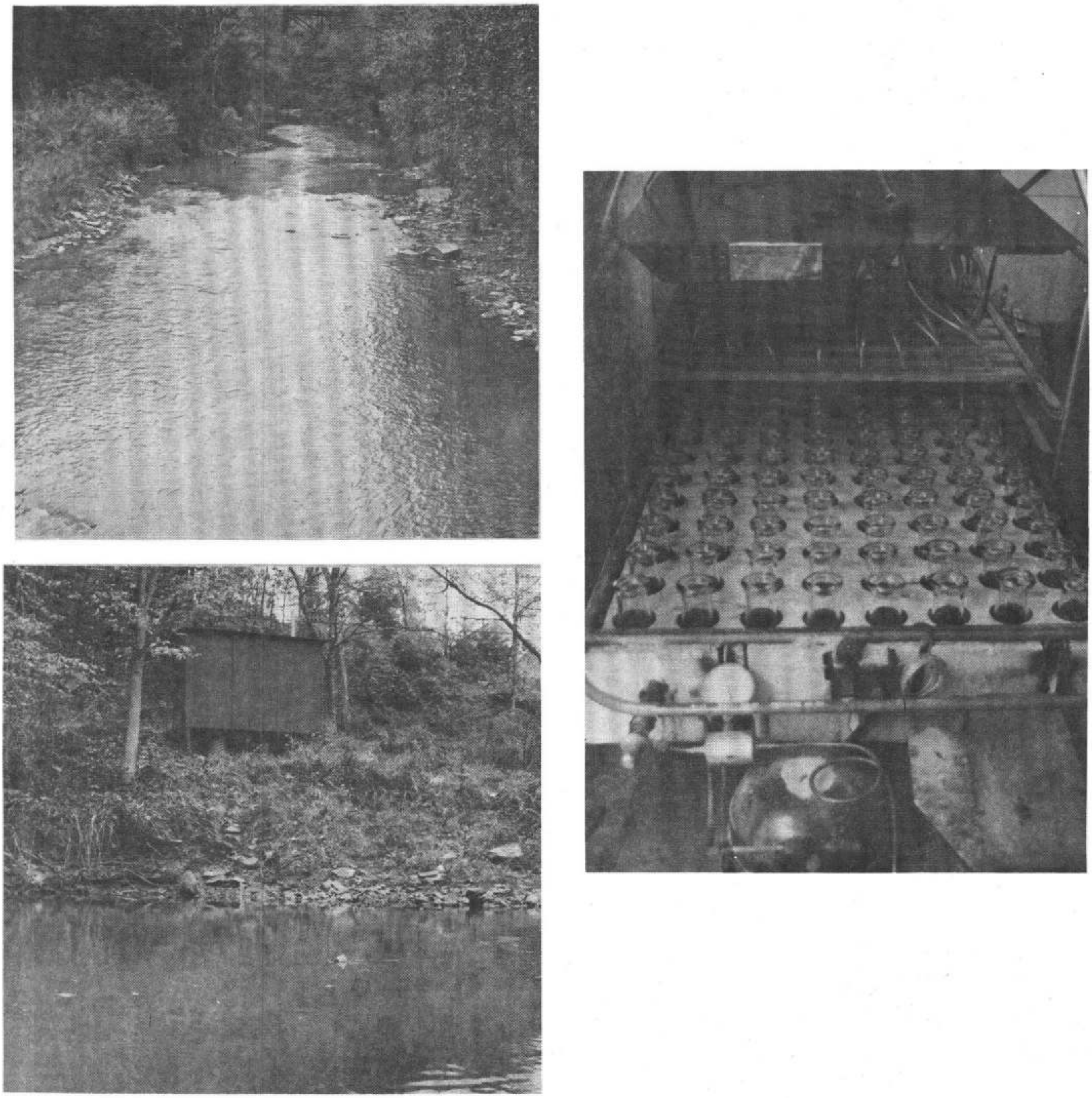


Figure 3.--Site 1, Pequea Creek at Martic Forge showing control (upper left), gage house and automatic sampler intake (lower left), and PS-69 sampler modified with refrigeration unit (right).

During these selected storms and base-flow periods, samples were collected and analyzed individually for the following constituents:

nitrate nitrogen	orthophosphate
nitrite nitrogen	phosphorus
ammonia nitrogen	organic carbon
organic nitrogen	suspended sediment

All constituents were analyzed in whole and filtered water samples. Constituent concentrations in the whole water samples represent the total concentrations of the constituents in the water and sediment mixture; those in the filtered samples represent the concentrations of the constituents in the water that pass through a 0.45 micron filter paper. The arithmetic difference of the two concentrations is the concentration of the suspended part, except for organic carbon and suspended sediment, for which the suspended fraction was analyzed directly.

Samples collected by hand at the six subbasin sites corresponded to those collected at site 1 during selected storms and base-flow periods. Each site was equipped with a wire weight or staff gage for reading stream stage. Stream stages were measured as often as necessary during a storm to define a hydrograph, and discharge was measured over a range of stages to define a stage-discharge relationship. Because of the lack of stable controls at some sites, three to five streamflow measurements were needed during each storm to define a stage-discharge relationship.

The interval between the collection of samples during a storm at each of the seven sites was based on the hydrograph at that site. Samples were collected as often as every 15 minutes in a small subbasin and as often as every hour at larger subbasins during rapidly changing stage. Two examples of storm hydrographs are shown in figures 4 and 5. Figure 4 shows a hydrograph from Pequea Creek at Martic Forge (148 mi^2) for June 1. A double peak usually occurs at this site during a basin-wide rain. The first peak reflects runoff from steeper, less permeable areas in the lower basin, and the second peak reflects runoff from slower responding carbonate areas in the upper basin. Figure 5 is a hydrograph from the Pequea Creek tributary near Strasburg. Because this site has a drainage area of only 1.63 mi^2, it responds more quickly to rainfall. Note that the sampling interval is much shorter at the smaller site, but the same number of samples may be necessary to adequately define the changing concentrations of the constituents. Depending on the shape of the hydrograph, from five to nine nutrient samples were submitted for analysis. Additional sediment samples were analyzed as needed to define sediment-concentration curves.

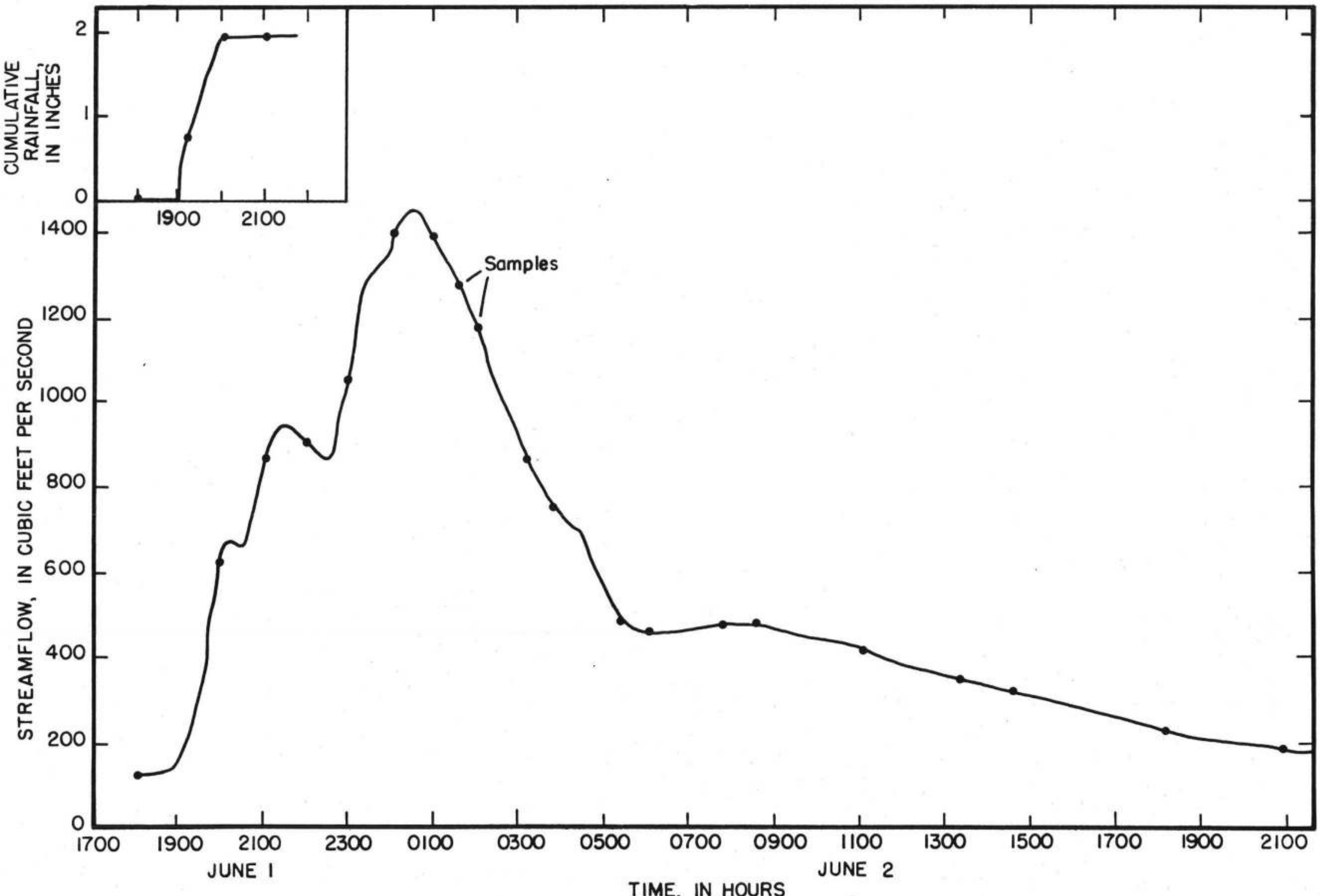


Figure 4.--Hydrograph and precipitation record for Site 1, Pequea Creek at Martic Forge, June 1 and 2

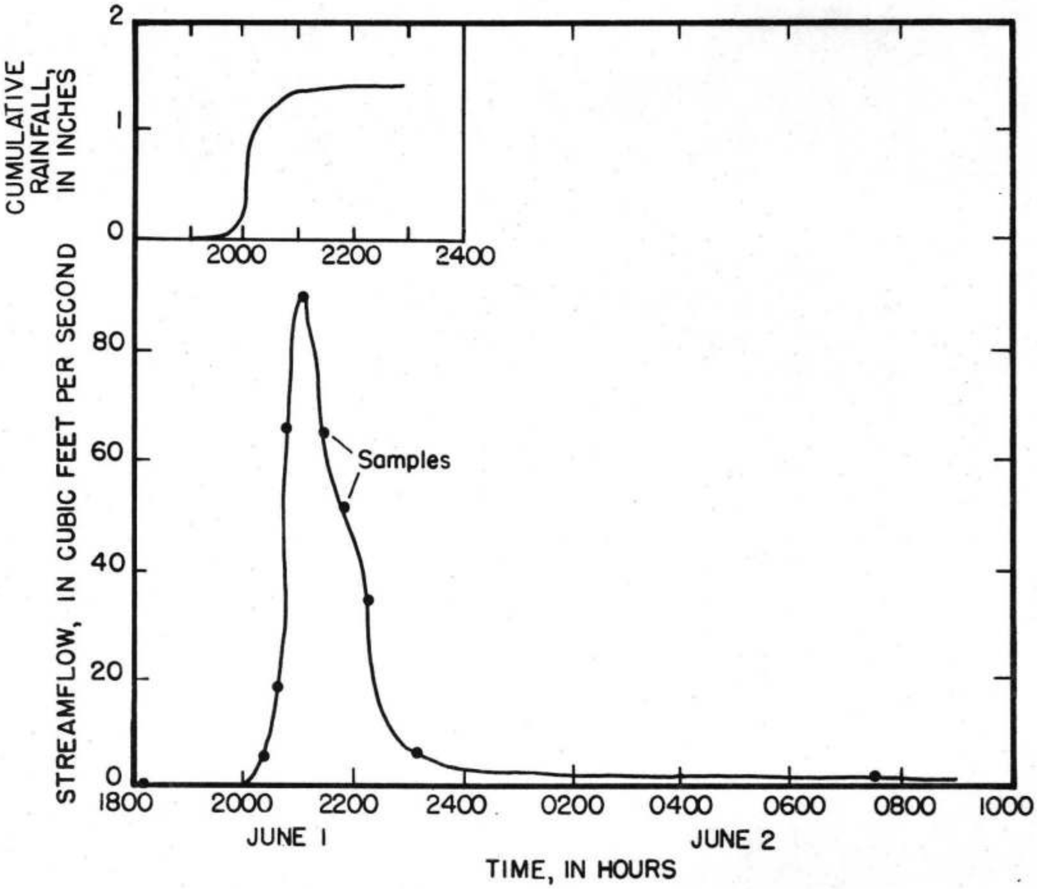


Figure 5.--Hydrograph and precipitation record for Site 6, Pequea Creek tributary near Strasburg, June 1 and 2

From samples collected at the seven sites in the basin, base-flow constituent concentrations and discharges were computed based on a 24-hour period. The storm constituent concentrations and discharges were computed on a 30-hour period. The storm discharges include varying amounts of base-flow contributions, depending on the size of the storm and the size and characteristics of the basin upstream from the sampling site.

Whole water samples were collected at each site for pesticide determinations at all seven sites beginning August 17 during the peak of the storm. Two additional peak-flow samples and one additional base-flow sample were collected at each site for pesticide analyses between August 17 and the end of December. The samples were collected by sediment and nutrient sampling techniques modified for pesticide handling as described by Goerlitz and Brown (1972) and the Federal Working Group on Pesticide Management (1974). Included in the pesticide determinations were the organochlorine and organophosphate insecticides and the chlorophenoxy acid and triazine herbicides (table 5). Polychlorinated biphenyls and polychlorinated napthalenes were also determined.

Bottom material samples were collected three times during base-flow periods and were analyzed for the nutrients and pesticides listed in table 5 and for particle size distribution. Several samples of recently deposited bottom material from a stream cross section were composited and then sub-sampled by techniques described by the Federal Working Group on Pesticide Management (1974).

Precipitation samples were collected during storms with a 9-inch glass funnel and stored in a sample bottle inside a portable ice-filled chest. The sampler was placed outside at the start of the storm and retrieved immediately after the storm ended. The storm samples were analyzed in the field for specific conductance, pH, alkalinity, and acidity. Samples were also analyzed in the laboratory for nutrients, sodium, potassium, calcium, magnesium, chloride, and sulfate.

RESULTS

Streamflow

Runoff from the basin between February 24 and December 31, 1977, totalled 14 inches, or about 35 percent of the total precipitation for the period. The remaining 65 percent was evaporated and transpired or recharged ground-water reservoirs. Table 6 lists monthly precipitation and runoff and the amounts of runoff that were contributed by direct runoff and base flow.

Table 5.--Pesticide compounds monitored

Insecticides		Herbicides	
Organochlorines	Organophosphates	Chlorophenoxy acid	Triazines
Aldrin	Diazinon	2,4 D	Ametryne
Chlordane	Ethion	2,4 DP	Atratone
DDD	Malathion	2,4,5 T	Atrazine
DDE	Methyl parathion	Silvex	Cyanazine
DDT	Methyl trithion		Cyprazine
Dieldrin	Parathion		Prometone
Endosulfan	Trithion		Prometryne
Endrin			Propazine
Heptachlor			Simazine
Heptachlor epoxide			Simetone
Lindane			Simetryne
Perthane			
Toxaphene			

Table 6.--Precipitation and runoff, February to December

Month	Precipitation (Inches)	Total Runoff (Inches)	Total Runoff (Percent of precipitation)	Direct Runoff (Inches)	Baseflow (Inches)
February[a]	0.56	0.31	55	0.14	0.17
March	4.6	1.9	41	.48	1.42
April	4.3	2.2	51	.35	1.80
May	.78	1.2	154	.01	1.19
June	4.8	1.1	23	.23	.86
July	3.0	.81	27	.10	.71
August	6.7	1.0	15	.30	.74
September	2.8	.81	29	.18	.63
October	3.6	.88	24	.13	.75
November	4.6	1.2	26	.23	1.01
December	4.8	2.6	54	.82	1.79
Total	40.5	14.0		3.0	11.0

[a]Incomplete record during the month

During winter and spring, when evapotranspiration is minimal, precipitation readily percolates through unsaturated soils into the zone of saturation, resulting in high base flow. Table 6 indicates that total runoff generally averaged 50 percent of precipitation during the winter and spring (except in May, a relatively dry month in which total runoff was 154 percent of precipitation). During the summer and fall, evapotranspiration rates are high, and a smaller percentage of precipitation reaches the zone of saturation. Because recharge to ground-water reservoirs decreases, the discharge of ground water to streams decreases. Table 6 shows that total runoff during the summer and fall generally averaged about 25 percent of precipitation.

Figure 6 shows the relation between streamflow and precipitation at site 1. Storms in March, April, and December produced the highest peak flows due to high base flows and nearly saturated soil conditions. Flows were lowest in July, August, and September, when evapotranspiration and ground-water depletion were greatest. A comparison of the eight base flows measured during the year (fig. 7) at all seven sites shows that site 2 was the most variable, yielding from 0.3 to 2.0 ft^3/s-days/mi^2. High base flows in the winter and spring may have been due to the absence of hardwood foliage in the subbasin. Low base flows in the summer and fall were probably influenced by the high evapotranspiration rates in the woodland. Site 4 had the most consistent and the lowest base flows of the seven sites due to rapid runoff from the steep slopes and nonporous, quartzite bedrock in the subbasin. Base flows at the other five sites are generally equivalent, ranging from 0.5 to 1.4 ft^3/s-days/mi^2.

The highest yield of direct runoff, 11.1 $ft^3/s/mi^2$, was measured on March 22 at site 3. Site 3 generally produced the most runoff (fig. 7), and was probably influenced by the steep slopes and nonporous crystalline bedrock that form the subbasin divides. Storm runoff was concentrated into higher, sharper peak flows than at the other sites. Site 5 showed the least variation in direct runoff. It is in a subbasin underlain by limestone, which is highly porous and has significantly greater storage capacity than crystalline rock areas. Subsequently, hydrographs from site 5 have broader, lower peaks than those from the other sites. The high, sharp peaks characteristic of sites 3 and 4 and the low, broad peaks characteristic of sites 5 and 7 are depicted in the double peak observed at site 1 during a basinwide storm (fig. 4). All the other sites varied within the band shown in figure 7, indicating that they responded similarly to precipitation and runoff.

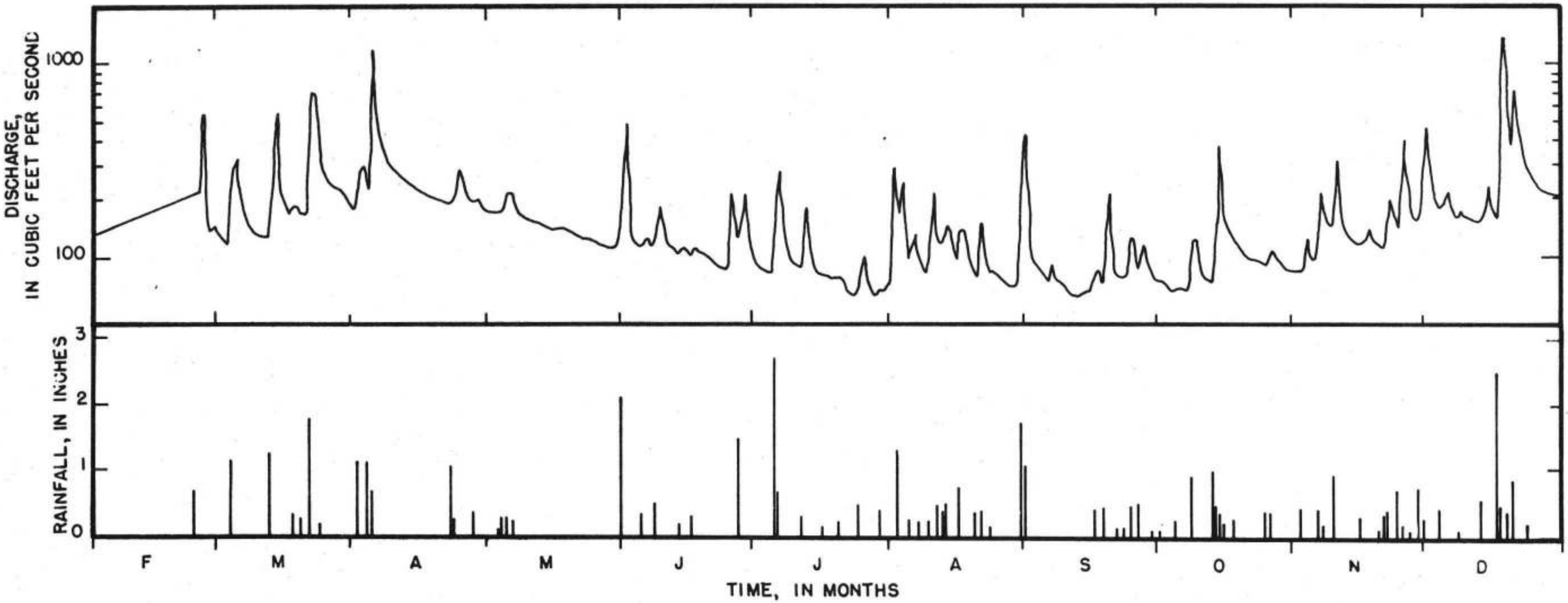


Figure 6.--Hydrograph and precipitation record for Site 1, Pequea Creek at Martic Forge, February to December

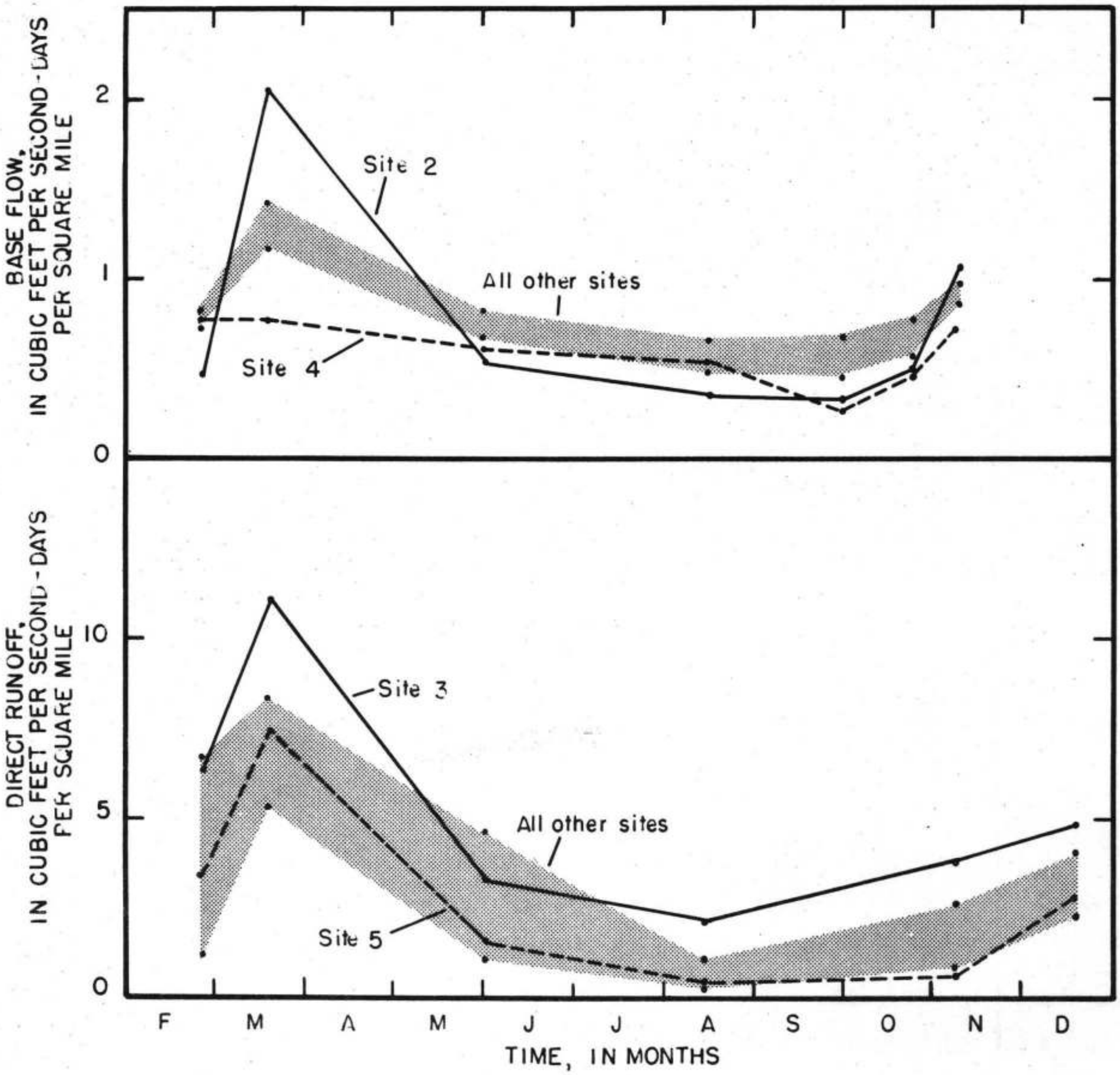


Figure 7.--Comparison of streamflows for different subbasins during selected base flows and storms

Storm data were not adjusted for variations in precipitation at different sites because many other factors also contribute to variation in storm runoff; for example, soil type, soil condition (freshly plowed, planted, or forest-covered), soil moisture, basin geology and topography, storm type, and storm magnitude and duration. The March 21, August 16, and November 10 storms showed the least variation in total rainfall (table 7). The other storms generally produced more rainfall in the lower basin (sites 1, 2, 3, and 4) than the upper basin (sites 5, 6, and 7).

Water Quality at Site 1, Pequea Creek at Martic Forge

Daily mean discharges for streamflow and daily mean concentrations and discharges for the following chemical constituents at site 1 are shown in table 15: suspended sediment, total nitrite plus nitrate nitrogen, total kjeldahl nitrogen, total phosphorus, dissolved organic carbon, and suspended organic carbon. Figure 8 shows the accumulation curves for the constitutents during 1977. The total constituent discharge from February to December is represented by the last point plotted for each curve. The percentage of the discharge contributed by direct runoff is shown next to each consitutent. Direct runoff accounted for 20 percent of the total stream discharge.

More than half the discharges of streamflow, nitrite plus nitrate nitrogen, and dissolved organic carbon were transported during baseflow, whereas most of the discharges of suspended sediment, total kjeldahl nitrogen, total phosphorus, and suspended organic carbon were transported by direct runoff. Examination of the slopes of the cumulative curves shows that nitrite plus nitrate nitrogen had almost no change in slope during the year. This indicates that the nitrite plus nitrate nitrogen discharge increased proportionately with streamflow discharge. Cumulative curves of total phosphorus and total kjeldahl nitrogen show some positive changes in slope. The largest slope changes occur between November and December, which indicates that an increasingly larger discharge was carried during periods of high streamflow than during low. The suspended organic carbon and suspended-sediment cumulative curves also show that disproportionately larger loads were carried during high streamflows. Months with no large storms (April, July, and September) show nearly the same slopes, indicating that there may be little seasonal variation in suspended organic carbon and suspended-sediment discharge during low and medium streamflows. Dissolved organic carbon seems to show a seasonal change in slope without regard to storms. The spring and fall slopes are nearly identical and much smaller than the slope during the summer, which indicates a larger dissolved organic carbon contribution during the summer than during the rest of the year.

Table 7.--Precipitation, in inches, during selected storms

Date/Sites	Pequea Creek at Martic Forge 1	Pequea Creek tributary near Martic Forge 2	Big Beaver Creek at Refton 3	Big Beaver Creek tributary at New Providence 4	Pequea Creek at Strasburg 5	Pequea Creek tributary near Strasburg 6	Pequea Creek at New Milltown 7
February 24	0.54	0.65	0.5[a]	0.5[a]	0.5[a]	0.45	0.5[a]
March 22	1.73	1.67	1.65[a]	1.65[a]	1.65[a]	1.65	1.65[a]
June 1	1.39	1.90	1.24	1.31	1.29	1.40	1.23
August 17	.58	.70	.65	.61	.53	.50	.54
November 10	.82	.90	.89	.89	.75	.90	.68
December 21	.84	1.25	.90	.85	.75	.69	.78

[a]Estimate based on two operating rain gages.

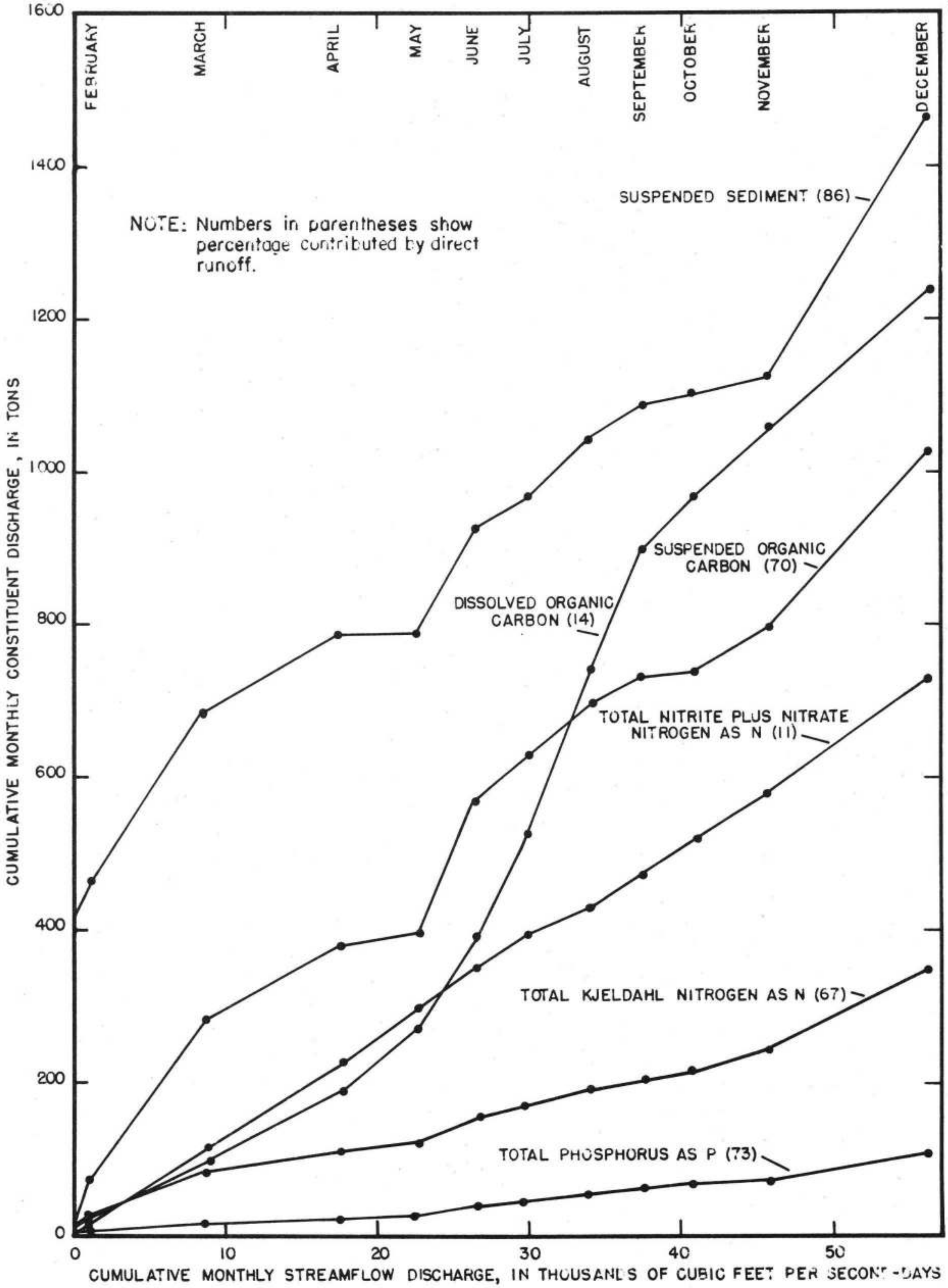


Figure 8.--Double mass accumulation curves for Site 1, Pequea Creek at Martic Forge

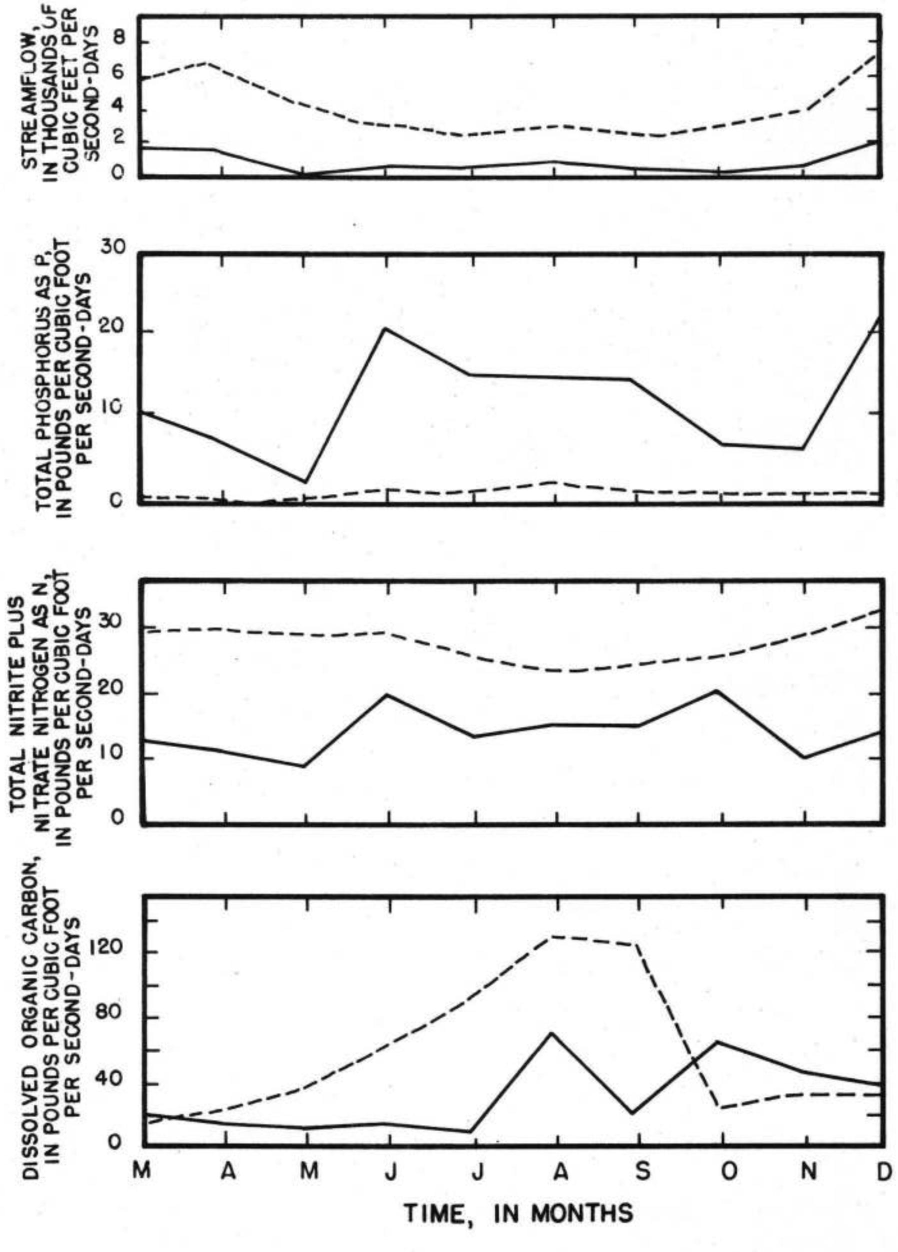
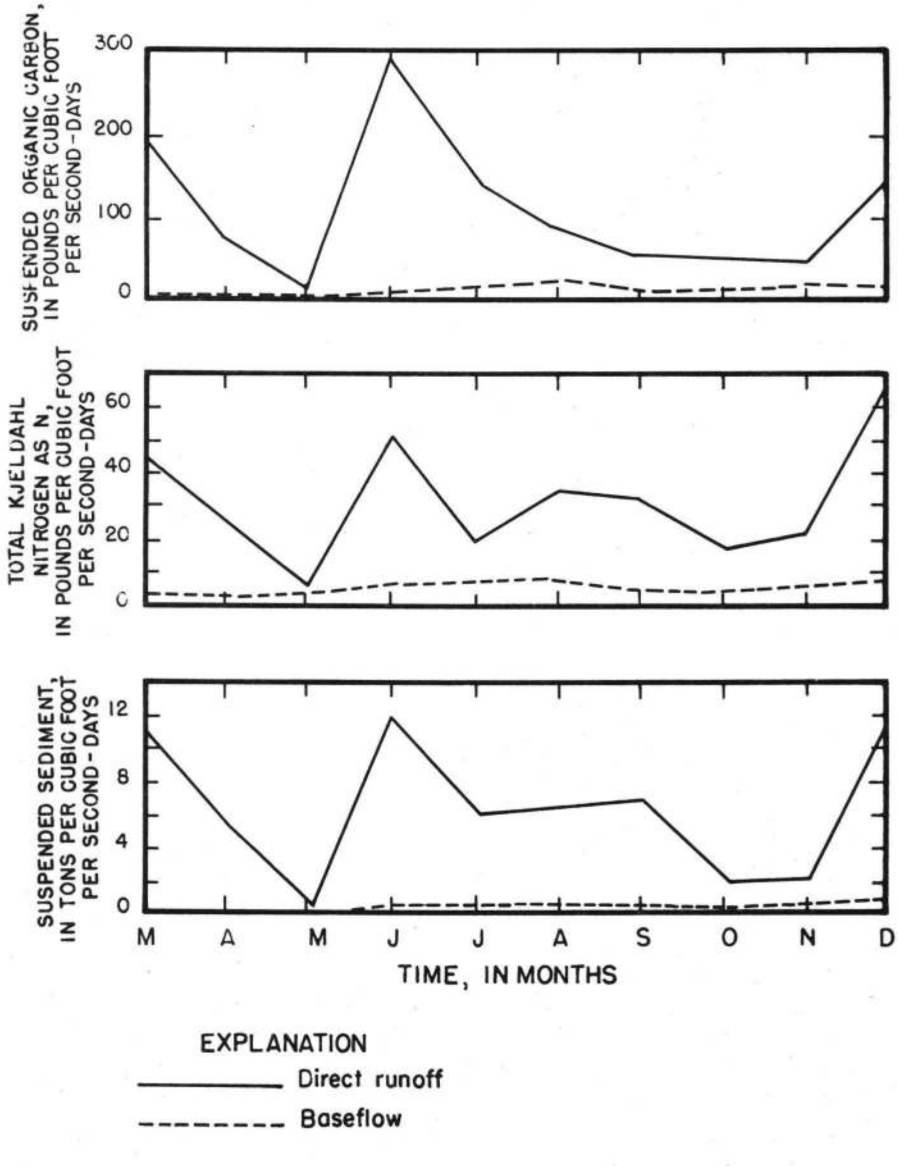


Figure 9.--Monthly base-flow and direct runoff discharges



for Site 1, Pequea Creek at Martic Forge, March to December.

