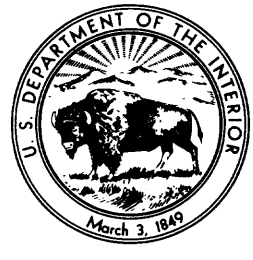
WATER QUALITY AND HYDROLOGIC DATA FOR THE WEST BRANCH SWIFT RIVER AND EAST BRANCH FEVER BROOK, QUABBIN RESERVOIR DRAINAGE BASIN, MASSACHUSETTS

By Rochelle L. Rittmaster and Gerald G. Girouard

U.S. GEOLOGICAL SURVEY
Open-File Report 90-182

Prepared in cooperation with the

METROPOLITAN DISTRICT COMMISSION and the
MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION,
DIVISION OF WATER POLLUTION CONTROL



Marlborough, Massachusetts
1992

U.S. DEPARTMENT OF THE INTERIOR

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CONVERSION FACTORS AND ABBREVIATIONS

For the convenience of readers who may prefer to use metric (International System) units rather than the inch-pound units used in this report, values can be converted by using the following factors.

Multiply inch-pound unit	By	To obtain metric unit
	Length	
inch (in.)	2.54	centimeter (cm)
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
	Area	
square mile (mi^2)	2.590	square kilometer (km^2)
	259.0	hectare (ha)
	Volume	
cubic foot (ft^3)	0.02832	cubic meter (m^3)
	Flow	
cubic foot per second (ft^3/s)	0.02832	cubic meter per second (m^3/s)
cubic foot per second per square mile [$(ft^3/s)/mi^2$]	0.01093	cubic meter per second per square kilometer [$(m^3/s)/km^2$]

Temperature

Temperature in degrees Celsius (°C) can be converted to degrees Fahrenheit (°F) as follows:

$°F = (1.8 \times °C) + 32$

Water Quality and Hydrologic Data for the West Branch Swift River and East Branch Fever Brook, Quabbin Reservoir Drainage Basin, Massachusetts

By Rochelle L. Rittmaster and Gerald G. Girouard

ABSTRACT

Water quality and hydrologic data were collected as part of a study of the effects of acid precipitation on stream water quality in two watersheds in central Massachusetts, conducted by the U.S. Geological Survey from November 1983 through September 1985. The two watersheds, West Branch Swift River (12.7 square miles) and East Branch Fever Brook (4.85 square miles), located north of Quabbin Reservoir, differ in surficial geology and hydrologic characteristics. Data are reported on precipitation quality and quantity and streamflow quality and quantity at the outlet of each watershed and at several tributaries. Also reported are the quality of soil water and ground water, chemistry of soil leachates, and mineralogical analyses of the clay-sized fraction of watershed soils.

INTRODUCTION

This report presents data collected by the U.S. Geological Survey from November 1983 through September 1985 during a study of effects of acid precipitation on stream-water quality. A paired watershed approach was used to assess the influence of geology and surface hydrologic characteristics on ameliorating the effects of acid deposition. The study was conducted in cooperation with the Water Pollution Control Division of the Massachusetts Department of Environmental Protection (MDEP) and the Metropolitan District Commission (MDC). The MDC operates Quabbin Reservoir, the primary source of public water supply for the Boston metropolitan area in eastern Massachusetts.

The West Branch Swift River and East Branch Fever Brook are located in central Massachusetts to the northwest and northeast, respectively, of Quabbin Reservoir (fig. 1). The West Branch Swift River (Swift River) drains a basin of 12.7 mi^2 (square miles) that is characterized by steep till-covered bedrock ridges in the headwater areas and gently sloped stratified drift near the basin outlet. The East Branch Fever Brook (Fever Brook), which drains 4.85 mi^2, has gentle slopes with till and stratified drift mixed throughout the basin.

The data presented include chemical and hydrologic information for the determination of water yields and chemical quality of water used for supply and recreational purposes. They include chemical analyses of precipitation and stream samples collected approximately weekly, and daily mean discharge at gaging stations on Swift River and Fever Brook (figs. 2, 3). Wells drilled in each of the drainage basins were sampled approximately monthly for chemical analysis of ground water. Soil samples were analyzed for physical, chemical, and mineralogical properties, and soil-water samples were collected for chemical analysis.

Most of the data in this report are presented separately for each watershed and shown in tables at the end of this report. Hydrologic and chemical data collected from the Swift River basin are listed in tables 2 through 9. Similar data for the Fever Brook basin are presented in tables 10 through 17. Data on the soils and soil-water samples collected in both basins are combined in tables 18 through 21.

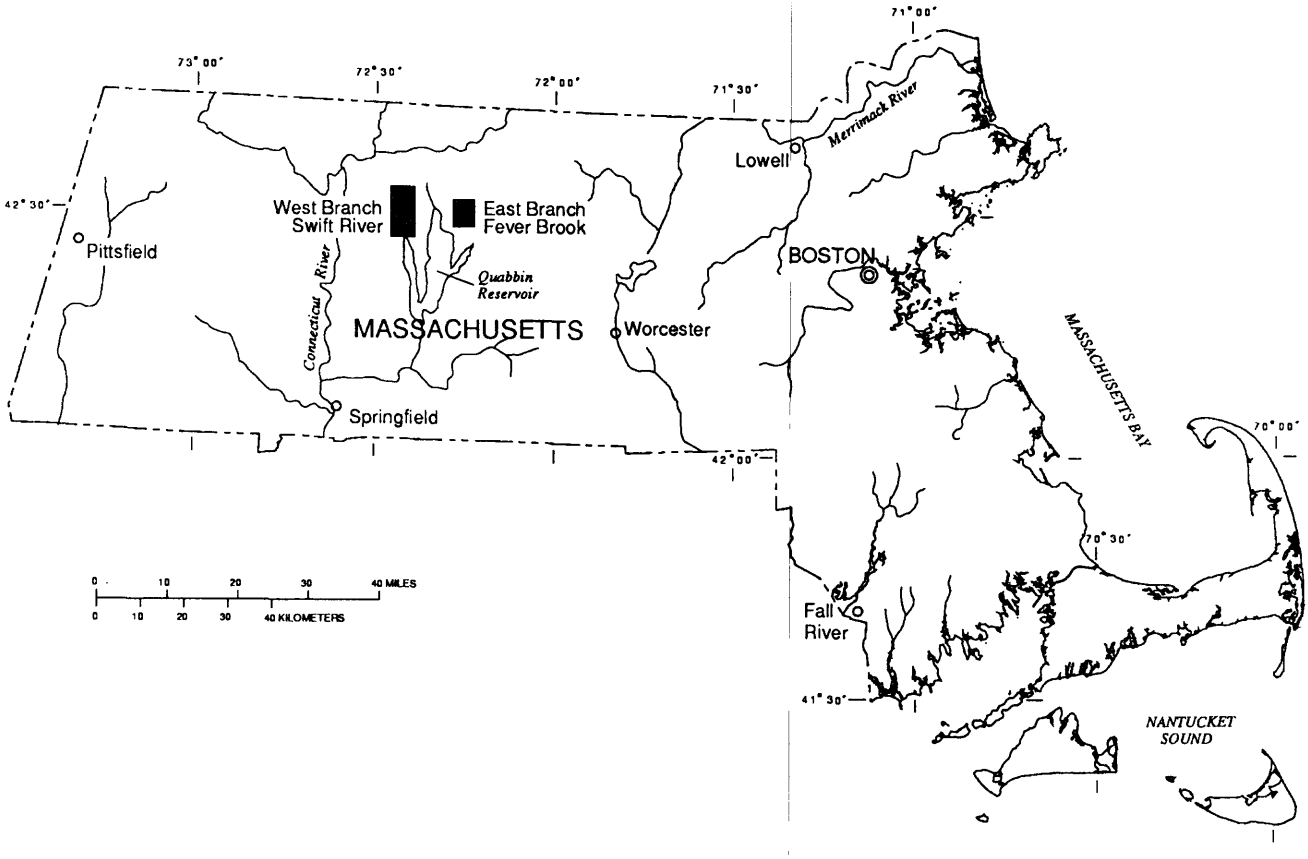


Figure 1.--Locations of the West Branch Swift River and East Branch Fever Brook drainage basins, Massachusetts.

The authors are grateful to State officials and local residents who provided time and information for this study. Special thanks are extended to Mr. David Ashenden and Mr. Bruce Spencer of the MDC for their on-site assistance and observations, and to Gail Batchelder at the University of Massachusetts at Amherst, Massachusetts, for her laboratory analyses of soil samples.

SAMPLE-SITE NUMBERING SYSTEM

A sample site numbering system for surface water and ground water was used to identify, record, organize, and track sample analyses. Eight-digit station numbers were assigned to each surface-water gaging station and surface-water sampling site. These numbers were assigned in downstream order. Gaps left in the series of numbers reserves station numbers for assignment in proper sequence should intermediate stations be established in the future.

Ground-water and soil-water sampling sites were assigned 15-digit identification numbers. The first 13 digits provide the geographic coordinates of the site in degrees, minutes, and seconds of latitude and longitude. The last 2 digits are sequential identification numbers for sites within the 1-second by 1-second quadrangle identified by the 13-digit latitude-longitude.

COLLECTION AND COMPUTATION OF DATA

Wet deposition was collected weekly, using an Aerochem-Metrics[1] Model 301 wet/dry deposition sampler. The sampler was operated on private

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

property, in an open field, on undisturbed pastureland, and was set on a platform to diminish potential for vegetation and dust contamination of the samples. Because of a change in land ownership of the original site, the collector was moved in April 1985 to a site 0.5 mi (miles) away that was owned by the MDC. The samples were collected as 7-day composites of wet deposition. Chemical analyses of those samples are identified in table 1 by the beginning date of the 7-day period. Samples were generally collected on Tuesday to coincide with the day designated for weekly precipitation collection for the National Atmospheric Deposition Program (NADP) (Bigelow, 1982). Samples were analyzed for major cations and anions, nutrients, and some trace metals. Some weeks have only partial chemical data listed because of insufficient quantity of precipitation or malfunction or vandalism of the equipment.

Daily mean discharges for stations on the Swift River (01174565) and Fever Brook (01174050) were computed from continuous records of stage and intermittent measurements of stream discharge and stage (tables 2 and 10). These data have also been published by the U.S. Geological Survey (1987). Stage was recorded at 15-minute intervals on a punch-tape water-stage recorder. Instantaneous discharge was measured with a Price current meter, using general guidelines of the U.S. Geological Survey (Rantz and others, 1982). The relation between stage and discharge was developed using discharge measurements made over a range of stages. Observations of factors affecting stage, such as ice, vegetation, and beaver impoundments were used to adjust stage records in determining the daily flows reported in tables 2 and 10.

Heavy rains in May 1984 resulted in stream levels above maximum stage-recording levels of the gaging stations. Peak discharge for this event was estimated using the slope-area method (Dalrymple and Benson, 1967), based on high water marks established during peak flow at the gaging stations.

Stream samples were collected at the gaging sites approximately weekly and more frequently during snowmelt and following some rainstorms (tables 3 and 11). This sampling scheme permitted evaluation of water quality on the basis of seasonality and hydrologic conditions. Water samples also were collected at tributaries to Swift River and Fever Brook during late-winter and spring snowmelt, summer low flow, and autumn-winter baseflow conditions (tables 4-7, and 11-14). Except for the gaging site on Swift River, grab samples were collected at all stream sampling locations because waters were well-mixed, as identified by measurements of uniform specific conductance, pH, and temperature across the channels. The Swift River gaging site was located downstream of the confluence of a tributary to the main channel, and lateral profiles of pH and specific conductance indicated incomplete mixing of the tributary and main channel waters. At this site, samples were collected across the stream channel and composited in a churn splitter.

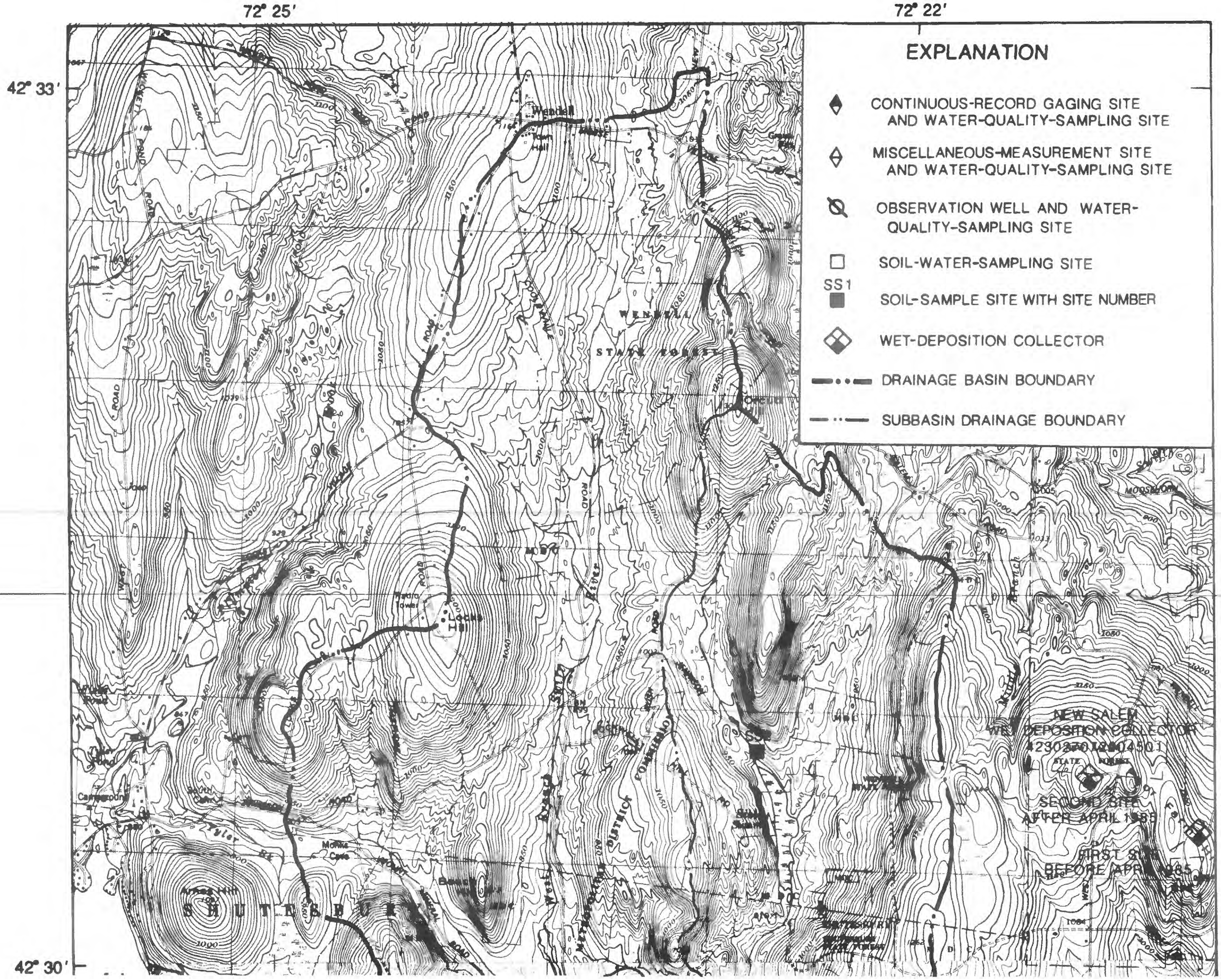
Monitoring wells were drilled in till and stratified drift in each drainage basin. Water levels were measured approximately monthly, and water samples were collected monthly to bimonthly (tables 8-9 and 15-17). At least three well volumes were evacuated from the wells in stratified drift prior to each sampling. Because the wells in till recovered slowly upon evacuation of standing water, sometimes only two well volumes were removed before each sampling.

Water from the unsaturated zone in both basins was sampled periodically, when near-saturated conditions existed (table 21). Two types of collectors were used: (1) zero-tension lysimeters, consisting of polyvinyl chloride (PVC) pipe cut lengthwise to form a trough, and driven into the soil, and (2) a negative-tension TIMCO lysimeter with porous Teflon cups installed at depths ranging from 4 to 18 in. (inches) below ground surface. Because water drained quickly through these soils, water was recovered only from the deep lysimeter in the Swift River basin and from the deep and medium depth lysimeters in the Fever Brook basin. Soil-water samples yielded variable amounts of water, some sufficient only for pH and specific conductance and some sufficient for full chemical analysis (pH, specific conductance, major cations and anions).

Soil samples were collected from the O, A, and B horizons at several sites in the study basins (table 18). The sites were selected to provide an areal distribution and variation in surficial geology and underlying bedrock type.

SAMPLING PROCEDURES AND HANDLING

Temperature, specific conductance, and pH were measured in the field. An Extech digital conductivity meter and an Extech model 609 digital pH meter with an Orion glass combination pH electrode were used. Two reference solutions (Barnes, 1964) of low ionic strength were used to calibrate the pH meter prior to sample measurement.


72° 25′
72° 22′
42° 33′
42° 30′
EXPLANATION
CONTINUOUS-RECORD GAGING SITE AND WATER-QUALITY-SAMPLING SITE
MISCELLANEOUS-MEASUREMENT SITE AND WATER-QUALITY-SAMPLING SITE
OBSERVATION WELL AND WATER-QUALITY-SAMPLING SITE
SOIL-WATER-SAMPLING SITE
SS1
SOIL-SAMPLE SITE WITH SITE NUMBER
WET-DEPOSITION COLLECTOR
DRAINAGE BASIN BOUNDARY
SUBBASIN DRAINAGE BOUNDARY
Wendell
Town Hall
WENDELL
STATE FOREST
Locks Hill
River
SHUTESBURY
NEW SALEM
WET DEPOSITION COLLECTOR
SECOND SITE
AFTER APRIL 1985
FIRST SITE
BEFORE APRIL 1985

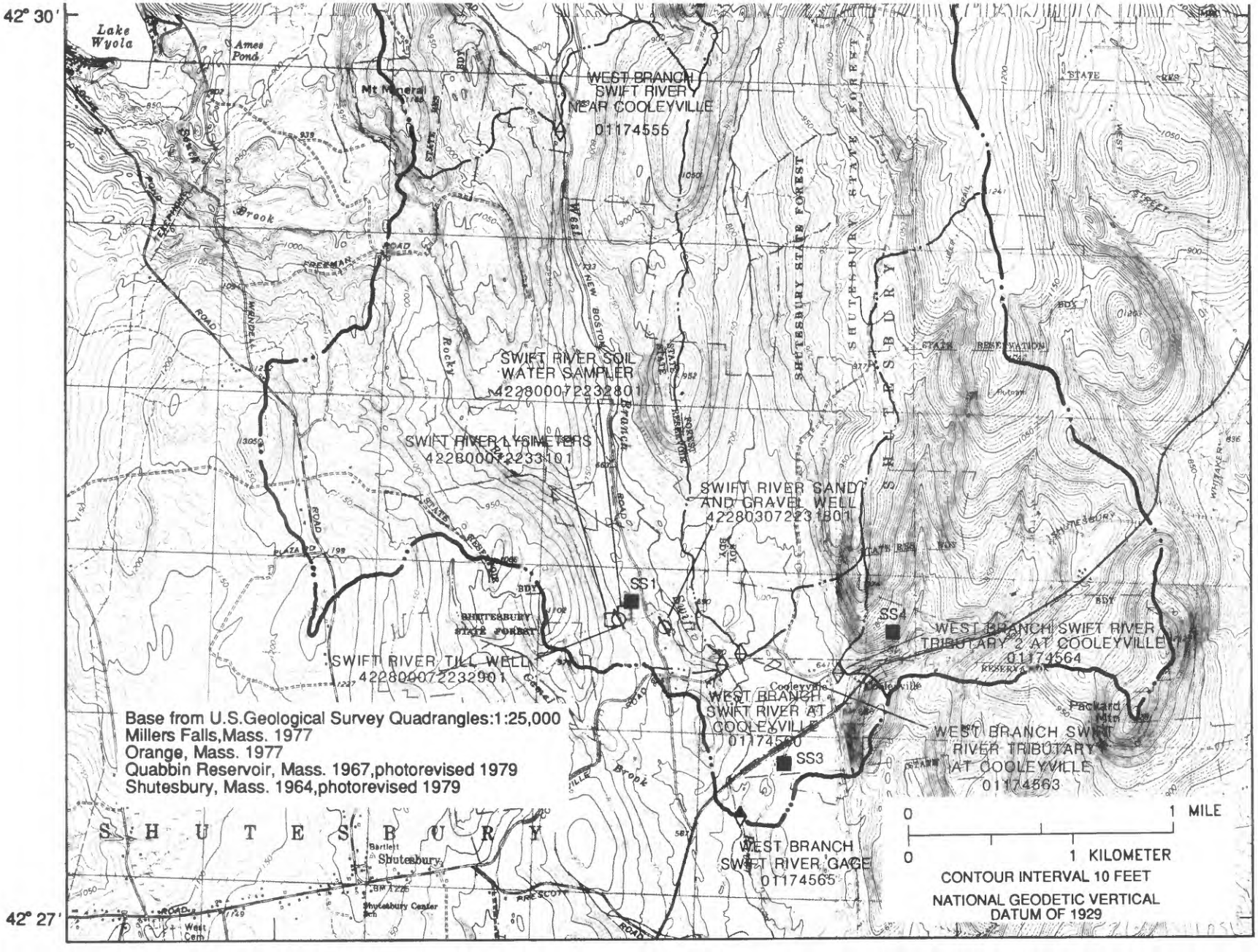


Figure 2.--Locations of sampling sites, West Branch Swift River basin, Massachusetts.

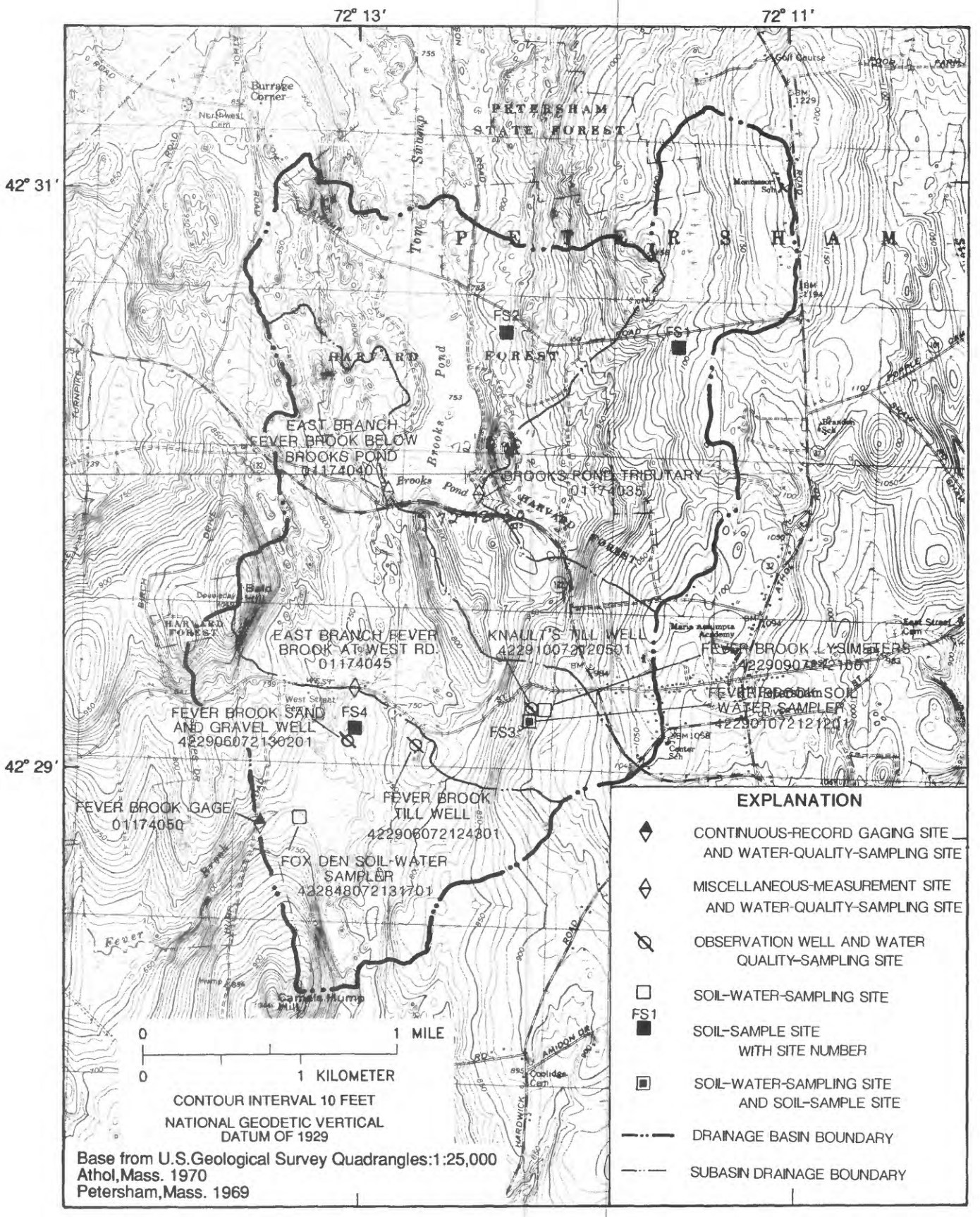


Figure 3.--Locations of sampling sites, East Branch Fever Brook basins, Massachusetts.

Samples were filtered, preserved, and chilled in the field in accordance with methods recommended by the U.S. Geological Survey (Skougstad and others, 1979). Samples were shipped on ice to the U.S. Geological Survey Central Laboratory in Doraville, Georgia, for chemical analysis. Part of each sample was retained for measurement of alkalinity in a laboratory in the Massachusetts office.

Initially, dissolved aluminum was analyzed from samples that passed through a 0.4-μm (micrometer) filter. However, investigators (Jones and others, 1974) have observed that particulate and colloidal aluminum can pass through that filter pore size, causing overestimation of monomeric, "free" aluminum concentrations, the form of aluminum considered most toxic to fish (Driscoll and others, 1980). Therefore, during the first year of sample collection, two aliquots were periodically submitted for dissolved aluminum analysis -- one having passed through a 0.4-μm filter, and one having passed through a 0.1-μm filter. Dissolved aluminum concentrations reported for water samples collected at the two basin outlets after December 1, 1984, are only for those samples that passed through the 0.1-μm filter.

LABORATORY ANALYSES

Concentrations of chemical constituents in the water samples were determined by methods outlined by Skougstad and others (1979). Many of the methods were developed especially for the analysis of low ionic-strength waters. Alkalinity was measured by incremental titration (M.C. Yurewicz, U.S. Geological Survey, written communication, 1985) using 0.01639-molar sulfuric acid as the titrant. This method is sensitive to the detection of the actual buffering threshold of water, the point at which the pH drops very quickly with small additions of acid. In contrast, a fixed-endpoint titration requires acid titration of the sample to pH 4.3 or 4.5. Because total carbonic-acid concentrations are low in these waters, the true endpoint generally is at a pH significantly higher (pH 5.0 to 5.3) than that of a fixed-endpoint titration. Therefore, the alkalinity measured by incremental titration is more conservative and accurate than the alkalinity measured by fixed-endpoint titration in the determination of the buffering capacities of the waters.

Chemical analysis of soil-water leachates included exchangeable base cations (calcium, magnesium, sodium, and potassium) and exchangeable acidity (aluminum and hydrogen) (table 19) (Thomas, 1982). Mineralogical analysis of the clay-size fraction (less than 2 μm) of watershed soils was performed at the Department of Geology and Geography, University of Massachusetts, using X-ray diffraction.

