HYDROLOGIC AND CHEMICAL-QUALITY DATA FROM FOUR RURAL BASINS IN GUILFORD COUNTY, NORTH CAROLINA, 1985-88

By Catherine L. Hill

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ABSTRACT

An investigation was begun in 1984 in Guilford County, North Carolina, to monitor water quality and soil erosion in basins with various land-management practices. Hydrologic and chemical-quality data were collected from four rural drainage basins, including two agricultural basins (7.4 and 4.8 acres) cultivated in tobacco and small grains, a mixed rural land-use basin (665 acres) currently under standard land-management practices, and a forested control basin (44 acres) characterizing background conditions. Mean concentrations of total nitrite plus nitrate were 1.0 milligrams per liter from the agricultural basin under standard land-management practices. This was nearly 10 times greater than concentrations from the forested basin. Records of streamflow discharge, chemical quality, ground-water levels, precipitation, and farming activities collected from October 1984 through September 1988 at one or more of the basins are also presented in this report.

INTRODUCTION

In the heavily farmed southeastern United States, runoff from agricultural lands is a major source of sediment, nutrients, and toxic compounds that affect water resources (North Carolina Department of Natural Resources and Community Development, 1979). The full effect of agricultural runoff on surface- and ground-water resources is unknown. Nationally, suspended sediment and nutrients from agricultural sources are the most damaging runoff constituents to the environment (Association of State and Interstate Water Pollution Control Administrators, 1985). According to the National Nonpoint Source Policy Statement drafted and approved by the Environmental Protection Agency's (EPA) National Nonpoint Source Task Force, the primary strategy for control of nonpoint-source pollution is through design and implementation of appropriate best land-management practices

(BMP's). BMP's consider effects on water quality as well as social, political, economic, and technical feasibility (U.S. Environmental Protection Agency, 1985). Experience indicates that control based on preventive land-management practices is more appropriate than a program based on direct compliance with water-quality standards (Harper, 1987).

The Piedmont province of North Carolina is characterized by clayey soils, rolling topography, and abundant rainfall. These characteristics, combined with standard land-management practices (SMP's), such as ungrassed waterways and straight-row farming, contribute to the accelerated erosion of valuable cropland in the Piedmont. Streams in the Piedmont province have the highest sediment yield in North Carolina (Simmons, 1988), but the effect of eroded materials on stream quality and the environment is not completely understood. Average annual soil loss on cropland in the Piedmont area of North Carolina is 18 tons per acre. This rate is almost four times greater than the amount considered acceptable by the Soil Conservation Service (U.S. Department of Agriculture, 1982).

Erosion caused by overland runoff also contributes nutrient constituents to waterways. The erosion process tends to sort the soil particles, carrying the fine silts and clays that are associated most with soil fertility into nearby streams (Thompson and Troeh, 1957). Although the implementation of BMP's can reduce nonpoint pollution, particularly sediment, few scientific studies specifically address water-quality issues relevant to agricultural practices in the clay-type soils prevalent in the Piedmont province.

In 1984, the U.S. Geological Survey (Survey) in cooperation with Guilford Soil and Water Conservation District (GSWCD), with assistance from Soil Conservation Service, began a study to evaluate the effects of land-management practices on the water quality of streams and the ground-water system. An area in the north-central part of the North Carolina Piedmont was chosen to document the effects of land-management practices on sediment, as well as nutrients and selected organic constituents in surface runoff and ground water. This area was chosen because of the erosive nature of the soils and the ongoing agricultural activities.

The study was designed to monitor chemicals applied to the land through farming practices, as well as nutrients resulting from atmospheric deposition, water quantity and quality resulting from overland runoff, concentrations of chemical constituents percolating through the clay soils in the unsaturated zone, and, finally, constituents reaching the ground water. Detailed documentation of chemicals applied to selected agricultural basins, as well as land treatments, such as plowing, is being maintained. The chemical quality of precipitation, runoff, water in the unsaturated zone, and ground water is monitored to determine the fate and movement of various chemicals applied by farmers. These data will be used to determine the effects of selected land-management practices on the chemical quality of surface and ground water. Data collection includes: surface-water quantity and quality, ground-water levels, water quality of the saturated and unsaturated zones, precipitation quantity and quality, and chemical applications. Data collection is scheduled to end September 1990.

Four small basins were selected for study, including two agricultural, a mixed land use, and a forested basin. The agricultural basins are adjacent and cultivated principally for tobacco, one with BMP's and the other with SMP's. Differences in levels of water-quality constituents and volume of runoff are monitored in the agricultural basins. Changes in water-quality constituents caused by implementation of BMP's are monitored in the mixed land-use basin, and ambient or background hydrologic and chemical-quality conditions are monitored in the forested basin. The effects of atmospheric deposition are assumed to be equal among all four basins.

These basins are located in a watershed that is Federally designated as nutrient-sensitive, due to its location above a regional public water-supply reservoir. The government provides increased cost-sharing and technical assistance for farmers to install BMP's in nutrient-sensitive watersheds where it is expected these improvements have the potential for reducing surface- and ground-water pollution.

Purpose and Scope

The purpose of this report is to present a summary of hydrologic and chemical-quality data collected from four rural study basins in Guilford County, North Carolina, from October 1984 through September 1988. Specifically, this report provides discharge and water-quality data from four streamflow stations; ground-water levels (18 wells); precipitation levels (2 stations); unsaturated zone chemical analyses (20 lysimeters); ground-water quality (2 wells); chemical quality of precipitation (1 station); soil analyses (agricultural basins); and a log of farming activities (agricultural basins).

Acknowledgments

The author wishes to acknowledge the technical assistance of the Guilford Soil and Water Conservation District (GSWCD) employees and the unfailing cooperation of the agricultural basins landowners, Messrs. T.R. and Larry Spencer.

Information regarding land treatments and chemical applications in the two agricultural basins, as well as land-use information from the mixed land-use basin, was collected by personnel from GSWCD under the guidance of John W. Andrews, District Conservationist, Soil Conservation Service.

STUDY BASINS

The study basins are located in the headwaters of the Haw River, about 7 miles (mi) northeast of Greensboro, in Guilford County, North Carolina (fig. 1). The study area is underlain by reddish clay soils of the Cecil-Madison Association derived from felsic crystalline parent rock (U.S. Department of Agriculture, 1977). These are well-drained soils that have a loamy surface layer and a clayey subsoil. Typical land-surface slopes range from 2 to 10 percent.

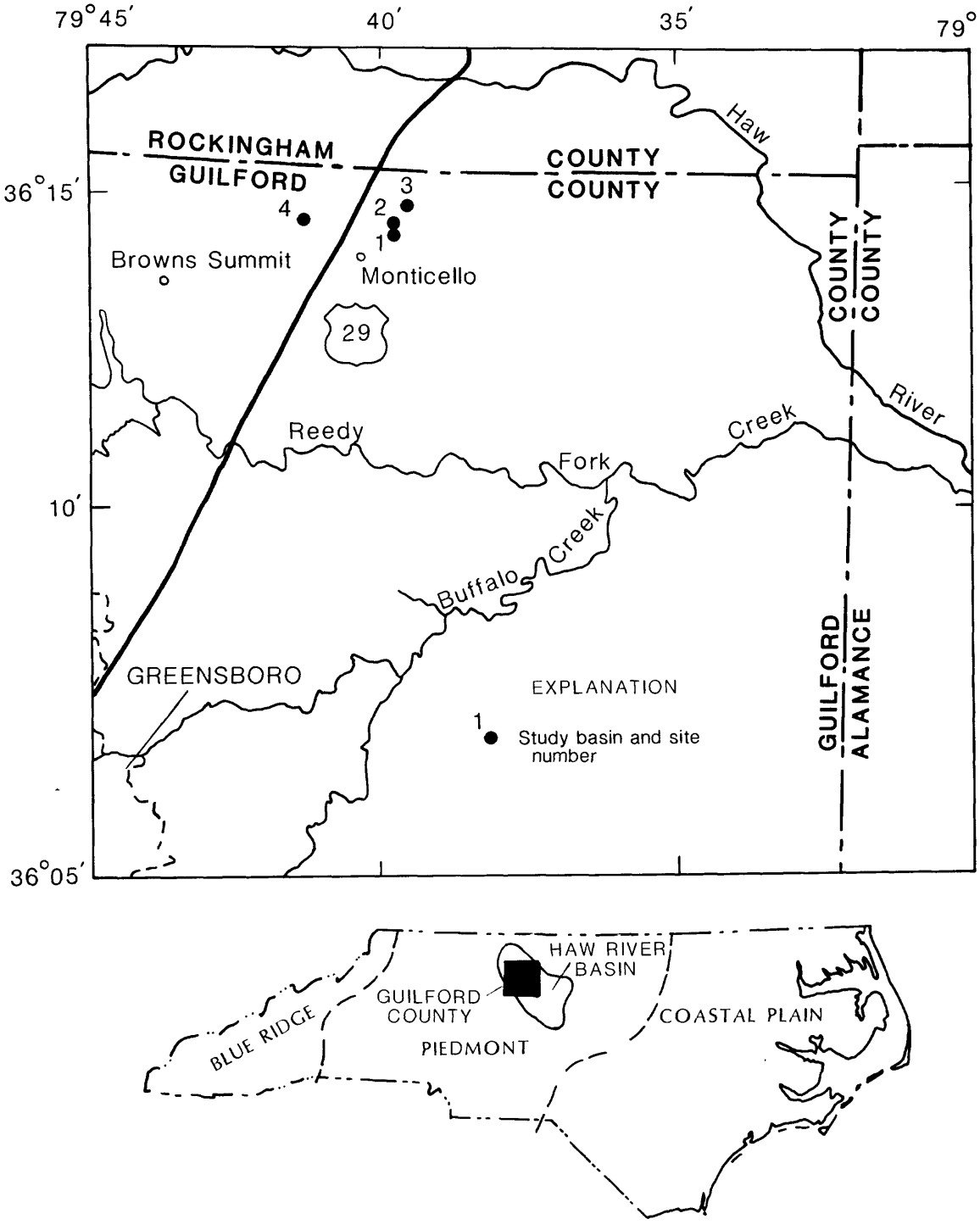


Figure 1.--Location of study basins.

Climate in the Piedmont province is relatively mild with average temperatures of 77 °F in July and 40 °F in January. Below-freezing temperatures occur somewhat frequently in the winter months during early morning hours but rarely remain below freezing during the day (Hardy and others, 1967). Precipitation is evenly distributed throughout the year with an average annual accumulation of 42 inches (Eder and others, 1983). Most precipitation is in the form of rain, but some snow and sleet generally occur each year. Although North Carolina has no distinct wet or dry season, most precipitation historically occurs in July and August due to locally heavy thunderstorms or hurricanes. The least precipitation generally occurs in October and November. Average runoff is about 13 inches per year (Yonts, 1971).

Elimination of as many unquantifiable basin characteristics as possible was attempted during basin selection. The basins are located within a 4-mile radius of each other, and there are no abrupt topographic changes; therefore, the basins are considered climatologically similar. All basins have a Cecil sandy-loam soil series.

Agricultural Basins

The two agricultural basins are about 1 mile southeast of Monticello (fig. 1) and are adjacent to each other. The basins slope gradually east-to-west from approximately 835 feet (ft) to 810 ft above sea level and are drained by the upper and lower tributaries to Smith Creek. Both basins are cultivated by the same farmer, minimizing variations in land preparations and crop cultivation. Tobacco and wheat are the primary and secondary crops, respectively. A small grain cover crop is planted in both basins between growing seasons, but growth is generally sparse. The basins are a paired watershed design with one basin representing BMP's and the other representing SMP's. According to Spooner and others (1985), studies using paired watershed designs show the greatest potential for documenting improvements from BMP implementation as a result of the ability to minimize meteorological, geological, and hydrological variability.

The study basins were arbitrarily assigned BMP or SMP designation then either brought up to correct BMP standards or allowed to remain under SMP. Each basin is monitored for ground-water levels, precipitation accumulation and quality, surface-water quantity and quality, unsaturated zone and ground-water quality, soil analyses, and chemical applications to the land.

The agricultural basin representing BMP's is drained by Smith Branch lower tributary (fig. 1 and fig. 2, site 1). It is characterized by grassed waterways, field borders, contour farming, crop rotation, and strip cropping.

Strip cropping is a pattern of alternating two years of tobacco with two years of small grain seeded with fescue. The drainage area of the basin was 5.9 acres during the first year of the study, October 1984 through September 1985. In the fall of 1985, the row orientation was modified to improve runoff conditions, increasing the basin to 7.4 acres (table 1). During the growing season, 3.7 acres are planted in tobacco; the remaining 3.7 acres are planted in fescue or wheat. The strips were rotated in the fall of 1987.

Table 1.--*Study basin characteristics*

Basin	Site number	Basin size (acres)	Land use	Land management
Smith Branch lower tributary near Monticello	1	7.4	Agricultural	Best land-management
Smith Branch upper tributary near Monticello	2	4.8	Agricultural	Standard land-management
Candy Creek near Monticello	3	665	Mixed	Standard land-management
Brooks Lake tributary near Browns Summit	4	44	Forested	Undisturbed

Site 1--Smith Branch lower tributary

Site 2--Smith Branch upper tributary

Figure 2.--Two agricultural basins: during a rainfall on April 15, 1987 (site 1) and following a rainfall on April 16, 1987 (site 2).

The agricultural basin representing SMP's is drained by Smith Branch upper tributary (fig. 1 and fig. 2, site 2; table 1). It is characterized by row orientation up and down the slope, unmaintained grassed waterways, and continuous production of tobacco during the growing season without crop rotation. The drainage area of this basin is 4.8 acres.

Mixed Land-Use Basin

The mixed land-use basin is approximately 665 acres and is drained by Candy Creek (fig. 1, site 3; table 1). Approximately 47 percent of the basin is cropland, 31 percent woodland, 11 percent pasture, 3 percent water (13 irrigation ponds), and 8 percent residential and roads. Most of the cropland is used for production of tobacco and wheat.

The mixed land-use basin generally represents SMP's, with less than 5 percent of the farms using BMP's. However, BMP's are to be implemented on at least half of the cropland beginning in the fall of 1989. Water-quality data for this basin reflect SMP's. Surface-water quantity and quality are monitored in this basin.

Forested Basin

The forested basin, located about 1 mile northwest of Browns Summit (fig. 1, site 4), is approximately 44 acres and is drained by Brooks Lake tributary (table 1). About 85 percent of the basin is forested, predominately with pine and deciduous softwoods. The remaining area is covered by small brush and grass. The basin is relatively undisturbed by human activities. Surface-water quantity and quality are being collected in this basin throughout the project (1985-90) and will be used for comparing development-induced conditions in the agricultural and mixed land-use basins with prevailing ambient conditions in the study area (as reflected by the forested basin).

HYDROLOGIC DATA

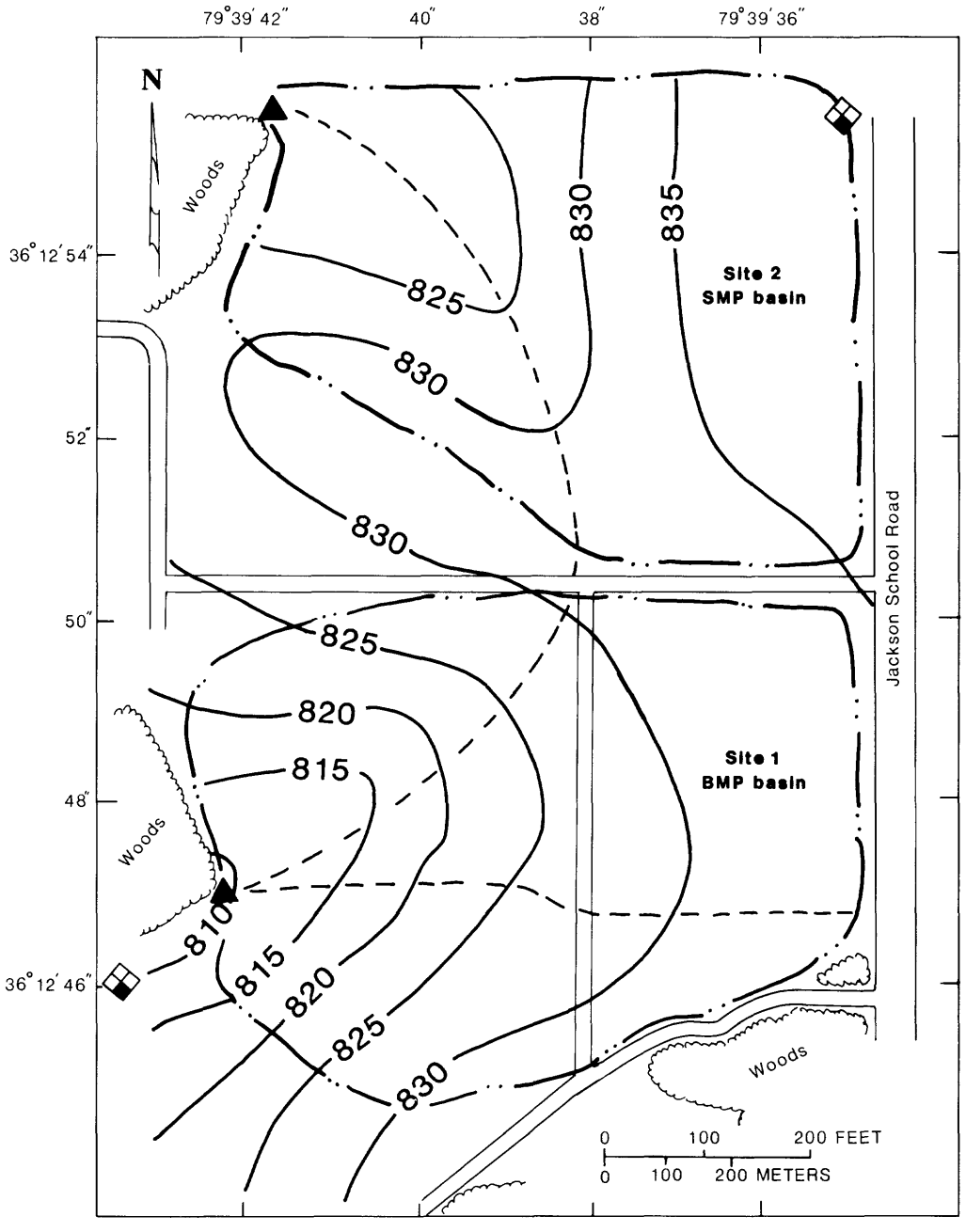
Specific types of records are collected at hydrologic data networks established in the study basins. Records collected in each basin and the recording intervals for each are summarized in table 2. Streamflow, ground-water levels, and cumulative precipitation records are collected in the agricultural basins; stage and discharge data are available for 2 sites, ground-water levels for 18 wells, and precipitation for 2 sites. Stage and discharge data are available for one site in each of the mixed land-use and forested basins.

Table 2.--*Hydrologic data-collection network*

Basin	Site number	Data-collection network	Time interval
Smith Branch lower tributary near Monticello	1	Stream stage and discharge	5-minute
		Ground-water levels	60-minute
		Ground-water levels (8 stations)	monthly
		Precipitation accumulation	5-minute
		Chemical applications	weekly
Smith Branch upper tributary near Monticello	2	Stream stage and discharge	5-minute
		Ground-water levels	60-minute
		Ground-water levels (8 stations)	monthly
		Precipitation accumulation	5-minute
		Chemical applications	weekly
Candy Creek near Monticello	3	Stream stage and discharge	15-minute
		Land use	annually
Brooks Lake tributary near Browns Summit	4	Stream stage and discharge	15-minute

Precipitation

Precipitation records are collected at 5-minute intervals in the agricultural basins. Locations of the rain gages are shown in figure 3. The first rain gage was established in the lower basin on April 1, 1985. A second rain gage was installed March 1, 1986, in the upper basin approximately one-fourth mile from the first gage, to verify rainfall uniformity across both basins.



EXPLANATION

—830—	LAND-SURFACE CONTOUR-- Shows elevation of land surface. Contour interval 5 feet. Datum is sea level
—·—·—	DRAINAGE BOUNDARY
- - - - - - -	WATERWAY
▲	STREAMFLOW STATION
◈	PRECIPITATION STATION
SMP	STANDARD LAND-MANAGEMENT PRACTICES
BMP	BEST LAND-MANAGEMENT PRACTICES

Figure 3.--Runoff and precipitation stations, drainage boundaries, and land-surface elevations in the agricultural basins.

Precipitation was below normal during the period 1985-88 (fig. 4). Precipitation during the growing seasons of those 4 years was 10 percent, 26 percent, 34 percent, and 12 percent below normal, respectively. Precipitation during the nongrowing seasons was 36 percent, 35 percent, and 28 percent below normal for 1985, 1986, and 1988, respectively. In 1987, however, precipitation was 9 percent above normal.

Precipitation data from National Oceanic and Atmospheric (NOAA) Climatological Centers in Greensboro, 15 miles southwest of the study area, and in Reidsville, about 10 miles northeast of the study area, were used for long-term comparison purposes. Precipitation totals at the study area have been within 5 percent of precipitation totals recorded at the Greensboro and Reidsville NOAA stations.

Streamflow

Streamflow from each study basin is monitored continuously. Available stage and discharge record intervals for each streamflow site are listed in table 2. Streamflow from the agricultural basins (fig. 1, sites 1 and 2) is intermittent, whereas streamflow from the mixed land-use and forested basins (fig. 1, sites 3 and 4, respectively) is perennial. The agricultural basins have streamflow only for short periods during storm runoff or irrigation.

Streamflow from the agricultural basins is controlled by standard 120-degree V-notch weirs. Wingwalls are aligned based on row orientation and topography. Streamflow from the forested basin is moderated by a low-stage V-notch weir control. Stream channel banks, which are steep and lined with brush and trees, control mid- to high-stage discharges.

Streamflow from the mixed land-use basin is controlled by a rock outcrop at all but very low stages. Stage records are available at 5-minute intervals for the agricultural basins and at 15-minute intervals for the mixed and forested basins.

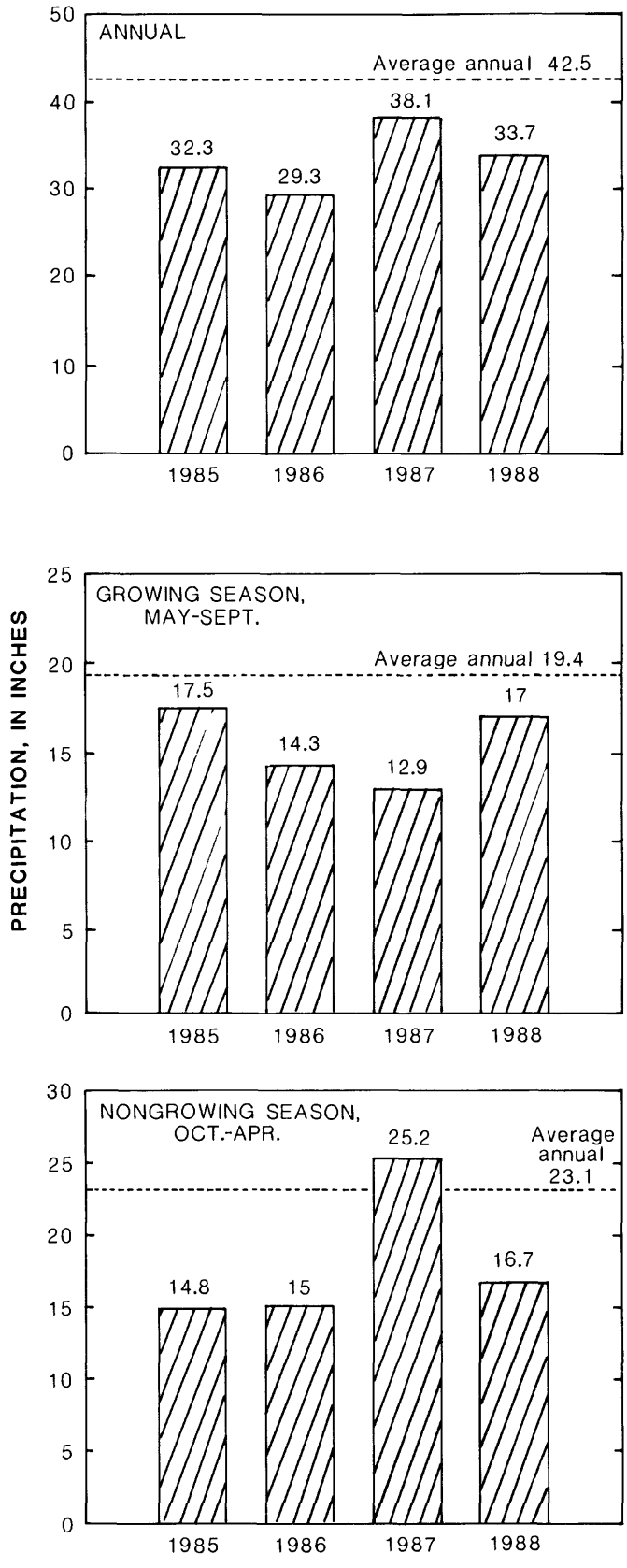


Figure 4.--Annual and seasonal precipitation compared with long-term average.

Discharge measurements are made volumetrically (or by current meters) over the full range of streamflows using standard Survey methods (Rantz and others, 1982). Stage-discharge ratings for the agricultural basins are based on discharge measurements and theoretical ratings for the V-notch weirs. Stage-discharge ratings for the forested and mixed land-use basins are based on discharge measurements.

Ground-Water Levels

During March 1985, 18 shallow wells were installed in the agricultural basins for monitoring water-table fluctuation (16 observation wells) and water-quality sampling (2 monitoring wells) (fig. 5; table 3). Observed water levels will be used in mapping the water table (top of the saturated zone), which varies from about 2 to 27 ft below land surface and has a seasonal fluctuation of about 3 ft. Hourly water levels are recorded at one observation well in each basin, near the streamflow gages. Water levels in remaining wells are measured monthly.

The wells range in depth from 18.5 to 38.5 ft below land surface and are cased with polyvinyl chloride (PVC) pipe and slotted screen. Screens at the bottoms of casings range in length from 5 to 10 ft. Well characteristics are summarized in table 3.

CHEMICAL-QUALITY DATA

Water and soil samples are collected at the study basins for chemical analysis as outlined in table 4. Ground-water samples from 2 wells and 20 lysimeters, streamflow, precipitation, and soil samples are collected at the agricultural basins, and streamflow is collected from the four study basins. To show an example of how these data may be used, the results for the constituent nitrite plus nitrate are presented as two graphs. Mean concentrations of total nitrite plus nitrate from ground water, two depths in the unsaturated zone, and surface-water runoff from the two agricultural basins are compared in figure 6. Mean concentrations of total nitrite plus nitrate during periods of storm runoff from all four basins are shown in figure 7.

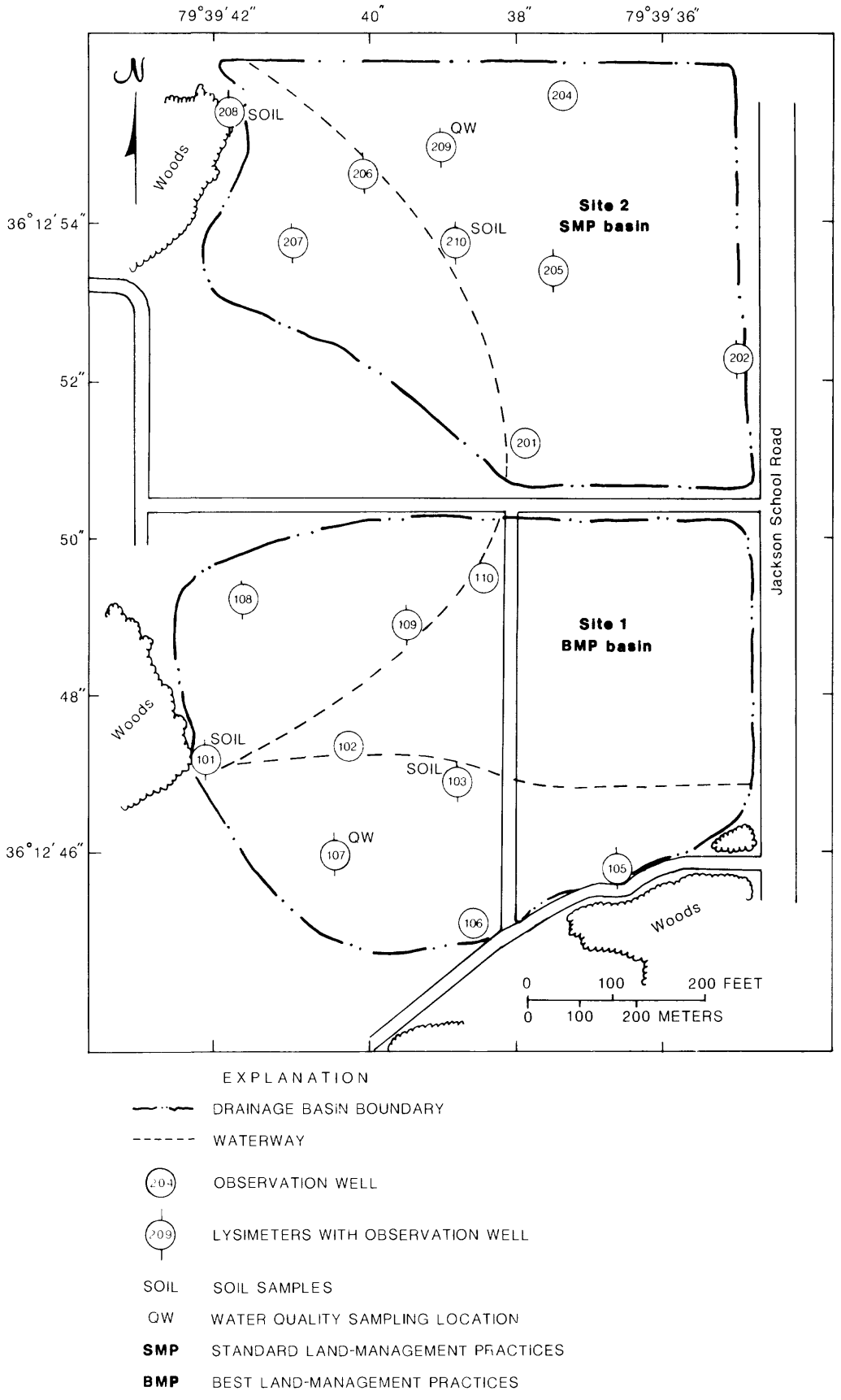


Figure 5.--Ground-water network and soil sample locations in the agricultural basins.

Table 3.--*Summary of observation and monitoring wells in agricultural basins*

[LSD, land-surface datum]

Site number[1]	Altitude of LSD	Depth (feet)	Casing Diameter (inches)	Casing Depth (feet)	Screen From (feet)	Screen To (feet)	Type
Smith Branch lower tributary basin Best land-management practices							
101	809.5	18.5	4	8.5	8.5	18.5	Observation[2]
102	816.1	33.5	2	33.5	33.5	35.5	Observation
103	824.7	23.5	2	18.5	18.5	23.5	Observation
105	832.1	38.5	2	28.5	28.5	38.5	Observation
106	830.2	28.5	2	18.5	18.5	28.5	Observation
107	822.6	28.5	2	23.5	23.5	28.5	Monitoring
108	821.9	23.5	2	18.5	18.5	23.5	Observation
109	821.9	18.5	2	13.5	13.5	18.5	Observation
110	829.8	28.5	2	18.5	18.5	28.5	Observation
Smith Branch upper tributary basin Standard land-management practices							
201	831.1	28.5	2	18.5	18.5	28.5	Observation
202	837.2	38.5	2	33.5	33.5	38.5	Observation
204	835.3	33.5	2	28.5	28.5	33.5	Observation
205	835.1	28.5	2	23.5	23.5	28.5	Observation
206	822.1	23.5	2	18.5	18.5	23.5	Observation
207	828.9	33.5	2	28.5	28.5	33.5	Observation
208	819.3	18.5	4	8.5	8.5	18.5	Observation[2]
209	824.6	23.5	2	18.5	18.5	23.5	Monitoring
210	827.9	23.5	2	18.5	18.5	23.5	Observation

[1]Site number refers to well locations shown in figure 5.
[2]Well equipped with analog-digital recorder.

To assure the technical acceptability of the water-quality data, a quality-assurance plan is followed. This plan documents the procedures, responsibilities, and actions required to assure the reliability and technical quality of the water-quality samples. For example, instruments used for measuring pH and specific conductance in the field are calibrated using standardized solutions prior to each set of measurements. Blind samples are analyzed annually for the determination of pH and specific

conductance. These and similar tests for other constituents verify proper use of field instruments in observing data. Results of all laboratory analyses are routinely reviewed for accuracy and acceptability to standards. Suspected data values are verified through reanalyses as soon as possible.