Dissolved organic carbon discharge during base flow dominates from April to October and then decreases to less than the direct runoff contribution for the remainder of the year. The observed discharge of dissolved organic carbon is not directly dependent on streamflow; streamflow may be constant while dissolved organic carbon changes rapidly. Dissolved organic carbon discharges peak during August and September, when streamflow is lowest.

These comparisons should not imply that the direct runoff contribution is composed of suspended particles and that the base-flow contribution is dissolved. This is only partly true. The base-flow and direct-runoff breakdown does indicate constitutents that tend to be transported during base flows, when suspended-sediment concentrations are low, and those which tend to be transported during direct runoff, when suspended-sediment concentrations are high. It is too early to say whether the monthly trends illustrated in figure 9 are typical of many years or just of 1977.

Regression analyses of the data at site 1 were computed with a statistical package called Statistical Analysis System 76, or SAS (Barr and others, 1976). Several regressions had standard errors less than 0.40 and are shown in table 8.

The first five equations in table 8 relate suspended-sediment discharge, total kjeldahl nitrogen, total phosphorus, total organic nitrogen, and suspended organic carbon concentrations to suspended-sediment concentration. All of the equations describe lines having positive slopes, which indicates that the concentrations of the constituents increased as the suspended-sediment concentration increased. A significant amount of each constituent discharge may have been contributed from the suspended phase. These relations may change as more data are collected and the period of record for the station increases. As there is no past record for this site, even for streamflow, no estimates of average annual loads from the basin were made.

Figure 10 is a logarithmic plot of streamflow and suspended-sediment discharge. The regression line for this plot is shown. It has the highest standard error of any of the equations in table 8. Suspended-sediment discharges calculated by the regression equation may have an average difference of 111 percent from the actual measured values. Though this seems to be a large error, the plot shows that the relation is well defined, but is flattened at high discharges.

Table 8.--Relations between constituents computed for Site 1, Pequea Creek at Martic Forge

Regression Equation	Degrees of freedom	Square of coefficient of correlation	Standard error	Percent error (after Hardison, 1971)
Suspended-sediment discharge = .05 [suspended sediment]$^{1.47}$	817	0.96	0.14	33
[Total kjeldahl nitrogen] = .07 [suspended sediment]$^{.58}$	496	.85	.17	41
[Total phosphorus] = .02 [suspended sediment]$^{.64}$	498	.88	.17	41
[Total organic nitrogen] = .06 [suspended sediment]$^{.58}$	53	.82	.20	49
[suspended organic carbon] = .04 [suspended sediment]$^{.79}$	440	.81	.27	69
Suspended-sediment discharge = .00008 (streamflow)$^{2.63}$	817	.85	.39	111

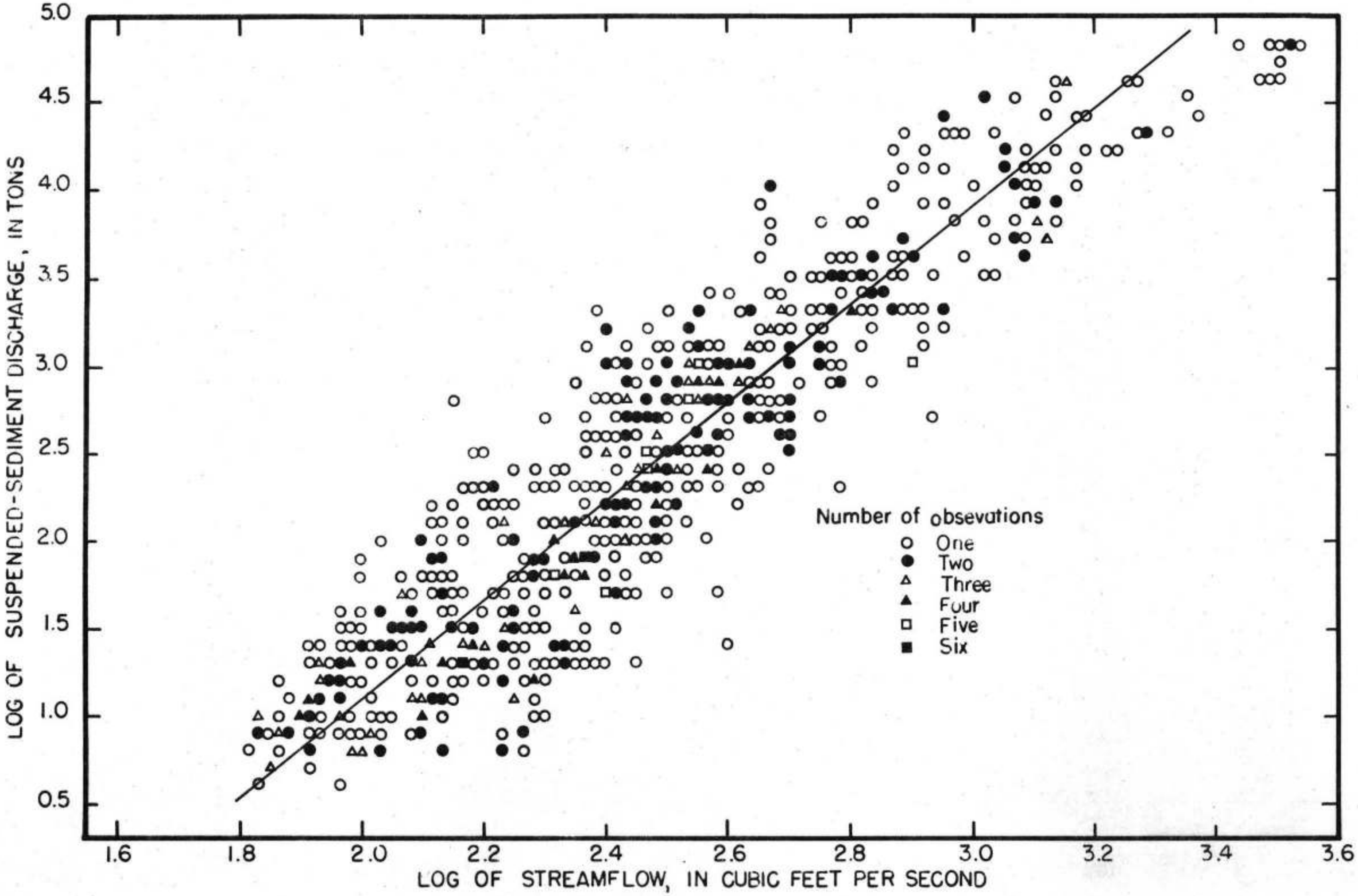


Figure 10.--Logarithmic plot of streamflow and suspended-sediment discharge at Site 1, Pequea Creek at Martic Forge

Most of the discharges of sediment and nutrients measured at site 1 probably come from actively farmed areas. Total yields measured at site 1 from February to December are:

suspended sediment	715 ton/mi^2	(1.1 ton/acre)
total kjeldahl nitrogen	2.4 ton/mi^2	(7.4 lb/acre)
total phosphorus	0.8 ton/mi^2	(2.4 lb/acre)

Previous work indicates that 13.9 ton/acre/yr (non-conservation treated cropland) of soil is eroded in Pequea Creek basin and that the sediment delivery rate (the amount of sediment transported by a stream divided by the total amount of gross soil erosion in a given area) is 8.5 percent (Dumper, T. A., and Kirkaldie, Louis, 1967). At this delivery rate, 13 tons of soil is eroded from each acre in the basin, which agrees with the previously estimated amount of 13.9 ton/acre.

The suspended-sediment yield reported above for Pequea Creek basin for 1977 indicates that it is among the highest yielding areas in the lower Susquehanna River basin. Previous work (Williams and Reed, 1972) indicates sediment yields in this area to be greater than 200 $tons/mi^2/yr$. Only sites in short-term construction areas of the lower Susquehanna River basin have reported sediment yields greater than 350 $tons/mi^2/yr$. Nitrogen, phosphorus, and organic carbon yields are also probably high, although data from comparable areas are scarce.

The total discharge computed at site 1 for each constituent is divided into direct runoff and base-flow contributions per unit flow and is shown by months in figure 9. Note that total streamflow during base flow is about three times greater than that during direct runoff. (February data are not plotted because sampling began in the middle of the month). All of the constituents except streamflow are expressed as the discharge, in $lb/ft^3/s$-days or $ton/ft^3/s$-days, contributed by either base flow or direct runoff. This eliminates the effects of varying streamflows, so that the data show only changes due to a combination of season and land use. The relation between the base-flow and direct-runoff contributions for each month for each constituent can be readily seen. The base-flow contribution is smaller than the direct-runoff contribution except for streamflow, nitrite plus nitrate nitrogen, and dissolved organic carbon and is fairly constant for all parameters but streamflow and dissolved organic carbon.

Table 9 shows the total discharge of eight constituents measured at site 1, the total contribution from the six storms sampled, and the percentage contributed by each storm. The six storms contributed 7.5 percent of the total water discharge. A comparison of rainfall and water discharge shows that the August 17 and November 10 storms produced the least runoff and the March 22 storm produced the most. Precipitation during the smallest storm (February 24) was 0.5 inches. The suspended-sediment and suspended organic carbon discharges followed a pattern similar to water discharge, and their measured discharges contributed 30.5 and 34.3 percent of the total discharges for the study period. The June 1 storm contributed 9.2 percent of the total suspended-sediment discharge and 10.4 percent of the total suspended organic carbon discharge. Nitrite plus nitrate nitrogen varied slightly, showing the lowest discharges during the August 17 and November 10 storms, and the lowest total storm contribution of 6.4 percent.

Total kjeldahl nitrogen and total phosphorus discharges were highest in the March 22 and June 1 storms and lowest in the August 17 storm. The total discharges during the storms were 25.2 percent and 20.3 percent, respectively. Dissolved organic carbon showed a decrease in discharge on June 1 that continued through the August 17 and November 10 storms. Dissolved organic carbon contributions were largest during the winter, and the total storm discharge was only 9.2 percent of the total discharge measured at site 1.

Instantaneous samples for each of the six storms are listed in table 16. Table 17 is a compilation of the mean water-weighted concentrations and discharges for each constituent, both dissolved and suspended, for each site and for each storm. The following section will discuss base-flow water quality at the subbasin sites. Then the agricultural conditions preceeding each storm and the precipitation for each storm will be described. Finally, the results of water-quality sampling at the seven subbasin sites will be summarized.

Base-flow Water Quality at Subbasin Sites

Base-flow samples were collected at all seven sites before each of the six storms sampled and also on March 31, June 14 and October 26. Results of the base-flow samples did not show any definite seasonal trends (table 16). The average constitutent yields and the percentage of the yield that was dissolved are shown in table 10 for all seven sites. The base-flow yields are calculated for a 24-hour period.

Table 9.--Storm discharges at Site 1, Pequea Creek at Martic Forge, February to December

	Total discharge (in lb/mi² unless otherwise noted)	Total discharge contributed by six storms (in percent)	Individual storm discharges (in percent)					
			2-24	3-22	6-1	8-17	11-10	12-21
Streamflow (ft^3/s-days)	56,200	7.5	1.2	2.2	1.2	0.4	0.7	1.8
Rainfall (in.)	40.7	14.5	1.3	4.3	3.4	1.4	2.0	2.1
Suspended sediment	1,430,000	30.5	5.7	12.6	9.2	.2	.8	2.0
Total nitrite plus nitrate nitrogen as N	9,900	6.4	1.2	1.4	1.3	.3	.5	1.7
Total kjeldahl nitrogen as N	4,700	25.2	5.3	8.2	7.7	.4	1.9	1.7
Total phosphorus as P	1,500	20.3	3.9	5.1	7.7	.5	1.5	1.6
Dissolved organic carbon	17,000	9.2	2.8	2.3	.6	.5	.9	2.1
Suspended organic carbon	14,000	34.3	6.6	14.4	10.4	.4	1.0	1.5

The highest yields of suspended sediment during base flow came from the upper basin; sites 5, 6, and 7. These sites contain a higher percentage of cropland and pastures along unfenced waterways than the lower basin. Cows crossing the streams trample the banks and may suspend material that would otherwise remain stationary, thus contributing to the suspended-sediment yield during base flow. Even during dry weather, Pequea Creek is turbid.

Nitrate nitrogen accounts for about 85 percent of the total nitrogen yield during base flow and ammonia nitrogen only 0.5 percent of the total. The yields of total nitrogen are highest, again, at sites 5, 6, and 7. Total phosphorus yields range from 0.13 $lb/mi^2/day$ at site 4 to 0.77 $lb/mi^2/day$ at site 5. Orthophosphate constitutes 56 percent of total phosphorus during base flow. Organic carbon yields are similar at all sites, averaging 23 $lb/mi^2/day$. All of these constituents are transported mostly in the dissolved phase and probably reflect ground-water quality.

The differences in yields among the seven sites, as shown in table 10, are most apparent in suspended sediment, ammonia nitrogen, organic nitrogen, orthophosphate, and total phosphorus. Site 2 usually has the lowest yields, which is expected, as this subbasin is mostly wooded. Site 4 has low yields in comparison to the other agricultural sites, possibly because the physiography and geology promote fast elimination of water from the basin, with little chance for an accumulation of nutrients in the system.

Description of Selected Storms Sampled

The first storm sampled was that of February 24. Rainfall for this storm ranged from 0.45 to 0.65 inch. The maximum 30-minute rainfall was from 0.16 to 0.35 inch.

Soils had been frozen as deep as 3 feet in January. Some manure had been spread in mid-February while the soil was still firm, but no commercial fertilizer had been applied. When temperatures rose to 50-60°F on February 22 and 23, 3 inches of snow, which had fallen on February 19 melted, and the top several inches of soil thawed. At the time of the storm, parts of Pequea Creek were covered with thin ice, but the streams and banks were mostly thawed.

Fields were generally impassable, and no cattle were in the pastures. Wheat and small grains had been planted in some of the fields that had been plowed and tilled the previous fall. The fields most susceptable to erosion were those that were not planted but had been previously plowed and tilled and those in which silage or tobacco had been harvested.

Table 10.--Average yield of constituents and percent dissolved (in parentheses) during selected base-flow periods

Average constituent yield ($lb/mi^2/day$) unless otherwise indicated	Site 1-Pequea Creek at Martic Forge	Site 2-Pequea Creek tributary near Martic Forge	Site 3-Big Beaver Creek at Refton	Site 4-Big Beaver Creek tributary at New Providence	Site 5-Pequea Creek at Strasburg	Site 6-Pequea Creek tributary near Strasburg	Site 7-Pequea Creek at New Milltown
Streamflow ($ft^3/s\text{-}day/mi^2$)	0.80	0.71	0.62	0.59	0.83	0.75	0.87
Suspended sediment	200	28	61	37	300	330	260
Nitrate nitrogen as N	22 (96)	19 (98)	11 (98)	16 (98)	26 (99)	33 (97)	24 (96)
Ammonia nitrogen as N	.20(85)	.04(100)	.34(84)	.17(76)	.35(74)	.23(82)	.44(74)
Organic nitrogen as N	2.4 (55)	.80 (75)	1.4 (60)	.89(67)	2.5 (50)	1.3 (92)	4.3 (52)
Total nitrogen as N	25 (92)	20 (97)	13 (94)	17 (95)	29 (93)	35 (98)	28 (89)
Orthophosphate as P	.37(78)	.05 (75)	.46(82)	.03(90)	.36(80)	.22(84)	.28(69)
Total phosphorus as P	.70(53)	.16 (70)	.60(67)	.13(44)	.77(50)	.35(58)	.61(46)
Organic carbon	29 (83)	.21 (90)	20 (87)	19 (84)	27 (73)	19 (75)	28 (76)

The next storm sampled was on March 22, 4 days after a 0.5 inch rain. Surface soils were relatively wet. An inch of precipitation fell in early March, and a warming trend from March 8 to 12 thawed surface soils. Rainfall for the March 22 storm was uniformly distributed throughout the basin and totaled 1.70 inches. The maximum 30-minute rainfall was 0.35 inch.

No commercial fertilizer had been applied, and the fields were similar to those described for February. The only operations in the basin were limited to the spreading of manure on corn or sod fields and the sowing of clover seed. Small grain crops planted in the fall had not grown enough to offer protection against erosion. Cattle were not yet pastured.

May was an unusually dry month. The bulk of the rain (0.75 inch) fell from May 1 to 10. The last rain (0.05 inch) before the June 1 storm fell on May 19. Rainfall for the June 1 storm ranged from 1.23 to 1.90 inches, with the highest levels measured at site 2. The lowest 30-minute rainfall was 0.65 inch and was measured at site 4. The highest 30-minute rainfall was 1.15 inches and was measured at site 2. Temperatures were generally 70–80°F, and surface soils were dry. Nearly all of the corn had been planted, and most had grown from 6 to 12 inches. Early hay (alfalfa, timothy, and clover) had been cut. About 10 percent of the hay fields had been harvested and were replanted with corn.

Manure had been spread, and nearly all of it was plowed under before corn planting. Commercial fertilizer had been applied to the cornfields, and about two-thirds of it was plowed under before planting. The remaining third was distributed along the corn rows at a depth of 2 to 3 inches during planting. Small amounts of commercial fertilizer were applied to the surface of fields planted with wheat and small grains. Dairy cattle were in the pastures except at a few of the farms where silo-exercise lot systems were used instead of pastures.

Atrazine and atrazine mixtures are the herbicides most commonly used in the basin for weed control. Atrazine is generally applied as a surface spray after planting, although some is harrowed into the top 1 to 2 inches of soil before planting. Most herbicide applications were completed by the start of the storm.

The August 17 storm was preceded by 0.73 inch of rain at the beginning of the month and 0.50 inch on August 14. The storm had the least rainfall (0.50 to 0.70 inch) of all storms sampled during the year. The maximum 30-minute rainfall ranged from 0.27 inches at site 6 to 0.60 inch at site 2.

Temperatures were from 70 to 90°F, and soil moisture levels were moderately high. Agricultural activities were at a minimum in August, and more soil was protected by vegetation than at any other time during the year. Corn stalks, more than 7 feet high, partly protected the soil from the impact of raindrops. Wheat and oats had been harvested, and the fields had a good vegetal cover. Alfalfa had been cut twice and was 14 inches high. The only unprotected fields contained tobacco, which was near its maximum growth, and newly seeded alfalfa. Tobacco and new alfalfa fields do not account for a very significant part of the total crop area in the basin. Hence, runoff from these fields is not a major part of the total in the subbasins. Commercial fertilizer had not been applied since corn and tobacco were planted. Manure had been spread routinely on harvested hayfields and on fields of oat stubble where wheat would be planted later. Most cattle were still pastured.

It rained during the first 8 days of November; 1.3 inches of rain fell on November 6 and 7, and soil-moisture levels were fairly high. Rainfall during the November 10 storm ranged from 0.75 to 0.90 inch and was heaviest in the lower basin. Maximum 30-minute rainfall ranged from 0.30 inch at site 7 to 0.62 inch at site 2.

Most agricultural fieldwork had been completed. Silage corn had been cut in September, and ear corn had been picked during October. Some fields where silage corn had been harvested were replanted with wheat and rye as cover crops for the winter. Fall fertilizer had been lightly applied to newly planted fields of wheat and rye, which were now about 2 inches high. Non-nitrogen fertilizer was used to top-dress alfalfa. The fields most susceptible to erosion were those that were not replanted after silage had been cut. Soils in cornfields that had been treated with herbicides to control grass and weeds in the spring were most exposed to erosion. Some cattle were pastured during the day. Manure was applied daily, generally to harvested cornfields and then plowed into the soil.

A total of 2.71 inches of rain fell on December 18 and 19. Temperatures were cool, but the soil was not frozen. By December 21, soils were nearly saturated. Rainfall during the December 21 storm ranged from 0.69 inch at site 6 to 1.25 inches at site 2. The maximum 30-minute rainfall was 0.11 inch, the least for all storms sampled. Wheat and rye cover crops, which had stopped growing, provided some protection from erosion. Additional fields had been plowed since November but would not be tilled until spring. Manure was spread on cornfields daily in most areas. Pastures were no longer used.

Quality of Precipitation

Precipitation samples were collected for chemical analysis during the June 1, November 10, and December 21 storms. Samples were collected at site 2, tributary near Martic Forge, and site 6, tributary near Strasburg, during the June 1 storm. Because the composition of the precipitation at both sites was similar, sampling was continued only at site 6. Results of the field and laboratory determinations are listed in table 11. Precipitation during all three storms was similar in composition. It was poorly buffered and had a low pH and low specific conductance, which indicates a low concentration of dissolved solids. Nitrogen and phosphorus concentrations were similar to those found in other samples collected in the northeast United States. Sulfate was the major dissolved constituent analyzed in the samples. The sulfate concentrations accompanied by low pH is characteristic of precipitation in the region.

Storm-Runoff Water Quality at Subbasin Sites

The results of the analyses of all samples collected during each storm at each site are listed in table 16. Mean water-weighted concentrations and discharges of streamflow, suspended sediment, and the chemical constituents were computed for each storm and are shown in table 17. Base-flow yields were computed for the 24-hour period before the storm. Storm yields are the total yields computed for a 30-hour period during the storm.

The sums of the six storm yields for each site are compared with the sums of the six storm yields at site 1 in table 12. This table shows subbasin areas that had the highest yields of each constituent for all six storms combined and the relationships between the site yields. Site 2 received 20 percent more precipitation than site 1, but yielded only 6 percent of the suspended sediment and total phosphorus, 25 percent of the total nitrogen, and 46 percent of the organic carbon compared to site 1. Sites 3 and 6 were the highest yielding of all the sites. The total loads measured at the subbasin sites during the six storms were generally proportional to the size of the drainage areas of the subbasins, except for site 2, which had loads much lower than could be explained by drainage area. This is probably due to the large area of the basin covered by forest.

Variations in both the yields and the transport of constituents on a storm-by-storm basis are depicted in figures 11 to 17. Some of the variations may be caused by differences in both intensity and magnitude of precipitation between sites. However, many of the differences may be explained by different agricultural practices in the subbasins, seasonal variation through the year, and soil-moisture levels before the storm. The figures also show the percentages of each constituent transported in the dissolved phase. Streamflow in the subbasins during storms was discussed previously (fig. 7) and can be used as a guide for estimating runoff for each site relative to other sites.

Table 11.--Results of precipitation collected at Site 6, Pequea Creek tributary near Strasburg

Constituent (in mg/L except as noted)	June 1	Nov. 10	Dec. 21
Total rainfall (inches)	1.40	0.90	0.69
pH (units)	3.9	4.2	4.3
Specific conductance (micromhos/cm at 25°C)	51	<50	23
Acidity as $CaCO_3$	6	5	1
Alkalinity as $CaCO_3$	0	0	0
Calcium	-	-	.4
Magnesium	.1	-	.1
Sodium	.2	-	.5
Potassium	.0	-	.7
Sulfate	4.3	1.7	3.0
Chloride	.3	.2	1.1
Nitrate nitrogen as N	.32	.28	.25
Nitrite nitrogen as N	.01	.01	.01
Ammonia nitrogen as N	.41	.31	.29
Organic nitrogen as N	.79	.17	.25
Total nitrogen as N	1.5	.77	.80
Orthophosphate as P	.00	.00	.01
Total phosphorus as P	.02	.00	.01

Table 12.--Comparison of the sums of constituent yields of six storms at seven sites to those at Site 1, Pequea Creek at Martic Forge

Ratio of sums of six storm constituent yields to the sums of six storm constituent yields at site 1	Site 1-Pequea Creek at Martic Forge	Site 2-Pequea Creek tributary near Martic Forge	Site 3-Big Beaver Creek at Refton	Site 4-Big Beaver Creek tributary at New Providence	Site 5-Pequea Creek at Strasburg	Site 6-Pequea Creek tributary near Strasburg	Site 7-Pequea Creek at New Milltown
Precipitation	1.0	1.2	0.99	0.98	0.93	0.93	0.91
Streamflow	1.0	1.0	1.4	1.1	.93	1.1	.87
Suspended Sediment	1.0	.06	1.2	1.3	.56	1.4	.49
Total Nitrogen	1.0	.25	1.3	.95	.75	1.2	.72
Total Phosphorus	1.0	.06	1.3	.63	.90	1.3	.63
Organic Carbon	1.0	.46	1.1	.88	.93	1.1	.65

Figure 11 shows the variation of suspended sediment during the year. Yields were highest from February to the June 1 storm, when soils were most susceptible to erosion. The August 17 and December 21 yields were lowest because the fields had either a good crop cover (August) or an established vegetal cover (December). Slightly higher yields on November 10 may have been caused by the fall harvest. Site 2 yields are at the levels expected from a forested basin. Base-flow levels of suspended sediment ranged from 28 $lb/mi^2/day$ at site 2 to 330 $lb/mi^2/day$ at site 6.

Figure 12 shows the yields of the subbasins for ammonia nitrogen. Yields were highest in February, when temperatures were cold enough to slow nitrification. The high yields measured June 1 may be a result of recent fertilizer applications and sparsely covered corn and tobacco fields. The yields at all sites are lowest during the August storm, the smallest storm sampled. The sites with small drainage areas (sites 2, 4, and 6) have the largest variation in the percentage of dissolved ammonia nitrogen and usually have a smaller percentage of dissolved ammonia than the larger sites. Base-flow yields were 0.25 $lb/mi^2/day$, which is small in comparison to storm runoff yields.

Nitrite plus nitrate nitrogen yields are illustrated in figure 13. Changes in the yields correspond closely to the changes of streamflow yields shown in figure 7. The yield transported in the dissolved phase was about 95 percent of the total yield at all sites. Storm runoff yields were higher than base-flow yields, which averaged about 20 $lb/mi^2/day$, except at site 2 on August 17. During this storm, yields were only 12 lb/mi^2.

Organic nitrogen yields are shown in figure 14. Usually most of the yield was transported in the suspended phase. The yield at site 2 was the smallest, and generally contained the least suspended organic nitrogen. The March 22 and June 1 storms contained the most suspended organic nitrogen. Base-flow yields were only 1.5 $lb/mi^2/day$.

Figures 15 and 16 illustrate the yields of orthophosphate and total phosphorus during the six storms. Orthophosphate and total phosphorus yields remained high throughout the spring until they dropped sharply during the August 17 storm. The percentage of dissolved material was low throughout the same period, but increased in the November 10 and December 21 storms. The high yields in spring and early summer, mostly in the suspended phase, may have been a result of manure and fertilizer applications and also increased sediment yields. Phosphorus tends to be quickly adsorbed to sediment particles and is transported mainly during storm runoff and its associated erosion of fields and pastures. Base-flow yields of orthophosphate and total phosphorus averaged 0.25 $lb/mi^2/day$ and 0.50 $lb/mi^2/day$, respectively.

