UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

MASSACHUSETTS HYDROLOGIC-DATA REPORT NO. 23

HYDROLOGIC DATA OF THE
LAKE COCHITUATE DRAINAGE BASIN
FRAMINGHAM - NATICK, MASSACHUSETTS

PREPARED IN COOPERATION WITH THE
MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
DIVISION OF WATER POLLUTION CONTROL

1981 /

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HYDROLOGIC DATA OF THE LAKE COCHITUATE DRAINAGE BASIN,
FRAMINGHAM-NATICK, MASSACHUSETTS,

By Frederick B. Gay

Massachusetts Hydrologic-Data Report No. 23

Records of surface-water discharge, chemical analyses of
surface water and ground water, and selected wells and borings

Prepared in cooperation with the
MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
DIVISION OF WATER POLLUTION CONTROL

Boston, Massachusetts

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CONVERSION FACTORS

The following table may be used to convert inch-pound units to International System of Units (SI).

Multiply inch-pound units	By	To obtain SI Units
<u>Length</u>		
inch (in)	25.4	millimeter (mm)
	2.54	centimeter (cm)
	0.0254	meter (m)
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
<u>Area</u>		
square mile (mi ²)	2.590	square kilometer (km ²)
<u>Flow</u>		
cubic foot per second (ft ³ /s)	28.32	liter per second (L/s)
	28.32	cubic decimeter per second (dm ³ /s)
	0.02832	cubic meter per second (m ³ /s)
cubic foot per second per square mile $\frac{\text{ft}^3/\text{s}}{\text{mi}^2}$	10.93	liter per second per square kilometer $\frac{\text{L/s}}{\text{km}^2}$
	10.93	cubic decimeter per second per square kilometer $\frac{\text{dm}^3/\text{s}}{\text{km}^2}$
	0.01093	cubic meter per second per square kilometer $\frac{\text{m}^3/\text{s}}{\text{km}^2}$
gallon per second (gal/s)	3.785	liter per second (L/s)
	3.785	cubic decimeter per second (dm ³ /s)
	0.003785	cubic meter per second (m ³ /s)
gallon per minute (gal/min)	0.06309	liter per second (L/s)
	0.06309	cubic decimeter per second (dm ³ /s)
	6.309 x 10 ⁻⁵	cubic meter per second (m ³ /s)
<u>Volume</u>		
gallon (gal)	3.785	liter (L)
	3.785	cubic decimeter (dm ³)
	0.003785	cubic meter (m ³)
cubic foot (ft ³)	28.32	cubic decimeter (dm ³)
	0.02832	cubic meter (m ³)
cubic foot per second per day $\frac{\text{ft}^3/\text{s}}{\text{d}}$	2447	cubic meter (m ³)
	0.002447	cubic hectometer (hm ³)

HYDROLOGIC DATA OF THE LAKE COCHITUATE DRAINAGE BASIN, FRAMINGHAM-NATICK, MASSACHUSETTS

By Frederick B. Gay

INTRODUCTION

Lake Cochituate is about 16 miles due west of Boston, Massachusetts, in the southeastern part of Middlesex County. The drainage basin is 17.7 mi² at the outlet of Lake Cochituate in Framingham. Principal tributaries to the lake are Beaverdam, Course, Pegan, and Snake Brooks. Beaverdam and Course Brooks flow into Fisk Pond, which empties into Lake Cochituate, whereas Pegan and Snake Brooks flow directly into Lake Cochituate. Surface drainage from the outlet of Lake Cochituate flows along Cochituate Brook into the Sudbury River at Framingham. The Cochituate Basin is in the center of the Sudbury River basin, which flows northeastward into the Concord River, a tributary of the Merrimack River.

This report presents, in tabular form, hydrologic data on the drainage area above the outlet of Lake Cochituate, which include parts of Ashland, Framingham, Natick, Sherborn, and Wayland. These data were collected from July 1977 to July 1979 by the U.S. Geological Survey during a study to describe the inflow and outflow of nutrients in Lake Cochituate in cooperation with the Water Pollution Control Division of the Massachusetts Department of Environmental Quality Engineering. This report is released to make available to the public and to Federal and State agencies hydrologic information that may facilitate the planning of a restoration program for Lake Cochituate.

Information in this report includes daily mean discharges and nutrient concentrations for Beaverdam, Course, Pegan, and Snake Brooks, and the outlet of Lake Cochituate. It includes instantaneous discharges and nutrient concentrations at 17 storm sewers discharging directly into Lake Cochituate during three rainstorms as well as nutrient concentrations of the wet-atmospheric deposition. It also includes monthly water-level measurements and nutrient concentrations of water from 29 observation wells screened in the unconsolidated materials around Lake Cochituate, selected information on 87 wells and borings, and particle-size distribution of 30 lithologic samples. Many chemical analyses of other constituents associated with the nutrients are also presented in this release. (See plate I for locations of all hydrologic-data collection sites.)

The well and boring data were selected from all the available information to present the *most relevant subsurface data and to minimize redundancy for intensely drilled areas*. All the data are on file and available for inspection at the Boston office of the U.S. Geological Survey.

The authors wish to acknowledge the State and local government officials, well drillers, engineering-consulting firms, industrial concerns, and individual homeowners who have given their time and information to this study.

DEFINITION OF TERMS

Definition of terms related to streamflow, water quality, ground water, and other hydrologic data, as used in this report, are defined as follows:

Bed material is the unconsolidated material of which the bottom of a stream, lake, pond, or reservoir is composed.

Bottom material: See Bed material.

Total in bottom material is the total amount of a given constituent in a representative sample of bottom material. This term is used only when analytical procedure assures measurement of at least 95 percent of the constituent determined. Knowledge of the expected form of the constituent in the sample, as well as analytical methodology used, is required to judge when results should be reported as "total in bottom material."

Cfs-day is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, about 646,000 gallons, or 2,447 cubic meters.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Cubic foot per second (ft^3/s ; cfs in the water-quality tables) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.8 gallons per minute or 0.2832 cubic meters per second.

Cubic foot per second per square mile ($\text{ft}^3/\text{s}/\text{mi}^2$; CFSM in table 17) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment) that passes a given point within a given period of time.

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

Instantaneous discharge or streamflow is the discharge at a particular instant of time.

Dissolved refers to that material in a representative water sample which passes through a 0.45-micrometer membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of filtrate.

Drainage area of a stream at a specific location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the general term "stage," although gage height is more appropriate when used with a reading on a gage.

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

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate (CaCO_3).

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

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

Micrograms per kilogram (UG/KG) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the constituent per unit mass (kilogram) of sediment.

Micrograms per liter (UG/L) is a unit expressing the concentration of chemical constituents in a sample as the mass (micrograms) of constituent per unit volume (liter) of sample. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L) is a unit for expressing the concentration of chemical constituents in a sample. Milligrams per liter represents the mass of constituent per unit volume of sample.

National Geodetic Vertical Datum of 1929 (NGVD) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

Particle size is the diameter, in millimeters (mm), of sediment determined by sieve method.

Pesticides are chemical compounds used to control undesirable plants and animals. The major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

pH is a symbol denoting the negative logarithm (base 10) of the hydrogen ion concentration of a solution; pH values range from 0 to 14--the lower the value, the more acid is the solution; i.e., the more hydrogen ions it contains.

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

Refusal is a drilling term indicating the depth of a drill hole at which further penetration is impossible or impractical with the equipment being used.

Runoff in inches (IN) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current and is expressed in micromhos per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for estimating the dissolved-solids content of the water. Commonly, concentration of dissolved solids (in milligrams per liter) is about 65 percent of specific conductance (in micromhos per cm at 25°C). This relation is not constant from stream to stream or from well to well, and it may even vary in the same source with changes in composition of the water.

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

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

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of the total concentration in a water-sediment mixture. The water-sediment mixture is associated with (or sorbed on) that material retained on a 0.45 micrometer filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45-micrometer membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete

dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made by analyzing portions of material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45-micrometer membrane filter. The term is used only when analytical procedure assures measurement of at least 95 percent of the constituent determined. Knowledge of the expected form of the constituent in the sample, as well as analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, recoverable" constituents are made by analyzing portions of material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Till is a geologic term for a glacial deposit of predominantly unsorted, unstratified material ranging in size from boulders to clay, commonly so compact that it is difficult to penetrate with light drilling equipment.

Tons per day is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour day.

Total (as used in tables of chemical analysis):

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

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

Water year is the 12-month period that begins with October 1 and ends with September 30.

DOWNSTREAM ORDER AND STATION NUMBER

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them.

As an added means of identification, each hydrologic station has been assigned a station number. These are in the same downstream order used in this report. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight-digit number for each station, such as 01098320, which appears just to the left of the station name and beside the gaging-station symbol on the map (plate 1) includes the two-digit part number "01" plus the six-digit downstream-order number "098320."

NUMBERING SYSTEM FOR WELLS, BORINGS, AND MISCELLANEOUS SITES

The well, boring, and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first six digits denote degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify wells or other sites within a 1-second grid (fig. 1).

Figure 1.--System for numbering wells, borings, and miscellaneous sites

This 15-digit identification number assigned to a site is used primarily as an internal control number within the computer files. Although the site-identification number is usually, but not always, formed from the latitude and longitude of a point believed to represent the location of the site, the number is only an identifier and has no locational significance.

A local well-numbering system is also used in this report. The local number consists of a 2-letter code for the town in which the well or boring is located followed by a "W" for well, "A" for auger boring, "B" for bridge boring, "R" for roadway boring, or "X" for miscellaneous boring, and a number.

A separate series of numbers beginning with "1" is used within each town. In tables 8-15, the complete local number is used; however, on the map (plate 1), only a number is shown beside the symbol for a municipal or observation well and an "A", "B", "R", or "X," and a number is shown beside the symbol for a boring. To facilitate the comparison of nearby well data, wells in tables 8-15 were listed counter-clockwise around Lake Cochituate, starting at the intersection of Speen Street and Superior Drive in Natick (plate 1).

EXPLANATION OF WATER-DISCHARGE RECORDS

Collection and Computation of Data

The base data collected at gaging stations consists of records of stage and measurements of discharge of streams and stage. In addition, observations of factors affecting the stage-discharge relation, weather records, and other information are used to supplement base data in determining the daily flow. Records of stage are obtained from a water-stage recorder that gives a tape punched at 15-minute intervals of the fluctuations. Measurements of discharge are made with a current meter, using the general methods adopted by the U.S. Geological Survey. These methods are described in standard textbooks and in Carter and Davidian (1968).

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs) and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables; then the monthly and yearly mean discharges are computed from the daily figures. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors, based on individual discharge measurements and notes by hydrologists and observers, are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relation is affected by ice during the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of the gage-height record and occasional winter discharge measurements. Consideration is given to the available information on temperature and precipitation, notes by hydrologists, and comparable records of discharge for other stations in the same or nearby basins.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge. This happens when the recorder stops or otherwise fails to operate properly, or for various other reasons. For such periods, the daily discharges are estimated on the basis of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records for other stations in the same or nearby basins.

The data in this report generally comprise a description of the gaging station and tabulations of daily discharge and monthly and yearly discharge. Records are published for the water year, which begins on October 1 and ends on September 30.

The description of the gaging station gives the location, drainage area, period of record, type of gage, general remarks, and extremes of discharge. The location of the gaging station and the drainage area are obtained from the most accurate maps available.

Information pertaining to the accuracy of the discharge records and to conditions that affect the natural flow at the gaging station is given under "REMARKS." Periods are indicated for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-discharge relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. Methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

Under "EXTREMES" are given extremes for the period of record. Unless otherwise qualified, maximum discharge is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder read at the time of the crest. Similarly, minimum is the instantaneous minimum unless otherwise qualified.

The daily table for stream-gaging stations gives mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also is usually expressed in cubic feet per second per square mile (line headed "CFSM"), and in inches (line headed "IN"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, such as the outlet of Lake Cochituate. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Accuracy of Field Data and Computed Results

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

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent of true value; "good," within 10 percent; and "fair," within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 ft³/s; to tenths between 1.0 and 10 ft³/s; to whole numbers between 10 and 1,000 ft³/s. The number of significant figures used is based solely on the magnitude of the figure.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control.

Other Data Available

Information of a more detailed nature than that published for most gaging stations, such as observations of water temperatures, discharge measurements, gage-height records, and rating tables, is on file in the Boston office. Also, most gaging-station records are available in computer-usable form.

EXPLANATION OF WATER-QUALITY RECORDS

Water Analysis

Most methods for collecting and analyzing water samples are described in Rainwater and Thatcher (1960), Barnett and Mallory (1971), Goerlitz and Brown (1972), Stevens and others (1975), Wood (1976), and Skougstad and others (1979).

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogenous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis.

Water Temperature

Water temperatures are measured at most water-quality stations. In addition, water temperatures are taken at time of most discharge measurements for surface-water stations. Large streams have a small diel temperature change while small, shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature.

To convert temperature data shown in degrees Celsius (centigrade, °C) to degrees Fahrenheit (°F), see following table:

Temperature conversion table,
degrees Celsius (°C) to degrees Fahrenheit (°F)
 $^{\circ}\text{F} = 9/5 (^{\circ}\text{C}) + 32$ or $^{\circ}\text{C} = 5/9 (^{\circ}\text{F} - 32)$

°C	°F	°C	°F	°C	°F	°C	°F
0.0	32	10.0	50	20.0	68	30.0	86
.5	33	10.5	51	20.5	69	30.5	87
1.0	34	11.0	52	21.0	70	31.0	88
1.5	35	11.5	53	21.5	71	31.5	89
2.0	36	12.0	54	22.0	72	32.0	90
3.0	37	13.0	55	23.0	73	33.0	91
3.5	38	13.5	56	23.5	74	33.5	92
4.0	39	14.0	57	24.0	75	34.0	93
4.5	40	14.5	58	24.5	76	34.5	94
5.0	41	15.0	59	25.0	77	35.0	95
5.5	42	15.5	60	25.5	78	35.5	96
6.0	43	16.0	61	26.0	79	36.0	97
6.5	44	16.5	62	26.5	80	36.5	98
7.0	45	17.0	63	27.0	81	37.0	99
8.0	46	18.0	64	28.0	82	38.0	100
8.5	47	18.5	65	28.5	83	38.5	101
9.0	48	19.0	66	29.0	84	39.0	102
9.5	49	19.5	67	29.5	85	39.5	103

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Table 1.--Daily mean discharge at the stream-gaging stations

01098320 BEAVERDAM BROOK AT NATICK, MA

LOCATION.--Lat 42°17'10", long 71°22'56", Middlesex County, on left bank about 5 ft above a concrete box culvert on Mill Street at Natick.

DRAINAGE AREA.--7.25 mi².

PERIOD OF RECORD.--Discharge: October 25, 1977 to June 5 1979.
Water-quality records: July 29, 1977 to May 3, 1979.

GAGE.--Water-stage recorder.

REMARKS.--Records good. Many water samples for chemical analysis were collected and many observations of dissolved oxygen, pH, specific conductance, and water temperature were made during the period of record.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 215 ft³/s on January 25, 1979; minimum daily discharge, 1.0 ft³/s on July 30, and 31, and September 29 and 30, 1978.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	8.8	80	14	28	7.6	43	12	7.8	2.7	1.8	2.2
2	---	8.4	46	13	21	7.3	41	12	7.0	2.5	3.3	1.8
3	---	8.2	24	13	17	6.9	32	11	6.9	2.3	1.4	1.6
4	---	8.0	19	12	14	7.1	28	11	10	16	6.7	1.5
5	---	9.0	16	11	13	7.4	27	16	7.6	5.1	2.1	1.4
6	---	10	23	11	12	7.0	24	16	6.9	3.0	14	1.4
7	---	8.4	20	11	12	6.8	22	13	6.4	3.0	33	1.4
8	---	44	17	13	12	6.7	19	12	13	2.9	39	1.1
9	---	119	19	135	12	7.1	17	16	8.9	2.5	12	1.3
10	---	55	16	167	11	6.6	17	13	7.1	2.4	6.8	1.1
11	---	31	14	75	11	7.9	18	10	6.1	2.4	5.0	12
12	---	20	9.8	28	11	11	21	9.3	5.6	2.2	4.5	2.5
13	---	17	8.7	21	11	14	18	8.5	5.6	1.9	4.7	1.6
14	---	14	11	21	11	23	16	7.9	5.4	1.9	4.1	1.4
15	---	13	43	20	10	36	14	35	4.4	8.2	3.7	1.4
16	---	13	25	18	10	27	13	33	4.2	3.6	3.3	2.0
17	---	19	19	16	10	25	13	30	4.1	7.6	3.3	2.0
18	---	23	15	26	10	19	13	19	3.8	3.7	2.9	1.2
19	---	15	16	23	9.6	20	19	15	3.6	2.5	2.6	6.9
20	---	13	15	20	9.2	24	44	13	3.4	2.1	2.5	1.6
21	---	12	63	18	9.2	41	27	12	3.4	1.7	2.3	1.4
22	---	13	142	16	8.8	66	19	10	3.6	1.8	2.1	1.9
23	---	11	86	15	8.5	67	16	8.8	3.5	1.6	1.9	1.6
24	---	12	47	14	8.6	65	14	8.4	3.5	1.5	2.1	1.3
25	15	11	51	17	8.8	54	13	32	3.4	1.4	3.6	1.1
26	16	21	52	150	8.5	44	13	22	3.1	1.2	2.3	1.1
27	15	14	30	190	8.5	74	12	15	3.1	1.4	2.0	1.1
28	13	12	21	130	8.1	84	12	13	3.0	2.0	2.3	1.2
29	11	11	17	82	---	73	12	11	2.8	1.2	2.3	1.0
30	10	10	14	54	---	59	12	9.3	2.8	1.0	1.7	1.0
31	9.6	---	14	37	---	48	---	8.4	---	1.0	2.1	---
TOTAL	---	583.8	993.5	1391	323.8	952.4	609	462.6	160.0	94.3	181.4	60.1
MEAN	---	19.5	32.0	44.9	11.6	30.7	20.3	14.9	5.33	3.04	5.85	2.00
MAX	---	119	142	190	28	84	44	35	13	16	39	12
MIN	---	8.0	8.7	11	8.1	6.6	12	7.9	2.8	1.0	1.4	1.0
CFSM	---	2.69	4.41	6.19	1.60	4.23	2.80	2.06	.74	.42	.81	.28
IN.	---	3.00	5.10	7.14	1.66	4.89	3.12	2.37	.82	.48	.93	.31

Table 1.--Daily mean discharge at the stream-gaging stations--Continued

01098320 BEAVERDAM BROOK AT NATICK, MA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	2.1	7.3	11	35	24	14	18	15			
2	1.9	1.8	5.7	30	25	31	19	15	13			
3	1.1	1.9	4.8	48	20	31	29	14	12			
4	2.5	2.0	13	19	17	30	22	20	11			
5	4.9	2.2	11	12	15	36	27	14	10			
6	17	2.2	8.6	9.6	14	47	20	12	---			
7	2.6	2.2	7.4	13	11	59	16	11	---			
8	1.7	2.0	7.8	77	11	39	14	10	---			
9	1.5	2.1	30	48	10	29	29	9.6	---			
10	1.5	2.0	22	21	9.7	30	32	8.8	---			
11	1.6	1.8	13	14	9.3	46	22	6.0	---			
12	1.5	1.8	10	11	8.6	30	18	7.3	---			
13	1.6	1.8	9.0	18	8.2	23	16	12	---			
14	14	2.3	8.1	68	7.6	24	18	14	---			
15	3.7	2.0	7.3	30	7.2	22	19	15	---			
16	2.4	1.9	7.0	17	6.9	17	18	11	---			
17	2.2	2.4	7.8	13	6.3	16	18	8.8	---			
18	2.0	9.1	7.0	12	6.0	15	17	7.8	---			
19	3.1	3.0	4.7	11	5.5	15	16	7.7	---			
20	4.9	2.7	5.1	9.3	5.2	15	15	20	---			
21	2.1	3.2	18	86	5.7	15	15	12	---			
22	1.8	3.0	8.1	127	6.6	15	15	10	---			
23	2.1	3.0	7.1	67	6.8	14	14	16	---			
24	2.9	7.1	6.2	42	38	14	14	39	---			
25	2.9	4.7	29	184	46	29	13	62	---			
26	3.1	3.7	14	210	23	21	13	47	---			
27	7.5	3.3	10	181	19	16	51	28	---			
28	2.3	4.9	8.2	119	23	14	44	24	---			
29	2.0	4.8	7.1	82	---	13	29	20	---			
30	2.1	17	6.1	60	---	17	22	19	---			
31	2.1	---	5.7	46	---	15	---	19	---			
TOTAL	106.3	104.0	316.1	1695.9	406.6	762	629	540.0	---			
MEAN	3.43	3.47	10.2	54.7	14.5	24.6	21.0	17.4	---			
MAX	17	17	30	210	46	59	51	62	---			
MIN	1.1	1.8	4.7	9.3	5.2	13	13	7.3	---			
CFSM	.47	.48	1.41	7.55	2.00	3.39	2.90	2.40	---			
IN.	.55	.53	1.62	8.70	2.09	3.91	3.23	2.77	---			
CAL YR 1978	TOTAL	4761.0	MEAN	13.0	MAX	190	MIN	1.0	CFSM	1.79	IN	24.43

Table 1.--Daily mean discharge at the stream-gaging stations--Continued

01098340 COURSE BROOK AT NATICK, MA

LOCATION.--Lat 42°16'42", long 71°22'31", Middlesex County, on right bank about 14 ft above a stone-arch culvert on Pond Street at Natick.

DRAINAGE AREA.--3.42 mi².

PERIOD OF RECORD.--Discharge: October 1, 1977 to June 5, 1979.

Water-quality records: July 29, 1977 to May 3, 1979.

GAGE.--Water-stage recorder.

REMARKS.--Records fair. Many water samples for chemical analysis were collected and many observations of dissolved oxygen, pH, specific conductance, and water temperature were made during the period of record.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 188 ft³/s on January 26, 1979; minimum daily discharge, 1.6 ft³/s on July 28, 1978.DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	5.3	23	6.5	12	4.0	19	4.8	4.7	2.0	1.8	2.8
2	14	5.3	21	6.1	9.4	3.9	19	4.7	4.4	1.9	2.4	2.7
3	11	5.3	12	5.8	7.6	3.7	14	4.5	4.3	1.9	2.9	2.7
4	7.0	5.2	9.6	5.3	6.2	3.9	11	5.0	5.0	3.2	2.5	2.6
5	5.6	5.2	8.6	5.2	6.0	3.7	12	5.0	4.5	4.1	2.6	2.6
6	5.3	5.2	11	5.2	5.4	3.6	11	7.2	4.1	3.0	3.1	2.6
7	5.1	5.1	11	5.2	4.5	3.6	9.8	6.2	3.8	2.7	6.7	2.5
8	5.0	8.6	8.6	5.1	5.6	3.6	9.3	5.4	5.3	2.5	16	2.6
9	9.0	41	8.3	60	5.5	3.7	8.2	5.8	6.1	2.4	8.1	2.6
10	13	18	9.6	51	5.5	3.8	7.8	6.6	5.1	2.4	4.5	2.6
11	11	12	7.0	17	5.4	4.0	7.8	6.0	4.1	2.4	3.7	3.2
12	8.5	9.3	5.7	9.8	5.3	4.8	9.3	5.2	3.6	2.4	3.3	3.3
13	8.0	7.9	5.7	8.3	5.3	6.6	8.2	4.9	3.4	2.4	3.3	3.0
14	7.8	7.2	6.1	7.3	5.2	8.0	7.3	4.6	3.5	2.4	3.1	2.8
15	9.9	6.6	14	8.6	5.2	15	6.4	13	3.1	2.8	2.9	2.6
16	9.8	6.2	15	7.1	5.1	18	6.2	18	2.9	3.1	2.9	2.7
17	21	6.6	11	6.2	5.0	13	6.0	23	2.8	3.5	2.7	2.7
18	15	10	8.6	7.4	5.0	9.5	6.2	13	2.7	3.4	2.6	2.6
19	10	8.3	8.5	9.4	4.9	8.9	6.4	10	2.7	2.9	2.6	3.1
20	13	7.1	8.5	7.2	4.8	12	25	8.7	2.6	2.6	2.6	3.0
21	22	6.6	18	7.6	4.7	19	18	7.7	2.5	2.4	2.6	2.8
22	13	6.8	68	7.9	4.6	53	11	6.5	2.3	2.2	2.5	2.7
23	9.6	6.4	33	7.2	4.5	50	8.9	5.4	2.3	2.1	2.5	2.5
24	8.2	6.4	21	7.0	4.3	51	7.6	4.8	2.3	2.0	2.5	2.5
25	7.7	6.4	22	7.6	4.1	42	6.7	12	2.2	1.9	2.6	2.5
26	7.2	7.9	29	69	4.1	22	6.3	18	2.1	1.8	2.5	2.5
27	7.3	8.3	17	102	4.1	46	5.7	11	2.1	1.7	2.5	2.4
28	7.3	6.9	9.5	59	4.1	67	5.5	9.0	2.0	1.6	2.5	2.4
29	6.4	6.5	7.6	31	---	48	5.4	7.2	2.0	1.7	2.6	2.4
30	6.0	6.3	6.4	20	---	34	5.1	5.9	2.0	2.1	2.6	2.4
31	5.6	---	6.3	15	---	23	---	5.1	---	1.7	2.6	---
TOTAL	293.4	253.9	450.6	577.0	153.4	592.3	290.1	254.2	100.5	75.2	108.3	80.4
MEAN	9.46	8.46	14.5	18.6	5.48	19.1	9.67	8.20	3.35	2.43	3.49	2.68
MAX	22	41	68	102	12	67	25	23	6.1	4.1	16	3.3
MIN	4.1	5.1	5.7	5.1	4.1	3.6	5.1	4.5	2.0	1.6	1.8	2.4
CFSM	2.77	2.47	4.24	5.44	1.60	5.59	2.83	2.40	.98	.71	1.02	.78
IN.	3.19	2.76	4.90	6.27	1.67	6.44	3.15	2.76	1.09	.82	1.18	.87

WTR YR 1978 TOTAL 3229.3 MEAN 8.85 MAX 102 MIN 1.6 CFSM 2.59 IN 35.12

Table 1.--Daily mean discharge at the stream-gaging stations--Continued

01098340 COURSE BROOK AT NATICK, MA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND; WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	2.7	4.5	4.2	16	16	7.3	8.8	7.3			
2	2.7	2.7	3.7	8.8	15	20	7.1	7.3	6.4			
3	2.6	2.6	3.4	27	13	23	14	6.4	5.8			
4	2.6	2.6	4.0	14	12	21	12	8.0	5.7			
5	3.0	2.6	5.5	7.8	11	25	13	7.3	5.5			
6	4.1	2.6	4.5	6.3	9.1	31	12	6.2	---			
7	3.8	2.5	4.0	6.1	7.6	46	10	5.8	---			
8	3.1	2.5	3.7	41	7.6	27	8.6	5.7	---			
9	2.8	2.4	6.6	40	7.6	18	11	5.5	---			
10	2.8	2.4	8.6	12	7.1	15	23	5.0	---			
11	3.0	2.4	5.2	7.9	6.6	28	14	4.7	---			
12	2.7	2.3	4.1	6.1	6.0	20	11	4.5	---			
13	2.5	2.3	3.7	6.3	5.5	12	9.8	5.5	---			
14	3.6	2.3	3.6	38	5.2	12	9.5	6.4	---			
15	4.1	2.4	3.3	19	4.8	12	12	8.8	---			
16	3.3	2.3	3.1	9.4	4.7	9.1	10	7.8	---			
17	2.5	2.3	3.2	7.2	4.4	8.4	10	6.2	---			
18	2.3	3.2	3.6	6.8	4.0	8.2	9.1	5.5	---			
19	2.7	3.1	3.1	6.7	3.6	8.0	8.2	5.3	---			
20	3.1	2.7	2.8	6.4	3.4	8.0	7.8	8.2	---			
21	3.0	2.7	4.5	56	4.0	8.0	7.3	8.4	---			
22	2.7	2.7	4.7	114	5.8	7.6	7.1	6.8	---			
23	2.7	2.7	3.8	33	5.7	7.6	7.1	6.0	---			
24	2.7	3.2	3.3	15	19	7.3	6.8	17	---			
25	2.8	3.6	6.8	120	36	12	6.6	33	---			
26	3.2	3.1	7.6	170	14	11	6.6	32	---			
27	3.6	2.8	4.8	115	10	8.4	18	15	---			
28	3.3	3.4	4.0	76	13	7.1	27	11	---			
29	3.1	3.3	3.6	44	---	6.6	14	11	---			
30	3.0	4.8	3.2	26	---	7.3	11	8.8	---			
31	2.7	---	3.0	19	---	7.8	---	9.1	---			
TOTAL	92.6	83.2	133.5	1069.0	261.7	458.4	330.9	287.0	---			
MEAN	2.99	2.77	4.31	34.5	9.35	14.8	11.0	9.26	---			
MAX	4.1	4.8	8.6	170	36	46	27	33	---			
MIN	2.3	2.3	2.8	4.2	3.4	6.6	6.6	4.5	---			
CFSM	.87	.81	1.26	10.1	2.73	4.33	3.22	2.71	---			
IN.	1.01	.90	1.45	11.62	2.85	4.98	3.60	3.12	---			
CAL YR 1978 TOTAL	2540.7		MEAN 6.96	MAX 102	MIN 1.6	CFSM 2.04	IN 27.63					

Table 1.--Daily mean discharge at the stream-gaging stations--Continued

01098360 PEGAN BROOK AT NATICK, MA

LOCATION.--Lat 42°17'07", long 71°21'28", Middlesex County, on left bank about 150 ft above Lake Cochituate and about 30 ft above an old earthen dam at the abandoned Pegan Brook filter beds.