Table 4.--*Chemical data-collection network*

Basin	Data-collection source	Sampling frequency	Number of samples		
			Inorganic	Organic	Suspended sediment
Smith Branch lower tributary near Monticello	Streamflow	Selected storm events	67	4	174
	Lysimeters: unsaturated zone	Periodically	46	-	-
	Ground water: saturated zone	Quarterly	15	4	-
	Precipitation, bulk	5 times per year	19	-	-
	Soil	Biannually	-	12	-
Smith Branch upper tributary near Monticello	Streamflow	Selected storm events	80	8	140
	Lysimeters: unsaturated zone	Periodically	41	1	-
	Ground water: saturated zone	Quarterly	15	4	-
	Soil	Biannually	-	12	-
Candy Creek near Monticello	Streamflow	Quarterly and selected storm events	67	4	129
Brooks Lake tributary near Browns Summit	Streamflow	Quarterly and selected storm events	35	4	37

Precipitation

Precipitation samples are collected approximately five times each year in one of the agricultural basins using a bulk precipitation collector located adjacent to a recording rain gage (fig. 3, site 1). Precipitation is collected immediately following a storm event and is analyzed for specific conductance and total nutrients as listed in table 5, including ammonium, ammonium plus organic nitrogen, nitrite, nitrite plus nitrate, orthophosphorus, and phosphorus. This information is used to document background concentrations reaching land surface through atmospheric deposition.

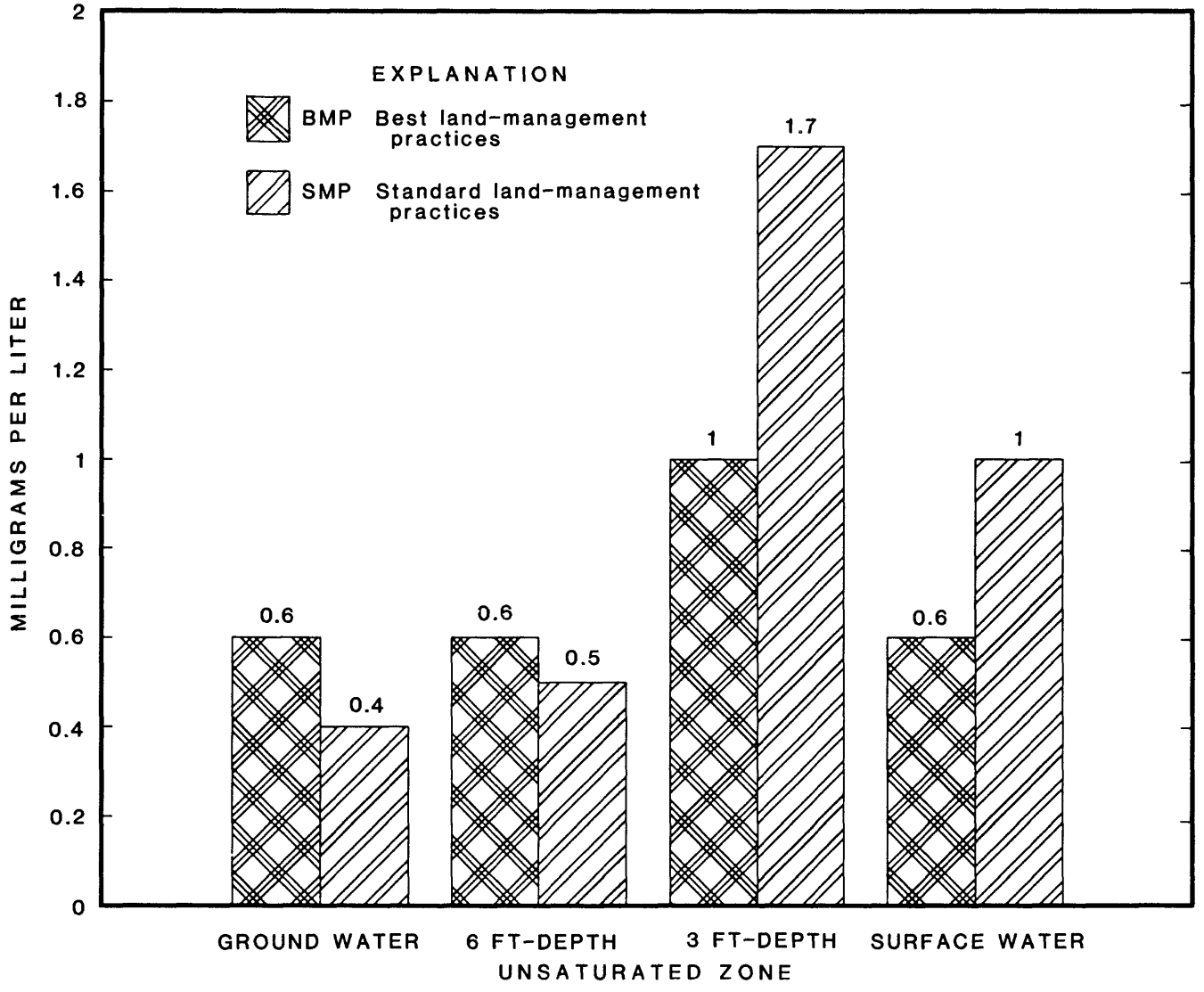


Figure 6.--Mean concentrations of total nitrite plus nitrate in ground water, unsaturated zone, and surface-water runoff from two agricultural basins, 1985-88.

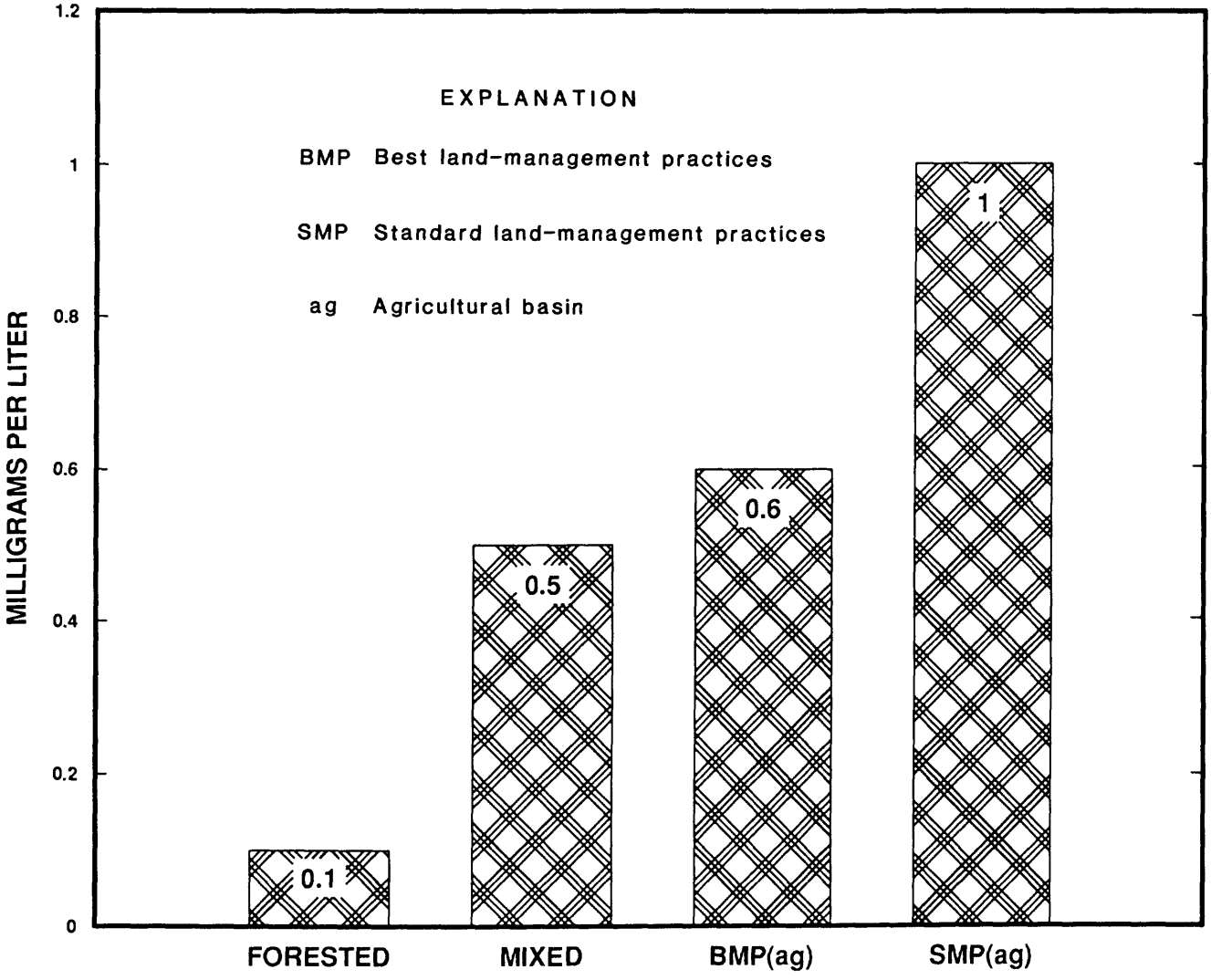


Figure 7.--Mean concentrations of total nitrite plus nitrate during periods of storm runoff from four basins, 1985-88.

Table 5.--*Physical and chemical constituents analyzed in surface water from four basins and in surface water, ground water, precipitation, and soil from two agricultural basins*

Constituent	Surface water	Ground water		Precip-itation	Soil
		Unsaturated zone	Saturated zone		
Suspended sediment	X	-	-	-	-
Particle size	X	-	-	-	-
Specific conductance	X	-	X	X	-
Dissolved solids	X	-	-	-	-
Total:					
Ammonium	X	X	X	X	-
Ammonium + organic nitrogen	X	X	X	X	-
Nitrite	X	X	X	X	-
Nitrite + nitrate	X	X	X	X	-
Potassium	X	X	X	X	-
Orthophosphorus	X	X	X	X	-
Phosphorus	X	X	X	X	-
Dissolved phosphorus	X	-	X	-	-
Total:					
Acephate	X	-	X	-	X
Ethoprop	X	-	X	-	X
Metalaxyl	X	-	X	-	X
Diphenamid	X	-	X	-	X
Isopropalin	X	-	X	-	X
Fenamiphos	X	-	X	-	X
Flumetralin	X	-	X	-	X
Napropamide	X	-	X	-	X

Streamflow

Basin streamflows were sampled for water-quality constituents, including concentration of fluvial suspended sediment, selected organic compounds, potassium, dissolved solids, and suspended and dissolved nutrients as shown in table 5. Field parameters include specific conductance, water temperature, dissolved oxygen, and pH. Water-quality samples are collected manually during periods of base flow (ground-water discharge) from the mixed land-use and forested basins (perennial streams) and either manually or with an automatic sampler during selected storms at all four sites. From 1985-88, samples were collected from 5 storm events at the forested basin, 18 events at the mixed land-use basin, 20 events at the

upper and 14 events at the lower agricultural basins. Samples from numerous other storm events are collected for suspended-sediment concentration analyses.

Automatic samplers obtained instream samples at 5- to 15-minute intervals throughout the selected storm events. Samplers activate at a preselected stage and continue sample collection when the current stage is higher than the beginning stage. Storm samples are collected manually to periodically verify representative sampling by the automatic sampler. To date, no adjustment factors have been applied to any of the suspended-sediment concentrations. Comparison of concentrations from manual and automatic samplers from the two agricultural basins indicate no adjustment factor is warranted; while data from the mixed-land use and forested basin are inconclusive. Storm samples are collected approximately three times per year for analysis of selected organic compounds.

Manual samples, which are collected by depth integrating at the centroid of flow, are filtered and preserved immediately. However, automated samples, which are collected from a fixed intake point using an Instruments Specialties Company (ISCO[1]) model 1680 automated water sampler equipped with an ISCO model 1644 liquid level actuator, are filtered and preserved as soon as possible, generally within 24 hours of the event. Preparation and preservation of samples for water-quality analyses vary depending on the constituent being analyzed. Samples analyzed for dissolved solids and dissolved phosphorus are filtered through a 0.45 micrometer membrane filter. Samples analyzed for total potassium are collected in an acid-rinsed bottle and acidified to a pH of 2.0 or less with nitric acid. Nutrient samples are stored in opaque brown bottles, following filtration when required, and preserved with mercuric chloride.

[1]Use of firm or trade names in this report is for identification purposes only and does not constitute endorsement by the U.S. Geological Survey.

The physical and inorganic constituents are analyzed by the Survey laboratory in Denver using standard procedures as described by Fishman and Friedman (1985). Suspended-sediment concentrations are analyzed by personnel of the Survey Sediment Laboratory in Raleigh, North Carolina, using methodology documented by Guy (1969).

The organic constituents analyzed were chosen from chemicals generally used in the tobacco-growing industry and represent a variety of uses as well as chemical characteristics (table 6). All are relatively stable but vary in degree of water solubility or soil adsorption. Concentrations of these compounds in water were determined using gas chromatograph techniques with either flame-ionization or electron-capturing detection by the Research Triangle Institute, a private contract laboratory. Quality assurance is maintained through the use of a quality-assurance plan developed by the contract laboratory and reviewed by the Survey. At least one blind and (or) duplicate sample is submitted with each set of organic samples submitted. The sampling for organic compounds in water did not begin until the second year of the study.

Table 6.--*Summary of organic constituents analyzed in surface water from four basins and in surface water, ground water, and soil from two agricultural basins*

Common name	Trade name	Active ingredient (percent)	Primary use	Detection limit (micrograms per liter)
Acephate	Orthene	75.0	Insecticide	0.50
Ethoprop	Mocap		Insecticide	.05
Metalaxyl	Ridomil 2E	25.1	Fungicide	.50
Diphenamide	Enid 90W	90	Herbicide	.13
Isopropalin	Paarlan		Herbicide	.005
Fenamiphos	Nemacur	15	Insecticide	2.5
Flumetralin	Prime Plus	15	Plant growth regulator	.005
Napropamide	Devrinol 2E	21.8	Herbicide	.25

Ground Water

Ground-water samples are collected from both the unsaturated and saturated zones in the agricultural basins (fig. 6; table 5). Unsaturated-zone samples are collected from approximately 20 points through the use of vacuum-pressure lysimeters. Lysimeter locations are shown in figure 5.

The vacuum-pressure lysimeters were installed at varying depths to monitor chemical movement through the unsaturated zone. To remove impurities, the lysimeters were washed with dilute hydrochloric acid and rinsed with distilled water prior to installation. The lysimeters were installed in clusters of 3 next to 12 wells so the ground-water level at each cluster could be monitored to determine if the lysimeter was in the saturated or unsaturated zone. In each cluster, the porous ceramic cups or lysimeter bottoms were set at 3, 6, or 9 ft below land surface. These cups were placed in a silica pack that prevents clogging of the pores of the ceramic cup and also aids in so-called "attaching" the lysimeter to the soil.

A vacuum-pressure of approximately 40 centibars or four-tenths standard atmospheric pressure was applied to each lysimeter by the use of a vacuum pump. This allows any soil moisture to be forced into the lysimeter through the porous ceramic cup. The unsaturated-zone samples are analyzed only for nutrients (table 5).

Saturated-zone samples are obtained at 3- and 4-month intervals from wells 107 and 209 (fig. 5). Samples collected at 3-month intervals are analyzed for nutrients, and samples collected at 4-month intervals are analyzed for selected organic compounds (table 5). Each well is bailed prior to sample collection to ensure the sample is representative of ground water. The well is bailed until the temperature, conductivity, and pH of the water being removed from the well has stabilized. All samples are retrieved with a teflon bailer and cord, and immediately preserved and chilled.

Soil

Soil samples obtained at selected points in the agricultural basins are analyzed for the same organic compounds as the surface- and ground-water samples (tables 5 and 6). During 1987, 2 sets of 12 samples each were collected at 4 locations (2 in each field) near observation-well sites 101, 103, 208, and 210 (fig. 5). Sample depths are 3, 6, and 9 inches below land surface. The samples are collected with a hand auger and a stainless steel spoon, both of which are cleaned and rinsed with methanol after sample collection. The samples are stored in organically-clean glass bottles, chilled, and taken to the private contract laboratory for analyses.

PRESENTATION OF DATA

Hydrologic and chemical-quality data collected from October 1984 through September 1988 are presented in this section. A log of agricultural activities, including records of chemical applications in the agricultural basins, is also provided to establish a basis for the interpretation of these data.

Data are presented in the following order: data from the agricultural basins; data from the mixed land-use basin; data from the forested basin; organic analyses; and farming activities logs.

Agricultural Basins

Data are presented for the agricultural basin with BMP's and the agricultural basin with SMP's in tables 7 through 21. Records of daily mean discharge are given first, followed by water-quality analyses of runoff, suspended-sediment data, ground-water levels, water-quality analyses in the unsaturated and saturated zones, miscellaneous ground-water analyses, precipitation accumulations, and precipitation quality.

Wells and lysimeters located in the basin with BMP's have local identification numbers between 101 and 110. Similarly, wells and lysimeters

in the basin with SMP's have local identification numbers ranging from 201 to 210. The lysimeters are located adjacent to various wells and are given a number that corresponds to the local number for that well followed by the depth of the lysimeter. For example: Lysimeter 101-3 is located next to well 101 and is 3 ft deep.

Periodically, the water table rose to some of the lysimeters causing them to be in the saturated zone. On these occasions, the lysimeters were not sampled. Samples were collected on the same day from any of the lysimeters that could sample the unsaturated zone, but not every lysimeter produced a water sample.

Records of sample analyses from the unsaturated zone are presented according to station. Data include the corresponding water level in the well adjacent to the lysimeter of interest. During the first two years of the study, 1985 and 1986, very few water samples were collected from the lysimeters due to lack of rainfall and corresponding lack of soil moisture. Abundant rainfall occurred during the winter and spring of 1987, and most of the lysimeter samples collected to date are from that period.

Miscellaneous ground-water samples were collected at observation wells in the agricultural basins, and these analyses are presented following data from the two monitoring wells sampled routinely.

Table 7.--*Daily discharge for Smith Branch lower tributary, April 1985-September 1988*

LOCATION.--Lat 36°12'47", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.2 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437850; Hydrologic Unit 03030002.

DRAINAGE AREA.--7.4 acres (0.0116 mi^2). Prior to April 1, 1986: 5.9 acres (0.0092 mi^2).

PERIOD OF RECORD.--April 1985 to September 1988.

GAGE.--Water-stage recorder with 5-minute punch interval (April 5 to June 13, 1985, 15-minute punch interval). Datum of gage is 803.38 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good; mi, mile; mi^2, miles squared; ft, foot; MAX, maximum; MIN, minimum; CFSM, cubic foot per second per square mile; IN., inch.

DISCHARGE, IN CUBIC FEET PER SECOND, APRIL 1985 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	---	---	---	---	---	---	0.000	0.000	0.000	0.003	0.000	0.000
2	---	---	---	---	---	---	.000	.000	.000	.000	.000	.000
3	---	---	---	---	---	---	.000	.000	.000	.000	.000	.000
4	---	---	---	---	---	---	.000	.000	.000	.000	.000	.000
5	---	---	---	---	---	---	.000	.000	.000	.000	.000	.000
6	---	---	---	---	---	---	.000	.000	.000	.000	.000	.000
7	---	---	---	---	---	---	.000	.000	.000	.000	.000	.000
8	---	---	---	---	---	---	.000	.000	.000	.000	.007	.000
9	---	---	---	---	---	---	.000	.000	.000	.000	.002	.000
10	---	---	---	---	---	---	.000	.000	.000	.001	.000	.000
11	---	---	---	---	---	---	.000	.000	.011	.000	.000	.000
12	---	---	---	---	---	---	.000	.000	.000	.000	.000	.000
13	---	---	---	---	---	---	.000	.000	.000	.350	.000	.000
14	---	---	---	---	---	---	.000	.000	.000	.000	.000	.000
15	---	---	---	---	---	---	.000	.000	.000	.000	.000	.000
16	---	---	---	---	---	---	.000	.011	.007	.000	.000	.000
17	---	---	---	---	---	---	.000	.000	.000	.000	.069	.000
18	---	---	---	---	---	---	.000	.000	.000	.000	.130	.000
19	---	---	---	---	---	---	.000	.000	.000	.000	.000	.000
20	---	---	---	---	---	---	.000	.000	.000	.000	.072	.000
21	---	---	---	---	---	---	.000	.025	.000	.000	.023	.000
22	---	---	---	---	---	---	.000	.026	.000	.000	.000	.000
23	---	---	---	---	---	---	.000	.000	.000	.000	.000	.000
24	---	---	---	---	---	---	.000	.000	.000	.000	.028	.000
25	---	---	---	---	---	---	.000	.000	.000	.116	.036	.000
26	---	---	---	---	---	---	.000	.000	.000	.004	.179	.000
27	---	---	---	---	---	---	.000	.000	.006	.330	.198	.000
28	---	---	---	---	---	---	.000	.000	.000	.036	.001	.000
29	---	---	---	---	---	---	.000	.000	.139	.000	.000	.000
30	---	---	---	---	---	---	.000	.000	.000	.000	.003	.000
31	---	---	---	---	---	---	---	.000	---	.000	.001	---
TOTAL	---	---	---	---	---	---	.000	.062	.163	.840	.749	.000
MEAN	---	---	---	---	---	---	.000	.002	.005	.027	.024	.000
MAX	---	---	---	---	---	---	.000	.026	.139	.350	.198	.000
MIN	---	---	---	---	---	---	.000	.000	.000	.000	.000	.000
CFSM	---	---	---	---	---	---	.00	.22	.59	2.95	2.63	.00
IN.	---	---	---	---	---	---	.00	.25	.66	3.40	3.03	.00

Table 7.--*Daily discharge for Smith Branch lower tributary, April 1985-September 1988* --Continued

LOCATION.--Lat 36°12'47", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.2 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437850; Hydrologic Unit 03030002.

DRAINAGE AREA.--7.4 acres (0.0116 mi^2). Prior to April 1, 1986: 5.9 acres (0.0092 mi^2).

PERIOD OF RECORD.--April 1985 to September 1988.

GAGE.--Water-stage recorder with 5-minute punch interval (April 5 to June 13, 1985, 15-minute punch interval). Datum of gage is 803.38 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good; mi, mile; mi^2, miles squared; ft, foot; MAX, maximum; MIN, minimum; CFSM, cubic foot per second per square mile; IN., inch; WTR YR, water year (October through September).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	0.000	0.000	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000
2	.000	.002	.004	.000	.000	.000	.000	.000	.000	.012	.000	.000
3	.000	.051	.002	.000	.000	.000	.000	.000	.000	.000	.000	.053
4	.000	.289	.002	.000	.000	.000	.000	.000	.000	.000	.000	.000
5	.000	.003	.002	.000	.000	.000	.000	.000	.000	.000	.000	.017
6	.000	.000	.000	.000	.002	.000	.000	.000	.000	.000	.000	.000
7	.000	.000	.000	.000	.015	.000	.000	.000	.000	.000	.000	.000
8	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
9	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
10	.000	.000	.000	.000	.000	.000	.000	.000	.000	.046	.000	.000
11	.000	.000	.000	.000	.005	.000	.000	.000	.000	.000	.522	.000
12	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.103	.000
13	.000	.010	.016	.000	.000	.000	.000	.000	.000	.000	.002	.000
14	.000	.000	.000	.000	.000	.033	.000	.000	.000	.000	.000	.000
15	.015	.000	.000	.000	.000	.007	.000	.000	.000	.000	.000	.000
16	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
17	.000	.000	.000	.000	.000	.000	.000	.000	.000	.004	.065	.000
18	.000	.000	.000	.000	.000	.000	.000	.000	.000	.016	.000	.000
19	.000	.000	.000	.000	.000	.004	.000	.000	.000	.000	.000	.000
20	.000	.000	.000	.000	.000	.003	.000	.008	.000	.000	.035	.000
21	.000	.147	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
22	.000	.034	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
23	.000	.002	.000	.000	.000	.000	.000	.000	.000	.000	.118	.000
24	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000	.010	.000
25	.000	.000	.000	.000	.000	.000	.000	.000	.013	.004	.000	.000
26	.000	.000	.000	.000	.000	.000	.000	.000	.000	.077	.000	.000
27	.000	.000	.000	.000	.002	.000	.000	.000	.000	.001	.000	.000
28	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000	.004	.000
29	.000	.178	.000	.000	---	.000	.000	.000	.001	.000	.000	.000
30	.000	.083	.000	.000	---	.000	.000	.000	.000	.000	.000	.000
31	.000	---	.000	.000	---	.000	---	.000	---	.000	.000	---
TOTAL	.015	.801	.037	.000	.024	.047	.000	.008	.014	.164	.859	.070
MEAN	.000	.027	.001	.000	.001	.002	.000	.000	.000	.005	.028	.002
MAX	.015	.289	.016	.000	.015	.033	.000	.008	.013	.077	.522	.053
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
CFSM	.05	2.90	.13	.00	.09	.16	.00	.02	.04	.46	2.39	.20
IN.	.06	3.24	.15	.00	.09	.18	.00	.03	.04	.53	2.75	.22

WTR YR 1986: TOTAL 2.039, MEAN 0.006, MAX 0.522, MIN 0.000, CFSM 0.54, IN. 7.29

Table 7.--*Daily discharge for Smith Branch lower tributary, April 1985-September 1988* --Continued

LOCATION.--Lat 36°12'47", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.2 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437850; Hydrologic Unit 03030002.

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DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	0.000	0.000	0.001	0.020	0.023	0.678	0.000	0.000	0.041	0.000	0.000	0.000
2	.000	.000	.022	.002	.048	.011	.000	.000	.000	.000	.000	.000
3	.000	.000	.001	.000	.050	.000	.017	.000	.000	.116	.000	.000
4	.000	.000	.000	.000	.014	.003	.001	.000	.000	.000	.013	.000
5	.000	.000	.000	.000	.010	.002	.000	.000	.000	.000	.000	.000
6	.000	.000	.000	.000	.006	.001	.000	.000	.000	.000	.000	.001
7	.000	.028	.000	.000	.003	.000	.000	.000	.000	.000	.000	.240
8	.000	.000	.000	.000	.002	.000	.000	.000	.000	.000	.000	.203
9	.000	.000	.001	.000	.000	.048	.000	.000	.000	.000	.000	.000
10	.000	.000	.001	.000	.000	.008	.000	.000	.000	.000	.000	.004
11	.000	.024	.035	.000	.000	.004	.000	.000	.000	.016	.000	.000
12	.000	.000	.000	.000	.000	.003	.005	.000	.000	.000	.000	.062
13	.000	.000	.000	.000	.000	.002	.000	.000	.000	.016	.000	.000
14	.020	.000	.000	.000	.000	.001	.000	.000	.000	.000	.000	.000
15	.000	.000	.000	.000	.000	.000	1.13	.000	.000	.000	.000	.000
16	.000	.000	.000	.000	.000	.000	.324	.000	.000	.000	.000	.000
17	.000	.000	.000	.000	.000	.000	.008	.000	.000	.000	.000	.000
18	.000	.000	.000	.026	.000	.000	.015	.000	.000	.000	.000	.000
19	.000	.000	.000	.076	.006	.010	.003	.002	.000	.000	.000	.000
20	.000	.026	.000	.004	.018	.001	.003	.000	.000	.000	.000	.000
21	.000	.000	.000	.002	.025	.000	.002	.000	.000	.000	.000	.000
22	.000	.000	.000	.001	.060	.000	.002	.000	.000	.035	.000	.000
23	.000	.000	.000	.010	.059	.000	.001	.000	.000	.000	.000	.000
24	.000	.000	.080	.007	.010	.000	.234	.000	.000	.021	.000	.000
25	.006	.000	.003	.003	.005	.000	.042	.000	.000	.000	.000	.000
26	.015	.001	.000	.002	.003	.000	.005	.004	.000	.000	.000	.000
27	.000	.000	.000	.001	.003	.000	.002	.000	.000	.000	.000	.000
28	.000	.000	.000	.000	.328	.000	.002	.001	.000	.000	.000	.000
29	.000	.000	.000	.000	---	.000	.001	.000	.000	.000	.000	.000
30	.000	.000	.000	.013	---	.004	.000	.000	.000	.000	.000	.000
31	.000	---	.000	.027	---	.006	---	.000	---	.000	.000	---
TOTAL	.041	.079	.144	.194	.673	.782	1.797	.007	.041	.204	.013	.510
MEAN	.001	.003	.005	.006	.024	.025	.060	.000	.001	.007	.000	.017
MAX	.020	.028	.080	.076	.328	.678	1.130	.004	.041	.116	.013	.240
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
CFSM	.11	.23	.40	.54	2.07	2.17	5.16	.02	.12	.57	.04	1.47
IN.	.13	.25	.46	.62	2.16	2.51	5.76	.02	.13	.65	.04	1.64

CAL YR 1986: TOTAL 1.450, MEAN 0.004, MAX 0.522, MIN 0.000, CFSM 0.34, IN. 4.69
WTR YR 1987: TOTAL 4.485, MEAN 0.012, MAX 1.130, MIN 0.000, CFSM 1.06, IN. 14.38

Table 7.--*Daily discharge for Smith Branch lower tributary, April 1985-September 1988* --Continued

LOCATION.--Lat 36°12'47", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.2 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437850; Hydrologic Unit 03030002.

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REMARKS.--Records good; mi, mile; mi^2, miles squared; ft, foot; MAX, maximum; MIN, minimum; CFSM, cubic foot per second per square mile; IN., inch; CAL YR, calendar year; WTR YR, water year (October through September).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	.000	.000	.000	.003	.000	.000	.000	.000	.022	.000	.000	.000
3	.000	.000	.000	.009	.004	.000	.000	.000	.003	.003	.000	.000
4	.000	.000	.000	.014	.036	.000	.000	.004	.000	.021	.000	.061
5	.000	.000	.000	.000	.003	.000	.000	.000	.000	.000	.000	.001
6	.001	.000	.000	.000	.001	.000	.000	.000	.000	.000	.000	.000
7	.000	.000	.000	.000	.000	.000	.001	.000	.000	.000	.000	.000
8	.000	.000	.000	.000	.000	.000	.000	.000	.000	.016	.000	.000
9	.000	.000	.000	.000	.000	.003	.000	.000	.005	.000	.000	.200
10	.000	.016	.073	.000	.000	.008	.000	.001	.000	.000	.000	.001
11	.000	.003	.002	.000	.000	.000	.000	.000	.000	.000	.000	.000
12	.000	.000	.000	.000	.000	.000	.004	.000	.000	.493	.000	.000
13	.000	.000	.000	.001	.000	.001	.000	.000	.000	.005	.000	.000
14	.000	.000	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000
15	.000	.000	.048	.000	.000	.000	.000	.000	.000	.000	.000	.000
16	.000	.000	.000	.000	.000	.000	.000	.005	.000	.000	.000	.000
17	.000	.003	.000	.004	.000	.000	.000	.193	.000	.000	.000	.010
18	.000	.000	.000	.024	.000	.002	.017	.001	.000	.000	.000	.000
19	.000	.000	.000	.034	.000	.004	.064	.000	.000	.000	.000	.000
20	.000	.000	.000	.059	.000	.000	.000	.008	.000	.000	.000	.000
21	.000	.000	.000	.011	.000	.000	.000	.000	.000	.022	.000	.000
22	.000	.000	.000	.003	.000	.000	.000	.000	.000	.004	.000	.000
23	.000	.000	.000	.002	.000	.000	.000	.029	.000	.002	.000	.000
24	.000	.000	.000	.000	.000	.000	.000	.003	.000	.000	.000	.000
25	.000	.000	.005	.012	.000	.013	.000	.000	.000	.000	.000	.000
26	.000	.001	.000	.001	.000	.001	.000	.000	.000	.000	.000	.000
27	.003	.027	.019	.000	.000	.000	.000	.000	.000	.037	.000	.000
28	.000	.000	.027	.000	.000	.000	.000	.000	.000	.000	.000	.000
29	.000	.006	.002	.000	.000	.000	.000	.000	.000	.000	.059	.000
30	.000	.000	.000	.000	---	.000	.000	.000	.000	.000	.000	.000
31	.000	---	.000	.000	---	.000	---	.000	---	.000	.000	---
TOTAL	.004	.056	.176	.183	.044	.032	.086	.244	.030	.603	.059	.273
MEAN	.000	.002	.006	.006	.002	.001	.003	.008	.001	.019	.002	.009
MAX	.003	.027	.073	.059	.036	.013	.064	.193	.022	.493	.059	.200
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
CFSM	.01	.16	.49	.51	.13	.09	.25	.68	.09	1.68	.16	.78
IN.	.01	.18	.56	.59	.14	.10	.28	.78	.10	1.93	.19	.88

CAL YR 1987: TOTAL 4.457, MEAN 0.012, MAX 1.130, MIN 0.000, CFSM 1.05, IN. 14.29
WTR YR 1988: TOTAL 1.790, MEAN 0.005, MAX 0.493, MIN 0.000, CFSM 0.42, IN. 5.74

Table 8.--*Physical, chemical, and suspended-sediment data for Smith Branch lower tributary, June 1985-September 1988*

LOCATION.--Lat 36°12'47", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.2 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437850; Hydrologic Unit 03030002.

DRAINAGE AREA.--7.4 acres (0.0116 mi^2). Prior to April 1, 1986: 5.9 acres (0.0092 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; µS/CM, microsiemens per centimeter at 25 degrees Celsius (°C); MG/L, milligram per liter; T/DAY, ton per day.