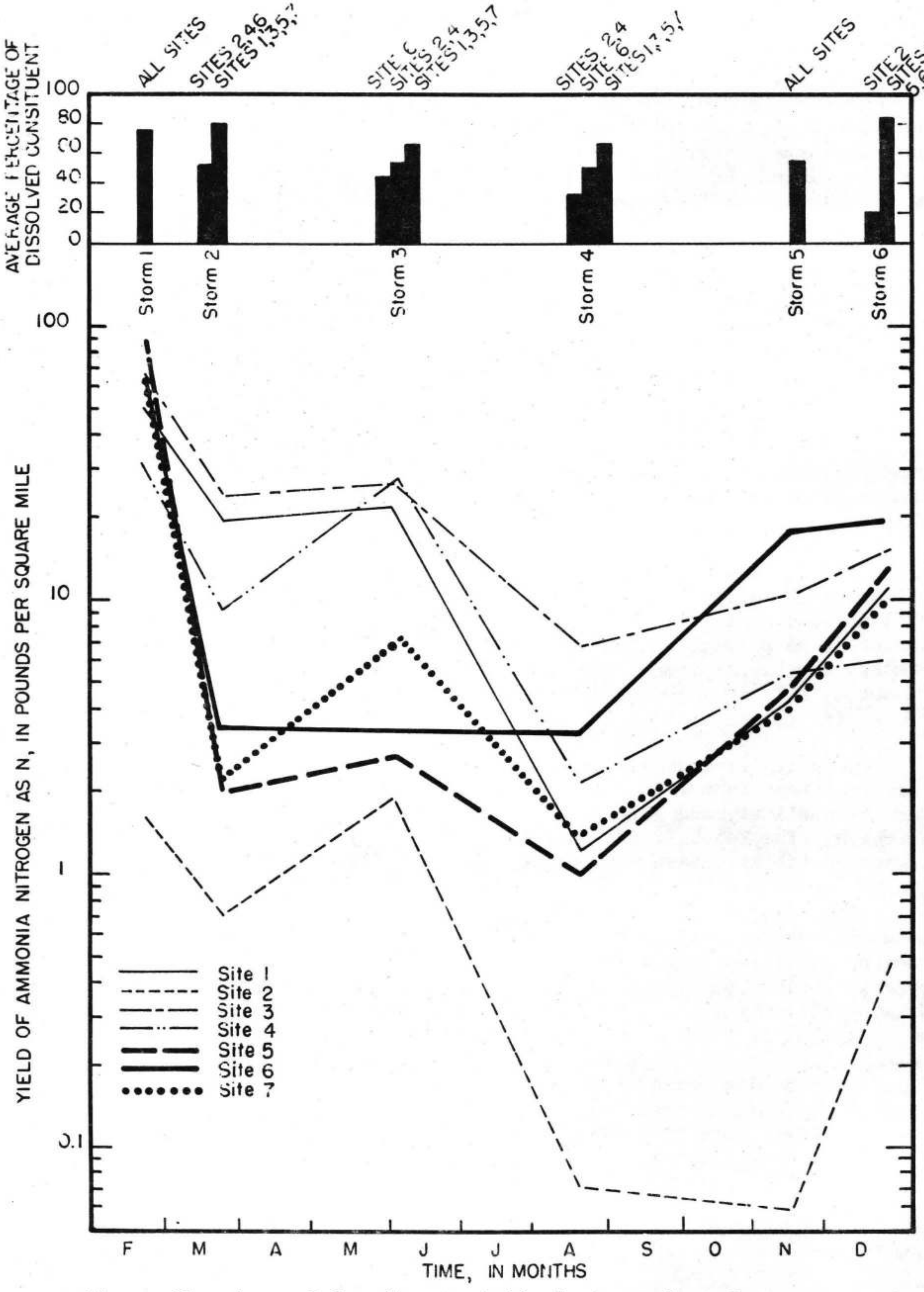


Figure 11.--Suspended-sediment yields during selected storms

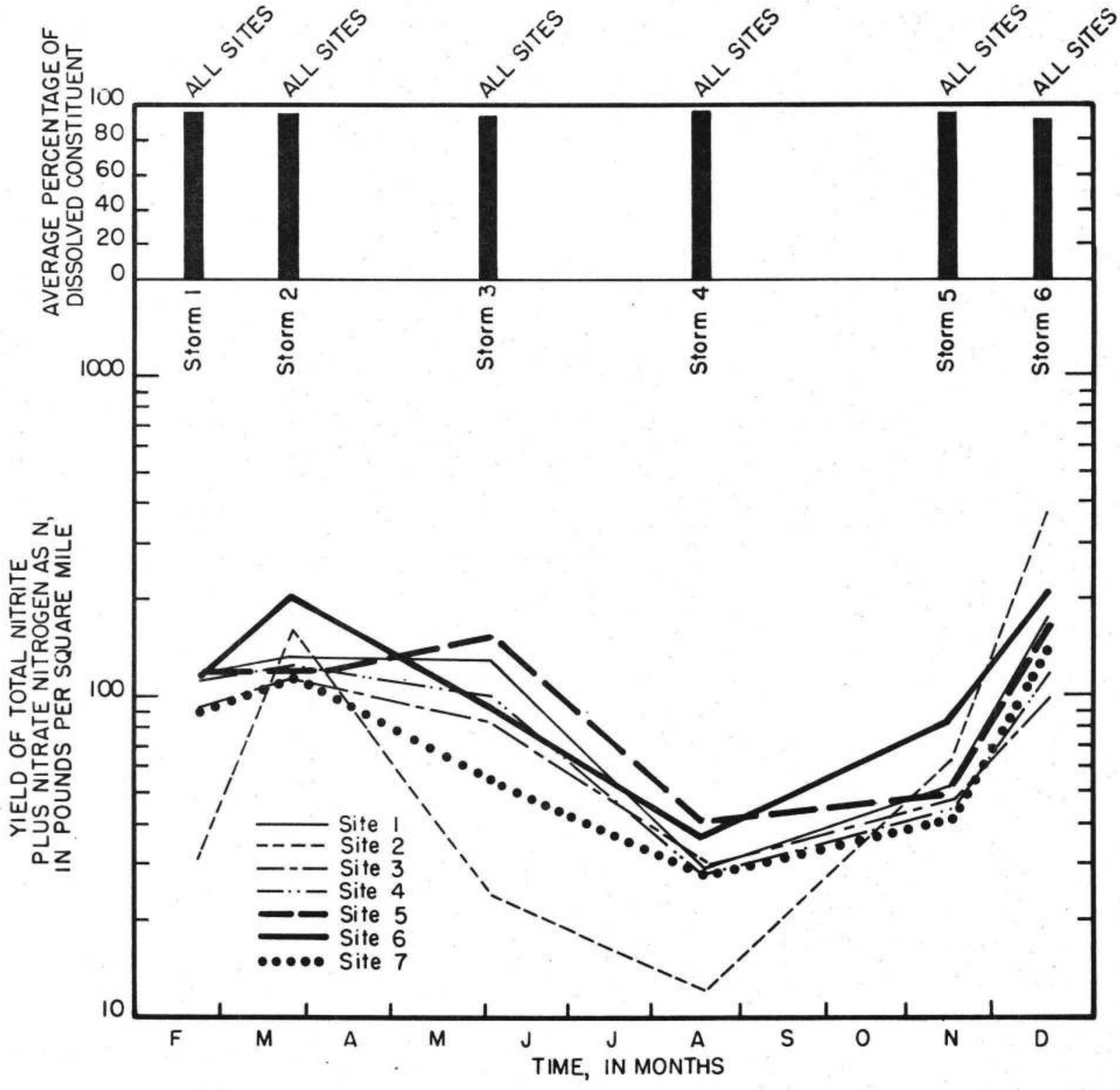


Figure 12.--Ammonia nitrogen yields during selected storms

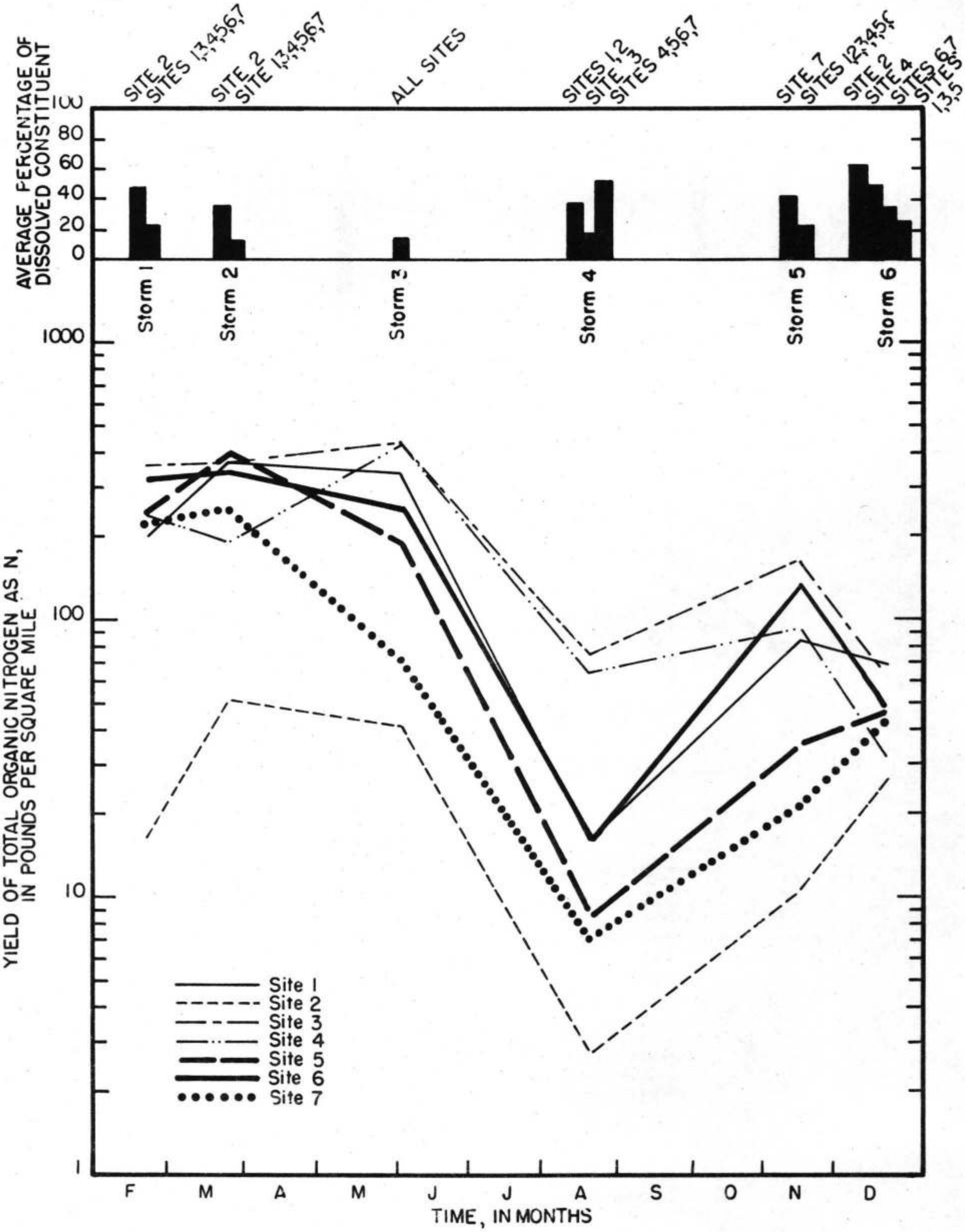


Figure 13.--Nitrite plus nitrate nitrogen yields during selected storms

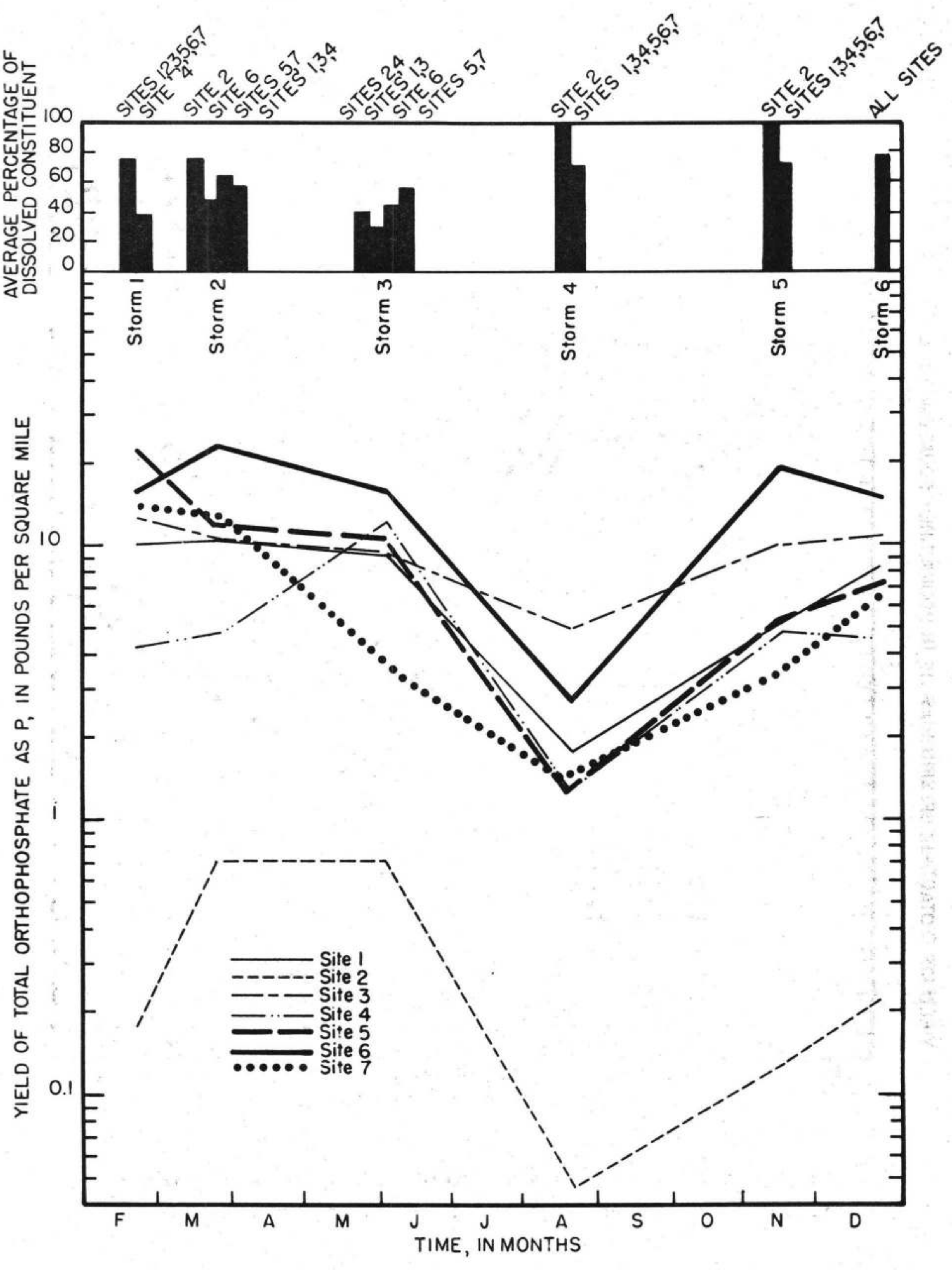


Figure 14.--Organic nitrogen yields during selected storms

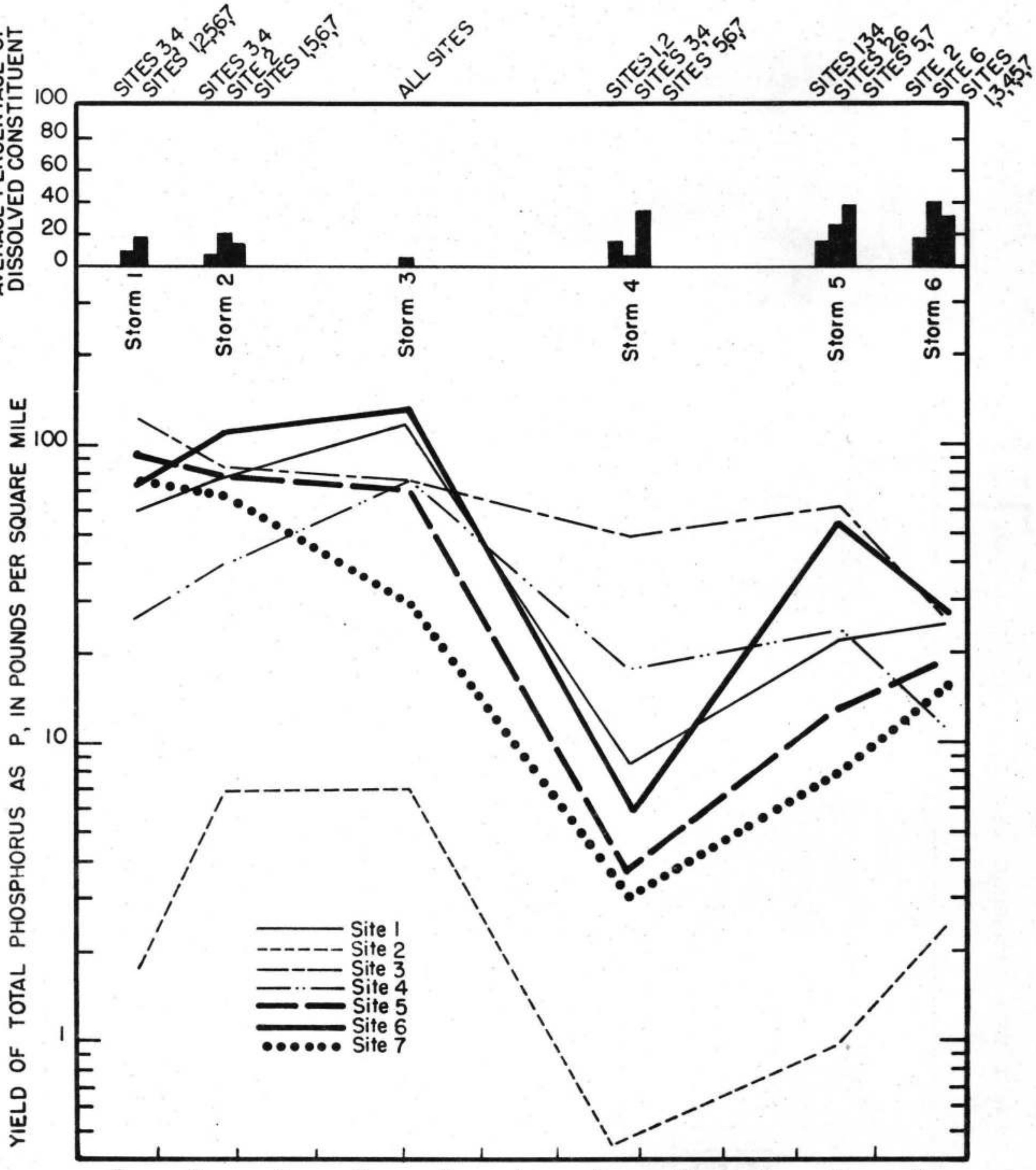


Figure 15.--Total orthophosphate yields during selected storms

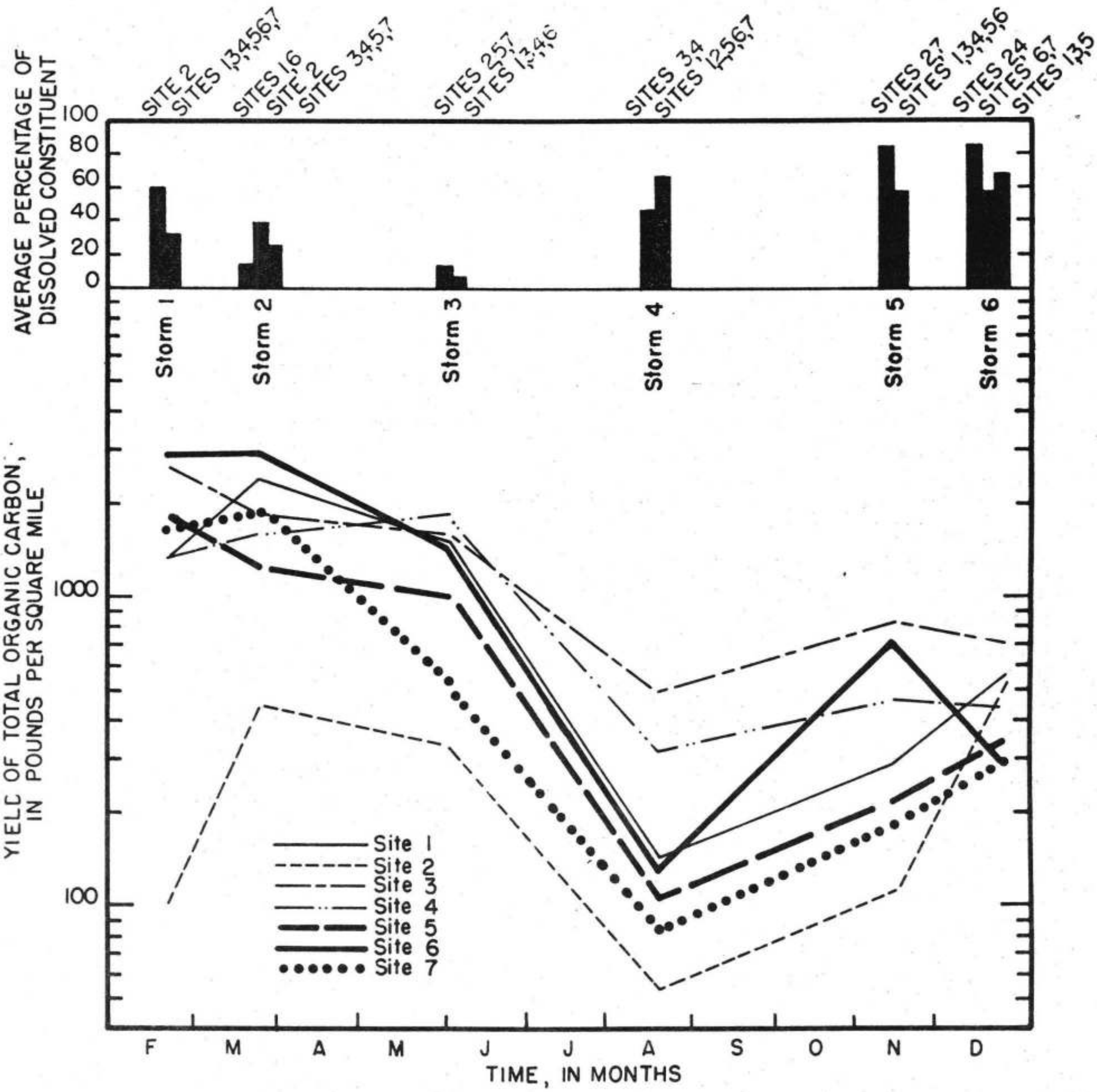


Figure 16.--Total phosphorus yields during selected storms

Figure 17 shows the yields of organic carbon measured during the year. The data are more scattered, partly because many of the high values of suspended organic carbon were estimated (table 16) from February to August. The estimations were based on a linear, logarithmic relationship between turbidity and suspended organic carbon. The percentage of dissolved organic carbon was lowest during the March 22 and June 1 storms. Base-flow yields of organic carbon were about 25 lb/mi^2/day.

The composition of nitrogen and phosphorus is summarized in figure 18. A set of bar graphs is shown for each storm to illustrate (1) the percentages of ammonia nitrogen, nitrite plus nitrate nitrogen, and organic nitrogen, which make up total nitrogen; and (2) the percentages of orthophosphate in total phosphorus. If the composition of nitrogen and phosphorus is similar for all sites during a storm, only one bar graph is shown for that storm. The bar graph at the end of the year indicates the average base-flow composition of nitrogen and phosphorus.

During base-flow, total nitrogen contained about 90 percent nitrite plus nitrate nitrogen, 9 percent organic nitrogen, and 1 percent ammonia nitrogen. During storms, organic nitrogen composed the largest part of total nitrogen during spring, early summer, and fall except for samples collected at site 2. The increase in organic nitrogen during these periods may be due to manure and fertilizer applications and fall harvest. The high percentages of ammonia nitrogen during the February 24 and December 21 storms could have been caused by the combination of manure applications and low soil temperatures, which inhibit nitrification. The high ammonia value in June was probably a result of fertilizer applications incorporating some form of ammonia nitrogen. Base-flow percentages of orthophosphate in total phosphorus were higher than storm percentages. During storms, most phosphorus was organic and travelled in the suspended phase. Orthophosphate, even during storms, was mostly dissolved.

Water-quality management will be more effective if the methods of constituent transport are considered. Constituents are basically transported either in the dissolved or suspended phases or some combination of both. Dissolved constituents are defined as those that pass through a 0.45 micron filter paper, and suspended constituents are those that are retained on the filter paper. Suspended constituents can have a variety of configurations; they can be independent particles or they can be attached to sediment particles by adsorption or absorption. A particular constituent may attach selectively only to a certain size of particle (sand, silt, or clay). Clays are considered to have a higher potential than silts or sands for the sorption of constituents since clays have a larger surface area in the same weight of material than silts and sands. The size of the particle to which a constituent attaches will determine whether it can be transported during base flow, supported by only low velocities, or whether a high velocity is necessary to suspend the particle for transport.

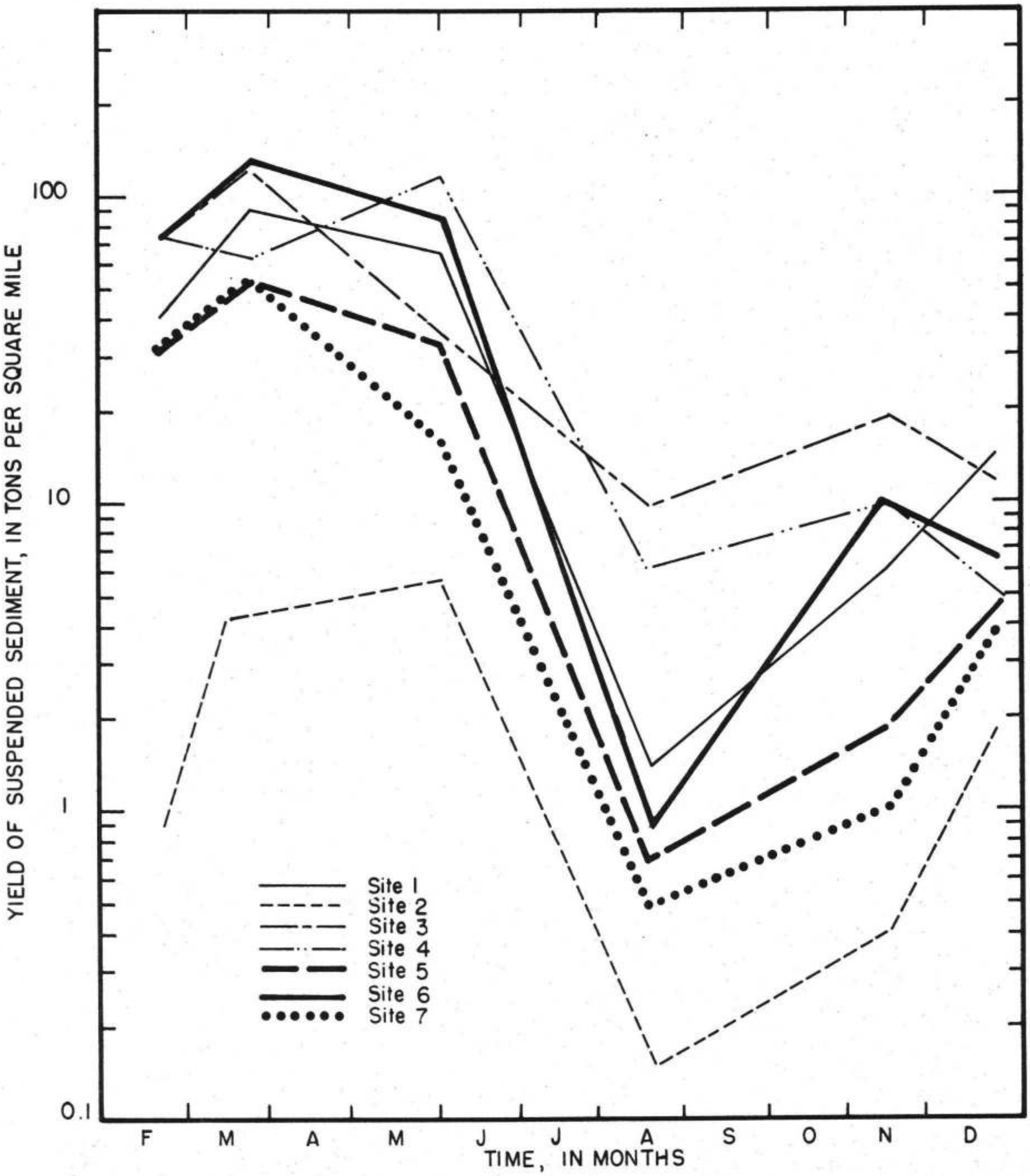


Figure 17.--Total organic carbon yields during selected storms

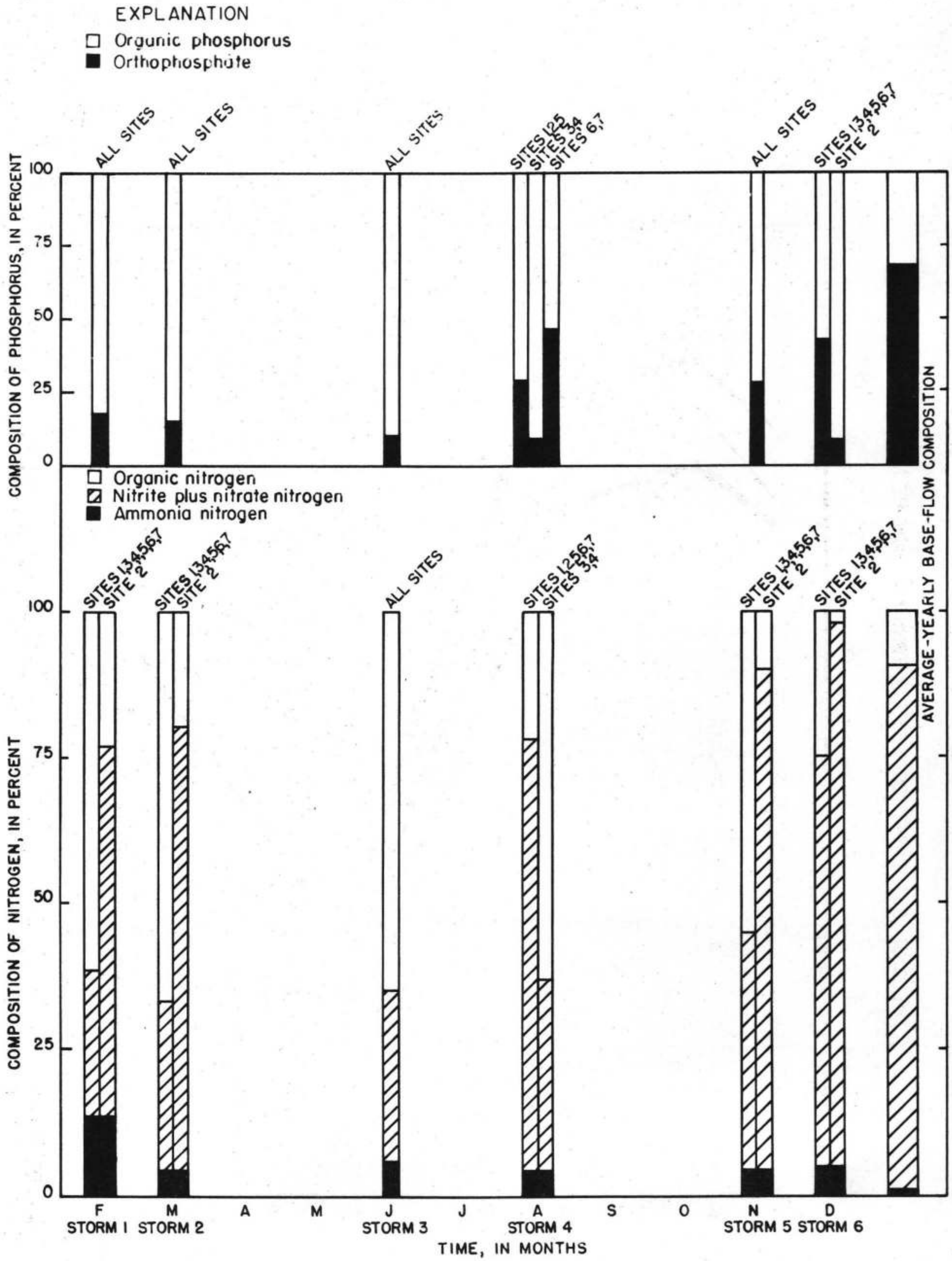


Figure 18.--Composition of nitrogen and phosphorus during selected storms

Size is also a factor in determining how fast and how far a particle is transported under given flow conditions. A constituent that attaches to sand particles, for example, will move only during periods of high velocity and may never get very far from its source. The sorption of a constituent to a particle is also an indication of the availability of that constituent for use by organisms or for solution. The concentration of a constituent is important; but the availability of the constituent to an organism (determined by its solubility) can define the effects, either positive or negative, it will have on the organism.

An example of the variations in concentrations of nutrients and suspended sediment during a storm at site 6, Pequea Creek tributary near Strasburg, is shown on figures 19 and 20. Figure 19 is a plot of time and dissolved constituent concentrations. The hydrograph of streamflow during the March 22 storm is the solid line in the plot. Flow increased sharply from 0900 to 1130 on March 22 and then leveled off until about 1200, when it rose sharply again until it peaked at 1300. Peak flow was about 70 ft^3/s. The first sharp rise in streamflow was accompanied by a rise in all the dissolved constituents plotted except nitrate, which dropped sharply, and nitrite, which remained essentially constant. As soon as streamflow leveled off, the dissolved constituents, except nitrate, peaked and began to fall as sharply as they had risen. A second peak in dissolved constituents, except nitrate and nitrite, occurred shortly after the peak of the hydrograph. The phosphorus peaks lagged behind the others, in contrast to the initial peaks, which were simultaneous. Nitrate recovered to near-initial concentrations when streamflow had decreased and leveled to less than 10 ft^3/s. The rest of the constituents gradually returned to initial levels once streamflow had stabilized.

The initial peak observed is sometimes called a "flushing" effect, in which all easily soluble material is washed into a stream during the initial stages of runoff. As runoff volumes and velocities increase, the concentration of material easily dissolved and transported decreases, as shown in figure 19. Once runoff volumes and velocities begin to decrease, the concentrations of soluble constituents again rise to form the second peaks. This may be due to the length of contact time between runoff water and the soil. When velocities of runoff are low at the beginning of a storm, the contact time between the soil and water permits some subsurface flow, in which easily soluble material is quickly removed. As runoff velocities increase, more of the runoff travels across the surface of the soil than through the subsurface. The short contact time and small surface exposure between the soil and water prevents concentrations from becoming too large. However, once the velocities decrease, contact time lengthens and more material can dissolve and be transported by the runoff water. Apparently the amount of material available for transport is not a limiting factor, as is often the case in other land-use areas.

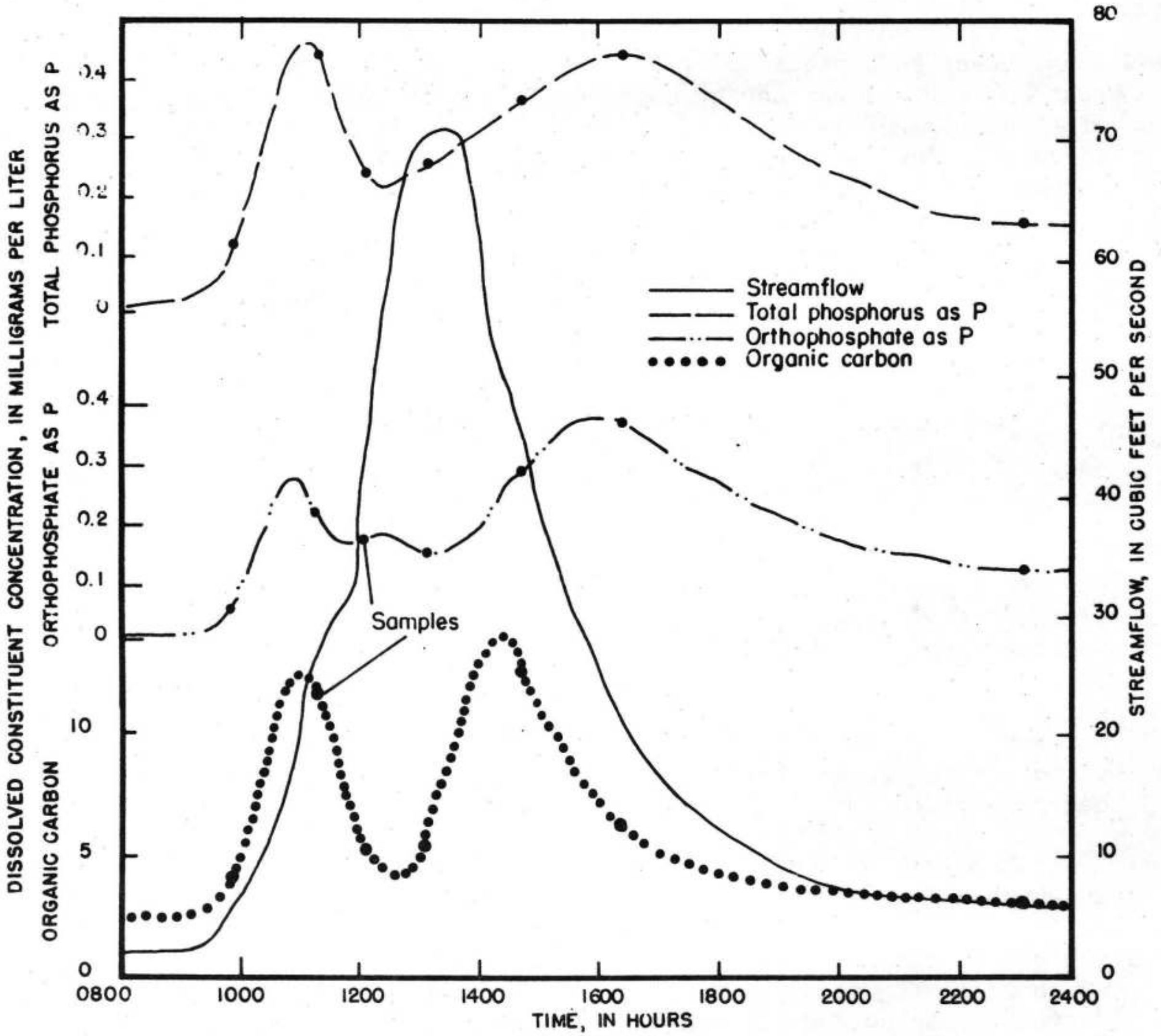
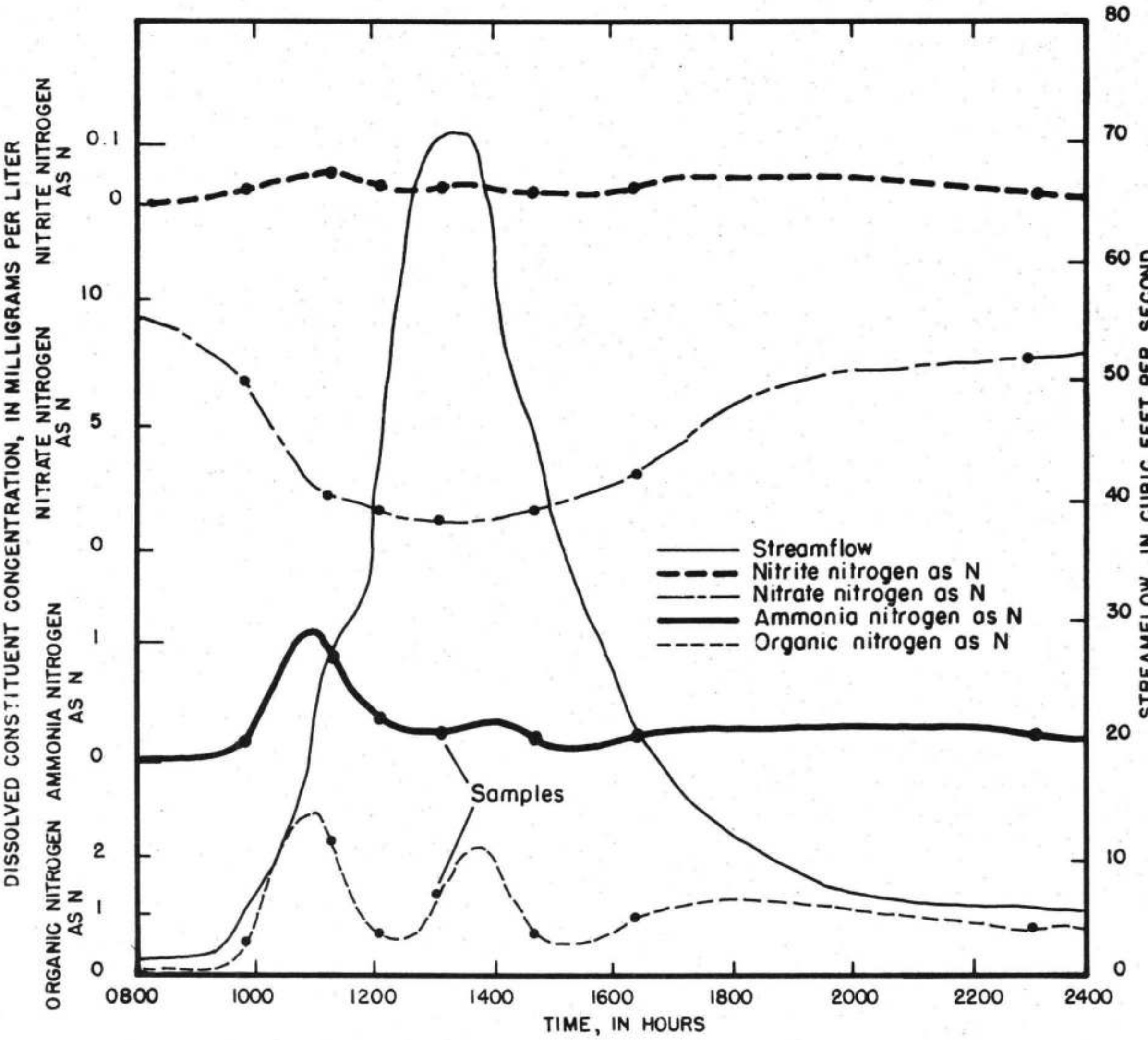


Figure 19.--Variations of dissolved constituents at Site 6,



Pequea Creek tributary near Strasburg, during the March 22 storm.

Figure 20 is a plot of time and suspended-constituent concentrations during the same period as that shown on figure 19. Suspended-sediment concentration is also shown here. The suspended fraction of orthophosphate, total phosphorus, organic carbon, ammonia nitrogen, and organic nitrogen shows two peaks similar to those in figure 19. Suspended nitrate and nitrite concentrations were small. The first peak of the concentrations of suspended constituents occurred at the same time as the peak of suspended-sediment concentration, which just preceeded the peak flow. The second peaks of all but total phosphorus and orthophosphate occurred shortly after the peak of the hydrograph. An examination of the suspended-sediment curve shows that, during the initial rise in streamflow, the concentration of suspended sediment did not increase as fast as the concentrations of the other constituents. This indicates that the initial "flush" of sediment contained higher concentrations of nutrients than suspended sediment transported during and after peak flow.

The hydrographs for each site differ, depending on the characteristics of the subbasin, the magnitude and intensity of the storms, and the season. Relations were not developed between constituents during a single storm because of the small number of data points available. However, all the data collected in 1977 for each site were grouped, and the relationships between constituents were examined by regression techniques.