DRAINAGE AREA.--0.54 mi².

PERIOD OF RECORD.--Discharge: November 1, 1977 to June 5, 1979.
Water-quality records: July 29, 1977 to May 3, 1979.

GAGE.--Water-stage recorder.

REMARKS.--Records good except those for periods of backwater from rocks, August 19 to September 1, November 10-30, 1978, and May 6 to June 5, 1979; backwater from leaves, October 11-30 and November 1-7, 1978; and backwater from Lake Cochituate January 25-31, 1979, which are fair. Many water samples for chemical analysis were collected and many observations of dissolved oxygen, pH, specific conductance, and water temperature were made during the period of record.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 99 ft³/s on January 21, 1979; minimum daily discharge, 0.11 ft³/s on November 20, 1978.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		.62	6.0	1.5	1.7	.76	2.4	.83	.69	.40	.76	.25
2		.62	1.7	1.4	1.6	.73	2.4	.79	.66	.37	1.1	.23
3		.62	1.4	1.3	1.4	.76	1.9	.79	.72	.36	.61	.22
4		.66	1.3	1.3	1.3	.71	1.8	.79	1.0	2.8	1.3	.21
5		.84	1.2	1.3	1.2	.70	2.0	1.3	.68	.63	.79	.21
6		.73	2.1	1.3	1.2	.75	1.7	.91	.66	.46	3.0	.21
7		.65	1.4	1.2	1.2	.80	1.6	.78	.65	.44	5.0	.20
8		5.0	1.1	1.7	1.2	.75	1.5	.75	1.6	.41	4.0	.21
9		10	1.8	12	1.2	.89	1.4	1.1	.95	.38	1.0	.20
10		2.0	1.2	2.6	1.2	.76	1.3	.78	.68	.41	.83	.19
11		1.6	1.0	1.8	1.0	1.0	1.3	.74	.60	.40	.77	1.7
12		1.4	.99	1.7	.99	1.4	1.6	.70	.58	.38	.80	.35
13		1.2	1.0	1.5	.99	1.3	1.0	.70	.84	.40	.64	.27
14		1.2	1.7	1.7	.94	2.8	1.0	.72	.65	.39	.51	.21
15		1.1	4.2	1.5	.93	3.0	1.0	3.7	.55	1.0	.49	.21
16		1.0	1.6	1.3	.94	1.9	.94	2.9	.54	.44	.48	.30
17		2.2	1.4	1.2	.95	1.9	.89	1.4	.54	2.0	.52	.23
18		1.5	1.2	2.8	.95	1.4	.89	1.1	.51	.60	.44	.17
19		1.1	1.7	1.5	.92	1.7	2.4	.98	.51	.42	.32	1.0
20		1.1	1.3	1.4	.85	1.8	3.3	.87	.51	.39	.34	.25
21		1.1	8.6	1.4	.84	3.4	1.3	.93	.51	.34	.35	.23
22		1.1	5.8	1.2	.82	5.1	1.1	.76	.51	.29	.35	.23
23		1.0	2.9	1.2	.79	4.6	1.0	.70	.48	.27	.33	.23
24		1.1	2.5	1.1	.82	3.9	.99	.76	.44	.34	.45	.20
25		1.0	3.7	3.9	.87	3.2	.95	3.3	.44	.37	.46	.21
26		1.9	2.6	23	.88	2.8	.93	1.1	.42	.36	.36	.23
27		.98	2.0	5.0	.85	8.3	.89	.92	.42	.41	.28	.23
28		.99	1.8	3.1	.80	4.6	.89	.77	.46	.50	.34	.23
29		.95	1.7	2.4	---	3.8	.83	.69	.50	.43	.22	.23
30		.94	1.6	2.1	---	3.0	.84	.68	.45	.40	.21	.23
31		---	1.6	1.9	---	2.6	---	.70	---	.44	.31	---
TOTAL		46.20	70.09	88.3	29.33	71.11	42.04	33.94	18.75	17.23	27.36	9.07
MEAN		1.54	2.26	2.85	1.05	2.29	1.40	1.09	.63	.56	.88	.30
MAX		10	8.6	23	1.7	8.3	3.3	3.7	1.6	2.8	5.0	1.7
MIN		.62	.99	1.1	.79	.70	.83	.68	.42	.27	.21	.17
CFSM		2.85	4.19	5.28	1.94	4.24	2.59	2.02	1.17	1.04	1.63	.56
IN.		3.18	4.82	6.07	2.02	4.89	2.89	2.33	1.29	1.18	1.88	.62

Table 1.--Daily mean discharge at the stream-gaging stations--Continued

01098360 PEGAN BROOK AT NATICK, MA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.49	.22	.34	.78	1.8	1.6	.95	1.1	.82			
2	.28	.21	.27	2.5	1.7	2.5	2.0	1.0	.81			
3	.23	.20	.24	2.7	1.6	1.9	1.9	1.1	.77			
4	.56	.21	1.2	.88	1.3	1.8	1.1	1.5	.70			
5	.52	.19	.59	.71	1.2	2.1	1.8	.98	.70			
6	2.1	.17	.32	.66	1.1	2.6	1.2	.92	---			
7	.33	.17	.24	1.6	1.1	3.6	1.1	.81	---			
8	.25	.17	.44	8.0	1.0	1.8	.98	.75	---			
9	.25	.17	2.3	1.7	.98	1.6	2.7	.69	---			
10	.25	.17	.75	1.2	.92	2.1	1.6	.63	---			
11	.25	.17	.42	.92	.84	2.8	1.2	.60	---			
12	.34	.17	.35	.83	.76	1.6	1.1	.56	---			
13	.38	.17	.34	3.3	.70	1.3	1.0	1.2	---			
14	1.9	.17	.33	6.3	.66	1.6	1.3	1.2	---			
15	.36	.17	.27	1.4	.63	1.3	1.1	.96	---			
16	.30	.17	.28	1.1	.60	1.2	1.1	.66	---			
17	.32	.23	.43	.95	.52	1.2	.99	.61	---			
18	.30	.66	.30	.92	.52	1.1	.91	.61	---			
19	.57	.14	.27	.79	.52	1.1	.86	.61	---			
20	.36	.11	.26	.76	.56	1.1	.86	1.2	---			
21	.19	.21	1.6	26	.61	1.0	.83	.59	---			
22	.15	.15	.38	5.7	.59	.92	.81	.56	---			
23	.19	.12	.32	2.7	.52	.92	.79	1.4	---			
24	.29	1.1	.30	3.4	5.0	.88	.76	3.1	---			
25	.32	.25	2.8	40	2.8	1.8	.71	4.8	---			
26	.43	.14	.57	12	1.3	1.0	.78	1.5	---			
27	.92	.13	.43	8.3	1.2	.86	7.2	1.0	---			
28	.20	.46	.40	4.8	1.8	.81	2.0	1.4	---			
29	.20	.29	.38	3.3	---	.81	1.4	1.1	---			
30	.23	1.6	.35	2.5	---	1.3	1.2	1.4	---			
31	.23	---	.40	2.1	---	.98	---	.89	---			
TOTAL	13.69	8.49	17.87	148.80	32.83	47.18	42.23	35.43	---			
MEAN	.44	.28	.58	4.80	1.17	1.52	1.41	1.14	---			
MAX	2.1	1.6	2.8	40	5.0	3.6	7.2	4.8	---			
MIN	.15	.11	.24	.66	.52	.81	.71	.56	---			
CFSM	.82	.52	1.07	8.89	2.17	2.82	2.61	2.11	---			
IN.	.94	.58	1.23	10.23	2.26	3.24	2.90	2.44	---			
CAL YR 1978	TOTAL 377.18		MEAN 1.03		MAX 23		MIN .11		CFSM 1.91		IN 25.94	

Table 1.--Daily mean discharge at the stream-gaging stations--Continued

01098450 SNAKE BROOK AT WAYLAND, MA

LOCATION.--Lat 42°18'57", long 71°21'48", Middlesex County, on left bank about 10 ft above a 4-foot diameter concrete culvert on State Highway 27 at Wayland.

DRAINAGE AREA.--2.19 mi² to April 30, 1978, 2.10 mi² thereafter.

PERIOD OF RECORD.--Discharge: October 25, 1977 to June 5, 1979.

Water-quality records: July 29, 1977 to May 3, 1979.

GAGE.--Water-stage recorder.

REMARKS.--Records good except those for period of no gage-height record, April 25 to November 6, 1978, which are fair to poor. Daily mean discharge for period of no gage-height record was estimated on the basis of 29 streamflow measurements, weather records for Chestnut Hill and Framingham, Massachusetts, and records of daily mean discharge for Aberjona River at Winchester, Assabet River at Maynard, Beaverdam and Course Brooks at Natick, Furnace Brook at Quincy, Indian Head River at Hanover, Old Swamp River near South Weymouth, Pegan Brook at Natick, and Shawsheen River near Willmington, Massachusetts. Many water samples for chemical analysis were collected and many observations of dissolved oxygen, pH, specific conductance, and water temperature were made during the period of record.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 139 ft³/s on January 25, 1979; minimum daily discharge, 0.13 ft³/s on September 29 and 30, 1978.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	2.0	12	5.8	8.0	1.9	15	2.8	1.9	.38	.28	.33
2	---	2.0	9.1	5.6	7.5	1.7	15	2.8	1.8	.34	.52	.26
3	---	2.0	6.4	5.1	6.0	1.6	13	2.8	1.7	.32	.22	.22
4	---	2.0	5.8	4.6	5.1	2.0	11	2.8	2.5	2.4	1.1	.19
5	---	2.1	4.9	4.5	4.6	1.9	11	4.2	1.9	1.2	.38	.17
6	---	2.3	6.9	4.2	4.3	1.8	10	4.2	1.7	.45	1.4	.15
7	---	2.0	6.2	4.0	4.0	1.7	9.2	3.4	1.6	.45	5.2	.14
8	---	5.6	5.0	3.9	4.0	1.6	8.4	3.1	3.2	.43	6.2	.13
9	---	22	5.1	34	3.9	1.6	7.3	4.1	2.4	.39	2.6	.12
10	---	11	5.1	20	3.9	1.6	6.7	3.4	1.8	.36	1.1	.11
11	---	8.8	4.0	8.9	3.8	1.8	6.2	2.7	1.6	.36	.84	1.5
12	---	7.3	3.6	7.6	3.8	2.4	6.7	2.3	1.4	.33	.72	.35
13	---	6.5	3.7	6.8	3.7	3.1	5.9	2.2	1.4	.28	.75	.19
14	---	5.6	4.3	7.4	3.6	3.9	4.8	2.0	1.3	.28	.66	.17
15	---	5.2	11	7.2	3.5	7.8	4.5	9.2	1.3	1.2	.62	.19
16	---	5.0	7.3	5.7	3.3	5.9	4.3	8.6	1.2	.54	.58	.25
17	---	5.4	5.5	5.1	3.2	4.8	4.1	7.6	1.1	1.1	.56	.26
18	---	6.5	4.9	7.3	3.1	4.1	4.1	5.0	1.0	.66	.45	.15
19	---	5.0	5.6	6.6	2.9	4.3	4.1	3.8	.96	.52	.45	.80
20	---	4.1	5.4	4.7	2.7	5.0	11	3.3	.96	.43	.41	.21
21	---	3.7	14	7.6	2.6	8.3	7.2	3.0	.96	.30	.36	.18
22	---	4.0	23	6.1	2.6	16	5.0	2.8	.96	.28	.31	.25
23	---	3.7	14	5.2	2.5	18	4.1	2.4	.84	.27	.27	.20
24	---	3.7	12	4.7	2.3	18	3.7	2.1	.78	.25	.29	.18
25	3.0	3.4	13	5.4	2.2	15	3.4	8.4	.72	.22	.51	.16
26	3.1	4.6	13	54	2.1	13	3.3	5.8	.66	.19	.35	.15
27	3.5	4.2	9.5	40	2.1	25	3.1	4.0	.62	.17	.29	.14
28	2.9	3.4	8.0	19	2.0	26	3.0	3.2	.54	.21	.33	.13
29	2.5	3.3	7.1	14	---	23	2.9	2.8	.42	.18	.33	.12
30	2.3	3.3	6.2	11	---	20	2.9	2.4	.39	.17	.25	.12
31	2.1	---	6.1	9.3	---	17	---	2.1	---	.16	.29	---
TOTAL	---	149.7	247.7	335.3	103.3	259.8	200.9	119.3	39.61	14.82	28.62	7.52
MEAN	---	4.99	7.99	10.8	3.69	8.38	6.70	3.85	1.32	.48	.92	.25
MAX	---	22	23	54	8.0	26	15	9.2	3.2	2.4	6.2	1.5
MIN	---	2.0	3.6	3.9	2.0	1.6	2.9	2.0	.39	.16	.22	.11
CFSM	---	2.28	3.65	4.94	1.68	3.83	3.06	1.83	.63	.23	.44	.12
IN.	---	2.54	4.21	5.69	1.75	4.41	3.41	2.11	.70	.26	.51	.13

Table 1.--Daily mean discharge at the stream-gaging stations--Continued

01098450 SNAKE BROOK AT WAYLAND, MA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.53	.34	1.6	3.2	11	4.8	4.5	5.1	4.9			
2	.27	.33	1.2	5.7	9.1	6.8	4.6	4.6	4.3			
3	.16	.33	1.1	11	8.0	7.7	7.6	4.2	4.1			
4	.36	.34	2.2	6.8	7.1	7.3	6.2	5.1	3.6			
5	.79	.35	2.5	5.3	6.7	9.0	6.9	4.4	3.2			
6	2.4	.36	1.7	5.0	5.9	11	6.1	3.8	---			
7	.40	.37	1.5	5.1	4.7	14	5.3	3.6	---			
8	.25	.38	1.6	21	4.5	11	4.8	3.1	---			
9	.21	.38	5.1	14	4.1	9.0	6.9	2.9	---			
10	.21	.38	4.1	9.1	3.8	8.7	8.8	2.6	---			
11	.23	.38	2.6	7.5	3.6	13	6.8	2.3	---			
12	.21	.38	2.0	6.4	3.2	10	5.9	2.1	---			
13	.23	.38	1.8	6.5	3.0	8.0	5.4	3.0	---			
14	2.0	.38	1.8	20	2.8	8.2	5.5	3.5	---			
15	.60	.42	1.6	11	2.6	7.8	6.0	4.7	---			
16	.33	.42	1.5	7.8	2.5	6.5	5.4	3.6	---			
17	.32	.41	1.8	6.7	2.4	6.1	5.4	2.7	---			
18	.31	1.2	1.6	6.2	2.3	5.4	5.0	2.4	---			
19	.30	.63	1.3	5.9	2.2	5.0	4.5	2.4	---			
20	.54	.60	.99	5.2	2.0	5.0	4.1	4.6	---			
21	.36	.57	3.9	46	1.8	5.0	3.9	4.2	---			
22	.26	.60	2.1	37	2.3	4.8	3.6	3.2	---			
23	.31	.60	1.7	15	1.9	4.5	3.5	3.4	---			
24	.41	1.6	1.6	12	7.8	4.6	3.2	8.3	---			
25	.42	1.3	6.3	113	11	6.5	3.0	15	---			
26	.48	.82	3.8	69	5.3	5.8	2.8	12	---			
27	1.1	.67	2.9	31	4.5	4.7	11	7.8	---			
28	.45	1.1	2.5	22	4.4	4.1	11	7.0	---			
29	.33	.97	2.2	18	---	4.1	6.8	6.9	---			
30	.34	2.9	2.1	15	---	5.0	5.7	6.2	---			
31	.34	---	1.8	13	---	4.8	---	5.9	---			
TOTAL	15.45	19.89	70.49	560.4	130.5	218.2	170.2	150.6	---			
MEAN	.50	.66	2.27	18.1	4.66	7.04	5.67	4.86	---			
MAX	2.4	2.9	6.3	113	11	14	11	15	---			
MIN	.16	.33	.99	3.2	1.8	4.1	2.8	2.1	---			
CFSM	.24	.31	1.08	8.62	2.22	3.35	2.70	2.31	---			
IN.	.27	.35	1.25	9.92	2.31	3.86	3.01	2.67	---			
CAL YR 1978	TOTAL	1215.00	MEAN	3.33	MAX	54	MIN	.11	CFSM	1.54	IN	20.86

Table 1.--Daily mean discharge at the stream-gaging stations--Continued

01098500 LAKE COCHITUATE OUTLET AT FRAMINGHAM, MA

LOCATION.--Lat 42°18'53", long 71°23'07", Middlesex County, on left bank about 140 ft downstream of a dam that controls the water level of Lake Cochituate and about 10 ft above a spillway that is located about 150 ft downstream of dam controlling level of Lake Cochituate.

DRAINAGE AREA.--17.7 mi².

PERIOD OF RECORD.--Discharge: October 1, 1977 to June 5, 1979.

Water-quality records: July 29, 1977 to May 3, 1979.

GAGE.--Water-stage recorder.

REMARKS.--Records good. Flow regulated by Lake Cochituate. Many water samples for chemical analysis were collected and many observations of dissolved oxygen, pH, specific conductance, and water temperature were made during the period of record.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge about 332 ft³/s on January 27, 1979; minimum daily discharge, 0.40 ft³/s on October 10 and 11, 1978.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	21	39	52	94	22	143	15	20	2.6	1.7	9.1
2	16	21	54	50	78	21	142	15	18	2.6	1.7	8.9
3	17	21	59	47	69	21	142	15	16	2.3	1.8	8.1
4	17	18	56	43	62	23	106	15	17	2.9	2.5	4.8
5	17	18	51	41	58	22	97	15	15	3.9	3.4	1.6
6	16	18	54	38	55	21	90	17	14	4.3	4.6	4.3
7	12	18	57	36	66	21	84	17	13	3.9	17	4.3
8	12	22	57	35	60	25	79	17	17	3.9	51	2.3
9	14	59	52	45	54	27	72	18	18	3.5	44	.59
10	22	77	49	83	50	26	67	18	17	3.2	26	.55
11	22	77	45	103	46	25	64	18	16	2.9	20	.55
12	20	65	45	100	43	24	61	19	13	2.6	16	.55
13	20	56	50	76	41	25	60	18	11	2.0	14	.53
14	22	49	47	55	38	27	56	18	10	1.7	12	.52
15	25	44	50	75	36	35	53	20	8.6	1.7	21	.51
16	27	53	54	67	34	44	50	25	8.0	2.3	26	.50
17	42	53	54	61	32	50	47	23	7.6	2.9	24	.50
18	48	53	53	59	31	51	44	27	7.2	3.4	22	.50
19	49	47	51	59	30	49	42	30	7.1	3.5	20	.49
20	48	40	50	62	28	48	51	30	6.8	3.4	18	.48
21	56	45	52	65	27	51	60	28	6.3	3.2	17	.48
22	60	47	79	61	26	65	61	25	5.8	3.2	15	.47
23	55	42	103	57	25	89	58	23	5.0	2.9	14	.47
24	48	39	106	52	25	110	53	21	4.7	2.6	13	.46
25	42	36	102	48	24	122	48	32	4.3	2.2	12	.46
26	37	35	102	88	23	125	45	45	3.9	1.9	12	.46
27	36	36	94	170	22	132	26	44	3.2	1.7	11	.45
28	33	35	82	205	22	158	14	40	3.2	1.9	11	.45
29	29	34	71	195	---	173	14	35	2.6	2.0	10	.44
30	25	32	63	155	---	171	14	29	2.6	1.8	9.9	.43
31	22	---	57	120	---	158	---	24	---	1.7	9.7	---
TOTAL	921	1211	1938	2403	1199	1961	1943	736	301.9	84.6	481.3	54.24
MEAN	29.7	40.4	62.5	77.5	42.8	63.3	64.8	23.7	10.1	2.73	15.5	1.81
MAX	60	77	106	205	94	173	143	45	20	4.3	51	9.1
MIN	12	18	39	35	22	21	14	15	2.6	1.7	1.7	.43
WTR YR 1978	TOTAL	13234.04	MEAN	36.3	MAX	205	MIN	.43				

Table 1.--Daily mean discharge at the stream-gaging stations--Continued

01098500 LAKE COCHITUATE OUTLET AT FRAMINGHAM, MA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.43	7.1	13	26	162	88	10	50	52			
2	.43	7.1	13	28	138	80	11	42	46			
3	.42	6.7	13	42	118	79	14	38	38			
4	.42	6.3	13	49	102	77	17	36	34			
5	.42	6.2	15	46	88	77	19	34	37			
6	.41	5.8	15	42	77	85	22	32	---			
7	.41	5.8	14	39	67	105	23	30	---			
8	.41	5.7	14	57	60	105	24	27	---			
9	.41	5.1	17	81	94	105	25	25	---			
10	.40	4.7	22	85	47	91	33	25	---			
11	.40	4.6	23	76	42	95	37	24	---			
12	.44	4.6	30	65	39	85	37	22	---			
13	.45	4.6	31	59	36	91	35	22	---			
14	.47	4.6	28	78	32	83	34	22	---			
15	.51	4.6	23	89	30	71	35	23	---			
16	.53	2.0	16	83	32	65	35	24	---			
17	.54	.53	16	72	35	59	36	24	---			
18	7.0	2.8	14	65	30	53	35	23	---			
19	12	5.0	14	56	26	48	33	23	---			
20	12	5.0	13	50	23	44	31	23	---			
21	11	5.0	15	73	21	40	30	24	---			
22	11	5.0	13	140	21	38	28	24	---			
23	11	5.0	8.9	171	21	35	27	24	---			
24	12	5.1	8.9	162	27	33	25	42	---			
25	12	5.4	12	237	51	39	25	70	---			
26	11	5.4	14	314	71	42	25	93	---			
27	10	5.4	15	326	72	41	32	92	---			
28	8.5	5.5	26	310	77	26	57	78	---			
29	8.1	5.8	35	271	---	6.5	63	72	---			
30	7.7	10	31	230	---	7.8	58	64	---			
31	7.3	---	27	189	---	9.0	---	58	---			
TOTAL	148.10	156.43	562.8	3611	1599	1903.3	916	1210	---			
MEAN	4.78	5.21	18.2	116	57.1	61.4	30.5	39.0	---			
MAX	12	10	35	326	162	105	63	93	---			
MIN	.40	.53	8.9	26	21	6.5	10	22	---			
CAL YR 1978	TOTAL	10031.37	MEAN	27.5	MAX	205.	MIN	.40				

Table 2.--Physical characteristics and concentrations of common chemical constituents
in major surface-water sources discharging into
or out of Lake Cochituate

DATE OF SAMPLE	TIME	TEMPER- ATURE (DEG C)	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	PH (UNITS)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)	HARD- NESS (MG/L AS CACO3)
01098320 - BEAVERDAM BROOK AT NATICK, MA (LAT 42 17 10 LONG 071 22 56)											
77-07-29	1400	21.9	1.9	315	12.1	137	7.7	--	--	--	--
77-08-30	1345	23.5	1.6	260	9.8	114	7.0	48	0	39	68
77-09-30	1345	15.5	6.4	355	9.4	93	6.2	--	--	--	--
77-10-31	1445	10.0	9.6	320	10.0	88	5.4	--	--	--	--
77-12-07	1200	1.5	20	350	10.7	76	6.9	--	--	--	--
78-02-23	1430	2.5	9.4	325	11.2	82	6.9	--	--	--	--
78-04-20	1430	8.5	38	215	10.6	90	6.4	21	0	17	41
78-05-22	1300	16.5	11	300	9.8	99	6.8	--	--	--	--
78-06-19	1400	21.5	3.6	300	11.5	129	7.4	--	--	--	--
78-07-17	1230	19.5	16	345	5.9	63	6.1	--	--	--	--
78-08-16	1800	24.0	3.4	--	7.1	84	--	--	--	--	--
78-09-01	1345	20.0	2.1	350	10.2	111	7.3	--	--	--	--
78-09-22	1445	18.0	2.4	310	5.9	62	6.2	--	--	--	--
78-09-29	1318	15.5	1.1	340	--	--	7.2	44	0	36	69
78-10-30	1340	11.0	2.2	400	8.8	79	--	--	--	--	--
78-11-30	1245	4.0	13	405	11.0	84	6.0	--	--	--	--
78-12-09	1400	7.0	46	225	--	--	--	--	--	--	--
78-12-12	1335	2.5	9.6	345	12.0	88	6.3	--	--	--	--
79-01-25	1850	1.0	214	112	--	--	--	--	--	--	--
79-01-30	1000	2.5	61	230	12.3	90	6.1	--	--	--	--
79-02-28	1500	4.5	33	925	11.7	90	6.2	--	--	--	--
79-04-02	1420	6.0	16	285	--	--	6.7	--	--	--	--
79-04-12	1515	9.5	17	270	11.0	96	--	--	--	--	--
79-04-27	1505	14.5	61	185	--	--	--	--	--	--	--
79-05-03	1515	16.0	12	280	11.1	111	6.3	37	0	30	53
01098340 - COURSE BROOK AT NATICK, MA (LAT 42 16 42 LONG 071 22 31)											
77-07-29	1230	19.4	3.2	197	9.8	105	6.9	--	--	--	--
77-08-30	1250	22.0	2.7	195	10.2	116	7.1	24	0	20	37
77-09-30	1145	14.0	4.1	232	8.8	85	5.5	--	--	--	--
77-10-31	1330	9.0	5.5	180	11.4	98	4.9	--	--	--	--
77-12-07	1100	.5	11	158	12.6	88	7.7	--	--	--	--
78-02-23	1245	.1	4.7	156	11.2	77	6.8	--	--	--	--
78-04-20	1315	8.5	31	118	10.8	92	6.4	18	0	15	26
78-05-22	1115	16.5	6.4	135	9.7	98	6.6	--	--	--	--
78-06-19	1300	21.5	2.6	149	11.1	125	6.7	--	--	--	--
78-07-17	1045	18.0	4.0	126	6.4	67	5.9	--	--	--	--
78-08-16	1715	25.0	2.7	--	11.6	138	--	--	--	--	--
78-09-01	1230	18.0	2.8	145	8.4	88	7.0	--	--	--	--
78-09-22	1330	17.5	2.7	158	7.1	74	6.0	--	--	--	--
78-09-29	1140	13.5	2.4	162	--	--	6.8	19	0	16	30
78-10-30	1150	9.0	2.8	170	10.6	91	--	--	--	--	--
78-11-30	1100	2.5	5.1	260	11.6	85	6.2	--	--	--	--
78-12-09	1340	6.5	7.0	170	--	--	--	--	--	--	--
78-12-12	1145	1.0	4.1	235	12.1	85	6.2	--	--	--	--
79-01-25	1815	.5	180	40	--	--	--	--	--	--	--
79-01-30	1030	1.5	26	175	11.7	84	5.8	--	--	--	--
79-02-28	1315	2.0	12	196	11.4	83	5.8	--	--	--	--
79-04-02	1400	5.5	6.8	134	--	--	6.7	--	--	--	--
79-04-12	1450	11.0	11	126	11.0	99	--	--	--	--	--
79-04-27	1450	14.5	23	103	--	--	--	--	--	--	--
79-05-03	1345	14.5	6.5	135	10.5	102	6.2	20	0	16	31