WATER-QUALITY DATA, JUNE 1985 TO AUGUST 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (µS/CM)	pH (STAND-ARD UNITS)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	SOLIDS, RESIDUE AT 180 °C, DIS-SOLVED (MG/L)	NITRO-GEN, NO_2+NO_3, TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA, TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC, TOTAL (MG/L AS N)
JUNE									
29	1808	0.32	74	--	10	--	<0.10	0.020	--
29	1815	8.9	52	--	11	--	1.1	.30	11
29	1830	4.8	38	--	7.8	--	.50	.13	9.1
JULY									
25	0928	.05	36	7.50	7.7	29	.40	.26	3.7
25	0940	.18	30	6.80	6.8	23	.40	.10	3.6
25	0955	.10	29	6.70	6.5	26	.70	.45	2.7
25	1005	.59	21	6.60	5.5	--	.50	.35	3.8
25	1025	1.1	22	--	5.0	32	.30	.22	3.0
AUG									
17	2235	.66	38	5.90	5.9	26	.40	.22	3.8
17	2245	1.7	31	5.60	5.5	25	.40	.22	1.9
20	1945	7.4	60	7.30	.9	--	.60	.21	5.0
21	1600	1.7	45	8.10	1.0	--	.80	.43	2.1
26	1143	.84	33	--	5.3	--	.20	.08	6.9
26	1150	12	20	--	4.4	--	.20	.09	3.2
26	1200	5.6	18	--	3.7	24	.30	.15	2.3

DATE	TIME	NITRO-GEN, AM-MONIA + ORGANIC, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO_3)	PHOS-PHOROUS, TOTAL (MG/L AS P)	PHOS-PHOROUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)
JUNE									
29	1808	--	--	--	--	0.10	<0.01	17,300	15
29	1815	11	12	54	--	.03	.02	8,930	214
29	1830	9.2	9.7	43	0.46	.03	.03	6,520	84
JULY									
25	0928	4.0	4.4	19	.27	.12	.18	2,420	.33
25	0940	3.7	4.1	18	.30	.14	.10	2,470	1.2
25	0955	3.2	3.9	17	.54	.27	.18	2,100	.57
25	1005	4.1	4.6	20	.26	.13	.16	5,530	8.8
25	1025	3.2	3.5	15	.27	.03	.12	--	--
AUG									
17	2235	4.0	4.4	19	.12	.11	.12	2,020	3.6
17	2245	2.1	2.5	11	.21	.06	.23	1,580	7.5
20	1945	5.2	5.8	26	.35	--	.10	2,260	45
21	1600	2.5	3.3	15	.42	--	.05	2,980	14
26	1143	7.0	7.2	32	.11	.07	.03	770	1.7
26	1150	3.3	3.5	15	.16	.08	.10	2,120	69
26	1200	2.5	2.8	12	.11	.09	.07	1,300	20

Table 8.--*Physical, chemical, and suspended-sediment data for Smith Branch lower tributary, June 1985-September 1988*--Continued

LOCATION.--Lat 36°12'47", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.2 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437850; Hydrologic Unit 03030002.

DRAINAGE AREA.--7.4 acres (0.0116 mi^2). Prior to April 1, 1986: 5.9 acres (0.0092 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; µS/CM, microsiemens per centimeter at 25 degrees Celsius (°C); MG/L, milligram per liter; T/DAY, ton per day.

WATER-QUALITY DATA, MAY 1986 TO AUGUST 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (µS/CM)	pH (STAND-ARD UNITS)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	SOLIDS, RESIDUE AT 180 °C, DIS-SOLVED (MG/L)	NITRO-GEN, NO_2+NO_3, TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA, TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC, TOTAL (MG/L AS N)
MAY									
20	1400	0.18	69	6.10	--	40	0.68	0.57	4.8
20	1405	.47	64	6.10	9.4	22	.52	.37	4.1
20	1415	.32	80	6.10	10	40	.49	.31	4.8
AUG									
23	2238	.50	43	5.30	7.2	34	.36	.13	.24
23	2240	13	30	5.40	5.3	32	.27	.11	.41
23	2250	2.5	25	5.40	4.8	25	.21	.07	.31
23	2315	.19	28	5.40	4.6	22	.26	.11	.31

DATE	TIME	NITRO-GEN, AM-MONIA + ORGANIC, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO_3)	PHOS-PHOROUS, TOTAL (MG/L AS P)	PHOS-PHOROUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)
MAY									
20	1400	5.4	6.1	27	0.16	0.10	--	1,470	0.71
20	1405	4.5	5.0	22	.15	.10	--	--	--
20	1415	5.1	5.6	25	.13	.10	--	1,640	1.4
AUG									
23	2238	.37	.73	3.2	.73	--	0.11	--	--
23	2240	.52	.79	3.5	.97	--	.12	2,480	90
23	2250	.38	.59	2.6	.70	--	.12	1,640	11
23	2315	.42	.68	3.0	.64	--	.14	1,130	.58

Table 8.--*Physical, chemical, and suspended-sediment data for Smith Branch lower tributary, June 1985-September 1988*--Continued

LOCATION.--Lat 36°12'47", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.2 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437850; Hydrologic Unit 03030002.

DRAINAGE AREA.--7.4 acres (0.0116 mi^2). Prior to April 1, 1986: 5.9 acres (0.0092 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; µS/CM, microsiemens per centimeter at 25 degrees Celsius (°C); MG/L, milligram per liter.

WATER-QUALITY DATA, OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (µS/CM)	pH (STAND-ARD UNITS)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	SOLIDS, RESIDUE AT 180 °C, DIS-SOLVED (MG/L)	NITRO-GEN, NO_2+NO_3, TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA, TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC, TOTAL (MG/L AS N)
OCT									
14	0135	0.22	55	5.80	12	71	0.500	0.580	0.82
14	0145	.53	49	6.70	12	80	.400	.220	--
14	0200	.30	49	6.80	12	61	.400	.230	2.8
NOV									
07	1435	.19	40	6.40	6.6	--	<.100	.130	1.4
07	1440	.47	33	6.00	5.9	--	<.100	.120	1.1
07	1450	.59	29	6.00	5.3	--	.100	.150	.25
07	1505	.33	36	6.00	6.0	--	.200	.130	.67
07	1515	.24	38	5.90	6.3	--	.200	.150	.85
JAN									
19	0720	.21	120	7.20	12	--	4.50	5.10	.30
19	0745	.42	88	7.20	8.2	--	.400	3.50	.60
19	0755	1.7	58	7.10	6.6	--	.300	2.70	.40
19	0800	1.2	53	7.00	6.1	--	.300	2.20	1.2
APR									
15	1123	.21	23	6.60	2.5	--	<.100	.140	2.3
15	1130	.44	20	6.50	2.7	--	<.100	.160	.94
15	1140	1.7	28	6.40	4.4	--	<.100	.210	2.2
15	1150	1.2	23	6.40	5.1	--	.100	.200	.90
15	1250	8.3	23	6.30	--	--	.200	.410	.79
15	1255	26	22	6.30	7.2	--	.200	.260	6.2
15	1300	15	22	6.30	--	--	.200	.440	3.1
15	1305	7.8	22	6.30	--	--	.300	.280	6.1
JULY									
03	1940	3.2	32	6.00	--	--	1.20	1.00	11
03	1955	3.5	27	6.10	--	--	.800	.800	12
03	2010	.73	23	6.10	--	--	.600	.880	9.1
SEPT									
07	0458	.37	31	6.50	--	--	<.100	.070	1.5
07	0505	1.0	21	6.40	3.5	--	.200	.090	--
07	0515	.50	20	6.50	3.4	--	.200	.080	1.3

Table 8.--*Physical, chemical, and suspended-sediment data for Smith Branch lower tributary, June 1985-September 1988*--Continued

LOCATION.--Lat 36°12'47", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.2 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437850; Hydrologic Unit 03030002.

DRAINAGE AREA.--7.4 acres (0.0116 mi^2). Prior to April 1, 1986: 5.9 acres (0.0092 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; MG/L, milligram per liter; T/DAY, ton per day.

WATER-QUALITY DATA, OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	NITROGEN, AMMONIA + ORGANIC, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO_3)	PHOSPHOROUS, TOTAL (MG/L AS P)	PHOSPHOROUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)
OCT									
14	0135	1.4	1.9	8.4	0.680	0.070	0.250	1,200	0.71
14	0145	--	--	--	.540	.200	.130	1,100	1.6
14	0200	3.0	3.4	15	.250	.160	.230	830	.67
NOV									
07	1435	1.5	--	--	.150	--	.070	110	.06
07	1440	1.2	--	--	.140	--	.030	310	.39
07	1450	.40	.50	2.2	.280	--	.070	300	.48
07	1505	.80	1.0	4.4	.230	--	.060	200	.18
07	1515	1.0	1.2	5.3	.130	--	.060	180	.12
JAN									
19	0720	5.4	9.9	44	2.20	--	2.20	150	.08
19	0745	4.1	4.5	20	1.90	--	1.60	310	.35
19	0755	3.1	3.4	15	2.80	--	1.20	820	3.9
19	0800	3.4	3.7	16	2.90	--	1.00	700	2.3
APR									
15	1123	2.4	--	--	.340	--	.110	330	.19
15	1130	1.1	--	--	.410	--	.140	510	.61
15	1140	2.4	--	--	.520	--	.080	1,080	5.1
15	1150	1.1	1.2	5.3	.390	--	.060	1,230	4.1
15	1250	1.2	1.4	6.2	3.50	--	.090	3,290	74
15	1255	6.5	6.7	30	.880	--	.020	7,800	539
15	1300	3.5	3.7	16	.690	--	.110	7,460	304
15	1305	6.4	6.7	30	.850	--	.090	5,620	119
JULY									
03	1940	12	13	58	4.40	--	.700	9,640	85
03	1955	13	14	61	4.10	--	.760	9,650	92
03	2010	10	11	47	3.80	--	.420	7,640	15
SEPT									
07	0458	1.6	--	--	.200	--	.130	1,400	1.4
07	0505	2.8	--	--	.050	--	.040	2,180	6.2
07	0515	1.4	1.6	7.1	.060	--	.030	1,590	2.1

Table 8.--*Physical, chemical, and suspended-sediment data for Smith Branch lower tributary, June 1985-September 1988*--Continued

LOCATION.--Lat 36°12'47", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.2 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437850; Hydrologic Unit 03030002.

DRAINAGE AREA.--7.4 acres (0.0116 mi^2). Prior to April 1, 1986: 5.9 acres (0.0092 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; µS/CM, microsiemens per centimeter at 25 degrees Celsius (°C); MG/L, milligram per liter.

WATER-QUALITY DATA, APRIL 1988 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (µS/CM)	pH (STAND-ARD UNITS)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	NITRO-GEN, NO_2+NO_3, TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA, TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC, TOTAL (MG/L AS N)
APR								
18	1928	0.24	--	--	--	1.00	0.890	0.91
18	1940	.42	--	--	--	.800	.730	.67
18	1955	.50	--	--	--	.700	.210	1.4
18	2000	.42	--	--	--	.600	.630	.97
MAY								
16	2005	.21	78	5.40	--	.800	.210	1.4
16	2020	.26	63	5.30	9.2	.700	.200	1.3
17	1250	.35	57	5.60	--	.500	.180	1.6
17	1320	3.5	41	5.60	5.6	.600	.290	1.1
17	1325	2.5	39	5.50	--	.600	.290	1.1
JULY								
12	1728	.18	54	6.60	--	.600	.310	.99
12	1730	2.1	46	6.50	--	.600	.330	.87
12	1750	.44	48	6.50	--	.600	.360	1.0
AUG								
29	0250	2.1	22	6.70	--	.100	.220	.58
29	0255	2.5	19	6.70	--	.100	.250	.45
29	0310	.88	18	6.50	--	.100	.210	.69
SEPT								
09	1450	.11	--	--	--	.300	.230	.97
09	1535	.19	64	6.70	--	<.100	.110	.69
09	1600	.59	56	7.00	--	<.100	.150	.65
09	1640	1.7	55	6.80	--	.200	.140	.66

Table 8.--*Physical, chemical, and suspended-sediment data for Smith Branch lower tributary, June 1985-September 1988*--Continued

LOCATION.--Lat 36°12'47", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.2 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437850; Hydrologic Unit 03030002.

DRAINAGE AREA.--7.4 acres (0.0116 mi^2). Prior to April 1, 1986: 5.9 acres (0.0092 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; MG/L, milligram per liter; T/DAY, ton per day.

WATER-QUALITY DATA, APRIL 1988 TO SEPTEMBER 1988

DATE	TIME	NITROGEN, AMMONIA + ORGANIC, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO_3)	PHOSPHOROUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)
APR								
18	1928	1.8	2.8	12	0.230	0.070	4,580	3.0
18	1940	1.4	2.2	9.7	.300	.150	3,580	4.1
18	1955	1.6	2.3	10	.270	.050	4,040	5.5
18	2000	1.6	2.2	9.7	.180	.070	1,600	1.8
MAY								
16	2005	1.6	2.4	11	.330	.110	3,190	1.8
16	2020	1.5	2.2	9.7	.230	.110	1,760	1.2
17	1250	1.8	2.3	10	.260	.110	1,890	1.8
17	1320	1.4	2.0	8.9	.200	.100	3,320	31
17	1325	1.4	2.0	8.9	.290	.080	3,540	24
JULY								
12	1728	1.3	1.9	8.4	.250	.260	4,130	2.0
12	1730	1.2	1.8	8.0	.290	.280	4,230	24
12	1750	1.4	2.0	8.9	.320	.250	2,510	3.0
AUG								
29	0250	.80	.90	4.0	.310	.100	3,080	17
29	0255	.70	.80	3.5	.380	.110	3,130	21
29	0310	.90	1.0	4.4	.240	.100	1,710	4.1
SEPT								
09	1450	1.2	1.5	6.6	.290	.170	665	.20
09	1535	.80	--	--	.210	.090	--	--
09	1600	.80	--	--	.220	.090	--	--
09	1640	.80	1.0	4.4	.150	.070	--	--

Table 9.--*Suspended-sediment data for Smith Branch lower tributary, June 1985-September 1988*

LOCATION.--Lat 36°12'47", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.2 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437850; Hydrologic Unit 03030002.

DRAINAGE AREA.--7.4 acres (0.0116 mi^2). Prior to April 1, 1986: 5.9 acres (0.0092 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; MG/L, milligram per liter.

WATER-QUALITY DATA, JUNE 1985 TO AUGUST 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)
JUNE 1985			
29	1808	0.32	17,300
29	1810	2.3	10,600
29	1815	8.9	8,930
29	1820	7.8	7,030
29	1825	6.5	6,460
29	1830	4.8	6,520
JULY			
25	0928	.05	2,420
25	0930	.11	2,420
25	0935	.16	2,240
25	0940	.18	2,470
25	0945	.16	2,430
25	0950	.13	2,280
25	0955	.10	2,100
25	1000	.15	1,660
25	1005	.59	5,530
25	1010	.66	3,890
25	1115	.94	1,430
25	1125	2.5	2,100
25	1200	.47	1,000
25	1235	.21	890
25	1250	.07	760
25	1255	.03	740
27	1810	.62	2,250
27	1815	8.9	3,380
27	1820	8.9	3,390
27	1825	9.4	2,460
27	1830	16	2,920
27	1835	18	3,350
AUG			
17	2223	.66	2,160
17	2235	.66	2,020
17	2240	1.2	1,480
17	2245	1.7	1,580
20	1940	2.3	1,410
20	1945	7.4	2,260
20	1950	4.8	2,740
20	1955	2.5	2,430
20	2000	1.1	2,170
21	1552	.66	3,980
21	1555	1.5	3,280
21	1600	1.7	2,980
26	1143	.84	770
26	1145	5.6	1,090
26	1150	12	2,120
26	1155	6.5	1,760
26	1200	5.6	1,300
MAR 1986			
14	1050	0.11	500
14	1100	.11	530
14	1110	.11	480
MAY			
20	1400	.18	1,470
20	1415	.32	1,640
20	2110	.16	1,360
JULY			
10	1245	.15	3,300
10	1250	.16	3,640
10	1255	.13	3,780
10	1300	.26	3,860
10	1305	.24	3,880
AUG			
23	2240	13	2,480
23	2250	2.5	1,640

Table 9.--*Suspended-sediment data for Smith Branch lower tributary, June 1985-September 1988*--Continued

LOCATION.--Lat 36°12'47", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.2 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437850; Hydrologic Unit 03030002.

DRAINAGE AREA.--7.4 acres (0.0116 mi^2). Prior to April 1, 1986: 5.9 acres (0.0092 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; MG/L, milligram per liter.

WATER-QUALITY DATA OCTOBER 1986 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)
OCT 1986			
14	0135	0.22	1,200
14	0145	.53	1,100
14	0200	.30	830
NOV			
07	1435	.19	110
07	1440	.47	310
07	1450	.59	300
07	1505	.33	200
07	1515	.24	180
20	1230	.24	220
20	1235	.32	220
20	1240	.26	210
DEC			
24	1116	.21	240
24	1120	.24	250
24	1135	.50	300
24	1150	.37	370
JAN 1987			
19	0720	.21	150
19	0745	.42	310
19	0755	1.7	820
19	0800	1.2	700
APR			
15	1123	.21	330
15	1130	.44	510
15	1135	.84	520
15	1140	1.7	1,080
15	1145	1.5	1,250
15	1150	1.2	1,230
15	1205	1.9	1,210
15	1250	8.3	3,290
15	1255	26	7,800
15	1300	15	7,460
15	1305	7.8	5,620
15	2220	7.8	3,610
15	2225	9.4	3,220
15	2230	7.8	3,990
15	2342	7.8	3,350
15	2345	55	7,460
15	2350	55	10,800
15	2355	34	11,000
15	2400	18	7,410
16	0005	10	5,270
16	1307	.94	5,280
16	1310	2.3	6,190
16	1315	4.1	4,660
16	1320	2.5	4,210
16	1325	1.3	3,350
16	1330	.94	2,580
JULY			
03	1937	.66	10,200
03	1940	3.2	9,640
03	1945	4.1	8,580
03	1950	8.3	9,840
03	1955	3.5	9,650
03	2000	1.5	10,200
JULY			
03	2005	0.88	9,000
03	2010	.73	7,640
03	2015	.59	6,510
SEPT			
07	0458	.37	1,400
07	0500	1.2	2,390
07	0505	1.0	2,180
07	0515	.50	1,590
07	0520	.32	1,410
07	1400	.37	1,400
07	2120	.19	4,980
07	2125	27	4,600
07	2135	8.9	3,120
07	2145	2.1	2,150
07	2155	.66	1,630
MAR 1988			
25	2128	.50	4,410
25	2130	.66	8,530
25	2140	.42	5,160
25	2155	.19	3,490
APR			
18	1928	.24	4,580
18	1940	.42	3,580
18	1945	.37	2,750
18	1955	.50	4,040
18	2000	.42	1,600
MAY			
16	2003	.59	2,990
16	2005	.21	3,190
16	2020	.26	1,760
17	1250	.35	1,890
17	1320	3.5	3,320
17	1325	2.5	3,540
JULY			
12	1728	.18	4,130
12	1730	2.1	4,230
12	1750	.44	2,510
21	2038	.18	3,420
21	2040	.66	3,050
21	2045	.59	2,270
21	2050	.42	1,870
AUG			
29	0250	2.1	3,080
29	0255	2.5	3,130
29	0310	.88	1,710
29	0315	2.1	1,640
29	0325	1.1	1,650
SEPT			
09	1450	.11	665
09	1455	.13	717
09	1515	.16	541
09	1540	.22	381
09	1555	.59	578
09	1635	1.1	623
09	1645	1.5	335

Table 10.--*Ground-water levels in Smith Branch lower tributary basin, March 1985-September 1988*

LOCATION.--In agricultural field with best land-management practices, 2.2 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; owner: U.S. Geological Survey; Hydrologic Unit 03030002.

AQUIFER.--Saprolite derived from igneous intrusive felsic rock.

INSTRUMENTATION.--Digital recorder on well number 101; monthly measurement with chalked tape for the remaining wells.

PERIOD OF RECORD.--March 1985 to September 1988.

REMARKS.--mi, mile; positive (+) ground-water level indicates water was above land surface.

GROUND-WATER LEVELS, IN FEET BELOW LAND SURFACE

Date	Local well number								
	101	102	103	105	106	107	108	109	110
03/16/85	1.8	7.2	11.7	18.6	16.6	11.3	7.8	11.2	15.9
05/22/85	2.6	7.8	12.9	19.4	17.4	12.4	8.9	12.1	17.2
06/14/85	3.4	8.7	13.6	20.0	17.9	13.0	9.6	12.8	17.9
07/30/85	2.3	7.7	14.2	20.8	18.4	13.2	10.3	12.8	18.6
08/22/85	2.6	7.8	14.2	21.0	18.6	13.3	10.5	13.1	18.8
09/24/85	3.8	8.9	14.4	21.1	18.6	13.6	10.6	13.6	18.9
10/29/85	4.8	9.9	15.1	21.4	19.0	14.5	11.4	14.5	19.5
11/26/85	1.1	8.1	12.5	21.2	18.6	10.9	8.2	10.7	17.8
12/27/85	1.6	6.6	11.7	20.3	17.6	10.7	7.8	10.3	16.1
02/12/86	2.0	7.4	13.1	20.5	18.4	12.4	8.6	11.2	17.2
03/31/86	1.9	7.1	12.4	20.5	18.2	11.7	7.8	10.6	16.7
04/30/86	3.2	8.4	13.4	20.4	18.5	13.0	8.8	11.8	17.5
05/07/86	3.5	8.7	13.6	20.6	18.6	13.2	9.0	12.1	17.8
07/15/86	5.4	10.2	15.4	21.2	19.7	15.7	10.9	14.0	19.8
08/15/86	3.6	9.1	15.4	22.7	20.1	14.6	11.1	13.6	20.0
09/15/86	3.8	9.3	15.0	22.8	17.5	14.5	11.2	13.4	19.6
10/22/86	5.6	10.8	15.1	23.1	20.4	15.5	12.0	14.8	20.6
12/01/86	3.4	8.8	15.1	23.4	20.7	14.0	10.8	13.0	14.4
01/05/87	1.3	6.3	12.0	22.8	19.6	11.2	8.1	7.7	17.4
02/05/87	.0	3.8	9.8	22.1	18.7	7.8	6.2	8.8	15.9
03/16/87	.6	4.7	8.6	20.5	17.3	7.5	5.4	7.6	13.8
04/20/87	+ .9	3.6	8.1	--	16.8	6.3	4.4	7.8	13.7
05/13/87	1.1	5.5	9.1	19.2	16.2	8.3	5.8	8.6	13.6
07/10/87	2.9	7.8	12.2	20.2	17.3	11.6	8.2	11.1	16.4
10/08/87	4.7	9.8	15.0	22.3	19.4	14.2	10.7	13.6	19.3
12/22/87	3.2	8.9	15.4	26.6	20.4	14.2	10.9	13.1	20.9
02/24/88	1.6	6.7	11.7	21.8	18.6	11.0	7.9	10.3	14.0
05/06/88	2.6	8.0	13.3	21.4	19.0	12.9	9.0	11.7	17.4
09/15/88	5.5	10.8	16.5	24.0	21.0	15.7	12.3	15.0	20.9

Table 11.--*Chemical quality of ground water in the unsaturated zone in Smith Branch lower tributary basin, July 1985-May 1988*

LOCATION.--In agricultural field with best land-management practices, 2.2 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; owner: U.S. Geological Survey; Hydrologic Unit 03030002.

DRAINAGE AREA.--7.4 acres (0.0116 mi^2). Prior to April 1, 1986: 5.9 acres (0.0092 mi^2).

REMARKS.--mi, mile; mi^2, miles squared, MG/L, milligram per liter.

UNSATURATED ZONE WATER-QUALITY DATA, JULY 1985 TO MAY 1988

LYSIMETER NUMBER	DATE	TIME	WATER TABLE DEPTH BELOW LAND SURFACE (FEET)	NITROGEN, NO_2+NO_3, TOTAL (MG/L AS N)	NITROGEN, AMMONIA, TOTAL (MG/L AS N)	NITROGEN, ORGANIC, TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P)
101-3	07/16/85	1100	3.6	1.4	0.07	0.93	1.0	2.4	0.18	0.16
101-3	08/13/85	1210	3.5	<.10	.08	.52	.60	--	.10	.04
103-6	03/31/86	1100	12.4	3.8	.11	1.6	1.7	5.5	.14	.04
108-6	03/31/86	1140	7.8	.02	.01	.36	.37	.39	.14	.02
109-3	03/31/86	1200	10.6	.01	.04	2.1	2.1	2.1	.24	.08
109-6	03/31/86	1210	10.6	1.6	.03	.79	.82	2.4	.08	.03
101-3	05/07/86	1500	3.5	.06	.02	.73	.75	.81	.12	.03
108-6	05/07/86	1530	9.4	.01	.02	.85	.87	.88	.09	.03
103-6	09/15/86	1200	15.1	<.10	<.01	--	2.5	--	.26	.06
107-3	09/15/86	1230	14.5	4.3	.03	.57	.60	4.9	.07	.01
107-6	02/05/87	1300	7.8	1.2	.05	.75	.80	2.0	<.01	<.01
109-3	02/05/87	1145	8.8	.30	.07	1.0	1.1	1.4	.01	<.01
109-6	02/05/87	1200	8.8	<.10	.11	.79	.90	--	.10	.02
108-6	02/05/87	1245	6.2	<.10	.06	1.9	2.0	--	.09	.02
105-3	02/05/87	1200	22.1	.70	.07	.53	.60	1.3	.05	<.01
107-3	02/11/87	1155	8.8	2.7	.04	.16	.20	2.9	<.01	<.01
108-3	02/11/87	1140	6.5	2.8	.03	1.5	1.5	4.3	.09	.02
108-6	02/11/87	1135	6.5	.20	.03	.97	1.0	1.2	.09	.02
109-3	02/11/87	1230	9.1	.40	.08	.42	.50	.90	.01	<.01
109-6	02/11/87	1150	9.1	<.10	.18	.32	.50	--	.02	<.01
109-9	02/11/87	1145	9.1	<.10	.18	.72	.90	--	.08	.03
109-3	03/24/87	1030	8.4	.30	<.01	--	.20	.50	.03	<.01
109-6	03/24/87	1040	8.4	<.10	.05	.25	.30	--	.04	.02
108-3	03/24/87	1100	5.8	2.7	.30	.40	.70	3.4	.07	<.01
105-3	03/24/87	1130	20.4	.90	.03	.27	.30	1.2	.03	<.01
103-6	03/24/87	1145	9.1	2.7	.05	.95	1.0	3.7	.07	<.01
107-3	03/24/87	1200	8.3	1.8	.11	.79	.90	2.7	.02	.04
103-6	04/20/87	1230	8.1	.40	<.01	--	.40	.80	.02	<.01
105-3	04/20/87	1240	12.4	1.1	<.01	--	.40	1.5	.01	<.01
107-3	04/20/87	1250	6.3	2.5	<.01	--	.50	3.0	.01	<.01
109-3	04/20/87	1220	7.8	<.10	<.01	--	.20	--	.02	<.01
109-6	04/20/87	1140	7.8	<.10	<.01	--	.20	--	.03	.02
109-3	05/21/87	1100	9.0	<.10	.04	.76	.80	--	.02	.03
107-3	05/21/87	1115	9.0	2.0	.04	.26	.30	2.3	.01	.02
105-3	05/21/87	1130	19.2	1.0	.04	.36	.40	1.4	.02	.03
109-3	12/22/87	1430	13.1	<.10	.06	.34	.40	--	<.01	<.01
108-6	01/18/88	1210	8.8	<.10	.14	1.1	1.2	--	.07	<.01
109-3	01/18/88	1200	11.2	<.10	.05	.35	.40	--	.01	<.01
108-6	02/24/88	1055	7.9	<.10	.09	.51	.60	--	.09	.02
109-6	02/24/88	1030	10.3	<.10	.09	.51	.60	--	.16	.06
109-3	02/24/88	1015	10.3	<.10	.05	.25	.30	--	.02	<.01
108-9	05/12/88	1400	9.3	<.10	.06	1.0	1.1	--	.09	<.01
108-6	05/12/88	1350	9.3	<.10	.10	.70	.80	--	.11	.02
105-3	05/12/88	1340	21.4	.70	.08	.22	.30	1.0	<.01	<.01
108-6	05/23/88	1455	9.2	.40	.18	3.2	3.4	3.8	.29	.09
105-3	05/23/88	1500	21.5	.70	.05	.15	.20	.90	.01	<.01

Table 12.--*Physical and chemical quality of ground water in the saturated zone in Smith Branch lower tributary basin, June 1985 to August 1988*

LOCATION.--In agricultural field with best land-management practices, 2.2 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; owner: U.S. Geological Survey; Hydrologic Unit 03030002.

DRAINAGE AREA.--7.4 acres (0.0116 mi^2). Prior to April 1, 1986: 5.9 acres (0.0092 mi^2).

REMARKS.--mi, mile; mi^2, miles squared; µS/CM, microsiemens per centimeter at 25 degrees Celsius (°C); MG/L, milligram per liter.

SATURATED ZONE WATER-QUALITY DATA, JUNE 1985 TO AUGUST 1988

DATE	TIME	WATER TABLE DEPTH BELOW LAND SURFACE (FEET)	SPECIFIC CONDUCTANCE (µS/CM)	pH (STANDARD UNITS)	NITROGEN, NO_2+NO_3, TOTAL (MG/L AS N)	NITROGEN, AMMONIA, TOTAL (MG/L AS N)	NITROGEN, ORGANIC, TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHOROUS, TOTAL (MG/L AS P)	PHOSPHOROUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P)
					Well Number 107							
06/13/85	1330	12.98	135	6.4	0.10	0.07	0.53	0.60	0.70	<0.01	<0.01	<0.01
09/03/85	1030	12.45	51	5.4	<.10	.05	.15	.20	--	.02	--	<.01
12/10/85	1130	9.94	55	--	.30	.06	.24	.30	.60	.01	.05	<.01
03/11/86	1300	12.78	40	6.0	.40	.06	.44	.50	.90	.32	--	<.01
05/20/86	1230	13.54	40	5.4	.45	.02	.03	.05	.50	.01	--	.01
08/12/86	1430	14.87	30	5.8	.42	.03	--	<.20	--	.02	--	<.01
12/30/86	1140	9.41	53	5.6	<.10	.08	.22	.30	--	.01	--	<.01
04/09/87	0915	9.18	46	5.3	1.7	<.01	--	.80	2.5	.01	--	<.01
08/25/87	1215	13.29	38	5.6	1.3	.01	.39	.40	1.7	.02	--	<.01
09/21/87	1130	13.80	52	5.7	.10	.04	.26	.30	.40	.11	--	.04
12/14/87	1230	14.62	45	8.0	.70	.06	.54	.60	1.3	.03	<.01	<.01
03/06/88	1500	11.33	42	5.3	.80	.01	.29	.30	1.1	<.01	--	<.01
06/29/88	1300	13.94	38	6.4	1.2	.01	.59	.60	1.8	.01	--	<.01
08/17/88	1045	15.09	35	4.8	.90	.02	.18	.20	1.1	.03	--	.01
					Well Number 101							
08/13/85	1240	3.55	48	5.9	.20	.35	.15	.50	.70	.07	--	.04

Table 13.--*Daily precipitation in Smith Branch lower tributary basin, April 1985-September 1988*

LOCATION.--In agricultural field with best land-management practices, 2.2 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; owner: U.S. Geological Survey; Hydrologic Unit 03030002.

GAGE.--Water-stage recorder with 5-minute punch interval.

REMARKS.--Records good; mi, mile.

RAINFALL, ACCUMULATED (INCHES), APRIL 1985 TO SEPTEMBER 1985
SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	---	---	---	---	---	---	0.00	0.00	0.00	0.23	0.00	0.00
2	---	---	---	---	---	---	.00	.21	.00	.00	.00	.00
3	---	---	---	---	---	---	.00	.19	.00	.00	.00	.00
4	---	---	---	---	---	---	.00	.00	.00	.15	.00	.00
5	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
6	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
7	---	---	---	---	---	---	.00	.00	.42	.00	.00	.00
8	---	---	---	---	---	---	.00	.00	.00	.00	.21	.00
9	---	---	---	---	---	---	.00	.00	.00	.00	.11	.00
10	---	---	---	---	---	---	.00	.00	.00	.28	.00	.00
11	---	---	---	---	---	---	.00	.19	.50	.00	.00	.00
12	---	---	---	---	---	---	.00	.00	.13	.13	.00	.00
13	---	---	---	---	---	---	.00	.00	.00	1.44	.00	.00
14	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
15	---	---	---	---	---	---	.00	.73	.00	.00	.00	.00
16	---	---	---	---	---	---	.00	.57	.00	.00	.00	.00
17	---	---	---	---	---	---	.00	.35	.00	.00	.49	.00
18	---	---	---	---	---	---	.00	.00	.00	.00	.50	.00
19	---	---	---	---	---	---	.00	.00	.00	.00	.38	.00
20	---	---	---	---	---	---	.00	.00	.00	.00	.12	.00
21	---	---	---	---	---	---	.00	.62	.00	.00	.13	.00
22	---	---	---	---	---	---	.00	.53	.00	.00	.00	.00
23	---	---	---	---	---	---	.21	.11	.13	.00	.00	.00
24	---	---	---	---	---	---	.00	.12	.00	.20	.51	.00
25	---	---	---	---	---	---	.00	.00	.00	1.73	.45	.00
26	---	---	---	---	---	---	.00	.00	.00	.18	.78	.00
27	---	---	---	---	---	---	.00	.00	.00	1.32	1.18	.00
28	---	---	---	---	---	---	.00	.00	.00	.69	.00	.00
29	---	---	---	---	---	---	.00	.00	1.24	.00	.00	.00
30	---	---	---	---	---	---	.00	.00	.12	.00	.17	.00
31	---	---	---	---	---	---	---	.00	---	.00	.00	---
TOTAL	---	---	---	---	---	---	.21	3.62	2.54	6.35	5.03	.00

Table 13.--*Daily precipitation in Smith Branch lower tributary basin, April 1985-September 1988* --Continued

LOCATION.--In agricultural field with best land-management practices, 2.2 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; owner: U.S. Geological Survey; Hydrologic Unit 03030002.