Regression equations were computed for all possible pairs of constituents at each of the sites. Only two related pairs of dissolved constituents had less than a 100 percent error: (1) dissolved organic nitrogen versus dissolved kjeldahl nitrogen (a maximum error of 31 percent at one site), and (2) dissolved orthophosphate versus dissolved phosphorus (a maximum error of 26 percent at one site). The dissolved nitrogen species were related within storms, but did not show consistent relationships for the year. The relationships during storms will be examined more closely when additional sets of storm data are collected.

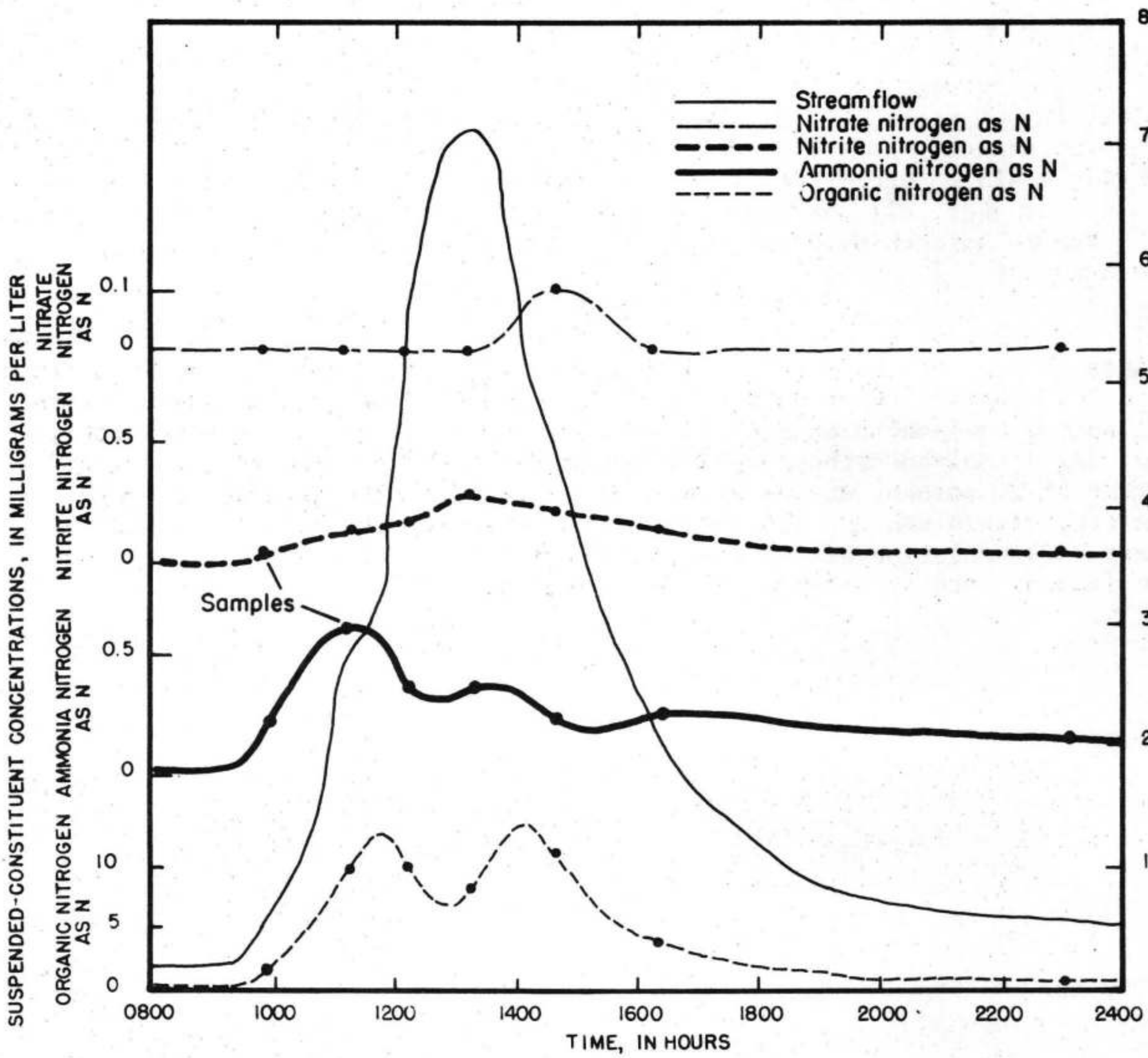
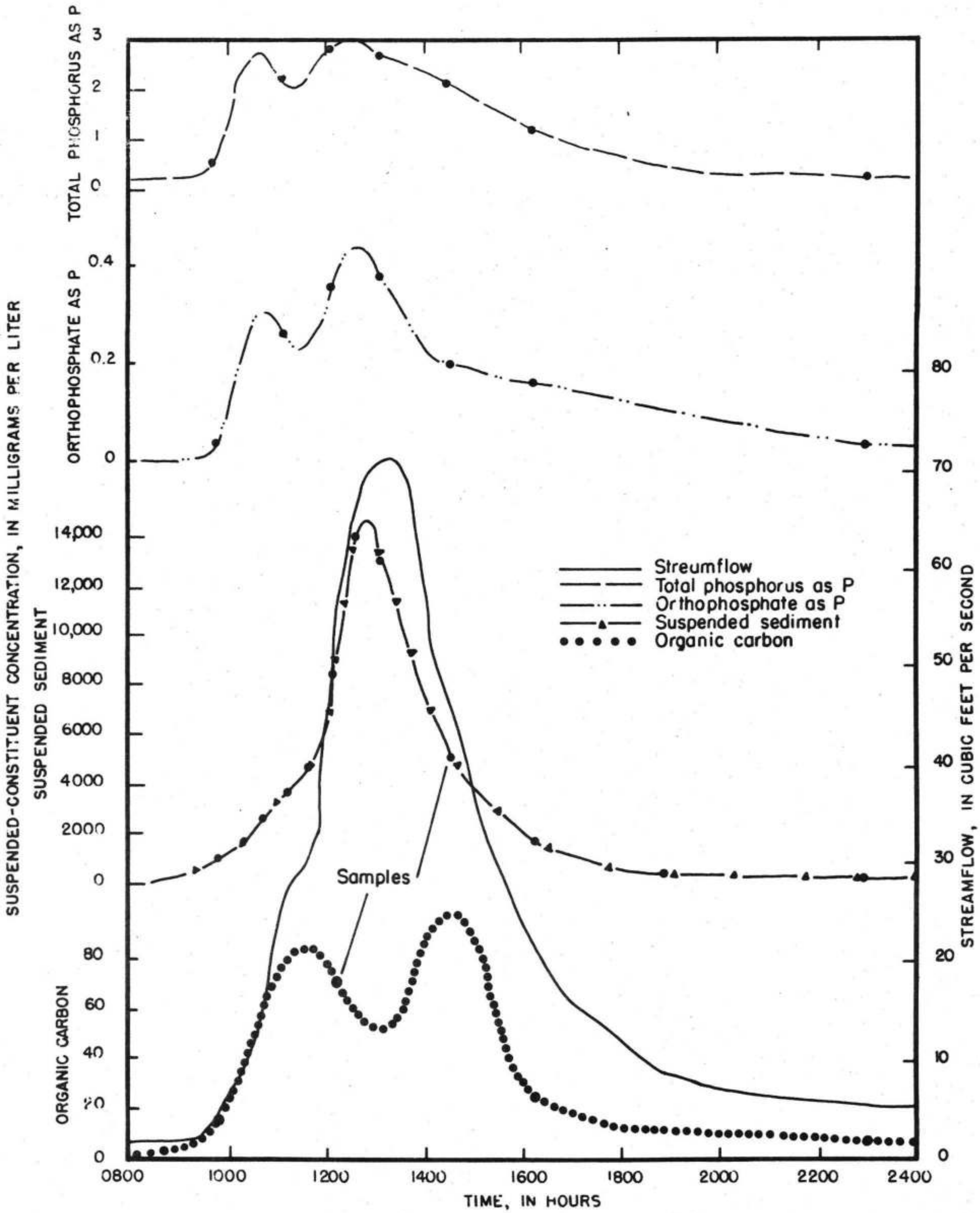


Figure 20.--Variations of suspended constituents at Site 6,



Pequea Creek tributary near Strasburg, during the March 22 storm

Concentrations of suspended constitutents show more consistent relations through the year than their dissolved counterparts. The listing below shows the suspended constituents whose concentrations were compared by regression techniques and the maximum percentage error found at any of the seven sites.

X	Y	Maximum percentage error
Organic nitrogen	Total kjeldahl nitrogen	16
Total phosphorus	Orthophosphate	57
Suspended sediment	Suspended organic carbon	66
Suspended sediment	Total phosphorus	78
Organic nitrogen	Suspended organic carbon	85
Total phosphorus	Total kjeldahl nitrogen	99
Suspended sediment	Organic nitrogen	103
Suspended sediment	Total kjeldahl nitrogen	107
Streamflow	Suspended-sediment load	214
Streamflow	Suspended sediment	223

These relations indicate how reliably one constituent can be estimated when the concentration of the other constituent is known. The relations with the smaller percentage errors are probably influenced less by storm type, season, or agricultural activity than those between constitutents with larger percentage errors.

Water samples were collected for pesticide analyses at all seven sites during peak flows of several storms. The first samples were collected during peak flow of the June 1 storm. Triazine samples were first collected during the August 17 storm. Results of the analyses are listed in table 16.

The data are summarized in table 13, which shows the pesticides detected during each storm, the sites at which they were detected, and the maximum and minimum concentrations of each pesticide detected. The site(s) at which the maximum concentration of each pesticide was found is indicated by an asterisk. More pesticides of higher concentrations were detected during the June 1 storm than during any of the succeeding storms. Many of the pesticides were not detected after June 1. As most pesticides are applied during planting, a drop in concentrations with succeeding storms seems reasonable.

Table 13.--Summary of pesticides detected in water samples

Pesticide	Sites at which pesticide was detected				Concentrations (µg/L)	
	June 1	August 17	November 10	December 21	Maximum	Minimum
Atrazine	Not sampled	1, 2, 3, 4*, 5, 6, 7	4	2, 4	4.9	0.10
Chlordane	- - -	3*	- - -	- - -	.2	- - -
Diazinon	1, 2, 6*	- - -	3	- - -	.08	.01
Dieldrin	1, 4, 5, 6*, 7	2, 4, 5, 6	3, 4*, 5, 6, 7	- - -	.08	.01
DDD	6*	- - -	3*	- - -	.01	.01
DDE	- - -	- - -	3*	6	.03	.01
DDT	6, 7	2, 4, 5, 6*	6	- - -	.08	.01
Heptachlor	6*	- - -	- - -	- - -	.01	- - -
Heptachlor Epoxide	1, 4, 5, 6*, 7	- - -	- - -	- - -	.02	.01
Lindane	1*, 3*, 4, 5, 7	- - -	- - -	- - -	.03	.01
2,4 D	1*, 3*, 4, 5, 6, 7	1	3	- - -	1.2	.03
2,4,5 T	1*	2	- - -	- - -	.02	.01
Simazine	Not sampled	1, 2, 5, 6*	- - -	- - -	.5	.1
Silvex	1*, 4, 5*	- - -	- - -	- - -	.05	.01

*site at which maximum concentration was detected

Samples of recently deposited bottom material were collected at all seven sites on March 31, June 14, and September 30 during base-flow sampling. Data are listed in table 18. Organic nitrogen constituted at least 95 percent of total nitrogen in the bottom-material samples. The concentrations of total nitrogen increased significantly from the March 31 to September 30 samples. The maximum concentration of total nitrogen found in bottom material was 36,000 mg/kg at site 1, at Martic Forge. Total phosphorus in bottom material also increased from the March 31 to the September 30 sample, but not nearly as dramatically as total nitrogen did. Total phosphorus reached a maximum concentration of 910 mg/kg at site 5, at Strasburg. The organic carbon content of bottom material averaged 2 percent. Particle size was also determined, and only site 5 samples contained mostly silt. Samples from site 7, at New Milltown, had about equal amounts of silt and sand. Samples from all other sites contained mostly sand. Clay was not found in significant quantities at any site.

Pesticides detected in the bottom material samples are summarized in table 14. As in the water samples, most of the maximum concentrations occurred in June. The DDT family and dieldrin were commonly found at all seven sites.

SUMMARY AND CONCLUSIONS

The Geological Survey, in cooperation with the Susquehanna River Basin Commission, investigated the water quality of the Pequea Creek basin, a tributary to the Susquehanna River in southeastern Pennsylvania. The 154 square-mile basin is typical of agricultural areas in southeastern Pennsylvania that contribute runoff to the lower Susquehanna River and the Chesapeake Estuary. Corn and alfalfa are primary crops. Most farmers maintain herds of dairy cattle, and milk is the major source of income. The basin has no large industrial or municipal centers, and its water quality is representative of nonpoint-source discharges. Results of this study can be used by water managers, the agricultural community, and water users interested in the transport of sediment, nutrients, and pesticides from agricultural nonpoint sources.

The objective of this project is to assess the magnitudes and types of nonpoint discharges that affect the water quality of Pequea Creek. Its scope includes the determination of (1) the total discharges of suspended sediment, nitrogen, and phosphorus from the basin; (2) intermittent storm and base-flow discharges from six subbasin sites of varying size, geology, and land use; (3) the difference in magnitudes of the discharges during base-flow periods and storms; and (4) the ways in which constituents contributed by nonpoint discharges are transported and which variables most affect the transport of these constituents from agricultural land.

Table 14.--Summary of pesticides detected in bottom-material samples

Pesticide	Sites at which pesticide was detected			Concentrations (μg/kg)	
	March 31	June 14	September 30	Maximum	Minimum
Chlordane	1, 5, 7	3, 5*, 7	1, 2, 3, 5, 6, 7	57	3.0
Dieldrin	1, 2, 4, 5, 6, 7	1, 2, 3, 4, 5*, 6, 7	1, 2, 4, 5, 6, 7	8.0	.4
DDD	1, 5, 7	5, 6*, 7	1, 2, 3, 5, 6, 7	9.5	.4
DDE	1, 2, 5, 6, 7	1, 2, 5*, 6, 7	1, 2, 3, 5, 6, 7	24	.8
DDT	1, 2, 5, 6, 7	2, 5, 6*, 7	1, 2, 3, 5, 6, 7	97	1.0
Heptachlor	- - -	- - -	6*	2.9	- - -
Heptachlor Epoxide	1	2, 6*	- - -	.6	.2
PCB	- - -	- - -	2, 3*	13	2.0

*site at which maximum concentration was detected

Streams at seven sites were sampled during six storms and nine base-flow periods from February to December 1977. Water samples were analyzed for dissolved and suspended nitrogen and phosphorus, organic carbon, suspended sediment, and total pesticides. Total streamflow and mean concentrations and discharges of the constituents sampled were calculated for the storm and base-flow periods. Bottom material was sampled in March, June, and September for nutrients, organic carbon, pesticides, and particle size. A site near the mouth of Pequea Creek was equipped with a stage recorder and automatic sampler, which collected water samples twice a day during base flow and hourly during storms. The samples were analyzed for nutrients, organic carbon, and suspended sediment. Daily water-weighted mean concentrations and discharges were computed.

The yields measured from February to December 1977 were 715 ton/mi^2 of suspended sediment, 9,920 lb/mi^2 of total nitrite plus nitrate nitrogen as N, 4,740 lb/mi^2 of total kjeldahl nitrogen as N, 1,540 lb/mi^2 of total phosphorus as P, 16,700 lb/mi^2 of dissolved organic carbon, and 14,000 lb/mi^2 of suspended organic carbon. Even though about 6 inches more rain fell in 1977 than the average for the 62 years of record, the data indicate that this area may be one of the highest yielding areas in the lower Susquehanna River basin.

Yields were separated into those carried by direct runoff and by base flow. Direct runoff contributed 20 percent of the streamflow, 86 percent of the suspended sediment, 11 percent of the total nitrite plus nitrate nitrogen, 67 percent of the total kjeldahl nitrogen, 73 percent of the total phosphorus, 14 percent of the dissolved organic carbon, and 70 percent of suspended organic carbon. Most nitrite plus nitrate nitrogen, ammonia nitrogen, and orthophosphate transported during storms was dissolved, whereas most organic nitrogen and organic phosphorus was suspended. Most total nitrogen and total phosphorus at the six agricultural sites was organic. Methods of transporting organic carbon changed during the year.

At site 2, the forested basin, most of the nitrogen was nitrate. Site 2 also had the lowest yields of the seven sites sampled. Site 3, an area of steep crop and dairy land, had the highest organic carbon, total phosphorus, and total nitrogen yields. Site 6, a fertile agricultural and dairy lowland area, had the highest suspended-sediment yields, and its other yields were second only to site 3. Water samples collected during storms and analyzed for pesticides indicated that atrazine, dieldrin, DDT, heptachlor epoxide, lindane, and 2,4 D were the most prevalent pesticides in the basin.

Regression analyses were run on the daily mean concentration and discharge data computed at site 1 and the base-flow and storm data at all sites for 1977. The logarithms of many suspended constituents showed a linear relation when plotted against those of other suspended constituents and sometimes when plotted against streamflow. Of all of the dissolved constituents examined, only the logarithmic plots of organic nitrogen versus kjeldahl nitrogen and orthophosphate versus phosphorus were linear. The logarithmic plots of nitrogen species and other constituents were linear during individual storms, but not over the entire year. This indicates that there are variables other than streamflow and basin characteristics which affect the transport of these constituents.

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Table 15.--Daily mean water-weighted concentrations and discharges for Site 1,

Pequea Creek at Martic Forge

DAY	MEAN DIS CHARGE (CFS)	TOTAL KJELDAHL NITROGEN (N) MEAN CONCEN-TRATION (MG/L)	TOTAL KJELDAHL NITROGEN (N) LOADS (T/DAY)	TOTAL NITRITE PLUS NITRATE (N) MEAN CONCEN-TRATION (MG/L)	TOTAL NITRITE PLUS NITRATE (N) LOADS (T/DAY)	TOTAL PHOSPHORUS (P) MEAN CONCEN-TRATION (MG/L)	TOTAL PHOSPHORUS (P) LOADS (T/DAY)	DISSOLVED ORGANIC CARBON (C) MEAN CONCEN-TRATION (MG/L)	DISSOLVED ORGANIC CARBON (C) LOADS (T/DAY)	SUSPENDED ORGANIC CARBON (C) MEAN CONCEN-TRATION (MG/L)	SUSPENDED ORGANIC CARBON (C) LOADS (T/DAY)	SUSPENDED SEDIMENT MEAN CONCEN-TRATION (MG/L)	SUSPENDED SEDIMENT LOADS (T/DAY)
						FEBRUARY 1977							
1	---	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---	---
24	220	5.0	3.0	4.6	2.8	0.97	0.57	5.3	9.0	22	13	1660	990
25	556	11	17	3.7	5.5	1.9	2.9	29	19	38	58	3430	5150
26	165	6.3	2.8	3.8	1.7	1.2	0.56	---	---	---	---	450	200
27	140	3.1	1.2	4.4	1.7	0.70	0.26	---	---	---	---	210	79
28	150	1.4	0.57	5.0	2.0	0.25	0.10	---	---	---	---	72	29
29	---	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	1231	---	24	---	13	---	4.3	---	28.0	---	71	---	6448
						MARCH 1977							
1	134	0.80	0.29	5.4	2.0	0.17	0.06	---	---	---	---	37	13
2	127	0.53	0.18	5.5	1.9	0.13	0.04	---	---	---	---	31	11
3	121	0.28	0.09	5.6	1.8	0.12	0.04	---	---	---	---	33	11
4	292	3.6	2.8	4.7	3.7	0.85	0.67	---	---	---	---	1710	1340
5	336	3.5	3.2	4.5	4.1	0.95	0.86	---	---	---	---	755	685
6	211	1.5	0.85	4.7	2.7	0.44	0.25	---	---	---	---	95	54
7	159	1.0	0.43	4.8	2.1	0.25	0.11	---	---	---	---	55	24
8	147	0.72	0.29	4.9	1.9	0.19	0.08	---	---	---	---	60	24
9	138	0.55	0.20	5.0	1.9	0.15	0.06	---	---	---	---	65	24
10	134	0.41	0.15	5.1	1.8	0.13	0.05	---	---	---	---	70	25
11	132	0.30	0.10	5.3	1.9	0.10	0.04	0.96	2.7	0.9	0.32	77	27
12	130	0.26	0.09	5.4	1.9	0.09	0.03	0.88	2.5	0.8	0.28	60	21
13	259	1.2	0.86	4.5	3.2	0.49	0.34	3.2	4.5	6.7	4.7	432	302
14	582	5.4	8.5	3.9	6.1	1.5	2.3	14	8.6	22	35	2600	4080
15	232	3.1	1.9	3.6	2.3	1.1	0.68	3.9	6.3	15	9.4	670	419
16	195	1.4	0.74	4.5	2.4	0.37	0.19	1.6	3.1	2.9	1.5	130	68
17	177	0.90	0.43	4.3	2.3	0.20	0.10	0.72	1.5	1.6	0.76	95	45
18	190	0.78	0.40	5.5	2.8	0.15	0.08	1.2	2.3	2.3	1.2	55	28
19	187	0.74	0.37	5.2	2.6	0.14	0.07	1.7	3.4	1.2	0.61	40	20
20	172	0.62	0.28	5.3	2.5	0.14	0.06	0.60	1.3	0.9	0.42	26	12
21	174	0.50	0.23	5.4	2.5	0.14	0.06	0.56	1.2	0.8	0.38	15	7.0
22	734	8.9	18	3.0	6.0	1.7	3.4	19	9.7	48	96	4810	9540
23	704	6.8	13	3.0	5.6	1.4	2.7	12	6.2	30	57	2550	4840
24	315	1.1	0.94	4.5	3.3	0.32	0.27	3.6	4.2	3.6	3.1	189	160
25	270	0.45	0.32	5.6	4.0	0.20	0.14	1.4	1.9	1.3	0.95	75	55
26	251	0.30	0.20	5.8	3.9	0.15	0.10	1.1	1.6	1.0	0.68	53	36
27	236	0.30	0.19	5.9	3.3	0.08	0.05	0.76	1.2	0.8	0.51	39	25
28	234	0.30	0.18	5.8	3.7	0.09	0.06	0.89	1.4	0.8	0.51	37	23
29	225	0.30	0.18	5.8	3.5	0.12	0.07	1.0	1.7	0.9	0.55	36	22
30	214	0.30	0.17	5.7	3.3	0.10	0.06	0.92	1.6	0.9	0.52	28	16
31	195	0.30	0.15	5.5	2.9	0.08	0.04	0.79	1.5	1.0	0.53	23	12
TOTAL	7607	---	55	---	94	---	13	---	68.4	---	214.92	---	21969.0

Table 15.--Daily mean water-weighted concentrations and discharges for Site 1,

Pequea Creek at Martic Forge -- (Continued)

		TOTAL KJELDAHL NITROGEN (N)		TOTAL NITRITE PLUS NITRATE (N)		TOTAL PHOSPHORUS (P)		DISSOLVED ORGANIC CARBON (C)		SUSPENDED ORGANIC CARBON (C)		SUSPENDED SEDIMENT	
DAY	MEAN DIS CHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
						APRIL 1977							
1	185	0.30	0.15	5.5	2.7	0.08	0.04	0.75	1.5	1.0	0.50	20	10
2	294	1.2	0.99	4.9	3.9	0.34	0.27	4.6	5.8	3.5	2.8	347	276
3	308	1.0	0.86	4.7	3.9	0.30	0.24	5.6	6.7	2.0	1.6	181	150
4	232	0.71	0.45	4.8	3.0	0.23	0.14	2.8	4.5	1.2	0.77	83	52
5	1240	5.5	18	2.9	10	1.6	5.2	30	8.9	17	58	2490	3340
6	533	2.0	2.9	3.7	5.3	0.66	0.94	11	7.6	6.0	8.6	423	609
7	376	0.80	0.81	5.2	5.3	0.14	0.14	3.8	3.7	1.7	1.7	100	102
8	340	0.60	0.55	5.6	5.1	0.08	0.07	2.6	2.8	1.3	1.2	73	67
9	302	0.55	0.45	5.9	4.8	0.07	0.06	2.1	2.6	1.0	0.82	51	42
10	285	0.50	0.38	5.8	4.5	0.06	0.05	1.9	2.5	0.8	0.62	28	22
11	273	0.45	0.33	5.7	4.2	0.06	0.04	1.8	2.5	0.8	0.55	25	18
12	263	0.40	0.28	5.6	4.0	0.05	0.04	1.8	2.5	0.7	0.50	40	28
13	254	0.35	0.24	5.5	3.8	0.05	0.03	1.7	2.5	0.7	0.45	32	22
14	247	0.30	0.20	5.5	3.7	0.05	0.03	2.7	4.0	0.6	0.40	33	22
15	233	0.50	0.31	5.5	3.5	0.05	0.03	1.9	3.0	0.8	0.50	33	21
16	227	1.0	0.61	5.6	3.4	0.05	0.03	0.86	1.4	1.3	0.80	36	22
17	219	0.60	0.35	5.5	3.2	0.05	0.03	0.83	1.4	1.0	0.59	32	19
18	214	0.50	0.29	5.5	3.2	0.07	0.04	0.75	1.3	1.8	1.0	36	21
19	211	0.40	0.23	5.5	3.1	0.08	0.05	0.74	1.3	3.3	1.9	40	23
20	206	0.50	0.28	5.5	3.1	0.06	0.03	0.78	1.4	2.0	1.1	36	20
21	204	0.50	0.27	5.5	3.0	0.05	0.03	0.94	1.7	0.8	0.44	32	18
22	201	0.50	0.27	5.5	3.0	0.05	0.03	0.87	1.6	0.8	0.43	31	17
23	198	0.50	0.27	5.5	2.9	0.05	0.03	0.86	1.6	0.8	0.43	30	16
24	215	0.84	0.49	5.3	3.1	0.15	0.09	1.2	2.2	1.5	0.90	63	36
25	296	1.3	1.0	5.0	4.0	0.24	0.20	4.1	5.1	4.4	3.6	141	113
26	233	0.80	0.50	5.1	3.2	0.14	0.09	2.1	3.4	2.5	1.6	53	33
27	209	0.60	0.34	5.3	3.0	0.10	0.06	1.4	2.5	1.7	0.96	45	25
28	204	0.50	0.28	5.4	3.0	0.06	0.03	1.2	2.1	1.3	0.72	42	23
29	211	0.50	0.28	5.6	3.2	0.13	0.07	1.0	1.8	0.7	0.40	39	22
30	195	0.50	0.26	5.5	2.9	0.08	0.04	1.3	2.4	0.9	0.47	32	17
31	---	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	8608	---	32	---	115	----	8.1	---	92.3	----	---	----	10206
						MAY 1977							
1	183	0.50	0.25	5.5	2.7	0.08	0.04	1.1	2.3	0.9	0.44	40	20
2	181	0.50	0.24	5.5	2.7	0.08	0.04	1.1	2.2	0.9	0.44	37	18
3	179	0.50	0.24	5.4	2.6	0.08	0.04	1.0	2.1	0.9	0.44	34	16
4	177	0.50	0.24	5.4	2.6	0.08	0.04	0.96	2.0	0.9	0.45	28	13
5	189	0.50	0.26	5.3	2.7	0.08	0.04	1.0	2.0	0.9	0.46	35	18
6	226	0.67	0.41	5.3	3.2	0.15	0.09	1.6	2.6	1.8	1.1	144	88
7	223	1.8	1.1	5.0	3.0	0.36	0.22	2.0	3.3	2.3	1.4	182	109
8	190	0.73	0.37	5.3	2.7	0.20	0.10	1.2	2.3	1.1	0.56	75	38
9	170	0.55	0.25	5.3	2.4	0.14	0.06	1.3	2.8	1.1	0.50	55	25
10	168	0.47	0.21	5.6	2.5	0.11	0.05	1.3	2.8	0.7	0.32	34	15
11	164	0.45	0.20	5.7	2.5	0.10	0.04	1.2	2.8	0.8	0.35	45	20
12	162	0.40	0.18	5.6	2.4	0.10	0.04	1.0	2.4	1.0	0.44	42	18
13	157	0.34	0.14	5.5	2.3	0.12	0.05	1.3	3.0	1.2	0.51	39	16
14	153	0.45	0.18	5.4	2.2	0.12	0.05	1.2	2.9	0.9	0.37	48	20
15	149	0.55	0.22	5.4	2.2	0.12	0.05	1.2	3.0	0.9	0.36	48	19
16	149	0.55	0.22	5.3	2.1	0.12	0.05	1.2	3.0	1.0	0.40	46	18
17	146	0.50	0.20	5.2	2.0	0.12	0.05	1.2	3.1	1.0	0.39	45	18
18	149	0.55	0.22	5.2	2.1	0.12	0.05	1.2	3.1	1.0	0.40	43	17
19	151	0.68	0.28	5.0	2.0	0.11	0.04	1.1	2.8	0.8	0.33	40	16
20	149	0.62	0.25	5.0	2.0	0.13	0.05	0.80	2.0	0.7	0.28	36	14
21	142	0.60	0.23	4.9	1.9	0.15	0.06	0.65	1.7	0.5	0.19	45	17
22	138	0.62	0.23	4.9	1.8	0.15	0.06	0.63	1.7	0.5	0.19	55	20
23	134	0.65	0.24	4.9	1.8	0.15	0.05	0.72	2.0	0.6	0.22	60	22
24	130	0.70	0.24	4.9	1.7	0.15	0.05	0.81	2.3	0.6	0.21	66	23
25	130	0.70	0.24	5.0	1.8	0.15	0.05	0.98	2.8	0.5	0.18	67	24
26	128	0.75	0.26	5.1	1.8	0.14	0.05	1.0	3.0	0.4	0.14	66	23
27	124	0.90	0.30	5.2	1.7	0.14	0.05	1.3	3.8	0.4	0.13	62	21
28	122	0.90	0.30	5.2	1.7	0.15	0.05	1.3	4.0	0.5	0.16	62	20
29	120	0.90	0.29	5.2	1.7	0.15	0.05	1.3	4.0	0.5	0.16	55	18
30	118	0.85	0.27	5.2	1.7	0.14	0.04	1.2	3.8	0.4	0.13	55	18
31	120	0.65	0.21	5.0	1.6	0.14	0.04	1.4	4.2	0.5	0.16	50	16
TOTAL	4821	---	8.4	---	68	---	1.7	---	85.8	---	11.79	---	758

Table 15.--Daily mean water-weighted concentrations and discharges for Site 1,

Pequea Creek at Martic Forge -- (Continued)

		TOTAL KJELDAHL NITROGEN (N)		TOTAL NITRITE PLUS NITRATE (N)		TOTAL PHOSPHORUS (P)		DISSOLVED ORGANIC CARBON (C)		SUSPENDED ORGANIC CARBON (C)		SUSPENDED SEDIMENT	
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
						JUNE 1977							
1	204	6.5	3.6	6.9	3.8	1.9	1.1	2.3	4.1	32	18	2030	1110
2	535	14	21	5.2	7.5	5.8	8.4	5.6	3.9	84	121	6630	9580
3	150	2.6	1.1	4.9	2.0	0.91	0.37	2.0	5.0	9.1	3.7	444	180
4	126	1.9	0.65	4.8	1.6	0.60	0.20	1.3	3.8	4.0	1.4	260	86
5	122	1.4	0.46	5.1	1.7	0.45	0.15	1.2	3.7	2.0	0.66	120	40
6	130	0.85	0.30	5.2	1.8	0.35	0.12	1.4	3.9	2.0	0.70	110	39
7	134	0.82	0.30	5.4	2.0	0.25	0.09	1.6	4.4	1.5	0.54	120	45
8	122	0.72	0.24	5.5	1.8	0.24	0.08	1.6	5.0	0.8	0.26	110	36
9	136	0.65	0.24	5.4	2.0	0.24	0.09	1.7	4.7	0.9	0.33	130	48
10	192	1.7	0.89	5.0	2.6	1.0	0.53	3.0	5.7	11	5.9	505	262
11	132	1.3	0.46	5.1	1.8	0.62	0.22	1.3	3.6	2.0	0.71	220	78
12	120	1.0	0.32	5.2	1.7	0.35	0.11	1.2	3.7	2.0	0.65	170	55
13	116	0.78	0.24	5.3	1.7	0.22	0.07	1.2	3.8	1.0	0.31	135	42
14	112	0.76	0.23	5.5	1.7	0.22	0.07	1.4	4.6	1.0	0.30	90	27
15	120	0.60	0.19	5.3	1.7	0.24	0.08	1.2	3.8	1.0	0.32	115	37
16	118	0.45	0.14	5.2	1.7	0.22	0.07	0.89	2.8	0.9	0.29	95	30
17	110	0.45	0.13	5.1	1.5	0.19	0.06	0.74	2.5	0.8	0.24	95	28
18	120	0.60	0.19	5.1	1.6	0.20	0.06	0.71	2.2	0.8	0.26	100	32
19	112	0.60	0.18	5.0	1.5	0.16	0.05	0.60	2.0	0.7	0.21	75	23
20	110	0.55	0.16	5.0	1.5	0.18	0.05	0.59	2.0	0.7	0.21	70	21
21	105	0.50	0.14	5.1	1.4	0.19	0.05	0.54	1.9	0.7	0.20	60	17
22	101	0.50	0.14	5.0	1.4	0.19	0.05	0.52	1.9	0.7	0.19	55	15
23	96	0.50	0.13	5.0	1.3	0.18	0.05	0.57	2.2	0.8	0.21	50	13
24	94	0.50	0.13	4.9	1.2	0.16	0.04	0.66	2.6	1.0	0.25	45	11
25	94	0.63	0.16	4.9	1.2	0.15	0.04	0.76	3.0	1.2	0.30	43	11
26	231	2.0	1.2	5.2	3.2	0.69	0.43	2.4	3.8	7.5	4.7	690	431
27	134	1.5	0.58	4.9	1.8	0.62	0.22	1.7	4.7	6.3	2.4	389	141
28	154	1.7	0.72	4.4	1.8	0.62	0.26	2.9	7.0	6.6	2.8	460	193
29	226	2.4	1.4	4.2	2.6	0.81	0.50	3.9	6.4	9.5	5.8	715	437
30	120	1.5	0.49	4.0	1.3	0.50	0.16	1.6	5.1	4.6	1.5	260	84
31	---	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	4376	---	36	---	60	---	13	---	113.8	---	174.34	---	13152
						JULY 1977							
1	101	1.2	0.33	4.2	1.1	0.40	0.11	1.3	4.7	2.8	0.76	140	38
2	98	0.80	0.21	4.6	1.2	0.32	0.08	1.2	4.4	2.8	0.74	80	21
3	93	0.63	0.16	5.0	1.3	0.28	0.07	1.0	4.1	2.8	0.70	65	16
4	89	0.60	0.14	5.0	1.2	0.24	0.06	0.94	3.9	2.8	0.67	50	12
5	89	0.55	0.13	5.0	1.2	0.22	0.05	0.89	3.7	2.8	0.67	40	9.6
6	212	4.2	2.4	4.7	2.7	3.8	2.2	2.5	4.3	36	20	3510	2010
7	305	3.0	2.4	4.6	3.8	1.3	1.0	4.6	5.6	15	12	974	802
8	136	2.0	0.74	4.1	1.5	0.53	0.20	1.6	4.5	6.4	2.4	286	105
9	108	1.5	0.44	3.8	1.1	0.36	0.10	1.3	4.3	4.0	1.2	140	41
10	100	1.1	0.30	4.6	1.2	0.30	0.08	1.1	4.2	3.3	0.89	100	27
11	96	0.65	0.17	5.0	1.3	0.26	0.07	1.0	4.0	2.5	0.65	80	21
12	94	0.80	0.20	4.8	1.2	0.25	0.06	0.96	3.8	2.2	0.56	90	23
13	197	2.9	1.5	4.8	2.6	1.3	0.69	2.0	3.9	17	8.9	907	483
14	128	2.4	0.83	3.9	1.4	1.3	0.45	1.4	3.9	16	5.4	577	200
15	93	1.2	0.30	4.1	1.0	0.65	0.16	1.0	4.0	2.6	0.65	130	33
16	89	1.0	0.24	4.3	1.0	0.65	0.16	0.91	3.8	1.9	0.46	82	20
17	86	0.96	0.22	4.5	1.0	0.66	0.15	0.81	3.5	1.6	0.37	60	14
18	86	0.90	0.21	4.4	1.0	0.66	0.15	0.81	3.5	1.2	0.28	50	12
19	84	0.80	0.18	4.3	0.98	0.50	0.11	0.86	3.3	1.0	0.23	40	9.1
20	84	0.70	0.16	4.1	0.93	0.40	0.09	0.91	4.0	0.9	0.20	40	9.1
21	84	0.75	0.17	4.1	0.93	0.16	0.04	0.95	4.2	0.9	0.20	60	14
22	76	0.80	0.16	4.2	0.86	0.15	0.03	0.82	4.0	1.1	0.23	36	7.4
23	71	0.65	0.12	4.2	0.81	0.15	0.03	0.73	3.8	1.1	0.21	45	8.6
24	69	0.50	0.09	4.2	0.78	0.15	0.03	0.71	3.8	1.1	0.20	56	10
25	79	0.80	0.17	4.3	0.92	0.20	0.04	0.70	3.3	1.9	0.41	114	24
26	106	0.94	0.27	4.2	1.2	0.27	0.08	0.94	3.3	2.1	0.61	154	44
27	81	0.85	0.19	4.2	0.92	0.21	0.05	0.92	4.2	1.7	0.37	105	23
28	71	0.70	0.13	4.3	0.82	0.20	0.04	0.79	4.1	1.3	0.25	70	13
29	68	0.60	0.11	4.2	0.77	0.18	0.03	0.75	4.1	1.0	0.18	55	10
30	74	0.60	0.12	4.3	0.86	0.18	0.04	0.76	3.8	1.0	0.20	60	12
31	74	0.60	0.12	4.3	0.86	0.17	0.03	0.64	3.2	1.0	0.20	55	11
TOTAL	3221	---	12	---	38	---	6.4	---	123.7	---	60.79	---	4082.8