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Table 1.--*Wet deposition chemistry at station number 423027072204501, precipitation collector at New Salem, Massachusetts*

[µS/cm, microsiemens per centimeter at 25 degrees Celsius; mg/L, milligrams per liter; µg/L, micrograms per liter; in., inches; <, less than; dashes indicate not analyzed]

Date	Rainfall (in.)	Specific conductance (µS/cm)	pH (standard units)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)	Potassium, dissolved (mg/L as K)	Nitrogen, ammonia total (mg/L as N)	Nitrogen, ammonia, dissolved (mg/L as N)	Sulfate, dissolved (mg/L as SO_4)	Nitrogen, nitrate, dissolved (mg/L as N)	Phosphorus, ortho, dissolved (mg/L as P)
1983												
Nov. 22-29	2.85	12	4.8	0.10	0.02	0.3	0.01	--	<0.01	0.9	0.15	<0.06
Nov. 29-Dec. 06	1.92	--	--	.08	.09	.5	.02	--	.04	.8	<.01	<.06
Dec. 07-13	2.12	15	4.5	.05	.08	.6	.04	--	.05	1.0	.22	<.06
Dec. 13-20	1.54	14	4.8	.06	.07	.6	.37	--	<.01	1.0	--	<.01
Dec. 20-27	1.26	7	4.8	.03	.02	.2	.02	--	.16	.5	.19	<.06
Dec. 28, 1983-Jan. 03, 1984	.99	13	4.7	.12	.07	<.2	.02	--	.03	1.0	.09	<.06
1984												
Jan. 03-10	.51	45	4.0	.13	.08	.5	.05	--	.19	1.8	1.07	<.06
Jan. 11-17	.90	13	4.5	.03	<.01	<.2	.04	--	.02	.7	.28	<.06
Jan. 17-24	.32	42	4.0	.39	<.01	1.2	.44	--	.10	2.2	.80	<.06
Jan. 24-31	1.10	24	4.3	.10	.03	.3	.25	0.117	--	1.6	.48	--
Jan. 31-Feb. 07	1.24	21	4.4	.09	.05	.4	.03	.074	--	1.6	.31	--
Feb. 07-14	.58	44	3.9	.20	.04	.3	.06	--	.26	4.5	--	<.06
Feb. 14-21	3.68	12	4.7	.06	.10	.2	.02	.036	--	.8	--	--
Feb. 21-28	1.04	14	4.6	.11	.03	.3	.02	.108	--	1.3	.33	--
Feb. 28-Mar. 06	1.43	13	4.5	.04	<.01	<.2	.01	.052	--	.9	--	--
Mar. 06-13	1.81	19	4.3	.14	.03	.16	.05	--	.03	.6	.68	<.06
Mar. 13-20	3.09	7	4.7	.07	<.01	<.2	.02	<.001	--	.6	--	--
Mar. 20-27	3.09	16	4.5	.05	.02	.15	.01	--	.03	1.2	.16	<.06
Mar. 27-Apr. 03	.00	--	--	--	--	--	--	--	--	--	--	--
Apr. 03-10	1.21	15	4.4	.07	<.01	.2	.02	.039	--	1.3	.12	--
Apr. 10-17	2.37	21	4.4	.13	.02	<.2	.02	.103	--	1.7	--	--

Table 1.--*Wet deposition chemistry at station number 423027072204501, precipitation collector at New Salem, Massachusetts*--Continued

Date	Rainfall (in.)	Specific conductance (µS/cm)	pH (standard units)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)	Potassium, dissolved (mg/L as K)	Nitrogen, ammonia total (mg/L as N)	Nitrogen, ammonia, dissolved (mg/L as N)	Sulfate, dissolved (mg/L as SO_4)	Nitrogen, nitrate, dissolved (mg/L as N)	Phosphorus, ortho, dissolved (mg/L as P)
1984--Cont.												
Apr. 17-24	0.81	37	4.1	0.16	0.04	<0.2	0.03	0.133	0.19	2.6	0.63	--
Apr. 24-May 01	.00	--	--	--	--	--	--	--	--	--	--	--
May 01-08	2.25	16	4.5	.12	.01	<.2	.02	.325	--	1.4	.22	--
May 08-15	1.66	34	4.3	.10	.03	<.2	.04	.589	--	2.8	.46	--
May 15-22	.21	25	4.3	.09	.05	<.2	.03	.101	--	2.5	.31	--
May 22-29	1.78	15	4.5	.06	.06	<.2	.04	.093	--	1.2	.22	--
May 29-June 05[1]	9.14	--	--	--	--	--	--	--	--	--	--	--
June 05-12	.00	--	--	--	--	--	--	--	--	--	--	--
June 12-19	.58	60	3.9	.13	.02	.06	.06	.369	.36	4.9	.85	--
June 19-26	.62	35	4.1	.11	.11	.7	.06	.181	--	2.7	.67	--
June 26-July 03	.53	45	4.3	--	--	--	--	--	--	--	--	--
June 26-July 10[2]	--	--	--	--	--	--	--	--	--	--	--	--
July 03-10	3.50	23	4.3	.06	.09	.2	.04	.115	--	1.8	.31	--
July 10-17	1.89	35	4.1	.09	<.01	<.2	.03	.324	--	3.8	.31	--
July 10-24[2]	--	--	--	--	--	--	--	--	--	--	--	--
July 17-24	1.39	23	4.3	.03	.05	<.2	.02	.174	--	1.7	.19	--
July 24-31	.56	23	4.3	.17	<.01	.02	.01	--	.05	1.9	.41	--
July 31-Aug. 07	.00	--	--	--	--	--	--	--	--	--	--	--
Aug. 07-14	.76	37	4.2	--	--	--	--	.581	--	--	--	--
Aug. 14-21	.88	24	4.4	.03	.03	<.2	.02	.138	--	1.9	.29	--
Aug. 21-28	.08	86	3.7	--	--	--	--	--	--	--	--	--
Aug. 28-Sept. 04	.83	42	4.0	--	--	--	--	.277	--	--	--	--
Sept. 04-11	.00	--	--	--	--	--	--	--	--	--	--	--
Sept. 11-18	.48	38	4.1	.11	.03	<.2	.03	.382	--	3.7	.61	<0.01
Sept. 18-25	.00	--	--	--	--	--	--	--	--	--	--	--

See footnotes at end of table.

Table 1.--*Wet deposition chemistry at station number 423027072204501, precipitation collector at New Salem, Massachusetts*--Continued

Date	Rainfall (in.)	Specific conductance (µS/cm)	pH (standard units)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)	Potassium, dissolved (mg/L as K)	Nitrogen, ammonia total (mg/L as N)	Nitrogen, ammonia, dissolved (mg/L as N)	Sulfate, dissolved (mg/L as SO_4)	Nitrogen, nitrate, dissolved (mg/L as N)	Phosphorus, ortho, dissolved (mg/L as P)
1984--Cont.												
Sept. 25-Oct. 02	0.00	--	--	--	--	--	--	--	--	--	--	--
Oct. 02-09	.00	--	--	--	--	--	--	--	--	--	--	--
Oct. 09-16	.00	--	--	--	--	--	--	--	--	--	--	--
Oct. 17-23	1.06	28	4.2	0.04	<0.01	<0.2	0.04	0.248	--	1.8	0.60	<0.01
Oct. 23-30	.63	48	4.0	.08	.03	<.2	.01	.355	--	2.9	--	<.01
Oct. 30-Nov. 06	1.82	6	4.9	<.02	.03	<.2	.01	<.001	--	.4	--	<.01
Nov. 06-13	1.76	11	4.6	.02	.05	.3	.02	<.001	--	.7	--	<.01
Nov. 13-20	.10	42	4.1	--	--	--	--	--	--	--	--	--
Nov. 20-27	.00	--	--	--	--	--	--	--	--	--	--	--
Nov. 27-Dec. 05	.26	19	4.4	.03	.04	.2	.02	.119	--	1.1	.20	<.01
Dec. 05-11	.75	73	3.8	--	--	--	--	--	--	--	--	--
Dec. 11-19	.06	68	3.8	--	--	--	--	--	--	--	--	--
Dec. 19-26	1.97	30	4.1	.09	.05	.2	.21	--	0.16	2.0	.35	<.01
Dec. 26, 1984-Jan. 02, 1985	.45	36	4.1	.06	<.01	<.2	.03	--	.24	3.0	.30	<.01
1985												
Jan. 02-08	.47	55	4.0	--	--	--	--	--	--	--	--	--
Jan. 08-15	.00	--	--	--	--	--	--	--	--	--	--	--
Jan. 15-22	.39	38	4.1	--	--	--	--	--	--	--	--	--
Jan. 22-29	.00	--	--	--	--	--	--	--	--	--	--	--
Jan. 29-Feb. 05	.52	44	4.0	--	--	--	--	--	--	--	--	--
Feb. 05-13	1.25	11	4.8	.31	.03	.4	.04	--	.02	1.4	.13	<.01
Feb. 13-19	.00	--	--	--	--	--	--	--	--	--	--	--
Feb. 19-25	.41	71	3.8	--	--	--	--	--	--	--	--	--
Feb. 25-Mar. 05	1.14	27	4.2	.23	.04	.4	.03	--	.14	2.1	.20	<.01
Mar. 05-12	1.27	20	4.3	.07	<.01	<.2	.03	--	.22	1.6	.26	<.01

Table 1.--*Wet deposition chemistry at station number 423027072204501, precipitation collector at New Salem, Massachusetts*--Continued

Date	Rainfall (in.)	Specific conductance (µS/cm)	pH (standard units)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)	Potassium, dissolved (mg/L as K)	Nitrogen, ammonia total (mg/L as N)	Nitrogen, ammonia, dissolved (mg/L as N)	Sulfate, dissolved (mg/L as SO_4)	Nitrogen, nitrate, dissolved (mg/L as N)	Phosphorus, ortho, dissolved (mg/L as P)
1985--Cont.												
Mar. 12-19	1.38	50	4.0	--	--	--	--	--	--	--	--	--
Mar. 19-26	.00	--	--	--	--	--	--	--	--	--	--	--
Mar. 26-Apr. 02	1.00	21	4.4	0.23	0.05	<0.2	0.03	--	0.41	[3]1.7	[3]0.25	<0.01
Apr. 02-09	.76	49	4.1	.70	.17	.5	.14	--	.70	[3]4.8	[3]2.90	<.01
Apr. 09-16	.10	140	3.6	--	--	--	--	--	--	--	--	--
Apr. 16-23	.25	121	3.7	--	--	--	--	--	--	--	--	--
Apr. 23-30	.24	10	4.7	--	--	--	--	--	--	--	--	--
Apr. 30-May 07	1.25	27	4.2	--	--	--	--	--	--	--	--	--
May 07-14	.00	--	--	--	--	--	--	--	--	--	--	--
May 14-21	1.23	21	4.3	.05	.07	<.2	.01	--	.12	1.6	.35	.01
May 21-29	1.06	40	4.0	--	--	--	--	--	--	--	--	--
May 29-June 04	.85	60	3.9	.22	.05	.2	.06	--	.65	[3]7.1	.99	<.01
June 04-11	.00	--	--	--	--	--	--	--	--	--	--	--
June 11-18	1.06	44	4.0	.08	.04	<.2	.03	--	.28	4.3	.54	<.01
June 18-25[1]	.78	--	--	--	--	--	--	--	--	--	--	--
June 25-July 02	.76	24	4.2	.06	.03	<.2	.10	--	.03	1.2	.63	<.01
July 02-16	1.95	67	3.8	.17	.05	<.2	--	--	.32	4.4	.85	<.01
July 16-23	.32	44	4.0	--	--	--	--	--	--	--	--	--
July 23-31	1.18	36	4.1	.07	<.01	<.2	.02	--	.12	3.2	.50	<.01
July 31-Aug. 07	.76	44	4.0	.02	<.01	<.2	.01	--	.16	3.5	.34	<.01
Aug. 07-08	.16	30	4.1	.03	.02	<.2	--	--	.15	2.0	.42	<.01
Aug. 09-13	.28	115	3.6	.14	.02	<.2	--	--	.70	8.1	1.30	<.01
Aug. 13-20	2.84	66	3.8	--	--	--	--	--	--	--	--	--
Aug. 21-27	1.98	25	4.5	--	--	--	--	--	--	--	--	--
Aug. 27-Sept. 04	1.51	67	3.8	.11	<.01	<.2	.03	--	.31	6.7	.90	<.01
Sep. 04-11	1.03	28	4.2	.09	<.01	.3	.01	--	.20	2.4	.32	.06

See footnotes at end of table.

Table 1.--*Wet deposition chemistry at station number 423027072204501, precipitation collector at New Salem, Massachusetts*--Continued

Date	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Copper, dissolved (µg/L as Cu)	Iron, dissolved (µg/L as Fe)	Lead, dissolved (µg/L as Pb)	Manganese, dissolved (µg/L as Mn)	Mercury, dissolved (µg/L as Hg)	Selenium, dissolved (µg/L as Se)	Vanadium, dissolved (µg/L as V)	Carbon, organic total (mg/L as C)
1983										
Nov. 22-29	<0.20	<0.01	0.2	9	2.4	<1	<0.1	<1	1	0.8
Nov. 29-Dec. 06	.44	<.01	2.8	6	2.5	1	<.1	<1	1	--
Dec. 07-13	.70	.02	3.9	<3	4.9	<1	<.1	<1	5	--
Dec. 13-20	.90	<.01	5.0	12	1.9	<1	<.1	<1	<1	--
Dec. 20-27	<.2	<.01	1.6	<3	5.6	<1	<.1	<1	5	--
Dec. 28, 1983-Jan. 03, 1984	<.2	<.01	2.3	<3	6.8	<1	<.1	<1	5	--
1984										
Jan. 03-10	.70	<.01	4.0	10	17	2	<.1	<1	4	--
Jan. 11-17	.24	<.01	12	<3	100	<1	<.1	<1	<1	--
Jan. 17-24	.84	<.01	13	36	50	4	<.1	<1	1	--
Jan. 24-31	.28	<.01	12	3	34	<1	<.1	<1	2	--
Jan. 31-Feb. 07	.46	.02	2.4	6	18	<1	.1	<1	<1	--
Feb. 07-14	.39	.02	.9	14	.8	2	.1	<1	2	--
Feb. 14-21	.37	<.01	3.5	4	2.3	<1	.2	<1	1	--
Feb. 21-28	.23	<.01	1.4	4	3.0	1	<.1	<1	4	--
Feb. 28-Mar. 06	<.20	<.01	3.4	<3	3.2	<1	<.1	<1	<1	--
Mar. 06-13	.31	.02	9.4	--	4.1	--	--	--	1	--
Mar. 13-20	<.20	<.01	1.8	5	1.1	<1	<.1	<1	<1	2.5
Mar. 20-27	.31	<.01	4.2	--	2.5	--	<.1	<1	1	--
Apr. 03-10	.40	.03	3.8	<3	3.8	<1	<.1	<1	<1	--
Apr. 10-17	<.2	<.01	1.6	5	3.5	<1	<.1	<1	1	1.6
Apr. 17-24	<.2	.03	2.7	7	4.6	2	<.1	<1	1	.9
May 01-08	<.2	<.01	1.6	5	2.9	1	<.1	<1	1	.6
May 08-15	<.2	<.01	--	8	--	2	--	--	--	1.2
May 15-22	<.2	.03	2.8	5	7.1	2	<.1	<1	1	--
May 22-29	<.2	<.01	--	6	--	2	--	--	--	.9
May 29-June 05[1]	--	--	--	--	--	--	--	--	--	--

See footnotes at end of table.

Table 1.--*Wet deposition chemistry at station number 423027072204501, precipitation collector at New Salem, Massachusetts*--Continued

Date	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Copper, dissolved (µg/L as Cu)	Iron, dissolved (µg/L as Fe)	Lead, dissolved (µg/L as Pb)	Manganese, dissolved (µg/L as Mn)	Mercury, dissolved (µg/L as Hg)	Selenium, dissolved (µg/L as Se)	Vanadium, dissolved (µg/L as V)	Carbon, organic total (mg/L as C)
1984--Cont.										
June 12-19	<0.2	0.03	--	--	--	--	--	--	--	--
June 19-26	1.2	.06	--	4	--	2	--	--	--	--
June 26-July 03	--	--	--	--	--	--	--	--	--	--
June 26-July 10	--	--	2	--	4.0	--	<0.1	<1	1	--
July 03-10	.2	<.01	--	9	--	1	--	--	--	0.8
July 10-17	<.2	<.01	--	9	--	<1	--	--	--	1.5
July 10-24	--	--	3	--	5.0	--	<.1	<1	1	--
July 17-24	<.2	<.01	--	4	--	<1	--	--	--	--
July 24-31	<.2	<.01	--	--	--	--	--	--	--	1.1
July 31-Aug. 07	--	--	--	--	--	--	--	--	--	--
Aug. 07-14	--	--	--	--	--	--	--	--	--	2.1
Aug. 14-21	<.2	<.01	.6	4	7.2	<1	<.1	<1	2	1.2
Aug. 21-28	--	--	--	--	--	--	--	--	--	--
Aug. 28-Sept. 04	--	--	.7	--	9.8	--	--	--	--	--
Sept. 04-11	--	--	--	--	--	--	--	--	--	--
Sept. 11-18	.25	.03	--	13	--	2	--	--	--	1.1
Sept. 18-25	--	--	--	--	--	--	--	--	--	--
Sept. 25-Oct. 2	--	--	--	--	--	--	--	--	--	--
Oct. 02-09	--	--	--	--	--	--	--	--	--	--
Oct. 09-17	--	--	--	--	--	--	--	--	--	--
Oct. 17-23	.07	<.01	.4	6	7.2	<1	<.1	<1	1	.9
Oct. 23-30	.1	.01	7.1	12	12	1	<.1	<1	2	1.1
Oct. 30-Nov. 06	.1	<.01	.5	<3	.8	<1	<.1	<1	<1	.2
Nov. 06-13	.4	<.01	1.5	3	2.5	<1	--	--	<1	.2
Nov. 13-20	--	--	--	--	--	--	--	--	--	--

Table 1.--*Wet deposition chemistry at station number 423027072204501, precipitation collector at New Salem, Massachusetts*--Continued

Date	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Copper, dissolved (µg/L as Cu)	Iron, dissolved (µg/L as Fe)	Lead, dissolved (µg/L as Pb)	Manganese, dissolved (µg/L as Mn)	Mercury, dissolved (µg/L as Hg)	Selenium, dissolved (µg/L as Se)	Vanadium, dissolved (µg/L as V)	Carbon, organic total (mg/L as C)
1984--Cont.										
Nov. 20-27	--	--	--	--	--	--	--	--	--	--
Nov. 27-Dec. 05	0.5	<0.01	2.0	6	3.1	<1	--	<1	1	0.5
Dec. 05-11	--	--	--	--	--	--	--	--	--	--
Dec. 11-19	--	--	--	--	--	--	--	--	--	--
Dec. 19-26	.06	.03	5.1	14	7.7	2	--	--	--	1.2
Dec. 26, 1984-Jan. 02, 1985	.2	.04	5.6	7	8.7	<1	--	--	--	--
1985										
Jan. 02-08	--	--	--	--	--	--	--	--	--	--
Jan. 08-15	--	--	--	--	--	--	--	--	--	--
Jan. 15-22	--	--	--	--	--	--	--	--	--	--
Jan. 22-29	--	--	--	--	--	--	--	--	--	--
Jan. 29-Feb. 05	--	--	--	--	--	--	--	--	--	--
Feb. 05-13	.68	.03	2.1	3	4.8	<1	--	--	--	.7
Feb. 13-19	--	--	--	--	--	--	--	--	--	--
Feb. 19-25	--	--	--	--	--	--	--	--	--	--
Feb. 25-Mar. 05	.19	.02	2.5	14	4.5	3	--	--	--	1.7
Mar. 05-12	.65	<.01	2.3	4	3.4	<1	--	--	--	1.1
Mar. 12-19	--	--	--	--	--	--	--	--	--	--
Mar. 19-26	--	--	--	--	--	--	--	--	--	--
Mar. 26-Apr. 02	.17	<.01	1.0	9	4.0	3	--	--	--	--
Apr. 02-09	.92	.05	--	--	--	--	--	--	--	2.6
Apr. 09-16	--	--	--	--	--	--	--	--	--	--
Apr. 16-23	--	--	--	--	--	--	--	--	--	--
Apr. 23-30	--	--	--	--	--	--	--	--	--	--
Apr. 30-May 07	--	--	--	--	--	--	--	--	--	--
May 07-14	--	--	--	--	--	--	--	--	--	--
May 14-21	.15	.02	2.0	7	3.0	1	--	--	--	1.2

See footnotes at end of table.

Table 1.--*Wet deposition chemistry at station number 423027072204501, precipitation collector at New Salem, Massachusetts*--Continued

Date	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Copper, dissolved (µg/L as Cu)	Iron, dissolved (µg/L as Fe)	Lead, dissolved (µg/L as Pb)	Manganese, dissolved (µg/L as Mn)	Mercury, dissolved (µg/L as Hg)	Selenium, dissolved (µg/L as Se)	Vanadium, dissolved (µg/L as V)	Carbon, organic total (mg/L as C)
1985--Cont.										
May 21-29	--	--	--	--	--	--	--	--	--	--
May 29-June 04	0.34	0.26	19	11	7.0	3	--	--	--	--
June 04-11	--	--	--	--	--	--	--	--	--	--
June 11-18	.21	.02	3.0	8	4.0	2	--	--	--	2.1
June 18-25[1]	--	--	--	--	--	--	--	--	--	--
June 25-July 02	.08	<.01	--	16	--	<1	--	--	--	--
July 02-16	.18	.03	4.1	--	6.6	--	--	--	--	2.5
July 16-23	--	--	--	--	--	--	--	--	--	--
July 23-31	.21	.01	--	13	3	1	--	--	--	--
July 31-Aug. 07	.04	<.01	--	3	6	<1	--	--	--	1.0
Aug. 07-08	.17	.03	--	--	--	--	--	--	--	1.6
Aug. 09-13	.38	1.6	--	--	--	--	--	--	--	--
Aug. 13-20	--	--	--	--	--	--	--	--	--	--
Aug. 21-27	--	--	--	--	--	--	--	--	--	--
Aug. 27-Sept. 04	.20	.06	--	--	--	2	--	--	--	1.8
Sept. 04-11	.11	.04	--	--	--	<1	--	--	--	3.5

[1] Sample lost.
[2] Special 2-week composite sample for trace metal analysis.
[3] Anomalous value that contributed to cation-anion balance difference of greater than 10 percent; value discarded in data analysis.

Table 2.--*Daily mean discharge at station number 01174565, West Branch Swift River near Shutesbury, Massachusetts*

[Period of record begins November 8, 1983; $(ft^3/s)/mi^2$, cubic feet per second per square mile; dashes indicate not applicable]

Discharge, in cubic feet per second, water year October 1983 to September 1984

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
1	--	--	35	34	15	51	40	26	205	7.4	4.3	2.1
2	--	--	29	29	15	43	48	24	159	7.6	3.9	1.7
3	--	--	25	27	19	37	57	24	114	7.2	3.8	1.9
4	--	--	24	26	39	35	65	100	78	6.5	3.5	2.6
5	--	--	24	24	44	32	238	60	61	5.6	3.2	2.8
6	--	--	26	24	38	36	353	40	50	18	2.8	1.9
7	--	--	118	24	28	35	172	35	44	164	3.6	1.4
8	--	3.6	59	22	22	30	121	45	38	67	5.6	1.4
9	--	3.8	39	21	21	29	92	70	32	29	3.6	1.4
10	--	4.2	34	20	20	27	77	45	27	20	3.3	1.3
11	--	23	31	21	20	25	65	35	23	15	2.9	1.2
12	--	19	29	20	25	23	65	40	20	14	2.3	1.0
13	--	12	175	20	27	21	63	60	18	11	2.2	1.0
14	--	9.4	299	19	29	21	68	90	18	8.2	2.2	1.0
15	--	8.5	126	18	81	24	92	60	17	6.9	2.2	1.2
16	--	68	83	17	405	24	131	43	15	12	1.7	1.4
17	--	55	63	15	143	29	110	37	14	18	1.6	1.4
18	--	26	52	14	184	29	73	32	15	25	1.6	1.4
19	--	19	46	14	121	31	70	29	17	24	1.5	1.1
20	--	15	38	13	112	36	65	26	14	14	10	1.0
21	--	40	35	14	85	42	62	25	13	10	4.0	1.0
22	--	37	37	14	64	69	51	22	11	9.2	3.2	.90
23	--	26	40	14	54	70	45	24	11	7.4	2.4	.90
24	--	25	35	17	87	54	51	36	10	6.7	2.4	.90
25	--	144	30	46	86	47	50	26	12	5.9	2.1	.90
26	--	130	27	36	83	44	43	22	11	4.5	1.7	.90
27	--	73	25	24	61	43	36	20	9.2	5.5	1.4	.90
28	--	54	34	20	57	41	32	19	7.7	8.8	1.4	.90
29	--	62	62	19	63	42	29	173	7.6	6.8	1.4	.90
30	--	49	45	17	--	44	27	612	6.8	6.3	1.4	.90
31	--	--	37	17	--	38	--	521	--	4.9	1.8	--
Total	--	--	1,762	660	2,048	1,152	2,491	2,421	1,078.3	556.4	89.0	39.30
Mean	--	--	56.8	21.3	70.6	37.2	83.0	78.1	35.9	17.9	2.87	1.31
Maximum	--	--	299	46	405	70	353	612	205	164	10	2.8
Minimum	--	--	24	13	15	21	27	19	6.8	4.5	1.4	.90
$(ft^3/s)/mi^2$	--	--	4.48	1.68	5.56	2.93	6.54	6.15	2.83	1.41	.23	.10
Inches	--	--	5.16	1.93	6.00	3.37	7.30	7.09	3.16	1.63	.26	.12

Table 2.--*Daily mean discharge at station number 01174565, West Branch Swift River near Shutesbury, Massachusetts*--Continued

Discharge, in cubic feet per second, water year October 1984 to September 1985

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
1	0.94	2.5	7.9	20	6.3	18	22	6.9	9.9	6.9	22	13
2	7.6	2.3	7.2	31	6.2	17	22	6.6	8.1	4.4	12	9.2
3	4.6	2.1	6.8	27	6.1	14	22	13	6.9	3.3	7.9	7.3
4	3.1	2.0	8.8	21	6.0	13	23	15	6.0	2.9	5.5	5.9
5	2.7	32	7.5	17	6.0	17	26	11	6.0	2.6	3.8	5.1
6	1.9	27	40	15	6.0	14	26	12	7.1	2.8	2.9	7.6
7	1.9	12	17	13	6.0	13	22	12	5.8	3.4	2.5	20
8	1.6	7.7	8.4	12	6.0	14	24	10	5.7	2.9	6.0	14
9	1.6	5.8	6.7	11	6.0	17	23	9.3	6.6	2.8	4.2	11
10	1.6	6.3	5.9	11	6.0	17	20	8.8	5.1	2.4	3.0	22
11	1.5	9.9	6.2	10	6.0	18	18	8.2	4.1	2.4	2.9	17
12	1.5	41	7.4	9.8	6.2	162	17	7.5	6.2	2.4	2.8	12
13	1.5	25	8.8	9.4	23	106	16	7.2	6.1	4.3	1.5	8.9
14	1.4	16	12	9.0	25	59	14	6.5	5.4	2.7	1.3	8.2
15	1.4	12	12	8.8	21	45	14	5.8	5.1	2.6	2.7	5.6
16	1.4	12	11	8.6	17	37	14	5.9	5.5	3.1	28	5.1
17	1.3	9.7	11	8.4	15	38	13	5.4	8.9	4.0	12	4.7
18	1.4	8.1	15	8.2	13	33	13	18	8.5	2.5	6.4	4.2
19	1.4	6.6	16	8.0	10	30	12	21	7.2	1.6	5.4	3.7
20	1.4	6.0	22	8.0	9.6	29	11	15	5.7	1.3	5.4	3.4
21	1.4	5.7	17	8.0	9.3	29	11	16	4.7	1.2	4.1	3.1
22	1.6	5.6	26	7.8	9.4	26	10	21	4.4	1.3	3.3	2.9
23	6.0	5.7	28	7.6	13	23	9.6	13	4.6	1.1	2.9	2.8
24	3.9	5.5	20	7.4	22	22	8.6	9.8	5.6	1.1	2.4	3.5
25	3.3	5.1	20	7.2	40	21	8.9	7.6	5.7	1.4	12	5.0
26	4.2	5.1	19	7.1	32	19	8.2	6.8	5.0	3.5	21	4.1
27	4.2	4.8	17	7.0	27	19	7.7	6.2	4.8	6.6	14	21
28	3.6	4.7	15	6.8	21	19	7.9	9.9	6.4	3.5	9.0	33
29	3.6	8.7	15	6.7	--	20	7.7	13	9.7	2.8	6.4	15
30	3.3	11	25	6.5	--	19	7.4	9.2	9.4	2.5	7.8	9.3
31	3.0	--	22	6.4	--	19	--	7.4	--	4.2	18	--
Total	79.84	307.9	461.6	344.7	380.1	947	459.0	325.0	190.2	90.5	239.1	287.6
Mean	2.58	10.3	14.9	11.1	13.6	30.5	15.3	10.5	6.34	2.92	7.71	9.59
Maximum	7.6	41	40	31	40	162	26	21	9.9	6.9	28	33
Minimum	.94	2.0	5.9	6.4	6.0	13	7.4	5.4	4.1	1.1	1.3	2.8
$(ft^3/s)/mi^2$	.20	.81	1.17	.88	1.07	2.41	1.20	.83	.50	.23	.61	.75
Inches	.23	.90	1.35	1.01	1.11	2.77	1.34	.95	.56	.27	.70	.84

Calendar year 1984	Total	11,384.21	Mean	31.1	Maximum	612	Minimum	.90	$(ft^3/s)/mi^2$	2.45	Inches	33.3
Water year 1985	Total	4,112.51	Mean	11.3	Maximum	162	Minimum	.94	$(ft^3/s)/mi^2$	.89	Inches	12.0

Table 3.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174565, West Branch Swift River near Shutesbury, Massachusetts*

[ft^3/s, cubic feet per second; µS/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degrees Celsius; mg/L, milligrams per liter; µg/L, micrograms per liter; <, less than; dashes indicate not analyzed]

Date	Time	Stream-flow, instan-taneous (ft^3/s)	Spe-cific con-duct-ance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Hard-ness (mg/L as $CaCO_3$)	Calcium, dis-solved (mg/L as Ca)	Magne-sium, dis-solved (mg/L as Mg)	Sodium, dis-solved (mg/L as Na)
11-01-83	10:20	2.6	39	6.2	3.5	9	2.6	0.63	3.3
11-08-83	13:15	3.6	44	6.9	4.5	9	2.7	.57	3.5
11-15-83	10:00	8.1	42	6.3	3.5	9	2.7	.55	2.9
11-22-83	10:00	40	36	5.7	6.0	8	2.4	.43	2.2
11-29-83	15:00	64	37	6.0	4.5	8	2.3	.45	2.7
12-06-83[1]	13:15	22	34	6.2	2.5	8	2.4	.45	2.7
12-13-83	09:15	165	31	5.7	2.0	7	2.0	.41	2.5
12-20-83	15:00	38	33	6.1	1.0	8	2.3	.47	2.6
12-27-83[1]	15:00	24	33	6.1	.5	8	2.3	.51	2.9
01-03-84	16:00	27	--	6.3	.5	8	2.3	.52	2.8
01-10-84	14:00	19	--	6.4	.5	8	2.4	.49	3.8
01-17-84[1]	08:30	14	36	6.6	.5	8	2.4	.44	3.1
01-24-84	10:30	12	--	6.6	.5	8	2.4	.54	3.2
01-27-84	16:00	23	33	5.7	--	6	1.8	.40	2.6
01-31-84	09:45	17	--	6.5	.5	8	2.3	.45	3.7
02-05-84	08:15	44	--	6.1	.5	7	2.2	.45	2.9
02-05-84[2]	08:30	--	--	--	--	--	--	--	--
02-07-84	09:00	28	--	6.4	.5	7	2.2	.46	3.1
02-14-84	14:00	28	29	6.0	.5	7	2.1	.49	2.8
02-15-84	13:45	76	34	5.9	.5	7	2.1	.45	3.2
02-16-84	16:00	310	26	5.1	.5	5	1.5	.31	1.8
02-16-84[2]	16:05	--	--	--	--	--	--	--	--
02-17-84	09:30	143	26	5.5	.5	6	1.8	.41	2.1
02-21-84	14:00	83	39	6.1	.5	6	1.9	.39	2.2
02-28-84	12:00	57	31	6.1	.5	7	2.1	.38	2.8
03-06-84	07:45	35	--	6.0	.5	8	2.2	.49	3.3
03-13-84	11:00	25	34	6.2	.5	8	2.4	.50	3.4
03-20-84	09:00	38	30	6.2	1.0	7	2.1	.39	3.0
03-27-84[1]	10:15	42	32	6.1	2.0	6	1.9	.42	2.6
03-27-84[2]	10:20	--	--	--	--	--	--	--	--
04-03-84	14:30	54	28	6.2	5.0	6	1.9	.42	2.6
04-03-84[2]	14:40	--	--	--	--	--	--	--	--
04-05-84	16:00	249	27	5.4	1.5	5	1.5	.31	1.9
04-05-84[2]	16:10	--	--	--	--	--	--	--	--
04-06-84	10:45	262	25	5.3	1.5	5	1.4	.31	1.7
04-06-84[2]	10:50	--	--	--	--	--	--	--	--
04-10-84[1]	14:00	73	29	6.1	1.5	6	1.7	.51	4.2
04-16-84	13:00	152	28	5.6	4.5	5	1.6	.25	2.1
04-16-84[2]	13:05	--	--	--	--	--	--	--	--
04-17-84	08:15	114	27	5.6	5.5	5	1.6	.31	2.0
04-17-84[2]	08:20	--	--	--	--	--	--	--	--
04-24-84	14:45	54	32	6.1	7.0	7	2.0	.41	2.5
05-01-84[1]	15:00	26	37	6.3	11.5	7	2.2	.44	3.1
05-08-84	14:00	25	35	6.2	10.5	7	2.1	.40	2.9
05-16-84	09:15	30	31	6.1	7.5	6	1.9	.39	2.6

See footnotes at end of table.