GAGE.--Water-stage recorder with 5-minute punch interval.

REMARKS.--Records good; mi, mile; WTR YR, water year (October through September).

RAINFALL, ACCUMULATED (INCHES), OCTOBER 1985 TO SEPTEMBER 1986
SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.00	0.00
2	.60	.26	.00	.00	.00	.00	.00	.00	.00	.34	.00	.00
3	.48	1.23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.43
4	.00	1.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.27
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.18
6	.00	.00	.00	.00	.69	.00	.00	.00	.00	.00	.16	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.30	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.21	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.15	.00	.00	.00	.00	.00	2.51	.00
12	.00	.35	.00	.00	.00	.00	.00	.00	.17	.00	2.05	.00
13	.00	.00	.60	.00	.00	.33	.00	.41	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	1.00	.00	.00	.00	.00	.00	.00
15	.58	.00	.00	.00	.00	.20	.00	.00	.00	.00	.00	.00
16	.11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.75	.00
18	.00	.00	.00	.00	.19	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.17	.15	.33	.00	.50	.00	.00	.12	.00
20	.00	.20	.00	.00	.00	.18	.00	1.01	.00	.00	.80	.00
21	.43	1.81	.00	.00	.00	.00	.26	.00	.00	.00	.00	.00
22	.00	.33	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.92	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.16	.00	.00	.00
25	.00	.00	.00	.18	.00	.00	.00	.00	.16	.35	.00	.00
26	.00	.00	.00	.14	.00	.00	.00	.46	.00	.96	.00	.00
27	.00	.00	.00	.00	.26	.00	.00	.00	.00	.00	.00	.00
28	.00	.13	.00	.00	.00	.00	.00	.16	.31	.00	.28	.00
29	.00	1.78	.00	.00	---	.00	.00	.00	.20	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.13	---	.19	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	2.33	7.45	.79	.49	1.65	2.04	.26	2.54	1.30	2.04	7.59	.88

WTR YR 1986: TOTAL 29.36

Table 13.--*Daily precipitation in Smith Branch lower tributary basin, April 1985-September 1988* --Continued

LOCATION.--In agricultural field with best land-management practices, 2.2 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; owner: U.S. Geological Survey; Hydrologic Unit 03030002.

GAGE.--Water-stage recorder with 5-minute punch interval.

REMARKS.--Records good; mi, mile; CAL YR, calendar year; WTR YR, water year (October through September).

RAINFALL, ACCUMULATED (INCHES), OCTOBER 1986 TO SEPTEMBER 1987
SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	0.00	0.00	0.20	0.54	0.00	0.32	0.00	0.00	0.57	0.00	0.00	0.00
2	.00	.13	.55	.00	.15	.00	.00	.00	.00	.20	.00	.00
3	.00	.00	.00	.00	.00	.00	.49	.00	.14	1.40	.00	.00
4	.00	.00	.00	.00	.00	.15	.00	.00	.20	.20	.70	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.59
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.81	.71
7	.00	.95	.00	.00	.00	.00	.00	.00	.00	.00	.14	1.32
8	.00	.00	.00	.00	.00	.19	.00	.00	.00	.00	.00	1.37
9	.00	.00	.21	.00	.00	.71	.00	.00	.00	.00	.00	.29
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.35
11	.00	.76	.71	.00	.00	.00	.00	.00	.00	.15	.00	.00
12	.00	.00	.00	.00	.00	.00	.46	.11	.00	.00	.00	.38
13	.55	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.80	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.30	.00	.00	.00	.00	3.09	.00	.00	.00	.28	.00
16	.00	.00	.00	.15	.00	.12	.78	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.80	.48	.00	.22	.00	.00	.00	.00	.00
19	.00	.00	.00	.69	.26	.39	.00	.63	.00	.00	.00	.00
20	.00	.78	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.29	.00	.00	.00	.61	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.36	.00	.00	.00	.00	.00	.00	.20	.00	.00
24	.00	.00	1.05	.00	.00	.00	1.40	.17	.00	.00	.00	.00
25	.90	.00	.00	.00	.00	.00	.41	.00	.00	.00	.00	.00
26	.46	.18	.00	.00	.00	.00	.00	.52	.40	.00	.00	.00
27	.00	.00	.00	.10	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	2.21	.14	.00	.23	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.10	---	.33	.00	.00	.15	.00	.00	.50
31	.00	---	.00	.00	---	.10	---	.00	---	.00	.00	---
TOTAL	3.00	3.10	3.08	2.38	3.71	2.45	6.85	1.66	1.46	2.15	1.93	5.51

CAL YR 1986: TOTAL 27.97
WTR YR 1987: TOTAL 37.28

Table 13.--*Daily precipitation in Smith Branch lower tributary basin, April 1985-September 1988* --Continued

LOCATION.--In agricultural field with best land-management practices, 2.2 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; owner: U.S. Geological Survey; Hydrologic Unit 03030002.

GAGE.--Water-stage recorder with 5-minute punch interval.

REMARKS.--mi, mile; e, estimated value; CAL YR, calendar year; WTR YR, water year (October through September).

RAINFALL, ACCUMULATED (INCHES), OCTOBER 1987 TO SEPTEMBER 1988
SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00	e0.00	0.00	0.13	0.00
2	.00	.00	.00	.00	.00	.00	.00	.00	e.76	.00	.00	.00
3	.00	.00	.00	.00	.38	.00	.00	.00	e.21	.00	.16	.10
4	.00	.00	.00	.52	.53	.14	.21	e.74	e.00	.00	.11	.89
5	.00	.00	.00	.00	.00	.00	.00	.00	e.00	.00	.00	.00
6	.33	e.00	.00	.27	.13	.00	.19	.00	e.00	.00	.26	.00
7	.00	e.00	.00	.00	.00	.00	.27	.00	e.00	.00	.00	.00
8	.00	e.00	.00	.00	.00	.00	.00	.00	e.00	.48	.00	.00
9	.00	e.00	.00	.00	.00	.33	.00	.00	e.59	.00	.00	1.64
10	.00	e1.00	1.46	.00	.00	.31	.00	.32	.00	.00	.00	.00
11	.00	e.14	.00	.00	.13	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.39	.00	.00	1.68	.00	.00
13	.00	.00	.00	.00	.27	.18	.00	.00	.00	e.24	.11	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.00	.10	.10
15	.00	.00	.75	.00	.00	.00	.00	.00	.00	e.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.51	.00	e.00	.00	.00
17	.00	.30	.00	.30	.00	.00	.00	1.55	.45	e.00	.00	.60
18	.00	.00	.00	.00	.00	.38	.55	.00	.00	e.00	.00	.10
19	.00	.00	.00	.32	.18	.00	.82	.00	.00	e.00	.00	.11
20	.00	.00	.00	.34	.00	.00	.00	.17	.00	e.00	.21	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.97	.00	.00
22	.00	.00	.00	.00	.00	.00	e.20	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.15	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.16	.00	.00	.00
25	.00	.00	.22	.46	.00	.65	.00	.00	.00	.00	.00	.00
26	.00	.39	.00	.00	.00	.11	.00	.00	.22	.10	.00	.00
27	.82	.91	.61	.00	.00	.00	.00	.00	.00	.57	.00	.00
28	.00	.00	.47	.00	.00	.00	.00	.00	.00	.00	.42	.00
29	.00	.14	.00	.00	.00	.00	.00	.00	.00	.00	1.51	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.10	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	1.15	2.88	3.51	2.55	1.62	2.10	2.63	3.29	2.49	4.19	3.01	3.54

CAL YR 1987: TOTAL 35.64
WTR YR 1988: TOTAL 32.96

Table 14.--*Physical and chemical quality of precipitation in Smith Branch lower tributary basin, July 1985-September 1988*

LOCATION.--In agricultural field with best land-management practices, 2.2 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; owner: U.S. Geological Survey; Hydrologic Unit 03030002.

REMARKS.--mi, mile; PPT, precipitation; µS/CM, microsiemens per centimeter at 25 degrees Celsius (°C); MG/L, milligram per liter.

PRECIPITATION WATER-QUALITY DATA, JULY 1985 TO SEPTEMBER 1988

DATE	INCHES OF PPT	SPECIFIC CONDUCTANCE (µS/CM)	pH (STANDARD UNITS)	NITROGEN, NO_2+NO_3, TOTAL (MG/L AS N)	NITROGEN, AMMONIA, TOTAL (MG/L AS N)	NITROGEN, ORGANIC, TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO_3)	PHOSPHOROUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P)
07/25/85	1.73	--	--	0.200	0.050	0.15	0.20	0.40	1.8	<0.010	0.040
07/28/85	.69	20	4.50	.100	.060	.04	.10	.20	.89	<.010	<.010
08/08/85	.21	--	--	.300	.180	.72	.90	1.2	5.3	.150	.100
08/18/85	.50	22	3.80	.200	.080	.12	.20	.40	1.8	.010	.020
08/21/85	.13	40	4.50	.500	.290	.61	.90	1.4	6.2	.040	.020
08/26/85	.78	4	8.80	<.100	.070	.43	.50	--	--	.030	<.010
11/03/85	1.23	28	4.60	.500	.190	.31	.50	1.0	4.4	.030	.020
05/20/86	1.01	30	4.60	.230	.300	.38	.68	.91	4.0	.020	.010
07/01/86	.39	--	--	.530	.330	.20	.53	1.1	4.7	.020	.010
08/12/86	2.05	10	6.40	.160	.050	--	<.20	--	--	.030	<.010
11/11/86	.76	21	4.20	.500	.090	.51	.60	1.1	4.9	.010	<.010
01/19/87	.69	30	6.40	1.00	.320	.38	.70	1.7	7.5	.020	<.010
04/15/87	3.09	17	4.80	.200	.250	.55	.80	1.0	4.4	.020	.010
09/07/87	1.32	23	4.90	.600	.100	.70	.80	1.4	6.2	.010	<.010
12/15/87	.75	26	5.80	.800	.140	.26	.40	1.2	5.3	<.010	<.010
04/19/88	.82	48	5.80	1.20	.310	.79	1.1	2.3	10	.040	.030
05/17/88	1.55	52	3.40	.800	.530	.37	.90	1.7	7.5	.040	.010
07/12/88	1.68	--	--	.300	.030	.67	.70	1.0	4.4	.010	<.010
09/09/88	1.64	36	5.10	.200	.190	.41	.60	.80	3.5	.150	<.010

Table 15.--*Daily discharge for Smith Branch upper tributary, April 1985-September 1988*

LOCATION.--Lat 36°12'56", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.3 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437825; Hydrologic Unit 03030002.

DRAINAGE AREA.--4.8 acres (0.0075 mi^2).

PERIOD OF RECORD.--April 1985 to September 1988.

GAGE.--Water-stage recorder with 5-minute punch interval (April 5 to June 13, 1985, 15-minute punch interval). Datum of gage is 817.81 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good; mi, mile; mi^2, miles squared; ft, foot; MAX, maximum; MIN, minimum; CFSM, cubic foot per second per square mile; IN., inch.

DISCHARGE, CUBIC FEET PER SECOND, APRIL 1985 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	---	---	---	---	---	---	0.000	0.000	0.000	0.001	0.000	0.000
2	---	---	---	---	---	---	.000	.000	.000	.000	.000	.000
3	---	---	---	---	---	---	.000	.000	.000	.000	.000	.000
4	---	---	---	---	---	---	.000	.000	.000	.000	.000	.000
5	---	---	---	---	---	---	.000	.000	.000	.000	.000	.000
6	---	---	---	---	---	---	.000	.000	.000	.000	.000	.000
7	---	---	---	---	---	---	.000	.000	.000	.000	.000	.000
8	---	---	---	---	---	---	.000	.000	.000	.000	.033	.000
9	---	---	---	---	---	---	.000	.000	.000	.000	.002	.000
10	---	---	---	---	---	---	.000	.000	.000	.004	.000	.000
11	---	---	---	---	---	---	.000	.000	.310	.000	.000	.000
12	---	---	---	---	---	---	.000	.000	.000	.003	.000	.000
13	---	---	---	---	---	---	.000	.000	.000	.496	.000	.000
14	---	---	---	---	---	---	.000	.000	.000	.001	.000	.000
15	---	---	---	---	---	---	.000	.040	.000	.000	.000	.000
16	---	---	---	---	---	---	.000	.040	.004	.000	.000	.000
17	---	---	---	---	---	---	.000	.010	.000	.000	.121	.000
18	---	---	---	---	---	---	.000	.000	.000	.000	.180	.000
19	---	---	---	---	---	---	.000	.000	.000	.000	.000	.000
20	---	---	---	---	---	---	.000	.000	.000	.000	.103	.000
21	---	---	---	---	---	---	.000	.053	.000	.000	.055	.000
22	---	---	---	---	---	---	.000	.201	.000	.000	.000	.000
23	---	---	---	---	---	---	.000	.000	.000	.000	.000	.000
24	---	---	---	---	---	---	.000	.000	.000	.000	.039	.000
25	---	---	---	---	---	---	.000	.000	.000	.181	.065	.000
26	---	---	---	---	---	---	.000	.000	.018	.009	.238	.000
27	---	---	---	---	---	---	.000	.000	.000	.075	.235	.000
28	---	---	---	---	---	---	.000	.000	.000	.000	.000	.000
29	---	---	---	---	---	---	.000	.000	.396	.000	.000	.000
30	---	---	---	---	---	---	.000	.000	.000	.000	.005	.000
31	---	---	---	---	---	---	---	.000	---	.002	.000	---
TOTAL	---	---	---	---	---	---	.000	.344	.728	.772	1.076	.000
MEAN	---	---	---	---	---	---	.000	.011	.024	.025	.035	.000
MAX	---	---	---	---	---	---	.000	.201	.396	.496	.238	.000
MIN	---	---	---	---	---	---	.000	.000	.000	.000	.000	.000
CFSM	---	---	---	---	---	---	.00	1.48	3.24	3.32	4.63	.00
IN.	---	---	---	---	---	---	.00	1.71	3.61	3.83	5.34	.00

Table 15.--*Daily discharge for Smith Branch upper tributary, April 1985-September 1988* --Continued

LOCATION.--Lat 36°12'56", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.3 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437825; Hydrologic Unit 03030002.

DRAINAGE AREA.--4.8 acres (0.0075 mi^2).

PERIOD OF RECORD.--April 1985 September 1988 year.

GAGE.--Water-stage recorder with 5-minute punch interval (April 5 to June 13, 1985, 15-minute punch interval). Datum of gage is 817.81 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good; mi, mile; mi^2, miles squared; ft, foot; MAX, maximum; MIN, minimum; CFSM, cubic foot per second per square mile; IN., inch; WTR YR, water year (October through September).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.000	0.000
2	.000	.002	.001	.000	.000	.000	.000	.000	.000	.020	.000	.000
3	.001	.068	.000	.000	.000	.000	.000	.000	.000	.000	.000	.103
4	.000	.212	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
5	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000	.028
6	.000	.000	.000	.000	.003	.000	.000	.000	.000	.000	.000	.000
7	.000	.000	.000	.000	.006	.000	.000	.000	.000	.000	.000	.000
8	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
9	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
10	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
11	.000	.000	.000	.000	.001	.000	.000	.000	.000	.000	.700	.000
12	.000	.006	.000	.000	.000	.000	.000	.000	.000	.000	.188	.000
13	.000	.000	.007	.000	.000	.000	.000	.000	.000	.000	.000	.000
14	.000	.000	.000	.000	.000	.018	.000	.000	.000	.000	.000	.000
15	.011	.000	.000	.000	.000	.006	.000	.000	.000	.000	.000	.000
16	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
17	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.106	.000
18	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.000	.000
19	.000	.000	.000	.000	.000	.004	.000	.000	.000	.000	.000	.000
20	.000	.000	.000	.000	.000	.000	.000	.048	.000	.000	.040	.000
21	.001	.032	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
22	.000	.016	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
23	.000	.002	.000	.000	.000	.000	.000	.000	.000	.000	.140	.000
24	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000	.005	.000
25	.000	.000	.000	.000	.000	.000	.000	.000	.000	.020	.000	.000
26	.000	.000	.000	.000	.000	.000	.000	.000	.000	.174	.000	.000
27	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
28	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.007	.000
29	.000	.056	.000	.000	---	.000	.000	.000	.000	.000	.000	.000
30	.000	.058	.000	.000	---	.000	.000	.000	.000	.000	.000	.000
31	.000	---	.000	.000	---	.000	---	.000	---	.000	.000	---
TOTAL	.013	.454	.012	.000	.010	.028	.000	.048	.000	.227	1.186	.131
MEAN	.000	.015	.000	.000	.000	.001	.000	.002	.000	.007	.038	.004
MAX	.011	.212	.007	.000	.006	.018	.000	.048	.000	.174	.700	.103
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
CFSM	.06	2.02	.05	.00	.05	.12	.00	.21	.00	.98	5.10	.58
IN.	.06	2.25	.06	.00	.05	.14	.00	.24	.00	1.13	5.88	.65

WTR YR 1986: TOTAL 2.109, MEAN 0.006, MAX 0.700, MIN 0.000, CFSM 0.77, IN. 10.46

Table 15.--*Daily discharge for Smith Branch upper tributary, April 1985-September 1988* --Continued

LOCATION--Lat 36°12'56", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.3 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437825; Hydrologic Unit 03030002.

DRAINAGE AREA.--4.8 acres (0.0075 mi^2).

PERIOD OF RECORD.--April 1985 to September 1988.

GAGE.--Water-stage recorder with 5-minute punch interval (April 5 to June 13, 1985, 15-minute punch interval). Datum of gage is 817.81 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good; mi, mile; mi^2, miles squared; ft, foot; MAX, maximum; MIN, minimum; CFSM, cubic foot per second per square mile; IN., inch; CAL YR, calendar year, WTR YR, water year (October through September).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	0.000	0.000	0.000	0.006	0.011	0.321	0.000	0.000	0.000	0.000	0.000	0.000
2	.000	.000	.012	.000	.033	.002	.000	.000	.000	.000	.000	.000
3	.000	.000	.000	.000	.019	.001	.005	.000	.000	.311	.005	.000
4	.000	.000	.000	.000	.002	.001	.000	.000	.000	.004	.094	.000
5	.000	.000	.000	.000	.001	.000	.000	.000	.000	.000	.007	.002
6	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.002
7	.000	.008	.000	.000	.000	.000	.000	.000	.000	.000	.000	.318
8	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.236
9	.000	.000	.000	.000	.000	.019	.000	.000	.000	.000	.000	.000
10	.000	.000	.000	.000	.000	.003	.000	.000	.000	.000	.000	.005
11	.000	.010	.022	.000	.000	.001	.000	.000	.000	.000	.000	.000
12	.000	.000	.000	.000	.000	.000	.001	.000	.000	.000	.000	.084
13	.004	.000	.000	.000	.000	.000	.000	.000	.000	.007	.000	.000
14	.064	.000	.000	.000	.000	.000	.000	.000	.000	.009	.000	.000
15	.000	.001	.000	.000	.000	.000	.587	.000	.000	.011	.000	.000
16	.000	.000	.000	.000	.000	.000	.123	.000	.000	.000	.000	.000
17	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
18	.000	.000	.000	.005	.000	.000	.004	.000	.000	.000	.000	.000
19	.000	.000	.000	.038	.002	.002	.000	.000	.000	.000	.004	.000
20	.000	.014	.000	.000	.002	.000	.000	.000	.000	.000	.003	.000
21	.000	.000	.000	.000	.004	.000	.000	.000	.000	.027	.000	.000
22	.000	.000	.000	.000	.028	.000	.000	.000	.000	.021	.000	.000
23	.000	.000	.000	.001	.062	.000	.000	.000	.000	.000	.000	.000
24	.000	.000	.012	.001	.002	.000	.207	.000	.000	.000	.000	.000
25	.001	.000	.000	.000	.001	.000	.016	.000	.000	.015	.000	.000
26	.004	.000	.000	.000	.000	.000	.000	.006	.000	.012	.000	.000
27	.000	.000	.000	.000	.001	.000	.000	.000	.000	.000	.000	.000
28	.000	.000	.000	.000	.211	.000	.000	.002	.000	.000	.000	.000
29	.000	.000	.000	.000	---	.000	.000	.000	.000	.000	.000	.000
30	.000	.000	.000	.002	---	.001	.000	.000	.019	.000	.000	.000
31	.000	---	.000	.012	---	.002	---	.000	---	.005	.000	---
TOTAL	.073	.033	.046	.065	.379	.353	.943	.008	.019	.422	.113	.647
MEAN	.002	.001	.001	.002	.014	.011	.031	.000	.001	.014	.004	.022
MAX	.064	.014	.022	.038	.211	.321	.587	.006	.019	.311	.094	.318
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
CFSM	.31	.15	.20	.28	1.80	1.52	4.19	.03	.08	1.82	.49	2.88
IN.	.36	.16	.23	.32	1.88	1.75	4.68	.04	.09	2.09	.56	3.21

CAL YR 1986: TOTAL 1.782, MEAN 0.005, MAX 0.700, MIN 0.000, CFSM 0.65, IN. 8.84
WTR YR 1987: TOTAL 3.101, MEAN 0.008, MAX 0.587, MIN 0.000, CFSM 1.13, IN. 15.38

Table 15.--*Daily discharge for Smith Branch upper tributary, April 1985-September 1988* --Continued

LOCATION.--Lat 36°12'56", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.3 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437825; Hydrologic Unit 03030002.

DRAINAGE AREA.--4.8 acres (0.0075 mi^2).

PERIOD OF RECORD.--April 1985 to September 1988.

GAGE.--Water-stage recorder with 5-minute punch interval (April 5 to June 13, 1985, 15-minute punch interval). Datum of gage is 817.81 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good; mi, mile; mi^2, miles squared; ft, foot; e, estimated value; MAX, maximum; MIN, minimum; CFSM, cubic foot per second per square mile; IN., inch; CAL YR, calendar year, WTR YR, water year (October through September).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	.000	.000	.000	.001	.001	.000	.000	.000	.074	.001	.000	.000
3	.000	.000	.000	.004	.026	.000	.000	.000	.002	e.000	.000	.000
4	.000	.000	.000	.010	.000	.000	.000	.002	.000	e.000	.000	.157
5	.000	.000	.000	.000	.000	.000	.000	.000	.000	e.000	.000	.015
6	.006	.000	.000	.000	.000	.000	.000	.000	.000	e.000	.000	.000
7	.000	.000	.000	.000	.000	.000	.000	.000	.000	e.000	.000	.000
8	.000	.000	.000	.000	.000	.000	.000	.000	.000	e.020	.000	.000
9	.000	.000	.000	.000	.000	.000	.000	.000	.001	e.000	.000	.198
10	.000	.007	.034	.000	.000	.002	.000	.000	.000	.000	.006	.001
11	.000	.002	.002	.000	.000	.000	.000	.000	.000	.041	.015	.000
12	.000	.000	.000	.000	.000	.000	.002	.000	.000	e.170	.100	.000
13	.000	.000	.000	.001	.000	.000	.000	.000	.000	e.014	.034	.000
14	.000	.000	.000	.010	.000	.000	.000	.000	.000	.001	.000	.000
15	.000	.000	.023	.010	.000	.000	.000	.000	.000	.000	.000	.000
16	.000	.000	.000	.006	.000	.000	.000	.014	.000	.000	.000	.000
17	.000	.001	.000	.000	.000	.000	.000	.244	.001	.000	.000	.038
18	.000	.000	.000	.000	.000	.000	.021	.000	.001	.000	.000	.001
19	.000	.000	.000	.038	.000	.002	.065	.001	.000	.000	.000	.004
20	.000	.000	.000	.043	.000	.000	.000	.014	.000	.000	.000	.000
21	.000	.000	.000	.002	.000	.000	.000	.000	.000	.050	.000	.000
22	.000	.000	.000	.001	.000	.000	.000	.000	.000	.009	.000	.000
23	.000	.000	.000	.000	.000	.000	.000	.014	.000	.011	.000	.000
24	.000	.000	.000	.000	.000	.000	.000	.001	.000	.000	.000	.000
25	.000	.000	.002	.010	.000	.005	.000	.000	.000	.000	.000	.000
26	.000	.000	.000	.001	.000	.001	.000	.000	.000	.000	.000	.000
27	.005	.016	.013	.000	.000	.000	.000	.000	.000	.082	.000	.000
28	.000	.001	.023	.000	.000	.000	.000	.000	.000	.000	.000	.000
29	.000	.003	.001	.000	.000	.000	.000	.000	.000	.000	.235	.000
30	.000	.000	.000	.000	---	.000	.000	.000	.000	.000	.001	.000
31	.000	---	.000	.000	---	.000	---	.000	---	.000	.000	---
TOTAL	.011	.030	.098	.139	.027	.010	.088	.290	.079	.399	.391	.414
MEAN	.000	.001	.003	.004	.001	.000	.003	.009	.003	.013	.013	.014
MAX	.006	.016	.034	.043	.026	.005	.065	.244	.074	.170	.235	.198
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
CFSM	.05	.13	.42	.60	.12	.04	.39	1.25	.35	1.72	1.68	1.84
IN.	.05	.15	.49	.69	.13	.05	.44	1.44	.39	1.98	1.94	2.05

CAL YR 1987: TOTAL 3.088, MEAN 0.008, MAX 0.587, MIN 0.000, CFSM 1.13, IN. 15.32
WTR YR 1988: TOTAL 1.976, MEAN 0.005, MAX 0.244, MIN 0.000, CFSM 0.72, IN. 9.80

Table 16.--*Physical, chemical, and suspended-sediment data for Smith Branch upper tributary, June 1985-September 1988*

LOCATION.--Lat 36°12'56", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.3 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437825; Hydrologic Unit 03030002.

DRAINAGE AREA.--4.8 acres (0.0075 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; µS/CM, microsiemens per centimeter at 25 degrees Celsius (°C); MG/L, milligram per liter.

WATER-QUALITY DATA, JUNE 1985 TO AUGUST 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (µS/CM)	pH (STAND-ARD UNITS)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	SOLIDS, RESIDUE AT 180 °C, DIS-SOLVED (MG/L)	NITRO-GEN, NO_2+NO_3, TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA, TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC, TOTAL (MG/L AS N)
JUNE									
26	1545	0.05	70	6.80	8.1	--	0.400	0.630	7.1
26	1550	.08	72	6.60	8.2	--	.300	.640	8.6
26	1600	.05	70	6.60	8.6	--	.400	.630	5.4
29	1802	.10	100	6.80	19	--	2.50	1.10	44
29	1805	.24	106	6.80	22	--	3.80	.840	43
29	1815	24	76	6.50	15	--	2.20	.590	26
29	1825	19	55	6.30	12	--	1.10	.260	27
29	1840	3.5	43	6.30	--	60	.800	.450	18
JULY									
25	0922	.11	28	--	8.7	28	.100	.140	16
25	0930	.44	23	--	7.3	--	1.10	.080	7.1
25	0940	.62	20	--	6.1	20	.200	.110	6.0
25	0955	.14	20	--	5.5	35	<.100	.130	6.0
25	1005	3.5	18	--	9.6	--	<.100	.170	14
AUG									
08	1447	1.2	42	--	12	--	.700	.280	18
08	1450	5.0	34	--	9.0	--	.600	.240	8.8
08	1455	2.2	30	--	8.0	--	.500	.190	12
17	2230	.94	49	5.80	12	--	.400	.190	3.4
17	2235	3.5	41	5.80	7.7	--	.300	.150	5.0
20	1940	12	32	7.30	6.0	--	.300	.100	5.8
21	1545	8.5	26	7.50	5.3	--	.300	.070	6.1
26	1143	.98	20	--	5.1	--	.200	.130	3.9
26	1145	20	13	--	4.4	--	.100	.070	5.7
26	1155	5.0	10	--	3.1	--	.100	.030	2.3

Table 16.--*Physical, chemical, and suspended-sediment data for Smith Branch upper tributary, June 1985-September 1988*--Continued

LOCATION.--Lat 36°12'56", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.3 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437825; Hydrologic Unit 03030002.

DRAINAGE AREA.--4.8 acres (0.0075 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; MG/L, milligram per liter; T/DAY, ton per day.

WATER-QUALITY DATA, JUNE 1985 TO AUGUST 1985

DATE	TIME	NITROGEN, AMMONIA + ORGANIC, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO_3)	PHOSPHOROUS, TOTAL (MG/L AS P)	PHOSPHOROUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)
JUNE									
26	1545	7.7	8.1	36	1.20	0.140	0.200	4,860	0.66
26	1550	9.2	9.5	42	.730	.310	.160	3,180	.69
26'	1600	6.0	6.4	28	.930	.160	.250	3,160	.43
29	1802	45	47	210	.270	.130	<.010	30,000	8.1
29	1805	44	48	210	.650	.110	<.010	36,900	24
29	1815	27	29	130	1.40	.150	<.010	55,800	3,660
29	1825	27	28	120	1.40	.170	<.010	54,400	2,730
29	1840	18	19	83	1.00	.030	.020	28,000	265
JULY									
25	0922	16	16	71	.330	.160	<.010	1,180	.35
25	0930	7.2	8.3	37	.360	.120	<.010	840	1.0
25	0940	6.1	6.3	28	.230	.150	.040	5,270	8.8
25	0955	6.1	--	--	.020	.150	<.010	3,900	1.5
25	1005	14	--	--	<.010	.110	.010	12,600	119
AUG									
08	1447	18	19	83	.440	<.010	.010	15,100	50
08	1450	9.0	9.6	42	.210	<.010	.040	11,400	154
08	1455	12	12	55	.340	<.010	.050	6,900	42
17	2230	3.6	4.0	18	.270	.060	.200	7,400	19
17	2235	5.2	5.5	24	.360	.080	.200	5,690	54
20	1940	5.9	6.2	27	1.60	--	.160	4,080	130
21	1545	6.2	6.5	29	.580	--	<.010	--	--
26	1143	4.0	4.2	19	.200	.110	.130	6,160	16
26	1145	5.8	5.9	26	.440	.080	.030	5,280	285
26	1155	2.3	2.4	11	.070	.080	.020	3,380	46

Table 16.--*Physical, chemical, and suspended-sediment data for Smith Branch upper tributary, June 1985-September 1988*--Continued

LOCATION.--Lat 36°12'56", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.3 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437825; Hydrologic Unit 03030002.

DRAINAGE AREA.--4.8 acres (0.0075 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; µS/CM, microsiemens per centimeter at 25 degrees Celsius (°C); MG/L, milligram per liter; T/DAY, ton per day.

WATER-QUALITY DATA, MAY 1986 TO AUGUST 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (µS/CM)	pH (STAND-ARD UNITS)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	SOLIDS, RESIDUE AT 180 °C, DIS-SOLVED (MG/L)	NITRO-GEN, NO_2+NO_3, TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA, TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC, TOTAL (MG/L AS N)
MAY									
20	1345	1.92	27	5.30	6.3	--	0.480	0.580	5.0
20	1410	5.3	42	5.10	7.2	12	.560	.550	17
20	1420	.32	41	5.10	6.8	8	.500	.440	14
JULY									
01	2220	.22	80	--	16	58	2.10	.350	.75
01	2225	.53	62	--	--	--	1.80	.210	.62
01	2230	.85	64	--	12	54	2.00	.320	.68
01	2245	.18	49	--	--	--	1.10	.120	.53
02	1445	.28	47	--	--	--	1.00	.110	.32
02	1450	.44	46	--	--	--	.850	.080	.26
AUG									
11	1700	8.5	48	--	10	31	1.40	.200	.26
11	1705	28	40	--	9.3	30	.900	.150	.32
11	1710	9.4	43	--	--	--	1.00	.190	.24
11	1725	1.0	41	5.70	8.2	34	.910	.080	.28
11	1730	21	31	5.10	7.4	23	.490	.130	.14
11	1735	28	--	5.10	--	--	.530	.170	.10
23	2235	9.4	46	5.10	11	--	.330	.070	.40
23	2240	11	38	5.20	10	26	.500	.060	.37
23	2250	.77	39	5.20	8.8	29	.610	.060	.26

DATE	TIME	NITRO-GEN, AM-MONIA + ORGANIC, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO_3)	PHOS-PHOROUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)
MAY								
20	1345	5.6	6.1	27	0.060	0.080	19,800	103
20	1410	18	19	82	.040	.020	11,600	165
20	1420	14	14	64	.160	.020	970	.84
JULY								
01	2220	1.1	3.2	14	.030	<.010	--	--
01	2225	.83	2.6	12	.020	.030	13,100	19
01	2230	1.0	3.0	13	.020	.010	10,600	24
01	2245	.65	1.7	7.7	.060	.010	1,310	.64
02	1445	.43	1.4	6.3	.020	.010	11,700	8.8
02	1450	.34	1.2	5.3	.030	.030	8,700	10
AUG								
11	1700	.46	1.9	8.2	.130	.020	9,270	213
11	1705	.47	1.4	6.1	.090	.020	--	--
11	1710	.43	1.4	6.3	--	.020	6,650	169
11	1725	.36	1.3	5.6	.100	.060	6,680	18
11	1730	.27	.76	3.4	.090	.020	--	--
11	1735	.27	.80	3.5	--	.020	--	--
23	2235	.47	.80	3.5	--	.010	16,700	424
23	2240	.43	.93	4.1	--	.010	8,750	272
23	2250	.32	.93	4.1	--	.020	5,890	12

Table 16.--*Physical, chemical, and suspended-sediment data for Smith Branch upper tributary, June 1985-September 1988*--Continued

LOCATION.--Lat 36°12'56", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.3 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437825; Hydrologic Unit 03030002.