Table 2.--Physical characteristics and concentrations of common chemical constituents
in major surface-water sources discharging into
or out of Lake Cochituate--Continued

DATE OF SAMPLE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SULFATE DIS- SOLVED (MG/L AS SO4)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TUNS PER DAY)
01098320 - BEAVERDAM BROOK AT NATICK, MA (LAT 42 17 10 LONG 071 22 56)										
77-07-29	--	--	--	--	--	--	--	--	--	--
77-08-30	29	20	4.5	26	3.7	48	19	8.5	154	.67
77-09-30	--	--	--	--	--	--	--	--	--	--
77-10-31	--	--	--	--	--	--	--	--	--	--
77-12-07	--	--	--	--	--	--	--	--	--	--
78-02-23	--	--	--	--	--	--	--	--	--	--
78-04-20	23	12	2.6	24	2.1	44	17	5.7	118	10.8
78-05-22	--	--	--	--	--	--	--	--	--	--
78-06-19	--	--	--	--	--	--	--	--	--	--
78-07-17	--	--	--	--	--	--	--	--	--	--
78-08-16	--	--	--	--	--	--	--	--	--	--
78-09-01	--	--	--	--	--	--	--	--	--	--
78-09-22	--	--	--	--	--	--	--	--	--	--
78-09-29	33	20	4.6	32	3.5	57	25	9.9	174	--
78-10-30	--	--	--	--	--	--	--	--	--	--
78-11-30	--	--	--	--	--	--	--	--	--	--
78-12-09	--	--	--	--	--	--	--	--	--	--
78-12-12	--	--	--	--	--	--	--	--	--	--
79-01-25	--	--	--	--	--	--	--	--	--	--
79-01-30	--	--	--	--	--	--	--	--	--	--
79-02-28	--	--	--	--	--	--	--	--	--	--
79-04-02	--	--	--	--	--	--	--	--	--	--
79-04-12	--	--	--	--	--	--	--	--	--	--
79-04-27	--	--	--	--	--	--	--	--	--	--
79-05-03	22	15	3.7	32	3.1	57	19	6.0	155	5.02
01098340 - COURSE BROOK AT NATICK, MA (LAT 42 16 42 LONG 071 22 31)										
77-07-29	--	--	--	--	--	--	--	--	--	--
77-08-30	18	11	2.4	22	2.8	40	8.7	2.1	101	.74
77-09-30	--	--	--	--	--	--	--	--	--	--
77-10-31	--	--	--	--	--	--	--	--	--	--
77-12-07	--	--	--	--	--	--	--	--	--	--
78-02-23	--	--	--	--	--	--	--	--	--	--
78-04-20	11	7.4	1.8	11	1.8	19	14	3.8	68	--
78-05-22	--	--	--	--	--	--	--	--	--	--
78-06-19	--	--	--	--	--	--	--	--	--	--
78-07-17	--	--	--	--	--	--	--	--	--	--
78-08-16	--	--	--	--	--	--	--	--	--	--
78-09-01	--	--	--	--	--	--	--	--	--	--
78-09-22	--	--	--	--	--	--	--	--	--	--
78-09-29	14	9.0	1.8	18	1.9	32	10	2.3	84	--
78-10-30	--	--	--	--	--	--	--	--	--	--
78-11-30	--	--	--	--	--	--	--	--	--	--
78-12-09	--	--	--	--	--	--	--	--	--	--
78-12-12	--	--	--	--	--	--	--	--	--	--
79-01-25	--	--	--	--	--	--	--	--	--	--
79-01-30	--	--	--	--	--	--	--	--	--	--
79-02-28	--	--	--	--	--	--	--	--	--	--
79-04-02	--	--	--	--	--	--	--	--	--	--
79-04-12	--	--	--	--	--	--	--	--	--	--
79-04-27	--	--	--	--	--	--	--	--	--	--
79-05-03	15	8.9	2.2	15	2.4	24	12	4.6	80	1.40

Table 2.--Physical characteristics and concentrations of common chemical constituents
in major surface-water sources discharging into
or out of Lake Cochituate--Continued

DATE OF SAMPLE	TIME	TEMPER- ATURE (DEG C)	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	PH (UNITS)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)	HARD- NESS (MG/L AS CACO3)
01098350 - FISK POND OUTLET AT NATICK, MA (LAT 42 17 00 LONG 071 22 07)											
77-07-29	1115	23.0	E5.2	253	13.9	160	9.6	--	--	--	--
77-08-30	1140	25.0	E4.2	220	4.5	54	7.2	32	0	26	48
77-09-30	1100	16.5	E11	215	8.5	86	5.5	--	--	--	--
77-10-31	1115	11.0	14	248	7.3	66	5.2	--	--	--	--
77-12-07	1000	1.0	31	280	12.1	85	6.2	--	--	--	--
78-02-23	1145	1.5	E13	310	8.9	64	6.9	--	--	--	--
78-04-20	1030	9.0	71	245	11.1	96	6.8	23	0	19	41
78-05-22	1430	20.0	18	225	8.8	96	7.0	--	--	--	--
78-06-19	1045	22.0	6.3	251	8.3	94	7.6	--	--	--	--
78-07-17	1000	22.5	--	260	2.8	32	6.3	--	--	--	--
78-08-16	1610	27.5	E6.2	--	9.8	123	--	--	--	--	--
78-09-01	1130	20.5	E5.0	260	7.3	80	7.3	--	--	--	--
78-09-22	1200	18.5	E4.5	230	7.7	81	6.5	--	--	--	--
78-09-29	1044	14.5	E3.5	275	--	--	7.5	--	--	--	--
78-10-30	1100	10.5	E4.8	235	10.3	92	--	--	--	--	--
78-11-30	1030	2.0	--	330	12.1	88	6.6	--	--	--	--
78-12-12	1115	2.5	E14	475	10.7	78	6.2	--	--	--	--
79-01-25	1745	1.0	--	134	--	--	--	--	--	--	--
79-01-30	1300	2.5	86	190	11.1	81	6.0	--	--	--	--
79-02-28	1245	2.0	E29	428	11.1	80	6.0	--	--	--	--
79-04-02	1315	7.0	E21	240	--	--	6.9	--	--	--	--
79-04-12	1415	7.5	E28	195	9.5	79	--	--	--	--	--
79-05-03	1215	16.5	E19	215	8.1	82	6.3	22	0	18	39
01098360 - PEGAN BROOK AT NATICK, MA (LAT 42 17 07 LONG 071 21 28)											
77-07-29	0940	15.7	.33	680	8.7	86	7.0	--	--	--	--
77-08-30	1030	19.5	.30	630	7.8	84	7.0	35	0	29	120
77-09-30	1015	11.5	.42	680	9.1	83	5.3	--	--	--	--
77-10-31	1000	9.0	.63	570	10.5	91	6.9	--	--	--	--
77-12-07	1440	4.0	1.3	1820	11.8	90	6.9	--	--	--	--
78-02-23	1015	3.5	.71	600	10.8	81	7.0	--	--	--	--
78-04-20	0900	8.0	3.0	310	10.9	92	6.6	27	0	22	51
78-05-22	1000	13.5	.73	570	9.8	93	7.0	--	--	--	--
78-06-19	0945	16.0	.51	630	9.0	90	6.8	--	--	--	--
78-07-17	0945	19.5	6.2	101	7.8	84	5.8	--	--	--	--
78-08-16	1530	22.5	.51	--	8.1	93	--	--	--	--	--
78-09-01	1030	15.5	.29	700	8.8	87	7.4	--	--	--	--
78-09-22	1030	16.0	.32	690	9.0	90	6.9	--	--	--	--
78-09-29	0930	9.5	.23	650	--	--	7.1	53	0	43	120
78-10-30	1040	8.0	.23	670	10.3	87	--	--	--	--	--
78-11-30	0945	3.0	.75	795	11.6	86	6.3	--	--	--	--
78-12-09	1050	7.5	3.1	230	--	--	--	--	--	--	--
78-12-12	1015	1.0	.43	835	13.1	92	6.8	--	--	--	--
79-01-25	1715	2.0	16	151	--	--	--	--	--	--	--
79-01-30	0930	4.5	2.5	500	11.5	89	6.5	--	--	--	--
79-02-28	1110	5.0	1.2	718	11.9	93	6.4	--	--	--	--
79-04-02	1215	6.5	.89	495	11.6	94	7.2	--	--	--	--
79-04-12	1335	11.5	1.1	460	9.0	82	--	--	--	--	--
79-04-27	1250	15.0	6.0	163	--	--	--	--	--	--	--
79-05-03	1130	12.0	.98	495	11.7	108	6.9	48	0	39	84

Table 2.--Physical characteristics and concentrations of common chemical constituents
in major surface-water sources discharging into
or out of Lake Cochituate--Continued

DATE OF SAMPLE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SULFATE DIS- SOLVED (MG/L AS SO4)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)
01098350 - FISK POND OUTLET AT NATICK, MA (LAT 42 17 00 LONG 071 22 07)										
77-07-29	--	--	--	--	--	--	--	--	--	--
77-08-30	21	14	3.1	23	3.3	43	12	3.8	118	.76
77-09-30	--	--	--	--	--	--	--	--	--	--
77-10-31	--	--	--	--	--	--	--	--	--	--
77-12-07	--	--	--	--	--	--	--	--	--	--
78-02-23	--	--	--	--	--	--	--	--	--	--
78-04-20	22	12	2.7	25	2.1	46	17	4.3	121	23.2
78-05-22	--	--	--	--	--	--	--	--	--	--
78-06-19	--	--	--	--	--	--	--	--	--	--
78-07-17	--	--	--	--	--	--	--	--	--	--
78-08-16	--	--	--	--	--	--	--	--	--	--
78-09-01	--	--	--	--	--	--	--	--	--	--
78-09-22	--	--	--	--	--	--	--	--	--	--
78-09-29	--	--	--	--	--	--	--	--	--	--
78-10-30	--	--	--	--	--	--	--	--	--	--
78-11-30	--	--	--	--	--	--	--	--	--	--
78-12-12	--	--	--	--	--	--	--	--	--	--
79-01-25	--	--	--	--	--	--	--	--	--	--
79-01-30	--	--	--	--	--	--	--	--	--	--
79-02-28	--	--	--	--	--	--	--	--	--	--
79-04-02	--	--	--	--	--	--	--	--	--	--
79-04-12	--	--	--	--	--	--	--	--	--	--
79-05-03	21	11	2.7	24	2.7	40	15	5.1	112	5.75
01098360 - PEGAN BROOK AT NATICK, MA (LAT 42 17 07 LONG 071 21 28)										
77-07-29	--	--	--	--	--	--	--	--	--	--
77-08-30	92	36	7.4	80	4.4	140	55	15	355	.29
77-09-30	--	--	--	--	--	--	--	--	--	--
77-10-31	--	--	--	--	--	--	--	--	--	--
77-12-07	--	--	--	--	--	--	--	--	--	--
78-02-23	--	--	--	--	--	--	--	--	--	--
78-04-20	29	16	2.8	29	2.0	55	22	7.3	148	1.16
78-05-22	--	--	--	--	--	--	--	--	--	--
78-06-19	--	--	--	--	--	--	--	--	--	--
78-07-17	--	--	--	--	--	--	--	--	--	--
78-08-16	--	--	--	--	--	--	--	--	--	--
78-09-01	--	--	--	--	--	--	--	--	--	--
78-09-22	--	--	--	--	--	--	--	--	--	--
78-09-29	77	36	7.4	90	4.2	170	40	13	387	.26
78-10-30	--	--	--	--	--	--	--	--	--	--
78-11-30	--	--	--	--	--	--	--	--	--	--
78-12-09	--	--	--	--	--	--	--	--	--	--
78-12-12	--	--	--	--	--	--	--	--	--	--
79-01-25	--	--	--	--	--	--	--	--	--	--
79-01-30	--	--	--	--	--	--	--	--	--	--
79-02-28	--	--	--	--	--	--	--	--	--	--
79-04-02	--	--	--	--	--	--	--	--	--	--
79-04-12	--	--	--	--	--	--	--	--	--	--
79-04-27	--	--	--	--	--	--	--	--	--	--
79-05-03	44	25	5.2	55	3.7	110	29	10	262	.69

Table 2.--Physical characteristics and concentrations of common chemical constituents
in major surface-water sources discharging into
or out of Lake Cochituate--Continued

DATE OF SAMPLE	TIME	TEMPER- ATURE (DEG C)	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	PH (UNITS)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	ALKA- LITY (MG/L AS CACO3)	HARD- NESS (MG/L AS CACO3)
01098450 - SNAKE BROOK AT WAYLAND, MA (LAT 42 18 57 LONG 071 21 48)											
77-07-29	0815	13.6	.24	275	8.1	77	6.6	--	--	--	--
77-08-30	0915	20.5	.10	275	5.5	60	6.6	37	0	30	73
77-09-30	0900	9.5	.91	208	9.1	79	5.6	--	--	--	--
77-10-31	0830	5.5	2.0	225	10.6	84	6.6	--	--	--	--
77-12-07	1600	1.0	5.8	153	13.1	92	9.0	--	--	--	--
78-02-23	0815	.1	2.4	208	11.9	81	7.0	--	--	--	--
78-04-20	1630	11.0	9.6	132	12.3	111	6.8	17	0	14	33
78-05-22	0815	12.5	2.9	177	10.7	100	6.7	--	--	--	--
78-06-19	0830	15.5	.96	225	8.5	84	6.4	--	--	--	--
78-07-17	0800	17.5	.75	197	7.6	79	6.3	--	--	--	--
78-08-16	1845	23.0	E.58	--	7.4	85	--	--	--	--	--
78-09-01	0845	16.0	.34	280	5.6	56	6.8	--	--	--	--
78-09-22	0845	16.5	.19	280	6.3	64	6.3	--	--	--	--
78-09-29	0740	12.5	E.12	260	--	--	6.9	40	0	33	67
78-10-30	1550	7.5	.34	265	10.4	86	--	--	--	--	--
78-11-30	0830	.5	4.2	270	12.4	86	5.8	--	--	--	--
78-12-09	1320	6.0	6.9	154	--	--	--	--	--	--	--
78-12-12	0810	.5	2.0	215	12.6	88	6.0	--	--	--	--
79-01-25	0850	1.0	131	61	--	--	--	--	--	--	--
79-01-30	0815	2.5	15	146	12.0	88	5.9	--	--	--	--
79-02-28	0905	1.0	3.3	160	12.5	88	6.0	--	--	--	--
79-04-02	1130	5.5	4.2	154	12.1	96	6.9	--	--	--	--
79-04-12	1255	10.5	5.9	148	10.2	91	--	--	--	--	--
79-04-27	0840	15.0	8.6	154	--	--	--	--	--	--	--
79-05-03	0930	10.5	4.1	162	10.7	96	6.3	20	0	16	38
01098500 - LAKE COCHITUATE OUTLET AT FRAMINGHAM, MA (LAT 42 18 53 LONG 071 23 07)											
77-07-29	1500	23.0	.96	274	8.9	102	8.1	--	--	--	--
77-08-30	1455	21.5	.64	250	7.2	81	7.5	42	0	34	57
77-09-30	1445	17.5	11	268	9.4	98	6.6	--	--	--	--
77-10-31	1630	12.5	21	270	10.8	101	5.3	--	--	--	--
77-12-07	1330	5.5	51	260	11.0	87	7.2	--	--	--	--
78-02-23	1600	1.5	25	280	10.8	77	6.9	--	--	--	--
78-04-20	1515	7.5	54	265	11.8	98	6.7	21	0	17	41
78-05-22	1630	17.5	25	265	10.6	110	8.2	--	--	--	--
78-06-19	1530	26.0	6.9	265	8.6	105	7.9	--	--	--	--
78-07-17	1430	23.0	3.1	270	9.3	107	8.5	--	--	--	--
78-09-01	0805	21.5	9.0	275	8.4	94	8.7	--	--	--	--
78-09-22	1600	16.5	.55	270	6.6	67	6.9	--	--	--	--
78-09-29	1513	14.5	.44	250	--	--	--	--	--	--	--
78-10-31	1125	11.0	7.1	275	11.0	99	--	--	--	--	--
78-11-30	1445	6.0	13	270	11.1	89	6.6	--	--	--	--
78-12-12	0850	4.0	23	265	11.8	90	6.3	--	--	--	--
79-01-26	1105	2.0	314	246	--	--	--	--	--	--	--
79-01-30	1500	2.0	219	265	13.1	95	6.4	--	--	--	--
79-02-28	0820	2.0	62	260	13.1	95	6.2	--	--	--	--
79-04-02	1500	6.0	12	250	--	--	7.4	--	--	--	--
79-04-27	1820	12.0	39	245	--	--	--	--	--	--	--
79-05-03	0830	14.5	38	249	11.3	110	7.8	20	0	16	35

Table 2.--Physical characteristics and concentrations of common chemical constituents
in major surface-water sources discharging into
or out of Lake Cochituate--Continued

DATE OF SAMPLE	HARD- NESS, NONCAR- BONATE (MG/L CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SULFATE DIS- SOLVED (MG/L AS S04)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)
01098450 - SNAKE BROOK AT WAYLAND, MA (LAT 42 18 57 LONG 071 21 48)										
77-07-29	--	--	--	--	--	--	--	--	--	--
77-08-30	42	22	4.3	25	2.9	49	18	10	150	.04
77-09-30	--	--	--	--	--	--	--	--	--	--
77-10-31	--	--	--	--	--	--	--	--	--	--
77-12-07	--	--	--	--	--	--	--	--	--	--
78-02-23	--	--	--	--	--	--	--	--	--	--
78-04-20	19	10	2.0	12	1.2	22	15	4.6	75	1.94
78-05-22	--	--	--	--	--	--	--	--	--	--
78-06-19	--	--	--	--	--	--	--	--	--	--
78-07-17	--	--	--	--	--	--	--	--	--	--
78-08-16	--	--	--	--	--	--	--	--	--	--
78-09-01	--	--	--	--	--	--	--	--	--	--
78-09-22	--	--	--	--	--	--	--	--	--	--
78-09-29	34	20	4.1	21	2.4	40	20	11	139	--
78-10-30	--	--	--	--	--	--	--	--	--	--
78-11-30	--	--	--	--	--	--	--	--	--	--
78-12-09	--	--	--	--	--	--	--	--	--	--
78-12-12	--	--	--	--	--	--	--	--	--	--
79-01-25	--	--	--	--	--	--	--	--	--	--
79-01-30	--	--	--	--	--	--	--	--	--	--
79-02-28	--	--	--	--	--	--	--	--	--	--
79-04-02	--	--	--	--	--	--	--	--	--	--
79-04-12	--	--	--	--	--	--	--	--	--	--
79-04-27	--	--	--	--	--	--	--	--	--	--
79-05-03	22	11	2.6	16	1.4	30	15	6.6	93	1.03
01098500 - LAKE COCHITUATE OUTLET AT FRAMINGHAM, MA (LAT 42 18 53 LONG 071 23 07)										
77-07-29	--	--	--	--	--	--	--	--	--	--
77-08-30	22	17	3.5	29	2.5	54	15	2.5	144	.25
77-09-30	--	--	--	--	--	--	--	--	--	--
77-10-31	--	--	--	--	--	--	--	--	--	--
77-12-07	--	--	--	--	--	--	--	--	--	--
78-02-23	--	--	--	--	--	--	--	--	--	--
78-04-20	24	12	2.7	28	2.0	51	16	5.5	128	19.0
78-05-22	--	--	--	--	--	--	--	--	--	--
78-06-19	--	--	--	--	--	--	--	--	--	--
78-07-17	--	--	--	--	--	--	--	--	--	--
78-09-01	--	--	--	--	--	--	--	--	--	--
78-09-22	--	--	--	--	--	--	--	--	--	--
78-09-29	--	--	--	--	--	--	--	--	--	--
78-10-31	--	--	--	--	--	--	--	--	--	--
78-11-30	--	--	--	--	--	--	--	--	--	--
78-12-12	--	--	--	--	--	--	--	--	--	--
79-01-26	--	--	--	--	--	--	--	--	--	--
79-01-30	--	--	--	--	--	--	--	--	--	--
79-02-28	--	--	--	--	--	--	--	--	--	--
79-04-02	--	--	--	--	--	--	--	--	--	--
79-04-27	--	--	--	--	--	--	--	--	--	--
79-05-03	19	10	2.5	32	2.2	53	14	.1	124	12.7

Table 3.--Concentrations of nitrogen and phosphorus species in major surface-water sources discharging into or out of Lake Cochituate

DATE OF SAMPLE	TIME	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, ORTHO. TOTAL (MG/L AS P)	PHOS- PHORUS, TOTAL (MG/L AS P)
01098320 - BEAVERDAM BROOK AT NATICK, MA (LAT 42 17 10 LONG 071 22 56)										
77-07-29	1400	.05	.27	.32	.01	.44	.45	.77	.00	.02
77-08-30	1345	.10	.18	.28	.01	.28	.29	.57	.02	.03
77-09-30	1345	.13	.32	.45	.01	.34	.35	.80	.006	.026
77-10-31	1445	.15	.54	.69	.01	.35	.36	1.1	.006	.036
77-12-07	1200	.12	.61	.73	.01	.40	.41	1.1	.005	.025
78-02-23	1430	.20	.44	.64	.01	.53	.54	1.2	.008	.047
78-04-20	1430	.07	.68	.75	.01	.40	.41	1.2	.004	.029
78-05-22	1300	.14	.66	.80	.01	.34	.35	1.2	.009	.042
78-06-19	1400	.08	.41	.49	.02	.44	.46	.95	.009	.013
78-07-17	1230	.02	.88	.90	.02	.46	.48	1.4	.009	.044
78-09-01	1345	.10	.57	.67	.03	.61	.64	1.3	.009	.036
78-09-22	1445	.29	.60	.89	.04	.46	.50	1.4	.014	.052
78-09-29	1318	.20	.61	.81	.04	.49	.53	1.3	.009	.046
78-10-30	1340	.15	.56	.71	.01	.28	.29	1.0	.004	.028
78-11-30	1245	.08	.67	.75	.01	.34	.35	1.1	.017	.091
78-12-09	1400	.00	.81	.81	.02	.27	.29	1.1	.014	.193
78-12-12	1335	.18	.62	.80	.01	.48	.49	1.3	.011	.038
79-01-25	1850	.07	.30	.37	.01	.19	.20	.57	.044	.161
79-01-30	1000	.07	.35	.42	.01	.47	.48	.90	.004	.039
79-02-28	1500	.06	.46	.52	.01	.37	.38	.90	.010	.108
79-04-02	1420	.10	.56	.66	.01	.44	.45	1.1	.000	.035
79-04-12	1515	.06	.38	.44	.01	.43	.44	.88	.006	.028
79-04-27	1505	.10	.43	.53	.01	.27	.28	.81	.014	.102
79-05-03	1515	.08	.45	.53	.01	.35	.36	.89	.000	.031
01098340 - COURSE BROOK AT NATICK, MA (LAT 42 16 42 LONG 071 22 31)										
77-07-29	1230	.02	.36	.38	.01	.29	.30	.68	.00	.02
77-08-30	1250	.01	.10	.11	.00	.30	.30	.41	.01	.02
77-09-30	1145	.00	.26	.26	.00	.24	.24	.50	.001	.020
77-10-31	1330	.00	.44	.44	.00	.24	.24	.68	.004	.023
77-12-07	1100	.02	.41	.43	.00	.45	.45	.88	.001	.022
78-02-23	1245	.14	.42	.56	.00	.48	.48	1.0	.001	.015
78-04-20	1315	.03	.43	.46	.00	.24	.24	.70	.005	.027
78-05-22	1115	.02	.69	.71	.01	.14	.15	.86	.016	.047
78-06-19	1300	.01	.43	.44	.00	.26	.26	.70	.005	.010
78-07-17	1045	.02	.38	.40	.00	.19	.19	.59	.010	.022
78-09-01	1230	.01	.16	.17	.01	.26	.27	.44	.005	.019
78-09-22	1330	.02	.22	.24	.00	.18	.18	.42	.002	.012
78-09-29	1140	.01	.58	.59	.00	.15	.15	.74	.008	.009
78-10-30	1150	.00	.29	.29	.00	.09	.09	.38	.000	.010
78-11-30	1100	.04	.46	.50	.00	.24	.24	.74	.008	.026
78-12-09	1340	.01	.31	.32	.01	.30	.31	.63	.003	.046
78-12-12	1145	.03	.52	.55	.01	.40	.41	.96	.002	.018
79-01-25	1815	.07	.25	.32	.00	.10	.10	.42	.036	.070
79-01-30	1030	.17	.29	.46	.00	.32	.32	.78	.006	.026
79-02-28	1315	.13	.26	.39	.00	.37	.37	.76	.004	.025
79-04-02	1400	.03	.39	.42	.01	.31	.32	.74	.002	.018
79-04-12	1450	.03	.25	.28	.00	.29	.29	.57	.001	.018
79-04-27	1450	.03	.28	.31	.01	.14	.15	.46	.012	.048
79-05-03	1345	.01	.35	.36	.00	.20	.20	.56	.020	.035

Table 3.--Concentrations of nitrogen and phosphorus species in major surface-water sources discharging into or out of Lake Cochituate--Continued