Table 3.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174565, West Branch Swift River near Shutesbury, Massachusetts*--Continued

Date	Potassium, dissolved (mg/L as K)	Nitrogen, ammonia total (mg/L as N)	Nitrogen, ammonia, dissolved (mg/L as N)	Alkalinity field (mg/L as $CaCO_3$)	Sulfate, dissolved (mg/L as SO_4)	Nitrogen, nitrate, dissolved (mg/L as N)	Phosphorus, ortho, dissolved (mg/L as P)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)
11-01-83	0.56	--	0.02	--	7.8	<0.05	<0.01	3.6	<0.01	8.0
11-08-83	.54	--	.12	--	8.0	<.05	<.06	4.1	.04	8.1
11-15-83	.50	--	.01	--	8.4	<.05	<.06	3.8	<.01	8.0
11-22-83	.41	--	.03	--	7.9	<.05	<.06	2.3	<.01	7.4
11-29-83	.37	--	<.01	--	7.8	<.05	<.01	3.2	<.01	7.1
L2-06-83	.36	--	<.01	--	7.9	--	<.01	3.4	.01	8.0
12-13-83	.33	--	<.01	--	6.8	<.05	<.01	3.7	.07	6.5
12-20-83	.35	--	<.01	--	7.2	--	<.01	2.9	.08	7.8
12-27-83	.37	--	.05	--	7.0	--	<.01	3.4	.08	8.2
01-03-84	.34	--	<.01	--	7.7	--	<.01	3.7	<.01	8.0
01-10-84	.37	--	<.01	--	7.6	--	<.01	5.9	<.01	8.1
01-17-84	.38	--	<.01	--	7.7	--	<.01	4.4	<.01	8.6
01-24-84	.41	--	<.01	--	7.6	--	<.01	4.9	<.01	8.7
01-27-84	.31	0.014	<.01	--	7.4	--	<.06	4.0	.08	7.3
01-31-84	.38	.014	--	--	7.8	--	--	6.6	.06	8.1
02-05-84	.36	<.001	--	--	7.7	--	--	5.1	.07	7.1
02-05-84	--	--	--	--	--	--	--	--	--	--
02-07-84	.33	<.001	--	--	7.8	--	--	5.2	.07	7.2
02-14-84	.35	.033	--	--	7.7	--	--	4.5	.07	7.2
02-15-84	.37	<.001	--	--	7.2	--	--	5.2	.05	6.4
02-16-84	.35	<.001	--	--	6.3	--	--	2.8	.05	4.5
02-16-84	--	--	--	--	--	--	--	--	--	--
02-17-84	.36	<.001	--	--	6.7	--	--	3.3	.06	5.4
02-21-84	.34	.047	--	--	7.2	--	--	3.4	.05	6.3
02-28-84	.34	<.001	--	--	7.0	--	--	4.0	.06	6.4
03-06-84	.38	<.001	--	1.4	7.5	--	--	6.0	.04	7.2
03-13-84	.41	.003	--	1.5	7.5	--	--	4.9	.07	8.0
03-20-84	.37	<.001	--	.8	7.0	--	--	5.1	.06	6.8
03-27-84	.33	.021	--	1.4	7.2	--	--	3.2	.07	6.2
03-27-84	--	--	--	--	--	--	--	--	--	--
04-03-84	.34	.027	--	.3	7.0	--	--	3.1	.08	6.1
04-03-84	--	--	--	--	--	--	--	--	--	--
04-05-84	--	.191	--	.3	5.8	--	--	2.1	<.01	4.7
04-05-84	--	--	--	--	--	--	--	--	--	--
04-06-84	.34	<.001	--	.2	5.9	--	--	1.8	<.01	4.4
04-06-84	--	--	--	--	--	--	--	--	--	--
04-10-84	.49	<.001	--	1.0	7.2	--	--	3.0	.07	3.9
04-16-84	.28	.013	--	.9	6.7	--	--	2.2	.05	5.4
04-16-84	--	--	--	--	--	--	--	--	--	--
04-17-84	.28	.016	--	.6	6.7	--	--	2.2	.05	5.3
04-17-84	--	--	--	--	--	--	--	--	--	--
04-24-84	.32	.039	--	1.0	6.9	--	--	3.1	.06	6.0
05-01-84	.38	.039	--	1.8	7.0	--	--	4.1	.06	6.3
05-08-84	.37	.274	--	1.9	6.7	--	--	3.8	.05	5.9
05-16-84	.31	.240	--	.9	6.3	--	--	2.8	.05	5.9

See footnotes at end of table.

Table 3.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174565, West Branch Swift River near Shutesbury, Massachusetts*--Continued

Date	Solids, sum of constituents, dissolved (mg/L)	Aluminum, total recoverable (µg/L as Al)	Aluminum, dissolved (µg/L as Al)	Arsenic, dissolved (µg/L as As)	Arsenic, total (µg/L as As)	Copper, total recoverable (µg/L as Cu)	Copper, dissolved (µg/L as Cu)	Iron, total recoverable (µg/L as Fe)	Iron, dissolved (µg/L as Fe)	[6]Lead, total recoverable (µg/L as Pb)
11-01-83	--	--	<10	1	--	--	0.1	--	63	--
11-08-83	--	--	70	<1	--	--	2.0	--	47	--
11-15-83	--	--	110	<1	--	--	.1	--	48	--
11-22-83	--	--	220	<1	--	--	4.8	--	62	--
11-29-83	--	230	210	1	1	1	.5	360	43	6
12-06-83	--	--	140	<1	--	--	.2	--	37	--
12-13-83	--	290	170	<1	<1	2	.6	250	43	5
12-20-83	--	--	130	<1	--	--	.3	--	28	--
12-27-83	--	--	120	<1	--	--	.1	--	30	--
01-03-84	--	--	20	<1	--	--	.1	--	35	--
01-10-84	--	--	90	<1	--	--	3.5	--	34	--
01-17-84	--	--	150	<1	--	--	2.5	--	41	--
01-24-84	--	--	120	<1	--	--	9.8	--	45	--
01-27-84	24	--	140	<1	--	--	5.1	--	41	--
01-31-84	--	--	130	1	--	--	.3	--	37	--
02-05-84	--	250	240	<1	<1	6	1.7	110	44	9
02-05-84	--	--	[2]110	--	--	--	--	--	[2]44	--
02-07-84	--	--	150	<1	--	--	2.2	--	39	--
02-14-84	--	--	90	<1	--	--	.1	--	31	--
02-15-84	--	--	110	<1	--	--	2.5	--	33	--
02-16-84	--	--	200	<1	--	--	2.0	--	44	--
02-16-84	--	--	[2]190	--	--	--	--	--	[2]42	--
02-17-84	21	250	170	<1	<1	2	1.4	180	41	2
02-21-84	--	--	250	1	--	--	1.7	--	28	--
02-28-84	24	--	140	1	--	--	1.8	--	35	--
03-06-84	28	--	120	<1	--	--	.1	--	28	--
03-13-84	28	--	90	1	--	--	2.3	--	27	--
03-20-84	26	--	110	1	--	--	3.7	--	29	--
03-27-84	23	--	180	1	--	--	.8	--	30	--
03-27-84	--	--	[2]30	--	--	--	--	--	[2]17	--
04-03-84	22	--	170	1	--	--	2.5	--	21	--
04-03-84	--	--	[2]<70	--	--	--	--	--	[2]11	--
04-05-84	--	540	--	--	--	2	.7	470	17	2
04-05-84	--	--	[2]110	--	--	--	--	--	[2]24	--
04-06-84	16	250	200	1	1	2	2.2	130	39	1
04-06-84	--	--	[2]90	--	--	--	--	--	[2]22	--
04-10-84	22	--	50	1	--	--	2.0	--	59	--
04-16-84	19	180	130	1	1	1	1.4	130	25	4
04-16-84	--	--	[2]150	--	--	--	--	--	[2]40	--
04-17-84	19	--	150	1	--	--	2.0	--	27	--
04-17-84	--	--	[2]140	--	--	--	--	--	[2]25	--
04-24-84	22	--	30	1	--	--	.9	--	25	--
05-01-84	25	--	--	--	--	--	--	--	33	--
05-08-84	24	--	80	<1	--	--	3.0	--	35	--
05-16-84	21	--	--	--	--	--	--	--	30	--

See footnotes at end of table.

Table 3.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174565, West Branch Swift River near Shutesbury, Massachusetts*--Continued

Date	Lead, dissolved (µg/L as Pb)	Manganese, total recoverable (µg/L as Mn)	Manganese, dissolved (µg/L as Mn)	Mercury, total recoverable (µg/L as Hg)	Mercury, dissolved (µg/L as Hg)	Selenium, total (µg/L as Se)	Selenium, dissolved (µg/L as Se)	Vanadium, dissolved (µg/L as V)	Carbon, organic total (mg/L as C)	Carbon, organic, dissolved (mg/L as C)
11-01-83	0.8	--	25	--	0.2	--	<1	<1	--	--
11-08-83	5.8	--	15	--	.3	--	<1	<1	--	--
11-15-83	.3	--	25	--	.1	--	<1	<1	--	--
11-22-83	.9	--	68	--	.3	--	<1	2	5.7	--
11-29-83	.1	60	55	<0.1	<.1	<1	<1	1	4.0	--
12-06-83	.5	--	35	--	<.1	--	<1	<1	--	--
12-13-83	.9	50	45	<.1	<.1	<1	<1	<1	4.5	--
12-20-83	.7	--	40	--	<.1	--	<1	<1	--	--
12-27-83	3.9	--	43	--	.2	--	<1	<1	--	2.2
01-03-84	.4	--	35	--	.2	--	<1	<1	--	1.5
01-10-84	1.5	--	28	--	<.1	--	<1	<1	--	3.5
01-17-84	.3	--	26	--	<.1	--	<1	<1	--	2.4
01-24-84	9.0	--	22	--	.2	--	<1	<1	2.0	--
01-27-84	5.8	--	38	--	<.1	--	2	<1	--	--
01-31-84	1.6	--	30	--	<.1	--	<1	<1	--	9.4
02-05-84	1.4	50	49	<.1	<.1	<1	<1	<1	--	2.7
02-05-84	--	--	[2]21	--	--	--	--	--	--	--
02-07-84	4.2	--	45	--	<.1	--	<1	<1	--	2.6
02-14-84	.3	--	41	--	<.1	--	<1	<1	--	2.3
02-15-84	.8	--	53	--	<.1	--	<1	<1	--	2.8
02-16-84	1.5	--	120	--	.1	--	<1	4	--	5.2
02-16-84	--	--	[2]96	--	--	--	--	--	--	--
02-17-84	1.6	100	99	<.1	<.1	<1	<1	1	--	4.1
02-21-84	.8	--	65	--	<.1	--	<1	<1	--	3.3
02-28-84	.7	--	39	--	<.1	--	<1	<1	2.2	--
03-06-84	.8	--	32	--	<.1	--	<1	<1	2.4	--
03-13-84	.8	--	26	--	.1	--	<1	1	1.7	--
03-20-84	1.1	--	34	--	.1	--	<1	<1	1.8	--
03-27-84	.7	--	38	--	<.1	--	<1	<1	2.0	--
03-27-84	--	--	[2]27	--	--	--	--	--	--	--
04-03-84	.6	--	34	--	<.1	--	<1	<1	1.8	--
04-03-84	--	--	[2]34	--	--	--	--	--	--	--
04-05-84	.4	90	21	--	--	--	--	1	5.4	--
04-05-84	--	--	[2]50	--	--	--	--	--	--	--
04-06-84	1.0	80	76	<.1	<.1	<1	<1	<1	7.2	--
04-06-84	--	--	[2]47	--	--	--	--	--	--	--
04-10-84	1.4	--	27	--	<.1	--	<1	3	--	2.1
04-16-84	.7	40	34	<.1	<.1	<1	<1	<1	--	2.5
04-16-84	--	--	[2]33	--	--	--	--	--	--	--
04-17-84	.4	--	37	--	<.1	--	<1	<1	--	2.6
04-17-84	--	--	[2]37	--	--	--	--	--	--	--
04-24-84	.6	--	31	--	<.1	--	<1	<1	--	1.9
05-01-84	--	--	26	--	--	--	--	--	--	1.8
05-08-84	1.4	--	28	--	<.1	--	<1	<1	--	1.9
05-16-84	--	--	33	--	--	--	--	--	--	2.2

See footnotes at end of table.

Table 3.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174565, West Branch Swift River near Shutesbury, Massachusetts*--Continued

Date	Time	Streamflow, instantaneous (ft^3/s)	Specific conductance ($\mu S/cm$)	pH (standard units)	Temperature (^oC)	Hardness (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)
05-22-84[1]	14:00	22	35	6.4	14.5	7	2.2	0.48	3.0
05-29-84	16:45	193	22	5.6	11.5	5	1.6	.36	1.8
05-30-84	10:30	753	23	5.1	10.5	5	1.4	.33	1.5
05-30-84[2]	10:40	--	--	--	--	--	--	--	--
05-31-84	09:30	630	22	5.1	10.5	4	1.3	.29	1.5
06-05-84	15:30	60	29	6.1	14.5	6	1.9	.35	2.3
06-12-84	15:00	20	37	6.5	17.5	8	2.3	.45	3.2
06-19-84	14:30	17	40	6.7	17.0	8	2.4	.50	3.4
06-26-84	11:00	10	42	6.8	14.0	9	2.7	.59	3.9
07-03-84	13:45	6.8	44	6.6	17.0	9	2.6	.55	4.0
07-10-84	12:30	21	31	6.0	17.0	7	1.9	.43	2.6
07-17-84	09:45	19	30	6.1	16.5	7	2.1	.41	2.6
07-24-84	13:30	6.8	36	6.6	20.0	8	2.4	.47	3.5
07-31-84	13:00	4.9	38	6.5	17.5	--	--	--	--
08-07-84	10:00	2.8	45	6.6	18.0	--	--	--	--
08-14-84	14:15	2.3	46	6.5	20.0	--	--	--	--
08-21-84	13:45	3.4	36	6.6	--	--	--	--	--
08-28-84[1]	15:00	1.6	45	6.8	17.0	--	--	--	--
09-04-84	14:15	2.9	41	6.7	13.0	--	--	--	--
09-11-84	13:15	1.3	--	6.8	--	10	3.1	.58	4.6
09-18-84	13:45	1.3	47	6.8	10.0	11	3.2	.61	4.6
09-25-84[1]	14:00	.9	49	6.8	15.0	12	3.5	.69	5.4
10-02-84	14:45	15	37	6.4	9.0	8	2.5	.49	3.0
10-09-84	09:30	1.7	43	6.6	9.0	9	2.8	.56	3.9
10-16-84[1]	13:00	1.3	47	6.7	9.0	10	3.0	.67	4.2
10-23-84	15:00	3.3	40	6.5	12.5	8	2.5	.51	3.3
10-30-84	12:30	3.3	37	6.4	10.0	--	--	--	--
11-06-84	10:15	27	32	5.6	7.5	--	--	--	--
11-13-84	14:15	23	33	5.8	7.0	7	2.1	.45	2.5
11-20-84	14:15	6.6	37	6.0	1.0	8	2.3	.50	2.9
11-27-84[1]	09:30	4.4	44	6.1	1.0	9	2.6	.54	3.3
12-05-84	09:30	6.6	39	6.4	.5	8	2.4	.55	3.3
12-11-84[1]	09:45	5.8	39	6.2	1.0	8	2.3	.51	3.0
12-18-84	13:00	16	34	5.9	2.5	8	2.2	.57	2.9
12-26-84	12:45	19	35	5.9	.5	7	2.2	.48	2.8
01-02-85	10:30	31	34	5.8	2.5	7	2.1	.45	2.6
01-08-85	13:30	12	--	6.3	.5	8	2.4	.45	2.7
01-16-85	11:00	7.4	42	6.1	.5	9	2.6	.54	2.9
01-22-85	13:00	4.1	38	6.1	.5	8	2.5	.52	2.9
01-29-85[1]	12:45	1.9	35	6.3	.5	8	2.4	.52	3.0
02-05-85	13:00	2.5	39	6.3	.5	9	2.6	.57	3.1
02-13-85	15:30	36	39	6.1	.5	8	2.5	.52	3.4
02-19-85	14:00	9.9	35	6.1	1.0	8	2.3	.45	3.0
02-25-85	09:30	40	30	5.6	1.0	7	2.0	.43	2.6
03-05-85	09:30	16	36	6.2	.0	8	2.3	.53	3.0

See footnotes at end of table.

Table 3.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174565, West Branch Swift River near Shutesbury, Massachusetts*--Continued

Date	Potassium, dissolved (mg/L as K)	Nitrogen, ammonia total (mg/L as N)	Nitrogen, ammonia, dissolved (mg/L as N)	Alkalinity field (mg/L as $CaCO_3$)	Sulfate, dissolved (mg/L as SO_4)	Nitrogen, nitrate, dissolved (mg/L as N)	Phosphorus, ortho, dissolved (mg/L as P)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)
05-22-84	0.37	<0.001	--	1.4	7.1	--	--	3.7	0.05	6.1
05-29-84	.29	.024	--	.6	5.9	--	--	1.9	.05	5.2
05-30-84	.33	.038	--	.2	5.1	--	--	1.5	.05	4.6
05-30-84	--	--	--	--	--	--	--	--	--	--
05-31-84	.28	.078	--	--	5.6	--	--	1.3	.04	4.9
06-05-84	.29	.034	--	.3	7.2	--	--	2.4	.01	6.9
06-12-84	.38	.274	--	2.7	6.7	--	--	3.8	.06	7.9
06-19-84	.41	.003	--	4.1	6.8	--	--	4.6	.05	8.0
06-26-84	.44	<.001	--	--	6.9	--	--	5.2	.08	8.0
07-03-84	.48	.016	--	4.3	6.8	--	--	5.2	.07	7.6
07-10-84	.28	.039	<0.01	.5	6.2	<0.05	--	3.1	.07	7.1
07-17-84	.33	.005	--	2.1	6.2	--	--	3.1	.08	7.6
07-24-84	.36	.069	--	2.8	6.0	--	--	4.2	<.01	8.0
07-31-84	--	--	--	1.8	--	--	--	--	--	--
08-07-84	--	--	--	6.4	--	--	--	--	--	--
08-14-84	--	--	--	5.7	--	--	--	--	--	--
08-21-84	--	--	--	3.5	--	--	--	--	--	--
08-28-84	--	--	--	5.7	--	--	--	--	--	--
09-04-84	--	--	--	5.5	--	--	--	--	--	--
09-11-84	.67	<.001	--	6.1	6.8	--	--	6.1	.08	7.8
09-18-84	.62	.142	--	5.7	7.0	.09	<0.01	5.8	.04	8.1
09-25-84	.76	.133	--	6.3	7.1	.09	<.01	6.6	.05	8.5
10-02-84	[3]1.1	.020	--	2.6	7.5	.04	<.01	3.4	.08	6.7
10-09-84	.76	.052	--	3.9	6.7	.03	<.01	4.3	.05	7.6
10-16-84	.77	.002	--	5.5	6.9	.04	<.01	5.2	<.01	8.0
10-23-84	[3]1.5	--	--	3.1	7.1	.06	<.01	3.8	.08	7.4
10-30-84	--	<.001	--	2.7	--	--	--	--	--	--
11-06-84	--	<.001	--	.4	--	--	--	--	--	--
11-13-84	.56	<.001	--	.6	7.2	--	<.01	2.9	.06	7.3
11-20-84	.47	.040	--	1.3	7.3	--	<.01	3.2	.05	8.3
11-27-84	.54	<.001	--	2.0	8.3	<.05	<.01	4.1	<.01	8.7
12-05-84	.49	.011	--	2.0	8.3	.03	<.01	3.8	.05	8.3
12-11-84	.44	.034	--	1.9	7.2	.03	<.01	3.3	.04	8.3
12-18-84	.38	.009	--	1.0	7.3	.03	<.01	3.0	.18	8.1
12-26-84	.40	--	--	1.0	7.8	.02	<.01	3.3	.04	8.0
01-02-85	.35	--	<.01	.6	6.9	.01	<.01	3.3	.06	7.6
01-08-85	.45	--	<.01	1.4	[4]31	.04	<.01	5.3	.41	8.3
01-16-85	.42	--	.01	2.1	8.2	.01	<.01	4.1	.02	9.1
01-22-85	.44	--	.04	2.3	7.5	.27	<.01	3.4	.10	9.0
01-29-85	.44	--	.09	2.1	7.5	.02	<.01	3.2	.03	9.1
02-05-85	.43	--	.04	2.5	[4]1.5	.01	<.01	[4].74	<.01	9.2
02-13-85	.57	--	.02	1.0	8.4	.27	<.01	4.3	.41	7.3
02-19-85	.43	--	.01	1.4	7.6	.04	<.01	3.4	.10	8.0
02-25-85	.39	--	.03	.6	6.6	.01	<.01	2.7	.05	6.9
03-05-85	.39	--	<.01	1.2	7.8	.02	<.01	9.8	.04	7.0

See footnotes at end of table.

Table 3.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174565, West Branch Swift River near Shutesbury, Massachusetts*--Continued

Date	Solids, sum of constituents, dissolved (mg/L)	Aluminum, total recoverable (µg/L as Al)	Aluminum, dissolved (µg/L as Al)	Arsenic, dissolved (µg/L as As)	Arsenic, total (µg/L as As)	Copper, total recoverable (µg/L as Cu)	Copper, dissolved (µg/L as Cu)	Iron, total recoverable (µg/L as Fe)	Iron, dissolved (µg/L as Fe)	Lead, total recoverable (µg/L as Pb)
05-22-84	--	--	60	<1	--	--	0.7	--	34	--
05-29-84	18	--	--	--	--	--	--	--	72	--
05-30-84	15	250	250	<1	1	5	4.2	590	83	5
05-30-84	--	--	[2]210	--	--	--	--	--	[2]74	--
05-31-84	--	--	280	<1	--	6	3.1	280	56	3
06-05-84	22	--	--	--	--	--	--	--	29	--
06-12-84	27	--	80	1	--	--	2.2	--	54	--
06-19-84	29	--	--	--	--	--	--	--	56	--
06-26-84	--	--	30	<1	--	--	.1	--	60	--
07-03-84	30	--	--	--	--	--	--	--	96	--
07-10-84	22	--	80	<1	--	--	.8	--	77	--
07-17-84	24	--	--	--	--	--	--	--	120	--
07-24-84	27	--	80	<1	--	--	4.3	--	84	--
07-31-84	--	--	60	<1	--	--	.9	--	--	--
08-07-84	--	--	30	<1	--	--	.9	--	--	--
08-14-84	--	--	40	1	--	--	1.4	--	--	--
08-21-84	--	--	40	<1	--	--	.4	--	--	--
08-28-84	--	--	50	<1	--	--	.7	--	--	--
09-04-84	--	--	40	1	--	--	.9	--	--	--
09-11-84	33	20	<10	<1	<1	<1	.5	190	61	<1
09-18-84	34	--	<10	<1	--	--	.6	--	73	--
09-25-84	37	--	<10	<1	--	--	.8	--	60	--
10-02-84	--	--	60	<1	--	--	.5	--	100	--
10-09-84	29	--	30	<1	--	--	.1	--	68	--
10-16-84	32	--	20	<1	--	--	6.8	--	79	--
10-23-84	29	--	100	<1	--	--	1.8	--	110	--
10-30-84	--	--	--	--	--	--	--	--	--	--
11-06-84	--	--	--	--	--	--	--	--	--	--
11-13-84	24	--	100	<1	--	--	.2	--	86	--
11-20-84	26	100	100	<1	<1	<1	.2	120	47	1
11-27-84	29	--	80	<1	--	--	.2	--	38	--
12-05-84	29	--	60	<1	--	--	.8	--	44	--
12-11-84	27	--	[2]80	<1	--	--	1.0	--	39	--
12-18-84	26	130	[2]120	--	--	1	.6	160	43	3
12-26-84	26	--	[2]120	--	--	--	.3	--	36	--
01-02-85	24	--	[2]130	--	--	--	.4	--	40	--
01-08-85	53	--	[2]90	--	--	--	2.2	--	29	--
01-16-85	29	--	[2]100	--	--	--	.5	--	38	--
01-22-85	29	--	[2]90	--	--	--	1.4	--	46	--
01-29-85	28	--	[2]220	--	--	--	1.0	--	60	--
02-05-85	20	--	[2]210	--	--	--	1.0	--	43	--
02-13-85	29	--	[2]110	--	--	--	.4	--	40	--
02-19-85	26	--	[2]110	--	--	--	2.9	--	35	--
02-25-85	22	--	[2]130	--	--	--	.5	--	42	--
03-05-85	32	--	[2]70	--	--	--	.3	--	27	--

See footnotes at end of table.

Table 3.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174565, West Branch Swift River near Shutesbury, Massachusetts*--Continued

Date	Lead, dissolved (µg/L as Pb)	Manganese, total recoverable (µg/L as Mn)	Manganese, dissolved (µg/L as Mn)	Mercury, total recoverable (µg/L as Hg)	Mercury, dissolved (µg/L as Hg)	Selenium, total (µg/L as Se)	Selenium, dissolved (µg/L as Se)	Vanadium, dissolved (µg/L as V)	Carbon, organic total (mg/L as C)	Carbon, organic, dissolved (mg/L as C)
05-22-84	0.3	--	21	--	<0.1	--	<1	<1	--	2.0
05-29-84	--	--	47	--	--	--	--	--	--	5.1
05-30-84	.6	120	72	0.1	.1	<1	<1	<1	5.6	5.6
05-30-84	--	--	[2]69	--	--	--	--	--	--	--
05-31-84	.4	--	48	--	<.1	--	<1	<1	4.2	--
06-05-84	--	--	36	--	--	--	--	--	--	2.4
06-12-84	.7	--	24	--	<.1	--	<1	<1	--	2.1
06-19-84	--	--	17	--	--	--	--	--	--	2.0
06-26-84	.8	--	11	--	<.1	--	<1	<1	--	1.8
07-03-84	--	--	10	--	--	--	--	--	--	2.2
07-10-84	.4	--	57	--	<.1	--	<1	<1	--	4.1
07-17-84	--	--	43	--	--	--	--	--	--	4.3
07-24-84	.7	--	11	--	<.1	--	<1	<1	--	--
07-31-84	1.7	--	--	--	.3	--	<1	<1	--	2.6
08-07-84	1.2	--	--	--	<.1	--	<1	<1	--	--
08-14-84	.8	--	--	--	<.1	--	<1	<1	--	2.8
08-21-84	.6	--	--	--	<.1	--	<1	<1	--	2.7
08-28-84	1.5	--	--	--	<.1	--	<1	<1	--	2.0
09-04-84	1.4	--	--	--	<.1	--	<1	<1	--	.8
09-11-84	.6	<10	4	.4	<.1	<1	<1	<1	--	.9
09-18-84	.4	--	5	--	<.1	--	<1	<1	--	1.5
09-25-84	.8	--	5	--	<.1	--	<1	<1	--	1.6
10-02-84	.6	--	33	--	<.1	--	<1	<1	--	10
10-09-84	.6	--	10	--	<.1	--	<1	<1	--	--
10-16-84	.1	--	8	--	<.1	--	<1	<1	--	2.2
10-23-84	.1	--	16	--	<.1	--	<1	<1	--	4.9
10-30-84	--	--	--	--	--	--	--	--	--	--
11-06-84	--	--	--	--	--	--	--	--	--	--
11-13-84	.6	--	64	--	<.1	--	<1	<1	--	6.1
11-20-84	.3	30	29	<.1	--	<1	<1	<1	--	3.7
11-27-84	.1	--	19	--	--	--	<1	<1	--	2.9
12-05-84	.2	--	20	--	--	--	<1	<1	2.7	--
12-11-84	2.6	--	17	--	.2	--	<1	<1	--	2.2
12-18-84	.1	30	32	--	--	--	--	--	--	2.7
12-26-84	.7	--	37	--	--	--	--	--	--	--
01-02-85	.4	--	40	--	--	--	--	--	--	--
01-08-85	.9	--	25	--	--	--	--	--	--	2.3
01-16-85	1.0	--	20	--	--	--	--	--	--	2.2
01-22-85	.8	--	17	--	--	--	--	--	--	2.8
01-29-85	.1	--	13	--	--	--	--	--	--	1.5
02-05-85	.1	--	11	--	--	--	--	--	--	2.1
02-13-85	.5	--	39	--	--	--	--	--	--	2.7
02-19-85	.2	--	28	--	--	--	--	--	--	2.1
02-25-85	.1	--	62	--	--	--	--	--	--	3.6
03-05-85	.1	--	28	--	--	--	--	--	--	2.0

See footnotes at end of table.