DRAINAGE AREA.--4.8 acres (0.0075 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; µS/CM, microsiemens per centimeter at 25 degrees Celsius (°C); MG/L, milligram per liter.

WATER-QUALITY DATA, OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (µS/CM)	pH (STAND-ARD UNITS)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	SOLIDS, RESIDUE AT 180 °C, DIS-SOLVED (MG/L)	NITRO-GEN, NO_2+NO_3, TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA, TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC, TOTAL (MG/L AS N)
OCT									
14	0120	0.39	61	6.90	25	190	0.700	0.690	0.01
14	0130	2.6	48	6.80	14	--	.600	1.10	.60
14	0135	1.7	27	6.70	14	--	.600	1.30	4.2
NOV									
11	1605	.17	43	5.50	9.2	--	.200	.160	.44
11	1610	.18	43	5.60	8.7	--	.200	.170	.53
11	1615	.15	40	5.60	8.4	--	.300	.170	.43
11	1620	.13	40	5.60	8.3	--	.400	.270	.63
JAN									
19	0740	.30	79	5.60	7.6	--	1.80	.310	1.8
19	0750	.85	70	5.70	9.9	--	1.60	.150	4.5
19	0800	.41	80	5.70	9.6	--	1.70	.080	9.6
APR									
15	1110	.24	24	5.70	12	--	.300	.260	28
15	1120	.39	24	5.70	11	--	.300	.100	12
15	1125	1.3	26	5.60	16	--	.300	.120	19
15	1135	.85	31	5.60	16	--	.500	.070	18
15	1140	.59	21	5.60	14	--	.400	.080	23
JULY									
03	1922	1.92	59	5.30	--	--	3.40	.380	--
03	1925	17	45	5.20	--	--	2.60	.300	3.3
03	1935	4.6	44	5.20	--	--	1.70	.280	1.3
SEPT									
07	0455	5.0	20	6.20	5.1	--	.100	.100	--
07	0505	1.1	17	6.10	3.8	--	.200	.080	--
07	0510	.47	18	6.10	4.0	--	.200	.080	5.4

Table 16.--*Physical, chemical, and suspended-sediment data for Smith Branch upper tributary, June 1985-September 1988*--Continued

LOCATION.--Lat 36°12'56", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.3 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437825; Hydrologic Unit 03030002.

DRAINAGE AREA.--4.8 acres (0.0075 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; MG/L, milligram per liter; T/DAY, ton per day.

WATER-QUALITY DATA, OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	NITROGEN, AMMONIA + ORGANIC, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO_3)	PHOSPHOROUS, TOTAL (MG/L AS P)	PHOSPHOROUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)
OCT									
14	0120	0.70	1.4	6.2	4.50	0.240	0.530	4,370	4.6
14	0130	1.7	2.3	10	.480	.200	.160	5,130	36
14	0135	5.5	6.1	27	1.20	.190	.110	4,150	19
NOV									
11	1605	.60	.80	3.5	.250	--	.210	1,090	.50
11	1610	.70	.90	4.0	.270	--	.210	1,130	.55
11	1615	.60	.90	4.0	.290	--	.200	1,320	.53
11	1620	.90	1.3	5.8	.420	--	.290	1,620	.57
JAN									
19	0740	2.1	3.9	17	1.20	--	.170	2,440	2.0
19	0750	4.6	6.2	27	2.40	--	.040	8,350	19
19	0800	9.7	11	50	3.00	--	.020	6,740	7.5
APR									
15	1110	28	28	130	4.80	--	.180	8,800	5.7
15	1120	12	12	54	4.20	--	.280	10,200	11
15	1125	19	19	85	4.90	--	.090	26,200	91
15	1135	18	18	82	8.10	--	.030	20,800	48
15	1140	23	23	100	7.10	--	.100	16,300	26
JULY									
03	1922	<.20	--	--	10.0	--	.120	26,400	110
03	1925	3.6	6.2	27	8.90	--	<.010	22,000	1,030
03	1935	1.6	3.3	15	5.60	--	.020	27,900	345
SEPT									
07	0455	<6.5	--	--	.010	--	<.010	7,590	102
07	0505	<3.3	--	--	.010	--	<.010	4,650	14
07	0510	5.5	5.7	25	.010	--	<.010	3,700	4.7

Table 16.--*Physical, chemical, and suspended-sediment data for Smith Branch upper tributary, June 1985-September 1988*--Continued

LOCATION.--Lat 36°12'56", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.3 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437825; Hydrologic Unit 03030002.

DRAINAGE AREA.--4.8 acres (0.0075 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; µS/CM, microsiemens per centimeter at 25 degrees Celsius (°C); MG/L, milligram per liter.

WATER-QUALITY DATA, APRIL 1988 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (µS/CM)	pH (STAND-ARD UNITS)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	NITRO-GEN, NO_2+NO_3, TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA, TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC, TOTAL (MG/L AS N)
APR								
19	0455	0.30	56	8.00	--	1.10	0.430	3.4
19	0505	.89	59	8.00	--	1.50	.370	1.2
19	0510	1.1	52	8.00	--	1.50	.500	.50
19	0530	.62	55	7.90	--	1.20	.440	.76
MAY								
16	1958	.59	110	5.10	--	3.10	.540	.66
16	2000	1.3	120	5.30	24	3.10	.560	3.4
16	2015	.36	120	5.40	--	3.20	.650	.65
17	1240	.28	89	5.40	--	1.10	.210	.69
17	1250	.47	61	5.40	--	.900	.190	.91
17	1305	1.5	--	--	9.0	.900	.370	.43
JULY								
12	1715	.39	79	6.60	--	.400	.030	1.5
12	1720	14	57	6.60	--	.600	.040	1.2
12	1735	.77	--	6.50	--	.500	.060	1.5
AUG								
29	0138	.39	52	6.10	--	.200	.270	.73
SEPT								
09	1500	.47	44	6.90	--	<.100	.070	.63
09	1600	.66	40	6.90	--	<.100	.100	.80
09	1640	2.2	38	6.90	--	<.100	.050	--
09	1645	1.6	44	6.80	--	<.100	.050	--

Table 16.--*Physical, chemical, and suspended-sediment data for Smith Branch upper tributary, June 1985-September 1988*--Continued

LOCATION.--Lat 36°12'56", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.3 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437825; Hydrologic Unit 03030002.

DRAINAGE AREA.--4.8 acres (0.0075 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; MG/L, milligram per liter; T/DAY, ton per day.

WATER-QUALITY DATA, APRIL 1988 TO SEPTEMBER 1988

DATE	TIME	NITROGEN, AMMONIA + ORGANIC, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO_3)	PHOSPHOROUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)
APR								
19	0455	3.8	4.9	22	0.580	0.130	7,180	5.8
19	0505	1.6	3.1	14	.090	.100	4,810	12
19	0510	1.0	2.5	11	.450	.200	4,330	13
19	0530	1.2	2.4	11	.570	.070	1,700	2.8
MAY								
16	1958	1.2	4.3	19	.960	.020	21,300	34
16	2000	4.0	7.1	31	.700	<.010	21,500	75
16	2015	1.3	4.5	20	.970	.010	18,600	18
17	1240	.90	2.0	8.9	.720	<.010	7,570	5.7
17	1250	1.1	2.0	8.9	.500	.010	10,600	13
17	1305	.80	1.7	7.5	.110	<.010	16,700	68
JULY								
12	1715	1.5	1.9	8.4	<.010	.040	20,600	22
12	1720	1.2	1.8	8.0	.020	.010	--	--
12	1735	1.6	2.1	9.3	.610	<.010	14,100	29
AUG								
29	0138	1.0	1.2	5.3	.650	.120	8,720	9.2
SEPT								
09	1500	.70	--	--	.080	.020	12,500	16
09	1600	.90	--	--	.010	.040	--	--
09	1640	<.20	--	--	.070	.030	--	--
09	1645	<.20	--	--	.120	.040	--	--

Table 16.--*Physical, chemical, and suspended-sediment data for Smith Branch upper tributary, June 1985-September 1988*--Continued

LOCATION.--Lat 36°12'56", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.3 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437825; Hydrologic Unit 03030002.

DRAINAGE AREA.--4.8 acres (0.0075 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; MG/KG, milligram per kilogram.

QUALITY OF BOTTOM MATERIAL, AUGUST 1986

DATE	TIME	NITROGEN, NO_2+NO_3, TOTAL (MG/KG AS N)	NITROGEN, NH_4, TOTAL (MG/KG AS N)	NITROGEN, NH_4+ ORGANIC, TOTAL (MG/KG AS N)	PHOSPHORUS, TOTAL (MG/KG AS P)
AUG 12	1100	3.0	13	340	210

Table 17.--*Suspended-sediment data for Smith Branch upper tributary, June 1985-September 1988*

LOCATION.--Lat 36°12'56", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.3 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437825; Hydrologic Unit 03030002.

DRAINAGE AREA.--4.8 acres (0.0075 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; MG/L, milligram per liter.

WATER-QUALITY DATA, JUNE 1985 TO AUGUST 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)
JUNE 1985			
26	1545	0.05	4,860
26	1550	.08	3,180
26	1600	.05	3,160
26	1610	.05	10,100
29	1802	.10	30,000
29	1805	.24	36,900
29	1810	23	32,200
29	1815	24	55,800
29	1820	20	57,200
29	1825	19	54,400
29	1830	13	47,200
29	1835	8.5	37,000
29	1840	3.5	28,000
29	1845	1.1	15,600
JULY			
25	0922	.14	1,180
25	0925	.30	1,050
25	0930	.44	840
25	0935	.62	6,610
25	0940	.62	5,270
25	0945	.53	4,060
25	0950	.36	4,400
25	0955	.14	3,900
25	1000	.47	3,980
25	1005	3.5	12,600
27	1810	7.1	12,400
AUG			
08	1447	1.2	15,100
08	1450	5.0	11,400
08	1455	2.2	6,900
17	2228	.77	6,900
17	2230	.94	7,400
17	2235	3.5	5,690
20	1928	.77	7,070
20	1930	1.1	4,570
20	1935	8.5	5,450
20	1940	12	4,080
20	1945	4.6	3,170
20	1950	1.6	9,700
2[illegible]	1143	.98	6,160
26	1145	20	5,280
26	1150	14	3,000
26	1155	5.0	3,380
26	1200	8.5	2,680
26	1205	7.1	2,850
26	1210	7.8	2,500
26	1215	.94	2,120
MAR 1986			
14	1553	0.53	20,300
14	1555	1.3	22,500
14	1600	.81	10,200
14	1605	.34	9,400
14	1610	.18	9,910
14	1615	.14	6,480
MAY			
20	1345	1.92	19,800
20	1350	.85	14,200
20	1355	.85	8,900
20	1400	2.0	9,000
20	1410	5.3	11,600
20	1420	.32	970
JULY			
01	2225	.53	13,100
01	2230	.85	10,600
01	2235	.53	7,860
01	2245	.18	1,310
02	1445	.28	11,700
02	1450	.44	8,700
02	1455	.39	7,170
AUG			
11	1700	8.5	9,270
11	1710	9.4	6,650
11	1725	1.0	6,680
23	2233	.66	11,200
23	2235	9.4	16,700
23	2240	11	8,750
23	2250	.77	5,890
23	2300	.24	5,050

Table 17.--*Suspended-sediment data for Smith Branch upper tributary, June 1985-September 1988*--Continued

LOCATION.--Lat 36°12'56", long 79°39'42"; Guilford County, on left bank, at end of waterway in tobacco field, 2.3 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; U.S. Geological Survey downstream order identification number 0209437825; Hydrologic Unit 03030002.

DRAINAGE AREA.--4.8 acres (0.0075 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; MG/L, milligram per liter.

WATER-QUALITY DATA OCTOBER 1986 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)
OCT 1986			
14	0120	0.39	4,370
14	0130	2.6	5,130
14	0135	1.7	4,150
NOV			
11	1605	.17	1,090
11	1610	.18	1,130
11	1615	.15	1,320
11	1620	.13	1,620
JAN 1987			
19	0740	.30	2,440
19	0750	.85	8,350
19	0800	.41	6,740
APR			
15	1110	.24	8,800
15	1120	.39	10,200
15	1125	1.3	26,200
15	1135	.85	20,800
15	1140	.59	16,300
16	1303	1.1	36,200
16	1305	13	38,800
16	1310	2.6	25,600
16	1315	.89	17,400
16	1320	.44	12,700
JULY			
03	1922	1.54	26,400
03	1925	17	22,000
03	1930	15	41,000
03	1935	4.6	27,900
03	1940	15	24,300
03	1945	15	19,200
03	1950	1.6	27,100
03	1955	.62	21,400
SEPT			
07	0455	5.0	7,590
07	0500	3.5	5,920
07	0505	1.1	4,650
07	0510	.47	3,700
07	2115	.44	6,420
07	2125	22	4,090
07	2135	13	9,130
07	2145	1.4	6,190
07	2155	.30	3,980
APR 1988			
19	0455	0.30	7,180
19	0505	.89	4,810
19	0510	1.1	4,330
19	0520	.94	2,940
19	0530	.62	1,700
MAY			
16	1958	.59	21,300
16	2000	1.3	21,500
16	2015	.36	18,600
17	1238	.26	8,650
17	1240	.28	7,570
17	1250	.47	10,600
17	1305	1.5	16,700
JULY			
12	1715	.39	20,600
12	1725	3.2	49,000
12	1735	.77	14,100
12	1740	.50	9,960
21	2022	1.02	15,300
21	2025	7.8	50,000
21	2030	1.0	23,600
21	2035	.53	16,500
AUG			
29	0138	.39	8,720
SEPT			
09	1500	.47	12,500

Table 18.--*Ground-water levels in Smith Branch upper tributary basin, March 1985-September 1988*

LOCATION.--In agricultural field with standard land-management practices, 2.3 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; owner: U.S. Geological Survey; Hydrologic Unit 03030002.

AQUIFER.--Saprolite derived from igneous intrusive felsic rock.

INSTRUMENTATION.--Digital recorder on well number 208; monthly measurement with chalked tape for the remaining wells.

PERIOD OF RECORD.--March 1985 to September 1988.

GROUND-WATER LEVEL, IN FEET BELOW LAND SURFACE

Date	Local well number								
	201	202	204	205	206	207	208	209	210
03/16/85	15.8	22.7	13.4	13.4	4.6	11.7	3.1	6.2	5.6
05/22/85	17.1	23.8	14.8	13.9	--	12.8	5.6	--	6.7
06/14/85	17.7	24.5	15.4	14.7	6.1	13.6	6.7	7.8	7.4
07/30/85	18.6	25.3	16.3	15.4	6.4	13.8	6.9	8.1	8.2
08/22/85	18.7	25.5	16.5	15.6	6.4	13.9	6.7	8.3	8.8
09/24/85	18.8	25.6	15.8	15.6	6.3	13.8	6.8	8.1	8.4
10/29/85	19.3	26.0	17.1	16.1	7.8	15.9	8.6	9.5	8.9
11/26/85	17.3	25.3	14.2	14.6	3.2	10.8	3.1	5.7	6.6
12/27/85	15.8	23.8	13.1	13.4	3.6	10.6	3.0	6.0	6.1
02/12/86	17.0	23.9	14.2	13.8	4.7	11.8	3.8	6.2	6.3
03/31/86	16.3	23.8	13.6	13.4	4.2	11.3	3.6	5.9	6.0
04/30/86	16.9	23.8	14.3	13.7	5.1	12.2	4.9	6.8	6.4
05/07/86	17.1	24.0	14.5	13.9	5.3	12.4	5.4	7.0	6.6
07/15/86	19.2	26.3	16.6	15.9	7.1	14.3	8.8	8.9	8.6
08/15/86	19.7	26.9	17.4	16.5	8.1	15.4	8.7	9.8	9.3
09/15/86	19.6	26.7	17.6	16.7	8.1	15.5	8.5	9.9	9.4
10/22/86	20.2	27.1	18.2	17.1	9.0	16.2	10.0	10.8	9.9
12/01/86	19.5	27.1	--	17.2	7.3	14.5	8.3	8.1	8.3
01/05/87	16.1	25.2	15.1	13.9	3.9	12.0	4.5	6.0	4.8
02/05/87	15.4	24.1	13.3	14.1	2.2	9.5	2.0	3.4	5.3
03/16/87	13.5	22.4	12.2	12.6	2.0	8.8	1.3	3.4	5.0
04/20/87	13.7	21.7	11.7	12.0	1.9	8.6	1.0	3.4	4.2
05/13/87	13.6	21.3	11.7	11.6	2.7	9.1	1.9	4.2	4.4
07/10/87	16.1	22.9	13.7	13.3	4.7	11.7	5.0	6.3	6.0
10/08/87	18.9	26.1	17.0	16.0	7.6	14.4	8.9	9.4	8.8
12/22/87	18.9	26.6	16.7	16.4	6.3	13.8	7.8	8.2	8.9
02/24/88	15.3	23.8	14.0	14.0	3.8	10.8	3.2	5.8	6.6
05/06/88	16.6	23.8	14.6	9.7	4.8	12.2	4.5	6.8	6.8
09/15/88	20.1	27.5	18.6	17.2	8.8	16.2	10.0	11.0	10.5

Table 19.--*Chemical quality of ground water in the unsaturated zone in Smith Branch upper tributary basin, July 1985-May 1988*

LOCATION.--In agricultural field with standard land-management practices, 2.3 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; owner: U.S. Geological Survey; Hydrologic Unit 03030002.

DRAINAGE AREA.--4.8 acres (0.0075 mi^2).

REMARKS.--mi, mile; mi^2, miles squared; MG/L, milligram per liter.

UNSATURATED ZONE WATER-QUALITY DATA, JULY 1985 TO MAY 1988

LYSIMETER NUMBER	DATE	TIME	WATER TABLE DEPTH BELOW LAND SURFACE (FEET)	NITROGEN, NO_2+NO_3, TOTAL (MG/L AS N)	NITROGEN, AMMONIA, TOTAL (MG/L AS N)	NITROGEN, ORGANIC, TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P)
208-9	07/16/85	1315	11.0	0.10	0.49	0.91	1.4	1.5	0.21	0.08
208-6	08/13/85	1455	7.2	<.10	.07	.63	.70	--	.14	.09
208-3	03/31/86	1400	3.6	10.0	.19	2.1	2.3	12	.18	.08
206-3	09/15/86	1200	8.1	10.0	.08	1.5	1.6	12	.09	.01
210-3	02/05/87	1130	5.3	<.10	.04	.56	.60	--	.01	<.01
PPT-3	02/05/87	1220	--	.40	.07	.83	.90	1.3	.01	<.01
210-6	02/11/87	1130	6.1	1.6	.06	1.0	1.1	2.7	.04	.02
210-3	02/11/87	1210	6.1	<.10	.11	.49	.60	--	.01	<.01
209-3	02/11/87	1220	4.7	1.6	.08	.62	.70	2.3	.09	<.01
207-3	02/11/87	1215	9.8	3.1	.04	.36	.40	3.5	.01	<.01
205-3	02/11/87	1225	13.9	2.0	.06	1.1	1.2	3.2	.16	<.01
210-3	03/24/87	0940	5.0	.20	<.01	--	.20	.40	.02	<.01
207-3	03/24/87	1000	9.1	2.8	<.01	--	1.2	4.0	.03	.02
209-3	03/24/87	1015	4.2	2.2	.04	.46	.50	2.7	.04	<.01
PPT-3	04/20/87	1130	--	.40	.02	.38	.40	.80	.01	<.01
209-3	04/20/87	1210	3.4	<.10	.03	.87	.90	--	.10	.01
210-3	04/20/87	1200	4.2	<.10	<.01	--	.20	--	.05	.03
PPT-3	05/21/87	1145	--	<.10	.05	.25	.30	--	.04	.02
207-3	05/21/87	1215	9.7	2.1	.04	.26	.30	2.4	.03	.04
209-3	05/21/87	1230	4.6	<.10	.07	1.2	1.3	--	.08	.05
210-3	05/21/87	1200	4.5	<.10	.02	.48	.50	--	.03	.03
PPT-3	12/22/87	1545	--	<.10	.05	1.2	1.2	--	.06	<.01
210-3	12/22/87	1415	8.9	.60	.21	2.0	2.2	2.8	.05	.01
207-3	12/22/87	1345	13.8	4.3	.06	1.5	1.6	5.9	.06	<.01
210-3	01/18/88	1150	7.3	<.10	.06	.14	.20	--	.01	<.01
209-6	01/18/88	1140	6.48	.30	.15	--	--	--	1.6	.03
207-3	01/18/88	1130	12.00	2.8	.05	.25	.30	3.1	.02	<.01
209-3	02/24/88	1225	5.85	<.10	.06	.44	.50	--	.09	.02
207-3	02/24/88	1215	10.84	2.3	.04	.66	.70	3.0	.02	.01
205-3	02/24/88	0940	13.91	<.10	.05	.65	.70	--	.12	.03
PPT-3	05/12/88	1500	--	<.10	.07	--	<.20	--	.01	<.01
209-6	05/12/88	1445	7.01	<.10	.13	.67	.80	--	.05	<.01
210-3	05/12/88	1430	6.96	<.10	.08	--	<.20	--	.01	<.01
207-3	05/12/88	1415	12.28	2.1	.04	--	<.20	--	.02	.02
207-3	05/23/88	1520	7.35	2.5	.04	.16	.20	2.7	.01	<.01
210-3	05/23/88	1530	7.05	<.10	.05	.25	.30	--	.01	<.01

Table 20.--*Physical and chemical quality of ground water in the saturated zone in Smith Branch upper tributary basin, June 1985-August 1988*

LOCATION.--In agricultural field with standard land-management practices, 2.3 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; owner: U.S. Geological Survey; Hydrologic Unit 03030002.

DRAINAGE AREA.--4.8 acres (0.0075 mi^2).

REMARKS.--mi, mile; mi^2, miles squared; µS/CM, microsiemens per centimeter at 25 degrees Celsius (°C); MG/L, milligram per liter.

SATURATED ZONE WATER-QUALITY DATA, JUNE 1985 TO AUGUST 1988

DATE	TIME	WATER TABLE DEPTH BELOW LAND SURFACE (FEET)	SPECIFIC CONDUCTANCE (µS/CM)	pH (STANDARD UNITS)	NITROGEN, NO_2+NO_3, TOTAL (MG/L AS N)	NITROGEN, AMMONIA, TOTAL (MG/L AS N)	NITROGEN, ORGANIC, TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHOROUS, TOTAL (MG/L AS P)	PHOSPHOROUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P)
					Well Number 209							
06/13/85	1245	7.79	30	6.10	0.50	0.09	0.51	0.60	1.1	<0.01	<0.01	<0.01
09/03/85	1100	8.20	27	5.60	.50	.09	.11	.20	.70	.02	--	.02
03/11/86	1200	6.80	40	7.00	<.10	.03	.37	.40	--	.04	--	<.01
05/20/86	1215	7.46	22	5.60	.53	.02	.12	.14	.67	.01	--	.01
08/12/86	1500	9.77	37	6.40	.55	.03	--	<.20	--	.02	--	<.01
12/30/86	1110	13.57	100	7.30	.60	.02	--	<.20	--	.02	--	.01
04/09/87	0945	4.57	160	7.60	.60	<.01	--	.60	1.2	.01	--	<.01
08/25/87	1240	8.35	28	4.90	.50	.01	.79	.80	1.3	.02	--	<.01
09/21/87	1500	8.88	45	5.60	.50	.03	--	<.20	--	.05	--	.01
12/14/87	1115	8.50	24	8.70	.50	.02	.28	.30	.80	.02	<.01	<.01
03/06/88	1400	6.06	72	6.50	.30	.03	.17	.20	.50	<.01	--	<.01
06/29/88	1330	8.02	24	6.30	.50	<.01	--	.60	1.1	<.01	--	<.01
08/17/88	1215	10.05	28	5.20	.50	.02	.38	.40	.90	.02	--	.01
					Well Number 210							
08/13/85	1355	8.20	50	5.90	1.5	.02	.18	.2	1.7	<.01	--	<.01
					Well Number 208							
08/13/85	1430	7.19	77	5.80	<.10	.04	.16	.20	--	<.01	--	<.01

Table 21.--*Daily precipitation in Smith Branch upper tributary basin, March 1986-September 1988*

LOCATION.--In agricultural field with standard land-management practices, 2.3 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; owner: U.S. Geological Survey; Hydrologic Unit 03030002.

GAGE.--Water-stage recorder, with 5-minute punch interval.

REMARKS.--Records good; mi, mile.

RAINFALL, ACCUMULATED (INCHES), MARCH 1986 TO SEPTEMBER 1986
SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	---	---	---	---	---	0.00	0.00	0.00	0.00	0.39	0.00	0.00
2	---	---	---	---	---	.00	.00	.00	.00	.34	.00	.00
3	---	---	---	---	---	.00	.00	.00	.00	.00	.00	.75
4	---	---	---	---	---	.00	.00	.00	.00	.00	.00	.00
5	---	---	---	---	---	.00	.00	.00	.00	.00	.00	.35
6	---	---	---	---	---	.00	.00	.00	.00	.00	.12	.00
7	---	---	---	---	---	.00	.00	.00	.34	.00	.00	.00
8	---	---	---	---	---	.00	.00	.00	.00	.00	.00	.00
9	---	---	---	---	---	.00	.00	.00	.00	.00	.00	.00
10	---	---	---	---	---	.00	.00	.00	.00	.00	.00	.00
11	---	---	---	---	---	.00	.00	.00	.00	.00	2.59	.00
12	---	---	---	---	---	.00	.00	.00	.32	.00	1.96	.00
13	---	---	---	---	---	.45	.00	.42	.00	.00	.00	.00
14	---	---	---	---	---	.91	.00	.00	.00	.00	.00	.00
15	---	---	---	---	---	.32	.00	.00	.00	.00	.00	.00
16	---	---	---	---	---	.00	.00	.00	.00	.00	.00	.00
17	---	---	---	---	---	.00	.00	.00	.00	.00	.84	.00
18	---	---	---	---	---	.00	.00	.00	.00	.00	.00	.00
19	---	---	---	---	---	.14	.00	.59	.00	.00	.00	.00
20	---	---	---	---	---	.14	.00	.99	.00	.00	.83	.00
21	---	---	---	---	---	.00	.39	.00	.00	.00	.00	.00
22	---	---	---	---	---	.00	.00	.00	.00	.00	.00	.00
23	---	---	---	---	---	.00	.00	.00	.00	.00	.75	.00
24	---	---	---	---	---	.00	.00	.00	.00	.00	.00	.00
25	---	---	---	---	---	.00	.00	.00	.00	.64	.00	.00
26	---	---	---	---	---	.00	.24	.32	.00	.90	.00	.00
27	---	---	---	---	---	.00	.00	.00	.00	.00	.00	.00
28	---	---	---	---	---	.00	.00	.00	.41	.00	.31	.00
29	---	---	---	---	---	.00	.00	.00	.20	.00	.00	.00
30	---	---	---	---	---	.00	.00	.00	.00	.00	.00	.00
31	---	---	---	---	---	.00	---	.00	---	.00	.00	---
TOTAL	---	---	---	---	---	1.96	0.63	2.32	1.27	2.27	7.40	1.10

Table 21.--*Daily precipitation in Smith Branch upper tributary basin, March 1986-September 1988* --Continued

LOCATION.--In agricultural field with standard land-management practices, 2.3 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; owner: U.S. Geological Survey; Hydrologic Unit 03030002.

GAGE.--Water-stage recorder, with 5-minute punch interval.

REMARKS.--Records good; mi, mile; WTR YR, water year (October through September).

RAINFALL, ACCUMULATED (INCHES), OCTOBER 1986 TO SEPTEMBER 1987
SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	0.00	0.00	0.22	0.64	0.00	0.49	0.00	0.00	0.70	0.00	0.00	0.00
2	.00	.14	.54	.00	.13	.00	.00	.00	.00	.25	.00	.00
3	.00	.00	.00	.00	.00	.00	.52	.00	.23	1.43	.25	.00
4	.00	.00	.00	.00	.00	.14	.00	.00	.20	.26	.67	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.11	.00	.00	.89
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.40
7	.00	.90	.00	.00	.00	.00	.00	.00	.00	.00	.19	1.69
8	.00	.00	.12	.00	.00	.32	.00	.00	.00	.00	.00	1.33
9	.00	.00	.22	.00	.00	.79	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.29
11	.00	.75	.75	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.46	.18	.00	.00	.00	.45
13	.56	.00	.00	.00	.00	.00	.00	.00	.14	.00	.00	.00
14	.74	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00	.00
15	.00	.31	.00	.00	.00	.00	3.22	.00	.00	.00	.31	.00
16	.00	.00	.00	.18	.31	.22	.70	.00	.14	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.78	.44	.00	.28	.00	.00	.00	.00	.00
19	.00	.00	.00	.67	.00	.41	.00	.65	.00	.00	.00	.00
20	.00	.76	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.14	.00	.00	.00	.67	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.29	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	1.01	.00	.00	.00	1.49	.27	.00	.00	.00	.00
25	.89	.00	.00	.00	.00	.00	.39	.00	.00	.00	.00	.00
26	.49	.17	.00	.00	.00	.00	.00	.61	.48	.00	.00	.00
27	.00	.00	.00	.23	.00	.21	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	2.21	.00	.00	.19	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.18	---	.46	.00	.00	.21	.00	.00	.42
31	.00	---	.00	.00	---	.22	---	.00	---	.00	.12	---
TOTAL	2.82	3.03	3.15	2.68	3.90	3.26	7.06	1.90	2.21	1.94	1.54	5.47

WTR YR 1987: TOTAL 38.96

Table 21.--*Daily precipitation in Smith Branch upper tributary basin, March 1986-September 1988* --Continued

LOCATION.--In agricultural field with standard land-management practices, 2.3 mi above Secondary Road 2733, and 1.0 mi southeast of Monticello; owner: U.S. Geological Survey; Hydrologic Unit 03030002.

GAGE.--Water-stage recorder, with 5-minute punch interval.

REMARKS.--Records good; mi, mile; CAL YR, calendar year; WTR YR, water year (October through September).

RAINFALL, ACCUMULATED (INCHES), OCTOBER 1987 TO SEPTEMBER 1988
SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	0.00	0.00	0.00	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.76	.61	.00	.00
3	.00	.00	.00	.00	.38	.00	.00	.00	.21	.18	.16	.11
4	.00	.00	.00	.50	.56	.18	.33	.74	.00	.00	.11	.82
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.32	.00	.00	.00	.00	.00	.36	.00	.00	.00	.26	.00
7	.00	.00	.00	.00	.00	.00	.24	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.56	.00	.00
9	.00	.00	.00	.13	.00	.47	.00	.00	.59	.00	.00	1.60
10	.00	1.00	1.30	.00	.00	.34	.00	.31	.00	.00	.00	.00
11	.00	.14	.00	.00	.19	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.49	.00	.00	1.52	.00	.00
13	.00	.00	.00	.11	.00	.18	.00	.00	.00	.24	.11	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10	.16
15	.00	.00	.82	.00	.10	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.59	.00	.00	.00	.00
17	.00	.30	.00	.31	.00	.00	.00	1.36	.41	.00	.00	.61
18	.00	.00	.00	.00	.00	.45	.59	.00	.00	.00	.00	.12
19	.00	.00	.00	.37	.25	.00	.81	.00	.00	.00	.00	.00
20	.00	.00	.00	.27	.00	.00	.00	.18	.00	.00	.34	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.98	.00	.00
22	.00	.00	.00	.00	.00	.00	.20	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.15	.00	.00	.00	.00	.18	.11	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.22	.00	.17	.00
25	.00	.00	.21	.54	.00	.57	.00	.00	.00	.11	.00	.00
26	.00	.38	.00	.00	.00	.13	.00	.00	.20	.11	.00	.00
27	.80	.91	.63	.00	.00	.00	.00	.00	.00	.58	.13	.00
28	.00	.00	.43	.00	.00	.00	.00	.00	.00	.00	.44	.00
29	.00	.17	.00	.00	.00	.00	.00	.00	.00	.00	1.28	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.12	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.11	.00	---
TOTAL	1.12	2.90	3.39	2.58	1.63	2.32	3.02	3.18	2.51	5.18	3.21	3.42

CAL YR 1987: TOTAL 37.37
WTR YR 1988: TOTAL 34.46

Mixed Land-Use Basin

Data from the mixed land-use basin, Candy Creek near Monticello (fig. 1, site 3), are presented in tables 22 through 24. Daily mean discharge values are presented first followed by water-quality analyses and suspended-sediment data. No ground-water or prescipitation data were collected in this basin.