Table 15.--Daily mean water-weighted concentrations and discharges for Site 1,

Pequea Creek at Martic Forge -- (Continued)

DAY	MEAN DIS CHARGE (CFS)	TOTAL KJELDAHL NITROGEN (N) MEAN CONCEN-TRATION (MG/L)	TOTAL KJELDAHL NITROGEN (N) LOADS (T/DAY)	TOTAL NITRITE PLUS NITRATE (N) MEAN CONCEN-TRATION (MG/L)	TOTAL NITRITE PLUS NITRATE (N) LOADS (T/DAY)	TOTAL PHOSPHORUS (P) MEAN CONCEN-TRATION (MG/L)	TOTAL PHOSPHORUS (P) LOADS (T/DAY)	DISSOLVED ORGANIC CARBON (C) MEAN CONCEN-TRATION (MG/L)	DISSOLVED ORGANIC CARBON (C) LOADS (T/DAY)	SUSPENDED ORGANIC CARBON (C) MEAN CONCEN-TRATION (MG/L)	SUSPENDED ORGANIC CARBON (C) LOADS (T/DAY)	SUSPENDED SEDIMENT MEAN CONCEN-TRATION (MG/L)	SUSPENDED SEDIMENT LOADS (T/DAY)
						AUGUST 1977							
1	80	0.91	0.20	4.3	0.93	0.23	0.05	0.67	3.1	2.2	0.48	207	45
2	319	4.7	4.1	3.9	3.4	1.5	1.3	7.4	8.6	16	14	1350	1160
3	179	3.2	1.5	2.9	1.4	1.1	0.55	4.9	10	8.3	4.0	589	285
4	266	4.1	3.0	3.0	2.2	1.3	0.95	6.2	8.6	13	9.5	799	574
5	105	1.3	0.37	3.0	0.85	0.60	0.17	2.3	8.0	10	2.8	155	44
6	125	2.0	0.68	3.2	1.1	0.56	0.19	2.4	7.3	7.4	2.5	408	138
7	142	2.7	1.0	3.6	1.4	0.93	0.36	3.4	8.8	10	3.9	484	185
8	100	1.3	0.35	4.0	1.1	0.43	0.12	1.5	5.5	5.0	1.4	135	36
9	89	1.1	0.26	4.1	0.99	0.30	0.07	1.2	4.8	3.0	0.72	100	24
10	115	1.8	0.56	4.2	1.3	0.68	0.21	1.7	5.5	7.3	2.3	296	92
11	233	3.4	2.2	3.9	2.5	1.1	0.72	4.9	11	8.0	5.0	698	439
12	128	1.2	0.41	3.8	1.3	0.59	0.20	2.9	11	1.3	0.45	175	60
13	126	1.1	0.37	4.0	1.4	0.45	0.15	3.2	9.5	2.1	0.71	160	54
14	159	1.5	0.65	4.2	1.8	0.60	0.26	4.8	10	4.4	1.9	244	105
15	147	1.3	0.51	4.3	1.7	0.51	0.20	4.5	7.0	2.9	1.1	196	78
16	105	0.94	0.27	4.6	1.3	0.34	0.10	2.8	10	0.5	0.14	90	26
17	150	1.9	0.75	4.2	1.7	0.83	0.34	4.8	12	5.6	2.2	409	165
18	144	1.6	0.61	3.3	1.3	1.1	0.41	4.0	10	5.6	2.2	218	84
19	107	1.1	0.32	4.7	1.4	0.40	0.12	2.0	6.8	2.2	0.64	110	32
20	91	0.90	0.22	4.8	1.2	0.35	0.09	1.6	6.4	1.8	0.44	70	17
21	87	0.76	0.18	4.8	1.1	0.28	0.07	1.5	6.2	1.7	0.40	65	15
22	167	1.8	0.83	4.6	2.1	0.75	0.34	3.2	7.1	5.7	2.6	379	171
23	112	1.0	0.30	4.1	1.2	0.43	0.13	2.1	7.0	4.5	1.4	105	32
24	91	0.70	0.17	4.6	1.1	0.35	0.09	1.6	6.6	3.5	0.86	70	17
25	91	0.45	0.11	4.7	1.2	0.26	0.06	1.5	6.2	2.5	0.61	68	17
26	86	0.35	0.08	4.7	1.1	0.23	0.05	1.4	5.8	1.5	0.35	66	15
27	81	0.32	0.07	4.8	1.0	0.21	0.05	1.2	5.5	0.7	0.15	53	12
28	79	0.28	0.06	4.9	1.0	0.19	0.04	1.1	5.2	0.3	0.06	47	10
29	77	0.29	0.06	4.7	0.98	0.18	0.04	1.1	5.5	0.3	0.06	43	8.9
30	76	0.30	0.06	4.4	0.90	0.18	0.04	1.3	6.3	0.3	0.06	38	7.8
31	309	9.1	7.6	3.8	3.1	5.3	4.4	9.0	11	18	15	5150	4290
TOTAL	4166	---	27	---	45	---	11	---	236.3	---	77.93	---	8238.7
						SEPTEMBER 1977							
1	468	6.6	8.3	2.8	3.6	3.4	4.3	13	10	16	20	2880	3640
2	125	2.0	0.68	3.4	1.1	0.71	0.24	3.1	9.2	9.7	3.3	174	59
3	101	1.4	0.38	3.8	1.0	0.40	0.11	2.7	9.8	4.5	1.2	90	24
4	94	0.88	0.22	4.2	1.1	0.30	0.08	2.7	10	1.5	0.38	75	19
5	89	0.74	0.18	4.6	1.1	0.22	0.05	1.7	7.0	0.5	0.12	58	14
6	82	0.66	0.15	5.0	1.1	0.20	0.04	0.89	4.0	0.3	0.07	41	9.1
7	100	0.63	0.17	4.7	1.3	0.20	0.05	1.0	3.8	0.3	0.08	70	19
8	82	0.60	0.13	4.8	1.1	0.21	0.05	0.84	3.8	0.4	0.09	50	11
9	79	0.55	0.12	5.0	1.1	0.21	0.04	0.81	3.8	0.3	0.06	43	9.2
10	77	0.48	0.10	5.0	1.0	0.19	0.04	0.77	3.7	0.2	0.04	37	7.7
11	73	0.43	0.08	5.0	0.98	0.18	0.04	0.73	3.7	0.3	0.06	33	6.5
12	69	0.37	0.07	5.0	0.93	0.16	0.03	0.80	4.3	0.3	0.06	25	4.7
13	69	0.34	0.06	5.0	0.93	0.15	0.03	0.54	2.9	0.3	0.06	30	5.6
14	69	0.35	0.06	5.0	0.93	0.15	0.03	0.48	2.6	0.3	0.06	30	5.6
15	73	0.40	0.08	5.0	0.98	0.15	0.03	0.57	2.9	0.3	0.06	27	5.3
16	73	0.45	0.09	5.0	0.98	0.15	0.03	0.63	3.2	0.3	0.06	28	5.5
17	93	0.60	0.15	4.9	1.2	0.19	0.05	1.3	5.2	0.3	0.08	50	12
18	91	0.53	0.13	4.8	1.2	0.21	0.05	1.1	4.4	0.3	0.07	45	11
19	79	0.52	0.11	4.7	1.0	0.20	0.04	1.2	5.5	0.3	0.06	40	8.5
20	235	2.1	1.3	4.8	3.0	0.92	0.58	4.8	7.6	1.5	0.93	594	377
21	107	1.8	0.53	4.2	1.2	0.71	0.20	2.0	6.8	1.8	0.52	178	51
22	87	1.1	0.26	4.4	1.0	0.45	0.10	1.5	6.2	1.5	0.35	105	25
23	87	0.70	0.16	4.5	1.1	0.40	0.09	1.4	5.9	1.5	0.35	85	20
24	89	0.60	0.14	4.6	1.1	0.35	0.08	1.4	5.6	1.3	0.31	70	17
25	138	0.90	0.33	4.6	1.7	0.48	0.18	2.4	6.4	1.5	0.55	142	53
26	124	1.3	0.44	4.6	1.5	0.60	0.20	2.7	8.0	1.0	0.33	110	37
27	96	0.70	0.18	4.5	1.2	0.45	0.12	1.9	7.2	0.8	0.21	82	21
28	126	0.97	0.33	4.4	1.5	0.35	0.12	1.7	5.0	0.7	0.24	95	32
29	98	0.70	0.18	4.6	1.2	0.34	0.09	1.1	4.2	0.7	0.18	70	18
30	87	0.55	0.13	4.8	1.1	0.28	0.07	0.89	3.8	0.8	0.19	50	12
31	---	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	3260	---	15	---	38	---	7.1	---	166.5	---	30.07	---	4539.7

Table 15.--Daily mean water-weighted concentrations and discharges for Site 1,

Pequea Creek at Martic Forge -- (Continued)

DAY	MEAN DIS CHARGE (CFS)	TOTAL KJELDAHL NITROGEN (N) MEAN CONCEN-TRATION (MG/L)	TOTAL KJELDAHL NITROGEN (N) LOADS (T/DAY)	TOTAL NITRITE PLUS NITRATE (N) MEAN CONCEN-TRATION (MG/L)	TOTAL NITRITE PLUS NITRATE (N) LOADS (T/DAY)	TOTAL PHOSPHORUS (P) MEAN CONCEN-TRATION (MG/L)	TOTAL PHOSPHORUS (P) LOADS (T/DAY)	DISSOLVED ORGANIC CARBON (C) MEAN CONCEN-TRATION (MG/L)	DISSOLVED ORGANIC CARBON (C) LOADS (T/DAY)	SUSPENDED ORGANIC CARBON (C) MEAN CONCEN-TRATION (MG/L)	SUSPENDED ORGANIC CARBON (C) LOADS (T/DAY)	SUSPENDED SEDIMENT MEAN CONCEN-TRATION (MG/L)	SUSPENDED SEDIMENT LOADS (T/DAY)
OCTOBER 1977													
1	82	0.58	0.13	4.8	1.1	0.23	0.05	2.8	0.62	0.9	0.20	60	13
2	82	0.55	0.12	4.8	1.1	0.21	0.05	2.7	0.60	0.8	0.17	53	12
3	79	0.53	0.11	4.8	1.0	0.19	0.04	2.7	0.58	0.6	0.13	45	9.6
4	74	0.52	0.10	4.8	0.97	0.17	0.03	2.6	0.52	0.5	0.11	40	8.0
5	73	0.57	0.11	5.1	1.0	0.16	0.03	2.3	0.45	0.7	0.13	45	8.9
6	76	0.55	0.11	5.2	1.1	0.16	0.03	2.3	0.47	0.7	0.14	50	10
7	77	0.50	0.10	5.2	1.1	0.15	0.03	2.6	0.54	0.6	0.12	37	7.7
8	73	0.45	0.09	5.2	1.0	0.14	0.03	2.9	0.57	0.5	0.10	31	6.1
9	137	0.90	0.34	4.6	1.7	0.36	0.14	3.8	1.4	1.5	0.55	148	55
10	136	1.3	0.46	4.2	1.5	0.44	0.16	6.5	2.4	1.6	0.57	86	32
11	93	1.2	0.30	4.4	1.1	0.40	0.10	10	2.6	1.0	0.25	43	11
12	84	1.1	0.25	4.4	1.0	0.37	0.08	14	3.2	0.9	0.20	28	6.4
13	81	0.65	0.14	4.7	1.0	0.24	0.05	12	2.7	0.9	0.20	29	6.3
14	96	0.39	0.10	4.8	1.2	0.16	0.04	9.4	2.4	1.1	0.29	40	10
15	417	2.8	3.2	3.6	4.1	1.3	1.5	10	12	8.2	9.3	698	785
16	170	1.9	0.87	3.8	1.7	0.78	0.36	8.9	4.1	3.2	1.5	138	63
17	157	1.2	0.49	4.2	1.8	0.52	0.22	7.8	3.3	2.0	0.85	70	30
18	142	0.90	0.35	4.8	1.8	0.34	0.13	6.6	2.5	1.2	0.48	51	20
19	128	0.55	0.19	5.3	1.8	0.24	0.08	7.0	2.4	1.0	0.35	33	11
20	120	0.40	0.13	5.4	1.8	0.18	0.06	7.0	2.3	0.8	0.24	36	12
21	110	0.44	0.13	5.5	1.6	0.16	0.05	4.8	1.4	0.5	0.14	22	6.5
22	105	0.38	0.11	5.5	1.6	0.14	0.04	3.6	1.0	0.4	0.11	25	7.1
23	103	0.30	0.08	5.5	1.5	0.13	0.04	2.6	0.72	0.3	0.08	24	6.7
24	100	0.18	0.05	5.4	1.5	0.12	0.03	2.7	0.73	0.3	0.07	25	6.8
25	98	0.09	0.02	5.4	1.4	0.11	0.03	3.0	0.79	0.3	0.07	27	7.1
26	103	0.13	0.04	5.4	1.5	0.10	0.03	3.1	0.86	0.6	0.17	30	8.3
27	122	0.23	0.08	5.3	1.7	0.10	0.03	3.3	1.1	0.6	0.18	34	11
28	112	0.40	0.12	5.1	1.5	0.12	0.04	3.7	1.1	0.5	0.14	30	9.1
29	100	0.56	0.15	4.9	1.3	0.13	0.04	4.1	1.1	0.4	0.10	23	6.2
30	96	0.50	0.13	5.0	1.3	0.12	0.03	3.5	0.91	0.2	0.05	21	5.4
31	94	0.42	0.11	5.1	1.3	0.11	0.03	2.7	0.68	0.1	0.02	18	4.6
TOTAL	3520	---	8.71	---	45.07	---	3.60	---	56.04	---	17.01	---	17.01
NOVEMBER 1977													
1	93	0.42	0.10	5.1	1.3	0.10	0.02	2.6	0.65	0.1	0.02	18	4.5
2	93	0.42	0.10	5.1	1.3	0.10	0.02	2.5	0.63	0.1	0.02	32	8.0
3	96	0.43	0.11	5.1	1.3	0.10	0.03	2.5	0.65	0.1	0.03	30	7.8
4	137	0.67	0.25	4.5	1.7	0.21	0.08	4.7	1.8	1.0	0.36	44	16
5	108	0.65	0.19	4.3	1.2	0.19	0.06	4.5	1.3	1.2	0.35	28	8.2
6	108	0.51	0.15	4.3	1.2	0.19	0.06	4.3	1.2	2.1	0.60	36	10
7	240	1.5	0.98	3.6	2.3	0.50	0.32	7.6	4.9	2.9	1.9	172	111
8	181	1.2	0.61	4.1	2.0	0.40	0.20	7.6	3.7	3.4	1.7	80	39
9	159	1.0	0.43	4.4	1.9	0.26	0.11	5.3	2.3	1.2	0.52	72	31
10	159	1.6	0.67	4.3	1.8	0.58	0.25	13	5.7	3.5	1.5	209	90
11	353	5.1	4.9	3.6	3.4	1.6	1.5	9.4	8.9	9.9	9.4	850	810
12	173	2.0	0.93	4.4	2.1	0.75	0.35	7.5	3.5	4.5	2.1	105	49
13	149	1.0	0.40	4.7	1.9	0.35	0.14	4.5	1.8	2.2	0.88	48	19
14	138	0.60	0.22	5.0	1.9	0.18	0.07	2.8	1.0	1.2	0.45	25	9.3
15	132	0.20	0.07	5.8	2.1	0.11	0.04	1.6	0.57	0.3	0.11	20	7.1
16	128	0.25	0.09	6.0	2.1	0.13	0.04	1.3	0.45	0.6	0.21	40	14
17	130	0.45	0.16	6.0	2.1	0.14	0.05	1.4	0.49	1.0	0.35	43	15
18	153	0.42	0.17	5.6	2.3	0.17	0.07	2.5	1.0	1.5	0.62	45	19
19	132	0.36	0.13	5.6	2.0	0.16	0.06	1.5	0.53	1.3	0.46	37	13
20	124	0.35	0.12	5.6	1.9	0.14	0.05	1.0	0.33	0.8	0.27	25	8.4
21	122	0.25	0.08	5.7	1.9	0.12	0.04	1.0	0.33	0.4	0.14	25	8.2
22	126	0.30	0.10	5.8	2.0	0.11	0.04	2.0	0.68	0.2	0.07	28	9.5
23	219	1.4	0.80	5.1	3.0	0.30	0.18	10	6.1	2.5	1.5	122	73
24	183	1.2	0.60	5.1	2.5	0.34	0.16	8.6	4.2	1.8	0.90	101	50
25	154	0.90	0.37	5.2	2.2	0.22	0.09	8.7	3.6	1.1	0.45	63	26
26	444	3.0	3.6	3.9	4.7	1.2	1.4	10	12	9.0	11	557	669
27	209	1.6	0.92	4.5	2.5	0.56	0.32	14	7.9	4.5	2.5	169	95
28	177	0.80	0.38	5.1	2.4	0.30	0.14	10	4.8	3.4	1.6	110	53
29	170	0.50	0.23	5.6	2.6	0.17	0.08	6.0	2.8	1.9	0.87	80	37
30	181	0.31	0.15	6.0	2.9	0.13	0.06	7.5	3.6	1.2	0.58	64	31
TOTAL	4971	---	18.01	---	64.5	---	6.03	---	87.41	---	41.46	---	2341.0

Table 15.--Daily mean water-weighted concentrations and discharges for Site 1,

Pequea Creek at Martic Forge -- (Continued)

		TOTAL KJELDAHL NITROGEN (N)		TOTAL NITRITE PLUS NITRATE (N)		TOTAL PHOSPHORUS (P)		DISSOLVED ORGANIC CARBON (C)		SUSPENDED ORGANIC CARBON (C)		SUSPENDED SEDIMENT	
DAY	MEAN DIS CHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
							DECEMBER 1977						
1	516	2.9	4.0	4.1	5.7	1.1	1.6	10	15	9.0	12	595	829
2	258	1.3	0.93	4.6	3.2	0.57	0.40	13	9.1	3.6	2.5	191	133
3	211	0.50	0.28	5.4	3.1	0.28	0.16	15	8.4	2.2	1.2	105	60
4	195	0.20	0.10	6.1	3.2	0.17	0.09	12	6.3	0.6	0.32	43	23
5	203	0.26	0.14	6.5	3.5	0.15	0.08	9.9	5.4	0.8	0.43	38	21
6	234	0.75	0.48	6.1	3.9	0.18	0.11	11	6.7	1.4	0.88	66	42
7	190	0.75	0.38	6.0	3.1	0.15	0.08	9.3	4.8	1.8	0.92	33	17
8	175	0.55	0.26	6.5	3.1	0.13	0.06	6.4	3.0	1.1	0.52	20	9.4
9	179	0.35	0.17	7.0	3.4	0.11	0.05	9.0	4.4	0.6	0.29	20	9.7
10	173	0.40	0.19	7.0	3.3	0.10	0.05	9.2	4.3	0.5	0.23	20	9.3
11	170	0.42	0.19	7.0	3.2	0.10	0.05	7.2	3.3	0.5	0.23	20	9.2
12	170	0.45	0.21	7.0	3.2	0.10	0.05	5.2	2.4	0.5	0.23	20	9.2
13	168	0.49	0.22	6.8	3.1	0.10	0.05	3.2	1.4	0.5	0.23	20	9.1
14	184	0.56	0.28	6.2	3.1	0.14	0.07	1.8	0.92	0.9	0.45	34	17
15	253	1.3	0.88	5.5	3.8	0.26	0.18	3.7	2.6	1.6	1.1	110	75
16	186	1.7	0.85	6.0	3.0	0.23	0.12	2.0	1.0	0.6	0.30	55	28
17	173	1.8	0.85	6.0	2.8	0.22	0.10	2.0	0.93	0.5	0.23	30	14
18	1560	14	58	2.8	12	4.6	19	7.5	32	25	107	5140	21700
19	1100	8.8	26	3.9	12	3.5	11	6.3	19	26	78	2350	7020
20	415	2.7	3.1	5.7	6.4	0.53	0.59	7.4	8.3	3.7	4.2	292	327
21	812	2.2	4.9	4.7	10	0.65	1.4	10	23	6.1	14	849	1860
22	495	1.7	2.3	5.2	7.0	0.52	0.70	3.7	5.0	3.0	4.0	280	375
23	353	1.2	1.1	5.7	5.4	0.41	0.39	2.6	2.5	2.4	2.3	105	100
24	317	0.90	0.77	6.3	5.4	0.34	0.29	2.5	2.1	2.0	1.7	45	38
25	285	0.65	0.50	6.6	5.1	0.28	0.22	2.4	1.8	1.6	1.2	35	27
26	259	0.48	0.34	6.9	4.3	0.22	0.15	2.3	1.6	1.2	0.84	30	21
27	242	0.33	0.21	7.4	4.3	0.16	0.10	2.3	1.5	0.8	0.52	23	18
28	240	0.30	0.19	7.4	4.8	0.14	0.09	2.2	1.4	0.7	0.45	26	17
29	235	0.29	0.18	7.4	4.7	0.13	0.08	2.1	1.3	0.6	0.38	24	15
30	235	0.29	0.18	7.4	4.7	0.13	0.08	2.0	1.3	0.6	0.35	22	14
31	235	0.29	0.18	7.4	4.7	0.13	0.08	1.9	1.2	0.5	0.32	20	13
TOTAL	10421	---	108.36	---	149.5	---	37.47	---	177.95	---	237.32	---	32859.9
YEAR	56202	---	349	---	733	---	114	---	1236	---	1031	---	105790

Table 16.--Water-quality analyses, Site 1 - Pequea Creek at Martic Forge

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)
FEB												
24...	1235	105	5.8	4.7	.04	.03	5.8	4.7	.10	.07	.38	.37
24...	1740	231	4.5	4.1	.09	.05	4.6	4.1	1.2	.72	6.6	1.3
24...	1955	340	4.7	3.9	.09	.07	4.8	4.0	1.1	.70	4.4	.80
24...	2115	345	4.8	4.8	.06	.05	4.9	4.8	.60	.45	3.5	.85
24...	2231	880	5.5	4.6	.03	.07	5.5	4.7	E2.0	1.4	4.8	1.1
24...	2359	1130	4.7	3.8	.04	.07	4.7	3.9	E2.0	1.3	E3.4	1.2
25...	0245	810	3.0	3.0	.15	.08	3.1	3.1	2.2	1.6	14	2.1
25...	1431	480	4.3	4.3	.14	.10	4.4	4.4	2.1	1.6	6.6	.60
MAR												
22...	1140	340	4.3	4.3	.06	.02	4.4	4.3	.14	.05	2.2	.55
22...	1525	1280	3.5	3.3	.11	.04	3.6	3.3	.22	.21	4.7	.49
22...	2000	1460	2.1	2.0	.13	.04	2.2	2.0	.52	.36	12	.84
22...	2215	1220	2.4	2.3	.09	.03	2.5	2.3	.48	.38	5.0	.82
22...	2400	1230	3.5	3.3	.10	.03	3.6	3.3	.34	.30	4.2	.70
23...	0145	1280	3.3	3.2	.10	.03	3.4	3.2	.32	.29	7.2	1.0
23...	0840	760	2.5	2.3	.12	.03	2.6	2.3	.53	.45	6.7	.75
23...	1400	480	2.6	2.6	.07	.02	2.7	2.6	.43	.36	3.6	1.1
24...	1200	305	4.4	4.3	.07	.01	4.5	4.3	.14	.13	.78	.57
31...	1600	200	5.4	5.4	.07	.03	5.5	5.4	.03	.00	.27	.10
MAY												
31...	1845	122	4.9	4.9	.10	.09	5.0	5.0	.09	.09	.56	E.04
JUN												
01...	2359	1060	6.3	5.8	.19	.12	6.5	5.9	1.1	.78	19	1.5
02...	0159	1390	5.0	4.3	.18	.11	5.2	4.4	E1.0	.69	21	1.0
02...	0445	760	4.9	4.9	.23	.13	5.1	5.0	1.3	.88	24	1.4
02...	0630	472	6.5	6.5	.21	.12	6.7	6.6	1.3	.87	E13	1.9
02...	0815	460	4.7	4.7	.20	.12	4.9	4.8	1.0	.67	18	1.4
02...	1320	370	4.5	4.2	.20	.10	4.7	4.3	.85	.46	8.2	1.2
03...	1000	151	4.7	4.6	.17	.12	4.9	4.7	.56	.42	2.3	1.2
14...	1000	113	5.5	5.5	.06	.05	5.6	5.5	.03	.01	.73	.12
AUG												
17...	0945	90	4.4	4.4	.06	.06	4.5	4.5	.03	.03	.83	.43
17...	1530	161	3.8	3.7	.08	.07	3.9	3.8	.18	.10	2.8	.85
17...	1745	170	3.9	3.9	.07	.05	4.0	3.9	.07	.03	1.5	.65
17...	2100	360	4.3	4.2	.07	.06	4.4	4.3	.05	.02	2.1	.62
17...	2345	249	3.8	3.7	.08	.07	3.9	3.8	.03	.00	2.2	.58
18...	0310	162	2.9	2.7	.11	.09	3.0	2.8	.44	.22	2.0	1.4
18...	0635	139	2.9	2.8	.12	.10	3.0	2.9	.33	.22	1.6	.88
SEP												
30...	1715	86	4.6	4.5	.06	.06	4.7	4.6	.04	.04	.61	.53
OCT												
26...	0610	98	5.5	5.4	.02	.02	5.5	5.4	.02	.02	.57	.38
NOV												
10...	1610	132	4.5	4.4	.04	.04	4.5	4.4	.04	.00	.61	.47
10...	2230	270	3.6	3.4	.04	.03	3.6	3.4	.12	.01	2.4	.61
11...	0001	291	3.9	3.8	.05	.04	3.9	3.8	.11	.00	1.8	.80
11...	0201	622	3.7	3.6	.07	.05	3.8	3.6	.39	.28	5.9	.92
11...	0405	671	3.7	3.5	.05	.05	3.7	3.5	.25	.18	7.0	.74
11...	0605	493	3.2	3.0	.07	.06	3.3	3.1	.49	.31	11	1.3
11...	1020	303	3.0	3.0	.07	.05	3.1	3.0	.43	.22	4.2	2.0
12...	1735	157	4.7	4.6	.05	.04	4.7	4.6	.23	.15	E1.2	.80
DEC												
18...	1650	3200	1.8	1.7	.10	.02	1.9	1.7	.66	.54	15	.95
18...	2005	2980	1.9	1.1	.09	.02	2.0	1.1	.66	.61	11	.59
21...	0600	496	5.9	5.4	.03	.02	5.9	5.4	.24	.22	1.2	.40
21...	0915	834	5.2	4.5	.04	.02	5.2	4.5	.27	.26	1.5	.35
21...	1301	1310	4.5	3.7	.05	.02	4.5	3.7	.35	.35	2.2	.41
21...	1430	1280	4.0	3.4	.05	.02	4.0	3.4	.40	.37	3.6	.31
21...	1801	894	3.8	3.4	.04	.02	3.8	3.4	.42	.35	1.3	.44
21...	2345	796	5.2	4.8	.04	.02	5.2	4.8	.35	.33	1.6	.49
22...	0905	488	5.2	4.6	.04	.02	5.2	4.6	.31	.27	1.4	.39

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)
FEB											
24...	.48	.44	6.3	.13	.07	.05	.04	5.5	.6	30	8.5
24...	7.8	2.0	12	1.9	.22	.31	.18	9.8	43	2240	1400
24...	5.5	1.5	10	1.5	.26	.27	.19	15	17	1760	1620
24...	4.1	1.3	9.0	.89	.21	.16	.16	9.7	10	987	919
24...	6.8	2.5	12	1.7	.26	.24	.21	15	E30	3560	8460
24...	E5.4	2.5	10	1.7	.37	.19	.16	14	E30	4600	14000
25...	16	3.7	19	2.5	.27	.28	.16	22	E40	5490	12000
25...	8.7	2.2	13	2.0	.53	.54	.44	18	24	1520	1970
MAR											
22...	2.3	.60	6.7	.83	.13	.15	.09	5.7	15	750	688
22...	4.9	.70	8.5	1.4	.12	.13	.09	4.8	E30	2950	10200
22...	13	1.2	15	1.6	.13	.22	.07	11	E40	6300	24800
22...	5.5	1.2	8.0	1.4	.19	.22	.15	11	E40	4460	14700
22...	4.5	1.0	8.1	1.4	.19	.22	.15	5.4	E30	2980	9900
23...	7.5	1.3	11	1.9	.20	.23	.16	4.6	E40	3640	12600
23...	7.2	1.2	9.8	1.8	.16	.24	.11	8.6	E30	2680	5500
23...	4.0	1.5	6.7	1.1	.14	.18	.11	5.6	18	1220	1580
24...	.90	.70	5.4	.27	.10	.06	.05	3.3	3.6	182	150
31...	.30	.10	5.8	.08	.03	.03	.02	1.5	1.0	28	15
MAY											
31...	.65	E.13	5.6	.14	.08	.09	.06	4.6	F1.5	46	15
JUN											
01...	20	2.3	27	6.4	.21	.44	.15	3.2	E120	12300	35200
02...	22	1.7	27	7.2	.17	.32	.12	3.8	E80	10400	39000
02...	25	2.3	30	5.2	.18	.62	.12	2.2	E90	9910	20300
02...	E14	2.8	21	6.0	.17	.49	.09	4.0	E80	7120	9070
02...	19	2.1	24	4.3	.18	.50	.11	2.4	E55	4810	5970
02...	9.0	1.7	14	1.6	.21	.44	.15	5.2	E40	2370	2370
03...	2.9	1.6	7.8	.95	.21	.27	.17	5.8	E12	439	179
14...	.76	.13	6.4	.22	.11	.09	.08	5.0	.8	91	28
AUG											
17...	.86	.46	5.4	.28	.16	.17	.15	11	E2.0	67	16
17...	3.0	.95	6.9	1.4	.30	.34	.28	13	E9.0	416	181
17...	1.6	.68	5.6	.59	.15	.18	.15	15	E6.0	273	125
17...	2.1	.64	6.5	1.2	.19	.19	.16	9.9	E8.0	591	574
17...	2.2	.58	6.1	1.4	.18	.20	.16	12	E10	586	394
18...	2.4	1.6	5.4	1.4	.23	.30	.20	11	E8.0	325	142
18...	1.9	1.1	4.9	1.3	.21	.27	.20	9.7	E7.0	227	85
SEP											
30...	.65	.57	5.4	.24	.14	.15	.11	4.0	.4	47	11
OCT											
26...	.59	.40	6.1	.11	.06	.06	.05	3.0	.7	28	7.4
NOV											
10...	.65	.47	5.2	.19	.10	.10	.08	14	1.2	47	17
10...	2.5	.62	6.1	.70	.17	.19	.14	11	11	410	299
11...	1.9	.80	5.8	.62	.16	.18	.13	7.0	4.5	374	294
11...	6.3	1.2	10	1.8	.26	.31	.21	E7.4	13	1130	1900
11...	7.2	.92	11	2.2	.26	.31	.23	8.2	14	1540	2790
11...	11	1.6	14	2.1	.30	.35	.25	9.8	12	1060	1410
11...	4.6	2.2	7.7	1.4	.37	.43	.30	23	10	525	430
12...	E1.4	.95	6.1	.45	.24	.28	.22	5.2	2.2	57	24
DEC											
18...	16	1.5	18	4.4	.13	.29	.05	18	35	6920	59800
18...	12	1.2	14	4.2	.18	.32	.13	--	--	4810	38700
21...	1.4	.62	7.3	.32	.10	.11	.09	3.6	2.3	288	386
21...	1.8	.61	7.0	.52	.14	.19	.13	3.6	5.7	853	1920
21...	2.6	.76	7.1	.97	.17	.23	.17	14	10	1270	4490
21...	4.0	.68	8.0	.93	.20	.25	.19	29	10	1870	6460
21...	1.7	.79	5.5	.59	.22	.27	.21	11	5.3	731	1760
21...	1.9	.82	7.1	.61	.19	.22	.19	5.7	2.0	504	1080
22...	1.7	.65	6.9	.51	.15	.17	.14	3.4	3.8	274	361

DATE	TIME	AME-TRYNE TOTAL (UG/L)	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYANA-ZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PROPA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)
JUN										
01...	2359	--	--	--	--	--	--	--	--	--
02...	0230	--	--	--	--	--	--	--	--	--
AUG										
17...	2140	--	--	.20	--	--	.0	.0	--	--
NOV										
11...	0201	.00	.00	.00	.00	.00	.0	.0	.00	.00
DEC										
18...	1655	.00	.00	.10	.00	.00	.0	.0	.00	.00
21...	1430	--	--	--	--	--	--	--	--	--

DATE	SIMA-ZINE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JUN										
01...	--	--	.0	.00	.00	.0	.00	.00	.00	.02
02...	--	--	.0	.00	.00	.0	.00	.00	.00	.03
AUG										
17...	.2	.0	.0	.00	.00	.0	.00	.00	.00	.00
NOV										
11...	.0	.0	.0	.00	.00	.0	.00	.00	.00	.00
DEC										
18...	.0	.0	--	--	--	--	--	--	--	--
21...	--	--	.0	.00	.00	.0	.00	.01	.00	.00

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
JUN									
01...	.00	.00	.00	.00	.00	.01	.03	.00	.00
02...	.01	.00	.00	.00	.00	.00	.01	.00	.00
AUG									
17...	.01	.00	.00	.00	.00	.00	.00	.00	.00
NOV									
11...	.00	.00	.00	.00	.00	.00	.00	.00	.00
DEC									
18...	--	--	--	--	--	--	--	--	--
21...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL TRI-THION, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
JUN									
01...	.00	.00	.00	.05	0	.00	.81	.00	.00
02...	.00	.00	.00	.02	0	.00	1.2	.00	.02
AUG									
17...	.00	.00	.00	.00	0	.00	.04	.00	.00
NOV									
11...	.00	.00	.00	.00	0	.00	.00	.00	.00
DEC									
18...	--	--	--	--	--	--	--	--	--
21...	.00	.00	.00	.00	0	.00	.00	.00	.00

Table 16.--Water-quality analyses, Site 2 - Pequea Creek tributary near Martic Forge