DATE OF SAMPLE	TIME	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, ORTHO. TOTAL (MG/L AS P)	PHOS- PHORUS, TOTAL (MG/L AS P)
01098350 - FISK POND OUTLET AT NATICK, MA (LAT 42 17 00 LONG 071 22 07)										
77-07-29	1115	.68	2.3	3.0	.01	.00	.01	3.0	.01	.14
77-08-30	1140	.19	.70	.89	.00	.03	.03	.92	.00	.06
77-09-30	1100	.04	.26	.30	.01	.21	.22	.52	.006	.051
77-10-31	1115	.08	.47	.55	.01	.26	.27	.82	.004	.045
77-12-07	1000	.05	.51	.56	.01	.37	.38	.94	.004	.025
78-02-23	1145	.23	.43	.66	.01	.49	.50	1.2	.007	.033
78-04-20	1030	.04	.46	.50	.01	.37	.38	.88	.005	.019
78-05-22	1430	.03	.61	.64	.01	.15	.16	.80	.004	.043
78-06-19	1045	.03	.71	.74	.01	.06	.07	.81	.007	.038
78-07-17	1000	.02	.76	.78	.01	.04	.05	.83	.013	.052
78-09-01	1130	.15	.76	.91	.00	.02	.02	.93	.002	.066
78-09-22	1200	.00	.90	.90	.00	.00	.00	.90	.003	.076
78-09-29	1044	.00	.81	.81	.00	.01	.01	.82	.003	.057
78-10-30	1100	.00	.51	.51	.01	.03	.04	.55	.000	.038
78-11-30	1030	.10	.43	.53	.01	.14	.15	.68	.010	.040
78-12-12	1115	.11	.45	.56	.01	.36	.37	.93	.007	.035
79-01-25	1745	.10	.34	.44	.01	.21	.22	.66	.025	.101
79-01-30	1300	.09	.29	.38	.01	.34	.35	.73	.007	.033
79-02-28	1245	.09	.46	.55	.01	.40	.41	.96	.008	.041
79-04-02	1315	.05	.52	.57	.01	.35	.36	.93	.003	.044
79-04-12	1415	.05	.25	.30	.01	.37	.38	.68	.003	.031
79-05-03	1215	.08	.64	.72	.01	.19	.20	.92	.000	.044
01098360 - PEGAN BROOK AT NATICK, MA (LAT 42 17 07 LONG 071 21 28)										
77-07-29	0940	.08	.25	.33	.01	2.2	2.2	2.5	.00	.01
77-08-30	1030	.09	.02	.11	.01	2.1	2.1	2.2	.01	.03
77-09-30	1015	.08	.00	.08	.01	2.5	2.5	2.6	.002	.012
77-10-31	1000	.09	.40	.49	.01	2.1	2.1	2.6	.001	.012
77-12-07	1440	.04	.47	.51	.01	2.0	2.0	2.5	.004	.032
78-02-23	1015	.11	.37	.48	.01	2.4	2.4	2.9	.000	.045
78-04-20	0900	.04	.29	.33	.01	1.1	1.1	1.4	.010	.013
78-05-22	1000	.06	.28	.34	.01	1.7	1.7	2.0	.000	.008
78-06-19	0945	.08	.32	.40	.01	1.6	1.6	2.0	.002	.002
78-07-17	0945	.00	1.4	1.4	.01	.49	.50	1.9	.011	.225
78-09-01	1030	.04	.53	.57	.01	1.5	1.5	2.1	.002	.047
78-09-22	1030	.02	.47	.49	.00	1.6	1.6	2.1	.001	.022
78-09-29	0930	.00	.41	.41	.01	1.2	1.2	1.6	.000	.001
78-10-30	1040	.03	.22	.25	.00	1.4	1.4	1.7	.006	.006
78-11-30	0945	.01	.30	.31	.01	.63	.64	.95	.012	.041
78-12-09	1050	.01	.34	.35	.02	.40	.42	.77	.019	.085
78-12-12	1015	.09	.31	.40	.01	1.6	1.6	2.0	.000	.004
79-01-25	1715	.07	.79	.86	.01	.94	.95	1.8	.033	.261
79-01-30	0930	.06	.26	.32	.01	1.8	1.8	2.1	.000	.005
79-02-28	1110	.06	.19	.25	.01	1.8	1.8	2.1	.001	.011
79-04-02	1215	.09	.25	.34	.01	1.7	1.7	2.0	.004	.014
79-04-12	1335	.05	.11	.16	.01	1.6	1.6	1.8	.001	.011
79-04-27	1250	.00	.24	.24	.01	.28	.29	.53	.020	.042
79-05-03	1130	.02	.32	.34	.01	1.4	1.4	1.7	.000	.010

Table 3.--Concentrations of nitrogen and phosphorus species in major surface-water sources
discharging into or out of Lake Cochituate--Continued

DATE OF SAMPLE	TIME	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, ORTHO. TOTAL (MG/L AS P)	PHOS- PHORUS, TOTAL (MG/L AS P)
01098450 - SNAKE BROOK AT WAYLAND, MA (LAT 42 18 57 LONG 071 21 48)										
77-07-29	0815	.08	.30	.38	.01	1.3	1.3	1.7	.00	.01
77-08-30	0915	.16	.10	.26	.03	.85	.88	1.1	.01	.05
77-09-30	0900	.02	.06	.08	.01	1.3	1.3	1.4	.003	.031
77-10-31	0830	.00	.47	.47	.00	1.5	1.5	2.0	.000	.018
77-12-07	1600	.01	.49	.50	.00	1.3	1.3	1.8	.000	.026
78-02-23	0815	.07	.24	.31	.00	1.3	1.3	1.6	.000	.009
78-04-20	1630	.03	.24	.27	.00	.49	.49	.76	.000	.026
78-05-22	0815	.02	.58	.60	.01	.72	.73	1.3	.000	.032
78-06-19	0830	.09	.37	.46	.01	.99	1.0	1.5	.006	.011
78-07-17	0800	.02	.75	.77	.01	.93	.94	1.7	.011	.049
78-09-01	0845	.09	.37	.46	.02	1.3	1.3	1.8	.011	.020
78-09-22	0845	.17	.64	.81	.02	1.4	1.4	2.2	.009	.024
78-09-29	0740	.11	.77	.88	.01	1.9	1.9	2.8	.013	.095
78-10-30	1550	.01	.39	.40	.01	1.1	1.1	1.5	.001	.017
78-11-30	0830	.01	.66	.67	.01	.61	.62	1.3	.007	.081
78-12-09	1320	.01	.67	.68	.01	.68	.69	1.4	.003	.087
78-12-12	0810	.03	.37	.40	.01	1.5	1.5	1.9	.000	.008
79-01-25	0850	.03	.55	.58	.01	.27	.28	.86	.037	.139
79-01-30	0815	.08	.16	.24	.00	1.1	1.1	1.3	.004	.009
79-02-28	0905	.02	.33	.35	.00	1.1	1.1	1.5	.001	.022
79-04-02	1130	.02	.30	.32	.01	.82	.83	1.2	.003	.016
79-04-12	1255	.04	.19	.23	.00	.92	.92	1.2	.001	.018
79-04-27	0840	.02	.24	.26	.01	.45	.46	.72	.007	.077
79-05-03	0930	.01	.37	.38	.00	.84	.84	1.2	.000	.020
01098500 - LAKE COCHITUATE OUTLET AT FRAMINGHAM, MA (LAT 42 18 53 LONG 071 23 07)										
77-07-29	1500	.03	.35	.38	.00	.01	.01	.39	.00	.03
77-08-30	1455	.18	.11	.29	.00	.02	.02	.31	.00	.02
77-09-30	1445	.00	.29	.29	.00	.02	.02	.31	.000	.012
77-10-31	1630	.00	.63	.63	.00	.02	.02	.65	.000	.017
77-12-07	1330	.14	.46	.60	.01	.11	.12	.72	.000	.027
78-02-23	1600	.11	.42	.53	.00	.48	.48	1.0	.000	.020
78-04-20	1515	.08	.29	.37	.01	.63	.64	1.0	.002	.017
78-05-22	1630	.01	.43	.44	.01	.43	.44	.88	.000	.013
78-06-19	1530	.01	.46	.47	.01	.35	.36	.83	.000	.000
78-07-17	1430	.02	.44	.46	.01	.18	.19	.65	.000	.009
78-09-01	0805	.03	.47	.50	.00	.00	.00	.50	.000	.013
78-09-22	1600	.03	.64	.67	.01	.01	.02	.69	.000	.008
78-09-29	1513	.03	.62	.65	.01	.02	.03	.68	.005	.008
78-10-31	1125	.00	.56	.56	.00	.01	.01	.57	.000	.013
78-11-30	1445	.10	.48	.58	.00	.03	.03	.61	.005	.033
78-12-12	0850	.12	.57	.69	.01	.06	.07	.76	.000	.033
79-01-26	1105	.05	.37	.42	.00	.19	.19	.61	.000	.027
79-01-30	1500	.06	.35	.41	.00	.22	.22	.63	.002	.021
79-02-28	0820	.04	.44	.48	.00	.29	.29	.77	.000	.027
79-04-02	1500	.00	.63	.63	.00	.34	.34	.97	.000	.045
79-04-27	1820	.00	.10	.10	.00	.27	.27	.37	.004	.014
79-05-03	0830	.01	.37	.38	.01	.23	.24	.62	.002	.015

Table 4.--Concentrations of minor elements in major surface-water sources discharging into or out of Lake Cochituate

(Refer to tables 2 and 3 for station name corresponding with station number.)

STATION NUMBER	DATE OF SAMPLE	TIME	ANTIMONY, TOTAL (UG/L AS SB)	ARSENIC TOTAL (UG/L AS AS)	CADMIUM TOTAL RECOVERABLE (UG/L AS CO)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)
01098320	77-08-30	1345	0	0	0	<10	0	6	320	1000	12
	78-04-20	1430	--	1	0	<10	2	16	520	1100	16
	78-09-29	1318	--	--	--	--	--	--	170	--	--
	79-05-03	1515	--	--	--	--	--	--	1100	--	--
01098340	77-08-30	1250	0	1	0	10	0	8	230	1000	34
	78-04-20	1315	--	1	0	10	0	3	170	300	0
	78-09-29	1140	--	--	--	--	--	--	80	--	--
	79-05-03	1345	--	--	--	--	--	--	490	--	--
01098350	77-08-30	1140	0	1	0	10	0	3	110	740	10
	78-04-20	1030	--	2	0	10	1	9	420	1200	13
	79-05-03	1215	--	--	--	--	--	--	680	--	--
01098360	77-08-30	1030	0	1	0	10	0	21	170	830	22
	78-04-20	0900	--	1	0	20	0	17	80	1000	8
	78-09-29	0930	--	--	--	--	--	--	100	--	--
	79-05-03	1130	--	--	--	--	--	--	220	--	--
01098450	77-08-30	0915	0	0	0	10	0	2	270	1000	9
	78-04-20	1630	--	1	0	<10	0	1	200	300	1
	78-09-29	0740	--	--	--	--	--	--	280	--	--
	79-05-03	0930	--	--	--	--	--	--	380	--	--
01098500	77-08-30	1455	0	0	0	<10	0	3	40	100	7
	78-04-20	1515	--	1	0	10	0	4	180	300	4
	79-05-03	0830	--	--	--	--	--	--	110	--	--

STATION NUMBER	DATE OF SAMPLE	MANGANESE, DIS-SOLVED (UG/L AS MN)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)
01098320	77-08-30	--	50	.0	25	0	10
	78-04-20	90	90	<.5	--	0	40
	78-09-29	240	--	--	--	--	--
	79-05-03	150	--	--	--	--	--
01098340	77-08-30	--	50	.0	3	0	20
	78-04-20	30	50	<.5	--	0	10
	78-09-29	30	--	--	--	--	--
	79-05-03	80	--	--	--	--	--
01098350	77-08-30	--	80	.0	0	0	0
	78-04-20	70	80	<.5	--	0	30
	79-05-03	170	--	--	--	--	--
01098360	77-08-30	--	110	.0	27	0	80
	78-04-20	100	100	<.5	--	0	40
	78-09-29	50	--	--	--	--	--
	79-05-03	130	--	--	--	--	--
01098450	77-08-30	--	230	.0	3	0	10
	78-04-20	20	30	<.5	--	0	10
	78-09-29	340	--	--	--	--	--
	79-05-03	60	--	--	--	--	--
01098500	77-08-30	--	120	.0	3	0	0
	78-04-20	80	100	<.5	--	0	30
	79-05-03	10	--	--	--	--	--

Table 5.--Physical characteristics and concentrations of nitrogen and phosphorus species in precipitation and storm-water runoff samples

(Samples collected at selected storm sewers discharging overland runoff into Lake Cochituate and from major surface-water sources in the basin during selected precipitation events.)

NO. ON MAP	SITE IDENTIFICATION NUMBER AND LATITUDE/LONGITUDE/ SEQUENCE NUMBERS	STATION NAME	DRAIN- AGE AREA (SQ. MI.)	DATE OF SAMPLE	TIME	TEMPER- ATURE (DEG C)
PRECIPITATION						
1	421838071224001	QUAL OF PRECIP AT MDC LK COCHIT HUQTHS NATICK, MA	--	78-11-18 78-12-09 79-04-27	0700 1530 1700	-- -- --
STORM SEWERS						
2	421800071222401	STORM-SEWER OUTFALL AT SUPERIOR DR. NATICK, MA	--	78-12-09 79-01-25 79-04-27	1205 1200 1200	8.0 7.0 16.0
3	421751071222201	STORM-SEWER OUTFALL NR ROBINHOOD RD, NATICK, MA	.01	78-12-09 79-04-27	1050 1050	7.0 15.0
4	421738071221901	STORM-SEWER OUTFALL POSSUM HOLLOW LANE NATICK, MA	.05	78-12-09 79-01-25 79-04-27 79-04-27	1255 1225 1225 1425	6.5 1.0 13.5 14.5
5	421724071223101	STORM-SEWER OUTFALL AT CRESCENT ST. NATICK, MA	.03	78-12-09 79-01-25 79-04-27 79-04-27	1315 1300 1250 1335	6.5 2.0 13.0 16.0
6	421707071213001	SETTLING BASIN POND AT OUTLET, NATICK, MA	2/.15	78-12-09 79-01-25 79-04-27	1210 1650 1120	7.5 1.5 16.0
7	421727071212501	STORM-SEWER OUTFALL AT NATICK LAB APTS NATICK, MA	.13	78-12-09 79-01-25 79-04-27	1145 1620 1025	7.5 1.0 15.0
8	421731071213001	STORM-SEWER OUTFALL INTO NATICK LABS P NATICK, MA	.12	78-12-09	0945	7.0
9	421727071213301	NATICK LABS POND AT OUTLET, NATICK, MA	.24	78-12-09 79-01-25 79-04-27	1440 0930 1100	5.5 2.0 17.0
10	421735071220701	STORM-SEWER OUTFALL NR LAKEWOOD RD, NATICK, MA	.03	78-12-09 79-01-25 79-04-27 79-04-27	1420 0950 1530 1730	6.5 1.5 14.5 15.0
11	421756071221701	STORM-SEWER OUTFALL AT STATE ROUTE 9, NATICK, MA	.02	78-12-09 79-04-27	1145 1145	7.0 17.0
12	421811071214401	UNNAMED BROOK AT NORTH MAIN ST, NATICK, MA	.27	78-12-09 79-01-25 79-04-27	0930 1545 0945	7.5 2.0 16.0
13	421841071221001	DRAINAGE DITCH BESIDE MASS. TURNPIKE, NATICK, MA	.01	79-01-25 79-04-27	1420 1710	2.0 17.0
14	421856071220101	UNNAMED BROOK AT STATE ROUTE 30, WAYLAND, MA	.16	78-07-17 78-12-09 79-01-25 79-04-27	1400 1250 1445 0900	20.5 7.0 2.0 15.0
15	421907071222601	STORM-SEWER OUTFALL AT MAGUIRE RD, WAYLAND, MA	.03	78-12-09 79-01-25 79-04-27	0855 1010 0900	6.5 1.0 14.5
16	421916071224101	STORM-SEWER OUTFALL AT MORRILL DRIVE, WAYLAND, MA	.03	78-12-09 79-01-25 79-04-27	0920 1030 0935	6.5 1.0 14.0
17	421923071224601	STORM-SEWER OUTFALL AT PARKRIDGE RD, WAYLAND, MA	.01	78-12-09 79-01-25 79-04-27	0930 1045 0950	6.5 1.0 15.0
18	421931071230801	STORM-SEWER OUTFALL AT TOWN BEACH, FRAMINGHAM, MA	.08	78-12-09 79-01-25 79-04-27	0955 1055 1010	7.0 1.0 15.0
19	421900071225701	STORM-SEWER OUTFALL AT LASALLE AVE FRAMINGHAM, MA	.01	78-12-09 79-01-25 79-04-27	1020 1110 1035	6.5 .5 15.5

a/ Drainage area dependent on the physical integrity of diversion channel existing along the shore of Lake Cochituate. Water in the channel may flow over the sides of the channel into the lake during high-flow events.

Table 5.--Physical characteristics and concentrations of nitrogen and phosphorus species in precipitation and storm-water runoff samples--Continued

DATE OF SAMPLE	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NO ₂ +NO ₃ TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS- PHORUS, TOTAL (MG/L AS P)
PRECIPITATION--Continued												
78-11-18	--	19	4.7	--	--	--	--	--	--	--	--	--
78-12-09	--	18	4.4	.08	.00	.08	.01	.20	.21	.29	.001	.019
79-04-27	--	16	3.7	.08	.87	.95	.00	.09	.09	1.0	.001	.007
STORM SEWERS--Continued												
78-12-09	.29	19	--	.08	.05	.13	.01	.27	.28	.41	.011	.037
79-01-25	.42	233	--	.04	.01	.05	.01	.53	.54	.59	.037	.116
79-04-27	.37	19	--	.11	.08	.19	.00	.26	.26	.45	.011	.021
78-12-09	.19	14	--	.01	.18	.19	.01	.11	.12	.31	.070	.107
79-04-27	.12	9	--	.02	.12	.14	.01	.08	.09	.23	.084	.258
78-12-09	.34	32	--	.02	.28	.30	.02	.19	.21	.51	.036	.121
79-01-25	.67	94	--	.10	.43	.53	.01	.27	.28	.81	.082	.165
79-04-27	.04	117	--	.01	.25	.26	.01	.58	.59	.85	.029	.054
79-04-27	.12	65	--	.01	.16	.17	.01	.33	.34	.51	.044	.141
78-12-09	.28	44	--	.01	.42	.43	.04	.13	.17	.60	.046	.086
79-01-25	1.4	78	--	.02	.89	.91	.01	.19	.20	1.1	.054	.279
79-04-27	.01	86	--	.01	.25	.26	.01	.51	.52	.78	.023	.082
79-04-27	.67	25	--	.00	.22	.22	.01	.08	.09	.31	.032	.453
78-12-09	1.7	260	--	.09	.70	.79	.01	.40	.41	1.2	.029	.152
79-01-25	2.0	116	--	.04	.40	.44	.01	.47	.48	.92	.050	.131
79-04-27	2.2	175	--	.01	.15	.16	.01	.20	.21	.37	.019	.140
78-12-09	1.4	60	--	.01	.66	.67	.01	.54	.55	1.2	.068	.106
79-01-25	4.2	119	--	.07	.46	.53	.01	.91	.92	1.5	.109	.171
79-04-27	4.2	57	--	.03	.27	.30	.01	.55	.56	.86	.073	.276
78-12-09	.48	66	--	.01	.49	.50	.02	.46	.48	.98	.047	.234
78-12-09	.94	240	--	.06	.38	.44	.01	.26	.27	.71	.010	.035
79-01-25	31	96	--	.17	.62	.79	.01	.33	.34	1.1	.088	.177
79-04-27	2.6	302	--	.03	.16	.19	.01	.49	.50	.69	.013	.041
78-12-09	.02	14	--	.00	.27	.27	.01	.05	.06	.33	.074	.130
79-01-25	.53	24	--	.05	.28	.33	.01	.02	.03	.36	.076	.154
79-04-27	.02	16	--	.03	.08	.11	.01	.08	.09	.20	.069	.121
79-04-27	.06	35	--	.11	.09	.20	.01	.17	.18	.38	.045	.089
78-12-09	.26	46	--	.01	.40	.41	.01	.13	.14	.55	.048	.093
79-04-27	.15	31	--	.15	.07	.22	.05	.18	.23	.45	.030	.075
78-12-09	2.1	49	--	.00	.25	.25	.00	.05	.05	.30	.017	.081
79-01-25	7.5	60	--	.04	.47	.51	.01	.28	.29	.80	.035	.144
79-04-27	3.2	29	--	.03	.05	.08	.01	.15	.16	.24	.022	.117
79-01-25	.16	321	--	.12	.27	.39	.05	.17	.22	.61	.021	.061
79-04-27	.19	76	--	.18	.03	.21	.09	.31	.40	.61	.022	.173
78-07-17	--	40	5.6	.00	.66	.66	.01	.26	.27	.93	.114	.144
78-12-09	1.0	50	--	.06	.53	.59	.02	.35	.37	.96	.101	.151
79-01-25	3.1	104	--	.13	.64	.77	.01	1.3	1.3	2.1	.113	.247
79-04-27	1.3	55	--	.06	.23	.29	.02	.52	.54	.83	.102	.185
78-12-09	.07	23	--	.01	.32	.33	.01	.15	.16	.49	.062	.100
79-01-25	1.0	32	--	.13	.43	.56	.00	.16	.16	.72	.171	.267
79-04-27	.34	9	--	.02	.17	.19	.01	.06	.07	.26	.138	.219
78-12-09	.01	52	--	.01	.17	.18	.02	.14	.16	.34	.053	.104
79-01-25	.25	28	--	.08	.33	.41	.00	.03	.03	.44	.105	.199
79-04-27	.04	8	--	.08	.02	.10	.01	.05	.06	.16	.052	.132
78-12-09	.04	22	--	.01	.58	.59	.01	.03	.04	.63	.085	.129
79-01-25	.24	24	--	.04	.40	.44	.00	.02	.02	.46	.075	.116
79-04-27	.05	9	--	.00	.18	.18	.01	.03	.04	.22	.101	.221
78-12-09	.62	54	--	.02	.70	.72	.02	.09	.11	.83	.037	.077
79-01-25	1.4	42	--	.10	.43	.53	.01	.03	.04	.57	.110	.178
79-04-27	.23	14	--	.02	.02	.04	.02	.09	.11	.15	.054	.120
78-12-09	.08	40	--	.04	.15	.19	.04	.17	.21	.40	.013	.046
79-01-25	.39	53	--	.13	.59	.72	.00	.10	.10	.82	.147	.204
79-04-27	.38	14	--	.05	.05	.10	.01	.11	.12	.22	.053	.355

Table 5.--Physical characteristics and concentrations of nitrogen and phosphorus species in precipitation and storm-water runoff samples--Continued

STATION NUMBER	STATION NAME	LAT- I- TUDE	LONG- I- TUDE	SEQ. NO.	DATE OF SAMPLE	TIME					
MAJOR SURFACE-WATER SOURCES											
01098320	BEAVERDAM BROOK AT NATICK, MA	42 17 10	071 22 56	00	78-12-09 79-01-25 79-04-27	1400 1850 1505					
01098340	COURSE BROOK AT NATICK, MA	42 16 42	071 22 31	00	78-12-09 79-01-25 79-04-27	1340 1815 1450					
01098350	FISK POND OUTLET AT NATICK, MA	42 17 00	071 22 07	00	79-01-25	1745					
01098360	PEGAN BROOK AT NATICK, MA	42 17 07	071 21 28	00	78-12-09 79-01-25 79-04-27	1050 1715 1250					
01098450	SNAKE BROOK AT WAYLAND, MA	42 18 57	071 21 48	00	78-12-09 79-01-25 79-04-27	1320 0850 0840					
01098500	LAKE COCHITUATE OUTLET AT FRAMINGHAM, MA	42 18 53	071 23 07	00	79-01-26 79-04-27	1105 1820					
STATION NUMBER	DATE OF SAMPLE	DRAIN- AGE AREA (SQ. MI.)	TEMPER- ATURE (DEG C)	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHUS)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)
01098320	78-12-09 79-01-25 79-04-27	7.25	7.0 1.0 14.5	46 214 61	225 112 185	.00 .07 .10	.81 .30 .43	.81 .37 .53	.02 .01 .01	.27 .19 .27	.29 .20 .28
01098340	78-12-09 79-01-25 79-04-27	3.42	6.5 .5 14.5	7.0 180 23	170 40 103	.01 .07 .03	.31 .25 .28	.32 .32 .31	.01 .00 .01	.30 .10 .14	.31 .10 .15
01098350	79-01-25	11.4	1.0	--	134	.10	.34	.44	.01	.21	.22
01098360	78-12-09 79-01-25 79-04-27	.54	7.5 2.0 15.0	3.1 16 6.0	230 151 163	.01 .07 .00	.34 .79 .24	.35 .86 .24	.02 .01 .01	.40 .94 .28	.42 .95 .29
01098450	78-12-09 79-01-25 79-04-27	2.10	6.0 1.0 15.0	6.9 131 8.6	154 61 154	.01 .03 .02	.67 .55 .24	.68 .58 .26	.01 .01 .01	.68 .27 .45	.69 .28 .46
01098500	79-01-26 79-04-27	17.7	2.0 12.0	314 39	246 245	.05 .00	.37 .10	.42 .10	.00 .00	.19 .27	.19 .27
STATION NUMBER	DATE OF SAMPLE	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS- PHORUS, TOTAL (MG/L AS P)							
01098320	78-12-09 79-01-25 79-04-27	1.1 .57 .81	.014 .044 .014	.193 .161 .102							
01098340	78-12-09 79-01-25 79-04-27	.63 .42 .46	.003 .036 .012	.046 .070 .048							
01098350	79-01-25	.66	.025	.101							
01098360	78-12-09 79-01-25 79-04-27	.77 1.8 .53	.019 .033 .020	.085 .261 .042							
01098450	78-12-09 79-01-25 79-04-27	1.4 .86 .72	.003 .037 .007	.087 .139 .077							
01098500	79-01-26 79-04-27	.61 .37	.000 .004	.027 .014							

Table 6.--Concentrations of organochlorine compounds and polychlorinated biphenyl residues in streambed material of major surface-water sources discharging into or out of Lake Cochituate

(Refer to preceding page for station name corresponding with station number)

STATION NUMBER	DATE OF SAMPLE	TIME	ALDRIN, TOTAL IN BOT-TOM MATERIAL (UG/KG)	CHLOR-DANE, TOTAL IN BOT-TOM MATERIAL (UG/KG)	DDD, TOTAL IN BOT-TOM MATERIAL (UG/KG)	DDE, TOTAL IN BOT-TOM MATERIAL (UG/KG)	DDT, TOTAL IN BOT-TOM MATERIAL (UG/KG)	D1-ELDRIN, TOTAL IN BOT-TOM MATERIAL (UG/KG)	ENDO-SULFAN, TOTAL IN BOT-TOM MATERIAL (UG/KG)	ENDRIN, TOTAL IN BOT-TOM MATERIAL (UG/KG)	HEPTA-CHLOR, TOTAL IN BOT-TOM MATERIAL (UG/KG)
01098320	77-08-30	1345	.0	.9	3.0	.8	6.9	.0	0.0	.0	.0
	78-04-20	1430	.0	110	24	.0	29	11	0.0	.0	.0
01098340	77-08-30	1250	.0	0	.0	11	.0	7.4	0.0	.0	.0
	78-04-20	1315	.0	41	170	38	32	2.0	0.0	.0	.0
01098350	78-04-20	1030	.0	35	140	57	22	.0	0.0	.0	.0
01098360	77-08-30	1030	.0	33	130	10	28	.6	0.0	.0	.0
	78-04-20	0900	.0	160	430	31	85	2.6	0.0	.0	.0
01098450	77-08-30	0915	.0	13	74	17	3.4	.3	0.0	.0	.0
	78-04-20	1630	.0	8	5.7	5.5	65	.4	0.0	.0	.0
01098500	77-08-30	1455	.0	0	.0	.0	.5	.0	0.0	.0	.0
	78-04-20	1515	.0	5	15	5.2	2.2	.2	0.0	.0	.0