Table 22.--*Daily discharge for Candy Creek, October 1984-September 1988*

LOCATION.--Lat 36°14'02", long 79°39'43", Guilford County, on right bank 70 ft upstream from bridge on Secondary Road 2700, and 1.2 mi northeast of Monticello; U.S. Geological Survey downstream order identification number 0209331325; Hydrologic Unit 03030002.

DRAINAGE AREA.--665 acres (1.10 mi^2).

PERIOD OF RECORD.--October 1984 to September 1988.

GAGE.--Water-stage recorder; datum of gage is 730 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those above 200 CFS, which are fair; mi, mile; mi^2, miles squared; ft, foot; CFS, cubic foot per second; MAX, maximum; MIN, minimum; CFSM, cubic foot per second per square mile; IN., inch; WTR YR, water year (October through September).

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	0.28	0.34	0.52	0.50	7.0	0.95	0.87	0.25	0.19	0.35	1.4	0.71
2	.28	.34	.54	1.0	13	.89	.85	.27	.18	.26	.59	.44
3	.28	.28	1.0	8.6	3.3	.81	.83	.35	.19	.19	.29	.40
4	.30	.30	.60	10	1.8	.80	.61	.33	.20	.15	.27	.32
5	.29	.34	2.7	3.8	1.8	.77	.55	.30	.19	.17	.53	.31
6	.28	.29	2.8	1.8	2.6	.67	.57	.26	.19	.18	.33	.35
7	.28	.31	1.1	1.3	1.9	.66	.52	.24	.28	.17	.21	.36
8	.27	.33	.85	1.0	1.2	.68	.51	.23	.25	.15	1.3	.31
9	.25	.31	.74	.84	.99	.68	.51	.22	.20	.15	.48	.26
10	.24	.33	.69	.78	.93	.62	.51	.22	.17	.13	.35	.25
11	.27	.48	.64	.72	.93	.64	.52	.22	.36	.19	.30	.24
12	.26	.36	.61	.59	5.4	.63	.51	.25	.33	.13	.24	.21
13	.26	.34	.59	.58	2.1	.57	.50	.21	.23	.99	.18	.21
14	.25	.34	.56	.59	1.3	.56	.51	.19	.21	1.0	.17	.21
15	.24	.36	.56	.52	1.1	.54	.54	.31	.18	.24	.15	.22
16	.25	.36	.56	.51	.94	.54	.56	1.1	.20	.18	.14	.22
17	.27	.35	.56	.63	.89	.57	.49	.71	.18	.18	.61	.21
18	.29	.37	.56	.59	.81	.51	.45	.47	.15	.18	7.6	.21
19	.28	.70	.57	.53	.88	.59	.43	.30	.13	.18	1.7	.21
20	.26	.47	.56	.52	.78	.57	.40	.24	.12	.18	1.3	.21
21	.24	.40	.59	.51	.75	.60	.35	.29	.13	.18	1.6	.21
22	.32	.38	.66	.51	.75	1.2	.34	.75	.11	.14	1.2	.21
23	.33	.42	.63	.51	.75	1.5	.32	.80	.11	.11	.58	.21
24	.30	.38	.61	.53	.77	1.1	.32	.49	.12	.12	.78	.21
25	.30	.37	.61	.53	.91	.92	.32	.42	.10	2.8	1.5	.19
26	.32	.37	.56	.43	2.6	.80	.28	.30	.10	1.1	8.8	.19
27	.29	.37	.59	.44	1.4	.79	.29	.22	.09	3.7	7.4	.19
28	.30	1.8	.57	.49	1.1	.77	.29	.20	.10	6.4	5.1	.18
29	.52	.84	.54	.50	---	.67	.26	.20	1.4	1.2	1.9	.16
30	.38	.57	.52	.50	---	.79	.25	.20	.57	.55	1.5	.17
31	.36	---	.50	1.1	---	.87	---	.20	---	1.9	1.1	---
TOTAL	9.04	13.20	23.69	41.45	58.68	23.26	14.26	10.74	6.96	23.55	49.60	7.78
MEAN	.29	.44	.76	1.34	2.10	.75	.48	.35	.23	.76	1.60	.26
MAX	.52	1.8	2.8	10	13	1.5	.87	1.1	1.4	6.4	8.8	.71
MIN	.24	.28	.50	.43	.75	.51	.25	.19	.09	.11	.14	.16
CFSM	.27	.40	.69	1.22	1.91	.68	.43	.31	.21	.69	1.45	.24
IN.	.31	.45	.80	1.40	1.98	.79	.48	.36	.24	.80	1.68	.26

WTR YR 1985: TOTAL 282.21, MEAN 0.77, MAX 13, MIN 0.09, CFSM 0.70, IN. 9.54

Table 22.--*Daily discharge for Candy Creek, October 1984-September 1988*--Continued

LOCATION.--Lat 36°14'02", long 79°39'43", Guilford County, on right bank 70 ft upstream from bridge on Secondary Road 2700, and 1.2 mi northeast of Monticello; U.S. Geological Survey downstream order identification number 0209331325; Hydrologic Unit 03030002.

DRAINAGE AREA.--665 acres (1.10 mi^2).

PERIOD OF RECORD.--October 1984 to September 1988.

GAGE.--Water-stage recorder; datum of gage is 730 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those above 200 CFS, which are fair; mi, mile; mi^2, miles squared; ft, foot; CFS, cubic foot per second; MAX, maximum; MIN, minimum; CFSM, cubic foot per second per square mile; IN., inch; WTR YR, water year (October through September).

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	0.14	0.43	4.9	0.66	0.58	0.81	0.59	0.28	0.18	0.11	0.10	0.25
2	.36	.63	2.7	.59	.60	.79	.57	.24	.16	.24	.09	.30
3	.62	2.0	1.5	.61	.60	.65	.57	.23	.13	.12	.09	1.6
4	.39	8.5	1.3	.57	.57	.68	.57	.23	.15	.08	.11	1.4
5	.26	3.7	1.2	.55	.58	.57	.56	.23	.15	.08	.12	1.3
6	.20	1.6	1.1	.54	.65	.72	.56	.22	.14	.07	.16	1.0
7	.19	1.0	.99	.53	2.7	.59	.56	.21	.16	.06	.15	.49
8	.18	.88	.92	.50	1.1	.57	.53	.19	.21	.05	.11	.42
9	.21	.82	.85	.51	.89	.67	.50	.18	.13	.04	.09	.39
10	.22	.72	.73	.51	.90	.58	.67	.18	.11	.04	.08	.34
11	.21	.65	.76	.51	1.4	.62	.74	.17	.11	.04	6.3	.31
12	.22	.61	.76	.52	1.0	.75	.73	.17	.12	.04	12	.27
13	.21	.58	1.7	.51	.82	.82	.65	.32	.14	.03	2.7	.21
14	.21	.53	1.1	.50	.78	3.6	.48	.28	.09	.03	1.4	.20
15	.35	.51	.91	.49	.82	3.3	.48	.26	.09	.04	.76	.17
16	.43	.50	.85	.50	.76	2.8	.46	.22	.09	.04	.39	.17
17	.32	.50	.82	.52	.72	1.7	.46	.19	.08	.03	1.9	.17
18	.28	.54	.79	.53	.92	1.3	.43	.17	.07	.03	1.9	.17
19	.27	.46	.76	.64	1.1	1.9	.42	.36	.07	.02	.61	.17
20	.25	.56	.77	.56	.92	2.1	.40	1.4	.07	.02	2.3	.16
21	.34	5.5	.74	.52	.88	1.5	.49	.67	.06	.02	1.4	.16
22	.42	12	.73	.52	.87	1.2	.39	.77	.06	.02	.66	.16
23	.41	3.4	.77	.51	.88	.97	.36	.51	.06	.03	.59	.17
24	.35	1.8	.72	.50	.90	.88	.40	.33	.06	.04	2.6	.14
25	.30	1.3	.67	.56	.77	.81	.34	.27	.05	.59	.70	.11
26	.25	1.3	.62	.73	.62	.80	.36	.40	.06	.75	.41	.10
27	.25	1.3	.63	.67	.98	.78	.33	.38	.06	.97	.32	.10
28	.28	1.2	.64	.54	.89	.72	.31	.37	.05	.22	.49	.10
29	.25	2.2	.62	.57	---	.70	.28	.33	.09	.16	.38	.10
30	.28	17	.55	.59	---	.66	.28	.26	.07	.13	.30	.09
31	.34	---	.60	.58	---	.62	---	.22	---	.11	.26	---
TOTAL	8.99	72.72	32.70	17.14	25.20	35.16	14.47	10.24	3.07	4.25	39.47	10.72
MEAN	.29	2.42	1.05	.55	.90	1.13	.48	.33	.10	.14	1.27	.36
MAX	.62	17	4.9	.73	2.7	3.6	.74	1.4	.21	.97	12	1.6
MIN	.14	.43	.55	.49	.57	.57	.28	.17	.05	.02	.08	.09
CFSM	.26	2.20	.96	.50	.82	1.03	.44	.30	.09	.12	1.16	.32
IN.	.30	2.46	1.11	.58	.85	1.19	.49	.35	.10	.14	1.33	.36

CAL YR 1985: TOTAL 350.68, MEAN 0.96, MAX 17, MIN 0.09, CFSM 0.87, IN. 11.9
WTR YR 1986: TOTAL 274.13, MEAN 0.75, MAX 17, MIN 0.02, CFSM 0.68, IN. 9.27

Table 22.-- *Daily discharge for Candy Creek, October 1984-September 1988*--Continued

LOCATION.--Lat 36°14'02", long 79°39'43", Guilford County, on right bank 70 ft upstream from bridge on Secondary Road 2700, and 1.2 mi northeast of Monticello; U.S. Geological Survey downstream order identification number 0209331325; Hydrologic Unit 03030002.

DRAINAGE AREA.--665 acres (1.10 mi^2).

PERIOD OF RECORD.--October 1984 to September 1988.

GAGE.--Water-stage recorder; datum of gage is 730 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those above 200 CFS, which are fair; mi, mile; mi^2, miles squared; ft, foot; CFS, cubic foot per second; MAX, maximum; MIN, minimum; CFSM, cubic foot per second per square mile; IN., inch; CAL YR, calendar year; WTR YR, water year (October through September).

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	0.08	0.28	0.55	1.7	4.2	57	1.2	1.2	e0.90	0.15	0.06	0.04
2	.08	.31	1.4	1.9	6.7	7.2	1.1	1.1	e.72	.28	.06	.03
3	.08	.25	1.5	1.1	8.0	3.3	1.9	1.0	e.74	1.3	.06	.03
4	.07	.27	.91	.91	4.9	2.0	2.1	.93	e.70	1.2	.07	.03
5	.07	.27	.76	.82	2.8	1.5	1.4	.87	.62	.58	.06	.13
6	.06	.28	.67	.77	2.1	1.2	1.2	.83	.54	.37	.05	.11
7	.06	.78	.63	.73	2.0	1.0	1.1	.81	.47	.25	.08	.96
8	.07	.92	.63	.68	1.6	1.1	1.0	.78	.43	.21	.07	5.7
9	.09	.69	.67	.69	1.3	6.0	.98	.74	.40	.18	.05	.31
10	.09	.52	.79	.70	1.0	6.3	1.1	.72	.37	.19	.04	.20
11	.08	1.0	3.4	.64	.95	2.1	.94	.68	.34	.19	.04	.25
12	.08	.84	1.8	.64	.94	1.6	2.2	.61	.30	.18	.04	.60
13	.21	.62	1.1	.60	.90	1.3	1.6	.66	.29	.18	.04	.34
14	.59	.62	.87	.60	.88	1.2	.83	.68	.29	.18	.03	.21
15	.15	.78	.76	.58	.89	1.1	30	.64	.25	.14	.05	.15
16	.20	.65	.71	.68	1.1	1.2	42	.57	.25	.13	.06	.13
17	.12	.61	.65	.92	1.6	1.2	7.4	.56	.25	.11	.05	.12
18	.11	.58	.68	3.7	1.3	1.1	5.6	.54	.26	.11	.04	.10
19	.10	.53	.63	6.3	1.3	2.1	3.5	.78	.27	.10	.04	.09
20	.12	1.8	.61	2.4	1.4	1.5	2.0	.69	.27	.09	.03	.11
21	.10	.96	.55	1.5	2.1	1.3	1.6	e.66	.23	.08	.03	.10
22	.10	.71	.53	3.1	4.7	1.3	1.3	e.64	.21	.08	.03	.08
23	.09	.66	.56	2.0	15	1.2	1.1	e.59	.22	.08	.03	.08
24	.09	.63	7.9	1.6	4.4	1.1	11	e.72	.21	.07	.03	.09
25	.25	.60	3.1	1.7	2.4	1.1	9.6	e.66	.20	.06	.03	.10
26	1.0	.74	1.7	2.1	1.7	1.1	4.1	e.84	.26	.06	.04	.11
27	.40	.64	1.2	1.5	2.5	1.0	2.3	e.69	.24	.07	.03	.10
28	.23	.60	.99	1.4	27	1.2	1.8	e.75	.18	.06	.03	.11
29	.23	.57	.85	1.3	---	1.0	1.5	e.66	.17	.06	.03	.11
30	.23	.50	.80	2.2	---	1.5	1.3	e.60	.16	.06	.03	.22
31	.23	---	.74	4.5	---	1.9	---	e.57	---	.06	.04	---
TOTAL	5.46	19.21	38.64	49.96	105.66	114.7	144.75	22.77	10.74	6.86	1.37	10.74
MEAN	.18	.64	1.25	1.61	3.77	3.70	4.82	.73	.36	.22	.04	.36
MAX	1.0	1.8	7.9	6.3	27	57	42	1.2	.90	1.3	.08	5.7
MIN	.06	.25	.53	.58	.88	1.0	.83	.54	.16	.06	.03	.03
CFSM	.16	.58	1.13	1.47	3.43	3.36	4.39	.67	.33	.20	.00	.33
IN.	.18	.65	1.31	1.69	3.57	3.88	4.90	.77	.36	.23	.00	.36

CAL YR 1986: TOTAL 223.03, MEAN 0.61, MAX 12, MIN 0.02, CFSM 0.56, IN. 7.54
WTR YR 1987: TOTAL 530.85, MEAN 1.45, MAX 57, MIN 0.03, CFSM 1.32, IN. 18.0

Table 22.-- *Daily discharge for Candy Creek, October 1984-September 1988*--Continued

LOCATION.--Lat 36°14'02", long 79°39'43", Guilford County, on right bank 70 ft upstream from bridge on Secondary Road 2700, and 1.2 mi northeast of Monticello; U.S. Geological Survey downstream order identification number 0209331325; Hydrologic Unit 03030002.

DRAINAGE AREA.--665 acres (1.10 mi^2).

PERIOD OF RECORD.--October 1984 to September 1988.

GAGE.--Water-stage recorder; datum of gage is 730 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those above 200 CFS, which are fair; mi, mile; mi^2, miles squared; ft, foot; CFS, cubic foot per second; MAX, maximum; MIN, minimum; CFSM, cubic foot per second per square mile; IN., inch; CAL YR, calendar year; WTR YR, water year (October through September).

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	0.12	0.13	e0.70	0.73	0.84	0.47	0.58	0.45	0.17	0.12	0.11	0.14
2	.28	.14	.66	.81	.81	.46	.57	.44	.23	.09	.10	.13
3	.14	.14	.33	.91	.88	.48	.54	.43	.66	.08	.10	.14
4	.13	.16	.28	1.9	4.9	.56	.63	.65	.28	.08	.09	.25
5	.14	.21	.25	1.5	2.2	.55	.55	.62	.21	.08	.09	.28
6	.16	.20	.25	.83	1.4	.47	.59	.51	.19	.08	.10	.14
7	.19	.20	.25	1.0	1.1	.44	.74	.44	.18	.07	.09	.14
8	.15	.25	.25	1.5	1.1	.43	.63	.39	.16	.20	.08	.14
9	.15	.25	.25	.63	.99	.52	.54	.37	.22	.15	.07	1.8
10	.14	.79	2.4	.61	.89	.74	.54	.43	.23	.10	.08	1.1
11	.14	.73	2.6	.58	.89	.53	.51	.36	.18	.10	.08	.37
12	.15	.47	.84	.58	.89	.49	.62	.31	.16	2.4	.08	.23
13	.15	.37	.60	.63	.76	.53	.58	.31	.15	.87	.06	.18
14	.14	.30	.54	.58	.71	.48	.53	.29	.15	.23	.06	.18
15	.15	.28	2.5	.47	.77	.46	.50	.29	.14	.11	.06	.20
16	.15	.27	1.2	.45	.71	.43	.50	.32	.15	.08	.05	.22
17	.15	.34	.87	.57	.66	.43	.49	3.5	.16	.07	.05	.45
18	.15	.36	.67	1.6	.78	.54	.82	1.5	.26	.06	.06	.48
19	.31	.29	.51	2.8	.73	.69	3.2	.65	.19	.06	.04	.41
20	.32	.33	.48	6.3	.69	.52	1.2	.72	.16	.06	.04	.33
21	.15	.29	.46	2.6	.62	.49	.85	.48	.14	.14	.06	.26
22	.14	.33	.46	1.6	.54	.46	.74	.41	.12	.31	.05	.22
23	.13	.32	.43	1.3	.55	.46	.75	.44	.11	.17	.05	.16
24	.13	.31	.40	1.2	.57	.46	.57	.71	.15	.13	.05	.14
25	.14	.30	.52	1.6	.54	.97	.52	.38	.15	.10	.05	.16
26	.13	.33	.42	1.7	.54	2.0	.51	.29	.13	.11	.04	.16
27	.38	1.7	1.0	1.2	.53	.96	.49	.24	.15	.34	.04	.14
28	.29	1.1	2.8	1.0	.50	.74	.46	.23	.14	.26	.06	.13
29	.18	1.0	1.6	.92	.50	.70	.47	.21	.11	.17	1.1	.13
30	.15	.79	.93	.89	---	.66	.46	.19	.12	.12	.33	.15
31	.14	---	.68	.86	---	.63	---	.18	---	.12	.15	---
TOTAL	5.37	12.68	26.13	39.85	27.59	18.75	20.68	16.74	5.55	7.06	3.47	8.96
MEAN	.17	.42	.84	1.29	.95	.60	.69	.54	.18	.23	.11	.30
MAX	.38	1.7	2.8	6.3	4.9	2.0	3.2	3.5	.66	2.4	1.1	1.8
MIN	.12	.13	.25	.45	.50	.43	.46	.18	.11	.06	.04	.13
CFSM	.16	.38	.77	1.17	.86	.55	.63	.49	.17	.21	.10	.27
IN.	.18	.43	.88	1.35	.93	.63	.70	.57	.19	.24	.12	.30

CAL YR 1987: TOTAL 511.73, MEAN 1.40, MAX 57.0, MIN 0.03, CFSM 1.27, IN. 17.31
WTR YR 1988: TOTAL 192.83, MEAN 0.53, MAX 6.3, MIN 0.04, CFSM 0.48, IN. 6.52

Table 23.--*Physical, chemical, and suspended-sediment data for Candy Creek, June 1985-September 1988*

LOCATION.--Lat 36°14'02", long 79°39'43", Guilford County, on right bank 70 ft upstream from bridge on Secondary Road 2700, and 1.2 mi northeast of Monticello; U.S. Geological Survey downstream order identification number 0209331325; Hydrologic Unit 03030002.

DRAINAGE AREA.--665 acres (1.10 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; µS/CM, microsiemens per centimeter at 25 degrees Celsius (°C); MM, millimeter; HG, mercury; MG/L, milligram per liter.

WATER-QUALITY DATA, JUNE 1985 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (µS/CM)	pH (STAND-ARD UNITS)	WATER TEMPER-ATURE (°C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	SOLIDS, RESIDUE AT 180 °C, DIS-SOLVED (MG/L)	NITRO-GEN, NO_2+NO_3, TOTAL (MG/L AS N)
JUNE											
13	1500	0.23	65	7.00	19.0	739	8.0	--	--	39	0.70
29	1910	7.8	60	--	--	--	--	--	13	--	.90
29	1915	8.4	54	--	--	--	--	--	8.3	--	.80
29	1945	8.0	51	--	--	--	--	--	7.8	--	.90
JULY											
16	1450	.18	102	6.90	23.0	750	6.7	79	4.3	69	.20
AUG											
14	0745	.19	70	6.70	21.0	744	7.0	81	2.3	50	.80
18	0155	14	60	6.70	--	--	--	--	5.7	--	.40
18	0200	15	59	6.70	--	--	--	--	6.2	--	.50
18	0230	17	53	6.50	--	--	--	--	--	--	.30
18	0300	20	50	6.60	--	--	--	--	5.8	42	.30
18	0330	19	43	6.50	--	--	--	--	4.5	--	.30
18	0400	23	44	6.50	--	--	--	--	4.9	--	.30
26	1215	10	50	7.50	--	--	--	--	5.1	35	.30
26	1315	29	34	--	--	--	--	--	4.9	--	.30
26	1345	42	33	--	--	--	--	--	4.7	--	.30
26	1400	39	33	--	--	--	--	--	4.2	--	.30
SEPT											
03	1315	.42	69	6.40	22.0	749	11.3	132	2.0	34	.70

Table 23.--*Physical, chemical, and suspended-sediment data for Candy Creek, June 1985-September 1988*--Continued

LOCATION.--Lat 36°14'02", long 79°39'43", Guilford County, on right bank 70 ft upstream from bridge on Secondary Road 2700, and 1.2 mi northeast of Monticello; U.S. Geological Survey downstream order identification number 0209331325; Hydrologic Unit 03030002.

DRAINAGE AREA.--665 acres (1.10 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; MG/L, milligram per liter; T/DAY, ton per day.

WATER-QUALITY DATA, JUNE 1985 TO SEPTEMBER 1985

DATE	TIME	NITROGEN, AMMONIA, TOTAL (MG/L AS N)	NITROGEN, ORGANIC, TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO_3)	PHOSPHOROUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)
JUNE											
13	1500	0.16	0.44	0.60	1.3	5.8	0.09	0.09	0.07	37	0.01
29	1910	.89	12	13	14	62	1.4	.16	.35	5,270	111
29	1915	.40	9.6	10	11	48	.91	.11	.26	4,810	109
29	1945	.46	11	11	12	53	2.7	.12	.49	4,120	89
JULY											
16	1450	.02	1.5	1.5	1.7	7.5	.08	.06	.04	24	.01
AUG											
14	0745	.11	.39	.50	1.3	5.8	.07	.06	.06	11	.01
18	0155	.32	2.1	2.4	2.8	12	.59	.15	.30	1,500	58
18	0200	.30	3.6	3.9	4.4	19	.98	.16	.35	1,550	63
18	0230	.21	3.1	3.3	3.6	16	1.0	.20	.22	1,080	50
18	0300	.21	2.9	3.1	3.4	15	.67	.22	.32	1,220	66
18	0330	.14	3.1	3.2	3.5	15	.26	.15	.23	1,030	54
18	0400	.23	2.8	3.0	3.3	15	.81	.18	.34	940	59
26	1215	.15	4.6	4.8	5.1	23	.24	.21	.22	--	--
26	1315	.13	3.2	3.3	3.6	16	.26	.23	.23	1,340	105
26	1345	.14	3.2	3.3	3.6	16	.24	.17	.21	1,230	140
26	1400	.16	3.2	3.4	3.7	16	.22	.18	.19	1,230	130
SEPT											
03	1315	.13	.27	.40	1.1	4.9	.09	.09	.06	12	.01

Table 23.--*Physical, chemical, and suspended-sediment data for Candy Creek, June 1985-September 1988*--Continued

LOCATION.--Lat 36°14'02", long 79°39'43", Guilford County, on right bank 70 ft upstream from bridge on Secondary Road 2700, and 1.2 mi northeast of Monticello; U.S. Geological Survey downstream order identification number 0209331325; Hydrologic Unit 03030002.

DRAINAGE AREA.--665 acres (1.10 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; µS/CM, microsiemens per centimeter at 25 degrees Celsius (°C); MM, millimeter; HG, mercury; MG/L, milligram per liter; T/DAY, ton per day.

WATER-QUALITY DATA, NOVEMBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (µS/CM)	pH (STAND-ARD UNITS)	WATER-TEMPER-ATURE (°C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	SOLIDS, RESIDUE AT 180 °C, DIS-SOLVED (MG/L)	NITRO-GEN, NO_2+NO_3, TOTAL (MG/L AS N)
NOV											
03	1200	1.9	78	6.80	14.0	737	7.5	75	4.6	71	0.40
DEC											
10	1000	.76	65	7.60	6.5	752	11.0	91	2.5	66	.90
FEB											
12	1100	1.0	65	6.90	3.5	745	12.8	99	2.2	--	.80
MAR											
05	1330	.59	63	6.80	10.0	739	11.4	104	1.9	56	.90
19	1310	4.3	65	--	13.5	732	--	--	6.1	56	1.0
MAY											
20	1030	.48	70	7.00	17.5	736	7.8	84	1.9	52	.62
AUG											
12	1140	16	41	7.60	21.0	--	--	--	4.5	50	.47
SEPT											
24	1120	.18	73	6.60	20.0	743	7.4	83	2.3	73	1.0

DATE	TIME	NITRO-GEN, AMMONIA, TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC, TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO_3)	PHOS-PHOROUS, TOTAL (MG/L AS P)	PHOS-PHOROUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)
NOV											
03	1200	<0.01	--	0.80	1.2	5.3	0.15	0.03	0.09	--	--
DEC											
10	1000	.16	0.34	.50	1.4	6.2	.07	.02	.05	16	0.03
FEB											
12	1100	.09	.61	.70	1.5	6.6	.05	--	.03	21	.06
MAR											
05	1330	.07	.33	.40	1.3	5.8	.03	.01	.02	5	.01
19	1310	.54	2.6	3.1	4.1	18	.48	.09	.26	1,440	17
MAY											
20	1030	.18	.92	1.1	1.7	7.6	.15	.05	.08	31	.04
AUG											
12	1140	.11	.82	.93	1.4	6.2	.21	.19	.16	352	15
SEPT											
24	1120	.02	.58	.60	1.6	7.1	.05	.03	.06	--	--

Table 23.--*Physical, chemical, and suspended-sediment data for Candy Creek, June 1985-September 1988*--Continued

LOCATION.--Lat 36°14'02", long 79°39'43", Guilford County, on right bank 70 ft upstream from bridge on Secondary Road 2700, and 1.2 mi northeast of Monticello; U.S. Geological Survey downstream order identification number 0209331325; Hydrologic Unit 03030002.

DRAINAGE AREA.--665 acres (1.10 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; µS/CM, microsiemens per centimeter at 25 degrees Celsius (°C); MM, millimeter; HG, mercury; MG/L, milligram per liter.

WATER-QUALITY DATA, OCTOBER 1986 TO AUGUST 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (µS/CM)	pH (STAND-ARD UNITS)	WATER TEMPER-ATURE (°C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	SOLIDS, RESIDUE AT 180 °C, DIS-SOLVED (MG/L)	NITRO-GEN, NO_2+NO_3, TOTAL (MG/L AS N)
OCT											
29	0840	0.21	75	6.90	11.5	746	8.7	82	2.9	62	0.90
NOV											
11	1610	1.6	58	6.00	--	--	--	--	5.8	55	.50
11	1645	2.4	67	6.00	--	--	--	--	5.6	60	.40
11	1745	3.1	71	6.00	--	--	--	--	6.3	--	.30
11	1815	3.0	64	6.00	--	--	--	--	6.0	63	.30
20	1315	2.1	67	6.70	--	--	--	--	7.1	--	.60
20	1400	2.5	76	6.70	--	--	--	--	6.4	--	.50
20	1415	2.9	71	6.70	--	--	--	--	5.9	--	.40
20	1445	2.9	72	6.60	--	--	--	--	6.3	--	.40
DEC											
30	1000	.80	70	7.00	3.5	744	12.0	93	--	61	.90
JAN											
18	2245	15	60	6.30	--	--	--	--	5.5	--	.60
18	2345	20	55	6.60	--	--	--	--	4.9	--	.60
19	0015	20	54	6.60	--	--	--	--	4.6	--	2.6
MAR											
09	1900	6.8	54	6.50	--	--	--	--	4.9	--	.50
09	1930	10	50	6.50	--	--	--	--	5.1	--	.50
09	2000	14	46	6.60	--	--	--	--	4.5	--	.50
09	2030	19	48	6.50	--	--	--	--	5.0	--	.50
09	2100	26	43	6.50	--	--	--	--	--	--	.40
APR											
09	0815	.88	65	7.60	10.0	748	9.8	88	1.6	54	.80
15	1140	9.8	91	6.60	--	--	--	--	10	--	.50
15	1215	36	50	6.50	--	--	--	--	7.2	--	.40
15	1315	174	38	6.20	--	--	--	--	6.0	--	.30
15	1330	183	38	6.20	--	--	--	--	5.2	--	.30
15	1515	56	38	6.20	--	--	--	--	4.4	--	.30
15	1530	43	45	6.40	--	--	--	--	4.4	--	.30
JULY											
03	2000	4.6	42	6.50	--	--	--	--	--	--	.70
03	2015	5.5	37	6.50	--	--	--	--	--	--	.70
03	2115	7.8	35	6.60	--	--	--	--	--	--	.60
AUG											
25	1145	.04	65	7.10	20.0	747	6.5	73	1.3	--	1.0

Table 23.--*Physical, chemical, and suspended-sediment data for Candy Creek, June 1985-September 1988*--Continued

LOCATION.--Lat 36°14'02", long 79°39'43", Guilford County, on right bank 70 ft upstream from bridge on Secondary Road 2700, and 1.2 mi northeast of Monticello; U.S. Geological Survey downstream order identification number 0209331325; Hydrologic Unit 03030002.

DRAINAGE AREA.--665 acres (1.10 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; MG/L, milligram per liter; T/DAY, ton per day.

WATER-QUALITY DATA, OCTOBER 1986 TO AUGUST 1987

DATE	TIME	NITROGEN, AMMONIA, TOTAL (MG/L AS N)	NITROGEN, ORGANIC, TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO_3)	PHOSPHOROUS, TOTAL (MG/L AS P)	PHOSPHOROUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)
OCT											
29	0840	0.03	0.27	0.30	1.2	5.3	0.04	0.02	0.03	4	0.00
NOV											
11	1610	.07	.83	.90	1.4	6.2	.25	.16	.12	127	.56
11	1645	.02	.88	.90	1.3	5.8	.24	.14	.11	148	.97
11	1745	.05	.65	.70	1.0	4.4	.51	.06	.17	299	2.5
11	1815	.07	.93	1.0	1.3	5.8	.39	.05	.19	--	--
20	1315	.12	1.8	1.9	2.5	11	.26	--	.10	304	1.7
20	1400	.08	1.5	1.6	2.1	9.3	.23	--	.13	240	1.6
20	1415	.09	.91	1.0	1.4	6.2	.39	--	.14	261	2.0
20	1445	.06	1.0	1.1	1.5	6.6	.43	--	.11	252	2.0
DEC											
30	1000	.11	.19	.30	1.2	5.3	.06	.03	.04	6	.01
JAN											
18	2245	.34	2.0	2.3	2.9	13	.60	--	.18	607	25
18	2345	.37	1.1	1.5	2.1	9.3	.90	--	.21	833	46
19	0015	.41	2.2	2.6	5.2	23	.80	--	.25	784	42
MAR											
09	1900	.38	2.8	3.2	3.7	16	.32	--	.28	567	10
09	1930	.30	2.5	2.8	3.3	15	.34	--	.17	722	20
09	2000	.32	2.0	2.3	2.8	12	.47	--	.19	778	29
09	2030	.39	2.4	2.8	3.3	15	.61	--	.23	836	43
09	2100	.37	1.9	2.3	2.7	12	.86	--	.22	--	--
APR											
09	0815	.06	.84	.90	1.7	7.5	.05	.01	<.01	10	.02
15	1140	.73	9.3	10	10	46	.04	--	<.01	1,160	31
15	1215	.46	7.5	8.0	8.4	37	1.6	--	.37	2,510	245
15	1315	.47	3.2	3.7	4.0	18	1.4	--	.55	1,850	869
15	1330	.45	4.2	4.7	5.0	22	1.5	--	.61	--	--
15	1515	.34	2.4	2.7	3.0	13	.81	--	.12	1,420	215
15	1530	.35	1.2	1.6	1.9	8.4	.71	--	.15	1,350	157
JULY											
03	2000	.28	9.3	9.6	10	46	1.9	--	.32	1,810	22
03	2015	.47	4.4	4.9	5.6	25	2.9	--	.43	2,470	37
03	2115	.60	3.5	4.1	4.7	21	3.0	--	.31	2,430	51
AUG											
25	1145	.03	.57	.60	1.6	7.1	.06	--	.03	11	.00

Table 23.--*Physical, chemical, and suspended-sediment data for Candy Creek, June 1985-September 1988*--Continued

LOCATION.--Lat 36°14'02", long 79°39'43", Guilford County, on right bank 70 ft upstream from bridge on Secondary Road 2700, and 1.2 mi northeast of Monticello; U.S. Geological Survey downstream order identification number 0209331325; Hydrologic Unit 03030002.

DRAINAGE AREA.--665 acres (1.10 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; µS/CM, microsiemens per centimeter at 25 degrees Celsius (°C); MM, millimeter; HG, mercury; MG/L, milligram per liter; T/DAY, ton per day.