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)
FEB												
24...	1245	.73	3.9	3.9	.01	.01	3.9	3.9	.04	.04	.21	.14
24...	1715	10	3.3	3.3	.01	.01	3.3	3.3	.14	.09	3.9	1.5
24...	1800	7.0	3.1	3.1	.03	.01	3.1	3.1	.21	.14	3.7	.67
24...	1815	5.7	3.2	2.6	.06	.02	3.3	2.6	.41	.19	3.6	1.0
24...	2105	3.3	3.2	3.2	.02	.01	3.2	3.2	.26	.22	.94	.88
25...	0330	1.7	3.4	3.3	.01	.01	3.4	3.3	.07	.07	.54	.49
25...	1205	1.6	3.6	3.5	.01	.01	3.6	3.5	.01	.01	.34	.33
MAR												
22...	1038	14	3.3	3.3	.01	.01	3.3	3.3	.01	.00	1.3	.30
22...	1130	14	2.6	2.6	.02	.00	2.6	2.6	.02	.02	1.4	.38
22...	1200	14	2.2	2.2	.01	.00	2.2	2.2	.02	.01	2.2	.29
22...	1300	20	1.9	1.9	.01	.01	1.9	1.9	.02	.02	3.3	.38
22...	1330	24	1.7	1.7	.01	.00	1.7	1.7	.02	.01	2.5	.39
22...	1415	20	1.7	1.7	.02	.00	1.7	1.7	.04	.03	2.1	.57
22...	1750	14	2.4	2.4	.01	.00	2.4	2.4	.01	.01	.59	.39
23...	0900	11	4.2	4.2	.01	.00	4.2	4.2	.01	.00	.34	.20
31...	1500	3.2	4.6	4.6	.01	.00	4.6	4.6	.01	.00	.09	.00
JUN												
01...	1645	.80	3.7	3.7	.01	.00	3.7	3.7	.01	.01	.19	.19
01...	2030	7.1	2.1	1.9	.02	.01	2.1	1.9	.11	.08	3.1	.67
01...	2105	15	2.2	2.1	.01	.01	2.2	2.1	.24	.13	11	.52
01...	2130	9.7	2.2	2.0	.02	.01	2.2	2.0	--	.16	9.9	.53
01...	2200	11	2.0	2.0	.07	.02	2.1	2.0	--	.31	--	1.4
01...	2230	6.0	2.0	1.9	.10	.02	2.1	1.9	.65	.44	8.7	1.1
01...	2315	4.0	2.1	2.1	.07	.02	2.2	2.1	.44	.31	4.0	.69
02...	0500	2.4	3.0	3.0	.01	.01	3.0	3.0	.06	.02	.81	.36
14...	1145	.66	4.2	4.2	.00	.00	4.2	4.2	.01	.01	.14	.14
AUG												
17...	1000	.55	3.8	3.8	.01	.01	3.8	3.8	.00	.00	.18	.18
17...	1335	2.0	2.8	2.7	.00	.00	2.8	2.7	.08	.01	.52	.21
17...	1405	2.6	3.0	2.9	.00	.00	3.0	2.9	.01	.00	.77	.36
17...	1445	5.4	3.0	3.0	.00	.00	3.0	3.0	.01	.00	1.9	.29
17...	1615	2.2	2.7	2.5	.01	.01	2.7	2.5	.02	.02	.80	.55
17...	2125	.74	2.6	2.6	.00	.00	2.6	2.6	.01	.00	.45	.21
18...	0620	.62	3.2	3.2	.00	.00	3.2	3.2	.01	.00	.25	.23
SEP												
30...	1630	.50	4.1	3.9	.00	.00	4.1	3.9	.00	.00	.13	.10
OCT												
26...	0600	.78	5.7	5.5	.00	.00	5.7	5.5	.01	.00	.20	.20
NOV												
10...	1600	1.7	6.8	6.7	.01	.01	6.8	6.7	.00	.00	.49	.00
10...	1945	4.3	5.4	5.1	.01	.01	5.4	5.1	.00	.00	.70	.18
10...	2015	9.0	4.9	4.6	.01	.01	4.9	4.6	.00	.00	3.5	.31
10...	2045	9.0	4.4	4.1	.01	.01	4.4	4.1	.00	.00	1.8	.38
10...	2130	6.7	3.6	3.4	.01	.01	3.6	3.4	.00	.00	1.2	.41
10...	2300	4.6	3.4	3.3	.01	.01	3.4	3.3	.00	.00	.61	.35
11...	0930	2.7	5.3	4.9	.01	.01	5.3	4.9	.00	.00	.64	.15
DEC												
20...	2325	11	5.9	5.4	.00	.00	5.9	5.4	.00	.00	.28	.22
21...	0645	16	5.1	4.6	.00	.00	5.1	4.6	.01	.00	.56	.06
21...	0800	24	4.5	4.0	.00	.00	4.5	4.0	.02	.00	.68	.31
21...	0930	18	4.6	4.2	.00	.00	4.6	4.2	.01	.00	.69	.17
21...	1130	20	4.9	4.5	.00	.00	4.9	4.5	.01	.01	.50	.24
21...	1740	15	5.9	5.5	.00	.00	5.9	5.5	.00	.00	.31	.30

Table 16.--Water-quality analyses, Site 2 -

Pequea Creek tributary near Martic Forge -- (Continued)

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)
FEB											
24...	.25	.18	4.2	.08	.05	.02	.02	3.7	.9	3	.01
24...	4.0	1.6	7.3	.41	.03	.00	.00	6.0	E9.0	727	20
24...	3.9	.81	7.0	.58	.03	.02	.01	8.8	16	634	12
24...	4.0	1.2	7.3	.63	.06	.05	.02	12	13	564	8.7
24...	1.2	1.1	4.4	.09	.04	.02	.02	8.2	2.4	43	.34
25...	.61	.56	4.0	.02	.02	.02	.02	3.7	.8	7	.07
25...	.35	.34	4.0	.03	.03	.01	.01	3.2	.6	2	.01
MAR											
22...	1.3	.30	4.6	.12	.03	.01	.01	--	6.8	212	9.0
22...	1.4	.40	4.0	.18	.03	.01	.01	3.4	11	294	12
22...	2.2	.30	4.4	.31	.03	.01	.01	3.9	19	524	20
22...	3.3	.40	5.2	.37	.03	.01	.01	3.8	20	690	38
22...	2.5	.40	4.2	.33	.03	.01	.01	4.0	17	657	43
22...	2.1	.60	3.8	.33	.03	.03	.01	4.6	13	483	27
22...	.60	.40	3.0	.09	.03	.02	.01	2.3	2.4	63	2.4
23...	.35	.20	4.6	.05	.02	.01	.01	3.8	1.0	28	.83
31...	.10	.00	4.7	.04	.03	.02	.01	4.4	.7	10	.09
JUN											
01...	.20	.20	3.9	.03	.01	.02	.00	4.2	.7	9	.02
01...	3.2	.75	5.3	.35	.03	.04	.01	4.8	E17	674	13
01...	11	.65	13	1.3	.03	.07	.00	4.7	E40	2940	119
01...	10	.69	12	1.4	.02	.08	.01	3.7	E44	2780	73
01...	15	1.7	17	2.7	.07	.19	.01	3.7	E120	4480	133
01...	9.3	1.5	11	1.4	.05	.26	.01	2.4	E85	2400	39
01...	4.4	1.0	6.6	1.1	.05	.19	.01	3.6	E46	1240	13
02...	.87	.38	3.9	.11	.01	.03	.00	4.1	E6.0	82	.53
14...	.15	.15	4.4	.01	.01	.01	.00	3.2	.5	37	.07
AUG											
17...	.18	.18	4.0	.02	.02	.01	.01	6.1	.5	4	.01
17...	.60	.22	3.4	.09	.03	.03	.00	12	E4.0	70	.38
17...	.78	.36	3.8	.14	.01	.00	.00	11	E6.0	137	.96
17...	1.9	.29	4.9	.41	.01	.01	.01	8.1	E14	399	5.8
17...	.82	.57	3.5	.15	.06	.02	.02	12	E3.0	97	.58
17...	.46	.21	3.1	.03	.01	.01	.01	8.5	E1.4	10	.03
18...	.26	.23	3.5	.03	.01	.01	.01	10	.2	5	.01
SEP											
30...	.13	.10	4.2	.02	.01	.01	.00	7.6	.1	4	.01
OCT											
26...	.21	.20	5.9	.01	.01	.00	.00	12	.3	3	.01
NOV											
10...	.49	.00	7.3	.07	.02	.00	.00	4.0	--	10	.05
10...	.70	.18	6.1	.05	.02	.00	.00	13	2.1	71	.82
10...	3.5	.31	8.4	.30	.02	.00	.00	6.6	--	395	9.6
10...	1.8	.38	6.2	.20	.02	.00	.00	13	2.1	194	4.7
10...	1.2	.41	4.8	.13	.01	.01	.01	7.4	2.4	102	1.8
10...	.61	.35	4.0	.04	.02	.00	.00	14	1.8	33	.41
11...	.64	.15	5.9	.02	.02	.00	.00	3.8	.8	4	.07
DEC											
20...	.29	.22	6.2	.02	.00	.01	.00	8.0	.6	18	.53
21...	.57	.06	5.7	.06	.01	.00	.00	3.6	2.1	102	4.4
21...	.70	.31	5.2	.10	.02	.01	.01	5.9	--	123	8.0
21...	.70	.17	5.3	.07	.01	.01	.01	4.6	2.2	108	5.2
21...	.51	.25	5.4	.05	.02	.01	.01	16	1.3	52	2.8
21...	.31	.30	6.2	.03	.01	.00	.00	3.5	.7	47	1.9

DATE	TIME	AME-TRYNE TOTAL (UG/L)	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYANA-ZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PROPA-ZINE TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)
JUN										
01...	2130	--	--	--	--	--	--	--	--	--
01...	2200	--	--	--	--	--	--	--	--	--
AUG										
17...	1445	--	--	.10	--	--	.0	.0	--	.1
NOV										
10...	2045	.0	.0	.00	.0	.0	.0	.0	0	.0
DEC										
21...	0800	.0	.0	.10	.0	.0	.0	.0	0	.0

DATE	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JUN										
01...	--	--	.0	.00	.00	.0	.00	.00	.00	.01
01...	--	--	.0	.00	.00	.0	.00	.00	.00	.03
AUG										
17...	--	.0	.0	.00	.00	.0	.00	.00	.01	.00
NOV										
10...	.0	.0	.0	.00	.00	.0	.00	.00	.00	.00
DEC										
21...	.0	.0	.0	.00	.00	.0	.00	.00	.00	.00

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
JUN									
01...	.00	.00	.00	.00	.00	.00	.00	.00	.00
01...	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG									
17...	.01	.00	.00	.00	.00	.00	.00	.00	.00
NOV									
10...	.00	.00	.00	.00	.00	.00	.00	.00	.00
DEC									
21...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL TRI-THION, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
JUN									
01...	.00	.00	.00	--	0	.00	--	--	--
01...	.00	.00	.00	.00	0	.00	.00	.0	.00
AUG									
17...	.00	.00	.00	.00	0	.00	.00	.0	.01
NOV									
10...	.00	.00	.00	.00	0	.00	.00	.0	.00
DEC									
21...	.00	.00	.00	.00	0	.00	.00	.0	.00

Table 16.--Water-quality analyses, Site 3 - Big Beaver Creek at Refton

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRATE DISSOLVED (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N)
FEB												
24...	1315	15	3.5	3.5	.06	.06	3.6	3.6	.35	.31	.57	.38
24...	1725	32	3.3	3.3	.06	.05	3.4	3.3	.41	.33	2.2	.54
24...	1830	120	2.7	2.7	.13	.07	2.8	2.8	2.0	1.3	8.0	1.4
24...	1915	520	2.8	2.8	.15	.08	2.9	2.9	2.1	1.7	16	1.8
24...	2300	245	1.8	1.8	.14	.06	1.9	1.9	2.3	1.3	7.7	1.6
25...	0600	45	2.6	2.6	.09	.08	2.7	2.7	1.6	1.3	3.3	1.9
25...	0920	40	2.8	2.4	.09	.07	2.9	2.5	1.3	.93	2.5	1.3
MAR												
22...	1115	45	3.1	3.1	.08	.05	3.2	3.1	.26	.23	.74	.67
22...	1145	260	2.4	2.2	.08	.04	2.5	2.2	.37	.32	3.3	.58
22...	1245	640	1.7	1.6	.08	.02	1.8	1.6	.44	.43	6.1	.77
22...	1345	980	1.1	.93	.06	.02	1.2	.95	.52	.44	8.5	.85
22...	1415	1050	1.1	.91	.07	.02	1.2	.93	.36	.31	8.6	.79
22...	1500	920	1.1	.88	.08	.02	1.2	.90	.32	.28	8.7	.82
22...	2045	140	1.7	1.7	.05	.02	1.7	1.7	.34	.26	2.0	.84
23...	1100	55	3.1	3.1	.05	.02	3.1	3.1	.19	.15	.85	.85
31...	1415	24	3.3	3.3	.06	.05	3.4	3.3	.09	.05	.31	.15
MAY												
31...	1800	14	3.4	3.4	.14	.13	3.5	3.5	.14	.13	.34	.34
JUN												
01...	2130	52	3.9	3.7	.16	.10	4.1	3.8	.23	.23	29	.54
01...	2200	315	4.1	4.1	.20	.10	4.3	4.2	1.2	.71	22	1.9
01...	2230	465	4.0	4.0	.20	.10	4.2	4.1	1.4	.97	25	1.3
01...	2330	415	4.0	4.0	.22	.13	4.2	4.1	1.5	.90	30	2.3
01...	2400	375	3.6	3.5	.22	.13	3.8	3.6	1.1	.89	E25	1.2
02...	0215	38	2.8	2.4	.18	.09	3.0	2.5	.99	.84	17	.95
02...	0440	46	2.7	2.5	.15	.10	2.8	2.6	1.1	.76	6.2	1.3
02...	1300	2[illegible]	2.9	2.8	.14	.12	3.0	2.9	1.3	1.2	2.3	1.4
14...	1400	13	3.5	3.5	.11	.10	3.6	3.6	.07	.07	.50	.21
AUG												
17...	0900	12	2.7	2.6	.03	.03	2.7	2.6	.04	.03	.27	.25
17...	1450	36	2.7	2.6	.05	.04	2.7	2.6	.06	.03	1.2	.77
17...	1550	110	2.2	1.8	.10	.07	2.3	1.9	.36	.27	4.7	.83
17...	1620	350	2.3	1.8	.10	.09	2.4	1.9	.34	.30	11	.90
17...	1650	330	[illegible]	[illegible]	.09	.07	2.0	1.7	.30	.27	7.6	.93
17...	1750	162	1.5	1.2	.10	.07	1.6	1.3	.31	.28	5.9	1.0
17...	2015	45	1.3	1.2	.10	.07	1.4	1.3	.59	.39	3.5	1.3
18...	0545	19	1.8	1.7	.08	.06	1.9	1.8	.21	.10	1.6	.90
SEP												
30...	1530	11	3.0	3.0	.06	.06	3.1	3.1	.04	.04	.41	.17
OCT												
26...	0520	16	3.3	3.3	.02	.02	3.3	3.3	.01	.01	.48	.17
NOV												
10...	1545	13	3.2	3.2	.05	.05	3.2	3.2	.04	.02	.41	.20
10...	2040	45	2.6	2.6	.04	.03	2.6	2.6	.05	.01	.85	.85
10...	2130	131	2.4	2.3	.05	.03	2.4	2.3	.20	.09	3.5	.81
10...	2220	505	2.2	1.9	.08	.08	2.2	2.0	.70	.60	12	1.3
10...	2305	440	1.8	1.4	.08	.07	1.9	1.5	.48	.48	12	2.2
10...	2338	320	1.4	1.1	.08	.04	1.5	1.1	.45	.45	11	1.1
11...	0035	215	1.3	1.2	.08	.04	1.4	1.2	.44	.38	6.4	1.2
11...	0230	98	1.3	1.2	.07	.03	1.4	1.2	.40	.28	4.2	1.8
11...	0530	50	1.5	1.5	.06	.03	1.6	1.5	.40	.15	2.8	1.4
11...	1050	32	2.0	1.9	.05	.03	2.0	1.9	.25	.13	1.4	.97
DEC												
20...	2400	51	3.6	3.4	.04	.02	3.6	3.4	.37	.35	.40	.27
21...	0805	305	2.2	2.1	.04	.02	2.2	2.1	.51	.45	1.4	.54
21...	0925	460	1.9	1.6	.05	.02	1.9	1.6	.39	.39	3.1	.40
21...	1300	270	1.5	1.4	.04	.01	1.5	1.4	.35	.32	1.4	.41
21...	1725	92	2.1	2.0	.03	.02	2.1	2.0	.28	.24	.82	.40

Table 16.--Water-quality analyses, Site 3 - Big Beaver Creek at Refton -- (Continued)

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)
FEB											
24...	.92	.69	4.5	.23	.14	.16	.14	4.2	E1.0	20	.81
24...	2.6	.87	6.0	.59	.14	.16	.14	11	6.4	372	32
24...	10	2.7	13	2.4	.54	.57	.44	20	45	2130	690
24...	18	3.5	21	5.4	.38	.39	.27	19	E52	7220	10100
24...	10	2.9	12	1.8	.33	.35	.19	27	28	3020	2000
25...	4.9	3.2	7.6	.79	.31	.28	.20	18	7.4	388	47
25...	3.8	2.2	6.7	.56	.17	.21	.14	16	6.8	154	17
MAR											
22...	1.0	.90	4.2	.38	.09	.12	.09	4.5	3.7	275	33
22...	3.7	.90	6.2	1.1	.13	.16	.12	5.5	20	2260	1590
22...	6.5	1.2	8.3	1.5	.16	.16	.12	7.3	E52	8080	14000
22...	9.0	1.3	10	1.8	.16	.19	.10	6.8	E38	4360	11500
22...	9.0	1.1	10	1.7	.12	.16	.06	7.7	E49	6660	18900
22...	9.0	1.1	10	1.8	.09	.15	.08	7.1	40	5430	13500
22...	2.3	1.1	4.0	.60	.14	.16	.09	9.8	9.0	541	204
23...	1.0	1.0	4.1	.18	.07	.07	.04	6.2	3.3	46	6.8
31...	.40	.20	3.8	.10	.03	.08	.03	3.5	.9	10	.65
MAY											
31...	.48	.47	4.0	.15	.12	.13	.11	5.7	.8	12	.45
JUN											
01...	29	.77	33	1.8	.13	.22	.11	4.8	E22	1870	263
01...	23	2.6	27	5.2	.13	.45	.04	6.0	E97	9650	8210
01...	26	2.3	30	5.6	.13	.47	.06	5.8	E120	12200	15300
01...	31	3.2	35	5.5	.19	.50	.06	4.9	E80	8000	8990
01...	E26	2.1	E30	E4.5	.12	.43	.07	5.9	E78	7860	7960
02...	18	1.8	21	2.0	.13	.41	.08	5.4	E70	5120	1220
02...	7.3	2.1	10	1.6	.16	.39	.09	4.3	E40	1880	233
02...	3.5	2.6	6.6	.94	.35	.41	.32	5.0	E9.0	416	26
14...	.57	.28	4.2	.19	.15	.14	.13	3.2	.4	53	1.9
AUG											
17...	.31	.28	3.0	.20	.13	.13	.12	8.0	E1.0	22	.71
17...	1.3	.80	4.0	.59	.15	.16	.13	9.0	E5.0	242	24
17...	5.1	1.1	7.4	1.9	.27	.37	.24	12	E18	1270	377
17...	11	1.2	13	7.3	.45	.55	.41	23	E37	2990	2830
17...	7.4	1.2	9.9	5.6	.20	.27	.19	16	E31	2850	2540
17...	5.2	1.3	7.8	4.6	.19	.25	.15	16	E21	1660	726
17...	4.1	1.7	5.5	1.8	.54	.62	.50	9.6	E15	707	86
18...	1.8	1.0	3.7	.99	.28	.33	.25	15	E5.0	160	9.2
SEP											
30...	.45	.21	3.6	.20	.15	.16	.13	3.0	.2	5	.15
OCT											
26...	.49	.18	3.8	.17	.13	.14	.12	2.6	.6	11	.48
NOV											
10...	.45	.22	3.7	.14	.12	.12	.11	10	.6	9	.44
10...	.90	.86	3.5	.24	.14	.14	.12	6.4	2.0	101	12
10...	3.7	.90	6.1	1.5	.28	.33	.25	6.6	14	874	309
10...	13	1.9	15	4.7	.51	.53	.43	22	24	3740	5100
10...	12	2.7	14	3.8	.24	.28	.15	24	27	2660	3160
10...	11	1.5	13	3.3	.26	.36	.20	25	--	1900	1640
11...	6.8	1.6	8.2	2.6	.32	.43	.27	12	17	1350	784
11...	4.5	2.1	6.0	1.9	.41	.48	.32	11	13	580	153
11...	3.2	1.5	4.8	1.3	.40	.49	.34	9.4	6.8	277	37
11...	1.6	1.1	3.6	.58	.25	.33	.23	23	6.2	119	10
DEC											
20...	.77	.62	4.4	.16	.08	.10	.08	14	1.0	48	6.6
21...	1.9	.99	4.1	.54	.23	.29	.23	20	5.2	1020	840
21...	3.5	.79	5.4	.95	.21	.25	.20	15	9.9	1290	1600
21...	1.7	.73	3.2	.58	.25	.29	.24	9.2	4.6	451	329
21...	1.1	.64	3.2	.35	.19	.23	.18	7.0	--	125	31

DATE	TIME	AME-TRYNE TOTAL (UG/L)	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYANA-ZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PROPA-ZINE TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)
JUN 01...	2230	--	--	--	--	--	--	--	--	--
AUG 17...	1650	--	--	.60	--	--	.0	.0	--	.0
NOV 10...	2338	.0	.0	.00	.0	.0	.0	.0	0	.0

DATE	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JUN 01...	--	--	.0	.00	.00	.0	.00	.00	.00	.02
AUG 17...	--	.0	.0	.00	.00	.2	.00	.00	.00	.00
NOV 10...	.0	.0	.0	.00	.00	.0	.01	.03	.00	.00

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
JUN 01...	.01	.00	.00	.00	.00	.00	.03	.00	.00
AUG 17...	.00	.00	.00	.00	.00	.00	.00	.00	.00
NOV 10...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL TRI-THION, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
JUN 01...	.00	.00	.00	.00	0	.00	1.2	.0	.00
AUG 17...	.00	.00	.00	.00	0	.00	.03	.0	.00
NOV 10...	.00	.00	.00	.00	0	.00	.00	.0	.00

Table 16.--Water-quality analyses, Site 4 - Big Beaver Creek tributary at New Providence

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)
FEB												
24...	1350	.50	5.4	5.4	.01	.01	5.4	5.4	.06	.05	.26	.20
24...	1700	9.4	3.5	3.5	.11	.06	3.6	3.6	.75	.52	12	.88
24...	1800	20	2.8	2.4	.17	.06	3.0	2.5	1.5	.99	14	1.3
24...	1815	16	3.3	3.3	.17	.07	3.5	3.4	1.6	1.2	10	1.9
24...	2030	10	4.2	4.2	.15	.07	4.3	4.3	1.2	1.0	5.3	1.3
24...	2230	5.2	4.8	4.0	.12	.07	4.9	4.1	1.2	.93	3.2	1.7
25...	1125	1.5	5.3	5.3	.03	.03	5.3	5.3	.21	.19	.57	.33
MAR												
22...	0935	2.7	3.4	3.4	.06	.03	3.5	3.4	.14	.06	1.8	.44
22...	1100	10	1.8	1.7	.09	.02	1.9	1.7	.22	.13	4.9	.47
22...	1200	17	1.6	1.5	.11	.02	1.7	1.5	.27	.18	5.7	.52
22...	1300	24	1.3	1.3	.10	.02	1.4	1.3	.31	.18	9.2	.52
22...	1400	17	1.5	1.5	.10	.02	1.6	1.5	.31	.14	4.7	.56
22...	1725	3.8	3.7	3.7	.05	.02	3.7	3.7	.15	.06	1.2	.54
23...	0925	1.4	5.6	5.6	.02	.01	5.6	5.6	.03	.01	.35	.29
31...	1330	.50	5.5	5.4	.02	.01	5.5	5.4	.02	.01	.49	.49
JUN												
01...	0755	.40	4.6	4.4	.03	.03	4.6	4.4	.20	.13	.41	.06
01...	2045	3.3	4.0	3.8	.09	.03	4.1	3.8	.17	.12	2.5	.48
01...	2115	32	6.8	6.8	.16	.08	7.0	6.9	1.5	.84	32	3.1
01...	2145	55	5.6	5.6	.27	.07	5.9	5.7	1.3	.55	16	2.0
01...	2200	36	4.9	4.9	.32	.06	5.2	5.0	1.3	.71	12	2.0
01...	2230	12	5.6	5.4	.22	.06	5.8	5.5	1.1	.70	13	1.5
01...	2300	6.0	5.9	5.6	.21	.06	6.1	5.7	.98	.49	9.0	1.4
02...	0245	1.2	4.9	4.7	.09	.06	5.0	4.8	.35	.34	1.6	.46
02...	0700	.80	5.2	5.2	.08	.05	5.3	5.2	.18	.14	1.0	.24
14...	1515	.39	5.1	--	.02	--	5.1	--	.01	--	.34	--
AUG												
17...	0900	.35	4.4	4.4	.01	.01	4.4	4.4	.03	.03	.23	.23
17...	1345	6.6	3.4	3.3	.02	.02	3.4	3.3	.05	.02	3.8	.49
17...	1410	12	1.3	1.3	.08	.04	1.4	1.3	.41	.17	12	1.1
17...	1425	9.9	1.3	1.3	.10	.04	1.4	1.3	.47	.12	8.1	1.2
17...	1550	2.4	1.9	1.9	.06	.03	2.0	1.9	.26	.09	2.4	1.1
18...	0050	.42	3.8	3.8	.02	.02	3.8	3.8	.08	.02	.39	.35
SEP												
30...	1500	.17	4.4	4.3	.01	.01	4.4	4.3	.01	.01	.28	.13
OCT												
26...	0530	.31	5.0	4.7	.01	.01	5.0	4.7	.02	.01	.24	.15
NOV												
10...	1530	.47	5.0	5.0	.01	.01	5.0	5.0	.02	.02	.03	.00
10...	1735	1.7	4.4	4.1	.04	.03	4.4	4.1	.09	.00	1.5	.42
10...	2000	3.3	3.3	3.2	.04	.03	3.3	3.2	.12	.01	3.9	1.2
10...	2015	12	1.6	1.7	.05	.03	1.7	1.7	.32	.13	19	1.1
10...	2033	14	1.4	1.4	.10	.05	1.5	1.4	.74	.42	14	2.1
10...	2107	8.6	1.6	1.6	.09	.05	1.7	1.6	.60	.23	9.0	1.5
10...	2215	2.6	2.2	2.2	.08	.04	2.3	2.2	.54	.33	3.8	1.8
11...	0105	1.3	3.6	3.6	.04	.03	3.6	3.6	.23	.15	1.5	.65
11...	0900	.73	5.0	5.0	.02	.02	5.0	5.0	.04	.01	.67	.67
DEC												
20...	2345	1.2	5.7	5.4	.01	.01	5.7	5.4	.07	.04	.51	.51
21...	0600	3.1	4.6	4.4	.03	.01	4.6	4.4	.14	.14	.82	.44
21...	0700	10	2.2	2.2	.06	.02	2.3	2.2	.31	.29	2.7	.44
21...	0755	7.4	2.2	2.1	.05	.02	2.2	2.1	.35	.26	1.8	1.8
21...	0945	7.4	2.3	2.2	.04	.02	2.3	2.2	.33	.24	1.3	.46
21...	1315	2.5	4.4	4.1	.02	.01	4.4	4.1	.18	.12	.65	.44

Table 16.--Water-quality analyses, Site 4 - Big Beaver Creek tributary at New Providence -- (Continued)

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)
FEB											
24...	.32	.25	5.7	.08	.04	.02	.01	2.7	.4	9	.01
24...	13	1.4	17	1.7	.08	.10	.02	9.7	61	7090	180
24...	15	2.3	18	1.7	.08	.20	.04	17	E63	7445	402
24...	12	3.1	16	1.5	.09	.20	.05	20	E39	4630	206
24...	6.5	2.3	11	.98	.15	.15	.08	19	21	2275	61
24...	4.4	2.6	9.3	.69	.17	.19	.13	15	6.8	480	6.7
25...	.78	.52	6.1	.07	.03	.05	.03	4.1	.8	20	.08
MAR											
22...	1.9	.50	5.4	.53	.05	.09	.05	5.1	7.8	275	2.0
22...	5.1	.60	7.0	1.3	.09	.15	.09	6.1	E21	2270	64
22...	6.0	.70	7.7	1.3	.06	.14	.06	--	40	4790	220
22...	9.5	.70	11	1.6	.07	.15	.07	9.7	E61	7280	472
22...	5.0	.70	6.6	1.2	.10	.20	.10	7.6	29	3040	140
22...	1.3	.60	5.0	.43	.05	.09	.05	5.5	4.9	291	3.0
23...	.38	.30	6.0	.08	.01	.07	.01	1.5	.5	10	.04
31...	.51	.50	6.0	.04	.01	.01	.01	1.3	.6	6	.01
JUN											
01...	.61	.19	5.2	.05	.01	.00	.00	5.1	.4	14	.02
01...	2.7	.60	6.8	.23	.01	.04	.00	4.7	E5.0	279	2.5
01...	33	3.9	40	1.8	.11	.27	.01	3.5	E70	8510	735
01...	17	2.5	23	5.4	.09	.87	.00	5.6	E95	14300	2120
01...	13	2.7	18	1.8	.06	.71	.01	4.5	E100	13300	1290
01...	14	2.2	20	4.4	.07	.40	.02	4.2	E73	7150	232
01...	10	1.9	16	1.4	.08	.58	.00	7.0	E45	3520	57
02...	1.9	.80	6.9	.45	.09	.14	.08	3.9	E7.0	254	.82
02...	1.2	.38	6.5	.20	.03	.05	.01	4.8	E4.0	93	.20
14...	.35	--	5.5	.04	--	.00	--	--	--	--	--
AUG											
17...	.26	.26	4.7	.03	.02	.02	.02	8.4	.6	7	.01
17...	3.8	.51	7.2	1.2	.06	.04	.03	22	E13	1370	24
17...	12	1.3	13	5.5	.28	.33	.21	29	E45	3870	125
17...	3.6	1.3	10	4.7	.18	.32	.14	16	E35	2350	63
17...	2.7	1.2	4.7	.98	.10	.14	.08	18	E13	530	3.4
18...	.47	.38	4.3	.08	.02	.02	.01	7.4	E2.0	35	.04
SEP											
30...	.29	.14	4.7	.03	.01	.01	.01	17	.2	10	.00
OCT											
26...	.26	.16	5.3	.02	.01	.00	.00	2.4	.5	33	.03
NOV											
10...	.05	.02	5.1	.02	.01	.01	.01	9.0	.5	6	.01
10...	1.6	.42	6.0	.47	.08	.07	.03	16	6.6	201	.92
10...	4.0	1.2	7.3	1.1	.11	.10	.05	16	12	949	8.5
10...	19	1.2	21	4.0	.13	.16	.08	34	35	5830	189
10...	15	2.5	17	3.9	.47	.62	.34	17	34	3830	145
10...	9.6	1.7	11	2.6	.61	.68	.49	19	13	1380	32
10...	4.3	2.1	6.6	1.5	.57	.66	.46	27	10	395	2.8
11...	1.7	.80	5.3	.43	.18	.22	.15	17	3.8	87	.31
11...	.71	.68	5.7	.08	.05	.03	.03	2.8	.4	11	.02
DEC											
20...	.58	.55	6.3	.05	.03	.03	.01	2.6	2.5	13	.04
21...	.96	.58	5.6	.25	.08	.08	.06	5.3	3.2	207	1.7
21...	3.0	.73	5.3	.76	.19	.24	.18	6.1	--	1580	45
21...	2.1	2.1	4.3	.74	.21	.28	.20	7.4	4.7	495	9.9
21...	1.6	.70	3.9	.56	.23	.29	.23	15	3.2	480	9.6
21...	.83	.56	5.2	.22	.10	.11	.09	31	1.5	66	.45

Table 16.--Water-quality analyses, Site 4 - Big Beaver Creek tributary at New Providence -- (Continued)

DATE	TIME	AME-TRYNE TOTAL (UG/L)	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYANA-ZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PROPA-ZINE TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)
JUN										
01...	2145	--	--	--	--	--	--	--	--	--
01...	2200	--	--	--	--	--	--	--	--	--
AUG										
17...	1410	--	--	4.9	--	--	.0	.0	--	.0
NOV										
10...	2033	.00	.00	.10	.00	.00	.0	.0	.00	.0
DEC										
21...	0945	.00	.00	.40	.00	.00	.0	.0	.00	.1

DATE	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JUN										
01...	--	--	.0	.00	.00	.0	.00	.00	.01	.00
01...	--	--	.0	.00	.00	.0	.00	.00	.00	.00
AUG										
17...	--	.0	.0	.00	.00	.0	.00	.00	.01	.00
NOV										
10...	.00	.0	.0	.00	.00	.0	.00	.00	.00	.00
DEC										
21...	.00	.0	.0	.00	.00	.0	.00	.00	.00	.00

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
JUN									
01...	.03	.00	.00	.00	.00	.01	.01	.00	.00
01...	.01	.00	.00	.00	.00	.00	.00	.00	.00
AUG									
17...	.02	.00	.00	.00	.00	.00	.00	.00	.00
NOV									
10...	.08	.00	.00	.00	.00	.00	.00	.00	.00
DEC									
21...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL TRI-THION, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
JUN									
01...	.00	.00	.00	.01	0	.00	.49	.0	.00
01...	.00	.00	.00	.00	0	.00	.00	.0	.00
AUG									
17...	.00	.00	.00	.00	0	.00	.00	.0	.00
NOV									
10...	.00	.00	.00	.00	0	.00	.00	.0	.00
DEC									
21...	.00	.00	.00	.00	0	.00	.00	.0	.00

Table 16.--Water-quality analyses, Site 5 - Pequea Creek at Strasburg

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)
FEB												
24...	1220	55	6.1	6.0	.05	.04	6.1	6.0	.15	.15	.31	.08
24...	1900	150	5.6	5.6	.06	.05	5.7	5.6	.35	.28	1.4	.65
24...	2115	310	4.3	4.3	.16	.09	4.5	4.4	2.0	1.5	7.7	1.4
25...	0115	710	4.2	4.2	.18	.12	4.4	4.3	2.5	2.0	9.5	2.3
25...	0150	730	3.7	3.7	.21	.12	3.9	3.8	2.9	2.3	10	2.3
25...	1045	280	3.5	3.5	.18	.13	3.7	3.6	3.6	2.8	8.4	3.0
MAR												
22...	1035	72	5.7	5.6	.04	.03	5.7	5.6	.05	.03	.38	.27
22...	1420	320	3.6	3.4	.10	.04	3.7	3.4	.27	.26	8.7	.64
22...	1735	705	2.9	2.7	.11	.04	3.0	2.7	.87	.63	8.1	1.2
22...	1850	830	2.9	2.5	.11	.04	3.0	2.5	.64	.52	8.9	.68
22...	2100	970	2.2	1.9	.14	.04	2.3	1.9	.64	.54	24	1.1
22...	2315	860	1.9	1.7	.14	.04	2.0	1.7	.57	.46	10	.84
23...	0705	240	3.3	3.3	.10	.02	3.4	3.3	.42	.27	3.7	E.90
23...	1205	205	4.2	4.2	.07	.02	4.3	4.2	.30	.14	1.6	.96
31...	1100	94	5.9	5.9	.04	.02	5.9	5.9	.04	.01	.36	.19
JUN												
01...	1115	60	5.6	5.5	.10	.09	5.7	5.6	.15	.15	.71	.08
01...	2145	205	5.4	4.9	.10	.08	5.5	5.0	.65	.46	6.3	.74
01...	2250	325	5.8	5.3	.16	.09	6.0	5.4	1.6	1.0	E9.8	1.8
02...	0020	370	4.9	4.6	.15	.10	5.0	4.7	.79	.39	6.5	1.4
02...	0100	450	5.2	4.6	.14	.10	5.3	4.7	.58	.34	6.5	1.3
02...	0330	602	6.1	5.5	.20	.13	6.3	5.6	1.3	.98	8.4	1.5
02...	0525	587	5.2	4.6	.16	.10	5.4	4.7	.94	.45	E9.1	2.0
02...	0635	517	5.3	5.3	.17	.11	5.5	5.4	.94	.58	8.4	1.4
02...	0900	412	5.0	4.5	.15	.12	5.1	4.6	.83	.59	6.0	1.4
02...	1230	305	4.4	4.0	.14	.11	4.5	4.1	.89	.63	E4.7	1.1
03...	1030	80	4.9	4.7	.16	.13	5.1	4.8	.43	.33	2.2	.77
14...	1215	58	5.9	5.7	.10	.09	6.0	5.8	.09	.07	.83	.07
AUG												
17...	0945	44	5.6	5.6	.11	.10	5.7	5.7	.09	.04	E.90	.84
17...	1800	61	5.6	5.4	.13	.11	5.7	5.5	.15	.07	1.2	.76
17...	2215	78	5.4	5.3	.14	.11	5.5	5.4	.10	.08	1.3	.50
18...	0300	96	5.4	5.3	.14	.12	5.5	5.4	.16	.12	1.3	.41
18...	0750	103	5.1	5.1	.15	.12	5.2	5.2	.12	.08	1.1	.48
18...	1015	105	5.2	5.2	.14	.12	5.3	5.3	.13	.08	1.2	.60
18...	1500	73	5.1	5.0	.14	.12	5.2	5.1	.14	.06	.96	.58
SEP												
30...	1330	42	5.4	5.4	.07	.06	5.5	5.5	.07	.04	.56	.39
OCT												
26...	0415	50	6.1	5.9	.03	.03	6.1	5.9	.01	.01	.61	.30
NOV												
10...	1515	64	5.6	5.5	.05	.05	5.6	5.5	.07	.07	.66	.18
10...	2100	112	4.8	4.7	.06	.06	4.9	4.8	.28	.12	2.5	.75
10...	2205	150	4.9	4.7	.07	.06	5.0	4.8	.46	.34	6.4	.55
11...	0135	137	4.4	4.2	.07	.06	4.5	4.3	.55	.28	3.9	1.2
11...	0410	156	4.6	4.5	.07	.06	4.7	4.6	.46	.26	3.6	.94
11...	0615	166	4.8	4.7	.07	.07	4.9	4.8	.49	.26	3.0	.94
11...	0815	165	4.3	4.2	.07	.07	4.4	4.3	.57	.42	3.2	.88
11...	1225	122	4.5	4.5	.06	.06	4.6	4.6	.45	.17	2.3	1.3
12...	1500	72	5.1	5.2	.05	.04	5.2	5.2	.25	.18	1.6	1.0
DEC												
20...	2345	175	6.9	6.9	.03	.02	6.9	6.9	.16	.16	.71	E.30
21...	1050	335	6.4	5.7	.05	.02	6.4	5.7	.44	.38	1.7	.39
21...	1440	450	5.9	5.1	.05	.02	5.9	5.1	.50	.47	1.8	.15
21...	1840	495	5.1	4.7	.05	.02	5.1	4.7	.43	.40	1.8	.43
22...	0030	255	4.5	4.3	.04	.02	4.5	4.3	.40	.34	1.8	.42
22...	0820	198	6.3	5.6	.03	.02	6.3	5.6	.25	.20	.95	.58