STATION NUMBER	DATE OF SAMPLE	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL IN BOT-TOM MATERIAL (UG/KG)	NAPH-THA-LENES, POLY-CHLOR. TOTAL IN BOT-TOM MATERIAL (UG/KG)	TOXA-PHENE, TOTAL IN BOT-TOM MATERIAL (UG/KG)	PCB, TOTAL IN BOT-TOM MATERIAL (UG/KG)	PER-THANE TOTAL IN BOT-TOM MATERIAL (UG/KG)
01098320	77-08-30	.0	.0	0	0	5	0.0
	78-04-20	.0	.0	0	0	150	0.0
01098340	77-08-30	.0	.0	0	0	27	0.0
	78-04-20	.0	.0	0	0	38	0.0
01098350	78-04-20	.0	.0	0	0	36	0.0
01098360	77-08-30	.1	.0	0	0	0	0.0
	78-04-20	.0	.0	0	0	130	0.0
01098450	77-08-30	.0	.0	0	0	17	0.0
	78-04-20	.0	.0	0	0	18	0.0
01098500	77-08-30	.0	.0	0	0	0	0.0
	78-04-20	.0	.0	0	0	8	0.0

Table 7.--Physical characteristics and concentrations of chemical constituents in South, Middle, and North Ponds, Lake Cochituate, and Dudley Pond

NO. ON MAP	SITE-IDENT. NO.	STATION NAME	LAT- I- TUDE	LONG- I- TUDE	SEQ. NO.	DATE OF SAMPLE	TIME
20	421943071223401	DUDLEY POND AT WAYLAND, MA	42 19 43	071 22 34	01	79-02-23	1430
21	421926071225501	NORTH POND OF LAKE COCHITUATE AT FRAMINGHAM, MA	42 19 26	071 22 55	01	79-02-23	1145
22	421856071222801	LAKE COCHITUATE - NORTH BASIN AT DEEP HOLE, MA	42 18 56	071 22 28	01	79-03-30	1530
23	421818071221901	LAKE COCHITUATE - MIDDLE BASIN AT DEEP HOLE, MA	42 18 18	071 22 19	01	79-03-30	1415
24	421724071221101	LAKE COCHITUATE - SOUTH BASIN AT DEEP HOLE, MA	42 17 24	071 22 11	01	79-03-30	1215

SITE-IDENT. NO.	DATE OF SAMPLE	DEPTH OF SAMPLE (FEET BELOW LAKE SURFACE)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	PH	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	ALKA- LITY (MG/L AS CACO3)	HARD- NESS (MG/L AS CACO3)
421943071223401	79-02-23	23	5.0	341	2.0	16	6.9	32	0	26	54
421926071225501	79-02-23	35	2.0	276	9.0	65	6.8	22	0	18	50
421856071222801	79-03-30	0-25 (DI) ¹	5.5	250	12.5	99	7.2	--	--	--	--
421818071221901	79-03-30	0-25 (DI) ¹	5.5	250	12.6	100	7.1	--	--	--	--
421724071221101	79-03-30	0-20 (DI) ¹	6.5	252	12.0	97	7.2	--	--	--	--

SITE-IDENT. NO.	DATE OF SAMPLE	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SULFATE DIS- SOLVED (MG/L AS SO4)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)
421943071223401	79-02-23	28	16	3.5	40	1.8	72	12	1.1	162	.30
421926071225501	79-02-23	32	15	3.0	32	1.9	55	15	3.6	137	.09
421856071222801	79-03-30	--	--	--	--	--	--	--	--	--	.01
421818071221901	79-03-30	--	--	--	--	--	--	--	--	--	.06
421724071221101	79-03-30	--	--	--	--	--	--	--	--	--	.06

SITE-IDENT. NO.	DATE OF SAMPLE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS- PHORUS, TOTAL (MG/L AS P)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
421943071223401	79-02-23	.49	.79	.00	.21	.21	1.0	.029	.048	0	<10
421926071225501	79-02-23	.34	.43	.00	.68	.68	1.1	.000	.031	0	10
421856071222801	79-03-30	.52	.53	.00	.35	.35	.88	.000	.042	--	--
421818071221901	79-03-30	.51	.57	.01	.30	.31	.88	.011	.026	--	--
421724071221101	79-03-30	.53	.59	.01	.35	.36	.95	.004	.027	--	--

SITE-IDENT. NO.	DATE OF SAMPLE	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
421943071223401	79-02-23	1	71	170	550	110	120	120	190
421926071225501	79-02-23	1	25	130	230	30	110	110	70
421856071222801	79-03-30	--	--	--	--	--	--	--	--
421818071221901	79-03-30	--	--	--	--	--	--	--	--
421724071221101	79-03-30	--	--	--	--	--	--	--	--

¹DI = DEPTH INTEGRATED

Table 8.—Description of selected wells and borings

(Note: Not all data about a specific well may be stored in U.S. Geological Survey computer files, therefore, additional well information may be on file in the Massachusetts Subdistrict Office, Boston, Mass.)

METHOD MEASURED LSD: The letter code "L" indicates the altitude of land-surface datum was determined by leveling or "M" by interpolating from the latest 7.5-minute series topographic-quadrangle map.

OWNER: MDC = Metropolitan District Commission, MDEQE = Massachusetts Department of Environmental Quality Engineering, MDPW = Massachusetts Department of Public Works, and USGS = U.S. Geological Survey.

METHOD CONSTRUCTED: B = Bored or augered, C = cable tool, D = dug, W = drive and wash.

WELL-CASING MATERIAL: I = wrought iron, P = polyvinyl chloride or other plastic, S = steel.

WELL FINISH: G = gravel pack with screen, H = horizontal screen, O = open end, S = vertical screen.

SCREEN:

OPENINGS (TYPE): L = louvered or shuttered, P = slotted, R = wire wound, S = screen (type not known).

MATERIAL (TYPE): B = brass or bronze, P = polyvinyl chloride or other plastic, R = stainless steel.

DISCHARGE: The alphabetic character to the right of the discharge value describes the method used to determine the discharge. O = orifice, R = reported (method not known), V = volumetric.

USE OF SITE: O = observation, T = test hole, W = withdrawal of water.

USE OF WATER: H = domestic, N = industrial (cooling), P = public supply, R = recreation.

TYPES OF LOGS AVAILABLE: D = driller's, E = electric, G = geologist's.

OTHER DATA AVAILABLE:

FREQUENCY OF WATER-LEVEL (WL) COLLECTION: M = monthly, W = weekly.

TYPE OF QUALITY OF WATER (QW) DATA: A = physical; B = common chemical; C = minor elements; D = pesticides; E = nutrients; F = sanitary; G = codes B and D; H = codes B and E; J = codes B and F; K = codes D and E; L = codes C, D, and E; M = all or most; Z = other.

Table 8.--Description of selected wells and borings--Continued

SITE-IDENT. NO.	LOCAL NUMBER	LATITUDE AND LONGITUDE DEGREES-MINUTES-SECONDS	ALTITUDE OF LAND SURFACE (FT. NGVD)	METHOD MEAS. LSD.	OWNER	DATE FIRST CONSTRUCT/ COMPLETE	METHOD CONST- RUCTED	DEPTH DRILLED (FT. BE- LOW LSD.)	DEPTH WELL TOP SCREEN (FT. BE- LOW LSD.)
421759071224701	NCW 46	42 17 59 N 071 22 47 W	175	L	SEARS	04/03/1964	C	85.00	71.00
421802071224901	NCW 47	42 18 02 N 071 22 49 W	173	L	SEARS	03/25/1964	C	81.00	62.00
421807071225201	NCW 48	42 18 07 N 071 22 52 W	175	L	SEARS	04/10/1964	C	101.00	--
421758071224701	NCR 17	42 17 58 N 071 22 47 W	175	L	MDPW	11/ /1966	W	81.00	--
421758071223201	NCR 19	42 17 58 N 071 22 32 W	161	L	MDPW	05/21/1976	W	63.00	--
421756071222201	NCH 21	42 17 56 N 071 22 22 W	129	L	MDPW	08/06/1931	W	59.40	--
421809071223301	NCA 61	42 18 09 N 071 22 33 W	169	M	USGS	06/26/1978	B	47.00	--
421812071222201	NCW 28	42 18 12 N 071 22 22 W	160	M	CARLING CO.	02/19/1971	W	192.00	190.00
421811071222401	NCW 29	42 18 11 N 071 22 24 W	161	M	CARLING CO.	05/04/1971	--	212.50	196.00
421811071222402	NCW 30	42 18 11 N 071 22 24 W	161	M	CARLING CO.	05/07/1971	--	202.80	182.00
421813071222101	NCW 65	42 18 13 N 071 22 21 W	158.6	L	USGS	06/28/1978	B	60.00	34.00
421812071222601	NCW 66	42 18 12 N 071 22 26 W	165.1	L	USGS	06/28/1978	B	45.00	38.76
421741071222701	NCW 62	42 17 41 N 071 22 27 W	170.2	L	USGS	06/26/1978	H	55.00	44.14
421741071222101	NCW 63	42 17 41 N 071 22 21 W	166.4	L	USGS	06/27/1978	H	84.00	73.70
421741071222102	NCW 64	42 17 41 N 071 22 21 W	166.7	L	USGS	06/27/1978	H	84.00	53.61
421710071225701	NCH 25	42 17 10 N 071 22 57 W	141	L	MDPW	06/23/1966	W	13.50	--
421702071223201	NCH 10	42 17 02 N 071 22 32 W	149	L	MDPW	02/03/1954	W	69.50	--
421702071225301	NCH 11	42 17 02 N 071 22 53 W	165	L	MDPW	11/14/1966	W	52.00	--
421657071223701	NCR 18	42 16 57 N 071 22 37 W	141	L	MDPW	1970	W	60.00	--
421701071220701	NCH 19	42 17 01 N 071 22 07 W	114	L	MDPW	01/18/1967	W	91.00	--
421700071222401	NCW 45	42 17 00 N 071 22 24 W	151	M	NATICK, TOWN	06/09/1954	W	115.00	--
421648071220701	NCW 60	42 16 48 N 071 22 07 W	160	M	USGS	06/23/1978	H	49.00	44.00
421720071211201	NCW 49	42 17 20 N 071 21 12 W	159	M	PAPER BORD	10/10/1972	W	14.00	--
421725071213801	NCW 35	42 17 25 N 071 21 38 W	143	M	U.S.ARMV	11/03/1975	W	67.00	37.00
421721071214201	NCW 40	42 17 21 N 071 21 42 W	147	M	U.S.ARMV	11/14/1975	W	66.00	--
421709071214201	NCW 32	42 17 09 N 071 21 42 W	145	M	U.S.ARMV	10/27/1977	C	69.00	54.00
421715071215301	NCW 34	42 17 15 N 071 21 53 W	149	M	U.S.ARMV	10/29/1975	W	120.00	110.00
421729071215201	NCW 37	42 17 29 N 071 21 52 W	154	M	U.S.ARMV	11/05/1975	W	133.00	--
421733071215201	NCW 56	42 17 33 N 071 21 52 W	154.9	L	USGS	06/20/1978	H	34.00	23.16
421730071215901	NCW 57	42 17 30 N 071 21 54 W	149.3	L	USGS	06/20/1978	H	29.00	22.87
421730071215902	NCW 58	42 17 30 N 071 21 59 W	149.1	L	USGS	06/21/1978	B	125.00	47.78
421742071220601	NCW 59	42 17 42 N 071 22 06 W	157.2	L	USGS	06/23/1978	B	39.00	33.50
421754071220701	NCW 1	42 17 54 N 071 22 07 W	145	M	NATICK, TOWN	1903	O	62.75	--
421754071220901	NCW 2	42 17 54 N 071 22 09 W	148	L	NATICK, TOWN	12/ /1946	C	62.50	42.50
421754071221001	NCW 3	42 17 54 N 071 22 10 W	148	L	NATICK, TOWN	1954	C	75.40	55.40
421754071221101	NCW 4	42 17 54 N 071 22 11 W	147	L	NATICK, TOWN	01/09/1967	C	66.00	45.00
421759071221301	NCW 26	42 17 59 N 071 22 13 W	150	M	CARLING CO.	03/08/1954	--	118.00	98.00
421830071222001	NCW 50	42 18 30 N 071 22 20 W	148	M	NATICK, TOWN	1973	--	85.00	41.50
421831071221901	NCW 51	42 18 31 N 071 22 19 W	145	M	NATICK, TOWN	1976	--	--	--
421834071222101	NCW 52	42 18 34 N 071 22 21 W	145	M	NATICK, TOWN	12/ /1966	W	84.00	--

Table 8.--Description of selected wells and borings--Continued

LOCAL NUMBER	DEPTH WELL BOT. SCREEN OR BOT. CAS- ING (FT. BE- LOW LSD.)	MP. ABOVE LSD. (FEET)	WELL CASING (DIAMETER IN INCHES - MATERIAL)	WELL FINISH	SCREEN DIAMETER (IN.) - OPENING (TYPE) - MATERIAL (TYPE)	DISCHARGE (GALLONS PER MINUTE)	USE OF SITE	USE OF WATER	DEPTH TO BEDROCK (FT. BE- LOW LSD.)	TYPES OF LOGS AVAILABLE	OTHER DATA AVAILABLE (FREQ. WL -TYPE QW)
NCW 46	73.00	--	6 --	S	6.00 S --	0.00 R	T	--	73	D	-- --
NCW 47	66.00	--	6 --	S	6.00 S --	1 R	T	--	66	D	-- --
NCW 48	101.00	--	6 --	0	-- -- --	--	T	--	91	D	-- --
NCW 17	81.00	--	2.50 --	0	-- -- --	--	T	--	--	D	-- --
NCW 19	63.00	--	2.50 --	0	-- -- --	--	T	--	53	D	-- --
NCW 21	59.40	--	2.50 --	0	-- -- --	--	T	--	--	D	-- --
NCA 61	-- --	--	-- --	--	-- -- --	--	T	--	--	G	-- --
NCW 28	192.00	--	2.50 --	S	2.50 S --	20	T	--	--	D	-- --
NCW 29	206.00	--	4 --	S	4.00 R --	60 R	T	--	212	D, E	-- --
NCW 30	202.00	--	8 --	S	8.00 R --	250 0	T	--	--	D	-- --
NCW 65	37.00	0.00	2 P	S	2.00 P P	0.2 V	0	--	--	G	M M
NCW 66	41.76	0.00	2 P	S	2.00 P P	0.8 V	0	--	--	G	M --
NCW 62	47.14	0.00	2 P	S	2.00 P P	0.3 V	0	--	--	G	M E
NCW 63	76.70	0.00	2 P	S	2.00 P P	0.3 V	0	--	--	G	M E
NCW 64	56.61	0.39	2 P	S	2.00 P P	5 V	0	--	--	G	M M
NCW 25	13.50	--	2.50 S	0	-- -- --	--	T	--	13	D	-- --
NCW 10	69.50	--	2.50 --	0	-- -- --	--	T	--	69	D	-- --
NCW 11	52.00	--	2.50 --	0	-- -- --	--	T	--	--	D	-- --
NCW 18	60.00	--	2.50 --	0	-- -- --	--	T	--	--	D	-- --
NCW 19	91.00	--	2.50 --	0	-- -- --	--	T	--	--	D	-- --
NCW 45	115.00	--	2.50 --	0	-- -- --	--	T	--	--	D	-- --
NCW 60	47.00	0.00	2 P	S	2.00 P P	1 V	0	--	--	G	M M
NCW 49	14.00	--	2.50 --	0	-- -- --	--	T	--	--	D	-- --
NCW 35	42.00	--	2.50 --	S	2.50 S --	30 R	T	--	67	D	-- --
NCW 40	66.00	--	2.50 --	0	-- -- --	--	T	--	66	D	-- --
NCW 32	69.00	--	12 S	G	12.00 R R	250	W	N	69	D	-- --
NCW 34	120.00	--	2.50 --	S	2.50 S --	8 R	T	--	120	D	-- --
NCW 37	133.00	--	2.50 --	0	-- -- --	--	T	--	133	D	-- --
NCW 56	26.16	3.60	1.25 P	S	1.25 P P	6 V	0	--	--	G	M M
NCW 57	25.87	1.13	2 P	S	2.00 P P	0.8 V	0	--	--	G	M M
NCW 58	50.78	1.71	2 P	S	2.00 P P	--	0	--	--	G	M E
NCW 59	36.50	0.00	2 P	S	2.00 P P	2 V	0	--	--	G	M M
NCW 1	23.00	--	360 --	0	-- -- --	1300 R	W	P	--	D	-- --
NCW 2	62.50	--	16 I	S	16.50 S --	1200 0	W	P	--	D	-- --
NCW 3	75.40	--	18 --	S	18.00 S --	1200 R	W	P	--	--	-- --
NCW 4	65.00	--	18 S	G	18.00 L R	800 U	W	P	--	D	-- --
NCW 26	118.00	--	8 --	S	8.00 S --	460 0	T	--	--	D	-- --
NCW 50	61.50	--	24 --	G	24.00 S R	1400 R	W	P	--	D	-- --
NCW 51	-- --	--	-- --	--	-- -- --	1200 R	W	P	--	--	-- --
NCW 52	50.00	--	2.50 --	--	-- -- --	150 R	T	--	--	D	-- --

Table 8.--Description of selected wells and borings--Continued

SITE-IDENT. NO.	LOCAL NUMBER	LATITUDE AND LONGITUDE DEGREES-MINUTES-SECONDS	ALTITUDE OF LAND SURFACE (FT. NGVD)	METHOD MEAS. LSD.	OWNER	DATE FIRST CONSTRUCT/ COMPLETE	METHOD CONSTRUCTED	DEPTH DRILLED (FT. BE- LOW LSD.)	DEPTH WELL TOP SCREEN (FT. BE- LOW LSD.)
421840071222901	WKB 50	42 18 40 N 071 22 29 W	154	L	MASS PIKE	1954	W	100.00	--
421845071222201	WKB 51	42 18 45 N 071 22 22 W	130	L	MASS PIKE	1954	W	110.00	--
421840071221501	WKB 52	42 18 40 N 071 22 15 W	131	L	MASS PIKE	1954	W	100.30	--
421901071211501	WKB 53	42 19 01 N 071 21 15 W	140	L	MASS PIKE	1954	W	66.50	--
421852071220501	WKW 2	42 18 52 N 071 22 05 W	153.8	L	USGS	11/03/1964	B	37.50	31.10
421910071222501	WKW 27	42 19 10 N 071 22 25 W	155	M	WAYLAND, TOWN	11/15/1946	W	76.50	--
421905071222301	WKW 117	42 19 05 N 071 22 23 W	138.4	L	USGS	05/22/1978	B	32.00	1.50
421921071221201	WKW 118	42 19 21 N 071 22 12 W	181.0	L	USGS	05/22/1978	B	38.00	33.51
421912071221701	WKW 120	42 19 12 N 071 22 17 W	175.7	L	USGS	07/06/1978	B	49.00	17.00
421953071225901	WKW 54	42 19 53 N 071 22 59 W	130	M	WAYLAND, TOWN	05/06/1968	W	82.00	--
421927071224901	WKX 1	42 19 27 N 071 22 49 W	146	M	MDC	1937	--	265.00	--
421927071224301	WKX 2	42 19 27 N 071 22 43 W	185	M	MDC	1937	--	310.00	--
421928071223601	WKX 3	42 19 28 N 071 22 36 W	185	M	MDC	1937	--	305.00	--
421930071222001	WKX 4	42 19 30 N 071 22 20 W	190	M	MDC	1937	--	156.00	--
421943071225601	WKW 114	42 19 43 N 071 22 56 W	175.1	L	USGS	07/05/1978	B	65.00	57.60
421940071224801	WKW 121	42 19 40 N 071 22 48 W	144.3	L	USGS	07/06/1978	B	64.60	58.26
421941071224301	WKW 122	42 19 41 N 071 22 43 W	150.3	L	USGS	07/06/1978	B	64.00	58.20
421941071224302	WKW 123	42 19 41 N 071 22 43 W	150.2	L	USGS	01/12/1979	W	100.00	97.00
421941071224303	WKW 124	42 19 41 N 071 22 43 W	150.2	L	USGS	01/15/1979	W	100.00	21.30
421944071230001	F1W 92	42 19 44 N 071 23 00 W	191.2	L	USGS	11/24/1978	C	203.10	71.17
421944071230002	F1W 93	42 19 44 N 071 23 00 W	191.2	L	USGS	11/24/1978	C	203.10	117.88
421944071230003	F1W 94	42 19 44 N 071 23 00 W	191.2	L	USGS	11/24/1978	C	203.10	170.64
421946071230701	F1W 33	42 19 46 N 071 23 07 W	139	M	FRAMINGHAM, TOWN	04/25/1939	W	83.00	--
421917071230701	F1W 41	42 19 47 N 071 23 11 W	135	M	FRAMINGHAM, TOWN	01/ /1939	--	61.10	--
421950071231501	F1W 42	42 19 50 N 071 23 15 W	142	M	FRAMINGHAM, TOWN	1939	--	62.30	--
421949071231901	F1W 43	42 19 49 N 071 23 19 W	135	M	FRAMINGHAM, TOWN	1939	--	60.25	--
422001071231701	F1W 45	42 20 01 N 071 23 17 W	135	M	FRAMINGHAM, TOWN	01/23/1946	W	111.50	38.00
421932071230801	F1W 84	42 19 32 N 071 23 08 W	139.5	L	USGS	05/22/1978	B	18.00	12.32
421932071230802	F1W 90	42 19 32 N 071 23 08 W	142.7	L	USGS	11/09/1978	C	101.00	71.50
421932071230803	F1W 91	42 19 32 N 071 23 08 W	142.8	L	USGS	11/09/1978	C	101.10	94.98
421938071230901	F1W 87	42 19 38 N 071 23 09 W	193.4	L	USGS	07/05/1978	B	65.00	59.00
421938071230902	F1W 88	42 19 38 N 071 23 09 W	193.3	L	USGS	12/11/1978	C	163.20	88.49
421938071230903	F1W 89	42 19 38 N 071 23 09 W	193.3	L	USGS	12/11/1978	C	163.20	137.69
421922071232101	F1X 10	42 19 22 N 071 23 21 W	181	M	MDC	1937	--	137.00	--
421924071230501	F1X 11	42 19 24 N 071 23 05 W	165	M	MDC	1937	--	178.00	--
421910071232301	F1W 48	42 19 10 N 071 23 23 W	150	M	FRAMINGHAM, TOWN	1946	W	85.00	--
421915071231001	F1W 49	42 19 15 N 071 23 10 W	145	M	FRAMINGHAM, TOWN	04/20/1946	W	113.00	89.00
421906071230501	F1W 85	42 19 06 N 071 23 05 W	173	M	USGS	06/26/1978	B	37.00	24.00
421901071225701	F1A 86	42 19 01 N 071 22 57 W	140	M	USGS	06/29/1978	B	122.00	--
421852071231201	F1W 60	42 18 52 N 071 23 10 W	138	M	FRAMINGHAM, TOWN	04/19/1966	W	80.20	75.20
421841071231001	F1B 69	42 18 41 N 071 23 10 W	147	L	MASS PIKE	1954	W	41.00	--
421847071230701	F1B 70	42 18 47 N 071 23 07 W	164	L	MASS PIKE	1954	W	88.00	--
421852071224401	F1W 74	42 18 52 N 071 22 44 W	140	M	FRAMINGHAM, TOWN	06/30 /1966	W	71.00	45.00
421843071224201	NCR 12	42 18 43 N 071 22 42 W	135	L	MASS PIKE	1954	W	100.00	--
421837071225407	F1W 44	42 18 37 N 071 22 54 W	150	M	ZAYRE INC.	09/22/1966	W	64.00	24.00
422235071185001	NCW 53	42 18 35 N 071 22 50 W	165	M	ZAYRE INC.	09/23/1966	W	52.00	37.00
421830071224901	NCW 55	42 18 30 N 071 22 49 W	151	M	MOEQUE	02/27/1958	--	72.00	65.00

Table 8.--Description of selected wells and borings--Continued

LOCAL NUMBER	DEPTH WELL BOT. SCREEN OR BOT. CAS- ING (FT. BE- LOW LSD.)	MP. ABOVE LSD. (FEET)	WELL CASING (DIAMETER IN INCHES - MATERIAL)	WELL FINISH	SCREEN DIAMETER (IN.) - OPENING (TYPE) - MATERIAL (TYPE)	DISCHARGE (GALLONS PER MINUTE)	USE OF SITE	USE OF WATER	DEPTH TO BEDROCK (FT. BE- LOW LSD.)	TYPES OF LOGS AVAILABLE	OTHER DATA AVAILABLE (FREQ. WL -TYPE QW)
WKB 50	100.00	--	2.50 --	0	-- -- --	--	T	--	--	D	-- --
WKB 51	110.00	--	2.50 --	0	-- -- --	--	T	--	--	U	-- --
WKB 52	100.30	--	2.50 --	0	-- -- --	--	T	--	45	U	-- --
WKB 53	66.50	--	2.50 --	0	-- -- --	--	T	--	61	U	-- --
WKW 2	33.10	4.00	2 S	S	2.00 S --	--	O	--	--	G	M --
WKW 27	76.50	--	2.50 --	0	-- -- --	--	T	--	--	D	-- --
WKW 117	1.70	0.94	2 P	H	2.00 P P	--	O	--	--	G	M M
WKW 118	36.51	1.49	2 P	S	2.00 P P	4 V	O	--	--	G	M --
WKW 120	20.00	0.00	2 P	S	2.00 P P	0.1 V	O	--	--	G	M --
WKW 54	82.00	--	2.50 --	0	-- -- --	--	T	--	--	D	-- --
WKX 1	-- --	--	-- --	0	-- -- --	--	T	--	265	--	-- --
WKX 2	-- --	--	-- --	0	-- -- --	--	T	--	240	--	-- --
WKX 3	-- --	--	-- --	0	-- -- --	--	T	--	220	--	-- --
WKX 4	-- --	--	-- --	0	-- -- --	--	T	--	118	--	-- --
WKW 119	60.60	0.00	2 P	S	2.00 P P	1 V	O	--	--	G	M M
WKW 121	61.26	0.70	2 P	S	2.00 P P	1 V	O	--	--	G	M M
WKW 122	61.20	1.80	2 P	S	2.00 P P	2 V	O	--	--	G	M M
WKW 123	100.00	1.26	1.25 P	S	1.25 R P	2 R	O	--	--	U	M M
WKW 124	24.30	1.88	1.25 P	S	1.25 R P	8 K	O	--	--	U	M M
F1W 92	74.17	0.12	2 P	G	2.00 R P	--	O	--	203	U	M --
F1W 93	120.88	0.13	2 P	G	2.00 R P	--	O	--	203	U	M M
F1W 94	173.64	0.12	2 P	G	2.00 R P	--	O	--	203	U	M M
F1W 33	83.00	--	2.50 --	0	-- -- --	--	T	--	--	U	-- --
F1W 41	-- --	0.66	24 --	S	-- -- --	600 R	W	P	--	--	-- --
F1W 42	62.30	--	24 --	S	-- -- --	1000 R	W	P	--	--	-- --
F1W 43	60.25	--	24 --	S	-- -- --	600 R	W	P	--	--	-- --
F1W 45	43.00	--	2.50 --	S	2.50 S --	24 K	T	--	111	D	-- --
F1W 84	15.32	0.00	1.25 P	S	1.25 P P	--	O	--	--	G	M M
F1W 90	74.50	0.00	1.25 P	G	1.25 R P	--	O	--	97	U	M M
F1W 91	97.98	0.40	1.25 P	G	1.25 R P	--	O	--	97	U	M M
F1W 87	62.00	0.00	2 P	S	2.00 P P	2 V	O	--	--	G	M M
F1W 88	91.49	0.49	2 P	S	2.00 R P	--	O	--	163	U	M M
F1W 89	140.69	0.48	2 P	S	2.00 R P	--	O	--	163	U	M M
F1X 10	-- --	--	-- --	0	-- -- --	--	T	--	100	--	-- --
F1X 11	-- --	--	-- --	0	-- -- --	--	T	--	140	--	-- --
F1W 48	85.00	--	2.50 --	0	-- -- --	--	T	--	85	U	-- --
F1W 49	94.00	--	2.50 --	S	2.50 S --	30 R	T	--	--	U	-- --
F1W 85	27.00	0.00	2 P	S	2.00 P P	2 V	O	--	--	G	M M
F1A 86	-- --	--	-- --	--	-- -- --	--	T	--	--	G	-- --
F1W 60	80.20	--	2.50 --	S	2.50 S --	50 K	T	--	--	D	-- --
F1B 69	41.00	--	2.50 --	0	-- -- --	--	T	--	36	U	-- --
F1B 70	88.00	--	2.50 --	0	-- -- --	--	T	--	83	D	-- --
F1W 74	50.00	--	2.50 --	S	2.50 S --	--	T	--	--	U	-- --
NCR 12	100.00	--	2.50 --	0	-- -- --	--	T	--	--	U	-- --
F1W 44	39.00	--	2.50 --	S	2.50 S --	100 R	W	H	--	D	-- --
NCW 53	42.00	--	2.50 --	S	2.50 R B	20 R	W	H	--	D	-- --
NCW 55	70.00	--	8 --	S	8.00 S --	60 K	W	H, R	--	D	-- --

(Depths are given in feet below land-surface datum.)