WATER-QUALITY DATA, WATER YEAR DECEMBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (µS/CM)	pH (STAND-ARD UNITS)	WATER TEMPER-ATURE (°C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	SOLIDS, RESIDUE AT 180 °C, DIS-SOLVED (MG/L)	NITRO-GEN, NO_2+NO_3, TOTAL (MG/L AS N)
DEC											
14	0845	0.54	72	8.30	6.5	749	10.6	88	6.9	63	0.70
MAR											
06	1145	.50	70	7.80	9.5	747	10.4	93	1.5	--	.50
APR											
19	1530	30	50	7.90	--	--	--	--	--	--	.60
JUNE											
29	1030	.13	68	8.60	22.0	739	6.8	80	1.6	--	.90
JULY											
12	1825	5.0	57	6.60	--	--	--	--	13	--	.80
12	1930	5.2	84	6.60	--	--	--	--	10	--	.80
12	2030	16	43	6.60	--	--	--	--	--	--	.60
AUG											
17	0930	.07	75	6.40	23.5	742	6.0	73	1.1	--	.50
29	0400	3.9	80	6.10	--	--	--	--	--	--	1.2
29	0430	6.0	57	6.20	--	--	--	--	--	--	.60
29	0515	5.6	41	6.50	--	--	--	--	--	--	.30
SEPT											
09	1720	2.1	52	6.80	--	--	--	--	--	--	.40
09	1800	2.5	88	6.80	--	--	--	--	--	--	.50

DATE	TIME	NITRO-GEN, AMMONIA, TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC, TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO_3)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)
DEC											
14	0845	0.18	0.62	0.80	1.5	6.6	0.10	0.02	0.05	10	0.01
MAR											
06	1145	.05	.65	.70	1.2	5.3	.06	.01	.03	9	.01
APR											
19	1530	.22	1.2	1.4	2.0	8.9	.16	--	.06	166	13
JUNE											
29	1030	.09	.81	.90	1.8	8.0	.09	.02	.05	15	.01
JULY											
12	1825	.40	3.3	3.7	4.5	20	.64	--	.49	5,980	81
12	1930	.28	4.2	4.5	5.3	23	.54	--	.38	--	--
12	2030	.33	1.4	1.7	2.3	10	.66	--	.44	--	--
AUG											
17	0930	.08	.52	.60	1.1	4.9	.09	--	.05	--	--
29	0400	.34	3.1	3.4	4.6	20	1.0	--	.49	4,290	45
29	0430	.21	1.7	1.9	2.5	11	.88	--	.17	1,380	22
29	0515	.15	.95	1.1	1.4	6.2	.58	--	.17	857	13
SEPT											
09	1720	.14	.56	.70	1.1	4.9	.12	--	.07	300	1.7
09	1800	.10	1.3	1.4	1.9	8.4	.33	--	.19	295	2.0

Table 23.--*Physical, chemical, and suspended-sediment data for Candy Creek, June 1985-September 1988*--Continued

LOCATION.--Lat 36°14'02", long 79°39'43", Guilford County, on right bank 70 ft upstream from bridge on Secondary Road 2700, and 1.2 mi northeast of Monticello; U.S. Geological Survey downstream order identification number 0209331325; Hydrologic Unit 03030002.

DRAINAGE AREA.--665 acres (1.10 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; MG/KG, milligram per kilogram.

QUALITY OF BOTTOM MATERIAL, SEPTEMBER 1985 TO AUGUST 1988

DATE	TIME	NITRO-GEN, NO_2+NO_3, TOTAL (MG/KG AS N)	NITRO-GEN, NH_4, TOTAL (MG/KG AS N)	NITRO-GEN, NH_4+ ORGANIC, TOTAL (MG/KG AS N)	PHOS-PHORUS, TOTAL (MG/KG AS P)
09/03/85	1315	47	5.0	360	53
09/24/86	1150	2.0	12	330	110
09/21/87	1630	<2.0	6.0	200	72
08/17/88	0930	<2.0	6.6	130	40

Table 24.--*Suspended-sediment data for Candy Creek, June 1985-September 1988*

LOCATION.--Lat 36°14'02", long 79°39'43", Guilford County, on right bank 70 ft upstream from bridge on Secondary Road 2700, and 1.2 mi northeast of Monticello; U.S. Geological Survey downstream order identification number 0209331325; Hydrologic Unit 03030002.

DRAINAGE AREA.--665 acres (1.10 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; MG/L, milligram per liter.

WATER-QUALITY DATA, JUNE 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)
JUNE 1985			
13	1500	0.23	37
29	1910	7.8	5,270
29	1915	8.4	4,810
29	1930	8.4	4,900
29	1945	8.0	4,120
29	2000	8.0	3,560
JULY			
16	1450	.18	24
27	1855	7.8	1,845
27	1900	8.4	2,680
27	1915	10	3,090
27	1930	12	2,580
27	1945	11	2,060
27	2000	18	1,700
27	2015	29	1,670
27	2030	29	1,300
27	2045	27	1,240
27	2100	23	1,000
AUG			
14	0745	.19	11
18	0155	14	1,500
18	0200	15	1,550
18	0215	17	1,360
18	0230	17	1,080
18	0245	19	1,100
18	0300	20	1,220
18	0315	20	1,100
18	0330	19	1,030
18	0400	23	940
26	1230	12	990
26	1245	13	1,000
26	1300	19	1,210
26	1315	29	1,340
26	1330	38	1,400
26	1345	42	1,230
26	1400	39	1,230
26	1415	34	1,050
26	1430	29	990
26	1445	26	920
26	1500	23	880
26	1515	21	940
26	1530	18	770
SEPT			
03	1315	0.42	12
DEC			
10	1000	.76	16
FEB 1986			
12	1100	1.0	21
MAR			
05	1330	.59	5
19	1310	4.3	1,440
MAY			
20	1030	.48	31
AUG			
12	1140	16	352
SEPT			
03	1745	1.6	986
03	1800	2.7	853
03	1830	5.3	1,160
03	1915	6.8	828
03	2000	6.5	471

Table 24.--*Suspended-sediment data for Candy Creek, June 1985-September 1988* --Continued

LOCATION.--Lat 36°14'02", long 79°39'43", Guilford County, on right bank 70 ft upstream from bridge on Secondary Road 2700, and 1.2 mi northeast of Monticello; U.S. Geological Survey downstream order identification number 0209331325; Hydrologic Unit 03030002.

DRAINAGE AREA.--665 acres (1.10 mi^2).

PERIOD OF RECORD.--June 1985 to September 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; MG/L, milligram per liter.

WATER-QUALITY DATA, OCTOBER 1986 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)
OCT 1986			
29	0840	0.21	4
NOV			
11	1610	1.6	127
11	1645	2.4	148
11	1745	3.1	299
20	1315	2.1	304
20	1330	2.3	248
20	1345	2.4	213
20	1400	2.5	240
20	1415	2.9	261
20	1445	2.9	252
DEC			
30	1000	.80	6
JAN 1987			
18	2245	15	607
18	2345	20	833
19	0015	20	784
FEB			
03	1345	6.3	140
03	1415	7.0	159
03	1445	7.8	179
03	1515	8.8	156
03	1530	9.2	150
22	1845	6.2	187
22	1900	6.8	188
22	1945	8.8	275
22	2015	11	309
22	2030	12	286
22	2045	12	229
MAR			
09	1900	6.8	567
09	1930	10	722
09	2000	14	788
09	2030	19	836
10	0750	7.1	281
10	0800	6.8	135
10	0815	6.8	125
APR			
09	0815	.88	10
15	1140	9.8	1,160
15	1215	36	2,510
15	1315	174	1,850
15	1515	56	1,420
15	1530	43	1,350
24	0530	9.8	1,010
24	0545	14	1,160
24	0600	22	1,490
24	0615	27	1,400
24	0630	33	1,950
24	0700	36	1,570
24	0715	32	1,390
24	0730	29	1,190
JULY			
03	1945	3.7	1,420
03	2000	4.6	1,810
03	2015	5.5	2,470
03	2030	7.2	3,620
03	2115	7.8	2,430
03	2130	9.0	2,070
AUG			
25	1145	.04	11
SEPT			
07	2145	5.6	1,280
07	2230	8.6	1,320
07	2315	6.7	1,120
DEC			
14	0845	.54	10
JAN 1988			
20	0750	9.5	710
20	0815	11	625
20	0900	14	481
20	0945	12	387
MAR			
06	1145	.50	9
APR			
19	1530	30	166
MAY			
17	1530	3.9	2,500
17	1615	11	3,050
17	1645	13	2,290
JUNE			
29	1030	.13	15
JULY			
12	1825	5.0	5,980
12	1900	4.2	3,220
12	1920	4.0	2,960
12	1945	8.4	3,890
AUG			
15	0930	.07	14
29	0400	3.9	4,290
29	0430	6.0	1,380
29	0515	5.6	857
SEPT			
09	1720	2.1	300
09	1800	2.5	295

Forested Basin

Data from the forested basin, Brooks Lake tributary near Browns Summit (fig. 1, site 4), are presented in tables 25 through 27. Daily mean discharge values are followed by water-quality analyses and by suspended-sediment data. No ground-water or precipitation data were collected in this basin.

Table 25.--*Daily discharge for Brooks Lake tributary, November 1984-September 1988*

LOCATION.--Lat 35°13'40", long 79°43'20", Guilford County, on left bank, 0.2 mi upstream from mouth, on General Green Scout Reservation, and 1.1 mi northwest of Browns Summit; U.S. Geological Survey downstream order identification number 0209330990; Hydrologic Unit 03030002.

DRAINAGE AREA.--44 acres (0.06 mi^2).

PERIOD OF RECORD.--November 1984 to September 1988.

GAGE.--Water-stage recorder; datum of gage is 750 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those below 0.02 CFS, which are fair; mi, mile; mi^2, miles squared; ft, foot; CFS, cubic foot per second; MAX, maximum; MIN, minimum; CFSM, cubic foot per second per square mile; IN., inch.

DISCHARGE, IN CUBIC FEET PER SECOND, NOVEMBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	---	0.06	0.08	0.06	0.62	0.10	0.06	0.03	0.06	0.05	0.04	0.05
2	---	.06	.08	.09	.76	.09	.06	.03	.06	.04	.04	.05
3	---	.06	.09	.75	.19	.09	.06	.04	.06	.04	.05	.04
4	---	.06	.08	.63	.14	.09	.06	.03	.06	.05	.06	.04
5	---	.06	.14	.23	.13	.09	.06	.03	.06	.05	.04	.04
6	---	.06	.13	.13	.15	.08	.06	.03	.05	.04	.04	.03
7	---	.06	.10	.11	.15	.08	.06	.03	.06	.04	.04	.03
8	---	.06	.09	.10	.13	.09	.07	.03	.05	.04	.05	.02
9	---	.06	.08	.09	.12	.09	.07	.04	.05	.04	.05	.02
10	---	.06	.06	.08	.12	.09	.06	.04	.05	.05	.04	.02
11	---	.07	.06	.08	.11	.09	.07	.04	.06	.04	.04	.02
12	---	.06	.07	.07	.39	.09	.06	.04	.05	.04	.04	.04
13	---	.06	.06	.07	.15	.09	.06	.03	.05	.05	.03	.04
14	---	.06	.06	.07	.13	.08	.07	.03	.04	.04	.03	.04
15	---	.06	.06	.07	.11	.07	.06	.04	.04	.05	.03	.03
16	---	.06	.06	.07	.09	.07	.06	.04	.05	.04	.03	.03
17	---	.06	.06	.07	.09	.07	.05	.03	.04	.06	.06	.03
18	---	.06	.06	.07	.08	.07	.04	.03	.04	.05	.08	.02
19	---	.09	.06	.07	.08	.07	.04	.03	.04	.05	.05	.02
20	---	.08	.06	.07	.08	.07	.04	.03	.04	.05	.05	.02
21	---	.08	.06	.06	.08	.07	.04	.05	.04	.03	.08	.02
22	---	.06	.07	.06	.08	.10	.04	.08	.04	.02	.06	.03
23	---	.06	.06	.06	.08	.10	.04	.07	.04	.03	.05	.02
24	---	.06	.06	.06	.08	.09	.04	.06	.04	.03	.05	.03
25	---	.06	.06	.06	.10	.08	.04	.06	.04	.09	.06	.02
26	---	.06	.06	.06	.15	.08	.04	.05	.03	.04	.08	.03
27	---	.07	.06	.06	.13	.08	.04	.06	.03	.09	.08	.02
28	---	.15	.06	.06	.11	.08	.04	.06	.03	.11	.07	.02
29	---	.08	.06	.06	---	.08	.04	.06	.05	.06	.06	.02
30	---	.08	.06	.06	---	.08	.03	.06	.04	.05	.06	.02
31	---	---	.06	.10	---	.07	---	.06	---	.04	.05	---
TOTAL	---	2.02	2.21	3.68	4.63	2.57	1.56	1.34	1.39	1.50	1.59	.86
MEAN	---	.07	.07	.12	.17	.08	.05	.04	.05	.05	.05	.03
MAX	---	.15	.14	.75	.76	.10	.07	.08	.06	.11	.08	.05
MIN	---	.06	.06	.06	.08	.07	.03	.03	.03	.02	.03	.02
CFSM	---	1.12	1.19	1.98	2.76	1.38	.87	.72	.77	.81	.85	.48
IN.	---	1.25	1.37	2.28	2.87	1.59	.97	.83	.86	.93	.99	.53

Table 25.--*Daily discharge for Brooks Lake tributary, November 1984-September 1988* --Continued

LOCATION.--Lat 35°13'40", long 79°43'20", Guilford County, on left bank, 0.2 mi upstream from mouth, on General Green Scout Reservation, and 1.1 mi northwest of Browns Summit; U.S. Geological Survey downstream order identification number 0209330990; Hydrologic Unit 03030002.

DRAINAGE AREA.--44 acres (0.06 mi^2).

PERIOD OF RECORD.--November 1984 to September 1988.

GAGE.--Water-stage recorder; datum of gage is 750 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those below 0.02 CFS, which are fair; mi, mile; mi^2, miles squared; ft, foot; CFS, cubic foot per second; MAX, maximum; MIN, minimum; CFSM, cubic foot per second per square mile; IN., inch; CAL YR, calendar year; WTR YR, water year (October through September).

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	0.03	0.05	0.60	0.04	0.03	0.04	0.02	0.02	0.02	0.02	0.02	0.02
2	.05	.04	.30	.03	.03	.04	.02	.02	.02	.03	.02	.02
3	.05	.06	.15	.03	.03	.04	.02	.02	.02	.02	.02	.02
4	.04	.06	.09	.03	.03	.03	.02	.02	.02	.02	.02	.02
5	.03	.05	.06	.03	.04	.04	.02	.02	.02	.02	.02	.02
6	.03	.03	.05	.03	.06	.03	.02	.02	.02	.02	.02	.02
7	.03	.03	.04	.03	.07	.02	.02	.02	.04	.01	.02	.02
8	.03	.03	.04	.03	.05	.02	.02	.02	.03	.01	.02	.02
9	.03	.03	.04	.03	.04	.04	.02	.02	.02	.01	.02	.02
10	.03	.03	.04	.03	.04	.04	.02	.02	.02	.02	.02	.02
11	.02	.03	.04	.03	.07	.02	.02	.02	.02	.03	.03	.02
12	.02	.04	.04	.03	.06	.02	.02	.02	.03	.03	.13	.02
13	.02	.05	.08	.03	.05	.03	.02	.03	.04	.03	.04	.02
14	.02	.05	.06	.03	.05	.14	.02	.02	.04	.04	.02	.02
15	.05	.06	.05	.03	.05	.15	.02	.02	.03	.03	.02	.02
16	.04	.07	.05	.03	.04	.10	.02	.02	.03	.02	.02	.02
17	.03	.06	.05	.03	.05	.05	.02	.02	.02	.01	.05	.02
18	.03	.06	.04	.03	.05	.02	.02	.02	.02	.01	.03	.02
19	.03	.04	.04	.03	.06	.14	.02	.04	.02	.01	.02	.02
20	.02	.03	.04	.03	.06	.12	.02	.06	.02	.01	.06	.02
21	.04	.11	.04	.03	.04	.05	.02	.02	.02	.01	.04	.02
22	.02	.29	.04	.03	.03	.02	.02	.02	.02	.01	.02	.02
23	.02	.11	.04	.03	.03	.02	.02	.02	.02	.01	.03	.02
24	.02	.07	.04	.03	.05	.02	.02	.03	.02	.01	.08	.02
25	.02	.06	.03	.03	.04	.02	.02	.02	.02	.01	.02	.02
26	.02	.05	.03	.04	.04	.02	.02	.05	.01	.02	.02	.01
27	.02	.04	.03	.03	.05	.02	.02	.03	.02	.02	.02	.02
28	.02	.04	.03	.03	.04	.02	.02	.04	.02	.03	.03	.02
29	.03	.08	.03	.03	---	.02	.02	.03	.02	.03	.02	.02
30	.02	.95	.03	.03	---	.03	.02	.02	.02	.02	.02	.02
31	.03	---	.03	.03	---	.03	---	.02	---	.02	.02	---
TOTAL	.89	2.70	2.27	.95	1.28	1.40	.60	.77	.69	.59	.94	.59
MEAN	.03	.09	.07	.03	.05	.05	.02	.02	.02	.02	.03	.02
MAX	.05	.95	.60	.04	.07	.15	.02	.06	.04	.04	.13	.02
MIN	.02	.03	.03	.03	.03	.02	.02	.02	.01	.01	.02	.01
CFSM	.48	1.50	1.22	.51	.76	.75	.33	.41	.38	.32	.51	.33
IN.	.55	1.67	1.41	.59	.79	.87	.37	.48	.43	.37	.58	.37

CAL YR 1985: TOTAL 24.98, MEAN 0.07, MAX 0.95, MIN 0.02, CFSM 1.14, IN. 15.5
WTR YR 1986: TOTAL 13.67, MEAN 0.04, MAX 0.95, MIN 0.01, CFSM 0.62, IN. 8.48

Table 25.--*Daily discharge for Brooks Lake tributary, November 1984-September 1988* --Continued

LOCATION.--Lat 35°13'40", long 79°43'20", Guilford County, on left bank, 0.2 mi upstream from mouth, on General Green Scout Reservation, and 1.1 mi northwest of Browns Summit; U.S. Geological Survey downstream order identification number 0209330990; Hydrologic Unit 03030002.

DRAINAGE AREA.--44 acres (0.06 mi^2).

PERIOD OF RECORD.--November 1984 to September 1988.

GAGE.--Water-stage recorder; datum of gage is 750 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those below 0.02 CFS, which are fair; mi, mile; mi^2, miles squared; ft, foot; CFS, cubic foot per second; MAX, maximum; MIN, minimum; CFSM, cubic foot per second per square mile; IN., inch; CAL YR, calendar year; WTR YR, water year (October through September).

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	0.02	0.02	0.03	0.05	0.16	4.3	0.04	0.06	0.06	0.02	0.02	0.02
2	.02	.02	.08	.07	.26	.36	.04	.02	.05	.03	.02	.02
3	.02	.02	.09	.06	.34	.13	.05	.02	.05	.10	.02	.02
4	.02	.02	.05	.04	.23	.12	.08	.02	.05	.05	.02	.02
5	.03	.02	.05	.04	.16	.09	.07	.02	.04	.04	.02	.05
6	.03	.03	.04	.03	.13	.08	.06	.02	.04	.04	.02	.04
7	.04	.05	.04	.03	.12	.07	.06	.02	.04	.04	.02	.07
8	.03	.02	.04	.03	.10	.07	.06	.02	.04	.03	.02	.06
9	.02	.02	.02	.03	.08	.30	.04	.02	.04	.03	.02	.02
10	.03	.02	.02	.03	.07	.39	.04	.02	.04	.03	.02	.04
11	.03	.05	.09	.02	.06	.12	.04	.02	.04	.03	.02	.04
12	.03	.03	.07	.02	.05	.08	.04	.03	.04	.03	.02	.03
13	.03	.03	.05	.02	.04	.06	.06	.04	.04	.03	.02	.02
14	.03	.02	.04	.02	.04	.05	.06	.04	.04	.03	.02	.02
15	.02	.04	.03	.02	.04	.05	3.1	.03	.04	.03	.02	.02
16	.02	.04	.03	.02	.04	.04	6.2	.03	.04	.03	.02	.02
17	.02	.03	.02	.02	.04	.04	.26	.02	.11	.02	.02	.02
18	.02	.04	.03	.07	.04	.04	.16	.02	.12	.02	.02	.02
19	.02	.03	.02	.39	.04	.05	.12	.06	.04	.02	.02	.02
20	.02	.04	.02	.17	.05	.05	.10	.04	.03	.02	.02	.02
21	.02	.03	.02	.11	.07	.04	.09	.03	.03	.02	.02	.03
22	.02	.02	.02	.09	.15	.04	.08	.03	.03	.02	.02	.02
23	.01	.02	.04	.07	.74	.04	.07	.02	.03	.02	.02	.02
24	.01	.02	.19	.07	.24	.03	.49	.04	.03	.02	.02	.02
25	.02	.02	.09	.07	.17	.03	.46	.03	.03	.02	.02	.02
26	.03	.03	.07	.06	.14	.03	.13	.04	.05	.02	.02	.02
27	.01	.02	.05	.06	.13	.03	.06	.04	.04	.02	.03	.02
28	.01	.02	.04	.06	1.0	.04	.02	.05	.03	.02	.03	.02
29	.02	.02	.04	.06	---	.03	.02	.04	.02	.02	.04	.02
30	.02	.02	.04	.09	---	.05	.04	.03	.02	.02	.06	.03
31	.02	---	.03	.16	---	.05	---	.03	---	.02	.03	---
TOTAL	.69	.81	1.49	2.08	4.73	6.90	12.14	.95	1.30	.89	.71	.81
MEAN	.02	.03	.05	.07	.17	.22	.40	.03	.04	.03	.02	.03
MAX	.04	.05	.19	.39	1.0	4.3	6.2	.06	.12	.10	.06	.07
MIN	.01	.02	.02	.02	.04	.03	.02	.02	.02	.02	.02	.02
CFSM	.37	.45	.80	1.12	2.82	3.71	6.74	.51	.72	.48	.38	.45
IN.	.43	.50	.92	1.29	2.93	4.28	7.53	.59	.81	.55	.44	.50

CAL YR 1986: TOTAL 10.80, MEAN 0.03, MAX 0.19, MIN 0.01, CFSM 0.49, IN. 6.70
WTR YR 1987: TOTAL 33.50, MEAN 0.09, MAX 6.2, MIN 0.01, CFSM 1.53, IN. 20.81

Table 25.--*Daily discharge for Brooks Lake tributary, November 1984-September 1988* --Continued

LOCATION.--Lat 35°13'40", long 79°43'20", Guilford County, on left bank, 0.2 mi upstream from mouth, on General Green Scout Reservation, and 1.1 mi northwest of Browns Summit; U.S. Geological Survey downstream order identification number 0209330990; Hydrologic Unit 03030002.

DRAINAGE AREA.--44 acres (0.06 mi^2).

PERIOD OF RECORD.--November 1984 to September 1988.

GAGE.--Water-stage recorder; datum of gage is 750 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those below 0.02 CFS, which are fair; mi, mile; mi^2, miles squared; ft, foot; CFS, cubic foot per second; e, estimated value; MAX, maximum; MIN, minimum; CFSM, cubic foot per second per square mile; IN., inch; CAL YR, calendar year; WTR YR, water year (October through September).

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
1	0.02	0.04	0.02	0.05	e0.05	0.03	0.04	0.03	0.02	0.02	0.01	0.02
2	.02	.05	.02	.05	e.04	.04	.04	.02	.03	.01	.01	.02
3	.02	.05	.02	.05	e.05	.04	.04	.02	.04	.01	.01	.01
4	.02	.06	.02	.10	e.06	.04	.05	e.03	.02	.02	.01	.01
5	.02	.07	.02	.10	e.05	.04	.04	e.03	.02	.02	.01	.01
6	.05	.04	.02	.07	e.08	.03	.04	e.02	.02	.01	.01	.01
7	e.04	.02	.02	.05	.06	.03	.05	.04	.02	.01	.01	.01
8	e.02	.02	.02	.05	.06	.03	.04	.03	.02	.01	.01	.01
9	.02	.03	.02	.05	.05	.04	.04	.03	.03	.02	.01	.05
10	.02	.07	.08	.04	.05	.06	.04	.04	.02	.01	.01	.02
11	.02	.04	.11	.04	.04	.04	.04	.03	.02	.02	.01	.01
12	.02	.03	.04	.04	.04	.04	.05	.03	.02	.05	.01	.01
13	.02	.02	.03	.04	.04	.05	.05	.02	.02	.03	.01	.01
14	.02	.02	.02	.04	.04	.04	.05	.02	.02	.02	.01	.01
15	.02	.02	.08	.03	.04	.03	.05	.02	.02	.02	.01	.01
16	.02	.02	.07	.03	.04	.03	.04	.03	.02	.02	.01	.01
17	.02	.03	.04	.04	.03	.03	.04	.06	.02	.01	.01	.02
18	.02	.04	.03	.09	.04	.04	.05	.05	.02	.02	.01	.01
19	.01	.04	.03	.16	.04	.05	.14	.03	.02	.02	.01	.01
20	.02	.04	.03	.36	.04	.04	.10	.07	.02	.02	.01	.01
21	.02	.03	.02	.16	.04	.04	.07	.04	.02	.04	.01	.01
22	.02	.04	.02	.10	.03	.03	.05	.03	.02	.03	.01	.01
23	.02	.03	.03	.07	.04	.04	.05	.03	.02	.02	.01	.01
24	.02	.03	.03	.06	.03	.03	.04	.04	.02	.02	.01	.01
25	.02	.03	.04	.07	.03	.04	.04	.03	.02	.01	.01	.01
26	.02	.02	.04	.07	.03	.05	.04	.02	.02	.01	.01	.01
27	.05	.08	.06	.06	.03	.05	.03	.02	.02	.02	.02	.01
28	.03	.03	.21	.05	.03	.05	.03	.02	.02	.02	.02	.01
29	.03	.03	.14	.05	.03	.04	.03	.02	.01	.01	.05	.01
30	.03	.02	.07	.04	---	.04	.03	.02	.02	.01	.01	.01
31	.04	---	.06	.04	---	.04	---	.02	---	.01	.01	---
TOTAL	.74	1.09	1.46	2.25	1.23	1.22	1.44	.94	.63	.57	.37	.38
MEAN	.02	.04	.05	.07	.04	.04	.05	.03	.02	.02	.01	.01
MAX	.05	.08	.21	.36	.08	.06	.14	.07	.04	.05	.05	.05
MIN	.01	.02	.02	.03	.03	.03	.03	.02	.01	.01	.01	.01
CFSM	.40	.61	.78	1.21	.71	.66	.80	.51	.35	.31	.20	.21
IN.	.46	.68	.91	1.39	.76	.76	.89	.58	.39	.35	.23	.24

CAL YR 1987: TOTAL 33.80, MEAN 0.09, MAX 6.2, MIN 0.01, CFSM 1.54, IN. 20.96
WTR YR 1988: TOTAL 12.32, MEAN 0.03, MAX 0.36, MIN 0.01, CFSM 0.56, IN. 7.64

Table 26.--*Physical, chemical, and suspended-sediment data for Brooks Lake tributary, June 1985-August 1988*

LOCATION.--Lat 35°13'40", long 79°43'20", Guilford County, on left bank, 0.2 mi upstream from mouth, on General Green Scout Reservation, and 1.1 mi northwest of Browns Summit; U.S. Geological Survey downstream order identification number 0209330990; Hydrologic Unit 03030002.

DRAINAGE AREA.--44 acres (0.06 mi^2).

PERIOD OF RECORD.--June 1985 to August 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; µS/CM, microsiemens per centimeter at 25 degrees Celsius (°C); MM, millimeter; HG, mercury; MG/L, milligram per liter; T/DAY, ton per day.

WATER-QUALITY DATA, JUNE 1985 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (µS/CM)	pH (STAND-ARD UNITS)	WATER TEMPER-ATURE (°C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	SOLIDS, RESIDUE AT 180 °C, DIS-SOLVED (MG/L)	NITRO-GEN, NO_2+NO_3, TOTAL (MG/L AS N)
JUNE											
13	1600	0.04	55	7.00	16.0	739	7.2	75	--	44	0.30
JULY											
16	1700	.03	70	6.10	18.5	750	7.6	82	1.7	76	--
AUG											
14	0930	.03	63	7.20	18.0	744	7.2	78	1.4	78	.30
17	2310	.14	55	6.60	--	--	--	--	2.4	56	<.10
17	2400	.21	47	6.10	--	--	--	--	2.0	31	.10
18	0045	.31	39	5.90	--	--	--	--	1.8	62	<.10
18	0115	.22	47	5.80	--	--	--	--	1.7	--	<.10
18	0145	.16	54	5.90	--	--	--	--	1.7	68	<.10
SEPT											
03	1230	.04	64	6.30	18.5	749	10.8	117	--	39	.60

DATE	TIME	NITRO-GEN, AMMONIA, TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC, TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO_3)	PHOS-PHOROUS, TOTAL (MG/L AS P)	PHOS-PHOROUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)
JUNE											
13	1600	0.07	0.23	0.30	0.60	2.7	0.08	0.08	0.10	237	0.03
JULY											
16	1700	.08	.22	.30	--	--	.10	.10	.07	15	.00
AUG											
14	0930	<.01	--	.20	.50	2.2	.10	.11	.09	171	.01
17	2310	.02	1.3	1.3	--	--	.33	.09	.13	283	.11
17	2400	.04	2.6	2.6	2.7	12	.12	.07	.10	238	.13
18	0045	.06	1.3	1.4	--	--	.18	.05	.12	257	.22
18	0115	.04	.96	1.0	--	--	.24	.09	.09	--	--
18	0145	.04	1.6	1.6	--	--	.12	.07	.13	147	.06
SEPT											
03	1230	.04	.26	.30	.90	4.0	.12	--	.09	--	--

Table 26.--*Physical, chemical, and suspended-sediment data for Brooks Lake tributary, June 1985-August 1988*--Continued

LOCATION.--Lat 35°13'40", long 79°43'20", Guilford County, on left bank, 0.2 mi upstream from mouth, on General Green Scout Reservation, and 1.1 mi northwest of Browns Summit; U.S. Geological Survey downstream order identification number 0209330990; Hydrologic Unit 03030002.

DRAINAGE AREA.--44 acres (0.06 mi^2).

PERIOD OF RECORD.--June 1985 to August 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; µS/CM, microsiemens per centimeter at 25 degrees Celsius (°C); MM, millimeter; HG, mercury; MG/L, milligram per liter; T/DAY, ton per day.

WATER-QUALITY DATA, NOVEMBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (µS/CM)	pH (STAND-ARD UNITS)	WATER TEMPER-ATURE (°C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	SOLIDS, RESIDUE AT 180 °C, DIS-SOLVED (MG/L)	NITRO-GEN, NO_2+NO_3, TOTAL (MG/L AS N)
NOV											
03	1315	0.06	58	6.60	14.5	737	7.0	71	1.7	46	<0.10
DEC											
10	1330	.05	50	--	11.0	752	10.1	93	1.5	--	.20
FEB											
12	1300	.06	50	6.80	7.5	746	11.2	95	1.5	--	.10
MAR											
11	1400	.03	53	6.30	16.0	736	9.2	97	1.5	47	.20
19	1440	.23	42	--	12.5	732	--	--	2.0	52	<.10
MAY											
20	1320	.11	60	6.70	16.0	736	7.8	82	1.9	54	.12
20	1345	.19	43	6.20	--	--	--	--	2.0	54	.14
20	1420	.15	46	6.10	--	--	--	--	1.8	56	.09
AUG											
12	1230	.08	58	8.00	19.5	--	--	--	1.6	75	.07
SEPT											
24	1540	.02	63	6.87	17.5	743	6.4	69	1.7	74	.60

DATE	TIME	NITRO-GEN, AMMONIA, TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC, TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO_3)	PHOS-PHOROUS, TOTAL (MG/L AS P)	PHOS-PHOROUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)
NOV											
03	1315	<0.01	--	0.30	--	--	0.11	0.09	0.09	--	--
DEC											
10	1330	.02	0.28	.30	0.50	2.2	.08	--	.05	17	0.00
FEB											
12	1300	.02	.28	.30	.40	1.8	.04	--	.04	12	.00
MAR		~									
11	1400	.02	.18	.20	.40	1.8	.07	.06	.06	5	.00
19	1440	.01	.59	.60	--	--	.06	--	.02	150	.09
MAY											
20	1320	.04	.96	1.0	1.1	5.0	.18	.08	.13	376	.11
20	1345	.15	1.4	1.6	1.7	7.7	.18	.07	.11	195	.10
20	1420	.02	.80	.82	.91	4.0	.12	.08	.12	77	.03
AUG											
12	1230	.05	.32	.37	.44	1.9	.11	.09	.08	25	.01
SEPT											
24	1540	.02	.38	.40	1.0	4.4	.14	.08	.12	--	--

Table 26.--*Physical, chemical, and suspended-sediment data for Brooks Lake tributary, June 1985-August 1988--Continued*

LOCATION.--Lat 35°13'40", long 79°43'20", Guilford County, on left bank, 0.2 mi upstream from mouth, on General Green Scout Reservation, and 1.1 mi northwest of Browns Summit; U.S. Geological Survey downstream order identification number 0209330990; Hydrologic Unit 03030002.

DRAINAGE AREA.--44 acres (0.06 mi^2).