Table 3.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174565, West Branch Swift River near Shutesbury, Massachusetts*--Continued

Date	Time	Streamflow, instantaneous (ft^3/s)	Specific conductance ($\mu S/cm$)	pH (standard units)	Temperature ($^{\circ}C$)	Hardness (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)
03-12-85	09:45	100	27	5.4	2.0	6	1.7	0.37	1.9
03-19-85	10:30	34	33	6.2	.5	7	2.2	.44	2.6
03-26-85	16:00	20	34	6.4	4.0	--	--	--	--
04-02-85	13:30	23	33	6.3	4.0	7	2.1	.42	2.7
04-09-85	13:00	26	35	6.2	6.0	7	2.2	.44	3.0
04-16-85	11:30	14	37	6.4	9.5	8	2.4	.51	3.2
04-23-85	14:30	10	38	6.5	12.0	8	2.4	.53	3.5
04-30-85	13:15	8.6	--	6.6	12.0	9	2.7	.46	3.8
05-07-85	12:30	14	37	6.5	10.0	5	1.5	.31	2.1
05-14-85	13:15	7.4	43	6.6	17.0	9	2.6	.52	3.8
05-21-85	12:30	11	34	6.4	14.0	8	2.4	.52	3.1
05-28-85	13:15	8.6	41	6.4	14.5	--	--	--	--
06-04-85[1]	13:30	5.6	41	6.6	15.5	9	2.7	.53	3.8
06-11-85[1]	14:00	4.1	45	6.1	16.0	--	--	--	--
06-18-85	13:00	15	41	6.6	15.5	9	2.6	.54	3.7
06-25-85	14:30	5.5	46	6.6	14.5	--	--	--	--
07-02-85	13:30	4.5	39	6.5	--	9	2.7	.53	3.5
07-10-85[1]	13:00	2.6	47	6.6	20.0	--	--	--	--
07-16-85	13:30	2.5	45	6.8	--	10	3.0	.59	4.0
07-23-85	14:00	1.1	56	6.8	17.0	--	--	--	--
07-30-85[1]	12:15	2.6	50	6.7	17.0	11	3.5	.60	5.1
07-30-85[1]	13:15	--	--	--	--	9	2.7	.46	3.8
08-07-85	10:45	2.6	48	6.6	15.5	--	--	--	--
08-13-85	12:30	1.7	51	6.8	15.0	10	3.2	.59	4.6
08-20-85	16:00	5.2	39	6.3	19.0	--	--	--	--
08-26-85	15:45	20	32	6.0	16.5	7	2.1	.40	2.3
09-04-85	11:45	6.2	36	6.2	16.0	--	--	--	--
09-10-85	14:45	--	32	6.1	15.0	--	--	--	--

See footnotes at end of table.

Table 3.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174565, West Branch Swift River near Shutesbury, Massachusetts*--Continued

Date	Potassium, dissolved (mg/L as K)	Nitrogen, ammonia total (mg/L as N)	Nitrogen, ammonia, dissolved (mg/L as N)	Alkalinity field (mg/L as $CaCO_3$)	Sulfate, dissolved (mg/L as SO_4)	Nitrogen, nitrate, dissolved (mg/L as N)	Phosphorus, ortho, dissolved (mg/L as P)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)
03-12-85	0.59	--	0.13	0.4	8.0	0.12	<0.01	2.6	0.06	4.7
03-19-85	.40	--	<.01	1.4	8.0	.02	<.01	[4].86	.04	7.3
03-26-85	--	--	<.01	1.4	--	--	--	--	--	--
04-02-85	.37	--	.27	1.0	[4].2	.02	.03	[4].22	.03	6.4
04-09-85	.39	--	.08	1.2	7.3	.03	<.01	4.1	.05	6.3
04-16-85	.42	--	.01	1.8	6.6	.02	<.01	3.7	.07	6.1
04-23-85	.45	--	.03	2.3	6.7	.02	<.01	4.2	.05	5.5
04-30-85	.47	--	<.01	2.9	6.9	.03	<.01	4.5	.06	5.2
05-07-85	.32	--	<.01	1.8	4.2	.03	<.01	2.2	.06	3.3
05-14-85	.50	--	.05	2.9	6.6	.02	<.01	4.8	.06	4.8
05-21-85	.40	--	<.01	1.8	6.4	.02	.01	3.8	.08	4.8
05-28-85	--	--	--	2.9	--	--	--	--	--	--
06-04-85	.44	--	.01	2.9	6.1	<.01	<.01	5.4	.16	5.8
06-11-85	--	--	--	3.7	--	--	--	--	--	--
06-18-85	.45	--	<.01	2.9	6.6	.04	<.01	5.4	.06	6.0
06-25-85	--	--	--	4.1	--	--	--	--	--	--
07-02-85	.44	--	<.01	2.9	[4]19	.04	<.01	6.4	.04	6.2
07-10-85	--	--	--	4.9	--	--	--	--	--	--
07-16-85	.52	--	<.01	4.6	5.5	.07	<.01	6.5	.06	6.2
07-23-85	--	--	--	5.5	--	--	--	--	--	--
07-30-85	.56	--	.06	4.9	6.6	.08	<.01	6.7	.09	6.7
07-30-85	.47	--	<.01	--	6.9	.03	<.01	4.5	.06	5.2
08-07-85	--	--	--	3.7	--	--	--	--	--	--
08-13-85	.54	--	.02	4.5	5.5	.07	<.01	5.6	.07	6.5
08-20-85	--	--	--	2.5	--	--	--	--	--	--
08-26-85	.27	--	<.01	1.0	6.1	.01	<.01	2.3	.08	6.9
09-04-85	--	--	--	--	--	--	--	--	--	--
09-10-85	--	--	--	.6	--	--	--	--	--	--

See footnotes at end of table.

Table 3.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174565, West Branch Swift River near Shutesbury, Massachusetts*--Continued

Date	Solids, sum of constituents, dissolved (mg/L)	Aluminum, total recoverable (µg/L as Al)	Aluminum, dissolved (µg/L as Al)	Arsenic, dissolved (µg/L as As)	Arsenic, total (µg/L as As)	Copper, total recoverable (µg/L as Cu)	Copper, dissolved (µg/L as Cu)	Iron, total recoverable (µg/L as Fe)	Iron, dissolved (µg/L as Fe)	Lead, total recoverable (µg/L as Pb)
03-12-85	21	--	[2]260	--	--	--	1.8	--	51	--
03-19-85	23	--	[2]<10	--	--	--	.6	--	24	--
03-26-85	--	--	[2]70	--	--	--	1.0	--	--	--
04-02-85	14	--	[2]90	--	--	--	.8	--	21	--
04-09-85	25	--	[2]90	--	--	--	.1	--	24	--
04-16-85	24	--	[2]60	--	--	--	.4	--	27	--
04-23-85	25	--	[2]70	--	--	--	.1	--	35	--
04-30-85	26	--	--	--	--	--	--	--	34	--
05-07-85	15	--	[2]80	--	--	--	<.1	--	25	--
05-14-85	26	--	[2]50	--	--	--	<.1	--	47	--
05-21-85	23	--	[2]100	--	--	--	13.0	--	44	--
05-28-85	--	--	--	--	--	--	--	--	--	--
06-04-85	27	--	[2]60	--	--	--	<.1	--	52	--
06-11-85	--	--	--	--	--	--	--	--	--	--
06-18-85	27	--	[2]50	--	--	--	<.1	--	67	--
06-25-85	--	--	--	--	--	--	--	--	--	--
07-02-85	41	--	[2]40	--	--	--	.1	--	74	--
07-10-85	--	--	--	--	--	--	--	--	--	--
07-16-85	30	--	[2]30	--	--	--	<.1	--	110	--
07-23-85	--	--	--	--	--	--	--	--	--	--
07-30-85	33	--	[2]70	--	--	--	2.0	--	98	--
07-30-85	--	--	--	--	--	--	1.0	--	34	--
08-07-85	--	--	--	--	--	--	--	--	--	--
08-13-85	30	--	[2]30	--	--	--	1.0	--	86	--
08-20-85	--	--	--	--	--	--	--	--	--	--
08-26-85	21	--	[2]50	--	--	--	<.1	--	100	--
09-04-85	--	--	--	--	--	--	--	--	--	--
09-10-85	--	--	--	--	--	--	--	--	--	--

See footnotes at end of table.

Table 3.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174565, West Branch Swift River near Shutesbury, Massachusetts*--Continued

Date	Lead, dissolved (µg/L as Pb)	Manganese, total recoverable (µg/L as Mn)	Manganese, dissolved (µg/L as Mn)	Mercury, total recoverable (µg/L as Hg)	Mercury, dissolved (µg/L as Hg)	Selenium, total (µg/L as Se)	Selenium, dissolved (µg/L as Se)	Vanadium, dissolved (µg/L as V)	Carbon, organic total (mg/L as C)	Carbon, organic, dissolved (mg/L as C)
03-12-85	0.8	--	99	--	--	--	--	--	--	--
03-19-85	.5	--	36	--	--	--	--	--	--	2.8
03-26-85	<.1	--	--	--	--	--	--	--	--	2.5
04-02-85	.4	--	21	--	--	--	--	--	--	2.9
04-09-85	.3	--	21	--	--	--	--	--	--	2.8
04-16-85	.5	--	14	--	--	--	--	--	--	2.8
04-23-85	.2	--	11	--	--	--	--	--	--	2.7
04-30-85	--	--	--	--	--	--	--	--	--	2.3
05-07-85	<.1	--	8	--	--	--	--	--	--	3.1
05-14-85	1.0	--	8	--	--	--	--	--	--	3.0
05-21-85	4.0	--	13	--	--	--	--	--	--	3.0
05-28-85	--	--	--	--	--	--	--	--	--	--
06-04-85	<.1	--	7	--	--	--	--	--	--	2.9
06-11-85	--	--	--	--	--	--	--	--	--	--
06-18-85	<.1	--	8	--	--	--	--	--	--	2.4
06-25-85	--	--	--	--	--	--	--	--	--	--
07-02-85	1.2	--	7	--	--	--	--	--	--	--
07-10-85	--	--	--	--	--	--	--	--	--	--
07-16-85	<.1	--	6	--	--	--	--	--	--	2.7
07-23-85	--	--	--	--	--	--	--	--	--	--
07-30-85	<.1	--	5	--	--	--	--	--	--	--
07-30-85	<.1	--	7	--	--	--	--	--	--	2.3
08-07-85	--	--	--	--	--	--	--	--	--	--
08-13-85	<.1	--	8	--	--	--	--	--	--	2.5
08-20-85	--	--	--	--	--	--	--	--	--	--
08-26-85	<.1	--	28	--	--	--	--	--	--	--
09-04-85	--	--	--	--	--	--	--	--	--	--
09-10-85	--	--	--	--	--	--	--	--	--	--

[1] Analysis was used in calculation of volume-weighted base flow stream chemistry.
[2] Sample filtered through 0.1 micrometer pore filter.
[3] Value omitted from the data set for regression analysis because it was spurious in plot (Note: r^2 went from 0.32 to 0.62 when these two points were omitted).
[4] Anomalous value that contributed to cation-anion balance difference of greater than 10 percent; value discarded in data analysis.

Table 4.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174555, West Branch Swift River near Cooleyville, Massachusetts*

[ft^3/s, cubic feet per second; µS/cm, microsiemens per centimeter; °C, degrees Celsius; mg/L, milligrams per liter; µg/L, micrograms per liter; <, less than; dashes indicate not analyzed]

Date	Time	Stream-flow, instan-taneous (ft^3/s)	Spe-cific con-duct-ance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Hard-ness (mg/L as $CaCO_3$)	Calcium, dis-solved (mg/L as Ca)	Magne-sium, dis-solved (mg/L as Mg)	Sodium, dis-solved (mg/L as Na)
04-05-84	15:00	126	26	5.0	1.5	--	--	--	--
04-05-84[1]	15:10	--	--	--	--	--	--	--	--
05-30-84	14:15	--	26	4.7	10.5	4	1.2	0.31	1.4
05-30-84[1]	14:20	--	--	--	--	--	--	--	--
08-28-84	14:15	--	21	5.7	19.0	--	--	--	--
09-11-84	16:45	.06	21	5.7	18.5	4	1.2	.18	2.1
10-02-84	--	--	33	5.0	9.0	--	--	--	--
10-17-84	09:30	--	29	5.8	8.0	--	--	--	--
12-18-84	15:45	7.6	36	4.9	3.0	6	1.7	.38	2.2
04-30-85	12:15	--	30	5.1	14.5	--	--	--	--
05-07-85	14:30	--	31	5.1	10.0	--	--	--	--
05-28-85	12:30	--	28	5.1	15.0	--	--	--	--
06-25-85	13:30	--	25	5.2	15.0	--	--	--	--
07-23-85	13:00	--	25	5.3	17.0	--	--	--	--
08-07-85	12:00	--	33	5.0	17.0	--	--	--	--
08-26-85	10:15	8.1	30	4.8	16.0	5	1.6	.31	1.8

See footnote at end of table.

Date	Potas-sium, dis-solved (mg/L as K)	Nitro-gen, ammonia total (mg/L as N)	Nitro-gen, ammonia, dis-solved (mg/L as N)	Alka-linity field (mg/L as $CaCO_3$)	Sulfate, dis-solved (mg/L as SO_4)	Nitro-gen, nitrate, dis-solved (mg/L as N)	Phos-phorus, ortho, dis-solved (mg/L as P)	Chlo-ride, dis-solved (mg/L as Cl)	Fluo-ride, dis-solved (mg/L as F)	Silica, dis-solved (mg/L as SiO_2)
04-05-84	--	<0.001	--	0.0	--	--	--	--	--	--
04-05-84	--	--	--	--	--	--	--	--	--	--
05-30-84	0.26	.073	--	.0	5.1	--	--	1.6	0.05	4.2
05-30-84	--	--	--	--	--	--	--	--	--	--
08-28-84	--	--	--	.2	--	--	--	--	--	--
09-11-84	.42	.117	--	.8	4.4	--	--	2.1	.07	4.7
10-02-84	--	--	--	--	--	--	--	--	--	--
10-17-84	--	--	--	.6	--	--	--	--	--	--
12-18-84	.30	.008	--	.0	--	0.28	--	2.7	.37	8.0
04-30-85	--	--	--	.3	--	--	--	--	--	--
05-07-85	--	--	--	.0	--	--	--	--	--	--
05-28-85	--	--	--	.0	--	--	--	--	--	--
06-25-85	--	--	--	.1	--	--	--	--	--	--
07-23-85	--	--	--	--	--	--	--	--	--	--
08-07-85	--	--	--	.0	--	--	--	--	--	--
08-26-85	.16	--	<0.01	.0	5.5	.01	<0.01	1.4	.06	6.7

Table 4.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174555, West Branch Swift River near Cooleyville, Massachusetts*--Continued

Date	Solids, sum of constituents, dissolved (mg/L)	Aluminum, total recoverable (µg/L as Al)	Aluminum, dissolved (µg/L as Al)	Arsenic, dissolved (µg/L as As)	Arsenic, total (µg/L as As)	Copper, total recoverable (µg/L as Cu)	Copper, dissolved (µg/L as Cu)	Iron, total recoverable (µg/L as Fe)	Iron, dissolved (µg/L as Fe)	Lead, total recoverable (µg/L as Pb)
04-05-84	--	--	--	--	--	--	--	--	--	--
04-05-84	--	--	[1]150	--	--	--	--	--	[1]41	--
05-30-84	14	--	--	--	--	--	--	--	89	--
05-30-84	--	--	[1]290	--	--	--	--	--	[1]93	--
08-28-84	--	--	--	--	--	--	--	--	--	--
09-11-84	--	90	80	<1	<1	1	1.6	460	200	1
10-02-84	--	--	--	--	--	--	--	--	--	--
10-17-84	--	--	--	--	--	--	--	--	--	--
12-18-84	--	200	180	--	--	<1	1.8	200	62	2
04-30-85	--	--	--	--	--	--	--	--	--	--
05-07-85	--	--	--	--	--	--	--	--	--	--
05-28-85	--	--	--	--	--	--	--	--	--	--
06-25-85	--	--	--	--	--	--	--	--	--	--
07-23-85	--	--	--	--	--	--	--	--	--	--
08-07-85	--	--	--	--	--	--	--	--	--	--
08-26-85	--	--	260	--	--	--	--	--	160	--

See footnote at end of table.

Date	Lead, dissolved (µg/L as Pb)	Manganese, total recoverable (µg/L as Mn)	Manganese, dissolved (µg/L as Mn)	Mercury, total recoverable (µg/L as Hg)	Mercury, dissolved (µg/L as Hg)	Selenium, total (µg/L as Se)	Selenium, dissolved (µg/L as Se)	Vanadium, dissolved (µg/L as V)	Carbon, organic total (mg/L as C)	Carbon, organic, dissolved (mg/L as C)
04-05-84	--	--	--	--	--	--	--	--	3.5	--
04-05-84	--	--	[1]58	--	--	--	--	--	--	--
05-30-84	--	--	71	--	--	--	--	--	5.7	--
05-30-84	--	--	[1]64	--	--	--	--	--	--	--
08-28-84	--	--	--	--	--	--	--	--	--	--
09-11-84	0.7	30	37	<0.1	0.3	<1	<1	<1	--	4.3
10-02-84	--	--	--	--	--	--	--	--	--	--
10-17-84	--	--	--	--	--	--	--	--	--	--
12-18-84	<1	100	88	--	--	--	--	--	--	3.5
04-30-85	--	--	--	--	--	--	--	--	--	--
05-07-85	--	--	--	--	--	--	--	--	--	--
05-28-85	--	--	--	--	--	--	--	--	--	--
06-25-85	--	--	--	--	--	--	--	--	--	--
07-23-85	--	--	--	--	--	--	--	--	--	--
08-07-85	--	--	--	--	--	--	--	--	--	--
08-26-85	--	--	110	--	--	--	--	--	--	7.1

[1] Sample filtered through 0.1 micrometer pore filter.

Table 5.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174560, West Branch Swift River at Cooleyville, Massachusetts*

[ft^3/s, cubic feet per second; µS/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degrees Celsius; mg/L, milligrams per liter; µg/L, micrograms per liter; <, less than; dashes indicate not analyzed]

Date	Time	Stream-flow, instan-taneous (ft^3/s)	Spe-cific con-duct-ance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Hard-ness (mg/L as $CaCO_3$)	Calcium, dis-solved (mg/L as Ca)	Magne-sium, dis-solved (mg/L as Mg)	Sodium, dis-solved (mg/L as Na)
04-05-84	09:45	87	29	5.2	1.5	5	1.6	0.32	2.1
04-05-84[1]	09:50	--	--	--	--	--	--	--	--
04-06-84	11:00	--	22	5.0	--	4	1.3	.23	1.5
05-30-84	13:45	--	25	4.8	10.5	4	1.2	.19	1.2
05-30-84[1]	13:50	--	--	--	--	--	--	--	--
08-28-84	13:40	--	28	6.3	16.5	--	--	--	--
09-11-84	15:45	.16	29	6.3	16.0	6	1.8	.34	2.4
10-02-84	--	--	29	5.9	8.5	--	--	--	--
10-17-84	08:50	--	30	6.2	8.0	--	--	--	--
12-19-84	10:30	11	33	5.3	2.0	7	1.9	.43	2.5
04-30-85	11:45	--	30	5.9	15.0	--	--	--	--
05-28-85	11:45	--	28	5.8	14.0	--	--	--	--
06-25-85	13:45	--	27	6.2	13.5	--	--	--	--
07-23-85	12:15	--	30	6.3	16.0	--	--	--	--
08-07-85	12:30	--	32	5.9	15.5	--	--	--	--
08-26-85	12:00	13	30	5.3	16.0	6	1.9	.31	2.0

See footnote at end of table.

Date	Potas-sium, dis-solved (mg/L as K)	Nitro-gen, ammonia total (mg/L as N)	Nitro-gen, ammonia, dis-solved (mg/L as N)	Alka-linity field (mg/L as $CaCO_3$)	Sulfate, dis-solved (mg/L as SO_4)	Nitro-gen, nitrate, dis-solved (mg/L as N)	Phos-phorus, ortho, dis-solved (mg/L as P)	Chlo-ride, dis-solved (mg/L as Cl)	Fluo-ride, dis-solved (mg/L as F)	Silica, dis-solved (mg/L as SiO_2)
04-05-84	0.30	<0.001	--	0.0	6.4	--	--	2.6	<0.01	5.1
04-05-84	--	--	--	--	--	--	--	--	--	--
04-06-84	.32	--	<0.01	.3	6.1	<0.05	<0.06	1.8	.05	4.0
05-30-84	.29	.030	--	.0	5.3	--	--	1.6	.04	4.1
05-30-84	--	--	--	--	--	--	--	--	--	--
08-28-84	--	--	--	1.4	--	--	--	--	--	--
09-11-84	.51	.064	--	1.6	7.0	--	--	2.1	.06	6.7
10-02-84	--	--	--	--	--	--	--	--	--	--
10-17-84	--	--	--	1.8	--	--	--	--	--	--
12-19-84	.32	.023	--	.4	7.6	.01	<.01	--	.08	8.1
04-30-85	--	--	--	.7	--	--	--	--	--	--
05-28-85	--	--	--	.6	--	--	--	--	--	--
06-25-85	--	--	--	1.0	--	--	--	--	--	--
07-23-85	--	--	--	--	--	--	--	--	--	--
08-07-85	--	--	--	1.3	--	--	--	--	--	--
08-26-85	.22	--	<.01	.2	6.0	.01	<.01	1.7	.1	6.9

Table 5.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174560, West Branch Swift River at Cooleyville, Massachusetts*--Continued

Date	Solids, sum of constituents, dissolved (mg/L)	Aluminum, total recoverable (µg/L as Al)	Aluminum, dissolved (µg/L as Al)	Arsenic, dissolved (µg/L as As)	Arsenic, total (µg/L as As)	Copper, total recoverable (µg/L as Cu)	Copper, dissolved (µg/L as Cu)	Iron, total recoverable (µg/L as Fe)	Iron, dissolved (µg/L as Fe)	Lead, total recoverable (µg/L as Pb)
04-05-84	--	240	[1]180	1	1	1	2.0	130	[1]27	1
04-05-84	--	--	[1]140	--	--	--	--	--	[1]23	--
04-06-84	16	--	--	--	--	--	--	--	20	--
05-30-84	--	--	--	--	--	--	--	--	70	--
05-30-84	--	--	[1]280	--	--	--	--	--	[1]85	--
08-28-84	--	--	--	--	--	--	--	--	--	--
09-11-84	--	20	10	<1	<1	1	1.1	100	14	2
10-02-84	--	--	--	--	--	--	--	--	--	--
10-17-84	--	--	--	--	--	--	--	--	--	--
12-19-84	--	160	160	--	--	1	.1	160	44	3
04-30-85	--	--	--	--	--	--	--	--	--	--
05-28-85	--	--	--	--	--	--	--	--	--	--
06-25-85	--	--	--	--	--	--	--	--	--	--
07-23-85	--	--	--	--	--	--	--	--	--	--
08-07-85	--	--	--	--	--	--	--	--	--	--
08-26-85	20	--	190	--	--	--	--	--	82	--

See footnote at end of table.

Date	Lead, dissolved (µg/L as Pb)	Manganese, total recoverable (µg/L as Mn)	Manganese, dissolved (µg/L as Mn)	Mercury, total recoverable (µg/L as Hg)	Mercury, dissolved (µg/L as Hg)	Selenium, total (µg/L as Se)	Selenium, dissolved (µg/L as Se)	Vanadium, dissolved (µg/L as V)	Carbon, organic total (mg/L as C)	Carbon, organic, dissolved (mg/L as C)
04-05-84	0.8	50	[1]51	<0.1	<0.1	<1	<1	<1	4.5	--
04-05-84	--	--	[1]48	--	--	--	--	--	--	--
04-06-84	--	--	81	--	--	--	--	--	--	--
05-30-84	--	--	70	--	--	--	--	--	5.5	--
05-30-84	--	--	[1]75	--	--	--	--	--	--	--
08-28-84	--	--	--	--	--	--	--	--	--	--
09-11-84	.5	<10	4	<.1	<.1	<1	<1	<1	--	1.2
10-02-84	--	--	--	--	--	--	--	--	--	--
10-17-84	--	--	--	--	--	--	--	--	--	--
12-19-84	.7	60	53	--	--	--	--	--	--	3.1
04-30-85	--	--	--	--	--	--	--	--	--	--
05-28-85	--	--	--	--	--	--	--	--	--	--
06-25-85	--	--	--	--	--	--	--	--	--	--
07-23-85	--	--	--	--	--	--	--	--	--	--
08-07-85	--	--	--	--	--	--	--	--	--	--
08-26-85	--	--	43	--	--	--	--	--	--	5.7

[1] Sample filtered through 0.1 micrometer pore filter.

Table 6.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174563, West Branch Swift River tributary at Cooleyville, Massachusetts*

[ft^3/s, cubic feet per second; µS/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degrees Celsius; mg/L, milligrams per liter; µg/L, micrograms per liter; <, less than; dashes indicate not analyzed]

Date	Time	Stream-flow, instan-taneous (ft^3/s)	Spe-cific con-duct-ance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Hard-ness (mg/L as $CaCO_3$)	Calcium, dis-solved (mg/L as Ca)	Magne-sium, dis-solved (mg/L as Mg)	Sodium, dis-solved (mg/L as Na)
04-05-84	09:30	44	21	5.8	2.0	5	1.5	0.33	1.2
04-05-84[1]	09:45	--	--	--	--	5	1.5	.34	1.2
04-06-84	11:00	--	20	5.2	--	4	1.2	.26	.9
05-30-84	13:30	--	21	4.9	10.5	4	1.2	.23	.8
05-30-84[1]	13:40	--	--	--	--	--	--	--	--
08-28-84	13:30	--	20	6.0	20.0	--	--	--	--
09-11-84	15:00	.2	21	6.1	21.5	5	1.4	.29	1.6
10-02-84	--	--	28	5.9	9.0	--	--	--	--
10-17-84	08:30	--	21	6.0	8.0	--	--	--	--
12-19-84	08:30	4.4	28	5.9	2.0	6	1.9	.41	1.8
04-30-85	11:30	--	26	6.0	11.5	--	--	--	--
05-28-85	11:30	--	24	5.9	16.0	--	--	--	--
06-25-85	14:00	--	23	5.8	17.5	--	--	--	--
07-23-85	12:00	--	22	6.0	21.5	--	--	--	--
08-07-85	12:45	--	21	5.8	20.0	--	--	--	--
08-26-85	13:15	5.4	25	5.6	17.0	6	1.9	.38	1.5

See footnote at end of table.

Date	Potas-sium, dis-solved (mg/L as K)	Nitro-gen, ammonia total (mg/L as N)	Nitro-gen, ammonia, dis-solved (mg/L as N)	Alka-linity field (mg/L as $CaCO_3$)	Sulfate, dis-solved (mg/L as SO_4)	Nitro-gen, nitrate, dis-solved (mg/L as N)	Phos-phorus, ortho, dis-solved (mg/L as P)	Chlo-ride, dis-solved (mg/L as Cl)	Fluo-ride, dis-solved (mg/L as F)	Silica, dis-solved (mg/L as SiO_2)
04-05-84	0.22	<0.001	--	0.2	5.9	--	--	0.78	<0.01	5.5
04-05-84	--	--	--	--	--	--	--	--	--	5.5
04-06-84	.25	--	<0.01	.3	6.0	<0.05	<0.06	.78	.05	4.4
05-30-84	.24	.066	--	.0	5.0	--	--	.69	.04	4.5
05-30-84	--	--	--	--	--	--	--	--	--	--
08-28-84	--	--	--	1.3	--	--	--	--	--	--
09-11-84	.35	.081	--	1.2	5.2	--	--	1.0	.08	5.2
10-02-84	--	--	--	--	--	--	--	--	--	--
10-17-84	--	--	--	1.4	--	--	--	--	--	--
12-19-84	.33	.015	--	.4	--	.01	--	1.2	.06	7.8
04-30-85	--	--	--	1.0	--	--	--	--	--	--
05-28-85	--	--	--	1.2	--	--	--	--	--	--
06-25-85	--	--	--	1.9	--	--	--	--	--	--
07-23-85	--	--	--	--	--	--	--	--	--	--
08-07-85	--	--	--	.7	--	--	--	--	--	--
08-26-85	.22	--	<.01	.7	5.7	.01	<.01	1.0	.06	6.4

Table 6.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174563, West Branch Swift River tributary at Cooleyville, Massachusetts*--Continued

Date	Solids, sum of constituents, dissolved (mg/L)	Aluminum, total recoverable (µg/L as Al)	Aluminum, dissolved (µg/L as Al)	Arsenic, dissolved (µg/L as As)	Arsenic, total (µg/L as As)	Copper, total recoverable (µg/L as Cu)	Copper, dissolved (µg/L as Cu)	Iron, total recoverable (µg/L as Fe)	Iron, dissolved (µg/L as Fe)	Lead, total recoverable (µg/L as Pb)
04-05-84	16	320	[1]150	<1	1	1	1.2	160	[1]30	1
04-05-84	--	--	[1]110	--	--	--	--	--	[1]25	--
04-06-84	14	--	--	--	--	--	--		16	--
05-30-84	--	--	--	--	--	--	--	--	69	--
05-30-84	--	--	[1]260	--	--	--	--	--	[1]65	--
08-28-84	--	--	--	--	--	--	--	--	--	--
09-11-84	--	80	50	<1	<1	1	2.3	290	88	2
10-02-84	--	--	--	--	--	--	--	--	--	--
10-17-84	--	--	--	--	--	--	--	--	--	--
12-19-84	--	<10	<10	--	--	1	1.6	130	38	6
04-30-85	--	--	--	--	--	--	--	--	--	--
05-28-85	--	--	--	--	--	--	--	--	--	--
06-25-85	--	--	--	--	--	--	--	--	--	--
07-23-85	--	--	--	--	--	--	--	--	--	--
08-07-85	--	--	--	--	--	--	--	--	--	--
08-26-85	18	--	160	--	--	--	--	--	130	--

See footnote at end of table.