Table 16.--Water-quality analyses, Site 5 - Pequea Creek at Strasburg -- (Continued)

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO. TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)
FEB											
24...	.46	.23	6.6	.17	.04	.08	.03	3.1	1.9	27	4.0
24...	1.7	.93	7.4	.47	.10	.13	.09	5.6	7.2	245	99
24...	9.7	2.9	14	2.3	.59	.63	.51	22	38	3140	2630
25...	12	4.3	16	2.4	.62	.65	.51	21	43	2640	5060
25...	13	4.6	17	4.3	.69	.77	.60	22	53	2900	5720
25...	12	5.8	16	2.9	.79	.86	.65	24	32	1440	1090
MAR											
22...	.43	.30	6.1	.12	.11	.09	.05	.8	1.6	64	12
22...	9.0	.90	13	2.4	.22	.25	.20	14	E58	4350	3760
22...	9.0	1.8	12	2.6	.40	.43	.36	7.7	E51	3920	7460
22...	9.5	1.2	13	2.8	.34	.36	.31	7.3	E52	4040	9050
22...	25	1.6	27	2.8	.24	.38	.19	7.9	E50	3880	10200
22...	11	1.3	13	2.1	.21	.31	.17	7.3	34	2620	6080
23...	4.1	E1.2	7.5	.97	.21	.23	.17	4.0	16	631	409
23...	1.9	1.1	6.2	.61	.16	.22	.11	4.2	6.7	287	159
31...	.40	.20	6.3	.12	.03	.02	.02	.7	1.3	60	15
JUN											
01...	.86	.23	6.6	.15	.12	.12	.12	5.6	E2.0	75	12
01...	6.9	1.2	12	3.0	.25	.33	.21	5.5	E26	2500	1380
01...	E11	2.8	E17	3.0	.17	.29	E.15	5.2	E90	9260	8130
02...	7.3	1.8	12	3.9	.47	.56	.38	4.6	E36	3450	3450
02...	7.1	1.6	12	3.4	.35	.44	.29	4.7	E38	2830	3440
02...	9.7	2.5	16	4.2	.32	.37	.26	4.8	E33	3570	5800
02...	E10	2.4	E15	3.4	.27	.38	.16	5.0	E36	2410	3820
02...	9.3	2.0	15	4.0	.28	.41	.21	3.9	E46	2580	3600
02...	6.8	2.0	12	1.7	.24	.37	.19	4.1	E26	1470	1640
02...	E5.6	1.7	E10	1.3	.24	.36	.19	7.1	E21	916	754
03...	2.6	1.1	7.7	.38	.14	.17	.12	4.7	E9.0	701	151
14...	.92	.14	6.9	.21	.10	.07	.07	5.1	.9	119	19
AUG											
17...	E.99	.88	E6.7	.31	.13	.13	.10	E12	E3.0	129	15
17...	1.3	.83	7.0	.53	.18	.22	.18	12	E4.0	183	30
17...	1.4	.58	6.9	.54	.16	.16	.14	8.9	E5.0	252	53
18...	1.5	.53	7.0	.68	.16	.17	.15	10	E5.0	237	61
18...	1.2	.56	6.4	.48	.17	.19	.16	9.5	E4.5	203	56
18...	1.3	.68	6.6	.52	.16	.18	.14	E10	E3.5	159	45
18...	1.1	.64	6.3	.37	.15	.18	.14	8.7	E3.0	101	20
SEP											
30...	.63	.43	6.1	.25	.12	.12	.10	5.4	.5	60	6.8
OCT											
26...	.62	.31	6.7	.16	.05	.05	.04	3.0	.7	51	6.9
NOV											
10...	.73	.25	6.3	.17	.10	.09	.08	9.2	1.4	44	7.6
10...	2.8	.88	7.7	1.3	.28	.30	.23	5.0	4.3	447	135
10...	6.9	.89	12	1.9	.44	.56	.41	16	10	665	269
11...	4.4	1.5	8.9	1.7	.58	.67	.50	8.2	15	566	209
11...	4.1	1.2	8.8	1.6	.57	.67	.52	10	5.1	284	120
11...	3.5	1.2	8.4	1.3	.46	.52	.39	9.2	8.4	380	170
11...	3.8	1.3	8.2	1.4	.69	.58	.48	27	8.4	365	163
11...	2.7	1.5	7.3	.88	.39	.42	.32	11	6.1	202	67
12...	1.8	1.2	7.0	.40	.19	.20	.16	5.8	2.1	82	16
DEC											
20...	.87	E.46	7.8	.21	.07	.09	.07	6.6	.9	103	49
21...	2.1	.77	8.5	.65	.22	.29	.22	11	--	331	299
21...	2.3	.62	8.2	.86	.25	.30	.25	4.0	4.6	463	563
21...	2.2	.83	7.3	.80	.22	.26	.22	6.0	5.1	462	617
22...	2.2	.76	6.7	.70	.23	.30	.23	13	3.6	272	187
22...	1.2	.78	7.5	.36	.15	.19	.15	8.1	2.0	123	66

DATE	TIME	AME-TRYNE TOTAL (UG/L)	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYANA-ZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PROPA-ZINE TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)
JUN 02...	0330	--	--	--	--	--	--	--	--	--
AUG 17...	1800	--	--	.40	--	--	.0	.0	--	.2
NOV 11...	0815	.00	.00	.00	.00	.00	.0	.0	.00	.0
DEC 21...	1440	.00	.00	.00	.00	.00	.0	.0	.00	.0

DATE	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JUN 02...	--	--	.0	.00	.00	.0	.00	.00	.01	.00
AUG 17...	--	.0	.0	.00	.00	.0	.00	.00	.02	.00
NOV 11...	.00	.0	.0	.00	.00	.0	.00	.00	.00	.00
DEC 21...	.00	.0	.0	.00	.00	.0	.00	.00	.00	.00

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
JUN 02...	.03	.00	.00	.00	.00	.01	.01	.00	.00
AUG 17...	.01	.00	.00	.00	.00	.00	.00	.00	.00
NOV 11...	.06	.00	.00	.00	.00	.00	.00	.00	.00
DEC 21...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL TRI-THION, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
JUN 02...	.00	.00	.00	.05	0	.00	.70	.0	.00
AUG 17...	.00	.00	.00	.00	0	.00	.00	.0	.00
NOV 11...	.00	.00	.00	.00	0	.00	.00	.0	.00
DEC 21...	.00	.00	.00	.00	0	.00	.00	.0	.00

Table 16.--Water-quality analyses, Site 6 - Pequea Creek

tributary near Strasburg

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)
FEB												
24...	1250	1.2	8.4	8.4	.04	.04	8.4	8.4	.11	.09	.21	.13
24...	1650	1.7	7.3	7.3	.08	.04	7.4	7.3	.51	.42	4.2	.58
24...	1750	34	3.9	3.9	.25	.13	4.1	4.0	3.6	3.4	31	2.5
24...	1810	33	3.0	3.0	.26	.13	3.3	3.1	3.0	2.5	33	1.9
24...	1830	28	3.8	3.7	.27	.12	4.1	3.8	3.2	2.6	24	2.5
24...	1940	34	3.5	3.5	.28	.13	3.8	3.6	3.7	2.3	11	3.5
24...	2040	14	4.1	4.1	.26	.18	4.4	4.3	3.8	3.5	12	5.2
25...	0100	3.0	6.0	6.0	.21	.21	6.2	6.2	3.4	2.9	6.6	3.9
25...	1105	1.8	7.7	7.7	.10	.10	7.8	7.8	.93	.80	1.5	.80
MAR												
22...	0950	5.5	7.0	7.0	.07	.03	7.1	7.0	.35	.14	2.0	.55
22...	1115	27	2.3	2.3	.18	.06	2.5	2.4	1.5	.90	12	2.3
22...	1215	55	1.6	1.6	.20	.04	1.8	1.6	.72	.37	11	.73
22...	1315	71	1.3	1.3	.31	.04	1.6	1.3	.59	.25	9.0	1.3
22...	1440	44	1.8	1.7	.24	.03	2.0	1.7	.43	.22	12	.68
22...	1620	21	3.1	3.1	.17	.04	3.3	3.1	.49	.24	4.6	.95
22...	2305	5.5	8.0	8.0	.06	.03	8.1	8.0	.37	.24	1.0	.75
23...	1010	3.5	9.1	9.0	.08	.07	9.2	9.1	.08	.01	.72	.39
31...	1230	2.0	8.5	8.5	.03	.03	8.5	8.5	.06	.04	.46	.45
JUN												
01...	2050	17	4.2	4.0	.14	.08	4.3	4.1	.76	.62	14	2.3
01...	2145	66	3.4	3.4	.33	.09	3.7	3.5	1.7	.82	16	2.5
01...	2150	62	3.6	3.6	.34	.12	3.9	3.7	2.7	1.1	17	3.2
01...	2210	49	3.0	3.0	.43	.12	3.4	3.1	2.5	.66	9.5	2.7
01...	2230	33	2.8	2.8	.33	.10	3.1	2.9	1.5	.54	13	2.9
01...	2320	7.4	2.6	2.6	.32	.14	2.9	2.7	1.5	.62	7.8	2.7
02...	0730	1.5	6.6	6.3	.13	.12	6.7	6.4	.59	.35	2.6	.23
14...	1350	1.0	8.6	8.4	.05	.05	8.6	8.4	.04	.04	.05	.00
AUG												
17...	0925	.80	8.2	8.2	.07	.06	8.3	8.3	.06	.05	.18	.15
17...	1415	3.0	5.2	5.1	.06	.05	5.3	5.1	.27	.01	2.5	1.1
17...	1500	11	6.5	6.2	.10	.06	6.6	6.3	.17	.06	1.8	.45
17...	1545	6.4	3.9	3.9	.22	.22	4.1	4.1	.83	.44	3.0	1.6
17...	1830	[illegible]	3.3	3.2	.23	.23	3.5	3.4	1.1	.36	3.0	1.3
18...	0240	.95	6.5	6.4	.15	.11	6.7	6.5	.17	.11	1.2	.53
SEP												
30...	1245	.76	8.2	8.2	.05	.04	8.1	8.2	.05	.04	.07	.07
OCT												
26...	0500	.95	8.0	7.5	.03	.03	8.0	7.5	.02	.02	.18	.18
NOV												
10...	1445	1.6	7.9	7.9	.06	.06	8.0	8.0	.04	.01	.38	.38
10...	1950	9.0	4.5	4.3	.09	.05	4.6	4.3	.25	.10	5.5	.79
10...	2015	14	3.9	3.7	.11	.08	4.0	3.8	.39	.22	4.4	.66
10...	2050	37	3.5	3.4	.10	.09	3.6	3.5	1.6	.91	8.4	1.5
10...	2115	40	1.7	1.7	.13	.07	1.8	1.8	1.9	1.2	15	2.8
10...	2201	22	1.7	1.5	.09	.05	1.8	1.5	1.1	.79	11	1.3
10...	2300	11	2.0	1.9	.10	.05	2.1	1.9	.96	.59	7.5	1.6
11...	0400	3.2	4.8	4.7	.08	.05	4.9	4.7	.46	.31	2.0	1.1
DEC												
20...	2230	4.5	9.1	8.5	.04	.03	9.1	8.5	.56	.46	.14	.14
21...	0630	16	6.0	5.5	.05	.03	6.0	5.5	.84	.74	1.6	.56
21...	0720	36	3.6	3.3	.07	.03	3.7	3.3	.90	.81	3.6	.59
21...	0805	30	2.4	2.4	.08	.02	2.5	2.4	.67	.55	1.9	.55
21...	1105	17	3.6	3.2	.05	.02	3.6	3.2	.47	.39	1.3	.46
21...	1610	6.1	7.7	7.0	.03	.02	7.7	7.0	.25	.20	.59	.41

Table 16.--Water-quaity analyses, Site 6 - Pequea Creek

tributary near Strasburg -- (Continued)

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)
FEB											
24...	.32	.22	8.7	.07	.03	.05	.03	2.3	1.5	103	.33
24...	4.7	1.0	12	1.6	.22	.34	.22	10	47	2310	11
24...	35	5.9	39	7.5	.45	.43	.26	22	E170	18600	1730
24...	36	4.4	39	9.1	.32	.39	.23	28	E125	12800	1140
24...	27	5.1	31	8.0	.33	.55	.24	31	E100	9940	751
24...	15	5.8	19	1.9	.71	.80	.50	38	E96	9230	847
24...	16	8.7	20	2.1	1.2	1.0	.95	36	48	5060	191
25...	10	6.8	16	1.9	1.2	1.1	1.0	35	10	482	3.9
25...	2.4	1.6	10	.38	.23	.24	.21	8.4	2.0	71	.35
MAR											
22...	2.3	.70	9.4	.67	.12	.09	.06	4.1	16	880	13
22...	13	3.2	16	2.6	.44	.48	.22	12	E46	3660	267
22...	12	1.1	14	3.0	.24	.43	.18	5.4	E70	8540	1270
22...	9.6	1.5	11	3.0	.26	.54	.16	5.6	E130	13100	2510
22...	12	.90	14	2.5	.36	.49	.29	13	E60	5090	605
22...	5.1	1.2	8.4	1.6	.44	.54	.38	6.5	24	1660	94
22...	1.4	1.0	9.5	.35	.16	.16	.13	3.1	5.8	120	1.8
23...	.80	.40	10	.12	.07	.04	.04	.5	1.0	57	.54
31...	.52	.50	9.0	.06	.01	.01	.01	.8	.9	63	.34
JUN											
01...	15	2.9	19	3.9	.51	.45	.36	6.1	E40	4120	189
01...	18	3.3	22	8.7	.27	.81	.09	5.0	E78	10600	1890
01...	20	4.3	24	7.7	.64	.90	.39	6.1	E110	11400	1910
01...	12	3.4	15	6.6	.59	E.90	.39	E5.0	E105	9980	1320
01...	14	3.4	17	E5.7	.70	.93	.44	4.8	E80	8220	732
01...	9.3	3.3	12	4.2	.71	.94	.52	4.8	E55	4720	94
02...	3.2	.58	9.9	.91	.40	.41	.34	4.3	E9.0	375	1.5
14...	.09	.04	8.7	.06	.05	.03	.03	4.7	.7	37	.10
AUG											
17...	.24	.20	8.5	.10	.07	.07	.06	10	E1.0	34	.07
17...	2.8	1.1	8.1	1.5	.35	.38	.30	18	E15	602	4.9
17...	2.0	.52	8.6	1.0	.21	.22	.19	12	E13	547	15
17...	3.8	2.0	7.9	1.6	.65	.69	.59	15	E9.0	398	6.7
17...	[illegible]	2.5	7.6	1.5	.79	.89	.72	16	E11	355	1.7
18...	1.4	.64	8.1	.51	.23	.26	.23	13	E4.0	116	.30
SEP											
30...	.12	.11	8.3	.10	.08	.07	.06	5.0	.3	15	.03
OCT											
26...	.20	.20	8.2	.09	.04	.04	.03	1.6	.6	96	.25
NOV											
10...	.42	.39	8.4	.12	.09	.10	.09	6.0	1.2	140	.60
10...	5.7	.89	10	2.0	.32	.39	.28	27	18	970	24
10...	4.8	.88	8.8	2.6	.30	.39	.25	37	26	1320	50
10...	10	2.4	14	3.6	.96	1.1	.86	12	26	1980	198
10...	17	4.0	19	5.9	1.3	1.6	1.1	24	21	2210	239
10...	12	2.1	14	4.3	.96	1.4	.94	14	21	1400	83
10...	8.5	2.2	11	3.1	.98	1.3	.92	15	13	831	25
11...	2.5	1.4	7.4	.97	.62	.64	.50	24	5.4	166	1.4
DEC											
20...	.70	.60	9.8	.15	.12	.14	.12	3.4	--	E40	--
21...	2.4	1.3	8.4	.61	.26	.30	.24	7.4	2.8	272	12
21...	4.5	1.4	8.2	1.7	.38	.52	.38	13	9.8	1080	105
21...	2.6	1.1	5.1	1.2	.39	.60	.39	9.6	15	924	75
21...	1.8	.85	5.4	.77	.40	.49	.40	4.1	3.0	226	10
21...	.84	.61	8.5	.33	.23	.28	.23	5.9	.9	44	.72

Table 16.--Water-quaity analyses, Site 6 - Pequea Creek tributary near Strasburg -- (Continued)

DATE	TIME	AMETRYNE TOTAL (UG/L)	ATRATONE TOTAL (UG/L)	ATRAZINE, TOTAL (UG/L)	CYANAZINE TOTAL (UG/L)	CYPRAZINE TOTAL (UG/L)	PROMETONE TOTAL (UG/L)	PROMETRYNE TOTAL (UG/L)	PROPAZINE TOTAL (UG/L)	SIMAZINE TOTAL (UG/L)
JUN 01...	2150	--	--	--	--	--	--	--	--	--
AUG 17...	1500	--	--	.40	--	--	.0	.0	--	.5
NOV 10...	2115	.00	.00	.00	.00	.00	.0	.0	.00	.0
DEC 21...	1105	.00	.00	.00	.00	.00	.0	.0	.00	.0

DATE	SIMETONE TOTAL (UG/L)	SIMETRYNE TOTAL (UG/L)	PCB, TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)
JUN 01...	--	--	.0	.00	.00	.0	.01	.00	.07	.08
AUG 17...	--	.0	.0	.00	.00	.0	.00	.00	.08	.00
NOV 10...	.00	.0	.0	.00	.00	.0	.00	.00	.02	.00
DEC 21...	.00	.0	.0	.00	.00	.0	.00	.01	.00	.00

DATE	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
JUN 01...	.08	.00	.00	.00	.01	.02	.00	.00	.02	.00
AUG 17...	.03	.00	.00	.00	.00	.00	.00	.00	--	.00
NOV 10...	.02	.00	.00	.00	.00	.00	.00	.00	--	.00
DEC 21...	.00	.00	.00	.00	.00	.00	.00	.00	--	.00

DATE	METHYL TRITHION, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	PERTHANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
JUN 01...	.00	.00	.00	.00	0	.00	.22	.0	.00
AUG 17...	.00	.00	.00	.00	0	.00	.00	.0	.00
NOV 10...	.00	.00	.00	.00	0	.00	.00	.0	.00
DEC 21...	.00	.00	.00	.00	0	.00	.00	.0	.00

Table 16.--Water-quality analyses, Site 7 -

Pequea Creek at New Milltown

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRATE DISSOLVED (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N)
FEB												
24...	1250	35	4.6	4.6	.06	.06	4.7	4.7	.13	.11	.41	.23
24...	1900	80	4.3	4.3	.07	.05	4.4	4.3	.68	.54	2.8	.66
24...	2045	145	4.3	4.3	.09	.07	4.4	4.4	1.3	1.1	3.9	1.1
24...	2215	470	3.9	3.9	.15	.10	4.0	4.0	2.8	2.2	11	2.0
24...	2345	595	3.3	3.3	.19	.14	3.5	3.4	3.7	3.0	16	3.4
25...	0940	70	3.6	3.6	.11	.09	3.7	3.7	2.1	1.7	3.8	1.9
MAR												
22...	1305	160	3.9	3.9	.09	.03	4.0	3.9	.41	.29	3.8	.61
22...	1515	800	2.0	2.0	.10	.04	2.1	2.0	.75	.48	7.3	1.0
22...	1545	980	1.6	1.6	.07	.03	1.7	1.6	.74	.49	10	1.4
22...	1648	1120	1.5	1.4	.08	.02	1.6	1.4	.58	.42	8.9	.98
22...	1820	1030	1.4	1.4	.08	.02	1.5	1.4	.49	.36	5.0	1.0
22...	2125	400	1.9	1.9	.07	.01	2.0	1.9	.43	.30	3.5	.90
23...	0005	220	2.5	2.5	.06	.01	2.6	2.5	.35	.26	1.8	.94
23...	1140	110	4.2	4.2	.04	.01	4.2	4.2	.14	.11	.59	.59
31...	0930	61	4.7	4.6	.06	.02	4.8	4.6	.05	.02	2.3	.18
JUN												
01...	1045	35	5.1	4.8	.08	.07	5.2	4.9	.15	.13	.60	.33
01...	2120	82	4.6	4.2	.08	.06	4.7	4.3	.14	.10	1.9	.52
01...	2220	93	4.3	4.3	.09	.07	4.4	4.4	.39	.18	3.6	1.4
01...	2315	202	4.7	4.1	.12	.09	4.8	4.2	.42	.27	5.8	.83
02...	0030	310	4.2	3.7	.15	.10	4.3	3.8	.82	.56	9.0	1.5
02...	0125	225	4.0	3.6	.14	.09	4.1	3.7	.90	.63	7.9	1.2
02...	0225	206	3.6	3.3	.16	.10	3.8	3.4	1.1	.67	7.5	1.8
02...	0500	108	3.5	3.2	.13	.09	3.6	3.3	1.1	.69	6.1	1.4
02...	0705	72	3.3	2.8	.11	.08	3.4	2.9	.93	.66	3.3	1.1
02...	1200	50	3.3	3.3	.13	.10	3.4	3.4	.72	.52	3.2	1.1
14...	0930	34	5.0	4.8	.09	.08	5.1	4.9	.15	.13	.68	.36
AUG												
17...	0910	28	4.9	4.8	.10	.10	5.0	4.9	.13	.07	.76	.21
17...	1700	38	4.7	4.5	.12	.11	4.8	4.6	.19	.12	1.0	.49
17...	2300	59	4.4	4.4	.11	.11	4.5	4.5	.19	.13	1.1	.45
18...	1325	49	4.3	4.3	.13	.12	4.4	4.4	.27	[illegible]	1.3	.43
18...	0700	40	3.4	3.4	.14	.12	3.5	3.5	.26	.15	1.3	.83
18...	1425	31	3.8	3.8	.11	.10	3.9	3.9	.22	.11	.98	.81
SEP												
30...	1130	30	5.1	5.1	.05	.04	5.1	5.1	.07	.06	.49	.26
OCT												
26...	0345	33	5.4	5.0	.03	.02	5.4	5.0	.02	.01	.38	.12
NOV												
10...	1415	41	4.9	4.8	.09	.05	5.0	4.8	.08	.08	.52	.33
10...	2230	56	4.6	4.4	.05	.04	4.6	4.4	.28	.21	1.8	.38
11...	0020	103	4.7	4.6	.04	.04	4.7	4.6	.13	.07	1.2	.62
11...	0315	130	4.0	3.8	.05	.04	4.0	3.8	.48	.23	2.3	1.1
11...	0515	105	3.5	3.5	.06	.05	3.6	3.5	.58	.33	2.7	.87
11...	0725	80	3.0	3.0	.06	.05	3.1	3.0	.74	.41	3.3	.99
11...	1155	59	3.1	3.1	.06	.04	3.2	3.1	.45	.25	2.1	.95
12...	1430	44	4.8	4.8	.02	.02	4.8	4.8	.10	.04	1.2	1.2
DEC												
20...	2315	106	6.1	5.5	.02	.01	6.1	5.5	.10	.08	.34	.25
21...	1020	280	5.3	4.7	.03	.02	5.3	4.7	.29	.25	.91	.21
21...	1200	410	4.5	4.1	.04	.02	4.5	4.1	.43	.39	2.2	.71
21...	1400	415	3.4	3.0	.05	.02	3.4	3.0	.44	.38	2.1	.72
21...	1630	298	3.2	2.8	.04	.02	3.2	2.8	.42	.32	1.8	.41
22...	0140	133	4.6	4.2	.02	.01	4.6	4.2	.20	.14	.80	.38

Table 16.--Water-quality analyses, Site 7 -

Pequea Creek at New Milltown -- (Continued)

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)
FEB											
24...	.54	.34	5.2	.09	.05	.08	.05	3.1	1.2	28	2.6
24...	3.5	1.2	7.9	.81	.15	.18	.14	8.7	8.5	454	98
24...	5.2	2.2	9.6	1.6	.33	.35	.29	15	12	970	380
24...	14	4.2	18	2.6	.57	.57	.44	15	66	3580	4540
24...	20	6.4	23	5.6	.77	.75	.60	32	E60	5180	8320
25...	5.9	3.6	9.6	1.3	.47	.50	.40	18	10	461	87
MAR											
22...	4.2	.90	8.2	1.1	.22	.22	.17	3.4	16	786	340
22...	8.0	1.5	10	2.1	.31	.38	.24	7.2	E52	4080	8810
22...	11	1.9	13	2.0	.30	.38	.24	7.7	46	4650	12300
22...	9.5	1.4	11	1.9	.24	.30	.19	7.3	43	3870	11700
22...	5.5	1.4	7.0	1.6	.20	.27	.16	7.6	37	2630	7310
22...	3.9	1.2	5.9	1.1	.22	.24	.18	16	20	1140	1230
23...	2.1	1.2	4.7	.79	.16	.22	.16	9.7	9.7	615	365
23...	.73	.70	4.9	.20	.09	.09	.07	11	2.1	107	32
31...	2.3	.20	7.1	.07	.03	.04	.01	1.0	1.3	41	6.8
JUN											
01...	.75	.46	6.0	.12	.05	.04	.04	4.5	E1.5	59	5.6
01...	2.0	.62	6.7	.58	.08	.08	.04	4.2	E10	738	163
01...	4.0	1.6	8.4	1.5	.35	.37	.25	4.9	E14	1030	259
01...	6.2	1.1	11	1.6	.22	.25	.17	6.1	E120	9960	5430
02...	9.8	2.1	14	4.5	.23	.27	.13	3.6	E45	3560	2980
02...	8.8	1.8	13	3.9	.26	.38	.19	2.8	E36	2380	1450
02...	8.6	2.5	12	4.7	.25	.45	.16	5.2	E46	2700	1500
02...	7.2	2.1	11	1.4	.31	.47	.23	4.7	E33	1320	385
02...	4.2	1.8	7.6	.94	.29	.24	.23	4.5	E14	640	124
02...	3.9	1.6	7.3	.64	.14	.11	.10	4.1	E10	402	54
14...	.83	.49	5.9	.16	.06	.06	.04	5.4	1.0	109	11
AUG											
17...	.89	.28	5.9	.26	.13	.09	.06	9.1	E3.0	119	9.0
17...	1.2	.61	6.0	.40	.12	.14	.11	9.9	E3.0	143	15
17...	1.3	.58	5.8	.59	.13	.16	.13	--	--	219	35
18...	1.6	.59	6.0	.57	.20	.22	.17	12	E4.0	231	30
18...	1.6	.98	5.1	.48	.19	.23	.18	9.1	E4.0	157	17
18...	1.2	.92	5.1	.34	.12	.14	.09	--	--	94	7.9
SEP											
30...	.56	.32	5.7	.16	.08	.08	.06	7.4	.4	43	3.5
OCT											
26...	.40	.13	5.8	.11	.04	.04	.03	2.8	.7	E35	--
NOV											
10...	.60	.41	5.6	.14	.07	.06	.05	7.6	1.3	36	4.0
10...	2.1	.59	6.7	.62	.26	.28	.21	5.2	1.8	130	20
11...	1.3	.69	6.0	.42	.15	.14	.11	7.6	4.0	237	66
11...	2.8	1.3	6.8	.87	.36	.39	.27	44	3.4	281	99
11...	3.3	1.2	6.9	1.2	.44	.51	.37	10	2.5	224	64
11...	4.0	1.4	7.1	1.3	.49	.57	.39	14	3.9	223	48
11...	2.5	1.2	5.7	.79	.33	.38	.28	9.0	2.8	E220	--
12...	1.3	1.2	6.1	.12	.06	.07	.05	3.4	.7	18	2.1
DEC											
20...	.44	.34	6.5	.13	.06	.08	.05	2.0	.8	52	15
21...	1.2	.46	6.5	.29	.11	.14	.10	3.5	3.2	307	232
21...	2.6	1.1	7.1	.68	.20	.22	.18	11	5.8	403	446
21...	2.5	1.1	5.9	.80	.26	.32	.25	5.0	6.5	436	489
21...	2.2	.73	5.4	.73	.25	.32	.25	2.2	5.8	304	245
22...	1.0	.52	5.6	.27	.09	.16	.09	6.6	--	120	43

Table 16.--Water-quality analyses, Site 7 -

Pequea Creek at New Milltown -- (Continued)

DATE	TIME	AME-TRYNE TOTAL (UG/L)	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CYANA-ZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PROPA-ZINE TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)
JUN										
02...	0045	--	--	--	--	--	--	--	--	--
AUG										
17...	1700	--	--	.20	--	--	.0	.0	--	.0
NOV										
11...	0315	.00	.00	.00	.00	.00	.0	.0	.00	.0
DEC										
21...	1400	.00	.00	.00	.00	.00	.0	.0	.00	.0

DATE	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JUN										
02...	--	--	.0	.00	.00	.0	.00	.00	.01	.00
AUG										
17...	--	.0	.0	.00	.00	.0	.00	.00	.00	.00
NOV										
11...	.00	.0	.0	.00	.00	.0	.00	.00	.00	.00
DEC										
21...	.00	.0	.0	.00	.00	.0	.00	.00	.00	.00

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
JUN									
02...	.03	.00	.00	.00	.00	.01	.01	.00	.00
AUG									
17...	.00	.00	.00	.00	.00	.00	.00	.00	.00
NOV									
11...	.01	.00	.00	.00	.00	.00	.00	.00	.00
DEC									
21...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL TRI-THION, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
JUN									
02...	.00	.00	.00	.00	0	.00	.27	.0	.00
AUG									
17...	.00	.00	.00	.00	0	.00	.00	.0	.00
NOV									
11...	.00	.00	.00	.00	0	.00	.00	.0	.00
DEC									
21...	.00	.00	.00	.00	0	.00	.00	.0	.00

Table 17.--Mean water-weighted concentrations and yields during selected storms

Mean water-weighted concentrations for Storm 1, February 24

Constituent (mg/L unless otherwise noted)	Site 1-Pequea Creek at Martic Forge	Site 2-Pequea Creek tributary near Martic Forge	Site 3-Big Beaver Creek at Refton	Site 4-Big Beaver Creek tributary at New Providence	Site 5-Pequea Creek at Strasburg	Site 6-Pequea Creek tributary near Strasburg	Site 7-Pequea Creek at New Milltown
DISSOLVED							
Ammonia nitrogen as N	1.4	0.12	1.3	.84	2.3	2.6	2.2
Nitrite nitrogen as N	.08	.01	.07	.06	.11	.14	.11
Nitrate nitrogen as N	3.8	3.2	2.7	4.0	3.8	5.0	3.6
Organic nitrogen as N	1.3	.80	1.6	1.3	2.4	3.0	2.2
Total nitrogen as N	6.6	4.1	5.2	6.1	8.7	11	8.1
Orthophosphate as P	.28	.02	.21	.06	.59	.68	.47
Total phosphorus as P	.38	.04	.31	.10	.69	.52	.55
Organic carbon	18	6.3	20	14	22	27	20
SUSPENDED							
Ammonia nitrogen as N	.52	.06	.48	.26	.76	.53	.52
Nitrite nitrogen as N	.04	.01	.06	.07	.11	.09	.03
Nitrate nitrogen as N	.19	.04	.00	.12	.00	.00	.00
Organic nitrogen as N	7.2	.61	9.6	6.0	6.9	9.8	7.0
Total nitrogen as N	8.0	.72	8.1	6.4	7.8	10	7.6
Orthophosphate as P	.09	.00	.11	.10	.18	.16	.11
Total phosphorus as P	1.7	.14	2.7	.91	3.5	2.5	2.2
Organic carbon	31	4.1	46	37	45	62	57
TOTAL							
Total nitrogen as N	15	4.8	13	12	16	21	16
Total phosphorus as P	2.1	.18	3.0	1.0	4.2	3.0	2.8
Suspended sediment	3320	177	3680	3610	2100	6670	2680
Streamflow (ft^3/s)	544	2.3	118	4.0	316	5.5	232

Table 17.--Mean water-weighted concentrations and yields during selected storms--(Continued)

Yields for Storm 1, February 24

Constituent (lb/mi^2 unless otherwise noted)	Site 1-Pequea Creek at Martic Forge	Site 2-Pequea Creek tributary near Martic Forge	Site 3-Big Beaver Creek at Refton	Site 4-Big Beaver Creek tributary at New Providence	Site 5-Pequea Creek at Strasburg	Site 6-Pequea Creek tributary near Strasburg	Site 7-Pequea Creek at New Milltown
			DISSOLVED				
Ammonia nitrogen as N	35	1.1	51	23	69	61	51
Nitrite nitrogen as N	2.0	.16	2.8	2.4	3.2	3.1	2.6
Nitrate nitrogen as N	95	31	110	160	110	110	85
Organic nitrogen as N	32	7.8	65	55	70	67	50
Total nitrogen as N	160	40	230	240	250	240	190
Orthophosphate as P	6.9	.15	8.2	2.4	17	12	11
Total phosphorus as P	9.3	.34	12	4.2	20	12	13
Organic carbon	432	61	760	390	647	610	500
			SUSPENDED				
Ammonia nitrogen as N	13	.56	19	11	22	12	12
Nitrite nitrogen as N	.95	.09	2.3	2.0	3.3	2.0	.78
Nitrate nitrogen as N	4.7	.35	.00	4.8	.00	.00	.00
Organic nitrogen as N	180	6.0	380	240	200	250	170
Total nitrogen as N	200	7.0	400	260	220	260	180
Orthophosphate as P	2.3	.03	4.6	3.6	5.1	3.7	2.7
Total phosphorus as P	42	1.4	110	39	100	57	52
Organic carbon	780	41	1800	1500	1300	1400	1300
			TOTAL				
Total nitrogen as N	360	47	630	500	470	500	370
Total phosphorus as P	51	1.7	120	43	120	69	65
Suspended sediment ($tons/mi^2$)	41	.90	73	74	31	75	32
Streamflow $(\frac{ft^3/s}{mi^2})$	4.6	1.8	7.4	7.6	5.4	4.2	4.3

Table 17.--Mean water-weighted concentrations and yields during selected storms --(Continued)

Mean water-weighted concentrations for Storm 3, June 1

Constituent (mg/L unless otherwise noted)	Site 1-Pequea Creek at Martic Forge	Site 2-Pequea Creek tributary near Martic Forge	Site 3-Big Beaver Creek at Refton	Site 4-Big Beaver Creek tributary at New Providence	Site 5-Pequea Creek at Strasburg	Site 6-Pequea Creek tributary near Strasburg	Site 7-Pequea Creek at New Milltown
			DISSOLVED				
Ammonia nitrogen as N	0.67	0.13	0.77	0.51	0.61	0.66	0.50
Nitrite nitrogen as N	.13	.01	.11	.06	.11	.11	.09
Nitrate nitrogen as N	5.2	2.6	3.3	3.3	4.7	4.0	3.6
Organic nitrogen as N	1.2	.54	1.3	1.7	1.3	2.1	1.2
Total nitrogen as N	7.2	3.3	5.5	5.5	6.8	6.9	5.4
Orthophosphate as P	.14	.00	.10	.01	.21	.32	.15
Total phosphorus as P	.19	.03	.16	.08	.26	.53	.21
Organic carbon	3.9	4.1	4.5	4.6	5.4	5.2	4.6
			SUSPENDED				
Ammonia nitrogen as N	.32	.09	.40	.47	.30	.88	.26
Nitrite nitrogen as N	.06	.02	.07	.13	.05	.15	.04
Nitrate nitrogen as N	.23	.02	.11	.08	.47	.08	.37
Organic nitrogen as N	13	4.0	18	14	5.1	9.6	4.0
Total nitrogen as N	14	4.1	18	14	6.1	11	4.7
Orthophosphate as P	.26	.07	.31	.44	.15	.40	.13
Total phosphorus as P	4.8	.74	3.3	2.6	2.3	5.3	2.0
Organic carbon	61	31	68	61	35	63	34
			TOTAL				
Total nitrogen as N	21	7.4	24	20	13	18	10
Total phosphorus as P	5.0	.77	3.5	2.7	2.6	5.9	2.2
Suspended sediment	5510	1250	6340	8250	2290	7680	2440
Streamflow (ft^3/s)	522	2.1	68	2.8	308	5.3	85