PERIOD OF RECORD.--June 1985 to August 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; µS/CM, microsiemens per centimeter at 25 degrees Celsius (°C); MM, millimeter; HG, mercury; MG/L, milligram per liter; T/DAY, ton per day.

WATER-QUALITY DATA, OCTOBER 1986 TO AUGUST 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (µS/CM)	pH (STAND-ARD UNITS)	WATER TEMPER-ATURE (°C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	SOLIDS, RESIDUE AT 180 °C, DIS-SOLVED (MG/L)	NITRO-GEN, NO_2+NO_3, TOTAL (MG/L AS N)
OCT											
29	1100	0.02	62	6.90	13.5	746	7.2	71	1.6	73	0.20
DEC											
30	0900	.04	50	7.10	5.0	744	10.5	84	--	54	<.10
MAR											
10	0900	.41	35	6.40	--	--	--	--	2.6	--	.20
APR											
09	1030	.06	50	7.00	11.0	748	9.2	85	1.2	59	.20
15	1130	.34	40	6.70	--	--	--	--	2.3	--	<.10
15	1300	21	30	6.60	--	--	--	--	3.8	--	<.10
15	1320	17	30	6.70	--	--	--	--	3.5	--	<.10
15	1340	8.2	31	6.60	--	--	--	--	3.3	--	<.10
15	1350	6.7	30	6.60	--	--	--	--	2.9	--	.10
15	1630	1.7	34	6.70	--	--	--	--	3.1	--	<.10
AUG											
25	1030	.02	65	7.10	16.0	747	7.3	75	1.3	--	.40

DATE	TIME	NITRO-GEN, AMMONIA, TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC, TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO_3)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)
OCT											
29	1100	<0.01	--	0.20	0.40	1.8	0.08	0.08	0.08	1	0.00
DEC											
30	0900	<.01	--	.20	--	--	.05	.03	.04	8	.00
MAR											
10	0900	.07	0.33	.40	.60	2.7	.05	--	.03	114	.13
APR											
09	1030	<.01	--	.50	.70	3.1	.06	.05	.02	3	.00
15	1130	.10	.90	1.0	--	--	.14	--	.06	233	.21
15	1300	.12	2.2	2.3	--	--	.32	--	.09	2,460	143
15	1320	.08	1.8	1.9	--	--	.21	--	.05	2,130	95
15	1340	.06	2.0	2.1	--	--	.18	--	.04	1,500	33
15	1350	.16	2.7	2.9	3.0	13	.22	--	.05	633	11
15	1630	.04	.86	.90	--	--	.08	--	.03	81	.36
AUG											
25	1030	.02	.38	.40	.80	3.5	.11	--	.09	2	.00

Table 26.--*Physical, chemical, and suspended-sediment data for Brooks Lake tributary, June 1985-August 1988*--Continued

LOCATION.--Lat 35°13'40", long 79°43'20", Guilford County, on left bank, 0.2 mi upstream from mouth, on General Green Scout Reservation, and 1.1 mi northwest of Browns Summit; U.S. Geological Survey downstream order identification number 0209330990; Hydrologic Unit 03030002.

DRAINAGE AREA.--44 acres (0.06 mi^2).

PERIOD OF RECORD.--June 1985 to August 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; µS/CM, microsiemens per centimeter at 25 degrees Celsius (°C); MM, millimeter; HG, mercury; MG/L, milligram per liter; T/DAY, ton per day.

WATER-QUALITY DATA, DECEMBER 1987 TO AUGUST 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (µS/CM)	pH (STAND-ARD UNITS)	WATER TEMPER-ATURE (°C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	SOLIDS, RESIDUE AT 180 °C, DIS-SOLVED (MG/L)	NITRO-GEN, NO_2+NO_3, TOTAL (MG/L AS N)
DEC											
14	1000	0.02	55	8.40	8.5	749	9.2	80	3.8	63	<0.10
MAR											
06	1300	.03	58	8.30	11.0	747	9.0	83	.8	--	.10
APR											
19	1600	.17	40	7.90	--	--	--	--	--	--	<.10
JUNE											
29	1145	.02	62	7.70	17.0	739	6.5	69	1.3	--	.40
AUG											
17	1300	.01	65	6.20	18.0	742	6.8	74	.9	--	.40

DATE	TIME	NITRO-GEN, AMMONIA, TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC, TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO_3)	PHOS-PHOROUS, TOTAL (MG/L AS P)	PHOS-PHOROUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)
DEC											
14	1000	0.01	0.19	0.20	--	--	0.05	0.03	0.04	6	0.00
MAR											
06	1300	<.01	--	.30	0.40	1.8	.06	.06	.06	0	.00
APR											
19	1600	.05	.35	.40	--	--	.06	--	<.01	14	.01
JUNE											
29	1145	.02	.58	.60	1.0	4.4	.12	.10	.10	18	.00
AUG											
17	1300	.01	.19	.20	.60	2.7	.11	--	.09	2	.00

Table 26.--*Physical, chemical, and suspended-sediment data for Brooks Lake tributary, June 1985-August 1988*--Continued

LOCATION.--Lat 35°13'40", long 79°43'20", Guilford County, on left bank, 0.2 mi upstream from mouth, on General Green Scout Reservation, and 1.1 mi northwest of Browns Summit; U.S. Geological Survey downstream order identification number 0209330990; Hydrologic Unit 03030002.

DRAINAGE AREA.--44 acres (0.06 mi^2).

PERIOD OF RECORD.--June 1985 to August 1988.

REMARKS.--mi, mile; mi^2, miles squared; MG/KG, milligram per kilogram.

QUALITY OF BOTTOM MATERIAL, SEPTEMBER 1985 TO AUGUST 1988

DATE	TIME	NITROGEN, NO_2+NO_3, TOTAL (MG/KG AS N)	NITROGEN, NH_4, TOTAL (MG/KG AS N)	NITROGEN, NH_4+ ORGANIC, TOTAL (MG/KG AS N)	PHOSPHORUS, TOTAL (MG/KG AS P)
09/03/85	1230	4.0	7.0	780	190
09/24/86	1600	<2.0	5.4	120	56
09/21/87	1615	<2.0	11	170	100
08/17/88	1300	<2.0	35	1,500	440

Table 27.--*Suspended-sediment data for Brooks Lake tributary, June 1985-August 1988*

LOCATION.--Lat 35°13'40", long 79°43'20", Guilford County, on left bank, 0.2 mi upstream from mouth, on General Green Scout Reservation, and 1.1 mi northwest of Browns Summit; U.S. Geological Survey downstream order identification number 0209330990; Hydrologic Unit 03030002.

DRAINAGE AREA.--44 acres (0.06 mi^2).

PERIOD OF RECORD.--June 1985 to August 1988.

REMARKS.--mi, mile; mi^2, miles squared; CFS, cubic foot per second; MG/L, milligram per liter.

WATER-QUALITY DATA, JUNE 1985 TO AUGUST 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)
JUNE 1985			
13	1600	0.04	237
JULY			
16	1700	.03	15
AUG			
14	0930	.03	171
17	2310	.14	283
17	2330	.17	395
17	2400	.21	238
18	0015	.26	370
18	0045	.31	257
18	0100	.28	239
18	0130	.18	100
18	0145	.16	147
SEPT			
03	1230	.04	299
DEC			
10	1330	.05	17
FEB 1986			
12	1300	.06	12
MAR			
11	1400	.03	5
19	1440	.23	150
MAY			
20	1310	.07	194
20	1320	.11	376
20	1345	.19	195
20	1420	.15	77
AUG			
12	1230	.08	25
OCT			
29	1100	0.02	1
DEC			
30	0900	.04	8
MAR 1987			
10	0900	.41	114
APR			
09	1030	.06	3
15	1130	.34	233
15	1300	21	2,460
15	1320	17	2,130
15	1340	8.2	1,500
15	1350	6.7	633
15	1630	1.7	81
AUG			
25	1030	.02	2
DEC			
14	1000	.02	6
MAR 1988			
06	1300	.03	0
APR			
19	1600	.17	14
JUNE			
29	1145	.02	18
AUG			
17	1300	.01	2

Organic Analyses

Records of organic analyses are presented in tables 28 through 30, first for water samples and then for soil samples. Both water and soil samples are presented by station. Soil samples were collected next to various wells, and the local well numbers are given. These results are also shown as the percentage of samples with the organic constituent detected at or above the detection limit.

Table 28.--*Selected organic constituents in surface water and ground water in the four study basins, May 1986-September 1987*

[cfs, cubic foot per second; BMP, best management practice; ND, not detected; ft, foot; SMP, standard management practice]

Station number and name	Date	Discharge (cfs) or water level (feet below land surface)	Constituent (microgram per liter)							
			Acephate	Ethoprop	Metalaxyl	Diphenamid	Isopropalin	Fenamiphos	Flumetralin	Napropamide
Agricultural basin with BMP										
0209437850 Smith Branch lower tributary near Monticello	5/20/86	0.40 cfs	ND	2.9	6.6	6.9	ND	ND	ND	ND
	7/23/87	.40 cfs	ND	.11	ND	ND	ND	ND	0.011	ND
	9/7/87	.32 cfs	ND	.91	ND	ND	0.55	ND	ND	ND
	9/7/87	1.22 cfs	ND	.41	ND	ND	ND	ND	.37	ND
Well 101	7/23/87	3.62 ft	ND	ND	ND	ND	ND	ND	ND	ND
Well 107	8/12/86	14.62 ft	ND	ND	ND	ND	ND	ND	ND	ND
Well 107	7/23/87	12.50 ft	ND	ND	ND	ND	ND	ND	ND	ND
Well 107	9/7/87	13.50 ft	ND	ND	ND	ND	ND	ND	.05	ND
Agricultural basin with SMP										
0209437825 Smith Branch upper tributary near Monticello	5/20/86	6 cfs	ND	ND	10	ND	ND	ND	.20	ND
	7/2/86	.49 cfs	ND	ND	ND	ND	ND	ND	ND	1.4
	7/2/86	.85 cfs	ND	ND	14	ND	ND	ND	ND	ND
	8/11/86	18.7 cfs	ND	ND	3.9	9.6	ND	ND	.74	ND
	8/11/86	2.04 cfs	ND	ND	2.9	7.1	.008	ND	ND	ND
	7/23/87	.01 cfs	ND	.06	ND	ND	ND	ND	.026	ND
	9/7/87	.32 cfs	ND	1.92	ND	ND	ND	ND	.86	ND
	9/7/87	3.49 cfs	ND	3.19	ND	ND	ND	ND	1.25	ND
Lysimeter 208-6	8/12/86	8.57 ft	ND	ND	ND	ND	ND	ND	ND	ND
Well 208	7/23/87	5.94 ft	ND	ND	ND	ND	ND	ND	ND	ND
Well 209	8/12/86	9.85 ft	ND	ND	ND	ND	ND	ND	ND	ND
Well 209	7/23/87	6.90 ft	ND	ND	ND	ND	ND	ND	ND	ND
Well 209	9/7/87	8.60 ft	ND	ND	ND	ND	ND	ND	ND	ND
Irrigation pond	7/23/87	-	ND	.059	ND	ND	ND	ND	ND	ND
	9/7/87	-	ND	ND	ND	ND	ND	ND	ND	ND
Mixed land-use basin										
0209331325 Candy Creek near Monticello	5/20/86	.47 cfs	ND	ND	ND	ND	ND	ND	ND	ND
	8/12/86	19.1 cfs	ND	ND	ND	ND	ND	ND	.017	ND
	7/23/87	.08 cfs	ND	ND	ND	ND	ND	ND	ND	ND
	9/7/87	.20 cfs	ND	ND	ND	ND	ND	ND	ND	ND
Forested basin										
0209330990 Brooks Lake tributary near Browns Summit	5/20/86	.15 cfs	ND	ND	ND	ND	ND	ND	ND	ND
	8/12/86	.43 cfs	ND	ND	ND	ND	ND	ND	ND	ND
	7/23/87	.02 cfs	ND	ND	ND	ND	ND	ND	ND	ND
	9/7/87	.03 cfs	ND	ND	ND	ND	ND	ND	ND	ND

Table 29.--*Selected organic constituents in soil in the agricultural basins, March-September 1987*

[BMP, best management practice; ND, not detected; SMP, standard management practice]

Station number and name	Date	Soil depth below land surface (inches)	Constituent (microgram per liter)							
			Acephate	Ethoprop	Metalaxyl	Diphenamid	Isopropalin	Fenamiphos	Flumetralin	Napropamide
Agricultural basin with BMP										
Well 101	3/9/87	3	ND	6.3	ND	ND	0.67	ND	2.0	17
Well 101	9/21/87	3	ND	18.1	197	ND	ND	87	25.7	ND
Well 101	3/9/87	6	ND	5.3	ND	ND	1.8	ND	2.4	ND
Well 101	9/27/87	6	ND	15	423	ND	ND	250	9.5	ND
Well 101	3/9/87	9	ND	4	ND	ND	.80	ND	.02	ND
Well 101	9/21/87	9	ND	ND	310	ND	ND	ND	23.8	ND
Well 103	3/9/87	3	ND	11	ND	ND	ND	ND	8.7	16
Well 103	9/21/87	3	ND	14.5	ND	ND	ND	173	1.7	113
Well 103	3/9/87	6	ND	27	15	ND	ND	ND	5	ND
Well 103	9/21/87	6	ND	11	ND	ND	ND	380	ND	ND
Well 103	3/9/87	9	ND	13	12	ND	.43	ND	.47	ND
Well 103	9/21/87	9	ND	10.7	ND	ND	ND	867	ND	373
Agricultural basin with SMP										
Well 201	3/9/87	3	ND	ND	21	ND	.93	ND	25	ND
Well 201	9/21/87	3	ND	15	ND	ND	ND	ND	ND	ND
Well 201	3/9/87	6	ND	ND	26	ND	1.6	ND	50	10
Well 201	9/21/87	6	ND	10.8	323	ND	ND	73	39.1	ND
Well 201	3/9/87	9	ND	ND	ND	ND	ND	ND	.57	ND
Well 201	9/21/87	9	ND	ND	500	ND	ND	ND	41.4	ND
Well 206	9/21/87	3	ND	8.8	157	ND	ND	ND	42.9	ND
Well 206	9/21/87	6	ND	ND	307	ND	ND	ND	56.8	ND
Well 206	9/21/87	9	ND	ND	303	ND	ND	ND	29.6	ND
Well 208	3/9/87	3	ND	ND	11	ND	ND	ND	24	11
Well 208	3/9/87	6	ND	ND	10	ND	.90	ND	35	ND
Well 208	3/9/87	9	ND	ND	ND	ND	ND	ND	14	ND

Table 30.--*Percent of samples containing selected organic constituents at or above the detection limit*

[n, number of samples]

Constituent	Percent detected in saturated zone: Basin outflow: Surface-water samples: from four basins (n=22)	Percent detected in saturated zone: Ground-water samples: from agricultural basins (n=9)	Soil samples (n=24)
Acephate	0.0	0.0	0.0
Ethoprop	36.4	0	58.3
Metalaxyl	22.7	0	58.3
Diphenamid	13.6	0	0
Isopropalin	9.1	0	29.2
Fenamiphos	0	0	25
Flumetralin	36.4	11.1	83.3
Napropamid	4.5	0	25

Farming Activities

Farming activities at the agricultural basins are monitored by GSWCD personnel. Data are maintained in a logs that are updated weekly during the growing season. Data include quantity and location of irrigation, quantity and location of chemical applications, and field preparation and maintenance, such as disking operations or tobacco harvesting (also referred to as priming).

Information regarding preparation and cultivation of the tobacco and wheat crops in the two agricultural basins was collected by GSWCD personnel. These logs of farming activities, including chemical applications, are presented in the following tables 31 through 35.

Table 31.--*Log of chemical and fertilizer applications in 1985 season*

[qt(s), quart(s); ac, acre; SMP, standard land-management practices; lb(s), pound(s); both, best land-management and standard land-management practices; BMP, best land-management practices; by hand, with hand sprayer; gal(s), gallon(s); pt(s), pint(s); upper both, upper part of both fields; part, part of basin]

Date	Chemical trade name or fertilizer	Application rate	Basin	Total area applied (acre)	Total applied
			Chemical application		
3/18	Ridomil	1 qt/ac	SMP	4.8	4.8 qts
4/23	Enide	2 lbs/ac	Both	7.8	15.6 lbs
4/23	Orthene	2 lbs/ac	Both	7.8	15.6 lbs
4/23	Ridomil	1 qt/ac	Both	7.8	7.8 qts
6/10	Orthene	2 lbs/ac	BMP	3	6 lbs
6/10	Sevimol	1 qt/ac	BMP	3	3 qts
6/18	Sevimol	1 qt/ac	BMP	3	3 qts
6/18	Enide	4 lbs/ac	BMP	3	12 lbs
6/19	Dipel	1 lb/ac	Both	7.8	7.8 lbs
7/15	Sevimol	1 qt/ac	BMP	3	3 qts
7/15	Prime +	By hand	BMP	3	1.5 gals estimated
7/19	Prime +	By hand	SMP	4.8	3 gals estimated
7/22	Orthene	1 lb/ac	SMP	4.8	4.8 lbs
7/22	Malathion	1 pt/ac	SMP	4.8	4.8 pts
7/22	Lannate	1 pt/ac	SMP	4.8	4.8 pts
7/29	Prime +	By hand	BMP	3	1.5 gals estimated
8/2	Parathion	1 qt/ac	Upper both	5	5 qts
8/2	Super Sucker Stuff	By hand	Upper both	5	12 gals estimated
8/2	Malathion	1 pt/ac	Upper both	5	5 pts
8/2	Orthene	1 lb/ac	Upper both	5	5 lbs
8/22	Orthene	1 lb/ac	Both	7.8	7.8 lbs
8/22	Nudrin	1½ pts/ac	Both	7.8	11.7 pts
			Fertilizer application		
4/23	1/ 8-16-24	700 lb/ac	Both	7.8	5,460 lbs
5/28	15-0-14	200 lb/ac	Both	7.8	1,560 lbs
6/14	8-16-24	200 lb/ac	SMP	4.8	960 lbs

1/ Fertilizer numbers indicate ratio of nitrogen, phosphorus, and potassium, respectively.

Table 32.--*Log of chemical and fertilizer applications in 1986 season*

[qt(s), quart(s); ac, acre; SMP, standard land-management practices; lb(s), pound(s); both, best land-management and standard land-management practices; BMP, best land-management practices; by hand, with hand sprayer; gal(s), gallon(s); pt(s), pint(s); upper both, upper part of both fields; part, part of basin]

Date	Chemical trade name or fertilizer	Application rate	Basin	Total area applied (acre)	Total applied
			Chemical application		
4/1	Ridomil	2 qts/ac	SMP	4.8	9.6 qts
5/5	Enide	2 lbs/ac	Both	8.5	17 lbs
5/5	Orthene	2 lbs/ac	Both	8.5	17 lbs
6/10	Dipel	1 lb/ac	Both	8.5	8.5 lbs
6/23	Sevimol	1½ qts/ac	BMP	3.7	5.6 qts
7/2	Enide	2.2 lbs/ac	Both	8.5	18.7 lbs
7/2	Prime +	By hand	Both	8.5 (part)	.5 qt estimated
7/11	Sevimol	1 qt/ac	BMP	3.7	3.7 qts
7/11	Orthene	1 lb/ac	BMP	3.7	3.7 lbs
7/11	Malathion	1 pt/ac	BMP	3.7	3.7 pts
7/23	Prime +	By hand	SMP	4.8	2.5 gals estimated
7/29	Orthene	2 lbs/ac	BMP	3.7	7.4 lbs
7/29	Vydate L	½ qt/ac	BMP	3.7	1.8 qts
7/29	Nudrin	1 pt/ac	BMP	3.7	3.7 pts
7/29	Malathion	1 pt/ac	BMP	3.7	3.7 pts
7/30	Orthene	2 lbs/ac	SMP	4.8	9.6 lbs
7/30	Vydate L	½ qt/ac	SMP	4.8	2.4 qts
7/30	Nudrin	1 pt/ac	SMP	4.8	4.8 pts
7/30	Malathion	1 pt/ac	SMP	4.8	4.8 pts
9/9	Ethrel	1 gal/ac	BMP	3.7	3.7 gals
9/24	Ethrel	1 gal/ac	BMP	2 (part)	2 gals
			Fertilizer application		
2/15	1/ 33-0-0	300 lbs/ac	BMP	3.7	1,110 lbs (waterways and grass strips only)
5/5	8-16-24	700 lbs/ac	Both	8.5	5,950 lbs
5/23	8-0-24	200 lbs/ac	Both	8.5	1,700 lbs

1/ Fertilizer numbers indicate ratio of nitrogen, phosphorus, and potassium, respectively.

Table 33.--*Log of chemical and fertilizer applications in 1987 season*

[qt(s), quart(s); ac, acre; SMP, standard land-management practices; lb(s), pound(s); both, best land-management and standard land-management practices; BMP, best land-management practices; by hand, with hand sprayer; gal(s), gallon(s); pt(s), pint(s); upper both, upper part of both fields; part, part of basin]

Date	Chemical trade name or fertilizer	Application rate	Basin	Total area applied (acre)	Total applied
			Chemical application		
5/7	Ridomil	2 qts/ac	Both	8.5	17.0 qts
5/11	Orthene	2 lbs/ac	BMP	3.7	7.4 lbs
5/11	Enide	2 lbs/ac	BMP	3.7	7.4 lbs
5/19	Orthene	2 lbs/ac	SMP	4.8	9.6 lbs
5/19	Enide	2 lbs/ac	SMP	4.8	9.6 lbs
7/8	Enide	1 lb/ac	Both	8.5	8.5 lbs
7/14	Orthene	1 lb/ac	Both	8.5	8.5 lbs
7/14	Lannate	2 qts/ac	Both	8.5	17 qts
8/7	Prime +	By hand	Both	8.5	4.5 gals estimated
8/8	Lannate	1 qt/ac	Both	8.5	8.5 qts
8/8	Orthene	1 lb/ac	Both	8.5	8.5 lbs
8/20	Orthene	1 lb/ac	Both	8.5	8.5 lbs
8/20	Lannate	2 qts/ac	Both	8.5	17 qts
8/27	Azodrin	1 pt/ac	Both	8.5	8.5 pts
8/27	Orthene	1 lb/ac	Both	8.5	8.5 lbs
9/3	Orthene	2 lbs/ac	Both	8.5	17 lbs
9/3	Lannate	1 qt/ac	Both	8.5	8.5 qts
9/19	Azodrin	1 pt/ac	BMP	3.7	3.7 pts
9/19	Ethrel	1 gal/ac	BMP	3.7	3.7 gals
			Fertilizer application		
1/14	10-10-10 [1]	220 lbs/ac	BMP	3.7	814 lbs (waterways and grass strips only)
5/11	8-16-24	800 lbs/ac	Both	8.5	6,800 lbs
5/19	8-16-24	800 lbs/ac	SMP	4.8	3,840 lbs
6/1	16-0-0	125 lbs/ac	Both	8.5	1,062 lbs
11/2	10-10-10	200 lbs/ac	Both	.5	400 lbs (waterway only)
11/2	Lime	800 lbs/ac	SMP	.5	1,600 lbs (waterway only)

[1] Fertilizer numbers indicate ratio of nitrogen, phosphorus, and potassium, respectively.

Table 34.--*Log of chemical and fertilizer applications in 1988 season*

[qt(s), quart(s); ac, acre; SMP, standard land-management practices; lb(s), pound(s); both, best land-management and standard land-management practices; BMP, best land-management practices; by hand, with hand sprayer; gal(s), gallon(s); pt(s), pint(s); upper both, upper part of both fields; part, part of basin]

Date	Chemical trade name or fertilizer	Application rate	Basin	Total area applied (acre)	Total applied
		Chemical application			
4/22	Orthene	2 lbs/ac	BMP	3.7	7.4 lbs
4/22	Enide	2 lbs/ac	BMP	3.7	7.4 lbs
5/5	Orthene	2 lbs/ac	SMP	4.8	9.6 lbs
5/5	Enide	2 lbs/ac	SMP	4.8	9.6 lbs
6/6	Orthene	1½ lbs/ac	BMP	3.7	5.6 lbs
6/9	Orthene	1½ lbs/ac	SMP	4.8	7.2 lbs
6/21	Prime +	By hand	SMP	4.8	4 gals estimated
6/24	Sevimol	1 pt/ac	BMP	3.7	3.7 pts
6/24	Orthene	1 lb/ac	BMP	3.7	3.7 lbs
6/24	Azodrin	1 qt/ac	BMP	3.7	3.7 qts
7/8	Sevimol	1½ pts/ac	BMP	3.7	5.6 lbs
7/8	Orthene	1 lb/ac	BMP	3.7	3.7 lbs
7/8	Endocide +	1 pt/ac	BMP	3.7	3.7 lbs
7/8	Prime +	Spilled	BMP	3.7	1 qt
7/19	Orthene	1½ lbs/ac	Both	8.5	12.8 lbs
7/19	Endocide	1 pt/ac	Both	8.5	8.5 pts
7/19	Super Sucker Stuff	1 gal/ac	BMP	3.7	3.7 gals
7/25	Prime +	1 gal/ac	SMP	4.8	2 gals
7/29	Orthene	1 lb/ac	SMP	4.8	4.8 lbs
7/29	Super Sucker Stuff	1 gal/ac	SMP	4.8	4.8 gals
7/30	Prime +	By hand	SMP	4.8	1 gal estimated
8/11	Endocide	1 pt/ac	BMP	3.7	3.7 pts
8/12	Prime +	By hand	SMP	4.8	1 gal estimated
8/31	Ethrel	1 gal/ac	BMP	1 (part)	1 gal
9/2	Ethrel	1 gal/ac	BMP	1.7 (part)	1.7 gals
9/28	Ethrel	½ gal/ac	SMP	4.8	2.4 gals

Table 34.--*Log of chemical and fertilizer applications in 1988 season*--Continued

[qt(s), quart(s); ac, acre; SMP, standard land-management practices; lb(s), pound(s); both, best land-management and standard land-management practices; BMP, best land-management practices; by hand, with hand sprayer; gal(s), gallon(s); pt(s), pint(s); upper both, upper part of both fields; part, part of basin]

Date	Chemical trade name or fertilizer	Application rate	Basin	Total area applied (acre)	Total applied
		Fertilizer application			
3/1	Lime	1 ton/ac	SMP	4.8	4.8 tons
3/1	Lime	½ ton/ac	BMP	3.7	1.8 tons
3/1	0-46-0 [1/]	100 lbs/ac	Both	8.5	850 lbs (cropland only)
3/1	34-0-0	100 lbs/ac	Both	3.9	390 lbs (waterways only)
4/22	6-12-18	800 lbs/ac	BMP	3.7	2,960 lbs
5/5	6-12-18	800 lbs/ac	SMP	4.8	3,840 lbs
5/16	16-0-0	200 lbs/ac	BMP	3.7	740 lbs
5/23	15-0-14	200 lbs/ac	SMP	4.8	960 lbs

[1/] Fertilizer numbers indicate ratio of nitrogen, phosphorus, and potassium respectively.

Table 35.--*Log of farming activities, 1984-88*

[BMP, best land-management practices; SMP, standard land-management practices; ft, foot]

Date	Activity
10/1/84	Cut stalks and disked field.
4/22/85	Began planting tobacco.
5/1/85	100 percent of tobacco planted in BMP and SMP field.
5/11-13/85	Replanted some tobacco in SMP field; also irrigated parts of SMP field with 3/4 inch of water.
5/25/85	Tobacco in both fields cultivated.
6/4/85	Tobacco in both fields cultivated.
6/10/85	Cultivated tobacco in BMP field.
8/2/25	Harvested tobacco in BMP field.
9/17/85	Harvest complete in BMP field; about 20 percent complete in SMP field.
9/24/85	Tobacco harvest complete.
9/27/85	Stalks cut and fields disked--both fields, including old strips.
10/11/85	Regraded waterways and laid out strip cropping in BMP field.
10/15/85	Waterways and strips in BMP field seeded with fescue and wheat. Waterway mulched with straw. Heavy thunderstorm in late afternoon washed out 6-foot wide area through center of waterway at lower end. Farmer estimated 2 inches of rain.
10/18/85	Reworked washed area of waterway, reseeded, mulched, and put down 1,050 ft of 12-foot wide netting.
10/25/85	Small grain and fescue germinated in both waterways and strips.
11/14/85	Approximately one half of SMP field has been turn-plowed.
12/3/85	Crop area of BMP field turn-plowed and all of SMP field turn-plowed. Small grain broadcast and slight growth in both fields.
3/28/86	Sodding and seeding eroded areas in waterways in BMP field. Both fields disked and leveled; ready for bedding up rows.
5/5/86	Tobacco planted in part of BMP field and part of SMP field.
5/6/86	100 percent of tobacco planted in BMP field; 85 percent planted in SMP field.
5/9/86	100 percent of tobacco planted in SMP field. Some plants dead due to dry conditions.
6/2/86	Cultivating tobacco.
6/16/86	Small grain harvested in strips. Stubble left is 6 to 12 inches high.
6/19/86	Irrigated 56 rows in SMP field on upper side; estimated amount: 1/2 to 1 inch.
7/11/86	Irrigated BMP field: 1/2 to 1 inch.
7/15/86	Irrigated SMP field: 1/2 to 1 inch.
7/17/86	Irrigated BMP field: 1/2 to 1 inch and upper half of SMP field.

Table 35.--*Log of farming activities, 1984-88*--Continued

[BMP, best land-management practices; SMP, standard land-management practices; ft, foot]

Date	Activity
7/22/86	Irrigated lower half of SMP field: 1/2 to 1 inch.
8/22/86	Both fields harvested.
10/8/86	All tobacco has been harvested.
10/20/86	Tobacco strips have been disked. Will mow grass this week.
4/10/87	Disked both fields.
4/23/87	Heavy rains last week caused severe erosion in SMP field, filling up previously excavated area. No plowing or chemicals applied.
4/30/87	Both fields worked with disk.
5/7/87	Bedded up rows. Will begin planting in BMP field tomorrow.
5/19/87	All of SMP field planted.
5/25/87	All tobacco planted in both fields.
6/1/87	Cultivating both fields.
6/23/87	Cultivating tobacco in both fields.
6/30/87	Irrigated SMP field.
7/11/87	Irrigated BMP field.
7/13/87	Irrigated BMP field.
7/29/87	Irrigated SMP field.
8/4/87	Irrigated portion of SMP field.
8/6/87	Irrigated portion of SMP field.
8/8/87	Irrigated SMP field.
8/11/87	Irrigated BMP field.
8/12/87	Irrigated portion of BMP field; began harvesting.
8/20/87	Both fields harvested once to date.
8/27/87	Harvesting in both fields.
10/6/87	All of tobacco harvested in lower strips of BMP field and portion of SMP field.
10/14/87	All tobacco harvested.
10/20/87	Tobacco stalks cut in with disk in both fields.
10/26/87	Reconstructed waterway in SMP field.
11/2/87	Waterway in SMP field seeded and mulched.
11/5/87	Netting installed to hold seed down in waterway in SMP field.
11/6/87	Strips planted with small grain and fescue in BMP field.
11/13/87	Old fescue plowed under in BMP field.
11/16/87	Replanting small grain in strips in BMP field. Very little germination of seed in waterway in SMP field.
12/3/87	Small grain is 1 inch to 2 inches high in strips in BMP field, little fescue evident. Waterway in BMP field has good stand of small grains and fescue.
2/29/88	Old fescue disked in BMP field. SMP field disked.
3/1/88	No fescue germination evident in strips in BMP field.
3/7/88	Fescue replanted in strips in BMP field. Tobacco rows bedded up in both fields.
4/22/88	Began planting tobacco in lower strip of BMP field.
4/25/88	Completed planting tobacco in lower strip of BMP field.

Table 35.--*Log of farming activities, 1984-88*--Continued

Log of farming activities, 1984-88--Continued

[BMP, best land-management practices; SMP, standard land-management practices; ft, foot]

Date	Activity
4/27/88	Completed planting tobacco in BMP field.
5/5/88	Completed planting tobacco in SMP field.
5/11/88	Fescue in strips growing and appears to have good coverage in BMP field.
5/24/88	Waterway mowed in BMP field.
5/25/88	Waterway mowed in SMP field.
6/6/88	Tobacco cultivated in both fields.
6/14/88	Tobacco cultivated in both fields.
6/20/88	Tobacco cultivated in both fields.
6/22/88	Small grain harvesting begun from strips in BMP field.
6/24/88	Small grain harvest from strips in BMP field complete.
7/1/88	Irrigated in BMP field.
7/2/88	Irrigated part of SMP field.
7/4/88	Irrigated part of SMP field.
7/11/88	Irrigated in SMP field.
7/25/88	Tobacco harvesting begun in BMP field.
8/2/88	Sediment has built up 6 to 8 inches deep in front of runoff gage in SMP field.
8/5/88	Tobacco harvesting begun in SMP field.
8/18/88	To date, harvesting has been done once in SMP field and three times in BMP field.
9/5/88	About 75 percent of tobacco has been harvested in BMP field.
9/7/88	Fescue strips mowed in BMP field.
9/13/88	Harvested tobacco in SMP field.
9/21/88	Tobacco harvest complete in BMP field.
9/27/88	Disking begun in BMP field.
9/28/88	Harvesting tobacco in SMP field.
10/18/88	All tobacco harvested and crop strips disked.

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