Date	Lead, dissolved (µg/L as Pb)	Manganese, total recoverable (µg/L as Mn)	Manganese, dissolved (µg/L as Mn)	Mercury, total recoverable (µg/L as Hg)	Mercury, dissolved (µg/L as Hg)	Selenium, total (µg/L as Se)	Selenium, dissolved (µg/L as Se)	Vanadium, dissolved (µg/L as V)	Carbon, organic total (mg/L as C)	Carbon, organic, dissolved (mg/L as C)
04-05-84	0.5	50	[1]38	<0.1	<0.1	<1	<1	<1	2.7	--
04-05-84	--	--	[1]31	--	--	--	--	--	--	--
04-06-84	--	--	56	--	--	--	--	--	--	--
05-30-84	--	--	53	--	--	--	--	--	4.8	--
05-30-84	--	--	[1]53	--	--	--	--	--	--	--
08-28-84	--	--	--	--	--	--	--	--	--	--
09-11-84	.4	20	16	.6	<.1	<1	<1	<1	--	2.3
10-02-84	--	--	--	--	--	--	--	--	--	--
10-17-84	--	--	--	--	--	--	--	--	--	--
12-19-84	1.1	<10	5	--	--	--	--	--	--	2.8
04-30-85	--	--	--	--	--	--	--	--	--	--
05-28-85	--	--	--	--	--	--	--	--	--	--
06-25-85	--	--	--	--	--	--	--	--	--	--
07-23-85	--	--	--	--	--	--	--	--	--	--
08-07-85	--	--	--	--	--	--	--	--	--	--
08-26-85	--	--	24	--	--	--	--	--	--	6.5

[1] Sample filtered through 0.1 micrometer pore filter.

Table 7.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174564, West Branch Swift River tributary 2 at Cooleyville, Massachusetts*

[ft^3/s, cubic feet per second; µS/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degrees Celsius; mg/L, milligrams per liter; µg/L, micrograms per liter; <, less than; dashes indicate not analyzed]

Date	Time	Stream-flow, instan-taneous (ft^3/s)	Spe-cific con-duct-ance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Hard-ness (mg/L as $CaCO_3$)	Calcium, dis-solved (mg/L as Ca)	Magne-sium, dis-solved (mg/L as Mg)	Sodium, dis-solved (mg/L as Na)
04-05-84	08:00	14	71	6.6	4.0	12	3.5	0.69	7.8
04-05-84[1]	08:10	--	--	--	--	--	--	--	--
04-06-84	11:00	--	55	6.6	--	10	2.9	.62	6.2
05-30-84	13:25	--	39	6.5	11.0	8	2.4	.40	4.3
05-30-84[1]	13:30	--	--	--	--	--	--	--	--
08-28-84	12:20	--	79	7.3	17.0	--	--	--	--
09-11-84	14:30	.24	77	7.2	17.5	19	5.6	1.2	6.3
10-02-84	--	--	90	7.0	9.0	--	--	--	--
10-17-84	08:15	--	86	7.1	9.0	--	--	--	--
12-18-84	14:45	.84	105	7.0	4.0	19	5.6	1.2	9.6
04-30-85	11:15	--	86	6.9	11.0	--	--	--	--
05-28-85	11:00	--	99	6.9	13.5	--	--	--	--
06-25-85	14:15	--	89	7.0	14.5	--	--	--	--
07-23-85	11:55	--	93	7.1	17.0	--	--	--	--
08-07-85	13:00	--	105	7.1	17.5	--	--	--	--
08-26-85	14:30	.68	103	7.1	16.0	20	6.0	1.3	8.2

See footnote at end of table.

Date	Potas-sium, dis-solved (mg/L as K)	Nitro-gen, ammonia total (mg/L as N)	Nitro-gen, ammonia, dis-solved (mg/L as N)	Alka-linity field (mg/L as $CaCO_3$)	Sulfate, dis-solved (mg/L as SO_4)	Nitro-gen, nitrate, dis-solved (mg/L as N)	Phos-phorus, ortho, dis-solved (mg/L as P)	Chlo-ride, dis-solved (mg/L as Cl)	Fluo-ride, dis-solved (mg/L as F)	Silica, dis-solved (mg/L as SiO_2)
04-05-84	0.61	0.036	--	4.9	5.7	--	--	12	<0.01	7.8
04-05-84	--	--	--	--	--	--	--	--	--	--
04-06-84	.54	--	0.05	4.1	7.7	<0.05	<0.06	9.0	.08	7.9
05-30-84	.50	.043	--	--	6.2	--	--	4.9	.04	6.3
05-30-84	--	--	--	--	--	--	--	--	--	--
08-28-84	--	--	--	15.0	--	--	--	--	--	--
09-11-84	1.0	.225	--	14.3	7.9	--	--	8.7	.11	11
10-02-84	--	--	--	--	--	--	--	--	--	--
10-17-84	--	--	--	--	--	--	--	--	--	--
12-18-84	1.0	.004	--	9.4	8.8	--	<.01	23	--	11
04-30-85	--	--	--	9.0	--	--	--	--	--	--
05-28-85	--	--	--	9.8	--	--	--	--	--	--
06-25-85	--	--	--	11.5	--	--	--	--	--	--
07-23-85	--	--	--	--	--	--	--	--	--	--
08-07-85	--	--	--	13.1	--	--	--	--	--	--
08-26-85	1.0	--	<.01	11.5	7.7	.06	<.01	13	.11	11

Table 7.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174564, West Branch Swift River tributary 2 at Cooleyville, Massachusetts*--Continued

Date	Solids, sum of constituents, dissolved (mg/L)	Aluminum, total recoverable (µg/L as Al)	Aluminum, dissolved (µg/L as Al)	Arsenic, dissolved (µg/L as As)	Arsenic, total (µg/L as As)	Copper, total recoverable (µg/L as Cu)	Copper, dissolved (µg/L as Cu)	Iron, total recoverable (µg/L as Fe)	Iron, dissolved (µg/L as Fe)	Lead, total recoverable (µg/L as Pb)
04-05-84	41	600	70	<1	1	2	0.2	650	51	2
04-05-84	--	--	[1]<10	--	--	--	--	--	[1]15	--
04-06-84	38	--	--	--	--	--	--	--	7	--
05-30-84	--	--	--	--	--	--	--	--	43	--
05-30-84	--	--	[1]110	--	--	--	--	--	[1]35	--
08-28-84	--	--	--	--	--	--	--	--	--	--
09-11-84	--	20	10	<1	<1	1	.4	280	200	3
10-02-84	--	--	--	--	--	--	--	--	--	--
10-17-84	--	--	--	--	--	--	--	--	--	--
12-18-84	66	<10	<10	--	--	<1	.3	250	73	2
04-30-85	--	--	--	--	--	--	--	--	--	--
05-28-85	--	--	--	--	--	--	--	--	--	--
06-25-85	--	--	--	--	--	--	--	--	--	--
07-23-85	--	--	--	--	--	--	--	--	--	--
08-07-85	--	--	--	--	--	--	--	--	--	--
08-26-85	56	--	60	--	--	--	--	--	200	--

See footnote at end of table.

Date	Lead, dissolved (µg/L as Pb)	Manganese, total recoverable (µg/L as Mn)	Manganese, dissolved (µg/L as Mn)	Mercury, total recoverable (µg/L as Hg)	Mercury, dissolved (µg/L as Hg)	Selenium, total (µg/L as Se)	Selenium, dissolved (µg/L as Se)	Vanadium, dissolved (µg/L as V)	Carbon, organic total (mg/L as C)	Carbon, organic, dissolved (mg/L as C)
04-05-84	2.5	30	6	<0.1	0.1	<1	<1	<1	3.8	--
04-05-84	--	--	[1]<1	--	--	--	--	--	--	--
04-06-84	--	--	1	--	--	--	--	--	--	--
05-30-84	--	--	2	--	--	--	--	--	3.7	--
05-30-84	--	--	[1]2	--	--	--	--	--	--	--
08-28-84	--	--	--	--	--	--	--	--	--	--
09-11-84	.3	<10	2	<.1	<.1	<1	<1	<1	--	1.1
10-02-84	--	--	--	--	--	--	--	--	--	--
10-17-84	--	--	--	--	--	--	--	--	--	--
12-18-84	1.0	10	4	--	--	--	--	--	--	1.8
04-30-85	--	--	--	--	--	--	--	--	--	--
05-28-85	--	--	--	--	--	--	--	--	--	--
06-25-85	--	--	--	--	--	--	--	--	--	--
07-23-85	--	--	--	--	--	--	--	--	--	--
08-07-85	--	--	--	--	--	--	--	--	--	--
08-26-85	--	--	5	--	--	--	--	--	--	3.7

[1] Sample filtered through 0.1 micrometer pore filter.

Table 8.--*Physical characteristics and concentrations of chemical constituents of ground water at station number 422800072232901, Swift River till well near Cooleyville, Massachusetts*

[µS/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degrees Celsius; mg/L, milligrams per liter; µg/L, micrograms per liter; <, less than; dashes indicate not analyzed]

Date	Time	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Hardness (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)
12-29-83	16:00	37	5.7	--	9	2.0	1.0	2.0
01-30-84	13:30	29	5.9	7.0	8	2.0	.72	1.6
02-29-84	14:30	--	5.8	7.5	8	2.2	.70	1.4
03-28-84	13:15	25	5.7	6.0	7	1.9	.58	1.2
06-06-84	15:15	28	5.9	--	7	1.8	.52	1.4
07-17-84	10:30	34	6.1	15.5	8	2.2	.67	1.6
02-19-85	15:00	34	5.8	7.0	9	2.1	.84	1.8
03-19-85	12:30	32	5.5	6.5	9	2.3	.73	1.4
04-10-85	14:30	31	5.5	7.5	8	2.1	.66	1.4
08-20-85	15:30	41	5.8	19.0	11	3.0	.96	1.9

Date	Potassium, dissolved (mg/L as K)	Nitrogen, ammonia total (mg/L as N)	Nitrogen, ammonia, dissolved (mg/L as N)	Alkalinity field (mg/L as $CaCO_3$)	Sulfate, dissolved (mg/L as SO_4)	Nitrogen, nitrate, dissolved (mg/L as N)	Phosphorus, ortho, dissolved (mg/L as P)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)
12-29-83	0.86	--	<0.01	3	12	--	<0.06	1.2	<0.01	9.2
01-30-84	.61	--	<.01	2	9.6	--	--	1.2	.02	8.6
02-29-84	.60	<0.001	--	1	10	--	--	1.0	.03	7.7
03-28-84	.49	.049	--	1	8.8	--	--	.79	<.01	6.9
06-06-84	.71	.012	--	1	9.9	--	--	.62	.05	8.3
07-17-84	.75	.006	--	2	9.7	--	--	.63	<.01	10
02-19-85	.60	--	.02	2	[1].4	<0.01	<.01	[1].17	[1].73	9.0
03-19-85	.50	--	<.01	2	7.8	.04	<.01	1.1	.10	8.1
04-10-85	.57	--	<.01	1	9.1	<.01	<.01	.87	.01	8.3
08-20-85	.76	--	<.01	4	12	.01	<.01	1.1	.07	12

Date	Aluminum, dissolved (µg/L as Al)	Copper, dissolved (µg/L as Cu)	Iron, dissolved (µg/L as Fe)	Lead, dissolved (µg/L as Pb)	Manganese, dissolved (µg/L as Mn)	Mercury, dissolved (µg/L as Hg)	Selenium, dissolved (µg/L as Se)	Vanadium, dissolved (µg/L as V)	Carbon, organic total (mg/L as C)	Carbon, organic, dissolved (mg/L as C)
12-29-83	<10	2.1	220	0.4	300	<0.1	<1	<1	--	1.6
01-30-84	30	.9	6	1.6	50	.6	<1	<1	--	3.1
02-29-84	20	1.8	17	.3	36	<.1	<1	<1	8.3	--
03-28-84	60	1.8	15	.5	23	<.1	<1	<1	1.6	--
06-06-84	--	--	47	--	43	--	--	--	--	1.0
07-17-84	10	.4	15	.6	48	<.1	<1	<1	--	--
02-19-85	--	1.5	510	.7	42	--	--	--	--	--
03-19-85	--	--	38	--	23	--	--	--	--	--
04-10-85	30	.9	94	.1	30	--	--	--	--	--
08-20-85	30	3.0	11	2.0	24	--	--	--	--	--

[1] Anomalous value that contributed to cation-anion balance difference of greater than 10 percent; value discarded in data analysis.

Table 9.--*Physical characteristics and concentrations of chemical constituents of ground water at station number 422803072231801, Swift River sand and gravel well near Cooleyville, Massachusetts*

[µS/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degrees Celsius; mg/L, milligrams per liter; µg/L, micrograms per liter; <, less than; dashes indicate not analyzed]

Date	Time	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Hardness (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)	Potassium, dissolved (mg/L as K)
12-20-83	13:45	34	--	9.0	9	2.6	0.50	2.1	0.84
01-30-84	11:30	33	6.0	7.5	9	2.6	.49	2.0	.81
02-28-84	14:45	--	5.8	7.5	8	2.7	.42	2.0	.78
03-28-84	14:45	30	6.0	7.0	8	2.5	.49	1.9	.78
04-25-84	16:00	32	5.9	7.0	8	2.6	.44	1.8	.75
04-25-84	16:15	32	5.9	7.0	8	2.6	.47	1.9	--
06-06-84	14:00	29	5.8	--	9	2.6	.49	1.8	.76
07-17-84	09:30	31	5.7	11.0	9	2.6	.51	1.8	.79
09-12-84	14:00	24	5.8	9.0	8	2.5	.46	1.9	.94
10-24-84	09:30	30	5.8	9.0	8	2.5	.47	2.1	.79
11-20-84	13:45	31	5.7	7.0	--	--	--	--	--
12-20-84	08:45	35	5.7	8.5	8	2.5	.51	2.0	.77
01-29-85	13:15	32	5.8	7.5	8	2.5	.52	1.9	.85
02-19-85	14:00	31	5.7	7.5	8	2.5	.44	1.9	.76
03-19-85	12:00	31	5.8	6.0	8	2.5	.52	1.9	.73
04-10-85	12:45	31	5.8	7.0	8	2.5	.48	1.9	.75
06-11-85	13:30	31	5.2	8.0	9	2.7	.49	1.8	.74
08-20-85	13:50	33	5.7	11.0	8	2.5	.48	1.9	.75

Date	Nitrogen, ammonia total (mg/L as N)	Nitrogen, ammonia, dissolved (mg/L as N)	Alkalinity field (mg/L as $CaCO_3$)	Sulfate, dissolved (mg/L as SO_4)	Nitrogen, nitrate, dissolved (mg/L as N)	Phosphorus, ortho, dissolved (mg/L as P)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)	Aluminum, dissolved (µg/L as Al)
12-20-83	--	0.10	6	6.0	<0.05	<0.06	1.2	0.03	11	20
01-30-84	--	<.01	7	6.3	--	--	1.3	.03	11	30
02-28-84	<0.001	--	7	6.5	--	--	1.3	.05	11	20
03-28-84	.016	--	6	6.2	--	--	1.1	<.01	10	<10
04-25-84	.049	--	--	6.3	--	--	1.2	.04	10	20
04-25-84	--	--	7	--	--	--	--	--	10	<10
06-06-84	.059	--	6	7.2	--	--	1.3	<.01	10	--
07-17-84	.019	--	6	6.1	--	--	1.2	.05	10	10
09-12-84	<.001	--	6	6.2	--	--	1.1	.03	11	90
10-24-84	--	--	5	6.5	.04	<.01	1.2	.03	11	30
11-20-84	<.001	--	5	--	--	--	--	--	--	--
12-20-84	<.001	--	5	6.0	.04	<.01	1.1	.02	11	<10
01-29-85	--	.04	6	5.8	.02	<.01	.58	.01	11	90
02-19-85	--	.05	6	6.3	.04	<.01	1.1	.04	11	30
03-19-85	--	<.01	6	.1	<.01	<.01	2.8	.06	10	30
04-10-85	--	<.01	6	6.2	.03	<.01	1.2	.02	11	30
06-11-85	--	.03	5	6.3	.03	<.01	1.2	.01	10	10
08-20-85	--	<.01	5	7.4	.04	<.01	1.3	.05	11	40

See footnote at end of table.

Table 9.--*Physical characteristics and concentrations of chemical constituents of ground water at station number 422803072231801, Swift River sand and gravel well near Cooleyville, Massachusetts*--Continued

Date	Arsenic, total (µg/L as As)	Copper, dissolved (µg/L as Cu)	Iron, dissolved (µg/L as Fe)	Lead, dissolved (µg/L as Pb)	Manganese, dissolved (µg/L as Mn)	Mercury, dissolved (µg/L as Hg)	Selenium, dissolved (µg/L as Se)	Vanadium, dissolved (µg/L as V)	Carbon, organic total (mg/L as C)	Carbon, organic, dissolved (mg/L as C)
12-20-83	--	0.1	10	0.1	19	<0.1	<1	1	--	0.6
01-30-84	--	1.0	<3	1.8	5	<.1	<1	<1	--	3.5
02-28-84	--	2.4	4	.3	7	<.1	<1	1	0.9	--
03-28-84	--	3.2	8	1.5	5	<.1	<1	<1	.7	--
04-25-84	--	2.8	12	.2	5	<.1	<1	<1	--	1.0
04-25-84	--	--	20	--	5	--	--	--	--	--
06-06-84	--	--	5	--	4	--	--	--	--	.4
07-17-84	--	1.6	5	1.5	5	<.1	<1	<1	--	.5
09-12-84	1	.2	81	.1	5	<.1	<1	<1	--	.2
10-24-84	--	.2	3	.1	4	<.1	<1	<1	--	.4
11-20-84	--	--	--	--	--	--	--	--	--	--
12-20-84	--	1.4	4	1.0	5	--	--	--	--	--
01-29-85	--	1.0	4	.1	4	--	--	--	--	--
02-19-85	--	1.6	4	.1	5	--	--	--	--	--
03-19-85	--	--	6	--	4	--	--	--	--	--
04-10-85	--	.1	5	.2	4	--	--	--	--	--
06-11-85	--	--	3	--	5	--	--	--	--	--
08-20-85	--	1.0	<3	1.0	4	--	--	--	--	--

[1] Anomalous value that contributed to cation-anion balance difference of greater than 10 percent; value discarded in data analysis.

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Table 10.--*Daily mean discharge at station number 01174050, East Branch Fever Brook near Petersham, Massachusetts*

[Period of record begins November 29, 1983; $(ft^3/s)/mi^2$, cubic feet per second per square mile; dashes indicate not applicable]

Discharge, in cubic feet per second, water year October 1983 to September 1984

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
1	--	--	16	8.3	4.0	12	13	7.0	130	1.4	2.1	0.44
2	--	--	12	8.2	3.7	9.0	17	6.2	93	1.2	1.9	.19
3	--	--	11	7.8	4.0	7.9	19	6.2	61	1.1	1.8	.27
4	--	--	9.1	7.3	14	7.3	19	17	42	1.1	1.2	.29
5	--	--	9.9	7.1	17	6.5	43	23	28	1.1	1.1	.19
6	--	--	11	7.2	18	11	102	18	21	1.1	1.1	.21
7	--	--	26	7.3	12	11	62	15	22	11	.97	.19
8	--	--	17	7.2	11	7.7	36	13	17	17	.77	.18
9	--	--	14	6.5	11	6.8	28	21	12	8.3	.68	.21
10	--	--	13	6.9	8.2	6.1	25	16	10	8.7	.61	.24
11	--	--	7.5	7.1	10	5.3	23	14	8.7	7.6	.60	.22
12	--	--	6.6	6.8	13	3.9	17	12	5.1	4.9	.48	.12
13	--	--	21	5.0	14	3.2	15	17	5.1	2.2	.45	.21
14	--	--	49	6.4	13	6.8	13	22	4.0	1.8	.54	.36
15	--	--	39	5.1	25	5.7	17	19	2.0	1.6	.70	.33
16	--	--	22	5.0	97	5.8	29	14	2.7	3.0	.28	.35
17	--	--	13	4.1	60	5.9	35	14	2.7	4.5	.32	.39
18	--	--	10	3.6	46	5.1	22	14	2.7	23	.55	.44
19	--	--	10	5.4	39	9.3	16	13	3.4	30	.42	.44
20	--	--	8.3	3.3	38	14	17	12	2.2	14	1.1	.47
21	--	--	6.0	3.3	29	16	17	12	1.6	12	.82	.22
22	--	--	9.3	3.7	21	26	15	9.1	1.3	8.9	.94	.31
23	--	--	12	3.3	17	28	14	8.7	1.1	6.8	1.1	.26
24	--	--	11	5.0	19	20	14	9.2	.87	5.8	.41	.22
25	--	--	9.0	12	21	16	14	8.5	1.4	2.0	.31	.21
26	--	--	9.0	11	15	16	14	7.7	1.9	1.8	.23	.27
27	--	--	7.7	9.7	14	14	12	7.8	1.6	2.2	.21	.23
28	--	--	9.2	7.5	16	16	10	5.1	1.5	2.1	.17	.28
29	--	30	20	5.2	20	18	8.6	45	1.3	1.6	.20	.43
30	--	25	14	6.1	--	17	9.0	200	1.2	2.1	.25	.47
31	--	--	9.7	6.1	--	15	--	185	--	2.5	.33	--
Total	--	--	442.3	198.5	629.9	352.3	695.6	791.5	488.37	192.4	22.64	8.64
Mean	--	--	14.3	6.40	21.7	11.4	23.2	25.5	16.3	6.21	.73	.29
Maximum	--	--	49	12	97	28	102	200	130	30	2.1	.47
Minimum	--	--	6.0	3.3	3.7	3.2	8.6	5.1	.87	1.1	.17	.12
$(ft^3/s)mi^2$	--	--	2.57	1.15	3.91	2.04	4.17	4.59	2.93	1.12	.13	.05
Inches	--	--	2.96	1.33	4.21	2.36	4.65	5.30	3.27	1.29	.15	.06

Table 10.--*Daily mean discharge at station number 01174050, East Branch Fever Brook near Petersham, Massachusetts*--Continued

Discharge, in cubic feet per second, water year October 1984 to September 1985

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
1	.34	.57	1.9	6.3	2.1	6.7	5.0	2.1	27	3.4	4.1	4.4
2	.73	.54	1.4	9.3	2.5	4.6	7.3	2.0	17	2.3	3.8	4.0
3	1.1	.67	.88	7.9	1.8	4.6	7.3	2.0	12	1.5	3.5	4.2
4	1.1	.13	1.1	6.3	1.5	3.5	9.7	5.3	7.2	.85	2.8	6.4
5	.42	1.1	1.7	7.6	1.4	7.3	11	6.0	4.0	.70	2.3	4.7
6	.50	1.6	4.0	5.1	1.9	6.3	11	4.8	6.0	.80	2.5	4.3
7	.37	.54	4.1	5.0	2.3	5.2	7.8	6.0	6.2	1.0	2.1	3.3
8	.38	1.3	2.9	4.7	1.8	5.9	8.1	4.3	4.6	1.0	3.9	4.4
9	.38	1.7	2.7	2.2	2.0	7.4	10	4.4	5.9	.73	3.1	3.2
10	.16	1.8	2.3	3.3	2.1	6.0	12	4.6	5.9	.84	2.7	2.2
11	.23	2.6	2.6	4.6	1.7	6.0	11	3.6	2.6	.90	3.4	2.6
12	.21	11	3.2	5.3	2.1	30	8.7	1.9	2.0	.84	2.0	3.8
13	.11	8.7	4.4	3.2	8.8	49	7.5	3.0	1.7	1.3	1.9	2.8
14	.38	7.2	4.5	2.5	11	29	7.0	1.9	1.1	1.2	2.5	2.4
15	.08	4.9	3.9	3.0	7.6	14	7.9	1.7	1.5	1.2	2.5	2.2
16	.16	6.9	3.7	2.8	7.2	12	7.7	1.3	1.8	.95	13	2.0
17	.11	5.6	6.1	3.3	7.7	12	6.2	2.0	4.8	.89	11	1.7
18	.18	2.4	6.1	3.8	6.3	7.9	5.7	1.8	5.8	1.1	8.0	1.5
19	.23	2.1	5.5	3.4	5.7	7.5	7.9	1.5	3.3	1.3	6.7	1.5
20	.22	2.4	6.3	1.8	4.1	9.9	6.6	3.0	1.5	1.6	6.2	1.3
21	.30	2.5	4.5	2.4	3.0	6.5	5.3	16	1.0	1.1	3.8	1.0
22	.50	2.1	9.3	3.0	4.3	8.4	5.5	28	1.4	1.5	2.1	.47
23	.63	2.3	9.4	3.6	4.9	8.2	4.0	11	1.4	1.0	1.4	.36
24	.44	1.7	6.8	3.6	8.0	8.3	2.9	9.2	1.9	.86	1.1	.93
25	.47	1.4	8.3	3.6	11	5.7	4.1	7.7	1.1	1.1	2.0	.56
26	.59	1.2	7.2	2.4	7.7	7.4	4.7	5.5	.96	2.4	5.7	.66
27	.62	1.3	5.9	1.8	8.6	7.5	3.0	5.5	.90	2.4	7.8	3.6
28	1.8	1.8	6.7	2.0	7.5	7.6	4.3	4.6	1.6	1.3	5.5	5.6
29	.59	1.8	6.2	1.6	--	5.7	4.0	8.1	4.3	1.4	3.5	5.9
30	.61	1.3	4.8	1.3	--	3.1	2.3	6.9	3.6	1.4	2.8	4.8
31	.62	--	5.0	1.4	--	4.0	--	6.8	--	.91	4.2	--
Total	14.56	81.15	143.38	118.1	136.6	307.2	205.5	172.5	140.06	39.77	127.9	86.78
Mean	.47	2.70	4.63	3.81	4.88	9.91	6.85	5.56	4.67	1.28	4.13	2.89
Maximum	1.8	11	9.4	9.3	11	49	12	28	27	3.4	13	6.4
Minimum	.08	.13	.88	1.3	1.4	3.1	2.3	1.3	.90	.70	1.1	.36
$(ft^3/s)/mi^2$	.08	.49	.83	.69	.88	1.78	1.23	1.00	.84	.23	.74	.52
Inches	.10	.54	.96	.79	.91	2.06	1.37	1.15	.94	.27	.86	.58

Calendar year 1984 Total 3,618.89 Mean 9.89 Maximum 200 Minimum .08 $(ft^3/s)/mi^2$ 1.78 Inches 24.2
Water year 1985 Total 1,573.48 Mean 4.31 Maximum 49 Minimum .08 $(ft^3/s)/mi^2$ .78 Inches 10.5

Table 11.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174050, East Branch Fever Brook near Petersham, Massachusetts*

[ft^3/s, cubic feet per second; µS/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degrees Celsius; mg/L,milligrams per liter ; µg/L, micrograms per liter; <, less than; dashes indicate not analyzed]

Date	Time	Stream-flow, instan-taneous (ft^3/s)	Spe-cific con-duct-ance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Hard-ness (mg/L as $CaCO_3$)	Calcium, dis-solved (mg/L as Ca)	Magne-sium, dis-solved (mg/L as Mg)	Sodium, dis-solved (mg/L as Na)
11-01-83	15:10	1.0	69	6.4	5.5	13	3.3	1.1	6.4
11-08-83	14:30	1.6	67	6.8	6.0	13	3.3	1.1	6.0
11-15-83	13:15	3.0	62	6.2	4.0	12	3.3	1.0	5.5
11-22-83	15:00	7.4	62	6.1	6.5	11	2.9	.91	6.0
11-29-83	09:30	22	53	5.7	3.0	8	2.2	.72	5.5
12-06-83	09:15	9.2	52	5.7	2.0	9	2.4	.76	5.4
12-13-83	13:45	21	43	5.6	2.0	9	2.3	.74	4.2
12-20-83	10:00	8.2	47	5.7	.5	9	2.3	.69	5.0
12-27-83[1]	09:00	7.1	58	5.9	.5	8	2.3	.53	5.8
01-03-84	08:15	8.9	--	5.9	.5	11	2.9	.99	6.3
01-10-84	08:00	6.3	--	5.9	.5	11	2.9	.91	6.3
01-17-84	14:00	6.2	57	5.9	--	10	2.6	.83	5.8
01-24-84	14:00	4.6	--	6.0	.5	10	2.7	.86	5.9
01-27-84	17:25	10	74	5.7	--	11	2.8	.93	8.1
01-31-84	14:30	5.0	--	6.2	.5	10	2.7	.89	5.8
02-05-84	13:15	17	--	6.0	.5	10	2.5	.83	5.4
02-07-84	14:15	11	--	6.8	.5	10	2.5	.82	6.2
02-14-84	09:00	13	43	5.8	.5	10	2.4	.87	5.6
02-15-84	15:10	25	50	5.9	--	9	2.3	.79	5.0
02-16-84	07:45	97	46	5.6	--	8	1.9	.77	4.9
02-16-84[2]	07:50	--	--	--	--	--	--	--	--
02-17-84	14:00	60	38	5.7	.5	8	2.0	.64	4.5
02-21-84	15:45	29	44	5.8	.5	8	1.9	.67	4.9
02-28-84	09:00	15	--	5.7	.5	7	2.0	.59	5.3
03-06-84	13:45	13	--	5.9	.5	8	2.2	.71	5.5
03-13-84[1]	14:00	3.0	48	6.0	.5	10	2.5	.84	6.2
03-20-84	14:00	16	52	5.9	1.0	9	2.3	.72	5.8
03-27-84	14:15	14	41	5.8	2.5	7	1.9	.64	5.0
03-27-84[2]	14:20	--	--	--	--	--	--	--	--
04-03-84	10:30	23	49	5.9	5.0	7	2.0	.60	5.4
04-05-84	18:30	102	31	5.8	--	6	1.7	.54	3.9
04-06-84	14:00	59	41	5.7	2.0	6	1.7	.50	4.9
04-06-84[2]	14:10	--	--	--	--	--	--	--	--
04-10-84	09:15	23	41	5.7	2.0	6	1.9	.34	2.4
04-10-84[2]	09:20	--	--	--	--	--	--	--	--
04-17-84	13:30	37	43	5.7	6.5	7	1.8	.56	4.6
04-17-84[2]	13:40	--	--	--	--	--	--	--	--
04-24-84	09:30	15	52	5.9	10.0	8	2.0	.64	5.1
05-01-84[1]	08:45	6.3	47	6.3	16.0	8	2.1	.65	5.2
05-08-84	09:00	11	52	5.9	15.0	8	2.0	.67	5.6

See footnotes at end of table.