Depth			Depth			Depth		
NCW-47.			NCW-65.			NCB-11.		
Sand, brown.....	0	- 25	Fill, sand and gravel.....	0	- 2	Fill, sand and gravel.....	0	- 12
Silt, brown.....	25	- 35	Sand; gravel; cobbles.....	2	- 10	Sand, loose, loamy.....	12	- 14
Silt, gray.....	35	- 62	Sand; gravel; little coarse			Sand, medium.....	14	- 19
Gravel and silt.....	62	- 66	sand; few small pebbles...	10	- 12	Sand, coarse.....	19	- 21
Bedrock.....	66	- 81	Sand, fine to medium, orange	12	- 17	Silt, yellow.....	21	- 22.5
			Sand, fine; little very fine			Silt, gray.....	22.5	- 52
			sand; few small pebbles...	17	- 22	Refusal, rock or boulder		
NCW-48.			Sand, fine to medium; very					
Gravel.....	0	- 15	few small granules.....	22	- 27	NCB-18.		
Sand, coarse.....	15	- 25	Sand, fine; some medium			Fill, sand, coarse to very		
Sand, fine; silt.....	25	- 50	sand; little silt.....	27	- 42	coarse; some gravel.....	0	- 6
Silt, gray.....	50	- 60	Clay; some silt; gray.....	42	- 60	Sand, medium; silt.....	6	- 7
Silt, light brown.....	60	- 91	Not to refusal			Silt, organic; sandy loam...	7	- 15.5
Rock.....	91	- 101				Sand, fine to very fine,		
			NCW-66.			loose; trace of silt.....	15.5	- 19
NCR-17.			Sand and gravel.....	0	- 2	Sand, coarse, loose.....	19	- 20.5
Fill.....	0	- 4.5	Sand, fine and very fine,			Silt, clayey;		
Sand, coarse to medium;			brown, in layers; silt;			some fine sand.....	20.5	- 26
some gravel; fine sand....	4.5	- 11.5	gray.....	2	- 4	Sand, coarse to very		
Sand, fine; some			Sand, fine to very fine,			coarse; some fine		
medium sand.....	11.5	- 17.5	light brown.....	4	- 7	gravel; loose.....	26	- 34.5
Sand, fine to very fine,			Sand, fine and very fine,			Sand, very fine, silty;		
silty.....	17.5	- 26	light brown.....	7	- 12	trace of clay.....	34.5	- 40
Sand, very fine to fine,			Sand, fine and very fine....	12	- 17	Sand, fine to very fine,		
silty.....	26	- 38.5	Sand, very fine; silt.....	17	- 25	silty; trace of medium		
Sand, very fine; some silt;			Sand, fine; little medium			sand.....	40	- 49
trace of clay.....	38.5	- 51.5	sand.....	25	- 27	Sand, fine to very fine,		
Sand, fine to very fine,			Sand, fine to medium,			silty; clay; some		
silty.....	51.5	- 63	little coarser than 25-			gravel.....	49	- 54
Sand, fine, silty.....	63	- 76	27 feet.....	27	- 32	Sand, very fine, silty;		
Sand, fine to medium;			Sand, very fine; silt.....	32	- 37	some gravel; trace of		
gravel; silty; trace of			Sand, fine; some very fine			clay and boulders.....	54	- 60
clay.....	76	- 79	sand and silt; coarser					
Sand, fine to medium, silty;			than 32-37 feet.....	37	- 42	NCB-19.		
coarse gravel; trace of			Sand, fine and very fine....	42	- 45	Sand; some gravel; loose....	0	- 4.5
clay (till).....	79	- 81	Not to refusal			Sand, fine, loose.....	4.5	- 10
						Sand, medium, loose.....	10	- 15
NCR-19.			NCW-62.			Sand, fine; trace of		
Fill.....	0	- 2	Fill, sand and gravel.....	0	- 2	gravel; loose.....	15	- 20
Sand; some gravel; silt....	2	- 4	Sand and gravel, stones			Sand, fine, firm.....	20	- 23
Sand, fine and some coarse;			to 2 inches.....	2	- 4	Sand, medium, loose.....	23	- 27
gravel.....	4	- 6	Sand, coarse; small pebbles.	4	- 6	Silt; veins of fine		
Sand, fine.....	6	- 9	Sand, fine to medium,			sand; loose.....	27	- 37
Sand, fine; gravel; some			yellow.....	6	- 7	Sand, fine; trace of silt;		
cobbles.....	9	- 16.5	Sand, fine to very fine;			loose.....	37	- 47
Sand, medium fine; silt....	16.5	- 33.5	some thin layers of silty			Sand, fine; trace of gravel;		
Sand, fine to coarse.....	33.5	- 38.5	clay.....	7	- 22	loose.....	47	- 53
Sand, fine, some coarse;			Sand, very fine; little silt	22	- 37	Silt; veins of fine sand....	53	- 67

Table 9.--Logs of selected wells and borings (Continued)

Depth			Depth			Depth		
NCW-40.			NCW-59 (Continued).			WKB-51.		
Fill.....	0	- 5	Sand, medium to coarse;			Mud.....	0	- 1
Sand, fine to medium;			gravel; some pebbles to			Sand, medium; some fine		
gravel; reddish.....	5	- 17	1 1/2 inches;			gravel; loose.....	1	- 7
Clay, blue; gray silt.....	17	- 64	little silt.....	12	- 17	Sand, medium, loose.....	7	- 19
Hardpan.....	64	- 66	Sand, medium to coarse;			Sand, fine; some peat;		
			little fine; few small			loose.....	19	- 23
			pebbles.....	17	- 22	Sand, fine; some silt;		
NCW-32.			Sand, medium to coarse,			loose.....	23	- 26
Topsoil.....	0	- 5	well-graded.....	22	- 27	Sand, medium, loose.....	26	- 36
Sand, fine, brown.....	5	- 21	Sand, medium to coarse,			Sand, coarse to fine; some		
Sand, silty; blue clay.....	21	- 31	well-graded; very little			gravel; loose.....	36	- 44
Sand, fine, silty, brown....	31	- 58	silt.....	27	- 32	Sand, medium; some silt;		
Gravel, broken and sharp;			Sand, medium to coarse.....	32	- 37	compact.....	44	- 63
trace of clay.....	58	- 69	Sand, fine, little coarse			Sand, fine; some silt and		
			to very coarse, little			gravel; compact.....	63	- 67
			very fine; few granules			Sand, fine; silt and		
			and pebbles.....	37	- 38	gravel; compact.....	67	- 88
			Rocks and clay (till).....	38	- 39	Sand, medium; trace of		
			Not to refusal			silt; compact.....	88	- 92
						Sand, fine; some silt;		
						compact.....	92	- 110
NCW-34.			NCW-2.			WKB-52.		
Topsoil.....	0	- 5	Sand and gravel.....	0	- 20.5	Peat, soft.....	0	- 8
Sand, fine to medium;			Sand, coarse, some fine....	20.5	- 26	Sand, fine; silt; loose....	8	- 12
gravel; brown.....	5	- 17	Sand and gravel.....	26	- 63	Silt, sandy, loose.....	12	- 17
Clay, blue; gray silt.....	17	- 111				Sand, fine; trace of silt;		
Gravel, broken and sharp;						loose.....	17	- 26
sharp; silty and brown						Sand, fine; some silt;		
clay.....	111	- 120				medium compact.....	26	- 48
			NCW-4.			Sand, fine; silt.....	48	- 67
			Sand, medium, brown.....	0	- 25	Sand; silt; gravel;		
NCW-37.			Sand, medium to coarse.....	25	- 30	compact.....	67	- 77
Fill.....	0	- 5	Sand, coarse; gravel; brown.	30	- 35	Sand, medium; gravel;		
Sand, fine to medium;			Sand, fine to medium.....	35	- 40	compact.....	77	- 81
gravel; brown.....	5	- 21	Sand, medium to coarse.....	40	- 45	Sand; silt; gravel;		
Sand, silty; blue clay.....	21	- 117	Sand, fine to medium.....	45	- 50	compact.....	81	- 92
Gravel, broken and sharp;			Sand, coarse; gravel.....	50	- 55	Silt, sandy, compact.....	92	- 95.3
clay and silt.....	117	- 133	Sand, medium to coarse;			Shale rock.....	95.3	- 100.3
			gravel.....	55	- 60			
			Sand, fine, medium brown....	60	- 66			
NCW-56.						WKB-53.		
Gravel, fine to medium;			NCW-26.			Peat; some fine sand;		
coarse sand.....	0	- 3	Gravel, bony.....	0	- 12	loose.....	0	- 5
Sand, medium, little fine...	3	- 15	Sand, brown.....	12	- 40	Sand, fine; silt; loose....	5	- 27
Pebbles, large.....	15	- 16	Sand and medium gravel.....	40	- 50	Sand, fine; some silt;		
Sand, medium, little fine...	16	- 17	Gravel, dirty.....	50	- 60	compact.....	27	- 35
Sand, coarse, well-graded,			Sand and gravel.....	60	- 80	Sand; silt; gravel; compact.	35	- 41
few pebbles.....	17	- 25	Gravel, clean.....	80	- 118	Silt; gravel; some sand;		
Pebbles, large; medium sand,			No ledge			compact.....	41	- 49
some fine.....	25	- 27				Silt; gravel; some sand;		
Sand, medium, some fine....	27	- 29				compact.....	49	- 61
Pebbles, large.....	29	- 30				Rock core, granite.....	61	- 66.5
Sand, very coarse to medium,			NCW-50.					
some fine; pebbles; very			Topsoil.....	0	- 3	WKW-2.		
little very fine sand			Sand, fine; scattered			Sand, very fine to fine,		
and silt.....	30	- 34	gravel.....	3	- 40	brown, very well-sorted,		
Not to refusal			Sand, coarse; gravel.....	40	- 63	slightly round.....	0	- 17.5
			Sand, fine; some clay and			Sand, medium to coarse,		
			gravel.....	63	- 86	brown, very well-sorted,		
			Refusal.....	at	- 86	slightly round.....	17.5	- 37.5
						Not to refusal		
NCW-58.			NCW-51.			WKW-27.		
Loam and large pebbles at			Topsoil.....	0	- 3	Gravel.....	0	- 10
2 feet.....	0	- 3	Sand and gravel, compact...	3	- 12	Clay and sand.....	10	- 76.5
Pebbles, large; sand.....	3	- 5	Sand, coarse; gravel.....	12	- 57			
Sand and large pebbles			Sand, fine; scattered			WKW-117.		
to 5 inches.....	5	- 7	Sand, fine; some clay and			Sand, medium, washed.....	0	- 0.2
Sand, fine and medium; some			gravel.....	63	- 86	Sand, fine, little medium;		
silt, brown; few 1/4-inch			Refusal.....	at	- 86	some clay or silt mixed		
pebbles.....	7	- 12				in; gray.....	0.2	- 2.5
Sand, very fine; silt;						Sand, medium; little layer		
some fine and medium sand;						coarse gravel; iron-		
little clay.....	12	- 17				stained.....	2.5	- 3
Sand, very fine;						Clay, saturated, gray.....	3	- 7
some silt.....	17	- 22				Clay; very little sand;		
Sand, fine, some medium;						gray.....	7	- 12
silt.....	22	- 24				Clay, gray-plastic, firmer		
Sand, medium and fine;						than above.....	12	- 17
very little silt;						Clay, gray, not as wet....	17	- 32
yellow-brown.....	24	- 34				Not to refusal		
Clay, thin layer.....	34	- 34						
Sand, medium and coarse,			NCW-52.			WKW-118.		
very little fine.....	34	- 52	Topsoil.....	0	- 3	Loam.....	0	- 1
Sand, medium to fine.....	52	- 54	Sand, fine; scattered			Sand; some coarse gravel....	1	- 6
Sand, very fine; gray silt;			gravel.....	3	- 20	Cobbles, sub-round, 3 x		
some clay.....	54	- 58	Sand, gray; gravel.....	20	- 53	5 millimeters.....	6	- 7
Layer of coarse material....	58	- 58	Sand, fine, gray.....	53	- 84	Sand; gravel; some		
Alternating layers of very			Refusal.....	at	- 84	cobbles.....	7	- 12
fine sand and silt, little						Sand, fine to medium, well		
clay, gray; and medium to						graded.....	12	- 17
fine sand, some silt,						Sand, fine, finer with		
gray.....	58	- 64				depth.....	17	- 22
Sand, fine to very fine;						Sand, fine.....	22	- 37
also clay layers, gray....	64	- 72				Sand, fine, little medium		
Clay; little fine sand.....	72	- 84				and very fine.....	37	- 38
Clay.....	84	- 92				Not to refusal		
Sand, very fine; some clay;								
gray.....	92	- 102						
Sand, very fine to fine;								
some silt and clay;								
gray.....	102	- 125						
Not to refusal								
NCW-59.								
Pebbles, large; probably								
some cobbles.....	0	- 3						
Sand, fine, silty, yellow-								
brown; few small pebbles..	3	- 5						
Pebbles, large, bony.....	5	- 12						

Table 9.--Logs of selected wells and borings (Continued)

Depth			Depth			Depth		
MKW-120.			FIW-94 (Continued).			F1A-86.		
Pavement and fill.....	0	- 2	Sand, medium; gravel; brown.	160	- 170	Sand, dirty;		
Sand, medium; fine			Sand, medium, brown.....	170	- 190	clay and loam.....	0	- 2
gravel; in layers.....	2	- 7	Sand, fine, gray.....	190	- 193	Sand; gravel; cobbles.....	2	- 4
Sand, medium.....	7	- 10	Clay, gray.....	193	- 203	Clay, sandy, silty.....	4	- 7
Sand, coarse to medium.....	10	- 12	Refusal, rock	at	203	Sand, very fine, silty,		
Sand, fine; some silt.....	12	- 22				yellow-gray.....	7	- 17
Clay.....	22	- 47	FIW-33.			Sand, very fine; silt and		
Sand, very fine;			Mud.....	0	- 12	clay.....	17	- 27
clay; gray.....	47	- 49	Sand and gravel.....	12	- 64	Clay; some very fine sand;		
Not to refusal			Sand, fine; gravel.....	64	- 78	gray.....	27	- 92
			Sand and gravel.....	78	- 83	Clay.....	92	- 122
						Not to refusal		
MKW-54.			FIW-45.			FIW-60.		
Peat.....	0	- 5	Sand and gravel.....	0	- 48	Sand, fine, brown; some		
Sand; gravel; clay; gray...	5	- 29	Sand, fine; clay and gravel.	48	- 53	gravel; clay; tight.....	0	- 30
Sand; some gravel; some			Sand, fine; clay.....	53	- 88	Sand, fine, gray; clay;		
clay; gray.....	29	- 40	Gravel with clay.....	88	- 91.3	tight.....	30	- 70
Sand, fine; clay; gray.....	40	- 82	Sand, fine; clay; hard			Sand, fine to medium;		
Refusal.....	at	82	driving; ledge.....	91.3	- 111.5	gravel; trace of clay;		
						pumps free.....	70	- 80
						Refusal.....	at	80.2
MKW-119.			FIW-91.			F1B-69.		
Loam.....	0	- 1	Fill, gravel.....	0	- 4	Sand, fine; some silt;		
Fill, sand and gravel.....	1	- 2	Sand, fine, brown.....	4	- 10	loose.....	0	- 6
Sand and gravel;			Sand, fine, gray-brown.....	10	- 20	Sand, fine; some silt.....	6	- 15
pebbles to 5 inches.....	2	- 17	Sand, fine, gray.....	20	- 28	Sand, medium; some silt;		
Gravel, very coarse.....	17	- 22	Sand, fine, brown.....	28	- 32	gravel.....	15	- 24
Sand, fine to very fine;			Sand, silty.....	32	- 40	Sand, medium; some silt.....	24	- 33
some silt; also looks			Clay, silty, brown.....	40	- 44	Sand, fine; silt.....	33	- 36
like thin clay layers.....	22	- 27	Clay, brown.....	44	- 56	Rock core, granite.....	36	- 41
Sand, very fine; silt;			Clay, gray.....	56	- 69			
probably some clay;			Sand, medium, brown.....	69	- 72			
yellow-gray.....	27	- 50	Sand, medium; gravel;					
Sand, fine to medium,			brown.....	72	- 83			
brown.....	50	- 57	Clay, brown.....	83	- 93			
Sand, medium, some fine,			Gravel, medium; trace of					
gray.....	57	- 62	clay; brown.....	93	- 97			
Sand, fine, some very fine			Bedrock, green.....	97	- 101			
and medium, gray.....	62	- 65						
Not to refusal								
MKW-121.			FIW-88.			FIW-70.		
Loam and fill.....	0	- 2	Loam; sand and gravel.....	0	- 2	Sand, medium.....	0	- 24
Gravel, very coarse;			Sand, fine to medium;			Sand, fine;		
coarse sand; pebbles to			gravel; in layers.....	2	- 7	trace of silt.....	24	- 33
4 inches.....	2	- 7	Cobbles; sand and gravel;			Sand, medium;		
Gravel, very coarse;			pebbles up to 4 inches....	7	- 12	trace of silt.....	59	- 68
coarse sand.....	7	- 17	Sand, medium, little fine,			Sand, medium; gravel;		
Sand, coarse; gravel;			uniform, brown; some well-			some silt.....	68	- 74
pebbles to 3/4 inch.....	17	- 22	rounded pebbles.....	12	- 22	Sand, fine; some silt.....	74	- 83
Sand, medium and fine;			Sand, medium, some coarse,			Rock core, granite.....	83	- 88
some small pebbles;			little fine, light brown;					

Table 10.--Particle-size distribution of lithologic samples from various depths in selected wells

Local No.	Sample depth (feet below lsd)	Sampling method	Percent of lithologic sample, by dry weight, passing through listed sieve (Top number is sieve size; bottom is size of sieve opening, in millimeters.)										
			1.25" 32	0.62" 16	0.31" 8	5 4	10 2	18 1	35 0.5	60 0.25	120 0.125	230 0.0625	325 0.044
NCW 65	27	Split spoon	--	--	--	--	100	99.83	99.55	96.67	40.99	8.79	3.97
	37	do.	--	--	--	--	100	99.99	99.89	97.80	72.57	26.17	11.54
	47	do.	--	--	--	--	100	99.72	98.45	95.97	90.87	84.34	72.29
NCW 63	32	do.	--	--	--	--	100	99.95	99.74	99.17	85.47	39.57	18.98
	42	do.	--	--	100	99.75	99.37	98.88	96.94	92.55	85.93	77.93	53.23
	52	do.	100	93.04	89.01	78.79	64.97	51.91	37.37	28.73	18.56	11.14	8.08
	57	do.	--	100	98.29	91.86	79.91	67.50	52.92	40.71	18.74	7.48	5.08
	67	do.	--	--	--	--	100	99.67	98.92	96.72	79.08	38.30	22.36
	77	do.	100	99.10	98.00	91.80	76.87	59.40	38.21	27.30	17.94	10.35	7.75
NCW 57	27	do.	--	--	--	--	100	99.82	94.79	72.42	34.33	10.42	4.88
NCW 58	32	do.	--	--	--	--	100	99.86	99.45	92.40	61.92	28.65	17.38
	52	do.	--	--	--	--	100	99.37	96.50	94.07	85.78	55.51	34.01
	72	do.	--	--	--	--	100	99.96	96.76	85.77	58.13	32.06	14.78
WKW 120	27	do.	--	--	--	--	100	99.78	99.45	98.53	95.64	91.20	88.65
WKW 122	42	do.	--	--	--	--	100	99.69	97.83	65.92	36.37	15.39	7.41
	62	do.	100	95.77	95.11	94.69	94.14	94.14	92.71	81.85	57.82	28.51	17.30
F1W 94	62	sand pump	--	--	--	--	100	97.50	71.14	30.47	6.14	.73	.32
	112	split spoon	--	--	--	--	100	91.80	63.51	29.06	5.17	.82	.30
	150	sand pump	--	--	--	--	100	96.68	64.83	28.67	8.21	1.89	.92
F1W 91	28	split spoon	--	--	--	--	100	99.99	99.94	98.50	71.92	23.73	8.34
	37	do.	--	--	--	--	100	99.98	99.95	99.55	95.05	67.92	37.31
	71	do.	--	--	--	--	100	99.71	99.22	83.31	27.93	7.02	4.11
F1W 89	59	do.	--	--	--	--	100	99.99	99.96	99.09	77.38	33.34	15.67
	80	do.	--	--	--	--	100	99.84	95.81	89.03	81.42	61.92	25.91
	100	do.	--	--	--	--	100	99.55	85.99	51.52	21.57	7.68	4.29
	121	do.	--	--	--	--	100	99.92	99.48	90.34	72.09	31.24	13.24
	132	sand pump	--	--	--	--	100	99.97	99.76	95.90	70.80	23.32	7.54
	141	split spoon	--	--	--	--	--	100	99.90	98.81	74.81	25.58	12.14
	160	sand pump	100	97.88	93.72	79.88	53.97	32.01	21.21	18.21	15.06	9.20	6.37
F1W 86	77	split spoon	--	--	--	--	100	99.85	99.29	98.05	92.68	77.84	62.41

Table 11.--Water levels in observation wells screened in unconsolidated deposits

(An "S" to the right of the "water level" indicates a steel tape was used to measure the water level. For a description of wells, see table 8.)

MIDDLESEX COUNTY

WELL NCW 66

SITE NUMBER 421812071222601

ALTITUDE OF LAND SURFACE 165.1 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 139.30 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM FEB 02, 1979.

LOWEST WATER LEVEL 137.97 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM DEC 01, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JUL 25, 1978	138.71 S	SEP 27, 1978	138.24 S	JAN 26, 1979	138.88 S	APR 30, 1979	139.25 S
28	138.71 S	OCT 31	138.19 S	FEB 02	139.30 S	JUN 05	139.21 S
AUG 15	138.82 S	DEC 01	137.97 S	27	138.65 S	JUL 06	138.79 S
SEP 01	138.48 S	27	138.02 S	MAR 30	138.78 S		

WELL NCW 65

SITE NUMBER 421813071222101

ALTITUDE OF LAND SURFACE 158.6 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 139.02 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JAN 26, 1979.

LOWEST WATER LEVEL 136.86 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM DEC 01, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JUL 13, 1978	137.44 S	AUG 31, 1978	137.09 S	DEC 27, 1978	137.15 S	APR 30, 1979	138.04 S
25	137.50 S	SEP 01	137.09 S	JAN 26, 1979	139.02 S	JUN 05	137.76 S
28	137.36 S	27	136.88 S	FEB 02	138.66 S	JUL 06	137.05 S
31	137.29 S	NOV 02	136.92 S	27	137.41 S		
AUG 15	137.79 S	DEC 01	136.86 S	MAR 30	137.06 S		

WELL NCW 62

SITE NUMBER 421741071222701

ALTITUDE OF LAND SURFACE 170.2 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 142.36 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JUN 27, 1978.

LOWEST WATER LEVEL 139.57 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM DEC 01, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JUN 27, 1978	142.36 S	SEP 01, 1978	140.29 S	DEC 27, 1978	139.76 S	MAR 30, 1979	140.60 S
JUL 28	140.99 S	27	140.01 S	JAN 29, 1979	141.83 S	APR 30	141.23 S
AUG 15	141.11 S	OCT 31	139.90 S	FEB 02	141.27 S	JUN 05	141.15 S
30	140.57 S	DEC 01	139.57 S	27	140.25 S	JUL 05	140.51 S

Table 11.--Water levels in observation wells screened in unconsolidated deposits--Continued

WELL NCW 64

SITE NUMBER 421741071222102

ALTITUDE OF LAND SURFACE 166.7 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 139.67 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JAN 26, 1979.

LOWEST WATER LEVEL 136.38 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM DEC 01, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
JUL 20, 1978	137.17	S	SEP 01, 1978	136.61	S	JAN 26, 1979	139.67	S	APR 30, 1979	137.84	S
28	136.96	S	27	136.49	S	FEB 02	138.38	S	JUN 05	137.49	S
31	136.90	S	OCT 31	136.55	S	07	137.61	S	JUL 06	136.68	S
AUG 15	137.41	S	DEC 01	136.38	S	27	136.87	S			
30	136.68	S	27	136.87	S	MAR 30	136.73	S			

WELL NCW 63

SITE NUMBER 421741071222101

ALTITUDE OF LAND SURFACE 166.4 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 139.57 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JAN 29, 1979.

LOWEST WATER LEVEL 136.48 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM DEC 01, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
JUL 28, 1978	137.04	S	SEP 27, 1978	136.55	S	JAN 29, 1979	139.57	S	APR 30, 1979	137.89	S
AUG 15	137.47	S	OCT 31	136.62	S	FEB 02	138.43	S	JUN 05	137.53	S
30	136.74	S	DEC 01	136.48	S	27	137.09	S	JUL 06	136.73	S
SEP 01	136.68	S	27	136.92	S	MAR 30	136.78	S			

WELL NCW 60

SITE NUMBER 421648071220701

ALTITUDE OF LAND SURFACE 160. FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 141.97 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JAN 26, 1979.

LOWEST WATER LEVEL 137.64 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM DEC 01, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
JUL 18, 1978	138.33	S	SEP 27, 1978	137.71	S	JAN 30, 1979	140.54	S	JUN 05, 1979	138.80	S
26	138.19	S	OCT 31	137.72	S	FEB 27	138.75	S	JUL 06	138.22	S
28	138.16	S	DEC 01	137.64	S	MAR 30	138.61	S			
AUG 15	138.33	S	27	137.97	S	APR 30	138.88	S			
31	137.99	S	JAN 26, 1979	141.97	S	MAY 16	138.75	S			

Table 11.--Water levels in observation wells screened in unconsolidated deposits--Continued

WELL NCW 56

SITE NUMBER 421733071215201

ALTITUDE OF LAND SURFACE 154.9 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 139.71 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JAN 30, 1979.