Table 17.--Mean water-weighted concentrations and yields during selected storms --(Continued)

Mean water-weighted concentrations for Storm 2, March 22

Constituent (mg/L unless otherwise noted)	Site 1-Pequea Creek at Martic Forge	Site 2-Pequea Creek tributary near Martic Forge	Site 3-Big Beaver Creek at Refton	Site 4-Big Beaver Creek tributary at New Providence	Site 5-Pequea Creek at Strasburg	Site 6-Pequea Creek tributary near Strasburg	Site 7-Pequea Creek at New Milltown
			DISSOLVED				
Ammonia nitrogen as N	0.38	0.01	0.35	0.11	0.42	0.28	0.33
Nitrite nitrogen as N	.04	.00	.02	.02	.04	.04	.02
Nitrate nitrogen as N	2.6	3.1	1.7	2.7	2.6	3.5	2.2
Organic nitrogen as N	.87	.32	.77	.47	1.1	1.1	.92
Total nitrogen as N	3.9	3.4	2.8	3.3	4.2	4.9	2.4
Orthophosphate as P	.13	.01	.10	.06	.20	.21	.16
Total phosphorus as P	.16	.03	.14	.06	.25	.29	.21
Organic carbon	7.3	3.2	8.3	6.5	7.2	7.0	9.0
			SUSPENDED				
Ammonia nitrogen as N	.07	.01	.06	.15	.12	.25	.13
Nitrite nitrogen as N	.09	.01	.05	.05	.08	.14	.06
Nitrate nitrogen as N	.21	.00	.13	.02	.19	.02	.02
Organic nitrogen as N	7.0	.62	5.6	3.5	9.7	6.5	4.0
Total nitrogen as N	7.4	.64	5.8	3.7	10	6.9	4.2
Orthophosphate as P	.12	.00	.08	.06	.11	.23	.08
Total phosphorus as P	1.7	.10	1.3	.82	1.8	1.8	1.1
Organic carbon	34	5.1	23	22	22	48	28
			TOTAL				
Total nitrogen as N	11	4.0	8.6	7.0	14	12	7.4
Total phosphorus as P	1.9	.13	1.4	.88	2.0	2.0	1.4
Suspended sediment	3930	154	4170	2760	2550	5330	2170
Streamflow (ft^3/s)	1000	15	205	4.3	410	13	313

Table 17.--Mean water-weighted concentrations and yields during selected storms --(Continued)

Yields for Storm 2, March 22

Constituent (lb/mi^2 unless otherwise noted)	Site 1-Pequea Creek at Martic Forge	Site 2-Pequea Creek tributary near Martic Forge	Site 3-Big Beaver Creek at Refton	Site 4-Big Beaver Creek tributary at New Providence	Site 5-Pequea Creek at Strasburg	Site 6-Pequea Creek tributary near Strasburg	Site 7-Pequea Creek at New Milltown
			DISSOLVED				
Ammonia nitrogen as N	17	0.37	21	4.8	16	15	16
Nitrite nitrogen as N	1.6	.05	1.4	.83	1.4	2.2	.98
Nitrate nitrogen as N	120	160	99	120	100	190	110
Organic nitrogen as N	40	17	42	21	35	53	45
Total nitrogen as N	180	180	160	150	150	260	170
Orthophosphate as P	5.9	.53	6.0	2.7	7.7	11	8.0
Total phosphorus as P	7.4	1.4	8.0	2.7	9.5	16	10
Organic carbon	330	170	490	370	270	370	440
			SUSPENDED				
Ammonia nitrogen as N	3.2	.35	3.2	4.4	4.4	13	6.7
Nitrite nitrogen as N	4.0	.56	3.1	2.5	3.0	7.1	2.8
Nitrate nitrogen as N	9.7	.00	7.9	.92	7.4	.98	.75
Organic nitrogen as N	320	33	330	170	340	290	200
Total nitrogen as N	340	34	350	180	360	310	210
Orthophosphate as P	5.7	.17	4.4	2.1	4.1	12	4.2
Total phosphorus as P	79	5.4	77	37	68	93	56
Organic carbon	1600	270	1300	1200	1000	2500	1400
			TOTAL				
Total nitrogen as N	520	210	500	330	510	570	380
Total phosphorus as P	86	6.8	85	40	78	110	67
Suspended sediment ($tons/mi^2$)	90	4.1	123	62	52	130	54
Streamflow $\left(\frac{ft^3/s}{mi^2}\right)$	8.4	9.9	13	8.3	7.0	9.9	9.1

Table 17.--Mean water-weighted concentrations and yields during selected storms --(Continued)

Yields for Storm 3, June 1

Constituent (lb/mi^2 unless otherwise noted)	Site 1-Pequea Creek at Martic Forge	Site 2-Pequea Creek tributary near Martic Forge	Site 3-Big Beaver Creek at Refton	Site 4-Big Beaver Creek tributary at New Providence	Site 5-Pequea Creek at Strasburg	Site 6-Pequea Creek tributary near Strasburg	Site 7-Pequea Creek at New Milltown
DISSOLVED							
Ammonia nitrogen as N	16	1.1	17	15	18	15	6.8
Nitrite nitrogen as N	3.2	.11	2.5	1.8	3.1	2.4	1.2
Nitrate nitrogen as N	120	24	77	94	140	89	49
Organic nitrogen as N	29	4.8	30	47	38	45	16
Total nitrogen as N	170	30	130	160	190	150	73
Orthophosphate as P	3.3	.04	2.3	.36	6.0	7.1	2.0
Total phosphorus as P	4.6	.24	3.7	2.3	7.6	12	2.9
Organic carbon	92	37	100	130	150	110	62
SUSPENDED							
Ammonia nitrogen as N	7.6	.77	8.9	14	8.5	19	3.4
Nitrite nitrogen as N	1.4	.17	1.6	3.8	1.4	3.4	.50
Nitrate nitrogen as N	5.5	.17	2.4	2.2	13	1.7	5.0
Organic nitrogen as N	310	36	400	390	150	210	54
Total nitrogen as N	330	38	420	410	180	240	63
Orthophosphate as P	6.2	.66	7.0	12	4.3	8.7	1.7
Total phosphorus as P	110	6.7	74	74	67	120	26
Organic carbon	1400	280	1500	1700	870	1400	460
TOTAL							
Total nitrogen as N	500	68	540	570	360	390	140
Total phosphorus as P	120	7.0	78	76	74	130	29
Suspended sediment ($tons/mi^2$)	66	5.6	36	118	33	85	16
Streamflow ($\frac{ft^3/s}{mi^2}$)	4.4	1.7	4.2	5.3	5.3	4.1	2.5

Table 17.--Mean water-weighted concentrations and yields during selected storms --(Continued)

Mean water-weighted concentrations for Storm 4, August 17

Constituent (mg/L unless otherwise noted)	Site 1-Pequea Creek at Martic Forge	Site 2-Pequea Creek tributary near Martic Forge	Site 3-Big Beaver Creek at Refton	Site 4-Big Beaver Creek tributary at New Providence	Site 5-Pequea Creek at Strasburg	Site 6-Pequea Creek tributary near Strasburg	Site 7-Pequea Creek at New Milltown
DISSOLVED							
Ammonia nitrogen as N	0.10	0.00	0.37	0.07	0.08	0.27	0.13
Nitrite nitrogen as N	.08	.00	.07	.03	.11	.14	.11
Nitrate nitrogen as N	3.6	3.0	1.6	2.7	5.2	5.5	4.2
Organic nitrogen as N	.79	.29	.95	.76	.57	1.3	.55
Total nitrogen as N	4.6	3.3	3.0	3.6	6.0	7.2	5.0
Orthophosphate as P	.18	.01	.24	.08	.14	.36	.13
Total phosphorus as P	.20	.02	.26	.10	.16	.41	.15
Organic carbon	11	9.6	14	16	10	14	9.1
SUSPENDED							
Ammonia nitrogen as N	.07	.01	.08	.16	.05	.25	.09
Nitrite nitrogen as N	.01	.00	.02	.02	.02	.03	.01
Nitrate nitrogen as N	.09	.04	.23	.03	.07	.11	.05
Organic nitrogen as N	1.3	.42	4.1	3.1	.60	.89	.54
Total nitrogen as N	1.5	.47	4.4	3.3	.74	1.3	.69
Orthophosphate as P	.05	.00	.09	.06	.03	.10	.08
Total phosphorus as P	.90	.01	3.0	1.7	.35	.54	.32
Organic carbon	7.6	4.3	18	17	4.1	8.1	3.5
TOTAL							
Total nitrogen as N	6.0	3.8	7.4	6.9	6.8	8.5	5.6
Total phosphorus as P	1.1	.03	3.3	1.8	.51	.95	.47
Suspended sediment	372	73	1350	1270	192	289	161
Streamflow (ft^3/s)	169	.91	46	.96	80	1.5	41

Table 17.--Mean water-weighted concentrations and yields during selected storms --(Continued)

Yields for Storm 4, August 17

Constituent (lb/mi^2 unless otherwise noted)	Site 1-Pequea Creek at Martic Forge	Site 2-Pequea Creek tributary near Martic Forge	Site 3-Big Beaver Creek at Refton	Site 4-Big Beaver Creek tributary at New Providence	Site 5-Pequea Creek at Strasburg	Site 6-Pequea Creek tributary near Strasburg	Site 7-Pequea Creek at New Milltown
DISSOLVED							
Ammonia nitrogen as N	0.73	0.02	5.7	0.72	0.62	1.6	0.79
Nitrite nitrogen as N	.59	.01	1.0	.25	.85	.84	.70
Nitrate nitrogen as N	28	12	25	27	39	34	27
Organic nitrogen as N	6.1	1.1	14	36	4.2	7.8	3.6
Total nitrogen as N	35	13	46	8.7	44	44	32
Orthophosphate as P	1.4	.04	3.6	.74	1.1	2.2	84
Total phosphorus as P	1.5	.07	4.0	1.0	1.2	2.5	.98
Organic carbon	84	38	220	160	74	83	59
SUSPENDED							
Ammonia nitrogen as N	.51	.04	1.2	1.5	.37	1.6	.56
Nitrite nitrogen as N	.11	.00	.31	.22	.16	.16	.06
Nitrate nitrogen as N	.68	.15	3.5	.31	.49	.70	.30
Organic nitrogen as N	9.7	1.7	62	30	4.4	5.5	3.6
Total nitrogen as N	11	1.8	67	33	5.4	7.9	4.5
Orthophosphate as P	.41	.00	1.4	.56	.22	.63	.56
Total phosphorus as P	6.9	.38	46	17	2.6	3.3	2.1
Organic carbon	58	17	280	170	31	50	23
TOTAL							
Total nitrogen as N	46	15	110	41	50	52	37
Total phosphorus as P	8.4	.45	50	18	3.8	5.8	3.1
Suspended sediment ($tons/mi^2$)	1.4	.15	10	6.2	.70	.90	.50
Streamflow ($(ft^3/s)/mi^2$)	1.4	.73	2.8	1.8	1.4	1.1	1.2

Table 17.--Mean water-weighted concentrations and yields during selected storms --(Continued)

Mean water-weighted concentrations for Storm 5, November 10

Constituent (mg/L unless otherwise noted)	Site 1-Pequea Creek at Martic Forge	Site 2-Pequea Creek tributary near Martic Forge	Site 3-Big Beaver Creek at Refton	Site 4-Big Beaver Creek tributary at New Providence	Site 5-Pequea Creek at Strasburg	Site 6-Pequea Creek tributary near Strasburg	Site 7-Pequea Creek at New Milltown
			DISSOLVED				
Ammonia nitrogen as N	0.18	0.00	0.32	0.18	0.20	0.55	0.22
Nitrite nitrogen as N	.05	.05	.05	.03	.05	.06	.04
Nitrate nitrogen as N	3.4	4.6	1.7	2.9	3.6	3.9	3.8
Organic nitrogen as N	1.3	.20	1.3	1.1	.71	1.3	.82
Total nitrogen as N	4.9	4.8	3.4	4.2	4.6	5.8	4.9
Orthophosphate as P	.25	.01	.26	.20	.29	.66	.23
Total phosphorus as P	.28	.02	.33	.26	.35	.74	.30
Organic carbon	10	7.1	17	18	9.3	19	14
			SUSPENDED				
Ammonia nitrogen as N	.12	.00	.08	.16	.14	.32	.17
Nitrite nitrogen as N	.01	.00	.18	.02	.00	.04	.02
Nitrate nitrogen as N	.11	.13	.02	.03	.08	.10	.07
Organic nitrogen as N	4.4	.61	5.1	4.9	1.9	5.1	1.1
Total nitrogen as N	4.6	.74	5.4	5.1	2.1	5.6	1.4
Orthophosphate as P	.09	.00	.12	.11	.08	.24	.09
Total phosphorus as P	1.2	.05	2.1	1.3	.57	1.9	.44
Organic carbon	8.9	1.3	16	12	5.9	14	2.9
			TOTAL				
Total nitrogen as N	9.6	5.6	8.8	9.3	6.7	11	6.3
Total phosphorus as P	1.5	.07	2.4	1.6	.92	2.6	.74
Suspended sediment	800	61	1470	1360	255	976	192
Streamflow (ft^3/s)	328	3.1	77	1.5	151	5.0	67

Table 17.--Mean water-weighted concentrations and yields during selected storms --(Continued)

Yields for Storm 5, November 10

Constituent (lb/mi^2 unless otherwise noted)	Site 1-Pequea Creek at Martic Forge	Site 2-Pequea Creek tributary near Martic Forge	Site 3-Big Beaver Creek at Refton	Site 4-Big Beaver Creek tributary at New Providence	Site 5-Pequea Creek at Strasburg	Site 6-Pequea Creek tributary near Strasburg	Site 7-Pequea Creek at New Milltown
DISSOLVED							
Ammonia nitrogen as N	2.7	0.00	8.1	2.8	2.7	11	2.3
Nitrite nitrogen as N	.71	.64	1.2	.46	.69	1.2	.46
Nitrate nitrogen as N	50	62	43	44	50	80	40
Organic nitrogen as N	19	2.7	33	17	9.9	28	8.6
Total nitrogen as N	73	66	86	65	64	120	52
Orthophosphate as P	3.7	.13	6.9	3.1	4.1	14	2.4
Total phosphorus as P	4.3	.26	8.8	4.0	4.9	15	3.1
Organic carbon	160	94	440	280	130	400	150
SUSPENDED							
Ammonia nitrogen as N	1.7	.00	2.2	2.5	2.0	6.7	1.8
Nitrite nitrogen as N	.17	.00	4.6	.32	.06	.72	.17
Nitrate nitrogen as N	1.7	1.7	.59	.40	1.1	2.0	.77
Organic nitrogen as N	66	8.1	130	74	26	110	12
Total nitrogen as N	69	9.8	140	78	29	120	15
Orthophosphate as P	1.4	.00	3.0	1.7	1.1	5.1	.99
Total phosphorus as P	18	.71	53	20	8.0	40	4.7
Organic carbon	130	18	400	180	83	290	30
TOTAL							
Total nitrogen as N	140	75	220	140	93	240	66
Total phosphorus as P	23	1.0	62	24	13	55	7.8
Suspended sediment ($tons/mi^2$)	6.0	.40	19	10	1.8	10	1.0
Streamflow $\left(\frac{ft^3/s}{mi^2}\right)$	2.8	2.5	4.7	2.8	2.1	3.8	2.0

Table 17.--Mean water-weighted concentrations and yields during selected storms --(Continued)

Mean water-weighted concentrations for Storm 6, December 21

Constituent (mg/L unless otherwise noted)	Site 1-Pequea Creek at Martic Forge	Site 2-Pequea Creek tributary near Martic Forge	Site 3-Big Beaver Creek at Refton	Site 4-Big Beaver Creek tributary at New Providence	Site 5-Pequea Creek at Strasburg	Site 6-Pequea Creek tributary near Strasburg	Site 7-Pequea Creek at New Milltown
			DISSOLVED				
Ammonia nitrogen as N	0.31	0.00	0.32	0.15	0.35	0.40	0.24
Nitrite nitrogen as N	.02	.00	.02	.02	.02	.02	.02
Nitrate nitrogen as N	4.0	5.1	2.1	3.6	5.2	4.9	4.0
Organic nitrogen as N	.41	.24	.41	.56	.33	.45	.46
Total nitrogen as N	4.7	5.3	2.8	4.4	5.9	5.8	4.7
Orthophosphate as P	.17	.00	.19	.11	.20	.28	.14
Total phosphorus as P	.17	.01	.20	.12	.20	.29	.15
Organic carbon	9.4	7.0	12	6.9	8.1	7.0	5.0
			SUSPENDED				
Ammonia nitrogen as N	.03	.01	.03	.05	.04	.08	.06
Nitrite nitrogen as N	.02	.00	.02	.02	.02	.03	.02
Nitrate nitrogen as N	.56	.42	.18	.20	.45	.39	.44
Organic nitrogen as N	1.4	.14	1.1	.56	1.2	.78	.85
Total nitrogen as N	2.0	.57	1.3	.83	1.7	1.3	1.4
Orthophosphate as P	.05	.00	.05	.04	.05	.09	.06
Total phosphorus as P	.47	.03	.36	.24	.45	.40	.30
Organic carbon	5.5	.90	4.4	2.6	3.4	5.0	4.0
			TOTAL				
Total nitrogen as N	6.8	5.9	4.1	5.2	7.6	7.0	6.1
Total phosphorus as P	.64	.04	.56	.36	.65	.69	.45
Suspended sediment	762	51	559	345	321	343	239
Streamflow (ft^3/s)	828	16	133	2.9	313	9.6	203

Table 17.--Mean water-weighted concentrations and yields during selected storms

Yields for Storm 6, December 21

Constituent (lb/mi^2 unless otherwise noted)	Site 1-Pequea Creek at Martic Forge	Site 2-Pequea Creek tributary near Martic Forge	Site 3-Big Beaver Creek at Refton	Site 4-Big Beaver Creek tributary at New Providence	Site 5-Pequea Creek at Strasburg	Site 6-Pequea Creek tributary near Strasburg	Site 7-Pequea Creek at New Milltown
DISSOLVED							
Ammonia nitrogen as N	12	0.10	14	4.4	10	16	7.8
Nitrite nitrogen as N	.76	.10	.74	.44	.58	1.2	.48
Nitrate nitrogen as N	150	360	90	110	150	190	130
Organic nitrogen as N	16	17	18	16	9.7	17	15
Total nitrogen as N	180	380	120	130	170	230	150
Orthophosphate as P	6.4	.18	8.4	3.3	5.9	11	4.6
Total phosphorus as P	6.6	.46	8.8	3.7	5.9	11	4.8
Organic carbon	360	500	510	200	230	270	160
SUSPENDED							
Ammonia nitrogen as N	1.1	.39	1.2	1.5	1.1	3.7	1.8
Nitrite nitrogen as N	.80	.00	1.0	.50	.66	1.2	.52
Nitrate nitrogen as N	21	30	7.8	5.8	13	15	14
Organic nitrogen as N	52	9.8	47	16	36	31	27
Total nitrogen as N	75	40	57	24	51	50	44
Orthophosphate as P	1.8	.04	2.1	1.2	1.4	3.7	1.9
Total phosphorus as P	18	2.0	16	7.0	13	16	9.8
Organic carbon	210	63	200	76	98	190	130
TOTAL							
Total nitrogen as N	250	420	180	150	220	280	200
Total phosporus as P	24	2.5	25	11	19	27	15
Suspended sediment (tons/mi^2)	14	1.8	12	5.0	4.7	6.8	3.8
Streamflow (ft^3/s / mi^2)	7.0	13	8.2	5.4	5.4	7.3	5.9

Table 18.--Bottom-material analyses

Site 1 - Pequea Creek at Martic Forge

DATE	TIME	NITRO-GEN, NITRITE TOT IN BOT MAT (MG/KG AS N)	NITRO-GEN, NO2+NO3 TOT. IN BOT MAT (MG/KG AS N)	NITRO-GEN,NH4 TOTAL IN BOT. MAT. (MG/KG AS N)	NITRO-GEN,NH4 + ORG. TOT IN BOT MAT (MG/KG AS N)	NITRO-GEN,TOT IN BOT-TOM MA-TERIAL (MG/KG AS N)	PHOS-PHORUS, TOTAL IN BOT. MAT. (MG/KG AS P)	CARBON, ORGANIC TOT. IN BOTTOM MAT. (G/KG AS C)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	PCN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
MAR 31...	1600	--	5.7	8.7	390	400	150	9.9	0	.0	.0
JUN 14...	1000	.0	3.6	10	2400	2400	560	.8	0	.0	.0
SEP 30...	1715	.0	1.8	12	36000	36000	560	9.4	0	.0	.0

DATE	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDO-SULFAN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ETHION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)
MAR 31...	5	.4	1.2	1.0	.0	.8	.0	.0	.0	.0	.2
JUN 14...	0	.0	1.3	.0	.0	.7	.0	.0	.0	.0	.0
SEP 30...	13	1.4	3.4	2.5	.0	1.0	.0	.0	.0	.0	.0

DATE	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	MALA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	METHYL PARA-THION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRI-THION, TOT. IN BOTTOM MATL. (UG/KG)	PARA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	PERTHANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TRI-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	2,4-D, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	2,4-DP IN BOTTOM MA-TERIAL (UG/KG)	2,4,5-T TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
MAR 31...	.0	.0	.0	.0	.0	.0	0	.0	0	.0	0
JUN 14...	.0	.0	.0	.0	.0	.0	0	.0	0	.0	0
SEP 30...	.0	.0	.0	.0	.0	.0	0	.0	0	.0	0

DATE	SILVEX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	BED MAT. FALL DIAM. % FINER THAN .004 MM	BED MAT. SIEVE DIAM. % FINER THAN .062 MM	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM
MAR 31...	.0	0	19	42	57	68	77	95	100	--
JUN 14...	.0	0	8	16	26	34	49	84	98	100
SEP 30...	.0	5	40	63	77	91	98	100	--	--

Table 18.--Bottom-material analyses -- (Continued)

Site 2 - Pequea Creek tributary near Martic Forge

DATE	TIME	NITRO-GEN, NITRITE TOT IN BOT MAT (MG/KG AS N)	NITRO-GEN, NO2+NO3 TOT. IN BOT MAT (MG/KG AS N)	NITRO-GEN,NH4 TOTAL IN BOT. MAT. (MG/KG AS N)	NITRO-GEN,NH4 + ORG. TOT IN BOT MAT (MG/KG AS N)	NITRO-GEN,TOT IN BOT-TOM MA-TERIAL (MG/KG AS N)	PHOS-PHORUS, TOTAL IN BOT. MAT. (MG/KG AS P)	CARBON, ORGANIC TOT. IN BOTTOM MAT. (G/KG AS C)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	PCN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
MAR 31...	1500	--	5.8	5.3	560	570	160	11	0	.0	.0	0
JUN 14...	1145	.0	2.3	2.6	1300	1300	190	5.4	0	.0	.0	0
SEP 30...	1630	.0	1.0	3.5	4300	4300	360	13	2	.0	.0	7

DATE	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDO-SULFAN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ETHION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
MAR 31...	.0	1.2	1.0	.0	.3	.0	.0	.0	.0	.0	.0
JUN 14...	.0	.8	1.4	.0	.1	.0	.0	.0	.0	.2	.0
SEP 30...	1.9	5.3	6.1	.0	1.6	.0	.0	.0	.0	.0	.0

DATE	MALA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	METHYL PARA-THION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRI-THION, TOT. IN BOTTOM MATL. (UG/KG)	PARA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	PERTHANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TRI-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	2,4-D, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	2,4-DP IN BOTTOM MA-TERIAL (UG/KG)	2,4,5-T TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	SILVEX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
MAR 31...	.0	.0	.0	.0	.0	0	.0	0	.0	0	.0
JUN 14...	.0	.0	.0	.0	.0	0	.0	0	.0	0	.0
SEP 30...	.0	.0	.0	.0	.0	0	.0	0	.0	0	.0

DATE	BED MAT. FALL DIAM. % FINER THAN .004 MM	BED MAT. SIEVE DIAM. % FINER THAN .062 MM	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM
MAR 31...	0	3	6	14	26	43	62	78	95	100	--
JUN 14...	--	7	10	14	23	36	53	65	79	98	100
SEP 30...	0	13	26	43	61	72	80	86	93	100	--

Table 18.--Bottom-material analyses -- (Continued)

Site 3 - Big Beaver Creek at Pefton

DATE	TIME	NITRO- GEN, NITRITE TOT IN BOT MAT (MG/KG AS N)	NITRO- GEN, NO2+NO3 TOT. IN BOT MAT (MG/KG AS N)	NITRO- GEN,NH4 TOTAL IN BOT. MAT. (MG/KG AS N)	NITRO- GEN,NH4 + ORG. TOT IN BOT MAT (MG/KG AS N)	NITRO- GEN,TOT IN BOT- TOM MA- TERIAL (MG/KG AS N)	PHOS- PHORUS, TOTAL IN BOT. MAT. (MG/KG AS P)	CARBON, ORGANIC TOT. IN BOTTOM MAT. (G/KG AS C)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PCN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
MAR 31...	1415	--	2.7	1.3	340	340	150	6.4	0	.0	.0
JUN 14...	1400	.0	1.2	4.0	810	810	160	4.9	0	.0	.0
SEP 30...	1530	1.0	2.0	14	14000	14000	900	19	13	.0	.0

DATE	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ETHION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)
MAR 31...	0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
JUN 14...	4	.0	.0	.0	.0	.4	.0	.0	.0	.0	.0
SEP 30...	39	2.2	5.1	1.0	.0	.0	.0	.0	.0	.0	.0

DATE	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRI- THION, TOT. IN BOTTOM MATL. (UG/KG)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PERTHANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TRI- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-D, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-DP IN BOTTOM MA- TERIAL (UG/KG)	2,4,5-T TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
MAR 31...	.0	.0	.0	.0	.0	.0	0	.0	0	.0	0
JUN 14...	.0	.0	.0	.0	.0	.0	0	.0	0	.0	0
SEP 30...	.0	.0	.0	.0	.0	.0	0	.0	0	.0	0

DATE	SILVEX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	BED MAT. FALL DIAM. % FINER THAN .004 MM	BED MAT. SIEVE DIAM. % FINER THAN .062 MM	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM
MAR 31...	.0	0	4	11	28	63	83	90	100	--
JUN 14...	.0	0	2	3	8	53	86	94	96	100
SEP 30...	.0	2	29	40	54	72	91	98	100	--

Table 18.--Bottom-material analyses -- (Continued)

Site 4 - Big Beaver Creek tributary at New Providence

DATE	TIME	NITRO-GEN, NITRITE TOT IN BOT MAT (MG/KG AS N)	NITRO-GEN, NO2+NO3 TOT. IN BOT MAT (MG/KG AS N)	NITRO-GEN,NH4 TOTAL IN BOT. MAT. (MG/KG AS N)	NITRO-GEN,NH4 + ORG. TOT IN BOT MAT (MG/KG AS N)	NITRO-GEN,TOT IN BOT-TOM MA-TERIAL (MG/KG AS N)	PHOS-PHORUS, TOTAL IN BOT. MAT. (MG/KG AS P)	CARBON, ORGANIC TOT. IN BOTTOM MAT. (G/KG AS C)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	PCN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
MAR 31...	1330	--	1.0	2.7	190	190	140	3.9	0	.0	.0	0
JUN 14...	1515	.0	5.4	4.8	410	410	190	1.3	0	.0	.0	0
SEP 30...	1500	.0	4.0	2.9	1200	1200	340	3.6	0	.0	.0	0

DATE	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDO-SULFAN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ETHION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
MAR 31...	.0	.0	.0	.0	.4	.0	.0	.0	.0	.0	.0
JUN 14...	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0
SEP 30...	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0

DATE	MALA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	METHYL PARA-THION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRI-THION, TOT. IN BOTTOM MATL. (UG/KG)	PARA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	PERTHANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TRI-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	2,4-D, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	2,4-DP IN BOTTOM MA-TERIAL (UG/KG)	2,4,5-T TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	SILVEX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
MAR 31...	.0	.0	.0	.0	.0	0	.0	0	.0	0	.0
JUN 14...	.0	.0	.0	.0	.0	0	.0	0	.0	0	.0
SEP 30...	.0	.0	.0	.0	.0	0	.0	0	.0	0	.0

DATE	BED MAT. FALL DIAM. % FINER THAN .004 MM	BED MAT. SIEVE DIAM. % FINER THAN .062 MM	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM
MAR 31...	0	2	6	16	42	72	87	92	94	98	100
JUN 14...	0	1	2	9	43	75	86	94	99	100	--
SEP 30...	0	4	11	28	66	85	93	97	99	100	--

Table 18.--Bottom-material analyses -- (Continued)

Site 5 - Pequea Creek at Strasburg

DATE	TIME	NITRO-GEN, NITRITE TOT IN BOT MAT (MG/KG AS N)	NITRO-GEN, NO2+NO3 TOT. IN BOT MAT (MG/KG AS N)	NITRO-GEN,NH4 TOTAL IN BOT. MAT. (MG/KG AS N)	NITRO-GEN,NH4 + ORG. TOT IN BOT MAT (MG/KG AS N)	NITRO-GEN,TOT IN BOT-TOM MA-TERIAL (MG/KG AS N)	PHOS-PHORUS, TOTAL IN BOT. MAT. (MG/KG AS P)	CARBON, ORGANIC TOT. IN BOTTOM MAT. (G/KG AS C)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	PCN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
MAR 31...	1100	--	5.9	70	2000	2000	380	21	0	.0	.0
JUN 14...	1215	.0	1.9	26	7900	7900	910	21	0	.0	.0
SEP 30...	1330	.1	1.5	25	6800	6800	800	16	0	.0	.0

DATE	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDO-SULFAN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ETHION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)
MAR 31...	25	1.6	8.9	4.4	.0	6.7	.0	.0	.0	.0	.0
JUN 14...	57	6.0	24	11	.0	8.0	.0	.0	.0	.0	.0
SEP 30...	29	6.4	16	5.4	.0	3.5	.0	.0	.0	.0	.0

DATE	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	MALA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	METHYL PARA-THION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRI-THION, TOT. IN BOTTOM MATL. (UG/KG)	PARA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	PERTHANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TRI-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	2,4-D, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	2,4-DP IN BOTTOM MA-TERIAL (UG/KG)
MAR 31...	.0	.0	.0	.0	.0	.0	0	.0	0	.0
JUN 14...	.0	.0	.0	.0	.0	.0	0	.0	0	.0
SEP 30...	.0	.0	.0	.0	.0	.0	0	.0	0	.0

DATE	2,4,5-T TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	SILVEX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	BED MAT. FALL DIAM. % FINER THAN .004 MM	BED MAT. SIEVE DIAM. % FINER THAN .062 MM	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM
MAR 31...	0	.0	15	83	100	--	--	--	--	--
JUN 14...	0	.0	12	87	100	--	--	--	--	--
SEP 30...	0	.0	5	45	57	65	77	94	99	100

Table 18.--Bottom-material analyses -- (Continued)

Site 6 - Pequea Creek tributary near Strasburg

DATE	TIME	NITROGEN, NITRITE TOT IN BOT MAT (MG/KG AS N)	NITROGEN, NO2+NO3 TOT. IN BOT MAT (MG/KG AS N)	NITROGEN,NH4 TOTAL IN BOT. MAT. (MG/KG AS N)	NITROGEN,NH4 + ORG. TOT IN BOT MAT (MG/KG AS N)	NITROGEN,TOT IN BOTTOM MATERIAL (MG/KG AS N)	PHOSPHORUS, TOTAL IN BOT. MAT. (MG/KG AS P)	CARBON, ORGANIC TOT. IN BOTTOM MAT. (G/KG AS C)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG)	PCN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)
MAR 31...	1230	--	1.5	9.5	870	870	190	12	0	.0	.0
JUN 14...	1350	.2	6.5	18	4800	4800	740	14	0	.0	.0
SEP 30...	1245	.1	1.5	15	5200	5200	650	--	0	.0	.0

DATE	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDOSULFAN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)
MAR 31...	0	.0	3.9	1.5	.0	.4	.0	.0	.0	.0	.0
JUN 14...	0	9.5	45	97	.0	2.0	.0	.0	.0	.0	.6
SEP 30...	16	8.2	19	8.4	.0	6.2	.0	.0	.0	2.9	.0

DATE	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	PERTHANE TOTAL IN BOTTOM MATERIAL (UG/KG)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG)	TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	2,4-D, TOTAL IN BOTTOM MATERIAL (UG/KG)	2,4-DP IN BOTTOM MATERIAL (UG/KG)	2,4,5-T TOTAL IN BOTTOM MATERIAL (UG/KG)
MAR 31...	.0	.0	.0	.0	.0	.0	0	.0	0	.0	0
JUN 14...	.0	.0	.0	.0	.0	.0	0	.0	0	.0	0
SEP 30...	.0	.0	.0	.0	.0	.0	0	.0	0	.0	0

DATE	SILVEX, TOTAL IN BOTTOM MATERIAL (UG/KG)	BED MAT. FALL DIAM. % FINER THAN .004 MM	BED MAT. SIEVE DIAM. % FINER THAN .062 MM	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM
MAR 31...	.0	2	16	22	29	48	74	88	94	97	100
JUN 14...	.0	6	26	36	45	69	95	99	100	--	--
SEP 30...	.0	4	38	57	69	83	95	98	100	--	--

Table 18.--Bottom-material analyses -- (Continued)

Site 7 - Pequea Creek at New Milltown

DATE	TIME	NITROGEN, NITRITE TOT IN BOT MAT (MG/KG AS N)	NITROGEN, NO2+NO3 TOT. IN BOT MAT (MG/KG AS N)	NITROGEN,NH4 TOTAL IN BOT. MAT. (MG/KG AS N)	NITROGEN,NH4 + ORG. TOT IN BOT MAT (MG/KG AS N)	NITROGEN,TOT IN BOTTOM MATERIAL (MG/KG AS N)	PHOSPHORUS, TOTAL IN BOT. MAT. (MG/KG AS P)	CARBON, ORGANIC TOT. IN BOTTOM MAT. (G/KG AS C)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG)	PCN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)
MAR 31...	0930	--	20	20	980	1000	280	14	0	.0	.0
JUN 14...	0930	.0	3.4	27	5100	5100	780	21	0	.0	.0
SEP 30...	1130	.1	1.0	11	6700	6700	780	18	2	.0	.0

DATE	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDOSULFAN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)
MAR 31...	3	.7	2.5	1.2	.0	1.4	.0	.0	.0	.0	.0
JUN 14...	0	4.2	8.7	3.4	.0	6.0	.0	.0	.0	.0	.0
SEP 30...	21	12	7.8	27	.0	2.9	.0	.0	.0	.0	.0

DATE	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	PERTHANE TOTAL IN BOTTOM MATERIAL (UG/KG)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG)	TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	2,4-D, TOTAL IN BOTTOM MATERIAL (UG/KG)	2,4-DP IN BOTTOM MATERIAL (UG/KG)	2,4,5-T TOTAL IN BOTTOM MATERIAL (UG/KG)
MAR 31...	.0	.0	.0	.0	.0	.0	0	.0	0	.0	0
JUN 14...	.0	.0	.0	.0	.0	.0	0	.0	0	.0	0
SEP 30...	.0	.0	.0	.0	.0	.0	0	.0	0	.0	0

DATE	SILVEX, TOTAL IN BOTTOM MATERIAL (UG/KG)	BED MAT. FALL DIAM. % FINER THAN .004 MM	BED MAT. SIEVE DIAM. % FINER THAN .062 MM	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM
MAR 31...	.0	4	42	73	87	96	100	--	--	--	--
JUN 14...	.0	3	50	71	80	91	98	99	99	99	100
SEP 30...	.0	3	43	65	75	86	96	99	99	100	--