Table 11.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174050, East Branch Fever Brook near Petersham, Massachusetts*--Continued

Date	Potassium, dissolved (mg/L as K)	Nitrogen, ammonia total (mg/L as N)	Nitrogen, ammonia, dissolved (mg/L as N)	Alkalinity field (mg/L as $CaCO_3$)	Sulfate, dissolved (mg/L as SO_4)	Nitrogen, nitrate, dissolved (mg/L as N)	Phosphorus, ortho, dissolved (mg/L as P)	Phosphorus, dissolved (mg/L as P)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)
11-01-83	1.2	--	0.03	--	8.7	<0.05	<0.01	--	11	0.07	5.1
11-08-83	1.1	--	.06	--	8.5	<.05	<.06	--	9.9	.09	4.8
11-15-83	1.2	--	.14	--	9.2	<.05	<.01	--	10	<.01	5.2
11-22-83	.96	--	.06	--	7.5	<.05	<.06	--	12	.12	5.7
11-29-83	.72	--	<.01	--	6.7	<.05	<.01	--	10	<.01	5.0
12-06-83	.69	--	<.01	--	7.3	--	<.01	--	10	.07	6.1
12-13-83	.62	--	<.01	--	7.1	.05	<.01	--	7.4	.05	6.2
12-20-83	.56	--	<.01	--	6.5	--	<.01	--	7.7	.06	6.2
12-27-83	.73	--	.08	--	7.6	--	<.01	--	9.0	.07	8.3
01-03-84	.67	--	.04	--	8.4	--	<.01	--	12	<.01	8.0
01-10-84	.69	--	.08	--	8.7	--	<.01	--	9.7	.10	7.7
01-17-84	.68	--	.03	--	8.2	--	<.01	0.17	10	<.01	8.1
01-24-84	.73	--	.08	--	8.2	--	<.01	--	11	.05	8.6
01-27-84	.74	0.073	<.01	--	8.5	--	<.06	--	18	.10	7.8
01-31-84	.7	.046	--	--	8.3	--	--	--	12	.09	8.0
02-05-84	.66	.017	--	--	8.1	--	--	--	11	.07	7.0
02-07-84	.65	.004	--	--	8.2	--	--	--	12	.07	7.1
02-14-84	.62	.035	--	--	7.8	--	--	--	9.1	.05	6.5
02-15-84	.62	<.001	--	--	7.4	--	--	--	7.9	.07	6.1
02-16-84	.62	<.001	<.01	--	6.4	--	--	--	7.7	.05	5.1
02-16-84	--	--	--	--	--	--	--	--	--	--	--
02-17-84	.61	<.001	--	--	6.9	--	--	--	12	.08	5.0
02-21-84	.52	.063	--	--	6.7	--	--	--	9.2	.04	5.4
02-28-84	.54	<.001	--	--	6.8	--	--	--	8.3	.05	4.9
03-06-84	.58	.005	--	1.4	7.1	--	--	--	10	.06	5.3
03-13-84	.64	.013	--	1.3	7.7	--	--	--	10	.06	5.7
03-20-84	.63	<.001	--	1.5	7.3	--	--	--	12	.06	5.5
03-27-84	.54	.246	--	.7	6.9	--	--	--	7.2	<.01	4.6
03-27-84	--	--	--	--	--	--	--	--	--	--	--
04-03-84	.54	.021	--	.7	6.6	--	--	--	8.2	.07	4.3
04-05-84	.53	.035	--	1.0	6.5	<.05	<.06	--	6.1	.07	4.0
04-06-84	.52	<.001	--	.4	5.4	--	--	--	7.4	<.01	4.0
04-06-84	--	--	--	--	--	--	--	--	--	--	--
04-10-84	.33	<.001	--	.8	6.4	--	--	--	6.1	.07	6.2
04-10-84	--	--	--	--	--	--	--	--	--	--	--
04-17-84	.53	.025	--	1.4	6.4	--	--	--	6.6	.06	3.9
04-17-84	--	--	--	--	--	--	--	--	--	--	--
04-24-84	.53	.049	--	1.2	7.1	--	--	--	8.2	.07	3.3
05-01-84	.56	.030	--	.8	6.4	--	--	--	7.4	.06	2.5
05-08-84	.55	.212	--	1.3	6.6	--	--	--	8.7	.08	2.5

See footnotes at end of table.

Table 11.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174050, East Branch Fever Brook near Petersham, Massachusetts*--Continued

Date	Solids, sum of constituents, dissolved (mg/L)	Aluminum, total recoverable (µg/L as Al)	Aluminum, dissolved (µg/L as Al)	Arsenic, dissolved (µg/L as As)	Arsenic, total (µg/L as As)	Copper, total recoverable (µg/L as Cu)	Copper, dissolved (µg/L as Cu)	Iron, total recoverable (µg/L as Fe)	Iron, dissolved (µg/L as Fe)	Lead, total recoverable (µg/L as Pb)
11-01-83	--	--	90	1	--	--	0.2	--	240	--
11-08-83	--	--	70	1	--	--	2.0	--	230	--
11-15-83	--	--	70	<1	--	--	5.2	--	210	--
11-22-83	--	--	110	<1	--	--	3.1	--	170	--
11-29-83	--	130	110	<1	<1	1	.6	330	160	4
12-06-83	--	--	130	1	--	--	.5	--	210	--
12-13-83	--	130	130	<1	<1	1	.7	370	180	6
12-20-83	--	--	100	<1	--	--	.3	--	150	--
12-27-83	--	--	10	<1	--	--	1.2	--	33	--
01-03-84	--	--	90	<1	--	--	2.9	--	220	--
01-10-84	--	--	100	<1	--	--	1.2	--	230	--
01-17-84	--	--	140	<1	--	--	5.4	--	310	--
01-24-84	--	--	120	<1	--	--	1.7	--	370	--
01-27-84	--	--	100	1	--	--	5.2	--	340	--
01-31-84	--	--	110	1	--	--	1.3	--	280	--
02-05-84	--	150	140	<1	<1	14	3.6	270	230	7
02-07-84	--	--	80	<1	--	--	.6	--	180	--
02-14-84	--	--	50	<1	--	--	1.1	--	120	--
02-15-84	--	--	70	<1	--	--	1.4	--	110	--
02-16-84	--	160	80	<1	<1	1	3.7	400	120	<1
02-16-84	--	--	[2]70	--	--	--	--	--	[2]53	--
02-17-84	--	110	80	<1	<1	3	1.1	250	90	2
02-21-84	--	--	100	1	--	--	1.9	--	90	--
02-28-84	--	--	80	<1	--	--	2.0	--	89	--
03-06-84	33	--	70	<1	--	--	.4	--	94	--
03-13-84	35	--	60	<1	--	--	4.2	--	110	--
03-20-84	36	--	70	1	--	--	1.4	--	110	--
03-27-84	27	--	80	<1	--	--	.9	--	60	--
03-27-84	--	--	[2]20	--	--	--	--	--	[2]38	--
04-03-84	28	--	90	1	--	--	2.8	--	54	--
04-05-84	--	120	90	1	--	3	2.5	190	100	3
04-06-84	25	100	100	1	1	1	1.2	110	60	<1
04-06-84	--	--	[2]80	--	--	--	--	--	[2]40	--
04-10-84	24	--	110	1	--	--	1.3	--	16	--
04-10-84	--	--	[2]<10	--	--	--	--	--	[2]35	--
04-17-84	25	70	60	<1	1	1	1.5	150	86	3
04-17-84	--	--	[2]20	--	--	--	--	--	[2]63	--
04-24-84	28	--	20	1	--	--	1.3	--	100	--
05-01-84	26	--	--	--	--	--	--	--	200	--
05-08-84	28	--	60	<1	--	--	1.0	--	150	--

See footnotes at end of table.

Table 11.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174050, East Branch Fever Brook near Petersham, Massachusetts*--Continued

Date	Lead, dissolved (µg/L as Pb)	Manganese, total recoverable (µg/L as Mn)	Manganese, dissolved (µg/L as Mn)	Mercury, total recoverable (µg/L as Hg)	Mercury, dissolved (µg/L as Hg)	Selenium, total (µg/L as Se)	Selenium, dissolved (µg/L as Se)	Vanadium, dissolved (µg/L as V)	Carbon, organic total (mg/L as C)	Carbon, organic, dissolved (mg/L as C)
11-01-83	0.5	--	33	--	<0.1	--	<1	1	--	--
11-08-83	.3	--	35	--	.2	--	<1	1	--	--
11-15-83	.4	--	37	--	.1	--	<1	2	--	--
11-22-83	1.1	--	51	--	.2	--	<1	2	7.6	--
11-29-83	.4	50	45	<0.1	<.1	<1	<1	1	7.5	--
12-06-83	.7	--	50	--	<.1	--	1	<1	--	--
12-13-83	.8	50	45	<.1	<.1	<1	<1	<1	6.0	--
12-20-83	1.0	--	47	--	<.1	--	<1	1	--	6.3
12-27-83	.3	--	43	--	.9	--	<1	2	--	5.9
01-03-84	4.3	--	55	--	<.1	--	<1	1	--	4.8
01-10-84	4.4	--	52	--	<.1	--	<1	1	5.1	--
01-17-84	13.0	--	50	--	.2	--	<1	<1	--	--
01-24-84	2.9	--	53	--	.2	--	<1	<1	--	--
01-27-84	6.5	--	75	--	.1	--	<1	<1	--	--
01-31-84	1.9	--	53	--	.3	--	<1	1	--	6.7
02-05-84	1.1	50	57	<.1	<.1	<1	<1	<1	--	6.2
02-07-84	.4	--	53	--	.3	--	<1	<1	--	4.0
02-14-84	1.3	--	41	--	<.1	--	<1	2	--	3.4
02-15-84	1.0	--	41	--	.1	--	<1	1	--	3.9
02-16-84	1.0	60	68	<.1	.2	<1	<1	1	--	4.2
02-16-84	--	--	[2]8	--	--	--	--	--	--	--
02-17-84	1.2	90	91	<.1	<.1	<1	<1	2	--	5.0
02-21-84	.6	--	58	--	<.1	--	<1	<1	--	4.3
02-28-84	1.0	--	34	--	<.1	--	<1	<1	4.2	--
03-06-84	1.0	--	31	--	.1	--	<1	<1	4.5	--
03-13-84	1.2	--	33	--	.1	--	<1	<1	3.9	--
03-20-84	.9	--	37	--	<.1	--	<1	<1	3.6	--
03-27-84	.7	--	25	--	<.1	--	<1	<1	3.0	--
03-27-84	--	--	[2]25	--	--	--	--	--	--	--
04-03-84	1.0	--	21	--	<.1	--	<1	<1	2.3	--
04-05-84	1.1	20	25	--	<.1	--	<1	1	--	3.0
04-06-84	.9	40	34	<.1	<.1	<1	<1	<1	3.6	--
04-06-84	--	--	[2]34	--	--	--	--	--	--	--
04-10-84	.3	--	34	--	<.1	--	<1	<1	--	5.3
04-10-84	--	--	[2]26	--	--	--	--	--	--	--
04-17-84	.6	30	26	<.1	<.1	<1	<1	<1	--	4.0
04-17-84	--	--	[2]26	--	--	--	--	--	--	--
04-24-84	1.1	--	31	--	<.1	--	<1	<1	3.9	3.9
05-01-84	--	--	38	--	--	--	--	--	--	4.3
05-08-84	1.2	--	32	--	<.1	--	<1	<1	--	4.3

See footnotes at end of table.

Table 11.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174050, East Branch Fever Brook near Petersham, Massachusetts*--Continued

Date	Time	Stream-flow, instan-taneous (ft^3/s)	Spe-cific con-duct-ance ($\mu S/cm$)	pH (stand-ard units)	Temper-ature (°C)	Hard-ness (mg/L as $CaCO_3$)	Calcium, dis-solved (mg/L as Ca)	Magne-sium, dis-solved (mg/L as Mg)	Sodium, dis-solved (mg/L as Na)
05-16-84[1]	13:00	14	49	6.2	12.0	8	2.0	0.61	5.3
05-22-84	09:00	7.1	49	6.0	17.5	7	1.9	.62	5.5
05-29-84	14:00	35	43	6.0	14.0	7	1.9	.61	4.4
05-30-84	16:15	177	39	5.5	--	6	1.5	.48	4.5
05-30-84[2]	16:20	--	--	--	--	--	--	--	--
05-31-84	16:00	380	34	5.4	13.0	5	1.4	.45	3.4
06-05-84	09:00	25	34	5.5	15.5	6	1.6	.5	3.5
06-12-84	10:00	3.6	42	5.6	25.0	7	1.7	.55	4.4
06-19-84[1]	09:00	3.0	44	5.6	19.5	7	1.7	.59	4.4
06-26-84[1]	14:30	2.2	41	5.7	22.0	7	1.7	.62	4.5
07-03-84[1]	09:00	1.4	43	5.5	22.0	7	1.6	.67	4.6
07-10-84	10:00	8.4	43	5.8	19.5	7	1.9	.66	5.0
07-17-84	12:15	4.1	44	5.5	23.0	7	1.7	.63	5.0
07-24-84	11:00	6.6	41	5.7	22.0	7	1.8	.59	4.6
07-31-84	10:00	1.9	40	5.7	19.0	--	--	--	--
08-07-84[1]	12:15	.9	39	5.7	24.0	--	--	--	--
08-14-84	11:00	.47	34	5.5	23.0	--	--	--	--
08-21-84	10:30	.47	33	5.8	17.0	--	--	--	--
08-28-84[1]	10:00	.32	35	5.7	19.0	--	--	--	--
09-04-84	10:00	.3	36	5.9	15.0	--	--	--	--
09-11-84[1]	08:45	.23	37	6.0	17.5	7	2.0	.59	3.8
09-18-84	08:30	.23	38	6.0	10.0	8	2.1	.71	4.1
09-25-84	08:15	.16	43	6.0	17.0	9	2.4	.76	4.7
10-02-84	09:00	.85	45	6.1	9.5	11	3.0	.77	4.2
10-09-84[1]	13:45	.34	44	6.1	11.0	8	2.3	.65	5.2
10-16-84	14:30	.26	48	6.3	12.0	9	2.4	.73	5.2
10-23-84	09:00	.63	48	6.2	14.0	10	2.6	.74	5.5
10-30-84[1]	08:00	.08	43	6.2	10.0	--	--	--	--
11-06-84	11:00	.9	52	6.2	8.0	9	2.6	.72	5.6
11-13-84	10:00	8.9	58	6.1	9.0	11	3.0	.95	5.4
11-20-84	11:00	2.1	67	5.9	2.0	11	2.9	.95	7.0
11-27-84	13:00	1.6	77	5.9	4.0	11	3.1	.91	7.7
12-05-84	12:00	1.7	69	6.1	3.0	10	2.7	.90	6.7
12-11-84	13:00	2.6	68	6.1	3.5	11	2.8	.90	6.8
12-19-84	16:15	4.8	62	5.8	3.0	10	2.6	.87	6.0
12-26-84	09:30	5.7	59	5.8	2.5	10	2.5	.82	6.1
01-02-85	14:30	9.6	48	5.9	2.5	10	2.5	.87	5.5
01-08-85	09:30	5.1	70	5.9	1.5	11	2.8	.93	6.1
01-16-85	09:00	2.7	72	5.9	.5	12	3.1	1.0	6.5
01-22-85	09:30	2.4	65	5.9	.5	12	3.1	.99	6.6

See footnotes at end of table.

Table 11.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174050, East Branch Fever Brook near Petersham, Massachusetts*--Continued

Date	Potassium, dissolved (mg/L as K)	Nitrogen, ammonia total (mg/L as N)	Nitrogen, ammonia, dissolved (mg/L as N)	Alkalinity field (mg/L as $CaCO_3$)	Sulfate, dissolved (mg/L as SO_4)	Nitrogen, nitrate, dissolved (mg/L as N)	Phosphorus, ortho, dissolved (mg/L as P)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)
05-16-84	0.54	0.252	--	0.8	6.1	--	--	7.9	0.09	2.9
05-22-84	.45	<.001	--	1.3	6.5	--	--	8.0	.06	1.9
05-29-84	.56	.067	--	1.5	5.7	--	--	7.3	.06	2.9
05-30-84	.53	.076	--	.6	4.4	--	--	6.4	.07	3.5
05-30-84	--	--	--	--	--	--	--	--	--	--
05-31-84	.48	.068	--	.2	5.6	<0.05	--	5.0	.04	4.1
06-05-84	.35	.027	--	.6	6.3	--	--	4.8	.04	4.5
06-12-84	.47	.080	--	.9	5.1	--	--	6.2	.06	4.1
06-19-84	.52	.008	--	1.5	4.9	--	--	6.8	.07	4.2
06-26-84	.46	<.001	--	1.7	4.3	--	--	6.5	.08	3.9
07-03-84	.48	.032	--	1.4	4.0	--	--	6.9	.07	3.7
07-10-84	.58	.075	--	1.9	4.6	--	--	7.4	.10	4.1
07-17-84	.45	.015	--	.5	4.0	--	--	7.0	.08	3.6
07-24-84	.37	.058	--	1.4	4.0	--	--	6.5	.12	3.8
07-31-84	--	--	--	2.7	--	--	--	--	--	--
08-07-84	--	--	--	2.1	--	--	--	--	--	--
08-14-84	--	--	--	2.2	--	--	--	--	--	--
08-21-84	--	--	--	2.9	--	--	--	--	--	--
08-28-84	--	--	--	3.1	--	--	--	--	--	--
09-04-84	--	--	--	3.5	--	--	--	--	--	--
09-11-84	.52	.037	--	3.8	2.7	--	--	5.4	.07	7.3
09-18-84	.50	.170	--	4.5	2.9	.09	<0.01	5.7	.09	7.8
09-25-84	.64	.190	--	4.4	2.9	.09	<.01	6.3	.06	7.9
10-02-84	1.0	.033	--	3.4	6.0	.05	<.01	6.0	.07	8.0
10-09-84	.71	.028	--	4.3	3.3	.07	<.01	7.1	.09	8.0
10-16-84	.89	.021	--	4.9	3.8	.08	.01	7.6	<.01	8.0
10-23-84	1.4	.011	--	5.5	3.7	.10	<.01	7.6	.07	7.4
10-30-84	--	.026	--	6.8	--	--	--	--	--	--
11-06-84	1.1	<.001	--	--	4.2	--	<.01	8.0	.07	6.2
11-13-84	1.5	<.001	--	2.7	7.4	--	<.01	8.7	.07	4.9
11-20-84	1.2	.006	--	1.7	7.5	--	.02	10	<.01	5.0
11-27-84	1.2	<.001	--	2.9	7.7	<.01	<.01	13	<.01	4.6
12-05-84	1.0	.013	--	2.7	7.3	<.01	<.01	10	.06	4.1
12-11-84	1.0	.032	--	2.1	6.6	.05	<.01	10	.05	5.3
12-19-84	.85	.031	--	2.5	6.8	--	<.01	13	--	5.7
12-26-84	.85	--	--	1.4	7.2	.02	<.01	10	.04	5.5
01-02-85	.77	--	0.01	1.6	6.4	.04	<.01	8.5	.06	5.6
01-08-85	.85	--	.04	2.0	8.3	.06	.05	11	.09	6.3
01-16-85	.92	--	.07	2.9	7.9	.02	<.01	15	.05	7.2
01-22-85	1.0	--	.07	3.3	7.9	.02	<.01	27	.13	7.7

See footnotes at end of table.

Table 11.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174050, East Branch Fever Brook near Petersham, Massachusetts*--Continued

Date	Solids, sum of constituents, dissolved (mg/L)	Aluminum, total recoverable (µg/L as Al)	Aluminum, dissolved (µg/L as Al)	Arsenic, dissolved (µg/L as As)	Arsenic, total (µg/L as As)	Copper, total recoverable (µg/L as Cu)	Copper, dissolved (µg/L as Cu)	Iron, total recoverable (µg/L as Fe)	Iron, dissolved (µg/L as Fe)	Lead, total recoverable (µg/L as Pb)
05-16-84	26	--	--	--	--	--	--	--	230	--
05-22-84	26	--	70	<1	--	--	6	--	150	--
05-29-84	25	--	70	--	--	--	--	--	290	--
05-30-84	22	130	110	<1	<1	1	2	340	190	2
05-30-84	--	--	[2]80	--	--	--	--	--	[2]120	--
05-31-84	21	150	150	<1	<1	3	<0.1	420	140	3
06-05-84	22	--	--	--	--	--	--	--	150	--
06-12-84	24	--	140	<1	--	--	3.0	--	350	--
06-19-84	25	--	--	--	--	--	--	--	510	--
06-26-84	24	--	80	<1	--	--	1.8	--	540	--
07-03-84	24	--	--	--	--	--	--	--	660	--
07-10-84	26	--	<10	1	--	--	1.4	--	420	--
07-17-84	23	--	--	--	--	--	--	--	480	--
07-24-84	23	--	30	1	--	--	2.5	--	490	--
07-31-84	--	--	110	<1	--	--	3.2	--	--	--
08-07-84	--	--	70	<1	--	--	7.5	--	--	--
08-14-84	--	--	80	1	--	--	3.6	--	--	--
08-21-84	--	--	70	<1	--	--	1.2	--	--	--
08-28-84	--	--	90	<1	--	--	.9	--	--	--
09-04-84	--	--	80	1	--	--	5.1	--	--	--
09-11-84	--	90	60	<1	<1	1	.9	1200	570	<1
09-18-84	28	--	70	<1	--	--	4.2	--	650	--
09-25-84	30	--	30	<1	--	--	1.2	--	790	--
10-02-84	32	--	70	<1	--	--	2.5	--	570	--
10-09-84	31	--	60	<1	--	--	1.2	--	520	--
10-16-84	33	--	70	<1	--	--	1.8	--	670	--
10-23-84	34	--	130	<1	--	--	2.2	--	660	--
10-30-84	--	--	--	--	--	--	--	--	--	--
11-06-84	--	--	30	<1	--	--	3.6	--	420	--
11-13-84	34	--	110	<1	--	--	1.9	--	270	--
11-20-84	36	90	90	<1	<1	<1	2.5	360	230	1
11-27-84	40	--	[2]80	<1	--	--	.2	--	230	--
12-05-84	35	--	[2]40	<1	--	--	1.2	--	210	--
12-11-84	35	--	[2]70	<1	--	--	.7	--	260	--
12-19-84	38	<10	[2]<10	--	--	4	.4	430	260	4
12-26-84	34	--	[2]100	--	--	--	.9	--	170	--
01-02-85	32	--	[2]80	--	--	--	.4	--	180	--
01-08-85	38	--	[2]80	--	--	--	1.6	--	190	--
01-16-85	44	--	[2]100	--	--	--	.3	--	340	--
01-22-85	57	--	[2]90	--	--	--	2.5	--	410	--

See footnotes at end of table.

Table 11.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174050, East Branch Fever Brook near Petersham, Massachusetts*--Continued

Date	Lead, dissolved (µg/L as Pb)	Manganese, total recoverable (µg/L as Mn)	Manganese, dissolved (µg/L as Mn)	Mercury, total recoverable (µg/L as Hg)	Mercury, dissolved (µg/L as Hg)	Selenium, total (µg/L as Se)	Selenium, dissolved (µg/L as Se)	Vanadium, dissolved (µg/L as V)	Carbon, organic total (mg/L as C)	Carbon, organic, dissolved (mg/L as C)
05-16-84	--	--	28	--	--	--	--	--	--	4.5
05-22-84	--	--	24	--	<0.1	--	<1	<1	--	4.7
05-29-84	--	--	40	--	--	--	<1	<1	--	6.2
05-30-84	1	40	40	<0.1	<.1	<1	<1	<1	5.6	6.0
05-30-84	--	--	[2]34	--	--	--	--	--	--	--
05-31-84	<0.1	40	36	<.1	<.1	<1	<1	1	5.4	--
06-05-84	--	--	33	--	--	--	--	--	--	5.1
06-12-84	1.3	--	60	--	<.1	--	<1	1	--	7.6
06-19-84	--	--	55	--	--	--	--	--	--	7.9
06-26-84	.9	--	59	--	.1	--	<1	<1	--	8.4
07-03-84	--	--	95	--	--	--	--	--	--	8.5
07-10-84	.9	--	51	--	<.1	--	<1	<1	--	8.6
07-17-84	--	--	66	--	--	--	--	--	--	8.8
07-24-84	1.5	--	41	--	.3	--	<1	2	--	--
07-31-84	3.3	--	--	--	.4	--	<1	2	--	9.7
08-07-84	1.9	--	--	--	.3	--	<1	2	--	--
08-14-84	2.1	--	--	--	<.1	--	<1	2	--	10
08-21-84	1.3	--	--	--	<.1	--	<1	1	--	9.6
08-28-84	1.2	--	--	--	<.1	--	<1	1	--	8.8
09-04-84	2.2	--	--	--	<.1	--	<1	1	--	--
09-11-84	1.3	90	68	.3	.2	<1	<1	<1	--	--
09-18-84	1.8	--	56	--	<.1	--	<1	<1	--	10
09-25-84	1.3	--	100	--	<.1	--	<1	1	--	9.5
10-02-84	1.4	--	85	--	<.1	--	<1	<1	--	5.3
10-09-84	1.1	--	47	--	<.1	--	<1	1	--	--
10-16-84	1.3	--	77	--	<.1	--	<1	1	--	11
10-23-84	1.9	--	80	--	.2	--	<1	1	--	12
10-30-84	--	--	--	--	--	--	--	--	--	--
11-06-84	1.5	--	62	--	<.1	--	<1	1	--	9.4
11-13-84	.6	--	45	--	<.1	--	<1	<1	--	8.8
11-20-84	1.1	40	38	<.1	--	<1	<1	1	--	10
11-27-84	.3	--	37	--	--	--	<1	<1	--	8.8
12-05-84	.4	--	28	--	--	--	<1	<1	7.6	--
12-11-84	.3	--	33	--	.3	--	<1	<1	--	--
12-19-84	.3	40	33	--	--	--	--	--	--	5.8
12-26-84	.2	--	--	--	--	--	--	--	--	--
01-02-85	.4	--	26	--	--	--	--	--	--	--
01-08-85	.8	--	27	--	--	--	--	--	--	6.0
01-16-85	.2	--	35	--	--	--	--	--	--	5.8
01-22-85	.1	--	37	--	--	--	--	--	--	5.6

See footnotes at end of table.

Table 11.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174050, East Branch Fever Brook near Petersham, Massachusetts*--Continued

Date	Time	Streamflow, instantaneous (ft^3/s)	Specific conductance ($\mu S/cm$)	pH (standard units)	Temperature ($^\circ C$)	Hardness (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)
01-29-85[1]	09:30	0.96	70	6.0	0.5	12	3.1	1.0	6.8
02-05-85	09:30	1.3	69	6.1	.5	13	3.4	1.0	6.9
02-13-85	16:45	11	61	6.0	.5	11	2.9	.88	5.7
02-19-85[1]	09:30	3.9	69	6.1	2.0	11	3.0	.96	7.1
02-25-85	15:45	13	53	5.8	3.5	10	2.5	.85	5.0
03-05-85	13:30	7.1	57	6.0	2.5	10	2.5	.81	5.9
03-12-85	11:30	29	--	5.9	3.0	8	2.1	.61	4.1
03-19-85	14:30	11	54	5.7	3.0	8	2.1	.78	5.3
03-26-85	09:00	6.0	50	6.0	2.5	--	--	--	--
04-02-85	09:45	6.7	52	6.0	5.5	9	2.3	.76	5.4
04-09-85	10:00	11	55	6.0	8.0	9	2.4	.75	5.9
04-16-85	09:30	5.7	57	5.9	12.0	9	2.4	.77	6.4
04-23-85[1]	10:15	1.9	59	6.0	15.0	9	2.4	.84	6.6
04-30-85	09:30	2.2	59	6.2	14.0	10	2.5	.80	6.2
05-07-85	09:15	4.6	57	6.1	11.5	7	1.7	.59	4.2
05-14-85[1]	09:30	1.3	60	6.1	19.5	9	2.5	.75	6.7
05-21-85	08:30	1.8	58	6.0	17.0	10	2.5	.87	6.7
05-28-85	08:00	2.9	50	5.7	19.0	--	--	--	--
06-04-85	09:00	6.6	56	5.7	18.0	9	2.4	.75	6.5
06-11-85	09:15	2.4	58	5.6	18.5	--	--	--	--
06-18-85	09:30	5.1	54	5.8	17.0	8	2.1	.68	6.6
06-25-85[1]	16:30	.9	58	5.5	19.0	--	--	--	--
07-02-85	09:00	2.4	57	5.7	18.5	9	2.3	.73	6.9
07-10-85	14:15	.8	65	5.7	25.0	--	--	--	--
07-16-85	09:30	.95	58	5.7	21.5	10	2.5	.81	6.4
07-23-85[1]	10:10	.48	56	5.8	19.5	--	--	--	--
07-30-85[1]	09:15	.53	54	5.9	20.5	10	2.6	.78	6.1
08-08-85	09:00	1.4	56	5.6	19.5	--	--	--	--
08-13-85	09:15	.62	63	5.7	18.5	10	2.6	.83	6.2
08-20-85	19:30	4.2	64	5.6	19.5	--	--	--	--
08-27-85	09:00	7.0	65	5.7	19.0	10	2.5	.84	6.5
09-04-85	09:00	5.5	68	5.6	19.5	--	--	--	--
09-10-85	09:30	4.0	57	5.7	17.5	--	--	--	--

See footnotes at end of table.