LOWEST WATER LEVEL 137.13 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM DEC 01, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
JUL 11, 1978	138.06	S	SEP 01, 1978	137.75	S	DEC 01, 1978	137.13	S	MAR 30, 1979	137.97	S
18	138.05	S	03	137.71	S	27	137.37	S	APR 30	138.57	S
28	137.95	S	27	137.37	S	JAN 30, 1979	139.71	S	JUN 05	138.60	S
AUG 15	138.13	S	OCT 31	137.32	S	FEB 27	138.15	S	JUL 06	137.86	S

WELL NCW 57

SITE NUMBER 421730071215901

ALTITUDE OF LAND SURFACE 149.3 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 139.52 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM FEB 07, 1979.

LOWEST WATER LEVEL 137.36 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM DEC 01, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
JUL 11, 1978	138.36	S	AUG 25, 1978	138.18	S	DEC 01, 1978	137.36	S	APR 30, 1979	138.88	S
25	138.22	S	SEP 01	138.04	S	27	137.73	S	JUN 05	138.95	S
28	138.22	S	02	138.02	S	JAN 30, 1979	139.43	S	JUL 06	138.24	S
AUG 01	138.14	S	12	137.83	S	FEB 07	139.52	S			
07	138.18	S	27	137.64	S	27	138.59	S			
15	138.38	S	OCT 31	137.55	S	MAR 30	138.40	S			

WELL NCW 58

SITE NUMBER 421730071215902

ALTITUDE OF LAND SURFACE 149.1 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 139.64 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JAN 30, 1979.

LOWEST WATER LEVEL 137.22 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM DEC 01, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
JUL 11, 1978	138.18	S	SEP 01, 1978	137.79	S	DEC 27, 1978	137.50	S	JUN 05, 1979	138.61	S
25	138.01	S	12	137.57	S	JAN 30, 1979	139.64	S	JUL 06	137.91	S
28	137.99	S	27	137.44	S	FEB 27	138.19	S			
AUG 15	138.21	S	OCT 31	137.39	S	MAR 30	138.00	S			
31	137.81	S	DEC 01	137.22	S	APR 30	138.63	S			

Table 11.--Water levels in observation wells screened in unconsolidated deposits--Continued

WELL NCW 59

SITE NUMBER 421742071220601

ALTITUDE OF LAND SURFACE 157.2 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 139.68 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JAN 26, 1979.

LOWEST WATER LEVEL 136.31 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM DEC 01, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
JUL 11, 1978	137.04	S	SEP 03, 1978	136.49	S	JAN 26, 1979	139.68	S	APR 30, 1979	137.78	S
28	136.83	S	27	136.38	S	30	139.34	S	JUN 05	137.42	S
AUG 01	136.84	S	OCT 31	136.48	S	FEB 07	137.58	S	JUL 06	136.59	S
15	137.33	S	DEC 01	136.31	S	27	136.68	S			
SEP 01	136.51	S	27	136.78	S	MAR 30	136.63	S			

WELL WKW 2

SITE NUMBER 421852071220501

ALTITUDE OF LAND SURFACE 153.8 FEET

RECORDS AVAILABLE 1965 TO CURRENT YEAR.

HIGHEST WATER LEVEL 139.82 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM MAR 27, 1972.

LOWEST WATER LEVEL 136.37 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM FEB 25, 1980.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
JAN 29, 1965	137.05	S	JAN 29, 1968	137.08	S	JAN 25, 1971	137.68	S	JAN 24, 1974	138.53	S
FEB 23	136.49	S	FEB 23	137.48	S	FEB 23	138.06	S	FEB 25	139.02	S
MAR 26	137.46	S	MAR 25	139.28	S	MAR 24	139.04	S	MAR 26	139.24	S
APR 26	137.64	S	APR 23	138.88	S	APR 26	138.89	S	APR 29	139.11	S
MAY 24	137.44	S	MAY 22	138.72	S	MAY 21	138.88	S	MAY 22	138.70	S
JUN 28	137.38	S	JUN 24	138.60	S	JUN 28	137.90	S	JUN 25	138.42	S
JUL 23	137.10	S	JUL 22	138.49	S	JUL 26	137.24	S	JUL 26	137.72	S
AUG 23	136.74	S	AUG 23	137.79	S	AUG 25	136.91	S	AUG 26	136.99	S
SEP 27	136.59	S	SEP 23	137.32	S	SEP 22	136.94	S	SEP 25	137.55	S
OCT 25	136.63	S	OCT 25	137.23	S	OCT 28	137.17	S	OCT 29	137.78	S
NOV 22	136.58	S	NOV 22	137.52	S	NOV 24	137.35	S	NOV 25	137.58	S
DEC 20	136.74	S	DEC 27	137.78	S	DEC 23	137.59	S	DEC 30	138.04	S
JAN 21, 1966	136.74	S	JAN 24, 1969	137.88	S	JAN 26, 1972	137.38	S	JAN 28, 1975	138.84	S
FEB 21	136.85	S	FEB 26	138.01	S	FEB 28	137.58	S	FEB 25	138.55	S
MAR 21	137.48	S	MAR 25	138.35	S	MAR 27	139.62	S	MAR 25	138.38	S
APR 22	137.63	S	APR 24	139.33	S	APR 25	139.64	S	APR 25	138.40	S
MAY 23	137.85	S	MAY 23	138.53	S	MAY 24	139.79	S	MAY 27	138.03	S
JUN 20	137.81	S	JUN 24	137.96	S	JUN 29	139.70	S	JUN 27	137.70	S
JUL 25	137.31	S	JUL 28	137.41	S	JUL 26	139.00	S	JUL 22	137.39	S
AUG 22	137.10	S	AUG 25	137.64	S	AUG 28	137.88	S	AUG 26	137.08	S
SEP 26	137.12	S	SEP 22	137.73	S	SEP 26	137.61	S	SEP 26	137.84	S
OCT 24	137.33	S	OCT 27	137.50	S	OCT 30	137.90	S	OCT 28	138.60	S
NOV 28	137.50	S	NOV 24	138.58	S	NOV 27	138.78	S	NOV 28	138.67	S
DEC 23	136.86	S	DEC 24	138.81	S	DEC 22	139.49	S	DEC 24	138.39	S
JAN 31, 1967	137.03	S	JAN 23, 1970	139.02	S	JAN 26, 1973	139.38	S	JAN 30, 1976	138.89	S
FEB 24	137.38	S	FEB 20	139.61	S	FEB 23	139.42	S	FEB 24	139.21	S
MAR 27	137.74	S	MAR 25	138.94	S	MAR 26	138.91	S	MAR 26	138.53	S
APR 25	138.75	S	APR 24	139.36	S	APR 23	139.18	S	APR 27	138.26	S
MAY 23	138.55	S	MAY 25	138.86	S	MAY 24	138.73	S	MAY 26	137.88	S
JUN 28	139.11	S	JUN 24	138.15	S	JUN 26	138.20	S	JUN 24	137.33	S
JUL 26	138.52	S	JUL 27	137.48	S	JUL 27	138.15	S	JUL 27	136.85	S
AUG 25	138.10	S	AUG 25	137.36	S	AUG 27	138.16	S	AUG 26	137.18	S
SEP 26	137.80	S	SEP 23	137.17	S	SEP 25	137.76	S	SEP 22	136.90	S
OCT 25	137.85	S	OCT 26	137.28	S	OCT 26	137.19	S	OCT 27	137.28	S
NOV 24	137.42	S	NOV 23	137.77	S	NOV 27	137.45	S	NOV 29	136.80	S
DEC 22	137.39	S	DEC 24	137.92	S	DEC 21	138.25	S	DEC 28	136.71	S

Table 11.--Water levels in observation wells screened in unconsolidated deposits--Continued

WELL WKW 2

SITE NUMBER 421852071220501 -- CONTINUED

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
JAN 27, 1977	137.01	S	NOV 29, 1977	138.22	S	SEP 27, 1978	136.78	S	JUL 27, 1979	137.22	S
FEB 25	136.78	S	DEC 29	137.62	S	OCT 27	136.89	S			
MAR 30	138.87	S	JAN 27, 1978	139.12	S	NOV 27	136.74	S			
APR 28	138.98	S	FEB 27	138.35	S	DEC 26	137.19	S			
MAY 26	138.67	S	MAR 24	138.48	S	JAN 29, 1979	139.58	S			
JUN 28	137.80	S	APR 27	138.86	S	FEB 27	138.39	S			
JUL 27	137.24	S	MAY 26	138.52	S	MAR 28	138.10	S			
AUG 26	136.84	S	JUN 30	137.97	S	APR 26	138.23	S			
SEP 29	137.13	S	JUL 27	137.34	S	MAY 30	138.41	S			
OCT 27	137.84	S	AUG 29	137.30	S	JUN 28	137.67	S			

WELL WKW 118

SITE NUMBER 421921071221201

ALTITUDE OF LAND SURFACE 181.0 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 155.27 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JUN 02, 1978.

LOWEST WATER LEVEL 151.52 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM JAN 26, 1979.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
MAY 30, 1978	155.21	S	AUG 15, 1978	154.04	S	DEC 27, 1978	151.65	S	MAR 30, 1979	153.76	S
JUN 02	155.27	S	30	153.81	S	JAN 26, 1979	151.52	S	APR 30	154.06	S
13	155.12	S	SEP 01	153.78	S	30	151.79	S	MAY 22	154.18	S
JUL 13	154.61	S	27	153.26	S	FEB 02	152.00	S	JUN 05	154.30	S
21	154.47	S	OCT 31	152.77	S	09	152.38	S	JUL 05	154.26	S
28	154.37	S	DEC 01	152.11	S	27	153.02	S			

WELL WKW 120

SITE NUMBER 421912071221701

ALTITUDE OF LAND SURFACE 175.7 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 166.72 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM APR 30, 1979.

LOWEST WATER LEVEL 164.64 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM JUL 27, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
JUL 12, 1978	164.87	S	AUG 29, 1978	164.80	S	DEC 01, 1978	165.32	S	MAR 30, 1979	166.43	S
27	164.64	S	SEP 01	164.74	S	27	165.64	S	APR 30	166.72	S
28	164.64	S	27	164.79	S	JAN 30, 1979	166.43	S	JUN 05	166.56	S
AUG 15	165.09	S	OCT 31	165.23	S	FEB 27	166.27	S	JUL 05	166.02	S

Table 11.--Water levels in observation wells screened in unconsolidated deposits--Continued

WELL WKW 117

SITE NUMBER 421905071222301

ALTITUDE OF LAND SURFACE 138.4 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 138.71 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JAN 30, 1979.

LOWEST WATER LEVEL 136.91 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM SEP 27, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
JUN 02, 1978	137.94	S	SEP 01, 1978	137.13	S	DEC 27, 1978	137.67	S	JUN 05, 1979	137.79	S
JUL 28	137.36	S	27	136.91	S	JAN 30, 1979	138.71	S	JUL 05	137.00	S
AUG 15	137.81	S	OCT 31	137.12	S	APR 04	137.74	S			
29	137.21	S	DEC 01	137.46	S	30	138.06	S			

WELL WKW 124

SITE NUMBER 421941071224303

ALTITUDE OF LAND SURFACE 150.2 FEET

RECORDS AVAILABLE 1979.

HIGHEST WATER LEVEL 145.08 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM APR 30, 1979.

LOWEST WATER LEVEL 142.36 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM JAN 15, 1979.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
JAN 15, 1979	142.36	S	JAN 30, 1979	144.80	S	MAR 30, 1979	144.62	S	MAY 22, 1979	144.91	S
19	142.50	S	FEB 09	144.89	S	APR 30	145.08	S	JUN 05	144.99	S
26	143.53	S	27	144.06	S	MAY 17	144.97	S	JUL 05	144.08	S

WELL WKW 122

SITE NUMBER 421941071224301

ALTITUDE OF LAND SURFACE 150.3 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 145.94 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JUL 13, 1978.

LOWEST WATER LEVEL 141.85 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM DEC 27, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
JUL 13, 1978	145.94	S	SEP 06, 1978	143.20	S	DEC 27, 1978	141.85	S	MAR 30, 1979	144.59	S
27	143.63	S	12	143.06	S	JAN 19, 1979	142.40	S	APR 30	145.02	S
AUG 15	143.65	S	19	142.91	S	26	143.43	S	MAY 17	144.88	S
25	143.44	S	27	142.75	S	30	144.68	S	22	144.85	S
29	143.36	S	OCT 31	142.26	S	FEB 09	144.82	S	JUN 05	144.93	S
SEP 01	143.31	S	DEC 01	141.87	S	27	144.01	S	JUL 05	144.04	S

Table 11.--Water levels in observation wells screened in unconsolidated deposits--Continued

WELL WKW 123

SITE NUMBER 421941071224302

ALTITUDE OF LAND SURFACE 150.2 FEET

RECORDS AVAILABLE 1979.

HIGHEST WATER LEVEL 139.54 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JAN 30, 1979.

LOWEST WATER LEVEL 137.41 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM JAN 15, 1979.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
JAN 15, 1979	137.41	S	JAN 30, 1979	139.54	S	MAR 30, 1979	138.93	S	MAY 22, 1979	139.22	S
19	137.74	S	FEB 09	139.36	S	APR 30	139.35	S	JUN 05	139.30	S
26	138.81	S	27	138.77	S	MAY 17	139.21	S	JUL 05	138.66	S

WELL WKW 121

SITE NUMBER 421940071224801

ALTITUDE OF LAND SURFACE 184.3 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 141.28 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JUN 05, 1979.

LOWEST WATER LEVEL 139.16 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM DEC 01, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
JUL 13, 1978	140.66	S	SEP 27, 1978	139.72	S	JAN 30, 1979	140.96	S	JUN 05, 1979	141.28	S
27	140.45	S	OCT 31	139.45	S	FEB 27	140.54	S	JUL 05	140.55	S
AUG 15	140.52	S	DEC 01	139.16	S	MAR 30	140.65	S			
23	140.30	S	27	139.23	S	APR 30	141.26	S			
SEP 01	140.12	S	JAN 26, 1979	140.71	S	MAY 17	141.22	S			

WELL WKW 119

SITE NUMBER 421943071225601

ALTITUDE OF LAND SURFACE 175.1 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 130.62 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JAN 29, 1979.

LOWEST WATER LEVEL 128.97 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM DEC 01, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
JUL 24, 1978	129.64	S	SEP 01, 1978	129.46	S	DEC 27, 1978	129.01	S	MAR 30, 1979	129.64	S
28	129.64	S	27	129.22	S	JAN 29, 1979	130.62	S	APR 30	130.06	S
AUG 15	129.70	S	OCT 31	129.22	S	30	130.58	S	JUN 05	130.13	S
23	129.61	S	DEC 01	128.97	S	FEB 27	129.75	S	JUL 05	129.64	S

Table 11.--Water levels in observation wells screened in unconsolidated deposits--Continued

WELL F1W 92

SITE NUMBER 421944071230001

ALTITUDE OF LAND SURFACE 191.2 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 128.13 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JAN 30, 1979.

LOWEST WATER LEVEL 126.59 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM DEC 22, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL
DEC 01, 1978	126.66	S	JAN 30, 1979	128.13	S	APR 30, 1979	127.46	S		
22	126.59	S	FEB 27	127.30	S	JUN 05	127.58	S		
JAN 05, 1979	126.66	S	MAR 30	127.14	S	JUL 05	127.16	S		

WELL F1W 93

SITE NUMBER 421944071230002

ALTITUDE OF LAND SURFACE 191.2 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 128.10 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JAN 30, 1979.

LOWEST WATER LEVEL 126.56 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM DEC 22, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL
DEC 01, 1978	126.64	S	JAN 30, 1979	128.10	S	MAR 30, 1979	127.09	S	JUL 05, 1979	127.11 S
22	126.56	S	FEB 09	127.63	S	APR 30	127.40	S		
JAN 05, 1979	126.60	S	27	127.27	S	JUN 05	127.52	S		

WELL F1W 94

SITE NUMBER 421944071230003

ALTITUDE OF LAND SURFACE 191.2 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 128.12 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JAN 30, 1979.

LOWEST WATER LEVEL 126.56 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM DEC 22, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL
DEC 01, 1978	126.63	S	JAN 30, 1979	128.12	S	APR 30, 1979	127.41	S		
22	126.56	S	FEB 27	127.26	S	JUN 05	127.50	S		
JAN 05, 1979	126.60	S	MAR 30	127.10	S	JUL 05	127.10	S		

WELL F1W 84

SITE NUMBER 421932071230801

ALTITUDE OF LAND SURFACE 139.5 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 138.90 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JAN 30, 1979.

LOWEST WATER LEVEL 136.93 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM SEP 27, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL
MAY 30, 1978	138.20	S	SEP 01, 1978	137.13	S	DEC 27, 1978	137.20	S	MAR 30, 1979	137.14 S
JUL 28	137.42	S	27	136.93	S	JAN 05, 1979	137.28	S	APR 30	138.13 S
AUG 15	137.83	S	OCT 31	136.99	S	30	138.90	S	JUN 05	137.79 S
29	137.20	S	DEC 01	136.96	S	FEB 27	137.33	S	JUL 01	137.12 S

Table 11.--Water levels in observation wells screened in unconsolidated deposits--Continued

WELL F1W 90

SITE NUMBER 421932071230802

ALTITUDE OF LAND SURFACE 142.7 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 134.27 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JAN 30, 1979.

LOWEST WATER LEVEL 132.58 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM DEC 01, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
DEC 01, 1978	132.58	S	JAN 30, 1979	134.27	S	MAR 30, 1979	132.78	S	JUN 05, 1979	133.47	S
JAN 05, 1979	132.59	S	FEB 27	133.05	S	APR 30	133.50	S	JUL 05	132.84	S

WELL F1W 91

SITE NUMBER 421932071230803

ALTITUDE OF LAND SURFACE 142.8 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 135.21 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JAN 30, 1979.

LOWEST WATER LEVEL 133.41 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM DEC 01, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
DEC 01, 1978	133.41	S	JAN 30, 1979	135.21	S	MAR 30, 1979	133.58	S	JUN 05, 1979	134.25	S
JAN 05, 1979	133.59	S	FEB 27	133.80	S	APR 30	134.29	S	JUL 05	133.64	S

WELL F1W 87

SITE NUMBER 421938071230901

ALTITUDE OF LAND SURFACE 193.4 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 150.87 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JUL 13, 1978.

LOWEST WATER LEVEL 148.32 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM JAN 19, 1979.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
JUL 13, 1978	150.87	S	OCT 06, 1978	149.79	S	DEC 15, 1978	148.84	S	MAR 02, 1979	149.50	S
24	150.72	S	13	149.66	S	23	148.71	S	09	149.70	S
28	150.65	S	19	149.60	S	29	148.62	S	16	149.77	S
AUG 15	150.39	S	27	149.43	S	JAN 11, 1979	148.42	S	23	149.76	S
21	150.28	S	NOV 03	149.38	S	19	148.32	S	30	149.77	S
SEP 01	150.20	S	09	149.28	S	26	148.60	S	APR 05	149.80	S
19	149.97	S	17	149.21	S	FEB 02	149.12	S	12	149.72	S
27	149.88	S	22	149.10	S	09	149.27	S	19	149.70	S
29	149.83	S	DEC 01	149.00	S	16	149.40	S	26	149.80	S
OCT 02	149.82	S	08	148.94	S	23	149.41	S	MAY 03	149.84	S

Table 11.--Water levels in observation wells screened in unconsolidated deposits--Continued

WELL F1W 87

SITE NUMBER 421938071230901 -- CONTINUED

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
MAY 10, 1979	149.86	S	MAY 31, 1979	150.02	S	JUN 19, 1979	150.13	S			
17	149.88	S	JUN 06	150.06	S	26	150.19	S			
24	149.96	S	12	150.10	S	JUL 05	150.16	S			

WELL F1W 88

SITE NUMBER 421938071230902

ALTITUDE OF LAND SURFACE 193.3 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 128.25 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JAN 30, 1979.

LOWEST WATER LEVEL 126.86 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM JAN 05, 1979.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
DEC 15, 1978	127.01	S	JAN 30, 1979	128.25	S	MAR 30, 1979	127.47	S	JUN 05, 1979	127.90	S
22	126.91	S	FEB 09	128.03	S	APR 30	127.73	S	JUL 06	127.43	S
JAN 05, 1979	126.86	S	27	127.73	S	MAY 17	127.76	S			

WELL F1W 89

SITE NUMBER 421938071230903

ALTITUDE OF LAND SURFACE 193.3 FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 128.66 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JAN 30, 1979.

LOWEST WATER LEVEL 126.94 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM DEC 22, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
DEC 15, 1978	127.07	S	JAN 05, 1979	126.96	S	FEB 27, 1979	127.67	S	APR 30, 1979	127.83	S
22	126.94	S	30	128.66	S	MAR 30	127.41	S	MAY 17	127.87	S

WELL F1W 85

SITE NUMBER 421906071230501

ALTITUDE OF LAND SURFACE 173. FEET

RECORDS AVAILABLE 1978 - 1979.

HIGHEST WATER LEVEL 151.14 FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM JUL 12, 1978.

LOWEST WATER LEVEL 148.47 FEET BELOW NATIONAL GEODETIC VERTICAL DATUM DEC 01, 1978.

WATER LEVELS IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM.

DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL	
JUL 12, 1978	151.14	S	SEP 01, 1978	150.17	S	JAN 26, 1979	148.85	S	MAR 30, 1979	150.06	S
21	150.96	S	27	149.67	S	29	148.97	S	APR 30	150.44	S
28	150.77	S	OCT 31	149.23	S	30	148.96	S	JUN 05	151.04	S
AUG 15	150.46	S	DEC 01	148.47	S	FEB 06	149.11	S	JUL 05	150.76	S
24	150.32	S	27	148.47	S	27	149.86	S			

Table 12.--Physical characteristics and concentrations of common chemical constituents in water from selected wells

LOCAL NUMBER		SITE IDENTIFICATION NUMBER AND LATITUDE/LONGITUDE/ SEQUENCE NUMBERS	DATE OF SAMPLE	ELEV. OF LAND SURFACE DATUM (FT. NGVD)	DEPTH OF WELL, TOTAL (FEET)	DEPTH TO TOP OF SAMPLE INTER- VAL (FT)	DEPTH TO BOT- TOM OF SAMPLE INTER- VAL (FT)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	PH (UNITS)
NCW	65	421813071222101	78-07-31 78-08-31 78-11-15 79-02-06 79-05-18	158.61	37	34	37	12.0 11.0 11.0 11.0 11.0	460 475 455 450 465	5.5 4.6 2.8 3.7 4.2	51 41 25 33 38	6.8 7.0 7.4 7.3 6.7
NCW	62	421741071222701	78-08-30 79-05-17	170.20	47	44	47	11.5 11.0	330 305	.8 .4	8 4	6.3 6.1
NCW	64	421741071222102	78-07-31 78-08-30 78-11-16 79-02-07 79-05-18	166.67	56	53	56	11.0 11.0 10.5 9.5 10.5	605 640 615 665 475	5.5 6.5 6.6 7.9 5.9	50 59 59 69 53	5.8 5.7 5.9 5.9 5.6
NCW	63	421741071222101	78-08-30 79-05-18	166.35	76	73	76	11.0 10.5	375 315	5.3 5.2	48 46	6.9 6.4
NCW	60	421648071220701	78-08-31 79-05-16	160.00	47	44	47	11.0 11.0	345 305	4.2 2.8	38 25	6.8 6.5
NCW	56	421733071215201	78-09-03 79-05-17	154.91	26	23	26	11.5 10.0	495 310	8.3 10.0	76 88	6.2 6.0
NCW	57	421730071215901	78-08-01 78-09-02 78-11-15 79-02-07 79-05-16	149.27	25	22	25	11.5 12.0 12.5 12.0 11.5	790 760 790 795 635	2.6 2.5 2.7 2.8 2.8	24 23 25 26 26	6.2 6.2 6.2 6.3 6.2
NCW	58	421730071215902	78-08-31 79-05-16	149.13	50	47	50	13.0 12.5	980 1050	.7 .8	7 7	7.2 7.3
NCW	59	421742071220601	78-08-01 78-09-03 78-11-15 79-02-07 79-05-17	157.18	36	33	36	10.5 10.5 11.0 10.0 9.5	330 340 350 345 295	8.0 7.6 7.8 7.7 8.6	71 68 70 68 75	6.2 6.2 6.3 6.0 6.1
WKW	117	421905071222301	78-07-28 78-08-29 78-11-13 79-05-23	138.42	1.7	1.5	1.7	20.0 19.0 9.0 13.0	360 340 395 165	-- 1.2 -- --	-- 13 -- --	6.9 6.8 7.2 6.1
WKW	124	421941071224303	79-02-08 79-05-23	150.15	24	21	24	11.0 9.0	340 300	.1 .1	1 1	6.5 6.8
WKW	122	421941071224301	78-08-25 79-05-23	150.33	61	58	61	12.5 12.0	173 153	.1 .1	1 1	8.3 8.2
WKW	123	421941071224302	79-02-08 79-05-23	150.15	100	97	100	11.0 11.5	255 245	.1 .1	1 1	6.3 6.5
WKW	121	421940071224801	78-08-23 79-05-22	184.33	61	58	61	12.0 11.5	245 215	.1 .2	1 2	6.2 6.0
WKW	119	421943071225601	78-08-23 79-05-29	175.12	60	57	60	13.0 12.0	250 240	.5 .1	5 1	6.4 6.4
FIW	93	421944071230002	79-02-09 79-05-30	191.17	121	118	121	-- 11.0	450 415	-- .6	-- 5	7.1 6.0
FIW	94	421944071230003	79-05-30	191.17	174	171	174	11.0	400	1.2	11	6.6
FIW	84	421932071230801	78-07-28 78-08-29 78-11-13 79-02-08 79-06-01	139.46	15	12	15	12.0 12.5 12.5 9.5 10.0	310 300 290 340 410	9.1 9.2 9.0 9.6 8.9	84 86 84 84 79	7.1 6.4 6.7 6.3 6.1
FIW	90	421932071230802	79-02-08 79-05-29	142.74	74	71	74	11.0 11.5	1250 1300	8.0 7.9	72 72	5.7 6.1
FIW	91	421932071230803	79-02-08 79-06-01	142.78	97	94	97	10.5 11.5	440 460	.4 .1	4 1	7.7 7.6
FIW	87	421938071230901	78-08-24 79-05-31	193.38	62	59	62	11.5 11.0	170 160	5.1 9.5	47 86	6.8 6.9
FIW	88	421938071230902	79-02-09 79-06-04	193.28	91	88	91	-- --	725 665	-- --	-- --	7.2 7.2
FIW	89	421938071230903	79-05-31	193.28	141	138	141	--	350	--	--	7.9
FIW	85	421906071230501	78-07-28 78-08-24 78-11-13 79-02-06 79-05-21	173.00	27	24	27	11.5 11.0 11.5 11.5 10.0	615 645 770 675 815	5.3 5.1 8.8 10.4 10.3	48 46 80 95 91	6.1 6.0 6.3 6.6 6.4

Table 12.--Physical characteristics and concentrations of common chemical constituents in water from selected wells--Continued

BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	ALKALINITY (MG/L AS CACO3)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	CHLORIDE, DISSOLVED (MG/L AS CL)	SULFATE DISSOLVED (MG/L AS SO4)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
--	--	--	--	--	--	--	--	--	--	--	--	--	--
70	0	57	130	77	38	9.5	29	4.4	85	24	--	20	246
--	--	--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--	--
56	0	46	140	94	38	11	32	5.3	92	29	--	20	255
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--	--	--	--	--	--	--	--	--	--	--	--	--	--
20	0	16	190	170	58	11	30	2.0	150	26	--	20	307
--	--	--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--	--
26	0	21	150	120	45	7.9	34	1.7	110	30	--	21	262
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--	--	--	--	--	--	--	--	--	--	--	--	--	--
55	0	45	85	40	27	4.3	25	3.0	61	13	--	13	173
48	0	39	79	40	25	4.0	28	2.6	60	13	--	13	169
21	0	17	110	93	34	6.1	43	2.8	91	33	--	12	232
--	--	--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--	--
71	0	58	280	220	86	16	26	2.2	150	48	--	17	380
--	--	--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--	--
77	0	63	250	180	77	13	30	1.7	130	51	--	17	358
--	--	--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--	--
24	0	20	79	59	23	5.2	24	2.1	46	25	--	15	152
--	--	--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--	--
20	0	16	72	55	21	4.7	26	1.8	44	24	--	15	146
--	--	--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--	--
52	0	43	120	75	35	7.4	14	2.0	26	21	--	22	153
--	--	--	--	--	--	--	--	--	--	--	--	--	--
37	0	30	62	32	19	3.5	8.0	1.3	13	15	--	20	98
--	--	--	--	--	--	--	--	--	--	--	--	--	--
44	0	36	61	25	18	3.8	32	1.9	62	3.5	--	3.3	151
75	0	62	76	14	25	3.2	6.8	1.4	10	12	--	22	118
65	0	53	69	15	23	2.7	7.0	1.3	10	12	--	22	111
--	--	--	--	--	--	--	--	--	--	--	--	--	--
32	0	26	79	53	21	6.5	11	1.3	43	13	--	21	137
33	0	27	59	32	17	4.0	11	1.2	42	9.5	--	8.5	110
32	0	26	52	26	15	3.5	19	1.0	42	9.4	--	8.6	115
50	0	41	80	39	21	6.8	11	2.5	21	37	--	20	147
40	0	33	81	48	21	6.9	12	2.5	23	38	--	21	147
--	--	--	--	--	--	--	--	--	--	--	--	--	--
43	0	35	160	130	44	13	15	2.6	87	27	--	17	227
54	0	44	160	110	43	12	14	2.3	75	24	--	17	214
--	--	--	--	--	--	--	--	--	--	--	--	--	--
30	0	25	100	76	32	5.0	10	2.8	20	35	--	20	140
--	--	--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--	--
25	0	21	160	140	52	8.3	13	2.1	26	28	--	21	163
--	--	--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--	--
14	0	11	240	230	72	15	170	5.6	400	31	--	17	718
--	--	--	--	--	--	--	--	--	--	--	--	--	--
80	0	66	140	71	44	6.5	40	3.4	94	20	--	13	261
35	0	29	58	29	16	4.3	11	1.8	15	21	--	20	106
34	0	28	57	29	17	3.5	12	1.5	16	22	--	20	109
--	--	--	--	--	--	--	--	--	--	--	--	--	--
40	0	33	220	190	55	21	38	6.5	170	48	--	19	387
86	0	71	110	39	34	6.0	29	4.5	59	17	--	12	204
--	--	--	--	--	--	--	--	--	--	--	--	--	--
19	0	16	39	23	12	2.1	100	1.7	170	9.6	--	13	318
--	--	--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--	--
12	0	10	64	54	21	2.8	140	2.1	260	7.0	--	11	450

Table 13.--Concentrations of nitrogen and phosphorus species in water from selected wells

LOCAL NUMBER	DATE OF SAMPLE	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, ORTHO. TOTAL (MG/L AS P)	PHOS- PHORUS, TOTAL (MG/L AS P)
NCW 65	78-07-31	.01	.01	.02	.00	4.2	4.2	4.2	.002	.038
	78-08-31	.00	.08	.08	.01	3.8	3.8	3.9	.000	.005
	78-11-15	.02	.15	.17	.02	2.7	2.7	2.9	.000	.001
	79-02-06	.06	.07	.13	.02	2.8	2.8	2.9	.001	.029
	79-05-18	.00	.30	.30	.02	3.0	3.0	3.3	.000	.004
NCW 62	78-08-30	.00	.05	.05	.03	14	14	14	.000	.044
	79-05-17	.04	.06	.10	.03	15	15	15	.008	.009
NCW 64	78-07-31	.01	.04	.05	.00	5.6	5.6	5.7	.000	.003
	78-08-30	.00	.10	.10	.01	5.2	5.2	5.3	.000	.007
	78-11-16	.00	.16	.16	.00	5.6	5.6	5.8	.000	.000
	79-02-07	.00	.00	.00	.00	4.6	4.6	4.6	.002	.061
	79-05-18	.00	.18	.18	.00	4.8	4.8	5.0	.000	.005
NCW 63	78-08-30	.01	.19	.20	.01	5.0	5.0	5.2	.005	.250
	79-05-18	.01	.08	.09	.00	5.0	5.0	5.1	.000	.008
NCW 60	78-08-31	.00	.07	.07	.00	.25	.25	.32	.000	.031
	79-05-16	.00	.12	.12	.00	.32	.32	.44	.000	.004
NCW 56	78-09-03	.00	.00	.00	.01	7.0	7.0	7.0	.000	.011
	79-05-17	.00	.00	.00	.00	4.4	4.4	4.4	.001	.011
NCW 57	78-08-01	.01	.15	.16	.00	9.4	9.4	9.6	.002	.004
	78-09-02	.00	.31	.31	.01	9.3	9.3	9.6	.000	.006
	78-11-15	.01	.00	.01	.00	8.9	8.9	8.9	.000	.000
	79-02-07	.06	.00	.06	.01	9.3	9.3	9.4	.002	.002
	79-05-16	.00	.27	.27	.00	7.8	7.8	8.1	.000	.004
NCW 58	78-08-31	.12	.29	.41	.01	2.9	2.9	3.3	.018	.027
	79-05-16	.05	.09	.14	.01	3.0	3.0	3.1	.033	.039
NCW 59	78-08-01	.01	.24	.25	.00	7.0	7.0	7.3	.000	.009
	78-09-03	.00	.00	.00	.00	7.7	7.7	7.7	.000	.007
	78-11-15	.00	.00	.00	.00	7.5	7.5	7.5	.000	.017
	79-02-07	.00	.00	.00	.00	7.6	7.6	7.6	.000	.000
	79-05-17	.00	.24	.24	.00	7.3	7.3	7.5	.000	.006
WKW 117	78-07-28	.56	.15	.71	.27	13	13	14	.003	.009
	78-08-29	.25	.06	.31	.11	13	13	13	.002	.014
	78-11-13	.00	.00	.00	.01	17	17	17	.002	.002
	79-05-23	.00	.90	.90	.02	5.4	5.4	6.3	.000	.006

Table 13.--Concentrations of nitrogen and phosphorus species in
water from selected wells--Continued

LOCAL NUMBER	DATE OF SAMPLE	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, ORTHO. TOTAL (MG/L AS P)	PHOS- PHORUS, TOTAL (MG/L AS P)
WKW 124	79-02-08	.90	.10	1.0	.00	.00	.00	1.0	.000	.004
	79-05-23	.70	.40	1.1	.00	.00	.00	1.1	.000	.004
WKW 122	78-08-25	.01	.07	.08	.00	.00	.00	.08	.006	.012
	79-05-23	.00	.28	.28	.00	.00	.00	.28	.011	.014
WKW 123	79-02-08	.04	.00	.04	.00	.05	.05	.09	.000	.007
	79-05-23	.03	.26	.29	.00	.00	.00	.29	.000	.001
WKW 121	78-08-23	.05	.12	.17	.00	.00	.00	.17	.000	.001
	79-05-22	.05	.00	.05	.00	.00	.00	.05	.000	.001
WKW 119	78-08-23	.03	.07	.10	.00	.04	.04	.14	.000	.008
	79-05-29	.02	.00	.02	.00	.00	.00	.02	.000	.013
F1W 93	79-02-09	.00	.01	.01	.03	2.0	2.0	2.0	.000	.004
	79-05-30	.00	.01	.01	.03	1.5	1.5	1.5	.000	.004
F1W 94	79-05-30	.00	.03	.03	.00	2.2	2.2	2.2	.000	.004
F1W 84	78-07-28	.01	.30	.31	.00	12	12	12	.000	.029
	78-08-29	.00	.00	.00	.00	12	12	12	.000	.008
	78-11-13	.00	.01	.01	.00	9.7	9.7	9.7	.000	.014
	79-02-08	.01	.00	.01	.00	19	19	19	.002	.013
	79-06-01	.00	.10	.10	.00	31	31	31	.000	.010
F1W 90	79-02-08	.00	.00	.00	.00	5.4	5.4	5.4	.000	.001
	79-05-29	.00	.01	.01	.00	5.5	5.5	5.5	.000	.004
F1W 91	79-02-08	.00	.00	.00	.02	.34	.36	.36	.039	.043
	79-06-01	.00	.04	.04	.03	.78	.81	.85	.000	.048
F1W 87	78-08-24	.00	.11	.11	.00	2.4	2.4	2.5	.000	.008
	79-05-31	.00	.00	.00	.00	3.0	3.0	3.0	.000	.011
F1W 88	79-02-09	.04	.19	.23	.01	.00	.01	.24	.022	.619
	79-06-04	.01	.08	.09	.00	.00	.00	.09	.000	.122
F1W 89	79-05-31	.01	.88	.89	.01	.03	.04	.93	.009	1.8
F1W 85	78-07-28	.00	.53	.53	.00	2.1	2.1	2.6	.002	.016
	78-08-24	.00	.09	.09	.00	2.0	2.0	2.1	.001	.012
	78-11-13	.00	.17	.17	.00	1.9	1.9	2.1	.000	.254
	79-02-06	.02	.66	.68	.00	2.6	2.6	3.3	.001	.001
	79-05-21	.00	.27	.27	.00	.98	.98	1.3	.000	.003

Table 14.--Concentrations of minor elements in water from selected wells

LOCAL NUMBER	DATE OF SAMPLE	ARSENIC TOTAL (UG/L AS AS)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)
NCW 65	78-08-31	0	--	3	<10	6	1	0	20	14
	79-05-18	0	--	0	10	5	2	0	10	1
NCW 64	78-08-30	0	--	4	10	1	12	30	260	16
	79-05-18	0	--	0	10	0	7	0	710	3
NCW 60	78-08-31	--	--	--	--	--	--	10	--	--
	79-05-16	--	--	--	--	--	--	0	--	--
NCW 56	78-09-03	0	--	3	<10	2	1	10	20	4
NCW 57	78-09-02	0	--	9	<10	2	2	0	10	34
	79-05-16	1	--	0	10	0	3	0	120	5
NCW 59	78-09-03	0	--	4	<10	1	1	20	70	7
	79-05-17	1	--	0	10	0	2	20	80	6
WKW 117	78-08-29	0	20	2	<10	2	2	10	10	0
	79-05-23	0	--	0	10	0	1	10	170	4
WKW 124	79-05-23	--	--	--	--	--	--	3600	3600	--
WKW 122	78-08-25	3	--	2	10	2	2	200	240	5
	79-05-23	--	--	--	--	--	--	130	170	--
WKW 123	79-05-23	--	--	--	--	--	--	3800	4100	--
WKW 121	78-08-23	--	--	--	--	--	--	90	--	--
	79-05-22	--	--	--	--	--	--	110	--	--
WKW 119	78-08-23	--	--	--	--	--	--	2800	--	--
	79-05-29	--	--	--	--	--	--	2600	3000	--
F1W 93	79-05-30	0	--	20	20	0	4	0	100	1
F1W 94	79-05-30	--	--	--	--	--	--	0	150	--
F1W 84	78-08-29	0	--	3	<10	1	2	0	60	13
	79-06-01	0	--	20	20	0	2	0	250	2
F1W 90	79-05-29	0	--	40	20	0	1	0	100	1
F1W 91	79-06-01	--	--	--	--	--	--	0	160	--
F1W 87	78-08-24	--	--	--	--	--	--	110	--	--
	79-05-31	--	--	--	--	--	--	0	250	--
F1W 88	79-06-04	3	--	0	20	0	4	7600	11000	3
F1W 89	79-05-31	--	--	--	--	--	--	0	93000	--
F1W 85	78-08-24	1	--	2	<10	3	20	20	420	10
	79-05-21	0	--	0	10	0	1	0	60	2

Table 14.--Concentrations of minor elements in water from selected wells--Continued

LOCAL NUMBER	DATE OF SAMPLE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
NCW 65	78-08-31	1800	2000	<.5	0	30
	79-05-18	170	1800	<.5	0	30
NCW 64	78-08-30	20	30	<.5	0	780
	79-05-18	10	20	<.5	0	310
NCW 60	78-08-31	50	--	--	--	--
	79-05-16	10	--	--	--	--
NCW 56	78-09-03	10	10	<.5	0	0
NCW 57	78-09-02	10	10	<.5	0	10
	79-05-16	0	10	<.5	0	50
NCW 59	78-09-03	20	20	<.5	0	10
	79-05-17	0	10	<.5	0	20
WKW 117	78-08-29	320	340	<.5	0	90
	79-05-23	20	20	<.5	0	40
WKW 124	79-05-23	730	730	--	--	--
WKW 122	78-08-25	420	420	<.5	0	10
	79-05-23	410	410	--	--	--
WKW 123	79-05-23	140	140	--	--	--
WKW 121	78-08-23	380	--	--	--	--
	79-05-22	330	--	--	--	--
WKW 119	78-08-23	620	--	--	--	--
	79-05-29	720	720	--	--	--
Flw 93	79-05-30	0	20	<.5	1	500
Flw 94	79-05-30	20	40	--	--	--
Flw 84	78-08-29	50	50	<.5	0	20
	79-06-01	10	20	<.5	0	20
Flw 90	79-05-29	20	40	<.5	0	20
Flw 91	79-06-01	270	270	--	--	--
Flw 87	78-08-24	10	--	--	--	--
	79-05-31	0	10	--	--	--
Flw 88	79-06-04	2000	2200	<.5	0	30
Flw 89	79-05-31	230	1700	--	--	--
Flw 85	78-08-24	30	30	<.5	0	920
	79-05-21	20	30	<.5	0	70

Table 15.--Concentrations of organic carbon, organochlorine compounds, and polychlorinated biphenyl residues in water from selected wells

LOCAL NUMBER	DATE OF SAMPLE	CARBON, ORGANIC TOTAL (MG/L AS C)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	D1- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)
NCW 65	78-08-31	--	.00	.0	.00	.00	.00	.00	.00	.00
NCW 64	78-08-30	--	.00	.0	.00	.00	.00	.00	.00	.00
NCW 56	78-09-03	1.8	.00	.0	.00	.00	.00	.00	.00	.00
NCW 57	78-09-02	--	.00	.0	.00	.00	.00	.00	.00	.00
NCW 59	78-09-03	--	.00	.0	.00	.00	.00	.02	.00	.00
	79-05-17	--	.00	.0	.00	.00	.00	.01	.00	.00
WKW 117	78-08-29	--	.00	.0	.01	.00	.00	.00	.00	.00
	79-05-23	--	.00	.0	.00	.00	.00	.00	.00	.00
WKW 122	78-08-25	2.0	--	--	--	--	--	--	--	--
WKW 121	78-08-23	1.6	--	--	--	--	--	--	--	--
WKW 119	78-08-23	.7	--	--	--	--	--	--	--	--
FlW 93	79-05-30	--	.00	.0	.00	.00	.00	.00	.00	.00
FlW 84	78-08-29	3.6	.00	.0	.00	.00	.00	.00	.00	.00
FlW 90	79-05-29	--	.00	.0	.00	.00	.00	.00	.00	.00
FlW 87	78-08-24	3.2	--	--	--	--	--	--	--	--
FlW 88	79-06-04	--	.00	.0	.00	.00	.00	.00	.00	.00
FlW 85	78-08-24	--	.00	.0	.00	.00	.04	.00	.00	.00
	79-05-21	--	.00	.0	.00	.00	.00	.00	.00	.00

LOCAL NUMBER	DATE OF SAMPLE	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MIREX, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	PCB, TOTAL (UG/L)
NCW 65	78-08-31	.00	.00	.00	.00	.00	.00	0	.0
NCW 64	78-08-30	.00	.00	.00	.00	.00	.00	0	.0
NCW 56	78-09-03	.00	.00	.00	.00	.00	.00	0	.0
NCW 57	78-09-02	.00	.00	.00	.00	.00	.00	0	.0
NCW 59	78-09-03	.00	.00	.00	.00	.00	.00	0	.0
	79-05-17	.00	.00	.00	--	.00	.00	0	.0
WKW 117	78-08-29	.00	.00	.00	.00	.00	.00	0	.0
	79-05-23	.00	.00	.00	--	.00	.00	0	.0
WKW 122	78-08-25	--	--	--	--	--	--	--	--
WKW 121	78-08-23	--	--	--	--	--	--	--	--
WKW 119	78-08-23	--	--	--	--	--	--	--	--
FlW 93	79-05-30	.00	.00	.00	--	.00	.00	0	.0
FlW 84	78-08-29	.00	.00	.00	.00	.00	.00	0	.0
FlW 90	79-05-29	.00	.00	.00	--	.00	.00	0	.0
FlW 87	78-08-24	--	--	--	--	--	--	--	--
FlW 88	79-06-04	.00	.00	.00	--	.00	.00	0	.0
FlW 85	78-08-24	.00	.00	.00	.00	.00	.00	0	.0
	79-05-21	.00	.00	.00	--	.00	.00	0	.0

Table 16.—Hydrologic-data reports for Massachusetts, New Hampshire, and Maine

An asterisk indicates that the report is out of print but may be consulted at the above offices and at many public and educational institution libraries. These reports are available, free of charge, at the following U.S. Geological Survey offices:

U.S. Geological Survey
Water Resources Division
150 Causeway Street, Suite 1001
Boston, MA 02114
(Massachusetts reports only)

U.S. Geological Survey
Clinton Street, NH Rt. 13, Bow, NH 03301
Mailing address: RFD 2, Box 352A
Concord, NH 03301
(New Hampshire reports only)

U.S. Geological Survey
Water Resources Division
26 Gannett Drive
Augusta, ME 04330
(Maine reports only)

MASSACHUSETTS

- *1 Wilmington-Reading Area, by John A. Baker and Edward A. Sammel, 1961, 50 p., 2 figs. Covers an area of about 43 square miles in the upper part of the Ipswich River basin in northeastern Massachusetts.
- *2 Lower Ipswich River basin, by Edward A. Sammel and John A. Baker, 1962, 47 p., 2 figs. Covers an area of about 110 square miles in northeastern Massachusetts.
- *3 Lowell Area, by John A. Baker and Richard G. Petersen, 1962, 28 p., 2 figs. Covers an area of about 115 square miles and includes most of the metropolitan area of the City of Lowell.
- *4 Parker and Rowley River basins, by Edward A. Sammel, 1962, 33 p., 2 figs. The rivers drain an area of about 77 square miles in northeastern Massachusetts.
- *5 Brockton-Pembroke Area, by Richard G. Petersen, 1962, 46 p., 2 figs. Covers an area of about 112 square miles in the northern part of Plymouth County.
- *6 Western Massachusetts, by Richard G. Petersen and Anthony Maevsky, 1962, 21 p., 1 fig. Covers an area of about 2,865 square miles and includes all of Berkshire, Franklin, Hampshire, and Hampden Counties.
- *7 Southeastern Massachusetts, by Anthony Maevsky and Janet A. Drake, 1963, 55 p., 2 figs. Covers an area of about 1,930 square miles and includes all of Barnstable, Bristol, Dukes, Nantucket, and Plymouth Counties (exclusive of the Brockton-Pembroke Area).
- *8 Assabet River basin, by Samuel J. Pollock and William B. Fleck, 1964, 45 p., 1 pl. Covers an area of approximately 177 square miles and includes parts of Middlesex and Worcester Counties.
- *9 Housatonic River basin, by Ralph F. Norvitch and Mary E. S. Lamb, 1966, 50 p., 1 pl. Covers an area of about 530 square miles in the upper part of the basin, which is north of the Connecticut-Massachusetts State line.
- *10 Northern part, Ten Mile and Taunton River basins, by John R. Williams and Richard E. Willey, 1967, 56 p., 1 pl., 1 fig. Covers an area of about 195 square miles within Bristol, Norfolk, and Plymouth Counties.
- *11 Millers River basin, by Donald R. Wiesnet and William B. Fleck, 1967, 29 p., 1 pl., 1 fig. Covers an area of about 392 square miles within Franklin and Worcester Counties, Massachusetts, and Hillsborough and Cheshire Counties, New Hampshire.
- *12 Taunton River basin, by John R. Williams and Richard E. Willey, 1970, 102 p., 1 pl., 1 fig. Covers an area of about 528 square miles in Bristol, Norfolk, and Plymouth Counties.
- 13 Deerfield River basin, by Bruce P. Hansen, Frederick B. Gay, and L. G. Toler, 1973, 59 p., 1 fig., 1 pl. Covers an area of 348 square miles in northwestern Massachusetts.
- 14 Neponset and Weymouth River basins, by R. A. Brackley, William B. Fleck, and Richard E. Willey, 1973, 51 p., 1 fig., 1 pl. Covers an area of 183 square miles in eastern Massachusetts south of Boston.
- 15 Hoosic River basin, by Bruce P. Hansen, Frederick B. Gay, and L. G. Toler, 1974, 33 p., 1 pl., 1 fig. Covers an area of 164 square miles in northwestern Massachusetts.
- 16 Weir River, Hingham, to Jones River, Kingston, by John R. Williams, Richard E. Willey, and Gary D. Tasker, 1975, 63 p., 1 pl., 1 fig. Principal basins covered are those of Weir River, James Brook, Bound Brook, North River, South River, and Jones River.
- 17 Ground-water levels in Massachusetts, 1936-74, by Anthony Maevsky, 1976, 107 p., 2 figs. Documents both short-term and long-term ground-water-level trends in typical hydrologic situations and different geographic areas of the Commonwealth.
- 18 Plymouth to Weweantic River, Wareham, by John R. Williams, Gary D. Tasker, and Richard E. Willey, 1977, 31 p., 1 pl., 1 fig. Principal basins are Town Brook, Eel River, and Beaverdam Brook, all draining to Cape Cod Bay; Herring Brook draining to the Cape Cod Canal; and Red Brook, Agawam River, Wankinco River, and Weweantic River, all draining to Buzzards Bay.
- 19 Charles River basin, by Eugene H. Walker, William W. Caswell, and S. William Wandle, Jr., 1977, 53 p., 1 pl., 1 fig. Covers an area of about 300 square miles of eastern and southeastern Massachusetts within the counties of Middlesex, Norfolk, Suffolk, and Worcester.
- 20 Northwest Shore of Buzzards Bay, by John R. Williams, Richard E. Willey, and Gary D. Tasker, 1980, 30 p., 1 pl. Principal drainage basins are Sipican River, Aucoot Brook, Mattapoisett River, Acushnet River, and Paskamansett River.
- 21 Coastal drainage basins of northeastern Massachusetts, from Castle Neck River, Ipswich, to Mystic River, Boston, by David F. Delaney and Frederick B. Gay, 1980, 40 p., 1 pl. Principal streams are the Annisquam, Castle Neck, Danvers, Essex, Mystic, and Saugus Rivers, which flow into Ipswich and Massachusetts Bays.
- 22 Shawheen River basin by Frederick B. Gay and David F. Delaney, 1981, 22 p., 1 pl. Principal tributaries are Content, Elm, Heath, Hussey, Kiln, Rogers, Spring, Strong Water, Vine and Webb Brooks.

NEW HAMPSHIRE

- *1 Southeastern Area, by Edward Bradley and Richard G. Petersen, 1962, 53 p., 5 figs. Covers an area of about 390 square miles in parts of Rockingham and Strafford Counties.
- 2 Lower Merrimack River valley, by James M. Weigle and Richard Krane, 1966, 44 p., 1 pl. Covers an area of about 396 square miles in central-southern New Hampshire.
- 3 Ashuelot River basin, by Harold A. Whitcomb, 1973, 25 p., 1 pl. Covers an area of about 420 square miles in southwestern New Hampshire.

MAINE

- *1 Southwestern Area, by Glenn C. Prescott, Jr., and Janet A. Drake, 1962, 35 p., 2 figs. Covers an area of about 800 square miles in York County.
- 2 Lower Penobscot Basin, by Glenn C. Prescott, Jr., 1964, 40 p., 3 figs. Covers an area of about 825 square miles in Penobscot, Hancock, and Waldo Counties.
- 3 Lower Androscoggin River basin, by Glenn C. Prescott, Jr., 1967, 63 p., 2 figs. Covers most of Androscoggin County, a large part of Oxford County, and portions of Cumberland, Kennebec, and Sagadahoc Counties.
- 4 Lower Kennebec River basin, by Glenn C. Prescott, Jr., 1968, 38 p., 2 figs. Covers most of Kennebec County, more than half of Sagadahoc County, and portions of Androscoggin, Franklin, Lincoln, and Somerset Counties.
- 5 Lower Aroostook River basin, by Glenn C. Prescott, Jr., 1970, 30 p., 2 figs. Covers an area of about 536 square miles in northeastern Aroostook County.
- 6 Lower St. John River valley, by Glenn C. Prescott, Jr., 1971, 22 p., 2 figs. Covers an area of about 204 square miles at the northern border of Maine.
- 7 Meduxnekeag River-Prestile Stream basins, by Glenn C. Prescott, Jr., 1971, 17 p., 2 figs. Covers an area of about 312 square miles in Aroostook County.
- 8 Southern Washington County, by Glenn C. Prescott, Jr., 1973, 40 p., 2 figs. Covers an area of about 720 square miles in Washington County and about 10 square miles in Hancock County.
- 9 Windham-Freeport-Portland Area, by Glenn C. Prescott, Jr., 1976, 48 p., 2 figs. Covers an area of about 450 square miles in Cumberland County.

EXPLANATION

Hydrologic-Data Collection Sites

GROUND WATER

- Wells or borings Municipal wells Observation wells
- A61 ○ 1 ○ 2 Penetrated only unconsolidated deposits
- B11 ○ 50 ○ 92 Reached bedrock or refusal
- 46 ● 90 Penetrated bedrock

A61 Latter part of the Local Number, refers to tables 8-15
(A) Auger boring, (B) Bridge boring, (R) Roadway boring, (X) Miscellaneous boring

SURFACE WATER

- ▲ 01098320 Continuous-record stream-gaging station
- △ 2 Miscellaneous-measurement site without a gage
- 01098320 Station Number, refers to tables 1-6
- 2 Number beside symbol refers to Site Ident. No. in table 5

WATER QUALITY

- ▼ 20 Water-quality measurement site
- ◆ 1 Water quality of precipitation measurement site
- Number beside symbol refers to Site Ident. No. in tables 5 and 7.
- A combination of symbols indicate multiple types of data collected at same site.

Basin boundary

Base from topographic quadrangles
U. S. Geological Survey

SCALE 1:12,500

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

MAP OF THE LAKE COCHITUATE DRAINAGE BASIN SHOWING HYDROLOGIC-DATA COLLECTION SITES
1981