Table 11.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174050, East Branch Fever Brook near Petersham, Massachusetts*--Continued

Date	Potassium, dissolved (mg/L as K)	Nitrogen, ammonia total (mg/L as N)	Nitrogen, ammonia, dissolved (mg/L as N)	Alkalinity field (mg/L as $CaCO_3$)	Sulfate, dissolved (mg/L as SO_4)	Nitrogen, nitrate, dissolved (mg/L as N)	Phosphorus, ortho, dissolved (mg/L as P)	Phosphorus, dissolved (mg/L as P)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)
01-29-85	1.0	--	0.16	--	7.7	0.03	<0.01	--	11	0.04	8.2
02-05-85	.91	--	.16	3.3	8.4	.09	<.01	--	12	<.01	8.5
02-13-85	.95	--	.14	3.1	7.5	.15	<.01	--	9.8	<.01	7.7
02-19-85	.90	--	.08	2.0	8.2	.11	<.01	--	[3]<.01	.10	7.7
02-25-85	.77	--	.09	1.4	[3].5	<.01	<.01	--	6.6	.13	6.3
03-05-85	.70	--	<.01	1.2	6.5	.43	<.01	--	6.3	.10	5.1
03-12-85	.66	--	.03	.8	7.5	.04	<.01	--	6.0	.06	4.3
03-19-85	.64	--	<.01	.8	6.0	.51	<.01	--	7.8	.16	4.3
03-26-85	--	--	<.01	1.0	--	--	--	--	--	--	--
04-02-85	.65	--	.22	1.2	[3].2	<.01	<.01	--	[3].05	.03	2.9
04-09-85	.68	--	.12	1.0	6.4	.02	<.01	--	9.5	.07	3.0
04-16-85	.68	--	.02	1.4	5.9	<.01	<.01	--	9.5	.32	2.3
04-23-85	.73	--	.03	2.1	5.7	<.01	<.01	--	9.9	.06	1.7
04-30-85	.76	--	.05	2.3	5.1	<.01	<.01	--	10	.07	1.3
05-07-85	.25	--	<.01	2.3	[3]2.7	.02	<.01	--	[3]4.0	.04	1.3
05-14-85	.72	--	.05	2.1	5.5	<.01	<.01	--	11	.09	1.2
05-21-85	.61	--	.04	2.1	5.6	<.01	<.01	--	11	.10	1.3
05-28-85	--	--	--	1.6	--	--	--	--	--	--	--
06-04-85	.51	--	.04	1.2	7.4	.02	<.01	--	9.7	.12	3.2
06-11-85	--	--	--	1.2	--	--	--	--	--	--	--
06-18-85	.48	--	<.01	1.4	5.3	.07	<.01	--	10	.06	2.9
06-25-85	--	--	--	1.8	--	--	--	--	--	--	--
07-02-85	.61	--	.09	1.9	6.0	.01	<.01	--	[3].1	.08	3.7
07-10-85	--	--	--	2.7	--	--	--	--	--	--	--
07-16-85	.46	--	.05	2.3	3.4	.02	<.01	--	11	.08	3.7
07-23-85	--	--	--	2.3	--	--	--	--	--	--	--
07-30-85	.39	--	.07	3.2	3.4	.02	<.01	--	9.6	.09	4.9
08-08-85	--	--	--	2.1	--	--	--	--	--	--	--
08-13-85	.49	--	.03	3.4	3.8	.01	<.01	--	10	.09	4.6
08-20-85	--	--	--	2.7	--	--	--	--	--	--	--
08-27-85	.56	--	<.01	2.5	4.5	.01	<.01	--	10	.09	3.9
09-04-85	--	--	--	--	--	--	--	--	--	--	--
09-10-85	--	--	--	2.8	--	--	--	--	--	--	--

See footnotes at end of table.

Table 11.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174050, East Branch Fever Brook near Petersham, Massachusetts*--Continued

Date	Solids, sum of constituents, dissolved (mg/L)	Aluminum, total recoverable (µg/L as Al)	Aluminum, dissolved (µg/L as Al)	Arsenic, dissolved (µg/L as As)	Arsenic, total (µg/L as As)	Copper, total recoverable (µg/L as Cu)	Copper, dissolved (µg/L as Cu)	Iron, total recoverable (µg/L as Fe)	Iron, dissolved (µg/L as Fe)	Lead, total recoverable (µg/L as Pb)
01-29-85	--	--	[2]220	--	--	--	0.6	--	430	--
02-05-85	45	--	[2]220	--	--	--	5.0	--	550	--
02-13-85	39	--	[2]70	--	--	--	2.1	--	470	--
02-19-85	--	--	[2]80	--	--	--	1.6	--	290	--
02-25-85	24	--	[2]100	--	--	--	1.4	--	190	--
03-05-85	31	--	[2]80	--	--	--	1.7	--	110	--
03-12-85	26	--	[2]70	--	--	--	1.1	--	100	--
03-19-85	30	--	[2]300	--	--	--	1.3	--	76	--
03-26-85	--	--	[2]80	--	--	--	.5	--	--	--
04-02-85	14	--	[2]80	--	--	--	.6	--	130	--
04-09-85	30	--	[2]70	--	--	--	1.7	--	110	--
04-16-85	29	--	[2]60	--	--	--	.8	--	120	--
04-23-85	30	--	[2]70	--	--	--	.1	--	190	--
04-30-85	29	--	[2]90	--	--	--	<.1	--	280	--
05-07-85	17	--	[2]100	--	--	--	2.0	--	240	--
05-14-85	30	--	[2]80	--	--	--	<.1	--	250	--
05-21-85	30	--	[2]80	--	--	--	1.0	--	300	--
05-28-85	--	--	--	--	--	--	--	--	--	--
06-04-85	32	--	[2]<10	--	--	--	3.0	--	310	--
06-11-85	--	--	--	--	--	--	--	--	--	--
06-18-85	30	--	[2]70	--	--	--	<.1	--	390	--
06-25-85	--	--	--	--	--	--	--	--	--	--
07-02-85	22	--	[2]<70	--	--	--	<.1	--	580	--
07-10-85	--	--	--	--	--	--	--	--	--	--
07-16-85	31	--	[2]60	--	--	--	<.1	--	600	--
07-23-85	--	--	--	--	--	--	--	--	--	--
07-30-85	31	--	[2]80	--	--	--	2.0	--	670	--
08-08-85	--	--	--	--	--	--	--	--	--	--
08-13-85	32	--	[2]70	--	--	--	<.1	--	730	--
08-20-85	--	--	--	--	--	--	--	--	--	--
08-27-85	31	--	[2]80	--	--	--	3.0	--	480	--
09-04-85	--	--	--	--	--	--	--	--	--	--
09-10-85	--	--	--	--	--	--	--	--	--	--

See footnotes at end of table.

Table 11.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174050, East Branch Fever Brook near Petersham, Massachusetts*--Continued

Date	Lead, dissolved (µg/L as Pb)	Manganese, total recoverable (µg/L as Mn)	Manganese, dissolved (µg/L as Mn)	Mercury, total recoverable (µg/L as Hg)	Mercury, dissolved (µg/L as Hg)	Selenium, total (µg/L as Se)	Selenium, dissolved (µg/L as Se)	Vanadium, dissolved (µg/L as V)	Carbon, organic total (mg/L as C)	Carbon, organic, dissolved (mg/L as C)
01-29-85	0.1	--	36	--	--	--	--	--	--	5.6
02-05-85	.1	--	39	--	--	--	--	--	--	5.8
02-13-85	.7	--	64	--	--	--	--	--	--	5.2
02-19-85	.3	--	52	--	--	--	--	--	--	5.3
02-25-85	.1	--	56	--	--	--	--	--	--	5.5
03-05-85	1.0	--	28	--	--	--	--	--	--	4.3
03-12-85	.8	--	28	--	--	--	--	--	--	--
03-19-85	.6	--	31	--	--	--	--	--	--	4.5
03-26-85	.7	--	--	--	--	--	--	--	--	4.6
04-02-85	1.0	--	31	--	--	--	--	--	--	5.1
04-09-85	1.4	--	29	--	--	--	--	--	--	5.2
04-16-85	.4	--	29	--	--	--	--	--	--	5.3
04-23-85	.3	--	38	--	--	--	--	--	--	5.7
04-30-85	1.0	--	37	--	--	--	--	--	--	5.9
05-07-85	--	--	26	--	--	--	--	--	--	6.3
05-14-85	1.0	--	40	--	--	--	--	--	--	6.3
05-21-85	<.1	--	35	--	--	--	--	--	--	6.3
05-28-85	--	--	--	--	--	--	--	--	--	--
06-04-85	2.0	--	36	--	--	--	--	--	--	7.1
06-11-85	--	--	--	--	--	--	--	--	--	--
06-18-85	1.0	--	41	--	--	--	--	--	--	7.1
06-25-85	--	--	--	--	--	--	--	--	--	--
07-02-85	<.1	--	52	--	--	--	--	--	--	--
07-10-85	--	--	--	--	--	--	--	--	--	--
07-16-85	<.1	--	170	--	--	--	--	--	--	7.5
07-23-85	--	--	--	--	--	--	--	--	--	--
07-30-85	1.0	--	170	--	--	--	--	--	--	--
08-08-85	--	--	--	--	--	--	--	--	--	--
08-13-85	1.0	--	170	--	--	--	--	--	--	7.8
08-20-85	--	--	--	--	--	--	--	--	--	--
08-27-85	2.0	--	52	--	--	--	--	--	--	9.3
09-04-85	--	--	--	--	--	--	--	--	--	--
09-10-85	--	--	--	--	--	--	--	--	--	--

[1] Analysis was used in calculation of volume-weighted base flow stream chemistry.
[2] Sample filtered through 0.1 micrometer pore filter.
[3] Anomalous value that contributed to cation-anion balance difference of greater than 10 percent; value discarded in data analysis.

Table 12.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174035, Brooks Pond tributary near Petersham, Massachusetts*

[ft^3/s, cubic feet per second; µS/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degrees Celsius; mg/L, milligrams per liter; mg/L, micrograms per liter; <, less than; dashes indicate not analyzed]

Date	Time	Streamflow, instantaneous (ft^3/s)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Hardness (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)
02-16-84	13:00	33	--	5.6	--	7	1.8	0.63	2.7
04-06-84	12:00	--	30	5.6	--	6	1.6	.48	2.6
05-30-84	15:15	--	28	5.4	12.0	5	1.5	.42	2.0
05-30-84[1]	15:20	--	--	--	--	--	--	--	--
08-28-84	11:40	--	56	6.2	19.0	--	--	--	--
09-11-84	10:45	.02	61	6.1	16.5	9	2.5	.79	6.2
10-02-84	--	--	63	6.2	9.0	--	--	--	--
10-17-84	07:20	--	60	6.0	10.0	--	--	--	--
12-19-84	13:45	1.7	52	5.9	3.0	10	2.6	.89	3.9
04-30-85	10:15	--	46	6.0	14.0	--	--	--	--
05-28-85	10:00	--	50	6.0	18.0	--	--	--	--
06-25-85	15:45	--	50	6.1	18.0	--	--	--	--
07-23-85	11:00	--	58	6.2	18.0	--	--	--	--
08-08-85	11:15	--	59	6.3	19.5	--	--	--	--
08-27-85	12:30	1.3	40	6.1	20.5	8	2.1	.61	3.0

See footnote at end of table.

Date	Potassium, dissolved (mg/L as K)	Nitrogen, ammonia total (mg/L as N)	Nitrogen, ammonia, dissolved (mg/L as N)	Alkalinity field (mg/L as $CaCO_3$)	Sulfate, dissolved (mg/L as SO_4)	Nitrogen, nitrate, dissolved (mg/L as N)	Phosphorus, ortho, dissolved (mg/L as P)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)
02-16-84	0.63	0.067	--	--	7.3	--	--	5.1	0.08	4.6
04-06-84	.55	--	<0.01	0.6	6.7	<0.05	<0.06	3.7	.06	4.1
05-30-84	.49	.037	--	--	6.2	--	--	2.3	.05	4.8
05-30-84	--	--	--	--	--	--	--	--	--	--
08-28-84	--	--	--	3.6	--	--	--	--	--	--
09-11-84	1.2	.034	--	2.9	4.2	--	--	11	.11	7.5
10-02-84	--	--	--	--	--	--	--	--	--	--
10-17-84	--	--	--	3.6	--	--	--	--	--	--
12-19-84	.73	.046	--	.8	--	.04	--	5.8	.09	7.2
04-30-85	--	--	--	1.4	--	--	--	--	--	--
05-28-85	--	--	--	1.2	--	--	--	--	--	--
06-25-85	--	--	--	1.8	--	--	--	--	--	--
07-23-85	--	--	--	--	--	--	--	--	--	--
08-08-85	--	--	--	3.7	--	--	--	--	--	--
08-27-85	.56	--	<.01	2.0	5.0	.02	<.01	3.6	.09	5.2

Table 12.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174035, Brooks Pond tributary near Petersham, Massachusetts*--Continued

Date	Solids, sum of constituents, dissolved (mg/L)	Aluminum, total recoverable (µg/L as Al)	Aluminum, dissolved (µg/L as Al)	Arsenic, dissolved (µg/L as As)	Arsenic, total (µg/L as As)	Copper, total recoverable (µg/L as Cu)	Copper, dissolved (µg/L as Cu)	Iron, total recoverable (µg/L as Fe)	Iron, dissolved (µg/L as Fe)	Lead, total recoverable (µg/L as Pb)
02-16-84	--	220	220	<1	1	1	0.8	290	73	<1
04-06-84	20	--	--	--	--	--	--	--	24	--
05-30-84	--	--	--	--	--	--	--	--	99	--
05-30-84	--	--	[1]230	--	--	--	--	--	[1]86	--
08-28-84	--	--	--	--	--	--	--	--	--	--
09-11-84	--	90	50	<1	<1	2	<1	810	350	1
10-02-84	--	--	--	--	--	--	--	--	--	--
10-17-84	--	--	--	--	--	--	--	--	--	--
12-19-84	--	<10	<10	--	--	1	.2	320	160	2
04-30-85	--	--	--	--	--	--	--	--	--	--
05-28-85	--	--	--	--	--	--	--	--	--	--
06-25-85	--	--	--	--	--	--	--	--	--	--
07-23-85	--	--	--	--	--	--	--	--	--	--
08-08-85	--	--	--	--	--	--	--	--	--	--
08-27-85	22	--	70	--	--	--	--	--	390	--

See footnote at end of table.

Date	Lead, dissolved (µg/L as Pb)	Manganese, total recoverable (µg/L as Mn)	Manganese, dissolved (µg/L as Mn)	Mercury, total recoverable (µg/L as Hg)	Mercury, dissolved (µg/L as Hg)	Selenium, total (µg/L as Se)	Selenium, dissolved (µg/L as Se)	Vanadium, dissolved (µg/L as V)	Carbon, organic total (mg/L as C)	Carbon, organic, dissolved (mg/L as C)
02-16-84	1.1	140	140	<0.1	0.2	<1	<1	1	--	8.1
04-06-84	--	--	64	--	--	--	--	--	--	--
05-30-84	--	--	50	--	--	--	--	--	5.0	--
05-30-84	--	--	[1]51	--	--	--	--	--	--	--
08-28-84	--	--	--	--	--	--	--	--	--	--
09-11-84	.4	150	96	<.1	<.1	<1	<1	<1	--	6.4
10-02-84	--	--	--	--	--	--	--	--	--	--
10-17-84	--	--	--	--	--	--	--	--	--	--
12-19-84	.2	30	30	--	--	--	--	--	--	3.5
04-30-85	--	--	--	--	--	--	--	--	--	--
05-28-85	--	--	--	--	--	--	--	--	--	--
06-25-85	--	--	--	--	--	--	--	--	--	--
07-23-85	--	--	--	--	--	--	--	--	--	--
08-08-85	--	--	--	--	--	--	--	--	--	--
08-27-85	--	--	33	--	--	--	--	--	--	7.2

[1] Sample filtered through 0.1 micrometer pore filter.

Table 13.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174040, East Branch Fever Brook below Brooks Pond near Petersham, Massachusetts*

[ft^3/s, cubic feet per second; µS/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degrees Celsius; mg/L, milligrams per liter; µg/L, micrograms per liter; <, less than; dashes indicate not analyzed]

Date	Time	Stream-flow, instan-taneous (ft^3/s)	Spe-cific con-duct-ance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Hard-ness (mg/L as $CaCO_3$)	Calcium, dis-solved (mg/L as Ca)	Magne-sium, dis-solved (mg/L as Mg)	Sodium, dis-solved (mg/L as Na)
02-16-84	14:10	65	--	5.6	0.5	7	1.9	0.66	4.5
03-27-84	14:20	--	--	--	--	--	--	--	--
04-06-84	12:00	--	48	5.6	--	7	1.7	.56	5.0
04-06-84	14:10	--	48	5.6	--	--	--	--	--
04-10-84	09:20	--	--	--	--	--	--	--	--
04-17-84	13:40	--	--	--	--	--	--	--	--
05-30-84	15:00	--	35	5.7	14.5	6	1.5	.43	3.8
05-30-84[1]	15:10	--	--	--	--	--	--	--	--
08-28-84	11:50	--	42	5.6	23.0	--	--	--	--
09-11-84	11:45	--	44	5.7	20.0	7	1.7	.55	5.1
10-02-84	--	--	49	5.7	9.0	--	--	--	--
12-19-84	12:15	2.2	63	5.8	4.0	9	2.2	.83	6.7
04-30-85	10:30	--	66	5.6	16.5	--	--	--	--
05-28-85	10:30	--	70	5.6	20.5	--	--	--	--
06-25-85	15:30	--	76	5.5	21.5	--	--	--	--
07-23-85	11:20	--	72	5.2	24.5	--	--	--	--
08-08-85	11:00	--	78	5.3	22.0	--	--	--	--
08-27-85	14:00	4.0	75	5.3	20.5	9	2.3	.71	8.3

See footnote at end of table.

Date	Potas-sium, dis-solved (mg/L as K)	Nitro-gen, ammonia total (mg/L as N)	Nitro-gen, ammonia, dis-solved (mg/L as N)	Alka-linity field (mg/L as $CaCO_3$)	Sulfate, dis-solved (mg/L as SO_4)	Nitro-gen, nitrate, dis-solved (mg/L as N)	Phos-phorus, ortho, dis-solved (mg/L as P)	Chlo-ride, dis-solved (mg/L as Cl)	Fluo-ride, dis-solved (mg/L as F)	Silica, dis-solved (mg/L as SiO_2)
02-16-84	0.61	<0.001	--	1	7.1	--	--	7.1	0.09	4.8
03-27-84	--	--	--	--	--	--	--	--	--	--
04-06-84	.55	--	1.10	--	6.4	<0.05	<0.06	8.2	.06	3.9
04-06-84	--	--	--	.5	--	--	--	--	--	--
04-10-84	--	--	--	--	--	--	--	--	--	--
04-17-84	--	--	--	--	--	--	--	--	--	--
05-30-84	.49	.034	--	--	5.4	--	--	5.9	.05	2.7
05-30-84	--	--	--	--	--	--	--	--	--	--
08-28-84	--	--	--	2.4	--	--	--	--	--	--
09-11-84	.34	.061	--	.7	4.1	--	--	8.0	.09	.8
10-02-84	--	--	--	--	--	--	--	--	--	--
12-19-84	.86	.065	--	1.8	5.2	--	<.01	11	--	3.5
04-30-85	--	--	--	.7	--	--	--	--	--	--
05-28-85	--	--	--	.8	--	--	--	--	--	--
06-25-85	--	--	--	.4	--	--	--	--	--	--
07-23-85	--	--	--	--	--	--	--	--	--	--
08-08-85	--	--	--	.7	--	--	--	--	--	--
08-27-85	.37	--	<.01	1.1	5.3	.02	<.01	14	.14	1.6

Table 13.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174040, East Branch Fever Brook below Brooks Pond near Petersham, Massachusetts*--Continued

Date	Solids, sum of constituents, dissolved (mg/L)	Aluminum, total recoverable (µg/L as Al)	Aluminum, dissolved (µg/L as Al)	Arsenic, dissolved (µg/L as As)	Arsenic, total (µg/L as As)	Copper, total recoverable (µg/L as Cu)	Copper, dissolved (µg/L as Cu)	Iron, total recoverable (µg/L as Fe)	Iron, dissolved (µg/L as Fe)	Lead, total recoverable (µg/L as Pb)
02-16-84	28	170	100	<1	<1	2	1.3	330	110	2
03-27-84	--	--	20	--	--	--	--	--	38	--
04-06-84	--	--	--	--	--	--	--	--	36	--
04-06-84	--	--	80	--	--	--	--	--	40	--
04-10-84	--	--	<10	--	--	--	--	--	35	--
04-17-84	--	--	20	--	--	--	--	--	63	--
05-30-84	--	--	--	--	--	--	--	--	130	--
05-30-84	--	--	[1]20	--	--	--	--	--	[1]45	--
08-28-84	--	--	--	--	--	--	--	--	--	--
09-11-84	--	70	50	<1	1	2	2.6	350	180	<1
10-02-84	--	--	--	--	--	--	--	--	--	--
12-19-84	32	130	<10	--	--	1	.6	350	160	2
04-30-85	--	--	--	--	--	--	--	--	--	--
05-28-85	--	--	--	--	--	--	--	--	--	--
06-25-85	--	--	--	--	--	--	--	--	--	--
07-23-85	--	--	--	--	--	--	--	--	--	--
08-08-85	--	--	--	--	--	--	--	--	--	--
08-27-85	34	--	--	--	--	--	--	--	160	--

See footnote at end of table.

Date	Lead, dissolved (µg/L as Pb)	Manganese, total recoverable (µg/L as Mn)	Manganese, dissolved (µg/L as Mn)	Mercury, total recoverable (µg/L as Hg)	Mercury, dissolved (µg/L as Hg)	Selenium, total (µg/L as Se)	Selenium, dissolved (µg/L as Se)	Vanadium, dissolved (µg/L as V)	Carbon, organic total (mg/L as C)	Carbon, organic, dissolved (mg/L as C)
02-16-84	1.0	110	100	<0.1	<0.1	<1	<1	1	--	--
03-27-84	--	--	25	--	--	--	--	--	--	--
04-06-84	--	--	53	--	--	--	--	--	--	--
04-06-84	--	--	34	--	--	--	--	--	--	--
04-10-84	--	--	26	--	--	--	--	--	--	--
04-17-84	--	--	26	--	--	--	--	--	--	--
05-30-84	--	--	41	--	--	--	--	--	4.8	--
05-30-84	--	--	[1]12	--	--	--	--	--	--	--
08-28-84	--	--	--	--	--	--	--	--	--	--
09-11-84	1.0	30	31	<.1	<.1	<1	<1	<1	8.2	8.2
10-02-84	--	--	--	--	--	--	--	--	--	--
12-19-84	.4	20	28	--	--	--	--	--	--	7.6
04-30-85	--	--	--	--	--	--	--	--	--	--
05-28-85	--	--	--	--	--	--	--	--	--	--
06-25-85	--	--	--	--	--	--	--	--	--	--
07-23-85	--	--	--	--	--	--	--	--	--	--
08-08-85	--	--	--	--	--	--	--	--	--	--
08-27-85	--	--	32	--	--	--	--	--	--	7.2

[1] Sample filtered through 0.1 micrometer pore filter.

Table 14.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174045, East Branch Fever Brook at West Road near Petersham, Massachusetts*

[ft^3/s, cubic feet per second; µS/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degrees Celsius; mg/L, milligrams per liter; µg/L, micrograms per liter; <, less than; dashes indicate not analyzed]

Date	Time	Stream-flow, instan-taneous (ft^3/s)	Spe-cific con-duct-ance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Hard-ness (mg/L as $CaCO_3$)	Calcium, dis-solved (mg/L as Ca)	Magne-sium, dis-solved (mg/L as Mg)	Sodium, dis-solved (mg/L as Na)
02-16-84	11:45	90	--	5.6	--	8	2.1	0.7	6.7
04-06-84	12:00	--	44	5.5	--	6	1.6	.54	5.1
05-30-84	15:30	--	39	5.3	13.0	6	1.5	.48	4.3
05-30-84[1]	15:40	--	--	--	--	--	--	--	--
08-28-84	11:30	--	53	6.0	20.0	--	--	--	--
09-11-84	10:00	.06	55	6.1	18.0	8	2.1	.72	6.3
10-02-84	--	--	72	5.7	9.0	--	--	--	--
10-17-84	07:00	--	56	6.0	9.0	--	--	--	--
12-19-84	15:00	4.2	70	5.8	3.0	10	2.4	.87	7.7
04-30-85	09:45	--	72	5.9	14.5	--	--	--	--
05-28-85	08:45	--	69	5.6	18.5	--	--	--	--
06-25-85	16:00	--	78	5.7	19.0	--	--	--	--
07-23-85	10:45	--	79	5.9	19.0	--	--	--	--
08-08-85	10:45	--	81	5.8	20.0	--	--	--	--
08-27-85	11:00	6.2	80	5.6	19.5	10	2.5	.82	8.9

See footnote at end of table.

Date	Potas-sium, dis-solved (mg/L as K)	Nitro-gen, ammonia total (mg/L as N)	Nitro-gen, ammonia, dis-solved (mg/L as N)	Alka-linity field (mg/L as $CaCO_3$)	Sulfate, dis-solved (mg/L as SO_4)	Nitro-gen, nitrate, dis-solved (mg/L as N)	Phos-phorus, ortho, dis-solved (mg/L as P)	Chlo-ride, dis-solved (mg/L as Cl)	Fluo-ride, dis-solved (mg/L as F)	Silica, dis-solved (mg/L as SiO_2)
02-16-84	0.62	0.306	--	1.0	7.0	--	--	13	0.07	5.2
04-06-84	.54	--	0.31	.5	6.4	<0.05	<0.06	8.1	.05	4.2
05-30-84	.51	.077	--	--	5.4	--	--	6.6	.07	3.7
05-30-84	--	--	--	--	--	--	--	--	--	--
08-28-84	--	--	--	3.7	--	--	--	--	--	--
09-11-84	.99	.022	--	3.8	3.0	--	--	10	.09	5.4
10-02-84	--	--	--	--	--	--	--	--	--	--
10-17-84	--	--	--	--	--	--	--	--	--	--
12-19-84	.87	.047	--	2.0	--	--	--	15	--	4.8
04-30-85	--	--	--	1.9	--	--	--	--	--	--
05-28-85	--	--	--	1.4	--	--	--	--	--	--
06-25-85	--	--	--	1.8	--	--	--	--	--	--
07-23-85	--	--	--	--	--	--	--	--	--	--
08-08-85	--	--	--	2.2	--	--	--	--	--	--
08-27-85	.73	--	.01	2.3	3.7	.02	<.01	16	.14	2.9

Table 14.--*Physical characteristics and concentrations of chemical constituents of streamflow at station number 01174045, East Branch Fever Brook at West Road near Petersham, Massachusetts*--Continued

Date	Solids, sum of constituents, dissolved (mg/L)	Aluminum, total recoverable (µg/L as Al)	Aluminum, dissolved (µg/L as Al)	Arsenic, dissolved (µg/L as As)	Arsenic, total (µg/L as As)	Copper, total recoverable (µg/L as Cu)	Copper, dissolved (µg/L as Cu)	Iron, total recoverable (µg/L as Fe)	Iron, dissolved (µg/L as Fe)	Lead, total recoverable (µg/L as Pb)
02-16-84	36	140	120	<1	1	2	1.3	330	110	2
04-06-84	27	--	--	--	--	--	--	--	37	--
05-30-84	--	--	--	--	--	--	--	--	180	--
05-30-84	--	--	[1]100	--	--	--	--	--	[1]130	--
08-28-84	--	--	--	--	--	--	--	--	--	--
09-11-84	--	50	30	<1	<1	1	.5	800	510	1
10-02-84	--	--	--	--	--	--	--	--	--	--
10-17-84	--	--	--	--	--	--	--	--	--	--
12-19-84	--	100	<10	--	--	1	.6	450	290	3
04-30-85	--	--	--	--	--	--	--	--	--	--
05-28-85	--	--	--	--	--	--	--	--	--	--
06-25-85	--	--	--	--	--	--	--	--	--	--
07-23-85	--	--	--	--	--	--	--	--	--	--
08-08-85	--	--	--	--	--	--	--	--	--	--
08-27-85	38	--	70	--	--	--	--	--	510	--

See footnote at end of table.

Date	Lead, dissolved (µg/L as Pb)	Manganese, total recoverable (µg/L as Mn)	Manganese, dissolved (µg/L as Mn)	Mercury, total recoverable (µg/L as Hg)	Mercury, dissolved (µg/L as Hg)	Selenium, total (µg/L as Se)	Selenium, dissolved (µg/L as Se)	Vanadium, dissolved (µg/L as V)	Carbon, organic total (mg/L as C)	Carbon, organic, dissolved (mg/L as C)
02-16-84	1.7	70	66	<0.1	<0.1	<1	<1	5	--	4.2
04-06-84	--	--	37	--	--	--	--	--	--	--
05-30-84	--	--	40	--	--	--	--	--	5.5	--
05-30-84	--	--	[1]37	--	--	--	--	--	--	--
08-28-84	--	--	--	--	--	--	--	--	--	--
09-11-84	1.7	20	15	<.1	<.1	<1	<1	<1	--	7.1
10-02-84	--	--	--	--	--	--	--	--	--	--
10-17-84	--	--	--	--	--	--	--	--	--	--
12-19-84	--	50	41	--	--	--	--	--	--	6.7
04-30-85	--	--	--	--	--	--	--	--	--	--
05-28-85	--	--	--	--	--	--	--	--	--	--
06-25-85	--	--	--	--	--	--	--	--	--	--
07-23-85	--	--	--	--	--	--	--	--	--	--
08-08-85	--	--	--	--	--	--	--	--	--	--
08-27-85	--	--	88	--	--	--	--	--	--	8.6

[1] Sample filtered through 0.1 micrometer pore filter.

Table 15.--*Physical characteristics and concentrations of chemical constituents of ground water at station number 422906072124301, Fever Brook till well near Petersham, Massachusetts*

[µS/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degrees Celsius; mg/L, milligrams per liter; µg/L, micrograms per liter; <, less than; dashes indicate not analyzed]

Date	Time	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Hardness (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)	Potassium, dissolved (mg/L as K)
01-31-84	16:00	240	8.1	7.0	82	27	3.5	11	10
02-27-84	15:10	--	7.5	7.5	78	26	3.2	6.5	8.5
03-28-84	09:00	250	7.7	6.0	100	34	4.0	7.7	9.3
04-03-84	08:45	--	7.7	7.0	59	20	2.2	3.1	6.7
04-25-84	13:00	150	7.5	8.0	59	20	2.1	2.4	6.8
04-25-84[1]	13:15	--	--	--	58	20	2.0	2.5	--
06-06-84	09:00	150	7.5	12.0	55	19	1.8	2.4	7.7
07-16-84	13:15	193	7.4	12.5	77	27	2.3	2.7	9.1
09-12-84	09:30	188	7.6	11.0	71	25	2.1	2.8	10
10-24-84	14:00	219	7.6	10.0	83	29	2.5	3.3	10
11-20-84	09:15	290	7.5	6.0	--	--	--	--	--
12-20-84	11:30	263	7.4	8.5	87	31	2.4	2.9	13

See footnote at end of table.

Date	Nitrogen, ammonia total (mg/L as N)	Nitrogen, ammonia, dissolved (mg/L as N)	Alkalinity field (mg/L as $CaCO_3$)	Sulfate, dissolved (mg/L as SO_4)	Nitrogen, nitrate, dissolved (mg/L as N)	Phosphorus, ortho, dissolved (mg/L as P)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)	Aluminum, dissolved (µg/L as Al)
01-31-84	--	<0.01	--	25	--	--	4.8	0.22	9.7	70
02-27-84	<0.001	.03	--	16	--	--	2.4	.22	10	<10
03-28-84	.036	--	112	20	--	--	2.3	<.01	11	<10
04-03-84	.103	--	54	20	--	--	1.2	.21	9.7	10
04-25-84	.034	--	52	21	--	--	1.2	.17	9.9	<10
04-25-84	--	--	--	--	--	--	--	--	[1]9.7	[1]<10
06-06-84	.064	--	50	24	--	--	1.1	.12	10	--
07-16-84	.047	--	65	29	--	--	1.5	.13	10	10
09-12-84	.122	--	54	28	--	--	1.7	.20	11	20
10-24-84	--	--	58	38	<0.01	<0.01	1.5	.01	10	80
11-20-84	.031	--	64	--	--	--	--	--	--	--
12-20-84	.042	--	51	120	.01	<.01	.62	.26	13	<10

See footnote at end of table.

Table 15.--*Physical characteristics and concentrations of chemical constituents of ground water at station number 422906072124301, Fever Brook till well near Petersham, Massachusetts*--Continued

Date	Arsenic, total (µg/L as As)	Copper, dissolved (µg/L as Cu)	Iron, dissolved (µg/L as Fe)	Lead, dissolved (µg/L as Pb)	Manganese, dissolved (µg/L as Mn)	Mercury, dissolved (µg/L as Hg)	Selenium, dissolved (µg/L as Se)	Vanadium, dissolved (µg/L as V)	Carbon, organic total (mg/L as C)	Carbon, organic, dissolved (mg/L as C)
01-31-84	--	0.9	18	1.5	320	0.2	<1	<1	--	--
02-27-84	--	3.1	8	4.5	400	.2	<1	<1	4.3	--
03-28-84	--	.4	4	.3	500	.2	<1	<1	5.5	--
04-03-84	--	3.0	8	.5	270	<.1	<1	<1	1.5	--
04-25-84	--	6.8	4	1.2	260	<.1	<1	<1	--	1.4
04-25-84	--	--	[1]33	--	[1]250	--	--	--	--	--
06-06-84	--	--	69	--	270	--	--	--	--	1.6
07-16-84	--	3.9	15	.2	330	<.1	<1	<1	--	2.5
09-12-84	<1	1.0	150	.6	340	<.1	<1	<1	--	2.1
10-24-84	--	1.0	97	.9	350	<.1	<1	1	--	2.1
11-20-84	--	--	--	--	--	--	--	--	--	--
12-20-84	--	.3	180	1.8	450	--	--	--	--	--

[1] Sample filtered through 0.1 micrometer pore filter.

Table 16.--*Physical characteristics and concentrations of chemical constituents of ground water at station number 422910072120501, Knault's well near Petersham, Massachusetts*

[µS/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degrees Celsius; mg/L, milligrams per liter; µg/L, micrograms per liter; <, less than; dashes indicate not analyzed]

Date	Time	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Hardness (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)
02-19-85	12:00	106	7.2	7.5	26	5.5	3.0
03-20-85	14:00	102	7.5	7.5	25	5.4	2.9
04-10-85	10:45	102	7.3	7.0	26	5.4	3.0
06-11-85	11:00	99	6.6	10.0	27	5.9	3.1
08-20-85	11:45	102	7.1	11.0	26	5.5	3.0
08-20-85[1]	11:45	--	--	--	--	--	--

Date	Sodium, dissolved (mg/L as Na)	Potassium, dissolved (mg/L as K)	Nitrogen, ammonia, dissolved (mg/L as N)	Alkalinity field (mg/L as $CaCO_3$)	Sulfate, dissolved (mg/L as SO_4)	Nitrogen, nitrate, dissolved (mg/L as N)	Nitrogen, NO_2+NO_3, dissolved (mg/L as N)	Phosphorus, ortho, dissolved (mg/L as P)
02-19-85	8.6	5.1	0.04	39	3.6	--	<0.10	0.11
03-20-85	7.9	4.6	<.01	41	3.7	--	<.10	.11
04-10-85	8.2	4.6	.03	41	4.0	--	<.10	.09
06-11-85	7.7	4.7	.03	41	4.8	0.05	--	<.01
08-20-85	7.3	4.4	<.01	21	6.4	.10	--	<.01
08-20-85	--	--	--	--	--	--	--	--

Date	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)	Aluminum, dissolved (µg/L as Al)	Copper, dissolved (µg/L as Cu)	Iron, dissolved (µg/L as Fe)	Lead, dissolved (µg/L as Pb)	Manganese, dissolved (µg/L as Mn)
02-19-85	4.5	0.70	21	50	0.6	330	0.1	400
03-20-85	3.6	.60	23	30	2.0	19	2.0	410
04-10-85	3.1	.60	24	30	5.4	120	2.1	420
06-11-85	2.2	.75	25	40	2.0	150	1.0	420
08-20-85	1.9	.76	25	--	6.0	47	3.0	420
08-20-85	--	--	--	[1]40	--	--	--	--

[1] Sample filtered through 0.1 micrometer pore filter.

Table 17.--*Physical characteristics and concentrations of chemical constituents of ground water at station number 422906072130201, Fever Brook sand and gravel well near Petersham, Massachusetts*

[µS/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degrees Celsius; mg/L, milligrams per liter; µg/L, micrograms per liter; <, less than; dashes indicate not analyzed]

Date	Time	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Hardness (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)	Potassium, dissolved (mg/L as K)
12-20-83	11:45	63	5.9	7.5	13	3.6	1.0	3.4	0.94
01-30-84	15:30	57	6.3	7.5	12	3.4	.93	3.2	.85
02-27-84	16:45	--	6.2	7.5	13	3.5	.92	3.3	.85
03-28-84	10:30	54	6.1	7.0	12	3.4	.89	3.1	.82
04-25-84	14:00	60	6.2	7.0	12	3.4	.89	3.0	.79
04-25-84[1]	14:15	--	--	--	12	3.4	.90	3.0	--
06-06-84	11:00	60	6.1	--	12	3.4	.89	3.0	.81
07-16-84	14:30	64	5.9	10.5	12	3.4	.94	3.0	.86
09-12-84	11:00	63	6.2	9.0	12	3.3	.89	3.1	.98
10-24-84	15:30	64	6.1	9.5	12	3.4	.90	3.4	.86
11-20-84	10:45	62	6.1	7.5	12	3.5	.88	3.4	.78
12-20-84	14:00	68	6.1	8.5	12	3.4	.89	3.3	.85
01-29-85	10:00	--	6.1	7.5	12	3.3	.90	3.2	.93
02-19-85	11:00	62	6.2	7.5	13	3.5	.93	3.2	.83
03-20-85	15:30	62	6.1	7.5	12	3.4	.85	3.0	.80
04-10-85	09:00	62	6.1	6.5	12	3.3	.87	2.9	.79
06-11-85	10:00	61	5.4	8.0	13	3.6	.96	3.0	.80
08-20-85	10:15	66	5.9	9.0	13	3.5	.94	3.2	.84

See footnote at end of table.

Date	Nitrogen, ammonia total (mg/L as N)	Nitrogen, ammonia, dissolved (mg/L as N)	Alkalinity field (mg/L as $CaCO_3$)	Sulfate, dissolved (mg/L as SO_4)	Nitrogen, nitrate, dissolved (mg/L as N)	Phosphorus, ortho, dissolved (mg/L as P)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)	Aluminum, dissolved (µg/L as Al)
12-20-83	--	<0.01	17	9.8	0.05	<0.06	2.9	0.09	15	100
01-30-84	--	<.01	17	11	--	--	2.8	.07	15	20
02-27-84	0.013	--	14	11	--	--	2.9	.05	15	300
03-28-84	.046	--	14	11	--	--	2.2	.08	14	10
04-25-84	.018	--	15	10	--	--	2.3	.05	15	<10
04-25-84	--	--	--	--	--	--	--	--	[1]14	[1]<10
06-06-84	.004	--	7	11	--	--	2.3	.04	14	--
07-16-84	<.001	--	7	11	--	--	2.3	.06	15	<10
09-12-84	.060	--	7	11	--	<.06	2.3	.06	15	<10
10-24-84	.016	--	15	11	<.01	<.01	2.3	.06	15	<10
11-20-84	.029	--	7	10	--	<.01	2.6	.05	16	<10
12-20-84	.021	--	7	9.6	<.01	<.01	2.1	.1	15	<10
01-29-85	--	.08	14	10	<.01	<.01	2.2	.03	15	30
02-19-85	--	.03	16	12	<.01	<.01	2.5	--	15	10
03-20-85	--	<.01	15	9.9	<.01	<.01	.92	.05	15	100
04-10-85	--	.02	15	10	<.01	<.01	2.8	.05	15	<10
06-11-85	--	.03	15	11	.02	<.01	2.6	.04	15	<10
08-20-85	--	<.01	13	16	.01	<.01	2.5	.09	15	10

See footnote at end of table.

Table 17.--*Physical characteristics and concentrations of chemical constituents of ground water at station number 422906072130201, Fever Brook sand and gravel well near Petersham, Massachusetts*--Continued

Date	Arsenic, total (µg/L as As)	Copper, dissolved (µg/L as Cu)	Iron, dissolved (µg/L as Fe)	Lead, dissolved (µg/L as Pb)	Manganese, dissolved (µg/L as Mn)	Mercury, dissolved (µg/L as Hg)	Selenium, dissolved (µg/L as Se)	Vanadium, dissolved (µg/L as V)	Carbon, organic total (mg/L as C)	Carbon, organic, dissolved (mg/L as C)
12-20-83	--	0.1	5600	0.1	65	<0.1	<1	<1	--	1.1
01-30-84	--	.4	5500	1.5	62	<.1	<1	<1	--	2.9
02-27-84	--	1.8	5600	.8	63	<.1	<1	<1	1.3	--
03-28-84	--	1.7	5500	2.5	62	<.1	<1	1	.9	--
04-25-84	--	4.4	5500	1.5	64	<.1	<1	<1	--	.8
04-25-84	--	--	[1]5200	--	[1]67	--	--	--	--	--
06-06-84	--	--	5400	--	62	--	--	--	--	.7
07-16-84	--	1.1	5400	1.0	64	<.1	<1	<1	--	1.2
09-12-84	<1	2.0	5100	.7	62	<.1	<1	1	--	.6
10-24-84	--	.2	5300	.4	61	<.1	<1	<1	--	.3
11-20-84	<1	.2	5200	.1	62	--	<1	<1	--	.8
12-20-84	--	.6	5200	1.4	61	--	--	--	--	--
01-29-85	--	1.2	5100	.1	61	--	--	--	--	--
02-19-85	--	.5	5300	.1	61	--	--	--	--	--
03-20-85	--	<.1	5100	2.0	60	--	--	--	--	--
04-10-85	--	.1	5000	.1	59	--	--	--	--	--
06-11-85	--	<.1	5200	<.1	60	--	--	--	--	--
08-20-85	--	3.0	5200	1.0	60	--	--	--	--	--

[1] Sample filtered through 0.1 micrometer pore filter.

Table 18.--*Description of soil-collection sites and samplings*

[See figs. 1 and 2 for sampling locations]

Site designation	Site description	Sample designation[1]	Depth from surface, (in feet)	Sample description
		SWIFT RIVER BASIN		
SS1	Till-covered slopes; samples collected in topographic low, just before break in slope. Hardwood stands, estimated heights 50 to 60 feet; moderate understory (ferns, laurels, spruce).	SS1-1	0.0 to 0.5	Medium to dark brown, silty, micaceous, roots.
		SS1-2	0.5 to 0.85	Medium to light brown, silty.
		SS1-3	0.85 to 1.00	Medium to dark brown, dense, clayey.
		SS1-4	1.00 to 1.25	Brown to black, rootlets, loose.
		SS1-5	1.25 to 2.0	Dark brown, fine sand, some rootlets.
		SS1-6	2.0 to 2.3	Medium brown, silty to sandy, some coarse sand and pebbles.
SS2	West-facing moderate slope; hardwoods and moderate understory.	SS2-1	0.0 to 0.2	Brown to black, organic, rootlets.
		SS2-2	0.02 to 1.4	Medium to dark brown, rootlets, clayey.
		SS2-3	1.4 to 2.1	Medium brownish-red, rootlets, silty and sandy.
		SS2-4	2.1 to 2.85	Medium brown, slight yellow, silty to fine sandy, black specks.
SS3	Fresh face of pit; mix of hardwoods and conifers on unbroken ground. Sampled at top of 50 feet of exposed sequence of sands and gravels.		0.0 to 0.2	Leaf litter, no sample.
		SS3-1	0.2 to 0.5	Dark brown, rootlets, loamy, some pebbles
		SS3-2	0.5 to 0.8	Brown, reddish, pebbly, loose, silty.
SS4	Till-covered, moderate slopes; mix of conifer and hardwood stands.	SS4A-1	0.0 to 0.3	Brown, loamy, rootlets.
		SS4A-2	0.3 to 1.7	Brown, yellowish-red, loamy.
		SS4A-3	1.7 to 1.9	Light brown, silty, pebbles.
		SS4B-1	0.9 to 1.7	Brown, reddish, loamy.
		SS4B-2	1.7 to 1.85	Brown, yellowish, silt and fine sand.
		FEVER BROOK BASIN		
FS1	Moderate to gentle gradients, till slopes; heavy understory, young and mature conifer stands.	FS1-1	0.0 to 0.2	Dark brown, loamy, moist, rootlets.
		FS1-2	0.2 to 2.2	Brown, red-stained; loamy to silty.
		FS1-3	2.2 to 3.1	Brown, yellowish, silty to fine sandy.
FS2	Gentle gradient, some kettle topography; heavy leaf litter, light understory growth.	FS2-1	0.0 to 0.5	Black, organic, rootlets.
		FS2-2	0.5 to 0.8	Reddish, brown, 1 inch dense clayey zone, rootlets.
		FS2-3	0.8 to 2.3	Brown, yellow stains, dense.
FS3	Moderate growth of hardwoods and conifers, moderate fern understory; gentle gradients.	FS3-1	0.0 to 0.4	Black, organic-rich, rootlets.
		FS3-2	0.4 to 1.0	Brown, red-stained, clayey.
		FS3-3	1.0 to 2.2	Brown, red and yellow stained, pebbly; some fresh surfaces grey.
FS4	Near swampy areas; conifer stands, light to moderate understory growth; gentle-to-flat gradients.	FS4-1	0.0 to 0.6	Black, organic, loose, rootlets.
		FS4-2	0.6 to 1.6	Brown, reddish-stained, loose, loamy.

[1] A and B designations for two separately driven holes.

Table 19.--*Results of chemical analysis of leachate extractions of soil samples collected in the Swift River and Fever Brook watersheds*

[meq/100 gm, milliequivalent per 100 grams; dashes indicate not analyzed]

Sample[1]	Sodium[2]	Potassium[2]	Calcium[2]	Magnesium[2]	Percent sodium	Percent potassium	Percent calcium	Percent magnesium	Total base cations	Aluminum acidity[3]	H+ acidity[3]	Total acidity	Total cation exchange capacity[4]	Percent base saturation	pH[5]
	(meq/100 gm)				Percent total exchangeable cations				(meq/100 gm)						
SS1-1	0.08	0.25	0.66	0.19	6.8	21.2	55.9	16.1	1.18	1.10	0.90	2.0	3.18	37.1	--
SS1-2	.04	.04	.15	.05	14.3	14.3	53.6	17.9	.28	.43	.07	.5	.78	35.9	4.65
SS1-3	.06	.23	.60	.14	5.8	22.3	58.3	13.6	1.03	1.04	2.01	3.05	4.08	25.2	4.42
SS1-4	.09	.24	.73	.26	6.8	18.2	55.3	19.7	1.32	3.35	1.50	4.85	6.17	21.4	4.42
SS1-5	.06	.13	.20	.07	13.0	28.3	43.5	15.2	.46	.92	.18	1.1	1.56	29.5	4.60
SS1-6	.04	.03	.12	.03	18.2	13.6	54.5	13.6	.22	.00	.50	.5	.72	30.6	--
SS2-1	.07	.37	.45	.35	5.6	29.8	36.3	28.2	1.24	4.21	2.79	7.0	8.24	15.0	3.94
SS2-2	.05	.20	.17	.09	9.8	39.2	33.3	17.6	.51	2.26	.74	3.0	3.51	14.5	4.44
SS2-3	.06	.23	.12	.05	13.0	50.0	26.1	10.9	.46	.49	.31	.8	1.26	36.5	4.62
SS2-4	.05	.05	.12	.03	20.0	20.0	48.0	12.9	.25	.37	.13	.5	.75	33.3	4.81
SS3-1	.07	.13	.21	.12	13.2	24.5	39.6	22.6	.53	2.14	.66	2.8	3.33	15.9	4.46
SS3-2	.04	.06	.12	.05	14.8	22.2	44.4	18.5	.27	.49	.21	.7	.97	27.8	4.65
SS4A-1	.16	.90	.67	.79	6.3	35.7	26.6	31.3	2.52	1.65	.90	2.55	5.07	49.7	4.62
SS4A-2	.05	.14	.30	.06	9.1	25.5	54.5	10.9	.55	.79	.51	1.3	1.85	29.7	4.70
SS4A-3	.07	.06	.31	.06	14.0	12.0	62.0	12.0	.50	.31	.29	.6	1.10	45.5	--
SS4B-1	.10	.08	1.69	.48	4.3	3.4	71.9	20.4	2.35	.00	.10	.1	2.45	95.9	--
SS4B-2	.08	.53	1.70	.67	2.7	17.8	57.0	22.5	2.98	.06	.09	.15	3.13	95.2	5.45
FS1-1	.08	.17	.15	.14	14.8	31.5	27.8	25.9	.54	2.50	1.10	3.6	4.14	13.0	4.20
FS1-2	.04	.07	.13	.04	14.3	25.0	46.4	14.3	.28	.43	.22	.65	.93	30.2	4.57
FS1-3	.05	.07	.11	.03	19.2	26.9	42.3	11.5	.26	.18	.02	.2	.46	56.5	--
FS2-1	.13	.36	.31	.63	9.1	25.2	21.7	44.1	1.43	6.34	3.96	10.3	11.73	12.2	3.82
FS2-2	.05	.19	.13	.13	10.0	38.0	26.0	26.0	.50	7.56	1.84	9.4	10.40	9.6	3.78
FS2-3	.05	.08	.13	.06	15.6	25.0	40.6	18.8	.32	1.77	.33	2.1	2.42	13.2	4.45
FS3-1	.19	.26	.19	.21	22.4	30.6	22.4	24.7	.85	3.96	1.24	5.2	6.05	14.0	4.11
FS3-2	.23	.15	.12	.05	41.8	27.3	21.8	9.1	.55	1.04	.36	1.4	1.95	28.2	--
FS3-3	.06	.06	.13	.05	20.0	20.0	43.3	16.7	.30	.98	.22	1.2	1.50	20.0	4.55
FS4-1	.05	.17	.86	.17	4.0	13.6	68.8	13.6	1.25	5.98	4.32	10.3	11.55	10.8	3.70
FS4-2	.07	.13	.16	.07	16.3	30.2	37.2	16.3	.43	1.16	.34	1.5	1.93	22.3	4.52

[1] Refer to table 18 for sample sites and descriptions.
[2] Ammonium acetate extraction (Thomas, 1982).
[3] Potassium chloride method (Thomas, 1982).
[4] Sum of total base cations and total acidity.
[5] 1:1, by weight, paste of soil sample and distilled water.

Table 20.--*Results of mineralogic analysis of clay-size (less than 2 micrometers) fraction of soil samples*

[M, major mineral component; m, minor mineral component; t, trace mineral component; ?, possible, difficult to ascertain from X-ray diffraction pattern. Interlayer (additional clay material between main structural layers): Lower case letter, minor component of total clay mineralogy, upper case letter, major component of total clay mineralogy; V, v = vermiculite; C, c = chlorite; I, i = illite]

Sample[1]	Vermic-ulite	Illite	Chlo-rite	Gibb-site	Kaolin-ite	Interlayer	Remarks
SS1-1	M	m	--	m	m	v-i	
SS1-2	M	m	--	m	m	v-i	
SS1-5	M	m	m	m	m	v-i; v-c	
SS1-6	M	m	m	--	?	V-I; v-c	
SS2-2	M	m	--	t	m	v-i; v-c?	
SS2-3	M	m	t?	M	--	v-i; v-c; c-i?	
SS2-4	M	m	--	M	m	V-I	
SS3-2	M	m	--	M	--	c-i?	Very low intensities of all peaks
SS4-1	M	m	--	--	m	c-i; v-i?	
SS4-2	M	m	m	m	m	v-c	
SS4-1B	M	m	M	m	t?	V-C	
SS4-2B	M	M	M	--	m?	V-C	
FS1-2	M	m	M	m	m	V-C; v-i	
FS1-3	M	M	M	--	m	v-i	
FS2-3	M	m	M	--	--	V-C; c-i	
FS3-2	M	m	--	--	m	v-c; v-i	
FS3-3	M	M	m	--	m	V-I; v-c	
FS4-2		m	m	--	m	V-C; v-i or c-i	Low intensities of all peaks except 14 Angstrom

[1] Refer to table 18 for sample sites and descriptions.

Table 21.--*Physical characteristics and concentrations of chemical constituents of soil waters from the West Branch Swift River and East Branch Fever Brook basins*

[µS/cm, microsiemens per centimeter; °C, degrees Celsius; mg/L, milligrams per liter; µg/L, micrograms per liter; <, less than; dashes indicate not analyzed]

Date	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Hardness (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)	Potassium, dissolved (mg/L as K)	Nitrogen, ammonia total (mg/L as N)
			Swift River basin soil-water sampler at station number 422800072232801						
10-15-84	76	6.1	--	--	--	--	--	--	--
10-24-84	47	5.6	--	9	3.0	0.30	1.7	5.2	0.171
03-11-85	--	--	--	4	1.0	.31	.9	2.6	--
07-31-85	--	5.5	20.0	--	7.0	--	1.1	--	--
08-15-85	77	5.8	19.0	15	4.4	.93	1.5	7.4	--
08-22-85	126	5.2	--	--	--	--	--	--	--
			Swift River basin deep lysimeter at station number 422800072233101						
05-30-85	--	5.4	--	--	<2.4	--	1.6	.47	--
08-02-85	35	5.3	19.0	--	2.7	--	2.0	--	--
08-20-85	39	5.2	21.0	--	--	--	--	--	--
			Fox Den, Fever Brook basin at station number 422848072131701						
04-07-84	41	5.3	--	7	2.4	.36	.65	17	--
03-05-85	46	5.4	--	--	--	--	--	--	--
03-26-85	--	7.0	--	11	3.3	.57	.5	2.8	--
			Fever Brook basin soil-water sampler at station number 422901072121201						
03-01-84	27	4.8	--	2	.41	.24	1.2	.10	.005
03-21-84	--	--	--	--	--	--	--	--	--
04-07-84	27	5.0	--	2	.42	.22	1.3	.09	.016
04-18-84	27	5.5	--	2	.48	.22	1.3	.33	--
04-19-84	--	--	--	--	--	--	--	--	--
			Fever Brook basin deep lysimeter at station number 422909072120901						
05-29-85	46	5.0	--	7	1.7	.68	3.6	.40	--
06-28-85	50	4.8	13.0	8	2.1	.76	4.2	.48	--
08-02-85	53	4.8	16.0	8	1.9	.77	3.8	--	--
08-08-85	51	5.0	16.5	--	--	--	--	--	--
08-20-85	57	4.9	16.5	--	--	--	--	--	--
			Fever Brook basin medium lysimeter at station number 422909072121001						
05-30-85	51	4.9	--	7	1.7	.66	3.6	.47	--
08-02-85	53	4.6	17.0	8	2.0	.80	4.4	.54	--

Table 21.--*Physical characteristics and concentrations of chemical constituents of soil waters from the West Branch Swift River and East Branch Fever Brook basins*--Continued

Date	Nitrogen, ammonia, dissolved (mg/L as N)	Alkalinity field (mg/L as $CaCO_3$)	Sulfate, dissolved (mg/L as SO_4)	Nitrogen, nitrate, dissolved (mg/L as N)	Phosphorus, ortho, dissolved (mg/L as P)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)
Swift River basin soil-water sampler at station number 422800072232801							
10-15-84	--	6	--	--	--	--	--
10-24-84	--	2	9.3	--	--	3.1	--
03-11-85	0.49	--	1.7	<0.01	<0.01	.2	<0.01
07-31-85	.62	--	10	2.60	<.01	--	.10
08-15-85	.57	--	16	2.50	<.01	2.1	.10
08-22-85	--	--	--	--	--	--	--
Swift River basin deep lysimeter at station number 422800072233101							
05-30-85	--	--	--	--	--	--	
08-02-85	0.05	--	9.4	0.03	<0.01	--	0.13
08-20-85	--	--	--	--	--	--	--
Fox Den, Fever Brook basin at station number 422848072131701							
04-07-84	0.19	--	12	0.38	<0.06	2.6	<0.01
03-05-85	--	--	--	--	--	--	--
03-26-85	4.20	--	7.9	1.70	.18	.74	.04
Fever Brook basin soil-water sampler at station number 422901072121201							
03-01-84	--	--	7.7	--	--	2.1	0.06
03-21-84	--	--	--	--	--	--	--
04-07-84	--	--	7.6	--	--	1.6	.04
04-18-84	--	--	7.8	--	--	1.5	.05
04-19-84	--	--	--	--	--	--	--
Fever Brook basin deep lysimeter at station number 422909072120901							
05-29-85	0.07	--	8.1	<0.01	<0.01	7.8	0.28
06-28-85	<.01	--	6.4	.01	<.01	10	.09
08-02-85	.02	--	5.8	.02	<.01	7.0	.04
08-08-85	--	--	--	--	--	--	--
08-20-85	--	--	--	--	--	--	--
Fever Brook basin medium lysimeter at station number 422909072121001							
05-30-85	0.03	--	7.8	<0.01	<0.01	8.1	0.13
08-02-85	.04	--	5.7	.02	<.01	9.4	.10

Table 21.--*Physical characteristics and concentrations of chemical constituents of soil waters from the West Branch Swift River and East Branch Fever Brook basins*--Continued

Date	Silica, dissolved (mg/L as SiO_2)	Aluminum, dissolved (µg/L as Al)	Arsenic, total (µg/L as As)	Copper, dissolved (µg/L as Cu)	Iron, dissolved (µg/L as Fe)	Lead, dissolved (µg/L as Pb)
	Swift River basin soil-water sampler at station number 422800072232801					
10-15-84	--	--	--	--	--	--
10-24-84	9.2	400	<1	7	130	2
03-11-85	6.6	30	--	1	57	1
07-31-85	--	--	--	--	--	8
08-15-85	1.8	180	--	10	83	5
08-22-85	--	--	--	--	--	--
	Swift River basin deep lysimeter at station number 422800072233101					
05-30-85	--	--	--	--	--	--
08-02-85	--	--	--	--	--	3
08-20-85	--	--	--	--	--	--
	Fox Den, Fever Brook basin at station number 422848072131701					
04-07-84	--	400	--	--	24	--
03-05-85	--	--	--	--	--	--
03-26-85	1.1	300	--	1	34	1
	Fever Brook basin soil-water sampler at station number 422901072121201					
03-01-84	4.4	100	--	2	16	1
03-21-84	--	870	--	--	8	--
04-07-84	8.2	1000	--	2	34	<0.1
04-18-84	6.0	--	--	--	5	--
04-19-84	--	180	--	--	6	--
	Fever Brook basin deep lysimeter at station number 422909072120901					
05-29-85	11	430	--	23	22	50
06-28-85	12	--	--	10	39	13
08-02-85	--	--	--	--	16	3
08-08-85	--	--	--	--	--	--
08-20-85	--	--	--	--	--	--
	Fever Brook basin medium lysimeter at station number 422909072121001					
05-30-85	11	600	--	8	14	25
08-02-85	--	--	--	--	8	5

Table 21.--*Physical characteristics and concentrations of chemical constituents of soil waters from the West Branch Swift River and East Branch Fever Brook basins*--Continued

Date	Manganese, dissolved (µg/L as Mn)	Mercury, dissolved (µg/L as Hg)	Selenium, dissolved (µg/L as Se)	Vanadium, dissolved (µg/L as V)	Carbon, organic total (mg/L as C)	Carbon, organic, dissolved (mg/L as C)
	Swift River basin soil-water sampler at station number 422800072232801					
10-15-84	--	--	--	--	--	--
10-24-84	54	--	<1	2	--	19
03-11-85	49	--	--	--	--	--
07-31-85	--	--	--	--	--	16
08-15-85	130	--	--	--	--	--
08-22-85	--	--	--	--	--	--
	Swift River basin deep lysimeter at station number 422800072233101					
05-30-85	--	--	--	--	--	--
08-02-85	--	--	--	--	--	--
08-20-85	--	--	--	--	--	--
	Fox Den, Fever Brook basin at station number 422848072131701					
04-07-84	20	--	--	--	--	--
03-05-85	--	--	--	--	--	--
03-26-85	39	--	--	--	--	--
	Fever Brook basin soil-water sampler at station number 422901072121201					
03-01-84	72	<0.1	<1	<1	2.3	--
03-21-84	36	--	--	--	--	--
04-07-84	9	<.1	<1	<1	1.5	--
04-18-84	48	--	--	--	--	--
04-19-84	46	--	--	--	--	--
	Fever Brook basin deep lysimeter at station number 422909072120901					
05-29-85	150	--	--	--	--	--
06-28-85	180	--	--	--	--	--
08-02-85	180	--	--	--	--	2.2
08-08-85	--	--	--	--	--	--
08-20-85	--	--	--	--	--	--
	Fever Brook basin medium lysimeter at station number 422909072121001					
05-30-85	64	--	--	--	--	--
08-02-85	110	--	--	--	--	--

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